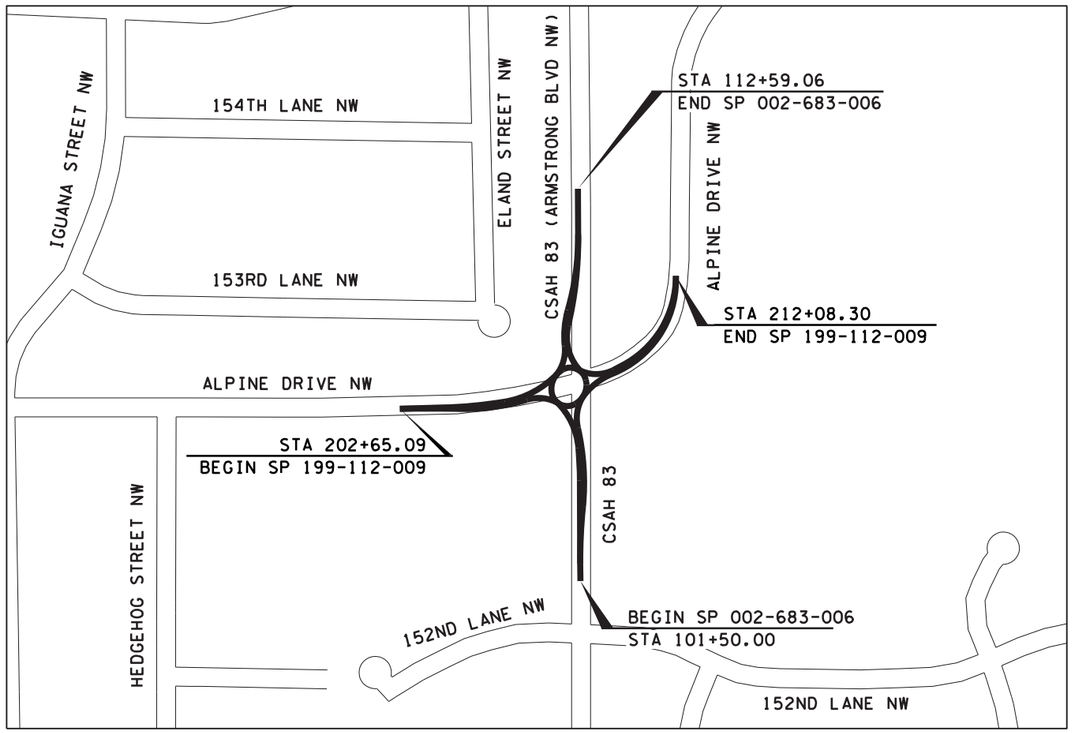
PLOTTED/REVISED: 11/23/2022 9:33:20 AM

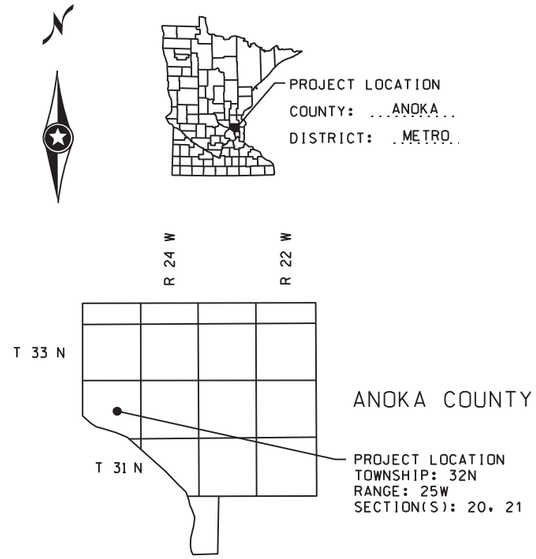
MINNESOTA DEPARTMENT OF TRANSPORTATION
CITY OF RAMSEY, ANOKA COUNTY, MINNESOTA

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

SP 002-683-006 LOCATED ON CSAH 83 (ARMSTRONG BLVD NW) FROM 130 FT NORTH 152ND LN NW TO 500 FT NORTH OF ALPINE DR NW

SP 002-683-006, SP 199-112-009 LOCATED ON ALPINE DRIVE NW FROM 610 FT EAST OF HEDGEHOG ST NW TO 380 FT EAST OF CSAH 83





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

DESIGN DESIGNATION	CSAH 83 SP 002-683-006	ALPINE DRIVE
GROSS LENGTH	1109.06' = 0.210 MILES	943.21' = 0.179 MILES
BRIDGES-LENGTH	NA	NA
EXCEPTIONS-LENGTH	NA	NA
NET LENGTH	1109.06' = 0.210 MILES	943.21' = 0.179 MILES
R VALUE	50	50
ADT (Current Year) 2023	8,030	2,610
ADT (Future Year) 2043	9,820	4,560
D (DIRECTIONAL DISTR.)	50/50	50/50
HEAVY COMMERCIAL	4.24%	3.95%
ESALS	1,105,000	406,000
DESIGN SPEED	55 MPH	40 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 COLLECTOR
NO. OF TRAFFIC LANES	2 - 12'	2 - 12'
NO. OF PARKING LANES	0	0
SHOULDER WIDTH	8'-10'	0'-4'
TON DESIGN	10	10
DESIGN SPEED NOT ACHIEVED AT	ROUNDABOUT	ROUNDABOUT

NOTE: LENGTHS BASED ON NORTHBOUND AND EASTBOUND ALIGNMENTS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38/02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_tshdgn

MINN. PROJECT NO.: HSIP 0223(061)

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE "SUPPLEMENTAL SPECIFICATIONS" DATED SEPTEMBER 2022 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.

INDEX

THIS PLAN CONTAINS 115 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: 2022.12.13 09:16:45-06'00'

APPROVED: ANOKA COUNTY ENGINEER — Joseph MacPherson — Digitally signed by Joseph MacPherson Date: 2022.12.16 14:18:48 -06'00'

APPROVED: RAMSEY CITY ENGINEER — Bruce Westby — Digitally signed by Bruce Westby Date: 2022.12.22 10:21:09 -06'00'

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AND FEDERAL AID RULES/POLICY — Dan Erickson — Digitally signed by Dan Erickson Date: 2023.01.11 09:00:35 -06'00'

for STATE AID ENGINEER: APPROVED FOR STATE AND FEDERAL AID FUNDING — Dan Erickson — Digitally signed by Dan Erickson Date: 2023.01.11 09:00:59 -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 002-683-006, SP 199-112-009, IP 23-03

SHEET NO. 1 OF 93 SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

PLOTTED/REVISED: 11/23/2022 9:33:27 AM

WSB PATH & FILENAME: P:\Projects\Minnesota\09344-000\Cad\Plan\9344-000_gl01

SCALE IN FEET
0 50 100

PARCEL 4 #8070
STA 202+65.09
BEGIN SP 199-112-099
ALPINE DRIVE NW
202
PARCEL 8 #8060
153RD LANE NW
154TH AVENUE NW
℄ ALPINE DRIVE EB
PARCEL 9 #8042
204
1204
℄ ALPINE DRIVE WB
ELAND STREET NW
152ND LANE NW
PARCEL 2 #8021
PARCEL 3 #8020
PARCEL 10 #15327
PARCEL 11 #15355
PARCEL 12 #15415
206
1206
STA 112+59.06
END SP 002-683-006
℄ RADIAL
OMEL
℄ CSAH 83 SB
℄ CSAH 83 SB
CSAH 83 (ARMSTRONG BLVD NW)
1102
102
1104
104
1106
106
1108
108
1110
110
1112
112
1114
114
13
10
CSAH 83 (ARMSTRONG BLVD NW)
℄ CSAH 83 NB
℄ CSAH 83 NB
BEGIN SP 002-683-006
STA 101+50.00
152ND LANE NW
PARCEL 18 #15315
PARCEL 17 #15385
PARCEL 20 #7941
PARCEL 19 UNASSIGNED CITY OWNED PARCEL
℄ ALPINE DRIVE WB
STA 212+08.30
END SP 199-112-099
1210
210
ALPINE DRIVE NW
ENVIRONMENTALLY SENSITIVE AREA
PARCEL 18 #15315
1212
212
1214
214
℄ ALPINE DRIVE EB
PARCEL 17 #15385

LEGEND	
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SIGN REMOVAL PLAN	65
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LIGHTING PLAN	88
TURF ESTABLISHMENT & EROSION CONTROL	93

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

GENERAL LAYOUT

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 2 OF 93 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB ID	SHEET NO.	ITEM	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL	PARTICIPATING - FEDERAL			NON-PARTICIPATING
							ANOKA COUNTY SP 002-683-006 ROADWAY	CITY OF RAMSEY SP 199-112-009 ROADWAY	DRAINAGE 90% FEDERAL AID 10% STATE AID	CITY OF RAMSEY IP 23-03
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
		2011.601	CONSTRUCTION SURVEYING		LUMP SUM	1	1			
		2021.501	MOBILIZATION		LUMP SUM	1	0.72	0.05	0.16	0.07
A	6	2101.502	CLEARING	(1)(16)	EACH	35	35			
A	6	2101.502	GRUBBING	(1)	EACH	35	35			
A	6	2101.505	CLEARING	(1)(16)	ACRE	0.2	0.2			
A	6	2101.505	GRUBBING	(1)	ACRE	0.2	0.2			
G	42R	2102.503	PAVEMENT MARKING REMOVAL		LIN FT	18731	18731			
A	6	2104.502	REMOVE PIPE APRON		EACH	9	9			
		2104.502	REMOVE PIPE APRON (TEMPORARY)		EACH	1	1			
A	6	2104.502	REMOVE LIGHTING UNIT		EACH	2	2			
		2104.502	REMOVE CASTING (TEMPORARY)		EACH	2	2			
A	6	2104.502	REMOVE DRAINAGE STRUCTURE		EACH	1	1			
		2104.502	REMOVE DRAINAGE STRUCTURE (TEMPORARY)		EACH	2	2			
L	82	2104.502	REMOVE SIGN		EACH	22	22			
A	6	2104.502	SALVAGE MAIL BOX SUPPORT	(2)	EACH	3	3			
	W2	2104.602	SALVAGE AND INSTALL HYDRANT AND 6" VALVE & BOX		EACH	1				1
A & G2	6 & 42R	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	569	569			
A	6	2104.503	REMOVE PIPE CULVERTS		LIN FT	431	431			
	W2	2104.503	REMOVE EXISTING WATER MAIN		LIN FT	5				5
		2104.503	REMOVE SEWER PIPE (STORM)(TEMPORARY)		LIN FT	200	200			
A	6	2104.503	REMOVE CURB AND GUTTER		LIN FT	1467	1467			
A	6	2104.503	REMOVE FENCE		LIN FT	103	103			
A	6	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ YD	11	11			
A	6	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ YD	105	105			
A & G2	6 & 42R	2104.504	REMOVE BITUMINOUS PAVEMENT		SQ YD	11045	11045			
A	6	2104.518	REMOVE BITUMINOUS WALK		SQ FT	8810	8810			
A	6	2104.518	REMOVE CONCRETE WALK		SQ FT	268	268			
F & G3	8 & 42R	2106.507	EXCAVATION - COMMON	(P)	CU YD	4014	4014			
F	8	2106.507	EXCAVATION - MUCK		CU YD	4218	4218			
F	8	2106.507	EXCAVATION - SUBGRADE	(P)	CU YD	3844	3844			
F	8	2106.507	SELECT GRANULAR EMBANKMENT (CV)	(P)	CU YD	3964	3964			
F & G3	8 & 42R	2106.507	COMMON EMBANKMENT (CV)	(P)	CU YD	5543	5543			
		2123.510	DOZER		HOUR	40	40			
		2123.610	STREET SWEEPER (WITH PICKUP BROOM)	(4)	HOUR	40	40			
		2123.610	1.5 CU YD BACKHOE	(3)	HOUR	40	40			
B	6	2118.507	AGGREGATE SURFACING (CV) CLASS 2	(P)	CU YD	71	71			
		2130.523	WATER	(5)	MGAL	100	100			
B & G2	6 & 42R	2211.507	AGGREGATE BASE (CV) CLASS 5	(P)	CU YD	2452	2421 ⚠	31		
E	7	2211.507	AGGREGATE BASE (CV) CLASS 5 (DRIVEWAYS)	(14)	CU YD	44	44			
B & G2	6 & 42R	2231.509	BITUMINOUS PATCHING MIXTURE		TON	650	650 ⚠			
A	6	2232.504	MILL BITUMINOUS SURFACE (2.0")		SQ YD	453		453		
C	6	2301.502	DOWEL BAR		EACH	1200	1200			
C	6	2301.504	CONCRETE PAVEMENT 7.0"		SQ YD	1544	1544			
C	6	2301.504	CONCRETE PAVEMENT 7.0" SPECIAL	(6)	SQ YD	312	312			
		2301.504	CONCRETE PAVEMENT 7.0" SPECIAL 1	(12)	SQ YD	58	58			
C	6	2301.602	DRILL & GROUT REINF BAR (EPOXY COATED)	(7)	EACH	52	52			
B	6	2357.506	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	669	629	40		
B	6	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	(8)	TON	178	168	10		
E	7	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	(14)	TON	46	46			
~~B & G2~~	6 ~~& 42R~~	2360.509	TYPE SP 12.5 NON-WEAR COURSE MIX (3,B)		TON	462	462 ⚠			
B	6	2360.509	TYPE SP 12.5 WEARING COURSE MIX (3,C)		TON	1464	1408	56		
I	81	2451.507	FINE AGGREGATE BEDDING (CV)		CU YD	53	53			
H & I	81	2501.502	15" RC PIPE APRON		EACH	5	4		1	
J	81	2501.502	18" RC PIPE APRON (TEMPORARY)		EACH	1	1			
H	81	2501.502	24" RC PIPE APRON		EACH	2			2	
I	81	2501.503	15" RC PIPE CULVERT		LIN FT	18	18			

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) HIGH EARLY, HAND FORMED
(13) REMOVAL INCIDENTAL
(14) TO BE USED FOR DRIVEWAYS.
(15) WEIGHT PER AWWA C153.
(16) LIMBING OF TREES 7' UP FROM GROUND IS INCIDENTAL TO CLEARING.
(P) PLAN QUANTITY

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX:
- 2360 MIX.....113 LBS/SY/IN

TACK COAT:
- NEW SURFACES.....0.05 GAL/SY

SEED MIXTURE APPLICATION RATE:
- 25-151.....120 LBS/ACRE
- 25-141.....59 LBS/ACRE
- 22-111.....30.5 LBS/ACRE

FERTILIZER APPLICATION RATE:
- TYPE 3.....200 LBS/ACRE

RAPID STABILIZATION:
- METHOD 3.....6 MGAL/ACRE

NO.	DATE	BY	CHK	REVISIONS
⚠	2023/02/10	AJF	AJP	ADDENDUM 2: UPDATE TEMPORARY PAVEMENT PAYMENT AND QUANTITIES.

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

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PRINT NAME: ANDREW J. FLOWMAN

DATE 2/9/2023 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STATEMENT OF ESTIMATED QUANTITIES
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 3R OF 93 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB ID	SHEET NO.	ITEM	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL	PARTICIPATING - FEDERAL			NON-PARTICIPATING
							ANOKA COUNTY SP 002-683-006 ROADWAY	CITY OF RAMSEY SP 199-112-009 ROADWAY	DRAINAGE 90% FEDERAL AID 10% STATE AID	CITY OF RAMSEY IP 23-03
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
H	81	2503.503	15" RC PIPE SEWER DES 3006 CL V		LIN FT	1799			1799	
H	81	2503.503	18" RC PIPE SEWER DES 3006 CL III		LIN FT	57			57	
J	81	2503.503	18" RC PIPE SEWER DES 3006 CL III (TEMPORARY)		LIN FT	65	65			
H	81	2503.503	24" RC PIPE SEWER DES 3006 CL III		LIN FT	129			129	
	W2	2504.602	HYDRANT		EACH	1				1
A	6	2504.602	ADJUST GATE VALVE & BOX		EACH	1	1			
	W2	2504.602	1" CORPORATION STOP		EACH	2				2
	W2	2504.602	4" GATE VALVE & BOX		EACH	1				1
	W2	2504.602	6" GATE VALVE & BOX		EACH	1				1
	W2	2504.602	12" GATE VALVE & BOX		EACH	1				1
	W2	2504.602	24"X12" WET TAP		EACH	1				1
	W2	2504.602	1" CURB STOP & BOX		EACH	1				1
	W2	2504.603	1" TYPE K COPPER PIPE		LIN FT	31				31
	W2	2504.603	4" WATERMAIN DUCTILE IRON CL 53		LIN FT	101				101
	W2	2504.603	6" WATERMAIN DUCTILE IRON CL 53		LIN FT	35				35
	W2	2504.603	12" WATERMAIN DUCTILE IRON CL 52		LIN FT	513				513
	W2	2504.608	WATERMAIN FITTINGS	(15)	POUND	785				785
G2 & H	42 & 81	2506.502	CONST DRAINAGE STRUCTURE DESIGN SPEC 1		EACH	4			4	
K	81	2506.502	CASTING ASSEMBLY		EACH	41	5		36	
J	81	2506.502	CASTING ASSEMBLY (TEMPORARY)		EACH	2	2			
H	81	2506.503	CONST DRAINAGE STRUCTURE DESIGN G		LIN FT	6.9			6.9	
H	81	2506.503	CONST DRAINAGE STRUCTURE DESIGN H		LIN FT	15.5			15.5	
H	81	2506.503	CONST DRAINAGE STRUCTURE DES 48-4020		LIN FT	112.9			112.9	
J	81	2506.503	CONST DRAINAGE STRUCTURE DES 48-4020 (TEMPORARY)		LIN FT	6.7	6.7			
H	81	2506.503	CONST DRAINAGE STRUCTURE DES 60-4020		LIN FT	18.6			18.6	
H	81	2506.602	CONNECT TO EXISTING STORM SEWER		EACH	1			1	
H	81	2511.504	GEOTEXTILE FILTER TYPE 4		SQ YD	54			54	
H	81	2511.507	RANDOM RIPRAP CLASS III		CU YD	78			78	
C	6	2521.518	4" CONCRETE WALK	(9)	SQ FT	2295	2295			
C	6	2521.518	4" CONCRETE WALK SPECIAL	(6)	SQ FT	1082	1082			
C	6	2521.518	6" CONCRETE WALK	(7)	SQ FT	2564	2564			
C	6	2531.501	CONCRETE CURB AND GUTTER DESIGN R418		LIN FT	308	308			
		2531.501	CONCRETE CURB AND GUTTER DESIGN R418 SPEC	(12)	LIN FT	52	52			
C	6	2531.501	CONCRETE CURB AND GUTTER DESIGN B418 (MOD)	(10)	LIN FT	1479	1479			
C	6	2531.501	CONCRETE CURB AND GUTTER DESIGN B618		LIN FT	1094	547	547		
C	6	2531.501	CONCRETE CURB AND GUTTER DESIGN B424		LIN FT	1840	1031	809		
		2531.501	CONCRETE CURB AND GUTTER DESIGN B424 SPEC	(12)	LIN FT	135	135			
C	6	2531.618	TRUNCATED DOMES	(7)	SQ FT	269	269			
G1	42	2533.503	PORTABLE PRECAST CONC BARRIER DES 8337	(13)	LIN FT	1475	1475			
A	6	2540.602	INSTALL MAIL BOX SUPPORT	(2)	EACH	3	3			
N	87	2545.502	LIGHTING UNIT TYPE 9-40		EACH	12	3	9		
N	87	2545.502	LIGHT FOUNDATION DESIGN E		EACH	12	3	9		
N	87	2545.502	SERVICE CABINET -TYPE L1		EACH	1	1			
N	87	2545.502	SERVICE EQUIPMENT		EACH	1	1			
N	87	2545.502	EQUIPMENT PAD B		EACH	1	1			
N	87	2545.503	2" NON-METALLIC CONDUIT		LIN FT	1300	1300			
N	87	2545.503	UNDERGROUND WIRE 1/C 8 AWG		LIN FT	5330	5330			
H	81	2554.502	GUIDE POST TYPE B		EACH	4			4	
		2563.601	TRAFFIC CONTROL		LUMP SUM	1	0.70	0.05	0.17	0.08
G1	42	2563.602	PORTABLE CONCRETE BARRIER DELINEATOR		EACH	49	49			
G1	42	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN		UNIT DAY	20	20			
G1	42	2563.615	TEMPORARY IMPACT ATTENUATOR	(13)	ASSEMLY	4	4			
L	82	2564.518	SIGN		SQ FT	557	557			
L	82	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	7	2573.502	STORM DRAIN INLET PROTECTION		EACH	41	41			

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

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PRINT NAME: ANDREW J. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STATEMENT OF ESTIMATED QUANTITIES
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 4 OF 93 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB ID	SHEET NO.	ITEM	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL	PARTICIPATING - FEDERAL			NON-PARTICIPATING
							ANOKA COUNTY SP 002-683-006 ROADWAY	CITY OF RAMSEY SP 199-112-009 ROADWAY	DRAINAGE 90% FEDERAL AID 10% STATE AID	CITY OF RAMSEY IP 23-03
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
D	7	2573.502	CULVERT END CONTROLS		EACH	4	4			
D	7	2573.503	SILT FENCE, TYPE MS		LIN FT	1071	1071			
D	7	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST		LIN FT	842	842			
D	7	2574.505	SOIL BED PREPARATION		ACRE	3.0	3.0			
D	7	2574.507	FERTILIZER TYPE 3		POUND	600	600			
D	7	2575.504	ROLLED EROSION PREVENTION CATEGORY 20		SQ YD	11132	11132			
D	7	2575.505	SEEDING		ACRE	3.0	3.0			
D	7	2575.508	SEED MIXTURE 22-111		POUND	36	36			
D	7	2575.508	SEED MIXTURE 25-141		POUND	57	57			
D	7	2575.508	SEED MIXTURE 25-151		POUND	91	91			
D	7	2575.508	HYDRAULIC MULCH MATRIX		POUND	3573	3573			
G1	42	2582.503	4" SOLID LINE PAINT	(11)	LIN FT	12823	12823			
G1	42	2582.503	4" DBLE SOLID LINE PAINT	(11)	LIN FT	5909	5909			
M	85	2582.503	4" SOLID LINE MULTI-COMPONENT	(11)	LIN FT	4101	4101			
M	85	2582.503	4" BROKEN LINE MULTI COMP	(11)	LIN FT	100	100			
M	85	2582.503	4" DOUBLE SOLID LINE MULTI COMPONENT	(11)	LIN FT	1717	1717			
M	85	2582.503	4" SOLID LINE PREFORM THERMO GR IN	(11)	LIN FT	2199	2199			
M	85	2582.503	24" SOLID LINE PREFORM THERMO GR IN	(11)	LIN FT	83	83			
M	85	2582.503	8" DOTTED LINE PREFORM THERMO GR IN	(11)	SQ FT	61	61			
M	85	2582.518	CROSSWALK PREFORM THERMOPLASTIC GR IN		SQ FT	576	576			

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) HIGH EARLY, HAND FORMED
(13) REMOVAL INCIDENTAL
(14) TO BE USED FOR DRIVEWAYS.
(15) WEIGHT PER AWWA C153.
(16) LIMBING OF TREES 7' UP FROM GROUND IS INCIDENTAL TO CLEARING.
(P) PLAN QUANTITY

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX:
- 2360 MIX.....113 LBS/SY/IN

TACK COAT:
- NEW SURFACES.....0.05 GAL/SY

SEED MIXTURE APPLICATION RATE:
- 25-151.....120 LBS/ACRE
- 25-141.....59 LBS/ACRE
- 22-111.....30.5 LBS/ACRE

FERTILIZER APPLICATION RATE:
- TYPE 3.....200 LBS/ACRE

RAPID STABILIZATION:
- METHOD 3.....6 MGAL/ACRE

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STATEMENT OF ESTIMATED QUANTITIES
SP 002-683-006, SP 199-112-009, IP 23-03

REMOVALS

A

LOCATION	REMOVE											MILL BITUMINOUS SURFACE (2.0")	SAWING BIT PAVEMENT (FULL DEPTH)	ADJUST GATE VALVE & BOX	SALVAGE AND INSTALL MAILBOX SUPPORT	CLEARING (2)		GRUBBING	
	PIPE APRON	DRAINAGE STRUCTURE	LIGHTING UNIT	PIPE CULVERTS	FENCE	CURB AND GUTTER	CONCRETE WALK	CONCRETE DRIVEWAY PAVEMENT	BITUMINOUS WALK	BITUMINOUS DRIVEWAY PAVEMENT	BITUMINOUS PAVEMENT (1)								
	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	SQ FT	SQ YD	SQ FT	SQ YD	SQ YD	SQ YD	LIN FT	EACH	EACH	EACH	ACRE	EACH	ACRE
	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(B)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
SP 002-683-006 & SP 199-112-009																			
CSAH 83																			
STA 101+00.00 TO STA 106+12.00	3			164		77			4380		2455		47						
STA 108+33.00 TO STA 112+59.09	4			75					1250	56	2062		41		2	3		3	
ROUNDABOUT																			
STA 10+00.00 TO STA 13+04.99 (1)	1		2	159	103	305	268		2668		1893			1		15	0.06	15	0.06
ALPINE DRIVE NW																			
STA 202+65.09 TO STA 206+15.00						693		11	80	49	1140		32		1		0.09		0.09
STA 208+46.00 TO STA 212+08.30	1	1		33		392			432		772	453	342			17		17	
PROJECT TOTAL	9	1	2	431	103	1467	268	11	8810	105	8322	453	462	1	3	35	0.2	35	0.2

NOTES:
(1) DEPTH VARIES, SEE GEOTECHNICAL REPORT
(2) LIMBING OF TREES 7' UP FROM GROUND IS INCIDENTAL TO CLEARING

- REMOVAL OF MISCELLANEOUS SHRUBS SHALL BE INCIDENTAL.
- SAWING OF EXISTING BITUMINOUS TRAIL AND CONCRETE CURB & GUTTER IS INCIDENTAL

BITUMINOUS AND AGGREGATE TABULATION

B

LOCATION	TYPE SP 9.5		TYPE SP 12.5			AGGREGATE BASE (CV) CLASS 5 (3)		AGGREGATE SURFACING CLASS 2	BITUMINOUS PATCHING MIXTURE	BITUMINOUS MATERIAL FOR TACK COAT	
	WEARING COURSE MIX (2,B)		WEARING COURSE MIX (3,C)		NON-WEAR COURSE MIX (3,B)						
	TON		TON		TON	CU YD		CU YD	TON	GALLON	
	(A)	(B)	(A)	(B)	(A)	(A)	(B)	(A)	(A)	(A)	(B)
SP 002-683-006 & SP 199-112-009											
CSAH 83											
STA 101+00.00 TO STA 106+12.00	83		523		262	539		48		233	
STA 108+33.00 TO STA 112+59.09	21		400		200	368	2	23		179	
ROUNDABOUT											
STA 10+00.00 TO STA 13+04.99 (1)	53	10				356	27				
ALPINE DRIVE NW											
STA 202+65.09 TO STA 206+15.00	2		290			273				130	
STA 208+46.00 TO STA 212+08.30	9		195	56		191	2		10	87	40
SUBTOTAL	168	10	1408	56	462	1727	31	71	10	629	40
PROJECT TOTAL	178		1464		462	1758		71	10	669	

NOTES:
(3) INCLUDES AGGGREGATE 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 FOR NEW PAVEMENT AND 0.08 GAL/SY FOR MILLED PAVEMENT

CONCRETE TABULATION

C

LOCATION	CONCRETE CURB & GUTTER DESIGN					TRUNCATED DOMES	DRILL & GROUT REINF BAR EPOXY COATED	4" CONCRETE WALK (4)	4" CONCRETE WALK SPECIAL (4)(7)	DOWEL BARS	7.0" CONCRETE PAVEMENT (SPECIAL) (7)	7.0" CONCRETE PAVEMENT	6" CONCRETE WALK
	B418 (MOD)	B618	B424		R418								
	LIN FT	LIN FT	LIN FT		LIN FT	SQ FT	EACH	SQ FT	SQ FT	EACH	SQ YD	SQ YD	SQ FT
	(A)	(C)	(A)	(C)	(A)	(A)	(A)	(A)	(A)	(A)	(C)	(C)	(A)
SP 002-683-006 & SP 199-112-009													
CSAH 83													
STA 101+00.00 TO STA 106+12.00	388			426				764					47
STA 108+33.00 TO STA 112+59.09	243			626				417					110
ROUNDABOUT													
STA 10+00.00 TO STA 13+04.99 (1)	342		222 (6)	524	308	269	52	131	1082	1200	312	1544	2327
ALPINE DRIVE NW													
STA 202+65.09 TO STA 206+15.00	264	708		21				586					44
STA 208+46.00 TO STA 212+08.30	242	386		21				397					36
PROJECT TOTAL	1479	1094	222	1618	308	269	52	2295	1082	1200	312	1544	2564

NOTES:
(4) INCLUDES QUANTITY FOR MEDIANS.
(5) HIGH EARLY, INCIDENTAL
(6) ROUNDABOUT ISLAND, TIP OUT
(7) COLORED CONCRETE, INTEGRAL RED (FS 31136)

GENERAL NOTES

(1) NB CSAH 83 STA 106+12 TO STA 108+33

FUNDING GROUP

(A) 100% COUNTY (SP 002-683-006)
(B) 100% CITY (SAP 199-112-009)
(C) 50% COUNTY (SP 002-683-006), 50% CITY (SAP 199-112-099)
(D) 100% CITY (IP 23-03)

NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY, MINNESOTA

QUANTITY TABULATIONS
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 6 OF 93 SHEETS

EROSION CONTROL & TURF ESTABLISHMENT TABULATION — D

LOCATION	ROLLED EROSION PREVENTION CATEGORY 20	HYDRAULIC MULCH MATRIX	SEEDING	SOIL BED PREPARATION	SEED MIXTURE			FERTILIZER TYPE 3 (25-5-10)	SILT FENCE; TYPE MS	SEDIMENT CONTROL LOG TYPE COMPOST	STORM DRAIN INLET PROTECTION	CULVERT END CONTROLS
					22-111	25-141	25-151					
	SQ YD	POUND	ACRE	ACRE	POUND	POUND	POUND	POUND	LIN FT	LIN FT	EACH	EACH
	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
SP 002-683-006 & SP 199-112-009												
CSAH 83												
STA 101+00.00 TO STA 106+12.00	4506	213	1.0	1.0	14	27	5	200	629	165	9	
STA 108+33.00 TO STA 112+59.09	4797	136	1.0	1.0	15	20	21	200		289	2	3
ROUNDABOUT												
STA 10+00.00 TO STA 13+04.99 (1)	1669	687	0.5	0.5	6	9	16	100	96	388	12	
ALPINE DRIVE NW												
STA 202+65.09 TO STA 206+15.00		1727	0.3	0.3			33	60			5	
STA 208+46.00 TO STA 212+08.30	160	810	0.2	0.2	1	1	16	40	346		13	1
PROJECT TOTAL	11132	3573	3.0	3.0	36	57	91	600	1071	842	41	4

NOTES:
- SEE SHEET 92 FOR BASIS OF QUANTITIES.

DRIVEWAY TABULATION — E

ALIGNMENT	STA	LT/RT	HOUSE NO.	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	AGGREGATE BASE (CV) CLASS 5
				TON	CU YD
				(A)	(A)
SP 002-683-006 & SP 199-112-009					
ALPINE DRIVE EB	204+69	RT	8020	8	2
CSAH 83 NB	110+70	RT	15385	17	3
CSAH 83 NB	109+04	RT	15315	21	4
PROJECT TOTAL				46	9

GENERAL NOTES

(1) NB CSAH 83 STA 106+12 TO STA 108+33

FUNDING GROUP

(A) 100% COUNTY (SP 002-683-006)
(B) 100% CITY (SAP 199-112-009)
(C) 50% COUNTY (SP 002-683-006), 50% CITY (SAP 199-112-099)
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QUANTITY TABULATIONS
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 7 OF 93 SHEETS

EARTH WORK TABULATION

F

STA. - STA.	EXCAVATION			EMBANKMENT		
	COMMON	SUBGRADE	MUCK	COMMON	SUITABLE	SELECT GRANULAR
	CU YD (EV)	CU YD (EV)	CU YD (EV)	CU YD (CV)	CU YD (CV)	CU YD (CV)
CSAH 83						
101+50 - 102+00	37	129		27		132
102+00 - 102+50	75	127	496	41	394	132
102+50 - 103+00	117	119	1007	30	779	122
103+00 - 103+50	171	122	1046	15	758	122
103+50 - 104+00	223	138	1102	15	749	138
104+00 - 104+50	249	150	567	14	377	150
104+50 - 105+00	206	140		25		140
105+00 - 105+50	116	127		44		128
105+50 - 106+00	49	124		36		127
ROUNDABOUT	700	918		1200		918
108+33 - 108+50	81	42		9		45
108+50 - 109+00	200	118		20		126
109+00 - 109+05	32	14		1		14
109+05 - 109+50	257	110		23		116
109+50 - 110+00	158	115		40		118
110+00 - 110+50	134	110		28		110
110+50 - 110+70	57	43		5		43
110+70 - 111+00	86	68		14		68
111+00 - 111+50	100	106		27		106
111+50 - 112+00	76	94		24		94
112+00 - 112+50	80	95		39		96
112+50 - 112+59	16	17		9		18
SUBTOTAL	3220	3026	4218	1686	3057	3063
ALPINE DRIVE						
202+66 - 203+00	31	45		12		45
203+00 - 203+50	47	68		18		68
203+50 - 204+00	39	71		16		71
204+00 - 204+50	35	73		16		77
204+50 - 204+68	18	26		4		29
204+68 - 205+00	31	42		9		53
205+00 - 205+50	32	58		21		83
205+50 - 206+00	29	55		21		84
206+00 - 206+17	14	19		8		29
ROUNDABOUT						
208+46 - 208+50	9	8		7		8
208+50 - 209+00	73	71		59		72
209+00 - 209+50	41	53		29		53
209+50 - 210+00	43	50		30		50
210+00 - 210+50	42	48		35		48
210+50 - 211+00	36	45		34		45
211+00 - 211+50	33	41		28		41
211+50 - 212+00	36	39		19		39
212+00 - 212+08	6	6		2		6
SUBTOTAL	595	818		368		901
PROJECT SUBTOTAL	3815	3844	4218	2054	3057	3964
PROJECT TOTAL	3815	3844	4218	5111		3964

NOTES:

1. THE EXCAVATION - COMMON QUANTITY INCLUDES TOPSOIL STRIPPING.
2. EXISTING PAVEMENT DEPTHS ARE ASSUMED TO BE APPROXIMATELY AS FOLLOWS:
   CSAH 83 MAINLINE - 7"
   SIDE STREETS - 6"
   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.

NO.	DATE	BY	CHK	REVISIONS

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EARTHWORK TABULATION

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SHEET 8 OF 93 SHEETS

CONSTRUCTION AND SOIL NOTES

1. TOP OF THE GRADING GRADE IS DEFINED AS THE BOTTOM OF THE PROPOSED CLASS 5 AGGREGATE BASE.
2. PROOF 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. OBTAIN COMPACTION OF THE GRADING AND AGGREGATE PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS AS INDICATED IN 2211. IF RECYCLED MATERIAL IS USED FOR AGGREGATE BASE, THE "PENETRATION INDEX METHOD" WILL BE USED.
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. OBTAIN COMPACTION ON ALL BITUMINOUS PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "MAXIMUM DENSITY METHOD" REQUIREMENTS.
17. OBTAIN COMPACTION ON GRADING PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "MODIFIED PENETRATION INDEX" REQUIREMENTS.
18. BITUMINOUS MATERIAL MUST BE REMOVED FROM THE PROJECT AND CANNOT BE USED AS EMBANKMENT.

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
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)
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) * CASTING NO. 715 AND 716
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
7020K	CONCRETE CURB (DESIGN B, DESIGN V, DESIGN S, DESIGN DR AND DESIGN BR)(2 SHEETS)
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)
8337D	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER - TYPE F (3 SHEETS)
9350B	MAILBOX SUPPORT - SWING-AWAY TYPE

THE FOLLOWING STANDARD PLATES SHALL APPLY ON THIS PROJECT

CITY OF RAMSEY STANDARD PLATES

PLATE NO.	DESCRIPTION
	STREET
STR-1	CURB AND GUTTER
STR-30	RESIDENTIAL DRIVEWAY - NO SIDEWALK
	WATER
WAT-1	HYDRANT
WAT-2	WATER SERVICE
WAT-3	WATERMAIN VALVE LOCATION
WAT-4	JOINT CONNECTION
WAT-5	COMMERCIAL SERVICE
WAT-6	UTILITY INSTALLATION
WAT-7	WATERMAIN LOWERING
	STORM
STO-1	CATCH BASIN
STO-4	STORMWATER CASTING
STO-5	SLAB TOP MANHOLE COVER

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

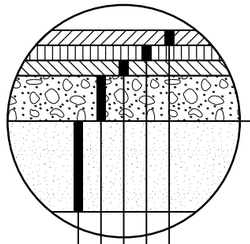
ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SOIL AND CONSTRUCTION NOTES
SP 002-683-006, SP 199-112-009, IP 23-03

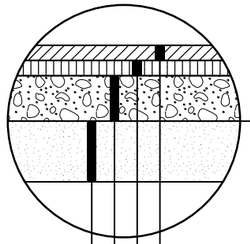
SHEET **9** OF **93** SHEETS



INSET "A"

CSAH 83 (ARMSTRONG BLVD NW)

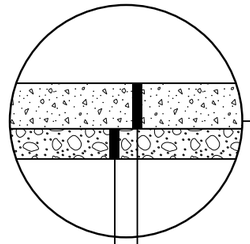
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB340C
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB340C
- 2.0" TYPE SP 12.5 NON-WEARING COURSE MIXTURE SPNWB330B
- 6" AGGREGATE BASE (CV) CLASS 5
- 12" SELECT GRANULAR EMBANKMENT (CV)



INSET "B"

ALPINE DR NW (MSAS 112)

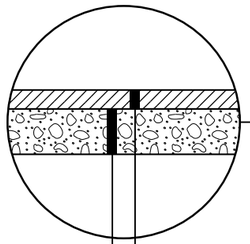
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB340C
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB340C
- 6" AGGREGATE BASE (CV) CLASS 5
- 8" SELECT GRANULAR EMBANKMENT (CV)



INSET "C"

6" CONCRETE WALK
(PED RAMPS & LANDINGS)

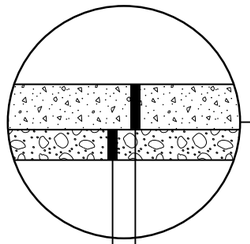
- 6" CONCRETE WALK
- 4" AGGREGATE BASE (CV) CLASS 5



INSET "D"

BITUMINOUS TRAIL

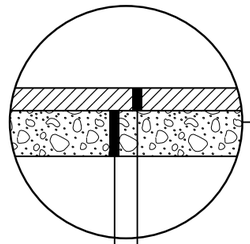
- 2.5" TYPE SP 9.5 WEARING COURSE MIXTURE SPWEA230B
- 6" AGGREGATE BASE (CV) CLASS 5



INSET "E"

CONCRETE DRIVEWAY PAVEMENT

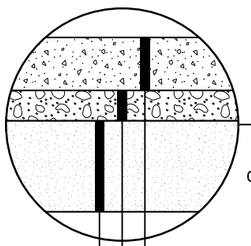
- 6" CONCRETE DRIVEWAY PAVEMENT
- 4" AGGREGATE BASE (CV) CLASS 5



INSET "F"

BITUMINOUS DRIVEWAYS

- 3" TYPE SP 9.5 WEARING COURSE MIXTURE SPWEA340C
- 6" AGGREGATE BASE (CV) CLASS 5



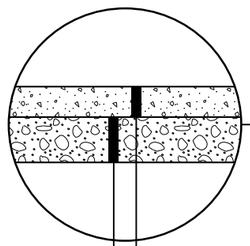
INSET "G1" & "G2"

G1 - CONCRETE PAVEMENT 7.0" (ROUNDABOUT)

G2 - CONCRETE PAVEMENT 7.0" SPECIAL (TRUCK APRON)

CONCRETE COLOR SHALL BE INTEGRAL RED (FS 31136)

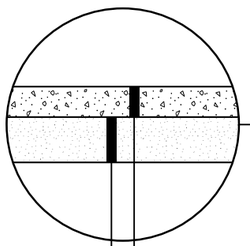
- CONCRETE PAVEMENT (7.0")
  OR
  CONCRETE PAVEMENT 7.0" SPECIAL
- 4" AGGREGATE BASE (CV) CLASS 5
- 12" SELECT GRANULAR EMBANKMENT (CV)



INSET "H"

4" CONCRETE WALK

- 4" CONCRETE WALK
- 6" AGGREGATE BASE (CV) CLASS 5

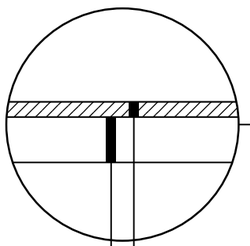


INSET "I"

4" CONCRETE WALK SPECIAL (MEDIANS)

CONCRETE COLOR SHALL BE INTEGRAL RED (FS 31136)

- 4" CONCRETE WALK SPECIAL
- VARIABLE DEPTH SELECT GRANULAR EMBANKMENT (CV)



INSET "J"

ALPINE DR NW
BITUMINOUS MILL & OVERLAY

- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB340C
- EXISTING BITUMINOUS PAVEMENT

NO.	DATE	BY	CHK	REVISIONS

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

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CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

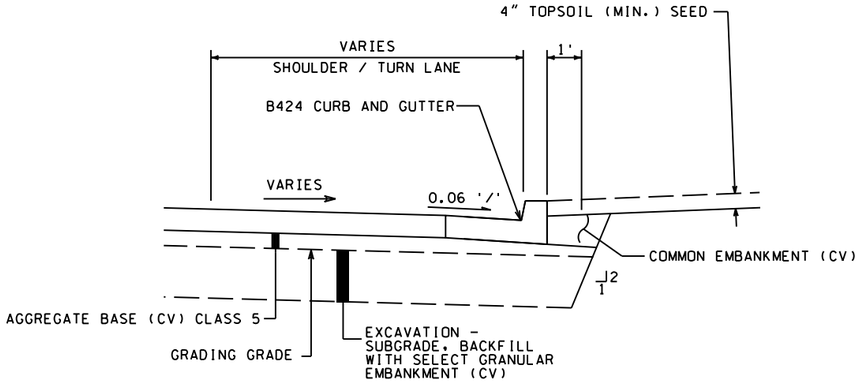
ANOKA COUNTY, MINNESOTA

INSETS

TYPICAL SECTIONS

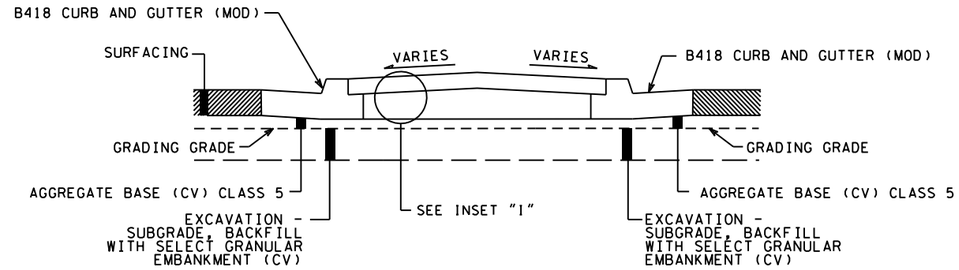
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **10** OF **93** SHEETS



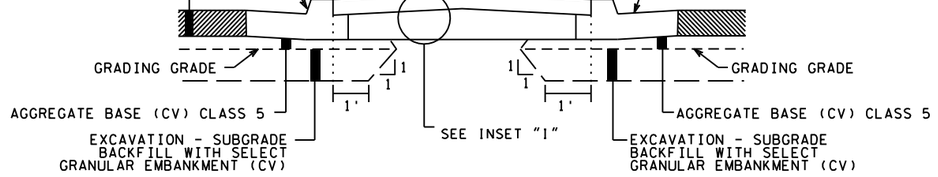
DETAIL A

CONCRETE CURB & GUTTER



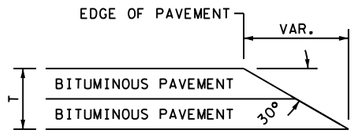
DETAIL B

CONCRETE MEDIAN LESS THAN 8' (FACE TO FACE)



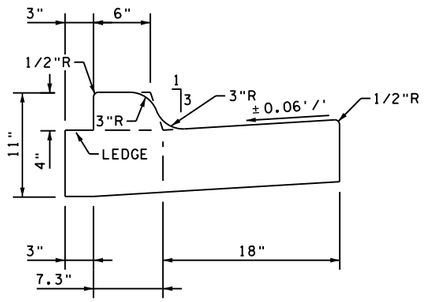
DETAIL B

CONCRETE MEDIAN GREATER THAN 8' (FACE TO FACE)



BITUMINOUS PAVEMENT SAFETY EDGE

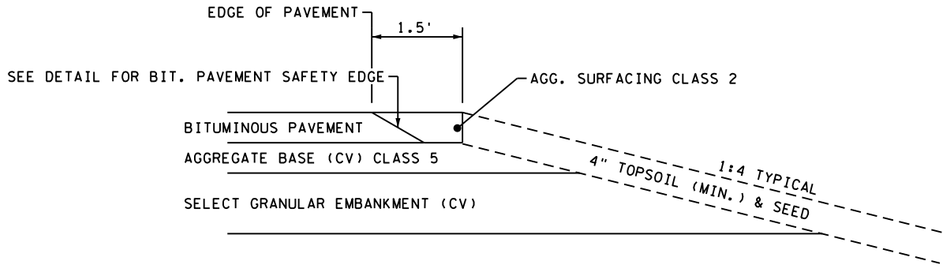
FOR T < 6"



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)



DETAIL C

RURAL AGGREGATE SHOULDER

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 4" CONCRETE WALK SPECIAL AND CONCRETE PAVEMENT 7.0" SPECIAL.

NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

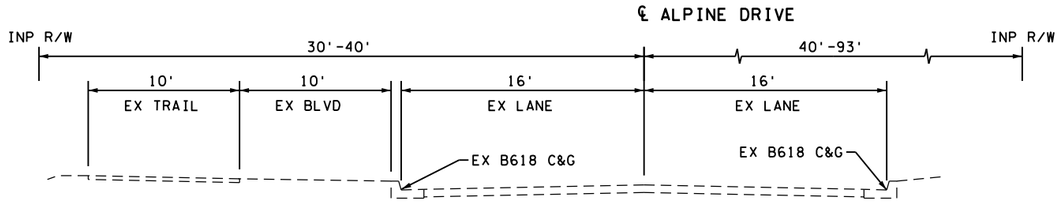
ANOKA COUNTY, MINNESOTA

DETAILS / NOTES

TYPICAL SECTIONS

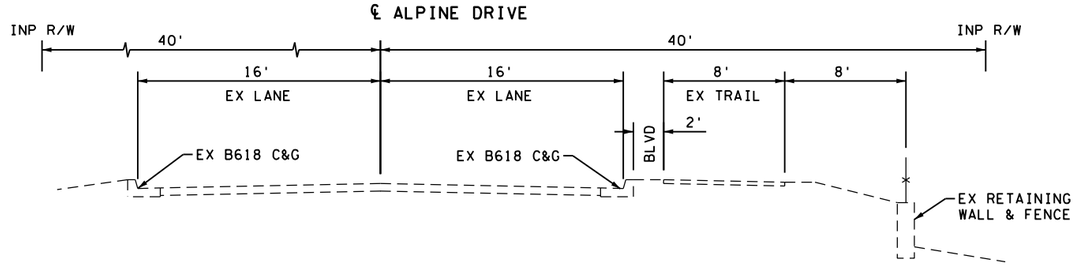
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 11 OF 93 SHEETS



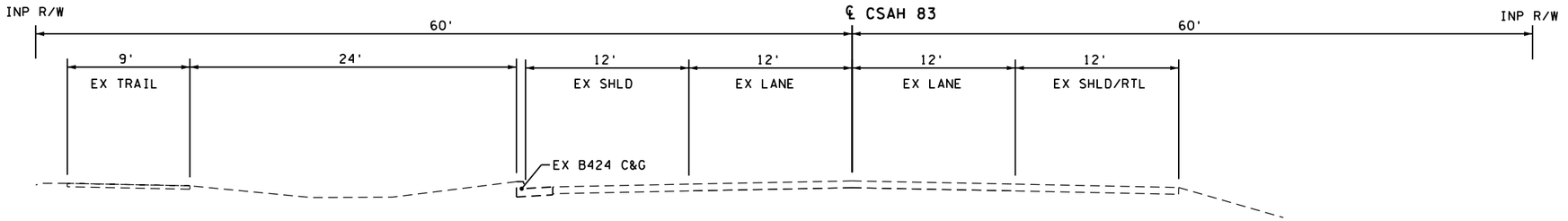
EXISTING TYPICAL SECTION 3 - ALPINE DRIVE

STA 202+65.09 TO STA 207+00



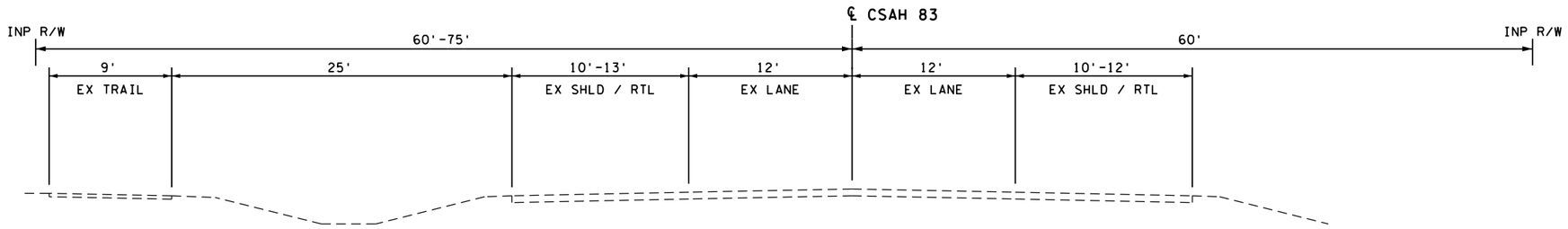
EXISTING TYPICAL SECTION 4 - ALPINE DRIVE

STA 207+00 TO STA 212+08.30



EXISTING TYPICAL SECTION 2 - CSAH 83 (ARMSTRONG BLVD NW)

STA 105+29 TO STA 107+00



EXISTING TYPICAL SECTION 1 - CSAH 83 (ARMSTRONG BLVD NW)

STA 101+50.00 TO STA 105+29
STA 107+00 TO STA 112+59.06

NO.	DATE	BY	CHK	REVISIONS

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CSAH 83 at Alpine Drive Intersection Improvements

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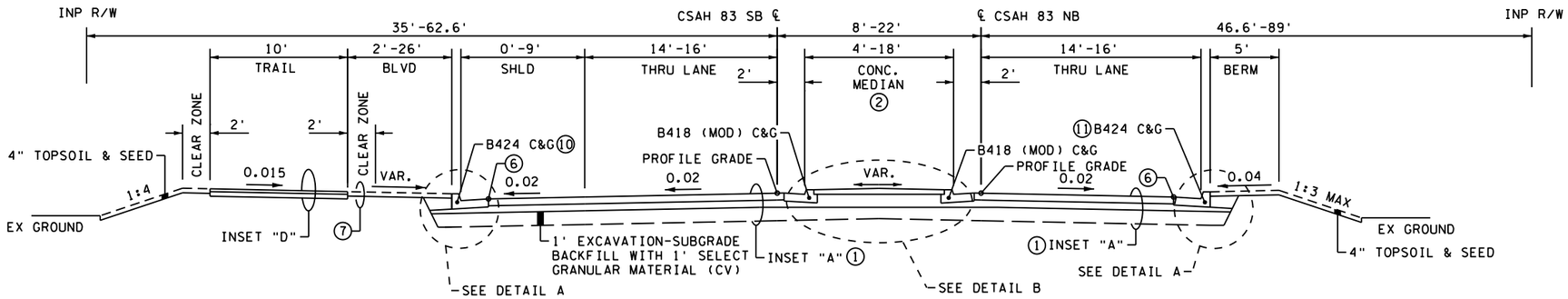
ANOKA COUNTY, MINNESOTA

EXISTING

TYPICAL SECTIONS

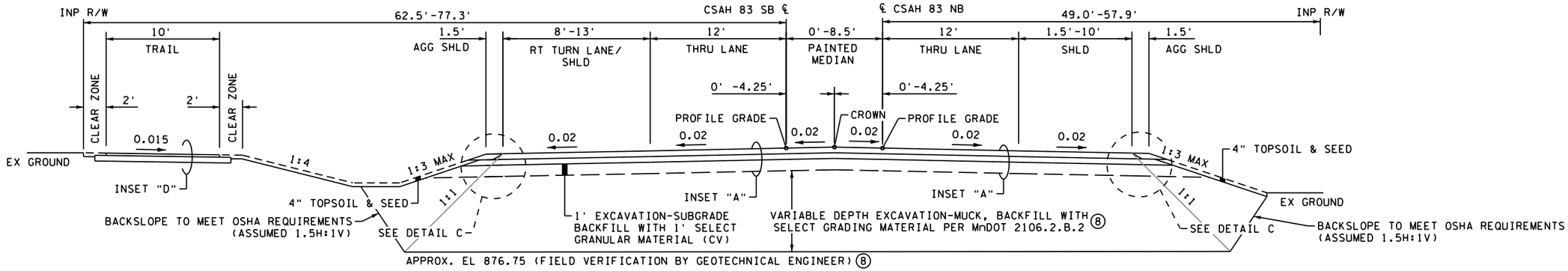
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **12** OF **93** SHEETS



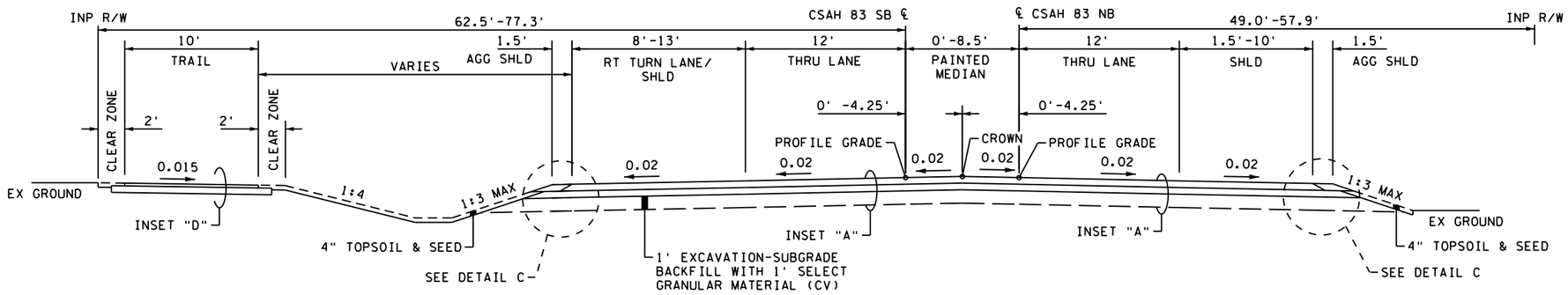
TYPICAL SECTION 3 - CSAH 83 (ARMSTRONG BLVD NW)

STA 104+22 TO STA 106+52
STA 108+00 TO STA 109+53



TYPICAL SECTION 2 - CSAH 83 (ARMSTRONG AVE NW)

STA 102+50 TO STA 104+00



TYPICAL SECTION 1 - CSAH 83 (ARMSTRONG AVE NW)

STA 101+50.00 STA 102+50
STA 104+00 TO STA 104+22
STA 111+33 TO STA 112+59.06

NOTES:

① USE INSET "G1" FROM NB STA 106+12 TO NB STA 108+33 AND SB STA 1106+10 TO SB STA 1108+32

② RAISED CONCRETE MEDIAN BEGINS NB STA 104+22

⑥ QUADRANT PROFILE GRADE, SEE ROUNDABOUT INTERSECTION DETAILS.

⑦ USE INSET "D" WHEN BLVD IS 2' WIDE

⑧ LIMITS MAY BE EXTENDED OR REDUCED BASED ON FIELD CONDITIONS

⑩ BEGIN C&G DESIGN B424 AT STA 104+04

⑪ BEGIN G&G DESIGN B424 AT STA 104+08

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
Checked By: AJP
Approved By: AJP

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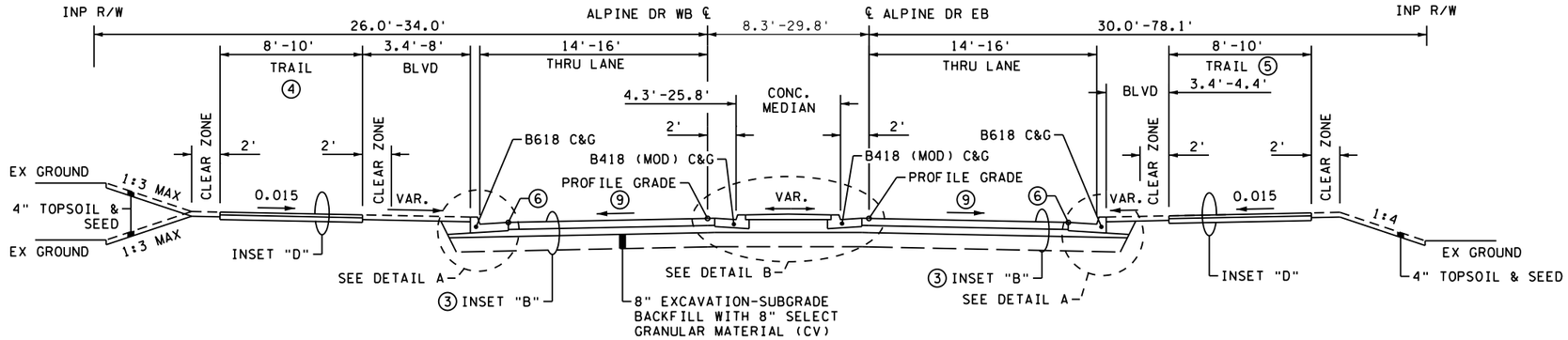
ANOKA COUNTY, MINNESOTA

TYPICAL SECTIONS

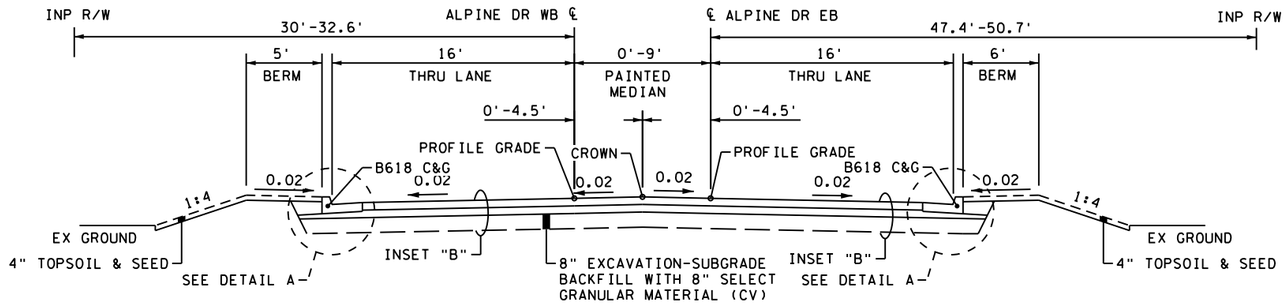
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 13 OF 93 SHEETS



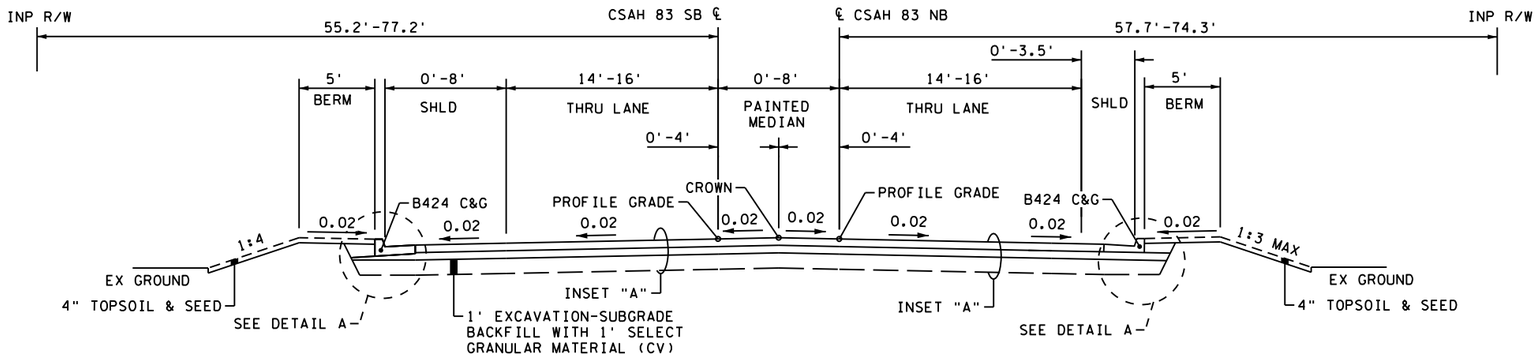
TYPICAL SECTION 6 - ALPINE DRIVE

STA 204+84 TO STA 206+55
STA 208+06 TO STA 208+98



TYPICAL SECTION 5 - ALPINE DRIVE

STA 202+65.09 TO STA 204+84



TYPICAL SECTION 4 - CSAH 83 (ARMSTRONG BLVD NW)

STA 109+53 TO STA 111+33

NOTES:

③ USE INSET "G1" FROM EB STA 206+15 TO EB STA 208+46 AND WB STA 1206+13 TO WB STA 1208+53

④ BEGIN TRAIL CONSTRUCTION STA 206+03, TERMINATE AT ROUNDABOUT

⑤ BEGIN TRAIL CONSTRUCTION AT ROUNDABOUT, END CONSTRUCTION AT STA 208+98

⑥ QUADRANT PROFILE GRADE, SEE ROUNDABOUT INTERSECTION DETAILS.

⑨ CROSS SLOPE WITHIN AND NEAR THE ROUNDABOUT VARIES.

