

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

CONSTRUCTION PLAN FOR BITUMINOUS SURFACING, CURB & GUTTER, AND BITUMINOUS RECLAMATION

LOCATED ON CSAH 24 BETWEEN CSAH 24 (229TH AVE) AND CSAH 13 (UNIVERSITY AVE)

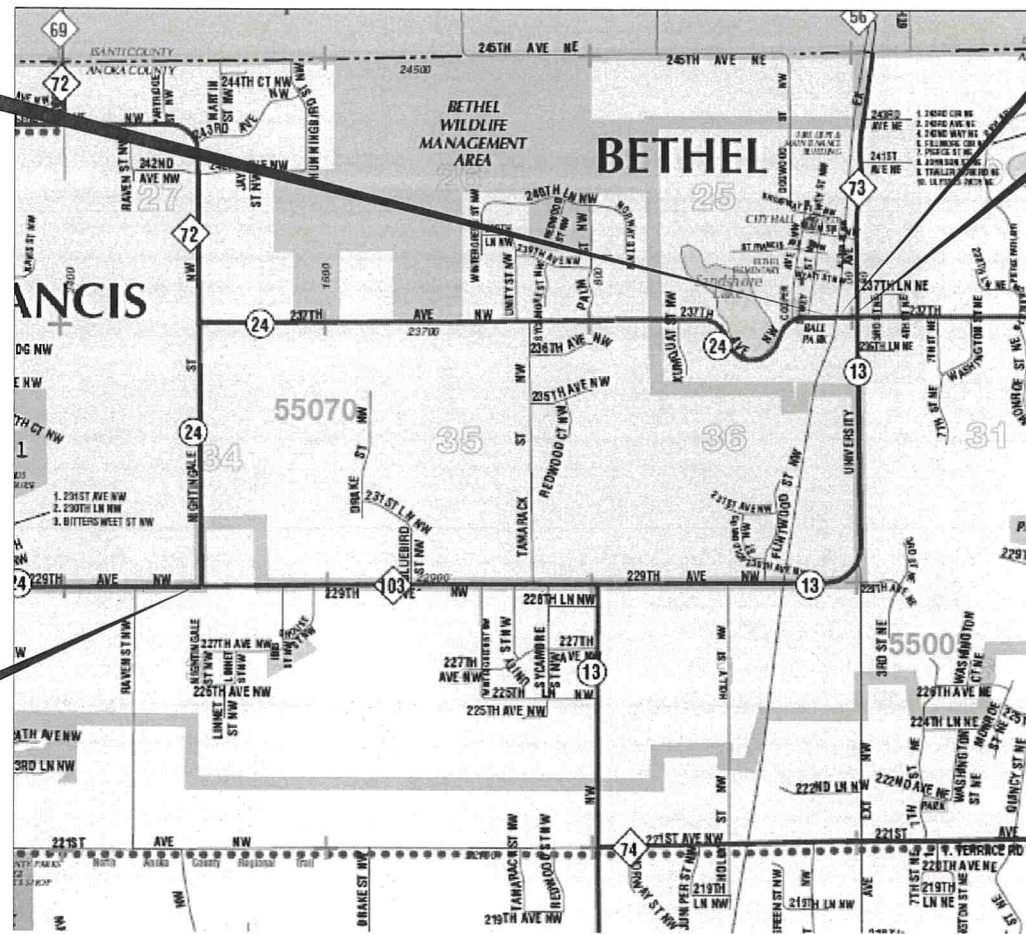
CSAH 24  
 GROSS LENGTH 19,150.00 FEET 3.627 MILES  
 EXCEPTIONS-LENGTH 25.00 FEET 0.005 MILES  
 NET LENGTH 19,125.00 FEET 3.622 MILES

BEGIN EXCEPTION  
CSAH 24, STA: 196+95.00

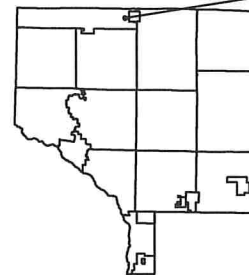
END EXCEPTION  
CSAH 24, STA: 197+20.00

END SAP 002-624-030  
CSAH 24, STA: 202+45.00

BEGIN SAP 002-624-030  
CSAH 24, STA: 10+95.00



### PROJECT LOCATION



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 28 SHEETS

### INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TYPICAL SECTIONS
4 - 5	DETAILS
6	TABULATIONS
7 - 13	CONSTRUCTION PLAN
14	PERMANENT MARKING TABULATION
15 - 21	TEMPORARY SIGNING PERMANENT SIGNING & STRIPING
22	TEMPORARY SIGNING PERMANENT SIGNING QUANTITIES
23 - 28	SIGNING & STRIPING DETAILS

Approved 1-28, 2022  
 ANOKA COUNTY ENGINEER

Approved **Charles D. Schwartz** 2/03, 2022  
 CITY OF BETHEL ENGINEER

Approved 2-01, 2022  
 CITY OF ST. FRANCIS ENGINEER

For \_\_\_\_\_ DATE 2/10/22  
 DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

For \_\_\_\_\_ DATE 2/10/22  
 STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING

DESIGN DESIGNATION (CSAH 24)			
ESAL 20	164,565	FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR
R VALUE	50	NO. OF TRAFFIC LANES	2
ADT (2022)	1393	NO. OF PARKING LANES	0
PROJ. ADT (2042)	1393	DESIGN SPEED	55 MPH
PROJ. HCADT (2042)	82	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 _____

NO	DATE	BY	CKD	APPR	REVISION	TIME
	01/28/2022					12:00:51 PM

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: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 01/28/2022

DESIGN BY JJ DATE 01/28/2022

CHECKED BY CSO DATE 01/28/2022

**ANOKA COUNTY**

**HIGHWAY DEPT.**

CITY OF ST. FRANCIS, BETHEL  
 ANOKA COUNTY  
 MN/DOT TRANSPORTATION DISTRICT - METRO  
 SECTIONS 25, 26, 27, 34, 35, & 36  
 TOWNSHIP 34 NORTH  
 RANGE 24 WEST

TITLE SHEET

STATE AID PROJECT 002-624-030 Sheet 1 of 28 Sheets

**STATEMENT OF ESTIMATED QUANTITIES**

Notes	Item Number	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
	2021.601	RAILROAD PROTECTIVE SERVICES	LUMP SUM	1
1	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	466
1,2	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	726
1	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	1019
3	2106.602	CONSTRUCT TURN LANES	EACH	1
4	2123.510	MOTOR GRADER	HOUR	24
	2130.523	WATER	M GALLON	464
5,6	2211.509	AGGREGATE BASE CLASS 5	TON	209
7	2215.504	FULL DEPTH RECLAMATION	SQ YD	66217
8	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	160
9	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	891
10	2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	257
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	2450
11	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3;B)	TON	104
12	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4;C)	TON	234
	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4;C)	TON	15230
	2531.503	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	80
	2531.604	CONCRETE DRAINAGE FLUME	SQ YD	8
13	2540.602	MAIL BOX SUPPORT	EACH	44
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
14	2563.601	TRAFFIC CONTROL	LUMP SUM	1
15	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	30
	2564.518	SIGN PANELS TYPE C	SQ FT	6.25
	2574.507	COMMON TOPSOIL BORROW	CU YD	60
16	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	1203
17	2581.503	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	761
18	2582.503	4" SOLID LINE MULTI-COMPONENT	LIN FT	42280
18	2582.503	4" BROKEN LINE MULTI-COMPONENT	LIN FT	2842
18	2582.503	8" DOTTED LINE MULTI-COMPONENT	LIN FT	36
18	2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT	LIN FT	4980
19	2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	124
18	2582.603	PAVEMENT MARKING SPECIAL	LIN FT	72

**CONSTRUCTION NOTES**

1	REFERENCE DETAILS (PAGE 4) FOR REMOVAL DETAILS
2	ITEM FOR BITUMINOUS DRIVEWAYS AND STREET APPROACHES. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
3	ITEMS INCLUDED IN THE TURNLANE BY THE EACH ARE - COMMON EXCAVATION, SELECT GRANULAR BORROW, TOPSOIL, AGG BASE CL-5. SHAPING OF SUBGRADE, AGGREGATE BASE AND GRADING OF DITCH IN-SLOPE AND BACK-SLOPE TO PROVIDE POSITIVE DRAINAGE ARE INCIDENTAL TO CONSTRUCT TURN LANES ITEM.
4	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT
5	ITEM FOR SUPERELEVATION / GRADE CORRECTION.
6	GRAVEL BASE FOR BITUMINOUS DRIVEWAYS.
7	RECLAMATION OF BITUMINOUS CURB INCIDENTAL TO ITEM
8	ITEM USED TO HAUL EXCESS RECLAIM FROM TIE-IN POINTS AND REUSED ON SITE FOR SUPER ELEVATION CORRECTION AREAS.
9	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
10	TO BE USED FOR MILLING STREET APPROACHES AND/OR DETAIL MILLING AREAS AS IDENTIFIED IN THE PLAN. DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
11	ITEM FOR BITUMINOUS DRIVEWAYS. DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
12	ITEM FOR STREET APPROACHES. STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING. SEE BITUMINOUS SUMMARY TABULATION ON PAGE 6.
13	MAILBOXES ARE TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY, CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POST MASTER AUTHORITY. MAILBOX REMOVAL AND ALL MATERIALS ARE INCIDENTAL TO INSTALLATION.
14	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.
15	3 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
16	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
17	CENTERLINE AND LANE DESIGNATION SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON MILLED SURFACE AND EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL STRIPING.
18	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. CANNOT BE INSTALLED SOONER THAN 48 HOURS.
19	INCLUDES ALL THERMOPLASTIC STOP BARS, GORE AREA HATCHING, CROSSWALKS, LANE DESIGNATION ARROWS, AND PAVEMENT MESSAGES.


THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

MNDOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
9350B	MAILBOX SUPPORT - SWING-AWAY TYPE

**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

NO	DATE	BY	CKD	APPR	REVISION	
	01/28/2022					11:49:37 AM
NAME: P:\21-01-00\CSAH_24_(CR72-W, BETHEL LINE)\Base\Proposed\CR24 SEQ.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 B. ANDERSON  
 SIGNATURE:   
 DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY: SPH DATE: 01/28/2022  
 DESIGN BY: SPH DATE: 01/28/2022  
 CHECKED BY: CSO DATE: 01/28/2022



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-624-030

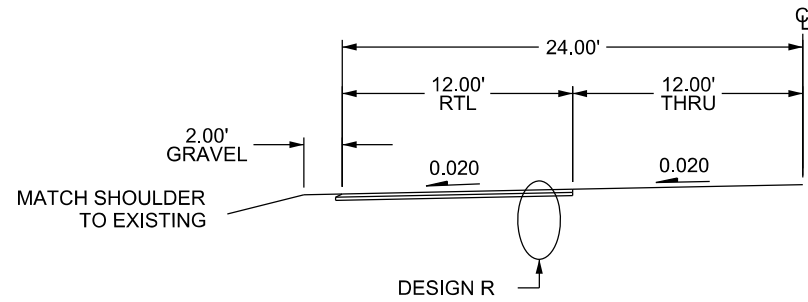
STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 28 Sheets

**RIGHT TURN LANE**

(PROPOSED) SECTION

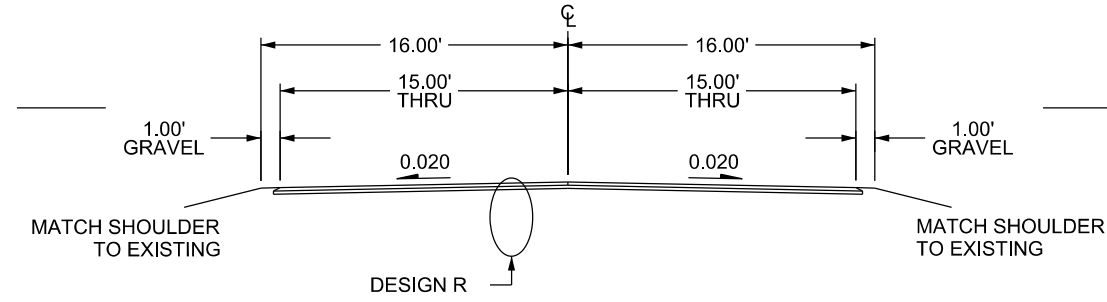
141+02.00 - 145+90.00



**CSAH 24**

(PROPOSED) SECTION

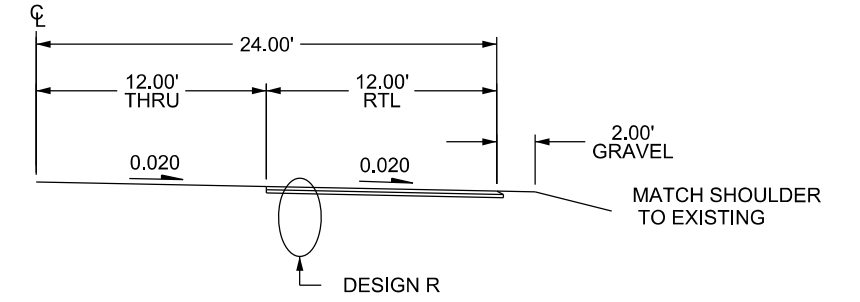
10+95.00 - 58+59.00  
62+96.00 - 124+00.00  
128+80.00 - 137+13.00  
145+90.00 - 196+95.00



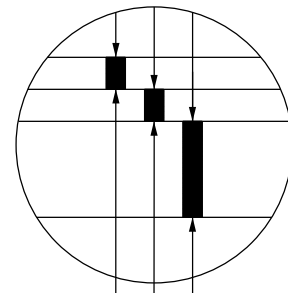
**BYPASS/RIGHT TURN LANE**

(PROPOSED) SECTION

58+59.00 - 62+96.00  
137+13.00 - 143+50.00



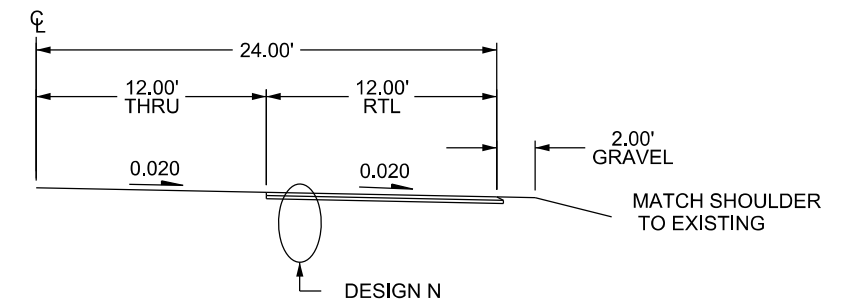
**DESIGN R  
RECLAIM SECTION**



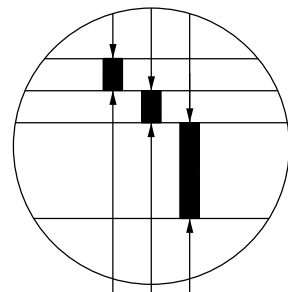
2.0" BITUMINOUS WEAR(SPWEB440C)  
2.0" BITUMINOUS WEAR(SPWEB440C)  
RECLAIMED BITUMINOUS

**RIGHT TURN LANE**  
(PROPOSED) SECTION

124+00.00 - 128+80.00



**DESIGN N  
RIGHT TURN LANE**

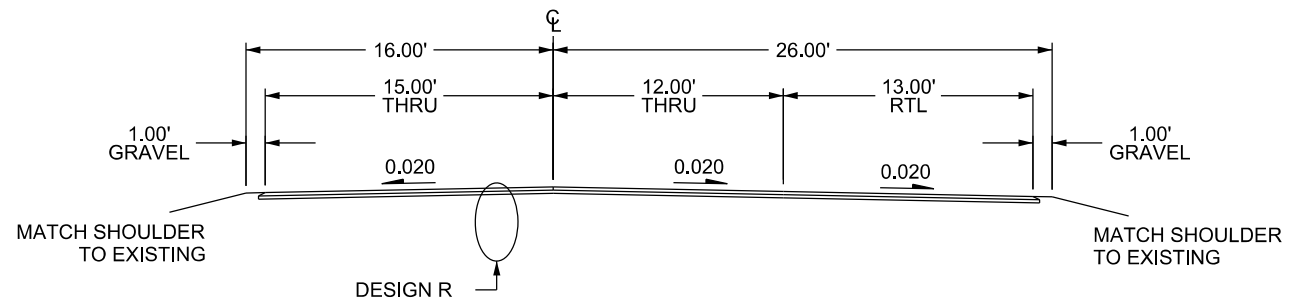


2.0" BITUMINOUS WEAR(SPWEB440C)  
2.0" BITUMINOUS WEAR(SPWEB440C)  
6" AGGREGATE BASE, CLASS 5

**CSAH 24**

(PROPOSED) SECTION

197+20.00 - 202+45.00



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:53:58 AM
NAME: P:\21-01-00\CSAH_24_(CR72-W, BETHEL LINE)\Base\Proposed\CR24 TYPICALS.dgn							

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DESIGN BY SPH DATE 12/23/2021  
CHECKED BY CSO DATE 12/23/2021



