PLOTTED/REVISED: 1/2/2024 9:49:46 AM

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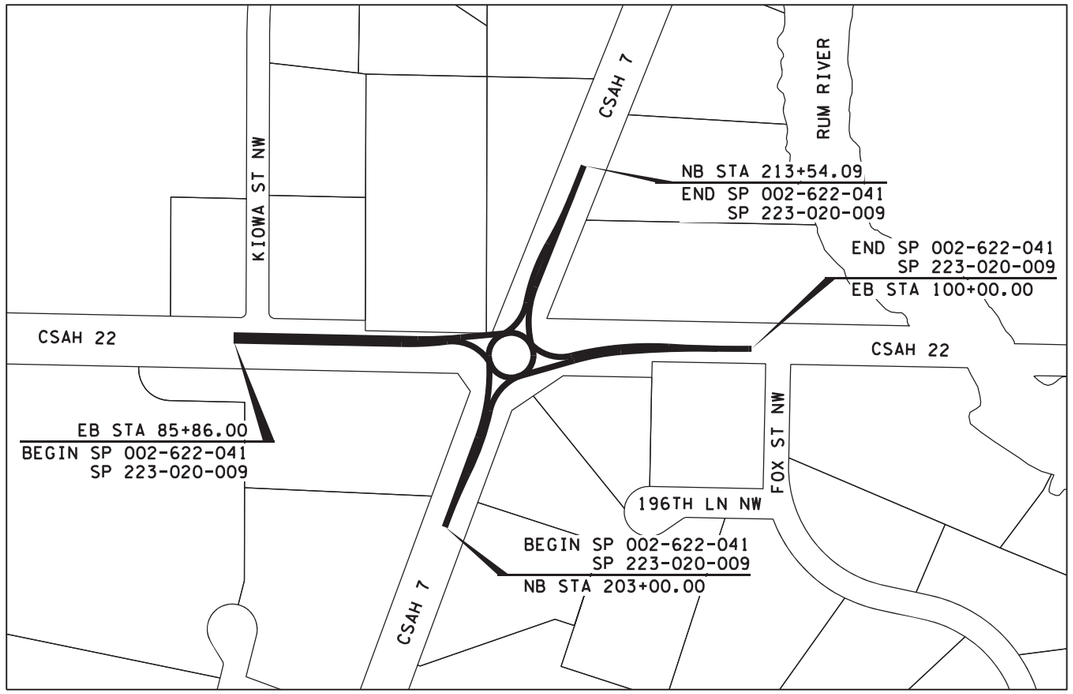
MINNESOTA DEPARTMENT OF TRANSPORTATION

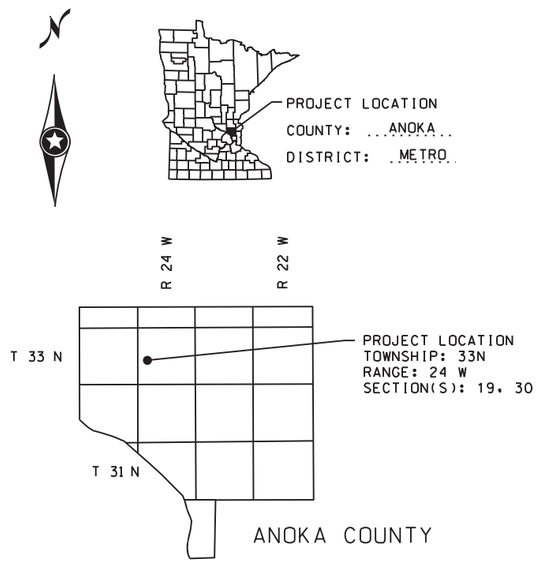
ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN FOR ROUNDABOUT, GRADING, CONCRETE AND BITUMINOUS SURFACING, DRAINAGE, ADA IMPROVEMENTS, AND LIGHTING

SP 002-622-041, SP 223-020-009 LOCATED ON CSAH 22 FROM KIOWA ST NW TO FOX ST NW

LOCATED ON CSAH 7 FROM 500 FT SOUTH OF CSAH 22 TO 500 FT NORTH OF CSAH 22





DESIGN DESIGNATION	CSAH 22 SP 002-622-041 SP 223-020-009	CSAH 7
GROSS LENGTH	1414.00' = 0.268 MILES	1054.09' = 0.199 MILES
BRIDGES-LENGTH	NA	NA
EXCEPTIONS-LENGTH	NA	NA
NET LENGTH	1414.00' = 0.268 MILES	1054.09' = 0.199 MILES
NOTE: LENGTH BASED ON EASTBOUND AND NORTHBOUND ALIGNMENTS.		
R VALUE	40	40
ADT (Current Year) 2024	7,540 W OF CSAH 7	7,640 N OF CSAH 22
	8,270 E OF CSAH 7	6,490 S OF CSAH 22
ADT (Future Year) 2044	9,040 W OF CSAH 7	9,170 N OF CSAH 22
	10,390 E OF CSAH 7	7,790 S OF CSAH 22
D (DIRECTIONAL DISTR.)	50/50	50/50
HEAVY COMMERCIAL	10.11%	10.01%
ESALS	5,402,000 (RIGID)	3,027,000
DESIGN SPEED	55 MPH	55 MPH
BASED ON SIGHT DISTANCE	STOPPING	STOPPING
HEIGHT OF EYE / HEIGHT OF OBJECT	3.5'/2.0'	3.5'/2.0'
FUNCTIONAL CLASS	MINOR ARTERIAL	MINOR ARTERIAL (S OF CSAH 22) MAJOR COLLECTOR (N OF CSAH 22)
NO. OF TRAFFIC LANES	2 (13'-14')	2 (12')
NO. OF PARKING LANES	0	0
SHOULDER WIDTH	6'-11'	6'-10'
TON DESIGN	10	10
DESIGN SPEED NOT ACHIEVED AT	ROUNDABOUT	ROUNDABOUT

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

SCALES

INDEX MAP 0 200 400

PLAN 0 50 100

PROFILE HORIZ. 0 50 100

VERT. 0 5 10

CROSS SECTION 0 10 20

TRAIL DESIGN DESIGNATION:
DESIGN SPEED (MPH) 20
BASED ON 4.5 FT HEIGHT OF EYE
0.0 FT HEIGHT OF OBJECT
DESIGN SPEED NOT ACHIEVED AT: ROUNDABOUT

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES.

MINN. PROJECT NO.: HSIP 0224 (051)

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST EDITION OF THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

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7	EARTHWORK TABULATION
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X1 - X10	CROSS SECTIONS

THIS PLAN CONTAINS 143 SHEETS.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

wsb

DESIGN ENGINEER: 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.

PRINTED NAME: ANDREW J. PLOWMAN, PE
LICENSE NO. 44200

Andrew Plowman
Digitally signed by Andrew Plowman
DN: C=US, E=aplowman@wsbeng.com, O=WSB, OU=WSB, CN=Andrew Plowman
Date: 2024.01.23 15:26:21-06'00'

APPROVED: ANOKA COUNTY ENGINEER
Joseph MacPherson
Digitally signed by Joseph MacPherson
Date: 2024.01.25 14:24:30 -06'00'

APPROVED: OAK GROVE CITY ENGINEER
Charles D. Schwartz, PE
Digitally signed by Charles D. Schwartz, PE
DN: cn=Charles D. Schwartz, PE, c=US, o=City of Oak Grove, ou=City Engineer, email=cschwartz@msa-ps.com
Location: City of Oak Grove
Date: 2024.01.25 16:24:33 -06'00'

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AND FEDERAL AID RULES/POLICY
Dan Erickson
Digitally signed by Dan Erickson
Date: 2024.01.26 16:00:27 -06'00'

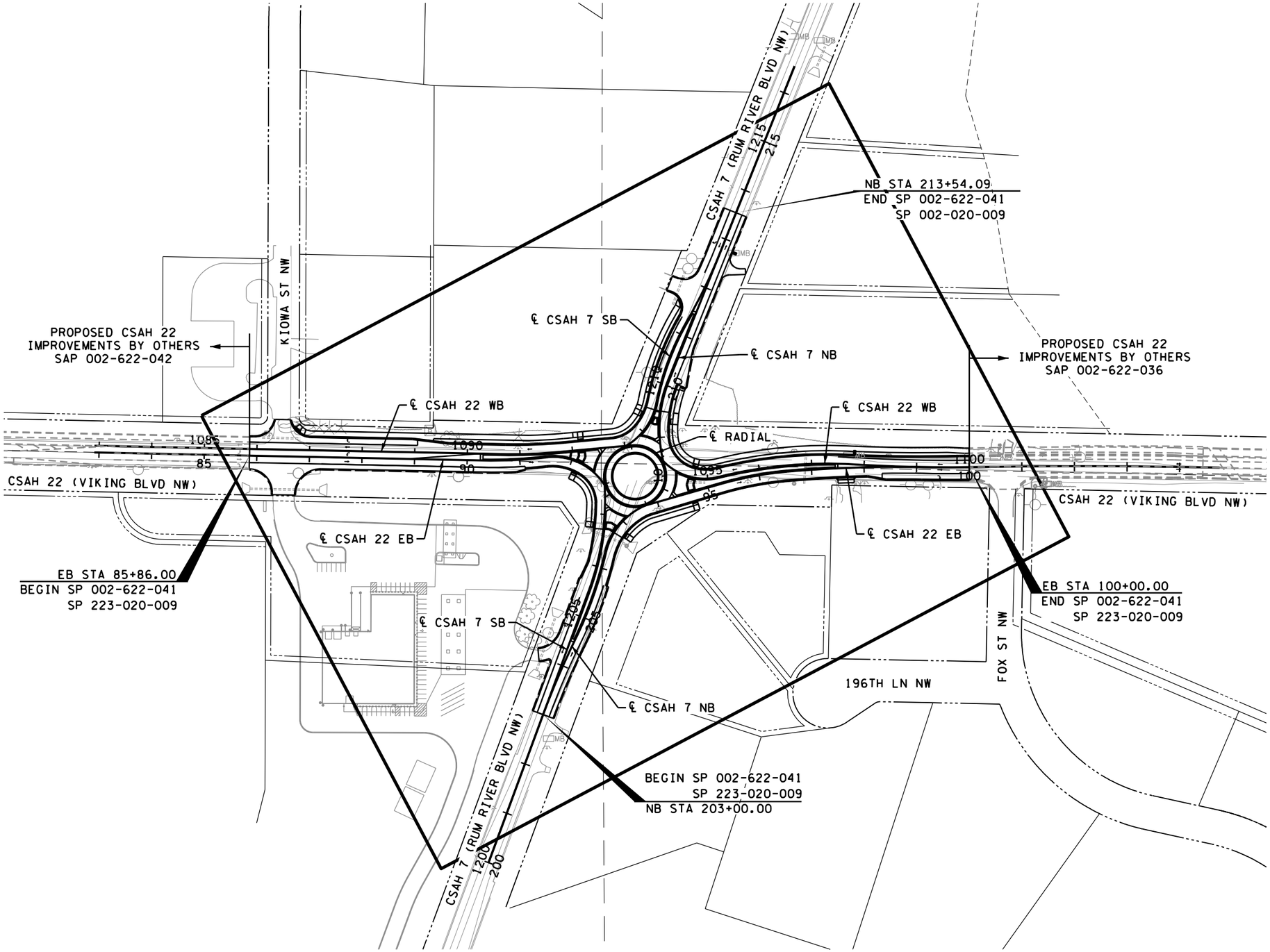
for STATE AID ENGINEER: APPROVED FOR STATE AND FEDERAL AID FUNDING
Dan Erickson
Digitally signed by Dan Erickson
Date: 2024.01.26 16:00:42 -06'00'

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THE PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME:
LICENSE NO.

SP 002-622-041, SP 223-020-009
SHEET NO. 1 OF 133 SHEETS

CSAH 22 at CSAH 7



SECTION	PLAN SHEET INDEX
INPLACE TOPOGRAPHY & UTILITIES	85 - 86
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CONSTRUCTION PLAN & PROFILES	91 - 94
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PAVEMENT MARKING PLAN	126
LIGHTING PLAN	128
TURF ESTABLISHMENT & EROSION CONTROL	133

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

GENERAL LAYOUT

SP 002-622-041, SP 223-020-009

SHEET 2 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:17 PM

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STATEMENT OF ESTIMATED QUANTITIES

TAB ID	SHEET NO.	ITEM	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL	PARTICIPATING - FEDERAL		
							ANOKA COUNTY SP 002-622-041	CITY OF OAK GROVE SP 223-020-009	DRAINAGE 88.4% SP 002-622-041 11.6% SP 223-020-009
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
		2021.501	MOBILIZATION		LUMP SUM	1	0.84	0.06	0.10
A	5R	2101.502	GRUBBING	(1)(13)	EACH	17	17		
A	5R	2101.505	GRUBBING	(1)(13)	ACRE	0.6	0.6		
G	49	2102.503	PAVEMENT MARKING REMOVAL		LIN FT	12525	12525		
A	5R	2104.502	REMOVE PIPE APRON		EACH	10	10		
K	117 - 118	2104.502	REMOVE SIGN		EACH	35	35		
L	117 - 118	2104.502	REMOVE SIGN TYPE SPECIAL		EACH	1	1		
A	5R	2104.502	REMOVE MAIL BOX SUPPORT	(2)	EACH	2	2		
J	115	2104.502	SALVAGE CONCRETE APRON		EACH	4	4		
K	117 - 118	2104.502	SALVAGE SIGN		EACH	1	1		
I	117 - 118	2104.502	SALVAGE SIGN TYPE SPECIAL		EACH	1	1		
A	5R	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	373	373		
A	5R	2104.503	REMOVE PIPE CULVERTS		LIN FT	312	312		
A	5R	2104.503	REMOVE CURB & GUTTER		LIN FT	716	716		
A	5R	2104.503	REMOVE BITUMINOUS CURB		LIN FT	629	629		
I	115	2104.503	SALVAGE PIPE CULVERT		LIN FT	221	221		
A & G	5R & 49	2104.504	REMOVE BITUMINOUS PAVEMENT		SQ YD	20694	20694		
E & G	7 & 49	2106.507	EXCAVATION - COMMON	(P)	CU YD	17137	17137		
E	7	2106.507	EXCAVATION - SUBGRADE		CU YD	6705	6705		
E	7	2106.507	SELECT GRANULAR EMBANKMENT (CV)		CU YD	7223	7223		
E & G	7 & 49	2106.507	COMMON EMBANKMENT (CV)	(P)	CU YD	11553	11553		
		2123.510	DOZER		HOUR	60	60		
		2123.610	STREET SWEEPER (WITH PICKUP BROOM)	(4)	HOUR	40	40		
		2123.610	1.5 CU YD BACKHOE	(3)	HOUR	40	40		
		2130.523	WATER	(5)	MGAL	100	100		
B & G	5R & 49	2211.507	AGGREGATE BASE (CV) CLASS 5	(P)	CU YD	5749	5358	391	
B	5R	2211.507	AGGREGATE BASE (CV) CLASS 5 (DRIVEWAYS)		CU YD	27	27		
G	49	2231.509	BITUMINOUS PATCHING MIXTURE		TON	1785	1785		
C	5R	2301.502	1.25" DOWEL BAR		EACH	3681	3681		
C	5R	2301.504	CONCRETE PAVEMENT 8.0"		SQ YD	6466	6466		
C	5R	2301.504	CONCRETE PAVEMENT 8.0" SPECIAL	(6)	SQ YD	388	388		
B	5R	2357.506	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	470	470		
B	5R	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	(8)	TON	271		271	
B	5R	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	(12)	TON	18	18		
B	5R	2360.509	TYPE SP 12.5 NON-WEAR COURSE MIX (4,B)		TON	435	435		
B	5R	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,C)		TON	1228	1228		
I	115	2501.502	15" GS PIPE APRON		EACH	2	2		
H	115	2501.502	15" RC PIPE APRON		EACH	4			4
H	115	2501.502	18" RC PIPE APRON		EACH	1			1
I	115	2501.502	INSTALL CONCRETE APRON		EACH	4	4		
I	115	2501.503	15" CS PIPE CULVERT		LIN FT	44	44		
I	115	2501.503	INSTALL PIPE CULVERT		LIN FT	221	221		
H	115	2503.503	15" RC PIPE SEWER DES 3006 CL V		LIN FT	910			910
H	115	2503.503	18" RC PIPE SEWER DES 3006 CL V		LIN FT	790			790
		2503.601	TEMPORARY BYPASS PUMPING		LUMP SUM	1	1		
H	115	2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE		EACH	1			1
J	115	2506.502	CASTING ASSEMBLY		EACH	31			31
H	115	2506.503	CONST DRAINAGE STRUCTURE DESIGN G		LIN FT	10.2			10.2
H	115	2506.503	CONST DRAINAGE STRUCTURE DESIGN H		LIN FT	27.1			27.1
H	115	2506.503	CONST DRAINAGE STRUCTURE DESIGN SD-48		LIN FT	3.0			3.0
H	115	2506.503	CONST DRAINAGE STRUCTURE DES 48-4020		LIN FT	92.3			92.3
H	115	2506.503	CONST DRAINAGE STRUCTURE DES 60-4020		LIN FT	5.0			5.0
H	115	2511.504	GEOTEXTILE FILTER TYPE 4		SQ YD	47			47
H	115	2511.507	RANDOM RIPRAP CLASS III		CU YD	12			12
C	5R	2521.518	4" CONCRETE WALK	(9)	SQ FT	3003	3003		

NOTES:

(1) NO TREES SHALL BE CLEARED OR GRUBBED WITHOUT THE ENGINEER'S APPROVAL.
(2) CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF TEMPORARY MAIL SERVICE AND FINAL MAIL BOX PLACEMENT.
(3) TO BE USED FOR MINOR DITCH CLEANING AND/OR AS DIRECTED BY THE ENGINEER.
(4) TO BE USED FOR SURFACE CLEANING AND/OR AS DIRECTED BY THE ENGINEER.
(5) TO BE USED FOR DUST CONTROL AND/OR AS DIRECTED BY THE ENGINEER.
(6) COLORED CONCRETE, INTEGRAL RED (FS 31136).
(7) TO BE USED IN PEDESTRIAN RAMP LANDINGS PER MN/DOT STANDARD PLAN 5-297.250.
(8) TO BE USED FOR BITUMINOUS TRAILS.
(9) THIS ITEM INCLUDES THE QUANTITY FOR CONCRETE MEDIANS.
(10) SEE DETAIL IN TYPICAL SECTIONS.
(11) SEE TABULATION FOR COLOR.
(12) TO BE USED FOR DRIVEWAYS.
(13) LIMBING OF TREES 7' UP FROM GROUND IS INCIDENTAL TO CLEARING.
(P) PLAN QUANTITY

NO.	DATE	BY	CHK	REVISIONS
1	2024/02/26	AJF	AJP	UPDATE AGGREGATE BASE (CV) CLASS 5 QUANTITY

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/26/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STATEMENT OF ESTIMATED QUANTITIES
SP 002-622-041, SP 223-020-009

SHEET 3R OF 133 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB ID	SHEET NO.	ITEM	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL	PARTICIPATING - FEDERAL		
							ANOKA COUNTY SP 002-622-041	CITY OF OAK GROVE SP 223-020-009	DRAINAGE 88.4% SP 002-622-041 11.6% SP 223-020-009
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
C	5	2521.518	4" CONCRETE WALK SPECIAL	(6)	SQ FT	5847	5847		
C	5	2521.518	6" CONCRETE WALK	(7)	SQ FT	3861	339	3522	
C	5	2521.602	DRILL & GROUT REINF BAR (EPOXY COATED) (ADA)	(7)	EACH	57		57	
C	5	2531.503	CONCRETE CURB AND GUTTER DESIGN R418		LIN FT	359	359		
C	5	2531.503	CONCRETE CURB AND GUTTER DESIGN B418 (MOD)	(10)	LIN FT	2180	2180		
C	5	2531.503	CONCRETE CURB AND GUTTER DESIGN B424		LIN FT	3051	1661	1390	
C	5	2531.503	CONCRETE CURB AND GUTTER DESIGN B612		LIN FT	14	7	7	
C	5	2531.504	6" CONCRETE DRIVEWAY PAVEMENT		SQ YD	14	14		
C	5	2531.618	TRUNCATED DOMES	(7)	SQ FT	395		395	
	91	2540.602	MAIL BOX SUPPORT	(2)	EACH	2	2		
N	127	2545.502	LIGHTING UNIT TYPE 9-30		EACH	13	7	6	
N	127	2545.502	LIGHT FOUNDATION DESIGN E		EACH	13	7	6	
N	127	2545.502	SERVICE CABINET -TYPE L1		EACH	1	0.5	0.5	
N	127	2545.502	SERVICE EQUIPMENT		EACH	1	0.5	0.5	
N	127	2545.502	EQUIPMENT PAD B		EACH	1	0.5	0.5	
N	127	2545.503	1.5" NON-METALLIC CONDUIT		LIN FT	1700	850	850	
N	127	2545.503	UNDERGROUND WIRE 1/C 8 AWG		LIN FT	8000	4000	4000	
H & I	115	2554.502	GUIDE POST TYPE B		EACH	9	2		7
		2563.601	TRAFFIC CONTROL		LUMP SUM	1	0.84	0.06	0.10
G	49	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN		UNIT DAY	40	40		
K	117 - 118	2564.518	SIGN		SQ FT	661	661		
K	117 - 118	2564.602	INSTALL SIGN		EACH	1	1		
L	117 - 118	2564.602	INSTALL SIGN TYPE SPECIAL		EACH	1	1		
K	117 - 118	2564.602	DELINEATOR / MARKER PANEL		EACH	8	8		
		2573.501	STABILIZED CONSTRUCTION EXIT		LUMP SUM	1	1		
		2573.501	EROSION CONTROL SUPERVISOR		LUMP SUM	1	1		
D	6	2573.502	STORM DRAIN INLET PROTECTION		EACH	32	32		
D	6	2573.502	CULVERT END CONTROLS		EACH	6	6		
D	6	2573.503	SILT FENCE, TYPE MS		LIN FT	3394	3394		
D	6	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST		LIN FT	1231	1231		
D	6	2574.505	SOIL BED PREPARATION		ACRE	3.9	3.9		
D	6	2574.508	FERTILIZER TYPE 3		POUND	198	198		
D	6	2574.508	FERTILIZER TYPE 4		POUND	547	547		
D	6	2575.505	SEEDING		ACRE	3.9	3.9		
D	6	2575.508	SEED MIXTURE 25-121		POUND	36	36		
D	6	2575.508	SEED MIXTURE 35-221		POUND	135	135		
D	6	2575.508	HYDRAULIC MULCH MATRIX TYPE FIBER REINFORCED		POUND	32685	32685		
G	49	2581.503	4" REMOVABLE PREFORM PAVEMENT MARKING TAPE	(11)	LIN FT	767	767		
G	49	2582.503	4" SOLID LINE PAINT	(11)	LIN FT	18126	18126		
G	49	2582.503	8" DOTTED LINE PAINT	(11)	LIN FT	819	819		
M	125	2582.503	4" SOLID LINE PREFORM THERMO GR IN	(11)	LIN FT	8345	8345		
M	125	2582.503	24" SOLID LINE PREFORM THERMO GR IN	(11)	LIN FT	132	132		
M	125	2582.503	4" BROKEN LINE PREFORM THERMO GR IN	(11)	LIN FT	20	20		
M	125	2582.503	8" DOTTED LINE PREFORM THERMO GR IN	(11)	LIN FT	65	65		
M	125	2582.503	4" DOUBLE SOLID LINE PREFORM THERMO GR IN	(11)	LIN FT	1509	1509		
M	125	2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC GR IN		SQ FT	32	32		
M	125	2582.518	CROSSWALK PREFORM THERMOPLASTIC GR IN		SQ FT	720	720		

NOTES:

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(2) CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF TEMPORARY MAIL SERVICE AND FINAL MAIL BOX PLACEMENT.
(3) TO BE USED FOR MINOR DITCH CLEANING AND/OR AS DIRECTED BY THE ENGINEER.
(4) TO BE USED FOR SURFACE CLEANING AND/OR AS DIRECTED BY THE ENGINEER.
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(6) COLORED CONCRETE, INTEGRAL RED (FS 31136).
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(8) TO BE USED FOR BITUMINOUS TRAILS.
(9) THIS ITEM INCLUDES THE QUANTITY FOR CONCRETE MEDIANS.
(10) SEE DETAIL IN TYPICAL SECTIONS.
(11) SEE TABULATION FOR COLOR.
(12) TO BE USED FOR DRIVEWAYS.
(13) LIMBING OF TREES 7' UP FROM GROUND IS INCIDENTAL TO CLEARING.
(P) PLAN QUANTITY

PLOTTED/REVISED: 2/7/2024 3:26:19 PM

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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STATEMENT OF ESTIMATED QUANTITIES
SP 002-622-041, SP 223-020-009

REMOVALS TABULATION — A

LOCATION	GRUBBING		REMOVE		SAWING BIT PAVEMENT (FULL DEPTH) (1)	REMOVE			
			PIPE APRON	MAIL BOX SUPPORT		PIPE CULVERTS	CURB & GUTTER	BITUMINOUS CURB	BITUMINOUS PAVEMENT (1)
	EACH	ACRE	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	SQ YD
SP 002-622-041									
CSAH 22									
STA 85+86.02 TO STA 92+00	8	0.2	2		141	74	20	110	3450
STA 94+50 TO STA 100+00.00	2	0.4	4	1	75	92	410	457	2779
CSAH 7									
STA 203+00.00 TO STA 207+00			2		73	76			2103
STA 209+00 TO STA 213+54.09			2	1	84	70	205		2564
RADIAL									
STA 10+00.00 TO STA 13+67.57 (1)	7						81	62	1901
PROJECT TOTAL	17	0.6	10	2	373	312	716	629	12797

NOTES:
(1) DEPTH VARIES, SEE GEOTECHNICAL REPORT.

BITUMINOUS & AGGREGATE TABULATION — B

LOCATION	AGGREGATE BASE (CV) CLASS 5 (2) (1)		AGGREGATE BASE (CV) CLASS 5 (DRIVEWAYS)	BITUMINOUS MATERIAL FOR TACK COAT	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	TYPE SP 12.5 NON-WEAR COURSE MIXTURE (4,B)	TYPE SP 12.5 WEARING COURSE MIXTURE (4,C)
	CU YD		CU YD	GALLON	SQ FT	TON	TON	TON
	(A)	(C)	(A)	(A)	(C)	(A)	(A)	(A)
SP 002-622-041								
CSAH 22								
STA 85+86.02 TO STA 92+00	1064	116		75	82			317
STA 94+50 TO STA 100+00.00	819	116	11	10	87	4		42
CSAH 7								
STA 203+00.00 TO STA 207+00	493	16		180	4		203	406
STA 209+00 TO STA 213+54.09	576	74	16	205	46	14	232	463
RADIAL								
STA 10+00.00 TO STA 13+67.57 (1)	651	69			52			
SUBTOTAL	3603	391	27	470	271	18	435	1228
PROJECT TOTAL	3994		27	470	271	18	435	1228

NOTES:
(2) INCLUDES AGGREGATE UNDER BITUMINOUS PAVEMENT, TRAIL, CURB & GUTTER, AND CONCRETE WALK.

BASIS OF QUANTITIES:
- BITUMINOUS DENSITY: 113 LB/SY/IN
- TACK COAT BETWEEN BITUMINOUS LIFTS: 0.05 GAL/SY

CONCRETE TABULATION — C

LOCATION	CONCRETE PAVEMENT 8.0"	CONCRETE PAVEMENT 8.0" SPECIAL	1.25" DOWEL BAR	DRILL & GROUT REINF BAR (EPOXY COATED) (ADA)	4" CONCRETE WALK	4" CONCRETE WALK SPECIAL	6" CONCRETE WALK		CONCRETE CURB & GUTTER DESIGN B424					6" CONCRETE DRIVEWAY PAVEMENT	TRUNCATED DOMES
									B424		B418(MOD) (3)	B612	R418		
	SQ YD	SQ YD	EACH	EACH	SQ FT	SQ FT	SQ FT		LIN FT		LIN FT	LIN FT	LIN FT	SQ YD	SQ FT
	(A)	(A)	(A)	(C)	(A)	(A)	(A)	(C)	(A)	(B)	(A)	(B)	(A)	(A)	(A)
SP 002-622-041															
CSAH 22															
STA 85+86.02 TO STA 92+00	2636		1537			1757	36	1142		650	345				101
STA 94+50 TO STA 100+00.00	2075		1038	8		2860	40	662		1098	602			14	80
CSAH 7															
STA 203+00.00 TO STA 207+00	104		60	8	1463	644	34	606		247	492				80
STA 209+00 TO STA 213+54.09	174		116	41	1540	586	34	1112		389	491	14			134
RADIAL															
STA 10+00.00 TO STA 13+67.57 (1)	1477	388	930				195		271	396	250		359		
SUBTOTAL	6466	388	3681	57	3003	5847	339	3522	271	2780	2180	14	359	14	395
PROJECT TOTAL	6466	388	3681	57	3003	5847	3861		3051		2180	14	359	14	395

NOTES:
(3) SEE SHEET 11 FOR DETAILS.

GENERAL NOTES

- FUNDING IS 100% COUNTY (SP 002-622-041) UNLESS NOTED.

NOTES

(1) INCLUDES EB STA 92+00 TO EB STA 94+50 AND NB STA 207+00 TO NB STA 209+00

FUNDING GROUP

(A) 100% COUNTY (SP 002-622-041)
(B) 50% COUNTY (SP 002-622-041), 50% CITY (SP 223-020-009)
(C) 100% CITY (SP 223-020-009)

NO.	DATE	BY	CHK	REVISIONS
1	2024/02/26	AJF	AJP	UPDATED QUANTITIY.

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J PLUNKMAN, PE

DATE 2/26/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

QUANTITY TABULATIONS
SP 002-622-041, SP 223-020-009

SHEET **5R** OF **133** SHEETS

EROSION CONTROL & TURF ESTABLISHMENT TABULATION

D

LOCATION	SEEDING	SOIL BED PREPARATION	HYDRAULIC MATRIX TYPE FIBER REINFORCED	SEED MIXTURE		FERTILIZER		SILT FENCE, TYPE MS	SEDIMENT CONTROL LOG TYPE COMPOST	STORM DRAIN INLET PROTECTION	CULVERT END CONTROLS
				25-121	35-221	TYPE 3	TYPE 4				
	ACRE	ACRE	POUND	POUND	POUND	POUND	POUND	LIN FT	LIN FT	EACH	EACH
SP 002-622-041											
CSAH 22											
STA 85+86.02 TO STA 92+00	1.0	1.0	8460	14	32	79	130	831	566	3	1
STA 94+50 TO STA 100+00.00	0.8	0.8	6667	11	25	60	103	918		7	1
CSAH 7											
STA 203+00.00 TO STA 207+00	0.8	0.8	6751	4	30	20	122	879		4	3
STA 209+00 TO STA 213+54.09	0.7	0.7	5928	4	26	22	105	580	261	5	1
RADIAL											
STA 10+00.00 TO STA 13+67.57 (1)	0.6	0.6	4879	3	22	17	87	186	404	13	
PROJECT TOTAL	3.9	3.9	32685	36	135	198	547	3394	1231	32	6

GENERAL NOTES:
- SEE SHEET 132 FOR BASIS OF QUANTITIES.

GENERAL NOTES

- FUNDING IS 100% COUNTY (SP 002-622-041) UNLESS NOTED.

NOTES

(1) INCLUDES EB STA 92+00 TO EB STA 94+50 AND NB STA 207+00 TO NB STA 209+00

FUNDING GROUP

(A) 100% COUNTY (SP 002-622-041)
(B) 50% COUNTY (SP 002-622-041), 50% CITY (SP 223-020-009)
(C) 100% CITY (SP 223-020-009)

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

QUANTITY TABULATIONS
SP 002-622-041, SP 223-020-009

SHEET 6 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:22 PM

EARTHWORK TABULATION				E
	EXCAVATION		EMBANKMENT	
	COMMON	SUBGRADE	COMMON	SELECT GRANULAR
STA. - STA.	CU YD (EV)	CU YD (EV)	CU YD (CV)	CU YD (CV)
CSAH 22				
86+00 - 86+50	237	186	42	210
86+50 - 87+00	235	185	42	206
87+00 - 87+50	221	107	76	141
87+50 - 88+00	204	107	56	135
88+00 - 88+50	196	111	43	136
88+50 - 89+00	260	114	46	134
89+00 - 89+50	360	114	63	124
89+50 - 90+00	451	114	75	117
90+00 - 90+50	547	110	75	110
90+50 - 91+00	596	103	72	103
91+00 - 91+50	487	96	50	96
91+50 - 92+00	454	92	37	92
ROUNDABOUT	574	1275	805	1508
95+00 - 95+50	123	77	63	91
95+50 - 96+00	93	69	85	89
96+00 - 96+50	103	82	148	89
96+50 - 97+00	103	89	179	89
97+00 - 97+50	97	89	190	90
97+50 - 98+00	86	86	155	86
98+00 - 98+50	88	87	99	87
98+50 - 99+00	100	91	78	91
99+00 - 99+50	104	91	69	92
SUBTOTAL	**5719**	**3475**	**2548**	**3916**
CSAH 7				
203+00 - 203+50	149	187	35	190
203+50 - 204+00	102	94	19	96
204+00 - 204+50	230	128	39	131
204+50 - 205+00	424	264	71	272
205+00 - 205+50	473	272	124	278
205+50 - 206+00	341	234	102	235
206+00 - 206+50	172	191	40	191
ROUNDABOUT				
209+50 - 210+00	140	190	160	190
210+00 - 210+50	120	208	88	214
210+50 - 211+00	101	218	87	230
211+00 - 211+50	111	212	121	219
211+50 - 212+00	161	285	61	286
212+00 - 212+50	226	290	40	291
212+50 - 213+00	208	230	53	238
213+00 - 213+50	164	227	45	246
SUBTOTAL	**3122**	**3230**	**1085**	**3307**
PROJECT TOTAL	**8841**	**6705**	**3633**	**7223**

NOTES:

1. THE EXCAVATION - COMMON QUANTITY INCLUDES TOPSOIL STRIPPING.
2. EXISTING PAVEMENT DEPTHS ARE APPROXIMATELY AS FOLLOWS:

   CSAH 22: 5 INCHES
   CSAH 7: 5 INCHES

   PAVEMENT REMOVAL HAS BEEN SUBTRACTED FROM THE COMMON EXCAVATION AND/OR SUBGRADE EXCAVATION QUANTITIES.
3. TOPSOIL IS INCLUDED IN COMMON EMBANKMENT.
4. PLACING, HAULING AND DISPOSING OF EXCAVATED MATERIALS IS CONSIDERED INCIDENTAL.
5. ALL STOCKPILE AREAS SHALL BE APPROVED BY THE ENGINEER.
6. SOILS NOT USED ON THE PROJECT SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE OF THE RIGHT OF WAY. NO DIRECT COMPENSATION WILL BE PAID FOR THE PREPARATION OF AN ACCEPTABLE DISPOSAL PLAN OR FOR OFF-PROJECT DISPOSAL OF MATERIALS. DISPOSAL SITES SHALL BE LEFT IN A WELL GRADED CONDITION WITH ALL SOLID WASTES AND BOULDERS ADEQUATELY COVERED.
7. UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER, ANY MATERIAL THAT IS FOUND TO BE UNNECESSARY FOR THE CONSTRUCTION OF THE ROADWAY EMBANKMENT AND DISPOSAL OF SAME BECOMES NECESSARY, ON OR OFF THE PROJECT, THE DISPOSAL AND ALL RELATED ITEMS WILL BE CONSIDERED INCIDENTAL.

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\02l150-000_earthwork.dgn

NO.	DATE	BY	CHK	REVISIONS

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Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

EARTHWORK TABULATION

SP 002-622-041, SP 223-020-009

SHEET 7 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:24 PM

CONSTRUCTION AND SOIL NOTES

1. TOP OF THE GRADING GRADE IS DEFINED AS THE BOTTOM OF THE PROPOSED CLASS 5 AGGREGATE BASE.

2. TEST ROLLING OF THE SUBGRADE WILL BE REQUIRED AS SPECIFIED BY 2111.2 (INCIDENTAL).

3. WHERE CONNECTING TO IN-PLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE IN-PLACE SURFACING, THEN AT A 1(V):20(H) TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.

4. THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF PRIVATE UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF PRIVATE UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTRACTOR WILL CALL GOPHER STATE ONE CALL A MINIMUM OF 48 HOURS PRIOR TO EXCAVATION.

5. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.

6. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER (INCIDENTAL).

7. COMPACTION OF AGGREGATE BASE SHOULD BE IN ACCORDANCE WITH MnDOT "MODIFIED PENETRATION INDEX METHOD." COMPACTION OF SELECT GRANULAR MATERIAL SHOULD BE IN ACCORDANCE WITH MnDOT "SPECIFIED DENSITY METHOD."

8. NO EXTRA PAYMENT WILL BE MADE FOR MOVING, PLACING, OR TEMPORARY STOCKPILING OF EXCAVATION AND/OR EMBANKMENT MATERIAL.

9. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND MAY BE RECYCLED OR DISPOSED OF OFF THE RIGHT OF WAY.

10. PROVIDE A UNIFORM TACK COAT AS DOCUMENTED IN THE MOST CURRENT SPEC. 2357 - BITUMINOUS TACK COAT REQUIREMENTS

11. PIPE SEWERS CONNECTING MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH SPEC. 2503. BEDDING AND BACKFILL SHALL CONSIST OF UNIFORM COMMON EMBANKMENT MATCHING ADJACENT SOILS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

12. TEMPORARY EROSION CONTROL - TEMPORARY EROSION CONTROL DEVICES AND THEIR SUGGESTED LOCATIONS HAVE BEEN SHOWN IN THE PLANS ALONG WITH PAY ITEMS FOR THEIR USE. THIS DOES NOT HOWEVER RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO CONDUCT HIS CONSTRUCTION IN A MANNER THAT WILL CONTROL EROSION. RESPONSIBILITY FOR CONTROLLING EROSION AND MAINTENANCE OF EROSION CONTROL AS SET IN MNDOT SPECIFICATIONS 1717, 1803, 2101, 2106, 2573, 2575, AND IS AMENDED BY THE SPECIAL PROVISIONS.

13. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

14. EXCESS GRANULAR MATERIAL MUST BE DEEMED EXCESS BY THE ENGINEER BEFORE REMOVED FROM THE PROJECT.

15. NO OVER-EXCAVATION WILL BE ALLOWED ON THIS PROJECT.

16. COMPACTION OF THE MAINLINE BASE AND BINDER BITUMINOUS LIFTS SHALL BE BY THE "SPECIFIED DENSITY METHOD." COMPACTION OF MAINLINE WEAR AND ENTRANCES SHALL BE BY THE "QUALITY COMPACTION METHOD."

17. BITUMINOUS MATERIAL MUST BE REMOVED FROM THE PROJECT AND CANNOT BE USED AS EMBANKMENT.

18. UNSUITABLE SOILS ARE DEFINED AS SOILS WHICH DO NOT MEET OR ARE NOT MANUFACTURED TO MEET ANY OF THE ABOVE DEFINED CATEGORIES, AND ARE THEREFORE NOT REUSABLE AS STRUCTURAL BACKFILL OR EMBANKMENT WITHIN THE ROADWAY CORE.

19. SUITABLE GRADING MATERIAL OBTAINED FROM COMMON EXCAVATION NOT MEETING THE REQUIREMENTS OF MnDOT SPEC. 3149.2B1 SHALL BE USED OUTSIDE THE ROADWAY CORE ON THE PROJECT AS APPROVED BY THE ENGINEER.

19. SUITABLE GRADING MATERIAL OBTAINED FROM COMMON EXCAVATION NOT MEETING THE REQUIREMENTS OF MnDOT SPEC. 3149.2B1 SHALL BE USED OUTSIDE THE ROADWAY CORE ON THE PROJECT AS APPROVED BY THE ENGINEER.

20. CONTRACTOR SHALL PROVIDE A FULL DEPTH SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT. IF NO ITEM FOR THIS WORK IS SPECIFICALLY CALLED OUT, THEN THE WORK SHALL BE INCIDENTAL WITH NO DIRECT COMPENSATION.

WSB PATH & FILENAME: Projects\Minnesota\022\150-000\Con\Plan\22150-000_cn01.dgn

NO.	DATE	BY	CHK	REVISIONS

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Plan By: AJF
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DATE 2/7/2024 LICENSE # 44200

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SOILS AND CONSTRUCTION NOTES

SP 002-622-041, SP 223-020-009

SHEET 8 OF 133 SHEETS

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT	
MNDOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
1070N	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103L	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007F	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4010I	CONCRETE ADJUSTING RINGS
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER (3 FT. X 2 FT. OPENING)
4026B	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4132G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 805
4143E	STOOL GRATE & CONCRETE FRAME (MEDIAN DRAINS) - CASTING NO. 731
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4160D	CURB BOX CASTING FOR CATCH BASIN - CASTING NO. 823A AND 833A
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7102K	CONCRETE CURB AND GUTTER (DESIGN D, DESIGN S, AND DESIGN R)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
8106D	EQUIPMENT PAD B
8127E	LIGHT FOUNDATION - DESIGN E PRECAST/CAST-IN-PLACE (40 FT. POLE OR LESS) (2 SHEETS)
8129A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)
8150C	INSTALLATION OF CULVERT MARKERS
8337D	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER - TYPE F (3 SHEETS)
9350C	MAILBOX SUPPORT - SWING-AWAY TYPE (3 SHEETS)

NO.	DATE	BY	CHK	REVISIONS

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Plan By: AJF
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Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

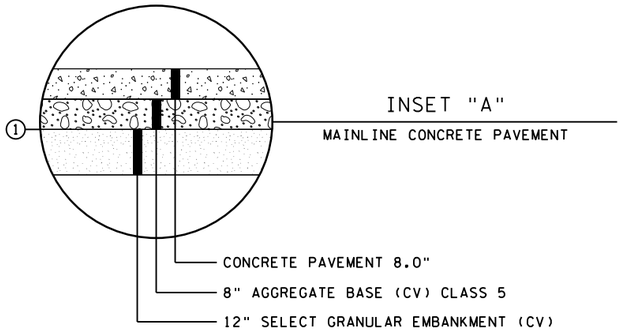
STANDARD PLATES

SOILS AND CONSTRUCTION NOTES

SP 002-622-041, SP 223-020-009

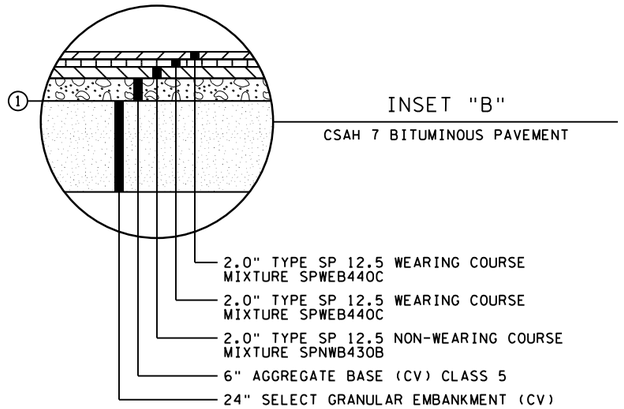
SHEET 9 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:26 PM



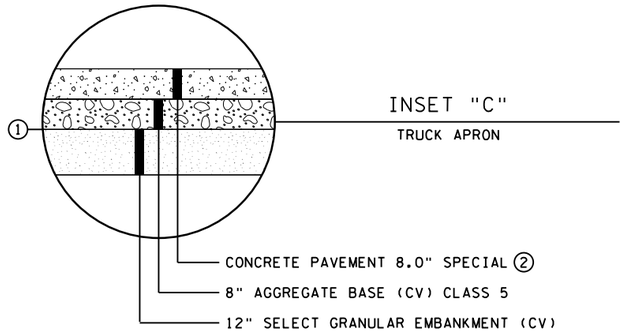
INSET "A"

MAINLINE CONCRETE PAVEMENT



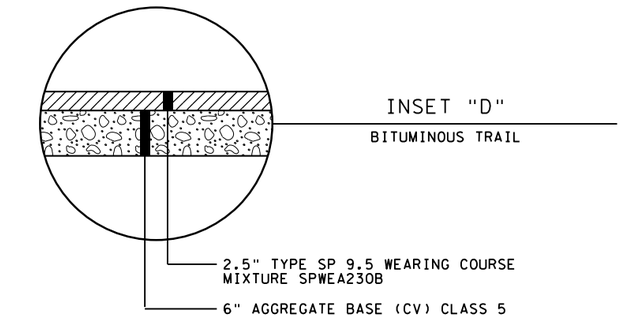
INSET "B"

CSAH 7 BITUMINOUS PAVEMENT



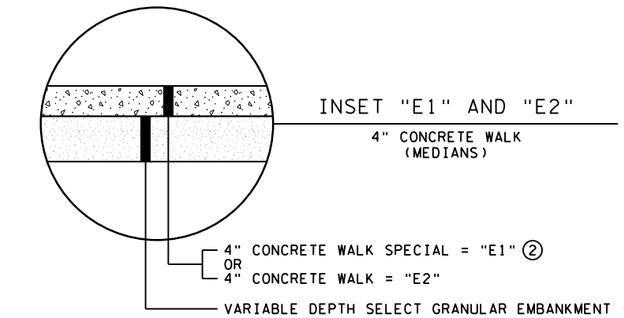
INSET "C"

TRUCK APRON



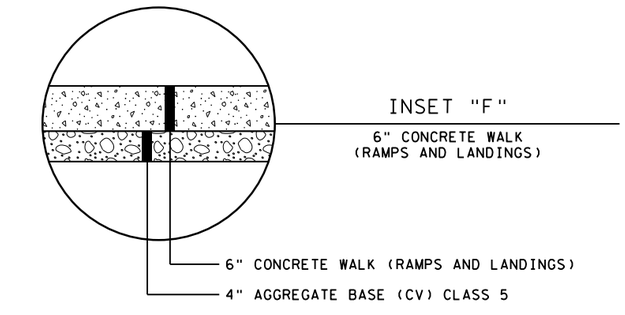
INSET "D"

BITUMINOUS TRAIL



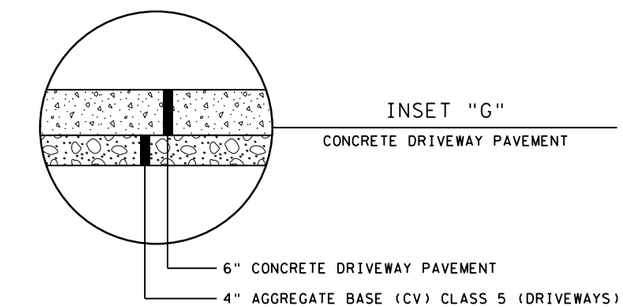
INSET "E1" AND "E2"

4" CONCRETE WALK
(MEDIANS)



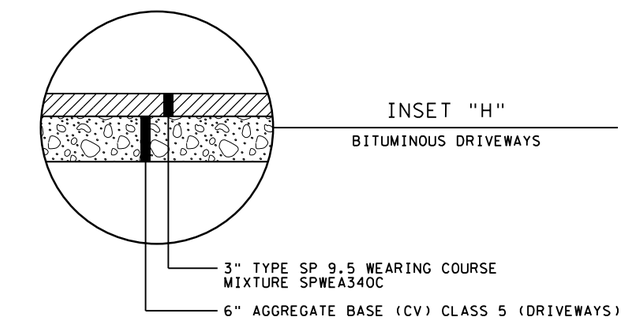
INSET "F"

6" CONCRETE WALK
(RAMPS AND LANDINGS)



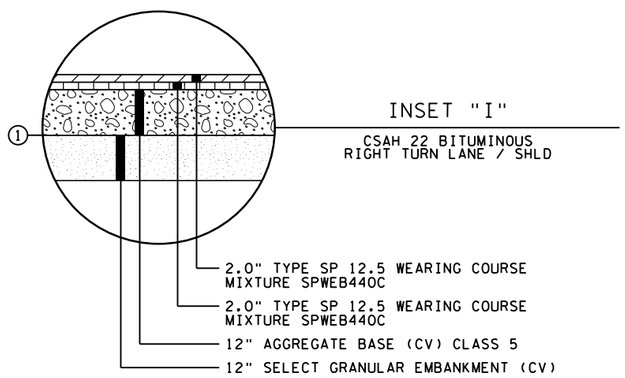
INSET "G"

CONCRETE DRIVEWAY PAVEMENT



INSET "H"

BITUMINOUS DRIVEWAYS



INSET "I"

CSAH 22 BITUMINOUS
RIGHT TURN LANE / SHLD

NOTES:

1. GRADING GRADE
2. CONCRETE COLOR SHALL BE INTEGRAL RED (FS 31136)

NO.	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

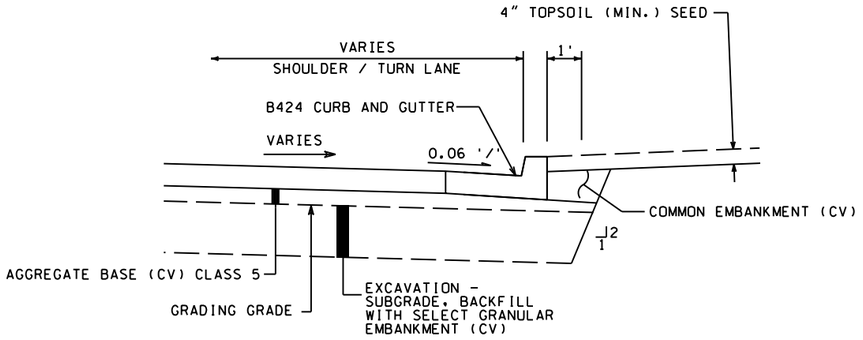
INSETS

TYPICAL SECTIONS

SP 002-622-041, SP 223-020-009

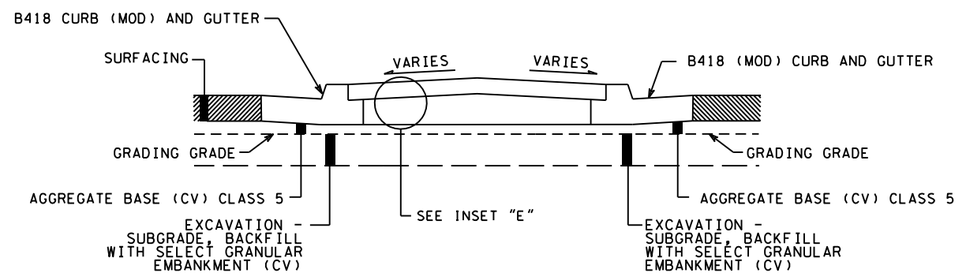
SHEET **10** OF **133** SHEETS

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_1s.dgn



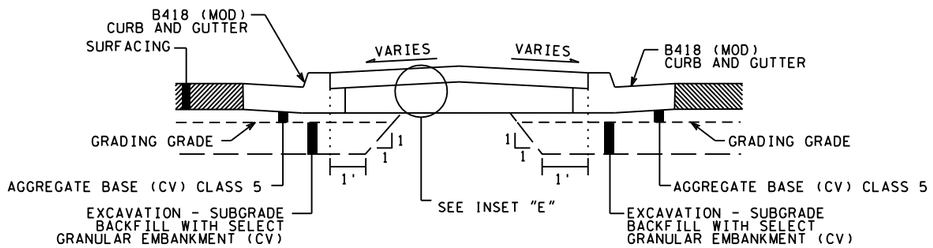
DETAIL A

CONCRETE CURB & GUTTER



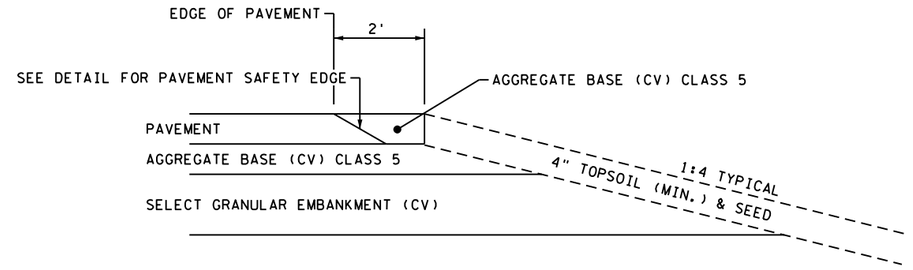
DETAIL B

CONCRETE MEDIAN LESS THAN 8' (FACE TO FACE)



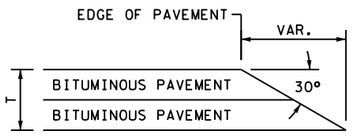
DETAIL B

CONCRETE MEDIAN GREATER THAN 8' (FACE TO FACE)



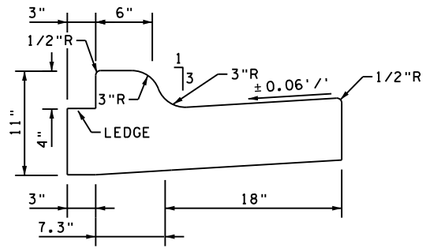
DETAIL C

RURAL AGGREGATE SHOULDER



BITUMINOUS PAVEMENT SAFETY EDGE

FOR T < 6"



PAID AS CONCRETE CURB & GUTTER DESIGN B418 (MOD) BY THE LIN FT
TO BE USED WHEN CONCRETE WALK IS TIGHT TO BACK OF CURB

B418 MODIFIED CURB & GUTTER

(NO VARIANCES ALLOWED)

NOTES:

1. UNLESS OTHERWISE SPECIFIED, THE SUBGRADE CROSS SLOPE WILL BE THE SAME AS THE FINISHED SLOPE.
2. ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE ROADWAY.
3. ALL EDGE DIMENSIONS ARE FACE TO FACE OF CURB OR TO THE EDGE OF THE PAVEMENT UNLESS OTHERWISE SPECIFIED.
4. COMMON TOPSOIL SHALL BE INCLUDED IN THE COMMON EMBANKMENT (CV).
5. ALL EMBANKMENT MATERIAL SHALL BE APPROVED BY THE ENGINEER. ALL CONCRETE AND BITUMINOUS REMOVAL MUST BE DISPOSED OF OFF-SITE. REMOVAL AND DISPOSAL OF EXCESS MATERIAL SHALL BE INCIDENTAL.
6. 2' CLEAR ZONE SHALL BE PROVIDED ON EACH SIDE OF THE TRAIL.
7. SEE CONCRETE PAVEMENT JOINT PLAN FOR LOCATION OF CONCRETE WALK SPECIAL AND CONCRETE PAVEMENT SPECIAL.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J PLUNKMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

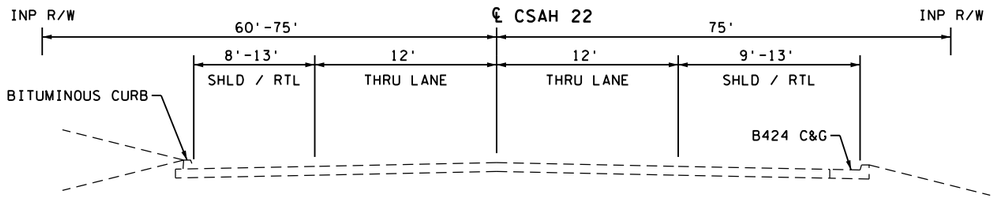
ANOKA COUNTY, MINNESOTA

DETAILS

TYPICAL SECTIONS

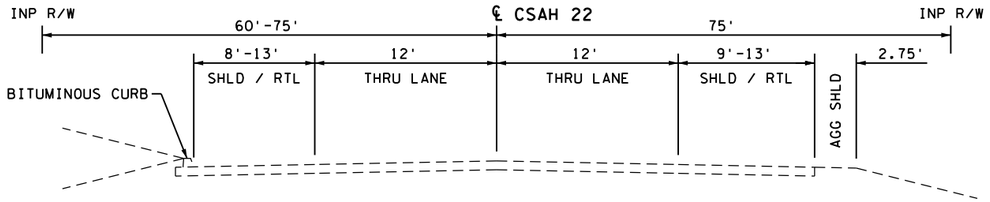
SP 002-622-041, SP 223-020-009

SHEET 11 OF 133 SHEETS



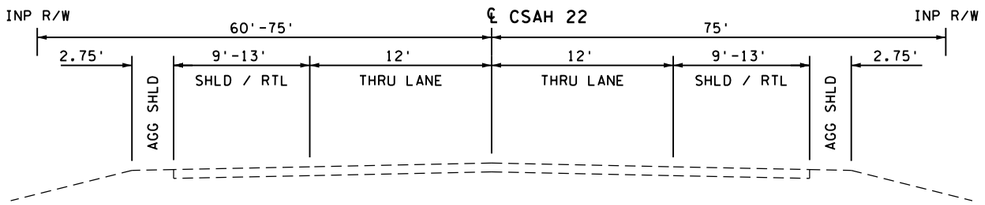
EXISTING TYPICAL SECTION 3 - CSAH 22

EB STA 95+50 TO EB STA 100+00.00



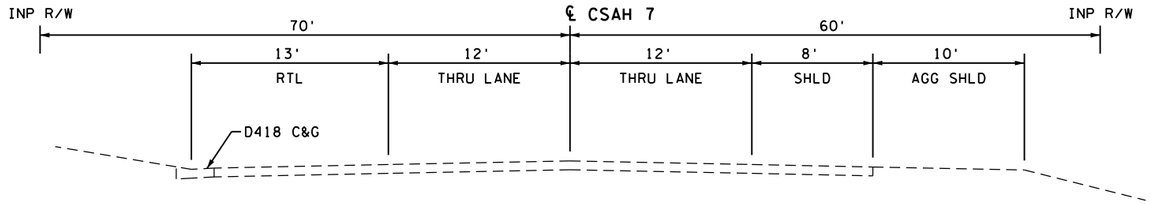
EXISTING TYPICAL SECTION 2 - CSAH 22

EB STA 90+95 TO EB STA 94+30



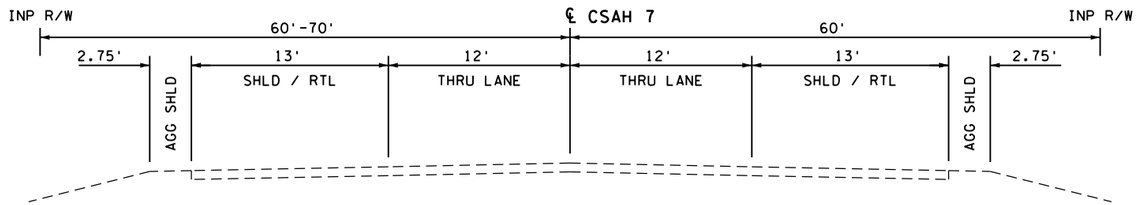
EXISTING TYPICAL SECTION 1 - CSAH 22

EB STA 85+86.02 TO EB STA 90+95
EB STA 94+30 TO EB STA 95+50



EXISTING TYPICAL SECTION 5 - CSAH 7

NB STA 208+80 TO NB STA 210+95



EXISTING TYPICAL SECTION 4 - CSAH 7

NB STA 200+00 TO NB STA 208+80
NB STA 210+95 TO NB STA 213+54.09

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

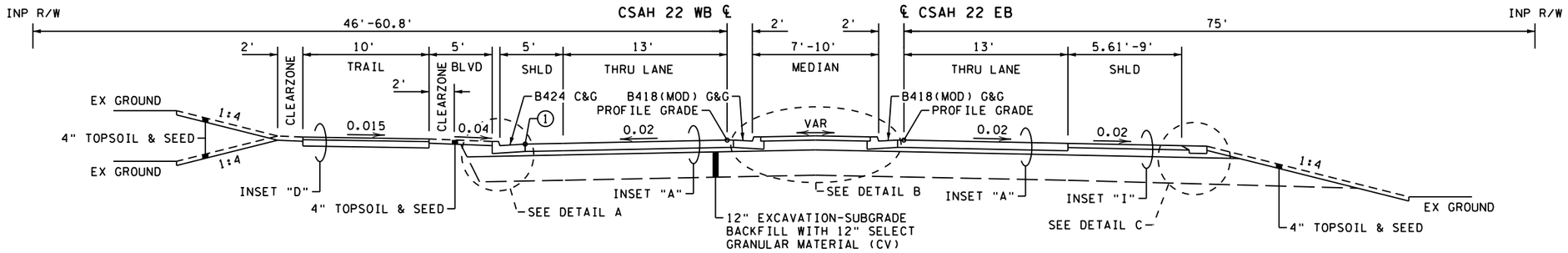
ANOKA COUNTY, MINNESOTA

EXISTING

TYPICAL SECTIONS

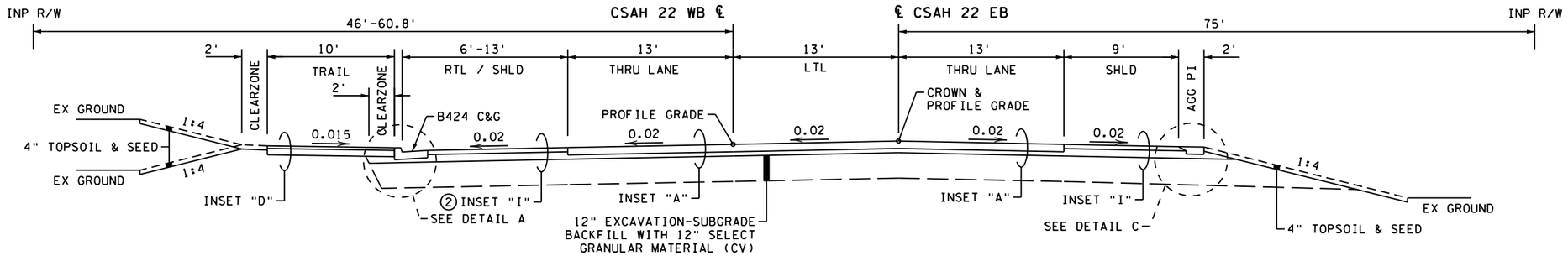
SP 002-622-041, SP 223-020-009

SHEET **12** OF **133** SHEETS



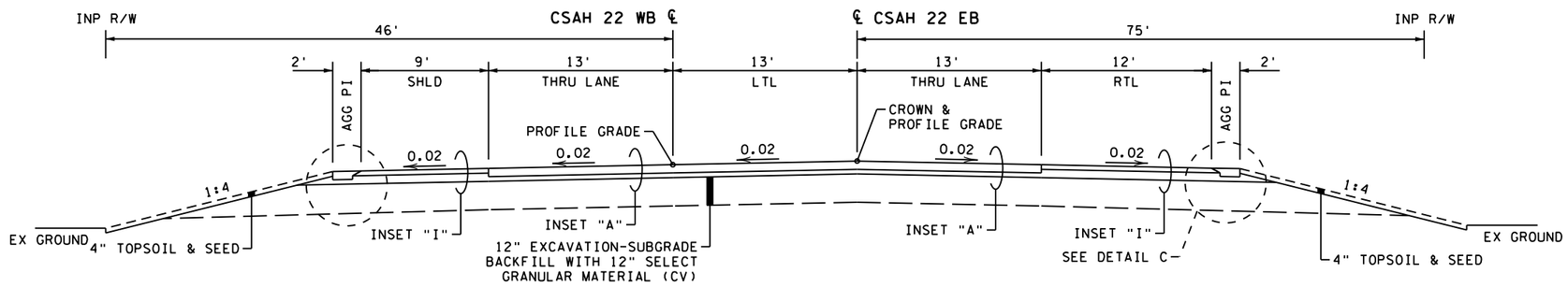
PROPOSED TYPICAL SECTION 3 - CSAH 22

EB STA 90+25 TO EB STA 91+09



PROPOSED TYPICAL SECTION 2 - CSAH 22

EB STA 86+52 TO EB STA 90+25



PROPOSED TYPICAL SECTION 1 - CSAH 22

EB STA 85+86.02 TO EB STA 86+52

NOTES:

1. QUADRANT PROFILE GRADE, SEE ROUNDABOUT INTERSECTION DETAILS. OUTSIDE OF QUADRANT PROFILES, CROSS SLOPE OF ROADWAY TO BE 0.02 FT/FT.
2. INSET "A" BEGIN AT STA 89+15

GENERAL NOTES:

- ALL SLOPES IN FOOT PER FOOT UNLESS OTHERWISE NOTED.
- PREPARATION OF THE EXISTING SUBGRADE SHALL BE IN ACCORDANCE WITH MNDOT SPECIFICATIONS AND SHALL BE INCIDENTAL.
- SEE SHEET 10 FOR INSETS AND SHEET 11 FOR DETAILS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

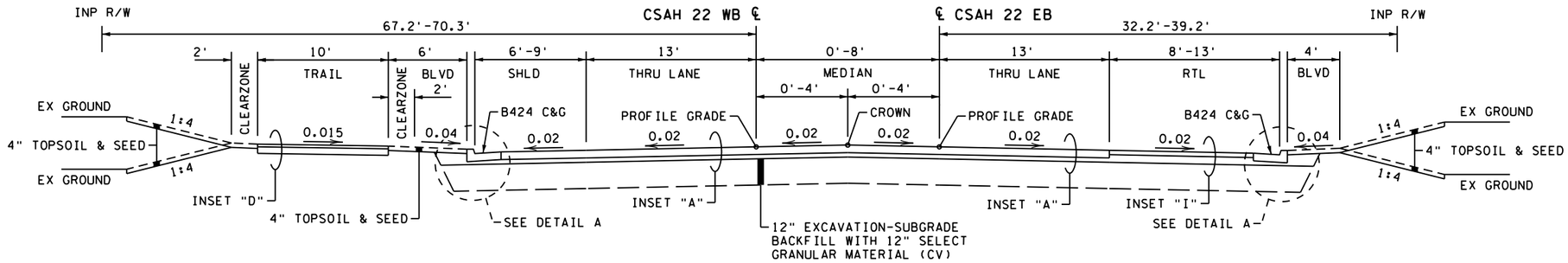
ANOKA COUNTY, MINNESOTA

PROPOSED

TYPICAL SECTIONS

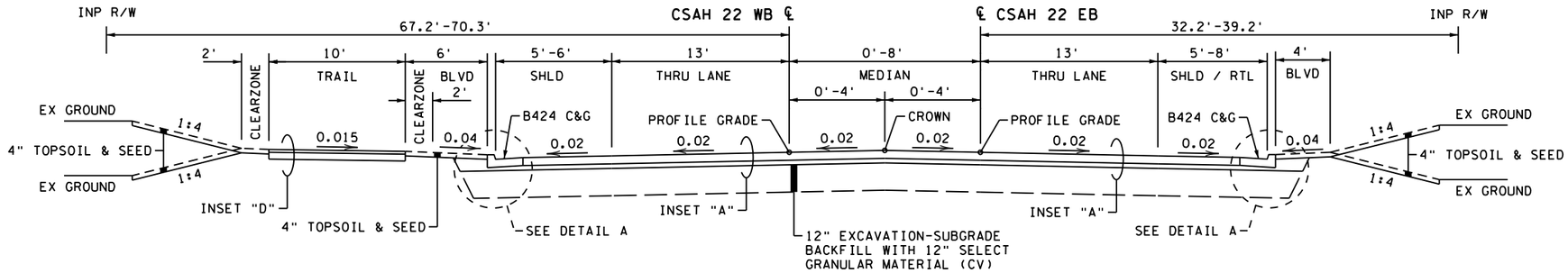
SP 002-622-041, SP 223-020-009

SHEET 13 OF 133 SHEETS



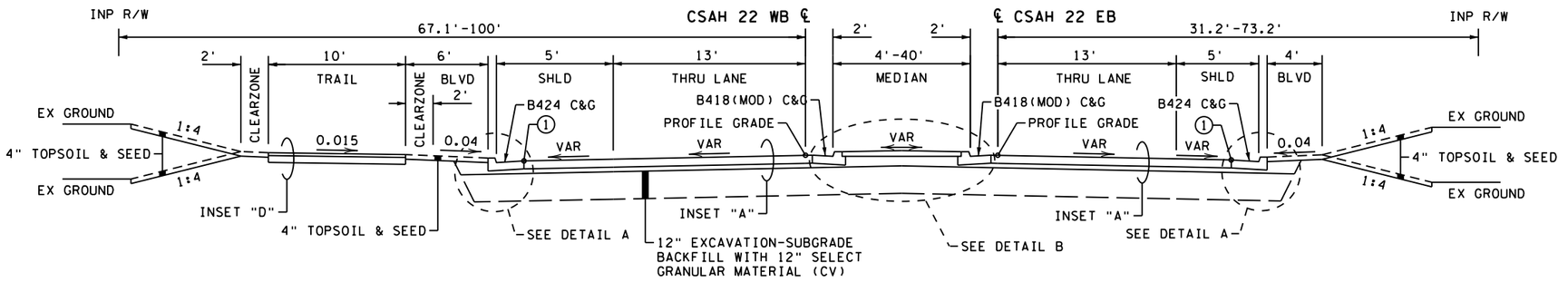
PROPOSED TYPICAL SECTION 6 - CSAH 22

EB STA 98+32 TO EB STA 100+00



PROPOSED TYPICAL SECTION 5 - CSAH 22

EB STA 97+50 TO EB STA 98+32



PROPOSED TYPICAL SECTION 4 - CSAH 22

EB STA 91+09 TO EB STA 92+50
EB STA 94+33 TO EB STA 97+50

NOTES:

1. QUADRANT PROFILE GRADE, SEE ROUNDABOUT INTERSECTION DETAILS. OUTSIDE OF QUADRANT PROFILES, CROSS SLOPE OF ROADWAY TO BE 0.02 FT/FT.

GENERAL NOTES:

- ALL SLOPES IN FOOT PER FOOT UNLESS OTHERWISE NOTED.
- PREPARATION OF THE EXISTING SUBGRADE SHALL BE IN ACCORDANCE WITH MNDOT SPECIFICATIONS AND SHALL BE INCIDENTAL.
- SEE SHEET 10 FOR INSETS AND SHEET 11 FOR DETAILS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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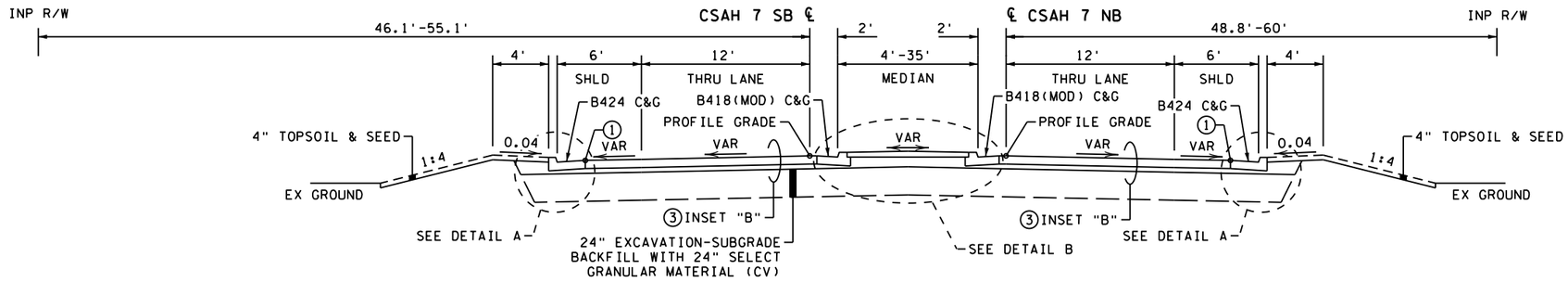
ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

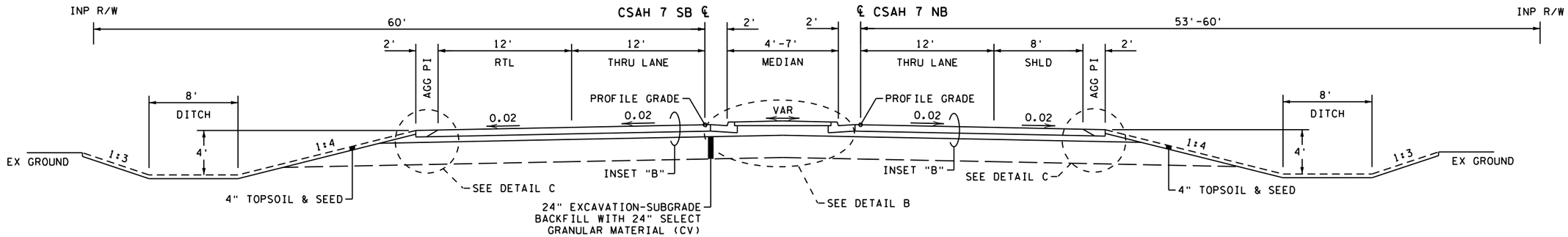
ANOKA COUNTY, MINNESOTA
PROPOSED
TYPICAL SECTIONS
SP 002-622-041, SP 223-020-009

SHEET 14 OF 133 SHEETS



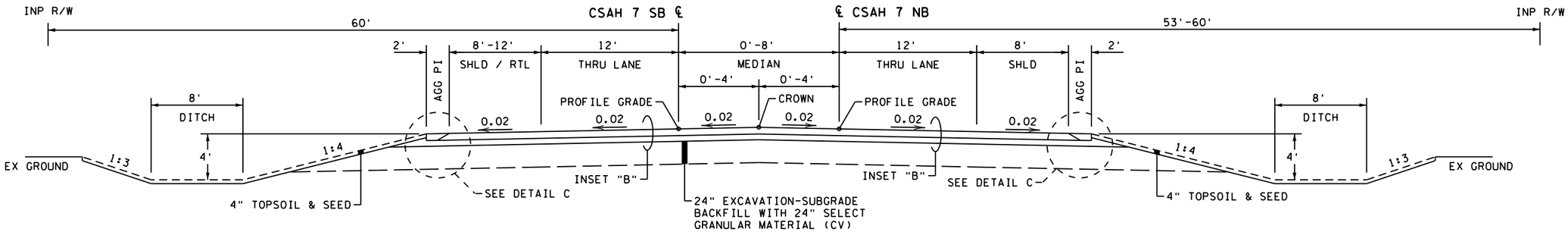
PROPOSED TYPICAL SECTION 9 - CSAH 7

NB STA 205+70 TO NB STA 207+09



PROPOSED TYPICAL SECTION 8 - CSAH 7

NB STA 204+50 TO NB STA 205+70



PROPOSED TYPICAL SECTION 7 - CSAH 7

NB STA 203+00.00 TO NB STA 204+50
NB STA 211+50 TO NB STA 213+54.09

NOTES:

1. QUADRANT PROFILE GRADE, SEE ROUNDABOUT INTERSECTION DETAILS. OUTSIDE OF QUADRANT PROFILES, CROSS SLOPE OF ROADWAY TO BE 0.02 FT/FT.
3. INSET "A" STA 206+66 TO STA 209+50

GENERAL NOTES:

- ALL SLOPES IN FOOT PER FOOT UNLESS OTHERWISE NOTED.
- PREPARATION OF THE EXISTING SUBGRADE SHALL BE IN ACCORDANCE WITH MNDOT SPECIFICATIONS AND SHALL BE INCIDENTAL.
- SEE SHEET 10 FOR INSETS AND SHEET 11 FOR DETAILS.

NO.	DATE	BY	CHK	REVISIONS

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Plan By: AJF
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Approved By: AJP

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

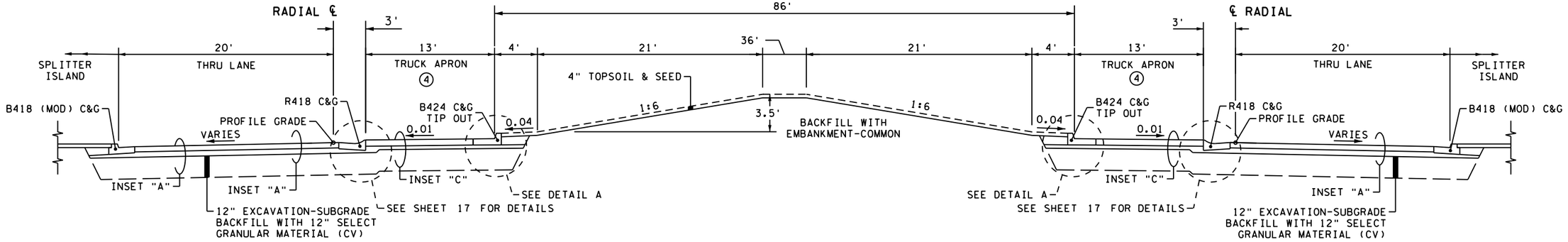
ANOKA COUNTY, MINNESOTA

PROPOSED

TYPICAL SECTIONS

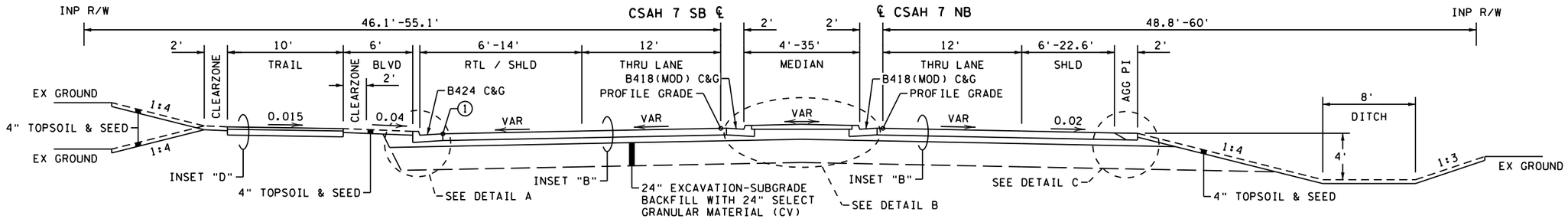
SP 002-622-041, SP 223-020-009

SHEET 15 OF 133 SHEETS



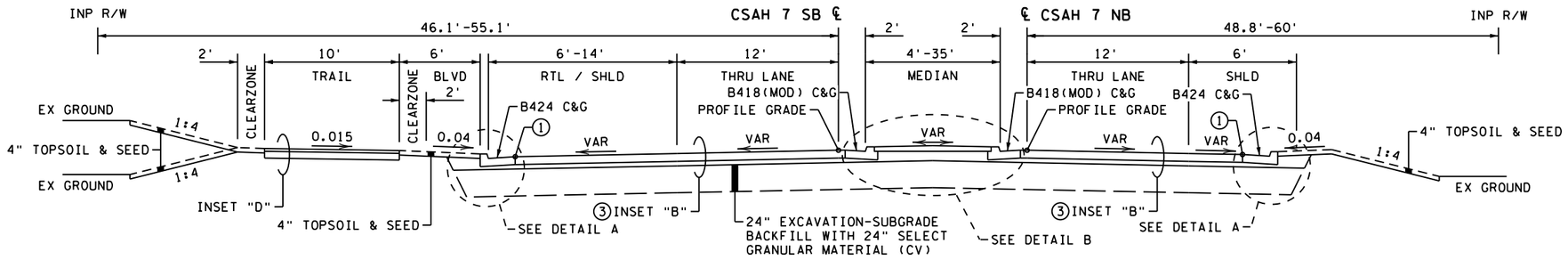
PROPOSED TYPICAL SECTION 12 - CSAH 22 & CSAH 7 ROUNDABOUT

EB STA 92+49 TO EB STA 94+33
NB STA 207+08 TO NB STA 208+96
RADIAL STA 10+00 TO RADIAL STA 13+70.71



PROPOSED TYPICAL SECTION 11 - CSAH 7

NB STA 210+09 TO NB STA 211+50



PROPOSED TYPICAL SECTION 10 - CSAH 7

NB STA 208+95 TO NB STA 210+09

NOTES:

1. QUADRANT PROFILE GRADE, SEE ROUNDABOUT INTERSECTION DETAILS. OUTSIDE OF QUADRANT PROFILES, CROSS SLOPE OF ROADWAY TO BE 0.02 FT/FT.
3. INSET "A" STA 206+66 TO STA 209+50
4. SEE SHEET 17 FOR ADDITIONAL TRUCK APRON DETAILS.

GENERAL NOTES:

- ALL SLOPES IN FOOT PER FOOT UNLESS OTHERWISE NOTED.
- PREPARATION OF THE EXISTING SUBGRADE SHALL BE IN ACCORDANCE WITH MNDOT SPECIFICATIONS AND SHALL BE INCIDENTAL.
- SEE SHEET 10 FOR INSETS AND SHEET 11 FOR DETAILS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

PROPOSED

TYPICAL SECTIONS

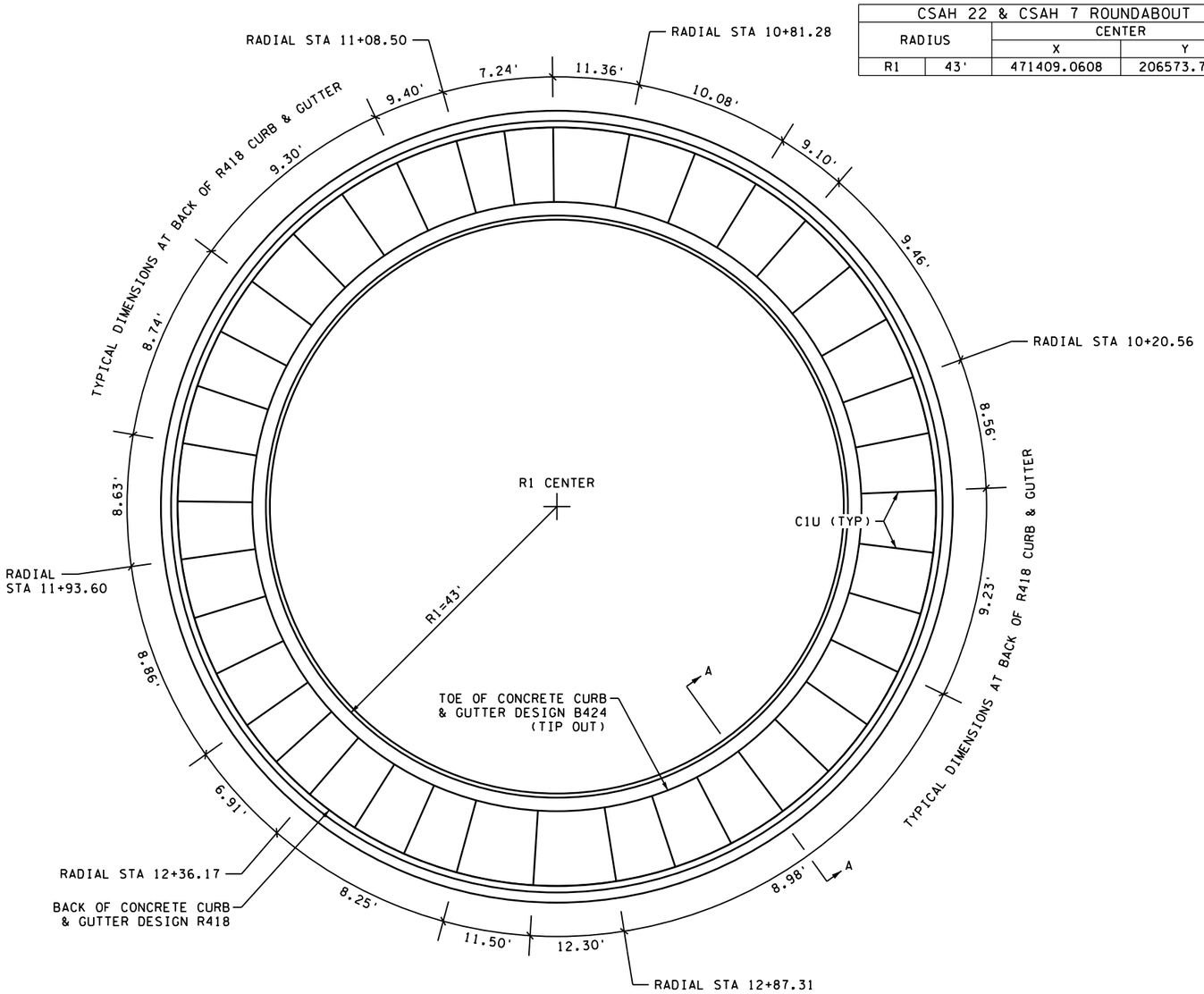
SP 002-622-041, SP 223-020-009

SHEET 16 OF 133 SHEETS

CSAH 22 & CSAH 7 Roundabout

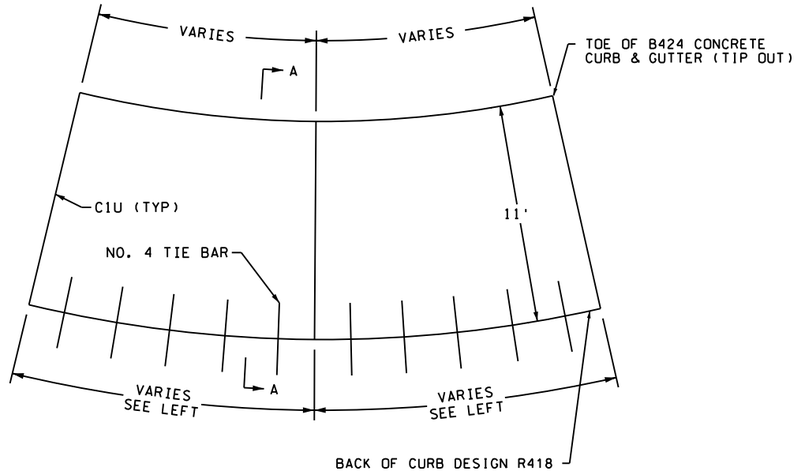
NOT TO SCALE

CSAH 22 & CSAH 7 ROUNDABOUT			
RADIUS		CENTER	
		X	Y
R1	43'	471409.0608	206573.7835



PLAN VIEW JOINT LAYOUT

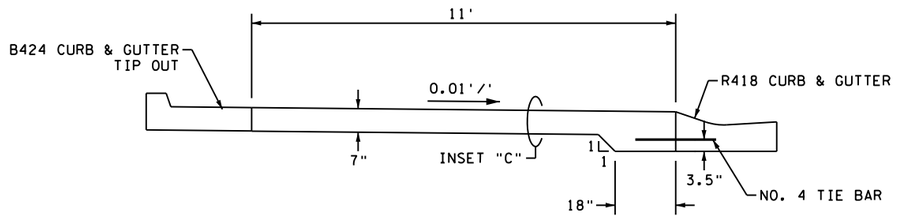
NOT TO SCALE



NOTE: C1U JOINT SHOULD EXTEND THROUGH CURB AND GUTTER

CONCRETE PANEL REINFORCEMENT

NOT TO SCALE



SECTION A-A

NOT TO SCALE

GENERAL NOTES:

1. SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CURB AND GUTTER DETAILS
2. ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53
3. TIE BARS: USE NO. 4 BARS, 2' LONG AT 3' SPACING
4. REINFORCEMENT BARS ARE CONSIDERED INCIDENTAL.
5. ADDITIONAL CONCRETE PAVEMENT DEPTH, ADJACENT TO CONCRETE CURB DESIGN R418, IS INCIDENTAL.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TRUCK APRON DETAILS

MISCELLANEOUS DETAILS

SP 002-622-041, SP 223-020-009

SHEET 17 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:35 PM

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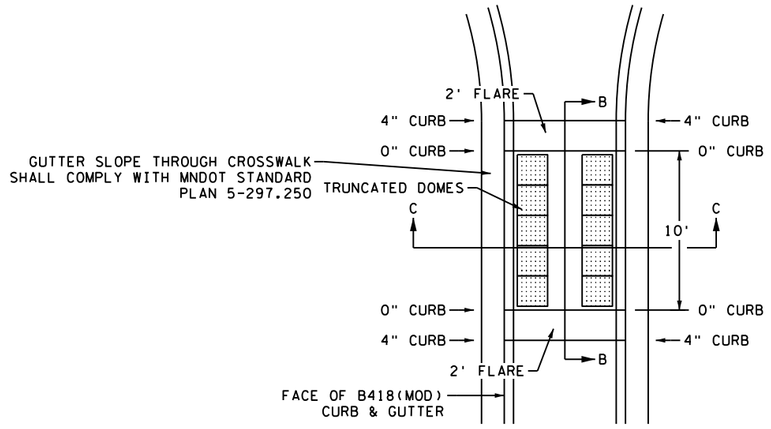
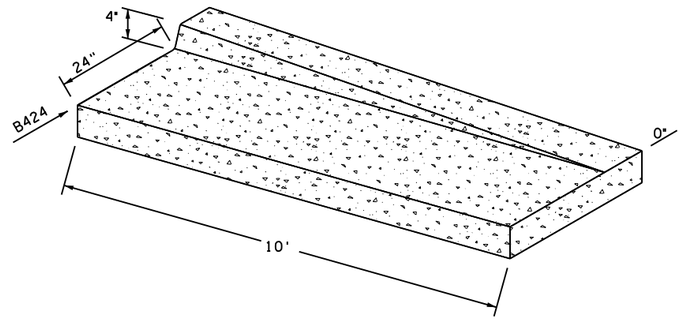
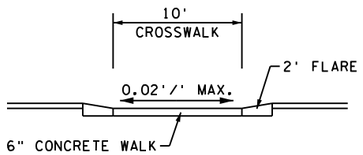




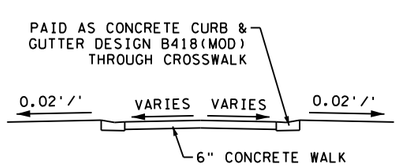
FOR OTHER DIMENSIONS SEE STANDARD PLATE NO. 7100
TO BE USED AT CURB AND GUTTER TERMINI
PAYMENT SHALL BE MADE AS CONCRETE CURB & GUTTER DESIGN B424 BY THE LINEAR FOOT

B424 TO 0" HEIGHT CURB & GUTTER TRANSITION

NOT TO SCALE



SECTION B-B

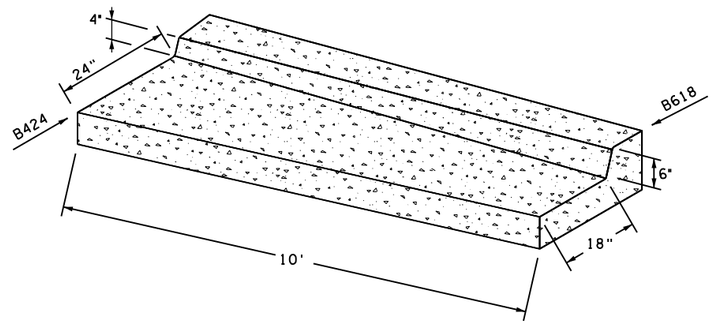


SECTION C-C

NOTES:
1. CROSSING TO BE PAID FOR AS 6" CONCRETE WALK.
2. TRUNCATED DOMES SHALL BE PLACED AT EACH SIDE OF THE CROSSWALK, PAID FOR AS SQ. FT. OF TRUNCATED DOMES.
3. FLARES TO BE PAID FOR AS 6" CONCRETE WALK.

