

MINNESOTA DEPARTMENT OF TRANSPORTATION BLUE EARTH COUNTY, MINNESOTA

TH 22 & CSAH 90

AGREEMENT NO. XXXXX
BLUE EARTH COUNTY
SP 0704-108 (TH 22=39)
FEDERAL FUNDS
DISTRICT 7

FED. PROJ. NO.

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION 'STANDARD SPECIFICATIONS FOR CONSTRUCTION' SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE 'MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' (MN MUTCD) AND PART VI, 'FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS'.

CONSTRUCTION PLAN FOR GRADING, BITUMINOUS & CONCRETE PAVEMENT, BITUMINOUS MILL & OVERLAY, ADA IMPROVEMENTS, LIGHTING

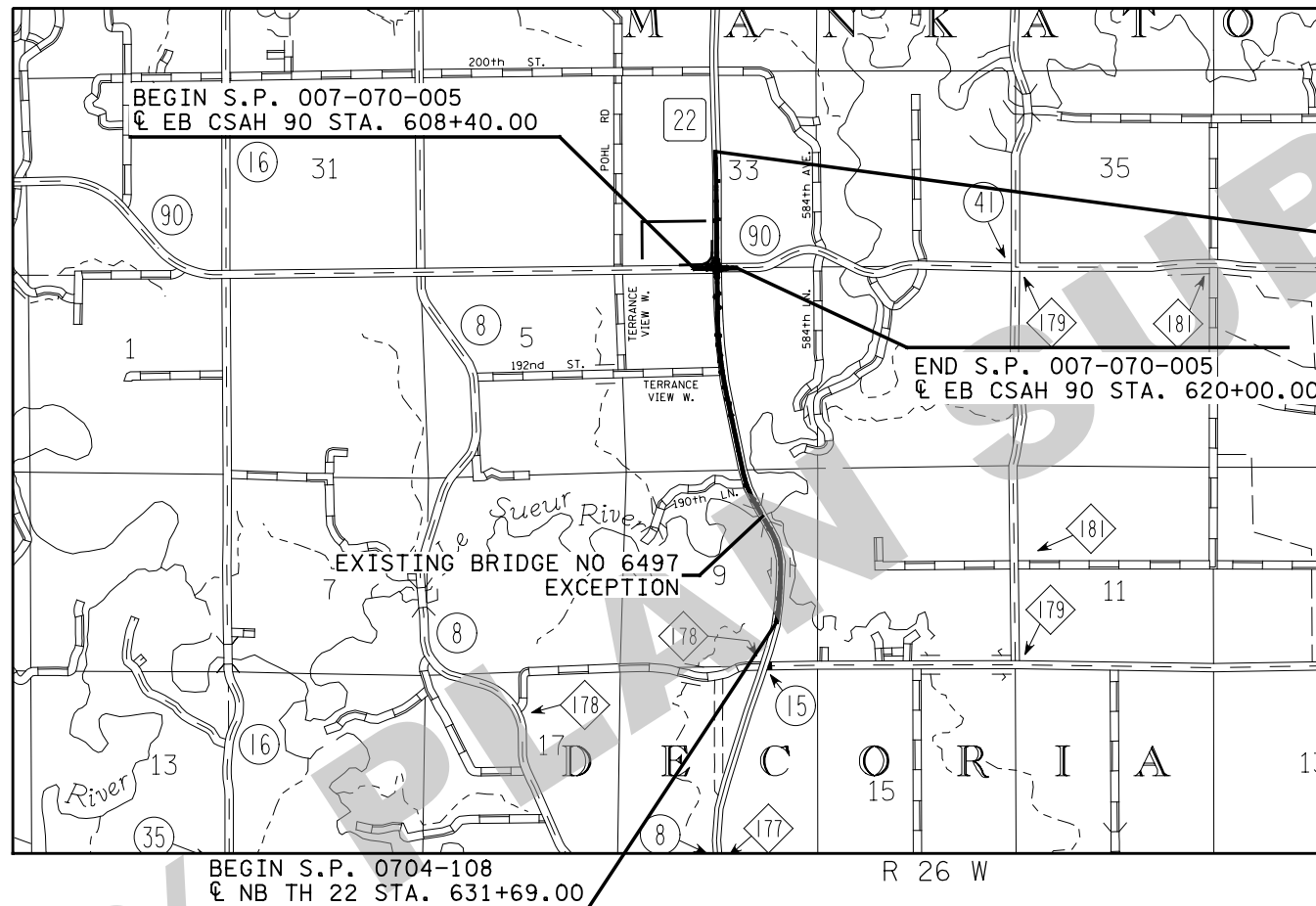
LOCATED ON TH 22 FROM 1225' NORTH OF CSAH 15 TO 2200' NORTH OF CSAH 90
LOCATED ON CSAH 90 FROM 612' WEST OF TH 22 TO 522' EAST OF TH 22

STATE PROJ. NO. 0704-108 (TH 22)

GROSS LENGTH 12845.39 FEET 2.433 MILES
BRIDGES-LENGTH 174.67 FEET 0.033 MILES
EXCEPTIONS-LENGTH 174.67 FEET 0.033 MILES
NET LENGTH 12670.72 FEET 2.400 MILES
REF. POINT 46+00.100 TO REF. POINT 48+00.339
LENGTH AND DESCRIPTION BASED UPON NB TH 22

STATE PROJ. NO. 007-070-005 (CSAH 90)

GROSS LENGTH 1160.00 FEET 0.220 MILES
BRIDGES-LENGTH FEET MILES
EXCEPTIONS-LENGTH FEET MILES
NET LENGTH 1160.00 FEET 0.220 MILES
LENGTH AND DESCRIPTION BASED UPON EB CSAH 90



SCALE

INDEX MAP	5000'
GENERAL LAYOUT	400'
PLAN	100'
PROFILE	100'
	HORIZ.
	10'
	VERT.

PLAN REVISIONS

DATE	SHEET NO.	APPROVED BY

INDEX

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211-276	CROSS SECTIONS

THIS PLAN CONTAINS 276 SHEETS

SRF
Consulting Group, Inc.

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.

SIGNATURE _____
DATE XX/XX/XX LIC. NO. 50890 PRINT NAME AMBER E. TRACY

RECOMMENDED FOR APPROVAL	BLUE EARTH COUNTY ENGINEER	20
RECOMMENDED FOR APPROVAL	DISTRICT TRANSPORTATION ENGINEER	20
RECOMMENDED FOR APPROVAL	DISTRICT MATERIALS ENGINEER	20
RECOMMENDED FOR APPROVAL	DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER	20
RECOMMENDED FOR APPROVAL	DISTRICT TRAFFIC ENGINEER	20
RECOMMENDED FOR APPROVAL	STATE PRE-LETTING ENGINEER	20
RECOMMENDED FOR APPROVAL	DIRECTOR, OFFICE OF LAND MANAGEMENT	20
APPROVED	STATE DESIGN ENGINEER	20
	DISTRICT STATE AID ENGINEER REVIEWED FOR COMPLIANCE WITH STATE AND/OR FEDERAL AID RULES/POLICY	20
	APPROVED FOR STATE AND/OR FEDERAL AID FUNDING: STATE AID ENGINEER	20

DESIGN DESIGNATION FOR:

	TH 22	CSAH 90
R-VALUE	12	12
ADT (Current Year) =	7,800 (2011)	3,200 (2009)
ADT (Future Year) 2025 =	13,500 (2025)	9,000 (2025)
PAVEMENT DESIGN	10 TON	10 TON
FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL	MINOR ARTERIAL
NO. OF TRAFFIC LANES	2	2
NO. OF PARKING LANES	0	0
ESALS (20)	1,954,000 (20 YRS.)	N/A
Design Speed	60 MPH	60 MPH
Based on Sight Distance	STOPPING	STOPPING
Height of eye / Height of Object	3.5' / 2.0'	3.5' / 2.0'
Design Speed not achieved at:	ROUNDBOULT APPROACHES	ROUNDBOULT APPROACHES

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

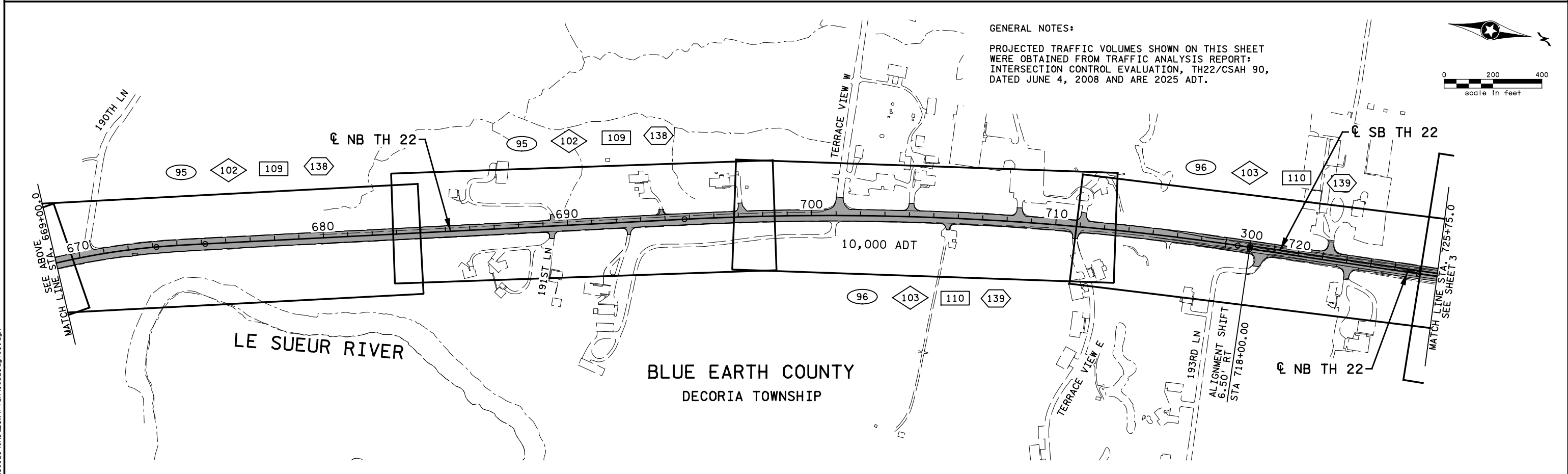
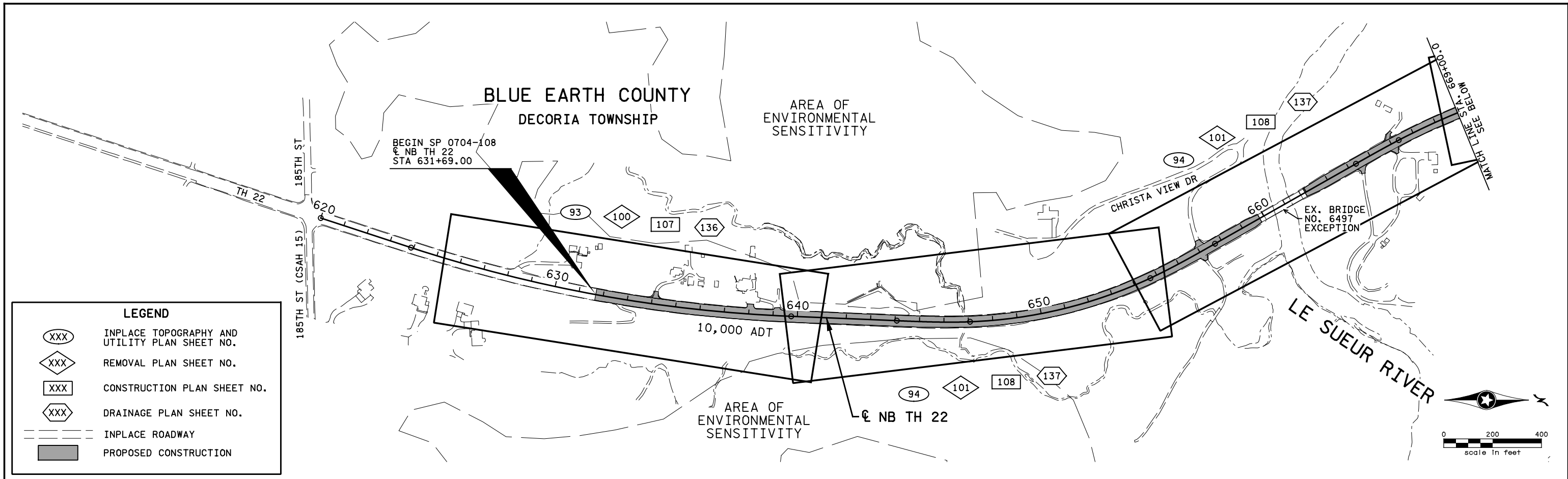
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DATE _____ LIC. NO. _____ PRINT NAME _____

THIS PLAN AND/OR SPECIFICATION WAS PREPARED SPECIFICALLY FOR THIS PROJECT, AND ANY RE-USE OF DETAILS OR SPECIFICATIONS ON OTHER PROJECTS IS NOT INTENDED OR AUTHORIZED BY THE DESIGNER. LIABILITY FOR ANY RE-USE ON OTHER PROJECTS IS THE RESPONSIBILITY OF THE PERSON, AGENCY, OR CORPORATION USING PLAN OR SPECIFICATION DATA FROM THIS PROJECT.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF C1/ASCE 38-02. ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

STATE PROJ. NO. 0704-108 (TH 22 = 39)
STATE PROJ. NO. 007-070-005 (CSAH 90) SHEET NO. 1 OF 276 SHEETS

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NO	DATE	BY	CKD	APPR	REVISION

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS

DESIGNED BY
P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321



**ENGINEERS
PLANNERS
DESIGNERS**

MINNESOTA DEPARTMENT OF TRANSPORTATION

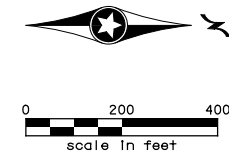
GENERAL LAYOUT
TH 22 & CSAH 90

**SHEET
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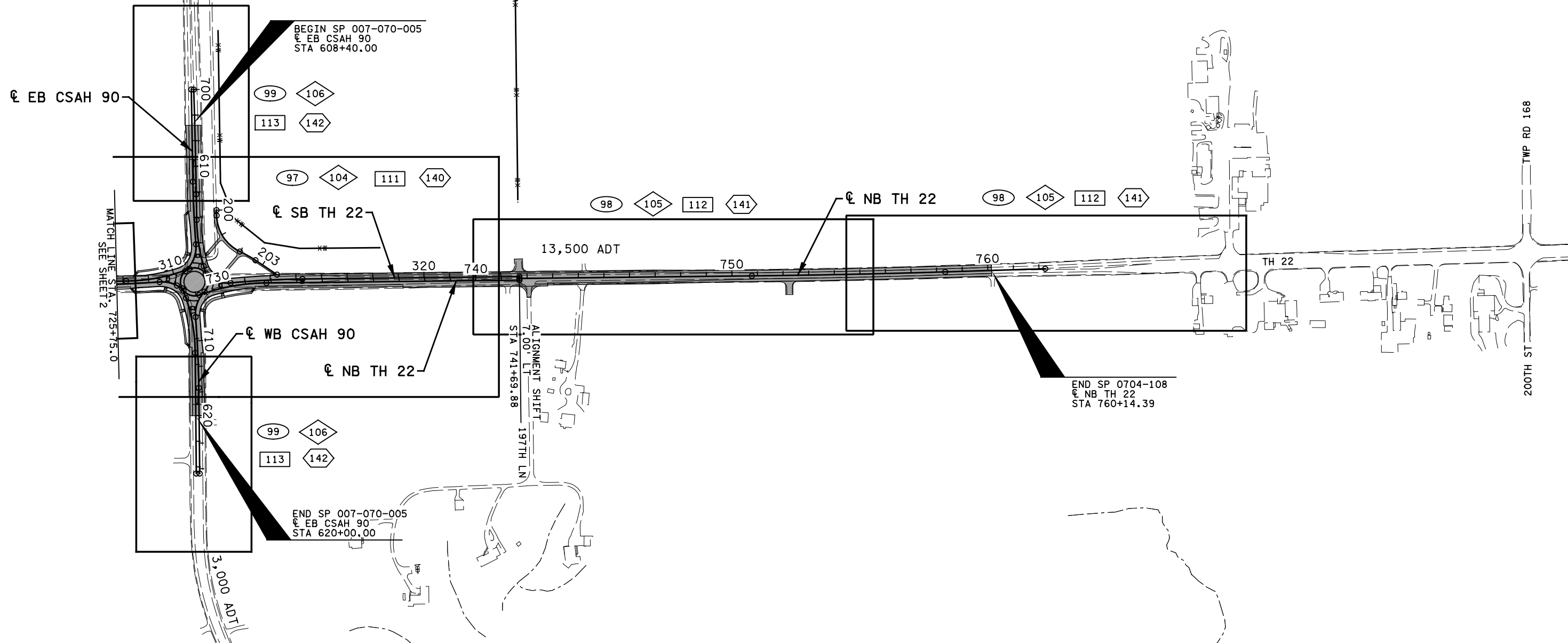
BLUE
EARTH
COUNTY

DECORIA
TOWNSHIP

BLUE EARTH COUNTY
MANKATO TOWNSHIP



SEE SHEET 2 FOR LEGEND AND
GENERAL NOTES



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NO	DATE	BY	CKD	APPR	REVISION

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Date: _____ License # 50890

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PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

GENERAL LAYOUT
TH 22 & CSAH 90

SHEET
3
OF
276

STATEMENT OF ESTIMATED QUANTITIES

NOTES	TAB	SHEET NO.	ITEM NO.	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES	SP 0704-108		SP 007-070-005
							NHPP FUNDS 80% FED 20% STATE	HSIP FUNDS 90% FED 10% STATE	HSIP FUNDS 90% FED 10% LOCAL (A)
			2011.601	AS BUILT	LUMP SUM	1	0.67	0.17	0.16
			2021.501	MOBILIZATION	LUMP SUM	1	0.67	0.17	0.16
			2031.502	FIELD OFFICE TYPE D	EACH	1	0.67	0.17	0.16
	G	12	2101.505	CLEARING	ACRE	0.5	0.5		
	G	12	2101.505	GRUBBING	ACRE	0.5	0.5		
	F	17-19	2104.502	REMOVE PIPE APRON	EACH	18	16	1	1
	H	12	2104.502	REMOVE ANCHORAGE ASSEMBLY-CABLE	EACH	10	10		
	F	17-19	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	2	2		
	Y	177	2104.502	REMOVE DELINEATOR	EACH	4	4		
	Y	177	2104.502	REMOVE MARKER	EACH	1	1		
	U	177	2104.502	REMOVE SIGN TYPE C	EACH	41	22	4	15
	H	12	2104.502	REMOVE LIGHTING SYSTEM	EACH	1		1	
	H	12	2104.502	REMOVE ENERGY ABSORBING TERMINAL	EACH	3	3		
	H	12	2104.502	REMOVE FLASHER SYSTEM	LUMP SUM	1		1	
	H	12	2104.502	SALVAGE LIGHTING UNIT	EACH	2		2	
	Z	177	2104.502	SALVAGE SIGN TYPE C	EACH	1	1		
	FF	177	2104.502	SALVAGE SIGN TYPE SPECIAL	EACH	1			1
	F	17-19	2104.503	REMOVE PIPE CULVERTS	LIN FT	662	555	66	41
	F	17-19	2104.503	REMOVE SEWER PIPE (STORM)	LIN FT	150	150		
	H	12	2104.503	REMOVE CABLE GUARDRAIL	LIN FT	3493	3493		
	H	12	2104.503	REMOVE GUARDRAIL-PLATE BEAM	LIN FT	400	400		
	H	12	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	93	93		
	H	12	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	433	305		128
	P	12	2104.503	SALVAGE BARBED WIRE FENCE	LIN FT	295	295		
	H	12	2104.504	REMOVE PAVEMENT	SQ YD	25700	19140	6410	150
	H	12	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	6542	87		6455
	H	12	2104.518	REMOVE BITUMINOUS WALK	SQ FT	2320			2320
(4)			2104.601	HAUL SALVAGED MATERIAL	LUMP SUM	1		1	
	A	9	2106.507	EXCAVATION - COMMON	CU YD	21235	12875	4198	4162
	A	9	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	10978	7210	1958	1810
	A	9	2106.507	COMMON EMBANKMENT (CV)	CU YD	17583	7595	6144	3844
			2112.519	SUBGRADE PREPARATION	ROAD STA	63	35	18	10
	J	13	2118.509	AGGREGATE SURFACING CLASS 1	TON	210	210		
			2123.510	MOTOR GRADER	HOUR	84	84		
	J	13	2211.507	AGGREGATE BASE (CV) CLASS 5Q	CU YD	17795	14215	1400	2180
	H	12	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	43980	43980		
	BB	14	2232.603	MILLED RUMBLE STRIPS-INTERMITTENT	LIN FT	14060	13400	660	
	BB	14	2232.603	MILLED SINUSOIDAL RUMBLE STRIPS-CENTER	LIN FT	4940	4940		
	BB	14	2232.603	MILLED SINUSOIDAL RUMBLE STR CONC-CENT	LIN FT	3630	3630		
	L	13	2301.502	DOWEL BAR	EACH	10810	7610	1920	1280
	L	13	2301.504	CONCRETE PAVEMENT 8.0"	SQ YD	19850	13460	3640	2750
	L	13	2301.508	SUPPLEMENTAL PAVEMENT REINFORCEMENT	POUND	4660	2368	945	1347
	K	13	2301.602	DRILL & GROUT REINF BAR (EPOXY COATED)	EACH	85		44	41
(1)	J	13	2360.509	TYPE SP 9.5 WEARING COURSE MIX (3,E)	TON	235		110	125
(3)	J	13	2360.509	TYPE SP 12.5 WEARING COURSE MIX (3,B)	TON	2025	1600	135	290
(1)	J	13	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,E)	TON	5160	4970		190
(1)	J	13	2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (4,E)	TON	180			180
	A	9	2451.507	GRANULAR BACKFILL (MOD) CV	CU YD	1160	1160		
	EE	150	2451.507	FINE AGGREGATE BEDDING (CV)	CU YD	73.1	73.1		
	EE	150	2452.601	STEEL SHEET PILING (PERMANENT)	LUMP SUM	1	1		
	EE	150	2501.502	30" GS PIPE APRON	EACH	1	1		
	EE	150	2501.502	15" RC PIPE APRON	EACH	16	1	9	6
	EE	150	2501.502	24" RC PIPE APRON	EACH	2		1	1
	EE	150	2501.502	18" GS SAFETY APRON & GRATE DES 3148	EACH	6	6		
	EE	150	2501.502	24" GS SAFETY APRON & GRATE DES 3148	EACH	2	2		

NOTES:

- (A) SEE AGREEMENT NO. XXXXX.
- (1) BITUMINOUS QUANTITIES BASED ON UNIT WEIGHT OF 113 POUNDS PER SQUARE YARD PER INCH. TACK COAT SHALL BE INCIDENTAL.
- (3) CONTRACTOR MAY SUBSTITUTE WITH TYPE SP 12.5 WEARING COURSE MIX (3,E). BITUMINOUS QUANTITIES BASED ON UNIT WEIGHT OF 113 POUNDS PER SQUARE YARD PER INCH. TACK COAT SHALL BE INCIDENTAL.
- (4) FOR DELIVERY OF SALVAGED LIGHTING ITEMS TO THE MANKATO MNDOT YARD.

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: <u>AMBER E. TRACY</u> Date: _____ License # <u>50890</u>					STATE PROJECT NO. 0704-108 (TH 22) STATE PROJECT NO. 007-070-005	DRAWN BY S. MARTINS DESIGNED BY P. ENGELMEYER CHECKED BY A. TRACY COMM. NO. 01710321	MINNESOTA DEPARTMENT OF TRANSPORTATION STATEMENT OF ESTIMATED QUANTITIES TH 22 & CSAH 90	SHEET 4 OF 276	
NO	DATE	BY	CKD	APPR	REVISION				
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STATEMENT OF ESTIMATED QUANTITIES

NOTES	TAB	SHEET NO.	ITEM NO.	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES	SP 0704-108		SP 007-070-005
							NHPP FUNDS 80% FED 20% STATE	HSIP FUNDS 90% FED 10% STATE	HSIP FUNDS 90% FED 10% LOCAL (A)
	EE	150	2501.502	24" RC SAFETY APRON	EACH	4	4		
	EE	150	2501.503	18" CS PIPE CULVERT	LIN FT	243	243		
	EE	150	2501.503	24" CS PIPE CULVERT	LIN FT	65	65		
	EE	150	2501.503	15" RC PIPE CULVERT DES 3006 CL V	LIN FT	60	60		
	EE	150	2501.503	24" RC PIPE CULVERT DES 3006	LIN FT	180	180		
	Q	13	2502.502	4" PRECAST CONCRETE HEADWALL	EACH	28	24		4
	Q	13	2502.503	4" PERF TP PIPE DRAIN	LIN FT	8083	6663	1420	
	Q	13	2502.503	4" PERF PE PIPE DRAIN	LIN FT	1904			1904
	EE	150	2503.503	12" RC PIPE SEWER DES 3006 CL V	LIN FT	150	150		
	EE	150	2503.503	15" RC PIPE SEWER DES 3006 CL V	LIN FT	539	24	302	213
	EE	150	2503.503	24" RC PIPE SEWER DES 3006	LIN FT	175			175
	EE	150	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	2	2		
	R	150	2506.502	CASTING ASSEMBLY	EACH	22	3	10	9
	EE	150	2506.503	CONST DRAINAGE STRUCTURE DESIGN F	LIN FT	16.1	16.1		
	EE	150	2506.503	CONST DRAINAGE STRUCTURE DESIGN G	LIN FT	79.2	8.6	38.9	31.7
	EE	150	2506.503	CONST DRAINAGE STRUCTURE DES 60-4020	LIN FT	5.8			5.8
	EE	150	2507.503	LINING CULVERT PIPE 30"	LIN FT	144	144		
	EE	150	2507.503	LINING CULVERT PIPE 36"	LIN FT	107	107		
	EE	150	2511.504	GEOTEXTILE FILTER TYPE IV	SQ YD	61.2	43.2	18	
	EE	150	2511.507	RANDOM RIPRAP CLASS II	CU YD	3.4		3.4	
	EE	150	2511.507	RANDOM RIPRAP CLASS III	CU YD	13.9	13.9		
	K	13	2521.518	6" CONCRETE WALK	SQ FT	17450		8560	8890
	K	13	2531.503	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	1540		715	825
	K	13	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	255		255	
	K	13	2531.503	CONCRETE CURB & GUTTER DESIGN S524	LIN FT	3440		1660	1780
	K	13	2531.503	CONCRETE CURB & GUTTER DESIGN R424	LIN FT	340		340	
	K	13	2531.618	TRUNCATED DOMES	SQ FT	404		208	196
	DD	61	2533.503	PORTABLE PRECAST CONC BARRIER DES 8337	LIN FT	620	620		
	DD	61	2533.503	RELOCATE PORT PRECAST CONC BAR DES 8337	LIN FT	520	520		
	H	12	2540.602	RELOCATE MAIL BOX SUPPORT	EACH	3	3		
	AA	203	2545.501	LIGHTING SYSTEM	LUMP SUM	1		0.5	0.5
	EE	150	2554.502	GUIDE POST TYPE B	EACH	34	17	10	7
	N	12	2554.502	ANCHORAGE ASSEMBLY - CABLE	EACH	8	8		
	N	12	2554.502	END TREATMENT-TANGENT TERMINAL	EACH	3	3		
	N	12	2554.503	TRAFFIC BARRIER DESIGN 8331	LIN FT	3438	3438		
	N	12	2554.503	TRAFFIC BARRIER DESIGN TYPE 31	LIN FT	250	250		
	DD	61	2554.615	IMPACT ATTENUATOR	ASSEMBLY	4	4		
	DD	61	2554.615	RELOCATE IMPACT ATTENUATOR	ASSEMBLY	2	2		
	P	12	2557.502	ELECTRICAL GROUND	EACH	4	4		
	P	12	2557.603	INSTALL BARBED WIRE FENCE	LIN FT	295	295		
	P	12	2557.604	FENCING SPECIAL	SQ YD	3445	3445		
	DD	61	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.67	0.17	0.16
	FF	177	2564.502	INSTALL SIGN TYPE SPECIAL	EACH	1			1
	V	180	2564.502	DELINEATOR TYPE RECOVERABLE	EACH	4		2	2
	V	180	2564.502	DELINEATOR TYPE X3-1	EACH	23	23		
	V	180	2564.502	DELINEATOR TYPE X4-13	EACH	5	5		
	CC	180	2564.502	REFERENCE LOCATION SIGN	EACH	2	2		
	V	180	2564.502	OBJECT MARKER TYPE X4-2	EACH	5	5		
	V	180	2564.502	OBJECT MARKER TYPE X4-3	EACH	4	4		
	V	180	2564.502	OBJECT MARKER TYPE X4-4	EACH	4		2	2
	V	180	2564.502	BRIDGE NUMBER MARKER X4-12A	EACH	1	1		
	W	178	2564.518	SIGN PANELS TYPE C	SQ FT	510.91	246.75	143.44	120.72
	X	179	2564.518	SIGN PANELS TYPE D	SQ FT	603.00	226.50	49.50	327.00
			2573.501	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	0.67	0.17	0.16

NOTES:
(A) SEE AGREEMENT NO. XXXXX.

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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
 STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS
 DESIGNED BY
P. ENGELMEYER
 CHECKED BY
A. TRACY
 COMM. NO. 01710321



**ENGINEERS
PLANNERS
DESIGNERS**

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATEMENT OF ESTIMATED QUANTITIES
 TH 22 & CSAH 90

**SHEET
5
OF
276**

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TABULATIONS "I" AND "O" NOT USED

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

STANDARD PLATES	
PLATE NO.	DESCRIPTION
1070 M	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103 K	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
1150 R	CONCRETE HEADER JOINTS (2 SHEETS)
3000 L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006 G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3022 C	PRECAST CONCRETE SAFETY APRON (3 SHEETS)
3040 F	CORRUGATED METAL PIPE CULVERT (STANDARD 2-2/3" X 1/2" CORRUGATION)
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 J	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3128 H	METAL SAFETY APRON & GRATE (2 SHEETS)
3133 D	RIPRAP AT RCP OUTLETS
3134 D	RIPRAP AT CSP OUTLETS
3145 G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND (3 SHEETS)
4005 M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006 L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4010 H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011 E	PRECAST CONCRETE BASE
4020 J	MANHOLE OR CATCH BASIN FOR USE WITH OR WITHOUT TRAFFIC LOADS (2 SHEETS)
4026 A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101 D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715 AND 716
4132 F	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 805
4143 E	STOOL GRATE & CONCRETE FRAME (MEDIAN DRAINS) - CASTING NO. 731
4154 B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4180 J	MANHOLE OR CATCH BASIN STEP
7038 A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100 H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7102 K	CONCRETE CURB AND GUTTER (DESIGN D, S, AND R)
7109 C	MEDIAN NOSE AND ISLAND (UNDIVIDED TO DIVIDED ROADWAY)
7111 J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB & GUTTER)
7113 A	CONCRETE APPROACH NOSE DETAIL
8000 J	CHANNELIZERS (3 SHEETS)
8129 A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)
8331 B	3-CABLE GUARDRAIL (WITH STEEL POSTS) (3 SHEETS)
8337 C	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER (TYPE F) (3 SHEETS)
9000 E	APPROACHES AND ENTRANCES - RECOMMENDED STANDARDS

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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
 STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS
 DESIGNED BY
P. ENGELMEYER
 CHECKED BY
A. TRACY
 COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLATES, INDEX OF TABULATIONS
 TH 22 & CSAH 90

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CONSTRUCTION AND SOILS NOTES

GRADING, BASE AND SURFACE

1. STRIP SOD AND TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE TOPSOIL. FOR ESTIMATING PURPOSES, THE DEPTH OF TOPSOIL AVAILABLE IS CONSIDERED TO BE 6".
2. ALL TOPSOIL STRIPPING WILL BE CONSIDERED EXCAVATION - COMMON.
3. EXCAVATION FOR PIPE AND CULVERT INSTALLATION IS INCIDENTAL.
4. TEST ROLLING USING TEST ROLLER TR10, SHALL BE PERFORMED ON THE TOP OF THE AGGREGATE BASE FOR NB AND SB TH 22 AND EB AND WB CSAH 90 (INCIDENTAL).
5. 6 INCHES OF SUBGRADE PREPARATION IS REQUIRED ON PROPOSED TH 22 CONSTRUCTION AND TRAIL SECTION.
6. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING, WHICHEVER IS DEEPER, THEN 1V:20H TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION, UNLESS OTHERWISE NOTED.
7. PROVIDE 1V:20H LONGITUDINAL TAPERS BETWEEN CHANGES IN SUBGRADE AND SUBCUT DEPTHS.
8. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.
9. PROVIDE A FULL DEPTH SAW CUT WHERE PLACING NEW PAVEMENT NEXT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT.
10. NO TRAFFIC, EXCEPT THAT WHICH IS NECESSARY FOR CONSTRUCTION, WILL BE ALLOWED ON THE MILLED SURFACE.
11. PROVIDE BITUMINOUS TACK COATS BETWEEN ALL BITUMINOUS LIFTS AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING PAVEMENT OR MILLED SURFACES (INCIDENTAL).
12. THE GRADING SHALL BE SHAPED AND COMPACTED TO SEAL THE SURFACE AND PROVIDE DRAINAGE AT THE END OF EACH WORKING DAY. ALL EROSION AND SEDIMENT CONTROL BMP'S ARE TO BE IN GOOD CONDITION AT THE END OF EACH WORKING DAY.
13. THE NEW ROAD SURFACE OR ROADBED SHALL NOT BE USED TO STOCKPILE ANY MATERIAL UNLESS AUTHORIZED BY THE ENGINEER.
14. DITCHES MUST BE EXCAVATED AND STABILIZED BEFORE ANY SUBCUTS ARE EXCAVATED AND KEPT DEEPER THAN THE BOTTOM OF THE SUBCUT. PROVIDE POSITIVE DRAINAGE FOR SUBCUTS AT ALL TIMES.

REMOVALS

15. THE EXISTING PAVEMENT THICKNESSES ARE ASSUMED TO BE AS FOLLOWS:
 - TH 22 - 7.5" BITUMINOUS PAVEMENT OVER 9-7-9 CONCRETE PAVEMENT
 - CSAH 90 WEST OF TH 22 - 8.0" BITUMINOUS PAVEMENT
 - CSAH 90 EAST OF TH 22 - 7.5" BITUMINOUS PAVEMENT

THE CONTRACTOR SHALL INVESTIGATE AND MAKE THEIR OWN DETERMINATION. (INFORMATION TAKEN FROM RECORD DRAWINGS).

TURF ESTABLISHMENT

16. PLACE A MINIMUM OF 6 INCHES OF TOPSOIL ON ALL AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT.
17. SEE EROSION CONTROL AND TURF ESTABLISHMENT PLANS FOR PERMANENT TURF ESTABLISHMENT TYPES AND LOCATIONS. THE FOLLOWING MATERIALS AND RATES SHALL APPLY TO MNDOT SPEC. 2575:
 - ON PERMANENT CONSTRUCTION, SEED MIXTURE 35-241 @ 36.5 POUNDS PER ACRE, FERTILIZER TYPE 3, ANALYSIS 22-5-10, @ 200 POUNDS PER ACRE AND MULCH MATERIAL TYPE 3 @ 2 TONS PER ACRE, WITH DISK ANCHOR ON SLOPES 1:3 AND FLATTER. ON SLOPES STEEPER THAN 1:3, AND DITCH BOTTOMS, USE EROSION CONTROL BLANKET CATEGORY 3N (WOOD FIBER WITH NATURAL NETTING).
 - ON PERMANENT CONSTRUCTION, PROVIDE SOIL BED PREPARATION FOR ALL AREAS THAT REQUIRE TURF ESTABLISHMENT.

TEMPORARY EROSION CONTROL

18. USE RAPID STABILIZATION METHOD 3 TO TEMPORARILY STABILIZE DISTURBED AREAS BEFORE PERMANENT TURF ESTABLISHMENT IS APPLIED.

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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
 CONSTRUCTION AND SOILS NOTES
 TH 22 & CSAH 90

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EARTHWORK SUMMARY					A
ALIGNMENT	EXCAVATION - COMMON (EV)	EMBANKMENT TOTALS (CV)			
		COMMON	SELECT GRANULAR	GRANULAR BACKFILL MOD (CV)	
		CU YD	CU YD	CU YD	
S.P. 0704-108 (TH 22) NHPP FUNDS					
NB TH 22 (SB TH 22) - GUARDRAIL	1283	3877			
NB TH 22 (SB TH 22)	11457	3714	7210		
SNOW BASIN GRADING	135	4			
CULVERT BACKFILL (A-1)				1160	
S.P. 0704-108 (TH 22) NHPP FUNDS TOTAL	12875	7595	7210	1160	
S.P. 0704-108 (TH22) HSIP FUNDS					
NB TH 22 (SB TH 22)	2740	2665	1444		
RAB	358	2414	514		
SNOW BASIN GRADING	1100	1065			
S.P. 0704-108 (TH22) HSIP FUNDS TOTAL	4198	6144	1958		
S.P. 007-070-005 (CSAH 90) FUNDS					
EB CSAH 90 (WB CSAH 90)	3671	3032	1810		
SNOW BASIN GRADING	491	812			
S.P. 007-070-005 (CSAH 90) FUNDS TOTAL	4162	3844	1810		
PROJECT TOTALS	21235	17583	10978	1160	

NOTES:
(A-1) SEE DRAINAGE TABULATIONS AND DRAINAGE DETAILS

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TH 22 GUARDRAIL - EARTHWORK TABULATION B

STATION	EXCAVATION - COMMON (EV)	EMBANKMENT TOTALS (CV)	
		COMMON	SELECT GRANULAR
NB TH 22 (SB TH 22)	CU YD	CU YD	CU YD
633+00.00			
633+50.00	15	24	
634+00.00	21	50	
634+50.00	15	37	
635+00.00	7	10	
635+50.00	5	6	
636+00.00	8	9	
636+50.00	10	14	
637+00.00	8	13	
637+50.00	8	12	
638+00.00	8	11	
638+50.00	47	194	
639+00.00	65	244	
639+50.00	56	198	
640+00.00	77	370	
640+50.00	77	433	
641+00.00	35	208	
641+50.00	23	78	
642+00.00	44	154	
642+50.00	41	130	
643+00.00	36	93	
643+50.00	21	45	
644+00.00	19	27	
644+50.00	28	42	
645+00.00	16	25	
645+50.00	5	7	
646+00.00	17	33	
646+50.00	31	71	
646+79.00	15	35	
647+00.00	12	29	
647+50.00	24	58	
648+00.00	10	12	
648+50.00	8	10	
649+00.00	8	8	
649+50.00	5	6	
650+00.00	3	3	
650+50.00	8	9	
651+00.00	12	15	
651+50.00	13	20	
652+00.00	14	25	
652+50.00	19	33	
653+00.00	21	47	
653+50.00	10	27	
654+00.00	2	2	
654+50.00	4	5	
655+00.00	16	40	
655+50.00	26	70	
656+00.00	23	65	
656+50.00	20	58	
664+00.00			
664+50.00	31	138	
665+00.00	22	94	
674+00.00			
674+50.00	2	2	
675+00.00	3	3	
675+50.00	3	3	
676+00.00	22	63	
676+50.00	41	158	
677+00.00	26	105	
677+50.00	12	21	
678+00.00	12	21	
678+50.00	11	18	
679+00.00	11	18	

TH 22 GUARDRAIL - EARTHWORK TABULATION B

STATION	EXCAVATION - COMMON (EV)	EMBANKMENT TOTALS (CV)	
		COMMON	SELECT GRANULAR
NB TH 22 (SB TH 22)	CU YD	CU YD	CU YD
679+50.00	11	17	
680+00.00	10	16	
680+50.00	13	23	
681+00.00	17	32	
681+50.00	13	22	
682+00.00	5	6	
682+50.00	2	2	
TOTAL	1283	3877	

CSAH 90 - EARTHWORK TABULATION B

STATION	EXCAVATION - COMMON (EV)	EMBANKMENT TOTALS (CV)	
		COMMON	SELECT GRANULAR
EB CSAH 90 (WB CSAH 90)	CU YD	CU YD	CU YD
608+40.00			
608+50.00	56	6	
609+00.00	279	34	
609+50.00	280	37	
610+00.00	231	30	56
610+50.00	173	19	112
611+00.00	160	19	112
611+50.00	181	29	111
612+00.00	194	120	108
612+50.00	167	208	99
613+00.00	141	205	94
613+50.00	146	182	108
613+75.25	99	92	68
615+49.74			
616+00.00	186	567	135
616+50.00	190	527	105
617+00.00	214	496	99
617+50.00	191	279	103
618+00.00	156	58	109
618+50.00	147	30	111
619+00.00	145	26	112
619+50.00	170	34	112
620+00.00	165	34	56
TOTAL	3671	3032	1810

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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
 COMM. NO. 01710321


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MINNESOTA DEPARTMENT OF TRANSPORTATION
 EARTHWORK SUMMARY AND TABULATIONS
TH 22 & CSAH 90

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TH 22 - EARTHWORK TABULATION B			
STATION	EXCAVATION - COMMON (EV)	EMBANKMENT TOTALS (CV)	
		COMMON	SELECT GRANULAR
NB TH 22 (SB TH 22)	CU YD	CU YD	CU YD
714+50.00			
715+00.00	2	2	
715+50.00	2	2	
716+00.00	3	3	
716+50.00	12	14	
717+00.00	28	24	
717+50.00	93	30	51
717+99.00	147	44	101
718+01.00	6	2	4
718+50.00	214	48	139
719+00.00	207	48	142
719+50.00	128	56	105
720+00.00	126	49	105
720+50.00	114	39	105
721+00.00	106	22	107
721+24.00	87	4	73
721+50.00	99	5	81
722+00.00	185	17	153
722+50.00	171	24	145
723+00.00	100	28	103
723+50.00	103	28	105
724+00.00	92	23	105
724+50.00	101	35	105
725+00.00	123	47	105
725+50.00	150	49	104
726+00.00	195	52	103
726+50.00	217	191	100
727+00.00	248	401	99
727+50.00	288	483	105
728+00.00	298	523	133
729+71.16			
730+00.00	156	173	83
730+50.00	243	286	115
731+00.00	219	262	97
731+50.00	193	137	95
732+00.00	155	30	98
732+50.00	129	18	102
733+00.00	126	13	105
733+50.00	261	60	106
734+00.00	417	106	106
734+50.00	439	110	106
735+00.00	447	119	106
735+50.00	445	124	106
736+00.00	441	127	106
736+50.00	296	99	106
737+00.00	133	64	106
737+50.00	125	69	110
738+00.00	130	82	114
738+50.00	127	83	114
739+00.00	125	85	114
739+50.00	129	83	114
740+00.00	147	94	114
740+50.00	159	109	114
741+00.00	179	95	114
741+50.00	198	62	114
741+68.00	73	20	41
742+00.00	160	26	97
742+50.00	225	49	152
743+00.00	163	76	110
743+50.00	164	68	106
744+00.00	159	44	106
744+50.00	162	32	106
745+00.00	166	66	106
745+50.00	165	90	106
746+00.00	165	90	106

TH 22 - EARTHWORK TABULATION B			
STATION	EXCAVATION - COMMON (EV)	EMBANKMENT TOTALS (CV)	
		COMMON	SELECT GRANULAR
NB TH 22 (SB TH 22)	CU YD	CU YD	CU YD
746+50.00	165	101	106
747+00.00	161	108	106
747+50.00	157	98	105
748+00.00	153	83	101
748+50.00	146	69	98
749+00.00	137	60	95
749+50.00	128	53	92
750+00.00	119	38	89
750+50.00	112	30	88
751+00.00	111	32	88
751+13.00	28	8	23
751+50.00	81	22	65
752+00.00	108	17	88
752+24.00	62	5	42
752+50.00	65	5	45
753+00.00	106	8	87
753+50.00	110	11	88
754+00.00	112	14	88
754+50.00	111	15	88
755+00.00	111	15	88
755+50.00	114	17	88
756+00.00	114	16	88
756+50.00	121	25	88
757+00.00	130	41	88
757+50.00	130	45	88
758+00.00	130	34	88
758+50.00	128	21	88
759+00.00	124	15	88
759+50.00	123	13	88
760+00.00	107	13	88
760+14.30	27	3	25
TOTAL	14197	6379	8654

RAB - EARTHWORK TABULATION B			
STATION	EXCAVATION - COMMON (EV)	EMBANKMENT TOTALS (CV)	
		COMMON	SELECT GRANULAR
RAB	CU YD	CU YD	CU YD
100+00.00			
100+25.00	32	186	40
100+50.00	51	276	44
100+75.00	33	221	40
101+00.00		140	34
101+25.00	32	224	38
101+50.00	36	222	38
101+75.00	16	134	34
102+00.00	25	136	39
102+25.00	19	148	45
102+50.00	11	142	42
102+75.00	5	150	40
103+00.00	46	230	43
103+25.00	52	205	37
TOTAL	358	2414	514

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STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
 DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
 EARTHWORK SUMMARY AND TABULATIONS
 TH 22 & CSAH 90

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CLEARING & GRUBBING				G
ALIGNMENT	STATION TO STATION	(G-1)	(G-1)	
		CLEARING ACRE	GRUBBING ACRE	
SP 0704-108 (TH 22) NHPP FUNDS				
FENCE 2 AND FENCE 3	100+00 TO 126+69	0.2	0.2	
NB TH 22	631+69 TO 717+00	0.3	0.3	
SP 0704-108 (TH 22) NHPP FUNDS TOTAL				
		0.5	0.5	
PROJECT TOTALS				
		0.5	0.5	

NOTES:
(G-1) INDIVIDUAL TREES PAID FOR AS 0.05 ACRES PER TREE.

TRAFFIC BARRIER					N
ALIGNMENT	STATION TO STATION	TRAFFIC BARRIER DESIGN 8331	TRAFFIC BARRIER DESIGN TYPE 31	ANCHORAGE ASSEMBLY - CABLE	(N-1) END TREATMENT-TANGENT TERMINAL
		LIN FT	LIN FT	EACH	EACH
SP 0704-108 (TH 22) NHPP FUNDS					
NB TH 22	631+69 TO 717+00	3438	250	8	3
SP 0704-108 (TH 22) NHPP FUNDS TOTAL					
		3438	250	8	3
PROJECT TOTALS					
		3438	250	8	3

NOTES:
(N-1) TWO (2) MSKT OR SOFTSTOP END TERMINAL, AND ONE (1) ET-PLUS OR SKT-350

REMOVALS, SAWING, AND MILLING												H
ALIGNMENT	STATION TO STATION	REMOVE CABLE GUARDRAIL	REMOVE GUARDRAIL-PLATE BEAM	REMOVE BITUMINOUS WALK	REMOVE PAVEMENT	REMOVE BITUMINOUS PAVEMENT	REMOVE ANCHORAGE ASSEMBLY-CABLE	(H-1) REMOVE LIGHTING SYSTEM	REMOVE ENERGY ABSORBING TERMINAL	REMOVE FLASHER SYSTEM	SAWING CONCRETE PAVEMENT (FULL DEPTH)	SAWING BIT PAVEMENT (FULL DEPTH)
		LIN FT	LIN FT	SQ FT	SQ YD	SQ YD	EACH	EACH	EACH	LUMP SUM	LIN FT	LIN FT
SP 0704-108 (TH 22) NHPP FUNDS												
NB TH 22	631+69 TO 717+00	3493	400		20	87	10		3		47	216
NB TH 22	717+00 TO 724+52				4780							28
NB TH 22	733+27 TO 760+14				14340						46	61
SP 0704-108 (TH 22) NHPP FUNDS TOTAL												
		3493	400		19140	87	10		3		93	305
SP 0704-108 (TH 22) HSIP FUNDS												
NB TH 22	724+52 TO 733+27				6410			1		1		
SP 0704-108 (TH 22) HSIP FUNDS TOTAL												
					6410			1		1		
SP 007-070-005 (CSAH 90) HSIP FUNDS												
EB CSAH 90	608+40 TO 613+83			2320	40	3620						71
EB CSAH 90	615+39 TO 620+00				110	2835						57
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL												
				2320	150	6455						128
PROJECT TOTALS												
		3493	400	2320	25700	6542	10	1	3	1	93	433

NOTES:
(H-1) INCLUDES REMOVAL OF UNDERGROUND WIRE, RIGID STEEL CONDUIT, DIRECT BURIED LIGHTING CABLE, EQUIPMENT PAD, LIGHT FOUNDATION, AND SERVICE CABINET.

REMOVALS, SAWING, AND MILLING					H
ALIGNMENT	STATION TO STATION	SALVAGE LIGHTING UNIT	MILL BITUMINOUS SURFACE (2.0")	RELOCATE MAIL BOX SUPPORT	
		EACH	SQ YD	EACH	
SP 0704-108 (TH 22) NHPP FUNDS					
NB TH 22	631+69 TO 717+00		43980	1	
NB TH 22	717+00 TO 724+52			2	
NB TH 22	733+27 TO 760+14				
SP 0704-108 (TH 22) NHPP FUNDS TOTAL					
			43980	3	
SP 0704-108 (TH 22) HSIP FUNDS					
NB TH 22	724+52 TO 733+27	2			
SP 0704-108 (TH 22) HSIP FUNDS TOTAL					
		2			
SP 007-070-005 (CSAH 90) HSIP FUNDS					
EB CSAH 90	608+40 TO 613+83				
EB CSAH 90	615+39 TO 620+00				
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL					
PROJECT TOTALS					
		2	43980	3	

FENCING						P
ALIGNMENT	STATION TO STATION	SALVAGE BARBED WIRE FENCE	ELECTRICAL GROUND	INSTALL BARBED WIRE FENCE	FENCING SPECIAL	
		LIN FT	EACH	LIN FT	SQ YD	
SP 0704-108 (TH 22) NHPP FUNDS						
FENCE 1	60+00 TO 73+46		1		823	
FENCE 2 AND FENCE 3	100+00 TO 126+69	295	3	295	2622	
SP 0704-108 (TH 22) NHPP FUNDS TOTAL						
		295	4	295	3445	
PROJECT TOTALS						
		295	4	295	3445	

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NO	DATE	BY	CKD	APPR	REVISION

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.
Print Name: AMBER E. TRACY
Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS
DESIGNED BY
P. ENGELMEYER
CHECKED BY
A. TRACY
COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
TABULATIONS
TH 22 & CSAH 90

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AGGREGATE AND BITUMINOUS SUMMARY

J

ALIGNMENT	STATION TO STATION	(J-1)		TYPE SP 9.5	TYPE SP 12.5	TYPE SP 12.5	TYPE SP 12.5
		AGGREGATE SURFACING CLASS 1	AGGREGATE BASE (CV) CLASS 5Q	WEARING COURSE MIX (3,E)	WEARING COURSE MIX (3,B)	WEARING COURSE MIX (4,E)	NON WEAR COURSE MIX (4,E)
		TON	CU YD	TON	TON	TON	TON
SP 0704-108 (TH 22) NHPP FUNDS							
NB TH 22	631+69 TO 717+00	95	100		80	4970	
NB TH 22	717+00 TO 724+52		1130		425		
NB TH 22	733+27 TO 760+14	115	12985		1095		
SP 0704-108 (TH 22) NHPP FUNDS TOTAL		210	14215		1600	4970	
SP 0704-108 (TH 22) HSIP FUNDS							
NB TH 22	724+52 TO 733+27		1400	110	135		
SP 0704-108 (TH 22) HSIP FUNDS TOTAL			1400	110	135		
SP 007-070-005 (CSAH 90) HSIP FUNDS							
EB CSAH 90	608+40 TO 613+83		1375	75	180	125	125
EB CSAH 90	615+39 TO 620+00		805	50	110	65	55
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL			2180	125	290	190	180
PROJECT TOTALS		210	17795	235	2025	5160	180

NOTES:
(J-1) INCLUDES AGGREGATE DRIVEWAYS AND SHOULDER RESTORATION

CURB & GUTTER AND WALKS

K

ALIGNMENT	STATION TO STATION	DRILL & GROUT REINF BAR (EPOXY COATED)	(K-1)	CONCRETE CURB & GUTTER DESIGN B424	CONCRETE CURB & GUTTER DESIGN B624	CONCRETE CURB & GUTTER DESIGN S524	CONCRETE CURB & GUTTER DESIGN R424	TRUNCATED DOMES
			6" CONCRETE WALK					
		EACH	SQ FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT
SP 0704-108 (TH 22) HSIP FUNDS								
NB TH 22	724+52 TO 733+27	44	8560	715	255	1660	340	208
SP 0704-108 (TH 22) HSIP FUNDS TOTAL		44	8560	715	255	1660	340	208
SP 007-070-005 (CSAH 90) HSIP FUNDS								
EB CSAH 90	608+40 TO 613+83	19	4170	415		890		92
EB CSAH 90	615+39 TO 620+00	22	4720	410		890		104
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL		41	8890	825		1780		196
PROJECT TOTALS		85	17450	1540	255	3440	340	404

NOTES:
(K-1) INCLUDES MEDIAN NOSES AND PEDESTRIAN RAMPS

SUBDRAIN TABULATION

Q

ALIGNMENT	STATION TO STATION	4" PRECAST CONCRETE HEADWALL	4" PERF	4" PERF
			TP PIPE DRAIN	PE PIPE DRAIN
		EACH	LIN FT	LIN FT
SP 0704-108 (TH 22) NHPP FUNDS				
NB TH 22	717+00 TO 724+52	6	1441	
NB TH 22	733+27 TO 760+14	18	5222	
SP 0704-108 (TH 22) NHPP FUNDS TOTAL		24	6663	
SP 0704-108 (TH 22) HSIP FUNDS				
NB TH 22	724+52 TO 733+27		1420	
SP 0704-108 (TH 22) HSIP FUNDS TOTAL			1420	
SP 007-070-005 (CSAH 90) HSIP FUNDS				
EB CSAH 90	608+40 TO 613+83	2		1036
EB CSAH 90	615+39 TO 620+00	2		868
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL		4		1904
PROJECT TOTALS		28	8083	1904

CONCRETE PAVEMENT, REINFORCEMENT, AND JOINT SUMMARY

L

ALIGNMENT	STATION TO STATION	CONCRETE PAVEMENT	SUPPLEMENTAL PAVEMENT REINFORCEMENT	DOWEL BAR
		8.0"	POUND	EACH
		SQ YD		
SP 0704-108 (TH 22) NHPP FUNDS				
NB TH 22	717+00 TO 724+52	3080	1623	1740
NB TH 22	733+27 TO 760+14	10380	745	5870
SP 0704-108 (TH 22) NHPP FUNDS TOTAL		13460	2368	7610
SP 0704-108 (TH 22) HSIP FUNDS				
NB TH 22	724+52 TO 733+27	3640	945	1920
SP 0704-108 (TH 22) HSIP FUNDS TOTAL		3640	945	1920
SP 007-070-005 (CSAH 90) HSIP FUNDS				
EB CSAH 90	608+40 TO 613+83	1370	1124	640
EB CSAH 90	615+39 TO 620+00	1380	223	640
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL		2750	1347	1280
PROJECT TOTALS		19850	4660	10810

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NO	DATE	BY	CKD	APPR	REVISION

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.
Print Name: AMBER E. TRACY
Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
DESIGNED BY P. ENGELMEYER
CHECKED BY A. TRACY
COMM. NO. 01710321



**ENGINEERS
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DESIGNERS**

MINNESOTA DEPARTMENT OF TRANSPORTATION
TABULATIONS
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TURF ESTABLISHMENT/EROSION CONTROL

M

ALIGNMENT	STATION TO STATION	SILT FENCE, TYPE MS LIN FT	FILTER BERM TYPE 3 LIN FT	STORM DRAIN INLET PROTECTION EACH	SEDIMENT CONTROL LOG TYPE STRAW LIN FT	CULVERT END CONTROLS EACH	FERTILIZER TYPE 3 POUND	SOIL BED PREPARATION ACRE	SEEDING ACRE	SEED MIXTURE 35-241 POUND	MULCH MATERIAL TYPE 3 TON	DISK ANCHORING ACRE	EROSION CONTROL BLANKETS CATEGORY 3N SQ YD	RAPID STABILIZATION METHOD 3 M GALLON
SP 0704-108 (TH 22) NHPP FUNDS														
FENCE 1	60+00 TO 73+46				45		150	0.8	0.8	30	1.5	0.7	25	4.8
FENCE 2 AND FENCE 3	100+00 TO 126+69						290	1.5	1.5	55	2.9	1.5		9.0
NB TH 22	631+69 TO 717+00	290		4	4700	1	360	1.8	1.8	65	3.6	1.0	3999	10.8
NB TH 22	717+00 TO 724+52	1470		1	665	4	140	0.7	0.7	30	1.4	0.7	3	4.2
NB TH 22	733+27 TO 760+14	5115			1580	4	490	2.5	2.5	90	4.9	2.1	1802	15.0
SP 0704-108 (TH 22) NHPP FUNDS TOTAL		6875		5	6990	9	1430	7.3	7.3	270	14.3	6.0	5829	43.8
SP 0704-108 (TH 22) HSIP FUNDS														
NB TH 22	724+52 TO 733+27	330	8	10	555	2	320	1.6	1.6	60	3.2	1.2	1690	9.6
SP 0704-108 (TH 22) HSIP FUNDS TOTAL		330	8	10	555	2	320	1.6	1.6	60	3.2	1.2	1690	9.6
SP 007-070-005 (CSAH 90) HSIP FUNDS														
EB CSAH 90	608+40 TO 613+83	705	16	4	620	1	200	1.0	1.0	40	2.0	0.9	467	6.0
EB CSAH 90	615+39 TO 620+00	485	16	4	570	2	120	0.6	0.6	25	1.2	0.5	372	3.6
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL		1190	32	8	1190	3	320	1.6	1.6	65	3.2	1.4	839	9.6
PROJECT TOTALS		8395	40	23	8735	14	2070	10.5	10.5	395	20.7	8.6	8358	63.0

RUMBLE STRIP

BB

ALIGNMENT	STATION TO STATION	MILLED RUMBLE STRIPS-INTERMITTENT LIN FT	MILLED SINUSOIDAL RUMBLE STRIPS-CENTER LIN FT	MILLED SINUSOIDAL RUMBLE STR CONC-CENT LIN FT
SP 0704-108 (TH 22) NHPP FUNDS				
NB TH 22	631+69 TO 717+00	7760	4940	
NB TH 22	717+00 TO 724+52	870		200
NB TH 22	733+27 TO 760+14	4770		3430
SP 0704-108 (TH 22) NHPP FUNDS TOTAL		13400	4940	3630
SP 0704-108 (TH 22) HSIP FUNDS				
NB TH 22	724+52 TO 733+27	660		
SP 0704-108 (TH 22) HSIP FUNDS TOTAL		660		
PROJECT TOTALS		14060	4940	3630

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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
 DESIGNED BY
S. MARTINS
 CHECKED BY
A. TRACY
 COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 TABULATIONS
 TH 22 & CSAH 90

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EXISTING UTILITIES (BENCO ELECTRIC)							C
ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
NB TH 22	625+22 TO 638+17	63' LT TO 108' LT	OH POWER	X			
NB TH 22	626+01	61' LT	POWER POLE	X			
NB TH 22	629+10	66' LT	POWER POLE	X			
NB TH 22	635+09	109' LT	POWER POLE	X			
NB TH 22	638+17	108' LT	POWER POLE	X			
NB TH 22	668+56 TO 668+72	192' LT TO 231' LT	BURIED POWER	X			
NB TH 22	668+77 TO 668+80	244' LT TO 254' LT	BURIED POWER	X			
NB TH 22	671+96 TO 672+75	243' RT TO 203' LT	BURIED POWER	X			
NB TH 22	686+12 TO 693+51	155' LT TO 116' LT	BURIED POWER	X			
NB TH 22	688+56 TO 708+95	182' RT TO 175' RT	BURIED POWER	X			
NB TH 22	690+42 TO 690+56	136' RT TO 74' RT	BURIED POWER	X			
NB TH 22	690+51 TO 690+56	77' LT TO 73' RT	BURIED POWER	X			
NB TH 22	690+51	77' LT	ELEC PED	X			
NB TH 22	690+56	74' RT	ELEC PED	X			
NB TH 22	692+44 TO 692+70	163' RT TO 66' RT	BURIED POWER	X			
NB TH 22	692+70	66' RT	TRANSFORMER	X			
NB TH 22	697+31 TO 726+15	132' LT TO 88' LT	BURIED POWER	X			
NB TH 22	701+42	94' LT	ELEC PED	X			
NB TH 22	703+88	77' LT	ELEC PED	X			
NB TH 22	703+88 TO 704+03	77' LT TO 140' LT	BURIED POWER	X			
NB TH 22	705+11 TO 705+41	74' RT TO 130' LT	BURIED POWER	X			
NB TH 22	705+13	75' RT	ELEC PED	X			
NB TH 22	705+23	75' RT	TRANSFORMER	X			
NB TH 22	705+26 TO 705+30	76' LT TO 132' LT	BURIED POWER	X			
NB TH 22	705+26	76' LT	TRANSFORMER	X			
NB TH 22	705+40 TO 705+81	228' RT TO 88' RT	BURIED POWER	X			
NB TH 22	709+58 TO 709+62	81' LT TO 128' LT	BURIED POWER	X			
NB TH 22	709+58	81' LT	TRANSFORMER	X			
NB TH 22	709+62	128' LT	TRANSFORMER	X			
NB TH 22	709+62	126' LT	ELEC PED	X			
NB TH 22	709+62	132' LT	ELEC METER	X			
NB TH 22	712+23 TO 716+39	123' RT TO 241' RT	BURIED POWER	X			
NB TH 22	714+38 TO 714+76	70' RT TO 76' LT	BURIED POWER	X			
NB TH 22	714+38	70' RT	ELEC PED	X			
NB TH 22	714+50 TO 714+55	156' RT TO 72' RT	BURIED POWER	X			
NB TH 22	714+55 TO 720+35	72' RT TO 66' RT	OH POWER	X			
NB TH 22	714+55	72' RT	POWER POLE	X			
NB TH 22	714+76	76' LT	TRANSFORMER	X			
NB TH 22	717+42	76' RT	POWER POLE	X			
NB TH 22	718+63	70' RT	POWER POLE	X			
NB TH 22	720+03 TO 720+35	165' RT TO 66' RT	BURIED POWER	X			
NB TH 22	720+35	66' RT	POWER POLE	X			
NB TH 22	720+78 TO 722+67	150' LT TO 83' LT	BURIED POWER	X			
NB TH 22	722+67 TO 727+59	83' LT TO 140' LT	BURIED POWER	X			
NB TH 22	722+67	83' LT	ELEC PED	X			
NB TH 22	726+15 TO 728+73	88' LT TO 178' RT	BURIED POWER			X	
NB TH 22	727+82 TO 730+32	89' LT TO 108' LT	BURIED POWER			X	
NB TH 22	727+82	89' LT	ELEC PED			X	
NB TH 22	727+89	91' LT	TRANSFORMER			X	
NB TH 22	728+73 TO 728+83	178' RT TO 397' RT	BURIED POWER	X			
NB TH 22	728+83 TO 728+90	397' RT TO 1002' RT	BURIED POWER	X			
NB TH 22	730+32 TO 736+35	108' LT TO 91' LT	BURIED POWER			X	
NB TH 22	736+35 TO 751+94	91' LT TO 88' LT	BURIED POWER	X			
NB TH 22	742+38 TO 742+39	85' RT TO 87' LT	BURIED POWER	X			
NB TH 22	742+38 TO 742+39	85' RT TO 220' RT	OH POWER	X			
NB TH 22	742+38 TO 751+49	85' RT TO 76' RT	OH POWER	X			
NB TH 22	744+45	77' RT	POWER POLE	X			
NB TH 22	747+98	76' RT	POWER POLE	X			
NB TH 22	751+49	76' RT	POWER POLE	X			
NB TH 22	751+49 TO 754+45	76' RT TO 77' RT	OH POWER	X			
NB TH 22	751+94 TO 761+72	88' LT TO 66' LT	BURIED POWER	X			
NB TH 22	754+45	77' RT	POWER POLE	X			
NB TH 22	754+45 TO 757+45	77' RT TO 77' RT	OH POWER	X			
NB TH 22	757+45	77' RT	POWER POLE	X			
NB TH 22	757+45 TO 760+47	77' RT TO 77' RT	OH POWER	X			
NB TH 22	760+47	77' RT	POWER POLE	X			

EXISTING UTILITIES (MnDOT)							C
ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
NB TH 22	727+89 TO 727+91	91' LT TO 89' LT	BURIED POWER			X	(C-1)
NB TH 22	727+91	89' LT	ELEC METER			X	(C-1)
NB TH 22	727+91 TO 727+92	89' LT TO 44' LT	BURIED POWER			X	(C-1)
NB TH 22	727+91 TO 728+09	89' LT TO 81' LT	BURIED POWER			X	(C-1)
NB TH 22	727+92	44' LT	LIGHT POLE			X	(C-1)
NB TH 22	727+92 TO 728+09	44' LT TO 81' LT	BURIED POWER			X	(C-1)
NB TH 22	727+92 TO 728+29	44' LT TO 22' RT	BURIED POWER			X	(C-1)
NB TH 22	728+09	81' LT	POWER POLE			X	(C-1)
NB TH 22	728+29 TO 728+82	22' RT TO 48' RT	BURIED POWER			X	(C-1)
NB TH 22	728+82 TO 729+22	48' RT TO 57' RT	BURIED POWER			X	(C-1)
NB TH 22	729+22 TO 729+39	57' RT TO 25' RT	BURIED POWER			X	(C-1)
NB TH 22	729+39	25' RT	POWER POLE			X	(C-1)
NB TH 22	729+39 TO 729+75	25' RT TO 13' RT	BURIED POWER			X	(C-1)
NB TH 22	729+75	13' RT	LIGHT POLE			X	(C-1)

NOTES:

(C-1) WORK TO BE DONE BY CONTRACTOR

EXISTING UTILITIES (GREATER MINNESOTA GAS)							C
ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
NB TH 22	688+64 TO 689+01	90' LT TO 64' RT	2" GAS	X			
NB TH 22	688+91 TO 726+47	64' RT TO 69' RT	2" GAS	X			
NB TH 22	690+24 TO 690+27	66' RT TO 93' RT	2" GAS	X			
NB TH 22	692+37 TO 692+59	126' RT TO 55' RT	2" GAS	X			
NB TH 22	692+55 TO 692+79	170' RT TO 56' RT	2" GAS	X			
NB TH 22	692+95 TO 693+03	57' RT TO 24' LT	2" GAS	X			
NB TH 22	695+86 TO 696+17	120' LT TO 66' RT	2" GAS	X			
NB TH 22	701+19 TO 701+52	61' RT TO 213' LT	2" GAS	X			
NB TH 22	704+99 TO 705+01	56' RT TO 104' LT	2" GAS	X			
NB TH 22	705+28 TO 705+45	57' RT TO 130' LT	2" GAS	X			
NB TH 22	710+62 TO 711+30	59' RT TO 237' RT	2" GAS	X			
NB TH 22	712+20	134' RT	GAS MH	X			
NB TH 22	712+22	141' RT	GAS MH	X			
NB TH 22	717+03 TO 717+04	240' RT TO 67' RT	2" GAS	X			
NB TH 22	719+64 TO 719+70	56' RT TO 127' LT	2" GAS	X			
NB TH 22	721+84 TO 721+89	60' RT TO 105' RT	2" GAS	X			
NB TH 22	722+52 TO 723+24	61' RT TO 106' RT	2" GAS	X			
NB TH 22	726+47 TO 728+65	69' RT TO 26' RT	2" GAS			X	
NB TH 22	727+59 TO 727+84	1080' LT TO 202' LT	2" GAS	X			
NB TH 22	727+84 TO 728+72	202' LT TO 49' RT	2" GAS			X	
NB TH 22	728+65 TO 731+22	26' RT TO 63' RT	2" GAS			X	
NB TH 22	731+22 TO 741+61	63' RT TO 76' RT	2" GAS	X			
NB TH 22	741+61 TO 741+60	76' RT TO 212' RT	2" GAS	X			

GENERAL NOTES:

THE "REMARKS" NOTES ARE BASED UPON THE BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. ACTUAL DETERMINATION WILL BE MADE IN THE FIELD DURING CONSTRUCTION.

ALL UTILITY WORK SHOWN ON THESE SHEETS SHALL BE PERFORMED BY OTHERS UNLESS NOTED.

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

THE CONTRACTOR IS HEREBY REMINDED OF HIS RESPONSIBILITY TO CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE PROJECT AREA.

UTILITY OWNERS

THE FOLLOWING LIST SHOWS THE UTILITY COMPANIES INVOLVED WITH THIS PROJECT

BENCO ELECTRIC COOPERATIVE
 CHARTER COMMUNICATIONS
 CONSOLIDATED COMMUNICATIONS
 GREATER MINNESOTA GAS, INC.
 MINNESOTA DEPARTMENT OF TRANSPORTATION

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.

Print Name: AMBER E. TRACY

Date: License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS

DESIGNED BY P. ENGELMEYER

CHECKED BY A. TRACY

COMM. NO. 01710321



ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
 TH 22 & CSAH 90

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EXISTING UTILITIES (CONSOLIDATED COMMUNICATIONS)							C
ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
NB TH 22	626+95 TO 647+41	40' LT TO 156' LT	BURIED TEL	X			
NB TH 22	647+26 TO 647+46	88' LT TO 108' RT	BURIED TEL	X			
NB TH 22	647+41 TO 657+45	156' LT TO 241' LT	BURIED TEL	X			
NB TH 22	647+46 TO 671+08	108' RT TO 52' LT	BURIED TEL	X			
NB TH 22	671+08 TO 689+61	52' LT TO 67' LT	BURIED TEL	X			
NB TH 22	671+08 TO 671+57	51' LT TO 212' LT	BURIED TEL	X			
NB TH 22	685+84 TO 689+61	153' LT TO 67' LT	BURIED TEL	X			
NB TH 22	686+29 TO 689+57	116' RT TO 72' RT	BURIED TEL	X			
NB TH 22	686+49	79' RT	TEL PED	X			
NB TH 22	686+65 TO 690+46	96' RT TO 139' RT	BURIED TEL	X			
NB TH 22	689+38 TO 689+57	133' RT TO 72' RT	BURIED TEL	X			
NB TH 22	689+57	72' RT	TEL PED	X			
NB TH 22	689+57 TO 689+61	71' RT TO 61' LT	BURIED TEL	X			
NB TH 22	689+61	67' LT	TEL PED	X			
NB TH 22	689+61 TO 701+07	67' LT TO 214' LT	BURIED TEL	X			
NB TH 22	689+61 TO 692+28	67' LT TO 137' LT	BURIED TEL	X			
NB TH 22	692+32	51' LT	TEL PED	X			
NB TH 22	697+28 TO 714+69	133' LT TO 76' LT	BURIED TEL	X			
NB TH 22	700+70	65' LT	TEL PED	X			
NB TH 22	705+22 TO 705+28	94' LT TO 74' RT	BURIED TEL	X			
NB TH 22	705+22 TO 705+35	94' LT TO 128' LT	BURIED TEL	X			
NB TH 22	705+22 TO 705+36	94' LT TO 128' LT	BURIED TEL	X			
NB TH 22	705+22 TO 705+36	94' LT TO 128' LT	BURIED TEL	X			
NB TH 22	705+22	94' LT	TEL PED	X			
NB TH 22	705+22 TO 705+29	94' LT TO 74' RT	BURIED TEL	X			
NB TH 22	705+22 TO 705+37	94' LT TO 128' LT	BURIED TEL	X			
NB TH 22	705+22 TO 705+38	94' LT TO 127' LT	BURIED TEL	X			
NB TH 22	705+29	74' RT	TEL PED	X			
NB TH 22	705+29 TO 723+39	74' RT TO 121' RT	BURIED TEL	X			
NB TH 22	705+29 TO 705+46	74' RT TO 230' RT	BURIED TEL	X			
NB TH 22	711+66	73' RT	TEL PED	X			
NB TH 22	714+48	70' RT	TEL PED	X			
NB TH 22	714+48 TO 716+41	70' RT TO 163' RT	BURIED TEL	X			
NB TH 23	714+48 TO 714+69	70' RT TO 76' LT	BURIED TEL	X			
NB TH 22	714+64 TO 714+69	114' LT TO 76' LT	BURIED TEL	X			
NB TH 22	714+69	76' LT	TEL PED	X			
NB TH 22	719+74 TO 727+74	223' LT TO 205' LT	BURIED FIBER	X			
NB TH 22	719+79	77' LT	TEL MH	X			
NB TH 22	719+79	80' LT	TEL PED	X			
NB TH 22	720+73 TO 727+76	64' RT TO 186' LT	BURIED TEL	X			
NB TH 22	720+74	64' RT	TEL PED	X			
NB TH 22	720+80	82' LT	TEL PED	X			
NB TH 22	720+80 TO 720+97	82' LT TO 128' LT	BURIED TEL	X			
NB TH 22	721+05	82' LT	TEL PED	X			
NB TH 22	722+72	81' LT	TEL PED	X			
NB TH 22	727+71 TO 730+25	1092' LT TO 244' LT	BURIED FIBER	X			
NB TH 22	727+74 TO 729+68	205' LT TO 45' RT	BURIED FIBER			X	
NB TH 22	727+76 TO 730+91	186' LT TO 66' RT	BURIED TEL			X	
NB TH 22	727+84 TO 730+25	209' LT TO 244' LT	BURIED FIBER			X	
NB TH 22	728+99 TO 729+13	977' RT TO 174' RT	BURIED FIBER	X			
NB TH 22	729+13 TO 729+68	174' RT TO 45' RT	BURIED FIBER			X	
NB TH 22	730+22 TO 730+69	220' LT TO 698' LT	BURIED FIBER	X			
NB TH 22	730+22 TO 730+41	220' LT TO 220' LT	BURIED FIBER			X	
NB TH 22	730+41	220' LT	TEL MH			X	
NB TH 22	730+44	220' LT	TEL PED			X	
NB TH 22	730+84	67' RT	TEL PED			X	
NB TH 22	730+97 TO 751+75	68' RT TO 52' RT	BURIED FIBER	X			
NB TH 22	742+37 TO 742+37	71' RT TO 220' RT	BURIED FIBER	X			
NB TH 22	743+28	73' RT	TEL PED	X			
NB TH 22	743+52	74' RT	TEL PED	X			
NB TH 22	749+63	67' RT	TEL PED	X			
NB TH 22	751+75 TO 761+25	52' RT TO 53' RT	BURIED FIBER	X			

EXISTING UTILITIES (CHARTER COMMUNICATIONS)							C
ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
NB TH 22	686+09 TO 692+65	144' LT TO 66' RT	BURIED TV	X			
NB TH 22	686+38 TO 686+66	122' RT TO 110' RT	BURIED TV	X			
NB TH 22	686+63 TO 725+89	102' RT TO 76' RT	BURIED TV	X			
NB TH 22	686+63	102' RT	TV PED	X			
NB TH 22	690+41 TO 690+50	132' RT TO 73' RT	BURIED TV	X			
NB TH 22	690+50	73' RT	TV PED	X			
NB TH 22	692+32 TO 692+56	51' LT TO 106' LT	BURIED TV	X			
NB TH 22	692+41 TO 692+65	159' RT TO 66' RT	BURIED TV	X			
NB TH 22	692+65	66' RT	TV PED	X			
NB TH 22	697+22 TO 701+42	132' LT TO 104' LT	BURIED TV	X			
NB TH 22	697+31	54' LT	TV PED	X			
NB TH 22	698+52	55' LT	TV PED	X			
NB TH 22	701+27 TO 701+42	70' RT TO 104' LT	BURIED TV	X			
NB TH 22	701+27	70' RT	TV PED	X			
NB TH 22	701+42 TO 701+60	104' LT TO 213' LT	BURIED TV	X			
NB TH 22	705+17 TO 705+29	73' RT TO 132' LT	BURIED TV	X			
NB TH 22	705+18	73' RT	TV PED	X			
NB TH 22	710+63 TO 710+64	54' RT TO 116' RT	BURIED TV	X			
NB TH 22	710+63 TO 711+64	54' RT TO 73' RT	BURIED TV	X			
NB TH 22	711+64	73' RT	TV PED	X			
NB TH 22	711+71 TO 711+98	53' RT TO 140' LT	BURIED TV	X			
NB TH 22	712+22 TO 720+74	123' RT TO 64' RT	BURIED TV	X			
NB TH 22	714+53	71' RT	TV PED	X			
NB TH 22	714+53 TO 716+40	71' RT TO 164' RT	BURIED TV	X			
NB TH 22	720+25 TO 720+30	169' RT TO 65' RT	BURIED TV	X			
NB TH 22	720+30	65' RT	TV PED	X			
NB TH 22	720+30 TO 720+63	65' RT TO 84' RT	BURIED TV	X			
NB TH 22	725+89 TO 726+07	76' RT TO 81' LT	BURIED TV	X			
NB TH 22	725+89 TO 730+97	76' RT TO 67' RT	TV FIBER			X	
NB TH 22	725+89	76' RT	TV PED	X			
NB TH 22	726+07 TO 730+32	81' LT TO 109' LT	BURIED TV			X	
NB TH 22	729+28 TO 730+55	38' RT TO 62' RT	TV FIBER			X	
NB TH 22	730+32 TO 736+91	109' LT TO 93' LT	TV FIBER			X	
NB TH 22	730+97 TO 751+75	67' RT TO 51' RT	TV FIBER	X			
NB TH 22	736+91 TO 751+94	93' LT TO 80' LT	TV FIBER	X			
NB TH 22	742+13 TO 742+15	88' RT TO 83' LT	TV FIBER	X			
NB TH 22	743+59	75' LT	TV PED	X			
NB TH 22	751+75 TO 761+26	51' RT TO 47' RT	TV FIBER	X			
NB TH 22	751+94 TO 761+73	80' LT TO 78' LT	TV FIBER	X			

EXISTING SANITARY SEWER						D
ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	NOTES	
	STATION	OFFSET				
NB TH 22	684+31	146' RT	SAN MH	X		
NB TH 22	687+74	207' RT	SAN MH	X		
NB TH 22	691+42	102' RT	SAN MH	X		
NB TH 22	719+26	218' LT	SAN MH	X		

EXISTING WATERMAIN						E
ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	NOTES	
	STATION	OFFSET				
NB TH 22	643+30	156' LT	WELL	X		

SEE SHEET 15 FOR GENERAL NOTES

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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 INPLACE UTILITY TABULATIONS
 TH 22 & CSAH 90


SHEET
 16
 OF
 276

EXISTING DRAINAGE ITEMS										F
ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE				NOTES	
	STATION	OFFSET			PIPE CULVERTS	SEWER PIPE (STORM)	PIPE APRON	DRAINAGE STRUCTURE		
					LN FT	LN FT	EACH	EACH		
NB TH 22	633+83 TO 634+61	35' LT TO 36' LT	24" CSP		77				(F-1)	
NB TH 22	633+83	36' LT	24" CSP APRON				1		(F-1)	
NB TH 22	634+61	36' LT	24" CSP APRON				1		(F-1)	
NB TH 22	637+80 TO 638+40	37' LT TO 36' LT	24" CSP	X						
NB TH 22	637+80	37' LT	24" CSP APRON	X						
NB TH 22	638+40	36' LT	24" CSP APRON	X						
NB TH 22	638+87 TO 640+25	35' LT TO 94' LT	24" CSP	X						
NB TH 22	638+87	35' LT	24" CSP APRON	X						
NB TH 22	643+35 TO 643+68	135' LT TO 167' LT	15" CSP	X						
NB TH 22	643+35	135' LT	DROP INLET	X						
NB TH 22	644+89 TO 645+43	75' LT TO 105' LT	12" RCP	X						
NB TH 22	646+76 TO 646+76	50' RT TO 43' LT	BOX CULVERT	X						
NB TH 22	646+79	50' RT	72" RCP APRON	X						
NB TH 22	646+79	44' LT	72" RCP APRON	X						
NB TH 22	654+10 TO 654+11	35' LT TO 72' RT	36" CSP	X						
NB TH 22	654+10	35' LT	36" CSP APRON	X						
NB TH 22	656+73 TO 657+42	46' RT TO 45' RT	15" CSP	X						
NB TH 22	656+86 TO 657+40	42' LT TO 41' LT	18" CSP	X						
NB TH 22	662+16	53' LT	STORM MANHOLE	X						
NB TH 22	662+17	55' RT	STORM MANHOLE	X						
NB TH 22	665+84 TO 666+35	46' RT TO 50' RT	18" CSP	X						
NB TH 22	665+84	46' RT	18" CSP APRON	X						
NB TH 22	666+35	50' RT	18" CSP APRON	X						
NB TH 22	667+57 TO 667+62	52' RT TO 54' LT	24" CSP	X						
NB TH 22	667+62	54' LT	24" CSP APRON	X						
NB TH 22	670+05 TO 671+36	72' LT TO 38' LT	15" CSP	X						
NB TH 22	670+05	72' LT	15" CSP APRON	X						
NB TH 22	672+17 TO 672+17	36' RT TO 24' RT	12" PVC		12				(F-1)	
NB TH 22	672+17	36' RT	12" CSP APRON				1		(F-1)	
NB TH 22	672+17	24' RT	DROP INLET					1	(F-1)	
NB TH 22	676+06	61' LT	42" RCP APRON	X						
NB TH 22	676+06 TO 676+07	61' LT TO 61' RT	42" CSP	X						
NB TH 22	676+07	60' RT	DROP INLET	X						
NB TH 22	676+07 TO 676+07	81' RT TO 61' RT	42" CSP	X						
NB TH 22	676+08 TO 676+54	60' RT TO 36' RT	24" CSP	X						
NB TH 22	676+54	36' RT	24" CSP APRON	X						
NB TH 22	681+13 TO 681+79	33' RT TO 35' LT	24" CSP	X						
NB TH 22	689+00 TO 689+69	38' RT TO 38' RT	18" CSP	X						
NB TH 22	689+00	38' RT	18" CSP APRON	X						
NB TH 22	689+06 TO 689+64	39' LT TO 40' LT	18" CSP	X						
NB TH 22	689+06	39' LT	18" CSP APRON	X						
NB TH 22	689+64	40' LT	18" CSP APRON	X						
NB TH 22	689+69	38' RT	18" CSP APRON	X						
NB TH 22	695+27	77' LT	30" CSP APRON				1		(F-1)	
NB TH 22	695+27 TO 695+61	77' LT TO 62' RT	30" CSP	X						
NB TH 22	695+51 TO 695+52	123' RT TO 93' RT	15" CSP	X						
NB TH 22	695+51	123' RT	15" CSP APRON	X						
NB TH 22	695+52	93' RT	15" CSP APRON	X						
NB TH 22	695+62	62' RT	DROP INLET					1	(F-1)	
NB TH 22	696+91 TO 697+32	44' LT TO 43' LT	15" CSP	X						
NB TH 22	700+64 TO 701+18	38' RT TO 38' RT	18" CSP	X						
NB TH 22	700+64	38' RT	18" CSP APRON	X						
NB TH 22	701+18	38' RT	18" CSP APRON	X						
NB TH 22	703+91 TO 704+29	50' LT TO 49' LT	18" CSP	X						
NB TH 22	704+29	49' LT	18" CSP APRON	X						
NB TH 22	705+31 TO 705+87	39' RT TO 38' RT	18" CSP	X						
NB TH 22	705+32	39' RT	18" CSP APRON	X						
NB TH 22	705+87	39' RT	18" CSP APRON	X						
NB TH 22	708+29 TO 708+70	44' LT TO 44' LT	18" CSP	X						
NB TH 22	710+55 TO 711+16	40' RT TO 39' RT	18" CSP	X						
NB TH 22	710+55	40' RT	18" CSP APRON	X						
NB TH 22	710+80 TO 711+42	39' LT TO 41' LT	18" CSP	X						
NB TH 22	710+80	39' LT	18" CSP APRON	X						
NB TH 22	711+16	39' RT	18" CSP APRON	X						
NB TH 22	711+42	41' LT	18" CSP APRON	X						
NB TH 22	712+59	55' RT	DROP INLET	X						
NB TH 22	712+64 TO 712+73	55' RT TO 52' LT	84" RCP	X						

SEE SHEET 15 FOR GENERAL NOTES

NOTES:
(F-1) WORK TO BE DONE BY CONTRACTOR

2:47:51 PM 11/19/2010 C:\Users\10000010321\CAD_BIM\lan\10321_fbpu03.dgn

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. Print Name: <u>AMBER E. TRACY</u> Date: _____ License # <u>50890</u>					STATE PROJECT NO. 0704-108 (TH 22) STATE PROJECT NO. 007-070-005	DRAWN BY S. MARTINS DESIGNED BY P. ENGELMEYER CHECKED BY A. TRACY COMM. NO. 01710321		MINNESOTA DEPARTMENT OF TRANSPORTATION INPLACE UTILITY TABULATIONS TH 22 & CSAH 90	SHEET 17 OF 276	
NO DATE BY CKD APPR REVISION ... \CAD_BIM\lan\10321_fbpu03.dgn										

EXISTING DRAINAGE ITEMS

F

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE				NOTES
					PIPE CULVERTS	SEWER PIPE (STORM)	PIPE APRON	DRAINAGE STRUCTURE	
	STATION	OFFSET			LIN FT	LIN FT	EACH	EACH	
NB TH 22	714+90 TO 714+91	38' LT TO 60' LT	12" SCP	X					
NB TH 22	714+91	60' LT	DROP INLET	X					
NB TH 22	714+91 TO 714+93	60' LT TO 120' LT	12" SCP	X					
NB TH 22	717+20 TO 717+21	80' RT TO 120' RT	15" CSP	X					
NB TH 22	717+30 TO 717+96	64' LT TO 64' LT	12" SCP	X					
NB TH 22	717+96	64' LT	DROP INLET	X					
NB TH 22	717+96 TO 718+52	64' LT TO 70' LT	12" SCP	X					
NB TH 22	718+00 TO 718+02	45' RT TO 58' LT	24" RCP		103				(F-1)
NB TH 22	718+00	45' RT	24" RCP APRON				1		(F-1)
NB TH 22	718+02	58' LT	24" RCP APRON				1		(F-1)
NB TH 22	718+06 TO 718+83	52' RT TO 51' RT	18" CSP		77				(F-1)
NB TH 22	718+06	52' RT	18" CSP APRON				1		(F-1)
NB TH 22	718+83	51' RT	18" CSP APRON				1		(F-1)
NB TH 22	718+96 TO 718+96	134' LT TO 83' LT	DRAIN TILE	X					
NB TH 22	718+96 TO 718+97	83' LT TO 67' RT	DRAIN TILE			150			(F-1)
NB TH 22	718+97 TO 718+97	67' RT TO 116' RT	DRAIN TILE	X					
NB TH 22	720+96 TO 721+63	59' LT TO 59' LT	18" CSP		68				(F-1)
NB TH 22	720+96	59' LT	18" CSP APRON				1		(F-1)
NB TH 22	721+63	59' LT	18" CSP APRON				1		(F-1)
NB TH 22	721+75 TO 722+37	47' RT TO 47' RT	18" CSP		62				(F-1)
NB TH 22	721+75	47' RT	18" CSP APRON				1		(F-1)
NB TH 22	722+37	47' RT	18" CSP APRON				1		(F-1)
NB TH 22	728+01 TO 729+82	80' LT TO 101' LT	24" RCP		107				(F-1)
NB TH 22	728+01	80' LT	24" RCP APRON				1		(F-1)
NB TH 22	728+91 TO 728+91	619' RT TO 675' RT	18" CSP	X					
NB TH 22	728+91	619' RT	18" CSP APRON	X					
NB TH 22	728+91	675' RT	18" CSP APRON	X					
NB TH 22	729+01 TO 729+02	525' RT TO 470' RT	18" CSP	X					
NB TH 22	729+01	525' RT	18" CSP APRON	X					
NB TH 22	729+02	470' RT	18" CSP APRON	X					
NB TH 22	729+82	101' LT	24" RCP APRON				1		(F-1)
NB TH 22	730+90 TO 737+27	371' LT TO 363' LT	DRAIN TILE	X					(F-2)
NB TH 22	730+90 TO 730+91	371' LT TO 396' LT	DRAIN TILE	X					(F-2)
NB TH 22	730+91 TO 731+10	396' LT TO 720' LT	DRAIN TILE	X					(F-2)
NB TH 22	730+93 TO 737+44	421' LT TO 413' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+04 TO 731+10	278' LT TO 368' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+04 TO 733+01	278' LT TO 163' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+07 TO 739+72	318' LT TO 313' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+10 TO 731+49	720' LT TO 715' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+11 TO 731+23	743' LT TO 1089' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+13 TO 731+25	418' LT TO 692' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+13 TO 739+72	267' LT TO 263' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+15 TO 737+27	468' LT TO 463' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+18 TO 731+43	518' LT TO 515' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+20 TO 731+45	567' LT TO 565' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+22 TO 731+46	617' LT TO 615' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+22 TO 731+57	1068' LT TO 1064' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+24 TO 731+48	667' LT TO 665' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+27 TO 731+51	767' LT TO 764' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+27 TO 731+35	767' LT TO 1066' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+29 TO 731+52	817' LT TO 814' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+30 TO 731+53	867' LT TO 864' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+32 TO 731+54	917' LT TO 914' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+33 TO 731+55	967' LT TO 964' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+34 TO 731+56	1017' LT TO 1014' LT	DRAIN TILE	X					(F-2)
NB TH 22	731+57 TO 739+72	214' LT TO 213' LT	DRAIN TILE	X					(F-2)
NB TH 22	733+01 TO 739+72	163' LT TO 163' LT	DRAIN TILE	X					(F-2)
NB TH 22	736+92 TO 741+47	113' LT TO 113' LT	DRAIN TILE	X					(F-2)
NB TH 22	736+92 TO 736+92	113' LT TO 163' LT	DRAIN TILE	X					(F-2)
NB TH 22	737+44 TO 738+20	413' LT TO 486' LT	DRAIN TILE	X					(F-2)
NB TH 22	737+44 TO 737+63	468' LT TO 486' LT	DRAIN TILE	X					(F-2)
NB TH 22	737+52 TO 737+52	336' LT TO 421' LT	DRAIN TILE	X					(F-2)
NB TH 22	738+02 TO 738+02	333' LT TO 468' LT	DRAIN TILE	X					(F-2)
NB TH 22	738+52 TO 738+52	341' LT TO 485' LT	DRAIN TILE	X					(F-2)

SEE SHEET 15 FOR GENERAL NOTES

NOTES:

- (F-1) WORK TO BE DONE BY CONTRACTOR
- (F-2) OWNED BY PIONEER SEED

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NO	DATE	BY	CKD	APPR	REVISION

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.

Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
 TH 22 & CSAH 90

SHEET 18 OF 276

EXISTING DRAINAGE ITEMS										F
ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE				NOTES	
					PIPE CULVERTS	SEWER PIPE (STORM)	PIPE APRON	DRAINAGE STRUCTURE		
	STATION	OFFSET			LIN FT	LIN FT	EACH	EACH		
NB TH 22	739+02 TO 739+02	333' LT TO 485' LT	DRAIN TILE	X					(F-2)	
NB TH 22	739+52 TO 739+52	335' LT TO 484' LT	DRAIN TILE	X					(F-2)	
NB TH 22	740+02 TO 740+02	138' LT TO 484' LT	DRAIN TILE	X					(F-2)	
NB TH 22	740+52 TO 740+52	138' LT TO 483' LT	DRAIN TILE	X					(F-2)	
NB TH 22	741+02 TO 741+02	138' LT TO 239' LT	DRAIN TILE	X					(F-2)	
NB TH 22	741+52 TO 741+52	138' LT TO 238' LT	DRAIN TILE	X					(F-2)	
NB TH 22	741+83 TO 742+30	51' RT TO 51' RT	15" CSP		47				(F-1)	
NB TH 22	741+83	51' RT	15" CSP APRON				1		(F-1)	
NB TH 22	742+30	51' RT	15" CSP APRON				1		(F-1)	
NB TH 22	743+96 TO 744+37	51' RT TO 51' RT	18" CSP		41				(F-1)	
NB TH 22	746+38 TO 746+39	34' RT TO 34' LT	24" RCP		68				(F-1)	
NB TH 22	746+38	34' RT	24" RCP APRON				1		(F-1)	
NB TH 22	746+39	34' LT	24" RCP APRON				1		(F-1)	
NB TH 22	751+91 TO 752+59	48' RT TO 48' RT	18" CSP	X						
SP 0704-108 (TH 22) NHPP FUNDS TOTAL					555	150	16	2		
SP 0704-108 (TH 22) HSIP FUNDS TOTAL					66		1			
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL					41		1			
PROJECT TOTALS					662	150	18	2		

SEE SHEET 15 FOR GENERAL NOTES

NOTES:

- (F-1) WORK TO BE DONE BY CONTRACTOR
- (F-2) OWNED BY PIONEER SEED

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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
 STATE PROJECT NO.
007-070-005

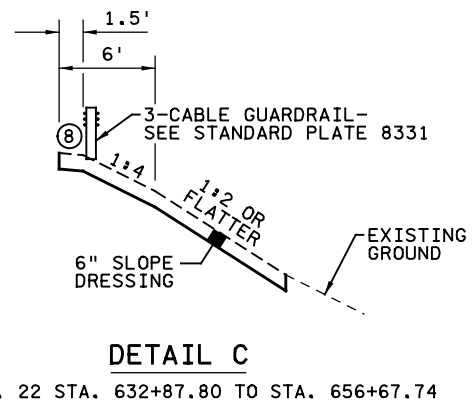
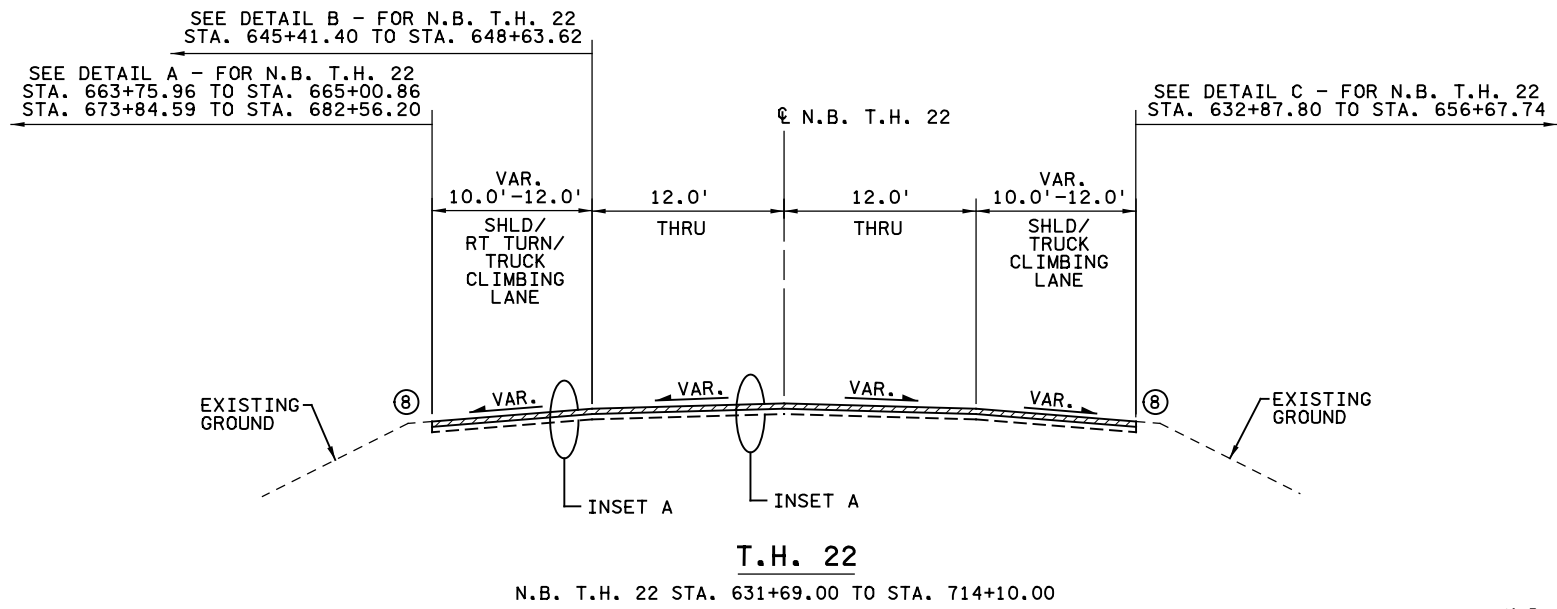
DRAWN BY
S. MARTINS
 DESIGNED BY
P. ENGELMEYER
 CHECKED BY
A. TRACY
 COMM. NO. 01710321



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PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 INPLACE UTILITY TABULATIONS
 TH 22 & CSAH 90

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OF
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GENERAL NOTES:

ALL SLOPES ARE IN FT PER FT

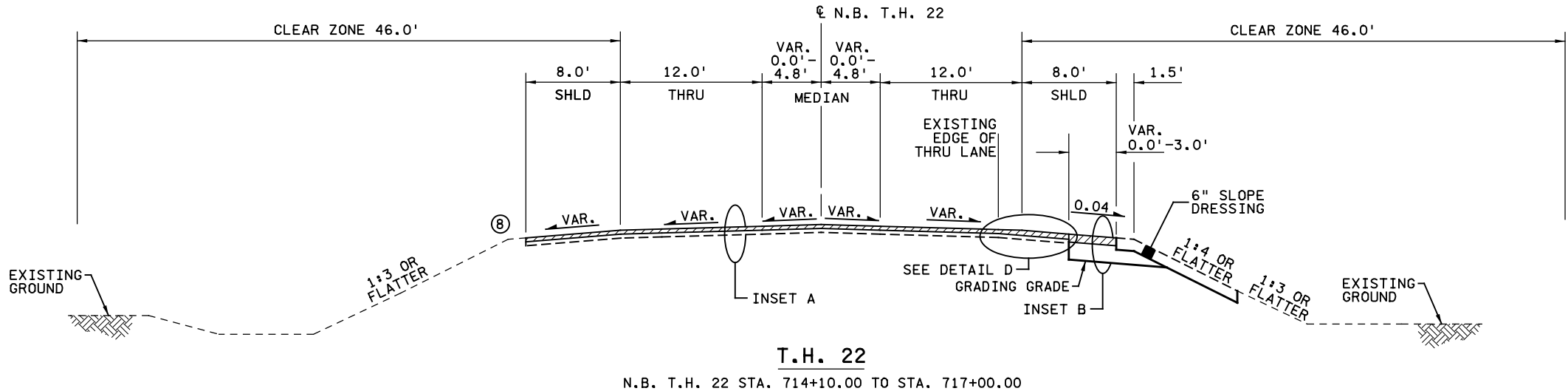
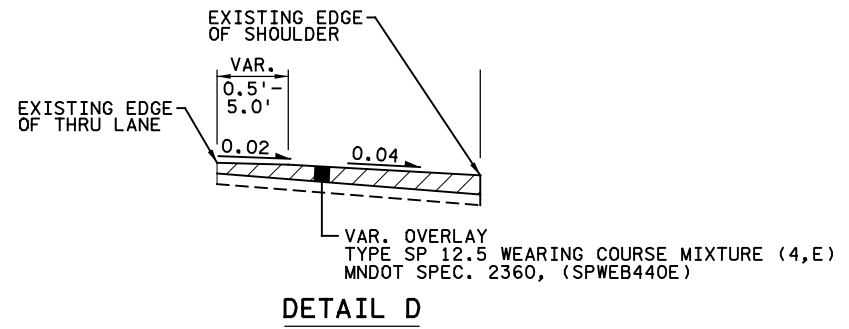
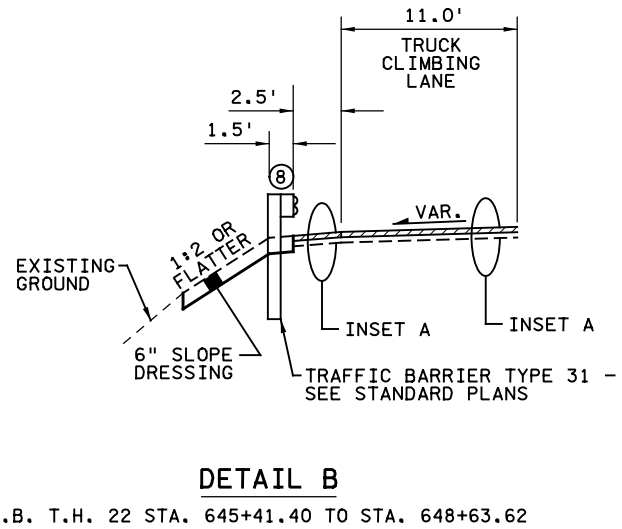
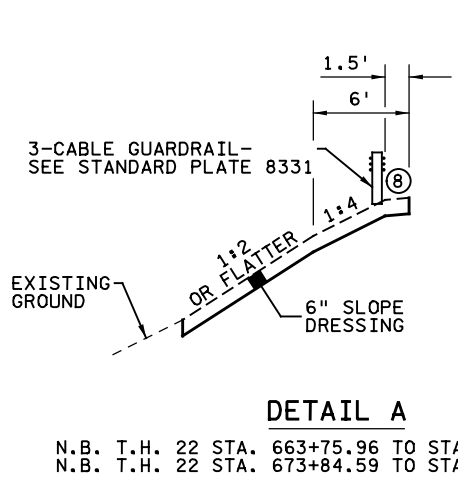
SEE DRAINAGE AND SUPERELEVATION PLANS FOR SUPERELEVATION LOCATIONS

MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 7%

SEE SHEET 26 FOR PAVEMENT INSETS

NOTES:

Ⓢ AGGREGATE SURFACING CLASS 1 TO RESTORE SHOULDER. 1.0 INCH DEPTH (MINIMUM).



