PLOTTED/REVISED: 04/16/25

MINNESOTA DEPARTMENT OF TRANSPORTATION
OTTER TAIL COUNTY, MN

CONSTRUCTION PLAN FOR STABILIZED FULL DEPTH RECLAMATION, GRADING, BITUMINOUS SURFACING & AGGREGATE SHOULDERING

LOCATED ON C.S.A.H. 35 FROM MN T.H. 108 TO C.S.A.H. 4

SECTIONS 7, 8, 9, 16, 17, 18, 21, 27, 28	TOWNSHIP 136N	RANGE 40W
SECTIONS 1, 2, 11, 12, 13, 14	TOWNSHIP 136N	RANGE 41W
SECTIONS 25, 36	TOWNSHIP 137N	RANGE 41W

S.A.P. NO. 056-635-043

GROSS LENGTH	57,004.06	FEET	10.796 MILES
BRIDGES-LENGTH	0.00	FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000 MILES
NET LENGTH	57,004.06	FEET	10.796 MILES

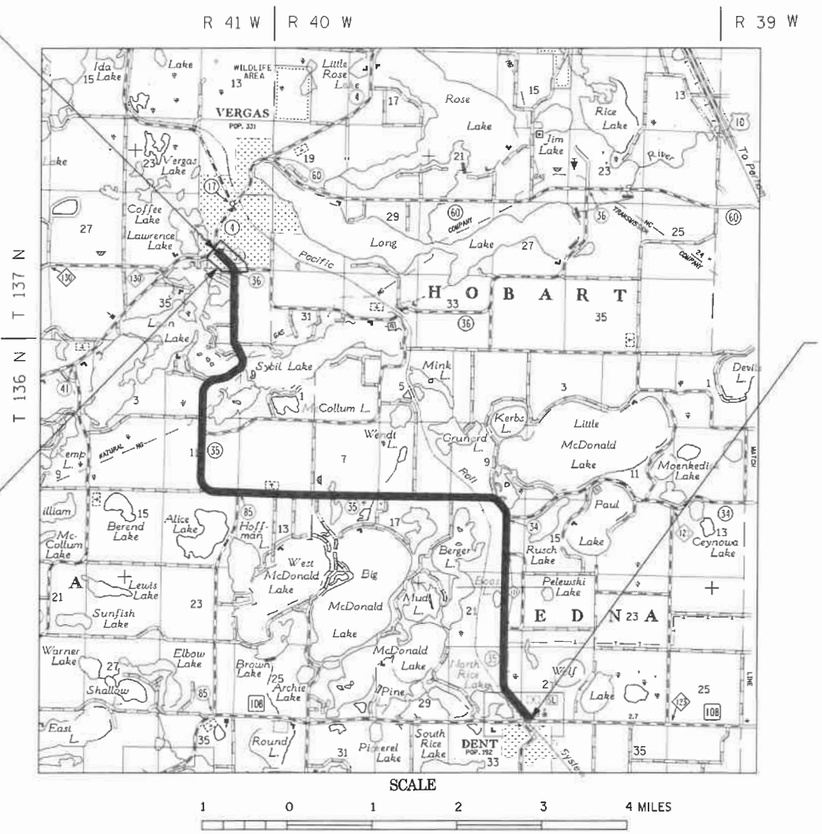
N / W / E / S

0 10,000
Scale in Feet

DESIGN DESIGNATION

Design ESALS 2045 = 467,000
ADT (Current Year) 2025 = 1433
ADT (Future Year) 2045 = 1476
R - VALUE = 36
ESALS = 629,000
DESIGN = 10 TON
DESIGN STANDARDS = 8820.9926
Design Speed Varies 30 MPH URBAN
55 MPH RURAL
Based on STOPPING Sight Distance
Height of eye 3.5' Height of object 2.0'
Design Speed not achieved at:
STA. 396+92.08 TO STA. 408+82.08 MPH 50
STA. 471+37.08 TO STA. 487+38.77 MPH 45
Functional Classification: Minor/Major Collector

END S.A.P. 056-635-043
STA. 580+08.43



SCALE
1 0 1 2 3 4 MILES

BEGIN S.A.P. 056-635-043
STA. 10+04.37

MUNICIPAL
STA 559+85.20 TO STA 580+08.43

SCALES

PLAN	100'
PROFILE	100' HORIZ. / 10' VERT.
INDEX MAP	10,000'
GENERAL LAYOUT	500'

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

PROJECT LOCATION
COUNTY : OTTER TAIL
DISTRICT : 4

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND

moore engineering, inc.
Consulting Engineering • Land Surveying

GOVERNING SPECIFICATIONS

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

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST MMUTCD, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

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

INDEX

THIS PLAN CONTAINS 125 SHEETS

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

PRINT NAME: NICK ANDERSON LICENSE # 40100

DATE: 04/16/2025 SIGNATURE: Nicholas A. Anderson

PROJECT MANAGER RYAN ODDEN

RECOMMENDED FOR APPROVAL — KRISTEN SAATELA FOSTER, OTTER TAIL COUNTY ENGINEER — DATE 4/22/25

REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY — DISTRICT STATE AID ENGINEER — DATE 4/25/25

APPROVED FOR STATE AID FUNDING — STATE AID ENGINEER — DATE 4/25/25

PATH & FILENAME: R:\Projects\23000\23500\23544\MNDOT\Design Files\23544_titlesheet.dgn

STATEMENT OF ESTIMATED QUANTITIES
S.A.P. 056-635-043

ITEM NO.	SHEET NO.	TAB.	SPEC NO.	DESCRIPTION		UNITS	PARTICIPATING MUNICIPAL	PARTICIPATING RURAL	TOTAL ESTIMATED QUANTITY
1			2021.501	MOBILIZATION		LUMP SUM	0.035	0.965	1
2			2051.501	MAINT AND RESTORATION OF HAUL ROADS		LUMP SUM	0.035	0.965	1
3			2101.501	CLEARING AND GRUBBING		LUMP SUM		1	1
4	3,6	D,Q	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	23	337	360
5	3	G	2104.503	REMOVE CATTLE PASS	1.	LIN FT		66	66
6	4	H,I	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ YD	349	6808	7157
7	6	Q	2104.504	REMOVE BITUMINOUS PAVEMENT		SQ YD		341	341
8	3	F	2104.507	REMOVE AGGREGATE	2.	CU YD	525	9220	9745
9	3	A	2104.518	REMOVE CONCRETE WALK		SQ FT		339	339
10	6	L,Q	2106.507	EXCAVATION - COMMON	(P)	CU YD	328	14916	15244
11	6	L	2106.507	GRANULAR EMBANKMENT (CV)	(P)	CU YD	244	6386	6630
12	6	L,Q	2106.507	SELECT GRANULAR EMBANKMENT (CV)	(P)	CU YD		736	736
13	6	L	2106.507	COMMON EMBANKMENT (CV)	(P)	CU YD	249	14412	14661
14	6	L	2108.504	GEOTEXTILE FABRIC TYPE 5		SQ YD		220	220
15	4,6	H,I,M	2118.509	AGGREGATE SURFACING CLASS 1		TON	97	2665	2762
16	3,4,6	A,H,I,Q	2211.509	AGGREGATE BASE CLASS 5		TON	104.7	2131.8	2236.5
17	3	E	2215.504	STABILIZED FULL DEPTH RECLAMATION	3.	SQ YD	10428	198947	209375
18	3,4,6	B,H,I,Q	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	4.	TON	795	17682	18477
19	3,4,6	B,H,I,Q	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	4.	TON	795	17682	18477
20	3	A	2521.518	6" CONCRETE WALK	5.	SQ FT		344	344
21	3	A	2531.618	TRUNCATED DOMES		SQ FT		36	36
22	3	C	2540.602	MAIL BOX SUPPORT	6.	EACH	1	40	41
23			2563.601	TRAFFIC CONTROL		LUMP SUM	0.035	0.965	1
24			2563.602	RAISED PAVEMENT MARKER TEMPORARY	7.	EACH	32	863	895
25	7	U	2564.518	SIGN PANELS TYPE C		SQ FT	13	38	50
26	7	R,S	2573.503	SILT FENCE, TYPE MS		LIN FT		7208	7208
27	7	R,S	2573.503	SEDIMENT CONTROL LOG TYPE WOOD CHIP		LIN FT		32130	32130
28	5	J,K	2574.505	SOIL BED PREPARATION		ACRE	0.2	12.4	12.6
29	5	J,K	2574.508	FERTILIZER TYPE 3		POUND	34	4320	4354
30	5	J,K	2574.508	FERTILIZER TYPE 4		POUND		2.0	2.0
31	5	J,K	2575.505	SEEDING		ACRE	0.2	12.4	12.6
32	5	J,K	2575.508	HYDRAULIC BONDED FIBER MATRIX		POUND	649	43361	44010
33	6	N,O,P	2575.523	RAPID STABILIZATION METHOD 3		M GALLON	1.5	73.9	75.4
34	5	J,K	2575.608	SEED MESIC INSLOPE		LB	12.0	711.5	723.5
35	5	J,K	2575.608	SEED WET DITCH		LB		0.3	0.3
36	5	J,K	2575.608	SEED SOUTHERN TALLGRASS ROADSIDE		LB	4.8	36.7	41.5
37			2580.503	INTERIM PAVEMENT MARKING	8.	LIN FT	150	4407	4557
38	8	V	2582.503	4" SOLID LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	975	22280	23255
39	8	V	2582.503	6" SOLID LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	3834	107615	111449
40	8	V	2582.503	4" BROKEN LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	195	8369	8564
41	8	V	2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	1000	13075	14075
42	7	T	2582.503	24" SOLID LINE PREFORM TAPE GROUND IN		LIN FT	32	145	177
43	7	T	2582.518	PAVEMENT MESSAGE PREFORM TAPE GROUND IN		SQ FT	66.97	224.68	291.65
44	7	T	2582.518	CROSSWALK MULTI-COMPONENT GROUND IN (WR)		SQ FT		150	150

NOTE:

WHEN A (P) DESIGNATION IS PLACED ON AN INDIVIDUAL CONTRACT ITEM. THE PLAN DIMENSIONS ARE USED TO COMPUTE THE PAY QUANTITY FOR THAT ITEM OF WORK AND NO MEASUREMENTS WILL BE TAKEN IN THE FIELD.

ALL MATERIAL NOT UTILIZED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE R/W IN ACCORDANCE WITH SPEC 2104.

RECONSTRUCT ENTRANCES TO MATCH INPLACE MATERIAL. SEE TYPICAL DETAIL SHEET FOR BITUMINOUS ENTRANCE PAVING.

1. REMOVAL LENGTH INCLUDES CATTLE PASS APRONS.

2. REMOVED AGGREGATE IS QUANTIFIED AS REMOVAL OF 2" OF MATERIAL AFTER INITIAL FULL DEPTH RECLAMATION. REMOVED AGGREGATE MAY BE USED AS AGGREGATE SURFACING CLASS 1 AFTER SCREENING AND MEETING MNDOT SPEC. 2118.

3. BASE ONE STABILIZING AGENT OR EQUIVALENT TO BE USED. APPLICATION RATE IS 0.005 GALLONS PER SQUARE YARD PER INCH OF STABILIZED RECLAMATION DEPTH. TOTAL ESTIMATED QUANTITY IS 6282 GALLONS. APPROVED EQUIVALENT BY OTTER TAIL COUNTY CAN BE SUBSTITUED.

4. TACK COATS SHALL USE SPEC. 2357 AND SHALL BE INCIDENTAL. QUALITY MANAGEMENT - E-TICKETING IS REQUIRED AND SHALL BE INCIDENTAL.

5. PLAN LEVEL 1 ADA DESIGN. CONTRACTOR TO FIELD DESIGN ADA RAMPS TO MEET DESIGN STANDARDS.

6. SEE BIDDER'S PROPOSAL FOR OTTER TAIL COUNTY MAILBOX SUPPORT DETAIL FOR SWING-AWAY TYPE POSTS.

7. RAISED PAVEMENT MARKERS TEMPORARY WILL BE USED ON FINAL LIFT ONLY AND WILL BE PLACED EVERY 100' ON TANGENTS AND EVERY 50' ON CURVES (HORZ. AND VERT.).

8. INTERIM PAVEMENT MARKING WILL BE PLACED AT A 4/50 RATIO AND WILL BE USED ON FIRST LIFT ONLY.

ALIGNMENT TABLE

EXISTING ALIGNMENT STATIONING	PROPOSED ALIGNMENT STATIONING
SOUTH ALIGNMENT	
0+00.00	10+00.00
27+60.55	37+60.55
BK 35+32.81	45+32.86
AH 35+40.35	45+32.86
73+20.36	83+12.82
126+06.82	135+99.28
152+44.01	162+36.47
MIDDLE ALIGNMENT	
219+56.41	162+36.47
212+98.17	168+94.70
206+63.92	175+28.96
199+64.72	182+28.16
171+76.45	210+16.42
145+62.71	236+30.16
119+48.92	262+43.95
93+28.16	288+64.72
81+52.44	300+40.43
64+55.53	317+37.34
46+15.40	335+77.47
19+55.80	362+37.07

ALIGNMENT TABLE

EXISTING ALIGNMENT STATIONING	PROPOSED ALIGNMENT STATIONING
NORTH ALIGNMENT	
10+00.00	362+37.07
25+82.90	378+19.98
42+83.94	395+21.02
58+27.61	410+64.68
84+80.19	437+17.27
100+57.72	452+94.80
115+65.45	468+02.52
121+43.36	473+80.44
126+05.02	478+42.09
134+78.13	487+15.20
BK 144+43.99	496+81.06
AH 143+87.30	496+81.06
143+87.32	496+81.08
152+10.62	505+04.39
157+85.61	510+79.37
180+81.60	533+75.37
BK 196+18.39	549+12.15
AH 366+00.00	549+12.15
373+72.90	556+85.06
BEGIN MUNICIPAL	
376+73.00	559+85.16
381+21.32	564+33.48
393+38.23	576+50.38
397+15.67	580+27.83
END 397+17.69	END 580+29.85

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVE BY THE MINNESOTA DEPARTMENT OF TRANSPORTATION & THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.*

PLATE NO.	DESCRIPTION
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)

*MISCELLANEOUS DETAILS SHALL TAKE PRECEDENCE OVER STANDARD PLATES IF THERE ARE CONFLICTS

BASIS OF QUANTITIES

TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	115 POUNDS/SQUARE YARD*INCH
TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	115 POUNDS/SQUARE YARD*INCH
BITUMINOUS TACK COAT UNDILUTED (INCIDENTAL)	0.05 GALLON/SQUARE YARD
BITUMINOUS TACK COAT DILUTED (INCIDENTAL)	0.07 GALLON/SQUARE YARD
AGGREGATE SURFACING CLASS 1	1.823 TON/CUBIC YARD (CV)
AGGREGATE BASE CLASS 5	1.823 TON/CUBIC YARD (CV)
RAPID STABILIZATION METHOD 3	6 M GALLON/ACRE
MESIC INSLOPE (SEED)	65 POUNDS/ACRE
WET DITCH (SEED)	20 POUNDS/ACRE
SOUTHERN TALL GRASS ROADSIDE (SEED)	26 POUNDS/ACRE
FERTILIZER TYPE 3, ANALYSIS 22-5-10	350 POUNDS/ACRE
FERTILIZER TYPE 4, ANALYSIS 17-10-7	120 POUNDS/ACRE
HYDRAULIC BONDED FIBER MATRIX	3,500 POUNDS/ACRE

REVIEWER: NAA	DATE:	04/16/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ	DATE:	04/16/25	

moore engineering, inc.

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.

NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

A CONCRETE WALK

STATION - STATION	OFFSET	FUNDING	REMOVE CONCRETE WALK	6" CONCRETE WALK	TRUNCATED DOMES	AGGREGATE BASE CLASS 5
			SQ FT	SQ FT	SQ FT	TON
162+89.5 TO 162+99.5	15.8R TO 36.4R	RURAL	215	220	18	7.4
162+89.6 TO 192+99.6	18.1L TO 28.0L	RURAL	124	124	18	4.2
TOTAL			339	344	36	11.6

D SAWING BITUMINOUS PAVEMENT (FULL DEPTH)

STATION - STATION	LOCATION	OFFSET	FUNDING	LIN FT
10+04.37 - 10+61.16	TH 108	36.11R - 29.26L	RURAL	88
161+99.67 - 162+73.58	CSAH 34	32.00R - 32.00R	RURAL	74
191+17.45 - 191+35.37	MAINLINE	18.76L - 16.98R	RURAL	40
191+28.69 - 191+45.65	MAINLINE	18.72L - 15.33R	RURAL	38
362+14.87 - 362+57.25	CSAH 85	51.11L - 52.36L	RURAL	43
559+53.57 - 559+85.16	CSAH 36	50.00R - 50.00R	RURAL	34
RURAL TOTALS				317
559+85.16 - 560+07.65	CSAH 36	50.00R - 50.00R	MUNICIPAL	23
MUNICIPAL TOTALS				23
TOTAL				340

E STABILIZED FULL DEPTH RECLAIMATION

STATION - STATION	OFFSET	FUNDING	SQ YD
10+04.39 - 35+00.00	38.17 RT - 16.41 LT	RURAL	9101
35+00.00 - 70+00.00	16.15 RT - 16.73 LT	RURAL	12903
70+00.00 - 105+00.00	16.40 RT - 16.04 LT	RURAL	12721
105+00.00 - 140+00.00	16.11 RT - 16.65 LT	RURAL	12766
140+00.00 - 175+00.00	17.10 RT - 16.40 LT	RURAL	13200
175+00.00 - 191+35.37	15.54 RT - 18.76 LT	RURAL	5779
191+28.69 - 209+00.00	18.72 LT - 14.51 RT	RURAL	5995
209+00.00 - 245+00.00	14.51 RT - 16.83 LT	RURAL	12285
245+00.00 - 280+00.00	13.84 RT - 20.87 LT	RURAL	12253
280+00.00 - 315+00.00	14.70 RT - 14.96 LT	RURAL	12057
315+00.00 - 350+00.00	15.24 RT - 15.98 LT	RURAL	11933
350+00.00 - 385+00.00	16.65 RT - 17.97 LT	RURAL	13121
385+00.00 - 420+00.00	18.42 RT - 15.36 LT	RURAL	12705
420+00.00 - 455+00.00	15.91 RT - 15.78 LT	RURAL	12433
455+00.00 - 490+00.00	17.58 RT - 16.88 LT	RURAL	13646
490+00.00 - 525+00.00	19.68 RT - 14.93 LT	RURAL	13092
525+00.00 - 559+85.16	13.77 RT - 22.40 LT	RURAL	12957
RURAL TOTALS			198947
559+85.16 - 580+08.44	50.00 RT - 61.86 LT	MUNICIPAL	10428
MUNICIPAL TOTALS			10428
PROJECT TOTALS			209375

F REMOVE AGGREGATE

STATION - STATION	OFFSET	FUNDING	CU YD
10+04.39 - 35+00.00	36.76 RT - 12.33 LT	RURAL	397
35+00.00 - 70+00.00	13.00 RT - 12.66 LT	RURAL	570
70+00.00 - 105+00.00	13.60 RT - 12.72 LT	RURAL	558
105+00.00 - 140+00.00	12.30 RT - 13.40 LT	RURAL	555
140+00.00 - 175+00.00	12.59 RT - 15.68 LT	RURAL	598
175+00.00 - 191+35.37	13.39 RT - 16.98 LT	RURAL	296
191+28.69 - 209+00.00	18.72 LT - 12.17 RT	RURAL	302
209+00.00 - 245+00.00	12.17 RT - 16.77 LT	RURAL	614
245+00.00 - 280+00.00	11.70 RT - 20.87 LT	RURAL	629
280+00.00 - 315+00.00	11.87 RT - 11.98 LT	RURAL	583
315+00.00 - 350+00.00	12.16 RT - 15.93 LT	RURAL	553
350+00.00 - 385+00.00	14.76 RT - 28.12 LT	RURAL	591
385+00.00 - 420+00.00	15.10 RT - 12.35 LT	RURAL	589
420+00.00 - 455+00.00	12.79 RT - 13.80 LT	RURAL	570
455+00.00 - 490+00.00	15.04 RT - 13.73 LT	RURAL	619
490+00.00 - 525+00.00	17.25 RT - 12.40 LT	RURAL	621
525+00.00 - 559+85.16	12.22 RT - 20.69 LT	RURAL	575
RURAL TOTALS			9220
559+85.16 - 580+08.44	50.00 RT - 61.86 LT	MUNICIPAL	525
MUNICIPAL TOTALS			525
PROJECT TOTALS			9745

B BITUMINOUS

STATION - STATION	OFFSET	LOCATION	FUNDING	TYPE SP 9.5 WEARING COURSE MIX (3,C)	TYPE SP 12.5 WEARING COURSE MIX (3,C)
				TON	TON
10+04.4 TO 35+00.0	36.8R TO 16.0R	SHOULDER	RURAL	96	96
10+13.5 TO 35+00.0	26.1R TO 12.0L	MAINLINE	RURAL	571	571
10+58.5 TO 35+00.0	26.2L TO 12.0L	SHOULDER	RURAL	94	94
35+00.0 TO 70+00.0	12.0L TO 16.0L	SHOULDER	RURAL	135	135
35+00.0 TO 70+00.0	12.0R TO 16.0R	SHOULDER	RURAL	135	135
35+00.0 TO 70+00.0	12.0L TO 12.0R	MAINLINE	RURAL	819	819
70+00.0 TO 105+00.0	12.0L TO 16.0L	SHOULDER	RURAL	138	138
70+00.0 TO 105+00.0	12.0R TO 16.0R	SHOULDER	RURAL	139	139
70+00.0 TO 105+00.0	12.0L TO 12.0R	MAINLINE	RURAL	840	840
105+00.0 TO 140+00.0	12.0L TO 16.0L	SHOULDER	RURAL	141	141
105+00.0 TO 140+00.0	12.0R TO 16.0R	SHOULDER	RURAL	142	142
105+00.0 TO 140+00.0	12.0L TO 12.0R	MAINLINE	RURAL	861	861
140+00.0 TO 175+00.0	12.0L TO 14.0L	SHOULDER	RURAL	132	132
140+00.0 TO 175+00.0	12.0R TO 14.0R	SHOULDER	RURAL	111	111
140+00.0 TO 175+00.0	12.0L TO 12.0R	MAINLINE	RURAL	805	805
175+00.0 TO 191+37.1	12.0R TO 14.0R	SHOULDER	RURAL	31	31
175+00.0 TO 191+32.9	12.0L TO 12.0R	MAINLINE	RURAL	374	374
175+00.0 TO 191+20.8	12.0L TO 15.9L	SHOULDER	RURAL	59	59
191+31.0 TO 210+00.0	14.0L TO 14.0L	SHOULDER	RURAL	60	60
191+32.0 TO 210+00.0	12.0L TO 12.0R	MAINLINE	RURAL	428	428
191+44.0 TO 191+45.0	12.0R TO 14.0R	SHOULDER	RURAL	36	36
210+00.0 TO 245+00.0	12.0R TO 12.0R	SHOULDER	RURAL	67	67
210+00.0 TO 245+00.0	12.0L TO 16.8L	SHOULDER	RURAL	101	101
210+00.0 TO 245+00.0	12.0L TO 12.0R	MAINLINE	RURAL	805	805
245+00.0 TO 280+00.0	12.0R TO 12.0R	SHOULDER	RURAL	67	67
245+00.0 TO 280+00.0	12.0L TO 14.0L	SHOULDER	RURAL	143	143
245+00.0 TO 280+00.0	12.0L TO 12.0R	MAINLINE	RURAL	805	805
280+00.0 TO 315+00.0	12.0R TO 12.0R	SHOULDER	RURAL	67	67
280+00.0 TO 315+00.0	12.0L TO 14.0L	SHOULDER	RURAL	98	98
280+00.0 TO 315+00.0	12.0R TO 12.0L	MAINLINE	RURAL	805	805
315+00.0 TO 350+00.0	12.0L TO 16.0L	SHOULDER	RURAL	83	83
315+00.0 TO 350+00.0	12.0L TO 12.0R	MAINLINE	RURAL	805	805
315+00.0 TO 350+00.0	12.0R TO 14.0R	SHOULDER	RURAL	67	67
350+00.0 TO 385+00.0	12.0R TO 18.0R	SHOULDER	RURAL	72	72
350+00.0 TO 385+00.0	12.0L TO 18.0L	SHOULDER	RURAL	91	91
350+00.0 TO 385+00.0	12.0R TO 12.0L	MAINLINE	RURAL	805	805
385+00.0 TO 420+00.0	12.0R TO 18.0R	SHOULDER	RURAL	200	200
385+00.0 TO 420+00.0	12.0L TO 18.0L	SHOULDER	RURAL	202	202
385+00.0 TO 420+00.0	12.0R TO 12.0L	MAINLINE	RURAL	805	805
420+00.0 TO 455+00.0	12.0R TO 18.0R	SHOULDER	RURAL	201	201
420+00.0 TO 455+00.0	12.0L TO 18.0L	SHOULDER	RURAL	201	201
420+00.0 TO 455+00.0	12.0R TO 12.0L	MAINLINE	RURAL	805	805
455+00.0 TO 490+00.0	12.0R TO 18.0R	SHOULDER	RURAL	201	201
455+00.0 TO 490+00.0	12.0L TO 18.0L	SHOULDER	RURAL	202	202
455+00.0 TO 490+00.0	12.0R TO 12.0L	MAINLINE	RURAL	805	805
490+00.0 TO 525+00.0	12.0L TO 18.0L	SHOULDER	RURAL	201	201
490+00.0 TO 525+00.0	12.0R TO 12.0L	MAINLINE	RURAL	812	812
490+00.0 TO 525+00.0	12.0R TO 18.0R	SHOULDER	RURAL	205	205
525+00.0 TO 559+85.2	12.0L TO 18.0L	SHOULDER	RURAL	205	205
525+00.0 TO 559+85.2	12.0R TO 12.0L	MAINLINE	RURAL	829	829
525+00.0 TO 559+85.2	12.0R TO 18.0R	SHOULDER	RURAL	209	209
RURAL TOTALS				17111	17111
559+85.2 TO 580+02.3	18.0L TO 25.0L	SHOULDER	MUNICIPAL	132	132
559+85.2 TO 580+02.3	12.0L TO 45.1L	MAINLINE	MUNICIPAL	499	499
559+85.2 TO 580+02.3	12.0R TO 63.2R	SHOULDER	MUNICIPAL	135	135
MUNICIPAL TOTALS				766	766
PROJECT TOTALS				17877	17877

C MAILBOX

STATION	OFFSET	FUNDING	MAIL BOX SUPPORT
			EACH
13+04.57	20.0L	RURAL	1
43+94.65	20.0L	RURAL	1
51+27.92	20.0L	RURAL	1
61+59.37	20.0L	RURAL	1
70+97.89	20.0L	RURAL	1
72+74.68	20.0L	RURAL	1
80+59.38	20.0L	RURAL	1
90+56.09	20.0L	RURAL	1
124+03.94	20.0R	RURAL	1
144+41.48	20.0L	RURAL	1
151+27.53	20.0L	RURAL	1
184+77.36	18.9L	RURAL	1
197+09.98	18.0L	RURAL	1
199+89.42	18.0L	RURAL	1
203+61.93	17.8L	RURAL	1
217+05.11	18.0L	RURAL	1
237+46.42	18.0L	RURAL	1
241+77.66	18.4L	RURAL	1
243+38.78	18.0L	RURAL	1
251+88.61	18.0L	RURAL	1
271+62.44	19.4L	RURAL	1
272+44.53	18.0L	RURAL	1
284+34.21	18.0L	RURAL	1
351+49.37	18.0L	RURAL	1
359+87.37	18.0R	RURAL	1
381+81.89	18.0L	RURAL	1
398+46.03	22.0R	RURAL	1
413+73.74	22.0R	RURAL	1
427+27.39	22.0L	RURAL	1
451+06.47	22.0L	RURAL	1
470+07.94	22.0L	RURAL	1
470+10.70	22.0L	RURAL	1
489+74.57	22.0L	RURAL	1
501+12.86	22.0L	RURAL	1
509+17.12	22.0L	RURAL	1
517+77.31	22.0L	RURAL	1
523+55.77	22.0L	RURAL	1
523+56.77	22.0L	RURAL	1
553+72.15	22.0L	RURAL	1
556+10.93	22.0L	RURAL	1
RURAL TOTALS			40
576+37.70	22.0L	MUNICIPAL	1
MUNICIPAL TOTALS			1
PROJECT TOTALS			41

G REMOVE CATTLE PASS ①

STATION - STATION	LOCATION	OFFSET	FUNDING	LIN FT
116+16.63 - 116+17.03	MAINLINE	34.56 LT - 31.72 RT	RURAL	66
TOTAL				66

① REMOVAL LENGTH INCLUDES CATTLE PASS APRONS.

PATH & FILENAME: C:\Project Working Files\23544 - CSAH 35\23544_SEQ&TABS.dgn
PLOTTED/REVISED: 04/16/25

REVIEWER: NAA	DATE:	04/16/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ	DATE:	04/16/25	

moore engineering, inc.

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.
NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TABULATIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 3 OF 125 SHEETS

(H) ENTRANCES

STATION	LOCATION	FUNDING	TYPE	SURFACE	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	TYPE SP 9.5 WEARING COURSE MIX (3,C)	TYPE SP 12.5 WEARING COURSE MIX (3,C)	AGGREGATE BASE CLASS 5	AGGREGATE SURFACING CLASS 1
					SQ YD	TON	TON	TON	TON
13+09.93	RIGHT	RURAL	ENTRANCE	BITUMINOUS	129	10	10	35.6	
14+52.94	RIGHT	RURAL	ENTRANCE	AGGREGATE					16
32+05.36	RIGHT	RURAL	ENTRANCE	AGGREGATE					15
34+05.64	LEFT	RURAL	ENTRANCE	AGGREGATE					9
42+24.30	LEFT	RURAL	ENTRANCE	AGGREGATE					23
43+88.13	RIGHT	RURAL	ENTRANCE	AGGREGATE					16
50+98.39	RIGHT	RURAL	ENTRANCE	AGGREGATE					20
51+01.46	LEFT	RURAL	ENTRANCE	BITUMINOUS	97	7	7	24.6	
52+89.29	RIGHT	RURAL	ENTRANCE	AGGREGATE					19
56+26.00	LEFT	RURAL	ENTRANCE	AGGREGATE					10
62+17.76	RIGHT	RURAL	ENTRANCE	BITUMINOUS	103	8	8	28.4	
64+06.47	RIGHT	RURAL	ENTRANCE	AGGREGATE					19
69+25.40	LEFT	RURAL	ENTRANCE	AGGREGATE					16
7+43.75	LEFT	RURAL	ENTRANCE	BITUMINOUS	103	8	8	27.7	
72+35.90	LEFT	RURAL	ENTRANCE	AGGREGATE					11
72+39.50	RIGHT	RURAL	ENTRANCE	AGGREGATE					16
76+88.51	RIGHT	RURAL	ENTRANCE	AGGREGATE					23
80+58.50	RIGHT	RURAL	ENTRANCE	AGGREGATE					25
83+11.28	LEFT	RURAL	ENTRANCE	AGGREGATE					14
83+11.47	RIGHT	RURAL	ENTRANCE	BITUMINOUS	243	19	19	66.6	
90+90.00	LEFT	RURAL	ENTRANCE	AGGREGATE					19
92+90.007	RIGHT	RURAL	ENTRANCE	AGGREGATE					22
96+67.48	RIGHT	RURAL	ENTRANCE	AGGREGATE					21
96+71.43	LEFT	RURAL	ENTRANCE	AGGREGATE					14
99+56.80	LEFT	RURAL	ENTRANCE	AGGREGATE					25
100+00.63	RIGHT	RURAL	ENTRANCE	AGGREGATE					22
109+43.71	RIGHT	RURAL	ENTRANCE	AGGREGATE					26
109+47.30	LEFT	RURAL	ENTRANCE	AGGREGATE					23
116+91.45	RIGHT	RURAL	ENTRANCE	AGGREGATE					25
116+94.10	LEFT	RURAL	ENTRANCE	AGGREGATE					17
122+61.22	RIGHT	RURAL	ENTRANCE	AGGREGATE					22
122+64.17	LEFT	RURAL	ENTRANCE	AGGREGATE					30
124+35.61	RIGHT	RURAL	ENTRANCE	AGGREGATE					25
135+83.28	LEFT	RURAL	ENTRANCE	AGGREGATE					15
136+01.85	RIGHT	RURAL	ENTRANCE	BITUMINOUS	215	17	17	58.5	
138+70.01	RIGHT	RURAL	ENTRANCE	AGGREGATE					21
138+70.75	LEFT	RURAL	ENTRANCE	AGGREGATE					14
144+78.83	LEFT	RURAL	ENTRANCE	BITUMINOUS	102	8	8	28.4	
146+51.53	RIGHT	RURAL	ENTRANCE	BITUMINOUS	133	11	11	37.2	
151+58.03	LEFT	RURAL	ENTRANCE	BITUMINOUS	113	9	9	32.6	
156+89.36	RIGHT	RURAL	ENTRANCE	AGGREGATE					18
162+39.24	LEFT	RURAL	ENTRANCE	AGGREGATE					28
162+69.80	LEFT	RURAL	ENTRANCE	BITUMINOUS	114	9	9	32.2	
173+11.32	RIGHT	RURAL	ENTRANCE	AGGREGATE					14
179+82.23	RIGHT	RURAL	ENTRANCE	BITUMINOUS	151	11	11	39.3	
184+87.11	RIGHT	RURAL	ENTRANCE	BITUMINOUS	101	6	6	22.7	
192+21.68	RIGHT	RURAL	ENTRANCE	AGGREGATE					12
203+81.41	RIGHT	RURAL	ENTRANCE	AGGREGATE					17
217+03.01	RIGHT	RURAL	ENTRANCE	BITUMINOUS	96	6	6	22.8	
221+12.25	LEFT	RURAL	ENTRANCE	BITUMINOUS	100	7	7	25.7	
236+17.07	RIGHT	RURAL	ENTRANCE	BITUMINOUS	168	13	13	44.6	
240+99.80	RIGHT	RURAL	ENTRANCE	BITUMINOUS	56	4	4	15.0	
241+74.88	RIGHT	RURAL	ENTRANCE	BITUMINOUS	55	4	4	15.6	
249+30.25	RIGHT	RURAL	ENTRANCE	AGGREGATE					8
256+65.17	RIGHT	RURAL	ENTRANCE	AGGREGATE					18
262+82.30	RIGHT	RURAL	ENTRANCE	AGGREGATE					16
271+67.76	RIGHT	RURAL	ENTRANCE	BITUMINOUS	101	7	7	25.5	
284+60.83	RIGHT	RURAL	ENTRANCE	AGGREGATE					14
289+01.45	RIGHT	RURAL	ENTRANCE	AGGREGATE					17
299+37.11	RIGHT	RURAL	ENTRANCE	AGGREGATE					11
305+57.95	LEFT	RURAL	ENTRANCE	BITUMINOUS	80	7	7	23.8	
308+91.28	RIGHT	RURAL	ENTRANCE	BITUMINOUS	175	14	14	50.2	
312+18.82	LEFT	RURAL	ENTRANCE	BITUMINOUS	77	6	6	20.1	
324+51.38	RIGHT	RURAL	ENTRANCE	BITUMINOUS	113	8	8	29.2	
328+55.56	LEFT	RURAL	ENTRANCE	BITUMINOUS	88	6	6	21.7	
335+40.11	LEFT	RURAL	ENTRANCE	BITUMINOUS	92	7	7	25.4	
336+53.19	RIGHT	RURAL	ENTRANCE	AGGREGATE					20
338+93.34	RIGHT	RURAL	ENTRANCE	AGGREGATE					15

(I) ENTRANCES

STATION	LOCATION	FUNDING	TYPE	SURFACE	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	TYPE SP 9.5 WEARING COURSE MIX (3,C)	TYPE SP 12.5 WEARING COURSE MIX (3,C)	AGGREGATE BASE CLASS 5	AGGREGATE SURFACING CLASS 1
					SQ YD	TON	TON	TON	TON
351+42.49	RIGHT	RURAL	ENTRANCE	BITUMINOUS	99	7	7	25.8	
360+15.48	RIGHT	RURAL	ENTRANCE	AGGREGATE					21
362+36.11	LEFT	RURAL	ENTRANCE	BITUMINOUS	250	22	22	79.2	
362+39.52	RIGHT	RURAL	ENTRANCE	AGGREGATE					20
365+96.80	RIGHT	RURAL	ENTRANCE	BITUMINOUS	159	12	12	41.1	
371+75.07	LEFT	RURAL	ENTRANCE	BITUMINOUS	85	7	7	23.0	
382+18.71	LEFT	RURAL	ENTRANCE	BITUMINOUS	121	10	10	36.0	
394+68.44	RIGHT	RURAL	ENTRANCE	AGGREGATE					18
395+23.84	LEFT	RURAL	ENTRANCE	AGGREGATE					19
397+93.79	RIGHT	RURAL	ENTRANCE	BITUMINOUS	103	9	9	31.6	
400+78.10	RIGHT	RURAL	ENTRANCE	AGGREGATE					17
402+18.64	LEFT	RURAL	ENTRANCE	BITUMINOUS	73	6	6	21.2	
413+35.48	LEFT	RURAL	ENTRANCE	AGGREGATE					20
413+36.73	RIGHT	RURAL	ENTRANCE	AGGREGATE					22
423+57.76	LEFT	RURAL	ENTRANCE	AGGREGATE					19
426+56.75	RIGHT	RURAL	ENTRANCE	BITUMINOUS	212	17	17	61.1	
427+58.74	LEFT	RURAL	ENTRANCE	BITUMINOUS	117	9	9	31.8	
436+21.21	RIGHT	RURAL	ENTRANCE	AGGREGATE					17
437+20.65	LEFT	RURAL	ENTRANCE	BITUMINOUS	212	16	16	56.7	
441+06.61	RIGHT	RURAL	ENTRANCE	AGGREGATE					17
444+87.40	LEFT	RURAL	ENTRANCE	AGGREGATE					24
451+10.48	RIGHT	RURAL	ENTRANCE	BITUMINOUS	127	11	11	39.5	
452+21.67	LEFT	RURAL	ENTRANCE	BITUMINOUS	124	10	10	35.9	
454+33.24	RIGHT	RURAL	ENTRANCE	AGGREGATE					20
461+18.62	RIGHT	RURAL	ENTRANCE	AGGREGATE					22
462+20.17	LEFT	RURAL	ENTRANCE	BITUMINOUS	175	16	16	55.2	
470+01.82	RIGHT	RURAL	ENTRANCE	BITUMINOUS	94	7	7	25.2	
472+42.21	LEFT	RURAL	ENTRANCE	AGGREGATE					23
473+87.88	RIGHT	RURAL	ENTRANCE	BITUMINOUS	102	7	7	24.7	
477+95.70	RIGHT	RURAL	ENTRANCE	BITUMINOUS	176	14	14	49.2	
483+01.66	RIGHT	RURAL	ENTRANCE	BITUMINOUS	120	10	10	35.5	
486+40.54	LEFT	RURAL	ENTRANCE	AGGREGATE					15
489+70.14	RIGHT	RURAL	ENTRANCE	BITUMINOUS	89	8	8	28.1	
494+99.16	RIGHT	RURAL	ENTRANCE	AGGREGATE					22
496+12.42	RIGHT	RURAL	ENTRANCE	BITUMINOUS	122	11	11	37.7	
498+67.94	RIGHT	RURAL	ENTRANCE	BITUMINOUS	98	9	9	30.2	
500+27.82	LEFT	RURAL	ENTRANCE	BITUMINOUS	114	10	10	34.2	
500+97.41	RIGHT	RURAL	ENTRANCE	BITUMINOUS	76	6	6	22.9	
502+92.05	RIGHT	RURAL	ENTRANCE	BITUMINOUS	89	7	7	24.3	
503+14.47	LEFT	RURAL	ENTRANCE	AGGREGATE					18
504+05.16	LEFT	RURAL	ENTRANCE	AGGREGATE					15
506+86.10	RIGHT	RURAL	ENTRANCE	BITUMINOUS	179	15	15	52.3	
509+57.86	LEFT	RURAL	ENTRANCE	BITUMINOUS	137	11	11	39.5	
513+59.08	LEFT	RURAL	ENTRANCE	AGGREGATE					18
514+23.10	RIGHT	RURAL	ENTRANCE	AGGREGATE					20
518+08.92	LEFT	RURAL	ENTRANCE	AGGREGATE					13
520+23.84	LEFT	RURAL	ENTRANCE	BITUMINOUS	153	14	14	48.1	
523+05.11	RIGHT	RURAL	ENTRANCE	AGGREGATE					15
523+85.10	LEFT	RURAL	ENTRANCE	BITUMINOUS	69	6	6	21.9	
529+43.24	LEFT	RURAL	ENTRANCE	AGGREGATE					28
534+04.17	LEFT	RURAL	ENTRANCE	BITUMINOUS	116	9	9	32.2	
539+70.62	RIGHT	RURAL	ENTRANCE	AGGREGATE					19
543+45.11	LEFT	RURAL	ENTRANCE	BITUMINOUS	97	9	9	31.1	
548+33.61	LEFT	RURAL	ENTRANCE	BITUMINOUS	108	9	9	31.7	
549+4.00	RIGHT	RURAL	ENTRANCE	AGGREGATE					12
553+38.00	LEFT	RURAL	ENTRANCE	BITUMINOUS	111	8	8	26.9	
555+83.09	LEFT	RURAL	ENTRANCE	BITUMINOUS	96	7	7	24.3	
RURAL TOTALS					6808	541	541	1911.5	1275
558+16.75	LEFT	MUNICIPAL	ENTRANCE	BITUMINOUS	116	8	8	29.8	
563+77.11	LEFT	MUNICIPAL	ENTRANCE	AGGREGATE					22
570+89.61	LEFT	MUNICIPAL	ENTRANCE	AGGREGATE					19
574+75.66	RIGHT	MUNICIPAL	ENTRANCE	BITUMINOUS	144	13	13	45.6	
576+00.63	LEFT	MUNICIPAL	ENTRANCE	BITUMINOUS	89	8	8	29.3	
MUNICIPAL TOTALS					349	29	29	104.7	41
PROJECT TOTALS					7157	570	570	2016.2	1316

REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.
DRAFTER: ARJ	DATE: 04/16/25		

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.

NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TABULATIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 4 OF 125 SHEETS

(J) TURF ESTABLISHMENT

STATION - STATION	OFFSET	FUNDING	SOIL BED PREPARATION	SEEDING	SEED MESIC INSLOPE	SEED WET DITCH	SEED SOUTHERN TALLGRASS ROADSIDE	HYDRAULIC BONDED FIBER MATRIX	FERTILIZER TYPE 3	FERTILIZER TYPE 4
			ACRE	ACRE	POUND	POUND	POUND	POUND	POUND	POUND
10+49.0 TO 12+98.8	18.3R TO 40.6R	RURAL	0.02	0.02	0.98			53	5	
10+61.8 TO 33+95.8	30.0L TO 31.0L	RURAL	0.20	0.20	13.07			704	70	
13+22.3 TO 14+45.8	50.0R TO 35.7R	RURAL	0.02	0.02	1.37			74	7	
14+61.9 TO 31+93.4	50.0R TO 35.8R	RURAL	0.15	0.15	9.75			525	53	
30+37.1 TO 30+75.0	29.4R TO 41.7R	RURAL	0.01	0.01		0.22		39		1.32
32+17.3 TO 43+80.5	35.8R TO 41.0R	RURAL	0.13	0.13	8.19			441	44	
34+15.5 TO 42+11.2	30.7L TO 35.4L	RURAL	0.07	0.07	4.36			235	23	
42+37.4 TO 50+93.9	35.4L TO 40.7L	RURAL	0.09	0.09	5.85			315	32	
43+95.8 TO 50+87.3	41.0R TO 35.8R	RURAL	0.09	0.09	6.11			329	33	
51+09.0 TO 56+20.2	40.7L TO 30.6L	RURAL	0.08	0.08	5.27			284	28	
51+09.5 TO 52+78.7	35.8R	RURAL	0.03	0.03	2.02			109	11	
52+99.9 TO 62+10.0	35.8R TO 50.0R	RURAL	0.11	0.11	7.28			392	39	
54+97.1 TO 55+49.0	32.0L	RURAL	0.01	0.01			0.13	18	2	
55+01.8 TO 55+42.8	38.0L TO 36.3L	RURAL	0.01	0.01		0.10		18		0.60
56+28.5 TO 69+18.4	50.0L TO 35.8L	RURAL	0.12	0.12	8.06			434	43	
57+31.4 TO 57+47.9	31.6R TO 35.2R	RURAL	0.00	0.00		0.02		4		0.12
57+41.9 TO 57+60.0	32.0R TO 32.2R	RURAL	0.00	0.00	0.07			4	0	
62+25.5 TO 63+95.8	50.0R TO 35.8R	RURAL	0.04	0.04	2.47			133	13	
64+17.1 TO 72+31.9	35.8R TO 40.7R	RURAL	0.10	0.10	6.70			361	36	
69+32.4 TO 71+29.7	50.0L TO 29.2L	RURAL	0.03	0.03	2.21			119	12	
71+50.2 TO 72+30.4	50.0L TO 35.7L	RURAL	0.02	0.02	1.56			84	8	
72+39.0 TO 83+04.2	50.0L TO 35.8L	RURAL	0.11	0.11	7.09			382	38	
72+47.1 TO 76+75.2	40.7R TO 35.8R	RURAL	0.06	0.06	4.10			221	22	
77+01.9 TO 80+43.9	35.8R TO 40.7R	RURAL	0.08	0.08	5.01			270	27	
80+65.8 TO 82+91.2	50.0R	RURAL	0.07	0.07	4.55			245	25	
80+83.3 TO 82+05.0	48.3R TO 47.2R	RURAL	0.03	0.03			0.86	116	12	
83+17.9 TO 90+78.2	35.8L TO 32.8L	RURAL	0.08	0.08	5.33			287	29	
83+32.2 TO 92+77.2	50.0R TO 35.8R	RURAL	0.12	0.12	7.48			403	40	
84+18.0 TO 84+75.0	32.0R TO 33.1R	RURAL	0.01	0.01			0.16	21	2	
90+99.4 TO 96+63.2	40.7L TO 33.1L	RURAL	0.05	0.05	3.32			179	18	
93+04.6 TO 96+58.8	46.5R TO 50.0R	RURAL	0.04	0.04	2.47			133	13	
96+76.1 TO 99+88.2	50.0R TO 35.8R	RURAL	0.07	0.07	4.42			238	24	
96+77.2 TO 99+41.3	50.0L TO 34.2L	RURAL	0.04	0.04	2.34			126	13	
99+70.9 TO 109+34.1	50.0L TO 35.8L	RURAL	0.13	0.13	8.19			441	44	
100+13.1 TO 109+28.4	35.8R	RURAL	0.20	0.20	13.20			711	71	
100+37.9 TO 100+60.2	32.0L	RURAL	0.00	0.00			0.03	4	0	
101+32.2 TO 102+60.0	32.0R TO 33.6R	RURAL	0.01	0.01			0.36	49	5	
102+41.6 TO 102+59.8	32.0L	RURAL	0.00	0.00			0.03	4	0	
104+51.7 TO 105+30.0	32.0R TO 34.5R	RURAL	0.01	0.01			0.13	18	2	
109+59.0 TO 116+78.0	35.8R TO 50.0R	RURAL	0.11	0.11	6.96			375	37	
109+60.5 TO 116+85.1	35.8L	RURAL	0.07	0.07	4.23			228	23	
114+30.8 TO 114+75.0	32.0R TO 34.4R	RURAL	0.01	0.01			0.13	18	2	
115+59.6 TO 115+95.0	32.0R TO 40.0R	RURAL	0.01	0.01			0.16	21	2	
117+03.1 TO 122+46.1	35.8L	RURAL	0.04	0.04	2.86			154	15	
117+04.9 TO 122+48.3	35.8R	RURAL	0.06	0.06	4.10			221	22	
122+74.2 TO 124+24.0	35.8R TO 50.0R	RURAL	0.03	0.03	1.82			98	10	
122+82.3 TO 135+75.6	35.8L	RURAL	0.10	0.10	6.76			364	36	
124+47.2 TO 135+85.4	50.0R	RURAL	0.10	0.10	6.70			361	36	
129+10.5 TO 129+60.0	32.0R TO 34.0R	RURAL	0.00	0.00	0.20			11	1	
135+90.9 TO 138+63.5	35.8L	RURAL	0.05	0.05	3.12			168	17	
136+18.3 TO 138+61.9	50.0R	RURAL	0.03	0.03	1.7			91	9	
138+78.0 TO 144+69.0	35.8L TO 38.4L	RURAL	0.11	0.11	7.1			382	38	
138+78.1 TO 146+42.9	50.0R	RURAL	0.10	0.10	6.2			336	34	
144+20.5 TO 144+29.9	32.0R TO 41.2R	RURAL	0.00	0.00			0.1	14	1	
144+87.5 TO 151+46.4	50.0L TO 36.4L	RURAL	0.08	0.08	5.1			273	27	
146+60.1 TO 156+79.4	50.0R TO 35.8R	RURAL	0.15	0.15	9.8			529	53	
151+67.1 TO 162+14.0	50.0L TO 40.7L	RURAL	0.13	0.13	8.6			462	46	
152+63.5 TO 152+85.0	32.0R TO 41.0R	RURAL	0.01	0.01			0.1	18	2	
153+28.3 TO 153+44.7	32.0L	RURAL	0.00	0.00	0.1			4	0	
153+62.5 TO 154+80.0	32.0R TO 43.4R	RURAL	0.04	0.04			1.0	137	14	
154+46.8 TO 154+50.0	50.0R TO 50.4R	RURAL	0.00	0.00	0.1			4	0	
156+99.4 TO 161+99.7	35.8R TO 32.0R	RURAL	0.04	0.04	2.9			154	15	
162+14.0 TO 162+20.8	21.0L TO 35.8L	RURAL	0.00	0.00	0.3			14	1	
382+74.2 TO 385+09.1	15.0L TO 37.8L	RURAL	0.02	0.02	1.4			74	7	
383+02.9 TO 394+65.0	15.0R TO 50.0R	RURAL	0.26	0.26	16.9			910	91	
383+99.0 TO 384+75.0	34.0R TO 42.5R	RURAL	0.01	0.01			0.3	46	5	
385+53.3 TO 395+13.0	50.0L TO 37.4L	RURAL	0.16	0.16	10.1			543	54	
386+69.2	34.0R	RURAL	0.01	0.01			0.2	21	2	
392+37.0 TO 392+87.8	34.0R	RURAL	0.00	0.00			0.1	11	1	
393+09.7 TO 394+07.9	34.0R	RURAL	0.01	0.01			0.2	21	2	
394+28.3 TO 394+54.6	34.0L	RURAL	0.00	0.00			0.0	4	0	
394+78.5 TO 397+82.3	50.0R TO 42.7R	RURAL	0.10	0.10	6.2			336	34	
395+35.1 TO 402+12.2	37.8L TO 42.7L	RURAL	0.18	0.18	12.0			644	64	
395+66.0 TO 397+13.4	34.0R	RURAL	0.01	0.01			0.4	49	5	
397+35.9 TO 397+50.9	34.0R	RURAL	0.00	0.00			0.0	4	0	
397+98.9 TO 399+82.0	34.0L	RURAL	0.01	0.01			0.2	32	3	
398+05.2 TO 400+67.2	42.7R TO 37.8R	RURAL	0.09	0.09	5.7			305	30	
398+30.2 TO 399+80.3	34.5R TO 34.0R	RURAL	0.01	0.01			0.2	32	3	
400+80.8 TO 413+24.7	47.6R TO 42.7R	RURAL	0.25	0.25	16.4			882	88	
402+25.1 TO 413+23.7	42.7L TO 37.8L	RURAL	0.34	0.34	21.8			1173	117	
405+75.9 TO 406+99.8	34.0L	RURAL	0.01	0.01			0.3	42	4	
407+00.5 TO 408+20.7	34.0L	RURAL	0.01	0.01			0.3	35	4	
409+54.8 TO 412+76.7	34.0L	RURAL	0.01	0.01			0.2	25	2	
413+47.2 TO 423+46.7	37.8L	RURAL	0.32	0.32	20.9			1124	112	
413+48.7 TO 426+36.8	42.7R TO 50.0R	RURAL	0.32	0.32	20.6			1110	111	
414+31.8 TO 417+22.2	34.0R	RURAL	0.02	0.02			0.5	74	7	
414+97.4 TO 420+93.9	34.0L	RURAL	0.06	0.06			1.7	224	22	

(K) TURF ESTABLISHMENT (CONT.)

STATION - STATION	OFFSET	FUNDING	SOIL BED PREPARATION	SEEDING	SEED MESIC INSLOPE	SEED WET DITCH	SEED SOUTHERN TALLGRASS ROADSIDE	HYDRAULIC BONDED FIBER MATRIX	FERTILIZER TYPE 3	FERTILIZER TYPE 4
			ACRE	ACRE	POUND	POUND	POUND	POUND	POUND	POUND
422+60.8 TO 423+06.4	34.0L	RURAL	0.00	0.00			0.1	11	1	
423+68.9 TO 427+54.2	37.8L TO 50.0L	RURAL	0.13	0.13	8.5			455	46	
423+91.0 TO 426+86.6	34.0L	RURAL	0.06	0.06			1.4	193	19	
425+61.9 TO 425+82.0	34.0R	RURAL	0.00	0.00			0.0	4	0	
426+76.7 TO 436+12.4	50.0R TO 37.8R	RURAL	0.14	0.14	8.9			480	48	
427+70.3 TO 437+11.3	42.7L TO 50.1L	RURAL	0.29	0.29	18.7			1005	100	
434+21.8 TO 435+99.1	34.0L	RURAL	0.01	0.01			0.3	35	4	
436+30.0 TO 440+96.9	50.0R TO 37.8R	RURAL	0.08	0.08	5.3			284	28	
437+39.2 TO 444+69.7	50.0L TO 34.2L	RURAL	0.22	0.22	14.2			763	76	
440+15.2 TO 444+41.3	34.0L	RURAL	0.07	0.07			1.7	228	23	
441+16.3 TO 450+97.3	37.8R TO 50.0R	RURAL	0.25	0.25	16.1			865	86	
444+82.9 TO 445+75.0	34.0R TO 42.8R	RURAL	0.02	0.02			0.5	70	7	
445+00.3 TO 452+07.9	37.8L TO 38.1L	RURAL	0.23	0.23	15.1			812	81	
445+20.3 TO 448+68.1	37.1L TO 34.0L	RURAL	0.06	0.06			1.6	214	21	
449+12.1 TO 449+25.0	34.0R TO 41.1R	RURAL	0.00	0.00			0.1	11	1	
450+56.2 TO 451+91.9	34.0L TO 40.3L	RURAL	0.01	0.01			0.4	49	5	
451+23.7 TO 454+24.5	50.0R	RURAL	0.07	0.07	4.8			259	26	
451+40.9 TO 452+78.7	37.3R TO 34.0R	RURAL	0.01	0.01			0.3	39	4	
452+33.0 TO 462+03.1	50.0L TO 49.9L	RURAL	0.20	0.20	13.1			707	71	
452+94.8 TO 453+19.0	34.0L TO 37.1L	RURAL	0.00	0.00			0.1	7	1	
454+44.9 TO 461+05.0	38.2R TO 38.0R	RURAL	0.23	0.23	14.9			802	80	
454+74.4 TO 455+30.6	34.0R	RURAL	0.00	0.00			0.1	7	1	
461+32.3 TO 469+91.1	38.0R TO 37.7R	RURAL	0.30	0.30	19.2			1033	103	
462+04.5 TO 468+02.5	34.0R	RURAL	0.04	0.04	2.5			137	14	
462+37.3 TO 472+31.3	50.0L	RURAL	0.17	0.17	10.9			585	58	
468+42.6 TO 468+91.7	34.0L	RURAL	0.01	0.01			0.1	18	2	
470+05.5 TO 473+78.5	50.0R TO 37.8R	RURAL	0.07	0.07	4.8			259	26	
472+53.1 TO 486+32.1	50.0L TO 37.8L	RURAL	0.41	0.41	26.4			1421	142	
472+82.2 TO 473+52.3	34.0L	RURAL	0.01	0.01			0.2	32	3	
473+97.2 TO 477+81.2	37.8R TO 50.0R	RURAL	0.07	0.07	4.3			231	23	
474+20.5 TO 474+60.8	34.0R	RURAL	0.01	0.01			0.2	21	2	
474+39.8 TO 474+62.8	34.0L	RURAL	0.00	0.00			0.1	7	1	
474+90.2 TO 475+12.8	34.0L	RURAL	0.00	0.00			0.0	4	0	
475+64.0 TO 475+87.3	34.0L	RURAL	0.00	0.00			0.1	7	1	
477+14.5 TO 478+42.1	34.0L	RURAL	0.01	0.01			0.3	39	4	
478+10.2 TO 482+89.9	50.0R	RURAL	0.13	0.13	8.5			455	46	
480+02.2 TO 480+40.6	34.0L	RURAL	0.00	0.00			0.1	7	1	
480+35.4 TO 481+32.7	34.0R	RURAL	0.01	0.01			0.3	42	4	
482+32.2 TO 485+36.4	34.0L	RURAL	0.03	0.03			0.8	109	11	
483+13.4 TO 489+61.7	50.0R	RURAL	0.14	0.14	9.0			483	48	
486+49.0 TO 500+15.1	37.8L TO 42.7L	RURAL	0.36	0.36	23.5			1264	126	
487+67.6 TO 488+05.1	34.0L	RURAL	0.00	0.00			0.0	4	0	
488+79.5 TO 489+09.4	34.0L	RURAL	0.00	0.00			0.1	7	1	
489+78.5 TO 494+88.1	50.0R TO 37.7R	RURAL	0.07	0.07	4.4			235	23	
494+01.2 TO 494+57.5	34.0L	RURAL	0.00	0.00			0.1	7	1	
494+71.6 TO 495+87.0	34.0L	RURAL	0.02	0.02			0.4	56	6	
495+13.0 TO 495+99.4	42.3R TO 37.4R	RURAL	0.02	0.02	1.4			77	8	
496+26.9 TO 498+57.2	50.0R TO 42.7R	RURAL	0.08	0.08	4.9			263	26	
497+97.4 TO 499+25.0	34.0L TO 40.0L	RURAL	0.02	0.02			0.4	60	6	
498+78.7 TO 500+88.7	42.7R TO 37.8R	RURAL	0.07	0.07	4.8			259	26	
499+12.1 TO 500+54.1	34.0R	RURAL	0.01	0.01			0.3	35	4	
500+40.5 TO 502+99.0	42.7L TO 32.9L	RURAL	0.07	0.07	4.7			256	26	
500+98.0 TO 501+50.0	34.0L TO 37.0L	RURAL	0.00	0.00			0.1	11	1	
501+06.1 TO 502+89.4	37.8R TO 48.2R	RURAL	0.05	0.05			1.4	189	19	
501+35.2 TO 501+50.0	34.0R TO 40.3R	RURAL	0.01	0.01	0.5			25	2	
502+99.8 TO 506+70.0	37.8R TO 50.0R	RURAL	0.06	0.06	3.8			203	20	
503+22.0 TO 503+95.6	37.8L TO 32.8L	RURAL	0.03	0.03	1.7			91	9	
504+05.7 TO 509+39.3	50.0L TO 33.0L	RURAL	0.09	0.09	5.7			308	31	
506+99.1 TO 514+11.0	50.0R TO 37.8R	RURAL	0.22	0.22	14.4			774	77	
507+72.2 TO 508+29.6	34.0R	RURAL	0.00	0.00			0.1	7	1	
508+95.9 TO 512+18.7	34.0R TO 37.5R	RURAL	0.04	0.04			0.9	126	13	
509+69.6 TO 513+48.1	50.0L TO 37.8L	RURAL	0.08	0.08	5.2			280	28	
510+42.2 TO 510+87.4	34.0L	RURAL	0.00	0.00			0.1	7	1	
513+70.0 TO 518+02.2	37.8L TO 40.7L	RURAL	0.15	0.15	9.8			525	53	
514+35.2 TO 522+96.3	37.8R	RURAL	0.30	0.30			7.8	1047	105	
514+52.8 TO 521+75.0	34.0R TO 37.4R	RURAL	0.08	0.08			2.0	273	27	
520+38.2 TO 523+76.7	50.0L TO 36.2L	RURAL	0.09	0.09	5.9			319	32	
523+92.2 TO 529+26.8	50.0L TO 42.7L	RURAL	0.18	0.18	11.4			613	61	
524+56.6 TO 528+50.0	34.0R TO 43.8R	RURAL	0.11	0.11			3.0	399	40	
525+70.4 TO 529+01.0	34.0L	RURAL	0.06	0.06			1.6	221	22	
529+59.7 TO 533+92.4	42.7L	RURAL	0.16	0.16	10.2			550	55	
529+88.2 TO 533+68.3	34.0L	RURAL	0.02	0.02			0.5	74	7	
534+15.9 TO 543+33.9	42.7L	RURAL	0.30	0.30	19.2			1033	103	
534+81.4 TO 535+50.0	34.0R TO 43.0R	RURAL	0.01	0.01			0.3	39	4	
538+13.4 TO 539+00.0	34.0R TO 39.8R	RURAL	0.01	0.01			0.2	32	3	
540+41.0 TO 543+50.0	34.0R TO 37.9R	RURAL	0.05	0.05			1.2	158	16	
548+45.1 TO 553+28.7	42.7L	RURAL	0.04	0.04	2.3			126	13	
549+41.2 TO 559+53.5	50.0R TO 49.9R	RURAL	0.11	0.11	7.0			375	37	
553+47.2 TO 555+71.7	42.6L TO 34.8L	RURAL	0.04	0.04	2.4			130	13	
558+27.3 TO 559+63.8	43.0L TO 19.0L	RURAL	0.01	0.01	0.6			32	3	
RURAL TOTALS			12.4	12.4	711.5	0.3	36.7	43361	4320	2.0
560+07.7 TO 574+62.4	49.9R TO 50.0R	MUNICIPAL	0.09	0.09	5.7		2.3	305	16	
571+02.1 TO 575+91.2	37.6L TO 40.7L	MUNICIPAL	0.03	0.03	1.6		0.7	88	5	
574+89.0 TO 577+84.7	50.0R TO 19.0R	MUNICIPAL	0.07	0.07	4.7		1.9	256	13	
MUNICIPAL TOTALS			0.19	0.19	12.0	0.0	4.8	649	34	0
PROJECT TOTALS			12.6	12.6	723.5	0.3	41.5	44010	4354	2.0

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PLOTTED/REVISED: 04/16/25

REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.
DRAFTER: ARJ	DATE: 04/16/25		

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.

NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TABULATIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 5 OF 125 SHEETS

L ROADWAY

STATION - STATION	DESCRIPTION	FUNDING	EXCAVATION - COMMON	COMMON EMBANKMENT (CV)	GEOTEXTILE FABRIC TYPE 5	SELECT GRANULAR EMBANKMENT (CV)	GRANULAR EMBANKMENT (CV)
			CU YD	CU YD	SQ YD	CU YD	CU YD
10+04.8 - 75+00.00	MAINLINE	RURAL	1787	937			513
75+00.0 TO 150+00.0	MAINLINE	RURAL	1103	2888			292
115+28.78 TO 116+91.48	CATTLE PASS TREATMENT	RURAL	767		220	562	
150+00.0 TO 225+00.0	MAINLINE	RURAL	665	266			1059
225+00.0 TO 300+00.0	MAINLINE	RURAL	279	51			808
300+00.0 TO 375+00.0	MAINLINE	RURAL	271	92			1008
375+00.0 TO 425+00.0	MAINLINE	RURAL	1791	1106			547
425+00.00 TO 500+00.0	MAINLINE	RURAL	4314	3494			1075
500+00.0 TO 559+85.2	MAINLINE	RURAL	3765	5578			1084
RURAL TOTALS			14742	14412	220	562	6386
559+85.2 TO 578+09.2	MAINLINE	MUNICIPAL	328	249			244
MUNICIPAL TOTALS			328	249			244
PROJECT TOTALS			15070	14661	220	562	6630

M AGGREGATE SURFACING CLASS 1

STATION - STATION	LOCATION	OFFSET	FUNDING	AGGREGATE DEPTH	AGGREGATE SURFACING CLASS 1
				INCHES	TON
10+04.8 - 75+00.00	SHOULDER	38.4R TO 17.0L	RURAL	3	168
75+00.0 TO 150+00.0	SHOULDER	17.0R TO 17.0L	RURAL	3	191
150+00.0 TO 225+00.0	SHOULDER	17.0R TO 15.0L	RURAL	3	162
225+00.0 TO 300+00.0	SHOULDER	15.0R TO 15.0L	RURAL	3	125
300+00.0 TO 375+00.0	SHOULDER	15.0R TO 15.0L	RURAL	3	179
375+00.0 TO 425+00.0	SHOULDER	15.0R TO 19.0L	RURAL	3	188
425+00.00 TO 500+00.0	SHOULDER	19.0R TO 19.0L	RURAL	3	199
500+00.0 TO 559+85.2	SHOULDER	19.0R TO 19.0L	RURAL	3	178
RURAL TOTALS					1390
559+85.2 TO 578+09.3	SHOULDER	19.0R TO 19.0L	MUNICIPAL	3	56
MUNICIPAL TOTALS					56
PROJECT TOTALS					1446

N RAPID STABILIZATION METHOD 3

STATION - STATION	OFFSET	FUNDING	M GALLON
10+49.0 TO 12+98.8	18.3R TO 40.6R	RURAL	0.09
10+61.8 TO 33+95.2	30.0L TO 26.8L	RURAL	1.21
13+22.3 TO 14+45.8	50.0R TO 35.7R	RURAL	0.13
14+61.9 TO 31+93.4	50.0R TO 35.8R	RURAL	0.97
32+17.3 TO 43+80.5	35.8R TO 41.0R	RURAL	0.76
34+15.5 TO 42+11.2	30.7L TO 35.4L	RURAL	0.40
42+37.4 TO 50+93.9	35.4L TO 40.7L	RURAL	0.54
43+95.8 TO 50+87.3	41.0R TO 35.8R	RURAL	0.56
51+09.0 TO 56+20.2	40.7L TO 30.6L	RURAL	0.54
51+09.5 TO 52+78.7	35.8R TO 35.8R	RURAL	0.19
52+99.9 TO 62+10.0	35.8R TO 50.0R	RURAL	0.68
56+28.5 TO 69+18.4	50.0L TO 35.8L	RURAL	0.74
62+25.5 TO 63+95.8	50.0R TO 35.8R	RURAL	0.23
64+17.1 TO 72+31.9	35.8R TO 40.7R	RURAL	0.62
69+32.4 TO 71+29.7	50.0L TO 29.2L	RURAL	0.20
71+50.2 TO 72+30.4	50.0L TO 35.7L	RURAL	0.14
72+39.0 TO 83+04.2	50.0L TO 35.8L	RURAL	0.65
72+47.1 TO 76+75.2	40.7R TO 35.8R	RURAL	0.38
77+01.9 TO 80+43.9	35.8R TO 40.7R	RURAL	0.46
80+65.8 TO 82+91.2	50.0R TO 50.0R	RURAL	0.61
83+17.9 TO 90+78.2	35.8L TO 32.8L	RURAL	0.49
83+32.2 TO 92+77.2	50.0R TO 35.8R	RURAL	0.72
90+99.4 TO 96+63.2	40.7L TO 33.1L	RURAL	0.31
93+04.6 TO 96+58.8	46.5R TO 50.0R	RURAL	0.23
96+76.1 TO 99+88.2	50.0R TO 35.8R	RURAL	0.41
96+77.2 TO 99+41.3	50.0L TO 34.2L	RURAL	0.22
99+70.9 TO 109+34.1	50.0L TO 35.8L	RURAL	0.77
100+13.1 TO 109+28.4	35.8R TO 35.8R	RURAL	1.33
109+59.0 TO 116+78.0	35.8R TO 50.0R	RURAL	0.70
109+60.5 TO 116+85.1	35.8L TO 35.8L	RURAL	0.39
117+03.1 TO 122+46.1	35.8L TO 35.8L	RURAL	0.26
117+04.9 TO 122+48.3	35.8R TO 35.8R	RURAL	0.38
122+74.2 TO 124+24.0	35.8R TO 50.0R	RURAL	0.17
122+82.3 TO 135+75.6	35.8L TO 35.8L	RURAL	0.62
124+47.2 TO 135+85.4	50.0R TO 50.0R	RURAL	0.64
135+90.9 TO 138+63.5	35.8L TO 35.8L	RURAL	0.29
136+18.3 TO 138+61.9	50.0R TO 50.0R	RURAL	0.16
138+78.0 TO 144+69.0	35.8L TO 38.4L	RURAL	0.65
138+78.1 TO 146+42.9	50.0R TO 50.0R	RURAL	0.59

O RAPID STABILIZATION METHOD 3 (CONT.)

144+87.5 TO 151+46.4	50.0L TO 36.4L	RURAL	0.47
146+60.1 TO 156+79.4	50.0R TO 35.8R	RURAL	1.16
151+67.1 TO 162+20.8	50.0L TO 35.8L	RURAL	0.82
156+99.4 TO 161+99.7	35.8R TO 32.0R	RURAL	0.26
378+51.9 TO 394+65.0	15.0R TO 50.0R	RURAL	1.76
382+74.2 TO 385+09.1	15.0L TO 37.8L	RURAL	0.13
385+53.3 TO 395+13.0	50.0L TO 37.4L	RURAL	0.94
394+78.5 TO 397+82.3	50.0R TO 42.7R	RURAL	0.66
395+35.1 TO 402+12.2	37.8L TO 42.7L	RURAL	1.15
398+05.2 TO 400+67.2	42.7R TO 37.8R	RURAL	0.58
400+80.8 TO 413+24.7	47.6R TO 42.7R	RURAL	1.51
402+25.1 TO 413+23.7	42.7L TO 37.8L	RURAL	2.18
413+47.2 TO 423+46.7	37.8L TO 37.8L	RURAL	2.32
413+48.7 TO 426+36.8	42.7R TO 50.0R	RURAL	2.03
423+68.9 TO 427+54.2	37.8L TO 50.0L	RURAL	1.10
426+76.7 TO 436+12.4	50.0R TO 37.8R	RURAL	0.82
427+70.3 TO 437+11.3	42.7L TO 50.1L	RURAL	1.78
436+30.0 TO 440+96.9	50.0R TO 37.8R	RURAL	0.49
437+32.1 TO 444+69.7	50.1L TO 34.2L	RURAL	1.70
441+16.3 TO 450+97.3	37.8R TO 50.0R	RURAL	1.61
445+00.3 TO 452+07.9	37.8L TO 38.1L	RURAL	1.84
451+23.7 TO 454+24.5	50.0R TO 50.0R	RURAL	0.50
452+33.0 TO 462+03.1	50.0L TO 49.9L	RURAL	1.25
454+44.9 TO 461+10.2	38.2R TO 50.0R	RURAL	1.38
461+32.3 TO 469+91.1	38.0R TO 37.7R	RURAL	2.05
462+37.3 TO 472+31.3	50.0L TO 50.0L	RURAL	1.03
470+05.5 TO 473+78.5	50.0R TO 37.8R	RURAL	0.44
472+53.1 TO 486+32.1	50.0L TO 37.8L	RURAL	2.79
473+97.2 TO 477+81.2	37.8R TO 50.0R	RURAL	0.43
478+10.2 TO 482+89.9	50.0R TO 50.0R	RURAL	0.85
483+13.4 TO 489+61.7	50.0R TO 50.0R	RURAL	0.83
486+49.0 TO 500+15.1	37.8L TO 42.7L	RURAL	2.38
489+78.5 TO 494+88.1	50.0R TO 37.7R	RURAL	0.40
495+13.0 TO 495+99.4	42.3R TO 37.4R	RURAL	0.13
496+26.9 TO 498+57.2	50.0R TO 42.7R	RURAL	0.45
498+78.7 TO 500+88.7	42.7R TO 37.8R	RURAL	0.50
500+40.5 TO 502+99.0	42.7L TO 32.9L	RURAL	0.45
501+06.1 TO 502+89.4	37.8R TO 48.2R	RURAL	0.37
502+99.8 TO 506+70.0	37.8R TO 50.0R	RURAL	0.35
503+22.0 TO 503+95.6	37.8L TO 32.8L	RURAL	0.16

P RAPID STABILIZATION METHOD 3 (CONT.)

504+05.7 TO 509+39.3	50.0L TO 33.0L	RURAL	0.53
507+04.7 TO 514+11.0	50.0R TO 37.8R	RURAL	0.49
509+69.6 TO 513+48.1	50.0L TO 37.8L	RURAL	1.14
513+70.0 TO 518+02.2	37.8L TO 40.7L	RURAL	0.37
514+35.2 TO 522+96.3	37.8R TO 37.8R	RURAL	0.37
518+14.4 TO 520+09.1	42.6L TO 47.5L	RURAL	0.55
520+38.2 TO 523+76.7	50.0L TO 36.2L	RURAL	0.24
523+13.9 TO 539+59.4	37.8R TO 37.8R	RURAL	0.72
523+92.2 TO 529+26.8	50.0L TO 42.7L	RURAL	1.42
529+59.7 TO 533+92.4	42.7L TO 42.7L	RURAL	1.06
534+15.9 TO 543+33.9	42.7L TO 42.7L	RURAL	3.40
543+56.3 TO 548+22.1	42.7L TO 42.7L	RURAL	0.88
548+45.1 TO 553+28.7	42.7L TO 42.7L	RURAL	0.22
549+41.2 TO 559+53.5	50.0R TO 49.9R	RURAL	0.64
553+47.2 TO 555+71.7	42.6L TO 34.8L	RURAL	0.22
555+90.9 TO 558+05.8	37.6L TO 43.1L	RURAL	0.12
558+27.3 TO 559+63.8	43.0L TO 19.0L	RURAL	0.05
RURAL TOTALS			73.9
559+85.2 TO 563+61.7	19.0L TO 43.3L	MUNICIPAL	0.10
560+07.7 TO 574+62.4	49.9R TO 50.0R	MUNICIPAL	0.52
563+87.7 TO 570+77.1	50.0L TO 37.4L	MUNICIPAL	0.22
571+02.1 TO 575+91.2	37.6L TO 40.7L	MUNICIPAL	0.15
574+89.0 TO 577+84.7	50.0R TO 19.0R	MUNICIPAL	0.44
576+09.2 TO 576+44.2	50.0L TO 19.2L	MUNICIPAL	0.10
MUNICIPAL TOTALS			1.53
PROJECT TOTALS			75.4

Q TRAIL

STATION - STATION	LOCATION	OFFSET	FUNDING	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	REMOVE BITUMINOUS PAVEMENT	EXCAVATION - COMMON	SELECT GRANULAR EMBANKMENT (CV)	AGGREGATE BASE CLASS 5	TYPE SP 9.5 WEARING COURSE MIX (3,C)	TYPE SP 12.5 WEARING COURSE MIX (3,C)
				LIN FT	SQ YD	CU YD	CU YD	TON	TON	TON
180+02.7 TO 183+20.7	TRAIL	22.7L TO 32.1L	RURAL	20	341	174	174	104	30	30
TOTAL				20	341	174	174	104	30	30

PATH & FILENAME: C:\Project Working Files\23544 - CSAH 35\23544_SEQ&TABS.dgn
PLOTTED/REVISED: 04/21/25

REVIEWER: NAA	DATE:	04/21/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ	DATE:	04/21/25	

moore engineering, inc.

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.

NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/21/25

TABULATIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 6 OF 125 SHEETS

(R) SEDIMENT CONTROL

STATION - STATION	OFFSET	FUNDING	SILT FENCE, TYPE MS	SEDIMENT CONTROL LOG TYPE WOOD CHIP
			LIN FT	LIN FT
26+73.0 TO 31+35.4	19.3L TO 18.7L	RURAL	464	
26+73.4 TO 31+34.8	18.4L TO 18.0L	RURAL		463
26+88.8 TO 31+83.0	26.0R TO 41.4R	RURAL	536	
26+89.2 TO 31+83.7	25.1R TO 40.7R	RURAL		536
31+56.1 TO 33+37.1	18.6L TO 23.4L	RURAL	183	
31+56.9 TO 33+36.8	17.9L TO 22.5L	RURAL		181
35+09.8 TO 36+75.8	22.1L TO 23.5L	RURAL		166
35+09.8 TO 37+50.4	22.9R TO 21.3R	RURAL		246
45+22.2 TO 47+47.6	22.0R TO 24.7R	RURAL		227
53+09.9 TO 58+54.2	50.0R TO 20.3R	RURAL		565
53+10.6 TO 58+54.6	50.8R TO 21.2R	RURAL	564	
53+55.9 TO 56+17.2	24.0L TO 51.4L	RURAL	301	
53+56.5 TO 56+17.4	23.2L TO 50.4L	RURAL		300
60+51.8 TO 63+67.6	22.8L TO 22.5L	RURAL	318	
60+52.4 TO 63+67.1	22.0L TO 21.6L	RURAL		317
64+85.6 TO 69+43.1	39.6R TO 27.4R	RURAL	461	
64+85.7 TO 69+42.7	38.7R TO 26.5R	RURAL		460
65+61.2 TO 67+60.1	24.9L TO 24.8L	RURAL	200	
65+61.7 TO 67+59.6	24.1L TO 23.9L	RURAL		199
74+09.9 TO 76+50.1	20.9R TO 23.8R	RURAL		241
77+85.0 TO 79+80.0	20.2R TO 24.6R	RURAL		197
80+85.0 TO 82+21.3	50.0R TO 23.5R	RURAL		151
83+70.0 TO 84+75.1	23.3L TO 25.3L	RURAL		106
83+85.0 TO 85+12.6	19.1R TO 19.6R	RURAL		136
87+12.1 TO 88+35.1	23.1R TO 23.2R	RURAL		124
89+77.6 TO 92+01.2	21.5R TO 20.4R	RURAL		232
91+19.3 TO 92+75.3	49.5L TO 21.9L	RURAL		175
94+04.9 TO 95+85.9	27.2R TO 23.3R	RURAL		182
97+18.6 TO 97+97.3	49.4R TO 21.2R	RURAL		92
98+83.7 TO 99+60.1	20.6R TO 23.3R	RURAL		82
100+15.6 TO 104+62.2	49.4L TO 24.9L	RURAL		448
100+35.0 TO 108+00.2	40.0R TO 19.8R	RURAL		771
114+05.8 TO 114+91.8	26.4R TO 28.0R	RURAL		92
115+19.3 TO 116+12.0	23.7R TO 21.9R	RURAL		107
128+83.8 TO 129+97.9	20.6R TO 22.3R	RURAL		124
130+80.4 TO 132+01.0	19.4L TO 19.6L	RURAL		122
133+79.8 TO 134+86.3	20.3L TO 23.4L	RURAL		110
136+05.4 TO 138+50.2	50.0L TO 50.0L	RURAL		299
136+06.3 TO 138+49.2	50.0L TO 50.L	RURAL	296	
136+40.3 TO 138+56.4	49.5R TO 50.0R	RURAL		247
136+41.2 TO 138+55.6	49.7R TO50.0R	RURAL	244	
141+35.6 TO 142+93.1	24.3R TO 23.4R	RURAL		159
141+89.2 TO 143+94.9	22.0L TO 23.7L	RURAL		210
142+93.1 TO 146+25.3	23.4R TO 49.8R	RURAL		361
142+93.1 TO 146+24.4	24.4R TO 50.0R	RURAL	260	
145+06.6 TO 149+90.2	50.0L TO 23.1L	RURAL		506
145+07.6 TO 149+90.5	50.0L TO 24.1L	RURAL	504	
151+21.0 TO 151+95.5	20.0R TO 21.0R	RURAL		80
152+54.2 TO 153+00.7	20.9R TO 19.9R	RURAL		69
153+14.7 TO 154+04.8	21.7L TO 20.3L	RURAL		97
153+44.0 TO 154+95.8	20.4R TO 19.7R	RURAL		175
179+87.2 TO 183+30.0	35.6L TO 34.6L	RURAL		332
383+81.9 TO 385+27.4	24.8R TO 30.9R	RURAL		147
385+97.5 TO 391+79.5	28.7R TO 25.3R	RURAL	571	
385+97.5 TO 391+79.5	27.7R TO 24.3R	RURAL		571
386+37.0 TO 392+15.2	28.4L TO 22.8L	RURAL	595	
386+37.1 TO 392+14.9	27.4L TO 21.9L	RURAL		594
392+38.9 TO 394+25.4	38.8R TO 27.7R	RURAL		182
393+75.0 TO 394+82.3	26.4L TO 28.5L	RURAL		113
395+05.3 TO 397+59.3	25.3R TO 31.5R	RURAL		258
397+89.7 TO 402+08.1	32.4L TO 49.8L	RURAL		424
398+25.3 TO 400+23.9	38.4R TO 31.2R	RURAL		199
404+00.8 TO 405+24.9	31.5L TO 28.2L	RURAL		125
405+48.2 TO 407+88.2	27.3L TO 40.6L	RURAL		242
408+07.1 TO 411+75.7	24.7R TO 24.8R	RURAL		371
408+97.7 TO 412+92.5	32.8L TO 29.2L	RURAL		396
413+68.7 TO 421+01.1	30.6L TO 34.0L	RURAL		734
413+99.3 TO 421+00.3	32.5R TO 24.7R	RURAL		703
422+21.6 TO 423+21.4	27.5L TO 26.9L	RURAL		105

(S) SEDIMENT CONTROL (CONT.)

STATION - STATION	OFFSET	FUNDING	SILT FENCE, TYPE MS	SEDIMENT CONTROL LOG TYPE WOOD CHIP
			LIN FT	LIN FT
423+90.7 TO 426+99.7	48.7L TO 29.7L	RURAL		321
428+33.2 TO 436+55.1	29.3L TO 22.7L	RURAL		825
439+59.1 TO 444+49.2	29.8L TO 32.0L	RURAL		494
443+42.0 TO 446+00.0	34.1R TO 32.5R	RURAL		261
443+42.0 TO 446+00.5	35.1R TO 33.4R	RURAL	261	
445+25.5 TO 451+75.8	43.6L TO 43.2l	RURAL		652
448+96.5 TO 449+50.2	28.9R TO 31.2R	RURAL		61
451+47.5 TO 452+96.5	48.6R TO 22.5R	RURAL		156
452+65.2 TO 456+77.8	43.0L TO 31.0L	RURAL		426
454+70.2 TO 459+15.6	49.5R TO 34.0R	RURAL		433
461+94.9 TO 469+68.2	35.4R TO 29.0R	RURAL		754
465+98.8 TO 472+14.9	23.8L TO 49.1L	RURAL	632	
465+99.5 TO 472+14.9	23.1L TO 48.1L	RURAL		631
472+68.6 TO 486+18.3	48.2L TO 49.2L	RURAL		1356
472+68.7 TO 486+17.5	49.2L TO 49.8L	RURAL		1354
474+28.9 TO 477+57.4	48.2R TO 49.3R	RURAL		355
474+29.2 TO 477+56.6	49.1R TO 49.9R	RURAL	354	
478+46.1 TO 481+49.9	49.6R TO 30.0R	RURAL		321
478+47.0 TO 481+50.2	50.0R TO 30.9R	RURAL	320	
486+62.1 TO 491+75.8	50.0L TO 27.8L	RURAL		508
486+63.1 TO 491+76.0	50.2L TO 28.8L	RURAL		506
492+96.6 TO 496+57.6	33.3L TO 26.1L	RURAL		344
492+96.6 TO 496+57.9	34.3L TO 27.1L	RURAL		344
493+51.9 TO 494+67.5	29.7R TO 51.1R	RURAL	144	
493+51.9 TO 494+68.1	28.7R TO 50.3R	RURAL		145
496+74.0 TO 498+28.8	28.7R TO 49.7R	RURAL		167
497+01.6 TO 499+49.8	26.4L TO 31.5L	RURAL		260
499+00.9 TO 500+56.1	32.6R TO 49.7R	RURAL		163
501+26.7 TO 502+21.0	32.3R TO 31.3R	RURAL		98
503+33.6 TO 503+81.1	49.3L TO 48.3L	RURAL		60
507+34.8 TO 508+42.2	49.1R TO 29.0R	RURAL		113
508+87.4 TO 513+94.2	32.9R TO 50.0R	RURAL		514
510+02.5 TO 511+03.1	29.1L TO 33.1L	RURAL		105
513+93.2 TO 517+77.9	32.5L TO 36.5L	RURAL		385
514+59.7 TO 522+51.5	50.0R TO 32.9R	RURAL		797
518+33.8 TO 519+51.1	49.2L TO 30.7L	RURAL		122
523+71.6 TO 535+75.7	36.8R TO 30.6R	RURAL		1213
524+70.8 TO 528+97.4	34.2L TO 47.7L	RURAL		427
529+91.2 TO 533+67.4	36.6L TO 37.4L	RURAL		376
534+48.4 TO 540+86.1	44.6L TO 36.6L	RURAL		645
534+48.5 TO 540+85.9	43.6L TO 35.6L	RURAL		644
540+15.0 TO 548+44.9	34.5R TO 26.8R	RURAL		831
546+74.5 TO 547+84.4	34.3L TO 41.5L	RURAL		112
RURAL TOTALS			7208	32130
MUNICIPAL TOTALS				
PROJECT TOTALS			7208	32130

(T) PAVEMENT MESSAGING

STATION - STATION	OFFSET	FUNDING	24" SOLID LINE PREFORM TAPE GROUND IN	PAVEMENT MESSAGE PREFORM TAPE GROUND IN	CROSSWALK MULTI COMP GR IN (WR)	PAVEMENT MESSAGE DISCRIPTION
			WHITE	WHITE	WHITE	
			LIN FT	SQ FT	SQ FT	
10+51.5 TO 10+69.1	1.4L TO 18.5L	RURAL	53			STOP BAR
12+66.3	14.0R	RURAL		8.51		BICYCLE LANE
12+66.3	14.0L	RURAL		8.51		BICYCLE LANE
17+71.3 TO 17+79.3	0.0L TO 12.0L	RURAL		28.90		"AHEAD"
18+19.3 TO 18+27.3	0.0L TO 12.0L	RURAL		20.96		"STOP"
159+82.5	14.0R	RURAL		8.51		BICYCLE LANE
159+82.5	14.0L	RURAL		8.51		BICYCLE LANE
162+89.6 TO 162+99.6	13.6L TO 13.6R	RURAL			150	CROSSWALK
182+80.4 TO 182+82.4	0.0R TO 12.0R	RURAL	12			HORIZONTAL BAR
182+91.5 TO 183+24.4	0.0R TO 12.0R	RURAL		61.88		"RR X"
183+38.4 TO 183+40.4	0.0R TO 12.0R	RURAL	12			HORIZONTAL BAR
191+09.0 TO 191+11.0	0.0R TO 12.0R	RURAL	12			STOP BAR
191+53.3 TO 191+55.3	0.0L TO 12.0L	RURAL	12			STOP BAR
199+09.0 TO 199+11.0	0.0L TO 12.0L	RURAL	12			HORIZONTAL BAR
199+25.0 TO 199+57.9	0.0L TO 12.0L	RURAL		61.88		"RR X"
199+67.1 TO 199+69.1	0.0L TO 12.0L	RURAL	12			HORIZONTAL BAR
362+15.9 TO 362+35.9	49.0L TO 51.0L	RURAL	20			STOP BAR
389+40.1	15.0R	RURAL		8.51		BICYCLE LANE
389+40.1	15.0L	RURAL		8.51		BICYCLE LANE
RURAL TOTALS			145	224.68	150	
559+85.5 TO 560+04.5	48.0R TO 48.0R	MUNICIPAL	20			STOP BAR
572+92.0 TO 573+00.0	0.0R TO 12.0R	MUNICIPAL		20.96		"STOP"
573+40.0 TO 573+48.0	0.0R TO 12.0R	MUNICIPAL		28.99		"AHEAD"
576+48.4	15.0R	MUNICIPAL		8.51		BICYCLE LANE
576+48.4	15.0L	MUNICIPAL		8.51		BICYCLE LANE
579+76.4 TO 579+78.4	0.0R TO 12.0R	MUNICIPAL	12			STOP BAR
MUNICIPAL TOTALS			32	66.97	0	
PROJECT TOTALS			177	291.65	150	

(U) SIGN PANELS TYPE C

STATION - STATION	OFFSET	FUNDING	SIGN	SQ FT
14+16.20	30.8R	RURAL	W11-1	6.25
14+16.20	30.8L	RURAL	W11-1	6.25
158+32.5	30.8R	RURAL	W11-1	6.25
158+32.5	30.8L	RURAL	W11-1	6.25
389+41.8	32.8R	RURAL	W11-1	6.25
389+41.8	32.8L	RURAL	W11-1	6.25
RURAL TOTALS				37.5
576+48.4	32.8R	MUNICIPAL	W11-1	6.25
576+48.4	32.8L	MUNICIPAL	W11-1	6.25
MUNICIPAL TOTALS				12.5
TOTAL				50.0

REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.
DRAFTER: ARJ	DATE: 04/16/25		

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NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TABULATIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 7 OF 125 SHEETS

PAVEMENT MARKINGS

STATION	STATION	LOCATION	FUNDING	4" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	4" BROKEN LINE MULTI-COMPONENT GROUND IN (WR)	4" DOUBLE SOLID LINE MULTI-COMPONENT GROUND IN (WR)	6" SOLID LINE MULTI-COMPONENT GROUND IN (WR)
				YELLOW	YELLOW	YELLOW	WHITE
MIN	MAX			LIN FT	LIN FT	LIN FT	LIN FT
10+55	559+13	EDGE OF LANE RIGHT	RURAL				53820
10+90	559+85	EDGE OF LANE LEFT	RURAL				53795
10+50	15+45	CENTERLINE	RURAL			495	
15+45	24+85	CENTERLINE	RURAL	940	188		
24+85	35+35	CENTERLINE	RURAL		210		
35+35	44+95	CENTERLINE	RURAL	960	192		
44+95	46+90	CENTERLINE	RURAL			195	
46+90	55+50	CENTERLINE	RURAL	860	172		
55+50	68+85	CENTERLINE	RURAL		267		
68+85	75+30	CENTERLINE	RURAL	645	129		
75+30	78+30	CENTERLINE	RURAL		60		
78+30	84+95	CENTERLINE	RURAL	665	133		
84+95	87+90	CENTERLINE	RURAL		59		
87+90	94+60	CENTERLINE	RURAL	670	134		
94+60	103+20	CENTERLINE	RURAL	860	172		
103+20	147+50	CENTERLINE	RURAL		886		
147+50	156+60	CENTERLINE	RURAL	910	182		
156+60	164+45	CENTERLINE	RURAL			785	
164+45	168+50	CENTERLINE	RURAL	405	81		
168+50	172+75	CENTERLINE	RURAL			425	
172+75	176+35	CENTERLINE	RURAL	360	72		
176+35	177+70	CENTERLINE	RURAL			135	
177+70	183+00	CENTERLINE	RURAL	530	106		
183+00	186+75	CENTERLINE	RURAL			375	
186+75	191+25	CENTERLINE	RURAL	450	90		
191+40	200+10	CENTERLINE	RURAL	870	174		
200+10	233+70	CENTERLINE	RURAL		672		
233+70	242+30	CENTERLINE	RURAL	860	172		
242+30	245+95	CENTERLINE	RURAL			365	
245+95	253+40	CENTERLINE	RURAL	745	149		
253+40	270+00	CENTERLINE	RURAL		332		
270+00	279+00	CENTERLINE	RURAL	900	180		
279+00	284+30	CENTERLINE	RURAL			530	
284+30	293+50	CENTERLINE	RURAL	920	184		
293+50	307+85	CENTERLINE	RURAL		287		
307+85	317+50	CENTERLINE	RURAL	965	193		
317+50	325+75	CENTERLINE	RURAL	825	165		
325+75	340+85	CENTERLINE	RURAL		302		
340+85	349+85	CENTERLINE	RURAL	900	180		
349+85	358+55	CENTERLINE	RURAL	870	174		
358+55	363+40	CENTERLINE	RURAL		97		
363+40	372+85	CENTERLINE	RURAL	945	189		
372+85	392+60	CENTERLINE	RURAL			1975	
392+60	401+10	CENTERLINE	RURAL	850	170		
401+10	402+55	CENTERLINE	RURAL		29		
402+55	411+70	CENTERLINE	RURAL	915	183		
411+70	417+10	CENTERLINE	RURAL			540	
417+10	425+75	CENTERLINE	RURAL	865	173		
425+75	444+40	CENTERLINE	RURAL		373		
444+40	452+60	CENTERLINE	RURAL	820	164		
452+60	522+10	CENTERLINE	RURAL			6950	
522+10	530+75	CENTERLINE	RURAL	865	173		
530+75	547+70	CENTERLINE	RURAL		339		
547+70	556+80	CENTERLINE	RURAL	910	182		
556+80	559+85	CENTERLINE	RURAL			305	
560+46	579+75	EDGE OF LANE RIGHT	MUNICIPAL				1937
559+85	579+75	EDGE OF LANE LEFT	MUNICIPAL				1897
559+85	564+25	CENTERLINE	MUNICIPAL			440	
564+25	574+00	CENTERLINE	MUNICIPAL	975	195		
574+00	579+60	CENTERLINE	MUNICIPAL			560	
TOTALS				23255	8564	14075	111449

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moore engineering, inc.

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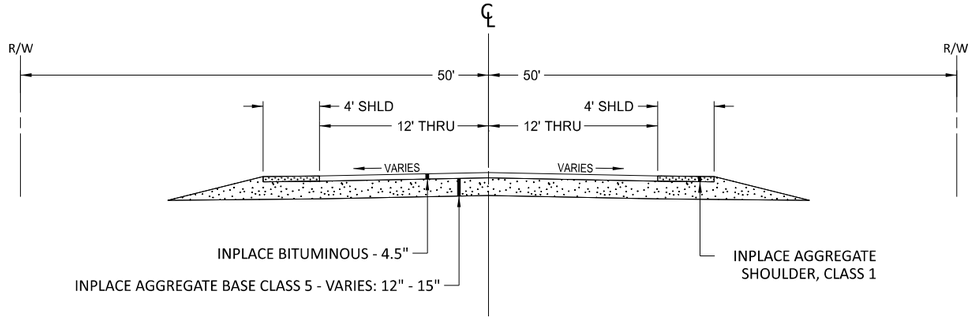
NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

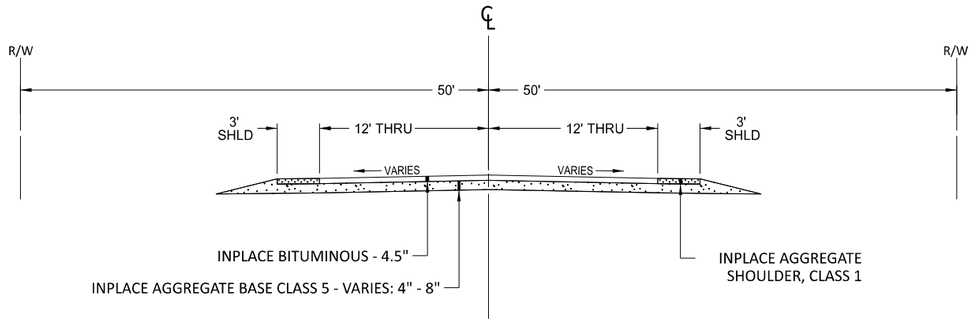
TABULATIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 8 OF 125 SHEETS

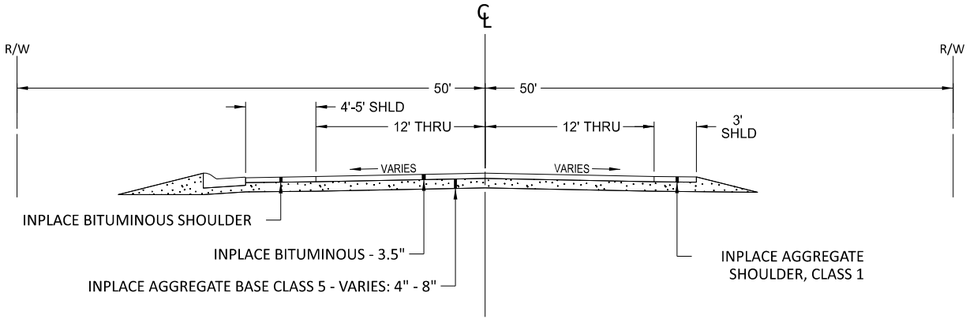
EXISTING TYPICAL SECTION
C.S.A.H. 35
STA 10+04.37 - STA 36+60.60
STA 46+40.40 - STA 162+36.47
STA 362+37.07 - STA 387+19.97
STA 406+20.97 - STA 461+94.77
STA 479+02.57 - STA 482+80.47
STA 489+42.07 - STA 496+15.17
STA 497+81.06 - STA 504+04.36
STA 511+79.36 - STA 549+12.15



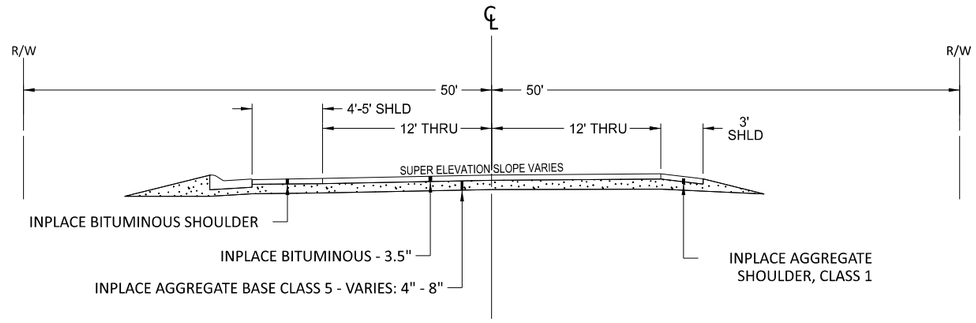
EXISTING TYPICAL SECTION
C.S.A.H. 35
STA 169+94.67 - STA 174+27.27
STA 209+77.87 - STA 227+30.77
STA 296+46.77 - STA 317+86.77
STA 324+91.77 - STA 349+11.77
STA 361+11.77 - STA 362+37.07



EXISTING TYPICAL SECTION
C.S.A.H. 35
STA 182+77.87 - STA 209+77.87
STA 227+30.77 - STA 296+46.77
STA 317+86.77 - STA 324+91.77
STA 349+11.77 - STA 361+11.77



EXISTING TYPICAL SECTION - SUPER ELEVATION & CURB SECTION
C.S.A.H. 35
STA 176+90.67 - STA 182+77.87



PATH & FILENAME: C:\Project Working Files\23544 - CSAH 35\23544_typicals.dgn
PLOTTED/REVISED: 04/16/25

REVIEWER: NAA	DATE:	04/16/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ	DATE:	04/16/25	

moore engineering, inc.

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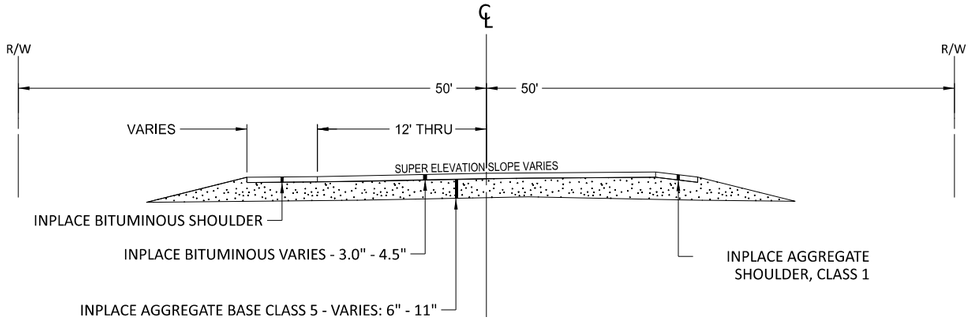
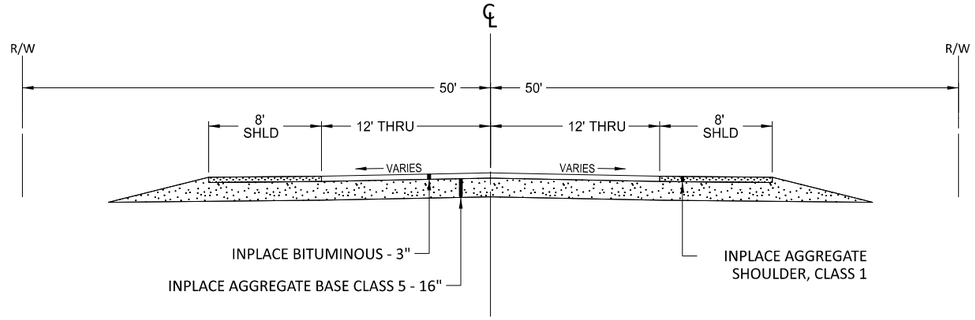
NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TYPICAL SECTIONS

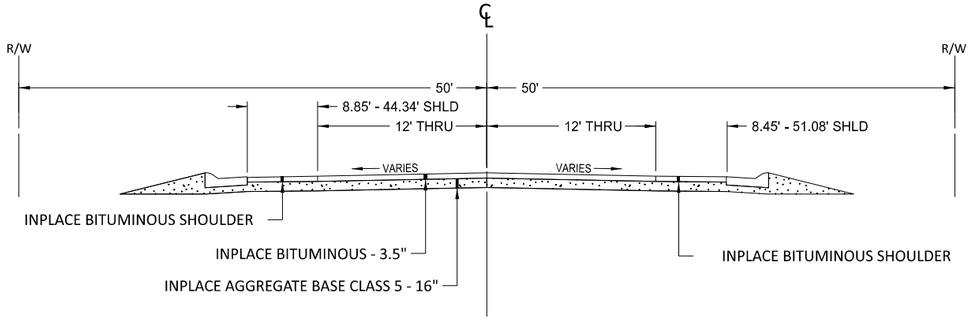
EXISTING TYPICAL SECTION - SUPER ELEVATION
C.S.A.H. 35
STA 36+60.60 - STA 45+32.86
STA 45+32.86 - STA 46+40.40
STA 162+36.47 - STA 169+94.67
STA 174+27.27 - STA 176+90.67
STA 387+19.97 - STA 406+20.97
STA 461+94.77 - STA 479+02.57
STA 482+80.47 - STA 489+42.07
STA 496+15.17 - STA 496+81.06
STA 496+81.06 - STA 497+81.06
STA 504+04.36 - STA 511+79.36
STA 555+85.05 - STA 564+33.48



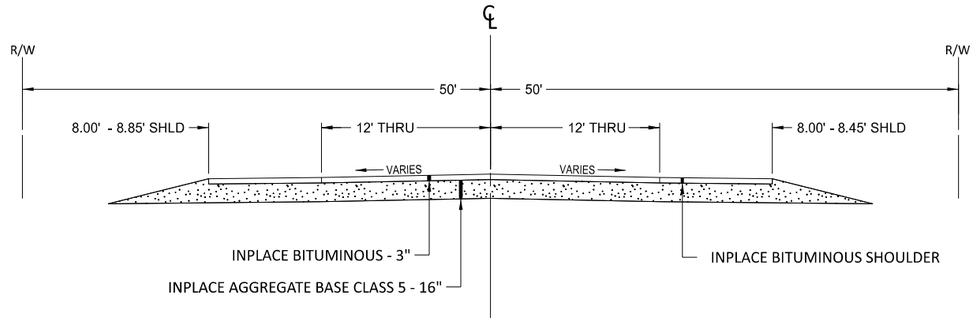
EXISTING TYPICAL SECTION
C.S.A.H. 35
STA 549+12.15 - STA 555+85.05



EXISTING TYPICAL SECTION
C.S.A.H. 35
STA 578+08.81 - STA 580+08.43



EXISTING TYPICAL SECTION
C.S.A.H. 35
STA 564+33.48 - STA 578+08.43



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NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TYPICAL SECTIONS

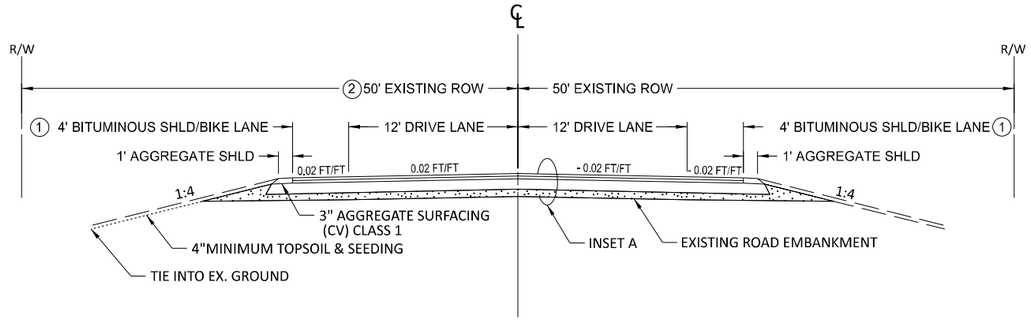
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 10 OF 125 SHEETS

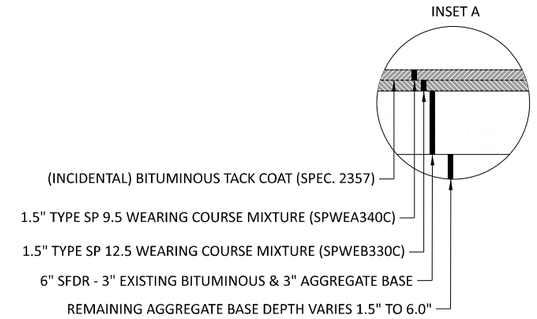
(1) BIKE LANE TO FOLLOW MN/DOT SPECIFICATIONS

(2)

MIN	MAX	OFFSET	WIDTH
10+60	37+60	LEFT	33'
37+60	39+43	LEFT	VAR. 33' TO 50'

PROPOSED TYPICAL SECTION - C.S.A.H. 35
TH 108 TO C.S.A.H. 34
STA 10+04.37 - STA 36+00.00
STA 47+00.00 - STA 160+00.00

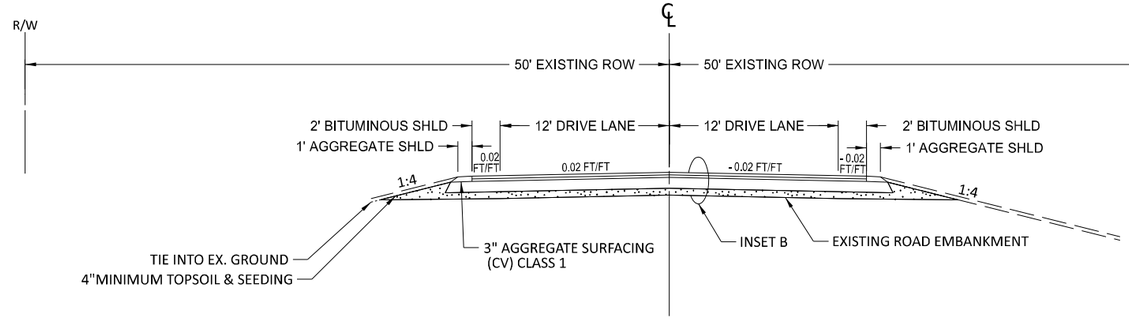


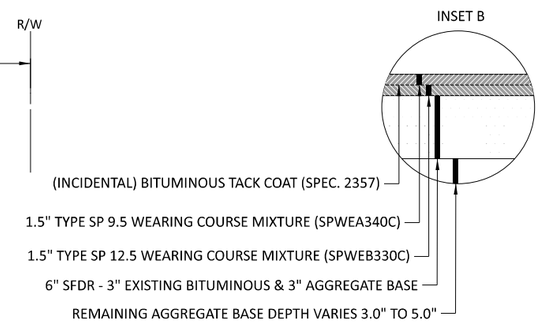


STABILIZED FULL DEPTH RECLAMATION
RECLAMATION DEPTH 8", 32' WIDE
REMOVE 2" OF RECLAIM MATERIAL
INJECT SOIL STABILIZER INTO REMAINING 6" OF RELAIM MATERIAL

PROPOSED TYPICAL SECTION - C.S.A.H. 35
C.S.A.H. 34 TO 440TH ST

STA 172+69.05 - STA 174+61.00
STA 185+59.11 - STA 186+53.31
STA 189+50.65 - STA 190+64.54
STA 191+14.33 - STA 192+72.47
STA 196+97.21 - STA 198+03.86
STA 199+71.32 - STA 200+85.22
STA 202+53.15 - STA 203+67.11
STA 205+84.91 - STA 206+98.39
STA 209+51.15 - STA 226+27.81
STA 234+59.76 - STA 235+52.75
STA 237+33.66 - STA 238+46.72
STA 239+28.05 - STA 240+20.84
STA 240+89.80 - STA 241+52.56
STA 243+26.24 - STA 244+39.54
STA 251+77.79 - STA 252+92.36
STA 254+98.39 - STA 256+38.60
STA 261+02.90 - STA 261+96.22
STA 272+32.29 - STA 273+26.57
STA 279+34.96 - STA 280+28.66
STA 284+23.02 - STA 285+36.45
STA 296+85.70 - STA 317+63.31
STA 321+55.18 - STA 322+68.36
STA 324+75.14 - STA 349+14.19
STA 350+51.61 - STA 351+65.21
STA 358+81.73 - STA 359+75.04
STA 361+16.84 - STA 376+45.00





STABILIZED FULL DEPTH RECLAMATION
RECLAMATION DEPTH 8", 32' WIDE
REMOVE 2" OF RECLAIM MATERIAL
INJECT SOIL STABILIZER INTO REMAINING 6" OF RELAIM MATERIAL

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NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/21/25

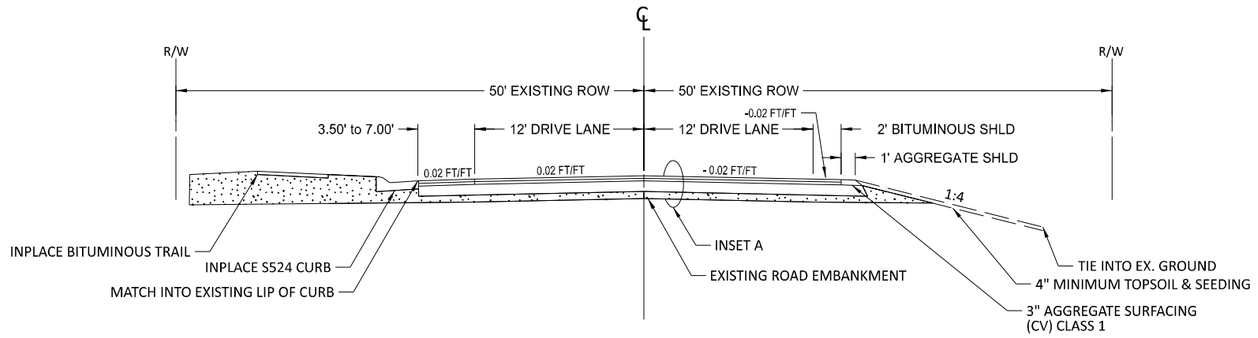
TYPICAL SECTIONS

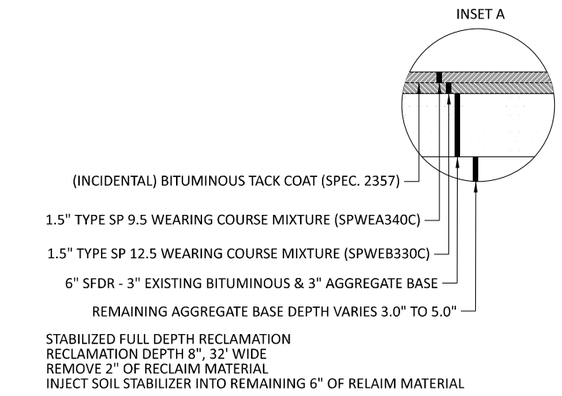
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 11 OF 125 SHEETS

(1) BIKE LANE TO FOLLOW MN/DOT SPECIFICATIONS

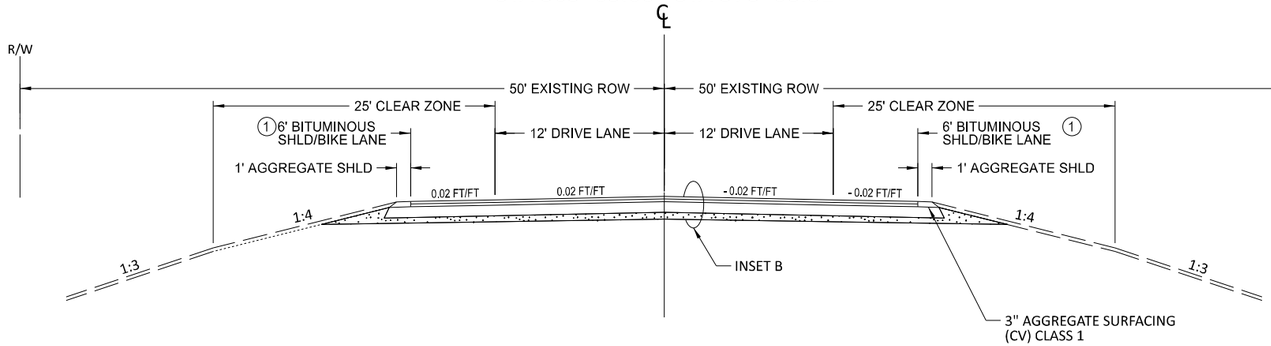
PROPOSED TYPICAL SECTION - C.S.A.H. 35
C.S.A.H. 34 TO 440TH ST
EXISTING CURB TIE IN

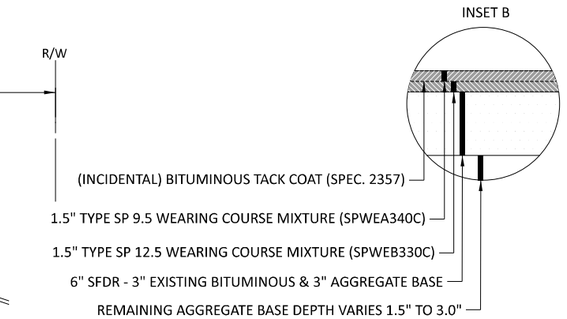
STA 169+62.00 - STA 172+69.05
STA 182+96.00 - STA 185+59.11
STA 186+53.31 - STA 189+50.65
STA 190+64.54 - STA 191+14.33
STA 192+72.47 - STA 196+97.21
STA 198+03.86 - STA 199+71.32
STA 200+85.22 - STA 202+53.13
STA 203+67.11 - STA 205+84.91
STA 206+98.39 - STA 209+51.15
STA 226+27.81 - STA 234+59.76
STA 235+52.75 - STA 237+33.66
STA 238+46.72 - STA 239+28.05
STA 240+20.84 - STA 240+89.80
STA 241+82.56 - STA 243+26.24
STA 244+39.54 - STA 251+77.79
STA 252+92.36 - STA 254+98.39
STA 256+38.60 - STA 261+02.90
STA 261+96.22 - STA 272+32.29
STA 273+26.57 - STA 279+34.96
STA 280+28.66 - STA 284+23.02
STA 285+36.45 - STA 296+85.70
STA 317+63.31 - STA 321+55.18
STA 322+68.36 - STA 324+75.14
STA 349+14.19 - STA 350+51.61
STA 351+65.21 - STA 358+81.73
STA 359+75.04 - STA 361+16.84





PROPOSED TYPICAL SECTION - C.S.A.H. 35
440TH ST TO C.S.A.H. 4
STA 395+93.00 - STA 450+50.00
STA 468+75.00 - STA 472+10.00
STA 479+90.00 - STA 484+00.00
STA 497+25.00 - STA 504+00.00
STA 511+52.00 - STA 556+13.00
STA 565+05.00 - STA 578+08.81





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SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/21/25

TYPICAL SECTIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 12 OF 125 SHEETS

(1) SEE CONSTRUCTION PLANS FOR SUPER ELEVATION PERCENTS

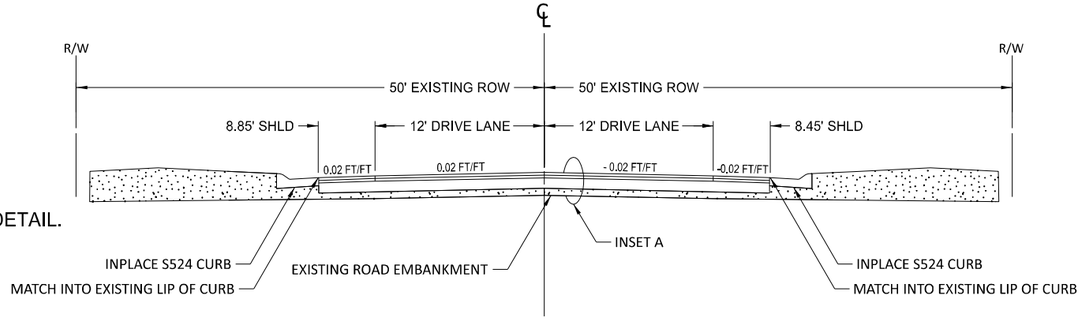
(2)

MIN	MAX	OFFSET	WIDTH
10+60	37+60	LEFT	33'
37+60	39+43	LEFT	VAR. 33' TO 50'

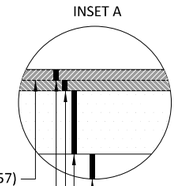
(3) BIKE LANE TO FOLLOW MN/DOT SPECIFICATIONS

(4) 10' TRAIL REPLACEMENT. SEE INSET D FOR PROPOSED TRAIL DETAIL.
BEGIN TRAIL REPLACEMENT AT STA 180+02.47.
END TRAIL REPLACEMENT AT STATION 183+20.75.

PROPOSED TYPICAL SECTION - C.S.A.H. 35
MUNICIPAL - EXISTING CURB TIE IN
STA 578+08.81 - STA 580+08.43



INSET A

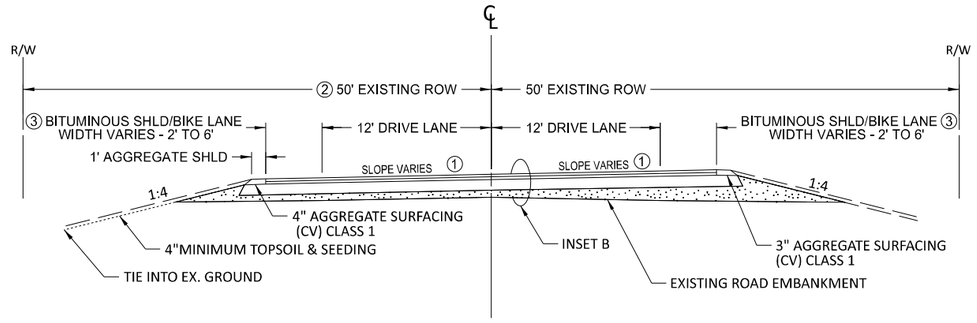


(INCIDENTAL) BITUMINOUS TACK COAT (SPEC. 2357)
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C)
1.5" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB330C)
6" SFDR - 3" EXISTING BITUMINOUS & 3" AGGREGATE BASE
REMAINING AGGREGATE BASE DEPTH 2.5"

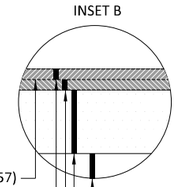
STABILIZED FULL DEPTH RECLAMATION
RECLAMATION DEPTH 8", 32' WIDE
REMOVE 2" OF RECLAIM MATERIAL
INJECT SOIL STABILIZER INTO REMAINING 6" OF RELAIM MATERIAL

PROPOSED TYPICAL SECTION - C.S.A.H. 35
SUPER ELEVATION

STA 36+00.00 - STA 47+00.00
STA 160+00.00 - STA 166+58.64
STA 174+61.00 - STA 176+91.28
STA 376+45.00 - STA 395+93.00
STA 450+50.00 - STA 468+75.00
STA 472+10.00 - STA 479+90.00
STA 484+00.00 - STA 497+25.00
STA 504+00.00 - STA 511+52.00
STA 556+13.00 - STA 565+05.00



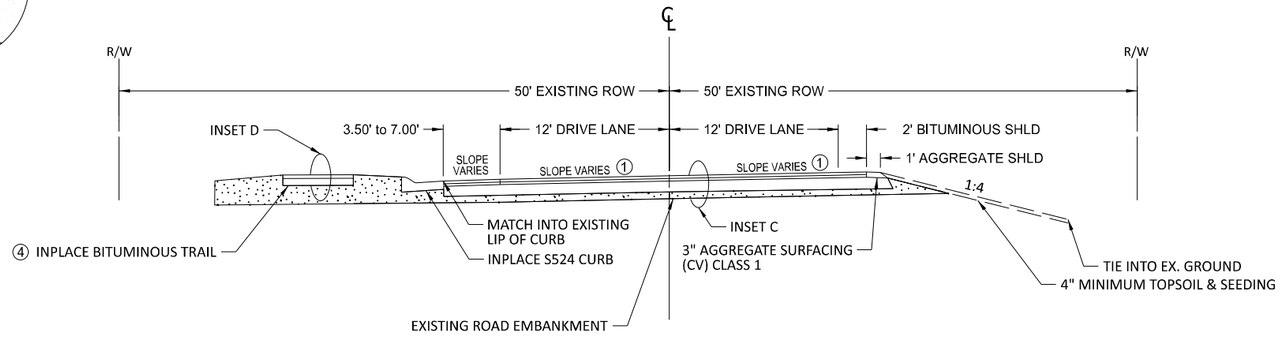
INSET B



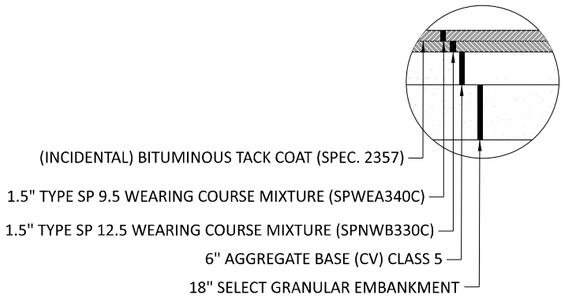
(INCIDENTAL) BITUMINOUS TACK COAT (SPEC. 2357)
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C)
1.5" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB330C)
6" SFDR - 3" EXISTING BITUMINOUS & 3" AGGREGATE BASE
REMAINING AGGREGATE BASE DEPTH VARIES 1.5" TO 5.0"

STABILIZED FULL DEPTH RECLAMATION
RECLAMATION DEPTH 8", 32' WIDE
REMOVE 2" OF RECLAIM MATERIAL
INJECT SOIL STABILIZER INTO REMAINING 6" OF RELAIM MATERIAL

PROPOSED TYPICAL SECTION - C.S.A.H. 35
EXISTING CURB TIE IN WITH SUPER ELEVATION
STA 166+58.64 - STA 169+62.15
STA 176+91.28 - STA 182+96.00

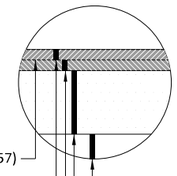


INSET D



(INCIDENTAL) BITUMINOUS TACK COAT (SPEC. 2357)
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C)
1.5" TYPE SP 12.5 WEARING COURSE MIXTURE (SPNWB330C)
6" AGGREGATE BASE (CV) CLASS 5
18" SELECT GRANULAR EMBANKMENT

INSET C



(INCIDENTAL) BITUMINOUS TACK COAT (SPEC. 2357)
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C)
1.5" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB330C)
6" SFDR - 3" EXISTING BITUMINOUS & 3" AGGREGATE BASE
REMAINING AGGREGATE BASE DEPTH 5.0"

STABILIZED FULL DEPTH RECLAMATION
RECLAMATION DEPTH 8", 32' WIDE
REMOVE 2" OF RECLAIM MATERIAL
INJECT SOIL STABILIZER INTO REMAINING 6" OF RELAIM MATERIAL

REVIEWER: NAA	DATE:	04/21/25	OTTER TAIL COUNTY MINNESOTA
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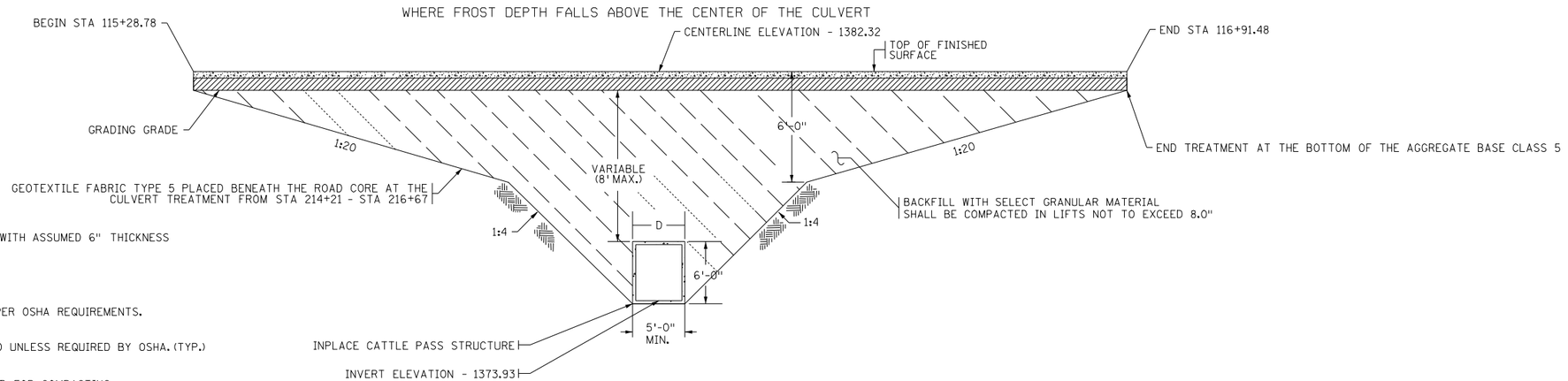
NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/21/25

TYPICAL SECTIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 13 OF 125 SHEETS

CENTERLINE CATTLE PASS REMOVAL TREATMENT
C.S.A.H. 35 - STA 116+16.83



LEGEND:

D = OUTSDE DIMENSION OF PIPE - 4'X5' CATTLE PASS WITH ASSUMED 6" THICKNESS

= UNDISTURBED SOIL

NOTES

EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.

ALL SLOPES SHOWN AS (V):(H)

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

AVERAGE FROST DEPTH PENETRATION IS 6 FEET.

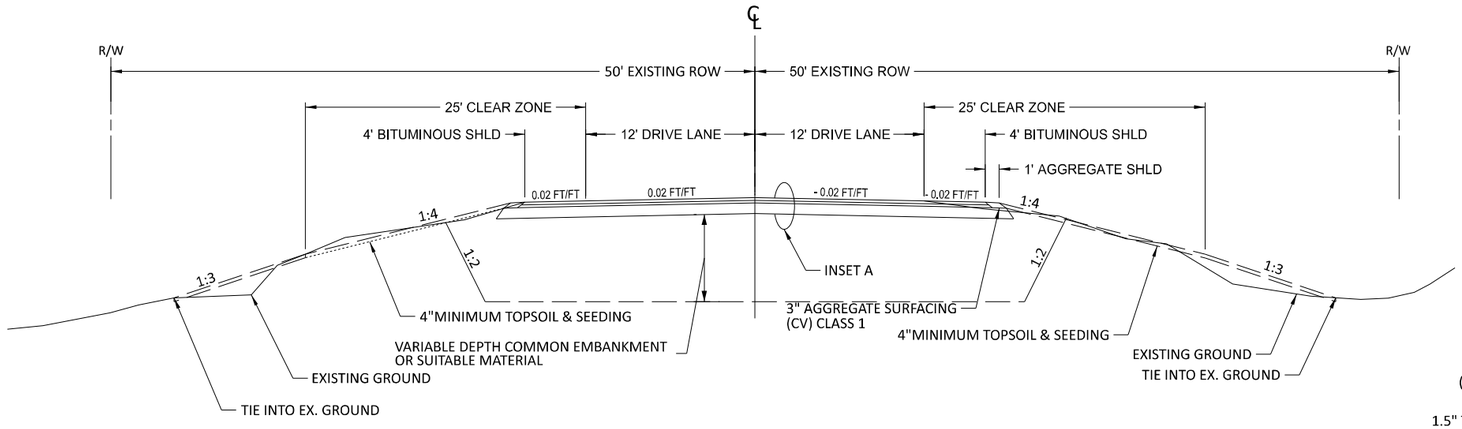
A MECHANICAL TAMPER AND COMPACTOR SHALL BE USED FOR COMPACTING THE BACKFILL AND/OR BEDDING ON ALL CENTERLINE CULVERTS.

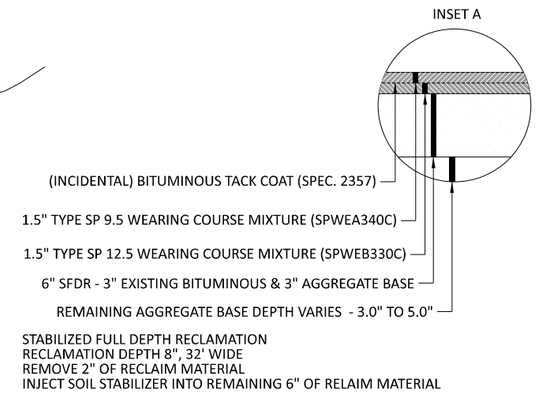
SPEC. 2451 SHALL APPLY TO BEDDING AND BACKFILL CONSTRUCTION.

CONSTRUCTION SEQUENCE

1. RECLAIM AND SALVAGE RECLAIMED MATERIAL PRIOR TO EXCAVATION.
2. REMOVE INPLACE CATTLE PASS STRUCTURE.
3. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN LIFTS NOT TO EXCEED 8.0".
4. COMPLETE REMAINING BACKFILL PER THE APPROPRIATE TREATMENT REQUIREMENTS.

CENTERLINE CATTLE PASS REMOVAL TREATMENT
C.S.A.H. 35 - STA 115+28.78 TO STA 116+91.48





STABILIZED FULL DEPTH RECLAMATION
RECLAMATION DEPTH 8", 32' WIDE
REMOVE 2" OF RECLAIM MATERIAL
INJECT SOIL STABILIZER INTO REMAINING 6" OF RELAIM MATERIAL

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NAME NICHOLAS A. ANDERSON

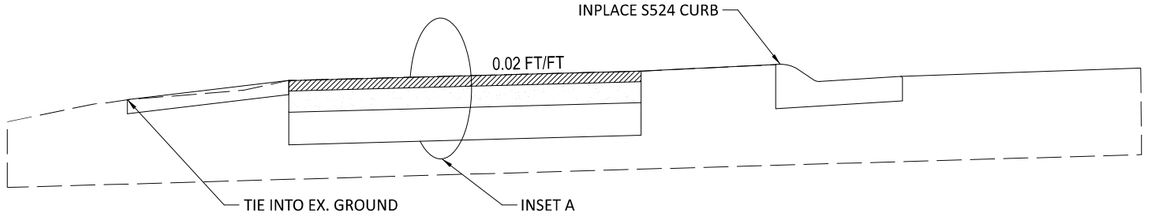
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/21/25

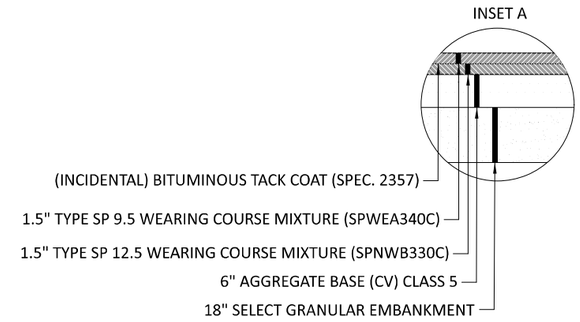
TYPICAL SECTIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 14 OF 125 SHEETS

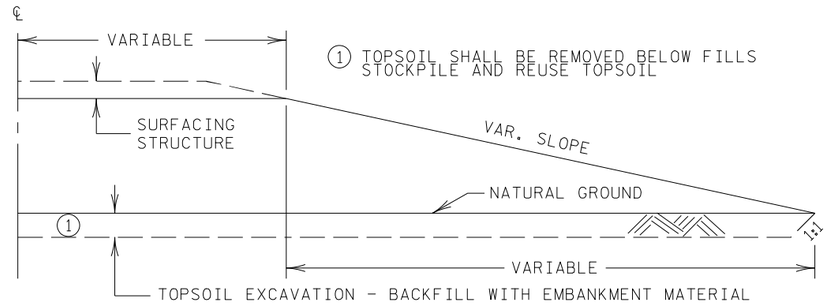
BITUMINOUS TRAIL DETAIL

STA 180+02.47 - STA 183+20.74

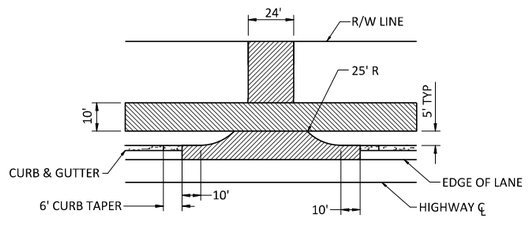




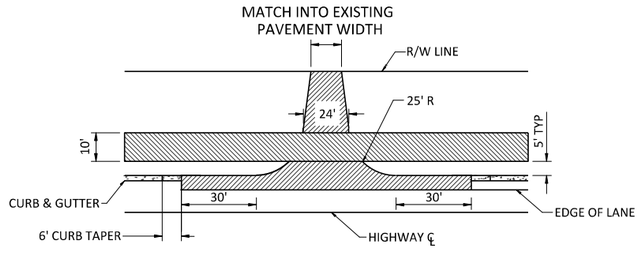
TOPSOIL REMOVAL



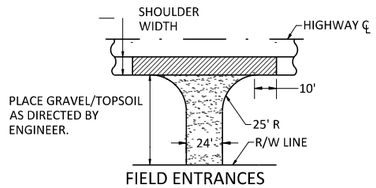
BITUMINOUS PAVING FOR ENTRANCES AND MAILBOXES



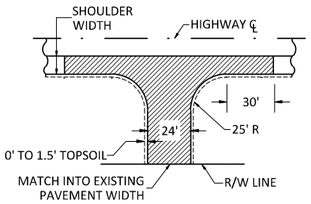
FIELD ENTRANCES - TRAIL PAVING WITH CURB



RESIDENTIAL AND OTHER ENTRANCES - TRAIL PAVING WITH CURB



FIELD ENTRANCES



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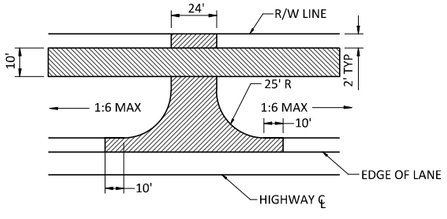
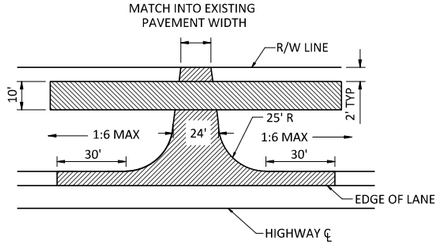
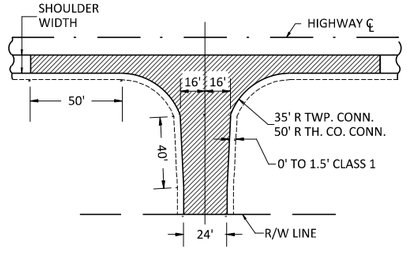


FIELD ENTRANCES - TRAIL PAVING NO CURB



RESIDENTIAL AND OTHER ENTRANCES - TRAIL PAVING NO CURB



ROAD APPROACH

NOTES:

ALL MAILBOXES WILL BE PAVED 60' ON EACH SIDE OF THE MAILBOX.

▨ DESIGNATES BITUMINOUS SURFACING.

PATH & FILENAME: C:\Project Working Files\23544 - CSAH 35\23544_typicals.dgn
PLOTTED/REVISED: 04/16/25

REVIEWER: NAA	DATE:	04/16/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ	DATE:	04/16/25	

moore engineering, inc.

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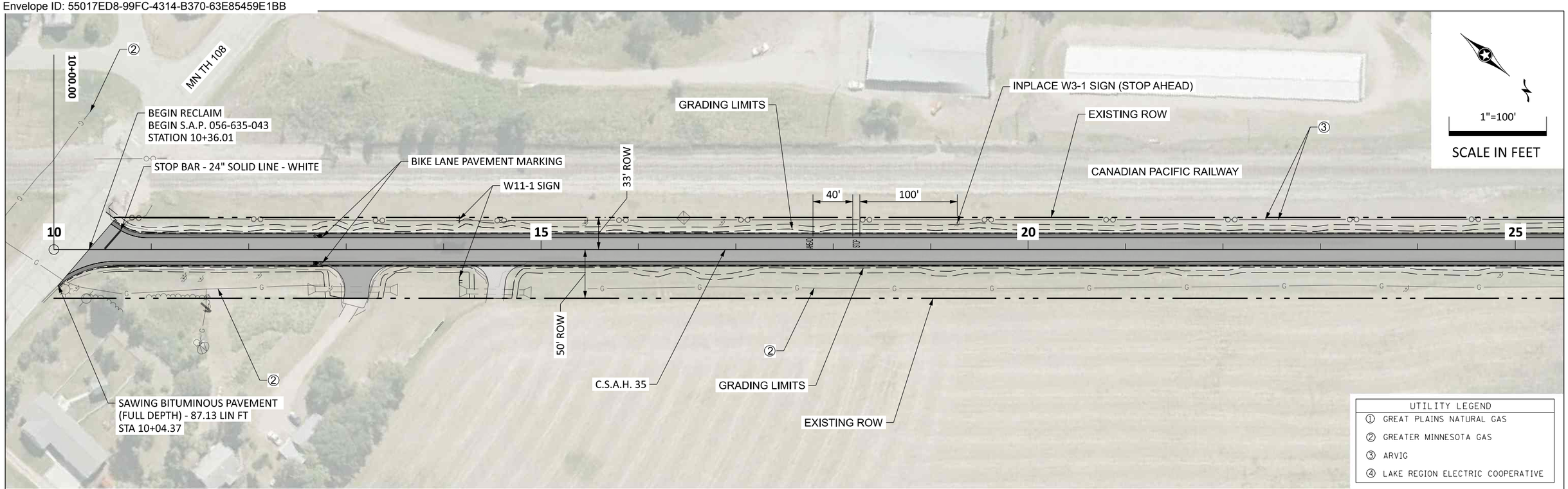
NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TYPICAL SECTIONS

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 15 OF 125 SHEETS



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PLOTTED/REVISED: 04/16/25

REVIEWER: NAA		04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.
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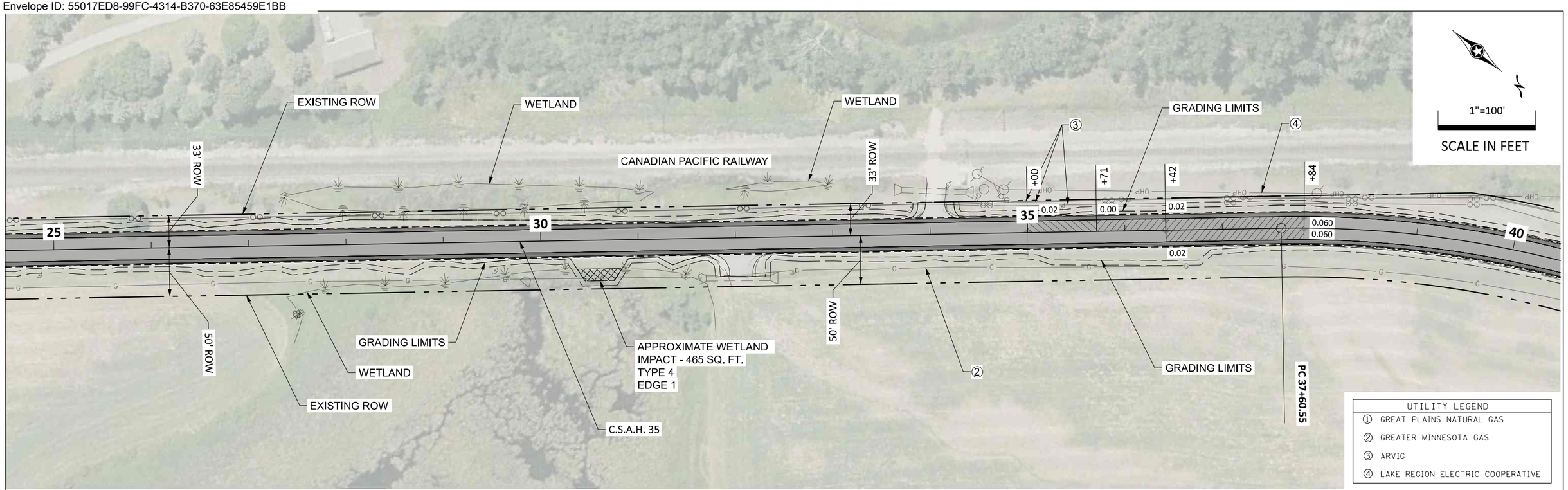
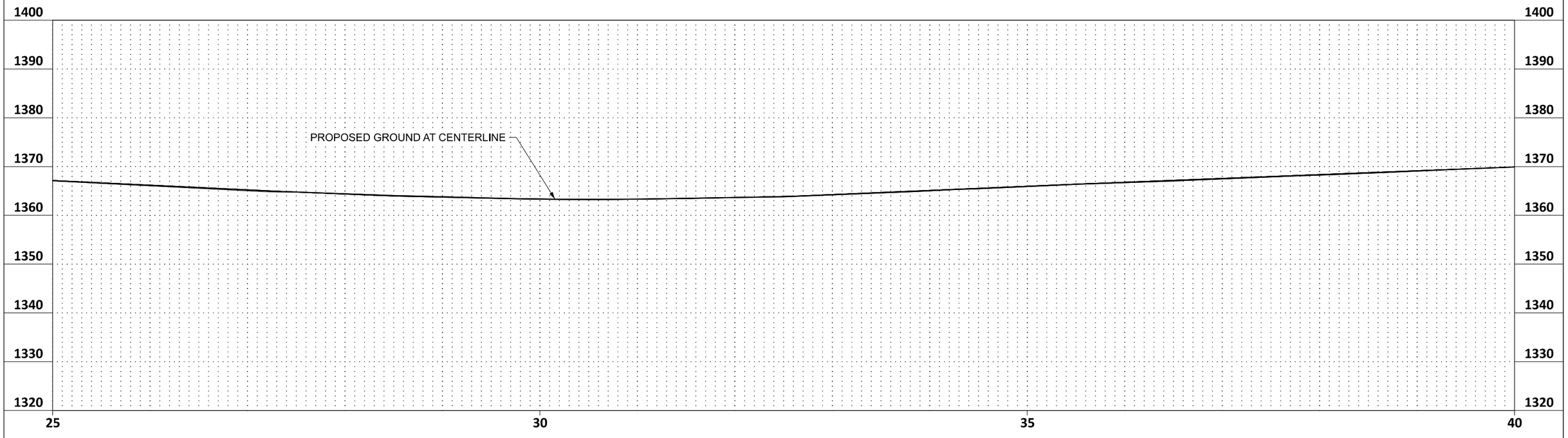
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 16 OF 125 SHEETS





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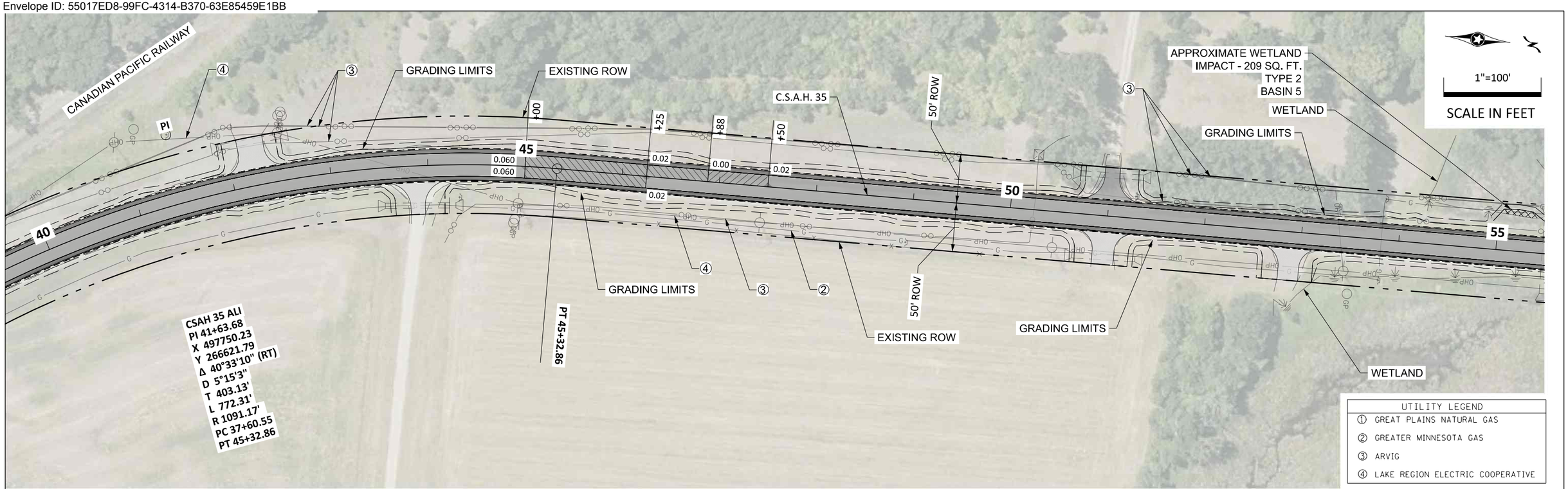
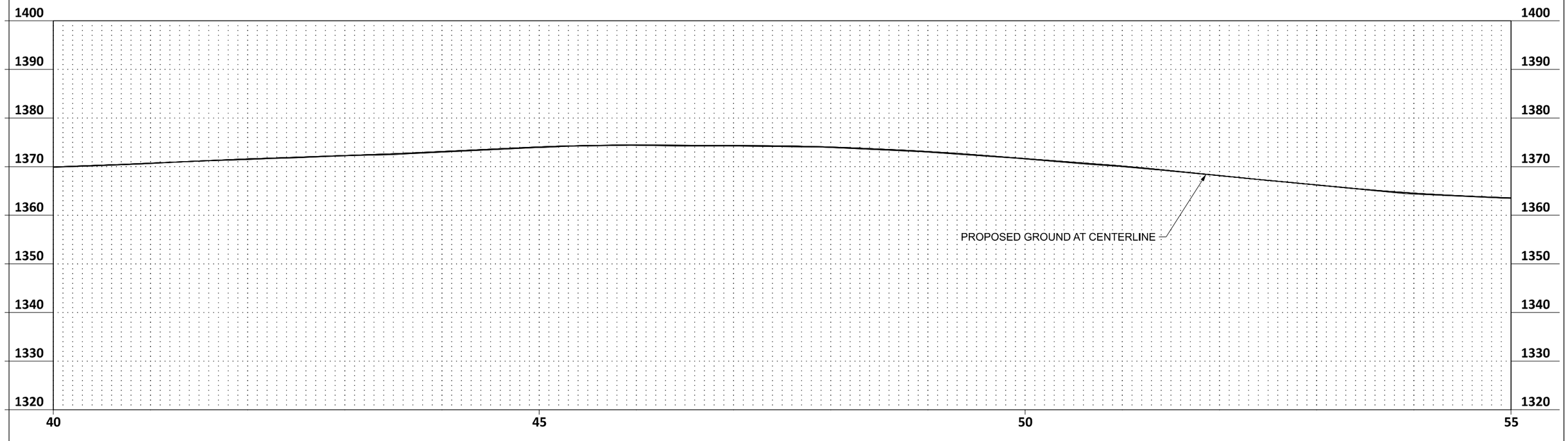
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 17 OF 125 SHEETS





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S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 18 OF 125 SHEETS

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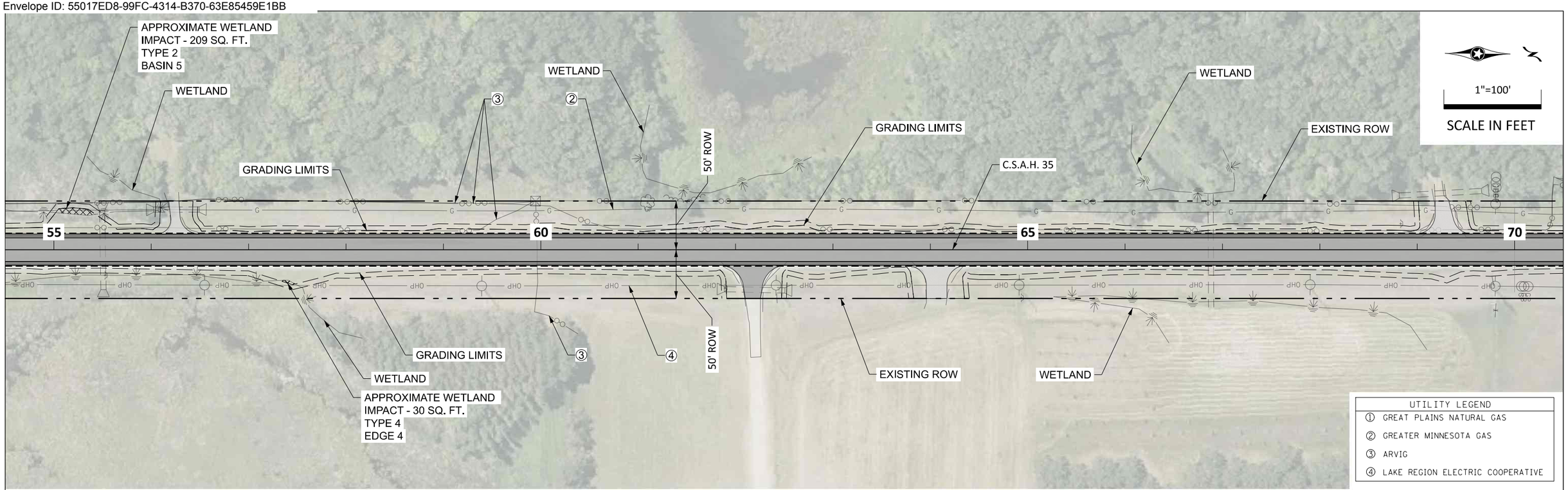

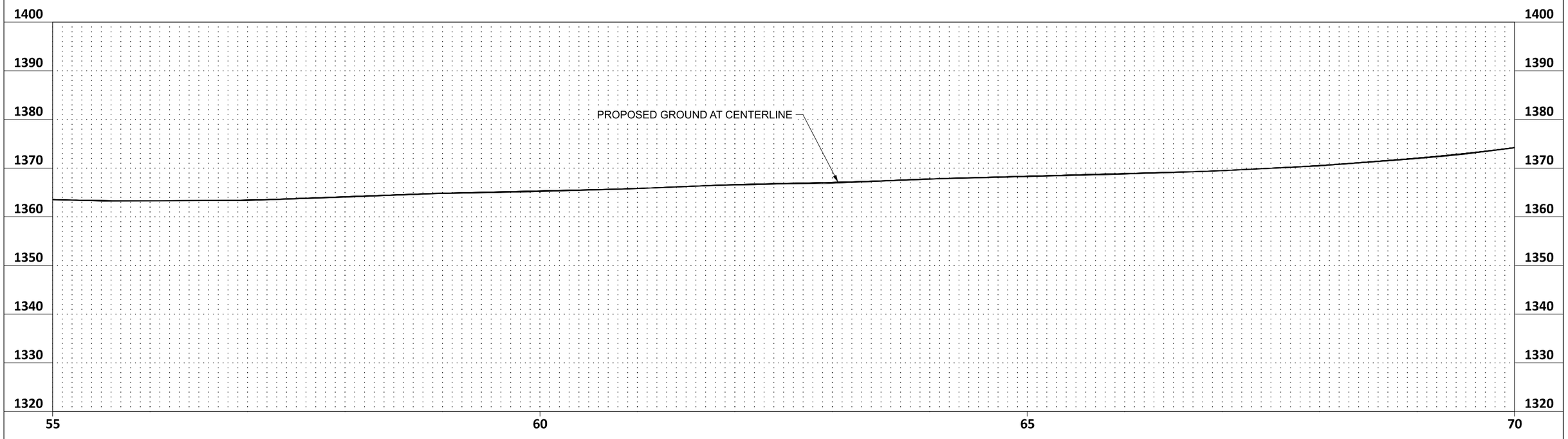

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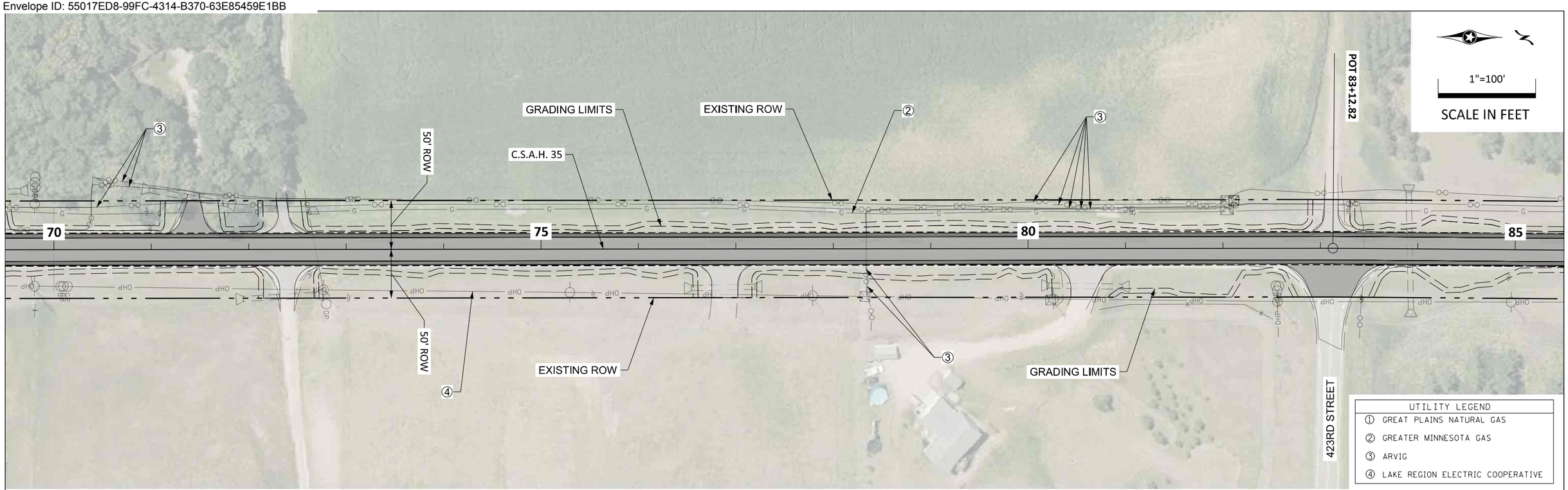