DEPRESSED MEDIAN CURB AT CROSSWALK DETAIL

NO SCALE



FOR OTHER DIMENSIONS SEE STANDARD PLATE NO. 7100
PAYMENT SHALL BE MADE AS CONCRETE CURB & GUTTER DESIGN B424 BY THE LINEAR FOOT

B424 TO B618 CURB & GUTTER TRANSITION

NOT TO SCALE

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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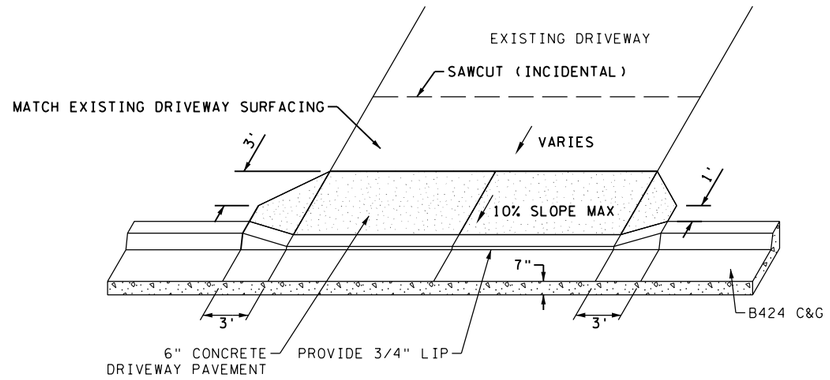
ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

MISCELLANEOUS DETAILS
SP 002-622-041, SP 223-020-009

SHEET **18** OF **133** SHEETS



CONCRETE DRIVEWAY APRON (NO PEDESTRIAN FACILITIES)

NOT TO SCALE

NO.	DATE	BY	CHK	REVISIONS

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Plan By: AJF
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DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

MISCELLANEOUS DETAILS

SP 002-622-041, SP 223-020-009

SHEET **19** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:42 PM
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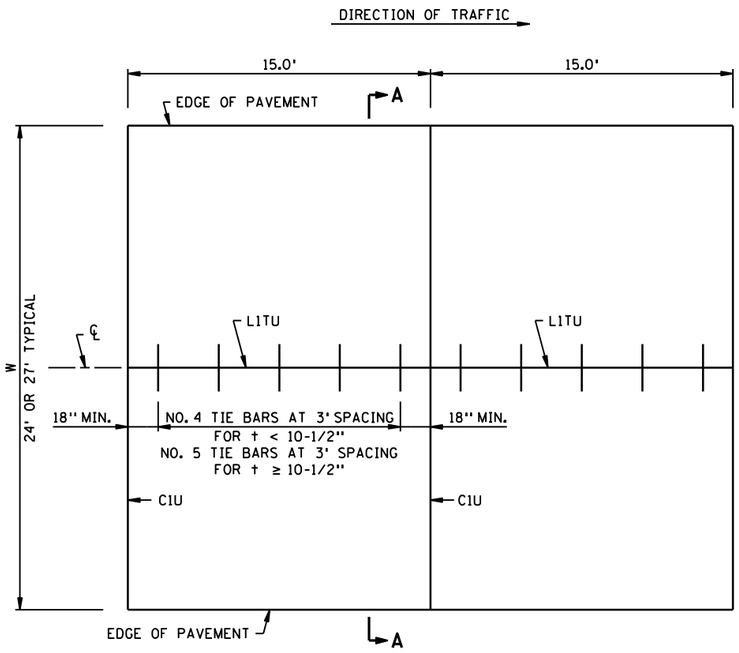
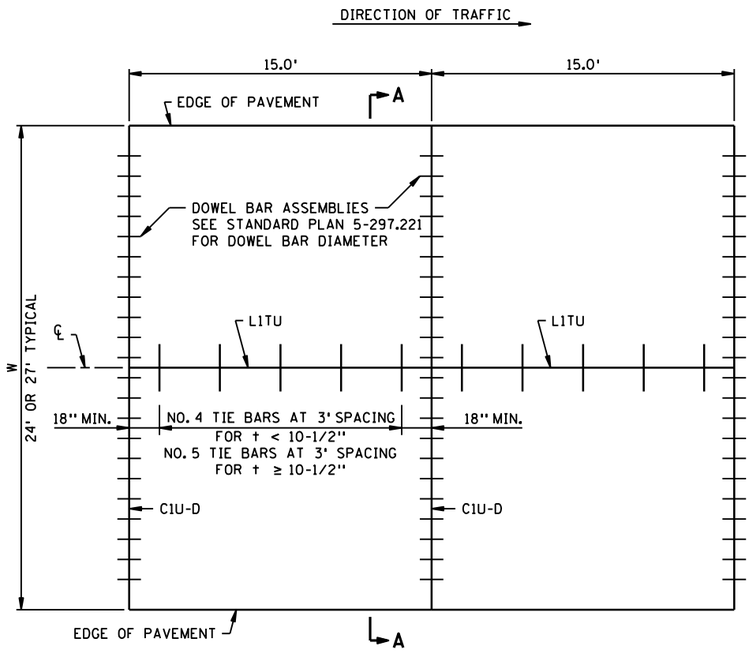


MAINLINE PAVEMENT
UNDOWELED



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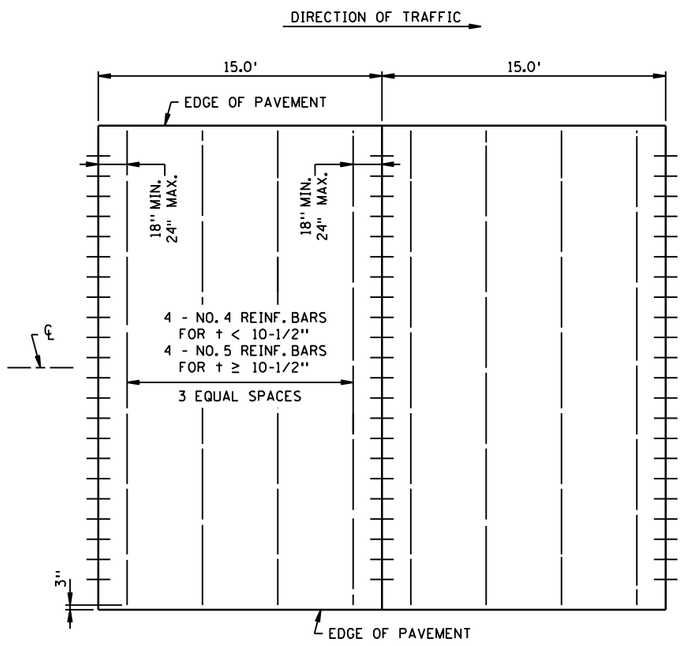
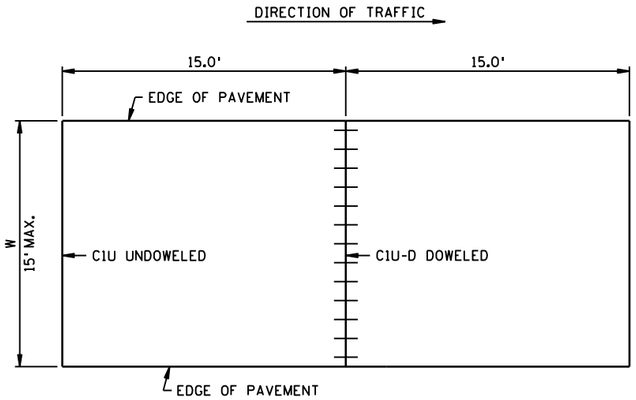
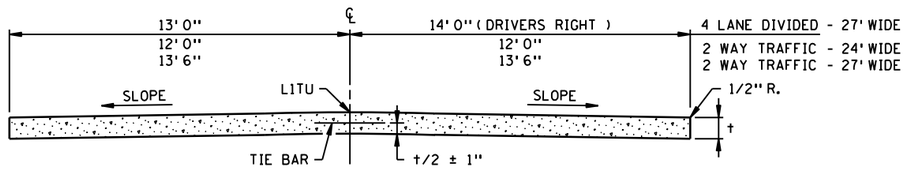


PANEL REINFORCEMENT



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



SECTION A-A

GENERAL NOTES:

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

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

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

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

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

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

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.217 | 1 OF 2
APPROVED: 2-16-2016
REVISED:

CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
RURAL

SP 002-622-041, SP 223-020-009

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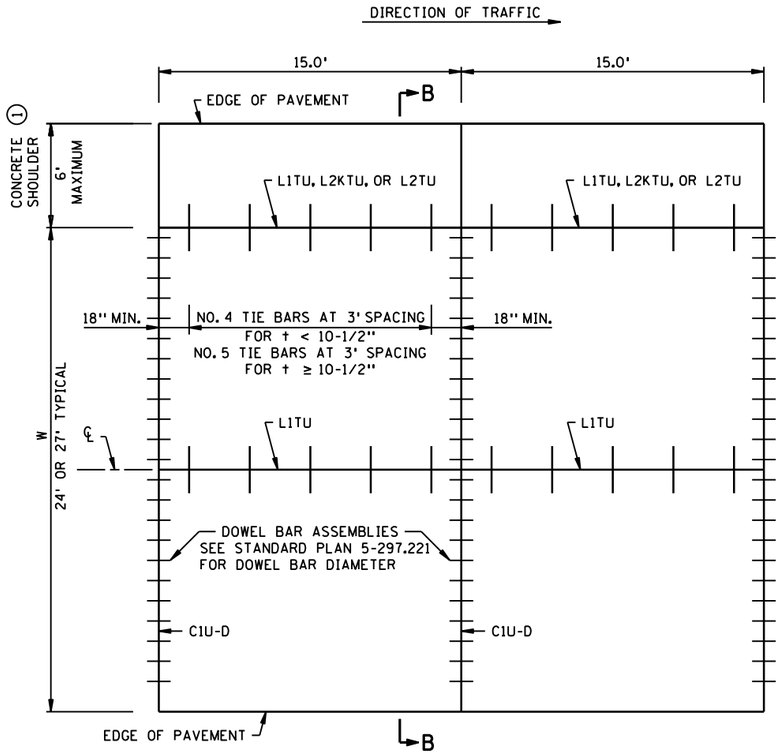
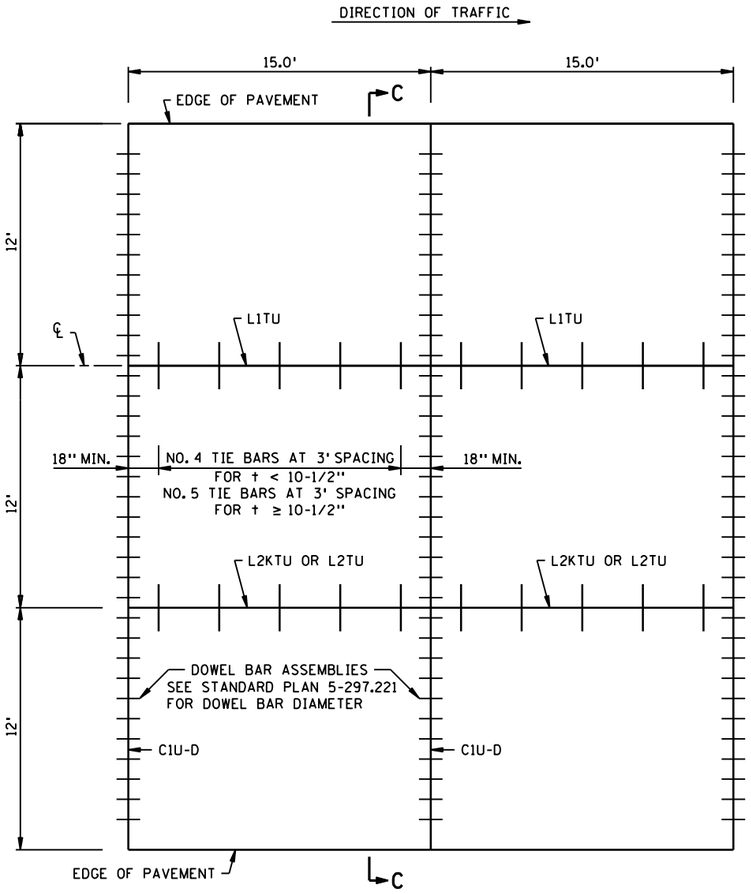
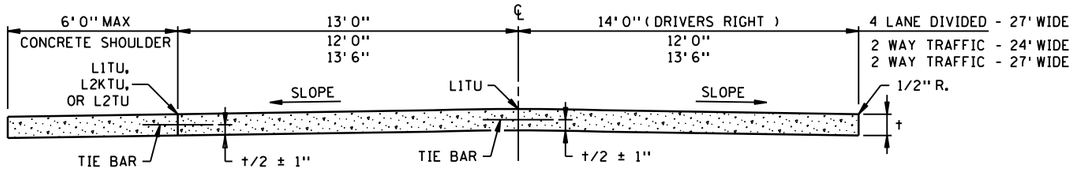


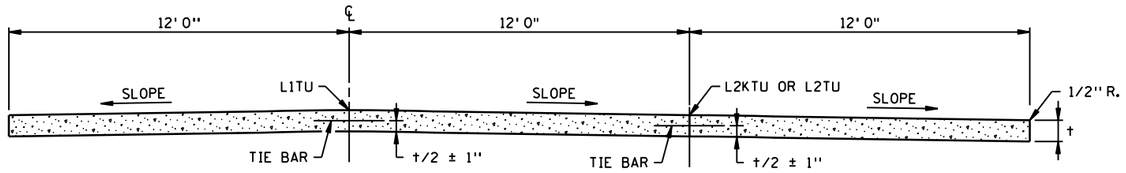
MAINLINE PAVEMENT WITH
INSIDE CONCRETE SHOULDER
DOWELED



MAINLINE PAVEMENT URBAN
DOWELED



SECTION B-B



SECTION C-C

GENERAL NOTES:

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

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

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

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

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

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

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.217 | 2 OF 2
APPROVED: 2-16-2016
REVISED:

CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
URBAN OR CONCRETE SHOULDERS

SP 002-622-041, SP 223-020-009

PLOTTED/REVISED: 2/7/2024 3:26:44 PM
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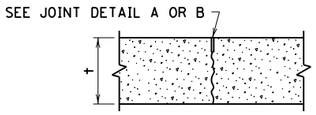
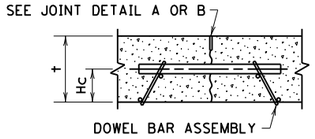
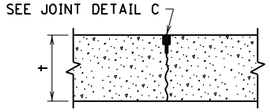


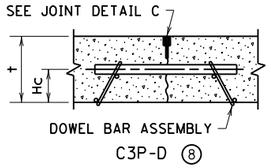
C1U & C2H



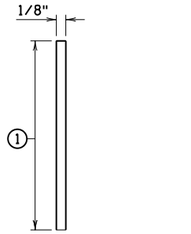
C1U-D & C2H-D (8)



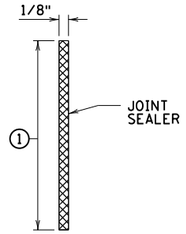
C3P



C3P-D (8)



JOINT DETAIL A (3)(5)
SAWED & UNSEALED



JOINT DETAIL B (4)(5)
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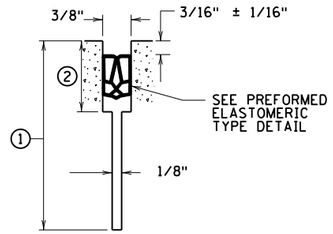
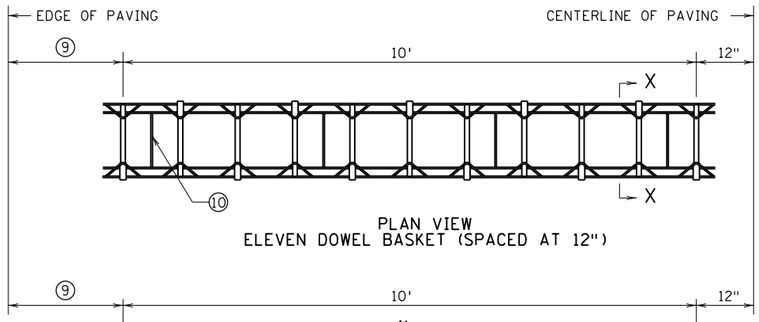
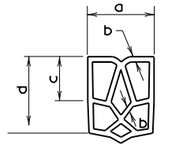


JOINT DETAIL C (4)(5)
SAWED AND SEALED



CONTRACTION JOINT DOWEL BAR ASSEMBLIES

REQUIRED DIMENSIONS (2)	
JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16" USE IN ALL 3/8" JOINTS
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



SPEC. REFERENCE 3721

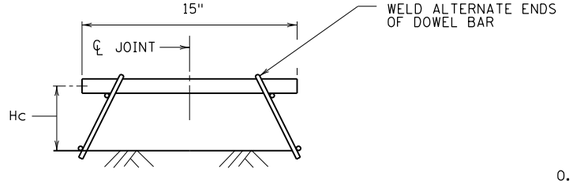
TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

PREFORMED ELASTOMERIC TYPE DETAIL (2)

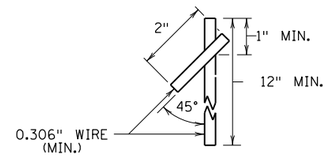
CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE				
JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"

LEGEND — EXAMPLE
C = CONTRACTION JOINT — C2H-D
NO. = JOINT REFERENCE
U = UNSEALED
H = HOT POURED
P = PREFORMED
-D = DOWEL BARS

DOWEL BAR TABLE		
† PAVEMENT THICKNESS (IN.)	DOWEL BAR DIAMETER (IN.)	Hc HEIGHT TO CENTER OF DOWEL BAR (IN.)
7 - 7½	1	3
8 - 10	1¼	4
≥ 10½	1½	5



SECTION X-X (8)



ANCHOR PIN (7)

NOTES:

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE/RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

(1) JOINT DEPTH AND TOLERANCE: t/3 ± ¼".

(2) JOINT DEPTH ¼" MORE THAN THE PREFORMED SEALER WHEN COMPRESSED TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION APPLIES AT ANY POINT THROUGHOUT "c" DEPTH. SHARP CORNERS NOT PERMITTED. PROVIDE CORNERS WITH SUITABLE FILLET.

(3) CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.

(4) CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING, WHEN SEALING IS REQUIRED.

(5) JOINT WIDTH TOLERANCE IS +1/16" TO -1/32".

(6) EVENLY SPACE A MINIMUM OF (8) ANCHOR PINS (4 PER SIDE) PER DOWEL ASSEMBLY. PROVIDE QUALITY CONTROL PLAN FOR ANCHORING THE DOWEL BAR ASSEMBLIES TO THE ENGINEER FOR ACCEPTANCE PER SPEC. 2301.

(7) ANCHOR PIN REQUIREMENTS FOR CONCRETE PAVEMENT ON GRADE CONSTRUCTION. FOR CONCRETE OVERLAYS, ANCHOR PIN REQUIREMENT AS APPROVED BY THE ENGINEER.

(8) TOLERANCES:
- PLACE DOWEL BARS PARALLEL TO THE SUBSTRATE SURFACE ±1/8" IN 15".
- PLACE DOWEL BARS PARALLEL TO THE CENTERLINE OF THE PAVEMENT ±¼" IN 15"
- SAW CONTRACTION JOINTS PERPENDICULAR TO THE CENTERLINE OF THE PAVEMENT AND CENTERED ON THE DOWEL BAR ±3".
- HEIGHT (hC) TO CENTER OF DOWEL BAR ± ½".

(9) DISTANCE TO EDGE OF PAVEMENT FROM OUTSIDE DOWEL:
- 3'0" FOR 14'0" LANE.
- 2'6" FOR 13'6" LANE.
- 2'0" FOR 13'0" LANE.
- 1'0" FOR 12'0" LANE.

(10) CONTRACTOR OPTION TO CUT AND BEND SPACER WIRES AFTER STAKING.

LEAD EXPERT OFFICE
GLENN ENGSTROM
DIRECTOR
OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 | 1 OF 4

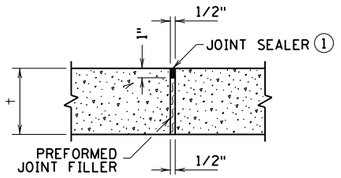
APPROVED: 10-03-2022
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

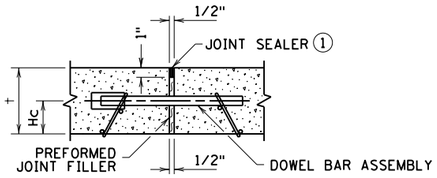
PAVEMENT JOINTS

CONTRACTION (DESIGN C)

SP 002-622-041, SP 223-020-009



E1H



E1H-D (3)

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

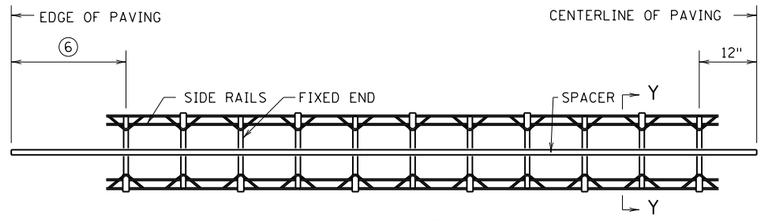
LEGEND — EXAMPLE

E = EXPANSION JOINT — E1H-D

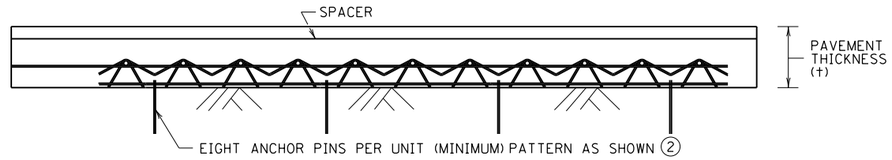
NO. = JOINT REFERENCE

H = HOT POURED

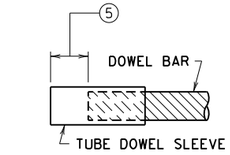
-D = DOWEL BARS



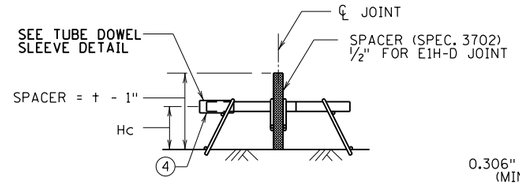
PLAN VIEW
EXPANSION JOINT DOWEL ASSEMBLY



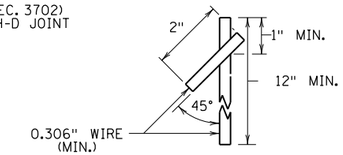
ELEVATION VIEW
EXPANSION JOINT DOWEL BAR ASSEMBLY



TUBE DOWEL SLEEVE DETAIL

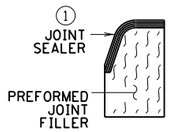


SECTION Y-Y (3)

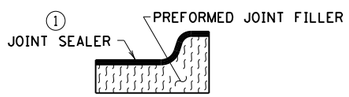


ANCHOR PIN

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



SECTION THRU CURB



SECTION THRU CURB

NOTES:

WHEN USING THE EXPANSION JOINT DOWEL ASSEMBLY, CONTACT THE CONCRETE OFFICE.

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

PROVIDE PREFORMED JOINT FILLER MATERIAL IN ACCORDANCE WITH SPEC. 3702.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

(1) JOINT SEALER SPEC. 3725. CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE.

(2) EVENLY SPACE A MINIMUM OF (8) ANCHOR PINS (4 PER SIDE) PER DOWEL ASSEMBLY. PROVIDE QUALITY CONTROL PLAN FOR ANCHORING THE DOWEL BAR ASSEMBLIES TO THE ENGINEER FOR ACCEPTANCE PER SPEC. 2301.

(3) TOLERANCES:
- PLACE DOWEL BARS PARALLEL TO THE SUBSTRATE SURFACE ±1/8" IN 15".
- PLACE DOWEL BARS PARALLEL TO THE CENTERLINE OF THE PAVEMENT ±1/4" IN 15"
- HEIGHT (hC) TO CENTER OF DOWEL BAR ± 1/2".

(4) PLACE METAL INSTALLATION SHIELDS FOR EXPANSION JOINTS PARALLEL TO THE PAVEMENT SURFACE AND THE PAVEMENT CENTERLINE WITHIN A TOLERANCE OF 1/4" WITHIN THE LENGTH OF BAR.

(5) SPACE FROM END OF DOWEL BAR TO END OF SLEEVE IS 1" MINIMUM.

(6) DISTANCE TO EDGE OF PAVEMENT FROM OUTSIDE DOWEL:
- 3'0" FOR 14'0" LANE.
- 2'6" FOR 13'6" LANE.
- 2'0" FOR 13'0" LANE.
- 1'0" FOR 12'0" LANE.

LEAD EXPERT OFFICE

GLENN ENGSTROM
DIRECTOR
OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 | 2 OF 4

APPROVED: 10-03-2022
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PAVEMENT JOINTS

EXPANSION (DESIGN E)

SP 002-622-041, SP 223-020-009

PLOTTED/REVISED: 2/7/2024 3:26:44 PM
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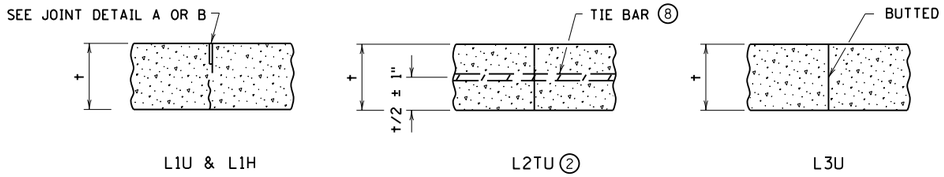
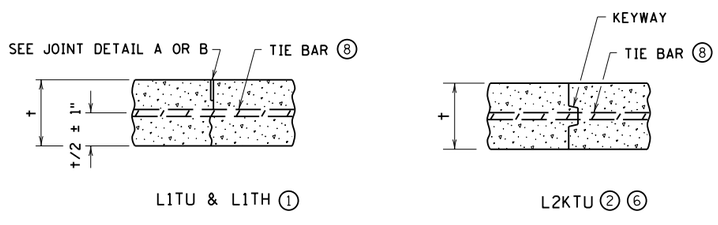


L1U & L1H | L2TU (2) | L3U



L1TU & L1TH (1) | L2KTU (2) (6)

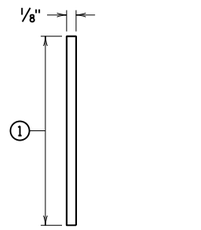
LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE					
JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
L3U			NONE	UNSEALED	

LEGEND

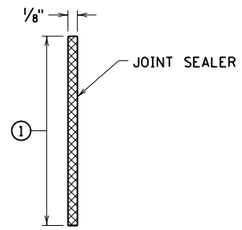
L = LONGITUDINAL JOINT
NO. = JOINT REFERENCE
1 = PAVED CONSTRUCTION JOINT
2 = TIED CONSTRUCTION JOINT
3 = BUTTED CONSTRUCTION JOINT
K = KEYWAY
T = TIE BARS
U = UNSEALED
H = HOT POURED

EXAMPLE

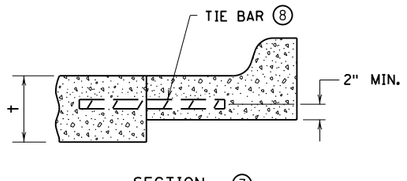
L2KTU



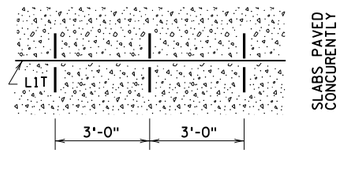
JOINT DETAIL A (3)(5)
SAWED & UNSEALED



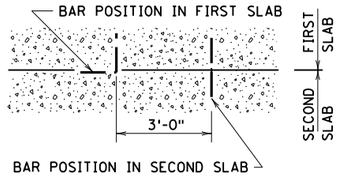
JOINT DETAIL B (4)(5)
SAWED & SEALED



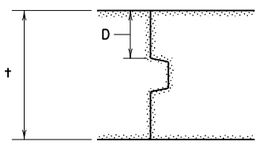
SECTION THRU CURB (7)



L1T PAVING DETAIL



L2T & L2KT TIE BAR BENDING (2) AND PAVING DETAIL



PAVEMENT KEYWAY DETAIL (6)

FIXED FORM KEYWAY TABLE (6)	
t PAVEMENT THICKNESS	D (MIN. DEPTH)
< 7"	2-1/2"
7" TO 7-1/2"	3"
8" TO 9-1/2"	4"
≥ 10"	5"

SLIPFORM KEYWAY TABLE (6)	
t PAVEMENT THICKNESS	D (MIN. DEPTH)
< 10"	NO KEYWAY
≥ 10"	5"

NOTES:

PROVIDE EPOXY-COATED TIE BARS COMPLYING WITH SPEC. 3301.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

LONGITUDINAL JOINTS SAWED WIDER THAN 1/8", CONTACT THE CONCRETE UNIT FOR SEALING RECOMMENDATIONS.

(1) JOINT DEPTH AND TOLERANCE: t/3 ± 1/4".

(2) BEND TIE BARS 90 DEGREES WHEN INSERTED IN THE L2 JOINTS, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

(3) CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.

(4) CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING, WHEN SEALING IS REQUIRED.

(5) JOINT WIDTH TOLERANCE IS +1/16" TO -1/32".

(6) CONTRACTOR'S OPTION TO USE KEYWAY WHEN:
- PLACING FIXED FORM CONSTRUCTION.
- PLACING SLIPFORM CONSTRUCTION WHEN t ≥ 10".

USE OF KEYWAY FOR ANY OTHER APPLICATION REQUIRES APPROVAL BY THE ENGINEER. OTHER KEYWAY SHAPES MAY BE USED WITH THE APPROVAL OF THE CONCRETE ENGINEER.

(7) WHEN CURB AND GUTTER IS NOT CONSTRUCTED AT THE SAME DEPTH AS ADJACENT CONCRETE, PLACE TIE BAR MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.

(8) PROVIDE NO. 4 TIE BAR, 30" LONG, SPACED AT 3' ON CENTER.

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LEAD EXPERT OFFICE

GLENN ENGSTROM
DIRECTOR
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MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.221 | **3 OF 4**

APPROVED: 10-03-2022
REVISED:

PAVEMENT JOINTS

LONGITUDINAL (DESIGN L)

SP 002-622-041, SP 223-020-009

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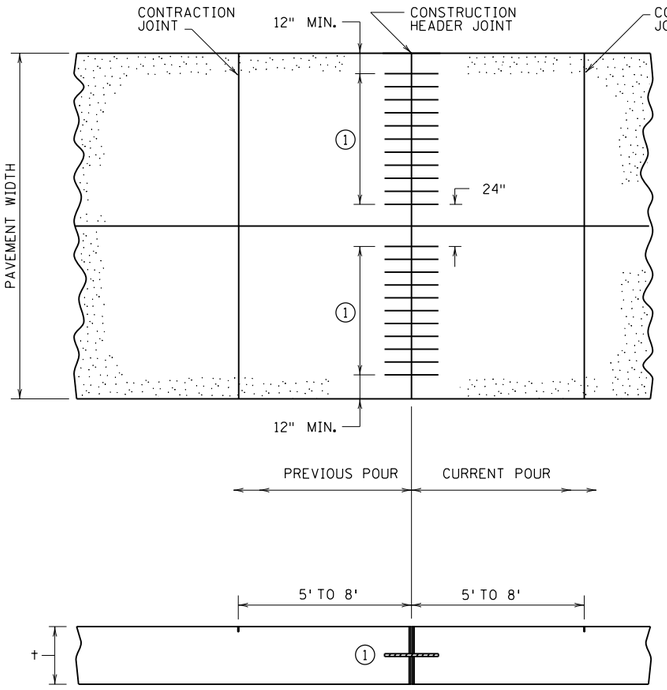
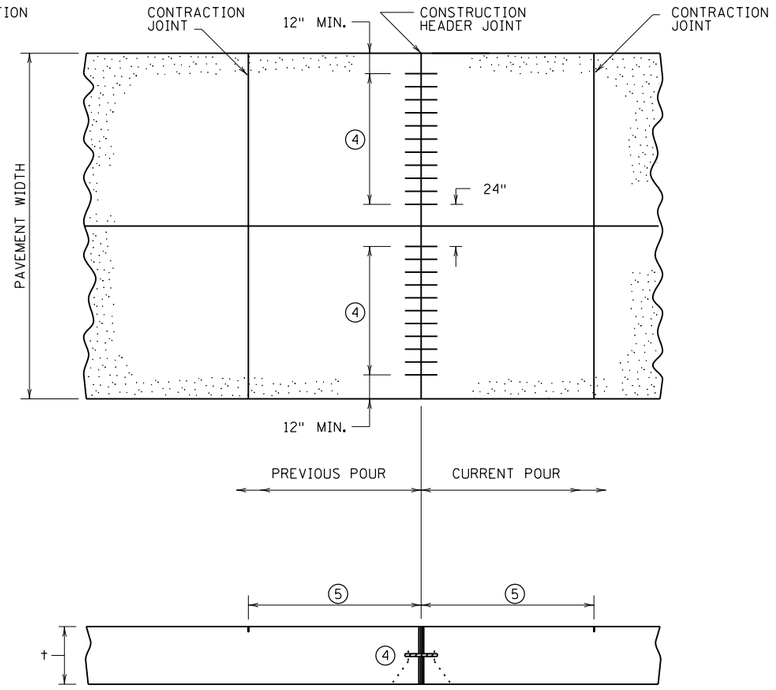
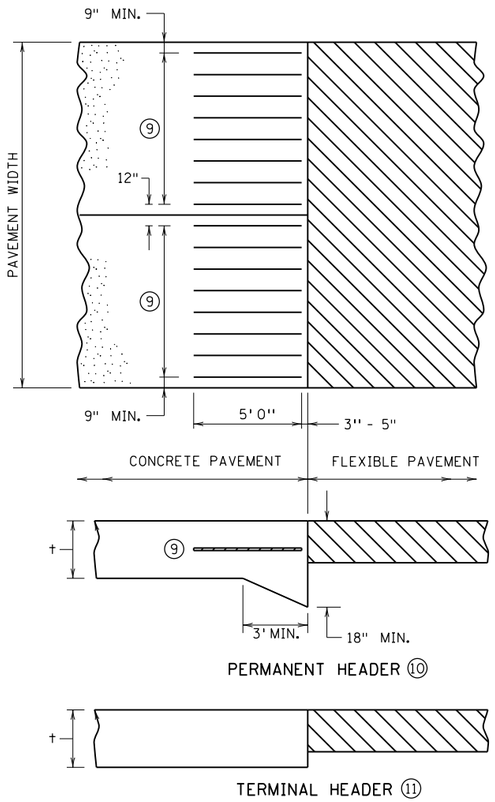


REINFORCEMENT BAR CONSTRUCTION HEADERS

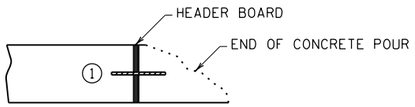


DOWEL BAR CONSTRUCTION HEADERS

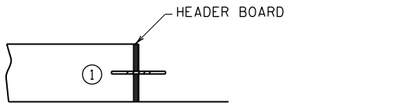


PERMANENT HEADER (10)

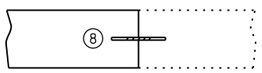
TERMINAL HEADER (11)



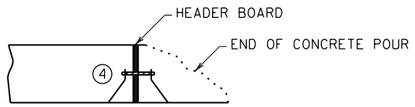
SLIPFORM PLACED REINFORCEMENT BAR HEADER (2)



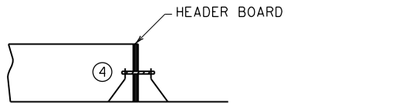
FIXED FORM PLACED REINFORCEMENT BAR HEADER (3)



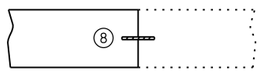
DRILL AND GROUT REINFORCEMENT BAR HEADER



SLIPFORM PLACED DOWEL BAR HEADER (6)



FIXED FORM PLACED DOWEL BAR HEADER (7)



DRILL AND GROUT DOWEL BAR HEADER

NOTES:

PROVIDE EPOXY-COATED REINFORCEMENT BARS IN ACCORDANCE WITH SPEC. 3301.

(1) PROVIDE NO. 4 REINFORCEMENT BARS, 30" LONG, SPREAD 12" ON CENTER AT DEPTH OF T/2 +/- 1".

(2) PAVE PAST THE HEADER LOCATION. REMOVE END OF CONCRETE POUR. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS. INSERT THE REINFORCEMENT BARS AND FINISH THE CONCRETE BEHIND THE BOARD.

(3) SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS. PLACE THE CONCRETE BEHIND THE BOARD AND INSERT THE REINFORCEMENT BARS. CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE HEADER BOARD.

(4) PROVIDE DOWEL BARS IN ACCORDANCE WITH SPEC. 3302 AND THE CONTRACT.

(5) DISTANCE EQUAL TO OR LESS THAN THE DESIGNED CONTRACTION JOINT SPACING IN ACCORDANCE WITH THE CONTRACT.

(6) PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PAVE PAST THE HEADER LOCATION AND FINISH CONCRETE BEHIND THE HEADER BOARD. THOROUGHLY REMOVE ALL CONCRETE FROM THE EXPOSED DOWELS.

(7) PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PLACE, CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE HEADER BOARD.

(8) DRILL AND GROUT 18" LONG DOWEL OR REINFORCEMENT BARS SPACED AT 12" ON CENTER AT A DEPTH OF T/2 ± 1". DRILL THE HOLE 1/8" GREATER THAN THE NOMINAL OUTSIDE DIAMETER OF THE BAR BEING PLACED TO A DEPTH OF 9". INJECT A MnDOT-APPROVED EPOXY OR NON-SHRINK GROUT IN THE BACK OF THE DRILL HOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- FOR DOWEL BAR HEADERS, USE DOWEL BARS HAVING A DIAMETER IN ACCORDANCE WITH SPEC. 3302 AND THE CONTRACT.
- FOR REINFORCEMENT BAR HEADERS, USE NO. 4 REINFORCEMENT BARS.

(9) PROVIDE NO. 7 REINFORCEMENT BARS, 5' LONG, SPACED 18" ON CENTER AT DEPTH OF t/2 ± 1".

(10) USE PERMANENT HEADER WHEN LONG SECTIONS OF CONCRETE (400' OR GREATER) ABUT BITUMINOUS. CONTACT THE CONCRETE UNIT WHEN FUTURE CONCRETE IS BEING CONSTRUCTED ADJACENT TO AN EXISTING PERMANENT HEADER.

(11) USE TERMINAL HEADER WHEN SHORT SECTIONS OF CONCRETE (LESS THAN 400') ABUT BITUMINOUS (ON SIDE STREETS, FOR EXAMPLE).

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LEAD EXPERT OFFICE

GLENN ENGSTROM
DIRECTOR
OFFICE OF MATERIALS
AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 | 4 OF 4

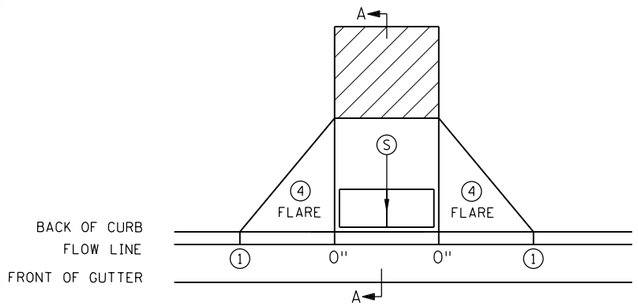
APPROVED: 10-03-2022
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PAVEMENT JOINTS

CONSTRUCTION AND TERMINAL HEADERS

SP 002-622-041, SP 223-020-009



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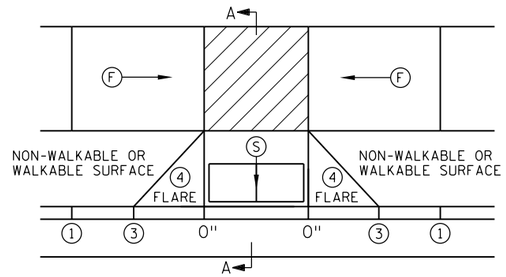
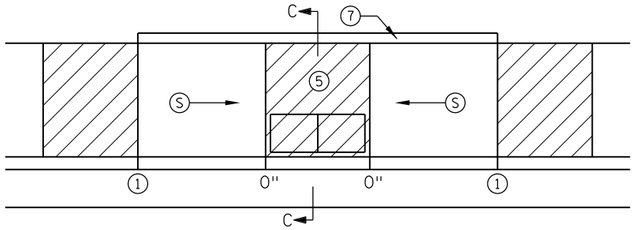
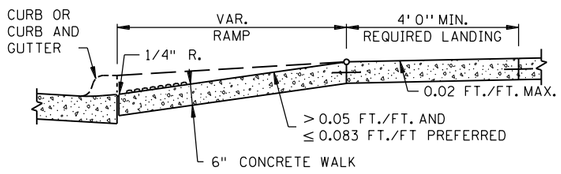


TIERED PERPENDICULAR

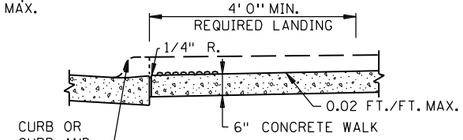


PARALLEL



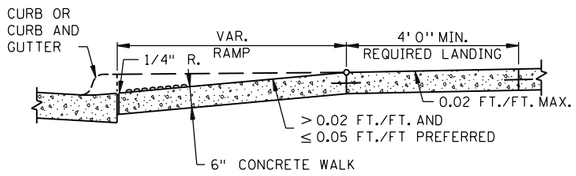
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



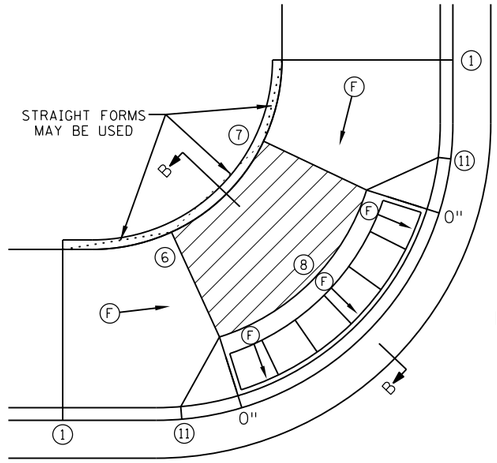
SECTION C-C

PARALLEL/DEPRESSED CORNER

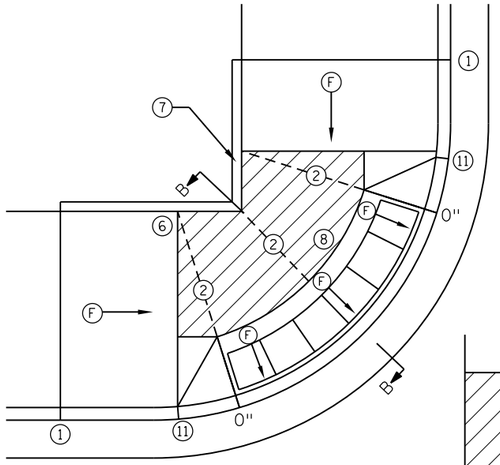


SECTION B-B

FAN

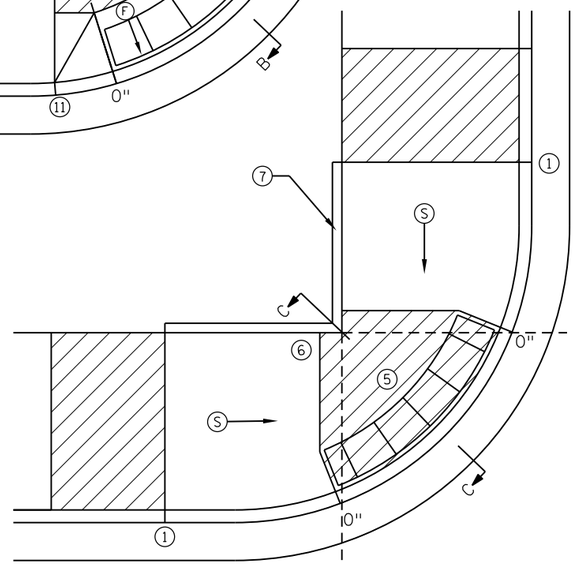


FAN (10)



MODIFIED FAN (10)

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



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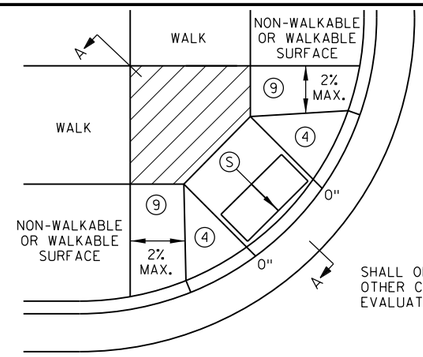

DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN (6) BELOW.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

(1) MATCH FULL HEIGHT CURB.

(2) 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.

(3) 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.

(4) SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

(5) DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.

(6) THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)

(7) WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

(8) A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.

(9) PAVE FULL WALK WIDTH.

(10) "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

(11) INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

REVISION:

APPROVED: 11-04-2021

JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | **1 OF 6**

APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

SP 002-622-041, SP 223-020-009

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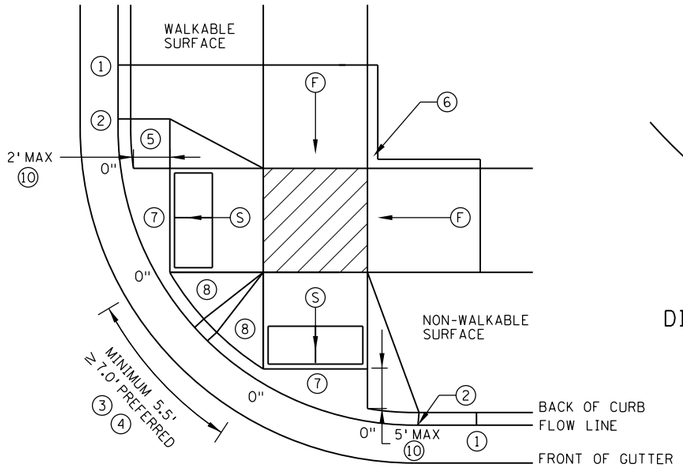
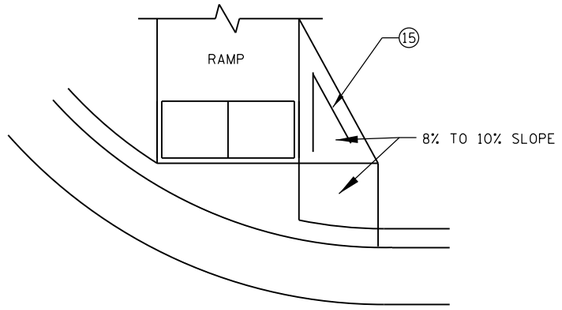
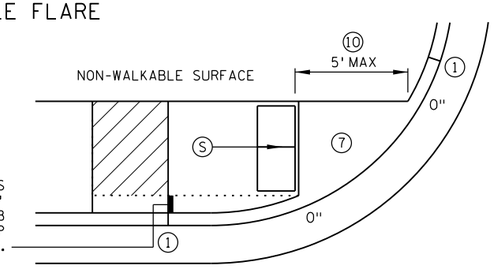


COMBINED DIRECTIONAL

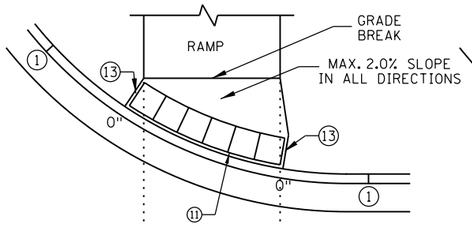


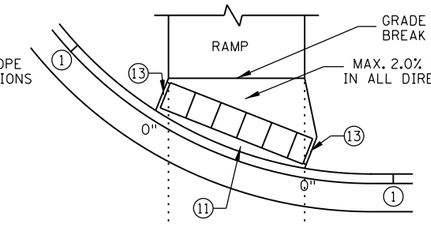
DIRECTIONAL RAMP WALKABLE FLARE

IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.



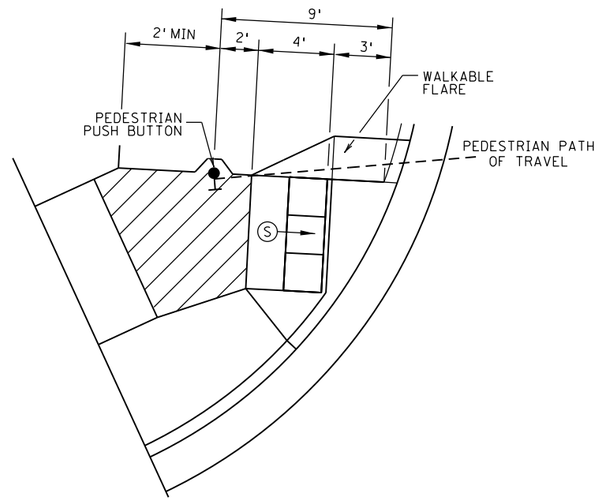
STANDARD ONE-WAY DIRECTIONAL ⑨





DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

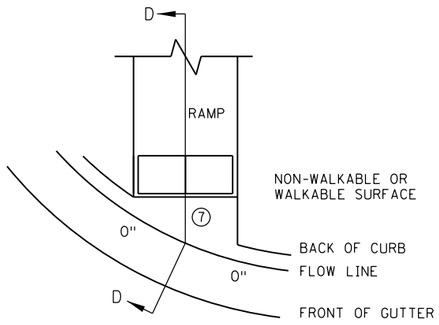
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

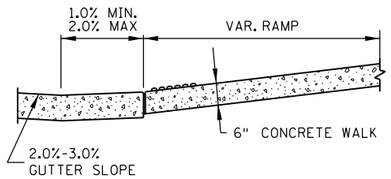


SEMI-DIRECTIONAL RAMP ③④⑨

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)





SECTION D-D

CURB FOR DIRECTIONAL RAMPS ⑭

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

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OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 2 OF 6

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REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

SP 002-622-041, SP 223-020-009

SHEET 27 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:48 PM

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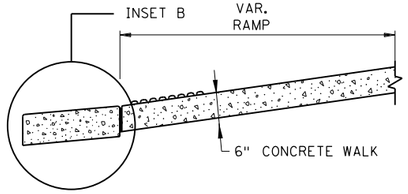
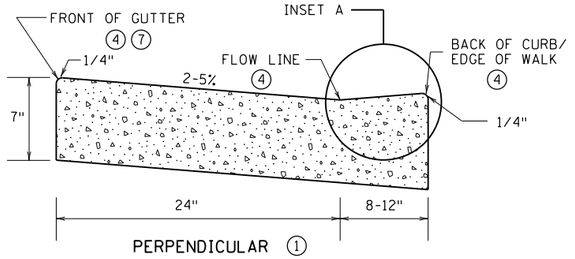
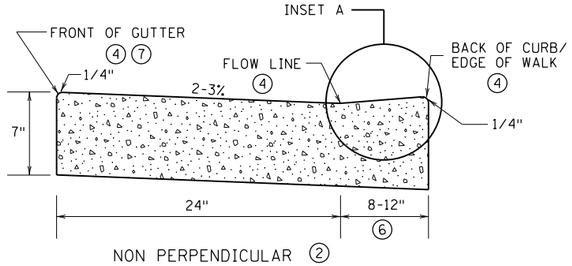
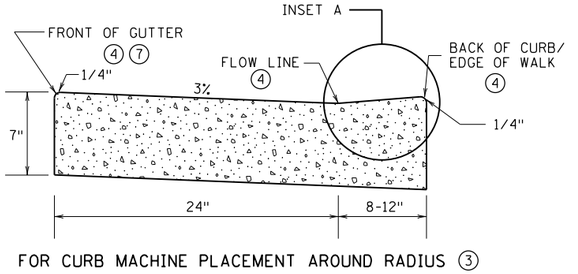




PERPENDICULAR ①

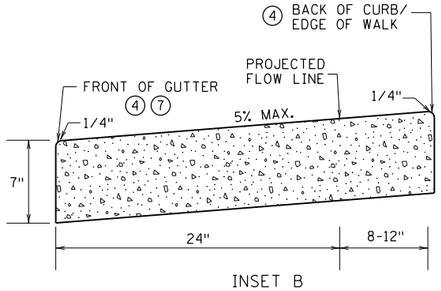


NON PERPENDICULAR ②



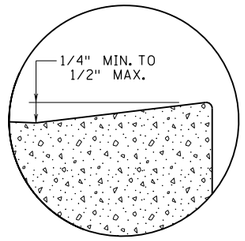
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

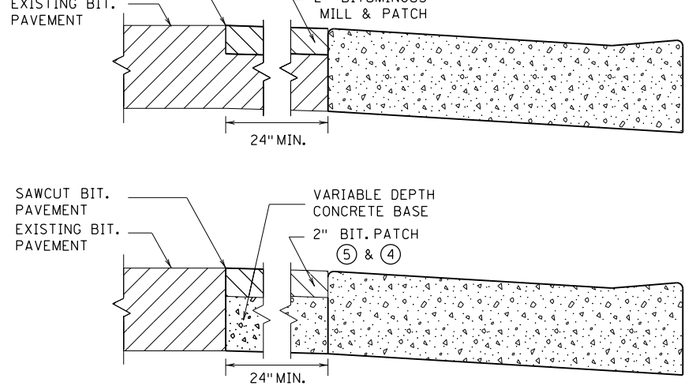


INSET B

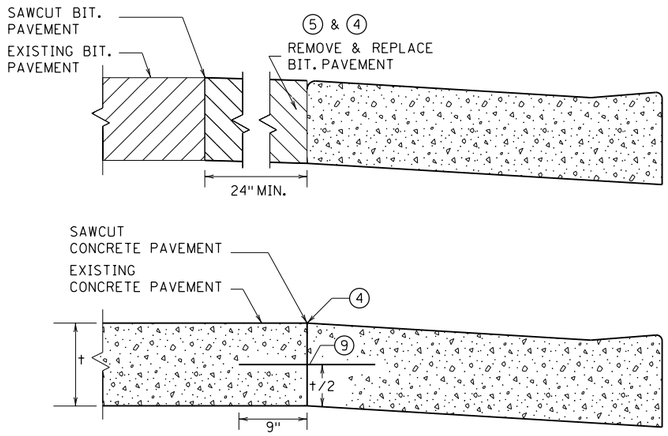
OUTFLOW GUTTER ⑧



INSET A

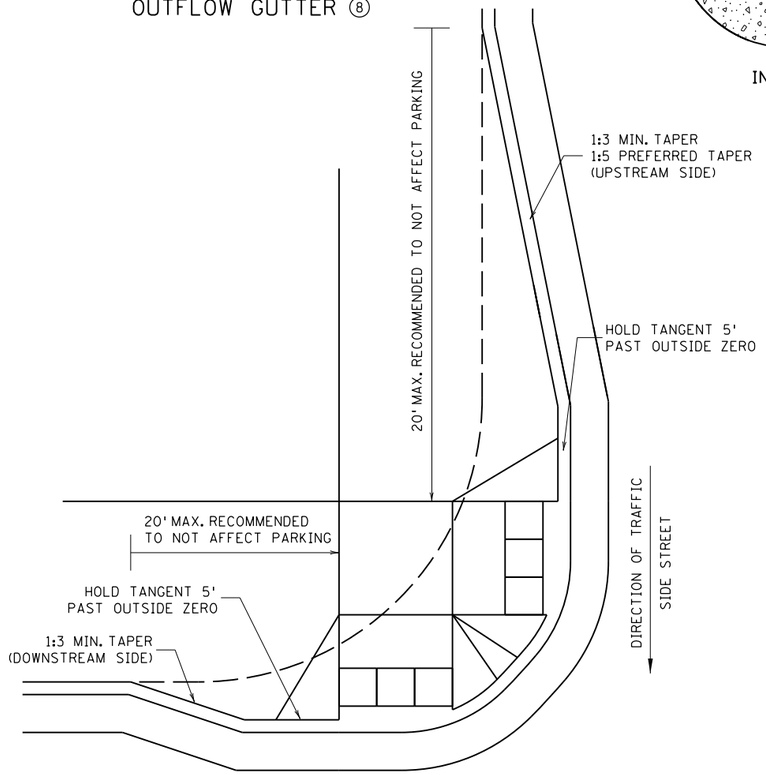


ONLY ALLOWED PER ENGINEER'S APPROVAL

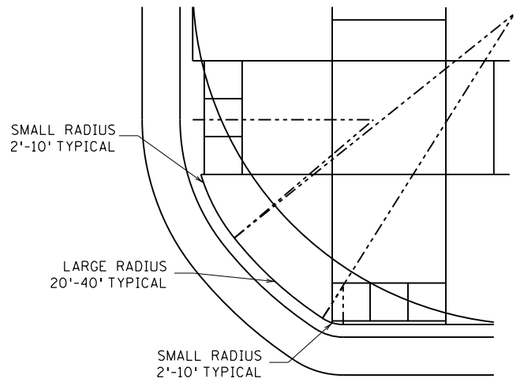


PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪



COMBINED DIRECTIONAL ⑩
(COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.

③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.

④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.

⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.

⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED.
PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

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PEDESTRIAN CURB RAMP DETAILS

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SHEET **28** OF **133** SHEETS

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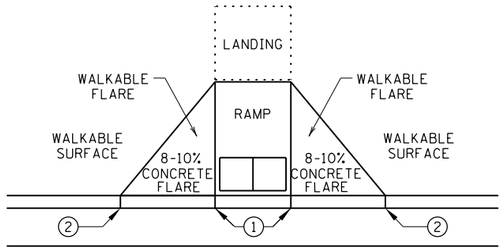
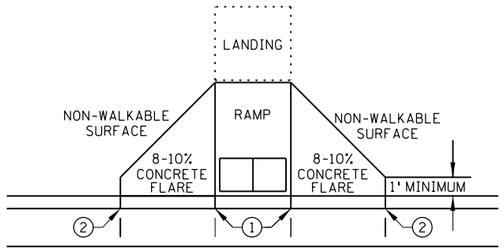
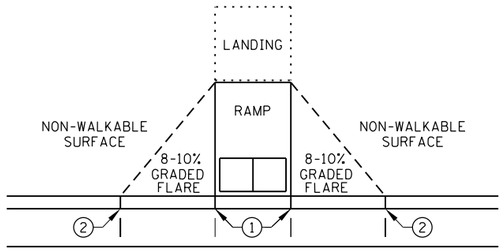


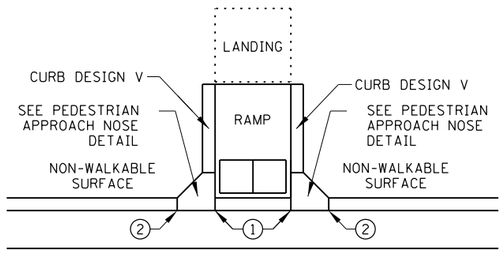
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

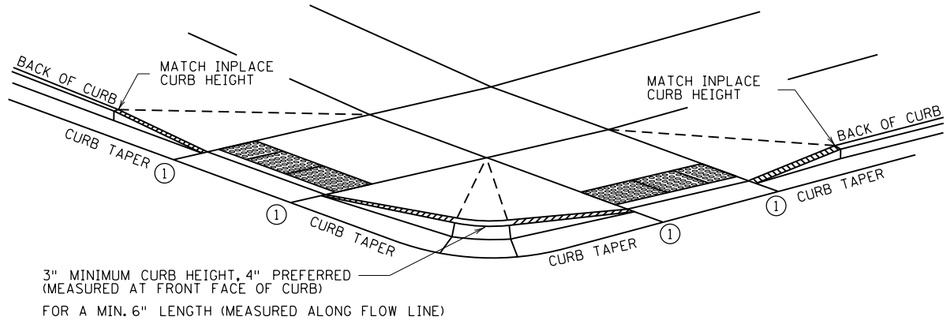


GRADED FLARES

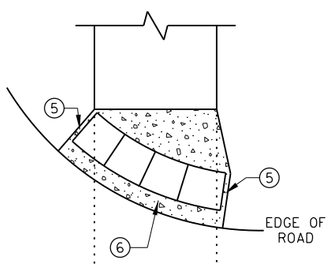


RETURNED CURB ④

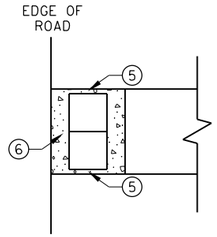
TYPICAL SIDE TREATMENT OPTIONS ③ ⑩



DETECTABLE EDGE WITH ⑦
CURB AND GUTTER

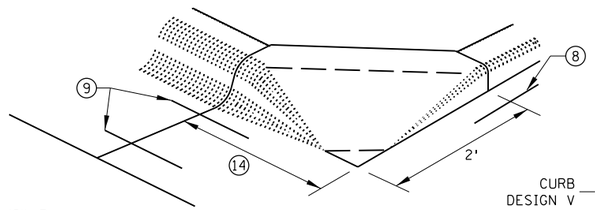


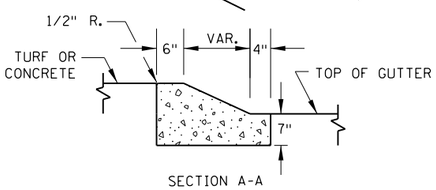
RADIAL DETECTABLE WARNING



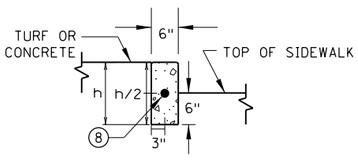
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER





SECTION A-A



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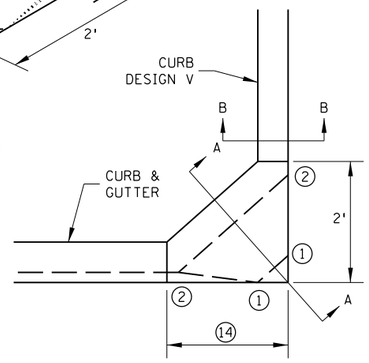
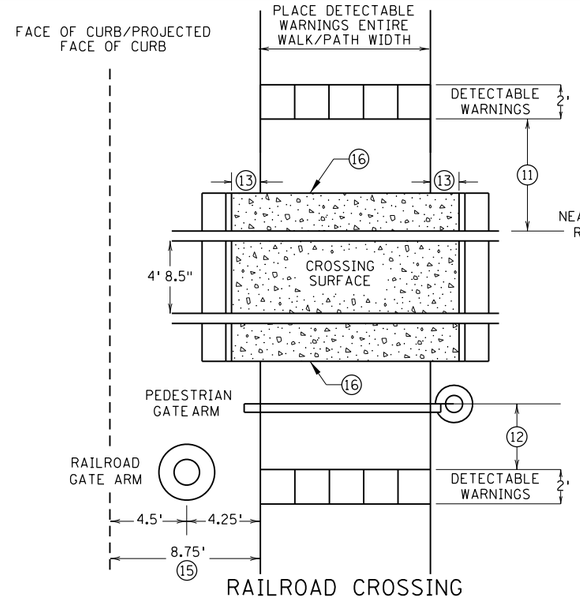


PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.

② FULL CURB HEIGHT.

③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

④ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑥ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

⑦ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS. AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPERS AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.

⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑪.

⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

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STANDARD PLAN 5-297.250 | **4 OF 6**

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STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

SP 002-622-041, SP 223-020-009

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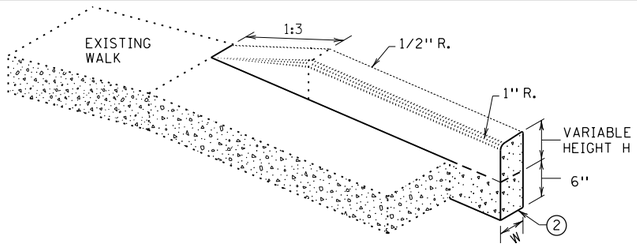
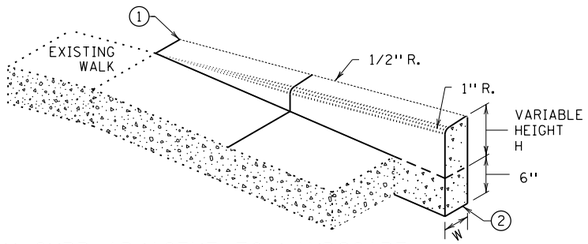


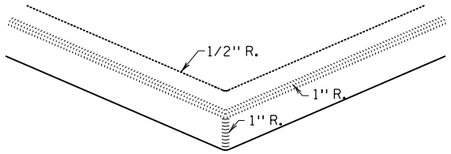
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

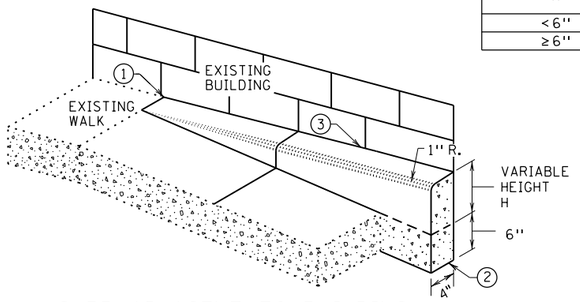


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

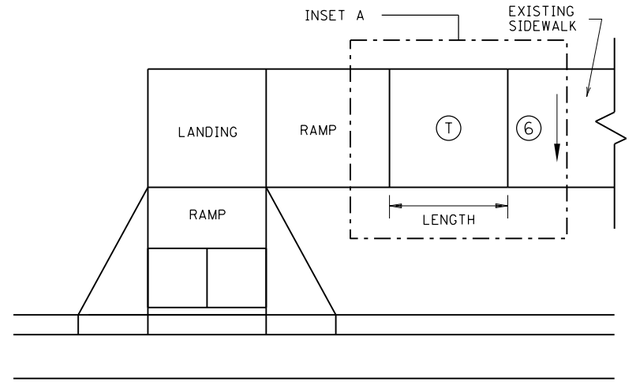


V CURB INTERSECTION

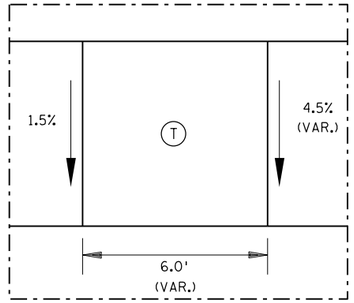


V CURB ADJACENT TO BUILDING OR BARRIER

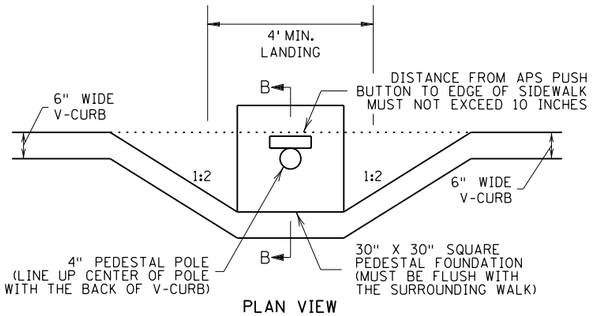
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



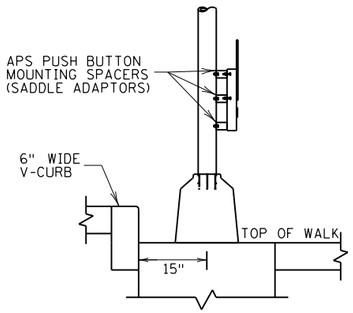
TRANSITION PANEL ④⑤



INSET A

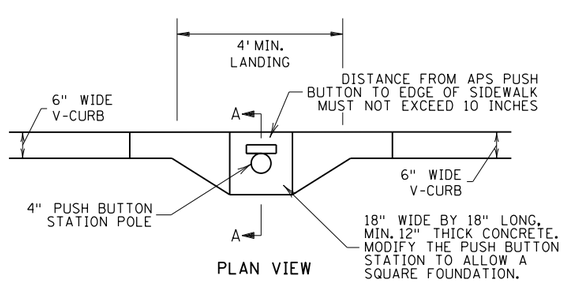


PLAN VIEW

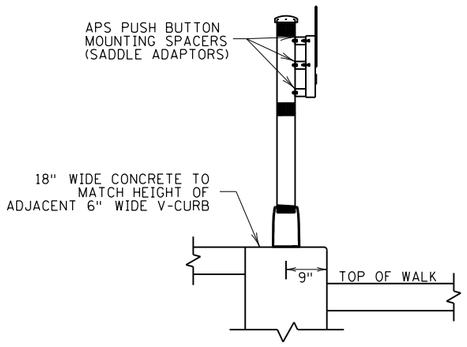


SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



PLAN VIEW



SECTION A-A

PUSH BUTTON STATION (V-CURB)

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM ½" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.

④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

Ⓣ TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:

APPROVED: 11-04-2021

JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 5 OF 6

APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

SP 002-622-041, SP 223-020-009

SHEET 30 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:52 PM

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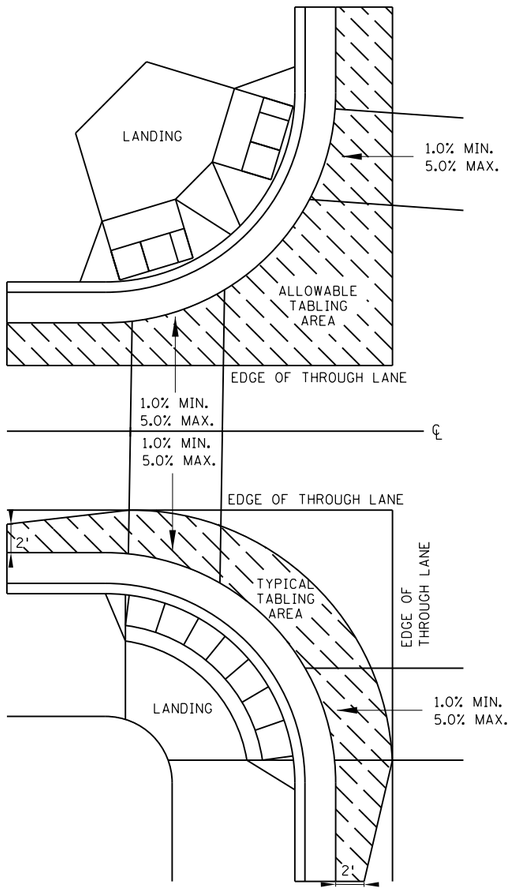
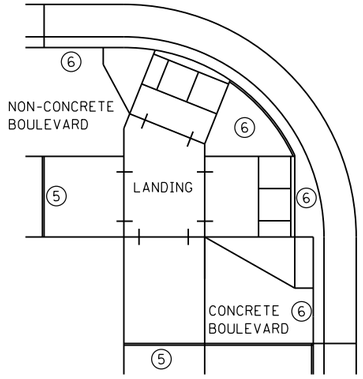
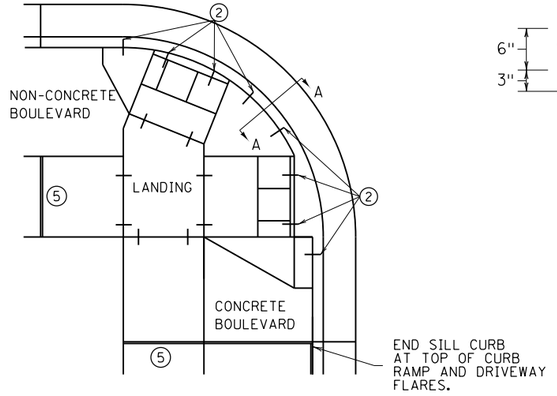


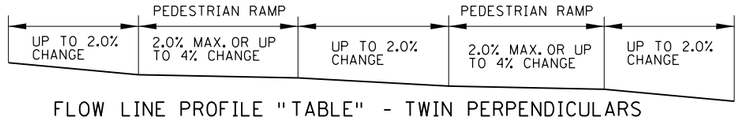
CURB LINE AND ROAD CROSSING ADJUSTMENTS



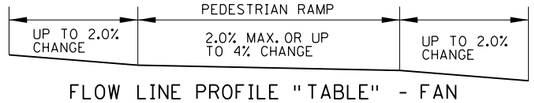
EXPANSION MATERIAL PLACEMENT
FOR CONCRETE ROADWAYS



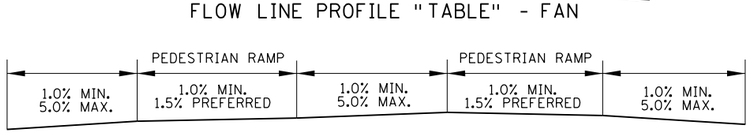
CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS

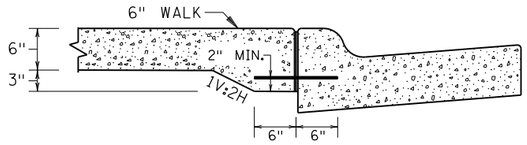


FLOW LINE PROFILE "TABLE" - FAN

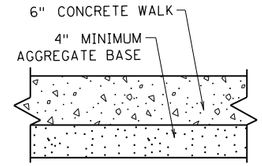


FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

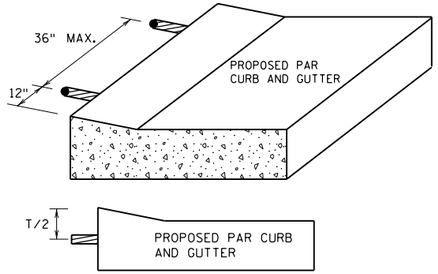
FLOW LINE PROFILE RAISE - FAN



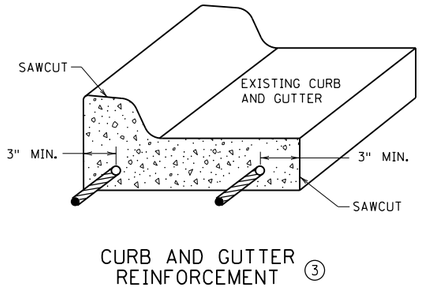
SECTION VIEW A-A
THICKENED SECTION
THROUGH CURB RAMP FLARES



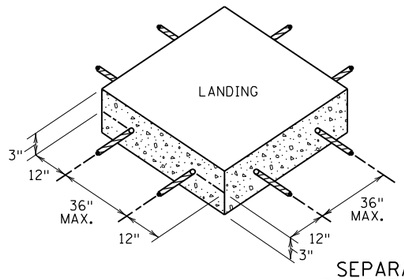
TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

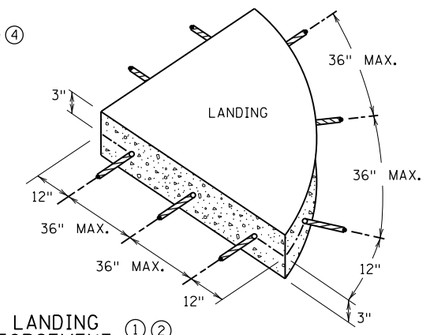


CURB RAMP REINFORCEMENT DETAILS ②④



CURB AND GUTTER
REINFORCEMENT ③





SEPARATE LANDING
POUR REINFORCEMENT ①②

GENERAL NOTES:

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
3) 5.0% RECOMMENDED MAX. FLOW LINE
4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED. ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.

② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.

③ DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.

④ THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.

⑤ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

⑥ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021
JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 6 OF 6

APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

SP 002-622-041, SP 223-020-009

SHEET 31 OF 133 SHEETS

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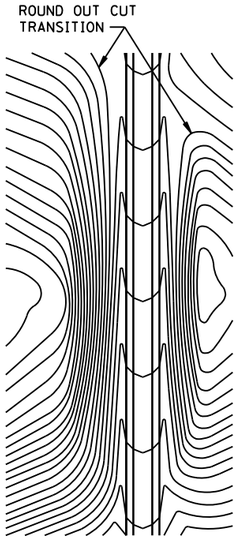
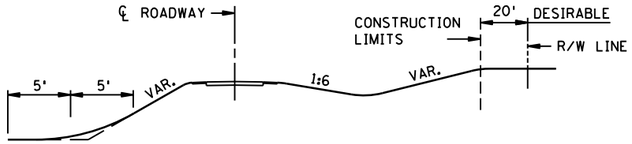
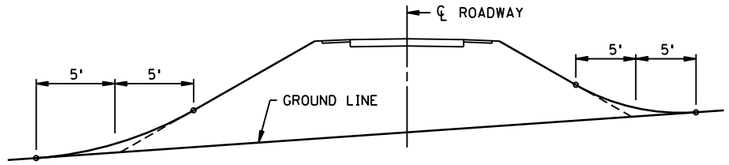


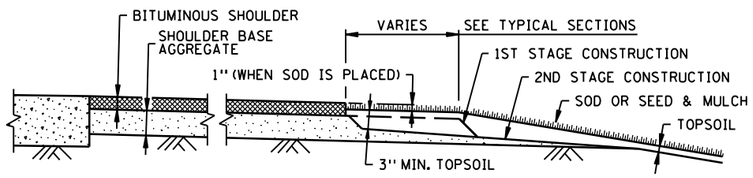
CONTOURING ROAD CUTS



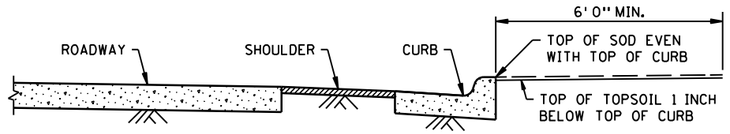
ROUNDING SHOULDERS AND BACKSLOPES



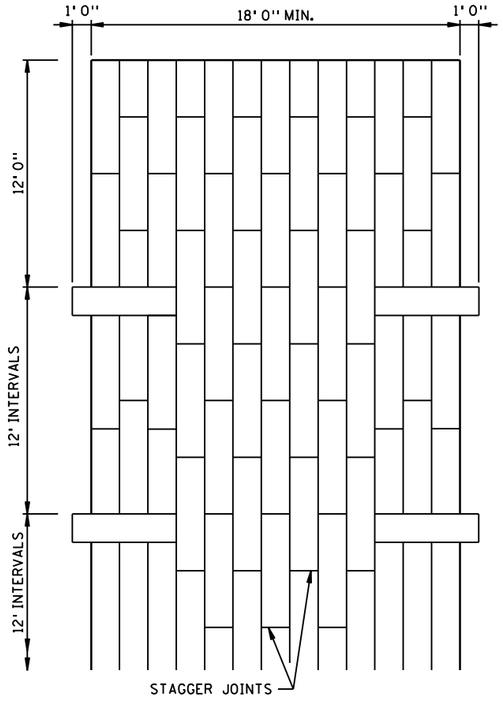
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



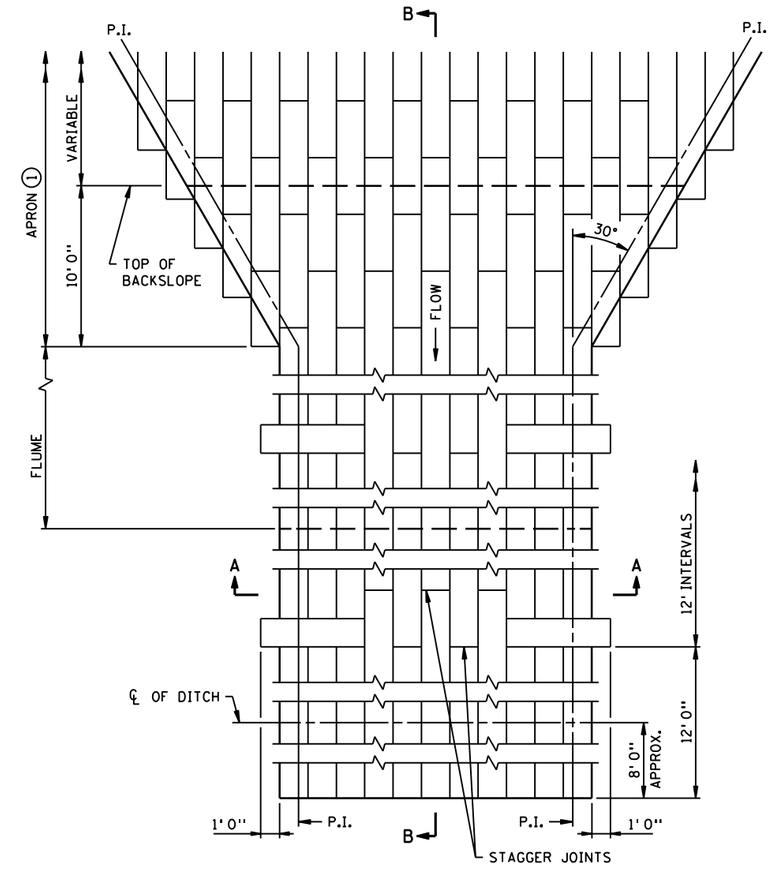
SHAPING AND TOPSOILING INSLOPES



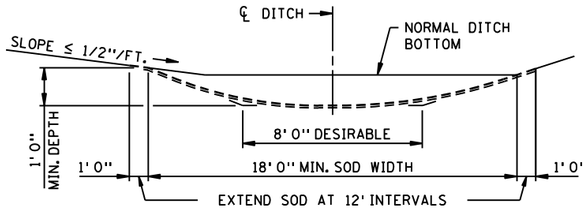
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



PLAN VIEW

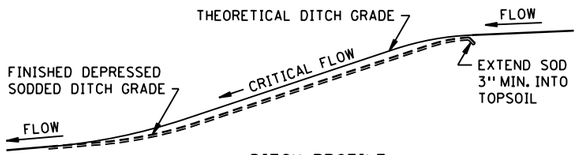


PLAN VIEW



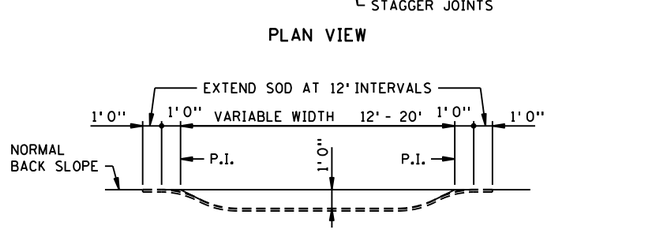
SODDED DITCH CROSS SECTION

WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

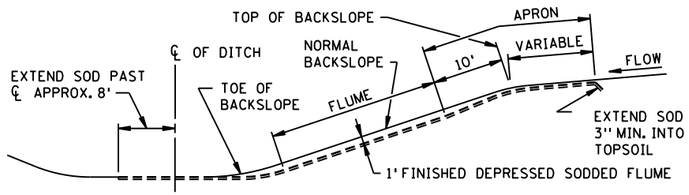


DITCH PROFILE

SODDED DITCH DETAILS



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

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

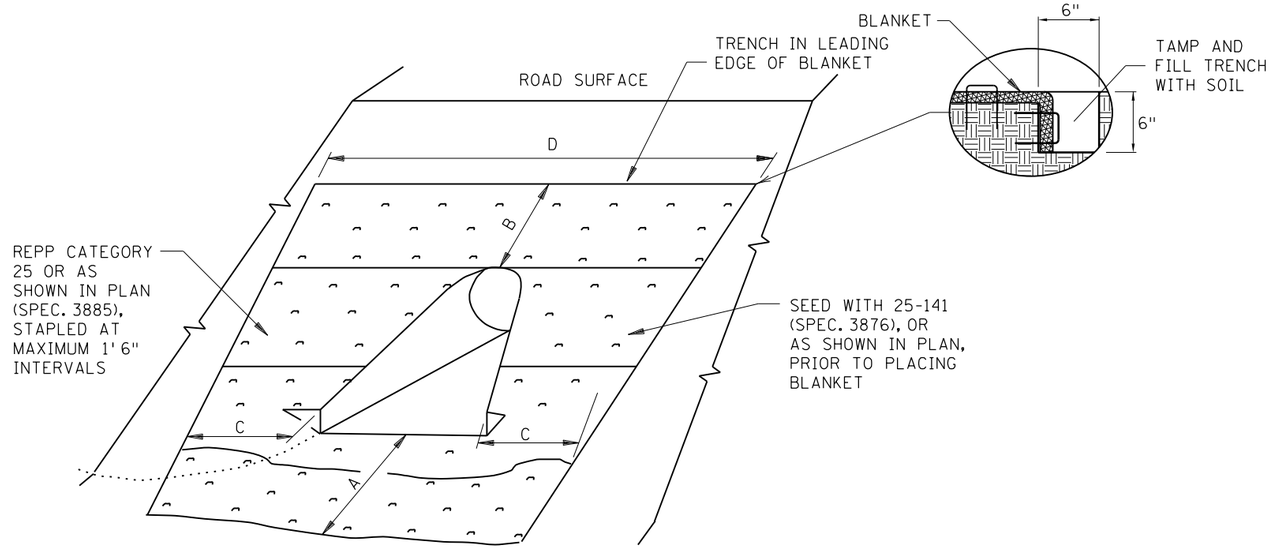
MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 1 OF 3

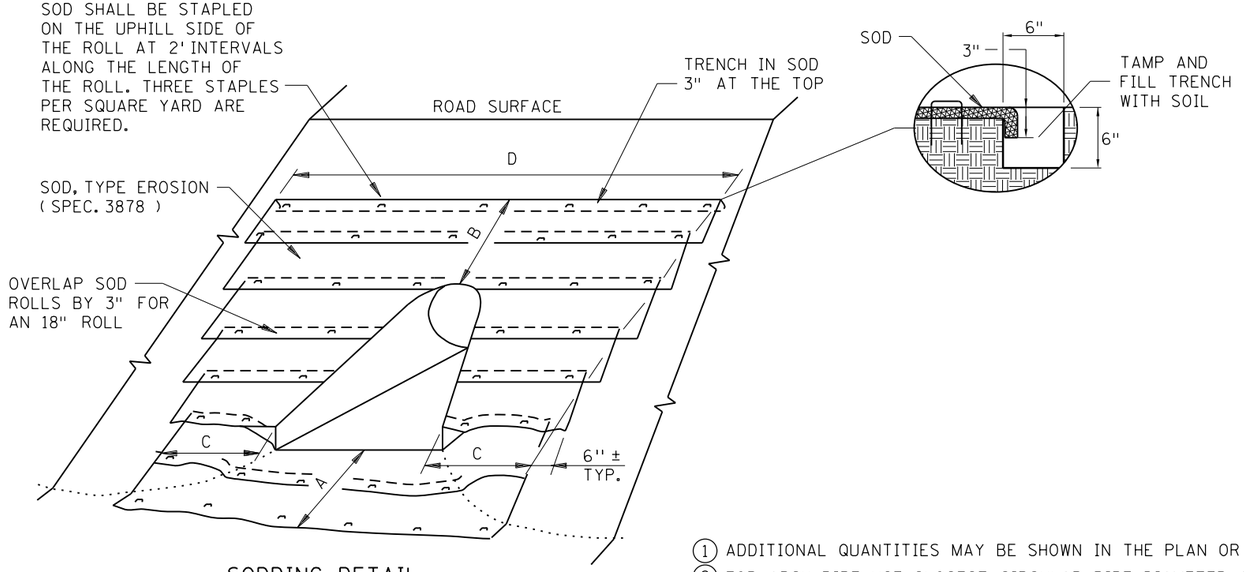
APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES

SP 002-622-041, SP 223-020-009



ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL



SODDING DETAIL

CULVERT INLET APRON ①										
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT OUTLET APRON ①										
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21"	16	14	16	18	19	15	6'	1.5'	3'	15'
24"	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'	17'
30"	23	23	24	28	29	N/A	9'	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	23'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	29'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.

② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 2 OF 3

APPROVED: 1-8-2020
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL

TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

SP 002-622-041, SP 223-020-009

SHEET 33 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:57 PM

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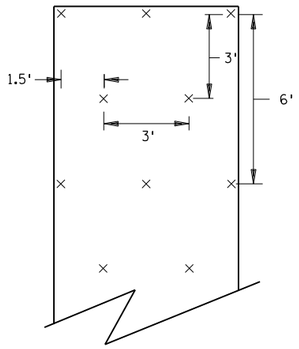
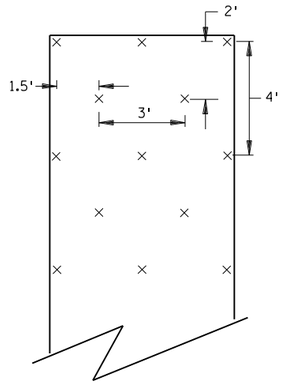
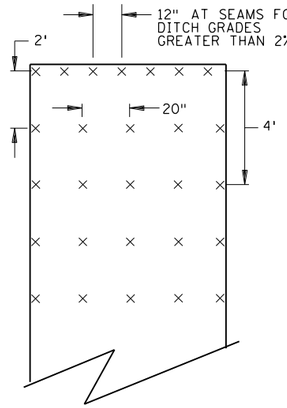


SLOPES FLATTER THAN 1:2
120 STAPLES PER 100 SQ YD

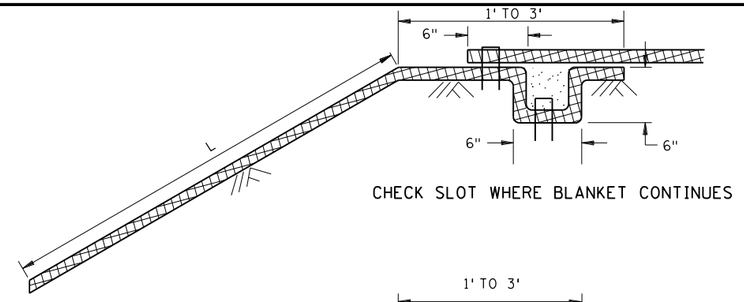


SLOPES 1:2 TO 1:1
170 STAPLES PER 100 SQ YD

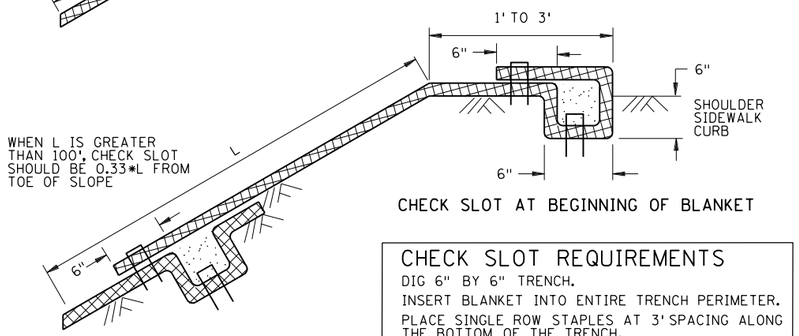


CHANNEL AND DITCH APPLICATIONS
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN



CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

CHECK SLOT REQUIREMENTS

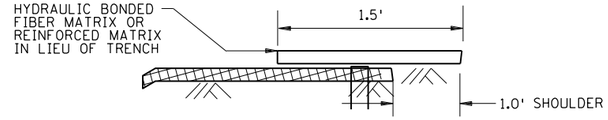
DIG 6" BY 6" TRENCH.

INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.

PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.

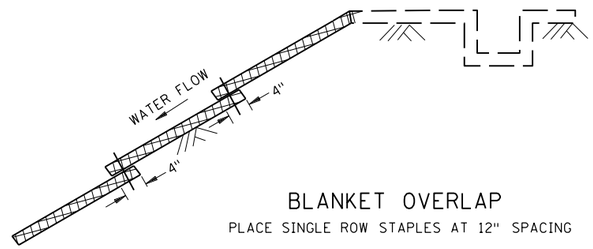
BACKFILL TRENCH WITH SOIL AND TAMP.

PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

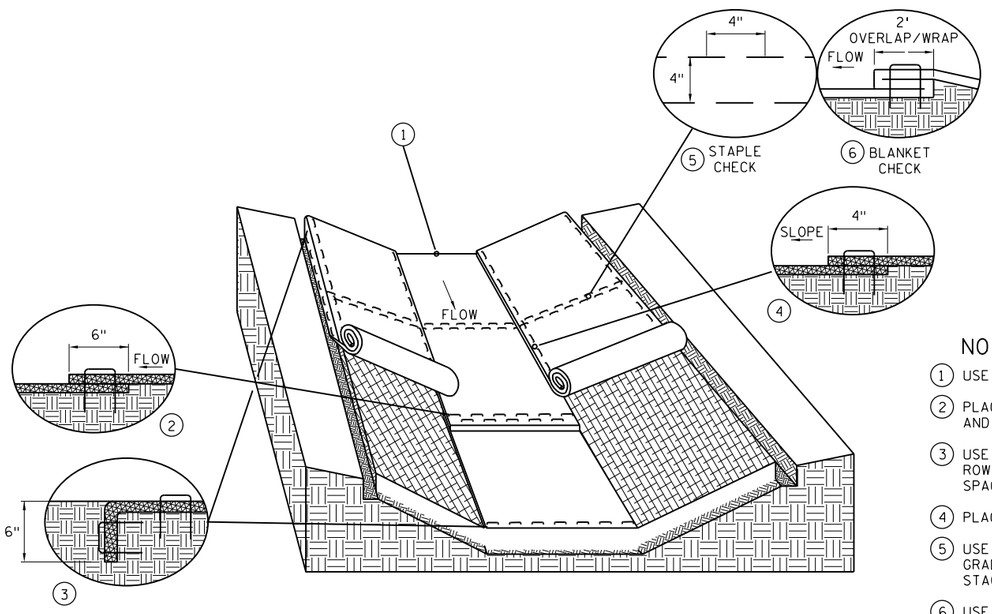


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

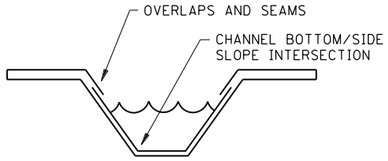
CHECK SLOT DETAILS



BLANKET OVERLAP
PLACE SINGLE ROW STAPLES AT 12" SPACING



DITCH BLANKET STAPLE DETAIL



DITCH BLANKET CRITICAL POINTS (7)

NOTES:

(1) USE CHECK SLOT DETAIL (NO ALTERNATES).

(2) PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.

(3) USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.

(4) PLACE SINGLE ROW OF STAPLES AT 12" SPACING.

(5) USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5%. GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.

(6) USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:
2.5%-3% 100' INTERVALS
3%-5% 50' INTERVALS
5%-7% 25' INTERVALS

(7) CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.

GENERAL BLANKET INSTALLATION REQUIREMENTS

REPP = ROLLED EROSION PREVENTION PRODUCT.

PREPARE SOIL AS PER SPECIFICATION 2574.

LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".

OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.

THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT ⅓ FROM THE BOTTOM OF THE SLOPE.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 3 OF 3

APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL

REPP (BLANKET) STAPLE PATTERN FOR SLOPES

SP 002-622-041, SP 223-020-009

SHEET 34 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:26:58 PM

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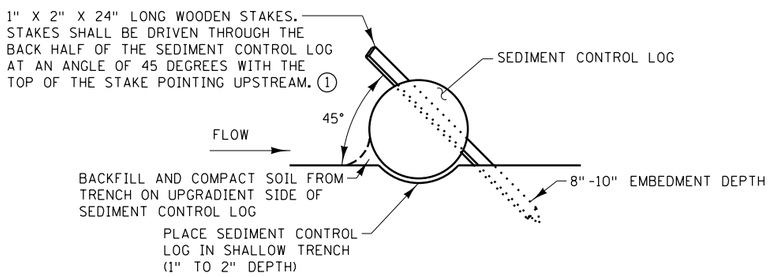
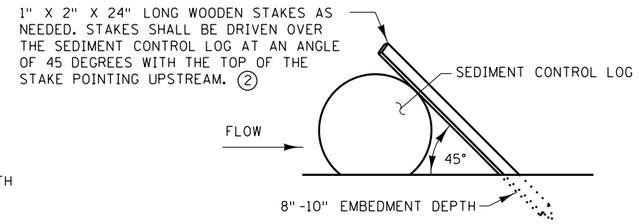
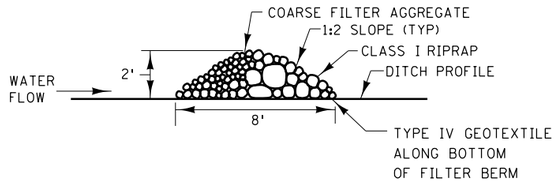


TYPES: STRAW, WOOD FIBER, OR COIR

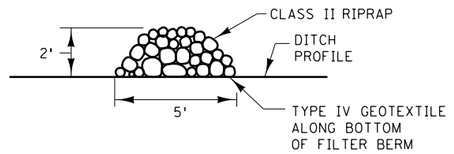


TYPES: WOOD CHIP, COMPOST, OR ROCK

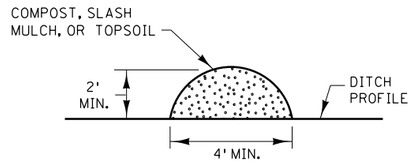
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

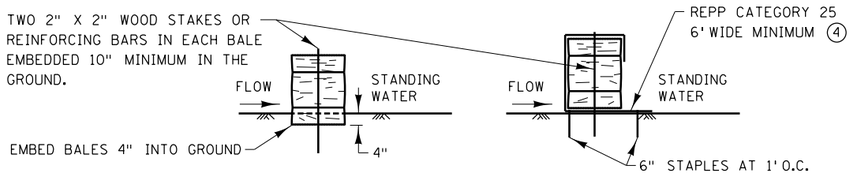


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: JANUARY 8, 2020

MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 2 OF 8

APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

SP 002-622-041, SP 223-020-009

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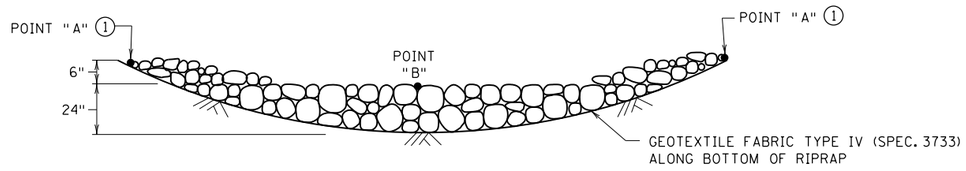
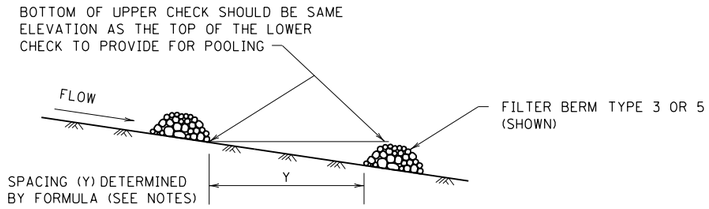
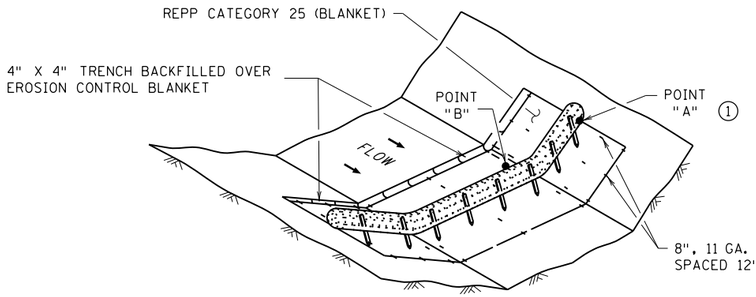
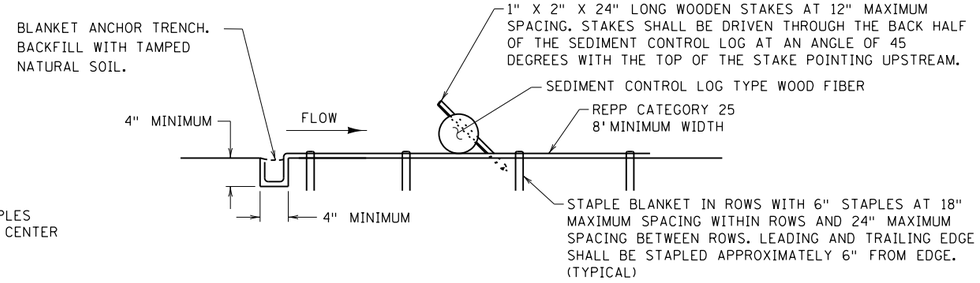


ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③
FOR USE ON ROUGH-GRADED AREAS
ONLY FOR USE OUTSIDE CLEAR ZONE ②

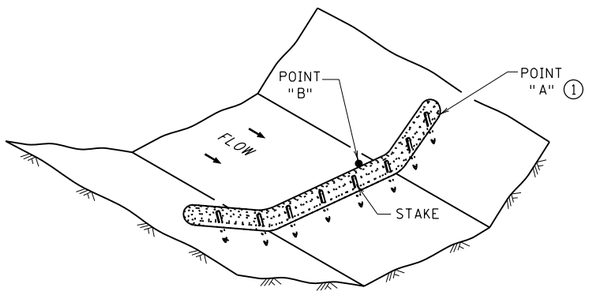


DITCH CHECK SPACING
FOR ALL FILTER BERM TYPES





SEDIMENT CONTROL LOG TYPE REPP (BLANKET) SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
FOR USE ON ROUGH GRADED AREAS

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT.)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC.

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC.

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | **3 OF 8**

APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

SP 002-622-041, SP 223-020-009

SHEET **36** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:27:00 PM

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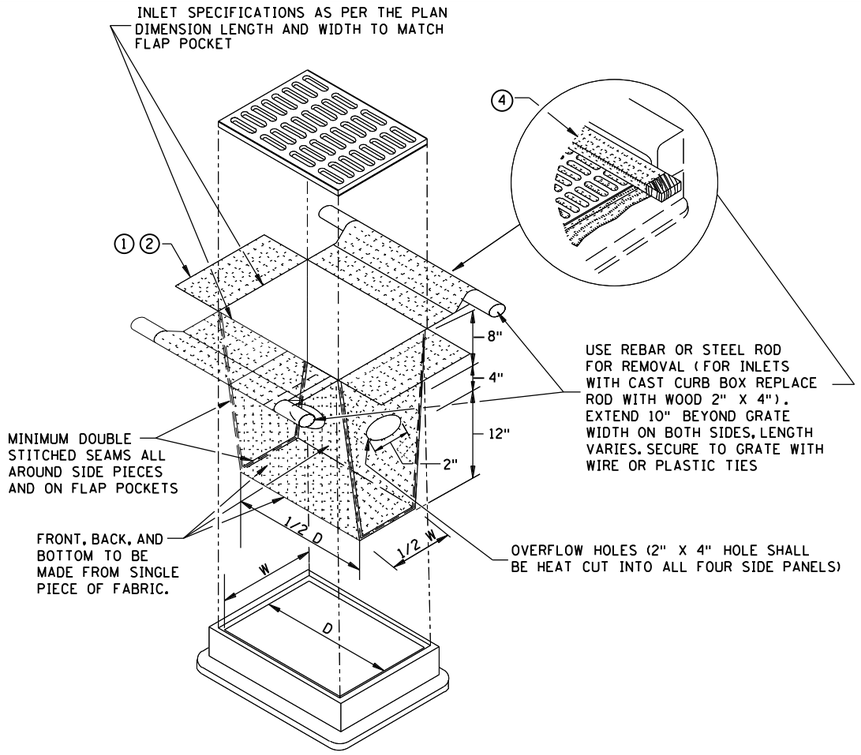
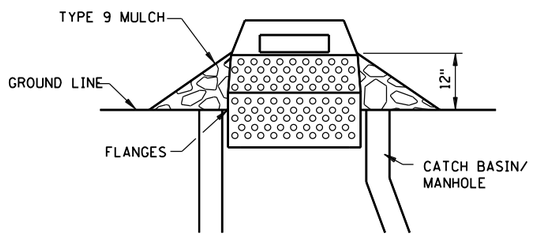


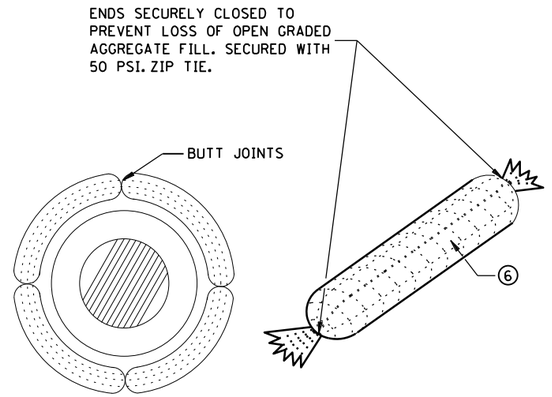
FILTER BAG INSERT ③

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

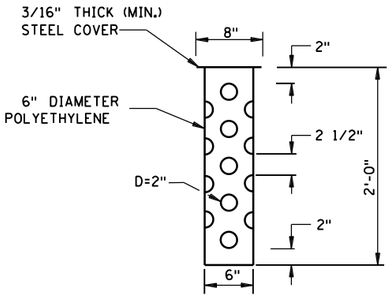


SEDIMENT CONTROL INLET HAT

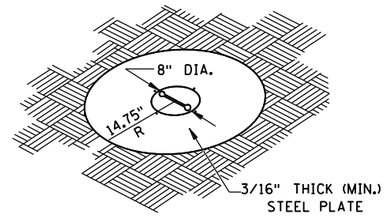
NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



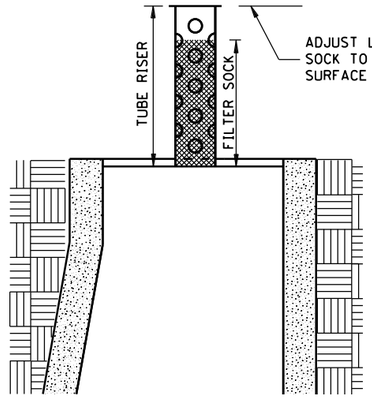
ROCK LOG/COMPOST LOG



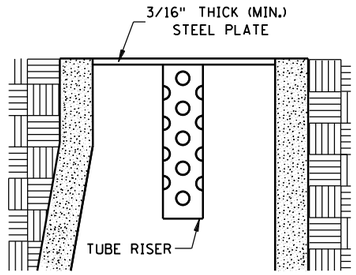
TUBE RISER



PERSPECTIVE VIEW



SECTION
(UP POSITION)



SECTION
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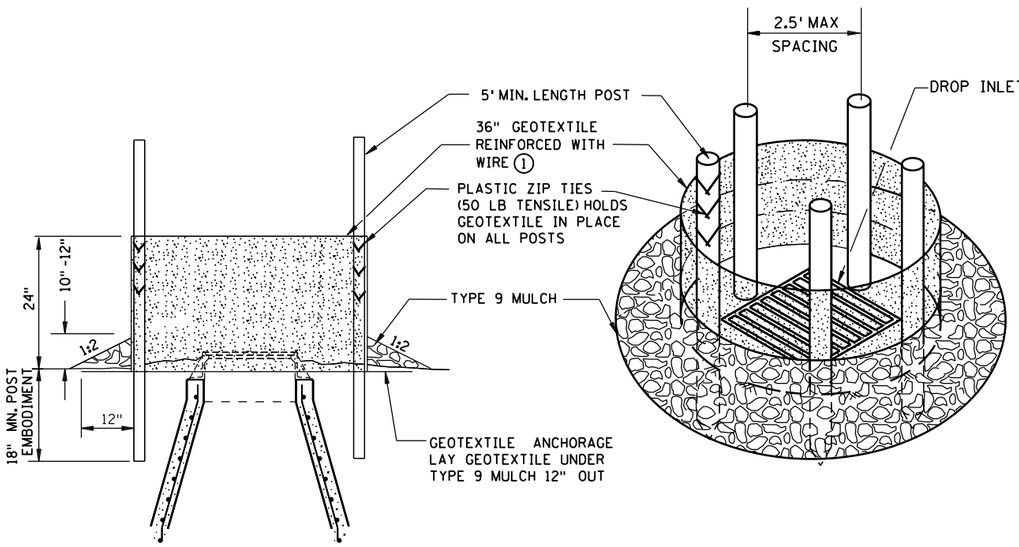

SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

POP-UP HEAD

NOTES:

SEE SPECS. 2573, 3137, & 3886.

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

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

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REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 4 OF 8

APPROVED: 2-28-2017
REVISED:

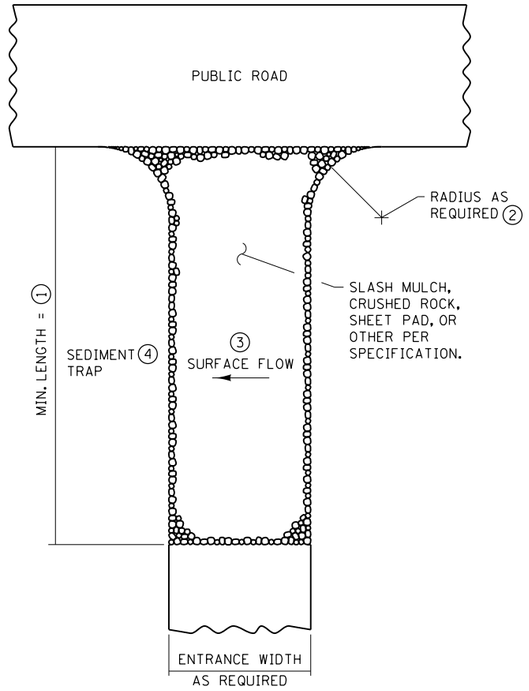
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

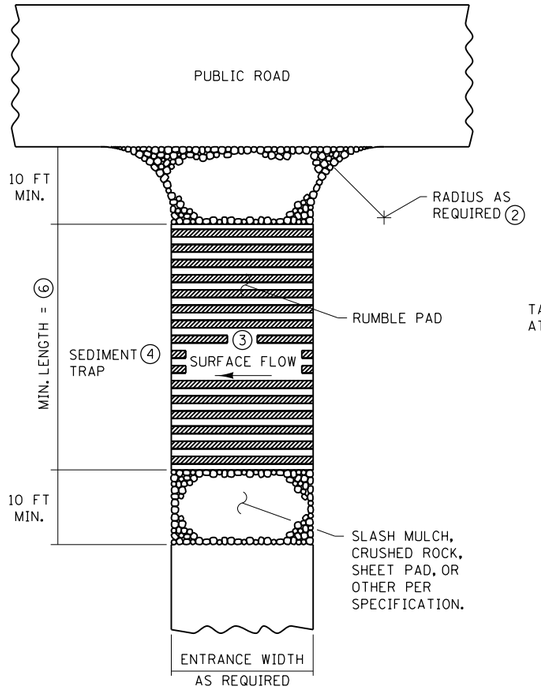
STORM DRAIN INLET PROTECTION

SP 002-622-041, SP 223-020-009

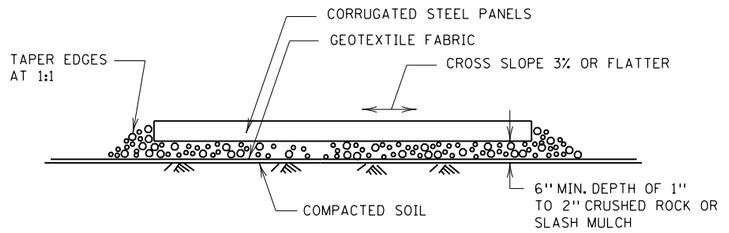
PLOTTED/REVISED: 2/7/2024 3:27:02 PM



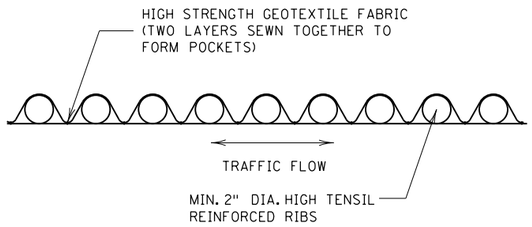
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



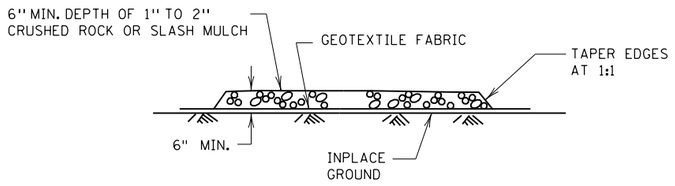
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

(1) MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

(2) PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

(3) IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

(4) IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

(5) IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

(6) MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

(7) MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.405 | 5 OF 8

APPROVED: 2-28-2017

REVISED:

TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

SP 002-622-041, SP 223-020-009

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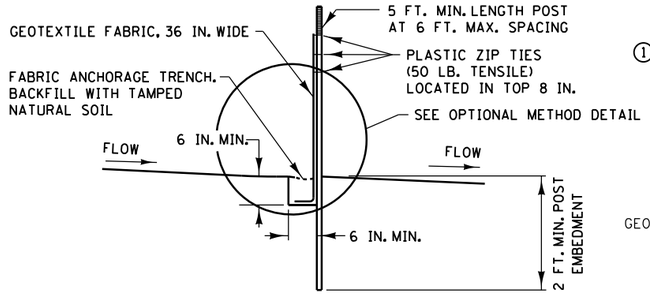
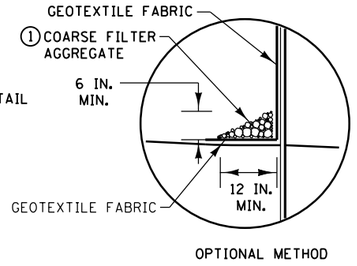
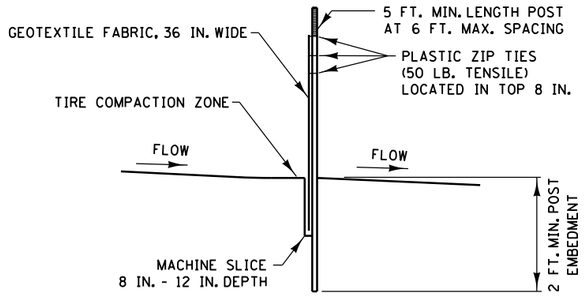


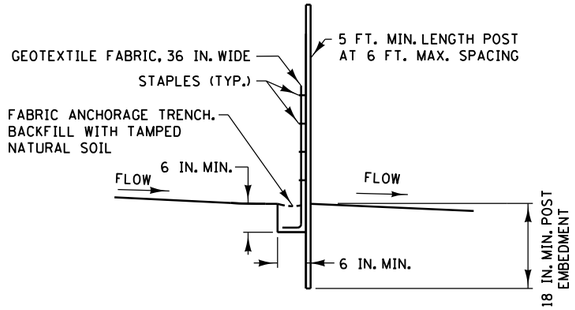


OPTIONAL METHOD

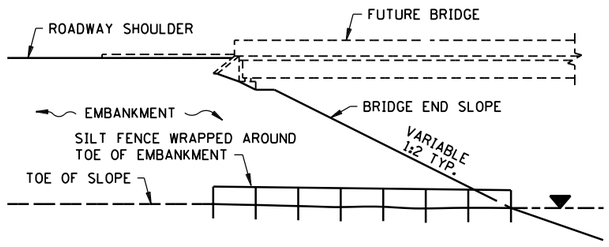
SILT FENCE TYPE HI ②
(HAND INSTALLED)



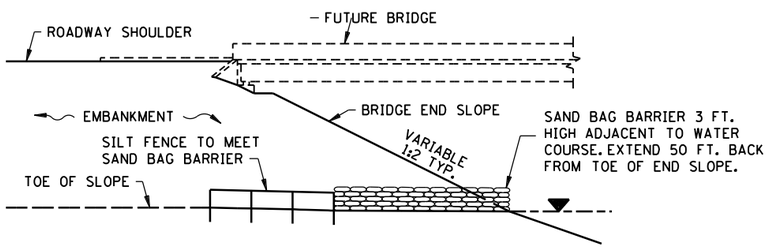
SILT FENCE TYPE MS ②
(MACHINE SLICED)



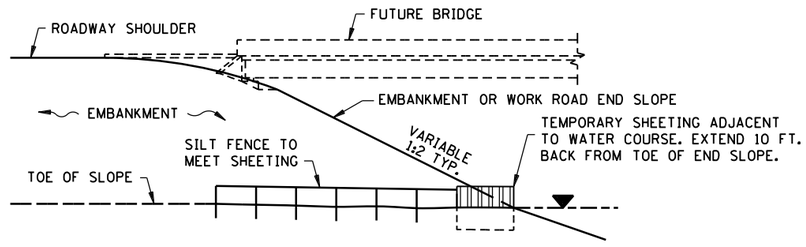
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④



SILT FENCE WITH SAND BAGS ⑤

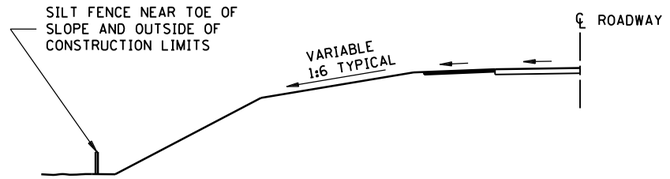


SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER

PLAN VIEW PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING.
CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.405 | 6 OF 8

APPROVED: 2-28-2017
REVISED:

TEMPORARY SEDIMENT CONTROL
SILT FENCE

SP 002-622-041, SP 223-020-009

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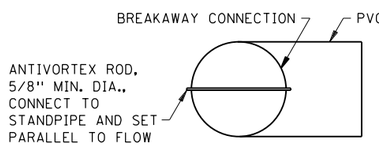
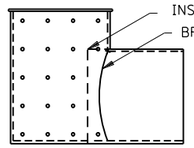
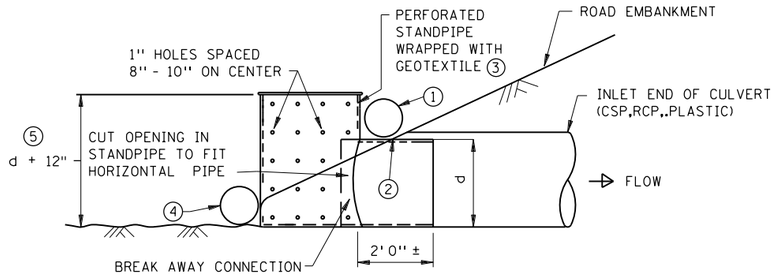


PLAN VIEW



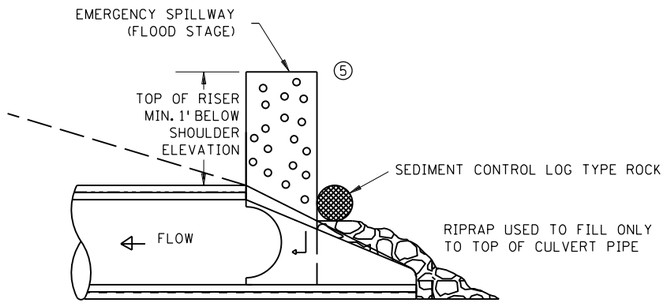
CULVERT STANDPIPE



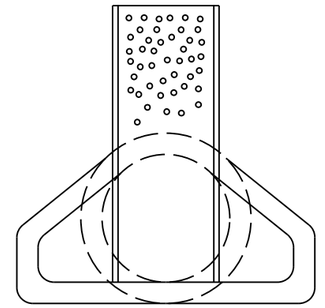
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

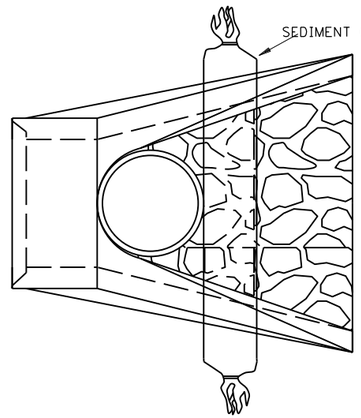
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



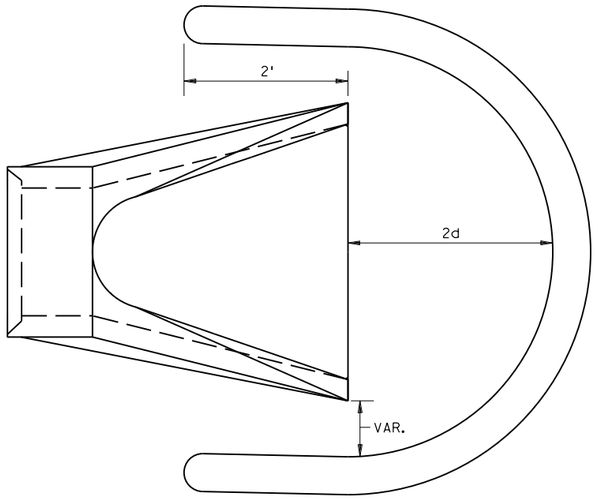
END VIEW



NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER

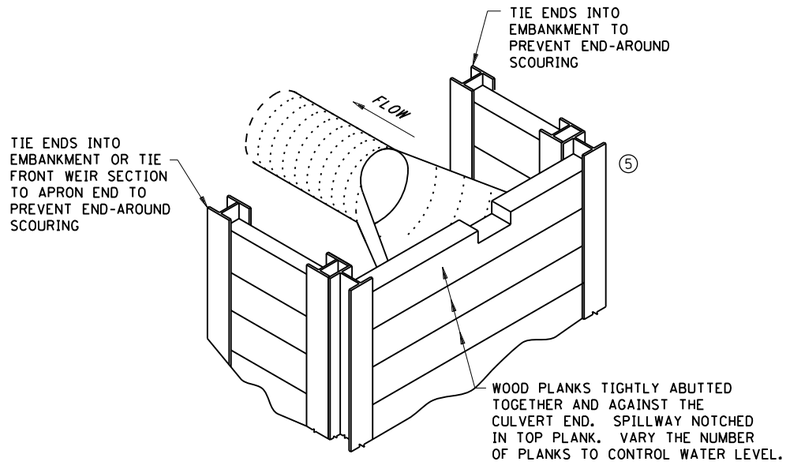
TOP VIEW

CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR
(COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12" -36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.

MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

(1) ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.

(2) PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.

(3) ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.

(4) ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.

(5) HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 8 OF 8

APPROVED: 2-28-2017

REVISED:

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

CULVERT END CONTROLS

SP 002-622-041, SP 223-020-009

SHEET 40 OF 133 SHEETS

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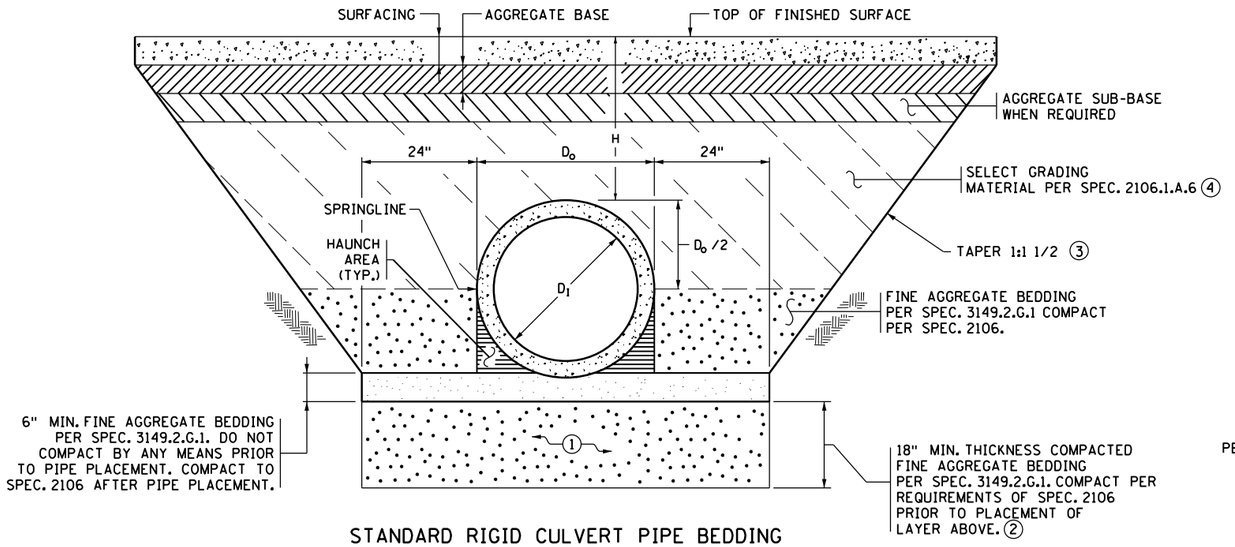
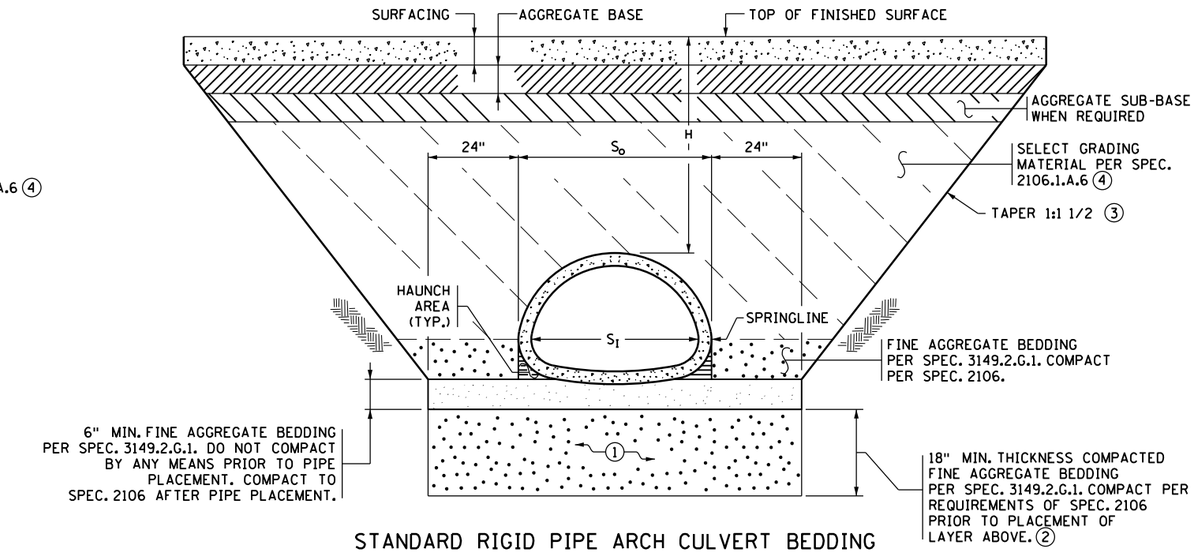


STANDARD RIGID CULVERT PIPE BEDDING



STANDARD RIGID PIPE ARCH CULVERT BEDDING

-LEGEND-

D_I = INSIDE DIAMETER OF ROUND PIPE (INCHES).
D_o = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).
S_I = INSIDE SPAN OF PIPE-ARCH (INCHES).
S_o = OUTSIDE SPAN OF PIPE-ARCH (INCHES).
H = FILL COVER HEIGHT OVER PIPE (FEET).

= UNDISTURBED SOIL

= COMPACTED BEDDING

= LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT

CONSTRUCTION SEQUENCE

1. PLACE AND COMPACT 18" OF FINE AGGREGATE BEDDING TO THE REQUIREMENTS OF SPEC. 2106.
2. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL (SPEC. 3149.2.G.1) TO GRADE. DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
3. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
4. FURNISH AND INSTALL PIPE TO GRADE.
5. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF A SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE PIPE IN THE HAUNCHH AREA) THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).
6. COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF SPEC. 2106 ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
7. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE SPRINGLINE WHEN COMPACTED.
8. COMPLETE REMAINING BACKFILL.

NOTES

STANDARD BEDDING FOR RIGID PIPE CULVERTS WITHOUT TREATMENTS.

RIGID PIPE INCLUDES CONCRETE.

ENTRANCE CULVERTS (FIELD AND DRIVEWAY CULVERTS) DO NOT NEED BEDDING UNLESS SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS.

UNLESS OTHERWISE NOTED IN THE PLAN, BEDDING QUANTITIES ARE COMPUTED FOR THE FULL LENGTH OF THE PIPE AND APRON, AND WILL NOT BE ADJUSTED FOR CHANGES TO MEET OSHA REQUIREMENTS.

WHEN RIPRAP IS REQUIRED AT THE APRON END, SEE STANDARD PLATE OR PLAN FOR RIPRAP INSTALLATION AND QUANTITIES. FOR APRONS WITHOUT RIPRAP PLACE 6" MIN. FINE AGGREGATE BEDDING UNDER APRONS. USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.

CONTRACT PAY ITEM FOR FINE AGGREGATE BEDDING INCLUDES THE COST OF EXCAVATION, PLACEMENT AND COMPACTION.

EXCAVATION AND BACKFILL WITH SELECT GRADING MATERIAL ARE NOT TABULATED SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT CULVERT PAY ITEM.

EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.

ALL SLOPES SHOWN AS (V) : (H).

PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.

PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2501.

PLACE MULTIPLE PIPE CULVERTS WITH A CLEARANCE OF 24 INCHES OR GREATER BETWEEN STRINGS OF PIPE.

(1) IF APPROVED BY THE ENGINEER, IN WET CONDITIONS THE CONTRACTOR MAY SUBSTITUTE 18" OF COARSE FILTER AGGREGATE PER SPEC. 3149.2.H COMPACTED TO THE QUALITY COMPACTION REQUIREMENTS OF SPEC. 2106. WRAP WITH GEOTEXTILE FABRIC TYPE IV PER SPEC. 3733. SEAM ALL FABRIC SIDES AND ENDS PER SPEC. TABLE 3733-1 INCLUDING FOOTNOTE (e) OR OVERLAP A MINIMUM OF 3 FT., ALL AT NO ADDITIONAL COST.

(2) FOR INSTALLATIONS ON INTACT BEDROCK, OMIT THIS LAYER.

(3) OVER-EXCAVATION BENEATH TAPERS IS NOT PERMITTED UNLESS REQUIRED BY OSHA. (TYP.)

(4) MAXIMUM EMBANKMENT PARTICLE SIZE WITHIN 2 FT. OF RIGID PIPE IS 3".

REVISION:

APPROVED: JANUARY 18, 2019
Kevin Western
STATE BRIDGE ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.441 | 1 OF 1

APPROVED: 01-18-2019
REVISED:

STATE DESIGN ENGINEER

STANDARD CULVERT BEDDING FOR RIGID PIPE (WITHOUT TREATMENTS)

SP 002-622-041, SP 223-020-009

SHEET 41 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:27:05 PM

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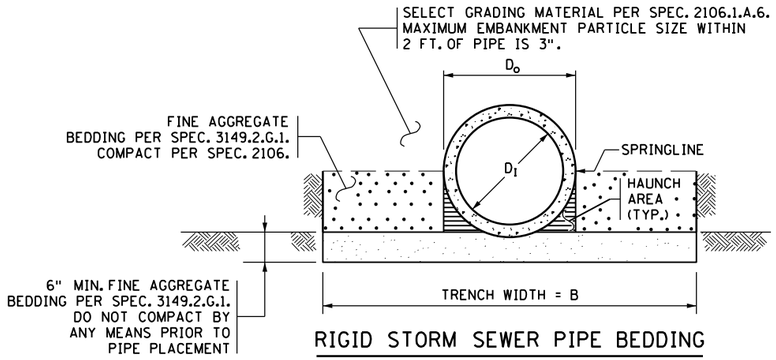
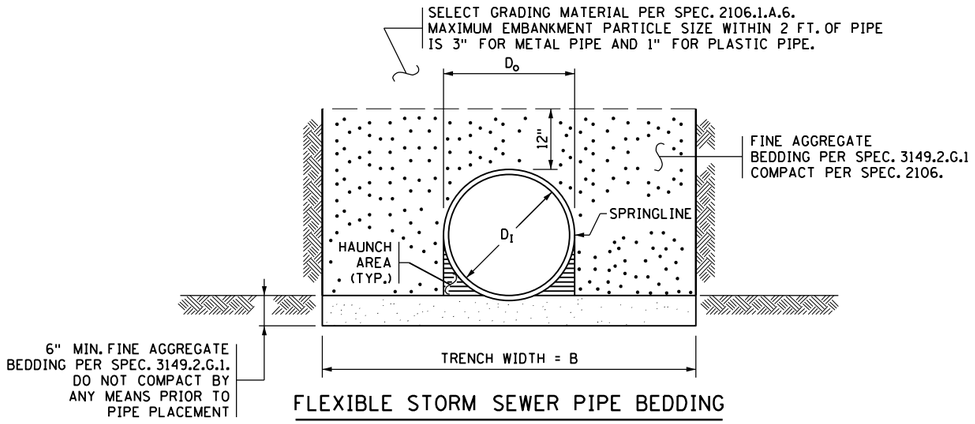


RIGID STORM SEWER PIPE BEDDING

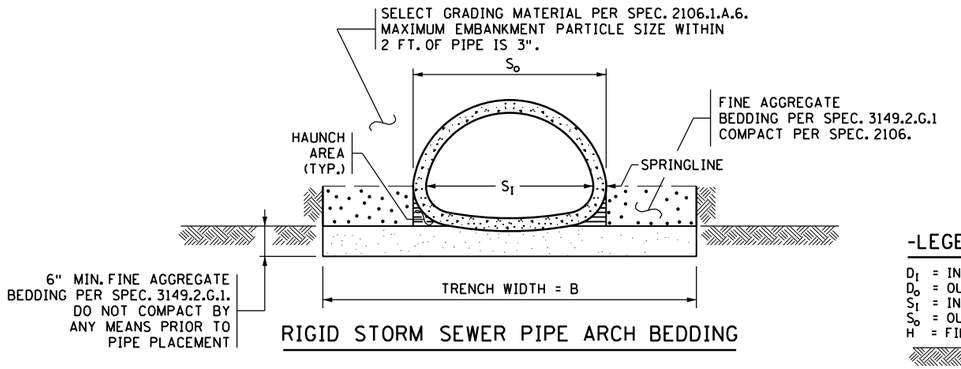
TRENCH BASE WIDTH ①②	
PIPE DIA. D_I OR S_I	TRENCH WIDTH B
< 42"	D_o + 24"
42" TO 54"	1.5 × D_o
> 54"	D_o + 36"

PLASTIC PIPE
WITH H > 10 FT. ①②

PIPE DIA.	TRENCH WIDTH (FEET)
12"	5'-2"
15"	5'-6"
18"	5'-9"
24"	6'-6"
30"	8'-0"
36"	9'-6"
42"	11'-0"
48"	12'-6"



FLEXIBLE STORM SEWER PIPE BEDDING



RIGID STORM SEWER PIPE ARCH BEDDING

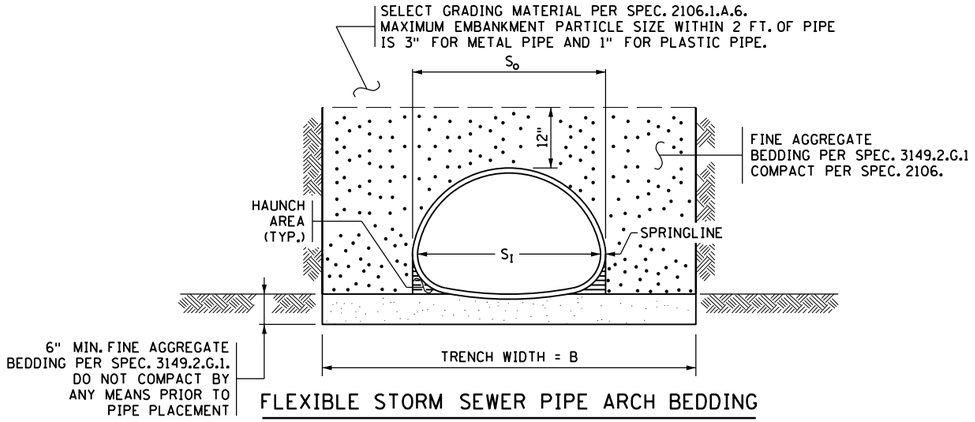
-LEGEND-

D_I = INSIDE DIAMETER OF ROUND PIPE (INCHES).
D_o = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).
S_I = INSIDE SPAN OF PIPE-ARCH (INCHES).
S_o = OUTSIDE SPAN OF PIPE-ARCH (INCHES).
H = FILL COVER HEIGHT OVER PIPE (FEET).

= UNDISTURBED SOIL

= COMPACTED BEDDING

= LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT



FLEXIBLE STORM SEWER PIPE ARCH BEDDING

CONSTRUCTION SEQUENCE

1. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL TO GRADE. DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
2. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
3. FURNISH AND INSTALL PIPE TO GRADE.
4. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL FINE AGGREGATE BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF HAUNCH UNDER THE PIPE). THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).
5. COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF SPEC. 2106 ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
6. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE SPRINGLINE FOR RIGID PIPE AND 12" ABOVE THE TOP OF THE PIPE FOR FLEXIBLE PIPE WHEN COMPACTED.
7. COMPLETE REMAINING BACKFILL.

NOTES

EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.

PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.

PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2503.

WHEN RIPRAP IS REQUIRED AT THE APRON END, SEE STANDARD PLATE OR PLAN FOR RIPRAP INSTALLATION AND QUANTITIES. FOR APRONS WITHOUT RIPRAP PLACE 6" MIN. FINE AGGREGATE BEDDING UNDER APRONS. USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.

FINE AGGREGATE BEDDING INCLUDING THE COST OF EXCAVATION, PLACEMENT AND COMPACTION IS INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT STORM SEWER PAY ITEM.

EXCAVATION AND BACKFILL WITH SELECT GRADING MATERIAL ARE NOT TABULATED SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT STORM SEWER PAY ITEM.

RIGID PIPE INCLUDES CONCRETE. FLEXIBLE PIPE INCLUDES METAL, AND PLASTIC MATERIALS SUCH AS CORRUGATED POLYPROPYLENE (PP), CORRUGATED POLYETHYLENE (CP) AND POLYVINYL CHLORIDE (PVC).

① MODIFY TRENCH WIDTH & SLOPE AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS.

② USE PLASTIC PIPE TABLE FOR TRENCH WIDTHS WHEN FILL HEIGHT IS GREATER THAN 10 FT.

REVISION:

APPROVED: JANUARY 18, 2019
Kevin Western
STATE BRIDGE ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.442 | 1 OF 1

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STATE DESIGN ENGINEER

STANDARD STORM SEWER BEDDING
FOR RIGID AND FLEXIBLE PIPE

SP 002-622-041, SP 223-020-009

SHEET 42 OF 133 SHEETS

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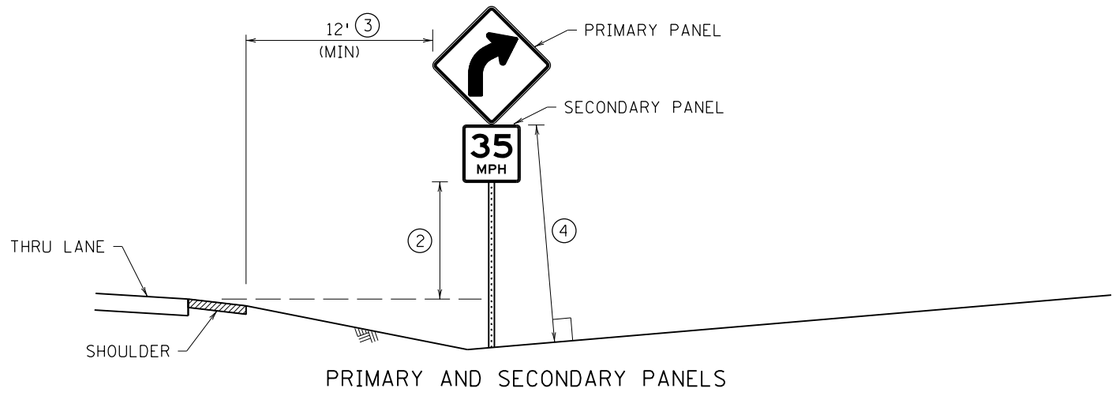
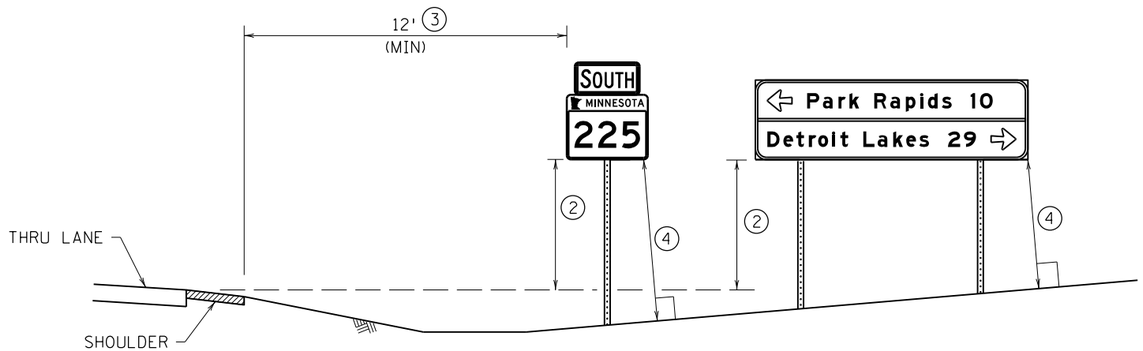
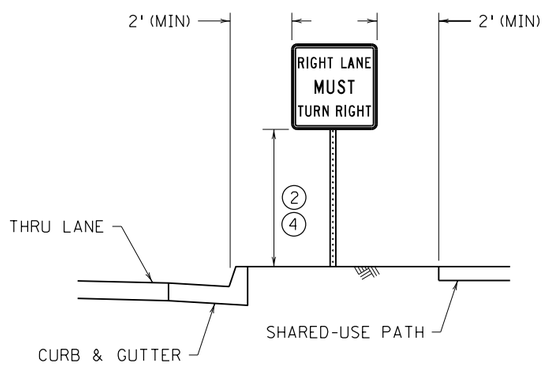


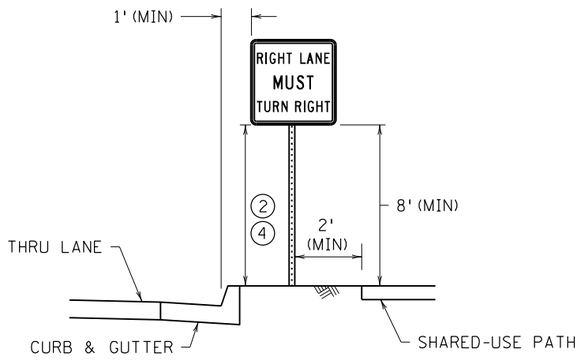
PRIMARY AND SECONDARY PANELS



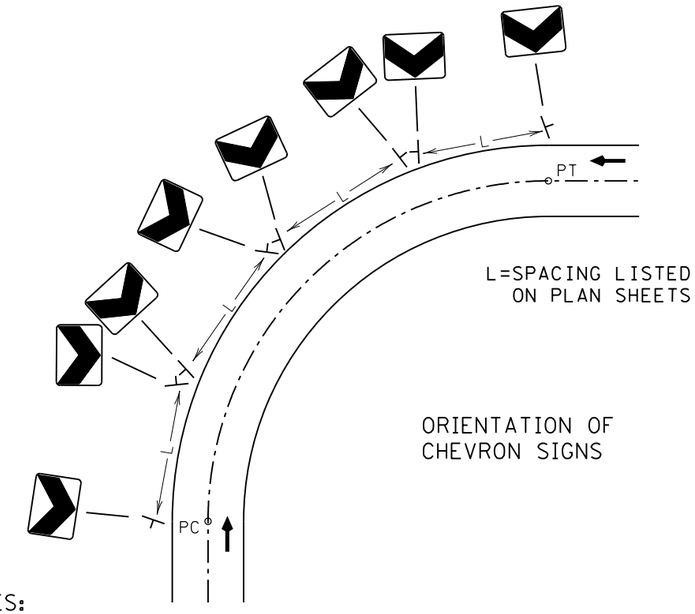
STANDARD LOCATIONS



BOULEVARD LOCATIONS
6' TO 12' WIDE



BOULEVARD LOCATIONS (1)
LESS THAN 6' WIDE



ORIENTATION OF
CHEVRON SIGNS

NOTES:

PLACE SIGNS AND ORIENT THEM APPROXIMATELY AS SHOWN IN THE PLAN, AT RIGHT ANGLES TO THE DIRECTION OF, AND FACING THE TRAFFIC THEY ARE INTENDED TO SERVE, UNLESS OTHERWISE SPECIFIED. TO AVOID SPECULAR GLARE, TURN SIGNS APPROXIMATELY THREE DEGREES AWAY FROM APPROACHING TRAFFIC.

IF A SIGN NEEDS TO BE REPOSITIONED FROM THE PROPOSED PLAN LOCATION IN ORDER TO AVOID CONFLICTS WITH UTILITIES OR OBSTACLES, CONTACT THE PROJECT ENGINEER.

MOUNT SIGN FACES PLUMB.

LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND/OR LEFT SIDE INSTALLATION.

ERECT OR CONSTRUCT SIGN SUPPORT SO THAT NO PORTION OF THE SIGN PANEL IS WITHIN 15' OF THE RAIL OF A RAILROAD TRACK.

PLACE SIGNS SUCH THAT OBSTACLES DO NOT BLOCK THEM FROM BEING VIEWED BY THE APPROACHING TRAFFIC.

PLACE SIGNS A MINIMUM OF 10' FROM THE NEAREST OBSTACLE. OBSTACLES MAY INCLUDE, BUT ARE NOT LIMITED TO, LIGHT POLES, TREES, SIGNS, AND BUILDINGS. SIGNS MAY BE PLACED CLOSER TO SIGNS IN TIGHT AREAS, BUT NO MORE THAN TWO POSTS IN A 7' DIAMETER CIRCLE.

AVOID PLACING SIGNS IN DITCH BOTTOMS.

(1) ONLY USE WHEN BOULEVARD IS TOO NARROW TO OBTAIN ADEQUATE CURBED LOCATION SIGN OFFSETS.

(2) ALL SIGN MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE LOWEST SIGN PANEL TO THE TOP OF THE CURB, OR IN ABSENCE OF CURB, TO THE NEAR EDGE OF THE THRU-LANE PAVEMENT. SEE SIGN TABULATIONS.

(3) MINIMUM OFFSET MAY BE REDUCED TO AT LEAST 6' FROM SHOULDER AND AT LEAST 12' FROM THRU LANE IF SITE CONDITIONS PROHIBIT A 12' OFFSET FROM SHOULDER.

(4) CRASHWORTHY HEIGHT IS AT LEAST 7' FOR BREAKAWAY STRUCTURES AND AT LEAST 4' FOR BENDABLE STRUCTURES. SEE SPECIFIC SQUARE TUBE BASE STRUCTURE PLAN FOR CRASH RESPONSE TYPE. THE CRASHWORTHY HEIGHT IS MEASURED TO THE BOTTOM OF THE PRIMARY SIGN PANEL EXCLUDING ANY SECONDARY SIGN PANELS, MARKERS, DELINEATORS, AND REFERENCE LOCATION SIGN PANELS. ANY SECONDARY SIGN PANELS MOUNTED TO MORE THAN ONE POST ARE CONSIDERED PRIMARY SIGN PANELS FOR CRASHWORTHY PURPOSES.

LEAD EXPERT OFFICE

BRIAN SORENSON
STATE TRAFFIC ENGINEER
OFFICE OF TRAFFIC ENGINEERING

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.701 | **1 OF 1**

APPROVED: 08-09-2023
REVISED:

STANDARD SIGN PLACEMENT

SP 002-622-041, SP 223-020-009

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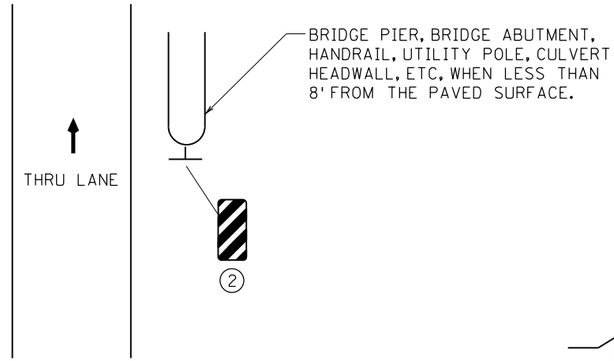
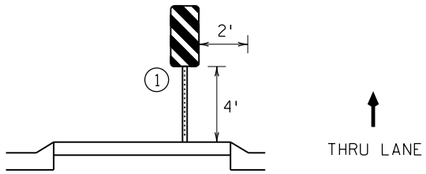
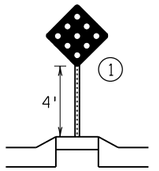


OBSTRUCTION
TYPE 3 OBJECT MARKER

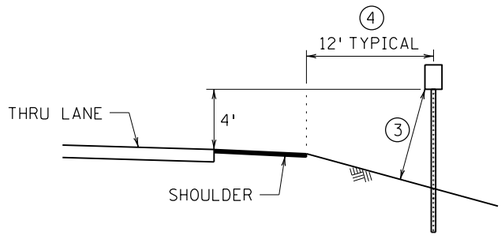


RAISED ISLAND
TYPE 3 OBJECT MARKER

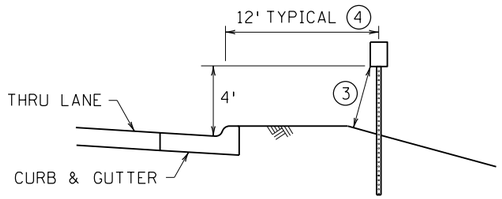


RAISED ISLAND
TYPE 1 OBJECT MARKER

MARKER TYPICAL PLACEMENT



LOCATIONS WITHOUT CURB



LOCATIONS WITH CURB

DELINEATOR TYPICAL PLACEMENT

NOTES:

FOR DELINEATOR OFFSETS AT RAMP GORES, SEE STANDARD PLAN 5-297.703.

(1) PLACE MARKER AS CLOSE TO THE BEGINNING OF MEDIAN AS POSSIBLE.

(2) PLACE THE EDGE OF THE OBJECT MARKER THAT IS CLOSEST TO THE ROAD USER IN LINE WITH THE CLOSEST EDGE OF THE OBSTRUCTION. ANGLE THE STRIPES DOWNWARD TOWARDS THE SIDE TRAFFIC IS TO PASS THE OBSTRUCTION.

(3) THE CRASHWORTHY HEIGHT FROM THE GROUND TO ANY PORTION OF THE SIGN PANEL IS AT LEAST 7' FOR BREAKAWAY STRUCTURES AND AT LEAST 4' FOR BENDABLE STRUCTURES. SEE SPECIFIC SQUARE TUBE BASE STRUCTURE PLAN FOR CRASH RESPONSE TYPE.

(4) ADJUST OFFSET TO MATCH OTHER SIGN OFFSETS ALONG ROADWAY CORRIDOR, BUT NOT MORE THAN 12' NOR LESS THAN 2'.

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REVISION:

APPROVED: 02-28-2022

BRIAN SOBENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

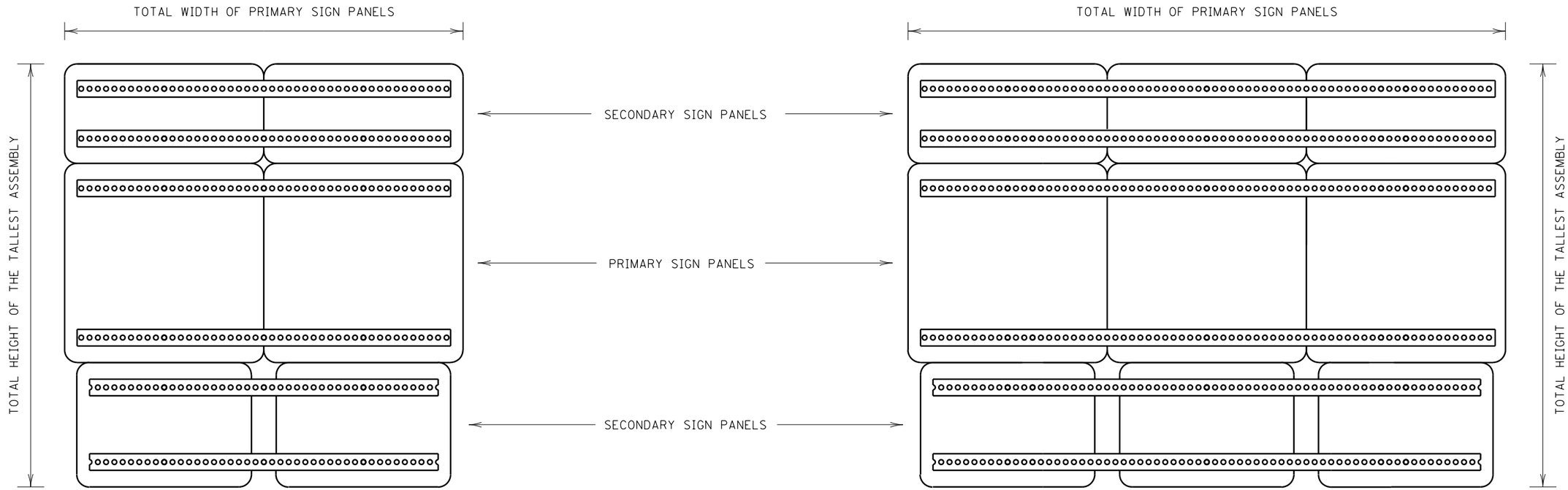
STANDARD PLAN 5-297.702 | **1 OF 1**

APPROVED: 02-28-2022
REVISED:

DELINEATOR AND MARKER PLACEMENT

SP 002-622-041, SP 223-020-009

PLOTTED/REVISED: 2/7/2024 3:27:11 PM



TWO SIDE-BY-SIDE ASSEMBLIES

THREE SIDE-BY-SIDE ASSEMBLIES

NOTES:

CENTER SECONDARY SIGN PANELS BELOW OR ABOVE PRIMARY SIGN PANELS.

STRINGER SPACING TO MATCH VERTICAL PUNCHING SPACING FOR SIGN PANELS.

FOR SINGLE-POST INSTALLATIONS, THE STRINGERS MUST EXTEND 1" BEYOND THE BOLT HOLES.

FOR MULTI-POST INSTALLATIONS, THE STRINGERS MUST EXTEND EITHER 1" BEYOND THE BOLT HOLES OR 3" BEYOND THE OUTER POST CENTERLINE, WHICHEVER IS GREATER.

DETERMINE THE NUMBER OF POSTS AND THE POST SPACING BY THE TOTAL WIDTH AND HEIGHT OF THE ASSEMBLIES.

SEE STANDARD PLAN 5-297.718 FOR ADDITIONAL MOUNTING DETAILS.

LEAD EXPERT OFFICE

BRIAN SORENSON
STATE TRAFFIC ENGINEER
OFFICE OF TRAFFIC ENGINEERING

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MINNESOTA DEPARTMENT OF TRANSPORTATION

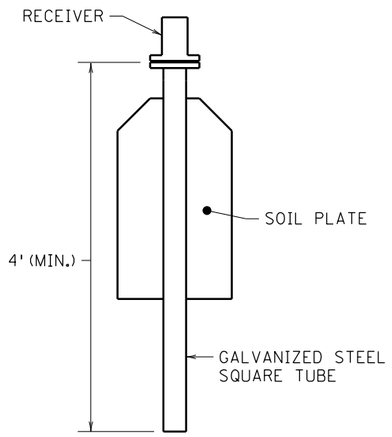
STANDARD PLAN 5-297.719 | **1 OF 1**

APPROVED: 08-09-2023
REVISED:

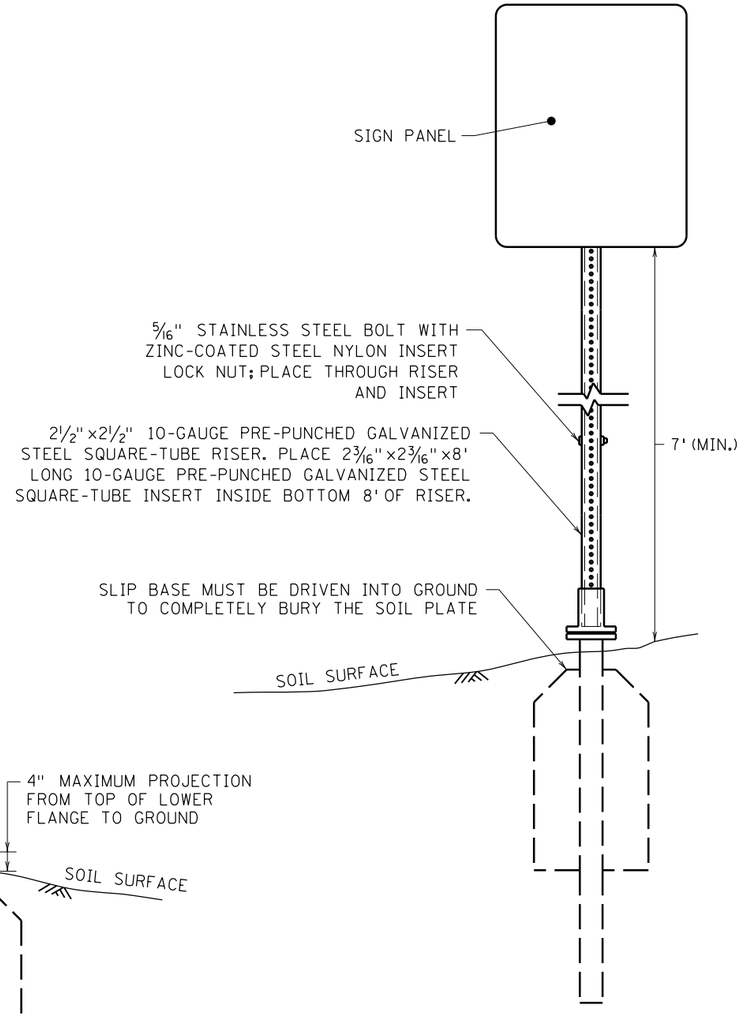
THOMAS STYRBICKI
STATE DESIGN ENGINEER

SQUARE TUBE SIDE-BY-SIDE SIGN MOUNTING DETAILS

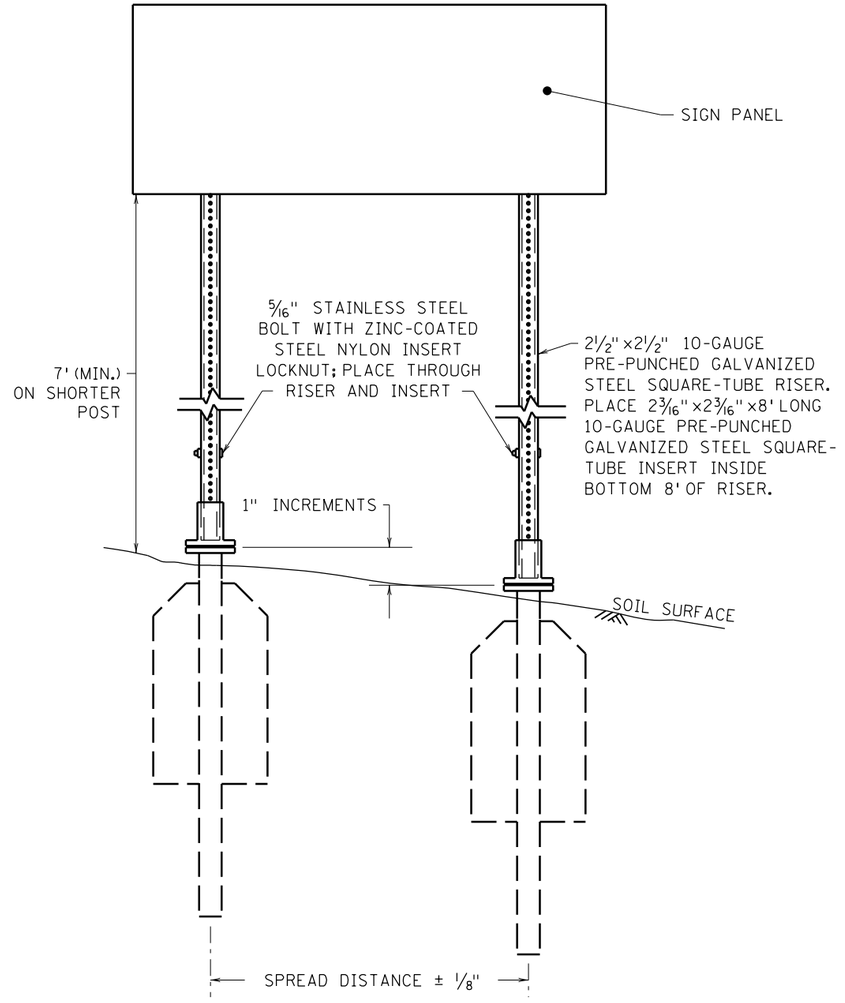
SP 002-622-041, SP 223-020-009



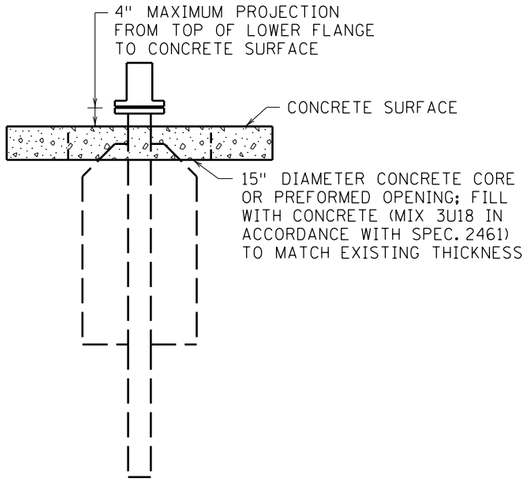
PROPRIETARY SLIP BASE ASSEMBLY ①



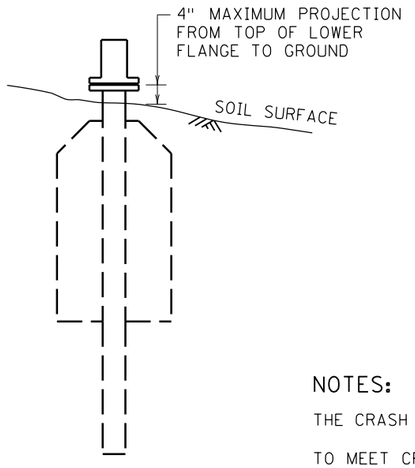
SLIP BASE ASSEMBLY WITH SINGLE-POST SIGN
TYPICAL PLACEMENT IN SOIL



SLIP BASE ASSEMBLY WITH MULTIPLE-POST SIGN ②
TYPICAL PLACEMENT IN SOIL



SLIP BASE ASSEMBLY IN CONCRETE



SLIP BASE ASSEMBLY IN SOIL

NOTES:

THE CRASH RESPONSE TYPE FOR THIS STRUCTURE IS BREAKAWAY.

TO MEET CRASHWORTHY REQUIREMENTS, THE DISTANCE BETWEEN THE BOTTOM OF THE PRIMARY SIGN PANEL AND THE GROUND SURFACE BELOW ANY PORTION OF THE PRIMARY SIGN PANEL MUST BE A MINIMUM OF 7'. SEE SIGNING PLAN TABULATIONS FOR MOUNTING HEIGHT.

1/16"-THICK LEVELING SHIMS MAY BE USED TO PLUMB TOP HALF. PLACE SHIMS UNDER TEFLON-COATED SLIP WASHER. MAXIMUM OF TWO SHIMS PER NOTCH POINT.

FOR SIGN PANEL MOUNTING DETAILS, SEE STANDARD PLAN 5-297.718.

SQUARE TUBE SIGN POST IN ACCORDANCE WITH MnDOT SPEC. 3402.

① USE APPROVED PRODUCT FROM THE SIGN STRUCTURES PAGE OF THE SIGNING SECTION OF THE APPROVED PRODUCTS LIST.

② FOR MULTIPLE-POST APPLICATIONS, ENSURE SOIL PLATES ARE COMPLETELY BURIED. IF SOIL SURFACE IS NOT LEVEL, DRIVE THE BASES UNTIL THEY ARE OFFSET IN 1" INCREMENTS. THE BASES MUST BE TRUE AND SQUARE WITH ONE ANOTHER TO ENSURE PROPER UNRESTRICTED INSERTION OF STEEL TUBE RISERS. MOUNT SIGN PANELS LEVEL.

LEAD EXPERT OFFICE

BRIAN SORENSON
STATE TRAFFIC ENGINEER
OFFICE OF TRAFFIC ENGINEERING

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.724 | 1 OF 1

APPROVED: 08-09-2023
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

SLIP BASE ASSEMBLY

FOR 2 1/2" SQUARE-TUBE RISER POST

SP 002-622-041, SP 223-020-009

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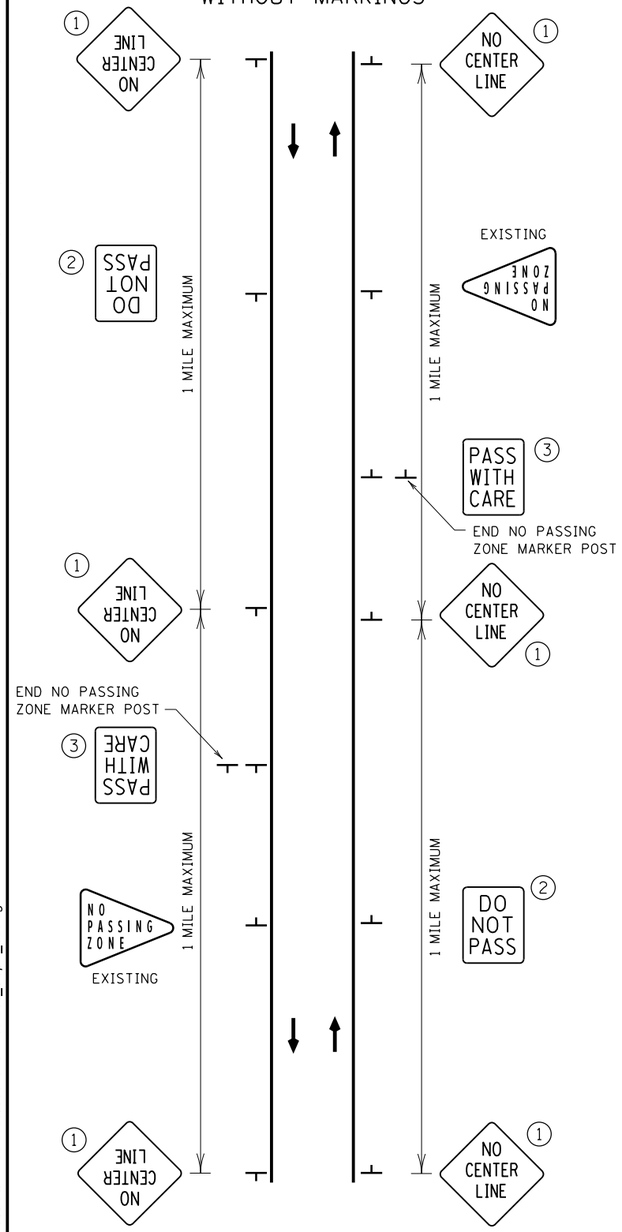
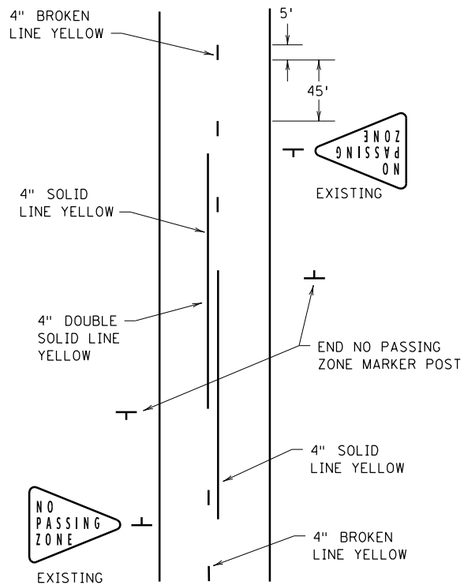
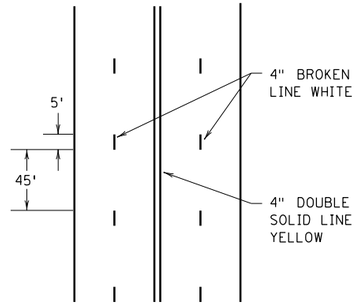
TWO-LANE, TWO-WAY LESS THAN 400 ADT WITHOUT MARKINGS



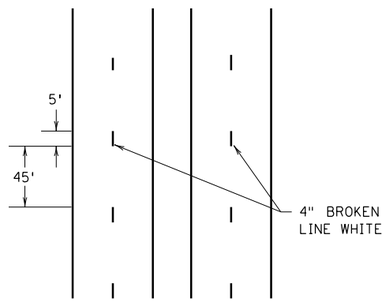
TWO-LANE, TWO-WAY



MULTI-LANE, UNDIVIDED



MULTI-LANE, DIVIDED



GENERAL NOTES:

SEE MnDOT SPEC. 2580 (INTERIM PAVEMENT MARKING).

DO NOT OPEN ANY ROADWAY SEGMENT TO TRAFFIC UNLESS THE FOLLOWING MARKINGS (INTERIM OR PERMANENT) ARE INPLACE: CENTERLINE MARKINGS (INCLUDING NO PASSING ZONES), FLUSH MEDIANS (EXCLUDING CROSSHATCHING), AND LANE LINE (INCLUDING TURN AND AUXILIARY LANE LINES). THIS REQUIREMENT IS WAIVED FOR TANGENT ROAD SEGMENTS LESS THAN 350' IN LENGTH AND CURVED ROAD SEGMENTS WITH DEGREES OF CURVE GREATER THAN 6 DEGREES FOR LESS THAN 50' IN LENGTH.

~~PLACE INTERIM BROKEN LINE PAVEMENT MARKINGS AT THE SAME CYCLE LENGTH AS FINAL PAVEMENT MARKINGS WITH A MINIMUM LENGTH OF 5 FEET; IF FINAL PAVEMENT MARKING PLAN IS NOT PROVIDED, THE CYCLE LENGTH SHALL BE 50'. PLACE INTERIM DOTTED LINE PAVEMENT MARKINGS AT THE SAME CYCLE LENGTH AND LINE LENGTH AS SHOWN IN THE PLAN; IF FINAL PAVEMENT MARKING PLAN IS NOT PROVIDED, THE CYCLE LENGTH SHALL BE 15' WITH A LINE LENGTH OF 3'.~~

~~FOR NO PASSING ZONE LOCATIONS, REFER TO THE SIGNING OR PAVEMENT MARKING PLAN; IF NEITHER IS PROVIDED, FOLLOW INPLACE NO PASSING ZONES.~~

~~WHEN PERMANENT PAVEMENT MARKINGS ARE TO BE MULTI-COMPONENT LIQUID AND PAINT IS USED FOR THE INTERIM MARKINGS, PLACE A 10 MIL THICK LAYER OF PAINT. REMOVAL OF THE 10 MIL LAYER OF PAINT IS NOT REQUIRED PRIOR TO PLACING THE MULTI-COMPONENT LIQUID. IF THE LAYER OF PAINT IS GREATER THAN 10 MIL, REMOVE THE PAINT PRIOR TO PLACING THE MULTI-COMPONENT LIQUID.~~

~~PLACE INTERIM MARKINGS ON THE FINAL PERMANENT PAVEMENT SURFACE SUCH THAT THEY WILL BE FULLY COVERED BY THE PERMANENT PAVEMENT MARKINGS.~~

INTERIM PAVEMENT MARKINGS SHOULD NOT BE LEFT INPLACE FOR MORE THAN 14 CALENDAR DAYS UNLESS THEY MEET THE REQUIREMENTS OF PERMANENT OR TEMPORARY MARKINGS.

USING SIGNING IN LIEU OF INTERIM PAVEMENT MARKINGS ON TWO-LANE, TWO-WAY ROADWAYS

ON ROADS WITH AN AVERAGE DAILY TRAFFIC (ADT) OF LESS THAN 400 VEHICLES, THE SIGNS AS SHOWN MAY BE USED IN LIEU OF PAVEMENT MARKINGS FOR UP TO 14 CALENDAR DAYS OR AS DIRECTED BY THE ENGINEER.

(1) PLACE A "NO CENTER LINE" SIGN (W8-12, BLACK ON ORANGE) FOR EACH DIRECTION OF TRAVEL. PLACE ADDITIONAL SIGNS AT MAJOR INTERSECTIONS OR ONE MILE INCREMENTS, WHICHEVER IS LESS.

(2) IF NOT ALREADY INPLACE, PLACE A "DO NOT PASS" SIGN (R4-1) OPPOSITE OF EACH INPLACE "NO PASSING ZONE" SIGN (W14-3).

(3) PLACE A "PASS WITH CARE" SIGN (R4-2) AT THE END OF EACH NO PASSING ZONE, ADJACENT TO THE END OF NO PASSING ZONE MARKER POST.

USING TEMPORARY RAISED PAVEMENT MARKERS (TRPMS) AS INTERIM PAVEMENT MARKING

WHEN USING TRPMS AS INTERIM PAVEMENT MARKINGS, FOLLOW THE REQUIREMENTS BELOW UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

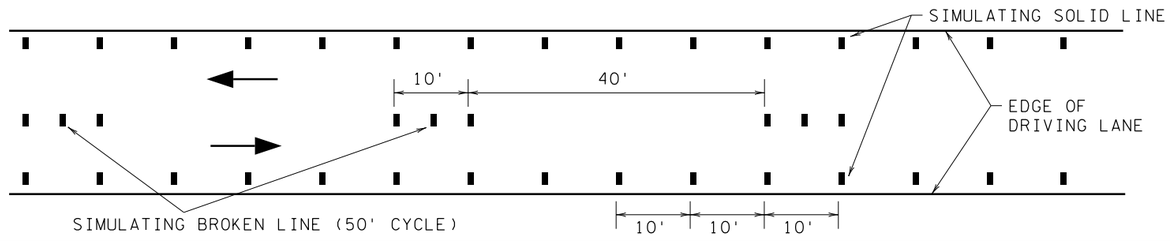
USE DOUBLE-SIDED TRPMS ON TWO-LANE, TWO-WAY ROADS.

BROKEN LINE: USE 3 TRPMS PER 10' BROKEN LINE, 5' SPACING WITH A 40' GAP.

SOLID LINE: USE CONTINUOUS TRPMS; 10' SPACING FOR TANGENTS AND CURVES UNDER 6 DEGREES; 5' SPACING FOR CURVES ≥6 DEGREES, GRADES >5 PERCENT, OR CONCRETE PAVEMENTS.

DOUBLE SOLID LINE: USE TWO CONTINUOUS TRPMS 4" APART, 10' SPACING ON TANGENTS AND CURVES UNDER 6 DEGREES; 5' SPACING FOR CURVES ≥6 DEGREES, GRADES >5 PERCENT, OR CONCRETE PAVEMENTS.

SIMULATING A SOLID LINE AND A BROKEN LINE (50' CYCLE) WITH TRPMS



REVISION:

APPROVED: OCTOBER 10, 2019

BRIAN SORENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.801 | **1 OF 1**

Peter A Harff
PETER A. HARFF
STATE DESIGN ENGINEER

APPROVED: 10-10-2019
REVISED:

INTERIM PAVEMENT MARKINGS AND SIGNING

SP 002-622-041, SP 223-020-009

NOTES & GUIDELINES

GENERAL INFORMATION:

1. ALL DISTANCES ARE APPROXIMATE.
2. ACCESS SHALL BE MAINTAINED TO ALL RESIDENTS AND THE FIRE AT ALL TIMES. THE FIRE DEPARTMENT SHALL HAVE ACCESS TO ALL DIRECTIONS OF TRAVEL ON CSAH 22 AT ALL TIMES WITH A MINIMUM OF GRAVEL SURFACING.

SIGNING:

1. ALL TEMPORARY SIGNS ARE REQUIRED TO BE CRASHWORTHY PER THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE 2016 (MASH-2016). TEMPORARY SIGN STRUCTURES THAT ARE CRASHWORTHY UNDER THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP-350) MAY BE USED PROVIDED THE DEVICES WERE ACQUIRED BY THE CONTRACTOR PRIOR TO DECEMBER 31ST, 2019. THE MINNESOTA TYPE "C" AND "D" BRACED LEG U-CHANNEL (KNEE BRACE) SIGN SUPPORT IS NOT ALLOWED.
2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE PLACED AS NEEDED, OR PROVIDE TEMPORARY SIGNING UNTIL THE FINAL SIGNING IS PLACED.
3. WHEN MULTIPLE GROUND MOUNTED SIGN STRUCTURES ARE PLACED ADJACENT TO EACH OTHER THERE SHOULD BE NO MORE THAN 2 POSTS WITHIN 84" OF EACH OTHER. WHEN THIS SPACING CAN NOT BE MAINTAINED, THEN SIGN STRUCTURES SHALL BE OFFSET, AND STAGGERED WITH A MINIMUM OF 4' BETWEEN SIGN STRUCTURES BOTH LATERALLY AND LONGITUDINALLY. EXAMPLE SHOWS DETOUR SIGNAGE, BUT THIS REQUIREMENT APPLIES TO ALL SIGNAGE.
4. WHEN A SIGN OR BARRICADE IS ORIENTED SUCH THAT VISIBILITY TO ROAD USERS INCLUDING BIKES AND PEDESTRIANS IS REDUCED ENOUGH TO CAUSE A HAZARD, DELINEATE THE SIGN/BARRICADE WITH APPROPRIATE DEVICES.
5. TEMPORARY SIGNS SHALL BE PLACED SUCH THAT OBSTACLES DO NOT BLOCK THEM FROM BEING VIEWED BY APPROACHING ROAD USERS. OBSTACLES MAY INCLUDE, BUT ARE NOT LIMITED TO, LIGHT POLES, TREES, SIGNS, AND BUILDINGS.
6. TEMPORARY SIGNS SHALL BE PLACED AND ORIENTED APPROXIMATELY AS SHOWN IN THE PLAN, AT RIGHT ANGLES TO DIRECTION OF AND FACING THE TRAFFIC THEY ARE INTENDED TO SERVE, UNLESS OTHERWISE SPECIFIED.
7. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL" PAGES (6K-aj) THRU (6K-al) UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
8. AFTER REMOVAL OF SIGN AND/OR SIGN BASE, BACK FILL, COMPACT, AND LEVEL SOIL TO MATCH SURROUNDING SOIL.

PAVEMENT MARKING:

1. MASK OR REMOVE ANY CONFLICTING PAVEMENT MARKINGS AS SHOWN IN THE PLAN OR APPROVED BY THE ENGINEER.
2. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE.
3. SEE 2582 IN THE SPECIAL PROVISIONS FOR PAVEMENT MARKING SPOTTING RESPONSIBILITIES.

CONSTRUCTION INFORMATION SIGNING:

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN WHICH ARE TO BE USED AS FOLLOWS:

PLACE THE G20-X1 ADVANCE CLOSURE NOTICE SIGN(S) 7 DAYS PRIOR TO THE PLANNED CLOSURE DATE.

PLACE G20-X2 ADVANCE NOTICE SIGNS 7 DAYS PRIOR TO THE WORK STARTING DATE. ONCE WORK BEGINS, COVER THE START DATE LEGEND WITH SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SHOWN IN THE PLAN OR APPROVED BY THE ENGINEER, DISPLAY THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON.

PLACE PORTABLE CHANGEABLE MESSAGE SIGNS 10 DAYS PRIOR TO THE WORK STARTING ON EACH LEG OF THE PROJECT.

IF CONSTRUCTION INFORMATION SIGNING IS NO LONGER VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS, MOVE SAID SIGNING TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS SHOWN IN THE PLAN OR APPROVED BY THE ENGINEER.

UPDATED 12/20/2021

PAVEMENT MARKING SYMBOLS AND MATERIALS LEGEND

SOLID LINE PAVEMENT MARKING WITH TEMPORARY RAISED PAVEMENT MARKERS AT 10' SPACES

BROKEN LINE-40' CYCLE (10' LINE, 30' GAP)

STRIPING KEY

TRIANGLE-PAINT

BOX-REMOVABLE PREFORMED PLASTIC MARKING

1ST DIGIT WIDTH	2ND DIGIT PATTERN	3RD DIGIT COLOR
4", 8", ETC.	S - SOLID	W - WHITE
	B - BROKEN	Y - YELLOW
	T - DOTTED	B - BLACK
	D - DOUBLE SOLID	
	K - DOUBLE BROKEN	
	H - DOUBLE DOTTED	

EXAMPLE: 4SW = 4" SOLID LINE WHITE PAINT

INDEX

SHEET NO.	TRAFFIC CONTROL DESCRIPTIONS
48	TEMPORARY TRAFFIC CONTROL TITLE SHEET
49	TRAFFIC AND STAGING PAY ITEM TABULATION
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51	SPECIAL SIGN DETAILS
52	ANOKA COUNTY HIGHWAY DEPARTMENT SIGN DETAILS
53	ANOKA COUNTY HIGHWAY DEPARTMENT SIGN PLACEMENT
54	ANOKA COUNTY HIGHWAY DEPARTMENT TEMPORARY SIGN COVERING
55 - 59	STAGE 1
63 - 67	STAGE 2
68 - 72	STAGE 3
73 - 77	STAGE 4

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

AREA CLOSED TO TRAFFIC / WORK AREA

TEMPORARY BITUMINOUS PAVEMENT

TRAFFIC CONTROL SIGN

TYPE III BARRICADE =

TYPE A FLASHING WARNING LIGHT

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J. SHOWION, PE

DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

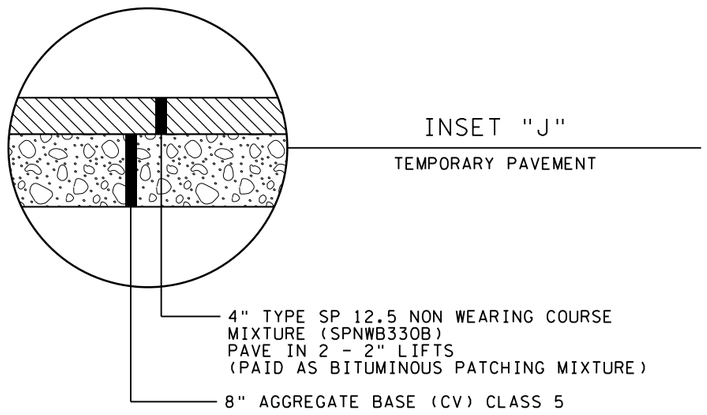
CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TITLE SHEET
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

STAGING AND TRAFFIC CONTROL TABULATION — G

	UNIT		STAGE 1	STAGE 2	STAGE 3	STAGE 4	PROJECT TOTAL
PAVEMENT MARKING REMOVAL	LIN FT			2356	4436	5733	12525
REMOVE BITUMINOUS PAVEMENT	SQ YD					7897	7897
AGGREGATE BASE (CV) CLASS 5	CU YD			1755			1755
BITUMINOUS PATCHING MIXTURE	TON			1785			1785
PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY		40				40
4" SOLID LINE PAINT	LIN FT	WHITE		6444	2200		8644
4" SOLID LINE PAINT	LIN FT	YELLOW		7288	2194		9482
8" DOTTED LINE PAINT	LIN FT	WHITE		429	390		819
4" REMOVABLE PREFORM PAVEMENT MARKING TAPE (SOLID)	LIN FT	WHITE		285			285
4" REMOVABLE PREFORM PAVEMENT MARKING TAPE (DOUBLE)	LIN FT	YELLOW		241			241



EARTH WORK TABULATION — G

STA. - STA.	EXCAVATION COMMON CU YD (EV)	EMBANKMENT COMMON CU YD (CV)
CSAH 22 TEMP		
85+00 - 85+50	67	250
85+50 - 86+00	64	237
86+00 - 86+50	75	151
86+50 - 87+00	83	133
87+00 - 87+50	88	149
87+50 - 88+00	98	146
88+00 - 88+50	120	150
88+50 - 89+00	201	146
89+00 - 89+50	291	136
89+50 - 90+00	313	132
90+00 - 90+50	284	123
90+50 - 91+00	216	109
91+00 - 91+50	189	97
91+50 - 92+00	338	112
92+00 - 95+00	2099	729
95+00 - 95+50	204	85
95+50 - 96+00	130	103
96+00 - 96+50	78	167
96+50 - 97+00	71	191
97+00 - 97+50	81	190
97+50 - 98+00	67	117
98+00 - 98+50	83	41
98+50 - 99+00	119	36
99+00 - 99+50	114	38
99+50 - 100+00	101	35
100+00 - 100+50	73	30
CSAH 22 TEMP SUBTOTAL	5647	3833
CSAH 7 TEMP		
202+50 - 203+00	84	96
203+00 - 203+50	105	134
203+50 - 204+00	122	159
204+00 - 204+50	130	169
204+50 - 205+00	126	192
205+00 - 205+50	110	214
205+50 - 206+00	82	229
206+00 - 206+50	69	253
206+50 - 207+00	93	276
207+00 - 209+50	849	1162
209+50 - 210+00	233	162
210+00 - 210+50	209	146
210+50 - 211+00	117	167
211+00 - 211+50	58	173
211+50 - 212+00	63	146
212+00 - 212+50	72	131
212+50 - 213+00	66	156
213+00 - 213+50	41	122
CSAH 7 TEMP SUBTOTAL	2629	4087
TOTAL	8276	7920

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Plan By: GHP
Checked By: MJS
Approved By: MJS

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Michael Shomion
DATE 2/7/2024 LICENSE # 50488

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
TRAFFIC AND STAGING PAY ITEM TABULATION
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET **49** OF **133** SHEETS

"W" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)	ASSEMBLY (IN. X IN.) (W×H)	NUMBER OF POST
ROAD CLOSED AHEAD	W20-3	BLACK ON ORANGE	48 x 48	48 x 72	1
XX FEET	W16-2P	BLACK ON ORANGE	30 x 24		
	W1-4	BLACK ON ORANGE	48 x 48	48 x 78	1
XX M.P.H.	W13-1P	BLACK ON ORANGE	30 x 30		
	W2-6	BLACK ON YELLOW	48 X 48	48 X 78	1
XX M.P.H.	W13-1P	BLACK ON ORANGE	30 X 30		
NO SHOULDER	W8-23	BLACK ON YELLOW	48 x 48	48 x 48	1
ROAD WORK AHEAD	W20-1	BLACK ON YELLOW	48 x 48	48 x 48	1
	W3-2	BLACK, RED AND WHITE ON YELLOW	48 x 48	48 x 48	1

"R" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)	ASSEMBLY (IN. X IN.) (W×H)	NUMBER OF POST
ONEWAY	R6-1	BLACK ON WHITE	54 X 18	54 X 18	1
BRIDGE	R12-X1P	BLACK ON YELLOW	24 X 9	24 X 54	1
WEIGHT LIMIT 37T 40T 40T	R12-5	BLACK ON WHITE	24 X 36		
1/8 MILES	R12-X1Pa	BLACK ON YELLOW	24 X 9		

"G" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)	ASSEMBLY (IN. X IN.) (W×H)	NUMBER OF POST	POST SPACING INCHES
END ROAD WORK	G20-2	BLACK ON ORANGE	36 x 18	36 x 18	1 Ⓐ	
ROAD CLOSED BEGINNING MONTH DY	G20-X1	BLACK ON ORANGE	72 x 60	72 x 60	2	42
ROAD WORK AHEAD ANOKA COUNTY 7 AND ANOKA COUNTY 22 Intersection BEGINS MM DD	G20-X2 Ⓑ	BLACK ON ORANGE	96 x 84	96 x 84	2	48
ROAD WORK AHEAD ANOKA COUNTY 22 AND ANOKA COUNTY 7 Intersection BEGINS MM DD	G20-X2 Ⓑ	BLACK ON ORANGE	96 x 84	96 x 84	2	

"M" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)	ASSEMBLY (IN. X IN.) (W×H)	NUMBER OF POST
COUNTY 7 COUNTY 22 NORTH WEST SOUTH EAST	M1-6M	WHITE AND YELLO ON BLUE	24 X 24	24 X 36	1
	M3-1 M3-2 M3-3 M3-4	WHITE ON BLUE	24 X 12		

BARRICADE MOUNTED SIGNS

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)
ROAD CLOSED	R11-2M	BLACK ON WHITE	48 x 30
ROAD CLOSED TO THRU TRAFFIC	R11-4	BLACK ON WHITE	60 x 30
	W1-6	BLACK ON ORANGE	60 x 30
ONEWAY	R6-1	BLACK ON WHITE	54 X 18

SPECIFIC NOTES:

Ⓐ MAY USE 2" SQUARE TUBE POST WITH FIN BASE.