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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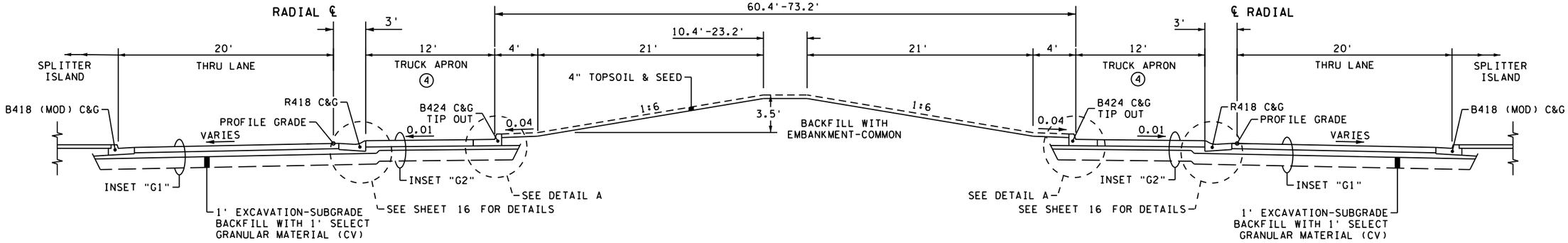
ANOKA COUNTY, MINNESOTA

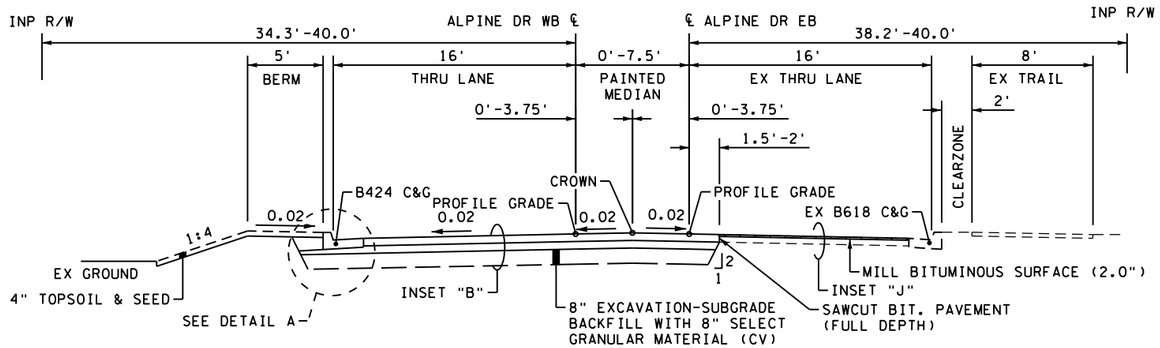
TYPICAL SECTIONS
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 14 OF 93 SHEETS



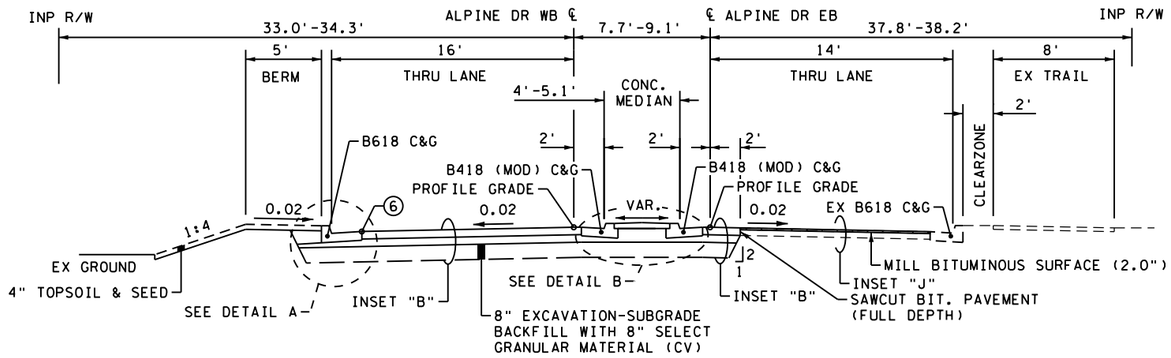
TYPICAL SECTION 9 - CSAH 83 & ALPINE DR ROUNDABOUT

CSAH 83 NB STA 106+92 TO 107+61
ALPINE DR EB STA 206+92 TO 207+62
RADIAL STA 10+00 TO 13+04.99



TYPICAL SECTION 8 - ALPINE DRIVE

STA 209+67 TO STA 212+08.30



TYPICAL SECTION 7 - ALPINE DRIVE

STA 208+98 TO STA 209+67

NOTES:

④ SEE SHEET 16 FOR ADDITIONAL TRUCK APRON DETAILS.

GENERAL NOTES:

- ALL SLOPES IN FOOT PER FOOT UNLESS OTHERWISE NOTED.
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- SEE SHEET 10 FOR INSETS AND SHEET 11 FOR DETAILS.

NO.	DATE	BY	CHK	REVISIONS

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TYPICAL SECTIONS
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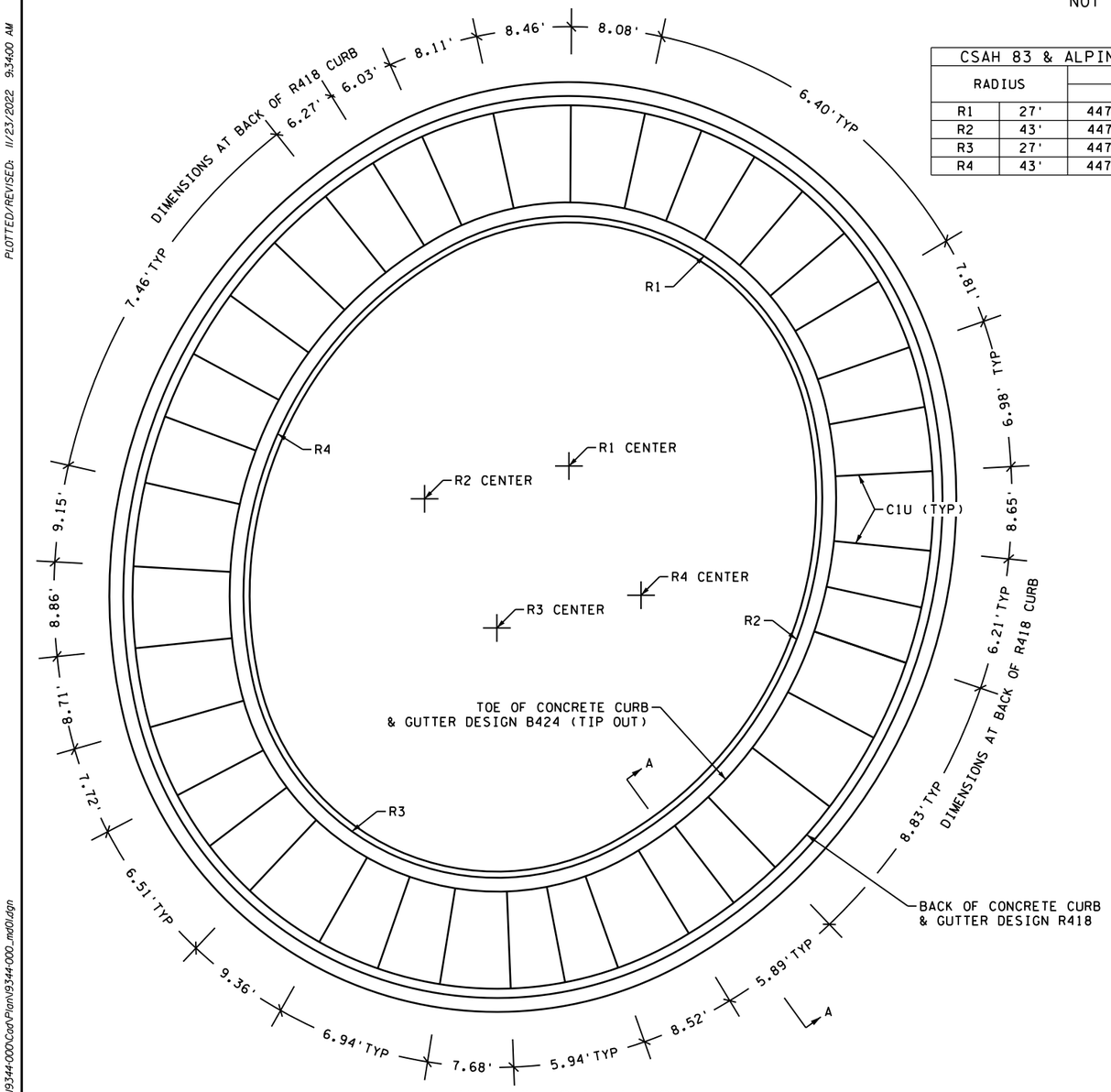
SHEET 15 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:34:00 AM

CSAH 83 & ALPINE DRIVE ROUNDABOUT

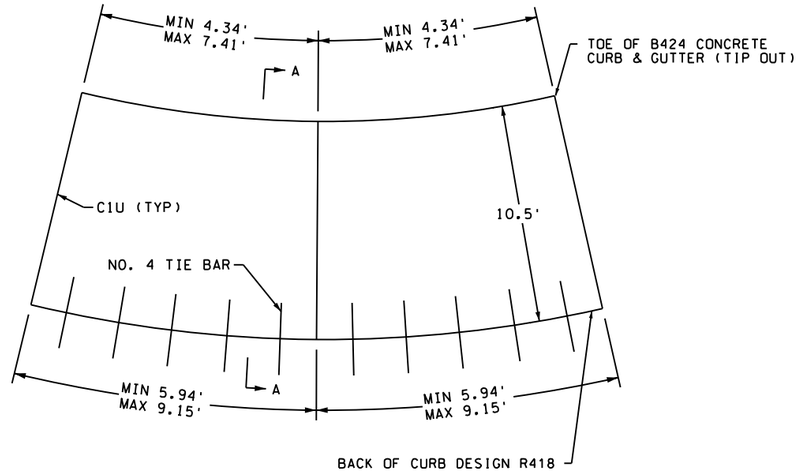
NOT TO SCALE

CSAH 83 & ALPINE DRIVE ROUNDABOUT			
RADIUS		CENTER	
		X	Y
R1	27'	447497.9528	177872.0629
R2	43'	447482.3501	177868.5197
R3	27'	447490.1582	177854.5543
R4	43'	447505.7610	177858.0975



PLAN VIEW JOINT LAYOUT

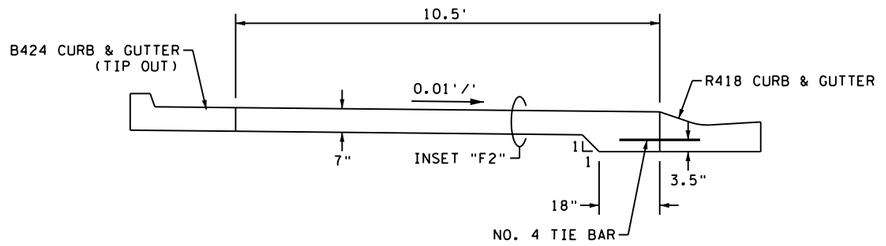
NOT TO SCALE



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 WITHIN THE TRUCK APRON.
5. ADDITIONAL CONCRETE PAVEMENT DEPTH, ADJACENT TO CONCRETE CURB DESIGN R418, IS INCIDENTAL.
6. LOCATION AND SPACING OF JOINTS MAY BE MODIFIED BY THE CONTRACTOR, AS APPROVED BY THE ENGINEER.

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

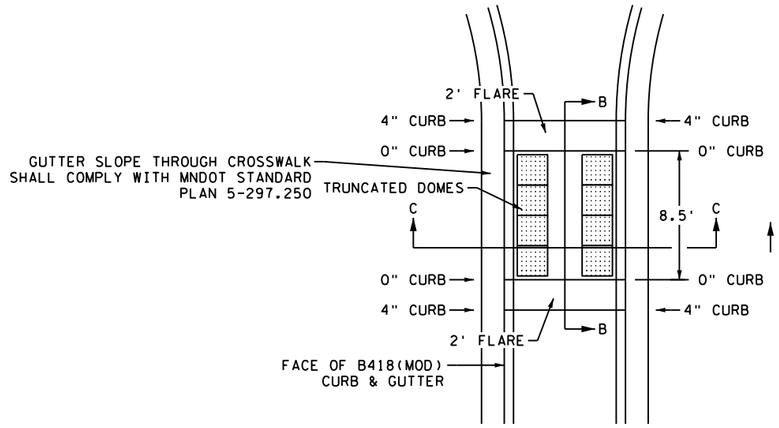
TRUCK APRON DETAILS

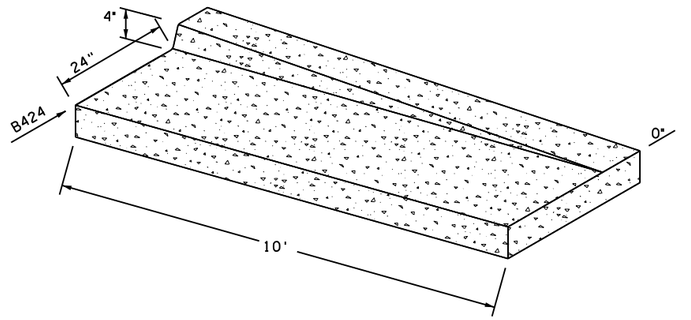
MISCELLANEOUS DETAILS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 16 OF 93 SHEETS

WSB PATH & FILENAME: Projects\Minnesota\0\93344-000\Cad\Plan\93344-000_md0l.dgn

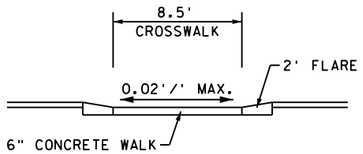




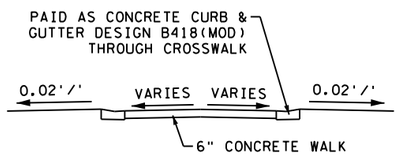
FOR OTHER DIMENSIONS SEE STANDARD PLATE NO. 7100
TO BE USED AT CURB AND GUTTER TERMINI
PAYMENT SHALL BE MADE AS CONCRETE CURB & GUTTER DESIGN B424 BY THE LINEAR FOOT

B424 TO 0" HEIGHT CURB & GUTTER TRANSITION

NOT TO SCALE



SECTION B-B

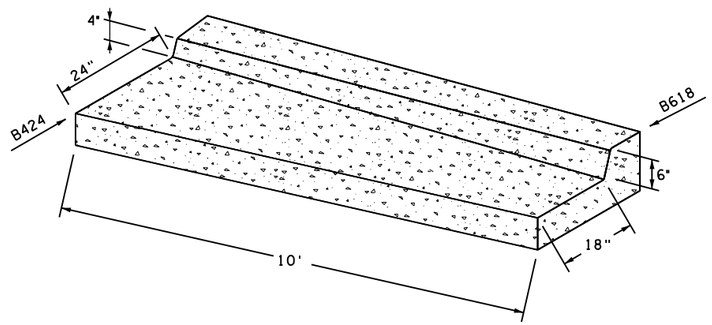


SECTION C-C

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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PRINT NAME: ANDREW J. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

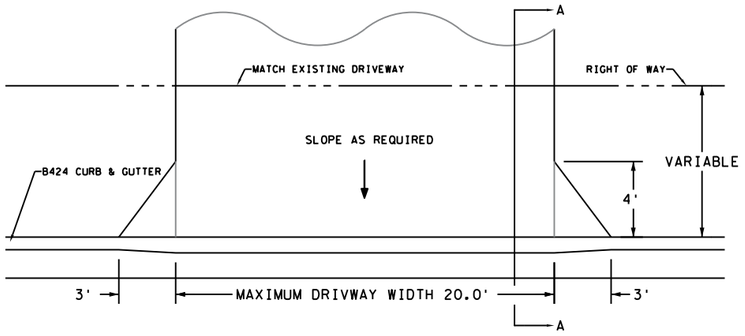
ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

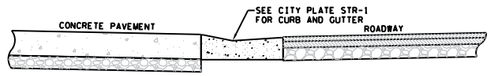
ANOKA COUNTY, MINNESOTA

MISCELLANEOUS DETAILS
SP 002-683-006, SP 199-112-009, IP 23-03

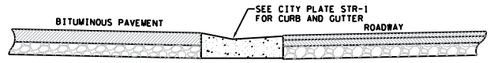
SHEET 17 OF 93 SHEETS



SECTION A-A



CONCRETE DRIVEWAY ENTRANCE



BITUMINOUS DRIVEWAY ENTRANCE

NOTES:
1. PANEL WIDTH SHALL NOT EXCEED 10 FT. WITHOUT A CENTERLINE CONSTRUCTION JOINT.
2. CONCRETE DRIVEWAY TO BE ONE COURSE CONCRETE PAVEMENT. (SEE SPECIAL PROVISIONS FOR CLASS OF CONCRETE.)
3. CONCRETE DRIVEWAYS TO BE 6" THICK.
4. ½" EXPANSION JOINT, PREFORMED JOINT FILLER MATERIAL, AASHTO M 213 (REQUIRED WHEN 2 CONCRETE AREAS ARE POURED SEPERATELY.)
5. BITUMINOUS DRIVEWAYS MINIMUM 2" THICK, MATCH EXISTING BITUMINOUS PAVEMENT THICKNESS.

RESIDENTIAL DRIVEWAY - NO SIDEWALK (STR-30)

NO SCALE

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

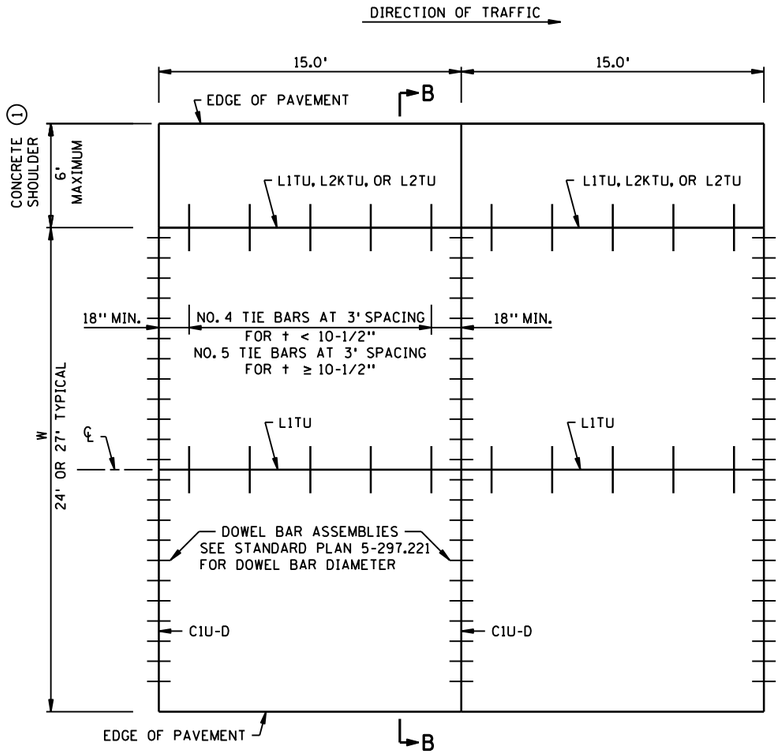
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

MISCELLANEOUS DETAILS

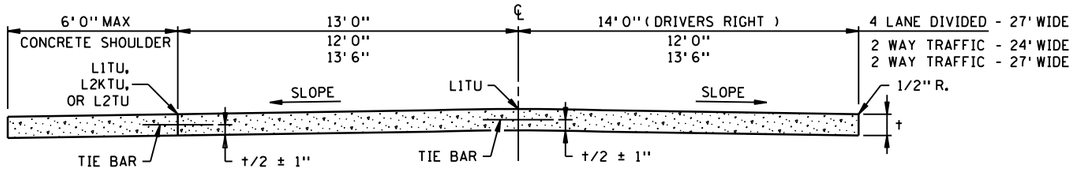
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 18 OF 93 SHEETS

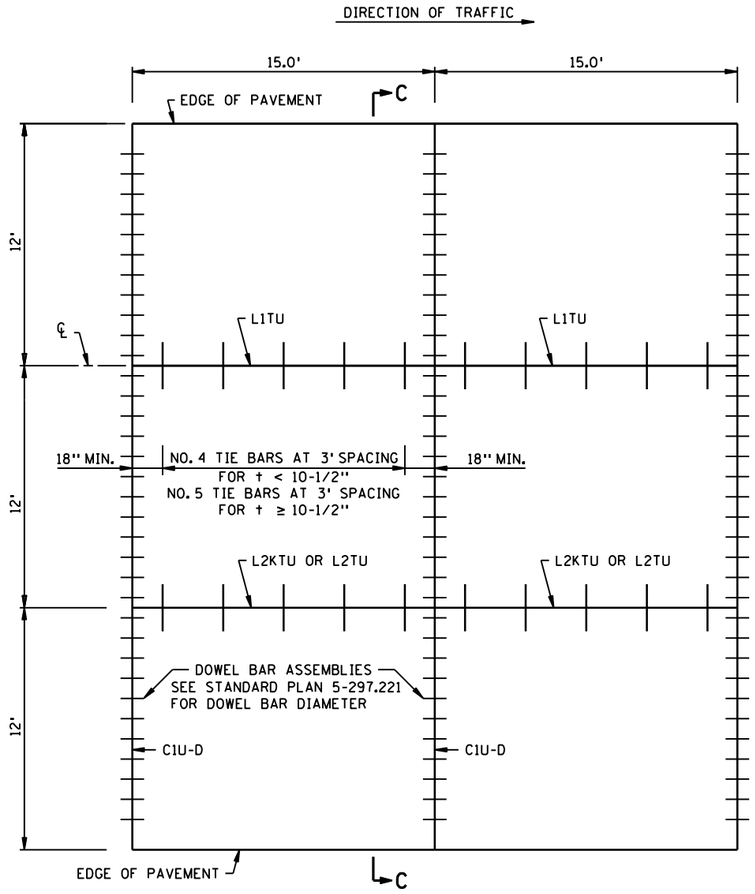


MAINLINE PAVEMENT WITH
INSIDE CONCRETE SHOULDER

DOWELED

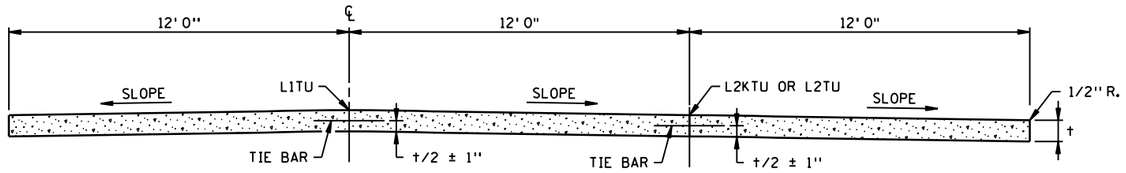


SECTION B-B



MAINLINE PAVEMENT URBAN

DOWELED



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

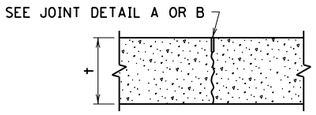
APPROVED: 2-16-2016

REVISED:

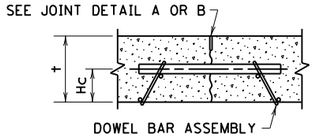
CONCRETE MAINLINE PAVEMENT

15.0 FT. PANEL LENGTH
URBAN OR CONCRETE SHOULDERS

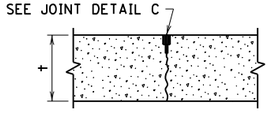
SP 002-683-003, SP 199-112-009, IP 23-03



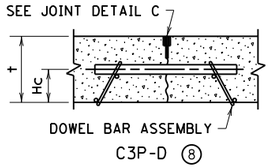
C1U & C2H



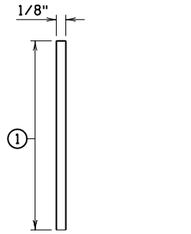
C1U-D & C2H-D (8)



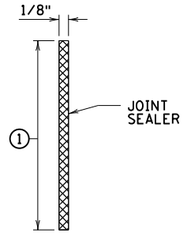
C3P



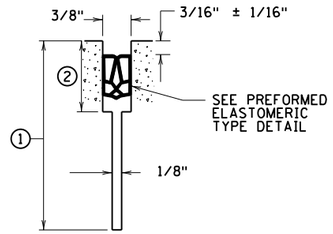
C3P-D (8)



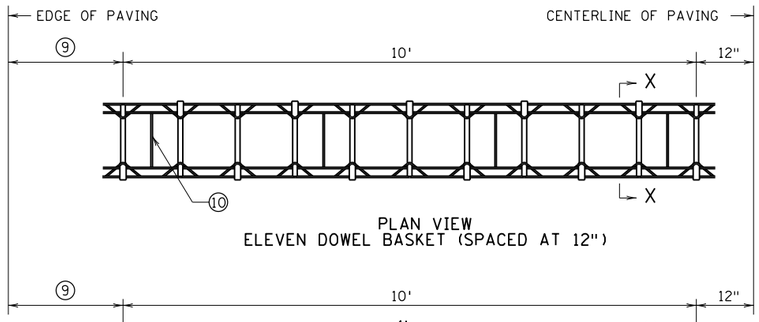
JOINT DETAIL A (3)(5)
SAWED & UNSEALED

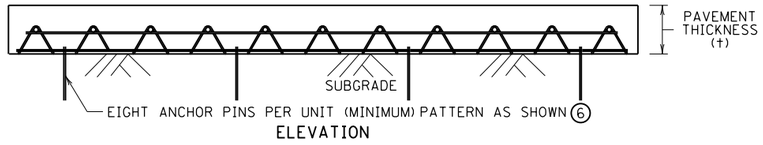


JOINT DETAIL B (4)(5)
SAWED & SEALED



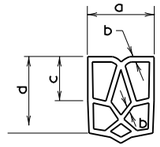
JOINT DETAIL C (4)(5)
SAWED AND SEALED





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.)

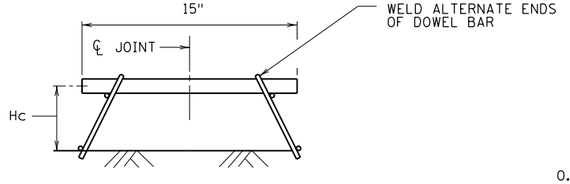
PREFORMED ELASTOMERIC TYPE DETAIL (2)

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"

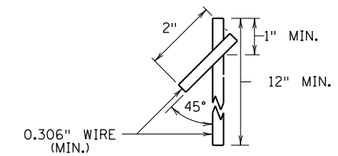
LEGEND — EXAMPLE

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 002-683-003, SP 199-112-009, IP 23-03

PLOTTED/REVISED: 11/23/2022 9:34:10 AM
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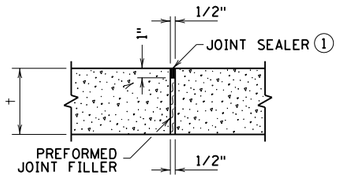
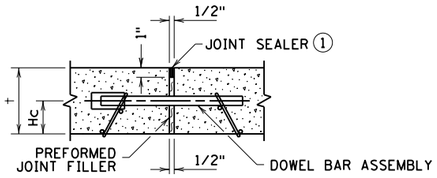


E1H



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"

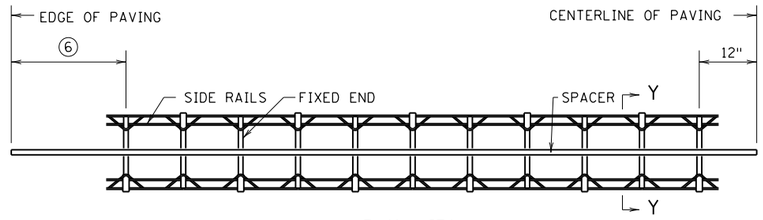
LEGEND — EXAMPLE

E = EXPANSION JOINT — E1H-D

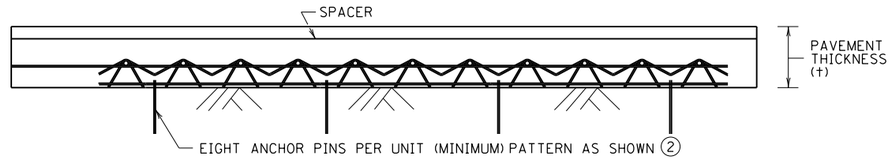
NO. = JOINT REFERENCE

H = HOT POURED

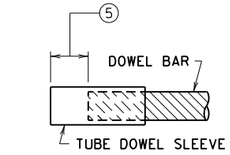
-D = DOWEL BARS



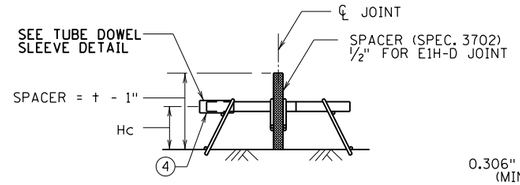
PLAN VIEW
EXPANSION JOINT DOWEL ASSEMBLY



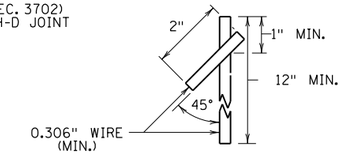
ELEVATION VIEW
EXPANSION JOINT DOWEL BAR ASSEMBLY



TUBE DOWEL SLEEVE DETAIL

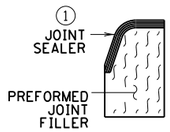


SECTION Y-Y (3)

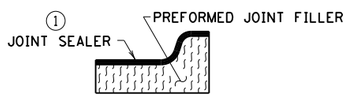


ANCHOR PIN

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 STYBICKI
STATE DESIGN ENGINEER

PAVEMENT JOINTS

EXPANSION (DESIGN E)

SP 002-683-003, SP 199-112-009, IP 23-03

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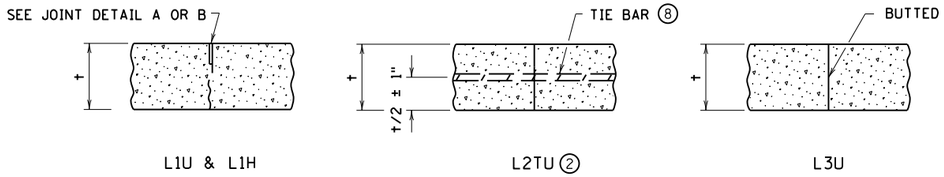
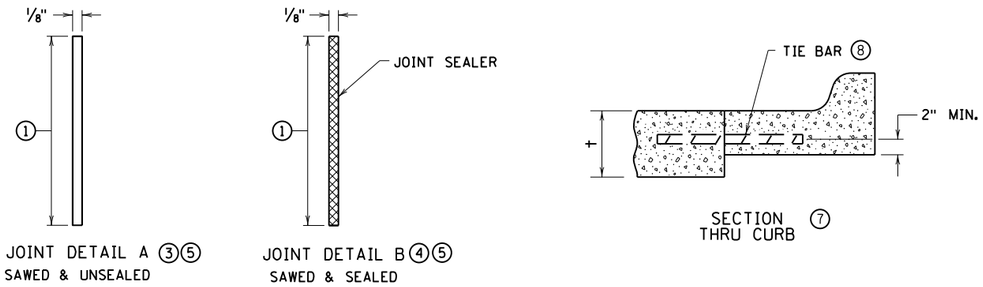
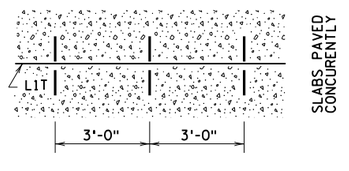


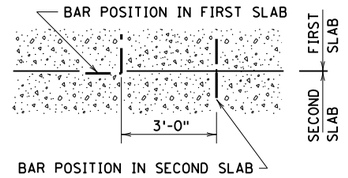
LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE					
JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
L3U			NONE	UNSEALED	

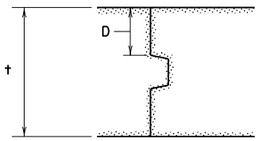
LEGEND — **EXAMPLE** L2KTU

- 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









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.

LEAD EXPERT OFFICE

GLENN ENGSTROM
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OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 | 3 OF 4

APPROVED: 10-03-2022
REVISED:

THOMAS STYBICKI
STATE DESIGN ENGINEER

PAVEMENT JOINTS

LONGITUDINAL (DESIGN L)

SP 002-683-003, SP 199-112-009, IP 23-03

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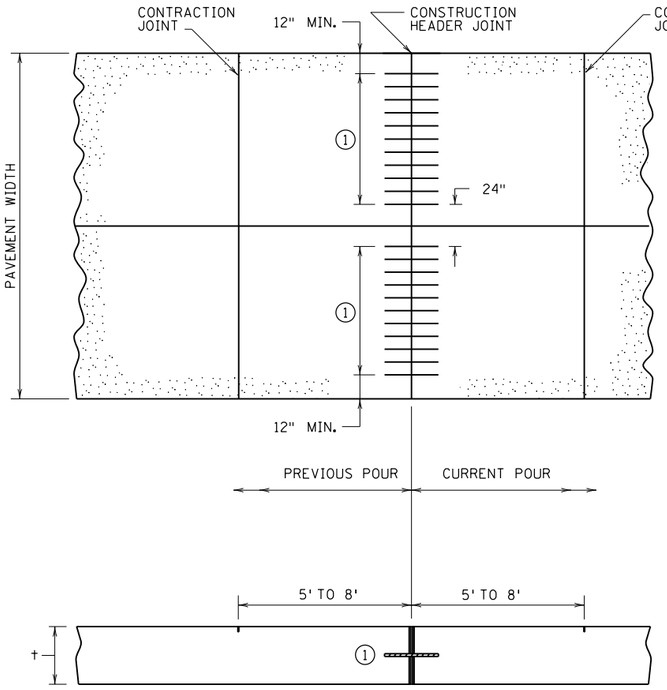
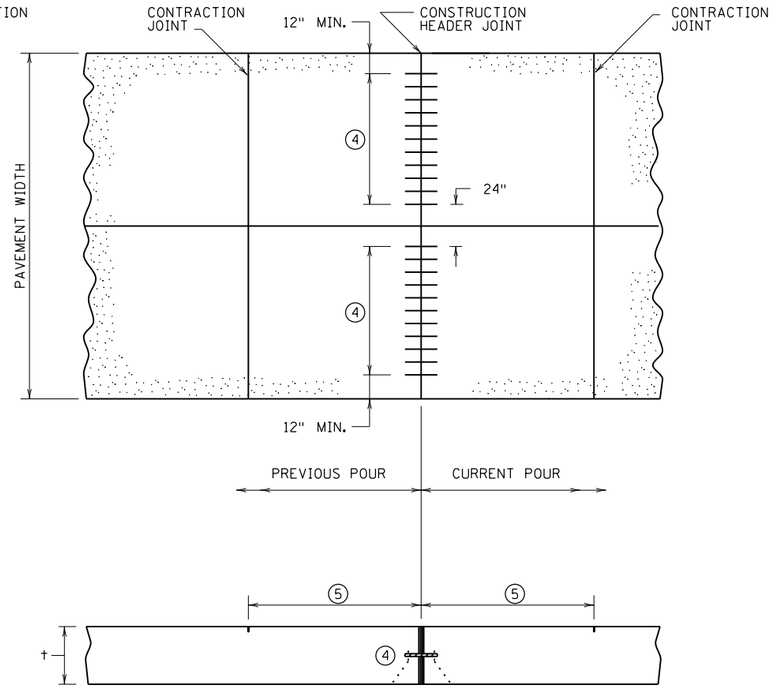
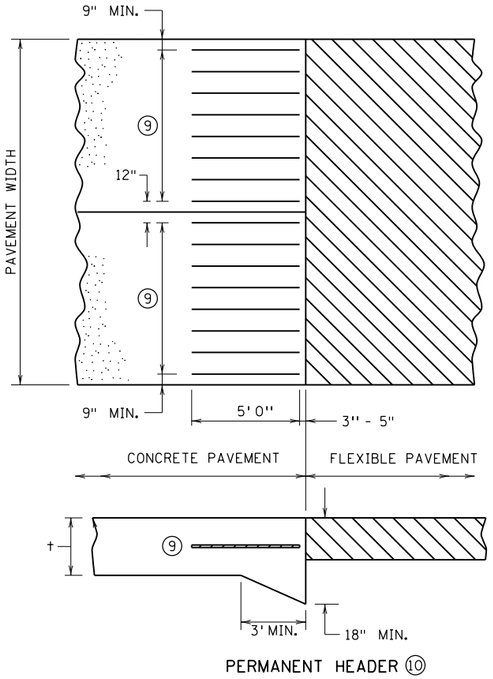


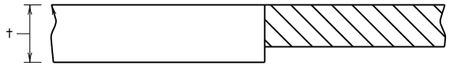
REINFORCEMENT BAR CONSTRUCTION HEADERS



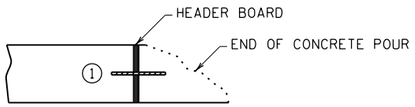
DOWEL BAR CONSTRUCTION HEADERS



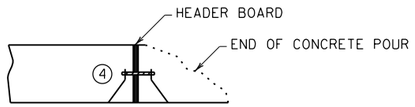
PERMANENT HEADER (10)



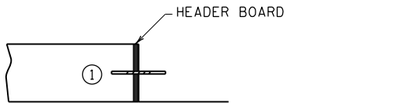
TERMINAL HEADER (11)



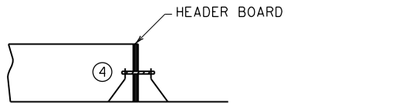
SLIPFORM PLACED REINFORCEMENT BAR HEADER (2)



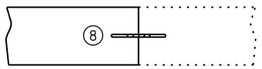
SLIPFORM PLACED DOWEL BAR HEADER (6)



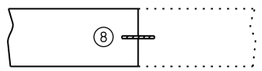
FIXED FORM PLACED REINFORCEMENT BAR HEADER (3)



FIXED FORM PLACED DOWEL BAR HEADER (7)



DRILL AND GROUT REINFORCEMENT BAR HEADER



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

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 | 4 OF 4

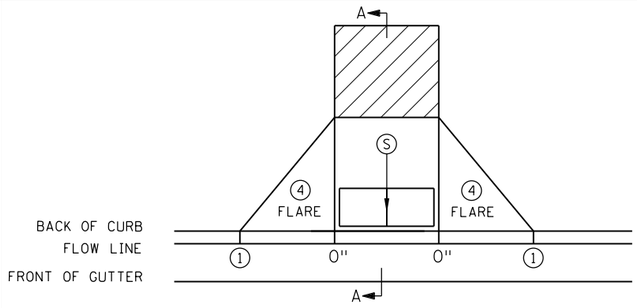
APPROVED: 10-03-2022
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

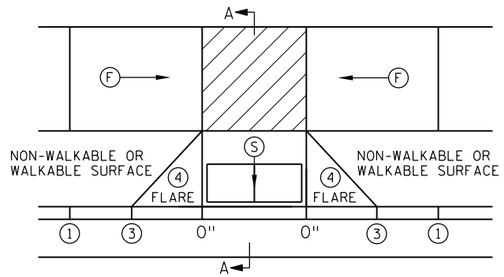
PAVEMENT JOINTS

CONSTRUCTION AND TERMINAL HEADERS

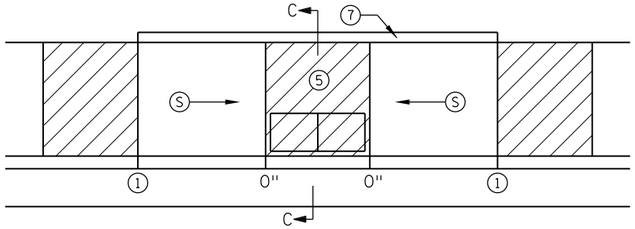
SP 002-683-003, SP 199-112-009, IP 23-03



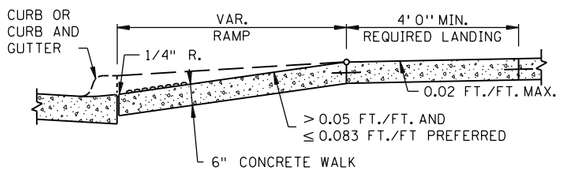
PERPENDICULAR



TIERED PERPENDICULAR

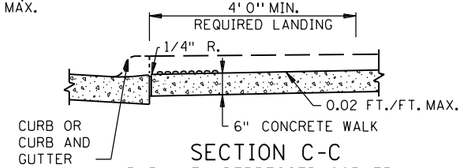


PARALLEL



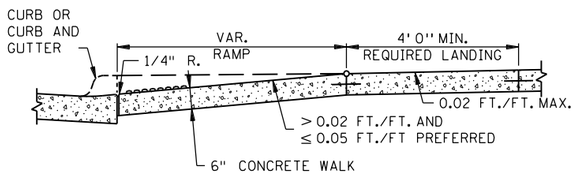
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



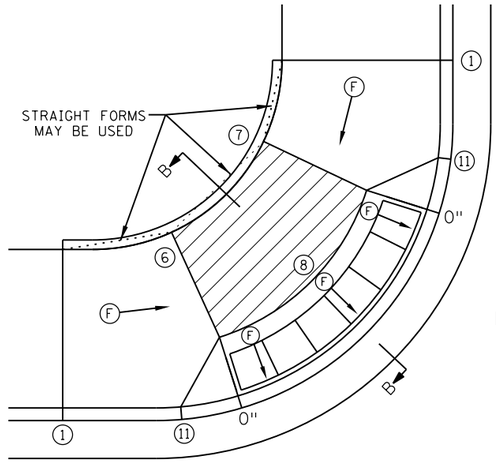
SECTION C-C

PARALLEL/DEPRESSED CORNER

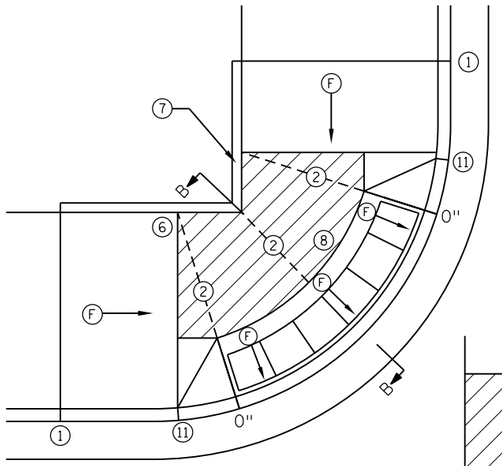


SECTION B-B

FAN

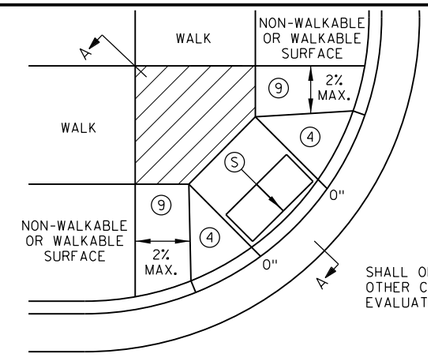


FAN (10)



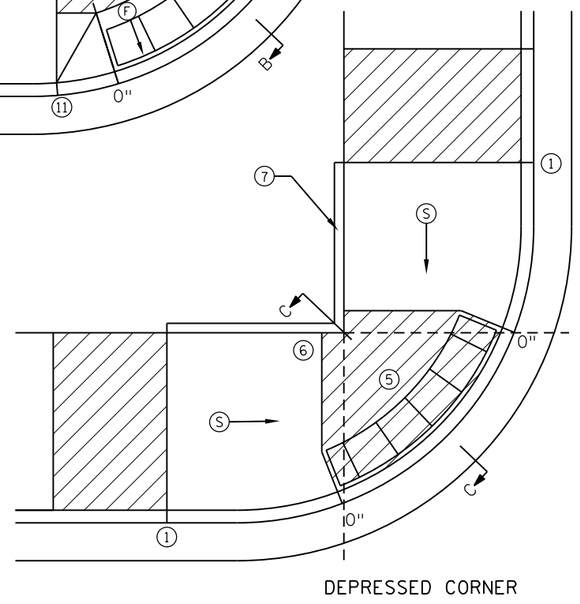
MODIFIED FAN (10)

USED WHEN RIGHT-OF-WAY
IS CONSTRAINED



DIAGONAL

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



DEPRESSED CORNER

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 002-683-003, SP 199-112-009, IP 23-03

SHEET **24** OF **93** SHEETS

PLOTTED/REVISED: 11/23/2022 9:34:11 AM

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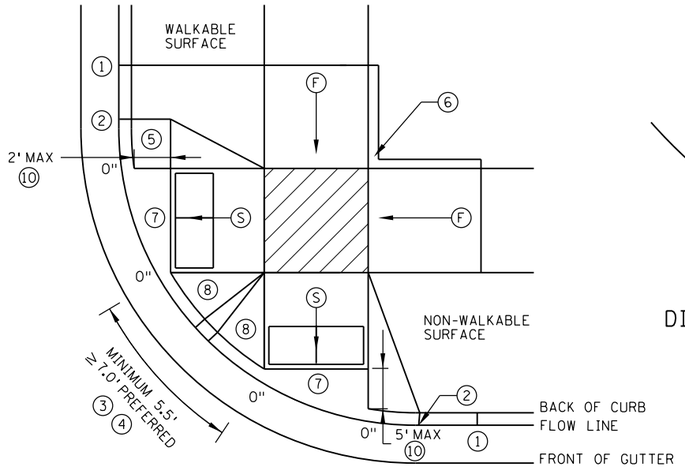
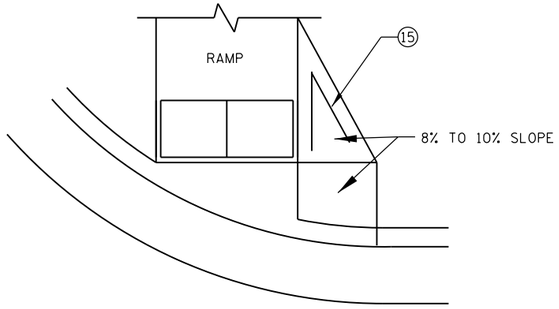
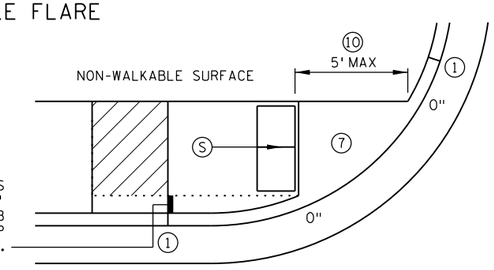


COMBINED DIRECTIONAL

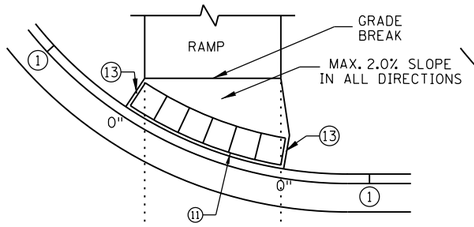


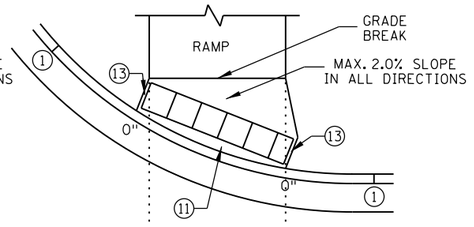
DIRECTIONAL RAMP WALKABLE FLARE

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.



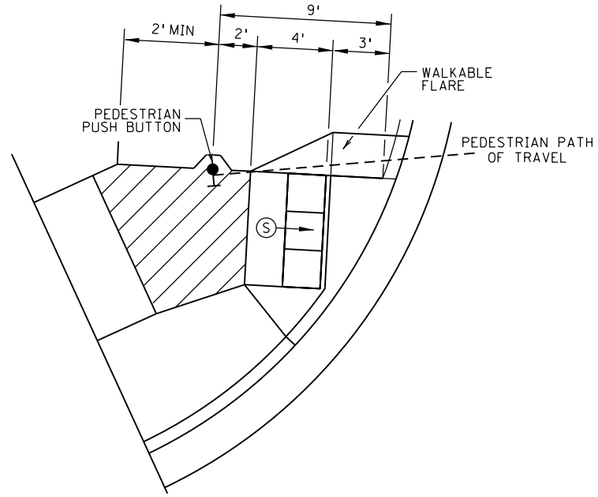
STANDARD ONE-WAY DIRECTIONAL ⑨





DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

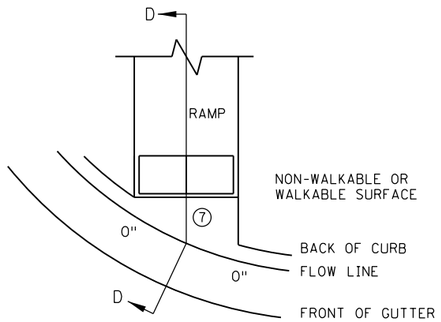
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

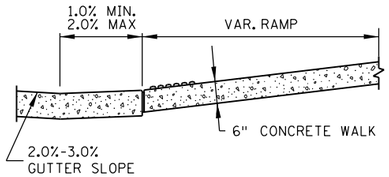


SEMI-DIRECTIONAL RAMP ③④⑨

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

REVISION:

APPROVED: 11-04-2021
JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.250 | **2 OF 6**

APPROVED: 11-04-2021
REVISED:

PEDESTRIAN CURB RAMP DETAILS

SP 002-683-003, SP 199-112-009, IP 23-03

PLOTTED/REVISED: 11/23/2022 9:34:12 AM
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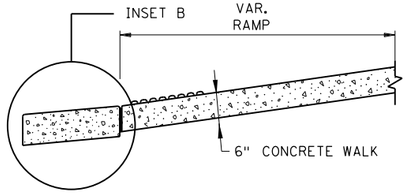
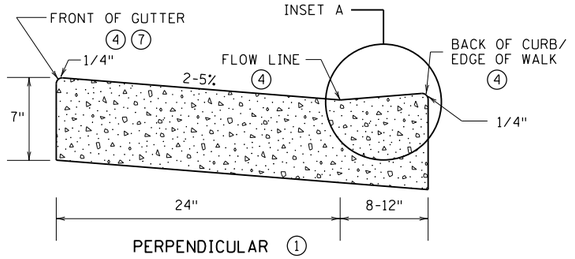
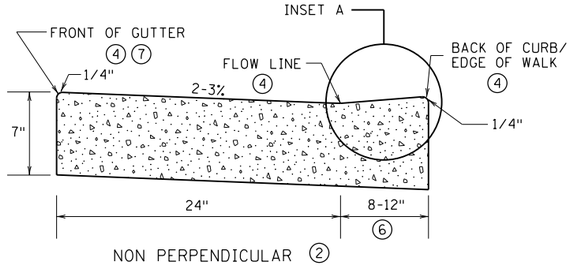
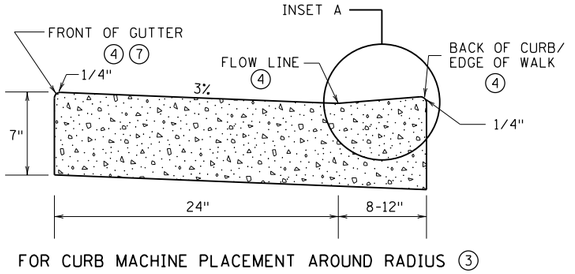




PERPENDICULAR ①

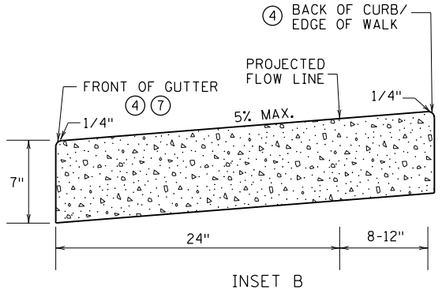


NON PERPENDICULAR ②



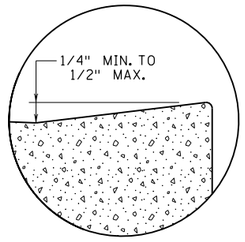
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

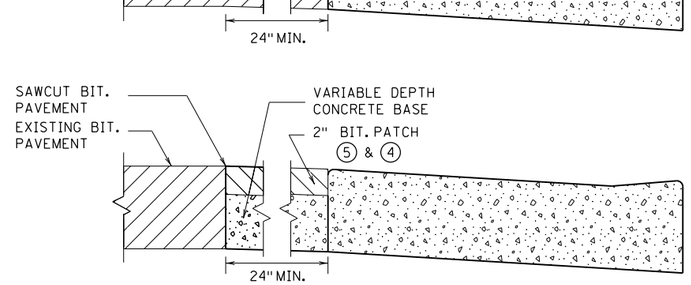


INSET B

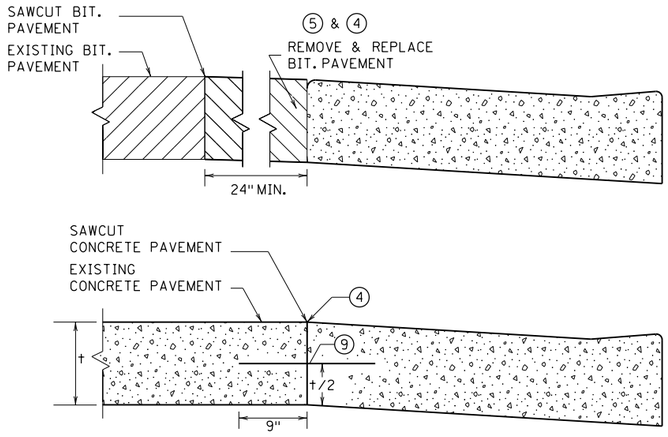
OUTFLOW GUTTER ⑧



INSET A

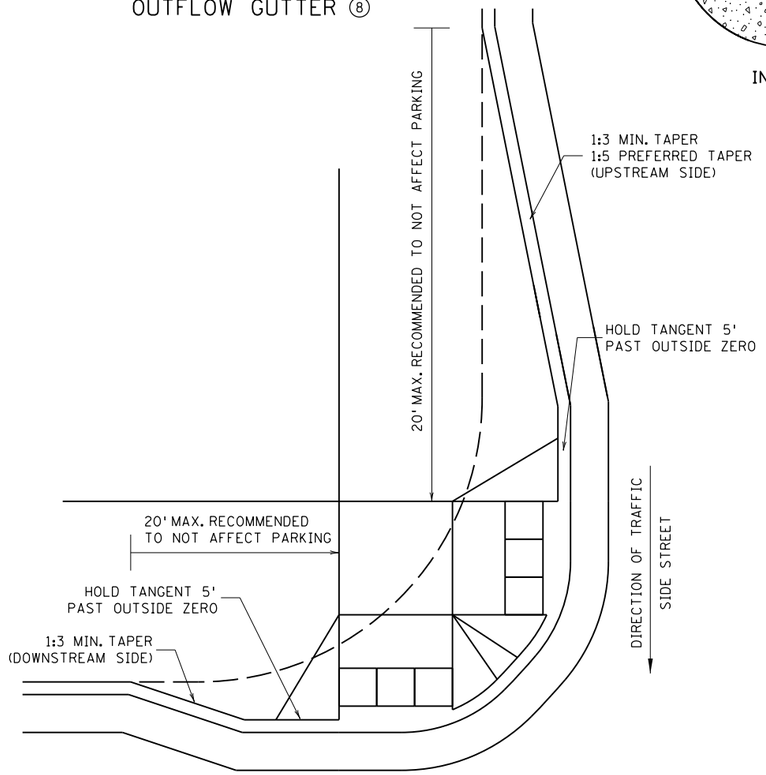


ONLY ALLOWED PER ENGINEER'S APPROVAL

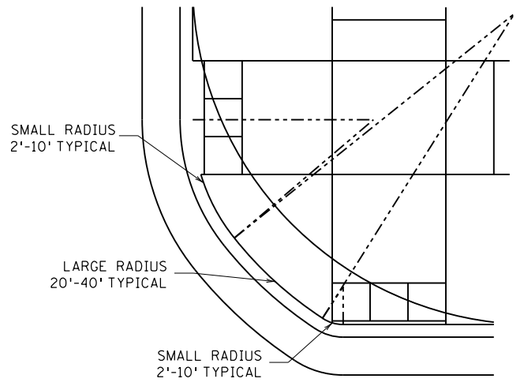


PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

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.

REVISION:

APPROVED: 11-04-2021
JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | **3 OF 6**

APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

SP 002-683-003, SP 199-112-009, IP 23-03

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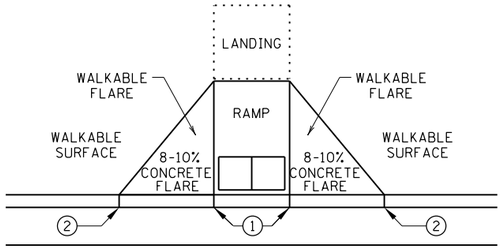
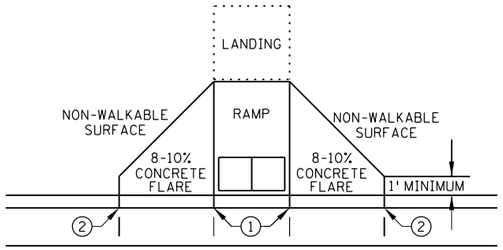
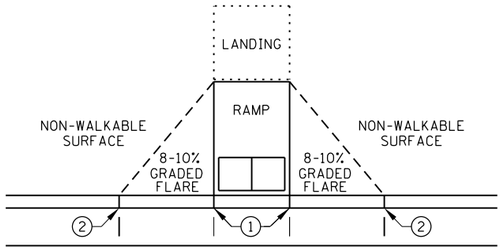


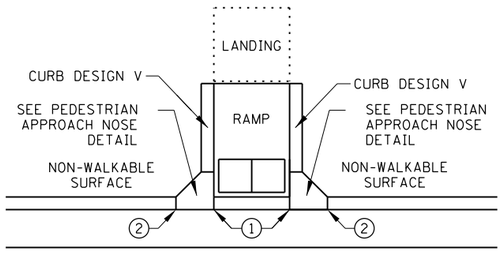
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

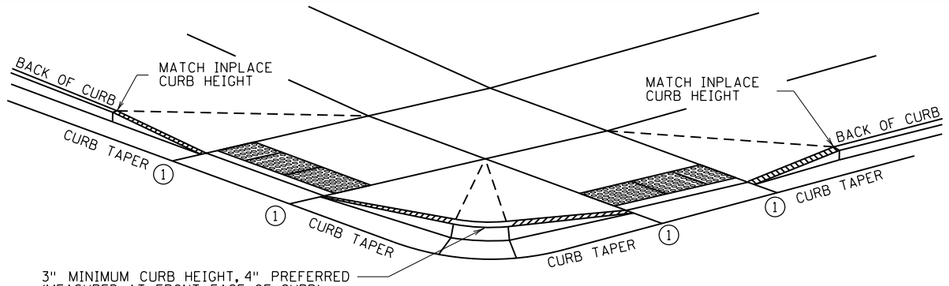


GRADED FLARES

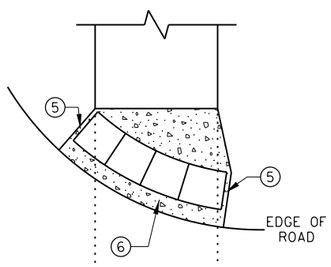


RETURNED CURB (4)

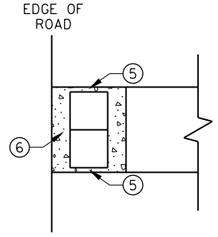
TYPICAL SIDE TREATMENT OPTIONS (3) (10)



DETECTABLE EDGE WITH (7)
CURB AND GUTTER

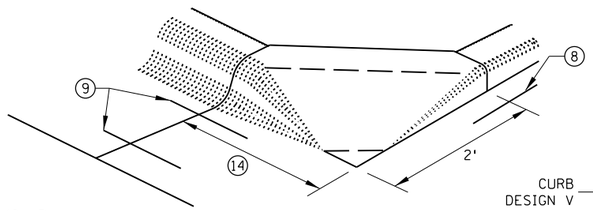


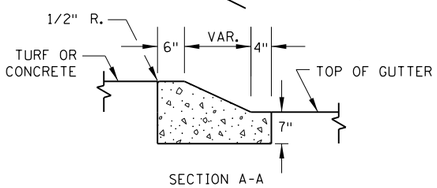
RADIAL DETECTABLE WARNING



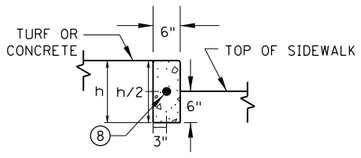
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

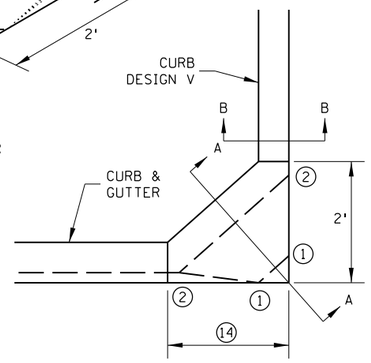




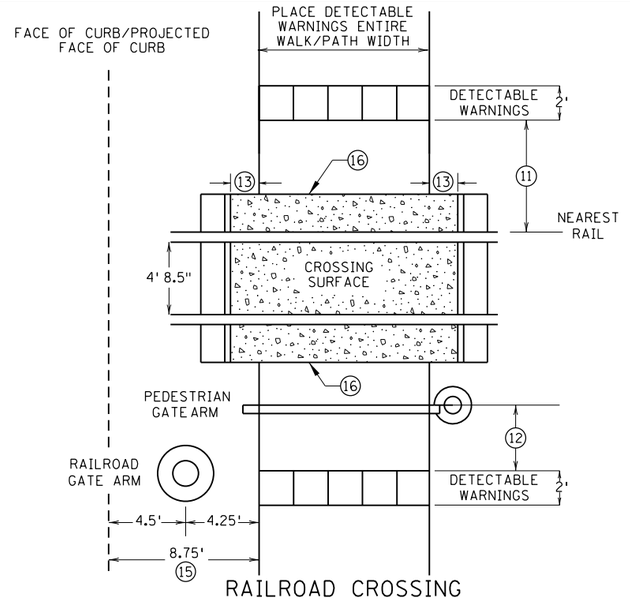
SECTION A-A



SECTION B-B



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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JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 4 OF 6

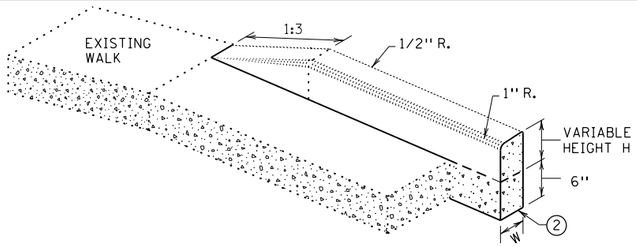
APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

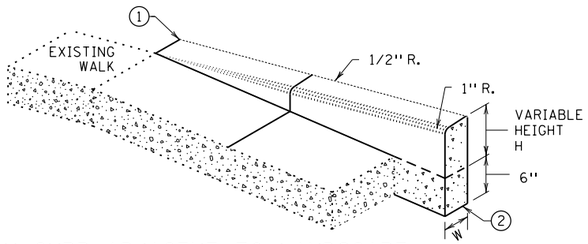
SP 002-683-003, SP 199-112-009, IP 23-03

SHEET 27 OF 93 SHEETS



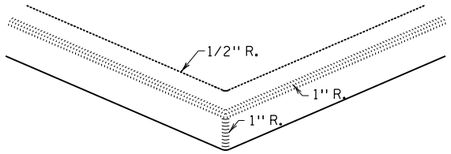
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

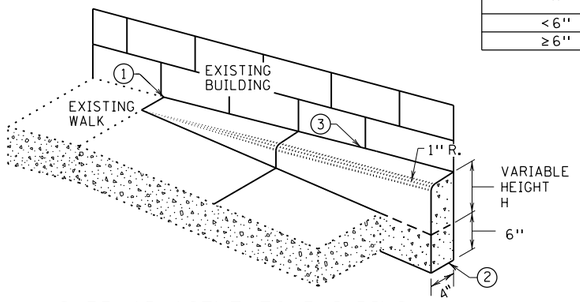


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

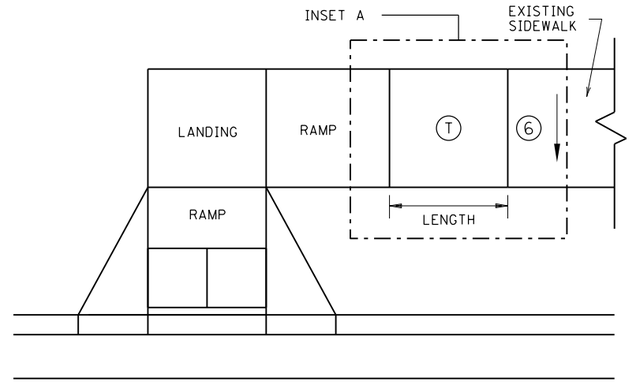


V CURB INTERSECTION

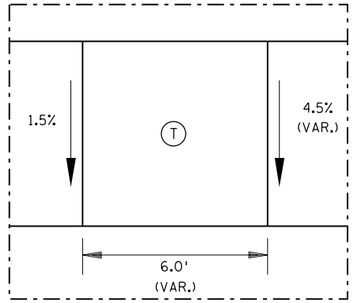


V CURB ADJACENT TO BUILDING OR BARRIER

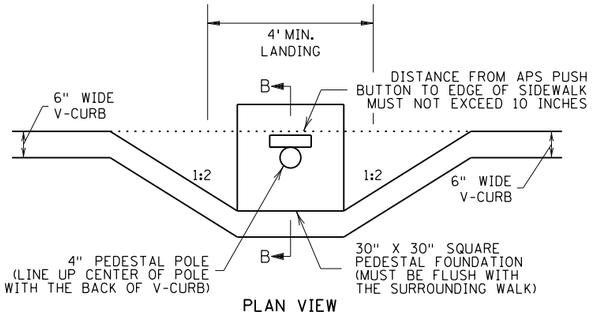
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



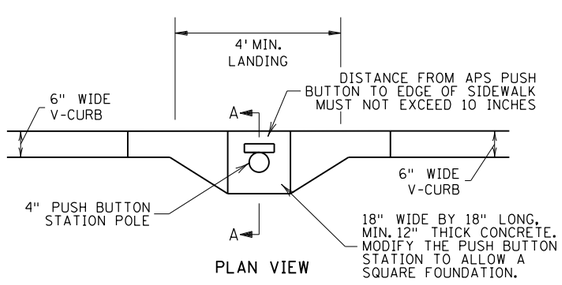
TRANSITION PANEL ④⑤



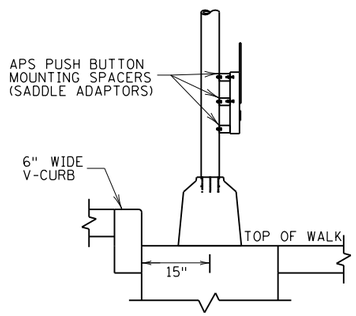
INSET A



PLAN VIEW

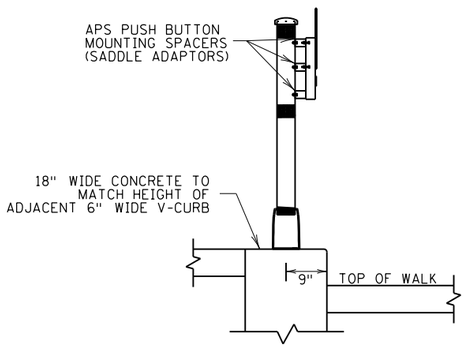


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



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.