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NO	DATE	BY	CKD	APPR	REVISION

... \CAD_BIMPLAN\10321_1fs01.dgn

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.

Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

DESIGNED BY P. ENGELMEYER

CHECKED BY A. TRACY

COMM. NO. 01710321

SRE ENGINEERS PLANNERS DESIGNERS

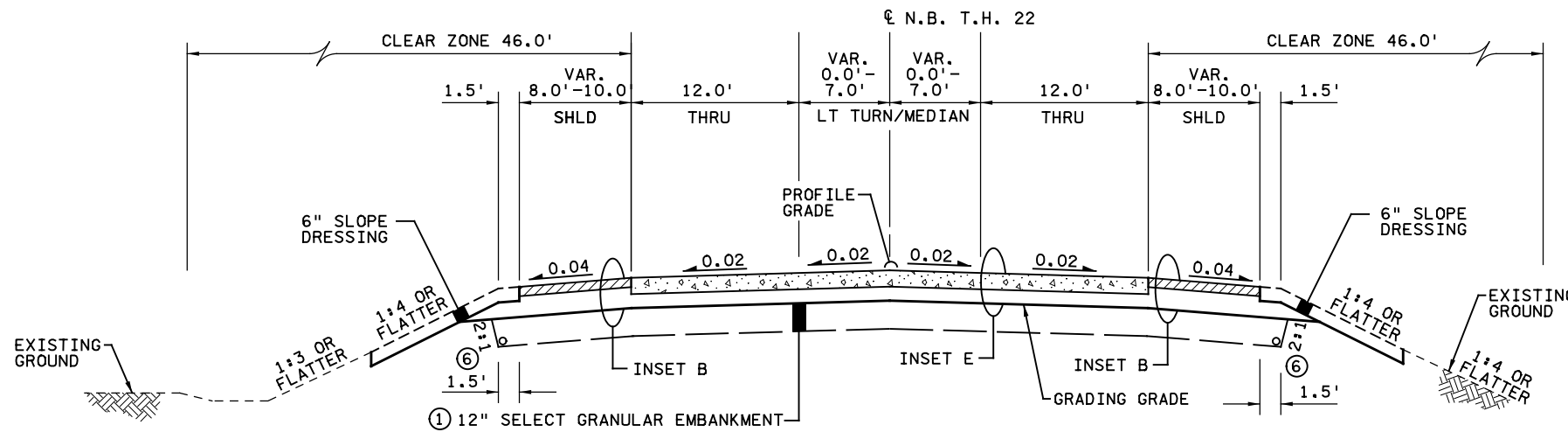
Consulting Group, Inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

TH 22 & CSAH 90

SHEET 21 OF 276

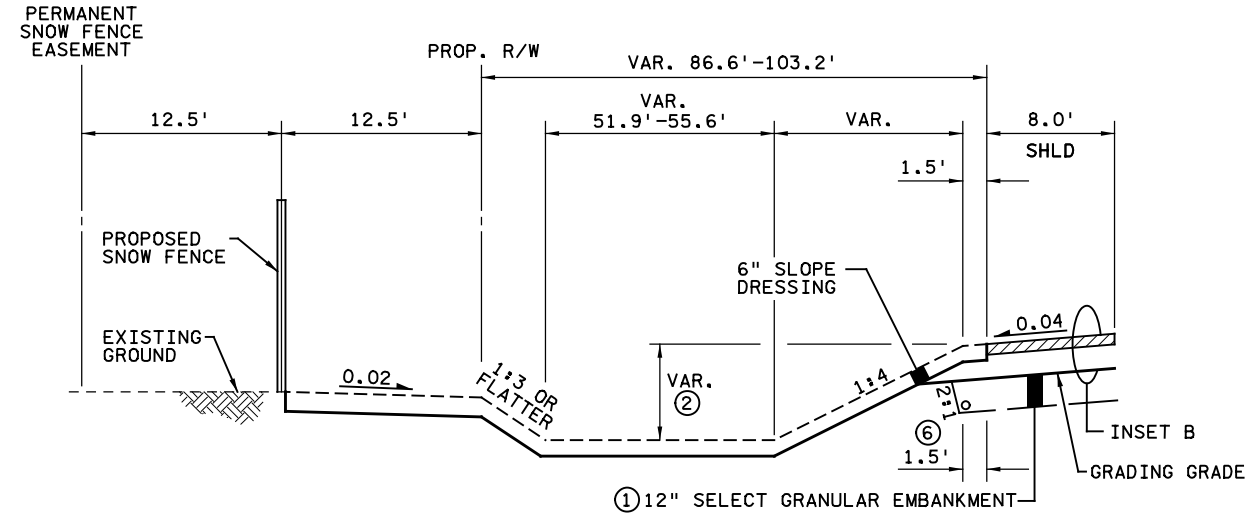


T.H. 22

N.B. T.H. 22 STA. 717+00.00 TO STA. 718+00.00
 N.B. T.H. 22 STA. 741+69.88 TO STA. 760+14.39

SEE SHEET 26 FOR PAVEMENT INSETS
 SEE SHEET 21 FOR GENERAL NOTES

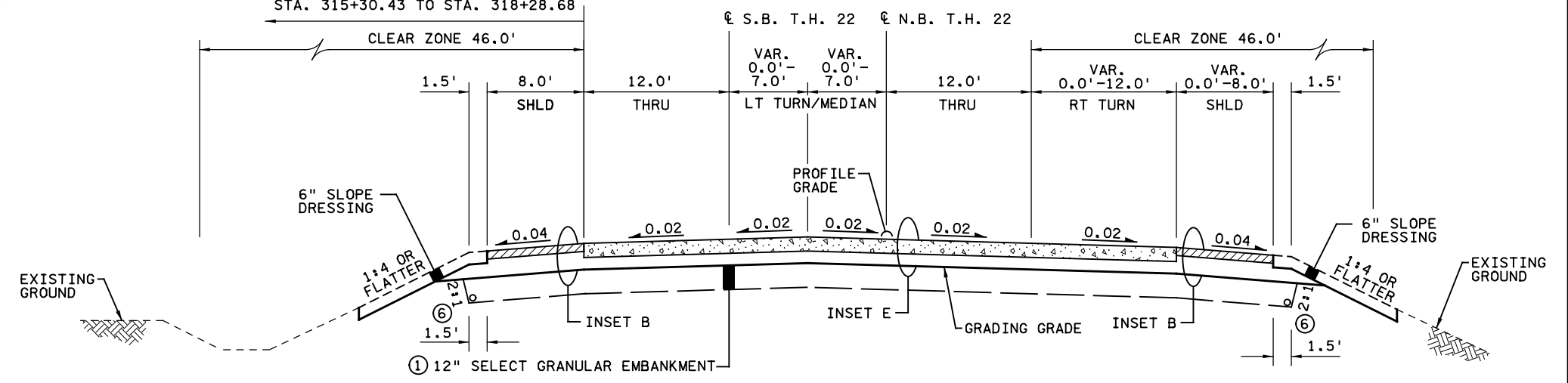
- NOTES:
- ① EXCAVATION - SUBGRADE (CUT SECTION ONLY)
 - ② SEE PROFILES AND CROSS SECTIONS FOR SPECIAL DITCH GRADES AND ELEVATIONS
 - ⑥ 4" PERF TP PIPE DRAIN MNDOT SPEC. 2502. USE ON TH 22. SEE DRAINAGE AND SUPERELEVATION PLANS FOR LOCATIONS. SEE MNDOT STD. PLAN 5-297.430 & 5-297.433.



DETAIL E

S.B. T.H. 22 STA. 314+32.00 TO STA. 318+28.68

SEE DETAIL E - FOR S.B. T.H. 22
 STA. 315+30.43 TO STA. 318+28.68



T.H. 22

N.B. T.H. 22 STA. 718+00.00 TO STA. 724+51.57
 S.B. T.H. 22 STA. 300+00.00 TO STA. 306+51.57
 N.B. T.H. 22 STA. 733+27.47 TO STA. 741+69.88
 S.B. T.H. 22 STA. 315+30.43 TO STA. 323+72.84

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NO	DATE	BY	CKD	APPR	REVISION

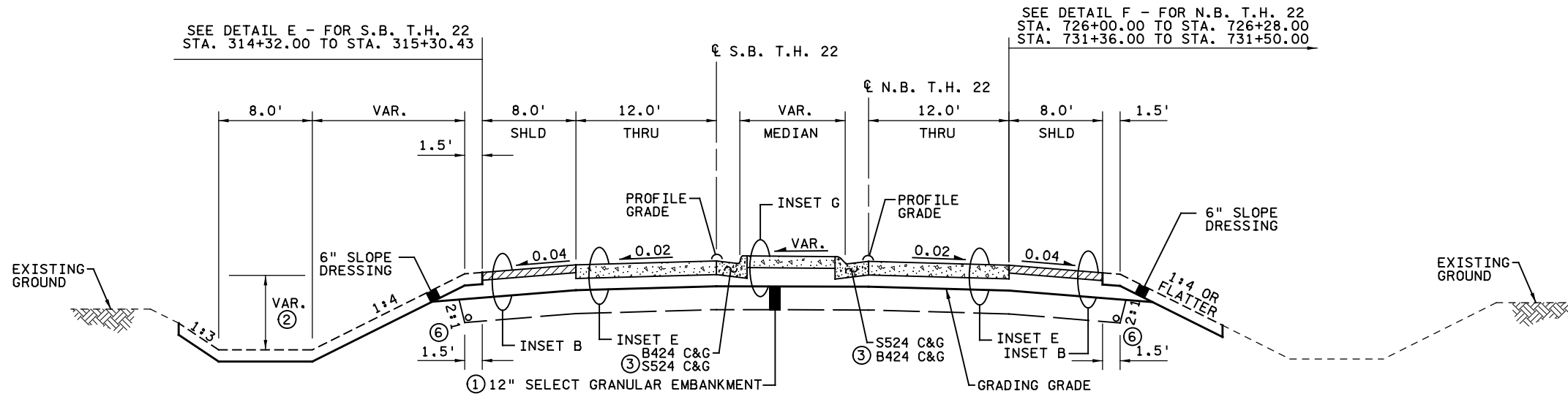
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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321





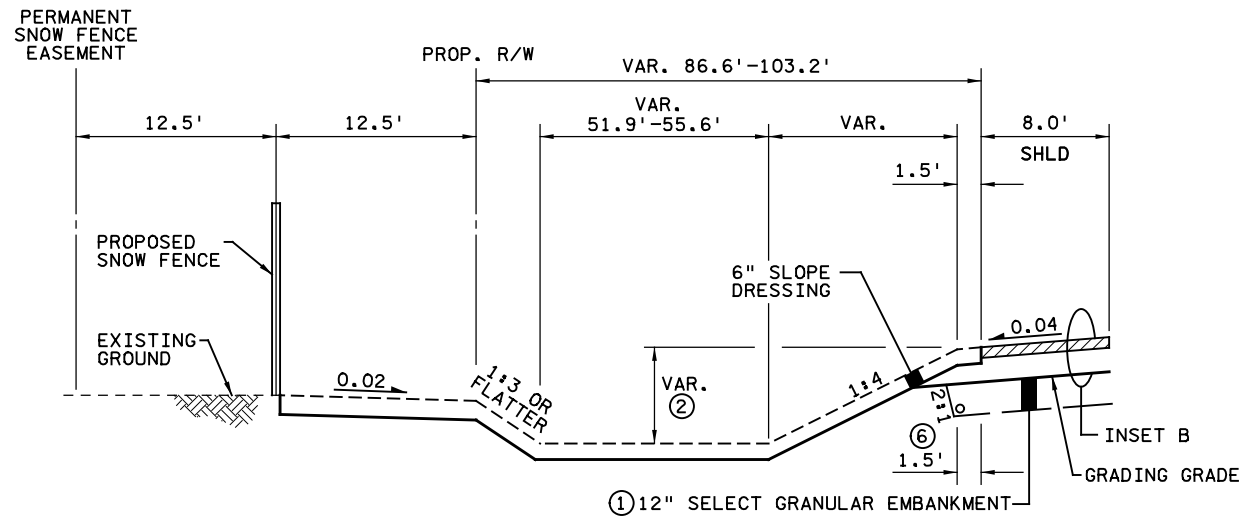
T.H. 22

N.B. T.H. 22 STA. 724+51.57 TO STA. 726+28.00
 S.B. T.H. 22 STA. 306+51.57 TO STA. 308+42.00
 N.B. T.H. 22 STA. 731+36.00 TO STA. 733+27.47
 S.B. T.H. 22 STA. 314+32.00 TO STA. 315+30.43

SEE SHEET 26 FOR PAVEMENT INSETS
 SEE SHEET 21 FOR GENERAL NOTES

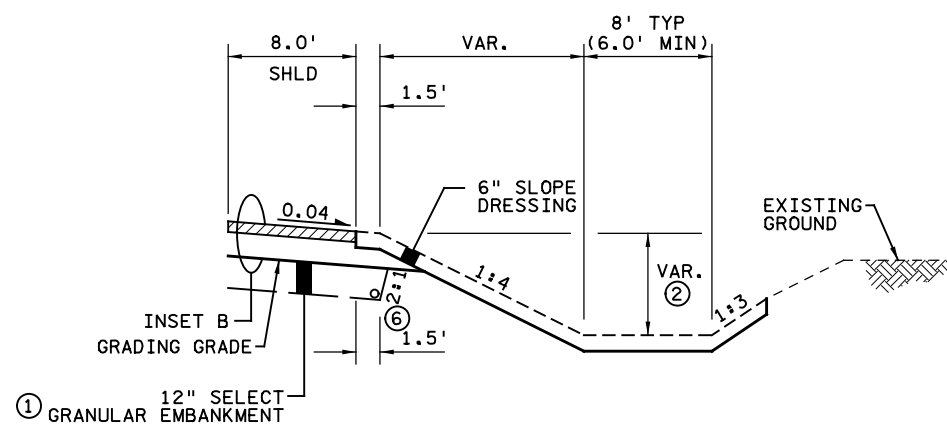
NOTES:

- ① EXCAVATION - SUBGRADE (CUT SECTION ONLY)
- ② SEE PROFILES AND CROSS SECTIONS FOR SPECIAL DITCH GRADES AND ELEVATIONS
- ③ SEE CONSTRUCTION PLAN FOR LOCATIONS
- ④ 4" PERF TP PIPE DRAIN MNDOT SPEC. 2502. USE ON TH 22. SEE DRAINAGE AND SUPERELEVATION PLANS FOR LOCATIONS. SEE MNDOT STD. PLAN 5-297.430 & 5-297.433.



DETAIL E

S.B. T.H. 22 STA. 314+32.00 TO STA. 318+28.68



DETAIL F

N.B. T.H. 22 STA. 726+00.00 TO STA. 726+28.00
 N.B. T.H. 22 STA. 731+36.00 TO STA. 731+50.00

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NO	DATE	BY	CKD	APPR	REVISION

... \CAD_BIM\plan\10321_fs03.dgn

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Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

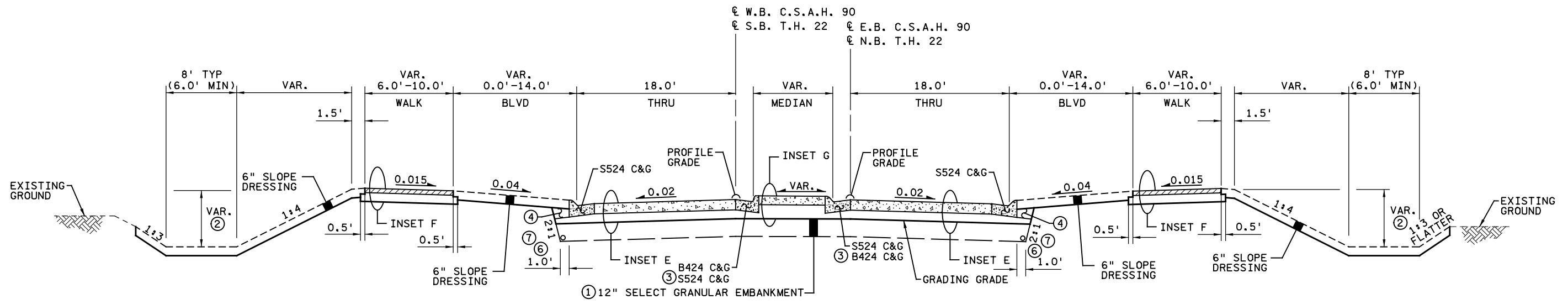
DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



MINNESOTA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS
 TH 22 & CSAH 90

SHEET 23 OF 276

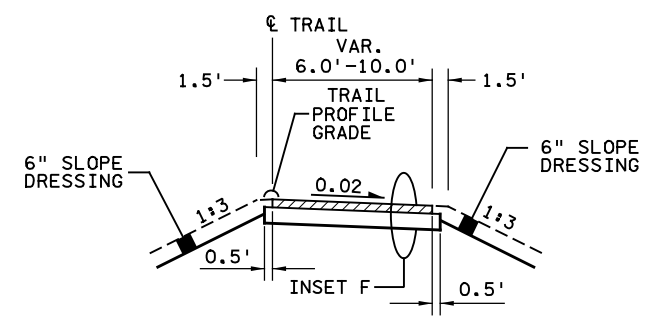


T.H. 22 & C.S.A.H. 90

N.B. T.H. 22 STA. 726+28.00 TO STA. 728+01.56	E.B. C.S.A.H. 90 STA. 611+75.00 TO STA. 613+75.25
S.B. T.H. 22 STA. 308+42.00 TO STA. 310+08.12	W.B. C.S.A.H. 90 STA. 704+95.00 TO STA. 706+79.51
N.B. T.H. 22 STA. 729+70.21 TO STA. 731+36.00	E.B. C.S.A.H. 90 STA. 615+48.74 TO STA. 617+31.50
S.B. T.H. 22 STA. 311+80.10 TO STA. 314+32.00	W.B. C.S.A.H. 90 STA. 708+46.38 TO STA. 710+48.00

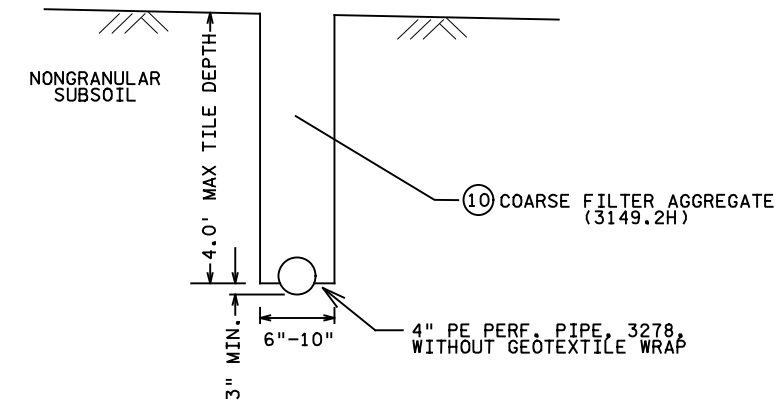
SEE SHEET 26 FOR PAVEMENT INSETS
SEE SHEET 21 FOR GENERAL NOTES

- NOTES:
- ① EXCAVATION - SUBGRADE (CUT SECTION ONLY)
 - ② SEE PROFILES AND CROSS SECTIONS FOR SPECIAL DITCH GRADES AND ELEVATIONS
 - ③ SEE CONSTRUCTION PLAN FOR LOCATIONS
 - ④ BACKFILL WITH SELECT GRADING MATERIAL
 - ⑤ GUTTER SLOPE SHALL MATCH CONC. APRON SLOPE
 - ⑥ 4" PERF TP PIPE DRAIN MNDOT SPEC. 2502. USE ON TH 22. SEE DRAINAGE AND SUPERELEVATION PLANS FOR LOCATIONS. SEE MNDOT STD. PLAN 5-297.430 & 5-297.433.
 - ⑦ 4" PERF PE PIPE DRAIN. USE ON CSAH 90. SEE DRAINAGE AND SUPERELEVATION PLANS FOR LOCATIONS. SEE SUBSURFACE DRAIN SYSTEM DETAIL ON SHEET 24.
 - ⑩ PAYMENT FOR COARSE FILTER AGG. (3149.2H) SHALL BE INCIDENTAL.



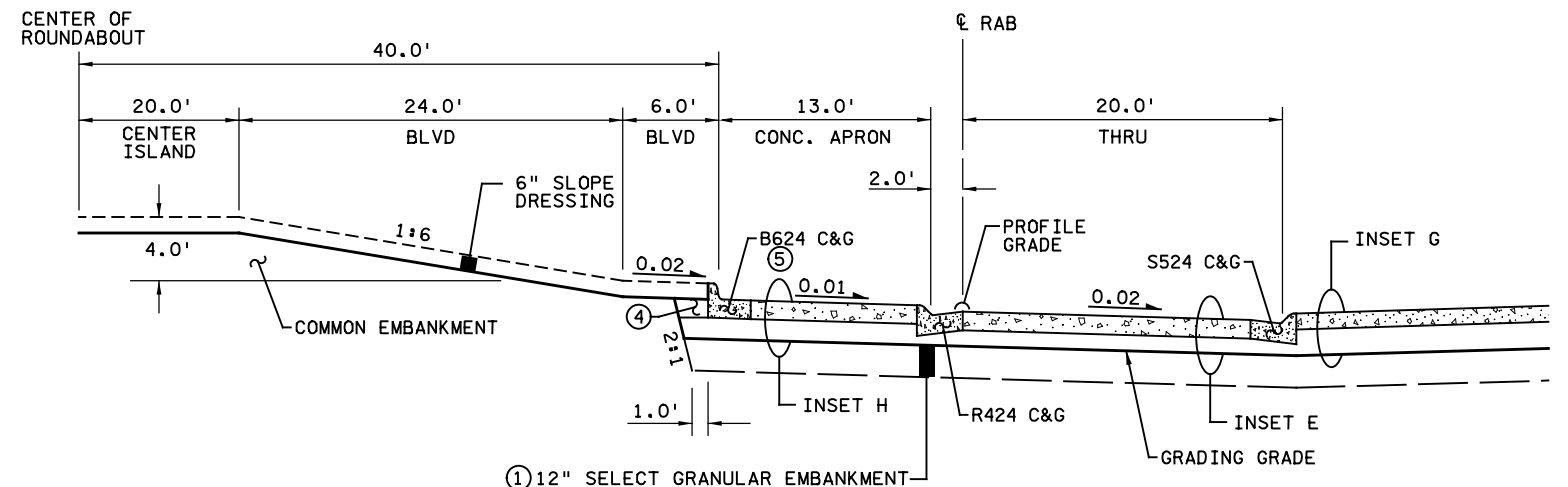
TRAIL

TRAIL STA. 200+00.00 TO STA. 203+68.30



SUBSURFACE DRAIN SYSTEM DETAIL

NOT TO SCALE



ROUNDABOUT

ROUNDABOUT STA. 100+00.00 TO STA. 103+45.58

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Print Name: AMBER E. TRACY
Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005

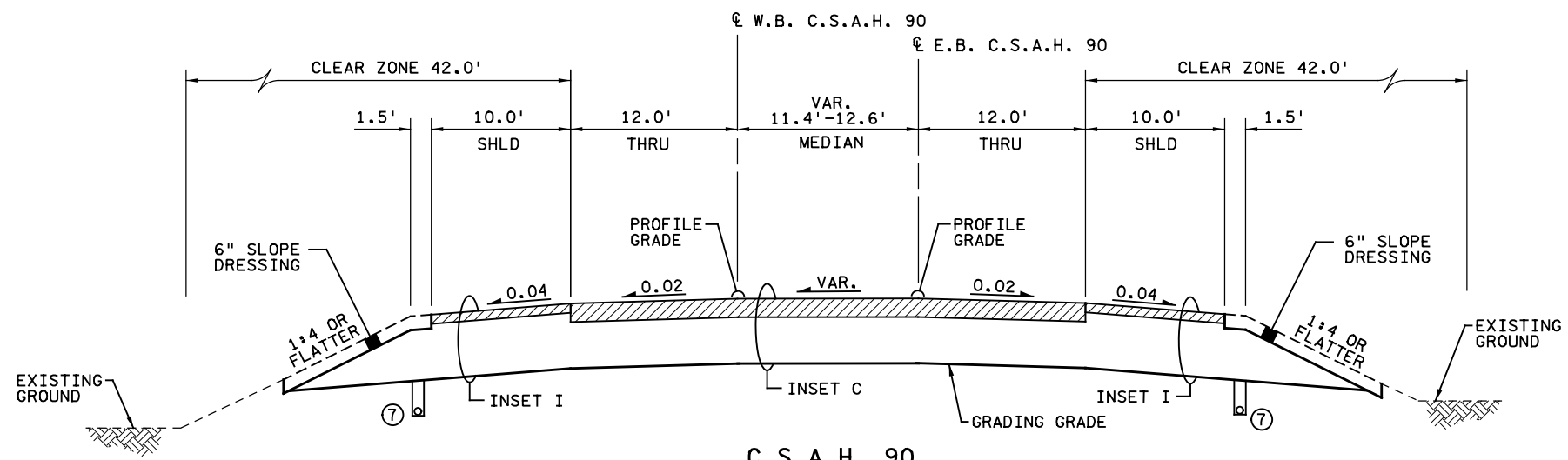
DRAWN BY S. MARTINS
DESIGNED BY P. ENGELMEYER
CHECKED BY A. TRACY
COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

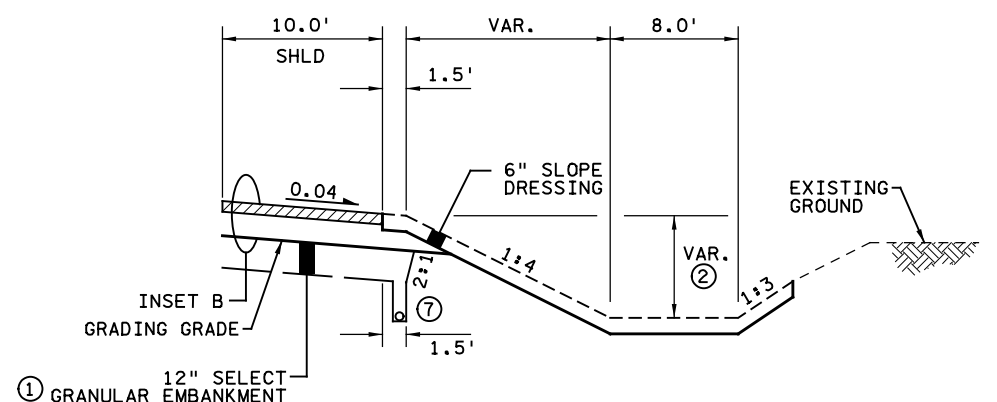
MINNESOTA DEPARTMENT OF TRANSPORTATION
TYPICAL SECTIONS
TH 22 & CSAH 90

SHEET
24
OF
276



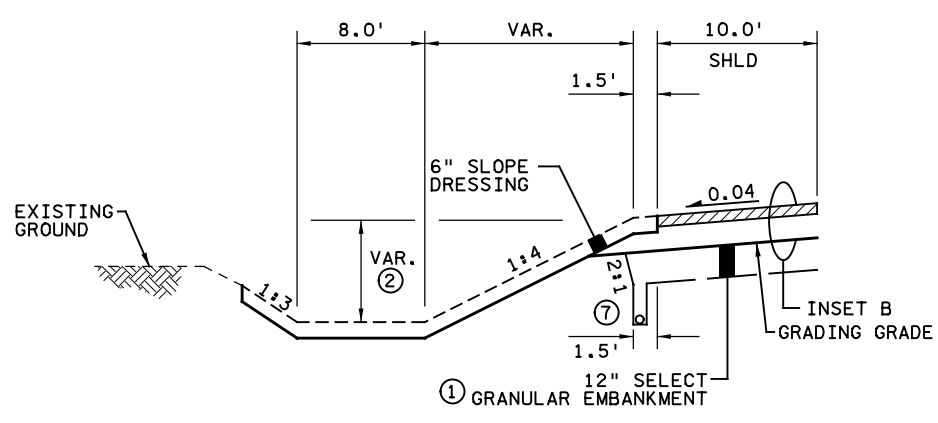
C.S.A.H. 90

E.B. C.S.A.H. 90 STA. 608+40.00 TO STA. 609+73.14
 W.B. C.S.A.H. 90 STA. 701+39.08 TO STA. 702+72.23



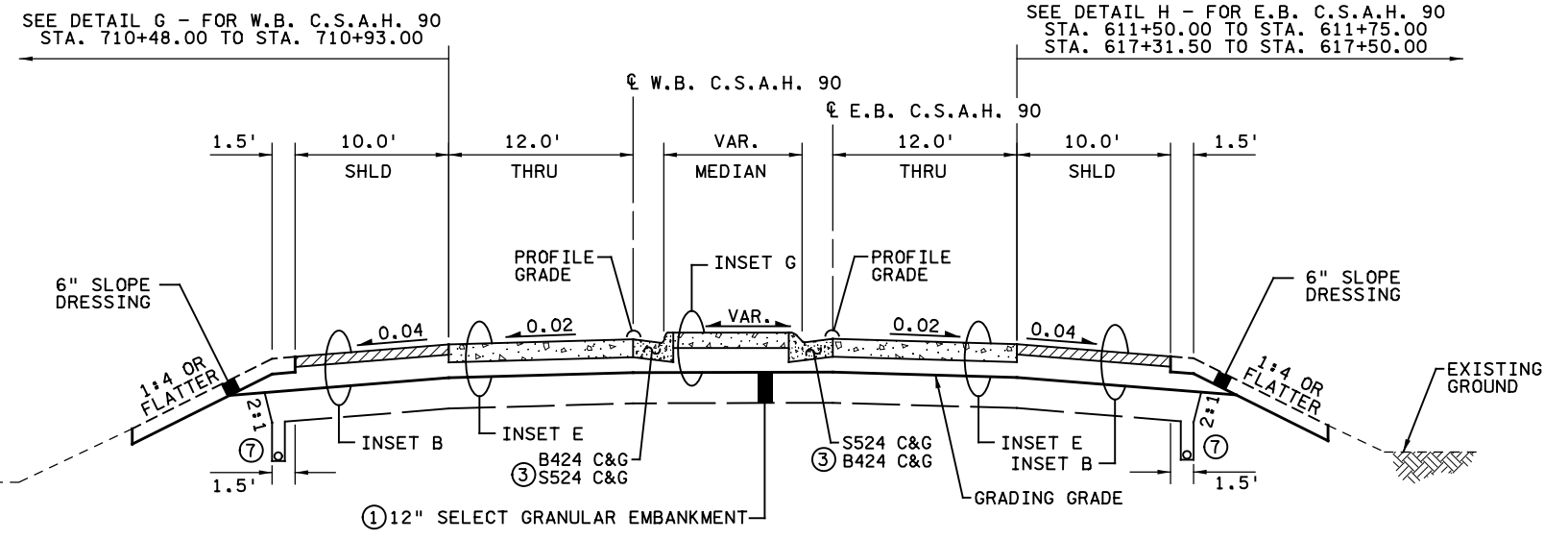
DETAIL H

E.B. C.S.A.H. 90 STA. 611+50.00 TO STA. 611+75.00
 E.B. C.S.A.H. 90 STA. 617+31.50 TO STA. 617+50.00



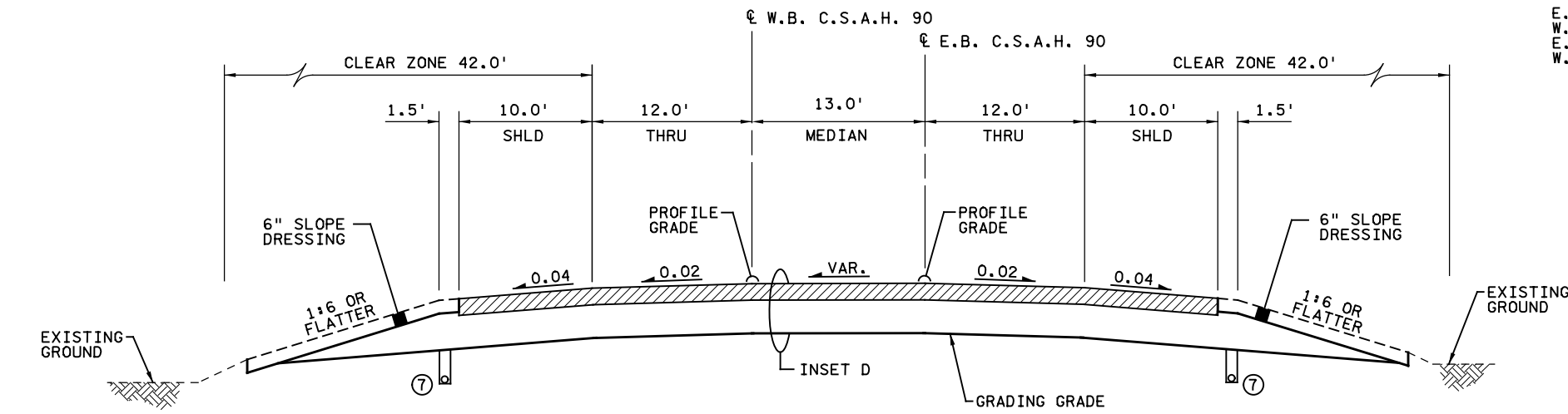
DETAIL G

W.B. C.S.A.H. 90 STA. 710+48.00 TO STA. 710+93.00



C.S.A.H. 90

E.B. C.S.A.H. 90 STA. 609+73.14 TO STA. 611+75.00
 W.B. C.S.A.H. 90 STA. 702+72.23 TO STA. 704+95.00
 E.B. C.S.A.H. 90 STA. 617+31.50 TO STA. 619+56.51
 W.B. C.S.A.H. 90 STA. 710+48.00 TO STA. 712+49.18



C.S.A.H. 90

E.B. C.S.A.H. 90 STA. 619+56.51 TO STA. 620+00.00
 W.B. C.S.A.H. 90 STA. 712+49.18 TO STA. 712+92.67

SEE SHEET 26 FOR PAVEMENT INSETS
 SEE SHEET 21 FOR GENERAL NOTES

NOTES:

- ① EXCAVATION - SUBGRADE (CUT SECTION ONLY)
- ② SEE PROFILES AND CROSS SECTIONS FOR SPECIAL DITCH GRADES AND ELEVATIONS
- ③ SEE CONSTRUCTION PLAN FOR LOCATIONS
- ⑦ 4" PERF PE PIPE DRAIN. USE ON CSAH 90. SEE DRAINAGE AND SUPERELEVATION PLANS FOR LOCATIONS. SEE SUBSURFACE DRAIN SYSTEM DETAIL ON SHEET 24.

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NO	DATE	BY	CKD	APPR	REVISION

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 Print Name: AMBER E. TRACY
 License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

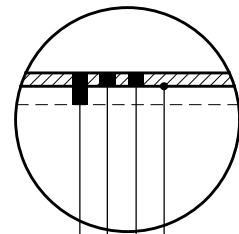
DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 TYPICAL SECTIONS
 TH 22 & CSAH 90

SHEET
 25
 OF
 276

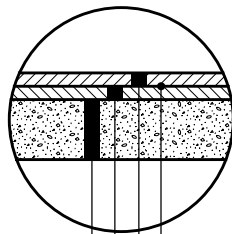


TACK COAT (INCIDENTAL)
MNDOT SPEC. 2357
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360, (SPWEB440E)
MILL 2.0" BIT PAVEMENT

EXISTING PAVEMENT

INSET A

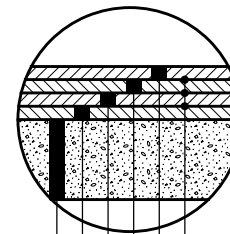
TH 22 MILL AND OVERLAY



TACK COAT (INCIDENTAL)
MNDOT SPEC. 2357
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (3,B) MNDOT SPEC. 2360,
(SPWEB330B)
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (3,B) MNDOT SPEC. 2360,
(SPWEB330B)
10" AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET B

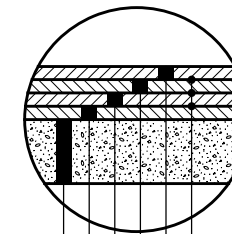
TH 22 BITUMINOUS SHOULDER /
TH 22 BITUMINOUS DRIVEWAY



TACK COAT (INCIDENTAL)
MNDOT SPEC. 2357
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPWEB440E)
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPWEB440E)
2.0" TYPE SP 12.5 NON WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPNWB430E)
2.0" TYPE SP 12.5 NON WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPNWB430E)
20" AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET C

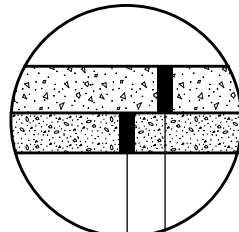
BITUMINOUS PAVEMENT
CSAH 90 (WEST OF TH 22)



TACK COAT (INCIDENTAL)
MNDOT SPEC. 2357
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPWEB440E)
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPWEB440E)
1.5" TYPE SP 12.5 NON WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPNWB430E)
2.0" TYPE SP 12.5 NON WEARING COURSE
MIXTURE (4,E) MNDOT SPEC. 2360,
(SPNWB430E)
15" AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET D

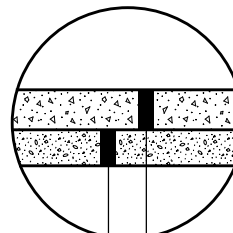
BITUMINOUS PAVEMENT
CSAH 90 (EAST OF TH 22)



8.0" CONCRETE PAVEMENT
MNDOT SPEC. 2301
6" AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET E

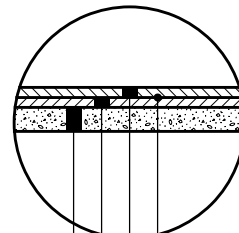
TH 22/CSAH 90 CONCRETE PAVEMENT



6" CONCRETE WALK
MNDOT SPEC. 2521
VAR. AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET G

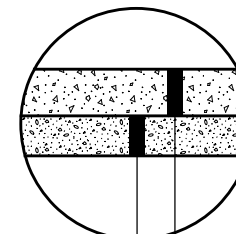
CONCRETE MEDIAN



TACK COAT (INCIDENTAL)
MNDOT SPEC. 2357
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (3,E)
MNDOT SPEC. 2360 (SPWEA330E) (PG 58H-34)
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (3,E)
MNDOT SPEC. 2360 (SPWEA330E) (PG 58H-34)
6" AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET F

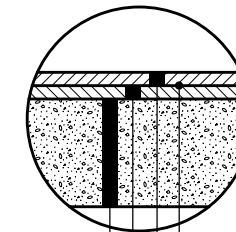
BITUMINOUS TRAIL



8.0" CONCRETE PAVEMENT
MNDOT SPEC. 2301
VAR. AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET H

TRUCK APRON



TACK COAT (INCIDENTAL)
MNDOT SPEC. 2357
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (3,B) MNDOT SPEC. 2360,
(SPWEB330B)
2.0" TYPE SP 12.5 WEARING COURSE
MIXTURE (3,B) MNDOT SPEC. 2360,
(SPWEB330B)
24" AGGREGATE BASE, CLASS 5Q
MNDOT SPEC. 2211

INSET I

CSAH 90 BITUMINOUS SHOULDER

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NO	DATE	BY	CKD	APPR	REVISION

... \CAD_BIM\lan\10321_fs06.dgn

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Print Name: AMBER E. TRACY
Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
STATE PROJECT NO.
007-070-005

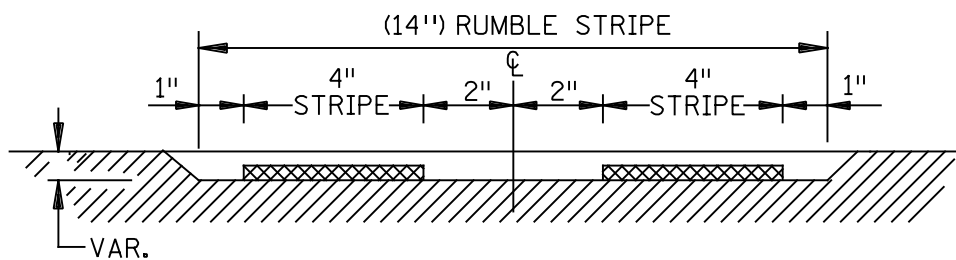
DRAWN BY
S. MARTINS
DESIGNED BY
P. ENGELMEYER
CHECKED BY
A. TRACY
COMM. NO. 01710321



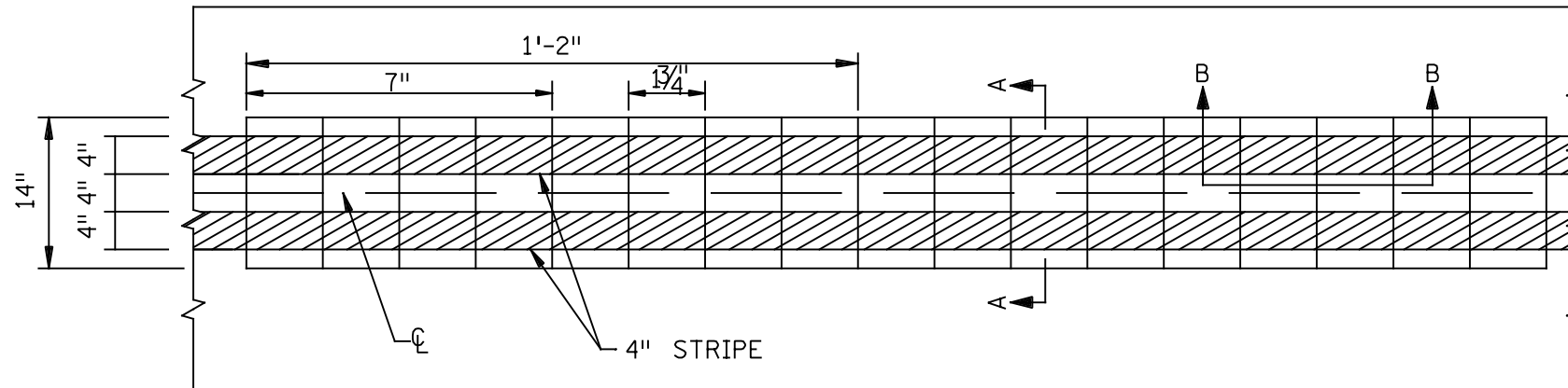
ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
TYPICAL SECTIONS
TH 22 & CSAH 90

SHEET
26
OF
276

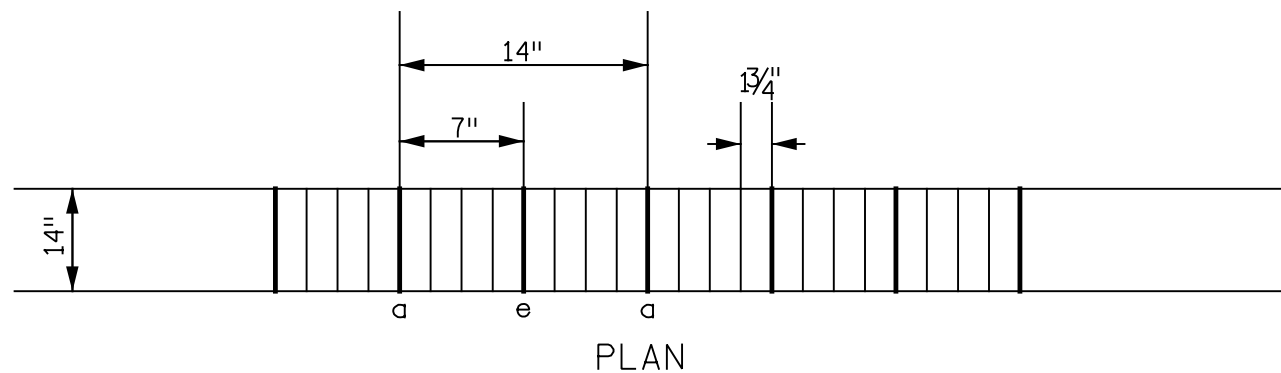


SECTION A-A
BITUMINOUS AND CONCRETE
CENTERLINE RUMBLE STRIPE ①

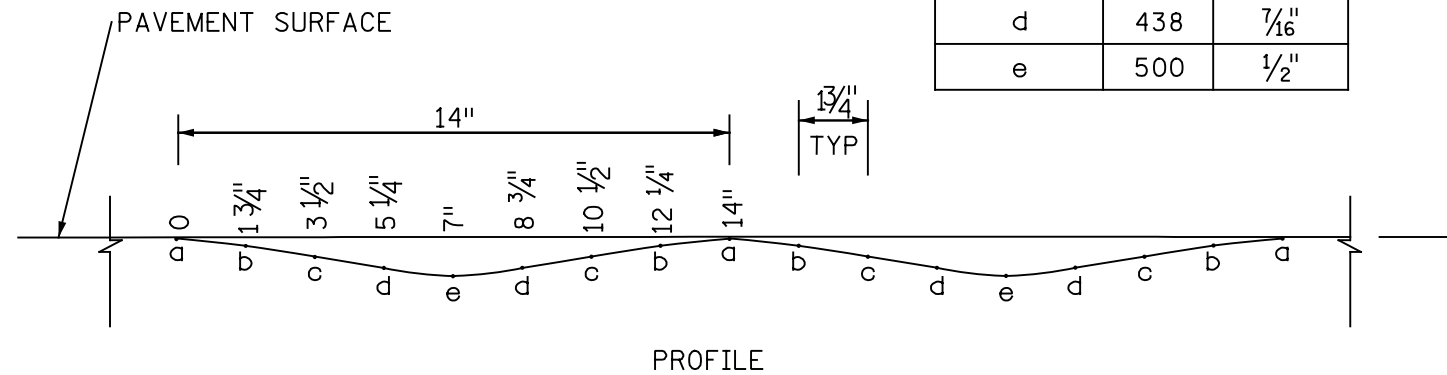


SPECIFIC NOTE:

① SEE MILLED SINUSOIDAL RUMBLE STRIP DETAIL ON THIS SHEET.



PLAN



MILLED SINUSOIDAL RUMBLE STRIP
SECTION B-B

LOCATION	DEPTH	
	MIL	INCHES
a	62.5	1/16"
b	156	5/32"
c	281	9/32"
d	438	7/16"
e	500	1/2"

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NO	DATE	BY	CKD	APPR	REVISION

... \CAD_BIM\plan\10321_dd02.dgn

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Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS
DESIGNED BY
P. ENGELMEYER
CHECKED BY
A. TRACY
COMM. NO. 01710321



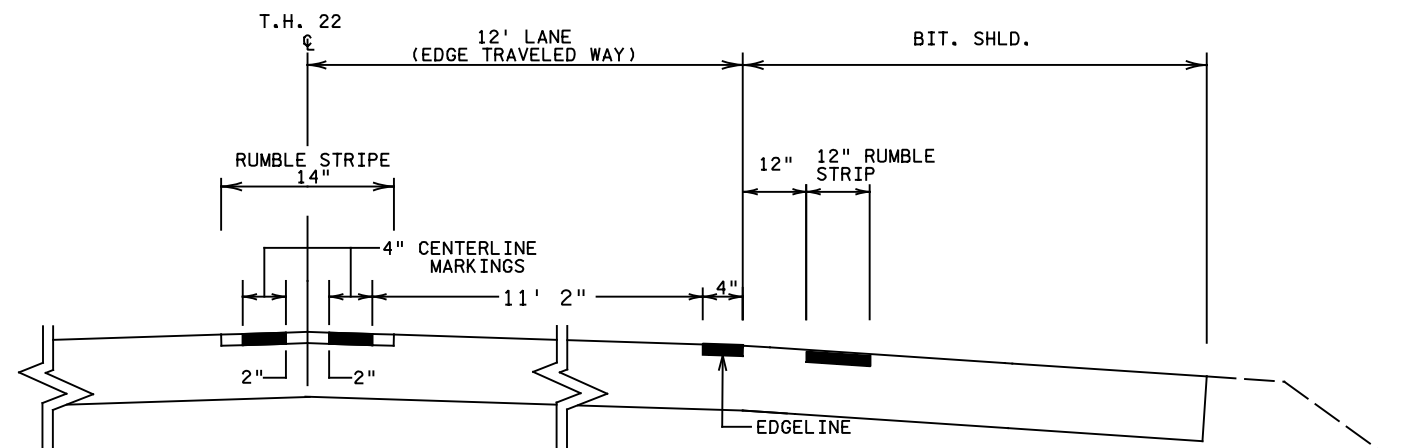
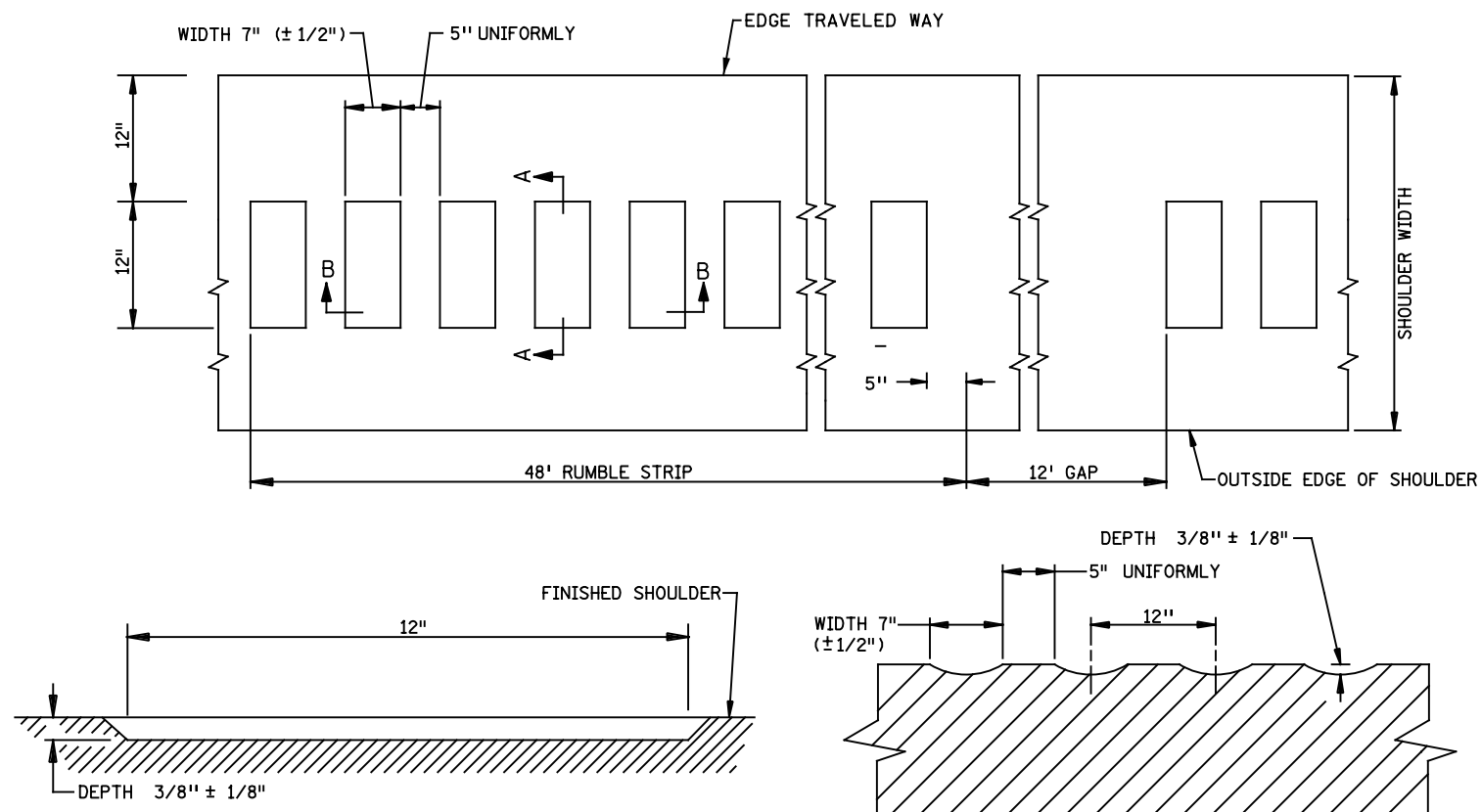
ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
TH 22 & CSAH 90
RUMBLE STRIP

SHEET
27
OF
276

BITUMINOUS SHOULDER RUMBLE STRIP

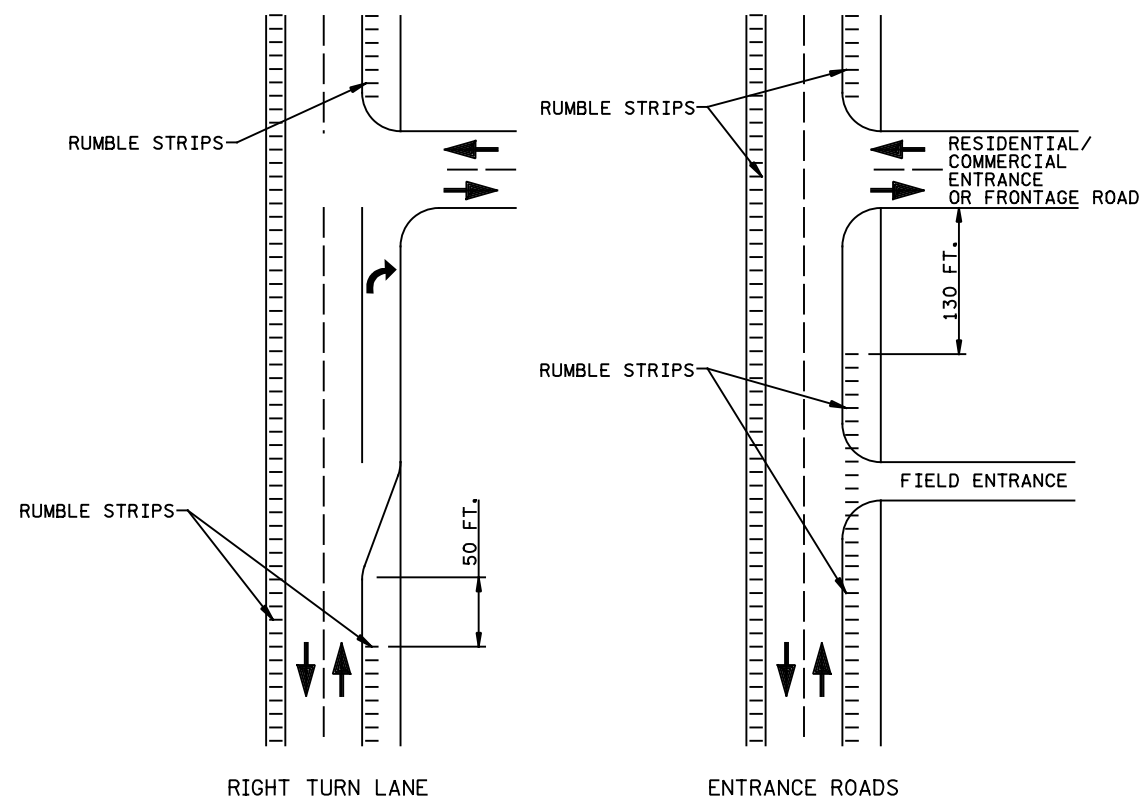
INTERMITTENT PATTERN



RUMBLE STRIP PLACEMENT DETAIL (BITUMINOUS SHOULDER AREAS)

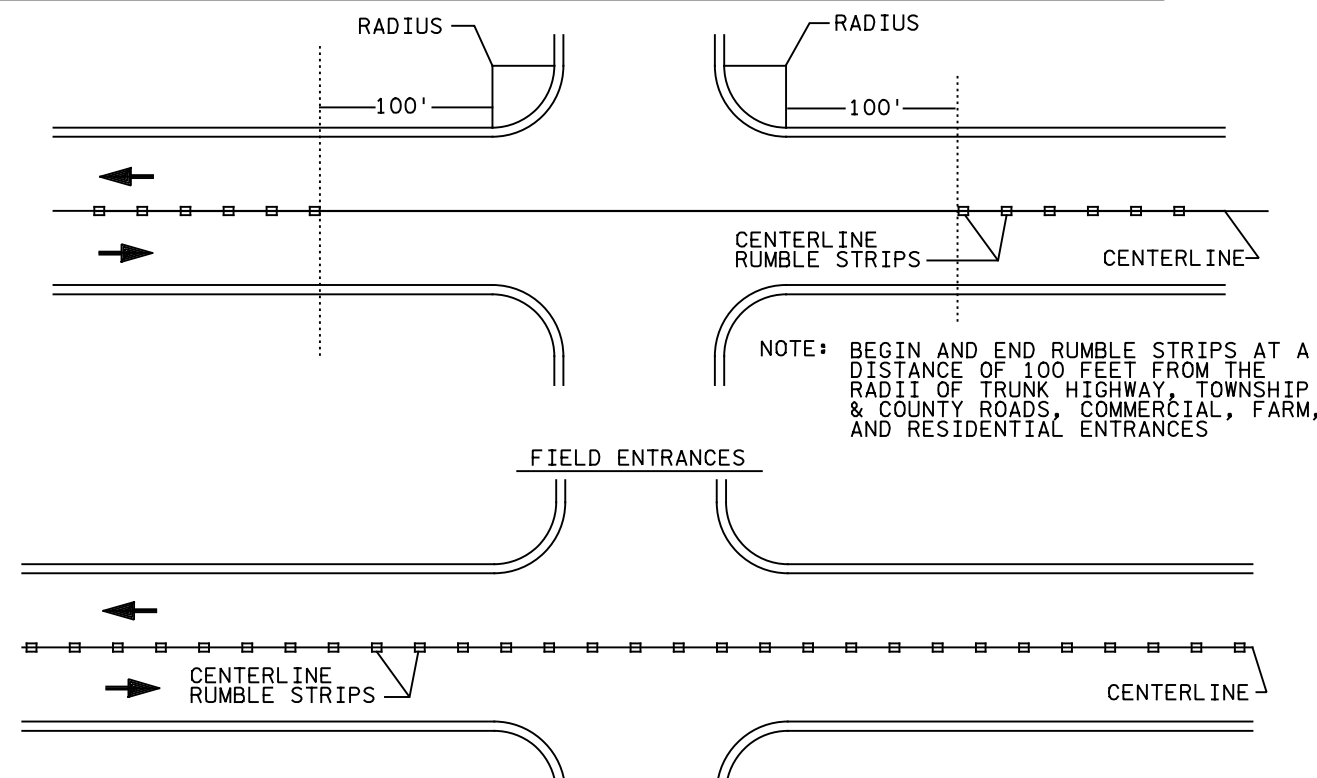
NOTE: SEE CONSTRUCTION PLAN AND TYPICAL SECTIONS FOR LOCATION OF BITUMINOUS SHOULDERS.

SHOULDER RUMBLE STRIP - APPROPRIATE BREAKS



CENTERLINE RUMBLE STRIP DETAILS

TRUNK HIGHWAY, TOWNSHIP & COUNTY ROADS, COMMERCIAL, FARM, AND RESIDENTIAL ENTRANCES



2:48:01 PM
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NO	DATE	BY	CKD	APPR	REVISION

... \CAD_BITMAP\an\10321_dd03.dgn

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.

Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
DESIGNED BY P. ENGELMEYER
CHECKED BY A. TRACY
COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

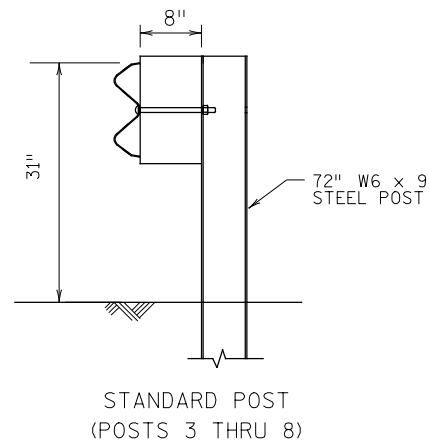
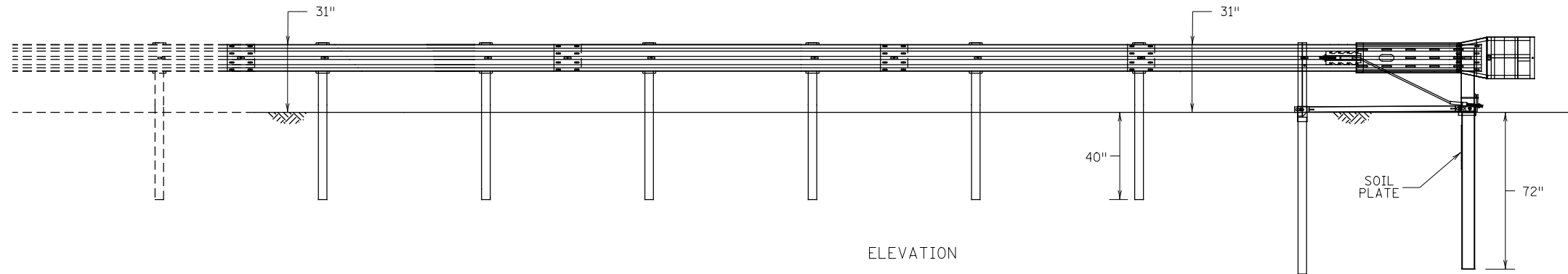
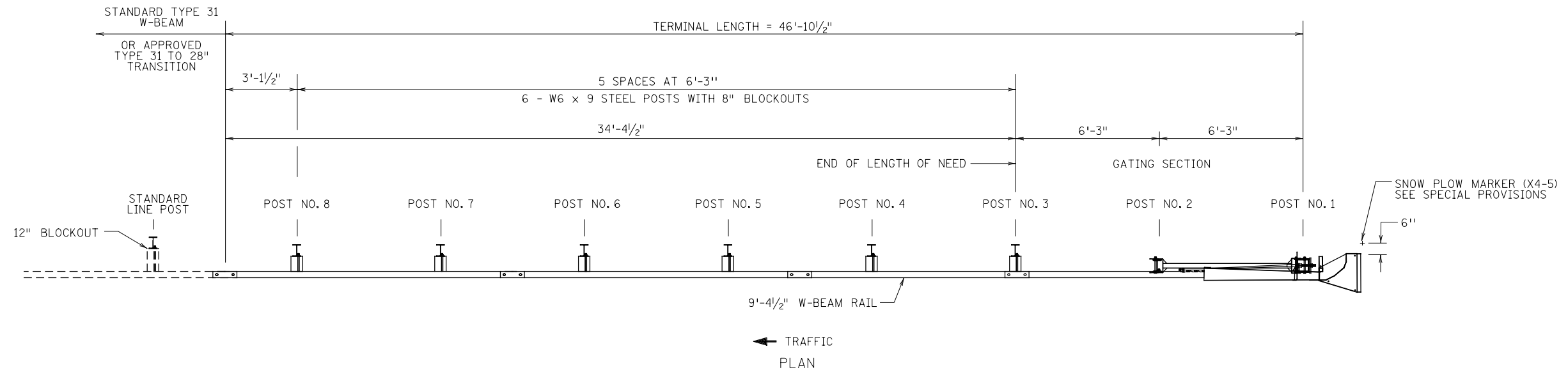
MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS

TH 22 & CSAH 90

RUMBLE STRIP

SHEET 28 OF 276



NOTES:

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

THESE DETAILS ARE FOR DESIGN GUIDANCE INFORMATION ONLY. CHECK WITH MANUFACTURER FOR CURRENT DETAILS AND INSTALLATION INSTRUCTIONS.

ALL TERMINAL RAIL MUST BE STRAIGHT, CURVED TERMINAL RAIL IS NOT ALLOWED.

ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED PER MnDOT SPEC. 3392.

SEE SPECIAL PROVISIONS FOR POST DELINEATORS AND OBJECT MARKERS. CHECK WITH MANUFACTURER FOR SPECIFIC OFFSET REQUIREMENTS.

POSTS 1 AND 2 ARE PROPRIETARY HINGED POSTS.

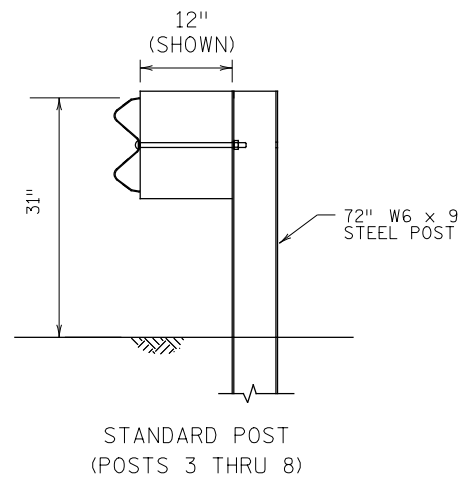
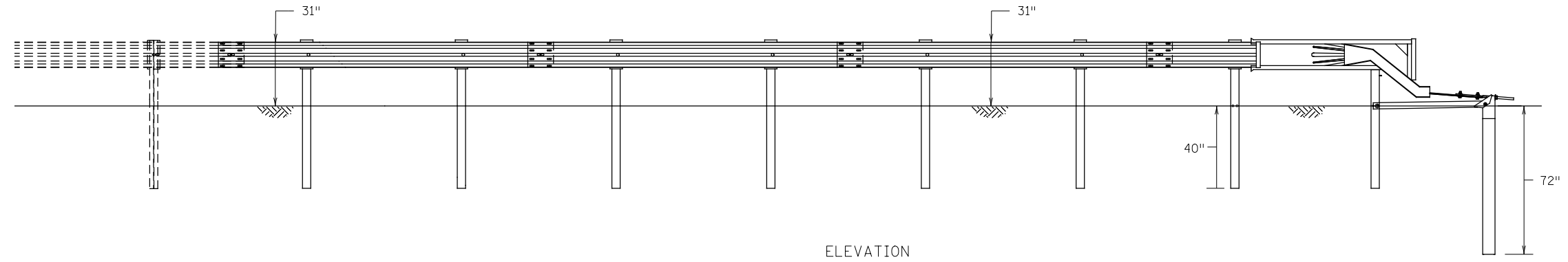
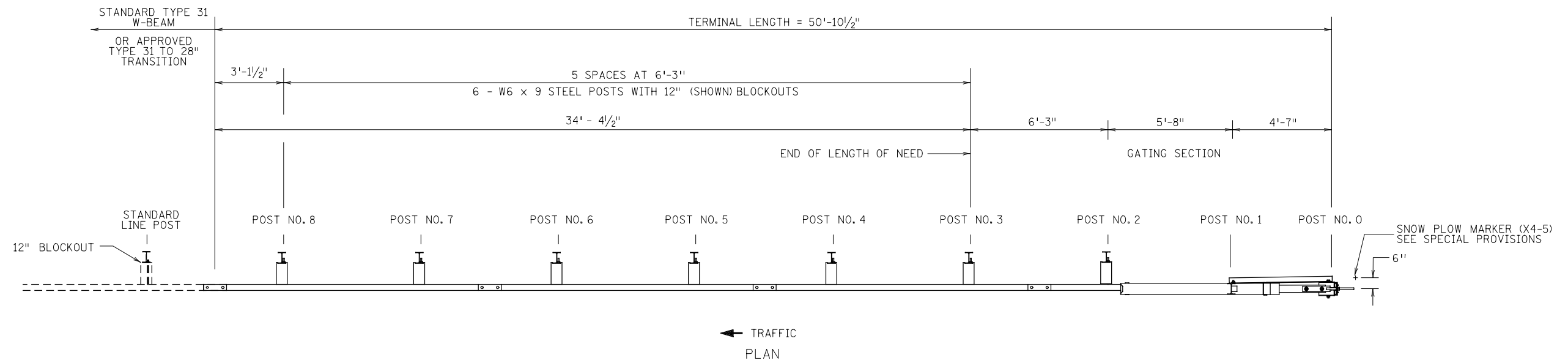
THE RAIL IS DESIGNED TO EXIT THE IMPACT HEAD ON THE BACK SIDE OF THE TERMINAL.

W-BEAM GUARDRAIL END TERMINAL
MSKT - STANDARD POST MGS
(ROAD SYSTEMS INC.)

REFERENCE DATE
9-28-2016

STATE PROJ. NO. 0704-108 (TH 22)

SHEET NO.29 OF 276 SHEETS



NOTES:

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

THESE DETAILS ARE FOR DESIGN GUIDANCE INFORMATION ONLY. CHECK WITH MANUFACTURER FOR CURRENT DETAILS AND INSTALLATION INSTRUCTIONS.

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SEE SPECIAL PROVISIONS FOR POST DELINEATORS AND OBJECT MARKERS. CHECK WITH MANUFACTURER FOR SPECIFIC OFFSET REQUIREMENTS.

POSTS 1 AND 2 ARE PROPRIETARY STEEL YIELDING TERMINAL POSTS.

POST 0 IS A PROPRIETARY ANCHOR POST.

POSTS 2 - 8, 8" BLOCKOUTS ACCEPTABLE.

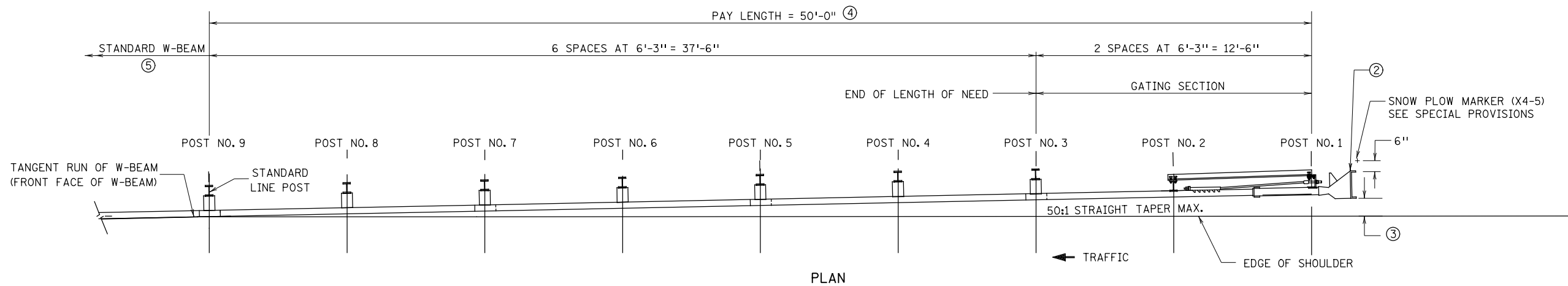
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REFERENCE DATE
9-28-2016

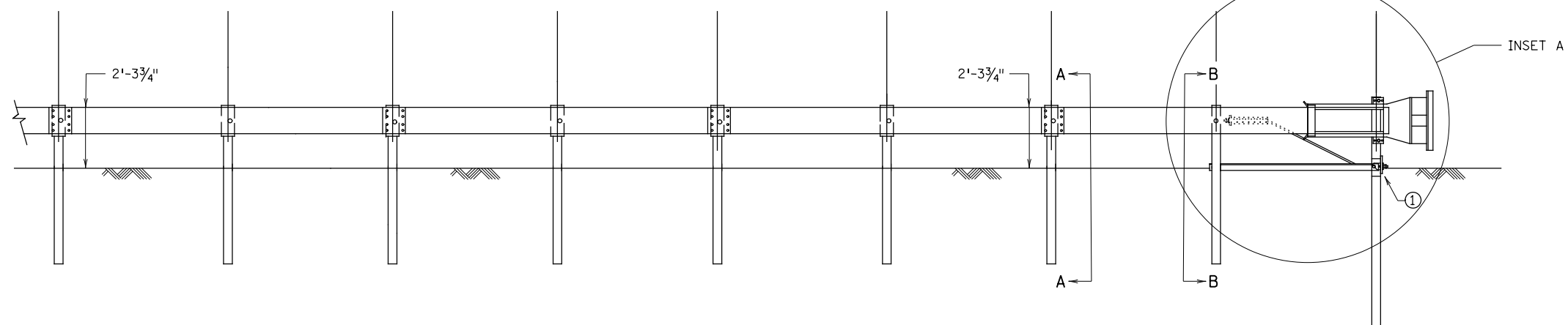
**SOFTSTOP END TERMINAL
(TRINITY HIGHWAY PRODUCTS)**

STATE PROJ. NO. 0704-108 (TH 22)

SHEET NO.30 OF 276 SHEETS



PLAN



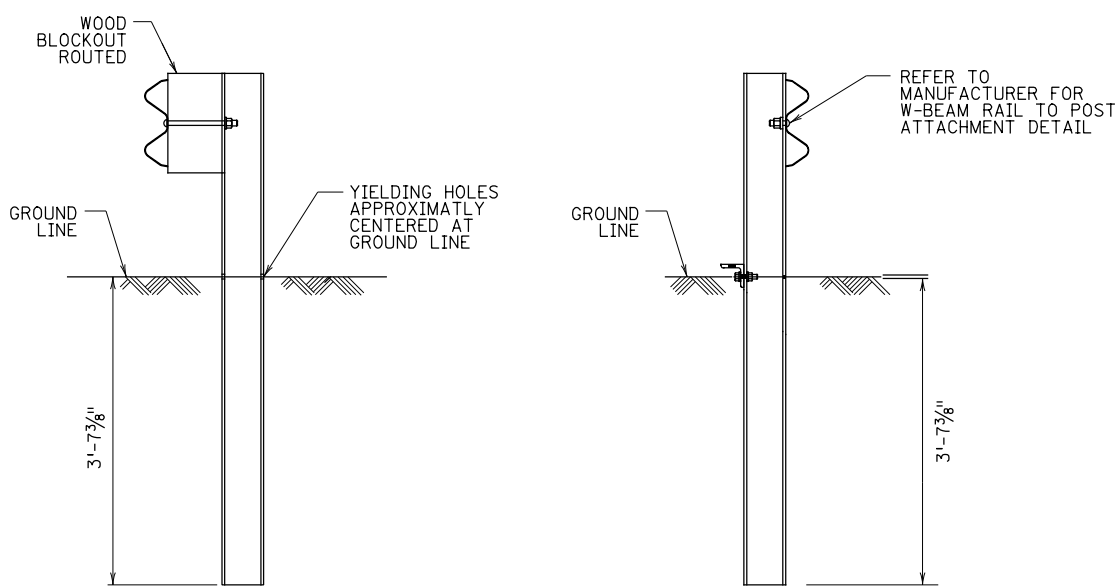
ELEVATION

ET-PLUS TANGENT END TERMINAL

NOTES:

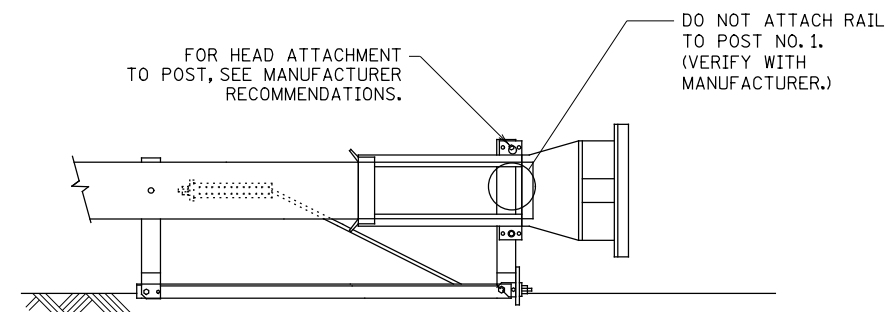
- ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
- THIS DRAWING IS FOR INFORMATION ONLY. CONTACT THE MANUFACTURER, FOR CURRENT DETAILS AND INSTALLATION INSTRUCTIONS. ALSO REFER TO MN/DOT STANDARD PLANS FOR ADDITIONAL GUARDRAIL INSTALLATION INFORMATION.
- THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

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SECTION A-A
(POSTS 3-8)

SECTION B-B
(POST 2)



INSET A

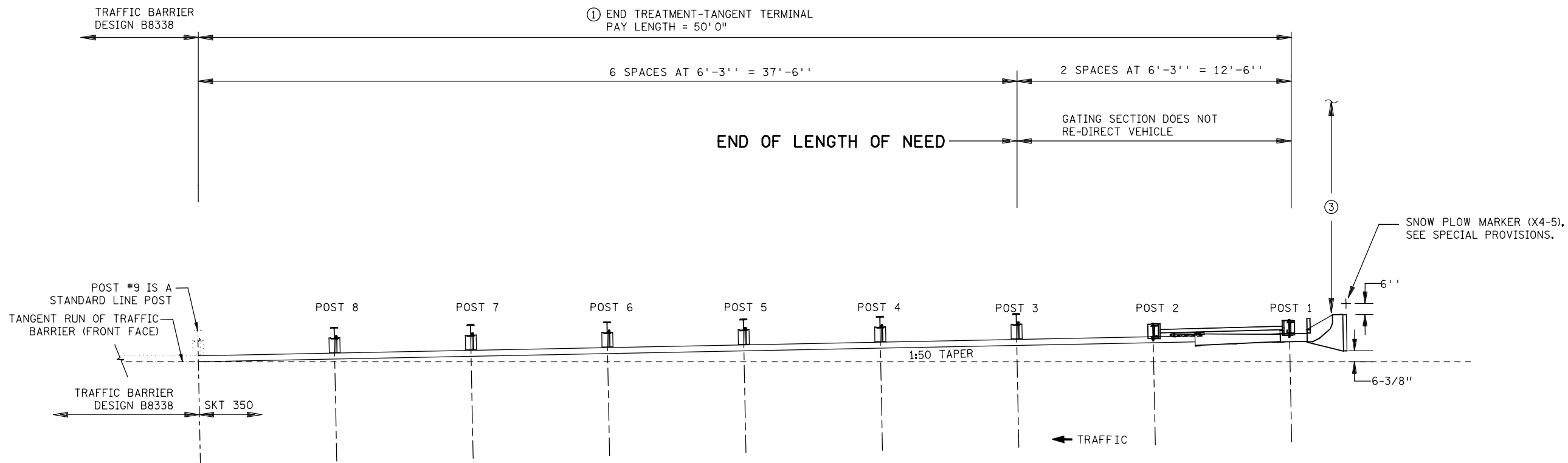
- ① THE NON-BREAKAWAY SECTION OF THE HBA POST SHALL NOT EXTEND MORE THAN 4" ABOVE THE FINISHED GROUND.
- ② THE RAIL IS DESIGNED TO EXIT THE TERMINAL ON THE BACK SIDE OF THE GUARDRAIL.
- ③ WHEN THE TERMINAL IS ADJACENT TO THE SHOULDER IT CAN BE TAPERED TO MINIMIZE NUISANCE HITS. A 50:1 TAPER OVER THE LENGTH OF THE SYSTEM IS ALLOWABLE.
- ④ THE END TERMINAL MUST BE A STRAIGHT TANGENT (OR TAPER) SECTION FOR THE ENTIRE LENGTH AND NOT BE CURVED.
- ⑤ VERTICAL TRANSITION TO ALTERNATIVE GUARDRAIL HEIGHTS TO BE INSTALLED WITHIN THE 12'-6" STANDARD GUARDRAIL LENGTH.

W-BEAM GUARDRAIL END TERMINAL
ET-PLUS (TANGENT - ENERGY ABSORBING)
(7 SYT & 1 HBA POST)

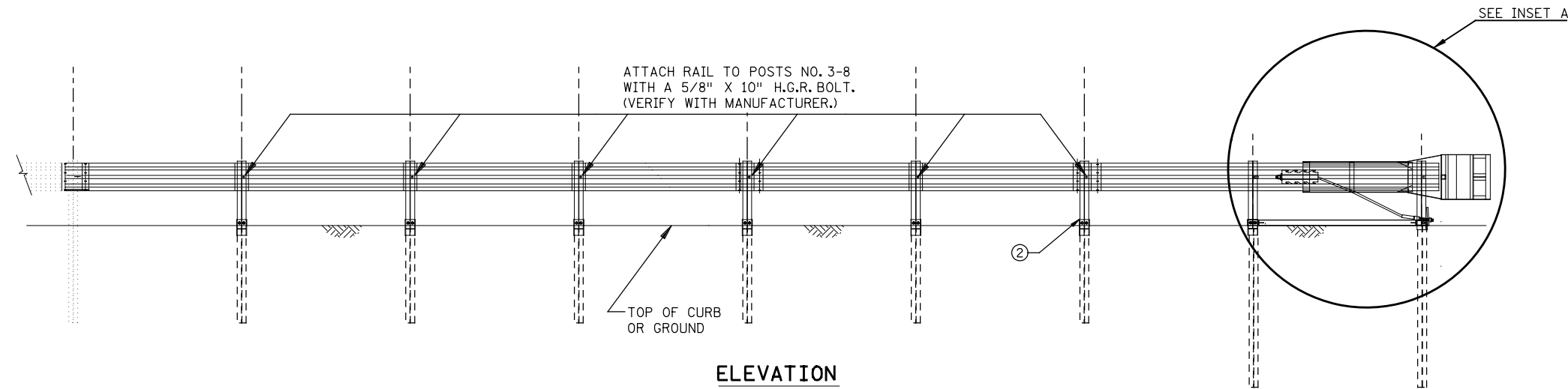
REFERENCE DATE
02/29/2016

STATE PROJ. NO. 0704-108 (TH 22)

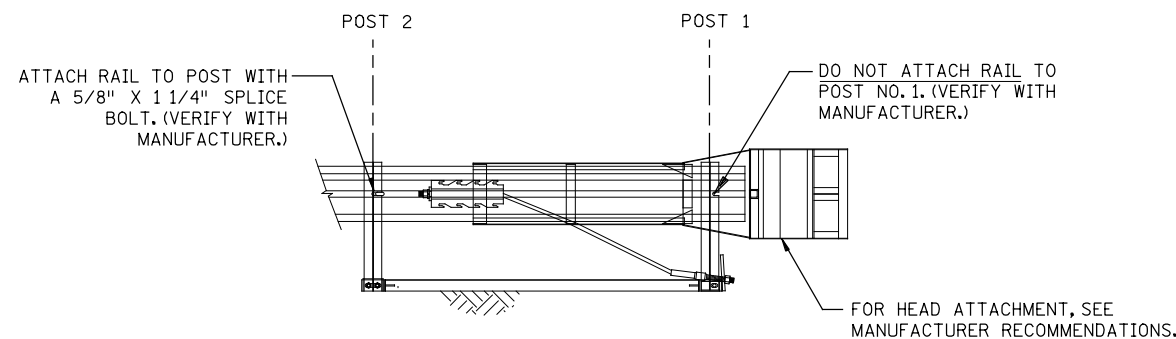
SHEET NO.31 OF 276 SHEETS



PLAN



ELEVATION



INSET A

GENERAL NOTES:

ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.

THIS DRAWING IS FOR INFORMATION ONLY. CONTACT THE MANUFACTURER, ROAD SYSTEMS, INC., FOR CURRENT DETAILS AND INSTALLATION INSTRUCTIONS. REFER TO MN/DOT STANDARD PLANS FOR ADDITIONAL GUARDRAIL INSTALLATION INSTRUCTIONS.

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

NOTES:

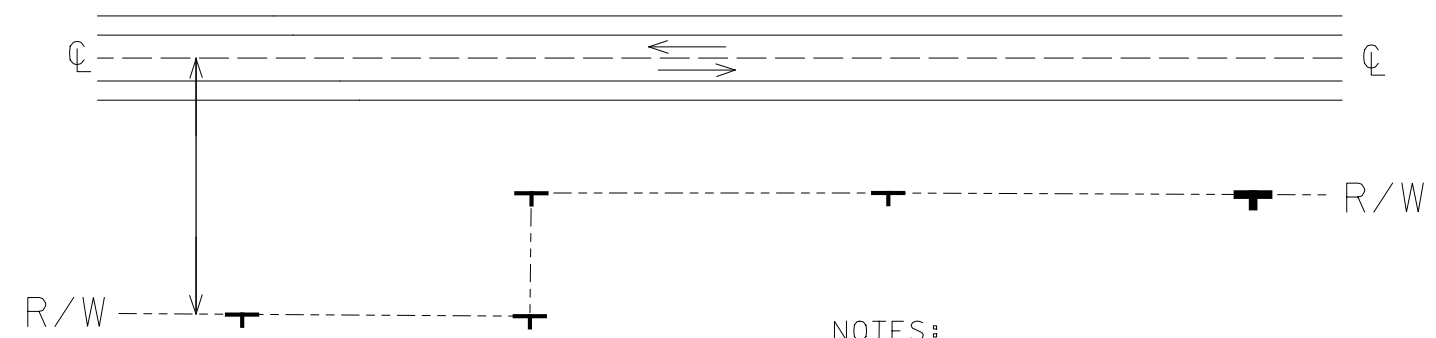
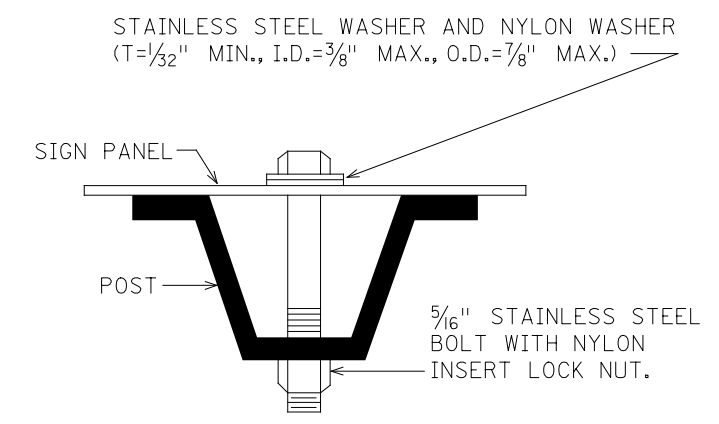
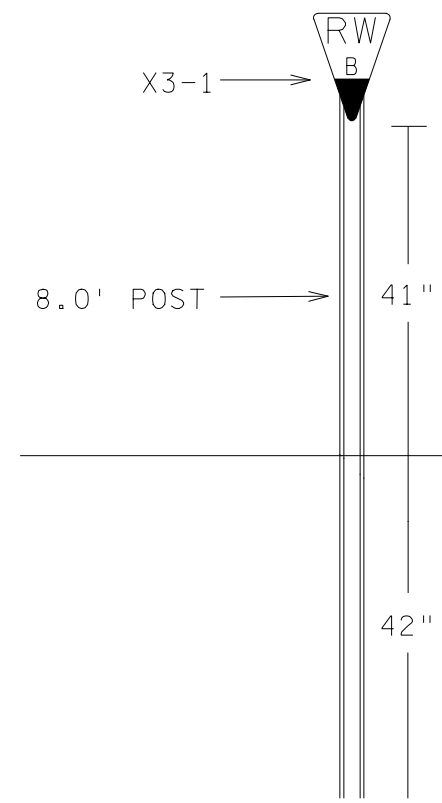
- ① USE STEEL HINGED BREAKAWAY (HBA) POSTS OPTIONS ONLY ON POSTS 1-8.
- ② THE NON-BREAKAWAY SECTION OF THE HBA POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE THE FINISHED GROUND LINE.
- ③ THE TRAFFIC BARRIER IS DESIGNED TO EXIT THE TERMINAL HEAD ON THE BACK SIDE OF THE INSTALLATION. A SPECIAL SITE EVALUATION SHOULD BE CONSIDERED PRIOR TO USING THE SKT WHERE THERE IS LESS THAN 25' BETWEEN THE BACK SIDE OF THE SKT AND ANY ADJACENT DRIVING LANE.

**END TREATMENT - TANGENT TERMINAL
SKT-350 HBA POST OPTION**

METRO DESIGN DETAIL
REVISED DATE: 12/21/12

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RW BOUNDARY MARKER (X3-1 SIGN) DETAIL



NOTES:

PLACE GREEN ON WHITE RIGHT OF WAY BOUNDRY MARKER (X3-1) ON 2.5 LB/FOOT U-CHANNEL POST AT STAKED LOCATION.

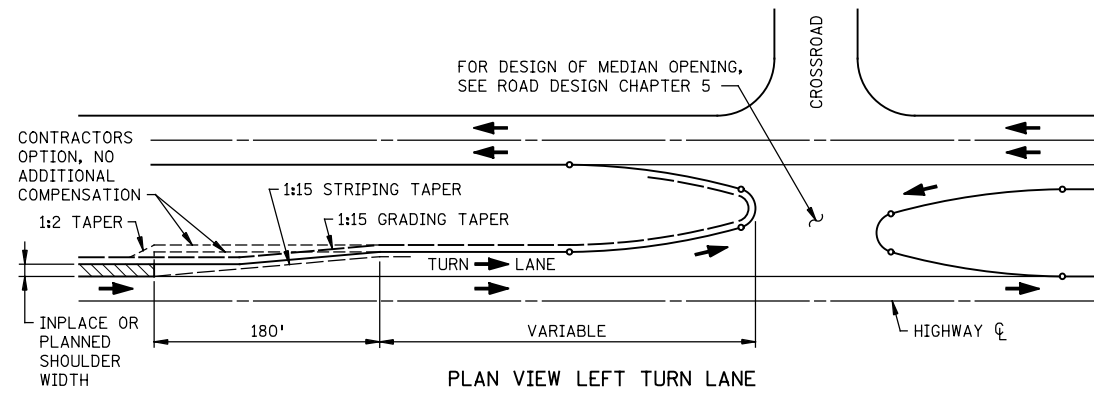
PLACE MARKERS AT ALL B-POINT LOCATIONS, EXCEPT AROUND SNOW FENCE EASEMENTS. AVOID PLACEMENT IN ENTRANCES AND RESIDENTIAL YARDS.

SHIFT PLACEMENT 0.5' TO 1.0' INSIDE OF RIGHT OF WAY WHEN B-POINT MONUMENTS ARE TO BE SET ALONG RW FOR PROJECT. CONFIRM PLACEMENT WITH DISTRICT OFFICE OF LAND MANAGEMENT.

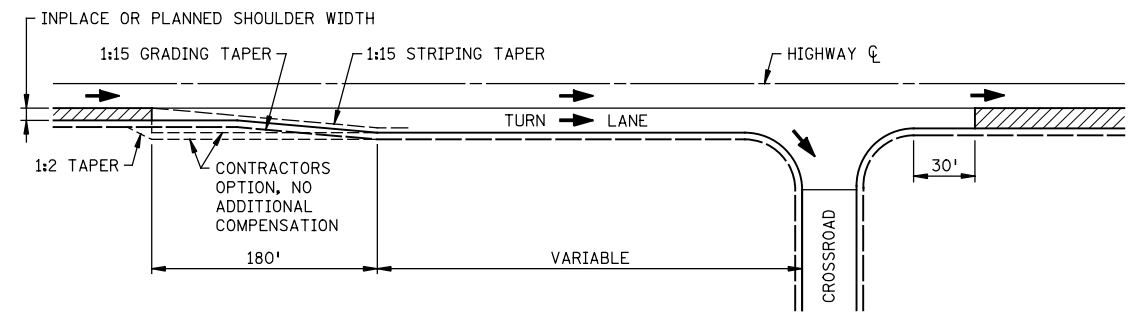
GOPHER ONE CALL REQUIRED BEFORE PLACEMENT OF MARKER.

