

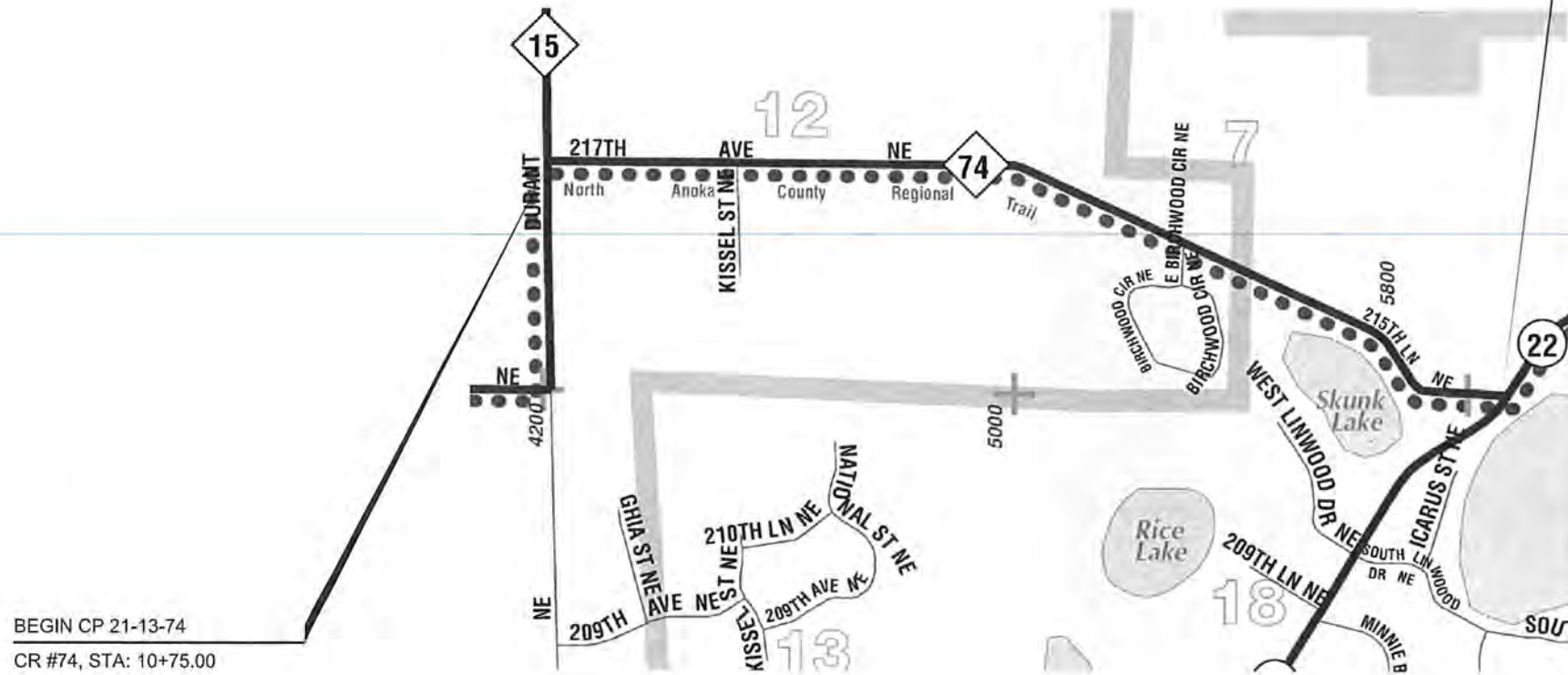
MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR _____ BITUMINOUS SURFACING, AND BITUMINOUS RECLAMATION

LOCATED ON CR 74 BETWEEN DURANT ST. AND VIKING BLVD

CR 74			
GROSS LENGTH	11700.00 FEET	2.216 MILES	
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES	
NET LENGTH	11700.00 FEET	2.216 MILES	

END CP 21-13-74
CR #74, STA: 127+75.00



BEGIN CP 21-13-74
CR #74, STA: 10+75.00

GOVERNING SPECIFICATIONS
THE 2018 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 21 SHEETS

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TYPICAL SECTIONS
4-5	DETAILS
6	SUPERELEVATION TABULATION
7-11	CONSTRUCTION PLAN
12 - 21	SIGNING AND STRIPING PLANS

PROJECT LOCATION



CITY OF EAST BETHEL/LINWOOD
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 12/7
TOWNSHIP 33 SOUTH
RANGE 23/22 WEST

Approved 3-1-21
ANOKA COUNTY ENGINEER

DESIGN DESIGNATION (CR #74)			
ESAL 20	77380	FUNCTIONAL CLASSIFICATION	MINOR COLLECTOR
R VALUE	70	NO. OF TRAFFIC LANES	2
ADT (2019)	655	NO. OF PARKING LANES	0
PROJ. ADT (2041)	655	DESIGN SPEED	55 MPH
PROJ. HCADT (2041)	39	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
	02/25/2021				12:54:47 PM

NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_TITLE.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: GERALD J. AUGER JR.
SIGNATURE:
DATE: 02-24-2021 LICENSE NO. 26511

DRAWN BY: BRM DATE: 12/10/2020
DESIGN BY: BRM DATE: 12/10/2020
CHECKED BY: CO DATE: 1/25/2021



**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 21-13-74

TITLE SHEET
Sheet 1 of 21 Sheets

STATEMENT OF ESTIMATED QUANTITIES

NOTES	ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
1,2	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	173
2	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	7
3	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	341
3	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	294
4,5	2123.510	MOTOR GRADER	HOUR	24
	2130.523	WATER	M GALLON	256
6	2211.509	AGGREGATE BASE CLASS 5	TON	92
	2215.504	FULL DEPTH RECLAMATION	SQ YD	36511
4	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	50
7	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	669
8	2232.504	MLL BITUMINOUS SURFACE (2.0")	SQ YD	43
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1840
9	2360.509	TYPE SP 9.5 WEARING COURSE MX (3:B)	TON	39
10	2360.509	TYPE SP 12.5 WEARING COURSE MX (4:C)	TON	34
	2360.509	TYPE SP 12.5 WEARING COURSE MX (4:C)	TON	8398
	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	7
11	2540.602	MAIL BOX SUPPORT	EACH	25
12	2563.601	TRAFFIC CONTROL	LUMP SUM	1
13	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20
14	2574.507	COMMON TOPSOIL BORROW	CU YD	88
	2574.508	FERTILIZER TYPE 3	POUND	75
14	2575.504	EROSION CONTROL BLANKETS CATEGORY 0	SQ YD	107
	2575.508	SEED MIXTURE 25-121	POUND	75
15	2581.503	REMOVABLE PREFORM PAVEMENT MARKING TAPE	LIN FT	468
16	2582.503	4" SOLID LINE MULTI COMP	LIN FT	27687
16	2582.503	4" BROKEN LINE MULTI COMP	LIN FT	8650
16	2582.503	4" DBLE SOLID LINE MULTI COMP	LIN FT	2774

CONSTRUCTION NOTES

1	REFERENCE DETAILS (PAGE 4) FOR REMOVAL DETAILS.
2	CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
3	ITEM FOR BITUMINOUS DRIVEWAYS AND STREET APPROACHES. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
4	ITEM FOR SUPERELEVATION / GRADE CORRECTION.
5	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT.
6	GRAVEL BASE FOR CONCRETE AND BITUMINOUS STREET APPROACHES AND DRIVEWAYS.
7	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
8	ITEM INCLUDES 2" DEEP MILL AT BEGINNING AND END OF PROJECT, ALL PAVED ST APPROACHES, AND DRIVEWAYS; SEE DETAILS FOR DIMENSIONS.
9	ITEM FOR BITUMINOUS DRIVEWAYS. DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
10	ITEM FOR STREET APPROACHES. STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING.
11	MAILBOXES ARE TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY, CONTRACTOR IS RESPONSIBLE FOR CONTACTING. MAILBOX REMOVAL AND ALL MATERIALS ARE INCIDENTAL TO INSTALLATION.
12	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.
13	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
14	ITEM USED AT ENGINEER'S DISCRETION FOR RESTORATION OF DISTURBED AREAS ALONG DRIVEWAYS AND STREET APPROACHES.
15	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.
16	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.

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

MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
8000J	CHANNELIZERS
9350A	MAILBOX SUPPORT (SWING-AWAY TYPE)

BASIS OF PLANNED QUANTITIES

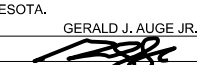
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2575	SEED MIXTURE 25-121	61 LBS./ ACRE
2574	FERTILIZER TYPE 3	350 LBS./ ACRE

NO	DATE	BY	CKD	APPR	REVISION	
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NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_SEQ.dgn

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**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 21-13-74

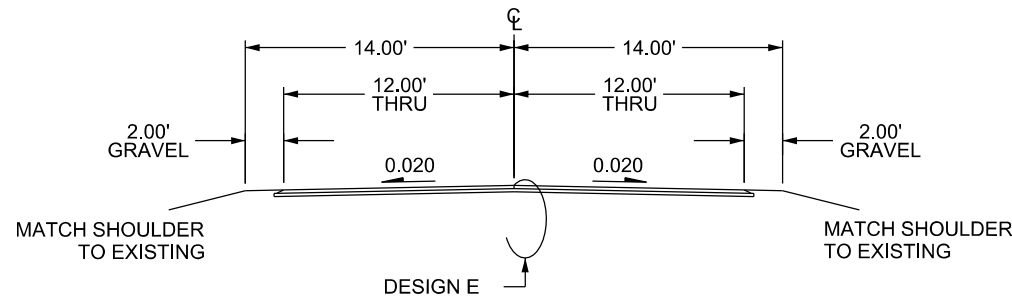
STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 21 Sheets

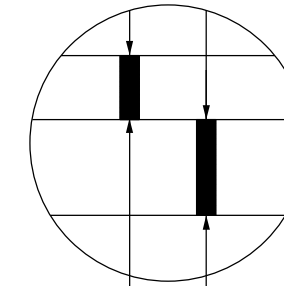
CR 74 - 217th AVE

(EXISTING) SECTION

10+75 - 63+75



EXISTING SECTION



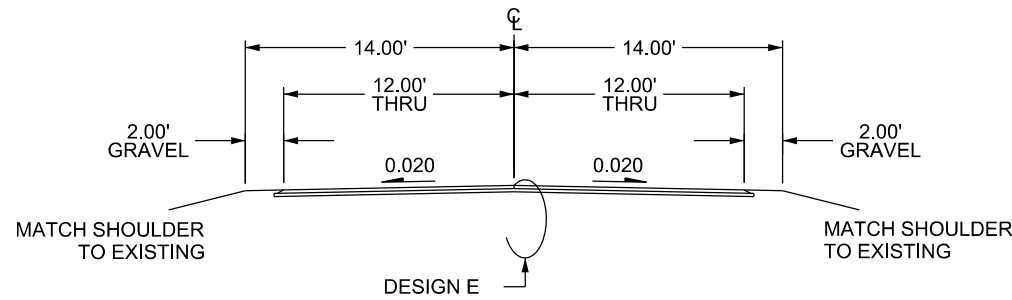
4.5-5" EXISTING BITUMINOUS

EXISTING GRANULAR BASE

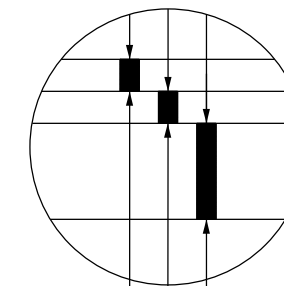
CR 74 - 215th LN

(EXISTING) SECTION

63+75 - 127+75



**DESIGN R
RECLAIM SECTION**



2.0" BITUMINOUS WEAR(SPWEB440C)

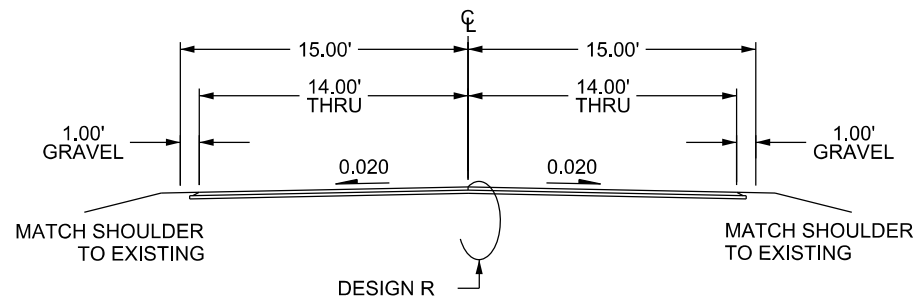
2.0" BITUMINOUS WEAR(SPWEB440C)