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PEDESTRIAN CURB RAMP DETAILS

SP 002-683-003, SP 199-112-009, IP 23-03

SHEET 28 OF 93 SHEETS

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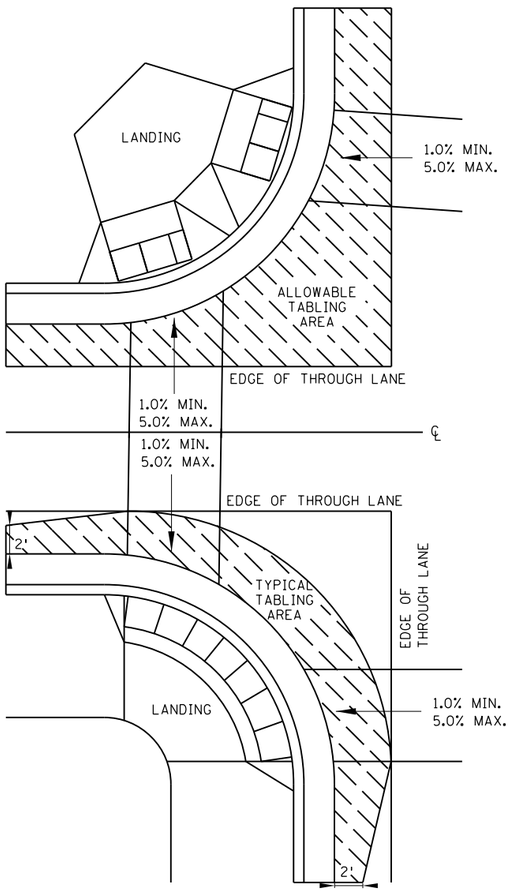
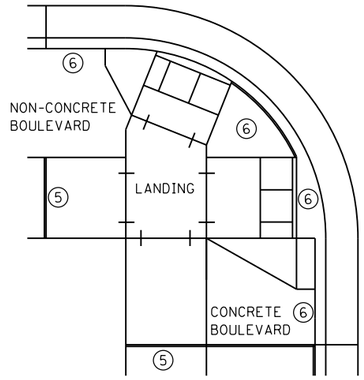
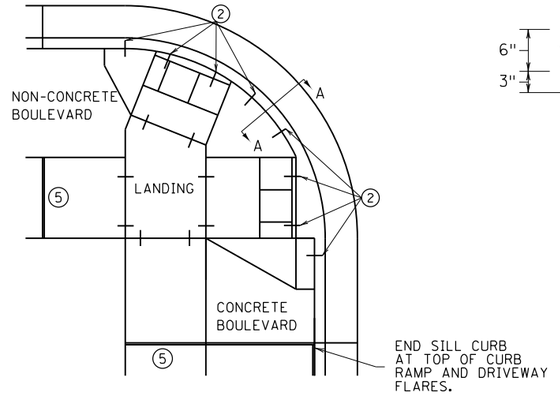


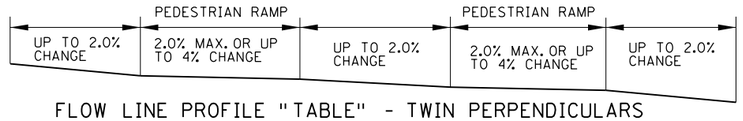
CURB LINE AND ROAD CROSSING ADJUSTMENTS



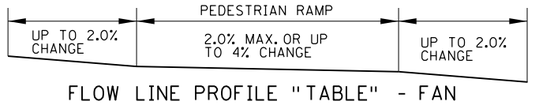
EXPANSION MATERIAL PLACEMENT
FOR CONCRETE ROADWAYS



CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS



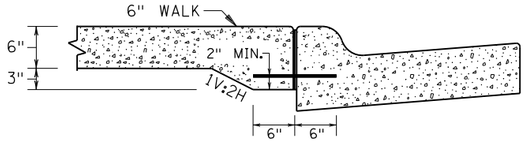
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



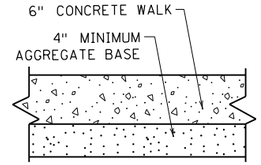
FLOW LINE PROFILE "TABLE" - FAN

FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

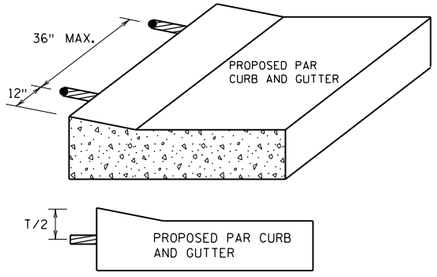
FLOW LINE PROFILE RAISE - FAN

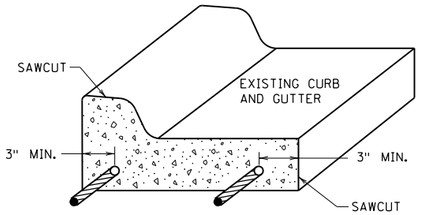


SECTION VIEW A-A
THICKENED SECTION
THROUGH CURB RAMP FLARES



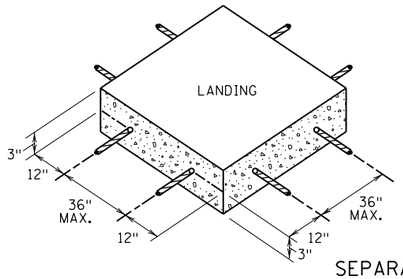
TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

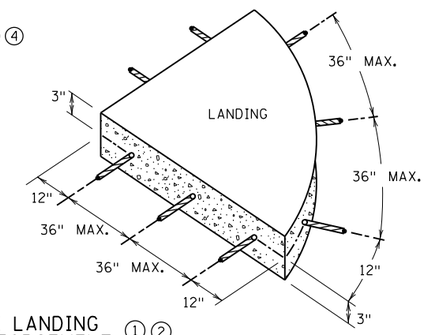




CURB AND GUTTER
REINFORCEMENT ③

CURB RAMP REINFORCEMENT DETAILS ②④





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.

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OPERATIONS DIVISION

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PEDESTRIAN CURB RAMP DETAILS

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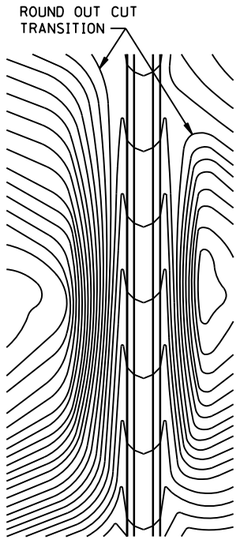
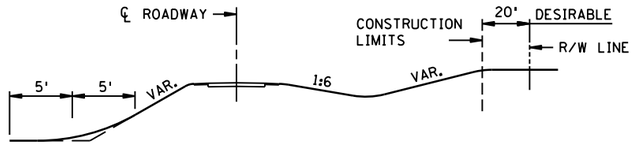
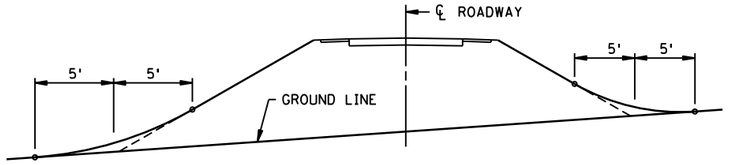


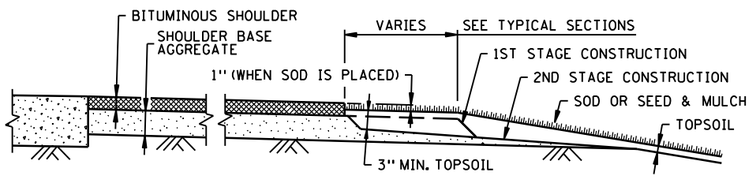
CONTOURING ROAD CUTS



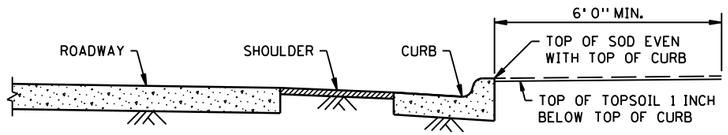
ROUNDING SHOULDERS AND BACKSLOPES



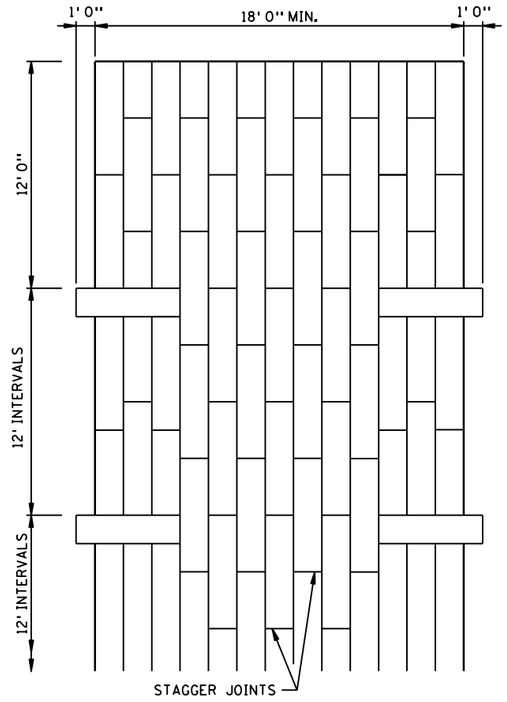
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



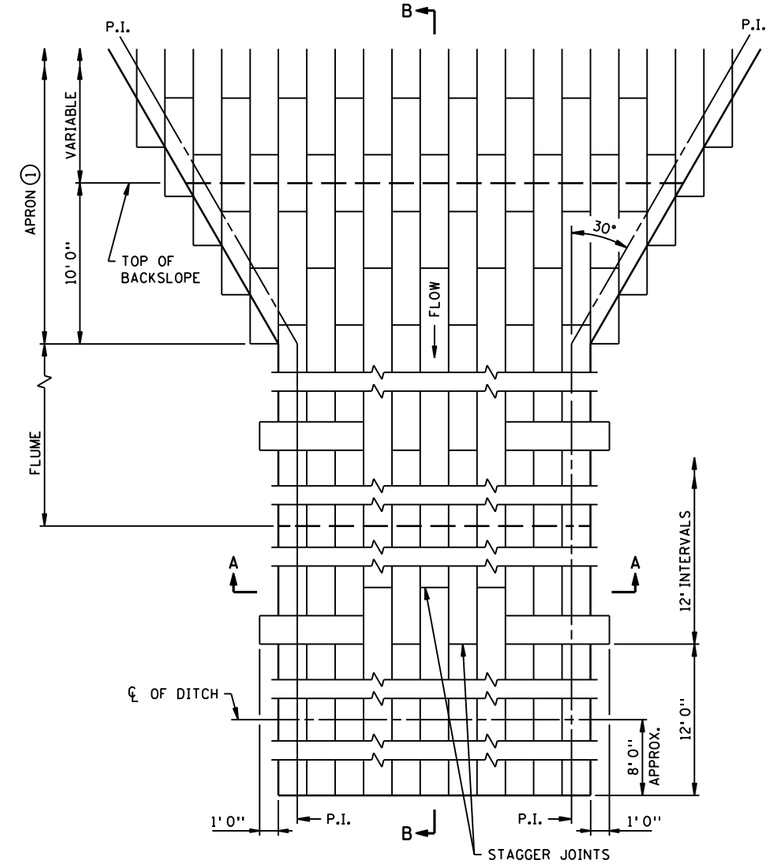
SHAPING AND TOPSOILING INSLOPES



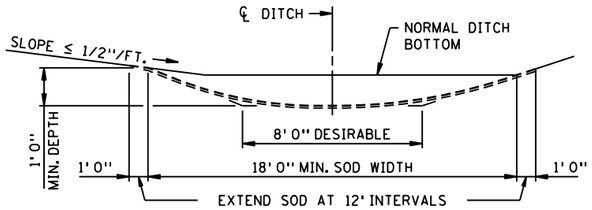
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



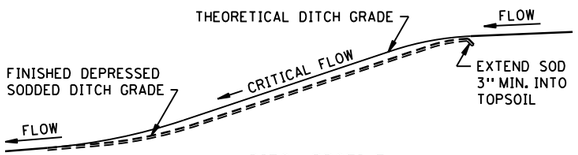
PLAN VIEW



PLAN VIEW



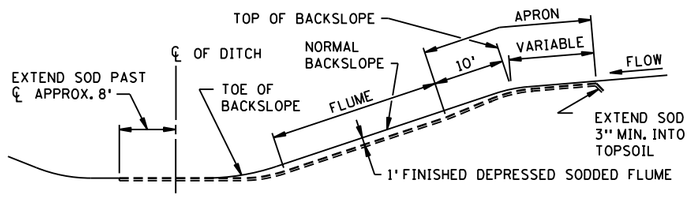
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



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

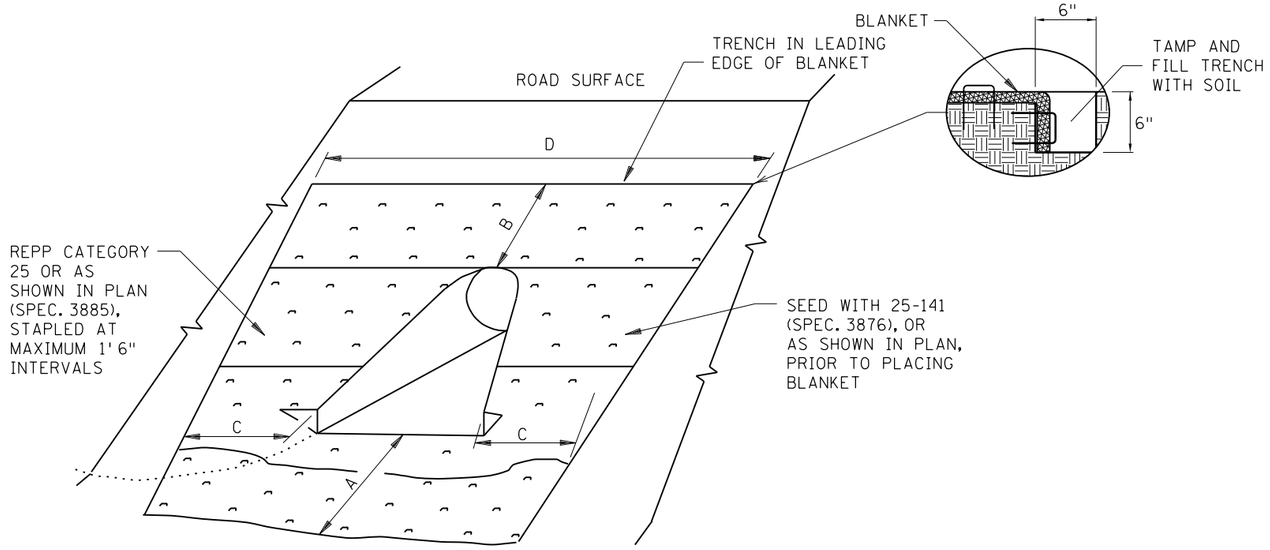
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

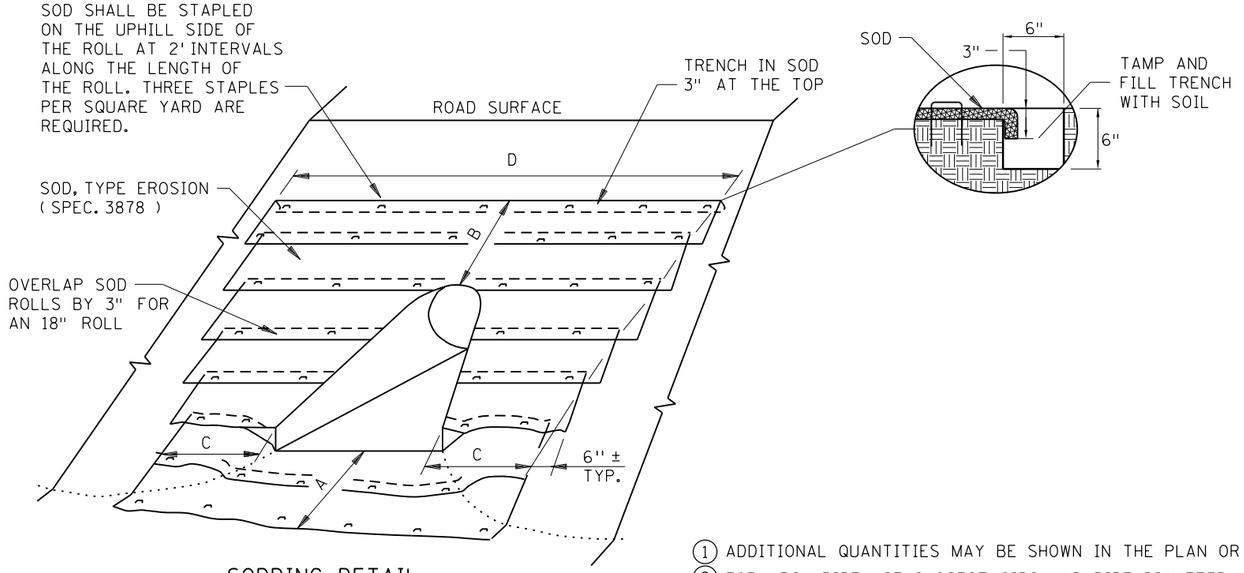
PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

SP 002-683-003, SP 199-112-009, IP 23-03



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 002-683-003, SP 199-112-009, IP 23-03

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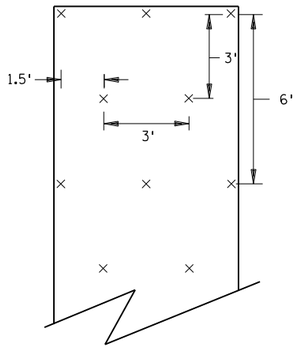
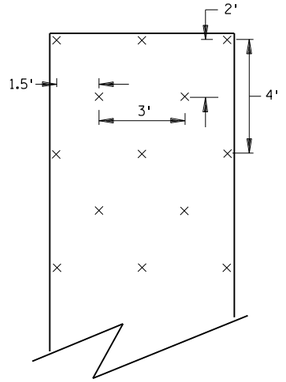
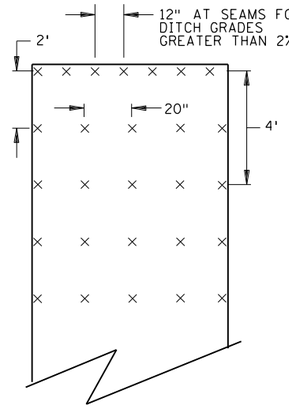


SLOPES FLATTER THAN 1:2
120 STAPLES PER 100 SQ YD

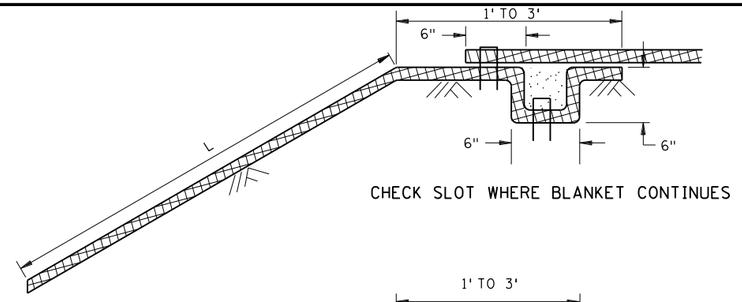


SLOPES 1:2 TO 1:1
170 STAPLES PER 100 SQ YD



CHANNEL AND DITCH APPLICATIONS
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN



CHECK SLOT REQUIREMENTS

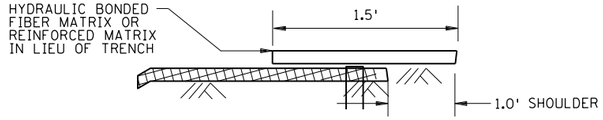
DIG 6" BY 6" TRENCH.

INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.

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

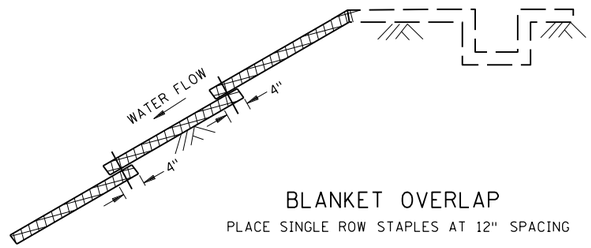
BACKFILL TRENCH WITH SOIL AND TAMP.

PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

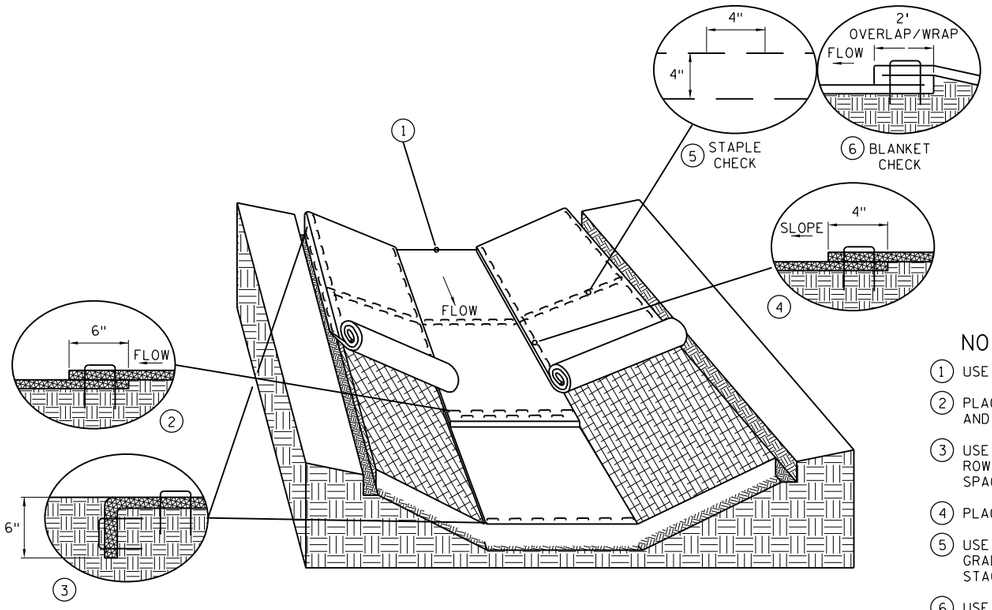


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

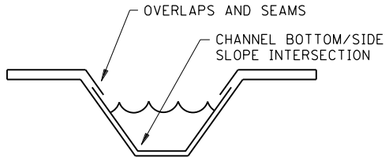
CHECK SLOT DETAILS



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 002-683-003, SP 199-112-009, IP 23-03

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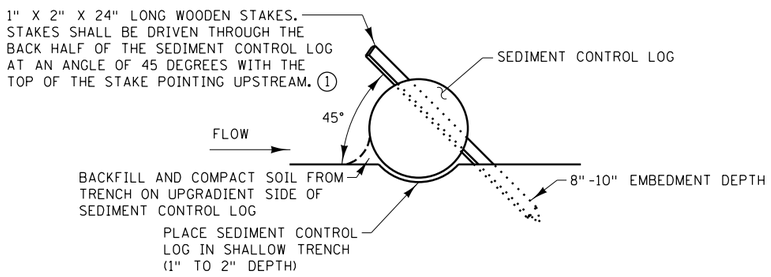
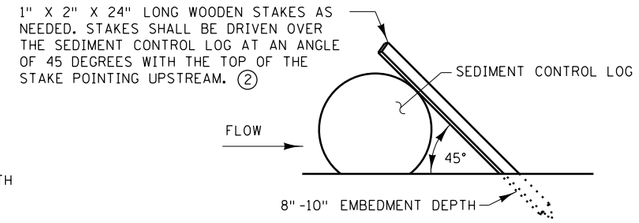
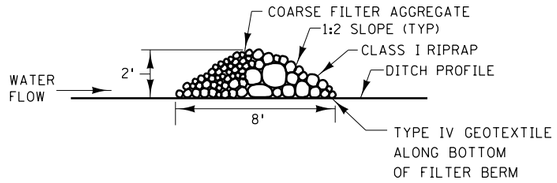


TYPES: STRAW, WOOD FIBER, OR COIR

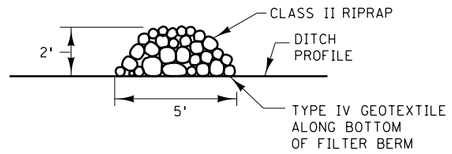


TYPES: WOOD CHIP, COMPOST, OR ROCK

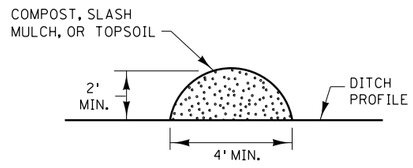
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

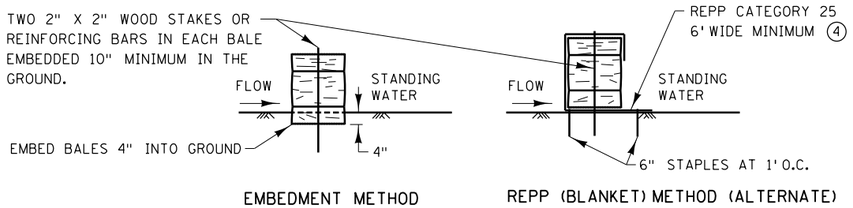


TYPE 5 (ROCK)



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 002-683-003, SP 199-112-009, IP 23-03

SHEET 33 OF 93 SHEETS

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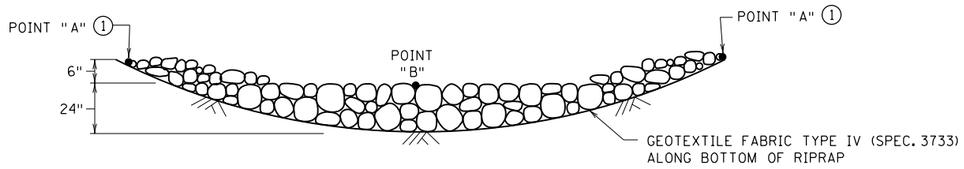
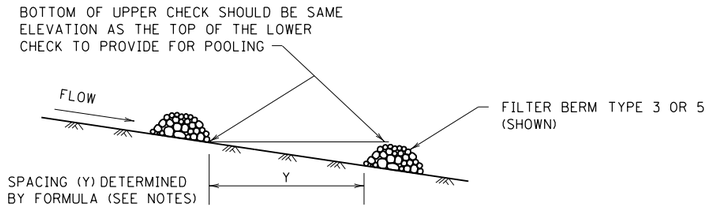
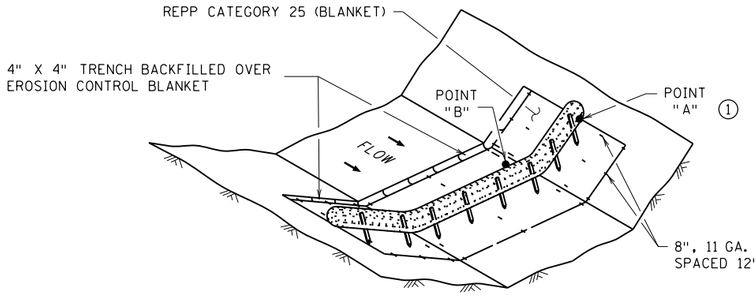
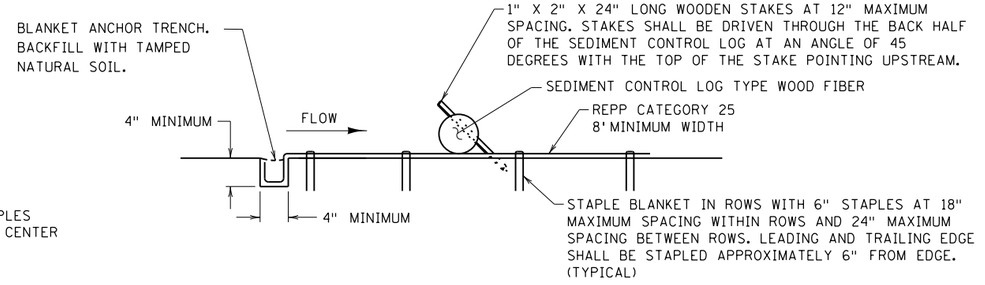


ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③
FOR USE ON ROUGH-GRADED AREAS
ONLY FOR USE OUTSIDE CLEAR ZONE ②

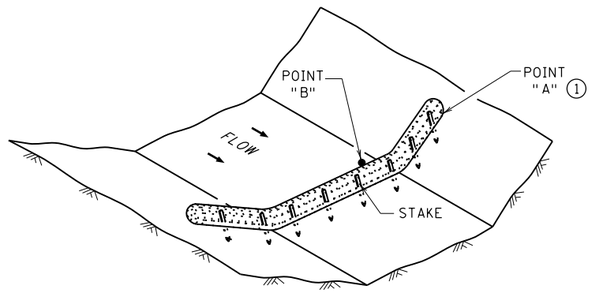


DITCH CHECK SPACING
FOR ALL FILTER BERM TYPES





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.

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APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

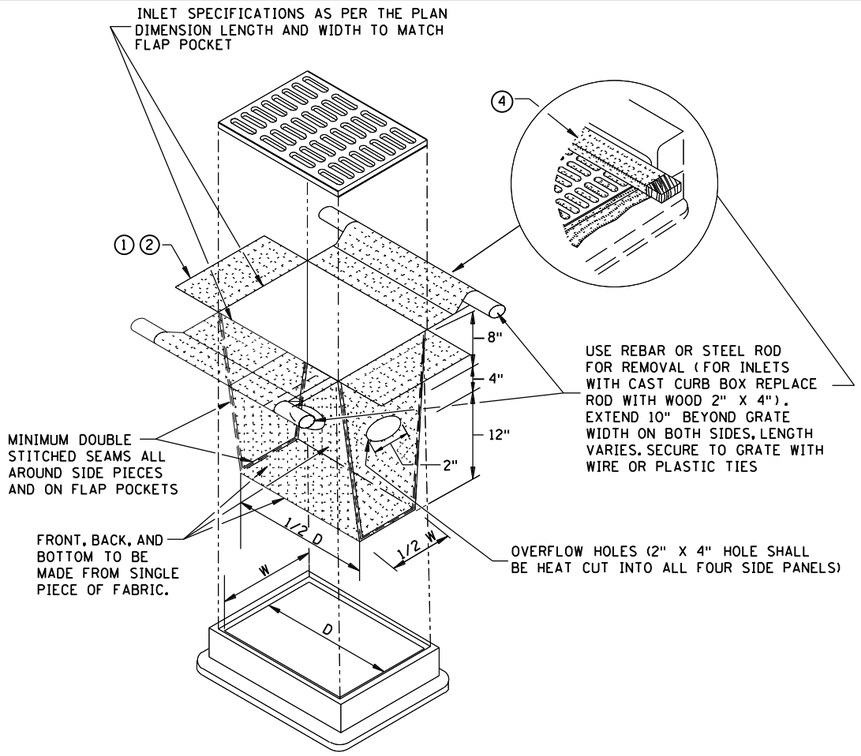
STANDARD PLAN 5-297.405 | **3 OF 8**

APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

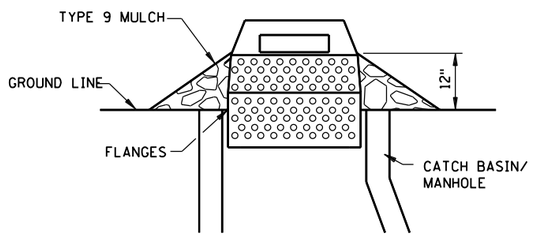
TEMPORARY SEDIMENT CONTROL
DITCH CHECK

SP 002-683-003, SP 199-112-009, IP 23-03



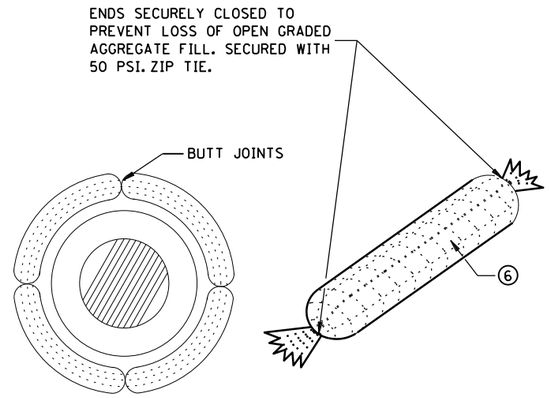
FILTER BAG INSERT ③

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

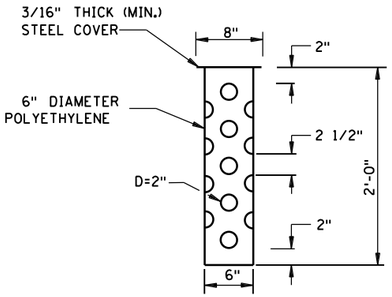


SEDIMENT CONTROL INLET HAT

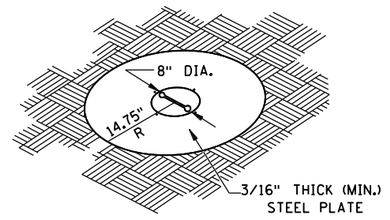
NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



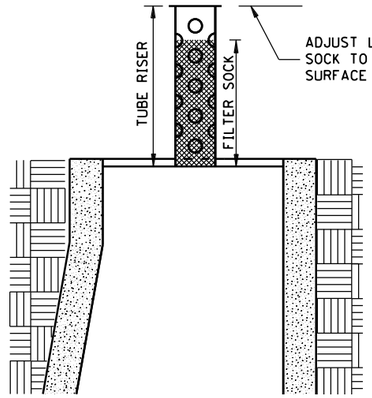
ROCK LOG/COMPOST LOG



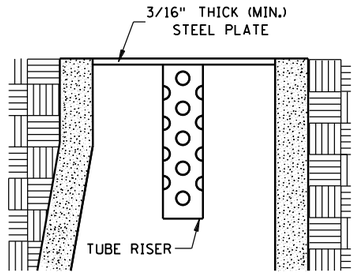
TUBE RISER



PERSPECTIVE VIEW

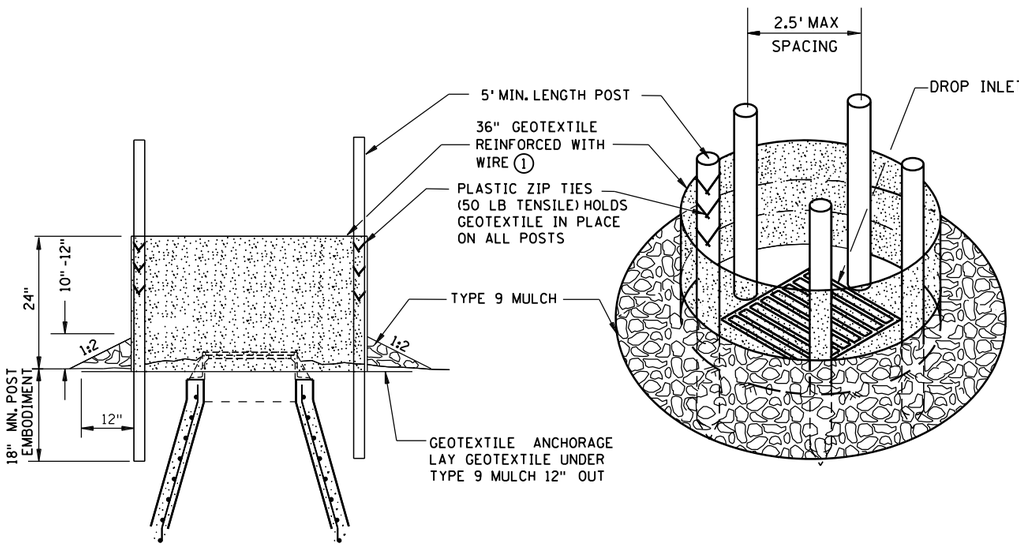


SECTION
(UP POSITION)



SECTION
(DOWN POSITION)

POP-UP HEAD



SILT FENCE RING AND ROCK FILTER BERM

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

NOTES:

SEE SPECS. 2573, 3137, & 3886.

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

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 002-683-003, SP 199-112-009, IP 23-03

SHEET 35 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:34:23 AM

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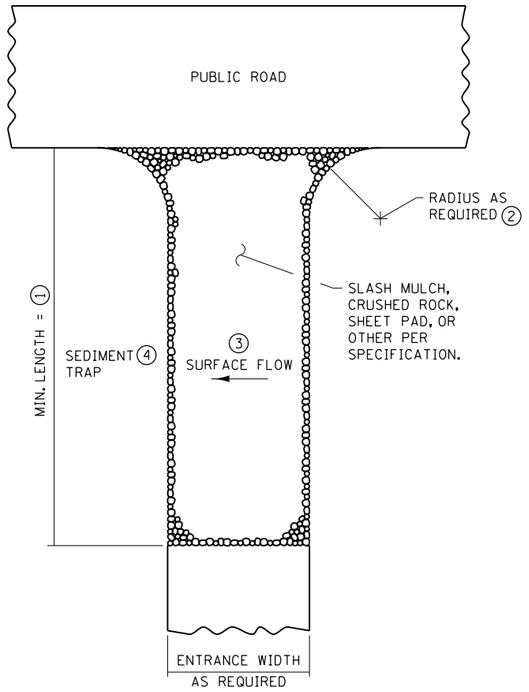
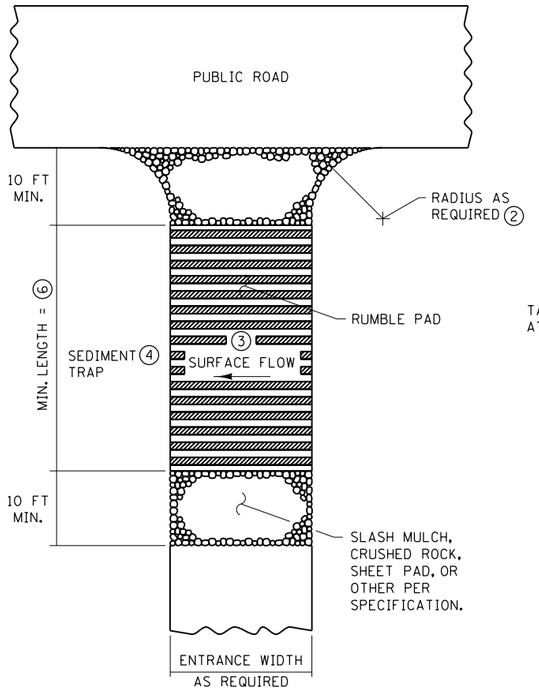
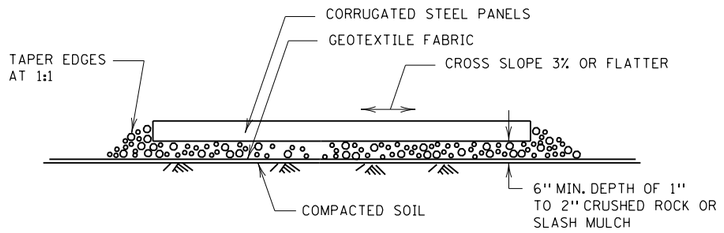


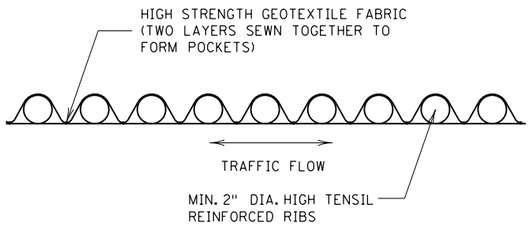
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



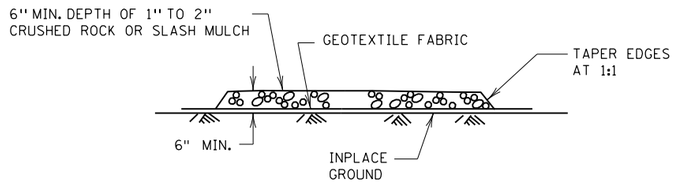
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



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.

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REVISION:

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CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 5 OF 8

APPROVED: 2-28-2017

REVISED:

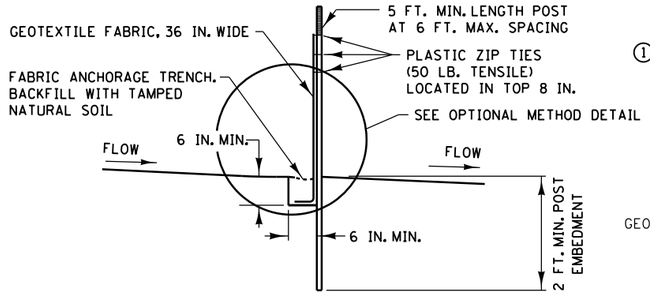
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

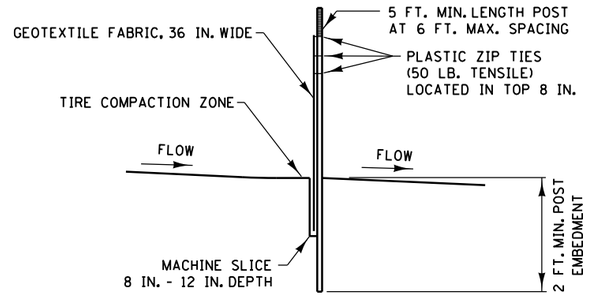
STABILIZED CONSTRUCTION EXIT

SP 002-683-003, SP 199-112-009, IP 23-03

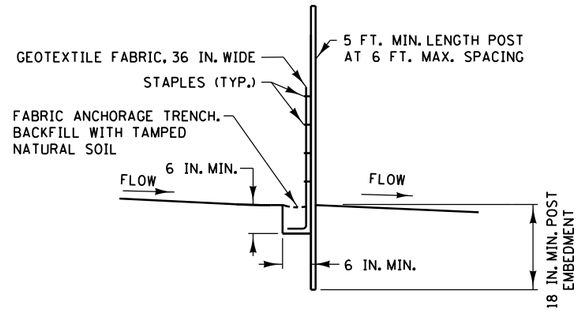
PLOTTED/REVISED: 11/23/2022 9:34:24 AM



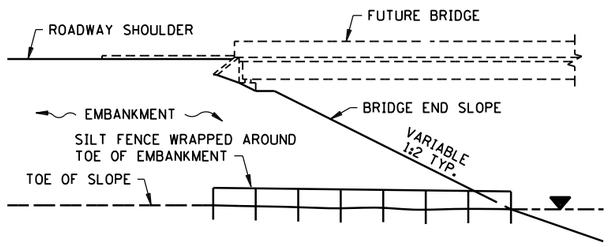
SILT FENCE TYPE HI ②
(HAND INSTALLED)



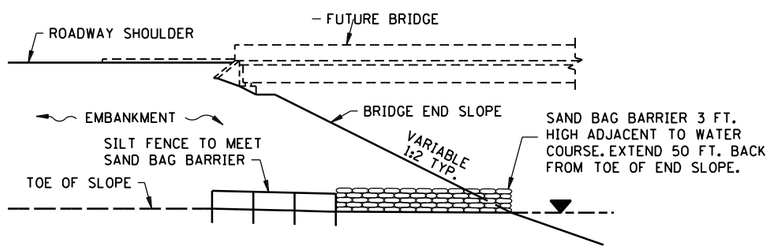
SILT FENCE TYPE MS ②
(MACHINE SLICED)



SILT FENCE TYPE PA ③
(PREASSEMBLED)

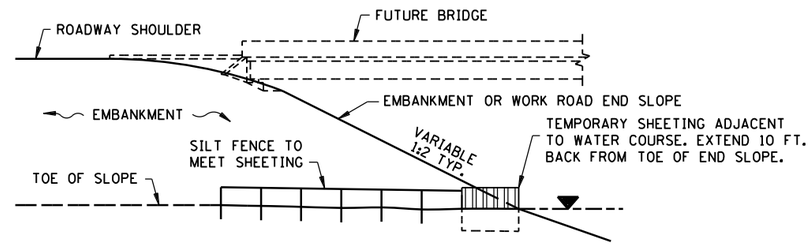


SILT FENCE ONLY ④

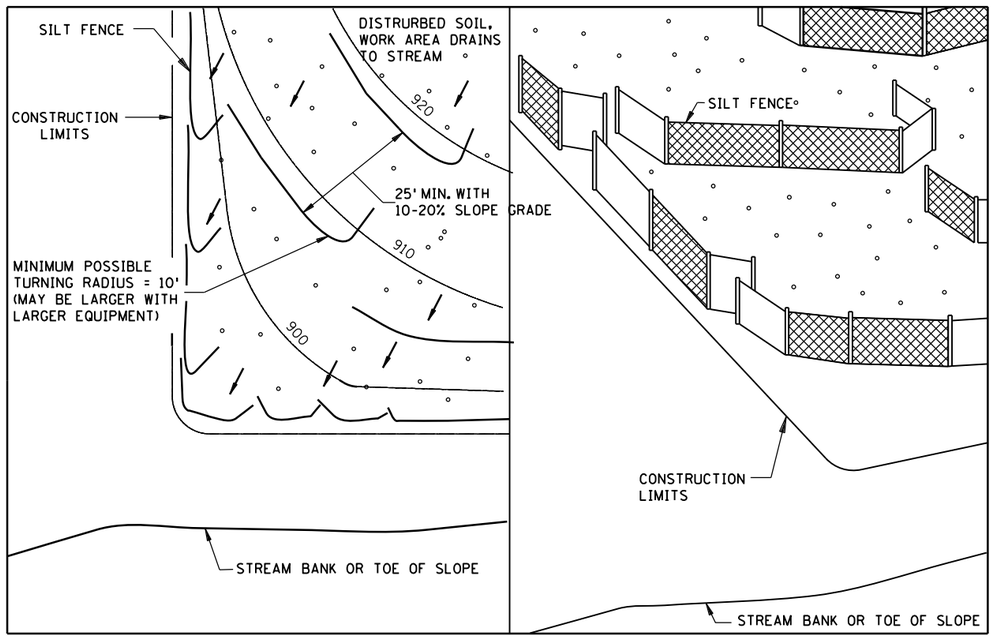


SILT FENCE WITH SAND BAGS ⑤

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER

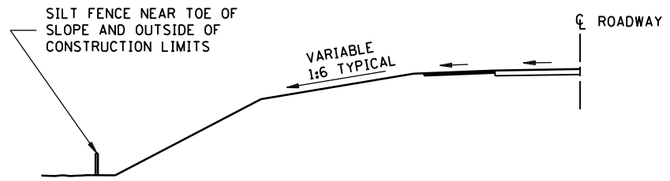


SILT FENCE WITH SHEETING ⑥



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.

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CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

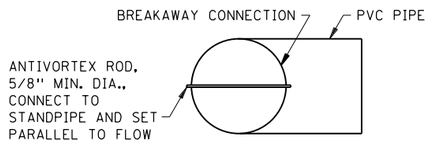
STANDARD PLAN 5-297.405 | 6 OF 8

APPROVED: 2-28-2017
REVISED:

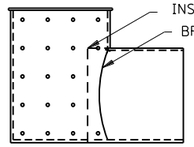
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SILT FENCE

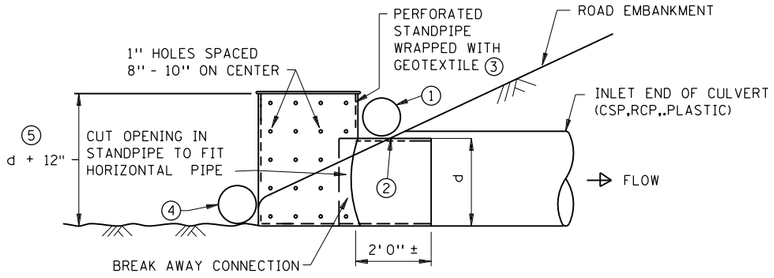
SP 002-683-003, SP 199-112-009, IP 23-03



PLAN VIEW



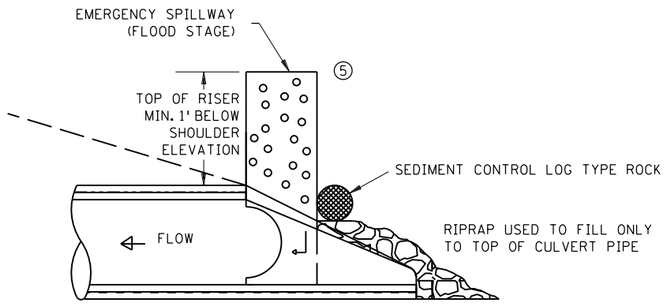
CULVERT STANDPIPE



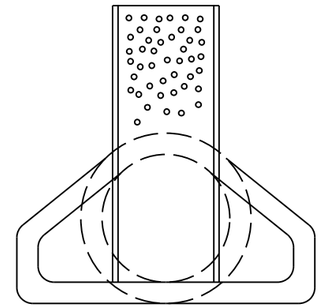
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

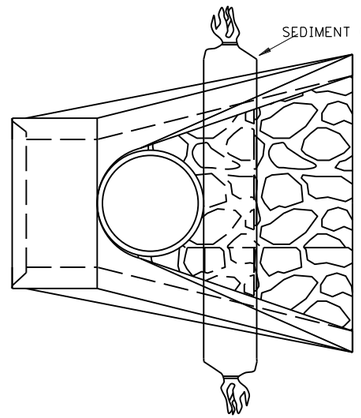
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



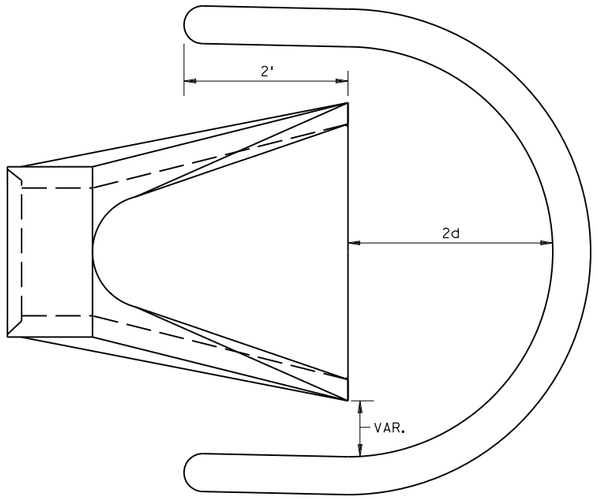
END VIEW



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

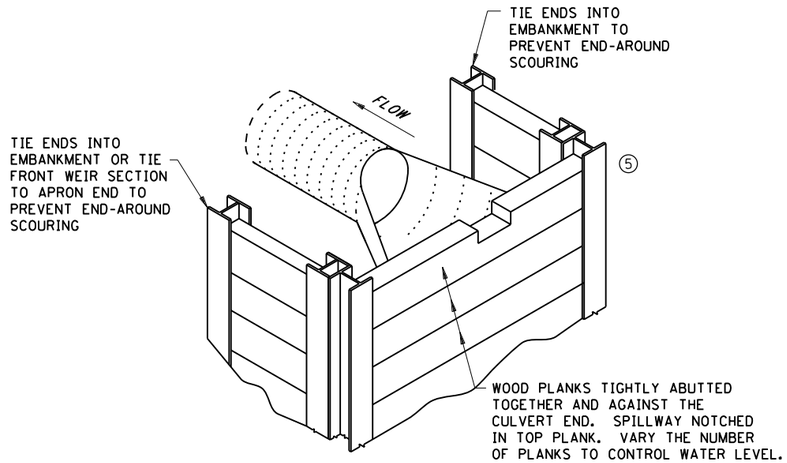
TOP VIEW

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:

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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 002-683-003, SP 199-112-009, IP 23-03

SHEET 38 OF 93 SHEETS

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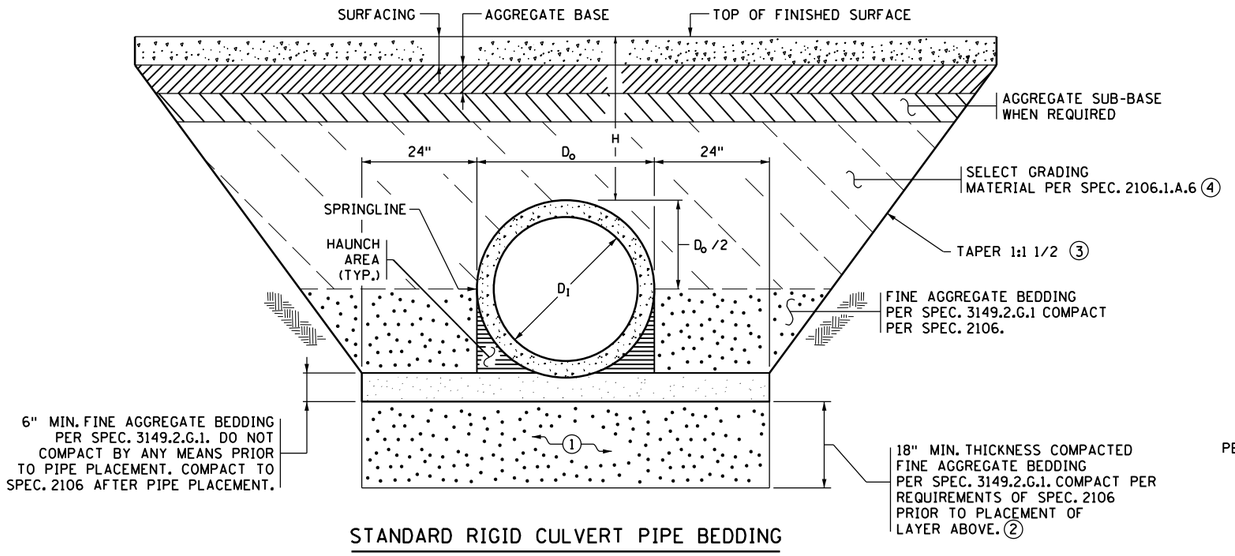
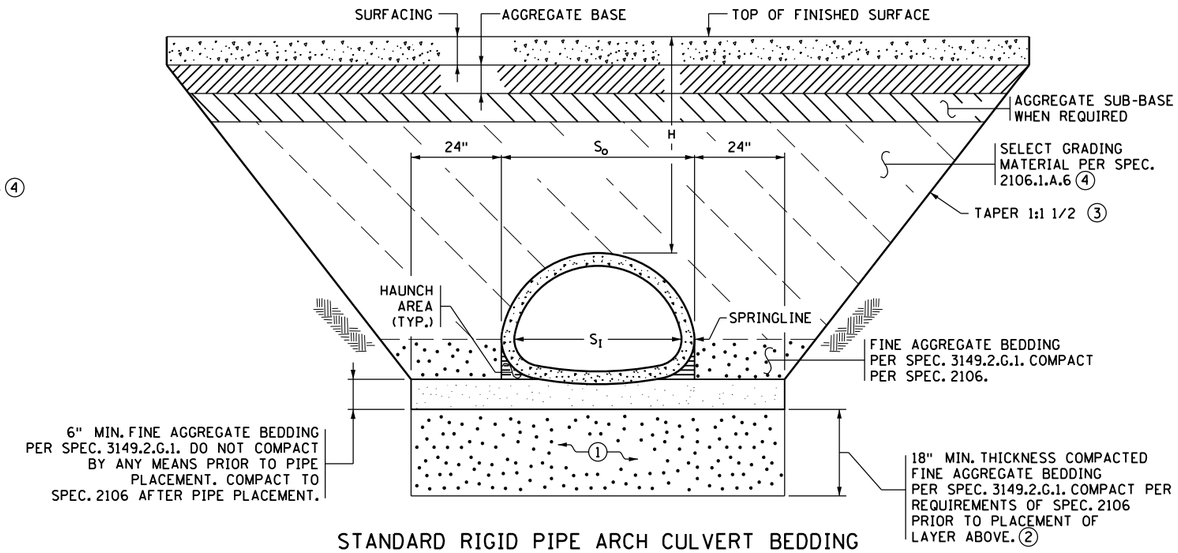


STANDARD RIGID CULVERT PIPE BEDDING



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:

Tom Sorel
STATE DESIGN ENGINEER

STANDARD CULVERT BEDDING FOR RIGID PIPE (WITHOUT TREATMENTS)

SP 002-683-003, SP 199-112-009, IP 23-03

SHEET 39 OF 93 SHEETS

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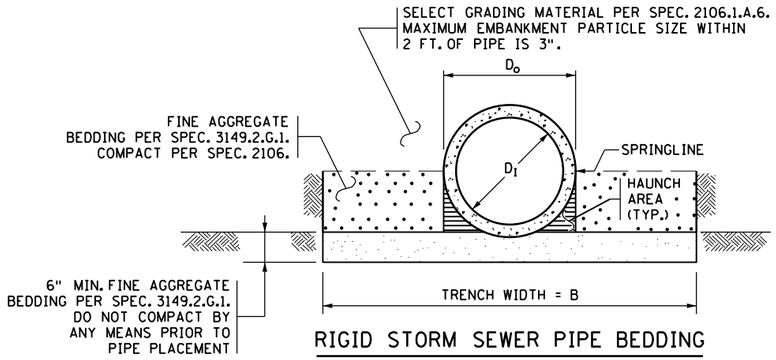
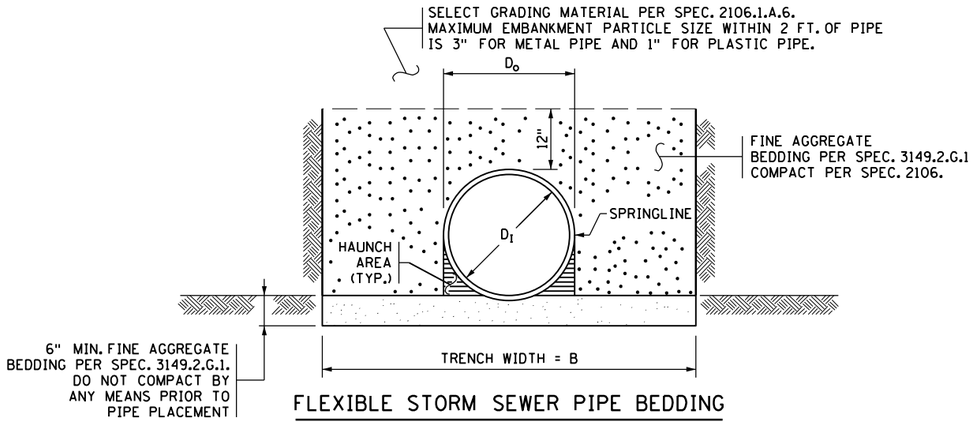


RIGID STORM SEWER PIPE BEDDING

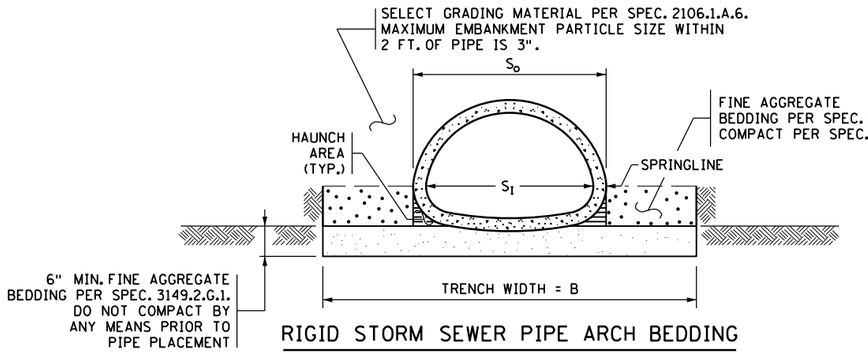
TRENCH BASE WIDTH ①②	
PIPE DIA. D_I OR S_I	TRENCH WIDTH B
< 42"	D_o + 24"
42" TO 54"	1.5 × D_o
> 54"	D_o + 36"

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

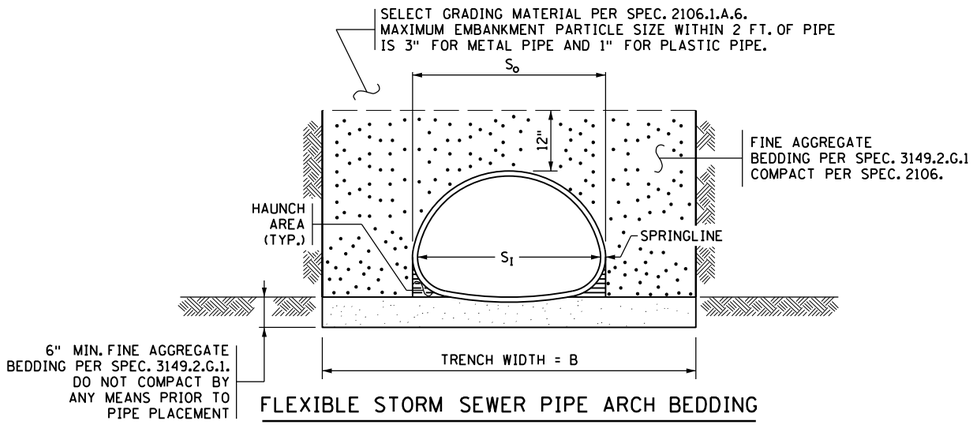
-LEGEND-

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

APPROVED: 01-18-2019
REVISED:
STATE DESIGN ENGINEER

STANDARD STORM SEWER BEDDING
FOR RIGID AND FLEXIBLE PIPE

SP 002-683-003, SP 199-112-009, IP 23-03

SHEET 40 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:34:25 AM

PATH & FILENAME: Projects\Minnesota\019344-000\Cad\Plan\19344-000_stdpln_400.dgn

PLOTTED/REVISED: 11/23/2022 9:34:38 AM

WSB PATH & FILENAME: Projects\Minnesota\093344-000\CadP\plan\93344-000_tca.dgn

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 AT THE CSAH 83 AND ALPINE DR INTERSECTION

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. ALL PAVEMENT MARKINGS IN TAPERS AND TRANSITIONS SHALL BE 6" IN WIDTH.
3. SEE 2582 IN THE SPECIAL PROVISIONS FOR PAVEMENT MARKING SPOTTING RESPONSIBILITIES.

BARRIER & DELINEATION:

1. PLACE AND MAINTAIN PORTABLE BARRIER DELINEATORS ANY TIME TRAFFIC IS WITHIN 10' OF BARRIER. DELINEATORS WILL EACH HAVE A MINIMUM OF 24 SQ IN. OF RETROREFLECTIVE SURFACE ON BOTH SIDES PLACED AT 25' SPACING ON TOP OF THE BARRIER. SIDE MOUNTED PORTABLE BARRIER DELINEATORS WILL HAVE A MINIMUM OF 12 SQ. IN. OF RETROREFLECTIVE SURFACE AREA AND BE PLACED AT 12.5' SPACING. IF A SMALLER APPROVED BARRIER DELINEATOR IS USED IT SHALL BE A MINIMUM OF 6 SQ IN. OF RETROREFLECTIVE SURFACE AREA AND BE PLACED ON BOTH SIDES AT 6.25' SPACING. TEMPORARY BARRIER DELINEATOR COLOR SHALL MATCH APPLICABLE PAVEMENT MARKING.