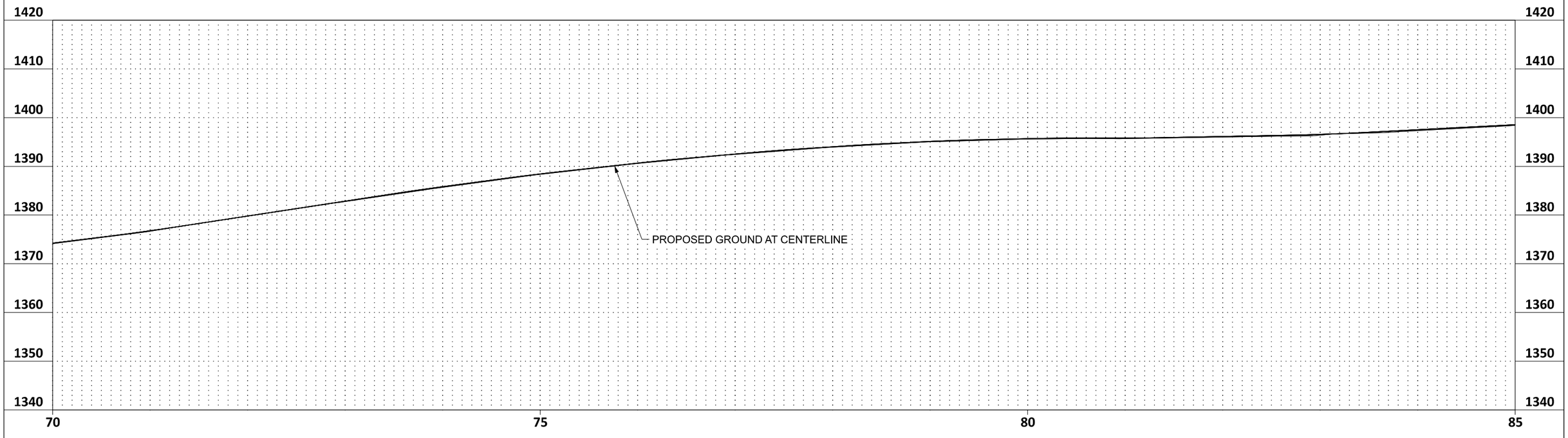

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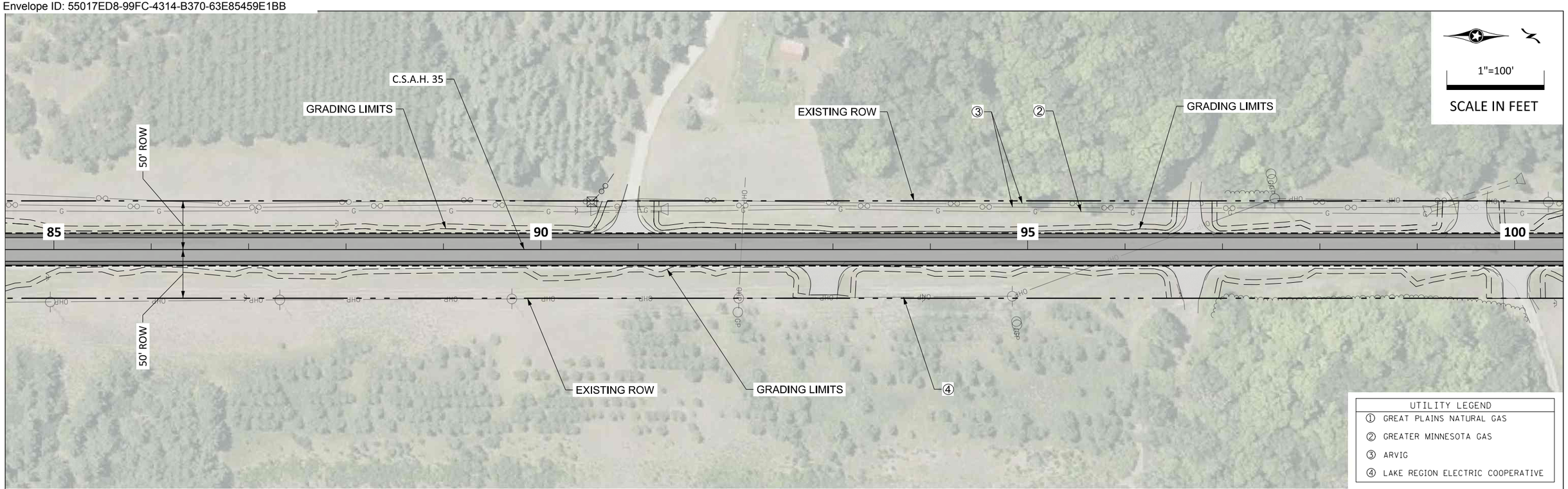

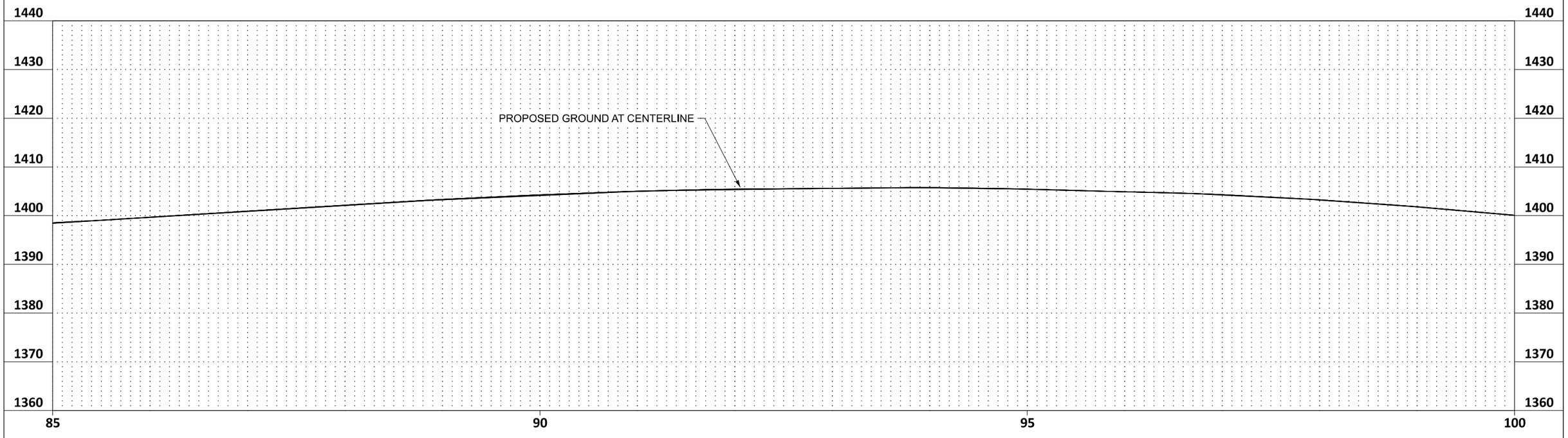

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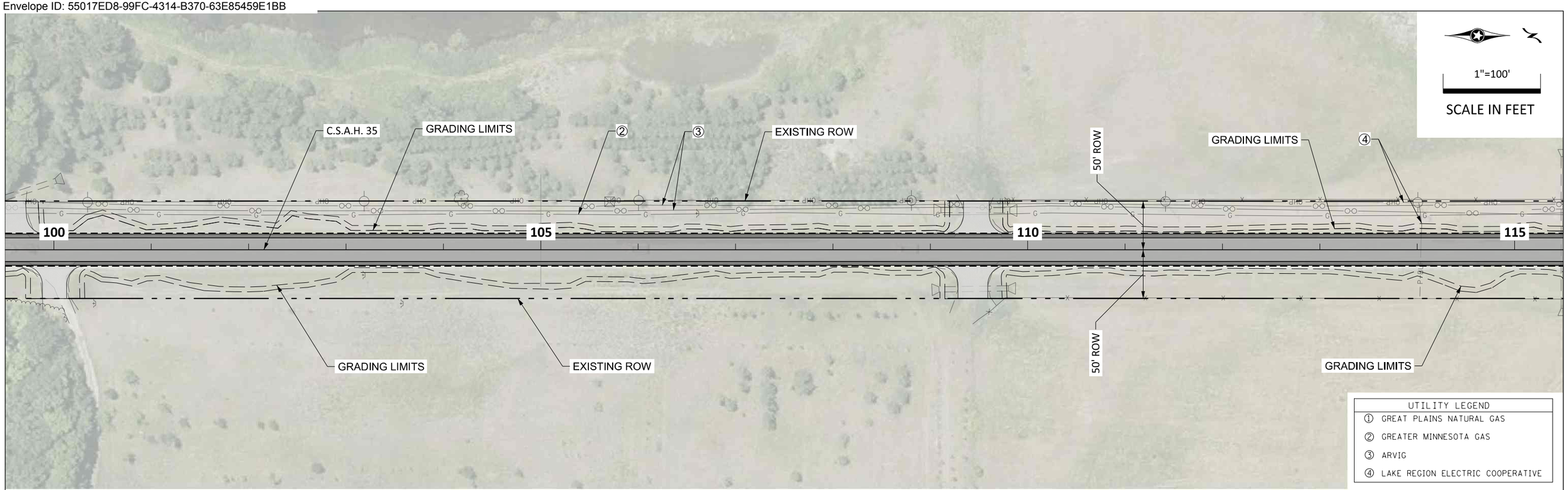
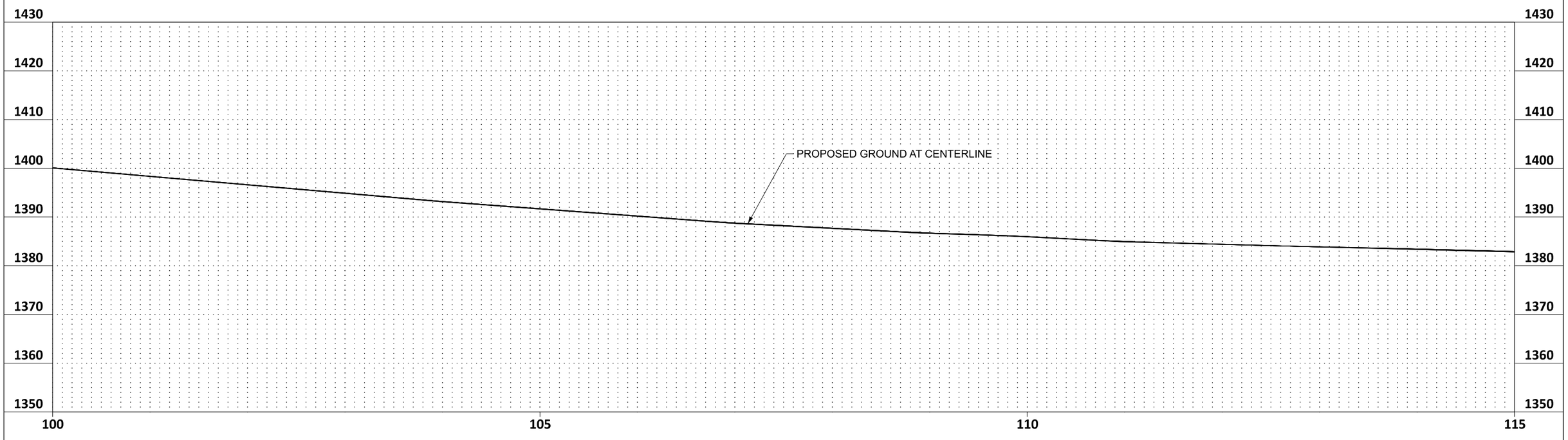
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 21 OF 125 SHEETS





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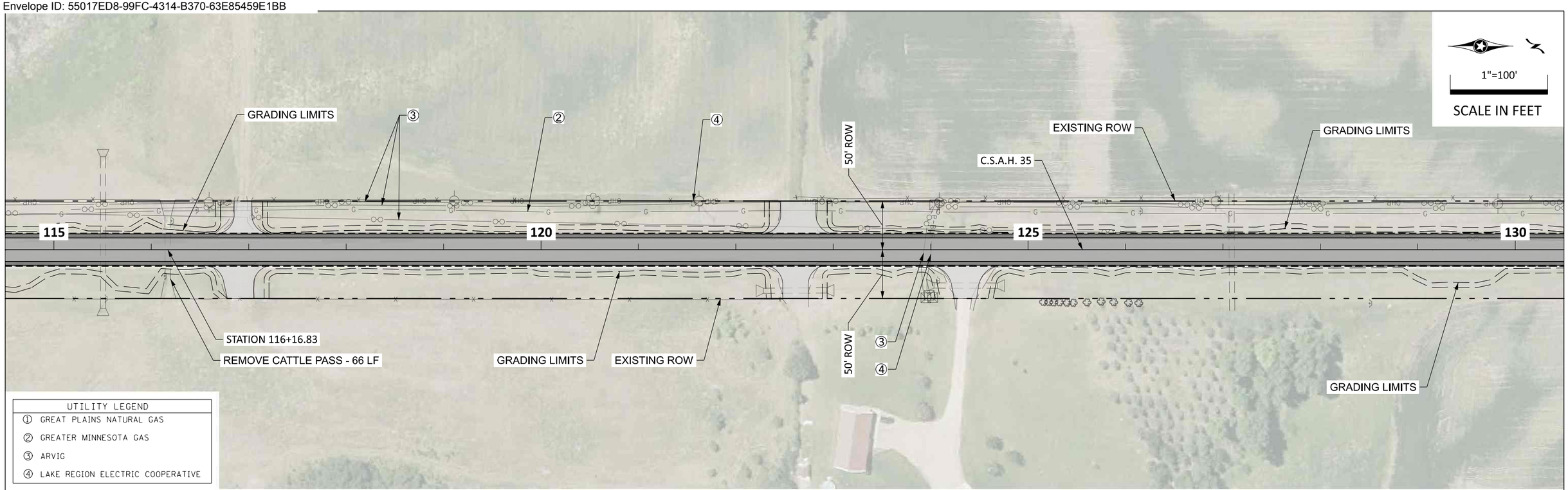
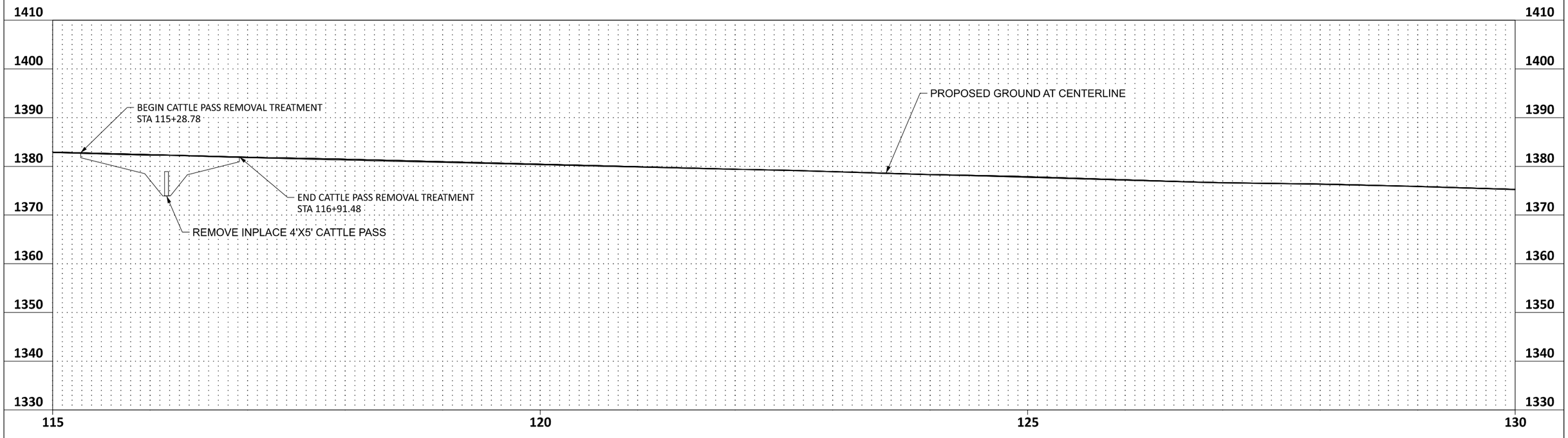
CONSTRUCTION PLAN & PROFILE - SOUTH

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 22 OF 125 SHEETS





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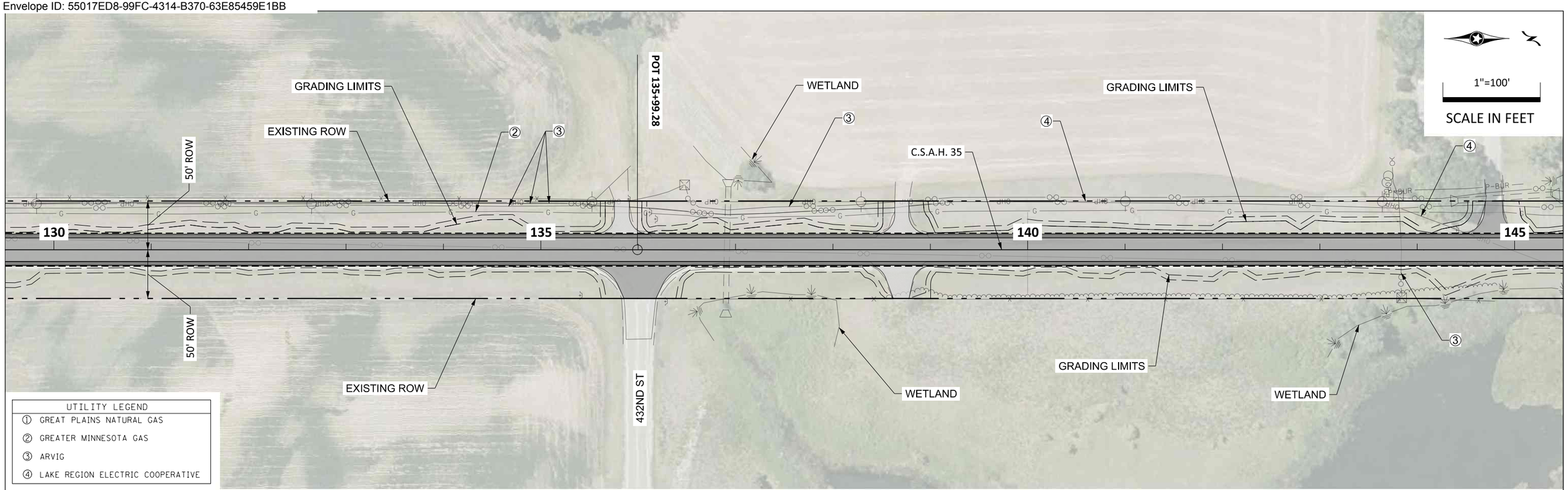
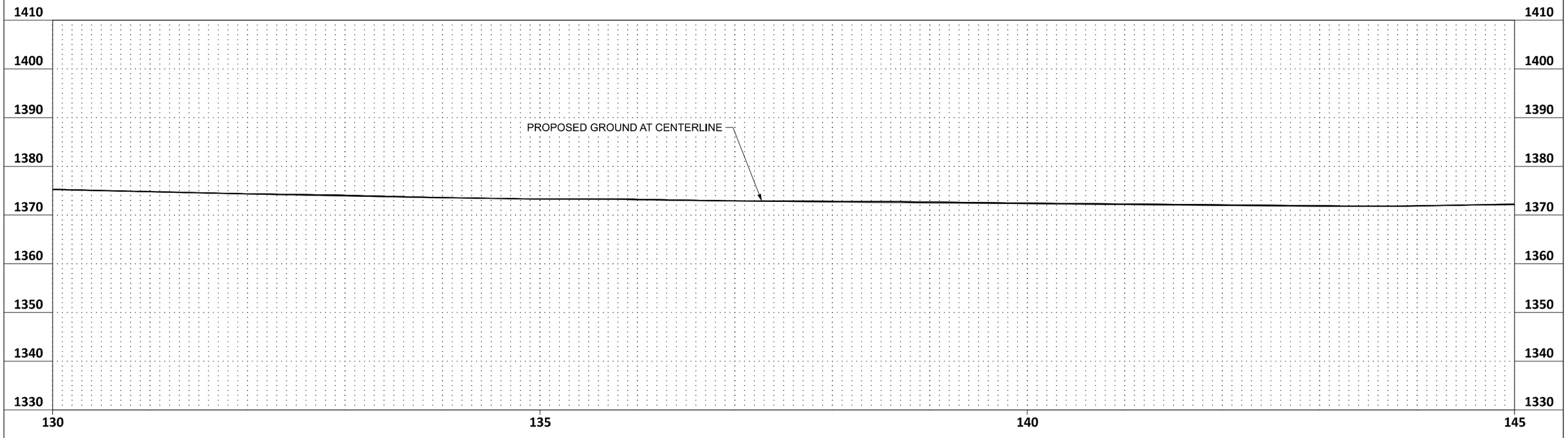
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 23 OF 125 SHEETS





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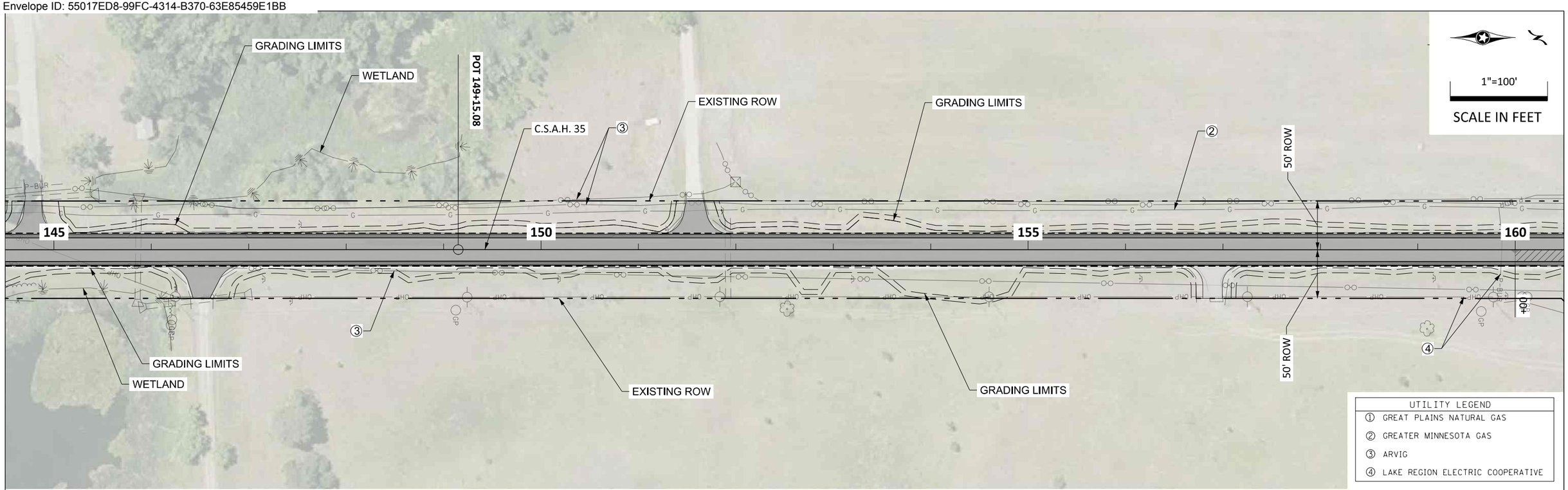
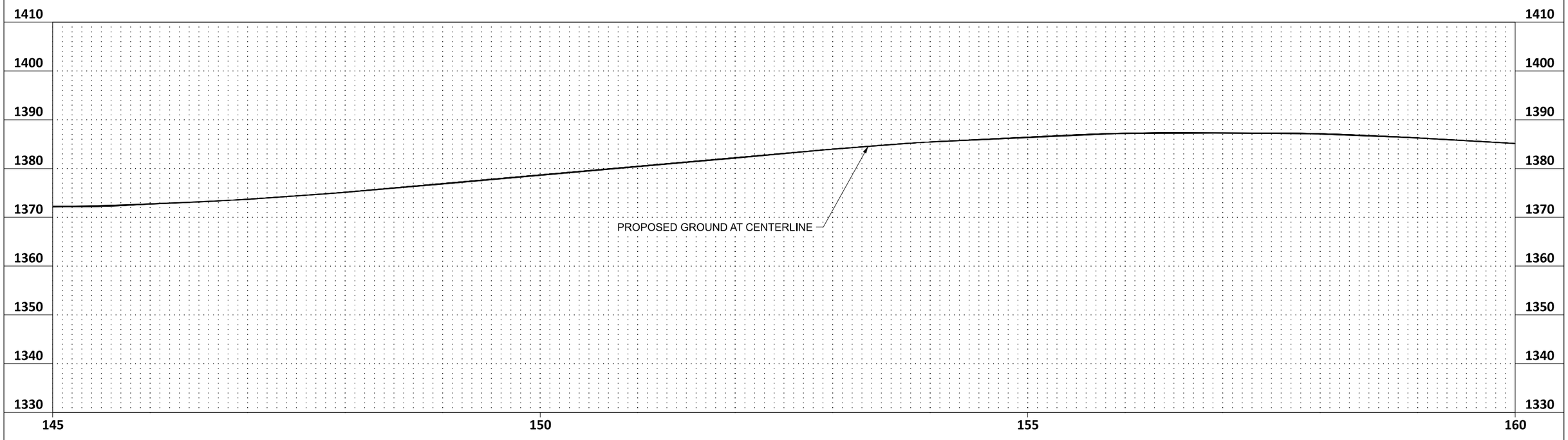
CONSTRUCTION PLAN & PROFILE - SOUTH

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 24 OF 125 SHEETS





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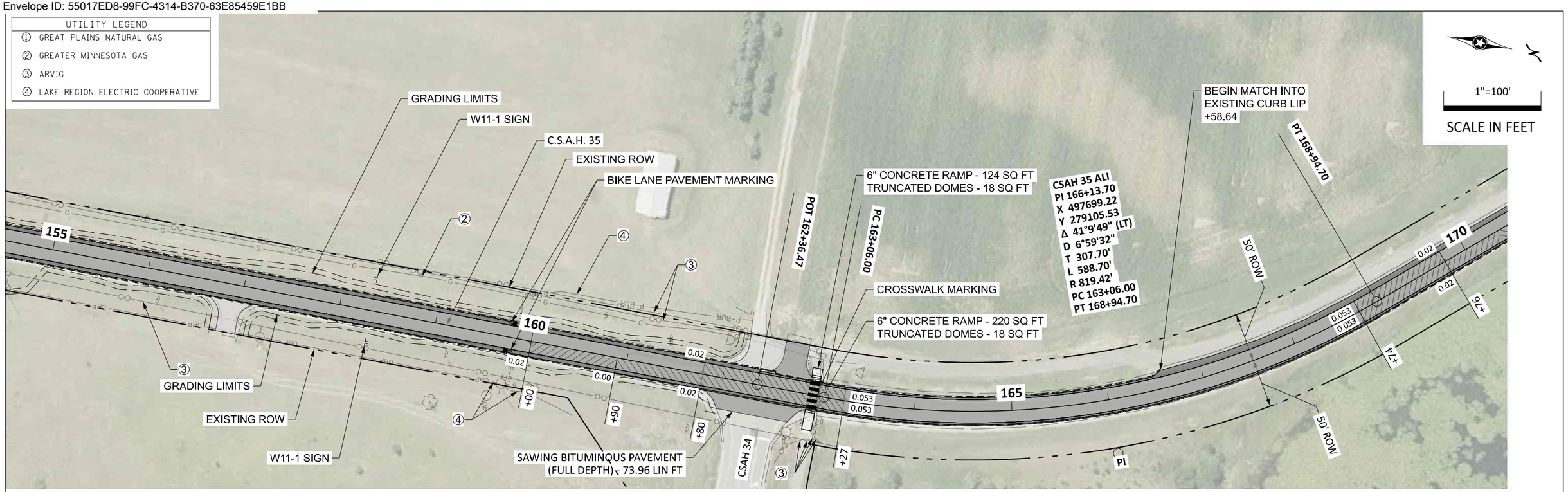
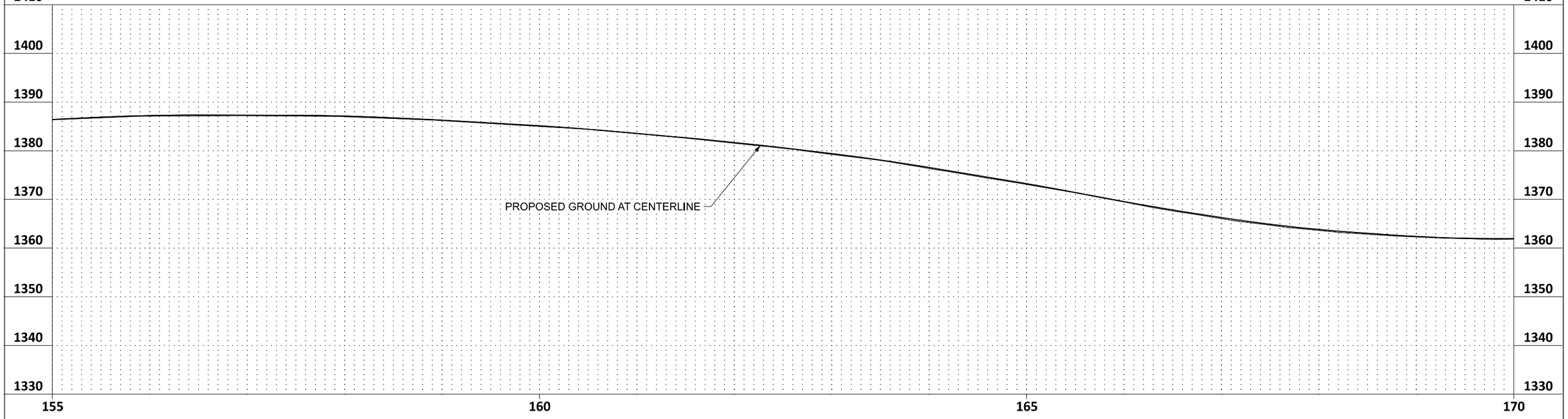
CONSTRUCTION PLAN & PROFILE - SOUTH

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 25 OF 125 SHEETS

UTILITY LEGEND
① GREAT PLAINS NATURAL GAS
② GREATER MINNESOTA GAS
③ ARVIG
④ LAKE REGION ELECTRIC COOPERATIVE





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REVIEWER: NAA		04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.
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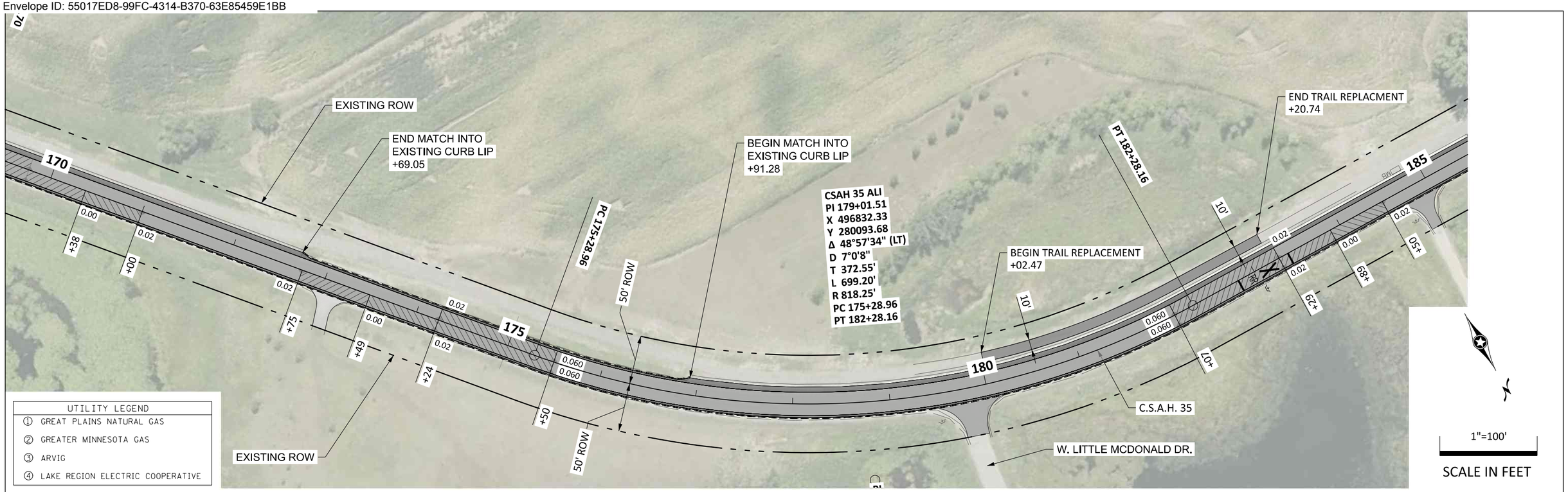
CONSTRUCTION PLAN & PROFILE - MIDDLE

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 26 OF 125 SHEETS



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PLOTTED/REVISED: 04/16/25

REVIEWER: NAA		04/16/25	OTTER TAIL COUNTY MINNESOTA
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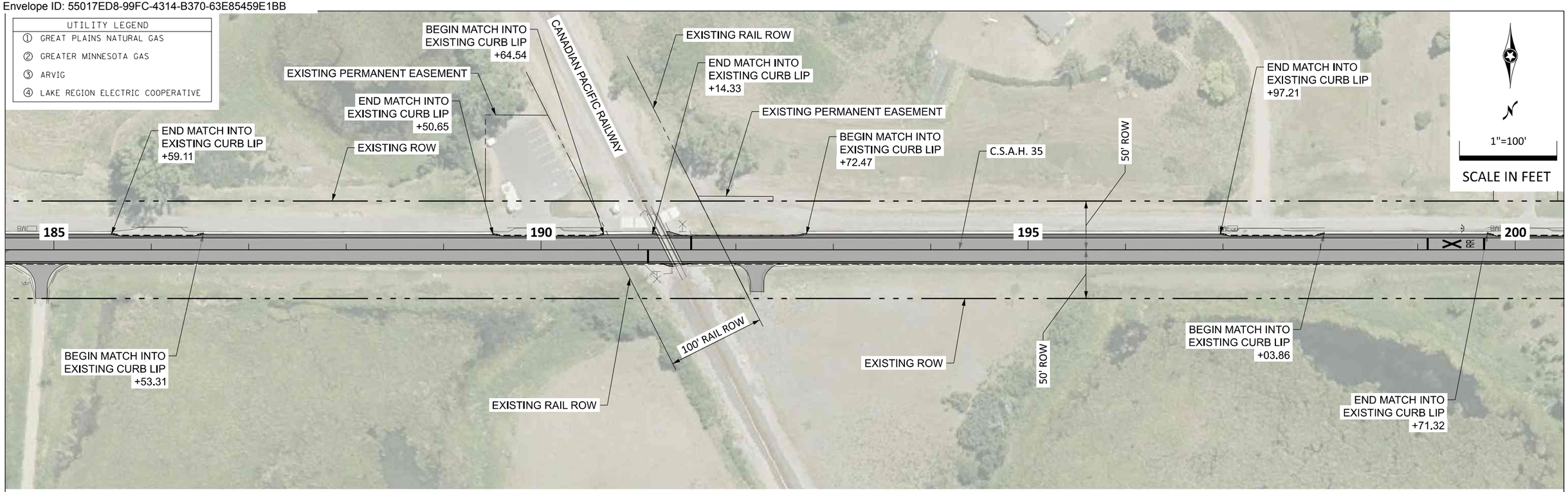
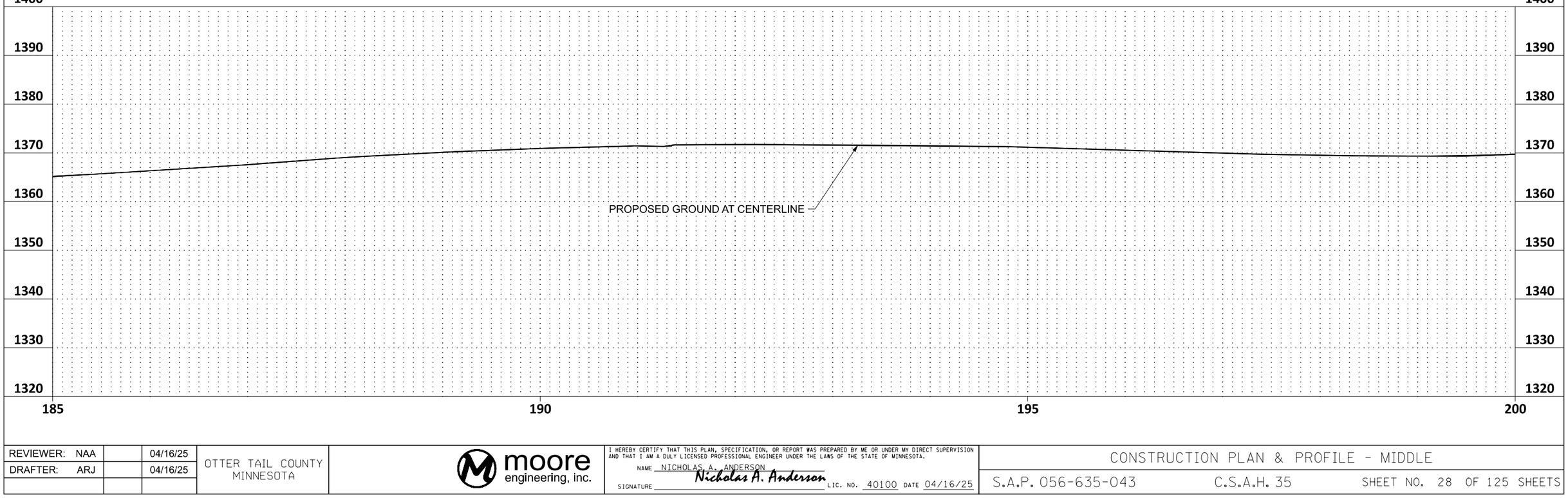
CONSTRUCTION PLAN & PROFILE - MIDDLE

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 27 OF 125 SHEETS

UTILITY LEGEND
① GREAT PLAINS NATURAL GAS
② GREATER MINNESOTA GAS
③ ARVIG
④ LAKE REGION ELECTRIC COOPERATIVE





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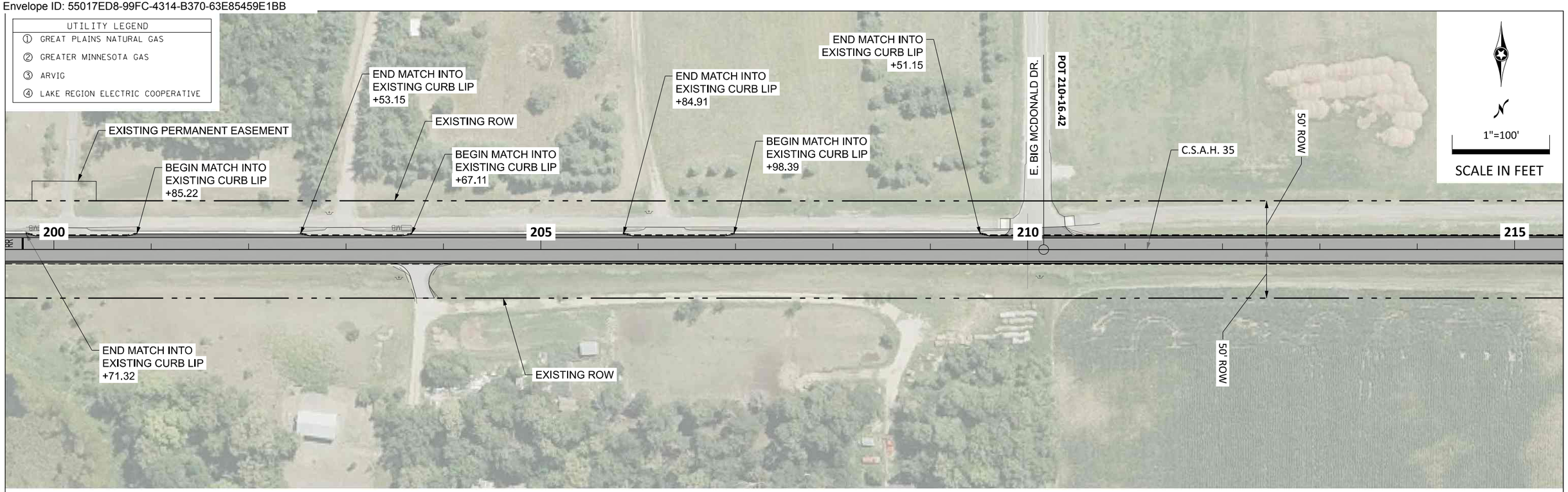
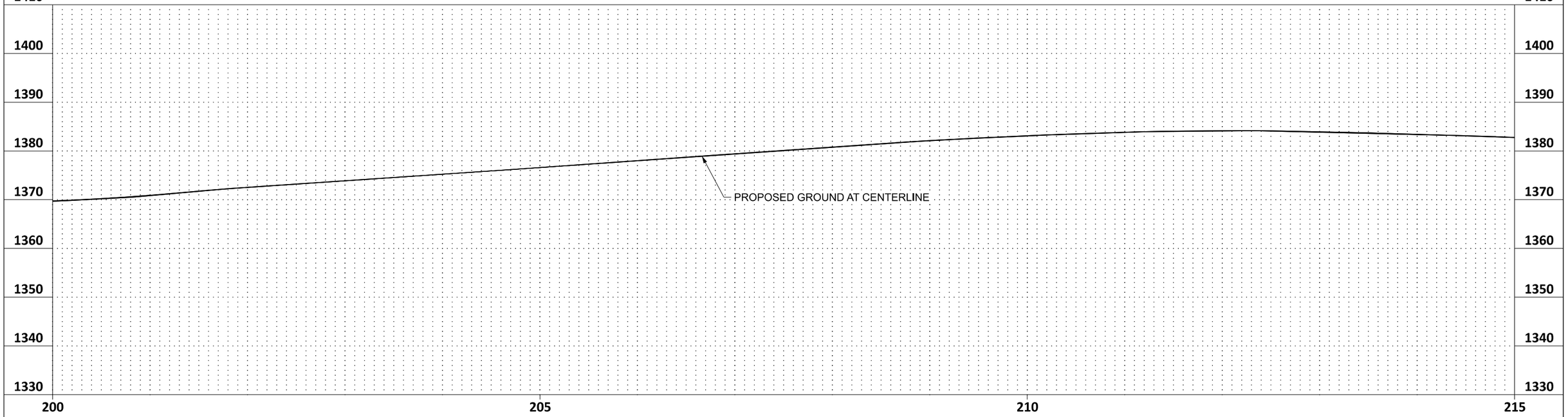
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 28 OF 125 SHEETS

UTILITY LEGEND

① GREAT PLAINS NATURAL GAS
② GREATER MINNESOTA GAS
③ ARVIG
④ LAKE REGION ELECTRIC COOPERATIVE





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PLOTTED/REVISED: 04/16/25

REVIEWER: NAA		04/16/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ		04/16/25	

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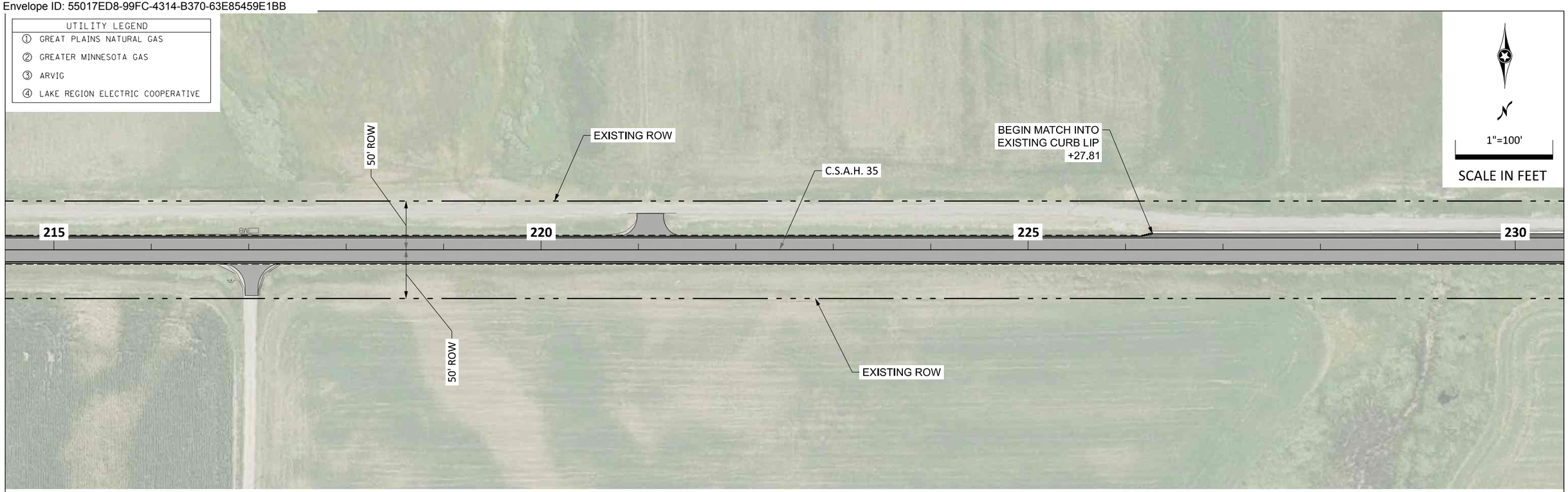
NAME NICHOLAS A. ANDERSON

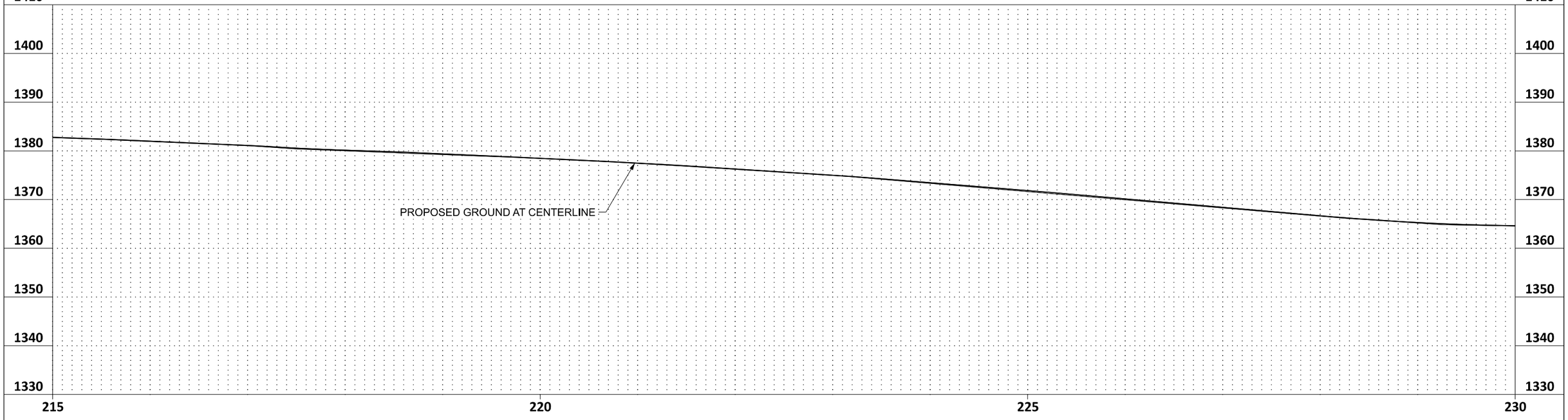
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

CONSTRUCTION PLAN & PROFILE - MIDDLE

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 29 OF 125 SHEETS

UTILITY LEGEND
① GREAT PLAINS NATURAL GAS
② GREATER MINNESOTA GAS
③ ARVIG
④ LAKE REGION ELECTRIC COOPERATIVE





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REVIEWER: NAA		04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.	CONSTRUCTION PLAN & PROFILE - MIDDLE
DRAFTER: ARJ		04/16/25			S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 30 OF 125 SHEETS

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UTILITY LEGEND
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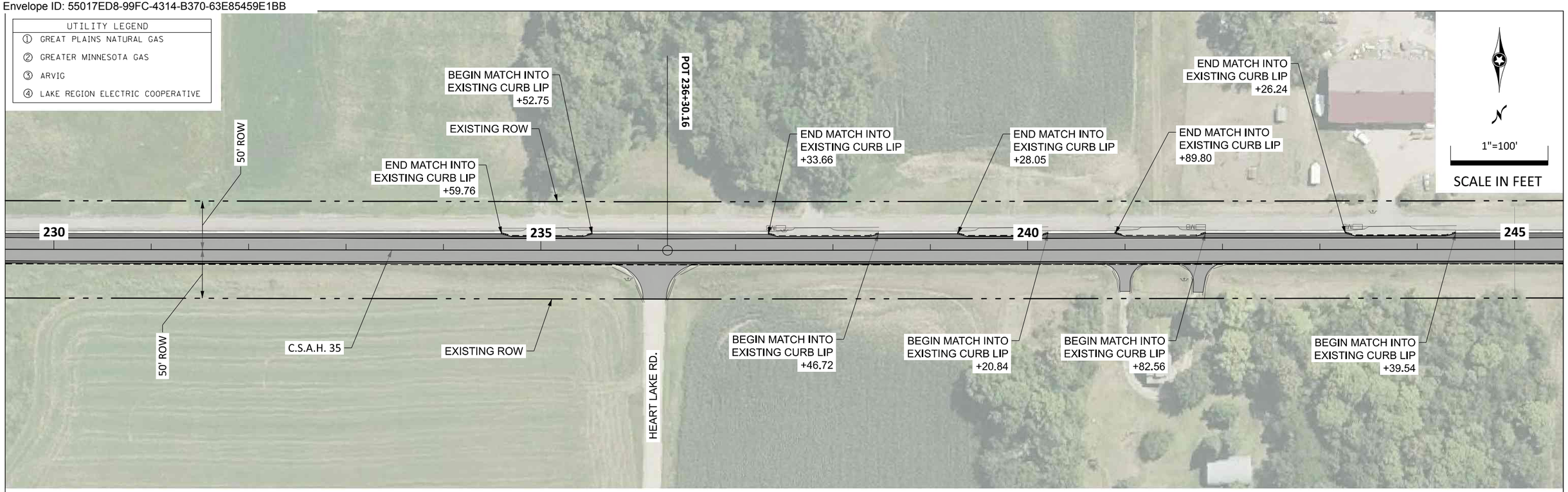

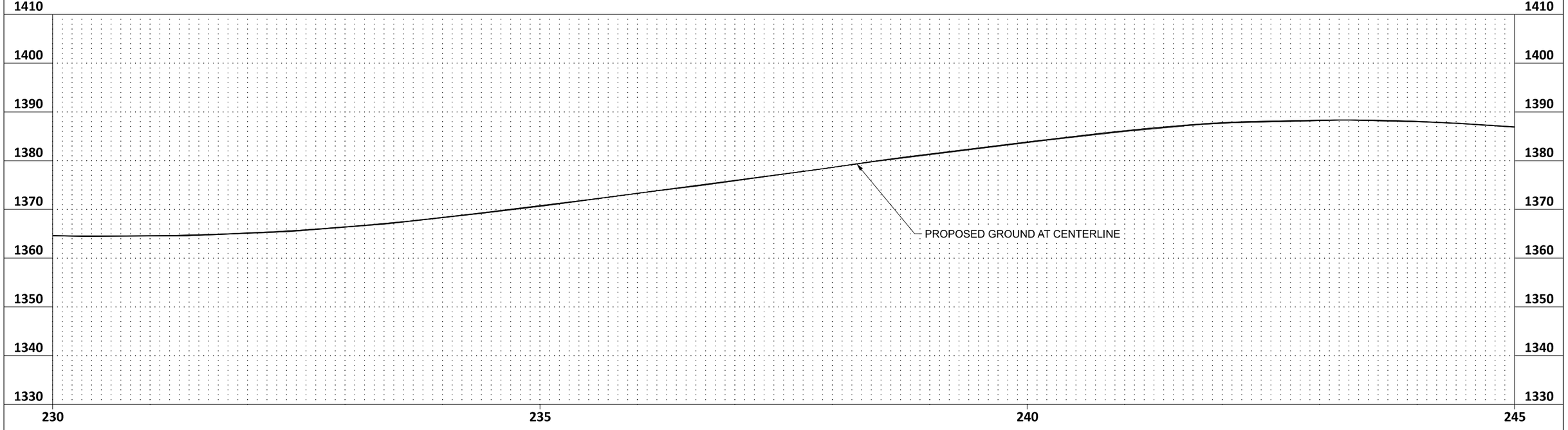

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CONSTRUCTION PLAN & PROFILE - MIDDLE

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 31 OF 125 SHEETS

UTILITY LEGEND
① GREAT PLAINS NATURAL GAS
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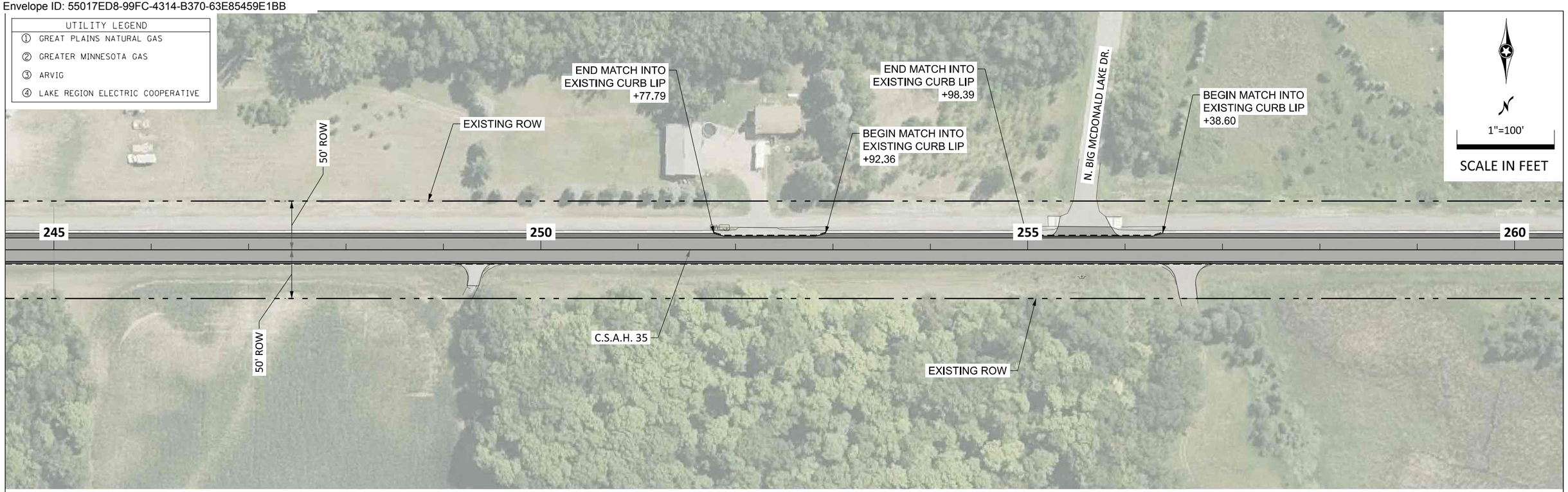

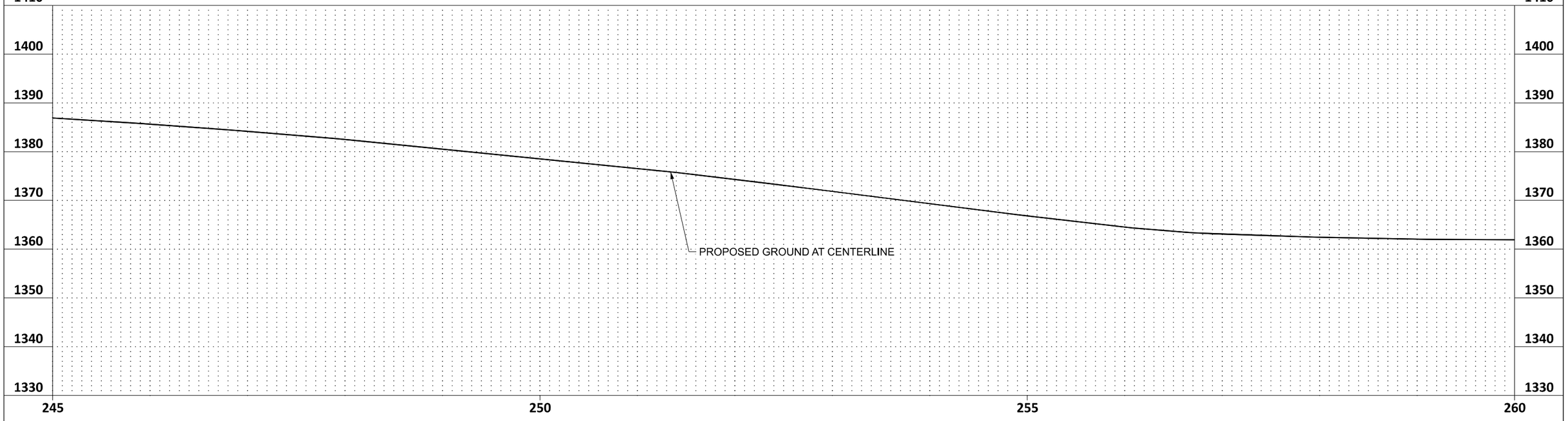

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S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 32 OF 125 SHEETS

UTILITY LEGEND
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③ ARVIG
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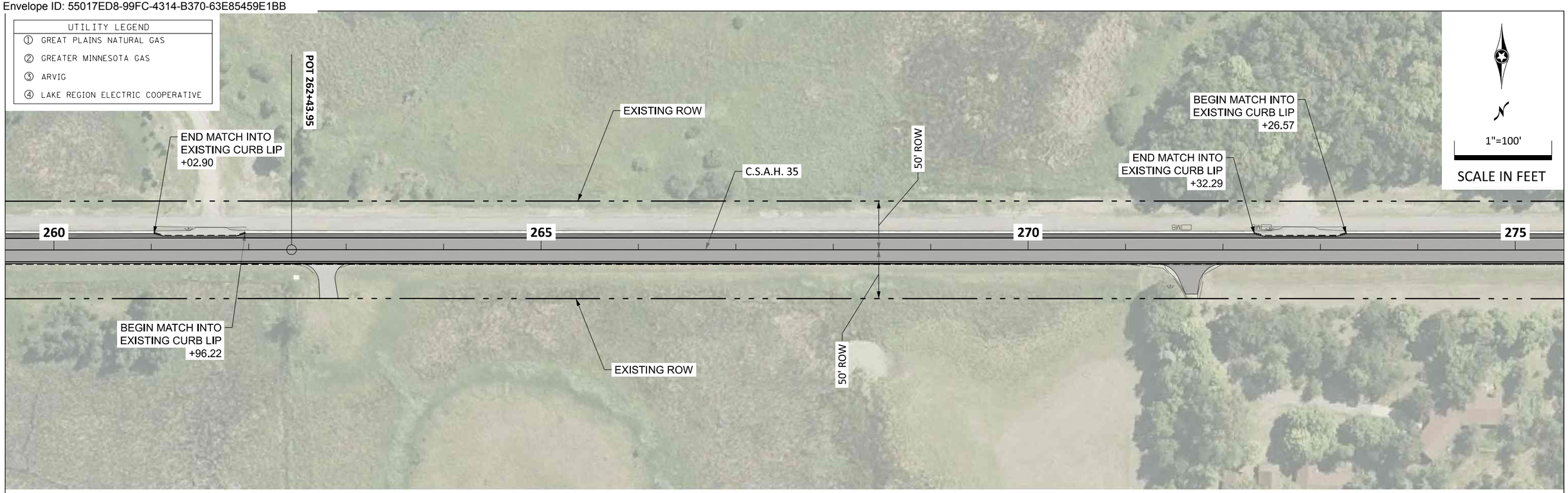

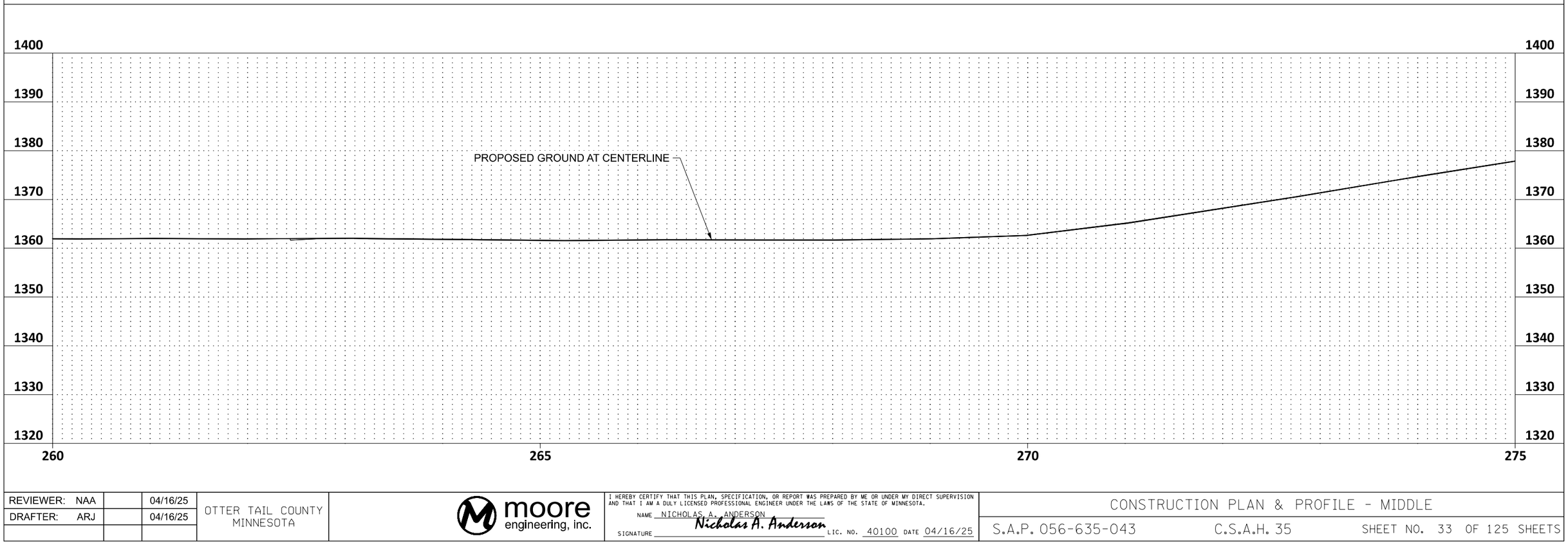

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CONSTRUCTION PLAN & PROFILE - MIDDLE

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 33 OF 125 SHEETS

UTILITY LEGEND
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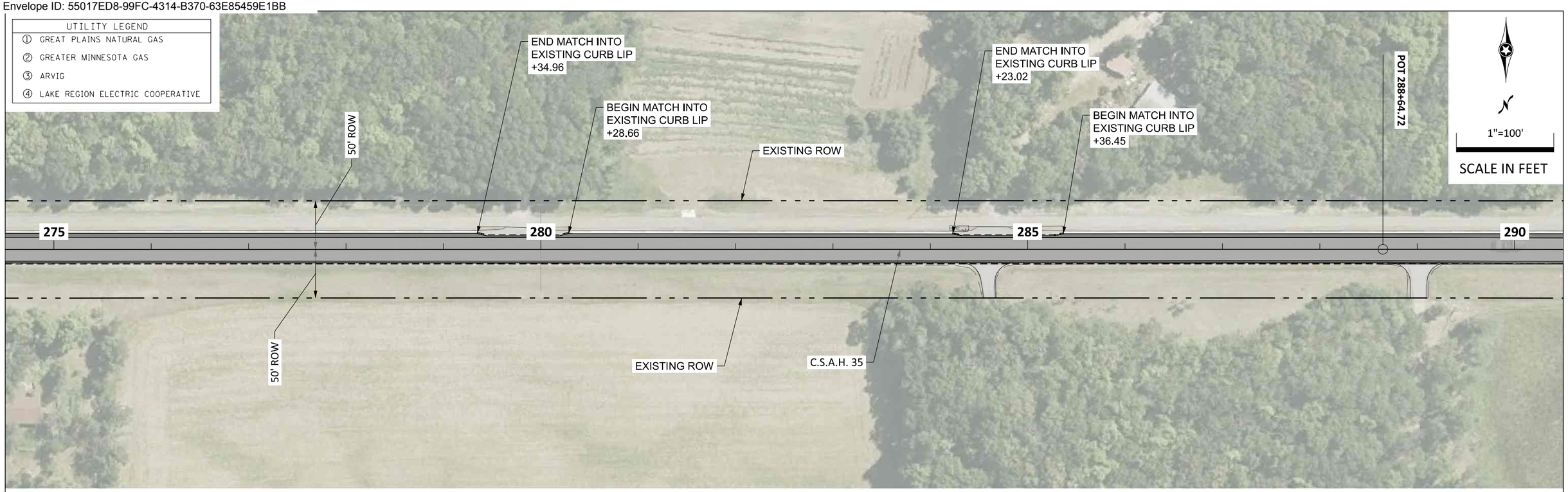

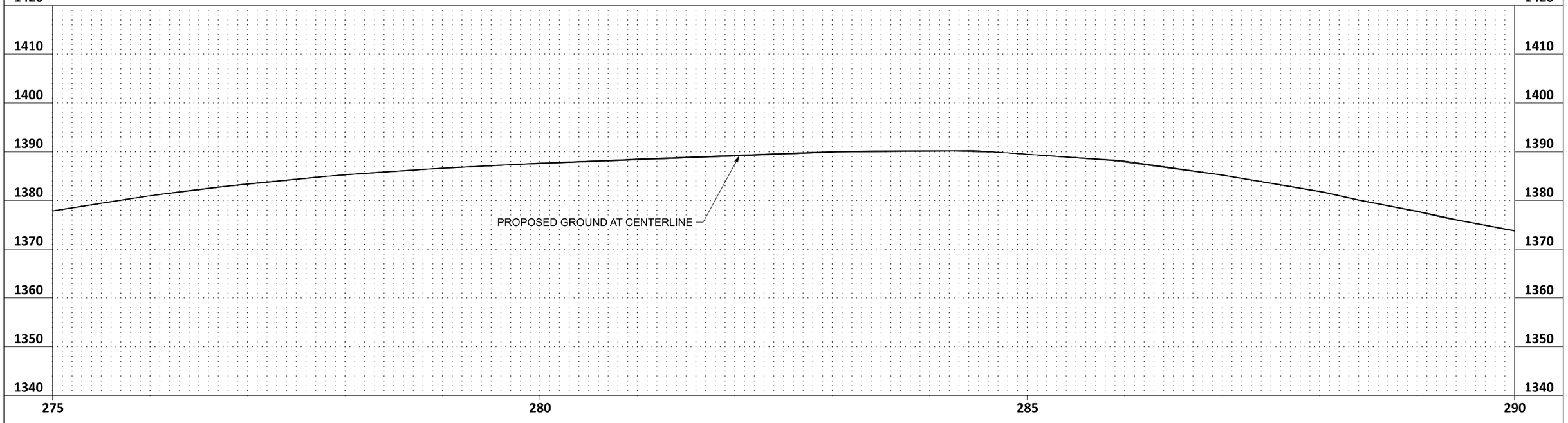

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CONSTRUCTION PLAN & PROFILE - MIDDLE

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 34 OF 125 SHEETS

UTILITY LEGEND
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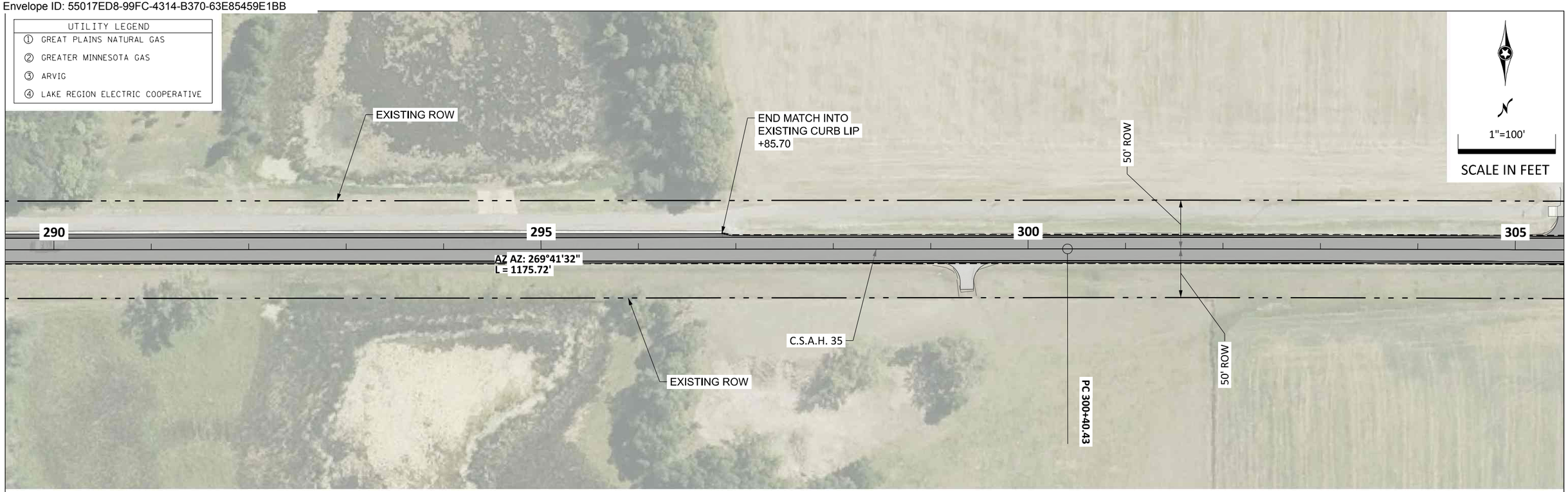

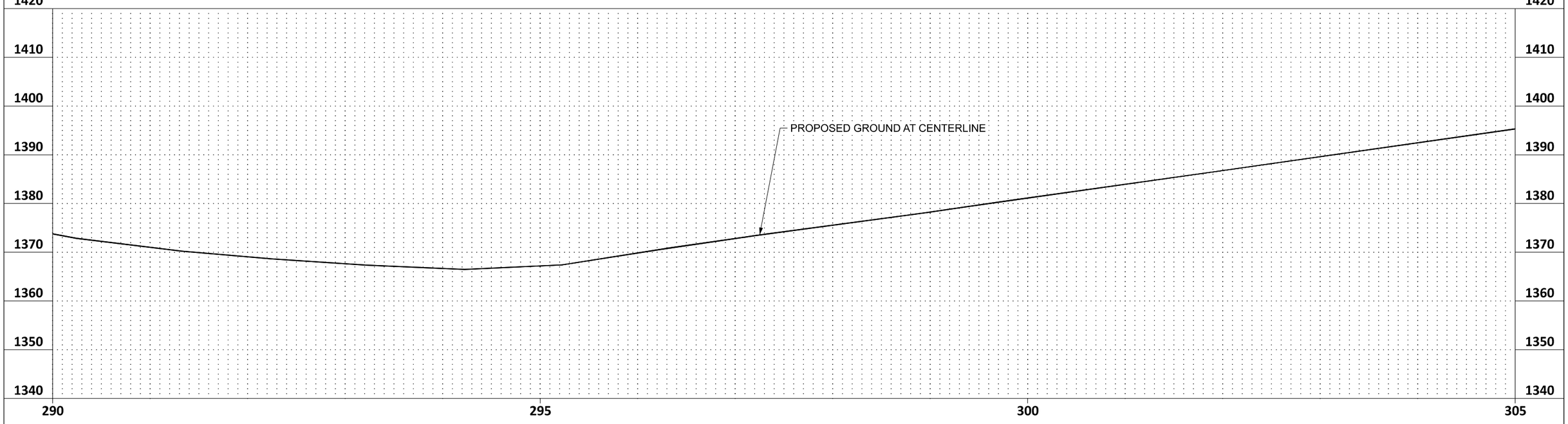

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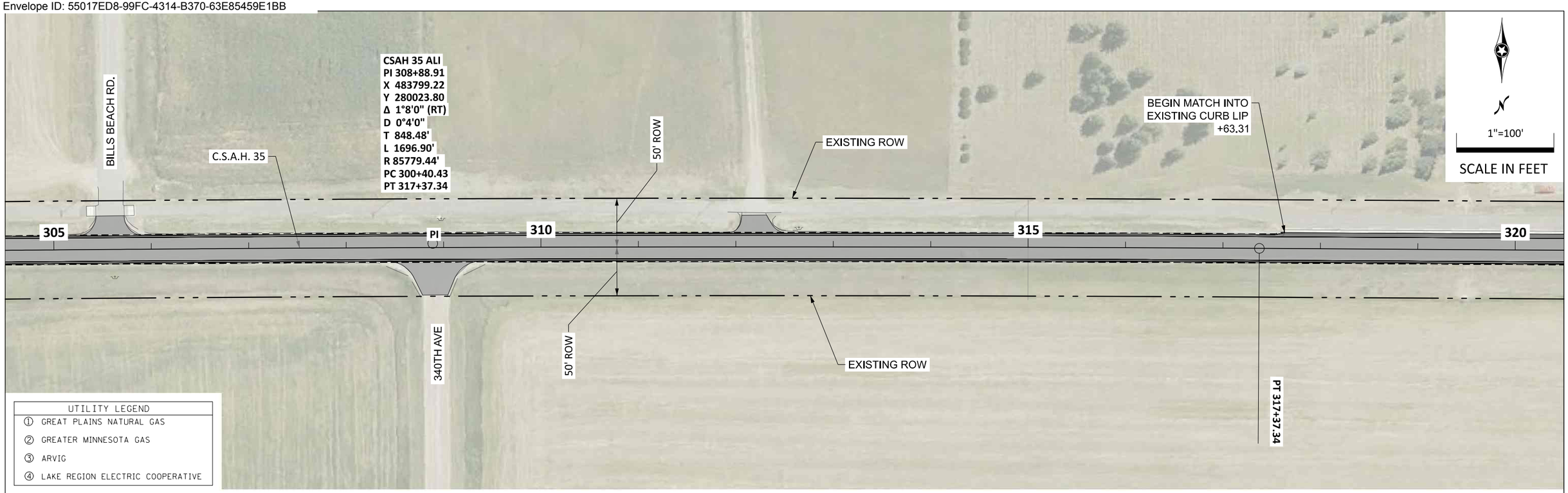
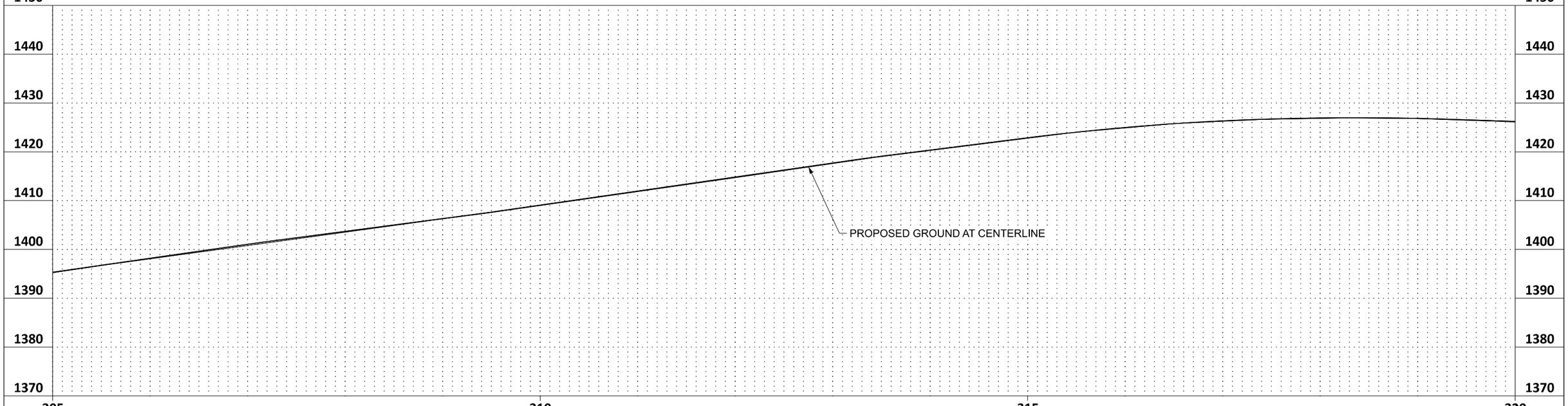
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 35 OF 125 SHEETS