RECLAIMED BITUMINOUS


CR 74 - 217TH AVE & 215TH LN

(PROPOSED) SECTION

10+75 - 127+75



NO	DATE	BY	CKD	APPR	REVISION	02/25/2021	12:55:07 PM
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**ANOKA COUNTY
HIGHWAY DEPT.**

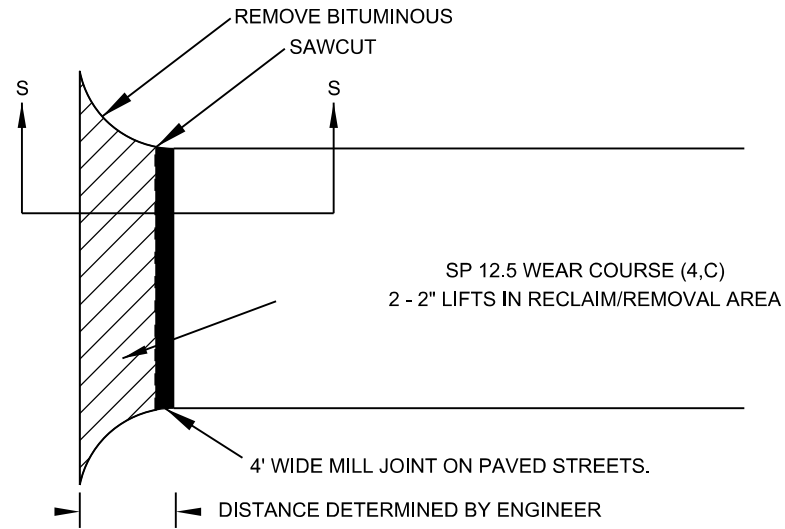
COUNTY PROJECT 21-13-74

TYPICAL SECTIONS
 Sheet 3 of 21 Sheets

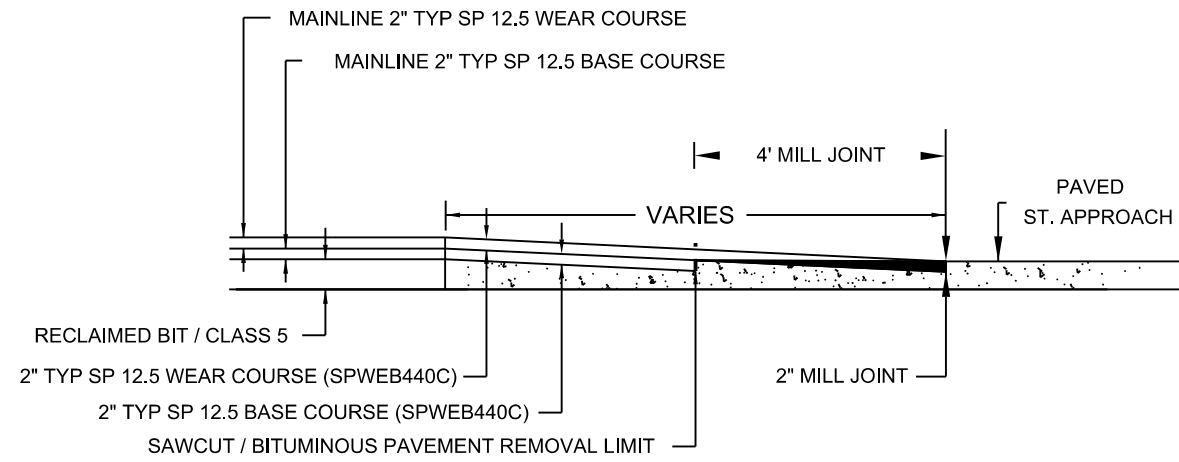
STREET APPROACH DETAIL (RECLAIM)

BITUMINOUS STREET

PLAN VIEW



SECTION S - S



NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME
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NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_DETAILS.dgn

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ANOKA COUNTY
HIGHWAY DEPT.

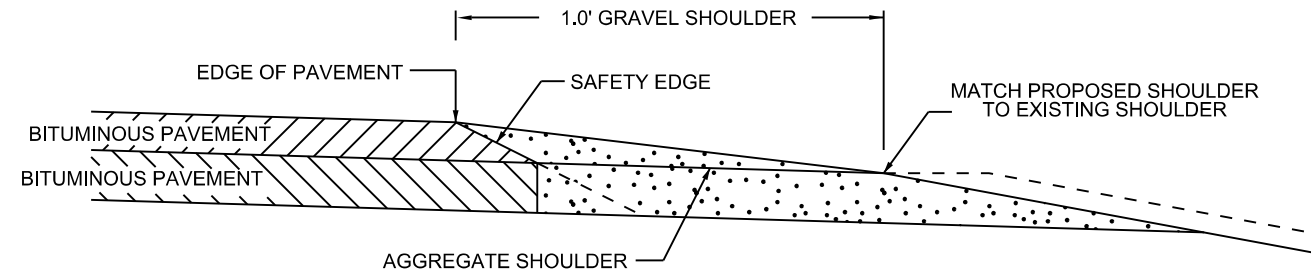
COUNTY PROJECT 21-13-74

DETAILS

Sheet 4 of 21 Sheets

SHOULDER DETAIL

BITUMINOUS SAFETY EDGE
GRAVEL SHOULDER



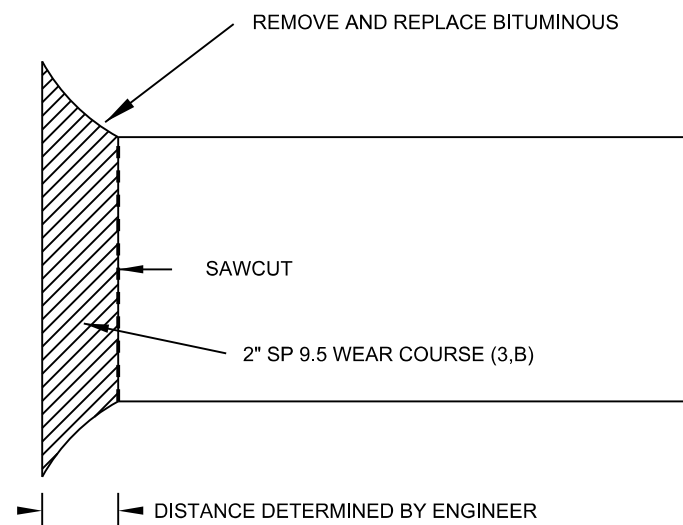
SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

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

RECLAIM AREA - DRIVEWAY DETAIL

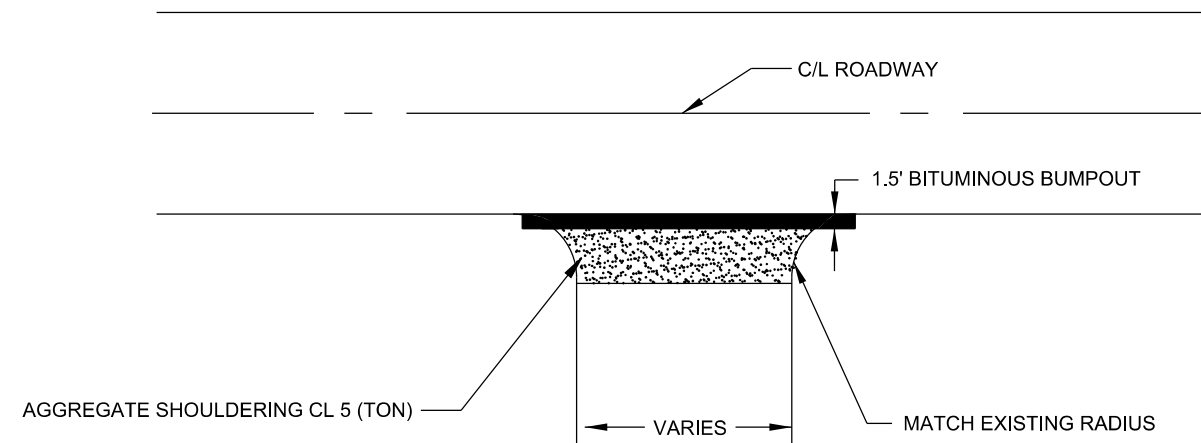
BITUMINOUS

PLAN VIEW

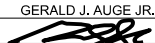


DRIVEWAY DETAIL


GRAVEL / FIELD ENTRANCE



NO	DATE	BY	CKD	APPR	REVISION	02/25/2021	12:55:09 PM
NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_DETAILS.dgn							

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**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 21-13-74

DETAILS
 Sheet 5 of 21 Sheets

SUPERELEVATION CORRECTION TAB CURVE 1			
STATION	POINT	LEFT GRADE	RIGHT GRADE
61+00	BEGIN SUPER RT	-2.0%	-2.0%
61+50	BEGIN SUPER LT	-0.5%	-2.8%
62+00		0.9%	-3.5%
62+50		2.3%	-4.3%
63+00	BEGIN FULL SUPER RT	3.6%	-5.0%
63+50	BEGIN FULL SUPER LT	5.0%	-5.0%
64+00		5.0%	-5.0%
64+50		5.0%	-5.0%
65+00	END FULL SUPER LT	5.0%	-5.0%
65+50		3.6%	-5.0%
66+00	END FULL SUPER RT	2.2%	-5.0%
66+50		0.8%	-4.3%
67+00	END SUPER LT	-0.6%	-3.5%
67+50		-2.0%	-2.8%
68+00	END SUPER RT	-2.0%	-2.0%
68+50		-2.0%	-2.0%
69+00		-2.0%	-2.0%

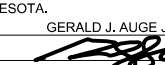
SUPERELEVATION CORRECTION TAB CURVE 2/3			
STATION	POINT	LEFT GRADE	RIGHT GRADE
105+50		-2.0%	-2.0%
106+00		-2.0%	-2.0%
106+50		-2.0%	-2.0%
107+00	BEGIN SUPER RT/LT	-2.0%	-2.0%
107+50		0.0%	-3.0%
108+00		2.0%	-4.0%
108+50		4.0%	-5.0%
109+00	BEGIN FULL SUPER RT/LT	6.0%	-6.0%
109+50		6.0%	-6.0%
110+00		6.0%	-6.0%
110+50		6.0%	-6.0%
111+00		6.0%	-6.0%
111+50		6.0%	-6.0%
112+00		6.0%	-6.0%
112+50	END FULL SUPER RT/LT	6.0%	-6.0%
113+00		4.0%	-5.0%
113+50		2.0%	-4.0%
114+00		0.0%	-3.0%
114+50	END SUPER RT/LT	-2.0%	-2.0%
115+00		-2.8%	-2.0%
115+50		-3.5%	-0.6%
116+00		-4.3%	0.8%
116+50	BEGIN FULL SUPER LT	-5.0%	2.2%
117+00	BEGIN FULL SUPER RT	-5.0%	5.0%
117+50		-5.0%	5.0%
118+00		-5.0%	5.0%
118+50		-5.0%	5.0%
119+00		-5.0%	5.0%
119+50	END FULL SUPER RT/LT	-5.0%	5.0%
120+00		-4.0%	3.6%
120+50		-3.0%	2.2%
121+00	END SUPER LT	-2.0%	0.8%
121+50		-2.0%	-0.6%
122+00	END SUPER RT	-2.0%	-2.0%
122+50		-2.0%	-2.0%
123+00		-2.0%	-2.0%
123+50		-2.0%	-2.0%
124+00		-2.0%	-2.0%

NO	DATE	BY	CKD	APPR	REVISION	
	02/25/2021					12:55:09 PM

NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_DETAILS.dgn

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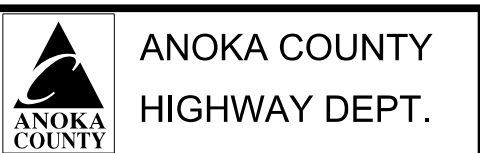
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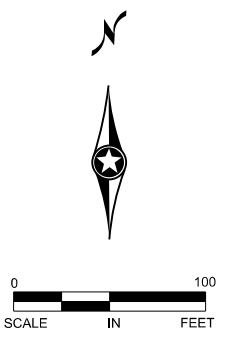
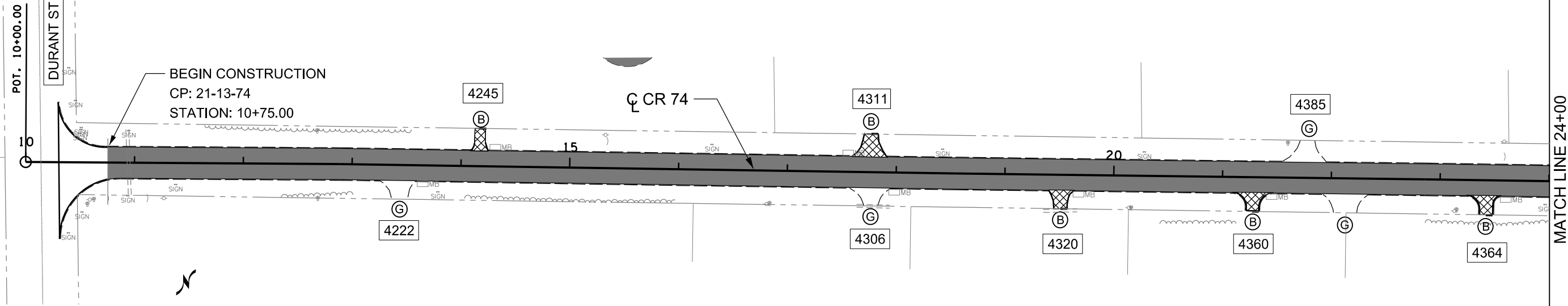
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COUNTY PROJECT 21-13-74