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HW\F01\secte\10000\10321\CAD_BITMAP\cm\10321_dd06.dgn

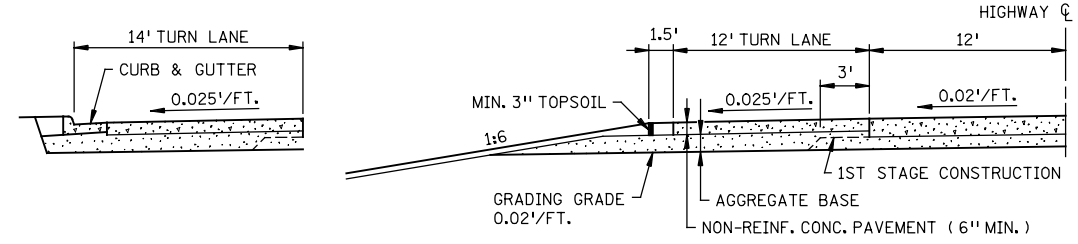
CERTIFIED BY <small>LICENSED PROFESSIONAL ENGINEER LIC NO. DATE</small>	MISCELLANEOUS DETAILS
STATE PROJ. NO. 0704-108 (TH 22) SHEET NO.33 OF 276 SHEETS	



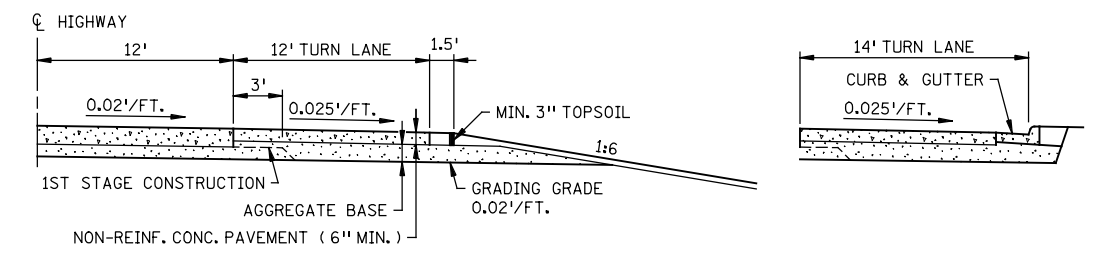
PLAN VIEW LEFT TURN LANE



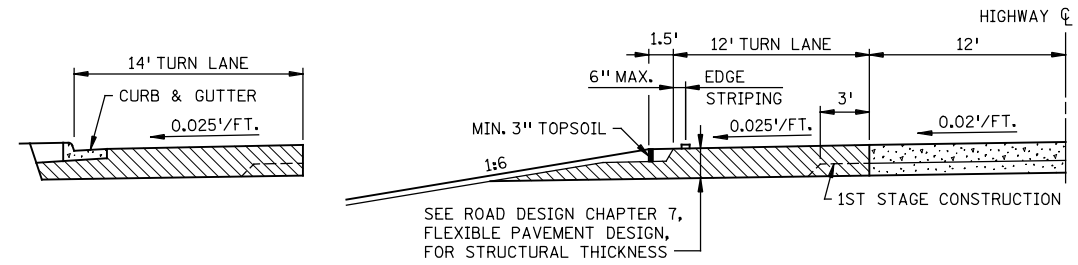
PLAN VIEW RIGHT TURN LANE



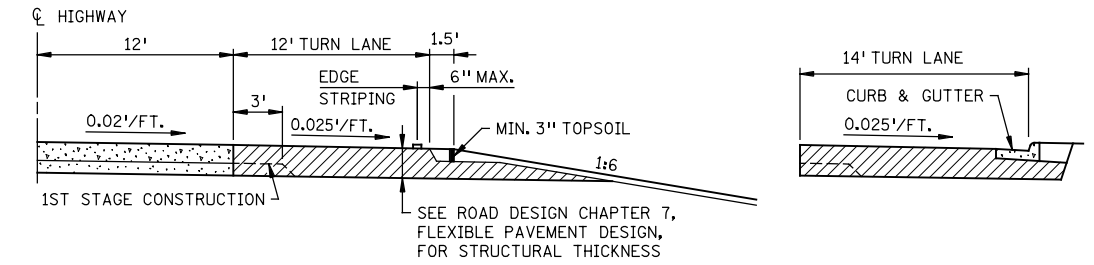
RIGID MAINLINE AND RIGID TURN LANE



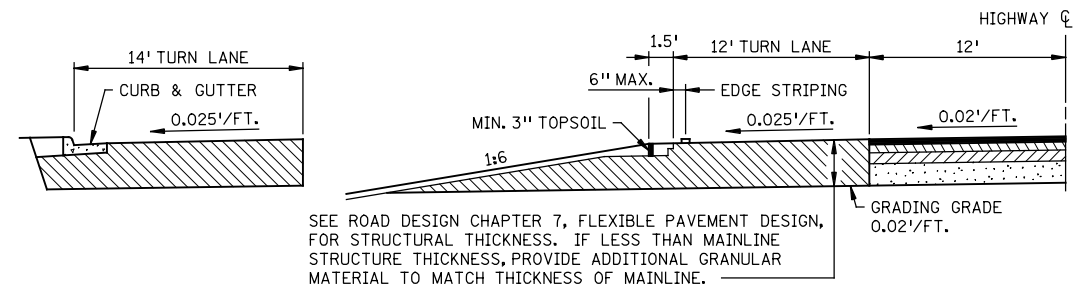
RIGID MAINLINE AND RIGID TURN LANE



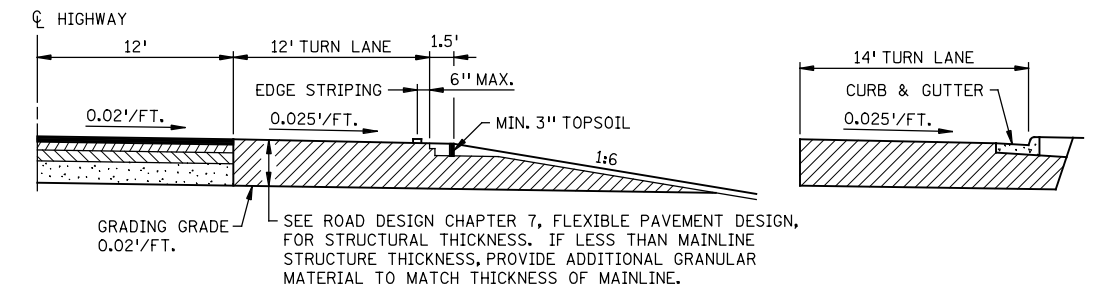
RIGID MAINLINE AND FLEXIBLE TURN LANE



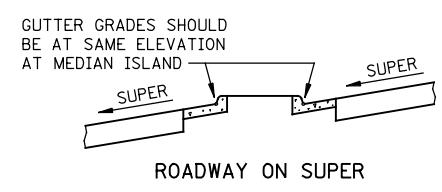
RIGID MAINLINE AND FLEXIBLE TURN LANE



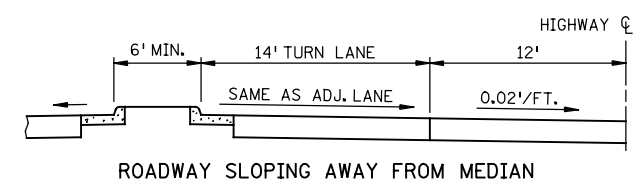
FLEXIBLE MAINLINE AND FLEXIBLE TURN LANE



FLEXIBLE MAINLINE AND FLEXIBLE TURN LANE



ROADWAY ON SUPER



ROADWAY SLOPING AWAY FROM MEDIAN

LEFT TURN LANES

RIGHT TURN LANES

	REVISIONS: APPROVED: <i>Christopher Ry</i> STATE DESIGN ENGINEER 5-27-2014	RIGHT AND LEFT TURN LANES	
	STANDARD PLAN 5-297.111	1 OF 1	

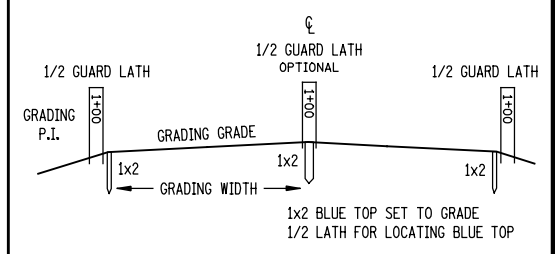
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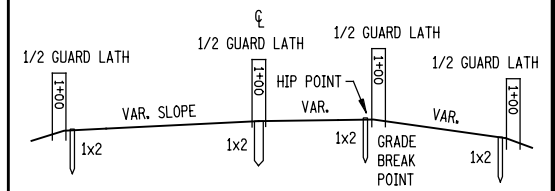
STATE PROJECT NO. 0704-108 (TH 22)	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 34 OF 276
STATE PROJECT NO. 007-070-005	DESIGNED BY		
	CHECKED BY		
	COMM. NO. 01710321	STANDARD PLANS TH 22 & CSAH 90	

BLUE TOPS

NORMAL SECTION

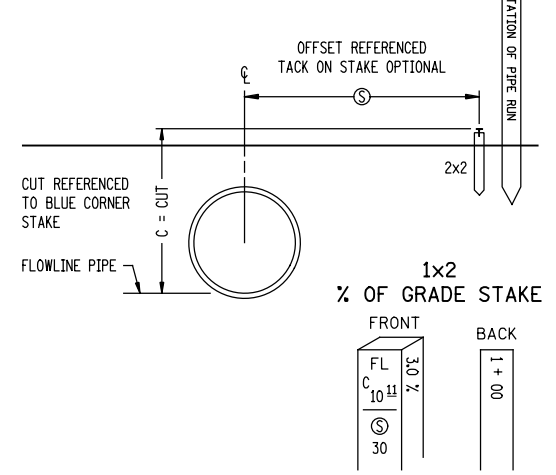


TRANSITION SECTION



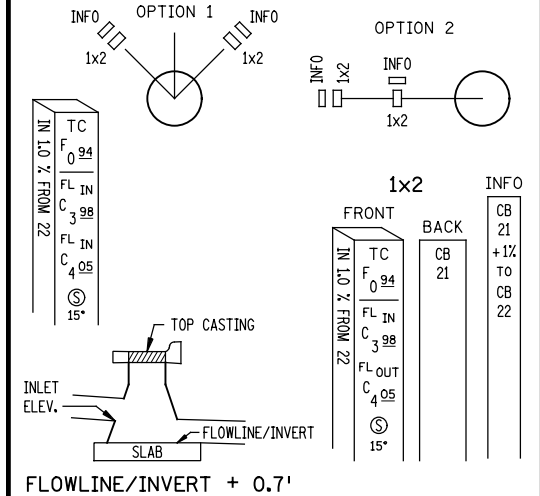
PIPE STAKING

**PROFILE VIEW
CENTERLINE PIPE**



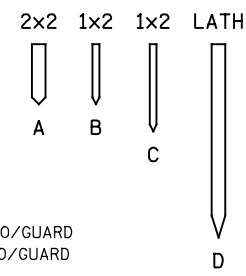
CATCH BASIN OR MANHOLE (CB/MH)

TOP VIEWS



STANDARD STAKES

TYPES:
REFERENCE (REF)
INFORMATIONAL (INFO)
VISIBILITY (VIS)
GUARD (GUARD)



SIZES:

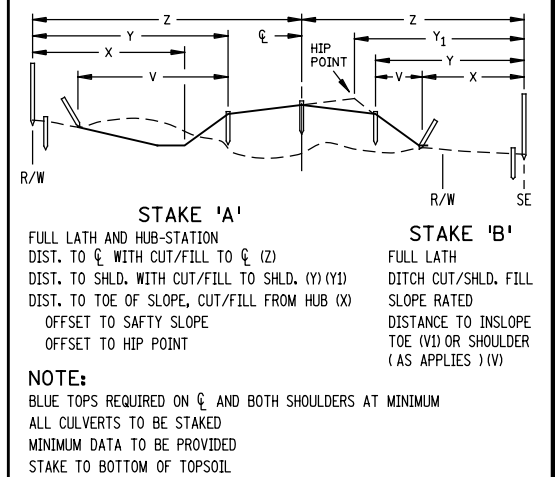
A = 2" X 2" X VAR. REF/INFO/GUARD
B = 1" X 2" X VAR. REF/INFO/GUARD
C = 1" X 2" X VAR. REF
D = LATH INFO/VIS/GUARD
1x2 OR LATH = INFO STAKES

ABBREVIATIONS

BBL = BARREL (PIPE)
B.C. = BACK CURB
C & G = CURB & GUTTER
C = CUT
CAP = CORR. ALUM. PIPE
CB = CATCH BASIN
CL = CENTERLINE
CL & GR = CLEAR & GRUB
CMP = CORR. METAL PIPE
COR = CORNER
CR = CROWN
CSP = CORR. STEEL PIPE
CUT = DITCH CUT
D.E. = DRAINAGE EASEMENT
DI = DROP INLET
EB = EASTBOUND
E.M. = EDGE BITUMINOUS MAT
E.S. = EDGE CONCRETE SLAB
F = FILL
FF = FRONT FACE
FL = FLOW LINE
FL IN = FLOWLINE INLET
FL OUT = FLOWLINE OUTLET
GR = GRADE
GW = GRADING WIDTH
HH = HANDHOLE
HP = HIP POINT
LT = LEFT
MH = MANHOLE
NB = NORTHBOUND
O = OFFSET
PAR = PARCEL
% = PERCENT GRADE
P.E. = PERM. EASEMENT
COR = CORNER
RCP = REINF. CONC. PIPE
RP = REFERENCE POINT
RSC = REINF. SECT. CONC.
RT = RIGHT
R/W = RIGHT OF WAY
SB = SOUTHBOUND
SCP = SECT. CONC. PIPE
SH = SHOULDER
TC = TOP CASTING
OR TOP CURB
T.E. = TEMP. EASEMENT
3 : 1 = SLOPE (EXAMPLE)
WB = WESTBOUND
WP = WORKING POINTS

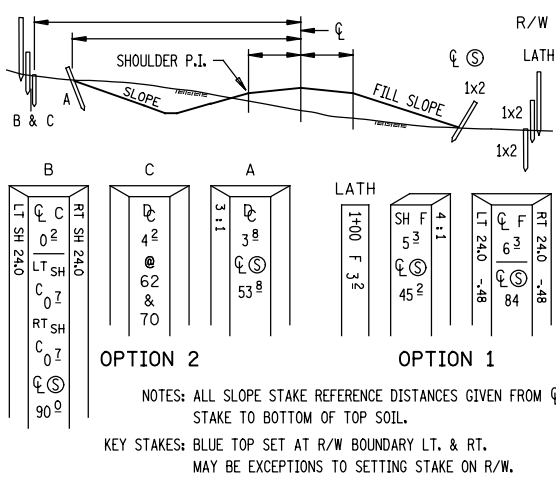
SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'A'

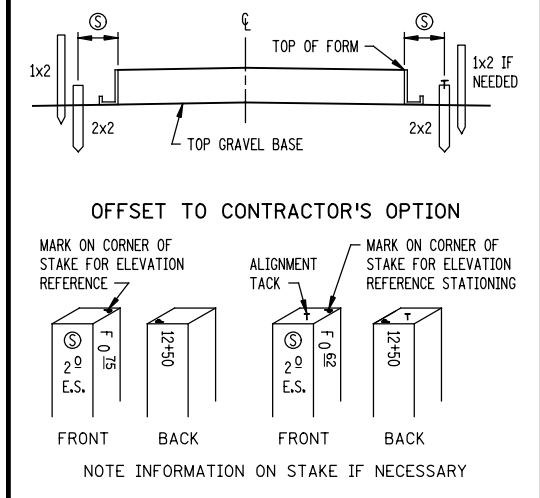


SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'B'



CONCRETE PAVING STATIONARY FORM



RECOMMENDED STAKING INTERVALS

FIGURE A

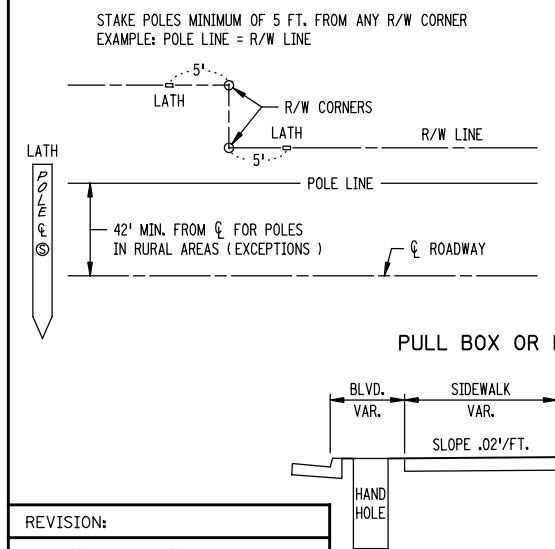
	SLOPE STAKES	SUB GRADE B.T.	CLASS MATERIAL B.T.	CONC PAVT	CL & GR LIMITS	MUCK EXC.	R/W	TEMP. EASE.
TANGENT	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS
HORIZ. CURVE								
0 - 3'	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS
OVER 3' -	100	50	50	25	25	ALL CORNERS	100	ALL CORNERS
VERT. CURVE								
M' 100' CHORD 0 -.25	100	100	100	50	50			
M' OVER .25	100	50	50	25	25			
TRAN.		50	50					

STAKING TOLERANCES (FEET)

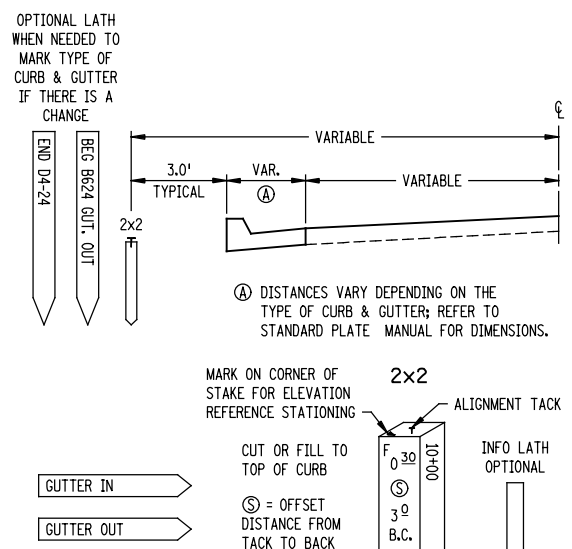
	HORIZONTAL	VERTICAL
CONSTRUCTION LIMITS	± 1.5	
CLEARING & GRUBBING	2.0	
SLOPE STAKES	2.0	± 0.2
KEY STAKES	0.2	0.03
DRAINAGE STAKES	0.05	0.05
CURB & GUTTER	0.07	0.03
PAVING	0.05	0.03
ALIGNMENT	0.07	
UTILITY	0.10	0.05
STRUCTURAL	0.02	0.02
GUARD RAIL	0.5	
BUILDINGS	0.04	
O.H. SIGNS	0.05	0.05
MUCK EXCAVATION LIMITS	2.0	
R/W B-POINTS	0.10	
NOISE WALLS	1.0	0.5

THE TOLERANCES ARE RELATIVE TO PROJECT DATUM

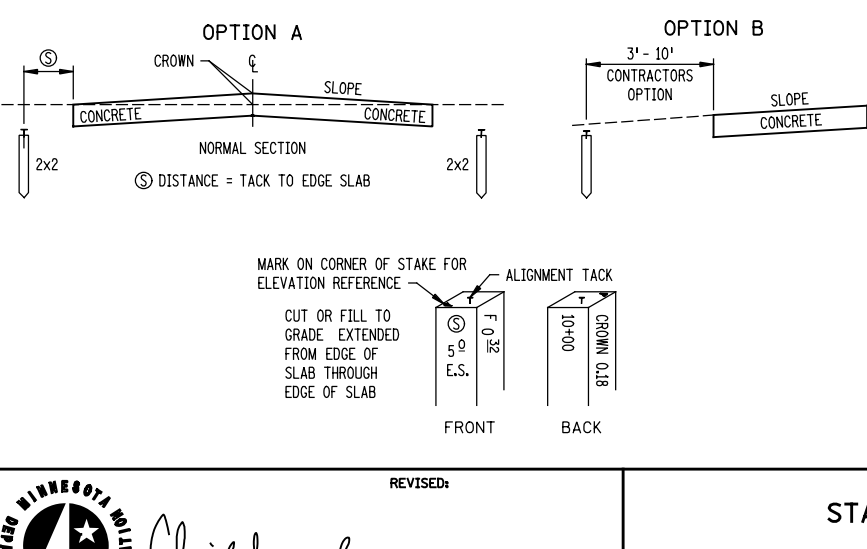
UTILITY (UTIL)



CURB & GUTTER (CURB)



CONCRETE PAVING - SLIP FORM



DISCLAIMER

THESE STAKING INFORMATION SHEETS ARE FOR INFORMATION PURPOSES ONLY. STAKING PROCEDURES VARY AND MAY BE SUBJECT TO CHANGE DURING CONSTRUCTION BY CIRCUMSTANCES AND/OR AGREEMENTS BETWEEN SURVEY CREW AND CONTRACTOR.

REVISION:
APPROVED: 8-6-2014
Director, Office of Land Management

REVISED:
APPROVED: 8-6-2014
STATE DESIGN ENGINEER

STAKING INFORMATION SHEET
STANDARD PLAN 5-297.115
1 OF 2

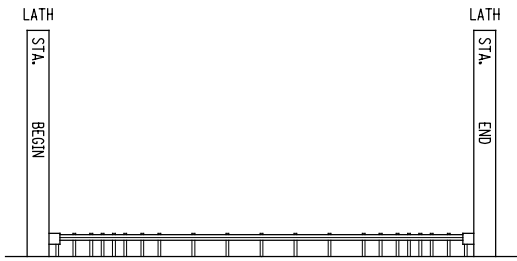
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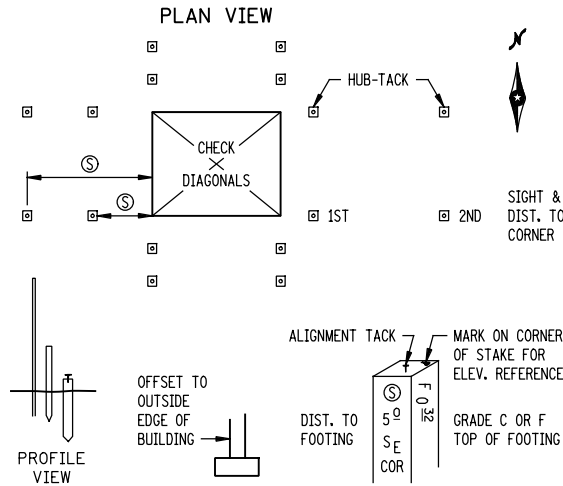
STATE PROJECT NO. 0704-108 (TH 22)
DRAWN BY
DESIGNED BY
CHECKED BY
COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
TH 22 & CSAH 90
SHEET 35 OF 276

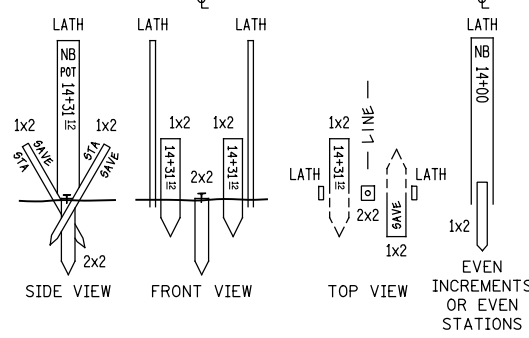
GUARDRAIL (GUARD)



BUILDING (BUILD) FOUNDATION / FOOTING

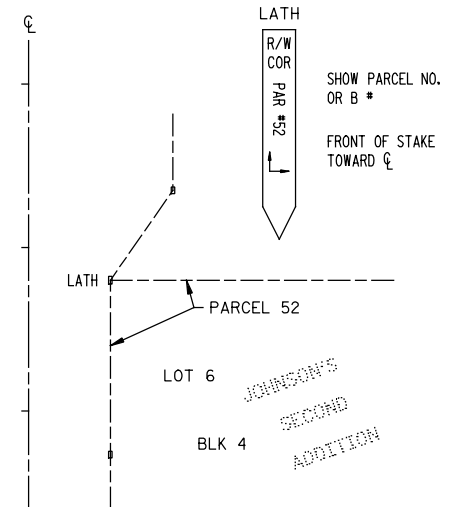


ALIGNMENT POINTS (ALIGN)

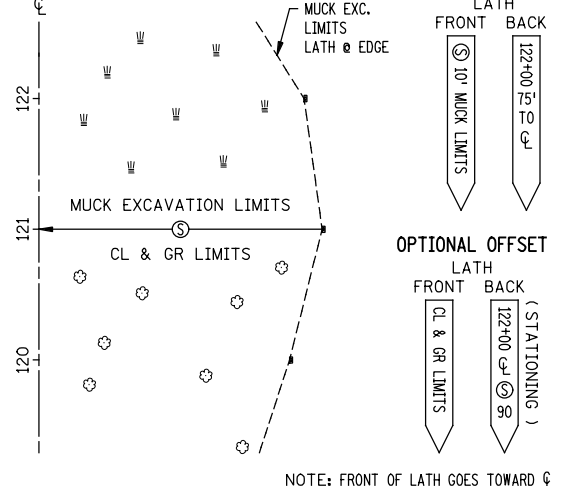


STAKE C = 2" X 2" HUB (LENGTH MAY VARY) SET AS TEMPORARY STAKE. MAY BE REPLACED BY MNDOT MARKER AFTER CONSTRUCTION IS COMPLETED.
 SET AT GROUND LEVEL (TEMPORARY CONSTRUCTION STAKE).
 TACK SET AT ALIGNMENT POINTS.
 STAKE A = GUARD STAKES SET AT ANGLE IN GROUND 6" EACH SIDE OF STAKE D, WITH STATIONING READ WHEN LOOKING UP STATION.

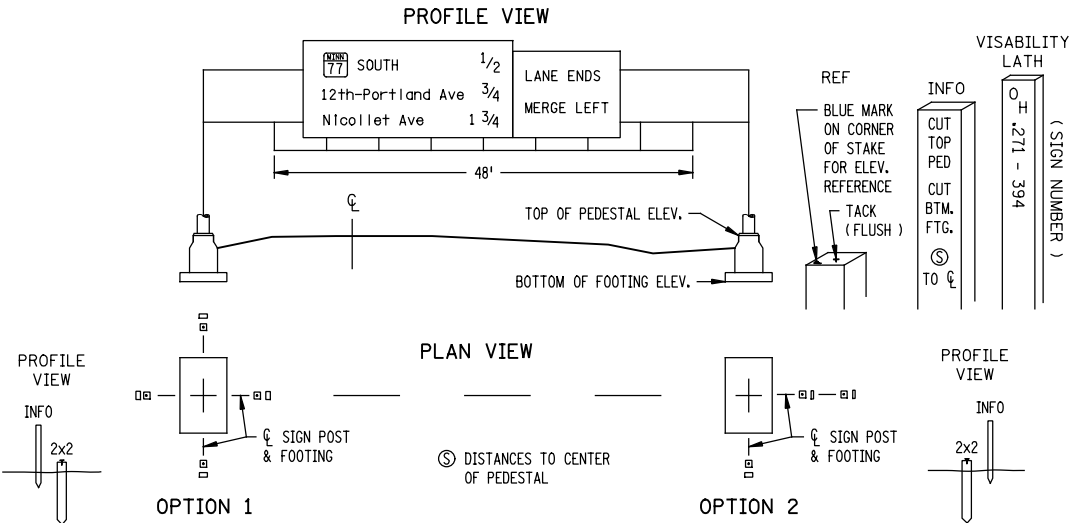
R/W & TEMP. EASEMENT (R/W)



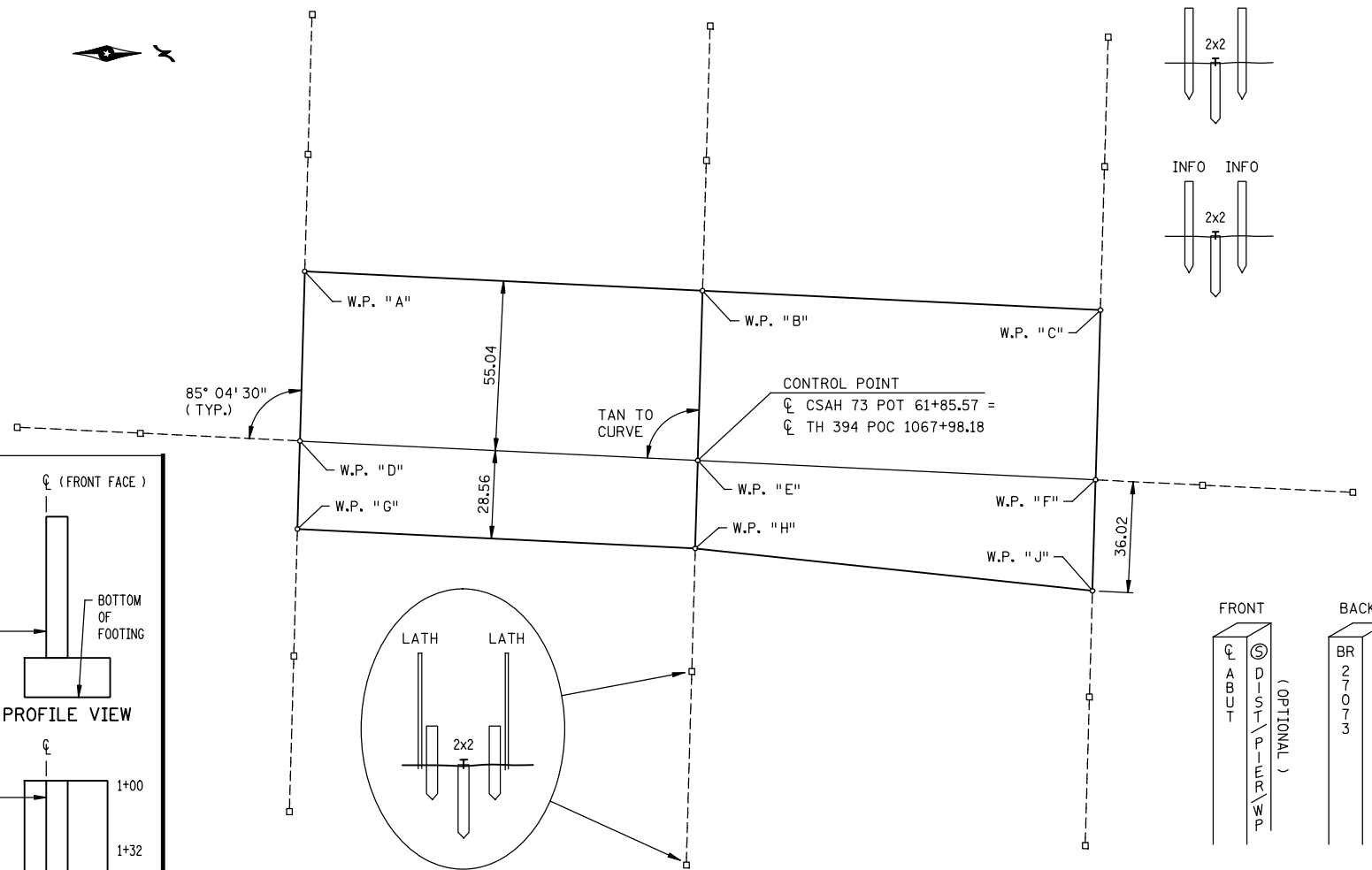
CLEAR & GRUBBING LIMITS (CLEAR) OR MUCK EXCAVATION LIMITS (MUCK)



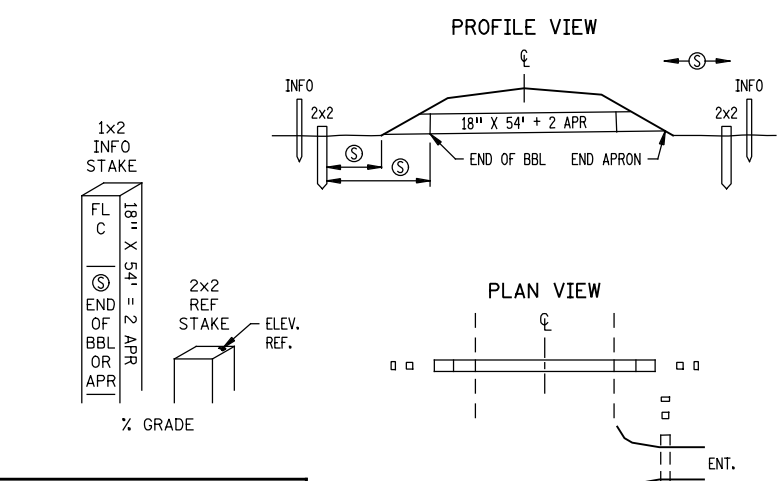
OVERHEAD SIGNS (SIGN)



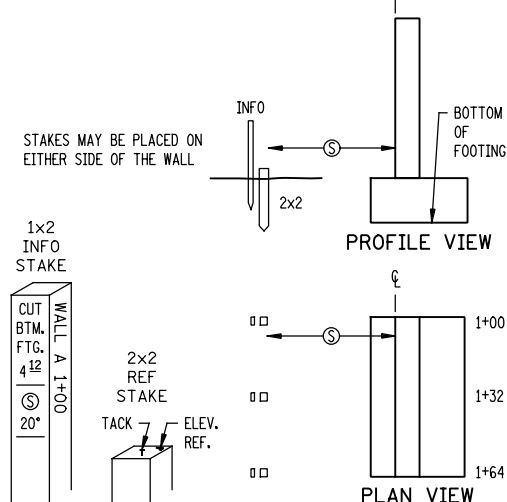
BRIDGESTAKING (BRIDGE) WORKING POINTS LAYOUT



CULVERT



WALL



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REVISOR:
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 STATE DESIGN ENGINEER
 APPROVED: 8-6-2014

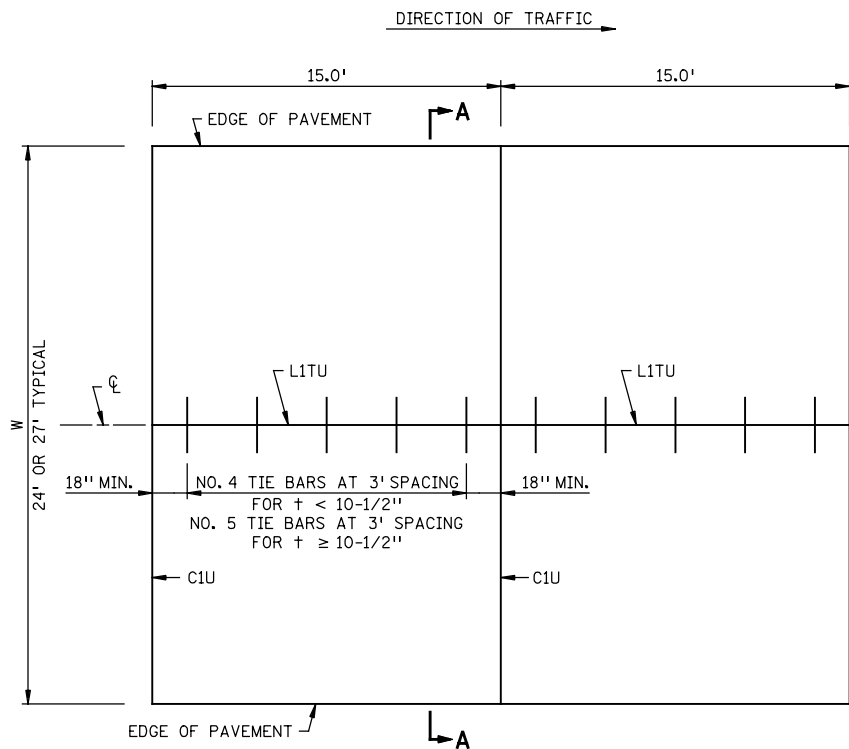
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 STANDARD PLAN 5-297.115
 2 OF 2

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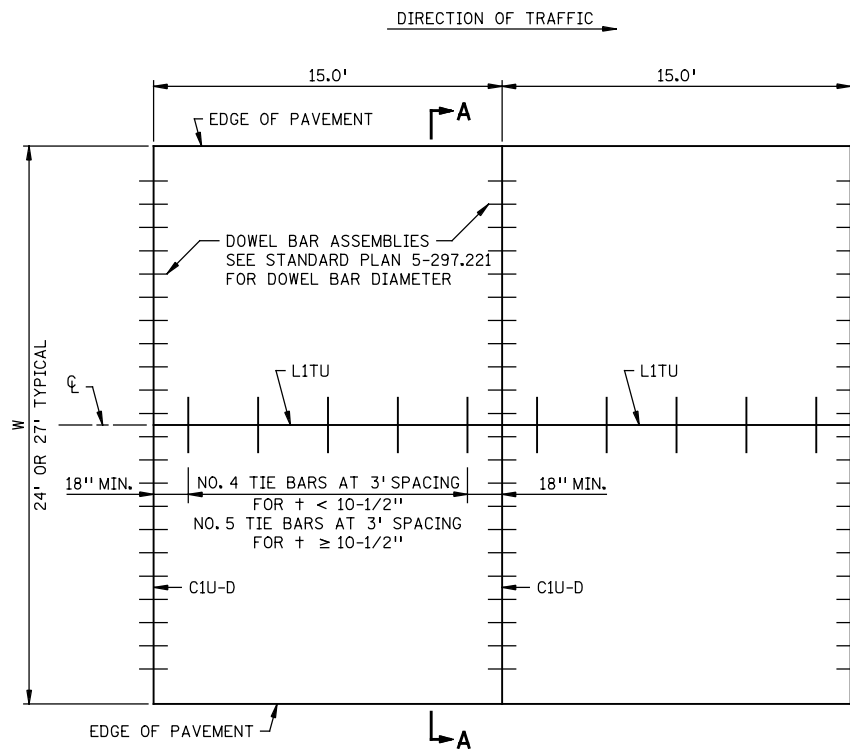
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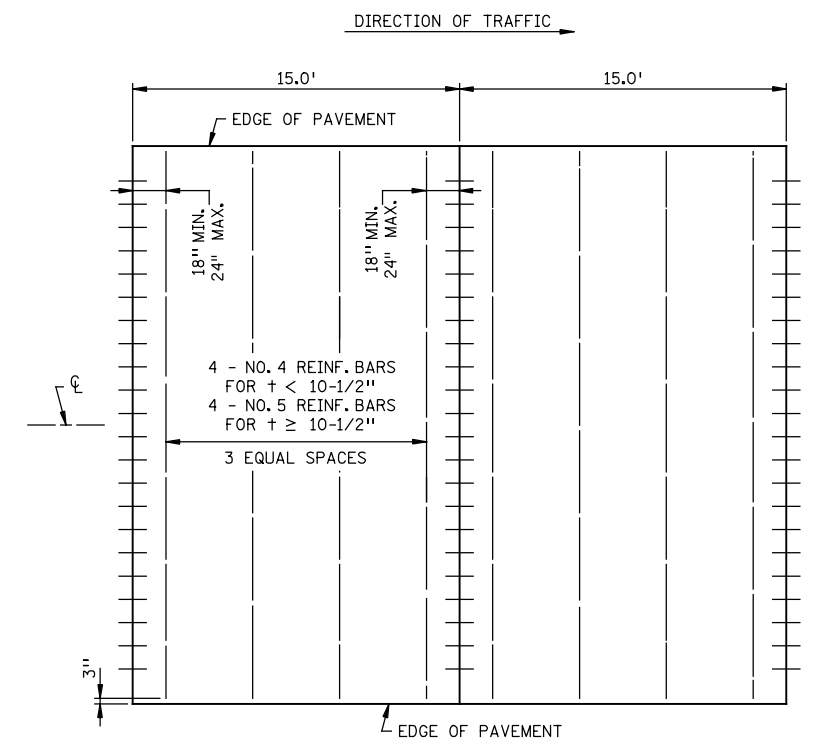
MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLANS
 TH 22 & CSAH 90
 SHEET 36 OF 276



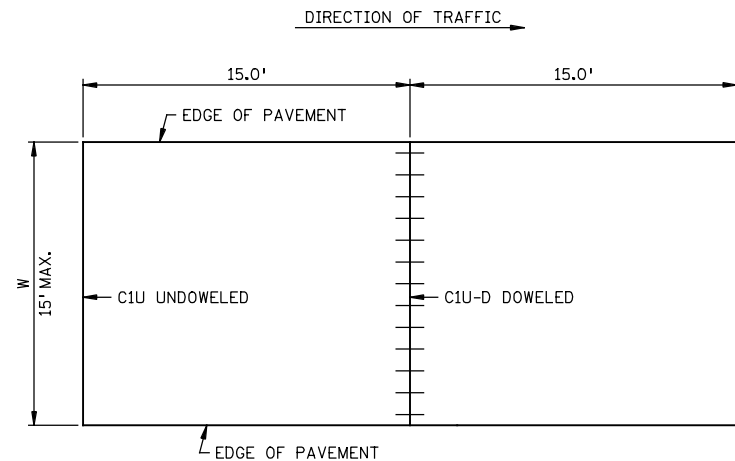
**MAINLINE PAVEMENT
UNDOWELED**



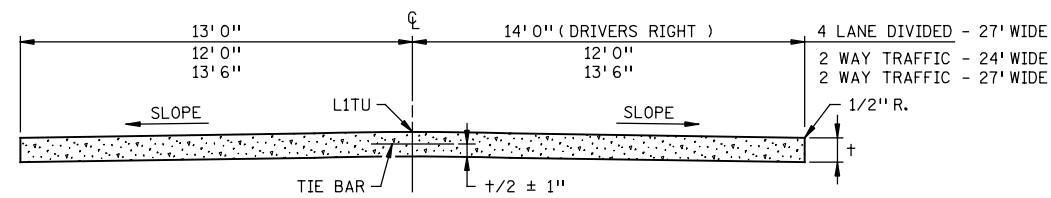
**MAINLINE PAVEMENT
DOWELED**



PANEL REINFORCEMENT



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



SECTION A-A

GENERAL NOTES:

- SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t .
- DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.
- ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC 3301.
- FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.
- PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT, PLACEMENT DEPTH SHALL BE PLANNED $\pm 1/2 \pm 1\text{'}$. IT IS PREFERRED TO ADD A LONGITUDINAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

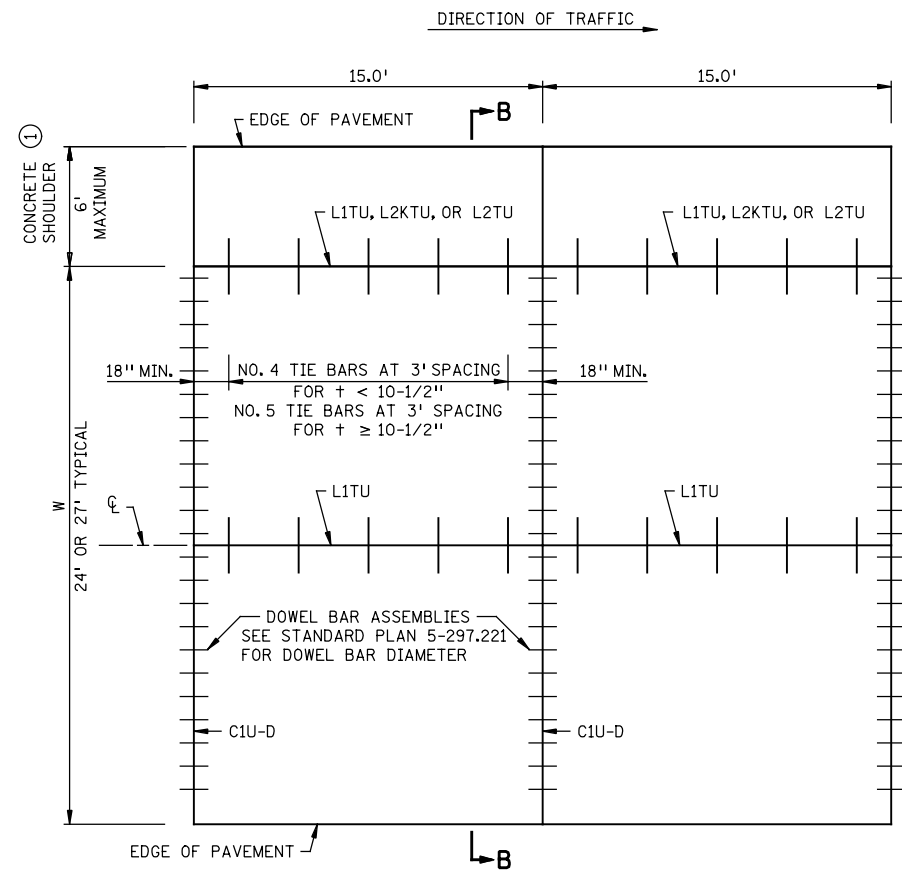
REVISION:
APPROVED: FEBRUARY 16, 2016
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MINNESOTA DEPARTMENT OF TRANSPORTATION
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STATE DESIGN ENGINEER
APPROVED:
2-16-2016

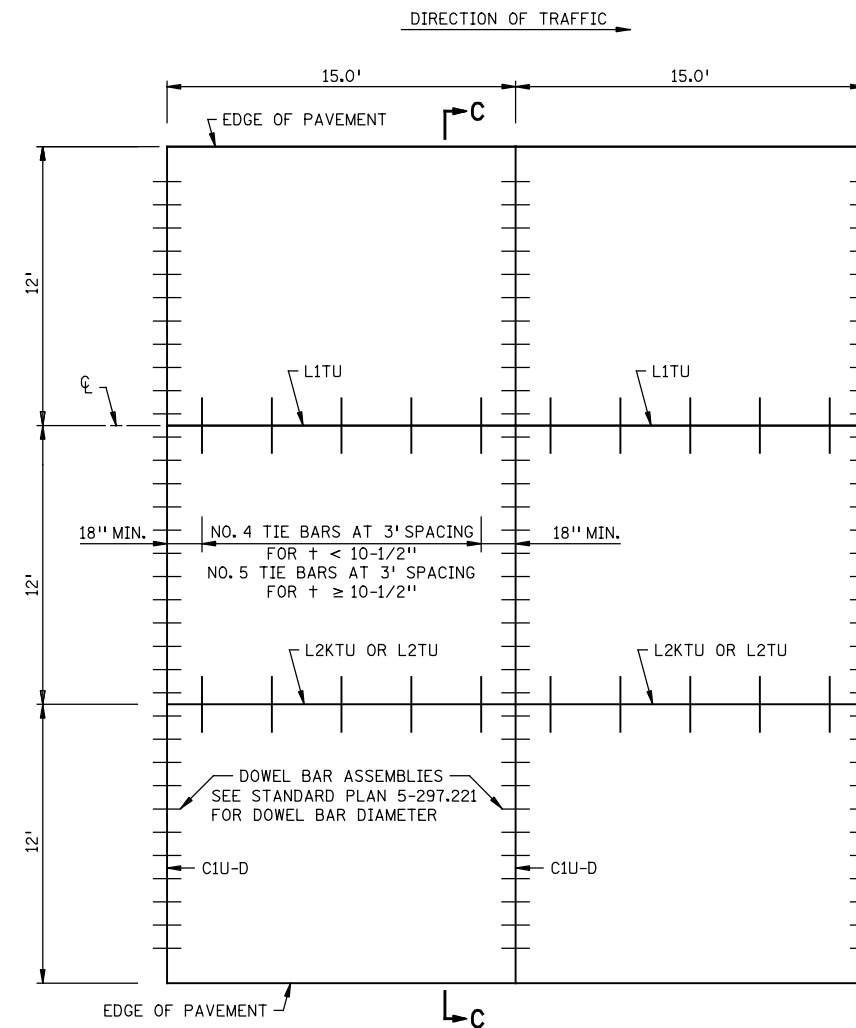
**CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
RURAL**
STANDARD PLAN 5-297.217 | **1 OF 2**

STATE PROJECT NO. 0704-108 (TH 22)
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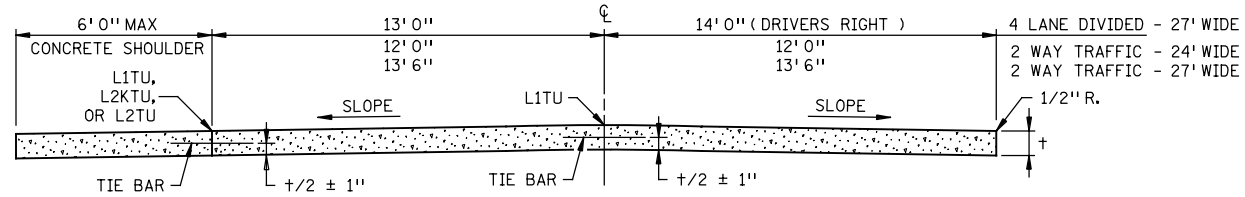
MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
TH 22 & CSAH 90
SHEET 37 OF 276



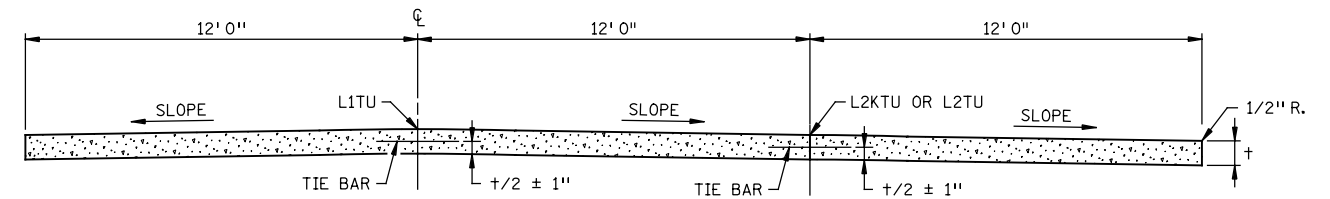
MAINLINE PAVEMENT WITH INSIDE CONCRETE SHOULDER
DOWELED



MAINLINE PAVEMENT URBAN
DOWELED



SECTION B-B



SECTION C-C

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t .
DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.
ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.
FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

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

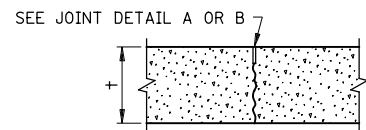
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APPROVED: FEBRUARY 16, 2016
<i>[Signature]</i>
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	REVISION: STATE DESIGN ENGINEER	CONCRETE MAINLINE PAVEMENT 15.0 FT. PANEL LENGTH URBAN OR CONCRETE SHOULDERS	
	APPROVED: 2-16-2016	STANDARD PLAN 5-297.217	2 OF 2

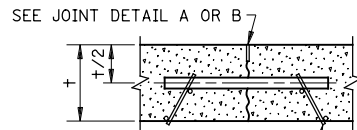
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STATE PROJECT NO. 007-070-005	DESIGNED BY
	CHECKED BY
	COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET
STANDARD PLANS	38
TH 22 & CSAH 90	OF
	276

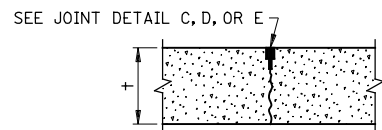
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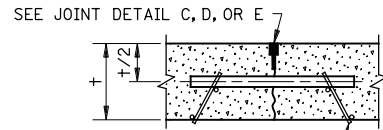
C1U & C2H



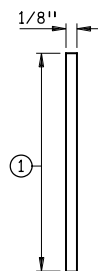
C1U-D & C2H-D



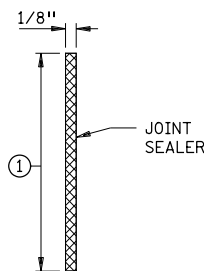
C3P, C4S, C5H



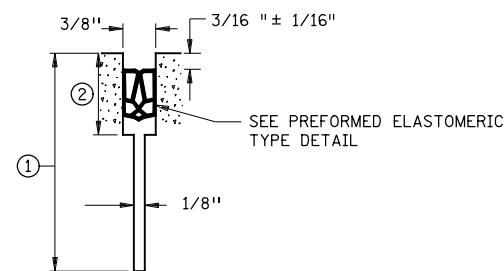
C3P-D, C4S-D, C5H-D



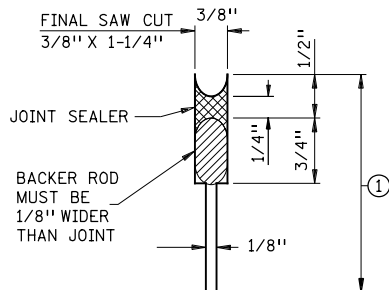
JOINT DETAIL A
SAWED & UNSEALED



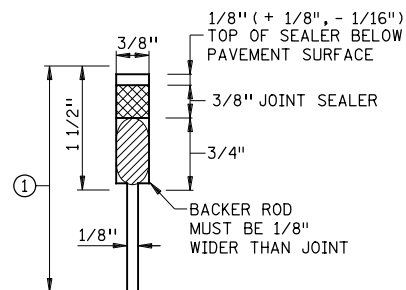
JOINT DETAIL B
SAWED & SEALED



JOINT DETAIL C
SAWED AND SEALED

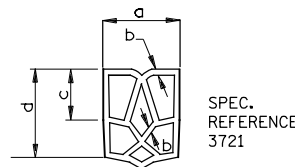


JOINT DETAIL D
SAWED AND SEALED



JOINT DETAIL E
SAWED AND SEALED

REQUIRED DIMENSIONS	
JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16"
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



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

PREFORMED ELASTOMERIC TYPE DETAIL

REVISION:
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CONTRACTION JOINTS
DESIGN C

CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

WITHOUT DOWELS	WITH DOWELS	JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"
C4S	C4S-D	D	3722	3/8"
C5H	C5H-D	E	3725	3/8"

LEGEND
C = CONTRACTION JOINT
NO. = JOINT REFERENCE
U = UNSEALED
H = HOT Poured
P = PREFORMED
S = SILICONE
-D = DOWEL BARS

EXAMPLE
C2H-D

DOWEL BAR DIAMETER TABLE

PAVEMENT THICKNESS +	DOWEL BAR DIAMETER
LESS THAN 6"	NONE
6" - 6 1/2"	1" OR NONE
7" - 7 1/2"	1"
8" - 10"	1 1/4"
10 1/2" AND GREATER	1 1/2"

NOTES:

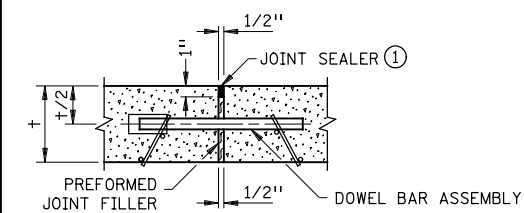
- SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.
- SEE STANDARD PLATE 1150 FOR CONSTRUCTION OF HEADER JOINTS.
- JOINT WIDTH TOLERANCE IS + 1/16" TO - 1/32"
- FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- SEE STANDARD PLANS 5-297.217 AND 5-297.219, FOR CONCRETE MAINLINE/RAMP PAVEMENT.
- SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.
- JOINT DEPTH SHALL BE:
FOR CONCRETE OVERLAYS - 1/3 THE PAVEMENT THICKNESS
FOR CONCRETE PAVEMENT - 1/4 THE PAVEMENT THICKNESS
- WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "c" DEPTH. SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET.
- WHEN SEALING, THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.
- PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEAL AND BEAD THICKNESS OF 1/4".
- PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF PAVEMENT.

EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

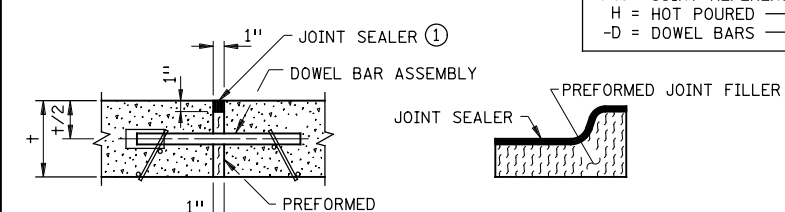
WITHOUT DOWELS	WITH DOWELS	JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
E1H	E1H-D	A	3725	1/2"
E2H	E2H-D	B	3725	1"
E4H		C	3725	2"
	E4H-D	D	3725	2"
E8H		STANDARD PLAN 5-297.229	3725	4"

LEGEND
E = EXPANSION JOINT
NO. = JOINT REFERENCE
H = HOT Poured
-D = DOWEL BARS

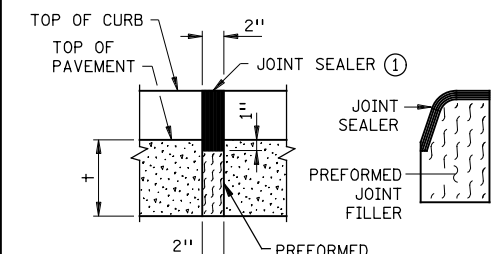
EXAMPLE
E4H-D



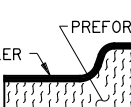
JOINT DETAIL A
E1H-D (W/DOWELS) E1H (W/O DOWELS)



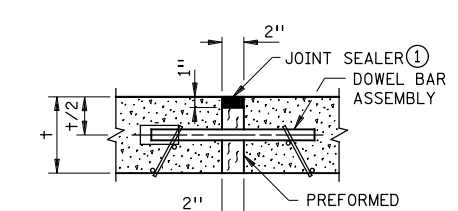
JOINT DETAIL B
E2H-D (W/DOWELS) E2H (W/O DOWELS)



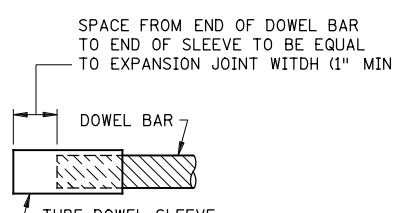
JOINT DETAIL C
E4H (W/O DOWELS)



SECTION THRU CURB



JOINT DETAIL D
E4H-D (W/DOWELS)



DOWEL BAR SLEEVE DETAIL

NOTES:

- PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
- FOR DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.
- JOINT SEALER SPEC. 3725. THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION D JOINTS FLUSH WITH SURFACE ±1/8".

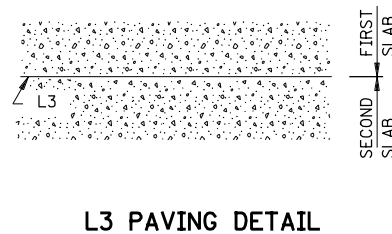
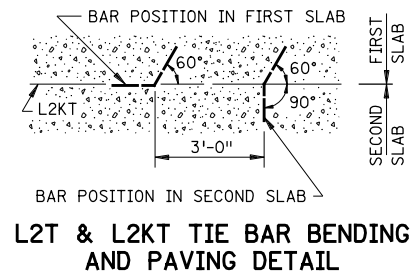
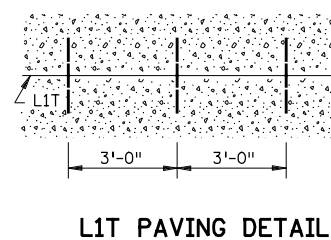
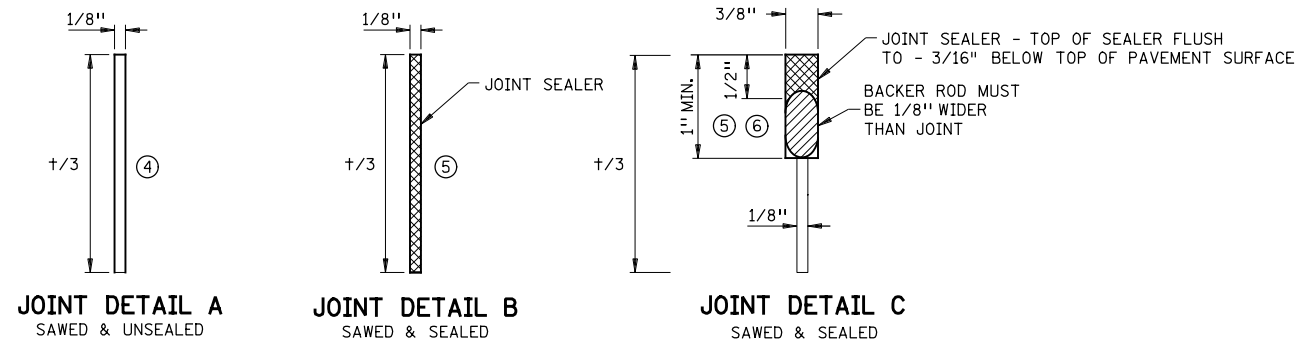
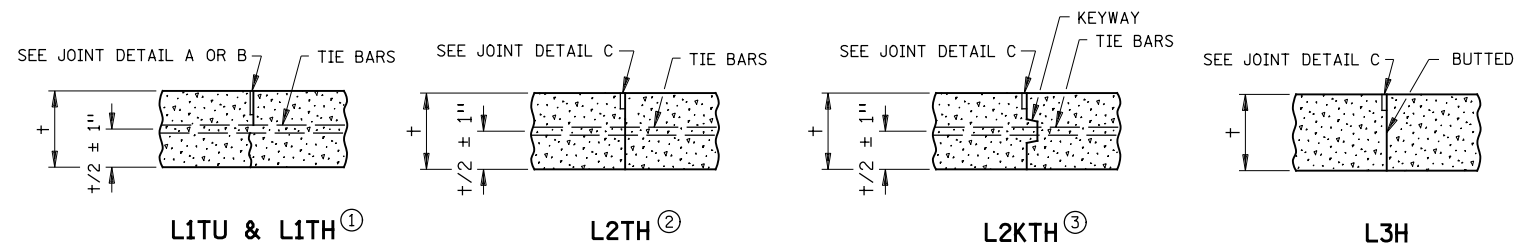
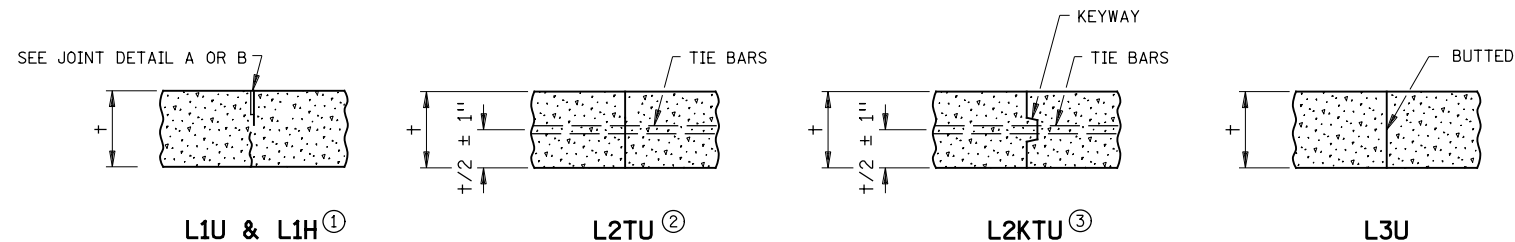
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 APPROVED: 8-6-2014
 PAVEMENT JOINTS
 CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)
 STANDARD PLAN 5-297.221 1 OF 2

STATE PROJECT NO. 0704-108 (TH 22)
 DRAWN BY
 DESIGNED BY
 CHECKED BY
 COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLANS
 TH 22 & CSAH 90
 SHEET 39 OF 276



TIEBAR TABLE

PAVEMENT THICKNESS	TIEBAR SIZE	LENGTH
< 10-1/2"	NO. 4	30"
≥ 10-1/2"	NO. 5	36"
ALL THICKNESS WHEN TYING TO CURB AND GUTTER	NO. 4	30"

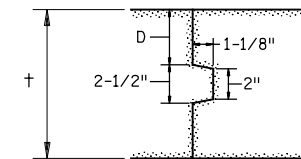
LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE

JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS	A	UNSEALED	1/8"
L1U	L1TU		B	3725	1/8"
L1H	L1TH				
	L2TU	L2KTU	NONE	UNSEALED	
	L2TH	L2KTH	C	3725	3/8"
L3U			NONE	UNSEALED	
L3H			C	3725	3/8"

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

EXAMPLE
 L2KTH

THE TIE BAR SPACING FOR ALL L2T AND L2KT JOINTS SHALL BE 3'-0" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.
 TIE BARS IN THE L2T AND L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 4 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.
 ALL TIE BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.



PAVEMENT KEYWAY DETAIL

KEYWAY DIMENSION TABLE

† PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")
< 7"	NO KEYWAY
7" TO 7-1/2"	3"
8" TO 10"	4"
≥ 10-1/2"	5"

KEYWAY (1-1/8" x 2" x 2-1/2") MAY BE FORMED WITH MOLD OR METAL FORM. OTHER APPROVED KEYWAY SHAPES GIVING EQUIVALENT CONSTRUCTION FEATURES MAY BE USED WITH APPROVAL OF THE ENGINEER.

NOTES:

- NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.
- JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.
- FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- TIED/KEYED AND BUTTED CONSTRUCTION JOINTS SHALL BE UNSEALED EXCEPT AS OTHERWISE NOTED IN THE PLAN OR REQUIRED BY THE ENGINEER.
- SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.
- SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.
- WHEN CURB AND GUTTER IS PLACED ADJACENT TO CONCRETE MAINLINE, THE TIEBARS SHALL BE PLACED A MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.
- SEE THE LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE TO DETERMINE JOINT DETAIL.
- CONCRETE PAVEMENTS LESS THAN 7" SHALL USE L2TU AND L2TH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.
- CONCRETE PAVEMENTS GREATER THAN OR EQUAL TO 7" SHALL USE L2KTU AND L2KTH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.
- THE JOINT FACES SHALL BE CLEANED WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.
- THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.
- PRIOR TO SEALING THE JOINT, A 1/2" DIAMETER CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF THE PAVEMENT.

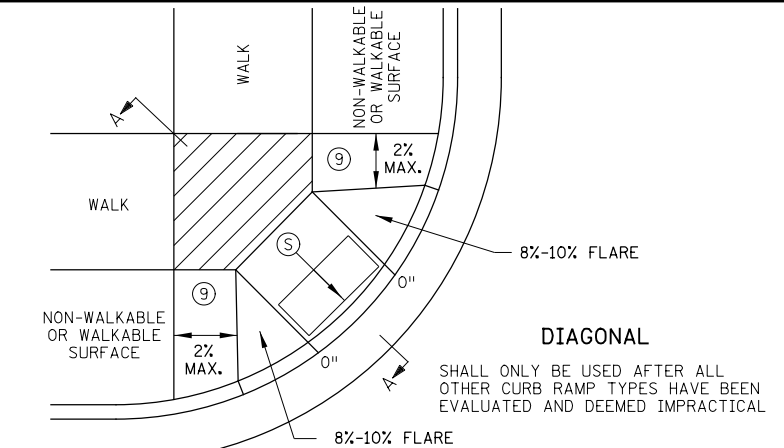
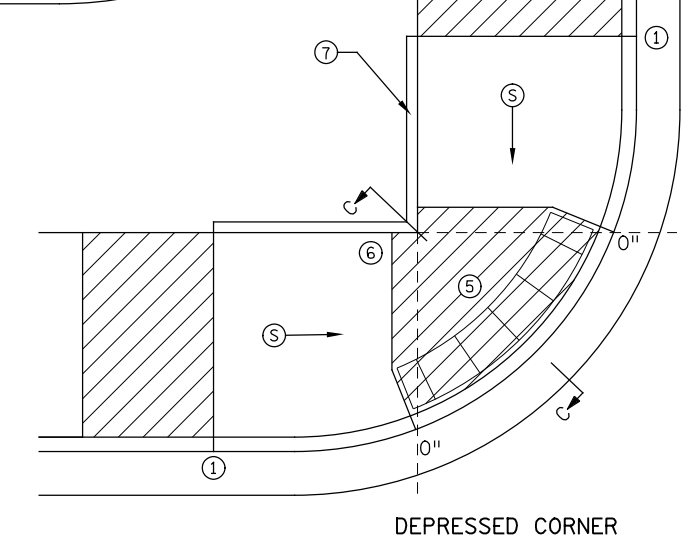
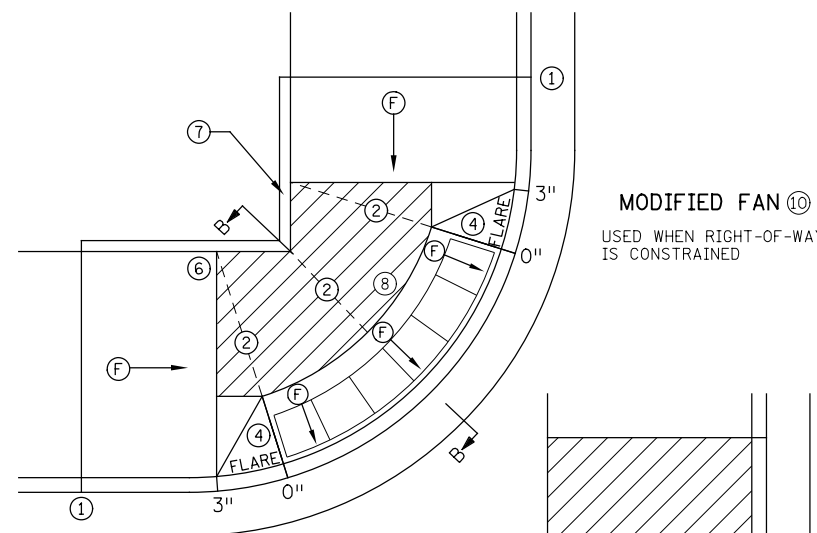
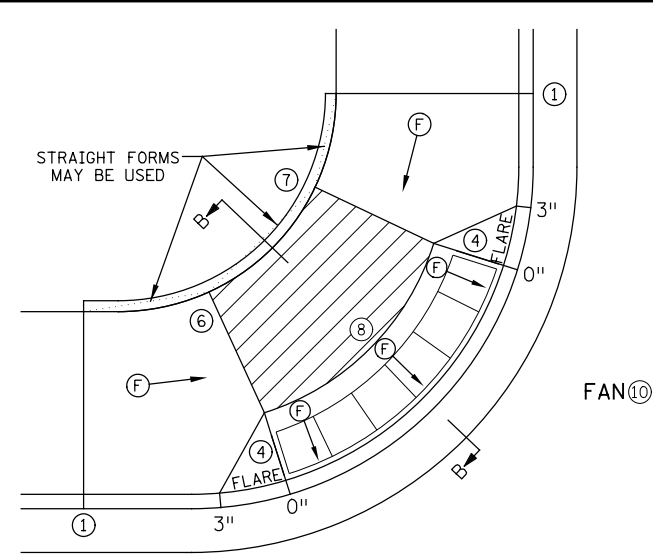
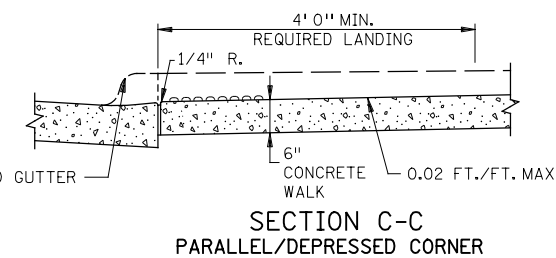
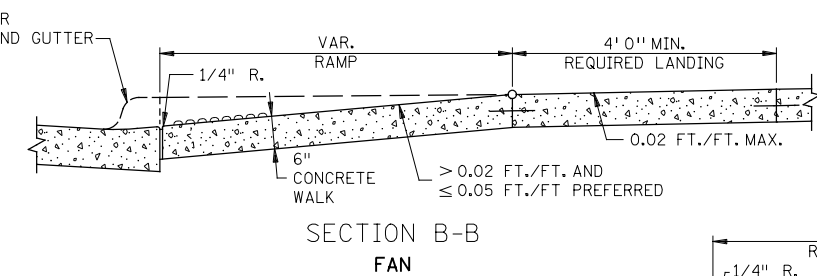
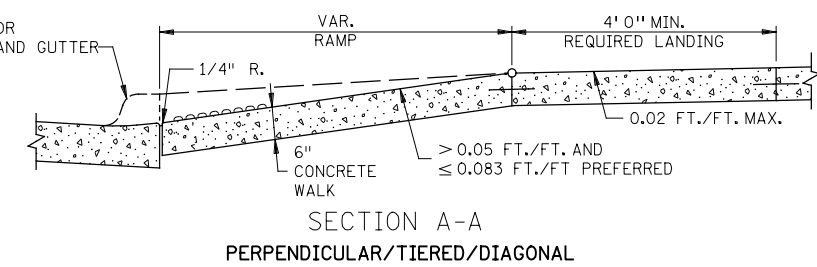
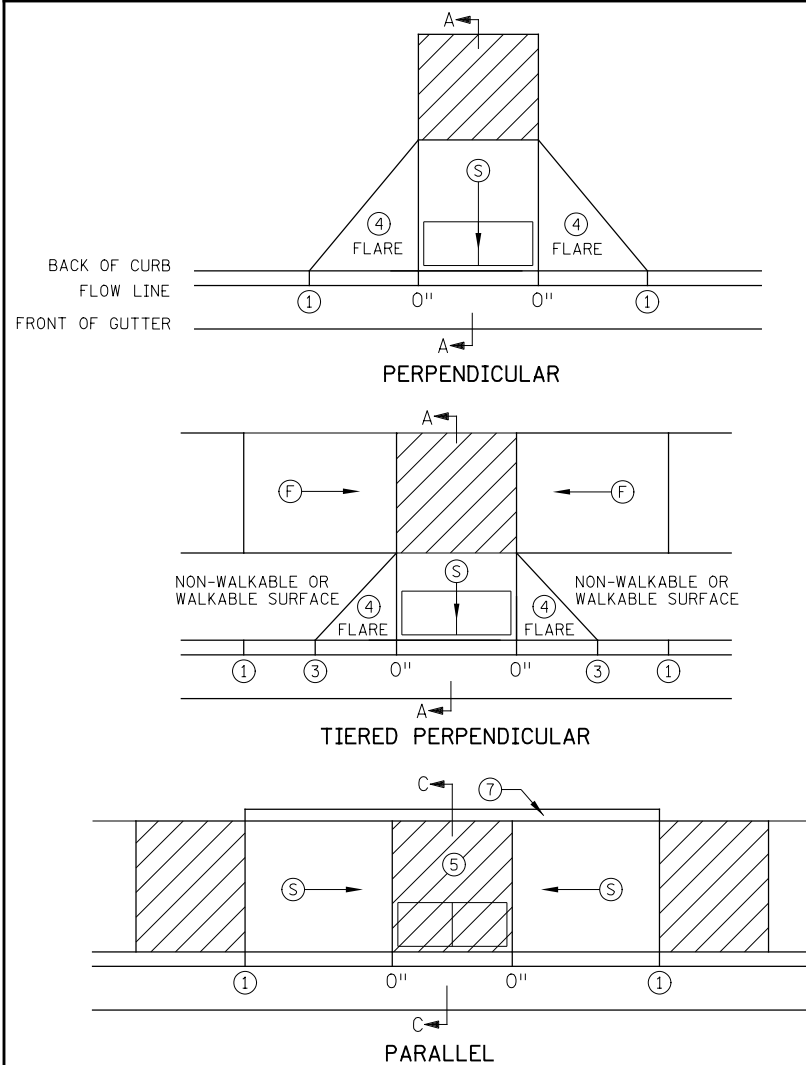
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 APPROVED: 8-6-2014

PAVEMENT JOINTS
 LONGITUDINAL (DESIGN L)
 STANDARD PLAN 5-297.221 2 OF 2

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
 DRAWN BY
 DESIGNED BY
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLANS
 TH 22 & CSAH 90
 SHEET 40 OF 276



- 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 INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).
- 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 ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF 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, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
 - 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 SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
 - 8 A 7' MIN TOP RADIUS GRADE BREAK 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.

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%.
(Hatched Box)	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 PAR.
X"	CURB HEIGHT

REVISION:
 APPROVED: JANUARY 23, 2017
 OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 APPROVED: 1-23-2017

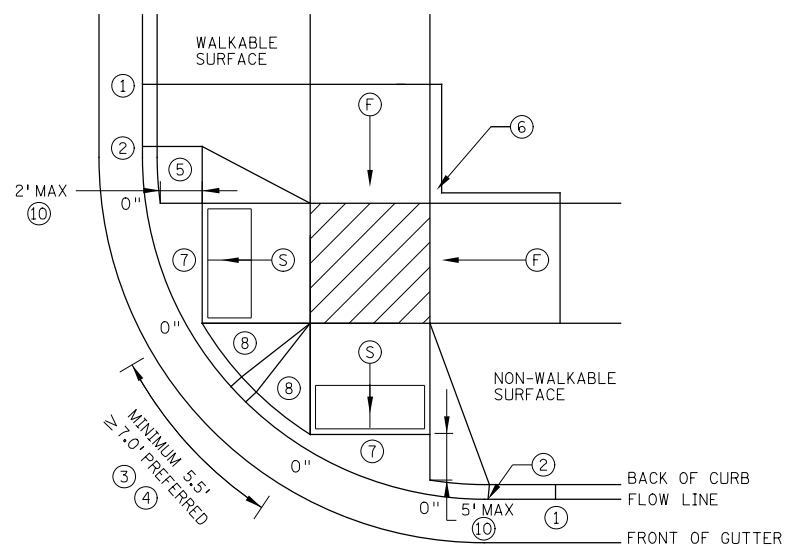
PEDESTRIAN CURB RAMP DETAILS
 STANDARD PLAN 5-297.250 1 OF 6

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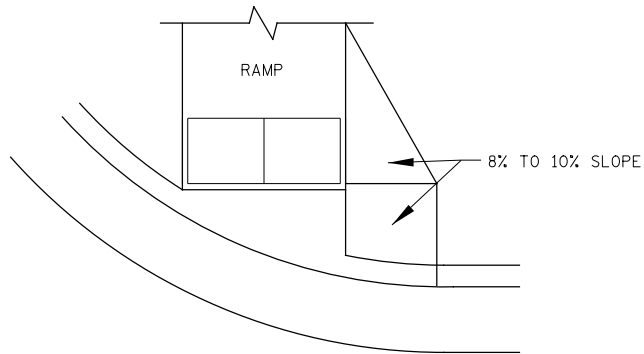
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STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
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 COMM. NO. 01710321

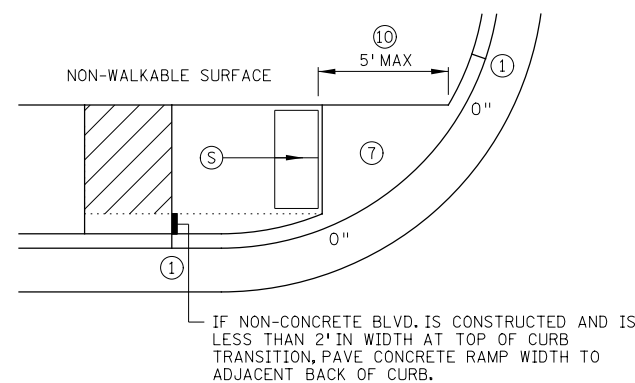
MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLANS
 TH 22 & CSAH 90
 SHEET 41 OF 276



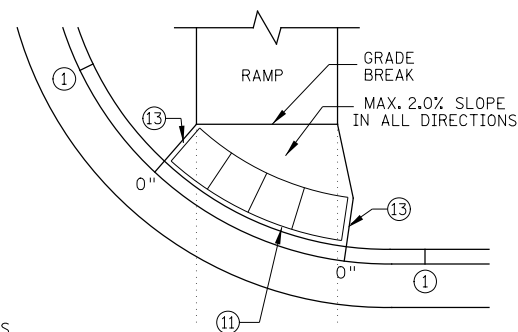
COMBINED DIRECTIONAL ⑨



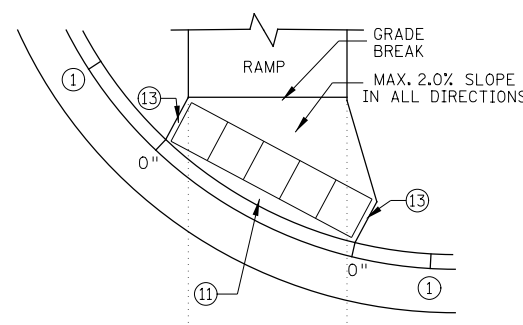
DIRECTIONAL RAMP WALKABLE FLARE



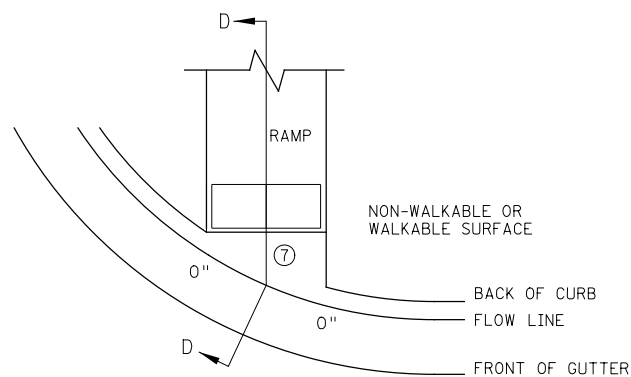
STANDARD ONE-WAY DIRECTIONAL ⑨



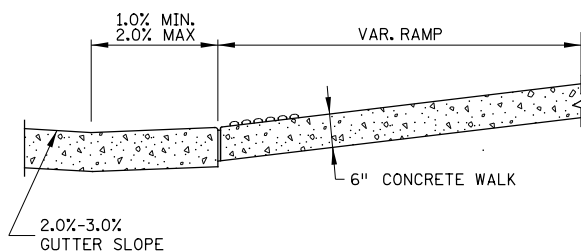
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



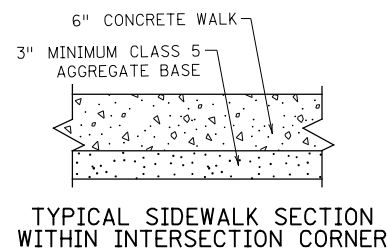
DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- 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 ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF 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 SHOULD 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.

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%.
(Hatched Box)	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 PAR.
X"	CURB HEIGHT

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISOR: Tom Gilman

APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250

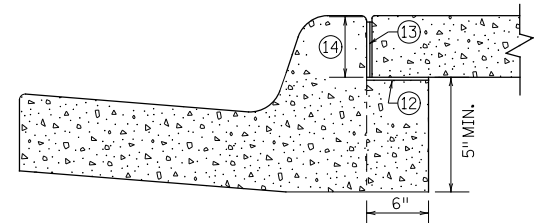
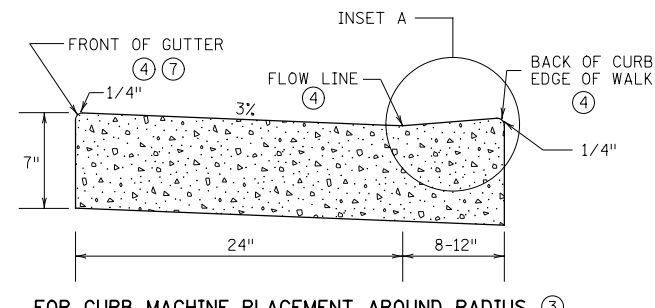
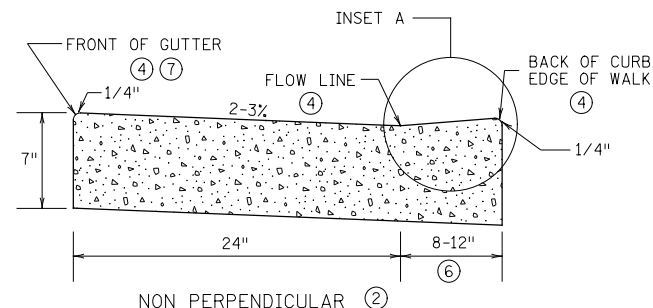
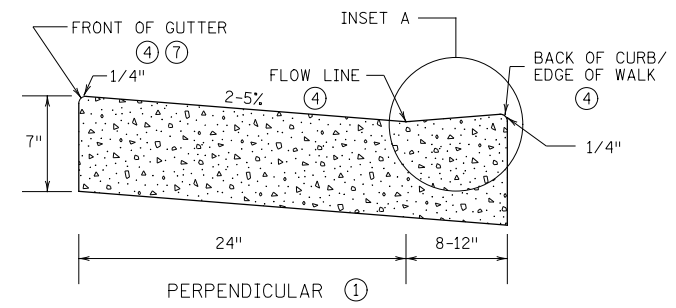
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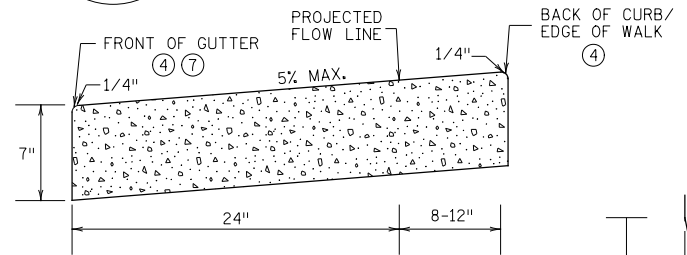
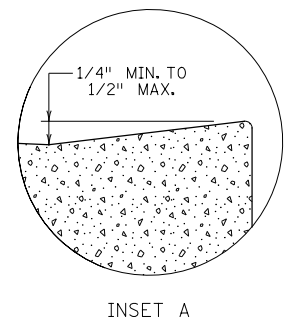
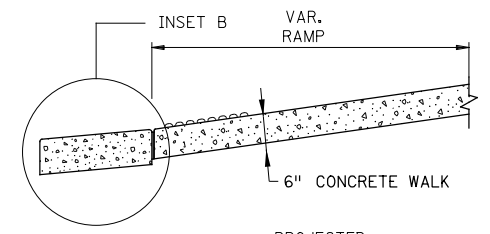
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STATE PROJECT NO. 007-070-005	DESIGNED BY
	CHECKED BY
	COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 42 OF 276
STANDARD PLANS TH 22 & CSAH 90	

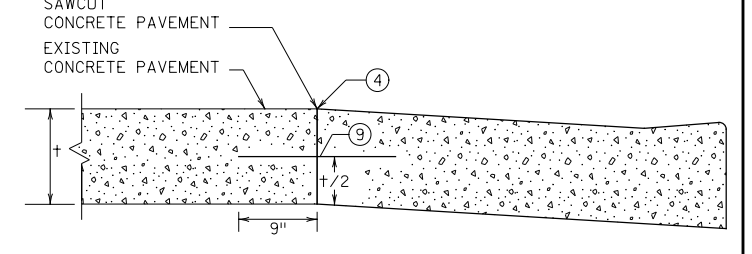
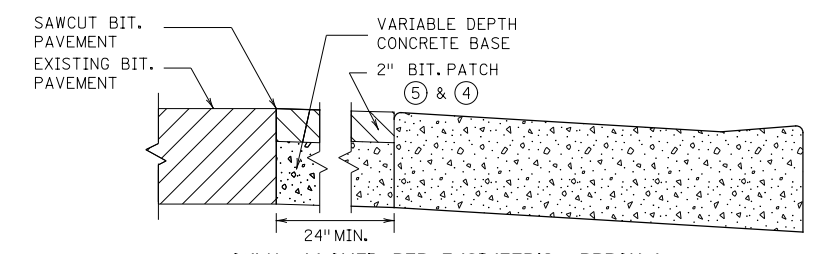
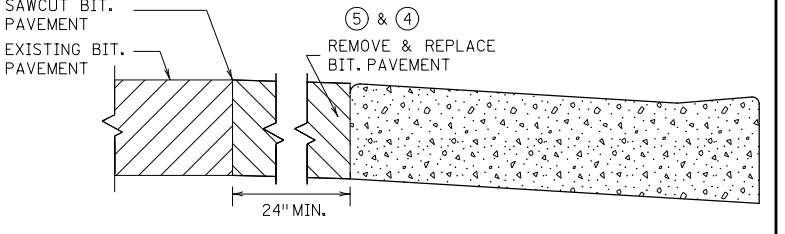
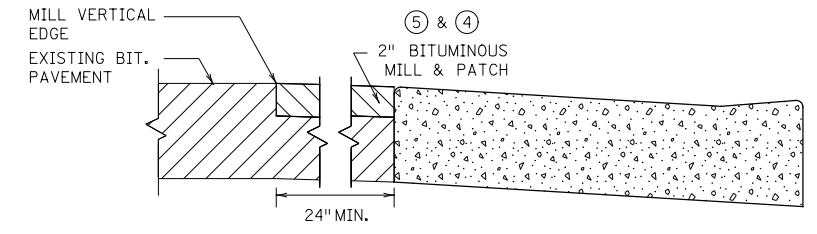


OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

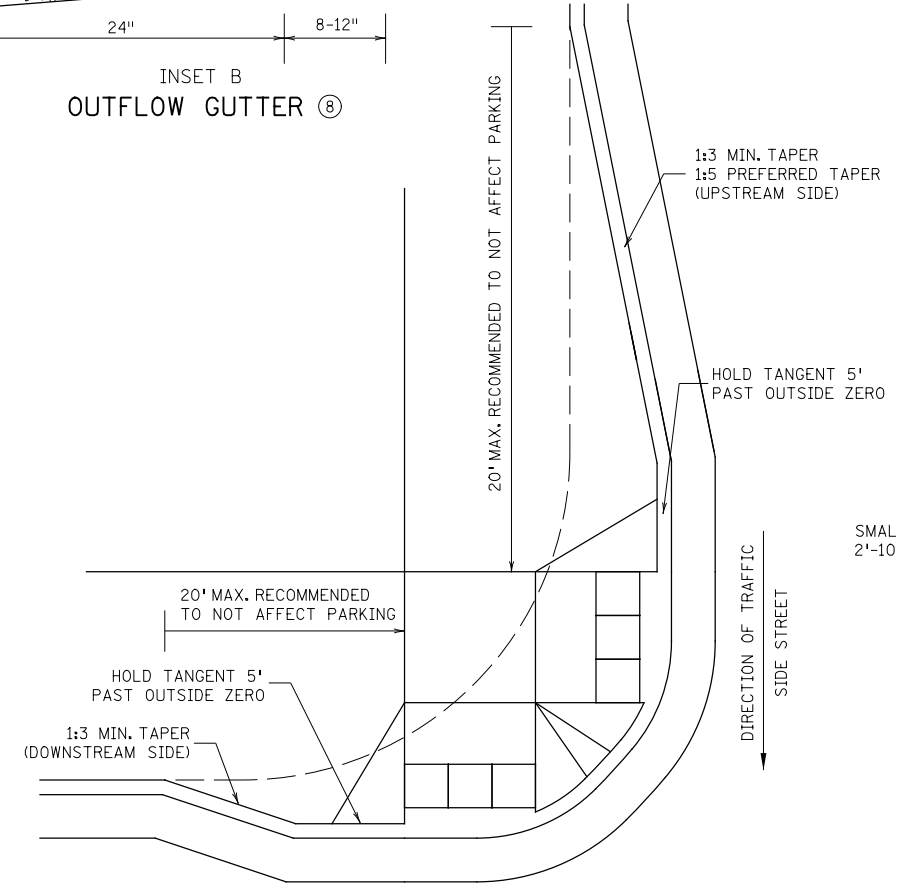


INSET B
OUTFLOW GUTTER ⑧

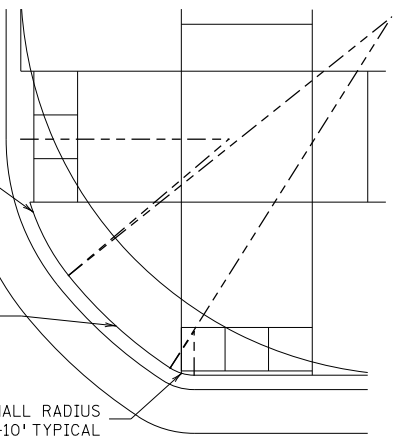


ONLY ALLOWED PER ENGINEER'S APPROVAL

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.
- ⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.
- ⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.
- ⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

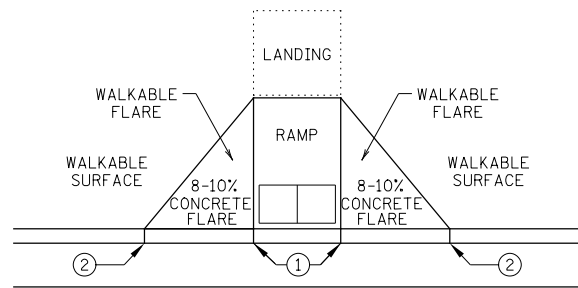
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MAIN STREET

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
APPROVED: 1-23-2017

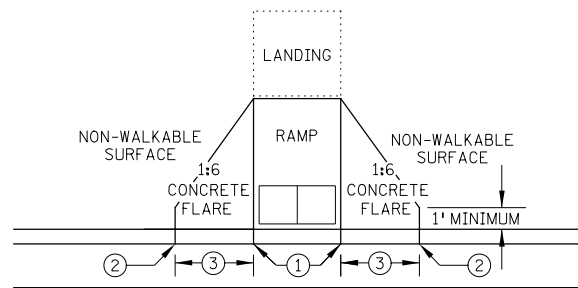
PEDESTRIAN CURB RAMP DETAILS
STANDARD PLAN 5-297.250 3 OF 6

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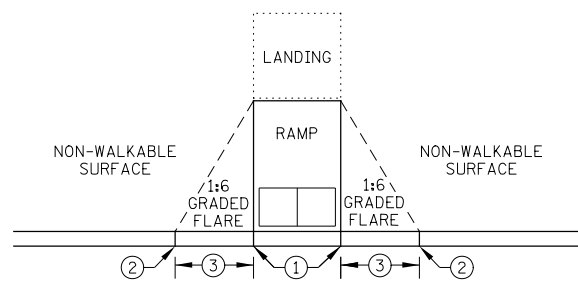
STATE PROJECT NO. 0704-108 (TH 22)	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 43 OF 276
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	COMM. NO. 01710321	STANDARD PLANS TH 22 & CSAH 90	



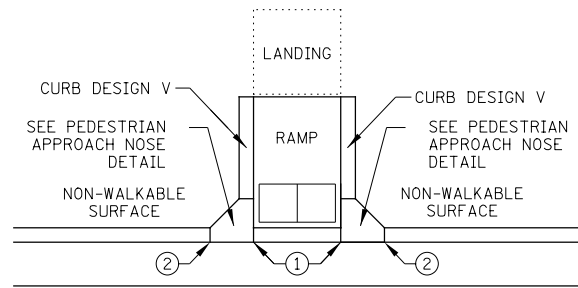
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

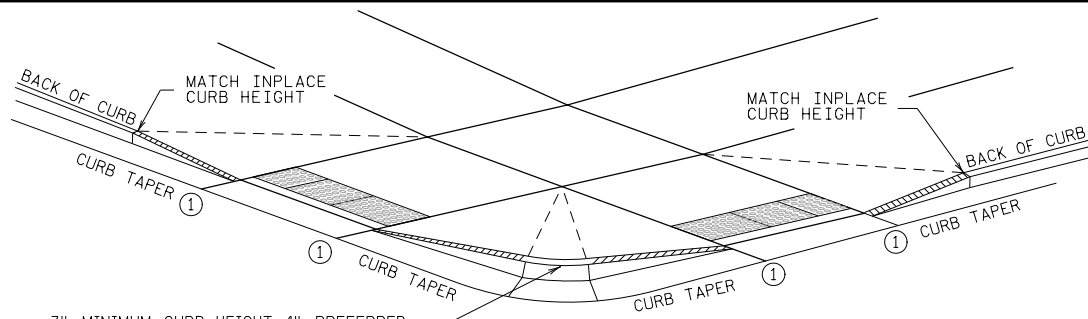


GRADED FLARES



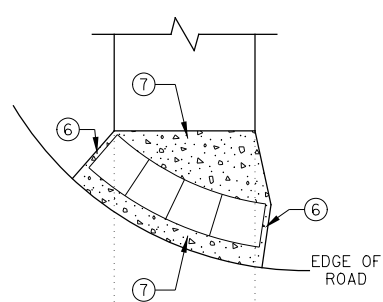
RETURNED CURB ⑤

TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

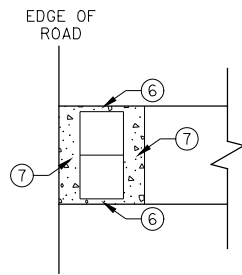


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

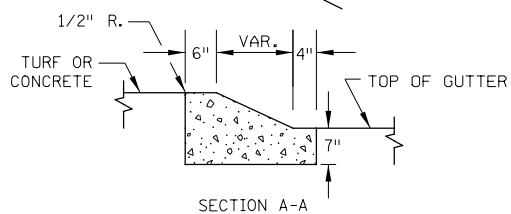
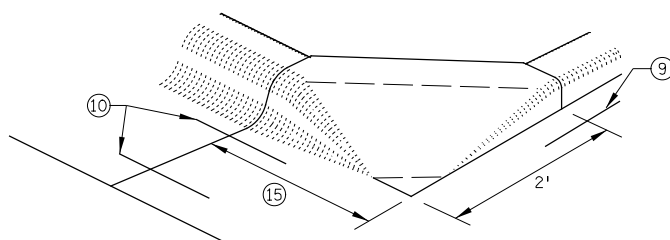


RADIAL DETECTABLE WARNING

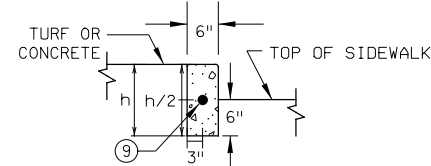


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

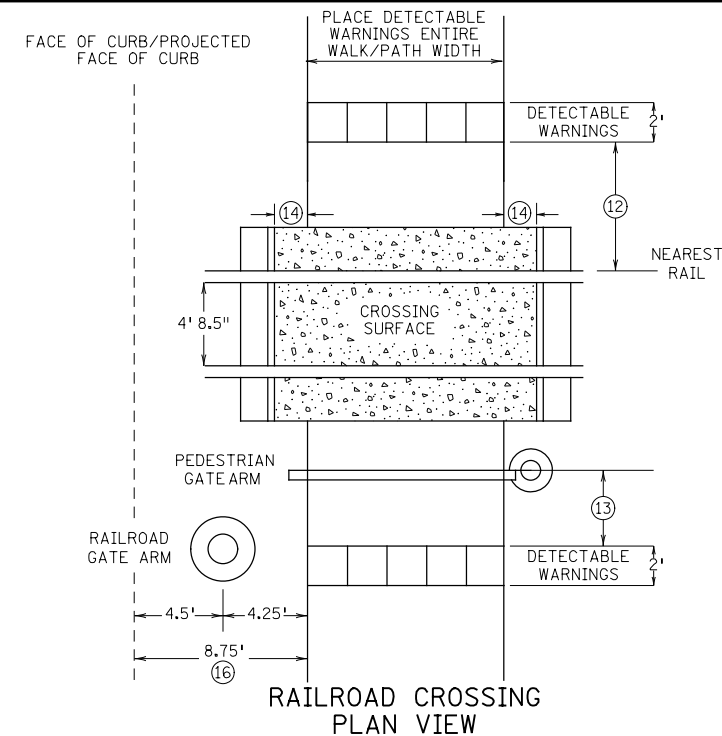


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

- NOTES:
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.
 - ② FULL CURB HEIGHT.
 - ③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.
 - ④ 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.
 - ⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.
 - ⑥ 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.
 - ⑦ 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.
 - ⑧ 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.
 - ⑨ 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.
 - ⑩ 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.
 - ⑪ 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.
 - ⑫ 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.
 - ⑬ 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 ⑫.
 - ⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
 - ⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
 - ⑯ 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.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISOR:

APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS

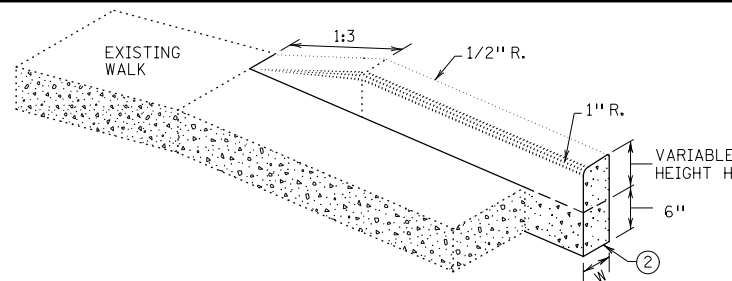
STANDARD PLAN 5-297.250 4 OF 6

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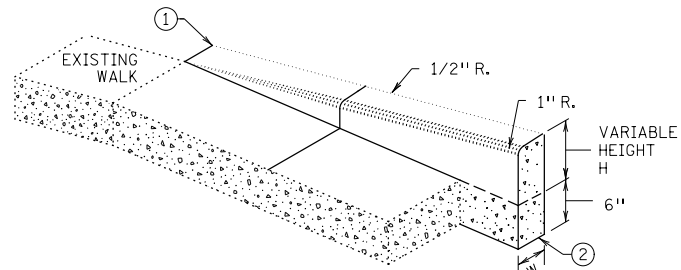
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STATE PROJECT NO. 007-070-005	DESIGNED BY
	CHECKED BY
	COMM. NO. 01710321

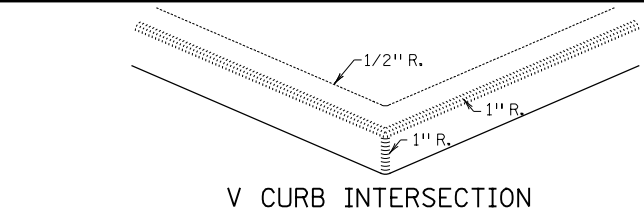
MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET
STANDARD PLANS TH 22 & CSAH 90	44 OF 276



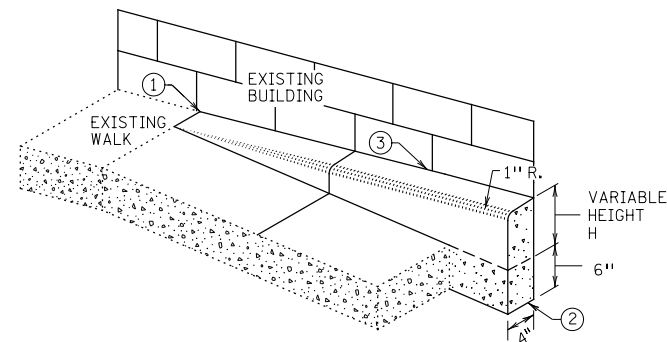
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

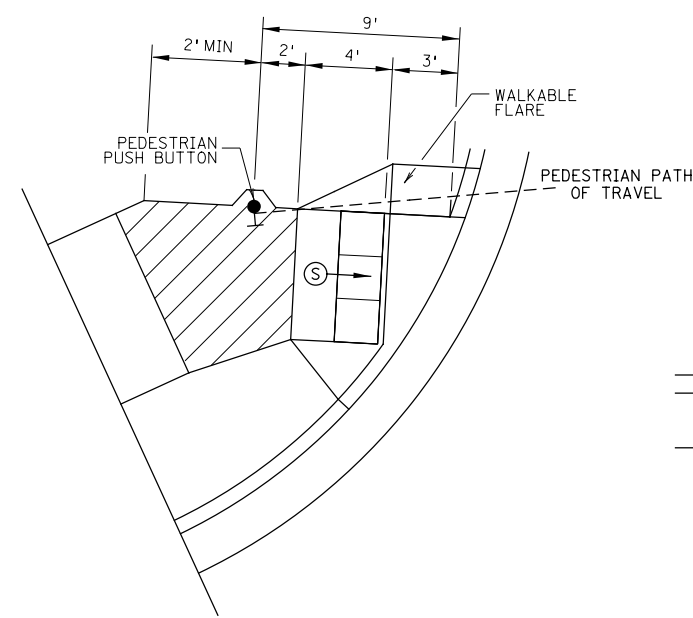


V CURB INTERSECTION



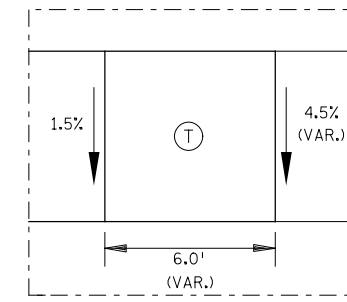
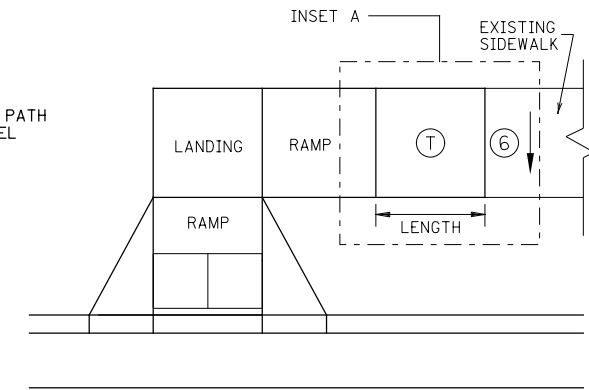
V CURB ADJACENT TO BUILDING
OR BARRIER

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

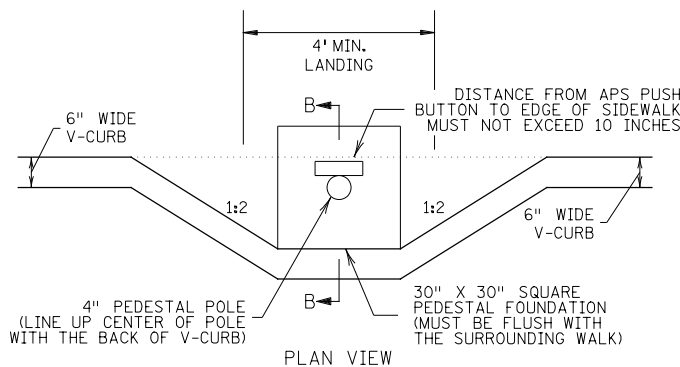


SEMI-DIRECTIONAL RAMP (3,4,9)

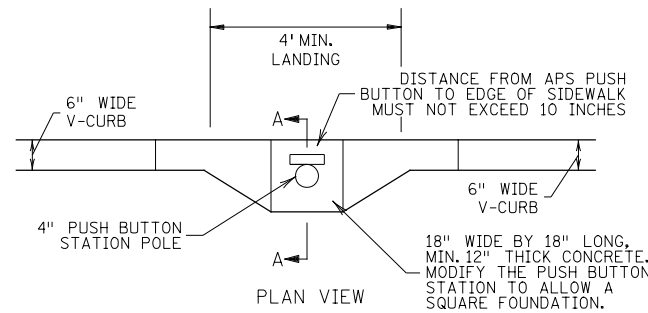
3' DOME SETBACK, 4' LONG RAMP AND
PUSH BUTTON 9' FROM THE BACK OF CURB
PRIMARILY USED FOR APS APPLICATIONS
WHERE THE PAR DOES NOT CONTINUE PAST
THE PUSH BUTTON (DEAD-END SIDEWALK)



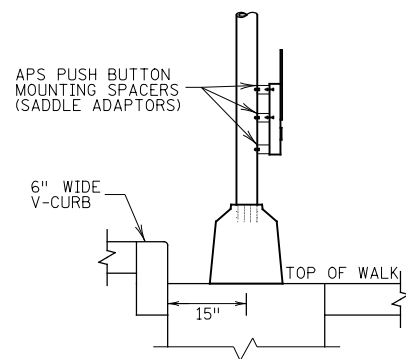
TRANSITION PANEL (4,5)



PLAN VIEW

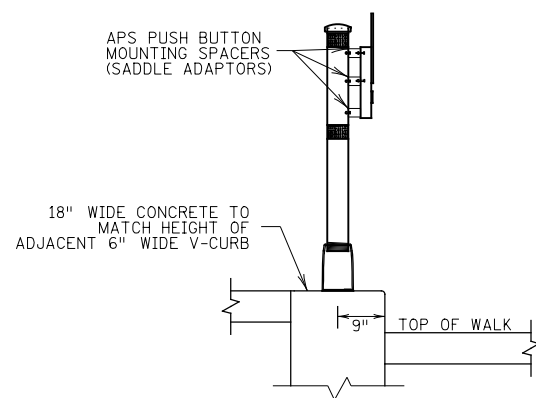


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- 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 PANEL(S) 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.
- ⑤ 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%.
 - ④ 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 PAR.
 - ① TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 APPROVED: 1-23-2017