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DRAFTER: ARJ		04/16/25			S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 36 OF 125 SHEETS

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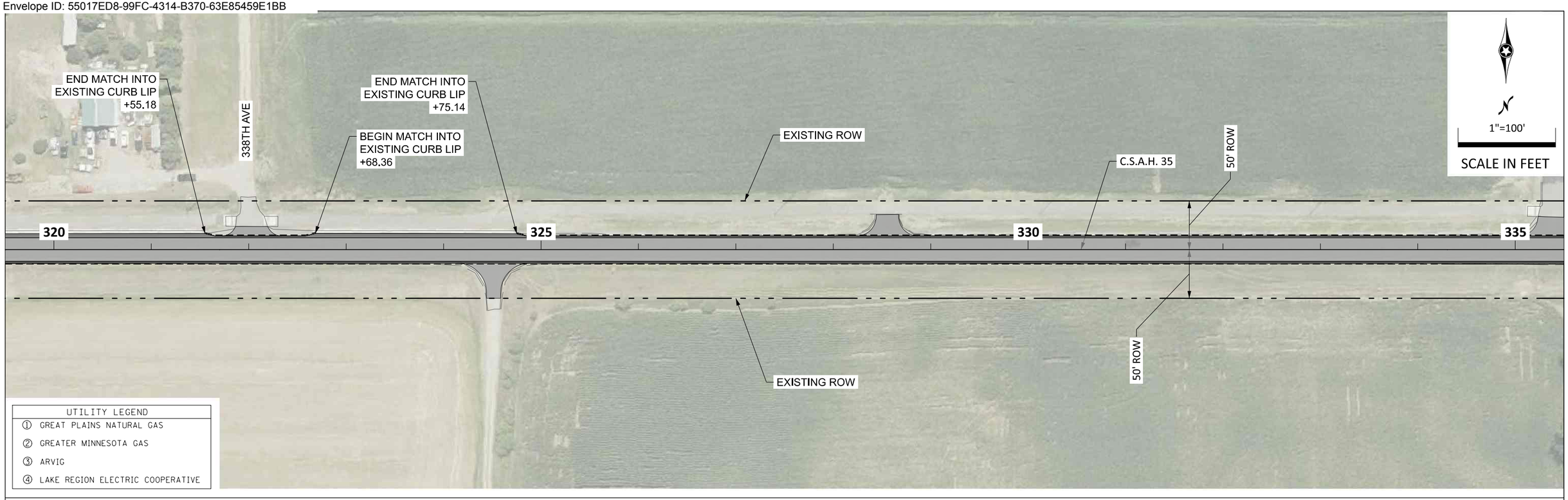

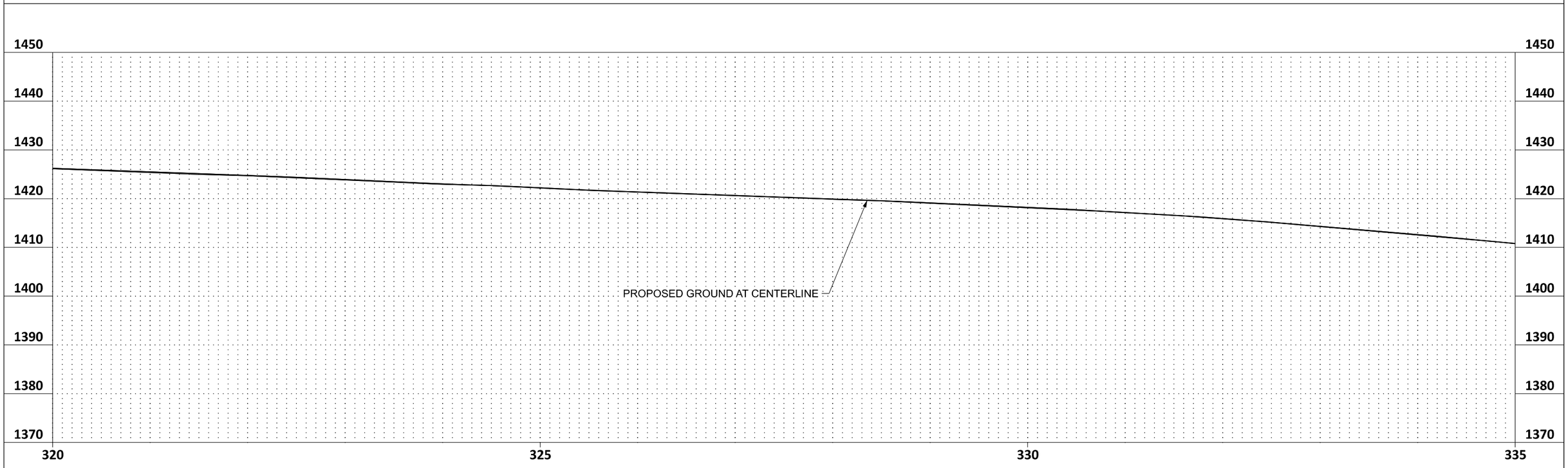

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DRAFTER: ARJ		04/16/25	

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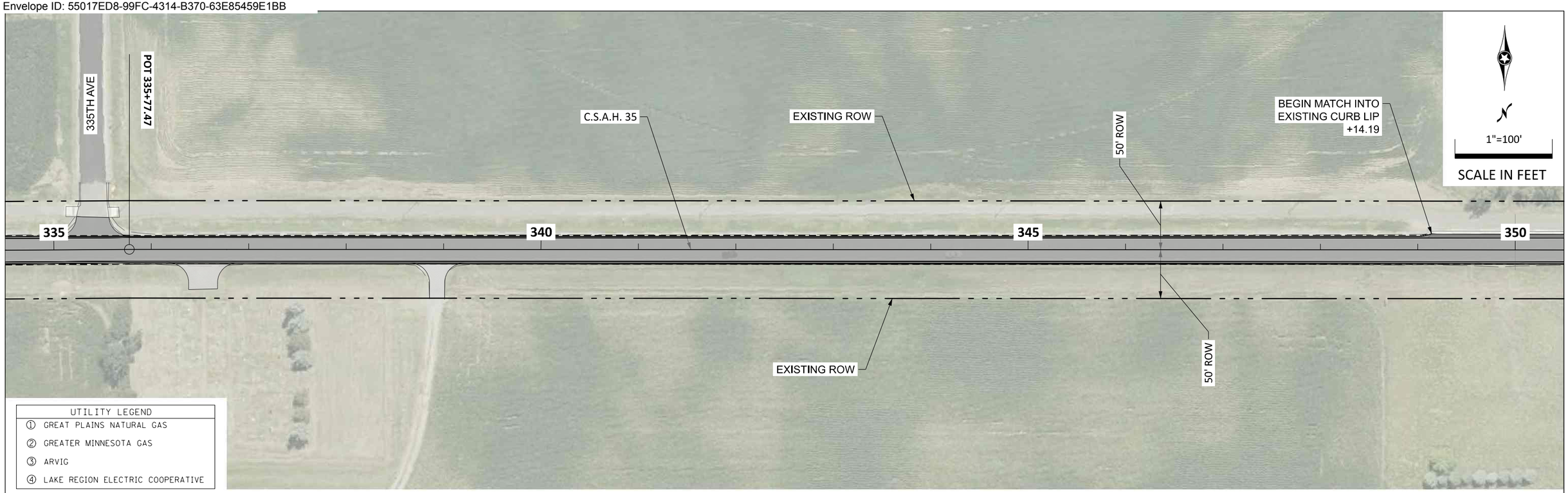
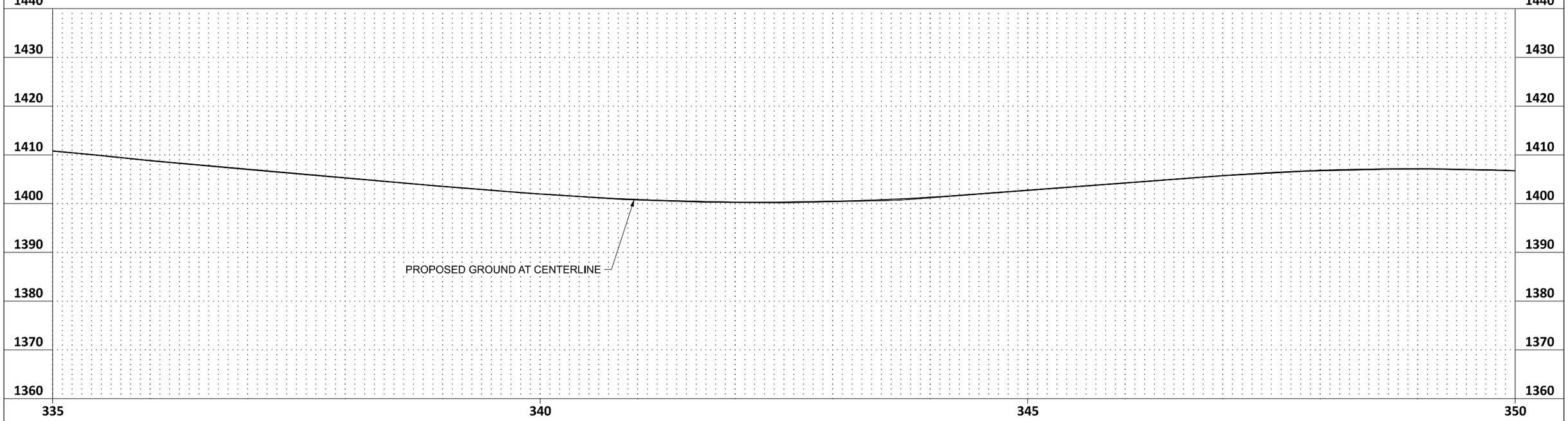
CONSTRUCTION PLAN & PROFILE - MIDDLE

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 37 OF 125 SHEETS





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DRAFTER: ARJ		04/16/25			S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 38 OF 125 SHEETS

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UTILITY LEGEND
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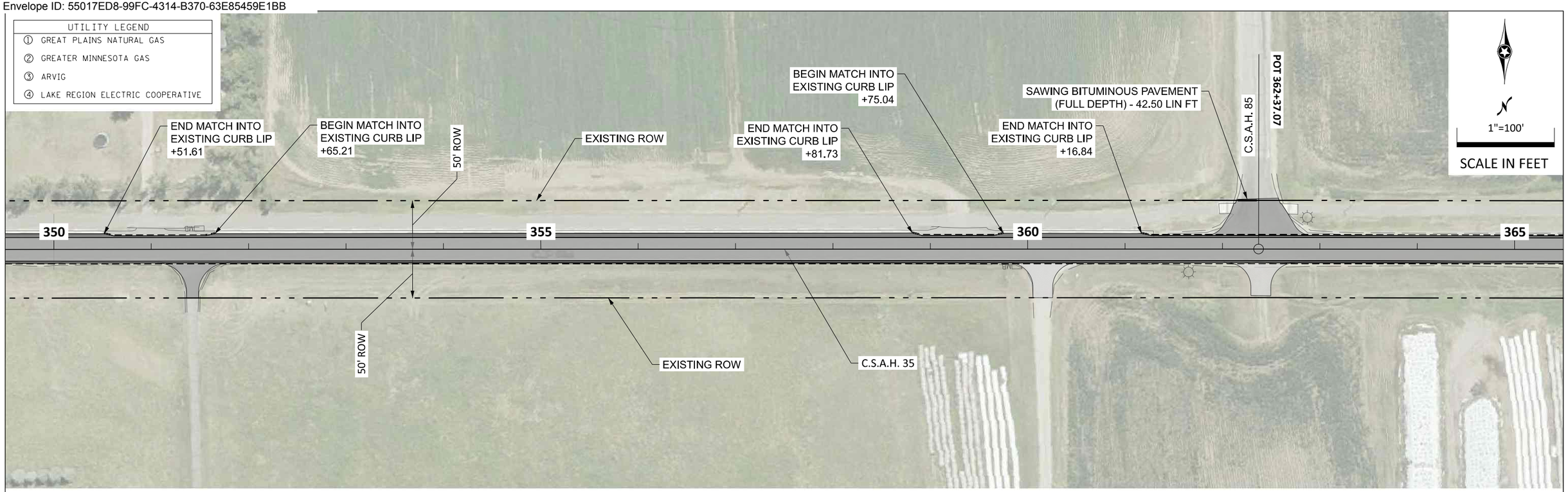

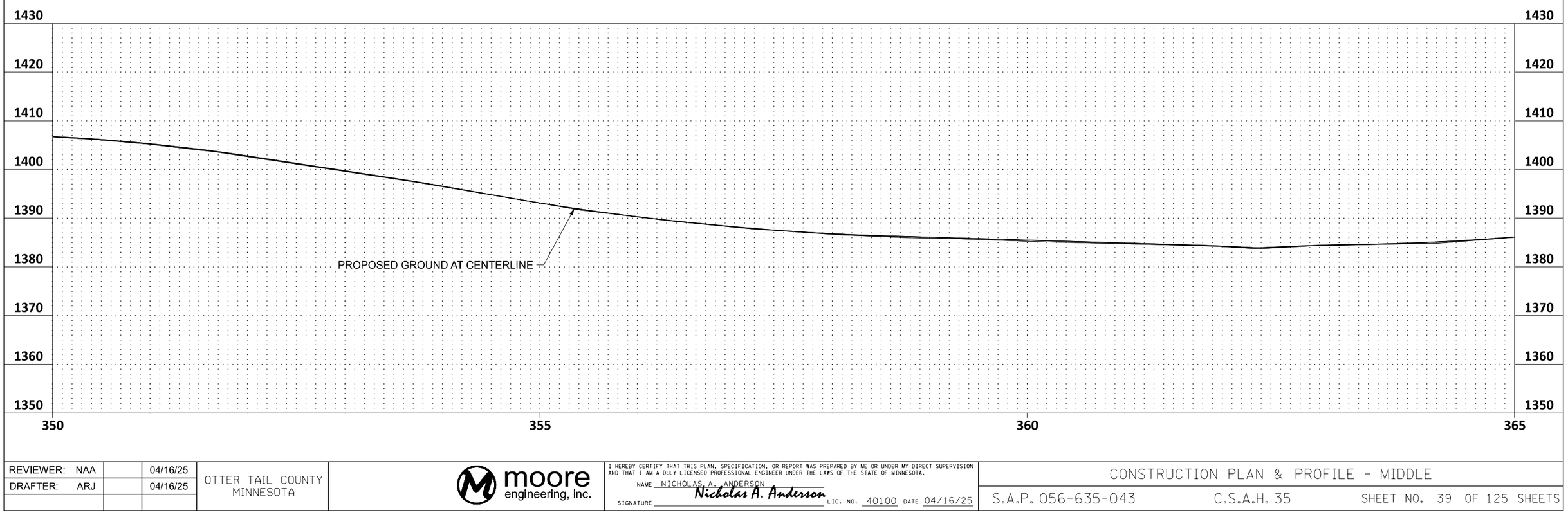

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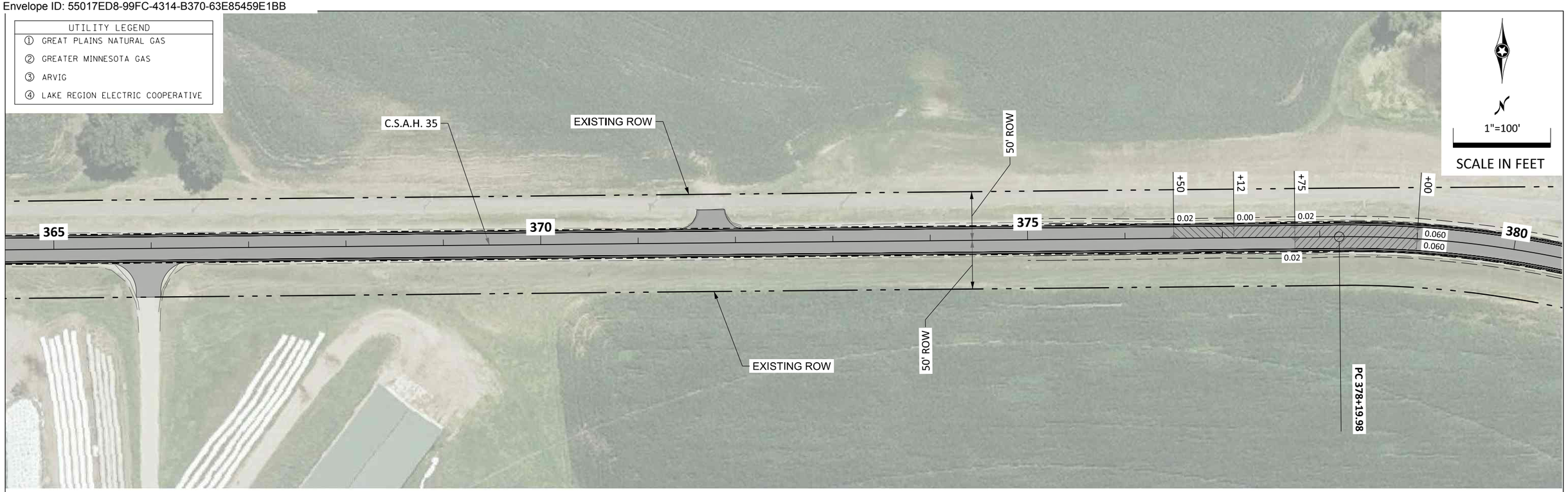

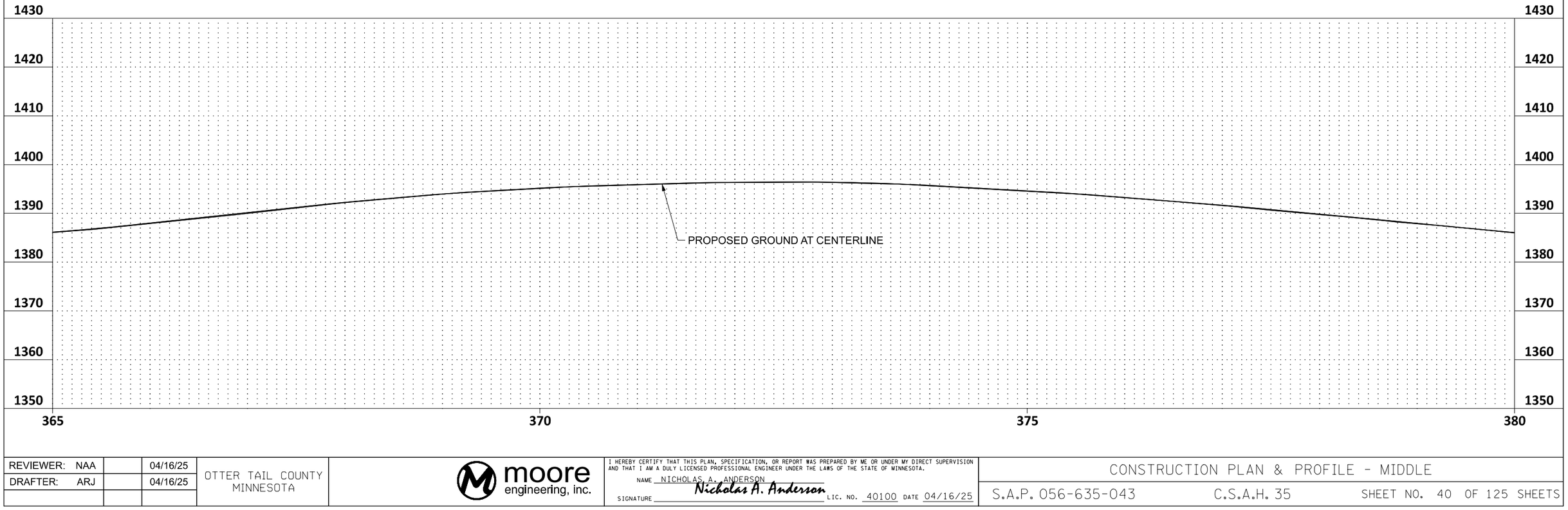

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DRAFTER: ARJ		04/16/25			S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 40 OF 125 SHEETS

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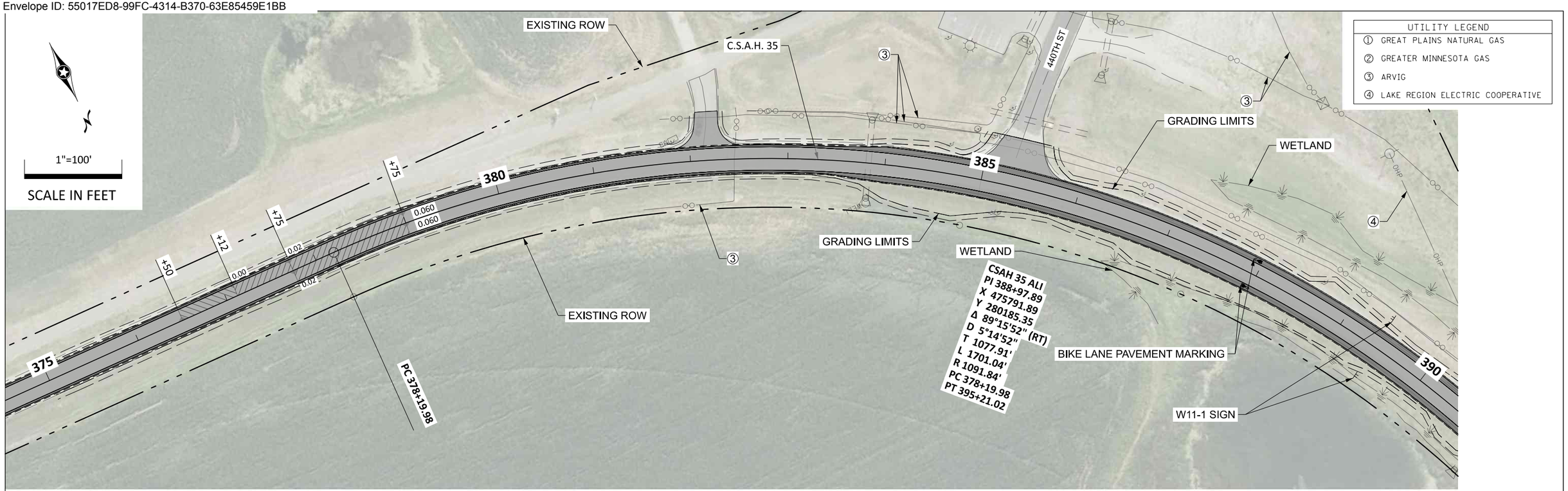

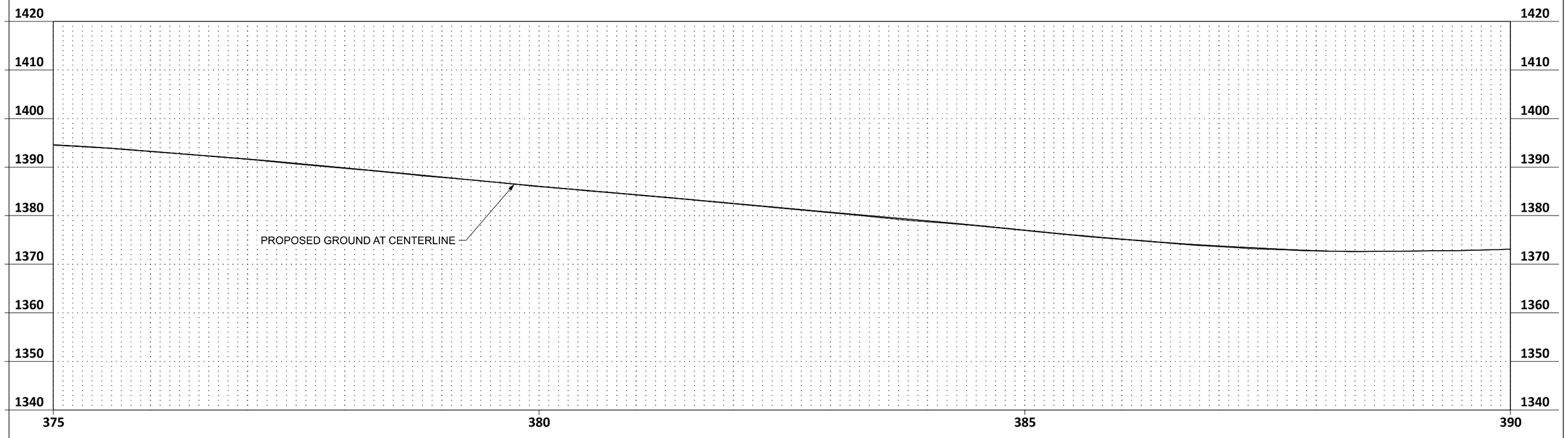

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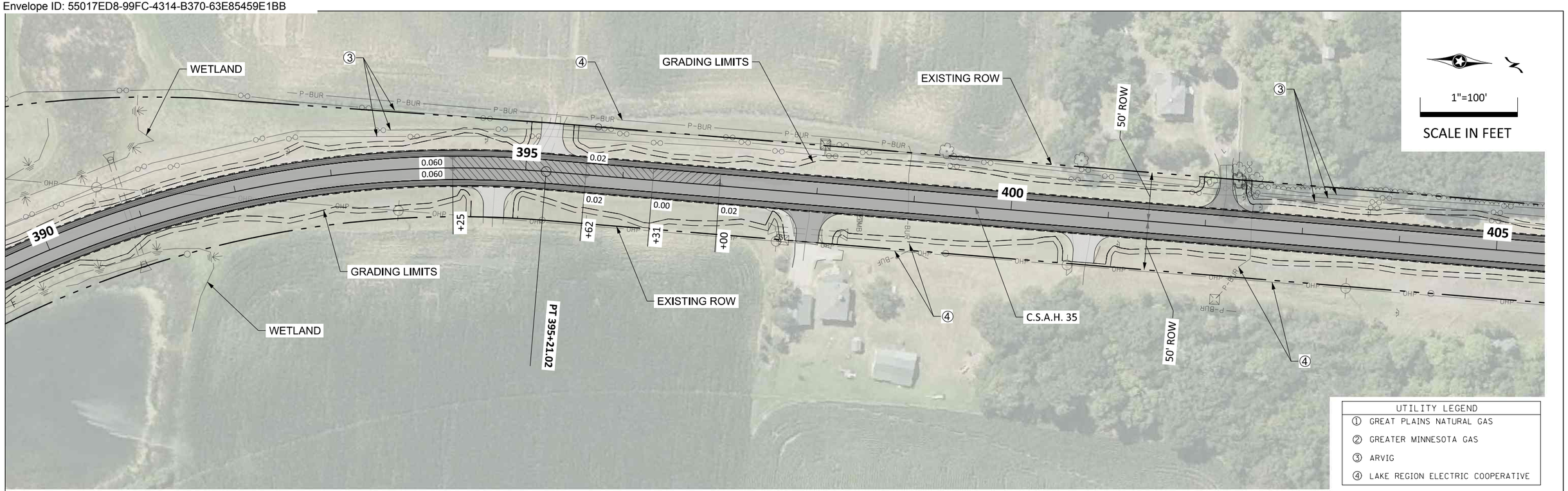
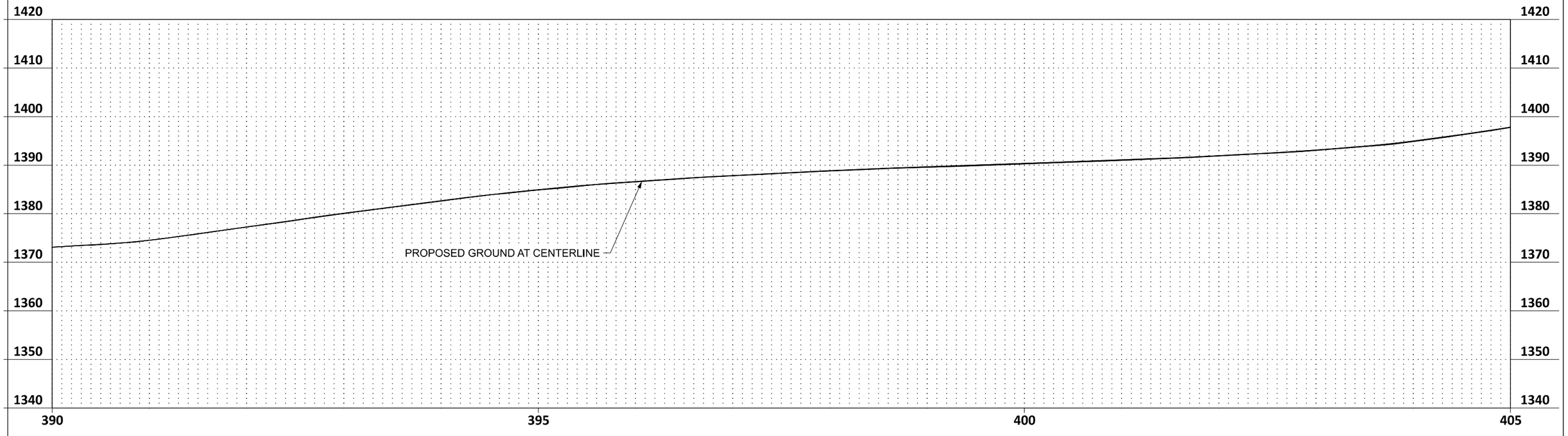
CONSTRUCTION PLAN & PROFILE - NORTH

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 41 OF 125 SHEETS





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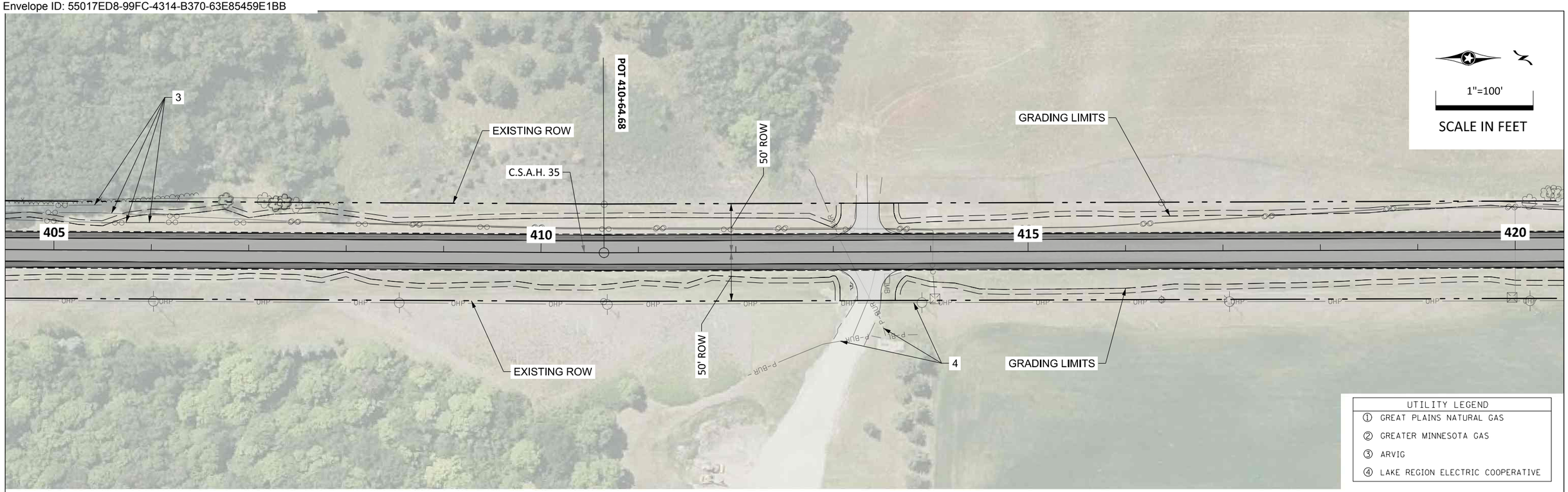
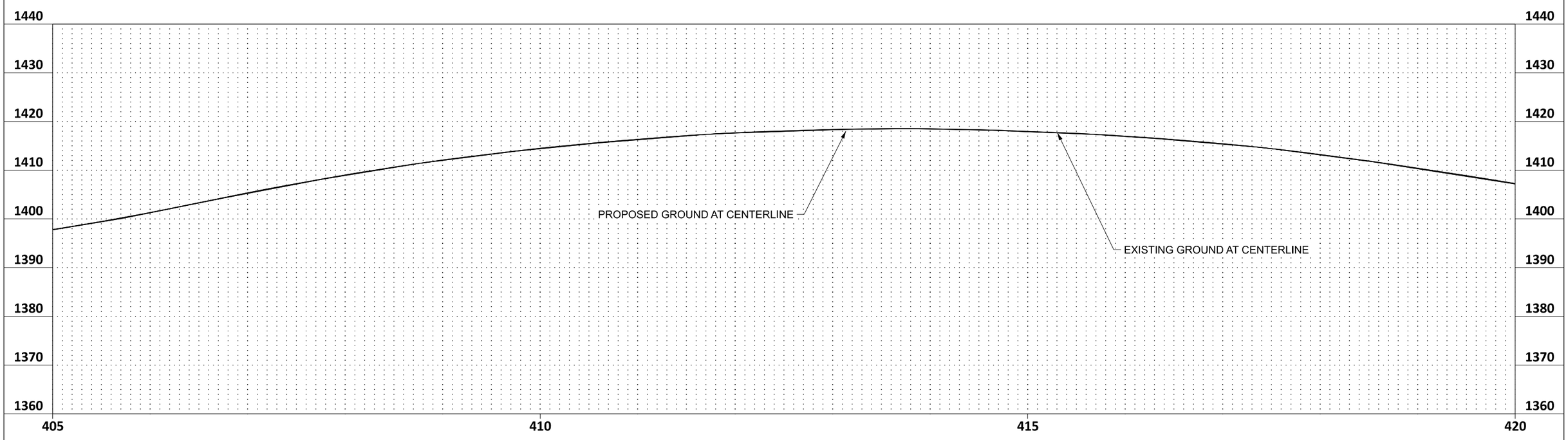
CONSTRUCTION PLAN & PROFILE - NORTH

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 42 OF 125 SHEETS





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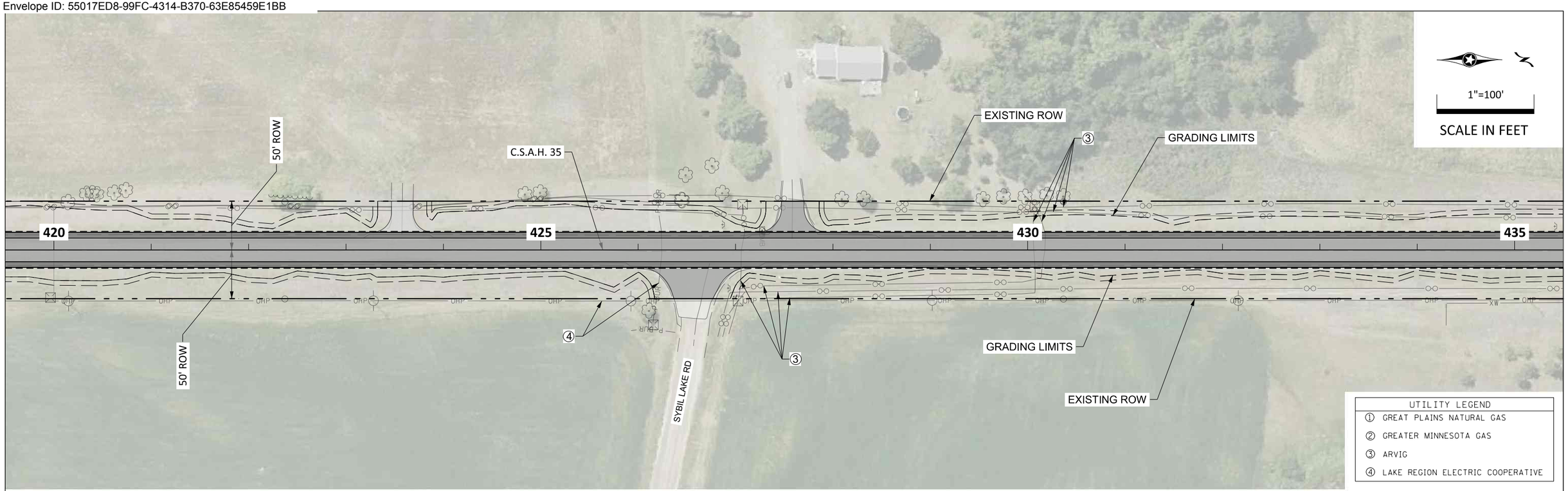
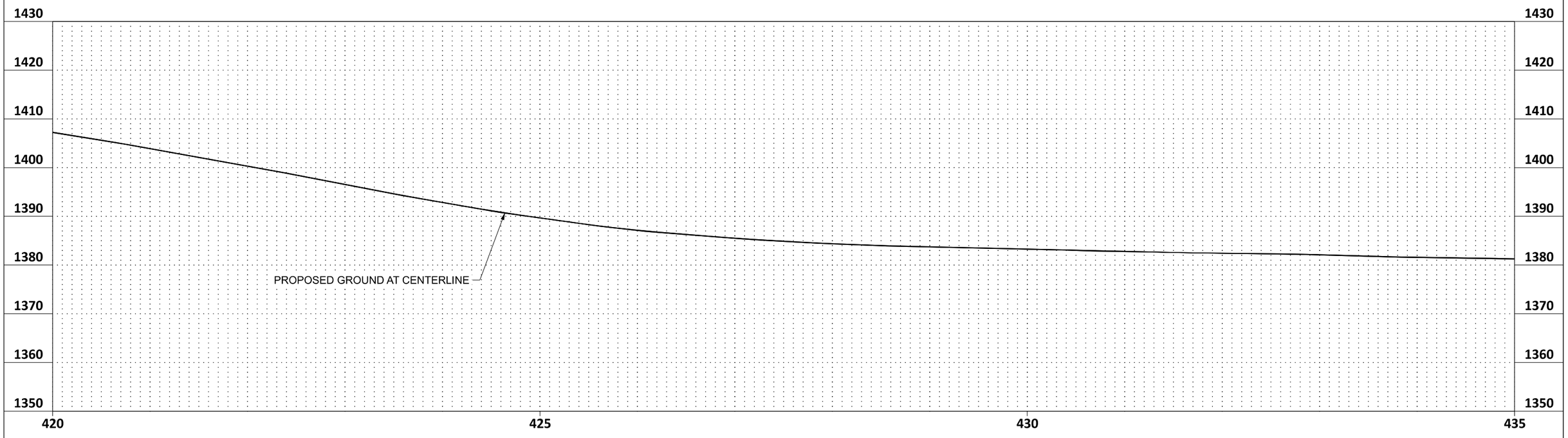
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 43 OF 125 SHEETS





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DRAFTER: ARJ		04/16/25			S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 44 OF 125 SHEETS

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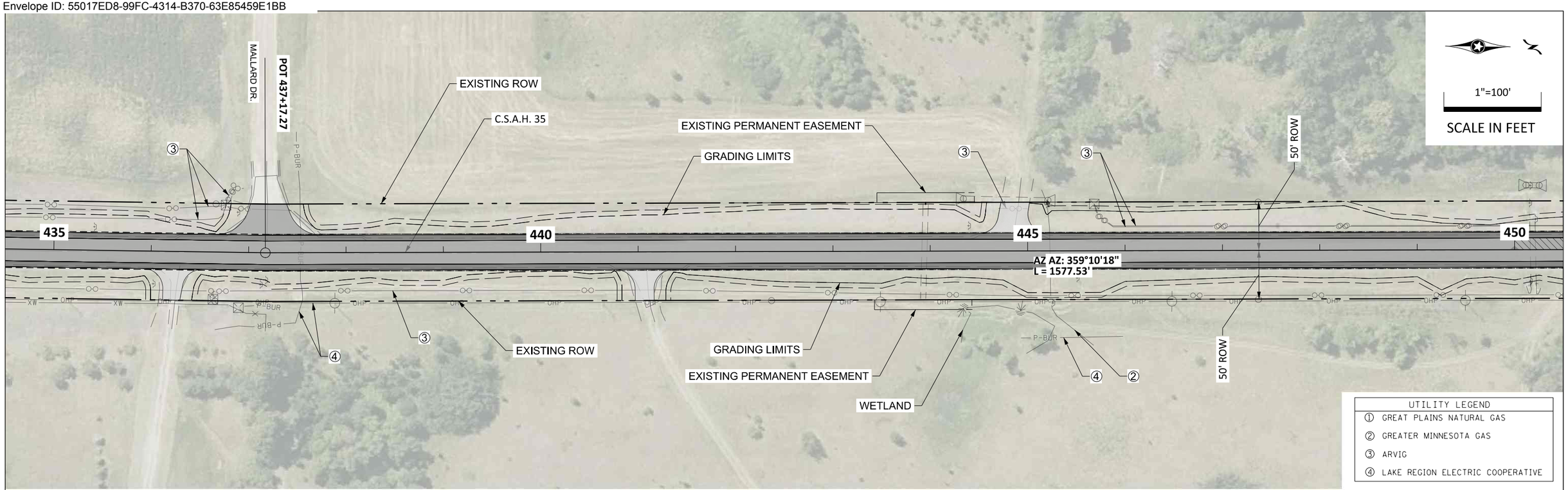
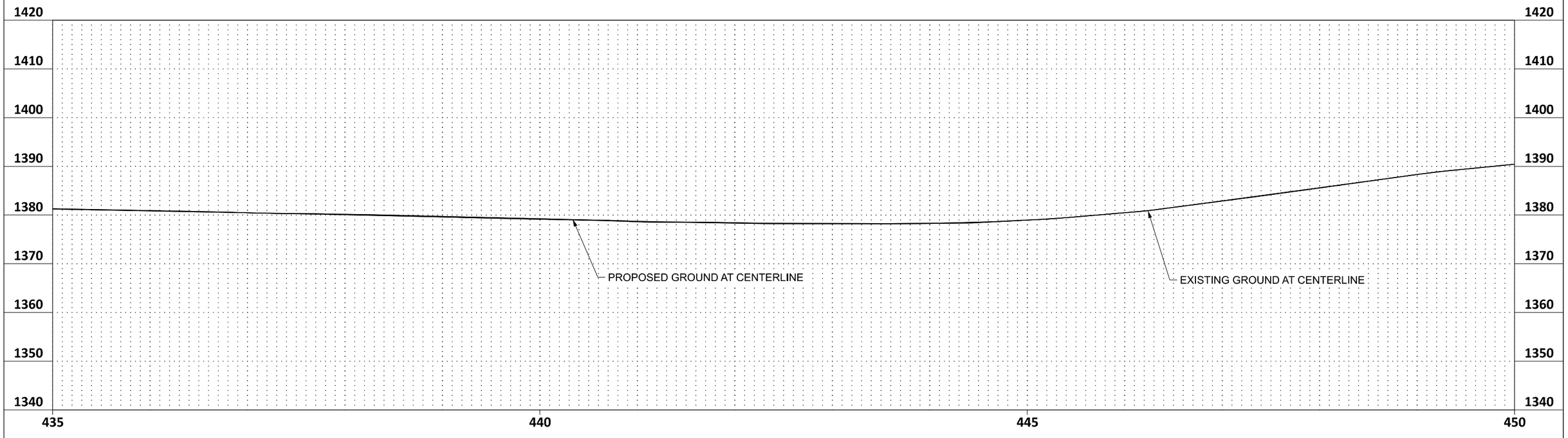
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25





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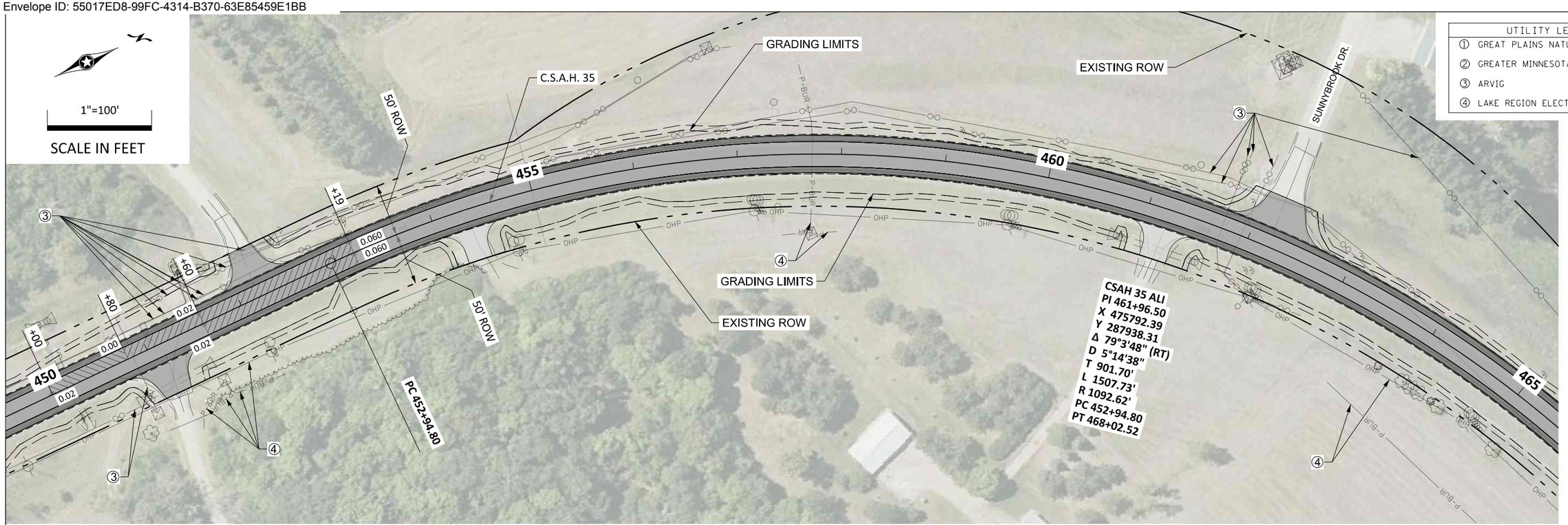
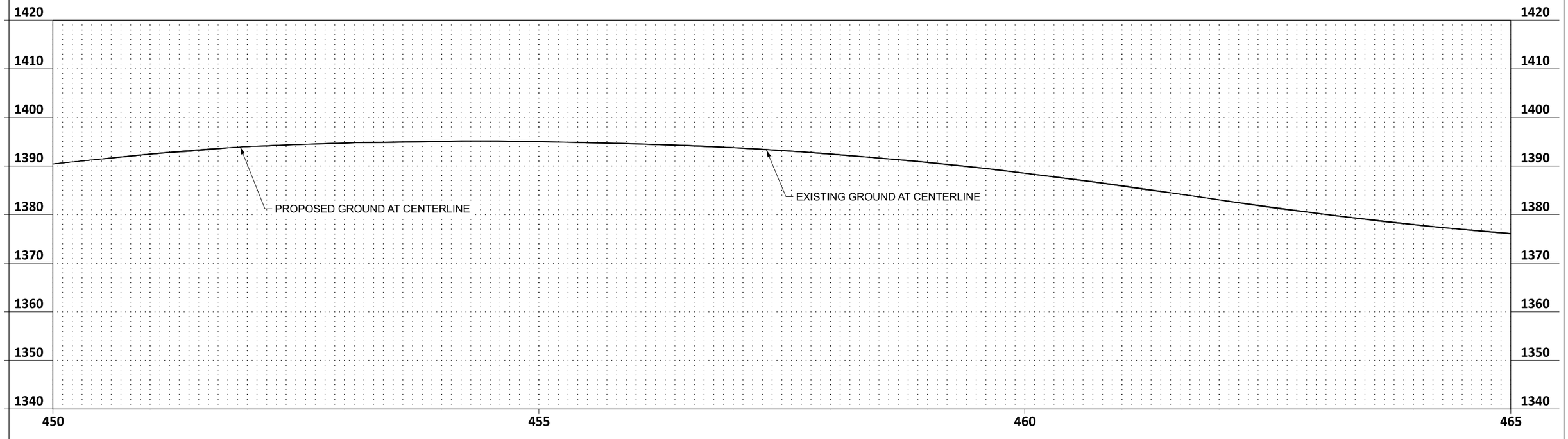
1"=100'

SCALE IN FEET



UTILITY LEGEND

① GREAT PLAINS NATURAL GAS
② GREATER MINNESOTA GAS
③ ARVIG
④ LAKE REGION ELECTRIC COOPERATIVE



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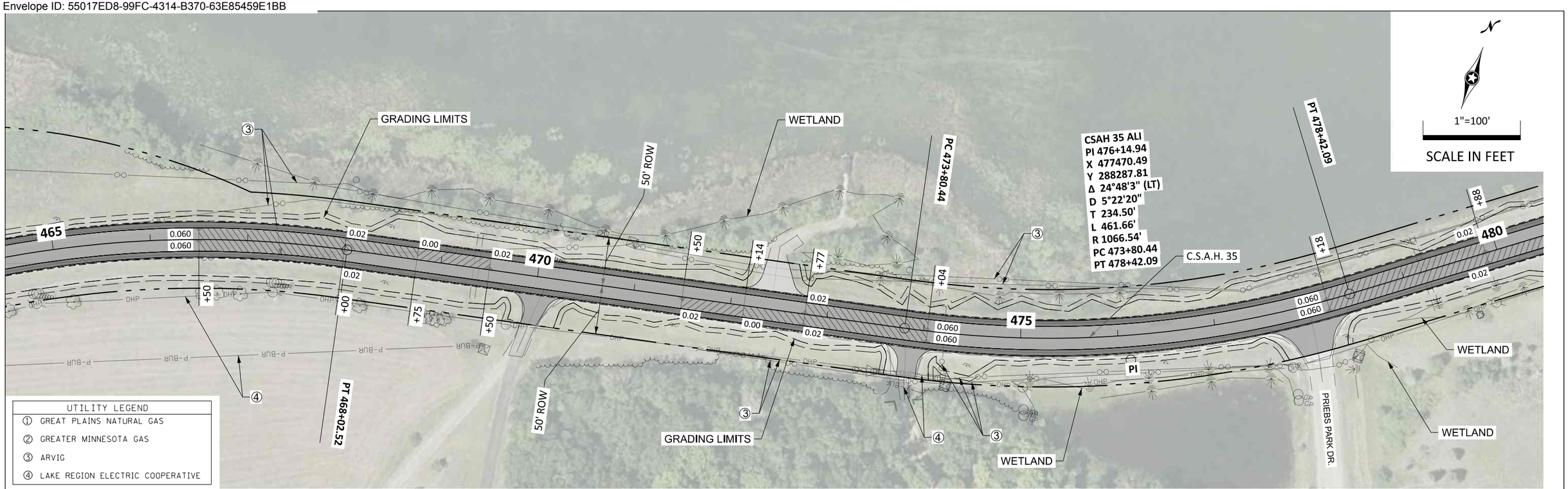

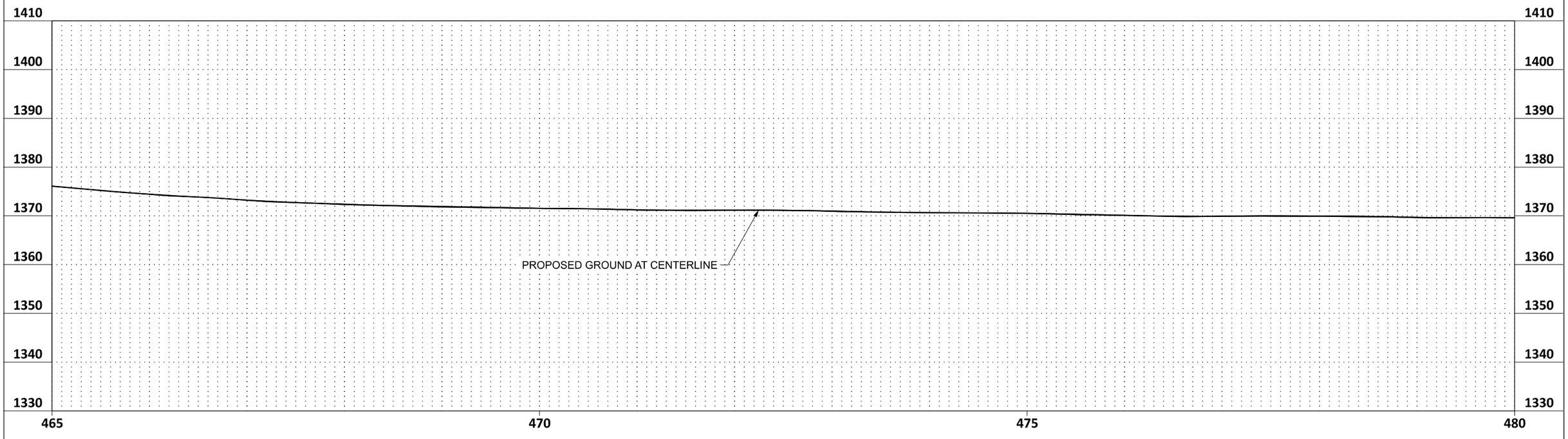

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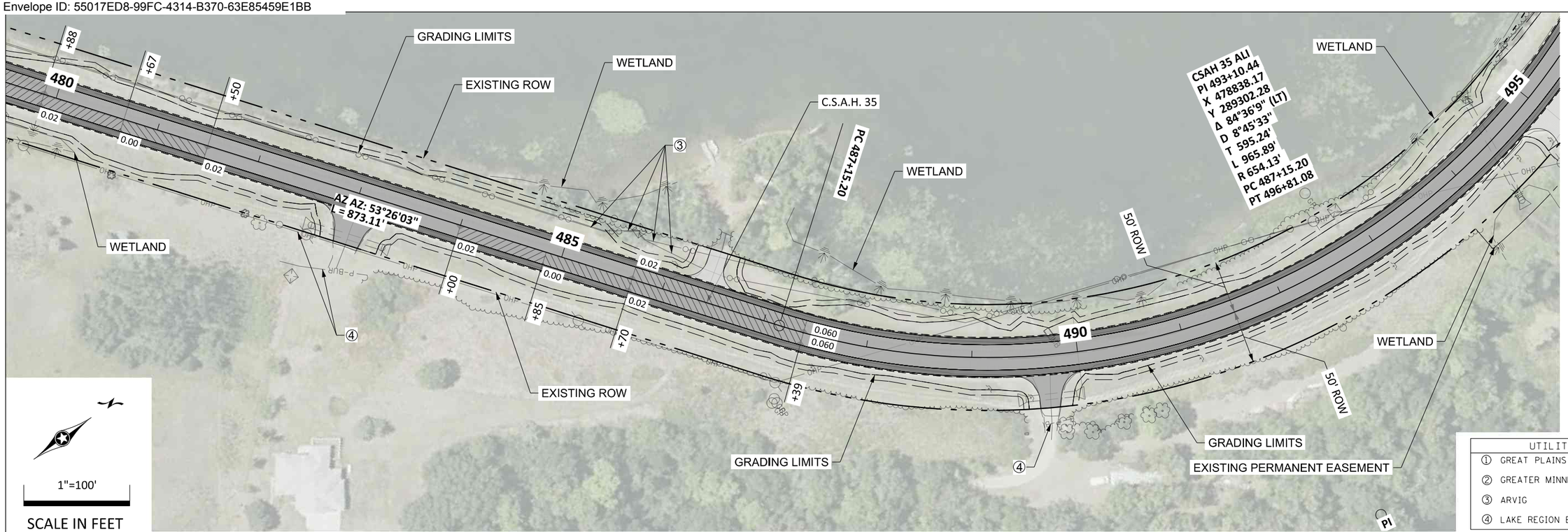

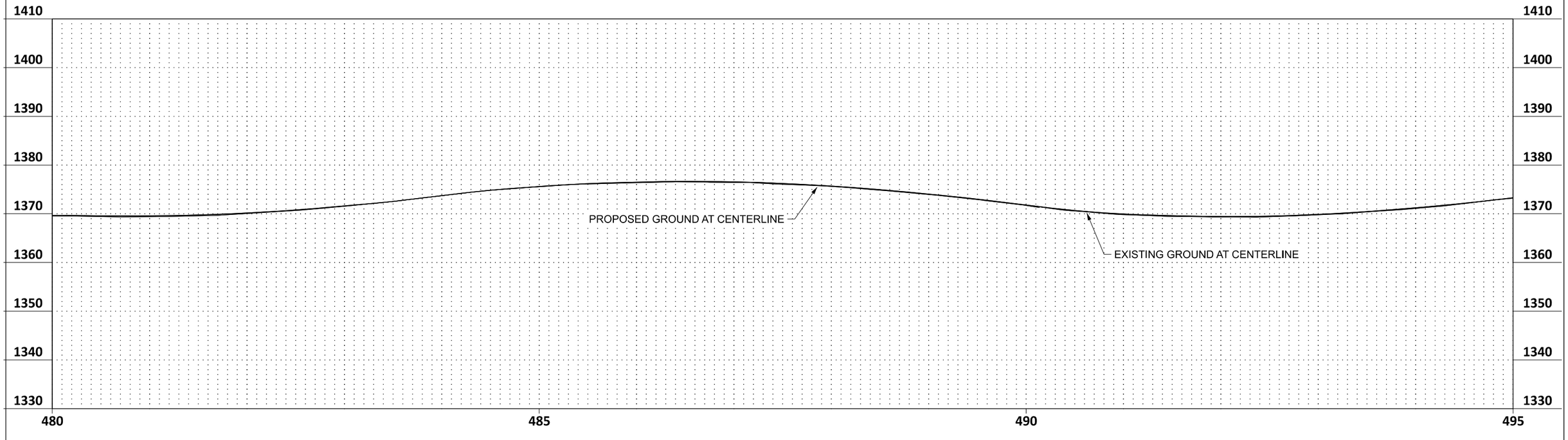

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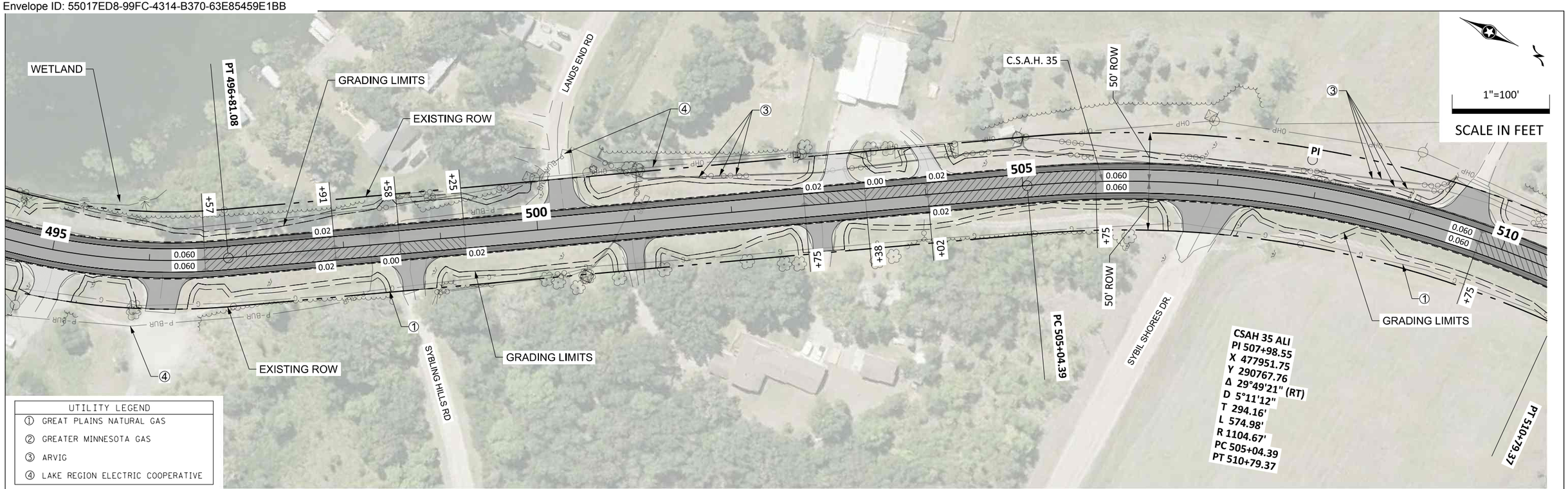

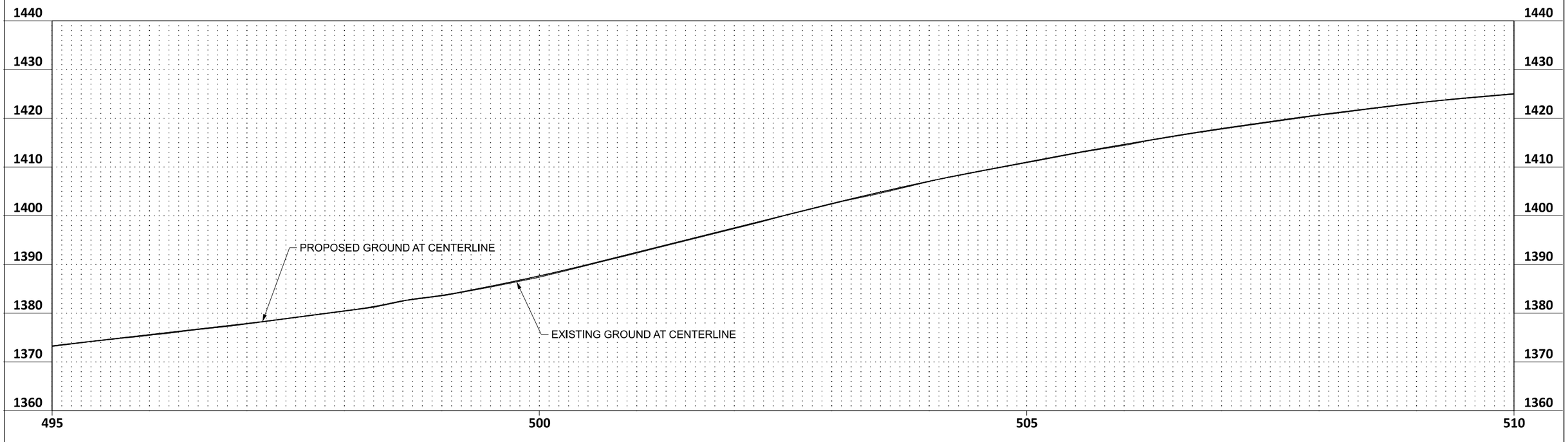

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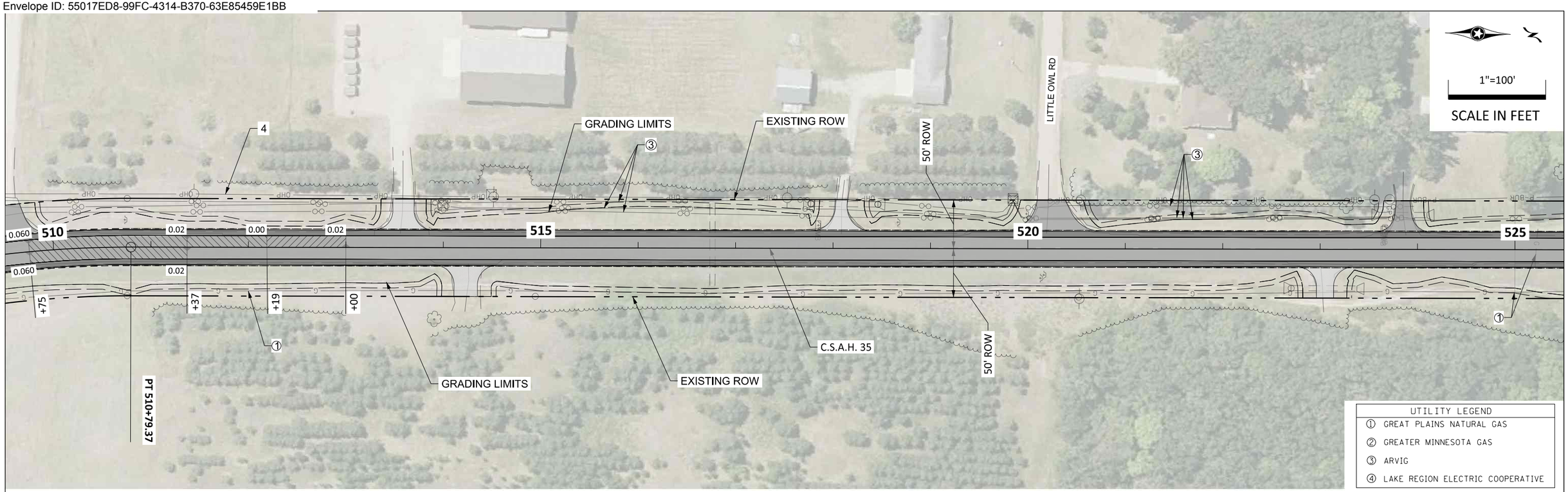

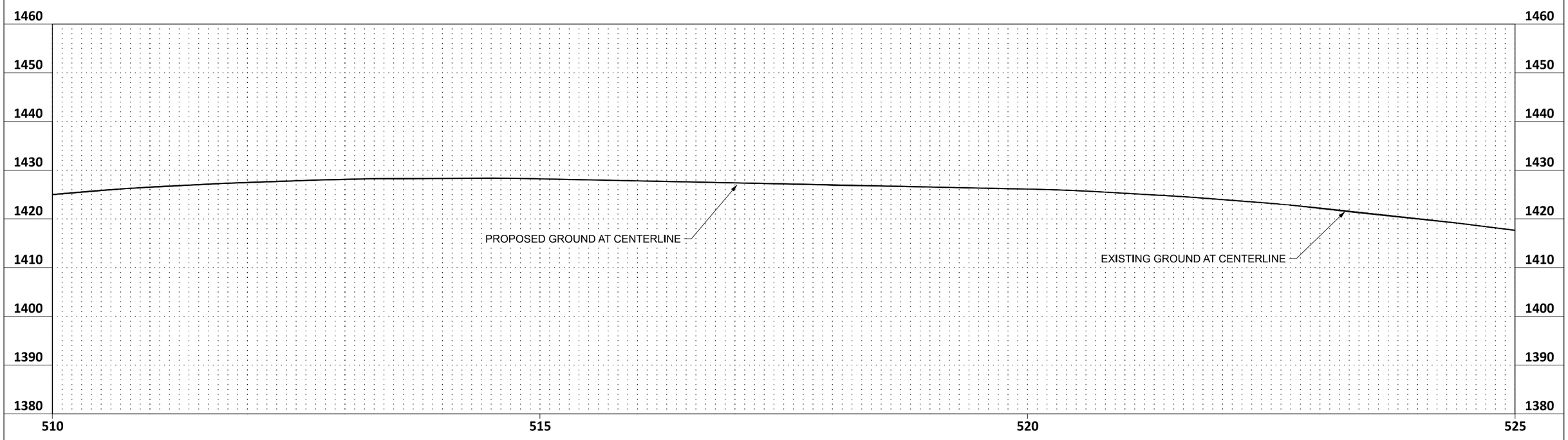

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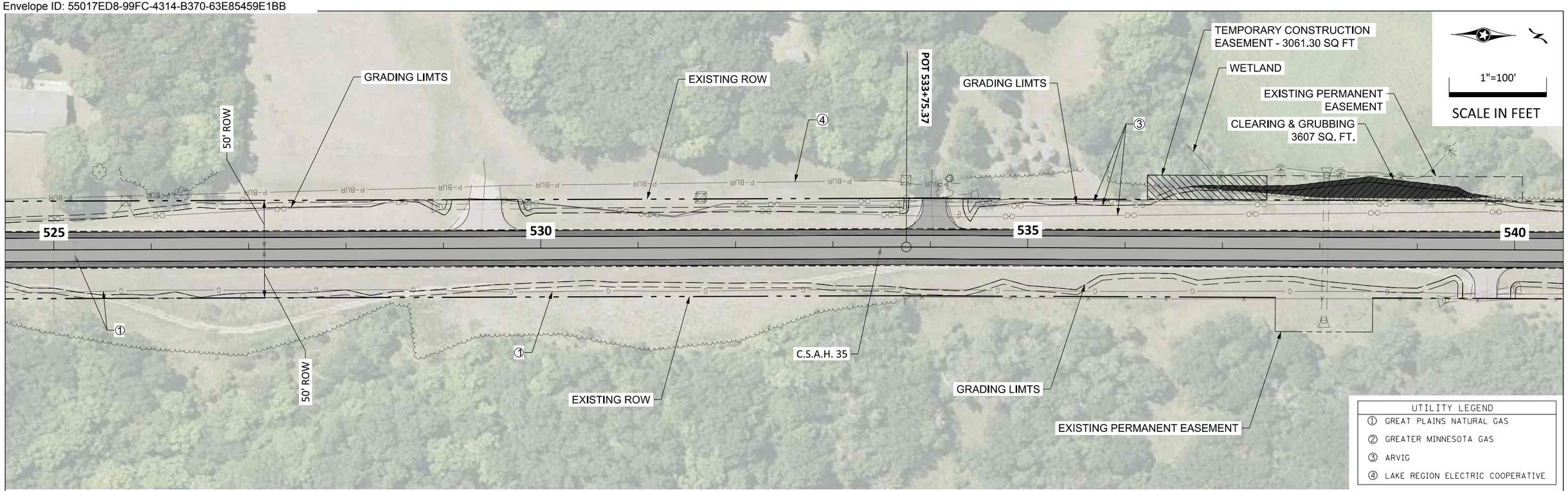

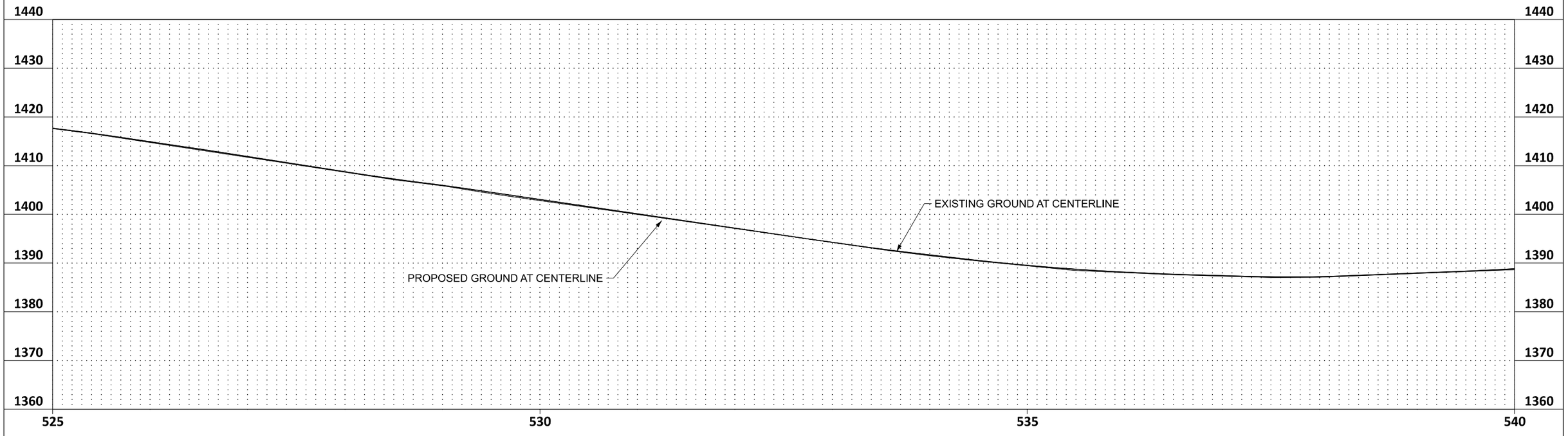

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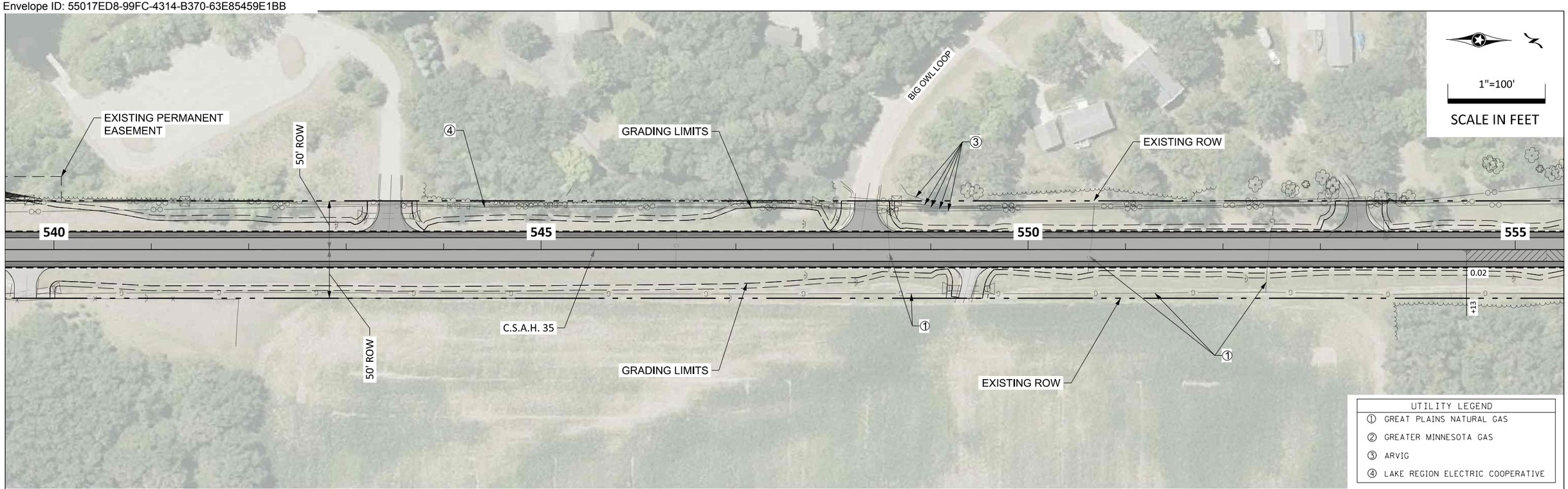