Ⓑ SEE SPECIAL SIGN DETAILS SHEET FOR SIGN DETAILS.

GENERAL NOTES:

1. SIGN STRUCTURE TABULATIONS INDICATE SQUARE TUBE GROUND MOUNTED SIGN STRUCTURES THAT ARE MASH-16 COMPLIANT.
2. USE PRODUCTS FROM THE BASES FOR SQUARE TUBE SIGN STRUCTURES APPROVED/QUALIFIED PRODUCTS LIST FOR THE INDICATED SQUARE TUBE RISER POST SIZE. PLACE PER THE MANUFACTURER'S SPECIFICATIONS.
3. ALUMINUM STRINGERS SHALL BE USED FOR SIGNS 36 INCHES AND WIDER. SEE MANUFACTURER'S SPECIFICATIONS FOR SQUARE TUBE MOUNTING DETAILS. STRINGERS ON SINGLE POST ASSEMBLIES ARE REQUIRED TO BE AT LEAST 9 INCHES IN FROM THE EDGE OF THE SIGN.
4. UNLESS OTHERWISE INDICATED, USE 2-1/2 INCH RISER POSTS FOR GROUND MOUNTED SIGN STRUCTURES.

ALL DIMENSIONS ARE IN INCHES

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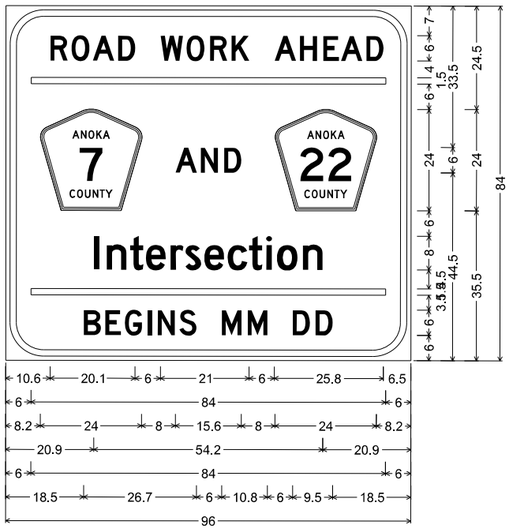
ANOKA COUNTY

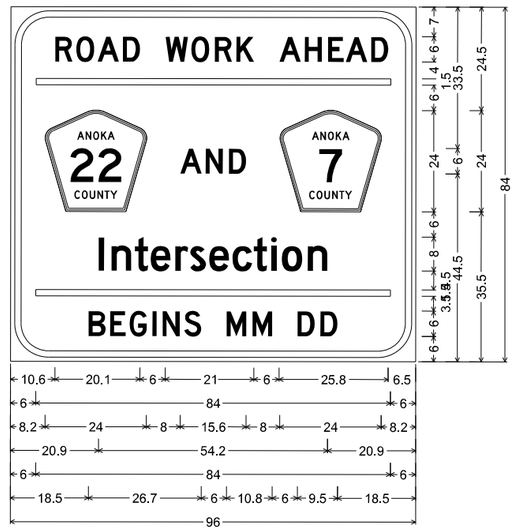
CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
SIGN TABULATION
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET 50 OF 133 SHEETS



ROAD WORK AHEAD CSAH 7 AND CSAH 22 INTERSECTION;
9.0" Radius, 1.5" Border, 1.0" Indent, Black on, Orange;
"ROAD WORK AHEAD", D 2K; Pentagonal County 7 M1-6;
"AND", D 2K; Pentagonal County 22 M1-6;
"Intersection", D 2K; "BEGINS MM DD", D 2K;



ROAD WORK AHEAD CSAH 22 AND CSAH 7 INTERSECTION;
9.0" Radius, 1.5" Border, 1.0" Indent, Black on, Orange;
"ROAD WORK AHEAD", D 2K; Pentagonal County 22 M1-6;
"AND", D 2K; Pentagonal County 7 M1-6;
"Intersection", D 2K; "BEGINS MM DD", D 2K;

ALL DIMENSIONS ARE IN INCHES

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SPECIAL SIGN DETAILS

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET 51 OF 133 SHEETS

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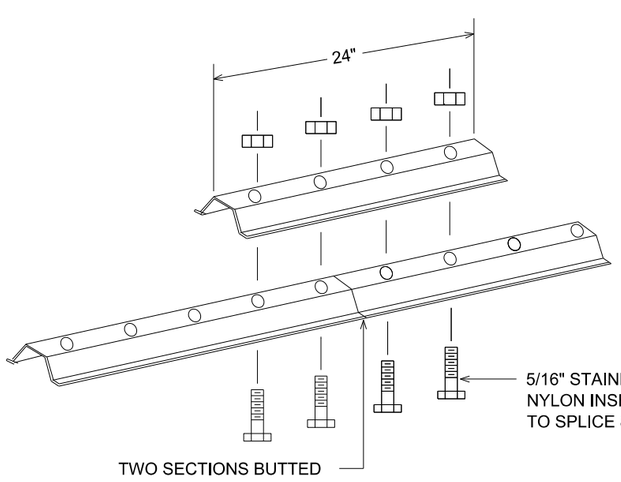
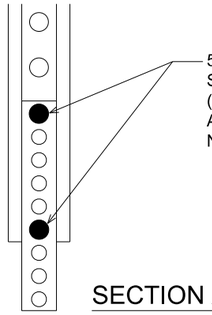
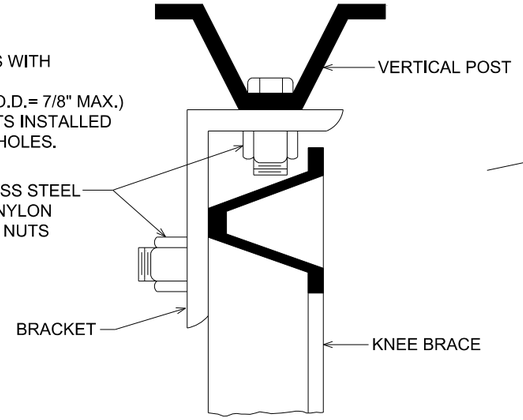
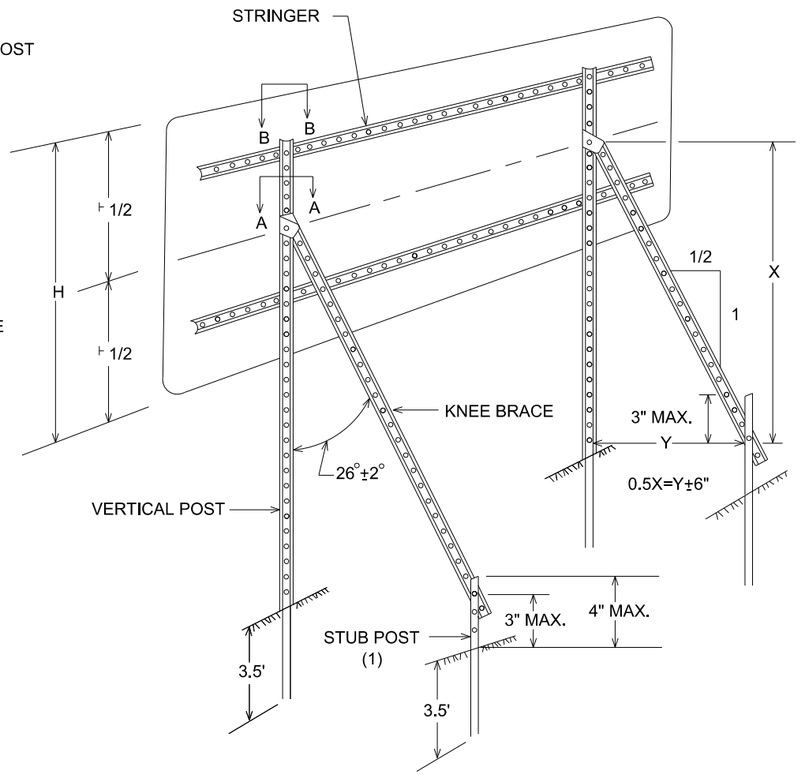




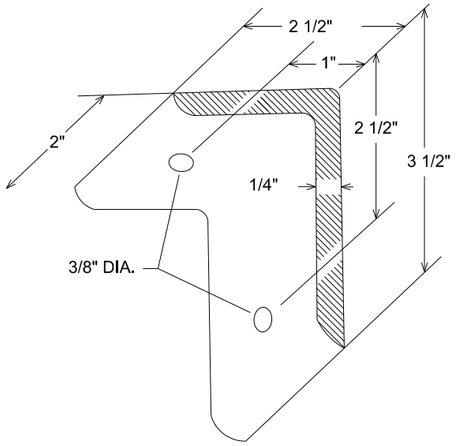
SECTION A-A





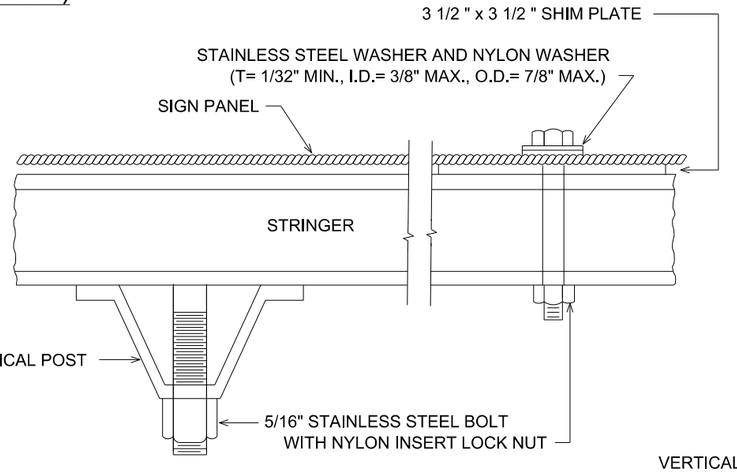
TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)

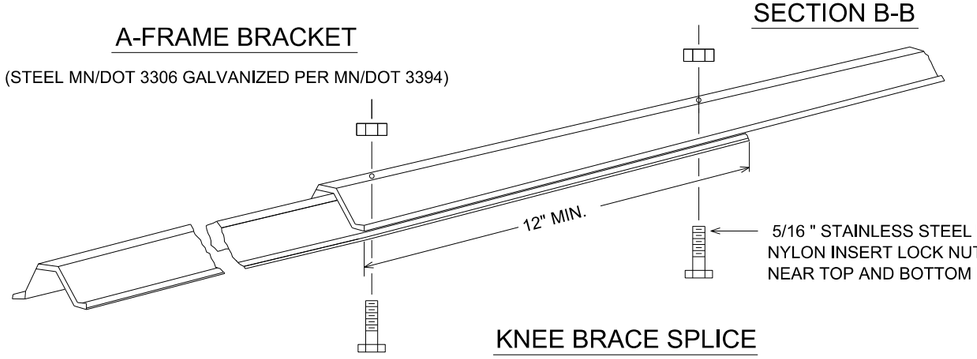


A-FRAME BRACKET

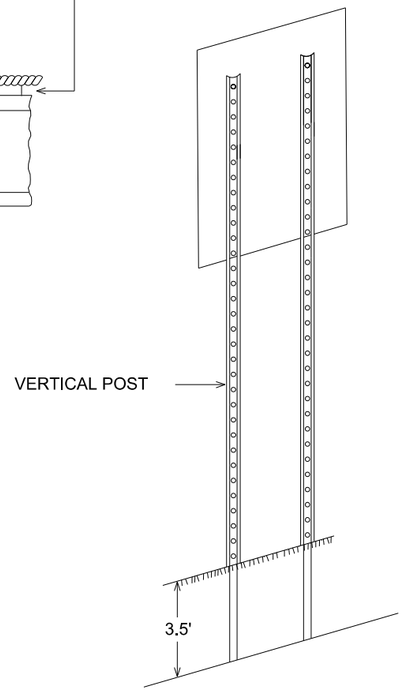
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



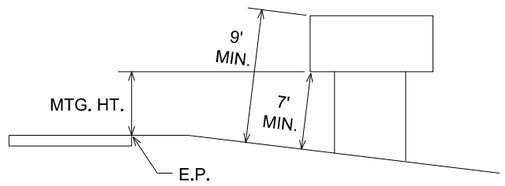
SECTION B-B



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

ANOKA COUNTY HIGHWAY DEPARTMENT SIGN DETAILS

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
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Approved By: MJS

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Michael Shomion
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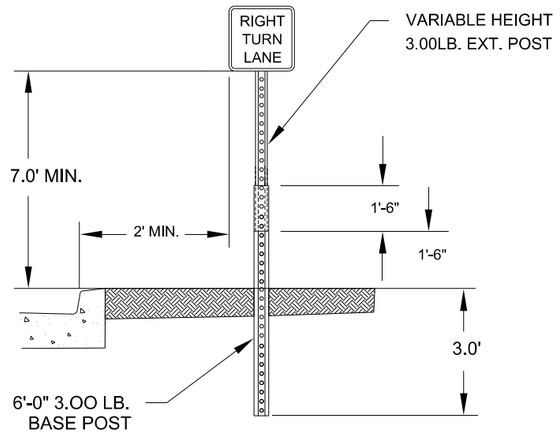
ANOKA COUNTY, MINNESOTA
DETAILS
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET 52 OF 133 SHEETS

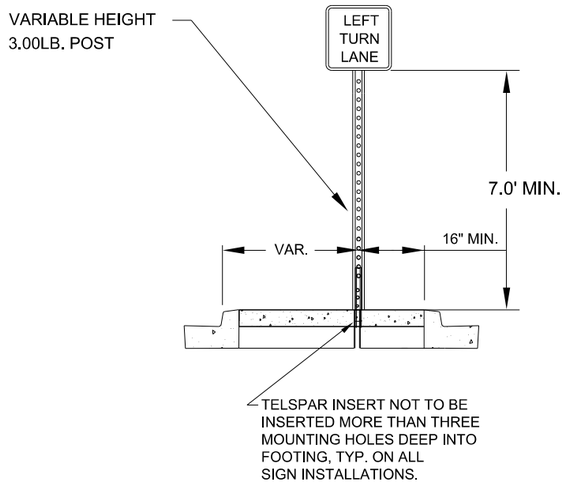
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tca_title.dgn

PLOTTED/REVISED: 2/7/2024 3:27:34 PM

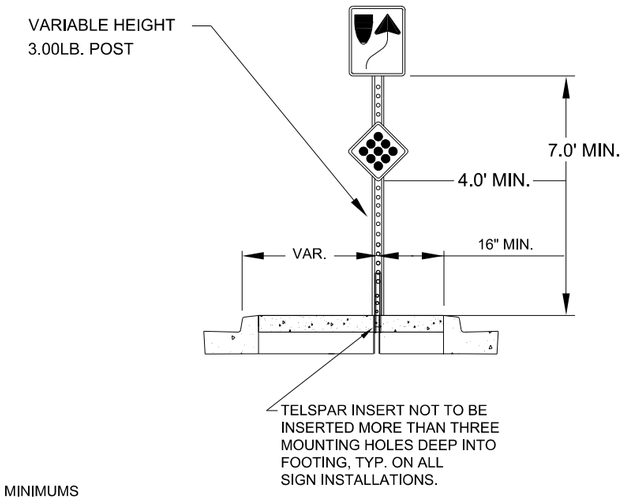
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



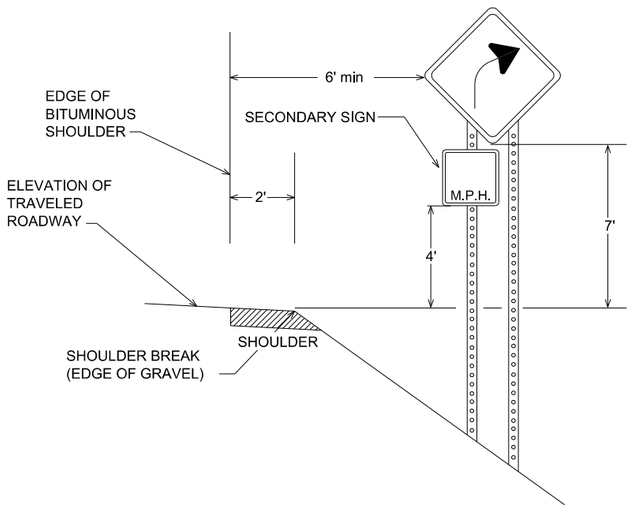
ISLAND MOUNT BREAK-AWAY SIGN SIGN INSTALLATION TYPICAL KEEP RIGHT/CLUSTER



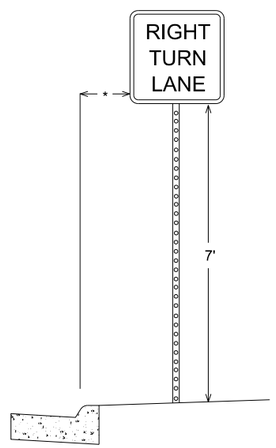
NOTES:

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

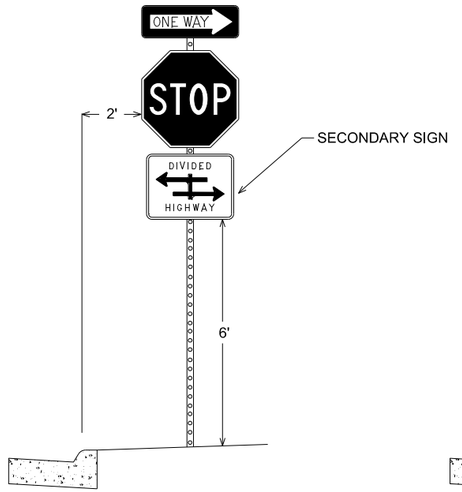
TYPICAL SIGN PLACEMENT (RURAL)

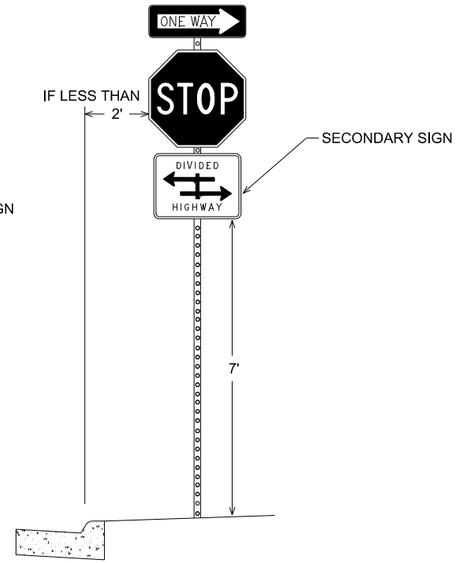


TYPICAL SIGN PLACEMENT (URBAN)



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





ANOKA COUNTY HIGHWAY DEPARTMENT SIGN PLACEMENT

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\CadPlan\2\150-000_tca_1111e.dgn

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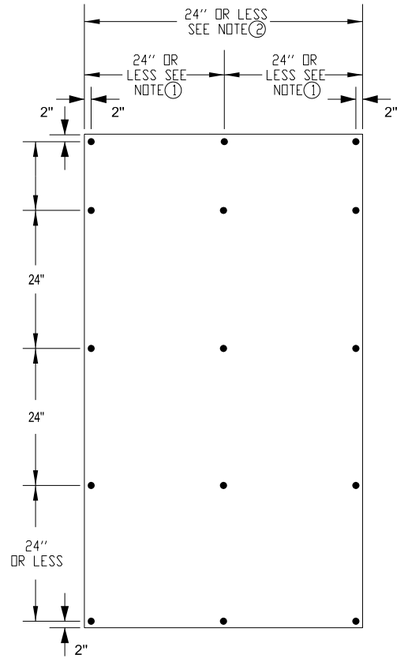
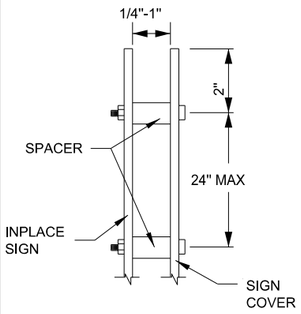
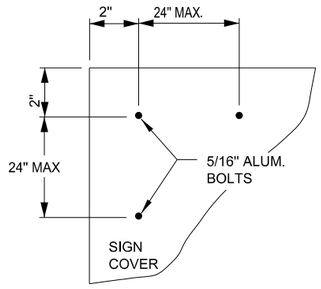
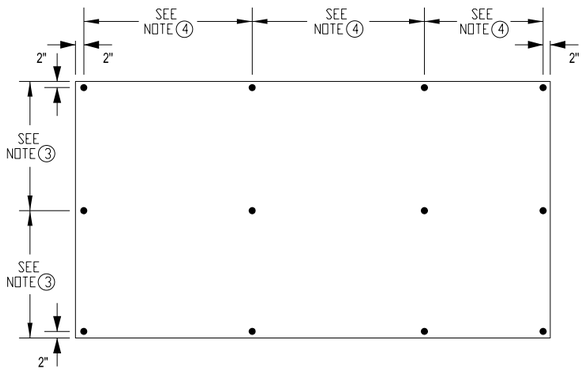
ANOKA COUNTY, MINNESOTA
DETAILS
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET 53 OF 133 SHEETS









ACHD REFERENCE DATE: 01/26/2018

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

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

NOTES FOR COVERING COMPLETE OR PORTION OF EXTRUDED SIGN PANEL:

(1) THE CENTER SHEET METAL SCREWS SHALL BE SPACED AT 1/2 OF THE PANELS WIDTH.

(2) IF THE SHEET ALUMINUM PANEL IS GREATER THAN 48" WIDE, THE SHEET METAL SCREWS SPACING SHALL BE NO GREATER THAN 24". IF THE SHEET ALUMINUM PANEL IS LESS THAN 24" WIDE, THERE SHALL BE NO INNER HOLES.

(3) VERTICAL SPACING FOR THE MOUNTING HOLES IS 50% OF THE PANEL HEIGHT. IF THE PANEL IS LESS THAN 24" HIGH, THERE SHALL BE NO INNER HOLES.

(4) HORIZONTAL SPACING FOR MOUNTING HOLES SHALL NOT BE LESS THAN 15" NOR MORE THAN 24".

GENERAL NOTES:

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

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

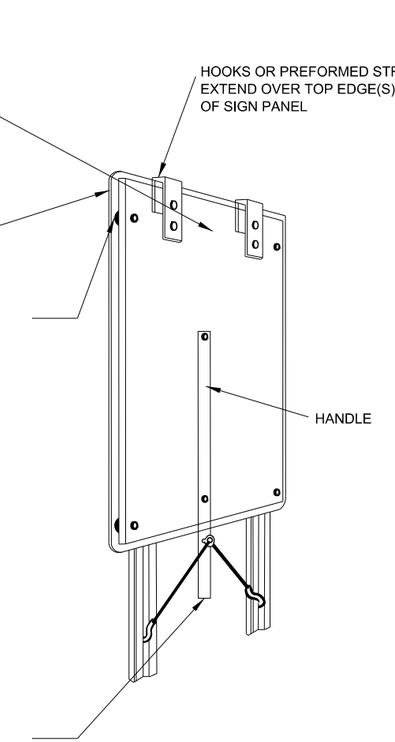
SPACERS SHALL BE A MATERIAL THAT WILL NOT HARM THE SIGN SHEETING FACE (SUCH AS PLASTIC OR RUBBER).

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

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

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

OVERLAY ASSEMBLY COVERING TYPE C OR D SIGN PANEL:



ANOKA COUNTY HIGHWAY DEPARTMENT TEMPORARY SIGN COVERING

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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

PRINT NAME: MICHAEL J. SHOMION, PE
Michael Shomion
DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
DETAILS
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET **54** OF **133** SHEETS

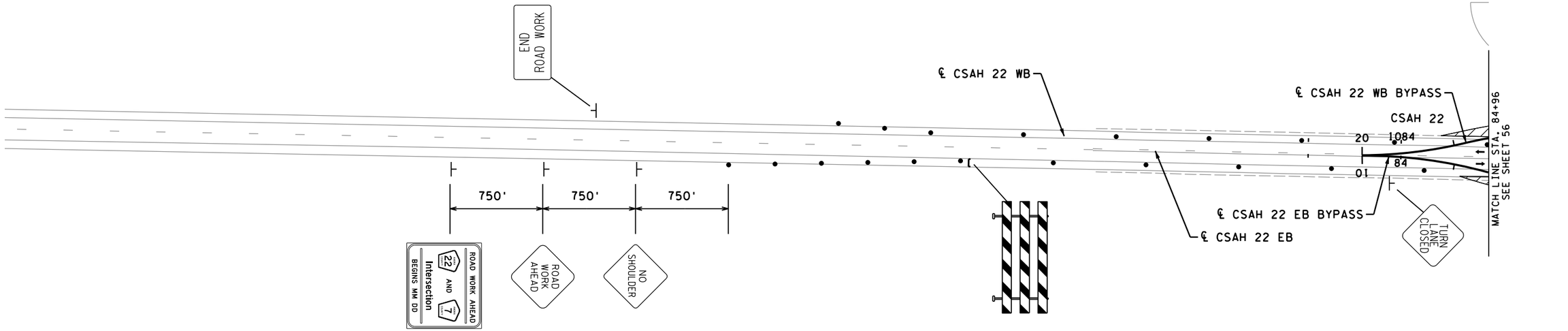
PLOTTED/REVISED: 2/7/2024 3:27:36 PM
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tca_1ttheadgn

CSAH 22

LEGEND

AREA CLOSED TO TRAFFIC / WORK AREA

SCALE IN FEET
0 50 100



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J SHOMION, PE

Michael Shomion

DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

TEMPORARY TRAFFIC CONTROL PLAN

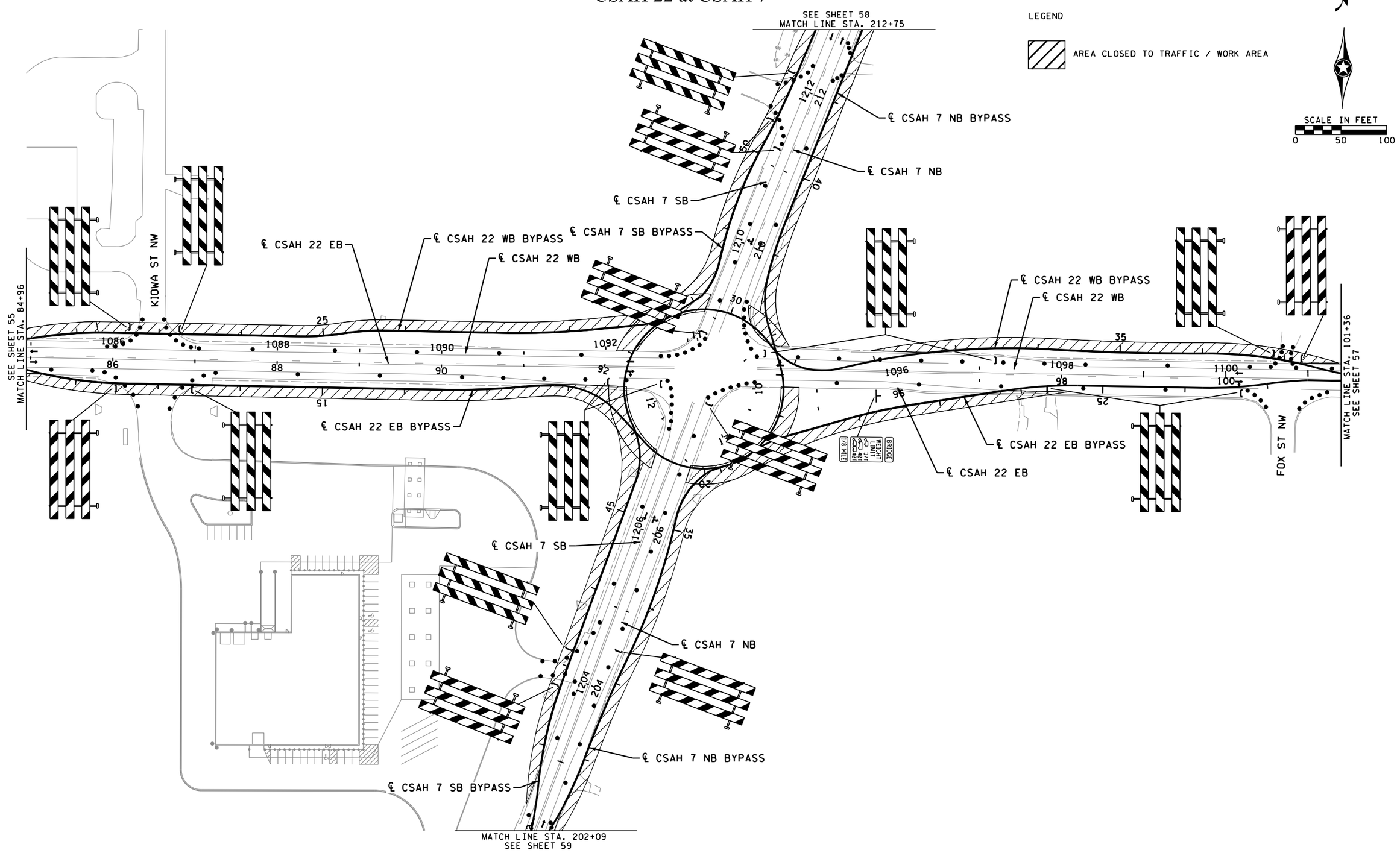
SP 002-622-041, SP 223-020-009

SHEET 55 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:27:47 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tc100.dgn

CSAH 22 at CSAH 7



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **56** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:27:51 PM

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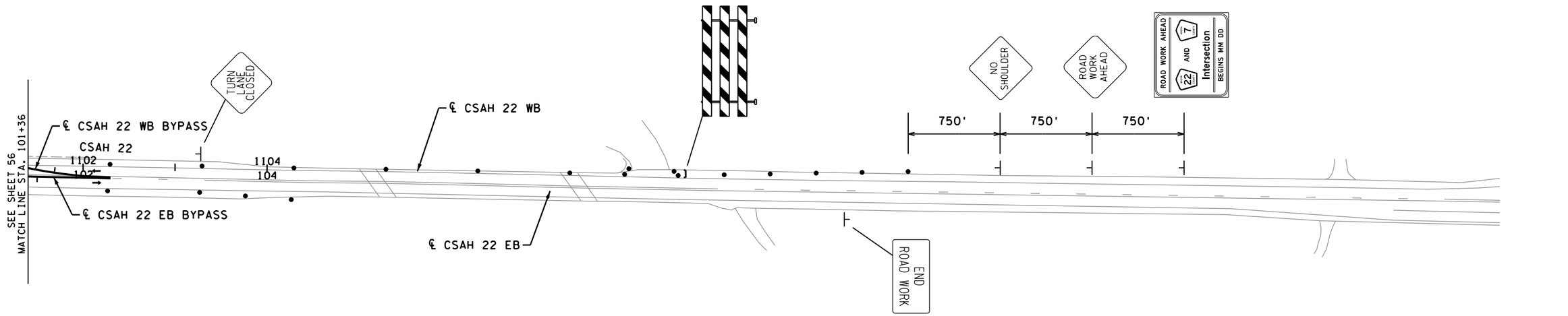
CSAH 22

LEGEND

AREA CLOSED TO TRAFFIC / WORK AREA

N

SCALE IN FEET
0 50 100



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **57** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:27:56 PM

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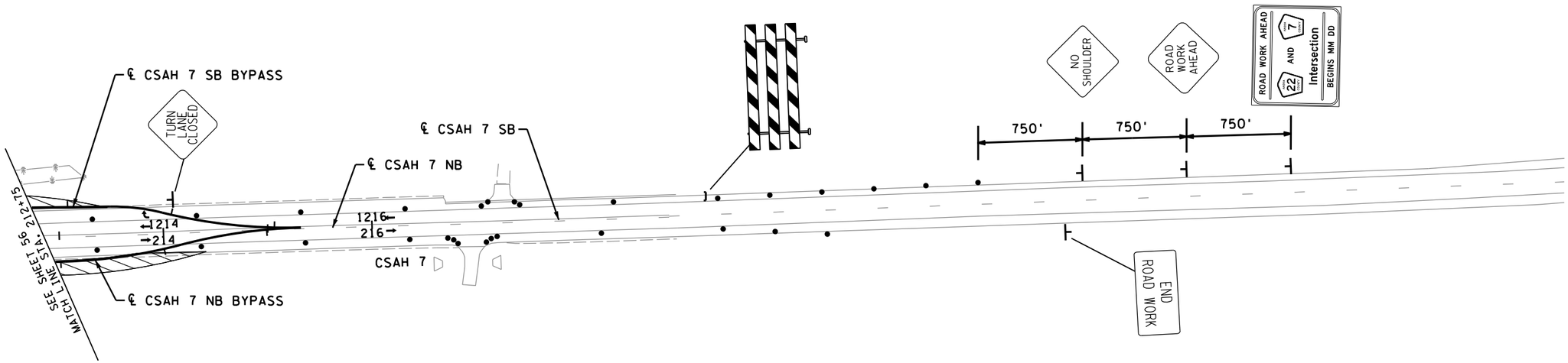
CSAH 7

LEGEND

AREA CLOSED TO TRAFFIC / WORK AREA

SCALE IN FEET
0 50 100



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **58** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:28:00 PM

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CSAH 7

LEGEND

AREA CLOSED TO TRAFFIC / WORK AREA

SCALE IN FEET
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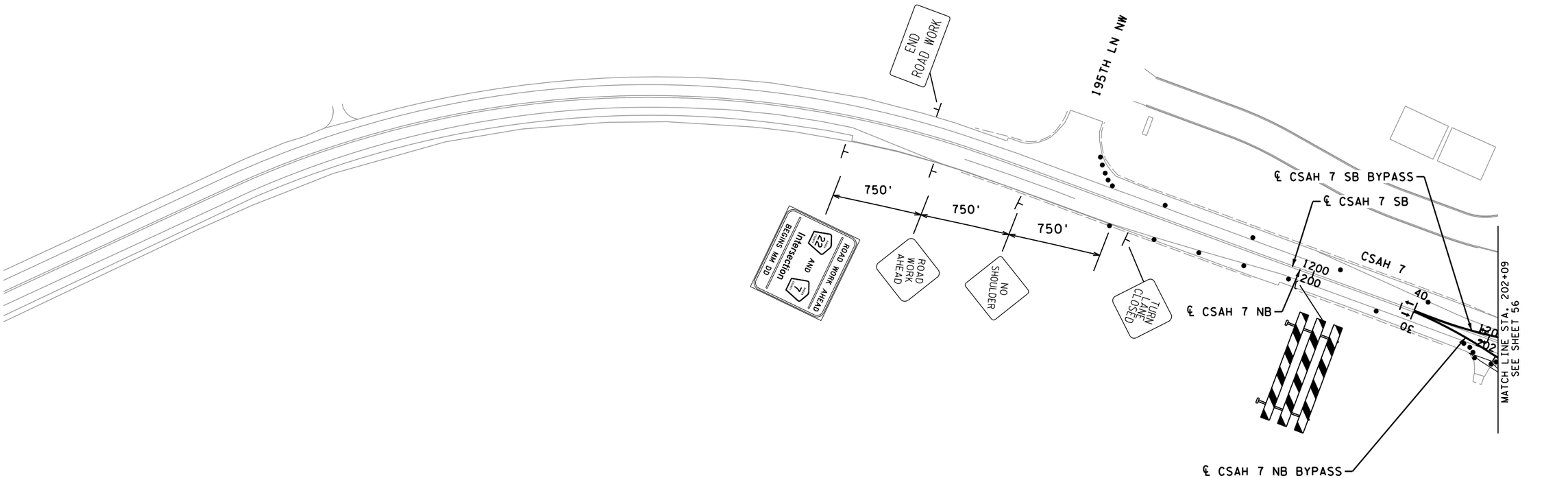

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J. SHOMION, PE

Michael J Shomion

DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **59** OF **133** SHEETS

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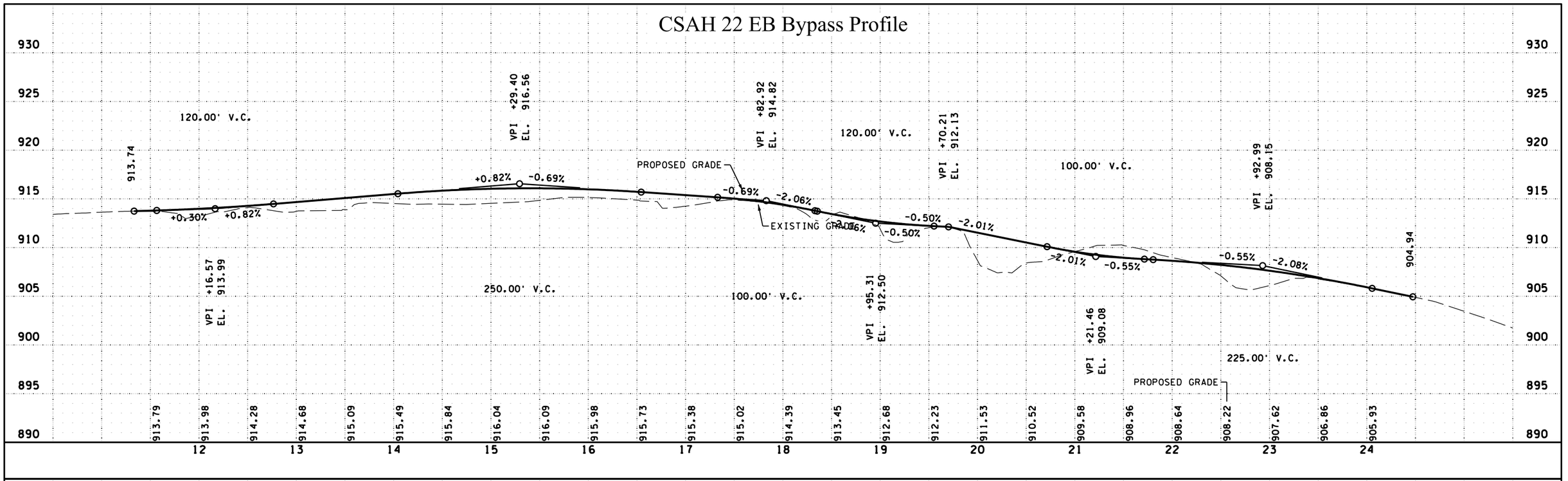
CSAH 22 EB Bypass Profile



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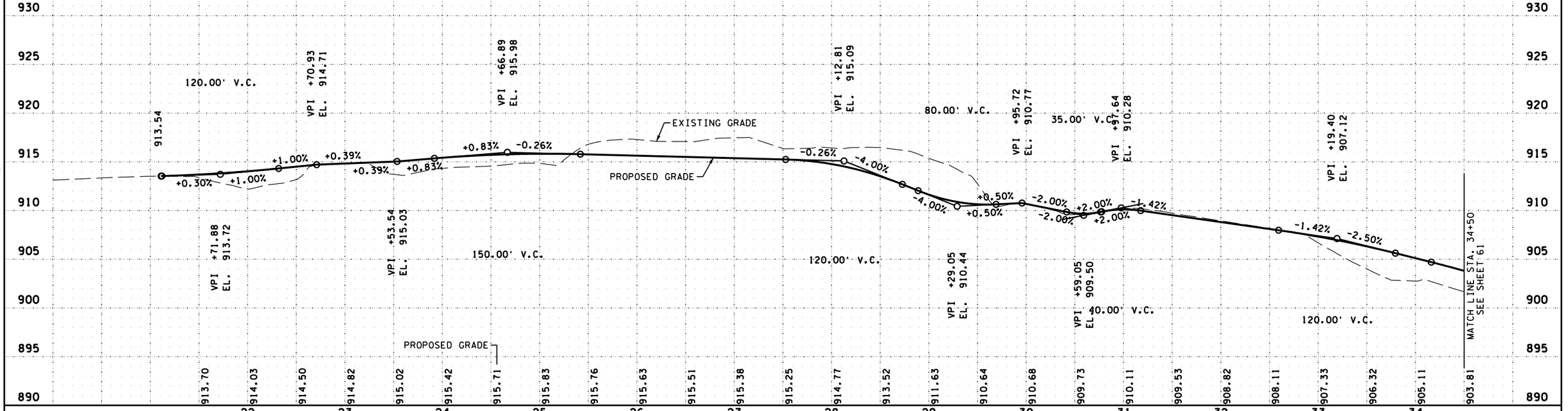

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J PLUNKMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

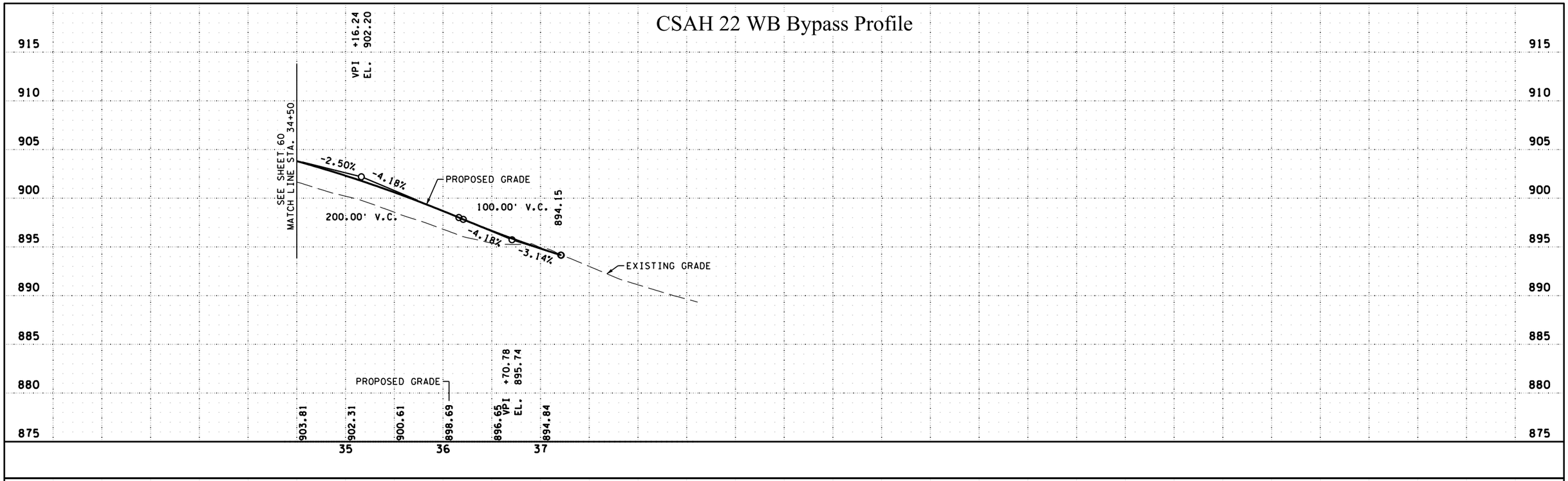
BYPASS PROFILES

TEMPORARY TRAFFIC CONTROL PLAN

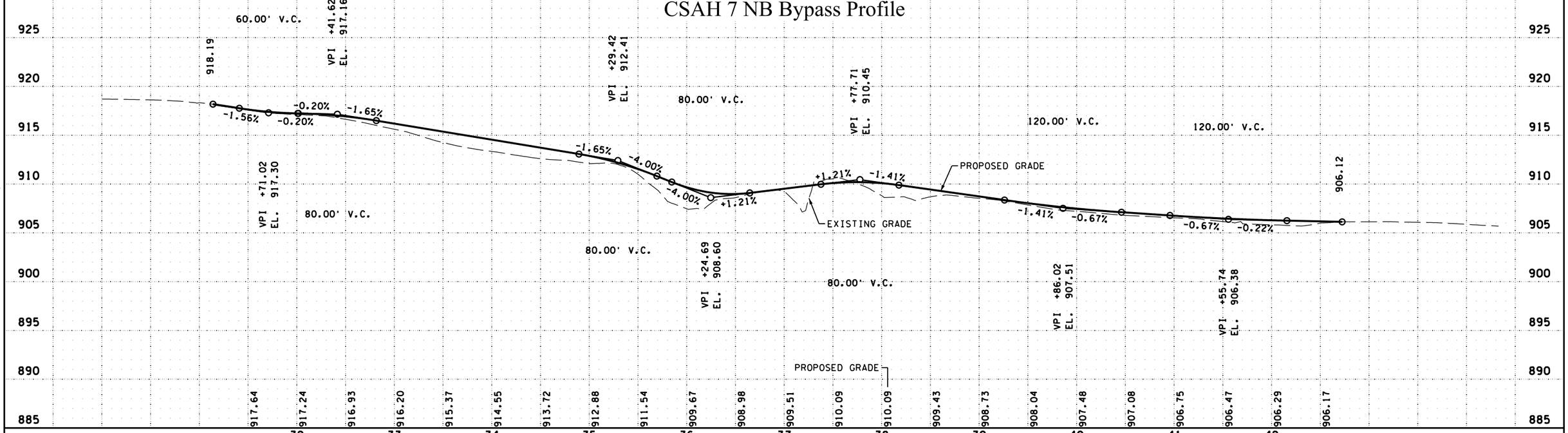
SP 002-622-041, SP 223-020-009

SHEET 60 OF 133 SHEETS

CSAH 22 WB Bypass Profile



CSAH 7 NB Bypass Profile



NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

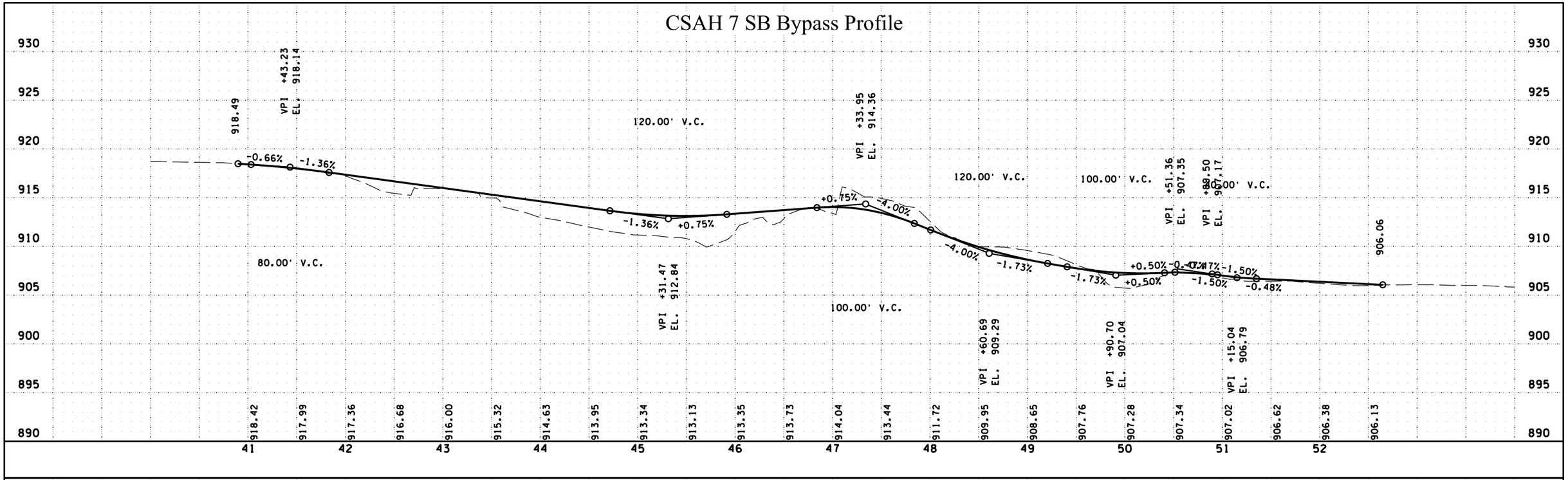
BYPASS PROFILES

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET 61 OF 133 SHEETS

CSAH 7 SB Bypass Profile



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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

BYPASS PROFILES

TEMPORARY TRAFFIC CONTROL PLAN

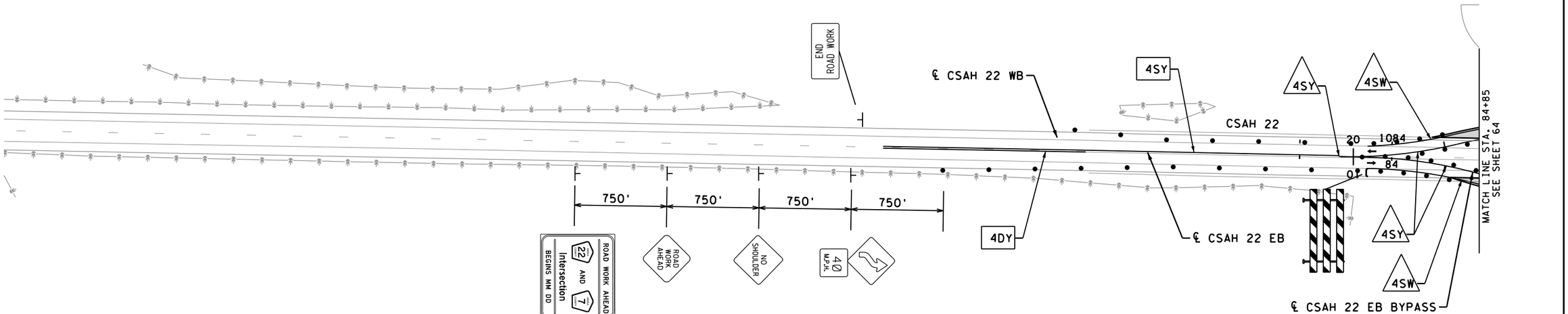
SP 002-622-041, SP 223-020-009

SHEET 62 OF 133 SHEETS

LEGEND

TEMPORARY BITUMINOUS PAVEMENT

SCALE IN FEET
0 50 100



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
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PRINT NAME: MICHAEL J. SHOMION, PE

Michael Shomion

DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 2

TEMPORARY TRAFFIC CONTROL PLAN

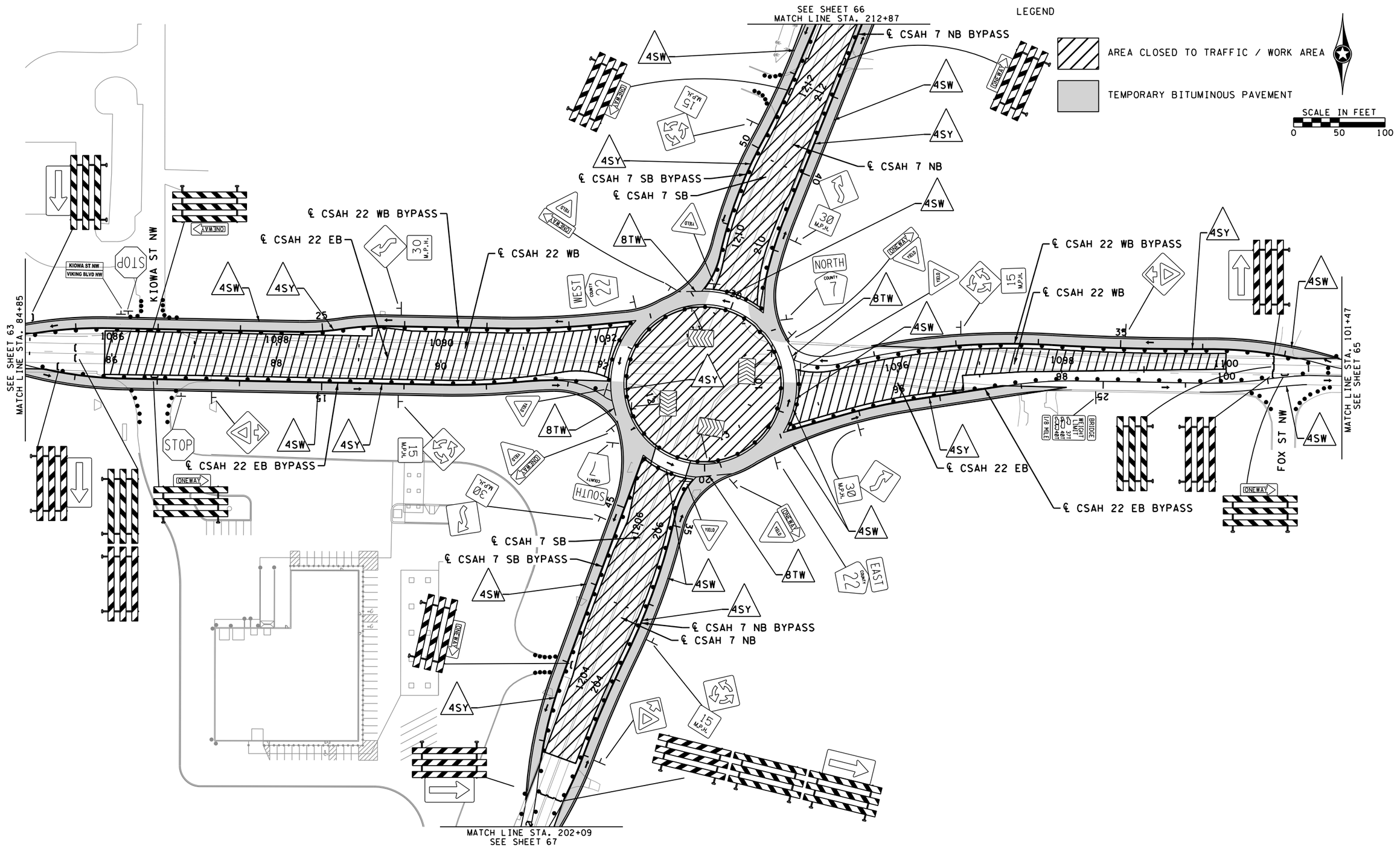
SP 002-622-041, SP 223-020-009

SHEET **63** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:28:25 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tc200.dgn

CSAH 22 at CSAH 7



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J. SHOMION, PE

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wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 2

TEMPORARY TRAFFIC CONTROL PLAN

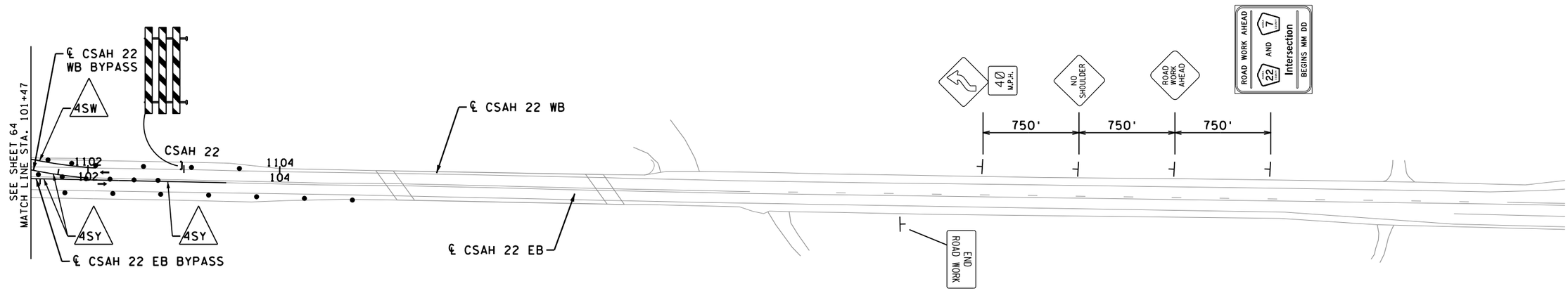
SP 002-622-041, SP 223-020-009

SHEET 64 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:28:28 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tc200.dgn

CSAH 22



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Checked By: MJS
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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 2

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

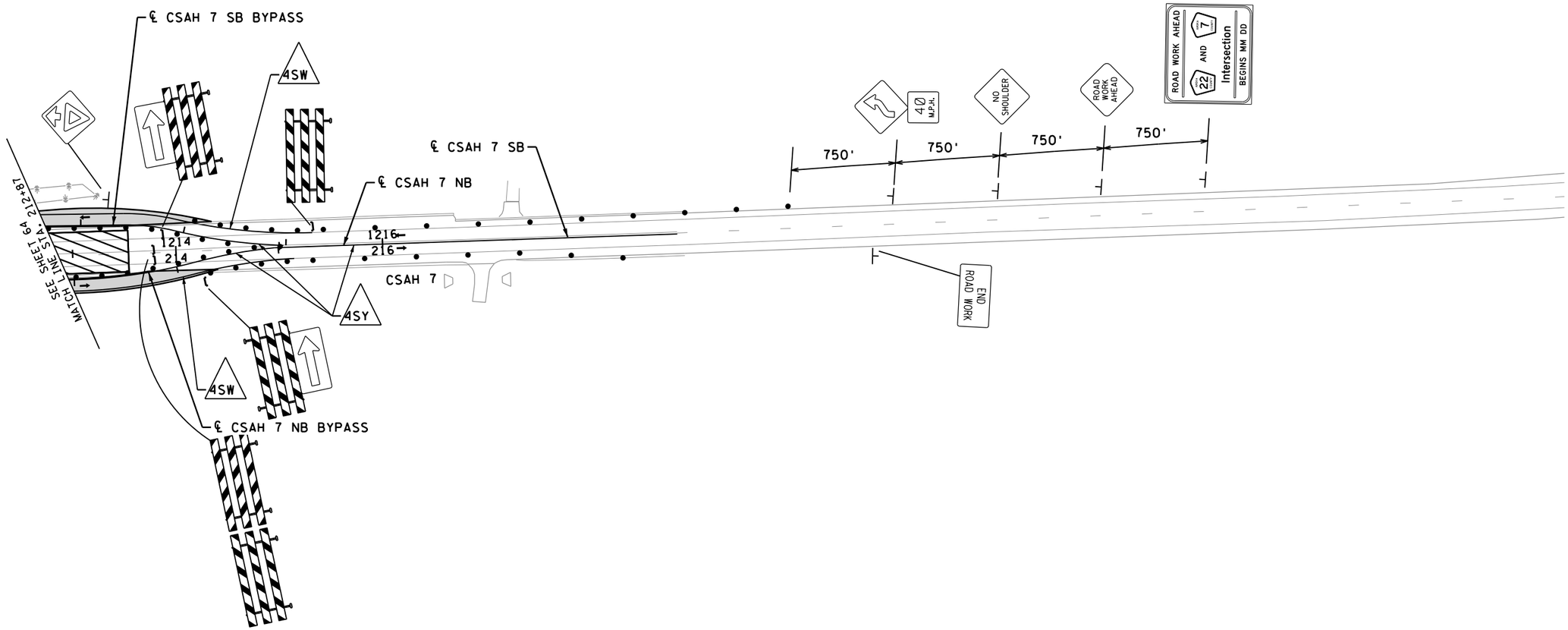
SHEET **65** OF **133** SHEETS

LEGEND

AREA CLOSED TO TRAFFIC / WORK AREA

TEMPORARY BITUMINOUS PAVEMENT

SCALE IN FEET
0 50 100



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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 2

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET 66 OF 133 SHEETS

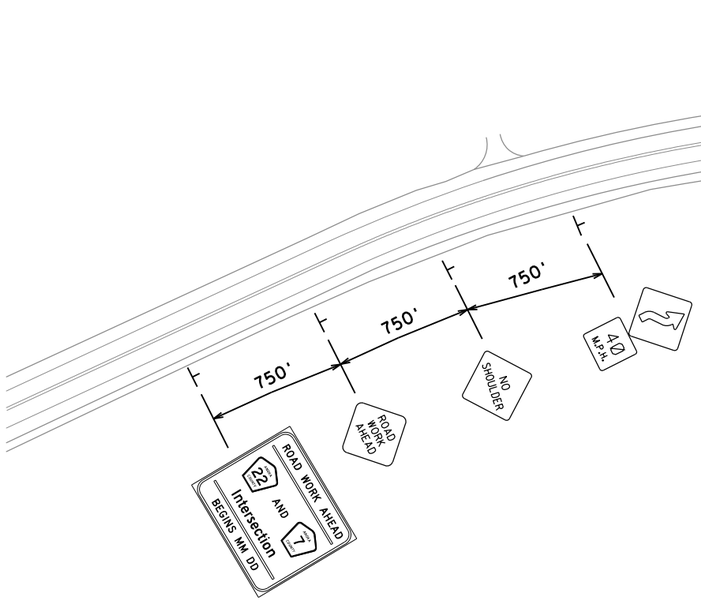
PLOTTED/REVISED: 2/7/2024 3:28:35 PM

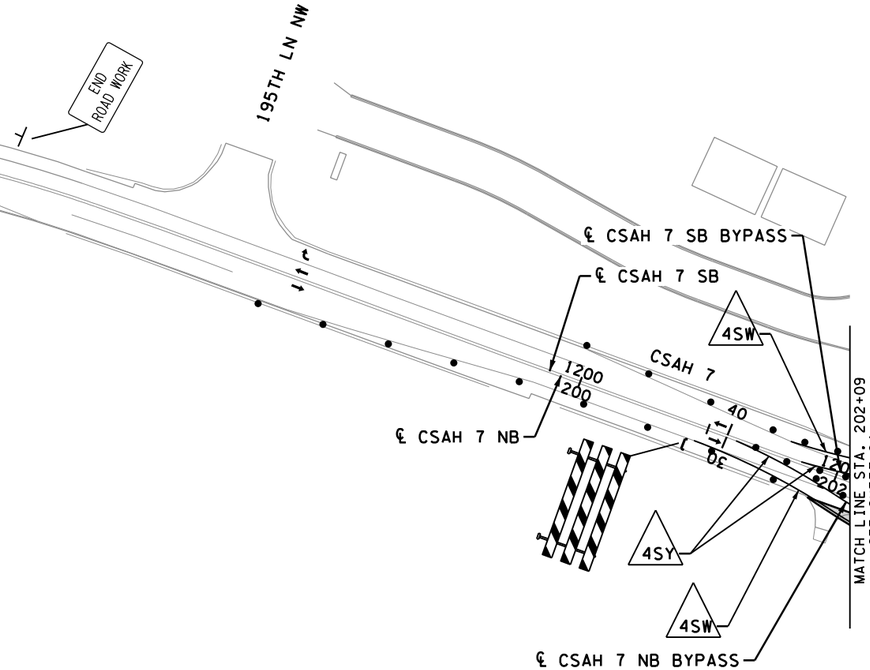
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tc200.dgn

LEGEND

TEMPORARY BITUMINOUS PAVEMENT

SCALE IN FEET
0 50 100





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Michael Shomion

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 2

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET 67 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:28:40 PM

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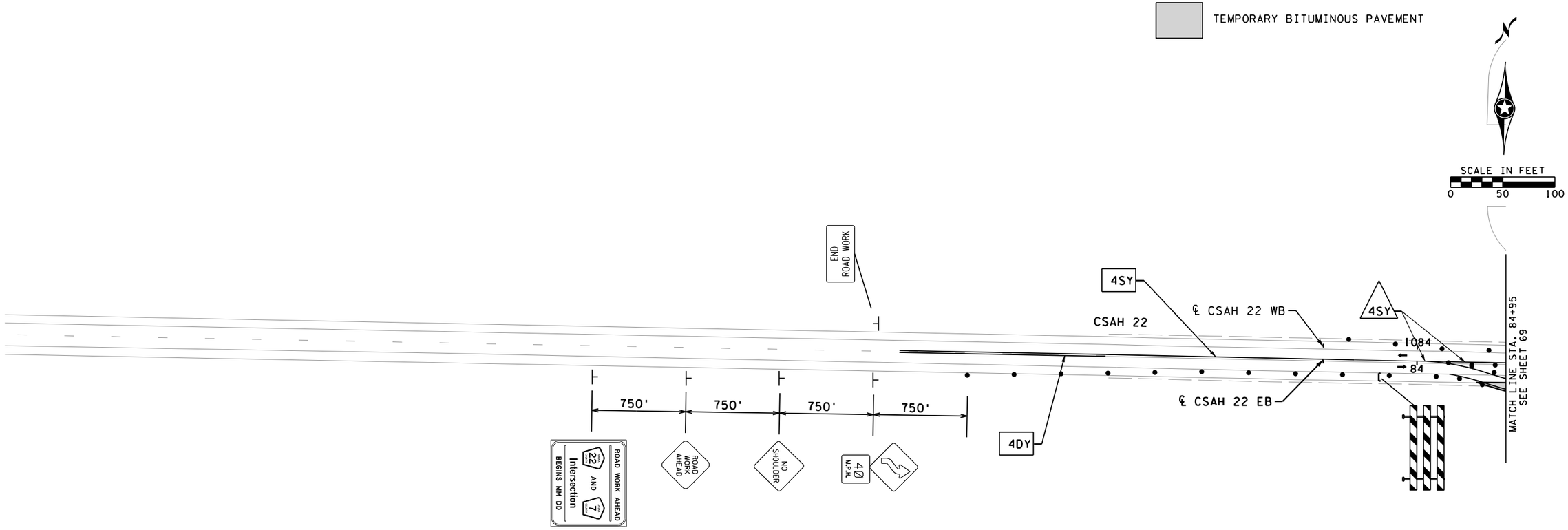
CSAH 22

LEGEND

TEMPORARY BITUMINOUS PAVEMENT



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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 3

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **68** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:28:49 PM

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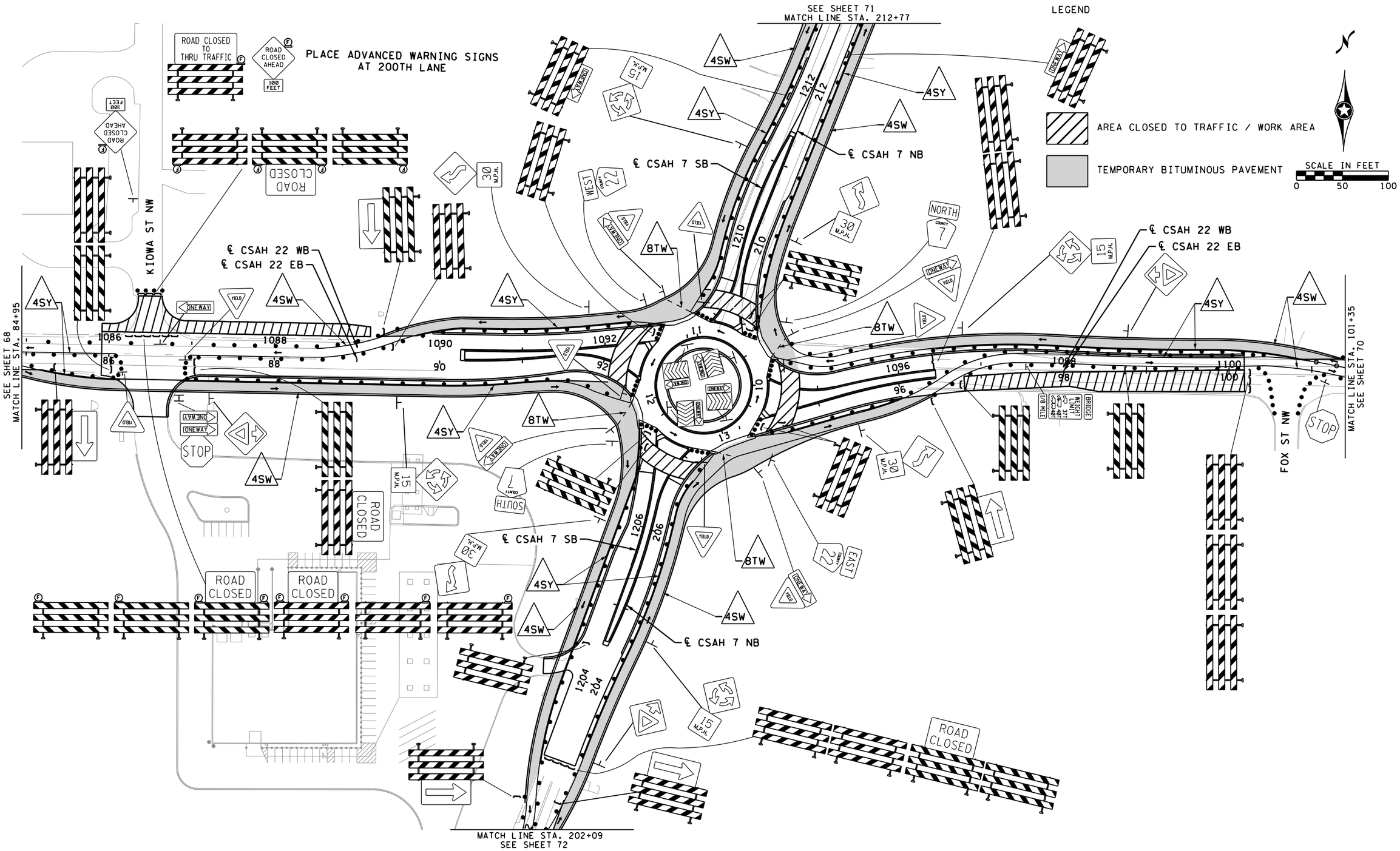
CSAH 22 at CSAH 7



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Plan By: GHP
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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 3

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **69** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:28:53 PM

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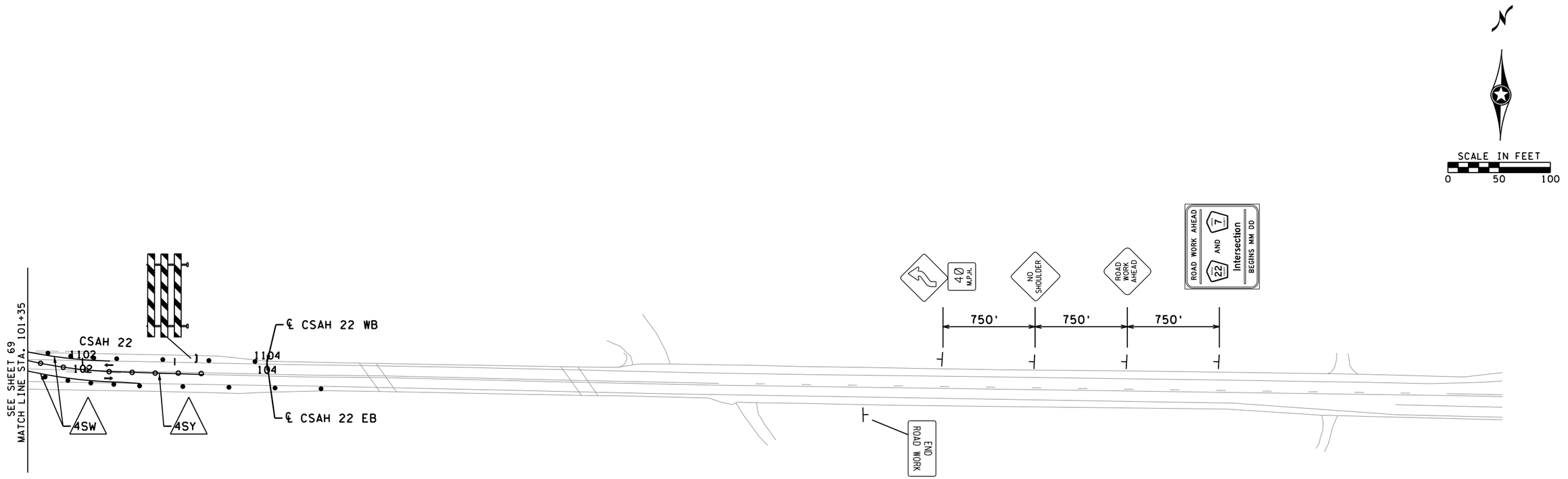
CSAH 22



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WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan2\150-000_tc300.dgn

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 3

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

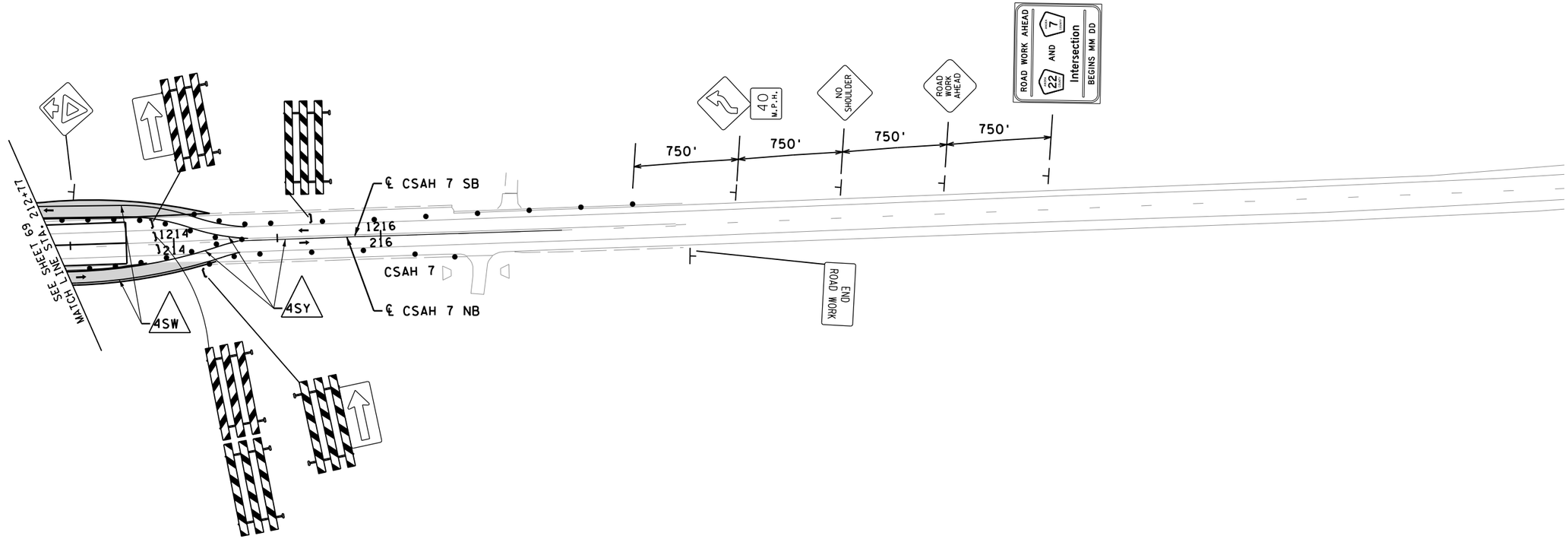
SHEET **70** OF **133** SHEETS

CSAH 7

LEGEND

TEMPORARY BITUMINOUS PAVEMENT

SCALE IN FEET
0 50 100



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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

PRINT NAME: MICHAEL J. SHOMION, PE

Michael Shomion

DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 3

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **71** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:00 PM

WSB PATH & FILENAME: Projects\Minnesota\021150-000\Cad\Plan\21150-000_tc300.dgn

LEGEND

TEMPORARY BITUMINOUS PAVEMENT

SCALE IN FEET
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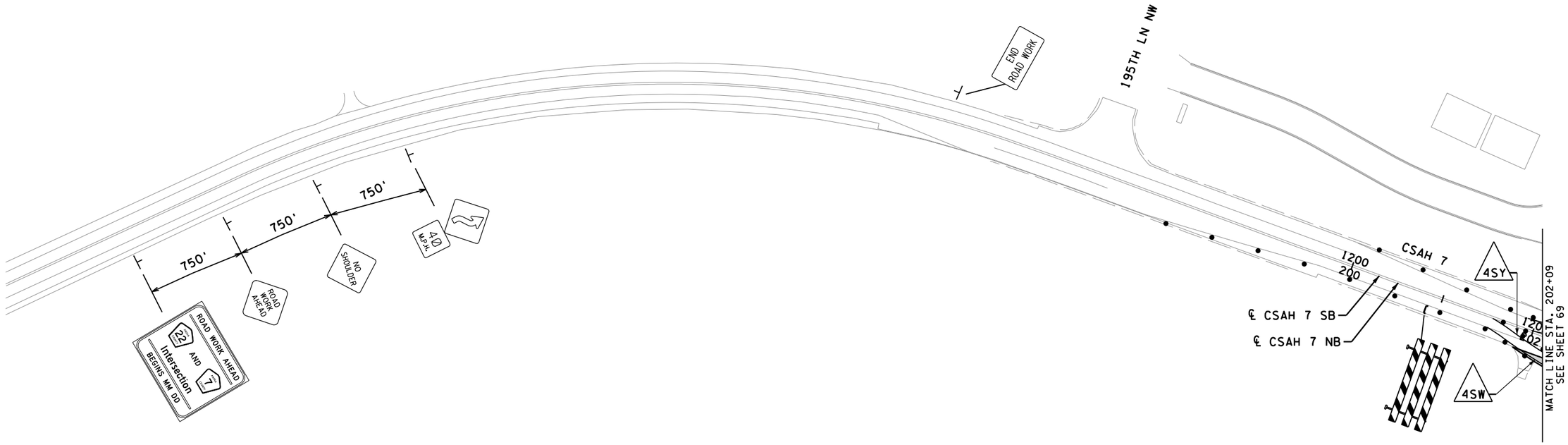

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
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PRINT NAME: MICHAEL J. SHOMION, PE
Michael J Shomion
DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

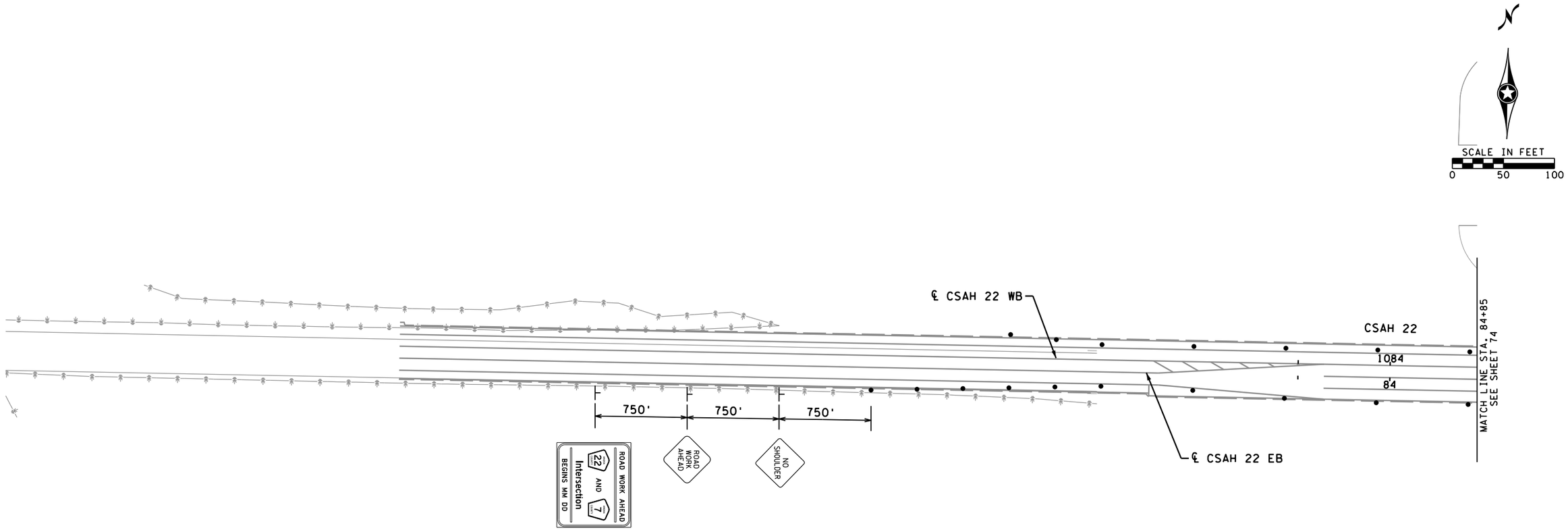
ANOKA COUNTY, MINNESOTA
STAGE 3
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET 72 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:04 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tc300.dgn

CSAH 22



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WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tc400.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J SHOMION, PE

Michael Shomion

DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

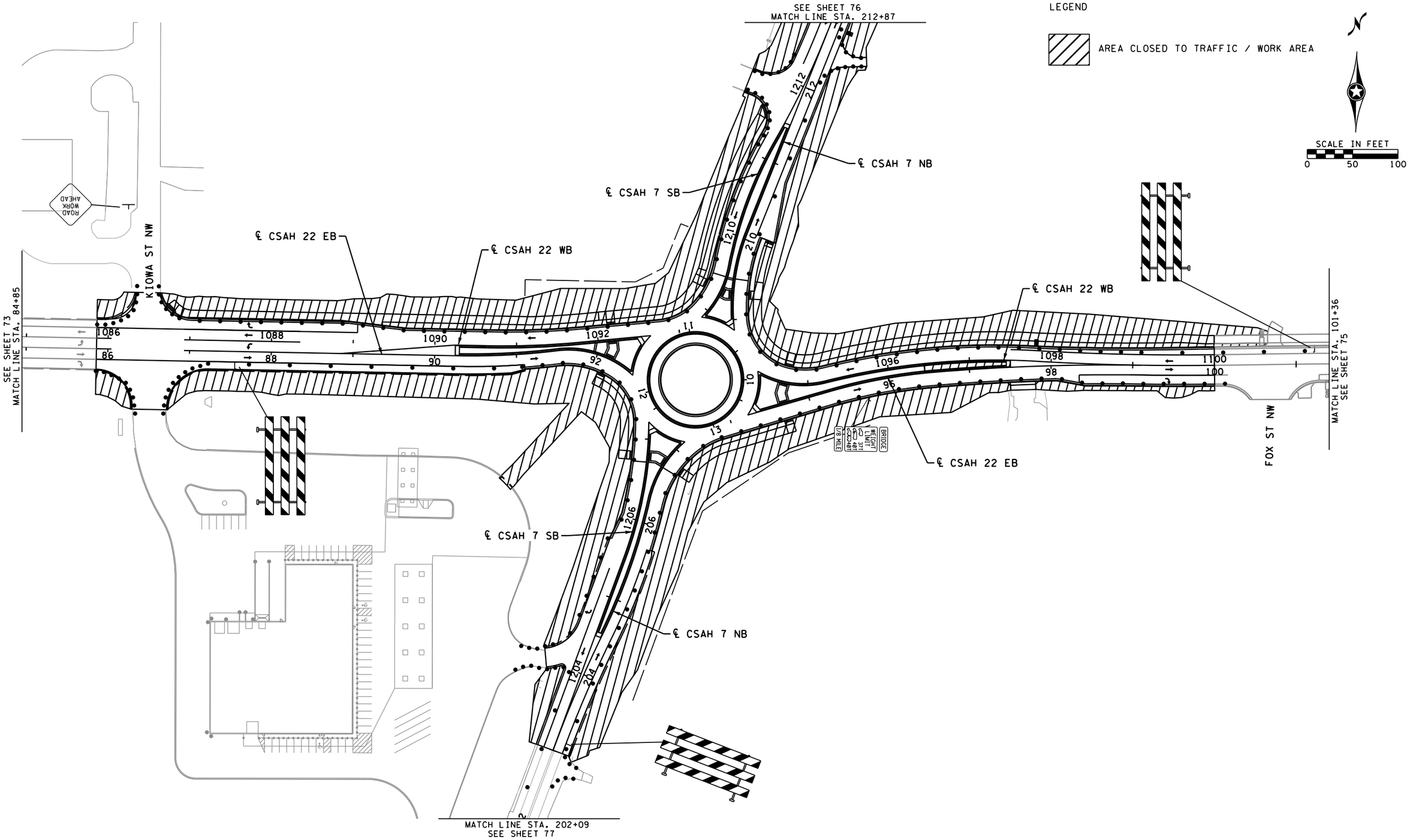
STAGE 4

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **73** OF **133** SHEETS

CSAH 22 at CSAH 7



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J. SHOMION, PE

Michael Shomion

DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 4

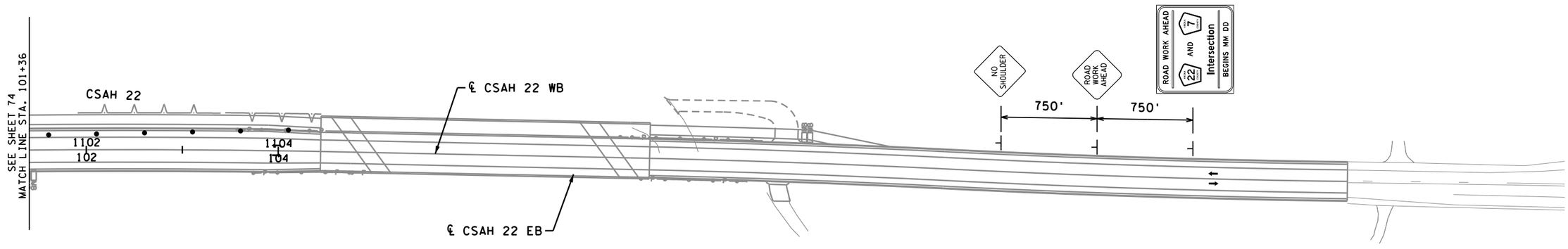
TEMPORARY TRAFFIC CONTROL PLAN

SP 002-622-041, SP 223-020-009

SHEET **74** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:20 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan2\150-000_tc400.dgn



SCALE IN FEET
0 50 100

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J. SHOMION, PE
Michael Shomion
DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
STAGE 4
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

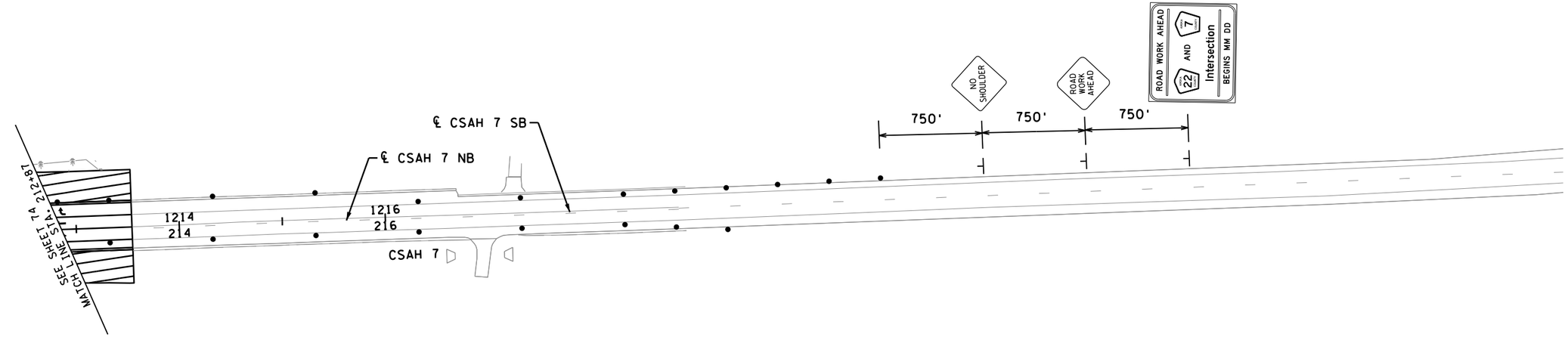
SHEET **75** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:24 PM
WSB PATH & FILENAME: Projects\Minnesota\022\150-000\Cad\Plan\2\150-000_tc400.dgn

LEGEND

AREA CLOSED TO TRAFFIC / WORK AREA

SCALE IN FEET
0 50 100



NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J. SHOMION, PE
DATE 2/7/2024 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
STAGE 4
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET **76** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:29 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\21\50-000_tc400.dgn