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-624-030

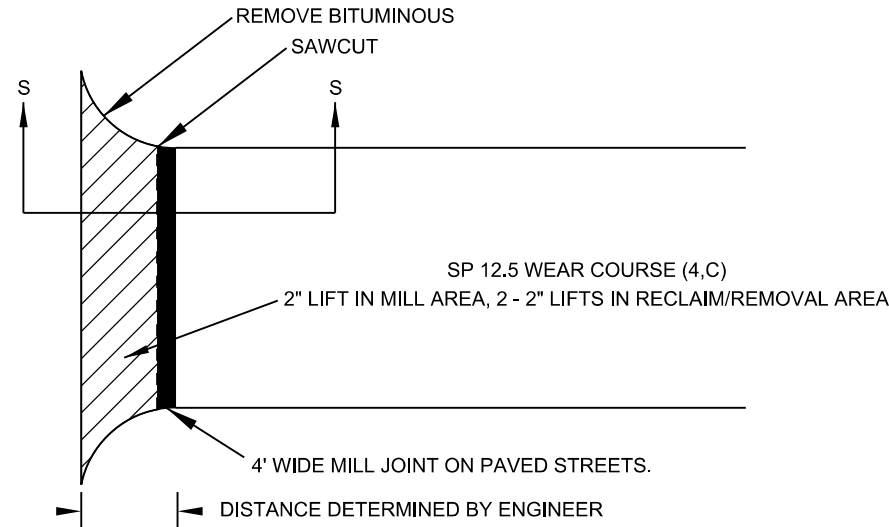
TYPICAL SECTIONS

Sheet 3 of 28 Sheets

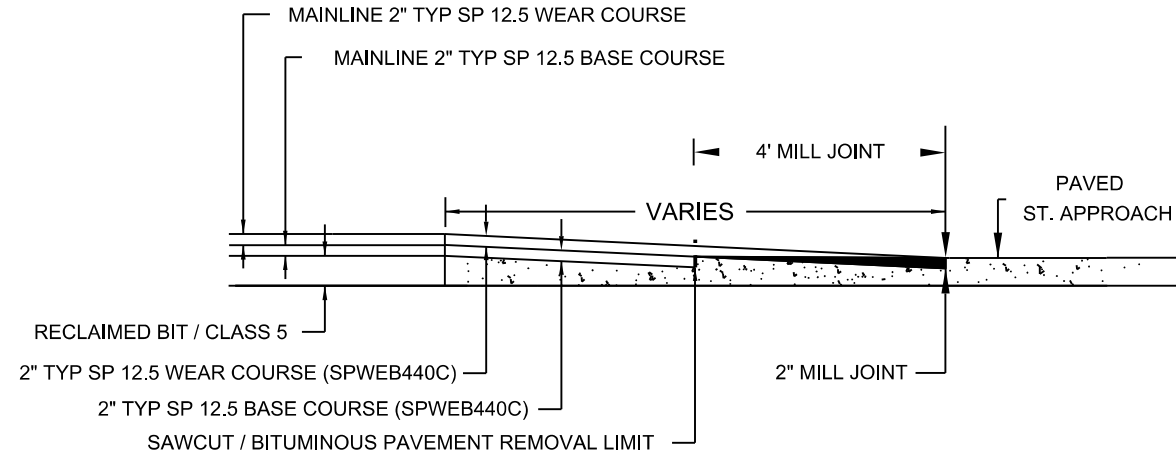
# STREET APPROACH DETAIL (RECLAIM)

## BITUMINOUS STREET

PLAN VIEW

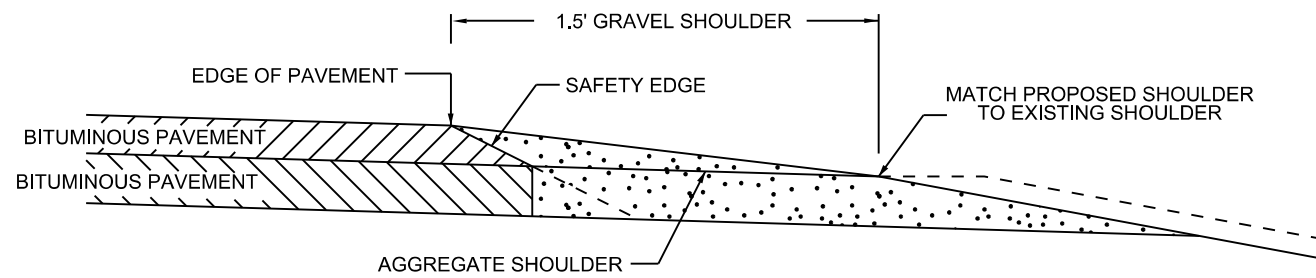


SECTION S - S



## SHOULDER DETAIL

### BITUMINOUS SAFETY EDGE GRAVEL SHOULDER



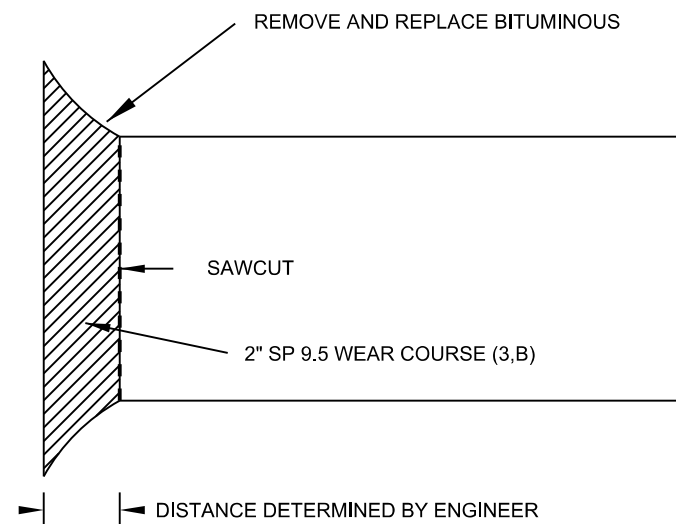
SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS .

## RECLAIM AREA - DRIVEWAY DETAIL

### BITUMINOUS

PLAN VIEW



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:54:01 AM
NAME: P:\21-01-00\CSAH_24_(CR72-W. BETHEL LINE)\Base\Proposed\CR24 DETAIL.dgn							

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SIGNATURE:

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CHECKED BY CSO DATE 12/23/2021



**ANOKA COUNTY  
HIGHWAY DEPT.**

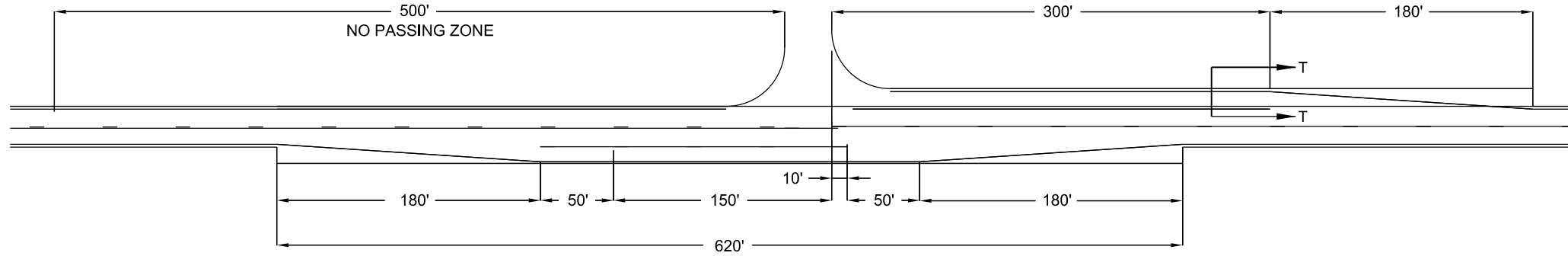
STATE AID PROJECT 002-624-030

DETAILS

Sheet 4 of 28 Sheets

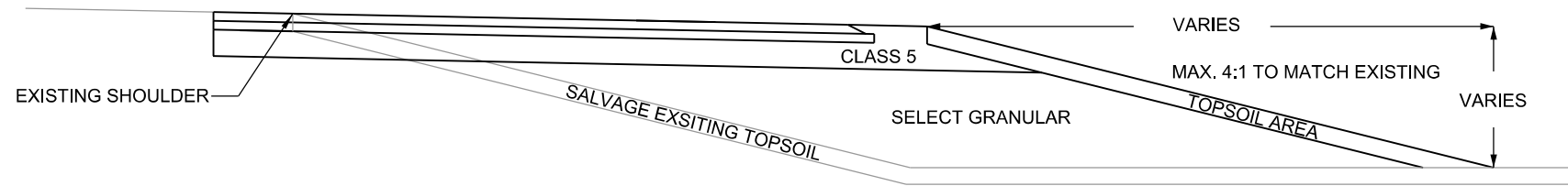
### RIGHT TURN AND BYPASS LANE

#### GENERAL LAYOUT PLAN VIEW



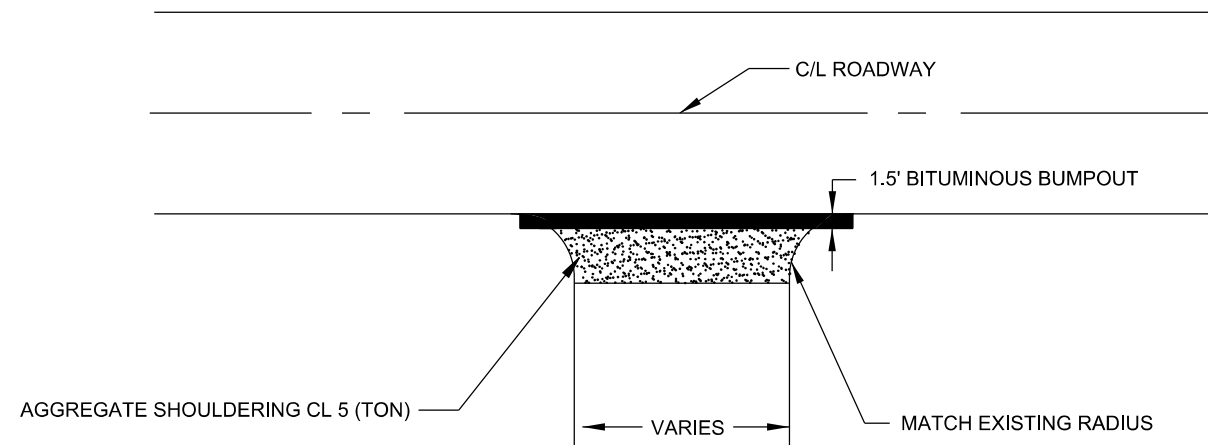
### RIGHT TURN AND BYPASS LANE

#### SECTION T - T



### DRIVEWAY DETAIL

#### GRAVEL / FIELD ENTRANCE



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:54:01 AM
NAME: P:\21-01-00\CSAH_24_(CR72-W. BETHEL LINE)\Base\Proposed\CR24 DETAIL.dgn							

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 SIGNATURE: *[Signature]*  
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 CHECKED BY CSO DATE 12/23/2021



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-624-030

DETAILS  
 Sheet 5 of 28 Sheets

SUPERELEVATION CORRECTION TAB			
STATION	POINT	LEFT GRADE	RIGHT GRADE
160+45		-2.0%	-2.0%
160+95	BEGIN SUPER LT	-2.0%	-2.0%
161+45	BEGIN SUPER RT	-1.3%	-2.0%
161+95		-0.7%	-2.8%
162+45		0.0%	-3.6%
162+95		1.2%	-4.4%
163+45		2.4%	-5.2%
163+74	PC	3.1%	-5.7%
163+95		3.6%	-6.0%
164+45		4.8%	-6.0%
164+95	BEGIN FULL SUPER RT/LT	6.0%	-6.0%
165+45		6.0%	-6.0%
165+95		6.0%	-6.0%
166+45		6.0%	-6.0%
166+95		6.0%	-6.0%
167+45		6.0%	-6.0%
167+95		6.0%	-6.0%
168+45	END FULL SUPER RT	6.0%	-6.0%
168+95		6.0%	-4.0%
169+45	END FULL SUPER LT	4.0%	-2.0%
169+88	PT	2.3%	-0.3%
169+95	END / BEGIN SUPER RT	2.0%	0.0%
170+45	END / BEGIN SUPER LT	0.0%	1.5%
170+77	PC	-1.3%	2.5%
170+95		-2.0%	3.0%
171+45		-4.0%	4.5%
171+95	BEGIN FULL SUPER RT/LT	-6.0%	6.0%
172+45		-6.0%	6.0%
172+95		-6.0%	6.0%
173+45		-6.0%	6.0%
173+95		-6.0%	6.0%
174+45		-6.0%	6.0%
174+95		-6.0%	6.0%
175+45		-6.0%	6.0%
175+95		-6.0%	6.0%
176+11	PCC	-6.0%	6.0%
176+45		-6.0%	6.0%
176+95		-6.0%	6.0%
177+45		-6.0%	6.0%
177+77	PCC	-6.0%	6.0%

SUPERELEVATION CORRECTION TAB			
STATION	POINT	LEFT GRADE	RIGHT GRADE
177+95		-6.0%	6.0%
178+45		-6.0%	6.0%
178+95		-6.0%	6.0%
179+45		-6.0%	6.0%
179+95		-6.0%	6.0%
180+45		-6.0%	6.0%
180+95		-6.0%	6.0%
181+45	END FULL SUPER RT	-6.0%	6.0%
181+50	PCC	-6.0%	4.6%
181+95		-6.0%	3.0%
182+45		-6.0%	1.4%
182+95	END FULL SUPER LT	-6.0%	-0.2%
183+45		-4.6%	-1.8%
183+95	END SUPER RT	-3.1%	-2.0%
184+00	PCC	-3.0%	-2.0%
184+45		-1.7%	-2.0%
184+95		-0.3%	-2.0%
185+45	END / BEGIN SUPER RT	1.1%	0.0%
185+95		2.6%	2.0%
186+30	PRC	3.6%	3.4%
186+45	BEGIN FULL SUPER LT	4.0%	4.0%
186+95	BEGIN FULL SUPER RT	4.0%	6.0%
187+45		4.0%	6.0%
187+95		4.0%	6.0%
188+45		4.0%	6.0%
188+74	PCC	4.0%	6.0%
188+95		4.0%	6.0%
189+45		4.0%	6.0%
189+95		4.0%	6.0%
190+45		4.0%	6.0%
190+95	END FULL SUPER LT	4.0%	6.0%
191+27	PCC	3.2%	6.0%
191+45	END FULL SUPER RT	2.8%	6.0%
191+85	PT	1.8%	4.7%
191+95		1.6%	4.4%
192+45		0.4%	2.8%
192+95		-0.8%	1.2%
193+45	END SUPER LT	-2.0%	-0.4%
193+95	END SUPER RT	-2.0%	-2.0%
194+45		-2.0%	-2.0%
194+95		-2.0%	-2.0%
195+45		-2.0%	-2.0%
195+95		-2.0%	-2.0%


BITUMINOUS SUMMARY		
LOCATION	BITUMINOUS	
	2360 TYPE SP 12.5 WEAR (4,C)	TON
UNITY ST	28	[1]
TAMARACK ST	36	[1]
PALM ST	49	[1]
KUMQUAT ST	38	[1]
COPER AVE	40	[1]
DEWEY ST	43	[1]
PROJECT TOTAL	234	

BITUMINOUS SUMMARY NOTES:  
 [1] QUANTITY ESTIMATED FOR 2 LIFTS

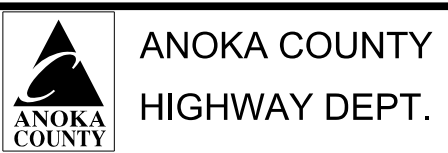
RIGHT TURN LANE AND BYPASS LANE TAB						
STREET	STATION RANGE	RTL / BYPASS	COMMON EXCAVATION (CU YDS)	GRANULAR BORROW (CV) (CU YDS)	TOPSOIL BORROW (LV) (CU YDS)	CLASS 5 (TON)
TAMARACK ST	124+00 - 128+80	RTL	93	478	45	174
<b>TOTALS:</b>			<b>93</b>	<b>478</b>	<b>45</b>	<b>174</b>

NO	DATE	BY	CKD	APPR	REVISION
	01/03/2022				10:00:51 AM

NAME: P:\21-01-00\CSAH\_24\_(CR72-W, BETHEL LINE)\Base\Proposed\CR24 DETAIL.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 B. ANDERSON  
 SIGNATURE:   
 DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 01/03/2022  
 DESIGN BY JJ DATE 01/03/2022  
 CHECKED BY CSO DATE 01/03/2022



STATE AID PROJECT 002-624-030

TABULATIONS  
 Sheet 6 of 28 Sheets

POT. 10+00.00

BEGIN CONSTRUCTION  
SAP: 002-624-030  
STATION: 10+95.00

#22900

#22986

#23026

#23042

#23056

MATCH LINE 23+00

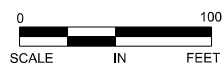
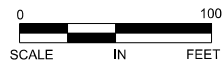
CSAH 24

FIELD ENTRANCE

LEGEND

- (B) BITUMINOUS
- (G) GRAVEL
- (C) CONCRETE
- ⊕ CORE LOCATION
- - - SAWCUT
- CROSS CULVERT
- █ MAINLINE RECLAIM AREA
- ▨ REMOVE AND REPLACE BITUMINOUS PAVEMENT
- ▩ SUPER TRANSITION AREA
- ▧ CONSTRUCT RIGHT TURN LANE

R/W



P I . 23+77.09

#23108

#23148

#23224

#23286

#23310

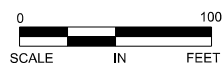
P I . 36+56.08

MATCH LINE 23+00

MATCH LINE 37+00

3.25" BITUMINOUS SANDY/GRAVEL BASE

CSAH 24



NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME
	12/23/2021						9:54:35 AM

NAME: P:\21-01-00\CSAH\_24\_(CR2-W, BETHEL LINE)\Base\Proposed\CR24 CP\_A.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 B. ANDERSON  
SIGNATURE:   
DATE: 12-22-2021 LICENSE NO. 58657

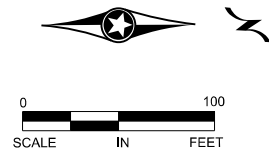
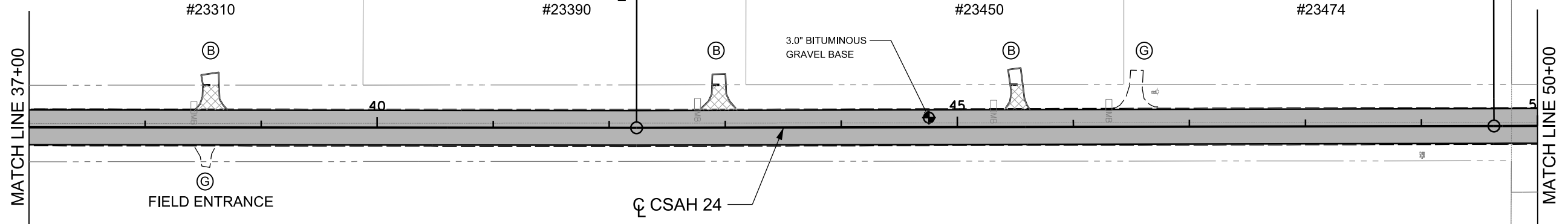
DRAWN BY JJ DATE 12/23/2021  
DESIGN BY JJ DATE 12/23/2021  
CHECKED BY CSO DATE 12/23/2021



ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-624-030

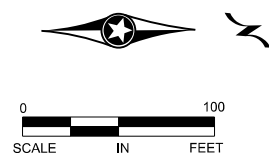
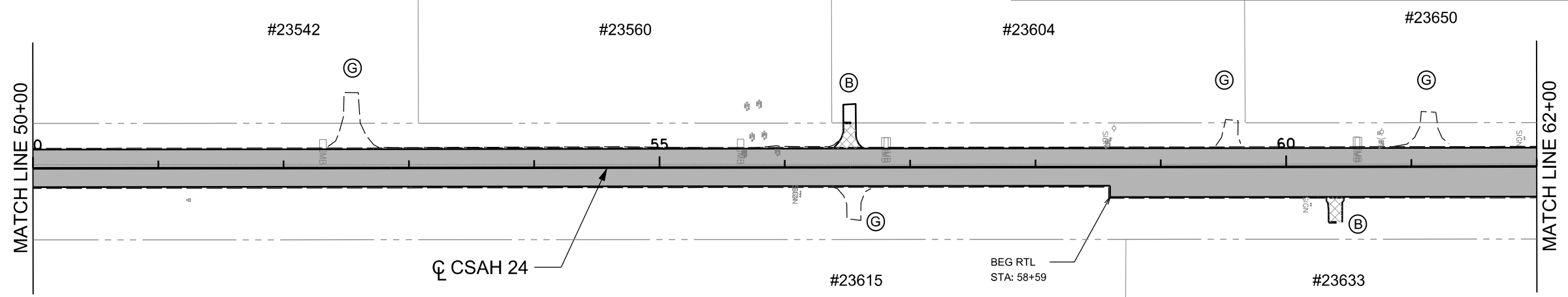
CONSTRUCTION PLAN  
STA 10+95.00 TO 37+00.00  
Sheet 7 of 28 Sheets



**LEGEND**

(B) BITUMINOUS	--- CROSS CULVERT
(G) GRAVEL	█ MAINLINE RECLAIM AREA
(C) CONCRETE	▨ REMOVE AND REPLACE BITUMINOUS PAVEMENT
⊕ CORE LOCATION	▩ SUPER TRANSITION AREA
- - - SAWCUT	▧ CONSTRUCT RIGHT TURN LANE

R / W



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:54:38 AM
NAME: P:\21-01-00\CSAH_24_(CR72-W, BETHEL LINE)\Base\Proposed\CR24 CP_B.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: *[Signature]*

DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 12/23/2021

DESIGN BY JJ DATE 12/23/2021

CHECKED BY CSO DATE 12/23/2021

**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-624-030

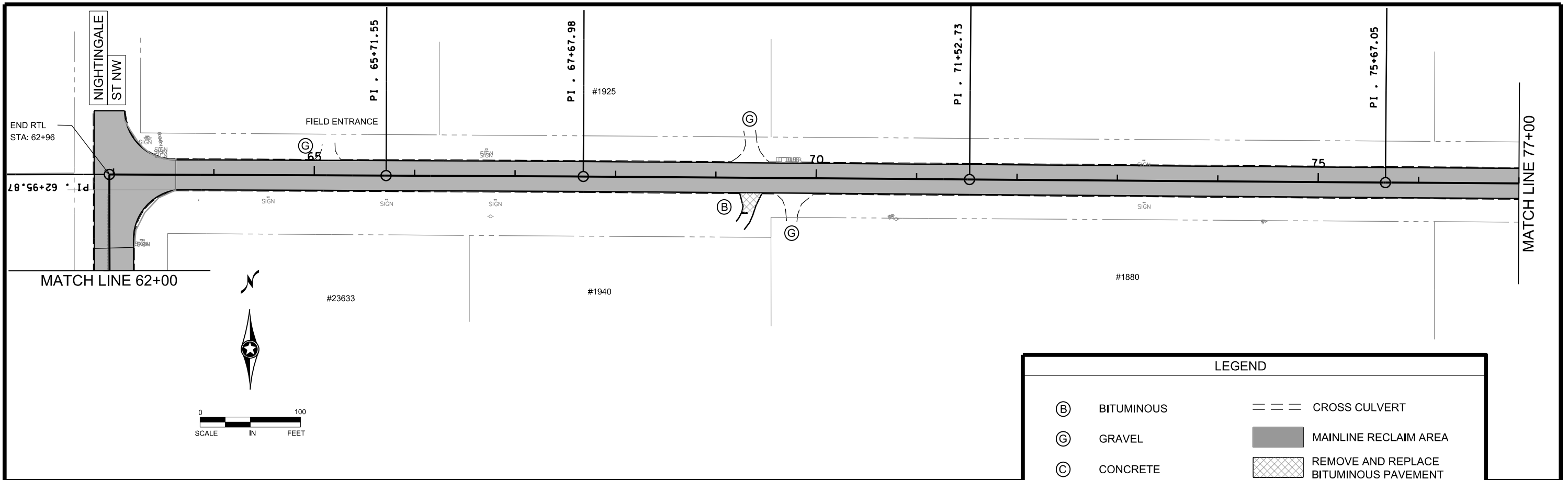
**CONSTRUCTION PLAN**

STA 37+00.00 TO 62+00.00

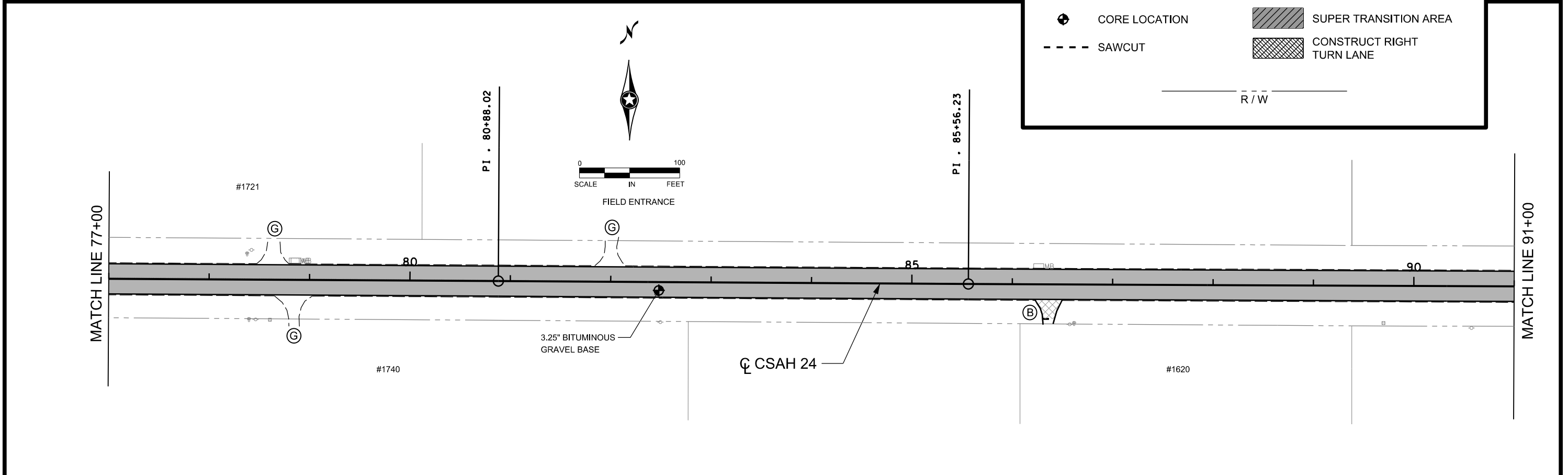
Sheet 8 of 28 Sheets



APAnders



LEGEND			
(B)	BITUMINOUS	--- --	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE RECLAIM AREA
(C)	CONCRETE	[Cross-hatched Box]	REMOVE AND REPLACE BITUMINOUS PAVEMENT
(+)	CORE LOCATION	[Diagonal-hatched Box]	SUPER TRANSITION AREA
---	SAWCUT	[Grid-hatched Box]	CONSTRUCT RIGHT TURN LANE
		-----	R/W



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:54:40 AM

NAME: P:\21-01-00\CSAH\_24\_(CR72-W, BETHEL LINE)\Base\Proposed\CR24 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 B. ANDERSON

SIGNATURE: *[Signature]*

DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 12/23/2021

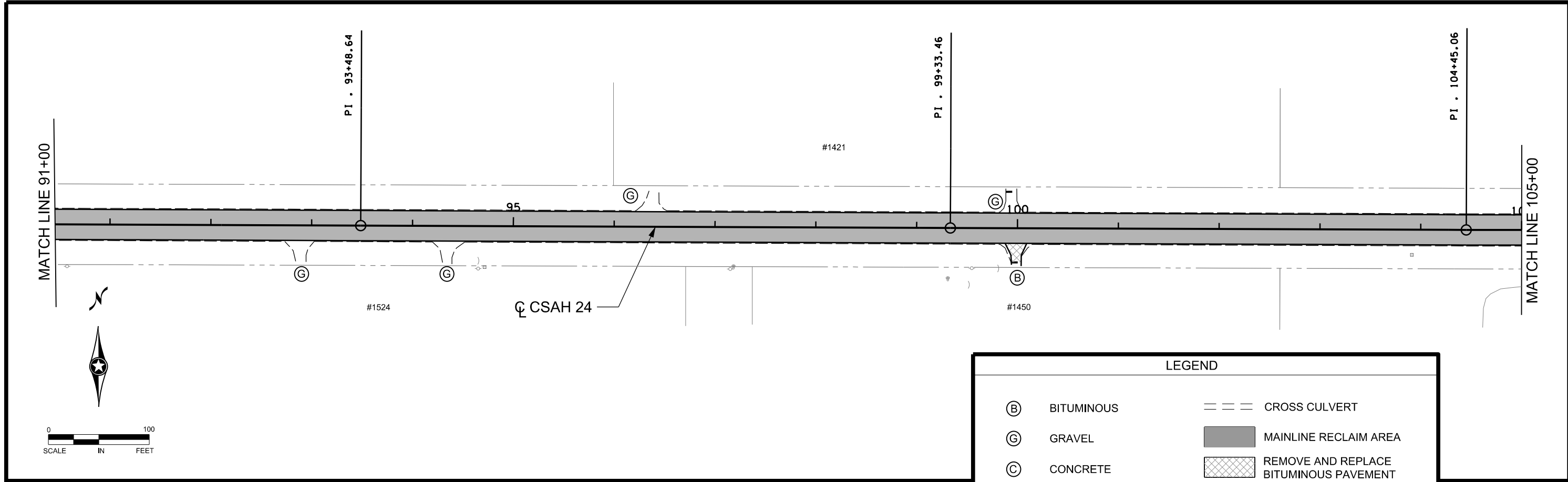
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CHECKED BY CSO DATE 12/23/2021

**ANOKA COUNTY**  
**HIGHWAY DEPT.**

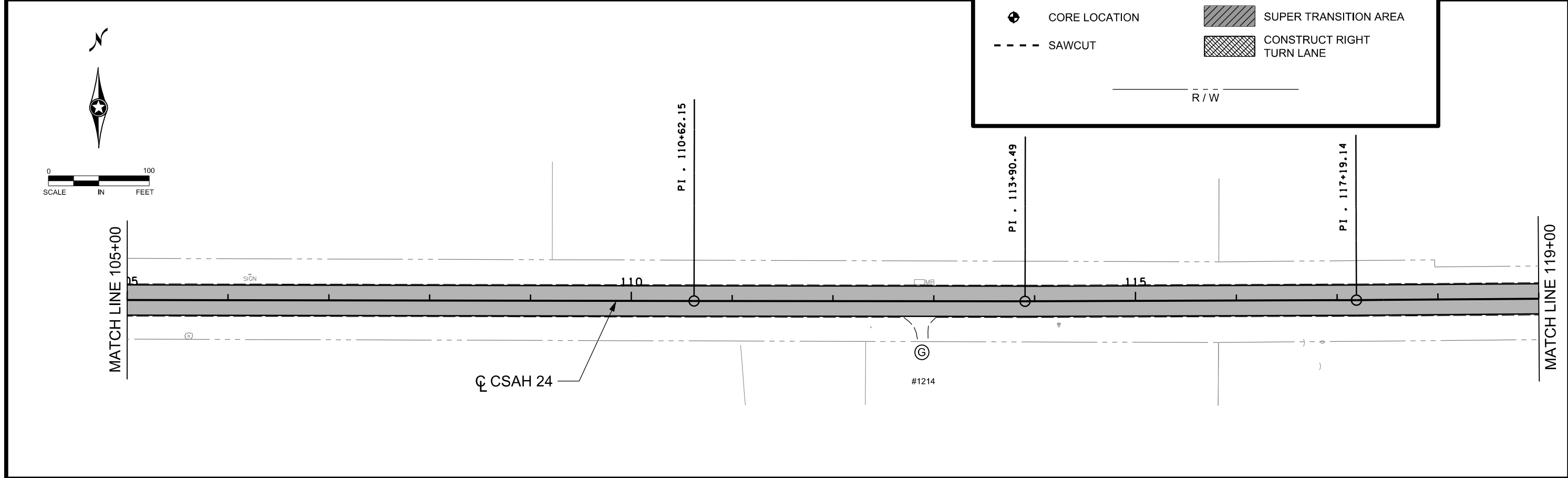
STATE AID PROJECT 002-624-030

CONSTRUCTION PLAN  
STA 62+00.00 TO 91+00.00  
Sheet 9 of 28 Sheets



**LEGEND**

(B) BITUMINOUS	==	CROSS CULVERT
(G) GRAVEL	[Solid Grey Box]	MAINLINE RECLAIM AREA
(C) CONCRETE	[Cross-hatched Box]	REMOVE AND REPLACE BITUMINOUS PAVEMENT
⊕ CORE LOCATION	[Diagonal-hatched Box]	SUPER TRANSITION AREA
- - - SAWCUT	[Cross-hatched Box]	CONSTRUCT RIGHT TURN LANE
	————— R / W —————	



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:54:42 AM

NAME: P:\21-01-00\CSAH\_24\_(CR2-W, BETHEL LINE)\Base\Proposed\CR24 CP2.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 B. ANDERSON

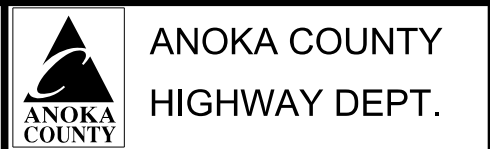
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DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 12/23/2021

DESIGN BY JJ DATE 12/23/2021

CHECKED BY CSO DATE 12/23/2021

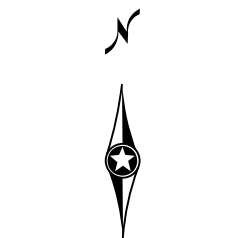
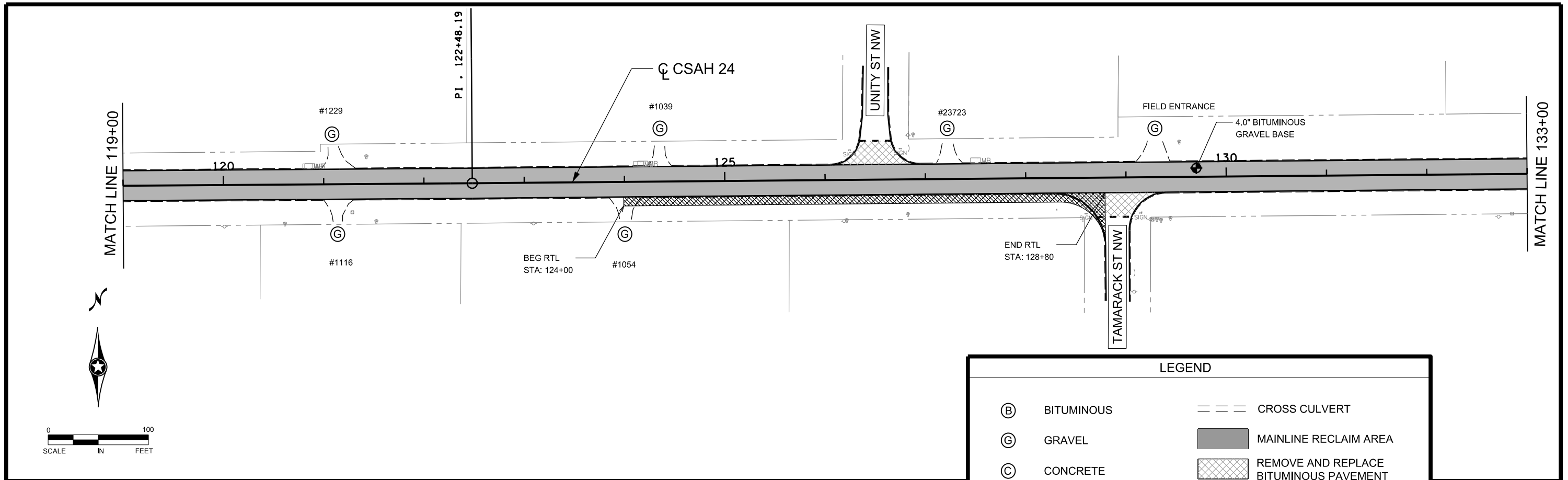