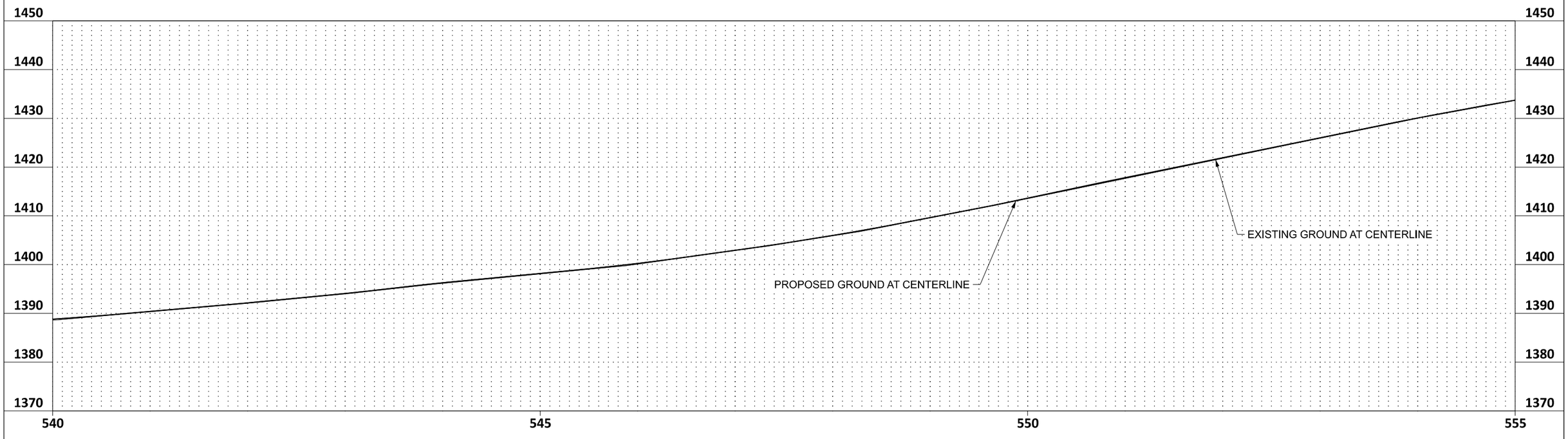

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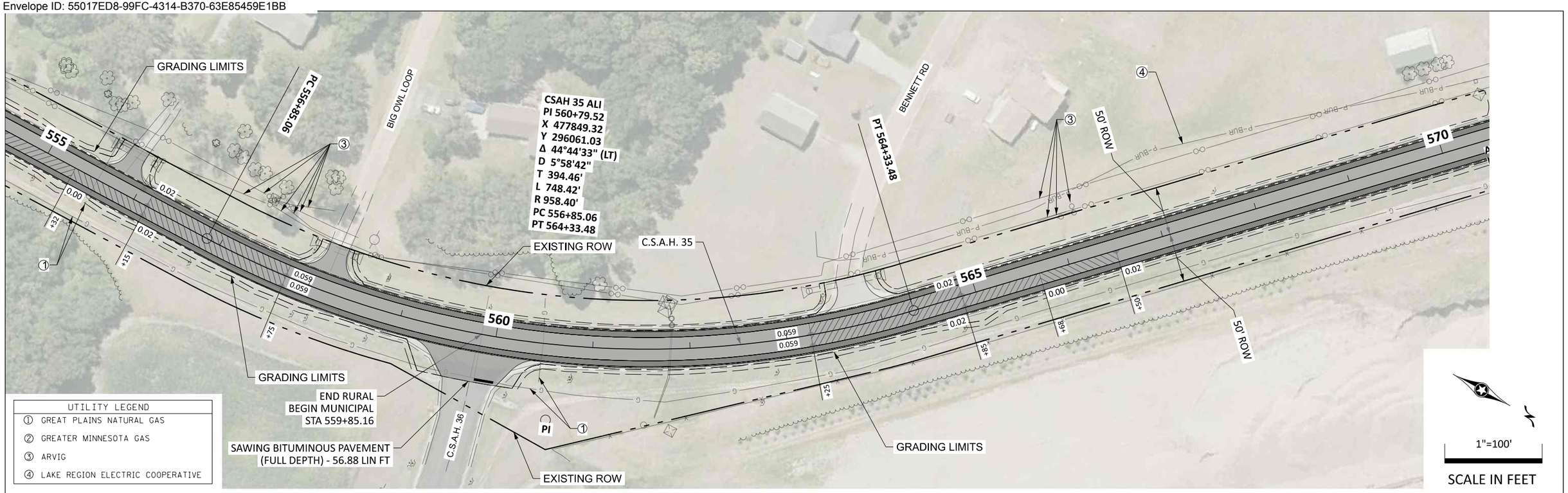

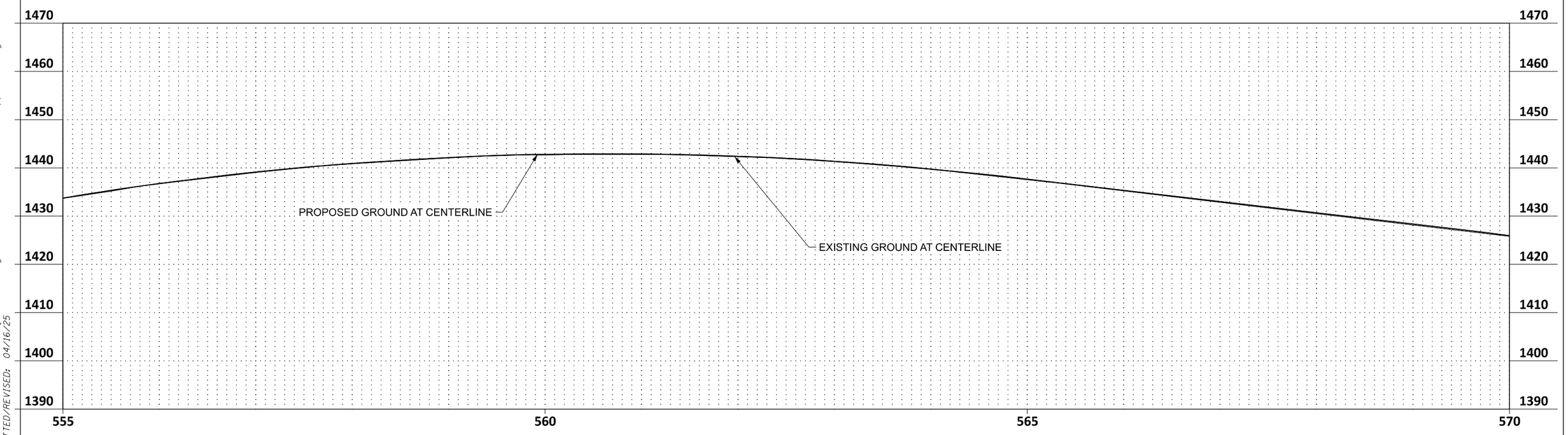

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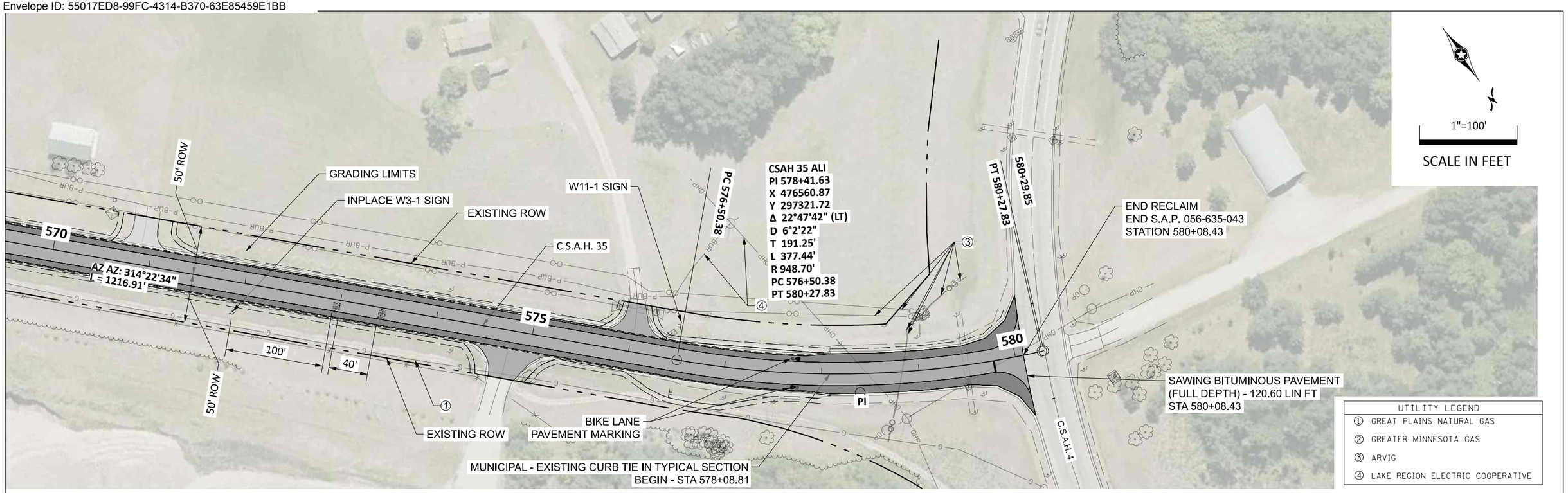

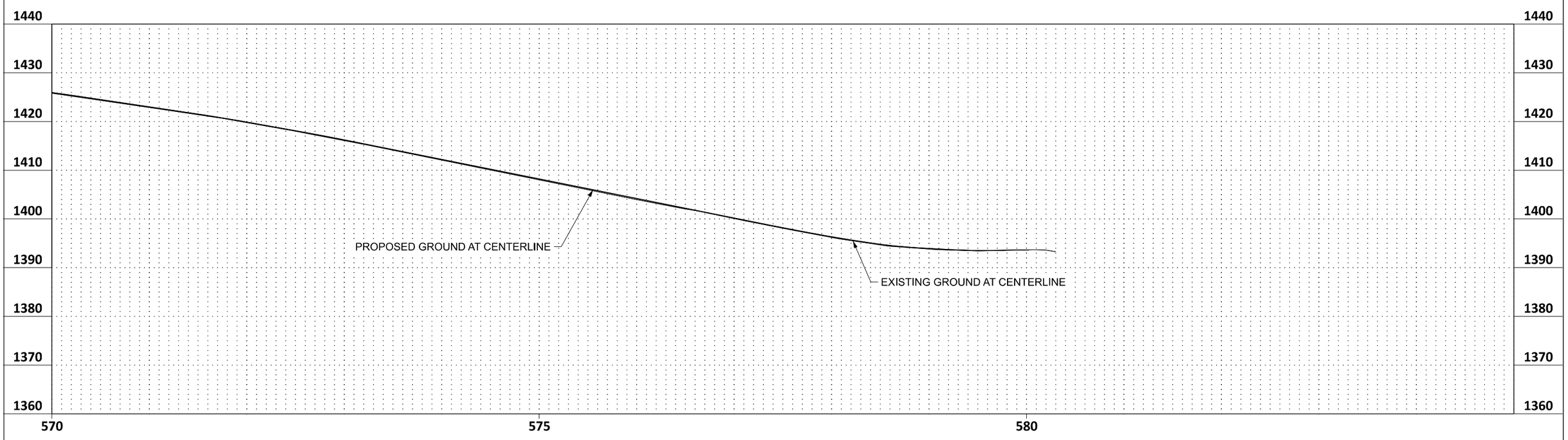

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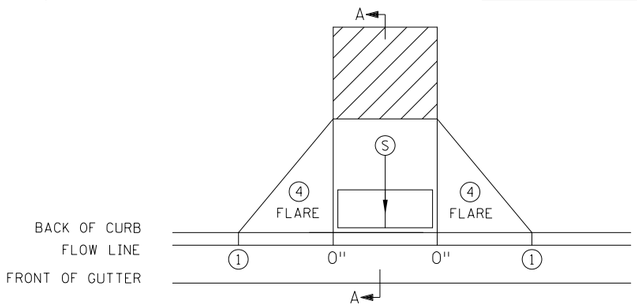

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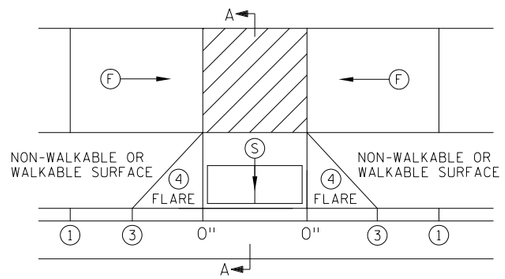

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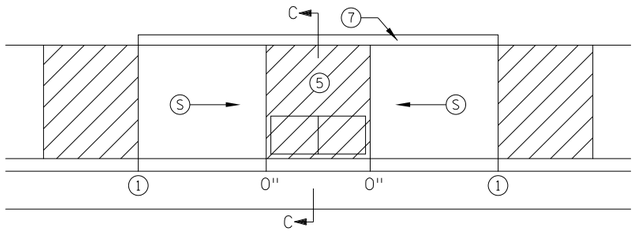

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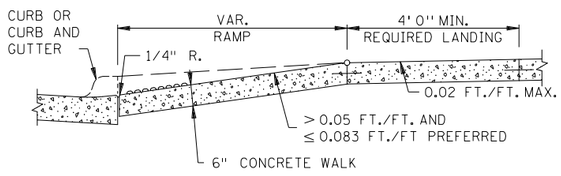
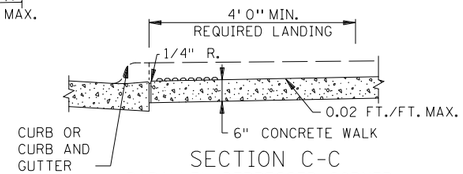


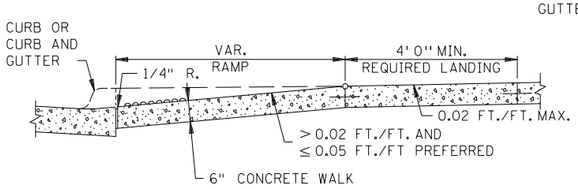
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



SECTION C-C

PARALLEL/DEPRESSED CORNER



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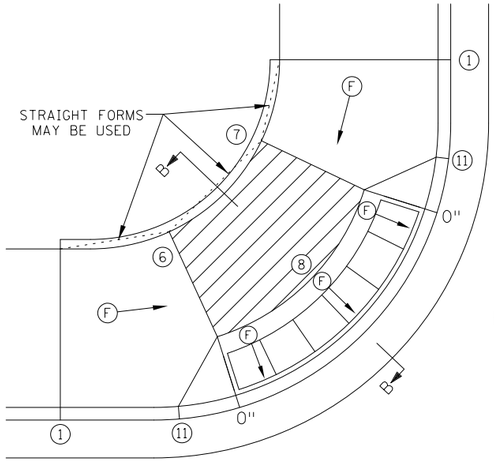
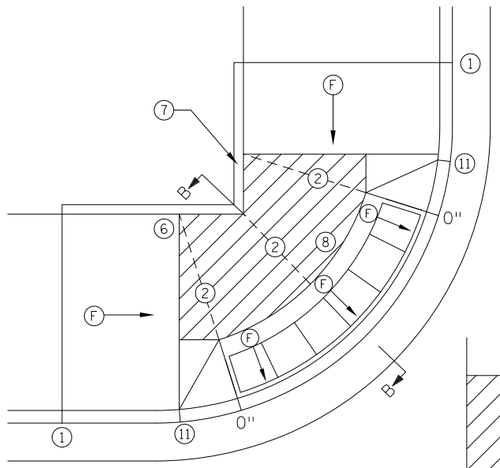
FAN

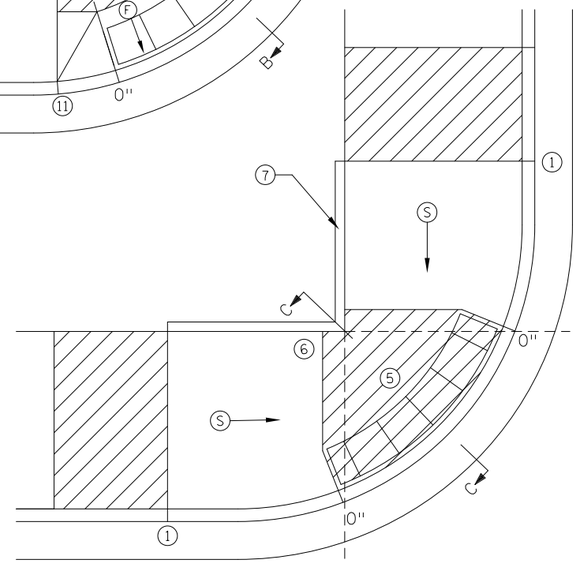


FAN (10)



MODIFIED FAN (10)

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



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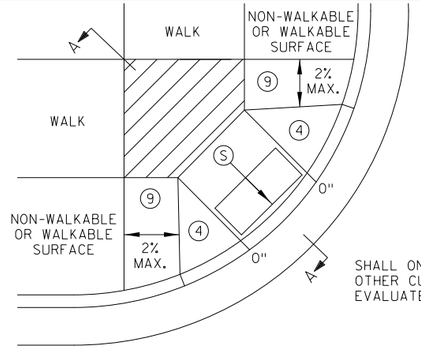

DIAGONAL

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

NOTES:

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

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

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

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

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

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

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

MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

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

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

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

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

(1) MATCH FULL HEIGHT CURB.

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

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

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

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

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

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

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

(9) PAVE FULL WALK WIDTH.

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

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

LEGEND

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

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

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

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

X" CURB HEIGHT

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PLOTTED/REVISED: 04/16/25

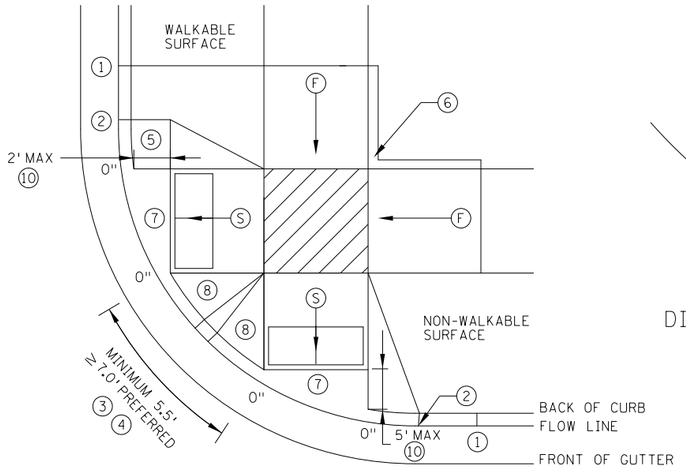
LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:
THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.250	1 OF 6	

REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.
DRAFTER: ARJ	DATE: 04/16/25		

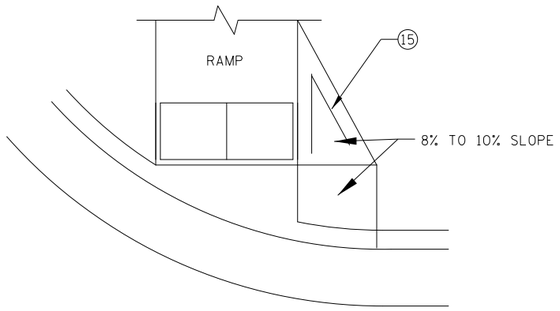
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

ADA STANDARD PLAN

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 55 OF 125 SHEETS

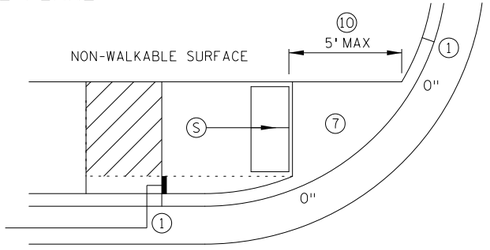


COMBINED DIRECTIONAL

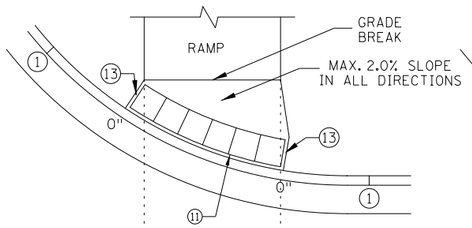


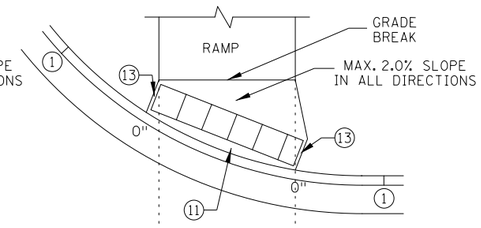
DIRECTIONAL RAMP WALKABLE FLARE

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.



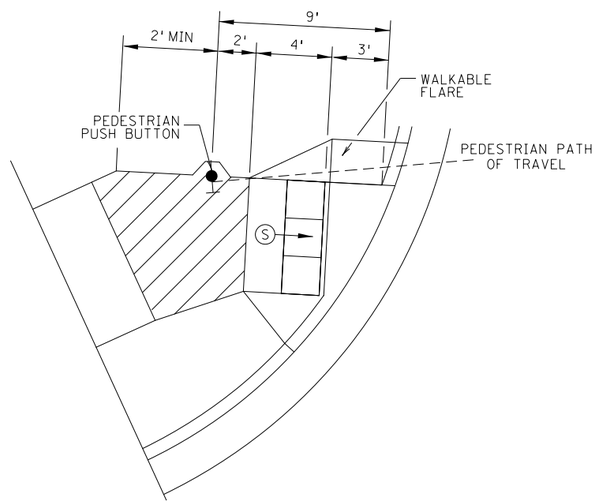
STANDARD ONE-WAY DIRECTIONAL ⑨





DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

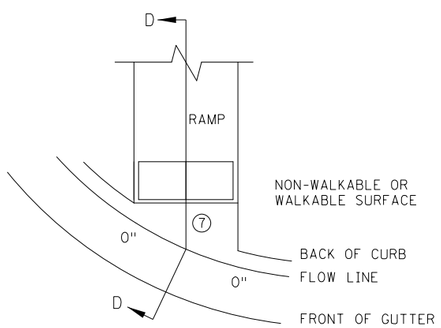
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

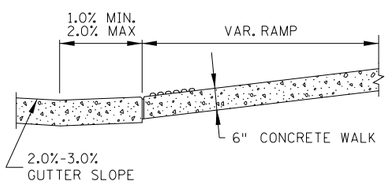


SEMI-DIRECTIONAL RAMP ③④⑨

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

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.250

REVIEWER: NAA	DATE:	04/16/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ	DATE:	04/16/25	

moore engineering, inc.

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NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

ADA STANDARD PLAN

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 56 OF 125 SHEETS

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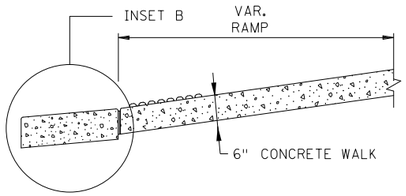
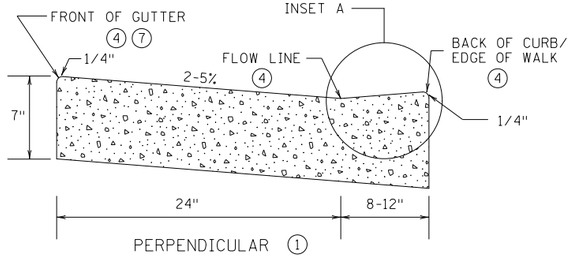
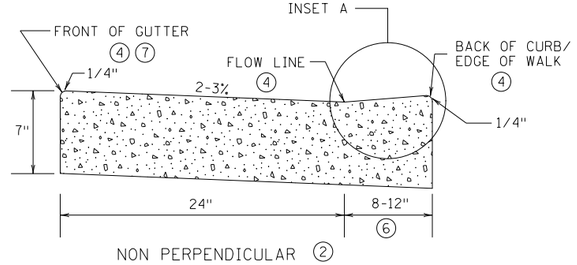




PERPENDICULAR (1)



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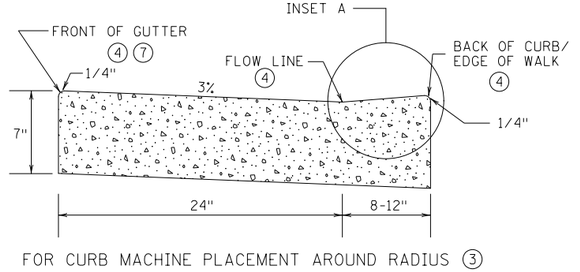
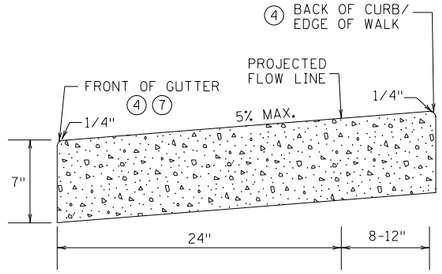
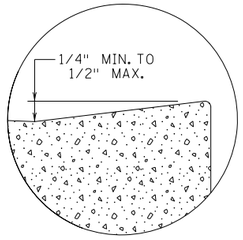


FOR CURB MACHINE PLACEMENT AROUND RADIUS (3)
(REGARDLESS OF RAMP TYPE)

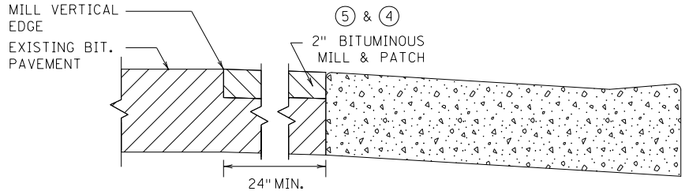
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

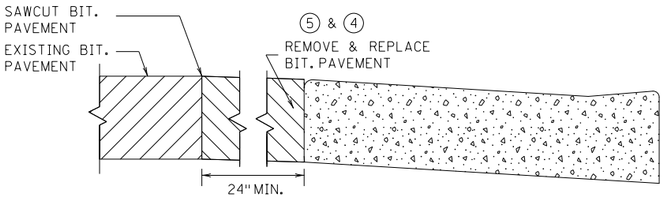


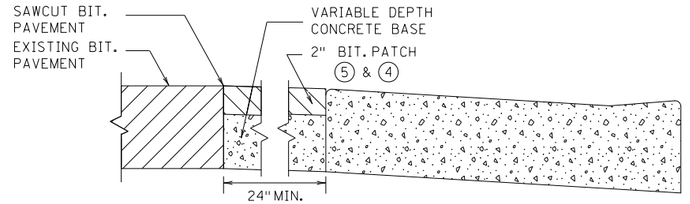
INSET B
OUTFLOW GUTTER (8)

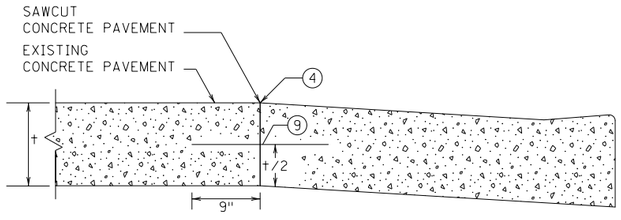


INSET A





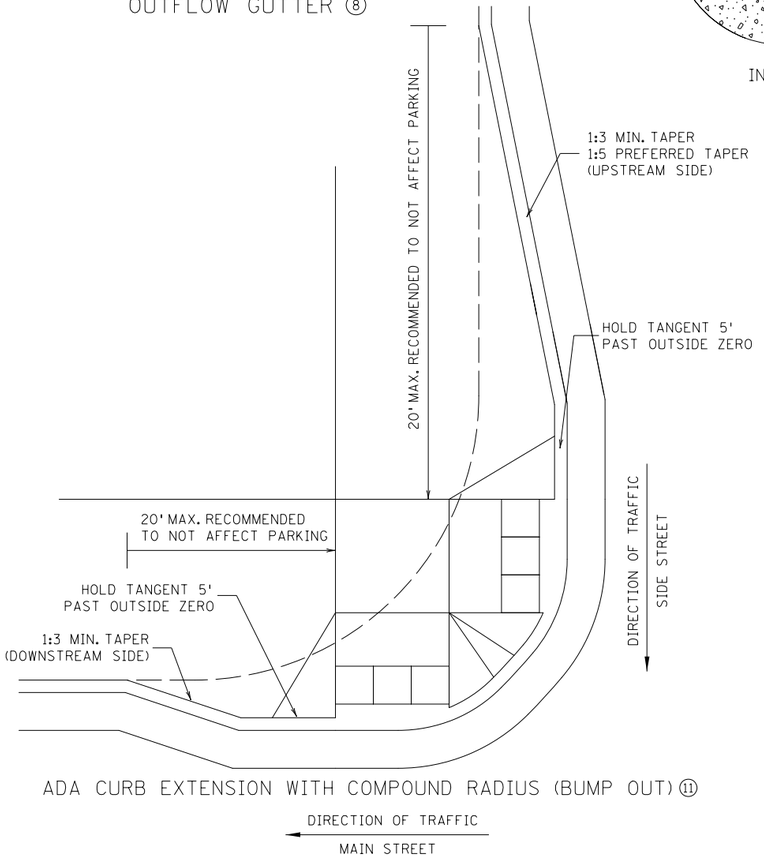




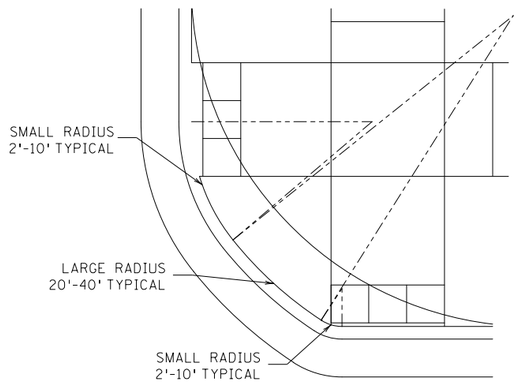
ONLY ALLOWED PER ENGINEER'S APPROVAL

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.

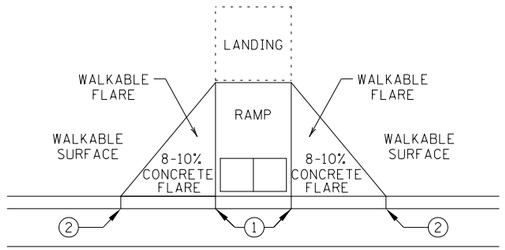
(9) DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

(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.

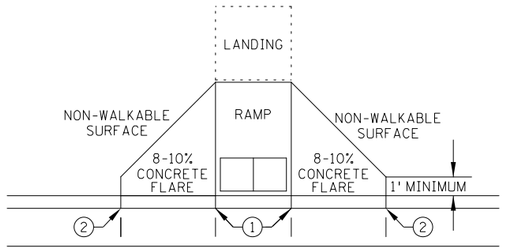
(11) CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION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

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION		PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.250	3 OF 6

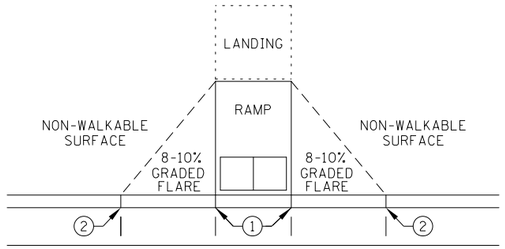
REVIEWER: NAA	DATE:	04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. NAME NICHOLAS A. ANDERSON SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25	ADA STANDARD PLAN
DRAFTER: ARJ	DATE:	04/16/25				S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 57 OF 125 SHEETS



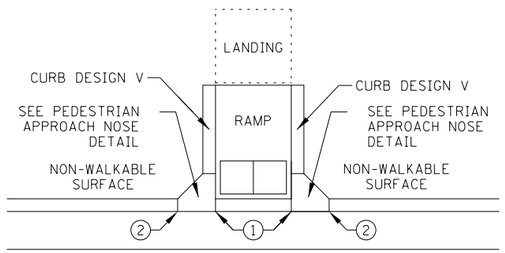
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

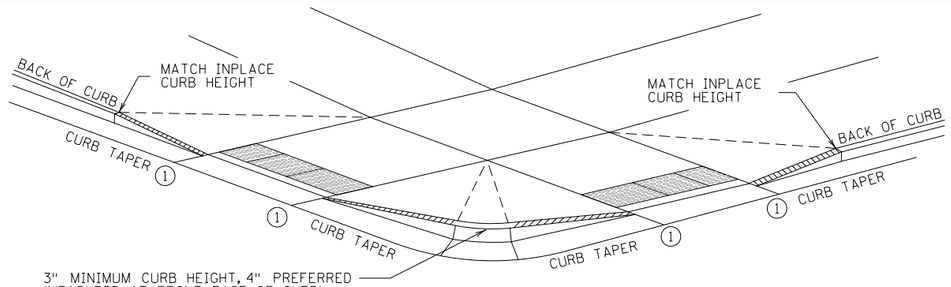


GRADED FLARES

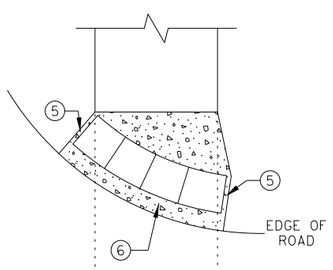


RETURNED CURB ④

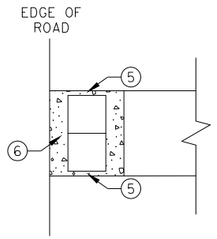
TYPICAL SIDE TREATMENT OPTIONS ③ ⑩



DETECTABLE EDGE WITH ⑦
CURB AND GUTTER

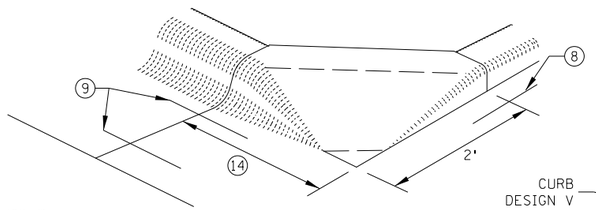


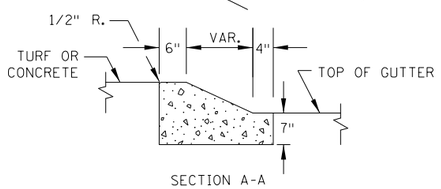
RADIAL DETECTABLE WARNING



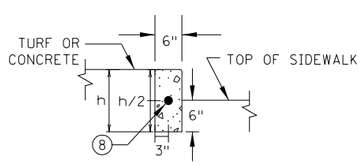
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

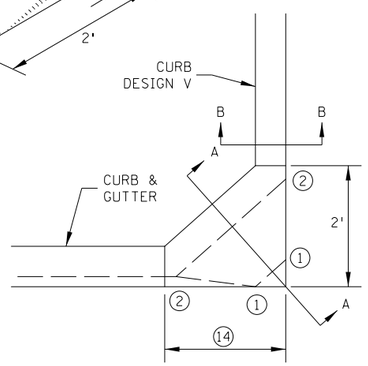




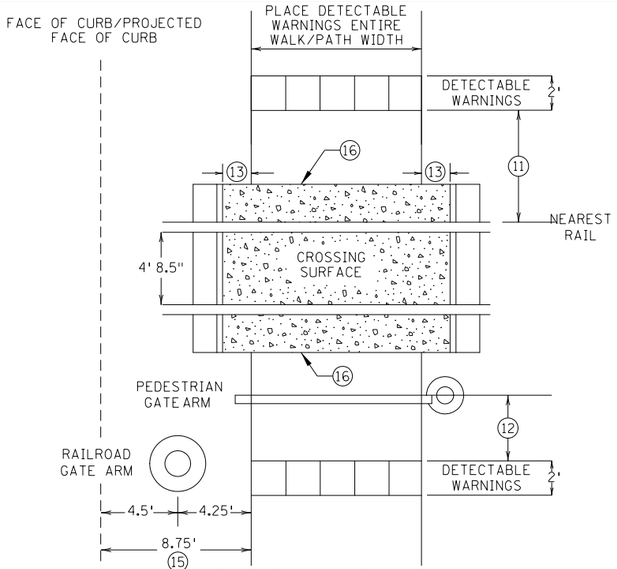
SECTION A-A



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.

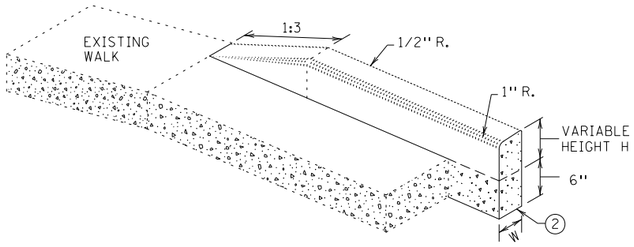
LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:
THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.250	4 OF 6	

REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.
DRAFTER: ARJ	DATE: 04/16/25		

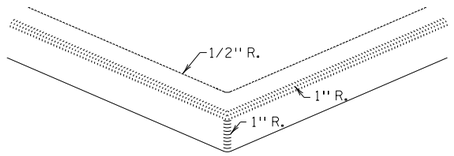
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

ADA STANDARD PLAN

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 58 OF 125 SHEETS

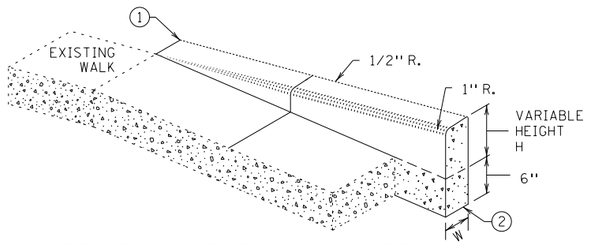


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

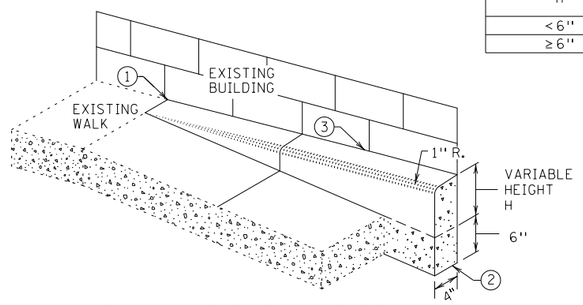


V CURB INTERSECTION

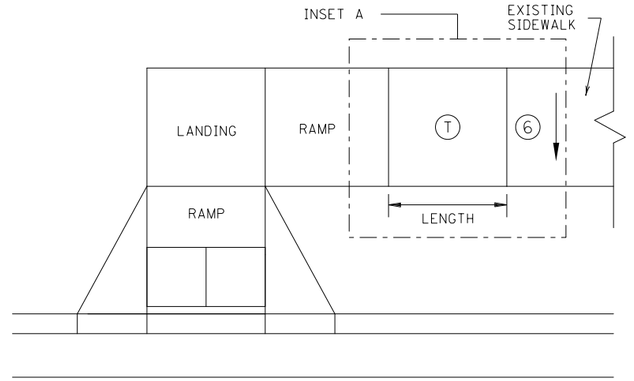
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



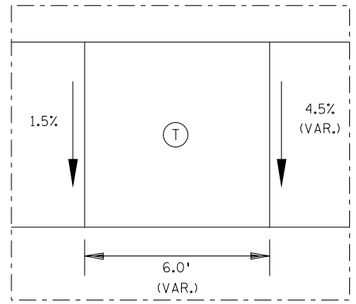
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



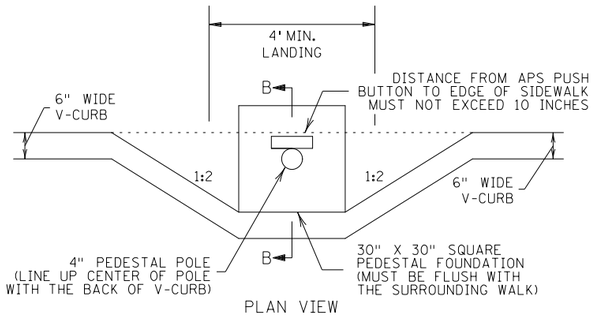
V CURB ADJACENT TO BUILDING OR BARRIER



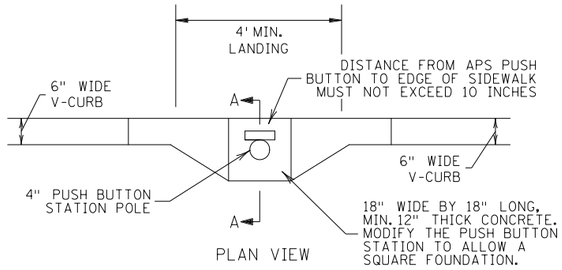
TRANSITION PANEL ④⑤



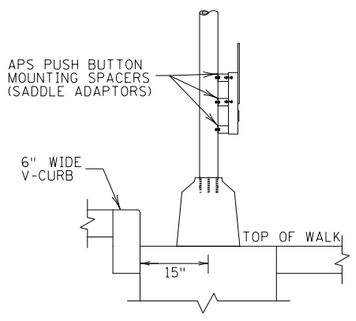
INSET A



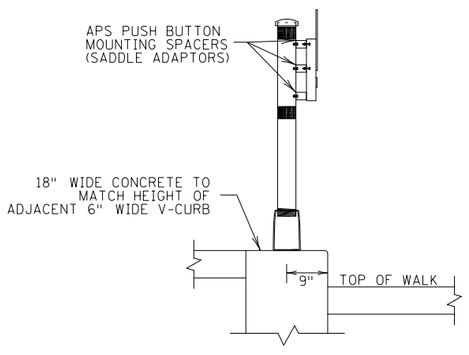
PLAN VIEW



PLAN VIEW



SECTION B-B



SECTION A-A

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)

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.

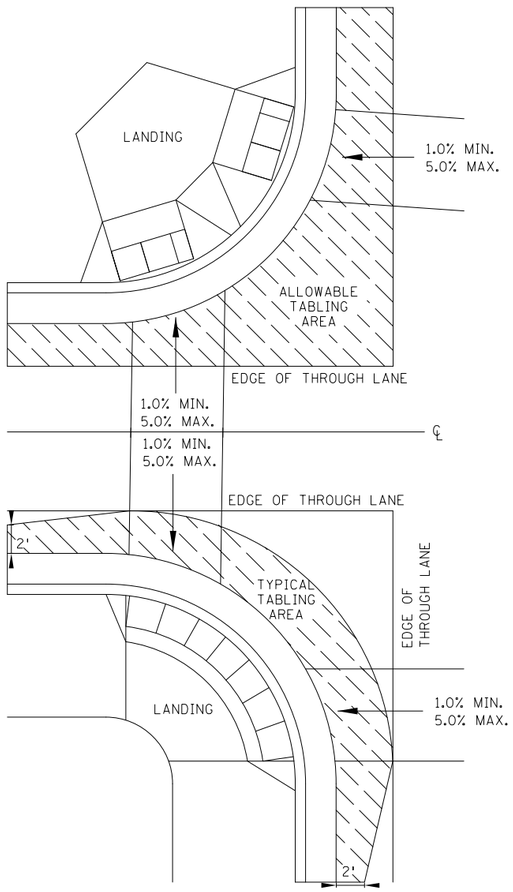
Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

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.

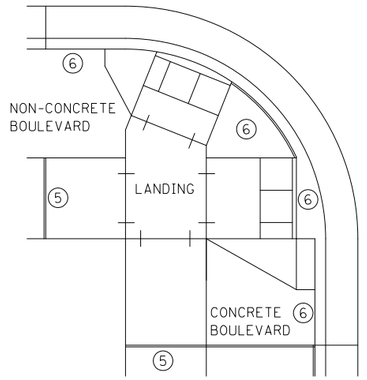
Ⓣ TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION		PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.250	5 OF 6

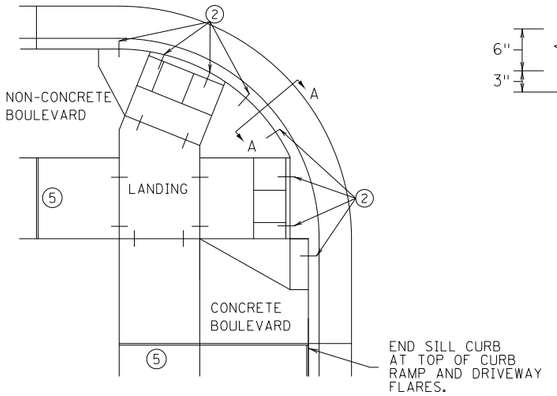
REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. NAME NICHOLAS A. ANDERSON SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25	ADA STANDARD PLAN	
DRAFTER: ARJ	DATE: 04/16/25				S.A.P. 056-635-043	C.S.A.H. 35	SHEET NO. 59 OF 125 SHEETS



CURB LINE AND ROAD CROSSING ADJUSTMENTS

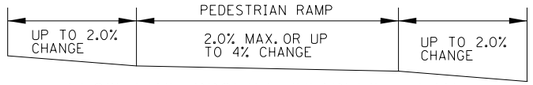


EXPANSION MATERIAL PLACEMENT
FOR CONCRETE ROADWAYS



CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS

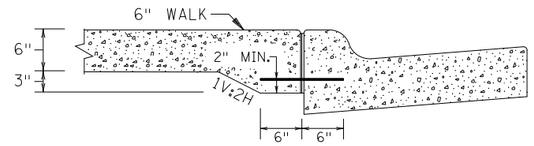
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



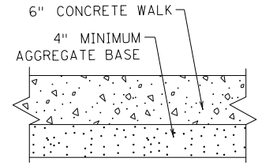
FLOW LINE PROFILE "TABLE" - FAN

FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

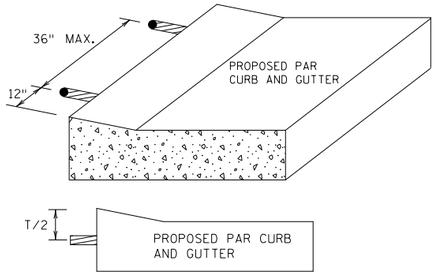
FLOW LINE PROFILE RAISE - FAN

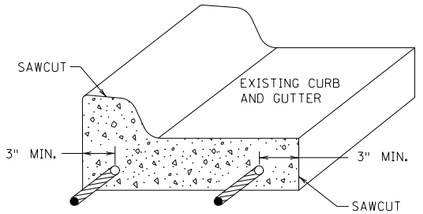


SECTION VIEW A-A
THICKENED SECTION
THROUGH CURB RAMP FLARES



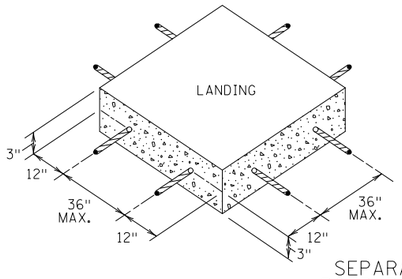
TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER



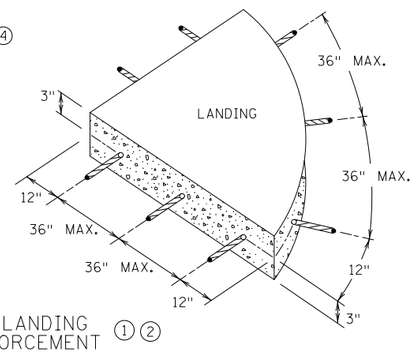


CURB AND GUTTER
REINFORCEMENT ③

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.

LEAD EXPERT OFFICE: JEFFREY PERKINS, OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.250	6 OF 6

REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.	ADA STANDARD PLAN	
DRAFTER: ARJ	DATE: 04/16/25			S.A.P. 056-635-043	C.S.A.H. 35

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NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

SHEET NO. 60 OF 125 SHEETS

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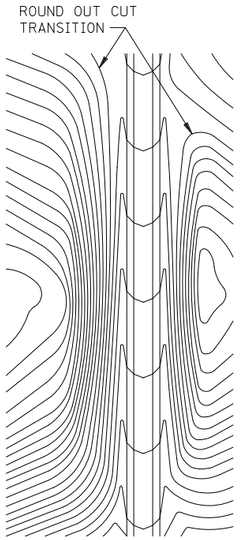
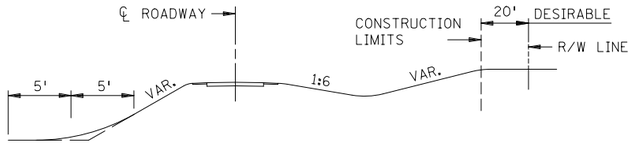
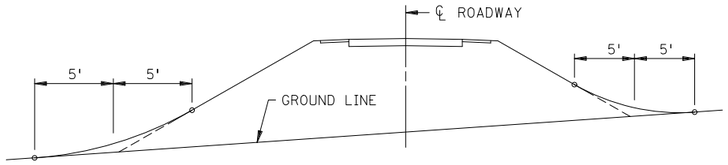


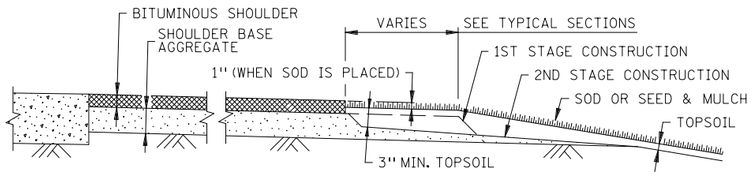
CONTOURING ROAD CUTS



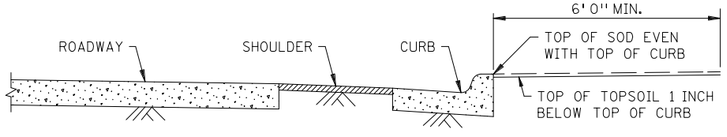
ROUNDING SHOULDERS AND BACKSLOPES



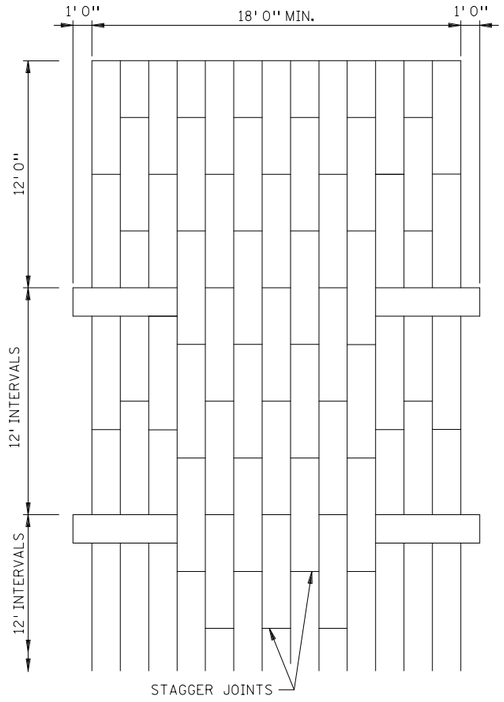
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



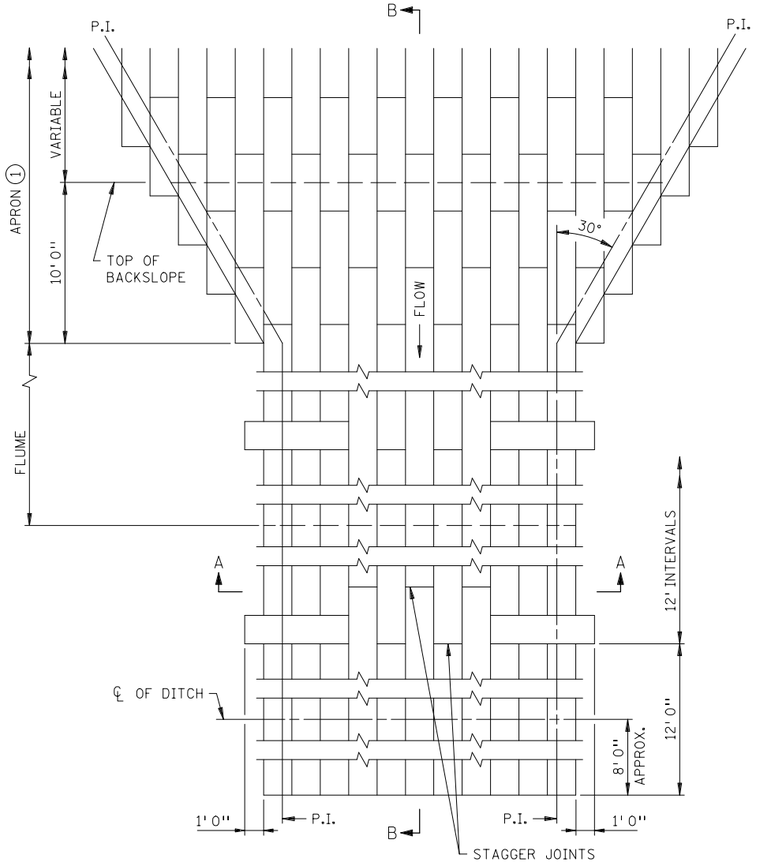
SHAPING AND TOPSOILING INSLOPES



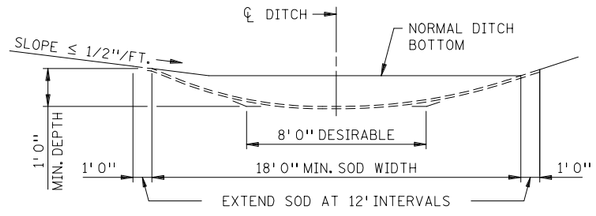
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



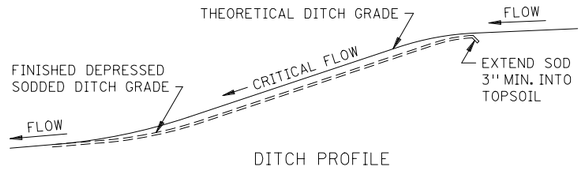
PLAN VIEW



PLAN VIEW

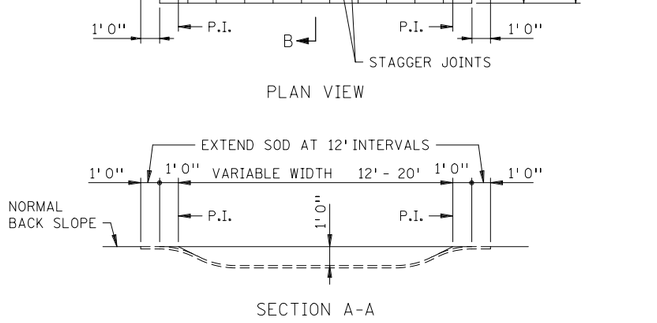


SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

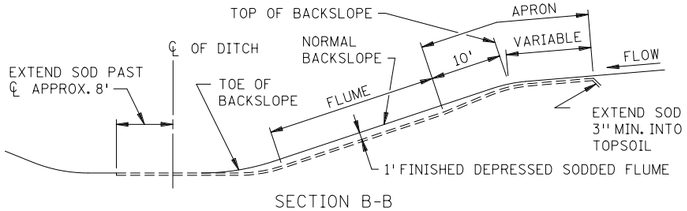


DITCH PROFILE

SODDED DITCH DETAILS



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

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

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

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 1 OF 3

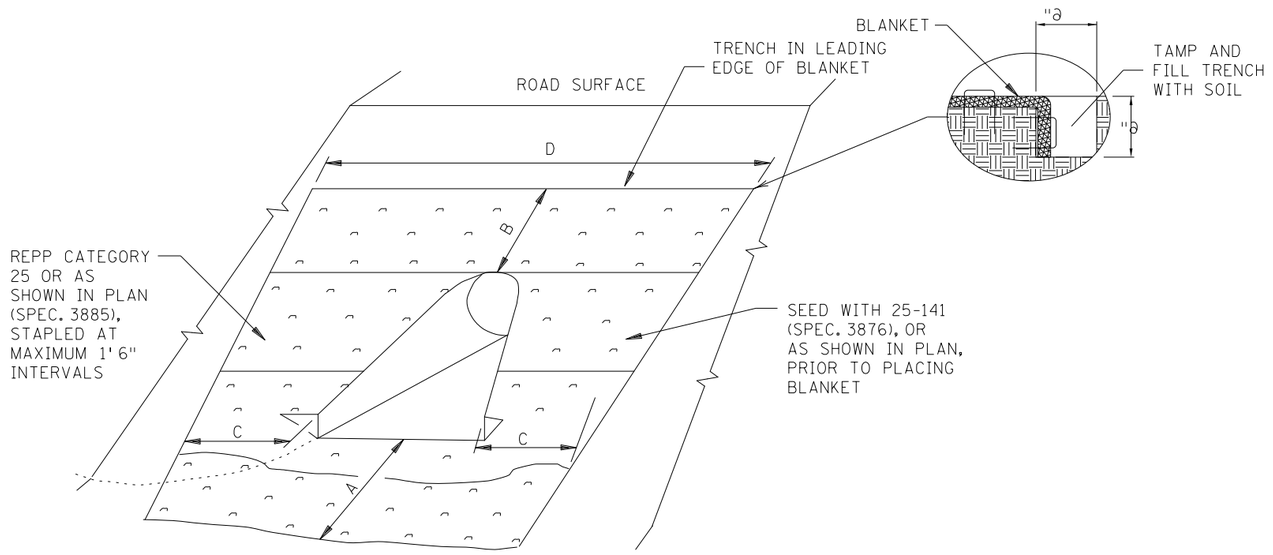
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

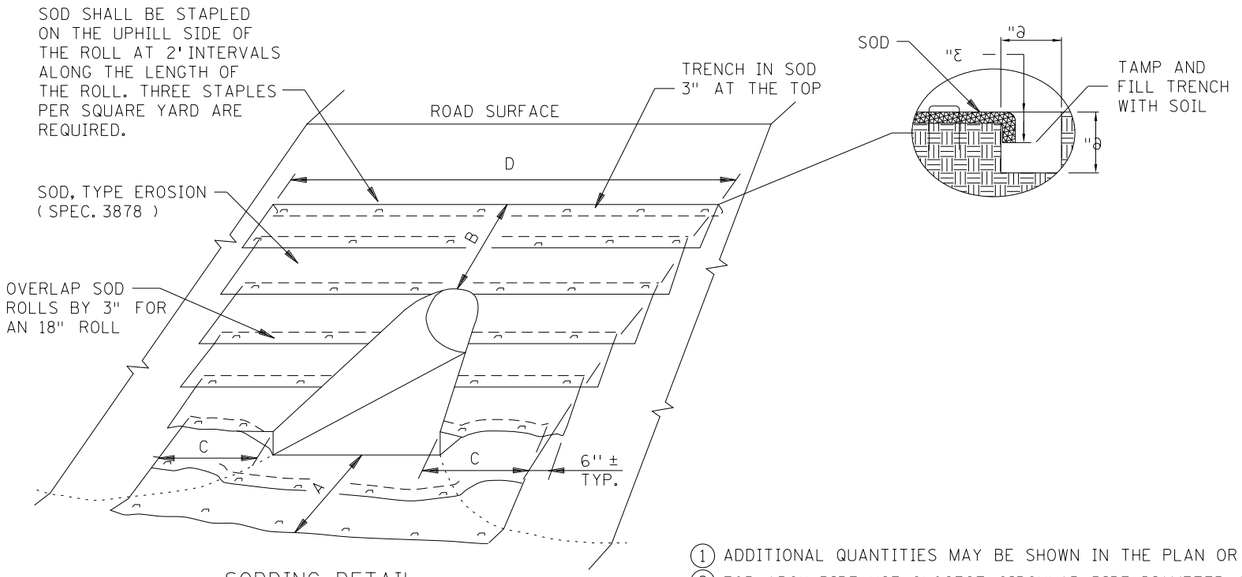
PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

S.A.P. 056-635-043 | C.S.A.H. 35 | SHEET NO. 61 OF 125 SHEETS



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

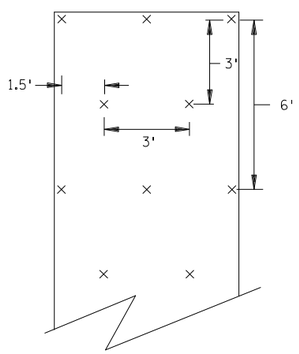
APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

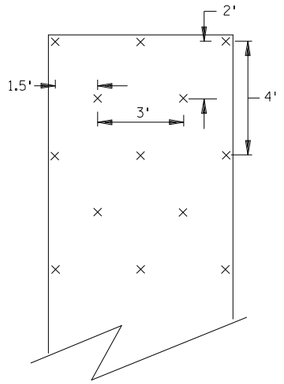
PERMANENT EROSION CONTROL

TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

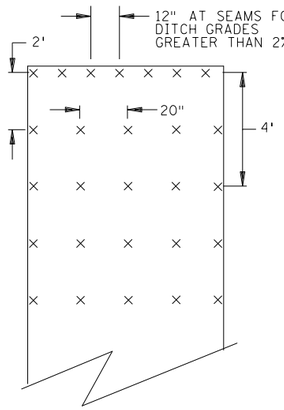
S.A.P. 056-635-043 | C.S.A.H. 35 | SHEET NO. 62 OF 125 SHEETS



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

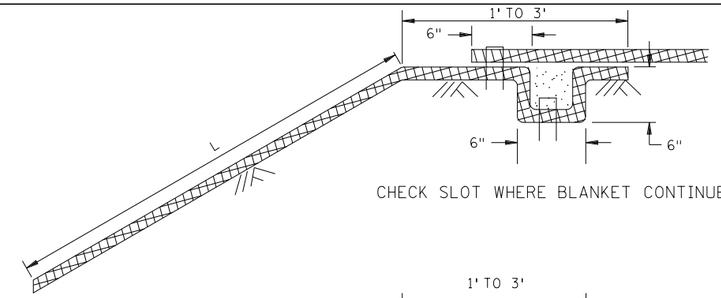


SLOPES 1:2 TO 1:1
170 STAPLES PER 100 SQ YD

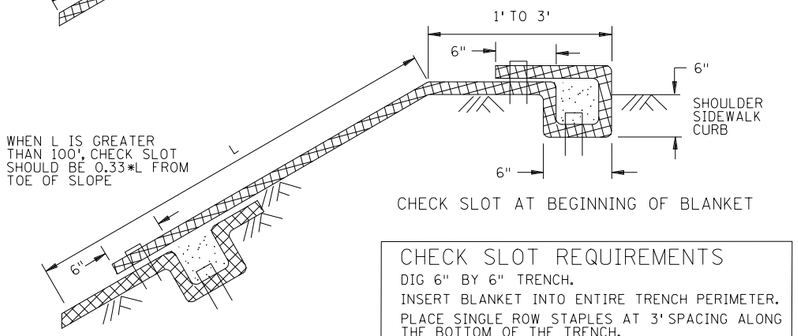


CHANNEL AND DITCH APPLICATIONS
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN



CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

CHECK SLOT REQUIREMENTS

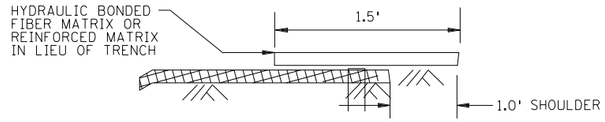
DIG 6" BY 6" TRENCH.

INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.

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

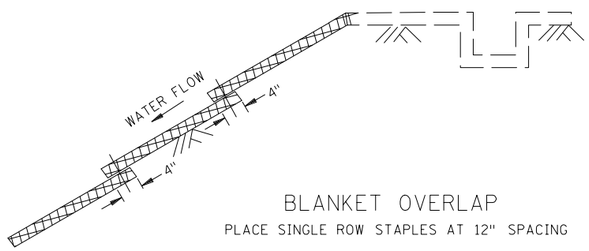
BACKFILL TRENCH WITH SOIL AND TAMP.

PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

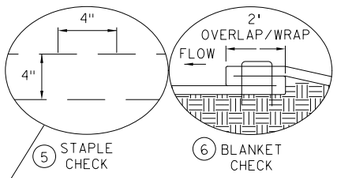


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

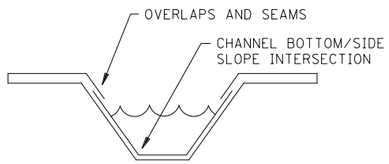
CHECK SLOT DETAILS



BLANKET OVERLAP
PLACE SINGLE ROW STAPLES AT 12" SPACING



DITCH BLANKET STAPLE DETAIL



DITCH BLANKET CRITICAL POINTS (7)

NOTES:

1. USE CHECK SLOT DETAIL (NO ALTERNATES).
2. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
3. USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
4. PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
5. USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5%. GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
6. USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:
   2.5%-3% 100' INTERVALS
   3%-5% 50' INTERVALS
   5%-7% 25' INTERVALS
7. CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.

GENERAL BLANKET INSTALLATION REQUIREMENTS

REPP = ROLLED EROSION PREVENTION PRODUCT.

PREPARE SOIL AS PER SPECIFICATION 2574.

LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".

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

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

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

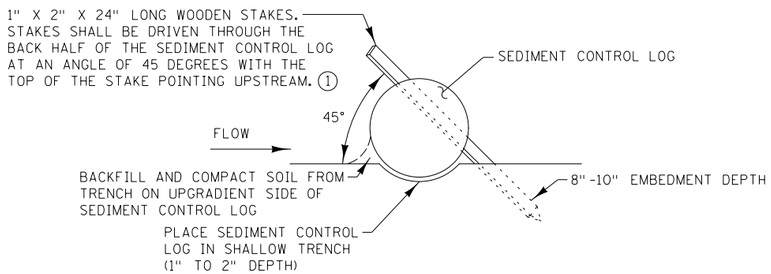
STANDARD PLAN 5-297.404 | 3 OF 3

APPROVED: 1-8-2020
REVISED:

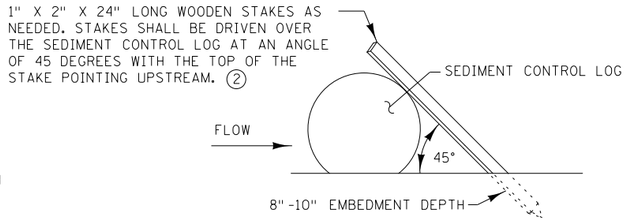
PERMANENT EROSION CONTROL

REPP (BLANKET) STAPLE PATTERN FOR SLOPES

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 63 OF 125 SHEETS

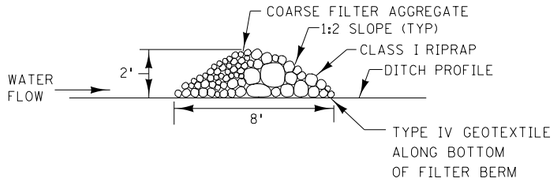


TYPES: STRAW, WOOD FIBER, OR COIR

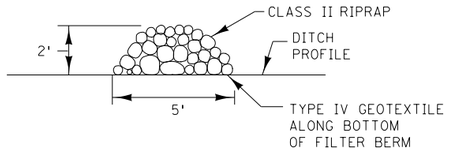


TYPES: WOOD CHIP, COMPOST, OR ROCK

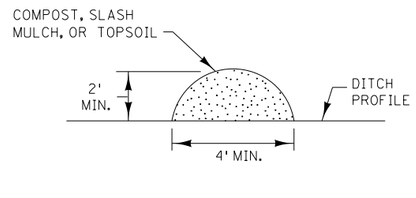
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

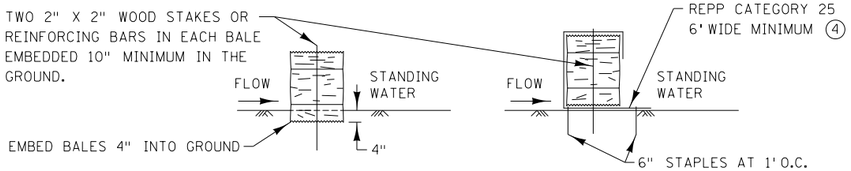


TYPE 5 (ROCK)



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:

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MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 2 OF 8

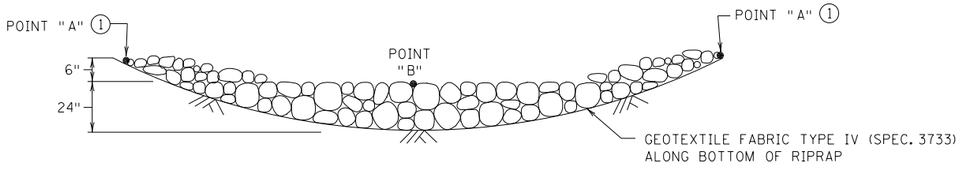
APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

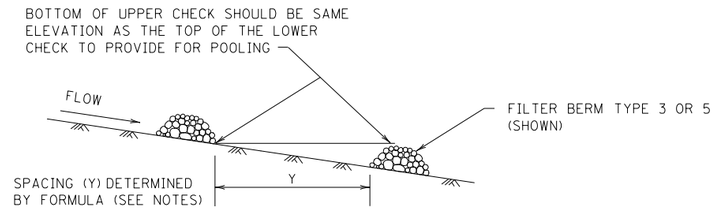
TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

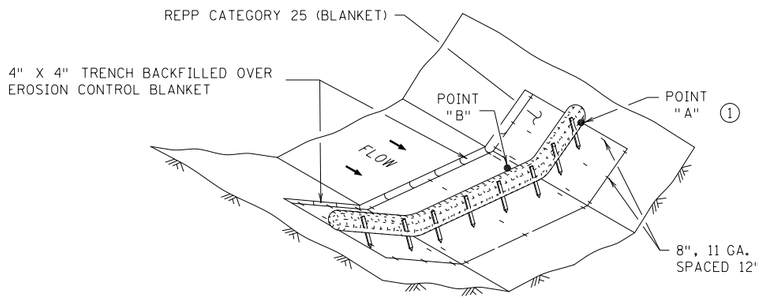
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 64 OF 125 SHEETS

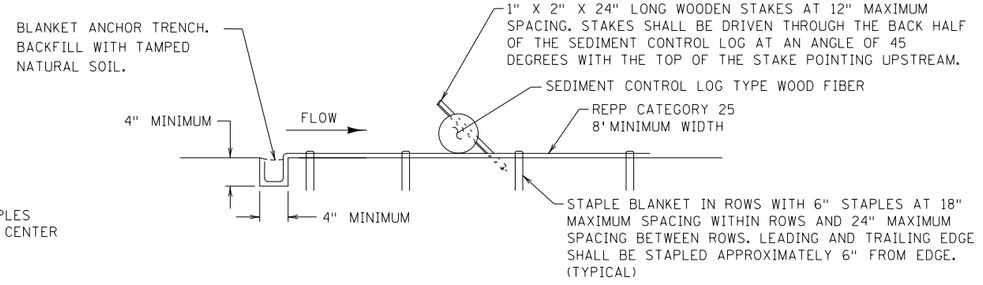


ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③
FOR USE ON ROUGH-GRADED AREAS
ONLY FOR USE OUTSIDE CLEAR ZONE ②

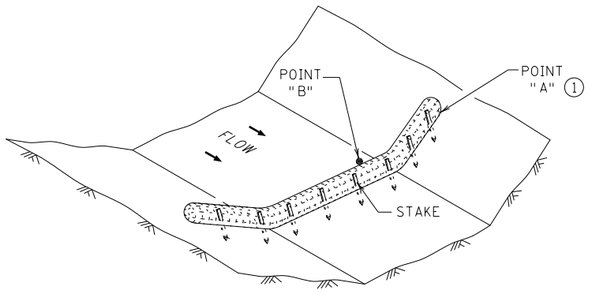


DITCH CHECK SPACING
FOR ALL FILTER BERM TYPES





SEDIMENT CONTROL LOG TYPE REPP (BLANKET) SYSTEM ④



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

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

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

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

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

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

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

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

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

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

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

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

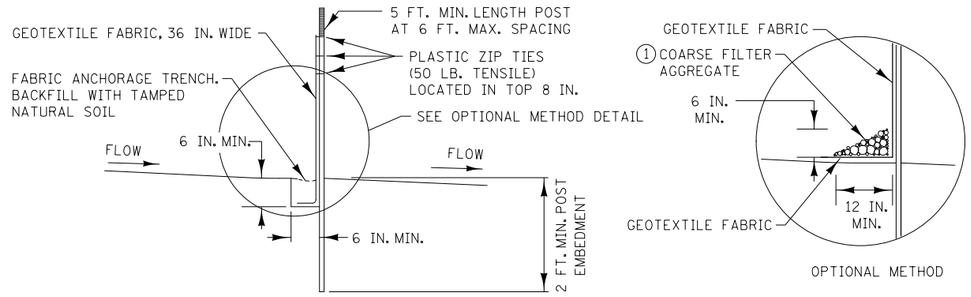
STANDARD PLAN 5-297.405 | 3 OF 8

APPROVED: 1-8-2020
REVISED:

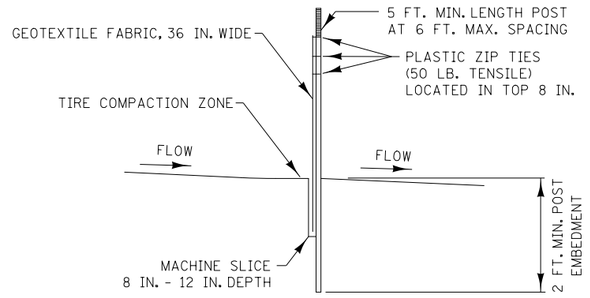
THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 65 OF 125 SHEETS



SILT FENCE TYPE HI ②
(HAND INSTALLED)



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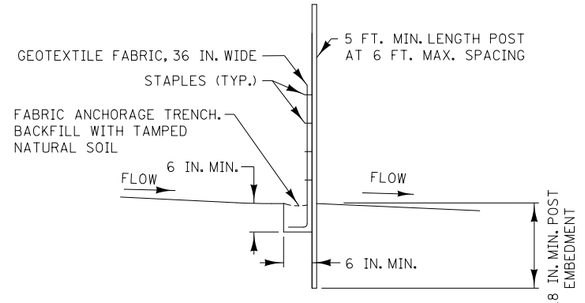

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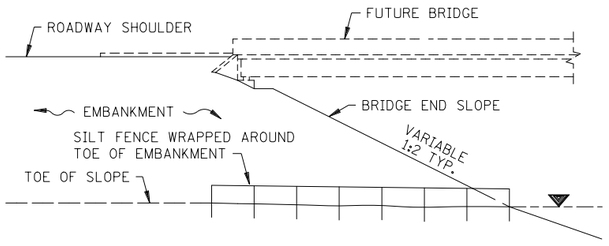
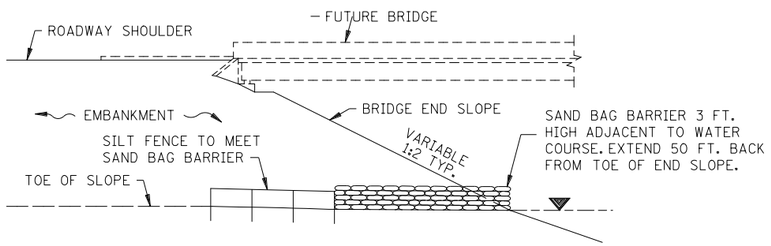
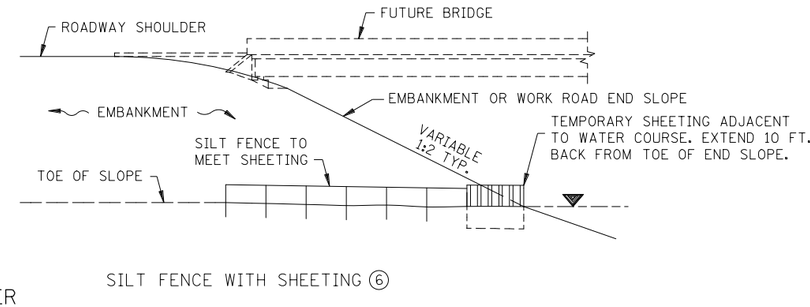
(PREASSEMBLED)



SILT FENCE ONLY ④

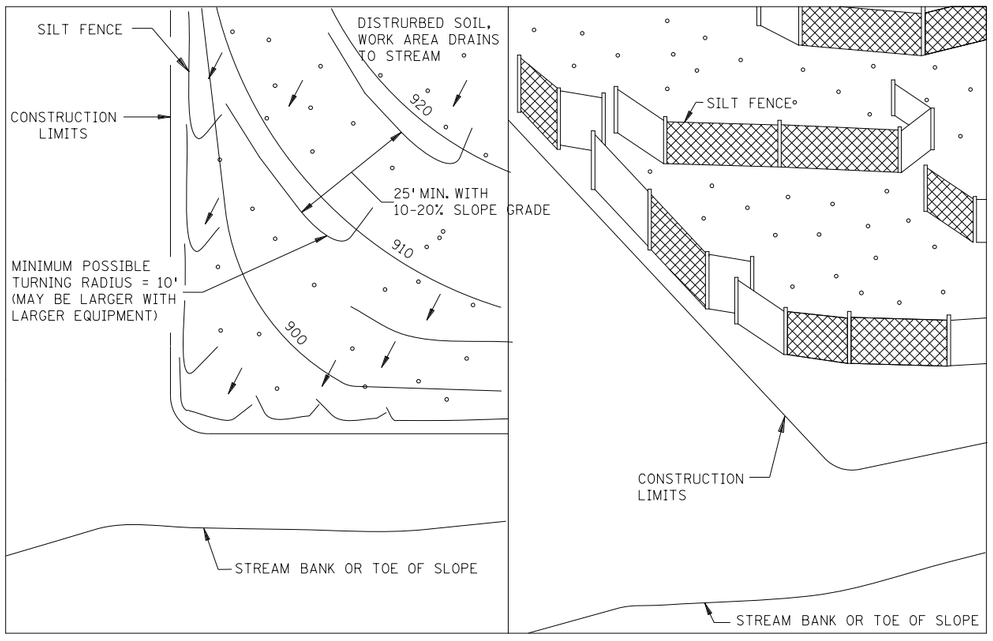


SILT FENCE WITH SAND BAGS ⑤



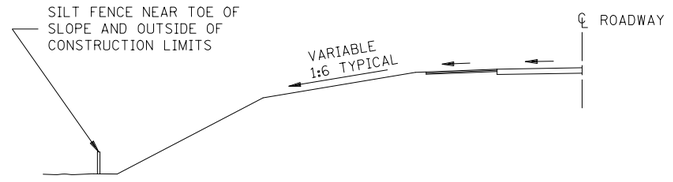
SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

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

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

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

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

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

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

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

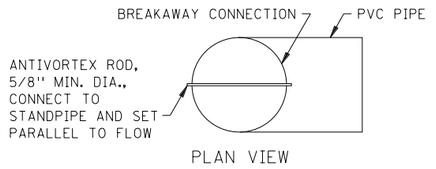
STANDARD PLAN 5-297.405 | 6 OF 8

APPROVED: 2-28-2017
REVISED:

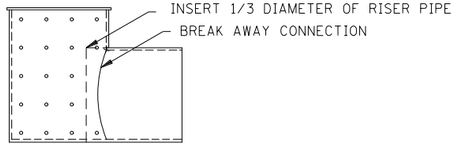
TEMPORARY SEDIMENT CONTROL

SILT FENCE

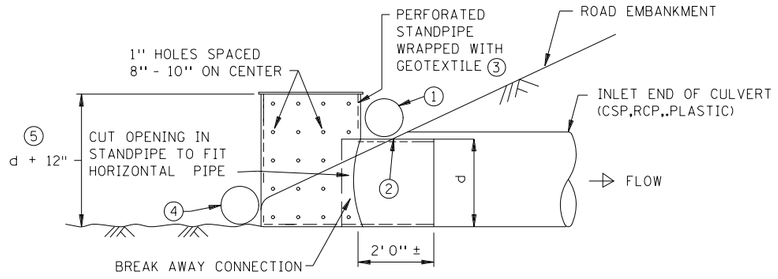
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 66 OF 125 SHEETS



PLAN VIEW



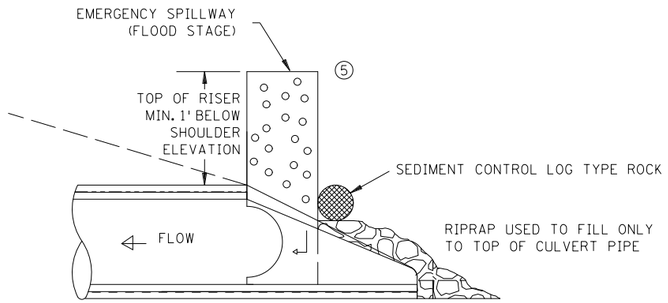
CULVERT STANDPIPE



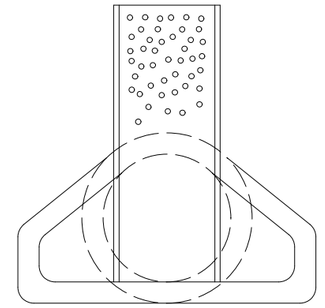
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

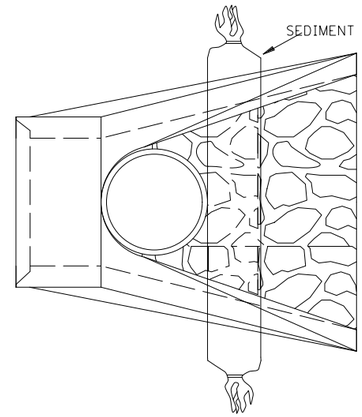
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



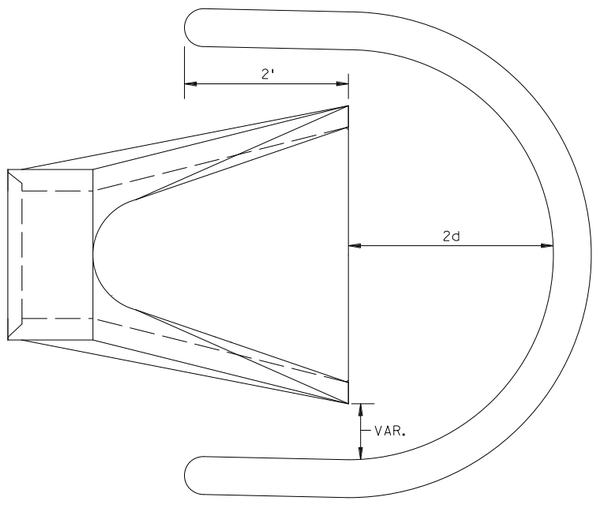
END VIEW



TOP VIEW

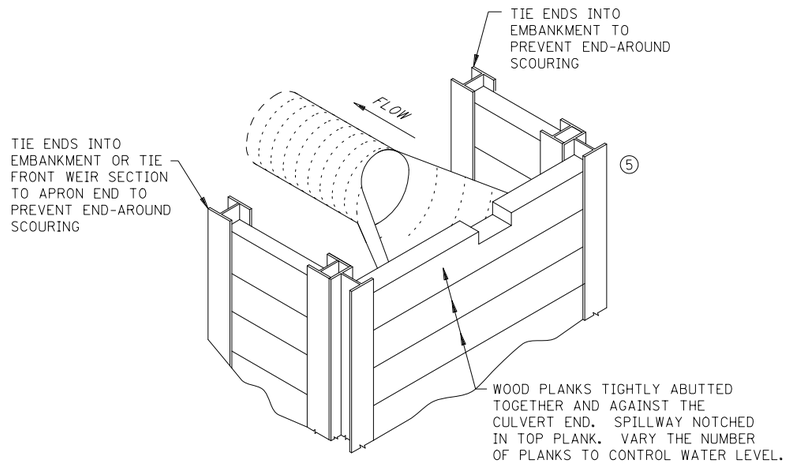
NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER

CULVERT STANDPIPE INSERT (D-RISER)



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

d = CULVERT SIZE: 12"-36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

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

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

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

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

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

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

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

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 8 OF 8

APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

CULVERT END CONTROLS

S.A.P. 056-635-043 | C.S.A.H. 35 | SHEET NO. 67 OF 125 SHEETS

Project Description/Location:
Project is located on County State Aid Highway 35 from Minnesota Highway 108 to County State Aid Highway 4 in Otter Tail County, Minnesota. The latitude/longitude of the approximate centroid of the project is 46°36'00.11"N – latitude/ 95°45'54.65"W – longitude. Google earth was utilized to acquire the project coordinates.