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.

   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

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	AREA CLOSED TO TRAFFIC / WORK AREA
	TEMPORARY BITUMINOUS PAVEMENT
	CONSTRUCTION UNDER FLAGGING
	TRAFFIC CONTROL SIGN
	TYPE III BARRICADE =
	PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
F	TYPE A FLASHING WARNING LIGHT

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TITLE SHEET

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **41** OF **93** SHEETS

STAGING AND TRAFFIC CONTROL TABULATION — G1

PAY ITEM	UNIT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	PROJECT TOTAL
TEMPORARY BARRIER	LIN FT		1475			1475
TEMP BARRIER DELINEATOR	EACH		49			49
ATTENUATORS	EACH		4			4
PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20				20
4" SOLID LINE PAINT	LIN FT YELLOW		1368	1073	888	3329
4" SOLID LINE PAINT	LIN FT WHITE		4445	4137	912	9494
4" DOUBLE SOLID LINE PAINT	LIN FT YELLOW		1695	2657	1557	5909
PAVEMENT MARKING REMOVAL	LIN FT		7508	7866	3357	18731

STAGING AND TRAFFIC CONTROL TABULATION — G2

PAY ITEM	UNIT	STAGE 0	STAGE 1	STAGE 2	STAGE 3	PROJECT TOTAL
SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT		107			107
REMOVE BITUMINOUS PAVEMENT	SQ YD			954	1769	2723
BITUMINOUS PATCHING MIXTURE	TON	139	501			640
AGGREGATE BASE CLASS 5	CU YD	151	542			693
CASTING ASSEMBLY	EACH		5			5

NOTES:
(1) THE CONTRACTOR IS RESPONSIBLE FOR ENSURING AREAS OF TRAPPED WATER ARE DISCHARGED EITHER INTO THE STORM SEWER SYSTEM OR BY PUMPING (INCIDENTAL)

TEMP EARTH WORK TABULATION — G3

	EXCAVATION		EMBANKMENT	
	TOPSOIL	COMMON	TOPSOIL	COMMON
STA. - STA.	CU YD	CU YD	CU YD	CU YD
WIDENING SOUTH				
301+50 - 302+00	25	3	2	26
302+00 - 302+50	26	3	4	38
302+50 - 303+00	29	6	6	61
303+00 - 303+50	29	11	7	65
303+50 - 304+00	27	17	4	39
304+00 - 304+50	25	22	2	16
304+50 - 305+00	25	15	1	11
305+00 - 305+50	25	9	2	6
305+50 - 306+00	24	7	2	5
SUBTOTAL	235	93	30	267
WIDENING NORTH				
308+00 - 308+50	19	2	8	37
308+50 - 309+00	18	2	7	35
309+00 - 309+50	18	1	7	31
309+50 - 310+00	18	1	7	33
310+00 - 310+50	16	2	5	15
310+50 - 311+00	16	2	5	21
311+00 - 311+50	20	1	9	45
311+50 - 312+00	20	1	9	50
312+00 - 312+50	20	1	9	45
312+50 - 313+00	20	1	9	45
SUBTOTAL	185	14	75	357
TOTAL	199		432	

NO.	DATE	BY	CHK	REVISIONS
1	2023/02/10	AJF	AJP	ADDENDUM 2: UPDATE TEMPORARY PAVEMENT PAYMENT AND QUANTITIES.

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

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PRINT NAME: ANDREW J. FLOWMAN

DATE 2/9/2023 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TRAFFIC AND STAGING PAY ITEM TABULATION

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **42R** OF **93** SHEETS

"M" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)	ASSEMBLY (IN. X IN.) (W×H)	NUMBER OF POST
DETOUR	M4-8	BLACK ON ORANGE	24 x 12	24 x 57	1
EAST / WEST	M3-2 / M3-4	WHITE ON BLUE	24 x 12		
Alpine Dr	SPECIAL SIGN Ⓑ	BLACK ON ORANGE	18 x 18		
	M5-1 / M6-1	BLACK ON WHITE	21 x 15		
DETOUR	M4-8	BLACK ON ORANGE	24 x 12	24 x 45	1
Alpine Dr	SPECIAL SIGN Ⓑ	BLACK ON ORANGE	18 x 18		
	M5-1 / M6-1 / M6-3	BLACK ON WHITE	21 x 15		
END DETOUR	M4-8a	BLACK ON ORANGE	24 x 18	24 x 36	1
Alpine Dr	SPECIAL SIGN Ⓑ	BLACK ON ORANGE	18 x 18		

"R" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)	ASSEMBLY (IN. X IN.) (W×H)	NUMBER OF POST
	R3-1	BLACK AND RED ON WHITE	24 x 24	24 x 24	1
	R4-7	BLACK ON WHITE	24 x 30	24 x 30	1
NO TURNS	R4-7	BLACK ON WHITE	24 x 24	24 x 24	1

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
DETOUR	M4-10R/L	BLACK ON ORANGE	48/18

"W" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (W×H)	ASSEMBLY (IN. X IN.) (W×H)	NUMBER OF POST
Alpine Dr	SPECIAL SIGN Ⓑ	BLACK ON ORANGE	18 x 18	48 x 66	1
DETOUR AHEAD / ROAD CLOSED AHEAD	W20-2	BLACK ON ORANGE	48 x 48		
	W20-3	BLACK ON ORANGE	48 x 48		
ROAD CLOSED AHEAD / XX FEET / XX MILE	W20-3	BLACK ON ORANGE	48 x 48	48 x 72	1
	W16-2P / W16-3P	BLACK ON ORANGE	30 x 24		
LANES NARROW / ROAD WORK AHEAD / XX FEET	W20-X17 / W20-1	BLACK ON ORANGE	48 x 48	48 x 72	1
	W16-2P	BLACK ON ORANGE	30 x 24		
XX M.P.H.	W1-4	BLACK ON ORANGE	36 x 36	36 x 60	1
	W13-1P	BLACK ON ORANGE	24 x 24		
NO SHOULDER	W8-23	BLACK ON YELLOW	48 x 48	48 x 48	1
DETOUR AHEAD	W20-2	BLACK ON ORANGE	48 x 48	48 x 48	1
NO PASSING ZONE	W14-3	BLACK ON YELLOW	64x64x48	64x64x48	1

"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 TO BEGINS	G20-X2 Ⓑ	BLACK ON ORANGE	96 x 84	96 x 84	2	48

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

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

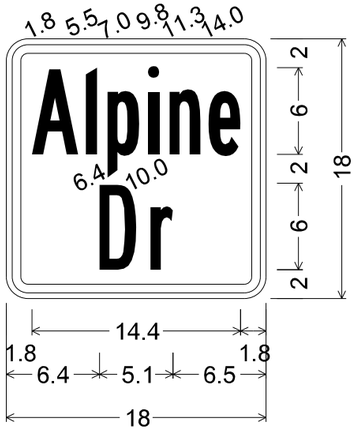
ANOKA COUNTY, MINNESOTA

SIGN TABULATION

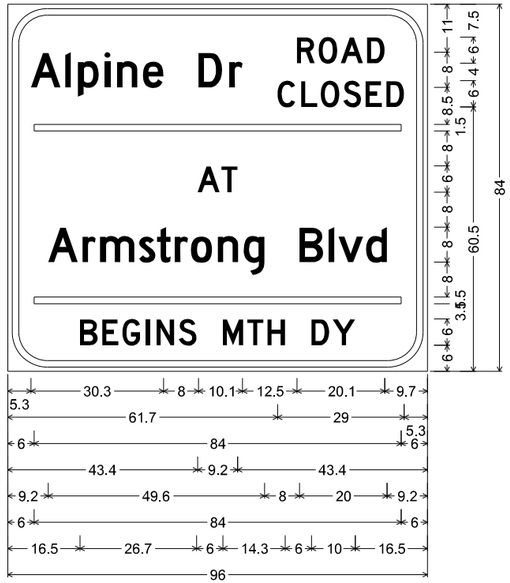
TEMPORARY TRAFFIC CONTROL PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

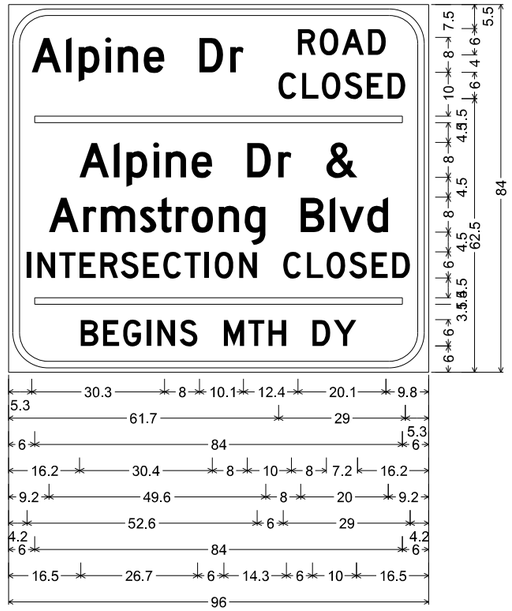
SHEET 43 OF 93 SHEETS



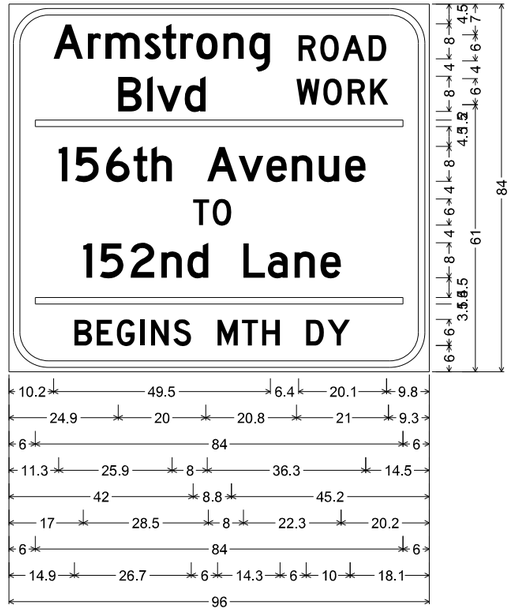
1.5" Radius, 0.6" Border, 0.4" Indent, Black on, Orange;
"Alpine", B 2K 75% spacing;
"Dr", B 2K;



ALPINE DR ROAD CLOSED;
9.0" Radius, 1.5" Border, 1.0" Indent, Black on, Orange;
"Alpine Dr", D 2K; "ROAD", D 2K; "CLOSED", D 2K;
"AT", D 2K; "Armstrong Blvd", D 2K;
"BEGINS MTH DY", D 2K;

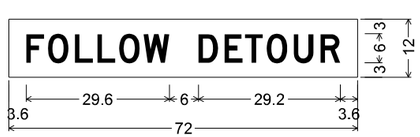


ALPINE DR ROAD CLOSED;
9.0" Radius, 1.5" Border, 1.0" Indent, Black on, Orange;
"Alpine Dr", D 2K; "ROAD", D 2K; "CLOSED", D 2K;
"Alpine Dr &", D 2K; "Armstrong Blvd", D 2K;
"INTERSECTION CLOSED", D 2K;
"BEGINS MTH DY", D 2K;



ARMSTRONG BLVD ROAD WORK;
9.0" Radius, 1.5" Border, 1.0" Indent, Black on, Orange;
"Armstrong", D 2K; "Blvd", D 2K; "ROAD", D 2K;
"WORK", D 2K; "156th Avenue", D 2K; "TO", D 2K;
"152nd Lane", D 2K; "BEGINS MTH DY", D 2K;

ARMSTRONG BLVD ROAD WORK;
9.0" Radius, 1.5" Border, 1.0" Indent, Black on, Orange;
"Armstrong", D 2K; "Blvd", D 2K; "ROAD", D 2K;
"WORK", D 2K; "152nd Lane", D 2K; "TO", D 2K;
"156th Avenue", D 2K; "BEGINS MTH DY", D 2K;



No border, Black on, Orange;
"FOLLOW DETOUR" Black, D 2K;

ALL SIGN DIMENSIONS ARE IN INCHES.

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

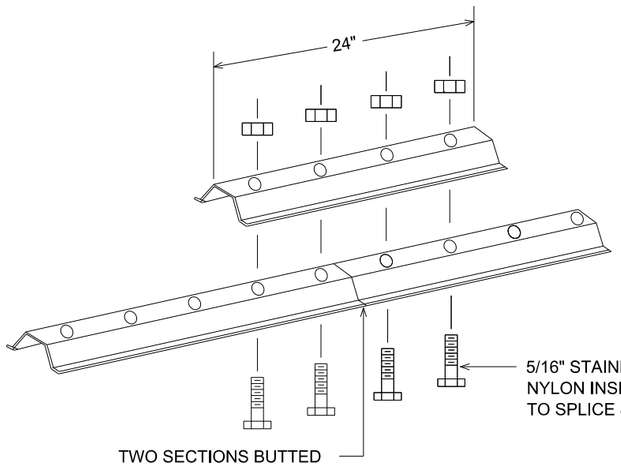
ANOKA COUNTY

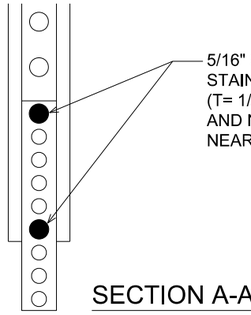
CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
SPECIAL SIGN DETAILS
TEMPORARY TRAFFIC CONTROL PLAN
SP 002-683-006, SP 199-112-009, IP 23-03

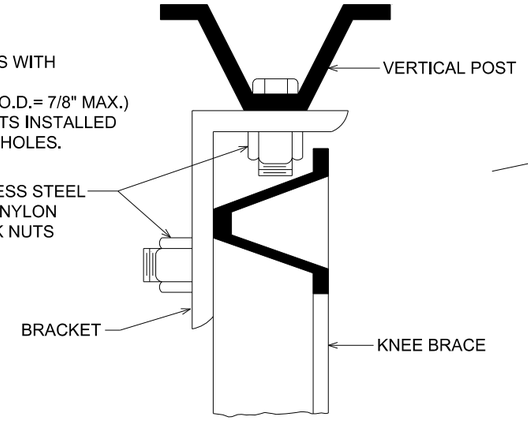
SHEET 44 OF 93 SHEETS

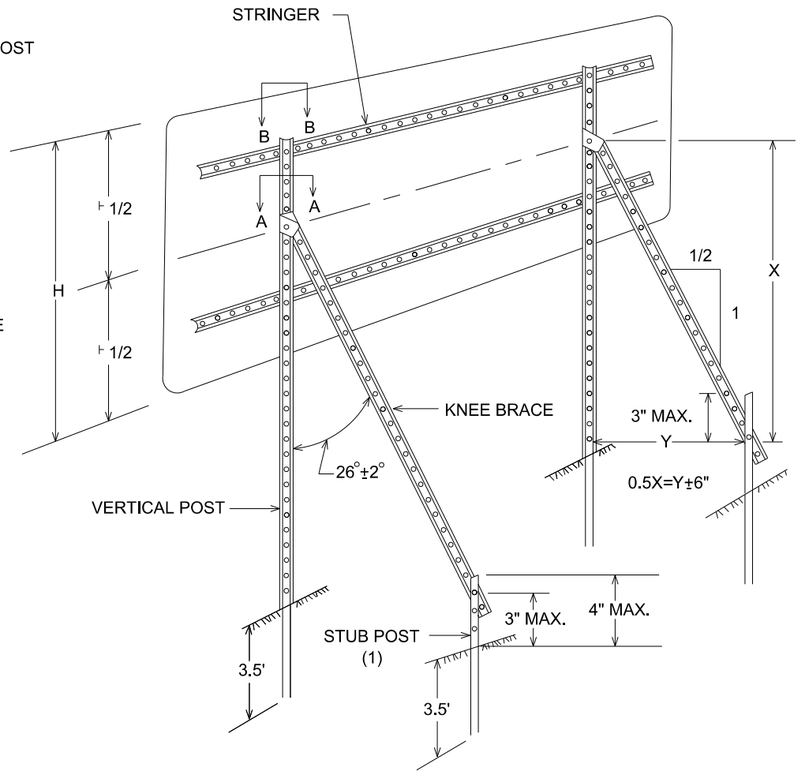
PLOTTED/REVISED: 11/23/2022 9:34:40 AM





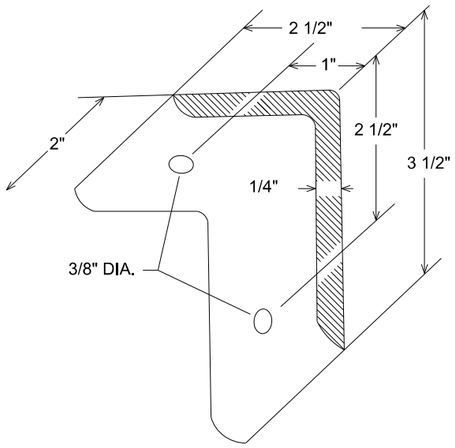
SECTION A-A





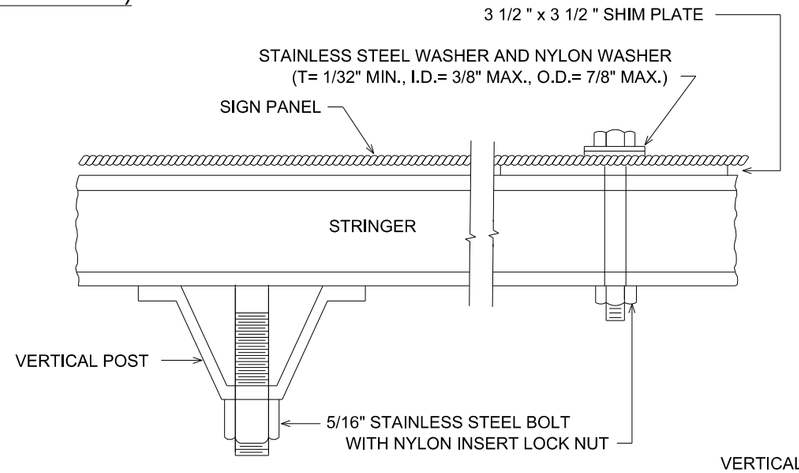
TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)

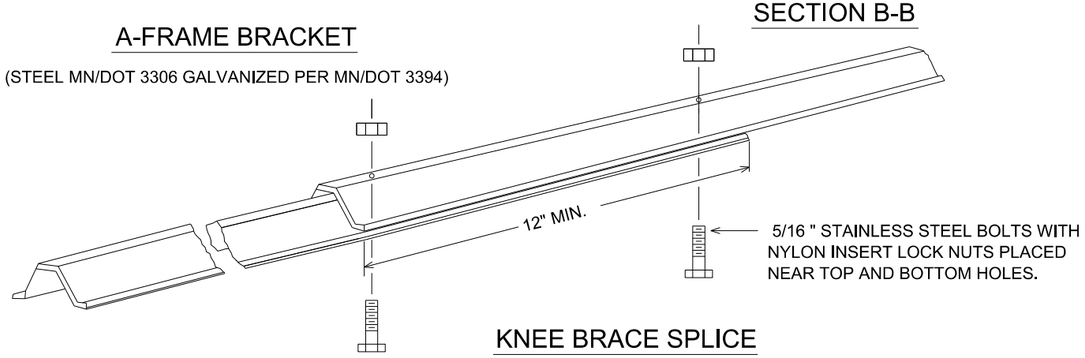


A-FRAME BRACKET

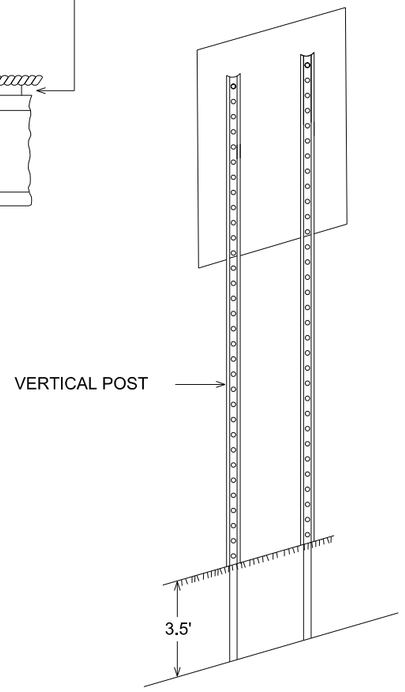
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



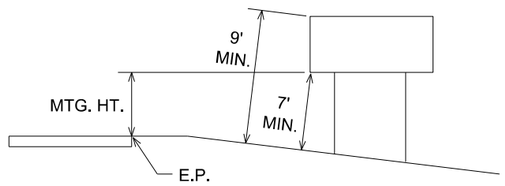
SECTION B-B



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: 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. PLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

DETAILS

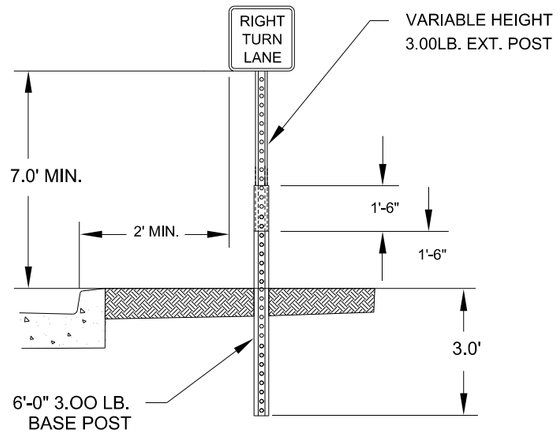
TEMPORARY TRAFFIC CONTROL PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

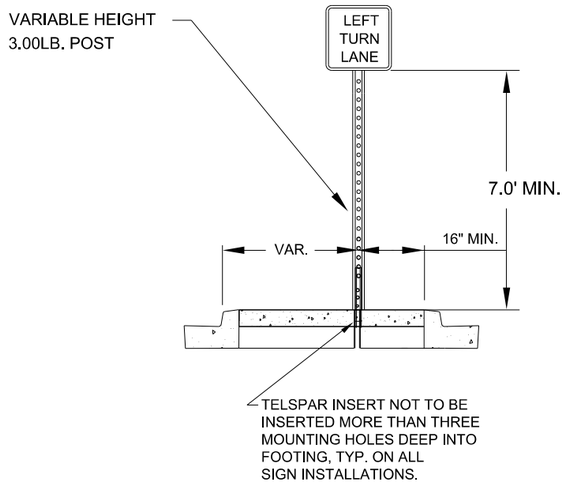
SHEET 45 OF 93 SHEETS

WSB PATH & FILENAME: Projects\Minnesota\0\93344-000\Cad\Plan\93344-000_tcadgn

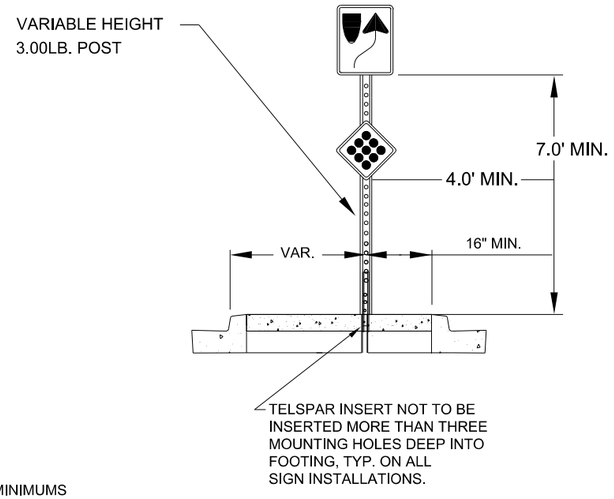
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



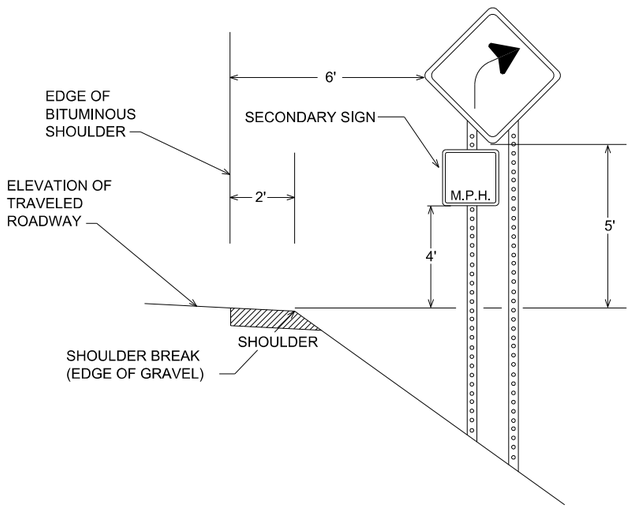
ISLAND MOUNT BREAK-AWAY SIGN SIGN INSTALLATION TYPICAL KEEP RIGHT/CLUSTER



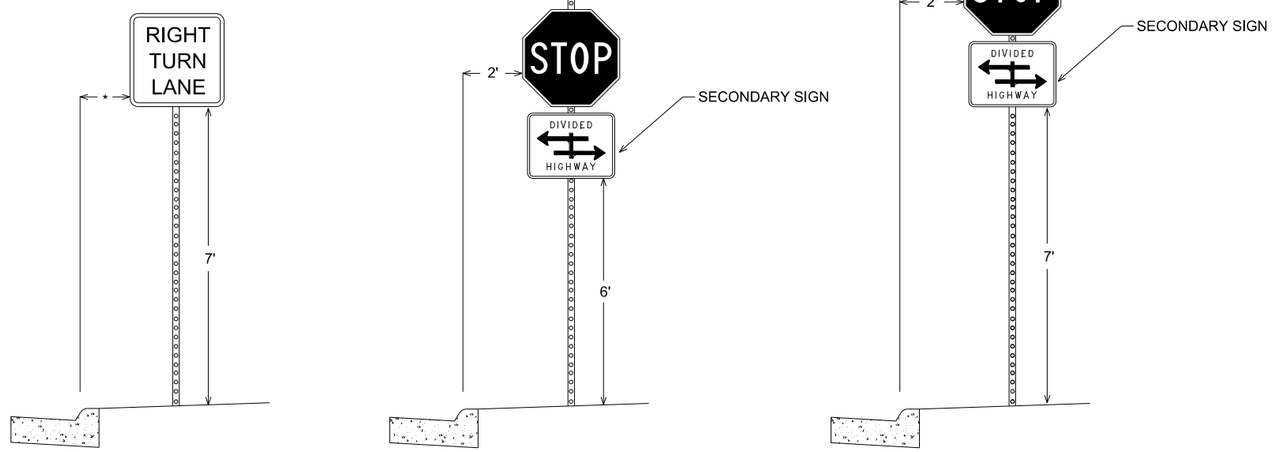
NOTES:

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

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DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

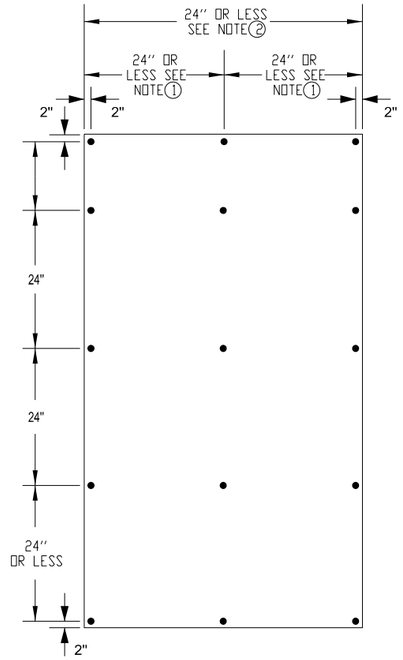
DETAILS

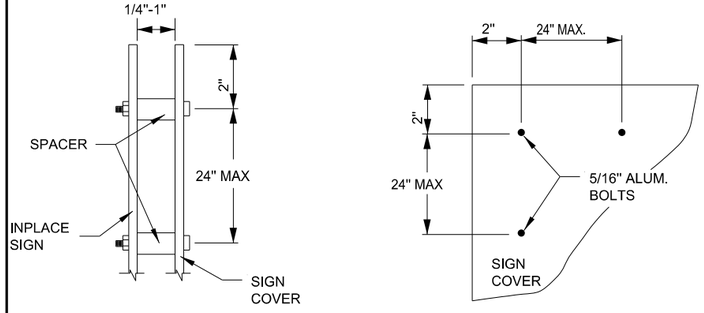
TEMPORARY TRAFFIC CONTROL PLAN

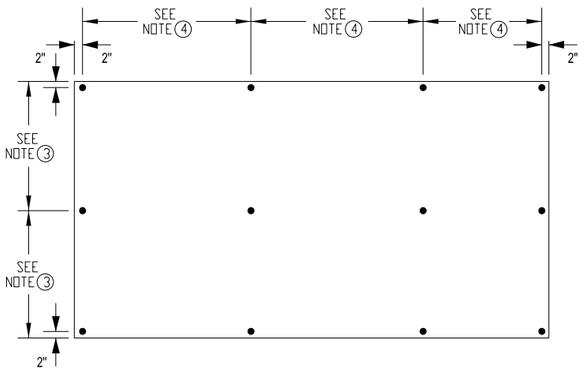
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **46** OF **93** SHEETS

PLOTTED/REVISED: 11/23/2022 9:34:40 AM







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.

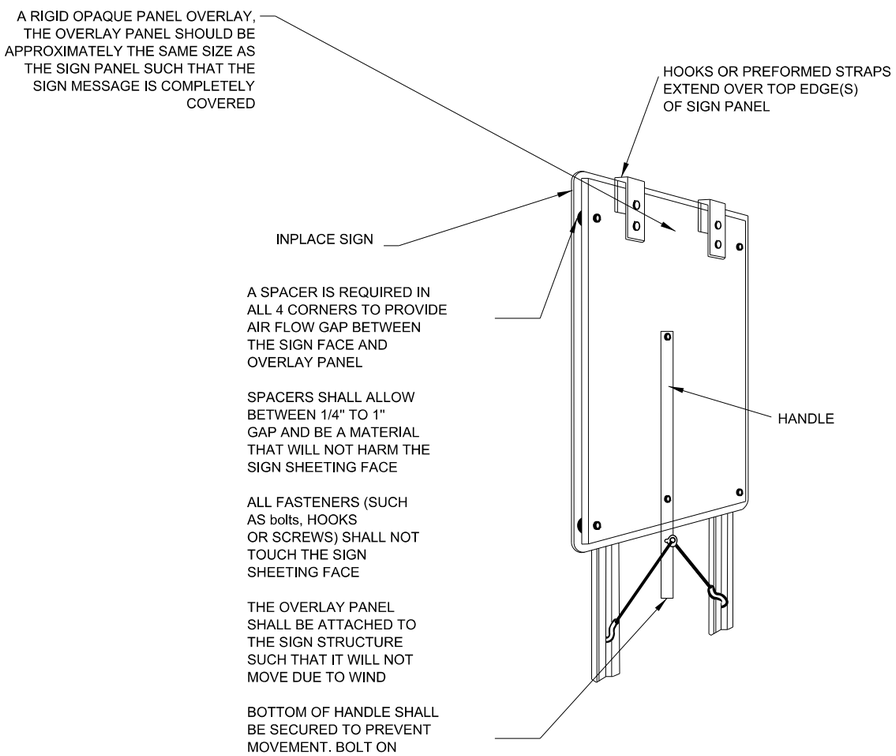
SPACERS SHALL BE A MATERIAL THAT WILL NOT HARM THE SIGN SHEETING FACE (SUCH AS PLASTIC OR RUBBER).

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

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PRINT NAME: ANDREW J. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

DETAILS

TEMPORARY TRAFFIC CONTROL PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **47** OF **93** SHEETS

WSB PATH & FILENAME: P:\Projects\Minnesota\0\9344-000\Cad\Plan\9344-000_tca.dgn

PLOTTED/REVISED: 11/23/2022 9:34:52 AM

WSB PATH & FILENAME: Projects\Minnesota\093440000\Cad\Plan\93440000_tcf_detour.dgn

PLACE IN ADVANCE OF WARNING SIGNS 7 DAYS PRIOR TO CLOSURE

Alpine Dr ROAD CLOSED AT Armstrong Blvd BEGINS MTH DY FOLLOW DETOUR

ROAD CLOSED AHEAD 0.5 MILE

DETOUR AHEAD

ROAD CLOSED AHEAD 500 FEET

ROAD CLOSED TO THRU TRAFFIC

END DETOUR Alpine Dr

ROAD CLOSED BEGINNING MONTH DY

PLACE 7 DAYS PRIOR TO CLOSURE

CSAH 83 ROAD WORK BEGINS <DATE>

PLACE 7 DAYS IN ADVANCE OF CLOSURE

CSAH 83 OPEN TO NORTH AND SOUTHBOUND TRAFFIC DURING CONSTRUCTION

ROAD CLOSED

PLACE IN ADVANCE OF WARNING SIGNS 7 DAYS PRIOR TO ROAD WORK

Armstrong ROAD Blvd WORK 152nd Lane TO 156th Avenue BEGINS MTH DY

PLACE 7 DAYS IN ADVANCE OF CLOSURE

Alpine Dr ROAD CLOSED Alpine Dr & Armstrong Blvd INTERSECTION CLOSED BEGINS MTH DY FOLLOW DETOUR

DETOUR Alpine Dr

DETOUR WEST Alpine Dr DETOUR EAST Alpine Dr

ROAD CLOSED AHEAD

DETOUR AHEAD

Armstrong ROAD Blvd WORK 152nd Lane TO 156th Avenue BEGINS MTH DY

PLACE IN ADVANCE OF WARNING SIGNS 7 DAYS PRIOR TO ROAD WORK

Alpine Dr ROAD CLOSED AT Armstrong Blvd BEGINS MTH DY FOLLOW DETOUR

PLACE IN ADVANCE OF WARNING SIGNS 7 DAYS PRIOR TO CLOSURE

Alpine Dr ROAD CLOSED Alpine Dr & Armstrong Blvd INTERSECTION CLOSED BEGINS MTH DY FOLLOW DETOUR

PLACE IN ADVANCE OF WARNING SIGNS 7 DAYS PRIOR TO CLOSURE

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

- AREA CLOSED TO TRAFFIC / WORK AREA
- DETOUR
- TYPE III BARRICADE =
- TYPE A FLASHING WARNING LIGHT

SCALE IN FEET 0 400 800

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALPINE DRIVE DETOUR

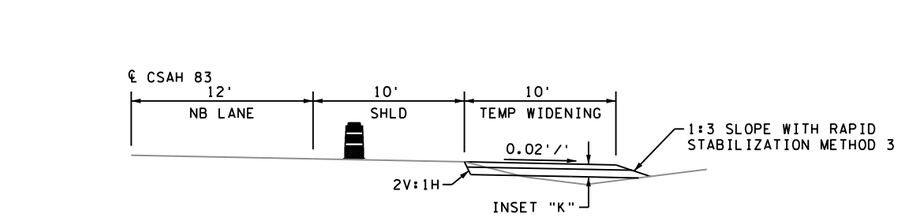
TEMPORARY TRAFFIC CONTROL PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

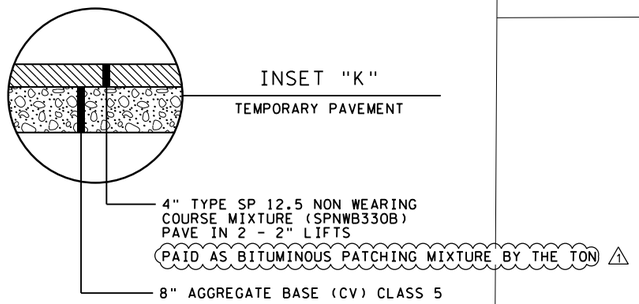
SHEET 48 OF 93 SHEETS

PLOTTED/REVISED: 2/9/2023 4:55:59 PM

WSB PATH & FILENAME: P:\Projects\Minnesota\09344-000\Cad\Plan\9344-000_tc000.dgn



TEMPORARY WIDENING TYPICAL SECTION



SCALE IN FEET
0 50 100

NARRATIVE: STAGE 0

CONSTRUCTION:
- CONSTRUCT TEMPORARY WIDENING NORTH OF ALPINE DRIVE

TRAFFIC:
- MAINTAIN NORMAL TRAFFIC PATTERNS
- ACCESS TO RESIDENTS SHALL BE MAINTAINED AT ALL TIMES

NO.	DATE	BY	CHK	REVISIONS
1	2023/02/10	AJF	AJP	ADDENDUM 2: UPDATE TEMPORARY PAVEMENT PAYMENT AND QUANTITIES.

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. FLOWMAN

DATE 2/9/2023 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

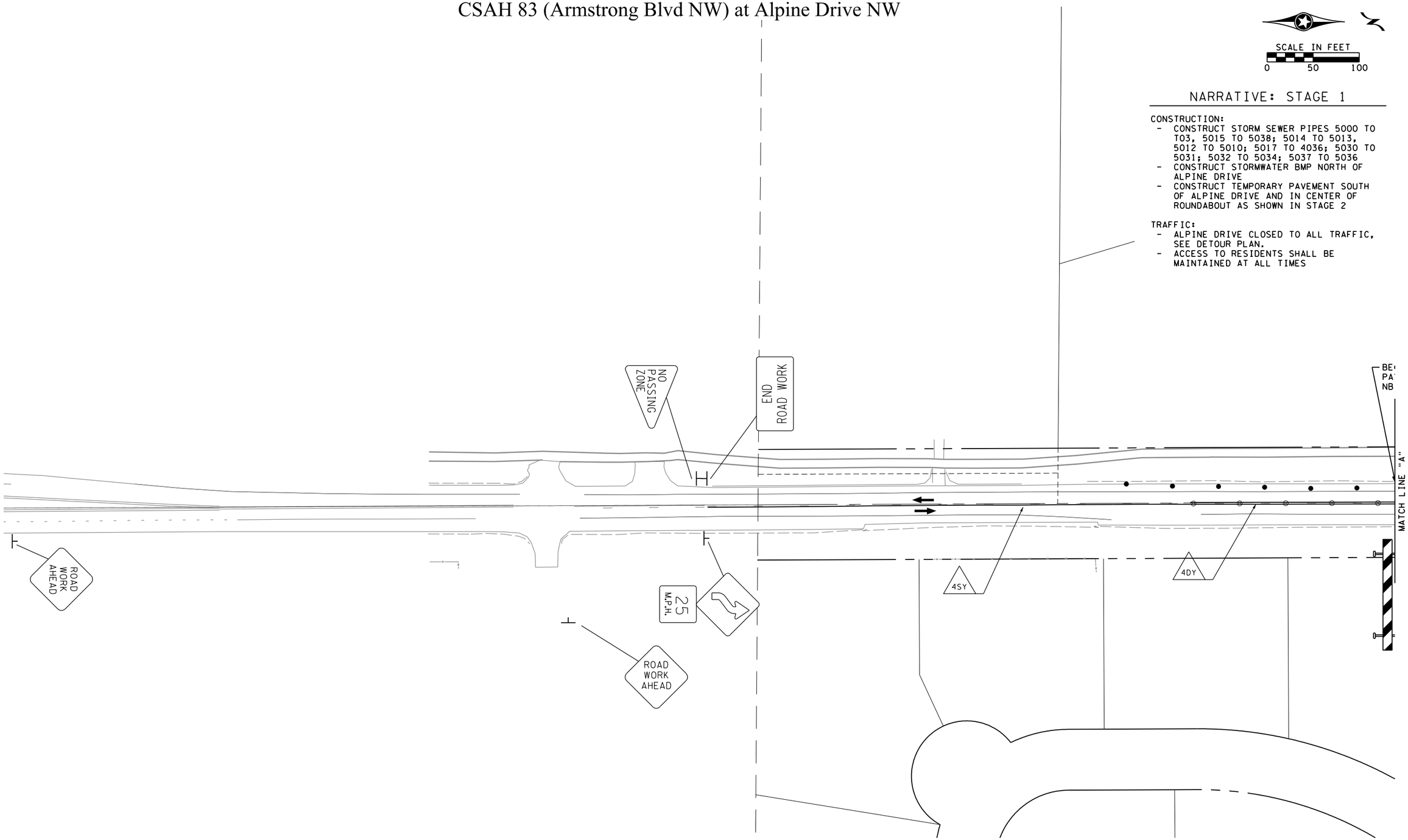
STAGE 0

CONSTRUCTION STAGING & TRAFFIC CONTROL

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **49R** OF **93** SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



NARRATIVE: STAGE 1

CONSTRUCTION:
- CONSTRUCT STORM SEWER PIPES 5000 TO T03, 5015 TO 5038; 5014 TO 5013, 5012 TO 5010; 5017 TO 4036; 5030 TO 5031; 5032 TO 5034; 5037 TO 5036
- CONSTRUCT STORMWATER BMP NORTH OF ALPINE DRIVE
- CONSTRUCT TEMPORARY PAVEMENT SOUTH OF ALPINE DRIVE AND IN CENTER OF ROUNDABOUT AS SHOWN IN STAGE 2

TRAFFIC:
- ALPINE DRIVE CLOSED TO ALL TRAFFIC, SEE DETOUR PLAN.
- ACCESS TO RESIDENTS SHALL BE MAINTAINED AT ALL TIMES

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

CONSTRUCTION STAGING & TRAFFIC CONTROL

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 50 OF 93 SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

SCALE IN FEET
0 50 100

PLOTTED/REVISED: 11/23/2022 9:35:20 AM

WSB PATH & FILENAME: Projects\Minnesota\019344-000\Cad\Plan\19344-000_tc02.dgn

PLACE ADVANCED WARNING SIGNING AT 325'SPACING

ROAD CLOSED AHEAD 325 FEET

ROAD CLOSED

ROAD WORK AHEAD

℄ 152nd LANE

BEGIN TEMPORARY PAVEMENT NB STA 100+00

INSTALL TEMPORARY RC PIPE

℄ BYPASS

24'

INSTALL MANHOLE CASTING

℄ CSAH 83 SB

END TEMPORARY WIDENING NB STA 106+48

25 M.P.H.

℄ ALPINE DR WB

℄ ALPINE DR EB

NO TURNS

℄ RADIAL

12'

℄ CSAH 83 SB

12' LANE

12' LANE

℄ CSAH 83 NB

TEMPORARY RC PIPE APRON

INSTALL MANHOLE CASTING

INSTALL MANHOLE CASTING

ROAD CLOSED

X3 BARRICADE

ROAD CLOSED AHEAD

350 FEET

MATCH LINE "A"

MATCH LINE "B"

4SW

4DY

5000 5001 5002 5003 5004 5005 5006 5007 5008 5009 5010 5011 5012 5013 5014 5015 5016 5017 5020 5021 5022 5030 5031 5032 5033 5034 5035 5036 5037 5038 4036

T02 T03

1300 1302 1304

℄ BYPASS
12' 12' 3'
INP R/W 5' 24' TEMP WIDENING 13' RTL/SHLD 12' SB THRU LANE ℄ CSAH 83
1:3 SLOPE WITH RAPID STABILIZATION METHOD 3
0.02'/'
INSET "K"
2V:1H

NO.	DATE	BY	CHK	REVISIONS

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

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DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

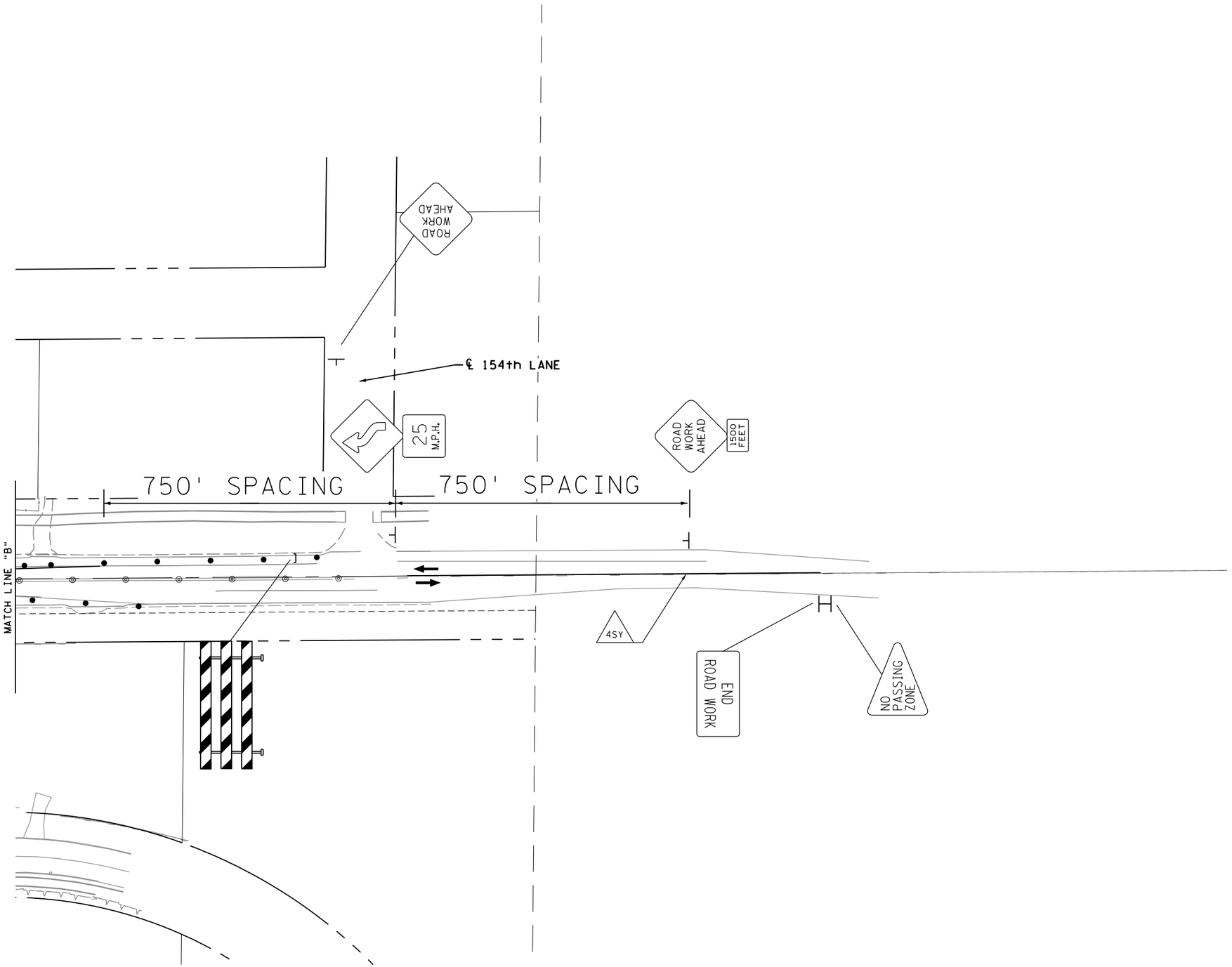
CONSTRUCTION STAGING & TRAFFIC CONTROL

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 51 OF 93 SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

SCALE IN FEET
0 50 100



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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 1

CONSTRUCTION STAGING & TRAFFIC CONTROL

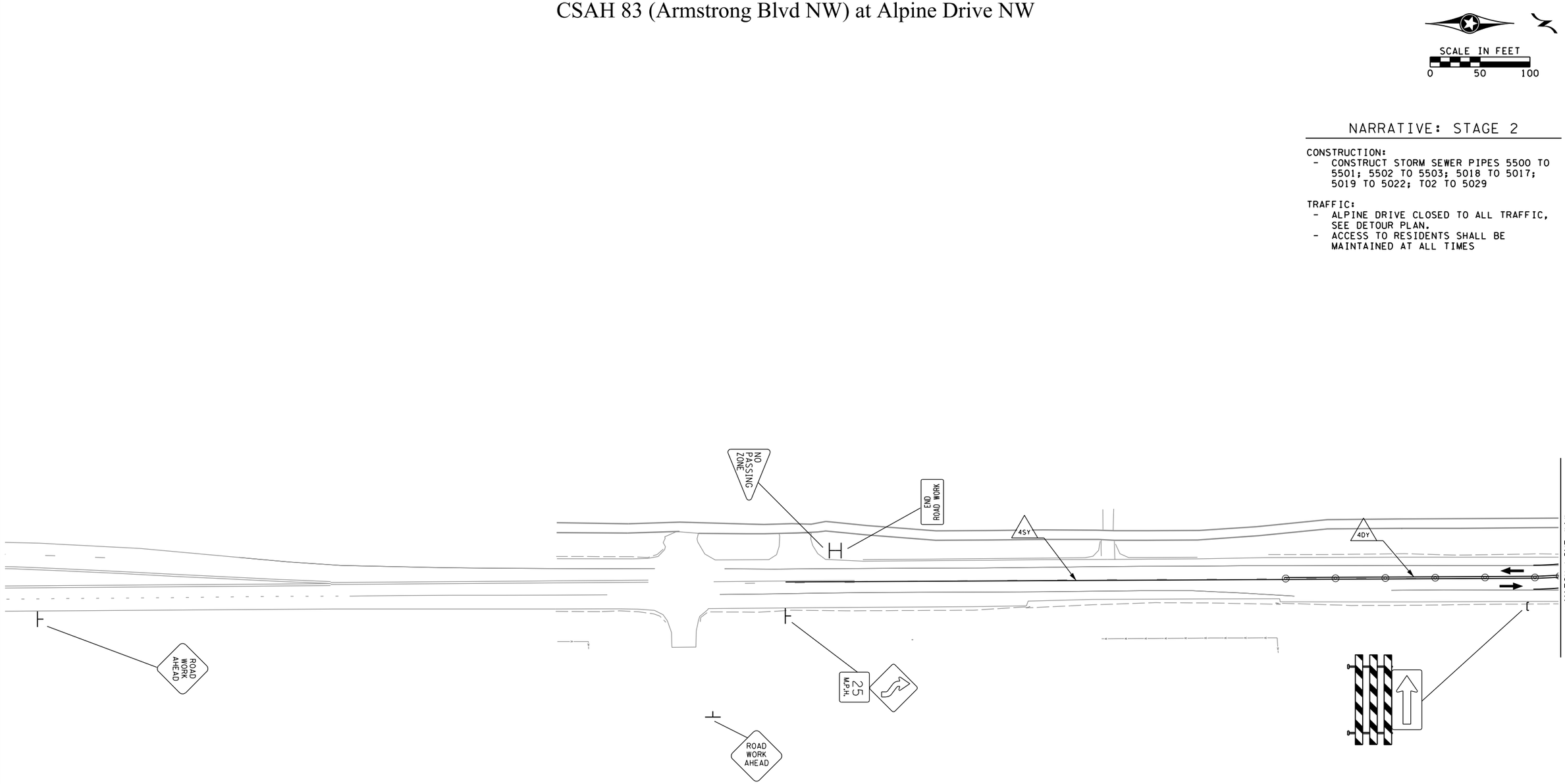
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 52 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:35:27 AM

WSB PATH & FILENAME: Projects\Minnesota\093344-000\Cad\Plan\93344-000_tc103.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



NARRATIVE: STAGE 2

CONSTRUCTION:
- CONSTRUCT STORM SEWER PIPES 5500 TO 5501; 5502 TO 5503; 5018 TO 5017; 5019 TO 5022; T02 TO 5029

TRAFFIC:
- ALPINE DRIVE CLOSED TO ALL TRAFFIC, SEE DETOUR PLAN.
- ACCESS TO RESIDENTS SHALL BE MAINTAINED AT ALL TIMES

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA
STAGE 2
CONSTRUCTION STAGING & TRAFFIC CONTROL
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 53 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:35:33 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_tc201.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

SCALE IN FEET
0 50 100

PLACE ADVANCED WARNING SIGNING AT 325'SPACING

ROAD CLOSED AHEAD (F) 325 FEET

X3 BARRICADE

ROAD CLOSED (F)

ROAD WORK AHEAD

℄ 152nd LANE

℄ ALPINE DR WB

℄ ALPINE DR EB

ROAD CLOSED (F)

25 M.P.H.

℄ CSAH 83 SB

℄ RADIAL

4SW

4DY

12' LANE
12' LANE

T02

5022

5026
5027
5028
5029
5021
5020
5019
5018
5017

℄ CSAH 83 NB

REMOVE MANHOLE CASTING
INSTALL CATCH BASIN CASTING

REMOVE TEMPORARY PIPE AND APRON

REMOVE MANHOLE CASTING
INSTALL CATCH BASIN CASTING

REMOVE MANHOLE CASTING
INSTALL CATCH BASIN CASTING

11' LANE
11' LANE

1:55

12' LANE
12' LANE

5502
5503
5501
5500

℄ CSAH 83 NB

25 M.P.H.

℄ ALPINE DR WB

℄ ALPINE DR EB

ROAD CLOSED (F)

X3 BARRICADE

ROAD CLOSED AHEAD (F) 350 FEET

MATCH LINE "A"

MATCH LINE "B"

℄ 152nd LANE

ROAD WORK AHEAD

ROAD CLOSED

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 2

CONSTRUCTION STAGING & TRAFFIC CONTROL

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 54 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:35:40 AM

WSB PATH & FILENAME: Projects\Minnesota\019344-000\Cad\Plan\19344-000_tc202.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

SCALE IN FEET
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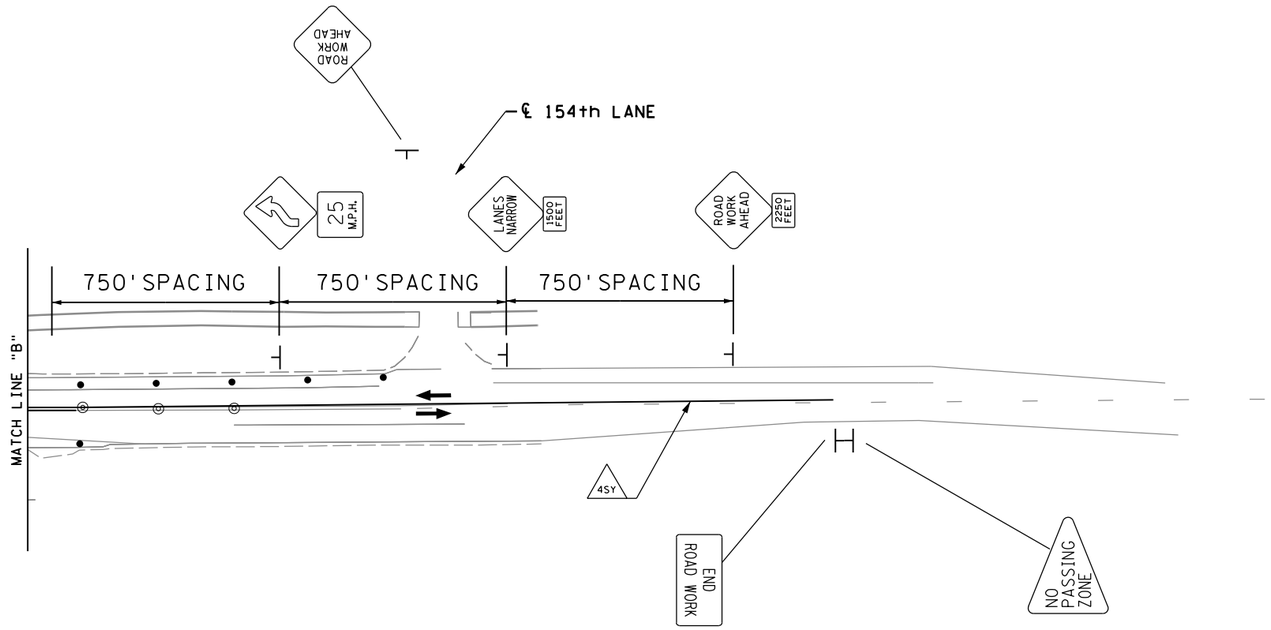

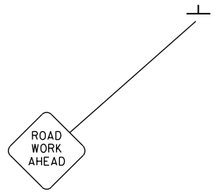

NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

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Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 2

CONSTRUCTION STAGING & TRAFFIC CONTROL

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **55** OF **93** SHEETS

PLOTTED/REVISED: 11/23/2022 9:35:47 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\09344-000_tc203.dgn

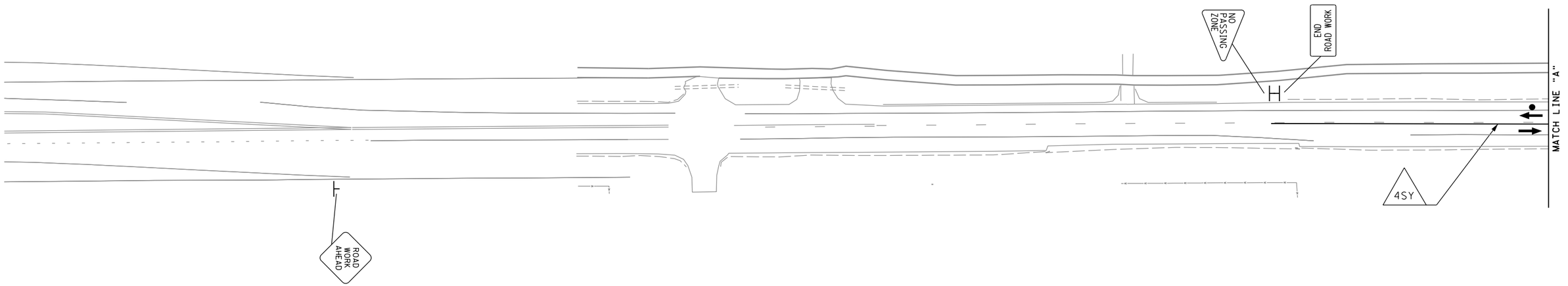
CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

SCALE IN FEET
0 50 100

NARRATIVE: STAGE 3

CONSTRUCTION:
- CONSTRUCT STORM SEWER PIPES 5024 TO 5025.
- CONSTRUCT STORMWATER DITCH LOCATED SOUTH OF ALPINE DRIVE.
- CONSTRUCT PEDESTRIAN FACILITIES.
- HAND PLACE REMAINING CURB & GUTTER.
- UPON COMPLETION OF ALL OTHER CONSTRUCTION, PAVE FINAL WEAR COURSE LIFT.