PLOTTED/REVISED: 2/7/2024 3:29:34 PM

SCALE IN FEET
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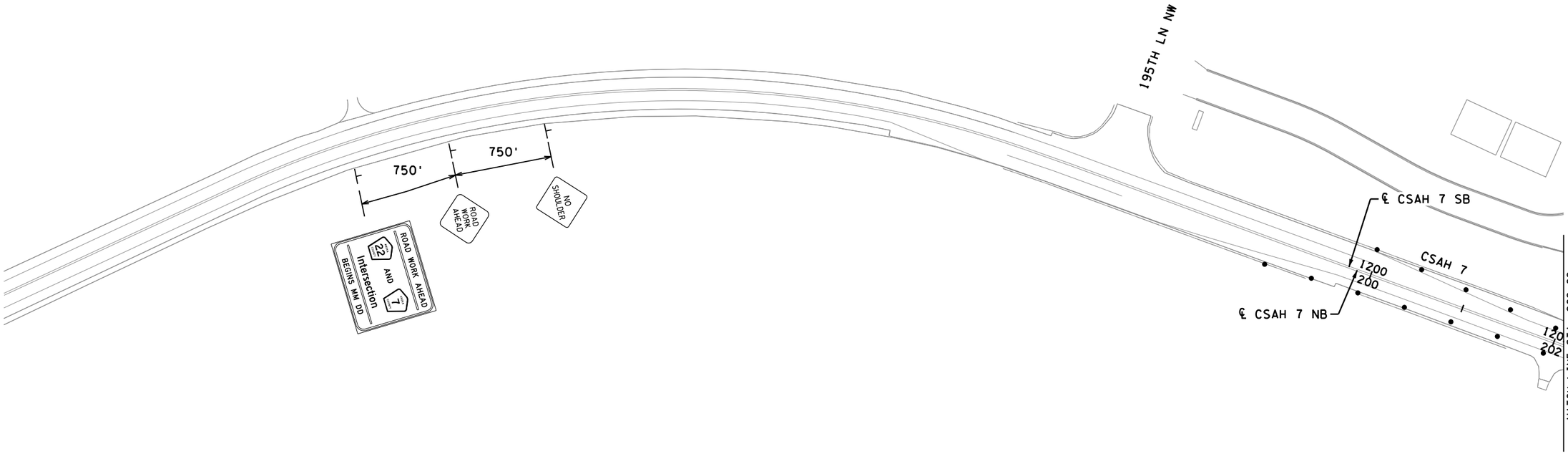

NO.	DATE	BY	CHK	REVISIONS

Design By: GHP
Plan By: GHP
Checked By: MJS
Approved By: MJS

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PRINT NAME: MICHAEL J. SHOMION, PE
Michael Shomion
DATE 2/7/2024 LICENSE # 50488

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ANOKA COUNTY

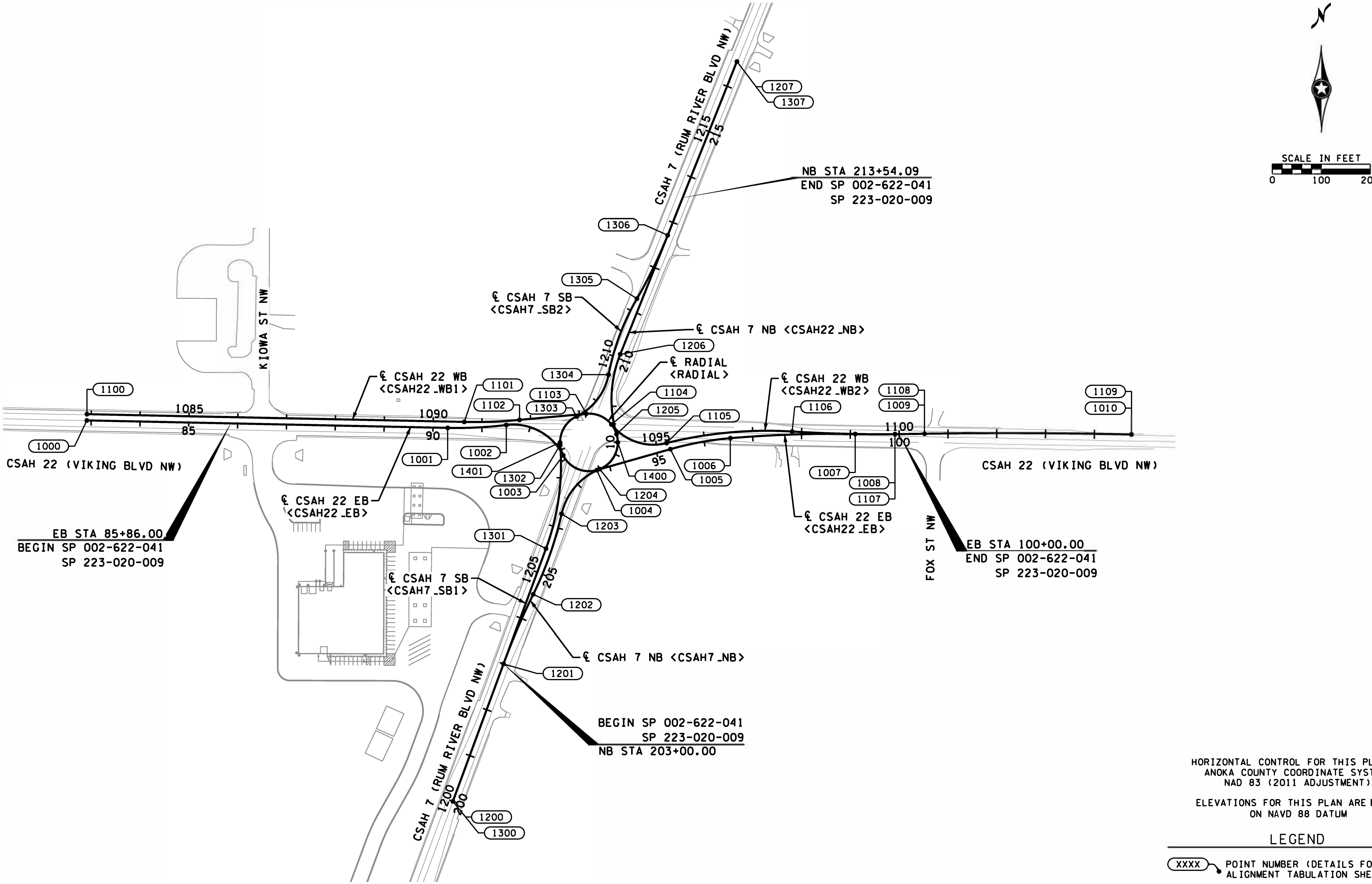
CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
STAGE 4
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-622-041, SP 223-020-009

SHEET 77 OF 133 SHEETS

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_tc400.dgn

CSAH 22 at CSAH 7



HORIZONTAL CONTROL FOR THIS PLAN IS
ANOKA COUNTY COORDINATE SYSTEM,
NAD 83 (2011 ADJUSTMENT)

ELEVATIONS FOR THIS PLAN ARE BASED
ON NAVD 88 DATUM

LEGEND

(XXXX) POINT NUMBER (DETAILS FOUND ON ALIGNMENT TABULATION SHEETS)

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOWMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN & TABULATION

SP 002-622-041, SP 223-020-009

SHEET **78** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:40 PM

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PLOTTED/REVISED: 2/7/2024 3:29:45 PM

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ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		CSAH 22 EB <CSAH22_EB>								
1000	POT	82+91.17						470,381.084	206,618.727	
1001	PC	90+30.181						471,119.941	206,603.492	S 88° 49' 07.4" E
	PI	90+90.380	8° 06' 07.6" LT	6° 44' 26.4"	850.000'	60.199'	120.197'	471,180.127	206,602.251	PI
	CC							471,137.465	207,453.311	
1002	PRC	91+50.378						471,239.888	206,609.505	N 83° 04' 45.0" E
	PRC	91+50.378						471,239.888	206,609.505	N 83° 04' 45.0" E
	PI	92+31.089	70° 07' 30.5" RT	49° 49' 20.7"	115.000'	80.711'	140.750'	471,320.011	206,619.230	PI
	CC							471,253.745	206,495.343	
1003	PRC	92+91.128						471,356.396	206,547.186	S 26° 47' 44.5" E
	PRC	92+91.128						471,356.396	206,547.186	S 26° 47' 44.5" E
	PI	93+39.853	79° 06' 13.0" LT	97° 06' 41.4"	59.000'	48.726'	81.457'	471,378.362	206,503.692	PI
	CC							471,409.061	206,573.784	
1004	PT	93+72.584						471,425.224	206,517.041	N 74° 06' 02.4" E
1005	PC	95+29.102						471,575.754	206,559.918	N 74° 06' 02.4" E
	PI	95+91.900	11° 02' 12.1" RT	8° 48' 53.0"	650.000'	62.798'	125.207'	471,636.150	206,577.122	PI
	CC							471,753.820	205,934.784	
1006	PCC	96+54.310						471,698.722	206,582.445	N 85° 08' 14.5" E
	PCC	96+54.310						471,698.722	206,582.445	N 85° 08' 14.5" E
	PI	97+82.307	5° 51' 42.7" RT	2° 17' 30.6"	2,500.000'	127.998'	255.772'	471,826.259	206,593.295	PI
	CC							471,910.639	204,091.443	
1007	PRC	99+10.082						471,954.237	206,591.063	S 89° 00' 02.8" E
	PRC	99+10.082						471,954.237	206,591.063	S 89° 00' 02.8" E
	PI	99+50.801	1° 33' 18.9" LT	1° 54' 35.5"	3,000.000'	40.719'	81.433'	471,994.950	206,590.353	PI
	CC							472,006.554	209,590.607	
1008	PCC	99+91.515						472,035.667	206,590.748	N 89° 26' 38.3" E
	PCC	99+91.515						472,035.667	206,590.748	N 89° 26' 38.3" E
	PI	100+21.772	0° 18' 09.3" LT	0° 30' 00.0"	11,459.000'	30.258'	60.515'	472,065.923	206,591.041	PI
	CC							471,924.464	218,049.208	
1009	PRC	100+52.030						472,096.177	206,591.495	N 89° 08' 29.0" E
	PRC	100+52.030						472,096.177	206,591.495	N 89° 08' 29.0" E
	PI	102+63.978	2° 07' 09.4" RT	0° 30' 00.0"	11,459.000'	211.948'	423.847'	472,308.101	206,594.671	PI
	CC							472,267.889	195,133.781	
1010	PT	104+75.877						472,519.997	206,590.008	S 88° 44' 21.6" E
		CSAH 22 WB <CSAH22_WB1>								
1100	POT	1082+91.11						470,381.352	206,631.724	
1101	PC	1090+63.848						471,153.926	206,615.794	S 88° 49' 07.4" E
	PI	1091+20.445	6° 28' 43.1" LT	5° 43' 46.5"	1,000.000'	56.597'	113.074'	471,210.512	206,614.627	PI
	CC							471,174.542	207,615.581	
1102	PT	1091+76.922						471,266.867	206,619.852	N 84° 42' 09.5" E
1103	POT	1093+14.26						471,403.614	206,632.532	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		CSAH 22 WB <CSAH22_WB2>								
1104	PC	1093+95.823						471,455.211	206,610.542	S 38° 32' 13.5" E
	PI	1094+66.547	65° 28' 41.3" LT	52° 05' 13.5"	110.000'	70.725'	125.709'	471,499.274	206,555.221	PI
	CC							471,541.253	206,679.074	
1105	PRC	1095+21.531						471,567.893	206,572.349	N 75° 59' 05.2" E
	PRC	1095+21.531						471,567.893	206,572.349	N 75° 59' 05.2" E
	PI	1096+52.222	17° 28' 55.1" RT	6° 44' 26.4"	850.000'	130.691'	259.350'	471,694.693	206,603.999	PI
	CC							471,773.746	205,747.652	
1106	PRC	1097+80.882						471,825.145	206,596.096	S 86° 31' 59.6" E
	PRC	1097+80.882						471,825.145	206,596.096	S 86° 31' 59.6" E
	PI	1098+86.242	4° 01' 22.1" LT	1° 54' 35.5"	3,000.000'	105.360'	210.633'	471,930.312	206,589.725	PI
	CC							472,006.554	209,590.607	
1107	PCC	1099+91.515						472,035.667	206,590.748	N 89° 26' 38.3" E
	PCC	1099+91.515						472,035.667	206,590.748	N 89° 26' 38.3" E
	PI	1100+21.772	0° 18' 09.3" LT	0° 30' 00.0"	11,459.000'	30.258'	60.515'	472,065.923	206,591.041	PI
	CC							471,924.464	218,049.208	
1108	PRC	1100+52.030						472,096.177	206,591.495	N 89° 08' 29.0" E
	PRC	1100+52.030						472,096.177	206,591.495	N 89° 08' 29.0" E
	PI	1102+63.978	2° 07' 09.4" RT	0° 30' 00.0"	11,459.000'	211.948'	423.847'	472,308.101	206,594.671	PI
	CC							472,267.889	195,133.781	
1109	PT	1104+75.877						472,519.997	206,590.008	S 88° 44' 21.6" E
		CSAH 7 NB <CSAH7_NB>								
1200	POT	200+00.00						471,130.508	205,838.739	
1201	PC	203+00.000						471,234.175	206,120.258	N 20° 12' 57.0" E
	PI	203+77.477	5° 54' 48.9" RT	3° 49' 11.0"	1,500.000'	77.477'	154.817'	471,260.948	206,192.962	PI
	CC							472,641.771	205,601.921	
1202	PRC	204+54.817						471,295.069	206,262.522	N 26° 07' 45.9" E
	PRC	204+54.817						471,295.069	206,262.522	N 26° 07' 45.9" E
	PI	205+42.786	13° 22' 46.2" LT	7° 38' 22.0"	750.000'	87.969'	175.137'	471,333.810	206,341.500	PI
	CC							470,621.718	206,592.822	
1203	PRC	206+29.955						471,353.225	206,427.300	N 12° 44' 59.7" E
	PRC	206+29.955						471,353.225	206,427.300	N 12° 44' 59.7" E
	PI	206+97.915	55° 11' 54.5" RT	44° 04' 25.2"	130.000'	67.960'	125.241'	471,368.223	206,493.585	PI
	CC							471,480.019	206,398.610	
1204	PRC	207+55.196						471,431.212	206,519.100	N 67° 56' 54.2" E
	PRC	207+55.196						471,431.212	206,519.100	N 67° 56' 54.2" E
	PI	208+08.758	84° 28' 04.1" LT	97° 06' 41.4"	59.000'	53.562'	86.980'	471,480.855	206,539.209	PI
	CC							471,409.061	206,573.784	
1205	PRC	208+42.176						471,465.626	206,590.560	N 16° 31' 09.9" W
	PRC	208+42.176						471,465.626	206,590.560	N 16° 31' 09.9" W
	PI	209+28.898	38° 15' 43.0" RT	22° 55' 05.9"	250.000'	86.722'	166.949'	471,440.967	206,673.702	PI
	CC							471,705.306	206,661.645	
1206	PT	210+09.126						471,473.092	206,754.254	N 21° 44' 33.0" E
1207	POT	216+54.09						471,712.009	207,353.331	

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN & TABULATION

SP 002-622-041, SP 223-020-009

SHEET 79 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:46 PM

WSB PATH & FILENAME: P:\Projects\Minnesota\002\150-000\Civil\Plan\2\150-000_a002-04_tabulations.dgn

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		CSAH 7 SB <CSAH7_SB1>								
1300	POT	1200+00.00						471,130.508	205,838.739	
1301	PC	1205+51.429						471,321.058	206,356.198	N 20° 12' 57.0" E
	PI	1206+61.422	24° 48' 47.8" LT	11° 27' 33.0"	500.000'	109.993'	216.537'	471,359.067	206,459.415	PI
	CC							470,851.859	206,528.977	
1302	PT	1207+67.966						471,350.251	206,569.054	N 4° 35' 50.8" W
		CSAH 7 SB <CSAH7_SB2>								
1303	PC	1208+48.245						471,383.462	206,626.941	N 64° 17' 11.7" E
	PI	1209+08.619	53° 24' 54.0" LT	47° 44' 47.3"	120.000'	60.373'	111.872'	471,437.857	206,653.135	PI
	CC							471,331.398	206,735.058	
1304	PRC	1209+60.117						471,449.244	206,712.425	N 10° 52' 17.7" E
	PRC	1209+60.117						471,449.244	206,712.425	N 10° 52' 17.7" E
	PI	1210+44.457	19° 08' 56.7" RT	11° 27' 33.0"	500.000'	84.340'	167.107'	471,465.152	206,795.252	PI
	CC							471,940.271	206,618.121	
1305	PRC	1211+27.225						471,507.348	206,868.277	N 30° 01' 14.4" E
	PRC	1211+27.225						471,507.348	206,868.277	N 30° 01' 14.4" E
	PI	1211+99.591	8° 16' 41.3" LT	5° 43' 46.5"	1,000.000'	72.366'	144.481'	471,543.554	206,930.935	PI
	CC							470,641.503	207,368.589	
1306	PT	1212+71.706						471,570.361	206,998.153	N 21° 44' 33.0" E
1307	POT	1216+54.09						471,712.009	207,353.331	
		RADIAL <RADIAL>								
	POT	8+00.00						471,468.061	206,373.784	
1400	PC	10+00.000						471,468.061	206,573.784	Due North
	CC							471,409.061	206,573.784	
1401	PCC	11+85.354						471,350.061	206,573.784	Due South
	PCC	11+85.354						471,350.061	206,573.784	Due South
	CC							471,409.061	206,573.784	
1400	PT	13+70.708						471,468.061	206,573.784	Due North
	POT	15+70.71						471,468.061	206,773.784	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		NORTHWEST QUADRANT <Q_NW>								
	PC	20+00.000						471,189.932	206,632.421	N 89° 37' 03.9" E
	PI	20+42.232	4° 54' 54.3" LT	5° 49' 21.9"	984.000'	42.232'	84.412'	471,232.163	206,632.703	PI
	CC							471,183.367	207,616.399	
	PT	20+84.412						471,274.215	206,636.602	N 84° 42' 09.5" E
	PC	21+75.159						471,364.574	206,644.980	N 84° 42' 09.5" E
	PI	21+99.864	40° 28' 50.9" LT	85° 30' 57.9"	67.000'	24.705'	47.337'	471,389.173	206,647.261	PI
	CC							471,358.388	206,711.694	
	PCC	22+22.496						471,406.403	206,664.966	N 44° 13' 18.6" E
	PCC	22+22.496						471,406.403	206,664.966	N 44° 13' 18.6" E
	PI	22+53.421	33° 07' 13.6" LT	55° 05' 31.5"	104.000'	30.925'	60.118'	471,427.971	206,687.128	PI
	CC							471,331.872	206,737.499	
	PRC	22+82.614						471,433.926	206,717.475	N 11° 06' 05.0" E
	PRC	22+82.614						471,433.926	206,717.475	N 11° 06' 05.0" E
	PI	23+02.168	4° 20' 25.4" RT	11° 06' 13.8"	516.000'	19.554'	39.089'	471,437.691	206,736.663	PI
	CC							471,940.271	206,618.121	
	PT	23+21.703						471,442.897	206,755.511	N 15° 26' 30.5" E
		NORTHEAST QUADRANT <Q_NE>								
	PC	30+00.000						471,642.367	206,603.628	S 81° 16' 26.8" W
	PI	30+39.008	5° 09' 29.5" LT	6° 36' 58.1"	866.000'	39.008'	77.964'	471,603.810	206,597.710	PI
	CC							471,773.746	205,747.652	
	PRC	30+77.964						471,565.942	206,588.350	S 76° 06' 57.2" W
	PRC	30+77.964						471,565.942	206,588.350	S 76° 06' 57.2" W
	PI	30+98.157	24° 14' 54.2" RT	60° 57' 10.6"	94.000'	20.193'	39.782'	471,546.338	206,583.504	PI
	CC							471,543.385	206,679.604	
	PCC	31+17.746						471,526.474	206,587.137	N 79° 38' 08.5" W
	PCC	31+17.746						471,526.474	206,587.137	N 79° 38' 08.5" W
	PI	31+70.739	76° 41' 01.2" RT	85° 30' 57.9"	67.000'	52.993'	89.672'	471,474.346	206,596.671	PI
	CC							471,538.528	206,653.044	
	PCC	32+07.418						471,471.617	206,649.594	N 2° 57' 07.4" W
	PCC	32+07.418						471,471.617	206,649.594	N 2° 57' 07.4" W
	PI	32+54.182	22° 36' 11.3" RT	24° 29' 07.4"	234.000'	46.764'	92.313'	471,469.208	206,696.296	PI
	CC							471,705.306	206,661.645	
	PT	32+99.731						471,484.935	206,740.337	N 19° 39' 03.9" E

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN & TABULATION

SP 002-622-041, SP 223-020-009

SHEET 80 OF 133 SHEETS

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		SOUTHEAST QUADRANT <Q_SE>								
	PC	39+99.928						471,361.484	206,394.072	N 15° 02' 17.8" E
	PI	40+12.816	1° 55' 40.2" LT	7° 28' 47.5"	766.000'	12.888'	25.774'	471,364.828	206,406.519	PI
	CC							470,621.718	206,592.822	
	PRC	40+25.702						471,367.752	206,419.071	N 13° 06' 37.6" E
	PRC	40+25.702						471,367.752	206,419.071	N 13° 06' 37.6" E
	PI	40+79.461	48° 15' 52.5" RT	47° 44' 47.3"	120.000'	53.760'	101.085'	471,379.946	206,471.430	PI
	CC							471,484.624	206,391.852	
	PCC	41+26.787						471,427.135	206,497.185	N 61° 22' 30.1" E
	PCC	41+26.787						471,427.135	206,497.185	N 61° 22' 30.1" E
	PI	41+34.336	11° 58' 15.5" RT	79° 34' 38.9"	72.000'	7.549'	15.043'	471,433.761	206,500.801	PI
	CC							471,461.628	206,433.985	
	PT	41+41.830						471,440.994	206,502.965	N 73° 20' 45.6" E
	PC	42+78.699						471,572.121	206,542.190	N 73° 20' 45.6" E
	PI	43+17.499	7° 00' 14.7" RT	9° 02' 13.9"	634.000'	38.800'	77.503'	471,609.294	206,553.310	PI
	CC							471,753.820	205,934.784	
	PT	43+56.202						471,647.544	206,559.814	N 80° 21' 00.4" E
		SOUTHWEST QUADRANT <Q_SW>								
	PC	50+00.000						471,200.097	206,589.579	N 85° 51' 09.1" E
	PI	50+20.009	2° 38' 49.6" LT	6° 36' 58.1"	866.000'	20.009'	40.010'	471,220.054	206,591.026	PI
	CC							471,137.465	207,453.311	
	PRC	50+40.010						471,239.922	206,593.393	N 83° 12' 19.4" E
	PRC	50+40.010						471,239.922	206,593.393	N 83° 12' 19.4" E
	PI	50+75.302	39° 14' 27.5" RT	57° 52' 28.3"	99.000'	35.292'	67.804'	471,274.966	206,597.569	PI
	CC							471,251.634	206,495.089	
	PCC	51+07.813						471,304.749	206,578.634	S 57° 33' 13.0" E
	PCC	51+07.813						471,304.749	206,578.634	S 57° 33' 13.0" E
	PI	51+45.335	58° 29' 58.3" RT	85° 30' 57.9"	67.000'	37.521'	68.408'	471,336.413	206,558.504	PI
	CC							471,268.803	206,522.093	
	PCC	51+76.221						471,335.793	206,520.987	S 0° 56' 45.2" W
	PCC	51+76.221						471,335.793	206,520.987	S 0° 56' 45.2" W
	PI	52+32.554	13° 16' 39.8" RT	11° 50' 16.7"	484.000'	56.333'	112.162'	471,334.864	206,464.662	PI
	CC							470,851.859	206,528.977	
	PT	52+88.383						471,321.022	206,410.055	S 14° 13' 25.0" W

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

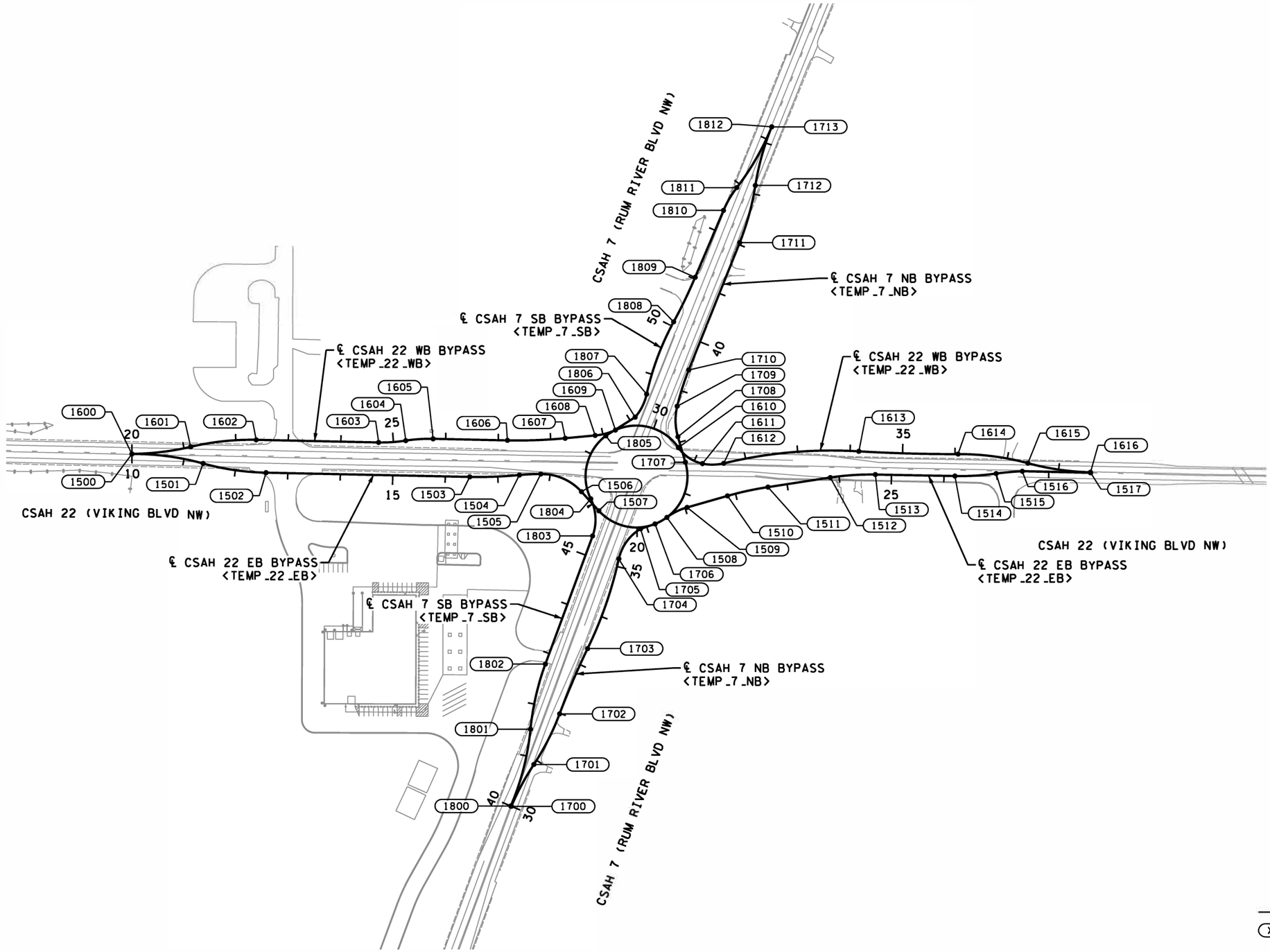
CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN & TABULATION
SP 002-622-041, SP 223-020-009

SHEET 81 OF 133 SHEETS

CSAH 22 at CSAH 7 Temporary Bypass



HORIZONTAL CONTROL FOR THIS PLAN IS
ANOKA COUNTY COORDINATE SYSTEM,
NAD 83 (2011 ADJUSTMENT)

ELEVATIONS FOR THIS PLAN ARE BASED
ON NAVD 88 DATUM

LEGEND

XXXX — POINT NUMBER (DETAILS FOUND ON ALIGNMENT TABULATION SHEETS)

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
TEMPORARY BYPASS
ALIGNMENT PLAN & TABULATION
SP 002-622-041, SP 223-020-009

SHEET **82** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:54 PM

WSB PATH & FILENAME: P:\Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_alt05_bypass.dgn

PLOTTED/REVISED: 2/7/2024 3:29:58 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Civil\Plan\20150-000_a106-07_bypass_tabulations.dgn

ALIGNMENT TABULATION

CSAH 22 EB BYPASS <TEMP_22_EB>

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
1500	PC	10+00.000						470,448.165	206,616.657	N 89° 43' 17.1" E
	PI	10+69.092	15° 44' 06.1" RT	11° 27' 33.0"	500.000'	69.092'	137.314'	470,517.256	206,616.993	PI
	CC							470,450.596	206,116.663	
1501	PRC	11+37.314						470,583.849	206,598.580	S 74° 32' 36.8" E
	PRC	11+37.314						470,583.849	206,598.580	S 74° 32' 36.8" E
	PI	11+98.298	14° 16' 30.6" LT	11° 45' 54.2"	487.000'	60.983'	121.335'	470,642.627	206,582.327	PI
	CC							470,713.637	207,067.967	
1502	PT	12+58.649						470,703.597	206,581.070	S 88° 49' 07.4" E
1503	PC	16+46.661						471,091.526	206,573.071	S 88° 49' 07.4" E
	PI	16+93.985	6° 29' 15.8" LT	6° 51' 42.4"	835.000'	47.325'	94.549'	471,138.841	206,572.095	PI
	CC							471,108.740	207,407.894	
1504	PRC	17+41.209						471,185.963	206,576.472	N 84° 41' 36.8" E
	PRC	17+41.209						471,185.963	206,576.472	N 84° 41' 36.8" E
	PI	17+61.719	4° 42' 25.8" RT	11° 28' 55.6"	499.000'	20.509'	40.996'	471,206.385	206,578.369	PI
	CC							471,232.112	206,079.611	
1505	PCC	17+82.205						471,226.893	206,578.583	N 89° 24' 02.6" E
	PCC	17+82.205						471,226.893	206,578.583	N 89° 24' 02.6" E
	PI	18+28.353	48° 16' 06.9" RT	55° 37' 37.1"	103.000'	46.148'	86.772'	471,273.038	206,579.066	PI
	CC							471,227.970	206,475.589	
1506	PT	18+68.977						471,304.115	206,544.950	S 42° 19' 50.5" E
1507	PC	19+18.333						471,337.352	206,508.463	S 42° 19' 50.5" E
	PI	20+06.074	84° 15' 43.8" LT	59° 04' 04.1"	97.000'	87.742'	142.653'	471,396.438	206,443.598	PI
	CC							471,409.061	206,573.784	
1508	PRC	20+60.986						471,466.885	206,495.903	N 53° 24' 25.7" E
	PRC	20+60.986						471,466.885	206,495.903	N 53° 24' 25.7" E
	PI	20+82.895	20° 41' 36.7" RT	47° 44' 47.3"	120.000'	21.909'	43.340'	471,484.475	206,508.963	PI
	CC							471,538.420	206,399.556	
1509	PT	21+04.326						471,505.546	206,514.965	N 74° 06' 02.4" E
1510	PC	21+84.163						471,582.329	206,536.837	N 74° 06' 02.4" E
	PI	22+23.661	7° 13' 14.1" RT	9° 09' 09.6"	626.000'	39.497'	78.890'	471,620.315	206,547.657	PI
	CC							471,753.820	205,934.784	
1511	PT	22+63.053						471,659.360	206,553.617	N 81° 19' 16.5" E
1512	PC	23+83.229						471,778.160	206,571.750	N 81° 19' 16.5" E
	PI	24+26.391	9° 39' 22.4" RT	11° 12' 44.9"	511.000'	43.162'	86.120'	471,820.828	206,578.263	PI
	CC							471,855.266	206,066.601	
1513	PT	24+69.349						471,863.984	206,577.527	S 89° 01' 21.1" E
1514	PC	26+20.927						472,015.535	206,574.651	S 88° 54' 45.9" E
	PI	26+60.320	9° 00' 34.3" LT	11° 27' 33.0"	500.000'	39.393'	78.623'	472,054.920	206,573.903	PI
	CC							472,025.022	207,074.561	
1515	PRC	26+99.550						472,093.937	206,579.333	N 82° 04' 39.7" E
	PRC	26+99.550						472,093.937	206,579.333	N 82° 04' 39.7" E
	PI	27+24.558	5° 43' 36.0" RT	11° 27' 33.2"	499.997'	25.008'	49.974'	472,118.707	206,582.780	PI
	CC							472,162.852	206,084.108	
1516	PT	27+49.525						472,143.696	206,583.738	N 87° 48' 15.8" E
1517	POT	28+79.66						472,273.798	206,580.763	

ALIGNMENT TABULATION

CSAH 22 WB BYPASS <TEMP_22_WB>

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
1600	PC	20+00.000						470,448.163	206,617.041	N 89° 43' 17.1" E
	PI	20+56.753	12° 57' 04.9" LT	11° 27' 33.0"	500.000'	56.753'	113.022'	470,504.915	206,617.316	PI
	CC							470,445.732	207,117.035	
1601	PRC	21+13.022						470,560.162	206,630.305	N 76° 46' 12.1" E
	PRC	21+13.022						470,560.162	206,630.305	N 76° 46' 12.1" E
	PI	21+76.237	14° 24' 40.5" RT	11° 27' 33.0"	500.000'	63.215'	125.762'	470,621.699	206,644.772	PI
	CC							470,674.592	206,143.575	
1602	PT	22+38.784						470,684.900	206,643.469	S 88° 49' 07.4" E
1603	PC	24+71.954						470,918.021	206,638.662	S 88° 49' 07.4" E
	PI	24+97.946	9° 56' 10.9" LT	19° 09' 44.9"	299.000'	25.992'	51.853'	470,944.007	206,638.126	PI
	CC							470,924.185	206,937.598	
1604	PRC	25+23.807						470,969.696	206,642.082	N 81° 14' 41.7" E
	PRC	25+23.807						470,969.696	206,642.082	N 81° 14' 41.7" E
	PI	25+49.973	9° 56' 10.9" RT	19° 02' 06.5"	301.000'	26.166'	52.200'	470,995.557	206,646.065	PI
	CC							471,015.511	206,344.590	
1605	PT	25+76.008						471,021.717	206,645.526	S 88° 49' 07.4" E
1606	PC	27+17.608						471,163.287	206,642.606	S 88° 49' 07.4" E
	PI	27+72.734	6° 28' 43.1" LT	5° 52' 57.1"	974.000'	55.126'	110.134'	471,218.401	206,641.470	PI
	CC							471,183.367	207,616.399	
1607	PT	28+27.742						471,273.291	206,646.559	N 84° 42' 09.5" E
1608	PC	28+85.051						471,330.355	206,651.851	N 84° 42' 09.5" E
	PI	29+05.286	19° 08' 36.4" LT	47° 44' 47.3"	120.000'	20.236'	40.094'	471,350.505	206,653.719	PI
	CC							471,319.276	206,771.338	
1609	PRC	29+25.145						471,368.927	206,662.091	N 65° 33' 33.1" E
	PRC	29+25.145						471,368.927	206,662.091	N 65° 33' 33.1" E
	PI	30+06.175	79° 44' 55.1" RT	59° 04' 04.1"	97.000'	81.031'	135.012'	471,442.696	206,695.618	PI
	CC							471,409.061	206,573.784	
1610	PRC	30+60.157						471,488.816	206,628.993	S 34° 41' 31.8" E
	PRC	30+60.157						471,488.816	206,628.993	S 34° 41' 31.8" E
	PI	30+89.808	43° 08' 34.2" LT	76° 23' 39.7"	75.000'	29.651'	56.474'	471,505.693	206,604.613	PI
	CC							471,550.483	206,671.680	
1611	PCC	31+16.631						471,534.678	206,598.364	S 77° 50' 06.1" E
	PCC	31+16.631						471,534.678	206,598.364	S 77° 50' 06.1" E
	PI	31+37.403	25° 43' 03.3" LT	62° 57' 44.6"	91.000'	20.773'	40.846'	471,554.985	206,593.987	PI
	CC							471,553.855	206,687.321	
1612	PRC	31+57.476						471,575.179	206,598.855	N 76° 26' 50.7" E
	PRC	31+57.476						471,575.179	206,598.855	N 76° 26' 50.7" E
	PI	32+88.041	16° 57' 16.6" RT	6° 32' 26.2"	876.000'	130.564'	259.220'	471,702.108	206,629.451	PI
	CC							471,780.459	205,747.247	
1613	PRC	34+16.697						471,832.442	206,621.703	S 86° 35' 52.7" E
	PRC	34+16.697						471,832.442	206,621.703	S 86° 35' 52.7" E
	PI	35+11.254	3° 38' 31.8" LT	1° 55' 35.6"	2,974.000'	94.557'	189.050'	471,926.833	206,616.092	PI
	CC							472,008.924	209,590.462	
1614	PRC	36+05.747						472,021.389	206,616.488	N 89° 45' 35.5" E

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TEMPORARY BYPASS

SP 002-622-041, SP 223-020-009

SHEET 83 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:29:59 PM

WSB PATH & FILENAME: P:\Projects\Minnesota\002\150-000\Cad\Plan\2\150-000_a06-07_bypass_tabulations.dgn

ALIGNMENT TABULATION

CSAH 22 WB BYPASS <TEMP_22_WB> (CONTINUED)

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
	PRC	36+05.747						472,021.389	206,616.488	N 89° 45' 35.5" E
	PI	36+73.482	15° 23' 57.1" RT	11° 26' 10.6"	501.000'	67.734'	134.652'	472,089.123	206,616.772	PI
	CC							472,023.489	206,115.493	
1615	PRC	37+40.399						472,154.500	206,599.060	S 74° 50' 27.4" E
	PRC	37+40.399						472,154.500	206,599.060	S 74° 50' 27.4" E
	PI	38+01.125	13° 50' 57.6" LT	11° 27' 33.0"	500.000'	60.725'	120.858'	472,213.112	206,583.180	PI
	CC							472,285.250	207,081.662	
1616	PT	38+61.258						472,273.821	206,581.792	S 88° 41' 25.1" E

CSAH 7 NB BYPASS <TEMP_7_NB>

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
1700	PC	30+00.000						471,170.773	205,946.311	N 23° 03' 13.5" E
	PI	30+45.319	10° 21' 28.9" RT	11° 27' 33.0"	500.000'	45.319'	90.391'	471,188.519	205,988.011	PI
	CC							471,630.842	205,750.514	
1701	PRC	30+90.391						471,213.474	206,025.840	N 33° 24' 42.4" E
	PRC	30+90.391						471,213.474	206,025.840	N 33° 24' 42.4" E
	PI	31+44.782	12° 44' 43.6" LT	11° 45' 54.2"	487.000'	54.391'	108.333'	471,243.425	206,071.242	PI
	CC							470,806.959	206,294.008	
1702	PRC	31+98.724						471,262.621	206,122.133	N 20° 39' 58.8" E
	PRC	31+98.724						471,262.621	206,122.133	N 20° 39' 58.8" E
	PI	32+66.242	5° 14' 43.0" RT	3° 53' 13.5"	1,474.000'	67.518'	134.941'	471,286.450	206,185.306	PI
	CC							472,641.771	205,601.921	
1703	PRC	33+33.665						471,315.954	206,246.036	N 25° 54' 41.8" E
	PRC	33+33.665						471,315.954	206,246.036	N 25° 54' 41.8" E
	PI	34+24.759	13° 25' 29.6" LT	7° 24' 09.2"	774.000'	91.094'	181.355'	471,355.761	206,327.973	PI
	CC							470,619.765	206,584.262	
1704	PRC	35+15.020						471,375.456	206,416.913	N 12° 29' 12.3" E
	PRC	35+15.020						471,375.456	206,416.913	N 12° 29' 12.3" E
	PI	35+53.508	46° 46' 21.3" RT	64° 22' 38.2"	89.000'	38.488'	72.654'	471,383.778	206,454.491	PI
	CC							471,462.351	206,397.670	
1705	PT	35+87.673						471,416.859	206,474.164	N 59° 15' 33.5" E
1706	PC	36+16.730						471,444.392	206,483.447	N 68° 38' 21.0" E
	PI	37+05.502	84° 55' 42.3" LT	59° 04' 04.1"	97.000'	88.773'	143.781'	471,527.067	206,515.782	PI
	CC							471,409.061	206,573.784	
1707	PT	37+60.511						471,502.167	206,600.991	N 16° 17' 21.3" W
1708	PC	38+11.068						471,487.987	206,649.518	N 16° 17' 21.3" W
	PI	38+41.150	29° 48' 52.9" RT	50° 42' 15.2"	113.000'	30.083'	58.801'	471,479.549	206,678.393	PI
	CC							471,596.450	206,681.213	
1709	PCC	38+69.869						471,486.584	206,707.641	N 13° 31' 31.7" E
	PCC	38+69.869						471,486.584	206,707.641	N 13° 31' 31.7" E
	PI	39+06.142	8° 18' 54.7" RT	11° 28' 55.6"	499.000'	36.273'	72.419'	471,495.068	206,742.908	PI
	CC							471,971.745	206,590.936	
1710	PT	39+42.288						471,508.562	206,776.578	N 21° 50' 26.3" E
1711	PC	42+04.061						471,605.949	207,019.562	N 21° 50' 26.3" E
	PI	42+60.649	12° 53' 18.2" LT	11° 26' 10.6"	501.000'	56.587'	112.697'	471,627.001	207,072.088	PI

ALIGNMENT TABULATION

CSAH 7 NB BYPASS <TEMP_7_WB> (CONTINUED)

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
	CC							471,140.910	207,205.947	
1712	PRC	43+16.759						471,635.807	207,127.986	N 8° 57' 08.1" E
	PRC	43+16.759						471,635.807	207,127.986	N 8° 57' 08.1" E
	PI	43+75.044	13° 17' 53.0" RT	11° 27' 33.0"	500.000'	58.286'	116.047'	471,644.877	207,185.561	PI
	CC							472,129.716	207,050.180	
1713	PT	44+32.806						471,666.947	207,239.507	N 22° 15' 01.2" E

CSAH 7 SB BYPASS <TEMP_7_SB>

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
1800	PC	40+00.000						471,169.702	205,946.767	N 23° 03' 13.5" E
	PI	40+76.416	17° 22' 43.6" LT	11° 27' 33.0"	500.000'	76.416'	151.658'	471,199.626	206,017.080	PI
	CC							470,709.633	206,142.564	
1801	PRC	41+51.658						471,207.183	206,093.121	N 5° 40' 29.9" E
	PRC	41+51.658						471,207.183	206,093.121	N 5° 40' 29.9" E
	PI	42+15.575	14° 32' 27.1" RT	11° 26' 10.6"	501.000'	63.917'	127.147'	471,213.503	206,156.725	PI
	CC							471,705.727	206,043.580	
1802	PT	42+78.805						471,235.590	206,216.704	N 20° 12' 57.0" E
1803	PC	45+38.826						471,325.442	206,460.708	N 20° 12' 57.0" E
	PI	45+77.229	46° 12' 57.3" LT	63° 39' 43.1"	90.000'	38.403'	72.596'	471,338.713	206,496.745	PI
	CC							471,240.986	206,491.808	
1804	PRC	46+11.422						471,321.878	206,531.261	N 26° 00' 00.3" W
	PRC	46+11.422						471,321.878	206,531.261	N 26° 00' 00.3" W
	PI	46+91.393	79° 00' 24.6" RT	59° 04' 04.1"	97.000'	79.970'	133.756'	471,286.821	206,603.138	PI
	CC							471,409.061	206,573.784	
1805	PT	47+45.178						471,350.694	206,651.258	N 53° 00' 24.2" E
1806	PC	48+11.288						471,406.466	206,686.754	N 41° 00' 43.7" E
	PI	48+36.550	28° 37' 45.2" LT	57° 52' 28.3"	99.000'	25.262'	49.468'	471,423.044	206,705.815	PI
	CC							471,331.764	206,751.719	
1807	PRC	48+60.756						471,428.461	206,730.489	N 12° 22' 58.4" E
	PRC	48+60.756						471,428.461	206,730.489	N 12° 22' 58.4" E
	PI	49+35.306	16° 11' 40.0" RT	10° 56' 03.5"	524.000'	74.550'	148.107'	471,444.448	206,803.305	PI
	CC							471,940.271	206,618.121	
1808	PRC	50+08.863						471,480.108	206,868.773	N 28° 34' 38.4" E
	PRC	50+08.863						471,480.108	206,868.773	N 28° 34' 38.4" E
	PI	50+55.967	5° 32' 56.1" LT	5° 53' 40.7"	972.000'	47.104'	94.135'	471,502.640	206,910.139	PI
	CC							470,626.525	207,333.724	
1809	PT	51+02.998						471,521.067	206,953.490	N 23° 01' 42.3" E
1810	PC	52+41.022						471,575.061	207,080.516	N 23° 01' 42.3" E
	PI	52+66.407	14° 32' 20.3" RT	28° 47' 30.7"	199.000'	25.385'	50.497'	471,584.991	207,103.877	PI
	CC							471,758.202	207,002.669	
1811	PRC	52+91.519						471,600.468	207,123.998	N 37° 34' 02.6" E
	PRC	52+91.519						471,600.468	207,123.998	N 37° 34' 02.6" E
	PI	53+58.753	15° 19' 01.4" LT	11° 27' 33.0"	500.000'	67.234'	133.667'	471,641.460	207,177.291	PI
	CC							471,204.149	207,428.845	
1812	PT	54+25.186						471,666.919	207,239.518	N 22° 15' 01.2" E

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TEMPORARY BYPASS

ALIGNMENT PLAN & TABULATION

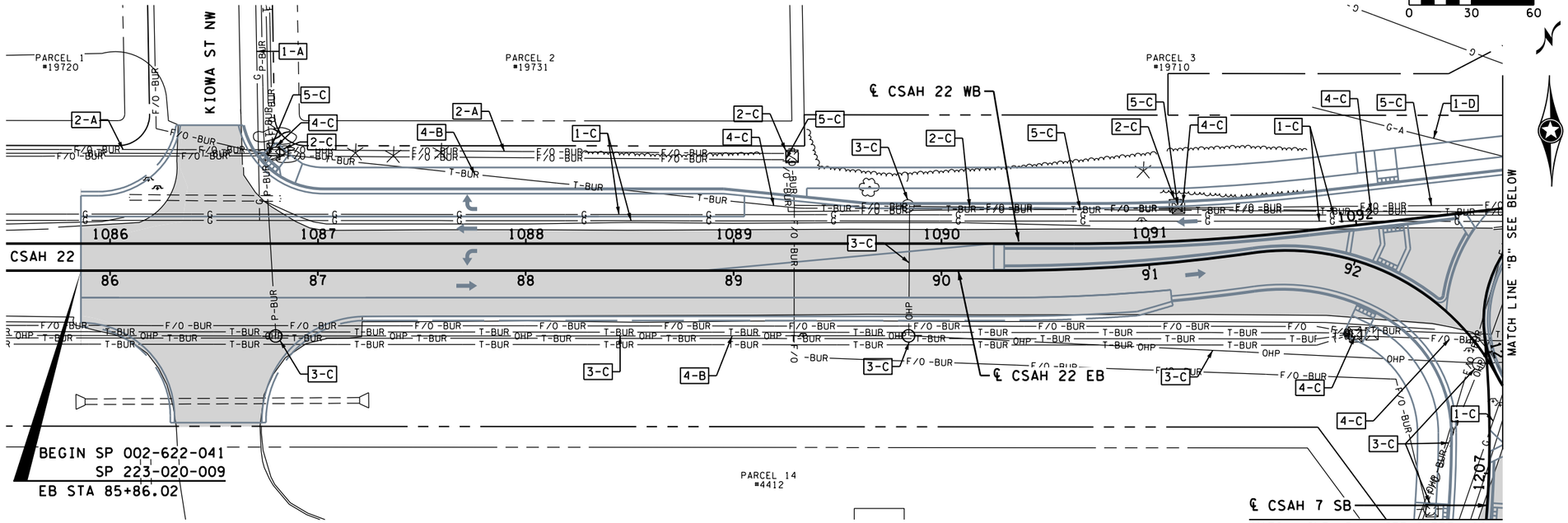
SP 002-622-041, SP 223-020-009

SHEET 84 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:30:09 PM

WSB PATH & FILENAME: I:\Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_1u01.dgn

CSAH 22



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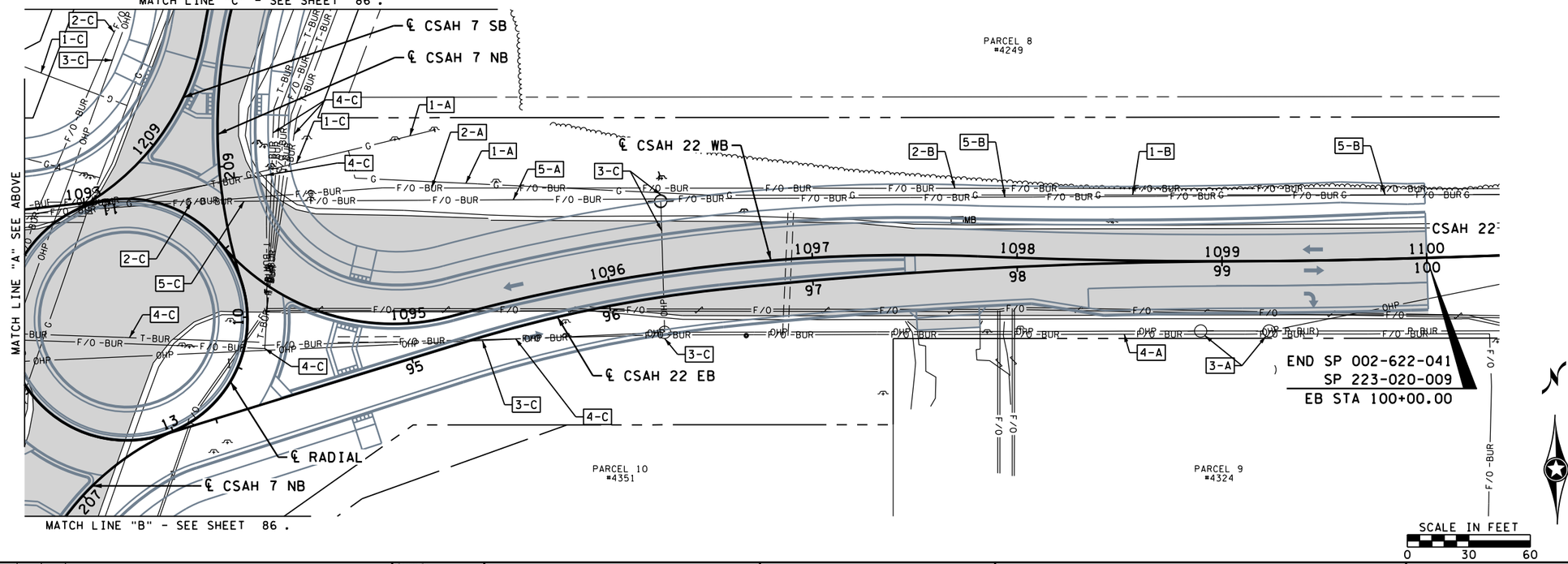

LEGEND

- T-BUR — BURIED TELEPHONE LINE
- TV-BUR — BURIED TELEVISION LINE
- OHU — OVERHEAD UTILITY LINE
- F/O -BUR — BURIED FIBER OPTIC LINE
- P-BUR — BURIED POWER LINE
- P — UTILITY IN CONDUIT
- OHP — OVERHEAD POWER LINE
- SIG-BUR — BURIED SIGNAL LINE
- G — BURIED GAS MAIN/SERVICE
- G-A — BURIED GAS - ABANDONED
- SANITARY SEWER LINE
- STORM SEWER LINE
- FORCE MAIN
- WATER MAIN

- UTILITY PEDESTAL
- HH — HANDHOLE
- POWER/UTILITY POLE
- LIGHT POLE
- CABINET
- VALVE (GAS)
- M — MANHOLE
- CATCH BASIN
- CONCRETE APRON
- HYDRANT
- GV — VALVE (WATER)
- VALVE (GAS)
- VEGETATION
- INPLACE STRUCTURE
- EXISTING GUARD RAIL
- EXISTING WATER EDGE
- BOLLARD
- RETAINING WALL
- NOISE WALL
- XC — EXISTING FENCE

- CONSTRUCTION LIMITS
- AREA OF ENVIRONMENTAL SENSITIVITY
- INPLACE RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT

- EXISTING PAVEMENT TO BE REMOVED
- 1-A — UTILITY CONFLICT AREA (OWNER-IMPACT)

OWNERSHIP:
(1) CENTERPOINT ENERGY
(2) COMCAST CABLE LLC
(3) CONNEXUS ENERGY
(4) LUMEN TECHNOLOGIES
(5) ZAYO

IMPACT:
(A) LEAVE AS IS
(B) ADJUST
(C) RELOCATE
(D) REMOVE

GENERAL NOTES

1. THE EXISTING SUBSURFACE UTILITY INFORMATION IS QUALITY LEVEL D IN ACCORDANCE WITH THE GUIDELINES OF CI/ASCE 38-02.
2. UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF ALL BURIED UTILITIES IN THE FIELD (INCIDENTAL).

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

EB STA 85+86.02 TO EB STA 100+00.00

INPLACE TOPOGRAPHY & UTILITIES

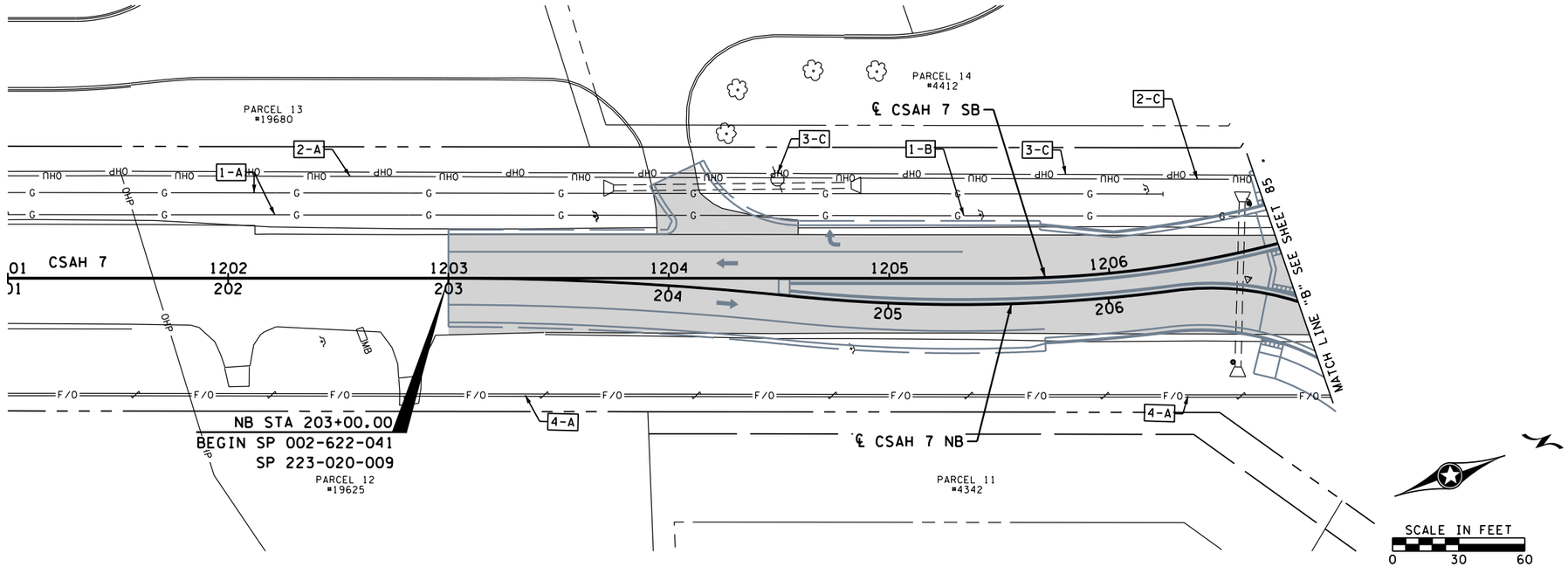
SP 002-622-041, SP 223-020-009

SHEET 85 OF 133 SHEETS

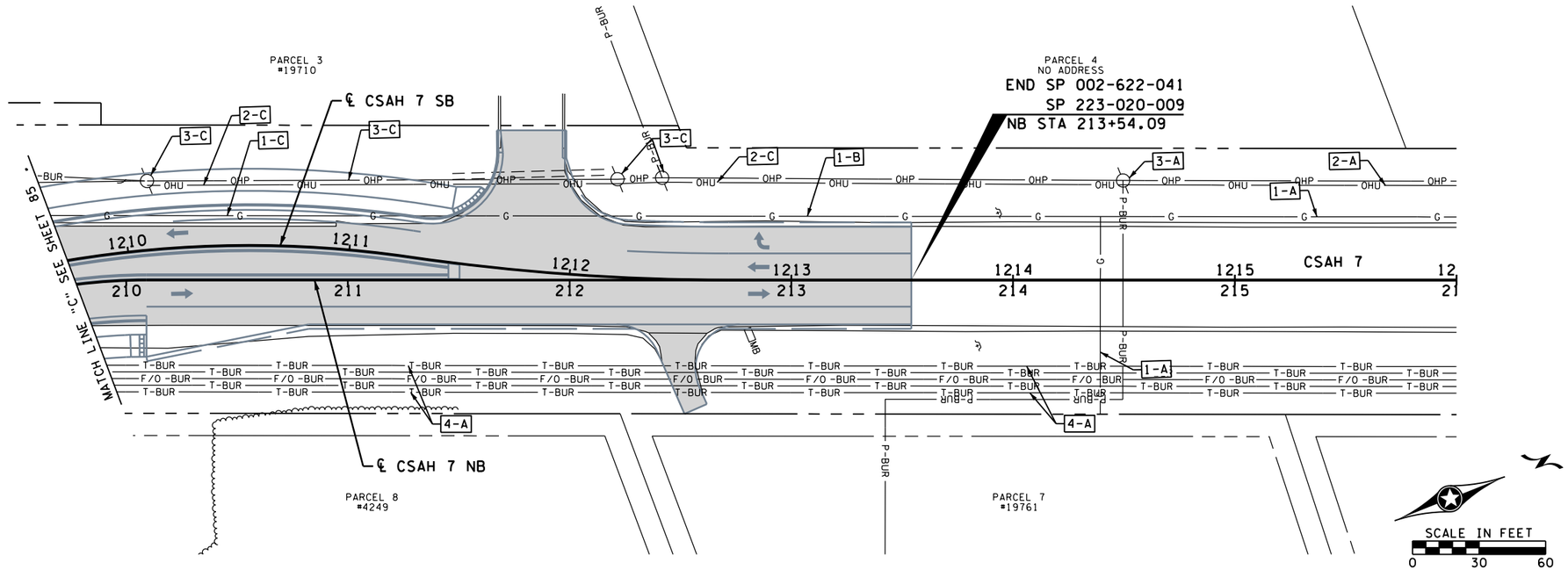
PLOTTED/REVISED: 2/7/2024 3:30:18 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_1u02.dgn

CSAH 7



CSAH 7



LEGEND

- BURIED TELEPHONE LINE
- BURIED TELEVISION LINE
- OVERHEAD UTILITY LINE
- BURIED FIBER OPTIC LINE
- BURIED POWER LINE
- UTILITY IN CONDUIT
- OVERHEAD POWER LINE
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- INPLACE RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT

- EXISTING PAVEMENT TO BE REMOVED
- UTILITY CONFLICT AREA (OWNER-IMPACT)

OWNERSHIP:
(1) CENTERPOINT ENERGY
(2) COMCAST CABLE LLC
(3) CONNEXUS ENERGY
(4) LUMEN TECHNOLOGIES
(5) ZAYO

IMPACT:
(A) LEAVE AS IS
(B) ADJUST
(C) RELOCATE
(D) REMOVE

GENERAL NOTES

1. THE EXISTING SUBSURFACE UTILITY INFORMATION IS QUALITY LEVEL D IN ACCORDANCE WITH THE GUIDELINES OF CI/ASCE 38-02.
2. UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF ALL BURIED UTILITIES IN THE FIELD (INCIDENTAL).

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

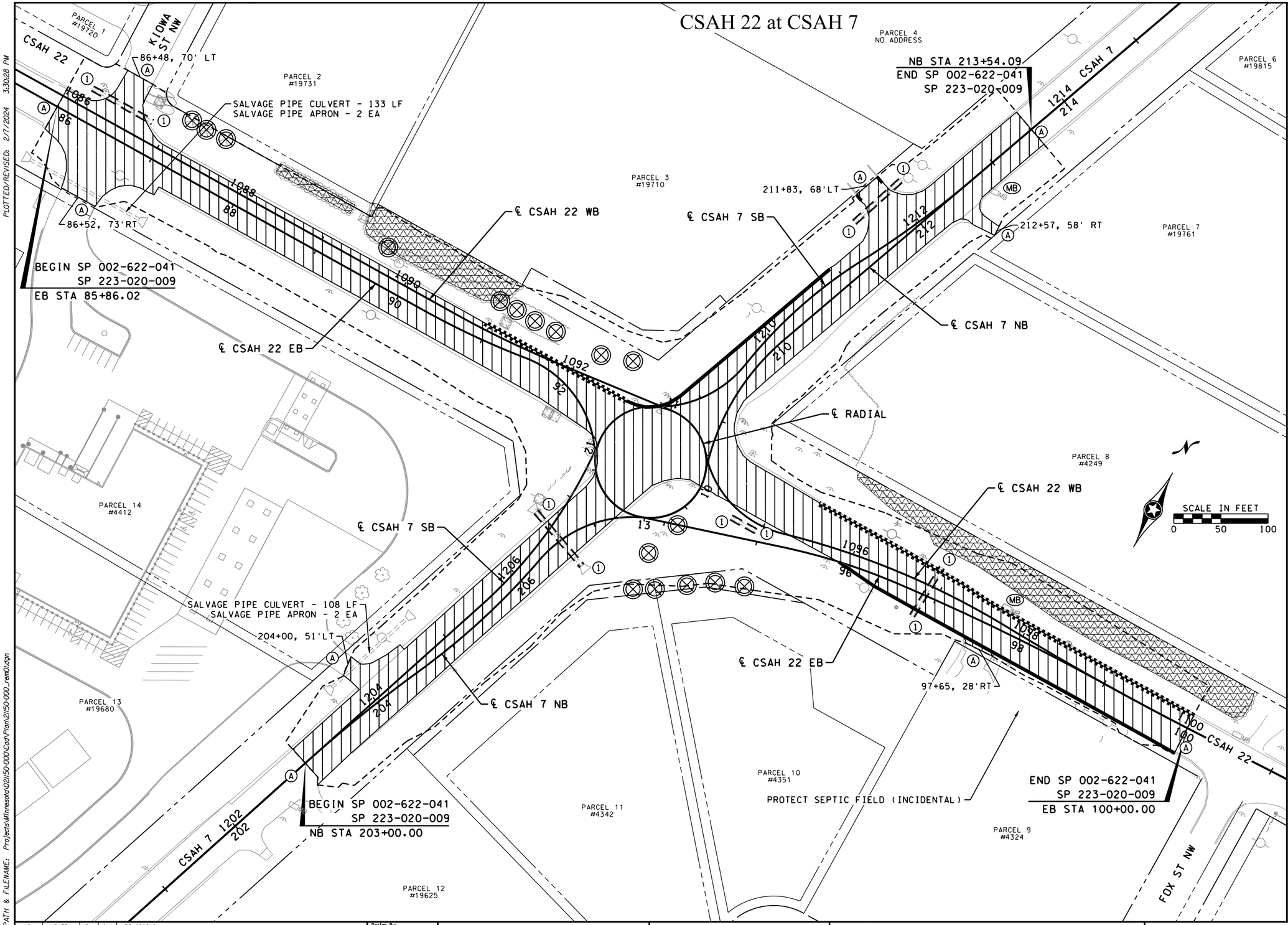
NB STA 203+00.00 TO NB STA 213+54.09

INPLACE TOPOGRAPHY & UTILITIES

SP 002-622-041, SP 223-020-009

SHEET 86 OF 133 SHEETS

CSAH 22 at CSAH 7



LEGEND

- REMOVE BITUMINOUS PAVEMENT
- GRUB TREE (ACRE)
- GRUB TREE (EACH)
- (MB) SALVAGE MAILBOX SUPPORT
- (A) SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH)
- (1) REMOVE PIPE APRON
- REMOVE PIPE CULVERT
- REMOVE CURB & GUTTER
- REMOVE BITUMINOUS CURB
- CONSTRUCTION LIMITS
- AREA OF ENVIRONMENTAL SENSITIVITY
- INPLACE RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT

GENERAL NOTES

1. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE IN ACCORDANCE WITH THE SPECIFICATIONS. (INCIDENTAL)
2. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN EXCAVATION-COMMON.
3. THE EXISTING SUBSURFACE UTILITY INFORMATION IS QUALITY LEVEL D IN ACCORDANCE WITH THE GUIDELINES OF CI/ASCE 38-02.
4. UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF ALL BURIED UTILITIES IN THE FIELD (INCIDENTAL).
5. SAWCUTTING FOR CONCRETE CURB & GUTTER, CONCRETE WALK, AND BITUMINOUS WALK SHALL BE INCIDENTAL.
6. INPLACE BITUMINOUS PAVEMENT THICKNESS 6"-6.5". NO ADDITIONAL PAYMENT FOR EXTRA THICKNESS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

REMOVAL PLAN

SP 002-622-041, SP 223-020-009

SHEET 87 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:30:28 PM

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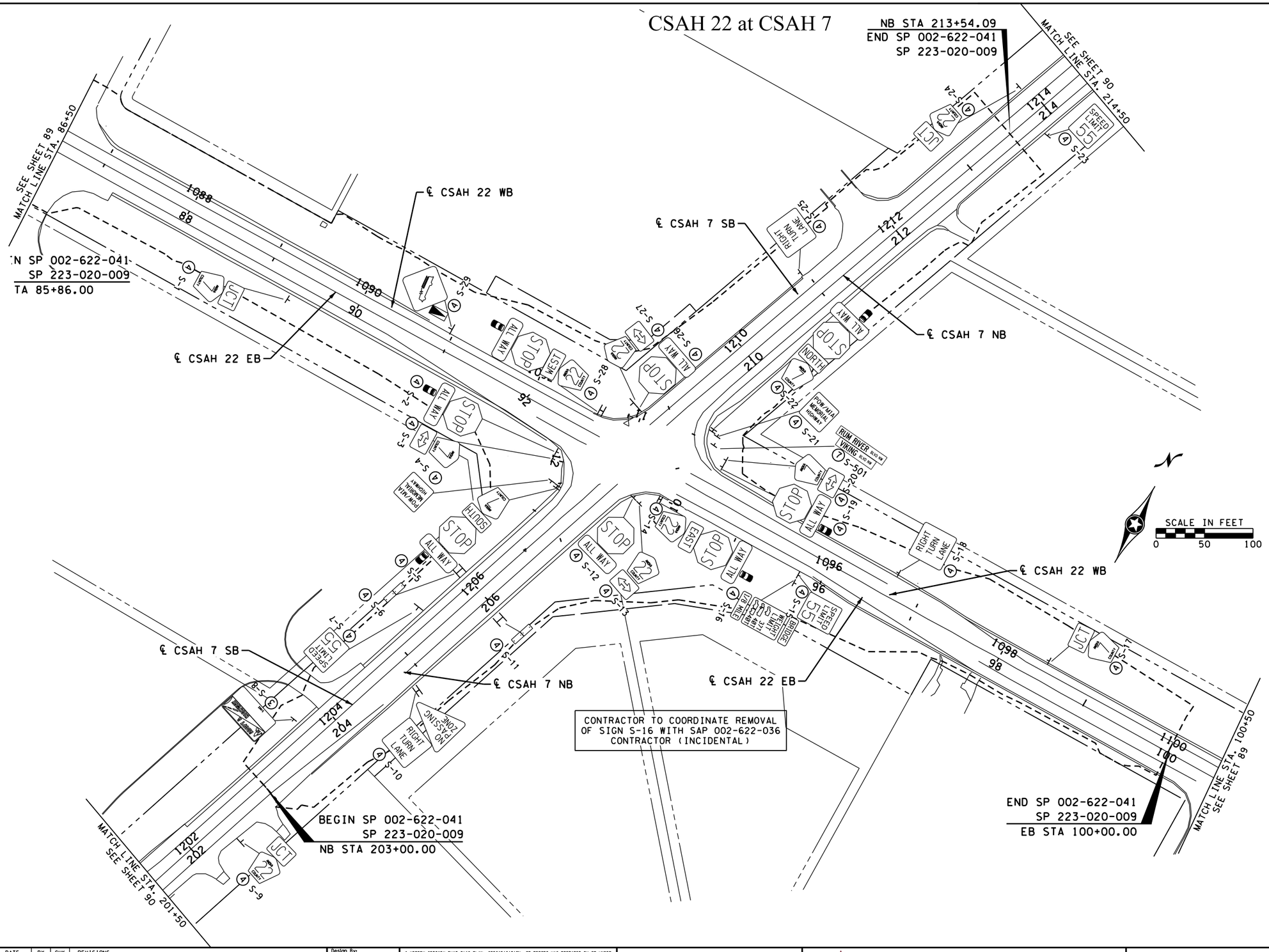
CSAH 22 at CSAH 7



LEGEND

②	INPLACE
③	SALVAGE
④	REMOVE
⑦	SALVAGE SIGN TYPE SPECIAL FOR RE-USE ON THIS PROJECT

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY 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 DELMORE, PE

DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGN REMOVAL PLAN

SP 002-622-041, SP 223-020-009

SHEET 88 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:30:39 PM

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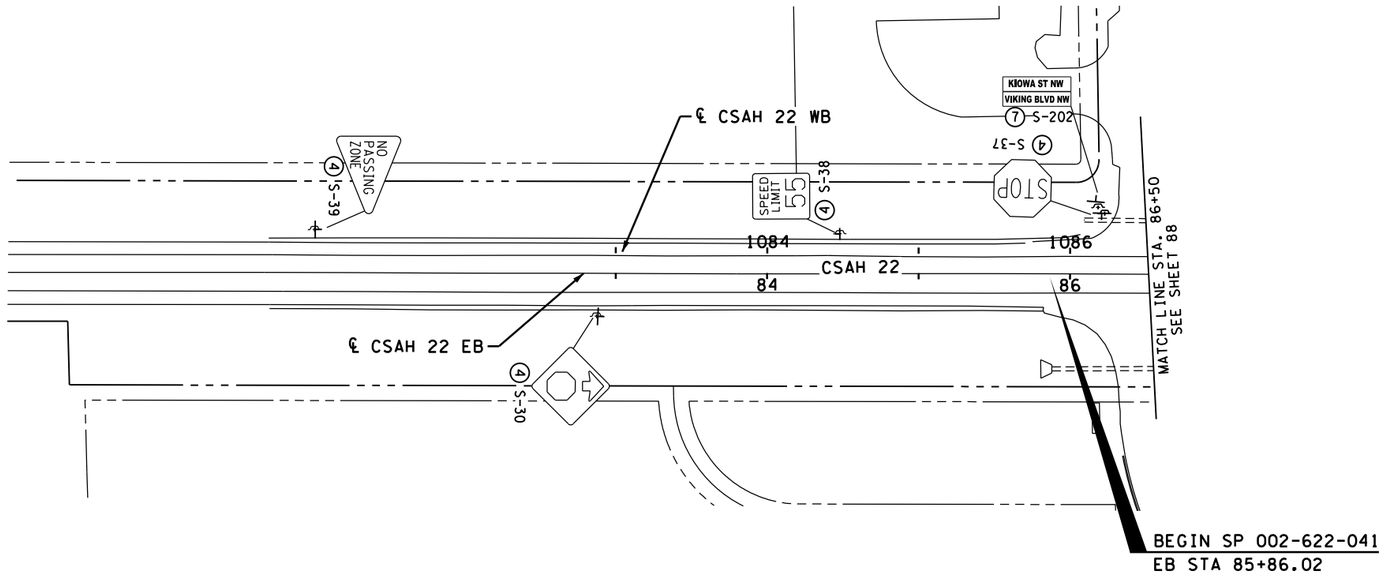
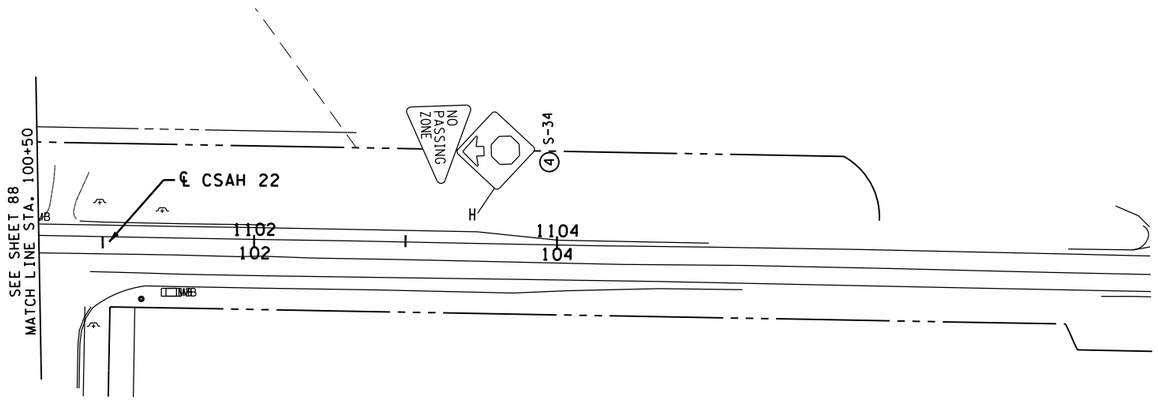
CSAH 22



LEGEND

- (2) INPLACE
- (4) REMOVE
- (7) SALVAGE SIGN TYPE SPECIAL FOR RE-USE ON THIS PROJECT



NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY 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 DELMORE, PE

DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

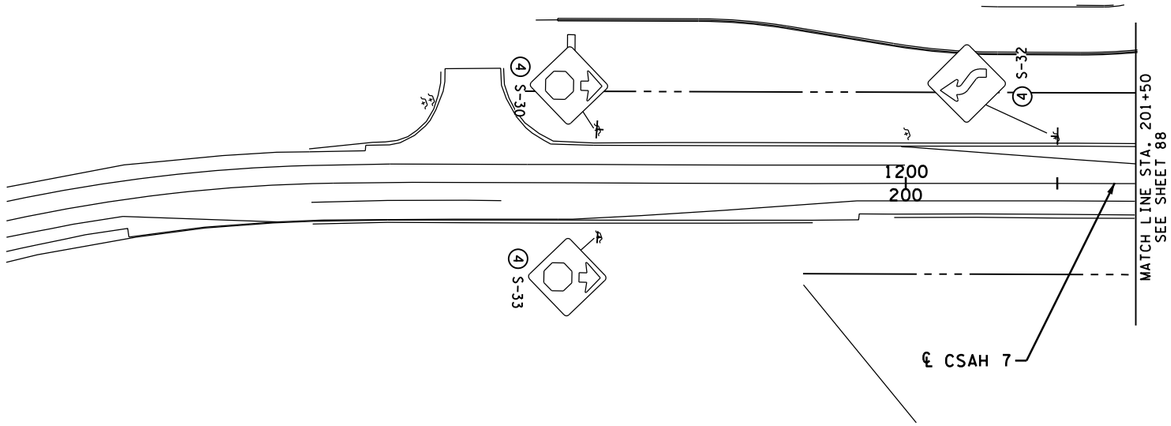
SIGN REMOVAL PLAN

SP 002-622-041, SP 223-020-009

SHEET 89 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:30:59 PM

CSAH 7

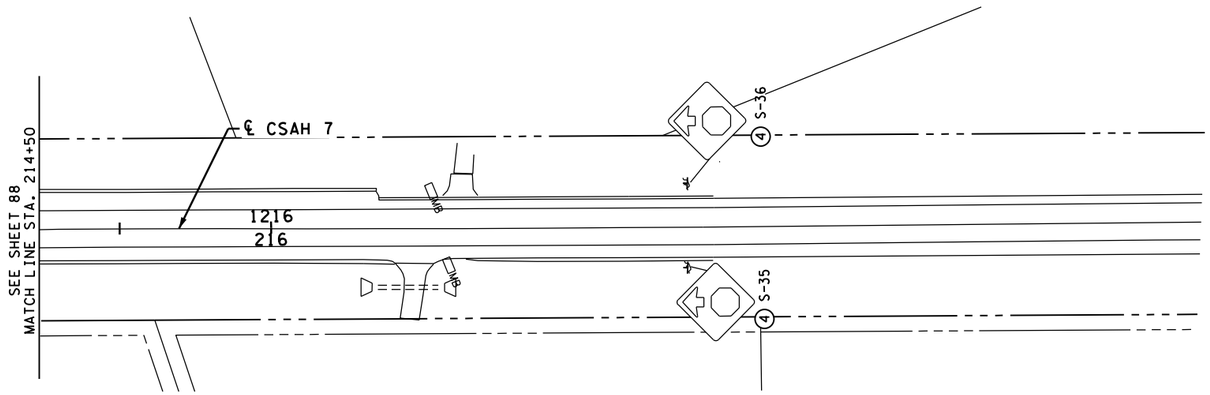


SCALE IN FEET
0 50 100

LEGEND

② INPLACE

④ REMOVE



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WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_sr03.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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PRINT NAME: SEAN DELMORE, PE

DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGN REMOVAL PLAN

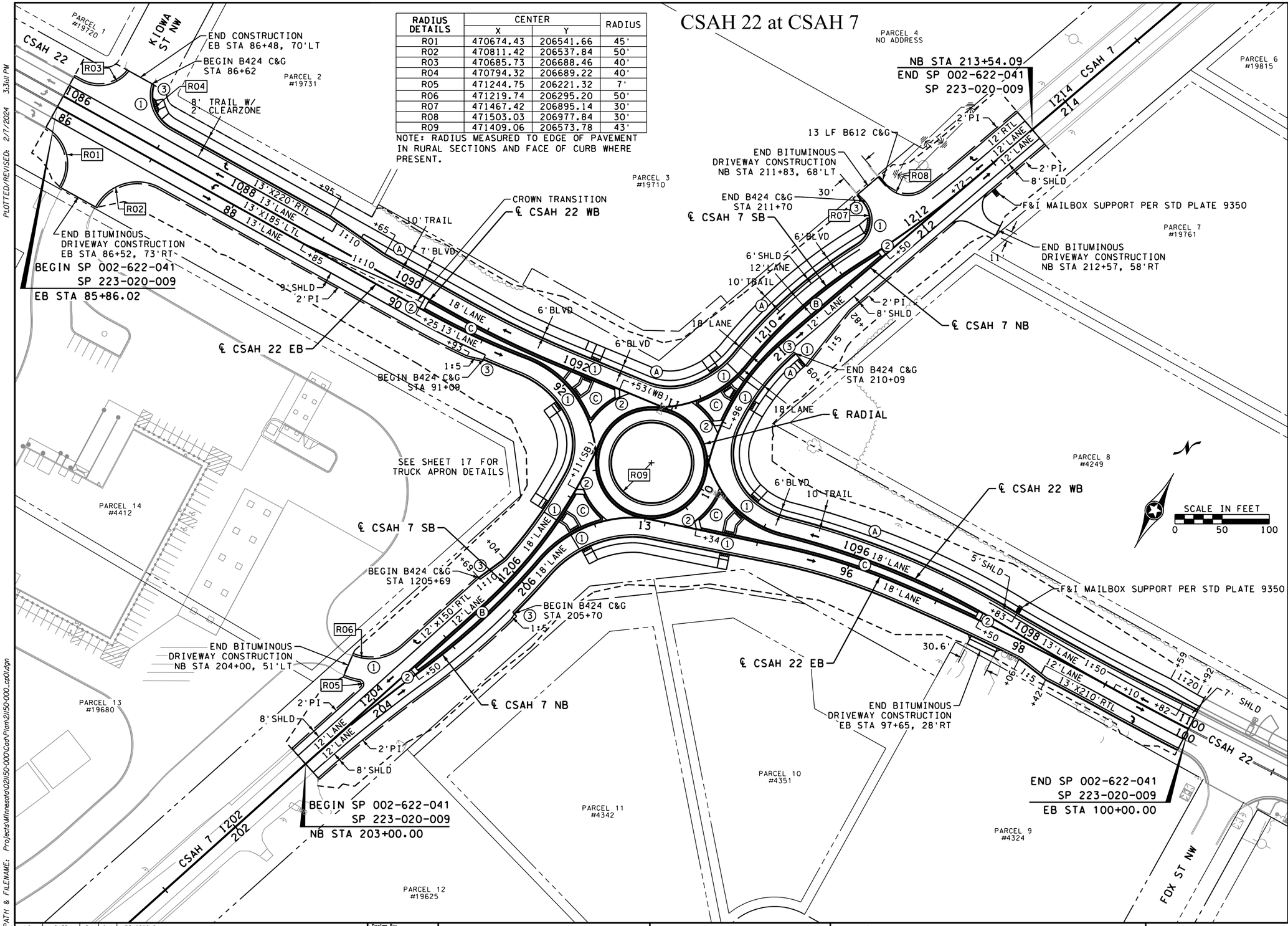
SP 002-622-041, SP 223-020-009

SHEET **90** OF **133** SHEETS

CSAH 22 at CSAH 7

RADIUS DETAILS	CENTER		RADIUS
	X	Y	
R01	470674.43	206541.66	45'
R02	470811.42	206537.84	50'
R03	470685.73	206688.46	40'
R04	470794.32	206689.22	40'
R05	471244.75	206221.32	7'
R06	471219.74	206295.20	50'
R07	471467.42	206895.14	30'
R08	471503.03	206977.84	30'
R09	471409.06	206573.78	43'

NOTE: RADIUS MEASURED TO EDGE OF PAVEMENT IN RURAL SECTIONS AND FACE OF CURB WHERE PRESENT.