Rehabilitation of County State Aid Highway 35. Rehabilitation will include stabilized full depth reclaim, profile correction, ditch grading and shoulder widening.

Land Feature Changes:
Total disturbed area: 48.26 acres
Total existing impervious area: 38.44 acres
Total proposed impervious area: 41.05 acres
Total proposed net change in impervious area: 2.61 acres

Project Contacts:

	Agency	Contact	Phone No.
Owner:	Otter Tail County	Krysten Foster	218.998.8475
Contractor:	TBD	TBD	TBD
State:	MPCA	MPCA Duty Officer	(651) 649-5451

Chain of Responsibility:
The Contractor is the permitee for the national pollutant discharge elimination system (NPDES) construction 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. The contractor will develop a chain of command with all operators on the site to ensure that the SWPPP with be implemented and stay in effect until the construction project is complete, the entire site has undergone final stabilization, and a notice of termination (NOT) has been submitted to the MPCA.

Contractors Responsibilities:
The Contractor shall be responsible for compliance with, monitoring, and maintenance of the requirement of the MPCA general storm water permit for construction activity. The Contractor must identify a certified erosion and sediment control supervisor. This person must be knowledgeable and experienced in the application of erosion prevention and sediment control bmp's. This person is to oversee the implementation of this SWPPP, and the installation, inspection, and maintenance of the erosion prevention and sediment control bmp's before, during, and after construction. The SWPPP is to remain in effect until the project is complete, the entire site has undergone final stabilization, and the MPCA permit been terminated.

Project Personnel and Training:
Name of person with Best Management Practices (BMP) experience who will oversee SWPPP implementation and coordinate with contractor:

SWPPP Designer:
Company: Moore Engineering Inc
Name: Anthony Johnson
Email: anthony.johnson@mooreengineeringinc.com
Phone: 701.282.5312
Training date(s): 01.26.2022
Training activity/content: Design of Construction SWPPP
Instructor(s) name(s): Revecca Foreman

Individual overseeing implementation, revision and/or amendment of the SWPPP that are available for an onsite inspection within 72 hours upon request of MPCA:
TBD and will be documented in this SWPPP narrative prior to start of construction.

Individual performing or supervising the installation, maintenance and repair of BMPs:
TBD and will be documented in this SWPPP narrative prior to start of construction.

Discharges to special and impaired waters:
Discharging into a special or impaired water must comply with MNR100001 Permit 2023 reference 23 of the NPDES Permit.

Little McDonald Lake (AUID: 56-0328-00) is an impaired lake with impaired use for AQC and AQL and is located within the project limits.
Lake Paul (AUID: 56-0335-00) is an impaired lake with impaired use for AQL that is located within 1 mile of the project limits.
Big McDonal Lake (AUID: 56-0386-01) is an impaired lake with impaired use for AQC and AQL that is located within 1 mile of the project limits.
Lake Sybil (AUID: 56-0387-00) is an impaired lake with impaired use for AQC that is located within 1 mile of the project limits.
East Loon Lake (AUID: 56-0523-00) is an impaired lake with impaired use for AQC and is located within the project limits.

Total Maximum Daily Load (TMDL) Waters – there are no TMDL within one mile of the project limits.

Designated Trout Stream – there are no trout streams within one mile of the project limits.

Discharges to Wetlands:
Discharging into a wetland must comply with MNR100001 Permit 2023 reference 22 of the NPDES Permit.

Permits:
The following water related permits apply to this project:

Agency	Type of Permit
Minnesota Pollution Control Agency (MPCA)	NPDES Construction Permit
Otter Tail County	Conditional Use Permit

Review all permits for any special conditions that will affect construction of the project.

Stormwater mitigation measures proposed to be part of the final project in any environmental review document, endangered species review, archeological or other required local, state, or federal review conducted for the project:
- There are no stormwater mitigation measures required as a result of an environmental, archeological or agency review. All mitigation measures-have been addressed in this plan set or the special provisions.
- This project is not located in a well head protection area. This project is not located in a drinking water supply management area (DWSMA).

Any required site assessments for groundwater or soil contamination:
- No site assessment for groundwater or soil contamination was conducted prior to construction for the project.

Estimated Quantities:

Item	Estimated Quantity
Silt Fence, Type MS	**7208 LIN FT**
Sediment Control Log, Type Wood Chip	**32130 LIN FT**
Rapid Stabilization Method 3	**75.4 GAL**
Seeding	**12.6 ACRE**

SWPPP Amendments:
Permitee must amend SWPPP within 7 days to include additional requirements to correct problems identified or address the following situations:

1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions.
2. Inspections or investigations by site owner or operators, USEPA or MPCA officials determine the SWPPP is not minimizing discharge of pollutants to surface waters or underground waters or discharges are causing water quality standard exceedances.
3. The SWPPP is not achieving the objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of the permit.
4. The MPCA determines that the project's stormwater discharges may cause, have reasonable potential to cause, or contribute to non-attainment of any applicable water quality standard, or the SWPPP does not incorporate the applicable requirements of the permit.

BMP Selection and Stormwater Management:
Permittees must select, install, and maintain the BMPs identified in this SWPPP and in the NPDES permit in an appropriate and functional manner and in accordance with relevant manufacturer specifications and accepted engineering practices to minimize the discharge of pollutants in stormwater from construction activities. If erosion control netting is being utilized for soil stabilization, the permittee is encouraged to use products that have been shown to minimize impacts on wildlife.

Erosion/Sediment Control Measures:
Erosion and sediment control measures must comply with MNR100001 Permit 2023 reference 8 and 9 of the NPDES Permit.

A. Areas not to be disturbed must be properly marked before work begins.
B. Must minimize the need for disturbance of portions of the project with steep slopes.
C. Exposed soils (including stockpiles) must have erosion protection/cover initiated immediately and completed within 14 days (or 7 days per Section 23).
D. For DNR Public Waters with "work in waters restrictions" during specified fish spawning time frames, stabilization must be completed for all exposed soil areas within 200 feet of the water's edge, and draining to the water, within 24 hours during the restriction period.
E. The wetted perimeter of the last 200 linear feet of ditches must be stabilized within 24 hours of connecting to a surface water or property line.
F. Temporary or permanent ditches or swales that are being used as a sediment containment system during construction must be stabilized within 24 hours after no longer being used as a sediment containment system.
G. Pipe outlets must have energy dissipation within 24 hours of connecting to a surface water or permanent stormwater treatment system.
H. Mulch, hydro mulch, tackifier, polyacrylamide, or similar erosion prevention practices cannot be used within the normal wetted perimeter of drainage ditches or swale sections with a continuous slope greater than 2%.
I. Must not disturb more land than what can be effectively inspected and maintained.

PATH & FILENAME: C:\Project Working Files\23544 - CSAH 35\23544_swppp.dgn
PLOTTED/REVISED: 04/16/25

REVIEWER: NAA	DATE: 04/16/25	OTTER TAIL COUNTY MINNESOTA	moore engineering, inc.	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. NAME NICHOLAS A. ANDERSON SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25	STORM WATER POLLUTION PREVENTION PLAN
DRAFTER: ARJ	DATE: 04/16/25				S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 68 OF 125 SHEETS

J. Sediment control practices must be established on downgradient perimeters and upgradient of any buffer zones.
K. If downgradient sediment controls are overloaded, based on frequent failure or excessive maintenance requirements, install additional upgradient sediment control practices or redundant BMPs to eliminate the overloading.
L. Sediment control practices must be established at the base of stockpiles on the downgradient perimeter prior to the initiation of stockpiling.
M. Stockpiles must be located outside of natural buffers or surface waters, including stormwater conveyances (e.g., curb and gutter systems) unless there is a bypass.
N. Permittees must install temporary sediment basins as required in Section 14 of the NPDES Permit.
O. Inlet protection BMPs shall be placed at all storm sewer system inlets prior to any work in those areas until permanent cover on all areas that receive discharge from the inlet are established.
P. Inlet protection may be removed for a particular inlet if a safety concern is identified, and it must be documented in this SWPPP.
Q. Sediment tracked onto a public street must be removed within 24 hours.
R. Must re-install all sediment control practices adjusted or removed to accommodate short-term activities immediately after the short-term activity is completed or before the next precipitation event even if the short-term activity is not complete.
S. Topsoil must be preserved unless infeasible.
T. Soil compaction must be minimized.
U. Discharges from BMPs must be directed to vegetated areas, unless infeasible.
V. 50-foot natural buffers must be preserved or (if maintaining buffer is infeasible) redundant sediment controls must be provided when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.
W. Any sediment control made of soil must be temporarily or permanently stabilized within 24 hours.

Dewatering:
Dewatering related to the construction activity must comply with MNR100001 Permit 2023 reference 10 of the NPDES Permit. Dewatering must not cause nuisance conditions in surface waters. Turbid or sediment-laden waters must be discharged to a sediment control designed to prevent discharges with visual turbidity. It is prohibited to use receiving waters as part of the treatment area. Visual inspection and photos must be taken every 24 hours of operation to ensure adequate treatment has been obtained and nuisance conditions will not result from the discharge. If nuisance conditions occur from the discharge, dewatering must cease immediately, and corrective actions must occur before dewatering is resumed. Discharge from dewatering must be protected from erosion and scouring by an acceptable energy dissipation method, such as rock riprap, or sandbags. If using filters with backwash water, backwash water must be hauled away for disposal, returned to the beginning of the treatment process, or incorporated into the site in a manner that does not erode into runoff.

Temporary dewatering activities may be required. Therefore, it is possible that a permit for the temporary appropriation of waters of the state, non-irrigation from MNDNR will be required for this project. The contractor is responsible for obtaining this permit prior to commencing dewatering activities.

Site Inspection and Maintenance:
Inspections must comply with MNR100001 Permit 2023 reference 11 of the NPDES Permit. A trained person (as identified in item 21.2.b. of the NPDES Permit) must inspect the entire construction site a minimum of once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. Inspect and maintain all temporary and permanent stormwater treatment BMPs, and erosion prevention and sediment control BMPS until the site has undergone final stabilization and the NOT has been submitted. Inspect areas adjacent to the project, surface water including drainage ditches and conveyance systems for evidence of erosion and sediment deposition. Inspect construction site vehicle exit locations, streets, and curb and gutter systems within and adjacent to the project for evidence of sedimentation from erosion or tracked sediment from vehicles. Inspect infiltration areas for signs of sediment deposition and compaction.

Record all inspections and maintenance activities in writing within 24 hours of above stated rainfall. Submit inspection reports in a format that is acceptable to the project engineer. Include the following in the records of each inspection:

A. Date and time of inspection.
B. Name of person(s) conducting inspection.
C. Accurate findings of inspections, including the specific location where corrective actions are needed.
D. Corrective actions taken (including dates, times, and party completing maintenance activities).
E. Date and amount of all rainfall events greater than 0.5 inch in 24 hours. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
F. If any discharge is observed during the inspection, it must be recorded. Discharge should also be photographed and described.
G. Any amendments to the SWPPP proposed as a result of the inspection must be documented as required in Section 6 within seven (7) calendar days.
H. All photographs of dewatering activities and documentation of nuisance conditions as a result of dewatering

Maintenance requirements are as listed below:

A. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.
B. All deltas and sediment deposits must be removed from surface waters (including drainage ways, catch basins, and other drainage systems). Removal and stabilization must be completed within seven days of discovery. Contact all appropriate authorities prior to working in surface waters.
C. Sediment on paved surfaces must be removed within one calendar day of discovery, or within a shorter time to avoid a safety hazard.
D. Perimeter control devices must be repaired, replaced, or supplemented when nonfunctional or sediment reaches one-half the height of the device. Complete repairs by the end of the next business day following discovery.
E. Temporary and permanent sediment basins must be drained, and sediment removed when the depth of sediment collected reaches one-half storage volume within 72 hours of discovery.
F. Dewatering operations must be inspected and photographed at the beginning and at least once every 24 hours during operation.
G. Repair or replace inlet protection devices within 24 hours of discovery when they become nonfunctional, or sediment reaches 1/2 the height and/or depth of the device.

Methods to minimize soil compaction and preserve topsoil:
The contractor is responsible for marking areas that are not to be disturbed on the site. These areas must be marked prior to any construction occurring with stakes, flags, signs, or other appropriate methods. The contractor is responsible for not allowing construction equipment and vehicles to enter these areas in order to minimize soil compaction. Whenever feasible, the contractor must preserve topsoil from the construction site.

Pollution Prevention Measures:
A. Store all construction materials that have potential to leach pollutants, landscape materials, pesticides, fertilizers, and treatment chemicals under cover (e.g., plastic sheeting or temporary roofs) to minimize contact with stormwater.
B. Store, collect and dispose solid waste in compliance with Minn. R. Ch. 7035.
C. Limit vehicle and equipment washing to a defined area of the site. Contain runoff from the washing area to a temporary sediment basin or other effective control. Properly dispose of all waste generated by vehicles and equipment washing. Engine degreasing is not allowed on the site.
D. Provide effective containment for all liquid and solid wastes generated by washout of concrete, stucco, paint, form release oils, curing compounds and other construction materials. Liquid and solid washout wastes must not contact the ground. The liquid and solid waste that is produced must be disposed of in compliance with the MPCA rules. A sign must be installed indicating the location of the washout facility.
E. Portable toilets must be positioned so that they are secure and sanitary waste will be properly disposed of.
F. Fuel and maintain vehicles in a designated contained area whenever feasible. Use drip pans or absorbents to prevent the discharge of spills or leaked chemicals. Provide a spill kit at each location that vehicles and equipment are fueled or maintained at. Spills must be reported and cleaned up immediately as required by Minn. Stat. 115.061.
G. 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. Storage and disposal of hazardous waste materials must be in compliance with Minn. R. ch. 7045

Permit Termination Conditions:
A Notice of Termination (NOT) can be submitted to the MPCA once the following guidelines are met:

A. Permanent uniform perennial vegetative cover must be established at minimum 70% density of its expected final growth.
B. The permanent stormwater treatment system is constructed, meets all requirements, and is operating as designed.
C. All temporary synthetic erosion prevention and sediment control BMPs must be removed, and the surrounding area must be restored to as designed.
D. Clean out sediment from conveyance systems and permanent stormwater treatment systems (return to design capacity).
E. For residential construction only, permit coverage terminates on individual lots if the lot is sold to the homeowner, structures are finished, and permanent cover is established. If permanent cover is not established install temporary erosion protection and downgradient perimeter control and distribute the MPCA's Homeowner Fact Sheet.
F. For construction on agricultural lands, the disturbed land must be returned to its preconstruction agricultural use.
G. When submitting the NOT ground or aerial photographs must be included to show the requirements of Section 13.2 of the NPDES Permit have been met.

Stabilization Time Frames:
A. 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.
B. Stabilize wetted perimeter of ditch (i.e. where the ditch gets wet).
C. Application of mulch, hydromulch, tackifier and polyarylamide are not acceptable stabilization methods in these areas.
D. Stabilize all areas of the site prior to the onset of winter. Any work still being performed will be snow mulched, seeded, and blanketed within the time frames in the NPDES permit.
E. Topsoil berms must be stabilized in order to be considered perimeter control BMPS. Use rapid stabilization method 2, 3, or 4 as directed by the engineer. The seed mix used in the rapid stabilization may be substituted as follows:
   a. Single year construction between May 1- August 1, seed with Seed Oats
   b. Single year construction between August 1and October 31, seed with Seed Winter Wheat
   c. Multi-year construction seed with Seed Two-Year Cover Crop
F. Keep ditches and exposed soils in an even rough graded condition in order to be able to apply erosion control mulches, hydromulches and blankets.
G.

Area	Time Frame
Last 200 lineal feet of drainage ditch or swale	Within 24 hours of connection to surface water or property edge
Remaining portions of drainage ditch or swale	14 days (or 7 days per Section 23 of the NDPES Permit)
Pipe and culvert outlets	24 hours

Exposed soils and stockpiles	14 days (or 7 days per Section 23 of the NPDES Permit)
Within 200 feet of a public water	24 hours

Temporary Sediment Basins:
None.

Permanent Stormwater Treatment Systems:
None.

Infeasibility Documentation:
No infeasible documentation requirements are anticipated for the project.

Record Retention:
The SWPPP must be kept at the site during construction by the permittee who has operational control of that portion of the site. The SWPPP and associated records must be stored and maintained by an employee or representative of the Owner for 3 years after the submission of the NOT. Responsibility for overseeing the records will be transferred to another employee or representative should the current personnel become uninvolved with the project or Owner. These records must include the following:

1. The final SWPPP
2. Any other stormwater related permits required for the project
3. Records of all inspection and maintenance conducted during construction
4. All permanent operation and maintenance agreements that have been implemented, including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance
5. All required calculations for design of the temporary and permanent Stormwater Management Systems.

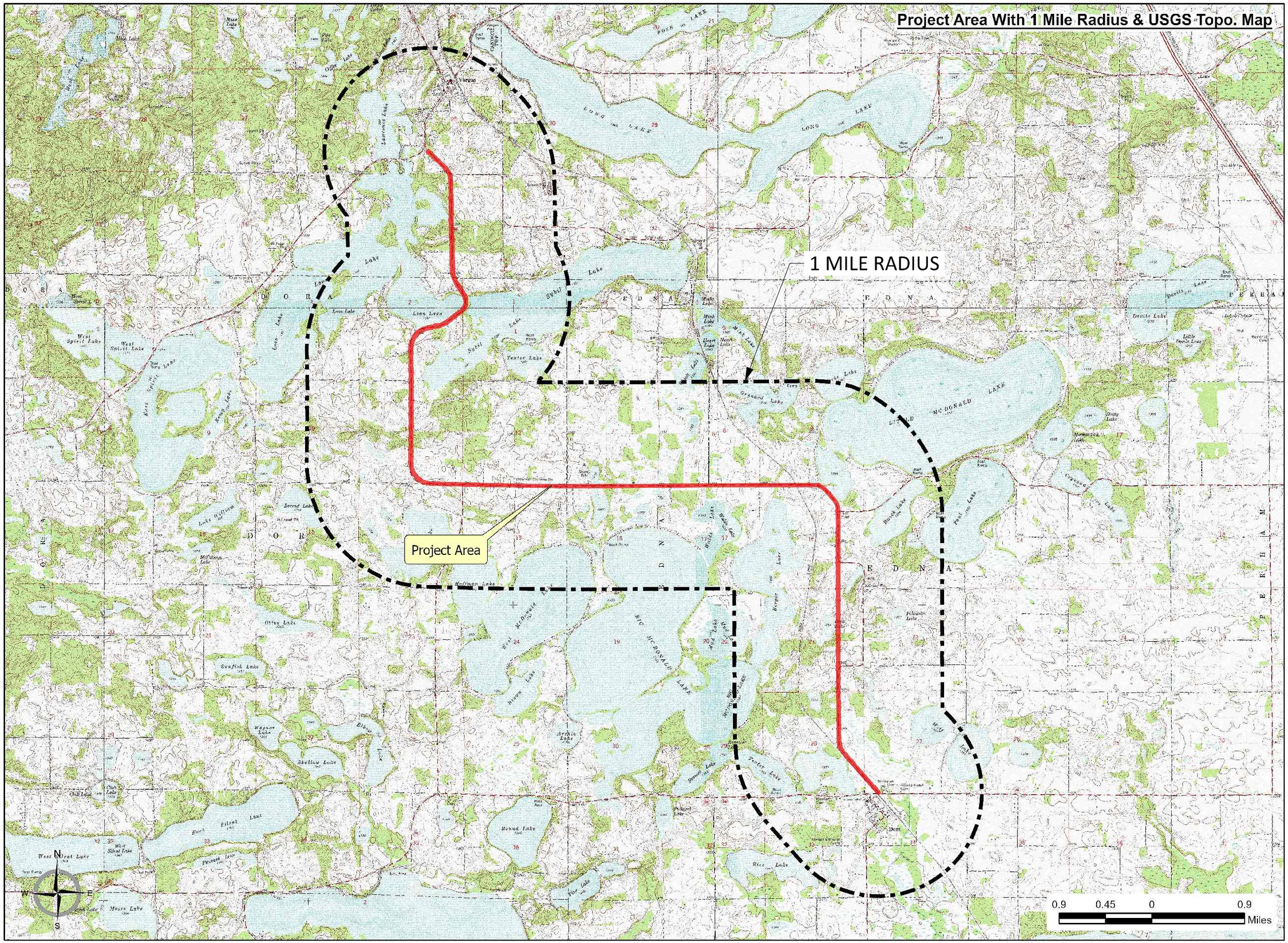
Permanent Cover:
Permanent cover is achieved when vegetative cover is established at minimum 70% density of its expected final growth. This can be done by using permanent seeding with mulch, erosion control blankets, riprap, gravel, concrete, bituminous, etc. The specific permanent cover types can be found in the plan sheets.

Construction Phasing:
[Must identify the locations of areas where construction will be phased to minimize the duration of exposed soil areas. Include a description of these areas.]

Chemical Treatment Systems:
Must use polymers, flocculants, or other sedimentation treatment chemicals in accordance with accepted engineering practices. Must be in compliance with MNR100001 Permit 2023 reference 9.18 of the NPDES Permit and Minn. R. 7090.

Location of SWPPP Requirements in Project Plan:
The required SWPPP elements may be located in many places within the plan set as well as in the special provisions, MnDOT Spec Book (2020 edition), or on file with Moore Engineering, Inc.

Project Area With 1 Mile Radius & USGS Topo. Map



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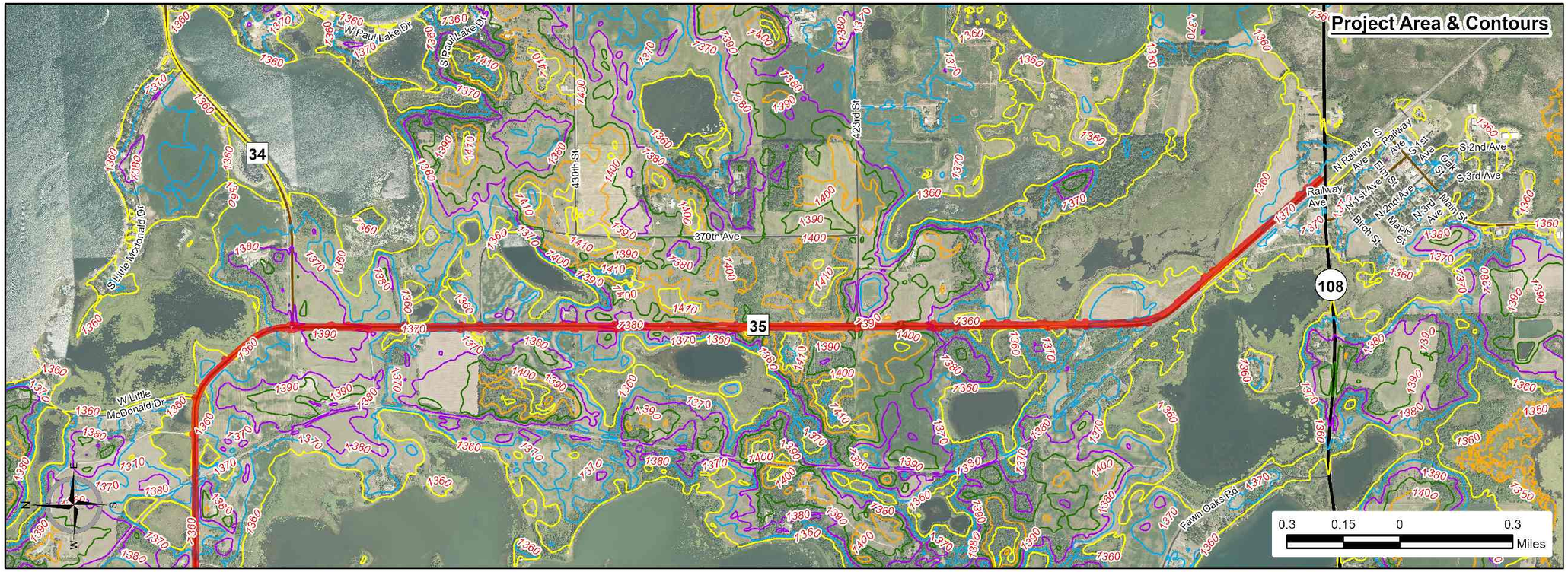
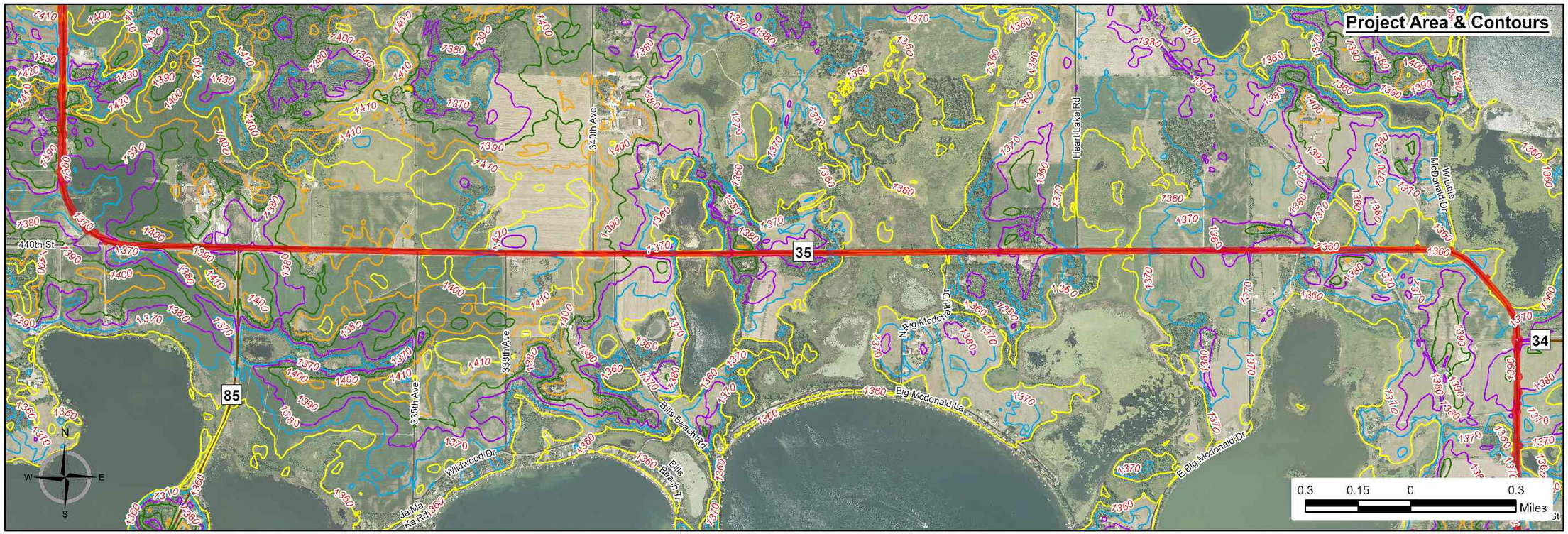
STORM WATER POLLUTION PREVENTION PLAN

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 71 OF 125 SHEETS





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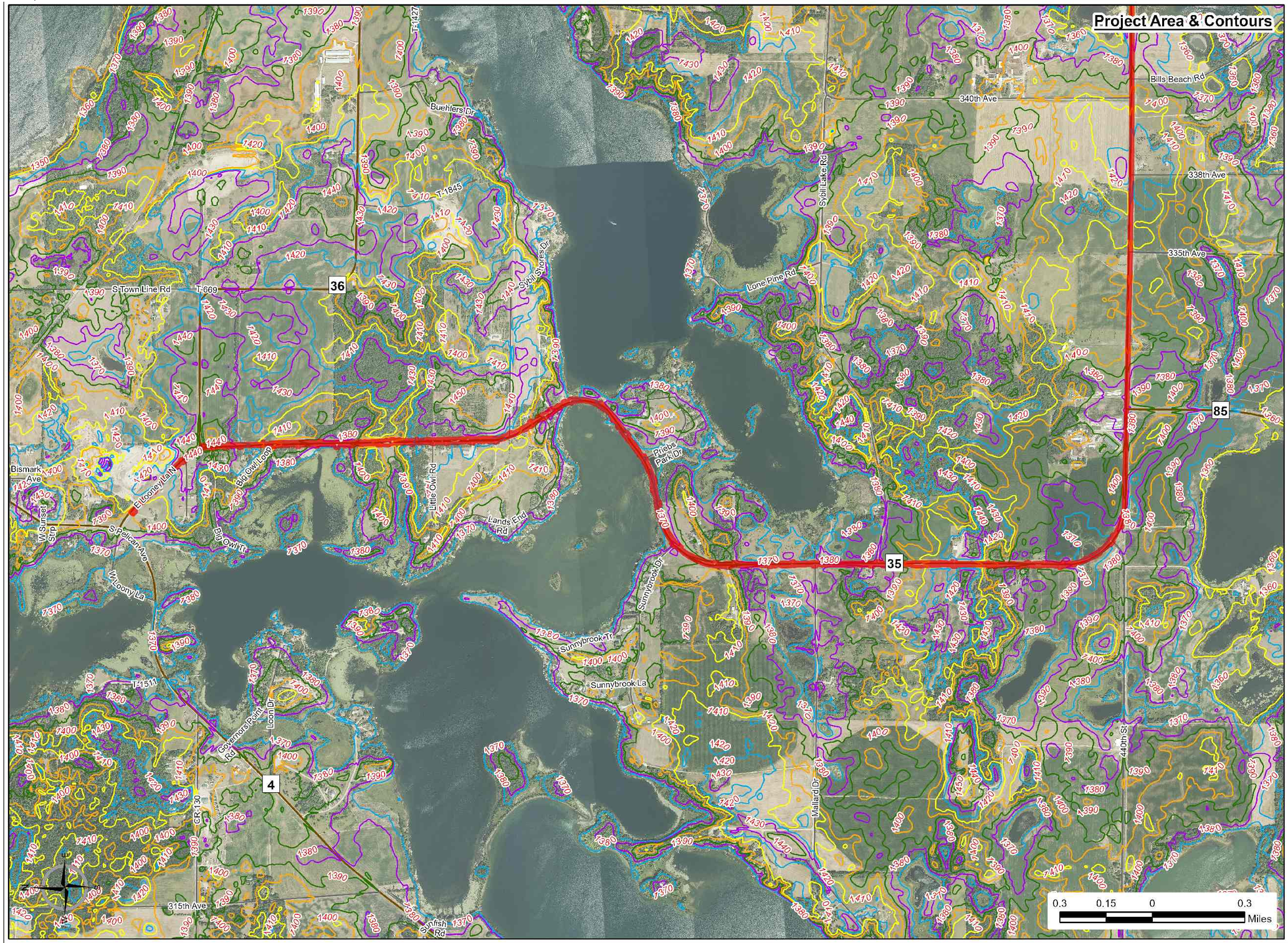

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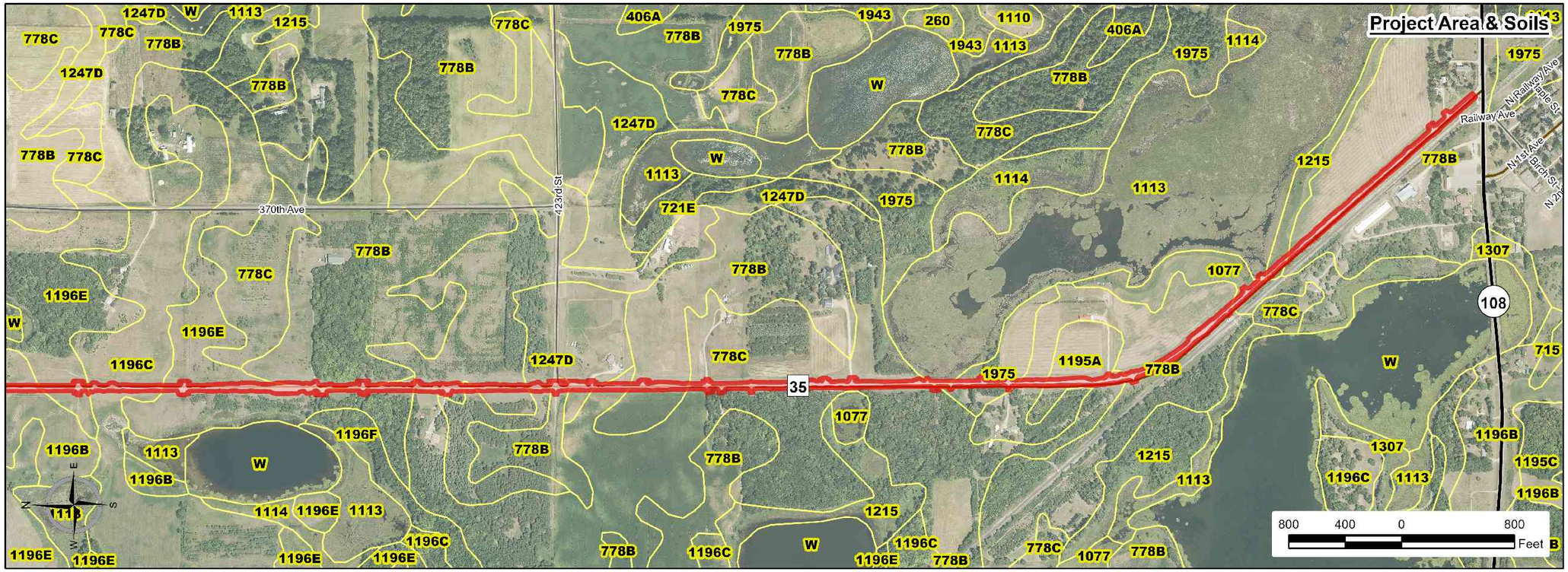

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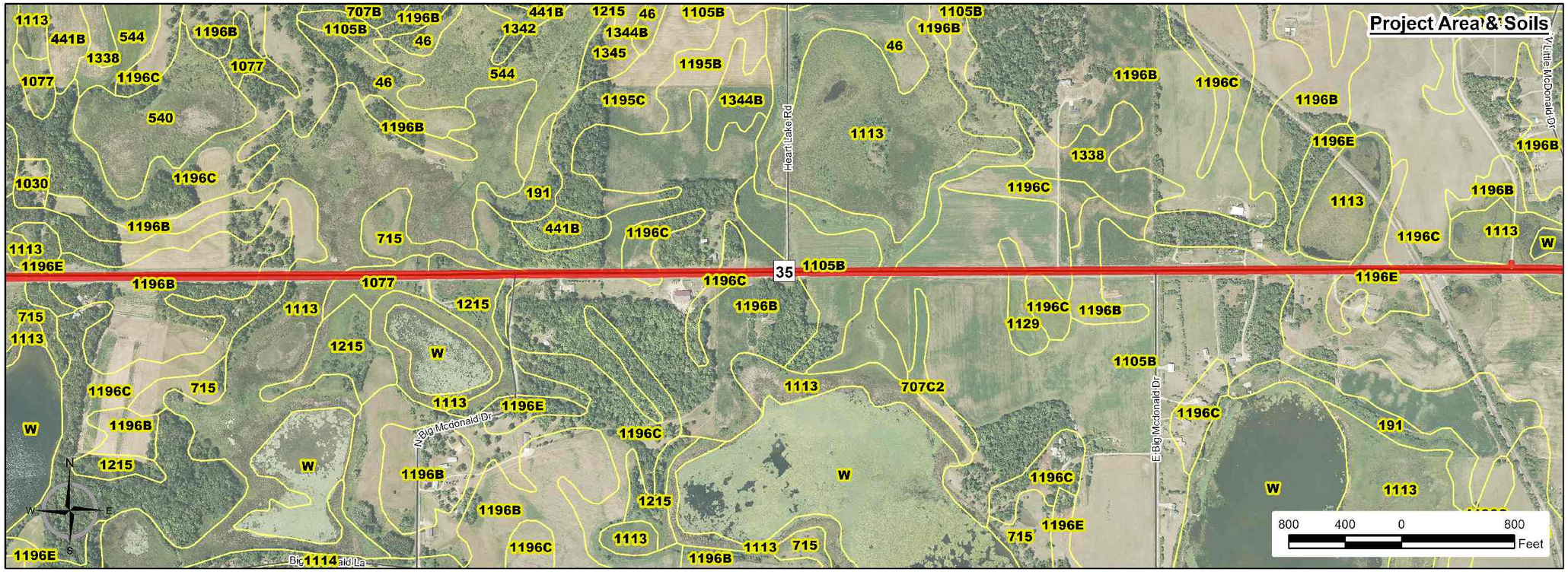

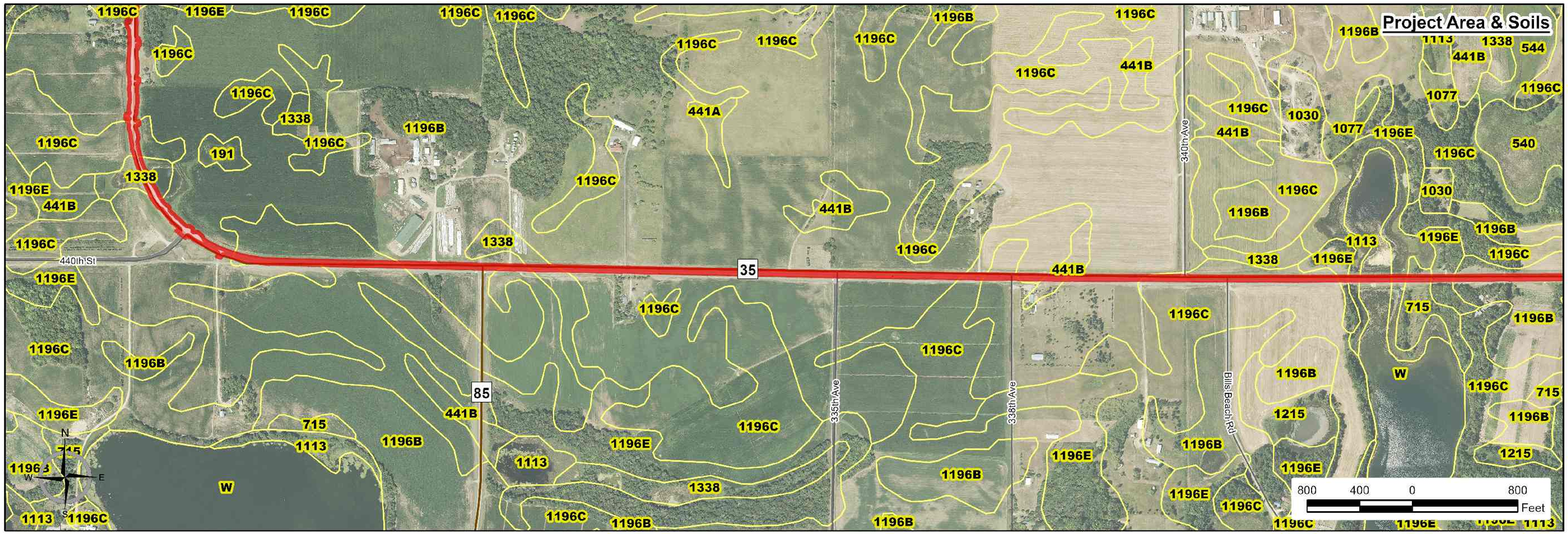

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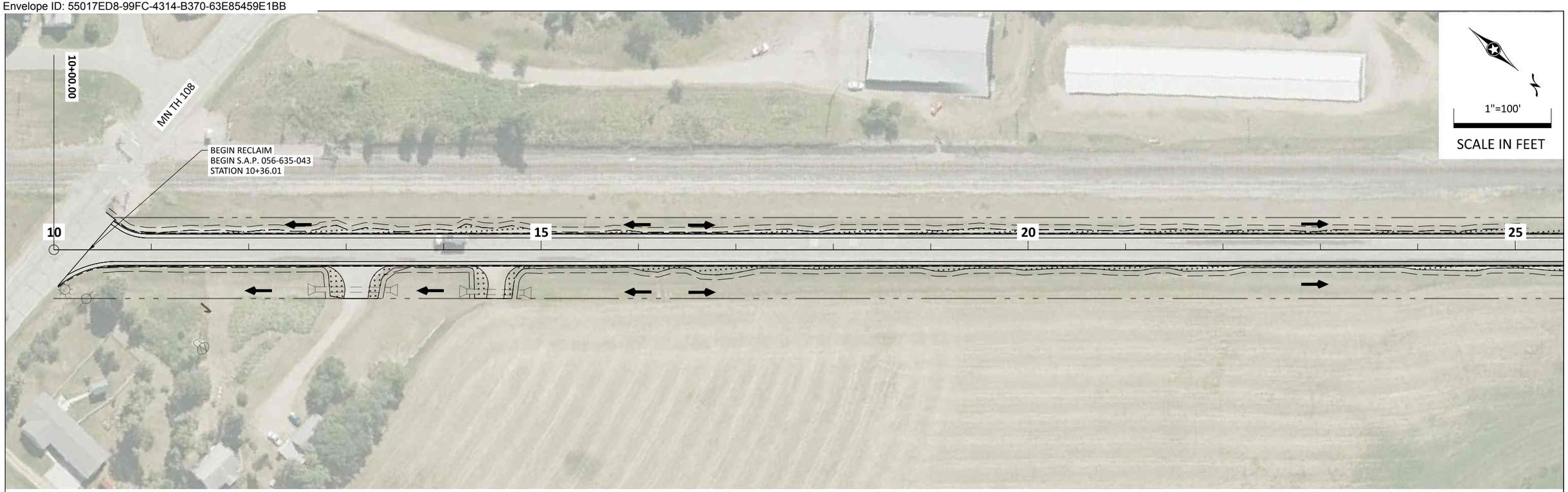

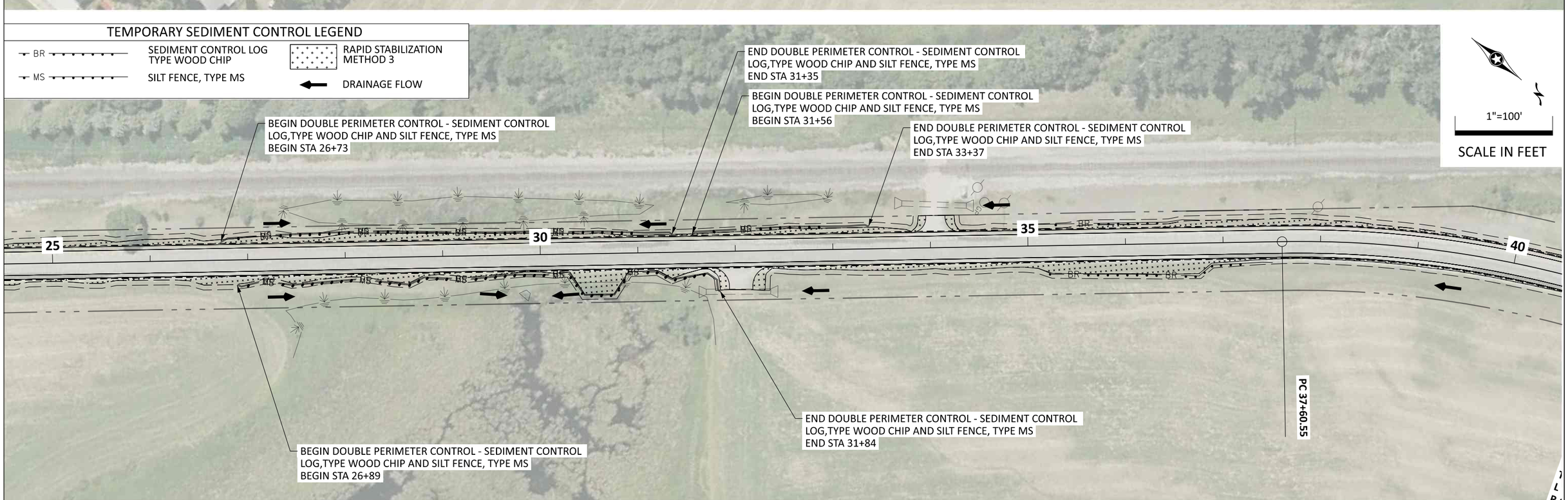

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MS — SILT FENCE, TYPE MS	DRAINAGE FLOW

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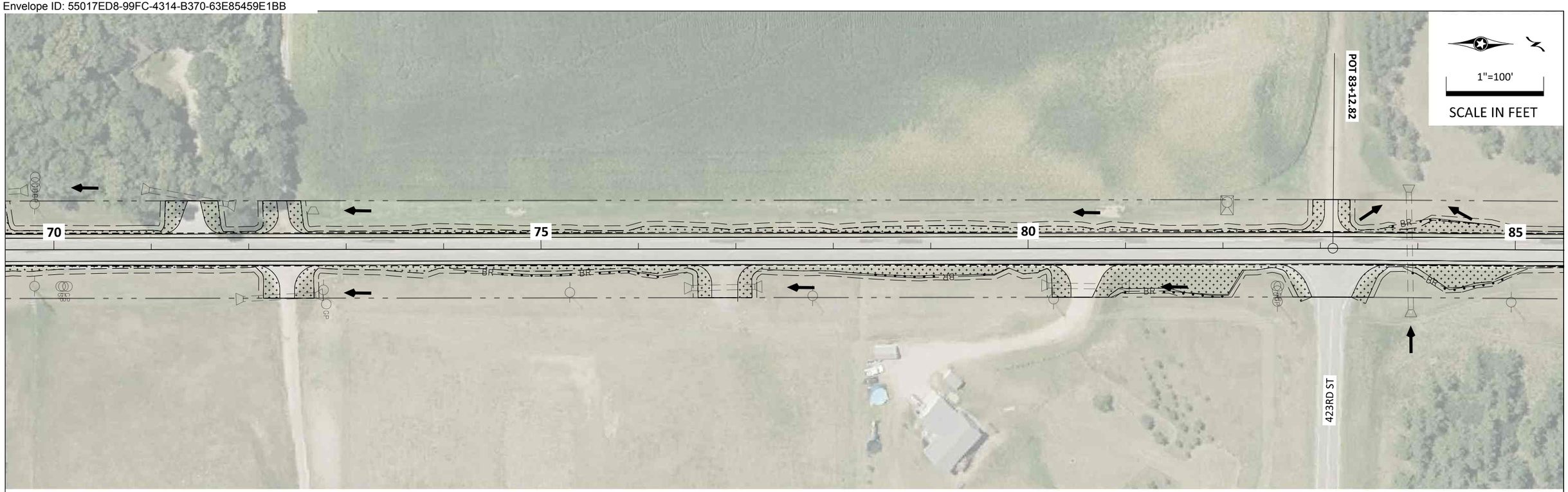

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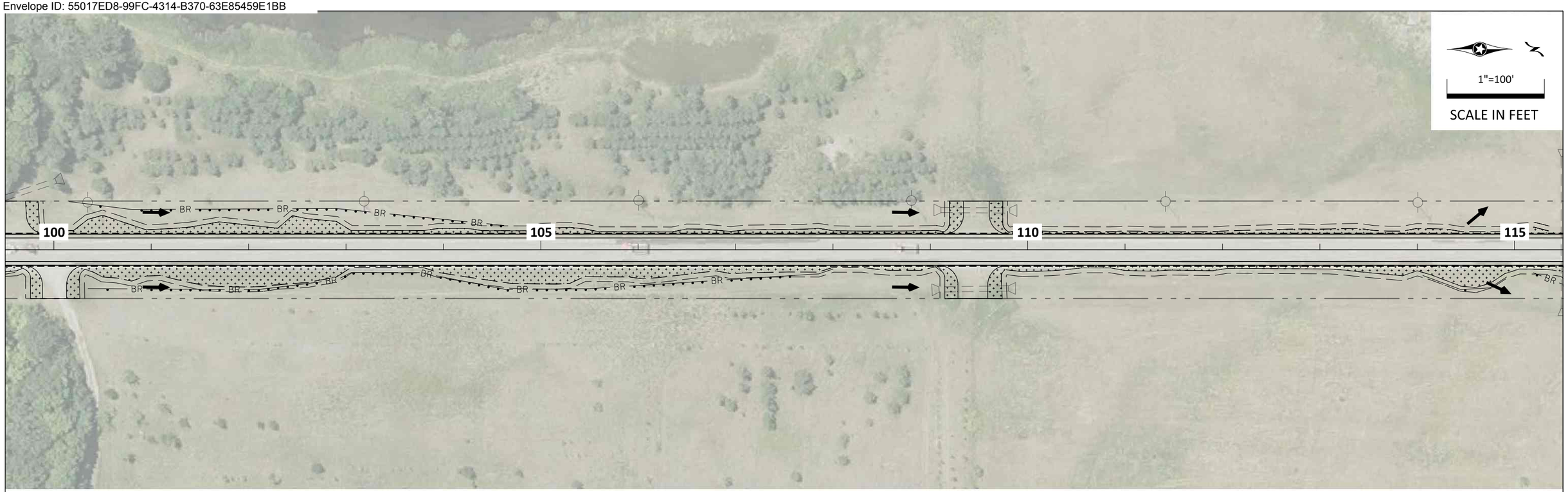

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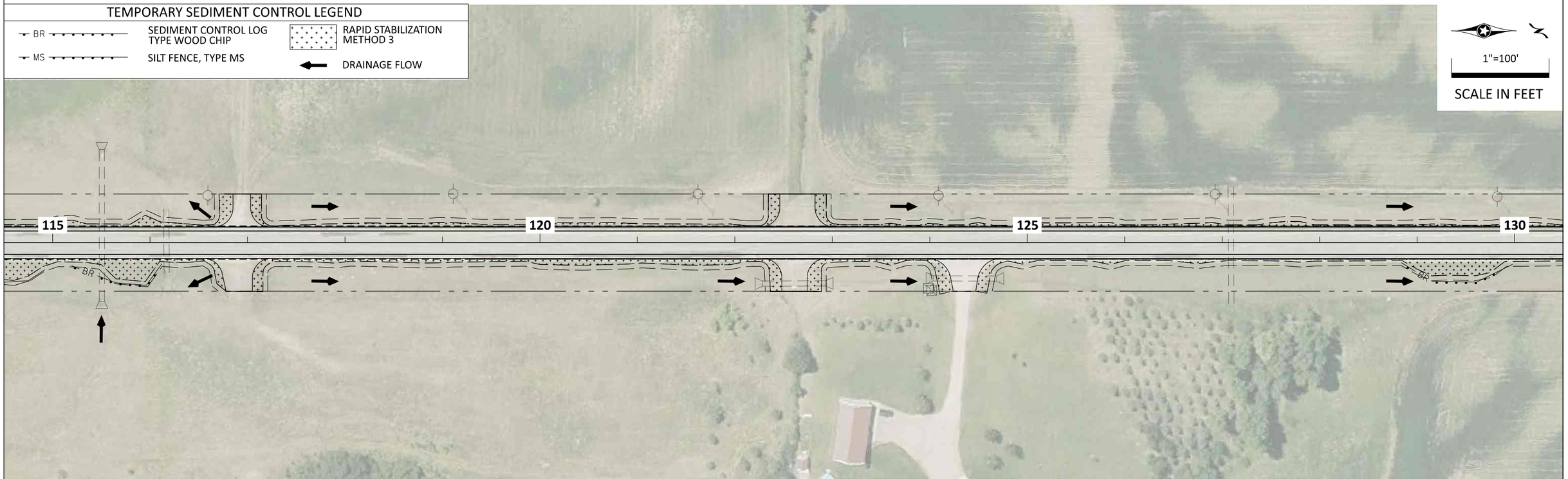

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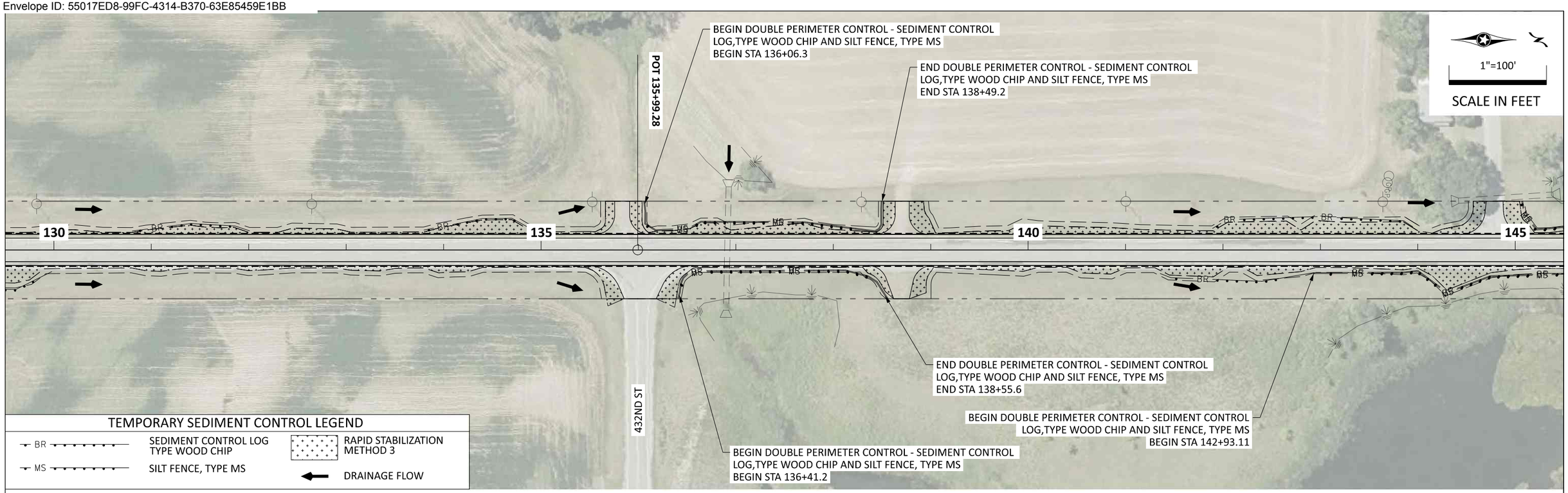

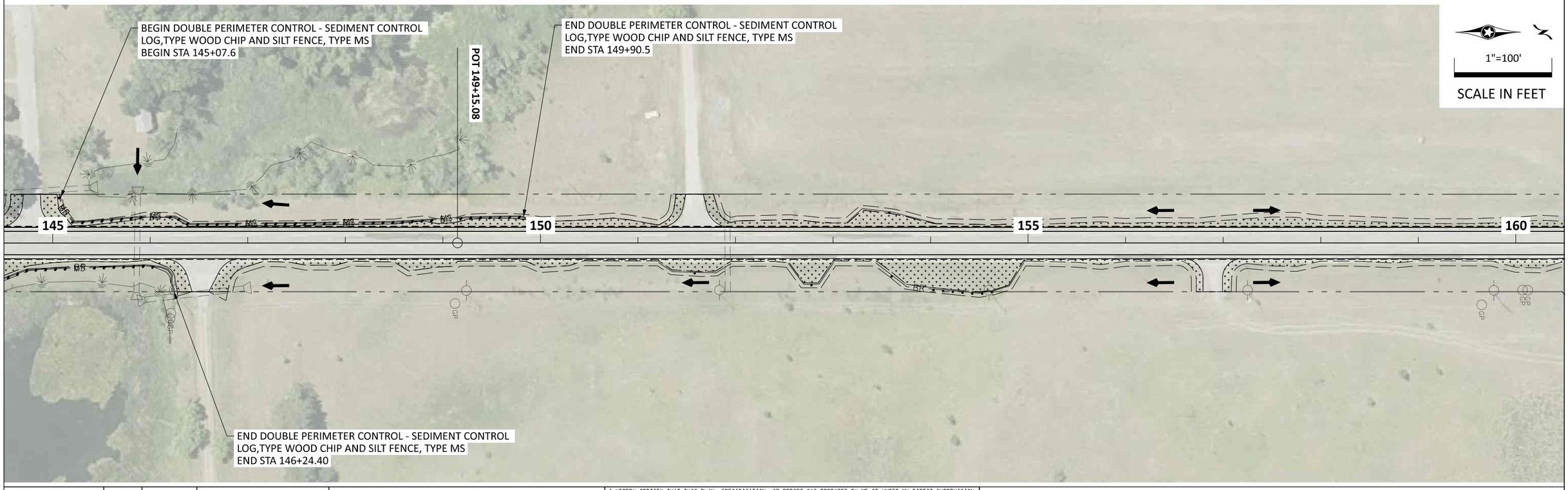

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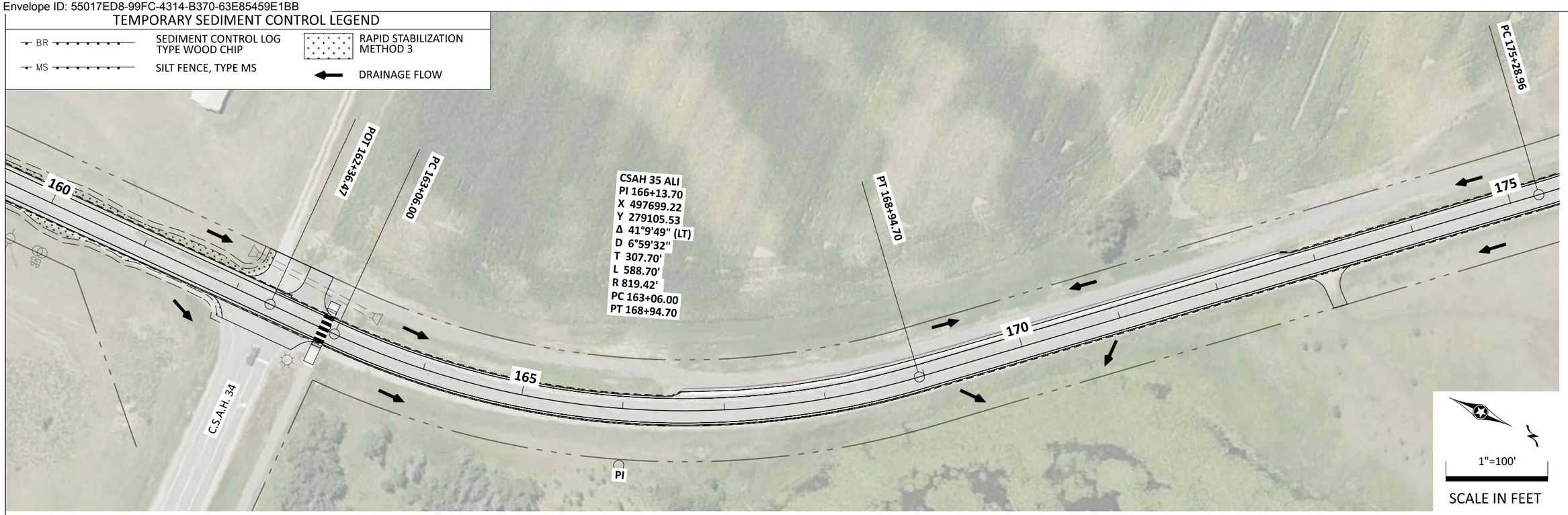

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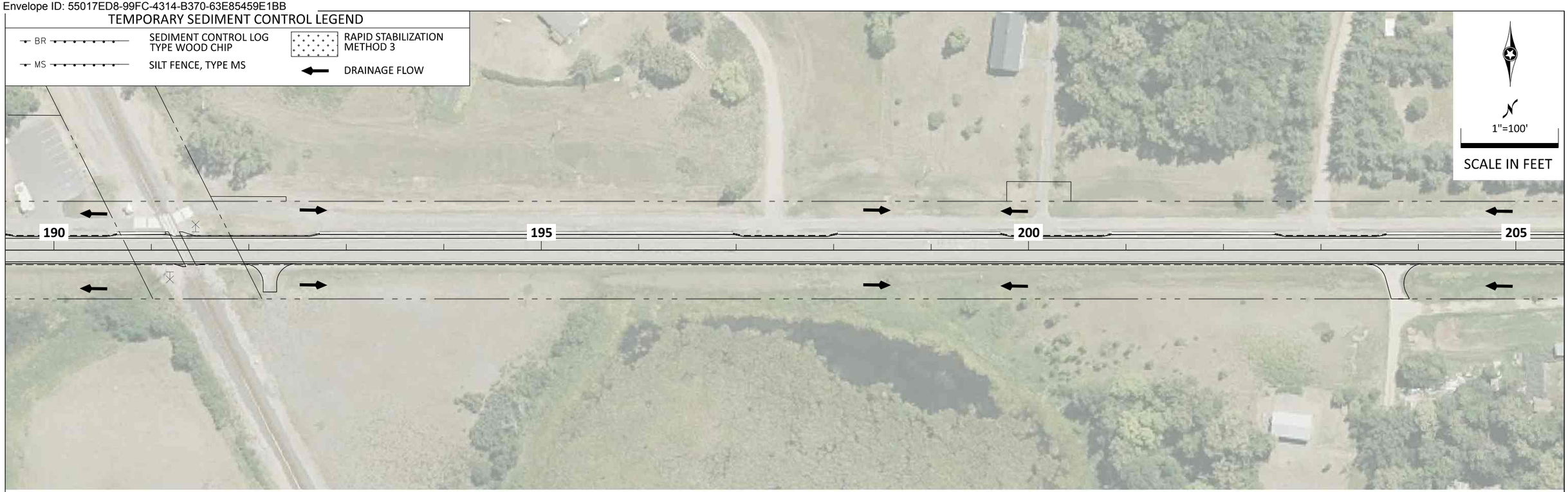

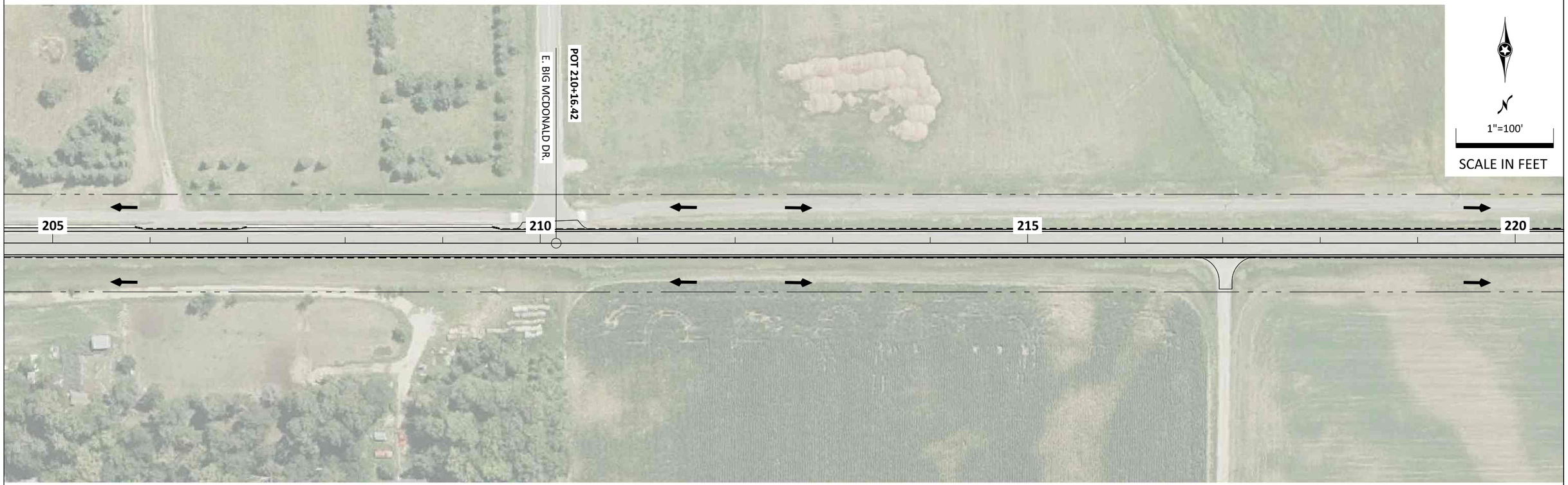

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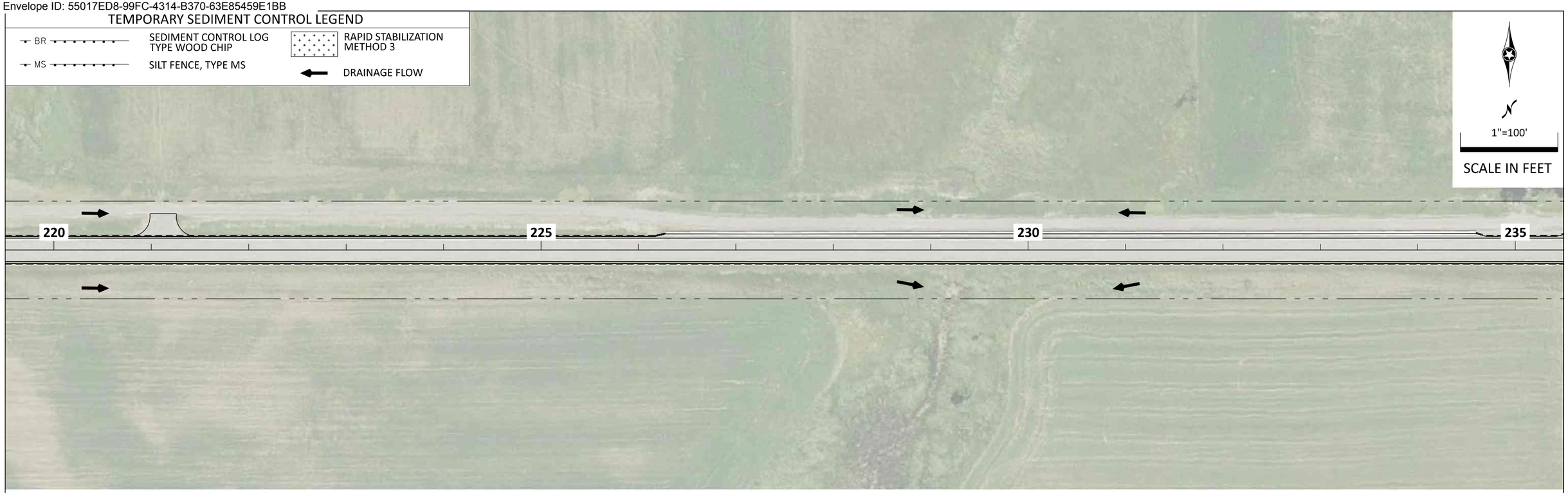

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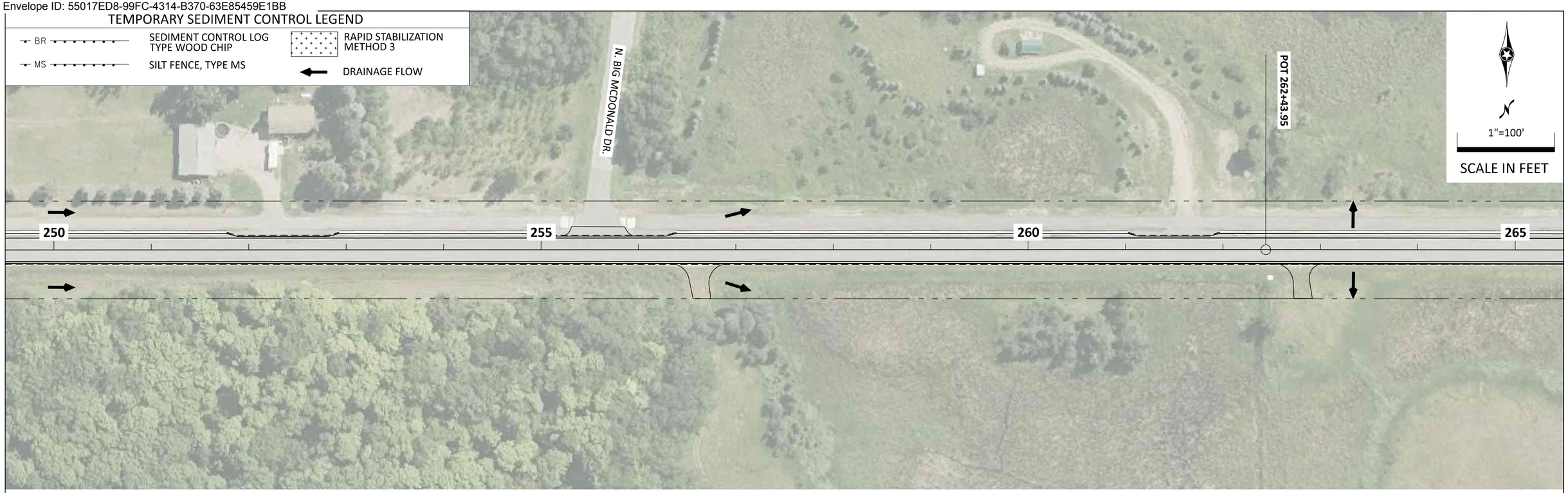

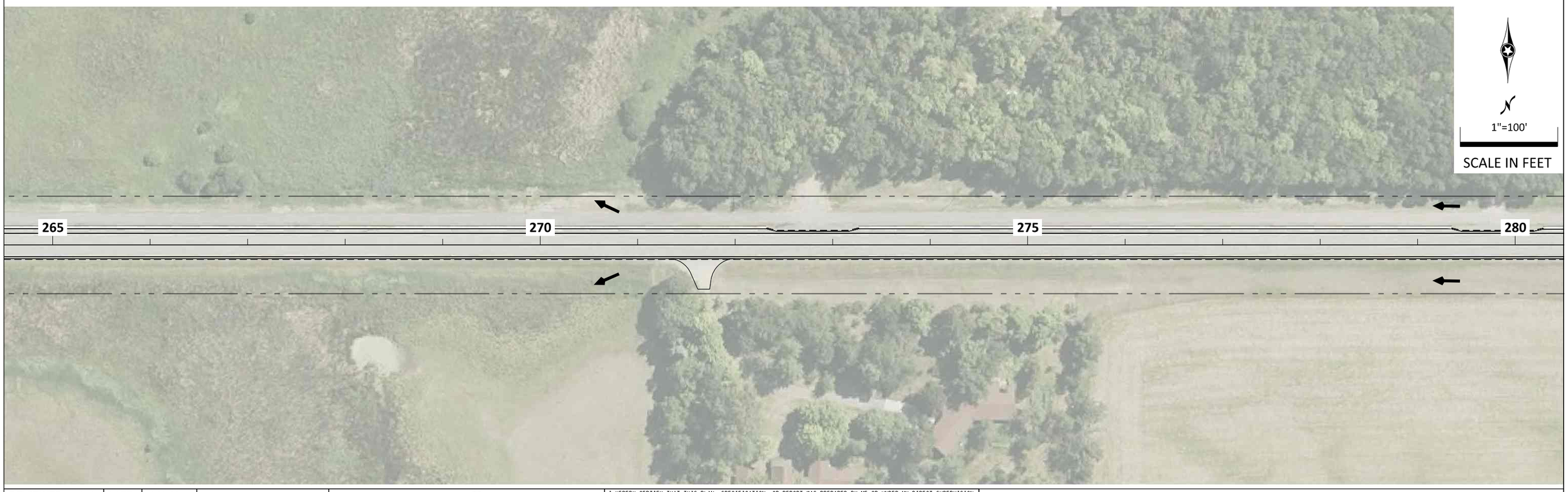

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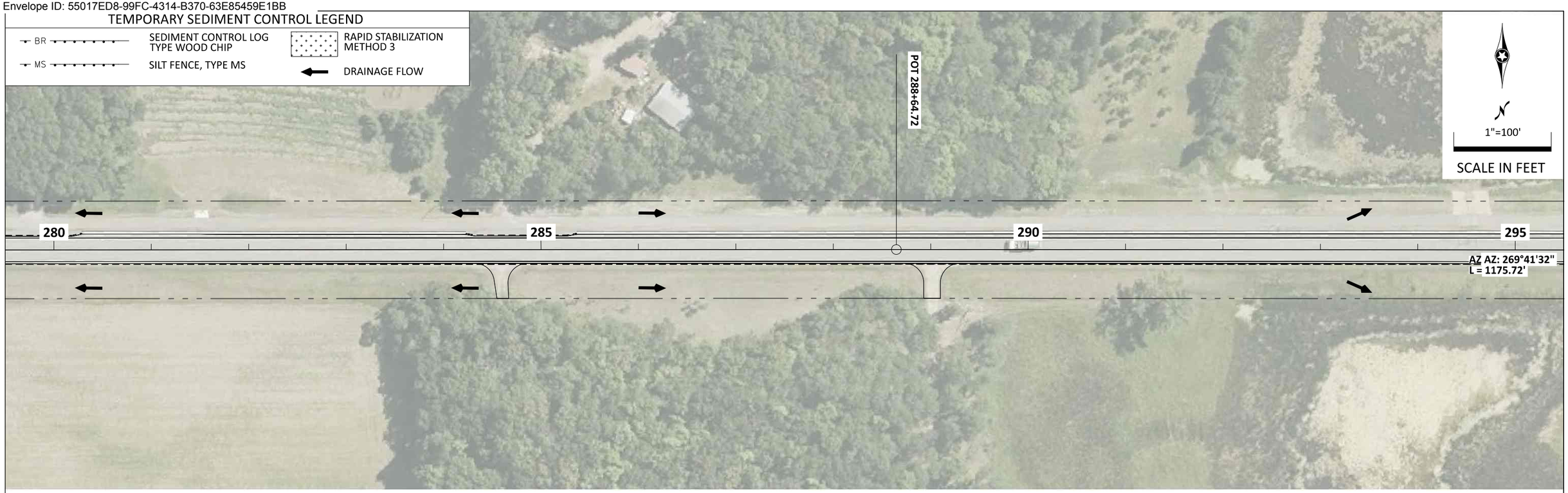