TRAFFIC:
- ALPINE DRIVE CLOSED TO ALL TRAFFIC, SEE DETOUR PLAN.
- FINAL WEAR COURSE LIFT ON CSAH 83 PAVED UNDER TRAFFIC.
- ACCESS TO RESIDENTS SHALL BE MAINTAINED AT ALL TIMES



NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 3

CONSTRUCTION STAGING & TRAFFIC CONTROL

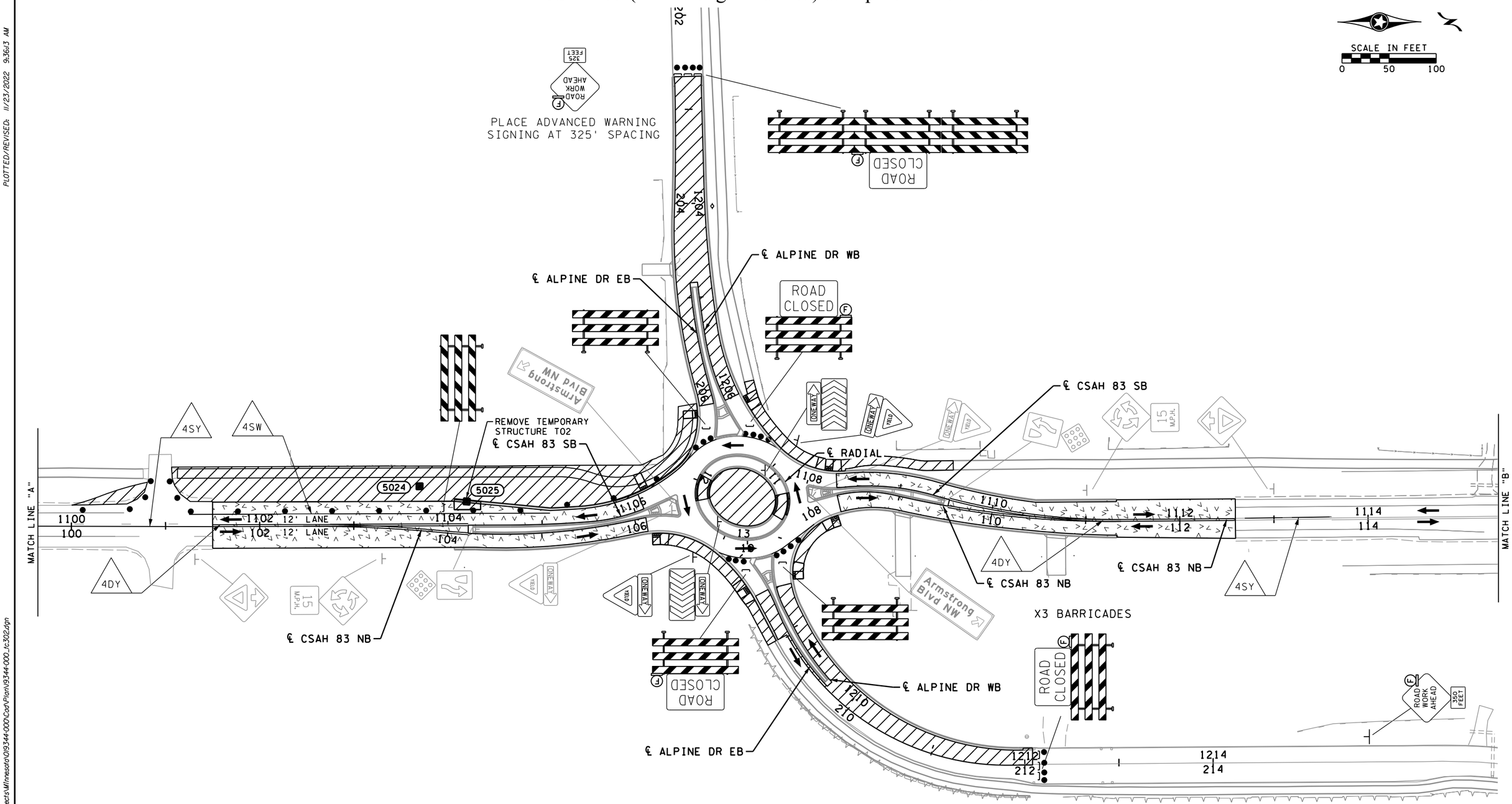
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 56 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:00 AM

WSB PATH & FILENAME: Projects\Minnesota\0193344-000\Cad\Plan\9344-000_tc301.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



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. FLOWMAN

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 3

CONSTRUCTION STAGING & TRAFFIC CONTROL

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 57 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:13 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_tc302.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

SCALE IN FEET
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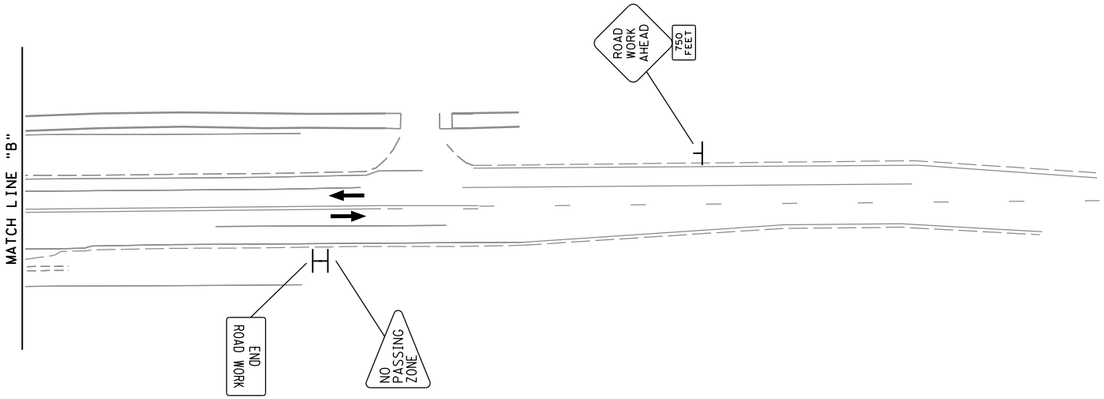

NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STAGE 3

CONSTRUCTION STAGING & TRAFFIC CONTROL

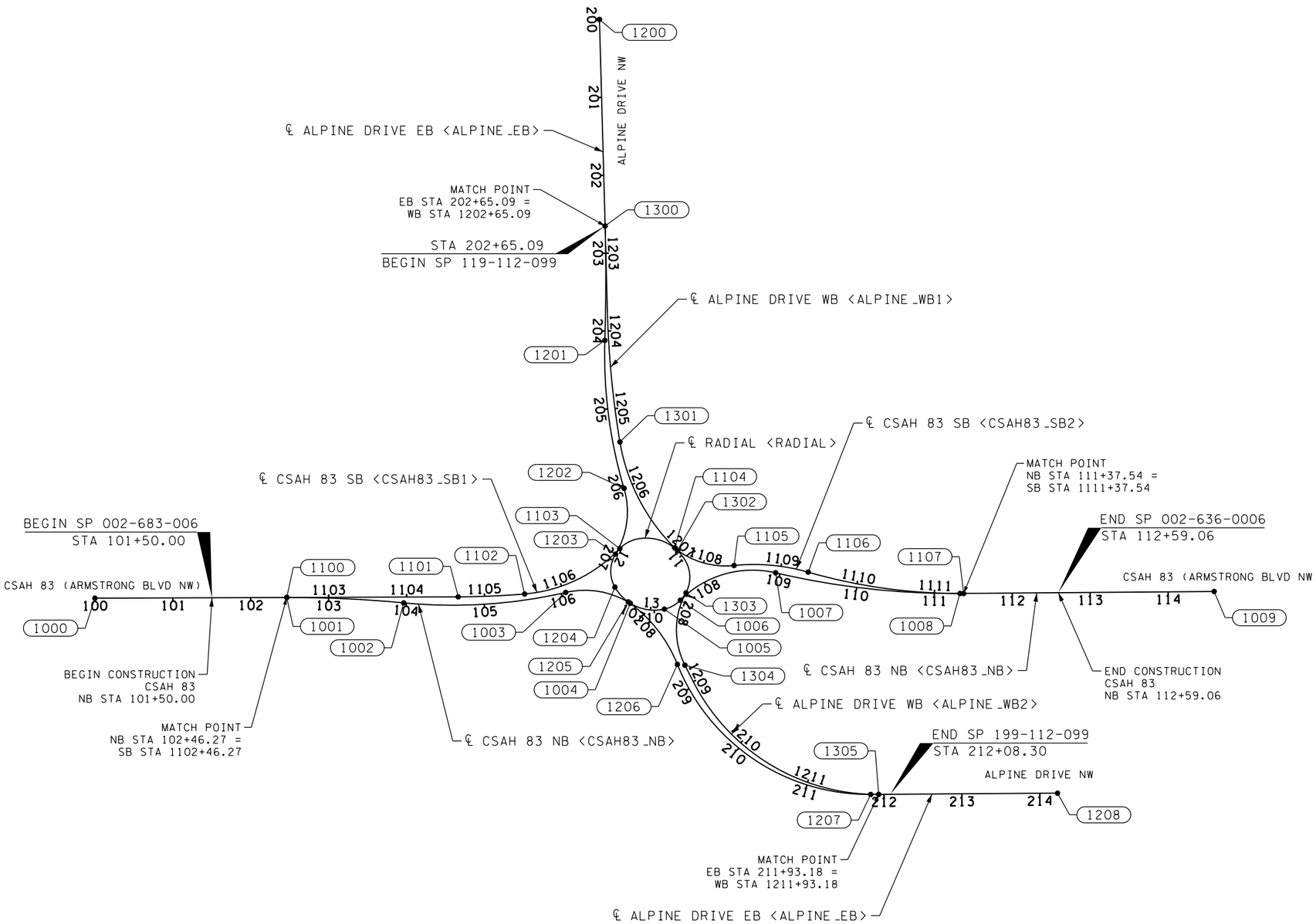
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 58 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:27 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_tc303.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN & TABULATION

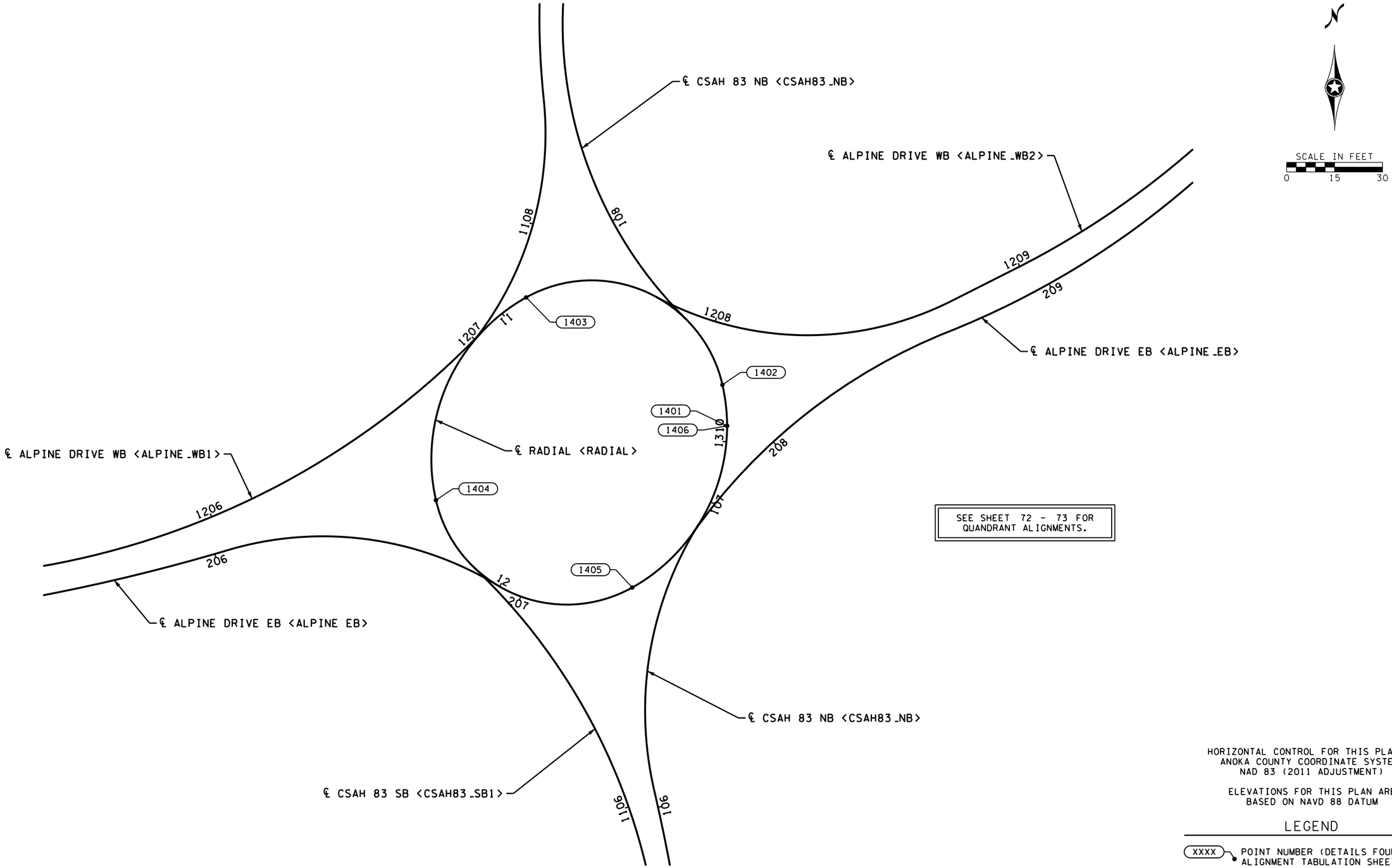
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 59 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:31 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_a01

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



SEE SHEET 72 - 73 FOR QUANDRANT ALIGNMENTS.

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)

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PRINT NAME: ANDREW J. PLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

RADIAL ALIGNMENTS

ALIGNMENT PLAN & TABULATION

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 60 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:36 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\09344-000_al02

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		CSAH 83 NB <CSAH83_NB>								
1000	POT	100+00.00						447,524.901	177,150.515	
1001	PC	102+46.266						447,523.969	177,396.780	N 0° 13' 00.7" W
	PI	103+21.449	5° 44' 19.5" RT	3° 49' 11.0"	1,500.000'	75.183'	150.240'	447,523.684	177,471.962	PI
	CC							449,023.958	177,402.457	
1002	PRC	103+96.506						447,530.919	177,546.796	N 5° 31' 18.9" E
	PRC	103+96.506						447,530.919	177,546.796	N 5° 31' 18.9" E
	PI	105+02.033	18° 26' 34.3" LT	8° 48' 53.0"	650.000'	105.527'	209.228'	447,541.073	177,651.833	PI
	CC							446,883.935	177,609.344	
1003	PRC	106+05.734						447,517.477	177,754.688	N 12° 55' 15.4" W
	PRC	106+05.734						447,517.477	177,754.688	N 12° 55' 15.4" W
	PI	106+51.303	45° 00' 17.8" RT	52° 05' 13.5"	110.000'	45.569'	86.403'	447,507.287	177,799.103	PI
	CC							447,624.691	177,779.285	
1004	PRC	106+92.137						447,531.492	177,837.712	N 32° 05' 02.4" E
	PRC	106+92.138						447,531.491	177,837.712	N 32° 05' 04.2" E
	PI	107+16.090	44° 52' 40.9" LT	98° 47' 09.0"	58.000'	23.952'	45.430'	447,544.214	177,858.006	PI
	CC							447,482.350	177,868.520	
1005	PCC	107+37.568						447,538.910	177,881.363	N 12° 47' 36.7" W
	PCC	107+37.568						447,538.910	177,881.363	N 12° 47' 35.9" W
	PI	107+49.821	32° 31' 49.0" LT	136° 25' 06.7"	42.000'	12.254'	23.846'	447,536.197	177,893.313	PI
	CC							447,497.953	177,872.063	
1006	PRC	107+61.413						447,527.483	177,901.929	N 45° 19' 24.9" W
	PRC	107+61.413						447,527.483	177,901.929	N 45° 19' 24.9" W
	PI	108+34.289	58° 32' 55.0" RT	44° 04' 25.2"	130.000'	72.876'	132.843'	447,475.662	177,953.168	PI
	CC							447,618.886	177,994.370	
1007	PRC	108+94.256						447,492.334	178,024.111	N 13° 13' 30.1" E
	PRC	108+94.256						447,492.334	178,024.111	N 13° 13' 30.1" E
	PI	110+14.141	13° 40' 21.1" LT	5° 43' 46.5"	1,000.000'	119.885'	238.631'	447,519.761	178,140.816	PI
	CC							446,518.855	178,252.887	
1008	PT	111+32.887						447,518.825	178,260.697	N 0° 26' 51.0" W
1009	POT	114+59.06						447,516.277	178,586.864	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		CSAH 83 SB <CSAH83_SB1>								
1100	POT	1102+46.27						447,523.969	177,396.780	
1101	PC	1104+66.289						447,523.136	177,616.801	N 0° 13' 00.7" W
	PI	1105+08.966	4° 26' 37.0" LT	5° 12' 31.3"	1,100.000'	42.677'	85.311'	447,522.974	177,659.478	PI
	CC							446,423.144	177,612.638	
1102	PCC	1105+51.601						447,519.507	177,702.014	N 4° 39' 37.7" W
	PCC	1105+51.601						447,519.507	177,702.014	N 4° 39' 37.7" W
	PI	1106+24.019	41° 43' 43.8" LT	30° 09' 20.4"	190.000'	72.419'	138.378'	447,513.623	177,774.193	PI
	CC							447,330.135	177,686.576	
1103	PT	1106+89.979						447,461.189	177,824.144	N 46° 23' 21.5" W
		CSAH 83 SB <CSAH83_SB2>								
1104	PC	1107+57.712						447,460.478	177,894.339	N 38° 40' 18.3" E
	PI	1108+00.775	44° 35' 58.5" LT	54° 34' 02.7"	105.000'	43.063'	81.733'	447,487.387	177,927.960	PI
	CC							447,378.501	177,959.949	
1105	PRC	1108+39.445						447,482.939	177,970.793	N 5° 55' 40.2" W
	PRC	1108+39.445						447,482.939	177,970.793	N 5° 55' 40.2" W
	PI	1108+88.077	22° 00' 59.1" RT	22° 55' 05.9"	250.000'	48.632'	96.065'	447,477.917	178,019.165	PI
	CC							447,731.602	177,996.612	
1106	PRC	1109+35.509						447,491.394	178,065.893	N 16° 05' 18.8" E
	PRC	1109+35.509						447,491.394	178,065.893	N 16° 05' 18.8" E
	PI	1110+37.229	16° 32' 09.8" LT	8° 11' 06.4"	700.000'	101.720'	202.026'	447,519.583	178,163.629	PI
	CC							446,818.810	178,259.879	
1107	PT	1111+37.536						447,518.788	178,265.346	N 0° 26' 51.0" W

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

NO.	DATE	BY	CHK	REVISIONS

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

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DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN & TABULATION

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 61 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:40 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\09344-000_a03

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		ALPINE DRIVE EB <ALPINE_EB>								
1200	POT	200+00.00						446,782.334	177,797.959	
	PC	202+65.085						447,047.319	177,805.236	N 88° 25' 36.6" E
	PI	203+38.483	3° 21' 48.1" RT	2° 17' 30.6"	2,500.000'	73.398'	146.754'	447,120.690	177,807.251	PI
	CC							447,115.953	175,306.179	
1201	PRC	204+11.839						447,194.052	177,804.958	S 88° 12' 35.3" E
	PRC	204+11.839						447,194.052	177,804.958	S 88° 12' 35.3" E
	PI	205+08.788	18° 21' 25.7" LT	9° 32' 57.5"	600.000'	96.949'	192.236'	447,290.953	177,801.930	PI
	CC							447,212.796	178,404.666	
1202	PRC	206+04.075						447,383.877	177,829.573	N 73° 25' 59.0" E
	PRC	206+04.075						447,383.877	177,829.573	N 73° 25' 59.0" E
	PI	206+50.664	47° 51' 15.8" RT	54° 34' 02.7"	105.000'	46.589'	87.698'	447,428.532	177,842.858	PI
	CC							447,413.816	177,728.932	
1203	PRC	206+91.773						447,468.346	177,818.662	S 58° 42' 45.2" E
	PRC	206+91.773						447,468.346	177,818.662	S 58° 42' 45.2" E
	PI	207+16.265	60° 29' 50.2" LT	136° 25' 06.7"	42.000'	24.492'	44.347'	447,489.277	177,805.943	PI
	CC							447,490.158	177,854.554	
1204	PCC	207+36.120						447,510.655	177,817.895	N 60° 47' 24.6" E
	PCC	207+36.120						447,510.655	177,817.895	N 60° 47' 24.6" E
	PI	207+49.220	25° 27' 20.6" LT	98° 47' 09.0"	58.000'	13.101'	25.769'	447,522.089	177,824.288	PI
	CC							447,482.350	177,868.520	
1205	PRC	207+61.888						447,529.666	177,834.976	N 35° 20' 04.0" E
	PRC	207+61.888						447,529.666	177,834.976	N 35° 20' 04.0" E
	PI	208+15.086	32° 55' 45.7" RT	31° 49' 51.6"	180.000'	53.198'	103.451'	447,560.433	177,878.374	PI
	CC							447,676.508	177,730.873	
1206	PRC	208+65.339						447,609.848	177,898.075	N 68° 15' 49.7" E
	PRC	208+65.339						447,609.848	177,898.075	N 68° 15' 49.7" E
	PI	210+46.313	68° 39' 35.7" LT	21° 37' 15.8"	265.000'	180.974'	317.561'	447,777.954	177,965.095	PI
	CC							447,511.710	178,144.233	
1207	PT	211+82.899						447,776.703	178,146.065	N 0° 23' 46.0" W
1208	POT	214+22.74						447,775.045	178,385.896	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		ALPINE DRIVE WB <ALPINE_WB1>								
1300	POT	1202+65.09						447,047.319	177,805.236	
	PC	1203+76.910						447,159.102	177,808.306	N 88° 25' 36.6" E
	PI	1204+60.150	7° 56' 10.0" LT	4° 46' 28.7"	1,200.000'	83.240'	166.214'	447,242.311	177,810.592	PI
	CC							447,126.158	179,007.854	
1301	PCC	1205+43.124						447,324.407	177,824.343	N 80° 29' 26.6" E
	PCC	1205+43.124						447,324.407	177,824.343	N 80° 29' 26.6" E
	PI	1206+26.254	36° 47' 09.2" LT	22° 55' 05.9"	250.000'	83.130'	160.509'	447,406.394	177,838.077	PI
	CC							447,283.105	178,070.908	
1302	PT	1207+03.633						447,463.832	177,898.172	N 43° 42' 17.4" E
		ALPINE DRIVE WB <ALPINE_WB2>								
1303	PC	1207+79.712						447,517.968	177,908.987	S 61° 32' 19.7" E
	PI	1208+32.114	55° 18' 38.0" LT	57° 17' 44.8"	100.000'	52.402'	96.535'	447,564.037	177,884.014	PI
	CC							447,565.625	177,996.901	
1304	PT	1208+76.247						447,610.789	177,907.681	N 63° 09' 02.3" E
	PC	1208+99.264						447,631.325	177,918.076	N 63° 09' 02.3" E
	PI	1210+63.400	63° 32' 48.3" LT	21° 37' 15.8"	265.000'	164.137'	293.912'	447,777.767	177,992.208	PI
	CC							447,511.639	178,154.509	
1305	PT	1211+93.175						447,776.632	178,156.341	N 0° 23' 46.0" W
		RADIAL <RADIAL>								
1400	POT	9+00.00						447,540.350	177,768.520	
1401	PC	10+00.000						447,540.350	177,868.520	Due North
	PI	10+06.503	12° 47' 39.0" LT	98° 47' 09.0"	58.000'	6.503'	12.951'	447,540.350	177,875.022	PI
	CC							447,482.350	177,868.520	
1402	PCC	10+12.951						447,538.910	177,881.364	N 12° 47' 39.0" W
	PCC	10+12.951						447,538.910	177,881.364	N 12° 47' 39.0" W
	PI	10+69.110	106° 24' 56.5" LT	136° 25' 06.7"	42.000'	56.159'	78.007'	447,526.474	177,936.128	PI
	CC							447,497.953	177,872.063	
1403	PCC	10+90.958						447,477.456	177,908.722	S 60° 47' 24.6" W
	PCC	10+90.958						447,477.456	177,908.722	S 60° 47' 24.6" W
	PI	11+34.335	73° 35' 03.5" LT	98° 47' 09.0"	58.000'	43.377'	74.489'	447,439.595	177,887.554	PI
	CC							447,505.761	177,858.097	
1404	PCC	11+65.447						447,449.201	177,845.253	S 12° 47' 39.0" E
	PCC	11+65.447						447,449.201	177,845.253	S 12° 47' 39.0" E
	PI	12+21.606	106° 24' 56.5" LT	136° 25' 06.7"	42.000'	56.159'	78.007'	447,461.637	177,790.489	PI
	CC							447,490.158	177,854.554	
1405	PCC	12+43.454						447,510.655	177,817.895	N 60° 47' 24.6" E
	PCC	12+43.454						447,510.655	177,817.895	N 60° 47' 24.6" E
	PI	12+77.475	60° 47' 24.6" LT	98° 47' 09.0"	58.000'	34.022'	61.537'	447,540.350	177,834.498	PI
	CC							447,482.350	177,868.520	
1406	PT	13+04.991						447,540.350	177,868.520	Due North
1407	POT	14+04.99						447,540.350	177,968.520	

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

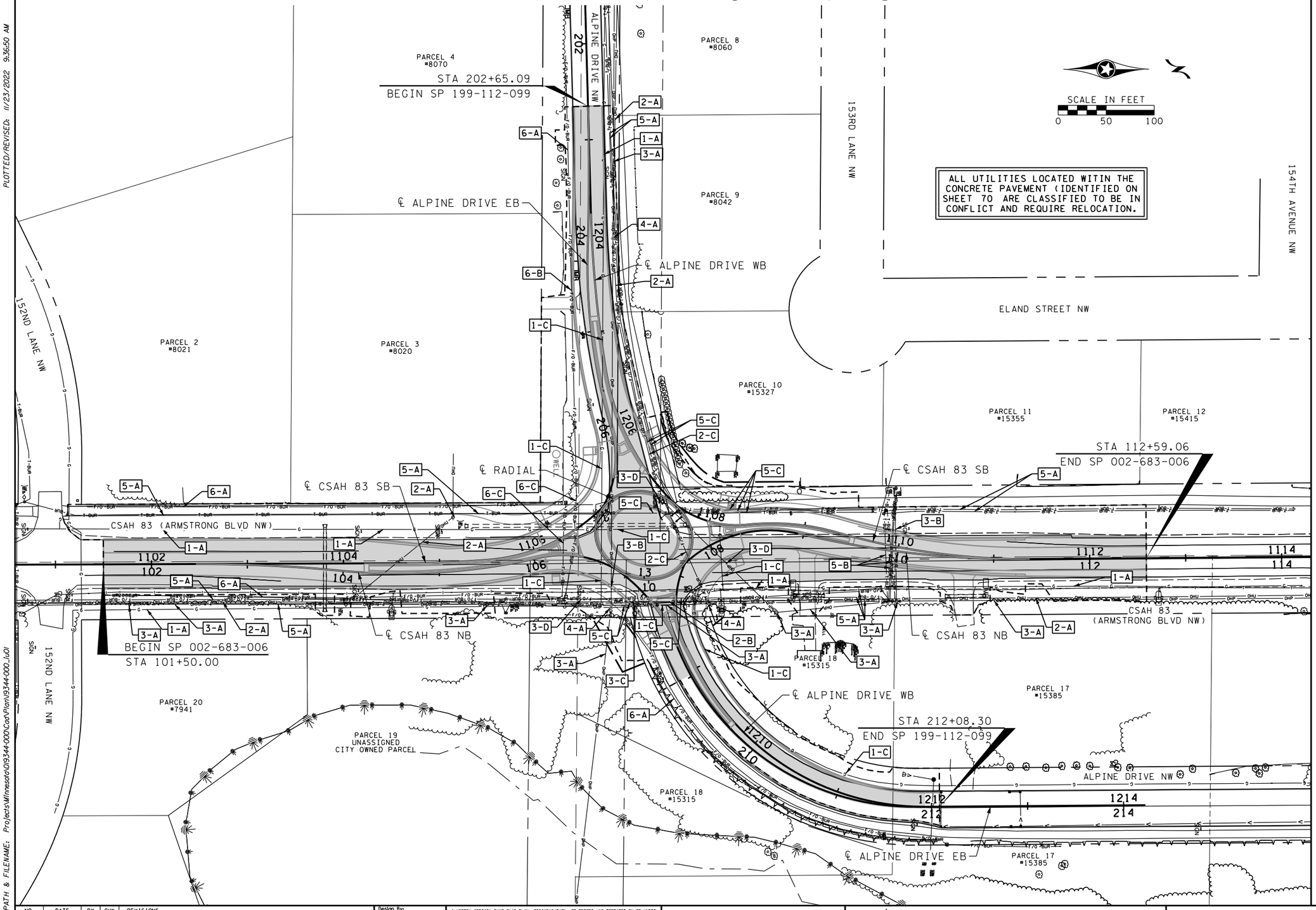
ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN & TABULATION

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 62 OF 93 SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



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
- SANITARY SEWER LINE
- STORM SEWER LINE
- FORCE MAIN
- W — WATER MAIN

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

- EXISTING ROADWAY BIT TO BE REMOVED
- CONSTRUCTION LIMITS
- AREA OF ENVIRONMENTAL SENSITIVITY
- INPLACE RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT

1-A — UTILITY CONFLICT AREA (OWNER-IMPACT)

OWNERSHIP:
(1) CENTERPOINT ENERGY MINNESOTA GAS
(2) COMCAST CABLE LLC.
(3) CONNEXUS ENERGY
(4) GREAT RIVER ENERGY
(5) LUMEN TECHNOLOGIES
(6) ZAYO GROUP LLC.

IMPACTS NOTES ON PLAN SHEET:
(A) LEAVE AS IS, (B) ADJUST,
(C) RELOCATE, (D) REMOVE

UTILITY CONFLICTS ARE DENOTED IN EXCAVATION AREAS ONLY

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).
3. ALL UTILITIES LOCATED WITHIN THE CONCRETE PAVEMENT AREAS IDENTIFIED ON SHEET 70 ARE IDENTIFIED TO BE IN CONFLICT AND REQUIRE RELOCATION.

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

INPLACE TOPOGRAPHY & UTILITY PLAN

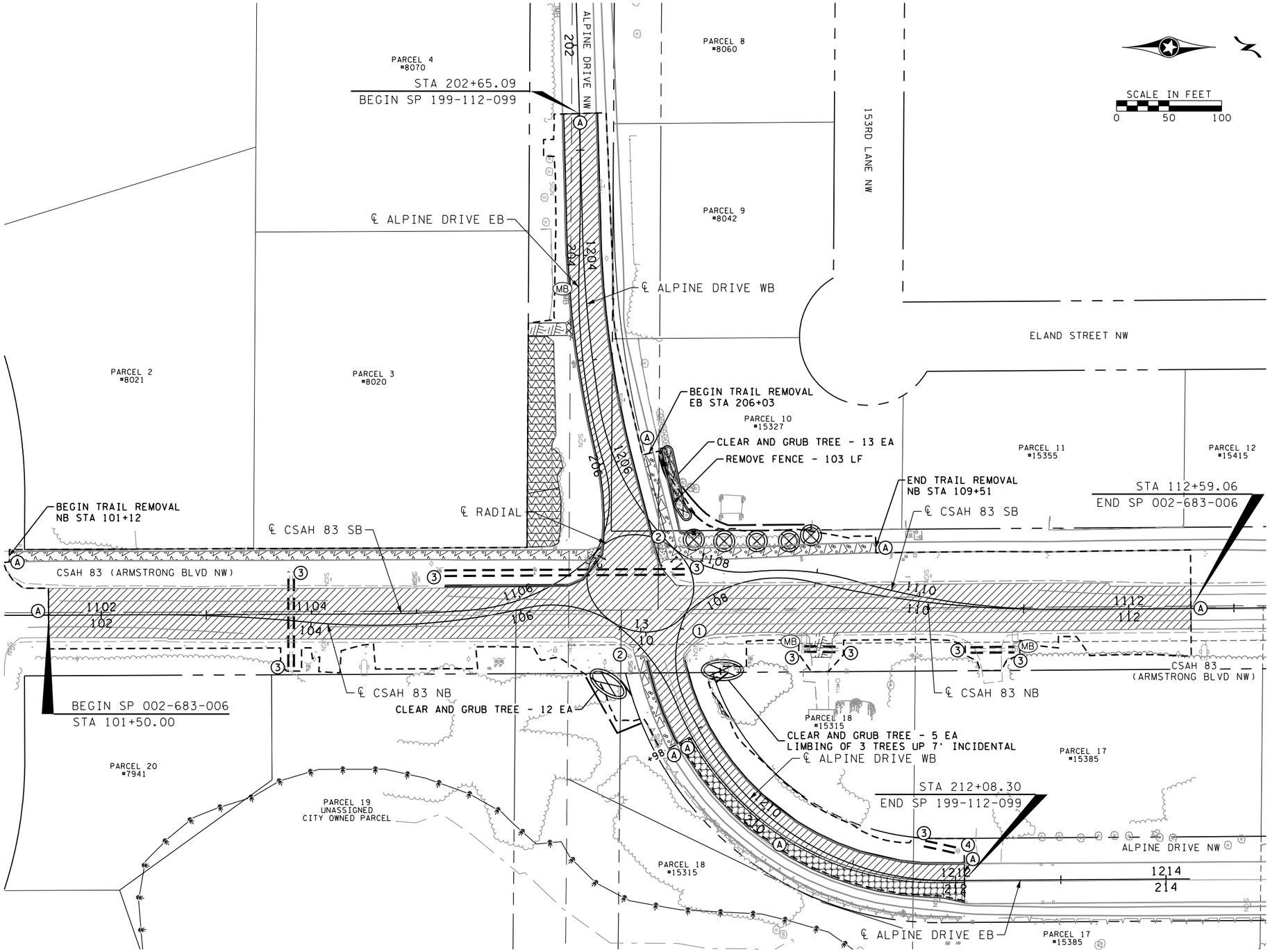
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 63 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:50 AM

WSB PATH & FILENAME: Projects\Minnesota\019344-000\Cad\Plan\19344-000_Ju01

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



LEGEND

- REMOVE BITUMINOUS PAVEMENT
- REMOVE BITUMINOUS WALK
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
- REMOVE CONCRETE WALK
- CLEAR & GRUB TREE (ACRE)
- MILL BITUMINOUS PAVEMENT (2.0")
- CLEAR & GRUB TREE (EACH)
- (MB) SALVAGE MAILBOX SUPPORT
- (A) SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH)
- (1) ADJUST VALVE BOX
- (2) REMOVE LIGHTNG UNIT
- (3) REMOVE PIPE APRON
- (4) REMOVE DRAINAGE STRUCTURE
- REMOVE FENCE
- REMOVE CURB & GUTTER
- REMOVE PIPE CULVERT
- 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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

REMOVAL PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 64 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:36:57 AM

WSB PATH & FILENAME: Projects\Minnesota\093344-000\Con Plan\93344-000_rem01

PLOTTED/REVISED: 11/23/2022 9:37:03 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\09344-000_signrem01.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

LEGEND

②	INPLACE TO REMAIN
④	REMOVE

SCALE IN FEET
0 50 100

STATION 200+22 ④ S-15
STATION 200+28 ④ S-14
STA 202+65.09
BEGIN SP 199-112-099
202 ALPINE DRIVE NW
④ S-16
℄ ALPINE DRIVE EB
204
1204
④ S-13
℄ ALPINE DRIVE WB
④ S-17
SPEED LIMIT 40 ④ S-12
④ S-18
CROSS TRAFFIC DOES NOT STOP
STOP
206
1206
④ S-11
CROSS TRAFFIC DOES NOT STOP
STOP
RIGHT TURN LANE ④ S-20
NO PASSING ZONE
NO PASSING ON SHOULDER ④ S-19
RIGHT TURN LANE ④ S-10
STA 112+59.06
END SP 002-683-006
℄ CSAH 83 SB
CSAH 83 (ARMSTRONG BLVD NW)
1102 102
1104 104
1106 106
1108 108
1110 110
1112 112
1,3 1'0
11 1,08
BEGIN SP 002-683-006
STA 101+50.00
RIGHT TURN LANE ④ S-1
℄ CSAH 83 NB
NO PASSING ON SHOULDER ④ S-2
STOP
CROSS TRAFFIC DOES NOT STOP ④ S-3
④ S-4
30 M.P.H.
Alpine Dr
Armstrong Blvd NW ④ S-9
STOP
CROSS TRAFFIC DOES NOT STOP ④ S-8
℄ ALPINE DRIVE WB
℄ ALPINE DRIVE EB
STA 212+08.30
END SP 199-112-099
1210 210
ALPINE DRIVE NW
1212 212
1214 214
SPEED LIMIT 45 ④ S-5
② 30 M.P.H. STATION 1215+55
④ S-7 STATION 1217+33
② ④ S-6 STATION 217+33
CSAH 83 (ARMSTRONG BLVD NW)
℄ CSAH 83 NB

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 11/23/2022 LICENSE # 40945

wsb

ANOKA COUNTY

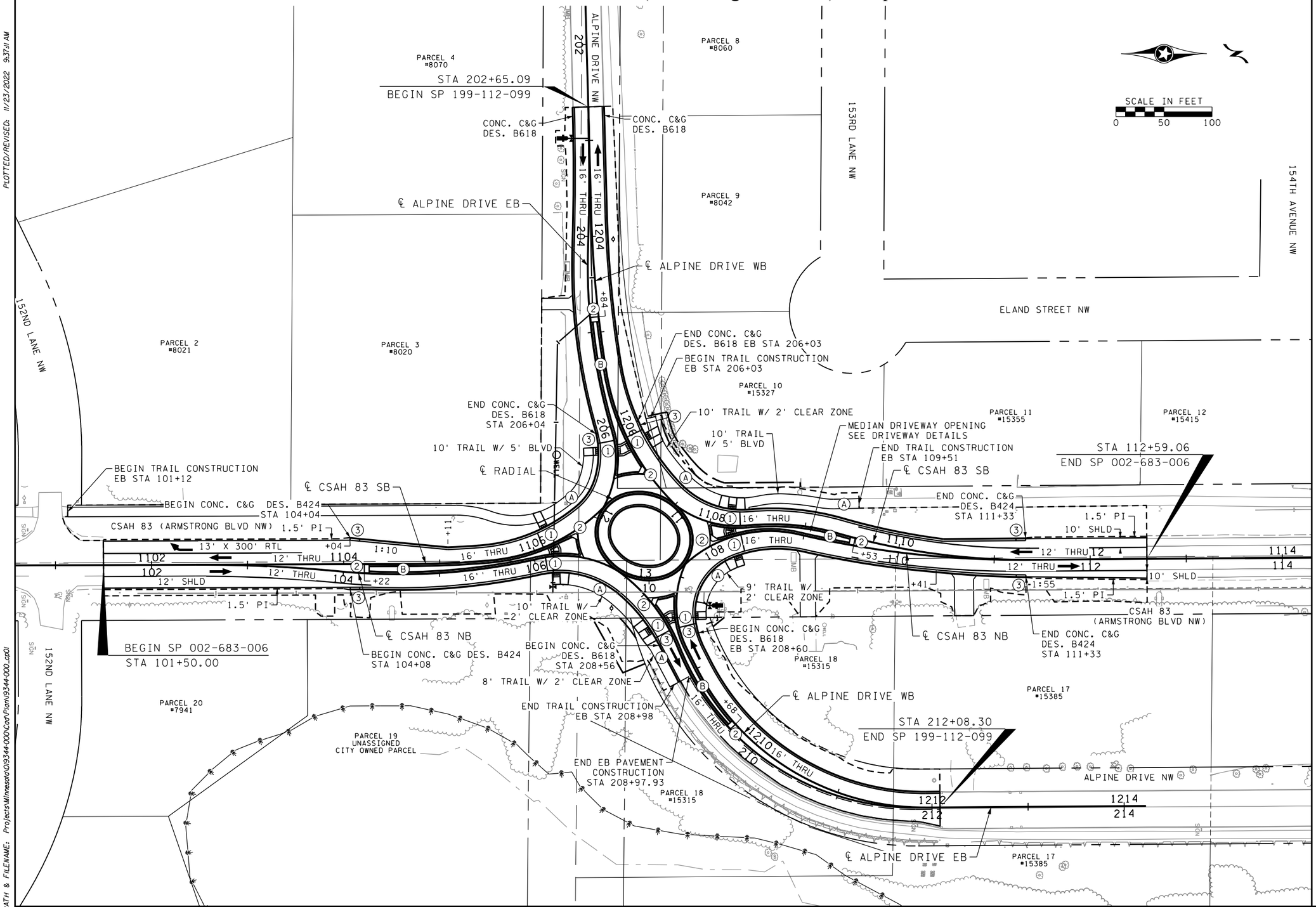
CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGN REMOVAL
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 65 OF 93 SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



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) CURB TRANSITION MISCELLANEOUS DETAILS
- (A) 2.5" BITUMINOUS WALK
- (B) 4" CONCRETE WALK (MEDIAN)
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- CONSTRUCTION LIMITS
- AREA OF ENVIRONMENTAL SENSITIVITY
- INPLACE RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- PERMANENT 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. ALL LANE DIMENSIONS ARE FROM CENTERLINE TO LANE LINE OR FACE OF CURB.
5. ALL SHOULDER DIMENSIONS ARE FROM LANE LINE TO FACE OF CURB.
6. SEE DRIVEWAY DETAILS FOR ADDITIONAL INFORMATION AT DRIVEWAYS.
7. SEE ALIGNMENT PLAN FOR CURVE DATA.
8. SEE PAVING PLAN FOR REQUIRED PAVEMENT SECTIONS.
9. SEE SHEET 67 - 69 FOR ROADWAY PROFILES.
10. SEE SHEET 72 - 74 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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN & PROFILE

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **66** OF **93** SHEETS

PLOTTED/REVISED: 11/23/2022 9:37:11 AM

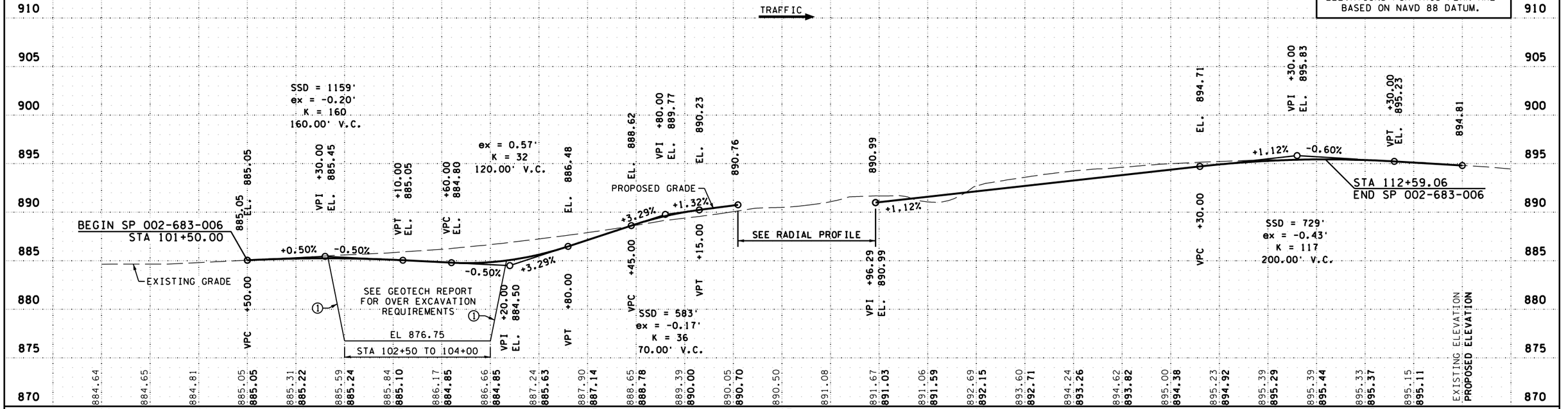
WSB PATH & FILENAME: P:\Projects\Minnesota\09344-000\Cad\Plan\09344-000_cp01

PLOTTED/REVISED: 11/23/2022 9:37:17 AM

NOTES:
① SLOPE TO MEET OSHA EXCAVATION REQUIREMENTS (ASSUMED 1.5H:1V)

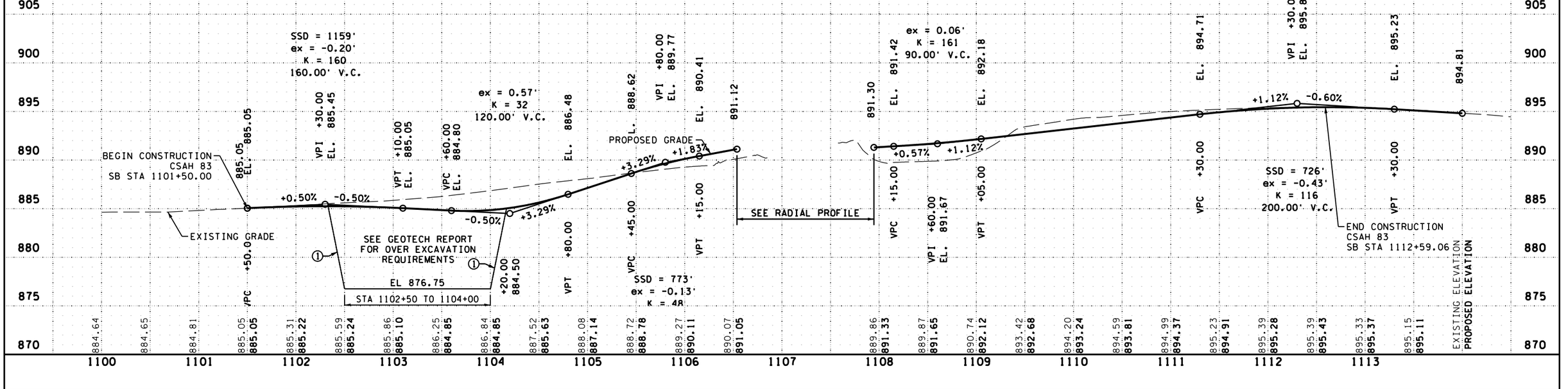
CSAH 83 (Armstrong Blvd NW) Northbound Profile

VERTICAL CONTROL
ELEVATIONS FOR THIS PLAN ARE BASED ON NAVD 88 DATUM.



CSAH 83 (Armstrong Blvd NW) Southbound Profile

VERTICAL CONTROL
ELEVATIONS FOR THIS PLAN ARE BASED ON NAVD 88 DATUM.



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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN & PROFILE

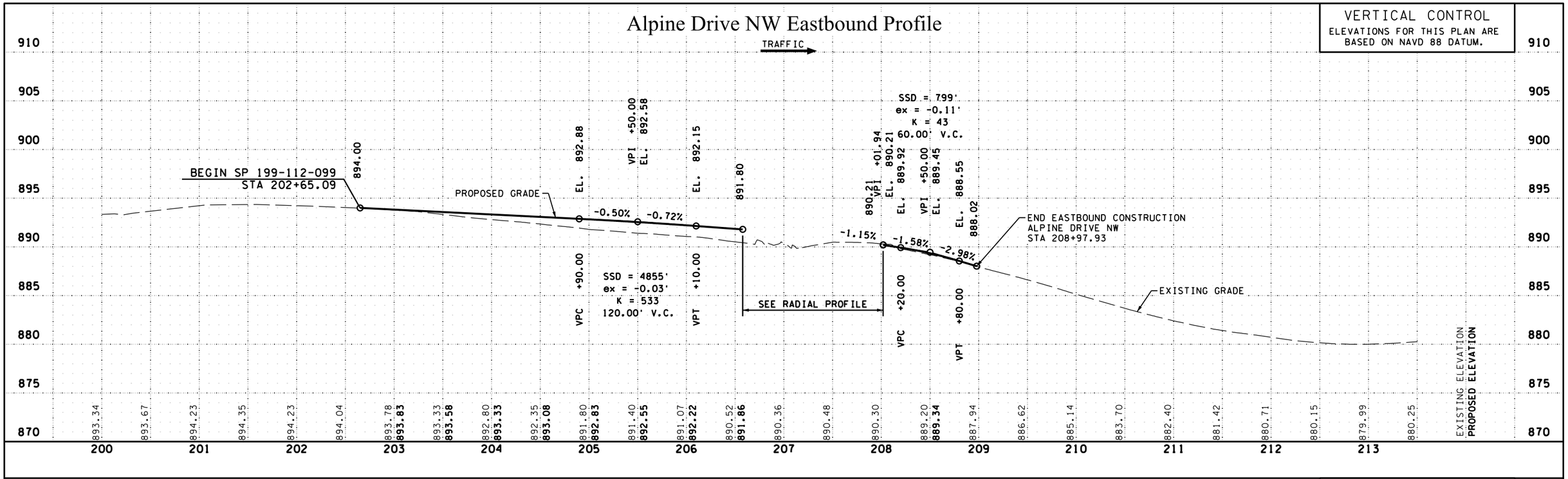
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 67 OF 93 SHEETS

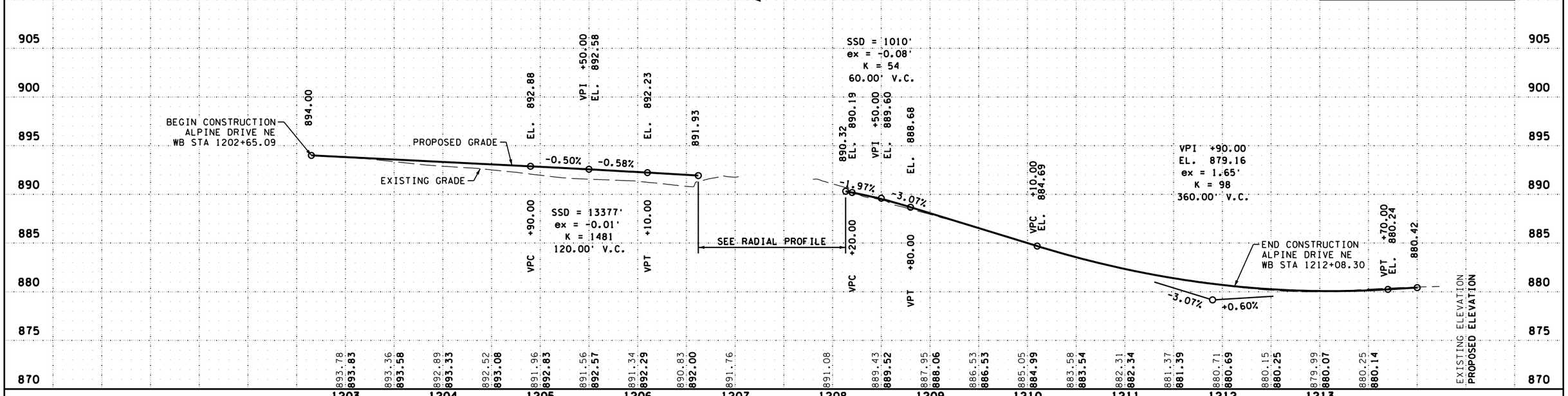
WSB PATH & FILENAME: Projects\Minnesota\019344-000\Cad\Plan\19344-000_cp02

PLOTTED/REVISED: 11/23/2022 9:37:22 AM

Alpine Drive NW Eastbound Profile



Alpine Drive NW Westbound Profile



NO.	DATE	BY	CHK	REVISIONS

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

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DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN & PROFILE

SP 002-683-006, SP 199-112-009, IP 23-03

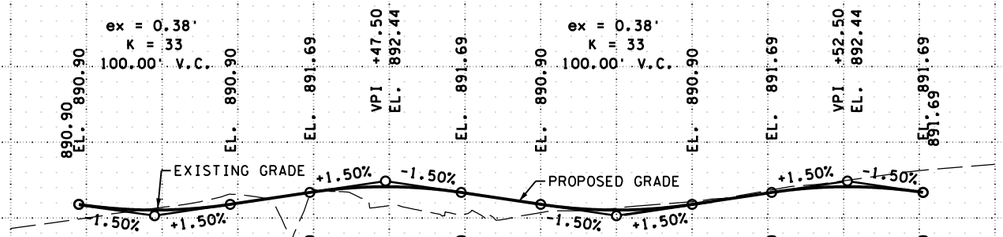
SHEET 68 OF 93 SHEETS

WSB PATH & FILENAME: Projects\Minnesota\093344-000\Cad\Plan\93344-000_cp03

PLOTTED/REVISED: 11/23/2022 9:37:29 AM

Radial Profile

TRAFFIC



889.31	889.99 **890.83**	890.71 **890.53**	891.54 **890.98**	891.90 **891.73**	890.81 **892.06**	890.25 **891.65**	890.35 **890.90**	890.65 **890.53**	891.07 **890.90**	891.81 **891.65**	892.45 **892.06**	893.13 **891.73**	893.55
	9	10		11		12		13		14		15	

910 905 900 895 890 885 880 875 870

EXISTING ELEVATION
PROPOSED ELEVATION

VERTICAL CONTROL
ELEVATIONS FOR THIS PLAN ARE BASED ON NAVD 88 DATUM.

VERTICAL CONTROL
ELEVATIONS FOR THIS PLAN ARE BASED ON NAVD 88 DATUM.

EXISTING ELEVATION
PROPOSED ELEVATION

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_cp04

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

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN & PROFILE

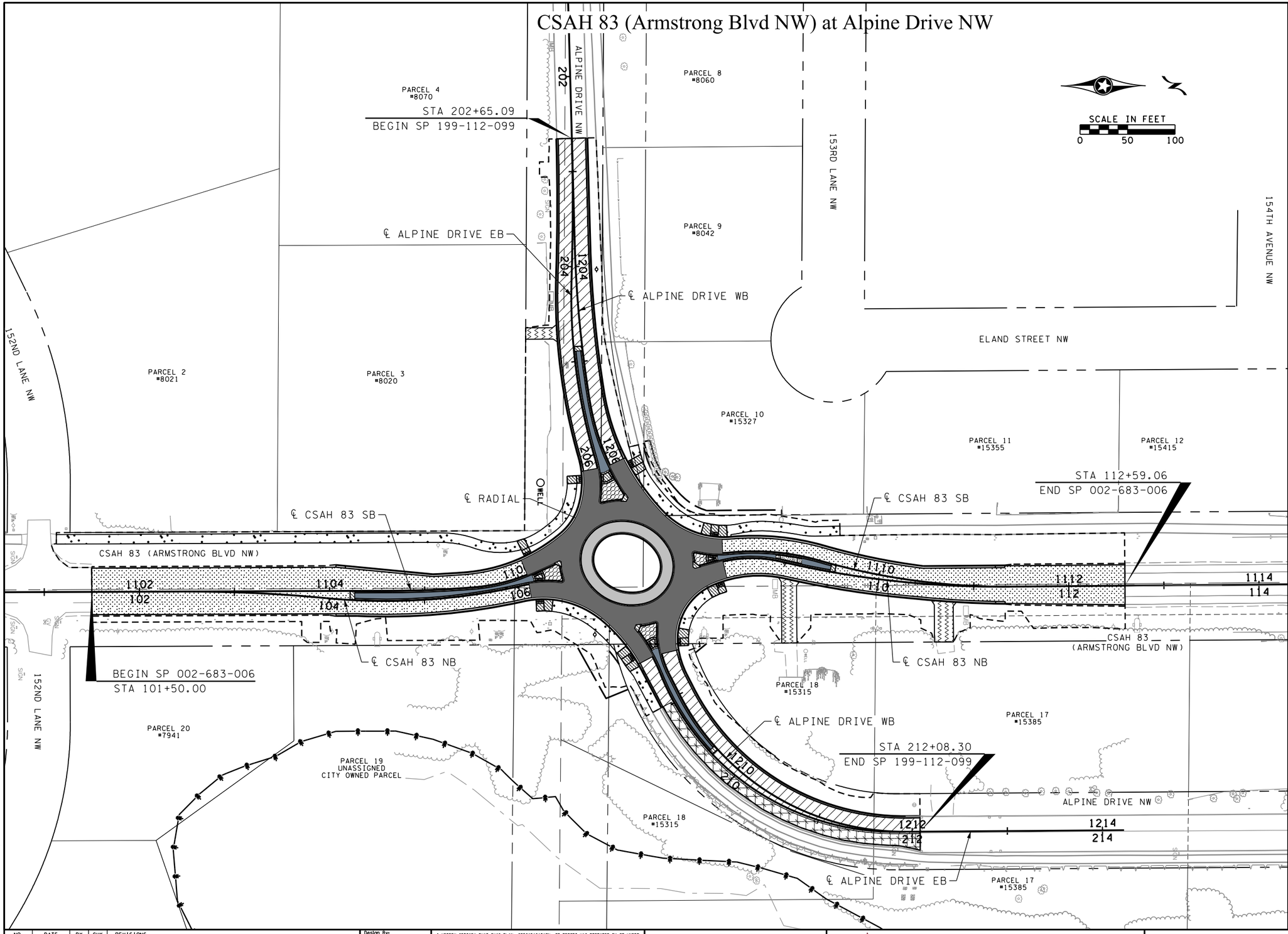
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **69** OF **93** SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

PLOTTED/REVISED: 11/23/2022 9:37:36 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\09344-000_pr01



LEGEND

- INSET "A" - CSAH 83 BITUMINOUS ROADWAY
- INSET "B" - ALPINE DRIVE BITUMINOUS ROADWAY
- INSET "C" - 6" CONCRETE WALK
- INSET "D" - 2.5" BITUMINOUS TRAIL
- INSET "E" - 6" CONCRETE DRIVEWAY PAVEMENT
- INSET "F" - 3" BITUMINOUS DRIVEWAYS
- INSET "G1" - CONCRETE PAVEMENT (7.0")
- INSET "G2" - CONCRETE PAVEMENT 7.0" SPECIAL
- INSET "H" - 4" CONCRETE WALK
- INSET "I" - 4" CONCRETE WALK SPECIAL (MEDIANS)
- INSET "J" - BITUMINOUS MILL & OVERLAY

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

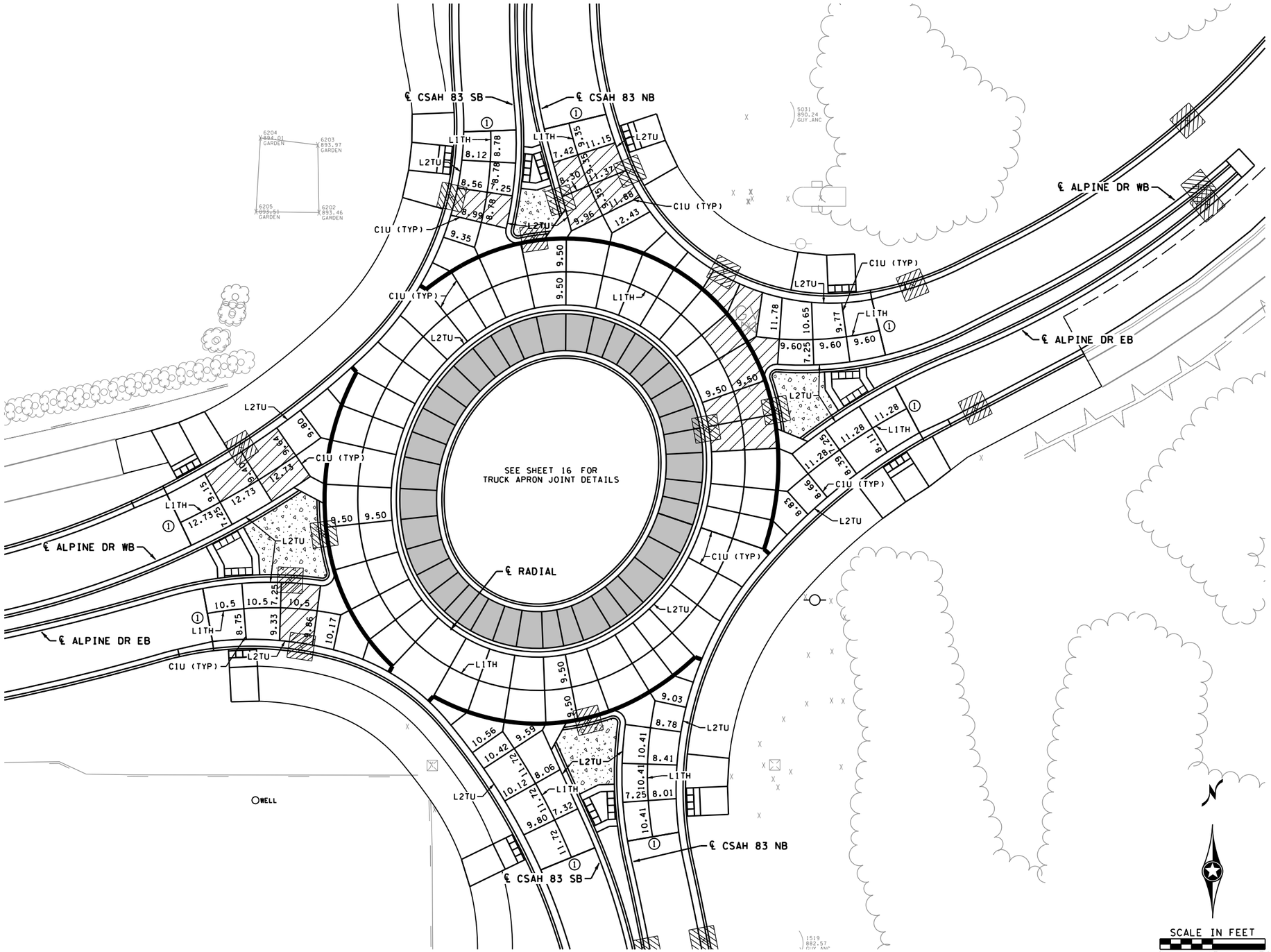
ANOKA COUNTY, MINNESOTA

PAVING PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 70 OF 93 SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



LEGEND

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

GENERAL NOTES

1. ALL L1TH JOINTS ARE 7.25' OFFSET FROM SPLITTER ISLAND CURB AND GUTTER UNLESS OTHERWISE NOTED.
2. JOINT LAYOUTS MAY BE CHANGED IN THE FIELD BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER.
3. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL PROPOSED AND EXISTING STRUCTURES ARE LOCATED AND RAISED DURING PAVING.
4. 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.
5. JOINT LOCATIONS SHALL MATCH EXISTING JOINTS, INCLUDING CURB & GUTTER JOINTS.
6. REFER TO TEMPORARY TRAFFIC CONTROL PLAN FOR CONCRETE PAVEMENT STAGING DETAILS. USE BENT TIE BARS TO TIE STAGED PAVEMENT AREAS TOGETHER.
7. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CONCRETE PAVING PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 71 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:37:49 AM

WSB PATH & FILENAME: Projects\Minnesota\093344-000\Civil\Plan\93344-000_rab01

LEGEND

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

NOTES:

1. SEE SHEET 74 FOR QUADRANT TOE OF GUTTER PROFILES.
2. SEE SHEET 69 FOR RADIAL PROFILE.

STA 22+44.23 = STA 1108+75, 14' LT

STA 41+66.27 = STA 108+75, 15.67' RT

STA 40+00 = STA 1208+84.26, 14' LT

STA 32+31.84 = STA 208+75, 12.66' RT

STA 20+00 = STA 1205+50, 14.26' LT

STA 12+50 = STA 205+51.53, 14' RT

STA 10+00 = STA 1105+42.53, 14 LT

STA 30+00 = STA 105+50, 14' RT

℄ NE QUADRANT
℄ CSAH 83 NB
℄ ALPINE DR WB
℄ CSAH 83 SB
℄ NW QUADRANT
℄ RADIAL
℄ SE QUADRANT
℄ ALPINE DR EB
℄ SW QUADRANT

SCALE IN FEET
0 20 40

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: AJF
Checked By: WBM
Approved By: WBM

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ROUNDABOUT INTERSECTION DETAILS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 72 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:37:59 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_rdx02

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		CSAH 83 SW QUAD <Q_SW>								
	PC	10+00.000						447,506.2442	177,691.9449	N 4° 11' 16.21" W
	PI	10+58.528	36° 01' 28.02" LT	31° 49' 51.56"	180.000'	58.528'	113.174'	447,501.9701	177,750.3166	PI
	CC							447,326.7248	177,678.8001	
	PCC	11+13.174						447,464.1832	177,795.0120	N 40° 12' 44.23" W
	PCC	11+13.174						447,464.1832	177,795.0120	N 40° 12' 44.23" W
	PI	11+32.218	34° 08' 59.98" LT	92° 24' 45.17"	62.000'	19.044'	36.954'	447,451.8879	177,809.5551	PI
	CC							447,416.8364	177,754.9835	
	PCC	11+50.128						447,433.5488	177,814.6885	N 74° 21' 44.21" W
	PCC	11+50.128						447,433.5488	177,814.6885	N 74° 21' 44.21" W
	PI	11+76.780	31° 39' 35.69" LT	60° 57' 10.64"	94.000'	26.652'	51.942'	447,407.8829	177,821.8728	PI
	CC							447,408.2107	177,724.1679	
	PRC	12+02.070						447,382.2658	177,814.5165	S 73° 58' 40.10" W
	PRC	12+02.070						447,382.2658	177,814.5165	S 73° 58' 40.10" W
	PI	12+26.832	4° 37' 08.47" RT	9° 19' 53.62"	614.000'	24.763'	49.499'	447,358.4648	177,807.6817	PI
	CC							447,212.7958	178,404.6656	
	PT	12+51.568						447,334.1908	177,802.7858	S 78° 35' 48.57" W
		CSAH 83 NW QUAD <Q_NW>								
	PC	20+00.000						447,328.4312	177,839.5609	N 77° 29' 46.79" E
	PI	20+66.299	31° 07' 55.71" LT	24° 04' 25.88"	238.000'	66.299'	129.319'	447,393.1577	177,853.9148	PI
	CC							447,276.9037	178,071.9161	
	PCC	21+29.319						447,441.1409	177,899.6658	N 46° 21' 51.08" E
	PCC	21+29.319						447,441.1409	177,899.6658	N 46° 21' 51.08" E
	PI	21+72.749	51° 31' 10.66" LT	63° 39' 43.12"	90.000'	43.430'	80.927'	447,472.5728	177,929.6355	PI
	CC							447,379.0344	177,964.8025	
	PRC	22+10.246						447,468.6703	177,972.8897	N 5° 09' 19.59" W
	PRC	22+10.246						447,468.6703	177,972.8897	N 5° 09' 19.59" W
	PI	22+27.263	7° 22' 34.61" RT	21° 42' 10.61"	264.000'	17.017'	33.987'	447,467.1412	177,989.8381	PI
	CC							447,731.6023	177,996.6122	
	PT	22+44.234						447,467.8006	178,006.8426	N 2° 13' 15.03" E

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	COORDINATES Y	BEARING
		CSAH 83 SE QUAD <Q_SE>								
	PC	30+00.000						447,541.4599	177,701.8479	N 8° 00' 29.31" W
	PI	30+26.487	4° 34' 07.26" LT	8° 37' 43.98"	664.000'	26.487'	52.946'	447,537.7699	177,728.0768	PI
	CC							446,883.9351	177,609.3435	
	PRC	30+52.946						447,532.0023	177,753.9285	N 12° 34' 36.57" W
	PRC	30+52.946						447,532.0023	177,753.9285	N 12° 34' 36.57" W
	PI	31+01.050	52° 17' 20.31" RT	58° 27' 54.29"	98.000'	48.104'	89.436'	447,521.5277	177,800.8783	PI
	CC							447,627.6508	177,775.2679	
	PCC	31+42.383						447,552.2629	177,837.8831	N 39° 42' 43.74" E
	PCC	31+42.383						447,552.2629	177,837.8831	N 39° 42' 43.74" E
	PI	31+76.225	22° 31' 04.65" RT	33° 42' 12.24"	170.000'	33.843'	66.812'	447,573.8861	177,863.9171	PI
	CC							447,683.0378	177,729.2648	
	PT	32+09.195						447,603.8311	177,879.6852	N 62° 13' 48.38" E
	POT	32+31.840						447,623.8682	177,890.2361	
		CSAH 83 NE QUAD <Q_NE>								
	PC	40+00.000						447,611.6113	177,923.7887	S 63° 09' 02.34" W
	PI	40+15.603	19° 15' 02.51" RT	62° 16' 40.88"	92.000'	15.603'	30.911'	447,597.6908	177,916.7419	PI
	CC							447,570.0599	178,005.8709	
	PCC	40+30.911						447,582.2253	177,914.6787	S 82° 24' 04.85" W
	PCC	40+30.911						447,582.2253	177,914.6787	S 82° 24' 04.85" W
	PI	40+79.868	74° 49' 43.97" RT	89° 31' 28.76"	64.000'	48.957'	83.585'	447,533.6980	177,908.2050	PI
	CC							447,573.7624	177,978.1167	
	PCC	41+14.496						447,514.7501	177,953.3469	N 22° 46' 11.18" W
	PCC	41+14.496						447,514.7501	177,953.3469	N 22° 46' 11.18" W
	PI	41+40.754	23° 32' 37.50" RT	45° 28' 22.23"	126.000'	26.258'	51.775'	447,504.5874	177,977.5587	PI
	CC							447,630.9306	178,002.1125	
	PT	41+66.271						447,504.9421	178,003.8146	N 0° 46' 26.32" E