STATE AID PROJECT 002-624-030

**CONSTRUCTION PLAN**

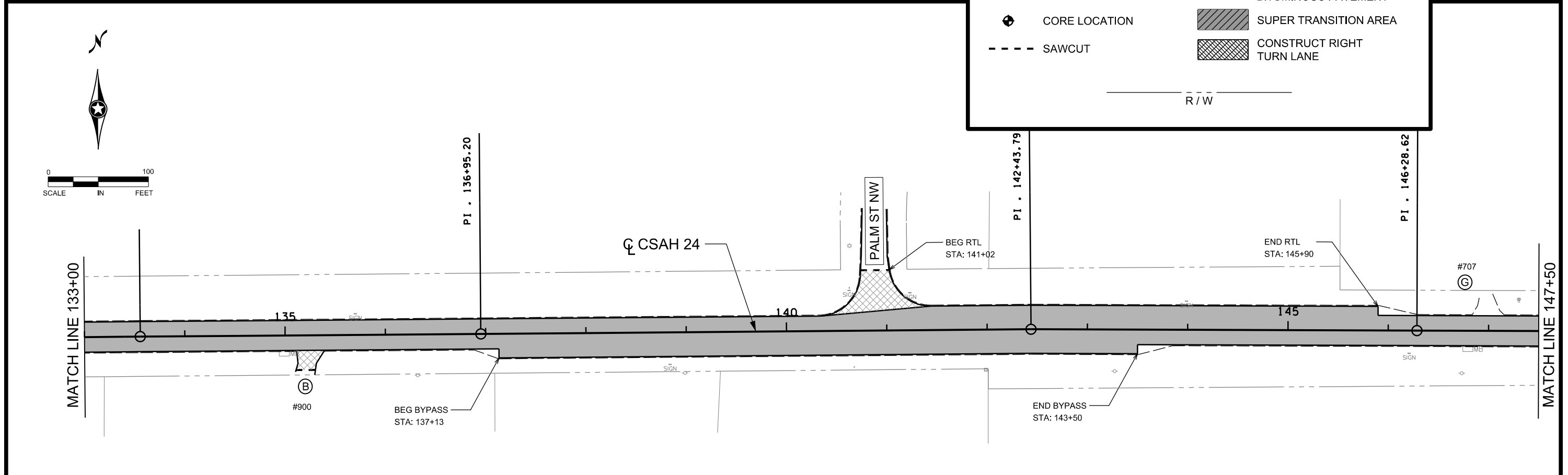
STA 91+00.00 TO 119+00.00

Sheet 10 of 28 Sheets



**LEGEND**

(B)	BITUMINOUS	---	CROSS CULVERT
(G)	GRAVEL	[Solid Grey]	MAINLINE RECLAIM AREA
(C)	CONCRETE	[Cross-hatch]	REMOVE AND REPLACE BITUMINOUS PAVEMENT
◆	CORE LOCATION	[Diagonal Hatch]	SUPER TRANSITION AREA
- - -	SAWCUT	[Grid Hatch]	CONSTRUCT RIGHT TURN LANE
----- R / W -----			



NO	DATE	BY	CKD	APPR	REVISION	
	12/23/2021					9:54:44 AM

NAME: P:\21-01-00\CSAH\_24\_(CR72-W, BETHEL LINE)\Base\Proposed\CR24 CP3.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 B. ANDERSON

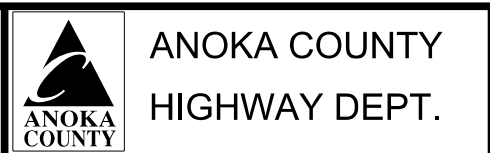
SIGNATURE: *[Signature]*

DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 12/23/2021

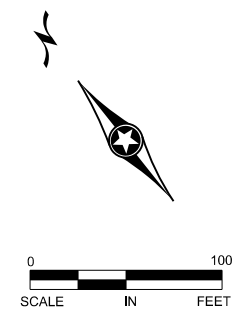
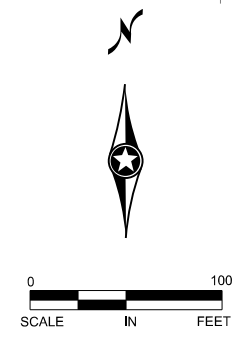
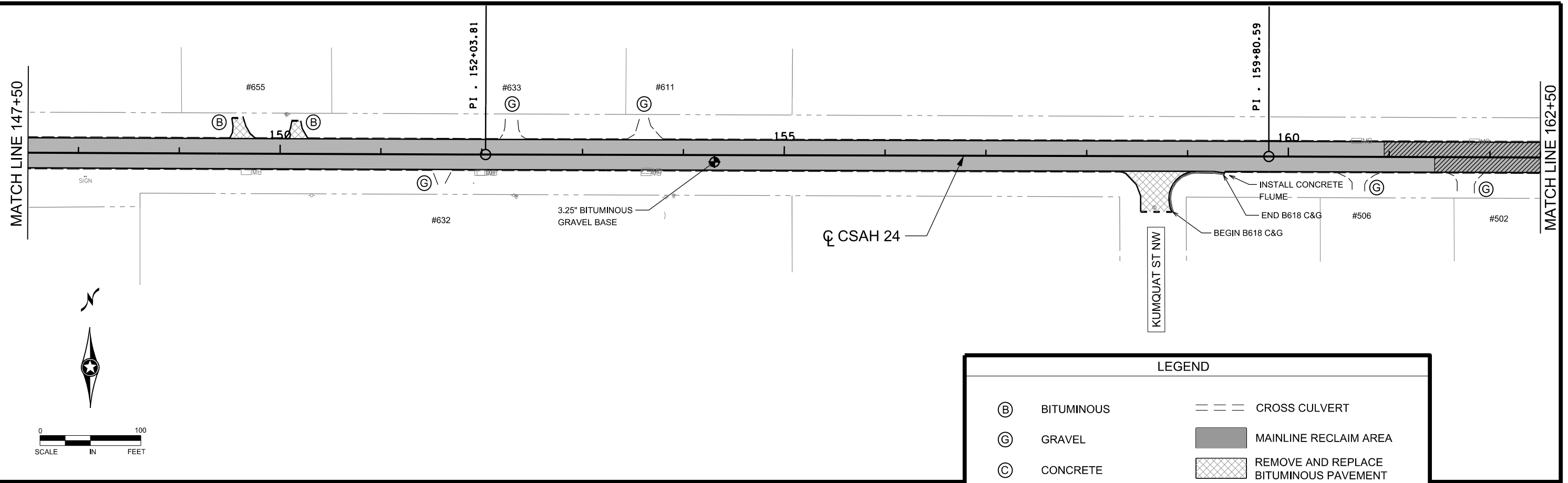
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CHECKED BY CSO DATE 12/23/2021

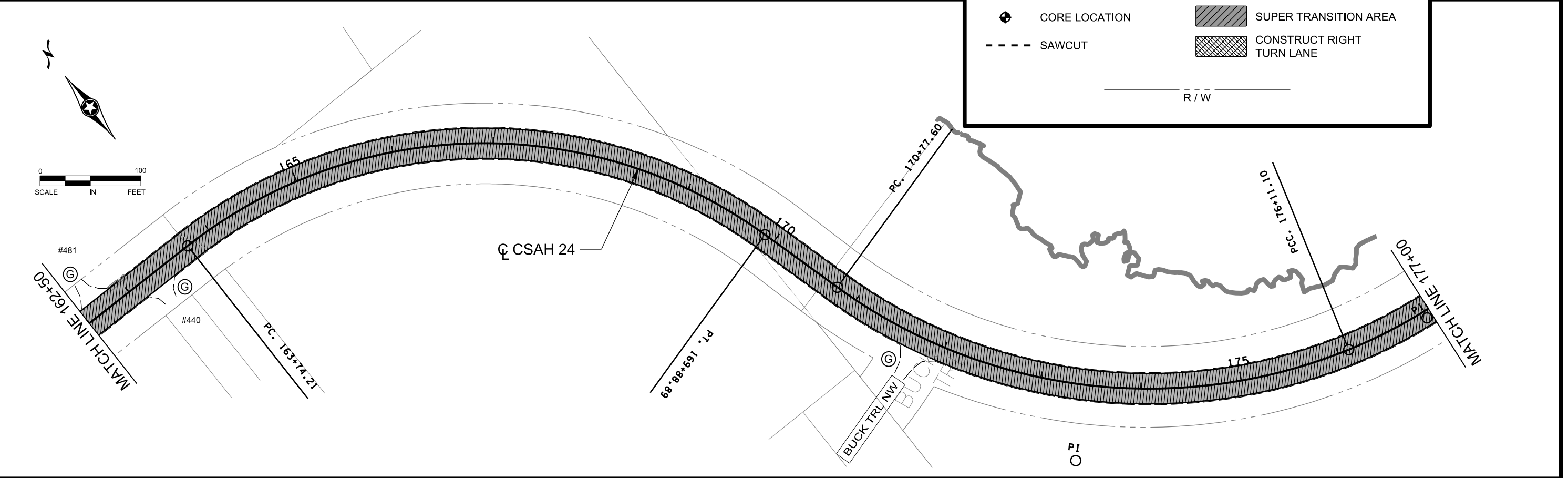


STATE AID PROJECT 002-624-030

**CONSTRUCTION PLAN**  
STA 119+00.00 TO 147+50.00  
Sheet 11 of 28 Sheets



LEGEND			
(B)	BITUMINOUS	---	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE RECLAIM AREA
(C)	CONCRETE	[Cross-hatched Box]	REMOVE AND REPLACE BITUMINOUS PAVEMENT
+	CORE LOCATION	[Diagonal-hatched Box]	SUPER TRANSITION AREA
- - -	SAWCUT	[Grid-hatched Box]	CONSTRUCT RIGHT TURN LANE
		R / W	



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:54:46 AM

NAME: P:\21-01-00\CSAH\_24\_(CR2-W, BETHEL LINE)\Base\Proposed\CR24 CP4.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 B. ANDERSON

SIGNATURE: *[Signature]*

DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 12/23/2021

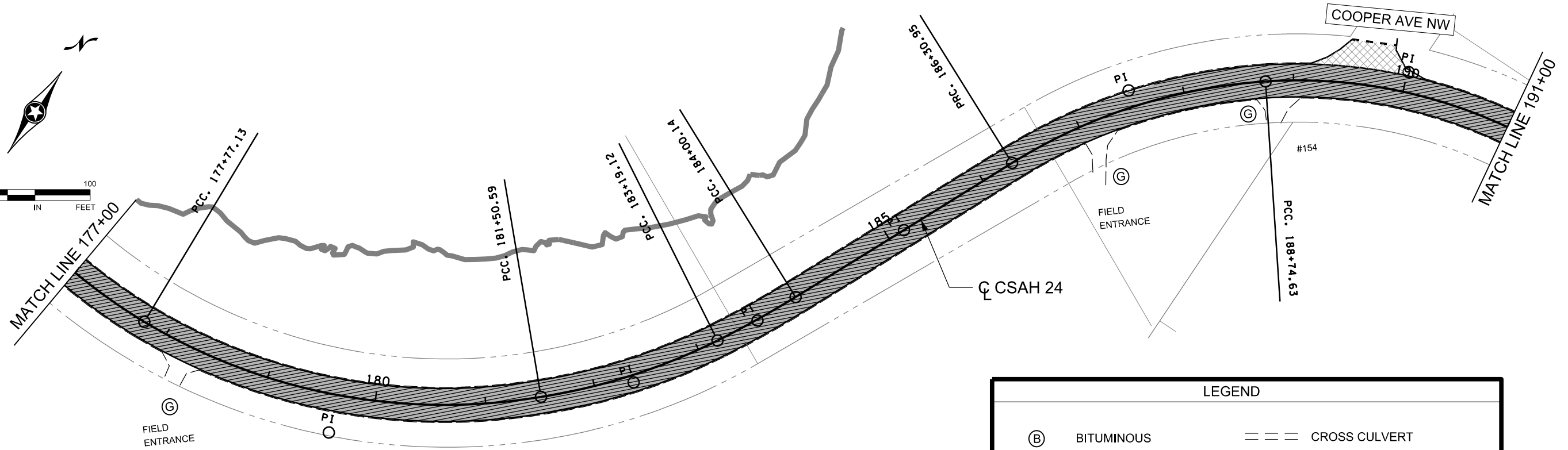
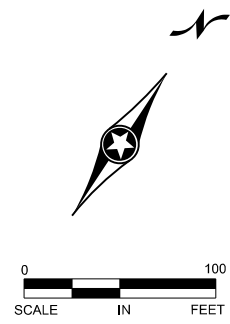
DESIGN BY JJ DATE 12/23/2021

CHECKED BY CSO DATE 12/23/2021

**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE AID PROJECT 002-624-030

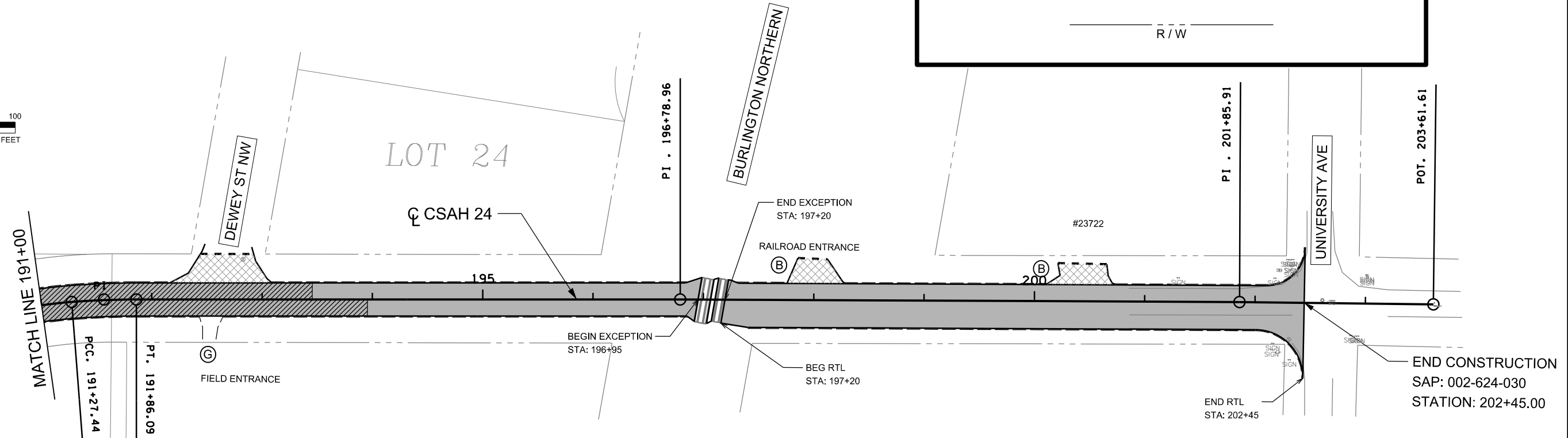
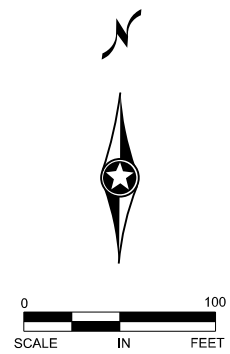
CONSTRUCTION PLAN  
STA 147+50.00 TO 177+00  
Sheet 12 of 28 Sheets



**LEGEND**

(B) BITUMINOUS	--- CROSS CULVERT
(G) GRAVEL	[Hatched] MAINLINE RECLAIM AREA
(C) CONCRETE	[Cross-hatched] REMOVE AND REPLACE BITUMINOUS PAVEMENT
⊕ CORE LOCATION	[Diagonal lines] SUPER TRANSITION AREA
- - - SAWCUT	[Cross-hatched] CONSTRUCT RIGHT TURN LANE

R / W



NO	DATE	BY	CKD	APPR	REVISION	12/23/2021	9:54:48 AM
NAME: P:\21-01-00\CSAH_24_(CR2-W, BETHEL LINE)\Base\Proposed\CR24 CP5a.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 B. ANDERSON

SIGNATURE:

DATE: 12-22-2021 LICENSE NO. 58657

DRAWN BY JJ DATE 12/23/2021

DESIGN BY JJ DATE 12/23/2021

CHECKED BY CSO DATE 12/23/2021

**ANOKA COUNTY HIGHWAY DEPT.**

STATE AID PROJECT 002-624-030

**CONSTRUCTION PLAN**

STA 177+00.00 TO 202+45.00

Sheet 13 of 28 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	39280
1 8" DOTTED LINE WHITE - MULTICOMP	LIN FT	36
2 4" BROKEN LINE YELLOW - MULTICOMP	LIN FT	2842
4" SOLID LINE YELLOW - MULTICOMP	LIN FT	3000
4" SOLID DOUBLE LINE YELLOW - MULTICOMP	LIN FT	4980
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (*PMS)	LIN FT	72
RAILROAD X-ING - PREFORMED THERMOPLASTIC	SQ FT	124

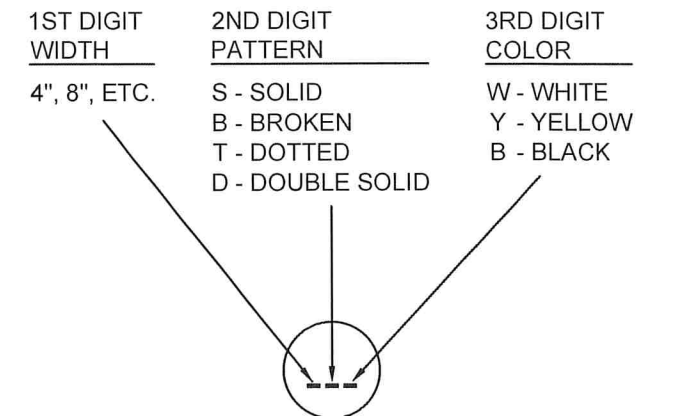
- 1 3' STRIPE, 12' GAP
- 2 10' STRIPE, 40' GAP
- \* PAVEMENT MARKING SPECIAL

**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:  = SOLID LINE WHITE - MULTI COMP

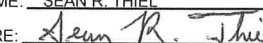
-  - - - - - BROKEN LINE - 50' CYCLE (10' LINE, 40' GAP)
-  . . . . . DOTTED LINE - 15' CYCLE (3' LINE, 12' GAP) UNLESS SHOWN OTHERWISE IN THE PLAN