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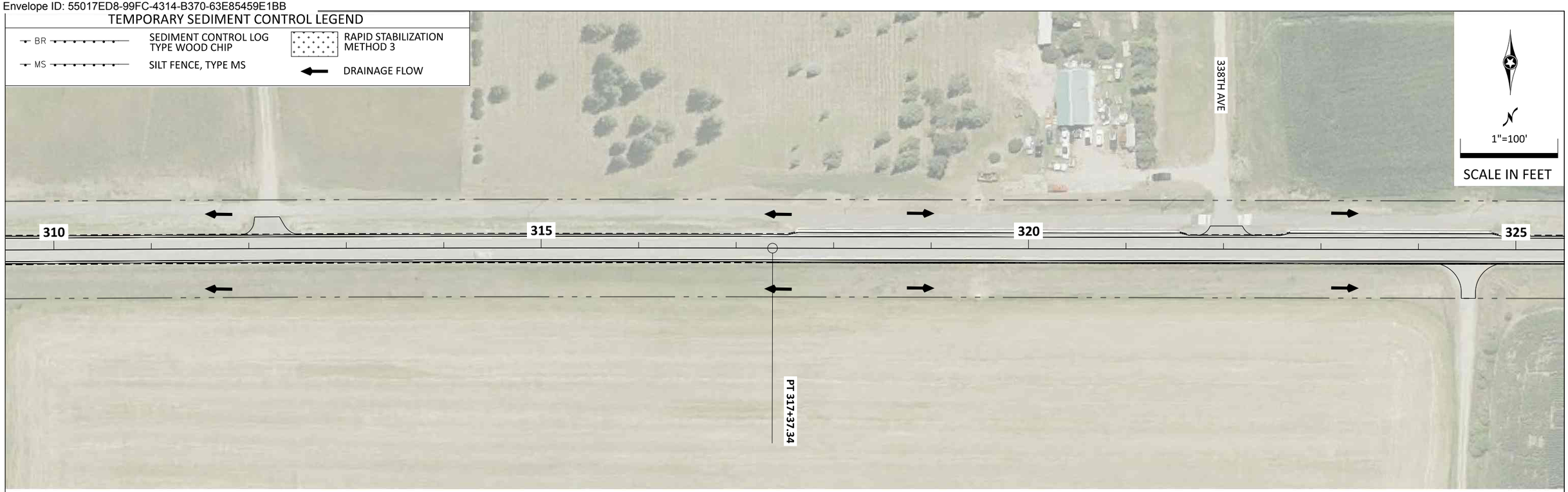
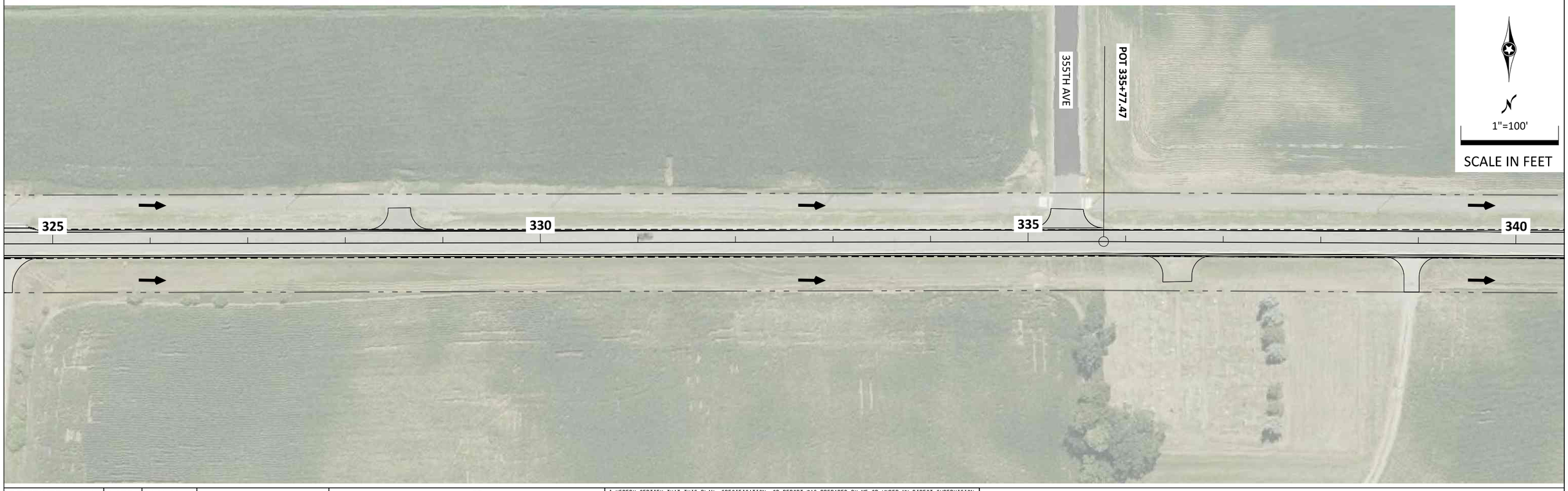
MS ——•——•—— SILT FENCE, TYPE MS	DRAINAGE FLOW





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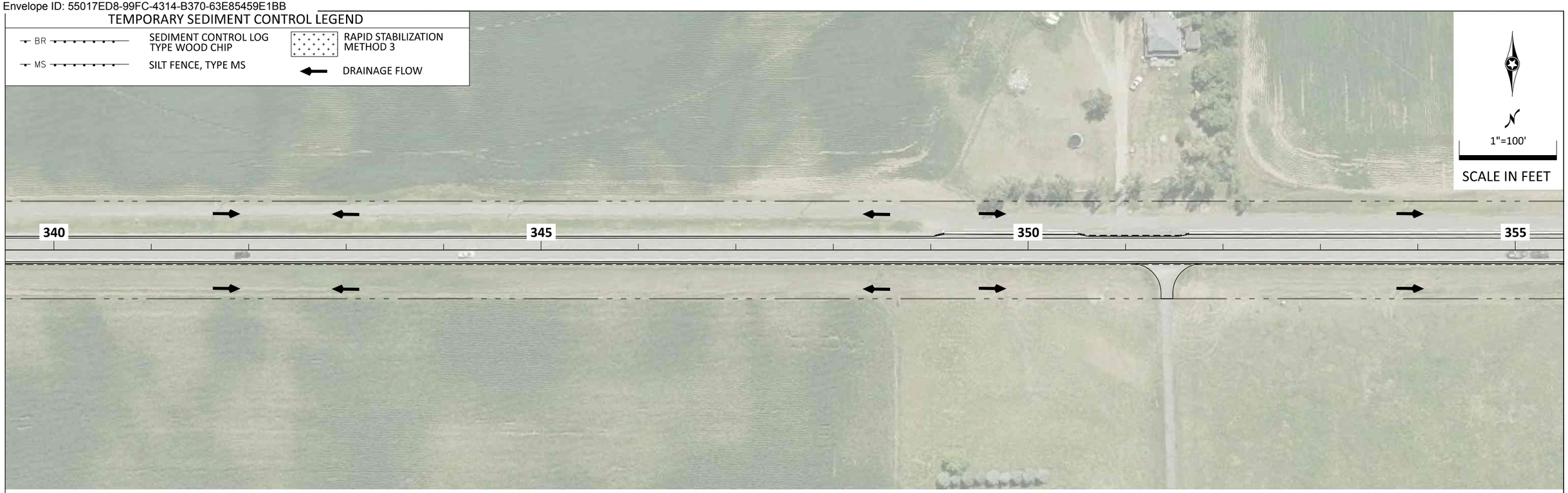
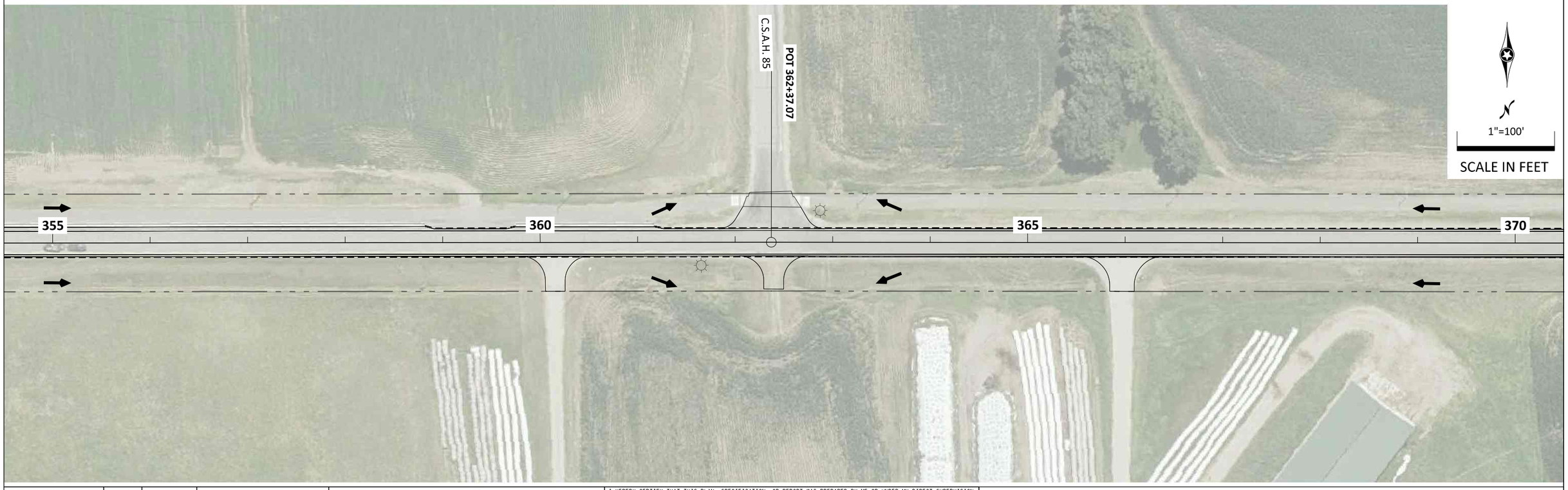
- DRAINAGE FLOW





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DRAFTER: ARJ	DATE:	04/16/25	

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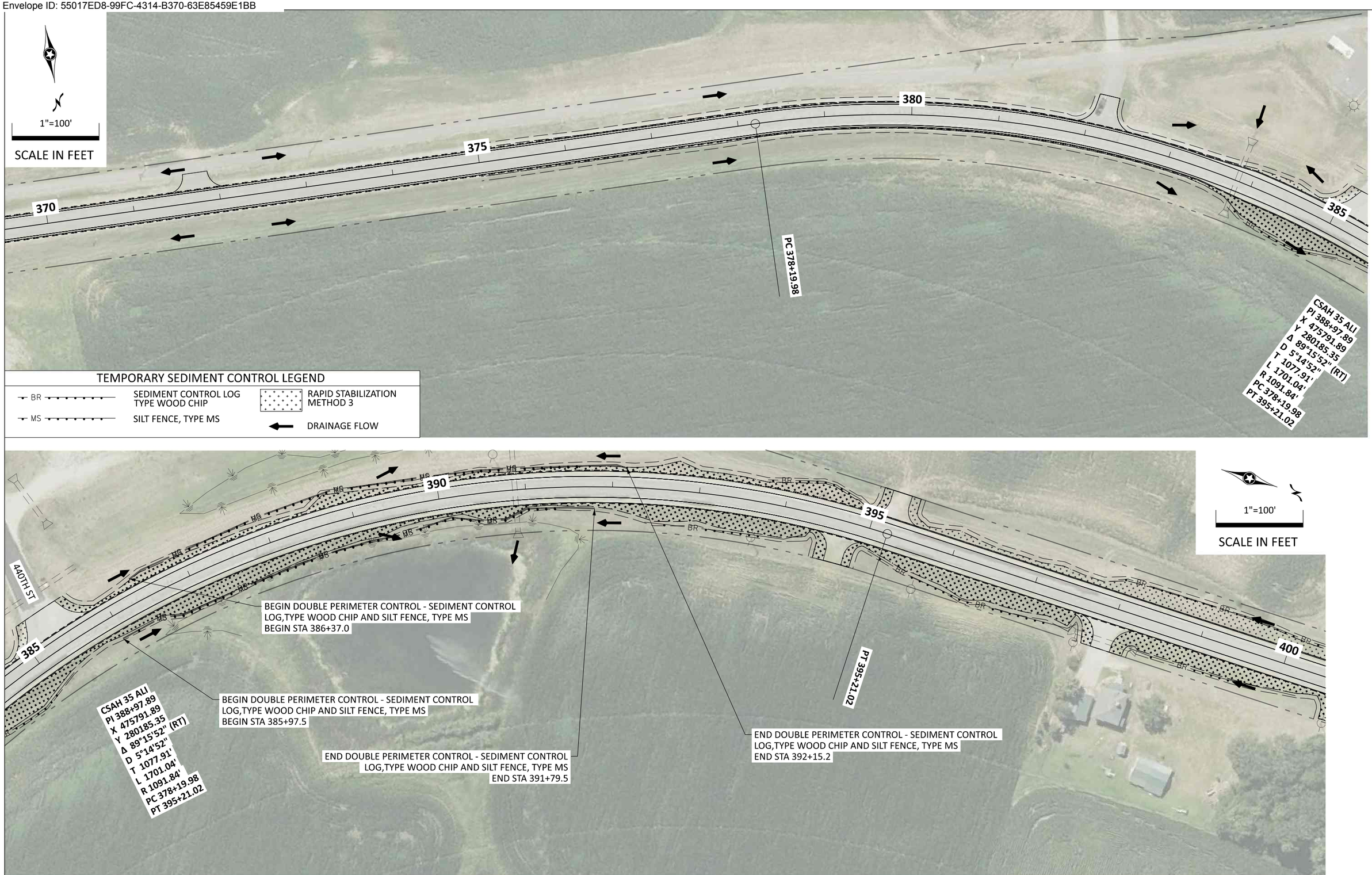
NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TEMPORARY EROSION CONTROL

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 88 OF 125 SHEETS



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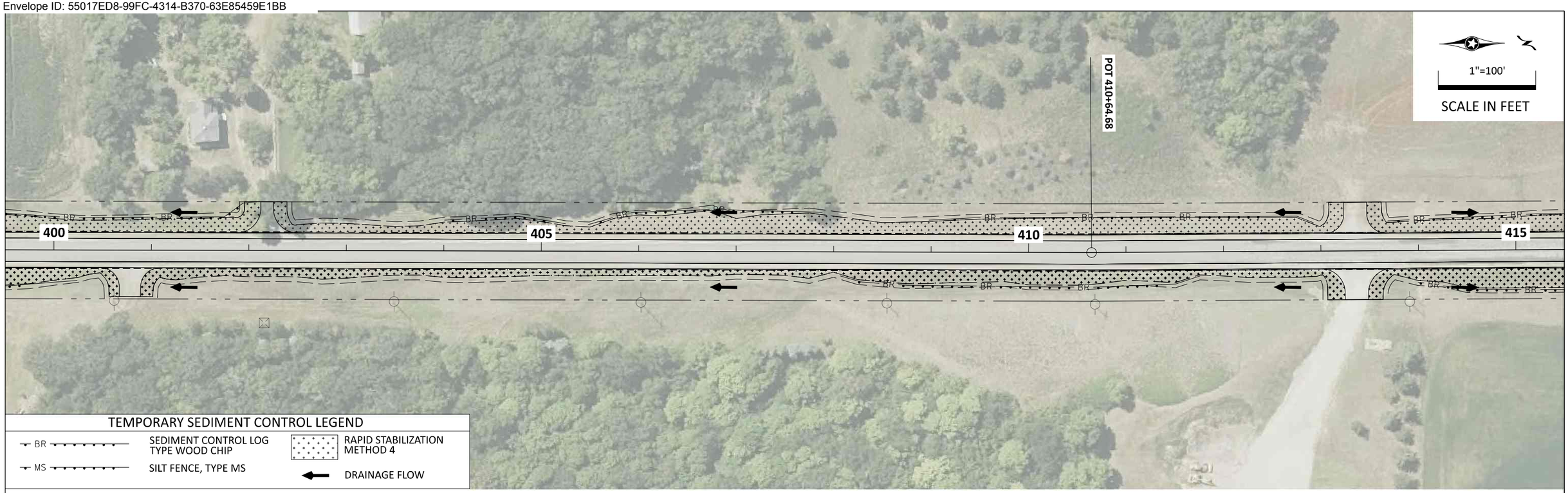

TEMPORARY SEDIMENT CONTROL LEGEND

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MS	SILT FENCE, TYPE MS		DRAINAGE FLOW

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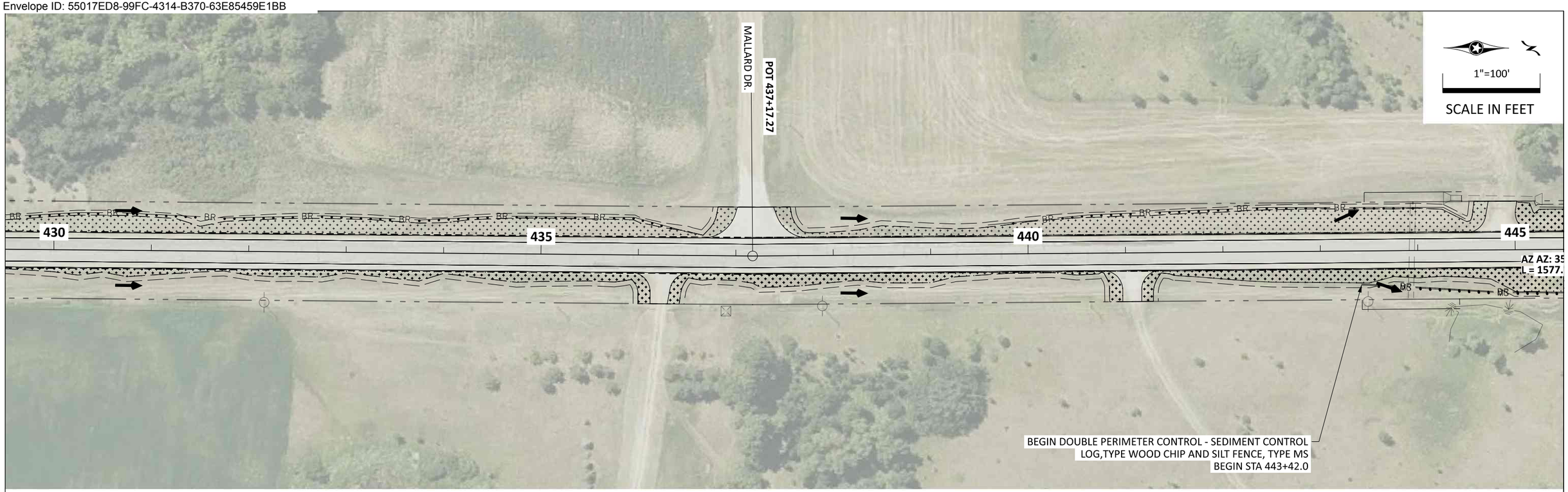
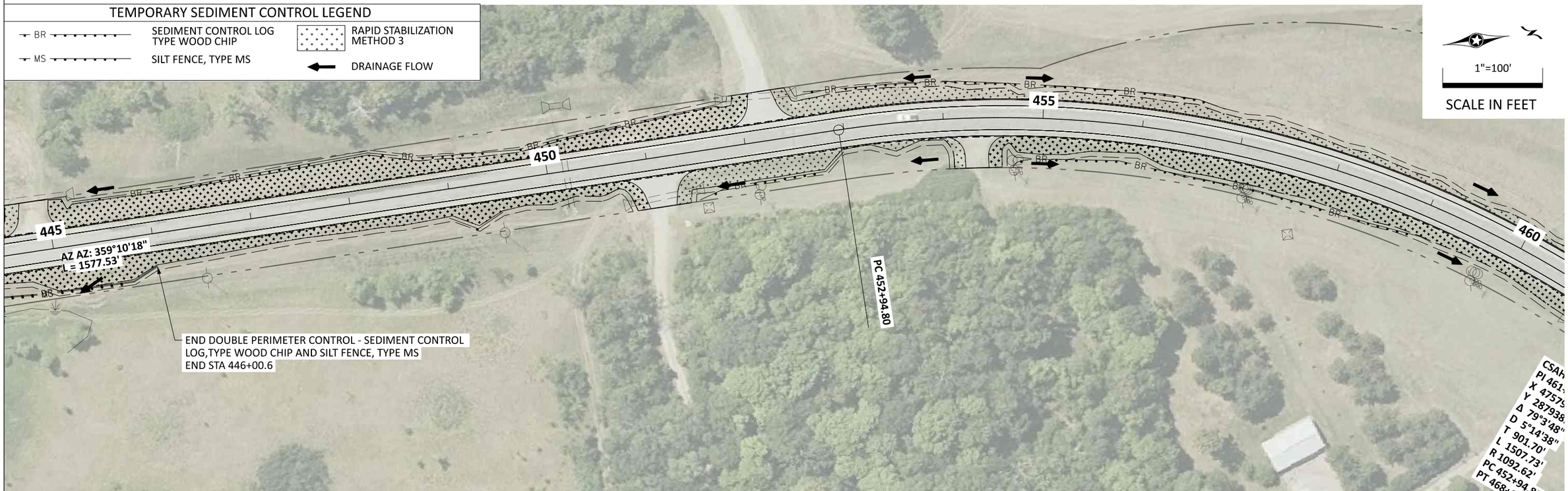


TEMPORARY SEDIMENT CONTROL LEGEND

BR	SEDIMENT CONTROL LOG TYPE WOOD CHIP		RAPID STABILIZATION METHOD 3
MS	SILT FENCE, TYPE MS		DRAINAGE FLOW



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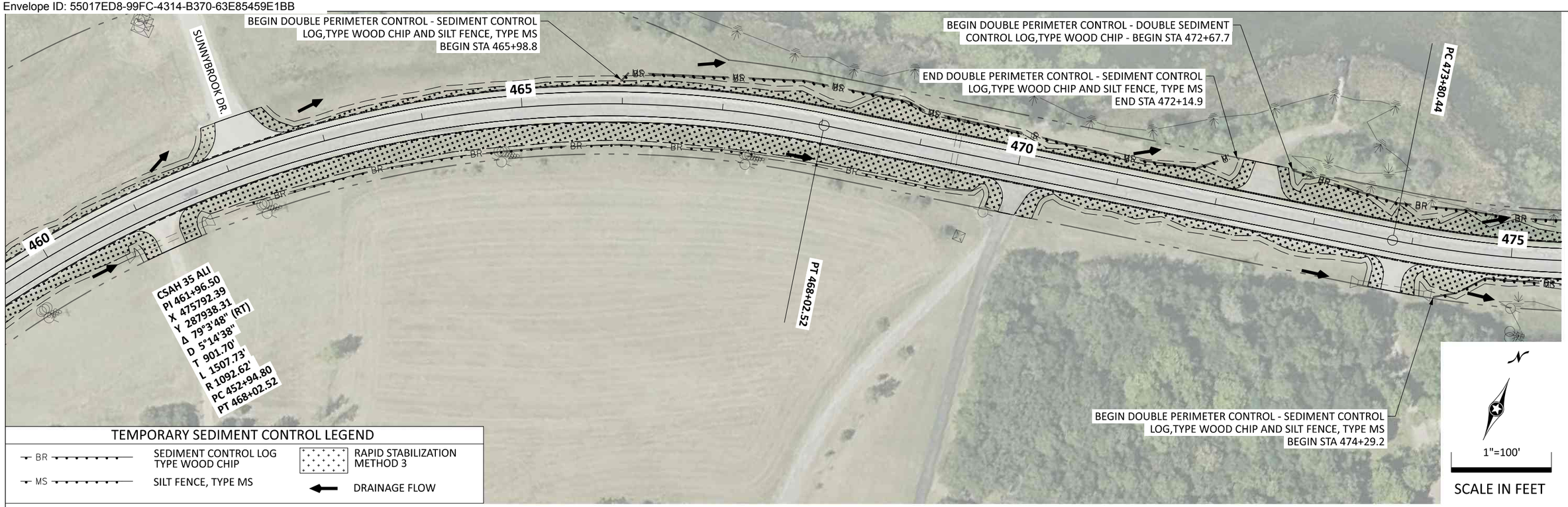

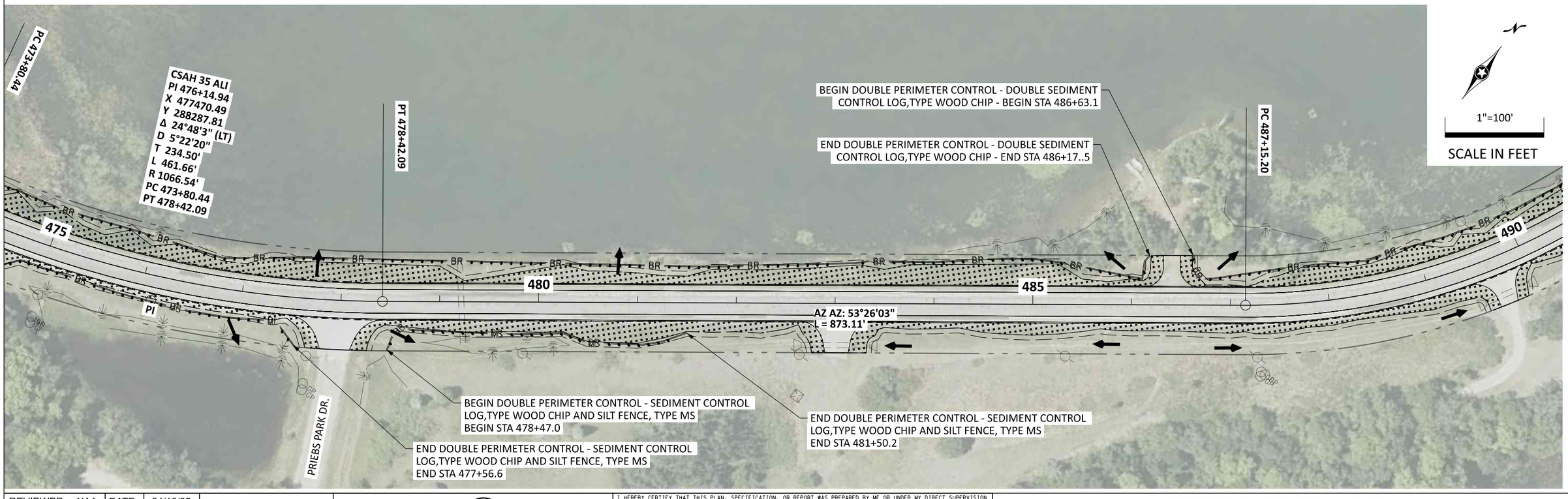

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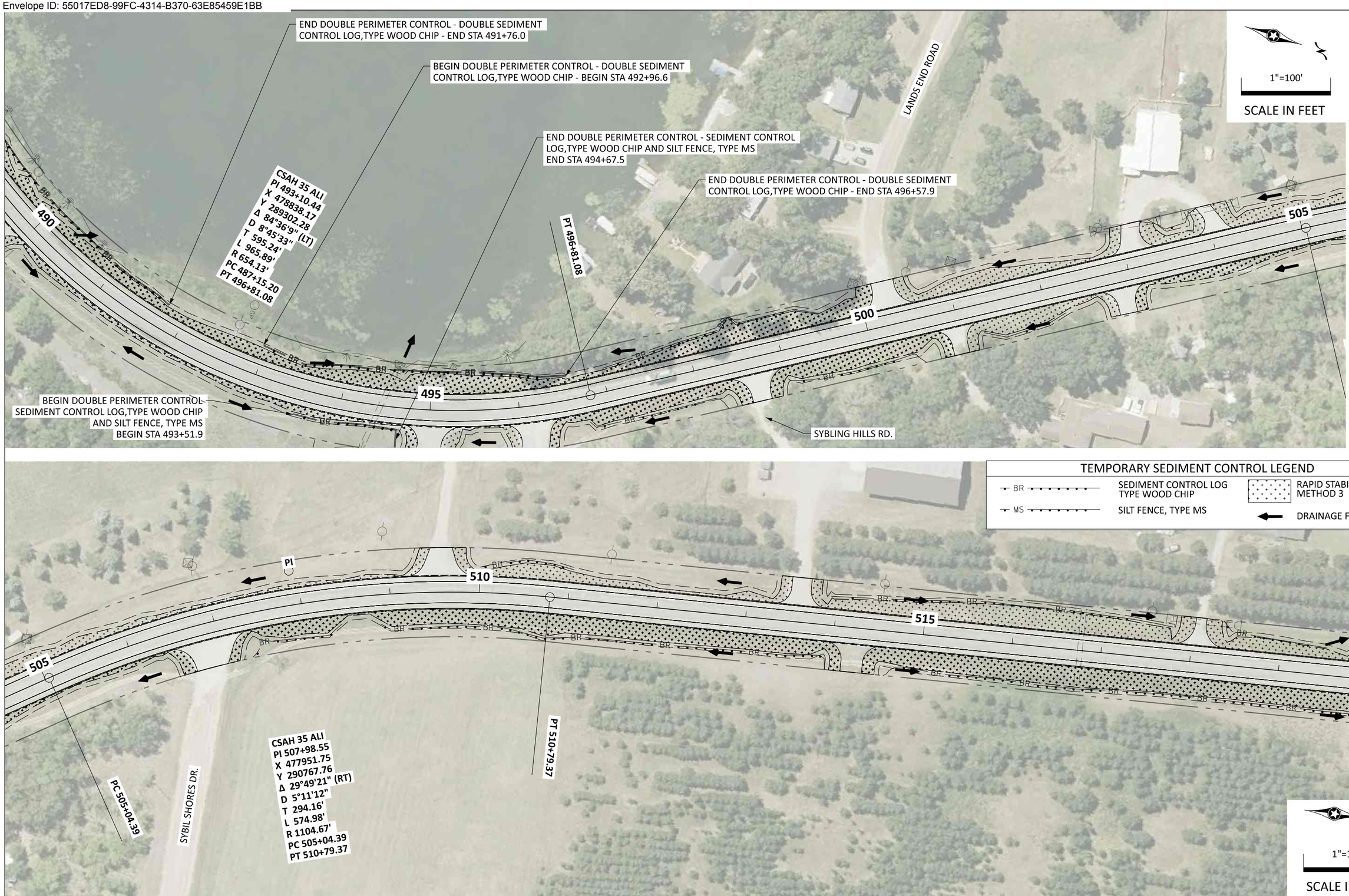

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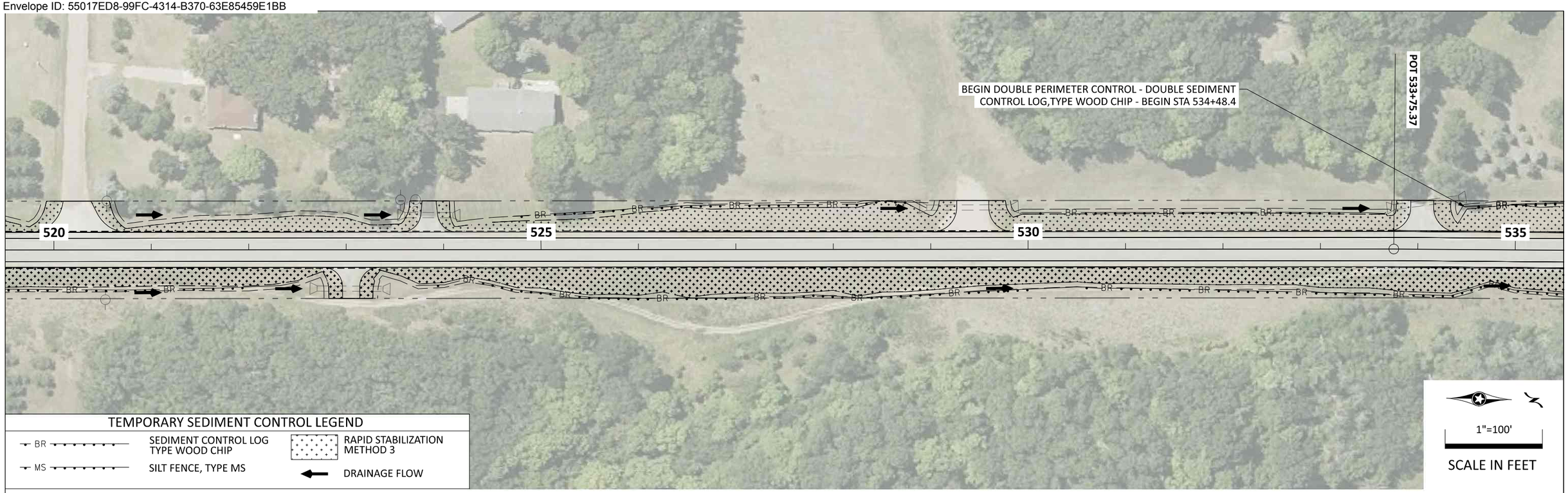

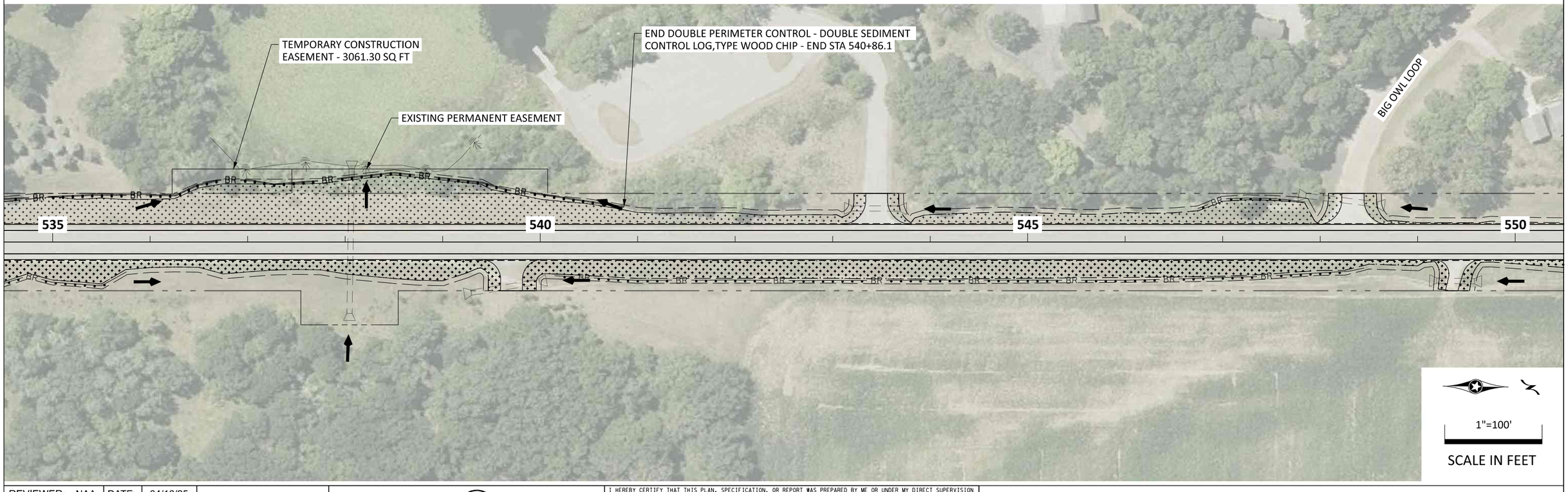

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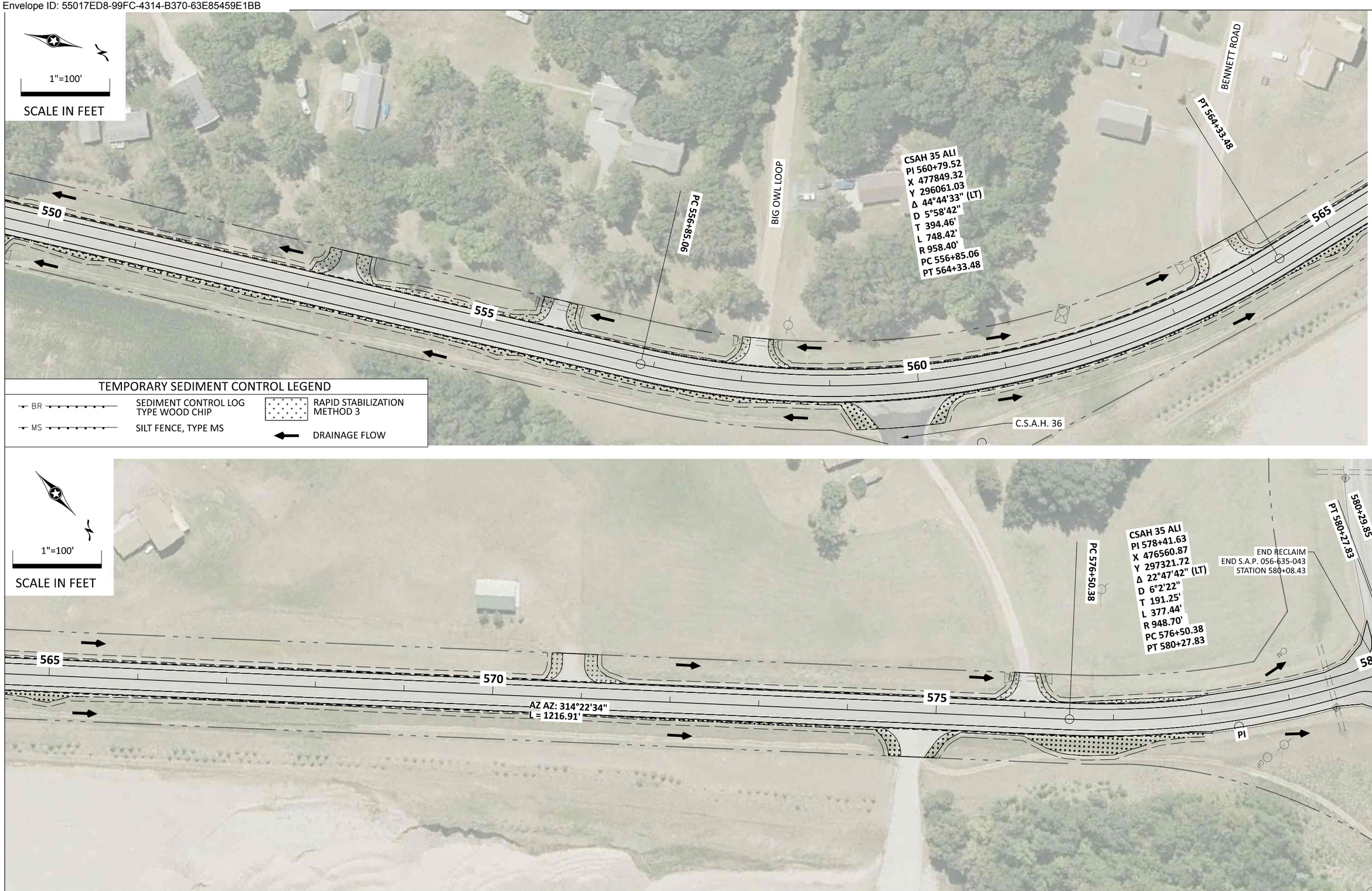

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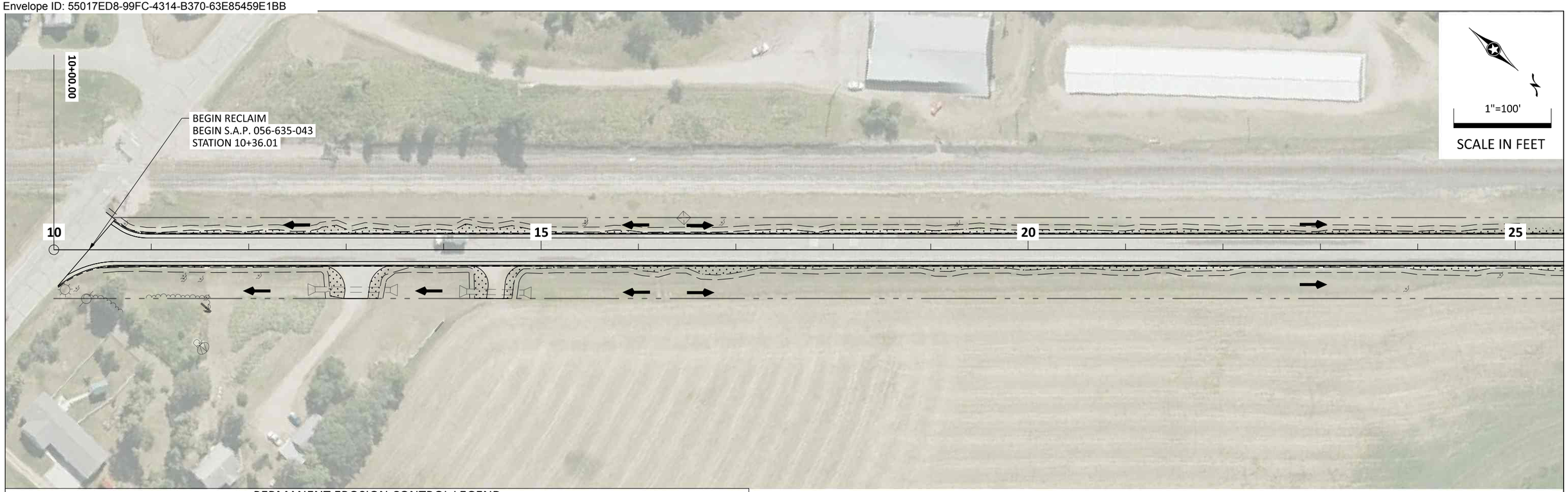
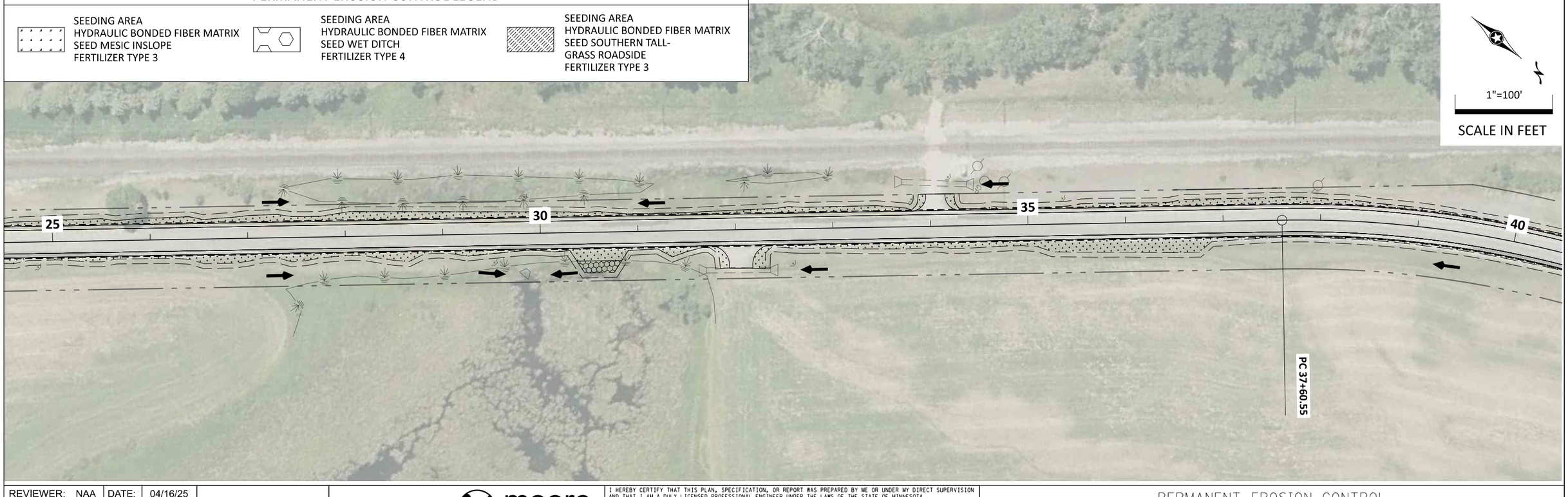


PERMANENT EROSION CONTROL LEGEND

SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED MESIC INSLOPE FERTILIZER TYPE 3	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED WET DITCH FERTILIZER TYPE 4	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED SOUTHERN TALL- GRASS ROADSIDE FERTILIZER TYPE 3



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PERMANENT EROSION CONTROL

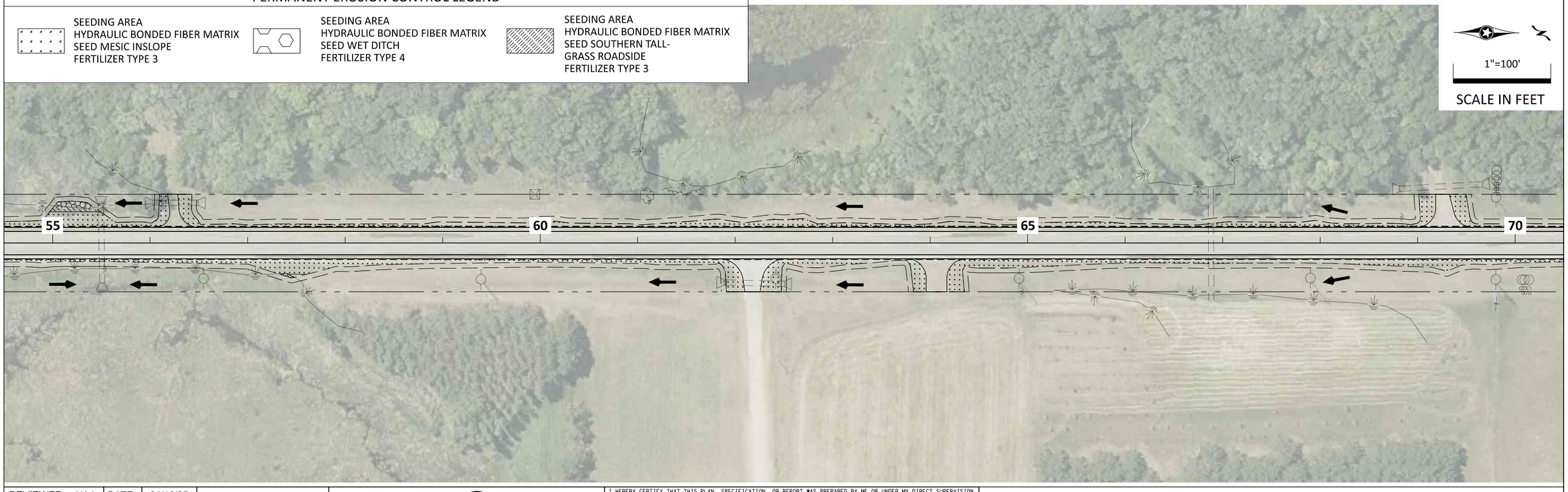
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 96 OF 125 SHEETS

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
FERTILIZER TYPE 3



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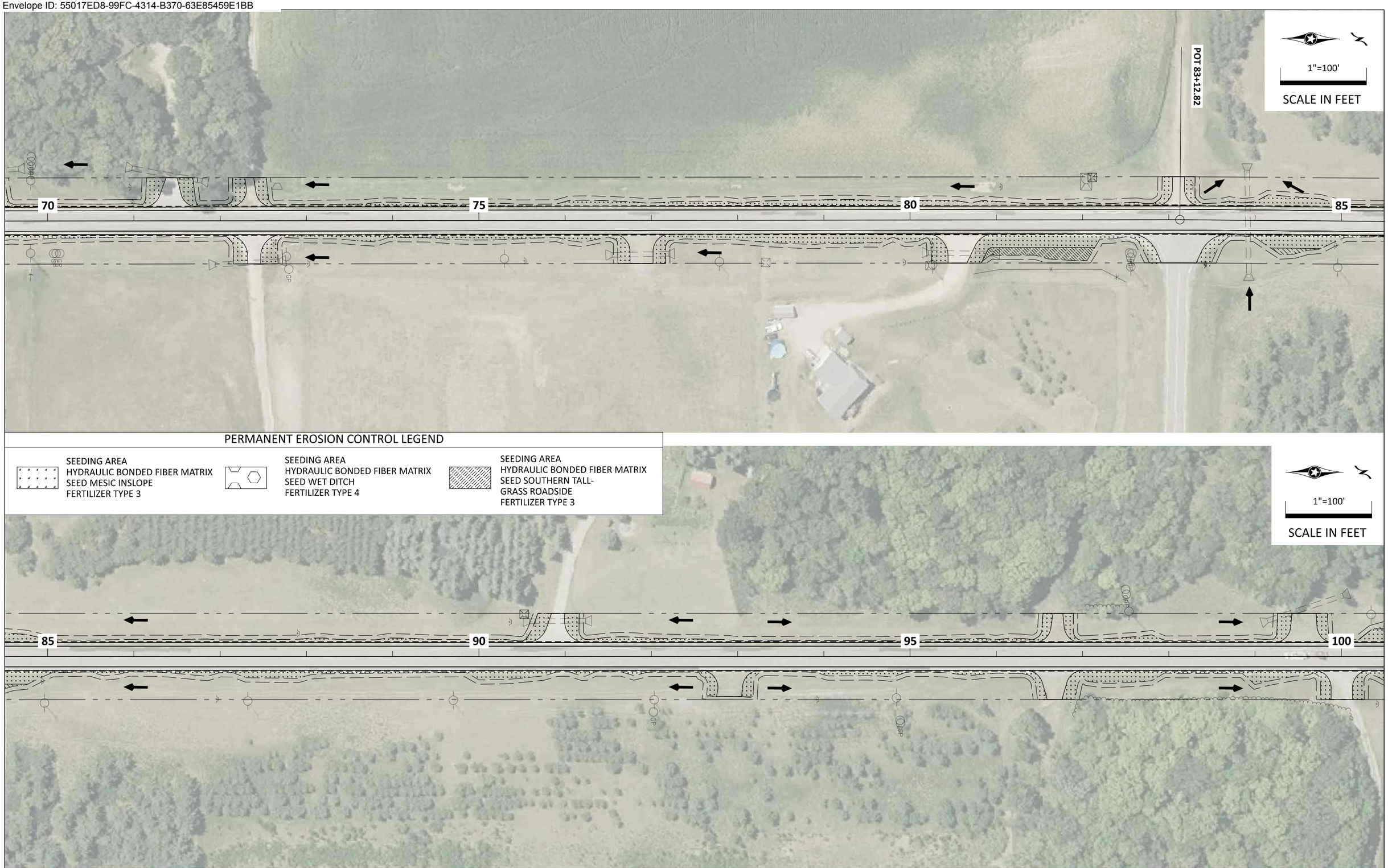

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
FERTILIZER TYPE 3

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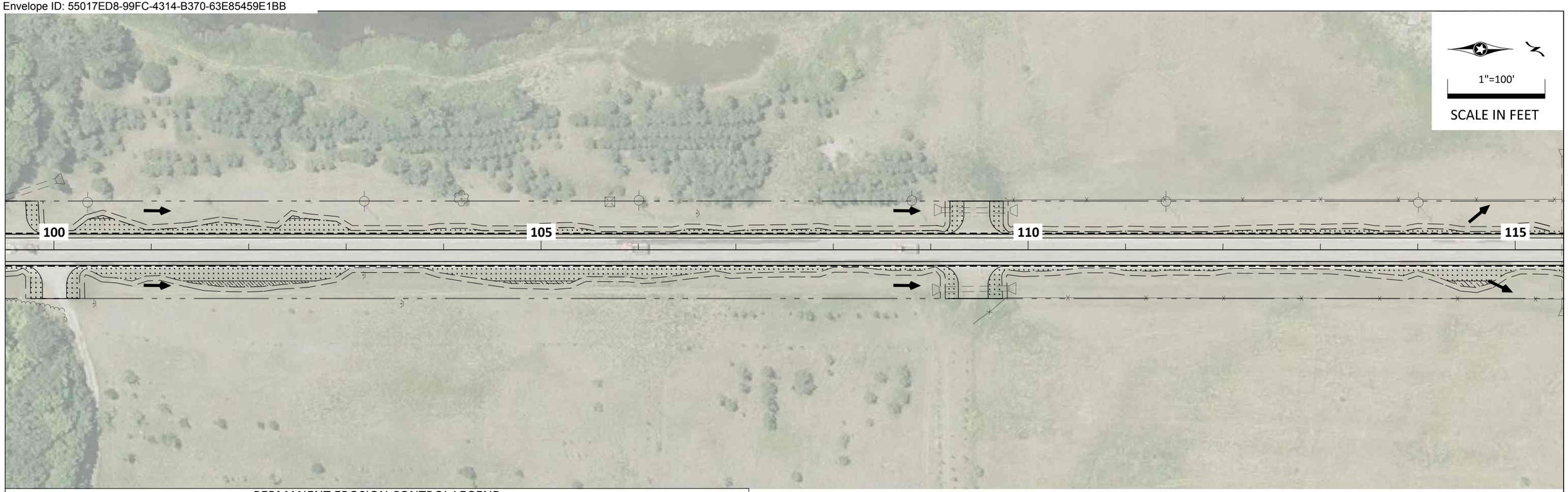

PERMANENT EROSION CONTROL LEGEND

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SEED MESIC INSLOPE
FERTILIZER TYPE 3

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SEED WET DITCH
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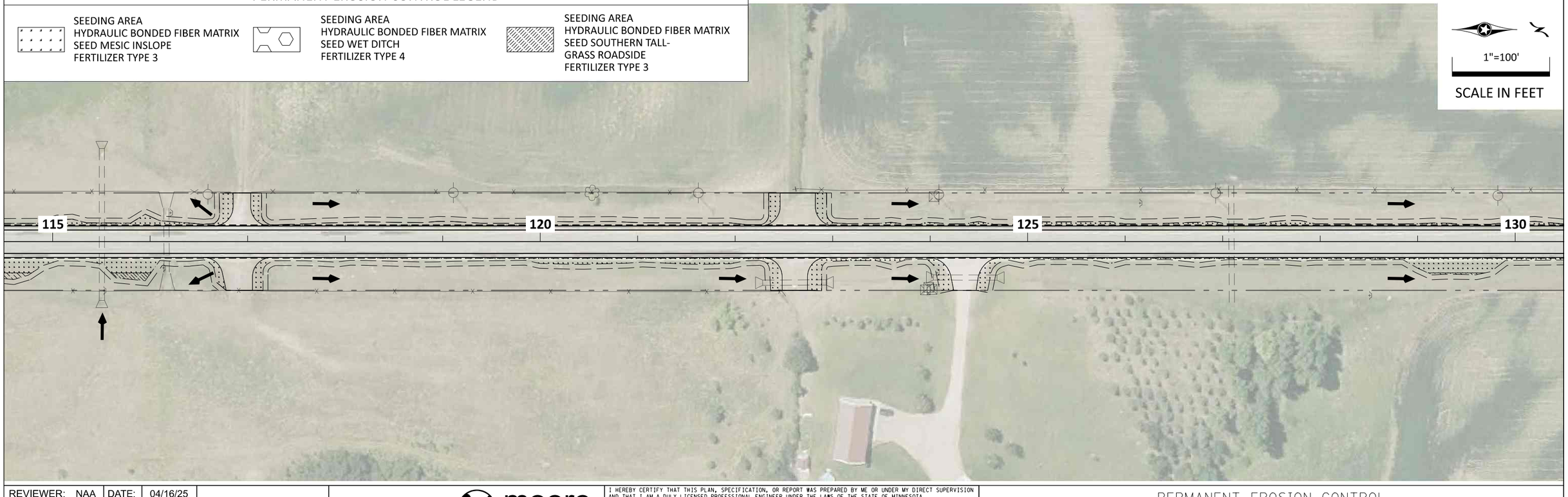
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
FERTILIZER TYPE 3



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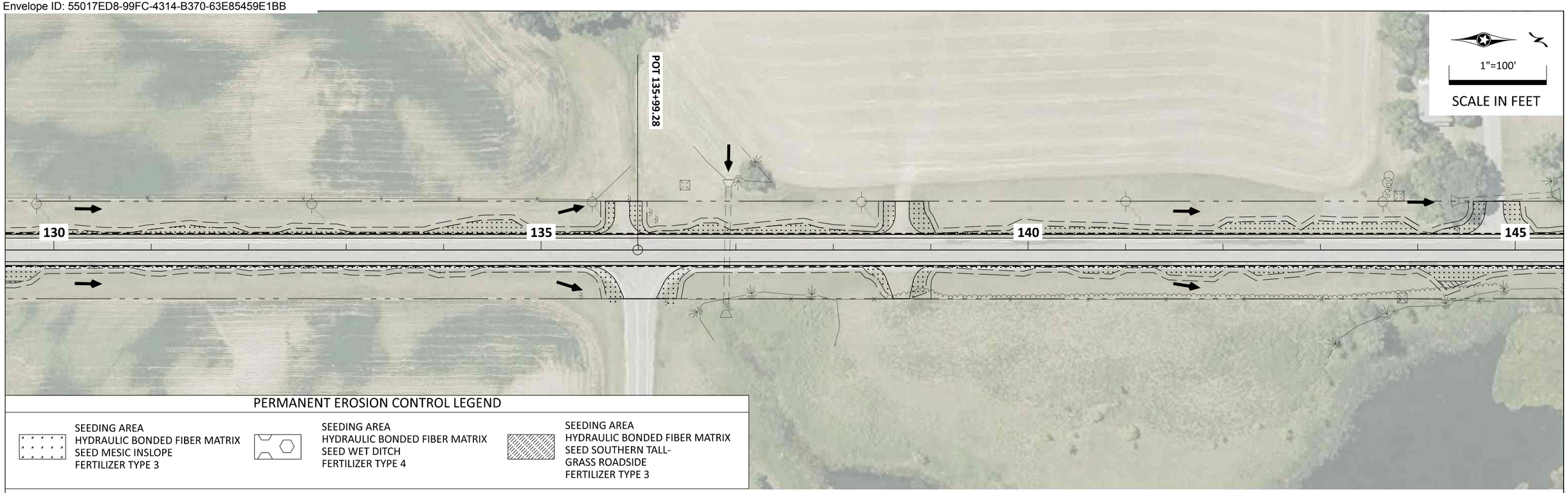

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

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HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-GRASS ROADSIDE
FERTILIZER TYPE 3

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PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
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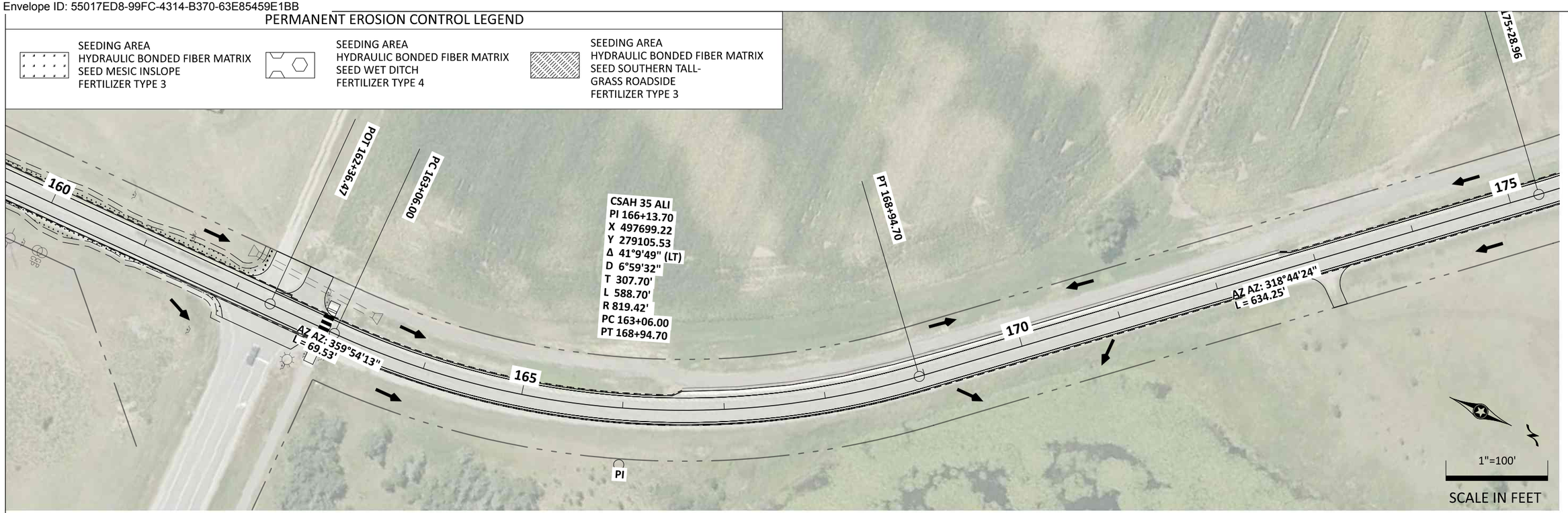
SEED SOUTHERN TALL-GRASS ROADSIDE
FERTILIZER TYPE 3



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FERTILIZER TYPE 3

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HYDRAULIC BONDED FIBER MATRIX
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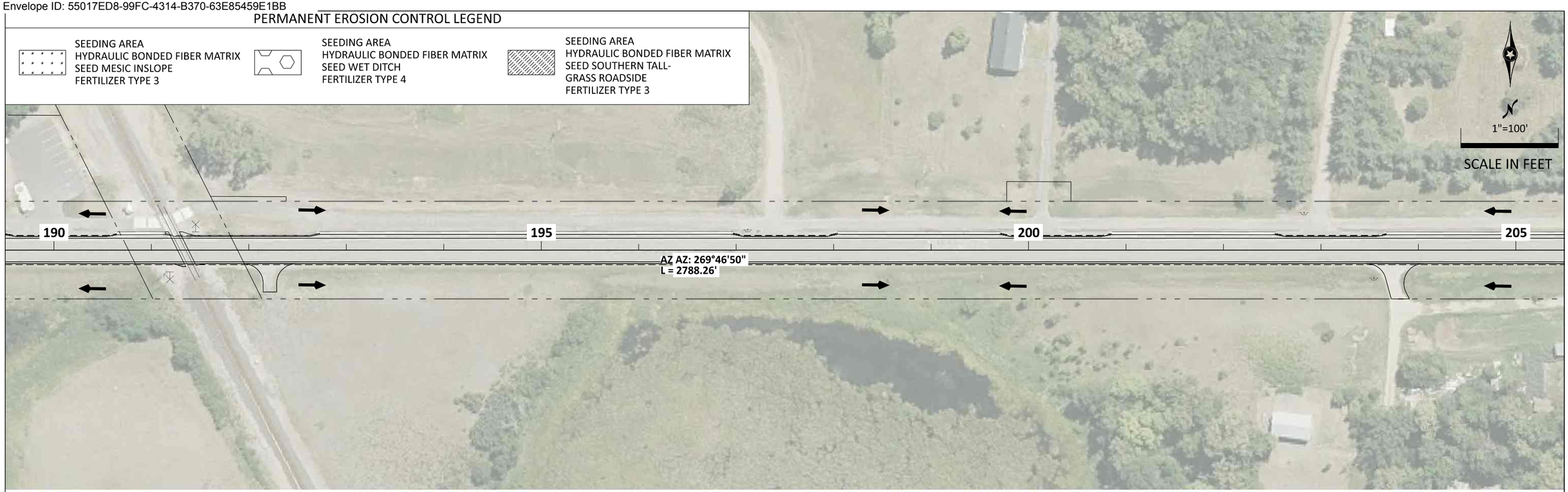
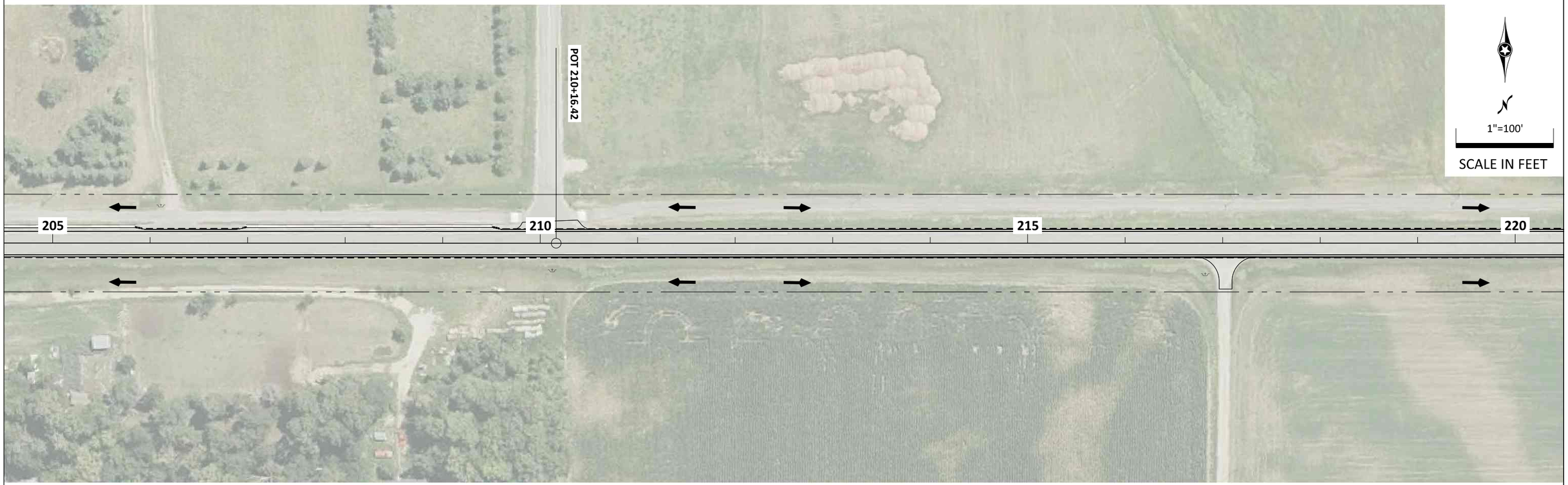
GRASS ROADSIDE
FERTILIZER TYPE 3





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PERMANENT EROSION CONTROL LEGEND

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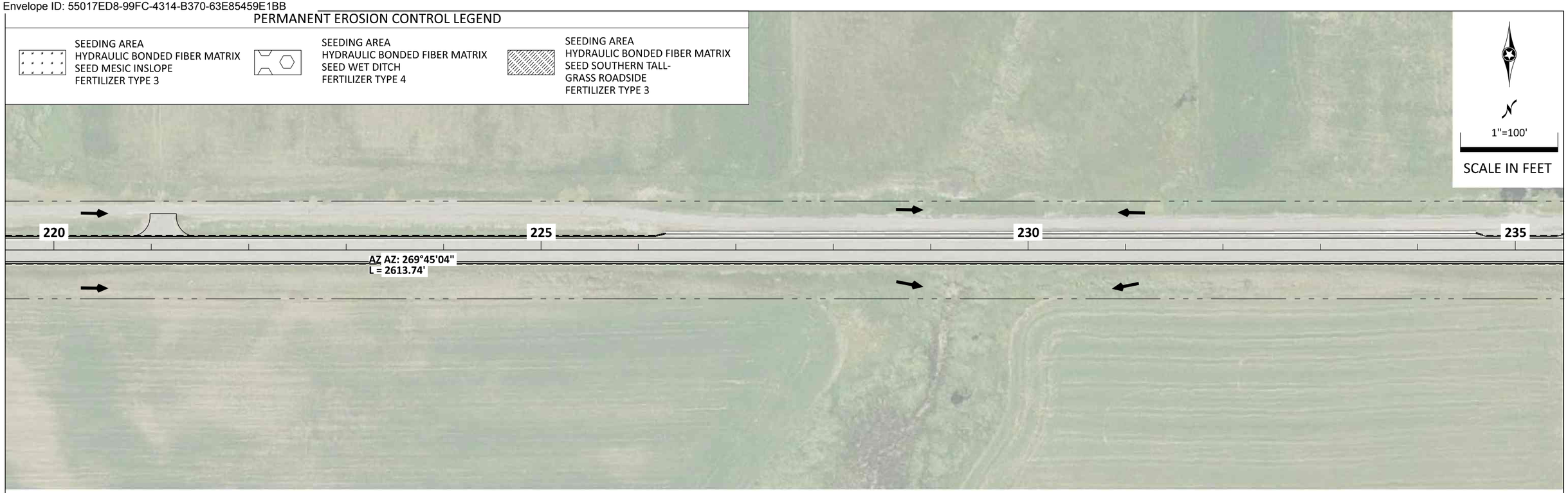
  HYDRAULIC BONDED FIBER MATRIX
  SEED MESIC INSLOPE
  FERTILIZER TYPE 3
- SEEDING AREA
  HYDRAULIC BONDED FIBER MATRIX
  SEED WET DITCH
  FERTILIZER TYPE 4
- SEEDING AREA
  HYDRAULIC BONDED FIBER MATRIX
  SEED SOUTHERN TALL-GRASS ROADSIDE
  FERTILIZER TYPE 3



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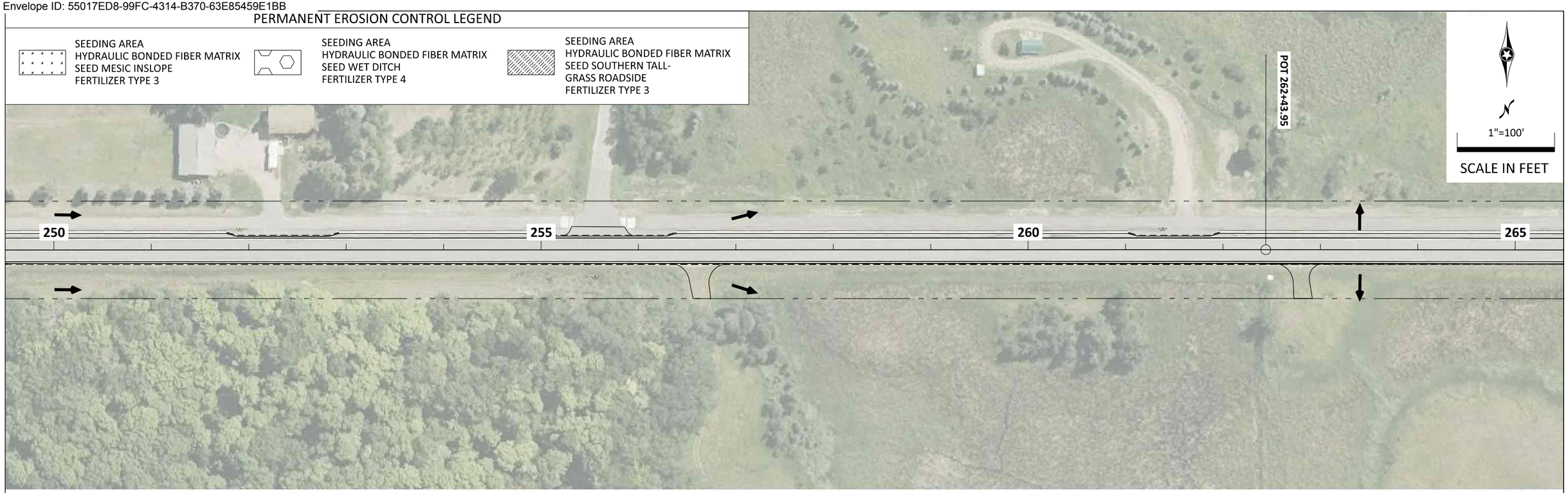
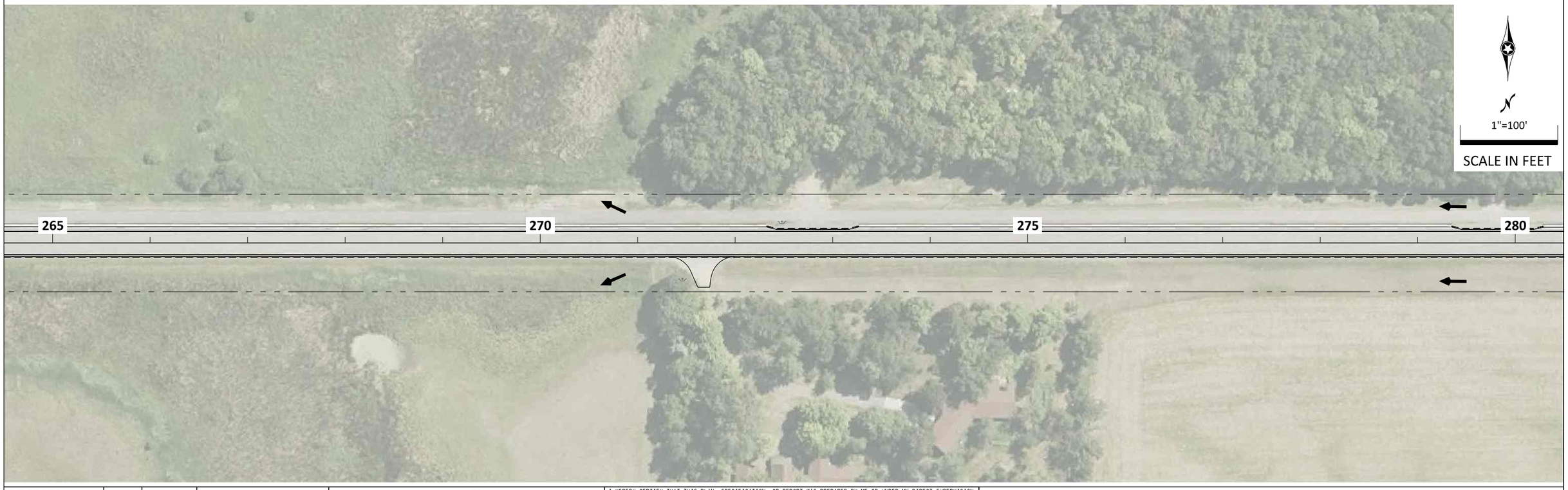
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
FERTILIZER TYPE 3





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NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