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

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

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

QUADRANT ALIGNMENT TABULATIONS

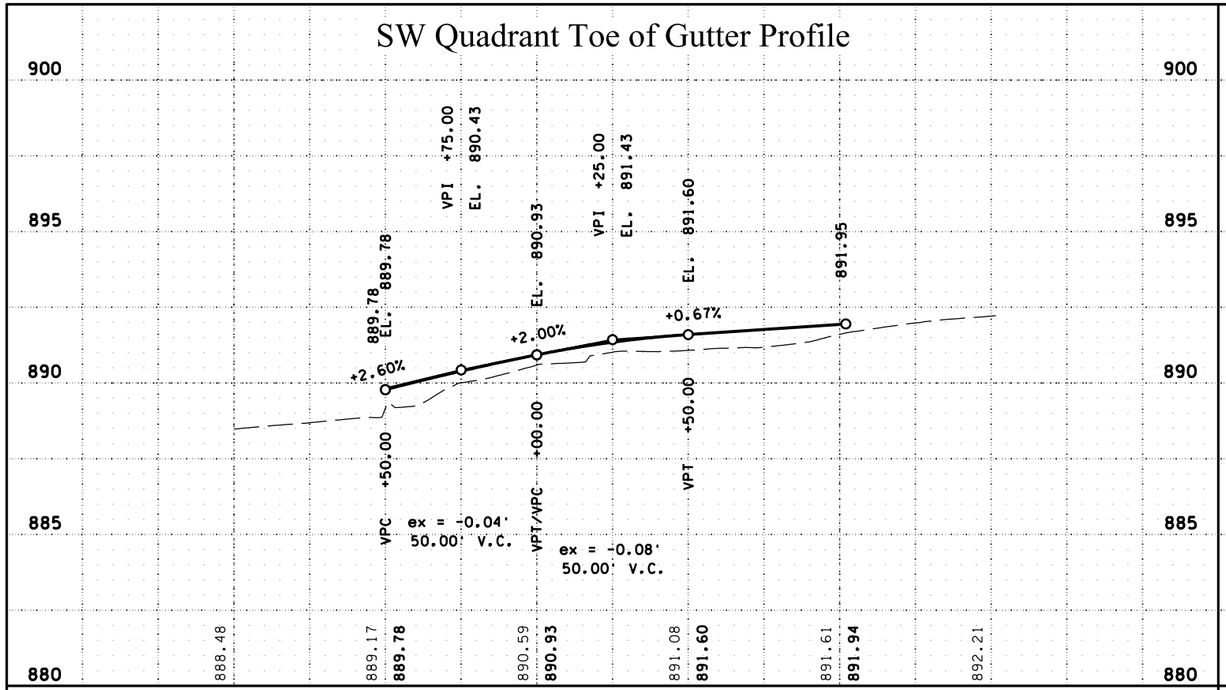
ROUNDABOUT INTERSECTION DETAILS

SP 002-683-006, SP 199-112-009, IP 23-03

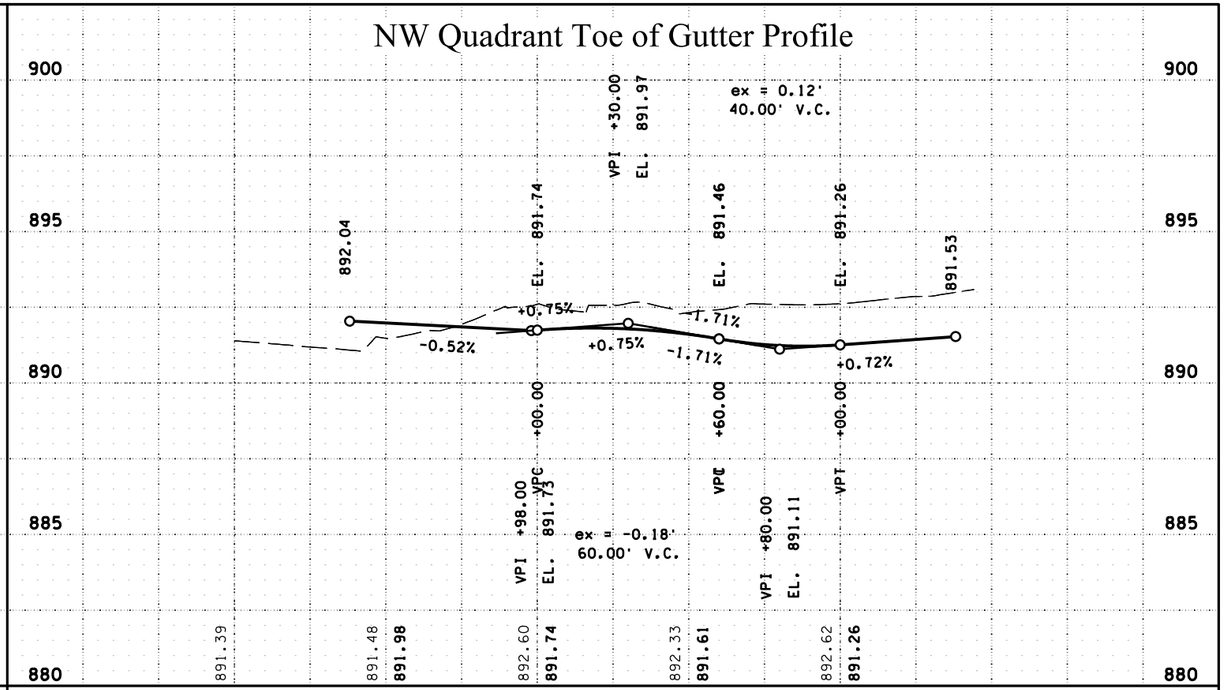
SHEET 73 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:38:08 AM

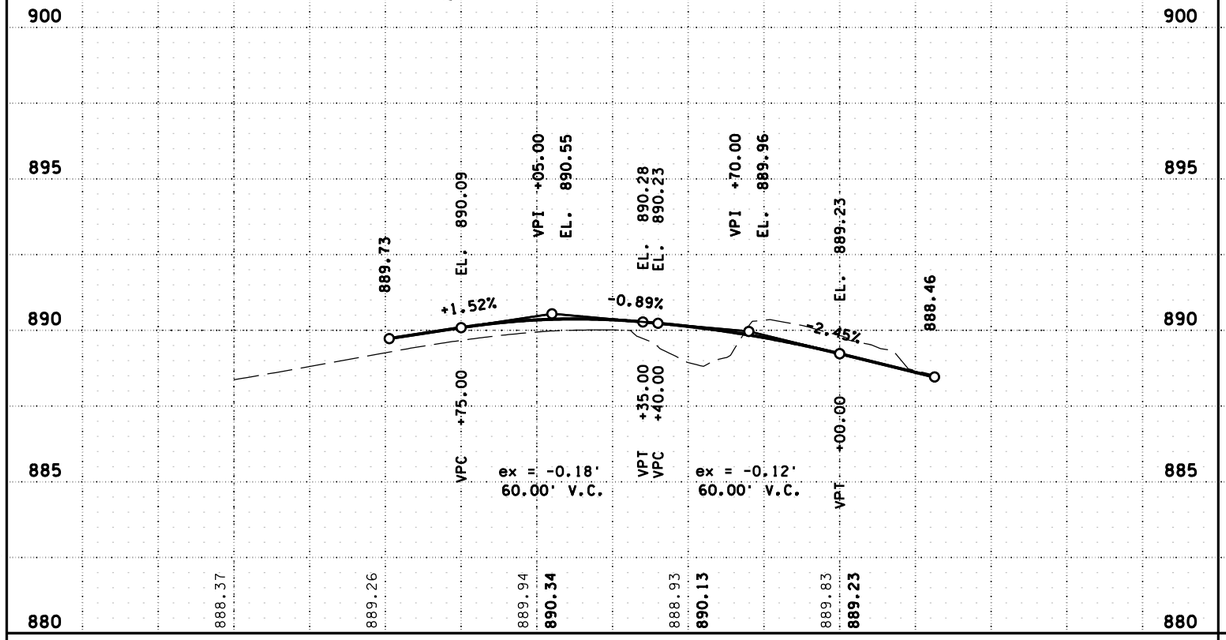
SW Quadrant Toe of Gutter Profile



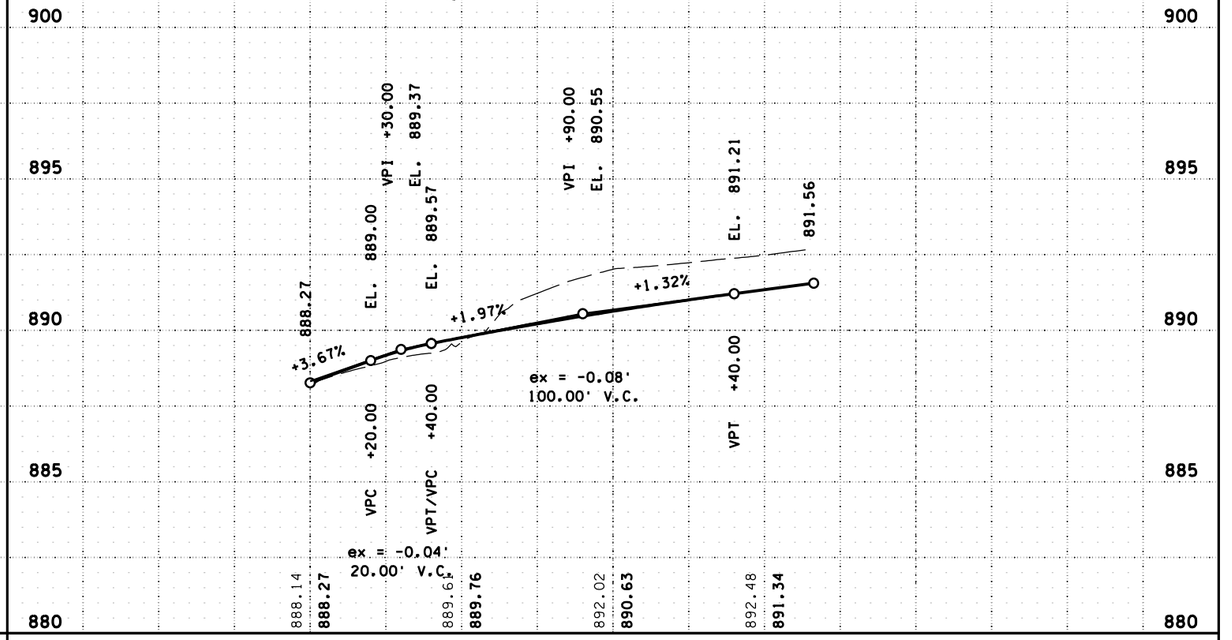
NW Quadrant Toe of Gutter Profile



SE Quadrant Toe of Gutter Profile



NE Quadrant Toe of Gutter Profile



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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ROUNDABOUT QUADRANT PROFILES

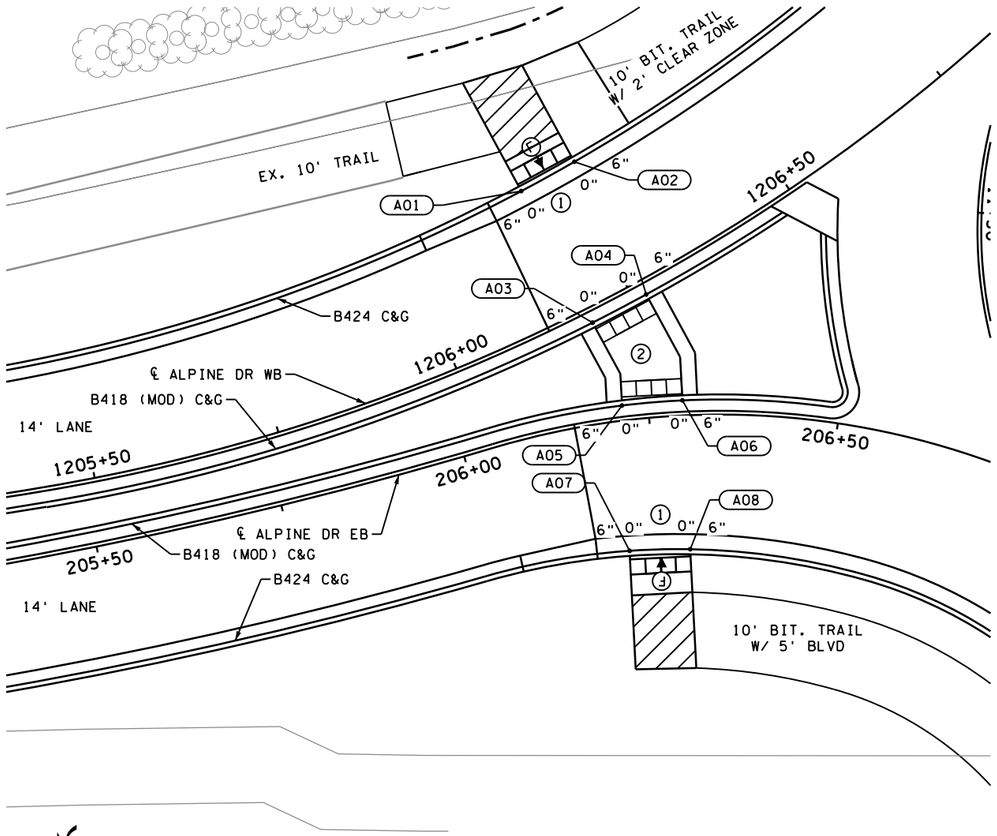
ROUNDABOUT INTERSECTION DETAILS

SP 002-683-006, SP 199-112-009, IP 23-03

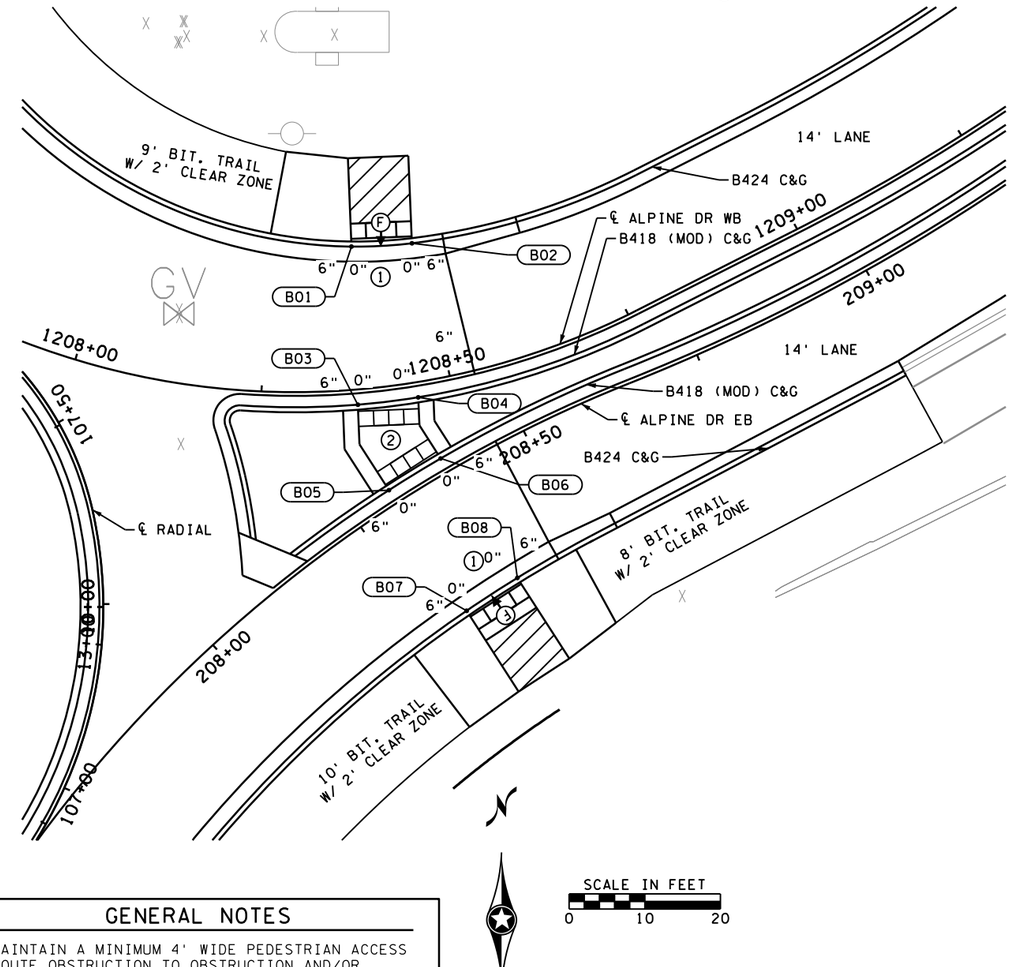
SHEET 74 OF 93 SHEETS

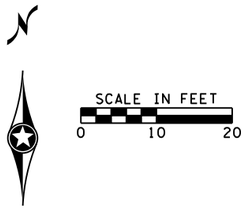
WSB PATH & FILENAME: Projects\Minnesota\0\93344-000\Con Plan\93344-000_rab03

CSAH 83 Roundabout: West Leg



CSAH 83 Roundabout: East Leg





CONTROL POINTS AT GUTTER FLOW LINE			
POINT NO.	X	Y	ELEVATION
A01	447387.5121	177863.4412	891.79
A02	447394.5292	177867.3183	891.74
A03	447396.9258	177846.0774	892.08
A04	447404.0055	177849.8039	892.04
A05	447400.8096	177835.1386	892.03
A06	447408.7852	177835.8137	891.97
A07	447401.8165	177815.9454	891.70
A08	447409.8165	177816.1539	891.64

LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- X" — CURB HEIGHT
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS.
- (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%.
- (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%.
- (1) — PEDESTRIAN CURB RAMP, SEE STANDARD PLANS
- (2) — DEPRESSED MEDIAN CROSSWALK,SEE MISCELLANEOUS DETAILS

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
- PROVIDE A SAWCUT (INCIDENTAL) AT ALL CONCRETE WALK AND BITUMINOUS TRAIL REMOVAL LIMITS.
- ALL CURB RAMPS AND LANDING AREAS SHALL BE 6" CONCRETE WALK ON 3" AGGREGATE BASE CLASS 5.
- 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.

CONTROL POINTS AT GUTTER FLOW LINE			
POINT NO.	X	Y	ELEVATION
B01	447573.1223	177916.1200	889.45
B02	447581.1112	177916.5538	889.26
B03	447573.9729	177895.2430	889.72
B04	447581.9400	177896.2141	889.53
B05	447578.0750	177883.9576	889.64
B06	447584.8992	177888.1364	889.49
B07	447588.3261	177868.0225	889.35
B08	447595.0391	177872.3740	889.16

NO.	DATE	BY	CHK	REVISIONS

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

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DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

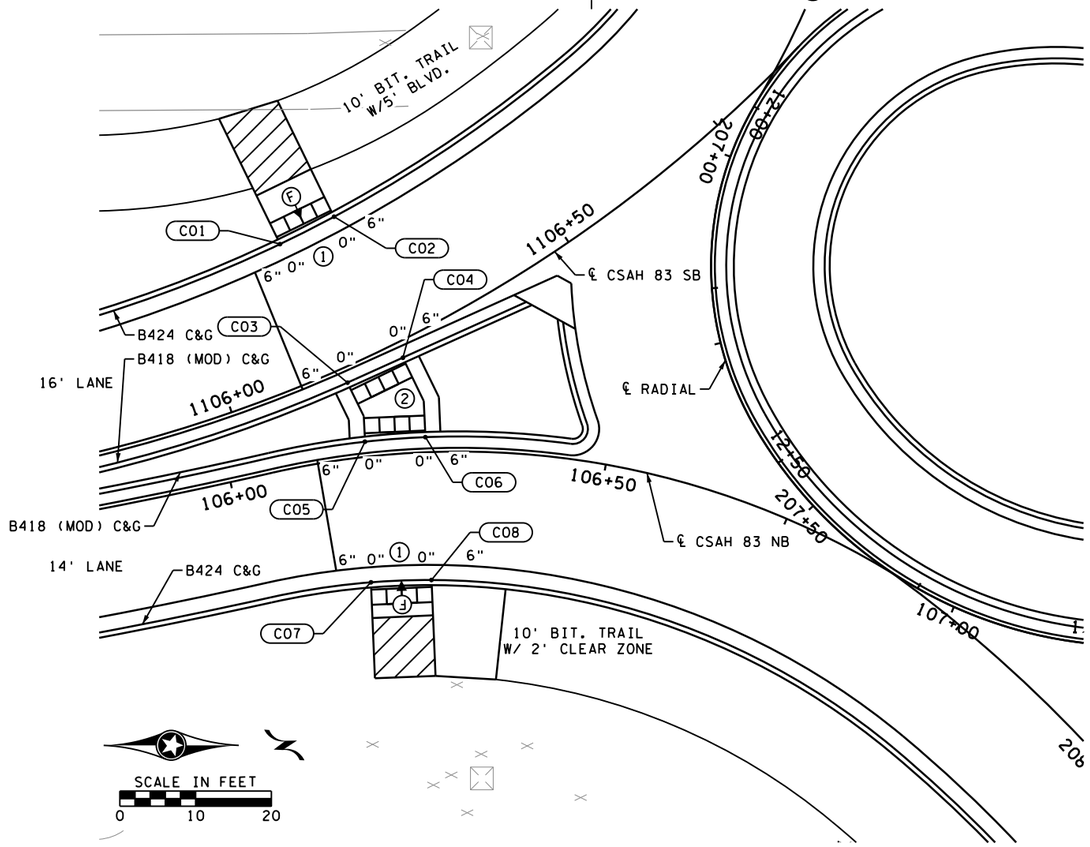
PEDESTRIAN RAMP DETAILS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 75 OF 93 SHEETS

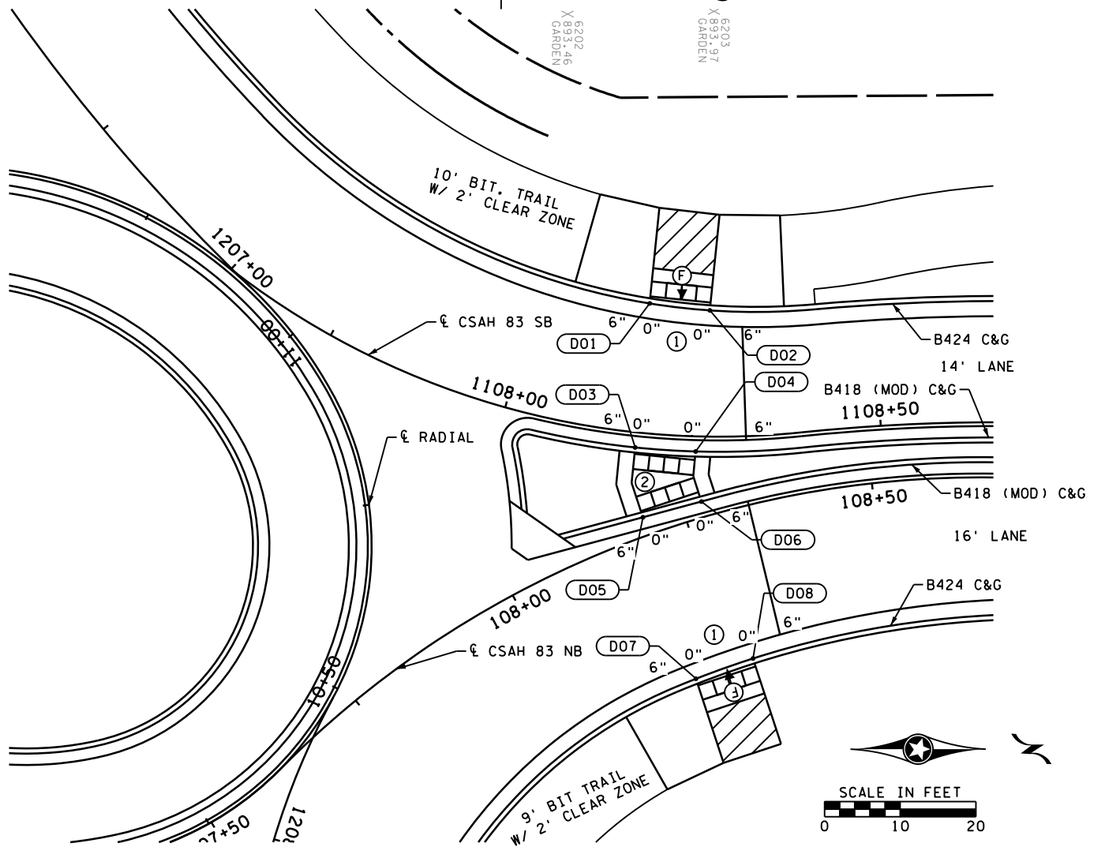
PLOTTED/REVISED: 11/23/2022 9:38:26 AM

CSAH 83 Roundabout: South Leg



CONTROL POINTS AT GUTTER FLOW LINE			
POINT NO.	X	Y	ELEVATION
C01	447487.2921	177755.6256	890.09
C02	447483.6775	177762.7636	890.28
C03	447505.5932	177764.5407	890.32
C04	447502.2957	177771.8549	890.46
C05	447513.3850	177766.8402	890.18
C06	447512.7804	177774.8217	890.28
C07	447531.9551	177767.6310	889.84
C08	447531.6515	177775.6253	889.97

CSAH 83 Roundabout: North Leg



CONTROL POINTS AT GUTTER FLOW LINE			
POINT NO.	STATION	OFFSET	ELEVATION
D01	447465.9119	177950.7919	891.10
D02	447466.8253	177958.7404	891.11
D03	447484.9261	177948.8765	891.31
D04	447485.4561	177956.8636	891.36
D05	447494.1526	177949.8940	891.11
D06	447492.0751	177957.6321	891.22
D07	447515.4689	177956.8953	890.78
D08	447512.7928	177964.5368	890.89

LEGEND

- XX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- X" — CURB HEIGHT
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS.
- (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%.
- (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%.
- (1) — PEDESTRIAN CURB RAMP, SEE STANDARD PLANS
- (2) — DEPRESSED MEDIAN CROSSWALK,SEE MISCELLANEOUS DETAILS

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
- PROVIDE A SAWCUT (INCIDENTAL) AT ALL CONCRETE WALK AND BITUMINOUS TRAIL REMOVAL LIMITS.
- ALL CURB RAMPS AND LANDING AREAS SHALL BE 6" CONCRETE WALK ON 3" AGGREGATE BASE CLASS 5.
- 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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

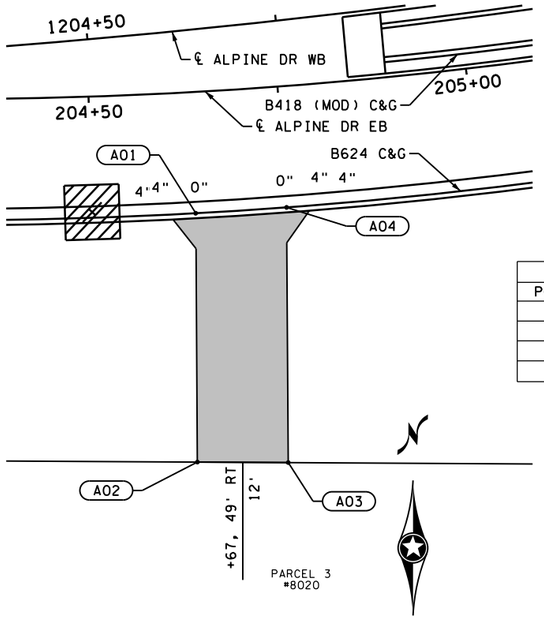
ANOKA COUNTY, MINNESOTA

PEDESTRIAN RAMP DETAILS

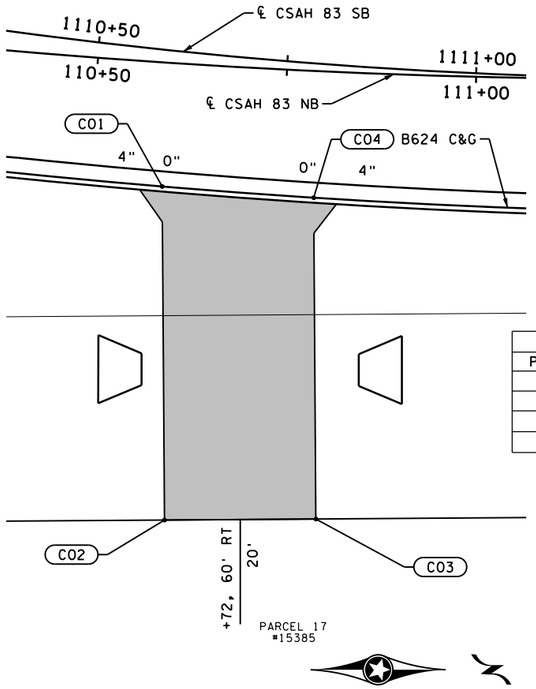
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 76 OF 93 SHEETS

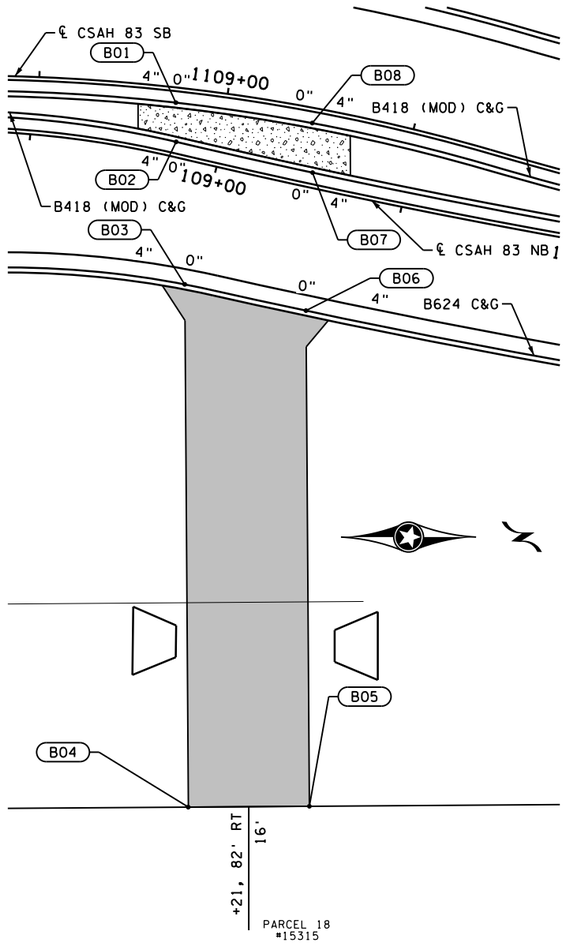
WSB PATH & FILENAME: Projects\Minnesota\019344-000\Cad\Plan\19344-000_ped2



CONTROL POINTS			
POINT NO.	X	Y	ELEVATION
A01	447246.3689	177789.5811	892.61
A02	447246.5815	177756.7325	892.54
A03	447258.5822	177756.6641	892.57
A04	447258.3642	177790.3533	892.55



CONTROL POINTS			
POINT NO.	X	Y	ELEVATION
C01	447533.0248	178186.3473	893.52
C02	447577.0812	178186.6519	892.72
C03	447576.9430	178206.6514	892.67
C04	447534.5050	178206.3580	893.73



CONTROL POINTS			
POINT NO.	X	Y	ELEVATION
B01	447485.1561	178024.3303	891.97
B02	447490.3397	178024.3661	892.00
B03	447509.1554	178025.4962	891.74
B04	447578.1921	178025.9735	890.59
B05	447578.0815	178041.9731	890.81
B06	447512.6257	178041.5206	891.92
B07	447494.4045	178042.3946	892.21
B08	447487.8563	178042.3494	892.17

SCALE IN FEET
0 10 20

LEGEND

- CONSTRUCT CONCRETE CURB AND GUTTER
- XX — CONTROL POINTS AT GUTTER FLOW LINE
- X" — CURB HEIGHT
- (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%.
- DRAINAGE FLOW ARROW
- 6" CONCRETE DRIVEWAY PAVEMENT, SEE INSERT D ON SHEET 10
- BITUMINOUS DRIVEWAY, SEE INSERT E ON SHEET 10
- PROPOSED CATCH BASIN

DRIVEWAY INFORMATION: STA AT CENTER, OFFSET / DRIVEWAY WIDTH

GENERAL NOTES

SEE SHEET 18 FOR DRIVEWAY DETAILS

DRIVEWAYS INCLUDED THIS SHEET:
#8020, #15315, #15385

NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

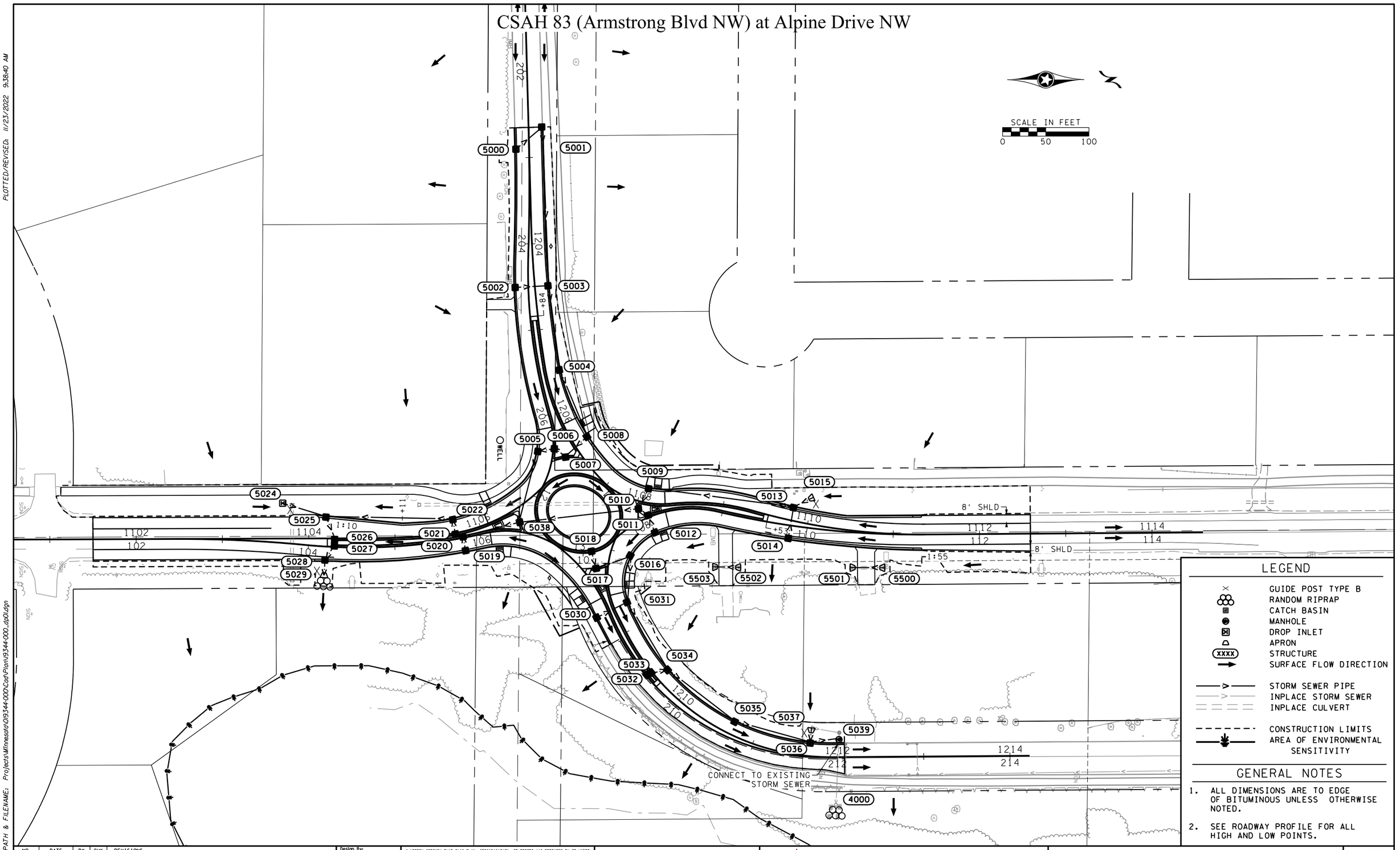
DRIVEWAY DETAILS
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 77 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:38:40 AM

WSB PATH & FILENAME: Projects\Minnesota\0\9344-000\Cad\Plan\9344-000_dp01.dgn

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



LEGEND

- GUIDE POST TYPE B
- RANDOM RIPRAP
- CATCH BASIN
- MANHOLE
- DROP INLET
- APRON
- XXXX STRUCTURE
- SURFACE FLOW DIRECTION
- STORM SEWER PIPE
- INPLACE STORM SEWER
- INPLACE CULVERT
- CONSTRUCTION LIMITS
- AREA OF ENVIRONMENTAL SENSITIVITY

GENERAL NOTES

1. ALL DIMENSIONS ARE TO EDGE OF BITUMINOUS UNLESS OTHERWISE NOTED.
2. SEE ROADWAY PROFILE FOR ALL HIGH AND LOW POINTS.

NO.	DATE	BY	CHK	REVISIONS

Design By: FTO
Plan By: FTO
Checked By: JHN
Approved By: JHN

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: JACOB H. NEWHALL, PE

DATE 11/23/2022 LICENSE # 49170

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

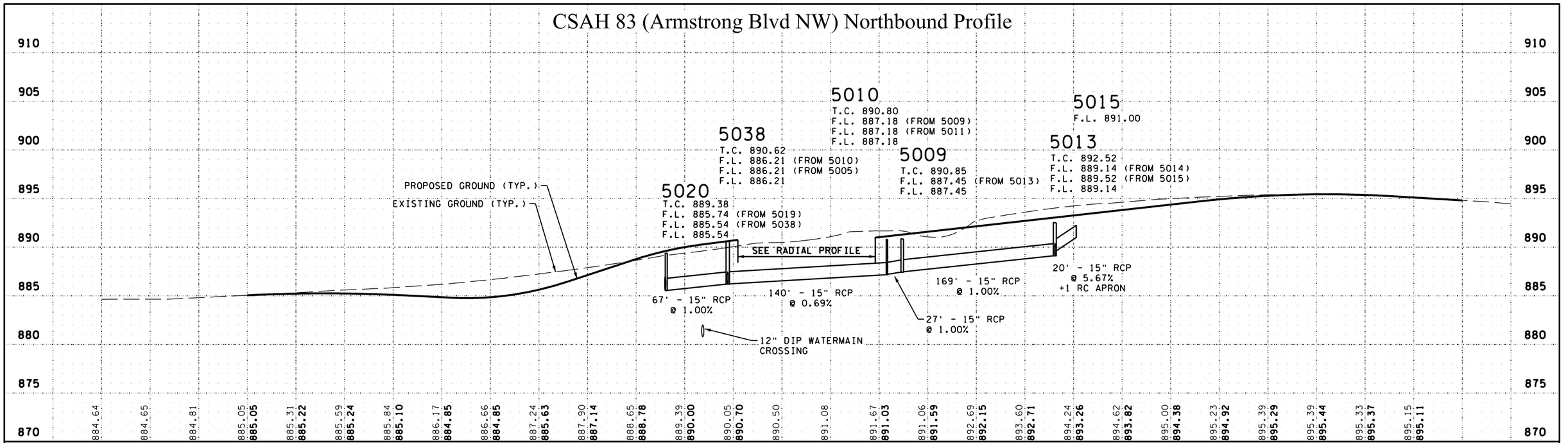
DRAINAGE PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

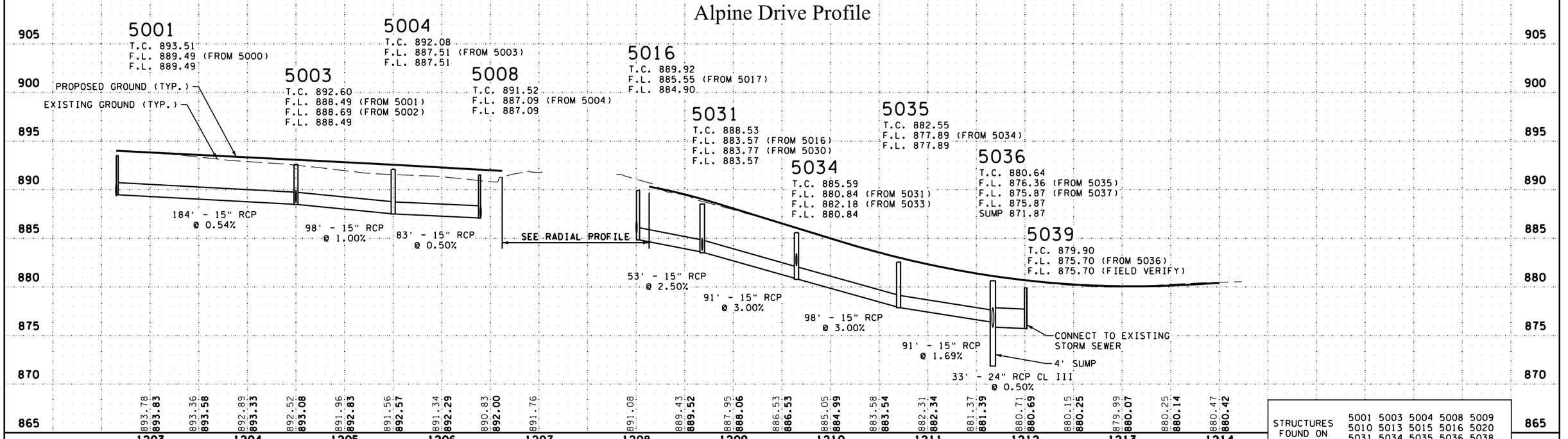
SHEET 78 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:38:46 AM

CSAH 83 (Armstrong Blvd NW) Northbound Profile



Alpine Drive Profile



STRUCTURES FOUND ON THIS SHEET:	5001 5003 5004 5008 5009 5010 5013 5015 5016 5020 5031 5034 5035 5036 5038 5039

NO.	DATE	BY	CHK	REVISIONS

Design By: FTO
Plan By: FTO
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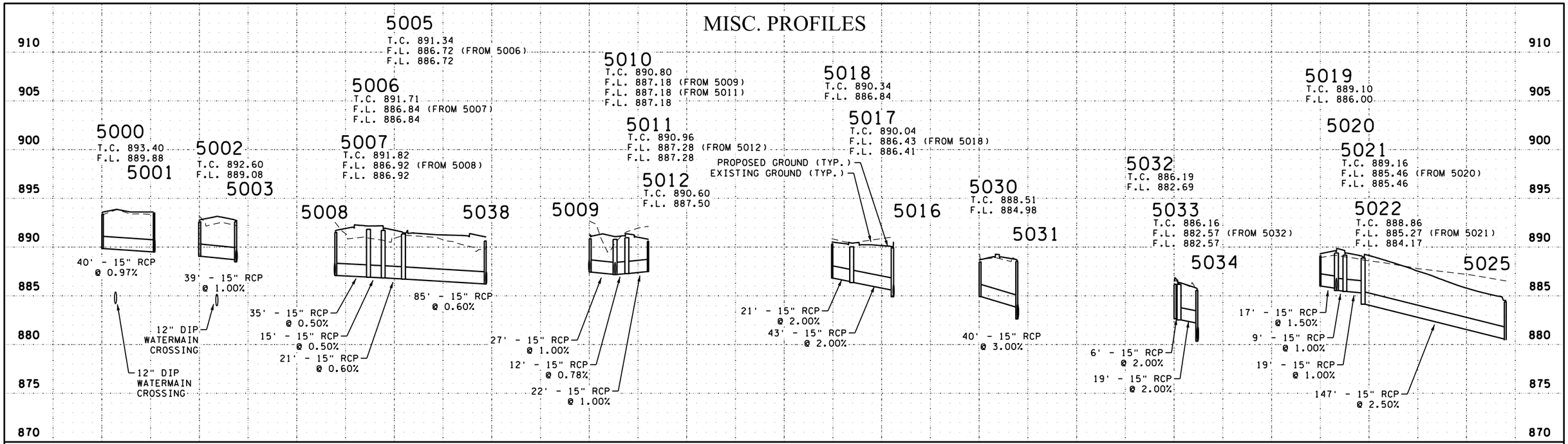
DRAINAGE PROFILES & TABULATIONS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 79 OF 93 SHEETS

WSB PATH & FILENAME: Projects\Minnesota\093344-000\Civil\Plan\93344-000_dp02.dgn

MISC. PROFILES



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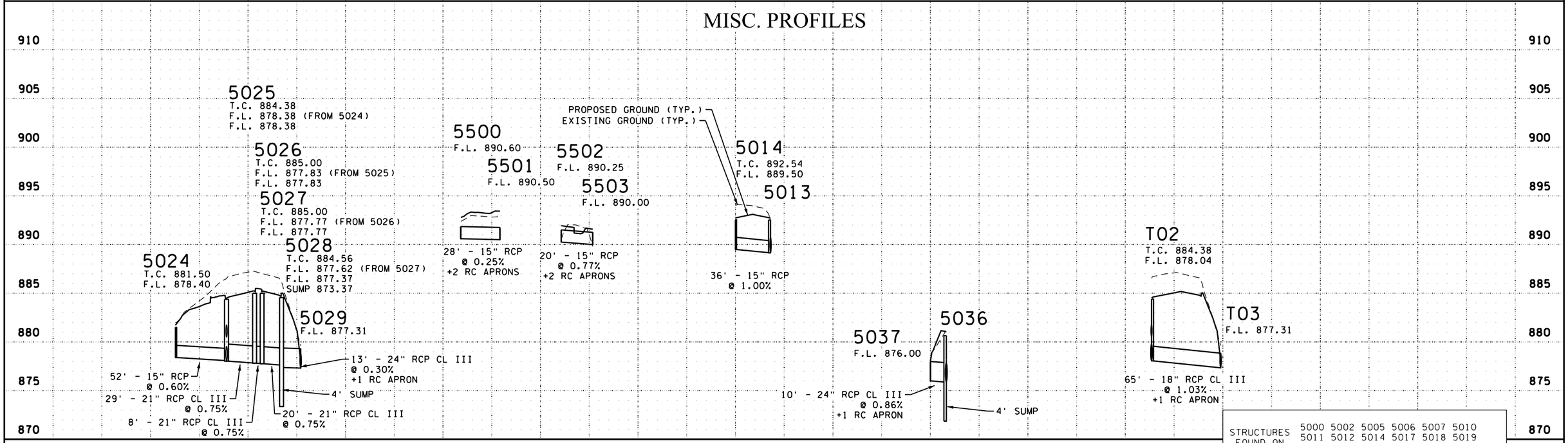

STRUCTURES FOUND ON THIS SHEET: 5000 5002 5005 5006 5007 5010 5011 5012 5014 5017 5018 5019 5021 5022 5024 5025 5026 5027 5028 5029 5030 5032 5033 5037 5500 5501 5502 5503 T02 T03

NO.	DATE	BY	CHK	REVISIONS

Design By: FTO
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DRAINAGE PROFILES & TABULATIONS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 80 OF 93 SHEETS

DRAINAGE TABULATION

H

STRUCTURE NO. FLOWS FROM	STRUCTURE NO. FLOWS TO	STRUCTURE LOCATION ALIGN.	STATION	OFFSET	COORDINATES X	COORDINATES Y	DRAINAGE STRUCTURES PAY HEIGHT SPEC 1 EACH	G LIN FT	H LIN FT	48-4020 LIN FT	60-4020 LIN FT	CASTING ASSEMBLY TYPE	STEPS REQ'D	CONNECT TO EXISTING STORM SEWER	TOP OF CASTING ELEV	OUTLET ELEV.	INLET ELEV.	15" RCP CL V LIN FT	21" RCP CL III LIN FT	24" RCP CL III LIN FT	APRON EACH	APRON TYPE	RIPRAP CLASS III CU YD	GEOTEXTILE FILTER TYPE IV SQ YD	GUIDE POSTS TYPE B EACH	REMARKS
4000		ALPINE_EB	211+97.80	57.0' RT	447833.56	178161.36										871.90										
5000	5001	ALPINE_EB	202+90.00	15.3' RT	447072.49	177790.55	1					E			893.40	889.88	889.49	40								(A)
5001	5003	ALPINE_WB1	1202+65.09	15.3' LT	447046.90	177820.48				4.3		E			893.51	889.49	888.49	184								
5002	5003	ALPINE_EB	204+50.00	15.3' RT	447232.70	177789.74	1					E			892.60	889.08	888.69	39								(A)
5003	5004	ALPINE_WB1	1204+50.00	15.3' LT	447230.71	177827.73				4.4		E			892.60	888.49	887.51	98								
5004	5008	ALPINE_WB1	1205+50.00	15.5' LT	447328.19	177840.78				4.9		E	YES		892.08	887.51	887.09	83								
5005	5038	ALPINE_EB	206+45.00	17.5' RT	447422.61	177816.04				4.5		C	YES		891.34	886.72	886.21	85								(B)
5006	5005	ALPINE_EB	206+40.00	1.3' LT	447419.44	177835.03				5.2		B	YES		891.71	886.84	886.72	21								
5007	5006	RADIAL	11+60.00	19.3' RT	447429.16	177848.13				5.2		B	YES		891.82	886.92	886.84	15								
5008	5007	ALPINE_WB1	1206+40.00	17.2' LT	447405.49	177872.84				4.4		C			891.52	887.09	886.92	35								(B)
5009	5010	CSAH83_SB2	1108+10.00	16.5' LT	447465.62	177944.37				3.3		D			890.85	887.45	887.18	27								
5010	5038	RADIAL	10+75.68	19.3' RT	447489.04	177932.66				3.9		B			890.80	887.18	886.21	140								
5011	5010	CSAH83_NB	108+13.00	2.4' LT	447496.64	177943.52				4.0		B			890.96	887.28	887.18	12								
5012	5011	CSAH83_NB	108+13.00	19.1' RT	447516.49	177951.77			3.0			C			890.60	887.50	887.28	22								(B)
5013	5009	CSAH83_SB2	1109+80.00	15.0' LT	447487.71	178112.24		3.3				C			892.52	889.14	887.45	169								(B)
5014	5013	CSAH83_NB	109+80.00	15.0' RT	447523.19	178106.15			3.0			C			892.54	889.50	889.14	36								(B)
5015	5013	CSAH83_SB2	1110+01.03	31.4' LT	447475.71	178135.45										891.00	889.52	20			1	RC APRON			1	
5016	5031	ALPINE_WB2	1208+00.00	22.8' LT	447543.26	177923.01					4.9	C	YES		889.92	884.90	883.57	53								(B)
5017	5016	RADIAL	13+20.00	17.8' RT	447558.13	177883.53		3.6				B			890.04	886.41	885.55	43								
5018	5017	RADIAL	10+10.00	1.3' LT	447538.26	177878.26			3.4			B			890.34	886.84	886.43	21								
5019	5020	CSAH83_NB	105+80.00	15.0' RT	447537.47	177732.27			3.0			C			889.10	886.00	885.74	17								(B)
5020	5021	CSAH83_NB	105+80.00	1.3' LT	447521.50	177729.27				4.1		B			889.38	885.54	885.46	9								
5021	5022	CSAH83_SB1	1105+70.00	1.3' RT	447518.36	177720.47				4.0		B			889.16	885.46	885.27	19								
5022	5025	CSAH83_SB1	1105+70.00	15.9' LT	447501.53	177717.44				4.6		C	YES		888.86	884.17	880.50	147								(B)
5024	5025	CSAH83_SB1	1103+70.00	41.0' LT	447482.50	177520.36			3.1			M - 11			881.50	878.40	878.09	52							1	
5025	5026	CSAH83_SB1	1104+20.00	24.7' LT	447498.66	177570.42				6.3		C	YES		884.38	878.04	877.83		29							(B)
5026	5027	CSAH83_SB1	1104+30.00	1.3' RT	447524.52	177580.52				7.5		B	YES		885.00	877.83	877.77		8							
5027	5028	CSAH83_NB	104+30.00	1.3' LT	447532.03	177580.26				7.5		B	YES		885.00	877.77	877.62		20							
5028	5029	CSAH83_NB	104+20.00	15.6' RT	447548.33	177569.28				11.1		C	YES		884.56	877.37	877.31			13						(B) (C)
5029		CSAH83_NB	104+20.00	36.0' RT	447568.69	177568.05										877.31					1	RC APRON	5	21	1	
5030	5031	ALPINE_EB	208+65.00	14.9' RT	447615.06	177884.17	1					E			888.51	884.98	883.77	40								(A)
5031	5034	ALPINE_WB2	1208+68.00	16.2' LT	447597.18	177919.27				5.2		E	YES		888.53	883.57	880.84	91								
5032	5033	ALPINE_EB	209+50.00	1.3' LT	447681.39	177942.31	1					E			886.19	882.69	882.57	6								(A)
5033	5034	ALPINE_WB2	1209+55.00	1.3' RT	447678.83	177947.30				3.9		E			886.16	882.57	882.18	19								
5034	5035	ALPINE_WB2	1209+65.00	15.3' LT	447675.69	177966.20				5.0		E	YES		885.59	880.84	877.89	98								
5035	5036	ALPINE_WB2	1210+70.00	15.3' LT	447735.66	178044.10				4.9		E	YES		882.55	877.89	876.36	91								
5036	5039	ALPINE_WB2	1211+67.00	15.3' LT	447760.34	178131.60					9.1	E	YES		880.64	875.87	875.70			33						(C)
5037	5036	ALPINE_WB2	1211+66.91	32.8' LT	447742.81	178133.13										876.00	875.87			10	1	RC APRON			1	
5038	5020	RADIAL	12+32.00	19.3' RT	447504.54	177795.02				4.7		B	YES		890.62	886.21	885.54	67								
5039	4000	ALPINE_WB2	1212+01.92	20.3' LT	447756.26	178164.95					4.6	A - 4	YES	1	879.90	875.70	871.90			73						
				TOTAL			4	6.9	15.5	112.9	18.6			1				1799	57	129	3		78	54	4	

CULVERT TABULATION

I

STRUCTURE NO. FLOWS FROM	STRUCTURE NO. FLOWS TO	STRUCTURE LOCATION ALIGN.	STATION	OFFSET	COORDINATES X	COORDINATES Y	OUTLET ELEV.	INLET ELEV.	15" RCP CL V LIN FT	APRON EACH	APRON TYPE	FINE AGGREGATE BEDDING (CV) CU YD	REMARKS
5500	5501	CSAH83_NB	110+91.50	39.0' RT	447557.27	178218.01	890.60	890.50	28	1	RC APRON	31	
5501		CSAH83_NB	110+53.00	41.0' RT	447557.15	178177.92	890.50			1	RC APRON		
5502	5503	CSAH83_NB	109+33.00	57.5' RT	447556.91	178051.01	890.25	890.00	20	1	RC APRON	22	
5503		CSAH83_NB	109+03.00	63.5' RT	447556.24	178018.65	890.00			1	RC APRON		
				TOTAL					48	4		53	

TEMPORARY DRAINAGE TABULATION STAGE 1

J

STRUCTURE NO. FLOWS FROM	STRUCTURE NO. FLOWS TO	STRUCTURE LOCATION ALIGN.	STATION	OFFSET	COORDINATES X	COORDINATES Y	DRAINAGE STRUCTURES PAY HEIGHT 48-4020 LIN FT	CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEV	OUTLET ELEV.	INLET ELEV.	18" RCP CL III LIN FT	APRON EACH	APRON TYPE	REMARKS
T02	T03	CSAH83_SB1	1104+20.00	24.7' LT	447498.66	177570.42	6.7	A - 4	YES	884.38	878.04	877.31	65			(E)
T03		CSAH83_NB	104+20.00	36.0' RT	447568.69	177568.05					877.31			1	RC APRON	
				TOTAL			6.7						65	1		

REMARKS:
(A) - SEE CITY STANDARD PLATE STO-1.
(B) - INSTALL CASTING WITHOUT CURB BOX.
(C) - INSTALL 4' SUMP BELOW LOWEST INVERT.
(D) - INSTALL RIPRAP PLUNGE POOL. INSTALL AN ADDITIONAL 10 CY RIPRAP DOWN THE SLOPE TO THE WETLAND AS DIRECTED IN THE FIELD BY THE ENGINEER.
(E) - TEMPORARY CASTING INCLUDED IN CASTING ASSEMBLY SUMMARY.

CASTING ASSEMBLY SUMMARY

K

ASSEMBLY	RING OR FRAME	COVER OR GRATE	CURB BOX	STANDARD PLATE NUMBER	USE	TOTALS
A - 4	700-4	716		4101 4110	MANHOLE	2
B	NEENAH R-3448-C WITH TYPE C GRATE OR APPROVED EQUAL.					11
C	NEENAH R-3250-EVSP WITH TYPE V GRATE OR APPROVED EQUAL.					10
D	NEENAH R-3250-DVSP WITH TYPE V GRATE OR APPROVED EQUAL.					1
E	FRAME AND RING CASTING TYPE E. SEE CITY STANDARD PLATE STO-4.					12
M - 11	ROUND CONC	731		4143 4143	STOOL GRATE	1
					TOTAL	37

GENERAL NOTES:
- STATIONS, OFFSETS, AND ELEVATIONS ARE GIVEN TO:
  -END OF ALL CONCRETE APRONS.
  -END OF BARREL FOR ALL METAL APRONS.
  -CENTER OF FRAME FOR ALL STORM STRUCTURES.
- ALL CURB BOXES WILL BE ADJUSTED TO 4".
- ALL PIPE LENGTHS EXCLUDE APRONS.
- TIE PIPE JOINTS FOR CULVERTS AND SEWER PIPE FROM APRONS TO FIRST STRUCTURE (INCIDENTAL).

GENERAL NOTES CONT.:
- 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.) ELEVATIONS ARE AT CENTER OF STRUCTURE.
- SUBSURFACE DRAINAGE CONNECTIONS TO DRAINAGE STRUCTURES SHALL BE INCIDENTAL.

NO.	DATE	BY	CHK	REVISIONS

Design By: FTO
Plan By: FTO
Checked By: JHN
Approved By: JHN

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PRINT NAME: JACOB H. NEWHALL, PE

DATE 11/23/2022 LICENSE # 49170

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

DRAINAGE PROFILES & TABULATIONS
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 81 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:39:14 AM

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_sgn00.dgn

SIGN AND DELINEATOR / MARKER

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	L DELINEATOR /MARKER PANEL EACH
S-1	R3-7R (MOD)	RIGHT TURN LANE	X				1		
S-2		NO PASSING ON SHOULDER	X				1		
S-3	R1-1	STOP	X				1		
	W4-4P	CROSS TRAFFIC DOES NOT STOP PLAQUE							
S-4	W1-2L	CURVE LEFT	X				1		
	W13-1P	30 MPH PLAQUE	X						
S-5	R2-1	SPEED LIMIT 45	24 X 30	7	U-SOIL	1	1	5.00	
S-6	W3-1	STOP AHEAD	X				1		
S-7	W3-1	STOP AHEAD	X				1		
S-8	R1-1	STOP	X				1		
	W4-4P	CROSS TRAFFIC DOES NOT STOP PLAQUE	X						
S-9		ALPINE DR	X				2		
		ARMSTRONG BLVD	X						
S-10	R3-7R (MOD)	RIGHT TURN LANE	X				1		
S-11	R1-1	STOP	X				1		
	W4-4P	CROSS TRAFFIC DOES NOT STOP PLAQUE	X						
S-12	R2-1	SPEED LIMIT 40	24 X 30	7	U-SOIL	1	1	5.00	
S-13	R8-3	NO PARKING	24 X 24	7	U-SOIL	1	1	4.00	
S-14	W3-1	STOP AHEAD	X				1		
S-15	W3-1	STOP AHEAD	X				1		
S-16	R8-3	NO PARKING	X				1		
S-17	R8-3	NO PARKING	X				1		
S-18	R1-1	STOP	X				1		
	W4-4P	CROSS TRAFFIC DOES NOT STOP PLAQUE	X						
S-19	W14-3	NO PASSING ZONE	X				1		
		NO PASSING ON SHOULDER	X						
S-20	R3-7R (MOD)	RIGHT TURN LANE	30 X 30	7	U-SOIL	1	1	6.25	
S-21	P1	NORTHBOUND ROUNDABOUT DIRECTIONAL	132 X 84	7	U-SOIL	3		77.00	
S-22	W3-2	YIELD AHEAD	30 X 30	7	U-SOIL	1		6.25	
S-23	W2-6	ROUNDABOUT	30 X 30	7	U-SOIL	1		6.25	
	W13-1P	15 MPH PLAQUE	18 X 18					2.25	
(2) S-24	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-25	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
S-26	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-27	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
S-28	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00	
	R6-4B	ROUNDABOUT DIRECTIONAL (4 ARROWS)	60 X 24					10.00	
S-29	P2	ALPINE DR	48 X 24	7	U-CONC	1		8.00	
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18						1
S-30	W11-2	PEDESTRIAN CROSSING	30 X 30	7	SQ-SOIL	1		6.25	
	W16-7PL	DOWN ARROW LEFT PLAQUE	24 X 12					2.00	
S-31	W3-2	YIELD AHEAD	30 X 30	7	U-SOIL	1		6.25	
S-32	W2-6	ROUNDABOUT	30 X 30	7	U-SOIL	1		6.25	
	W13-1P	15 MPH PLAQUE	18 X 18					2.25	
(2) S-33	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-34	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
S-35	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-36	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00	
	R6-4B	ROUNDABOUT DIRECTIONAL (4 ARROWS)	60 X 24					10.00	
S-37	R6-1R	ONE WAY RIGHT	36 X 12	7	U-SOIL	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
S-38	W3-1	NORTH (BLUE)	24 X 12	7	U-SOIL	1		2.00	
	W1-6M	ANOKA COUNTY 83	24 X 24					4.00	
	W6-2R	ARROW RIGHT (BLUE)	21 X 15					2.19	
S-39	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-40	P3	ARMSTRONG BLVD NW	66 X 24	7	U-CONC	2		11.00	
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18						1
S-41	W3-1	NORTH (BLUE)	24 X 12	7	U-SOIL	1		2.00	
	W1-6M	ANOKA COUNTY 83	24 X 24					4.00	
S-42	R2-1	SPEED LIMIT 55	24 X 30	7	U-SOIL	1		5.00	
S-43	P4	SOUTHBOUND ROUNDABOUT DIRECTIONAL	132 X 84	7	U-SOIL	3		77.00	
S-44	W3-2	YIELD AHEAD	30 X 30	7	U-SOIL	1		6.25	
S-45	W2-6	ROUNDABOUT	30 X 30	7	U-SOIL	1		6.25	
	W13-1P	15 MPH PLAQUE	18 X 18					2.25	
(2) S-46	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-47	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
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	R6-1R	ONE WAY RIGHT	36 X 12	7	U-SOIL	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
S-50	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00	
	R6-4B	ROUNDABOUT DIRECTIONAL (4 ARROWS)	60 X 24					10.00	
S-51	P2	ALPINE DR	48 X 24	7	U-CONC	1		8.00	
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18						1
S-52	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-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	
S-55	R8-3	NO PARKING	24 X 24	7	U-SOIL	1		4.00	

SIGN AND DELINEATOR / MARKER

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	L DELINEATOR /MARKER PANEL EACH
	R3-4	NO U-TURN	24 X 24	7				4.00	
(2) S-56	R4-7	KEEP RIGHT	24 X 30		U-CONC	1		5.00	
	OM1-2	TYPE 1 OBJECT MARKER	18 X 18	4					1
S-57	R6-1R	ONE WAY RIGHT	36 X 12	7	U-CONC	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
S-58	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-59	R6-1R	ONE WAY RIGHT	36 X 12	7	U-SOIL	1		3.00	
	R1-2	YIELD	36 X 36 X 36					3.90	
S-60	R6-1R	ONE WAY RIGHT	36 X 12	4	U-CONC	1		3.00	
	R6-4B	ROUNDABOUT DIRECTIONAL (4 ARROWS)	60 X 24					10.00	
	W3-3	SOUTH (BLUE)	24 X 12	7	U-SOIL	1		2.00	
S-61	M1-6M	ANOKA COUNTY 83	24 X 24					4.00	
	M6-2R	ARROW RIGHT (BLUE)	21 X 15					2.19	
S-62	P3	ARMSTRONG BLVD NW	66 X 24	7	U-CONC	2		11.00	
	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	W3-3	SOUTH (BLUE)	24 X 12	7	U-SOIL	1		2.00	
	M1-6M	ANOKA COUNTY 83	24 X 24					4.00	
S-65	R2-1	SPEED LIMIT 55	24 X 30	7	U-SOIL	1		5.00	
S-66	W14-3	NO PASSING ZONE	64 X 48	7	U-SOIL	1	1	9.89	
(2) S-67	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00	
	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36					3.00	
(2) S-68	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00	
	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36					3.00	
(2) S-69	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00	
	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36					3.00	
(2) S-70	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36	1	U-CONC	1		3.00	
	R1-6A	STATE LAW STOP FOR PED W/I X-WALK	12 X 36					3.00	
						TOTAL	22	557	8

SPECIFIC NOTE(S):
(1) U-CHANNEL 3# PER FOOT BLACK POST.
(2) MOUNTED BACK TO BACK.