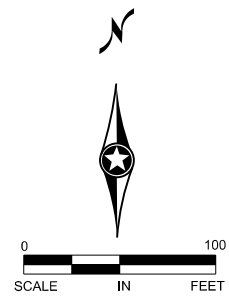
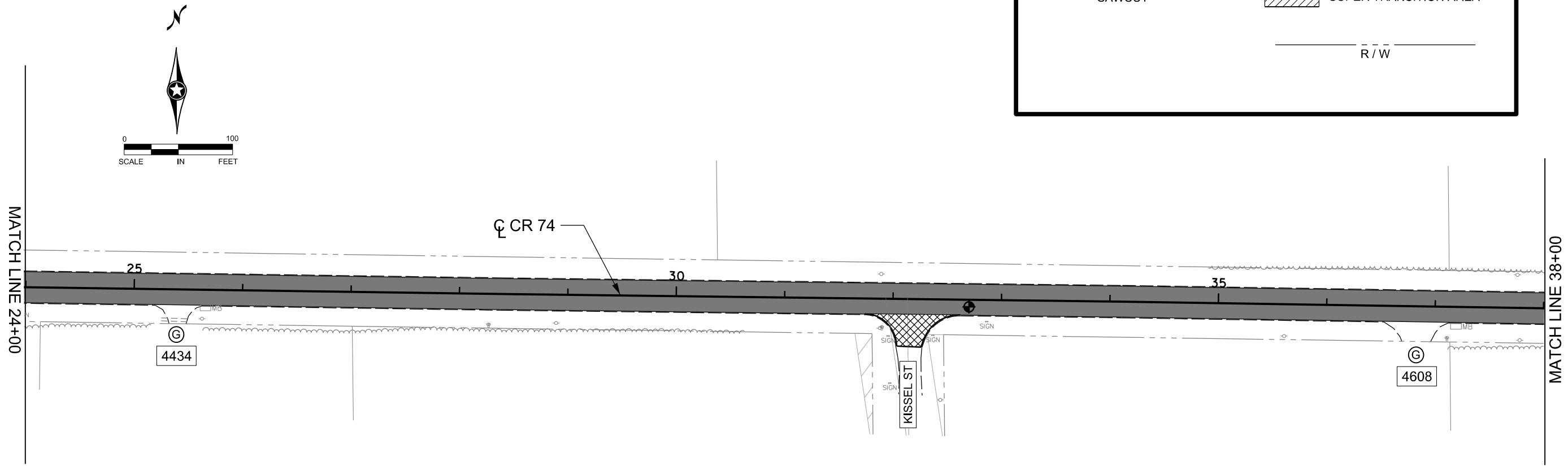
SUPERELEVATION

Sheet 6 of 21 Sheets



LEGEND

(B)	BITUMINOUS	---	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE (RECLAIM)
⊕	CORE LOCATION	[Cross-hatched Box]	REMOVE AND REPLACE PAVEMENT
---	SAWCUT	[Diagonal Hatched Box]	SUPER TRANSITION AREA
		---	R / W



NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME
						02/25/2021	12:55:16 PM

NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_CP1.dgn

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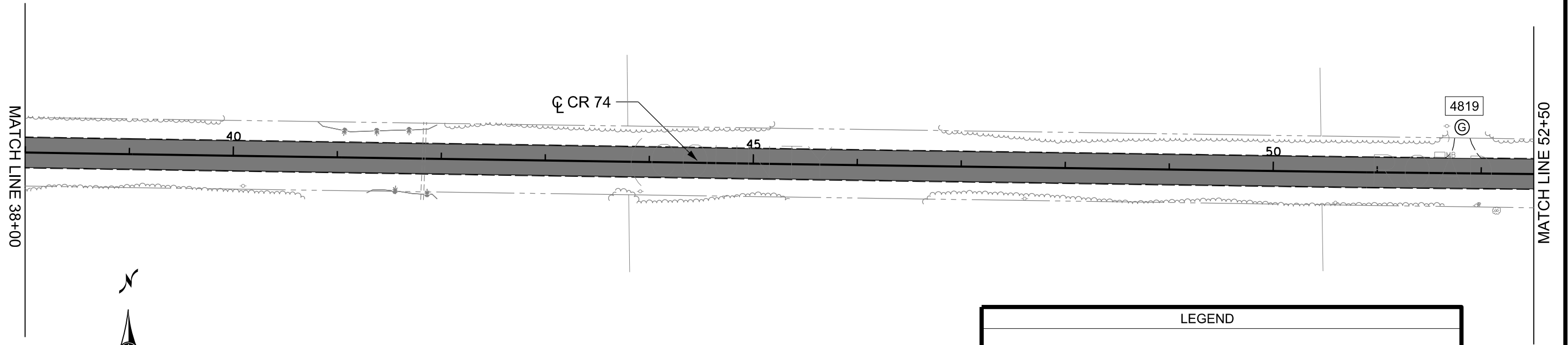
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**ANOKA COUNTY
HIGHWAY DEPT.**

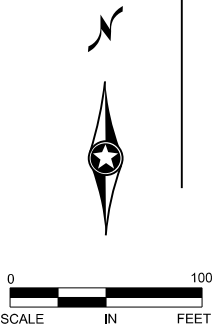
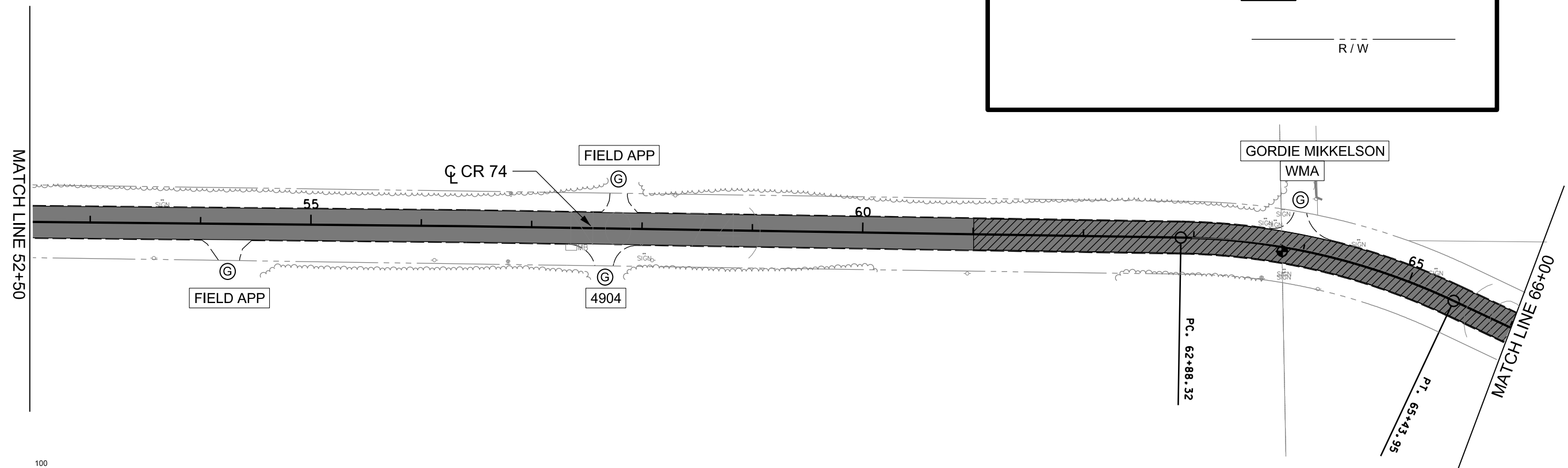
COUNTY PROJECT 21-13-74

CONSTRUCTION PLAN
STA 10+75 TO 38+00
Sheet 7 of 21 Sheets



LEGEND

(B)	BITUMINOUS	---	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE (RECLAIM)
⊕	CORE LOCATION	[Cross-hatched Box]	REMOVE AND REPLACE PAVEMENT
---	SAWCUT	[Diagonal Hatched Box]	SUPER TRANSITION AREA
		---	R / W



NO	DATE	BY	CKD	APPR	REVISION	TIME
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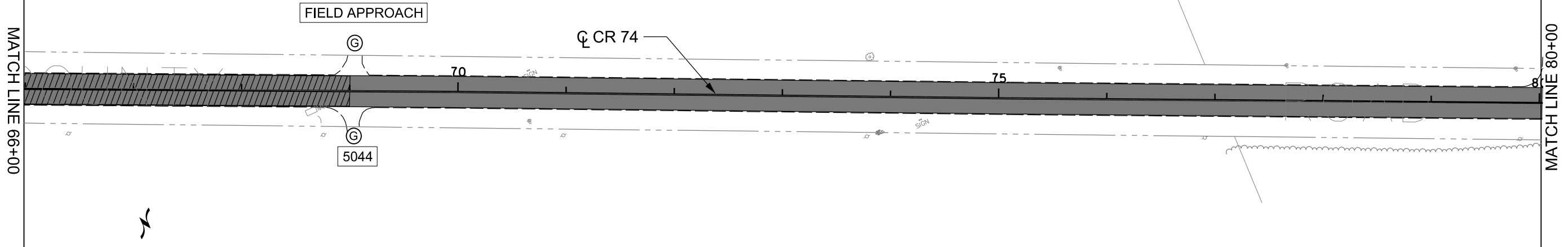
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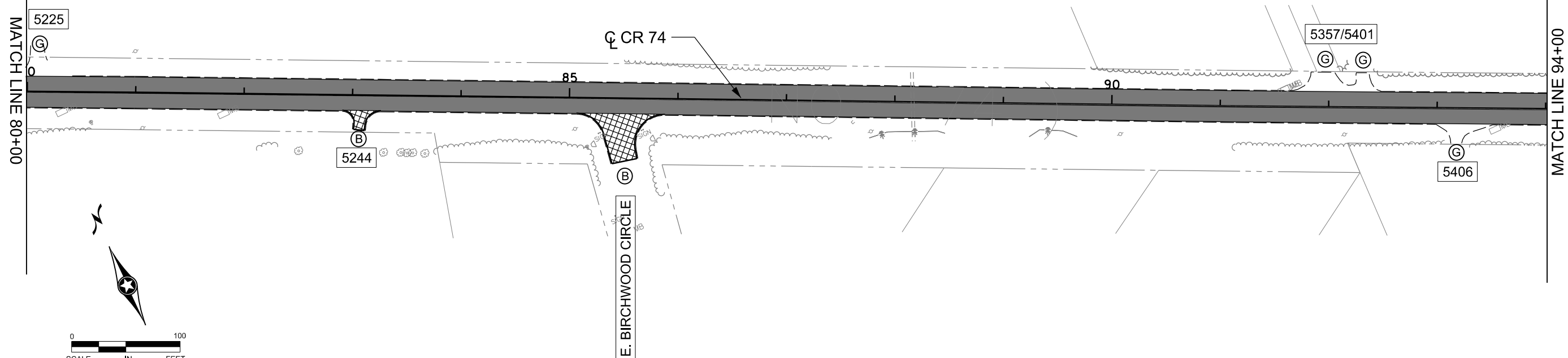
COUNTY PROJECT 21-13-74

CONSTRUCTION PLAN
 STA 38+00 TO 66+00
 Sheet 8 of 21 Sheets



LEGEND

(B)	BITUMINOUS	---	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE (RECLAIM)
⊕	CORE LOCATION	[Cross-hatched Box]	REMOVE AND REPLACE PAVEMENT
---	SAWCUT	[Diagonal Hatched Box]	SUPER TRANSITION AREA
		-----	R / W



NO	DATE	BY	CKD	APPR	REVISION	TIME
	02/25/2021					12:55:19 PM

NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_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: GERALD J. AUGER JR.