LEGEND

- TRAFFIC DIRECTION
- (1) CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP WITH TRUNCATED DOMES. SEE PEDESTRIAN RAMP DETAILS.
- (2) CONSTRUCT CONCRETE MEDIAN NOSE PER STANDARD PLAN 7113
- (3) CONSTRUCT CURB TRANSITION, SEE MISCELLANEOUS DETAILS
- (A) 2.5" BITUMINOUS TRAIL
- (B) 4" CONCRETE WALK
- (C) 4" CONCRETE WALK SPECIAL
- R00 — RADIUS CALLOUT, SEE RADIUS DETAILS TABLE
- CONSTRUCTION LIMITS
- AREA OF ENVIRONMENTAL SENSITIVITY
- INPLACE RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- INPLACE DRAINAGE AND UTILITY EASEMENT

GENERAL NOTES

1. CURB & GUTTER DES. B418 (MOD) USED FOR MEDIANS
2. CURB & GUTTER DES. B424 USED FOR OUTSIDE LANES AND INSIDE TRUCK APRON ON ROUNDABOUT
3. CURB & GUTTER DES. R418 USED FOR OUTSIDE TRUCK APRON ON ROUNDABOUT
4. MEDIANS CONSTRUCTED WITH 4" CONCRETE WALK
5. ALL LANE DIMENSIONS ARE FROM CENTERLINE TO LANE LINE OR FACE OF CURB.
6. ALL SHOULDER DIMENSIONS ARE FROM LANE LINE TO FACE OF CURB.
7. SEE DRIVEWAY DETAILS FOR ADDITIONAL INFORMATION AT DRIVEWAYS.
8. SEE ALIGNMENT PLAN FOR CURVE DATA.
9. SEE PAVING PLAN FOR REQUIRED PAVEMENT SECTIONS.
10. SEE SHEET 92 - 94 FOR ROADWAY PROFILES.
11. SEE SHEET 99 - 100 FOR ROUNDABOUT INTERSECTION DETAILS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLUMMAN, PE
DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

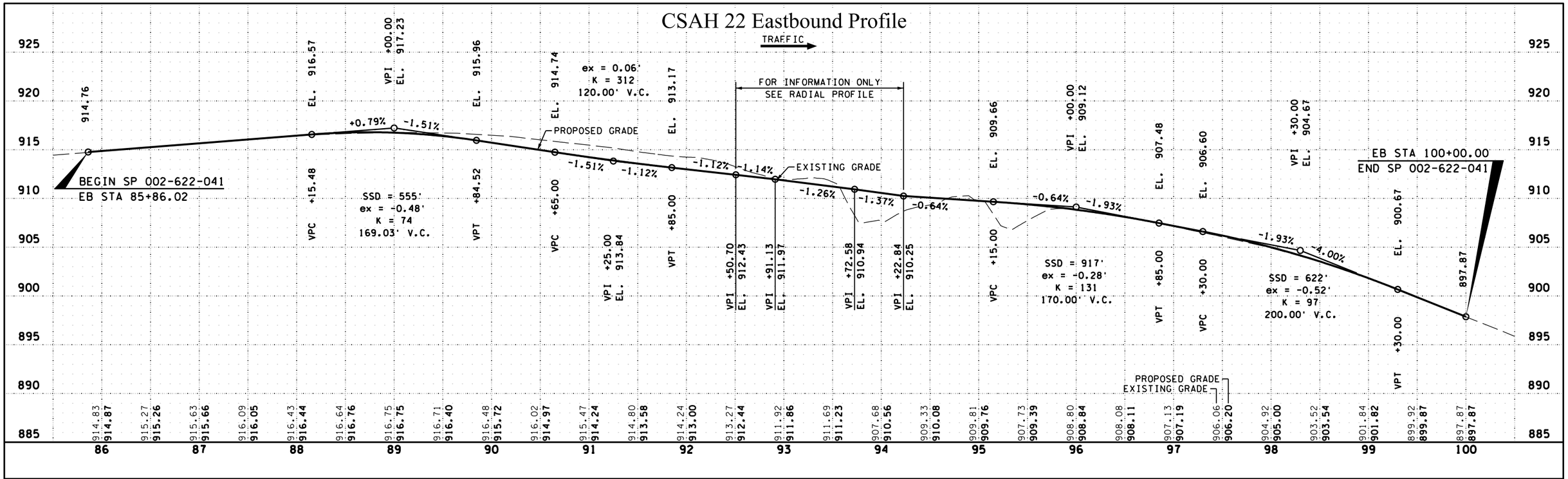
CONSTRUCTION PLAN & PROFILE
SP 002-622-041, SP 223-020-009

SHEET 91 OF 133 SHEETS

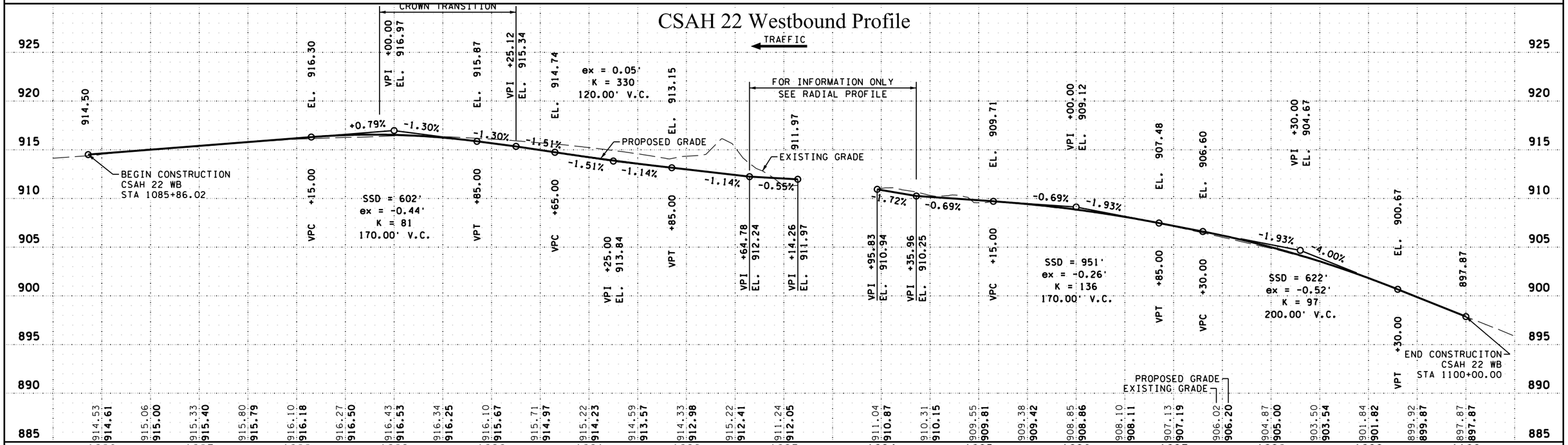
PLOTTED/REVISED: 2/7/2024 3:31pl PM
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_cp01.dgn

PLOTTED/REVISED: 2/7/2024 3:31:5 PM

CSAH 22 Eastbound Profile



CSAH 22 Westbound Profile



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Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 22 PROFILES

CONSTRUCTION PLAN & PROFILE

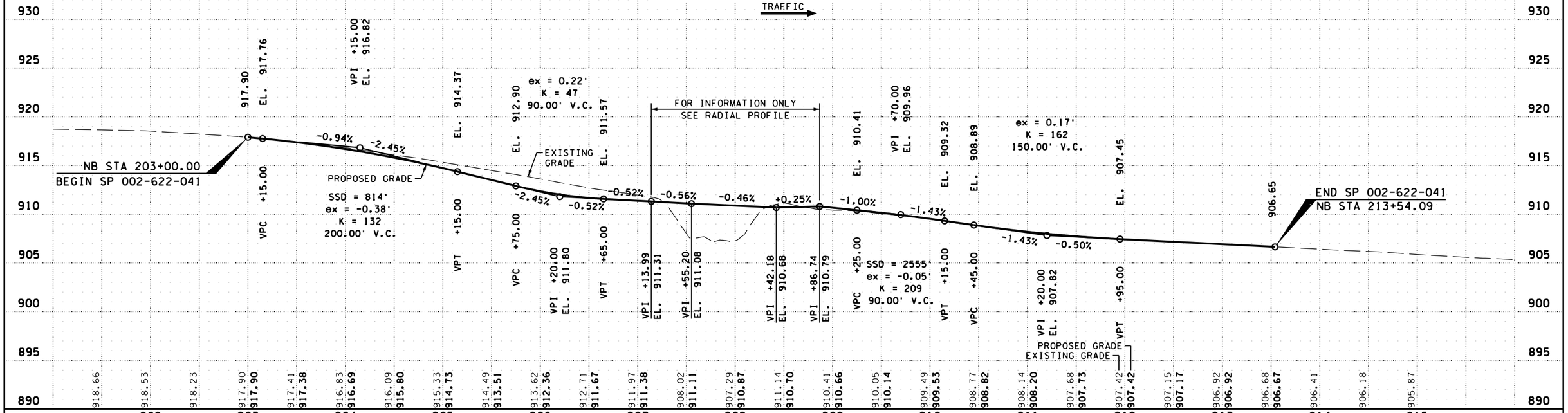
SP 002-622-041, SP 223-020-009

SHEET 92 OF 133 SHEETS

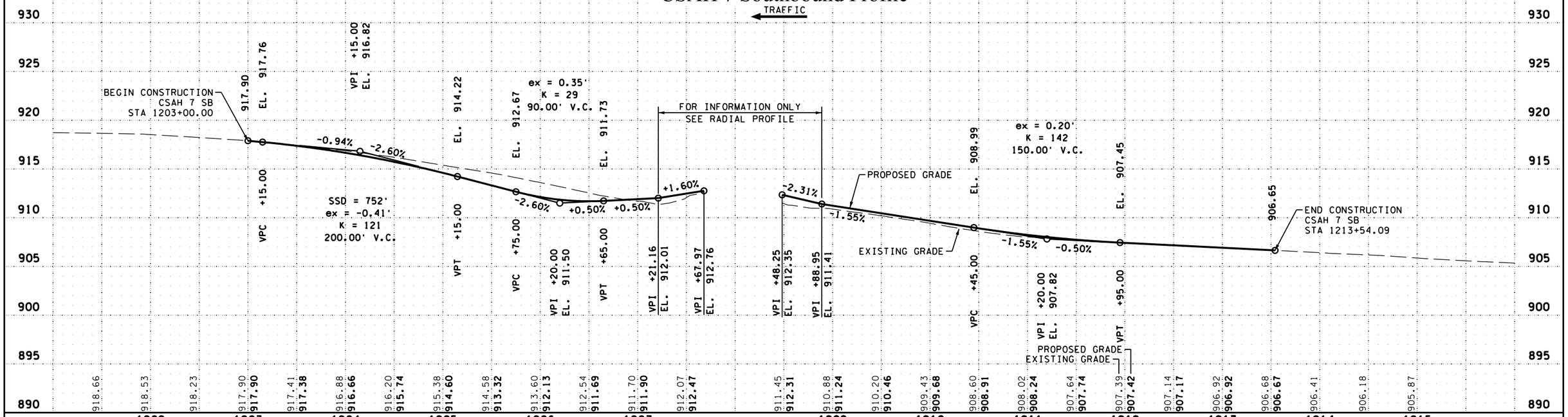
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_pr01.dgn

PLOTTED/REVISED: 2/7/2024 3:31:18 PM

CSAH 7 Northbound Profile



CSAH 7 Southbound Profile



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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

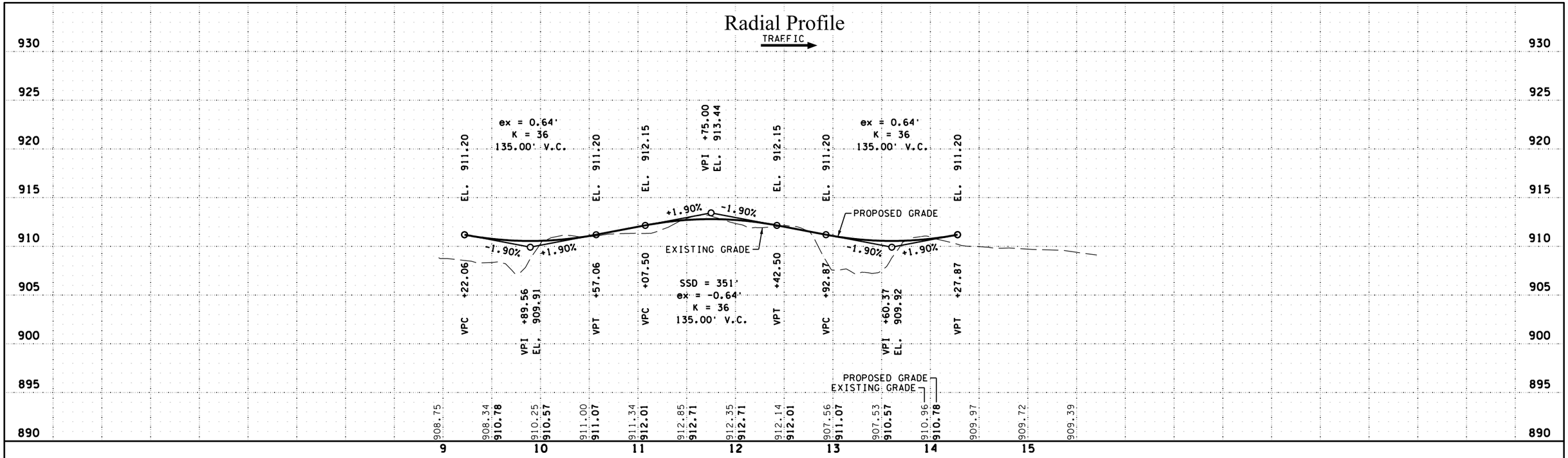
CSAH 7 PROFILES

CONSTRUCTION PLAN & PROFILE

SP 002-622-041, SP 223-020-009

SHEET 93 OF 133 SHEETS

Radial Profile



NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

RADIAL PROFILE

CONSTRUCTION PLAN & PROFILE

SP 002-622-041, SP 223-020-009

SHEET **94** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:31:20 PM

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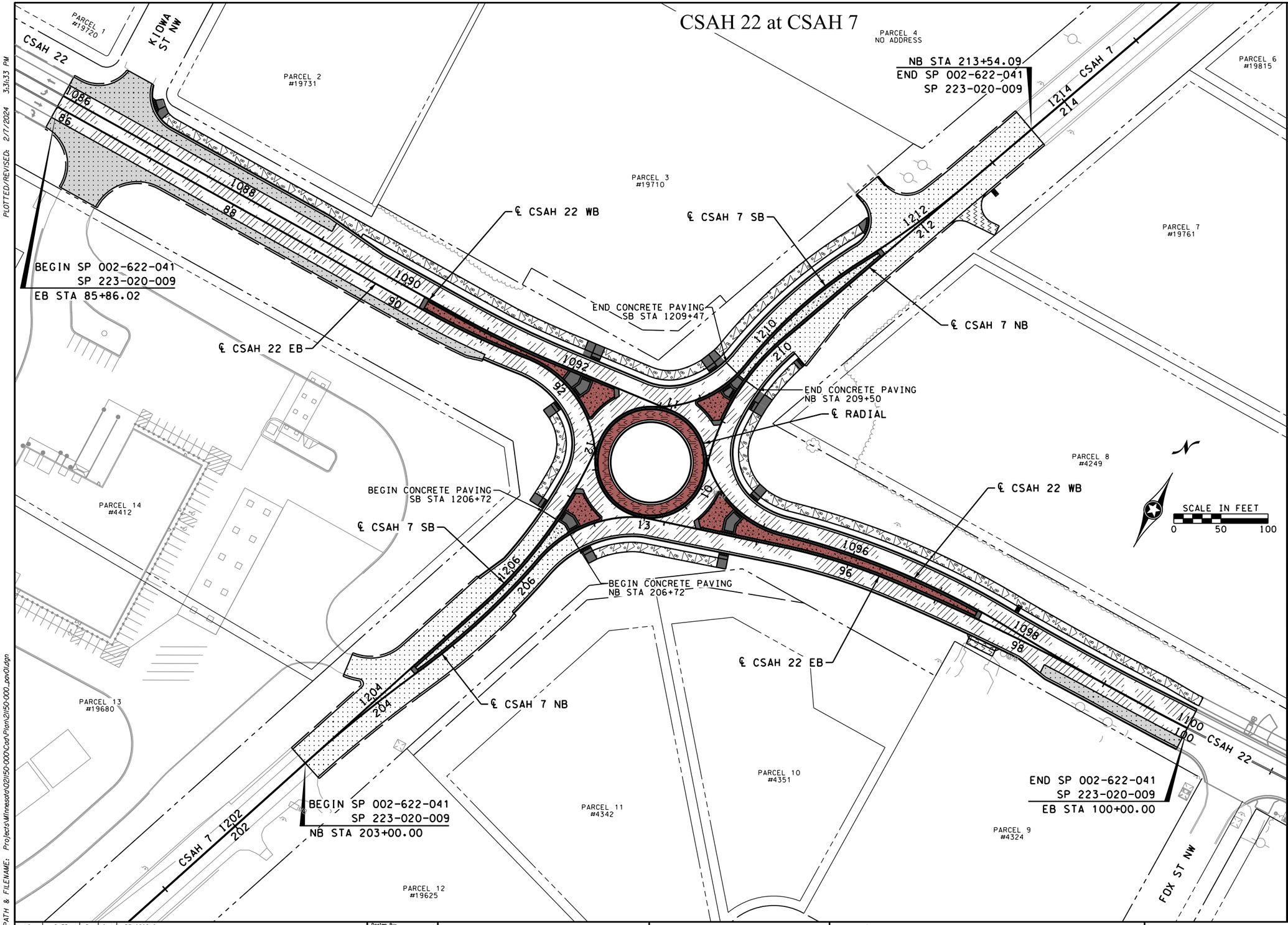
CSAH 22 at CSAH 7



LEGEND

- INSET "A" - MAINLINE CONCRETE PAVEMENT
- INSET "B" - BITUMINOUS MAINLINE PAVEMENT
- INSET "C" - TRUCK APRON
- INSET "D" - 2.5" BITUMINOUS TRAIL
- INSET "E1" - 4" CONCRETE WALK SPECIAL (MEDIAN)
- INSET "E2" - 4" CONCRETE WALK (MEDIAN)
- INSET "F" - 6" CONCRETE WALK
- INSET "G" - CONCRETE DRIVEWAY PAVEMENT
- INSET "H" - BITUMINOUS DRIVEWAY
- INSET "I" - BITUMINOUS RIGHT TURN LANE / SHLD

GENERAL NOTES

1. SEE SHEET 96 FOR JOINT DETAILING.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

PAVING PLAN

SP 002-622-041, SP 223-020-009

SHEET **95** OF **133** SHEETS

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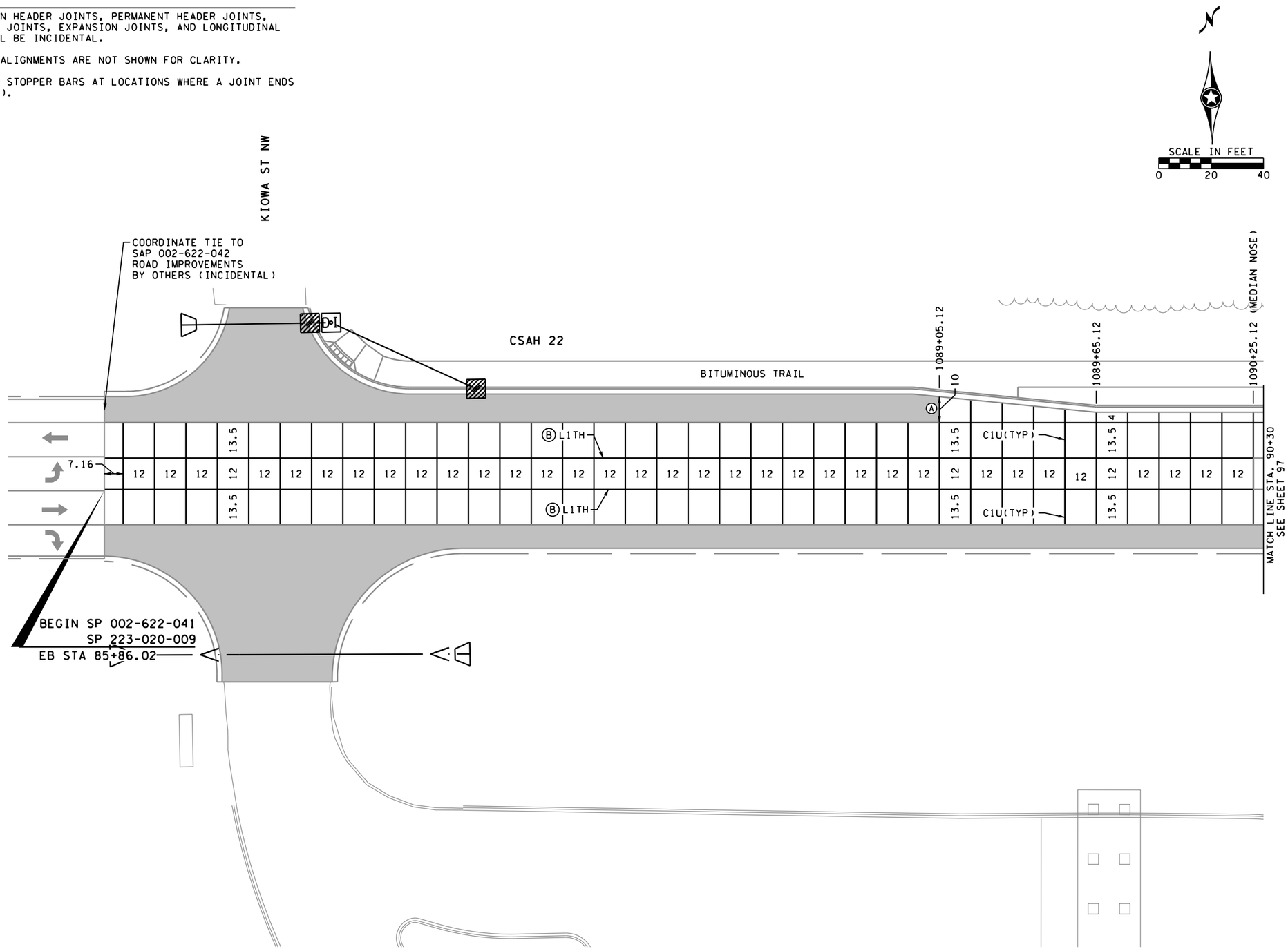
NOTES:

CONSTRUCTION HEADER JOINTS, PERMANENT HEADER JOINTS, CONTRACTION JOINTS, EXPANSION JOINTS, AND LONGITUDINAL JOINTS SHALL BE INCIDENTAL.

CENTERLINE ALIGNMENTS ARE NOT SHOWN FOR CLARITY.

PLACE NO. 2 STOPPER BARS AT LOCATIONS WHERE A JOINT ENDS (INCIDENTAL).



SCALE IN FEET
0 20 40

LEGEND

- E1H JOINT
- 4" CONCRETE WALK
- 4" CONCRETE WALK (SPECIAL)
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT 7.0" SPECIAL
- SUPPLEMENTAL REINFORCEMENT REQUIRED. SEE MNDOT STANDARD PLATE 1070 (INCIDENTAL)
- (1) USE L2TH IF PAVED SEPARATELY
- (A) PERMANENT HEADER (INCIDENTAL) SEE STANDARD PLAN 5-297.221

GENERAL NOTES

1. JOINT LAYOUTS MAY BE CHANGED IN THE FIELD BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER.
2. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL PROPOSED AND EXISTING STRUCTURES ARE LOCATED AND RAISED DURING PAVING.
3. IT IS ASSUMED A MAJORITY OF THE REINFORCEMENT BARS WILL NEED TO BE DRILLED AND GROUTED IN THE SPLITTER ISLANDS DUE TO STAGING. REINFORCEMENT BARS PLACED BETWEEN ADJACENT PANELS WILL BE INCIDENTAL.
4. JOINT LOCATIONS SHALL MATCH EXISTING JOINTS, INCLUDING CURB & GUTTER JOINTS.
5. REFER TO TEMPORARY TRAFFIC CONTROL PLAN FOR CONCRETE PAVEMENT STAGING DETAILS. USE BENT TIE BARS TO TIE STAGED PAVEMENT AREAS TOGETHER.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

EB STA 85+86.02 TO EB STA 90+30

CONCRETE PAVING PLAN

SP 002-622-041, SP 223-020-009

SHEET 96 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:31:41 PM
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PLOTTED/REVISED: 2/7/2024 3:31:45 PM

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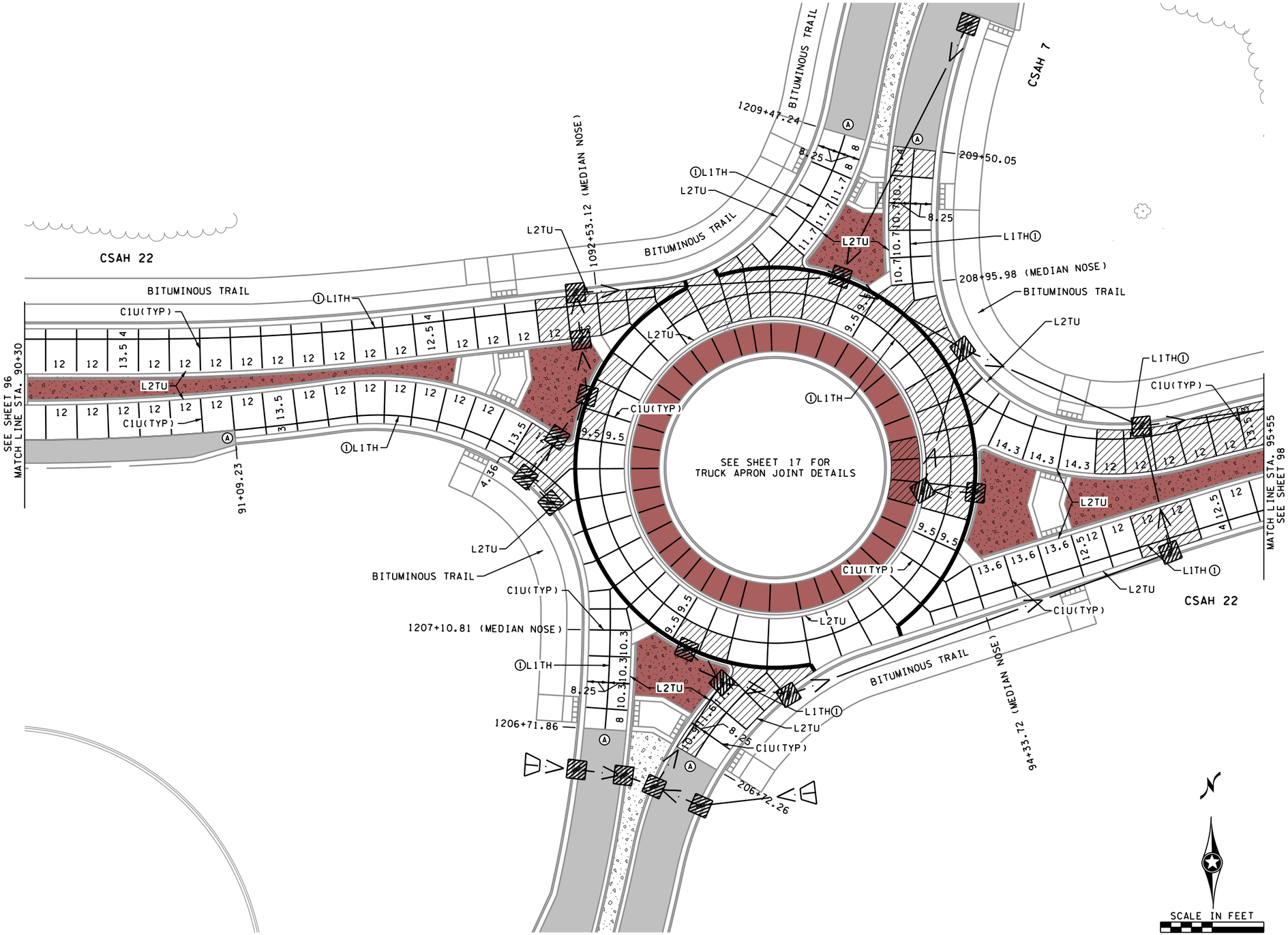
CSAH 22 at CSAH 7



LEGEND

- E1H JOINT
- 4" CONCRETE WALK
- 4" CONCRETE WALK (SPECIAL)
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT 7.0" SPECIAL
- SUPPLEMENTAL REINFORCEMENT REQUIRED. SEE MNDOT STANDARD PLATE 1070 (INCIDENTAL)
- (1) USE L2TH IF PAVED SEPARATELY
- (A) PERMANENT HEADER (INCIDENTAL) SEE STANDARD PLAN 5-297.221

GENERAL NOTES

1. JOINT LAYOUTS MAY BE CHANGED IN THE FIELD BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER.
2. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL PROPOSED AND EXISTING STRUCTURES ARE LOCATED AND RAISED DURING PAVING.
3. IT IS ASSUMED A MAJORITY OF THE REINFORCEMENT BARS WILL NEED TO BE DRILLED AND GROUTED IN THE SPLITTER ISLANDS DUE TO STAGING. REINFORCEMENT BARS PLACED BETWEEN ADJACENT PANELS WILL BE INCIDENTAL.
4. JOINT LOCATIONS SHALL MATCH EXISTING JOINTS, INCLUDING CURB & GUTTER JOINTS.
5. REFER TO TEMPORARY TRAFFIC CONTROL PLAN FOR CONCRETE PAVEMENT STAGING DETAILS. USE BENT TIE BARS TO TIE STAGED PAVEMENT AREAS TOGETHER.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
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PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

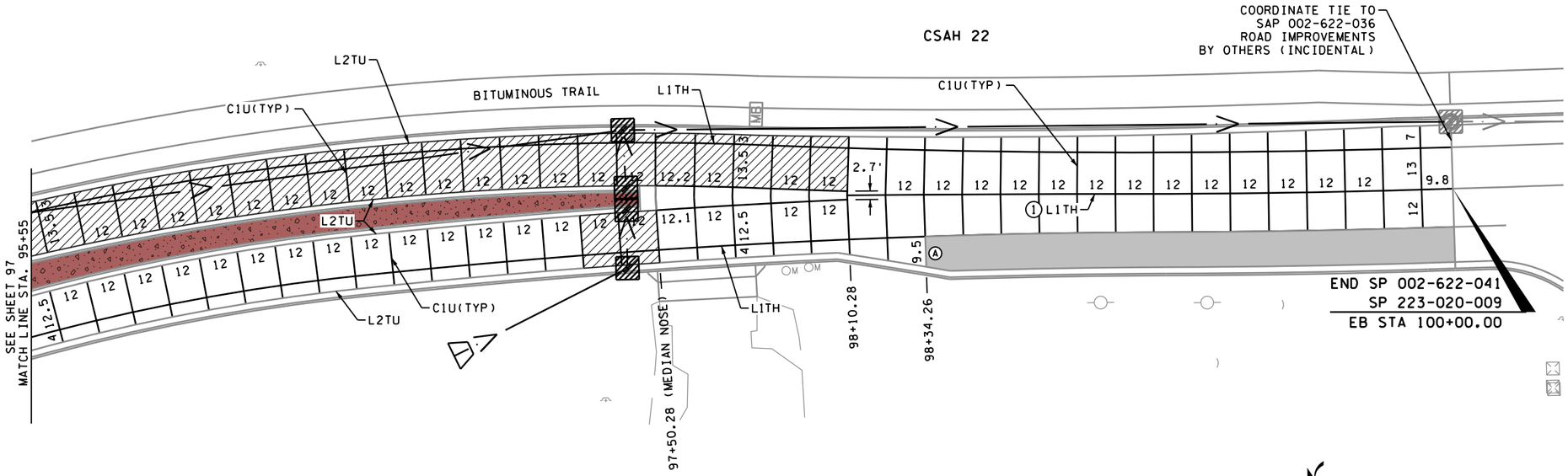
ANOKA COUNTY, MINNESOTA

EB STA 90+30 TO EB STA 95+55

CONCRETE PAVING PLAN

SP 002-622-041, SP 223-020-009

SHEET 97 OF 133 SHEETS



LEGEND

- E1H JOINT
- 4" CONCRETE WALK
- 4" CONCRETE WALK (SPECIAL)
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT 7.0" SPECIAL
- SUPPLEMENTAL REINFORCEMENT REQUIRED. SEE MNDOT STANDARD PLATE 1070 (INCIDENTAL)
- (1) USE L2TH IF PAVED SEPARATELY
- (A) PERMANENT HEADER (INCIDENTAL) SEE STANDARD PLAN 5-297.221

GENERAL NOTES

1. JOINT LAYOUTS MAY BE CHANGED IN THE FIELD BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER.
2. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL PROPOSED AND EXISTING STRUCTURES ARE LOCATED AND RAISED DURING PAVING.
3. IT IS ASSUMED A MAJORITY OF THE REINFORCEMENT BARS WILL NEED TO BE DRILLED AND GROUTED IN THE SPLITTER ISLANDS DUE TO STAGING. REINFORCEMENT BARS PLACED BETWEEN ADJACENT PANELS WILL BE INCIDENTAL.
4. JOINT LOCATIONS SHALL MATCH EXISTING JOINTS, INCLUDING CURB & GUTTER JOINTS.
5. REFER TO TEMPORARY TRAFFIC CONTROL PLAN FOR CONCRETE PAVEMENT STAGING DETAILS. USE BENT TIE BARS TO TIE STAGED PAVEMENT AREAS TOGETHER.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J PLUNKMAN, PE

DATE 2/7/2024 LICENSE # 44200

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

EB STA 95+55 TO EB STA 100+00.00

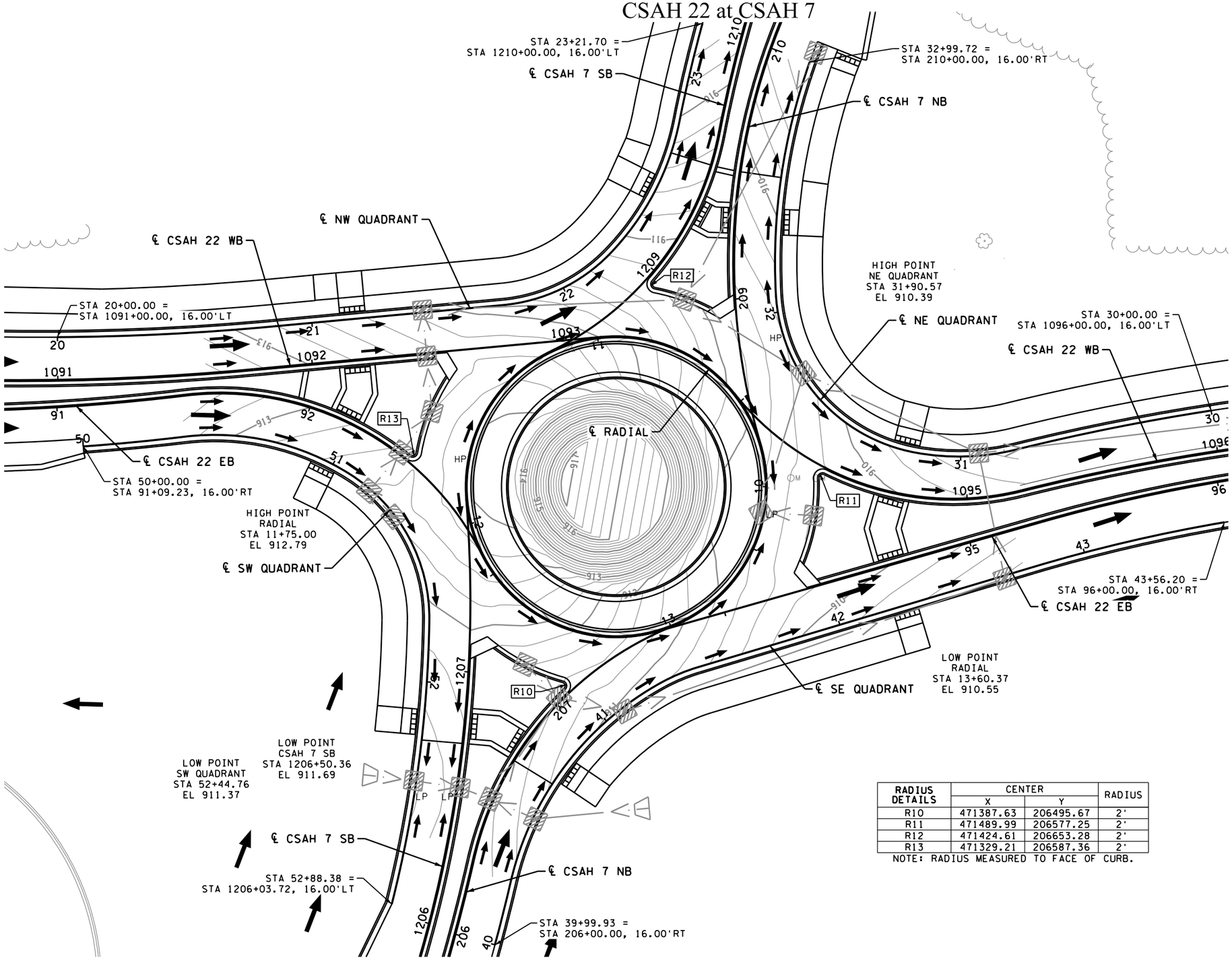
CONCRETE PAVING PLAN

SP 002-622-041, SP 223-020-009

SHEET 98 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:31:51 PM
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_conc03.dgn

CSAH 22 at CSAH 7



RADIUS DETAILS	CENTER		RADIUS
	X	Y	
R10	471387.63	206495.67	2'
R11	471489.99	206577.25	2'
R12	471424.61	206653.28	2'
R13	471329.21	206587.36	2'

NOTE: RADIUS MEASURED TO FACE OF CURB.

LEGEND

- CONSTRUCT CONCRETE CURB & GUTTER
- 0.10' CONTOUR
- STORM SEWER PIPE
- PROPOSED CATCH BASIN
- HP LOCALIZED HIGH POINT
- LP LOCALIZED LOW POINT
- DRAINAGE FLOW ARROW

NOTES:

1. SEE SHEET 80 - 81 FOR QUADRANT ALIGNMENT INFORMATION.
2. SEE SHEET 100 FOR QUADRANT TOE OF GUTTER PROFILES.
3. SEE SHEET 94 FOR RADIAL PROFILE.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

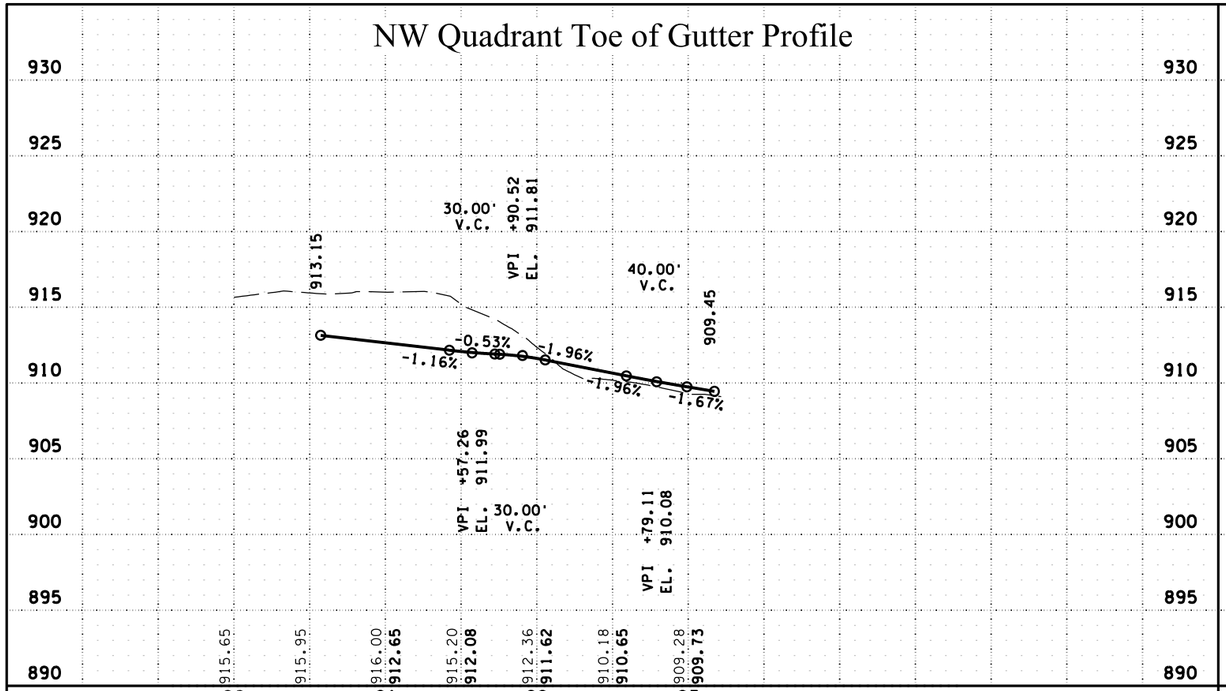
ROUNDABOUT INTERSECTION DETAILS
SP 002-622-041, SP 223-020-009

SHEET 99 OF 133 SHEETS

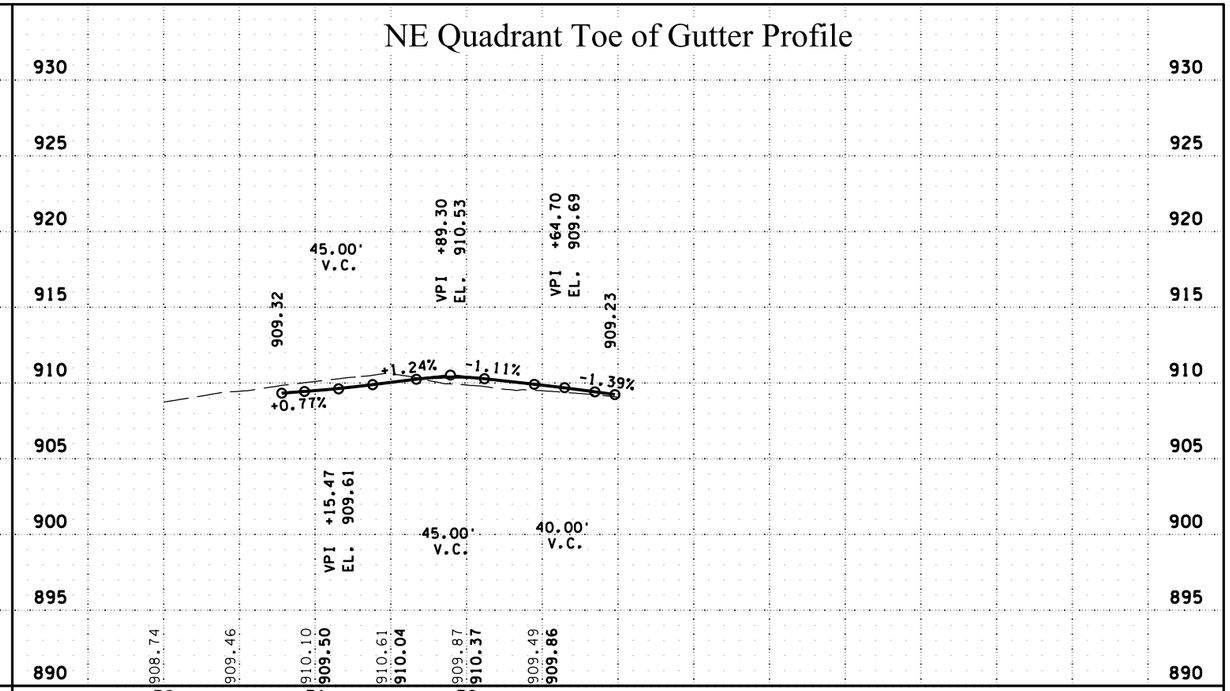
PLOTTED/REVISED: 2/7/2024 3:31:57 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\CadA\Plan\2\150-000_rab01.dgn

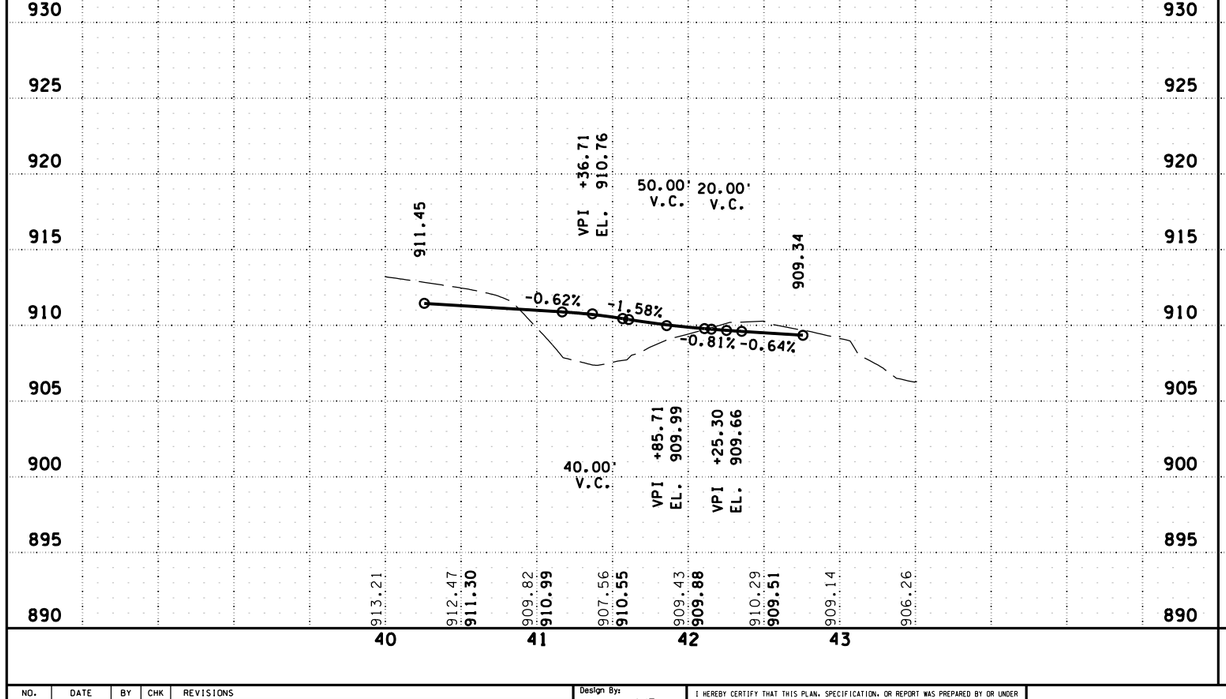
NW Quadrant Toe of Gutter Profile



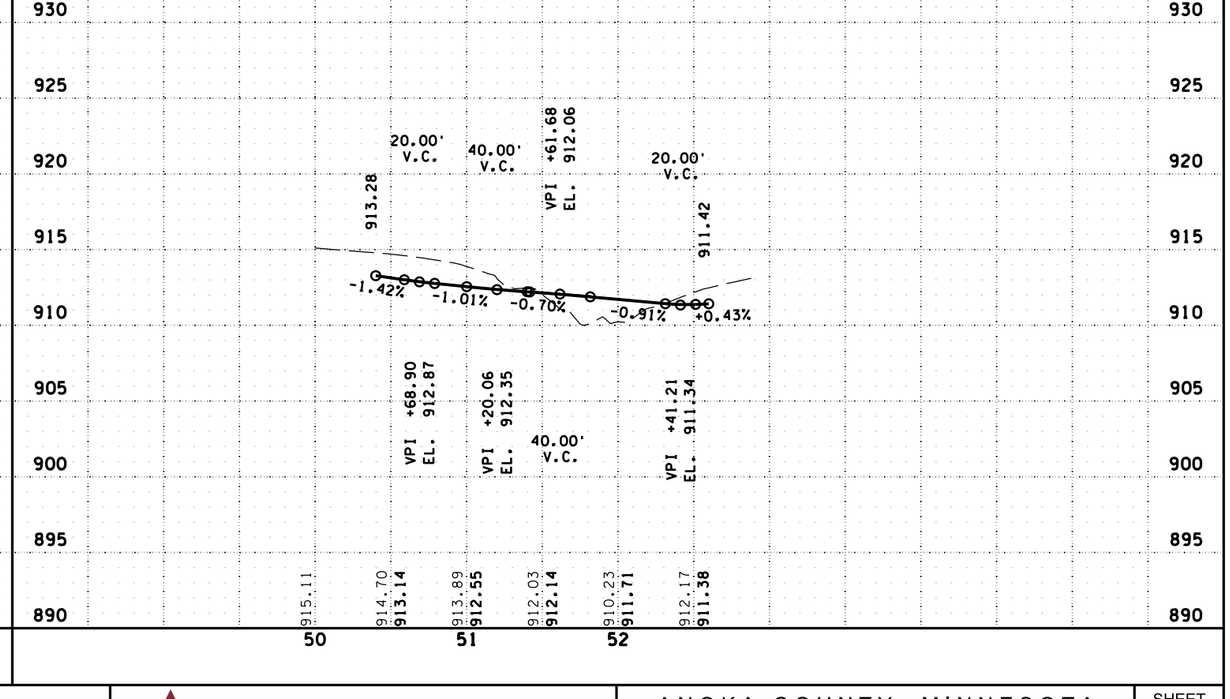
NE Quadrant Toe of Gutter Profile



SE Quadrant Toe of Gutter Profile



SW Quadrant Toe of Gutter Profile



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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

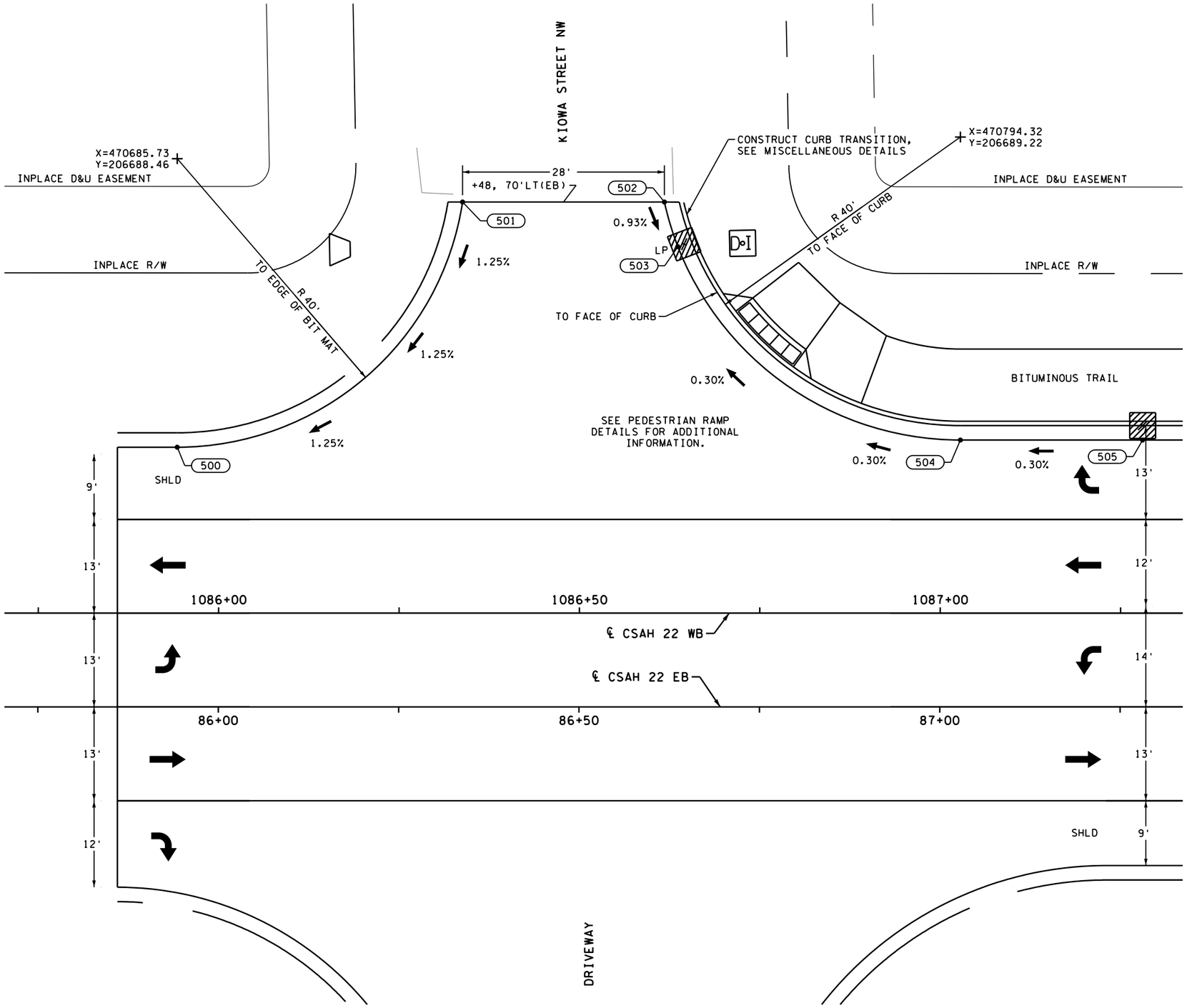
ROUNDABOUT QUADRANT PROFILES

ROUNDABOUT INTERSECTION DETAILS

SP 002-622-041, SP 223-020-009

SHEET 100 OF 133 SHEETS

CSAH 22 at Kiowa Street NW



CONTROL POINT	X	Y	Z
500	470684.91	206648.47	914.38
501	470725.15	206681.65	914.81
502	470753.12	206681.07	914.97
503	470754.86	206674.85	914.91
504	470793.46	206647.23	915.06
505	470818.71	206646.71	915.14

N

SCALE IN FEET
0 15

LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CATCH BASIN

NO.	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

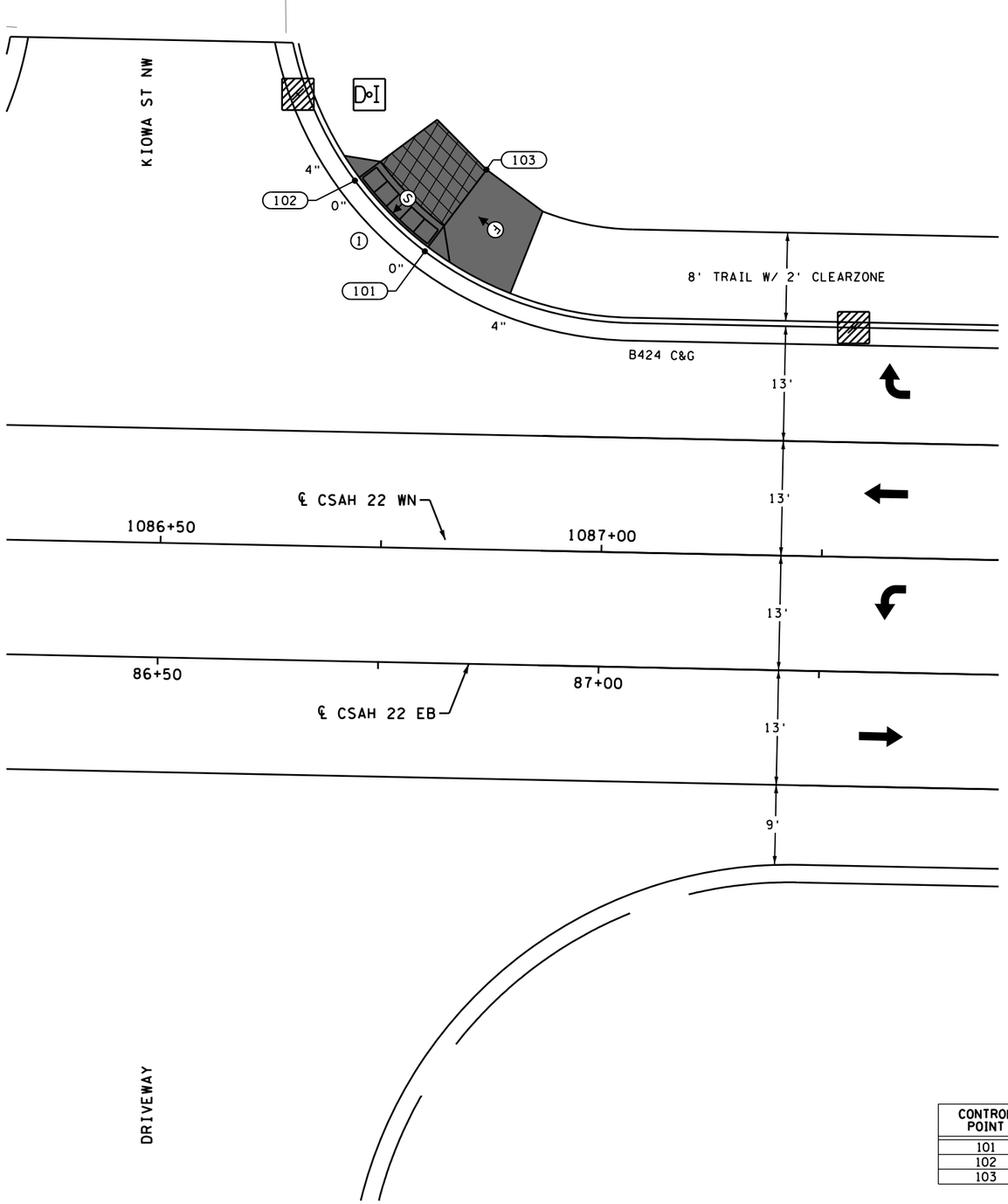
ANOKA COUNTY, MINNESOTA
CSAH 22 at Kiowa Street NW
INTERSECTION DETAILS
SP 002-622-041, SP 223-020-009

SHEET **101** OF **133** SHEETS

PLOTTED/REVISED: 2/7/2024 3:32:11 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_Id01.dgn

CSAH 22 at Kiowa Street NW



LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CATCH BASIN
- X" — CURB HEIGHT
- LP — LOCALIZED LOW POINT
- 6" CONCRETE WALK
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS.
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (1) — PEDESTRIAN RAMP, SEE STANDARD PLANS

CONTROL POINT	X	Y	Z
101	470770.13	206657.37	914.88
102	470762.21	206665.38	914.85
103	470777.12	206666.64	915.14

GENERAL NOTES

- MAINTAIN A MINIMUM 4' WIDE PEDESTRIAN ACCESS ROUTE OBSTRUCTION TO OBSTRUCTION AND/OR OBSTRUCTION TO FAR EDGE OF WALK.
- THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROUTE SHALL NOT EXCEED 0.020 FT/FT
- LANDINGS SHALL BE CONNECTED TO EXISTING SIDEWALKS MAINTAINING A 4' WIDE (MINIMUM) PEDESTRIAN ACCESS ROUTE WITH A CROSS SLOPE THAT DOES NOT EXCEED 0.020 FT/FT AND A RUNNING SLOPE THAT DOES NOT EXCEED 0.050 FT/FT.
- ALL DISTRURBED AREAS IN CUT SECTION THAT ARE NOT OTHERWISE SURFACED SHALL BE GRADED FLUSH WITH NEW SURFACING AT A 1:6 SLOPE FOR A DISTANCE OF UP TO 5 FEET FROM THE EDGE OF WALK TO MATCH SURROUNDING CONTOURS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 22 at Kiowa Street NW

PEDESTRIAN RAMP DETAILS

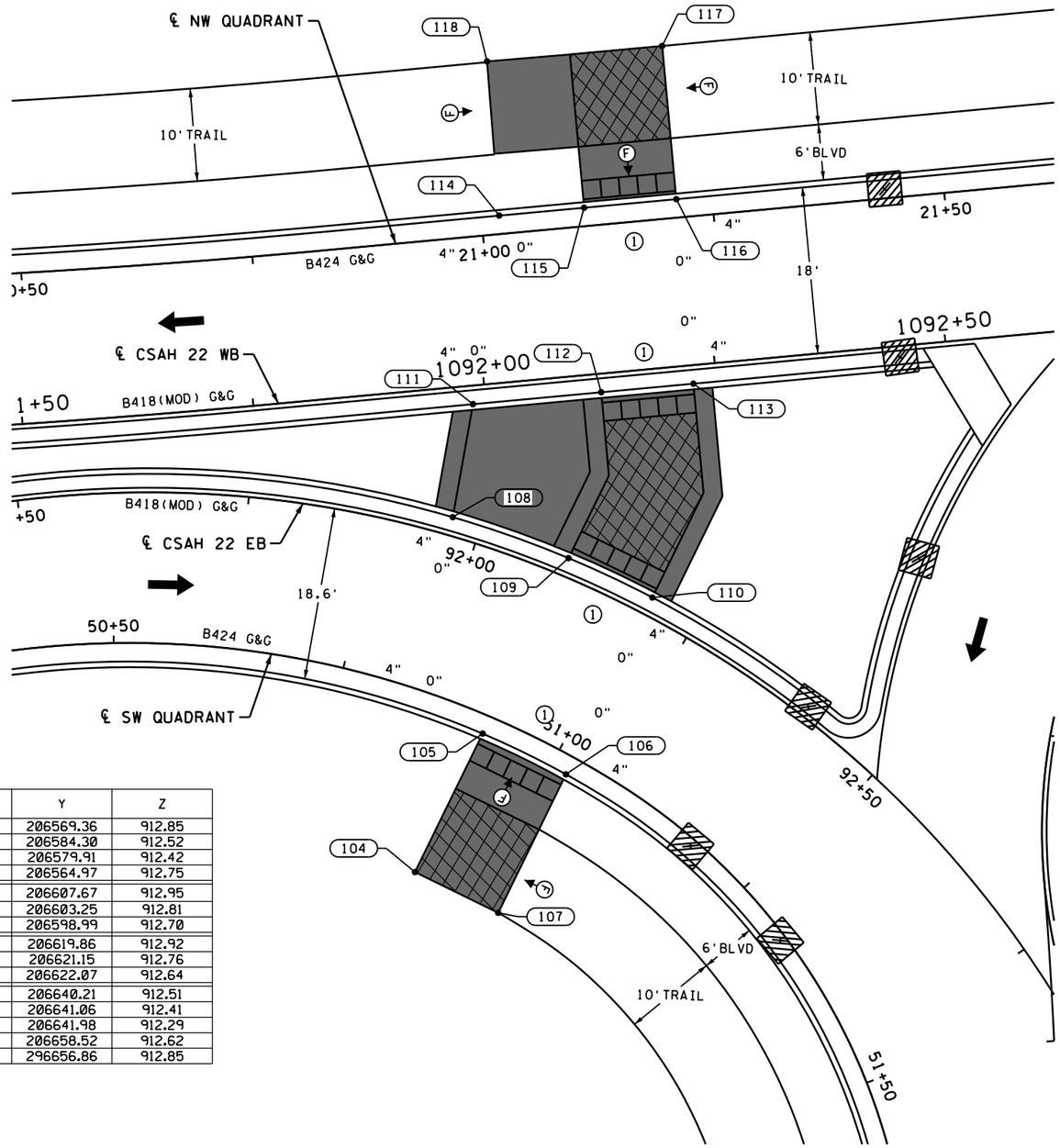
SP 002-622-041, SP 223-020-009

SHEET 102 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:32:12 PM

WSB PATH & FILENAME: P:\Projects\Minnesota\022\150-000\Civil\Plan\22150-000_ped01.dgn

CSAH 22 at CSAH Roundabout: West Leg



CONTROL POINT	X	Y	Z
104	471282.39	206569.36	912.85
105	471289.70	206584.30	912.52
106	471298.69	206579.91	912.42
107	471291.38	206564.97	912.75
108	471286.47	206607.67	912.95
109	471298.97	206603.25	912.81
110	471308.02	206598.99	912.70
111	471288.65	206619.86	912.92
112	471302.49	206621.15	912.76
113	471312.45	206622.07	912.64
114	471291.48	206640.21	912.51
115	471300.65	206641.06	912.41
116	471310.60	206641.98	912.29
117	471309.07	206658.52	912.62
118	471290.17	296656.86	912.85

N

SCALE IN FEET
0 15

LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CATCH BASIN
- X" — CURB HEIGHT
- LP — LOCALIZED LOW POINT
- 6" CONCRETE WALK
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS.
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (1) — PEDESTRIAN RAMP, SEE STANDARD PLANS

GENERAL NOTES

- MAINTAIN A MINIMUM 4' WIDE PEDESTRIAN ACCESS ROUTE OBSTRUCTION TO OBSTRUCTION AND/OR OBSTRUCTION TO FAR EDGE OF WALK.
- THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROUTE SHALL NOT EXCEED 0.020 FT/FT
- LANDINGS SHALL BE CONNECTED TO EXISTING SIDEWALKS MAINTAINING A 4' WIDE (MINIMUM) PEDESTRIAN ACCESS ROUTE WITH A CROSS SLOPE THAT DOES NOT EXCEED 0.020 FT/FT AND A RUNNING SLOPE THAT DOES NOT EXCEED 0.050 FT/FT.
- ALL DISTRURBED AREAS IN CUT SECTION THAT ARE NOT OTHERWISE SURFACED SHALL BE GRADED FLUSH WITH NEW SURFACING AT A 1:6 SLOPE FOR A DISTANCE OF UP TO 5 FEET FROM THE EDGE OF WALK TO MATCH SURROUNDING CONTOURS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 22 at CSAH 7 Roundabout: West Leg

PEDESTRIAN RAMP DETAILS

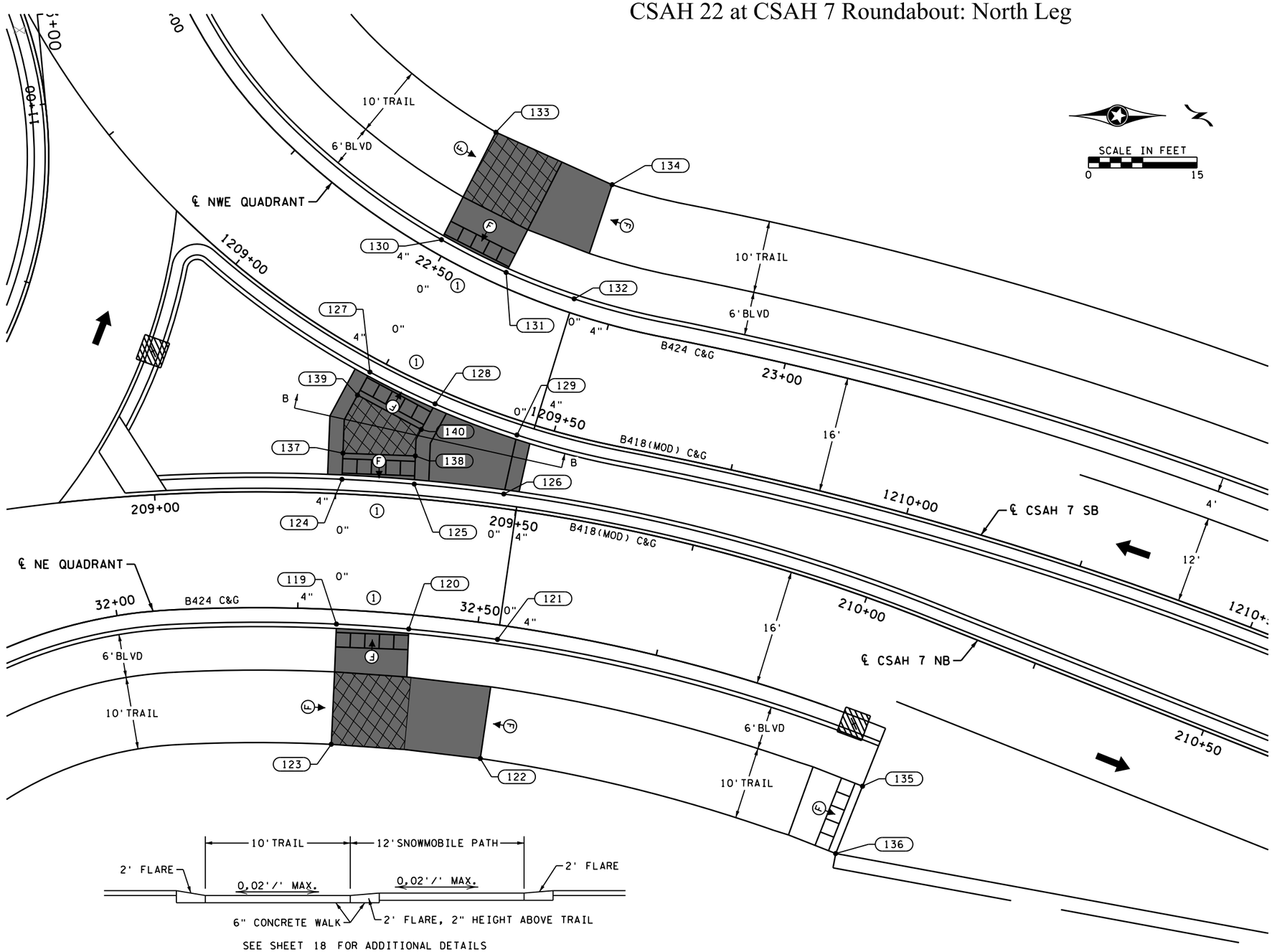
SP 002-622-041, SP 223-020-009

SHEET 103 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:32:46 PM

WSB PATH & FILENAME: Projects\Minnesota\023\50-000\Cad\Plan\23150-000_ped02.dgn

CSAH 22 at CSAH 7 Roundabout: North Leg



CONTROL POINT	X	Y	Z
119	471473.56	206672.51	909.95
120	471474.25	206682.49	909.84
121	471475.68	206694.75	909.70
122	471480.17	206672.26	910.03
123	471490.16	206671.79	910.28
124	471453.57	206673.27	910.32
125	471454.23	206683.25	910.22
126	471455.61	206695.61	910.09
127	471438.77	206677.13	910.79
128	471443.16	206686.13	910.64
129	471447.45	206697.43	910.46
130	471420.50	206687.01	910.55
131	471425.02	206695.93	910.35
132	471428.67	206705.33	910.16
133	471428.32	206705.39	910.89
134	471413.91	206690.11	910.49
135	471495.95	206745.14	908.91
136	471505.24	206741.43	908.71
137	471449.97	206673.40	910.48
138	471450.35	206683.40	910.39
139	471441.95	206675.42	910.63
140	471446.70	206684.22	910.46

SEE SHEET 18 FOR ADDITIONAL DETAILS

SECTION B-B

NO SCALE

LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CATCH BASIN
- X" — CURB HEIGHT
- LP — LOCALIZED LOW POINT
- 6" CONCRETE WALK
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS.
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
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GENERAL NOTES

- MAINTAIN A MINIMUM 4' WIDE PEDESTRIAN ACCESS ROUTE OBSTRUCTION TO OBSTRUCTION AND/OR OBSTRUCTION TO FAR EDGE OF WALK.
- THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROUTE SHALL NOT EXCEED 0.020 FT/FT
- LANDINGS SHALL BE CONNECTED TO EXISTING SIDEWALKS MAINTAINING A 4' WIDE (MINIMUM) PEDESTRIAN ACCESS ROUTE WITH A CROSS SLOPE THAT DOES NOT EXCEED 0.020 FT/FT AND A RUNNING SLOPE THAT DOES NOT EXCEED 0.050 FT/FT.
- ALL DISTRURBED AREAS IN CUT SECTION THAT ARE NOT OTHERWISE SURFACED SHALL BE GRADED FLUSH WITH NEW SURFACING AT A 1:6 SLOPE FOR A DISTANCE OF UP TO 5 FEET FROM THE EDGE OF WALK TO MATCH SURROUNDING CONTOURS.

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 22 at CSAH 7 Roundabout: North Leg

PEDESTRIAN RAMP DETAILS

SP 002-622-041, SP 223-020-009

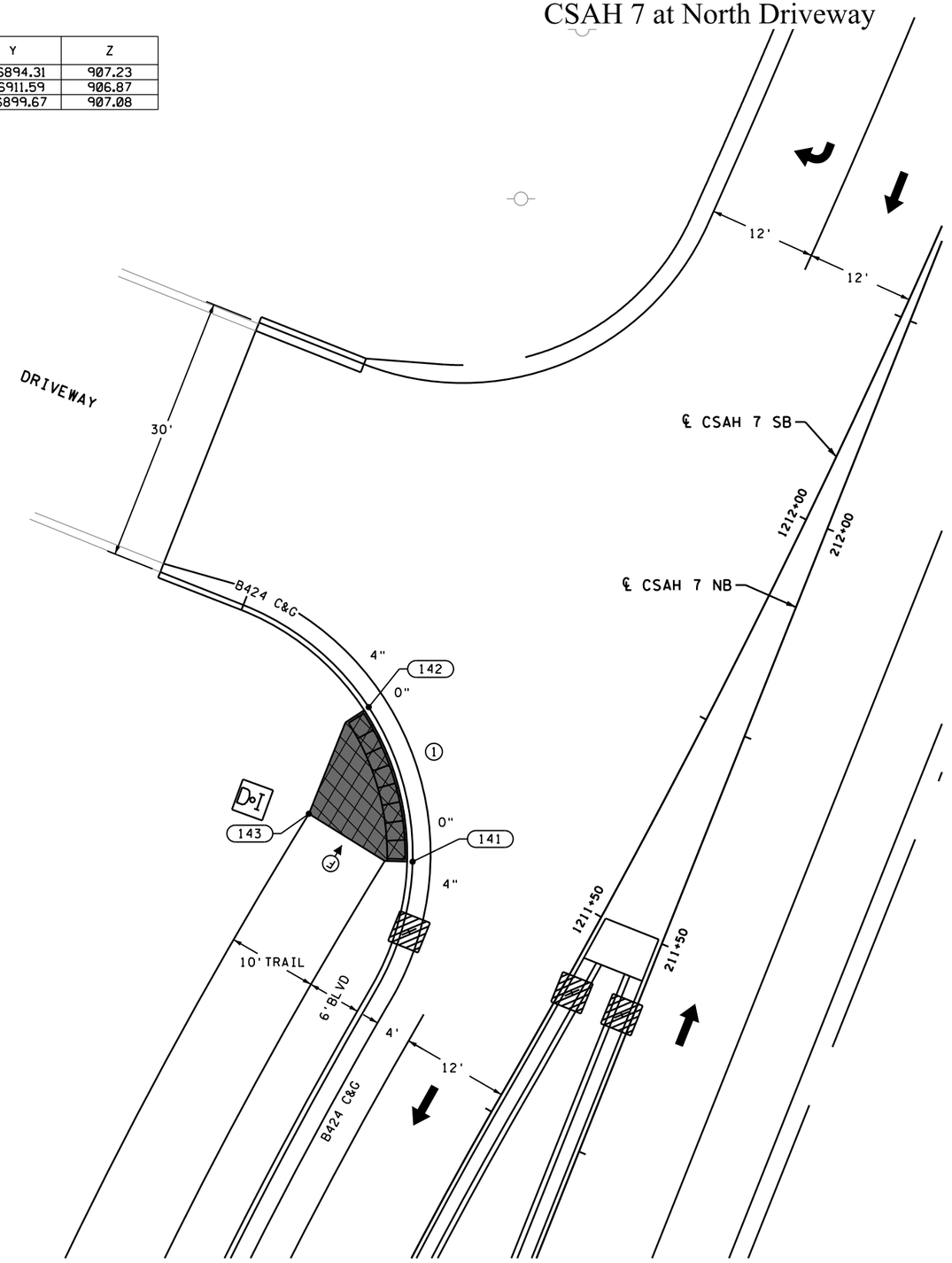
SHEET 104 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:32:23 PM

WSB PATH & FILENAME: P:\Projects\Minnesota\002\150-000\Cad\Plan\2\150-000_ped03.dgn

CSAH 7 at North Driveway

CONTROL POINT	X	Y	Z
141	471497.41	206894.31	907.23
142	471492.51	206911.59	906.87
143	471485.80	206899.67	907.08



LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CATCH BASIN
- X" — CURB HEIGHT
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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLUNKMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

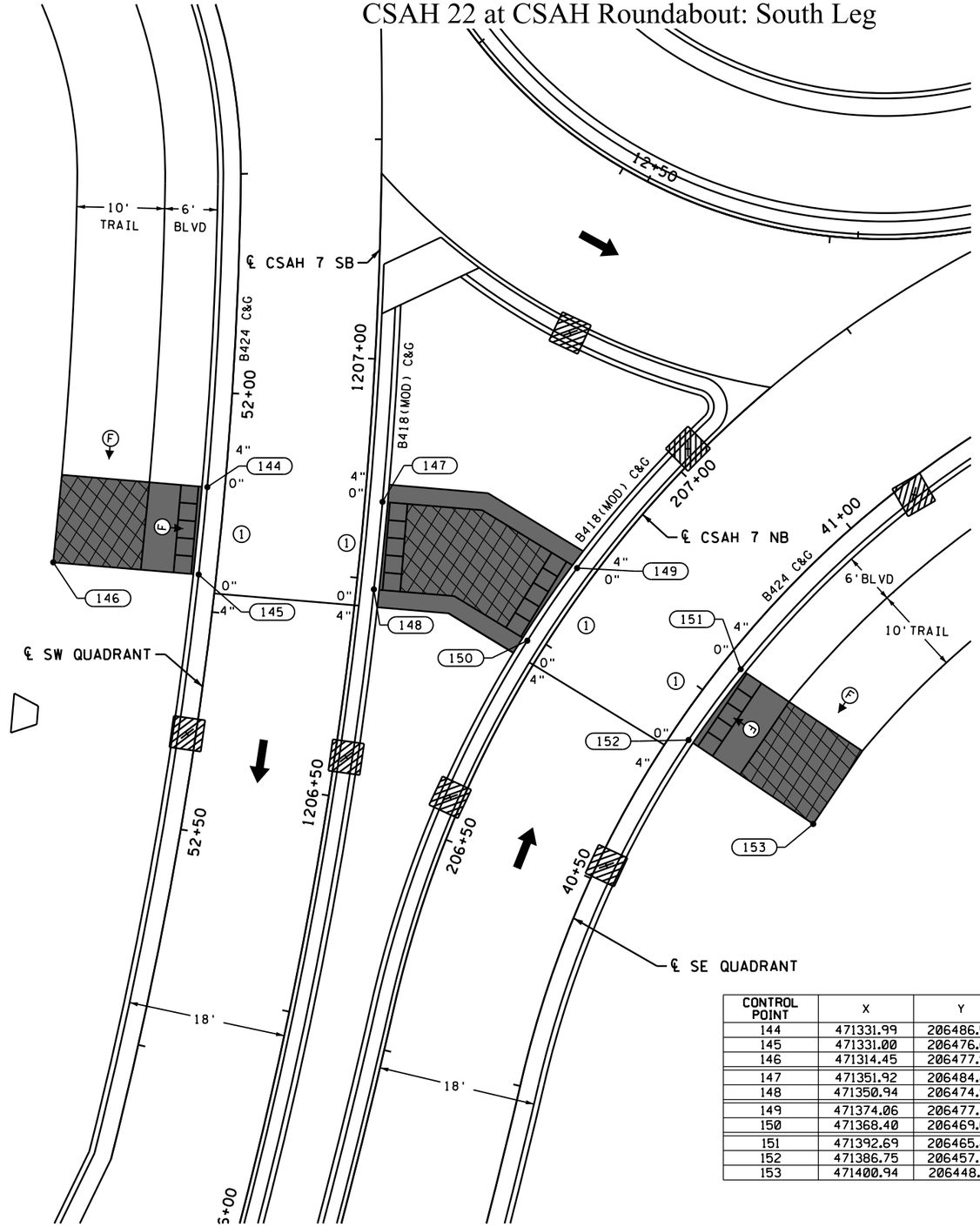
CSAH 7 at North Driveway

PEDESTRIAN RAMP DETAILS

SP 002-622-041, SP 223-020-009

SHEET 105 OF 133 SHEETS

CSAH 22 at CSAH Roundabout: South Leg



CONTROL POINT	X	Y	Z
144	471331.99	206486.55	911.50
145	471331.00	206476.60	911.40
146	471314.45	206477.99	911.74
147	471351.92	206484.87	911.74
148	471350.94	206474.92	911.69
149	471374.06	206477.33	911.39
150	471368.40	206469.07	911.44
151	471392.69	206465.82	911.00
152	471386.75	206457.77	911.06
153	471400.94	206448.21	911.41

N

SCALE IN FEET
0 15

LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

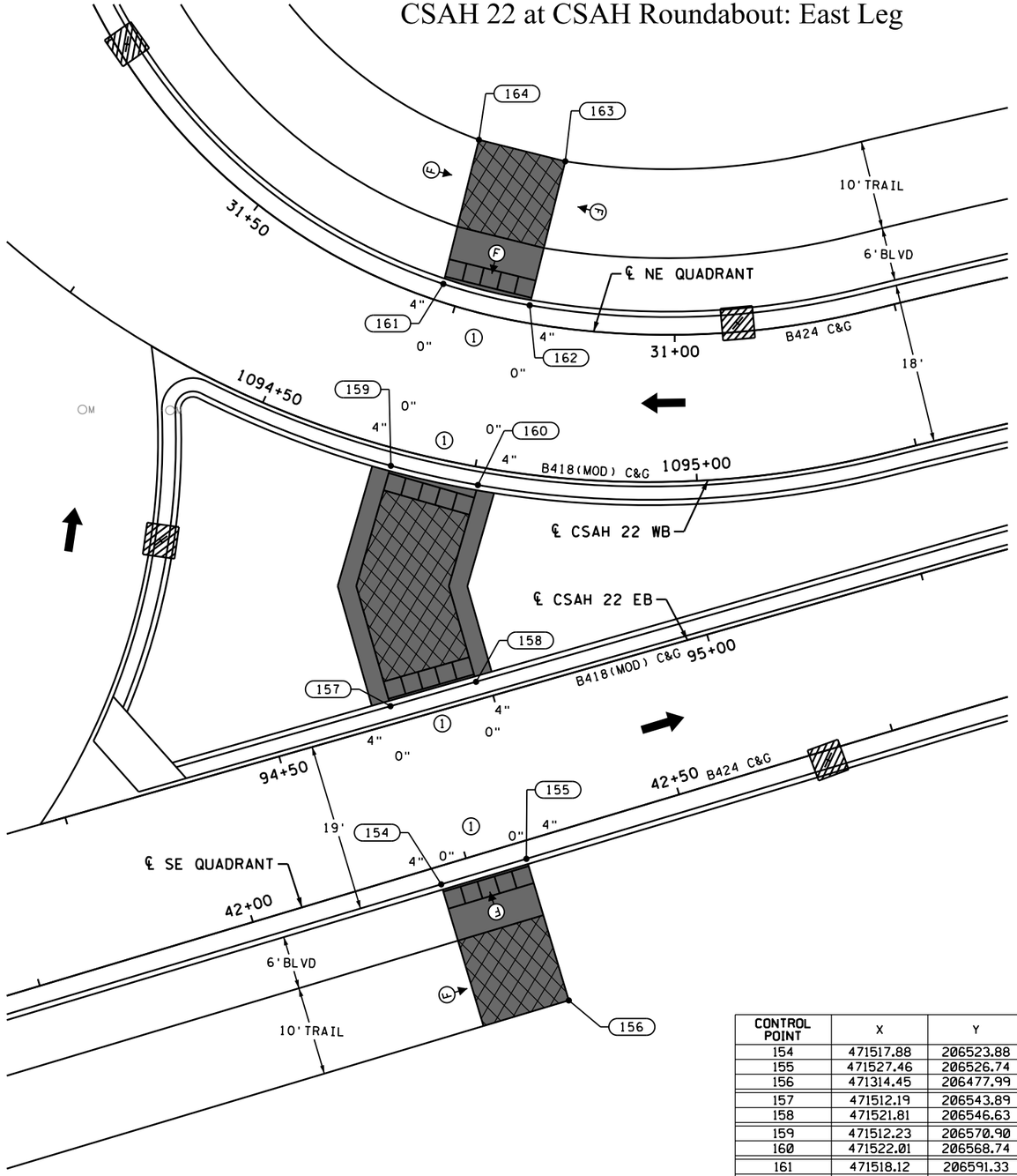
CSAH 22 at CSAH 7 Roundabout: South Leg

PEDESTRIAN RAMP DETAILS

SP 002-622-041, SP 223-020-009

SHEET 106 OF 133 SHEETS

CSAH 22 at CSAH Roundabout: East Leg



CONTROL POINT	X	Y	Z
154	471517.88	206523.88	909.58
155	471527.46	206526.74	909.51
156	471314.45	206477.99	909.84
157	471512.19	206543.89	909.91
158	471521.81	206546.63	909.85
159	471512.23	206570.90	909.96
160	471522.01	206568.74	909.90
161	471518.12	206591.33	909.64
162	471527.83	206588.93	909.53
163	471400.94	206448.21	909.86
164	471400.94	206448.21	909.54

N

SCALE IN FEET
0 15

LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
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Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLUMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

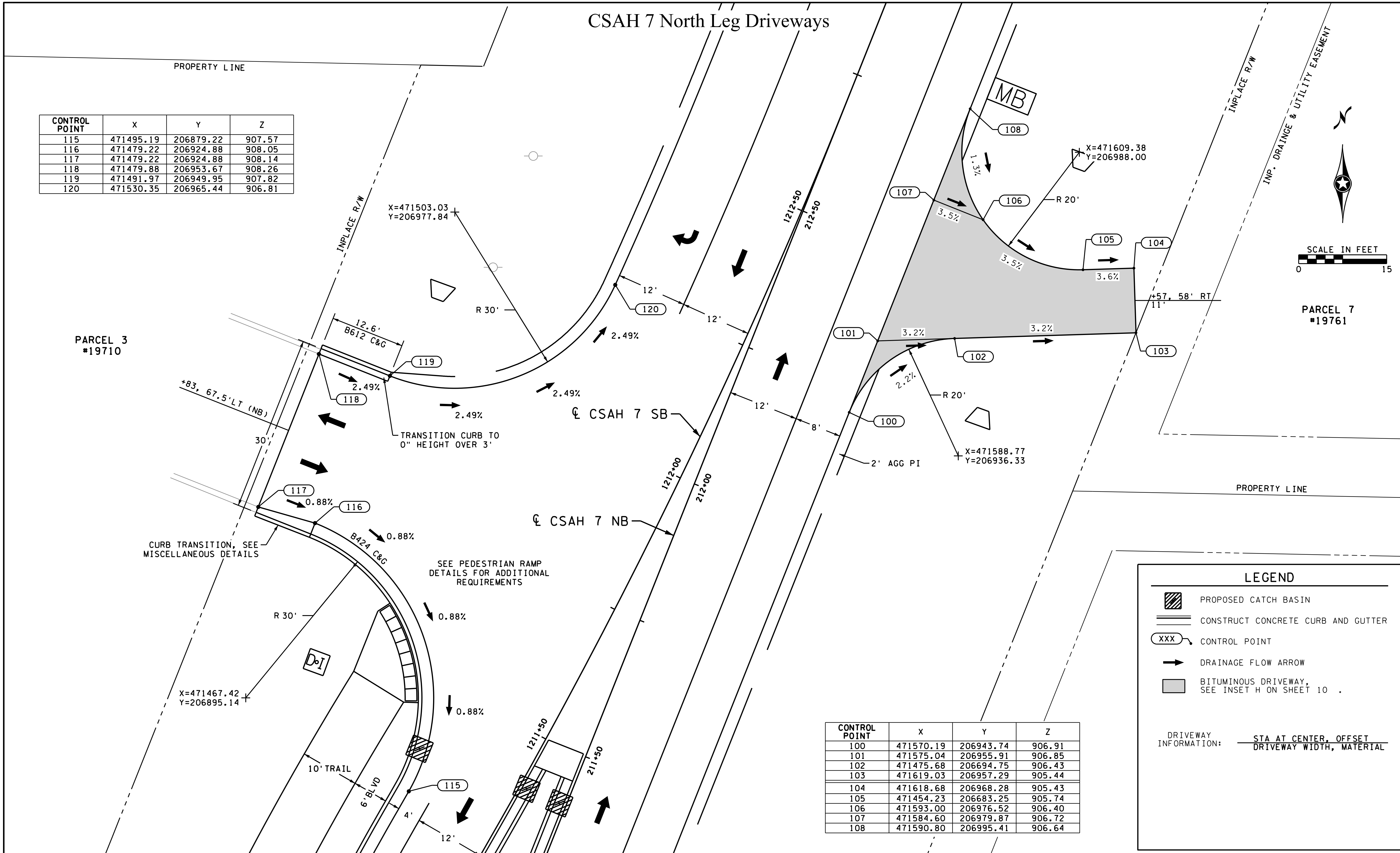
CSAH 22 at CSAH 7 Roundabout: East Leg

PEDESTRIAN RAMP DETAILS

SP 002-622-041, SP 223-020-009

SHEET 107 OF 133 SHEETS

CSAH 7 North Leg Driveways



CONTROL POINT	X	Y	Z
115	471495.19	206879.22	907.57
116	471479.22	206924.88	908.05
117	471479.22	206924.88	908.14
118	471479.88	206953.67	908.26
119	471491.97	206949.95	907.82
120	471530.35	206965.44	906.81

CONTROL POINT	X	Y	Z
100	471570.19	206943.74	906.91
101	471575.04	206955.91	906.85
102	471475.68	206694.75	906.43
103	471619.03	206957.29	905.44
104	471618.68	206968.28	905.43
105	471454.23	206683.25	905.74
106	471593.00	206976.52	906.40
107	471584.60	206979.87	906.72
108	471590.80	206995.41	906.64

PLOTTED/REVISED: 2/7/2024 3:32:48 PM

WSB PATH & FILENAME: Projects\Minnesota\021150-000\Cad\Plan\21150-000_drwy01.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

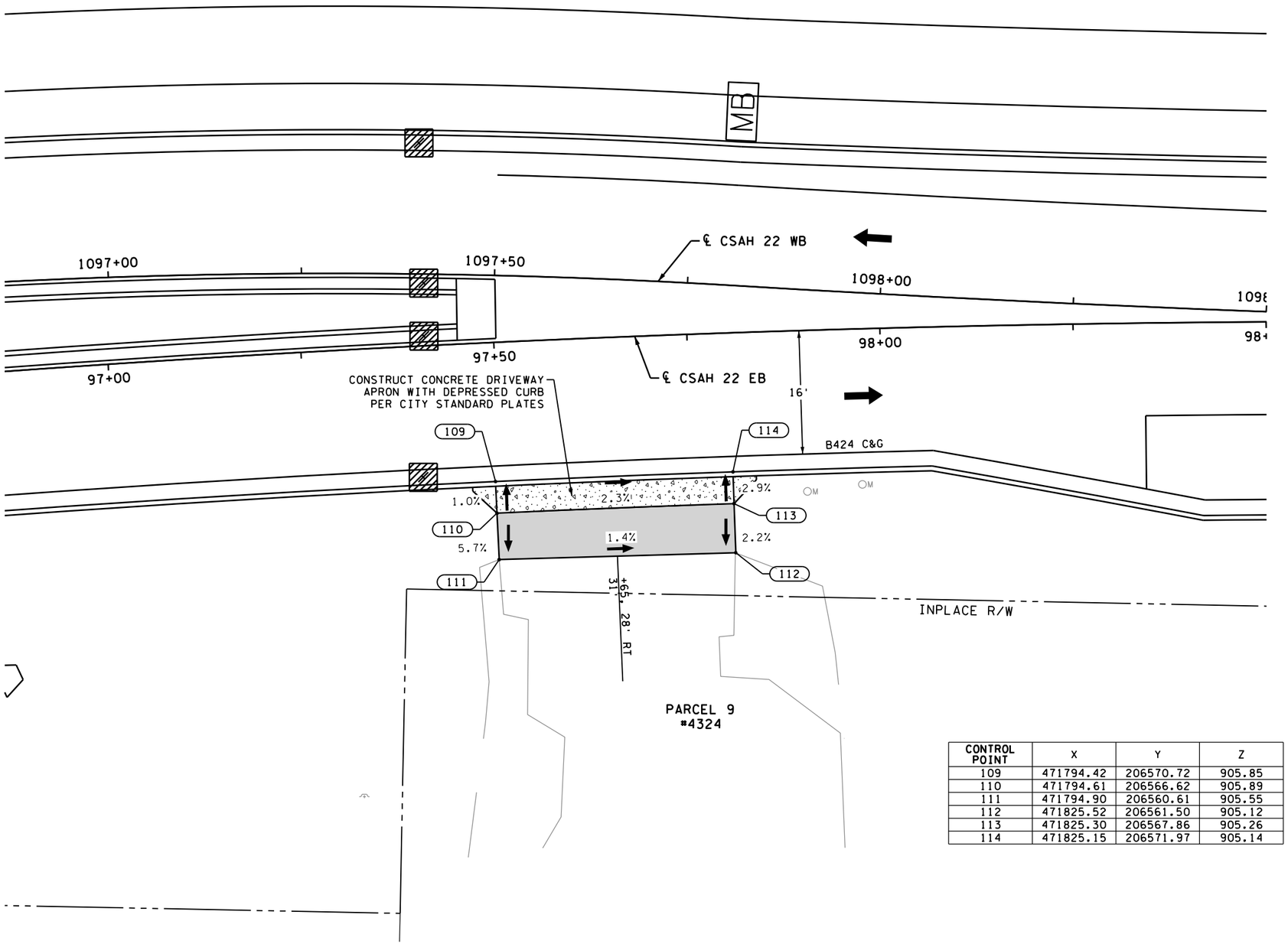
CSAH 7 North Leg Driveways

DRIVEWAY DETAILS

SP 002-622-041, SP 223-020-009

SHEET **108** OF **133** SHEETS

CSAH 22 East Leg Driveway



CONTROL POINT	X	Y	Z
109	471794.42	206570.72	905.85
110	471794.61	206566.62	905.89
111	471794.90	206560.61	905.55
112	471825.52	206561.50	905.12
113	471825.30	206567.86	905.26
114	471825.15	206571.97	905.14

LEGEND

- PROPOSED CATCH BASIN
- CONSTRUCT CONCRETE CURB AND GUTTER
- XXX — CONTROL POINT
- DRAINAGE FLOW ARROW
- BITUMINOUS DRIVEWAY, SEE INSET "H" ON SHEET 10 .
- CONCRET DRIVEWAY, SEE INSET "G" ON SHEET 10 .

DRIVEWAY INFORMATION: STA AT CENTER, OFFSET / DRIVEWAY WIDTH, MATERIAL

N

SCALE IN FEET
0 15

PLOTTED/REVISED: 2/7/2024 3:32:54 PM

WSB PATH & FILENAME: Projects\Minnesota\02I\50-000\Cad\Plan\2I50-000_drwy02.dgn

NO.	DATE	BY	CHK	REVISIONS

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DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

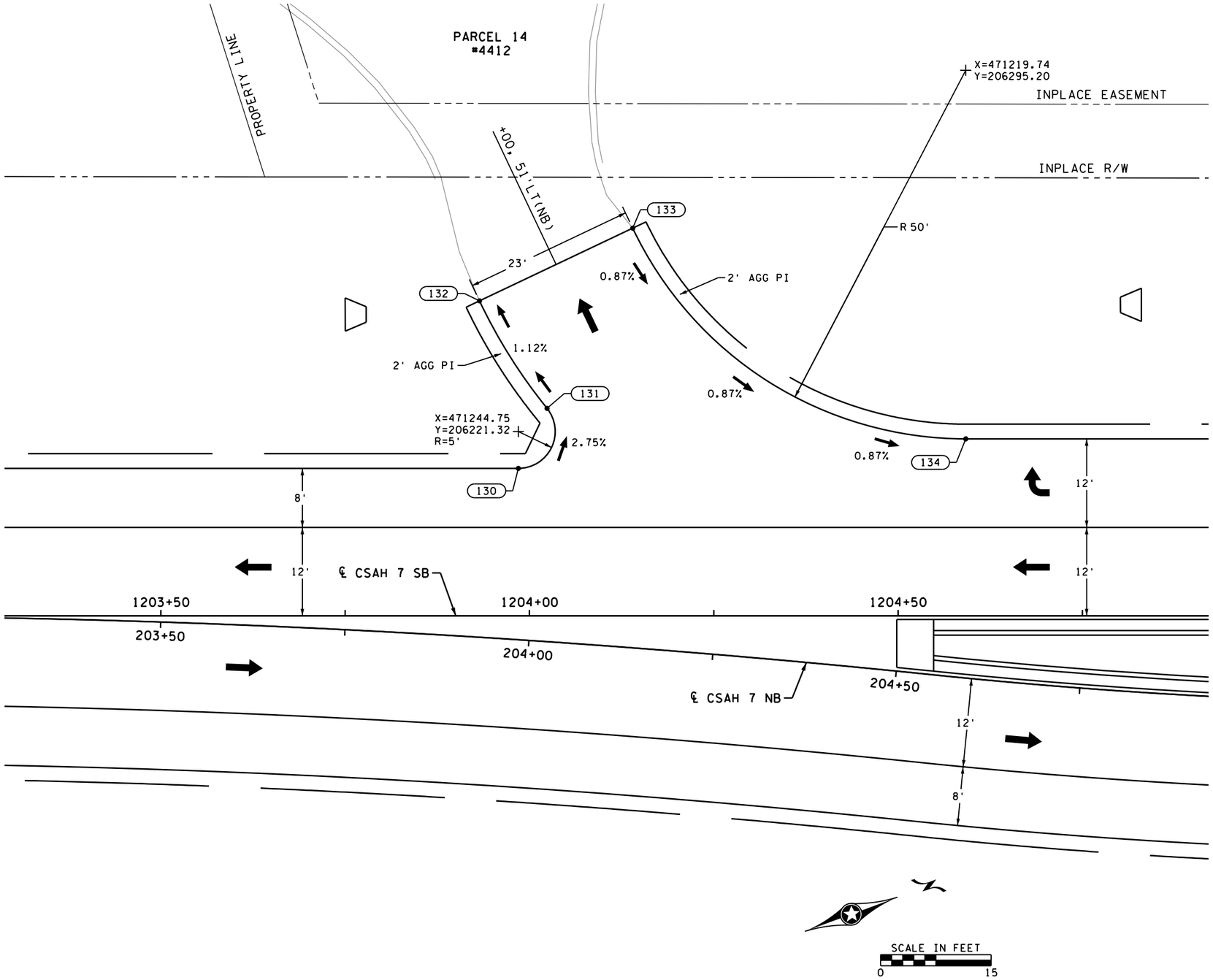
CSAH 22 East Leg Driveway

DRIVEWAY DETAILS

SP 002-622-041, SP 223-020-009

SHEET 109 OF 133 SHEETS

Bill's Superette CSAH 7 Driveway



CONTROL POINT	X	Y	Z
130	471249.44	206219.59	916.31
131	471243.14	206226.05	916.00
132	471226.30	206222.50	915.81
133	471224.23	206245.40	915.67
134	471266.66	206277.92	915.18

LEGEND

- PROPOSED CATCH BASIN
- CONSTRUCT CONCRETE CURB AND GUTTER
- XXX — CONTROL POINT
- DRAINAGE FLOW ARROW
- BITUMINOUS DRIVEWAY, SEE INSET "H" ON SHEET 10 .
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DRIVEWAY INFORMATION: STA AT CENTER, OFFSET / DRIVEWAY WIDTH

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

Bill's Superette CSAH 7 Driveway

DRIVEWAY DETAILS

SP 002-622-041, SP 223-020-009

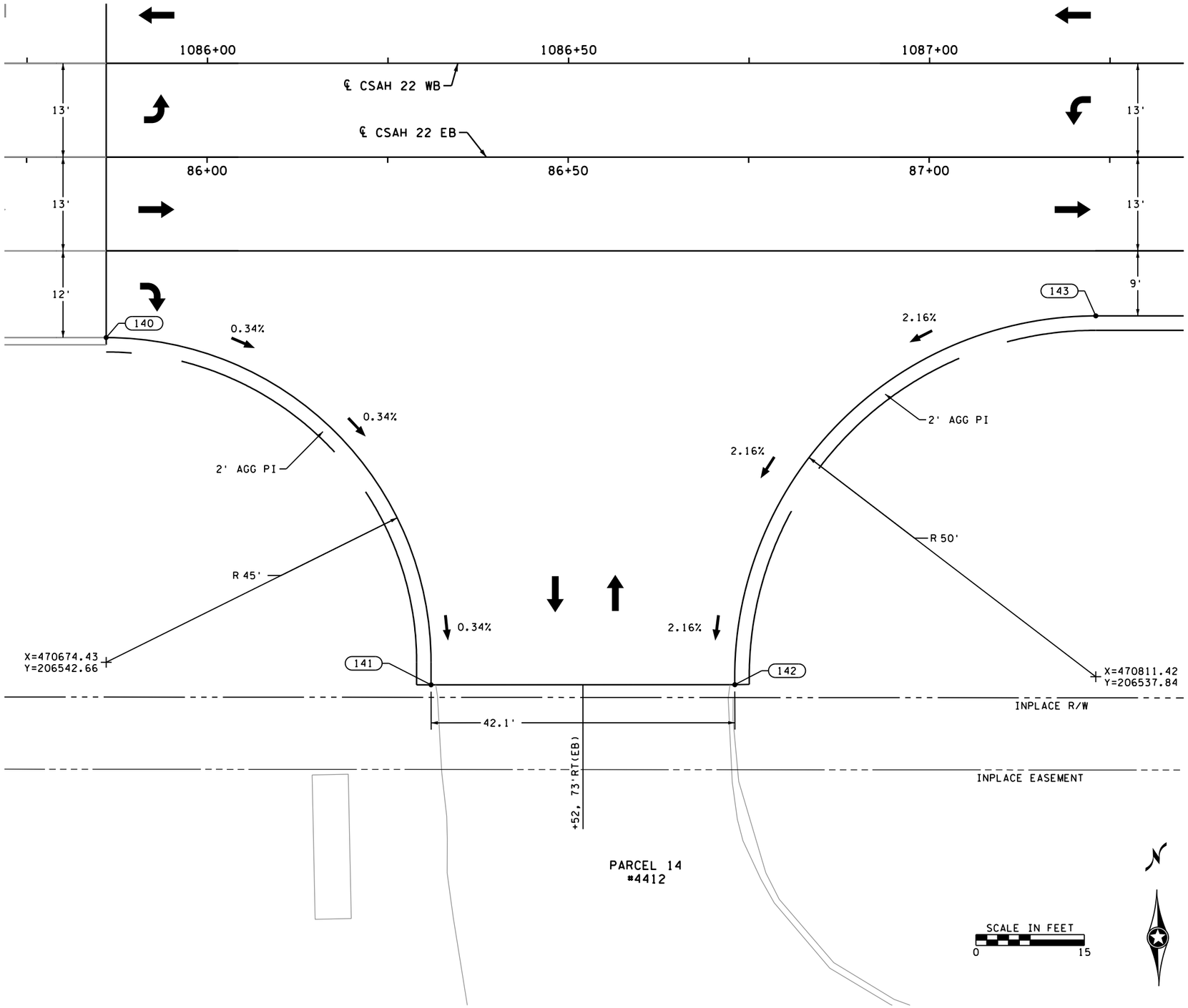
SHEET 110 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:33:00 PM

WSB PATH & FILENAME: Projects\Minnesota\002\150-000\Cad\Plan\2\150-000_drwy03.dgn

PLOTTED/REVISED: 2/7/2024 3:33:06 PM

Bill's Superette CSAH 22 Driveway



CONTROL POINT	X	Y	Z
140	470675.36	206587.65	914.26
141	470716.37	206538.62	914.02
142	470761.42	206537.77	913.68
143	470812.45	206587.83	915.40

LEGEND

- PROPOSED CATCH BASIN
- CONSTRUCT CONCRETE CURB AND GUTTER
- XXX — CONTROL POINT
- DRAINAGE FLOW ARROW
- BITUMINOUS DRIVEWAY, SEE INSET "H" ON SHEET 10 .
- CONCRET DRIVEWAY, SEE INSET "G" ON SHEET 10 .