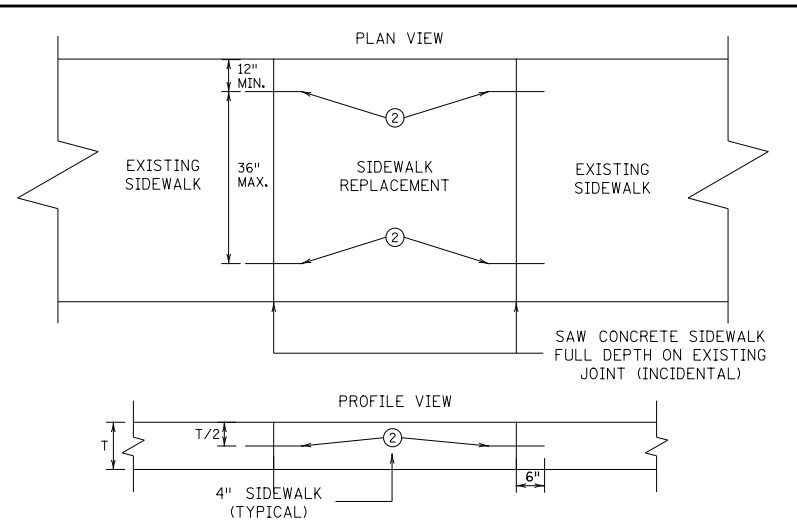
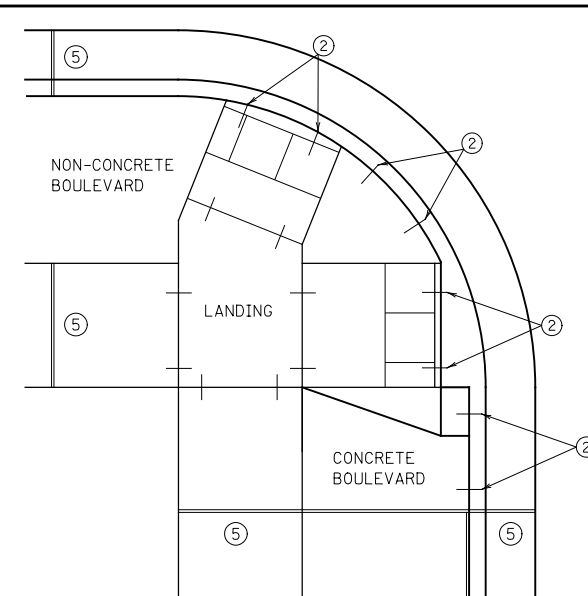
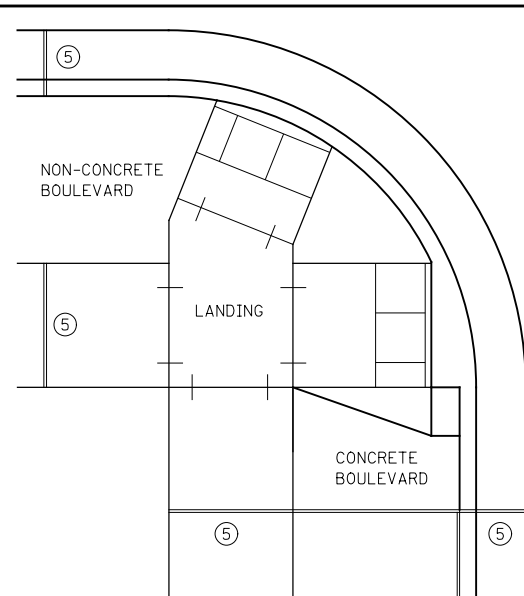
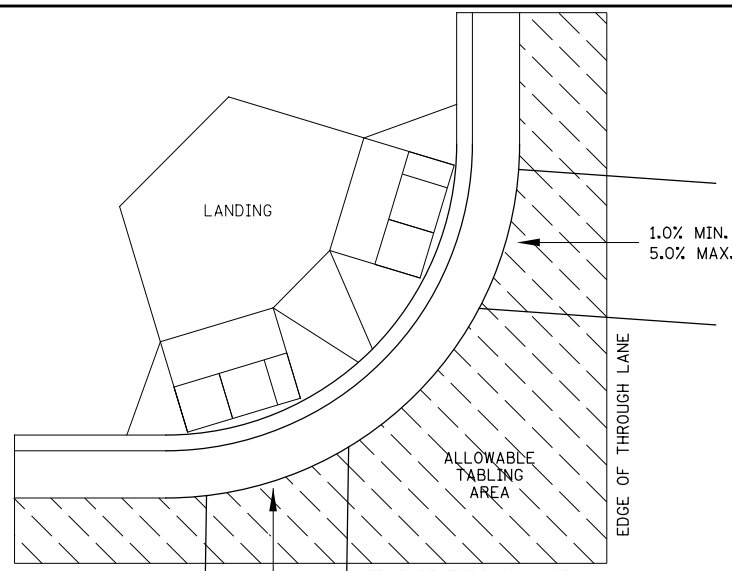
PEDESTRIAN CURB RAMP DETAILS
 STANDARD PLAN 5-297.250 5 OF 6

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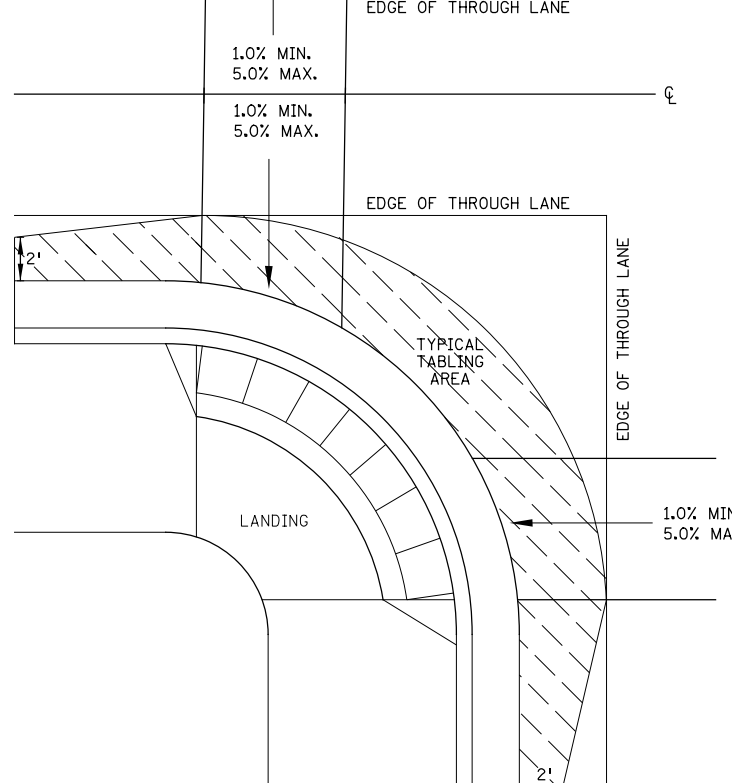
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STATE PROJECT NO. 007-070-005	DESIGNED BY
	CHECKED BY
	COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 45 OF 276
STANDARD PLANS TH 22 & CSAH 90	

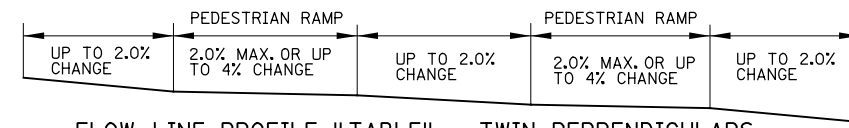


OPTIONAL SIDEWALK REINFORCEMENT
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

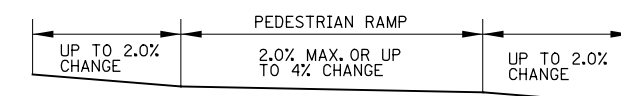


EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS

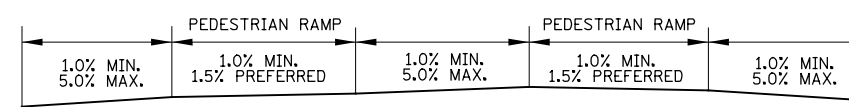
OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS ④



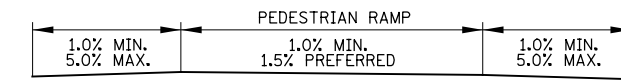
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



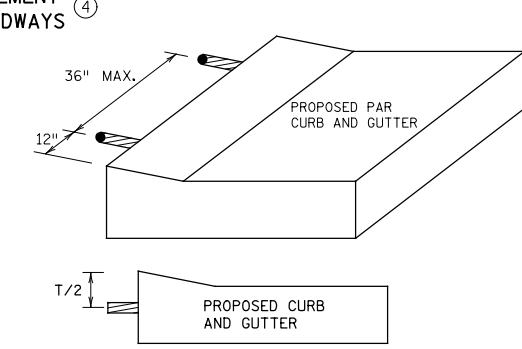
FLOW LINE PROFILE "TABLE" - FAN



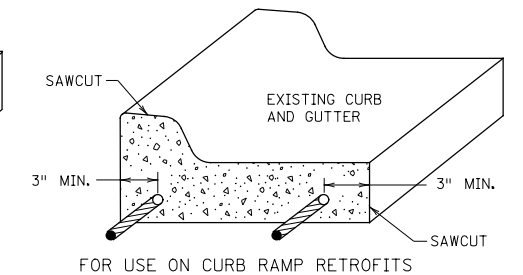
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



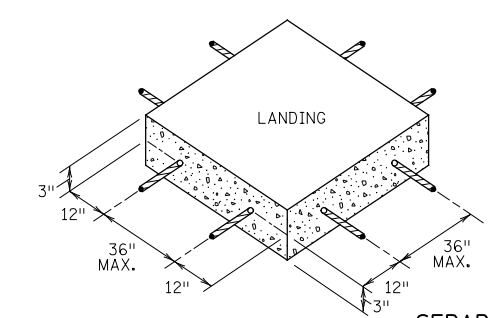
FLOW LINE PROFILE RAISE - FAN



OPTIONAL CURB LINE REINFORCEMENT DETAILS ② ④



CURB AND GUTTER REINFORCEMENT ③



SEPARATE LANDING POUR REINFORCEMENT ①

"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 AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
- ④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
- ⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
APPROVED: 1-23-2017

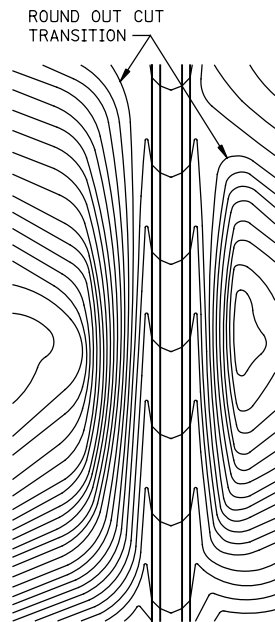
PEDESTRIAN CURB RAMP DETAILS
STANDARD PLAN 5-297.250 6 OF 6

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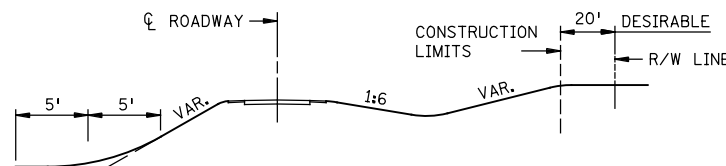
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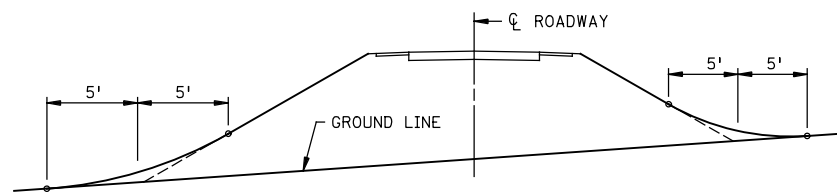
MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
TH 22 & CSAH 90
SHEET 46 OF 276



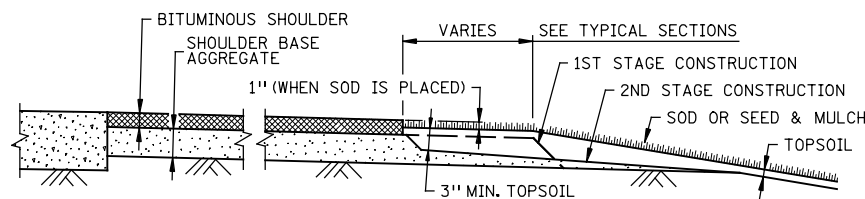
CONTOURING ROAD CUTS



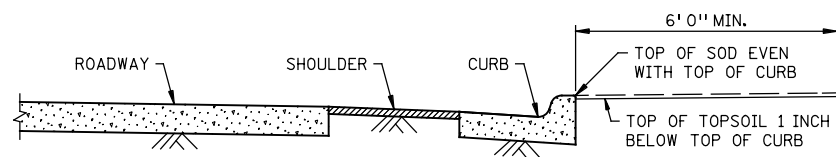
ROUNDING SHOULDERS AND BACKSLOPES



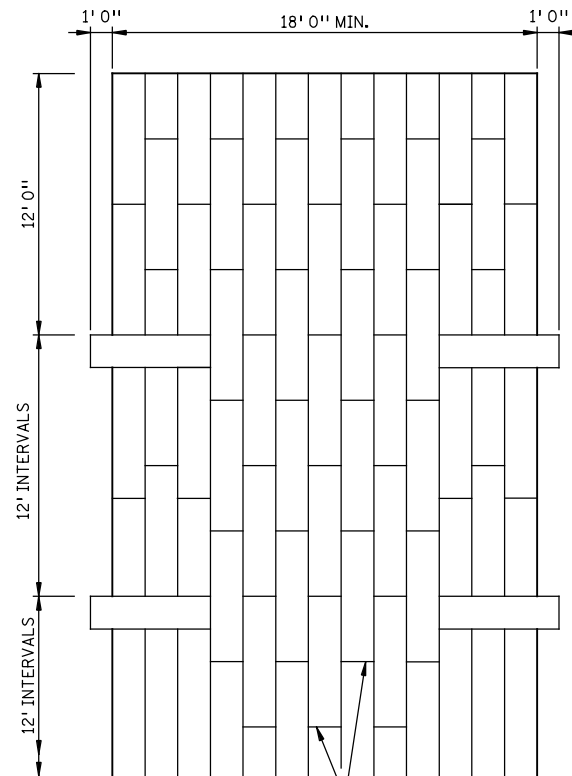
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



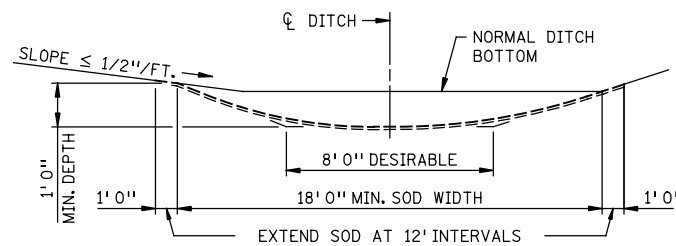
SHAPING AND TOPSOILING INSLOPES



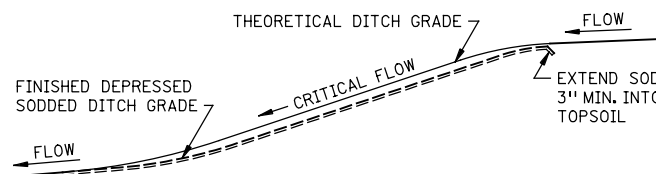
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



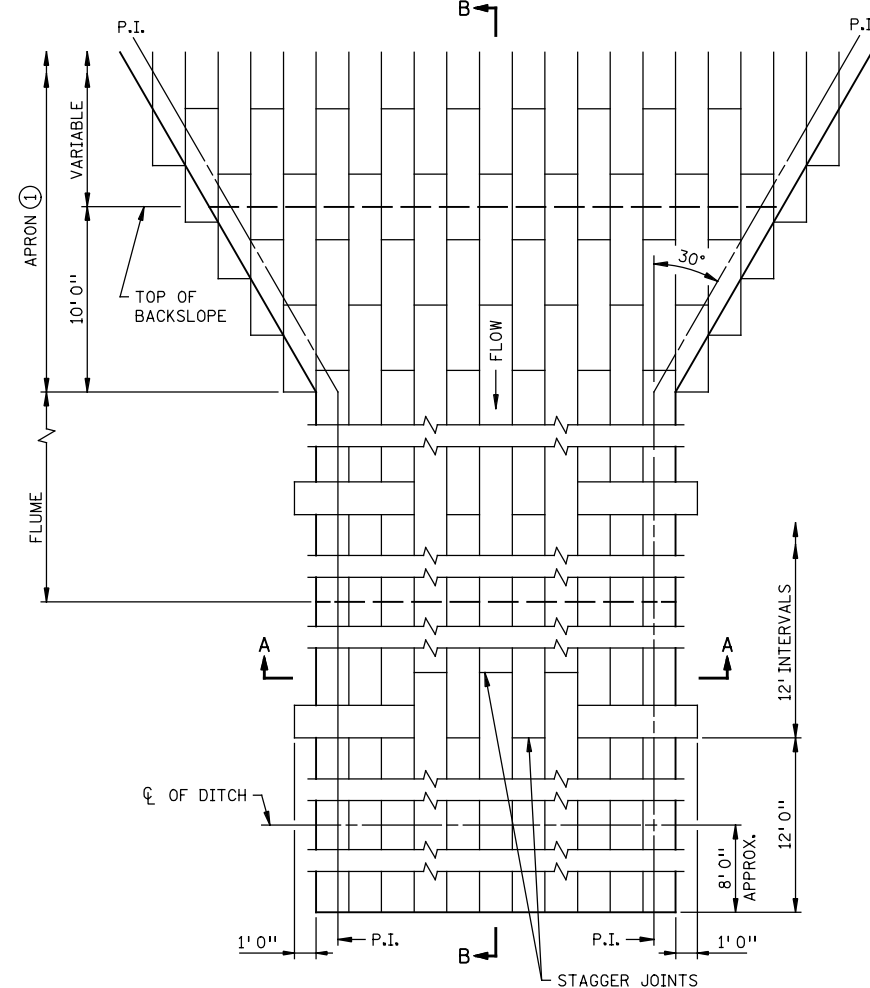
PLAN VIEW



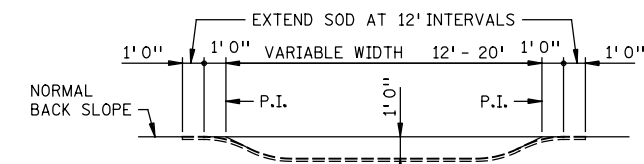
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



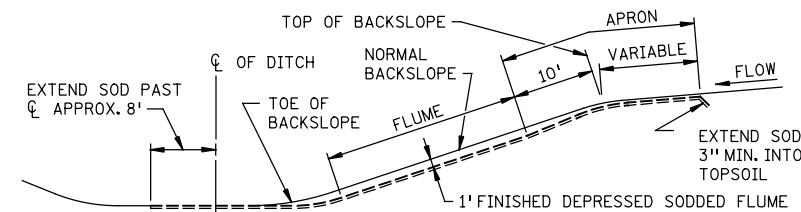
DITCH PROFILE
SODDED DITCH DETAILS



PLAN VIEW



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
[Signature]
CHIEF ENVIRONMENTAL OFFICER

m MINNESOTA
DEPARTMENT OF TRANSPORTATION
[Signature]
STATE DESIGN ENGINEER
APPROVED: 2-28-2017

PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD PLAN 5-297.404 1 OF 3

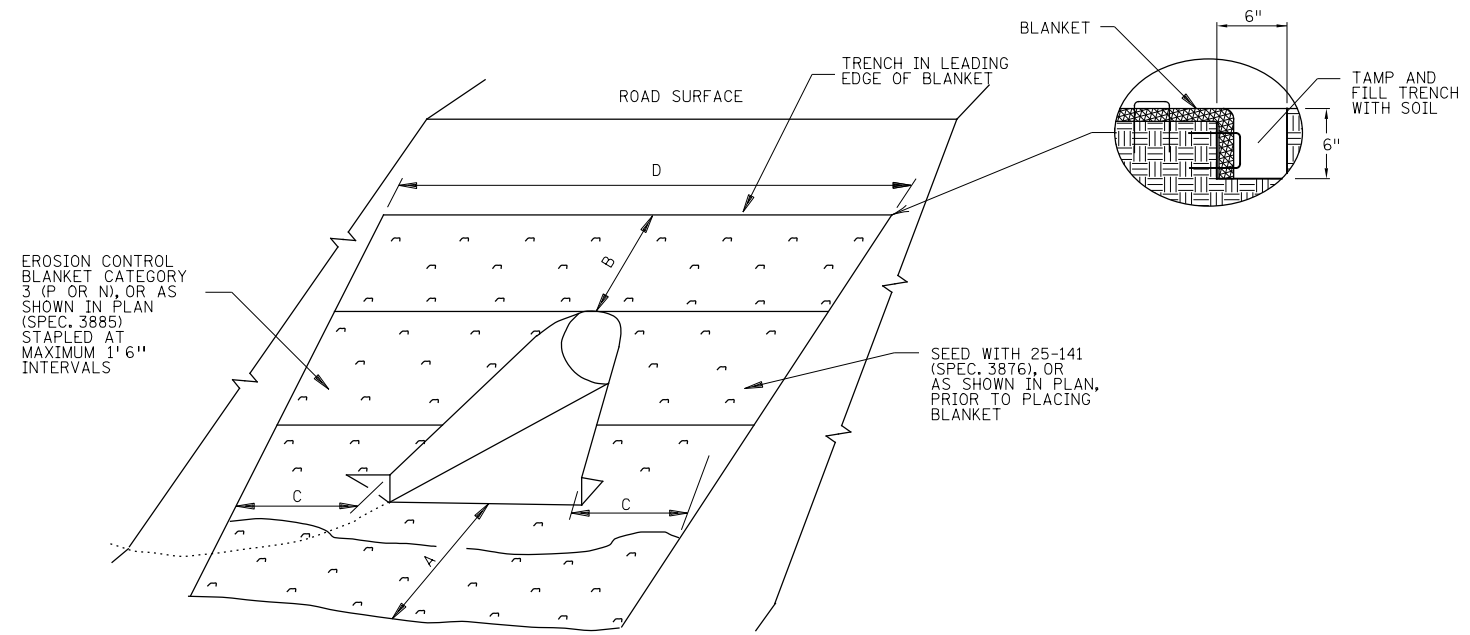
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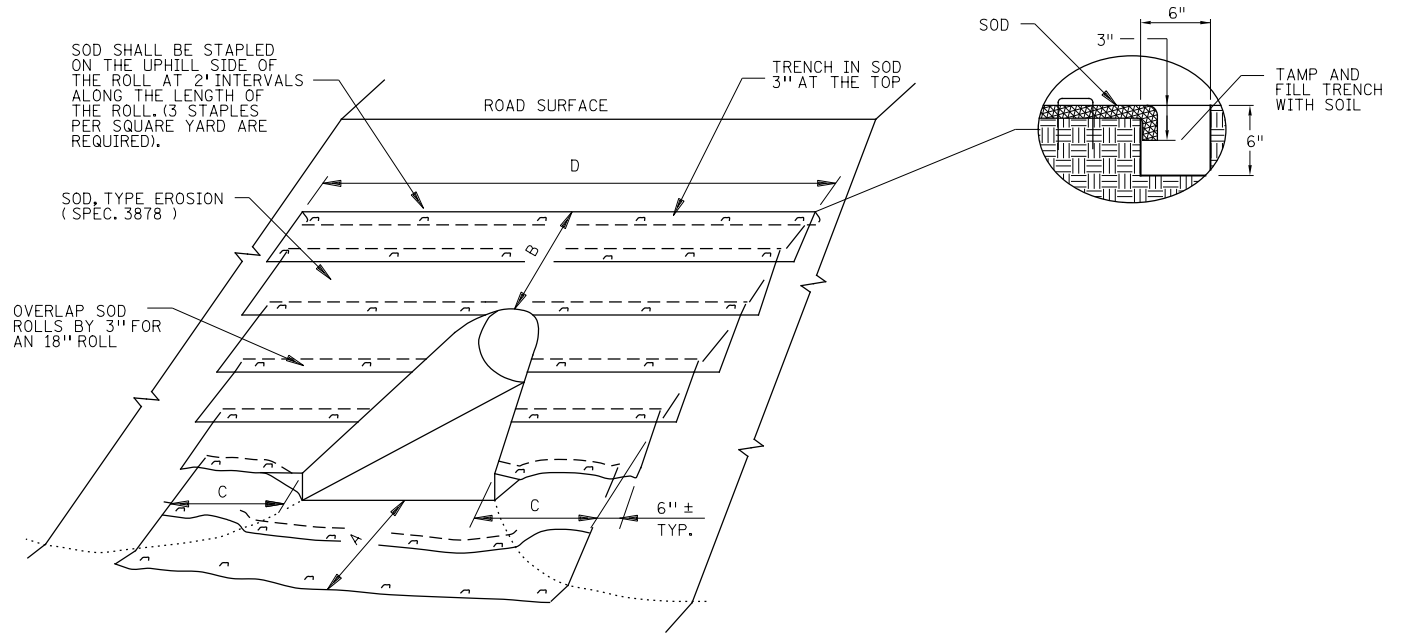
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STANDARD PLANS
TH 22 & CSAH 90

MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
TH 22 & CSAH 90
SHEET 47 OF 276



EROSION CONTROL BLANKET & SEED DETAIL



SODDING DETAIL

CULVERT DIAMETER ②	SOD OR EROSION CONTROL BLANKET (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 (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON (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 DIAMETER ②	SOD OR EROSION CONTROL BLANKET (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 (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON (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'

- NOTES:
- 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.
 - 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.)

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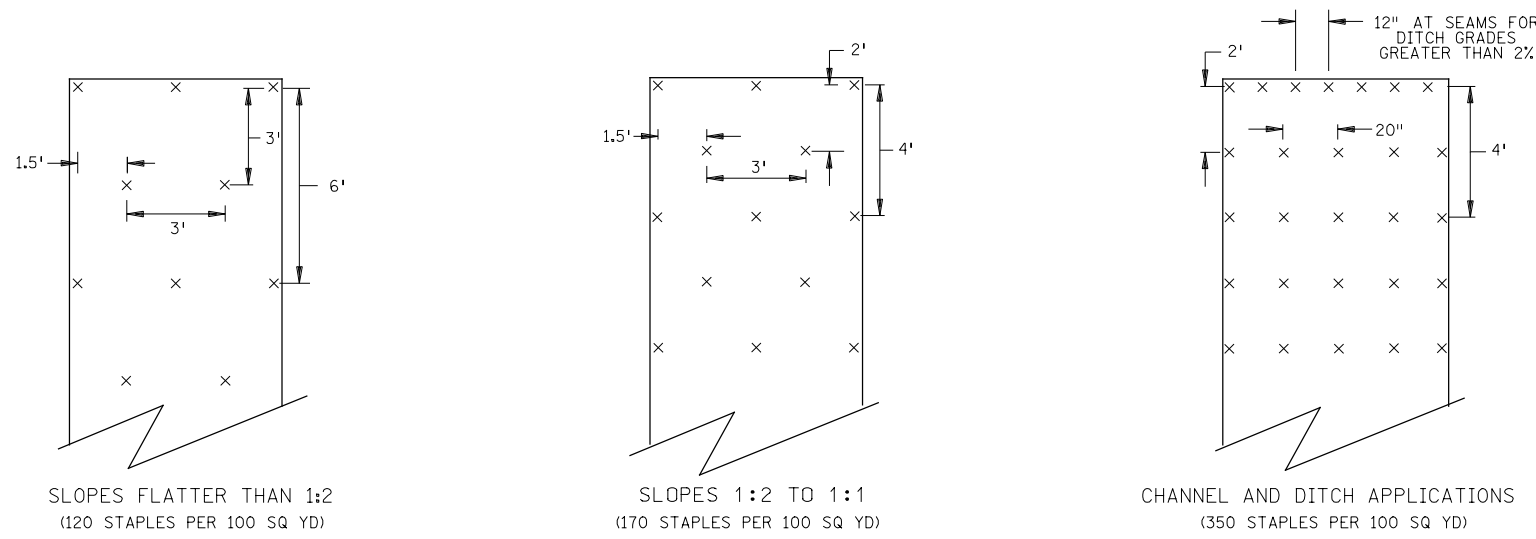
PERMANENT EROSION CONTROL
 TURF ESTABLISHMENT DETAIL AT CULVERT ENDS
 STANDARD PLAN 5-297.404 | 2 OF 3

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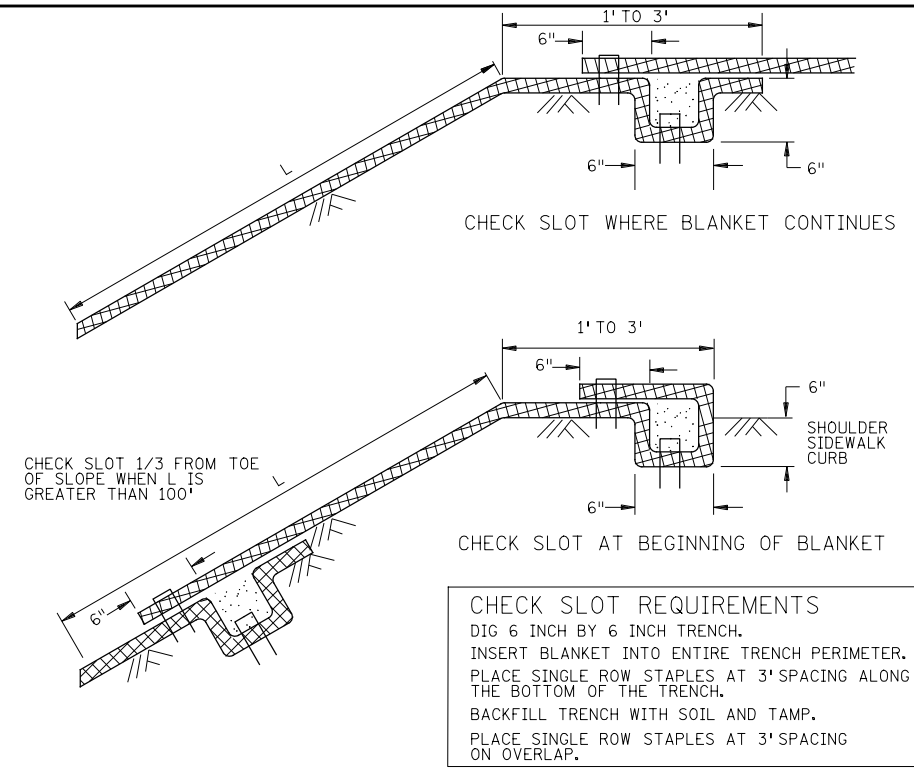
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 STATE PROJECT NO. 007-070-005
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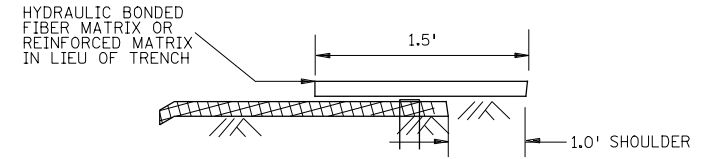
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 STANDARD PLANS
 TH 22 & CSAH 90
 SHEET 48 OF 276



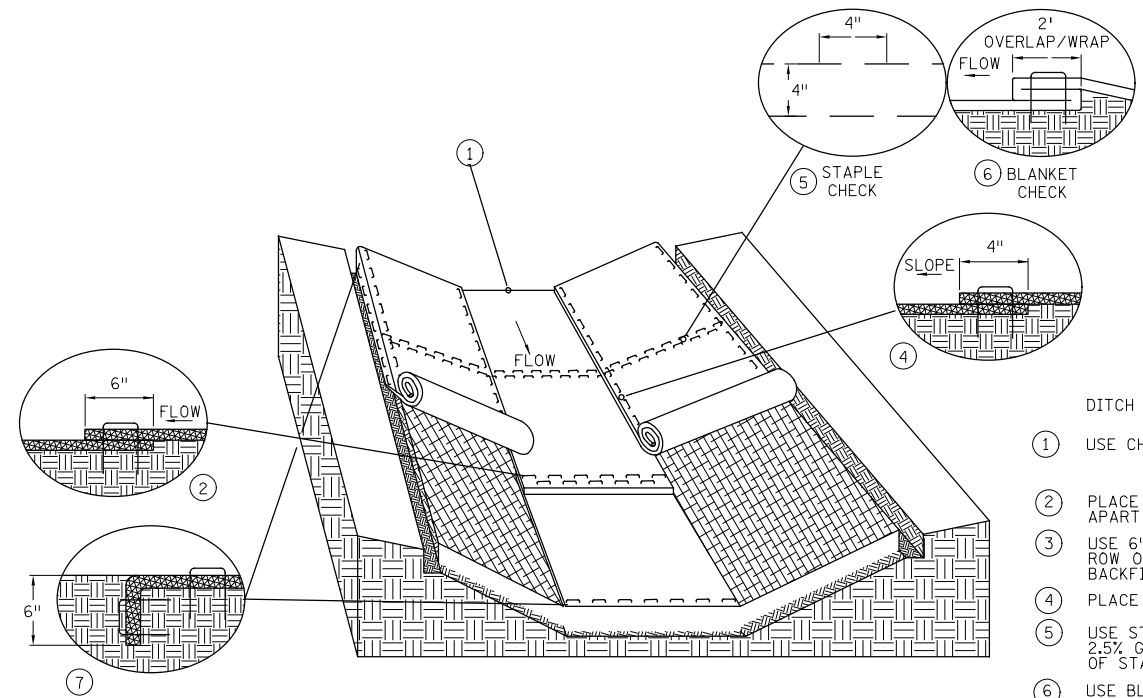
BLANKET STAPLE PATTERN



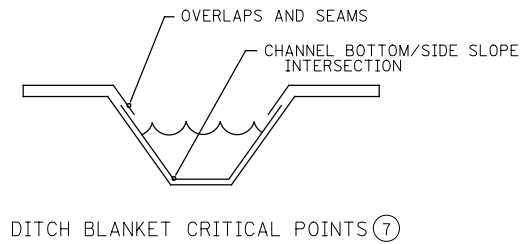
CHECK SLOT REQUIREMENTS
 DIG 6 INCH BY 6 INCH TRENCH.
 INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.
 PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.
 BACKFILL TRENCH WITH SOIL AND TAMP.
 PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.



CHECK SLOT ALTERNATIVE
 PLACE SINGLE ROW STAPLES AT 12" SPACING
 CHECK SLOT DETAILS

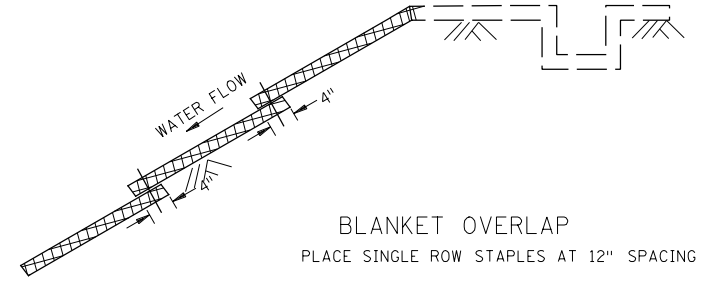


DITCH BLANKET STAPLE DETAIL



DITCH BLANKET CRITICAL POINTS ⑦

- DITCH BLANKET STAPLE DETAIL 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 FOOT 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 FT INTERVALS
 3%-5% 50 FT INTERVALS
 5%-7% 25 FT INTERVALS
 - ⑦ CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



BLANKET OVERLAP
 PLACE SINGLE ROW STAPLES AT 12" SPACING

GENERAL BLANKET INSTALLATION REQUIREMENTS

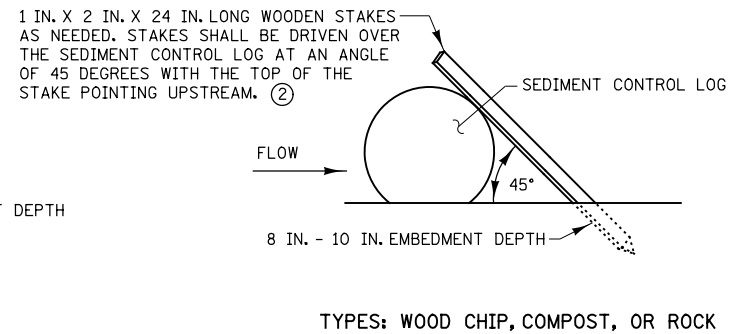
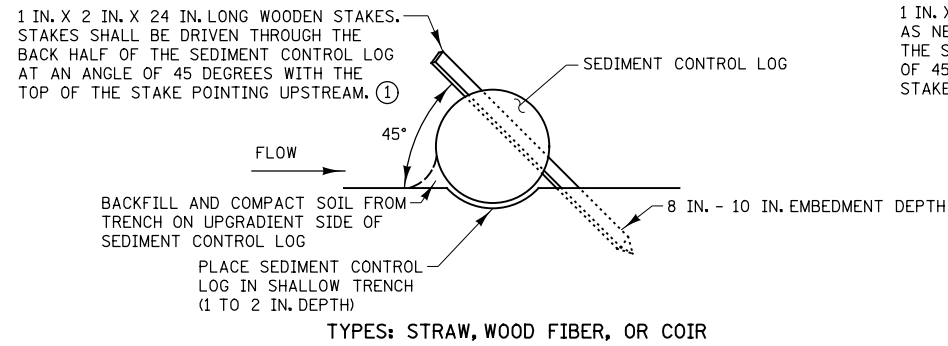
PREPARE SOIL AS PER SPECIFICATION 2574.
 LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.
 OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4 INCHES.
 OVERLAP BLANKET 6" (MIN.) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.
 THE 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 1/3 FROM THE BOTTOM OF THE SLOPE.

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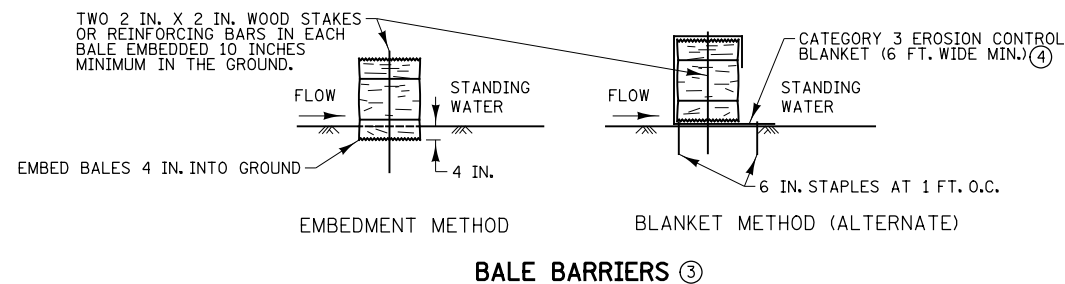
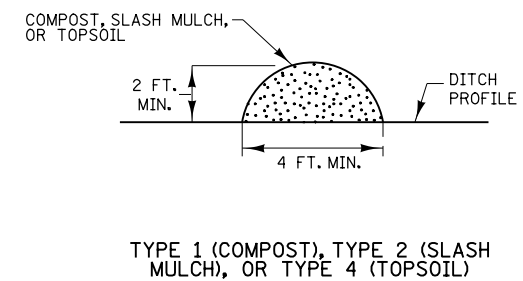
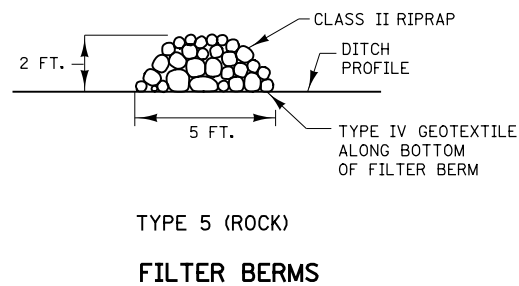
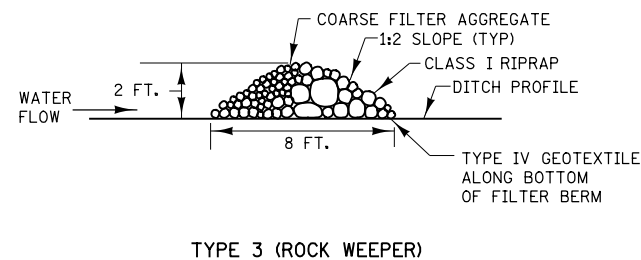
 DEPARTMENT OF TRANSPORTATION	REVISION: [Signature] STATE DESIGN ENGINEER	PERMANENT EROSION CONTROL BLANKET STAPLE PATTERN FOR SLOPES	
	APPROVED: 2-28-2017	STANDARD PLAN 5-297.404	3 OF 3

STATE PROJECT NO. 0704-108 (TH 22)	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLANS TH 22 & CSAH 90	SHEET 49 OF 276
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SEDIMENT CONTROL LOGS



NOTES:

- SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.
- (1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET 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 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
- (4) INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

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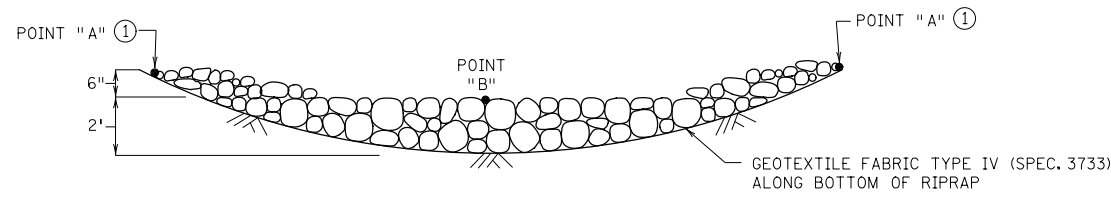
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 2-28-2017

TEMPORARY SEDIMENT CONTROL
 FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS
 STANDARD PLAN 5-297.405 | 2 OF 8

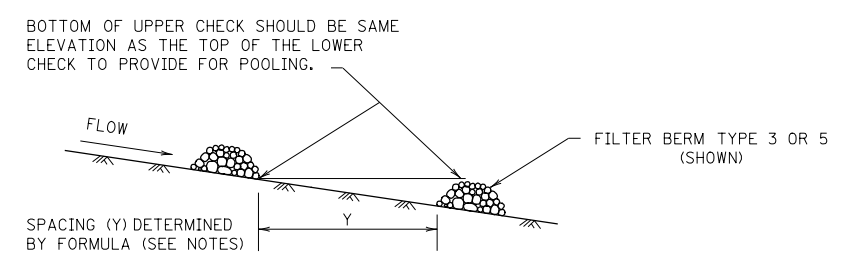
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 STATE PROJECT NO. 007-070-005
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 TH 22 & CSAH 90

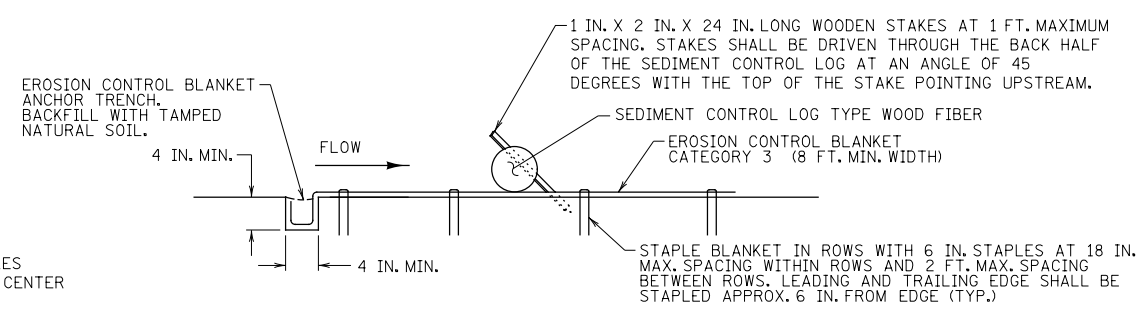
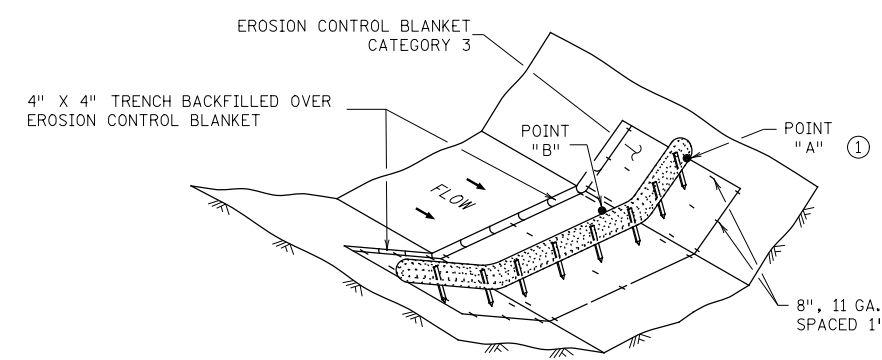
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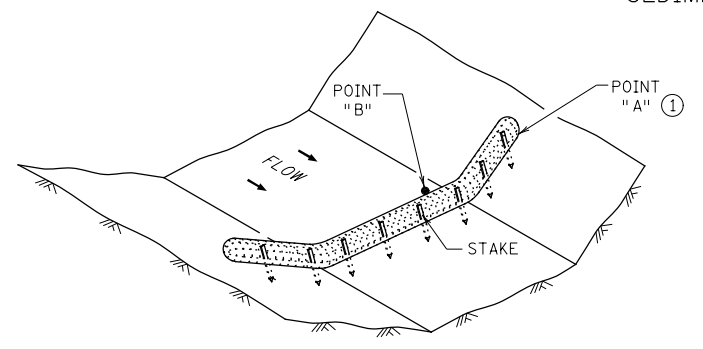
ROCK DITCH CHECKS
 FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③
 (FOR USE ON ROUGH GRADED AREAS)



DITCH CHECK SPACING
 (FOR ALL FILTER BERM TYPES)



SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



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

- NOTES:**
 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:
 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 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
 ② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
 ③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..
 ④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..
 ⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

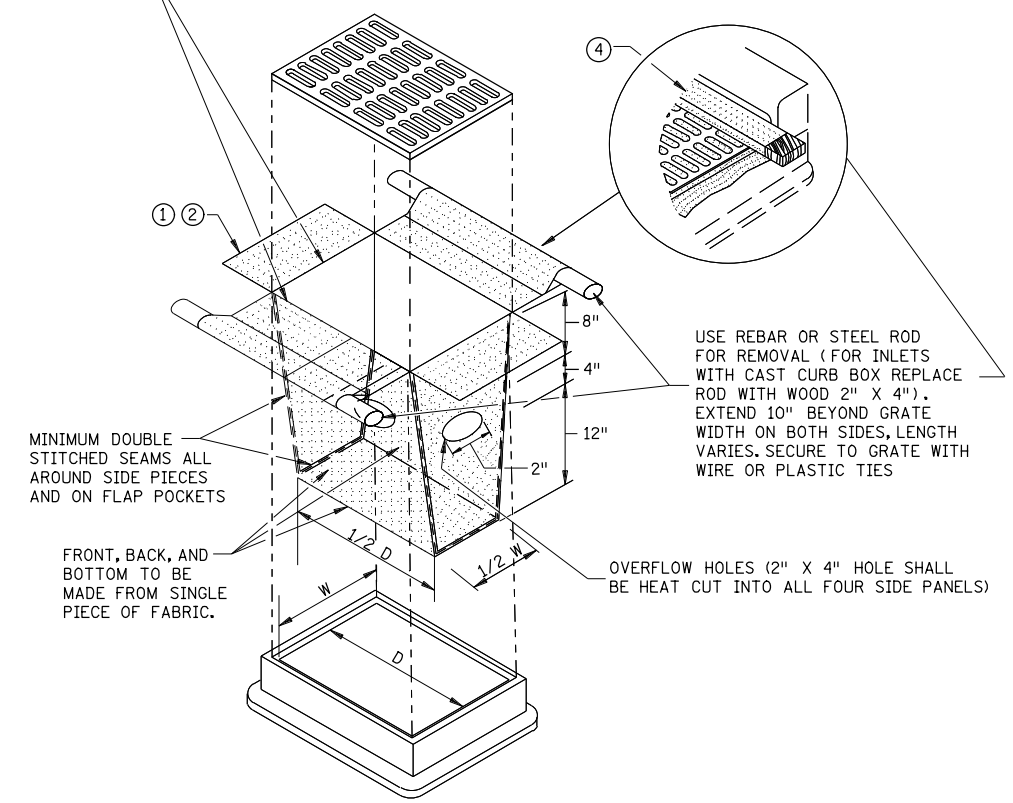
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	REVISION: 	TEMPORARY SEDIMENT CONTROL DITCH CHECK	
	APPROVED: 2-28-2017	STANDARD PLAN 5-297.405	3 OF 8

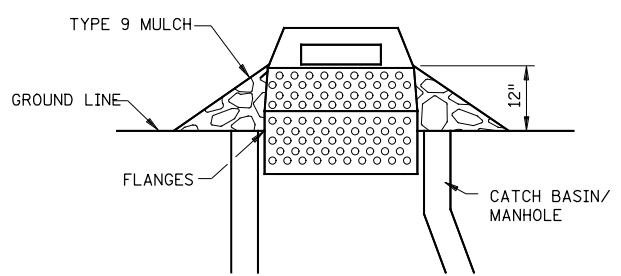
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INLET SPECIFICATIONS AS PER THE PLAN
DIMENSION LENGTH AND WIDTH TO MATCH
FLAP POCKET



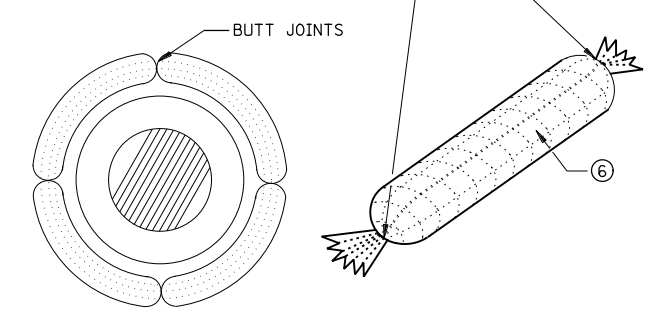
FILTER BAG INSERT ③
(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)



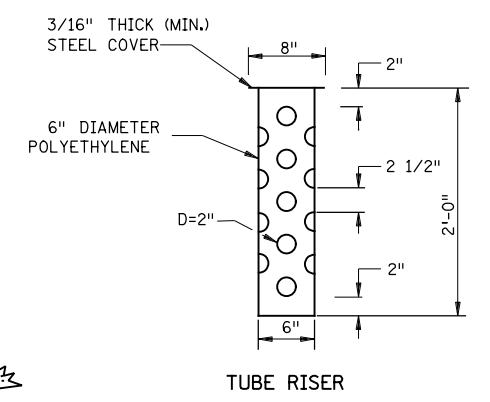
SEDIMENT CONTROL INLET HAT

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

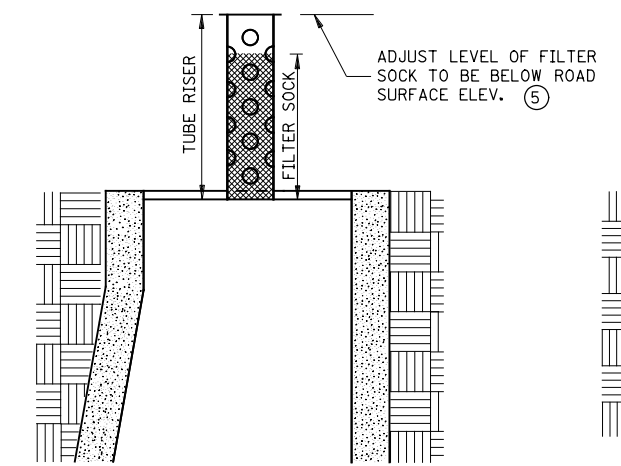
ENDS SECURELY CLOSED TO
PREVENT LOSS OF OPEN GRADED
AGGREGATE FILL. SECURED WITH
50 PSI. ZIP TIE.



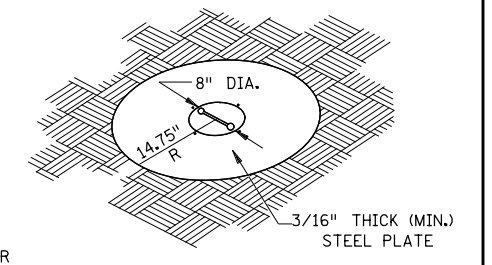
ROCK LOG/COMPOST LOG



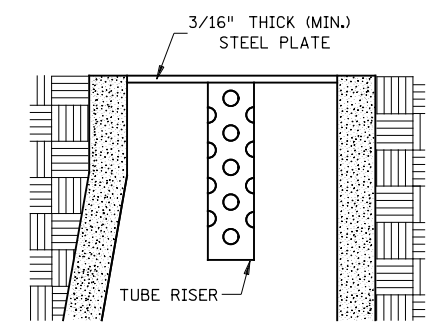
TUBE RISER



**SECTION
(UP POSITION)**

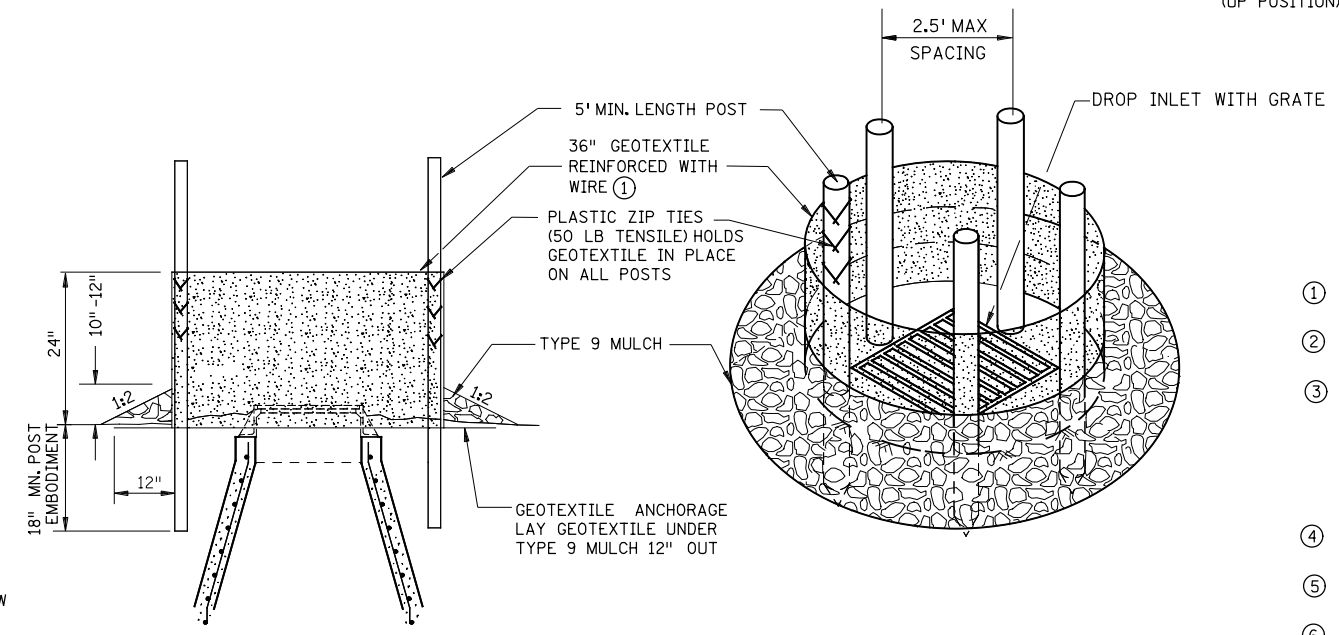


PERSPECTIVE VIEW



**SECTION
(DOWN POSITION)**

POP-UP HEAD



SILT FENCE RING AND ROCK FILTER BERM
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

NOTES:

- SEE SPECS. 2573, 3137, & 3886.
- DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEDE TRAFFIC FLOW.
- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

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TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION
STANDARD PLAN 5-297.405 4 OF 8

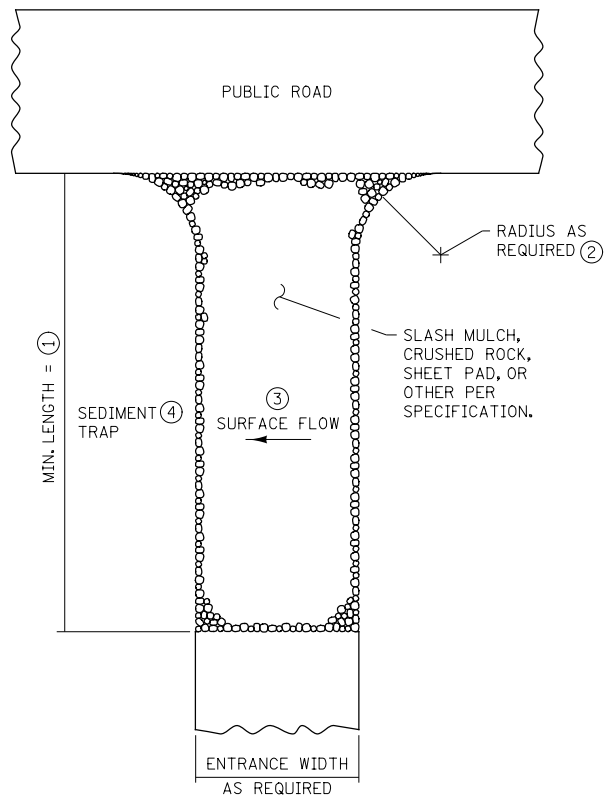
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TH 22 & CSAH 90

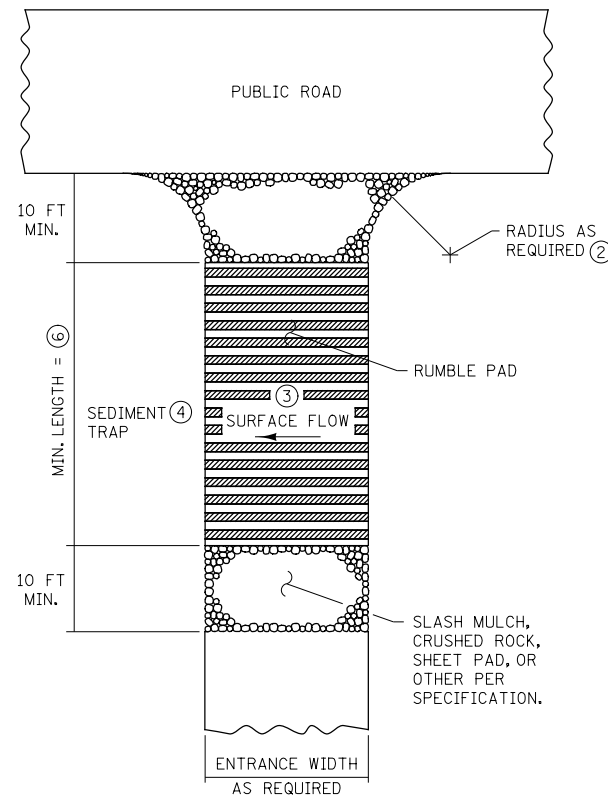
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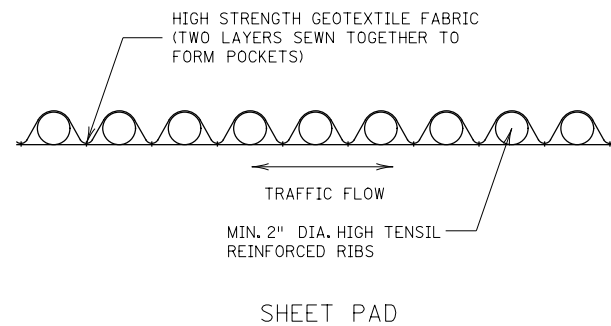
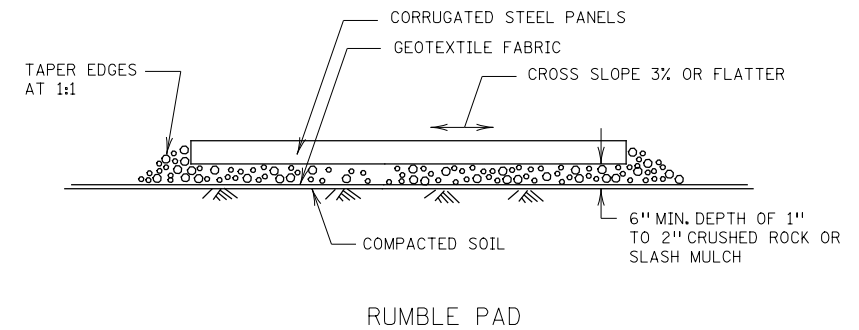
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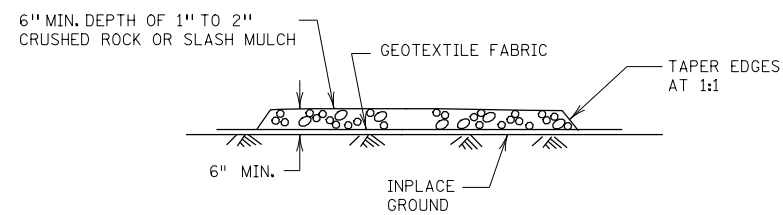
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

- SEE SPECS. 2573 & 3882.
- ① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
 - ② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
 - ③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
 - ④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
 - ⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
 - ⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
 - ⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

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TEMPORARY SEDIMENT CONTROL
 STABILIZED CONSTRUCTION EXIT
 STANDARD PLAN 5-297.405 5 OF 8

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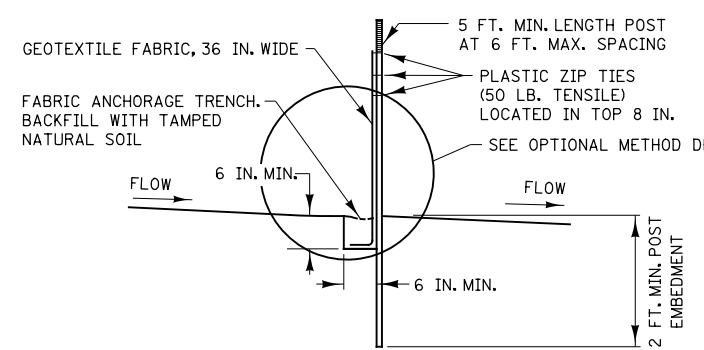
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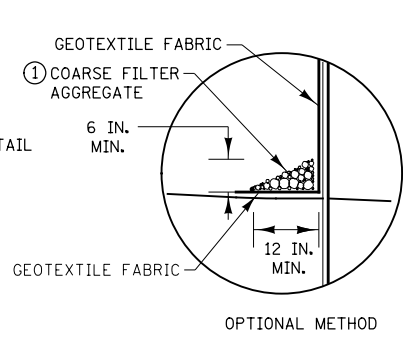
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 STANDARD PLANS
 TH 22 & CSAH 90

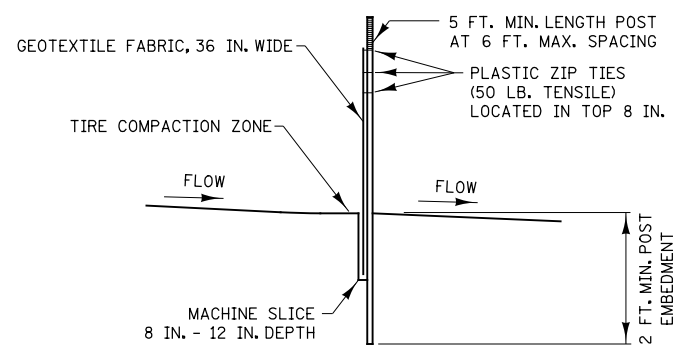
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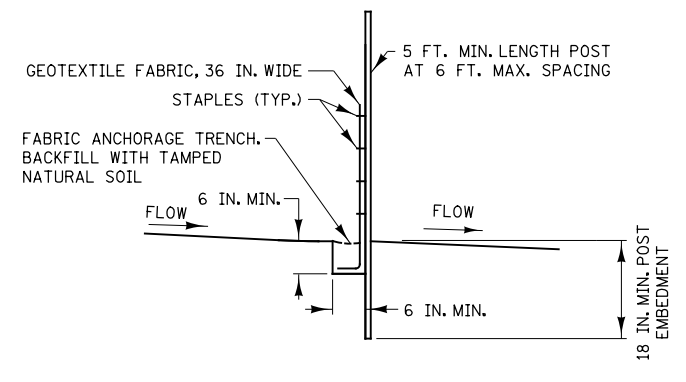
**SILT FENCE TYPE HI ②
(HAND INSTALLED)**



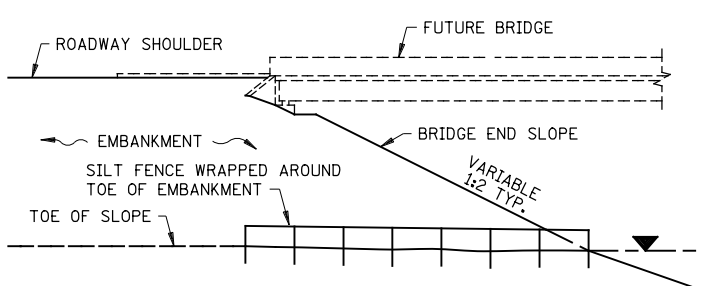
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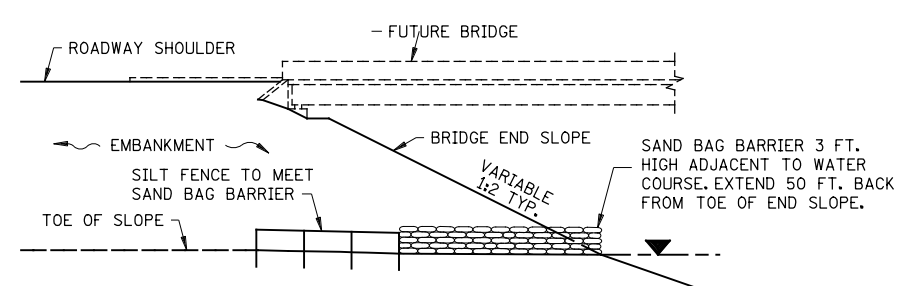
**SILT FENCE TYPE MS ②
(MACHINE SLICED)**



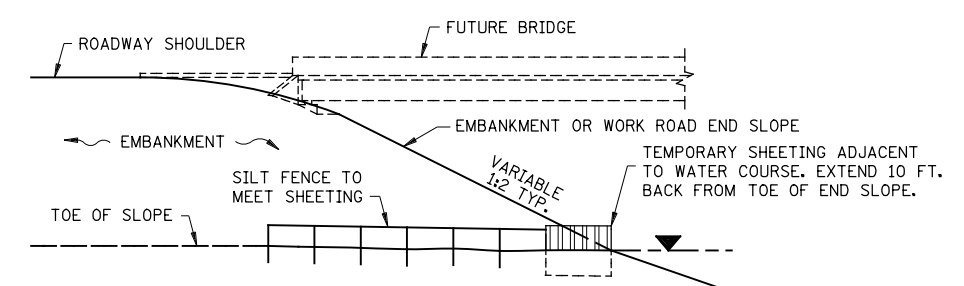
**SILT FENCE TYPE PA ③
(PREASSEMBLED)**



SILT FENCE ONLY ④

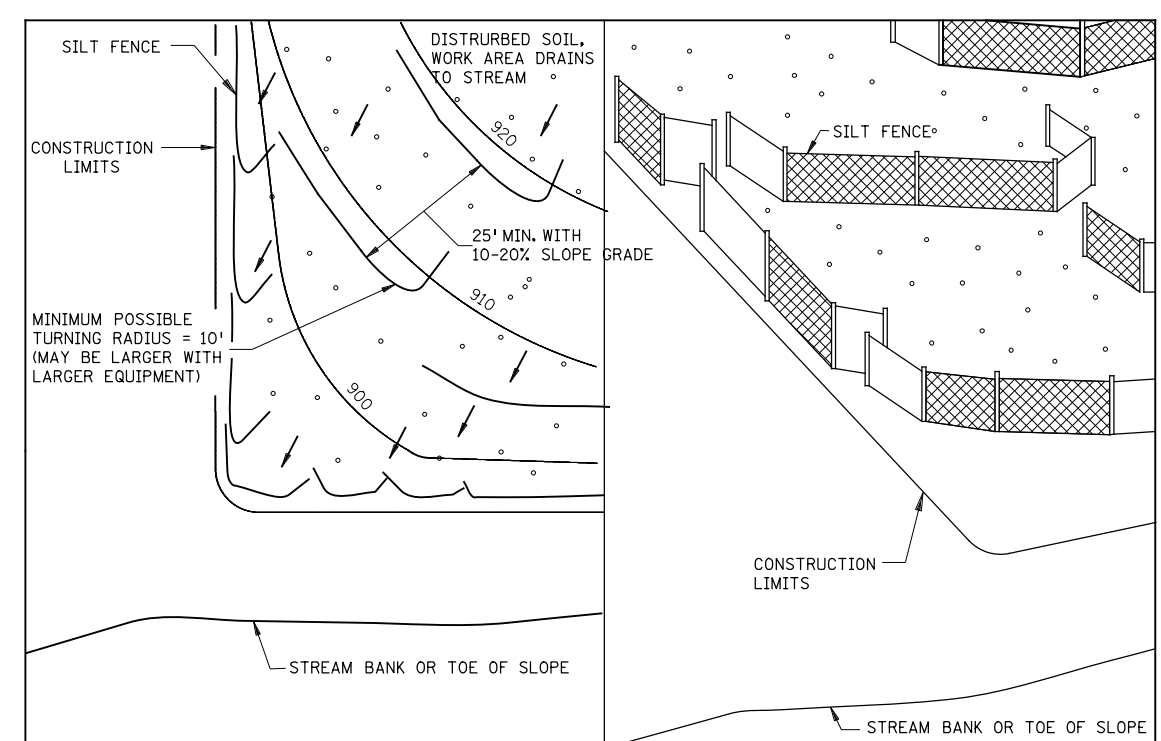


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

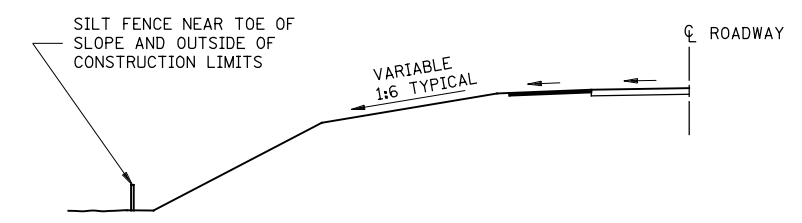
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

- NOTES:**
 SEE SPECS. 2573, 3149 & 3886.
 ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
 ② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
 ③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
 ④ WATER COURSE FLOW VELOCITY; STANDING. CONTRIBUTING SLOPE AREA: 1/2 ACRE.
 ⑤ WATER COURSE FLOW VELOCITY; 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
 ⑥ WATER COURSE FLOW VELOCITY; 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:
 APPROVED: 2-28-2017
 [Signature]
 CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 [Signature]
 APPROVED: 2-28-2017

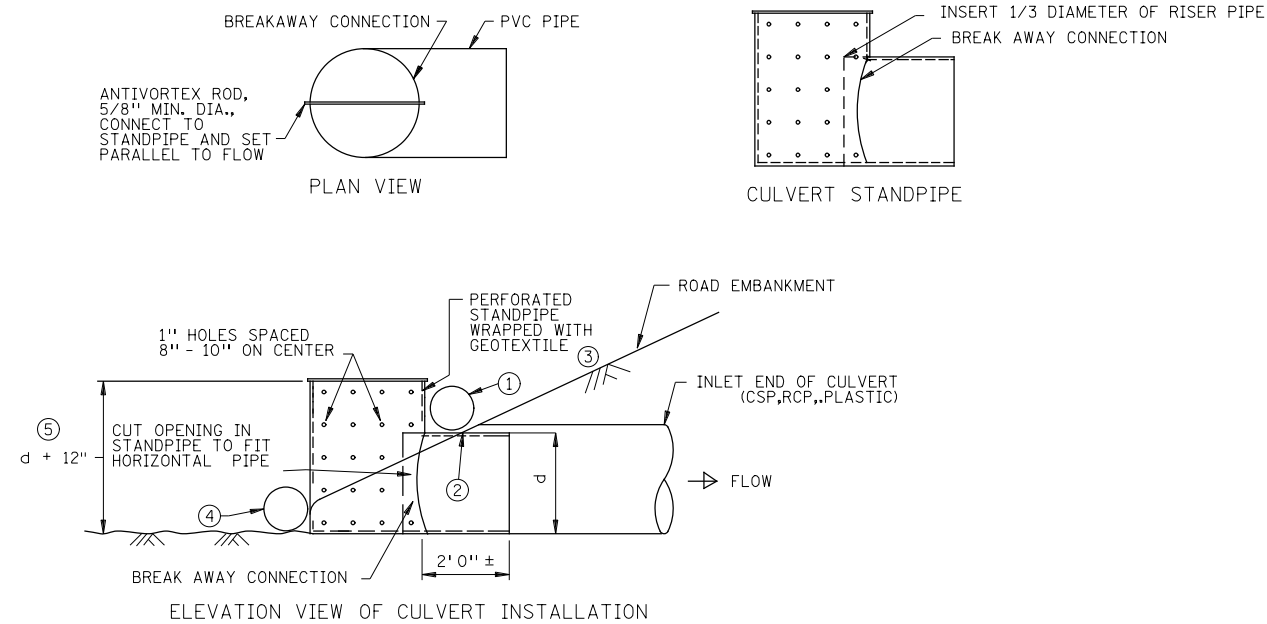
**TEMPORARY SEDIMENT CONTROL
 SILT FENCE**
 STANDARD PLAN 5-297.405 6 OF 8

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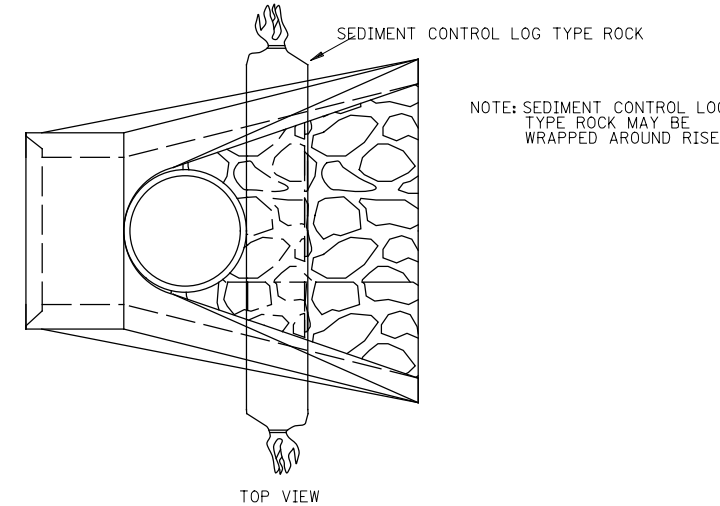
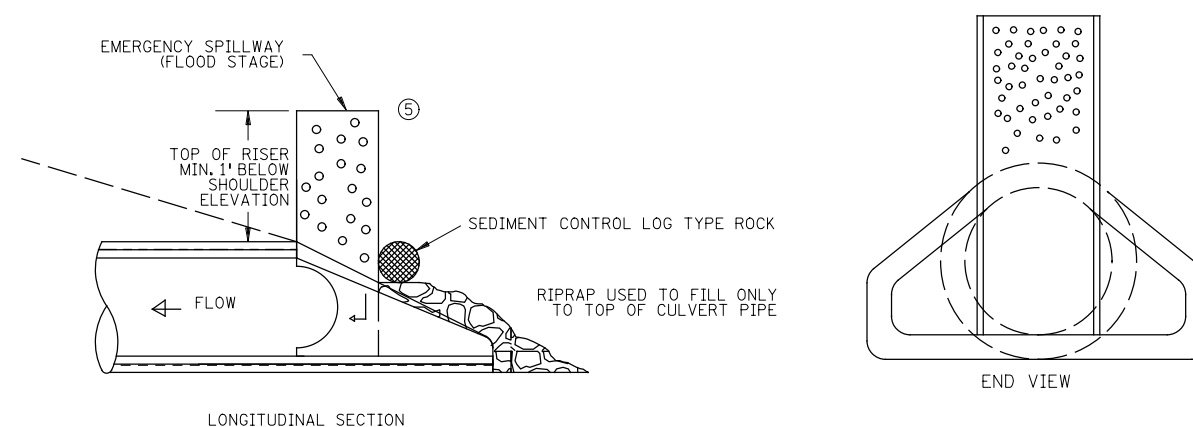
STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
 DRAWN BY
 DESIGNED BY
 CHECKED BY
 COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLANS
 TH 22 & CSAH 90
 SHEET 54 OF 276

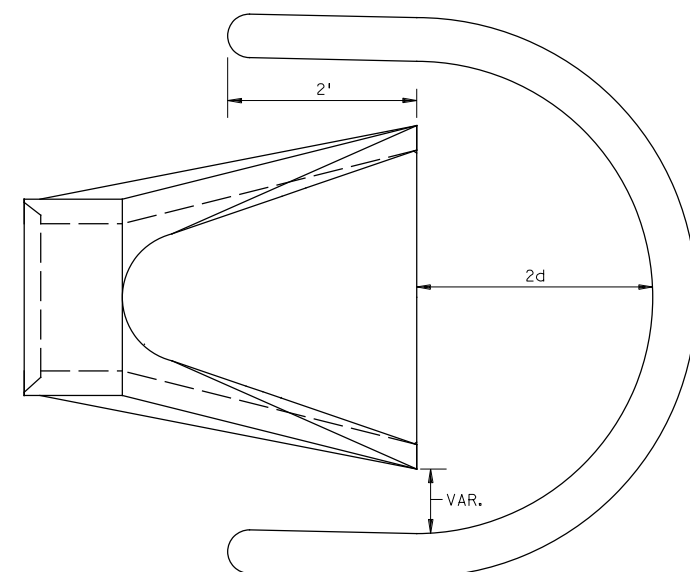


CULVERT STANDPIPE INSERT (D-RISER)

d = CULVERT SIZE: 12" - 36"

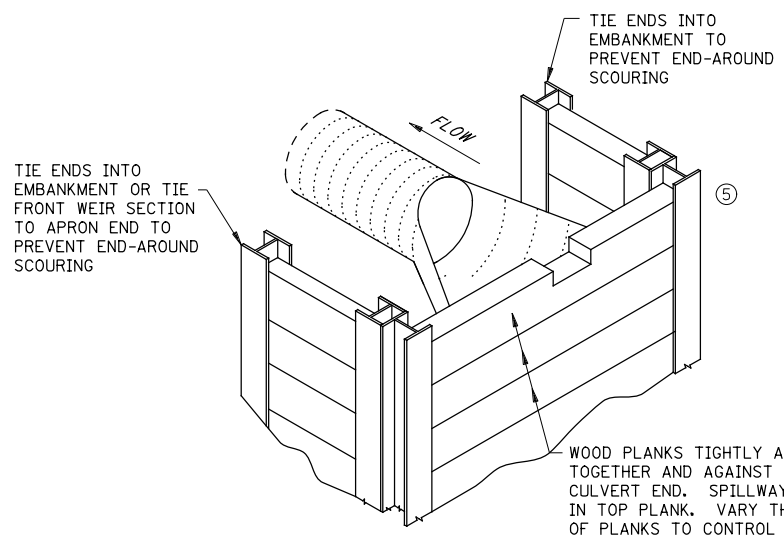


CULVERT STANDPIPE INSERT (D-RISER)



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

d = CULVERT SIZE: 12" - 36"



WOOD PLANK WEIR

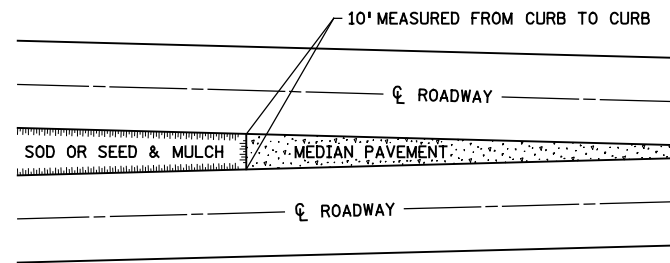
- NOTES:
- SEE SPECS. 2573, 3891 & 3893.
 - FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.
 - MANUFACTURED ALTERNATIVES LISTED ON MNDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.
 - ① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
 - ② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.
 - ③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
 - ④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.
 - ⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:
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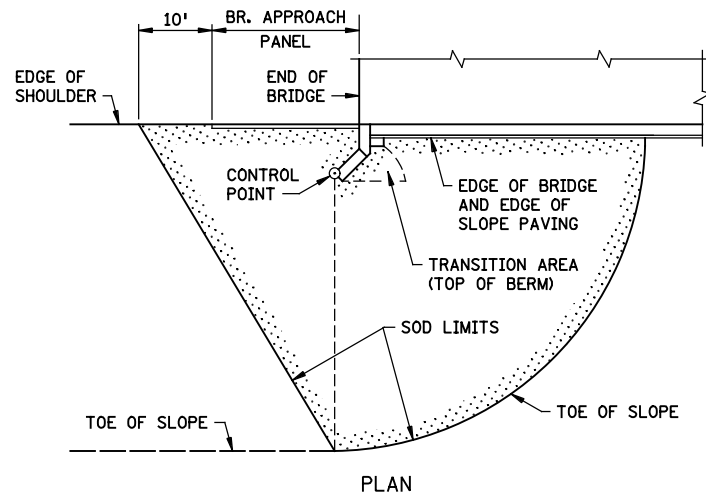
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	APPROVED: 2-28-2017	STANDARD PLAN 5-297.405	8 OF 8

STATE PROJECT NO. 0704-108 (TH 22)	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 55 OF 276
STATE PROJECT NO. 007-070-005	DESIGNED BY		
	CHECKED BY		
	COMM. NO. 01710321	STANDARD PLANS TH 22 & CSAH 90	

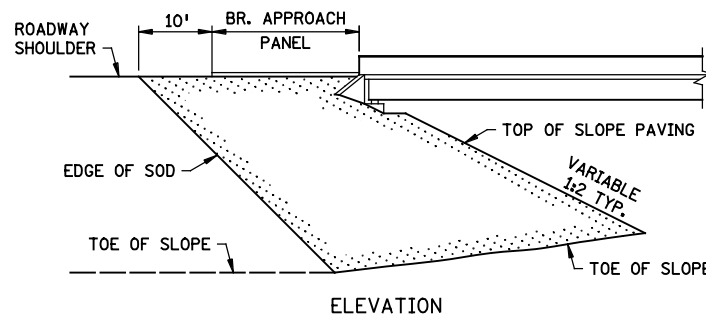
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SODDING LIMITS AT GORE AREA

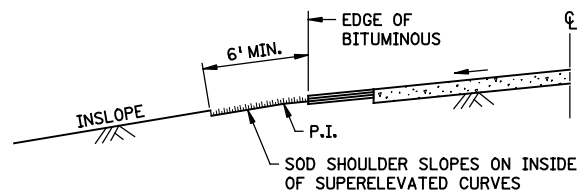


PLAN

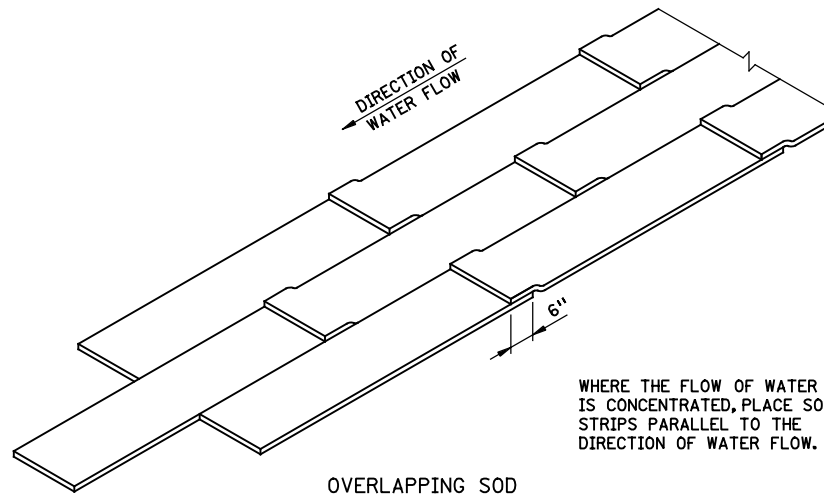


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

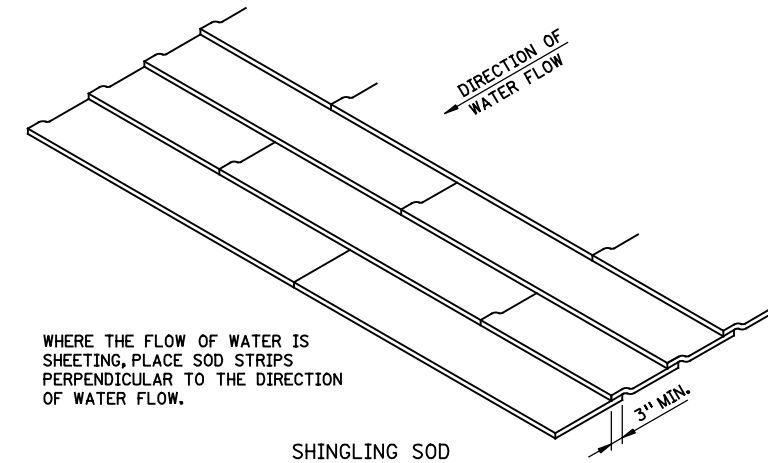


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

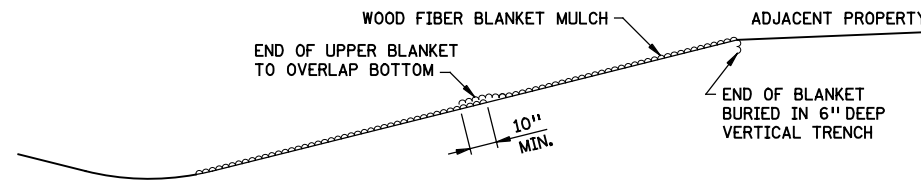
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



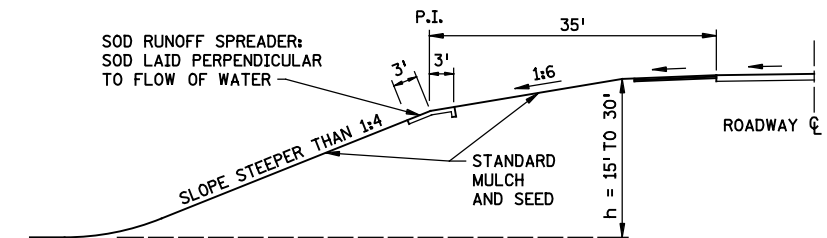
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

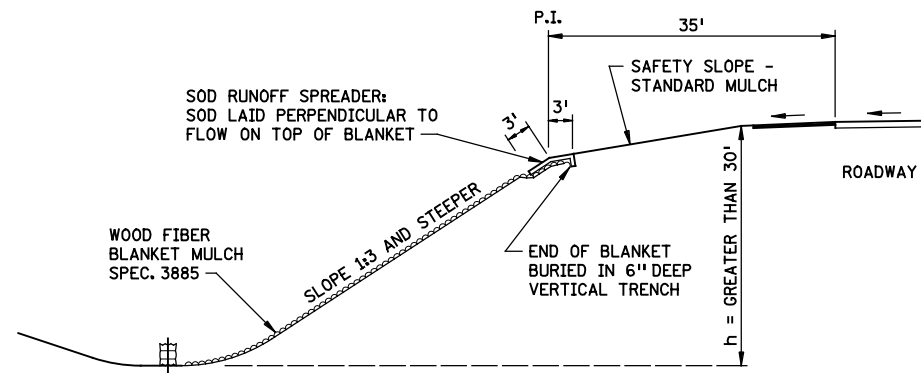
SPECIAL SOD PLACEMENT TECHNIQUES



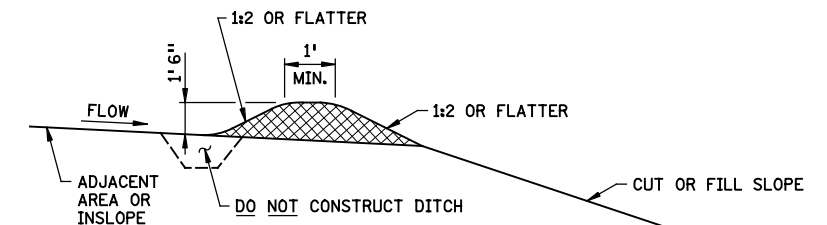
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)



PERMANENT SLOPE PROTECTION DIKE

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MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
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APPROVED: 8-6-2014

PERMANENT SEDIMENT CONTROL
ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD PLAN 5-297.406 1 OF 1

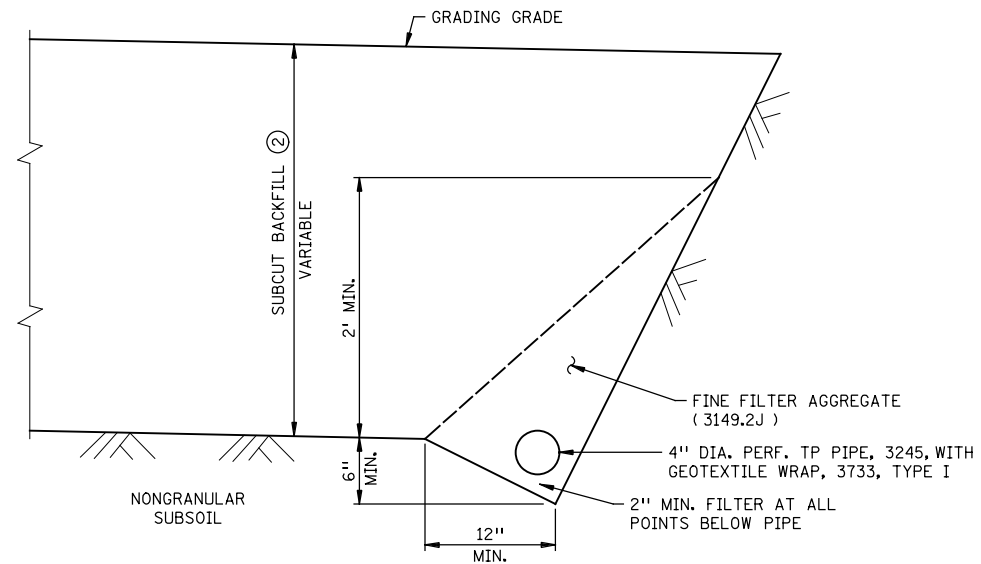
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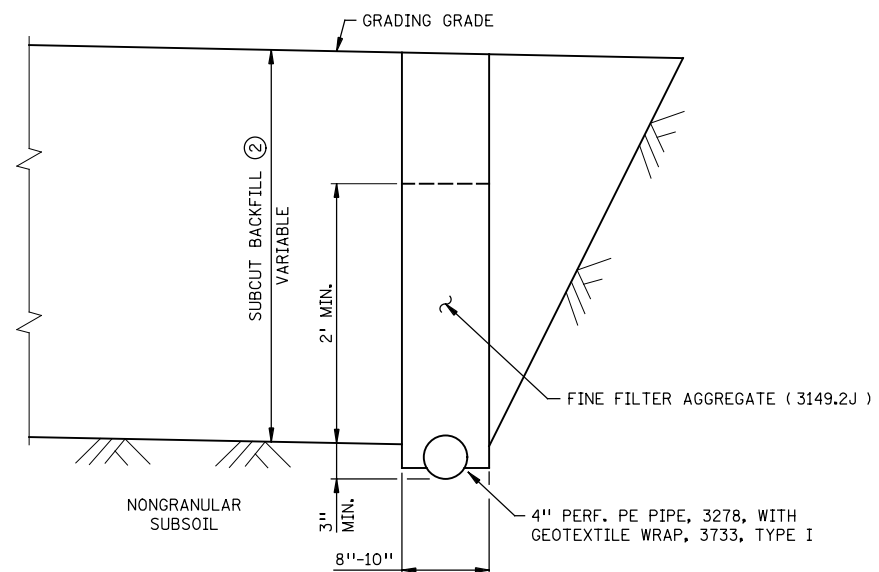
STATE PROJECT NO. 0704-108 (TH 22)
DRAWN BY
DESIGNED BY
CHECKED BY
COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
TH 22 & CSAH 90

MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
TH 22 & CSAH 90
SHEET 56 OF 276



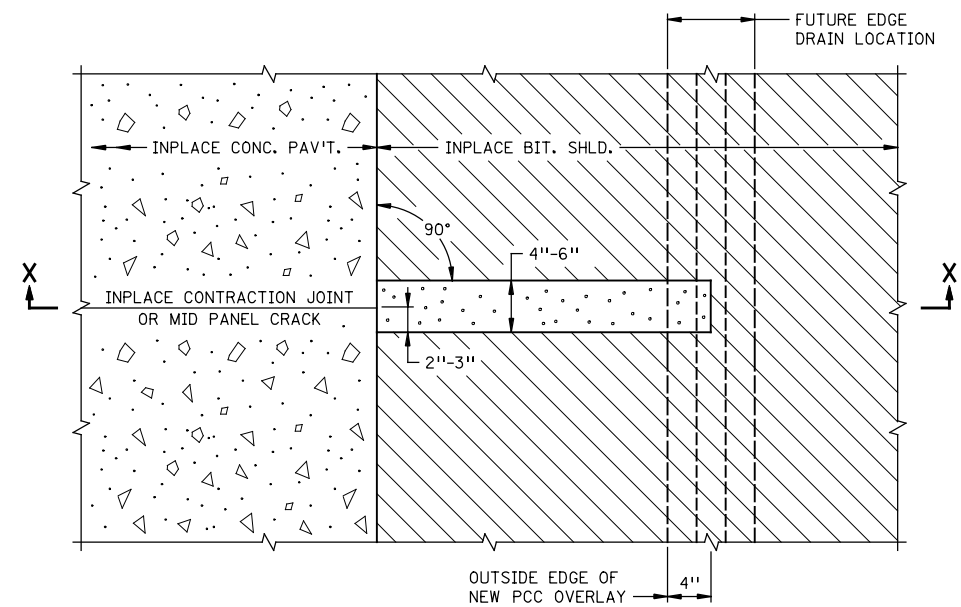
TYPICAL SECTION (OPTION NO. 1) ①



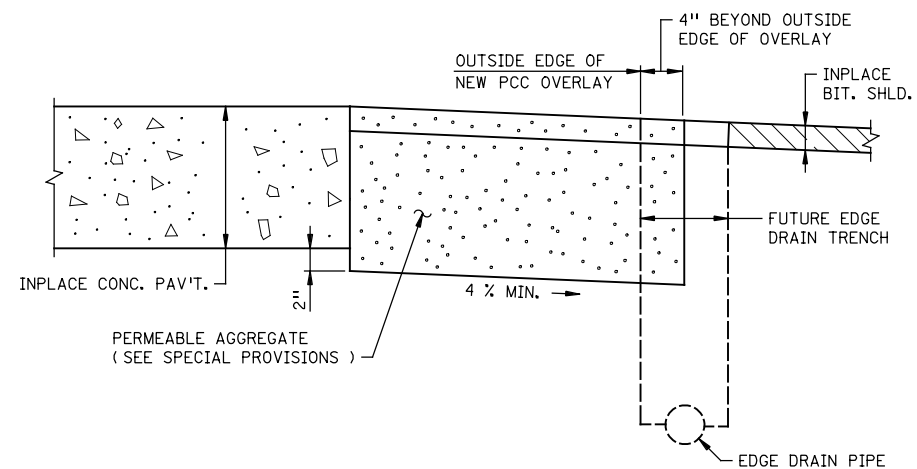
TYPICAL SECTION (OPTION NO. 2) ①

SUBSURFACE DRAIN, SUBCUT DRAIN TYPE

- NOTES:**
- ① MAY NEED TO BE MODIFIED FOR SPECIFIC PROJECTS. SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS. OPTION NO. 2 MAY ONLY BE USED WHEN PIPE IS TO BE PLACED BY MACHINE TRENCHER.
 - ② GRANULAR, SELECT GRANULAR OR SELECT GRANULAR MODIFIED. (AS SHOWN IN DESIGN RECOMMENDATION LETTER).



PLAN VIEW



SECTION X-X

INTERCEPTOR DRAIN DETAIL ①

- NOTE:**
- ① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.