SIGNATURE: *[Signature]*

DATE: 02-24-2021 LICENSE NO. 26511

DRAWN BY BRM DATE 12/10/2020

DESIGN BY BRM DATE 12/10/2020

CHECKED BY CSO DATE 1/25/2021

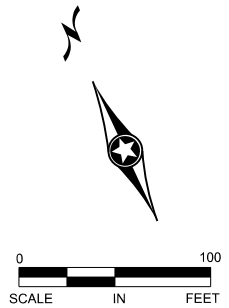
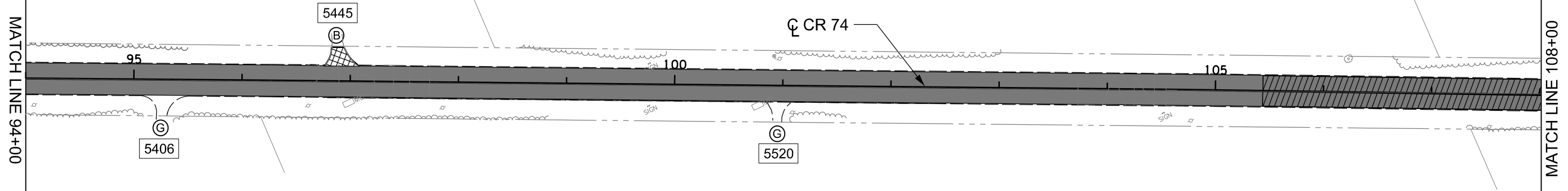
**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 21-13-74

CONSTRUCTION PLAN

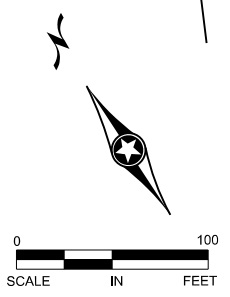
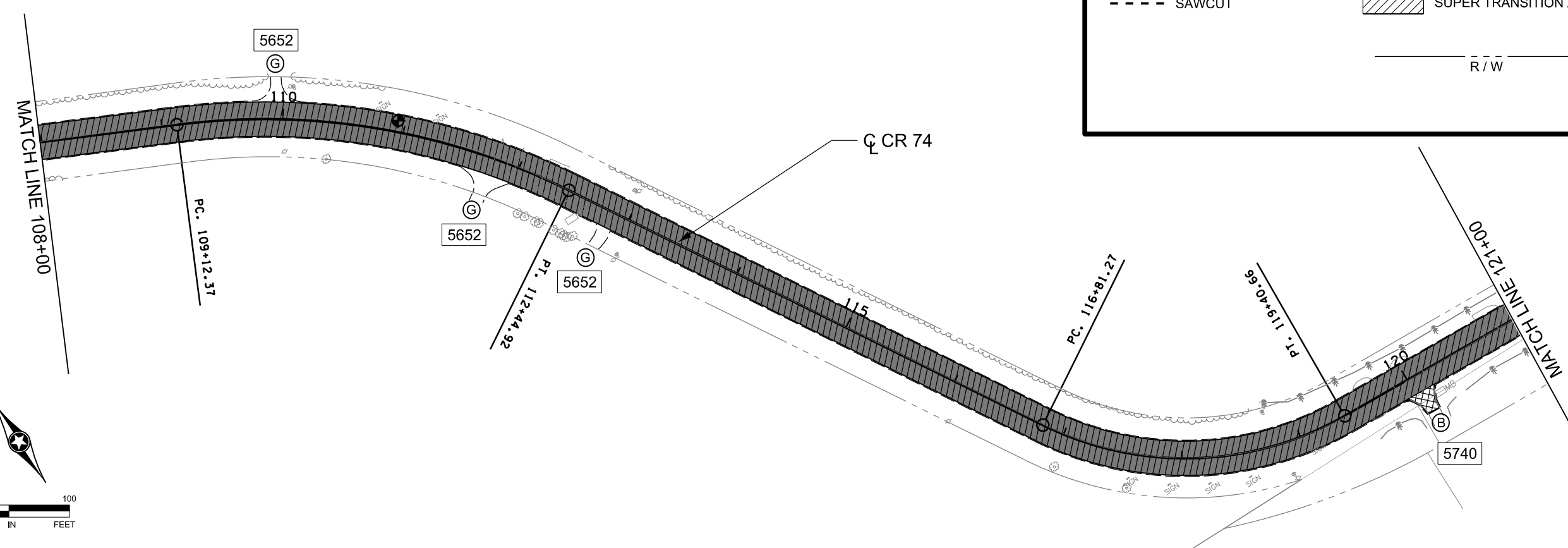
STA 66+00 TO 94+00

Sheet 9 of 21 Sheets



LEGEND

(B)	BITUMINOUS	---	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE (RECLAIM)
(C)	CORE LOCATION	[Cross-hatched Box]	REMOVE AND REPLACE PAVEMENT
---	SAWCUT	[Diagonal Hatched Box]	SUPER TRANSITION AREA
		---	R / W



NO	DATE	BY	CKD	APPR	REVISION	
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NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_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: GERALD J. AUGER JR.
 SIGNATURE: *[Signature]*
 DATE: 02-24-2021 LICENSE NO. 26511

DRAWN BY: BRM DATE: 12/10/2020
 DESIGN BY: BRM DATE: 12/10/2020
 CHECKED BY: CSO DATE: 1/25/2021

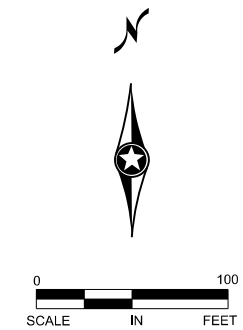
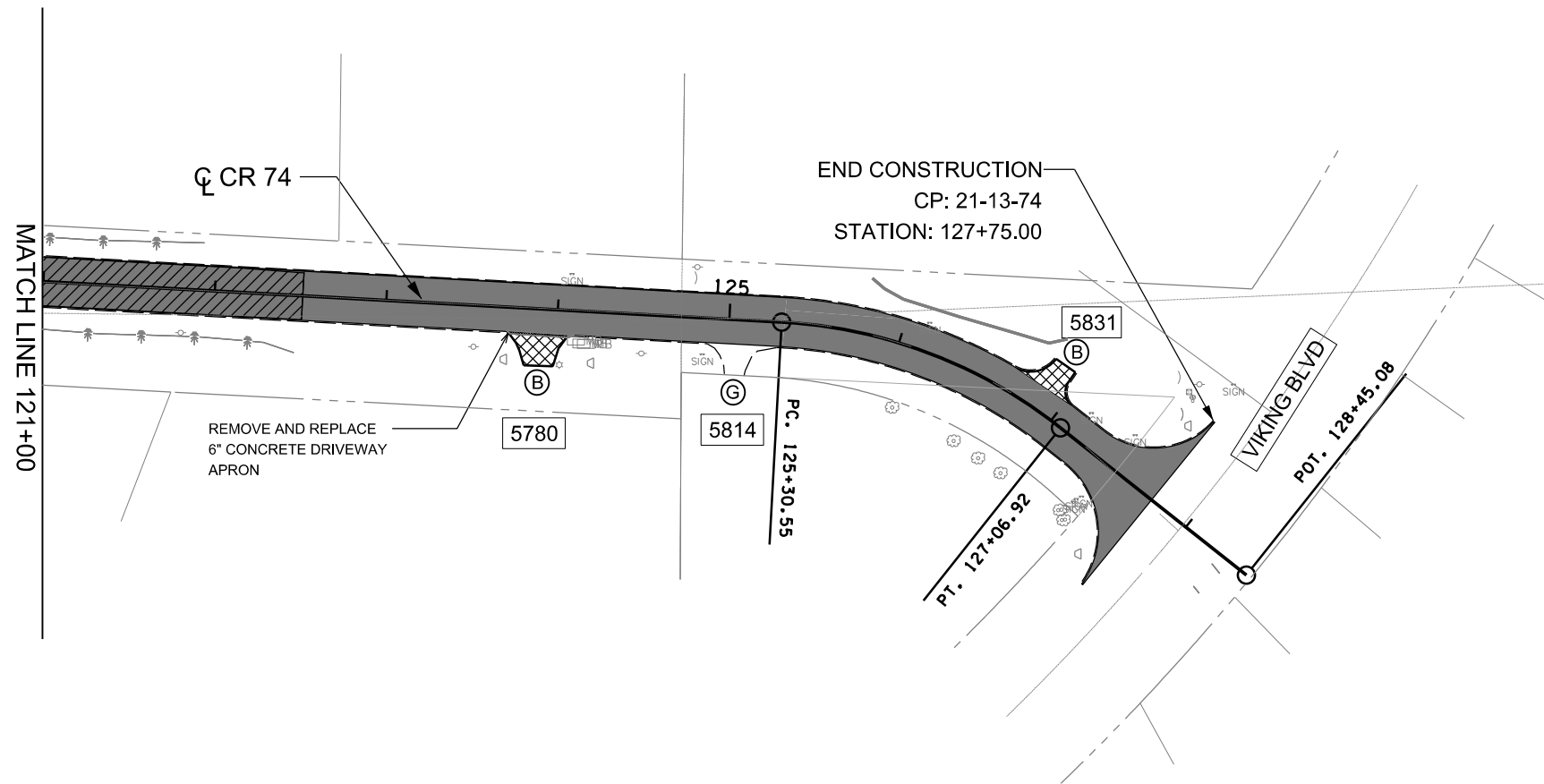
**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 21-13-74

CONSTRUCTION PLAN

STA 94+00 TO 121+00

Sheet 10 of 21 Sheets



LEGEND			
(B)	BITUMINOUS	==	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE (RECLAIM)
(C)	CORE LOCATION	[Cross-hatched Box]	REMOVE AND REPLACE PAVEMENT
- - -	SAWCUT	[Diagonal Hatched Box]	SUPER TRANSITION AREA
		----- R / W -----	

NO	DATE	BY	CKD	APPR	REVISION	
	02/25/2021					12:55:23 PM

NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Proposed\CR74_CP5.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: GERALD J. AUGER JR.
 SIGNATURE: *[Signature]*
 DATE: 02-24-2021 LICENSE NO. 26511

DRAWN BY BRM DATE 12/10/2020
 DESIGN BY BRM DATE 12/10/2020
 CHECKED BY CSO DATE 1/25/2021

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 21-13-74

CONSTRUCTION PLAN
 STA 121+00 TO 127+75
 Sheet 11 of 21 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.

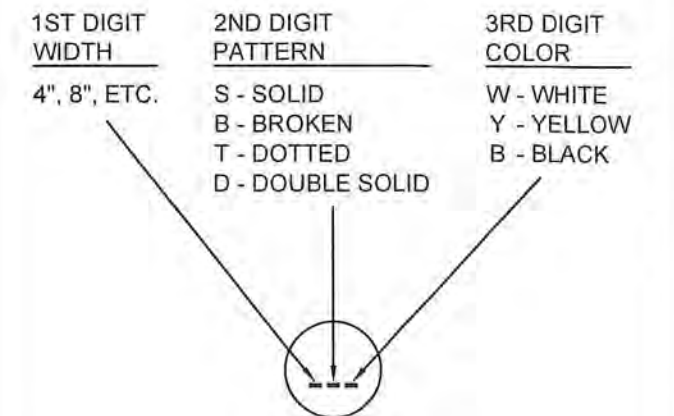
PAVEMENT MARKING TABULATION		
ITEM	UNIT	QUANTITY
4" SOLID LINE WHITE - MULTI COMP	LIN FT	23239
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	4448
4" DOUBLE SOLID LINE YELLOW - MULTI COMP	LIN FT	2774
4" BROKEN LINE YELLOW - MULTI COMP	LIN FT	8650

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:\21-01-00\CR_74_(CR15-CSAH22)\Base\Traffic\ Pavement Marking Details.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: JOSEPH J. MACPHERSON DATE: 3-1-21

SIGNATURE:  LICENSE NO. 46732

DRAWN BY: FL DATE: 1/11/21

DESIGN BY: FL DATE: 1/11/21

CHECKED BY: DATE:



**ANOKA COUNTY
HIGHWAY DEPT.**

CP 21-13-74

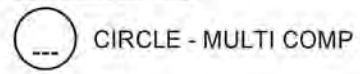
PAVEMENT MARKING
DETAILS

SHEET 12 OF 21 SHEETS

SIGNING NOTES:

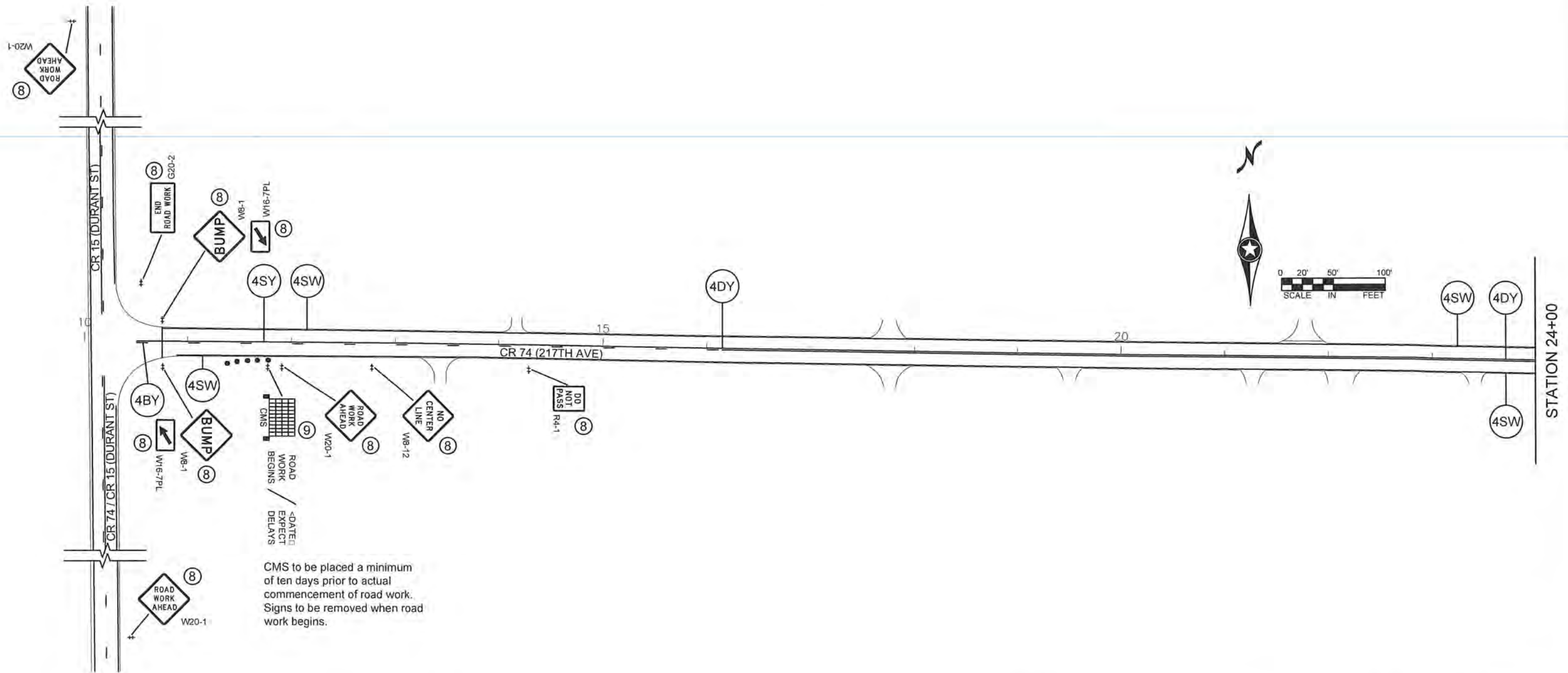
- ⑧ TEMPORARY TRAFFIC CONTROL SIGN
- ⑨ TEMPORARY TRAFFIC CONTROL DEVICE

STRIPING KEY:



NOTES: (TYP.)

- 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 OF SEVEN 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.
- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- 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
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.



CMS 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:\21-01-00\CR_74_(CR15-CSAH22)\Base\Traffic\Temporary Signing & Permanent 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: JOSEPH J. MACPHERSON DATE: 7-1-21

SIGNATURE: *[Signature]* LICENSE NO. 46732

DRAWN BY: FL DATE: 1/11/21

DESIGN BY: FL DATE: 1/11/21

CHECKED BY: DATE:



**ANOKA COUNTY
HIGHWAY DEPT.**

CP 21-13-74

TEMPORARY SIGNING
&
PERMANENT STRIPING

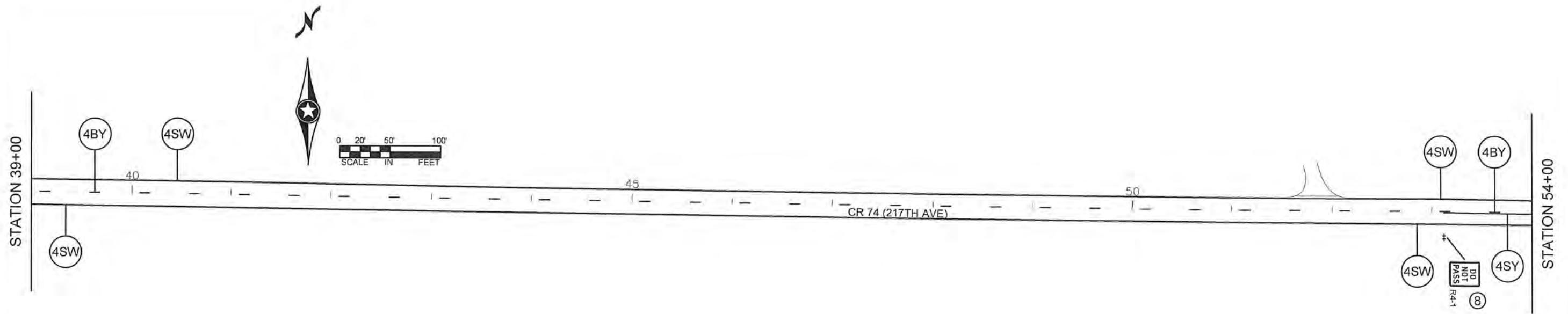
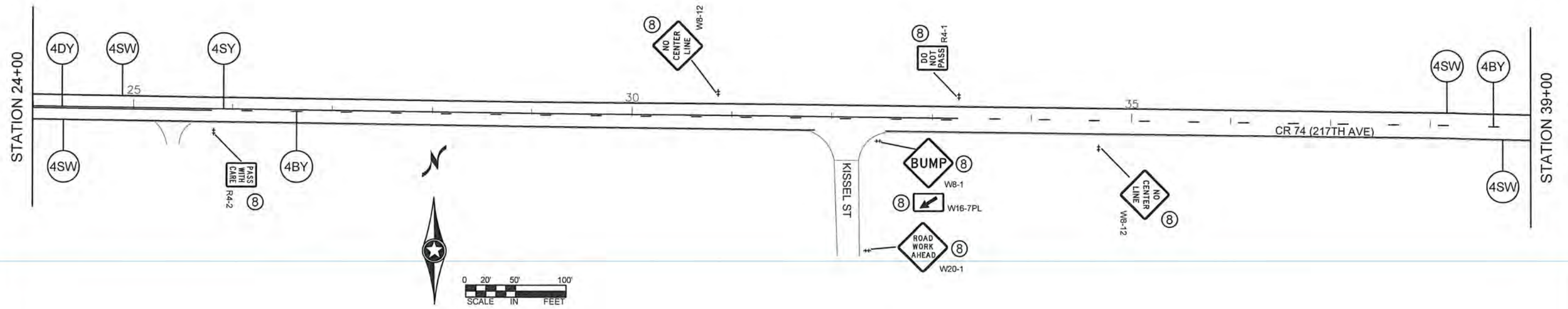
SHEET 13 OF 21 SHEETS

SIGNING NOTES:

- ⑧ TEMPORARY TRAFFIC CONTROL SIGN
- ⑨ TEMPORARY TRAFFIC CONTROL DEVICE

STRIPING KEY:

- --- CIRCLE - MULTI COMP



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Traffic\Temporary Signing & Permanent Striping.dwg

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PRINT NAME: JOSEPH J. MACPHERSON DATE: 2-1-21

SIGNATURE: *[Signature]* LICENSE NO. 46732

DRAWN BY: FL DATE: 1/11/21

DESIGN BY: FL DATE: 1/11/21

CHECKED BY: DATE: _____

ANOKA COUNTY
HIGHWAY DEPT.

CP 21-13-74

TEMPORARY SIGNING & PERMANENT STRIPING

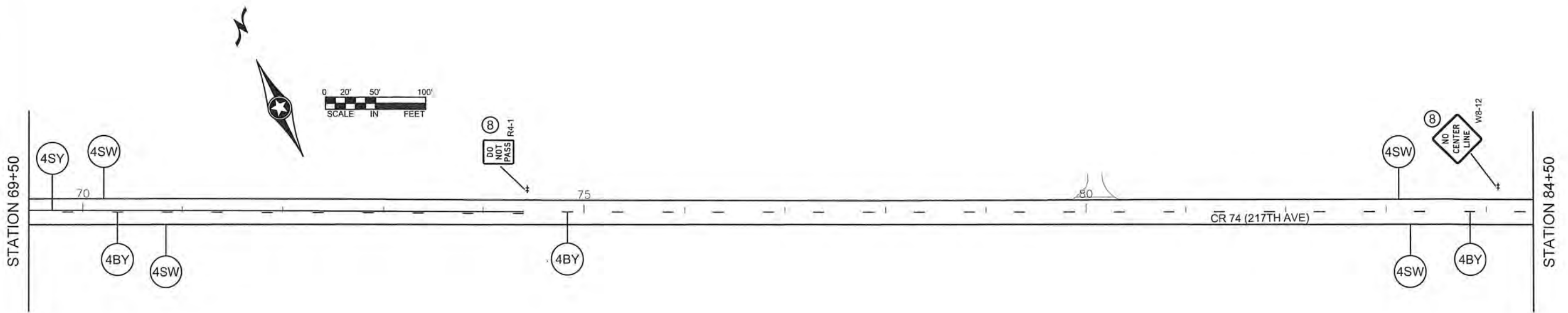
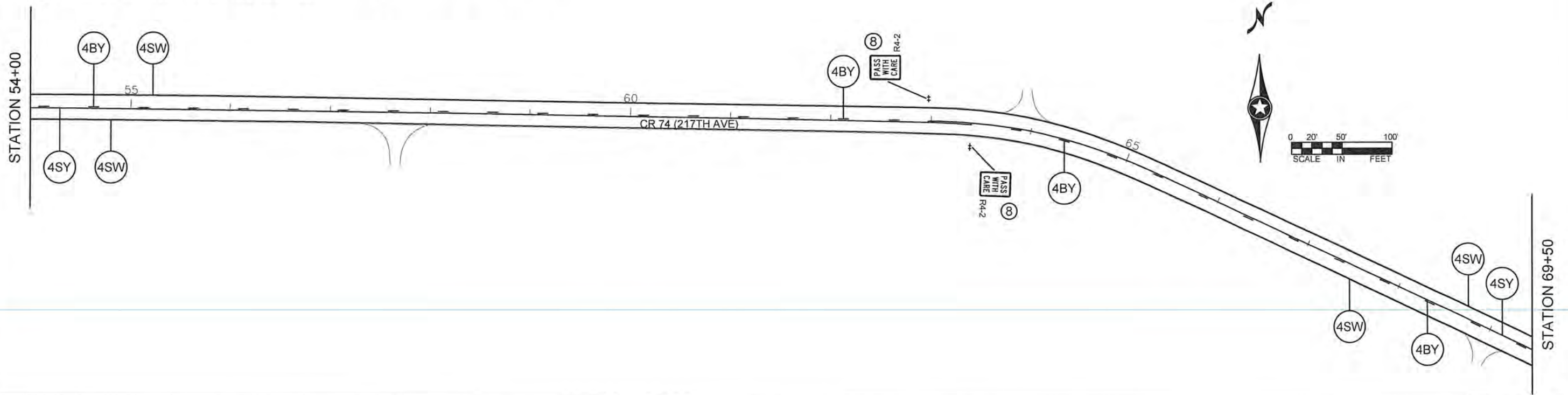
SHEET 14 OF 21 SHEETS

SIGNING NOTES:

- Ⓢ TEMPORARY TRAFFIC CONTROL SIGN
- Ⓣ TEMPORARY TRAFFIC CONTROL DEVICE

STRIPING KEY:

- CIRCLE - MULTI COMP



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Traffic\Temporary Signing & Permanent Striping.dwg					

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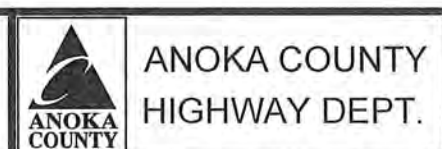
PRINT NAME: JOSEPH J. MACPHERSON DATE: 3-1-21