DRIVEWAY INFORMATION: STA AT CENTER, OFFSET / DRIVEWAY WIDTH

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

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

PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

Bill's Superette CSAH 22 Driveway

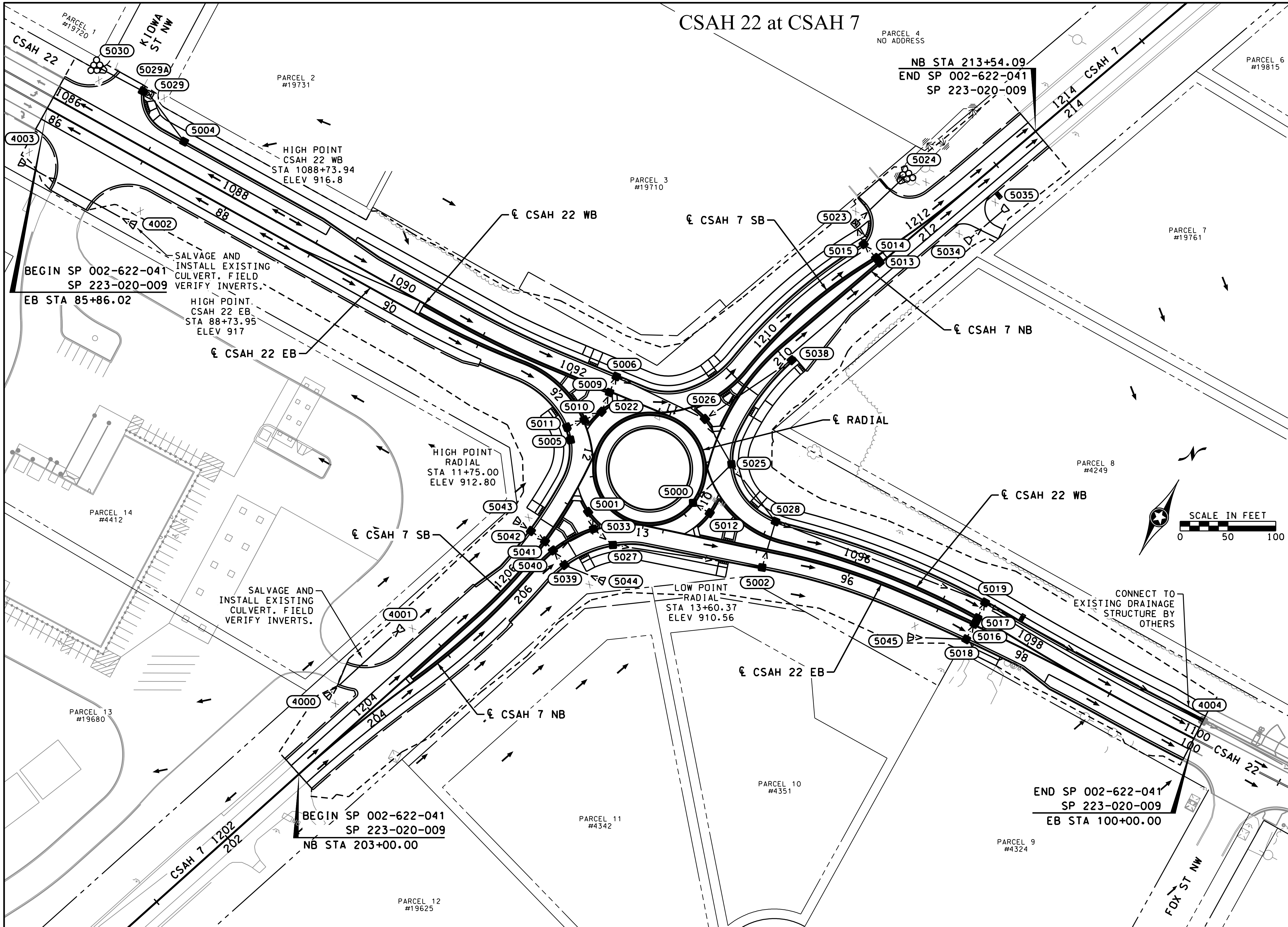
DRIVEWAY DETAILS

SP 002-622-041, SP 223-020-009

SHEET 111 OF 133 SHEETS

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\22\150-000_drwy04.dgn

CSAH 22 at CSAH 7



CSAH 22 at CSAH 7
PARCEL 1 #19720
PARCEL 2 #19731
PARCEL 3 #19710
PARCEL 4 NO ADDRESS
PARCEL 6 #19815
PARCEL 7 #19761
PARCEL 8 #4249
PARCEL 9 #4324
PARCEL 10 #4351
PARCEL 11 #4342
PARCEL 12 #19625
PARCEL 13 #19680
PARCEL 14 #4412
KIOWA ST NW
FOX ST NW
CSAH 22
CSAH 7
HIGH POINT CSAH 22 WB STA 1088+73.94 ELEV 916.8
HIGH POINT CSAH 22 EB STA 88+73.95 ELEV 917
HIGH POINT RADIAL STA 11+75.00 ELEV 912.80
LOW POINT RADIAL STA 13+60.37 ELEV 910.56
SALVAGE AND INSTALL EXISTING CULVERT. FIELD VERIFY INVERTS.
BEGIN SP 002-622-041 SP 223-020-009 EB STA 85+86.02
BEGIN SP 002-622-041 SP 223-020-009 NB STA 203+00.00
NB STA 213+54.09 END SP 002-622-041 SP 223-020-009
END SP 002-622-041 SP 223-020-009 EB STA 100+00.00
CONNECT TO EXISTING DRAINAGE STRUCTURE BY OTHERS
℄ CSAH 22 WB
℄ CSAH 22 EB
℄ CSAH 7 SB
℄ CSAH 7 NB
℄ RADIAL
SCALE IN FEET 0 50 100

LEGEND

×	GUIDE POST TYPE B
	RANDOM RIPRAP
	CATCH BASIN
	MANHOLE
	DROP INLET
	APRON
(XXXX)	STRUCTURE
	SURFACE FLOW DIRECTION
	STORM SEWER PIPE
	CULVERT PIPE
	INPLACE STORM SEWER
	INPLACE CULVERT
	CONSTRUCTION LIMITS

GENERAL NOTES

1. SEE ROADWAY PROFILE FOR ALL HIGH AND LOW POINTS.

NO.	DATE	BY	CHK	REVISIONS

Design By: GFT
Plan By: GFT
Checked By: EAE
Approved By: EAE

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

PRINT NAME: EARTH A. EVANS, PE

DATE 2/7/2024 LICENSE # 44235

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

DRAINAGE PLAN

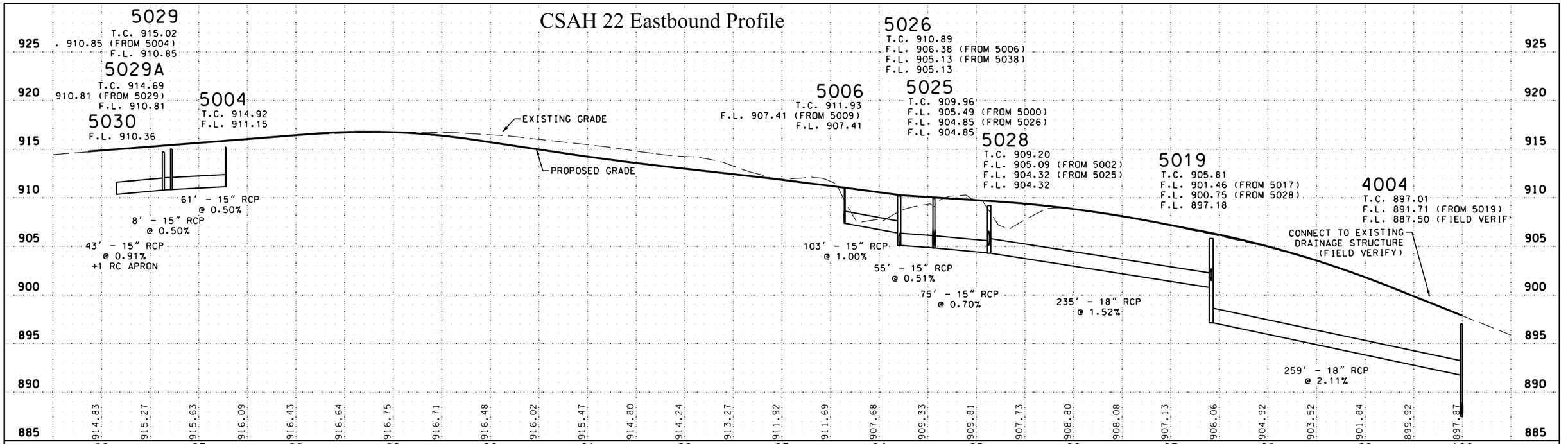
SP 002-622-041, SP 223-020-009

PLOTTED/REVISED: 2/7/2024 3:33:13 PM

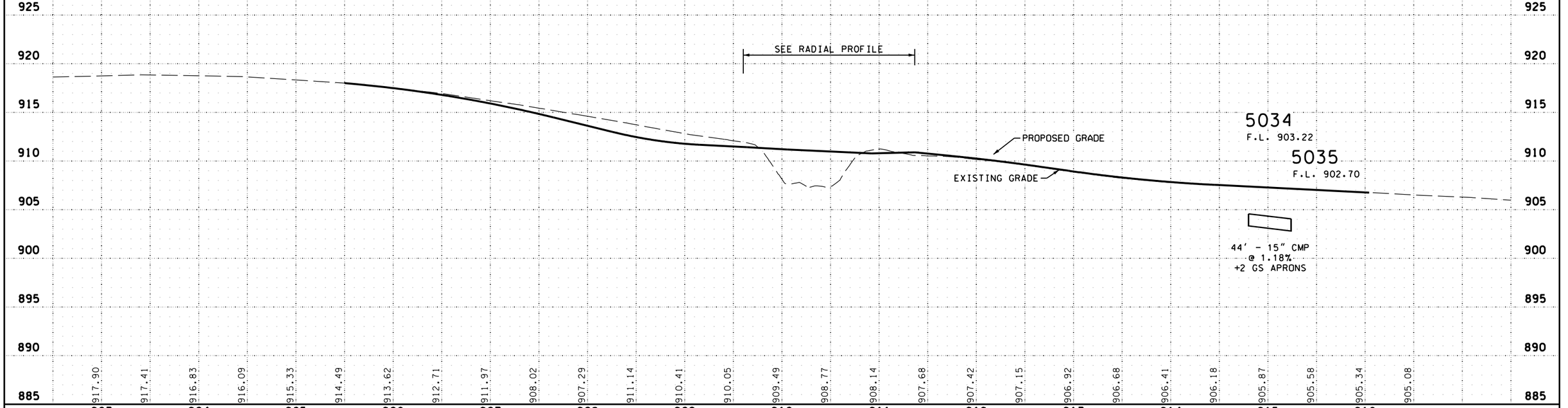
WSB PATH & FILENAME: Projects\Minnesota\022\50-000\Cad\Plan\2150-000_dp01.dgn

PLOTTED/REVISED: 2/7/2024 3:33:17 PM

CSAH 22 Eastbound Profile



CSAH 7 Northbound Profile



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NO.	DATE	BY	CHK	REVISIONS

Design By: GFT
Plan By: GFT
Checked By: EAE
Approved By: EAE

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PRINT NAME: EARTH A. EVANS, PE

DATE 2/7/2024 LICENSE # 44235

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

DRAINAGE PROFILES

SP 002-622-041, SP 223-020-009

SHEET 113 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:33:19 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_dp02.dgn

935 930 925 920 915 910 905 900 895

5011
T.C. 912.02
F.L. 907.80 (FROM 5005)
F.L. 907.80

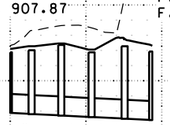
5010
T.C. 912.36
F.L. 907.71 (FROM 5011)
F.L. 907.71

5022
T.C. 911.88
F.L. 907.61 (FROM 5010)
F.L. 907.61

5009
T.C. 912.28
F.L. 907.50 (FROM 5022)
F.L. 907.50

5005
T.C. 911.87
F.L. 907.87

5006
T.C. 911.93
F.L. 907.41 (FROM 5009)
F.L. 907.41

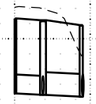


14' - 15" RCP @ 0.50%
20' - 15" RCP @ 0.50%
20' - 15" RCP @ 0.50%
22' - 15" RCP @ 0.50%
18' - 15" RCP @ 0.50%

5001
T.C. 911.33
F.L. 906.39

5033
T.C. 911.15
F.L. 906.29 (FROM 5001)
F.L. 906.29 (FROM 5040)
F.L. 906.29

5027
T.C. 910.86
F.L. 906.16 (FROM 5033)
F.L. 906.16

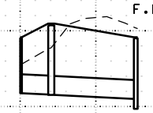


19' - 15" RCP @ 0.50%
26' - 18" RCP @ 0.50%

5012
T.C. 909.53
F.L. 905.88

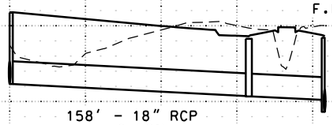
5000
T.C. 910.37
F.L. 905.78 (FROM 5012)
F.L. 905.78

5025
T.C. 909.96
F.L. 905.49 (FROM 5000)
F.L. 904.85 (FROM 5026)
F.L. 904.85



21' - 15" RCP @ 0.50%
57' - 15" RCP @ 0.50%

5027



158' - 18" RCP @ 0.52%
50' - 18" RCP @ 0.50%

5002
T.C. 909.14
F.L. 905.34 (FROM 5027)
F.L. 905.34

5028
T.C. 909.20
F.L. 905.09 (FROM 5002)
F.L. 904.32 (FROM 5025)
F.L. 904.32

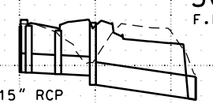
5013
T.C. 907.62
F.L. 904.56

5014
T.C. 907.63
F.L. 904.53 (FROM 5013)
F.L. 904.53

5015
T.C. 907.30
F.L. 904.43 (FROM 5014)
F.L. 904.43

5023
T.C. 907.82
F.L. 904.32 (FROM 5015)
F.L. 903.75

5024
F.L. 902.74



6' - 15" RCP @ 0.50%
19' - 15" RCP @ 0.50%
23' - 15" RCP @ 0.50%
62' - 18" RCP @ 1.49%
+1 RC APRON

5042
T.C. 911.15
F.L. 908.60 (FROM 5043)
F.L. 907.10

5041
T.C. 911.50
F.L. 907.00 (FROM 5042)
F.L. 907.00

5040
T.C. 911.44
F.L. 906.99 (FROM 5039)
F.L. 906.94 (FROM 5041)
F.L. 906.94

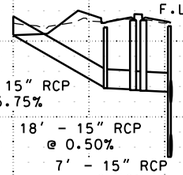
5045
F.L. 905.22

5018
T.C. 905.73
F.L. 901.72

5016
T.C. 906.20
F.L. 901.62 (FROM 5018)
F.L. 901.59

5017
T.C. 906.20
F.L. 901.55 (FROM 5016)
F.L. 901.55

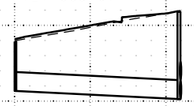
5019
T.C. 905.81
F.L. 901.46 (FROM 5017)
F.L. 900.75 (FROM 5028)
F.L. 897.18



55' - 15" RCP @ 5.75%
18' - 15" RCP @ 0.50%
7' - 15" RCP @ 0.50%
18' - 15" RCP @ 0.50%

5026
T.C. 910.89
F.L. 906.38 (FROM 5006)
F.L. 905.13 (FROM 5038)
F.L. 905.13

5038
T.C. 908.93
F.L. 905.67

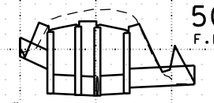


110' - 15" RCP @ 0.49%

5043
F.L. 909.53

5039
T.C. 911.09
F.L. 907.46 (FROM 5044)
F.L. 907.09

5044
F.L. 907.68



14' - 15" RCP @ 4.65%
18' - 15" RCP @ 0.55%
13' - 15" RCP @ 0.47%
48' - 15" RCP @ 1.35%
39' - 15" RCP @ 0.50%

NO.	DATE	BY	CHK	REVISIONS

Design By: GFT
Plan By: GFT
Checked By: EAE
Approved By: EAE

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

PRINT NAME: EARTH A. EVANS, PE
DATE 2/7/2024 LICENSE # 44235

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

DRAINAGE PROFILES
SP 002-622-041, SP 223-020-009

SHEET 114 OF 133 SHEETS

DRAINAGE TABULATION

H

STRUCTURE NO. FLOWS FROM	STRUCTURE NO. FLOWS TO	STRUCTURE LOCATION ALIGN.	STATION	OFFSET	COORDINATES X	Y	DRAINAGE STRUCTURES TYPE	DESIGN	PAY HEIGHT G (LIN FT)	H (LIN FT)	SD-48 (LIN FT)	48-4020 (LIN FT)	60-4020 (LIN FT)	CASTING ASSEMBLY TYPE	CASTING ASSEMBLY TYPE	STEPS REQ'D	CONNECT INTO EXISTING DRAINAGE STRUCTURE EACH	TOP OF CASTING ELEV	OUTLET ELEV.	INLET ELEV.	15" RCP CL V LIN FT	18" RCP CL V LIN FT	APRON EACH	APRON TYPE	RIPRAP CLASS III CU YD	GEOTEXTILE FILTER TYPE 4 SQ YD	GUIDE POSTS TYPE B EACH	REMARKS
5000	5025	RADIAL	1+360	1.3 LT	471465.88	206563.73	CB	48-4020				4.9		C - 1	TYPE - B	YES		910.37	905.78	905.49	57							
5001	5033	CSAH7_SB1	120+704	22.0 RT	471373.27	206504.09	CB	H		5.2				C - 1	TYPE - B	YES		911.33	906.39	906.29	19							
5002	5028	CSAH22_EB	9+509	17.3 RT	471561.37	206537.83	CB	48-4020				3.7		B - 9	TYPE - C			909.14	905.34	905.09		50						
5004	5029	CSAH22_WB	108+728	25.0 LT	470818.73	206647.71	CB	H		3.7				B - 9	TYPE - C	YES		914.92	911.15	910.85	61							
5005	5011	O_SW	5+132	0.7 RT	471321.83	206561.98	CB	H		3.9				B - 9	TYPE - C	YES		911.87	907.87	907.80	14							
5006	5026	CSAH22_WB	109+245	17.0 LT	471333.08	206643.08	CB	48-4020				4.4		C - 1	TYPE - C			911.93	907.41	906.38	103							
5009	5006	CSAH22_WB	109+245	1.2 RT	471334.77	206624.94	CB	48-4020				5.1		C - 1	TYPE - B	YES		912.28	907.50	907.41	18							
5010	5022	CSAH22_EB	9+240	1.2 LT	471324.82	206587.20	CB	48-4020				4.9		C - 1	TYPE - B	YES		912.36	907.71	907.61	20							
5011	5010	CSAH22_EB	9+239	18.5 RT	471312.13	206572.17	CB	48-4020				4.1		B - 9	TYPE - C			912.02	907.80	907.71	20							
5012	5000	CSAH22_EB	9+444	26.9 LT	471486.37	206562.47	CB	H		3.9				C - 1	TYPE - B	YES		909.53	905.88	905.78	21							
5013	5014	CSAH7_NB	21+141	1.2 LT	471520.81	206877.20	CB	H		3.3				C - 1	TYPE - B	YES		907.62	904.56	904.53	6							
5014	5015	CSAH7_SB2	121+141	1.2 RT	471515.22	206879.65	CB	G	3.4					C - 1	TYPE - B	YES		907.63	904.53	904.43	19							
5015	5023	CSAH7_SB2	121+138	18.0 LT	471497.01	206886.47	CB	G	2.8					B - 9	TYPE - C	YES		907.30	904.43	904.32	23							
5016	5017	CSAH22_EB	9+741	1.2 LT	471785.15	206589.53	CB	48-4020				4.9		C - 1	TYPE - B	YES		906.20	901.59	901.55	7							
5017	5019	CSAH22_WB	109+741	1.2 RT	471785.13	206596.41	CB	48-4020				4.9		C - 1	TYPE - B	YES		906.20	901.55	901.46	18							
5018	5016	CSAH22_EB	9+740	17.0 RT	471785.07	206571.27	CB	H		3.9				B - 9	TYPE - C	YES		905.73	901.72	901.62	18							
5019	4004	CSAH22_WB	109+740	17.0 LT	471784.50	206614.55	CB	48-4020				8.6		B - 9	TYPE - C	YES	1	905.81	897.18	891.71		259						
5022	5009	CSAH22_WB	109+245	23.0 RT	471336.78	206603.24	CB	48-4020				4.6		C - 1	TYPE - B	YES		911.88	907.61	907.50	22							
5023	5024	CSAH7_SB2	121+142	40.5 LT	471479.50	206901.22	CB	48-4020				4.1		M - 11	M - 11			907.82	903.75	902.74		62					1	
5024		CSAH7_SB2	121+213	50.7 LT	471501.03	206965.63												902.74					1	RC APRON	7	26	1	A
5025	5028	O_NE	3+174	1.1 RT	471482.56	206618.26	CB	60-4020					5.0	B - 9	TYPE - C	YES		909.96	904.85	904.32	75							
5026	5025	RADIAL	1+072	19.1 RT	471435.89	206647.17	CB	48-4020				6		C - 1	TYPE - B	YES		910.89	905.13	904.85	55							
5027	5002	CSAH7_NB	20+719	19.8 RT	471412.39	206485.67	CB	48-4020				4.6		B - 9	TYPE - C	YES		910.86	906.16	905.34		158						
5028	5019	CSAH22_WB	109+506	17.3 LT	471551.21	206586.91	CB	48-4020				4.8		B - 9	TYPE - C	YES		909.20	904.32	900.75		235						
5029	5029A	CSAH22_WB	108+673	50.3 LT	470763.82	206674.13	CB	48-4020				4.2		M - 11	M - 11			915.02	910.85	910.81	8						1	
5029A	5030	CSAH22_WB	108+665	50.2 LT	470755.72	206674.17	CB	48-4020				3.8		B - 9	TYPE - C			914.69	910.81	910.36	44							
5030		CSAH22_WB	108+615	49.4 LT	470706.59	206675.43													910.36				1	RC APRON	5	21	1	A
5033	5027	CSAH7_NB	20+702	1.3 LT	471386.68	206490.92	CB	48-4020				5.1		C - 1	TYPE - B	YES		911.15	906.29	906.16		26						
5038	5026	CSAH7_NB	21+004	17.0 RT	471487.32	206743.94	CB	H		3.2				B - 9	TYPE - C	YES		908.93	905.67	905.13	110							
5039	5040	CSAH7_NB	20+655	18.0 RT	471377.40	206443.48	CB	SD-48			3.0			B - 5	TYPE - D	YES		911.09	907.09	906.99	19							
5040	5033	CSAH7_NB	20+655	1.4 LT	471359.62	206451.25	CB	48-4020				4.8		C - 1	TYPE - B	YES		911.44	906.94	906.29	48							
5041	5040	CSAH7_SB1	120+655	1.3 RT	471347.79	206455.81	CB	48-4020				4.8		C - 1	TYPE - B	YES		911.50	907.00	906.94	13							
5042	5041	CSAH7_SB1	120+655	17.0 LT	471329.69	206458.48	CB	G	4.0					B - 5	TYPE - D	YES		911.15	907.10	907.00	18							
5043	5042	CSAH7_SB1	120+654	37.0 LT	471309.82	206460.84													909.53	908.60	14		1	RC APRON			1	A
5044	5039	CSAH7_NB	20+692	54.0 RT	471421.99	206447.69													907.68	907.46	39		1	RC APRON			1	A
5045	5018	CSAH22_EB	9+683	40.0 RT	471730.25	206544.82													905.22	901.72	61		1	RC APRON			1	A
			TOTAL						10.2	27.1	3.0	92.3	5.0				1				950	790	5		12	47	7	

CULVERT TABULATION

I

STRUCTURE NO. FLOWS FROM	STRUCTURE NO. FLOWS TO	STRUCTURE LOCATION ALIGN.	STATION	OFFSET	COORDINATES X	Y	OUTLET ELEV.	INLET ELEV.	15" CMP LIN FT	S&I 15" RCP CL V LIN FT	S&I 18" RCP CL V LIN FT	APRON EACH	SALVAGE AND INSTALL APRON EACH	APRON TYPE	GUIDE POSTS TYPE B EACH	REMARKS
4000	4001	CSAH7_SB1	1203+75.00	40.9' LT	471221.74	206204.76	913.28	912.46			96		1	S&I RC APRON		A
4001		CSAH7_SB1	1204+83.00	42.2' LT	471257.83	206306.56	912.46						1	S&I RC APRON		A
4002	4003	CSAH22_EB	87+25.76	62.4' RT	470814.30	206547.35	910.53	910.00		125			1	S&I RC APRON		A
4003		CSAH22_EB	85+88.19	62.9' RT	470676.75	206549.76	910.00						1	S&I RC APRON		A
5034	5035	CSAH7_NB	212+30.00	41.0' RT	471592.99	206944.23	903.22	902.70	44			1		GS APRON	1	
5035		CSAH7_NB	212+74.00	41.0' RT	471609.29	206985.10	902.70					1		GS APRON	1	
			TOTAL						44	125	96	2	4		2	

NOTES:
(A) - TIE ALL PIPE JOINTS (INCIDENTAL).

GENERAL NOTES:
- STATIONS, OFFSETS, AND ELEVATIONS ARE GIVEN TO:
  - -END OF ALL CONCRETE APRONS.
  - -END OF BARREL FOR ALL METAL APRONS.
  - -CENTER OF CASTING FOR ALL STORM STRUCTURES (TOP OF CASTING ELEVATIONS).
- ALL PIPE LENGTHS EXCLUDE APRONS.
- TIE PIPE JOINTS FOR CULVERTS AND SEWER PIPE FROM APRONS TO FIRST STRUCTURE (INCIDENTAL).
- PAY HEIGHTS ARE FROM BOTTOM OF CASTING TO INVERT, PLUS 0.7'.
- RC PIPE IS DES 3006 GASKET JOINT PIPE.
- STEPS REQUIRED WHEN DEPTH FROM TOP OF CASTING TO STRUCTURE INVERT IS GREATER THAN 4.5'.
- FLOWLINE (F.L.), OUTLET, AND INLET ELEVATIONS ARE AT CENTER OF STRUCTURE (EXCLUDING APRONS).
- ENTRANCE CULVERT BEDDING AND BACKFILL ARE INCIDENTAL.

DRAINAGE STRUCTURE SUMMARY

J

ITEM	UNIT	TOTALS
CONST DRAINAGE STRUCTURE DESIGN G	LIN FT	10.2
CONST DRAINAGE STRUCTURE DESIGN H	LIN FT	27.1
CONST DRAINAGE STRUCTURE DESIGN SD-48	LIN FT	3.0
CONST DRAINAGE STRUCTURE DES 48-4020	LIN FT	92.3
CONST DRAINAGE STRUCTURE DES 60-4020	LIN FT	5.0
CASTING ASSEMBLY	EACH	31

STORM SEWER SUMMARY

J

ITEM	UNIT	TOTALS
15" RC PIPE SEWER DESIGN 3006 CLASS V	LIN FT	950
18" RC PIPE SEWER DESIGN 3006 CLASS V	LIN FT	790
15" RC PIPE APRON	EACH	4
18" RC PIPE APRON	EACH	1
RANDOM RIPRAP CLASS III	CU YD	12
GEOTEXTILE FILTER TYPE 4	SQ YD	47
GUIDE POST TYPE B	EACH	7

CULVERT SUMMARY

J

ITEM	UNIT	TOTALS
15" CS PIPE CULVERT	LIN FT	44
15" GS PIPE APRON	EACH	2
GUIDE POST TYPE B	EACH	2
SALVAGE/INSTALL CONCRETE APRON	EACH	4
SALVAGE/INSTALL PIPE CULVERT	LIN FT	221

CASTING ASSEMBLY SUMMARY

J

ASSEMBLY	RING OR FRAME	COVER OR GRATE	CURB BOX	STANDARD PLATE NUMBER	USE	TOTALS
TYPE - B	FRAME AND RING CASTING TYPE B FOR MEDIAN CATCH BASINS. SEE DETAIL.					14
TYPE - C	805 MODIFIED	816		SEE DETAIL 4154	CATCH BASIN	13
TYPE - D	802A MODIFIED	816	823A	SEE DETAIL 4154 4160	CATCH BASIN	2
M - 11	ROUND CONC	731		4143 4143	CATCH BASIN	2
					TOTAL	31

NO.	DATE	BY	CHK	REVISIONS

Design By: GFT
Plan By: GFT
Checked By: EAE
Approved By: EAE

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

PRINT NAME: EARTH A. EVANS, PE

DATE 2/7/2024 LICENSE # 44235

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

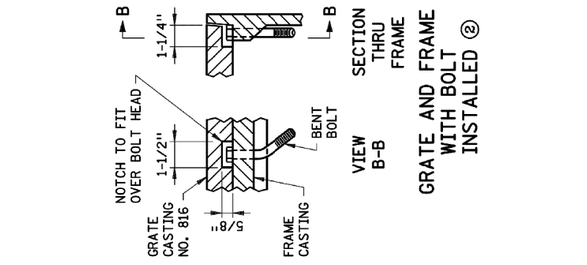
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

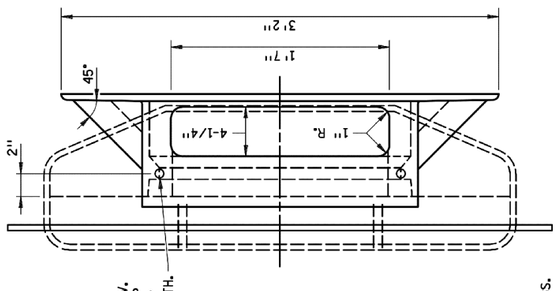
DRAINAGE TABULATIONS

SP 002-622-041, SP 223-020-009

SHEET 115 OF 133 SHEETS



GRATE AND FRAME WITH BOLT INSTALLED ②



END VIEW

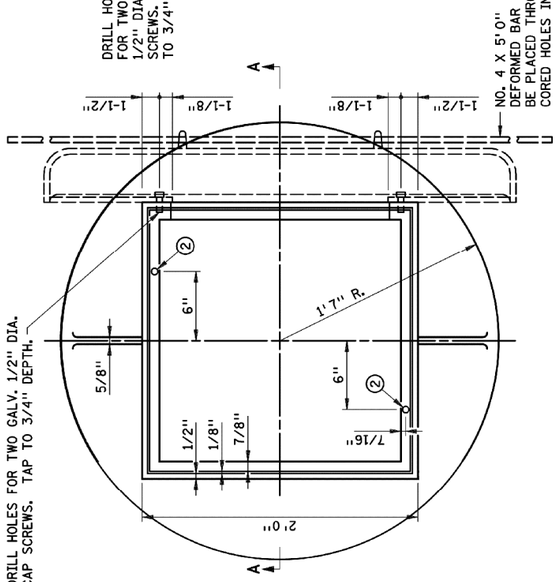
CASTINGS USED FOR ASSEMBLY

GRATE NO. 816 (MNDOT STD PLATE 4154B)

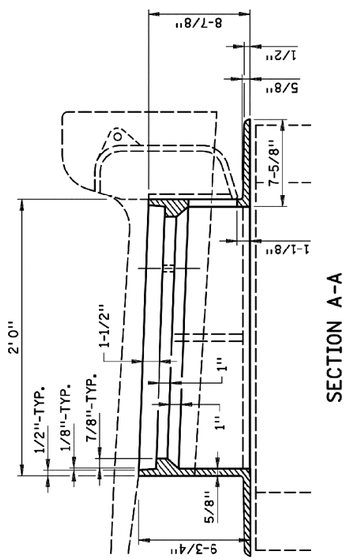
CURB BOX ① NO. 823A (MNDOT STD PLATE 4160) OR

NOTES:

USE 1/4" FILLETS IN ALL CORNERS.
SEE MNDOT STANDARD PLATE 7111 FOR INSTALLATION REQUIREMENTS.
① APPLIES TO DESIGN B OR V CURB AND CURB AND GUTTER.
② AT LOCATIONS INDICATED IN TOP VIEW, PROVIDE 9/16" DIA. HOLES WHEN GRATE NO 816 (MNDOT STD PLATE 4154) IS USED WITH THIS FRAME. FIELD PLACE 1/2" DIA X 4" LONG GALV BOLT IN UP STREAM SIDE AND BENT UNDERSIDE TO PREVENT REMOVAL. THIS WILL PREVENT GRATE NO. 816 (MNDOT STD PLATE 4154) FROM BEING PLACED IN WRONG AND NOT BEING BICYCLE SAFE



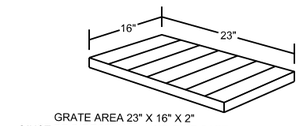
TOP VIEW



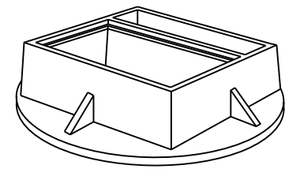
SECTION A-A

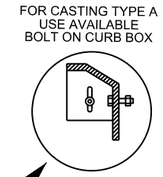
GRATE FRAME CASTING TYPE C & D

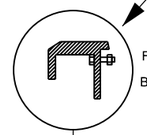
NOT TO SCALE

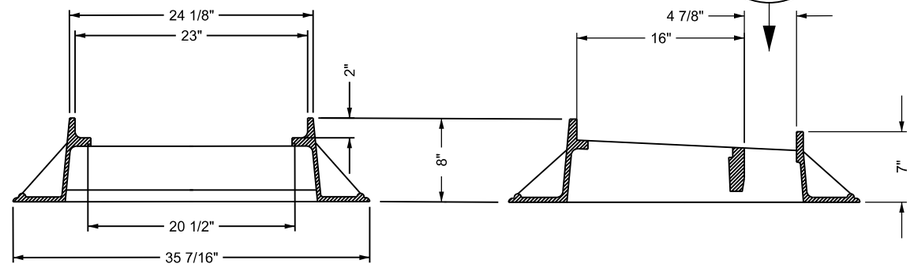


GRATE AREA 23" X 16" X 2"
MUST BE DIRECTIONAL AND BIKE SAFE
SIMILAR TO MNDOT STD PLATE 4152C
OR MNDOT STD PLATE 4154B









FRAME RING AND CASTING TYPE B

TO BE USED FOR MEDIAN CATCH BASINS

NO.	DATE	BY	CHK	REVISIONS

Design By: GFT
Plan By: GFT
Checked By: EAE
Approved By: EAE

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PRINT NAME: EARTH A. EVANS, PE

DATE 2/7/2024 LICENSE # 44235

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

DRAINAGE DETAILS

SP 002-622-041, SP 223-020-009

SHEET **116** OF **133** SHEETS

SIGN AND DELINEATOR / MARKER

SIGN NUMBER	PANEL CODE	LEGEND	SIZE (W X H)	MOUNTING HEIGHT	SUPPORT TYPE (1)	SUPPORT NUMBER OF POSTS	REMOVE SIGN	SIGN	SALVAGE SIGN	INSTALL SIGN	K DELINEATOR /MARKER PANEL
			INCH	FEET			EACH	SQ FT	EACH	EACH	EACH
S-1	M2-1	JCT (BLUE)	X				1				
	M1-6M	ANOKA COUNTY 7	X								
S-2	R1-1	STOP	X				1				
	R1-3P	ALL WAY PLAQUE	X								
	X4-3	CYLINDER STYLE DELINEATOR	X								
S-3	M1-6M	ANOKA COUNTY 7	X				1				
	M6-4	DOUBLE ARROW (BLUE)	X								
S-4	M1-X319	POW-MIA MEMORIAL HIGHWAY	X				1				
S-5	R1-1	STOP	X				1				
	R1-3P	ALL WAY PLAQUE	X								
	X4-3	CYLINDER STYLE DELINEATOR	X								
	M3-3	SOUTH (BLUE)	X								
	M1-6M	ANOKA COUNTY 7	X								
S-6											
S-7	R2-1	SPEED LIMIT 55	24 X 30	7	U-SOIL	1	1	5.00			
S-8		ADOPT A HIGHWAY							1	1	
S-9	M2-1	JCT (BLUE)	X				1				
	M1-6M	ANOKA COUNTY 22	X								
S-10	R3-7R (MOD)	RIGHT TURN LANE	X				1				
	W14-3	NO PASSING ZONE	X								
S-11											
S-12	R1-1	STOP	X				1				
	R1-3P	ALL WAY PLAQUE	X								
S-13	M1-6M	ANOKA COUNTY 22	X				1				
	M6-4	DOUBLE ARROW (BLUE)	X								
S-14	M3-2	EAST (BLUE)	X				1				
	M1-6M	ANOKA COUNTY 22	X								
	R1-1	STOP	X								
	R1-3P	ALL WAY PLAQUE	X								
	X4-3	CYLINDER STYLE DELINEATOR	X								
S-15	R2-1	SPEED LIMIT 55	24 X 30	7	U-SOIL	1	1	5.00			
(3) S-16	R12-X1P	BRIDGE PLAQUE	24 X 9					1.50			
	R12-5	WEIGHT LIMIT 37T, 40T, 40T	24 X 36	7	U-SOIL	1	1	6.00			
	R12-X1PA	1/8 MILE PLAQUE	24 X 9					1.50			
S-17	M2-1	JCT (BLUE)	X				1				
	M1-6M	ANOKA COUNTY 7	X								
S-18	R3-7R (MOD)	RIGHT TURN LANE	X				1				
S-19	R1-1	STOP	X				1				
	R1-3P	ALL WAY PLAQUE	X								
S-20	M1-6M	ANOKA COUNTY 7	X				1				
	M6-4	DOUBLE ARROW (BLUE)	X								
S-21	M1-X319	POW-MIA MEMORIAL HIGHWAY	X				1				
S-22	M3-1	NORTH (BLUE)	X				1				
	M1-6M	ANOKA COUNTY 7	X								
	R1-1	STOP	X								
	R1-3P	ALL WAY PLAQUE	X								
	X4-3	CYLINDER STYLE DELINEATOR	X								
S-23	R2-1	SPEED LIMIT 55	24 X 30	7	U-SOIL	1	1	5.00			
S-24	M2-1	JCT (BLUE)	X				1				
	M1-6M	ANOKA COUNTY 22	X								
S-25	R3-7R (MOD)	RIGHT TURN LANE	X				1				
S-26	R1-1	STOP	X				1				
	R1-3P	ALL WAY PLAQUE	X								
S-27	M1-6M	ANOKA COUNTY 22	X				1				
	M6-4	DOUBLE ARROW (BLUE)	X								
S-28	M3-4	WEST (BLUE)	X				1				
	M1-6M	ANOKA COUNTY 22	X								
	R1-1	STOP	X								
	R1-3P	ALL WAY PLAQUE	X								
	X4-3	CYLINDER STYLE DELINEATOR	X								
S-29	W11-8	FIRE STATION	X				1				
	X3-5	SNOW PLOW MARKER BLADE DOWN	X								
S-30	W3-1	STOP AHEAD	X				1				
S-31	W3-1	STOP AHEAD	X				1				
S-32	W1-4L	REVERSE CURVE LEFT	30 X 30	7	U-SOIL	1	1	6.25			
S-33	W3-1	STOP AHEAD	X				1				
S-34	W3-1	STOP AHEAD	X				1				
	W14-3	NO PASSING ZONE	X								
S-35	W3-1	STOP AHEAD	X				1				
S-36	W3-1	STOP AHEAD	X				1				
S-37	R1-1	STOP	30 X 30	7	U-SOIL	1	1	6.25			
S-38	R2-1	SPEED LIMIT 55	24 X 30	7	U-SOIL	1	1	5.00			
S-39	W3-2	YIELD AHEAD	30 X 30	7	U-SOIL	1		6.25			
S-40	W2-6	ROUNDABOUT	30 X 30	7	U-SOIL	1		6.25			
	W13-1P	15 MPH PLAQUE	18 X 18					2.25			
(2) S-41	R3-4	NO U-TURN	24 X 24	7	U-CONC	1		4.00			
	R4-7	KEEP RIGHT	24 X 30					5.00			
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18	4							1
S-42	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-43	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-44	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-45	R6-1R	ONE WAY RIGHT	36 X 12	7	U-SOIL	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-46	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00			
	R6-4A	ROUNDABOUT DIRECTIONAL (3 ARROWS)	48 X 24					8.00			

SIGN AND DELINEATOR / MARKER

SIGN NUMBER	PANEL CODE	LEGEND	SIZE (W X H)	MOUNTING HEIGHT	SUPPORT TYPE (1)	SUPPORT NUMBER OF POSTS	REMOVE SIGN	SIGN	SALVAGE SIGN	INSTALL SIGN	K DELINEATOR /MARKER PANEL
			INCH	FEET			EACH	SQ FT	EACH	EACH	EACH
S-47	M3-3	SOUTH (BLUE)	24 X 12	7	U-SOIL	1		2.00			
	M1-6M	ANOKA COUNTY 7	24 X 24					4.00			
	M6-2R	ARROW RIGHT (BLUE)	21 X 15					2.19			
S-48	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-49	P1	RUM RIVER BLVD	66 X 24	7	U-CONC	1		11.00			
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18								1
S-50	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-51	W3-3	SOUTH (BLUE)	24 X 12	7	U-SOIL	1		2.00			
	M1-6M	ANOKA COUNTY 7	24 X 24					4.00			
	M1-X319	POW-MIA MEMORIAL HIGHWAY	24 X 24					4.00			
S-52	R3-7R (MOD)	RIGHT TURN LANE	30 X 30	7	U-SOIL	1		6.25			
S-53	W3-2	YIELD AHEAD	30 X 30	7	U-SOIL	1		6.25			
S-54	W2-6	ROUNDABOUT	30 X 30	7	U-SOIL	1		6.25			
	W13-1P	15 MPH PLAQUE	18 X 18					2.25			
(2) S-55	R3-4	NO U-TURN	24 X 24	7	U-CONC	1		4.00			
	R4-7	KEEP RIGHT	24 X 30					5.00			
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18	4							1
S-56	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-57	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-58	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-59	R6-1R	ONE WAY RIGHT	36 X 12	7	U-SOIL	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-60	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00			
	R6-4A	ROUNDABOUT DIRECTIONAL (3 ARROWS)	48 X 24					8.00			
S-61	M3-2	EAST (BLUE)	24 X 12	7	U-SOIL	1		2.00			
	M1-6M	ANOKA COUNTY 22	24 X 24					4.00			
	M6-2R	ARROW RIGHT (BLUE)	21 X 15					2.19			
S-62	P2	VIKING BLVD	48 X 24	7	U-CONC	1		8.00			
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18								1
S-63	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-64	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-65	M3-2	EAST (BLUE)	24 X 12	7	U-CONC	1		2.00			
	M1-6M	ANOKA COUNTY 22	24 X 24					4.00			
S-66	R3-7R (MOD)	RIGHT TURN LANE	30 X 30	7	U-SOIL	1		6.25			
S-67	W3-2	YIELD AHEAD	30 X 30	7	U-SOIL	1		6.25			
(2) S-68	R3-4	NO U-TURN	24 X 24	7	U-CONC	1		4.00			
	R4-7	KEEP RIGHT	24 X 30					5.00			
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18	4							1
S-69	W2-6	ROUNDABOUT	30 X 30	7	U-SOIL	1		6.25			
	W13-1P	15 MPH PLAQUE	18 X 18					2.25			
S-70	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-71	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-72	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-73	R6-1R	ONE WAY RIGHT	36 X 12	7	U-SOIL	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-74	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00			
	R6-4A	ROUNDABOUT DIRECTIONAL (3 ARROWS)	48 X 24					8.00			
S-75	M3-1	NORTH (BLUE)	24 X 12	7	U-SOIL	1		2.00			
	M1-6M	ANOKA COUNTY 7	24 X 24					4.00			
	M6-2R	ARROW RIGHT (BLUE)	21 X 15					2.19			
S-76	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-77	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-78	P1	RUM RIVER BLVD	66 X 24	7	U-CONC	1		11.00			
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18								1
S-79	M3-1	NORTH (BLUE)	24 X 12	7	U-SOIL	1		2.00			
	M1-6M	ANOKA COUNTY 7	24 X 24					4.00			
	M1-X319	POW-MIA MEMORIAL HIGHWAY	24 X 24					4.00			
S-80	W3-2	YIELD AHEAD	30 X 30	7	U-SOIL	1		6.25			
(2) S-81	R3-4	NO U-TURN	24 X 24	7	U-CONC	1		4.00			
	R4-7	KEEP RIGHT	24 X 30					5.00			
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18	4							1
S-82	W2-6	ROUNDABOUT	30 X 30	7	U-SOIL	1		6.25			
	W13-1P	15 MPH PLAQUE	18 X 18					2.25			
S-83	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-84	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-85	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-86	R6-1R	ONE WAY RIGHT	36 X 12	7	U-SOIL	1		3.00			
	R1-2	YIELD	36X36X36					3.90			
S-87	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00			
	R6-4A	ROUNDABOUT DIRECTIONAL (3 ARROWS)	48 X 24					8.00			
S-88	M3-4	WEST (BLUE)	24 X 12	7	U-SOIL	1		2.00			
	M1-6M	ANOKA COUNTY 22	24 X 24					4.00			
	M6-2R	ARROW RIGHT (BLUE)	21 X 15					2.19			

SPECIFIC NOTE(S):
(1) U-CHANNEL 3# PER FOOT BLACK POST.
(2) MOUNTED BACK TO BACK.
(3) CONTRACTOR TO COORDINATE TIMING OF SIGN S-16 REMOVAL WITH SAP 002-622-036 CONTRACTOR (INCIDENTAL).

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY 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 DELMORE, PE

DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TABULATIONS

SIGNING PLAN

SP 002-622-041, SP 223-020-009

SHEET 117 OF 133 SHEETS

SIGN AND DELINEATOR / MARKER — K

SIGN NUMBER	PANEL CODE	LEGEND	SIZE (W X H) INCH	MOUNTING HEIGHT FEET	SUPPORT TYPE (1)	SUPPORT NUMBER OF POSTS	REMOVE SIGN EACH	SIGN SQ FT	SALVAGE SIGN EACH	INSTALL SIGN EACH	DELINEATOR /MARKER PANEL EACH
S-89	W11-2	PEDESTRIAN CROSSING	30 X 30	7	U-SOIL	1		6.25			
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00			
S-90	P2	VIKING BLVD	48 X 24	7	U-CONC	1		8.00			
	OM1-2	TYPE I OBJECT MARKER	18 X 18								1
S-91	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00			
S-92	M3-4	WEST (BLUE)	24 X 12	7	U-CONC	1		2.00			
	M1-6M	ANOKA COUNTY 22	24 X 24					4.00			
S-93	W11-8	FIRE STATION	30 X 30	7	U-SOIL	1		6.25			
S-94	R3-8ACA	L-T-R	54 X 30	7	U-SOIL	1		11.25			
S-95	M2-1	JCT (BLUE)	21 X 15	7	U-SOIL	1		2.19			
	M1-6M	ANOKA COUNTY 7	24 X 24					4.00			
	W2-6	ROUNDABOUT	30 X 30					6.25			
S-96	P3	N 7, E 22, S 7 DIRECTIONAL	96 X 48	7	U-SOIL	2		32.00			
S-97	M2-1	JCT (BLUE)	21 X 15	7	U-SOIL	1		2.19			
	M1-6M	ANOKA COUNTY 22	24 X 24					4.00			
	W2-6	ROUNDABOUT	30 X 30					6.25			
S-98	P4	E 22, S 7, W 22 DIRECTIONAL	96 X 48	7	U-SOIL	2		32.00			
S-99	M2-1	JCT (BLUE)	21 X 15	7	U-SOIL	1		2.19			
	M1-6M	ANOKA COUNTY 7	24 X 24					4.00			
	W2-6	ROUNDABOUT	30 X 30					6.25			
S-100	P5	S 7, W 22, N 7 DIRECTIONAL	96 X 48	7	U-SOIL	2		32.00			
S-101	M2-1	JCT (BLUE)	21 X 15	7	U-SOIL	1		2.19			
	M1-6M	ANOKA COUNTY 22	24 X 24					4.00			
	W2-6	ROUNDABOUT	30 X 30					6.25			
S-102	P6	W 22, N 7, E 22 DIRECTIONAL	96 X 48	7	U-SOIL	2		32.00			
S-103	R1-1	STOP	30 X 30	7	U-SOIL	1		6.25			
S-104	R1-1	STOP	30 X 30	7	U-SOIL	1		6.25			
S-105	R5-1	DO NOT ENTER	30 X 30	7	U-SOIL	1		6.25			
S-106	R5-1	DO NOT ENTER	30 X 30	7	U-SOIL	1		6.25			
						TOTAL	35	661	1	1	8

SPECIFIC NOTE(S):
(1) U-CHANNEL 3# PER FOOT BLACK POST.
(2) MOUNTED BACK TO BACK.
(3) CONTRACTOR TO COORDINATE TIMING OF SIGN S-16 REMOVAL WITH SAP 002-622-036 CONTRACTOR (INCIDENTAL).

SIGN TYPE SPECIAL — L

SIGN NUMBER	PANEL CODE	LEGEND	SIZE (W X H) INCH	MOUNTING HEIGHT FEET	SUPPORT NUMBER OF POSTS	SUPPORT TYPE	SUPPORT RISER POST SIZE INCHES	SUPPORT SURFACE TYPE	REMOVE SIGN TYPE SPECIAL EACH	SALVAGE SIGN TYPE SPECIAL EACH	INSTALL SIGN TYPE SPECIAL EACH
S-501		RUM RIVER BLVD NW	X						1		
		VIKING BLVD NW	X								
S-502		KIOWA ST NW	X	7	1					1	1
		VIKING BLVD NW	X								
								TOTAL	1	1	1

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY 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 DELMORE, PE

DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

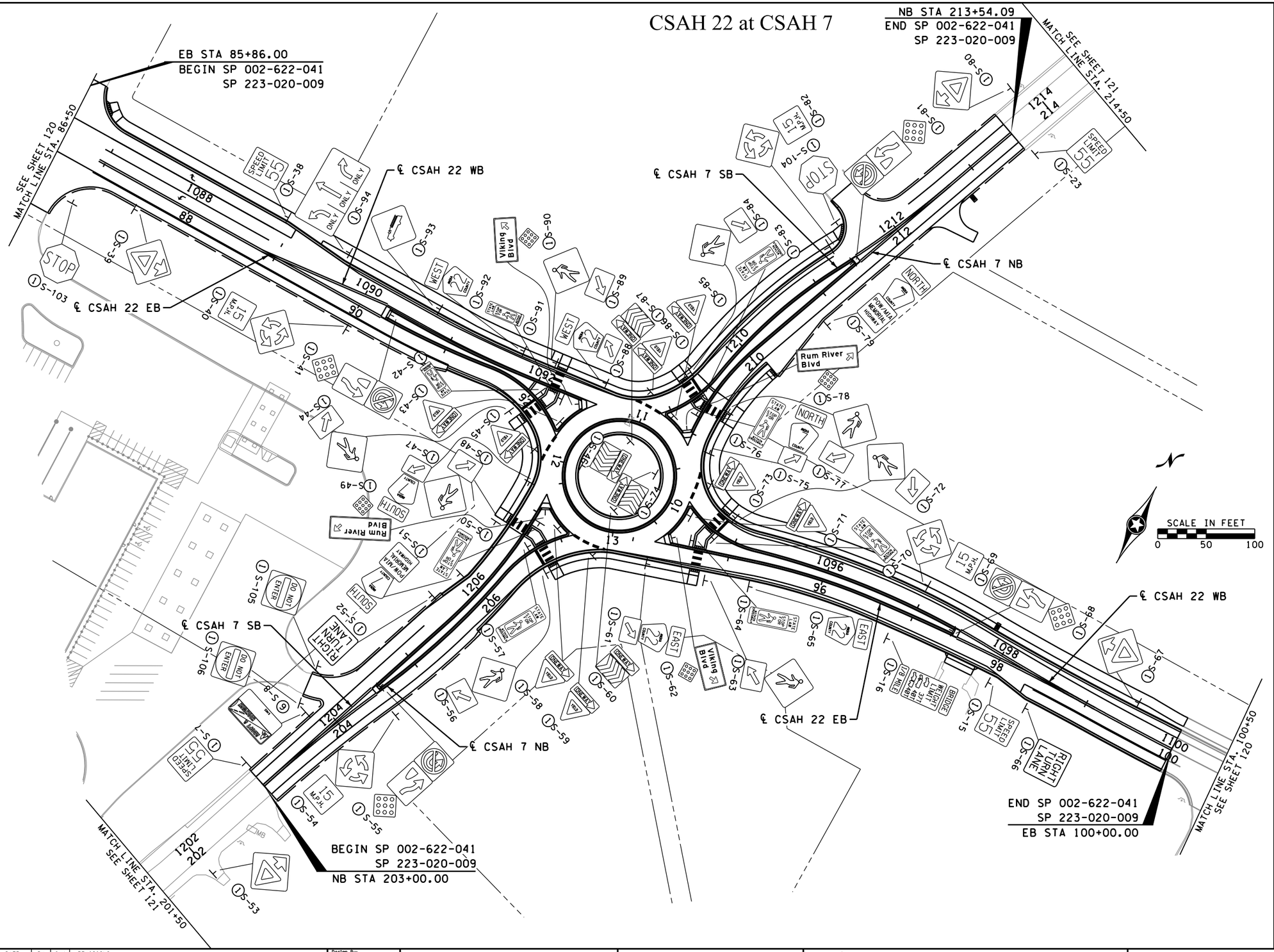
TABULATIONS

SIGNING PLAN

SP 002-622-041, SP 223-020-009

SHEET **118** OF **133** SHEETS

CSAH 22 at CSAH 7



LEGEND

①	FURNISH & INSTALL
②	INPLACE
⑥	INSTALL

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGNING PLAN

SP 002-622-041, SP 223-020-009

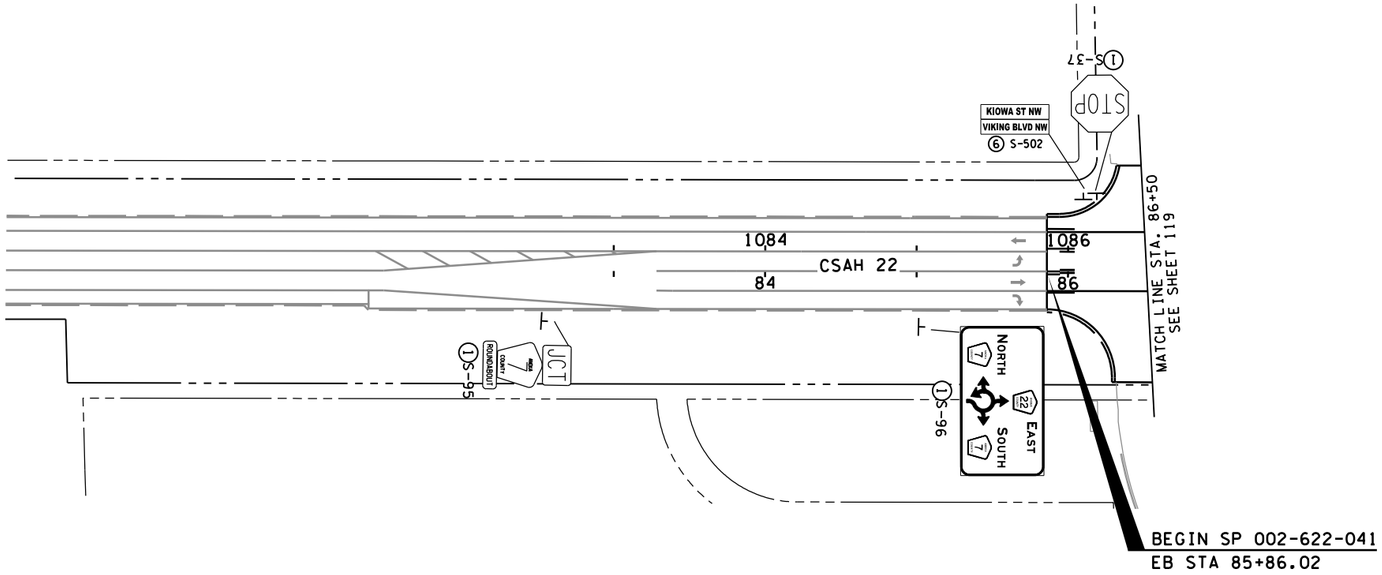
SHEET 119 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:33:35 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_sgn01.dgn

PLOTTED/REVISED: 2/7/2024 3:33:42 PM

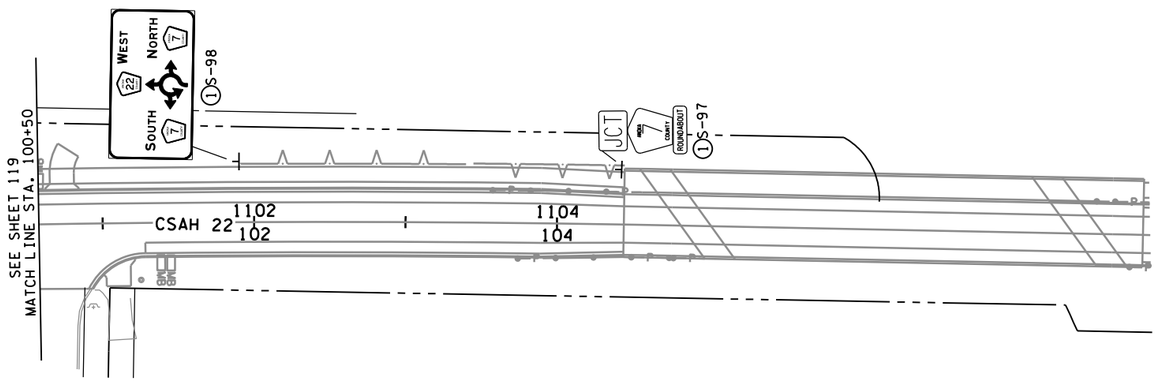
CSAH 22



LEGEND

①	FURNISH & INSTALL
②	INPLACE
⑥	INSTALL

CSAH 22



NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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DATE 2/7/2024 LICENSE # 40145

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGNING PLAN

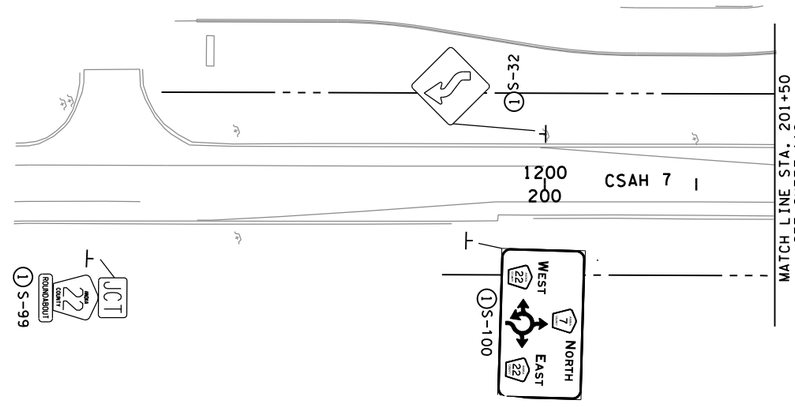
SP 002-622-041, SP 223-020-009

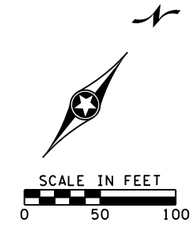
SHEET **120** OF **133** SHEETS

WSB PATH & FILENAME: Projects\Minnesota\022\150-000\Cad\Plan\2\150-000_sgn02.dgn

PLOTTED/REVISED: 2/7/2024 3:33:53 PM

CSAH 7

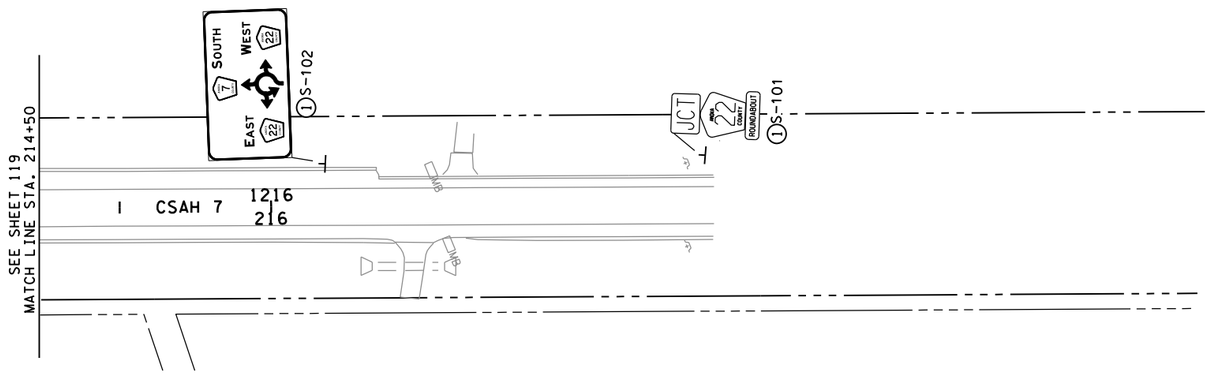




LEGEND

①	FURNISH & INSTALL
②	INPLACE
⑥	INSTALL

CSAH 7



WSB PATH & FILENAME: Projects\Minnesota\022\150-000\Cad\Plan\2\150-000_sgn03.dgn

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DATE 2/7/2024 LICENSE # 40145

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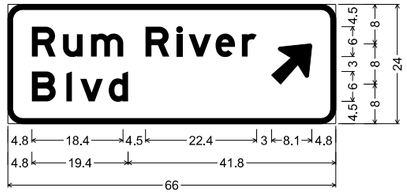
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

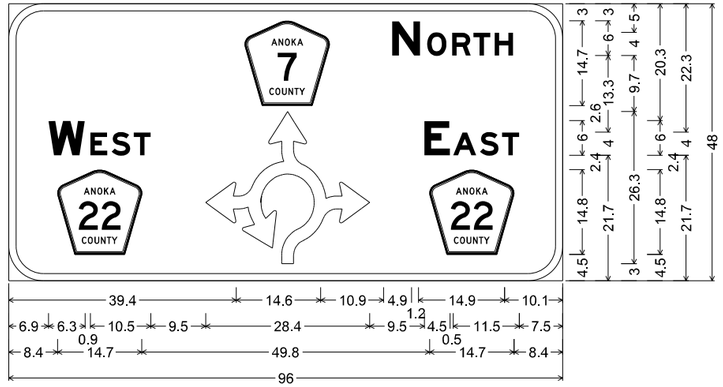
SIGNING PLAN

SP 002-622-041, SP 223-020-009

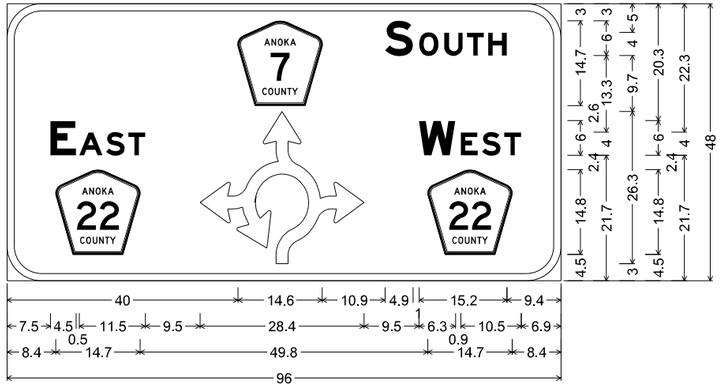
SHEET **121** OF **133** SHEETS



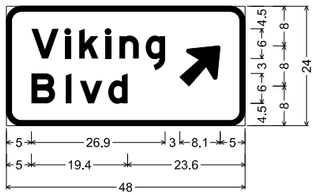
P1;
3.0" Radius, 1.0" Border, White on, Green;
"Rum River", E Mod 75% spacing; "Blvd", E Mod;
Arrow 3 - 10.0" 45';



P6;
9.0" Radius, 1.5" Border, White on, Green;
Pentagonal County 7 M1-6; "NORTH", E Mod 2K; "WEST", E Mod 2K; Pentagonal County 22 M1-6; RA Arrow-4hd;
"EAST", E Mod 2K; Pentagonal County 22 M1-6;



P4;
9.0" Radius, 1.5" Border, White on, Green;
Pentagonal County 7 M1-6; "SOUTH", E Mod 2K; "EAST", E Mod 2K; Pentagonal County 22 M1-6; RA Arrow-4hd;
"WEST", E Mod 2K; Pentagonal County 22 M1-6;



P2;
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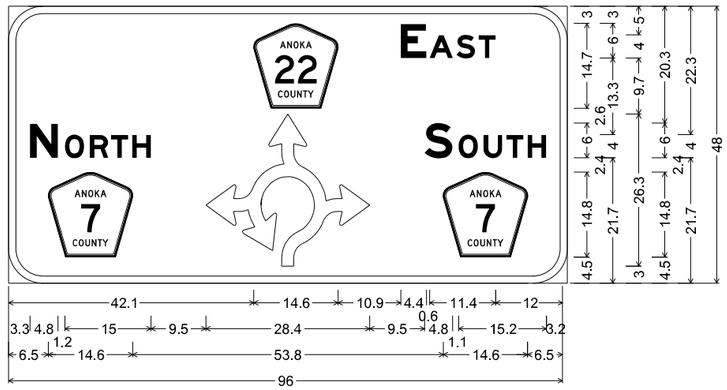
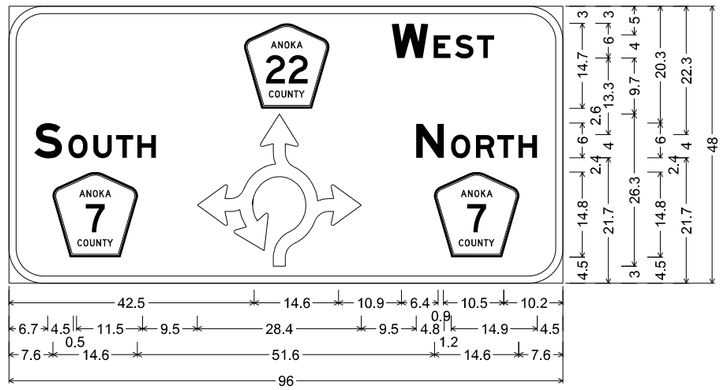
"Viking", E Mod 75% spacing;
"Blvd", E Mod; Arrow 3 - 10.0" 45';



P3;
9.0" Radius, 1.5" Border, White on, Green;
Pentagonal County 22 M1-6; "EAST", E Mod 2K; "NORTH", E Mod 2K; Pentagonal County 7 M1-6; RA Arrow-4hd;
"SOUTH", E Mod 2K; Pentagonal County 7 M1-6;



P5;
9.0" Radius, 1.5" Border, White on, Green;
Pentagonal County 22 M1-6; "WEST", E Mod 2K; "SOUTH", E Mod 2K; Pentagonal County 7 M1-6; RA Arrow-4hd;
"NORTH", E Mod 2K; Pentagonal County 7 M1-6;

ALL DIMENSIONS ARE IN INCHES.

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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PRINT NAME: SEAN DELMORE, PE

DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

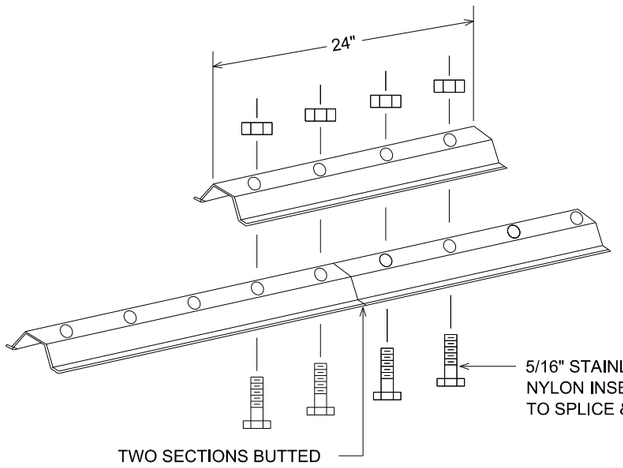
SIGNING PLAN

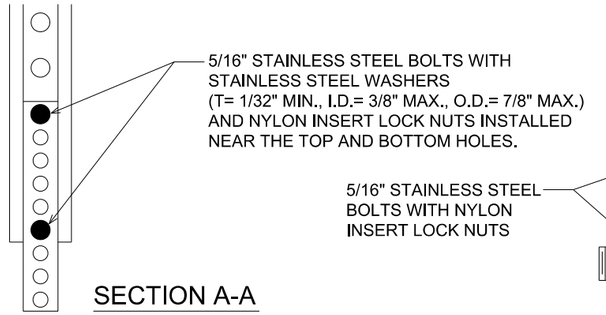
SP 002-622-041, SP 223-020-009

SHEET 122 OF 133 SHEETS

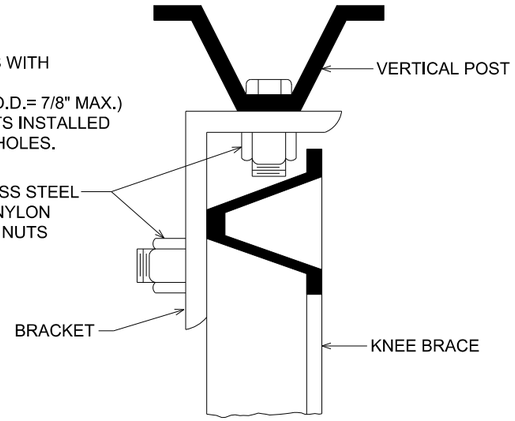
PLOTTED/REVISED: 2/7/2024 3:33:59 PM
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_signdet.dgn

PLOTTED/REVISED: 2/7/2024 3:34:00 PM

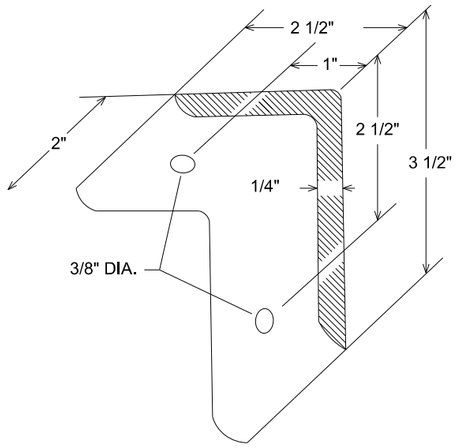


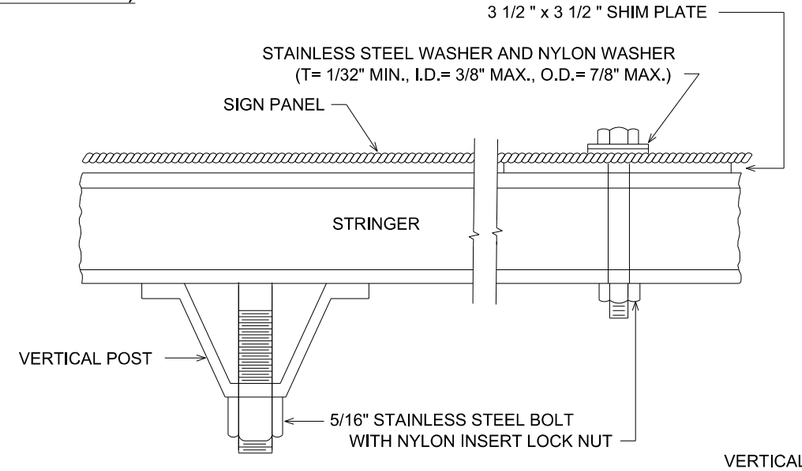


SECTION A-A

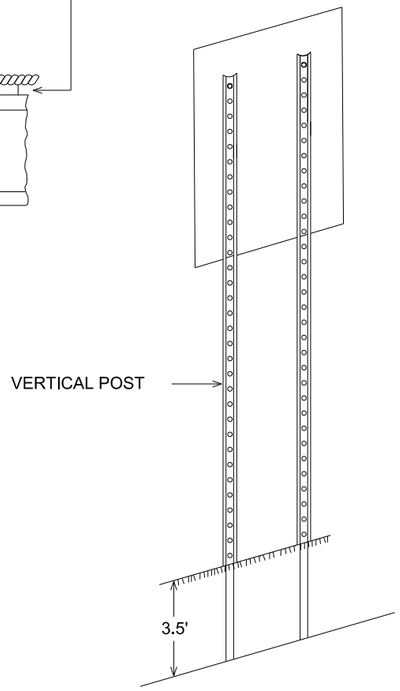


LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)





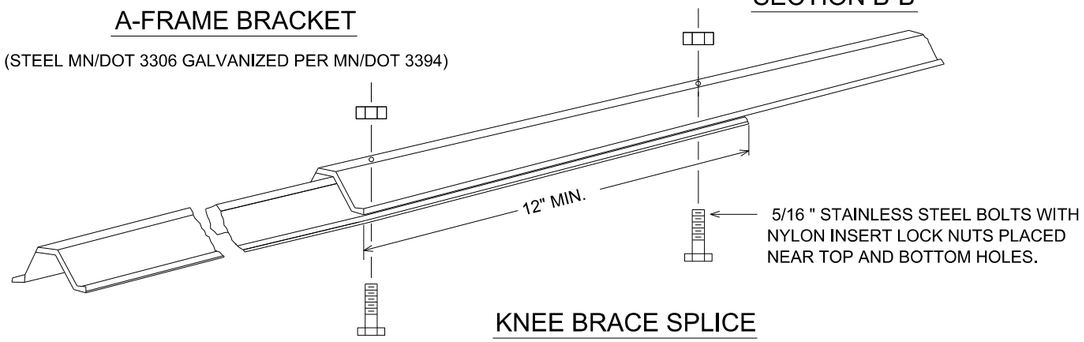
SECTION B-B



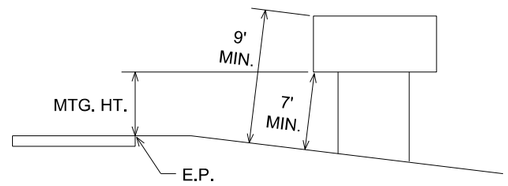
TYPICAL INSTALLATION 36" AND LARGER
TYPE "C" SIGNS

A-FRAME BRACKET

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



KNEE BRACE SPLICE



TYPICAL MOUNTING

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

TYPE C & D SIGN STRUCTURAL DETAILS

ANOKA COUNTY HIGHWAY DEPARTMENT SIGN DETAILS

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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PRINT NAME: SEAN DELMORE, PE
DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

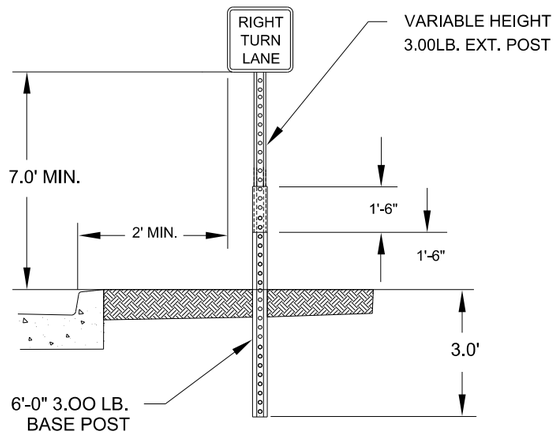
SIGNING PLAN
SP 002-622-041, SP 223-020-009

SHEET 123 OF 133 SHEETS

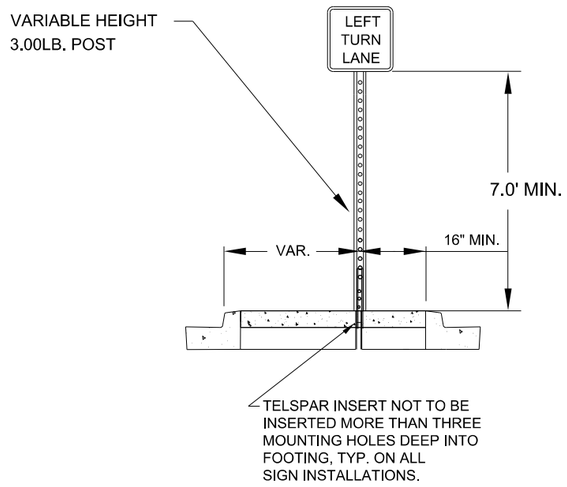
WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_sgndet.dgn

PLOTTED/REVISED: 2/7/2024 3:34:00 PM

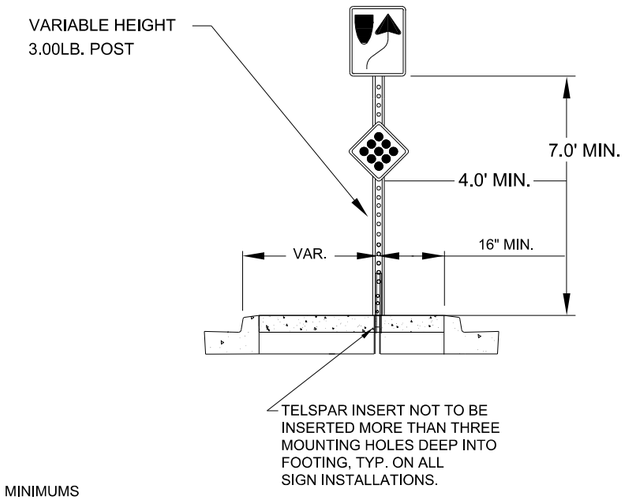
GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



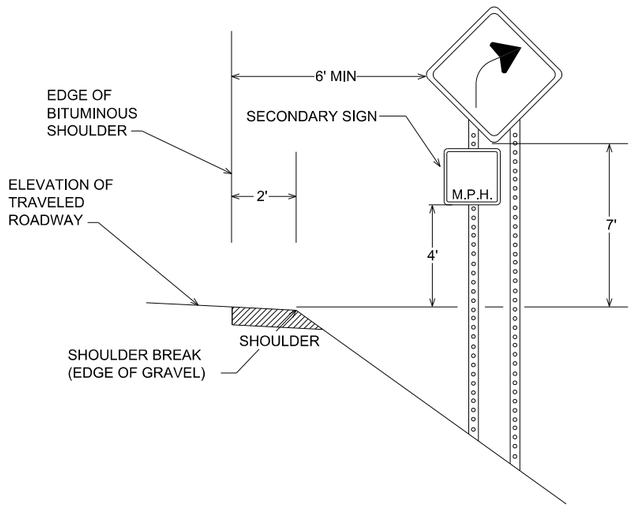
ISLAND MOUNT BREAK-AWAY SIGN
SIGN INSTALLATION TYPICAL
KEEP RIGHT/CLUSTER



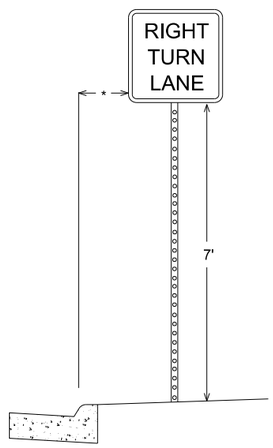
NOTES:

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

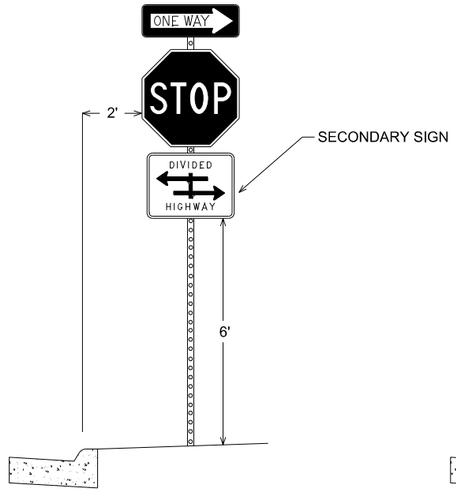
TYPICAL SIGN PLACEMENT
(RURAL)

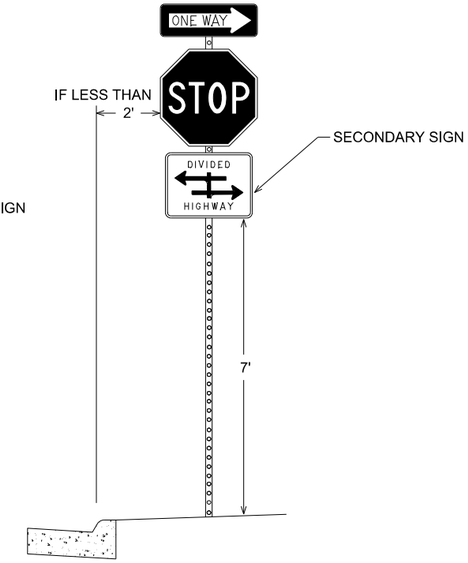


TYPICAL SIGN PLACEMENT
(URBAN)



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





ANOKA COUNTY HIGHWAY DEPARTMENT SIGN PLACEMENT

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGNING PLAN
SP 002-622-041, SP 223-020-009

SHEET **124** OF **133** SHEETS

WSB PATH & FILENAME: Projects\Minnesota\022\150-000\Con\Plan\2\150-000_signdet.dgn

PAVEMENT MARKING TABULATION — M

LOCATION	PREFORM THERMOPLASTIC GROUND IN									
	4" SOLID LINE		24" SOLID LINE		4" BROKEN LINE	4" DOUBLE SOLID LINE	8" DOTTED LINE	PAVEMENT MESSAGE		CROSSWALK (1)
	WHITE	YELLOW	WHITE	YELLOW	YELLOW	YELLOW	WHITE	LEFT ARROW	RIGHT ARROW	
	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT	SQ FT	SQ FT
SP 002-622-041										
CSAH 22										
STA 85+86.02 TO STA 91+00.00	1328	368		39	20	473		16	16	
ROUNDABOUT	868	841	66				65			720
STA 95+00.00 TO STA 100+00.00	1314	1000		15		410				
SUBTOTAL CSAH 22	3510	2209	66	54	20	883	65	16	16	720
CSAH 7										
STA 203+00.00 TO STA 206+72.00	1065	446		6		300				
STA 209+50.00 TO STA 213+54.09	715	400		6		326				
SUBTOTAL CSAH 7	1780	846		12		626				
SUBTOTAL	5290	3055	66	66	20	1509	65	16	16	720
PROJECT TOTAL	8345		132		20	1509	65	32		720

NOTES:
(1) 3' X 10' CROSSWALK BLOCKS.

NO.	DATE	BY	CHK	REVISIONS

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Approved By: SD

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DATE 2/7/2024 LICENSE # 40145

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

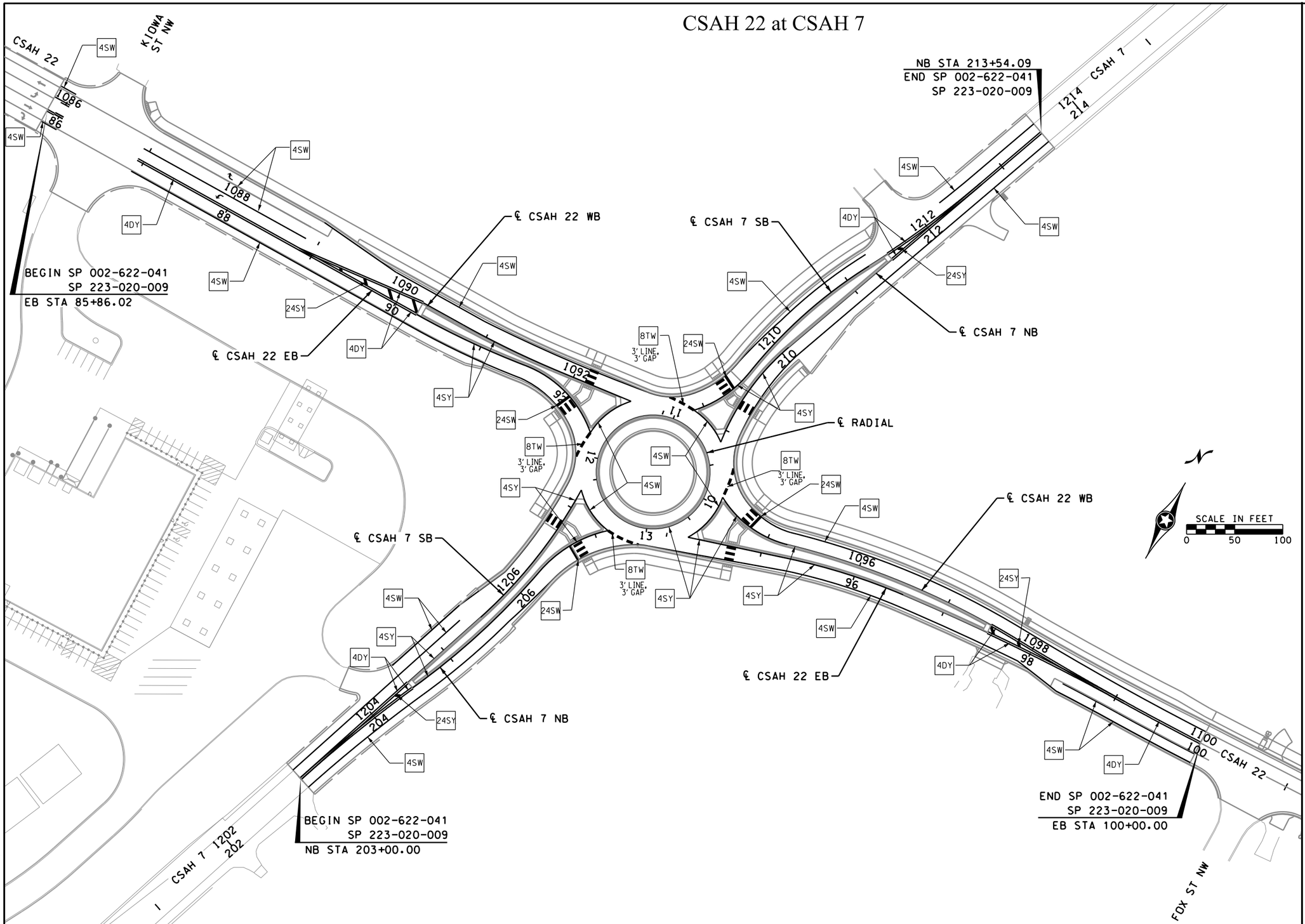
TABULATIONS

STRIPING PLAN

SP 002-622-041, SP 223-020-009

SHEET **125** OF **133** SHEETS

CSAH 22 at CSAH 7



LEGEND

- CIRCLE - MULTI-COMP
- SQUARE - PREF THERMO GR IN
- CROSSWALK - PREF THERMO GR IN

MULTI-COMP

1ST DIGIT WIDTH
4",8",ETC.