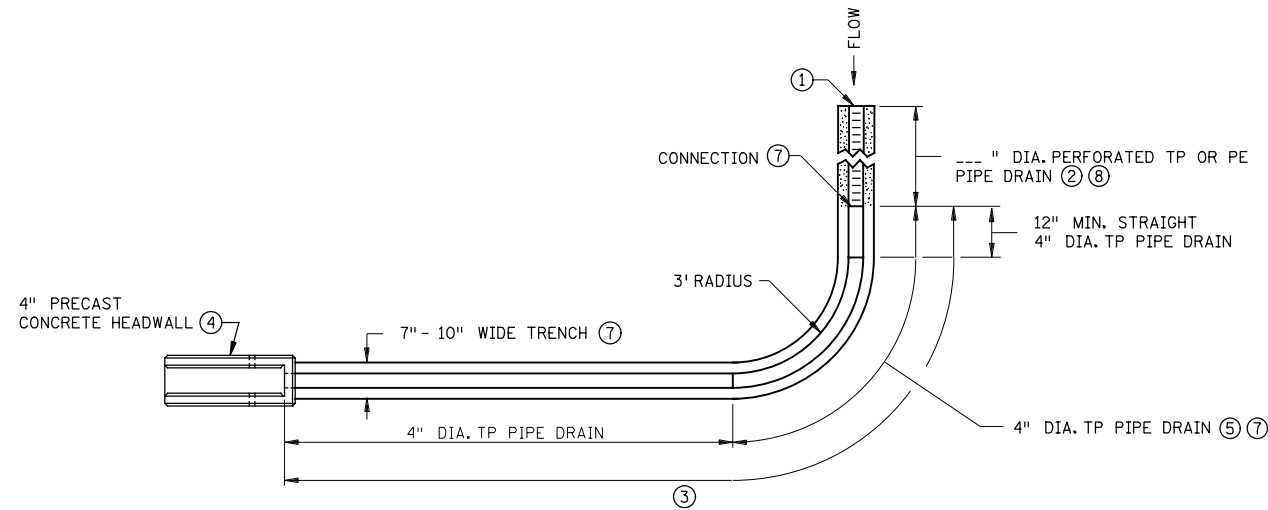
REVISION:
APPROVED: 8-6-2014 <i>[Signature]</i> DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

	REVISION: STATE DESIGN ENGINEER <i>[Signature]</i>	APPROVED: 8-6-2014	SUBSURFACE DRAINS	
			STANDARD PLAN 5-297.430	1 OF 1

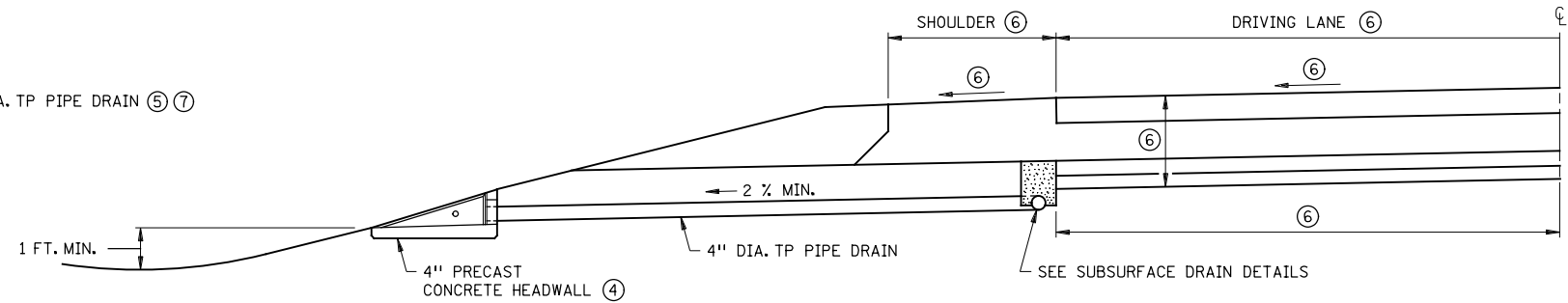
STATE PROJECT NO. 0704-108 (TH 22)	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLANS TH 22 & CSAH 90	SHEET 57 OF 276
STATE PROJECT NO. 007-070-005	DESIGNED BY		
	CHECKED BY		
	COMM. NO. 01710321		

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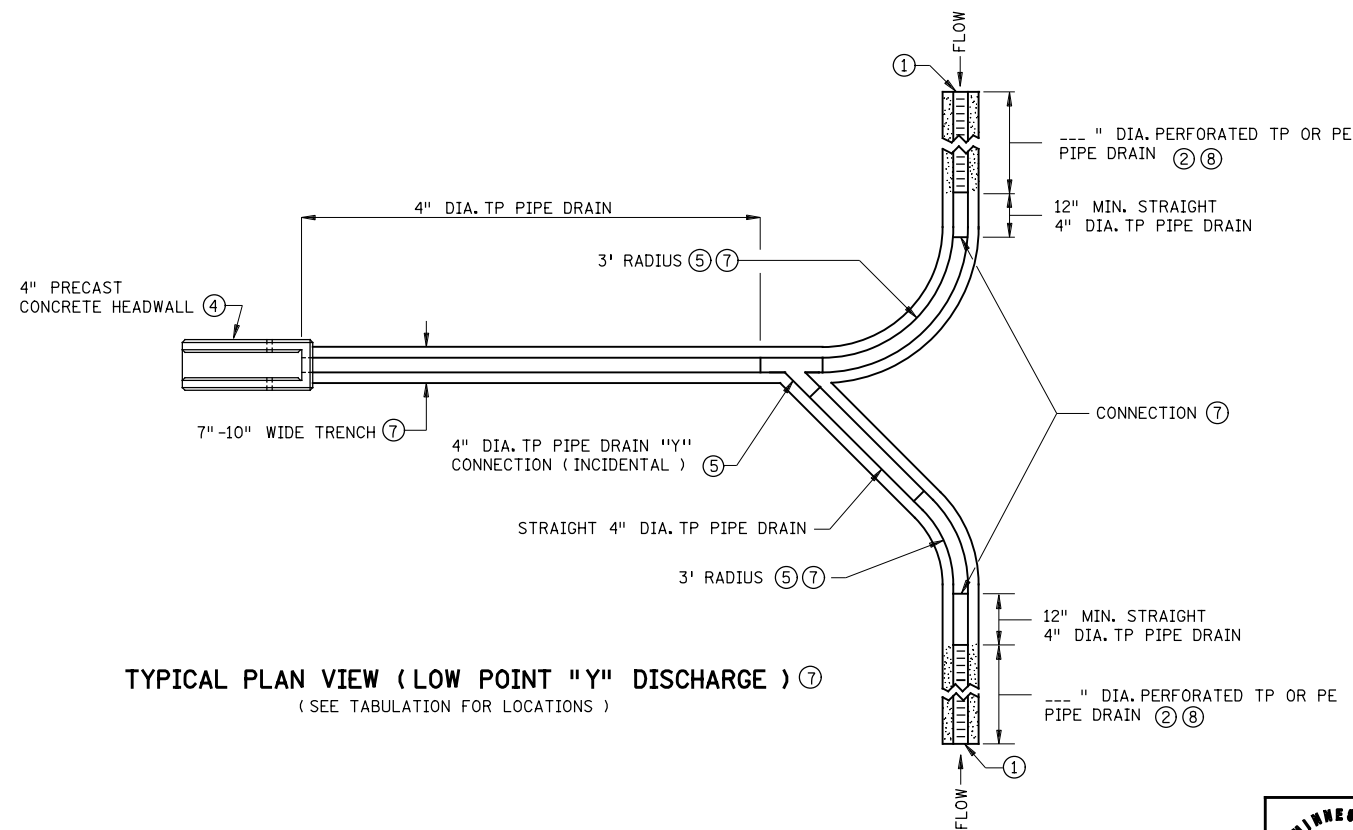
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TYPICAL PLAN VIEW (SINGLE DISCHARGE) ⑦
(SEE TABULATION FOR LOCATIONS)



SECTION VIEW
TYPICAL EDGE DRAIN AND DISCHARGE CROSS SECTION ⑦
(SEE TABULATION FOR LOCATIONS)



TYPICAL PLAN VIEW (LOW POINT "Y" DISCHARGE) ⑦
(SEE TABULATION FOR LOCATIONS)

NOTES:

- ① THE UPSTREAM ENDS OF THE PERFORATED PIPE SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, THE CAPS ARE INCIDENTAL. PLACE PERFORATED PIPE WITH THE PERFORATIONS DOWN.
- ② MAXIMUM LENGTH 500 FT., EXCEPT 300 FT. MAXIMUM FOR GRADES LESS THAN 0.2% . LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, -- INCH PERFORATED TP OR PE PIPE DRAIN.
- ③ LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, 4 INCH DIA. TP PIPE DRAIN.
- ④ PRECAST CONCRETE HEADWALL STANDARD PLATE 3131 PAID FOR AS SPEC. 2502, 4 INCH PRECAST CONCRETE HEADWALL.
- ⑤ DETAILS OF CONNECTION AND COUPLING TO PIPE SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR "Y " AND EXTRA CONNECTION, 11 INCH TP PIPE AND COUPLING TO BE INCIDENTAL.
- ⑥ SEE ROADWAY TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
- ⑦ SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
- ⑧ 3 INCH OR 4 INCH DIAMETER.

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DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
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APPROVED: 8-6-2014

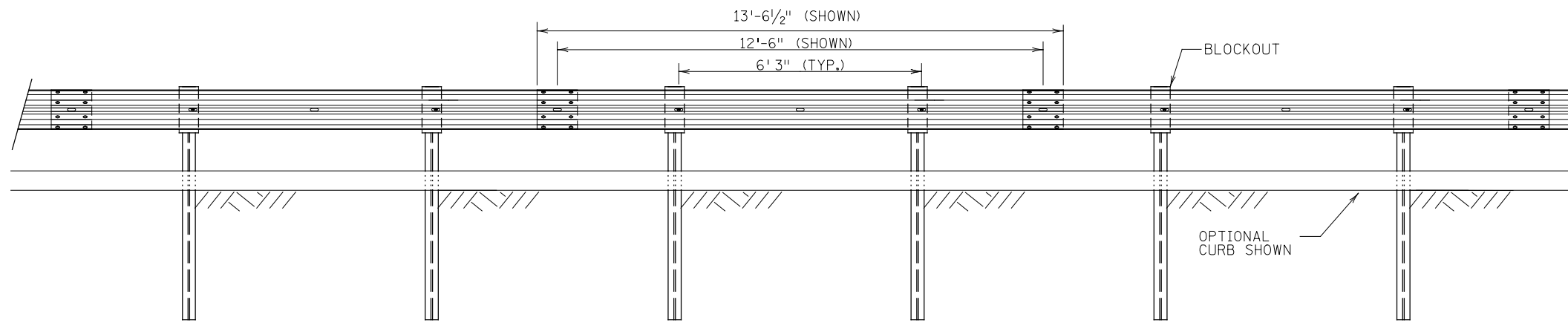
REVISI:
SUBSURFACE DRAINS
OUTLET PIPES FOR EDGE AND SUBCUT DRAINS
STANDARD PLAN 5-297.433 | **1 OF 1**

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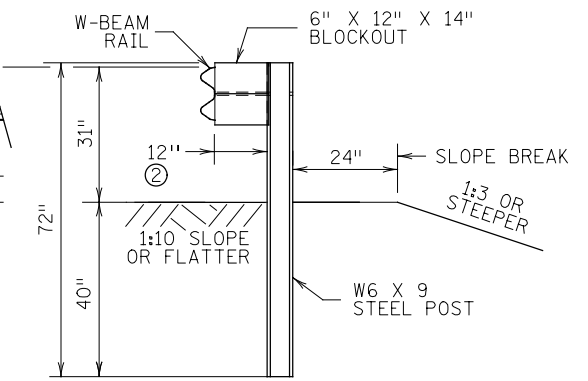
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STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005
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CHECKED BY
COMM. NO. 01710321

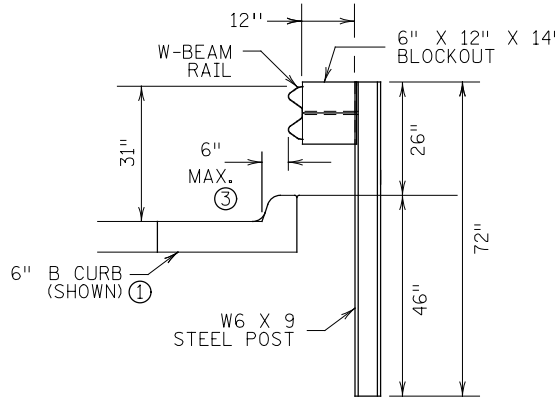
MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
TH 22 & CSAH 90
SHEET 58 OF 276



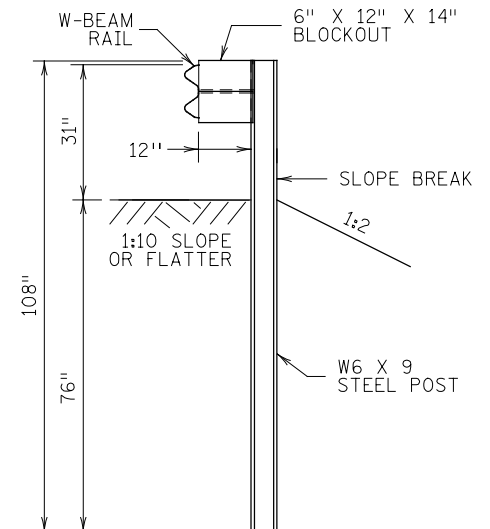
TRAVEL DIRECTION
FRONT VIEW



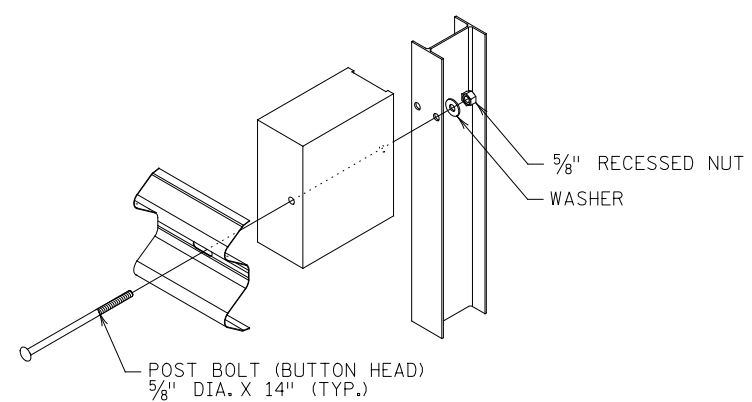
SIDE VIEW



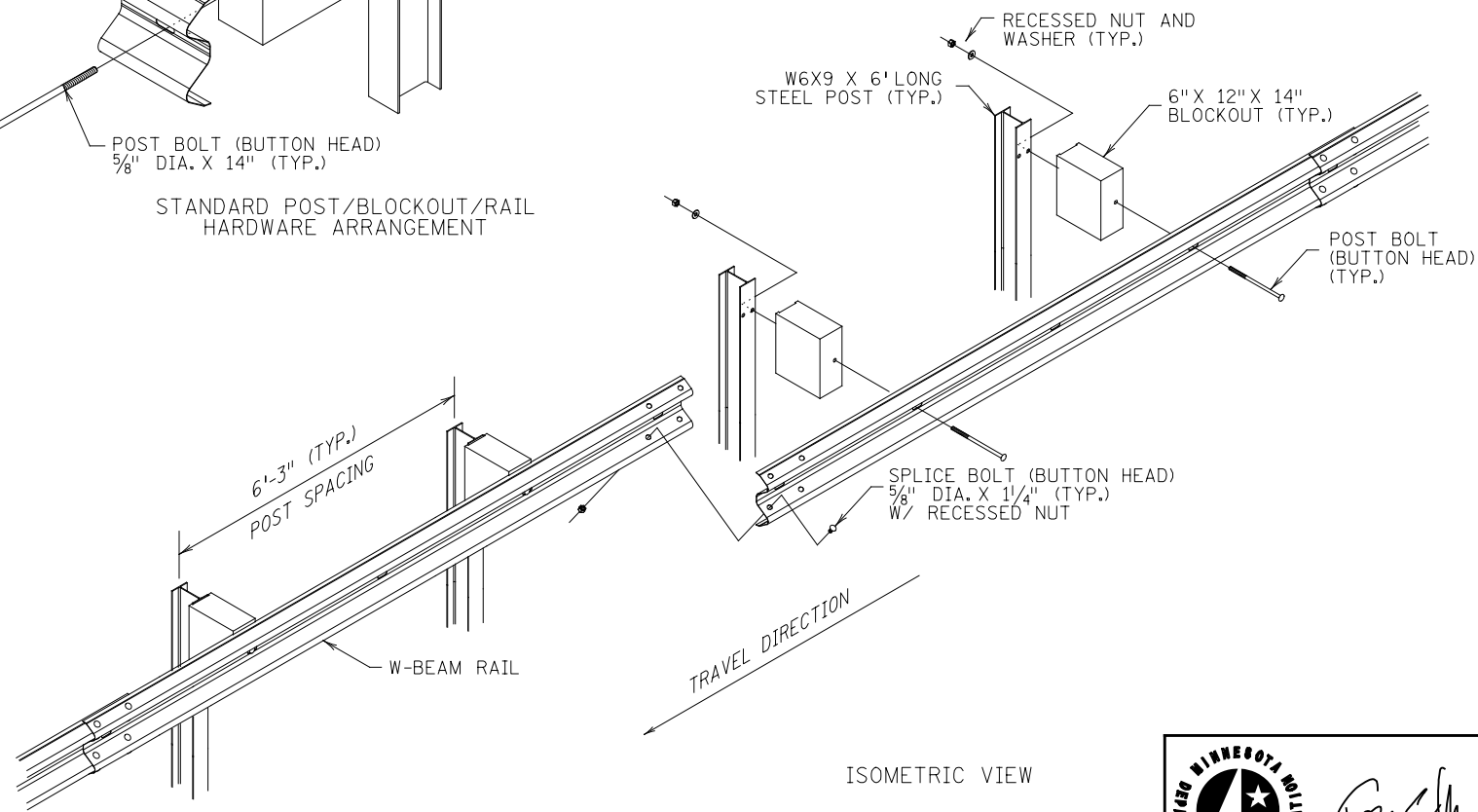
TYPE 31 GUARDRAIL WITH CURB



TYPE 31 GUARDRAIL WITH 1:2 BACK SLOPE AT POST



STANDARD POST/BLOCKOUT/RAIL HARDWARE ARRANGEMENT



ISOMETRIC VIEW

NOTES:

GUARDRAIL IS PLACED ON SLOPES 1:10 OR FLATTER WITH SLOPE EXTENDING A MINIMUM 24" BEHIND POST TO SLOPE BREAK POINT.

WOOD BLOCKOUT SHOWN. PROPRIETARY BLOCKOUTS THAT MEET THE REQUIREMENTS OF MASH MAY BE SUBSTITUTED AT NO ADDITIONAL COST. BLOCKOUTS SHALL NOT ROTATE AFTER INSTALLATION.

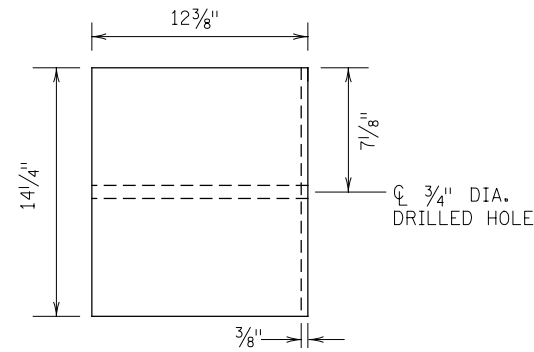
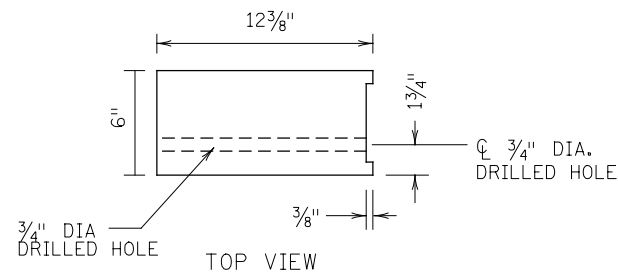
ALL RAIL AND HARDWARE COMPONENTS PER AASHTO SPEC. M 180

- ① B CURB OR D CURB ACCEPTABLE.
- ② MAXIMUM OF 24" MAY BE USED WHERE UNDERGROUND POST OBSTRUCTIONS ARE ENCOUNTERED.
- ③ 0" TO 6" MAXIMUM,

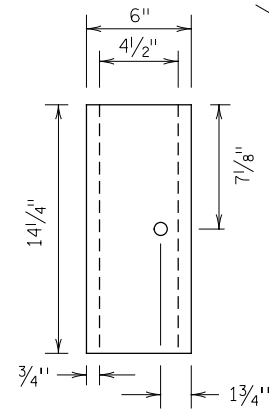
	REVISIONS: 	TRAFFIC BARRIER TYPE 31 ASSEMBLY DETAILS	
	APPROVED: 7-19-2016	STANDARD PLAN 5-297.690	1 OF 2

STATE PROJECT NO. 0704-108 (TH 22)	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLANS TH 22 & CSAH 90	SHEET 59 OF 276
STATE PROJECT NO. 007-070-005	DESIGNED BY		
	CHECKED BY		
	COMM. NO. 01710321		

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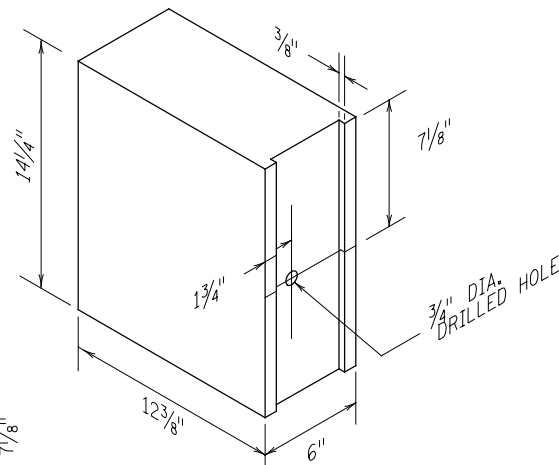


SIDE VIEW

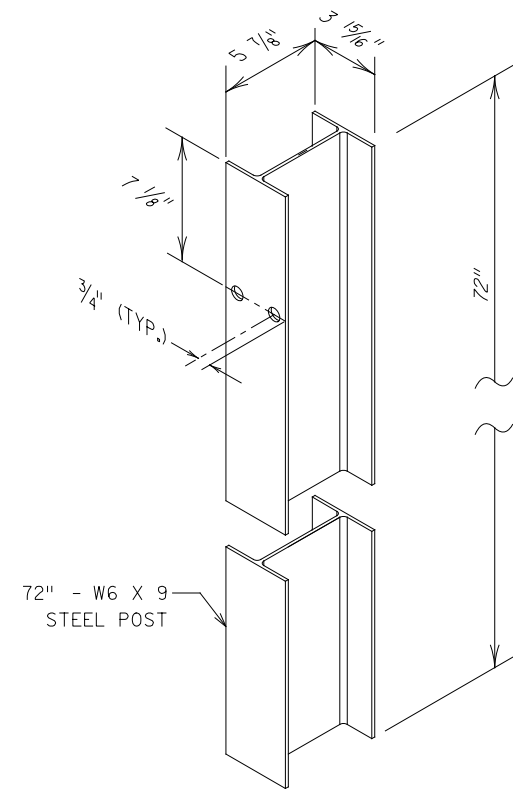


FRONT VIEW

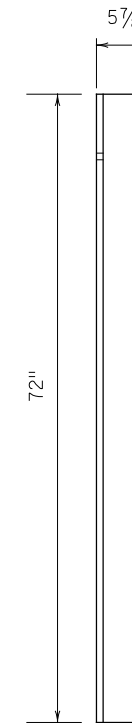
BLOCKOUT WITH ROUTED GROOVE



ISOMETRIC BACK VIEW

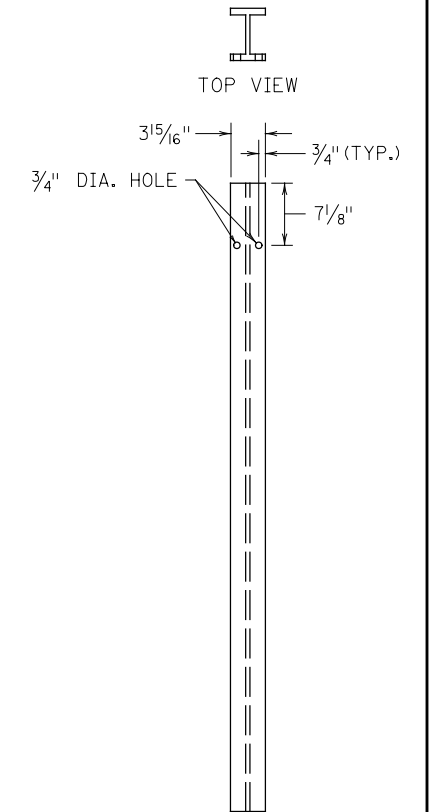


ISOMETRIC FRONT VIEW

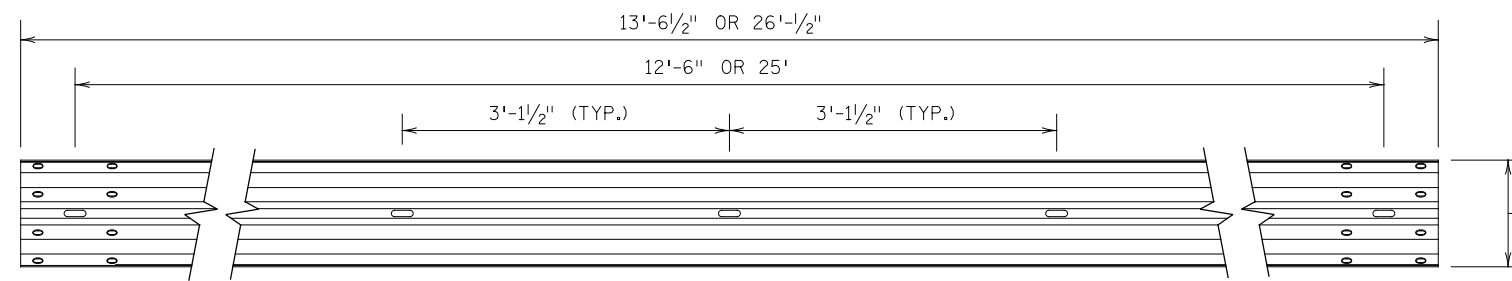


SIDE VIEW

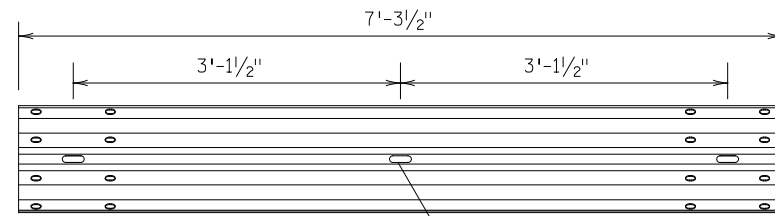
LINE POST ①



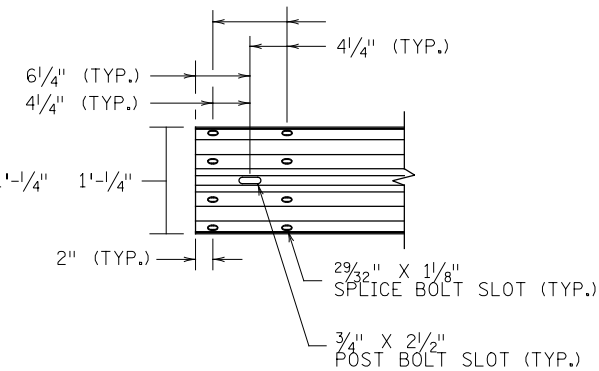
FRONT VIEW



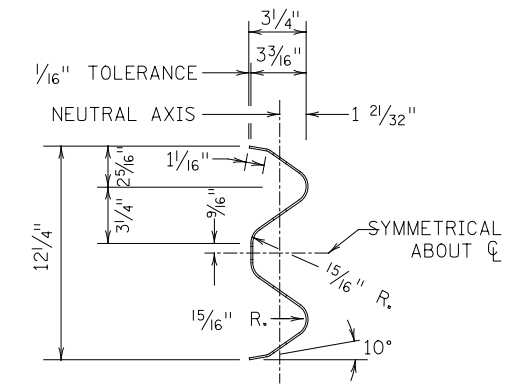
12'-6" OR 25' W-BEAM RAIL



6'-3" W-BEAM RAIL
3/4" X 2 1/2" POST BOLT SLOT (TYP.)



W-BEAM RAIL
SPLICE BOLT/POST BOLT DETAIL



W-BEAM CROSS SECTION
AASHTO DESIGNATION M 180-11

NOTES:

ALL POSTS SHALL BE STAMPED INDICATING THE POST SIZE AND LENGTH. STAMP SHALL BE VISIBLE AFTER BEING PLACED.

① 72" - W6 X 9 STEEL POST SHOWN.

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

COMM. NO. 01710321

REVISOR:

APPROVED: 7-19-2016

STATE DESIGN ENGINEER

TRAFFIC BARRIER TYPE 31
LINE POST, SPACER BLOCK, AND W-BEAM RAIL DETAILS

STANDARD PLAN 5-297.690

2 OF 2

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STATE PROJECT NO. 007-070-005	DESIGNED BY
	CHECKED BY
	COMM. NO. 01710321

MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 60
STANDARD PLANS	OF 276
TH 22 & CSAH 90	

NOTES & GUIDELINES

GENERAL INFORMATION:

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MN MUTCD.
5. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS, SIGNED BY A QUALIFIED INDIVIDUAL LICENSED BY THE STATE OF MINNESOTA AS A PROFESSIONAL ENGINEER, TO BE APPROVED BY THE ENGINEER.

SIGNING:

1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE PLACED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS SHOWN IN THE TYPICAL TEMP SIGN FRAMING & INSTALLATION DETAILS IN THE PLAN. IF THIS IS NOT POSSIBLE THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MNDOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS".
5. BARRICADES SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MNDOT APPROVED PRODUCT LIST FOR BARRICADE SHEETING. NOTE THAT ASTM TYPE VII SHEETING IS NOT ALLOWED ON BARRICADES.
6. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
7. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE PLACED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS PLACED.

PAVEMENT MARKING:

1. OBLITERATE ANY CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
2. PAINT, POLYMER LANE TAPE AND/OR TRPM'S ARE ACCEPTABLE TEMPORARY STRIPING ALTERNATIVES ACCORDING TO ACTUAL CONDITIONS ENCOUNTERED AS DIRECTED BY THE ENGINEER. GENERALLY, ONLY PAINT WILL BE USED BEFORE MAY 1ST OR WHEN THE OTHER MANUFACTURERS' SPECIFICATIONS CAN NOT BE MET.
3. TRPM'S (TEMPORARY RAISED PAVEMENT MARKERS) SHOULD BE USED TO SUPPLEMENT THE LONG TERM (MORE THAN 3 DAYS) EDGELINES ON ALL TRANSITION AREAS WHEN THE CONDITIONS ARE WITHIN THE MANUFACTURERS' SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PLACEMENT OF TEMPORARY AND FINAL STRIPING.

BARRIER & DELINEATION:












1. TOP MOUNTED BARRIER DELINEATORS WILL HAVE A MINIMUM OF 24 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 25' SPACES ON TOP OF THE BARRIER WHEN THE BARRIER IS WITHIN 10' OF TRAFFIC UNLESS OTHERWISE NOTED OR AS DIRECTED BY THE ENGINEER. IF THE TRAFFIC ENGINEER REQUIRES SIDE MOUNTED BARRIER DELINEATORS, THEY WILL HAVE A MINIMUM OF 12 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 25' SPACES. IF A SMALLER APPROVED BARRIER DELINEATOR IS USED IT SHALL BE AT ONE HALF THE SPACING AND ONE HALF THE BID PRICE.

CONSTRUCTION INFORMATION SIGNING:

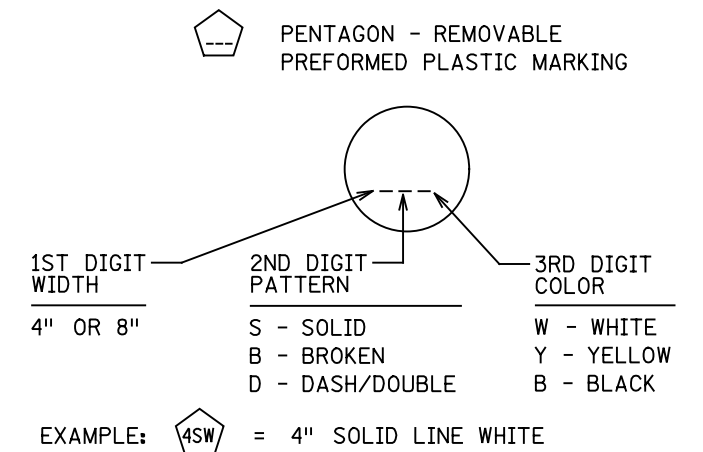
1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN AND WHICH ARE TO BE USED AS FOLLOWS:
 G20-X1 CLOSURE NOTICE SIGNS PAIRED WITH G20-X3 WORK ENDS SIGNS TO DISPLAY THE CORRECT START DATE AND AN ESTIMATED FINISH DATE AS APPROVED BY THE PROJECT ENGINEER.
 G20-X2 WORK ZONE ADVANCE NOTICE SIGNS WITH THE CORRECT STARTING DATE DISPLAYED BEFORE WORK BEGINS. ONCE WORK BEGINS, THE START DATE LEGEND SHALL BE COVERED BY THE SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SUGGESTED OR IF DIRECTED BY THE PROJECT ENGINEER, THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON SHALL BE DISPLAYED.
 CONSTRUCTION INFORMATION SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR PROJECT ENGINEER.

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

-  AREA CLOSED TO TRAFFIC / WORK AREA
-  TRAFFIC CONTROL SIGN
-  TYPE III BARRICADE = 
-  DRUM-LIKE CHANNELIZER (TYPE B) = 
-  TYPE A FLASHING WARNING LIGHT
-  FLASHING ARROW BOARD TYPE C = (4' X 8' UNLESS OTHERWISE NOTED). 
-  IMPACT ATTENUATOR
-  PORTABLE PRECAST CONC BARRIER DES 8337 WITH DELINEATORS AT 25' SPACING

STRIPING KEY



TRAFFIC CONTROL							DD		
ALIGNMENT	STATION TO STATION	PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337 LIN FT	RELOCATE PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337 LIN FT	TRAFFIC CONTROL LUMP SUM	IMPACT ATTENUATOR (DD-1) ASSEMBLY	RELOCATE IMPACT ATTENUATOR ASSEMBLY	REMOVABLE PREFORMED PAVEMENT MARKING TAPE (WHITE) LIN FT	REMOVABLE PREFORMED PAVEMENT MARKING TAPE (YELLOW) LIN FT	REMOVEABLE PREFORMED PLASTIC MASK (BLACK) LIN FT
SP 0704-108 (TH 22) NHPP FUNDS									
NB TH 22	631+69 TO 717+00	250	250		1	1	660	1500	2500
NB TH 22	717+00 TO 724+52	370	270		3	1		1600	3200
NB TH 22	733+27 TO 760+14								
SP 0704-108 (TH 22) NHPP FUNDS TOTAL		620	520	.34	4	2	660	3100	5700
SP 0704-108 (TH 22) HSIP FUNDS									
NB TH 22	724+52 TO 733+27								
SP 0704-108 (TH 22) HSIP FUNDS TOTAL				.33					
SP 007-070-005 (CSAH 90) HSIP FUNDS									
EB CSAH 90	608+40 TO 613+83								
EB CSAH 90	615+39 TO 620+00								
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL				.33					
PROJECT TOTALS		620	520	1	4	2	660	3100	5700

NOTES:
 (DD-1) IMPACT ATTENUATOR FOR TEMPORARY USE AND SHALL BE TEST LEVEL 3 (TL3) ASSEMBLIES.

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NO	DATE	BY	CKD	APPR	REVISION

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 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 DESIGNED BY B. BETTS
 STATE PROJECT NO. 007-070-005
 CHECKED BY A. POTTER
 COMM. NO. 01710321

SRH ENGINEERS PLANNERS DESIGNERS
 Consulting Group, Inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION
 TRAFFIC CONTROL AND DETOUR PLANS
 TH 22 & CSAH 90
 NOTES, LEGEND AND TABULATIONS

SHEET 61 OF 276

R SERIES			
SIGN	CODE NO.	COLOR	SIZE (IN)
	R1-1	WHITE ON RED	36 x 36
	R11-2	BLACK ON WHITE	48 x 30
	R11-3a	BLACK ON WHITE	60 x 30
	R11-4	BLACK ON WHITE	60 x 30

W SERIES			
SIGN	CODE NO.	COLOR	SIZE (IN)
	W1-6	BLACK ON ORANGE	48 x 24
	W20-2	BLACK ON ORANGE	36 x 36
	W20-3	BLACK ON ORANGE	36 x 36
	W20-100P	BLACK ON ORANGE	30 x 24

M SERIES			
SIGN	CODE NO.	COLOR	SIZE (IN)
	M1-5A	WHITE AND GOLD ON BLUE	24 x 24
	M1-6	WHITE AND YELLOW ON BLUE	24 x 24
	M3-3A	WHITE ON BLUE	24 x 12
	M3-1A	WHITE ON BLUE	24 x 12
	M4-5A	WHITE ON BLUE	24 x 12
	M4-8	BLACK ON ORANGE	24 x 12
	M5-1AL	WHITE ON BLUE	21 x 15
	M5-1AR	WHITE ON BLUE	21 x 15
	M6-1AL	WHITE ON BLUE	21 x 15
	M6-1AR	WHITE ON BLUE	21 x 15
	M6-2AR	WHITE ON BLUE	21 x 15
	M6-3A	WHITE ON BLUE	21 x 15

G SERIES			
SIGN	CODE NO.	COLOR	SIZE (IN)
	G20-X2	BLACK ON ORANGE	132 x 108 168 x 132
	G20-X6R	BLACK ON ORANGE	60 x 24
	G20-X6L	BLACK ON ORANGE	60 x 24
	G20-X6 (MOD)	BLACK ON ORANGE	60 x 24
	G20-X6 (MOD)	BLACK ON ORANGE	60 x 24
	G20-X6 (MOD)	BLACK ON ORANGE	60 x 24

BUSINESS SIGNING			
SIGN	PANEL LEGEND	COLOR	SIZE (IN)
B-1		BLACK ON ORANGE	114 x 66
B-2		BLACK ON ORANGE	114 x 66
B-3		BLACK ON ORANGE	114 x 66
B-4		BLACK ON ORANGE	114 x 72

DEVICES			
DEVICE	DESIGNATION	COLOR	TYPE
	WARNING FLASHER LIGHT	AMBER	TYPE A
	TYPE III BARRICADE RIGHT	WHITE ON ORANGE	8 FT LONG
	TYPE III BARRICADE LEFT	WHITE ON ORANGE	8 FT LONG
	IMPACT ATTENUATOR	YELLOW	TL3
	PORTABLE PRECAST CONCRETE BARRIER	-	STD. PL. 8337
	REFLECTORIZED PLASTIC DRUM	WHITE AND ORANGE ON ORANGE	STD. PL. 8000

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NO	DATE	BY	CKD	APPR	REVISION

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 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

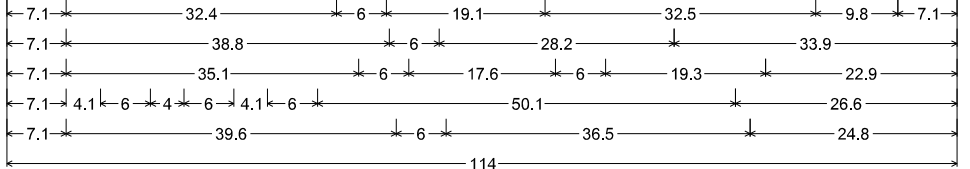
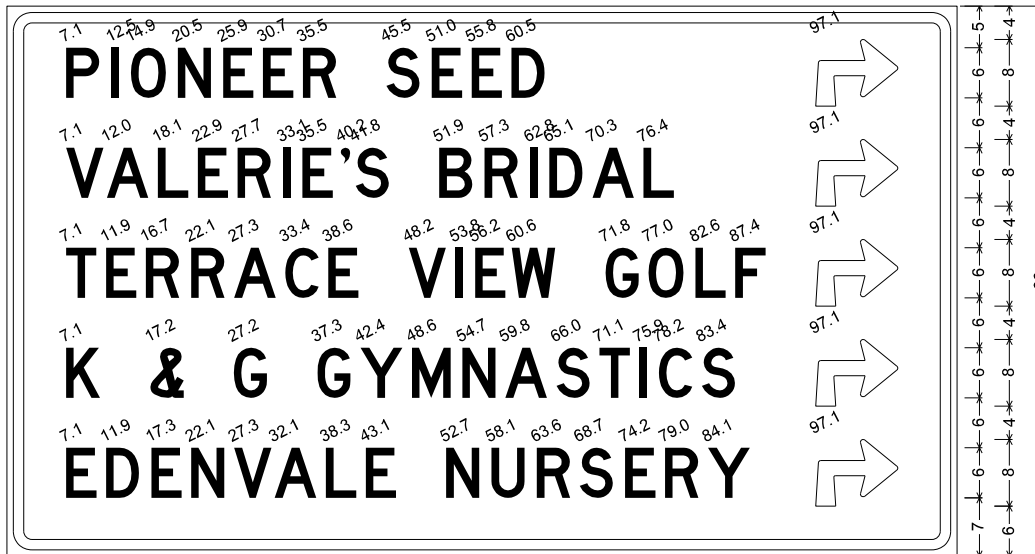
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 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
 COMM. NO. 01710321



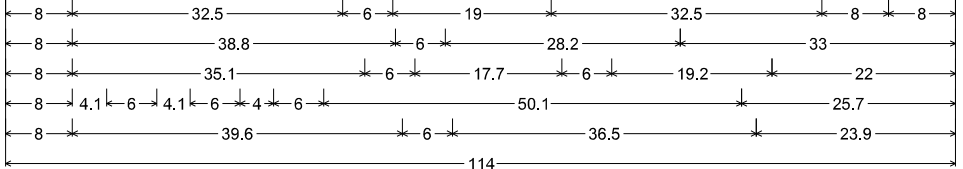
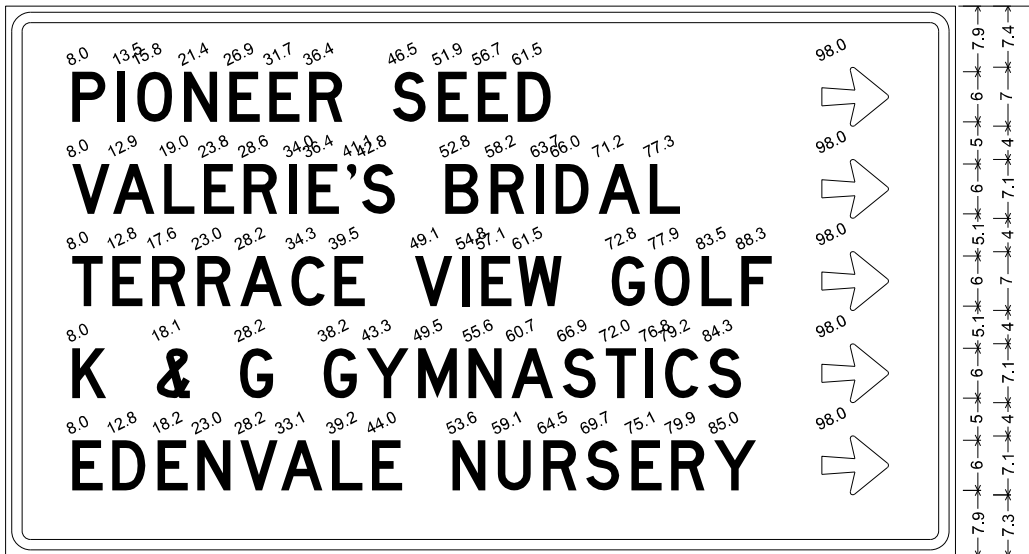
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 PLANNERS
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 TRAFFIC CONTROL AND DETOUR PLANS
 TH 22 & CSAH 90
 SIGNS AND DEVICES

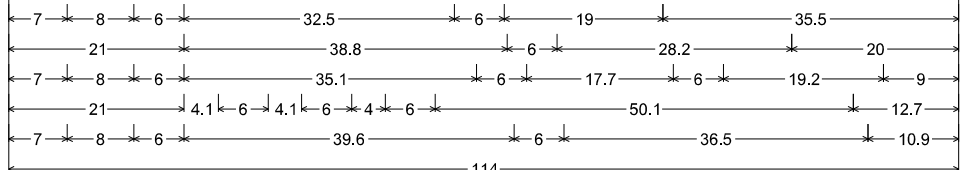
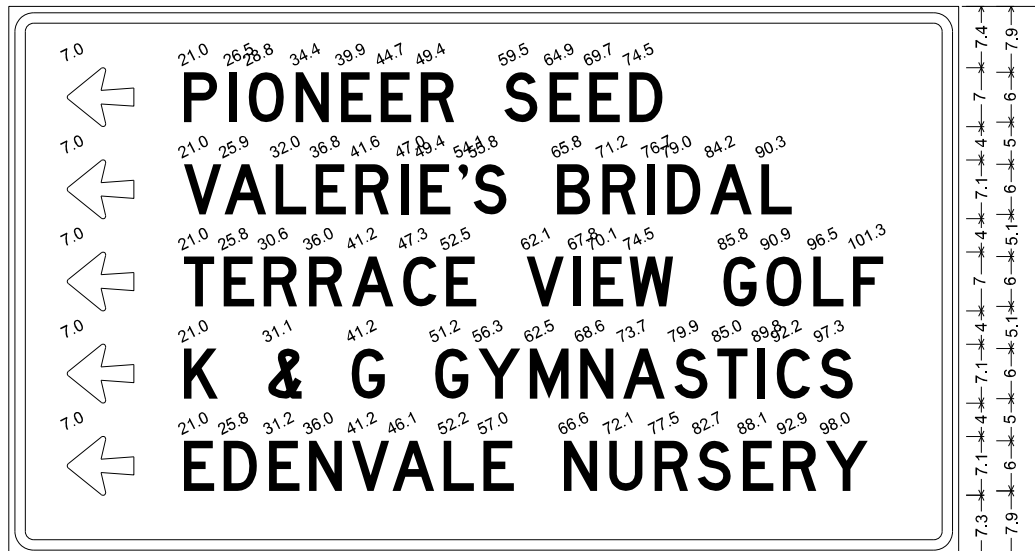
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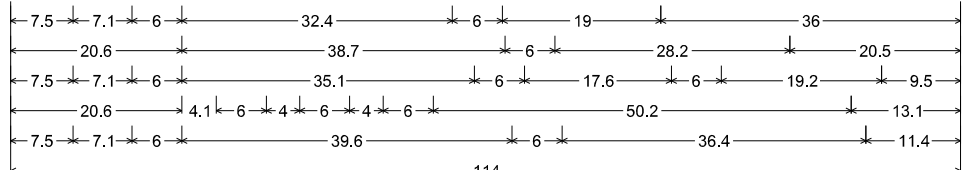
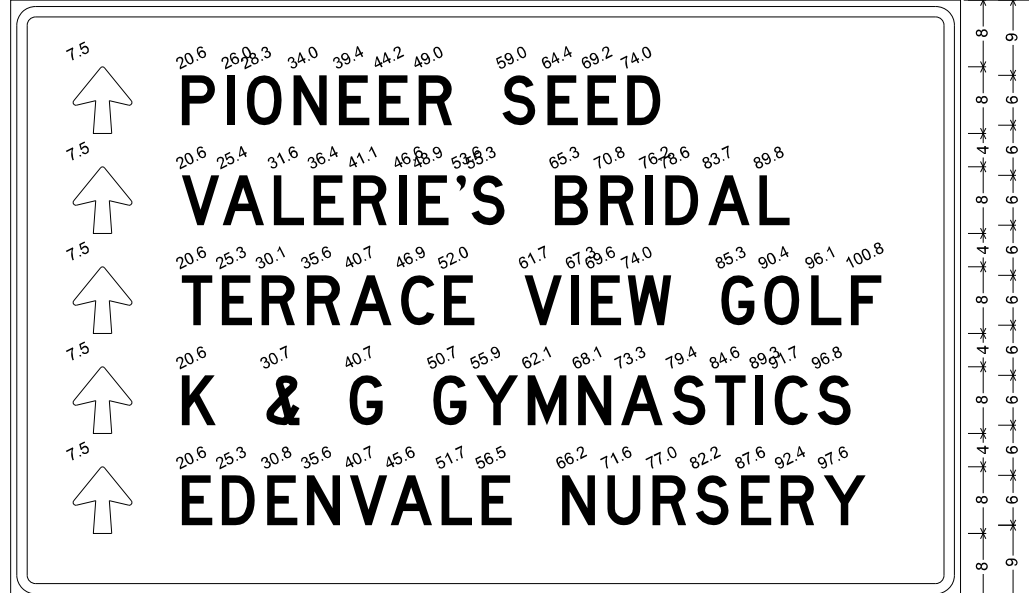
B-1: 3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
 [PIONEER SEED] D; 90 Deg Advance Turn Arrow 16.0" X 13.0" Black; [VALERIE'S BRIDAL] D;
 90 Deg Advance Turn Arrow 16.0" X 13.0" Black; [TERRACE VIEW GOLF] D;
 90 Deg Advance Turn Arrow 16.0" X 13.0" Black; [K & G GYMNASTICS] D;
 90 Deg Advance Turn Arrow 16.0" X 13.0" Black; [EDENVALE NURSERY] D;
 90 Deg Advance Turn Arrow 16.0" X 13.0" Black;



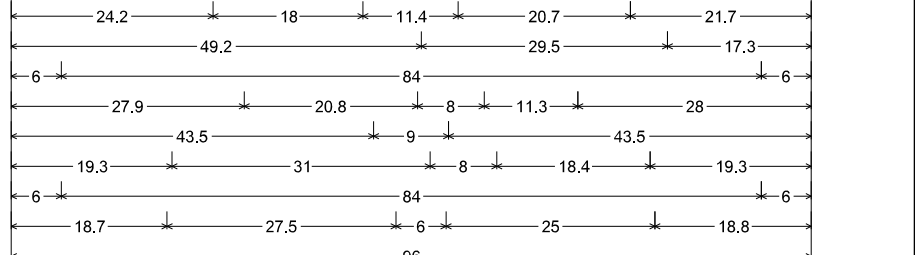
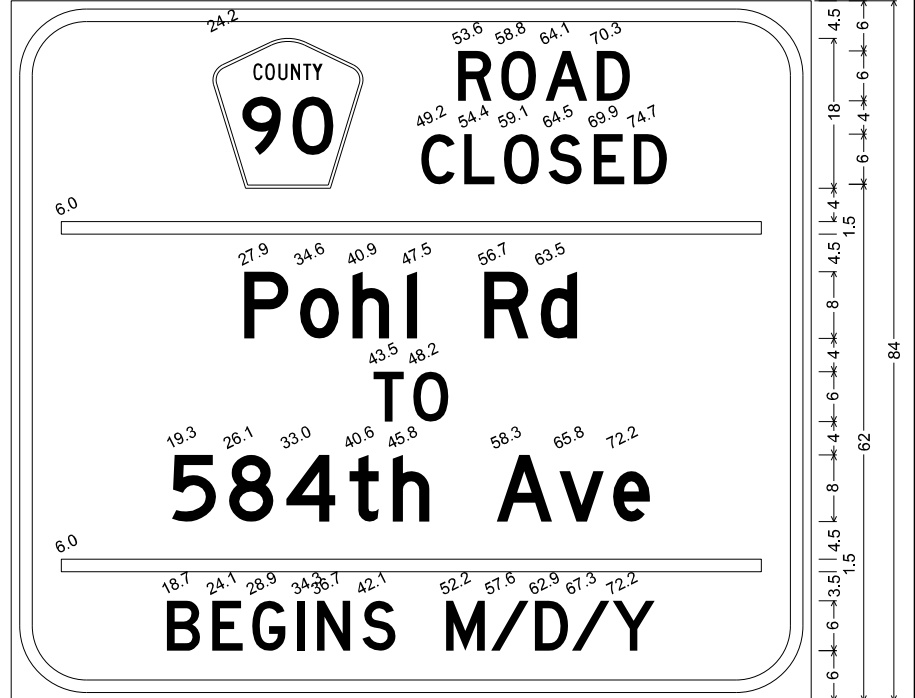
B-2: 3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
 [PIONEER SEED] D; Arrow 2 - 8.0" 0°; [VALERIE'S BRIDAL] D; Arrow 2 - 8.0" 0°; [TERRACE VIEW GOLF] D;
 Arrow 2 - 8.0" 0°; [K & G GYMNASTICS] D; Arrow 2 - 8.0" 0°; [EDENVALE NURSERY] D; Arrow 2 - 8.0" 0°;



B-3: 3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
 Arrow 2 - 8.0" 180°; [PIONEER SEED] D; Arrow 2 - 8.0" 180°; [VALERIE'S BRIDAL] D; Arrow 2 - 8.0" 180°;
 [TERRACE VIEW GOLF] D; Arrow 2 - 8.0" 180°; [K & G GYMNASTICS] D; Arrow 2 - 8.0" 180°;
 [EDENVALE NURSERY] D;



B-4: 3.0" Radius, 1.3" Border, 0.8" Indent, Black on Orange;
 Arrow 2 - 8.0" 90°; [PIONEER SEED] D; Arrow 2 - 8.0" 90°; [VALERIE'S BRIDAL] D; Arrow 2 - 8.0" 90°;
 [TERRACE VIEW GOLF] D; Arrow 2 - 8.0" 90°; [K & G GYMNASTICS] D; Arrow 2 - 8.0" 90°;
 [EDENVALE NURSERY] D;



G20-X2(2a)_96x84; 9.0" Radius, 1.5" Border, 1.0" Indent, Black on Orange;
 [ROAD] D; [CLOSED] D; [Pohl Rd] D; [TO] D; [584th Ave] D; [BEGINS] D; [M/D/Y] D;

NOTE:
 ALL DIMENSIONS ARE IN INCHES.

TRAFFIC CONTROL SIGN PANELS

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NO	DATE	BY	CKD	APPR	REVISION

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 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY B. BETTS
 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
 COMM. NO. 01710321



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 TRAFFIC CONTROL AND DETOUR PLANS
 TH 22 & CSAH 90
 PANEL DETAILS

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SIGN DATA

SIGNS TO BE PLACED ON DRIVEN U-POSTS SHALL BE PLACED IN ACCORDANCE WITH TABLE 1 OR 2 BELOW. IF THE TTC PLAN PLACES POST MOUNTED TEMPORARY SIGNS ADJACENT TO EXISTING STRUCTURES THERE SHALL BE NO MORE THAN TWO U-POST WITHIN 84 INCHES OF EACH OTHER ALIGNED IN THE SAME PLANE SO AS NOT TO COMPROMISE THAT STRUCTURE'S AND THE NEW DEVICE'S CRASHWORTHINESS. IF IT IS NOT POSSIBLE TO MAINTAIN THIS SPACING THEN THE POST MOUNTED TEMPORARY SIGNS SHALL BE PLACED A MIN OF 4' BEYOND THE IN PLACE STRUCTURES. SIGN PANELS SHALL BE PLACED ON SIGN STRUCTURES TO MEET THE 5' MIN DEPICTED ON THE TYPICAL RURAL DESIGN DETAIL, THE 7' MIN DEPICTED ON THE TYPICAL URBAN DESIGN DETAIL, AND THE 9' MIN DEPICTED ON THE TYPICAL MOUNTING DETAIL ON THIS SHEET.

STANDARD CONSTRUCTION SIGNS IN MnDOT STANDARD SIGNS AND MARKINGS MANUAL

TABLE 1

PANEL SIZE (IN.)	POSTS			
	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
24 x 24	2-U	18		13
30 x 24	2-U	18		13
36 x 30	2-U	24		13
36 x 36	2-U	18		14
42 x 36	2-U	30		14
48 x 48	2-U	30		15
60 x 60	2-U	42	1	16
66 x 60	2-U	42	2	16
72 x 72	2-U	42	2	17
96 x 54	2-U	54	2	19
96 x 84	2-U	54	2	19
132 x 108	3-U	45	3	22
168 x 132	4-U	48	4	25

GENERAL NOTES:

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE MnDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING HOLES.
3. MINIMUM OF 45" SPACING BETWEEN POSTS MUST BE MAINTAINED WHEN USING MORE THAN TWO POSTS.

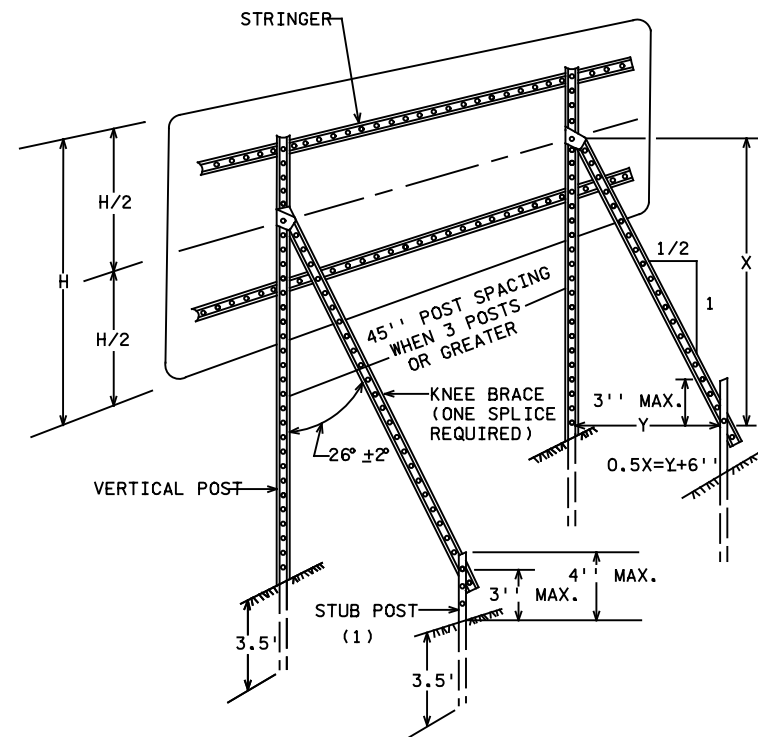
TABLE 2
SPECIAL DESIGN CONSTRUCTION SIGNS

LENGTH (IN.)	HEIGHT (IN.)	POSTS			
		NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
54 - 96	78	2-U	42	2	20
102 - 138	78	3-U	45	3	20
144 - 180	78	4-U	45	4	20

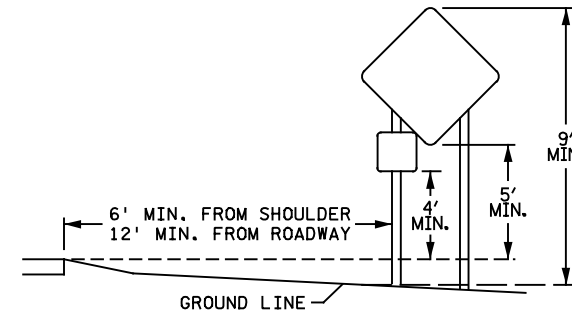
NOTES: FOR TEMPORARY CONSTRUCTION SIGN FRAMING, THE CONTRACTOR MAY USE GRADE 5 ZINC PLATED BOLTS FOR ALL BOLTED CONNECTIONS, EXCEPT FOR THE KNEE BRACE CONNECTION TO THE REAR STUB POST, WHICH SHALL UTILIZE A 5/16 INCH STAINLESS STEEL BOLT AND NYLON INSERT LOCK NUT. ADDITIONAL SIGN FRAMING DETAILS CAN BE FOUND IN THE TRAFFIC ENGINEERING MANUAL PART 6.

IF THE CONTRACTOR ELECTS TO USE SOME OTHER TYPE OF SIGN SUPPORT (OTHER THAN U-CHANNEL SIGN POSTS) FOR MOUNTING CONSTRUCTION SIGNS, DETAILS OF THE PROPOSED SIGN STRUCTURE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE SIGN STRUCTURE COMPONENTS. ANY SIGN STRUCTURE TO BE SUBMITTED TO THE ENGINEER SHALL BE AN FHWA ACCEPTED BREAKAWAY SIGN SUPPORT. SIGN STRUCTURE SHALL ALSO BE APPROVED FOR 90 MPH WIND LOAD.

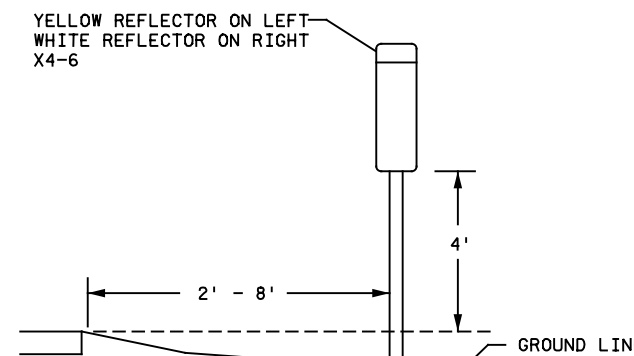
TYPICAL TEMPORARY SIGN FRAMING AND INSTALLATION DETAILS



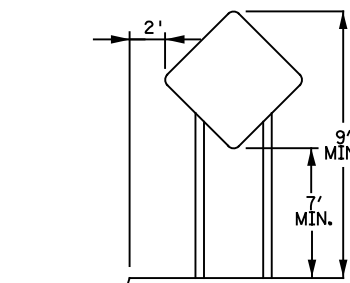
TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS



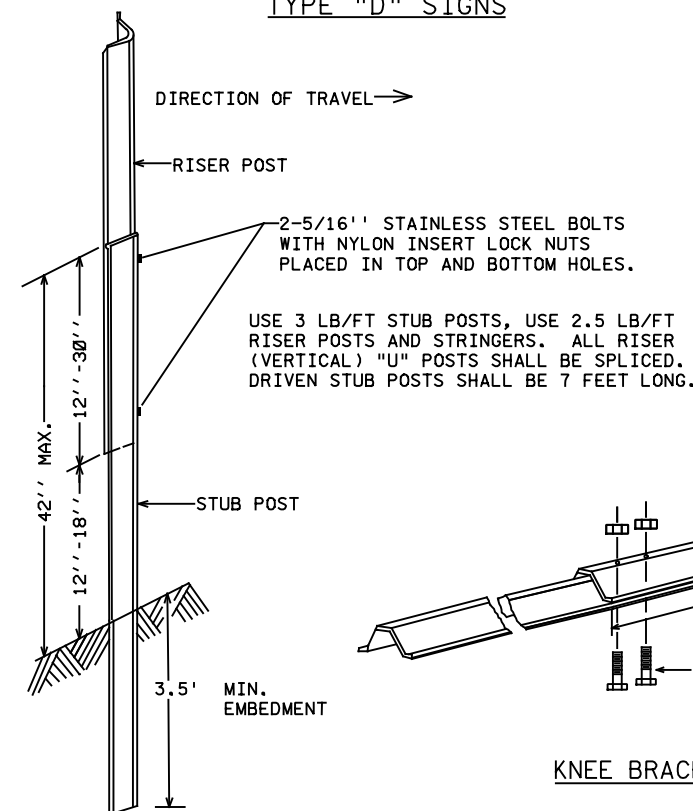
TYPICAL RURAL DESIGN



DELINEATION MOUNTING

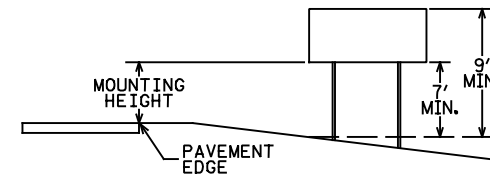


TYPICAL URBAN DESIGN



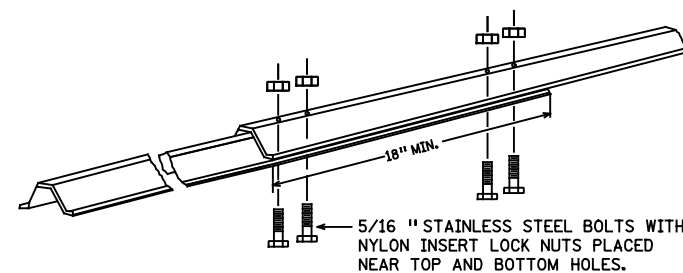
"U" POST BREAKAWAY SPLICE

USE 3 LB/FT STUB POSTS, USE 2.5 LB/FT RISER POSTS AND STRINGERS. ALL RISER (VERTICAL) "U" POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE 7 FEET LONG.



TYPICAL MOUNTING

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



KNEE BRACE STRUCTURAL SPLICE

PUBLISHED BY OTST: 10 OCT 2016
MODIFIED BY: BB. 22 SEPT. 2017

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: ADRIAN S. POTTER
Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005

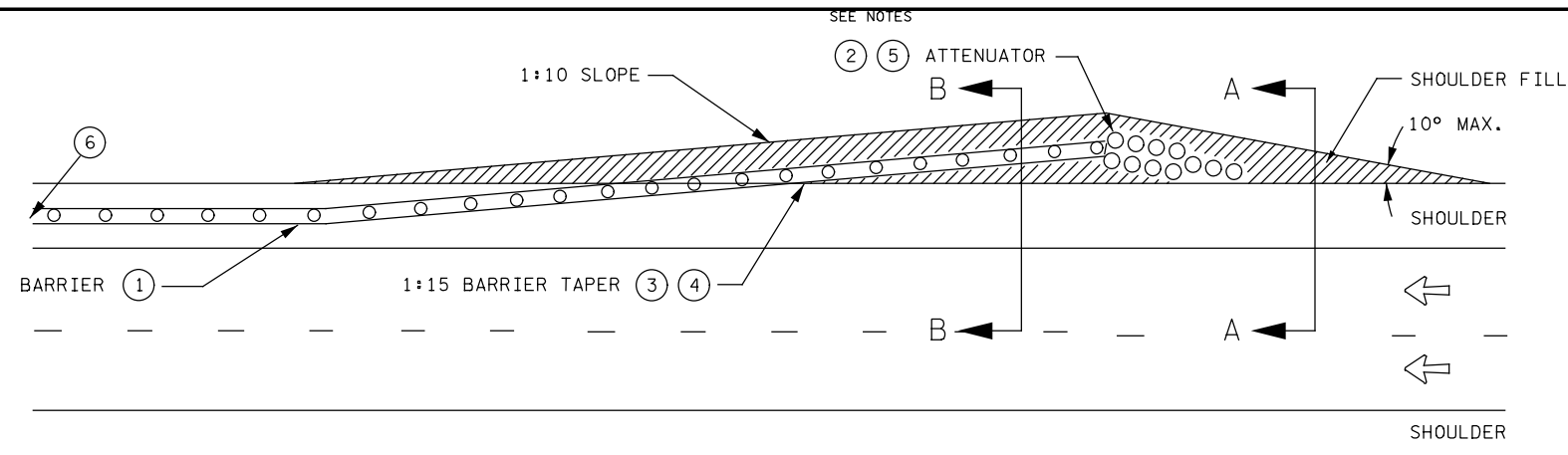
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DESIGNED BY B. BETTS
CHECKED BY A. POTTER
COMM. NO. 01710321



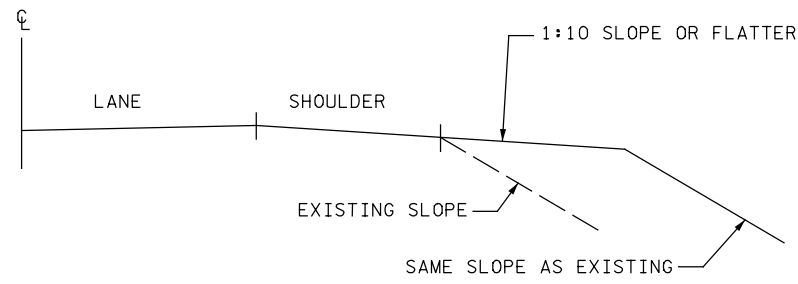
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TRAFFIC CONTROL AND DETOUR PLANS
TH 22 & CSAH 90
DETAILS

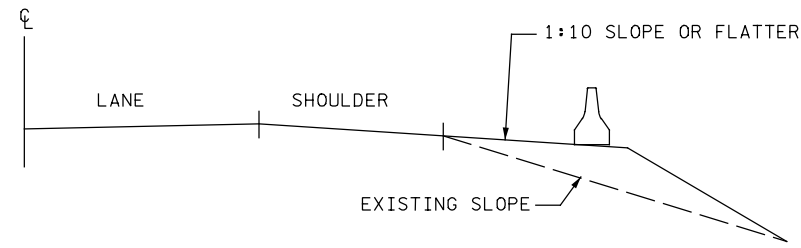
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NOTE:
IMPACT ATTENUATOR SHALL BE TEST LEVEL 3 (TL3).



SECTION A-A

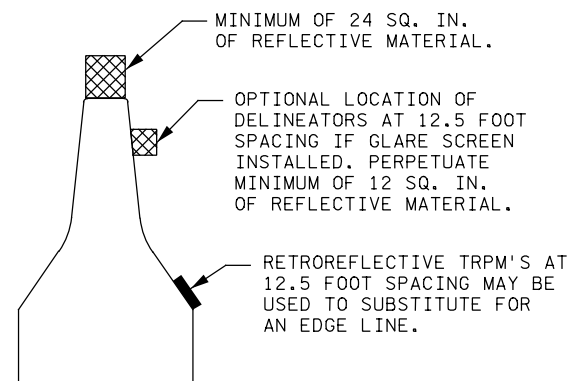


SECTION B-B

SEE MANUFACTURER'S SPECIFICATIONS
FOR BARREL ARRAY SET UP.

DELINEATION OPTIONS FOR BARRIER

(7) DELINEATOR @ 25' SPACING



PORTABLE CONCRETE BARRIER PLACEMENT AND END TREATMENT

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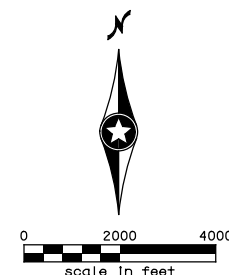
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DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL AND DETOUR PLANS
TH 22 & CSAH 90
DETAILS

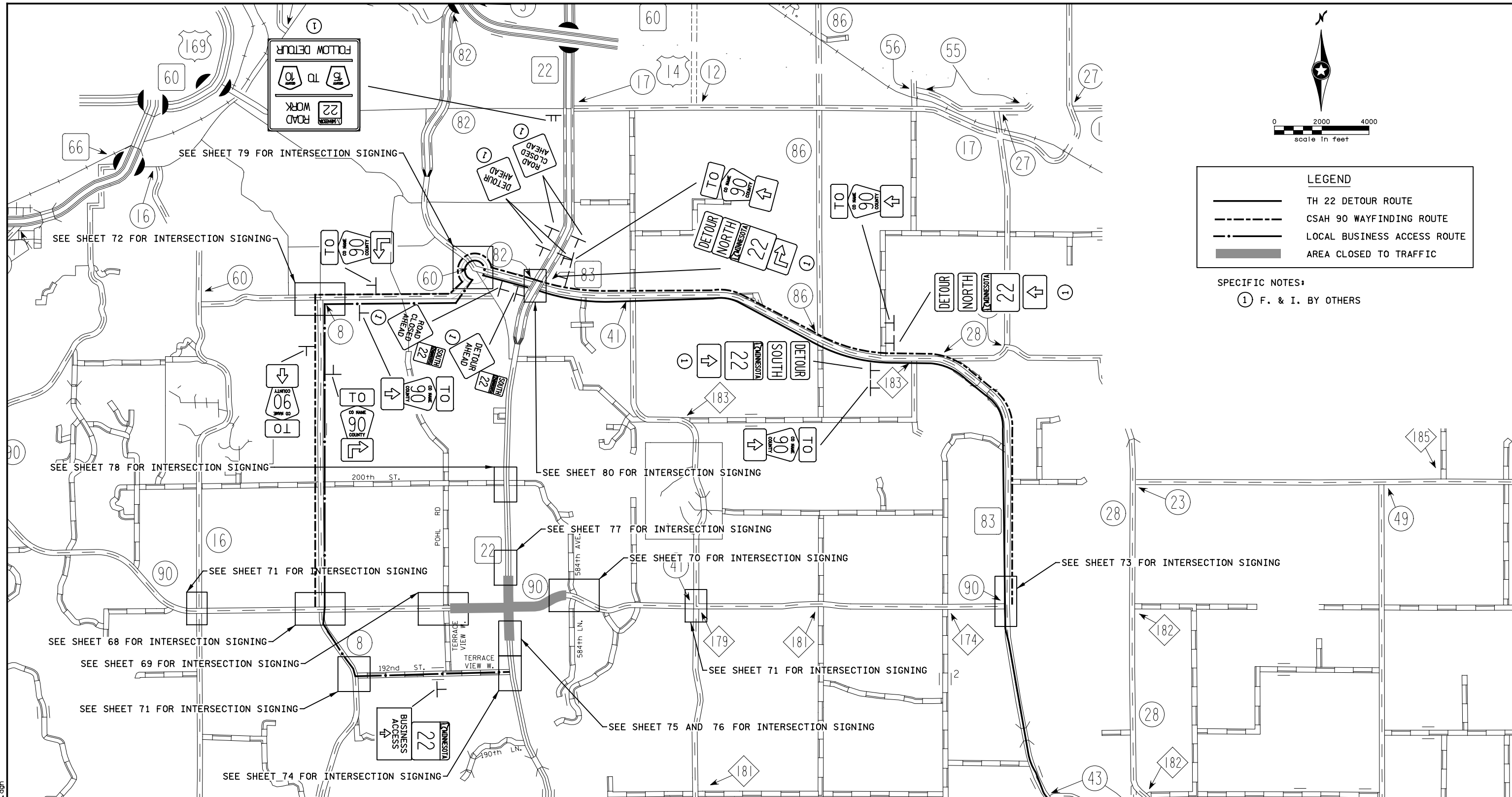
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LEGEND

- TH 22 DETOUR ROUTE
- CSAH 90 WAYFINDING ROUTE
- LOCAL BUSINESS ACCESS ROUTE
- AREA CLOSED TO TRAFFIC

SPECIFIC NOTES:
 ① F. & I. BY OTHERS



MATCHLINE "A"
(SEE SHEET 67)

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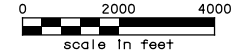
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**ENGINEERS
 PLANNERS
 DESIGNERS**

MINNESOTA DEPARTMENT OF TRANSPORTATION
 TRAFFIC CONTROL AND DETOUR PLANS
TH 22 & CSAH 90
 TH 22 DETOUR/CSAH 90 WAYFINDING/
 LOCAL BUSINESS ACCESS ROUTES

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LEGEND

TH 22 DETOUR ROUTE

SPECIFIC NOTES:

① F. & I. BY OTHERS

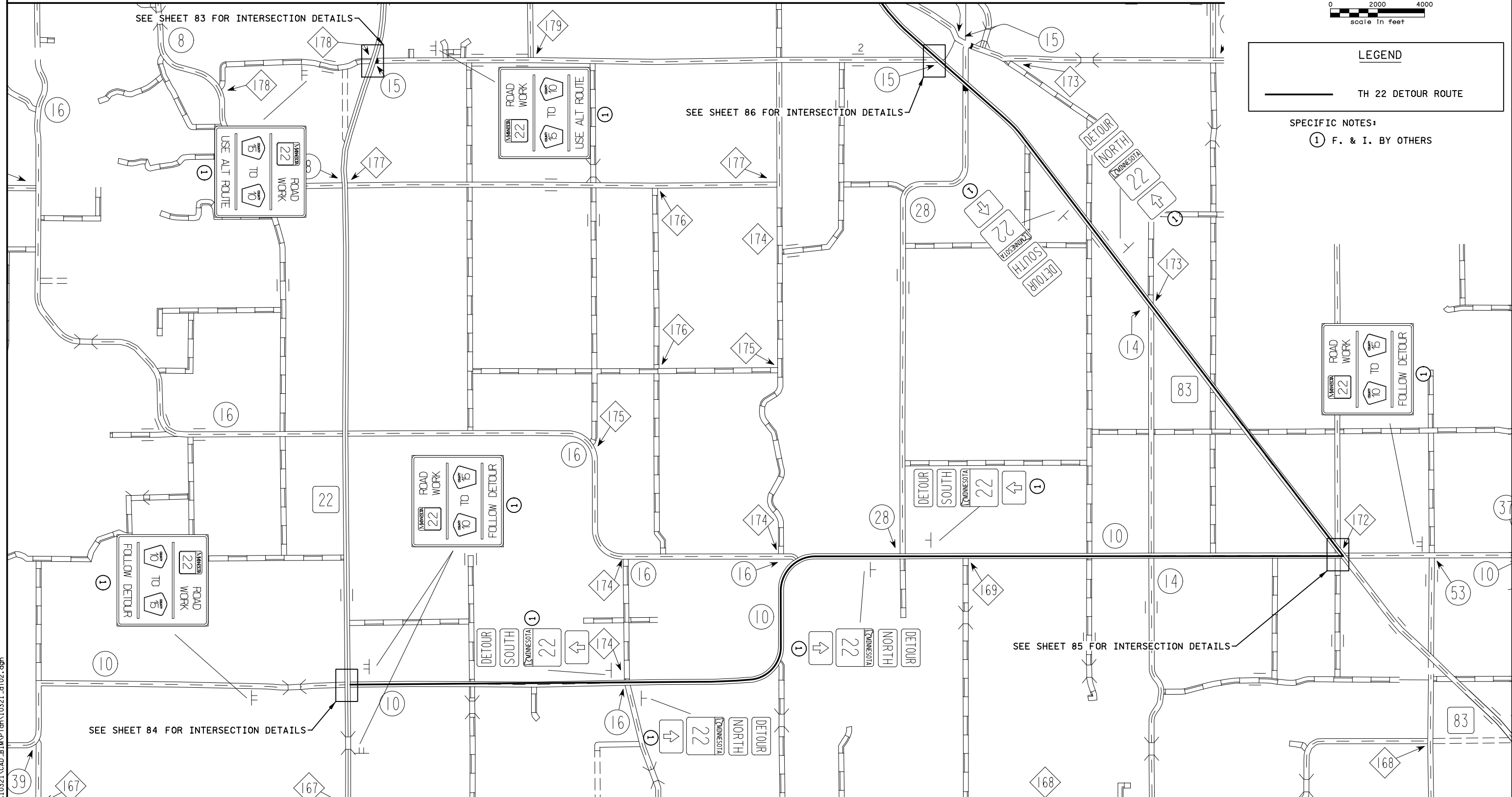
MATCHLINE "A"
(SEE SHEET 66)

SEE SHEET 83 FOR INTERSECTION DETAILS

SEE SHEET 86 FOR INTERSECTION DETAILS

SEE SHEET 85 FOR INTERSECTION DETAILS

SEE SHEET 84 FOR INTERSECTION DETAILS



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Print Name: ADRIAN S. POTTER

Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY B. BETTS
DESIGNED BY B. BETTS
CHECKED BY A. POTTER
COMM. NO. 01710321



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PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS

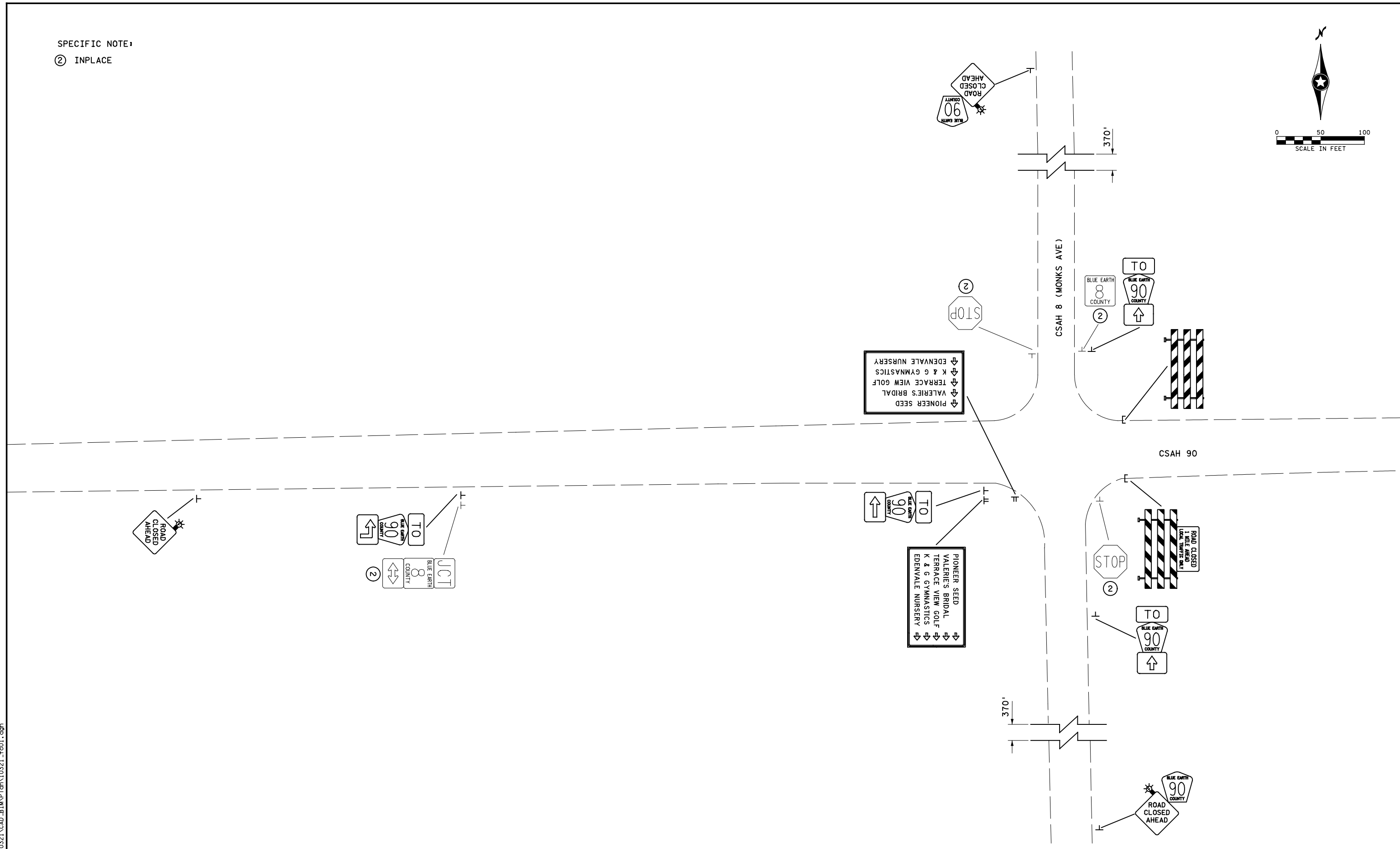
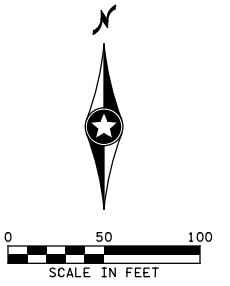
TH 22 & CSAH 90

TH 22 DETOUR/CSAH 90 WAYFINDING/
LOCAL BUSINESS ACCESS ROUTES

SHEET 67 OF 276

SPECIFIC NOTE:

② INPLACE



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Print Name: ADRIAN S. POTTER

Date: _____ License # 42785

STATE PROJECT NO.
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STATE PROJECT NO.
007-070-005

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B. BETTS

DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321



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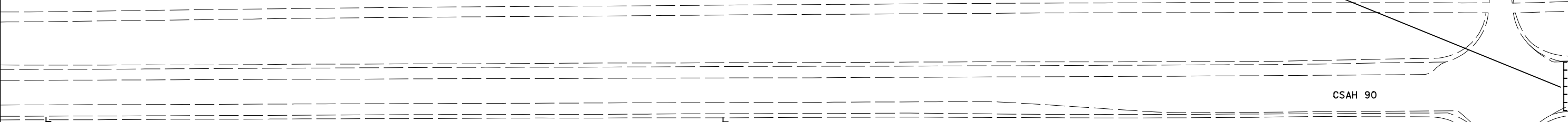
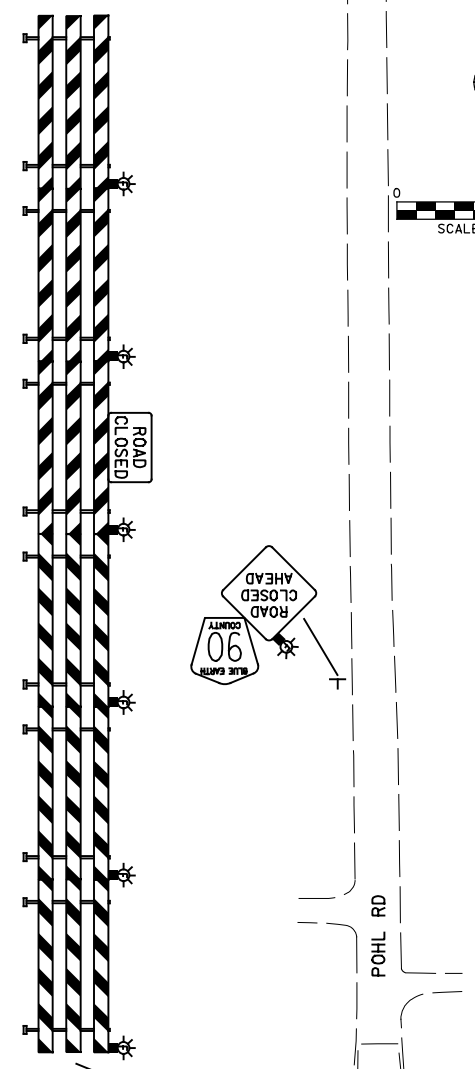
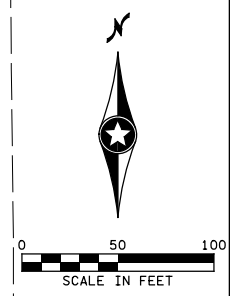
MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS

TH 22 & CSAH 90

CSAH 90

SHEET
68
OF
276



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Date: _____ License # 42785

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0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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B. BETTS

DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321



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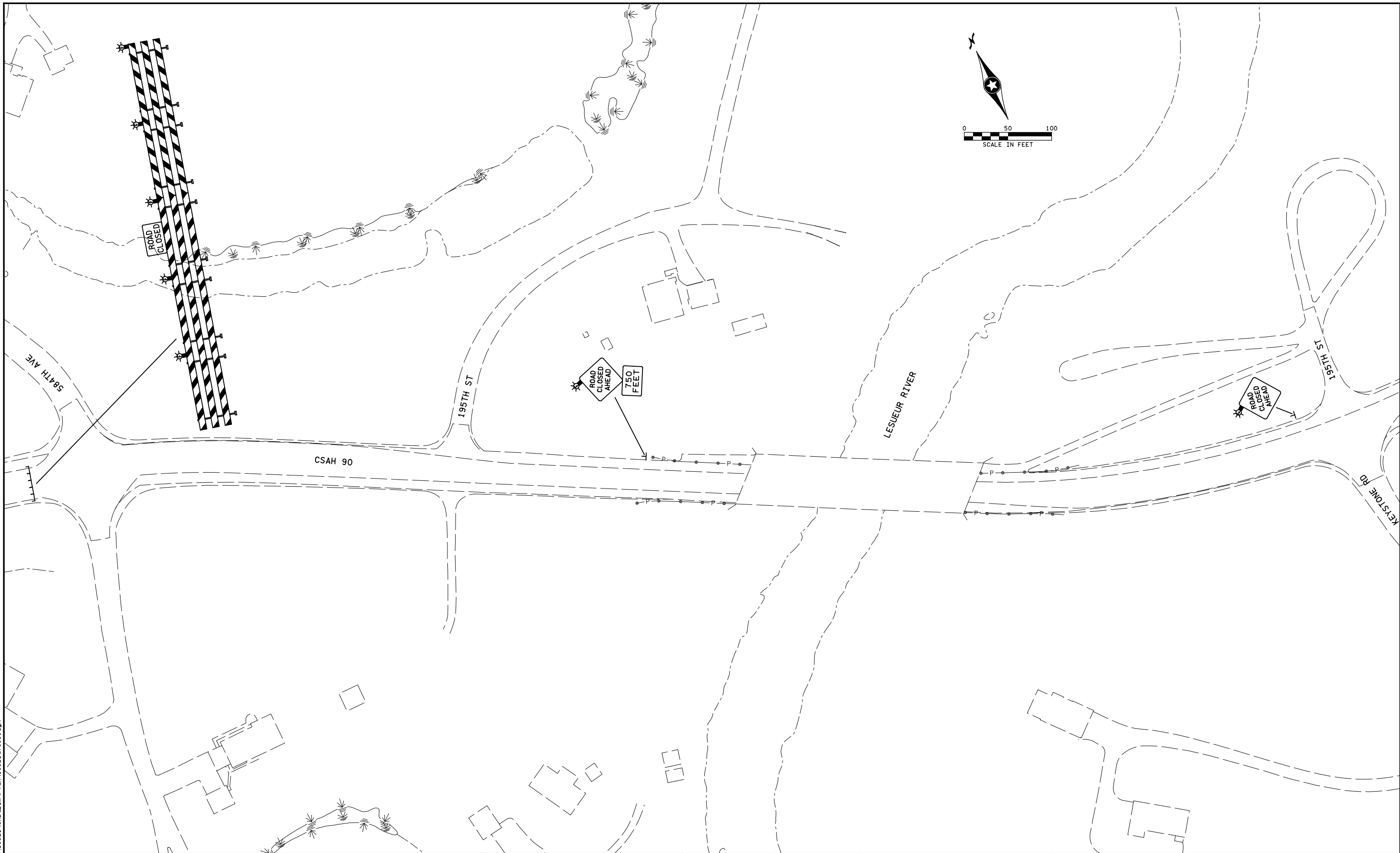
MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS

TH 22 & CSAH 90

CSAH 90

SHEET
69
OF
276



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 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

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 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
 COMM. NO. 01710321

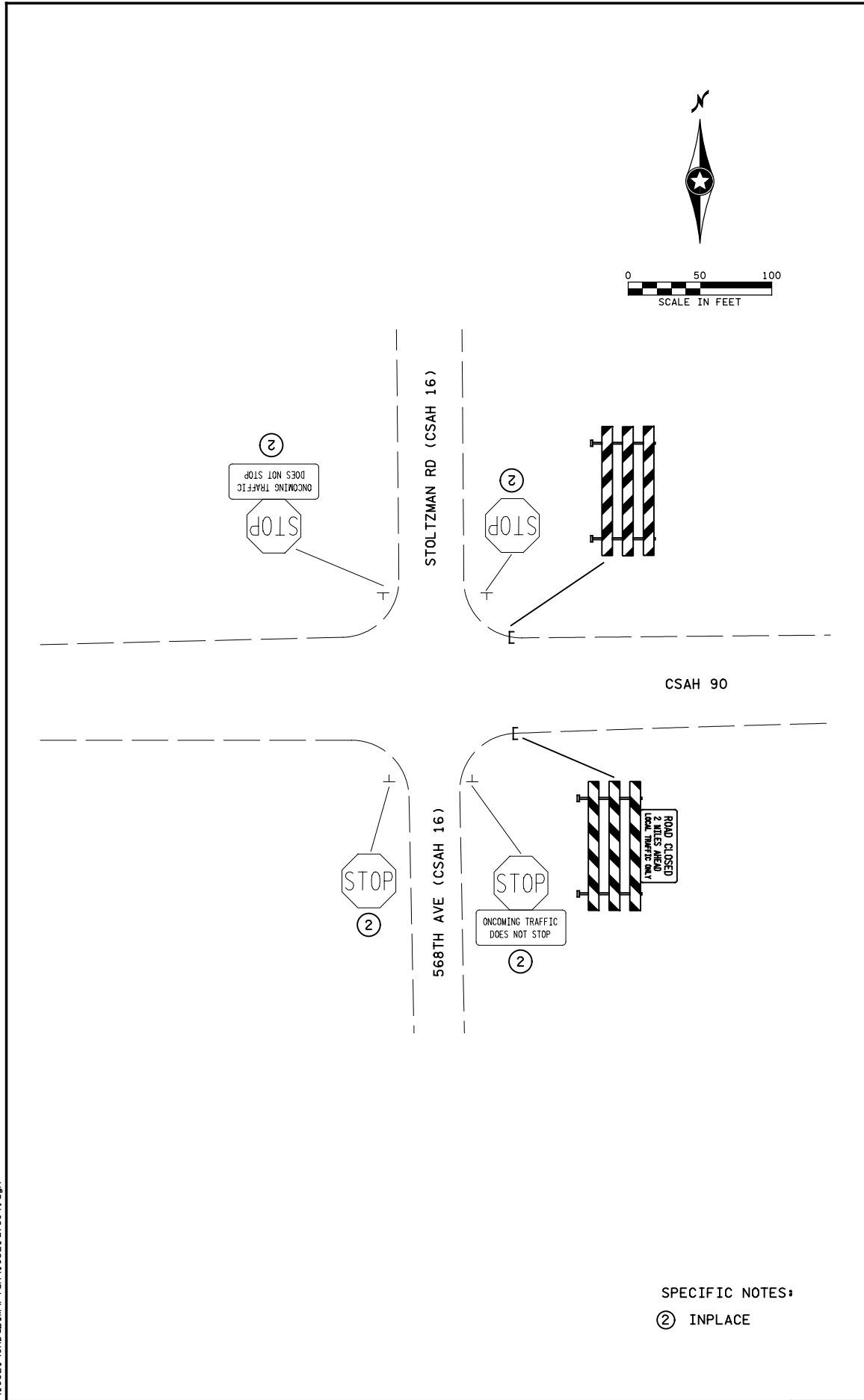


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 DESIGNERS**

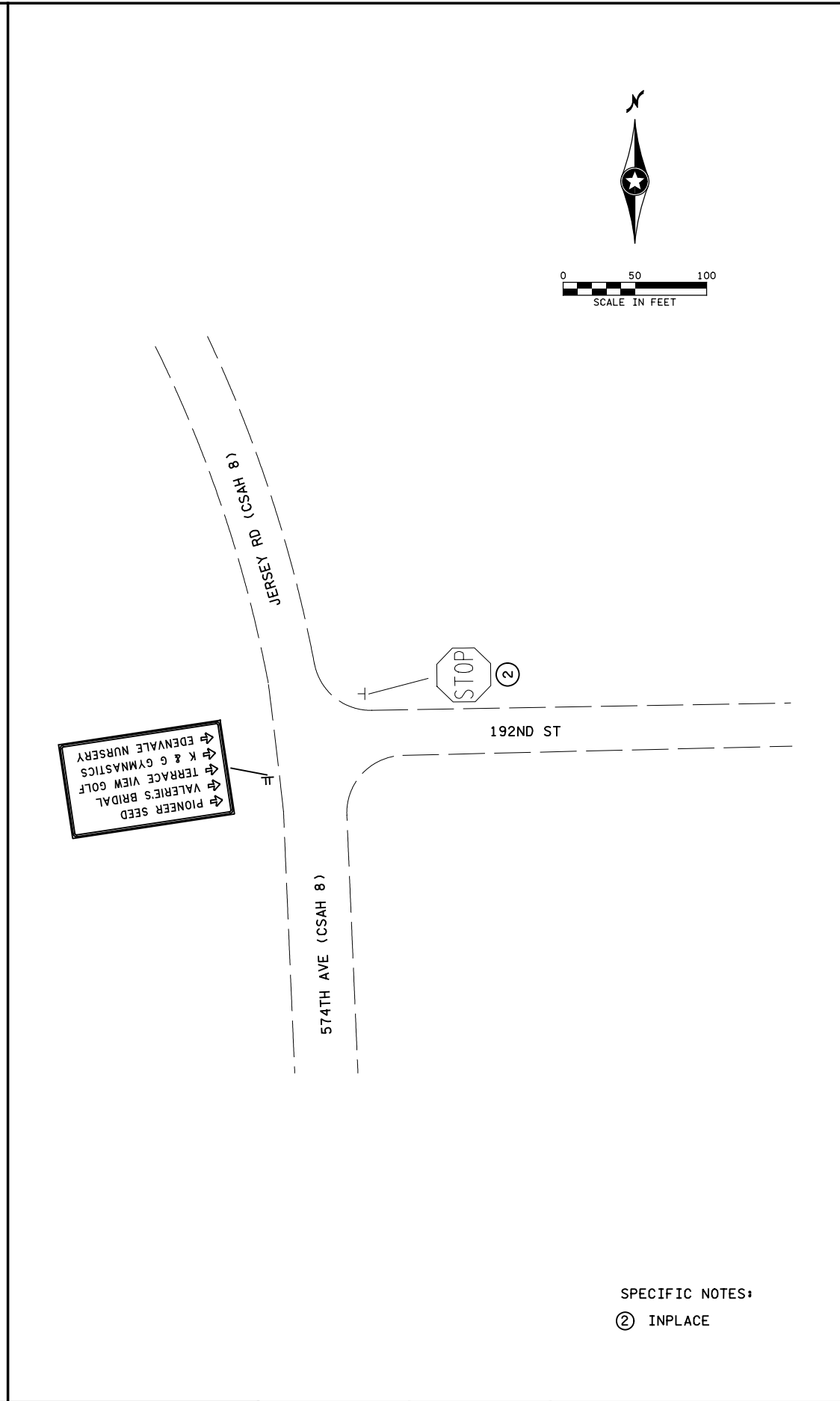
MINNESOTA DEPARTMENT OF TRANSPORTATION
 TRAFFIC CONTROL AND DETOUR PLANS
TH 22 & CSAH 90
 CSAH 90

**SHEET 70
 OF 276**

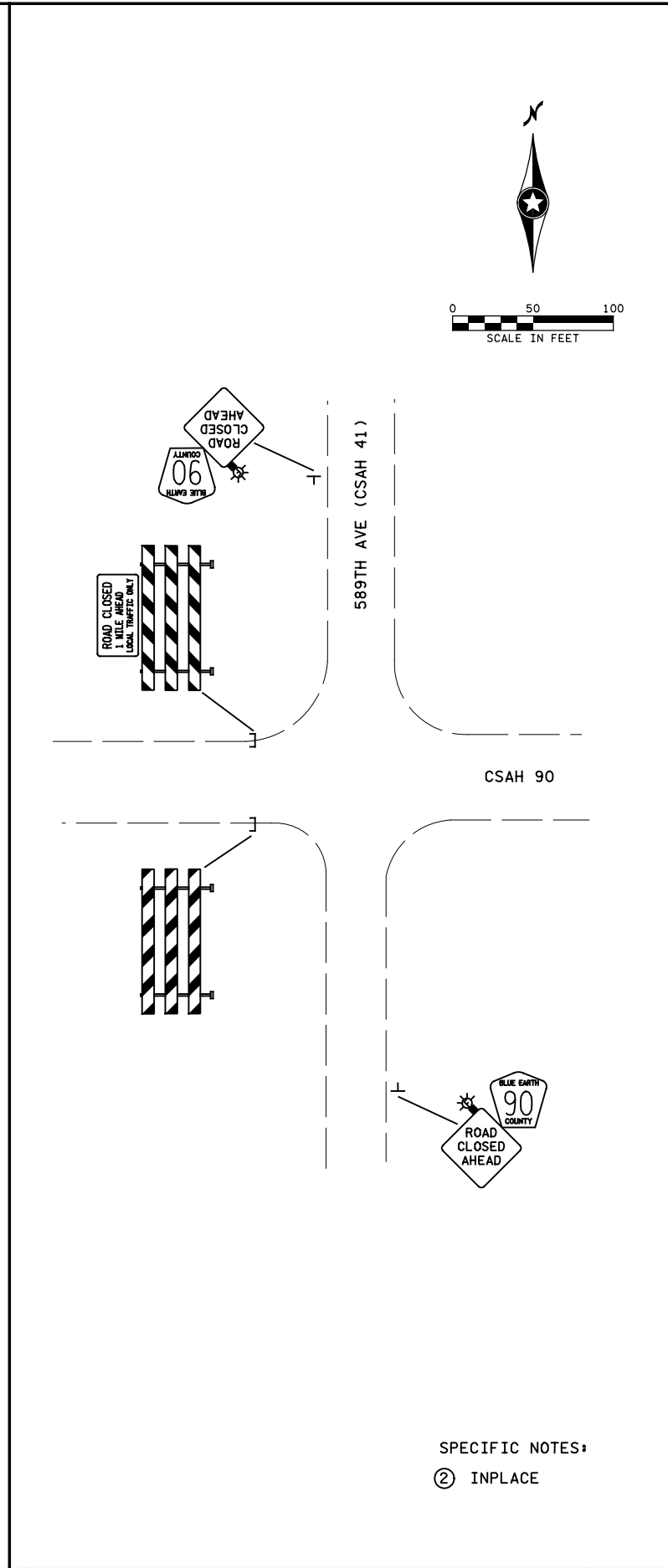
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SPECIFIC NOTES:
 ② INPLACE



SPECIFIC NOTES:
 ② INPLACE



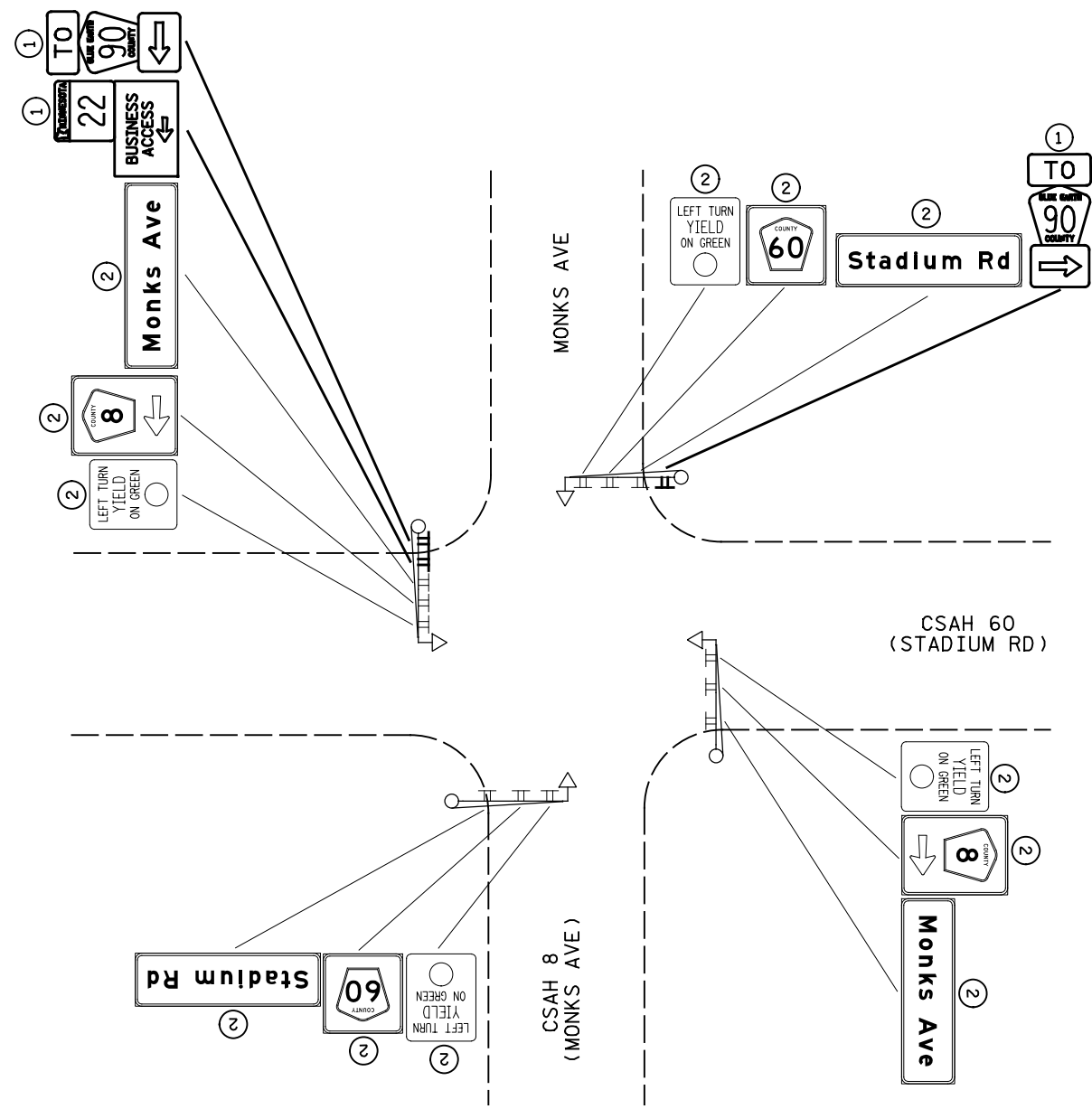
SPECIFIC NOTES:
 ② INPLACE

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 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
 DRAWN BY B. BETTS
 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
 COMM. NO. 01710321





- SPECIFIC NOTES:**
- ① F & I
 - ② INPLACE

- GENERAL NOTES:**
1. CONTRACTOR SHALL ADJUST EXISTING SIGNING ON MAST ARMS AS NEEDED TO ACCOMMODATE ADDITIONAL CONSTRUCTION SIGNING AS SHOWN TO THE SATISFACTION OF THE ENGINEER.
 2. CONTRACTOR SHALL MOUNT CONSTRUCTION SIGNING ON MAST ARMS IN A SECURE MANNER TO THE SATISFACTION OF THE ENGINEER, METHOD OF MOUNTING SHALL BE APPROVED BY MNDOT PRIOR TO INSTALLATION.