SIGNATURE: *[Signature]* LICENSE NO. 46732

DRAWN BY: FL DATE: 1/11/21

DESIGN BY: FL DATE: 1/11/21

CHECKED BY: DATE: _____



CP 21-13-74

TEMPORARY SIGNING & PERMANENT STRIPING

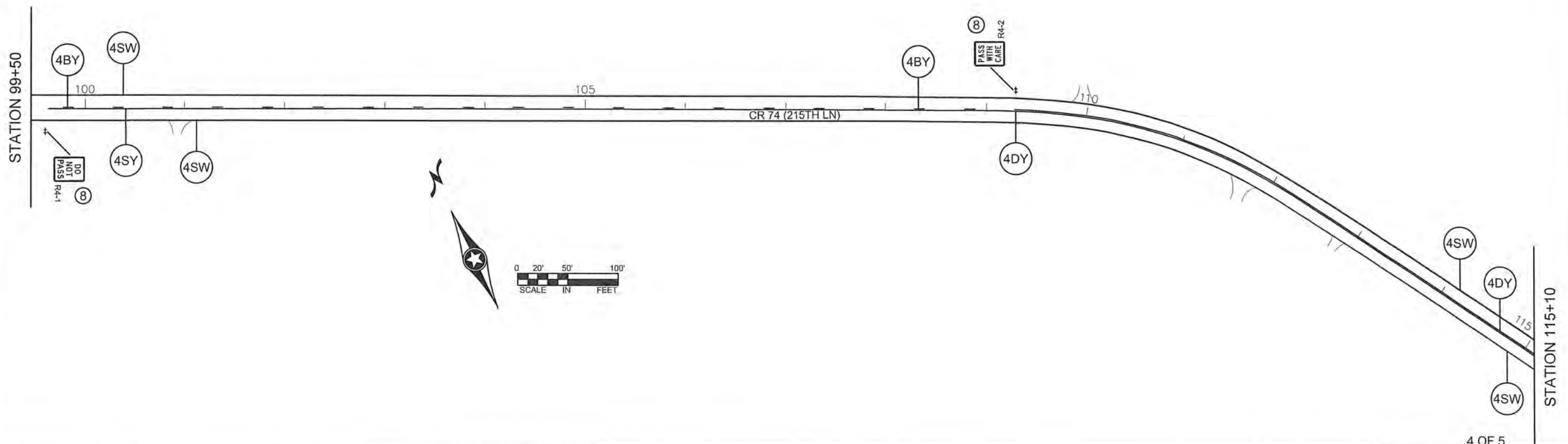
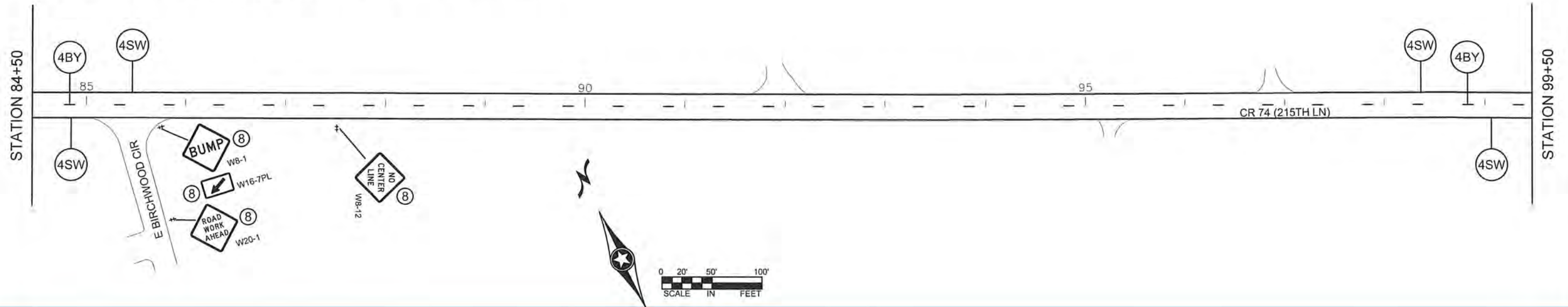
SHEET 15 OF 21 SHEETS

SIGNING NOTES:

- Ⓢ TEMPORARY TRAFFIC CONTROL SIGN
- Ⓣ TEMPORARY TRAFFIC CONTROL DEVICE

STRIPING KEY:

- --- CIRCLE - MULTI COMP



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: JOSEPH J. MACPHERSON DATE: 3-1-21

SIGNATURE: *[Signature]* LICENSE NO. 46732

DRAWN BY: FL DATE: 1/11/21

DESIGN BY: FL DATE: 1/11/21

CHECKED BY: DATE: _____

ANOKA COUNTY
HIGHWAY DEPT.

CP 21-13-74

TEMPORARY SIGNING & PERMANENT STRIPING

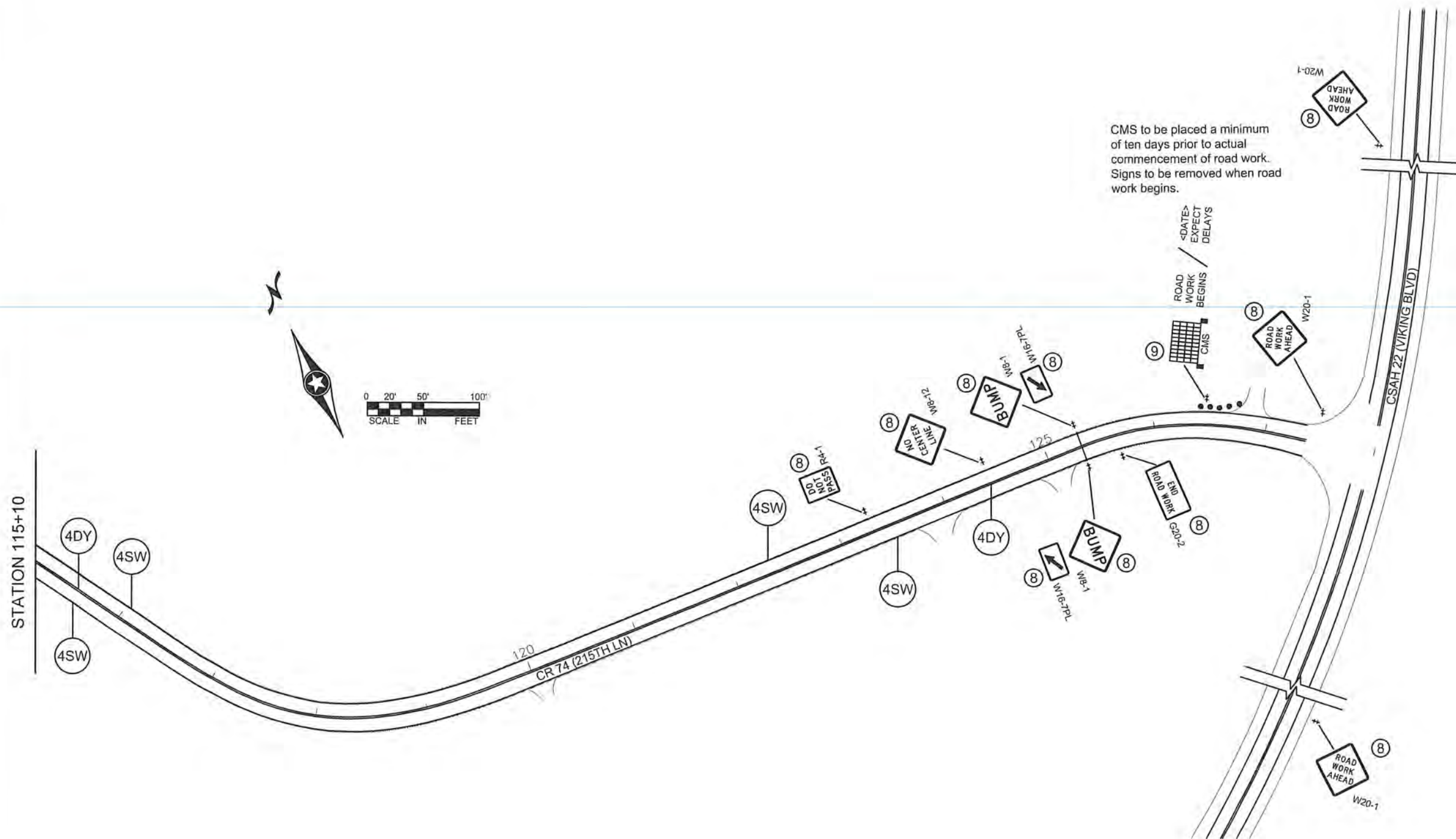
SHEET 16 OF 21 SHEETS

SIGNING NOTES:

- Ⓢ TEMPORARY TRAFFIC CONTROL SIGN
- Ⓣ TEMPORARY TRAFFIC CONTROL DEVICE

STRIPING KEY:

- CIRCLE - MULTI COMP



CMS 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:121-01-00CR_74_(CR15-CSAH22)\Base\Traffic\Temporary Signing & Permanent 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: JOSEPH J. MACPHERSON DATE: 3-1-21

SIGNATURE: *[Signature]* LICENSE NO. 45732

DRAWN BY: FL DATE: 1/11/21

DESIGN BY: FL DATE: 1/11/21

CHECKED BY: DATE:



**ANOKA COUNTY
HIGHWAY DEPT.**

CP 21-13-74

TEMPORARY SIGNING
&
PERMANENT STRIPING

SHEET 17 OF 21 SHEETS

"W" SERIES					
SIGN	SIGN CODE	COLOR	SIZE (IN. X IN.) (W X H)	PANEL AREA SQ FT	QUANTITY
	W8-1	BLACK ON ORANGE	48" X 48"	16.00	6
	W16-7PL	BLACK ON ORANGE	30" X 18"	3.75	6
	W8-1M	BLACK ON ORANGE	48" X 48"	16.00	AS NEEDED
	W8-8	BLACK ON ORANGE	48" X 48"	16.00	AS NEEDED
	W8-9	BLACK ON ORANGE	48" X 48"	16.00	AS NEEDED
	W8-11	BLACK ON ORANGE	48" X 48"	16.00	AS NEEDED
	W8-12	BLACK ON ORANGE	48" X 48"	16.00	6
	W8-23	BLACK ON ORANGE	48" X 48"	16.00	AS NEEDED
	W20-1	BLACK ON ORANGE	48" X 48"	16.00	8
	W20-4	BLACK ON ORANGE	48" X 48"	16.00	AS NEEDED
	W20-7	BLACK ON ORANGE	48" X 48"	16.00	AS NEEDED

"R" SERIES					
SIGN	SIGN CODE	COLOR	SIZE (IN. X IN.) (W X H)	PANEL AREA SQ FT	QUANTITY
	R4-1	BLACK ON WHITE	24" X 30"	5.00	6
	R4-2	BLACK ON WHITE	24" X 30"	5.00	4

"G" SERIES					
SIGN	SIGN CODE	COLOR	SIZE (IN. X IN.) (W X H)	PANEL AREA SQ FT	QUANTITY
	G20-2	BLACK ON ORANGE	36" X 18"	4.5	2

DEVICES		
DEVICE	SIGN CODE	QUANTITY
	DLC	AS NEEDED
	CHANGEABLE MESSAGE SIGN	2 (10 DAYS EA)
	DLC	10

CMS to be placed a minimum of ten days prior to actual commencement of road work. Signs to be removed when road work begins.

CHANGEABLE MESSAGE BOARD MESSAGE SEQUENCE LAYOUT

	R	O	A	D			<	D	A	T	E			
	W	O	R	K				E	X	P	E	C	T	
	B	E	G	I	N	S			D	E	L	A	Y	S

TEMPORARY TRAFFIC CONTROL DISTANCE CHART							
POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	DECISION SIGHT DISTANCE (D) FEET	TAPER LENGTH (12 FT LANE) (L) FEET	SHIFTING TAPER (12 FT LANE) (L ₁) FEET	TYPICAL SHOULDER TAPER (L ₂) FEET	BUFFER SPACE (B) FEET	
0-30	G=25 FT.	100	550	200	100	75	200
35-40		325	700	325	175	125	305
45-50	G=50 FT.	600	900	600	300	200	425
55		750	1200	700	350	250	500
60-65		1000	1400	800	400	275	650
70-75		1200	1600	900	450	300	820

MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL 2018

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\21-01-00\CR_74 (CR15-CSAH22)\Base\Traffic\Temporary Signing & Permanent Striping.dwg

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PRINT NAME: JOSEPH J. MAPHERSON DATE: 3-1-21

SIGNATURE:

LICENSE NO. 46732

DRAWN BY: FL DATE: 1/11/21

DESIGN BY: FL DATE: 1/11/21

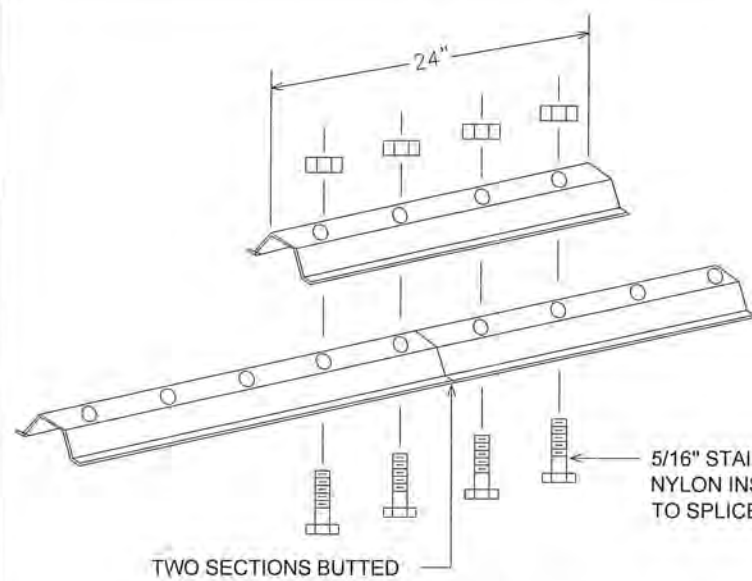
CHECKED BY: DATE:

ANOKA COUNTY HIGHWAY DEPT.