PERMANENT EROSION CONTROL

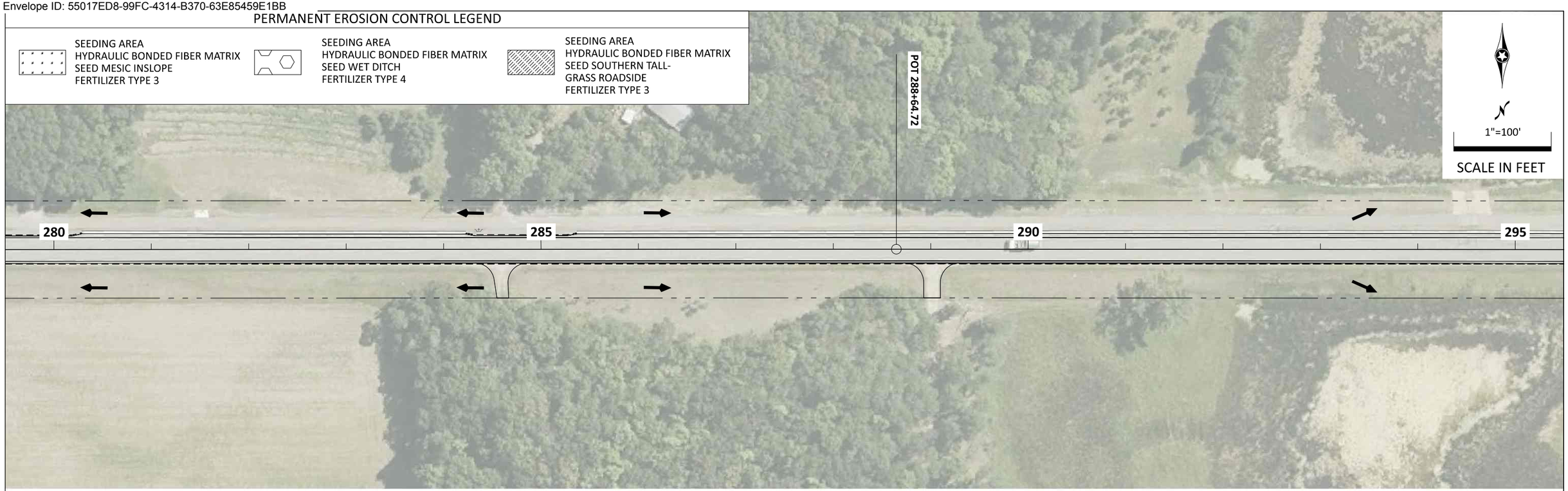
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 104 OF 125 SHEETS

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-GRASS ROADSIDE
FERTILIZER TYPE 3



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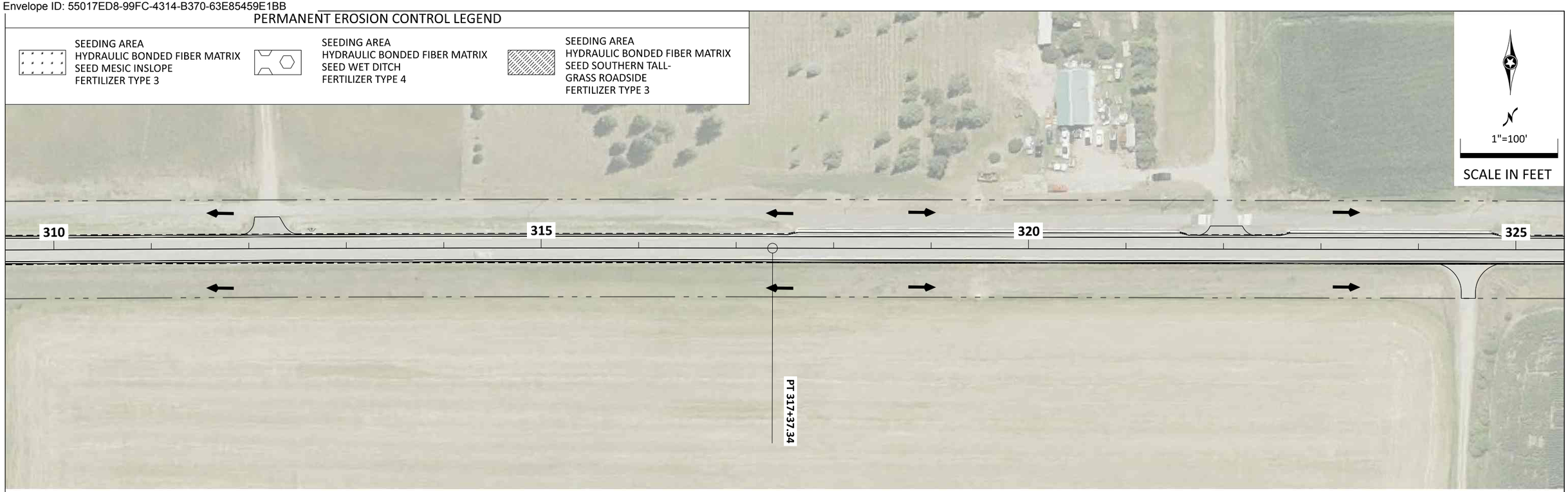
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 105 OF 125 SHEETS

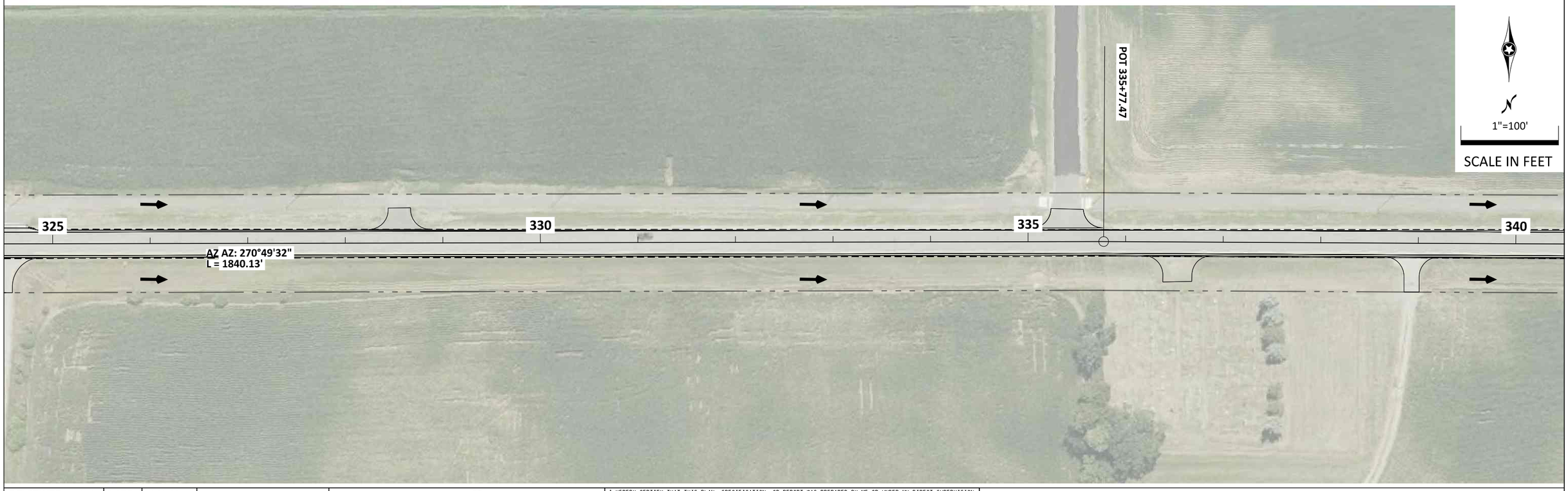
PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
FERTILIZER TYPE 3





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S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 106 OF 125 SHEETS

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
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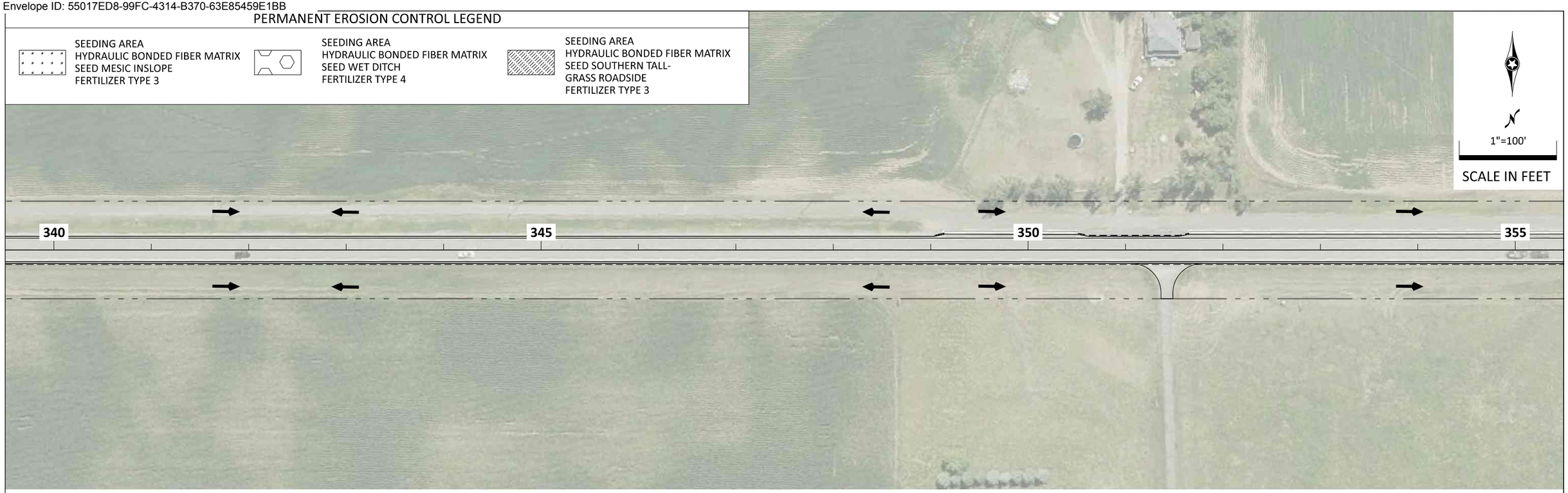
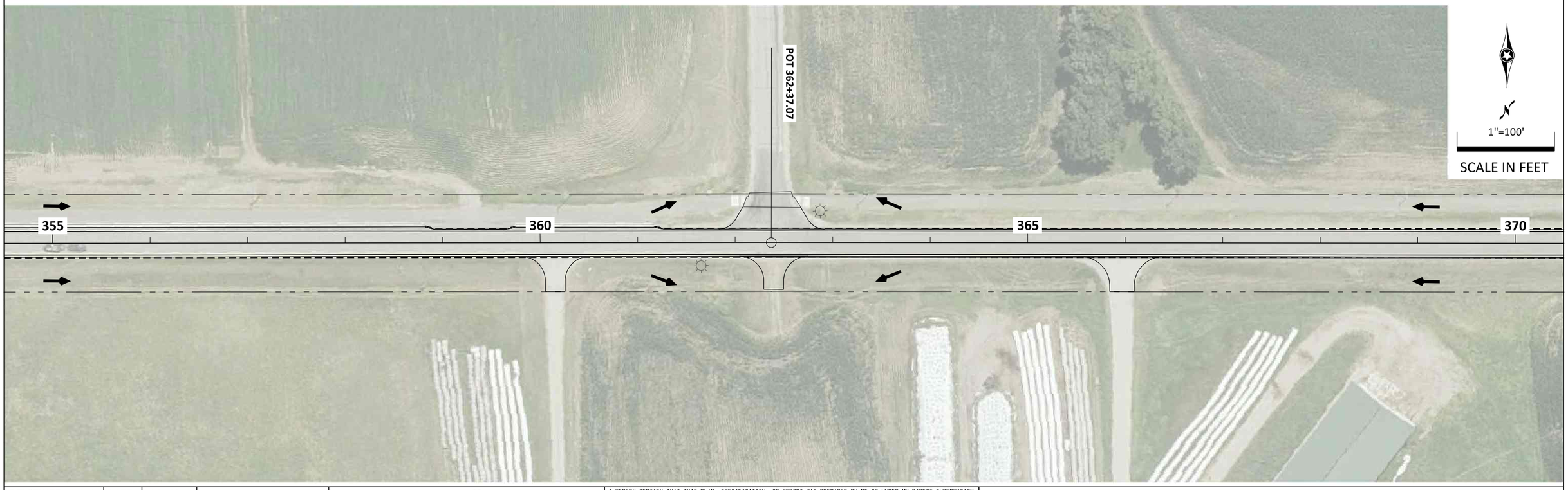
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
FERTILIZER TYPE 3





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PERMANENT EROSION CONTROL

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 107 OF 125 SHEETS

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED MESIC INSLOPE FERTILIZER TYPE 3	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED WET DITCH FERTILIZER TYPE 4	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED SOUTHERN TALL- GRASS ROADSIDE FERTILIZER TYPE 3

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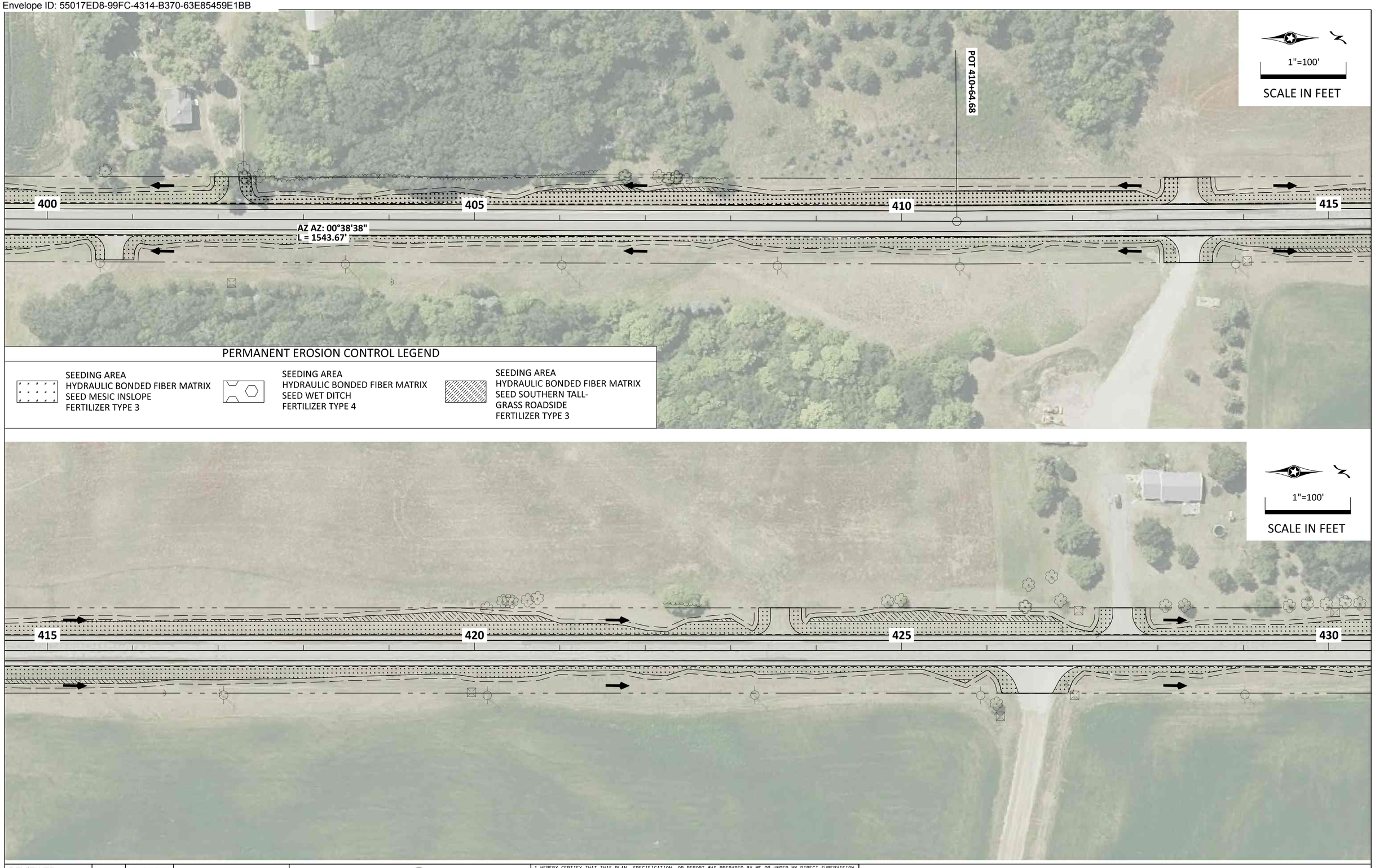

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
FERTILIZER TYPE 3

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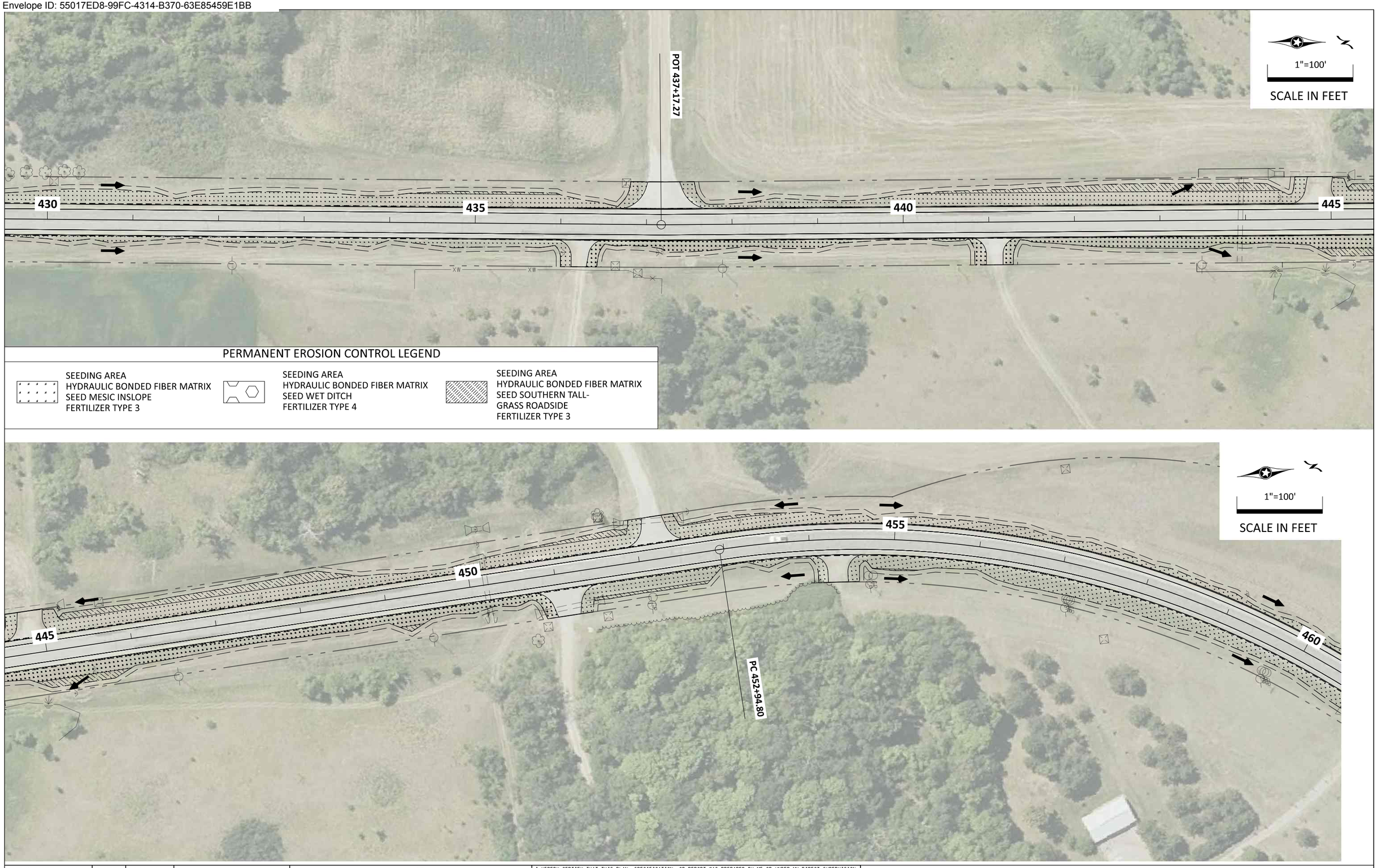

PERMANENT EROSION CONTROL LEGEND

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED MESIC INSLOPE
FERTILIZER TYPE 3

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED WET DITCH
FERTILIZER TYPE 4

SEEDING AREA
HYDRAULIC BONDED FIBER MATRIX
SEED SOUTHERN TALL-
GRASS ROADSIDE
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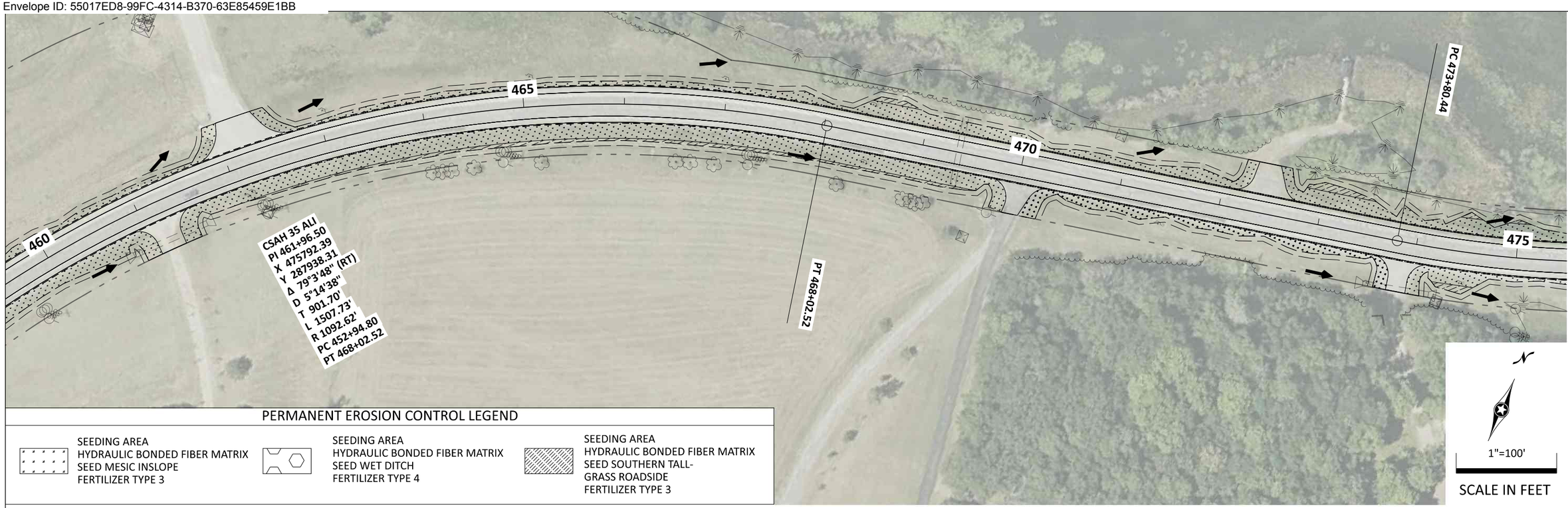


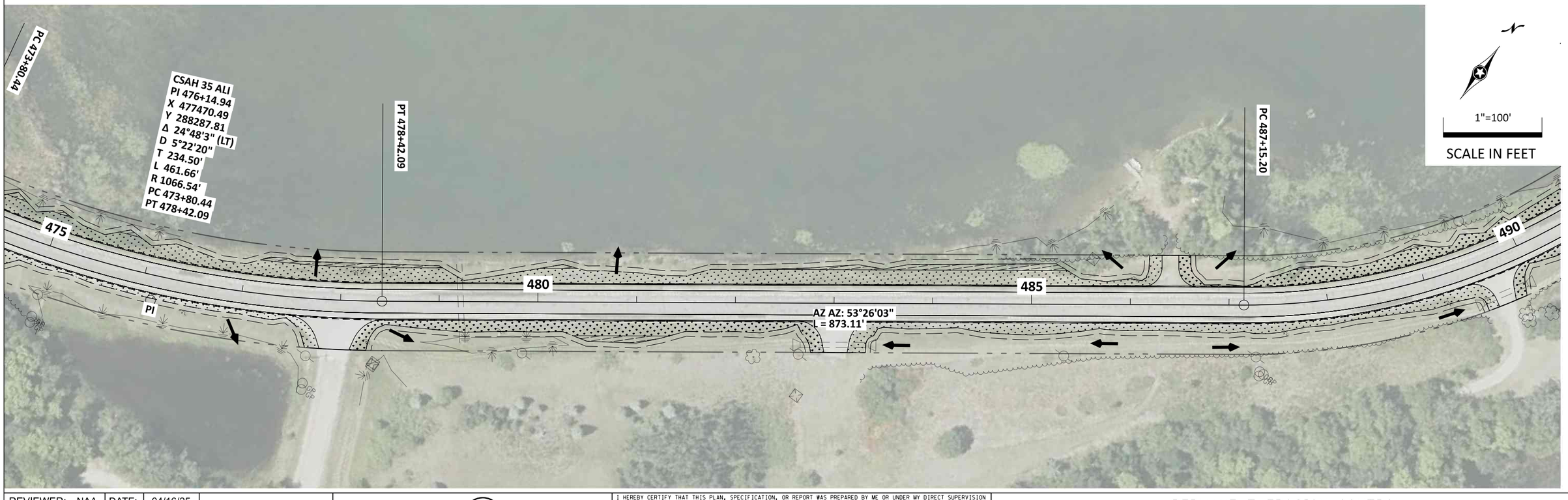
PERMANENT EROSION CONTROL LEGEND

SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED MESIC INSLOPE FERTILIZER TYPE 3	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED WET DITCH FERTILIZER TYPE 4	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED SOUTHERN TALL- GRASS ROADSIDE FERTILIZER TYPE 3

N

1"=100'

SCALE IN FEET



N

1"=100'

SCALE IN FEET

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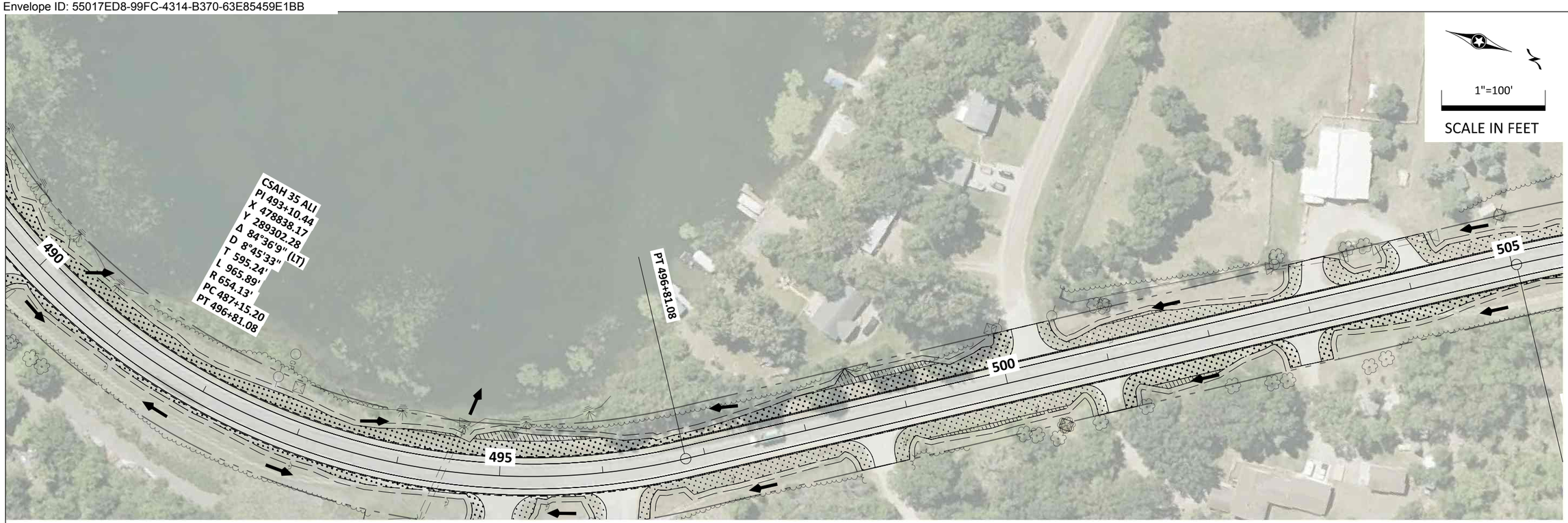

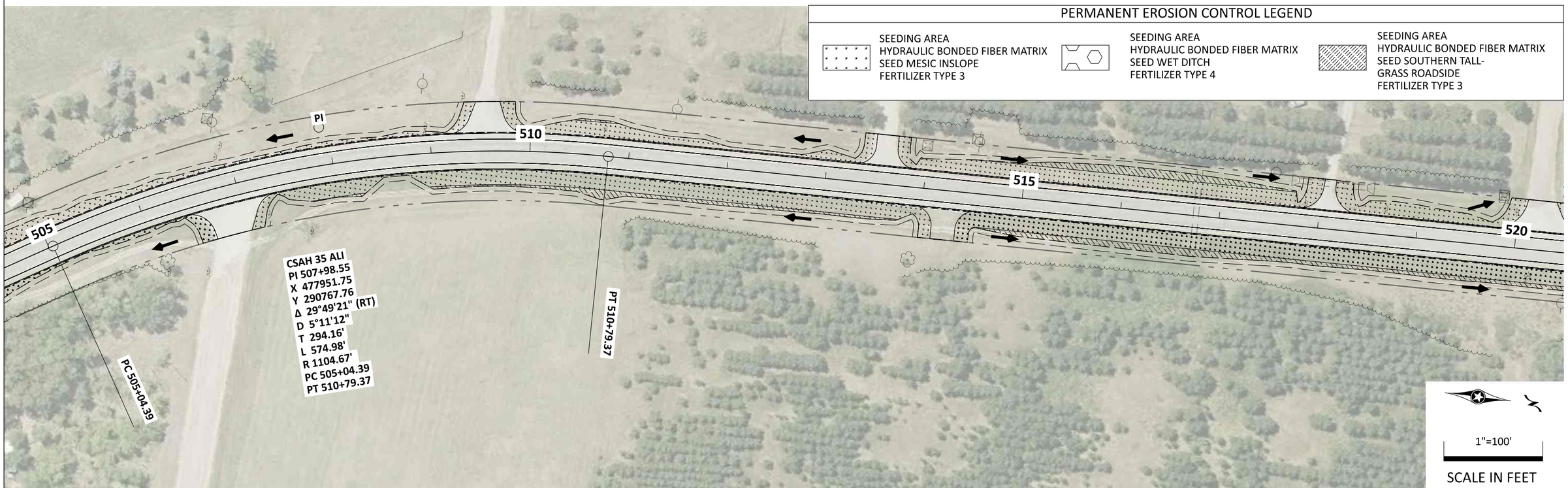

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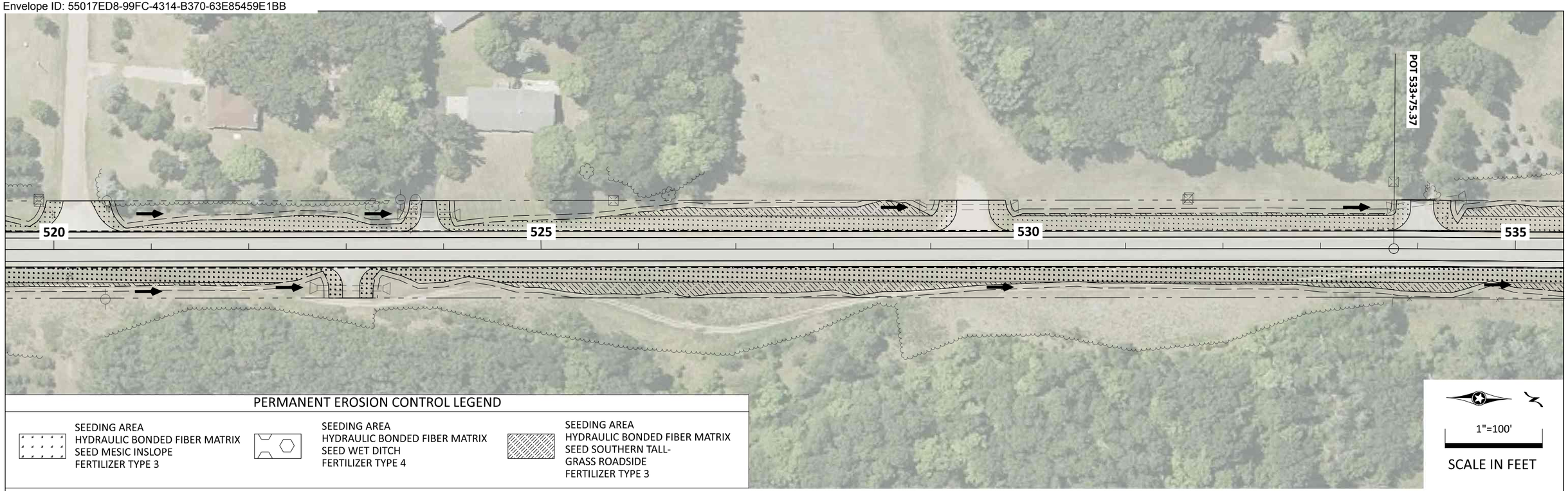
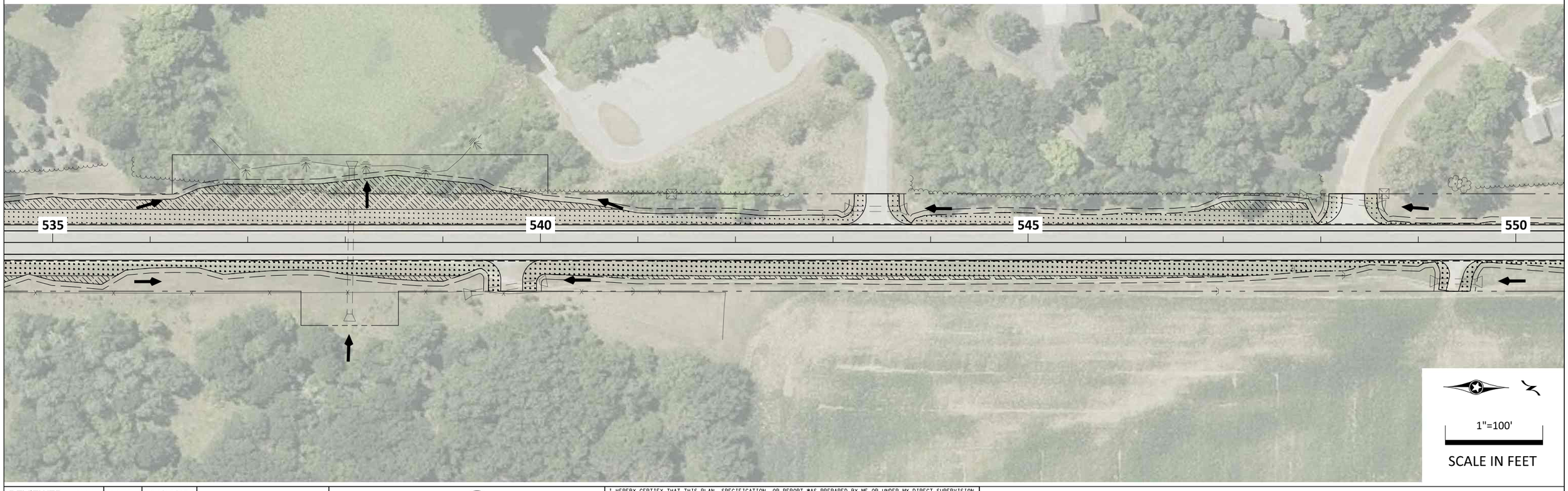


PERMANENT EROSION CONTROL LEGEND

SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED MESIC INSLOPE FERTILIZER TYPE 3	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED WET DITCH FERTILIZER TYPE 4	SEEDING AREA HYDRAULIC BONDED FIBER MATRIX SEED SOUTHERN TALL- GRASS ROADSIDE FERTILIZER TYPE 3

1"=100'

SCALE IN FEET



1"=100'

SCALE IN FEET

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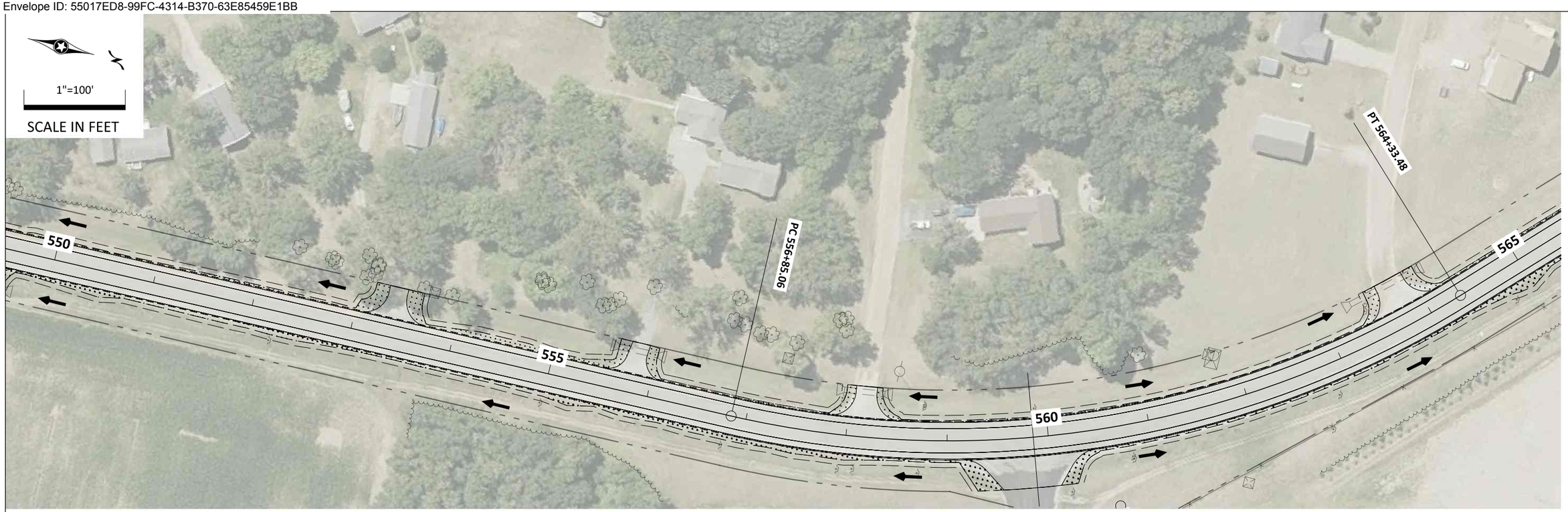
1"=100'

SCALE IN FEET

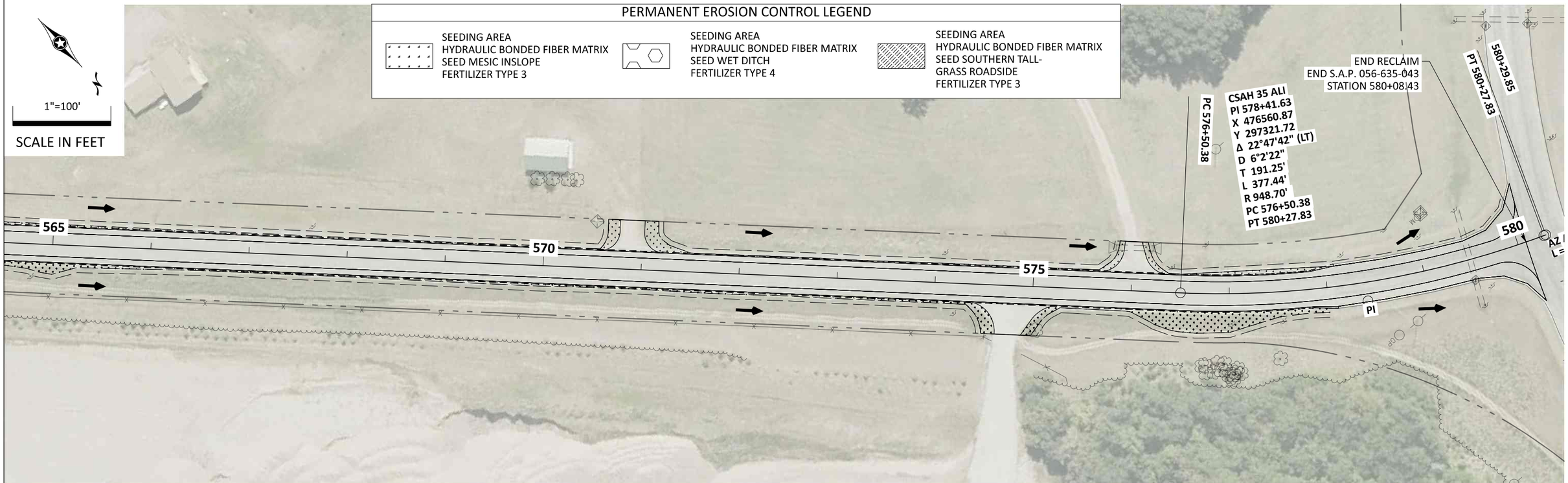


PERMANENT EROSION CONTROL LEGEND

- SEEDING AREA
  HYDRAULIC BONDED FIBER MATRIX
  SEED MESIC INSLOPE
  FERTILIZER TYPE 3
- SEEDING AREA
  HYDRAULIC BONDED FIBER MATRIX
  SEED WET DITCH
  FERTILIZER TYPE 4
- SEEDING AREA
  HYDRAULIC BONDED FIBER MATRIX
  SEED SOUTHERN TALL-
  GRASS ROADSIDE
  FERTILIZER TYPE 3

1"=100'

SCALE IN FEET



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S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 114 OF 125 SHEETS

PERMANENT PAVEMENT MARKING PLAN
NOTES & GUIDELINES

GENERAL INFORMATION:

SEE 2582 IN THE SPECIAL PROVISIONS FOR PAVEMENT MARKING SPOTTING RESPONSIBILITIES.
EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS, AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY AN AGENCY PLACED YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.
A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 3 INCHES FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.
PRIOR TO THE PLACEMENT OF PAVEMENT MARKINGS THE ROAD SURFACE SHALL BE CLEANED AND FREE OF CONTAMINATION AS RECOMMENDED BY THE MATERIAL MANUFACTURER. DO NOT APPLY THE PAVEMENT MARKINGS WHEN WEATHER AND OTHER CONDITIONS CAUSE A FILM OF DUST OR DEBRIS TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL IS APPLIED.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

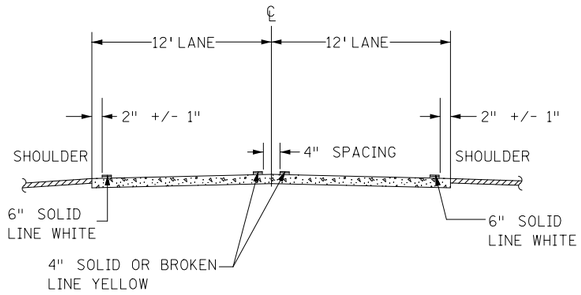
PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

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

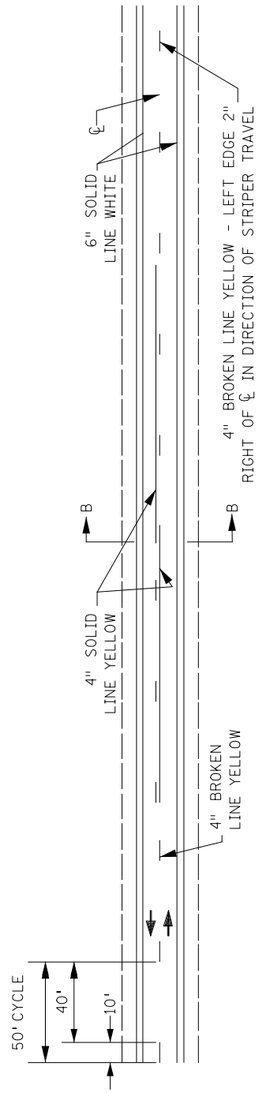
PAVEMENT MARKINGS

BEGIN	END	FUNDING	LEFT	RIGHT
10+50	15+45	RURAL	4" DOUBLE SOLID LINE YELLOW	
15+45	24+85	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
24+85	35+35	RURAL	4" BROKEN LINE YELLOW	
35+35	44+95	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
44+95	46+90	RURAL	4" DOUBLE SOLID LINE YELLOW	
46+90	55+50	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
55+50	68+85	RURAL	4" BROKEN LINE YELLOW	
68+85	75+30	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
75+30	78+30	RURAL	4" BROKEN LINE YELLOW	
78+30	84+95	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
84+95	87+90	RURAL	4" BROKEN LINE YELLOW	
87+90	94+60	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
94+60	103+20	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
103+20	147+50	RURAL	4" BROKEN LINE YELLOW	
147+50	156+60	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
156+60	164+45	RURAL	4" DOUBLE SOLID LINE YELLOW	
164+45	168+50	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
168+50	172+75	RURAL	4" DOUBLE SOLID LINE YELLOW	
172+75	176+35	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
176+35	177+70	RURAL	4" DOUBLE SOLID LINE YELLOW	
177+70	183+00	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
183+00	186+75	RURAL	4" DOUBLE SOLID LINE YELLOW	
186+75	191+25	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
191+40	200+10	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
200+10	233+70	RURAL	4" BROKEN LINE YELLOW	
233+70	242+30	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
242+30	245+95	RURAL	4" DOUBLE SOLID LINE YELLOW	
245+95	253+40	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
253+40	270+00	RURAL	4" BROKEN LINE YELLOW	
270+00	279+00	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
279+00	284+30	RURAL	4" DOUBLE SOLID LINE YELLOW	
284+30	293+50	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
293+50	307+85	RURAL	4" BROKEN LINE YELLOW	
307+85	317+50	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
317+50	325+75	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
325+75	340+85	RURAL	4" BROKEN LINE YELLOW	
340+85	349+85	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
349+85	358+55	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
358+55	363+40	RURAL	4" BROKEN LINE YELLOW	
363+40	372+85	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
372+85	392+60	RURAL	4" DOUBLE SOLID LINE YELLOW	
392+60	401+10	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
401+10	402+55	RURAL	4" BROKEN LINE YELLOW	
402+55	411+70	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
411+70	417+10	RURAL	4" DOUBLE SOLID LINE YELLOW	
417+10	425+75	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
425+75	444+40	RURAL	4" BROKEN LINE YELLOW	
444+40	452+60	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
452+60	522+10	RURAL	4" DOUBLE SOLID LINE YELLOW	
522+10	530+75	RURAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
530+75	547+70	RURAL	4" BROKEN LINE YELLOW	
547+70	556+80	RURAL	4" BROKEN LINE YELLOW	4" SOLID LINE YELLOW
556+80	559+85	RURAL	4" DOUBLE SOLID LINE YELLOW	
559+85	564+25	MUNICIPAL	4" DOUBLE SOLID LINE YELLOW	
564+25	574+00	MUNICIPAL	4" SOLID LINE YELLOW	4" BROKEN LINE YELLOW
574+00	579+60	MUNICIPAL	4" DOUBLE SOLID LINE YELLOW	

TWO-LANE, TWO-WAY



SECTION B-B



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REVIEWER: NAA	DATE:	04/16/25	OTTER TAIL COUNTY MINNESOTA
DRAFTER: ARJ	DATE:	04/16/25	

moore engineering, inc.

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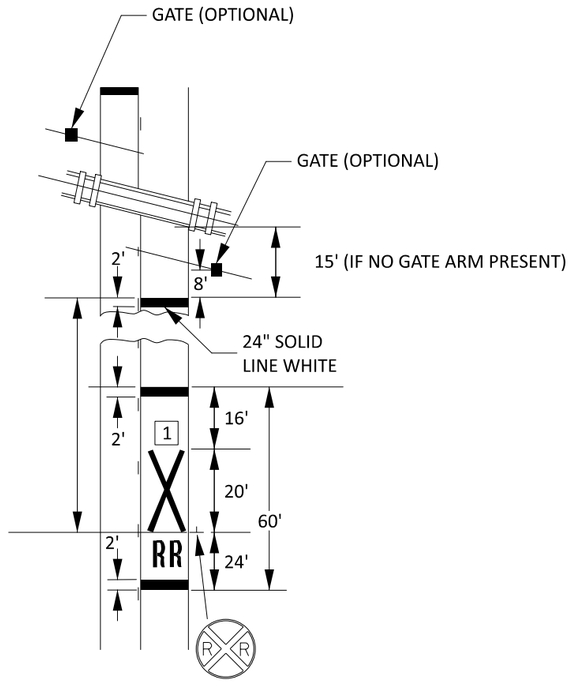
NAME NICHOLAS A. ANDERSON
SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

RAILROAD CROSSING PAVEMENT MARKING

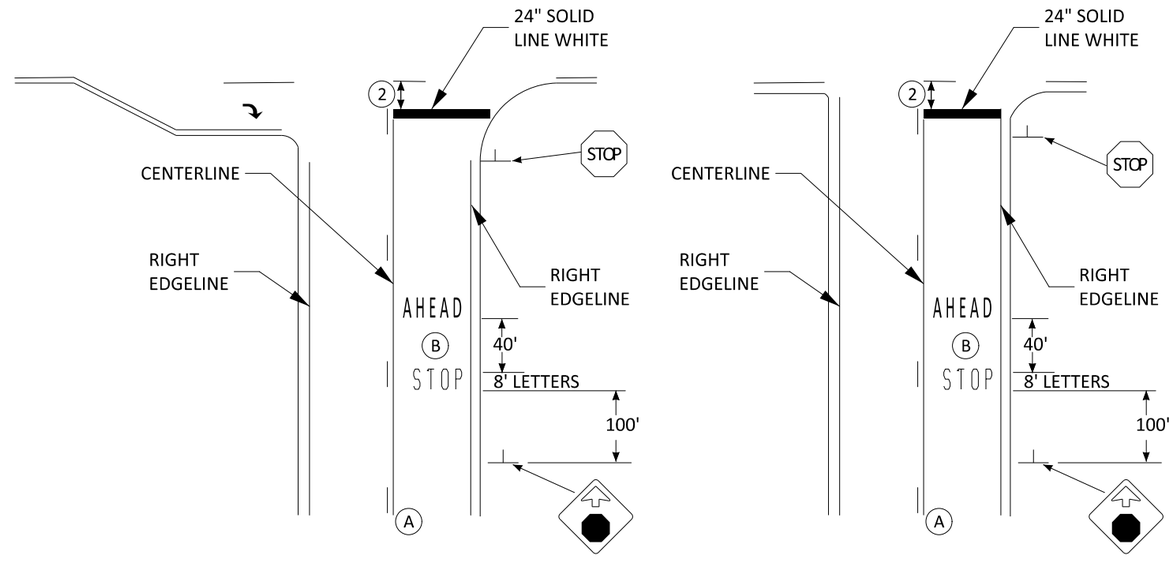


GENERAL NOTE:

SIGN LOCATION FOR REFERENCE ONLY.

1 WHEN USED, A PORTION OF THE PAVEMENT MARKING SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1).

STOP LINE AND "STOP AHEAD"



NOTES;

1. SIGN AND SIGN LOCATION FOR REFERENCE ONLY.

2. IF STOP LINES ARE USED WITH A CROSSWALK, THE STOP LINE SHOULD BE PLACED A MINIMUM OF 4 FEET IN ADVANCE OF AND PERPENDICULAR TO THE NEAREST CROSSWALK LINE,

   IN THE ABSENCE OF A MARKED CROSSWALK, THE STOP LINE SHOULD BE PLACED AT THE DESIRED STOPPING POINT, BUT SHOULD NOT BE PLACED MORE THAN 30 FEET OR LESS THAN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTING FACE OF CURB, THE NEAR EDGE OF THE THRU LANE, OR THE EDGE OF PAVED SURFACE.

3. STOP LINE SHALL CONSIST OF SOLID WHITE LINES EXTENDING ACROSS ALL APPROACH LANES.

4. PAY FOR STOP LINE AS A 24" SOLID LINE WHITE.

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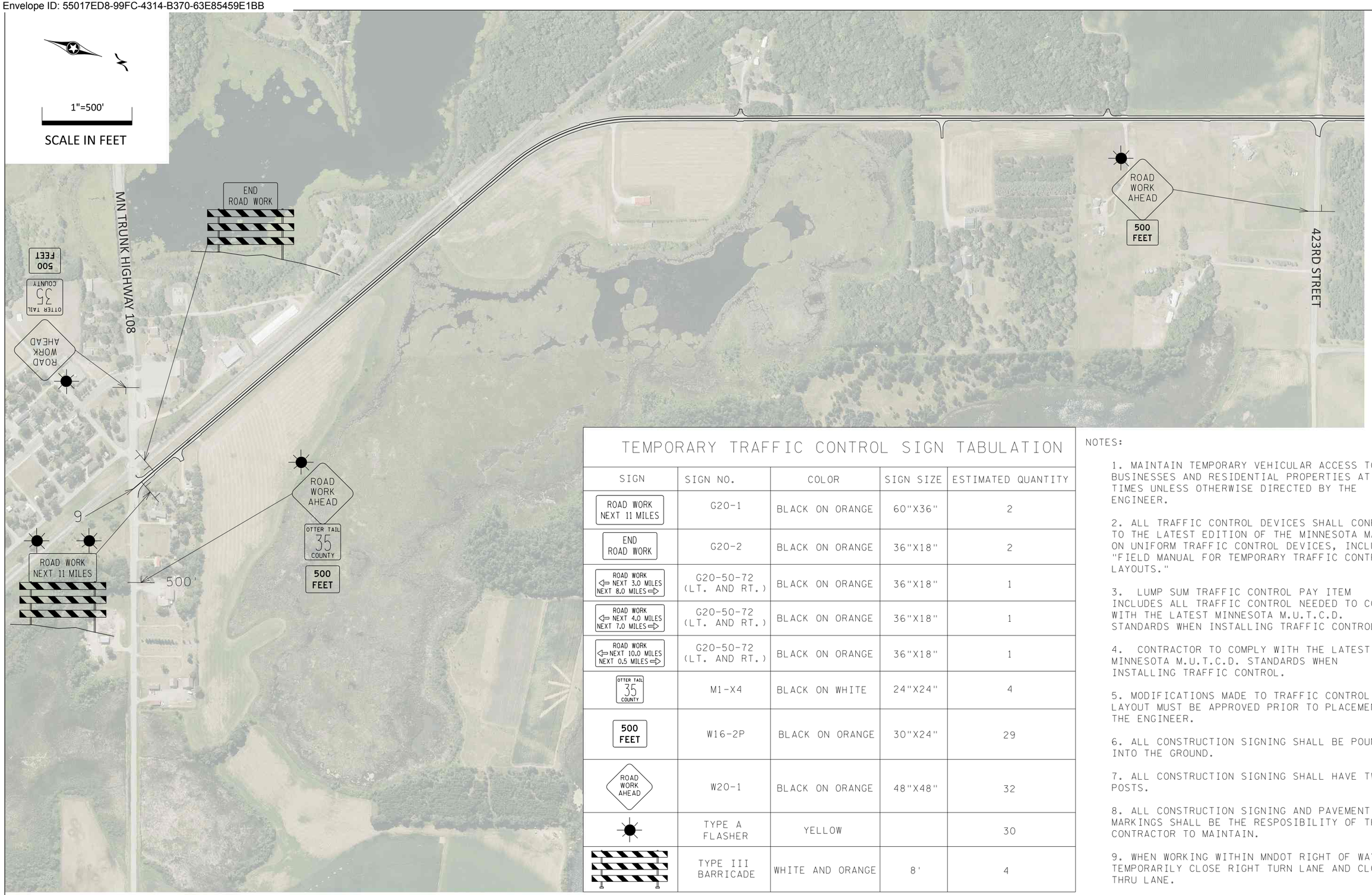
S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 116 OF 125 SHEETS



TEMPORARY TRAFFIC CONTROL SIGN TABULATION

SIGN	SIGN NO.	COLOR	SIGN SIZE	ESTIMATED QUANTITY
ROAD WORK NEXT 11 MILES	G20-1	BLACK ON ORANGE	60"X36"	2
END ROAD WORK	G20-2	BLACK ON ORANGE	36"X18"	2
ROAD WORK ⇦ NEXT 3.0 MILES NEXT 8.0 MILES ⇨	G20-50-72 (LT. AND RT.)	BLACK ON ORANGE	36"X18"	1
ROAD WORK ⇦ NEXT 4.0 MILES NEXT 7.0 MILES ⇨	G20-50-72 (LT. AND RT.)	BLACK ON ORANGE	36"X18"	1
ROAD WORK ⇦ NEXT 10.0 MILES NEXT 0.5 MILES ⇨	G20-50-72 (LT. AND RT.)	BLACK ON ORANGE	36"X18"	1
OTTER TAIL 35 COUNTY	M1-X4	BLACK ON WHITE	24"X24"	4
500 FEET	W16-2P	BLACK ON ORANGE	30"X24"	29
ROAD WORK AHEAD	W20-1	BLACK ON ORANGE	48"X48"	32
	TYPE A FLASHER	YELLOW		30
	TYPE III BARRICADE	WHITE AND ORANGE	8'	4

NOTES:

1. MAINTAIN TEMPORARY VEHICULAR ACCESS TO THE BUSINESSES AND RESIDENTIAL PROPERTIES AT ALL TIMES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

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

3. LUMP SUM TRAFFIC CONTROL PAY ITEM INCLUDES ALL TRAFFIC CONTROL NEEDED TO COMPLY WITH THE LATEST MINNESOTA M.U.T.C.D. STANDARDS WHEN INSTALLING TRAFFIC CONTROL.

4. CONTRACTOR TO COMPLY WITH THE LATEST MINNESOTA M.U.T.C.D. STANDARDS WHEN INSTALLING TRAFFIC CONTROL.

5. MODIFICATIONS MADE TO TRAFFIC CONTROL LAYOUT MUST BE APPROVED PRIOR TO PLACEMENT BY THE ENGINEER.

6. ALL CONSTRUCTION SIGNING SHALL BE POUNDED INTO THE GROUND.

7. ALL CONSTRUCTION SIGNING SHALL HAVE TWO POSTS.

8. ALL CONSTRUCTION SIGNING AND PAVEMENT MARKINGS SHALL BE THE RESPOSIBILITY OF THE CONTRACTOR TO MAINTAIN.

9. WHEN WORKING WITHIN MNDOT RIGHT OF WAY, TEMPORARILY CLOSE RIGHT TURN LANE AND CLOSEST THRU LANE.

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NAME NICHOLAS A. ANDERSON

SIGNATURE Nicholas A. Anderson LIC. NO. 40100 DATE 04/16/25

TRAFFIC CONTROL

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 117 OF 125 SHEETS

1"=500'

SCALE IN FEET

ROAD WORK AHEAD

500 FEET

423RD STREET

370TH AVENUE

430TH STREET

432ND STREET

ROAD WORK AHEAD

500 FEET

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DRAFTER: ARJ	DATE:	04/16/25				S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 119 OF 125 SHEETS

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TRAFFIC CONTROL

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 120 OF 125 SHEETS

N

1"=500'

SCALE IN FEET

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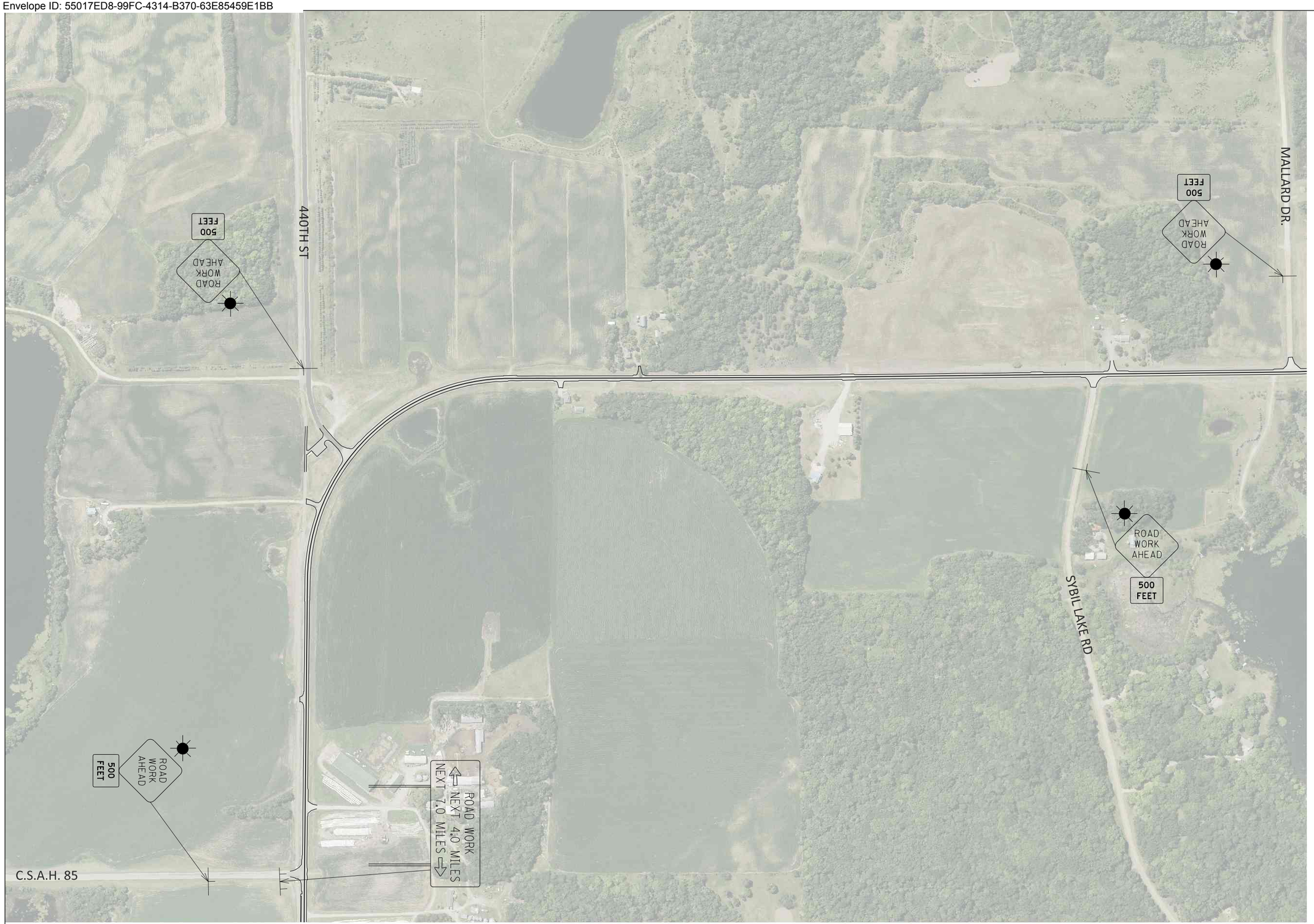
DRAFTER: ARJ	DATE: 04/16/25				S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 121 OF 125 SHEETS



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TRAFFIC CONTROL

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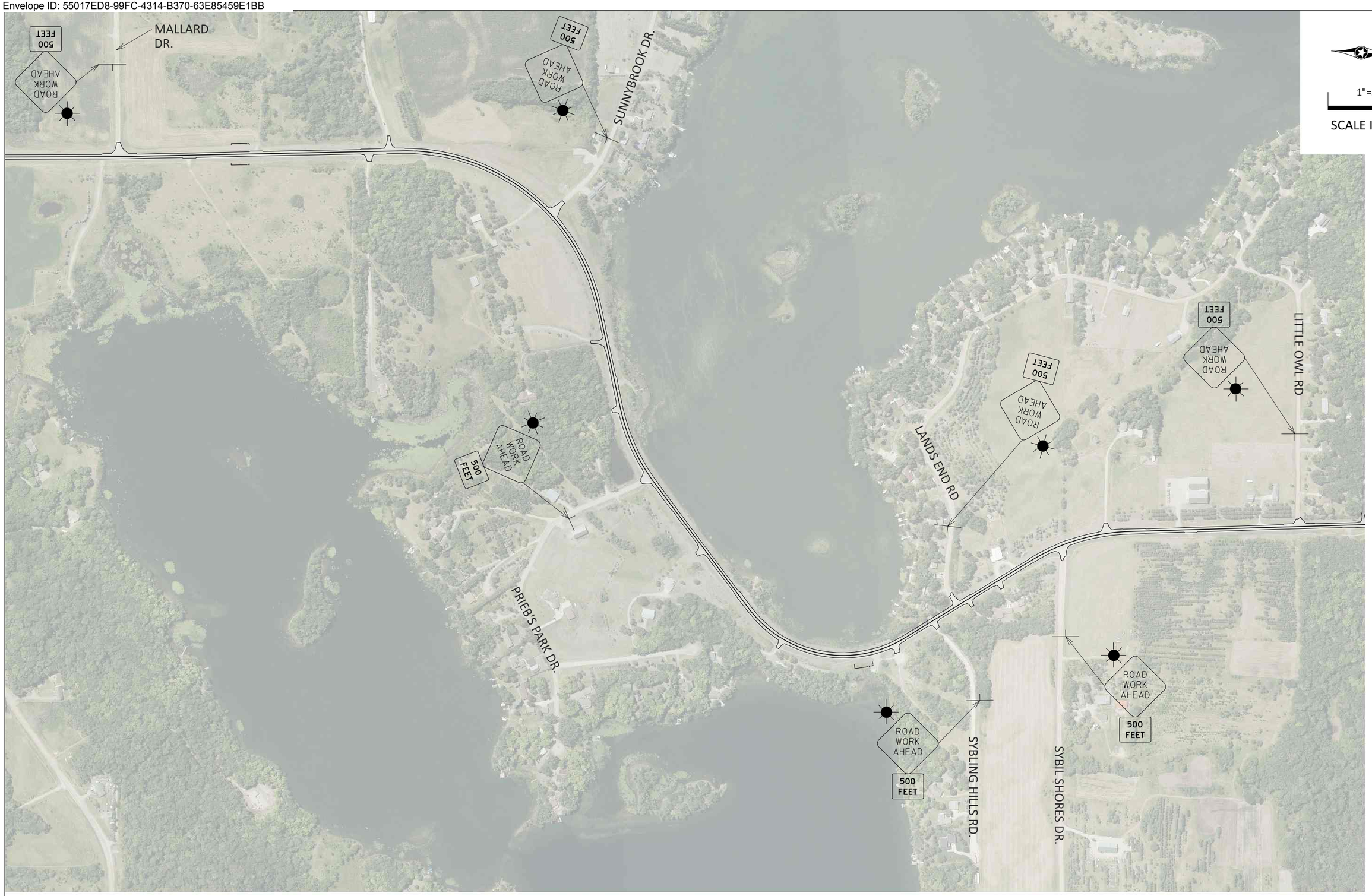

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DRAFTER: ARJ	DATE: 04/16/25			S.A.P. 056-635-043	C.S.A.H. 35
					SHEET NO. 123 OF 125 SHEETS

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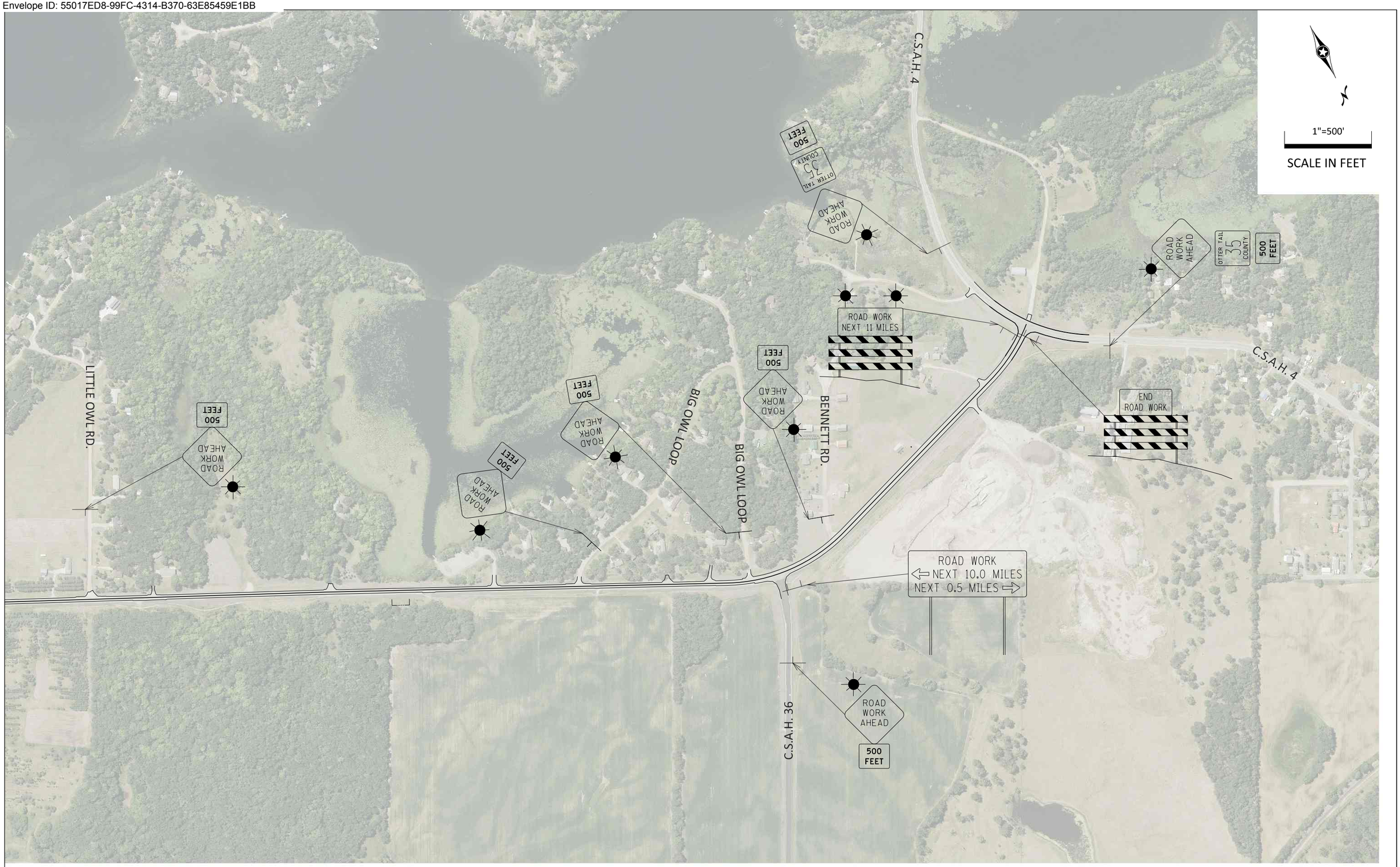

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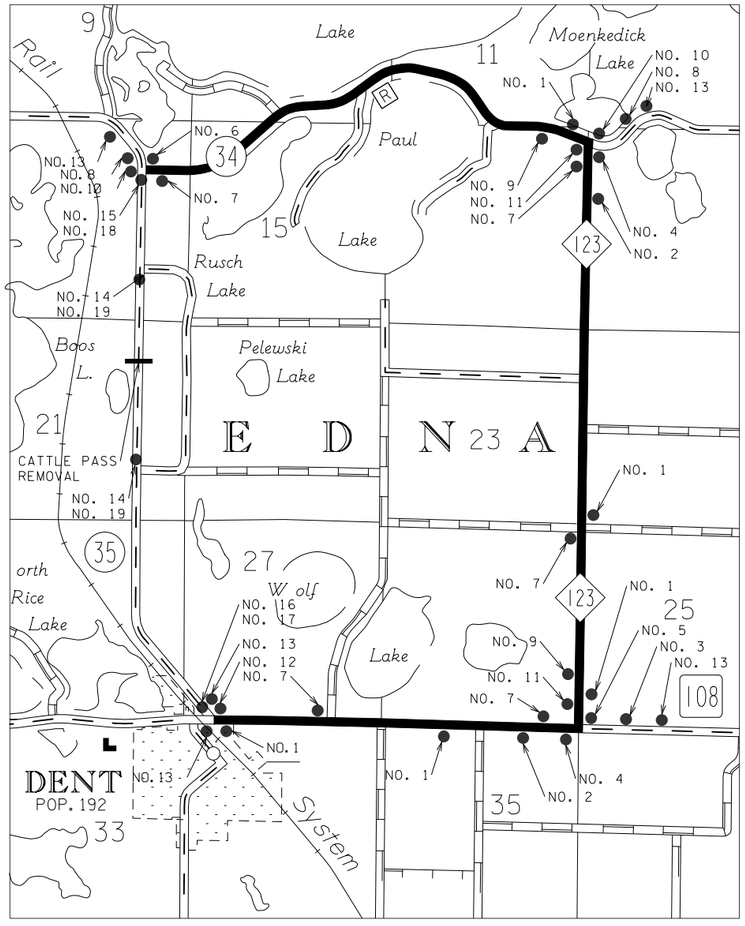
TRAFFIC CONTROL

S.A.P. 056-635-043 C.S.A.H. 35 SHEET NO. 124 OF 125 SHEETS



NOTES:

DETOUR NOT TO BE INPLACE FOR MORE THAN 72 HOURS AND NOT TO BE INPLACE FOR WEEKEND.

ESTIMATED QUANTITIES DISPLAYED IN DETOUR SIGN TABULATION TABLES ARE SEPERATE AND IN ADDITION TO TEMPORARY TRAFFIC CONTROL SIGN TABULATION ON PROJECT TRAFFIC CONTROL SHEETS.

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

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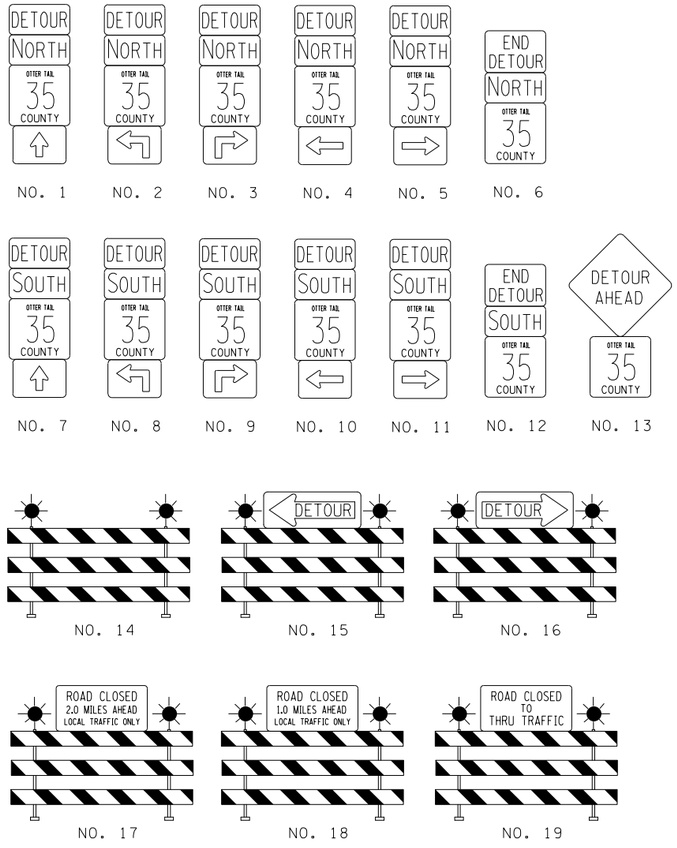
MODIFICATIONS MADE TO THE TRAFFIC CONTROL LAYOUT MUST BE APPROVED PRIOR TO PLACEMENT BY THE ENGINEER.

ALL CONSTRUCTION SIGNING SHALL BE POUNDED INTO THE GROUND.

ALL CONSTRICTION SIGNING SHALL HAVE TWO POSTS.

ALL CONSTRUCTION SIGNING AND PAVEMENT MARKINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN.

SIGN NO. 14 - 19 CAN BE PLACED ON SKIDS WITH MULTIPLE SAND BAG WEIGHTS.



DETOUR TRAFFIC CONTOL SIGN QUANTITIES

SIGN OR DEVICE	SIGN NO.	COLOR	SIZE	ESTIMATED QUANTITY
OTTER TAIL 35 COUNTY	M1-X4	BLACK ON WHITE	24"X24"	30
NORTH	M3-1	BLACK ON WHITE	24"X12"	12
SOUTH	M3-3	BLACK ON WHITE	24"X12"	14
DETOUR	M4-8	BLACK ON ORANGE	24"x12"	26
END DETOUR	M4-8a	BLACK ON ORANGE	24"X18"	2
	M5-1L	BLACK ON WHITE	21"X15"	4
	M5-1R	BLACK ON WHITE	21"X15"	3
	M6-1	BLACK ON WHITE	21"X15"	7
	M6-3	BLACK ON WHITE	21"X15"	10
DETOUR	M4-10L	BLACK ON ORANGE	48"X18"	1
DETOUR	M4-10R	BLACK ON ORANGE	48"X18"	1
ROAD CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3a	BLACK ON WHITE	60"X30"	1
ROAD CLOSED 2.0 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3a	BLACK ON WHITE	60"X30"	1
ROAD CLOSED TO THRU TRAFFIC	R11-4	BLACK ON WHITE	60"X30"	2
DETOUR AHEAD	W20-2	BLACK ON ORANGE	48"X48"	4
	TYPE III BARRICADE	WHITE AND ORANGE	8'	8
	TYPE A FLASHER	YELLOW		16

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