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Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

COMM. NO. 01710321

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 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER



Consulting Group, Inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS

TH 22 & CSAH 90

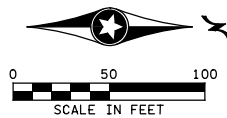
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SHEET

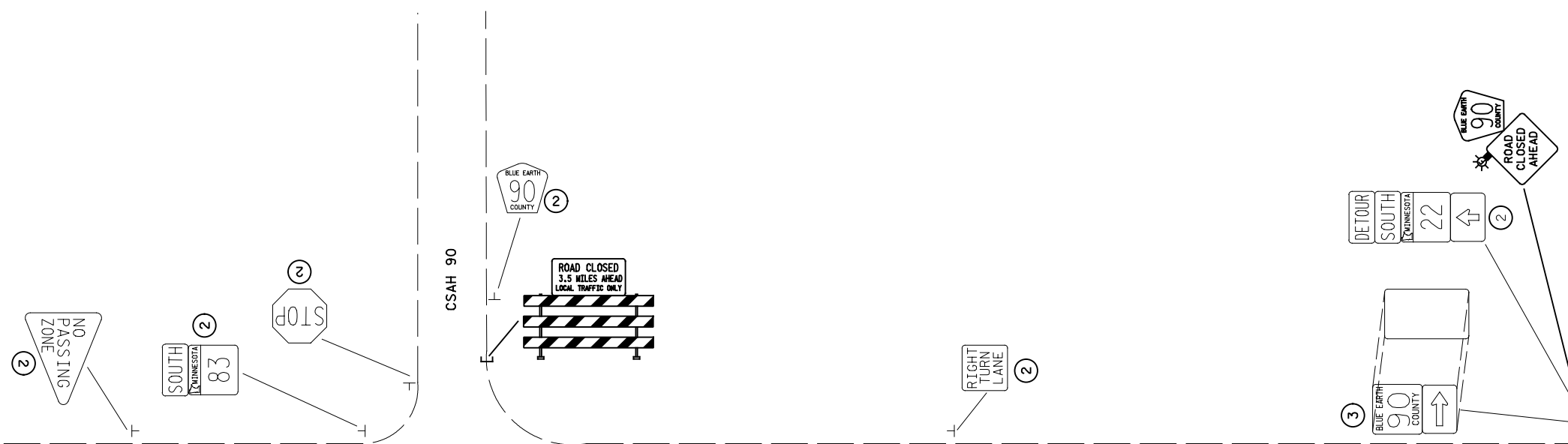
72

OF

276



- SPECIFIC NOTES:
- ① F & I BY OTHERS
 - ② INPLACE
 - ③ COVER



TH 83



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Date: _____ License # 42785

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0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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B. BETTS

DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321



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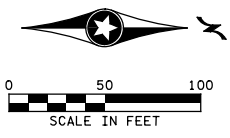
MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS

TH 22 & CSAH 90

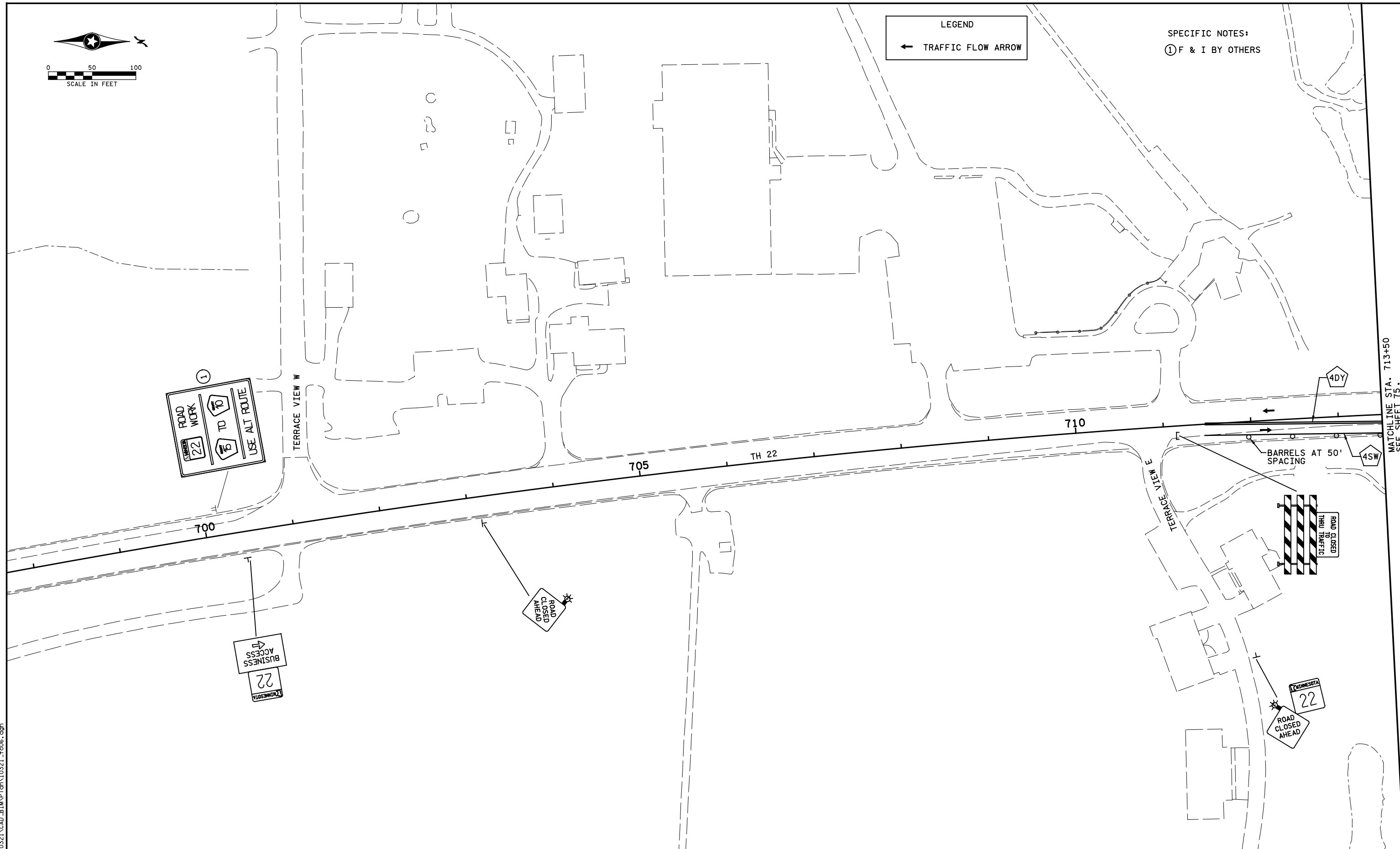
CSAH 90

SHEET
73
OF
276



LEGEND
← TRAFFIC FLOW ARROW

SPECIFIC NOTES:
① F & I BY OTHERS



MATCHLINE STA. 713+50
SEE SHEET 75.

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Print Name: ADRIAN S. POTTER
Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005

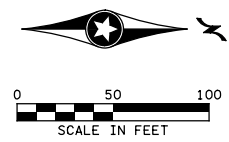
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DESIGNED BY B. BETTS
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COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL AND DETOUR PLANS
TH 22 & CSAH 90
TH 22

SHEET
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OF
276

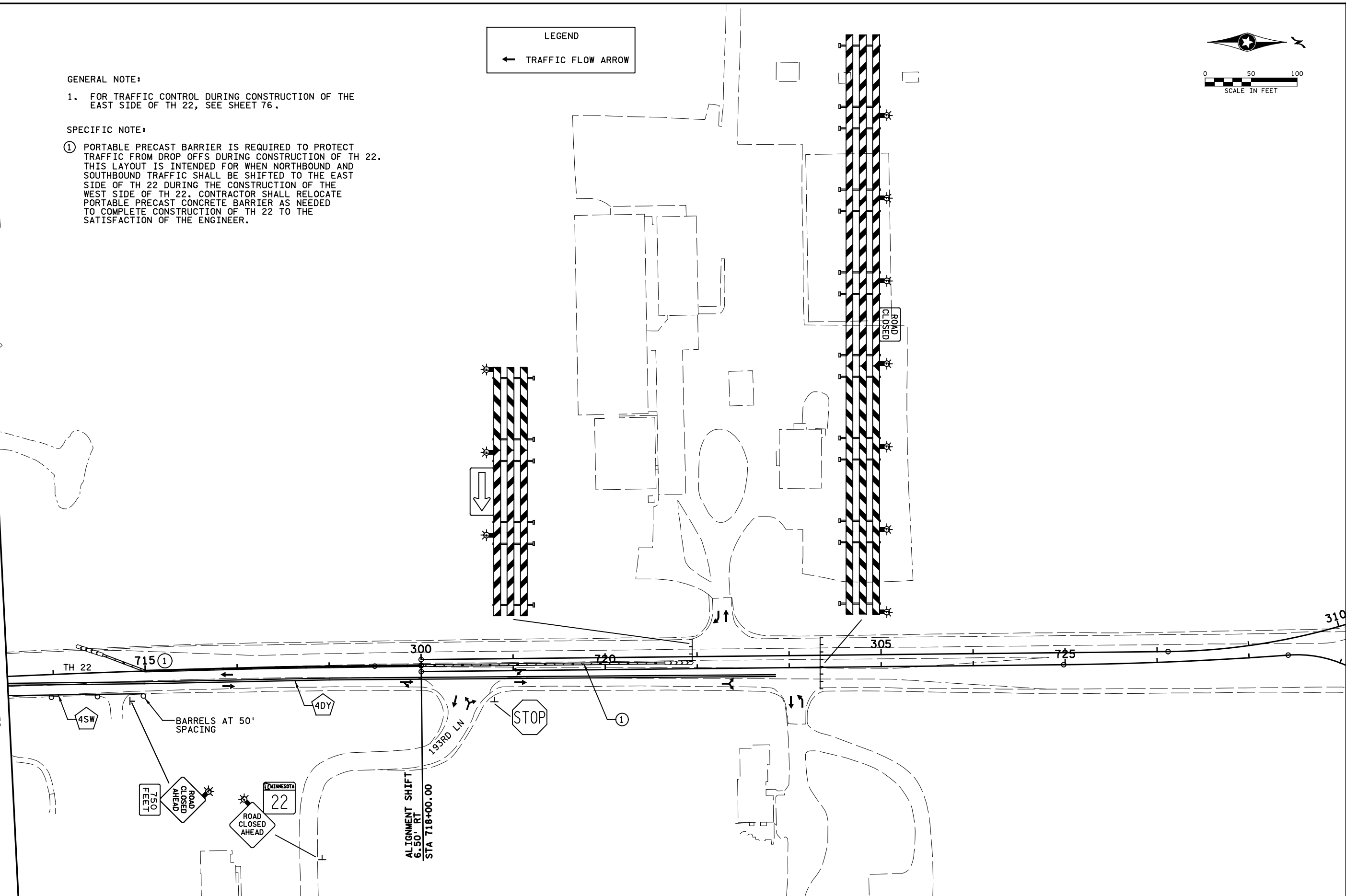


LEGEND
 ← TRAFFIC FLOW ARROW

GENERAL NOTE:
 1. FOR TRAFFIC CONTROL DURING CONSTRUCTION OF THE EAST SIDE OF TH 22, SEE SHEET 76.

SPECIFIC NOTE:
 ① PORTABLE PRECAST BARRIER IS REQUIRED TO PROTECT TRAFFIC FROM DROP OFFS DURING CONSTRUCTION OF TH 22. THIS LAYOUT IS INTENDED FOR WHEN NORTHBOUND AND SOUTHBOUND TRAFFIC SHALL BE SHIFTED TO THE EAST SIDE OF TH 22 DURING THE CONSTRUCTION OF THE WEST SIDE OF TH 22. CONTRACTOR SHALL RELOCATE PORTABLE PRECAST CONCRETE BARRIER AS NEEDED TO COMPLETE CONSTRUCTION OF TH 22 TO THE SATISFACTION OF THE ENGINEER.

MATCHLINE STA. 713+50
SEE SHEET 74.



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 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

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 CHECKED BY A. POTTER
 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
 TRAFFIC CONTROL AND DETOUR PLANS
 TH 22 & CSAH 90
 TH 22

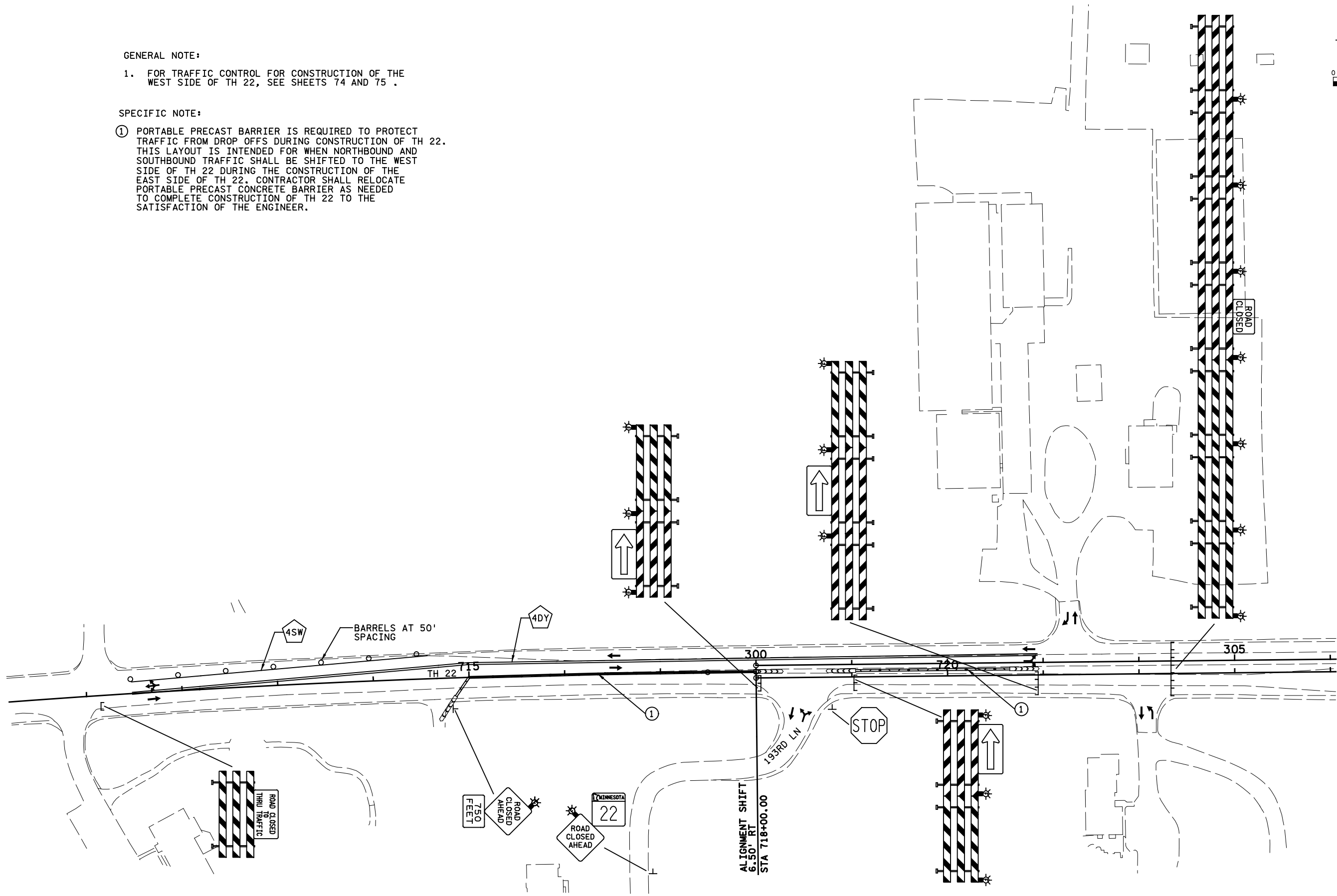
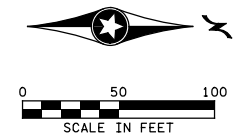
SHEET
 75
 OF
 276

GENERAL NOTE:

- FOR TRAFFIC CONTROL FOR CONSTRUCTION OF THE WEST SIDE OF TH 22, SEE SHEETS 74 AND 75 .

SPECIFIC NOTE:

- PORTABLE PRECAST BARRIER IS REQUIRED TO PROTECT TRAFFIC FROM DROP OFFS DURING CONSTRUCTION OF TH 22. THIS LAYOUT IS INTENDED FOR WHEN NORTHBOUND AND SOUTHBOUND TRAFFIC SHALL BE SHIFTED TO THE WEST SIDE OF TH 22 DURING THE CONSTRUCTION OF THE EAST SIDE OF TH 22. CONTRACTOR SHALL RELOCATE PORTABLE PRECAST CONCRETE BARRIER AS NEEDED TO COMPLETE CONSTRUCTION OF TH 22 TO THE SATISFACTION OF THE ENGINEER.



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.
 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

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 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
 TRAFFIC CONTROL AND DETOUR PLANS
 TH 22 & CSAH 90
 TH 22

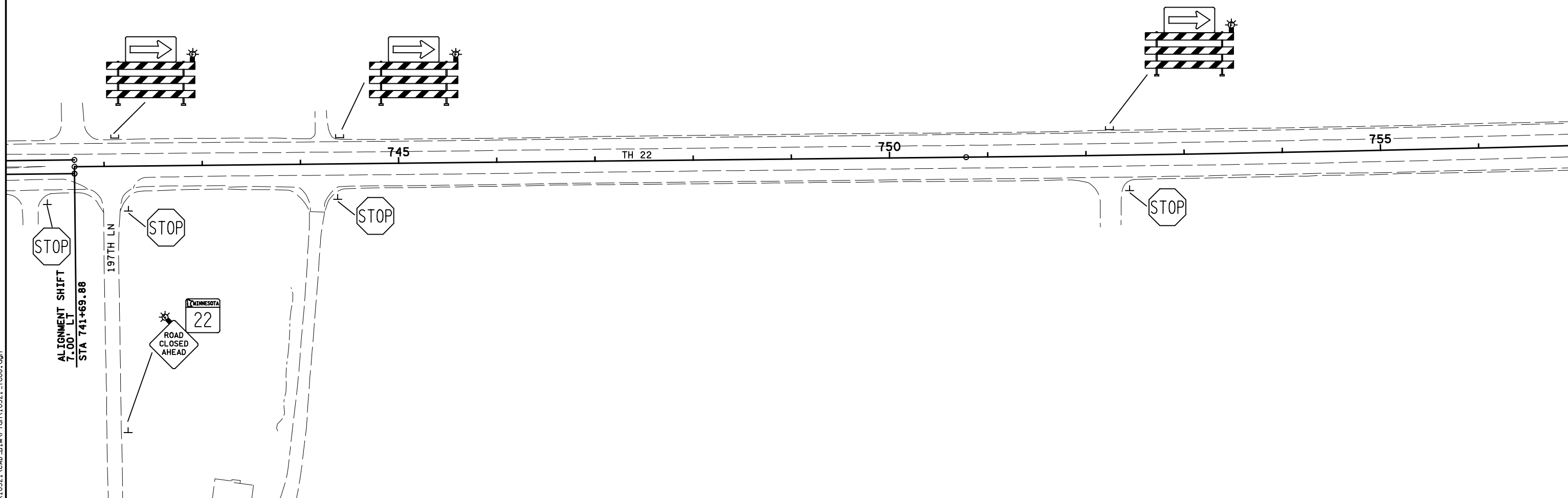
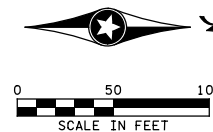
SHEET 76 OF 276

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NO	DATE	BY	CKD	APPR	REVISION

GENERAL NOTE:

1. CONTRACTOR SHALL MAINTAIN TEMPORARY ACCESS FOR RESIDENTS WITHIN TH 22 CLOSURE (SEE SPECIAL PROVISIONS).



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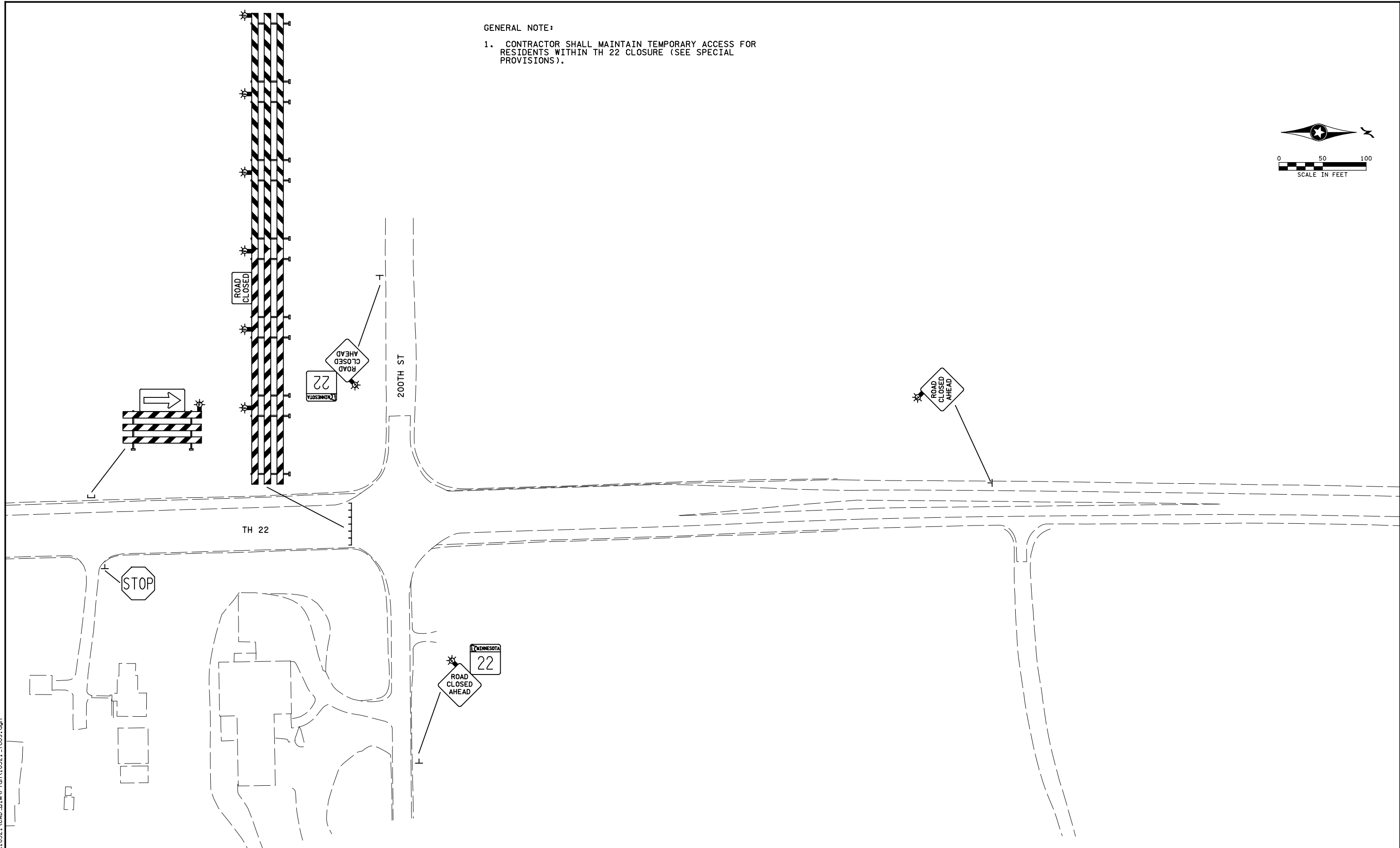
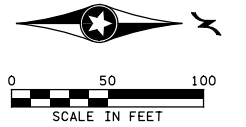


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MINNESOTA DEPARTMENT OF TRANSPORTATION
 TRAFFIC CONTROL AND DETOUR PLANS
 TH 22 & CSAH 90
 TH 22

SHEET
 77
 OF
 276

GENERAL NOTE:
 1. CONTRACTOR SHALL MAINTAIN TEMPORARY ACCESS FOR RESIDENTS WITHIN TH 22 CLOSURE (SEE SPECIAL PROVISIONS).



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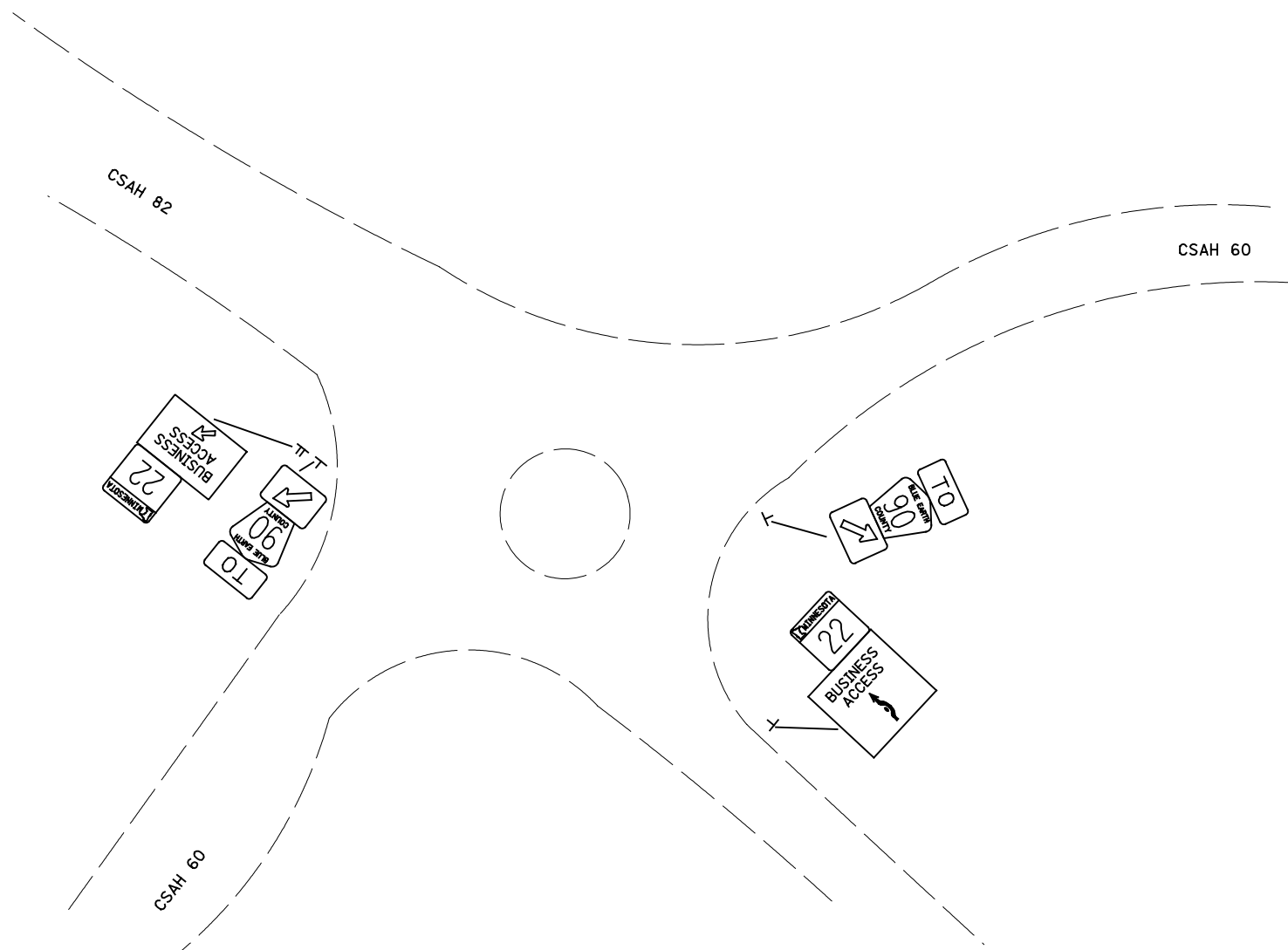
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 TRAFFIC CONTROL AND DETOUR PLANS
 TH 22 & CSAH 90
 TH 22

SHEET
 78
 OF
 276



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B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321

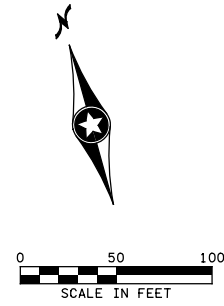


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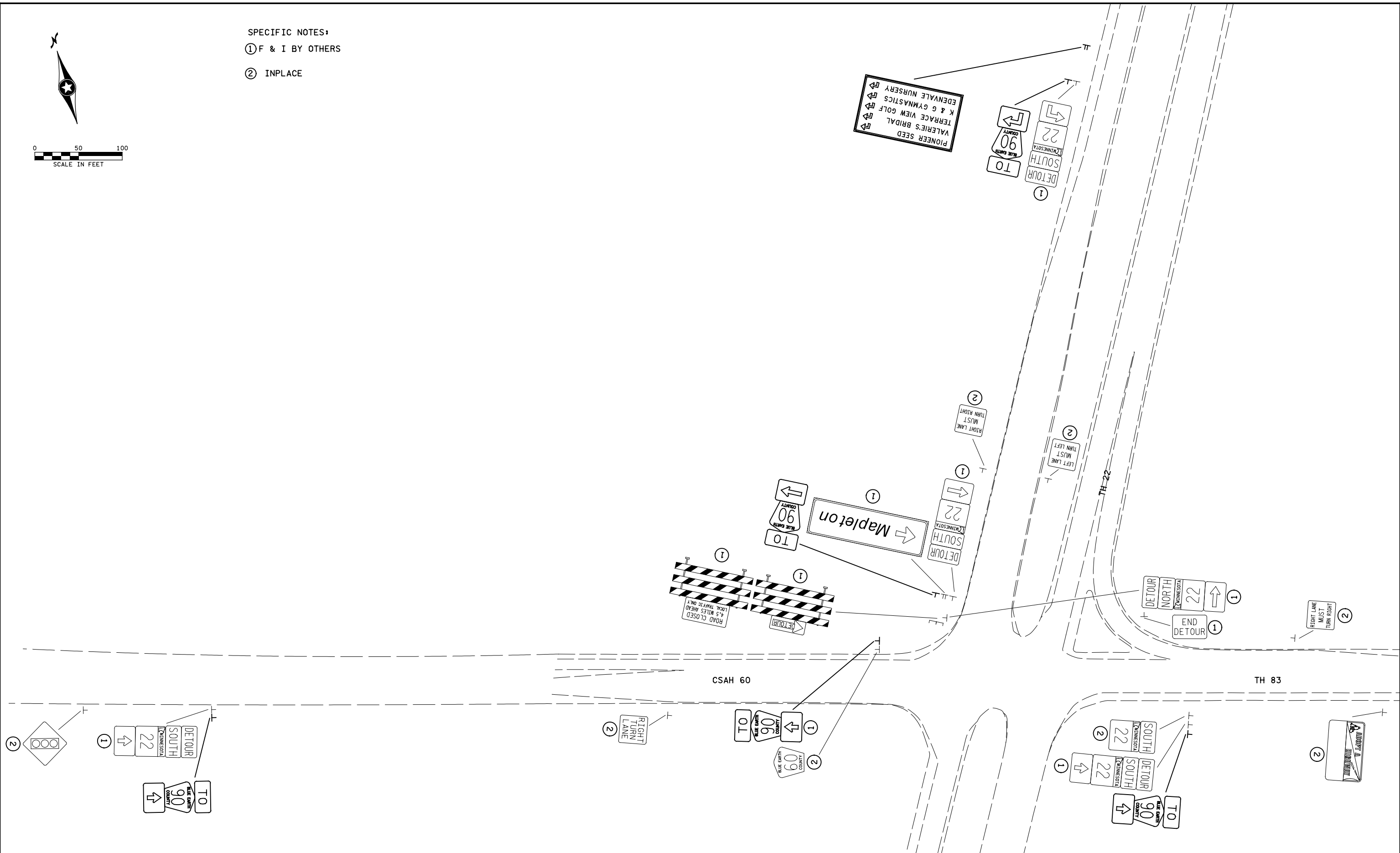
MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS
TH 22 & CSAH 90

SHEET
79
OF
276



- SPECIFIC NOTES:
- ① F & I BY OTHERS
 - ② INPLACE



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 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS

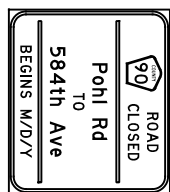
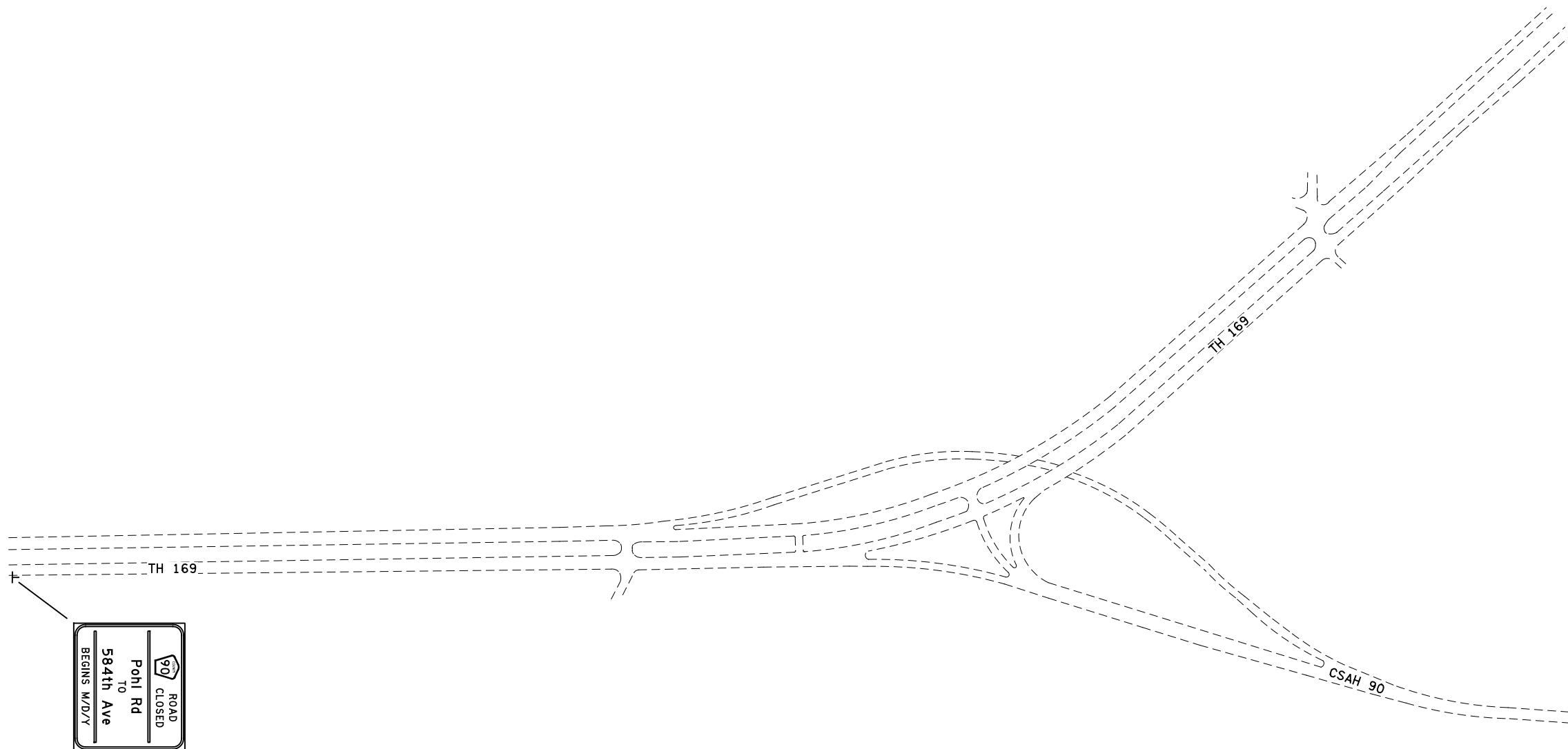
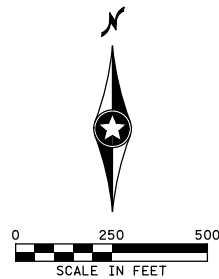
TH 22 & CSAH 90

TH 22

SHEET 80 OF 276

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NO	DATE	BY	CKD	APPR	REVISION
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Date: _____ License # 42785

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0704-108 (TH 22)

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007-070-005

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B. BETTS

DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321



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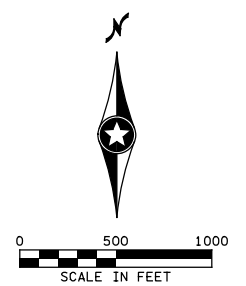
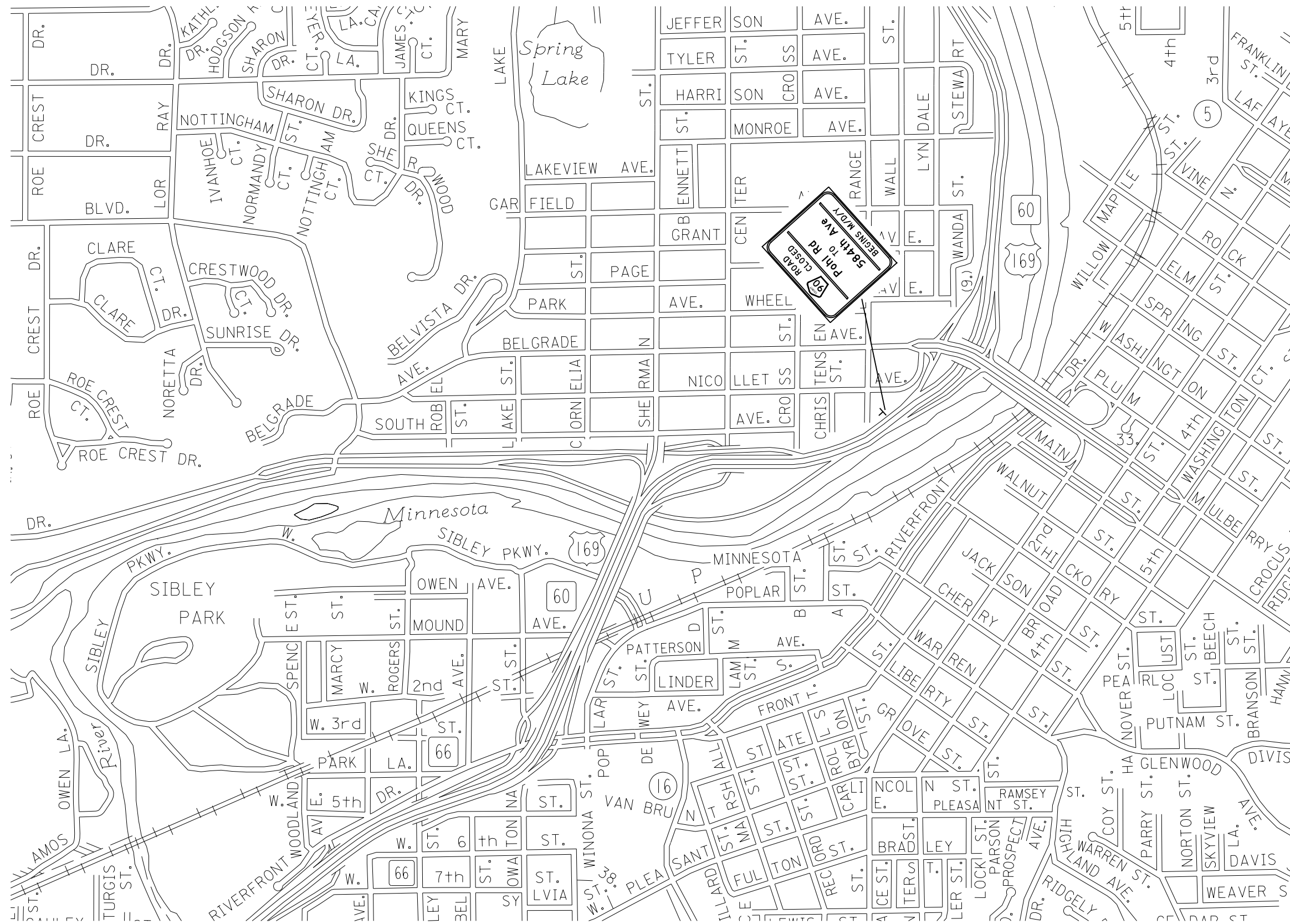
MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND DETOUR PLANS

TH 22 & CSAH 90

ADVANCE SIGNING

SHEET
81
OF
276



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 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

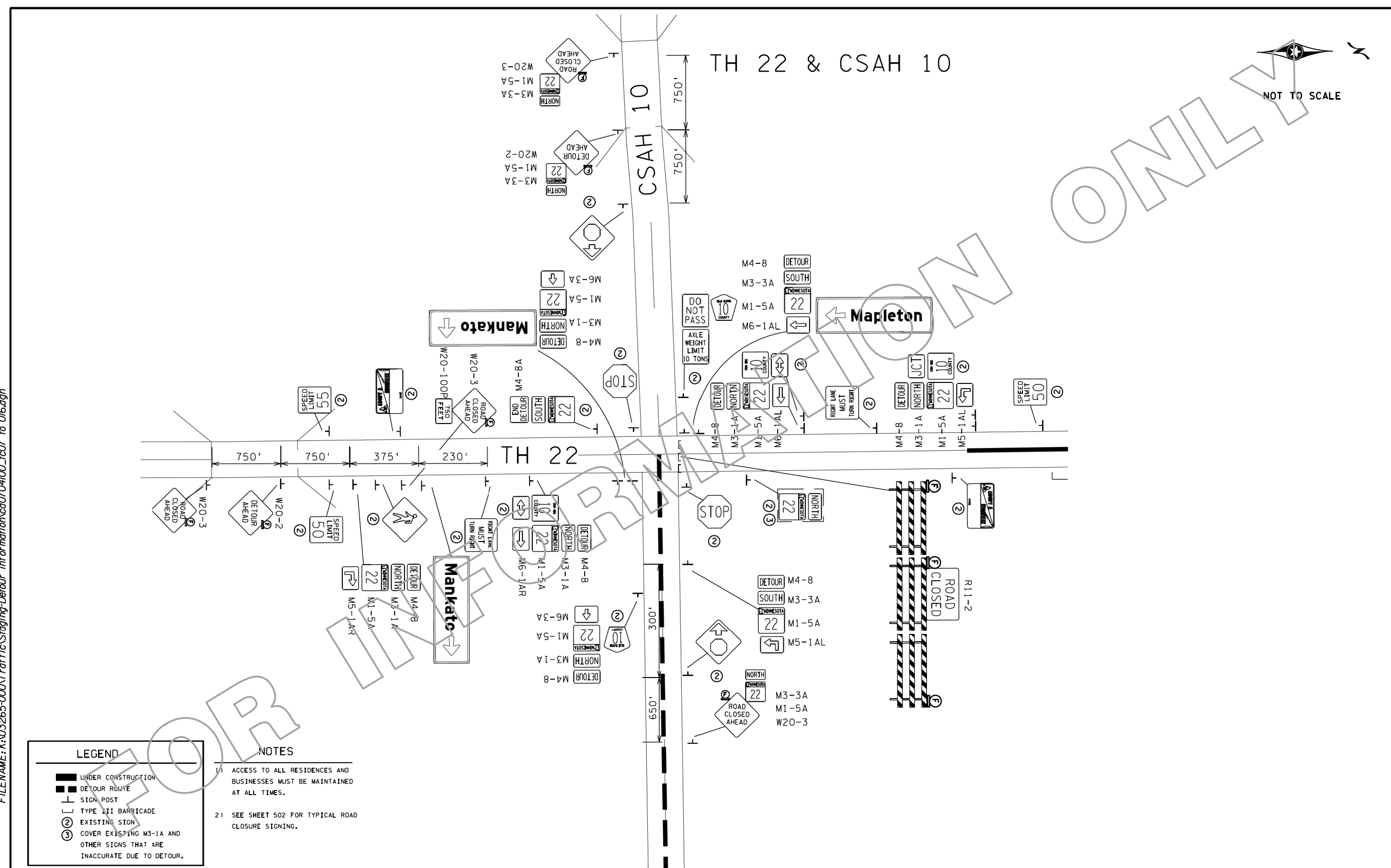
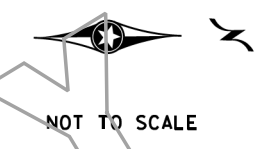
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 TRAFFIC CONTROL AND DETOUR PLANS
TH 22 & CSAH 90
 ADVANCE SIGNING

**SHEET
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 OF
 276**



LEGEND	
	UNDER CONSTRUCTION
	DETOUR ROUTE
	SIGN POST
	TYPE III BARRICADE
	EXISTING SIGN
	COVER EXISTING M3-1A AND OTHER SIGNS THAT ARE INACCURATE DUE TO DETOUR.

NOTES

1) ACCESS TO ALL RESIDENCES AND BUSINESSES MUST BE MAINTAINED AT ALL TIMES.

2) SEE SHEET 502 FOR TYPICAL ROAD CLOSURE SIGNING.

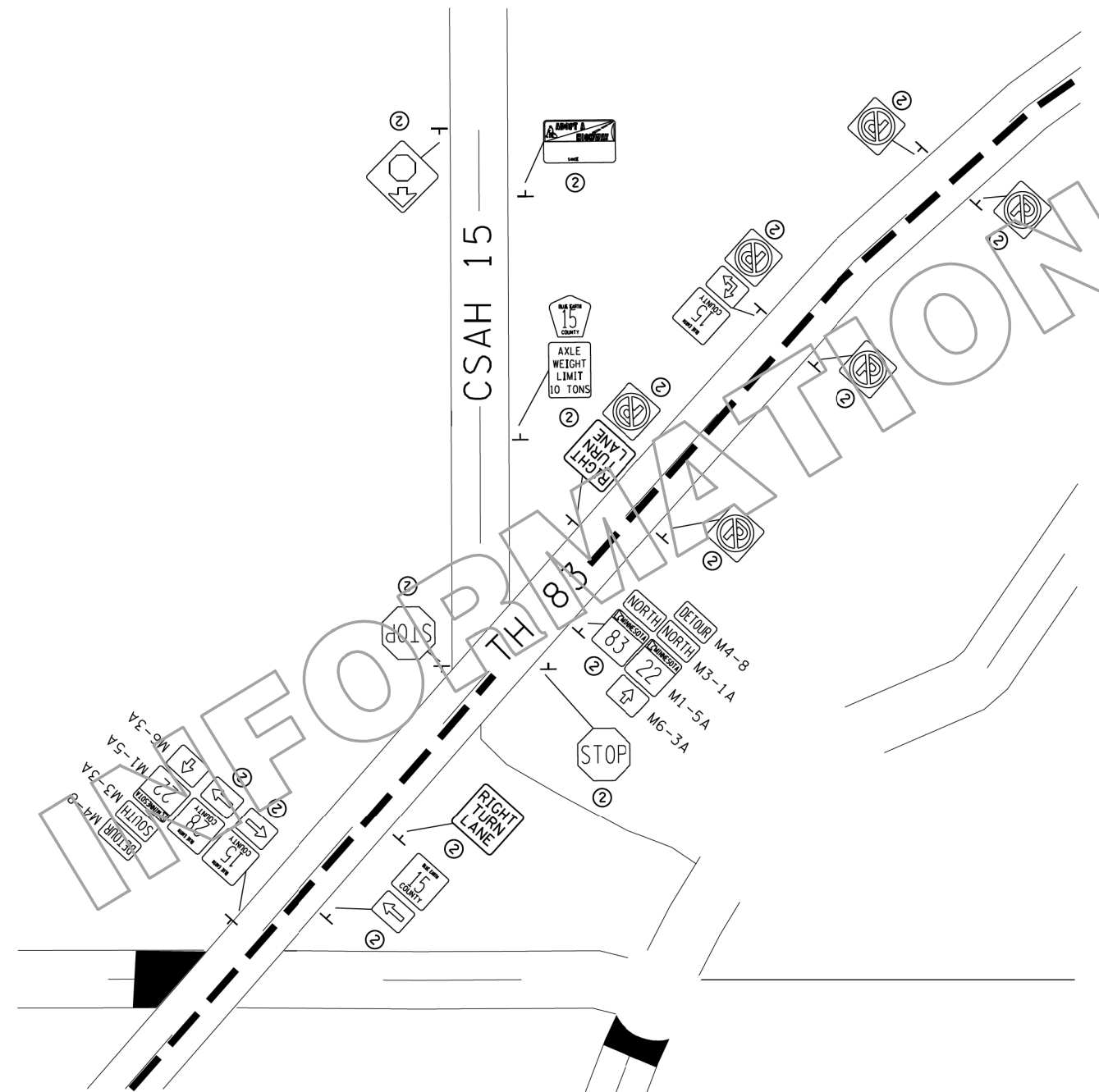
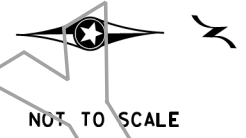
DATE: 12/19/2016 TIME: 9:09:21 AM
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DRAWN BY: MLF DESIGNED BY: MLF CHECKED BY: SD	I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	SIGNATURE: PRINTED NAME: SEAN DELMORE DATE: 12/19/2016 LIC. NO. 40945	MINNESOTA DEPARTMENT OF TRANSPORTATION TH 22 RECONSTRUCTION FROM THE CITY OF MAPLETON TO COUNTY ROAD 15		TRAFFIC CONTROL PLAN STAGE 2 DETOUR ROUTE - INTERSECTIONS	STATE PROJ. NO. 0704-100 (T.H. 22) Sheet No. 497 of 503 Sheets
--	--	---	--	--	---	---

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. Print Name: ADRIAN S. POTTER Date: License # 42785	STATE PROJECT NO. 0704-108 (TH 22) STATE PROJECT NO. 007-070-005	DRAWN BY B. BETTS DESIGNED BY B. BETTS CHECKED BY A. POTTER COMM. NO. 01710321	ENGINEERS PLANNERS DESIGNERS	MINNESOTA DEPARTMENT OF TRANSPORTATION DETOUR PLAN - TH 22 TH 22 & CSAH 90 FOR INFORMATION ONLY	SHEET 84 OF 276
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TH 83 & CSAH 15



LEGEND	
	DETOUR ROUTE
	STGN POST
	EXISTING SIGN

DATE: 11/3/2016 TIME: 6:08:36 PM
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DRAWN BY: MLF	I HEREBY CERTIFY THAT THIS SHEET 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.	SIGNATURE:	MINNESOTA DEPARTMENT OF TRANSPORTATION TH 22 RECONSTRUCTION FROM THE CITY OF MAPLETON TO COUNTY ROAD 15	WSB	TRAFFIC CONTROL PLAN STAGE 2 DETOUR ROUTE- INTERSECTIONS	STATE PROJ. NO. 0704-100 (T.H. 22) Sheet No. 499 of 503 Sheets
DESIGNED BY: MLF		PRINTED NAME: SEAN DELMORE				
CHECKED BY: SD		DATE: 11/3/2016 LIC. NO. 40945				

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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: ADRIAN S. POTTER
 Date: License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
 DRAWN BY B. BETTS
 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
 COMM. NO. 01710321



MINNESOTA DEPARTMENT OF TRANSPORTATION
 DETOUR PLAN - TH 22
 TH 22 & CSAH 90
 FOR INFORMATION ONLY

SHEET 86 OF 276

HORIZONTAL CONTROL

THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (2011 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, BLUE EARTH COUNTY COORDINATES. FOR A REPORT DETAILING THIS CONTROL CONTACT MNDOT DISTRICT 7 SURVEYS.

VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 7 SURVEYS.

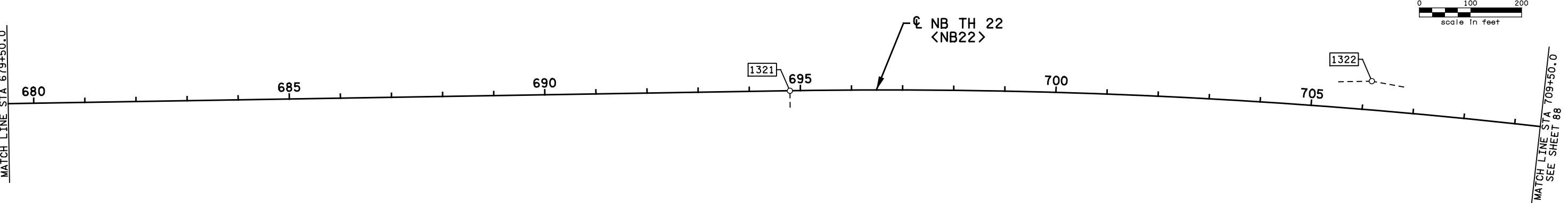
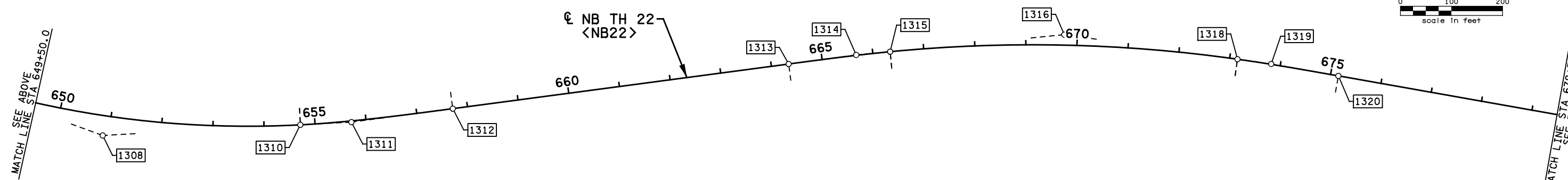
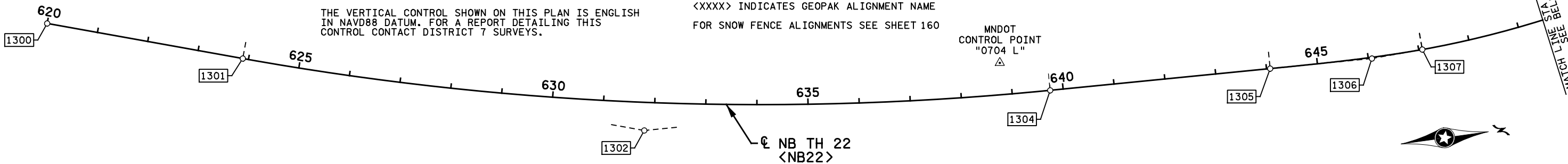
HORIZONTAL & VERTICAL CONTROL

POINT NAME	Y	X	Z
0704 L	186,602.866	582,453.887	921.425
0704 O	197,434.965	580,900.812	1004.503

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME
FOR SNOW FENCE ALIGNMENTS SEE SHEET 160

MNDOT
CONTROL POINT
"0704 L"



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.
Print Name: AMBER E. TRACY
Date: License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005
DRAWN BY S. MARTINS
DESIGNED BY P. ENGELMEYER
CHECKED BY A. TRACY
COMM. NO. 01710321



MINNESOTA DEPARTMENT OF TRANSPORTATION
ALIGNMENT PLANS
TH 22 & CSAH 90
SHEET 87 OF 276

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NO	DATE	BY	CKD	APPR	REVISION

HORIZONTAL CONTROL

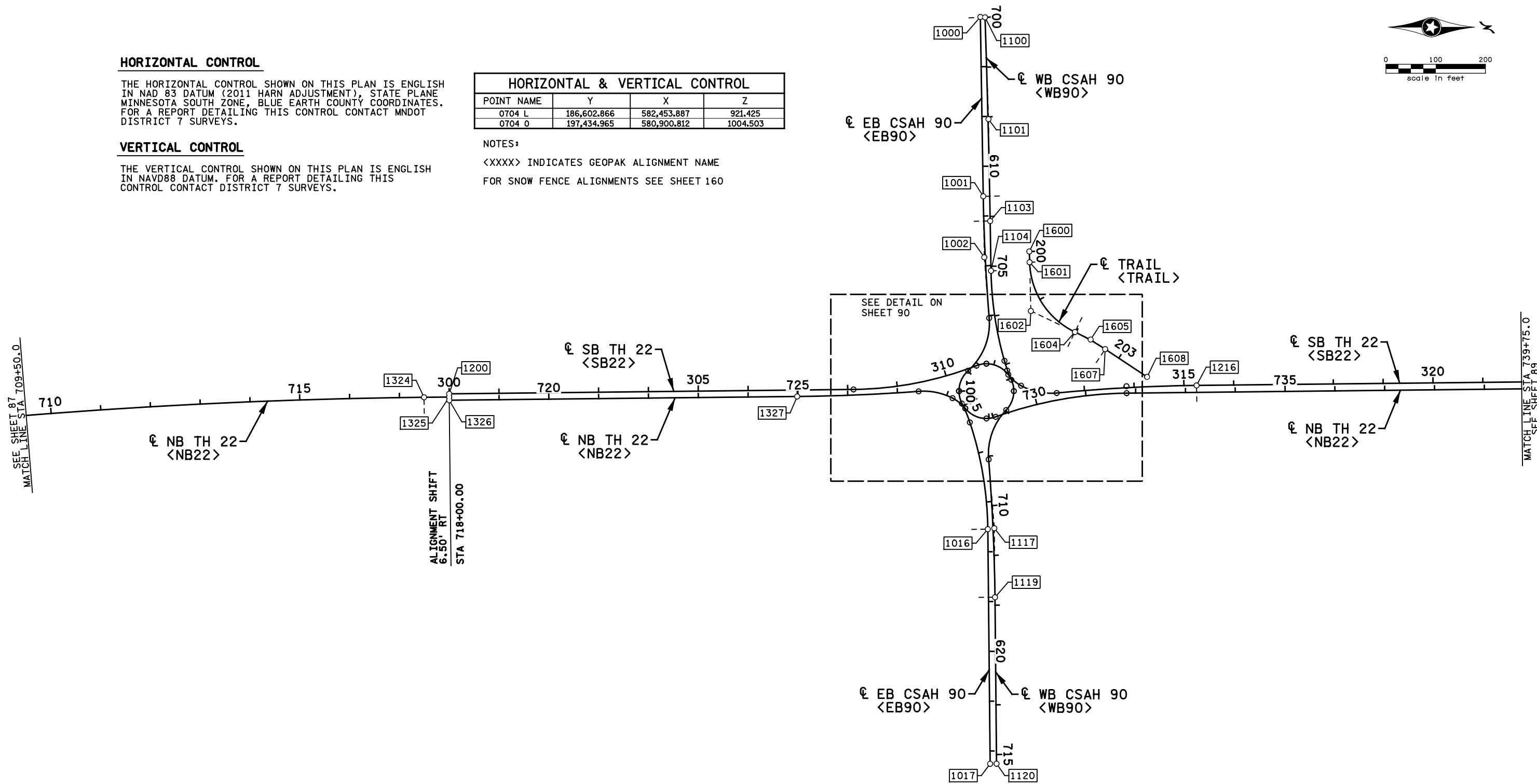
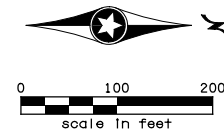
THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (2011 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, BLUE EARTH COUNTY COORDINATES. FOR A REPORT DETAILING THIS CONTROL CONTACT MNDOT DISTRICT 7 SURVEYS.

VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 7 SURVEYS.

HORIZONTAL & VERTICAL CONTROL			
POINT NAME	Y	X	Z
0704 L	186,602.866	582,453.887	921.425
0704 O	197,434.965	580,900.812	1004.503

NOTES:
 <XXXX> INDICATES GEOPAK ALIGNMENT NAME
 FOR SNOW FENCE ALIGNMENTS SEE SHEET 160



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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

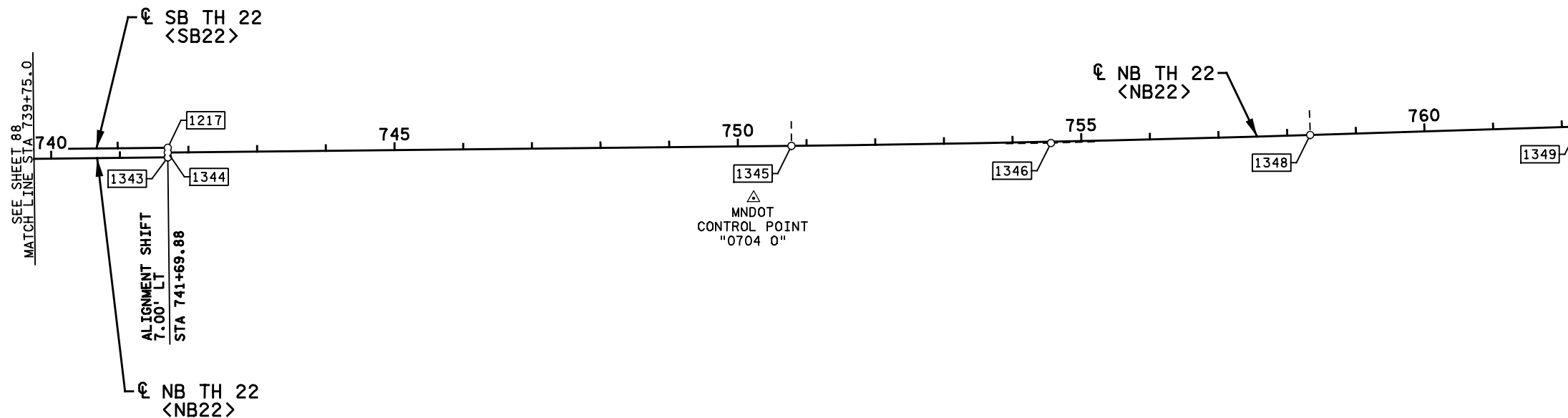
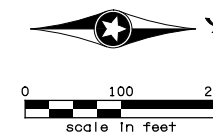
DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 ALIGNMENT PLANS
 TH 22 & CSAH 90

SHEET
 88
 OF
 276



HORIZONTAL CONTROL

THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (2011 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, BLUE EARTH COUNTY COORDINATES. FOR A REPORT DETAILING THIS CONTROL CONTACT MNDOT DISTRICT 7 SURVEYS.

VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 7 SURVEYS.

HORIZONTAL & VERTICAL CONTROL			
POINT NAME	Y	X	Z
0704 L	186,602.866	582,453.887	921.425
0704 0	197,434.965	580,900.812	1004.503

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME
FOR SNOW FENCE ALIGNMENTS SEE SHEET 160

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NO	DATE	BY	CKD	APPR	REVISION

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: AMBER E. TRACY
Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)
STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS
DESIGNED BY
P. ENGELMEYER
CHECKED BY
A. TRACY
COMM. NO. 01710321

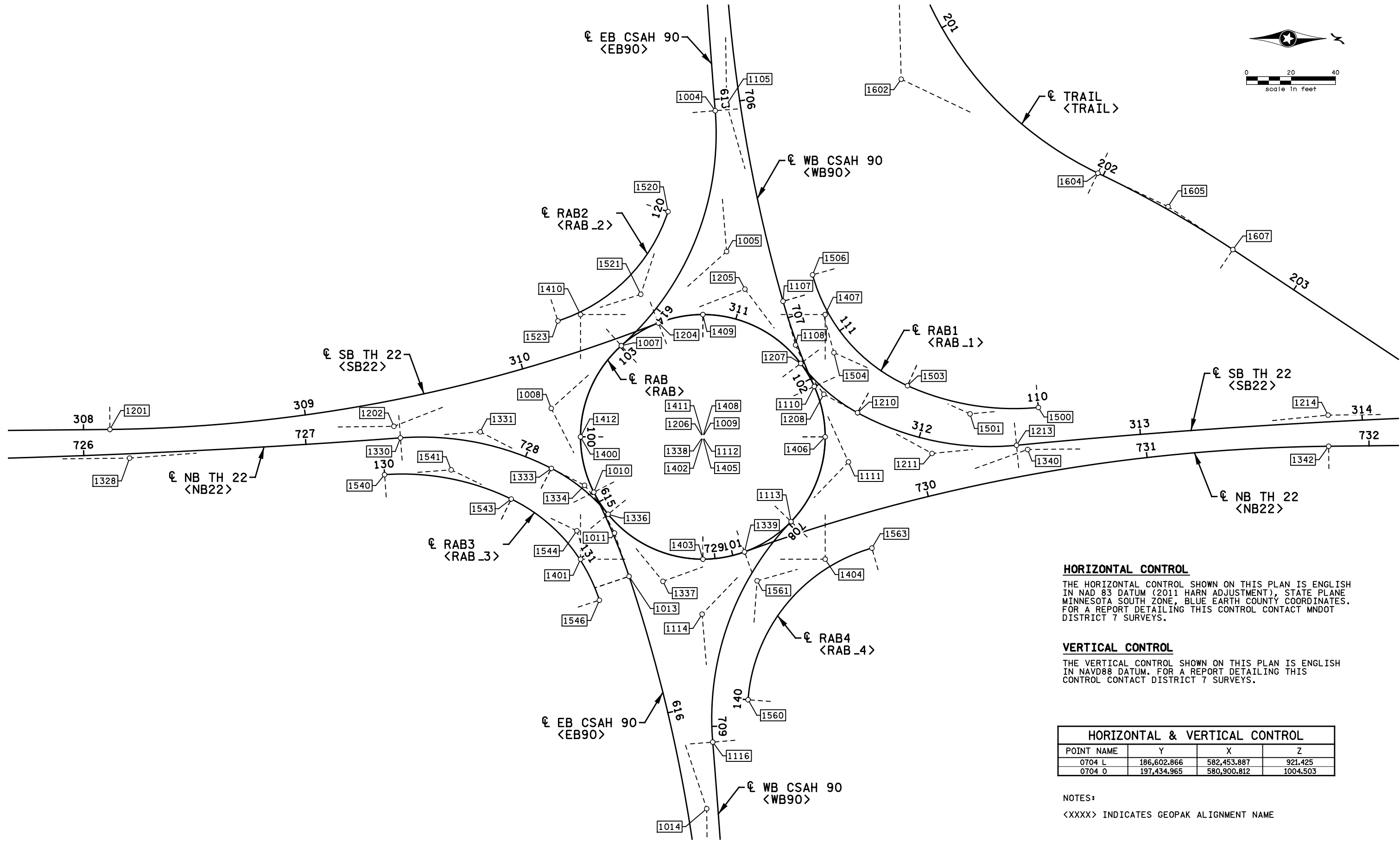
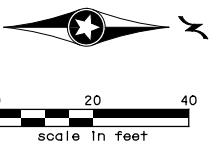


ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT PLANS
TH 22 & CSAH 90

SHEET
89
OF
276



HORIZONTAL CONTROL
 THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (2011 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, BLUE EARTH COUNTY COORDINATES. FOR A REPORT DETAILING THIS CONTROL CONTACT MNDOT DISTRICT 7 SURVEYS.

VERTICAL CONTROL
 THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 7 SURVEYS.

HORIZONTAL & VERTICAL CONTROL			
POINT NAME	Y	X	Z
0704 L	186,602.866	582,453.887	921.425
0704 O	197,434.965	580,900.812	1004.503

NOTES:
 <XXXX> INDICATES GEOPAK ALIGNMENT NAME

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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005
 COMM. NO. 01710321

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 **ENGINEERS PLANNERS DESIGNERS**
 Consulting Group, Inc.

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
			SPIRAL CURVE DATA							
ANGLE (Θs)	DEGREE	ST	LT	LS						
℄ NB TH 22 <NB22>										
1300	POT	℄ NB TH 22 620+00.000						582,118.0989	184,767.9981	
1301	PC	623+88.848						582,239.3193	185,137.4682	18° 09' 51.40"
1302	PI	631+86.820	15° 48' 50.37" LT	0° 59' 50.01"	5,745.523'	797.972'	1,585.800'	582,488.0812	185,895.6747	PI
1303	CC	①						576,780.1156	186,928.5922	
1304	PT	639+74.648						582,520.8050	186,692.9756	2° 21' 01.03"
1305	TS	644+07.114						582,538.5399	187,125.0780	
1306	PI	646+07.178	4° 30' 00.00"	3° 00' 00.00"	100.059'	200.065'	300.000'	582,546.7443	187,324.9744	PI
1307	SC	647+07.114						582,542.9910	187,424.9627	357° 51' 01.03"
1308	PI	650+94.344	22° 55' 23.09" LT	3° 00' 00.00"	1,909.859'	387.230'	764.103'	582,528.4657	187,811.9206	PI
1309	CC	①						580,634.4758	187,353.3224	
1310	CS	654+71.216						582,364.3693	188,162.6623	334° 55' 37.94"
1311	PI	655+71.269	4° 29' 58.92"	3° 00' 00.00"	100.052'	200.051'	299.980'	582,321.9703	188,253.2865	PI
1312	ST	657+71.196						582,223.2401	188,427.2776	330° 25' 39.02"
1313	TS	664+34.074						581,896.0938	189,003.8034	
1314	PI	665+67.416	2° 00' 00.00"	2° 00' 00.00"	66.674'	133.342'	200.000'	581,830.2864	189,119.7750	PI
1315	SC	666+34.074						581,799.4247	189,178.8769	332° 25' 39.02"
1316	PI	669+76.343	13° 37' 34.15" RT	2° 00' 00.00"	2,864.789'	342.269'	681.308'	581,640.9987	189,482.2726	PI
1317	CC	①						584,338.8478	190,504.9034	
1318	CS	673+15.382						581,558.5075	189,814.4517	346° 03' 13.17"
1319	PI	673+82.053	1° 59' 59.64"	2° 00' 00.00"	66.671'	133.335'	199.990'	581,542.4389	189,879.1575	PI
1320	ST	675+15.372						581,514.8389	190,009.6048	348° 03' 12.81"
1321	PC	694+79.497						581,108.2704	191,931.1897	
1322	PI	706+18.208	11° 19' 39.99" RT	0° 29' 56.48"	11,481.638'	1,138.712'	2,270.000'	580,872.5602	193,045.2386	PI
1323	CC	①						592,341.2335	194,307.8574	
1324	PT	717+49.497						580,860.2649	194,183.8839	359° 22' 52.80"
1325	POT	↓ ALIGNMENT SHIFT 718+00.000						580,859.7196	194,234.3843	
1326	POT	↑ 6.50' RT 718+00.000						580,866.2192	194,234.4545	
1327	PC	724+98.411						580,858.6781	194,932.8252	359° 22' 52.80"
1328	PI	726+20.560	3° 39' 15.61" LT	1° 29' 46.91"	3,829.000'	122.149'	244.214'	580,857.3592	195,054.9666	PI
1329	CC	①						577,029.9013	194,891.4813	
1330	PRC	727+42.626						580,848.2580	195,176.7757	355° 43' 37.20"
1331	PI	727+78.596	31° 23' 33.96" RT	44° 45' 44.38"	128.000'	35.970'	70.132'	580,845.5779	195,212.6461	PI
1332	CC	①						580,975.9022	195,186.3128	
1333	PCC	728+12.758						580,861.9751	195,244.6618	27° 07' 11.16"
1334	PI	728+29.511	23° 39' 20.97" RT	71° 37' 11.01"	80.000'	16.754'	33.030'	580,869.6123	195,259.5734	PI
1335	CC	①						580,933.1796	195,208.1937	
1336	PRC	728+45.788						580,882.5908	195,270.1677	50° 46' 32.13"
1337	PI	728+84.768	70° 39' 11.63" LT	104° 10' 26.92"	55.000'	38.981'	67.822'	580,912.7881	195,294.8174	PI
1338	CC							580,847.8110	195,312.7748	
1339	PRC	729+13.610						580,899.5342	195,331.4755	340° 07' 20.49"
1340	PI	730+49.004	19° 15' 32.31" RT	7° 10' 47.72"	798.000'	135.394'	268.234'	580,853.4985	195,458.8029	PI
1341	CC	①						581,649.9901	195,602.8056	
1342	PT	731+81.844						580,852.0366	195,594.1891	359° 22' 52.80"
1343	POT	↓ ALIGNMENT SHIFT 741+69.881						580,841.3682	196,582.1687	
1344	POT	↑ 7.00' LT 741+69.881						580,834.3686	196,582.0931	
1345	PC	750+78.027						580,824.5628	197,490.1864	359° 22' 52.80"

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
			SPIRAL CURVE DATA							
ANGLE (Θs)	DEGREE	ST	LT	LS						
℄ NB TH 22 <NB22> (CONT)										
1346	PI	754+55.767	1° 10' 30.54" LT	0° 09' 20.00"	36,833.001'	377.740'	755.454'	580,820.4842	197,867.9044	PI
1347	CC	①						543,993.7086	197,092.4801	
1348	PT	758+33.481						580,808.6598	198,245.4593	358° 12' 22.26"
1349	POT	℄ NB TH 22 762+24.393						580,796.4231	198,636.1801	
℄ SB TH 22 <SB22>										
A PT 6.50' LT OF ℄ NB TH 22 718+00.00=										
1200	POT	℄ SB TH 22 300+00.000						580,853.2200	194,234.3141	
1201	PC	308+11.885						580,844.4536	195,046.1513	359° 22' 52.80"
1202	PI	309+39.569	20° 43' 58.65" LT	8° 12' 30.83"	698.000'	127.685'	252.577'	580,843.0749	195,173.8288	PI
1203	CC	①						580,146.4943	195,038.6146	
1204	PRC	310+64.462						580,796.5860	195,292.7498	338° 38' 54.15"
1205	PI	311+06.256	74° 27' 44.32" RT	104° 10' 26.92"	55.000'	41.794'	71.479'	580,781.3691	195,331.6757	PI
1206	CC							580,847.8110	195,312.7748	
1207	PRC	311+35.940						580,814.7961	195,356.7636	53° 06' 38.47"
1208	PI	311+53.247	24° 24' 48.90" LT	71° 37' 11.01"	80.000'	17.307'	34.088'	580,828.6378	195,367.1523	PI
1209	CC	①						580,766.7745	195,420.7474	
1210	PCC	311+70.028						580,836.9481	195,382.3330	28° 41' 49.57"
1211	PI	312+08.208	34° 13' 37.17" LT	46° 12' 22.59"	124.000'	38.179'	74.074'	580,855.2810	195,415.8228	PI
1212	CC	①						580,728.1790	195,441.8753	
1213	PRC	312+44.103						580,851.6019	195,453.8245	354° 28' 12.40"
1214	PI	313+84.850	4° 54' 40.40" RT	1° 44' 44.73"	3,282.000'	140.748'	281.323'	580,838.0387	195,593.9173	PI
1215	CC	①						584,118.3276	195,770.0945	
1216	PT	315+25.426						580,836.5190	195,734.6569	359° 22' 52.80"
1217	POT	323+72.836=						580,827.3690	196,582.0176	
A PT 7.00' LT OF ℄ NB TH 22 741+69.881										
℄ EB CSAH 90 <EB90>										
1000	POT	℄ EB CSAH 90 607+00.000						580,096.4218	195,300.5308	
1001	PC	610+60.228						580,456.6003	195,306.4786	89° 03' 14.17"
1002	PI	611+82.702	3° 39' 50.73" LT	1° 29' 46.91"	3,829.000'	122.475'	244.866'	580,579.0585	195,308.5008	PI
1003	CC	①						580,393.3790	199,134.9566	
1004	PRC	613+05.094						580,701.1371	195,318.3448	85° 23' 23.44"
1005	PI	613+68.624	52° 47' 35.30" RT	44° 45' 44.38"	128.000'	63.530'	117.941'	580,764.4617	195,323.4510	PI
1006	CC	①						580,711.4252	195,190.7589	
1007	PRC	614+23.035						580,806.8208	195,276.1034	138° 10' 58.75"
1008	PI	614+65.302	75° 05' 02.35" LT	104° 10' 26.92"	55.000'	42.267'	72.075'	580,835.0025	195,244.6027	PI
1009	CC							580,847.8110	195,312.7748	
1010	PRC	614+95.110						580,872.6958	195,263.7264	63° 05' 56.40"
1011	PI	615+15.691	8° 24' 27.88" RT	20° 27' 46.00"	280.000'	20.581'	41.088'	580,891.0497	195,273.0382	PI
1012	CC	①						580,999.3819	195,014.0253	
1013	PCC	615+36.198						580,910.5678	195,279.5664	71° 30' 24.28"
1014	PI	616+46.348	17° 56' 07.68" RT	8° 12' 30.83"	698.000'	110.149'	218.497'	581,015.0293	195,314.5050	PI
1015	CC	①						581,131.9686	194,617.6104	
1016	PT	617+54.695						581,125.1735	195,315.5773	89° 26' 31.96"
1017	POT	℄ EB CSAH 90 622+25.819						581,596.2748	195,320.1638	

NOTES: ① ALIGNMENT POINT IS NOT SHOWN ON ALIGNMENT PLAN VIEW.
 <XXXX> INDICATES GEOPAK ALIGNMENT NAME.

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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: AMBER E. TRACY
 Date: _____ License #: 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 ALIGNMENT TABULATIONS
 TH 22 & CSAH 90

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH	
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y		
			SPIRAL CURVE DATA								
ANGLE (Θs)	DEGREE	ST	LT	LS							
WB CSAH 90 <WB90>											
1100	PC	WB CSAH 90	700+00.000					580,097.2040	195,309.8927	88° 01' 51.72"	
1101	PI		702+04.586	1° 01' 22.46" RT	0° 15' 00.00"	22,918.312'	204.586'	409.162'	580,301.6696	195,316.9219	PI
1102	CC	①							580,884.6362	172,405.1121	
1103	PT		704+09.162						580,506.2280	195,320.2999	
1104	PC		705+09.162						580,606.2144	195,321.9510	89° 03' 14.17"
1105	PI		706+01.256	15° 01' 56.80" LT	8° 12' 30.83"	698.000'	92.095'	183.131'	580,698.2963	195,323.4716	PI
1106	CC	①							580,594.6896	196,019.8558	
1107	PCC		706+92.293						580,786.8328	195,348.8230	74° 01' 17.37"
1108	PI		707+12.754	8° 21' 31.45" LT	20° 27' 46.00"	280.000'	20.461'	40.848'	580,806.5028	195,354.4554	PI
1109	CC	①							580,709.7553	195,618.0052	
1110	PRC		707+33.142						580,825.1452	195,362.8873	65° 39' 45.92"
1111	PI		707+70.367	68° 10' 55.30" RT	104° 10' 26.92"	55.000'	37.225'	65.450'	580,859.0624	195,378.2280	PI
1112	CC								580,847.8110	195,312.7748	
1113	PRC		707+98.592						580,885.9099	195,352.4419	133° 50' 41.22"
1114	PI		708+56.318	48° 32' 57.90" LT	44° 45' 44.38"	128.000'	57.726'	108.460'	580,927.5432	195,312.4545	PI
1115	CC	①							580,974.5764	195,444.7579	
1116	PRC		709+07.052						580,985.0749	195,317.1892	85° 17' 43.31"
1117	PI		710+45.677	4° 08' 48.65" RT	1° 29' 46.91"	3,829.000'	138.625'	277.128'	581,123.2325	195,328.5590	PI
1118	CC	①							581,299.1262	191,501.0900	
1119	PT		711+84.180						581,261.8505	195,329.9086	89° 26' 31.96"
1120	POT	WB CSAH 90	715+18.494						581,596.1482	195,333.1631	

RAB <RAB>

1400	PC	RAB	100+00.000						580,847.8110	195,257.7748	90° 00' 00.00"
1401	PI		100+55.000	90° 00' 00.00" LT	104° 10' 26.92"	55.000'	55.000'	86.394'	580,902.8110	195,257.7748	PI
1402	CC								580,847.8110	195,312.7748	
1403	PCC		100+86.394						580,902.8110	195,312.7748	360° 00' 00.00"
1404	PI		101+41.394	90° 00' 00.00" LT	104° 10' 26.92"	55.000'	55.000'	86.394'	580,902.8110	195,367.7748	PI
1405	CC								580,847.8110	195,312.7748	
1406	PCC		101+72.788						580,847.8110	195,367.7748	270° 00' 00.00"
1407	PI		102+27.788	90° 00' 00.00" LT	104° 10' 26.92"	55.000'	55.000'	86.394'	580,792.8110	195,367.7748	PI
1408	CC								580,847.8110	195,312.7748	
1409	PCC		102+59.181						580,792.8110	195,312.7748	180° 00' 00.00"
1410	PI		103+14.181	90° 00' 00.00" LT	104° 10' 26.92"	55.000'	55.000'	86.394'	580,792.8110	195,257.7748	PI
1411	CC								580,847.8110	195,312.7748	
1412	PT	RAB	103+45.575						580,847.8110	195,257.7748	90° 00' 00.00"

RAB1 <RAB_1>

1500	PC	RAB1	110+00.000						580,834.5961	195,463.6447	174° 40' 06.21"
1501	PI		110+30.854	29° 32' 45.19" RT	48° 58' 14.71"	117.000'	30.854'	60.334'	580,837.4631	195,432.9246	PI
1502	CC	①							580,718.1023	195,452.7731	
1503	PCC		110+60.334						580,824.8084	195,404.7855	204° 12' 51.40"
1504	PI		110+96.617	50° 27' 40.14" RT	74° 24' 36.37"	77.000'	36.284'	67.815'	580,809.9267	195,371.6942	PI
1505	CC	①							580,754.5830	195,436.3671	
1506	PT	RAB1	111+28.149						580,774.9331	195,362.1049	254° 40' 31.54"

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH	
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y		
			SPIRAL CURVE DATA								
ANGLE (Θs)	DEGREE	ST	LT	LS							
RAB2 <RAB_2>											
1520	PC	RAB2	120+00.000						580,746.5205	195,297.1183	108° 15' 40.61"
1521	PI		120+39.145	53° 53' 43.28" RT	74° 24' 36.37"	77.000'	39.145'	72.430'	580,783.6939	195,284.8522	PI
1522	CC	①							580,722.3924	195,223.9962	
1523	PT	RAB2	120+72.430						580,795.6886	195,247.5902	162° 09' 23.90"
RAB3 <RAB_3>											
1540	PC	RAB3	130+00.000						580,864.8269	195,169.6366	355° 51' 05.33"
1541	PI		130+30.025	30° 00' 51.98" RT	51° 09' 25.01"	112.000'	30.025'	58.671'	580,862.6548	195,199.5834	PI
1542	CC	①							580,976.5335	195,177.7389	
1543	PCC		130+58.671						580,875.7539	195,226.6008	25° 51' 57.32"
1544	PI		130+91.464	46° 08' 12.21" RT	74° 24' 36.37"	77.000'	32.793'	62.003'	580,890.0604	195,256.1085	PI
1545	CC	①							580,945.0399	195,193.0082	
1546	PT	RAB3	131+20.675						580,921.2489	195,266.2407	72° 00' 09.53"
RAB4 <RAB_4>											
1560	PC	RAB4	140+00.000						580,966.0335	195,333.0842	274° 22' 28.48"
1561	PI		140+53.658	69° 44' 31.01" RT	74° 24' 36.37"	77.000'	53.658'	93.726'	580,912.5318	195,337.1770	PI
1562	CC	①							580,971.9068	195,409.8599	
1563	PT	RAB4	140+93.726						580,897.8466	195,388.7864	344° 06' 59.49"

TRAIL <TRAIL>

1600	POT	TRAIL	200+00.000						580,567.4769	195,398.8596	
1601	PC		200+21.510						580,588.9794	195,399.4186	88° 30' 39.17"
1602	PI		201+19.528	62° 59' 04.00" LT	35° 48' 35.50"	160.000'	98.018'	175.886'	580,686.9645	195,401.9658	PI
1603	CC	①							580,584.8214	195,559.3645	
1604	PRC		201+97.395						580,729.2033	195,490.4161	25° 31' 35.17"
1605	PI		202+32.355	7° 59' 57.20" RT	11° 27' 32.96"	500.000'	34.960'	69.806'	580,744.2685	195,521.9636	PI
1606	CC	①							581,180.3966	195,274.9524	
1607	PT		202+67.202						580,763.5773	195,551.1076	33° 31' 32.37"
1608	POT	TRAIL	203+68.301						580,819.4153	195,635.3876	

NOTES:

- ① ALIGNMENT POINT IS NOT SHOWN ON ALIGNMENT PLAN VIEW.
- <XXXX> INDICATES GEOPAK ALIGNMENT NAME.
- FOR SNOW FENCE ALIGNMENTS SEE SHEET 160

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.

Print Name: AMBER E. TRACY

Date: License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS

DESIGNED BY P. ENGELMEYER

CHECKED BY A. TRACY

COMM. NO. 01710321

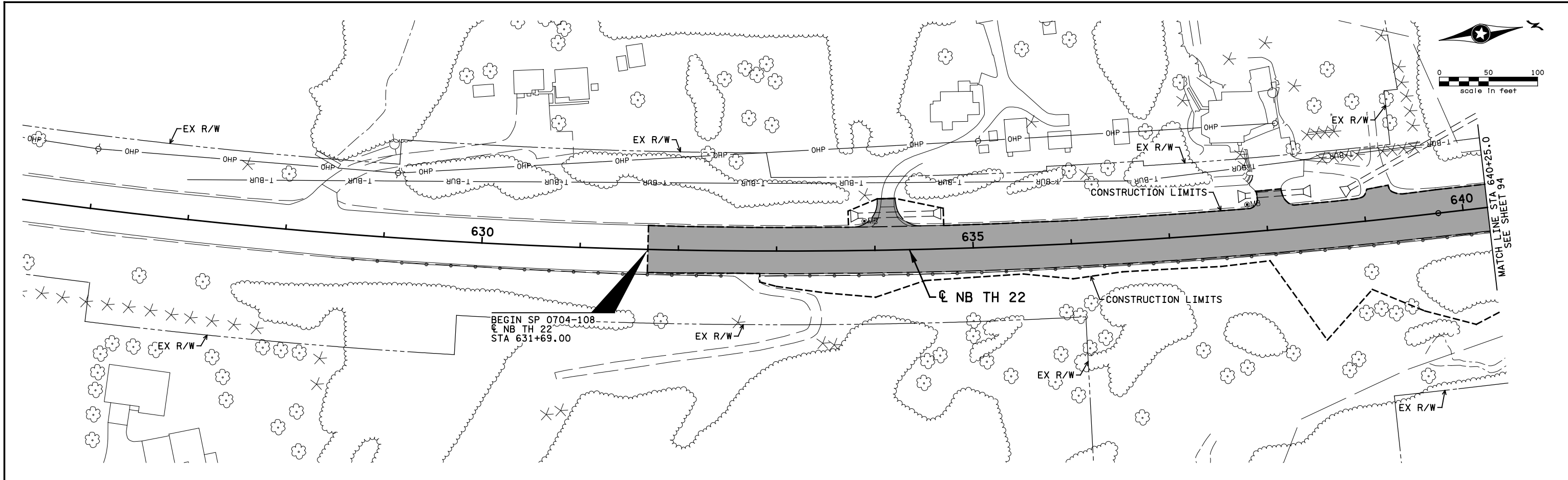


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ALIGNMENT TABULATIONS
TH 22 & CSAH 90

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LEGEND

	PROPOSED PERMANENT CONSTRUCTION		UTILITY POLE		PROPOSED RIGHT OF WAY (PROP R/W)
	GAS		LIGHT POLE		PERMANENT SNOW FENCE EASEMENT
	BURIED ELECTRIC WIRE		ELECTRIC MANHOLE		EXISTING RIGHT OF WAY (EX R/W)
	BURIED TV WIRE		TELEPHONE MANHOLE		CSAH 90 TEMPORARY TAKE OVER
	BURIED TELEPHONE WIRE		GAS VALVE		EXISTING 10' CABLE UTILITY EASEMENT
	BURIED FIBER OPTIC CABLE		CATCH BASIN		TEMPORARY EASEMENT (TE)
	WATER MAIN		UTILITY VALVE		
	SANITARY SEWER		HYDRANT		
	STORM SEWER		SIGNAL CONTROL CABINET		
	SUBSURFACE DRAIN		MANHOLE		
	CULVERT		SIGNAL POST NO MAST ARM		
	OVERHEAD POWER LINE		SIGNAL POLE WITH MAST ARM		
	OVERHEAD TV LINE		HANDHOLE		
			GUY POLE		

GENERAL NOTES:

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

SOME UTILITIES MAY BE RELOCATED PRIOR TO CONSTRUCTION.

THE RIGHT-OF-WAY SHOWN IN THIS PLAN GIVES A GRAPHICAL LOCATION WITH RESPECT TO THE GEOMETRIC DESIGN AND MAP DATA. THE EXACT RIGHT OF WAY AND BOUNDARY CORNERS ARE LOCATED BY REFERENCE TO THE RIGHT OF WAY PLATS AND ARE IDENTIFIED ON THE RIGHT OF WAY MAP.