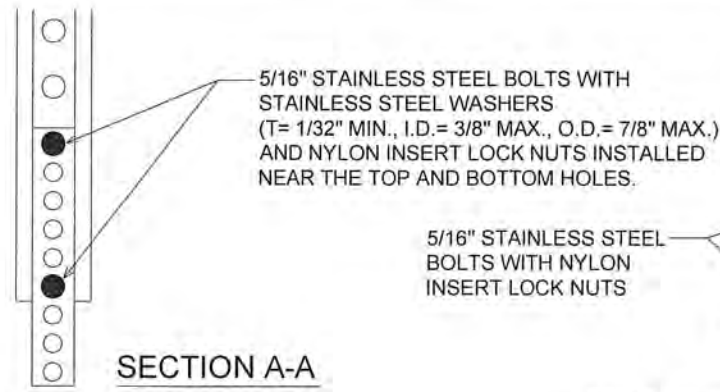
CP 21-13-74

TEMPORARY SIGNING QUANTITIES

SHEET 18 OF 21 SHEETS



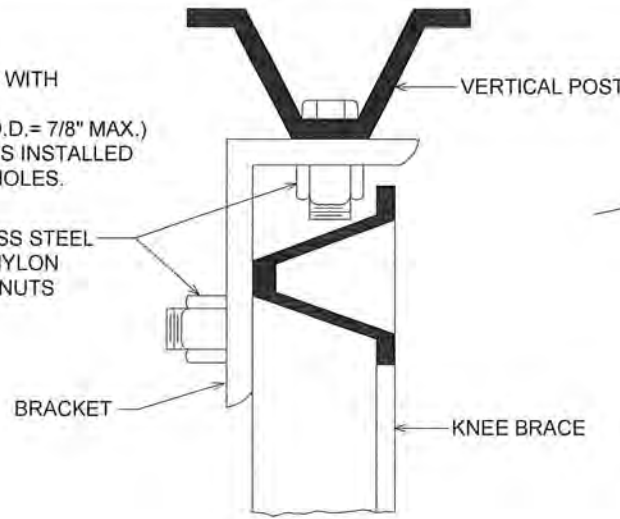
LATERAL BRACE OR STRINGER
SPlice DETAIL (EXPLODED VIEW)



5/16" STAINLESS STEEL BOLTS WITH
STAINLESS STEEL WASHERS
(T= 1/32" MIN., I.D.= 3/8" MAX., O.D.= 7/8" MAX.)
AND NYLON INSERT LOCK NUTS INSTALLED
NEAR THE TOP AND BOTTOM HOLES.

5/16" STAINLESS STEEL
BOLTS WITH NYLON
INSERT LOCK NUTS

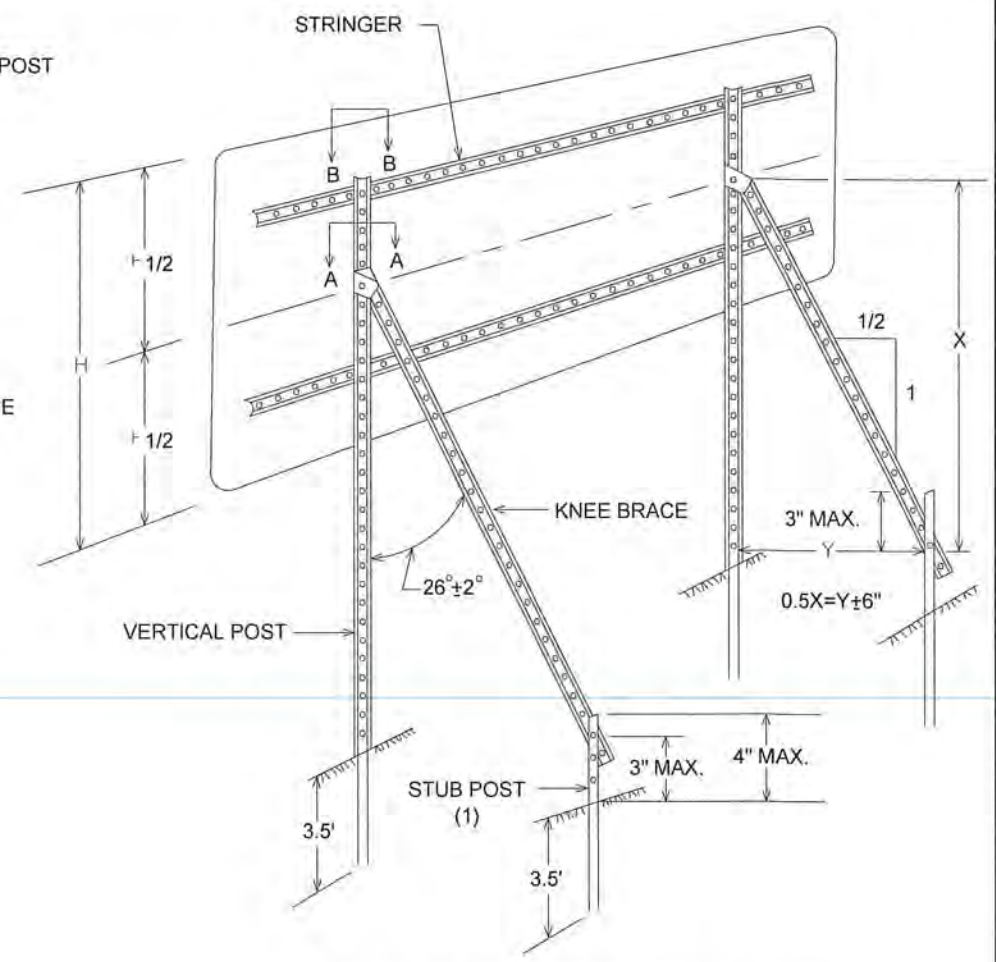
SECTION A-A



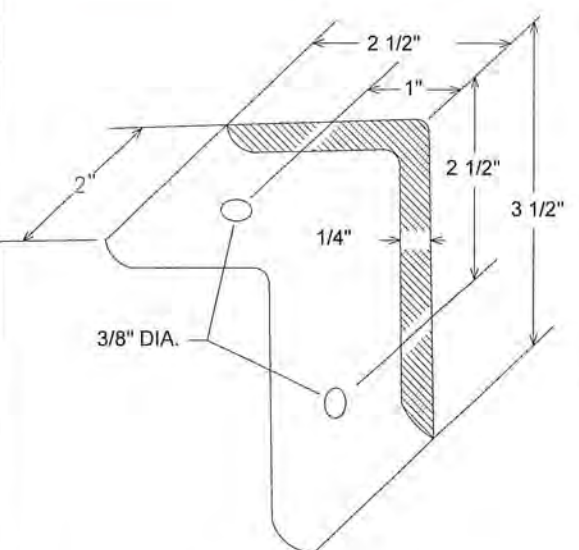
BRACKET

VERTICAL POST

KNEE BRACE

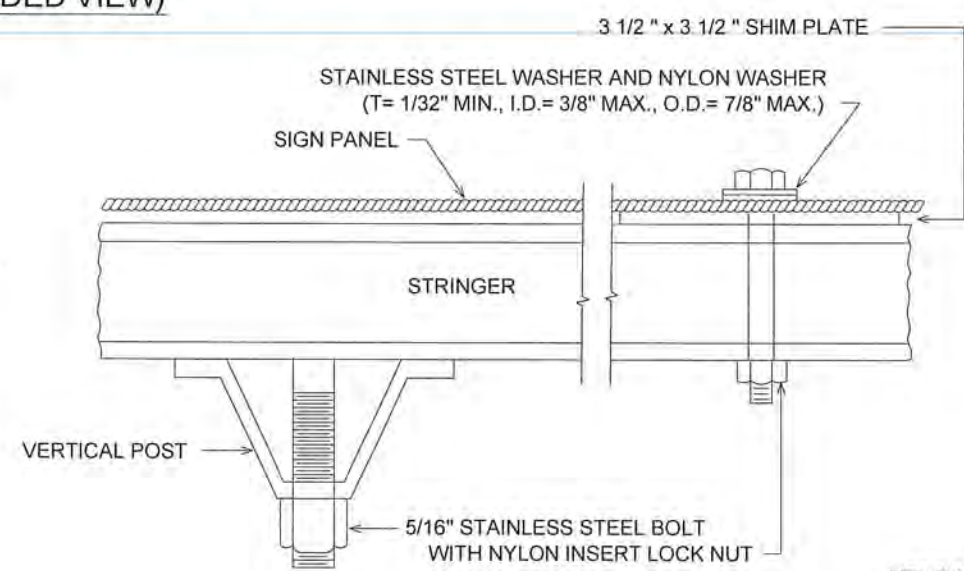


TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

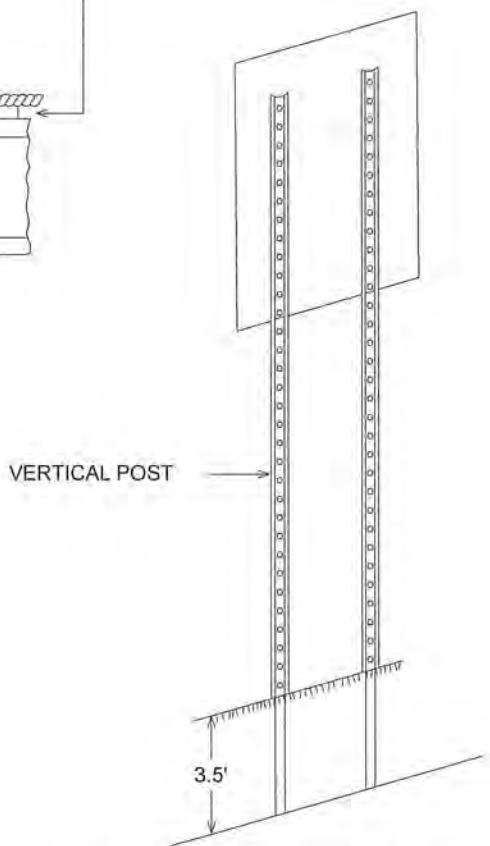


A-FRAME BRACKET

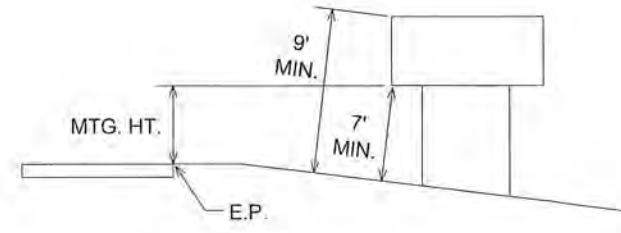
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



SECTION B-B



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	CHKD	APPR	REVISION
NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Traffic\Signing Details.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: JOSEPH J. MACPHERSON DATE: 3-1-21

SIGNATURE: *[Signature]* LICENSE NO. 46732

DRAWN BY: EL DATE: 1/11/21

DESIGN BY: EL DATE: 1/11/21

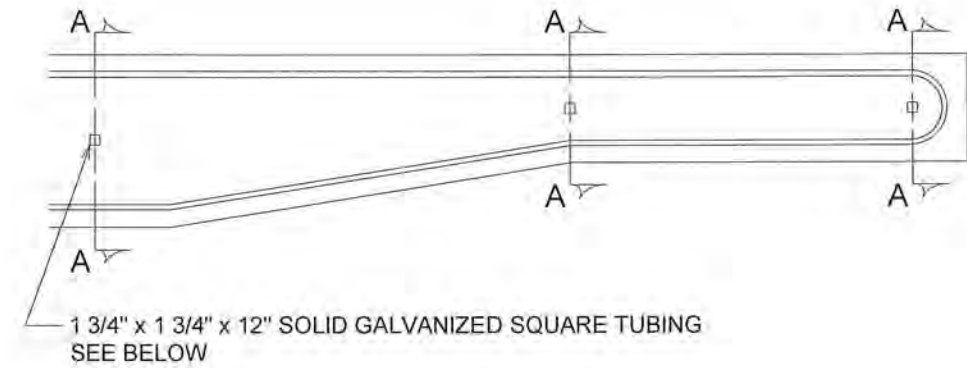
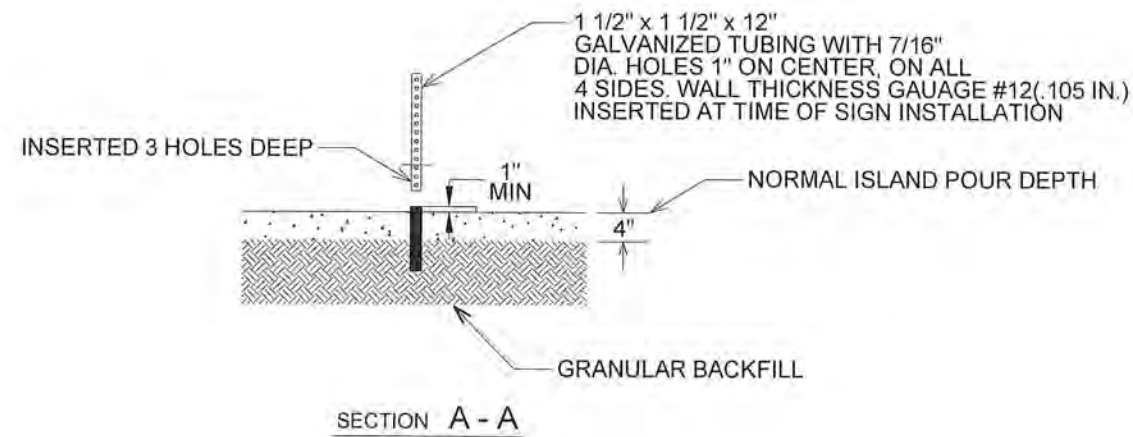
CHECKED BY: DATE: _____

ANOKA COUNTY
HIGHWAY DEPT.