2ND DIGIT PATTERN
S = SOLID
B = BROKEN
D = DOUBLE
T = DOTTED

3RD DIGIT COLOR
W = WHITE
Y = YELLOW
B = BLACK

EXAMPLE: 4SW = 4" SOLID LINE WHITE - MULTI-COMP

PLOTTED/REVISED: 2/7/2024 3:34:02 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_pm01.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY 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 DELMORE, PE

DATE 2/7/2024 LICENSE # 40145

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STRIPING PLAN

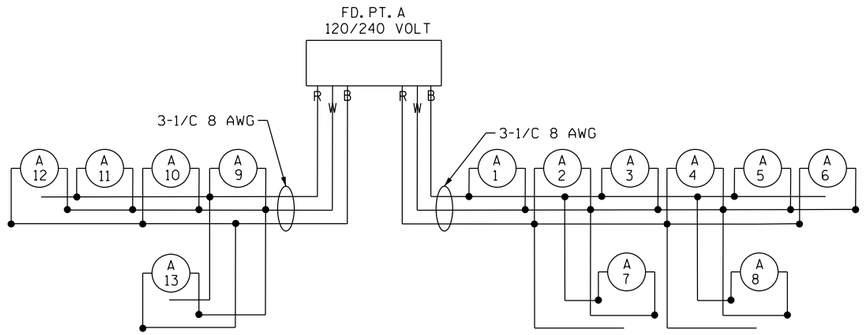
SP 002-622-041, SP 223-020-009

SHEET 126 OF 133 SHEETS

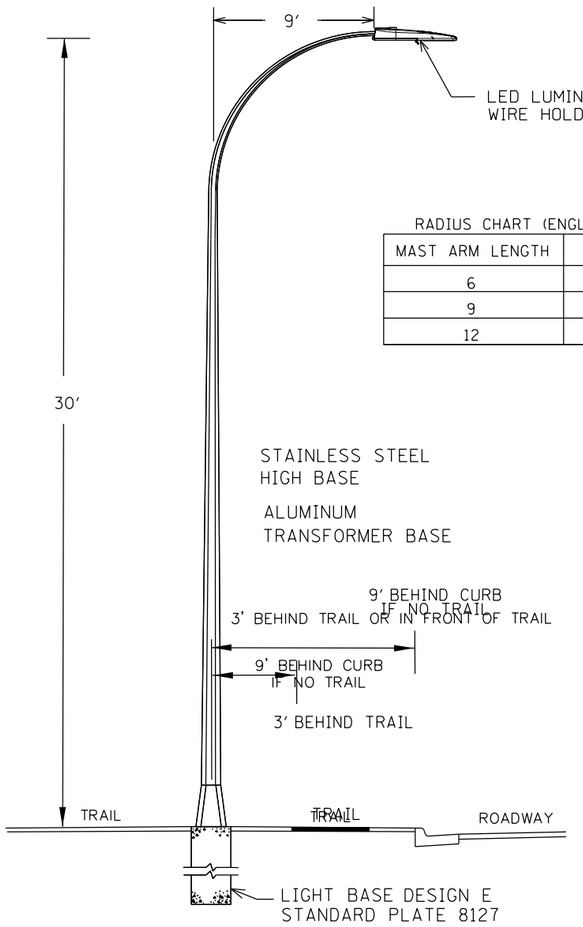
	STREET LIGHTING TABULATION		N
ITEM	ITEM DESCRIPTION	UNIT	TOTAL
2545.502	LIGHTING UNIT TYPE 9-30	EACH	13
2545.502	LIGHT FOUNDATION DESIGN E	EACH	13
2545.502	SERVICE CABINET -TYPE L1	EACH	1
2545.502	SERVICE EQUIPMENT	EACH	1
2545.502	EQUIPMENT PAD B	EACH	1
2545.503	1.5" NON-METALLIC CONDUIT	LIN FT	1700
2545.503	UNDERGROUND WIRE 1/C 8 AWG	LIN FT	8000

FEEDPOINT A LIGHTING STANDARDS AND FOUNDATIONS						
NO.	STATION	LT	RT	LOCATION	TYPE	FOUNDATION
1	12+20	X		ROUNDABOUT	9-30	DESIGN E
2	206+36		X	CSAH 7 NB	9-30	DESIGN E
3	13+17		X	ROUNDABOUT	9-30	DESIGN E
4	1095+00	X		CSAH 22 WB	9-30	DESIGN E
5	1096+66	X		CSAH 22 WB	9-30	DESIGN E
6	1098+23	X		CSAH 22 WB	9-30	DESIGN E
7	204+55		X	CSAH 7 NB	9-30	DESIGN E
8	10+40		X	ROUNDABOUT	9-30	DESIGN E
9	1091+76		X	CSAH 22 EB	9-30	DESIGN E
10	11+28	X		ROUNDABOUT	9-30	DESIGN E
11	1209+58	X		CSAH 7 SB	9-30	DESIGN E
12	1211+34	X		CSAH 7 SB	9-30	DESIGN E
13	1090+14		X	CSAH 22 EB	9-30	DESIGN E

WIRING DIAGRAM



B AND R DENOTE CURRENT CARRYING CONDUCTORS
W DENOTES NEUTRAL CONDUCTOR
GROUND NOT SHOWN



RADIUS CHART (ENGLISH)

MAST ARM LENGTH	RADIUS
6	5
9	8
12	10

LIGHTING UNIT TYPE 9-30 PLACEMENT DETAIL

(NON-BREAKAWAY)
NOT TO SCALE

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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PRINT NAME: SEAN DELMORE, PE

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ANOKA COUNTY

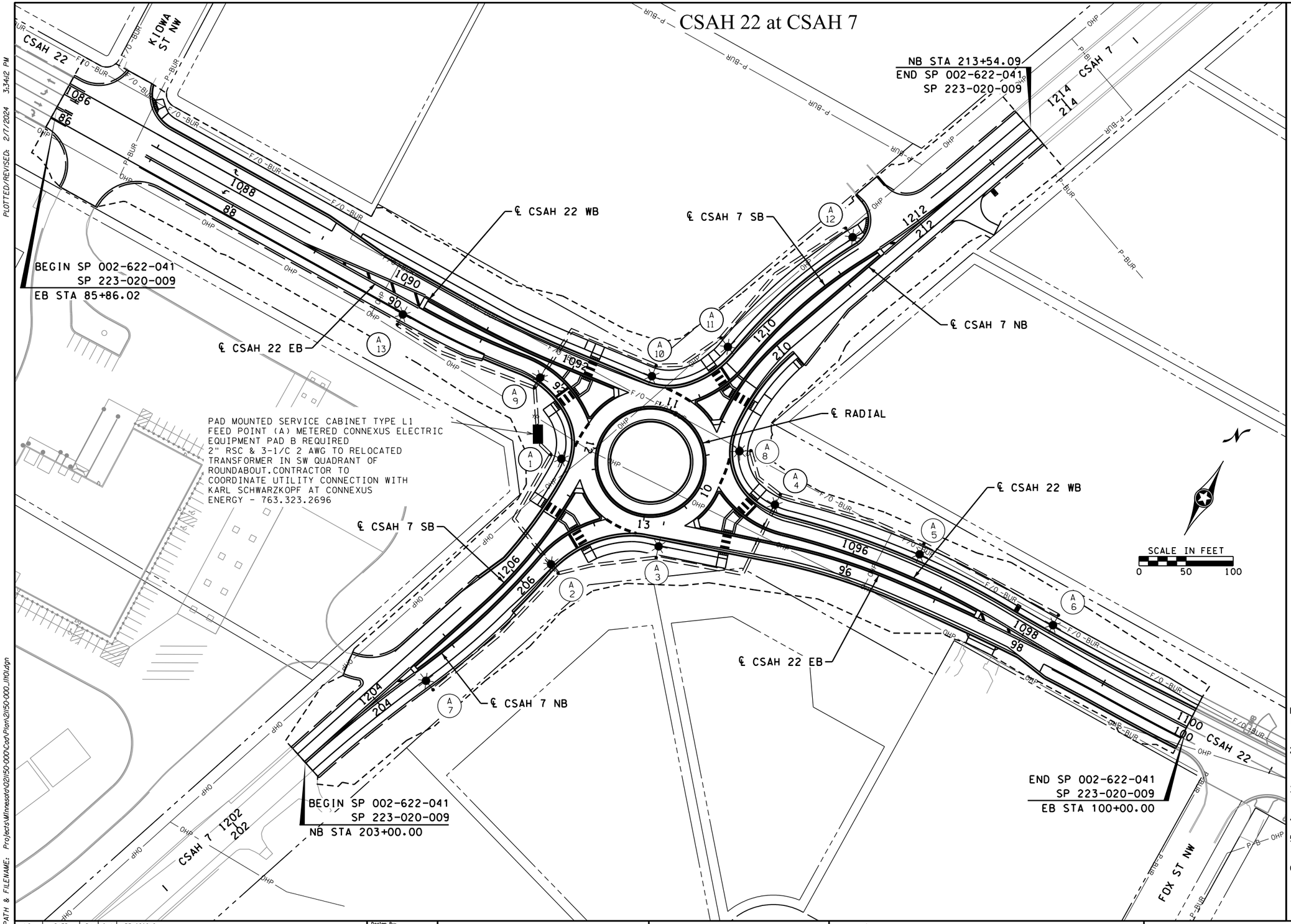
CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

LIGHTING PLAN
SP 002-622-041, SP 223-020-009

SHEET 127 OF 133 SHEETS

CSAH 22 at CSAH 7



LEGEND

- LIGHTING UNIT TYPE 9-30
- 1.5" NMC WITH 3-1/C 8 AWG AND 1-1/C 8 AWG GR. (UNLESS OTHERWISE NOTED)
- SERVICE CABINET TYPE L1

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO WORK.
2. THE CONTRACTOR SHALL COORDINATE THE PLACEMENT OF CONDUIT AND FOUNDATIONS WITH OTHER CONSTRUCTION ACTIVITIES IN THE AREA.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND UTILITY COORDINATION.
4. ALL MATERIAL AND WORK SHALL BE IN ACCORDANCE WITH THE N.E.C.
5. LIGHTING UNITS MUST MAINTAIN A MINIMUM CLEARANCE OF 10' FROM OVERHEAD POWER LINES.
6. EXACT LOCATIONS OF LIGHT, PEDESTAL, AND SERVICE CABINET FOUNDATIONS SHALL BE STAKED IN THE FIELD FOR ENGINEER APPROVAL.

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

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ANOKA COUNTY, MINNESOTA

LIGHTING PLAN

SP 002-622-041, SP 223-020-009

SHEET 128 OF 133 SHEETS

PLOTTED/REVISED: 2/7/2024 3:34:12 PM

WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Cad\Plan\2\150-000_lt01.dgn

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT NAME: CSAH 22 AND CSAH 7 INTERSECTION IMPROVEMENTS **PROJECT NUMBER**: SAP 002-622-041; WSB 021150-000
PROJECT LOCATION: STREET: VIKING BLVD NW CITY: OAK GROVE COUNTY: ANOKA
STATE: MINNESOTA ZIP: 55303 LATITUDE/LONGITUDE: 45.3275/-93.3778

THE PLANNED SCOPE OF THE PROJECT INCLUDES:
ANOKA COUNTY IS PROPOSING TO RECONSTRUCT THE ROUNDABOUT. INTERSECTION IMPROVEMENTS INCLUDE GRADING, CURB AND GUTTER, BITUMINOUS SURFACING2, DRAINAGE IMPROVEMENTS, ADA IMPROVEMENTS AND INSTALLATION OF LIGHTING AND SIGNAGE. PROJECT SCOPE OF WORK IS LOCATED ON CSAH 22 FROM KIOWA ST NW TO FOX ST NW MOVING WEST TO EAST AND ON CSAH 7 FROM 500 FEET SOUTH OF CSAH 22 TO 500 FEET NORTH OF CSAH 22 MOVING SOUTH TO NORTH.

TENTATIVE CONSTRUCTION SCHEDULE (OPERATOR SHOULD PROVIDE ESTIMATED CONSTRUCTION SCHEDULE TO THE ENGINEER)	
CONSTRUCTION ACTIVITIES:	ESTIMATED DATES OF SOIL DISTURBANCE ACTIVITIES:
TEMPORARY SEDIMENT CONTROL BMPS & REMOVALS	MAY - 2024
GRADING, DRAINAGE & UTILITY WORK	JUNE - JULY 2024
CURB, PAVEMENT, LIGHTING AND SIGNAGE	AUGUST - SEPT 2024
FINAL STABILIZATION	OCT 2024

PROJECT PERSONNEL AND TRAINING

SWPPP DEVELOPER:
WSB (DAN PERRON)
701 XENIA AVE S, SUITE 300
GOLDEN VALLEY, MN 55416
612-346-7793/DPERRON@WSBENG.COM

CONTRACTOR TO PROVIDE CERTIFICATION OF EROSION CONTROL OFFICER AND ANY OTHER CREW MEMBERS WHO WILL WORK ON THE IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING, AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. PROVIDE PROOF OF CERTIFICATION AT THE PRECONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

CHAIN OF RESPONSIBILITY

ANOKA COUNTY AND THE CONTRACTOR ARE CO-PERMITTEES FOR THE NPDES CONSTRUCTION GENERAL PERMIT. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA.

NAME	COMPANY	TITLE	PHONE
CHRIS OSTERHUS	ANOKA COUNTY	OWNER CONTACT	651-233-3168

AGENCY CONTACTS

ORGANIZATION	CONTACT NAME	PHONE
MPCA (EMERGENCY) 24 HOUR	STATE DUTY OFFICER	1-800-422-0798
MPCA	BRANDON DAHL	651-757-2389
CITY OF OAK GROVE	JEFF ANDERSON	218-499-3175
MNDNR	LUCAS YOUNGSMA	651-259-5822

LOCATION OF SWPPP REQUIREMENTS

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET AS WELL AS IN THE SPECIAL PROVISIONS, PROJECT MANUAL, MNDOT SPEC BOOK, OR ON FILE WITH THE PROJECT OWNER.

DESCRIPTION	LOCATION
TEMPORARY/PERMANENT EROSION CONTROL MEASURES	133
DIRECTION OF FLOW	133
CONSTRUCTION NOTES & STANDARD PLATES	8 - 9
DRAINAGE PLAN & CONSTRUCTION PLAN	112-116 & 91
BMP TABULATION	6
STORMWATER CALCULATIONS	DRAINAGE REPORT & HYDRAULIC REPORT. AVAILABLE UPON REQUEST

RECEIVING WATERS

A SPECIAL AND IMPAIRED WATERS SEARCH WAS COMPLETED USING THE MPCA SEARCH ENGINE ON 09/27/2023.BASED ON THIS REVIEW, THERE ARE NO SPECIAL IMPAIRED WATERS (WITH CONSTRUCTION RELATED IMPAIRMENTS) LOCATED WITHIN ONE MILE OF, AND DOWNSTREAM OF, PROJECT DISCHARGE POINTS. THE FOLLOWING IS A LIST OF RECEIVING WATERS WITHIN ONE MILE OF THE PROJECT:

WATERBODY	IMPAIRMENT(S)
RUM RIVER	N/A

THE RUM RIVER IS NOT IMPAIRED HOWEVER, IT IS A SCENIC RECREATIONAL RIVER SEGMENT AND HAS BEEN LABELED AS RESTRICTED WATERS BY THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES.

AREAS OF ENVIRONMENTAL SENSITIVITY (AES) AND INFESTED WATERS

IN ADDITION TO THE LIST OF SPECIAL AND IMPAIRED WATERS, THERE IS A MAP OF KNOWN NATURAL RESOURCES ON THE LAST PAGE OF THE SWPPP NARRATIVE. AREAS OF ENVIRONMENTAL SENSITIVITY ARE ALSO CALLED OUT ON THE PLAN SHEETS.

SOIL TYPES

A PROJECT WIDE GEOTECHNICAL REPORT WAS COMPLETED DURING THE DESIGN PHASE. GLACIAL TILL IS PREDOMINATING ALONG ALL OF THE PROJECT ALIGNMENT. TOPSOIL CONSISTS OF WELL-DRAINED FINE LOAMY SANDS. SUBSOIL CONSIST OF SANDY LOAM DOWN TO 60" BELOW THE SURFACE ADDITIONAL SOIL INFORMATION CAN BE FOUND IN THE GEOTECHNICAL REPORT, LOCATED WITHIN THE PROJECT SPECIFICATIONS. SOIL CLASSIFICATIONS FOR HIGHLY ERODIBLE LAND (HEL), POTENTIALLY HIGHLY ERODIBLE LAND (PHEL), AND NOT HIGHLY ERODIBLE LAND (NHEL) SOILS CAN BE FOUND ON *FIGURE 1. SWPPP RESOURCE MAP.*

IF MATERIAL NEEDS TO BE STOCKPILED, APPROPRIATE ACTION WILL TAKE PLACE TO ENSURE THE STOCKPILES HAVE ALL PROPER BMPS IN PLACE ACCORDING TO THIS SWPPP AND THE NPDES PERMIT.

ENVIRONMENTAL REVIEW

NO FORMAL ENVIRONMENTAL REVIEW WAS REQUIRED FOR THIS PROJECT.

WETLANDS: MITIGATION MEASURES ARE NOT REQUIRED AS THE SCOPE OF WORK DOES NOT IMPACT ANY WETLANDS ADJACENT TO THE PROJECT. ALL WETLAND AREAS WILL BE PROTECTED WITH PERIMETER CONTROL AND A 50' NATURAL BUFFER (IF INFEASIBLE, REDUNDANT PERIMETER CONTROL MEASURES), INCLUDED AREAS THAT ARE PERMITTED TO BE FILLED AND/OR EXCAVATED UNTIL WORK IN THE PERMITTED AREAS ARE NECESSARY. REDUNDANT BMP MEASURES MUST BE PLACED 5' FROM THE INITIAL PERIMETER CONTROL MEASURE WITH A STABILIZED BUFFER STRIP BETWEEN THE BMPS.

THREATENED/ENDANGERED SPECIES: ANOKA COUNTY LISTS THE NORTHERN LONG-EARED BAT AS THREATENED/ENDANGERED SPECIES WITHIN THE COUNTY. THE USFWS LISTS THE WHOOPING CRANE AS A THREATENED/ENDANGEREDD MIGRATORY BIRD WTIHIN THE COUNTY. THE TRICOLORED BAT IS A PROPOSED ENDANGERED SPECIES AND THE MONARCH BUTTERFLY IS LISTED AS A CANDIDATE SPECIES. BASED ON THE CONSTRUCTION ACTIVITIES, IT IS DETERMINED THAT THE PROJECT WILL HAVE NO EFFECT ON THESE SPECIES OR THEIR HABITATS. HOWEVER, IF THESE SPECIES ARE FOUND, CONTRACTOR TO STOP WORK IMMEDIATELY FOR FURTHER INVESTIGATION.

DRINKING WATER/WELLS: ACCORDING TO THE MDH, THE PROJECT IS NOT LOCATED WITHIN ANY DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA. HOWEVER, 4 RESIDENTIAL WELLS EXSIST ADJACENT TO THE PROJECT SCOPE OF WORK. ID: 144042 TO THE SOUTH, ID: 732399 TO THE WEST, ID 494861 TO THE NORTH, AND ID: 676052 TO THE EAST. ADDITIONAL PRECAUTIONS SHOULD BE TAKEN TO PREVENT SPILLS FROM CONTAMINATING THE GROUNDWATER ONSITE SUCH AS PROPER HANDLING AND STORAGE OF CHEMICALS AND KEEPING A SPILL KIT ONSITE. ALL SPILLS OVER 5 GALLONS ARE TO BE REPORTED TO THE STATE DUTY OFFICER WITHIN 24 HOURS OF OCCURANCE.

CONTAMINATED PROPERTIES: THE MPCA'S "WHAT'S IN MY NEIGHBORHOOD" DATABASE WAS REVIEWED ON 09/27/2023. THE RESULTS OF THIS REVIEW SHOW ONE (1) KNOWN UNDERGROUND TANK ADJACENT TO THE PROJECT ALIGNMENT TO THE SOUTHWEST: ID 252687. THE DEPTH OF THE FULL RECLAMATION IS NOT PROPOSED TO UNEARTH ANY CONTAMINATED SOIL, CONTAMINATED WATER, AND/OR REGULATED WASTE. REFER TO MNDOT SPEC 1717.1.A. FOR POTENTIAL INDICATORS OF CONTAMINATED MATERIALS AND REGULATED WASTE. IF CONTAMINATED MATERIAL, CONTAMINATED WATER, AND/OR REGULATED MATERIALS ARE FOUND, CREWS ARE TO STOP WORK IMMEDIATELY FOR FURTHER INVESTIGATION/TESTING.

FLOOD CONTINGENCY PLAN: PROJECT ACTIVITIES ARE NOT LOCATED WITHIN THE 100-YEAR FLOODPLAIN OR FLOODWAY; HOWEVER, THE PROJECT ENGINEER (AT THEIR DISCRETION) MAY REQUIRE A PREVENTATIVE FLOOD CONTINGENCY PLAN FOR SPECIFIC PROJECT ACTIVITIES AND AREAS IF SEASONAL PRECIPITATION POSSES A POTENTIAL RISK OF FLOODING WORK AREAS WITHIN THE PROJECT LIMITS. THIS PLAN SHALL BE SUBMITTED BY THE OPERATOR TO THE PROJECT ENGINEER FOR APPROVAL A MINIMUM OF 72 HOURS PRIOR TO THE SCHEDULED WORK AND/OR DURING ACTIVE WORK WITHIN THE AREA OF POTENTIAL RISK OF FLOODING. NO WORK CAN COMMENCE IN THE AREA UNTIL WRITTEN APPROVAL HAS BEEN GRANTED BY THE PROJECT ENGINEER.

AQUATIC INVASIVE SPECIES: ALL DEWATERING EQUIPMENT SHALL BE DECONTAMINATED OF ALL AQUATIC PLANTS AND PROHIBITED INVASIVE SPECIES PRIOR TO USING WITHIN SURFACE WATERS ON-SITE AND TRANSPORTING OFF-SITE. ALL DECONTAMINATION ACTIVITIES SHALL MEET THE CHAPTER 1 STANDARDS OF THE MINNESOTA DNR'S BEST PRACTICES MANUAL FOR MEETING DNR GENERAL PUBLIC WATERS WORK PERMIT GP 2004-0001.

LAND FEATURE CHANGES

TOTAL AREA TO BE DISTURBED = 4.16 ACRES
IMPERVIOUS AREA: PRE-CONSTRUCTION = 2.88 ACRES/POST-CONSTRUCTION = 3.63 ACRES
NET INCREASE OF IMPERVIOUS AREA = 0.75 ACRES

LONG TERM MAINTENANCE AND OPERATION:
THE NPDES PERMANENT STORMWATER TREATMENT SYSTEM (PART 15.1) IS NOT REQUIRED BECAUSE THE NET NEW IMPERVIOUS AREA CREATED BY THE PROJECT IS LESS THAN ONE ACRE.

STABILIZATION TIME FRAMES

AREA	TIME FRAME	NOTES
EXPOSED AREAS	IMMEDIATELY AND NO LATER THAN 14 DAYS OF BEING UNWORKED	1, 4, 5
LAST 200 LINEAL FEET OF DRAINAGE DITCH/SWALE	WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER/PROPERTY EDGE	1, 2, 3
REMAINING PORTIONS OF DRAINAGE DITCH OR SWALE	14 DAYS	1, 3
PIPE AND CULVERT OUTLETS	24 HOURS	
STOCKPILES	14 DAYS	1

1. INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAME LISTED. IN MANY INSTANCES THIS WILL REQUIRE STABILIZATION TO

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: AJP
Approved By: AJP

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: ANDREW J. PLOMMAN, PE
DATE 2/7/2024 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STORMWATER POLLUTION PREVENTION PLAN
SP 002-622-041, SP 223-020-009

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OCCUR MORE THAN ONCE DURING THE COURSE OF THE PROJECT. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENT.
2. STABILIZE WETTED PERIMETER OF DITCH (I.E. WHERE THE DITCH GETS WET).
3. APPLICATION OF MULCH, HYDROMULCH, TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN THESE AREAS.
4. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE MULCHED OR BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.
5. KEEP DITCHES AND EXPOSED SOILS IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES, HYDROMULCHES, AND BLANKETS.

SITE INSPECTION AND MAINTENANCE

THE EROSION CONTROL OFFICER IS TO INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. THE OPERATOR SHALL PROVIDE A RAINFALL GAUGE ON-SITE AT VARIOUS MILE INTERVALS ALONG THE ALIGNMENT. INSPECT ALL TEMPORARY AND PERMANENT PROJECT BMPS UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND THE NOT HAS BEEN SUBMITTED. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF-SITE SEDIMENT ACCUMULATION. ALL INSPECTIONS AND MAINTENANCE CONDUCTED MUST BE RECORDED IN WRITING BY THE OPERATOR AND RETAINED WITH THE SWPPP. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY SHALL INCLUDE:

A. DATE, TIME, AND NAME OF PERSON(S) CONDUCTING INSPECTIONS;
B. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS;
C. CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES); INCLUDING DOCUMENTATION/PHOTOS OF IMPLEMENTED BMPS INTENDED TO CORRECT A PROBLEM BUT FAILED.
D. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCHES IN 24 HOURS;
E. DOCUMENTATION OF CHANGES MADE TO THE SWPPP.

REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY UNLESS LISTED DIFFERENTLY BELOW:

A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
B. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
C. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. STABILIZE ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATIONS. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY.
D. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN ONE (1) CALENDAR DAY OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING.
E. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOT HAS BEEN SUBMITTED TO THE MPCA.

CONSTRUCTION ACTIVITY REQUIREMENTS: EROSION/SEDIMENT CONTROL, PROCEDURES, & MAINTENANCE STANDARDS

1. AMEND THE SWPPP AND DOCUMENT ALL CHANGES TO THE SWPPP AND ASSOCIATED PLAN SHEETS IN A TIMELY MANNER. SWPPP AMENDMENTS AND SITE PLANS WILL BE PREPARED BY THE OPERATOR AND SUBMITTED TO THE OWNER FOR REVIEW AND WRITTEN APPROVAL BY THE PROJECT OWNER (OR DESIGNATED REPRESENTATIVE). STORE THE SWPPP AND ALL AMENDMENTS ON SITE AT ALL TIMES.
2. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR STAGING/STOCKPILE MANAGEMENT AREAS, CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, FUGITIVE DUST CONTROL PLAN, SPILL CONTAINMENT PLAN, HAZARDOUS MATERIAL MANIFEST & MANAGEMENT PLAN, VEGETATION PRESERVATION & MAINTENANCE PLAN, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, ANY ADDITIONAL PLANS LISTED IN THE PROJECT SPECIFICATIONS, AND AS REQUIRED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR PROJECT ENGINEER TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.
3. THERE IS NO CONSTRUCTION PHASING OR STAGING DEFINED BY THE OWNER FOR THIS PROJECT. THE SCHEDULE FOR INSTALLING TEMPORARY BMPS SHALL BE INCORPORATED INTO THE OPERATOR'S WEEKLY SCHEDULE FOR EACH CONSTRUCTION STAGE AND PRESENTED TO THE OWNER'S REPRESENTATIVE.
4. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.
5. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED AND WETLANDS (EVEN AREAS THAT ARE PERMITTED FOR CONSTRUCTION) PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS, OBTAIN WRITTEN PERMISSION FROM THE PROJECT ENGINEER PRIOR TO PROCEEDING. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS.
6. ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO KEEP CHANNELS FROM ERODING AND TO PREVENT NUISANCE CONDITIONS AT THE OUTLET.
7. DIRECT DISCHARGE FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.
8. LOCATE PERIMETER CONTROL ON THE CONTOUR TO CAPTURE OVERLAND, LOW-VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. PLACE J-HOOKS AT A MAXIMUM OF 100-FOOT INTERVALS.
9. ALL STOCKPILES MUST HAVE PERIMETER SEDIMENT CONTROLS IMPLEMENTED AND MAINTAINED AT ALL TIMES. PILES CANNOT BE PLACED IN BUFFER AREAS OR SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES UNLESS THERE IS A BYPASS IN PLACE TO PREVENT STORMWATER RUN-ON INTO THE STOCKPILE.
10. STEEP SLOPES MAY BE TEMPORARILY CREATED DURING GRADING OPERATIONS. STABILIZATION OF STEEP SLOPES (3:1 OR GREATER) SHALL BE PROPERLY CAT-TRACKED AND STABILIZED PER THE EROSION CONTROL PLAN. LONG SLOPES CAN BE BROKEN UP WITH SEDIMENT CONTROL LOGS IF EROSION IS EVIDENT.
11. DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.
12. ALL STORM DRAIN INLETS, THAT RECEIVE PROJECT STORMWATER, MUST BE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. INLET PROTECTION MAY BE REMOVED FOR A PARTICULAR INLET IF A SPECIFIC SAFETY CONCERN (STREET FLOODING/FREEZING) HAS BEEN IDENTIFIED AND THE PERMITTEE(S) HAS RECEIVED WRITTEN CORRESPONDENCE FROM THE JURISDICTIONAL AUTHORITY VERIFYING THE NEED FOR REMOVAL. WRITTEN CORRESPONDENCE MUST BE DOCUMENTED IN THE SWPPP.
13. SILT FENCE IS NOT AN ACCEPTABLE CATCH BASIN INLET PROTECTION BMP. CONTACTOR SHALL CLEAN, REMOVE AND DISPOSE OF SEDIMENT, AND/OR REPLACE STORM DRAIN INLET PROTECTION ON A ROUTINE BASIS TO ENSURE THE DEVICE IS FULLY FUNCTIONAL PRIOR TO THE NEXT FORECASTED PRECIPITATION EVENT (30% OR GREATER).
14. DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE. IN THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. CLEAN OUT ALL PERMANENT STORMWATER BASINS REGARDLESS OF WHETHER USED AS TEMPORARY SEDIMENT BASINS/TRAPS TO THE DESIGN CAPACITY AFTER COMPLETING ALL UP-GRADIENT LAND DISTURBING ACTIVITY. USE A SKIMMER DEVICE FOR BASIN DRAINING.
15. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.
16. THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN AND NARRATIVE TO THE PROJECT ENGINEER FOR APPROVAL 7 DAYS PRIOR TO UNDERTAKING THESE ACTIVITIES. DEWATERING PLAN MUST INCLUDE BMP'S TO PREVENT SEDIMENT TRANSPORT, EROSION, AND ADVERSE IMPACTS TO DOWNSTREAM RECEIVING WATERS. THE DEWATERING PLAN MUST ALSO INCLUDE ANY SPECIFIC CHEMICAL TREATMENTS (FLOC, POLYMERS, ETC.) THAT WILL BE USED. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ANY PERMIT NECESSARY FOR THESE ACTIVITIES; THE DEWATERING PLAN AND DNR APPROPRIATIONS PERMIT WILL BECOME PART OF THE SWPPP.

TEMPORARY & PERMANENT EROSION CONTROL BMPS

SEED MIX: SEED MIX SHALL BE USED IN CONSTRUCTION AND REVEGETATION PROJECTS IN ORDER TO ENHANCE SOIL NUTRIENT AVAILABILITY AND BIOLOGICAL SOIL STRUCTURE, ENCOURAGE NATIVE PLAN SUCCESSION, REDUCE EROSION, AND DISCOURAGE INVASIVE PLANT SPECIES. INOCULATION OF SOILS WITH MYCORRHIZAL FUNGI OR THE PRESENCE OF PRE-EXISTING SOIL MICROBES IS ESSENTIAL FOR THE STABILIZATION OF ADVERSE SOILS, ESTABLISHMENT OF NATIVE GRASSES, AND THE EXCLUSION OF NON-NATIVE "ANNUALS" AND NOXIOUS WEEDS.

EROSION CONTROL BLANKET: EROSION CONTROL BLANKETS (ECBS) ARE A SOIL STABILIZATION (EROSION CONTROL) BMP, INTENDED TO PROTECT DISTURBED SOIL SURFACES FROM RAINDROP IMPACT EROSION. ECBS ARE CARPET-LIKE MATS, INSTALLED OVER AND ANCHORED TO THE PROPERLY PREPARED SOIL SURFACES. PROPERLY SELECTED AND INSTALLED, ECBS CAN MIMIC THE BENEFICIAL EFFECTS OF VEGETATIVE COVER THEREBY REDUCING EROSION RATES BY OVER 90%. ECBS ALSO PROTECT SEEDS AND PROVIDE A BENEFICIAL ENVIRONMENT FOR VEGETATION TO BECOME ESTABLISHED. CONTRACTOR SHALL VERIFY DURING REGULAR INSPECTIONS THAT NO GULLIES, RILLS, OR SCOUR HOLES HAVE FORMED UNDER EROSION CONTROL BLANKETS AND MATS AND CORRECT ALL ERODED AREAS WITHIN 14 DAYS. ALL REPAIRS MUST BE COMPLETED WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.

HYDRAULIC MATRICES: HYDRAULIC MATRICES ARE EROSION CONTROL PRODUCTS THAT ARE USED TO STABILIZE EXPOSED SOILS. THESE MATRICES ARE APPLIED IN A SLURRY, PRODUCED BY MIXING FIBER, WATER AND A BINDING AGENT TOGETHER IN A MECHANICAL HYDRO-SEEDER. WOOD FIBER IS WIDELY USED BUT OTHER FIBERS CAN INCLUDE PAPER, STRAW, COIR, CORN, ETC. THE EFFECTIVENESS OF THESE HYDRAULIC MATRICES ARE DEPENDENT ON:

- PROPER SOIL PREPARATION
- APPLICATION RATES (DEPENDENT ON THE MANUFACTURERS RECOMMENDATIONS)
- THE TYPE OF FIBERS USED
- THE TYPE OF BOND AGENT(S) ADDED

THESE HYDRAULIC MATRICES ARE CLASSIFIED IN THE MNDOT SPEC BOOK AND APPROVED PRODUCTS LIST, DEPENDING ON THE PRODUCT CHARACTERISTICS, STRENGTH, AND LONGGEVITY. HYDRAULIC MATRICES USED INCLUDE: ORGANIC FIBER MATRIX, HYDRAULIC MULCH MATRIX, STABILIZED FIBER MATRIX, BONDED FIBER MATRIX, AND FIBER REINFORCED MATRIX.

ENERGY DISSIPATER: AN ENERGY DISSIPATER IS A STRUCTURE DESIGNED TO CONTROL EROSION AT THE OUTLET OF A CHANNEL OR CONDUIT.

RAPID STABILIZATION METHOD #3: THIS WORK SHALL CONSIST OF OPERATIONS NECESSARY TO RAPIDLY STABILIZE SMALL CRITICAL AREAS WITHIN 200 FEET OF SURFACE WATERS, TO PREVENT OFF SITE SEDIMENTATION AND OR TO COMPLY WITH PERMIT REQUIREMENTS. THIS FORM OF RAPID STABILIZATION EMPLOYS SFM, SEED MIX 22-111, AND FERTILIZER TYPE 3. THIS METHOD SHALL BE USED ON SLOPES LESS THAN 3:1. INSTALL PER MNDOT SPECIFICATION 2575.3.M.1.C.

RAPID STABILIZATION METHOD #4: THIS METHOD SHALL CONSIST OF CATEGORY 20/25 EROSION CONTROL BLANKET (NATURAL NET ONLY) IN COMBINATION WITH MNDOT SEED MIX 22-111 (2 LBS PER 100 SQ. YD.) AND TYPE 3 SLOW RELEASE FERTILIZER (8 LBS PER 100 SQ. YD.). THIS IS AN ACCEPTABLE BMP FOR DISTURBED AREAS ADJACENT TO ENVIRONMENTALLY SENSITIVE AREAS, SURFACE WATERS, AND WITHIN THE LAST 200 FEET OF DITCH BOTTOMS.

TEMPORARY & PERMANENT SEDIMENT CONTROL BMPS

SEDIMENT CONTROL LOGS: SEDIMENT CONTROL LOGS ARE MANUFACTURED FROM STRAW, WOOD EXCELSIOR, COCONUT FIBERS, AND/OR OTHER MATERIALS THAT ARE BOUND WITH POLYPROPYLENE OR BIODEGRADABLE NETTING INTO TIGHT TUBULAR ROLLS. FIBER ROLLS CONTROL THREE TYPES OF EROSIONAL PROCESSES; EROSION CONTROL, RUN OFF CONTROL, AND SEDIMENT CONTROL. SEDIMENT CONTROL LOGS CAN BE USED FOR THE FOLLOWING:

- SLOPE INTERRUPTERS TO REDUCE EROSION ON NEWLY CONSTRUCTED SLOPES
- TEMPORARY DITCH CHECKS TO REDUCE RUNOFF VELOCITIES IN DRAINAGE CHANNELS
- SEDIMENT CONTROL BARRIERS FOR SMALL DISTURBED SOIL AREAS SUCH AS STOCKPILES, DISCRETE SLOPES, OR INDIVIDUAL LOTS

MACHINE SLICED SILT FENCE: A SILT FENCE IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF FILTER FABRIC ENTRENCHED INTO THE SOIL AND ATTACHED TO SUPPORTING POSTS. SILT FENCE IS INTENDED TO BE INSTALLED WHERE SEDIMENT-LADEN WATER CAN POND, THUS ALLOWING THE SEDIMENT TO FALL OUT OF SUSPENSION AND SEPARATE FROM THE RUNOFF. SILT FENCE INSTALLED WITH A TRENCHER OR BY SLICING IS THE MOST EFFECTIVE INSTALLATION METHOD TO ENSURE AGAINST COMMON SILT FENCE FAILURES. THE BMP WILL BE CLEANED OUT OR REPLACED WHEN THE SEDIMENT REACHES 1/2 THE HEIGHT OF THE FENCE.

STABILIZED CONSTRUCTION EXIT: TEMPORARY CONSTRUCTION EXITS ARE CONSTRUCTED AT THE EGRESS POINT FROM THE CONSTRUCTION AREA ONTO A PAVED ROAD. A STABILIZED CONSTRUCTION EXIT IS A TRACKING CONTROL BMP INTENDED TO PREVENT TRACKING OF SOIL

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Plan By: AJF
Checked By: AJP
Approved By: AJP

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PRINT NAME: ANDREW J. PLOMMAN, PE

DATE 2/7/2024 LICENSE # 44200

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STORMWATER POLLUTION PREVENTION PLAN

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FROM THE CONSTRUCTION SITE BY EQUIPMENT AND VEHICLES. THE EXITS ARE CONSTRUCTED OF LARGE ANGULAR ROCK, STEEL RIBS (RUMBLE STRIPS), OR TRACK PADS INTENDED TO KNOCK THE MUD OFF THE TIRES BEFORE TRAVELING ONTO THE ROADWAY.

CHEMICAL TREATMENTS: OPERATOR MUST AMEND THE SWPPP TO INCLUDE THE INTENDED USES AND LOCATIONS OF FLOCCULANTS, POLYMERS, AND OTHER SEDIMENTATION TREATMENT CHEMICALS. CHEMICAL TREATMENTS MUST BE IN COMPLIANCE WITH PART 9.18.

DUST CONTROL: OPERATOR WILL COMPLY WITH STATE RULE 7011.0150 ON DUST PREVENTION REQUIREMENTS. DUST FROM THE SITE WILL BE CONTROLLED BY INCREASED STREET SWEEPING AND/OR USING A MOBILE PRESSURE-TYPE DISTRIBUTOR TRUCK TO APPLY POTABLE WATER TO DISTURBED AREAS. THE MOBILE UNIT WILL APPLY WATER AT A RATE NECESSARY TO PREVENT RUNOFF AND PONDING.

POLLUTION PREVENTION MANAGEMENT

POTENTIAL SOURCES OF POLLUTANTS FROM CONSTRUCTION ACTIVITIES INCLUDE, BUT NOT LIMITED TO:

1. SEDIMENT AND FUGITIVE DUST GENERATED FROM CLEARING AND GRUBBING, IMPORT/EXPORT OPERATIONS, REMOVALS/COMPACTION, MASS/FINE GRADING, EXCAVATIONS, TRENCHING, TOPSOIL STRIPING STOCKPILING, WET/DRY PAVEMENT CUTTING, STREET CONSTRUCTION.
2. BASIC/ACIDIC PH LEVELS FROM CURB AND GUTTER, MANHOLE STRUCTURES, SIDEWALKS, DRIVEWAY APRONS, WET/DRY PAVEMENT CUTTING, MASONRY WASHOUT/CLEANOUT.
3. EXCESS NUTRIENTS FROM LANDSCAPING INSTALLATIONS, SOIL ADDITIVES, FERTILIZATION, MULCHING.
4. HYDROCARBONS FROM STREET CONSTRUCTION, DEMOLITION/REMOVALS, WET/DRY PAVEMENT CUTTING.

OPERATOR WILL COMPLY WITH ALL OF THE POLLUTION PREVENTION AND MANAGEMENT MEASURES IDENTIFIED IN THE NPDES-CSW PERMIT, PART 12.1. STORAGE AND DISPOSAL OF CONSTRUCTION AND HAZARDOUS WASTES MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

A. POSITION AND STAKE DOWN ALL PORTABLE TOILETS SO THEY CANNOT BE TIPPED OR KNOCKED OVER. SUPPLY ADEQUATE SECONDARY CONTAINMENT.
B. SECONDARY CONTAINMENT IS NEEDED AROUND ALL STATIONARY EQUIPMENT (GENERATORS, PUMPS, LIGHT PLANTS, ETC.) PROVIDE CONTAINMENT FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE.
C. NO ENGINE DEGREASING IS ALLOWED ON SITE.
D. VEHICLE AND EQUIPMENT WASHING TO OCCUR IN DESIGNATED AREA AS DETERMINED BY THE CONTRACTOR SUBMITTAL OF A MANAGEMENT PLAN FOR THESE ACTIVITIES.
E. PROPERLY CLEAN UP AND REPORT ALL SPILLS AS REQUIRED BY THE MPCA AND MNDOT SPECIFICATIONS.
F. PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE.
G. PROVIDE A SECURE STORAGE AREA WITH RESTRICTED ACCESS FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE. RETURN ALL HAZARDOUS MATERIALS AND TOXIC WASTE TO THE DESIGNATED STORAGE AREA AT THE END OF THE BUSINESS DAY UNLESS INFEASIBLE. STORE ALL HAZARDOUS MATERIALS AND TOXIC WASTE (INCLUDING BUT NOT LIMITED TO OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT, PETROLEUM BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) IN SEALED CONTAINERS WITH SECONDARY CONTAINMENT. CLEAN UP SPILLS IMMEDIATELY. STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.
H. SLURRY FROM CONCRETE OPERATIONS MUST BE VACUUMED UP IMMEDIATELY. NO CONCRETE WASHOUT SHALL COME IN CONTACT WITH THE GROUND AND MUST BE PROPERLY DISPOSED OF.
I. A SIGN MUST BE INSTALLED ADJACENT TO EACH CONCRETE WASHOUT FACILITY.
J. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS. INCLUDE IN THE PLAN HOW THE MATERIAL WILL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE. SUBMIT PLAN TO THE ENGINEER PRIOR TO CONSTRUCTION.
K. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.

FINAL STABILIZATION

FINAL STABILIZATION IS ACHIEVED WHEN NPDES CGP PARTS 13.1-13.7 (AS APPLICABLE) ARE COMPLETED PRIOR TO SUBMISSION OF THE NOTICE OF TERMINATION (NOT) TO MPCA.

1. ALL AREAS MUST BE STABILIZED WITH A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%.
2. ALL TEMPORARY SEDIMENT CONTROL BMP MEASURES MUST BE REMOVED PRIOR TO SUBMITTING PERMIT NOT.

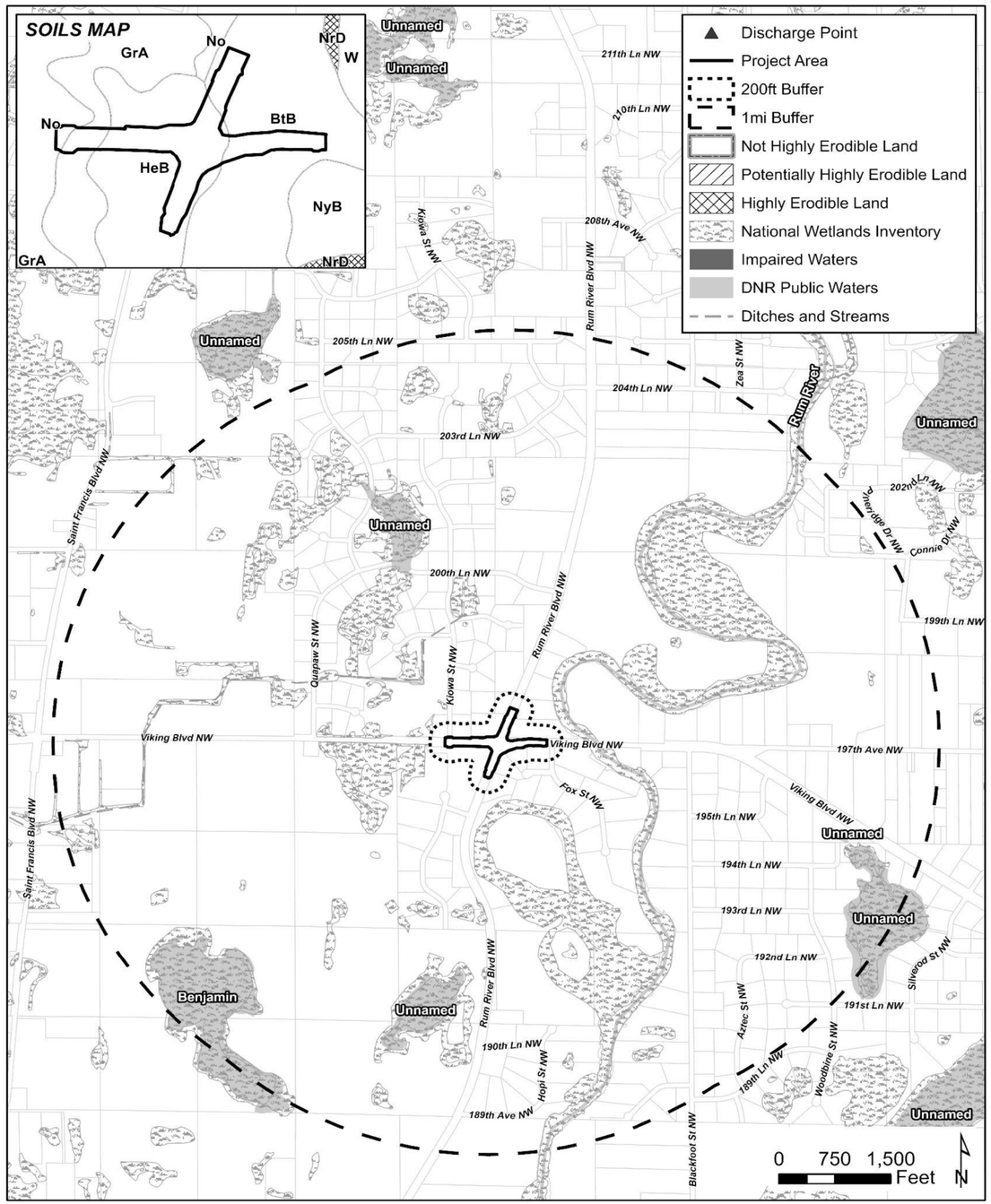

Figure 1. SWPPP Resource Map

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Plan By: AJF
Checked By: AJP
Approved By: AJP

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ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STORMWATER POLLUTION PREVENTION PLAN
SP 002-622-041, SP 223-020-009

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EROSION/SEDIMENT CONTROL NOTES:

SEDIMENT CONTROL PRACTICES:

1. SEDIMENT CONTROL MUST BE IN PLACE AND APPROVED BY THE ENGINEER BEFORE ANY PHASE OF CONSTRUCTION CAN BEGIN.
2. IF A 50' NATURAL BUFFER AROUND A SURFACE WATER IS INFEASIBLE, REDUNDANT PERIMETER CONTROLS MUST BE PROVIDED. REDUNDANT MEASURE TO BE INSTALLED 3-5' FROM THE PRIMARY MEASURE WITH STABILIZED AREAS IN BETWEEN THE TWO BMPS.
3. INLET PROTECTION WILL BE INSTALLED AT ALL CATCH INLETS WITHIN THE PROJECT AREA PER STANDARD DETAILS.
4. TEMPORARY STABILIZATION MEASURES SHALL BE EMPLOYED WITHIN 200 FEET OF THE NWP OF ALL DISCHARGE POINTS WITHIN 24 HOURS. MULCH IS NOT AN APPROVED MEASURE.
5. IN THE EVENT THAT PERMANENT STABILIZATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED, TEMPORARY STABILIZATION BMPS MUST BE SCHEDULED TO OCCUR WITHIN THAT 7 DAY TIME FRAME (EXCEPT WHERE CALLED OUT BY NOTE BELOW)
6. RAPID STABILIZATION METHOD 4 SHALL BE EMPLOYED WITHIN 200 FEET OF THE NORMAL WETTED PERIMETER OF ALL DISCHARGE POINTS WITHIN 24 HOURS.
7. A SEDIMENT TRAP MUST BE INSTALLED PER THE APPROVED STANDARD DETAILS WITHIN 24 HOURS OF CONNECTING THE UTILITIES.
8. ALL STOCKPILES MUST HAVE DOWN GRADIENT PERIMETER SEDIMENT CONTROL IMPLEMENTED AND MAINTAINED AT ALL TIMES. STOCKPILES TO RECEIVE TEMPORARY STABILIZATION IF UNWORKED FOR 7 DAYS.
9. STOCKPILES MAY NOT BE PLACED WITHIN ANY DRAINAGE OR CURB LINE UNLESS PROPER BYPASS IS INSTALLED PRIOR TO STOCKPILE PLACEMENT.
10. CONTRACTOR TO INSTALL SEDIMENT CONTROL LOGS DOWN GRADIENT FROM ANY EXPOSED AREAS

EROSION PREVENTION PRACTICES:

1. STABILIZATION OF DISTURBED AREAS SHALL BE DONE BY PERMANENT TURF ESTABLISHMENT WHENEVER POSSIBLE.

POLLUTION PREVENTION MANAGEMENT MEASURES:

1. A ROCK CONSTRUCTION ENTRANCE WILL BE PLACED AT ALL ENTRANCES THAT LEAD TO THE PROJECT SITE IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE APPROVED STANDARD DETAILS. ENTRANCE MUST BE A MINIMUM OF 50 FEET PER THE CONSTRUCTION PERMIT REQUIREMENT.
2. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ADJACENT STREET AND CURB LINE TO BE SWEPT FREE OF DEBRIS AT THE END OF EACH WORK DAY, OR AS OFTEN AS NEEDED TO ENSURE PUBLIC SAFETY.
3. SLURRY FROM CONCRETE OPERATIONS MUST BE VACUUMED UP IMMEDIATELY. NO CONCRETE WASHOUT SHALL COME IN CONTACT WITH THE GROUND AND MUST BE PROPERLY DISPOSED OF. ALL HAZARDOUS MATERIALS MUST BE KEPT UNDER COVER AND WITHIN PROPER CONTAINMENT WHEN NOT IN USE.

MISCELLANEOUS:

1. ADDITIONAL EROSION AND SEDIMENT CONTROL MAY BE ADDED DURING ANY PHASE OF CONSTRUCTION AS DIRECTED BY THE ENGINEER.
2. IF PROJECT CONSISTS OF MILL & OVERLAY OF SECTIONS, ENSURE MILLINGS ARE NOT A THREAT FROM WASHING OFF THE PROJECT ROW.
3. CONTRACTOR TO PROTECT ALL WETLAND AREAS WITH PERIMETER CONTROL (AND REDUNDANT MEASURES) UNTIL WORK IN THE PERMITTED AREAS IS NEEDED. REDUNDANT MEASURES MUST BE A MINIMUM OF 5 FEET APART, WHERE FEASIBILE.
4. THE CONTRACTOR SHALL AMEND THE SWPPP AND THIS PLAN SHEET TO SHOW THE LOCATIONS OF STAGING AREAS, STOCKPILE LOCATIONS (AND APPROPRIATE ESC BMPS), AND LOCATIONS OF POTENTIAL POLLUTANT GENERATING ACTIVITIES (I.E. DESIGNATED CONCRETE WASHOUT AREAS, FUELING LOCATIONS, ETC.).
5. THE CONTRACTOR SHALL AMMEND THIS PLAN TO SHOW AREAS OF POLLUTANT GENERATING ACTIVITIES, STAGING AREAS, AND DISPOSAL SITES AWAY FROM WATER.

TURF ESTABLISHMENT AND EROSION CONTROL LEGEND

PERMANENT:
SEED MIXTURE 35-221 (36.5 LBS/ACRE)
FERTILIZER TYPE 4 (150 LBS/ACRE)
HYDRAULIC MATRIX TYPE FIBER REINFORCED (3900 LBS/ACRE)

TEMPORARY:
HYDRAULIC MULCH MATRIX TYPE FIBER REINFORCED (3900 LBS/ACRE)

PERMANENT:
SEED MIXTURE 25-121 (61 LBS/ACRE)
FERTILIZER TYPE 3 (350 LBS/ACRE)
HYDRAULIC MATRIX TYPE FIBER REINFORCED (3900 LBS/ACRE)

TEMPORARY:
HYDRAULIC MULCH MATRIX TYPE FIBER REINFORCED (3900 LBS/ACRE)

- MS — SILT FENCE; TYPE MS
- BR — SEDIMENT CONTROL LOG, TYPE WOOD FIBER
- CP — CULVERT END CONTROLS
- STORM DRAIN INLET PROTECTION
- STABILIZED CONSTRUCTION EXIT
- SURFACE DRAINAGE DIRECTION
- RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT DRAINAGE EASEMENT

NO.	DATE	BY	CHK	REVISIONS

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Plan By: AJF
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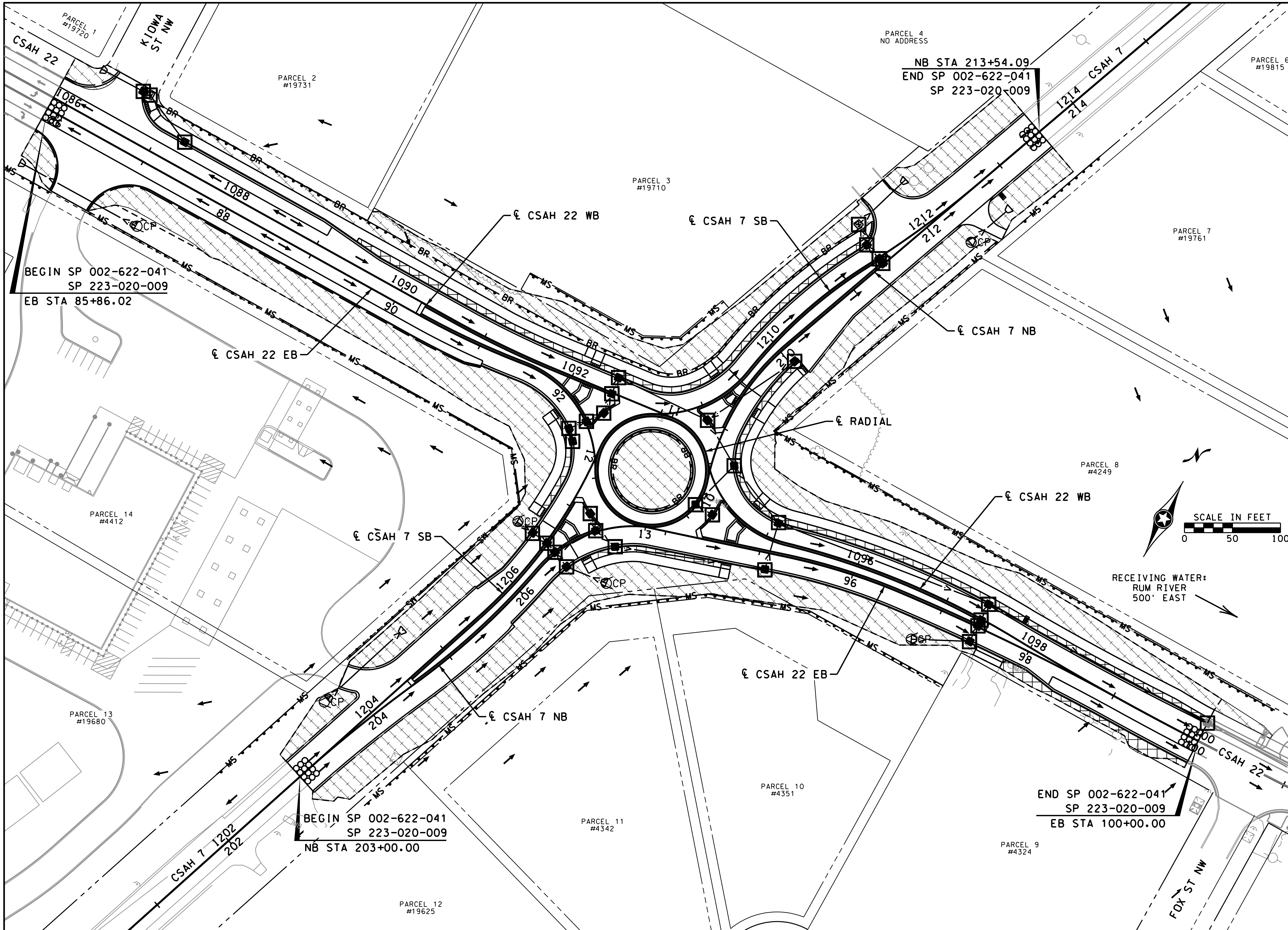
ANOKA COUNTY, MINNESOTA
NOTES / LEGEND
EROSION CONTROL & TURF ESTABLISHMENT
SP 002-622-041, SP 223-020-009

SHEET 132 OF 133 SHEETS



LEGEND

CP	CULVERT END CONTROLS
→	SURFACE FLOW DIRECTION
□	STORM DRAIN INLET PROTECTION
	STABILIZED CONSTRUCTION EXIT
BR	SEDIMENT CONTROL LOG, TYPE COMPOST
MS	SILT FENCE, TYPE MS
	CONSTRUCTION LIMITS
	AREA OF ENVIRONMENTAL SENSITIVITY
	INPLACE RIGHT-OF-WAY
	INPLACE EASEMENT

PERMANENT:
SEED MIXTURE 35-221
(36.5 LBS/ACRE)
FERTILIZER TYPE 4
(150 LBS/ACRE)
HYDRAULIC MULCH MATRIX
TYPE FIBER REINFORCED
(3900 LBS/ACRE)

TEMPORARY:
HYDRAULIC MULCH MATRIX
TYPE FIBER REINFORCED
(3900 LBS/ACRE)

PERMANENT:
SEED MIXTURE 25-121
(61 LBS/ACRE)
FERTILIZER TYPE 3
(350 LBS/ACRE)
HYDRAULIC MULCH MATRIX
TYPE FIBER REINFORCED
(3900 LBS/ACRE)

TEMPORARY:
HYDRAULIC MULCH MATRIX
TYPE FIBER REINFORCED
(3900 LBS/ACRE)

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EROSION CONTROL & TURF ESTABLISHMENT

SP 002-622-041, SP 223-020-009

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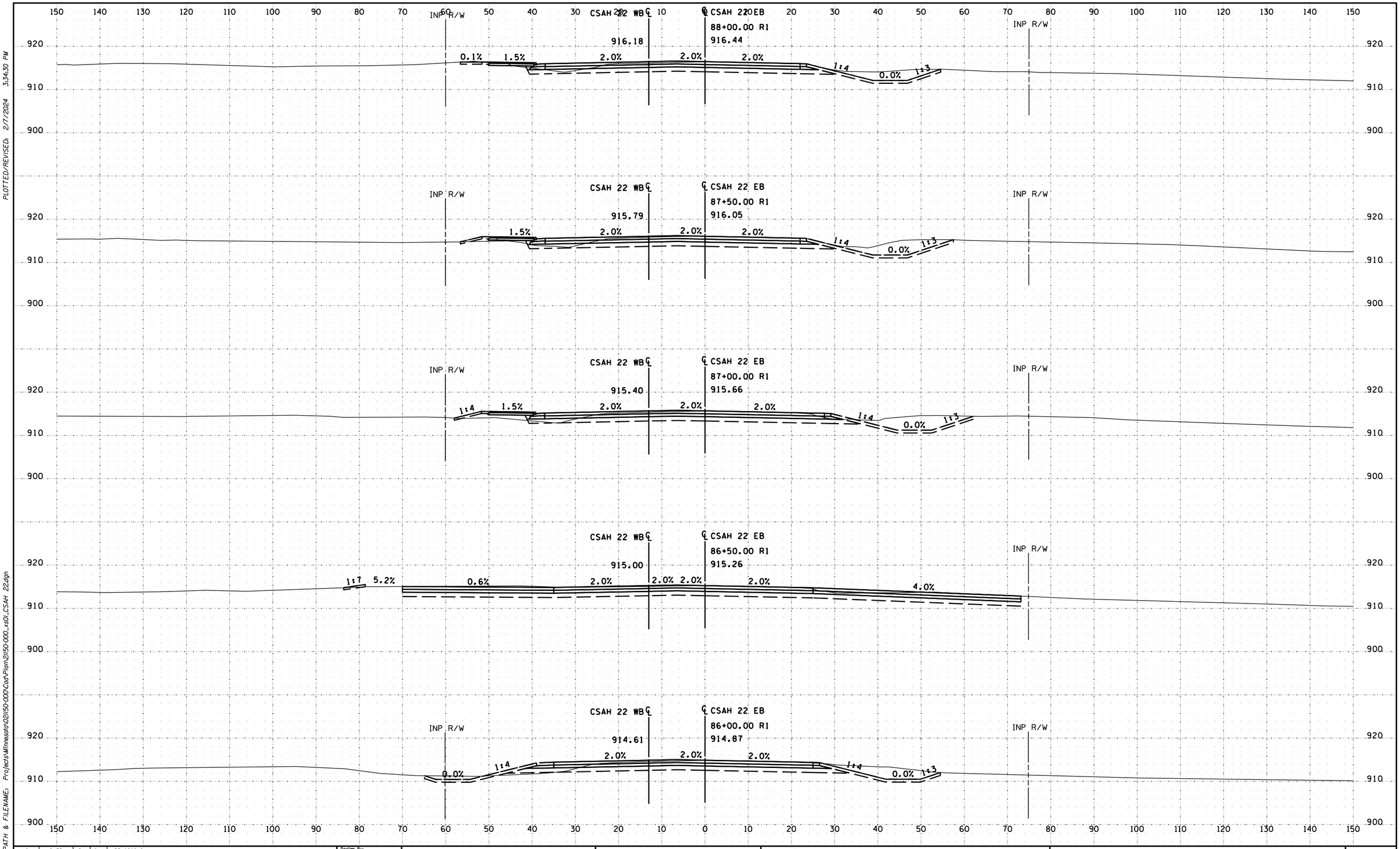

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Plan By: JV
Checked By: AJP
Approved By: AJP

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STA. 86+00.00 TO STA. 88+00.00

CROSS SECTIONS

SP 002-622-041, SP 223-020-009

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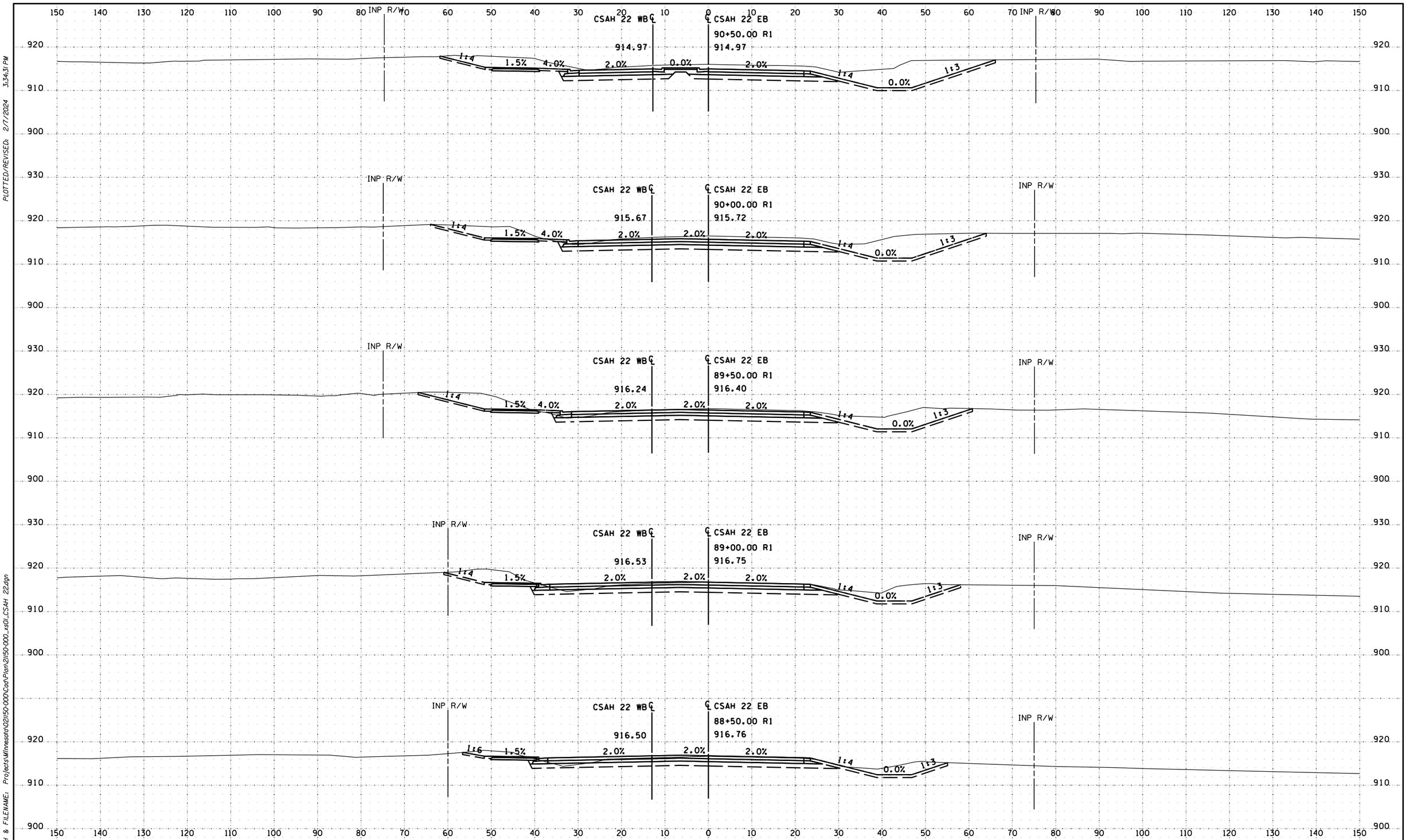

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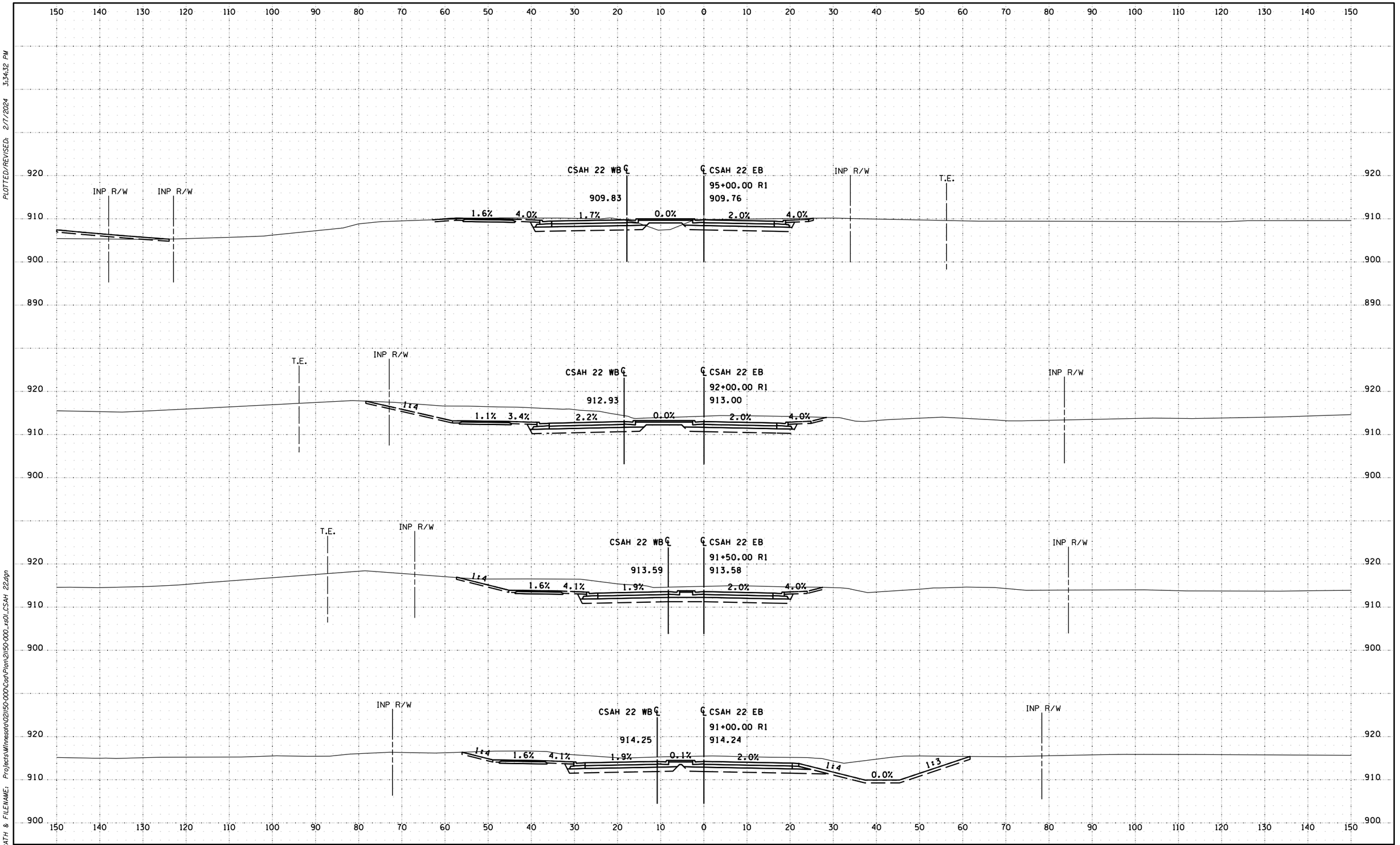

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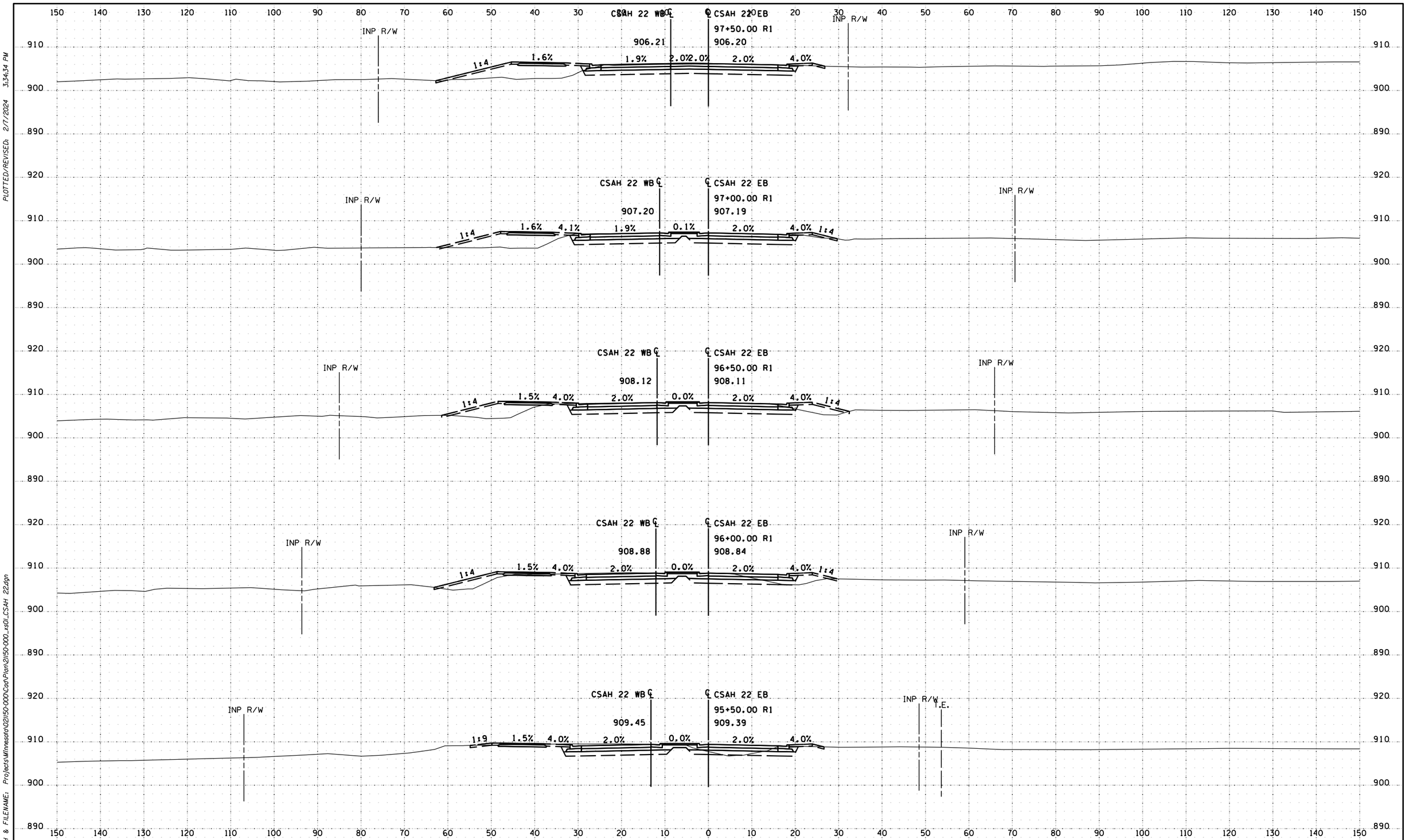

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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: JV
Checked By: AJP
Approved By: AJP

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STA. 95+50.00 TO STA. 97+50.00

CROSS SECTIONS

SP 002-622-041, SP 223-020-009

SHEET **X4** OF **X10** SHEETS

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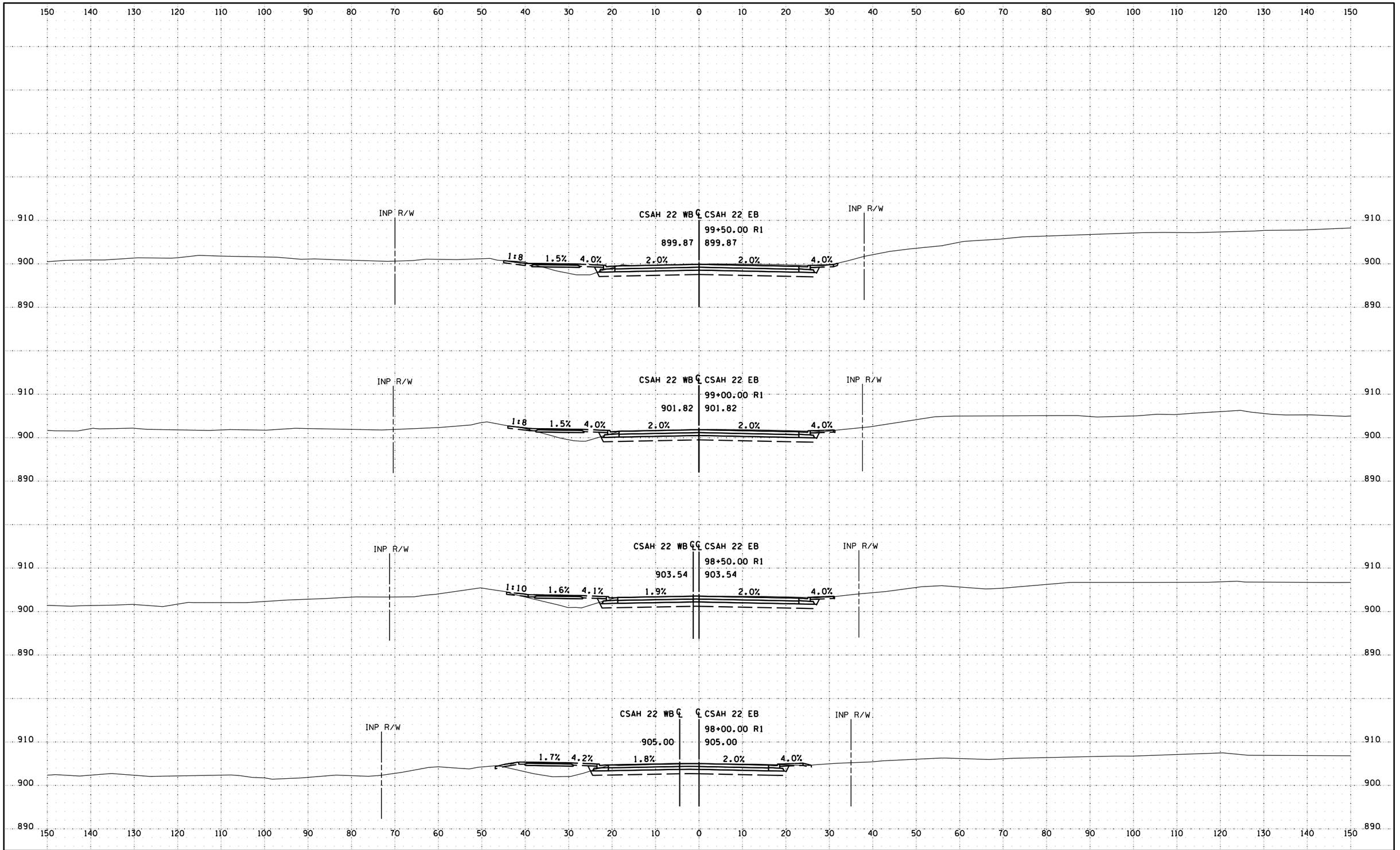

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NO.	DATE	BY	CHK	REVISIONS

Design By:	AJF
Plan By:	JV
Checked By:	AJP
Approved By:	AJP

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STA. 98+00.00 TO STA. 99+50.00

CROSS SECTIONS

SP 002-622-041, SP 223-020-009

SHEET **X5** OF **X10** SHEETS

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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: JV
Checked By: AJP
Approved By: AJP

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CROSS SECTIONS

SP 002-622-041, SP 223-020-009

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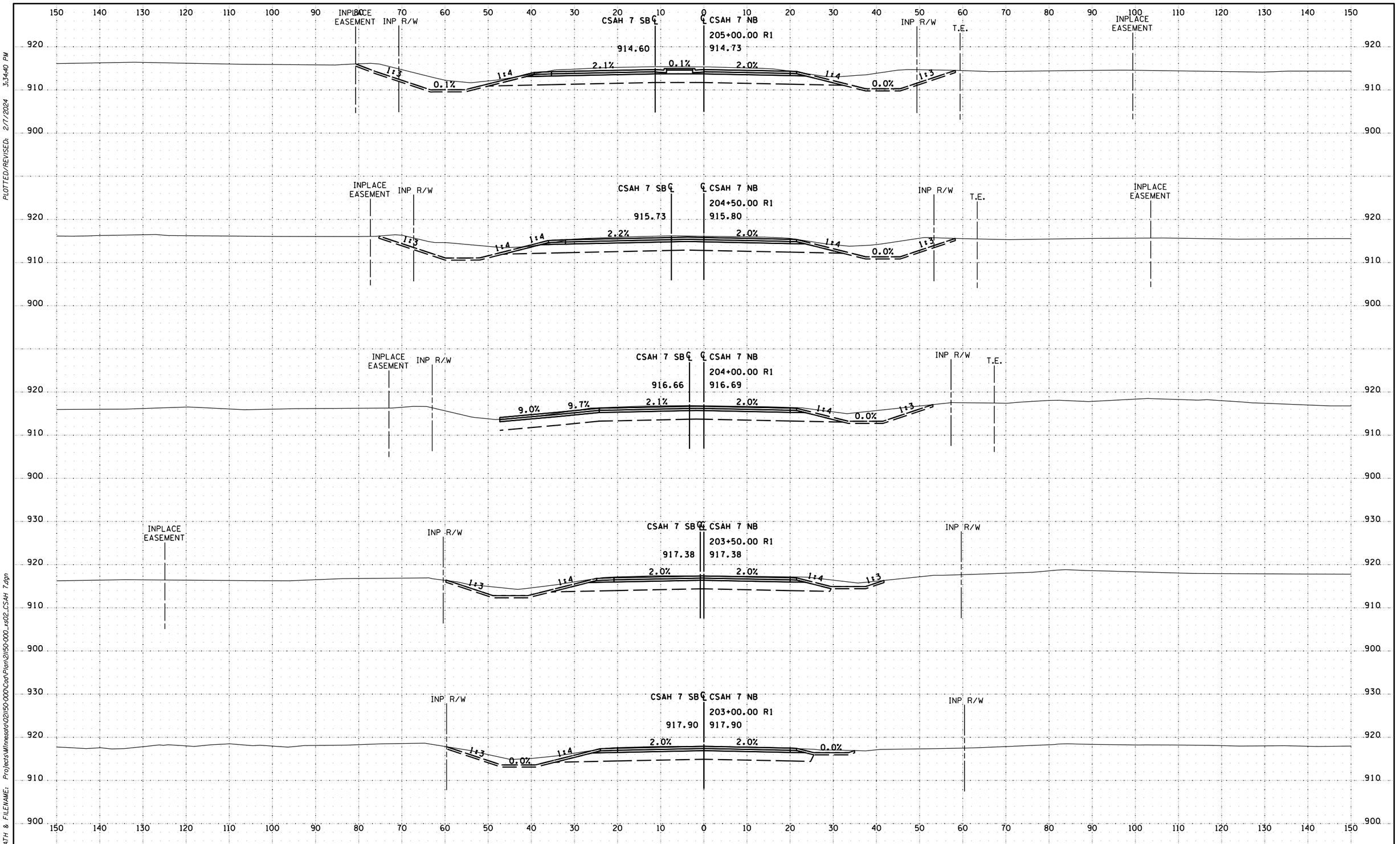

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WSB PATH & FILENAME: Projects\Minnesota\02\150-000\Con\Plan\2\150-000_xs02_CSAH 7.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: JV
Checked By: AJP
Approved By: AJP

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STA. 203+00.00 TO STA. 205+00.00

CROSS SECTIONS

SP 002-622-041, SP 223-020-009

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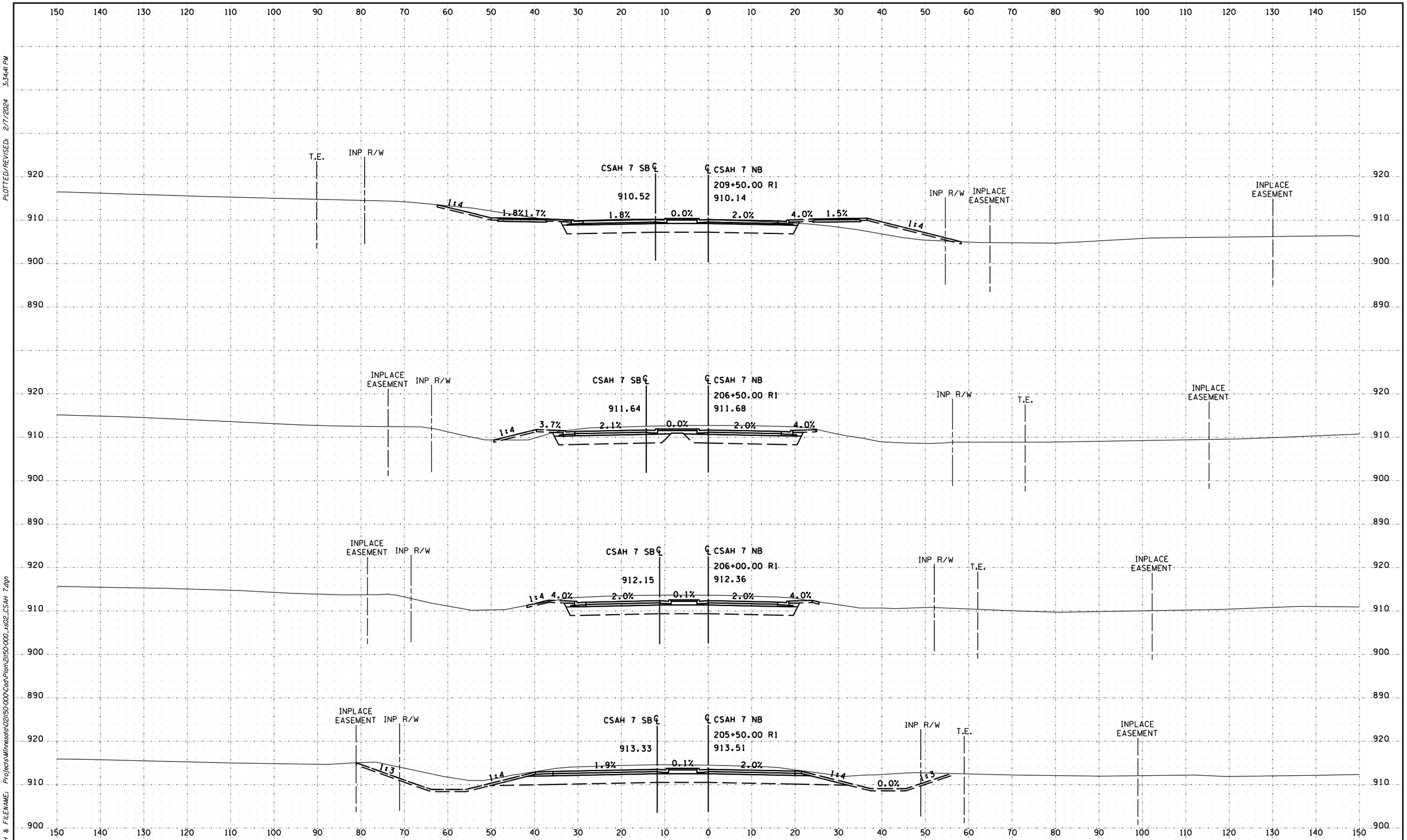

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: JV
Checked By: AJP
Approved By: AJP

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
STA. 205+50.00 TO STA. 209+50.00
CROSS SECTIONS
SP 002-622-041, SP 223-020-009

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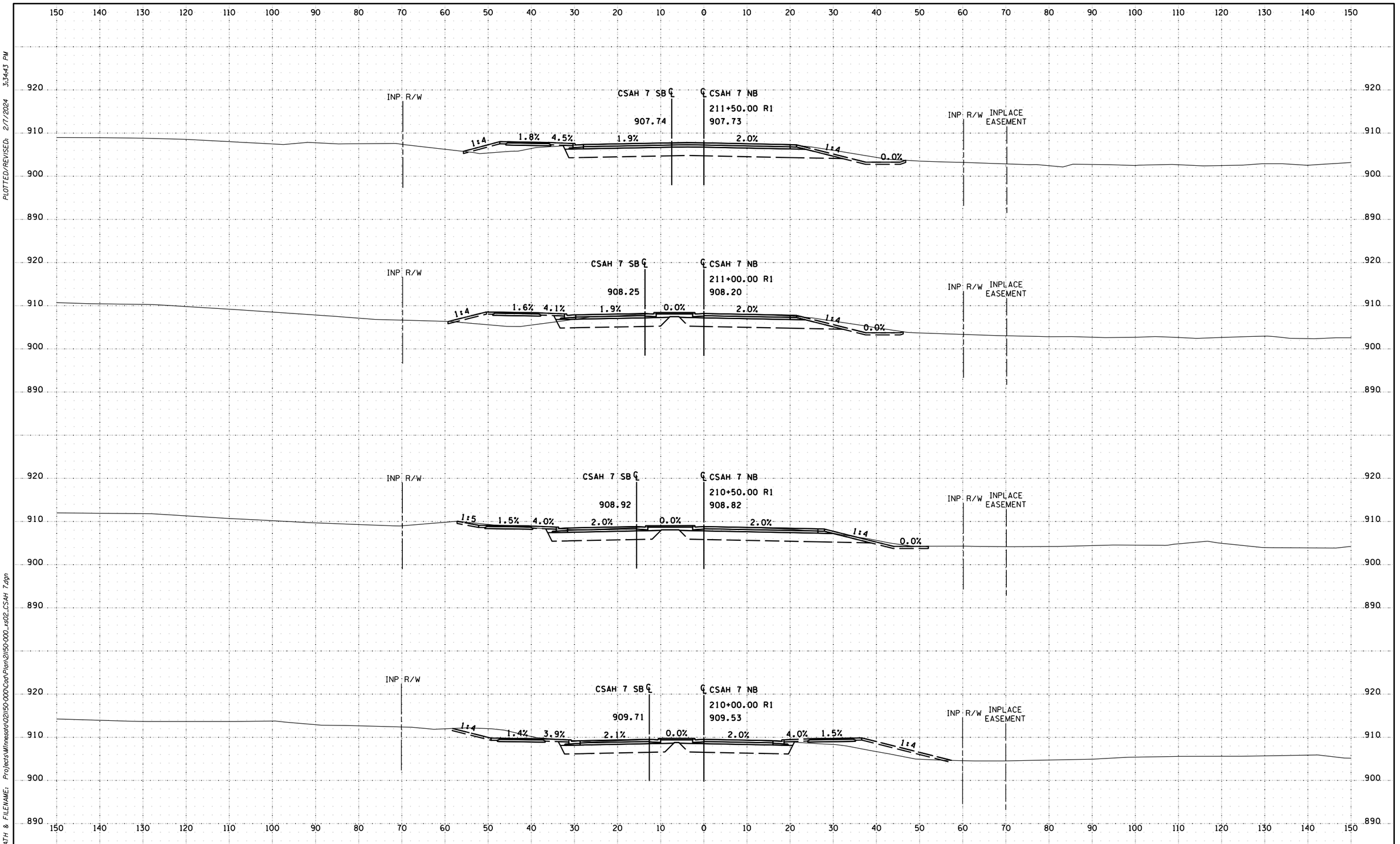

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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: JV
Checked By: AJP
Approved By: AJP

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STA. 210+00.00 TO STA. 211+50.00

CROSS SECTIONS

SP 002-622-041, SP 223-020-009

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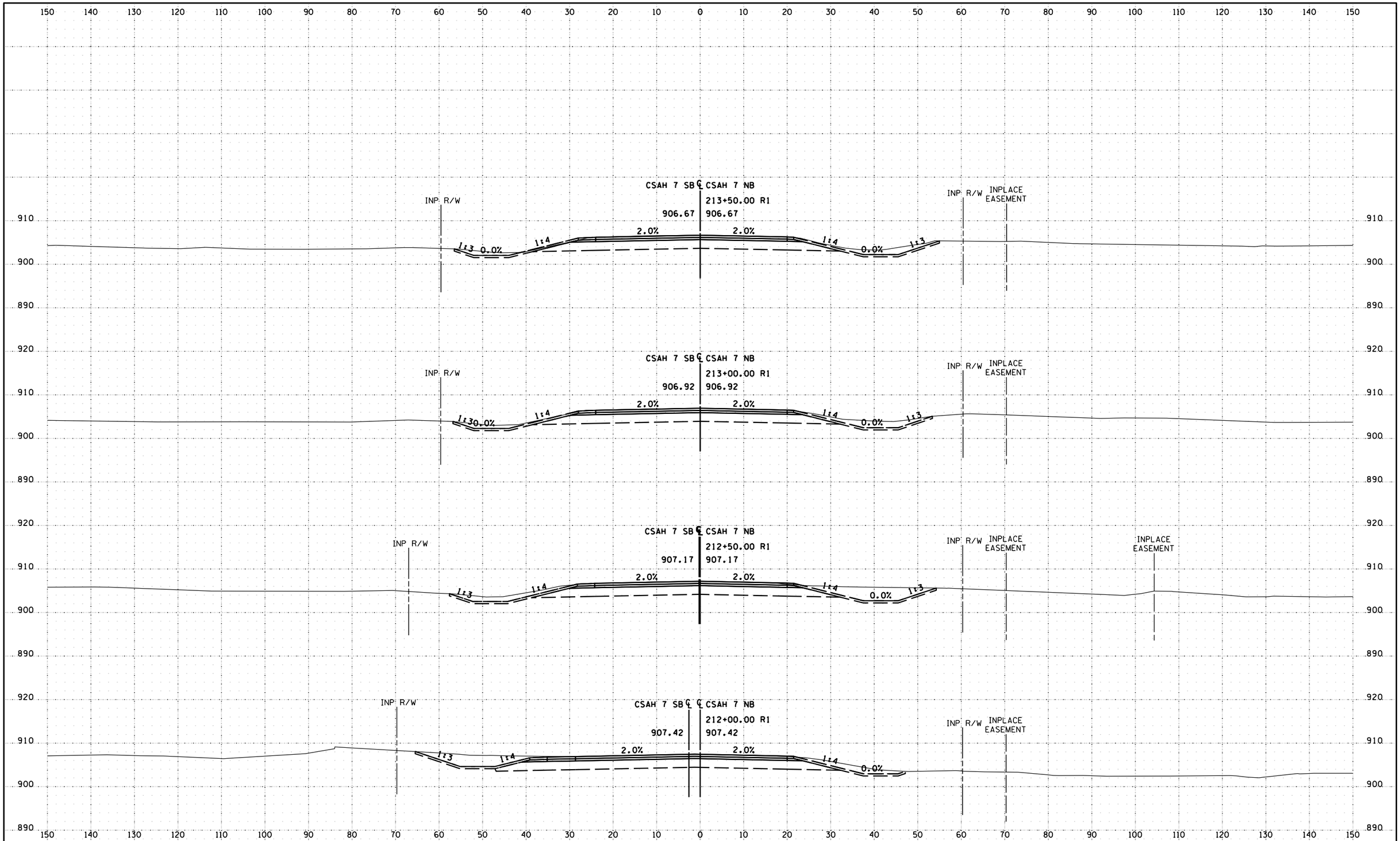

NO.	DATE	BY	CHK	REVISIONS

Design By:	AJF
Plan By:	JV
Checked By:	AJP
Approved By:	AJP

wsb

ANOKA COUNTY

CSAH 22 at CSAH 7 Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STA. 212+00.00 TO STA. 213+50.00

CROSS SECTIONS

SP 002-622-041, SP 223-020-009

SHEET **X10** OF **X10** SHEETS