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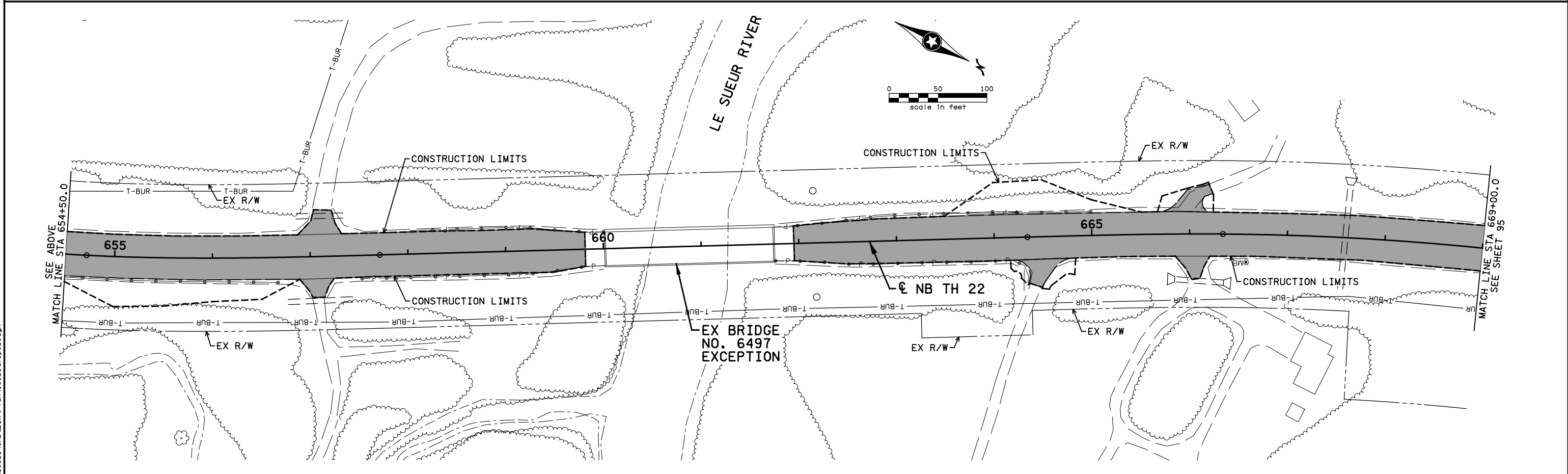
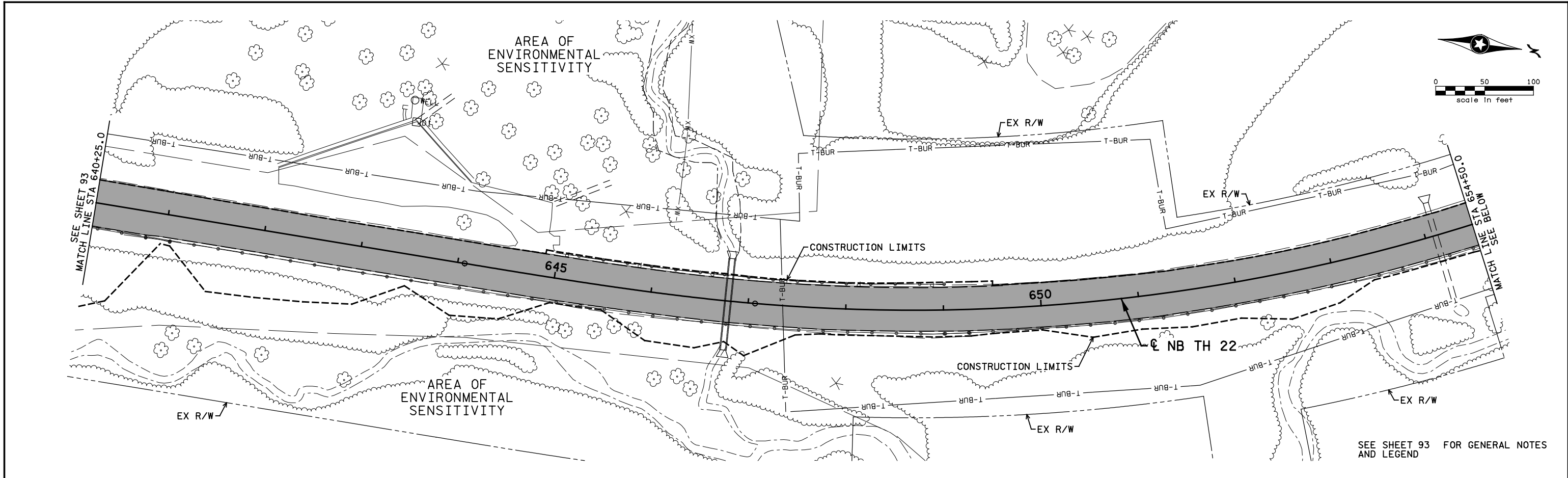
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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
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 INPLACE TOPOGRAPHY AND UTILITY PLANS
 TH 22 & CSAH 90

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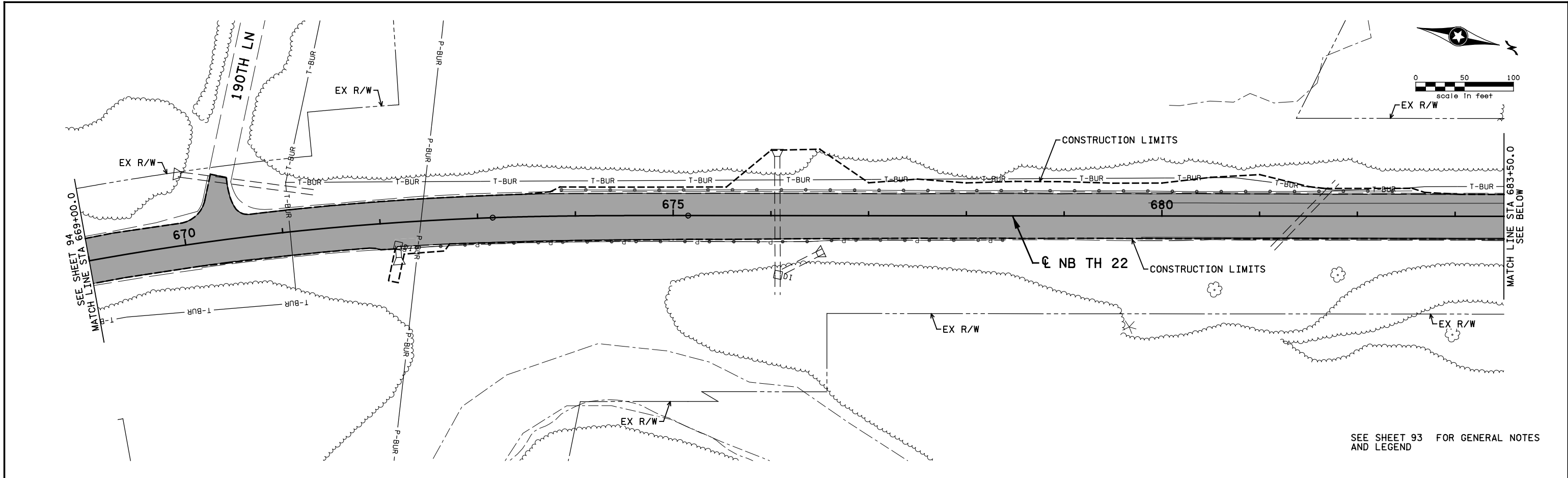
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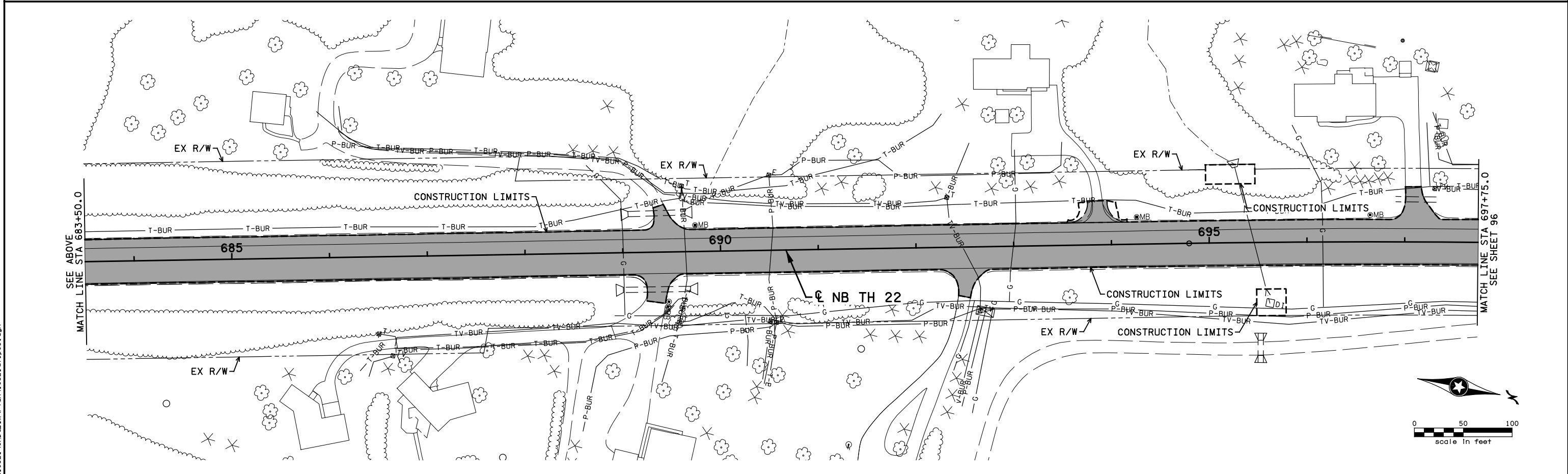
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SHEET 94 OF 276



SEE SHEET 93 FOR GENERAL NOTES AND LEGEND



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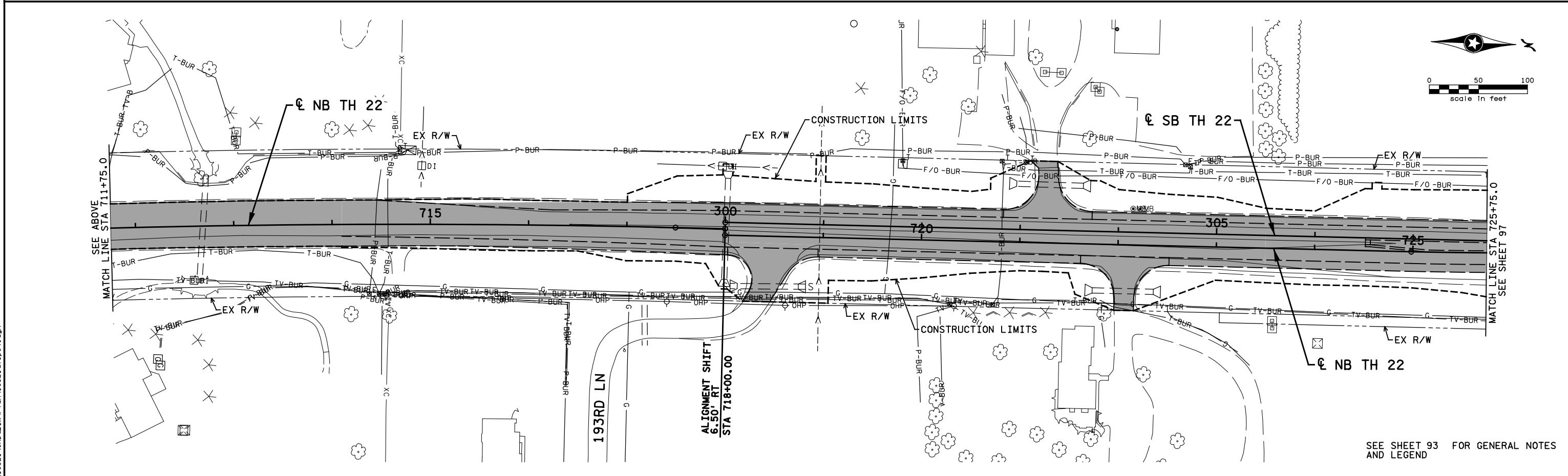
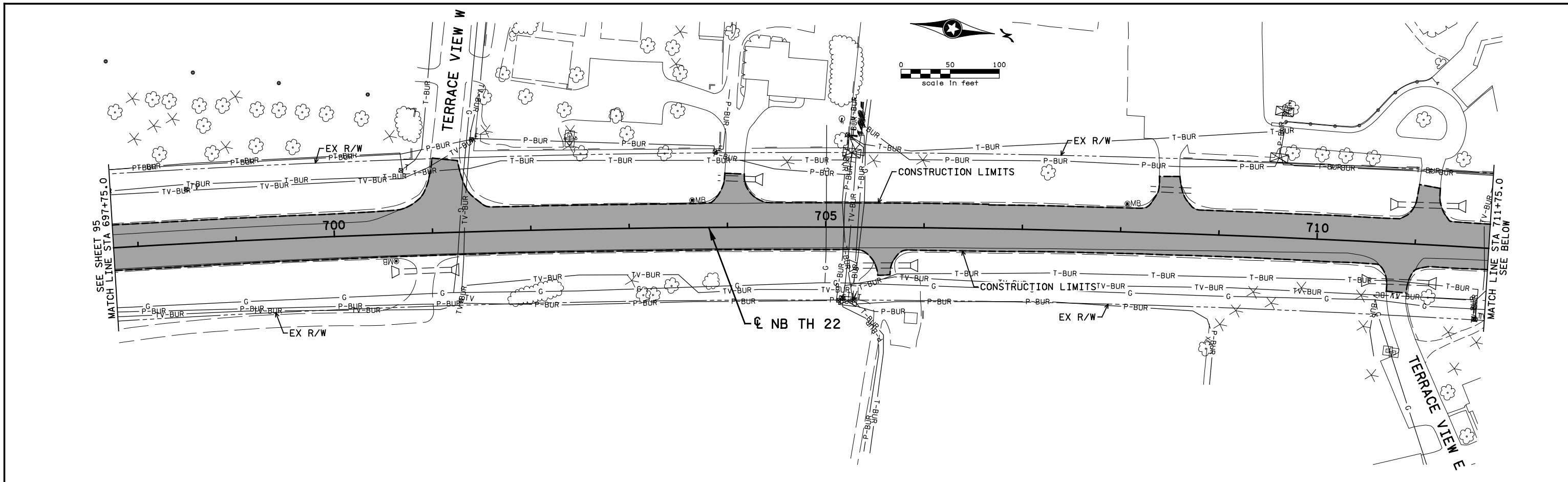
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 TH 22 & CSAH 90

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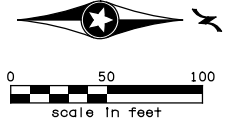
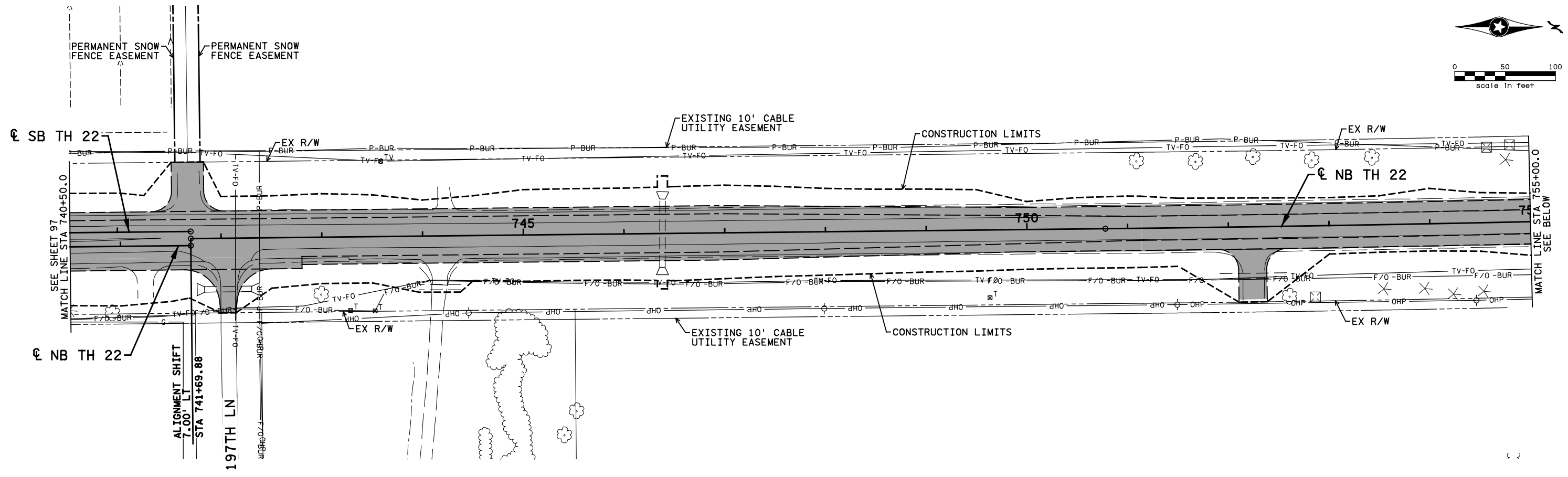
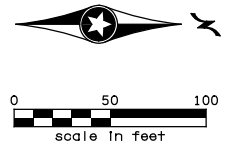
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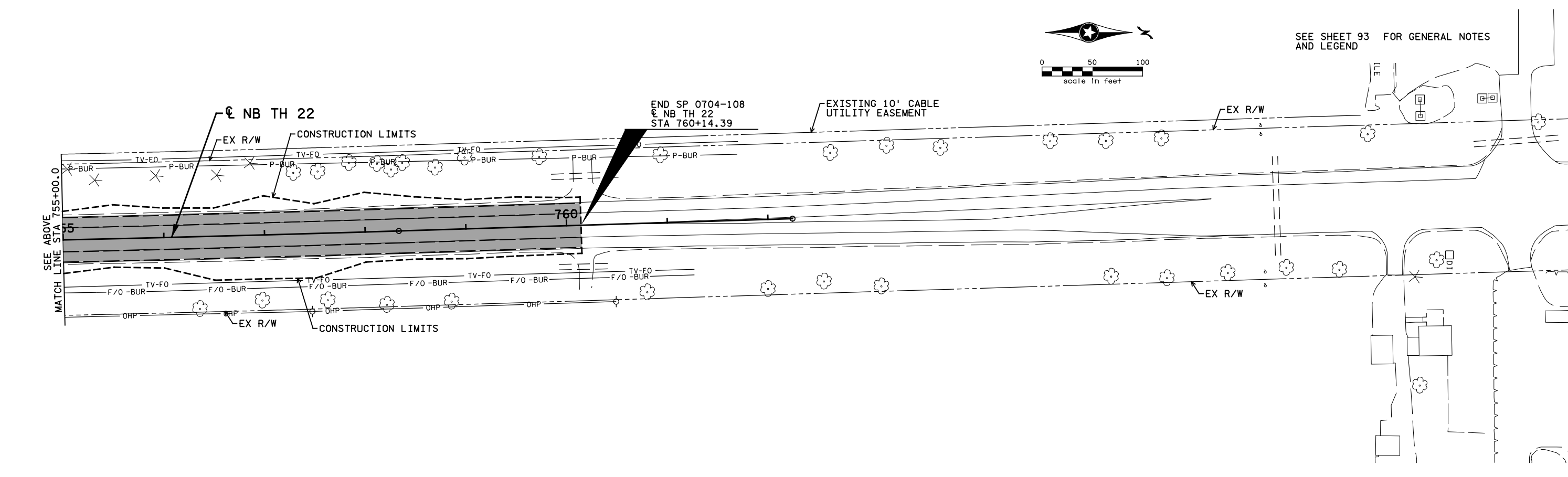
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 TH 22 & CSAH 90

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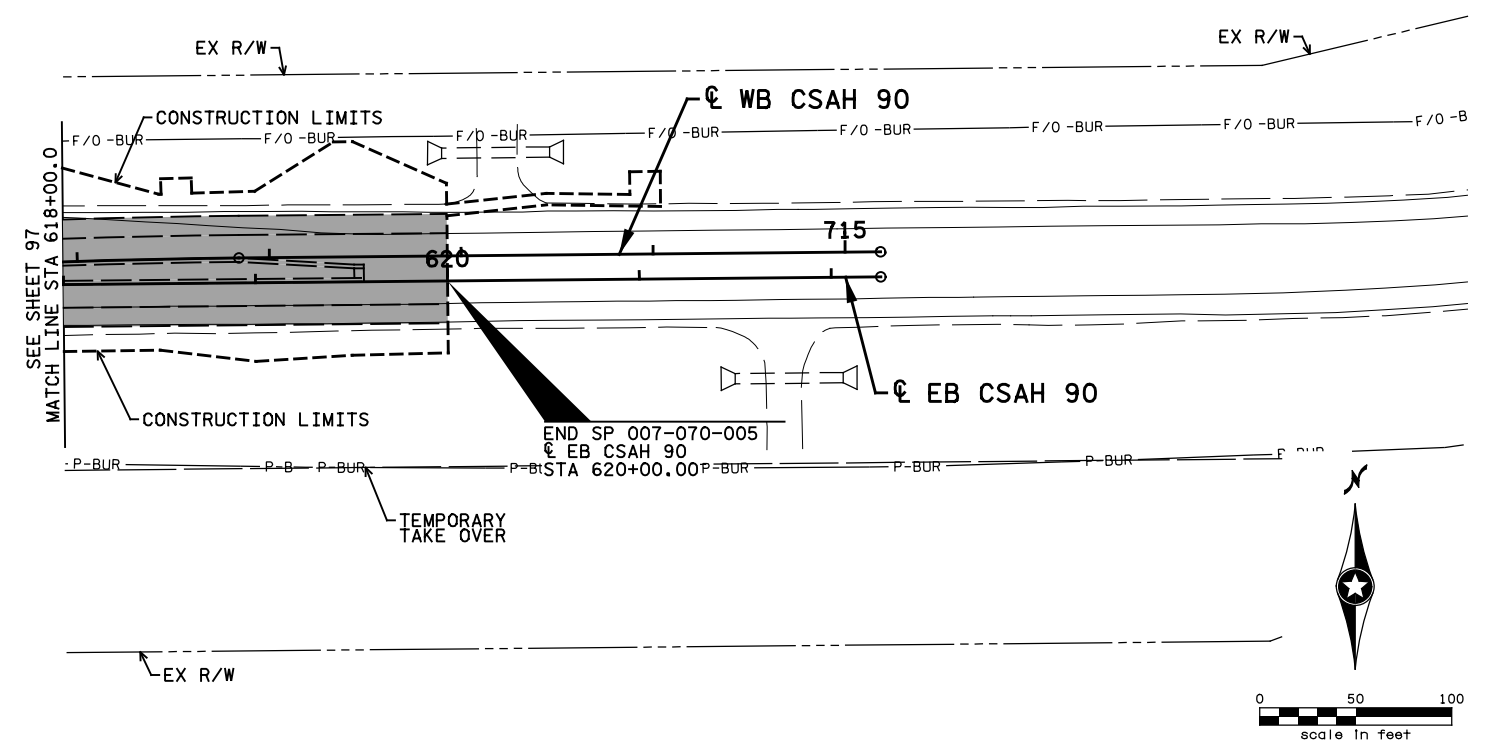
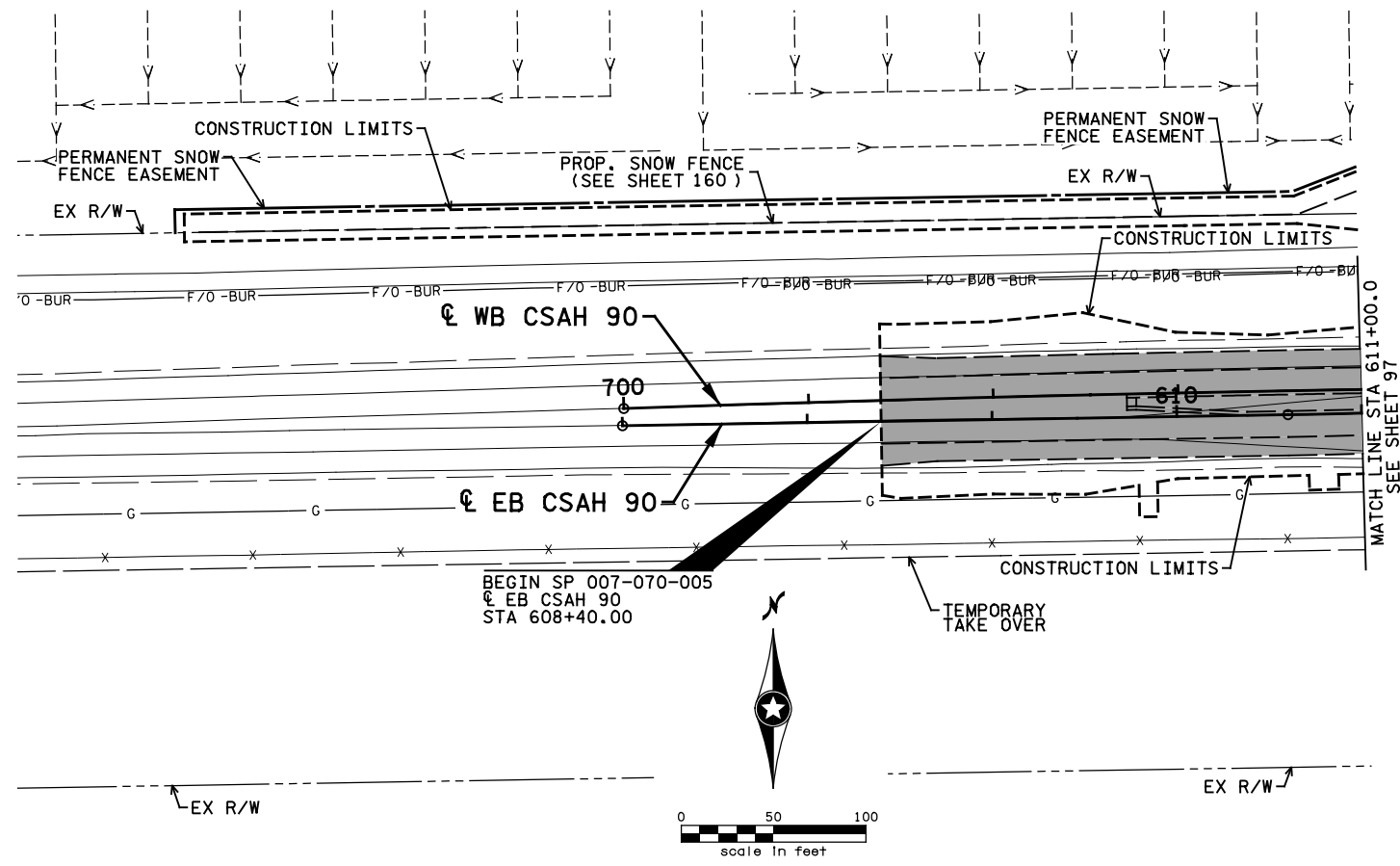


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 TH 22 & CSAH 90

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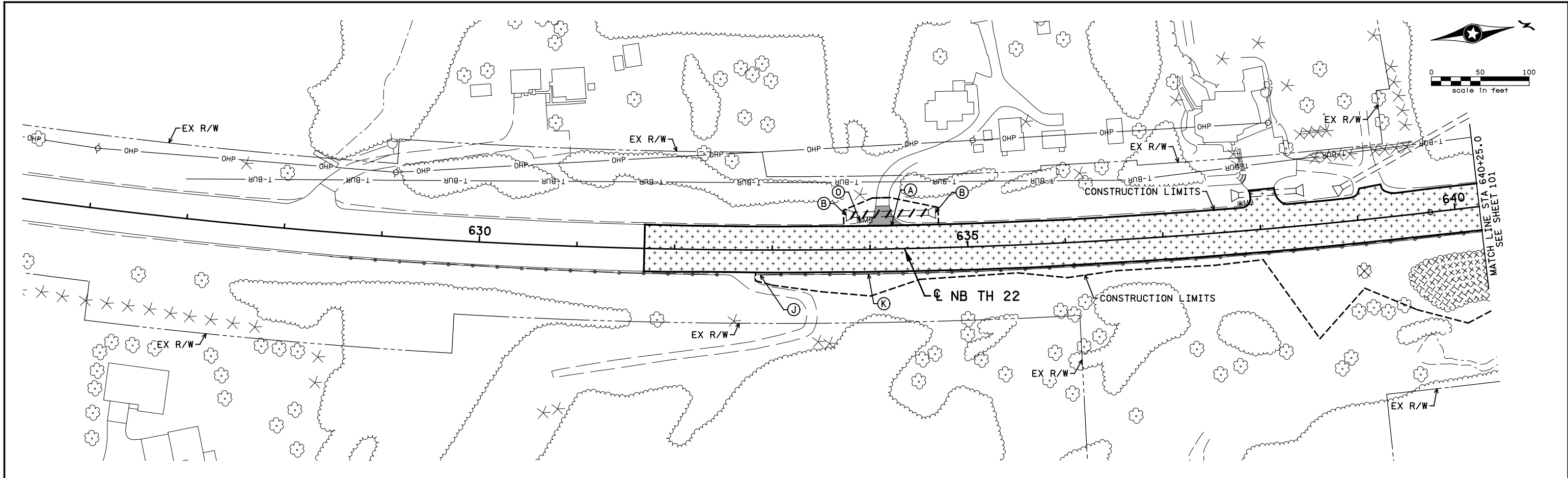
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TH 22 & CSAH 90

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LEGEND

	CLEAR AND GRUB (ACRE)
	CLEAR AND GRUB TREE (ACRE)
	REMOVE PAVEMENT
	REMOVE BITUMINOUS PAVEMENT
	REMOVE BITUMINOUS WALK
	MILL BITUMINOUS SURFACE (2.0")
	REMOVE SEWER PIPE (STORM)/ REMOVE PIPE CULVERTS

GENERAL NOTES:

PROTECT ALL TREES THAT ARE NOT MARKED FOR REMOVAL (INCIDENTAL).
 ALL TREES TO BE CLEARED AND GRUBBED WILL BE MARKED BY THE PROJECT ENGINEER.
 SEE EXISTING SIGNING PLANS FOR SIGN REMOVALS.

NOTES:

- (A) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (B) REMOVE PIPE APRON
- (J) REMOVE ANCHORAGE ASSEMBLY - CABLE
- (K) REMOVE CABLE GUARDRAIL
- (O) RELOCATE MAIL BOX SUPPORT

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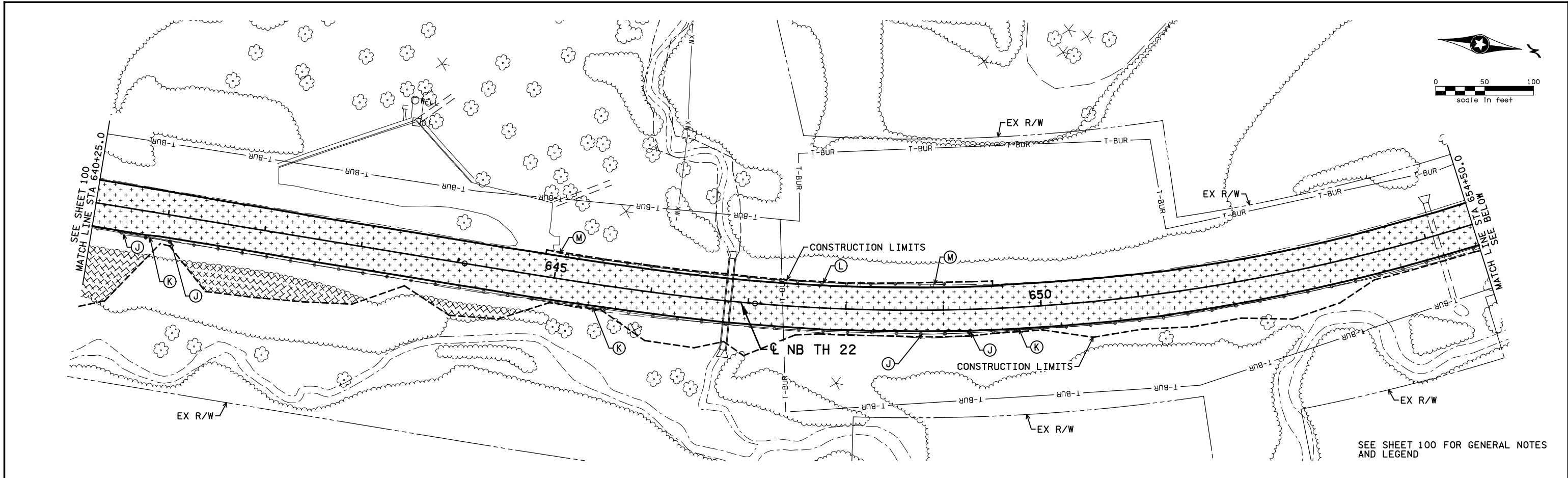
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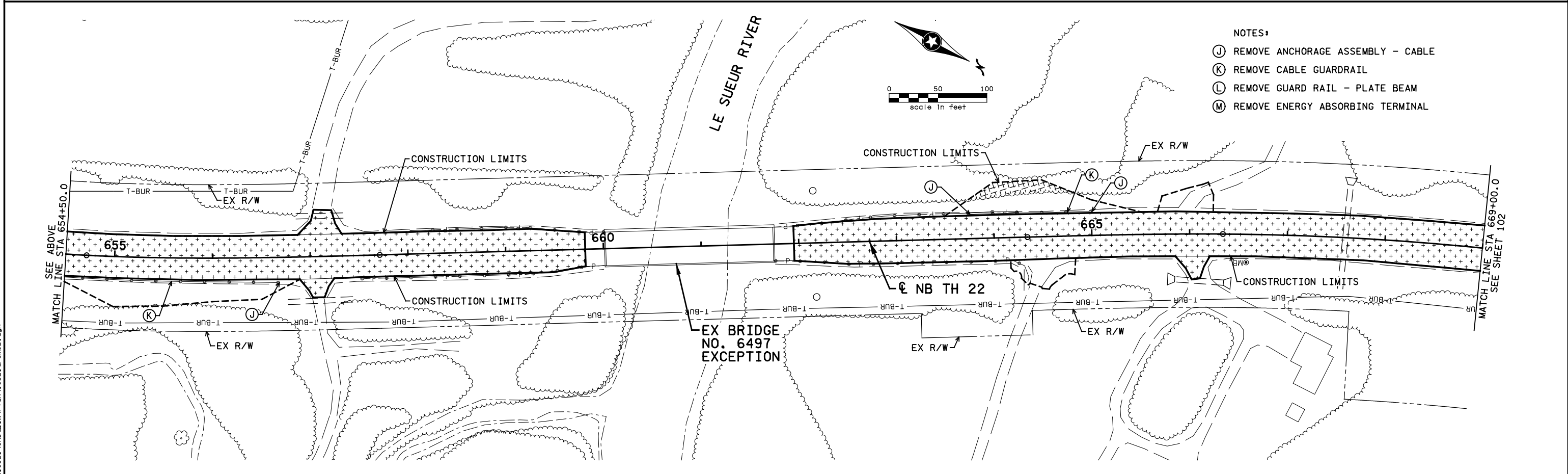
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 REMOVAL PLANS
 TH 22 & CSAH 90

SHEET
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 OF
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SEE SHEET 100 FOR GENERAL NOTES AND LEGEND



- NOTES:
- (J) REMOVE ANCHORAGE ASSEMBLY - CABLE
 - (K) REMOVE CABLE GUARDRAIL
 - (L) REMOVE GUARD RAIL - PLATE BEAM
 - (M) REMOVE ENERGY ABSORBING TERMINAL

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Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
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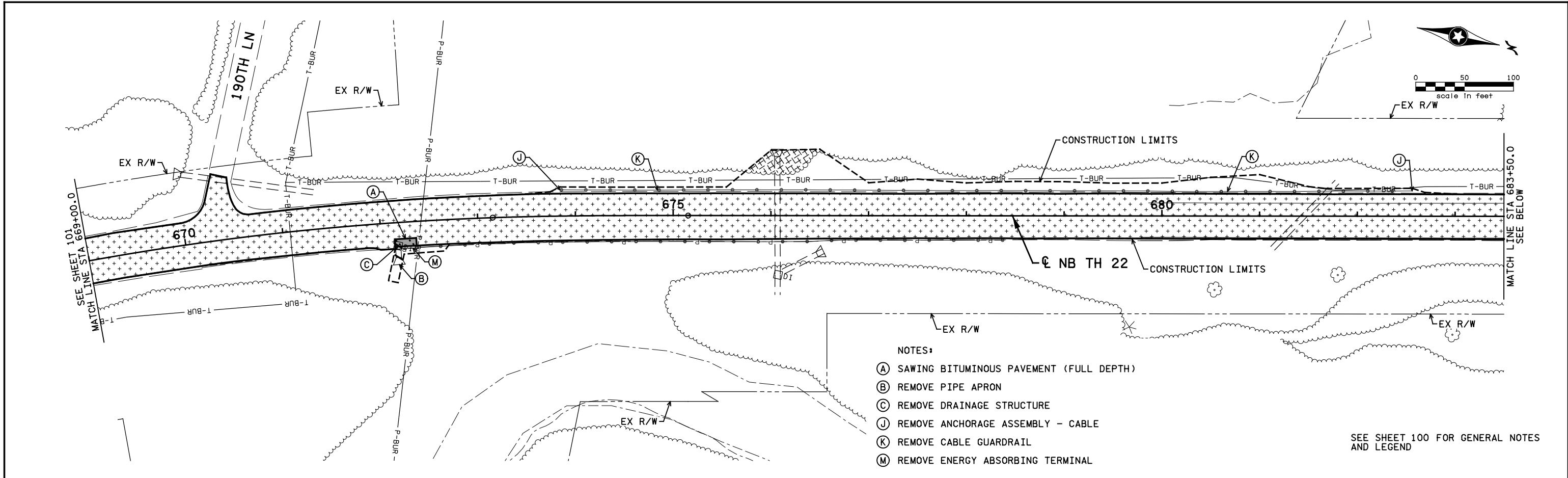
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REMOVAL PLANS
 TH 22 & CSAH 90

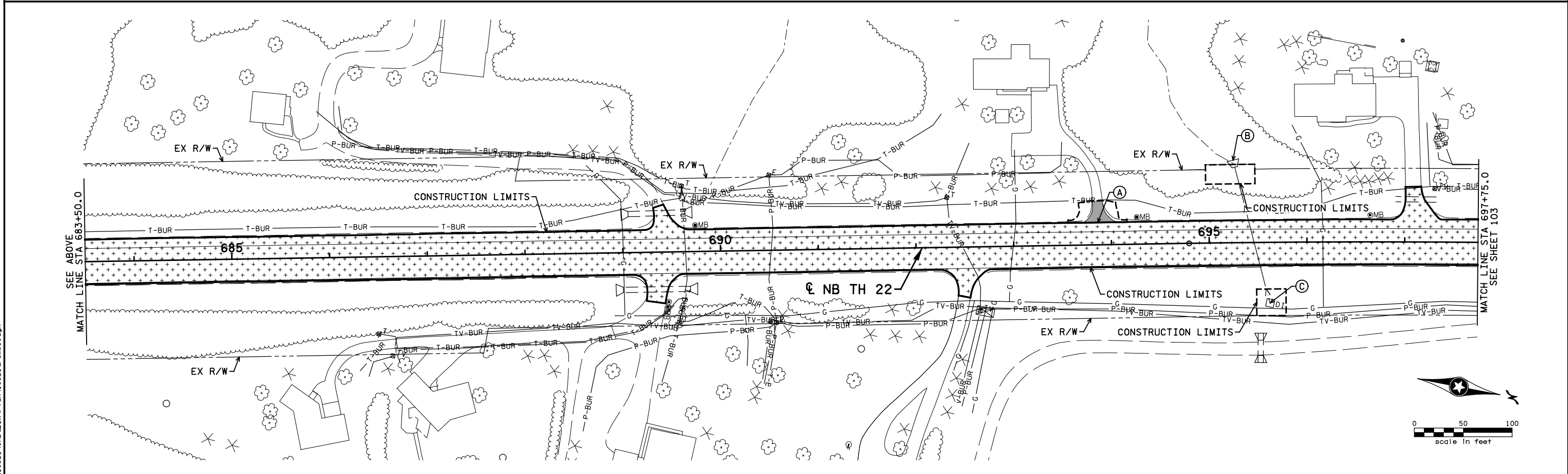
SHEET 101 OF 276

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- NOTES:
- (A) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
 - (B) REMOVE PIPE APRON
 - (C) REMOVE DRAINAGE STRUCTURE
 - (J) REMOVE ANCHORAGE ASSEMBLY - CABLE
 - (K) REMOVE CABLE GUARDRAIL
 - (M) REMOVE ENERGY ABSORBING TERMINAL

SEE SHEET 100 FOR GENERAL NOTES AND LEGEND



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 Print Name: AMBER E. TRACY
 Date: _____ License #: 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



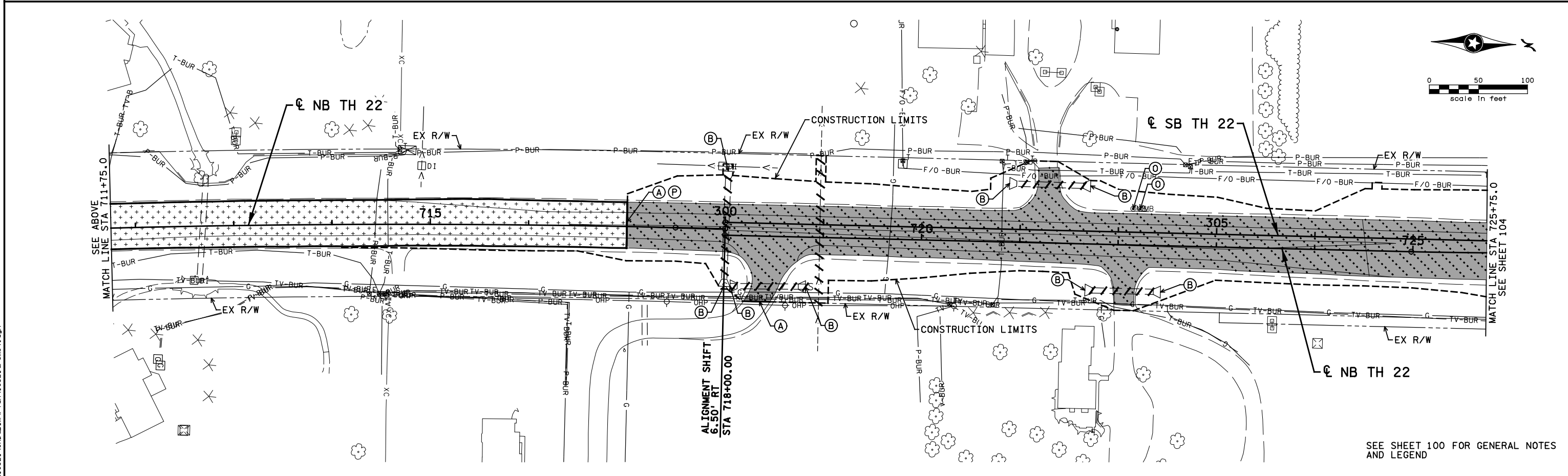
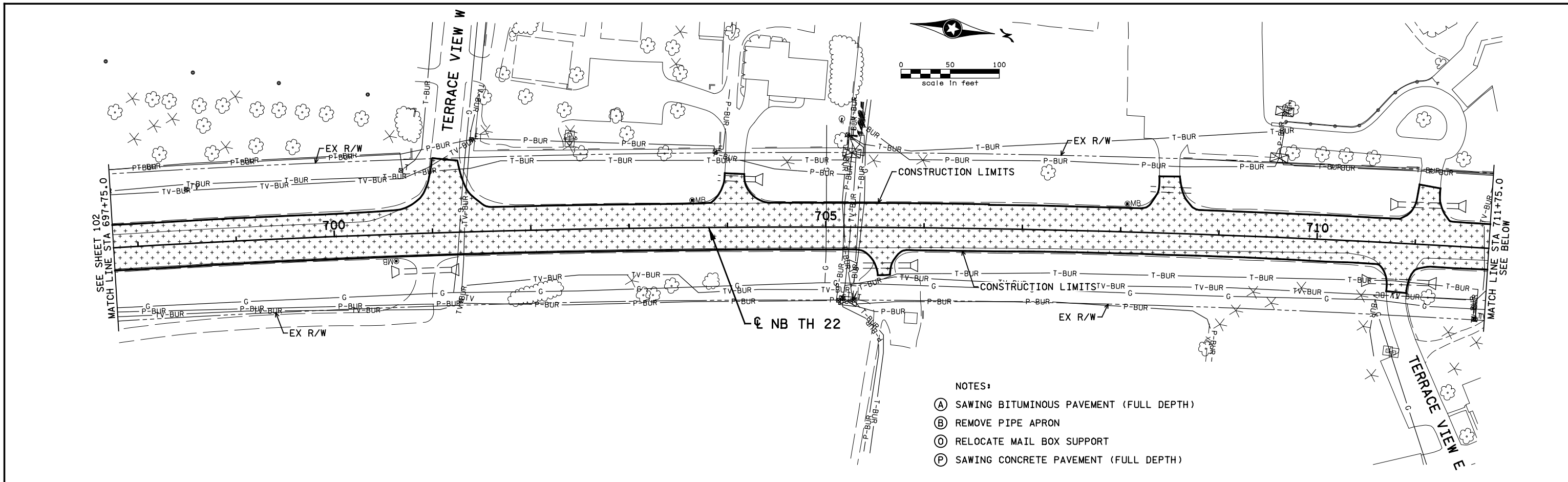
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 REMOVAL PLANS
 TH 22 & CSAH 90

SHEET 102 OF 276

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0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS

DESIGNED BY
P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321



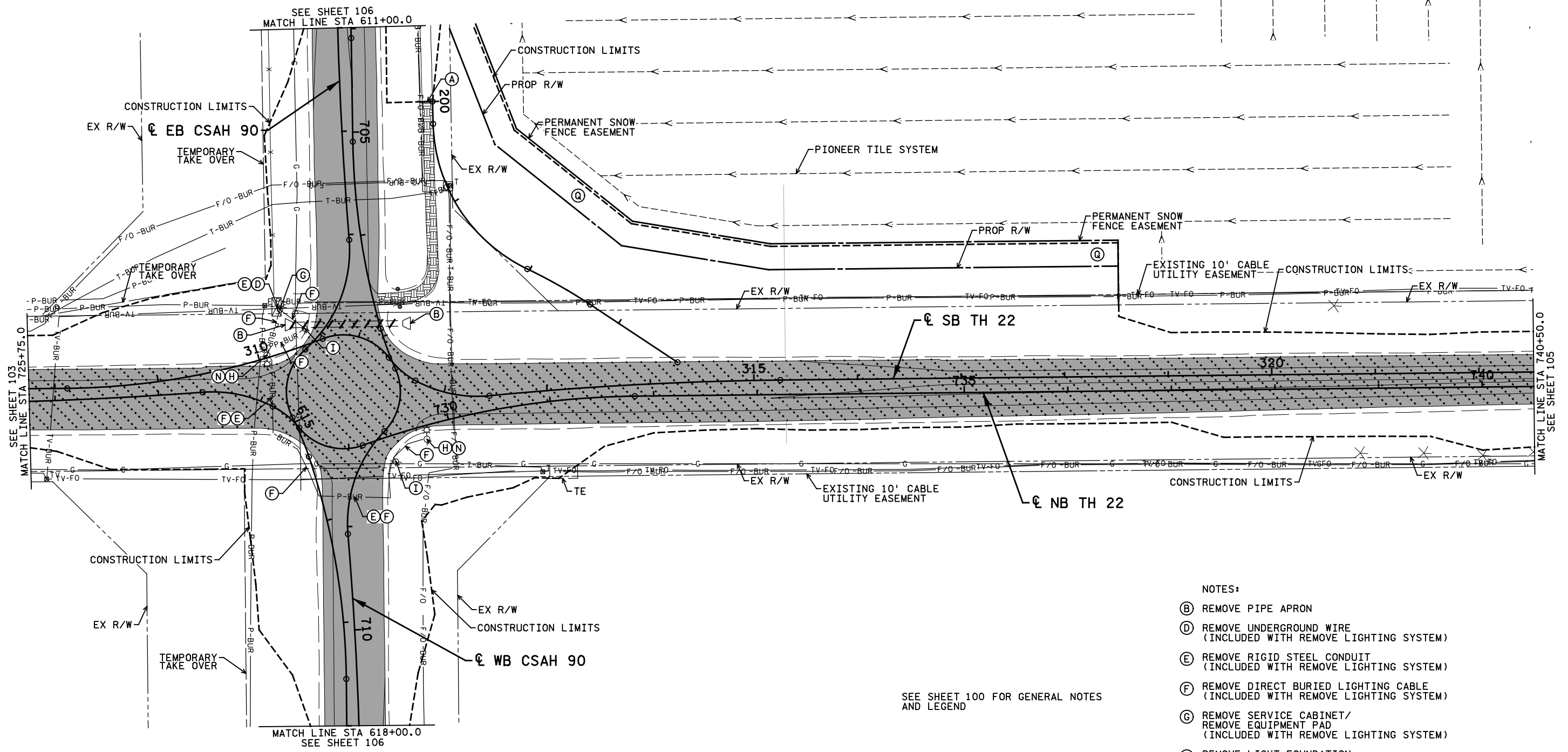
ENGINEERS
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MINNESOTA DEPARTMENT OF TRANSPORTATION

REMOVAL PLANS
TH 22 & CSAH 90

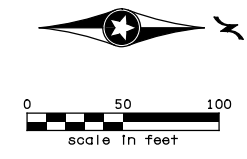
SHEET
103
OF
276

SEE SHEET 160 FOR REMOVALS IN SNOW FENCE AREA



- NOTES:
- (B) REMOVE PIPE APRON
 - (D) REMOVE UNDERGROUND WIRE (INCLUDED WITH REMOVE LIGHTING SYSTEM)
 - (E) REMOVE RIGID STEEL CONDUIT (INCLUDED WITH REMOVE LIGHTING SYSTEM)
 - (F) REMOVE DIRECT BURIED LIGHTING CABLE (INCLUDED WITH REMOVE LIGHTING SYSTEM)
 - (G) REMOVE SERVICE CABINET/ REMOVE EQUIPMENT PAD (INCLUDED WITH REMOVE LIGHTING SYSTEM)
 - (H) REMOVE LIGHT FOUNDATION (INCLUDED WITH REMOVE LIGHTING SYSTEM)
 - (I) REMOVE FLASHER SYSTEM
 - (N) SALVAGE LIGHTING UNIT
 - (Q) IF PIONEER TILE IS STILL INPLACE WITHIN PROPOSED MNDOT R/W AT TIME OF CONSTRUCTION, CONTRACTOR TO CUT AND CAP EXISTING TILE (INCIDENTAL).

SEE SHEET 100 FOR GENERAL NOTES AND LEGEND



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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

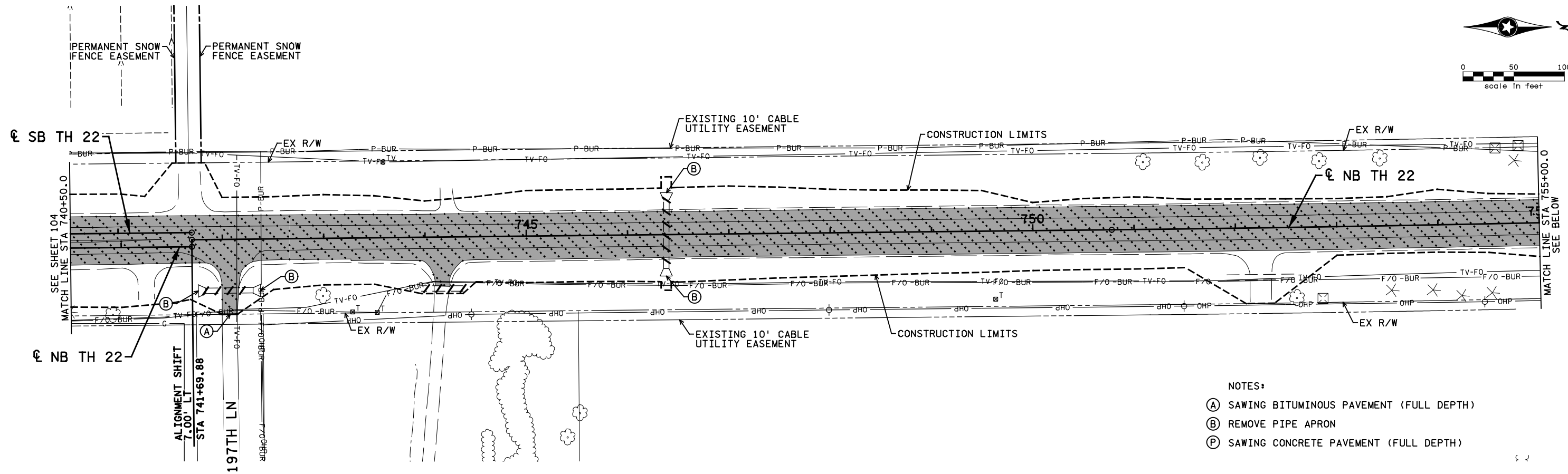
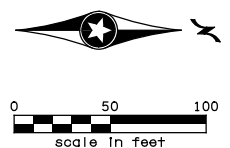
STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321

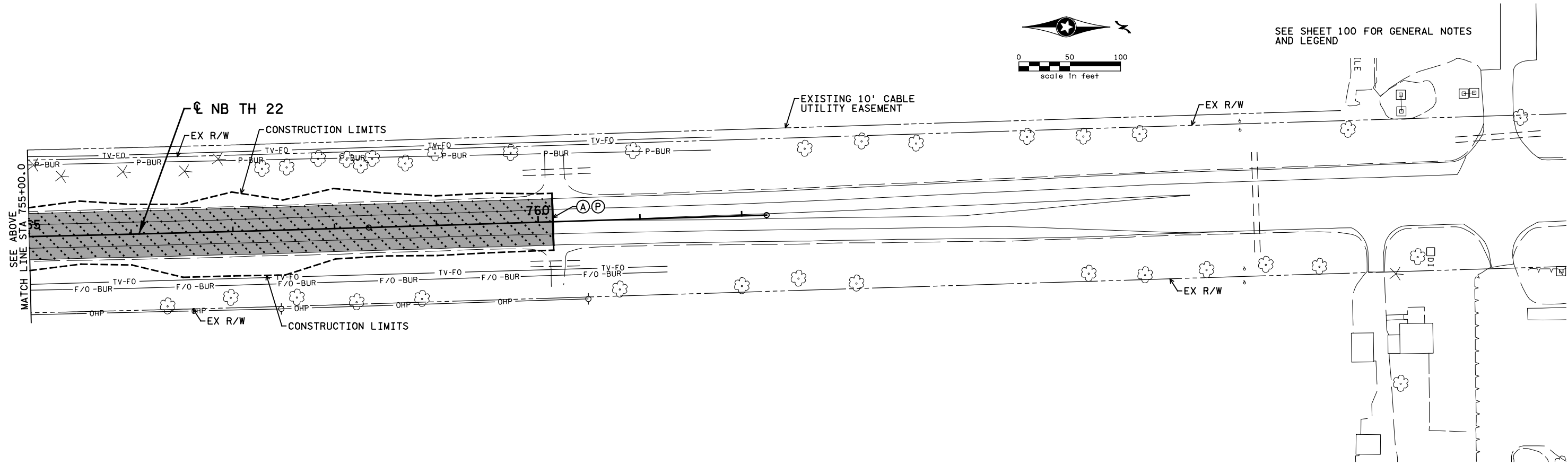
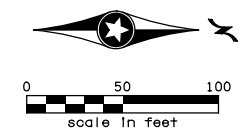


MINNESOTA DEPARTMENT OF TRANSPORTATION
 REMOVAL PLANS
 TH 22 & CSAH 90

SHEET 104 OF 276



- NOTES:
- (A) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
 - (B) REMOVE PIPE APRON
 - (P) SAWING CONCRETE PAVEMENT (FULL DEPTH)



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 STATE PROJECT NO. 007-070-005

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 DESIGNED BY P. ENGELMEYER
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 COMM. NO. 01710321

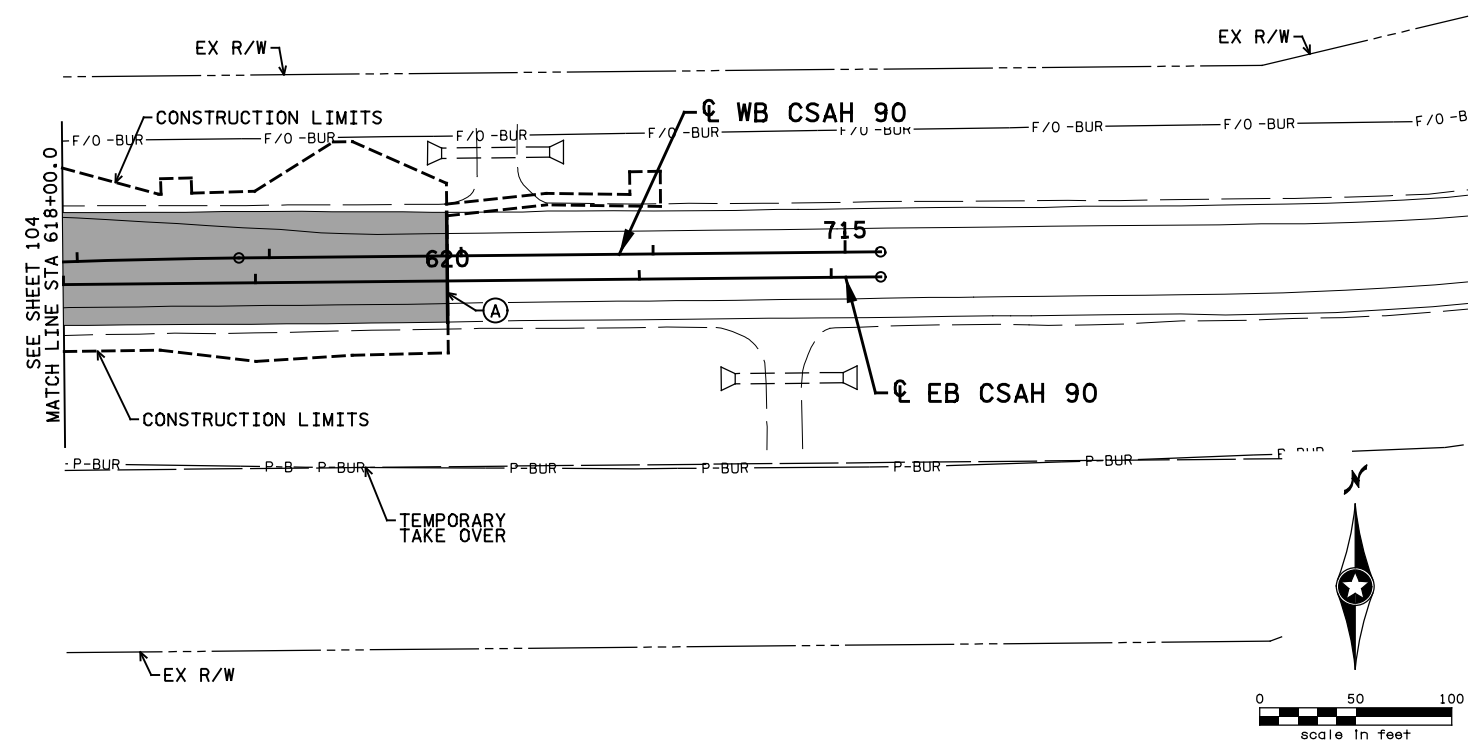
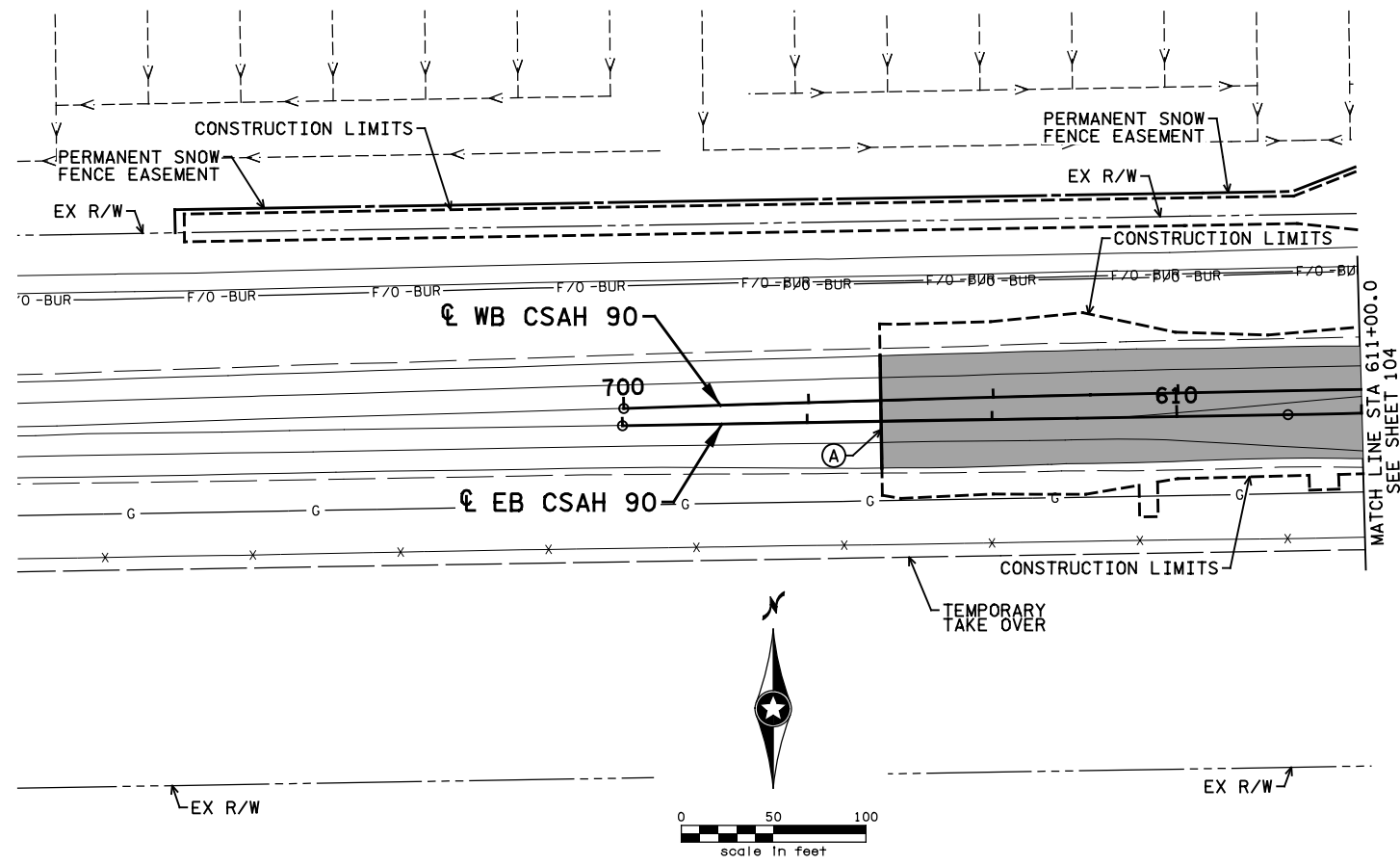


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MINNESOTA DEPARTMENT OF TRANSPORTATION
 REMOVAL PLANS
 TH 22 & CSAH 90

SHEET
 105
 OF
 276

SEE SHEET 100 FOR GENERAL NOTES AND LEGEND



NOTES:
 (A) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)

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 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

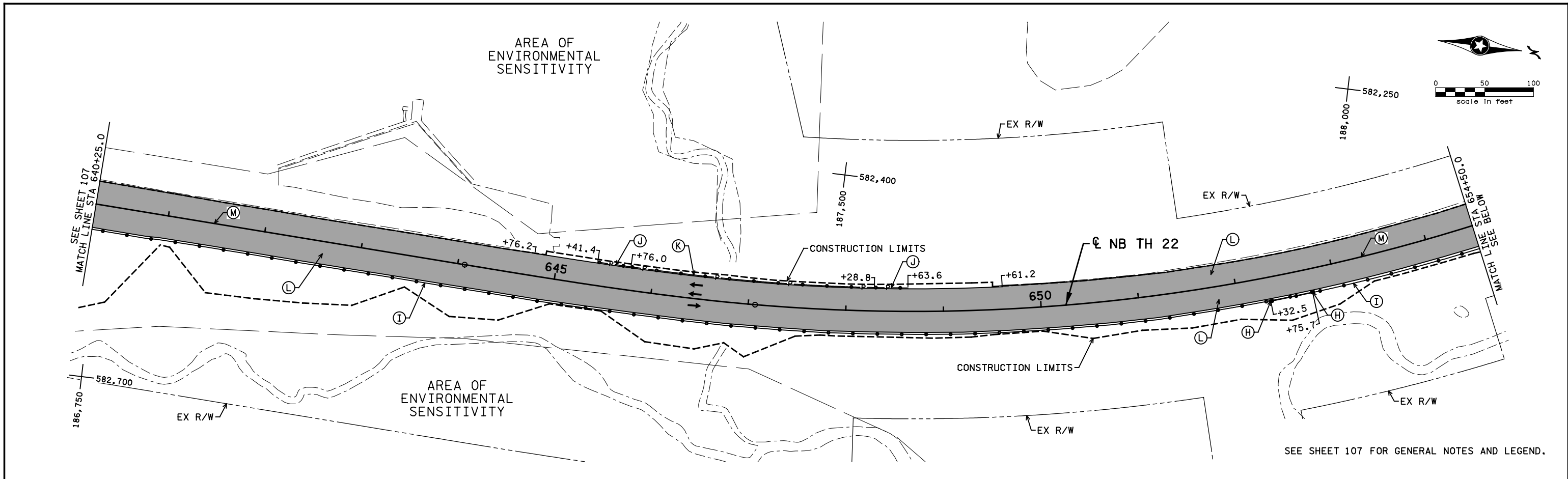
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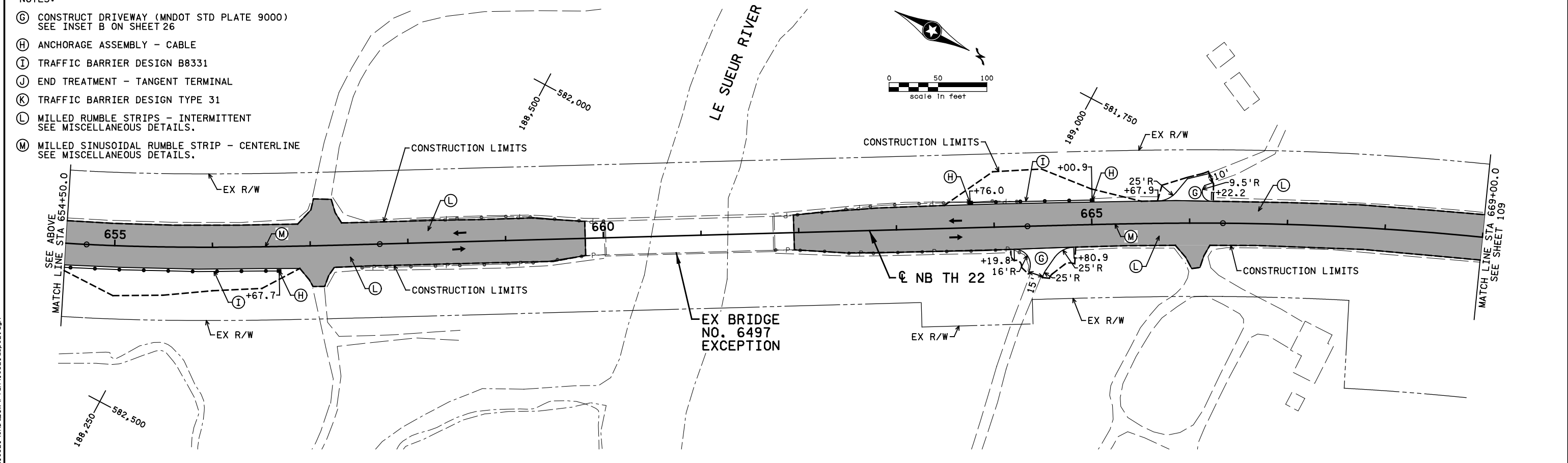
MINNESOTA DEPARTMENT OF TRANSPORTATION
 REMOVAL PLANS
 TH 22 & CSAH 90

SHEET
 106
 OF
 276



SEE SHEET 107 FOR GENERAL NOTES AND LEGEND.

- NOTES:**
- (G) CONSTRUCT DRIVEWAY (MNDOT STD PLATE 9000) SEE INSET B ON SHEET 26
 - (H) ANCHORAGE ASSEMBLY - CABLE
 - (I) TRAFFIC BARRIER DESIGN B8331
 - (J) END TREATMENT - TANGENT TERMINAL
 - (K) TRAFFIC BARRIER DESIGN TYPE 31
 - (L) MILLED RUMBLE STRIPS - INTERMITTENT SEE MISCELLANEOUS DETAILS.
 - (M) MILLED SINUSOIDAL RUMBLE STRIP - CENTERLINE SEE MISCELLANEOUS DETAILS.



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Date: _____ License # 50890

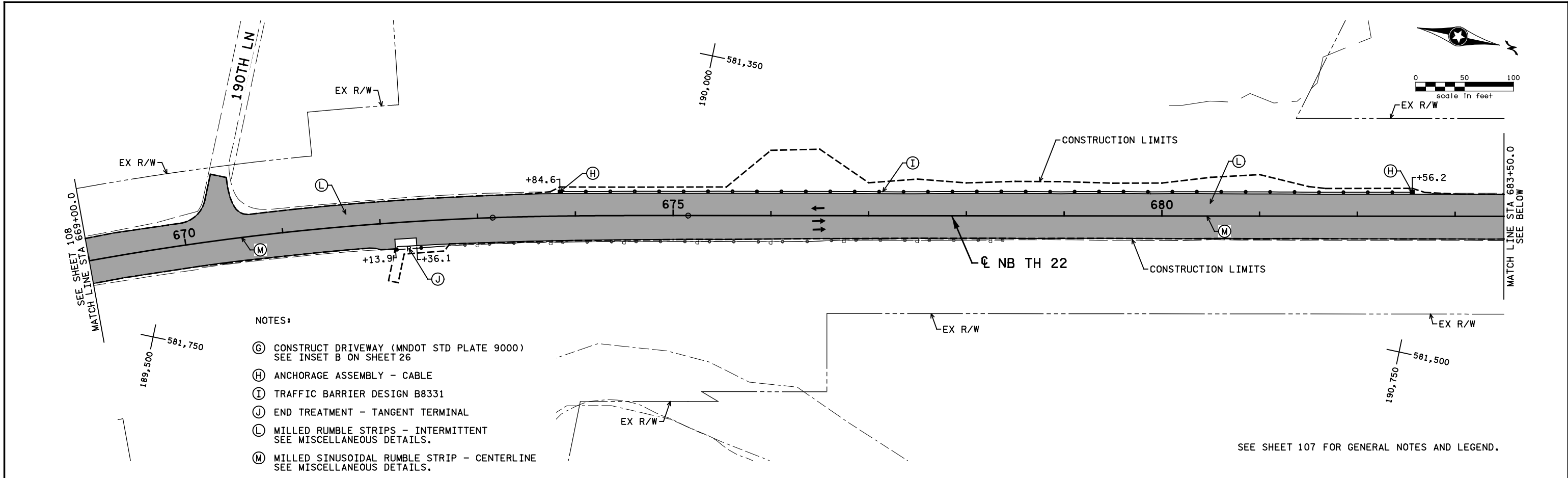
STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

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 COMM. NO. 01710321

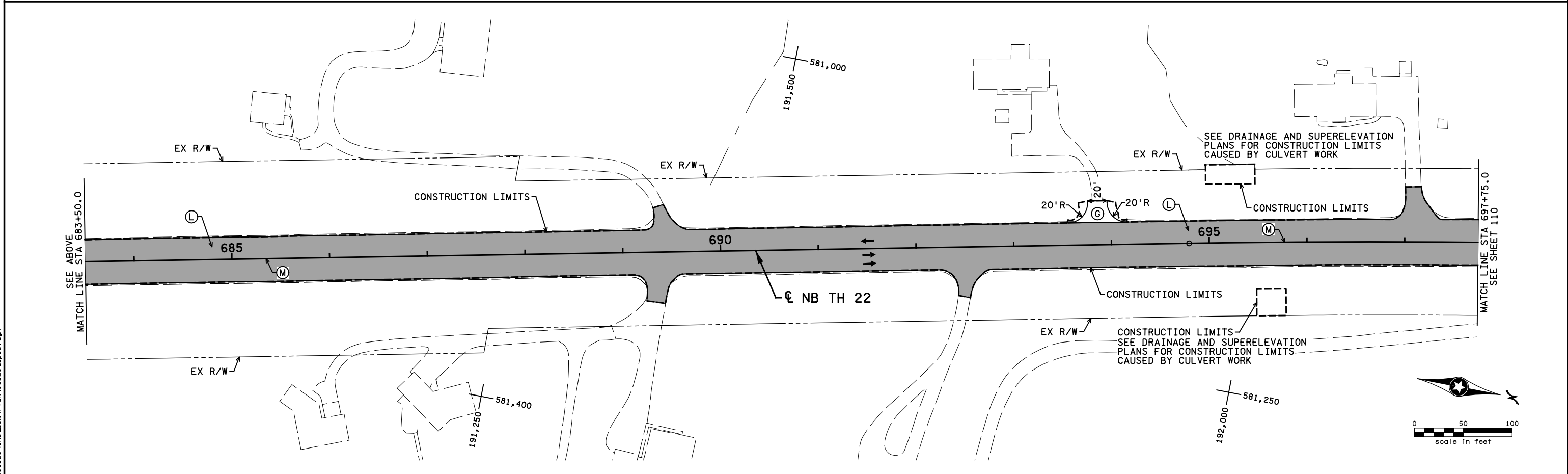


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- NOTES:
- (G) CONSTRUCT DRIVEWAY (MNDOT STD PLATE 9000) SEE INSET B ON SHEET 26
 - (H) ANCHORAGE ASSEMBLY - CABLE
 - (I) TRAFFIC BARRIER DESIGN B8331
 - (J) END TREATMENT - TANGENT TERMINAL
 - (L) MILLED RUMBLE STRIPS - INTERMITTENT SEE MISCELLANEOUS DETAILS.
 - (M) MILLED SINUSOIDAL RUMBLE STRIP - CENTERLINE SEE MISCELLANEOUS DETAILS.

SEE SHEET 107 FOR GENERAL NOTES AND LEGEND.



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 Print Name: AMBER E. TRACY
 Date: License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

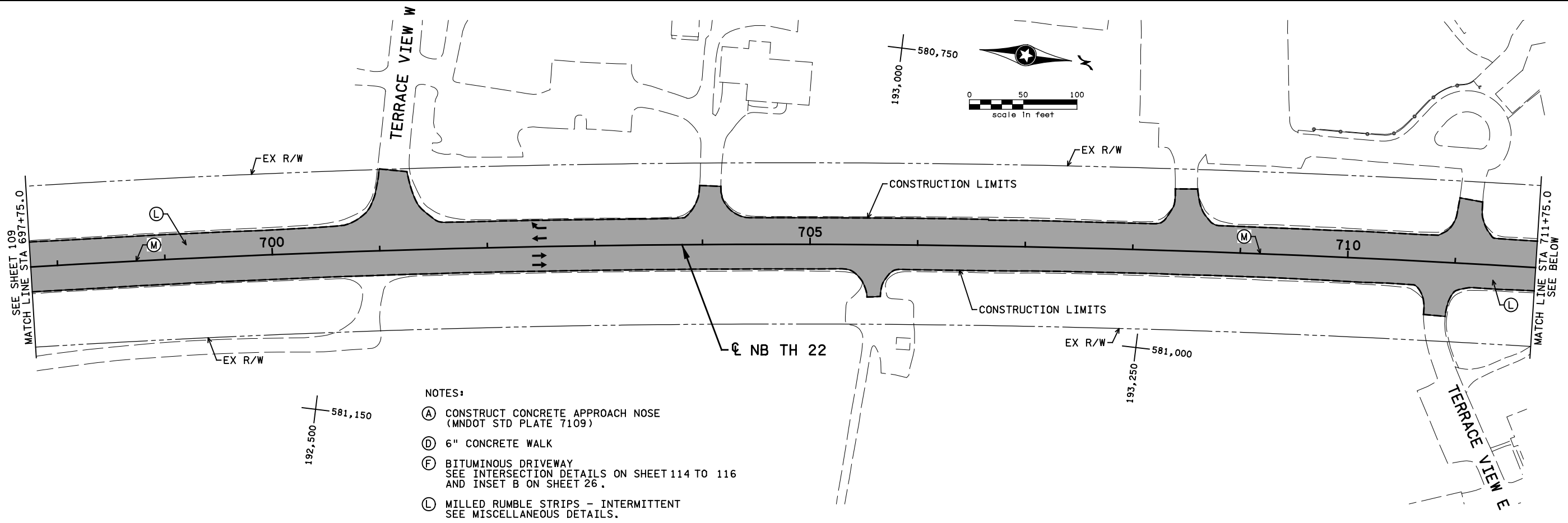
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 CHECKED BY A. TRACY
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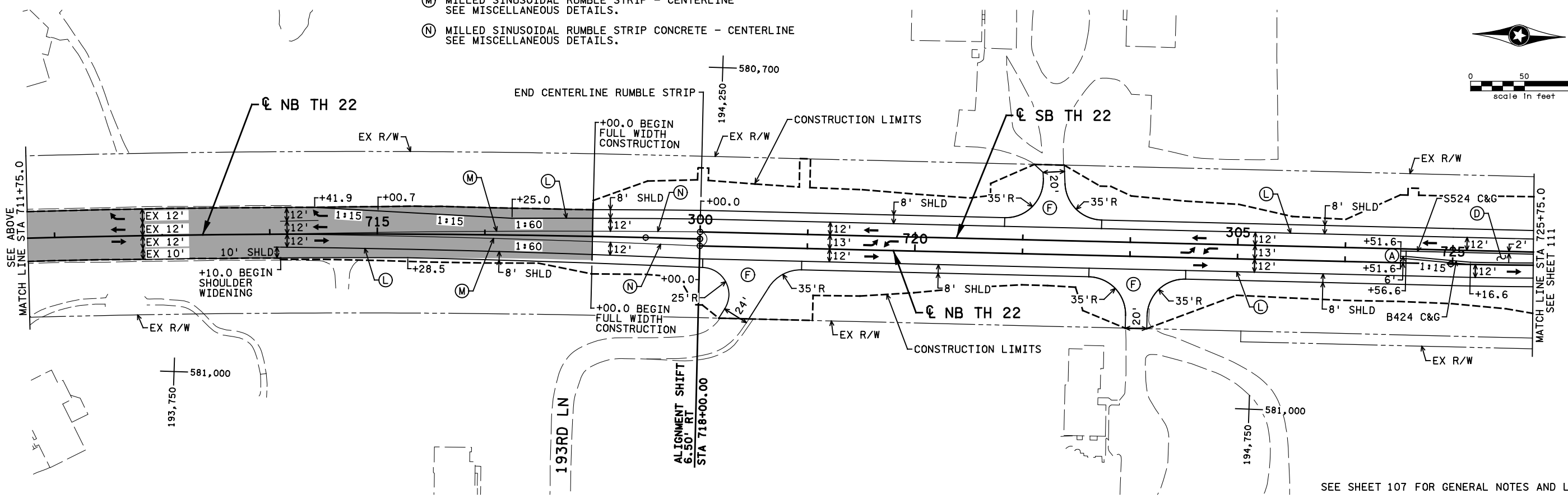
MINNESOTA DEPARTMENT OF TRANSPORTATION
 CONSTRUCTION PLANS
 TH 22 & CSAH 90

SHEET 109 OF 276

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- NOTES:
- (A) CONSTRUCT CONCRETE APPROACH NOSE (MNDOT STD PLATE 7109)
 - (D) 6" CONCRETE WALK
 - (F) BITUMINOUS DRIVEWAY SEE INTERSECTION DETAILS ON SHEET 114 TO 116 AND INSET B ON SHEET 26.
 - (L) MILLED RUMBLE STRIPS - INTERMITTENT SEE MISCELLANEOUS DETAILS.
 - (M) MILLED SINUSOIDAL RUMBLE STRIP - CENTERLINE SEE MISCELLANEOUS DETAILS.
 - (N) MILLED SINUSOIDAL RUMBLE STRIP CONCRETE - CENTERLINE SEE MISCELLANEOUS DETAILS.



SEE SHEET 107 FOR GENERAL NOTES AND LEGEND.

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Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

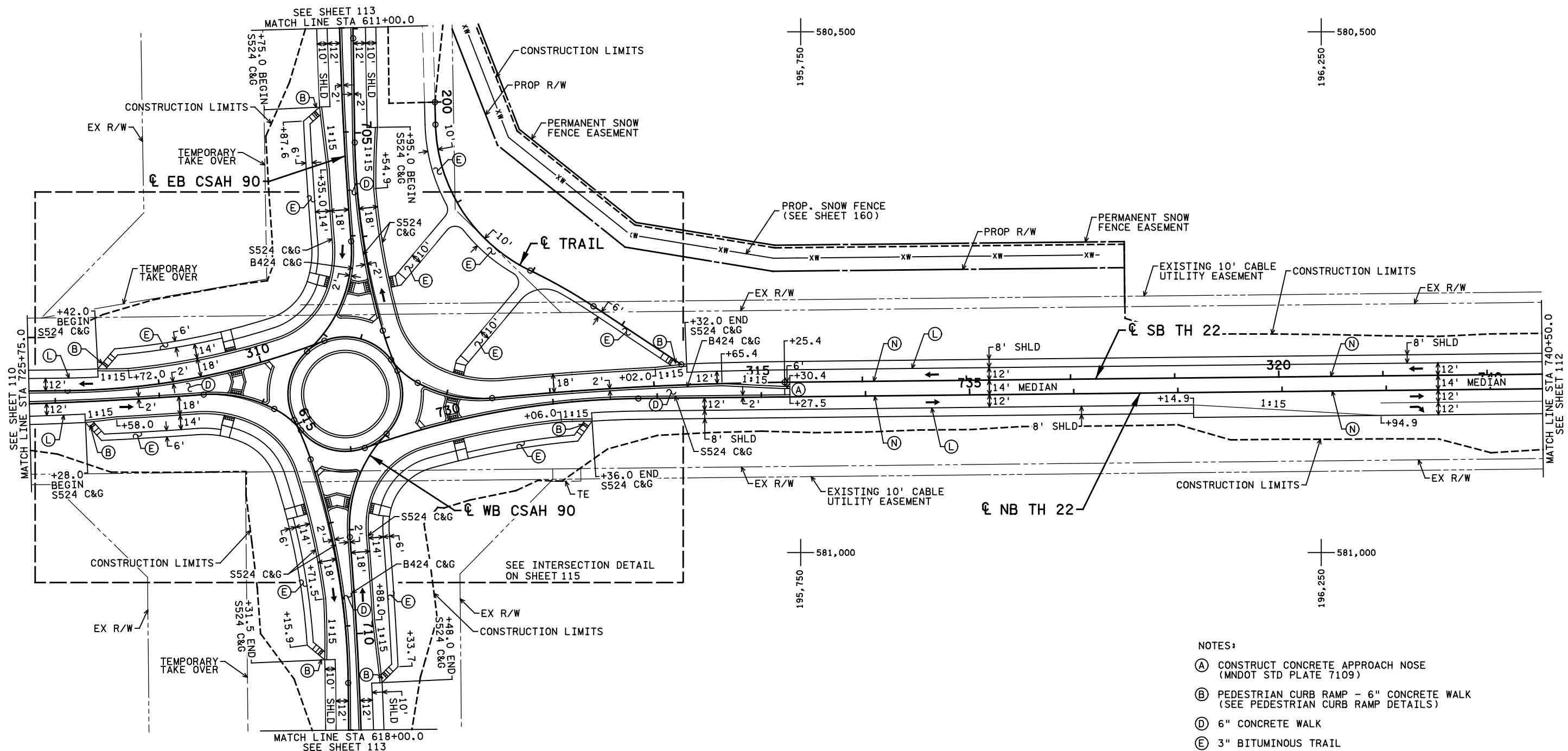
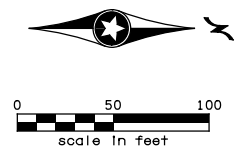
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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS
 TH 22 & CSAH 90

SHEET 110 OF 276



- NOTES:
- (A) CONSTRUCT CONCRETE APPROACH NOSE (MNDOT STD PLATE 7109)
 - (B) PEDESTRIAN CURB RAMP - 6" CONCRETE WALK (SEE PEDESTRIAN CURB RAMP DETAILS)
 - (D) 6" CONCRETE WALK
 - (E) 3" BITUMINOUS TRAIL
 - (L) MILLED RUMBLE STRIPS - INTERMITTENT SEE MISCELLANEOUS DETAILS.
 - (N) MILLED SINUSOIDAL RUMBLE STRIP CONCRETE - CENTERLINE SEE MISCELLANEOUS DETAILS.

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 Date: License # 50890

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 STATE PROJECT NO. 007-070-005

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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321

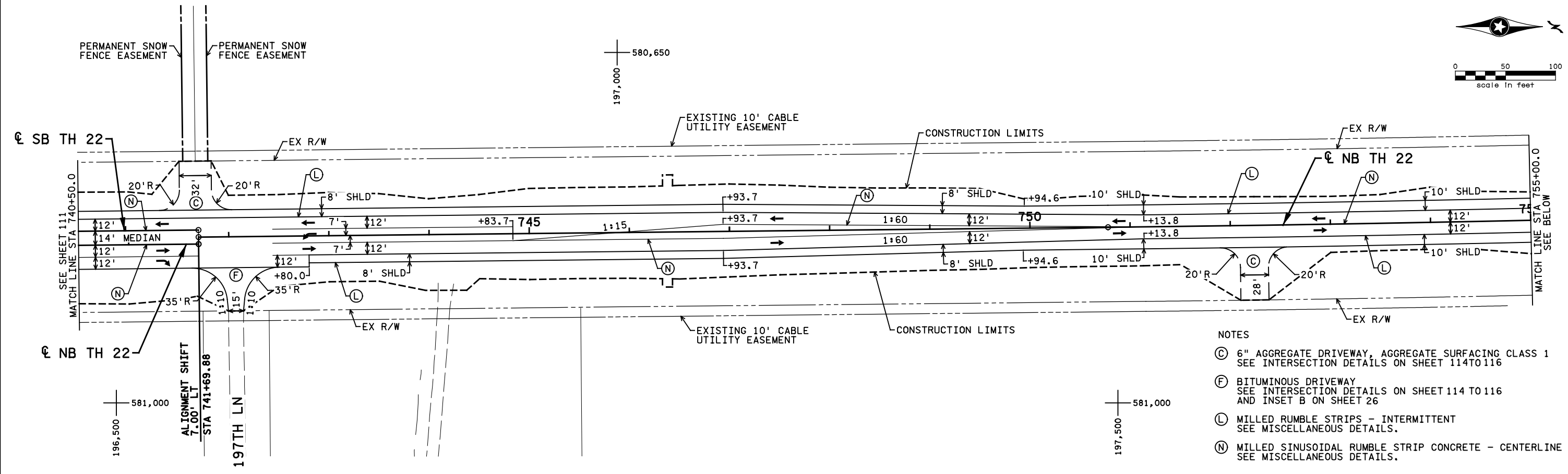
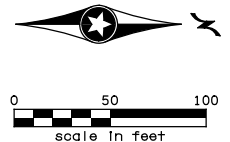


MINNESOTA DEPARTMENT OF TRANSPORTATION
 CONSTRUCTION PLANS
 TH 22 & CSAH 90

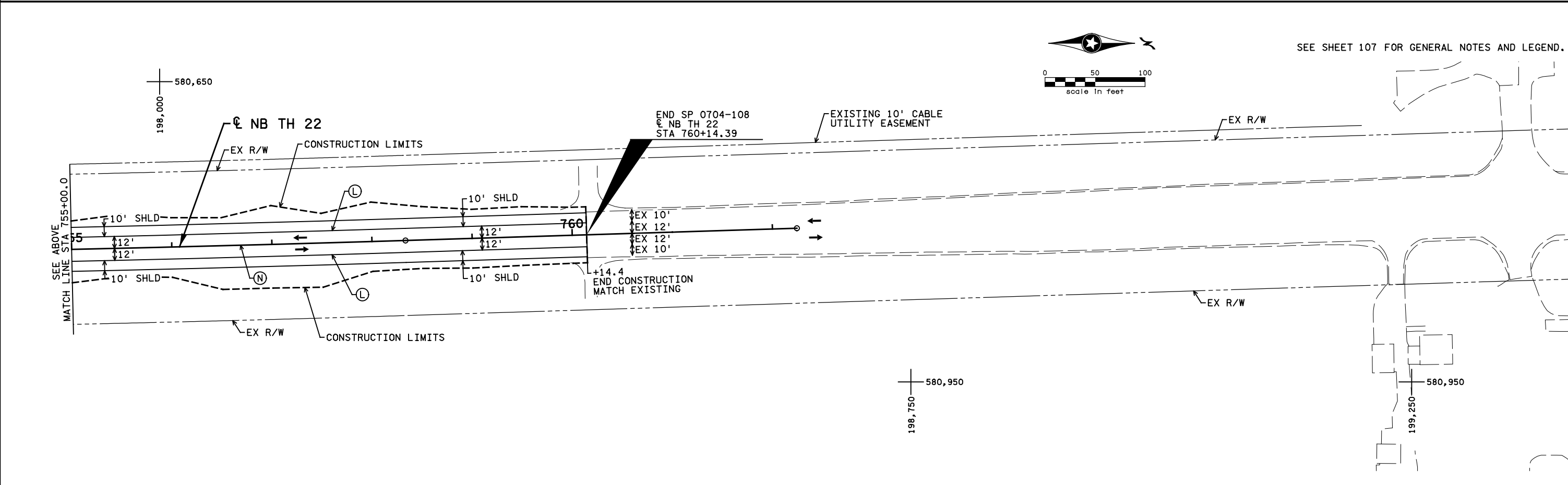
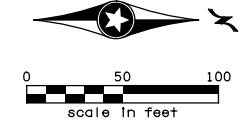
SHEET 111 OF 276

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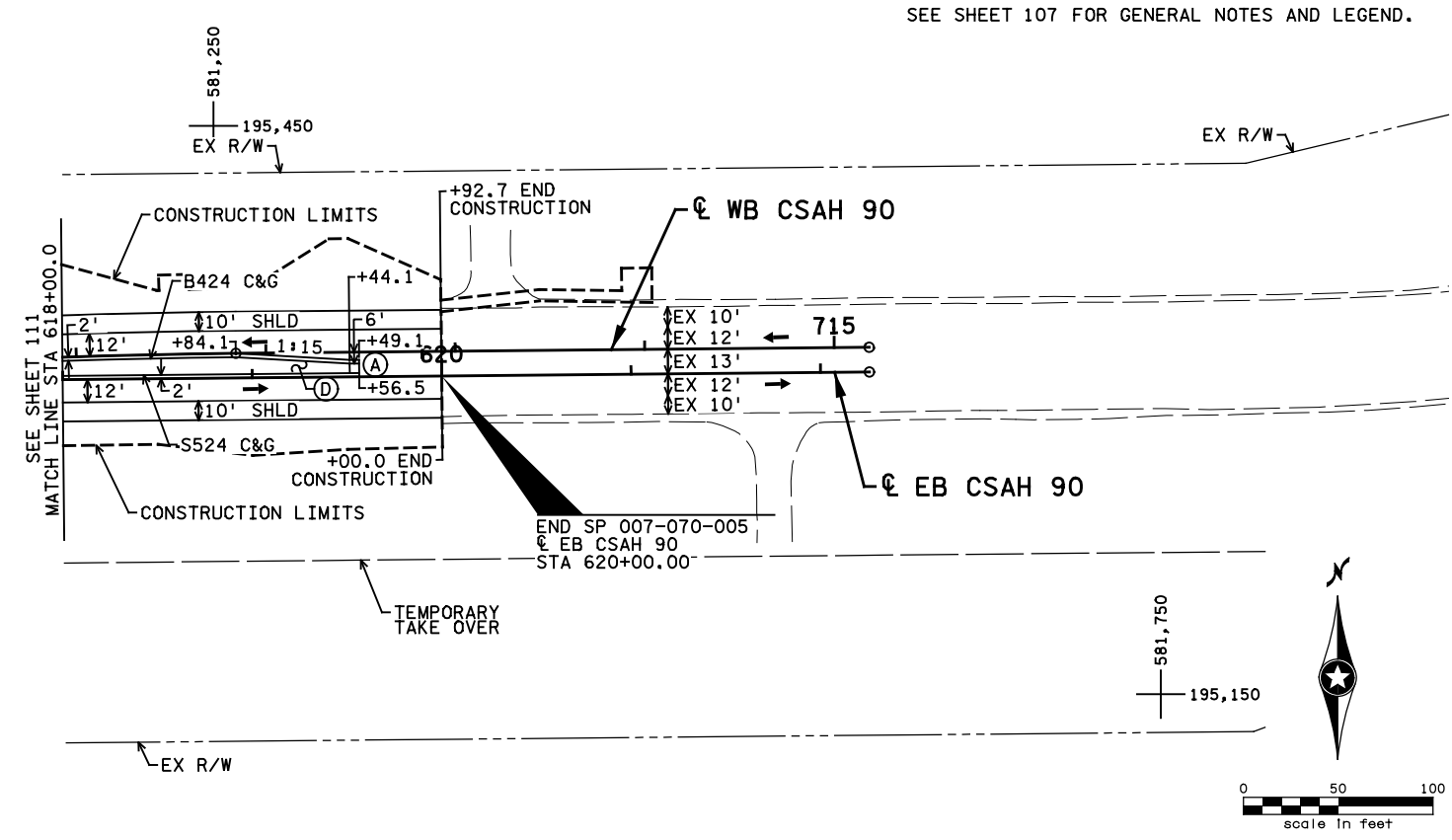
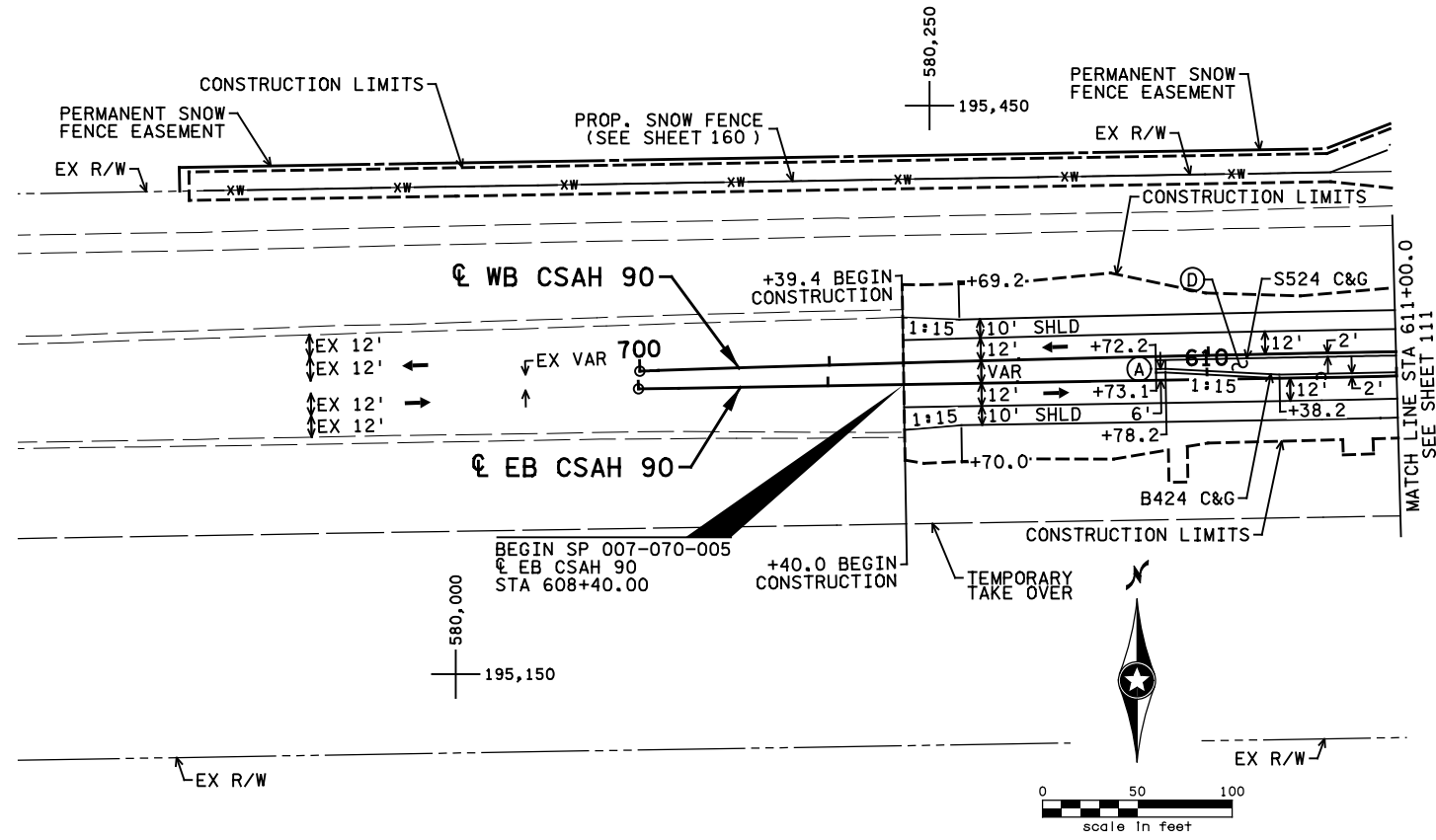
SEE SHEET 107 FOR GENERAL NOTES AND LEGEND.



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NO	DATE	BY	CKD	APPR	REVISION			
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SEE SHEET 107 FOR GENERAL NOTES AND LEGEND.



- NOTES:
- (A) CONSTRUCT CONCRETE APPROACH NOSE (MNDOT STD PLATE 7109)
 - (D) 6" CONCRETE WALK

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Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

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DESIGNED BY P. ENGELMEYER
CHECKED BY A. TRACY
COMM. NO. 01710321



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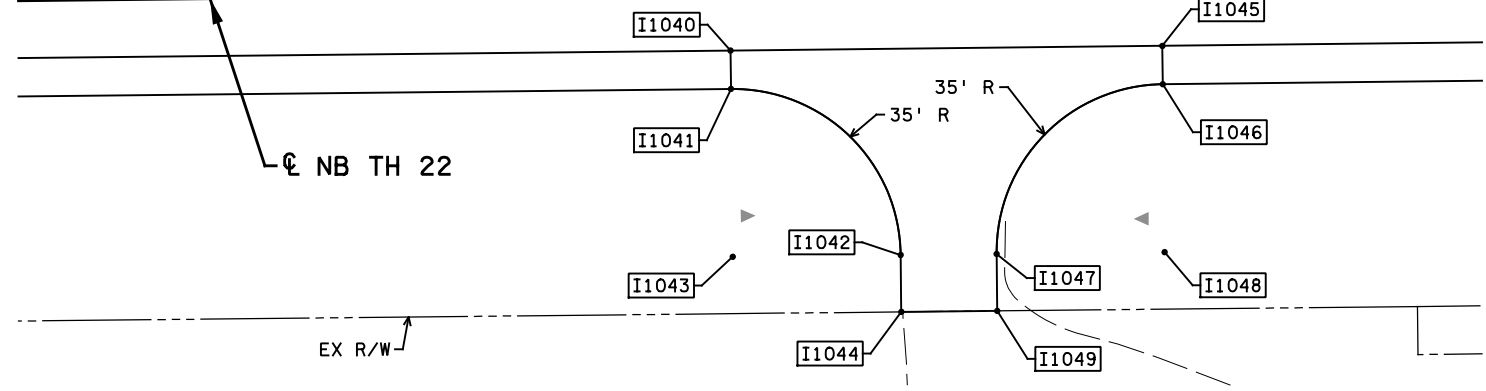
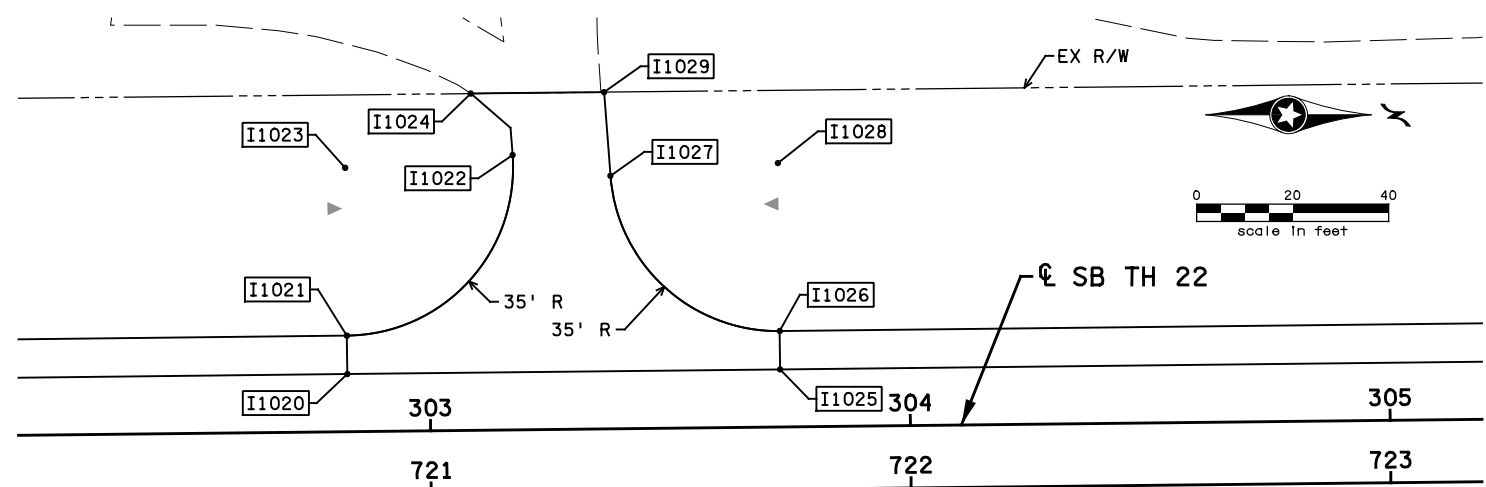
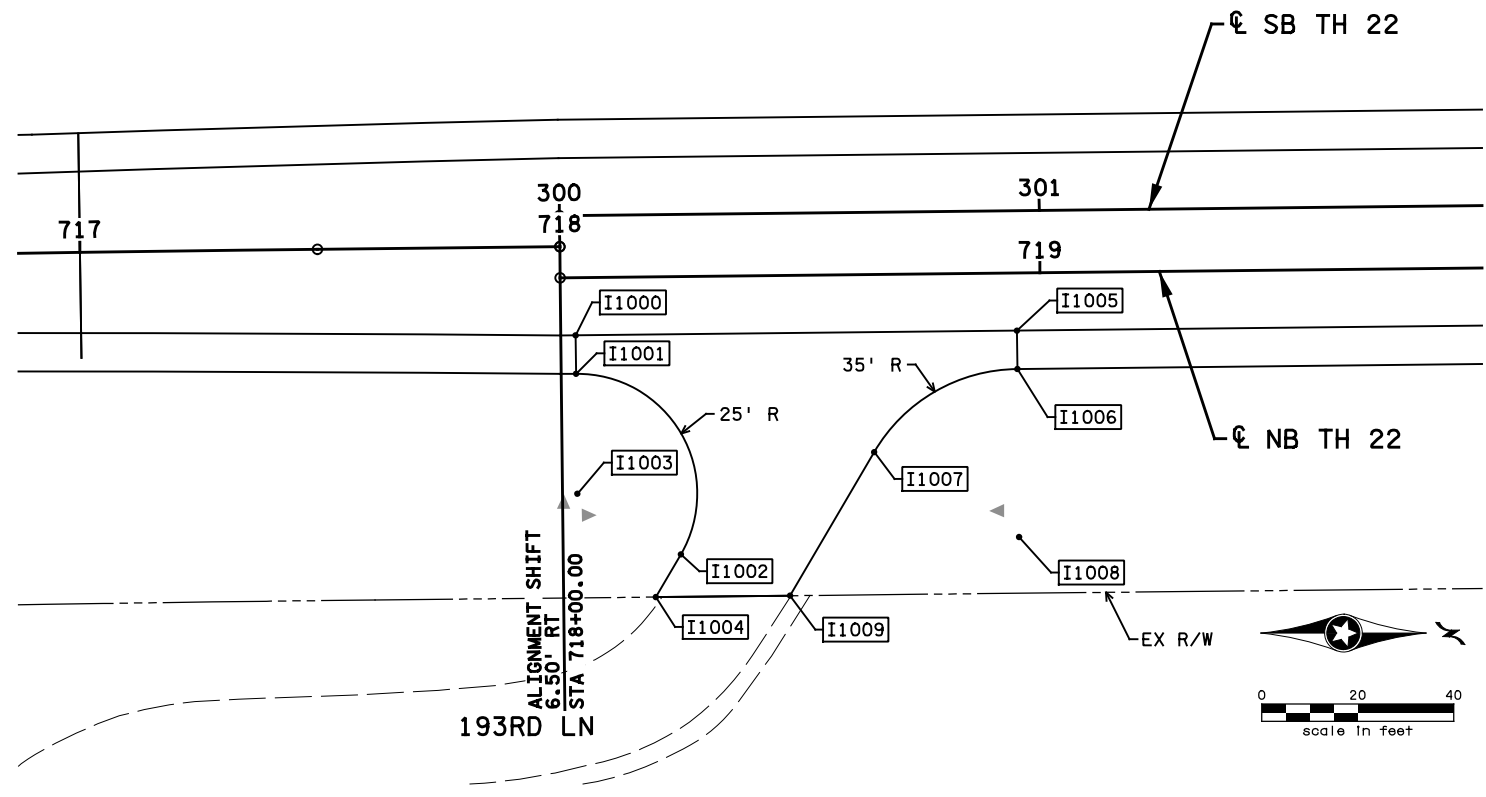
CONSTRUCTION PLANS
TH 22 & CSAH 90

SHEET
113
OF
276

LEGEND

- PROPOSED CATCH BASIN
- DI ○ PROPOSED DROP INLET
- PROPOSED MANHOLE
- ◀ PROPOSED APRON

GENERAL NOTES:
 DIMENSIONS ARE TO FLOWLINE OF GUTTER, UNLESS NOTED OTHERWISE.
 SEE CONSTRUCTION PLANS, DRAINAGE AND SUPERELEVATION PLANS, AND PROFILES FOR INFORMATION NOT SHOWN ON THESE SHEETS.



POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
I1000	580878.185	194237.687	EL. 1001.63	NB TH 22	718+03.10	12.00' RT.
I1001	580886.185	194237.773	EL. 1001.31	NB TH 22	718+03.10	20.00' RT.
I1002	580923.817	194259.616	EL. 998.95	NB TH 22	718+24.54	57.87' RT.
I1003	580911.183	194238.043	25.0' R.	NB TH 22	718+03.10	45.00' RT.
I1004	580932.719	194254.403	EL. 998.49	NB TH 22	718+19.23	66.71' RT.
I1005	580877.192	194329.650	EL. 1001.93	NB TH 22	718+95.07	12.00' RT.
I1006	580885.192	194329.736	EL. 1001.61	NB TH 22	718+95.07	20.00' RT.
I1007	580902.502	194299.912	EL. 1000.33	NB TH 22	718+65.06	36.99' RT.
I1008	580920.189	194330.114	35.0' R.	NB TH 22	718+95.07	55.00' RT.
I1009	580932.427	194282.386	EL. 999.10	NB TH 22	718+47.21	66.72' RT.
I1020	580838.167	194516.949	EL. 1002.55	NB TH 22	720+82.78	25.00' LT.
I1021	580830.168	194516.862	EL. 1002.23	NB TH 22	720+82.78	33.00' LT.
I1022	580792.517	194551.384	EL. 1000.94	NB TH 22	721+17.71	70.28' LT.
I1023	580795.170	194516.484	35.0' R.	NB TH 22	720+82.78	68.00' LT.
I1024	580779.710	194542.664	EL. 1000.34	NB TH 22	721+09.12	83.18' LT.
I1025	580837.193	194607.134	EL. 1002.85	NB TH 22	721+72.97	25.00' LT.
I1026	580829.194	194607.048	EL. 1002.53	NB TH 22	721+72.97	33.00' LT.
I1027	580796.849	194571.771	EL. 1001.61	NB TH 22	721+38.04	65.72' LT.
I1028	580794.196	194606.670	35.0' R.	NB TH 22	721+72.97	68.00' LT.
I1029	580779.420	194570.446	EL. 1001.31	NB TH 22	721+36.91	83.17' LT.
I1040	580874.307	194596.804	EL. 1002.82	NB TH 22	721+62.24	12.00' RT.
I1041	580882.307	194596.890	EL. 1002.50	NB TH 22	721+62.24	20.00' RT.
I1042	580916.927	194632.266	EL. 1001.87	NB TH 22	721+97.24	55.00' RT.
I1043	580917.305	194597.268	35.0' R.	NB TH 22	721+62.24	55.00' RT.
I1044	580928.782	194632.394	EL. 1001.74	NB TH 22	721+97.24	66.86' RT.
I1045	580873.335	194686.798	EL. 1003.11	NB TH 22	722+52.24	12.00' RT.
I1046	580881.335	194686.885	EL. 1002.79	NB TH 22	722+52.24	20.00' RT.
I1047	580916.711	194652.265	EL. 1001.98	NB TH 22	722+17.24	55.00' RT.
I1048	580916.333	194687.263	35.0' R.	NB TH 22	722+52.24	55.00' RT.
I1049	580928.574	194652.393	EL. 1001.80	NB TH 22	722+17.24	66.86' RT.