NO.	DATE	BY	CHK	REVISIONS
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Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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PRINT NAME: SEAN DELMORE, PE

DATE 11/23/2022 LICENSE # 40945

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGNING PLAN
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 82 OF 93 SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

PLOTTED/REVISED: 11/23/2022 9:39:27 AM

WSB PATH & FILENAME: Projects\Minnesota\019344-000\Cad\Plan\19344-000_sgn01.dgn

LEGEND

① FURNISH & INSTALL

② INPLACE TO REMAIN

SCALE IN FEET
0 50 100

STA 202+65.09
BEGIN SP 199-112-099

STA 101+50.00
BEGIN SP 002-683-006

END SP 002-683-006
STA 112+59.06

END SP 199-112-099
STA 212+08.30

F&I AT STATION 201+30

F&I AT STATION 97+46

F&I AT STA 99+50

F&I AT STA 1113+00

STATION 1215+55

℄ ALPINE DRIVE EB

℄ ALPINE DRIVE WB

℄ CSAH 83 SB

℄ CSAH 83 NB

CSAH 83 (ARMSTRONG BLVD NW)

ALPINE DRIVE NW

Armstrong Blvd NW

Alpine Dr

SOUTH 83 COUNT

NORTH 83 COUNT

WEST Alpine Drive

EAST Alpine Drive

SPEED LIMIT 40

SPEED LIMIT 55

SPEED LIMIT 45

15 M.P.H.

30 M.P.H.

RIGHT TURN LANE

ONE WAY

YIELD

NO PASSING ZONE

STATE LAW STOP ON FLASHING

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
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Approved By: SD

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CSAH 83 at Alpine Drive Intersection Improvements

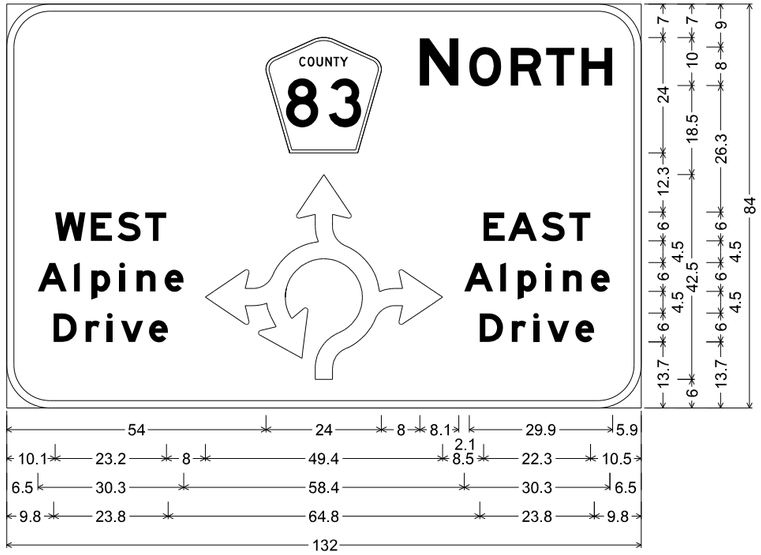
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

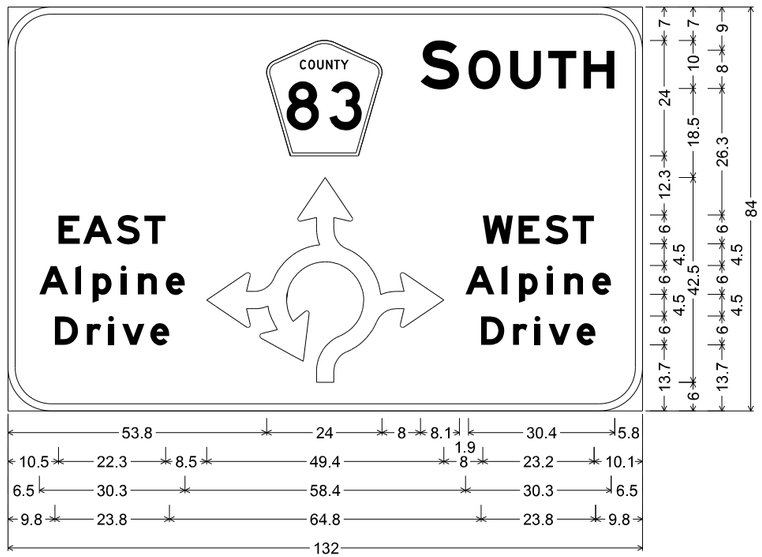
SIGNING PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

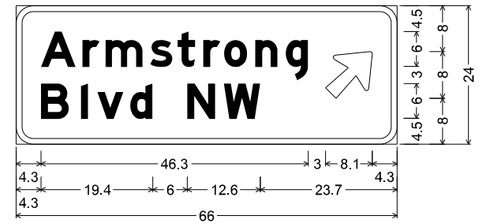
SHEET 83 OF 93 SHEETS



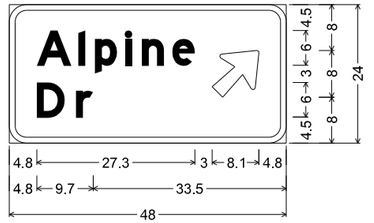
Roundabout 1;
9.0" Radius, 1.5" Border, White on, Green;
Pentagonal County 83 M1-6a; "NORTH", E Mod 2K; "WEST", E Mod 2K;
"Alpine", E Mod 2K; "Drive", E Mod 2K; RA Arrow-4hd; "EAST", E Mod 2K;
"Alpine", E Mod 2K; "Drive", E Mod 2K;



Roundabout 2;
9.0" Radius, 1.5" Border, White on, Green;
Pentagonal County 83 M1-6a; "SOUTH", E Mod 2K; "EAST", E Mod 2K;
"Alpine", E Mod 2K; "Drive", E Mod 2K; RA Arrow-4hd; "WEST", E Mod 2K;
"Alpine", E Mod 2K; "Drive", E Mod 2K;



3.0" Radius, 1.0" Border, White on, Green;
"Armstrong", E Mod 75% spacing;
"Blvd NW", E Mod; Arrow 3 - 10.0" 45';



3.0" Radius, 1.0" Border, White on, Green;
"Alpine", E Mod 75% spacing;
"Dr", E Mod; Arrow 3 - 10.0" 45';

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 11/23/2022 LICENSE # 40945

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

SIGNING PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **84** OF **93** SHEETS

PAVEMENT MARKING TABULATION

M

LOCATION	MULTI-COMPONENT				PREFORM THERMOPLASTIC GROUND IN				
	4" SOLID LINE		4" BROKEN LINE	4" DOUBLE SOLID LINE	4" SOLID LINE		24" SOLID LINE	8" DOTTED LINE	CROSSWALK (2)
	WHITE	YELLOW	YELLOW	YELLOW	WHITE	YELLOW	YELLOW	WHITE	
	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT
SP 002-683-006 & SP 199-112-009									
CSAH 83									
STA 102+00.00 TO STA 106+12 (1)	1070	756	100	351	120	120	23		
ROUNDABOUT					372	305		30	288
STA 108+33 TO STA 112+59.09	718	106		490	130	130	17		
SUBTOTAL CSAH 35	1788	862	100	841	622	555	40	30	288
ALPINE DRIVE NW									
STA 202+65.09 TO STA 206+15	581	145		438	96	96	24		
ROUNDABOUT					268	318		31	288
STA 208+46 TO STA 212+08.30	580	145		438	122	122	19		
SUBTOTAL ALPINE DR	1161	290		876	486	536	43	31	288
SUBTOTAL	2949	1152	100	1717	1108	1091	83	61	576
PROJECT TOTAL	4101		100	1717	2199		83	61	576

NOTES:
(1) BEGIN CENTERLINE STRIPING AT STATION 97+46.
(2) 3' X 8' CROSSWALK BLOCKS.

NO.	DATE	BY	CHK	REVISIONS
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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

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ANOKA COUNTY, MINNESOTA

STRIPING PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 85 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:39:46 AM

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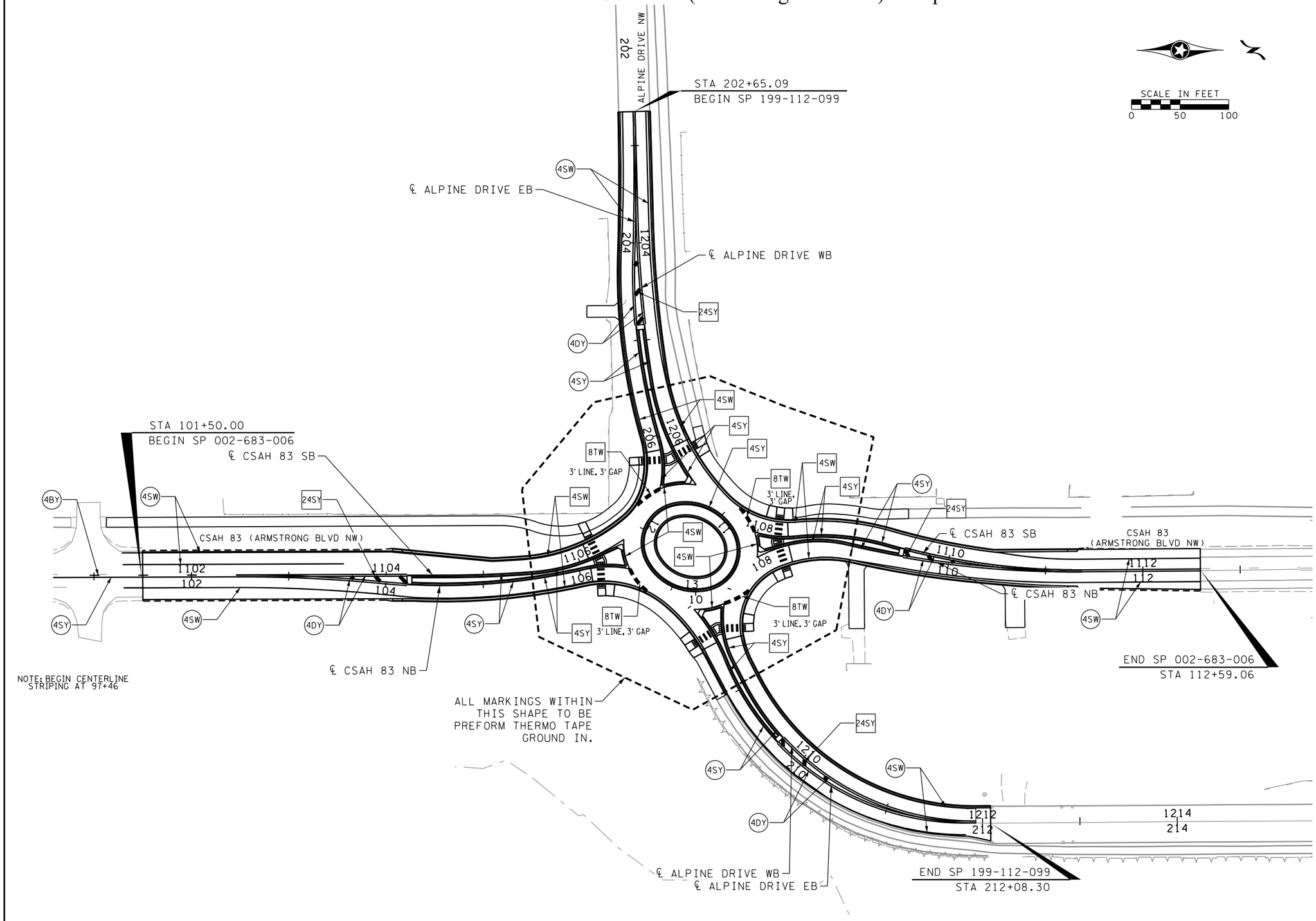
CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

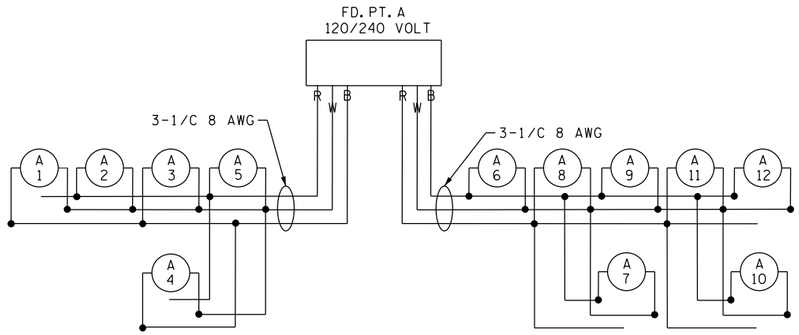
STRIPING PLAN

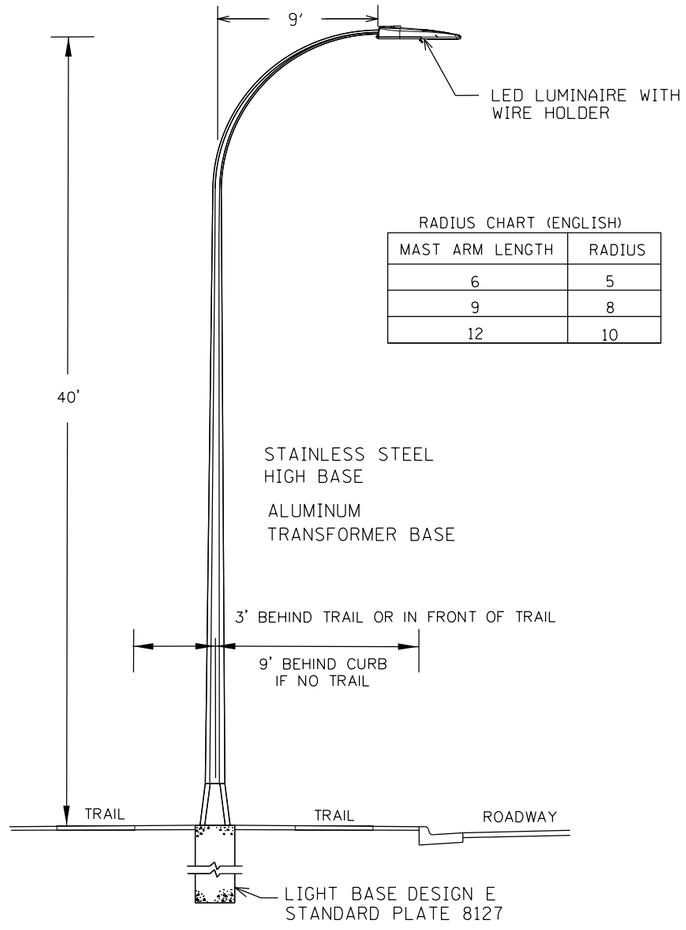
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 86 OF 93 SHEETS

	STREET LIGHTING TABULATION		N
ITEM	ITEM DESCRIPTION	UNIT	TOTAL
2545.502	LIGHTING UNIT TYPE 9-40	EACH	12
2545.502	LIGHT FOUNDATION DESIGN E	EACH	12
2545.502	SERVICE CABINET -TYPE L1	EACH	1
2545.502	SERVICE EQUIPMENT	EACH	1
2545.502	EQUIPMENT PAD B	EACH	1
2545.503	2" NON-METALLIC CONDUIT	LIN FT	1300
2545.503	UNDERGROUND WIRE 1/C 8 AWG	LIN FT	5330

FEEDPOINT A						
LIGHTING STANDARDS AND FOUNDATIONS						
NO.	STATION	LT	RT	LOCATION	TYPE	FOUNDATION
1	104+47		X	CSAH 83 NB	9-40	DESIGN E
2	105+94		X	CSAH 83 NB	9-40	DESIGN E
3	208+00		X	ALPINE DR EB	9-40	DESIGN E
4	1210+24	X		ALPINE DR WB	9-40	DESIGN E
5	1208+72	X		ALPINE DR WB	9-40	DESIGN E
6	107+90		X	CSAH 83 NB	9-40	DESIGN E
7	1110+03	X		CSAH 83 SB	9-40	DESIGN E
8	1108+48	X		CSAH 83 SB	9-40	DESIGN E
9	1206+60	X		ALPINE DR WB	9-40	DESIGN E
10	204+50		X	ALPINE DR EB	9-40	DESIGN E
11	205+97		X	ALPINE DR EB	9-40	DESIGN E
12	1106+59	X		CSAH 83 SB	9-40	DESIGN E





RADIUS CHART (ENGLISH)

MAST ARM LENGTH	RADIUS
6	5
9	8
12	10

LIGHTING UNIT TYPE 9-40
PLACEMENT DETAIL

(NON-BREAKAWAY)
NOT TO SCALE

NO.	DATE	BY	CHK	REVISIONS
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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

LIGHTING PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 87 OF 93 SHEETS

PLOTTED/REVISED: 11/23/2022 9:39:52 AM

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PLOTTED/REVISED: 11/23/2022 9:39:57 AM

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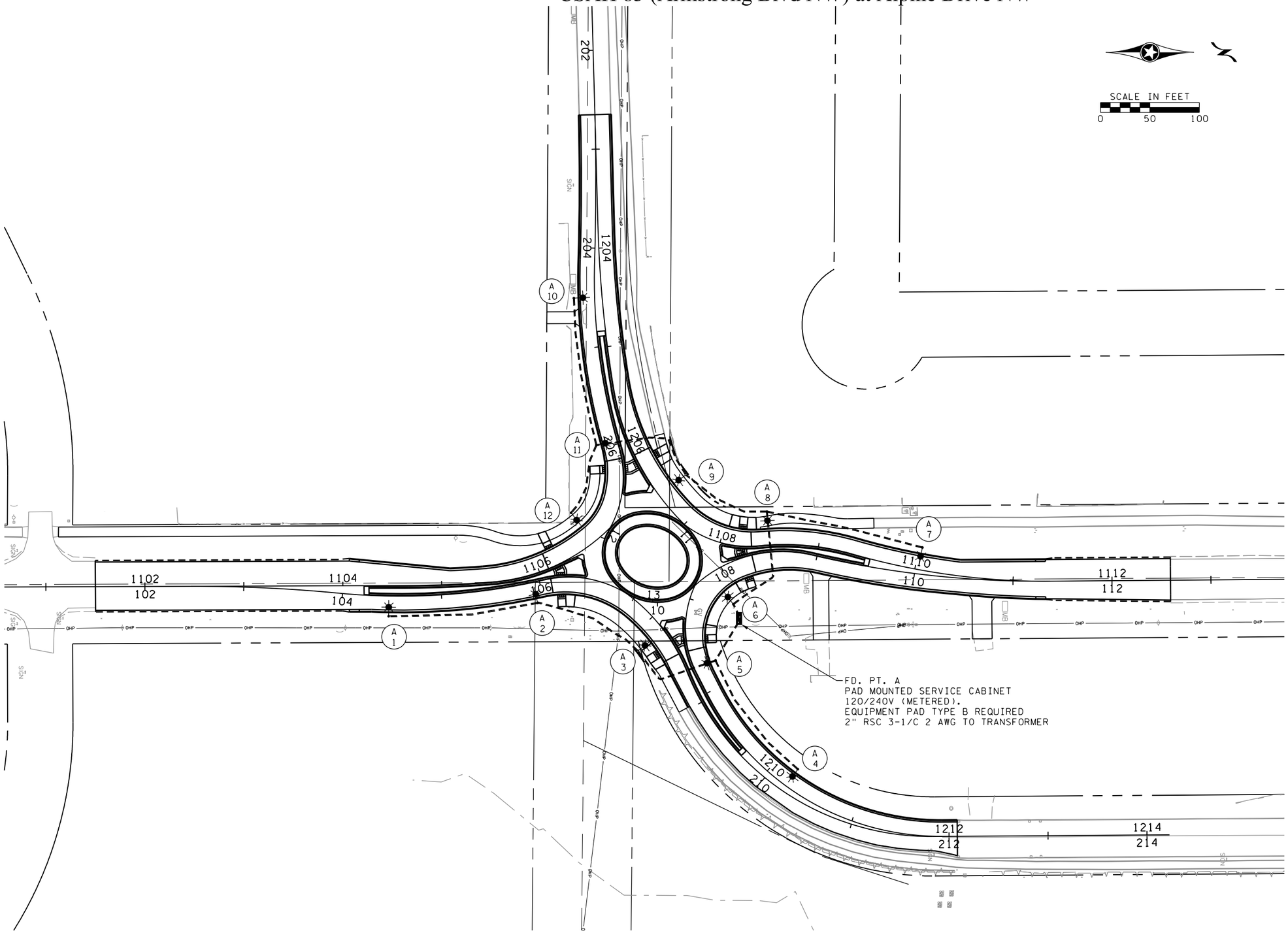
CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW



LEGEND

- LIGHTING UNIT TYPE 9-40
- 2" 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 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 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

LIGHTING PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET 88 OF 93 SHEETS

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

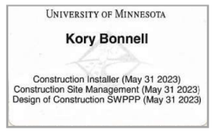
PROJECT NAME: CSAH 83 (ARMSTRONG BLVD) & APLINE DRIVE **PROJECT NUMBER:** SP 002-683-006; WSB 019344-000
PROJECT LOCATION: STREET: CSAH 83 & ALPINE DR CITY: RAMSEY COUNTY: ANOKA
STATE: MINNESOTA ZIP: 55303 LATITUDE/LONGITUDE: 45.2486/-93.4704

THE PLANNED SCOPE OF THE PROJECT INCLUDES:
ANOKA COUNTY IS PROPOSING TO RECONSTRUCT THE ROADWAYS OF CSAH 83 (ARMSTRONG BLVD) & ALPINE DRIVE IN RAMSEY, MINNESOTA. PROJECT ACITIVITIES ALSO INCLUDE UTILITY WORK AND THE CONSTRUCTION OF A NEW ROUNDABOUT.

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	APRIL - MAY 2023
GRADING & UTILITY WORK	APRIL - OCT 2023
ROUNDABOUT CONSTRUCTION, CURB, & PAVEMENT	APRIL - OCT 2023
FINAL STABILIZATION	OCT 2023

PROJECT PERSONNEL AND TRAINING

SWPPP DEVELOPER:
WSB (KORY BONNELL)
701 XENIA AVE S, SUITE 300
GOLDEN VALLEY, MN 55416
612.749.2799/KBONNELL@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
ELIZABETH MARKOSE	ANOKA COUNTY	OWNER CONTACT	763.862.4222

CONTRACTOR TO COMPLETE

AGENCY CONTACTS

ORGANIZATION	CONTACT NAME	PHONE
MPCA (EMERGENCY) 24 HOUR	STATE DUTY OFFICER	1-800-422-0798
MPCA	SARAH KAMRATH	651-757-2855
ANOKA COUNTY LGU	ELIZABETH MARKOSE	763.862.4222

LOCATION OF SWPPP REQUIREMENTS

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET AS WELL AS IN THE PROJECT MANUAL, MNDOT SPEC BOOK, OR ON FILE WITH THE PROJECT OWNER.

DESCRIPTION	LOCATION
TEMPORARY/PERMANENT EROSION CONTROL MEASURES	92 - 93
DIRECTION OF FLOW	78
CONSTRUCTION NOTES & STANDARD PLATES	9
DRAINAGE PLAN & CONSTRUCTION PLAN	78 & 66
BMP TABULATION	7
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 09/07/2022. 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)
WETLAND PEM1C	N/A

AREAS OF ENVIRONMENTAL SENSITIVITY (AES) AND INFESTED WATERS

IN ADDITION TO THE LIST OF SPECIAL AND IMPAIRED WATERS, THE CONTRACTOR SHALL BE AWARE THAT THERE ARE WETLANDS AND EXISTING STORMWATER FACILITIES WITHIN AND NEAR THE PROJECT BOUNDARY. 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. TERRACE DEPOSITS ARE PREDOMINANT ALONG MOST OF THE ALIGNMENT. THE GEOLOGIC ATLAS DESCRIBES TERRACE DEPOSITS AS SAND AND GRAVELY SAND ASSOCIATED WITH THE RICHFIELD TERRACE. 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*.

NATIVE TOPSOIL WILL BE STRIPPED; 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: THERE ARE NO ANTICIPATED WETLAND IMPACTS FOR THIS PROJECT.

THREATENED/ENDANGERED SPECIES: ANOKA COUNTY LISTS THE NORTHERN LONG-EARED BAT AS A THREATENED/ENDANGERED SPECIES WITHIN THE COUNTY. 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 LOCATED IN THE RAMSEY WEST DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA). THIS DWSMA IS CLASSIFIED AS MODERATE VULNERABILITY. IT SHOULD BE NOTED THAT THERE ARE SEVERAL WELLS ADJACENT TO THE PROJECT ALIGNMENT. SPECIAL CARE MUST BE TAKEN DURING CONSTRUCTION TO PREVENT AND IMMEDIATELY RESPOND TO ALL SPILLS.

CONTAMINATED PROPERTIES: THE MPCA'S "WHAT'S IN MY NEIGHBORHOOD" DATABASE WAS REVIEWED ON 09/07/2022. THE RESULTS OF THIS REVIEW SHOW NO (0) KNOWN CONTAMINATED PROPERTIES LOCATED ON OR ADJACENT TO THE PROJECT ALIGNMENT. 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 MAY OCCUR WITHIN THE 100-YEAR FLOODPLAIN OR FLOODWAY, THEREFORE, 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 FLOODPLAIN. NO WORK WITHIN THE FLOODPLAIN CAN COMMENCE UNTIL WRITTEN APPROVAL HAS BEEN GRANTED BY THE PROJECT ENGINEER.

AQUATIC INVASIVE SPECIES: NO IN-WATER WORK IS ANTICIPATED FOR THIS PROJECT.

LAND FEATURE CHANGES

TOTAL AREA TO BE DISTURBED = 3.94 ACRES
IMPERVIOUS AREA: PRE-CONSTRUCTION = 1.97 ACRES/POST-CONSTRUCTION = 2.33 ACRES
NET INCREASE OF IMPERVIOUS AREA = 0.36 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 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;

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. FLOWMAN
DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STORM WATER POLLUTION PREVENTION PLAN
SP 002-683-006, SP 199-112-009, IP 23-03

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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, WETLAND 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 MNDOT 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. THE PROJECT'S CONSTRUCTION PHASING AND STAGING IS DEFINED BY THE "CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN" AND PROJECT SPECIFICATIONS.
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 7 or 14 DAYS. ALL REPAIRS MUST BE COMPLETED WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.

STRAW MULCHING: DISTURBED SOIL AREAS SHALL BE PROTECTED WITH STRAW MULCH. MULCHING IS THE APPLICATION OF A PROTECTIVE LAYER OF STRAW OR OTHER SUITABLE MATERIAL TO THE SOIL SURFACE. STRAW MULCH SHALL BE USED IN CONJUNCTION WITH SEEDING AND HYDRO-SEEDING FOR ESTABLISHMENT OF VEGETATION. STRAW MULCH MUST BE SECURED TO THE GROUND USING DISKING OR AN OVERSPRAY OF AN HECP. MULCHING IS COMMONLY USED AS A TEMPORARY MEASURE TO PROTECT BARE OR DISTURBED SOIL AREAS THAT HAVE NOT BEEN SEEDED, UNTIL NATIVE VEGETATION RE-GROWS. CERTIFIED WEED-FREE MULCH MUST BE USED WHEN USING NATIVE SEED MIXES OR WHEN WORKING NEAR ENVIRONMENTALLY SENSITIVE AREAS.

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 #1: THIS METHOD SHALL CONSIST OF TYPE 1 MULCH (2 TON PER ACRE) WITH DISC ANCHORING BE SPREAD IN AREAS THAT HAVE BEEN UNWORKED FOR 14 DAYS. THIS METHOD SHALL BE USED ON SLOPES OF 3:1 AND LESS. OPERATOR MUST APPLY MULCH IN A UNIFORM PATTERN OVER THE DISTURBED SOILS TO ACHIEVE A MINIMUM OF 90% GROUND COVER.

RAPID STABILIZATION METHOD #2: THIS METHOD SHALL CONSIST OF TYPE 3 MULCH (1.5 TON PER ACRE) OR 3884 TYPE STABILIZED FIBER MATRIX (750 LBS PER ACRE) BE SPREAD IN AREAS THAT HAVE BEEN UNWORKED FOR 14 DAYS. THIS METHOD SHALL BE USED ON SLOPES LESS THAN 3:1.

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 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, FOUNDATIONS, BRIDGE ABUTMENTS, WET/DRY PAVEMENT CUTTING, MASONRY WASHOUT/CLEANOUT.

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

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ANOKA COUNTY, MINNESOTA

STORM WATER POLLUTION PREVENTION PLAN

SP 002-683-006, SP 199-112-009, IP 23-03

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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.

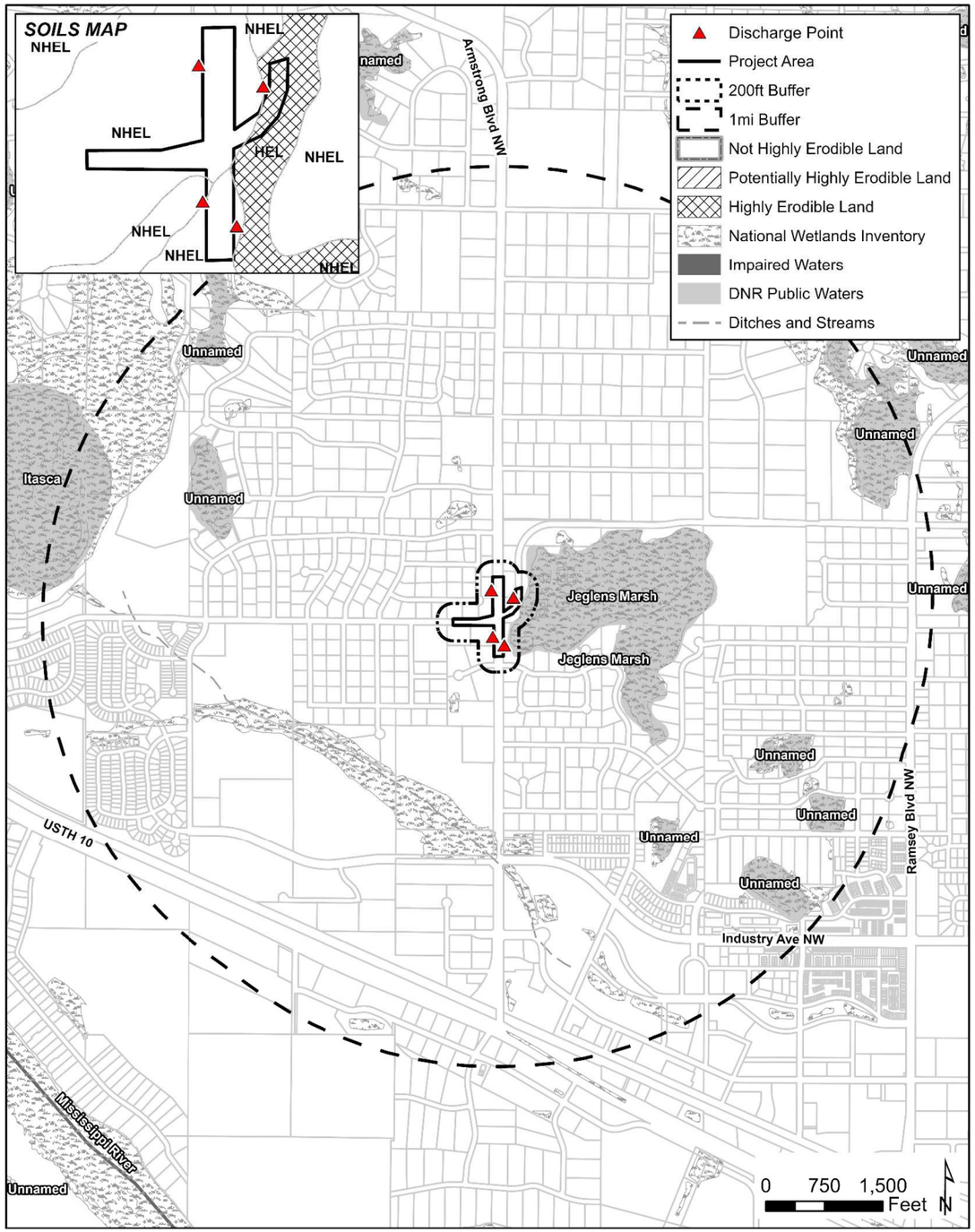

Figure 1. SWPPP Resource Map

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. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements
Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

STORM WATER POLLUTION PREVENTION PLAN
SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **91** OF **93** SHEETS

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.).

TURF ESTABLISHMENT AND EROSION CONTROL LEGEND

	PERMANENT:	TEMPORARY:
	ROLLED EROSION PREVENTION PRODUCT CATEGORY 20 SEED MIXTURE 25-151 (120 LBS/ACRE) FERTILIZER TYPE 3 (200 LBS/ACRE)	ROLLED EROSION PREVENTION PRODUCT CATEGORY 20 SEED MIXTURE 22-111 (30.5 LBS/ACRE) FERTILIZER TYPE 3 (200 LBS/ACRE)
	PERMANENT: HYDRAULIC MULCH MATRIX (TYPE 3884.2.8.3 AT 3000 LBS/ACRE) SEED MIXTURE 25-151 (120 LBS/ACRE) FERTILIZER TYPE 3 (200 LBS/ACRE)	TEMPORARY: HYDRAULIC MULCH MATRIX (TYPE 3884.2.B.3 AT 3000 LBS/ACRE)
	PERMANENT: ROLLED EROSION PREVENTION PRODUCT CATEGORY 20 SEED MIXTURE 25-141 (59 LBS/ACRE) FERTILIZER TYPE 3 (200 LBS/ACRE)	TEMPORARY: ROLLED EROSION PREVENTION PRODUCT CATEGORY 20 SEED MIXTURE 22-111 (30.5 LBS/ACRE) FERTILIZER TYPE 3 (200 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

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

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PRINT NAME: ANDREW J. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

NOTES / LEGEND

EROSION CONTROL & TURF ESTABLISHMENT

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **92** OF **93** SHEETS

CSAH 83 (Armstrong Blvd NW) at Alpine Drive NW

PLOTTED/REVISED: 11/23/2022 9:40:20 AM

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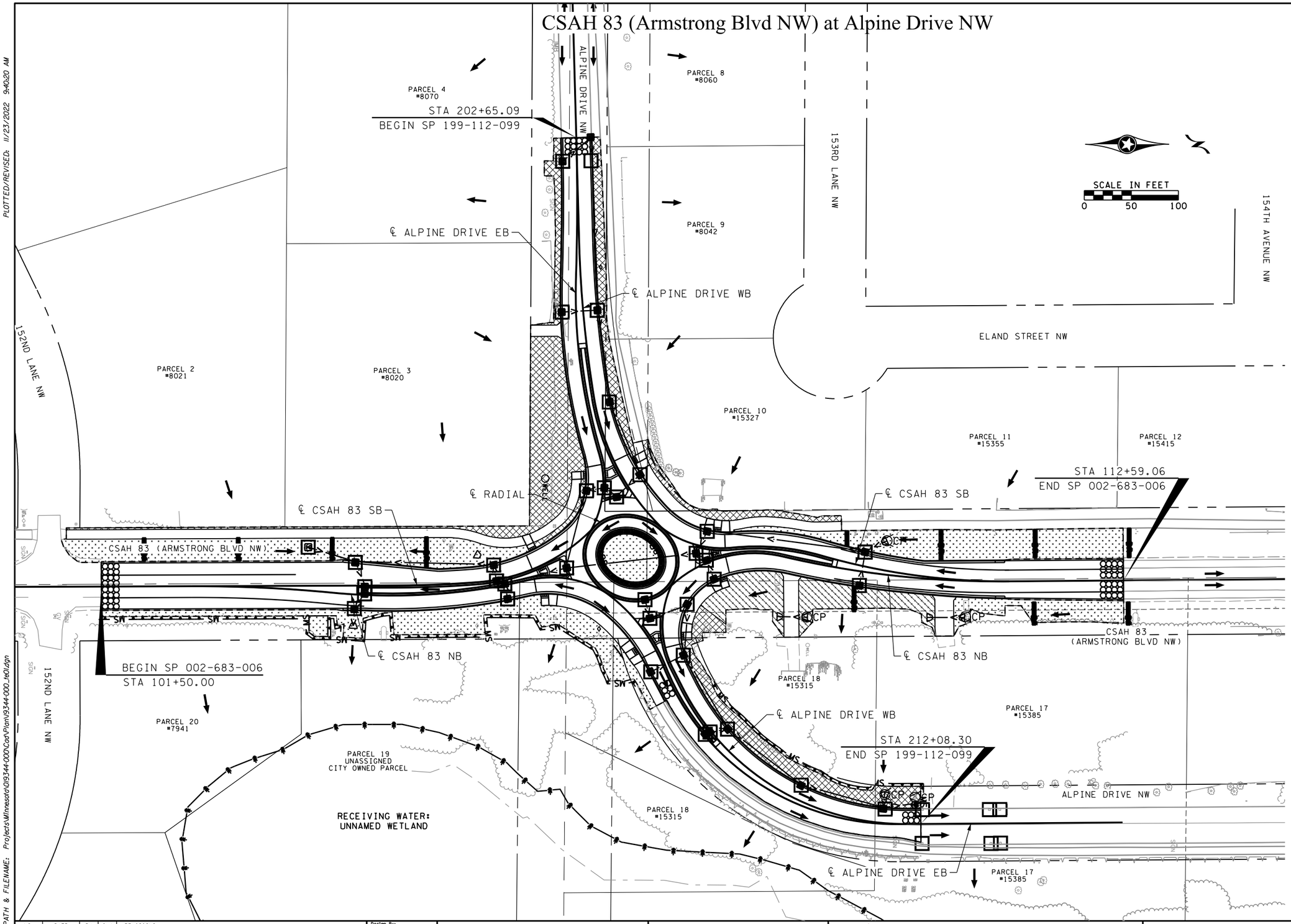

NO.	DATE	BY	CHK	REVISIONS

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

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PRINT NAME: ANDREW J. FLOWMAN

DATE 11/23/2022 LICENSE # 44200

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

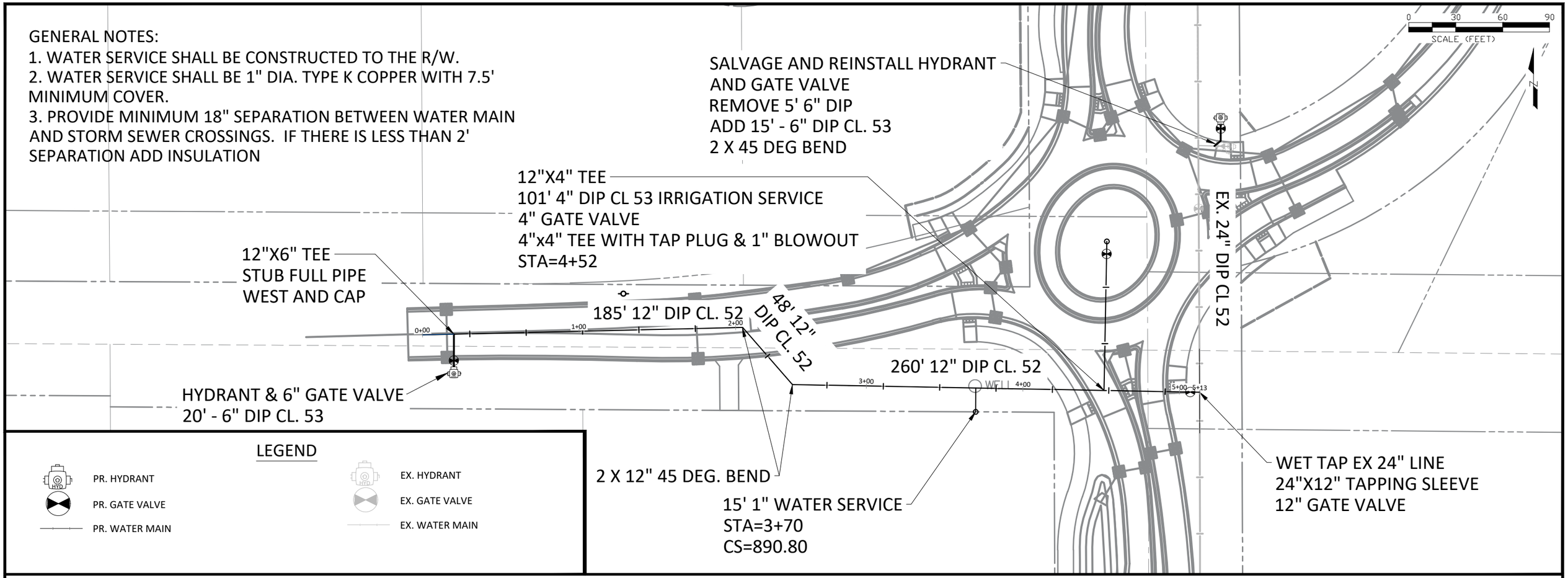
ANOKA COUNTY, MINNESOTA

EROSION CONTROL & TURF ESTABLISHMENT

SP 002-683-006, SP 199-112-009, IP 23-03

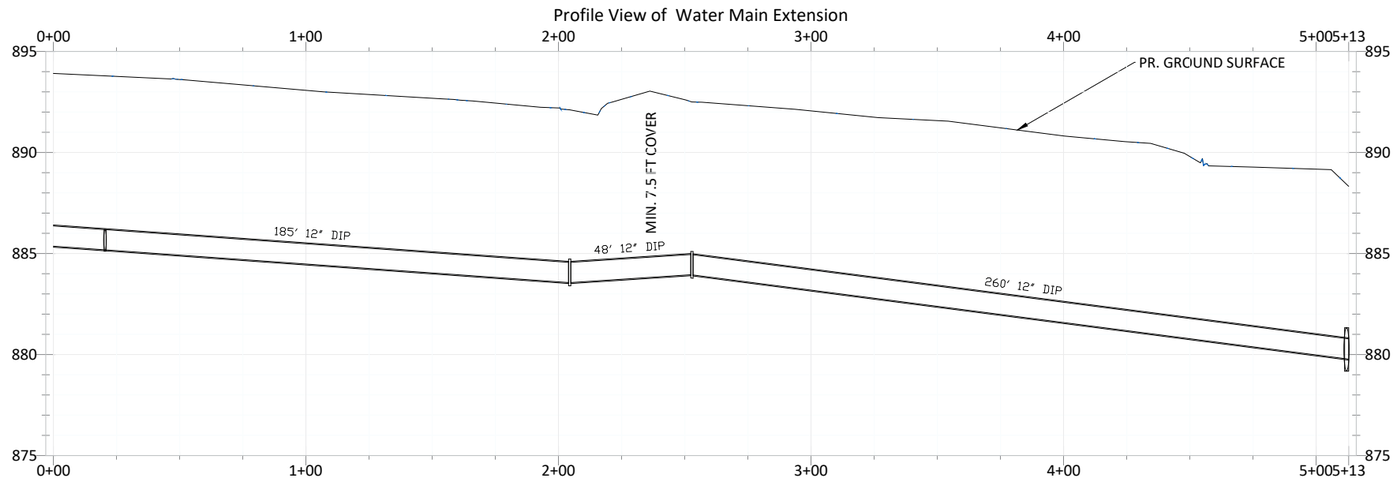
SHEET 93 OF 93 SHEETS

GENERAL NOTES:
1. WATER SERVICE SHALL BE CONSTRUCTED TO THE R/W.
2. WATER SERVICE SHALL BE 1" DIA. TYPE K COPPER WITH 7.5' MINIMUM COVER.
3. PROVIDE MINIMUM 18" SEPARATION BETWEEN WATER MAIN AND STORM SEWER CROSSINGS. IF THERE IS LESS THAN 2' SEPARATION ADD INSULATION



LEGEND

- PR. HYDRANT
- PR. GATE VALVE
- PR. WATER MAIN
- EX. HYDRANT
- EX. GATE VALVE
- EX. WATER MAIN



DATE	REVISION

Nov 15, 2022 - 7:32am
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I hereby certify that this plan, specification, or report 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

Engineer Name
Date 11/15/22 Lic. No. 57095

DESIGNED BY:	LWC	
DRAWN BY:	LWC	DATE: 11/15/22
CHECKED BY:	JJF	FILE: 202303

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

WATER MAIN EXTENSION PLAN AND PROFILE

ARMSTRONG BLVD & ALPINE DRIVE ROUNDABOUT
CITY PROJECT NO. (202303)
CITY OF RAMSEY, MINNESOTA

SHEET W1 OF W2 SHEETS

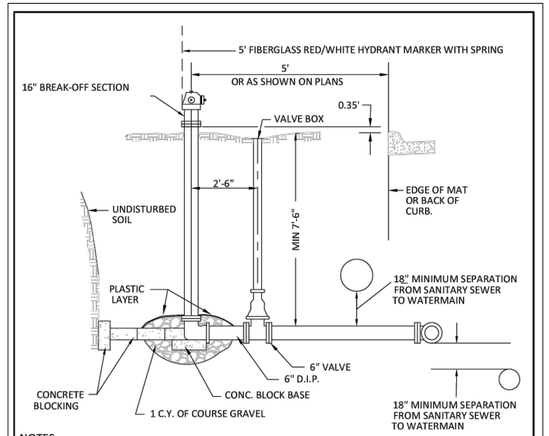
23-03 ARMSTRONG BLVD & ALPINE DRIVE ROUNDABOUT

STATEMENT OF ESTIMATED QUANTITIES

Note No.	ITEM No.	MNDOT No.	DESCRIPTION	UNIT	ESTIMATED QUANTITY
	1	2104.503	REMOVE EXISTING WATERMAIN	LF	5
	2	2104.602	SALVAGE AND INSTALL HYDRANT AND 6" VALVE & BOX	EA	1
	3	2504.602	24"X12" WET TAP	EA	1
	4	2504.602	4" GATE VALVE & BOX	EA	1
	5	2504.602	6" GATE VALVE & BOX	EA	1
	6	2504.602	12" GATE VALVE & BOX	EA	1
	7	2504.602	HYDRANT	EA	1
	8	2504.602	1" CURB STOP AND BOX	EA	1
	9	2504.602	1" CORPORATION STOP	EA	2
	10	2504.603	1" TYPE K COPPER PIPE	LF	31
	11	2504.603	4" DIP WATERMAIN CL 53	LF	101
	12	2504.603	6" DIP WATERMAIN CL 53	LF	35
	13	2504.603	12" DIP WATERMAIN CL 52	LF	513
1	14	2504.608	WATERMAIN FITTINGS	LB	785

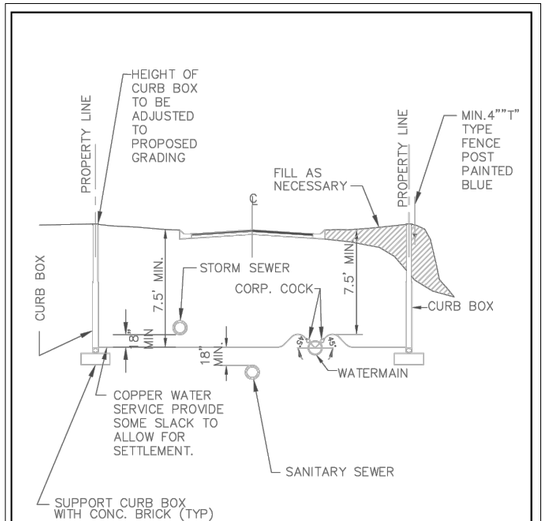
PAY ITEM NOTES:
1. WATERMAIN FITTING WEIGHTS ESTIMATED BASED ON C153 METALFIT MECHANICAL JOINT FITTINGS

GENERAL NOTES:
1. THE CONTRACTOR SHALL CONDUCT HIS WORK IN ACCORDANCE WITH THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2020 EDITION, AND ALSO IN ACCORDANCE WITH THE STANDARD UTILITY SPECIFICATIONS PREPARED BY THE CIVIL ENGINEERS ASSOCIATION OF MINNESOTA (CEAM), 2018 EDITION.



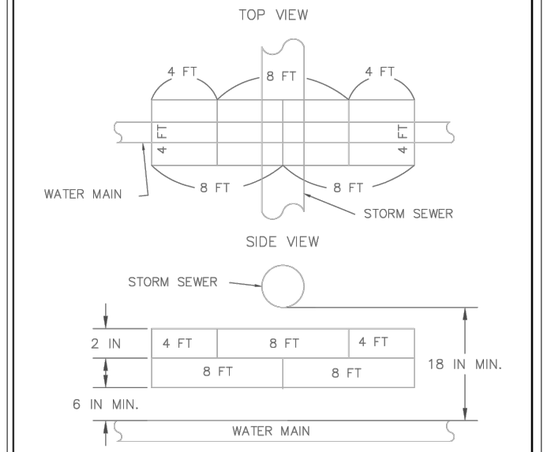
NOTES:
1. HYDRANT SHALL BE 5-1/4" WB67 WATEROUS PACER OR APPROVED EQUAL.
2. HYDRANTS TO BE ORDERED FOR 8'-0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANTS EXTENSIONS MAY BE REQUIRED.
3. HYDRANTS SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2-3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.
4. TOP NUT OF HYDRANT 2.5' ABOVE TOP BACK OF CURB OR BITUMINOUS SURFACE.
5. HYDRANTS BURIED BELOW WATER TABLE, DRAIN HOLES NEED TO BE PLUGGED AND HYDRANT MARKED BY PAINTING 5" CAP YELLOW.
6. BRUSH PAINT ALL HYDRANTS AFTER INSTALLATION IS COMPLETE.
7. PUMPER NOZZLE .5.75" O.D. X 4 T.P.I, HOSE NOZZLE 3.06" O.D. X 7 T.P.I.

APPROVED: 3 - 2022 | City of RAMSEY | STANDARD DETAILS: HYDRANT | CITY PLATE No. WAT-1



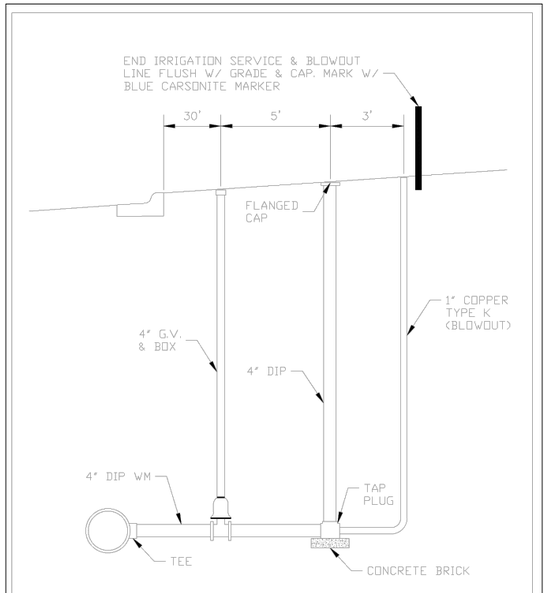
WATER SERVICE
NTS

APPROVED: 3 - 2022 | City of RAMSEY | STANDARD DETAILS: WATER SERVICE | CITY PLATE No. WAT-2



NOTES:
1) SHEETS ARE 2 INCHES BY 4 FEET BY 8 FEET
2) SURFACE PREPARATION SHALL BE SMOOTH AND ROCK FREE
3) JOINTS WILL BE OVERLAPPED BY 4 FEET
4) POLYSTYRENE INSULATION OR APPROVED EQUAL
5) INSULATION REQUIRED WHERE PIPE SEPARATION IS < 2 FEET

APPROVED: 3 - 2022 | City of RAMSEY | STANDARD DETAILS: WATER MAIN INSULATION | CITY PLATE No. WAT-6



APPROVED: 11 - 2022 | City of RAMSEY | IRRIGATION SERVICE | CITY PLATE No. NON-STANDARD

DATE	REVISION

Rev 23, 2022 – 7:12am
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I hereby certify that this plan, specification, or report 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
Engineer Name
Date 11/23/22 Lic. No. 57095

DESIGNED BY:	LWC	
DRAWN BY:	LWC	DATE: 11/23/22
CHECKED BY:	JJF	FILE: 202303

City of RAMSEY
CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

WATER MAIN EXTENSION PLAN AND PROFILE

ARMSTRONG BLVD & ALPINE DRIVE ROUNDABOUT
CITY PROJECT NO. (202303)
CITY OF RAMSEY, MINNESOTA

SHEET W2 OF W2 SHEETS

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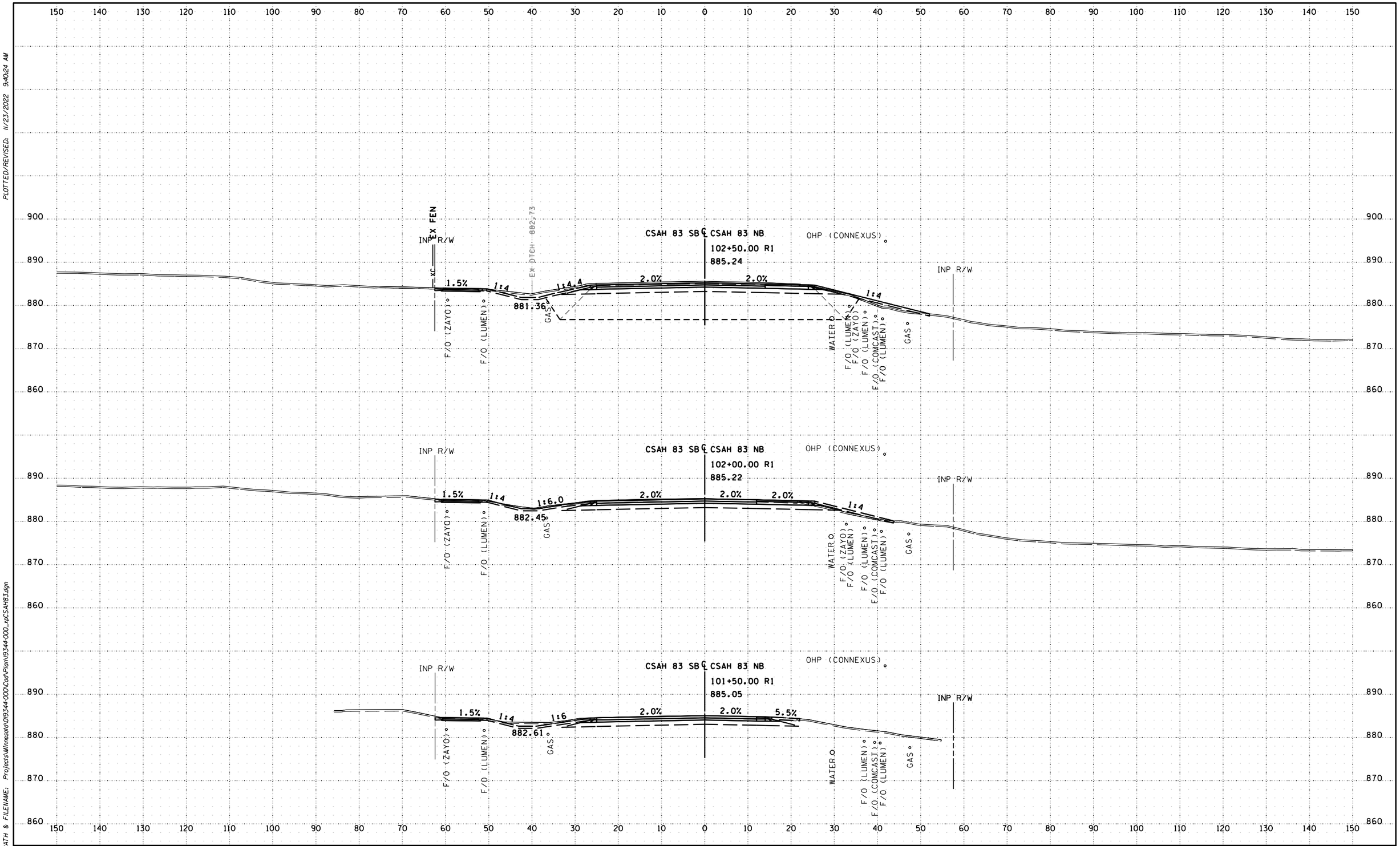

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NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

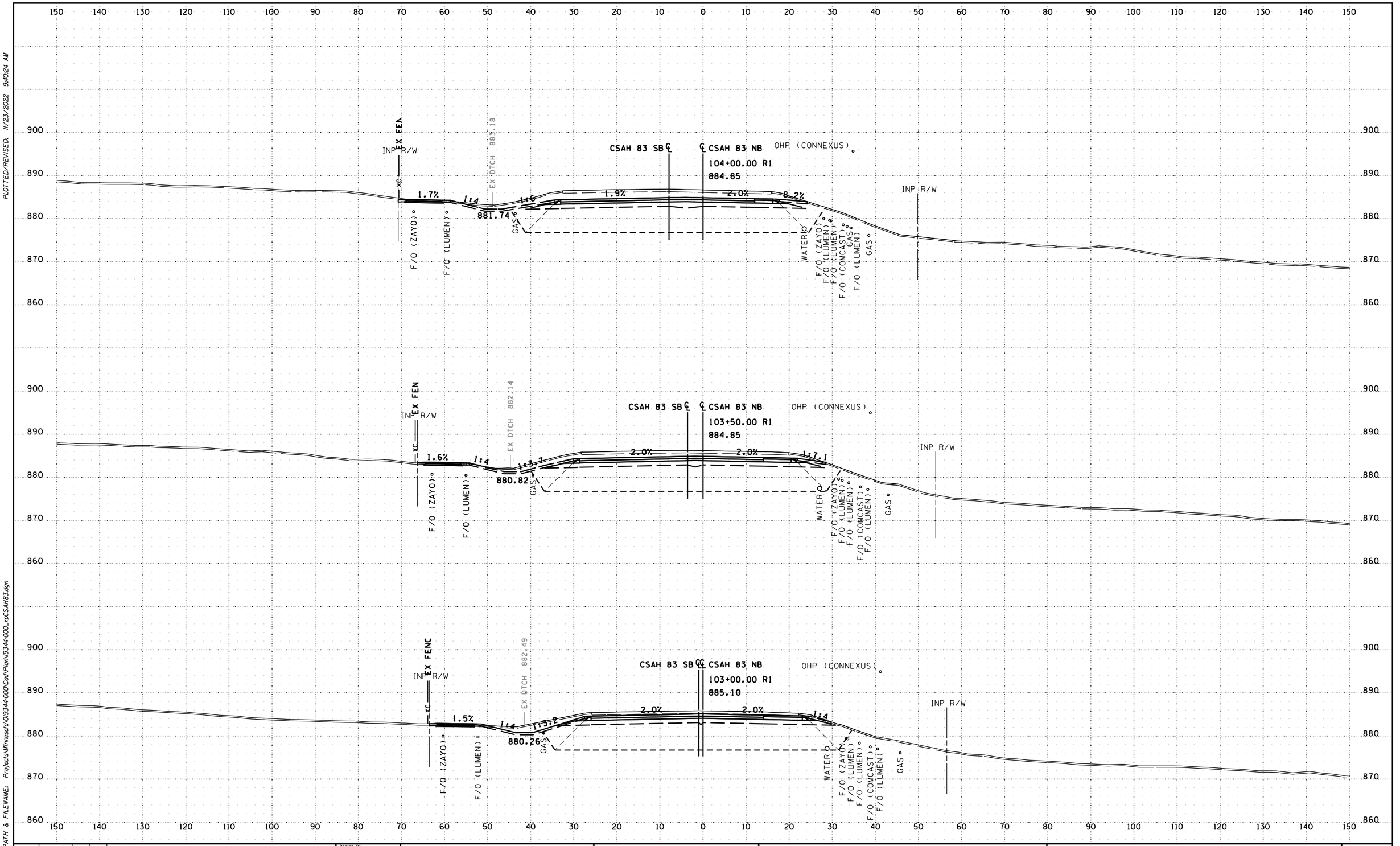
ANOKA COUNTY, MINNESOTA

CSAH 83

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **X1** OF **X20** SHEETS



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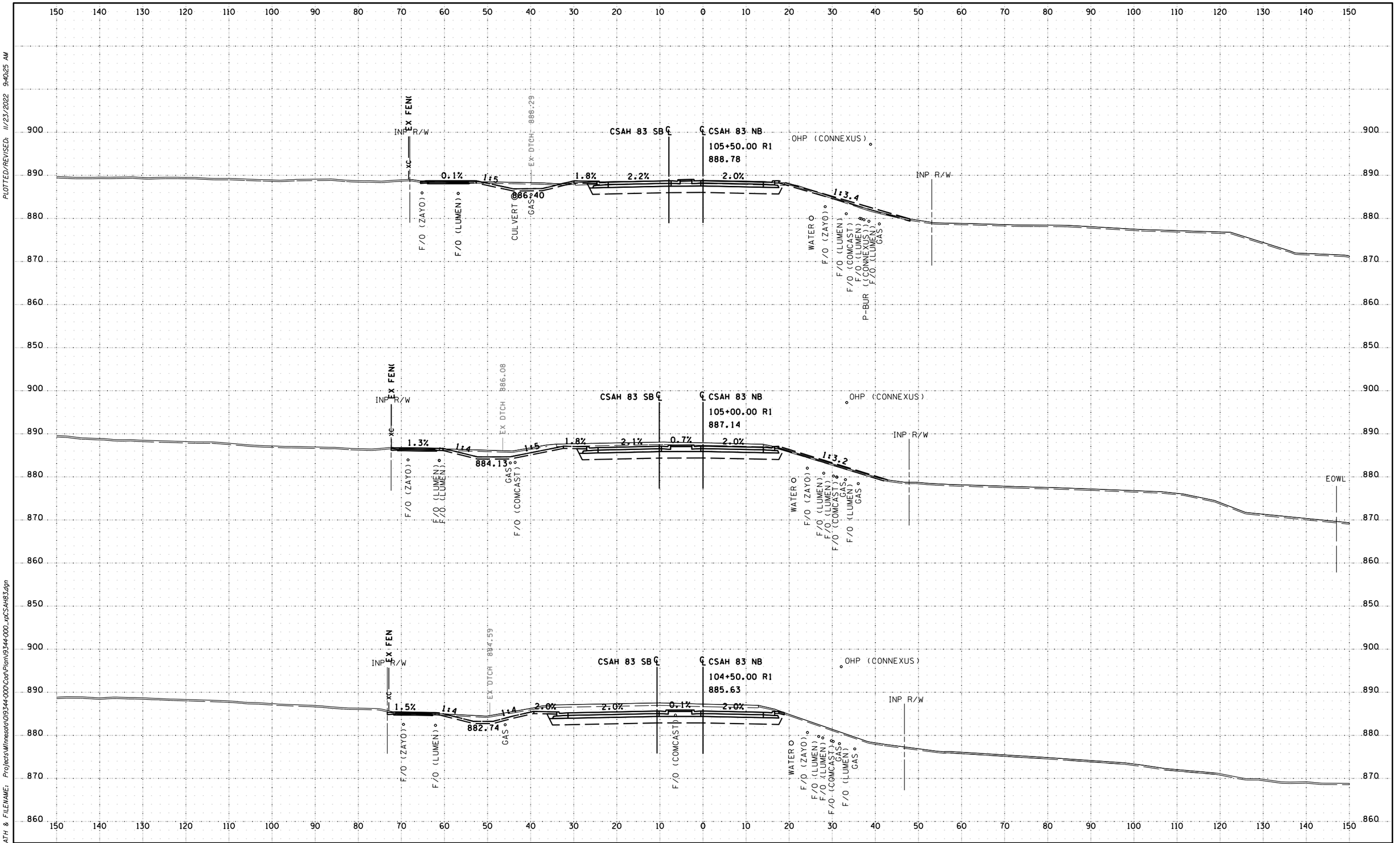

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Design By:	AJF
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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 83