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_24\_(229TH Ave-Univ Ave)\Base\Traffic\Perm Pvmt 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: 12/22/21

SIGNATURE:  LICENSE NO. 45129

DRAWN BY: TMV DATE: 11/10/21

DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_

CHECKED BY: SRT DATE: 12/02/21

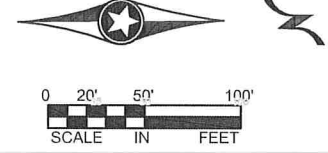
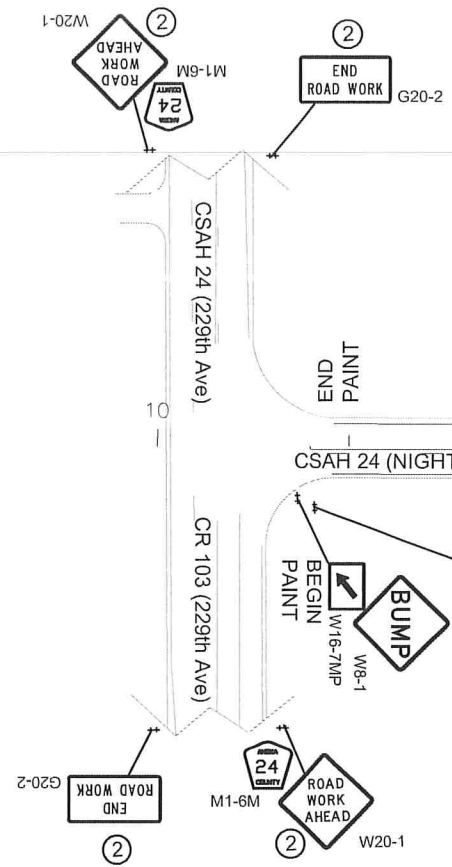


**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-624-030

PERMANENT MARKING  
TABULATION

SHEET 14 OF 28 SHEETS

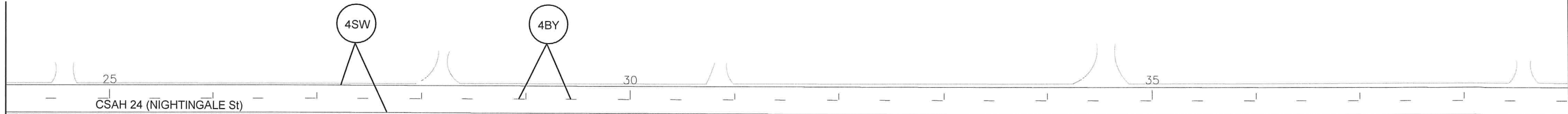


SIGN NOTES:  
 ① INSTALL SIGN TYPE C  
 ② TEMPORARY TRAFFIC CONTROL SIGN

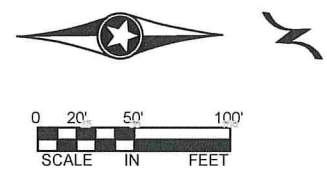
STRIPING KEY  
 ○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

F & I CMS 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF WORK

STATION 24+00



STATION 39+00



- NOTES:
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
  - LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - CONTRACTOR SHALL SUPPLY AND PLACE THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_24\_(229th Ave-Univ Ave)\Base\Traffic\Signing & Striping.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: 12/22/21  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 11/10/21  
 DESIGN BY: DATE:   
 CHECKED BY: SRT DATE: 12/02/21



ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-624-030

TEMPORARY SIGNING  
 PERMANENT SIGNING  
 AND STRIPING  
 SHEET 15 OF 28 SHEETS

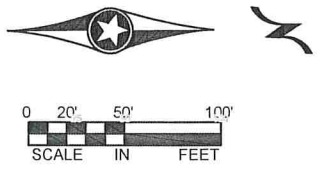
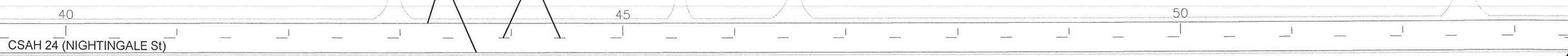
STATION 39+00

STATION 54+00

SIGN NOTES:  
 ① INSTALL SIGN TYPE C  
 ② TEMPORARY TRAFFIC CONTROL SIGN

STRIPING KEY

○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

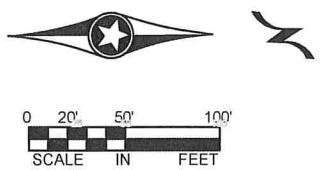
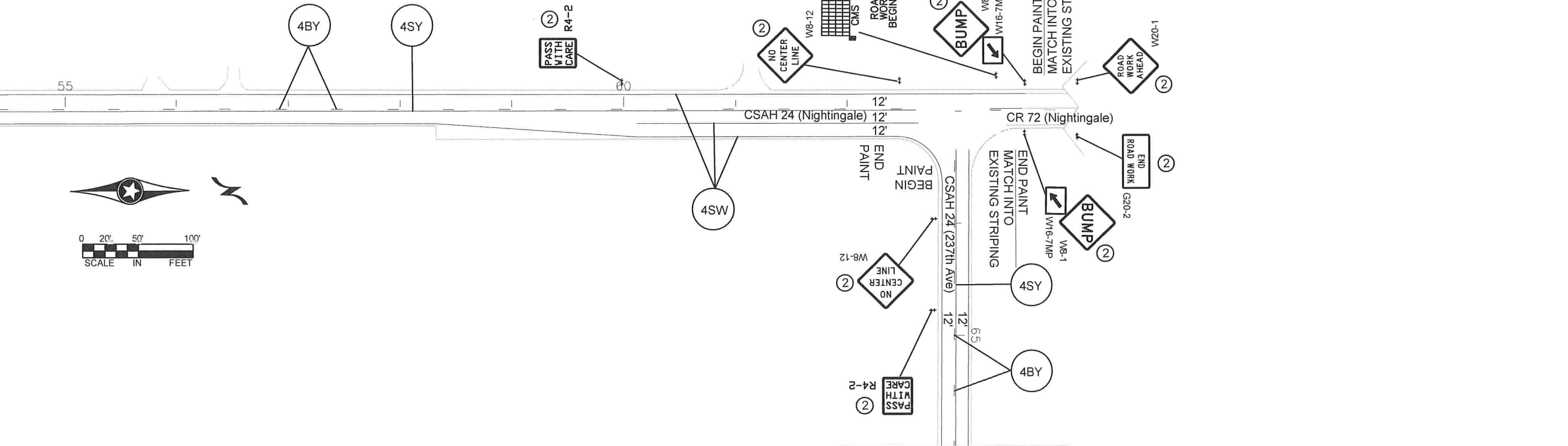


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STATION 54+00

STATION 66+00



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ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-624-030

TEMPORARY SIGNING  
 PERMANENT SIGNING  
 AND STRIPING

SHEET 16 OF 28 SHEETS



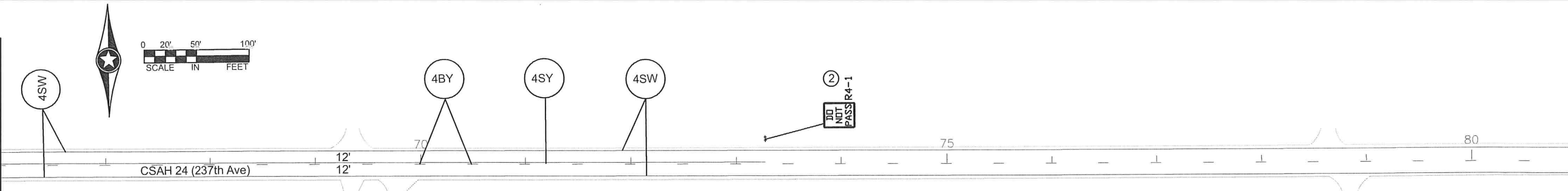
STRIPING KEY



SIGN NOTES:  
 ① INSTALL SIGN TYPE C  
 ② TEMPORARY TRAFFIC CONTROL SIGN

STATION 66+00

STATION 81+00

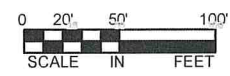
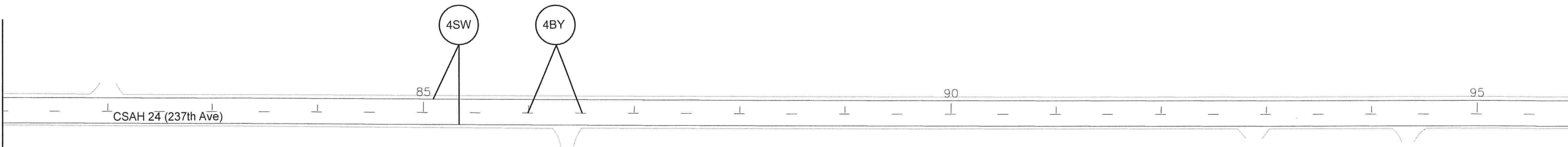


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STATION 81+00

STATION 96+00



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ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-624-030

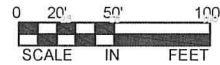
TEMPORARY SIGNING  
 PERMANENT SIGNING  
 AND STRIPING

SHEET 17 OF 28 SHEETS

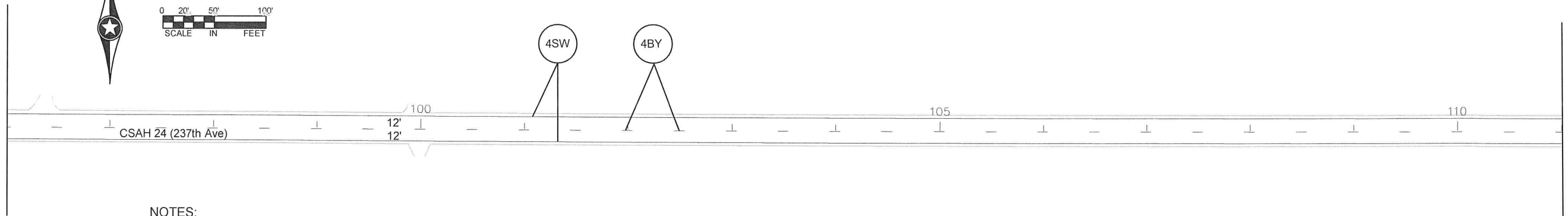
STRIPING KEY

○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

SIGN NOTES:  
 ① INSTALL SIGN TYPE C  
 ② TEMPORARY TRAFFIC CONTROL SIGN



STATION 96+00

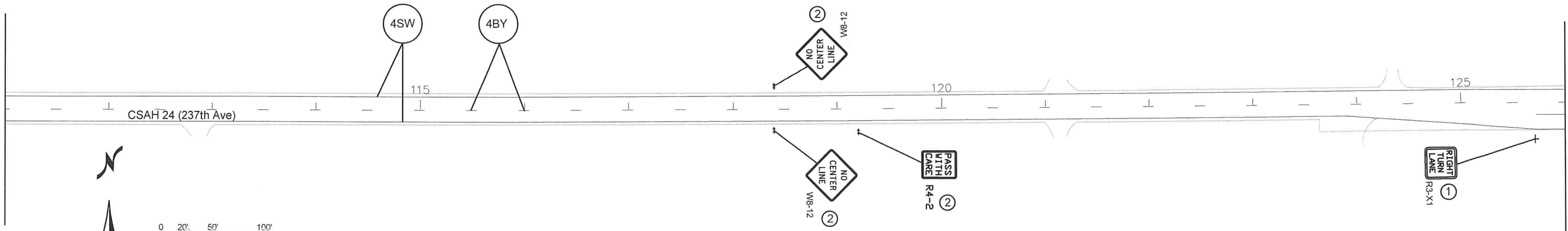


STATION 111+00

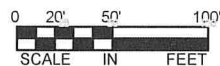
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STATION 111+00



STATION 126+00



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ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-624-030

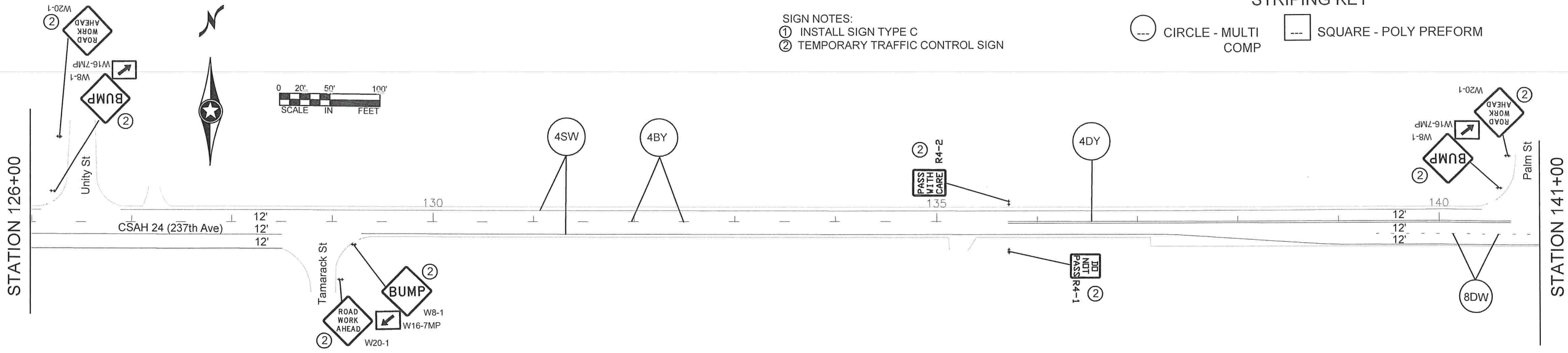
TEMPORARY SIGNING  
 PERMANENT SIGNING  
 AND STRIPING

SHEET 18 OF 28 SHEETS

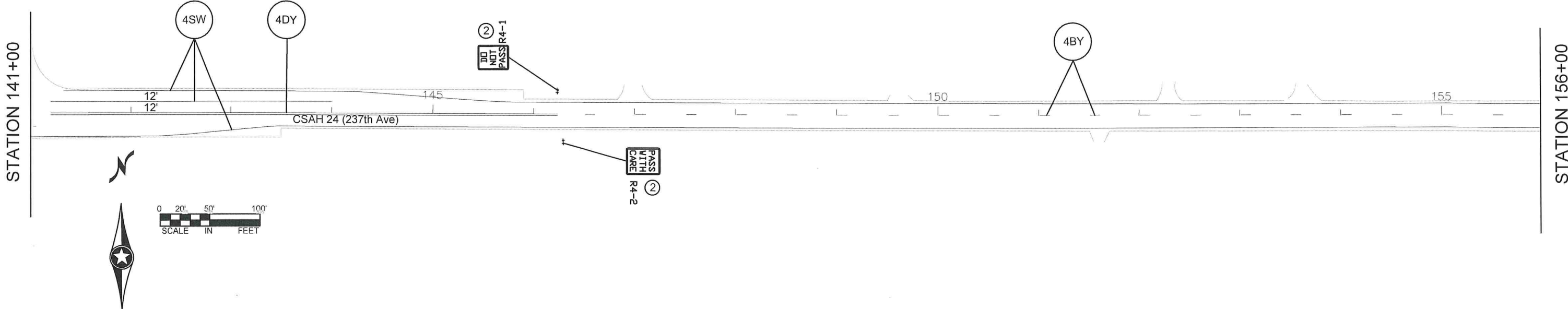
STRIPING KEY

--- CIRCLE - MULTI COMP  
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SIGN NOTES:  
 ① INSTALL SIGN TYPE C  
 ② TEMPORARY TRAFFIC CONTROL SIGN



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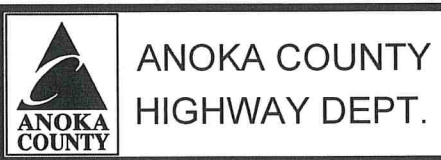
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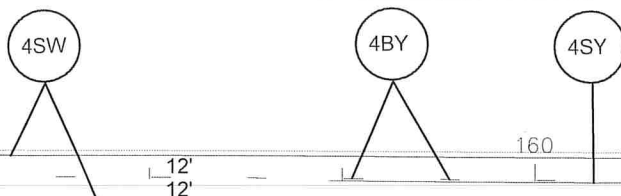


SAP 002-624-030

TEMPORARY SIGNING  
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SHEET 19 OF 28 SHEETS

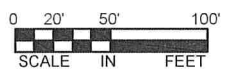
STATION 156+00



STRIPING KEY



SIGN NOTES:  
① INSTALL SIGN TYPE C  
② TEMPORARY TRAFFIC CONTROL SIGN



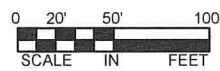
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STATION 171+00