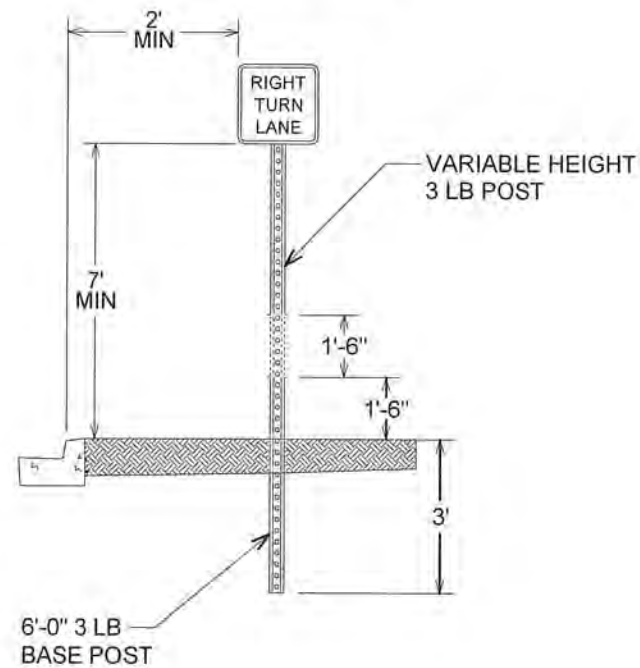
CP 21-13-74

SIGNING DETAILS

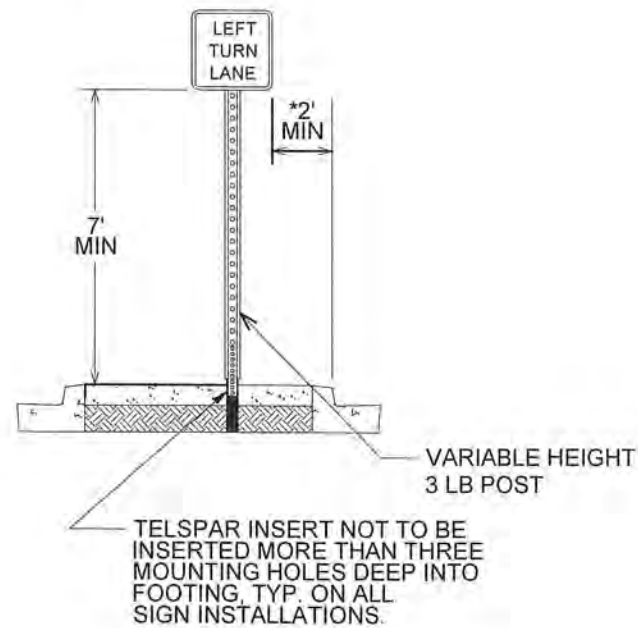
SHEET 19 OF 21 SHEETS



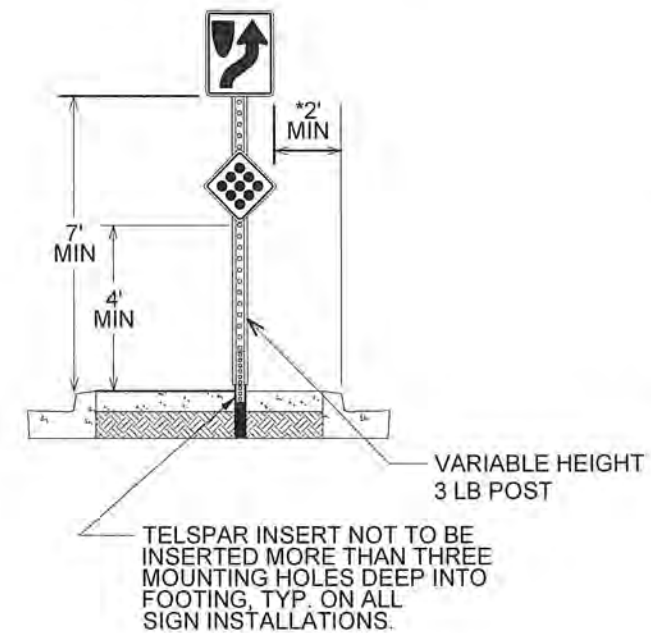
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY 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:\21-01-00\CR_74_(CR15-CSAH22)\Base\Traffic\Signing Details.dwg					

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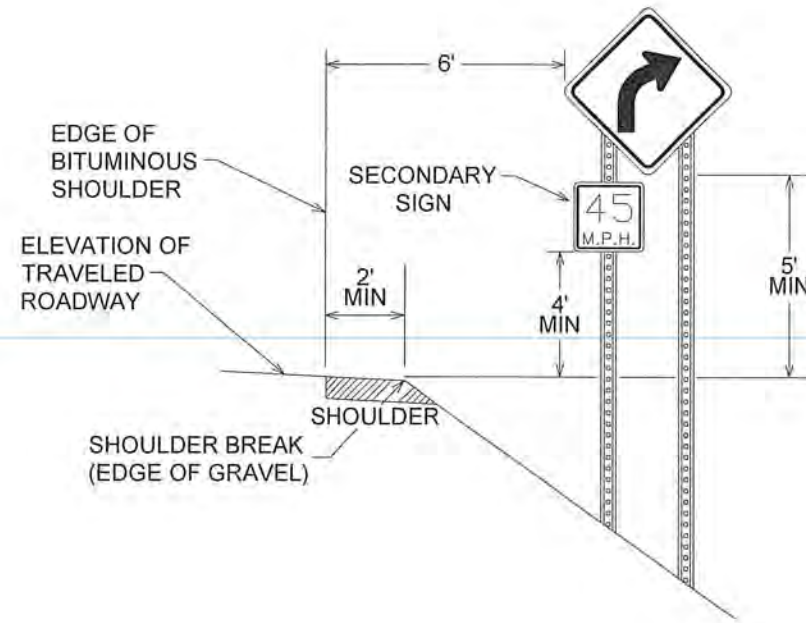
ANOKA COUNTY
HIGHWAY DEPT.

CP 21-13-74

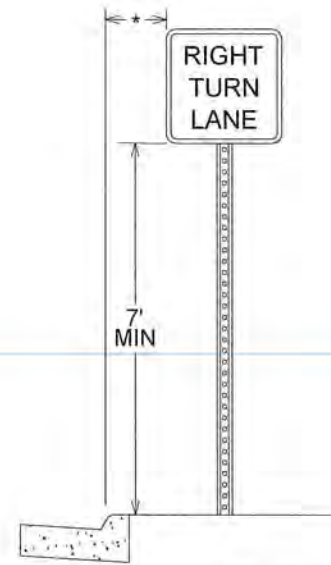
SIGNING DETAILS

SHEET 20 OF 21 SHEETS

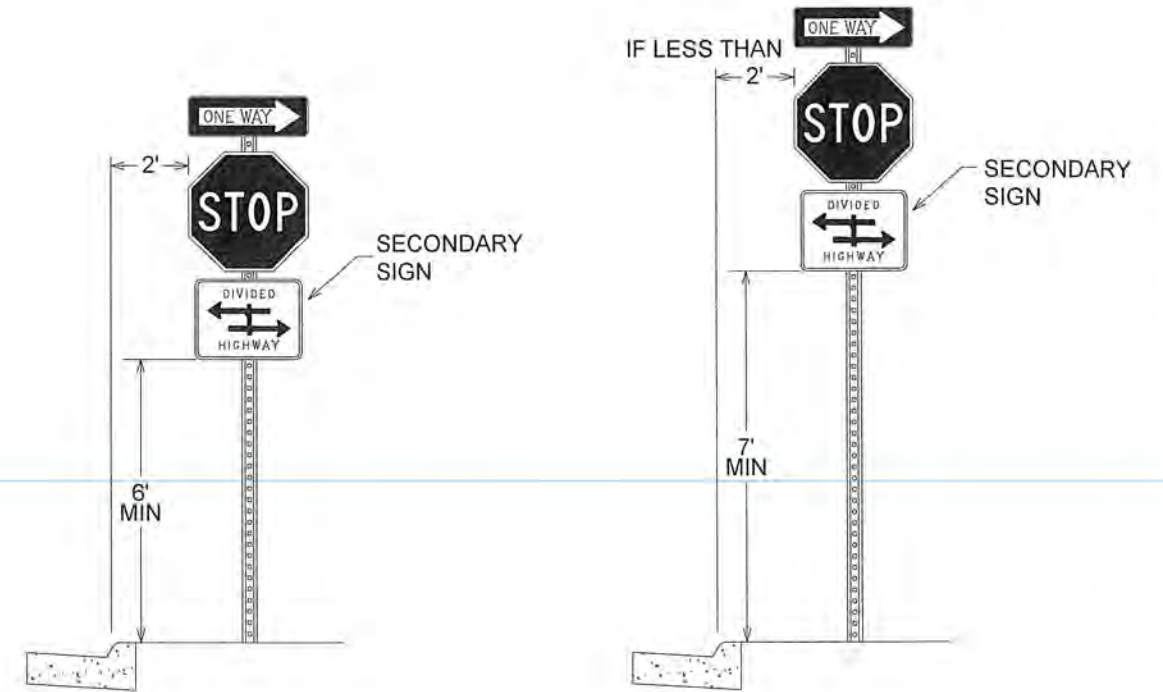
TYPICAL SIGN PLACEMENT
(RURAL)



TYPICAL SIGN PLACEMENT
(URBAN)



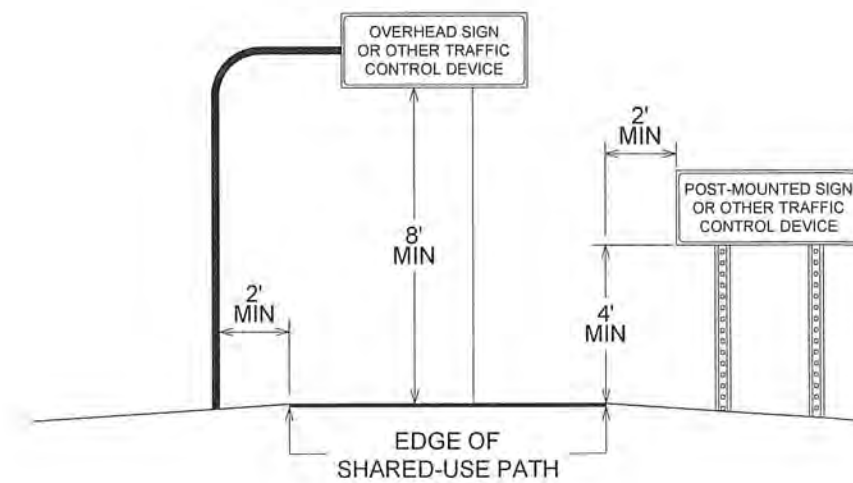
*2' - NARROW BOULEVARD (≤ 8' WIDE)
6' - WIDE BOULEVARD



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

TYPICAL SIGN PLACEMENT
SHARED-USE PATH



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\21-01-00\CR_74_(CR15-CSAH22)\Base\Traffic\Signing Details.dwg

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CHECKED BY: DATE: _____



ANOKA COUNTY
HIGHWAY DEPT.

CP 21-13-74

SIGNING DETAILS

SHEET 21 OF 21 SHEETS