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **X3** OF **X20** SHEETS

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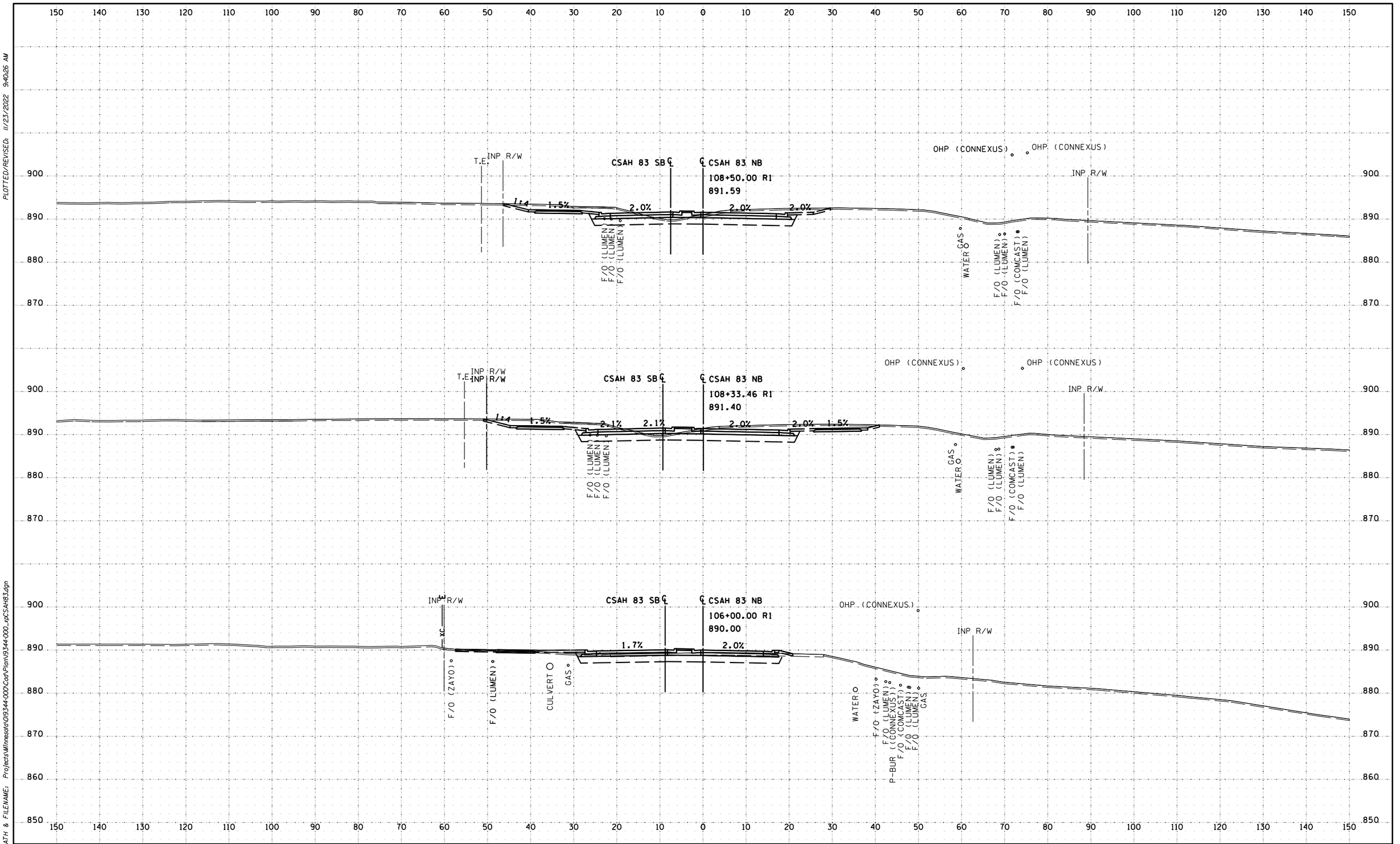

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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: JV
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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 83

CROSS SECTIONS

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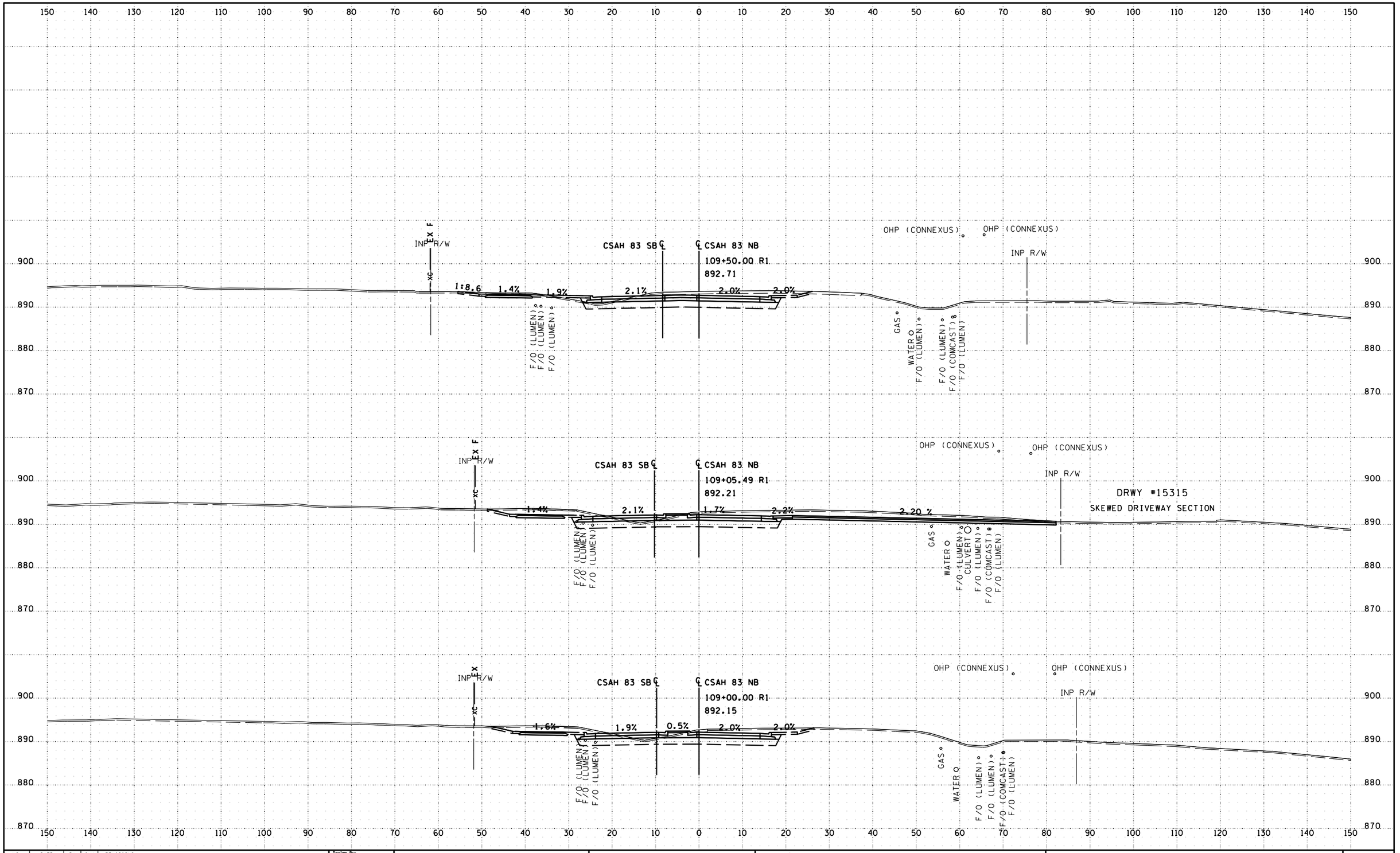

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NO.	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 83

CROSS SECTIONS

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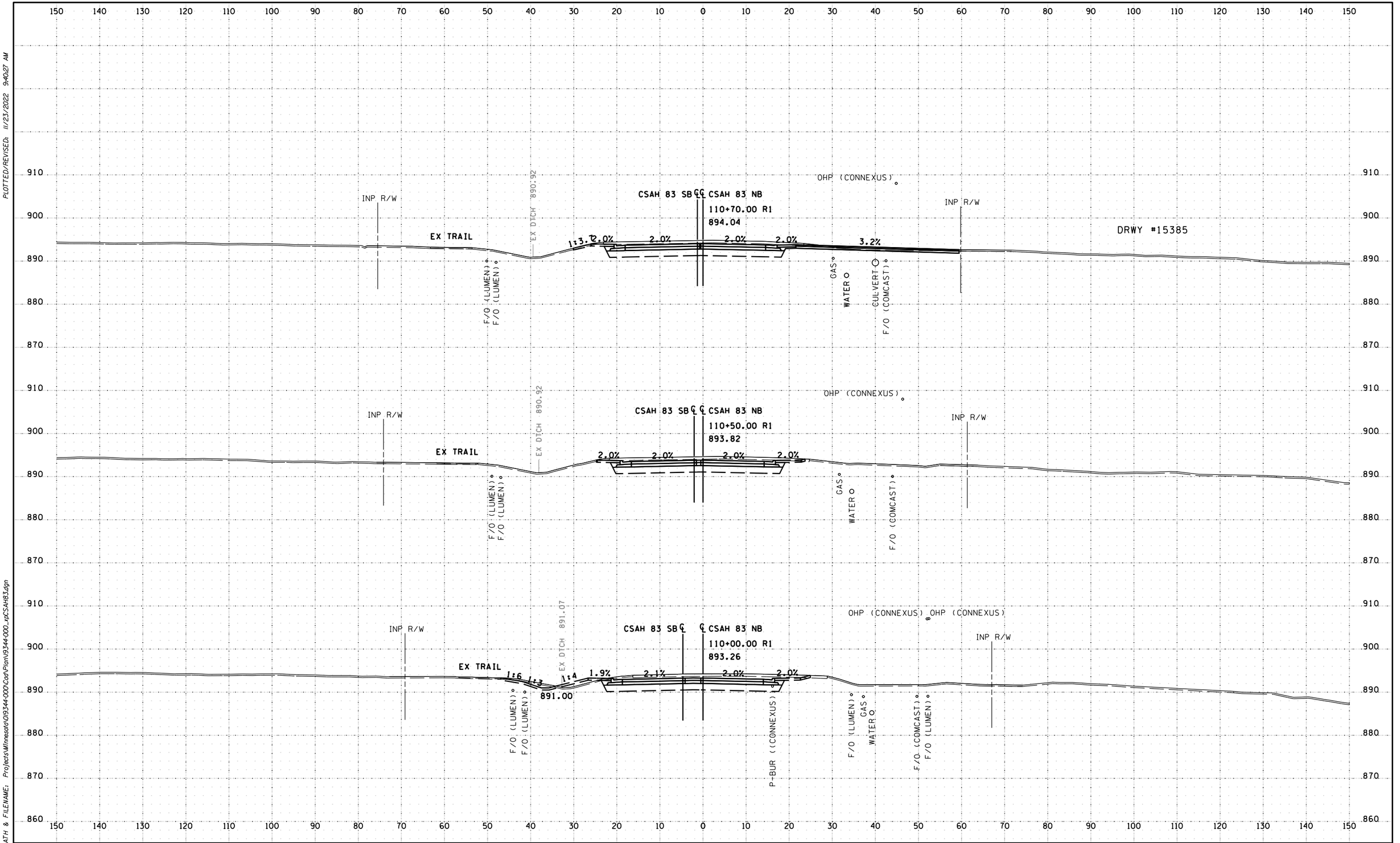

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 83

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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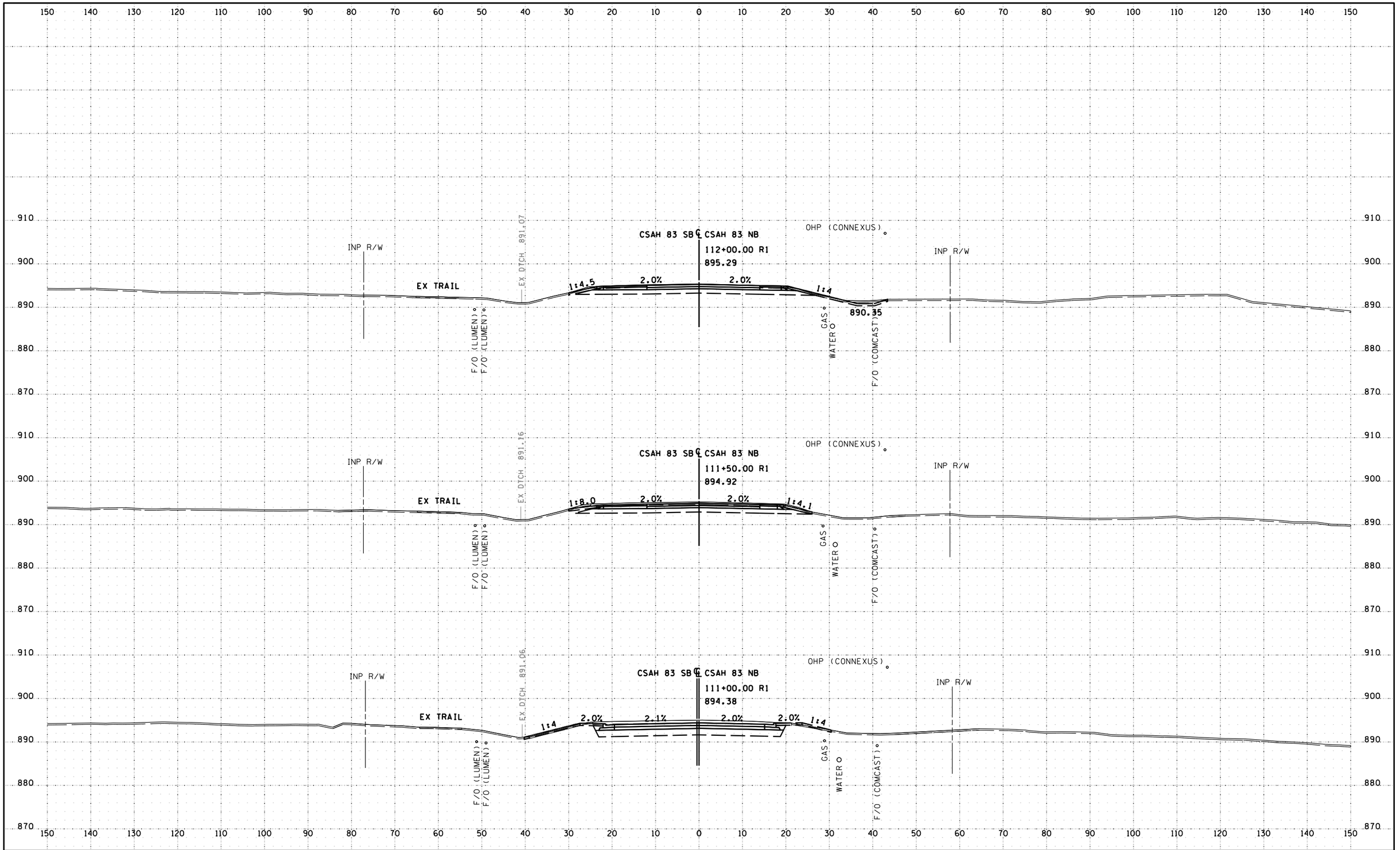

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NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

CSAH 83

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **X7** OF **X20** SHEETS

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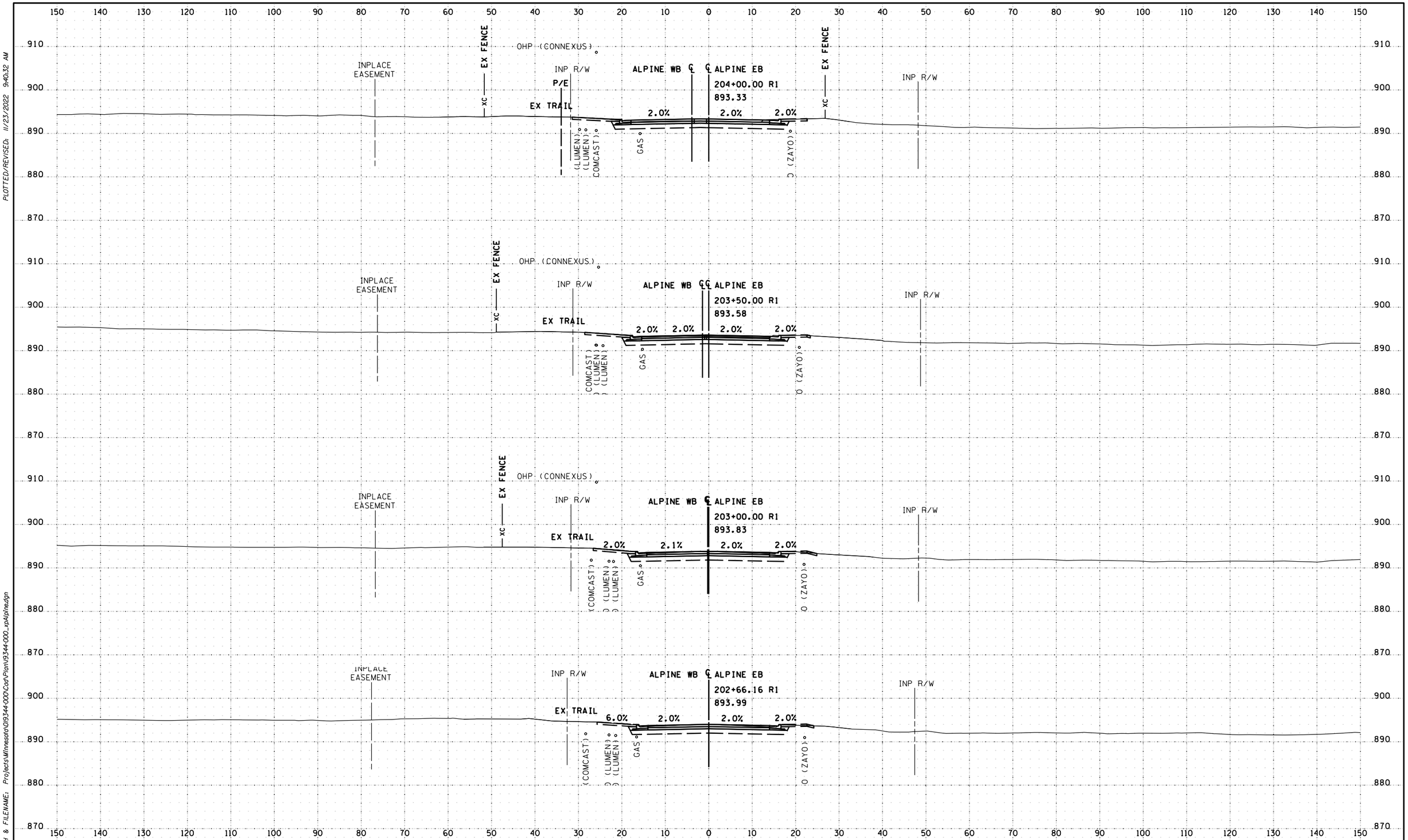

WSB PATH & FILENAME: Projects\Minnesota\09344-000\Cad\Plan\9344-000_xpAlpine.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
Plan By: JV
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wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALPINE DRIVE NW

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **X8** OF **X20** SHEETS

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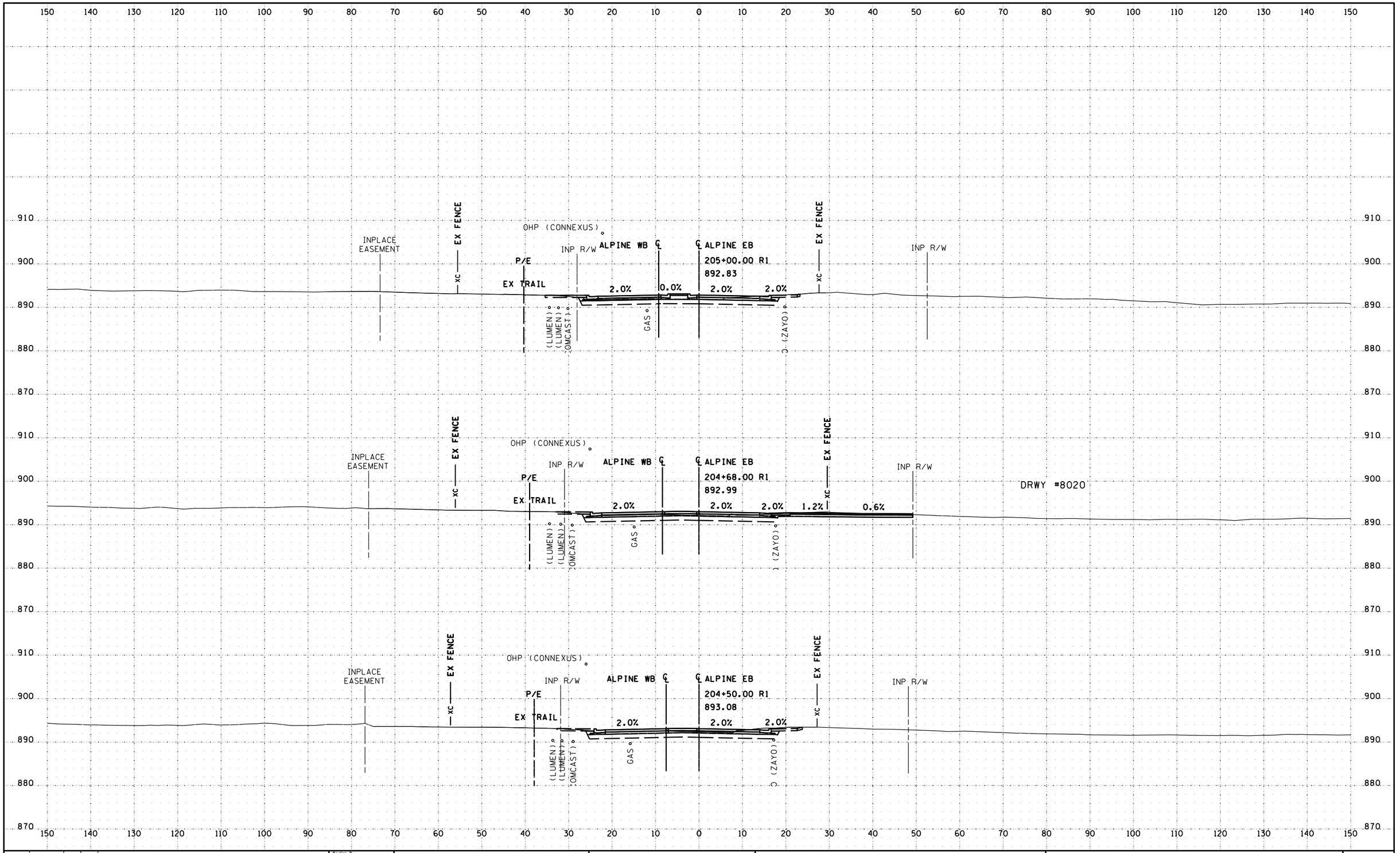

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NO.	DATE	BY	CHK	REVISIONS

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

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALPINE DRIVE NW

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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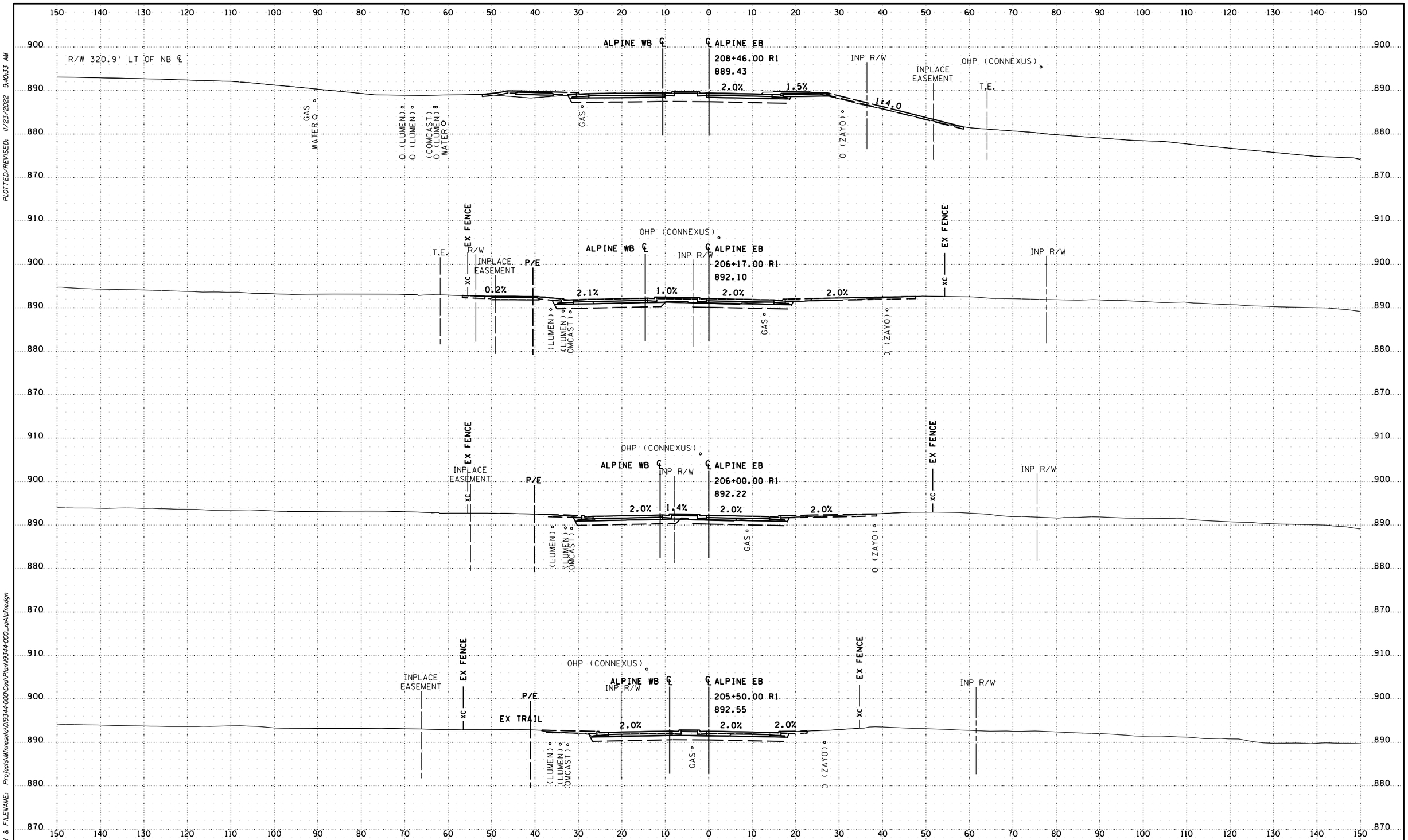

NO.	DATE	BY	CHK	REVISIONS

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

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALPINE DRIVE NW

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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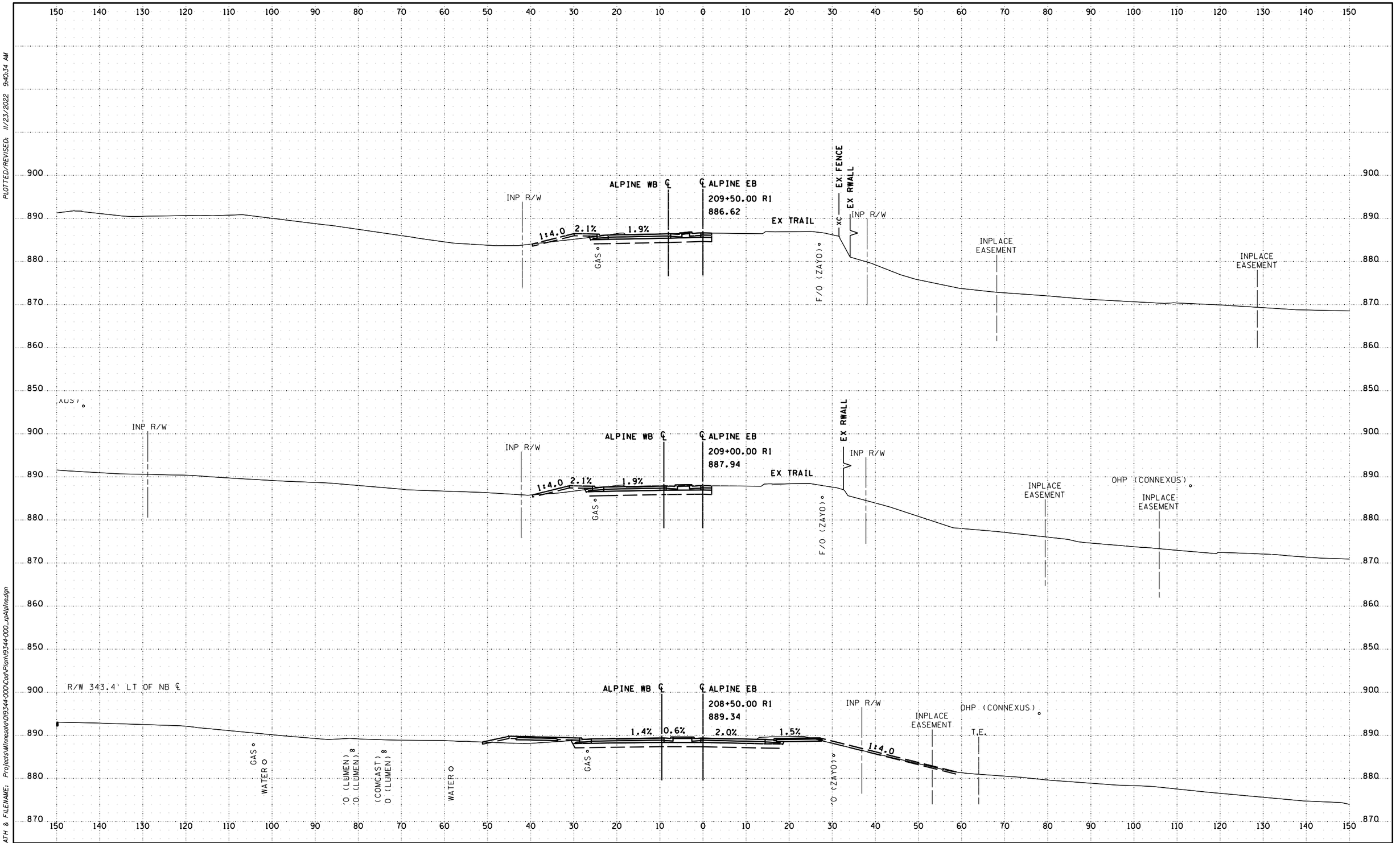

NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALPINE DRIVE NW

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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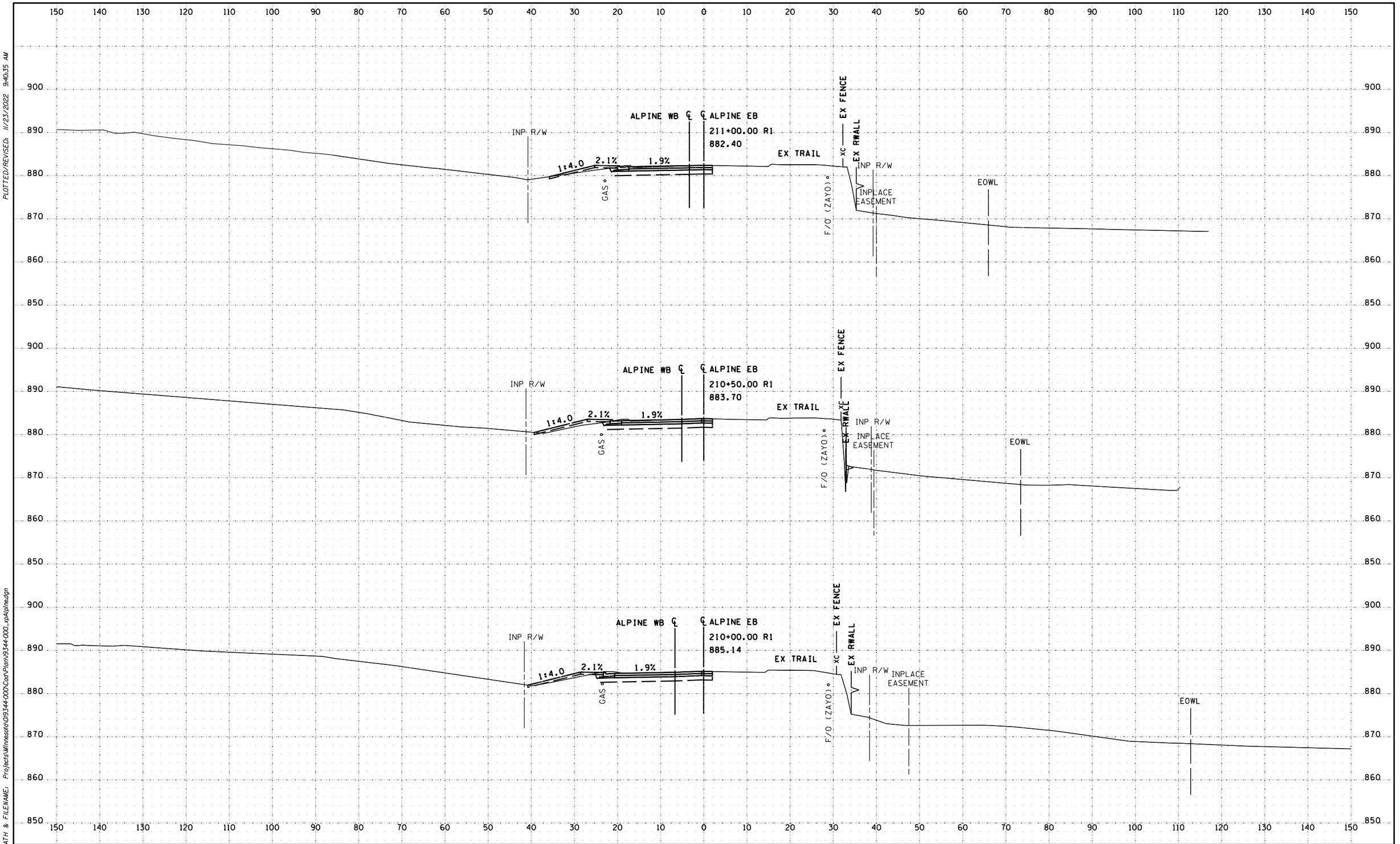

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NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALPINE DRIVE NW

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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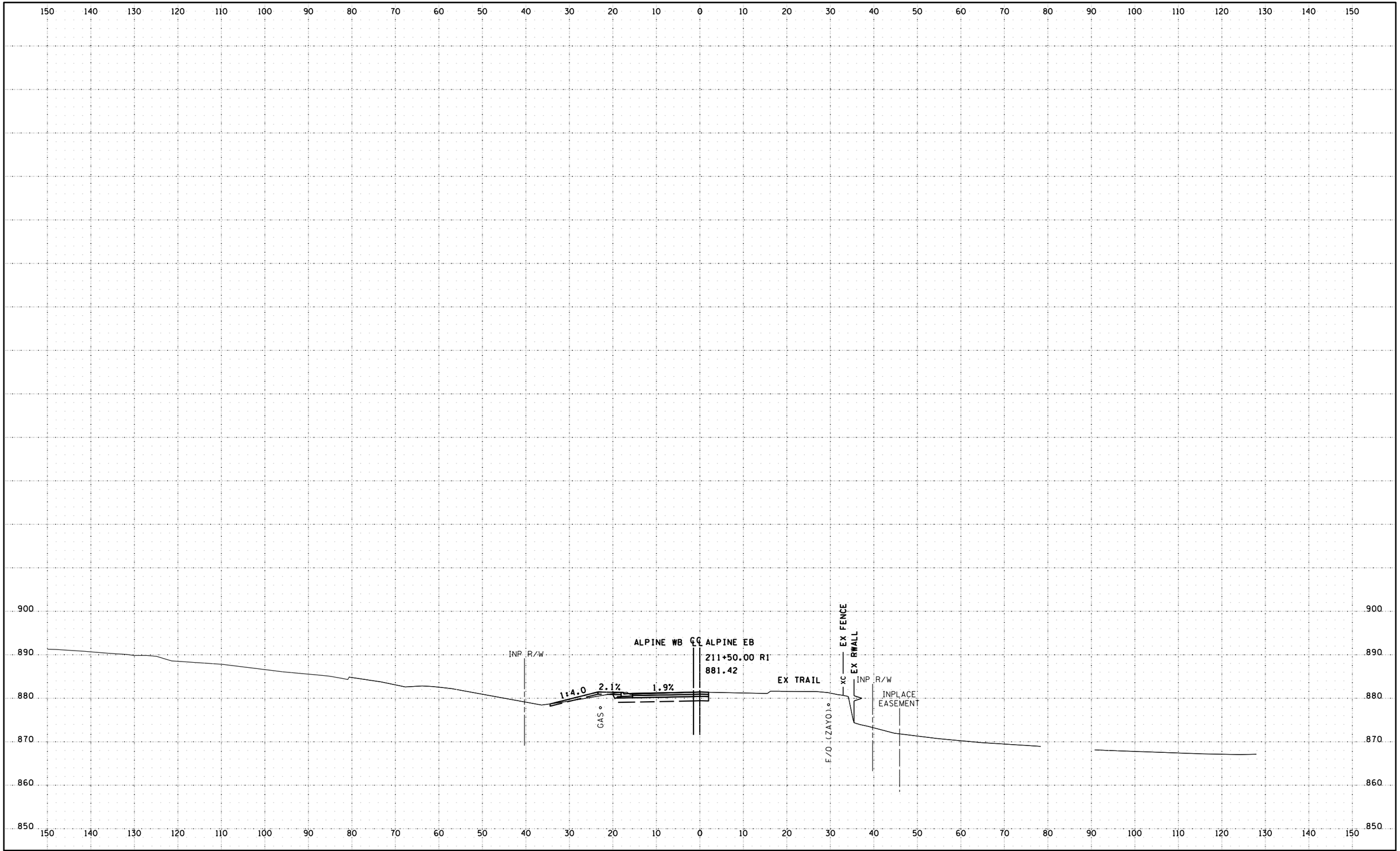

NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

ALPINE DRIVE NW

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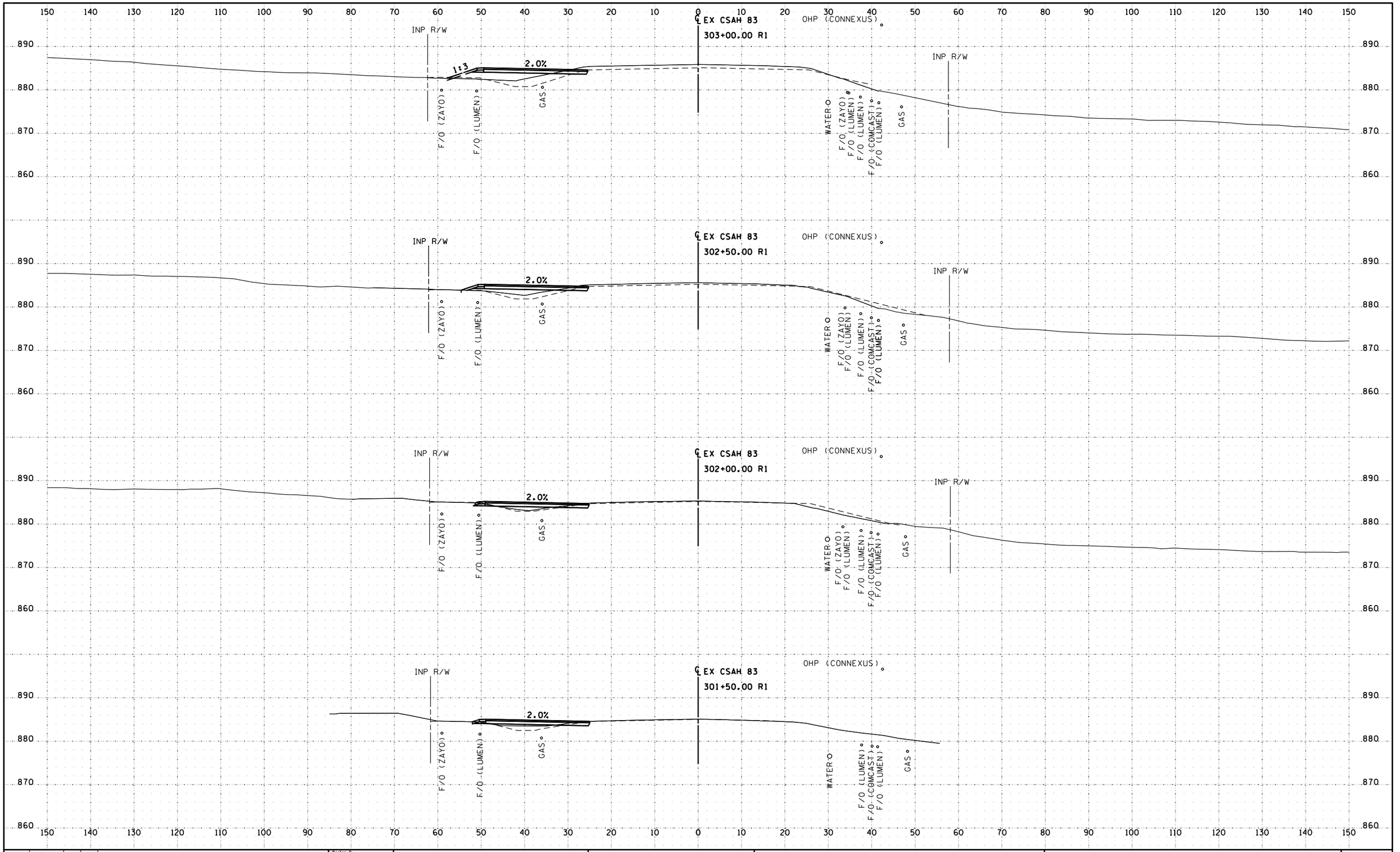

NO.	DATE	BY	CHK	REVISIONS

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

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TEMPORARY WIDENING

CROSS SECTIONS

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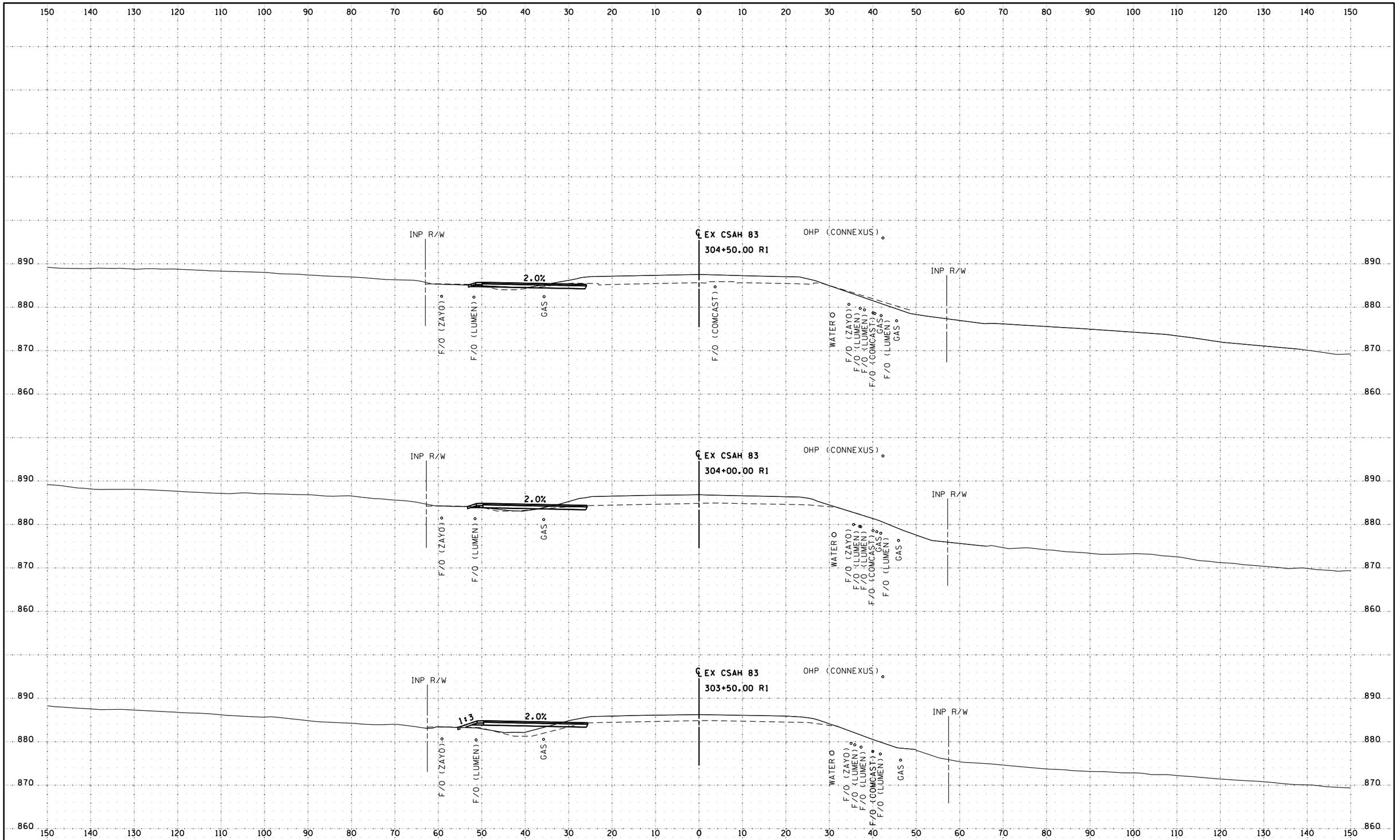

NO.	DATE	BY	CHK	REVISIONS

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

wsb

ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TEMPORARY WIDENING

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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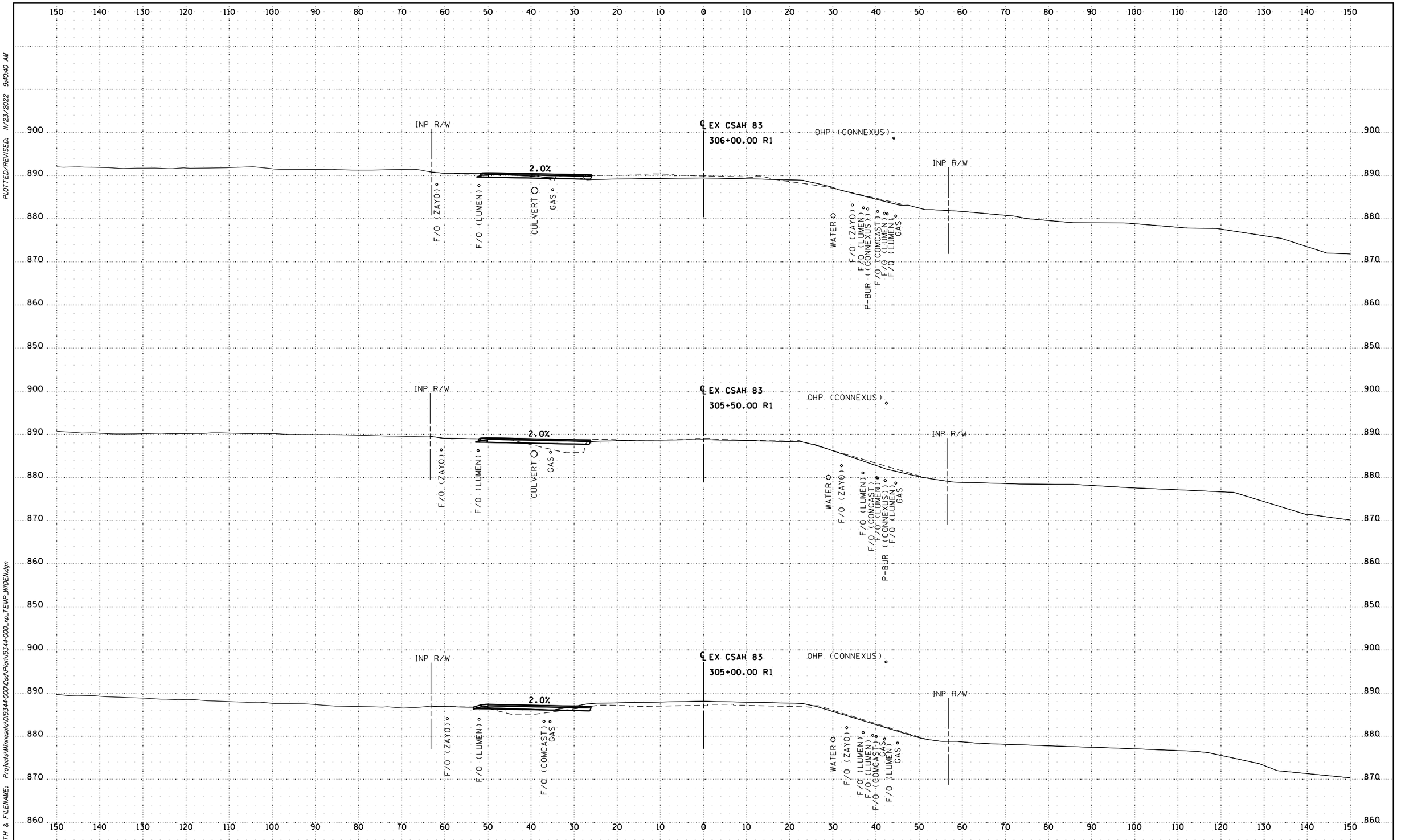

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NO.	DATE	BY	CHK	REVISIONS

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

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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TEMPORARY WIDENING

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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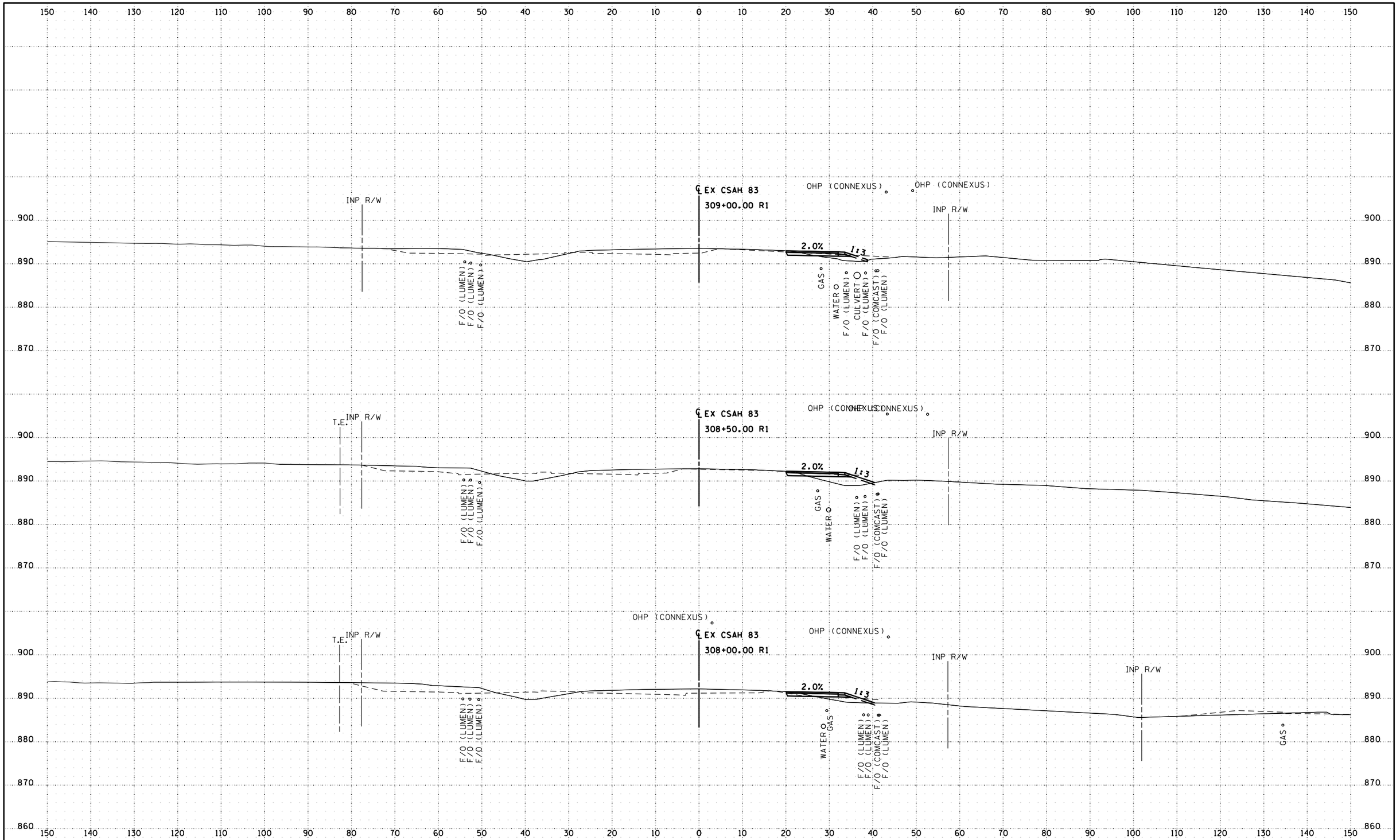

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NO.	DATE	BY	CHK	REVISIONS

Design By: AJF
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ANOKA COUNTY

CSAH 83 at Alpine Drive Intersection Improvements

Anoka County Highway Department

ANOKA COUNTY, MINNESOTA

TEMPORARY WIDENING

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

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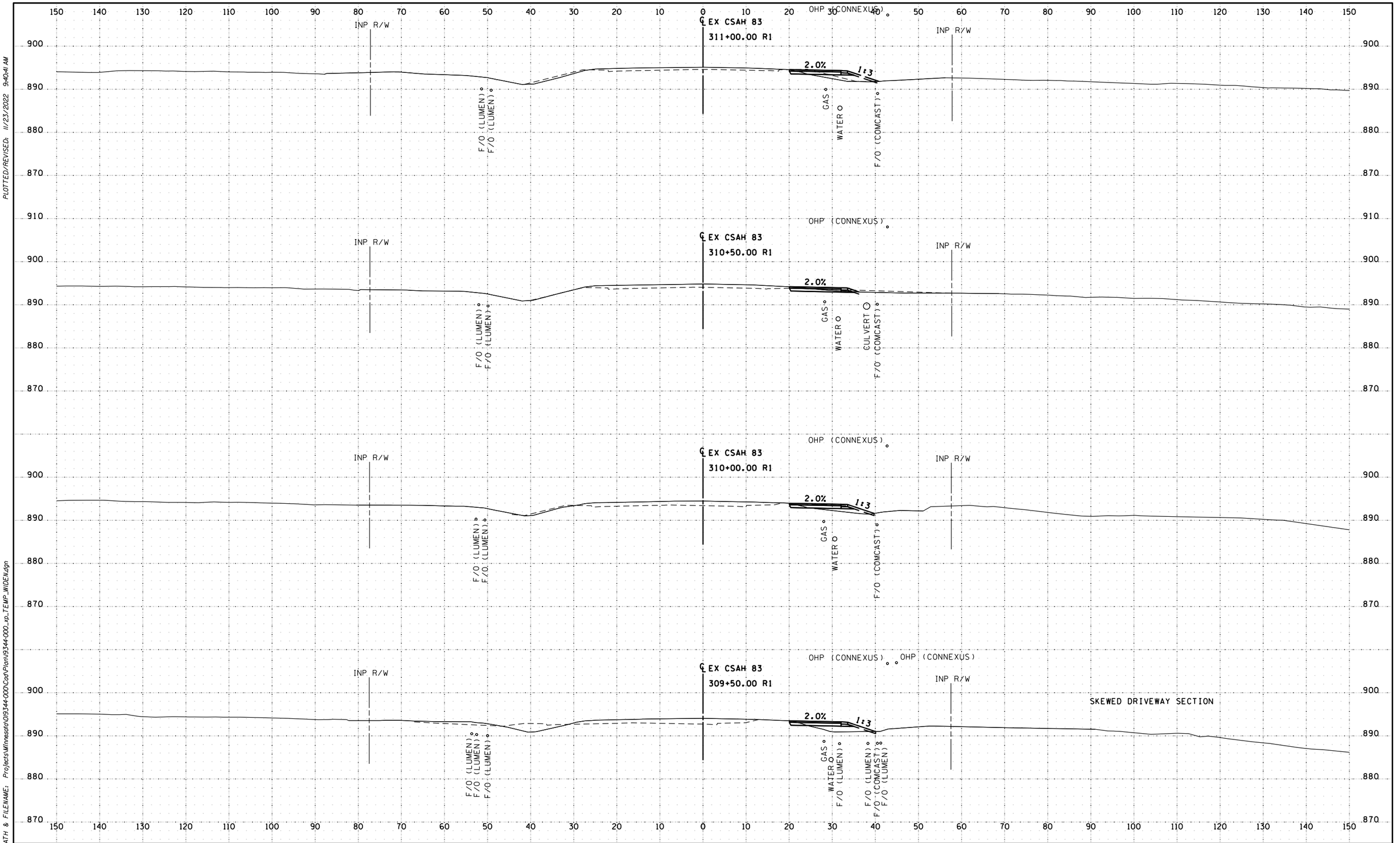

PLOTTED/REVISED: 11/23/2022 9:40:41 AM

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NO.	DATE	BY	CHK	REVISIONS

Design By:	AJF
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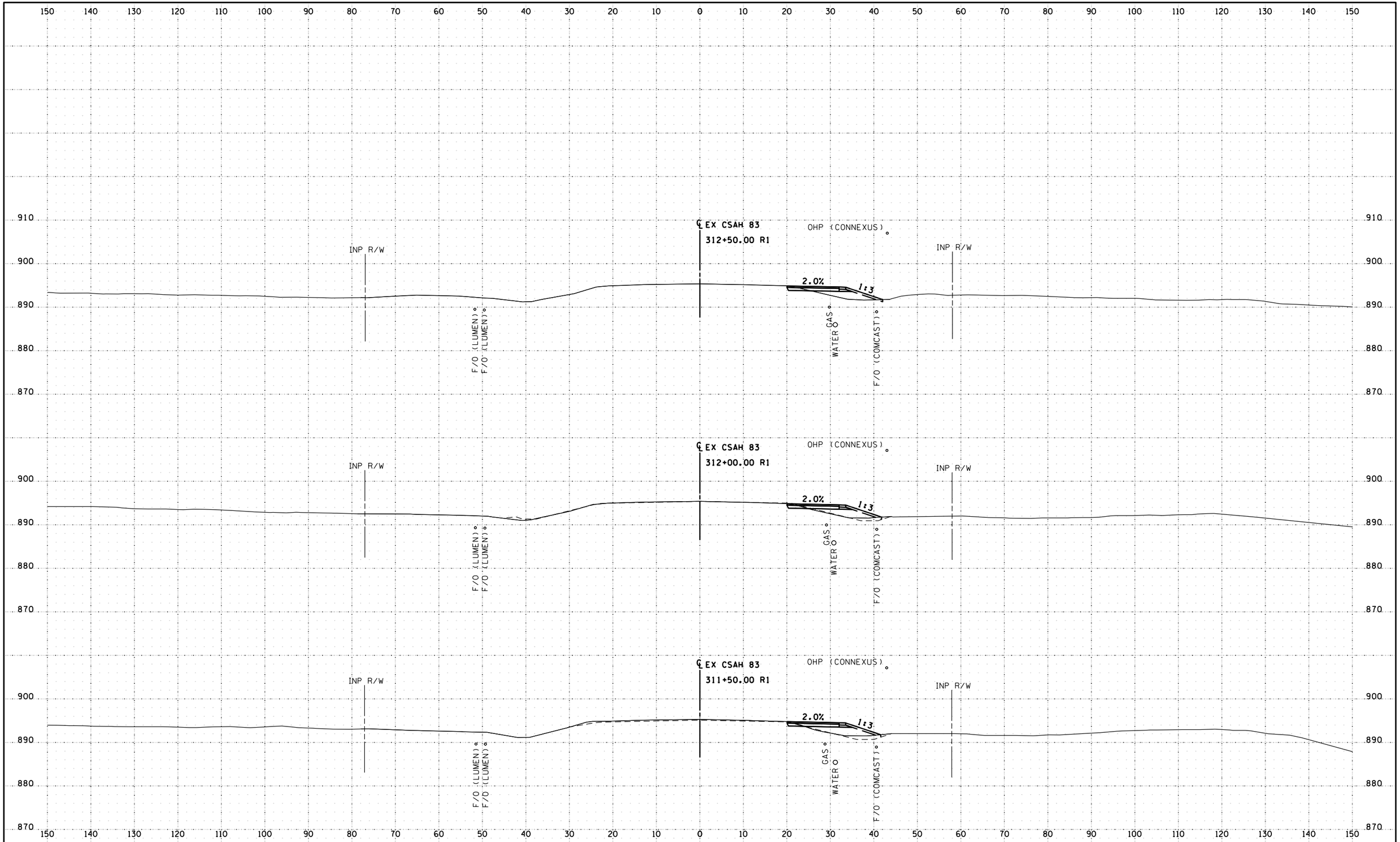
TEMPORARY WIDENING

CROSS SECTIONS

SP 002-683-006, SP 199-112-009, IP 23-03

SHEET **X18** OF **X20** SHEETS



NO.	DATE	BY	CHK	REVISIONS

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

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SP 002-683-006, SP 199-112-009, IP 23-03

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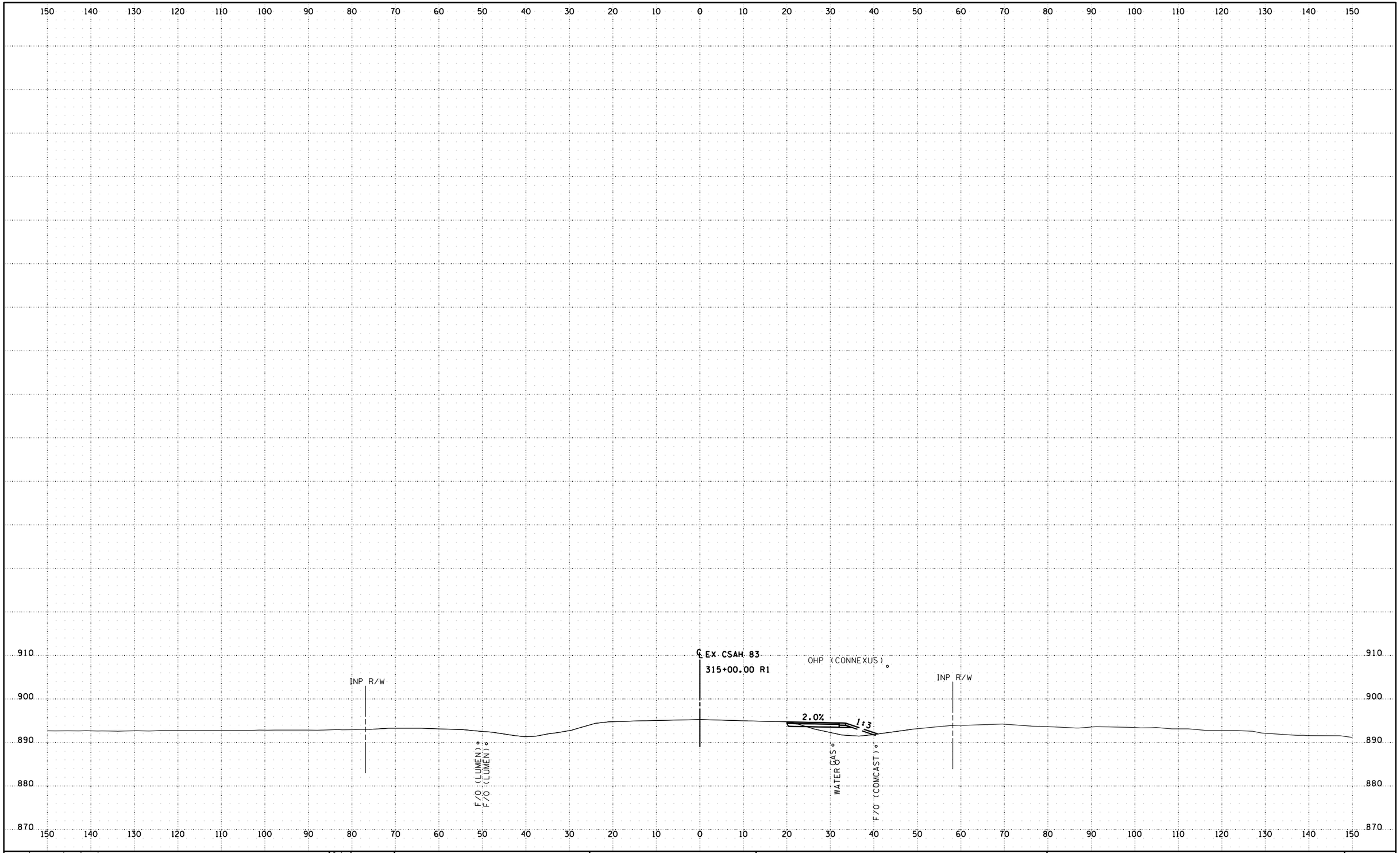

NO.	DATE	BY	CHK	REVISIONS

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

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