STATION 183+00

STATION 171+00



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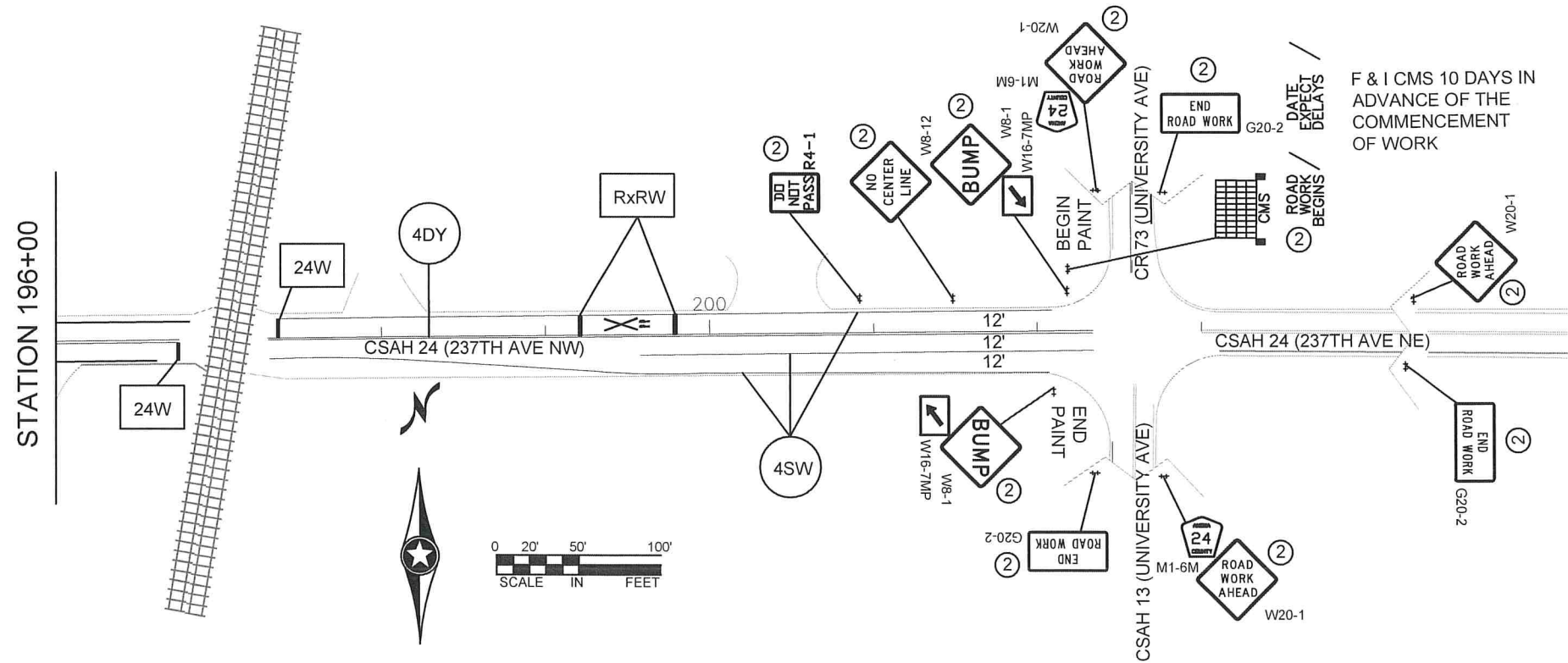
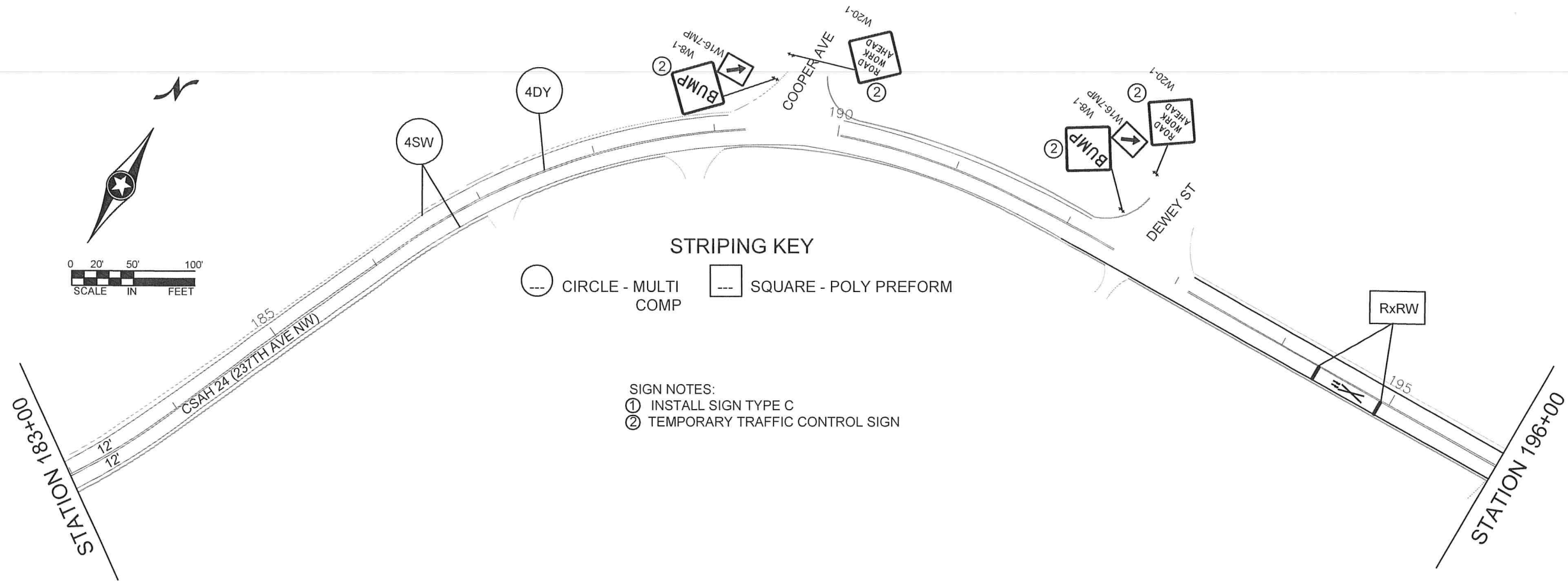
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ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-624-030

TEMPORARY SIGNING  
PERMANENT SIGNING  
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SHEET 20 OF 28 SHEETS



**NOTES:**

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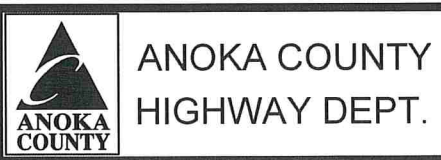
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TEMPORARY SIGNING  
PERMANENT SIGNING  
AND STRIPING

SHEET 21 OF 28 SHEETS

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-12	48" x 48"		8
R4-1	24" x 30"		7
R4-2	24" x 30"		9
G20-2	36" x 18"		6
W8-1	48" x 48"		11
W16-7P	30" x 18"		11
W3-4	48" x 48"		AS NEEDED
W8-1	48" x 48"		AS NEEDED
W8-8	48" x 48"		AS NEEDED

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-9	48" x 48"		AS NEEDED
W8-11	48" x 48"		AS NEEDED
W8-23	48" x 48"		AS NEEDED
M1-6M	24" x 24"		4
W20-1	48" x 48"		AS NEEDED (ESTIMATED 13)
W20-4	48" x 48"		AS NEEDED
W20-7	48" x 48"		AS NEEDED
		REFLECTORIZED REBOUNDABLE DRUM	AS NEEDED (ESTIMATED 10)
		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.	3 AT 10 DAYS EA

F & I SIGN PANELS TYPE C							
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	PANEL AREA	TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT To pavement edge
				SQ. FT.	SQ. FT.		
R3-7	30" x 30"		1	6.25	6.25	1	7.0'
TOTAL TYPE C SIGN SQ FT					6.25		
PROJECT TOTAL SQ FT					6.25		

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

		R	O	A	D		
		W	O	R	K		
		B	E	G	I	N	S

	<	D	A	T	E	>	
		E	X	P	E	C	T
		D	E	L	A	Y	S

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.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_24\_(229th Ave-Univ Ave)\Base\Traffic\Signing & Striping.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: 12/22/21  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

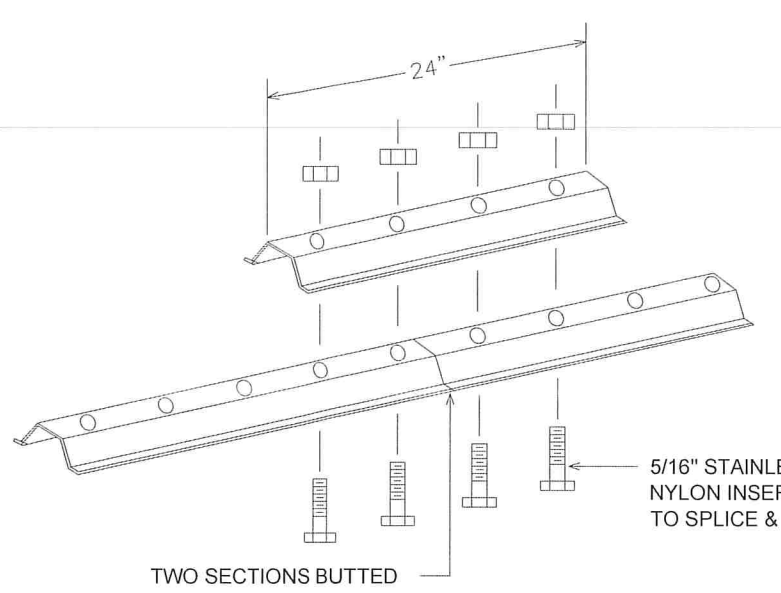
DRAWN BY: TMV DATE: 11/10/21  
DESIGN BY: DATE: \_\_\_\_\_  
CHECKED BY: SRT DATE: 12/02/21



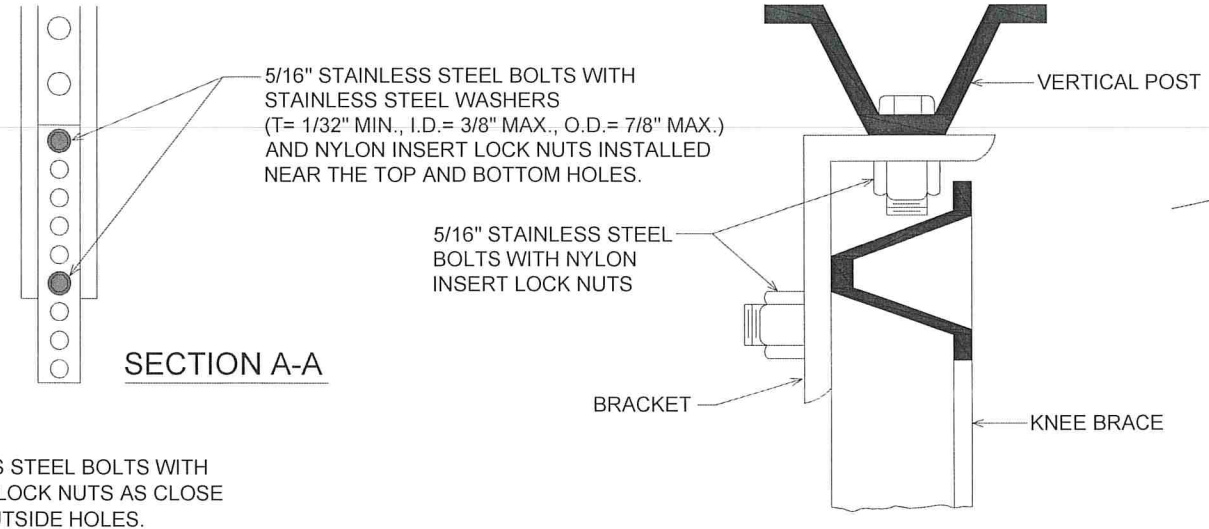
ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-624-030

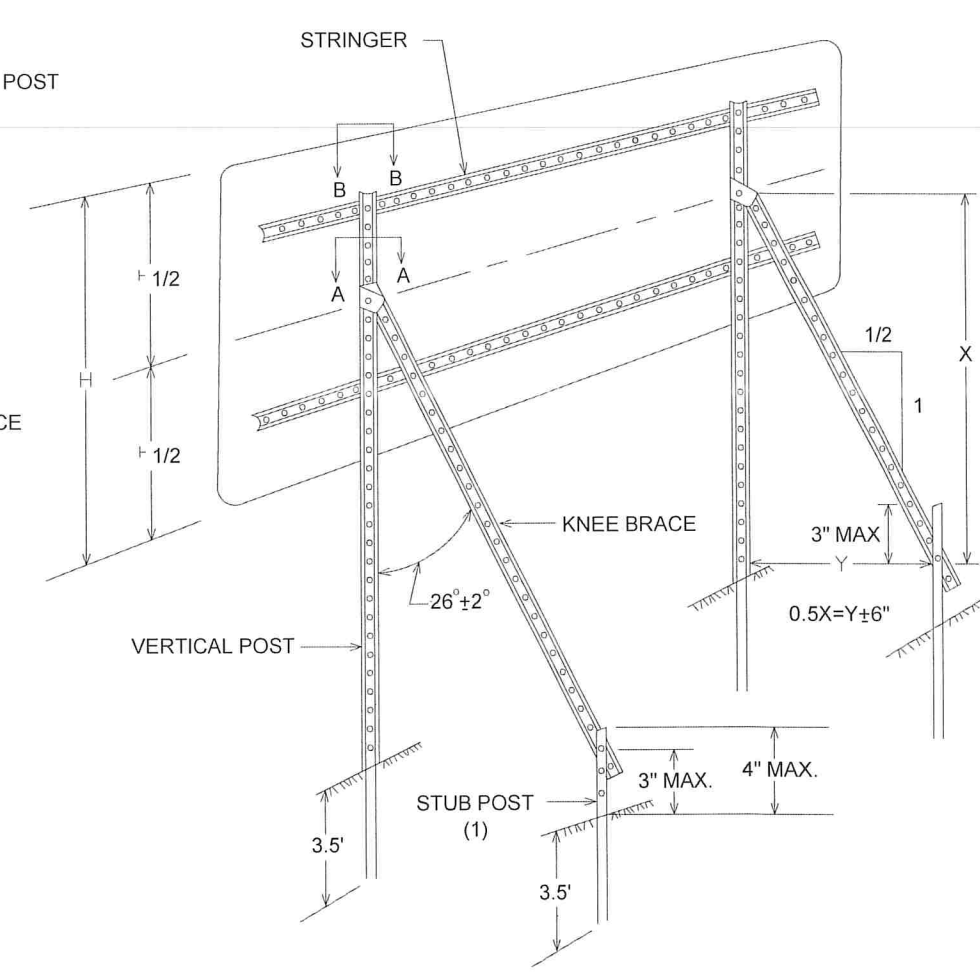
TEMPORARY SIGNING  
PERMANENT SIGNING  
QUANTITIES



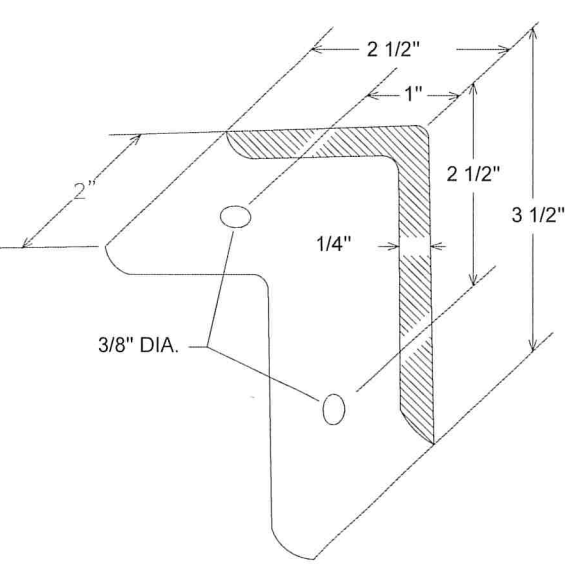
**LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)**



**SECTION A-A**

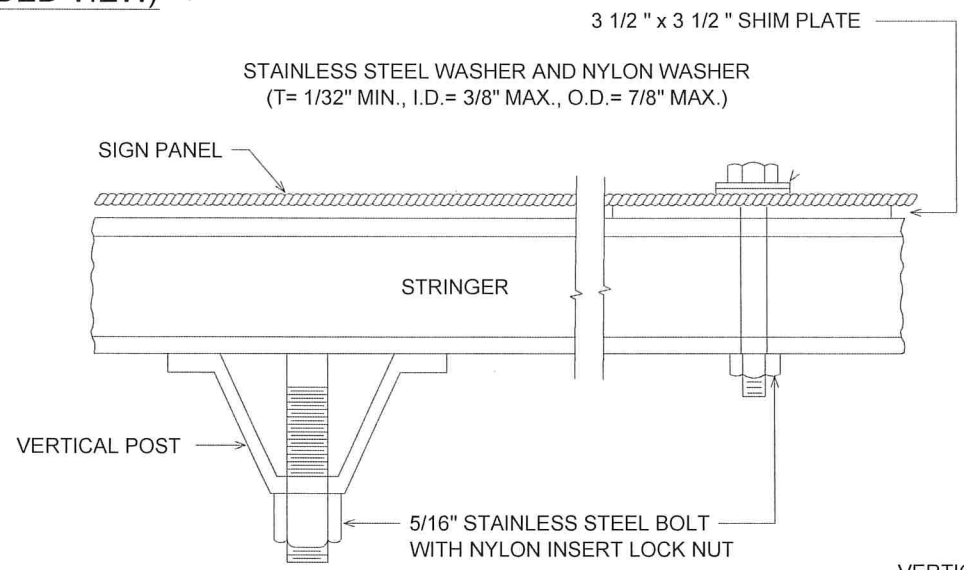


**TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS**

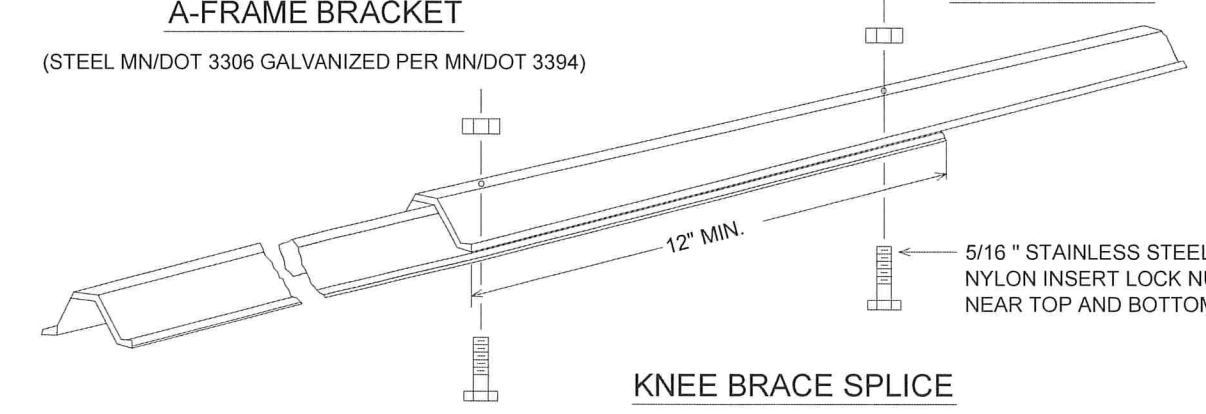


**A-FRAME BRACKET**

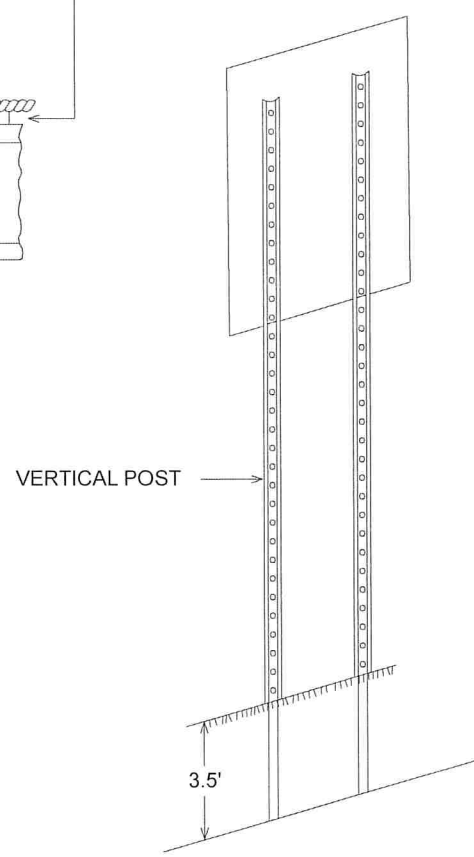
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



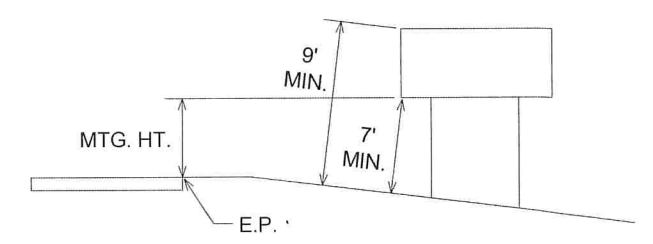
**SECTION B-B**



**KNEE BRACE SPLICE**



**TYPICAL INSTALLATION 36" AND LARGER TYPE "C" SIGNS**



**TYPICAL MOUNTING**

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST.

**TYPE C & D SIGN STRUCTURAL DETAILS**

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_24_(229th Ave- Univ Ave)\Base\Traffic\Sign&Stripe_Details 2019.dwg					

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PRINT NAME: SEAN R. THIEL DATE: 12/22/21

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DRAWN BY: TMV DATE: 11/10/21

DESIGN BY: DATE:

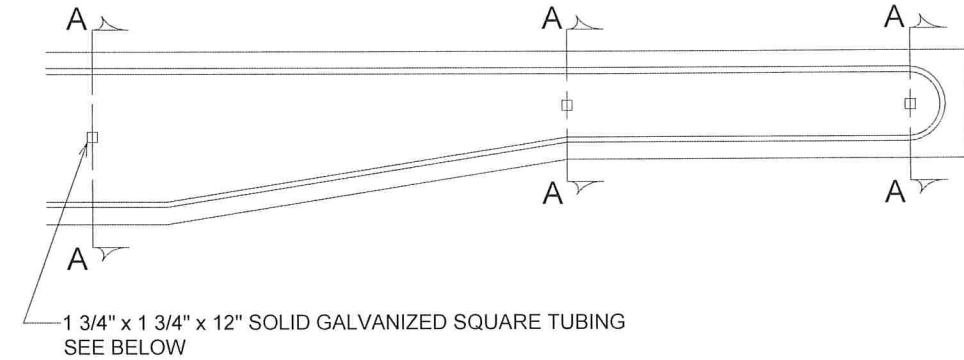
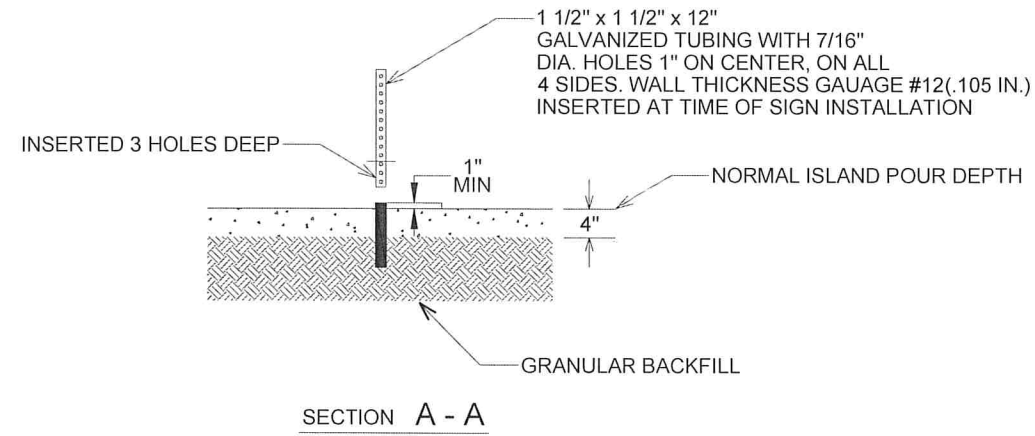
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**ANOKA COUNTY HIGHWAY DEPT.**

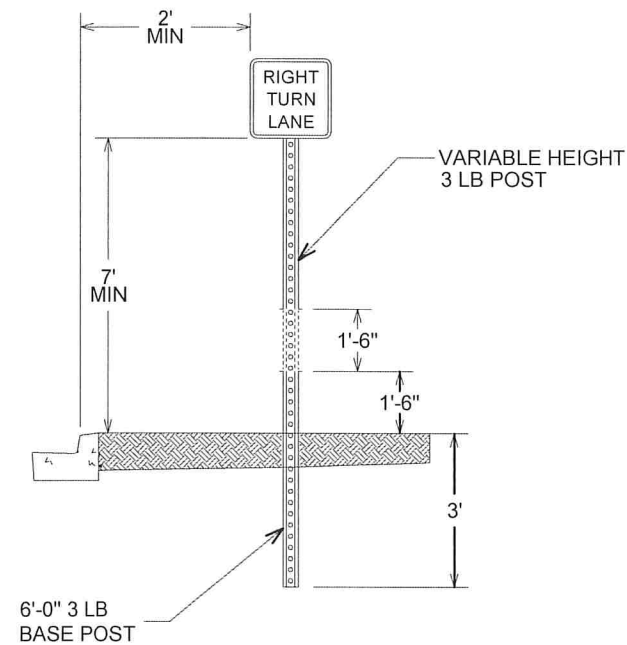
SAP 002-624-030

SIGNING & STRIPING DETAILS

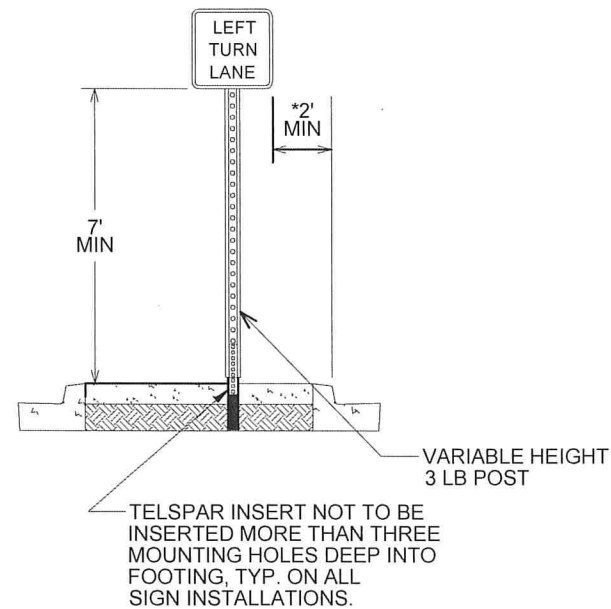
SHEET 23 OF 28 SHEETS



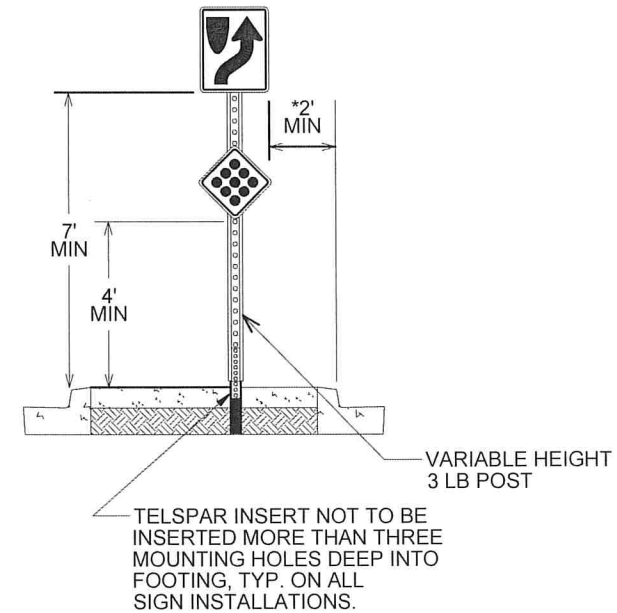
GROUND POST MOUNT SIGN  
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN  
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN  
SIGN INSTALLATION TYPICAL  
KEEP RIGHT/CLUSTER



\*1' MIN FOR NARROW URBAN LOCATIONS

INSTALLATION NEAR SIDEWALK (MN MUTCD)  
The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway, the secondary sign shall not project more than 4 inches into the pedestrian facility.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_24_(229th Ave-Univ Ave)\Base\Traffic\Sign&Stripe_Details 2019.dwg					

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PRINT NAME: SEAN R. THIEL DATE: 12/22/21  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 11/10/21  
DESIGN BY: DATE:   
CHECKED BY: SRT DATE: 12/02/21



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HIGHWAY DEPT.

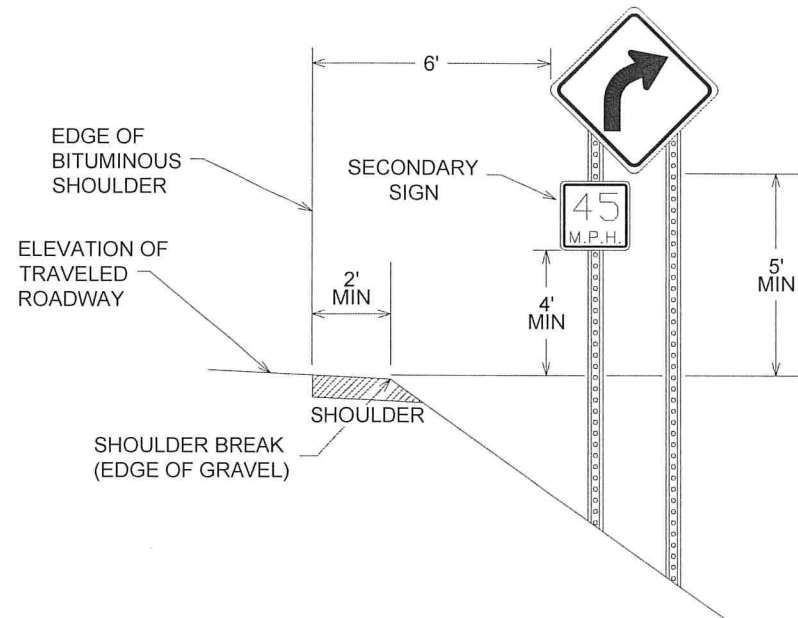
SAP 002-624-030

SIGNING & STRIPING  
DETAILS

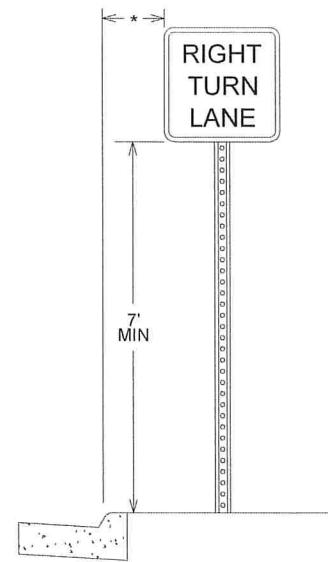
SHEET 24 OF 28 SHEETS



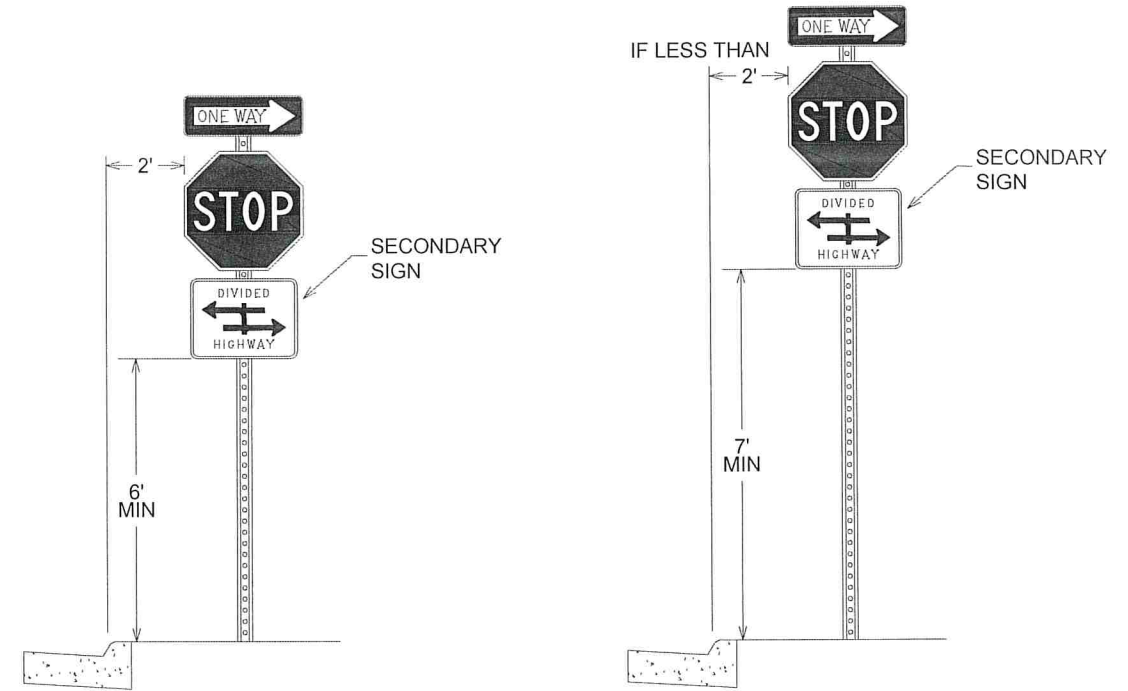
TYPICAL SIGN PLACEMENT  
(RURAL)



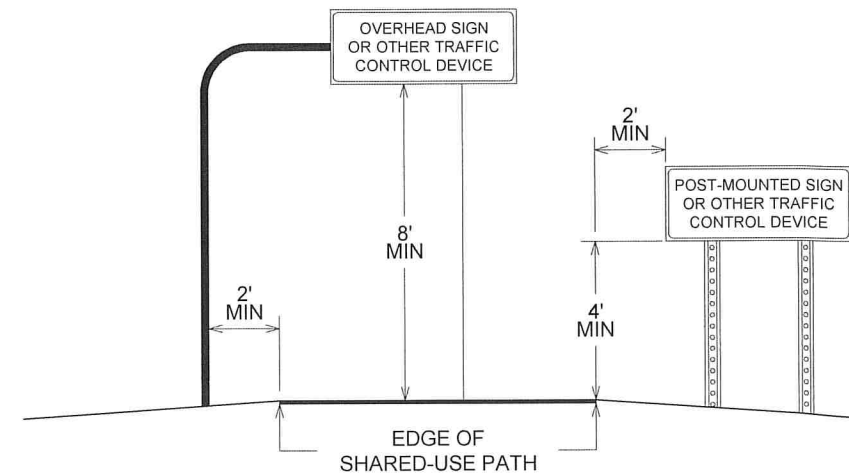
TYPICAL SIGN PLACEMENT  
(URBAN)



\*2' - NARROW BOULEVARD ( ≤ 8' WIDE)  
6' - WIDE BOULEVARD



TYPICAL SIGN PLACEMENT  
SHARED-USE PATH



NOTES:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN A DISTANCE OF 2' BETWEEN SIGNS AND BITUMINOUS TRAIL
- 7' SIGN CLEARANCE IF A 2' DISTANCE BETWEEN SIGN AND BITUMINOUS TRAIL CANNOT BE MAINTAINED

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_24_(229th Ave-Univ Ave)\Base\Traffic\Sign&Stripe_Details 2019.dwg					

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PRINT NAME: SEAN R. THIEL DATE: 12/22/21  
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DRAWN BY TMV DATE 11/10/21

DESIGN BY DATE

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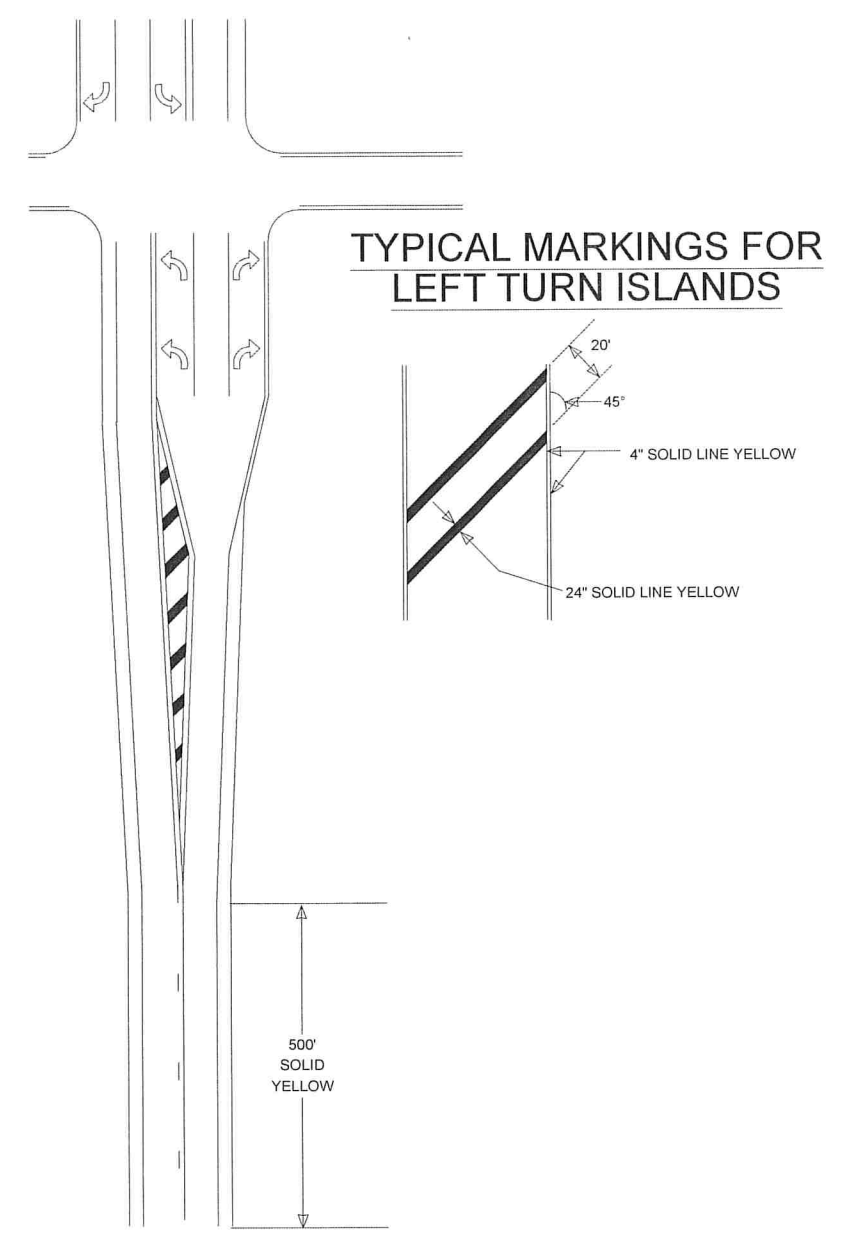
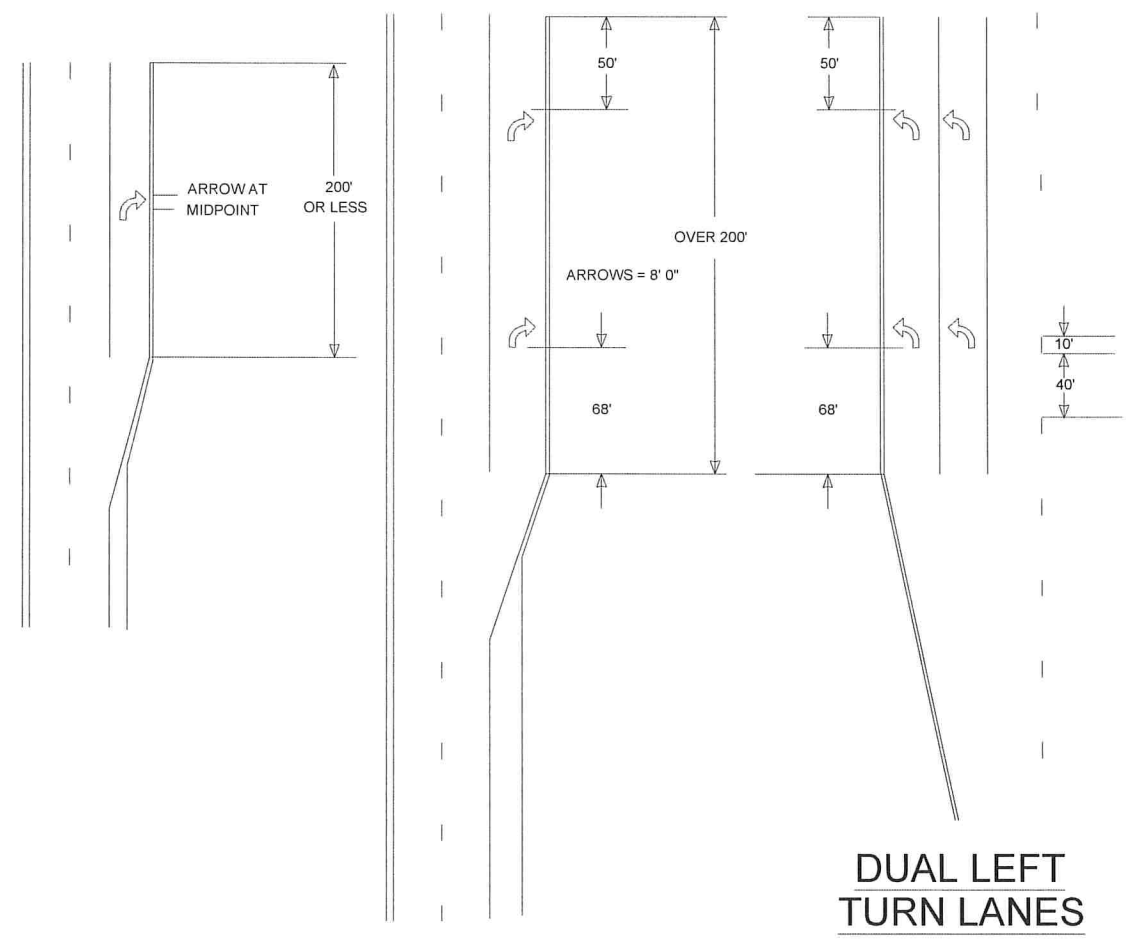
ANOKA COUNTY  
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DETAILS

SHEET 25 OF 28 SHEETS

TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_24_(229th Ave-Univ Ave)\Base\Traffic\Sign&Stripe_Details 2019.dwg					

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

DRAWN BY \_\_\_TMV\_\_\_ DATE 11/10/21

DESIGN BY \_\_\_DATE\_\_\_

CHECKED BY \_\_\_SRT\_\_\_ DATE 12/02/21

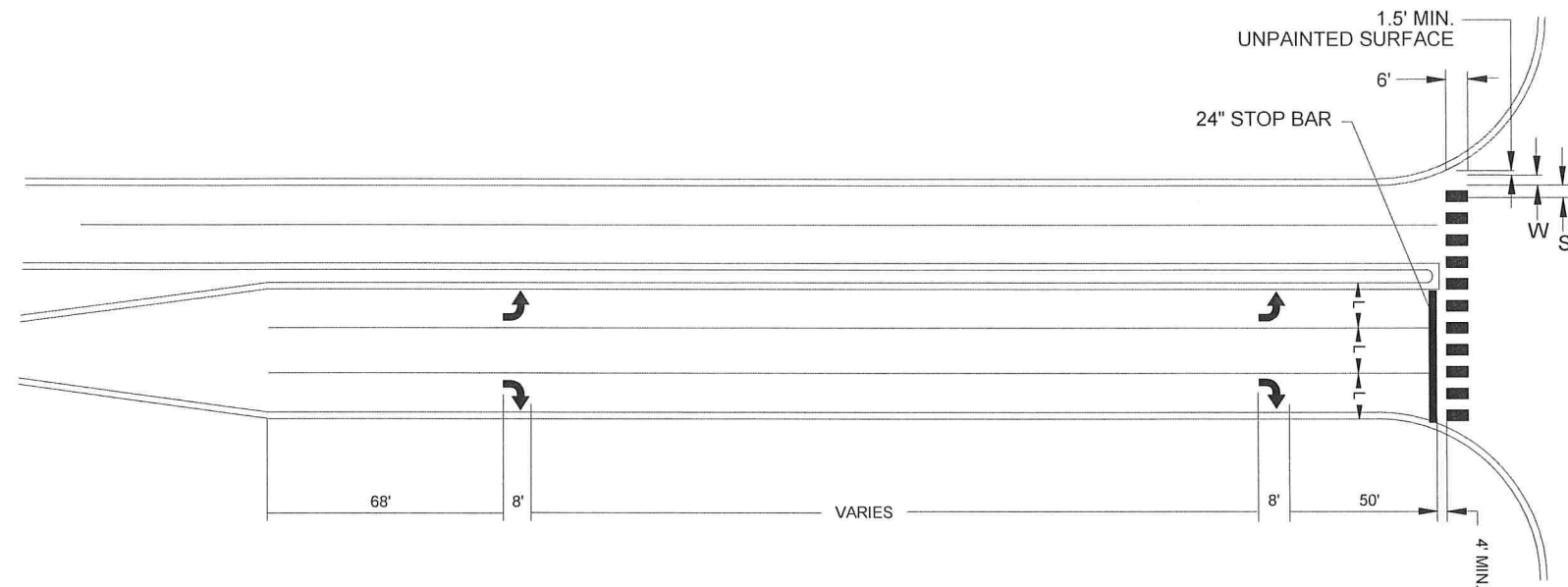
**ANOKA COUNTY**  
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DETAILS

SHEET 26 OF 28 SHEETS

### MARKINGS FOR PEDESTRIAN CROSSWALKS

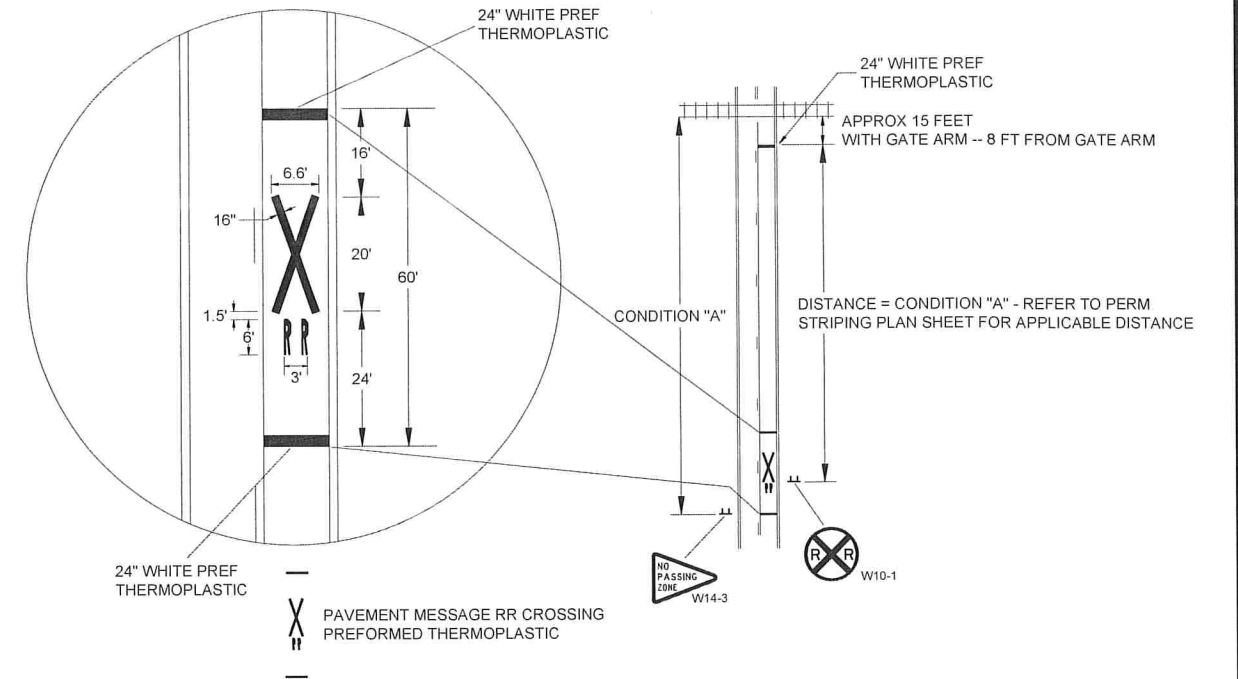


(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

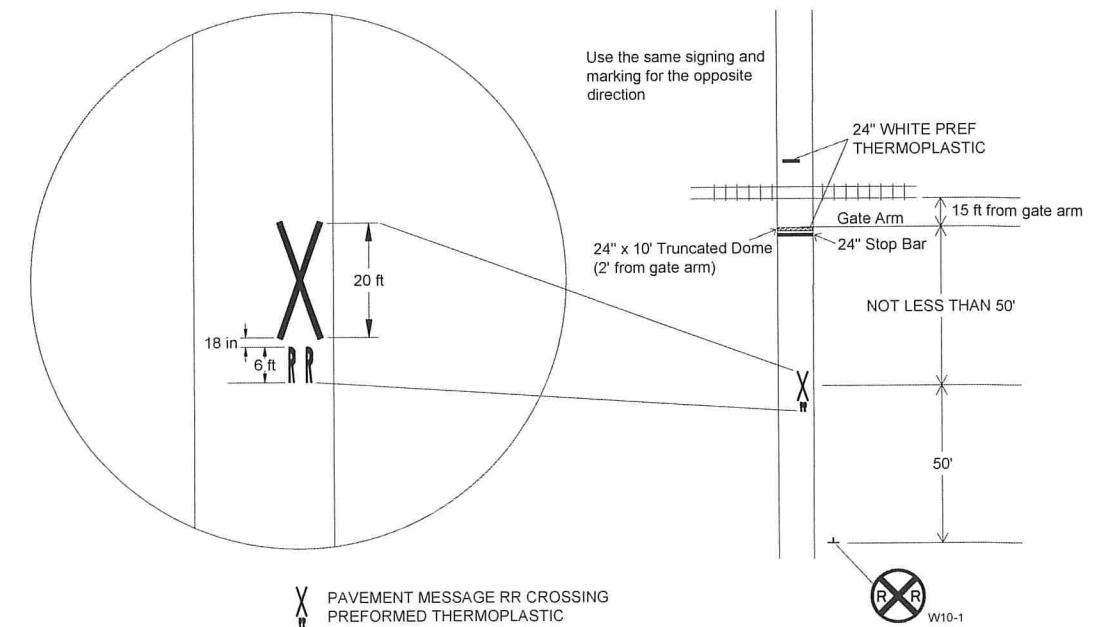
#### NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMP ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES, EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

### RAILROAD CROSSING PAVEMENT MARKINGS



### RAILROAD CROSSING PAVEMENT MARKINGS TRAIL GRADE CROSSING



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_24\_(229th Ave-Univ Ave)\Base\Traffic\Sign&Stripe\_Details 2019.dwg

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

DRAWN BY: TMV DATE: 11/10/21  
 DESIGN BY: DATE: \_\_\_\_\_  
 CHECKED BY: SRT DATE: 12/02/21



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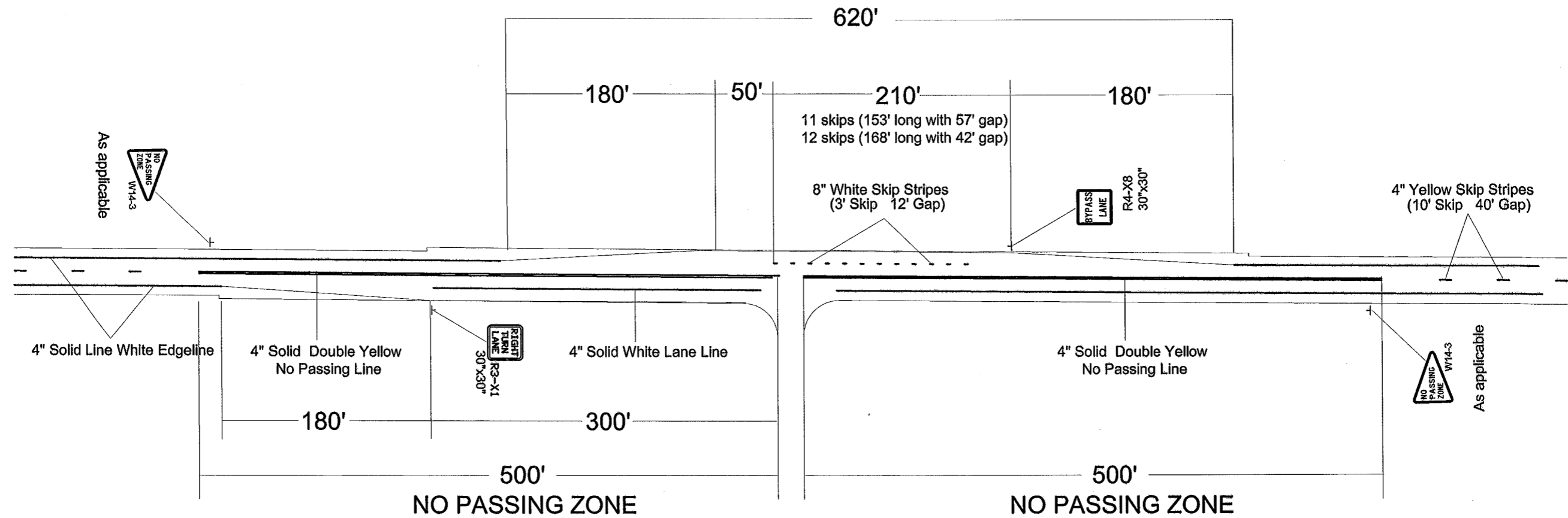
SIGNING & STRIPING  
DETAILS

SHEET 27 OF 28 SHEETS

# A.C.H.D.

## BY-PASS TYPICAL

REVISED 10.8.18



6 OF 6

NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: SEAN R. THIEL DATE: 2/1/22  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY TMV DATE 11/10/21  
DESIGN BY DATE  
CHECKED BY SRT DATE 12/02/21



ANOKA COUNTY  
HIGHWAY DEPT.

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SIGNING & STRIPING  
DETAILS

SHEET 28 OF 28 SHEETS