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 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



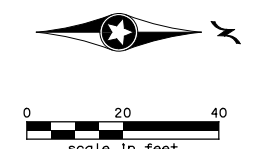
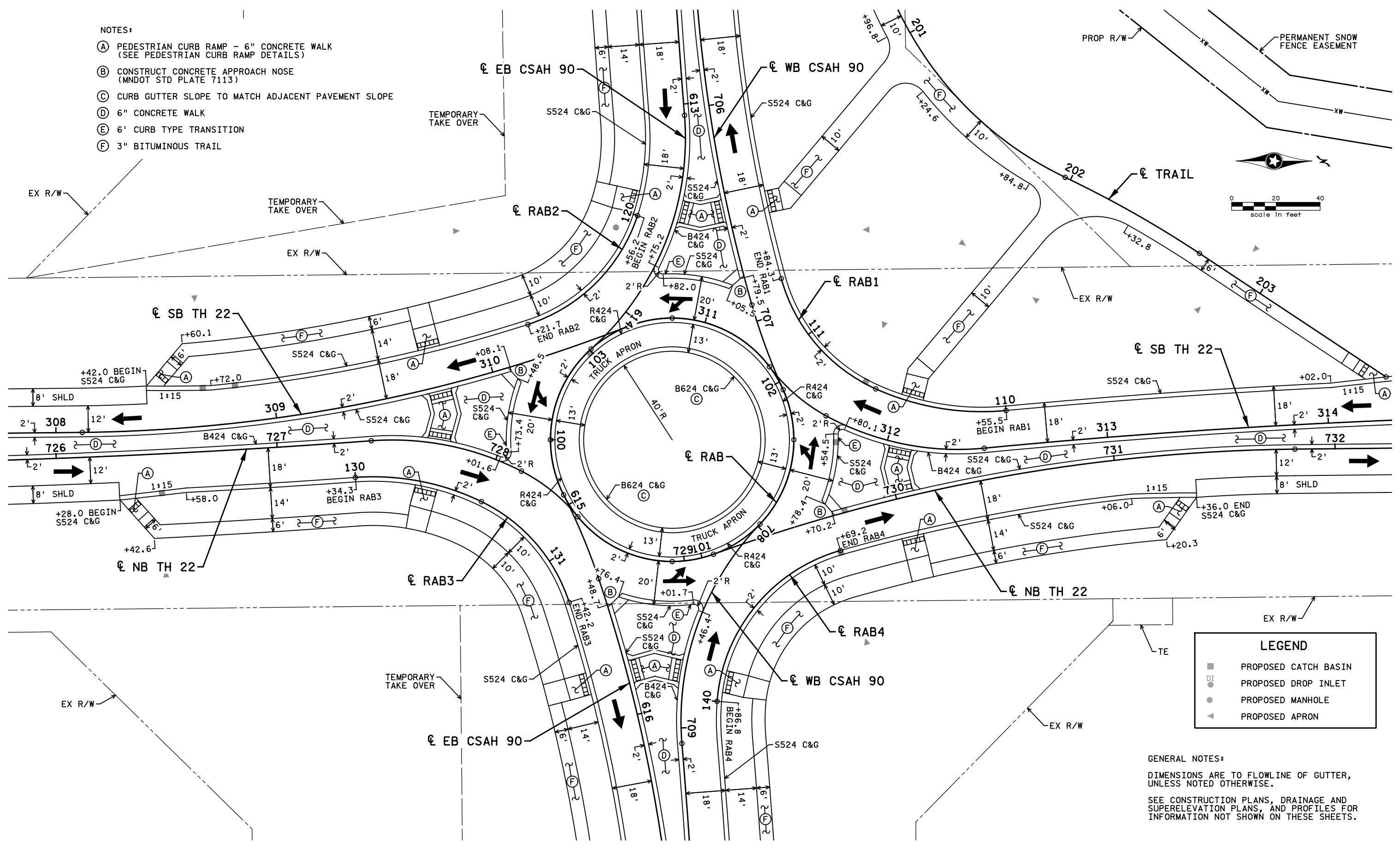
ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 INTERSECTION DETAILS
 TH 22 & CSAH 90

SHEET
 114
 OF
 276

NOTES:

- (A) PEDESTRIAN CURB RAMP - 6" CONCRETE WALK (SEE PEDESTRIAN CURB RAMP DETAILS)
- (B) CONSTRUCT CONCRETE APPROACH NOSE (MNDOT STD PLATE 7113)
- (C) CURB GUTTER SLOPE TO MATCH ADJACENT PAVEMENT SLOPE
- (D) 6" CONCRETE WALK
- (E) 6' CURB TYPE TRANSITION
- (F) 3" BITUMINOUS TRAIL



LEGEND

- PROPOSED CATCH BASIN
- DI PROPOSED DROP INLET
- PROPOSED MANHOLE
- ◀ PROPOSED APRON

GENERAL NOTES:
 DIMENSIONS ARE TO FLOWLINE OF GUTTER, UNLESS NOTED OTHERWISE.
 SEE CONSTRUCTION PLANS, DRAINAGE AND SUPERELEVATION PLANS, AND PROFILES FOR INFORMATION NOT SHOWN ON THESE SHEETS.

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 STATE PROJECT NO. 007-070-005

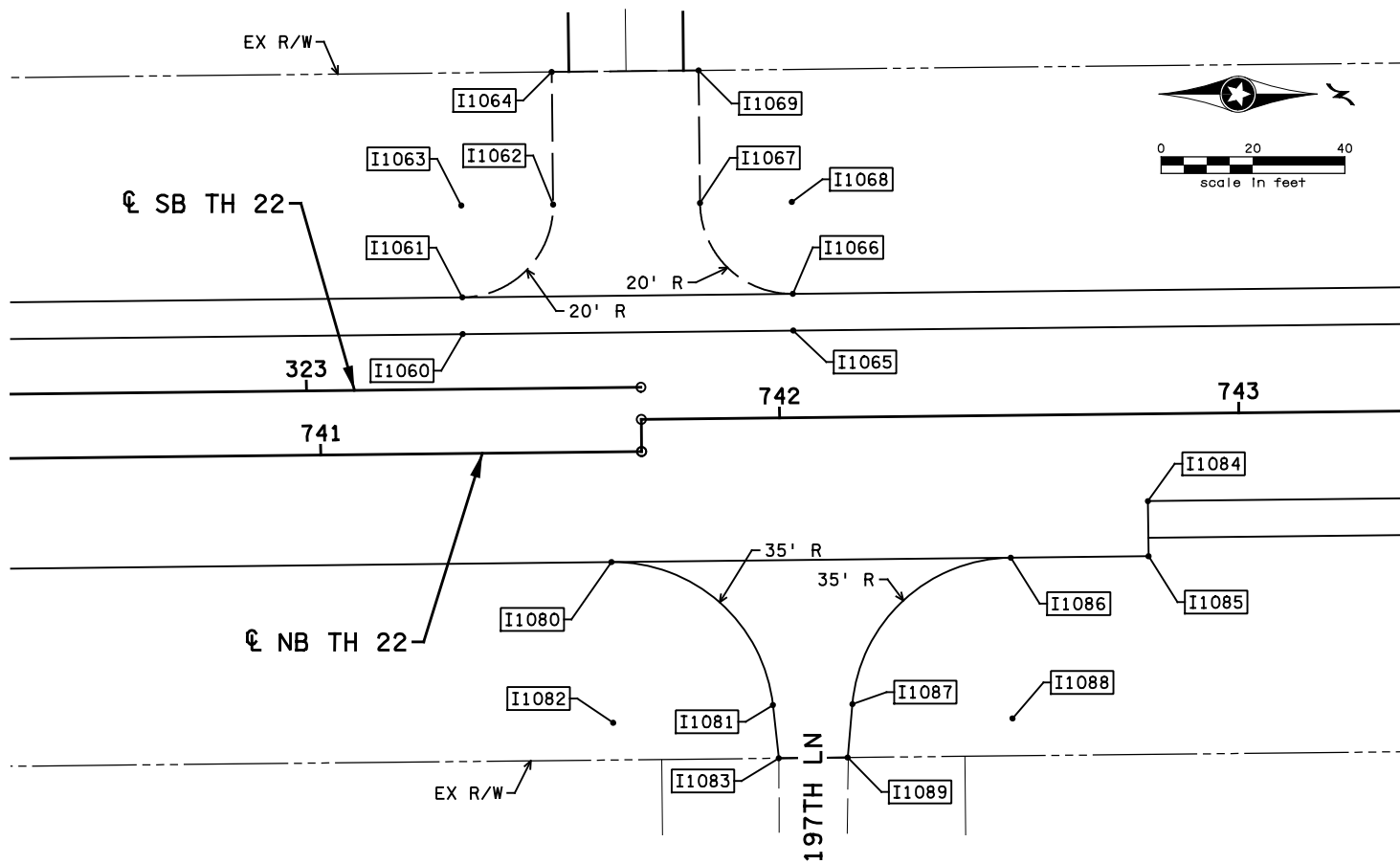
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 COMM. NO. 01710321



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 PLANNERS
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 INTERSECTION DETAILS
 TH 22 & CSAH 90

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 115
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 276

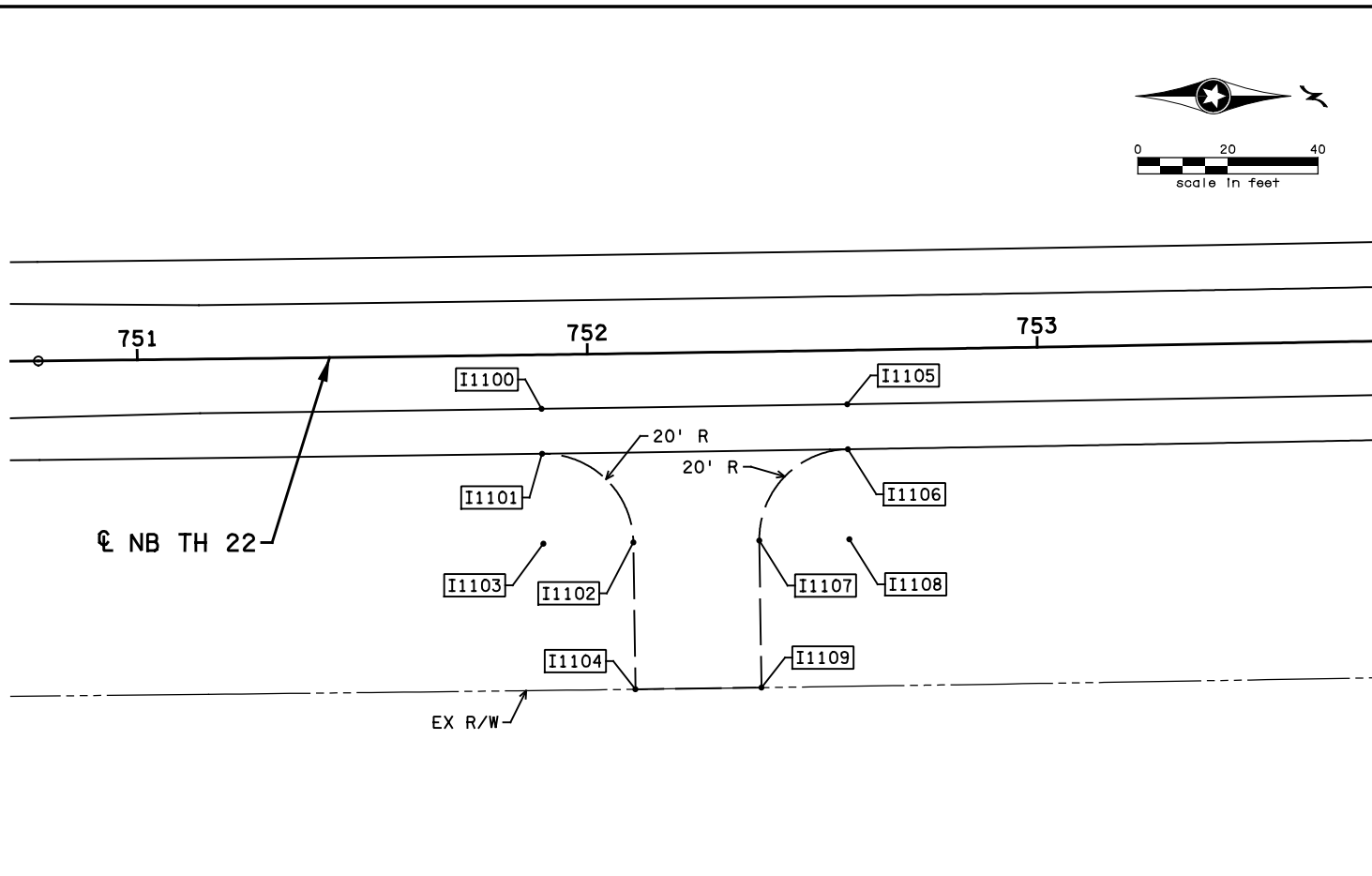


LEGEND

- PROPOSED CATCH BASIN
- DI ○ PROPOSED DROP INLET
- PROPOSED MANHOLE
- ◀ PROPOSED APRON

GENERAL NOTES:
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POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
I1060	580815.788	196543.189	EL. 1008.52	NB TH 22	741+31.18	26.00' LT.
I1061	580807.788	196543.102	EL. 1008.20	NB TH 22	741+31.18	34.00' LT.
I1062	580787.573	196562.885	EL. 1007.09	NB TH 22	741+51.18	54.00' LT.
I1063	580787.789	196542.886	20.0' R.	NB TH 22	741+31.18	54.00' LT.
I1064	580758.682	196562.573	EL. 1006.07	NB TH 22	741+51.18	82.89' LT.
I1065	580815.010	196615.184	EL. 1008.45	NB TH 22	742+03.18	19.00' LT.
I1066	580807.011	196615.098	EL. 1008.13	NB TH 22	742+03.18	27.00' LT.
I1067	580787.228	196594.883	EL. 1006.67	NB TH 22	741+83.18	47.00' LT.
I1068	580787.012	196614.882	20.0' R.	NB TH 22	742+03.18	47.00' LT.
I1069	580758.349	196594.571	EL. 1005.33	NB TH 22	741+83.18	75.88' LT.
I1080	580865.441	196575.586	EL. 1008.24	NB TH 22	741+63.04	24.00' RT.
I1081	580896.594	196610.752	EL. 1006.71	NB TH 22	741+97.87	62.53' RT.
I1082	580900.439	196575.964	35.0' R.	NB TH 22	741+63.04	59.00' RT.
I1083	580908.175	196612.032	EL. 1006.36	NB TH 22	741+99.02	74.13' RT.
I1084	580852.178	196692.425	EL. 1008.37	NB TH 22	742+80.01	19.00' RT.
I1085	580864.178	196692.554	EL. 1008.13	NB TH 22	742+80.01	31.00' RT.
I1086	580864.502	196662.556	EL. 1008.16	NB TH 22	742+50.01	31.00' RT.
I1087	580896.380	196628.073	EL. 1006.87	NB TH 22	742+15.19	62.50' RT.
I1088	580899.500	196662.934	35.0' R.	NB TH 22	742+50.01	66.00' RT.
I1089	580908.019	196627.032	EL. 1006.58	NB TH 22	742+14.02	74.13' RT.
I1100	580835.187	197601.972	EL. 1007.60	NB TH 22	751+89.66	12.00' RT.
I1101	580845.186	197602.110	EL. 1007.20	NB TH 22	751+89.66	22.00' RT.
I1102	580864.895	197622.385	EL. 1006.14	NB TH 22	752+09.63	41.99' RT.
I1103	580865.184	197602.387	20.0' R.	NB TH 22	751+89.66	42.00' RT.
I1104	580897.521	197622.857	EL. 1005.05	NB TH 22	752+09.64	74.62' RT.
I1105	580834.185	197669.909	EL. 1007.53	NB TH 22	752+57.58	12.00' RT.
I1106	580844.184	197670.066	EL. 1007.13	NB TH 22	752+57.58	22.00' RT.
I1107	580864.471	197650.382	EL. 1006.12	NB TH 22	752+37.60	41.98' RT.
I1108	580864.181	197670.380	20.0' R.	NB TH 22	752+57.58	42.00' RT.
I1109	580897.142	197650.855	EL. 1005.07	NB TH 22	752+37.58	74.66' RT.



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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

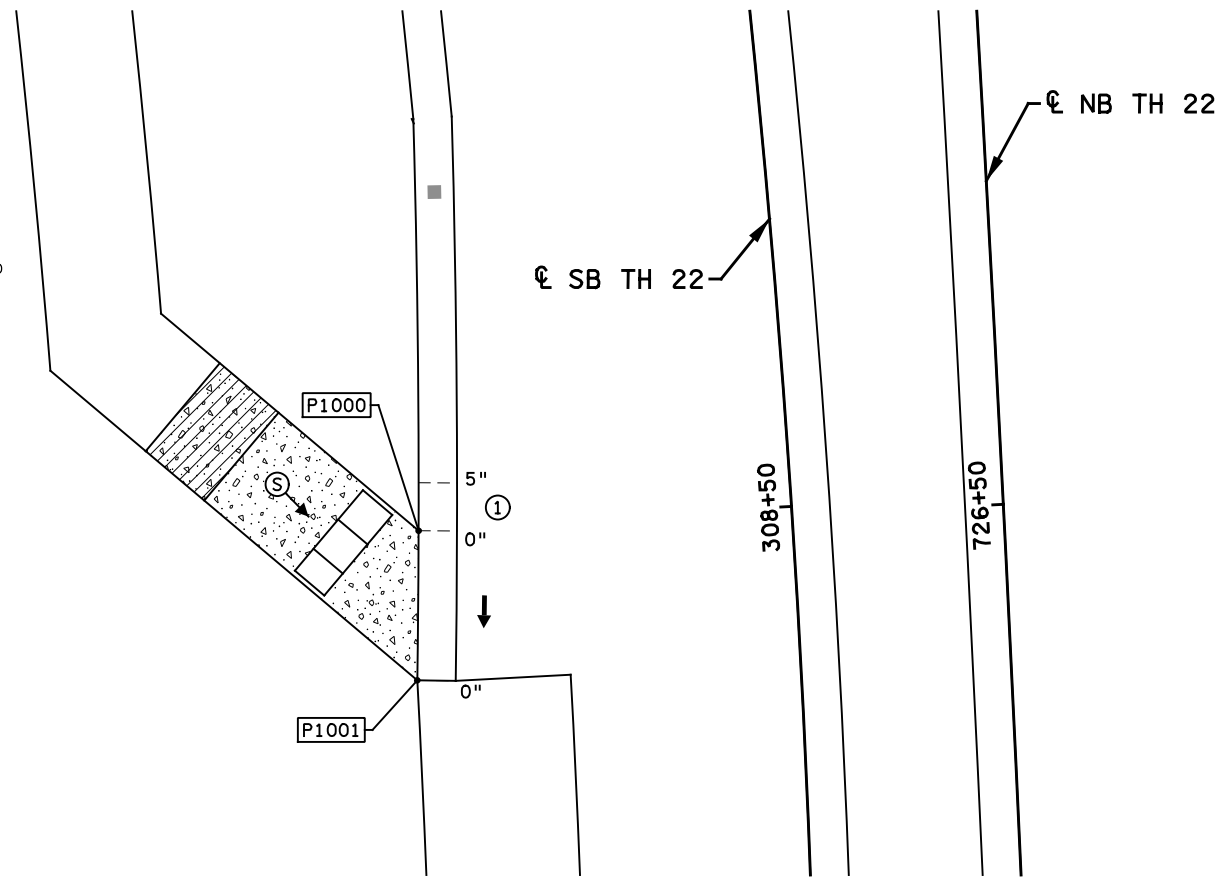
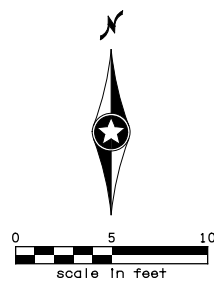
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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
 INTERSECTION DETAILS
 TH 22 & CSAH 90

SHEET
 116
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 276



LEGEND

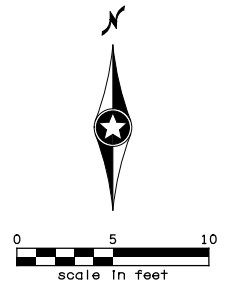
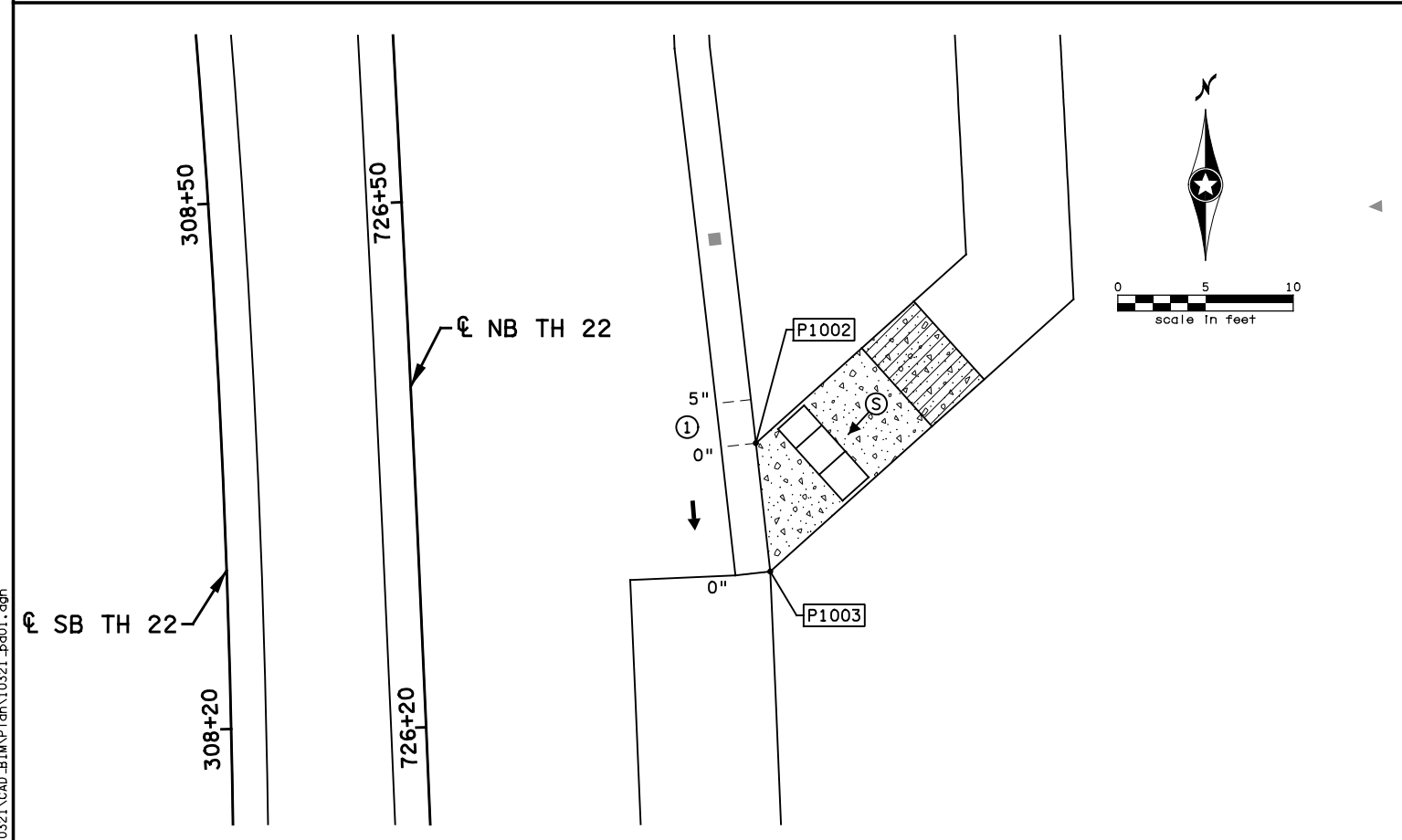
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POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
P1000	580823.577	195082.961	EL. 1004.28	SB TH 22	308+50.00	19.47' LT.
P1001	580823.508	195075.170	EL. 1004.24	SB TH 22	308+42.00	20.00' LT.
P1002	580874.244	195070.577	EL. 1004.31	NB TH 22	726+35.32	19.51' RT.
P1003	580875.067	195063.250	EL. 1004.27	NB TH 22	726+28.00	20.00' RT.

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Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

COMM. NO. 01710321

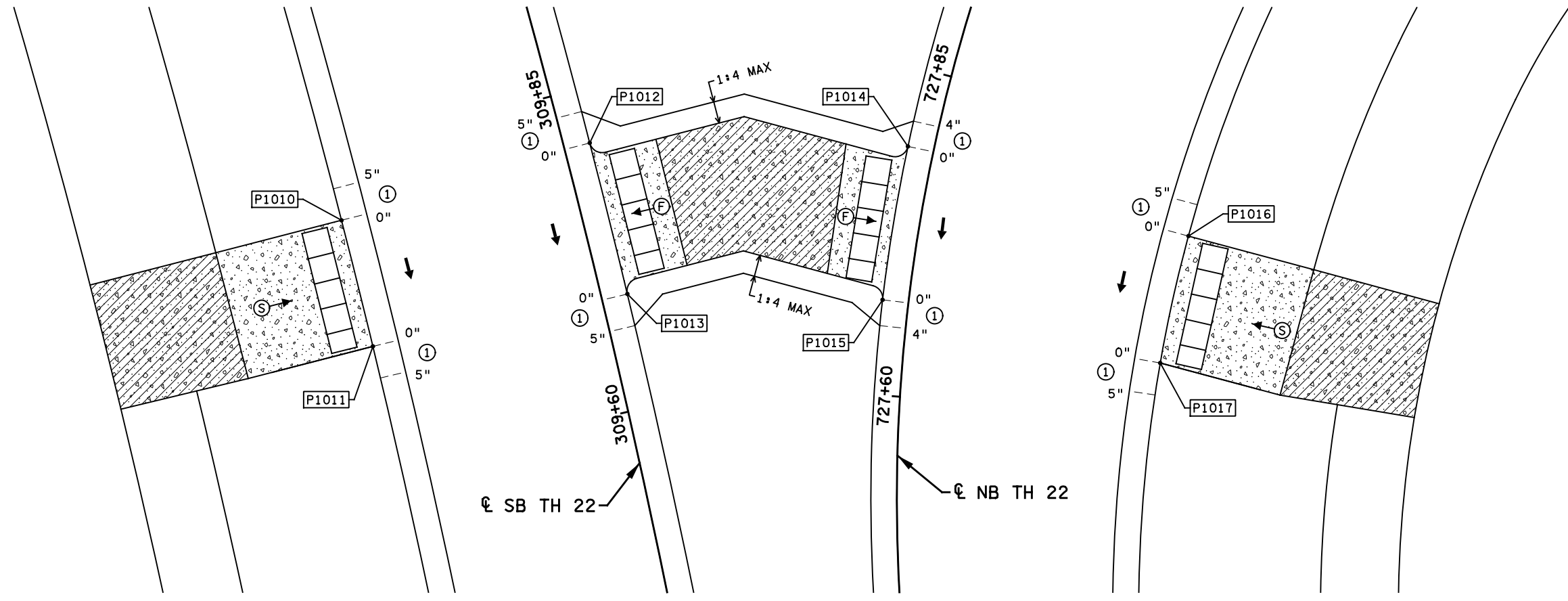
DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY

SRE ENGINEERS PLANNERS DESIGNERS
 Consulting Group, Inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN CURB RAMP DETAILS
 TH 22 & CSAH 90

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POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
P1010	580805.133	195207.716	EL. 1004.80	SB TH 22	309+79.77	18.00' LT.
P1011	580807.548	195198.012	EL. 1004.70	SB TH 22	309+69.50	18.00' LT.
P1012	580824.251	195213.673	EL. 1005.14	SB TH 22	309+80.78	2.00' RT.
P1013	580827.149	195202.045	EL. 1005.02	SB TH 22	309+68.83	2.00' RT.
P1014	580848.756	195213.403	EL. 1005.26	NB TH 22	727+79.04	2.00' LT.
P1015	580846.804	195201.597	EL. 1005.16	NB TH 22	727+67.26	2.00' LT.
P1016	580870.362	195206.506	EL. 1004.88	NB TH 22	727+76.37	20.55' RT.
P1017	580868.186	195196.736	EL. 1004.78	NB TH 22	727+64.52	19.78' RT.

LEGEND

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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

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 STATE PROJECT NO. 007-070-005
 COMM. NO. 01710321

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
SRE ENGINEERS PLANNERS DESIGNERS
 Consulting Group, Inc.

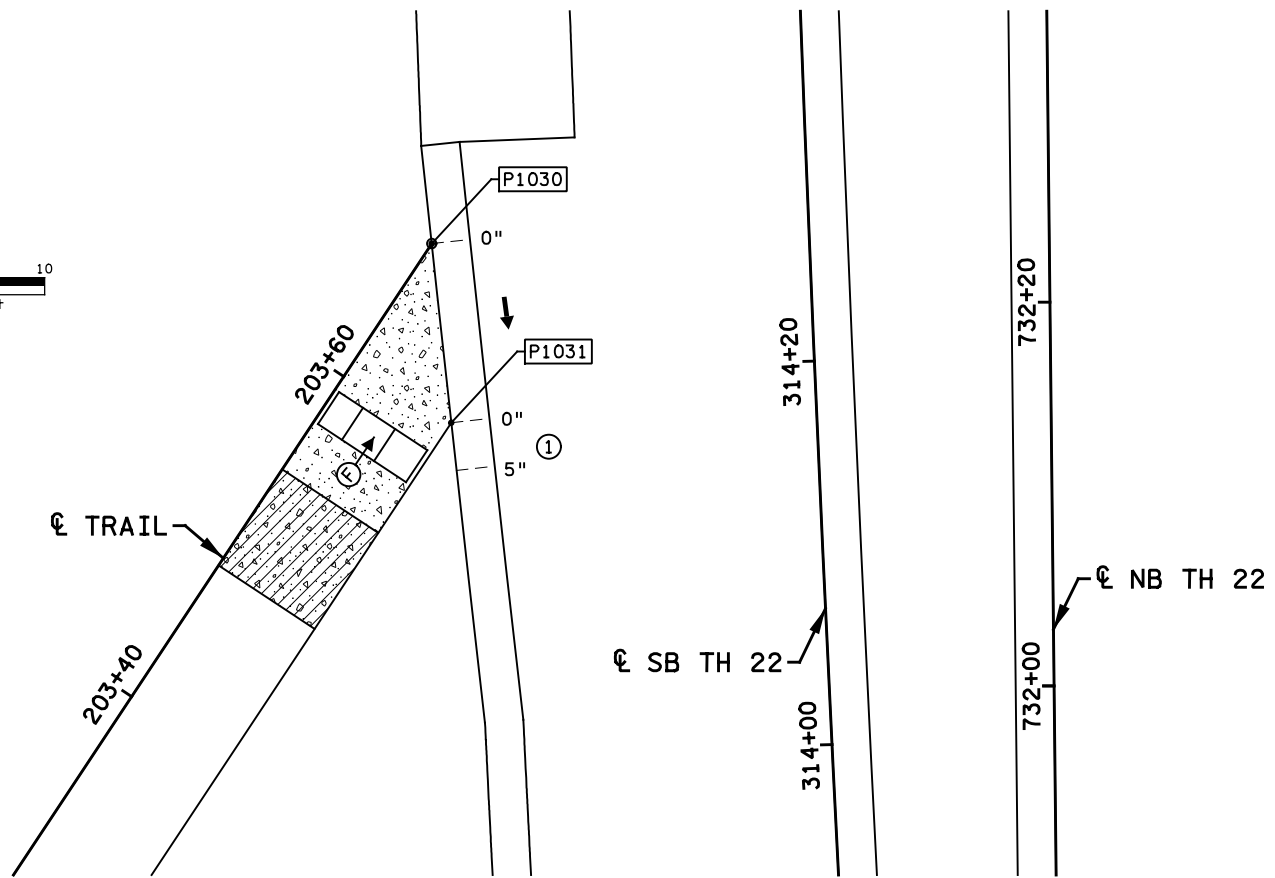
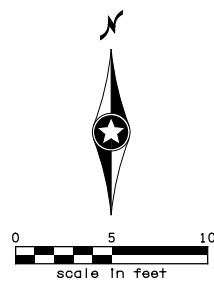
MINNESOTA DEPARTMENT OF TRANSPORTATION
 PEDESTRIAN CURB RAMP DETAILS
 TH 22 & CSAH 90

SHEET 118 OF 276

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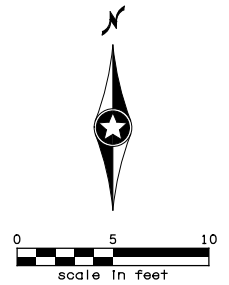
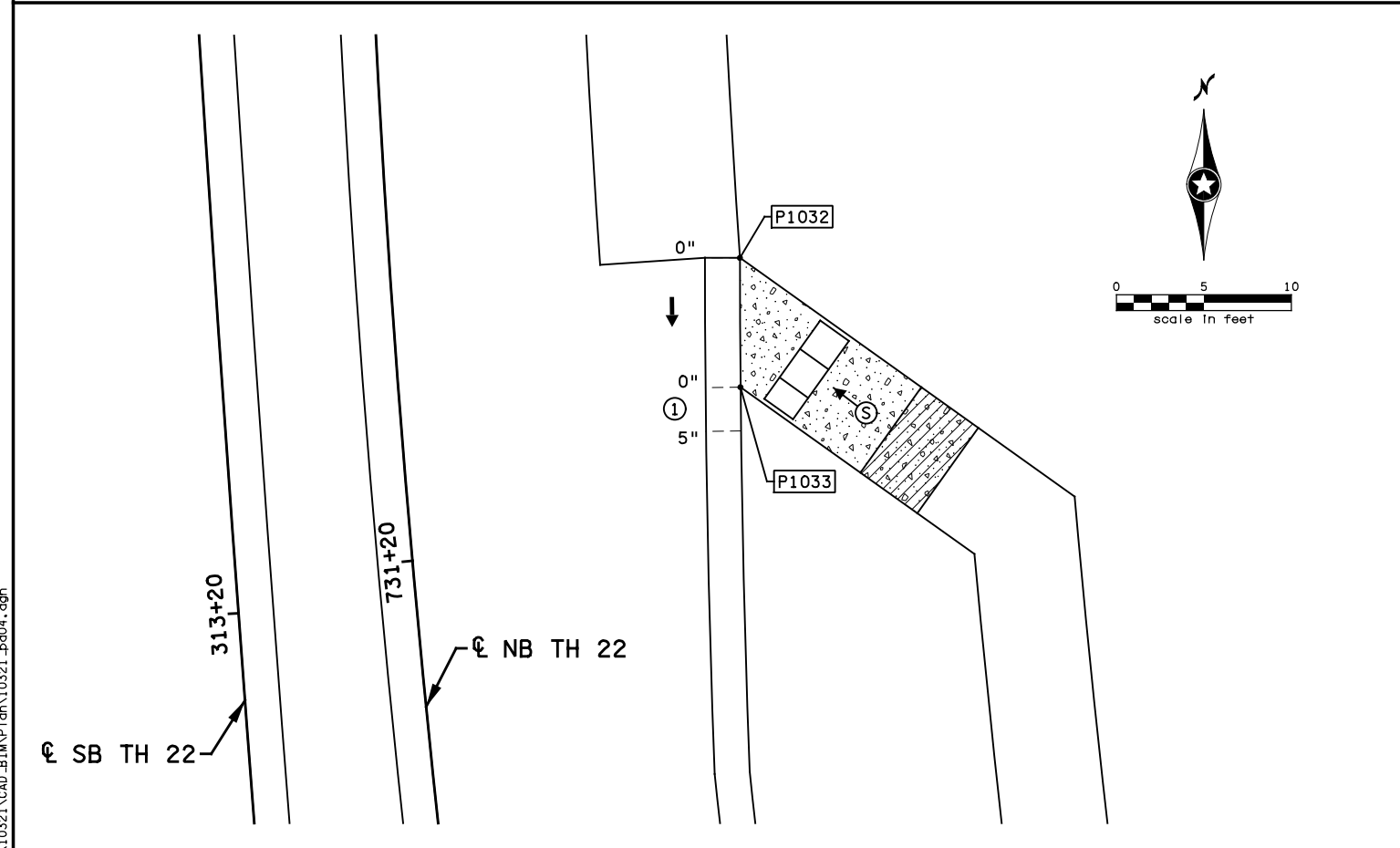
LEGEND

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POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
P1030	580819.415	195635.388	EL. 1006.26	SB TH 22	314+26.92	19.66' LT.
P1031	580820.431	195626.057	EL. 1006.16	SB TH 22	314+17.61	19.04' LT.
P1032	580873.801	195549.751	EL. 1006.03	NB TH 22	731+36.00	20.00' RT.
P1033	580873.836	195542.356	EL. 1005.95	NB TH 22	731+28.43	19.50' RT.

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Print Name: AMBER E. TRACY

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STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

COMM. NO. 01710321

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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY



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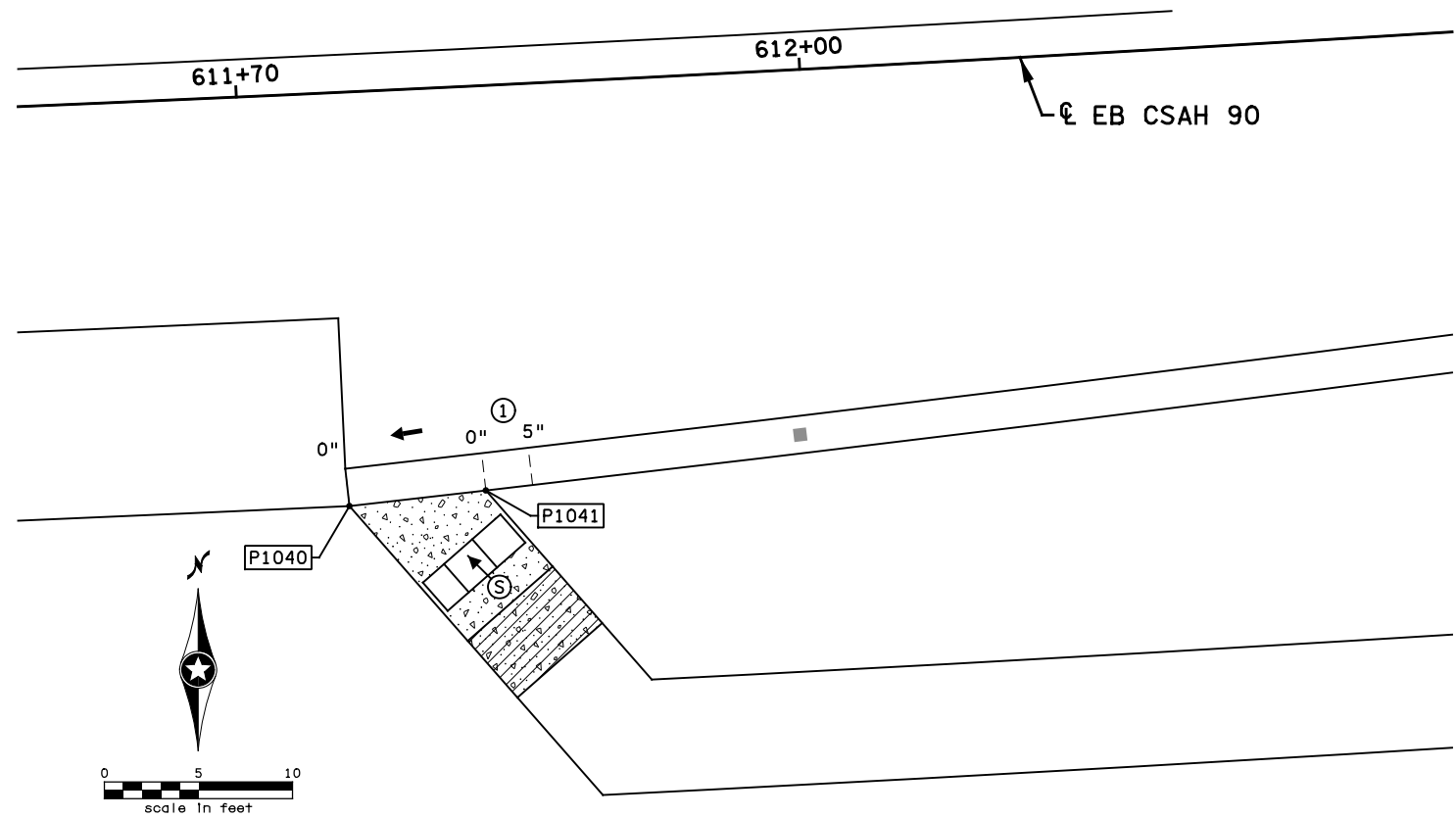
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MINNESOTA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN CURB RAMP DETAILS

TH 22 & CSAH 90

SHEET 120 OF 276



LEGEND

- PROPOSED CATCH BASIN
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POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
P1040	580572.334	195288.117	EL. 1004.09	EB CSAH 90	611+75.00	22.00' RT.
P1041	580579.590	195288.945	EL. 1004.17	EB CSAH 90	611+82.25	21.52' RT.

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STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS

DESIGNED BY
P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321

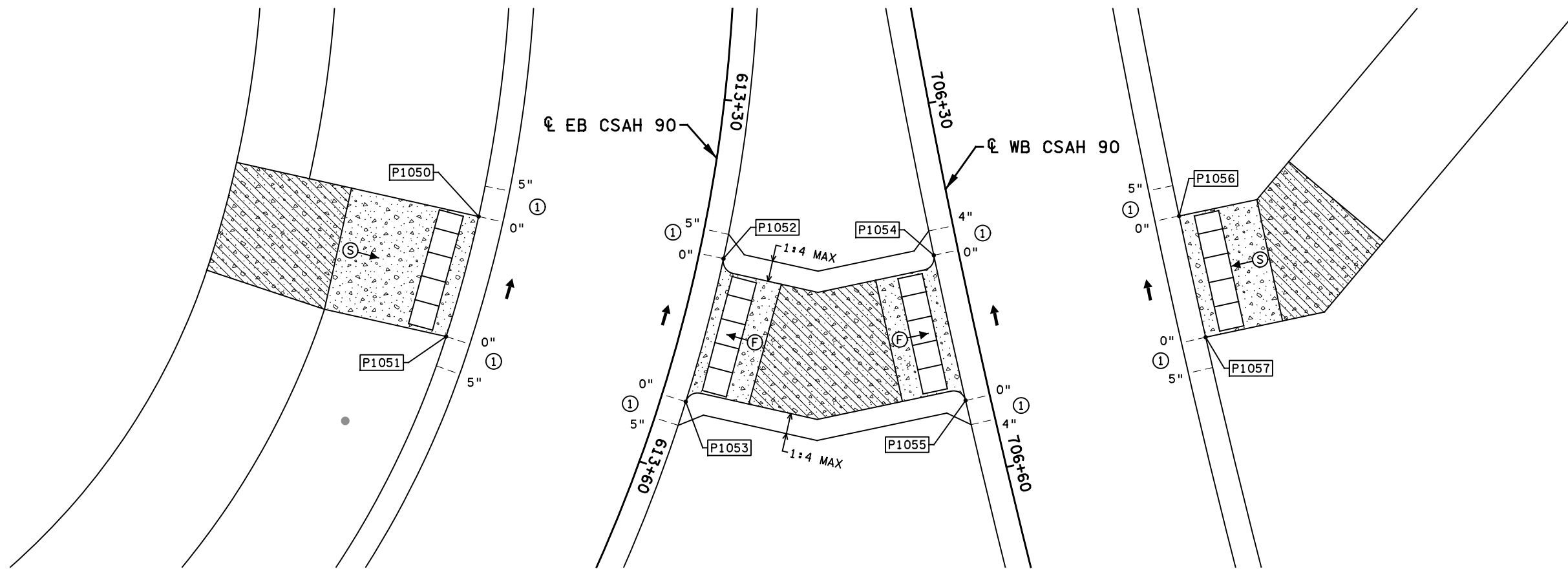


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DESIGNERS

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PEDESTRIAN CURB RAMP DETAILS
 TH 22 & CSAH 90

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OF
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POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
P1050	580735.413	195298.112	EL. 1004.80	EB CSAH 90	613+43.53	18.00' RT.
P1051	580745.073	195295.486	EL. 1004.90	EB CSAH 90	613+55.18	18.00' RT.
P1052	580738.805	195317.843	EL. 1005.11	EB CSAH 90	613+42.55	2.00' LT.
P1053	580750.327	195314.802	EL. 1005.21	EB CSAH 90	613+54.29	2.00' LT.
P1054	580738.527	195334.793	EL. 1005.22	WB CSAH 90	706+42.09	2.00' RT.
P1055	580750.233	195337.356	EL. 1005.32	WB CSAH 90	706+54.04	2.00' RT.
P1056	580735.367	195354.567	EL. 1004.90	WB CSAH 90	706+43.09	18.00' LT.
P1057	580745.135	195356.707	EL. 1005.00	WB CSAH 90	706+53.35	18.00' LT.

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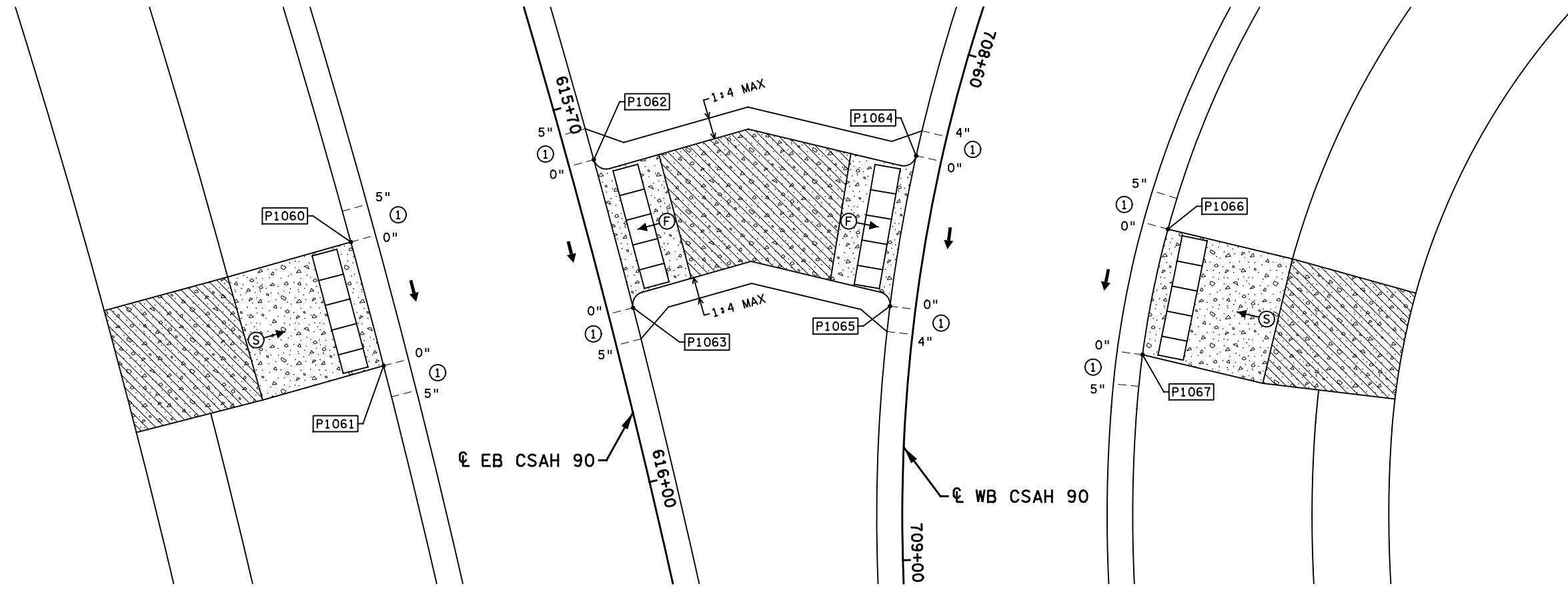
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 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
 PEDESTRIAN CURB RAMP DETAILS
 TH 22 & CSAH 90

SHEET
 122
 OF
 276



POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
P1060	580953.166	195273.684	EL. 1005.03	EB CSAH 90	615+75.77	18.00' RT.
P1061	580962.834	195276.244	EL. 1004.93	EB CSAH 90	615+86.04	18.00' RT.
P1062	580946.725	195292.655	EL. 1005.36	EB CSAH 90	615+74.55	2.00' LT.
P1063	580958.309	195295.727	EL. 1005.26	EB CSAH 90	615+86.50	2.00' LT.
P1064	580946.426	195317.842	EL. 1005.50	WB CSAH 90	708+68.60	2.00' RT.
P1065	580958.180	195315.796	EL. 1005.40	WB CSAH 90	708+80.35	2.00' RT.
P1066	580952.159	195337.507	EL. 1005.17	WB CSAH 90	708+70.17	18.43' LT.
P1067	580961.966	195335.522	EL. 1005.07	WB CSAH 90	708+81.83	18.04' LT.

LEGEND

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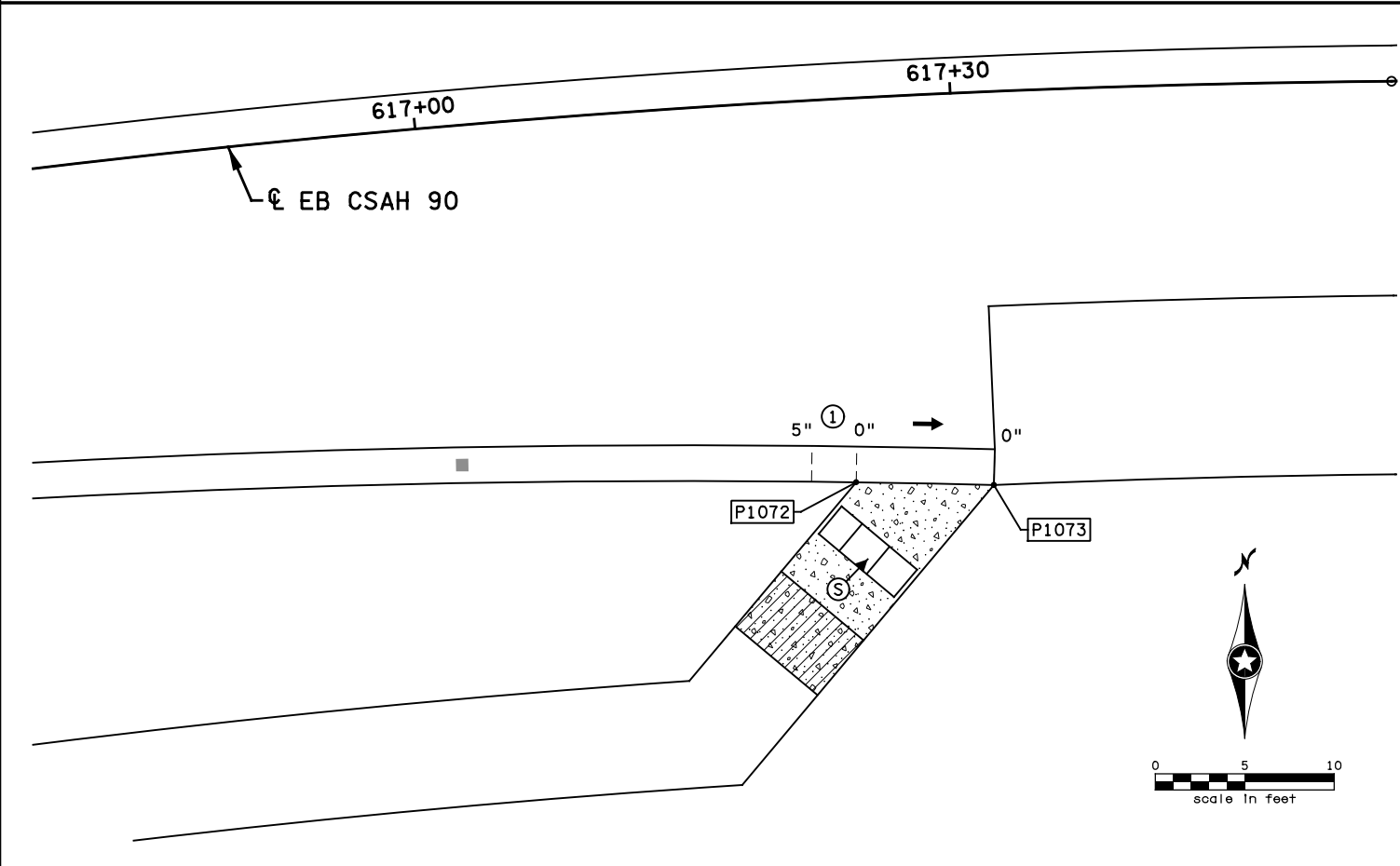
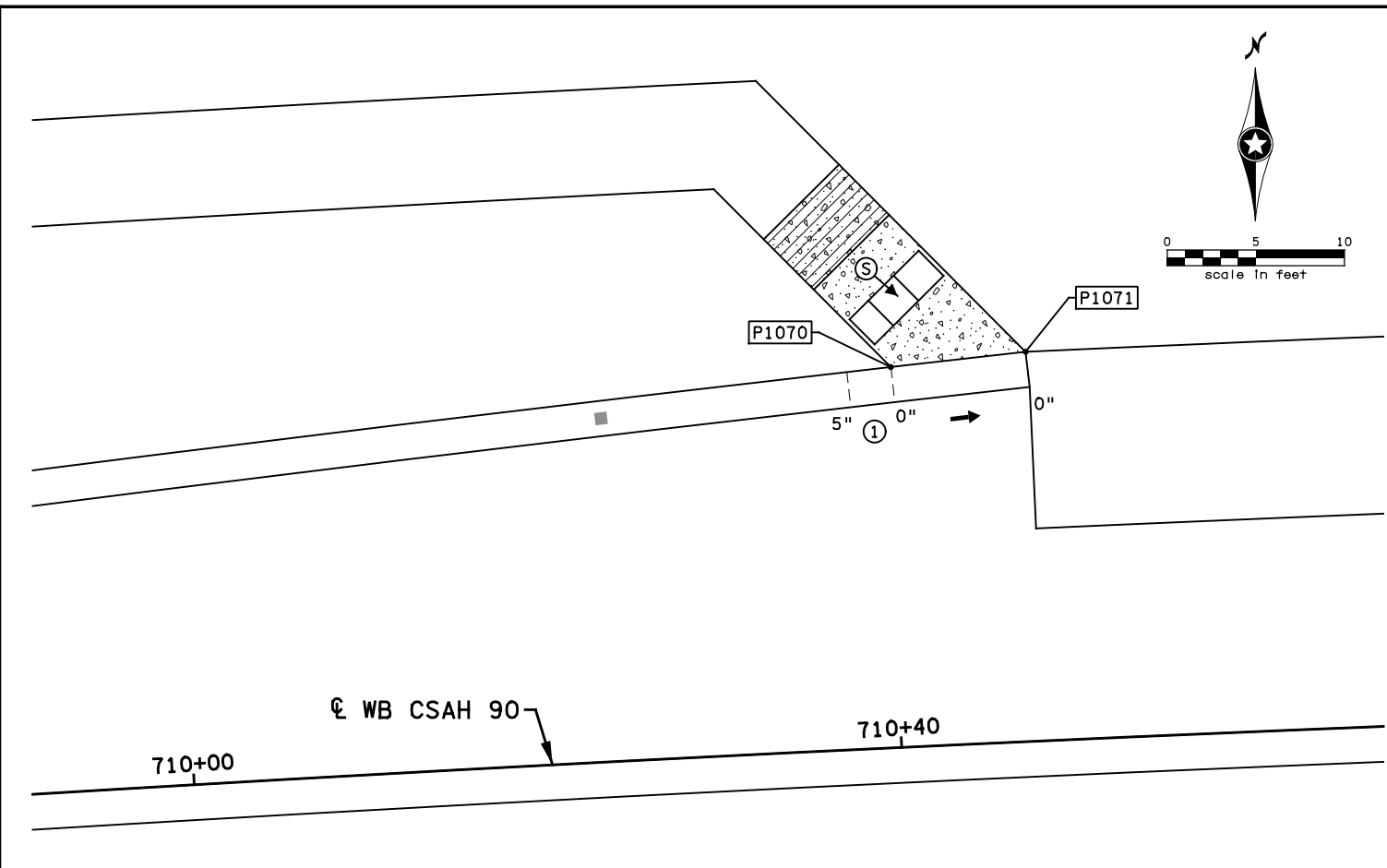
DESIGNED BY S. MARTINS

DESIGNED BY P. ENGELMEYER

CHECKED BY A. TRACY

COMM. NO. 01710321





LEGEND

- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- Ⓧ PXXXX CONTROL POINTS AT GUTTER FLOW LINE UNLESS NOTED OTHERWISE - SEE TABULATION LOCATED ON EACH SHEET
- ▭ TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- X" CURB HEIGHT
- ══ CONSTRUCT CONCRETE CURB & GUTTER
- ▨ LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- Ⓣ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- ➔ DRAINAGE FLOW ARROW
- ▩ 6" CONCRETE WALK

GENERAL NOTES:
 OFFSETS, ELEVATIONS, AND RADIUS LENGTHS ARE TO FLOWLINE OF GUTTER, UNLESS NOTED OTHERWISE AND DO NOT INCLUDE DRAINAGE STRUCTURE SUMPS.

SEE CONSTRUCTION PLANS, DRAINAGE & SUPERELEVATION PLANS, AND INTERSECTION DETAILS FOR INFORMATION NOT SHOWN ON THIS SHEET.

NOTES:
 ① CURB HEIGHT TAPER SECTION, ADJUST GUTTER SLOPE TO 2% MIN. TO 5% MAX. SLOPING INWARD TOWARDS FACE OF CURB

POINT NO.	X COORD.	Y COORD.	ELEV. OR RADIUS	ALIGNMENT	STATION	OFFSET
P1070	581117.121	195347.279	EL. 1003.98	WB CSAH 90	710+40.40	21.49' LT.
P1071	581124.733	195348.139	EL. 1003.90	WB CSAH 90	710+48.00	22.00' LT.
P1072	581095.233	195293.141	EL. 1004.12	EB CSAH 90	617+23.57	21.47' RT.
P1073	581102.932	195292.987	EL. 1004.04	EB CSAH 90	617+31.50	22.00' RT.

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Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



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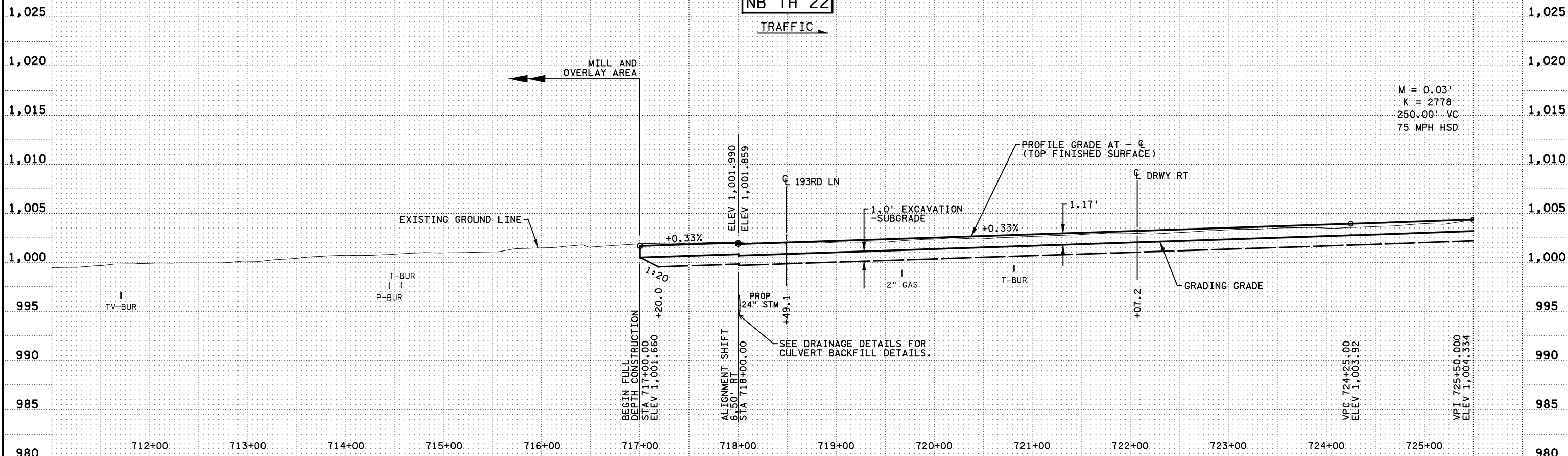
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PEDESTRIAN CURB RAMP DETAILS
 TH 22 & CSAH 90

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NB TH 22

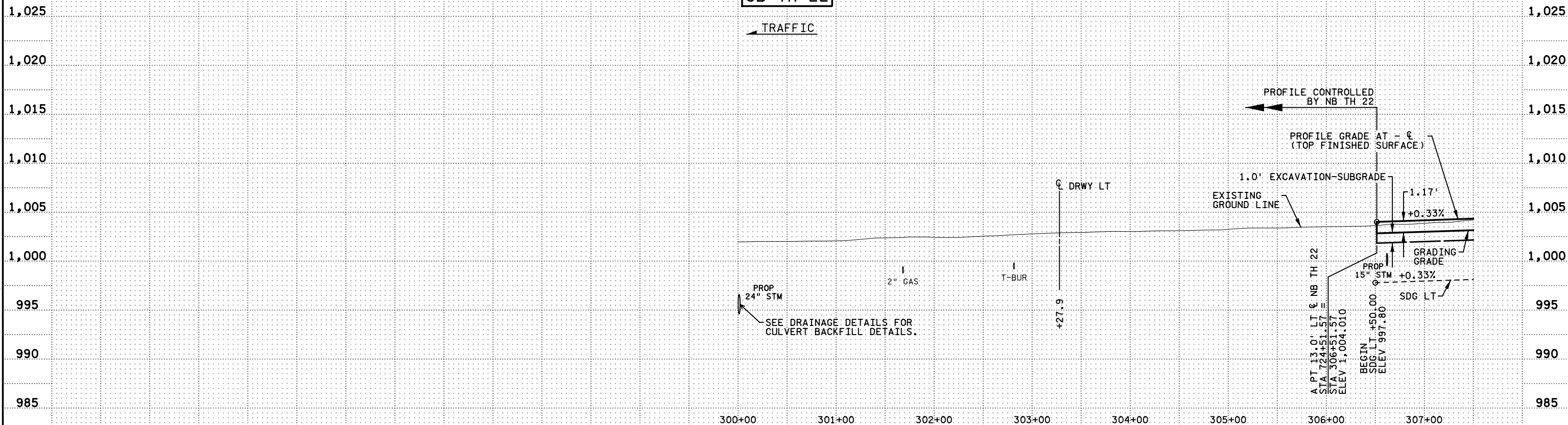
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M = 0.03'
K = 2778
250.00' VC
75 MPH HSD

SB TH 22

← TRAFFIC



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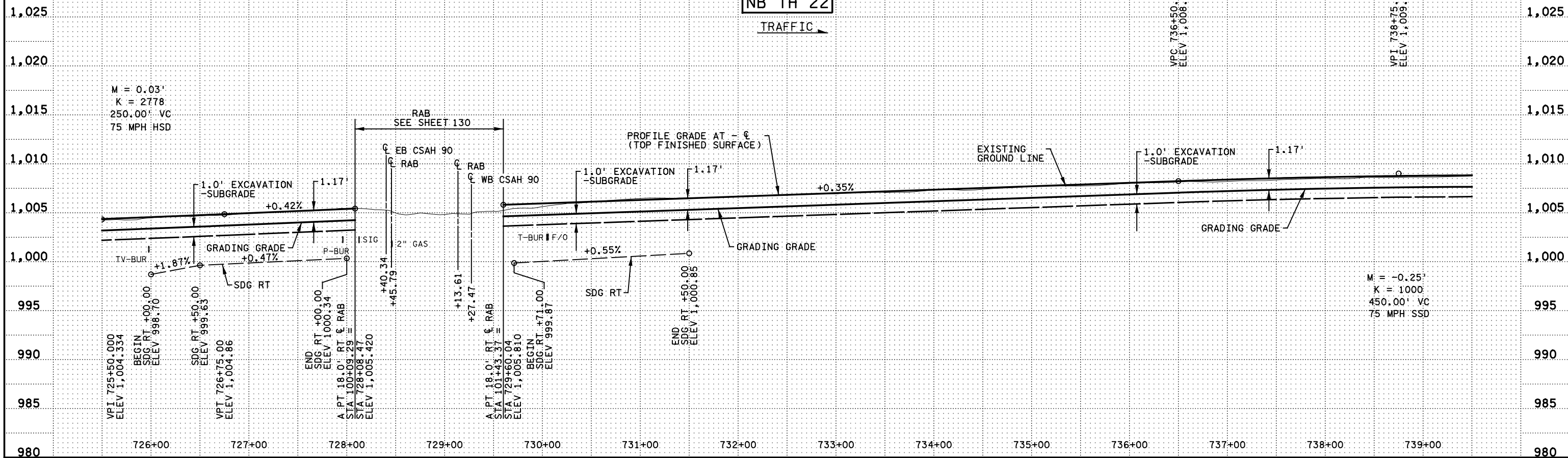
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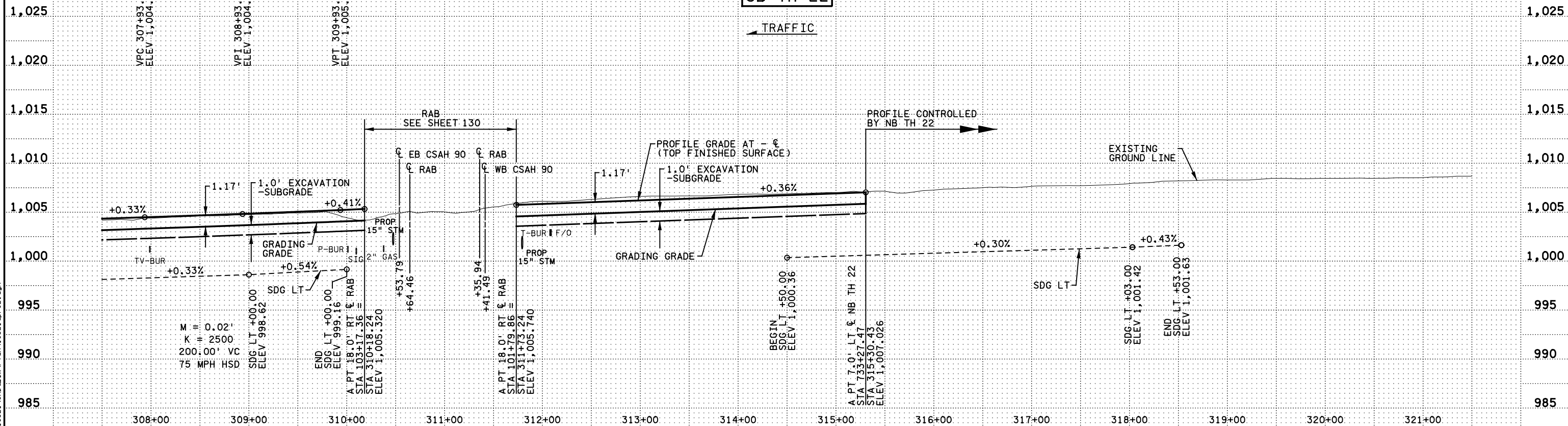
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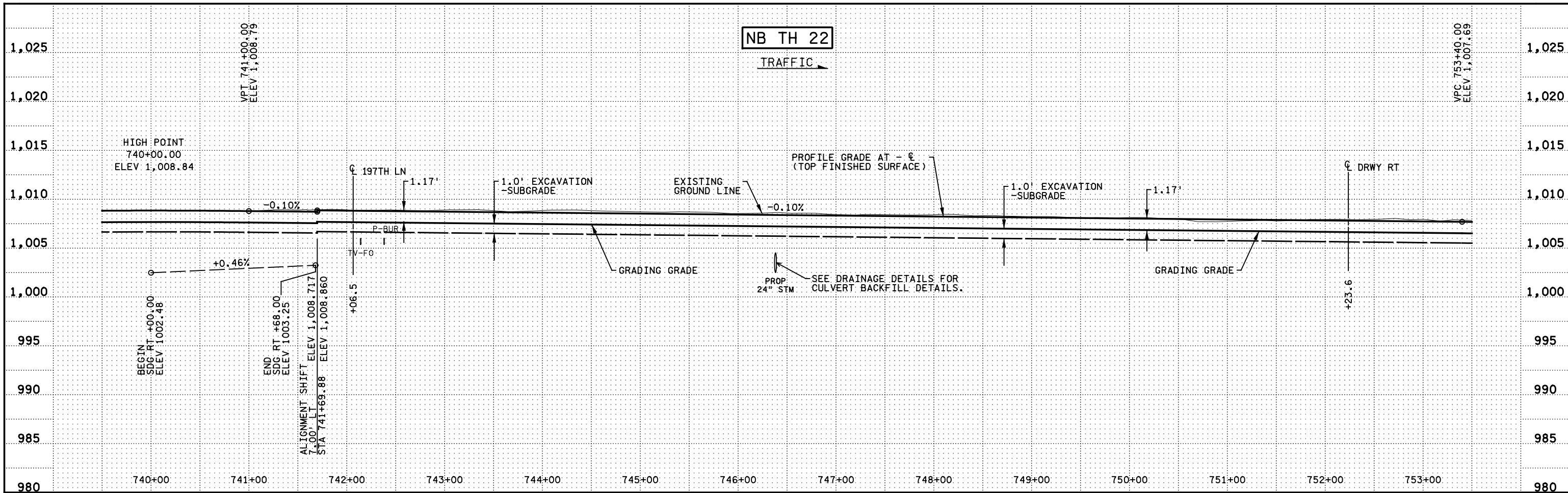
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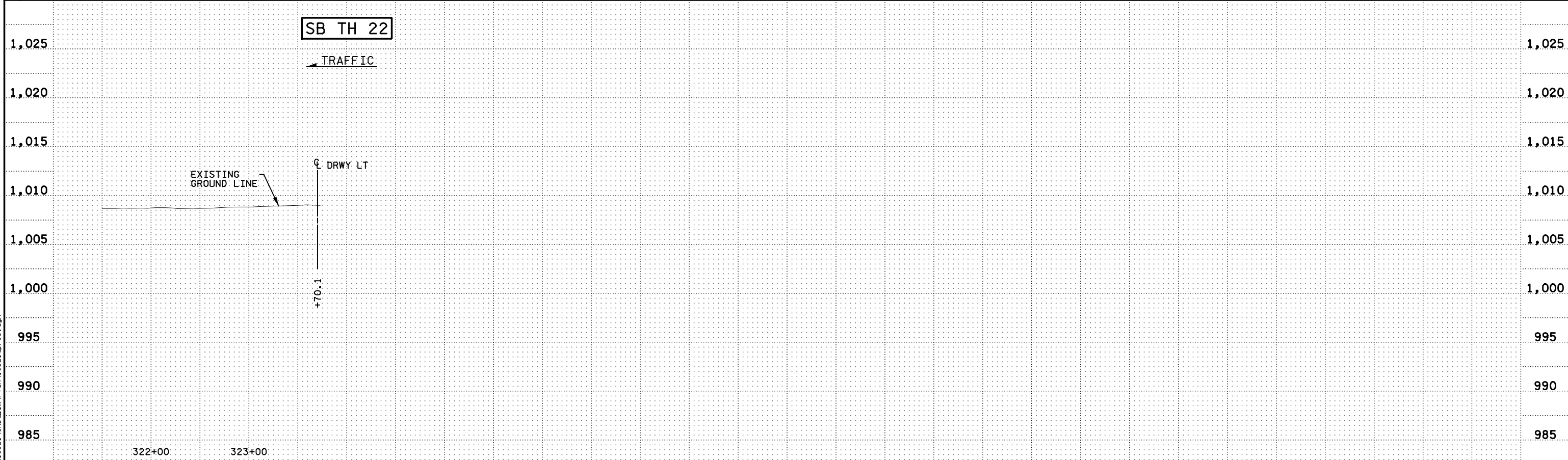
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SB TH 22

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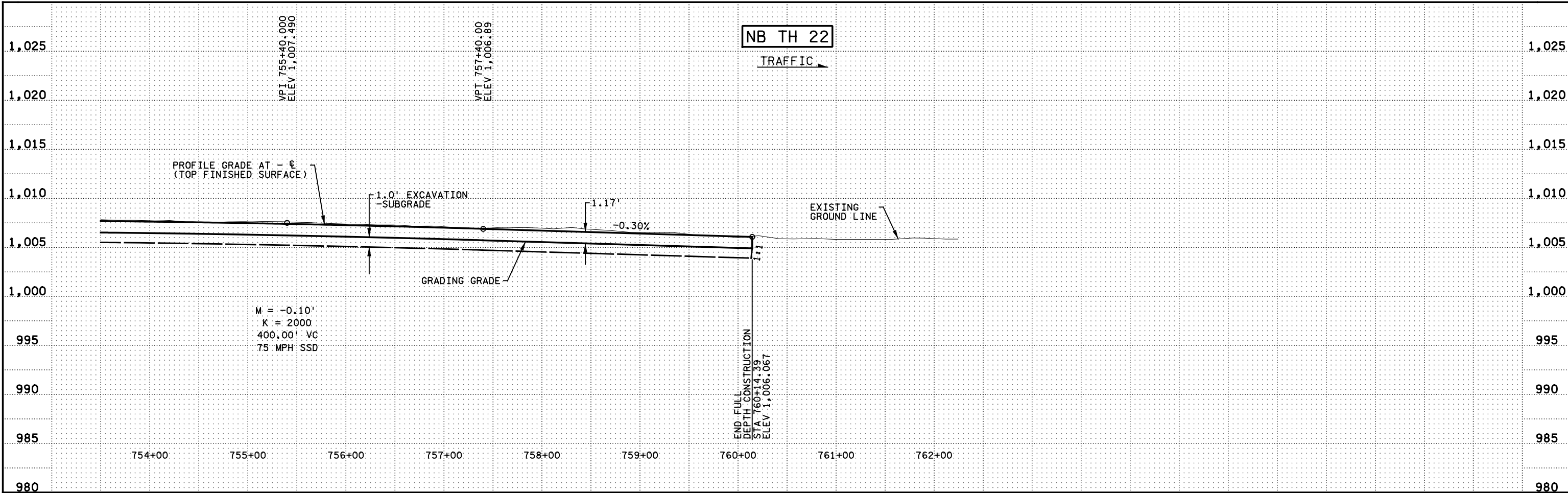
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NB TH 22

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P. ENGELMEYER

CHECKED BY
A. TRACY

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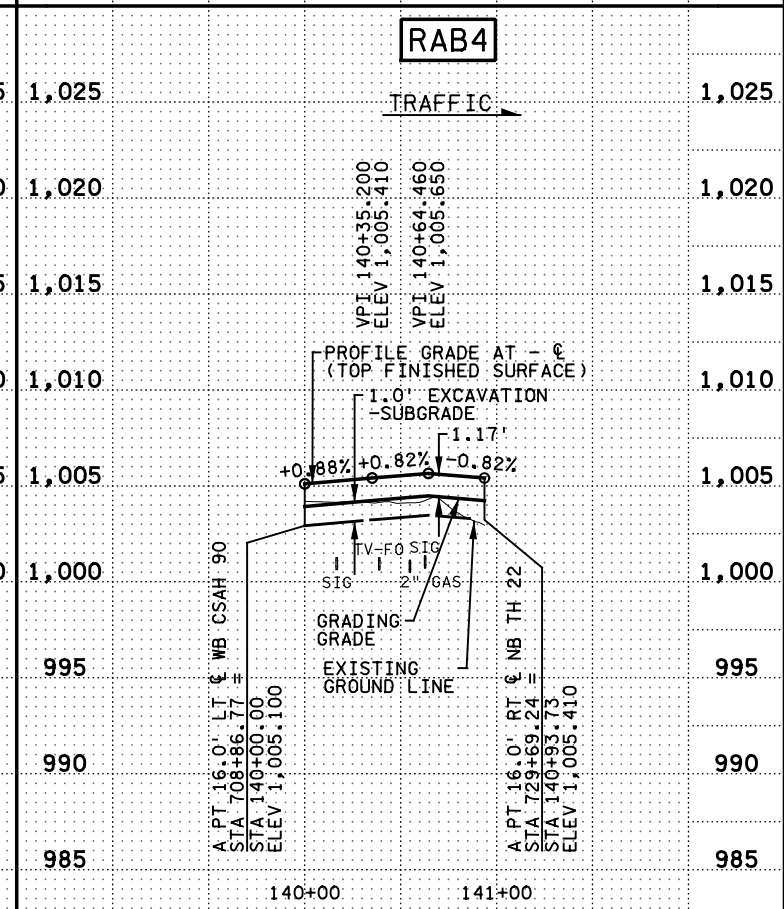
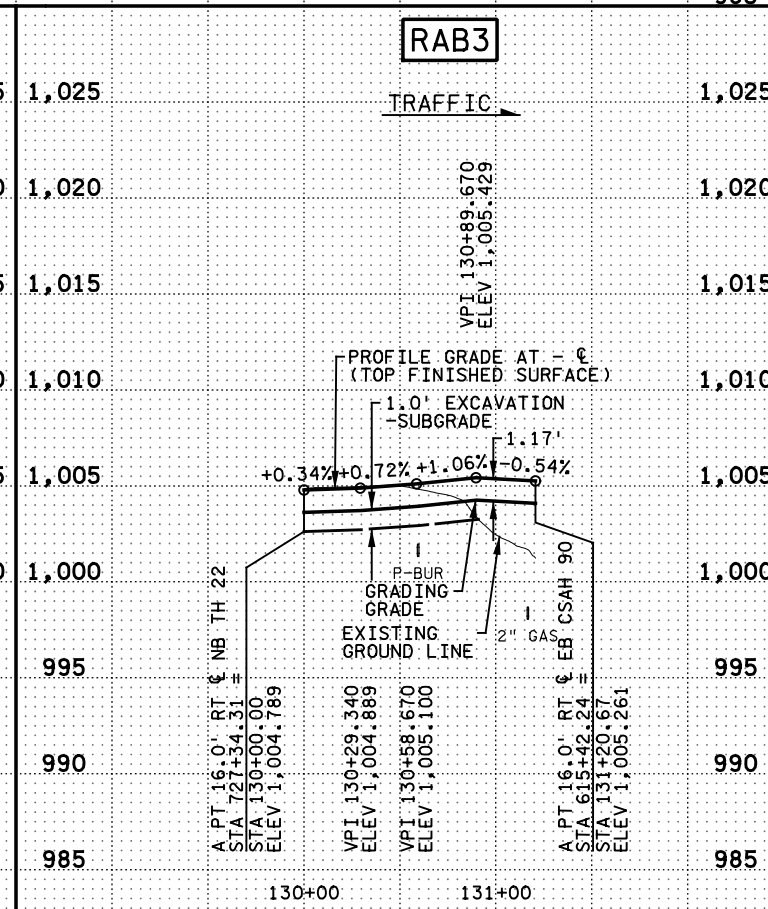
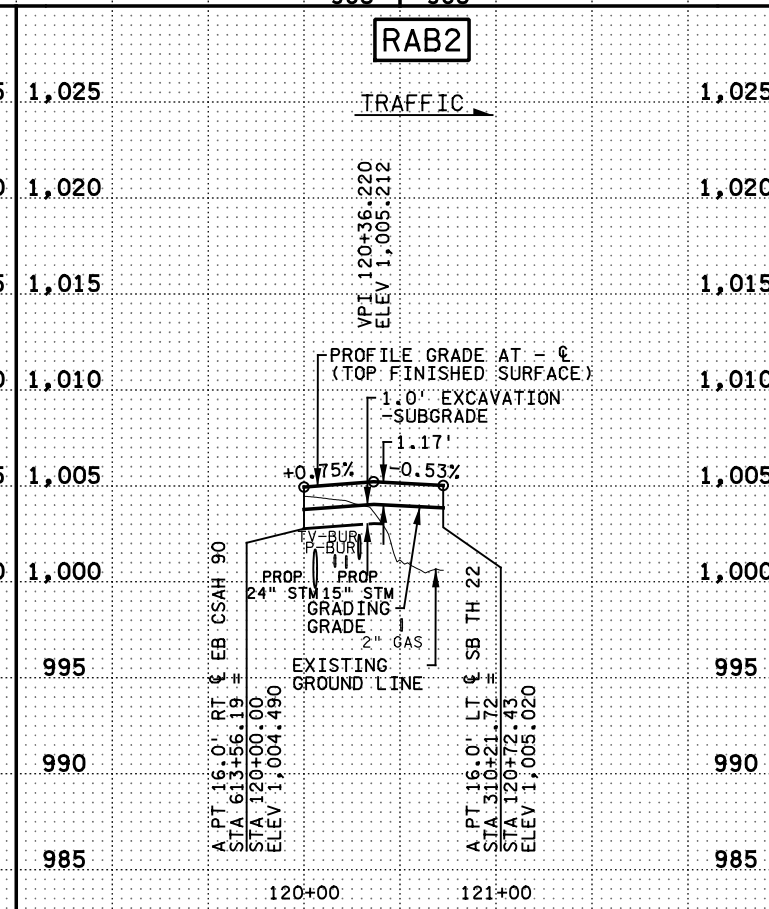
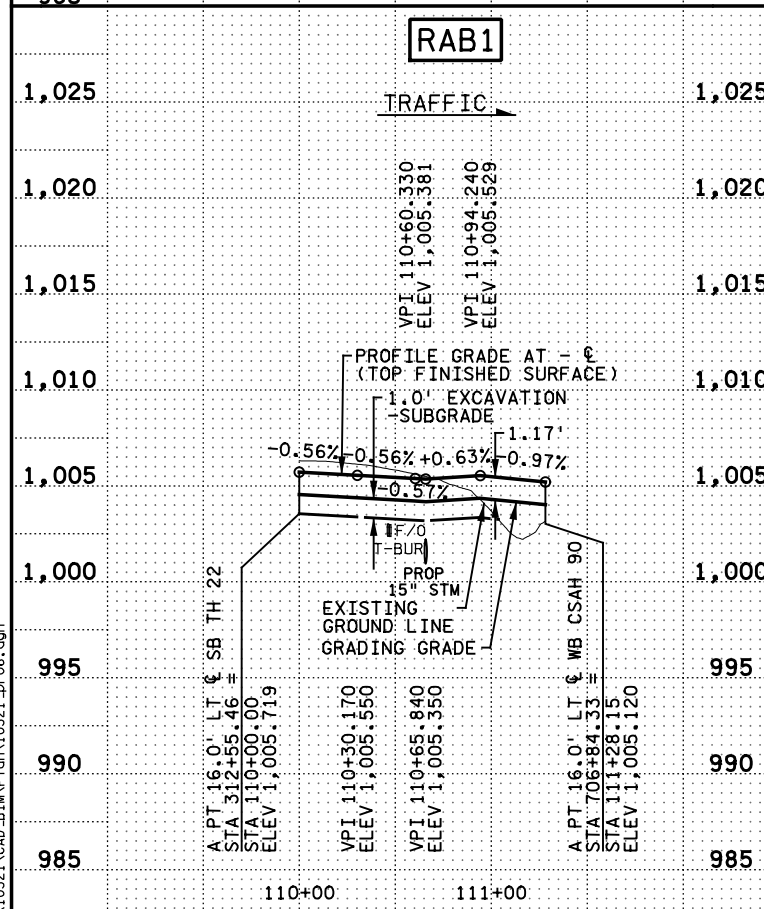
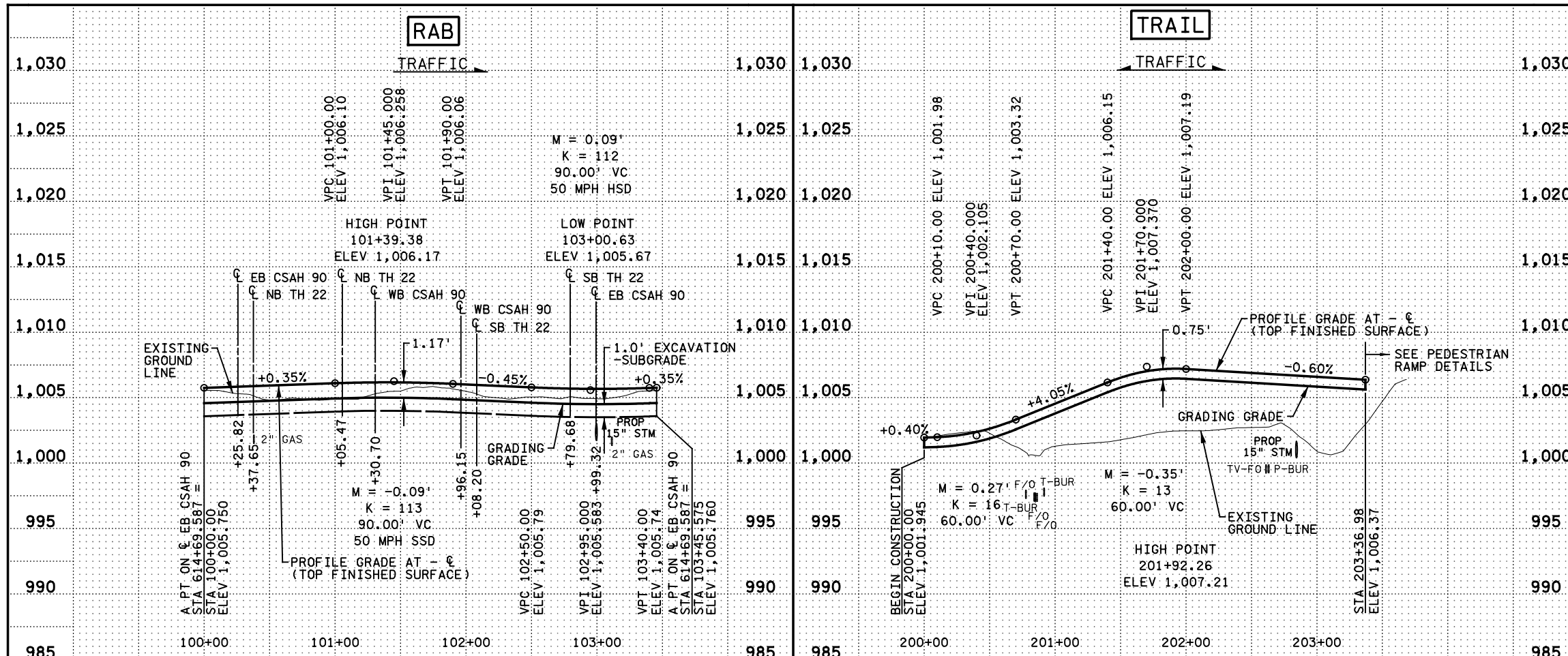


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TH 22 & CSAH 90

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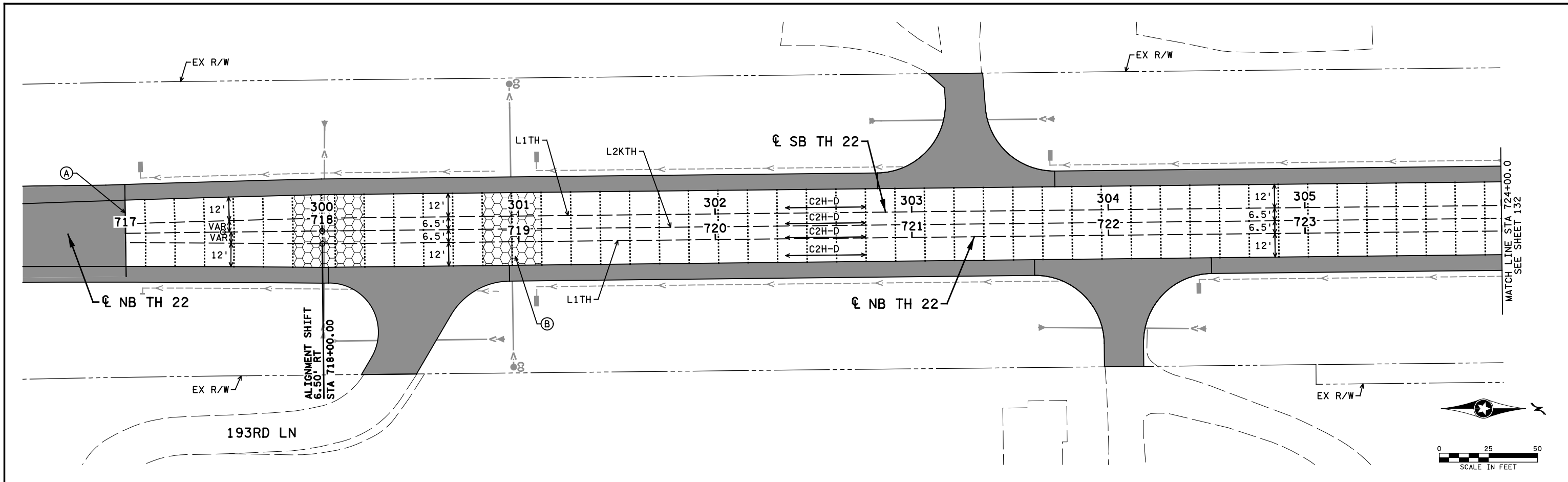
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 PROFILES
 TH 22 & CSAH 90
 SHEET 130 OF 276

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GENERAL NOTES:

ALL DIMENSIONS SHOW FOR ROADWAYS ON THE CONCRETE PAVING PLAN ARE ACTUAL ROADWAY WIDTHS.

REINFORCEMENT BARS FOR ALL LONGITUDINAL JOINTS ARE CONSIDERED INCIDENTAL.

PROPOSED JOINTS MAY BE CHANGED AS DIRECTED BY THE ENGINEER.

TIE ALL CONCRETE CURB & GUTTER TO CONCRETE SHOULDERS WITH A L2KTU JOINT.

CONSTRUCTION HEADER JOINTS SHALL BE CONSIDERED INCIDENTAL.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT OVER PIPE SEWERS, SEE TABULATION SHEET.

LEGEND	
	SUPPLEMENTAL STEEL REQUIRED SEE STANDARD PLATE 1070
	BITUMINOUS PAVEMENT
	PAVEMENT JOINTS

NOTES:

- (A) CONSTRUCT TERMINAL HEADER JOINT
- (B) PIPE LOCATION IS APPROXIMATE, FIELD LOCATE. SUPPLEMENTAL REINFORCEMENT WILL BE USED AS NEEDED.

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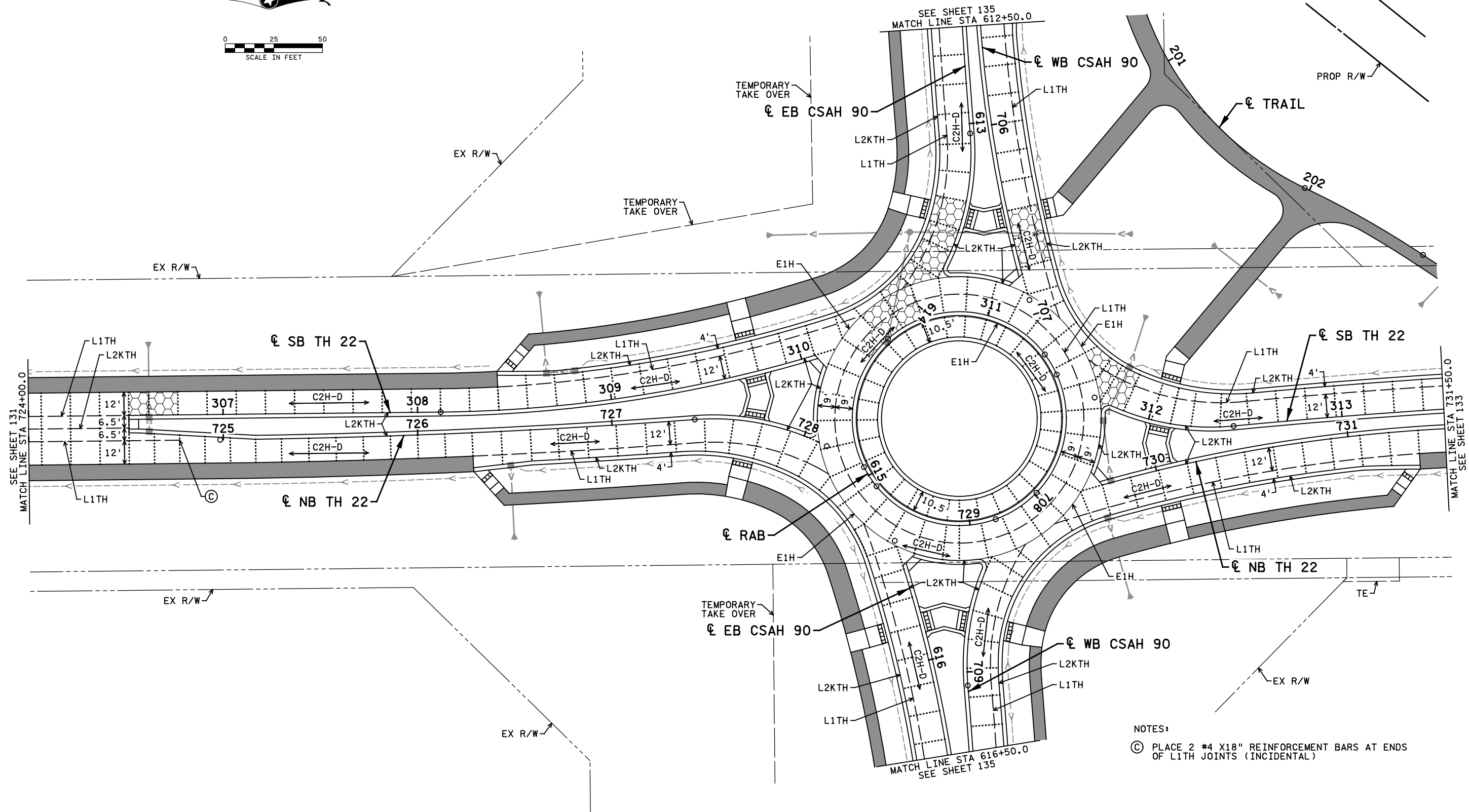
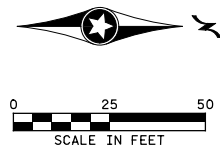


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CONCRETE PAVEMENT PLANS
 TH 22 & CSAH 90

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NOTES:
 (C) PLACE 2 #4 X18" REINFORCEMENT BARS AT ENDS OF L1TH JOINTS (INCIDENTAL)

SEE SHEET 131 FOR GENERAL NOTES AND LEGEND.

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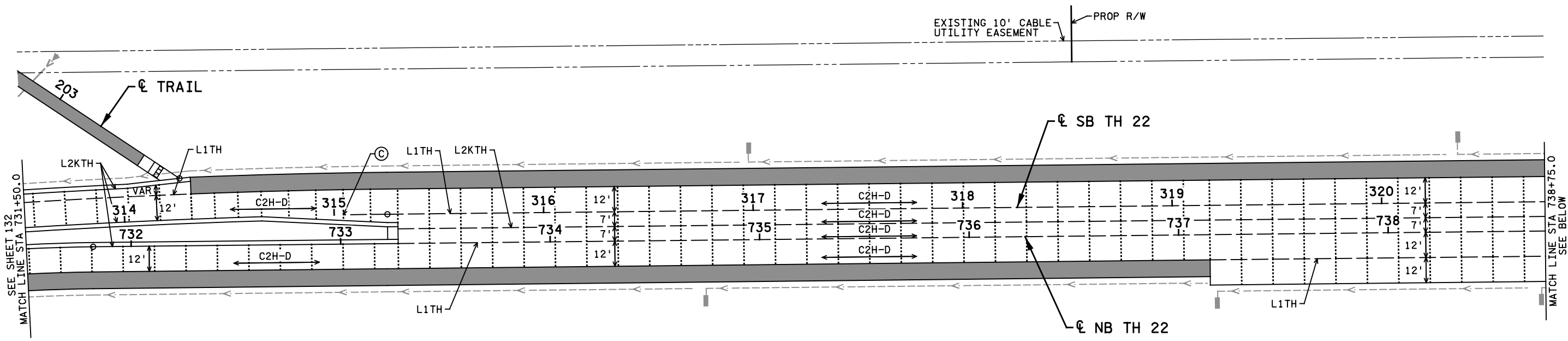
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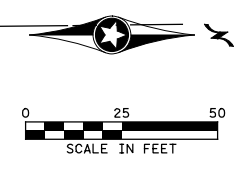
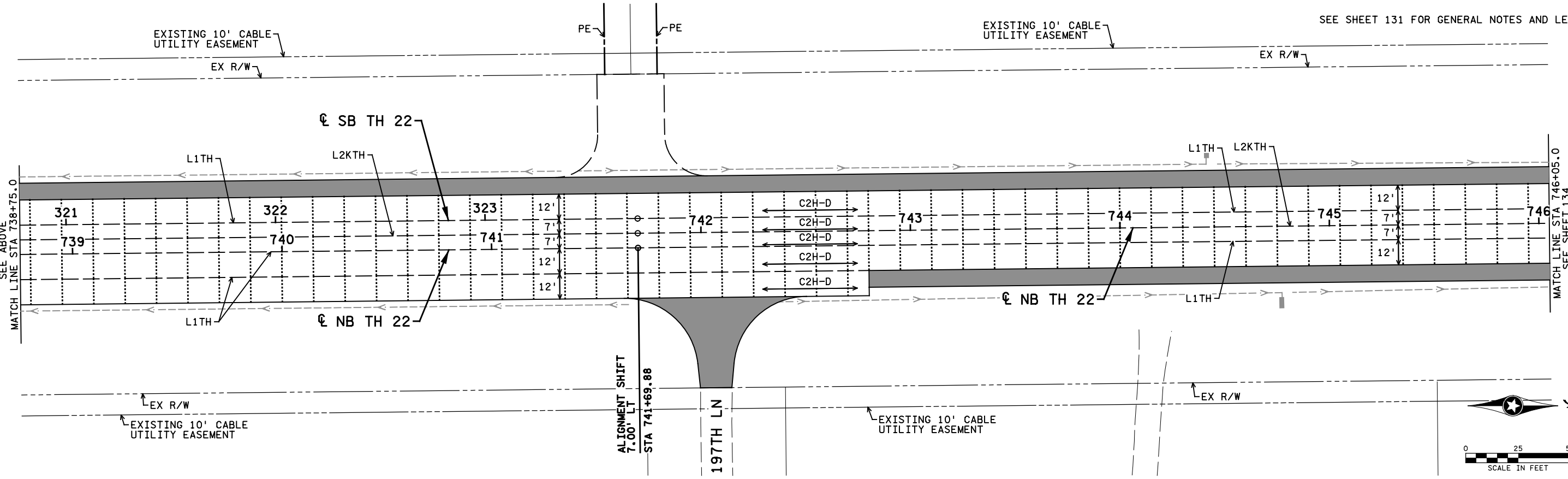
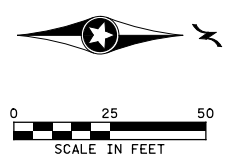
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 CONCRETE PAVEMENT PLANS
 TH 22 & CSAH 90

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NOTES:
 (C) PLACE 2 #4 X18" REINFORCEMENT BARS AT ENDS OF L1TH JOINTS (INCIDENTAL)



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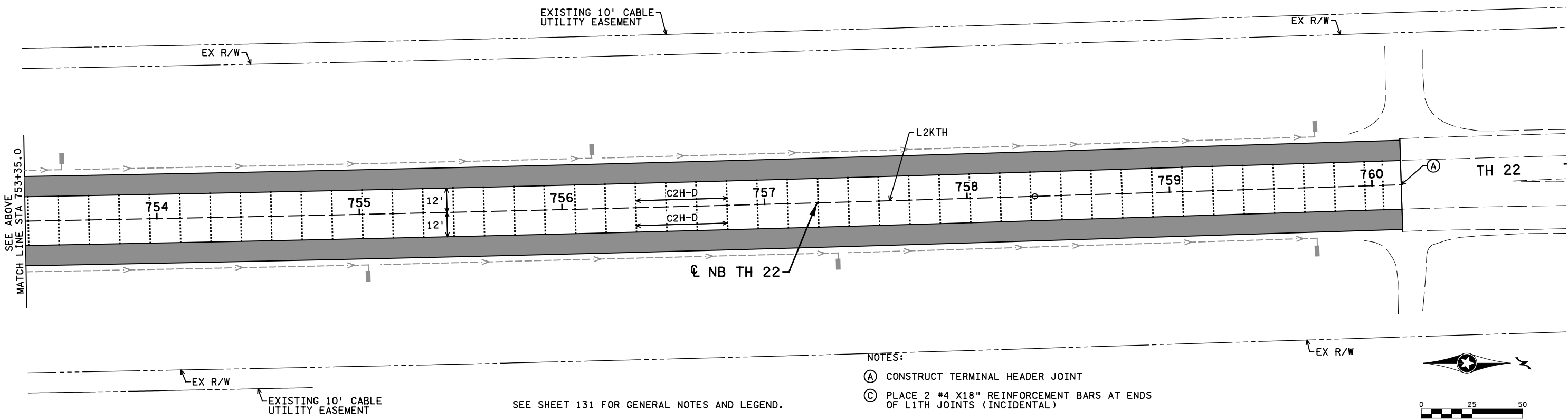
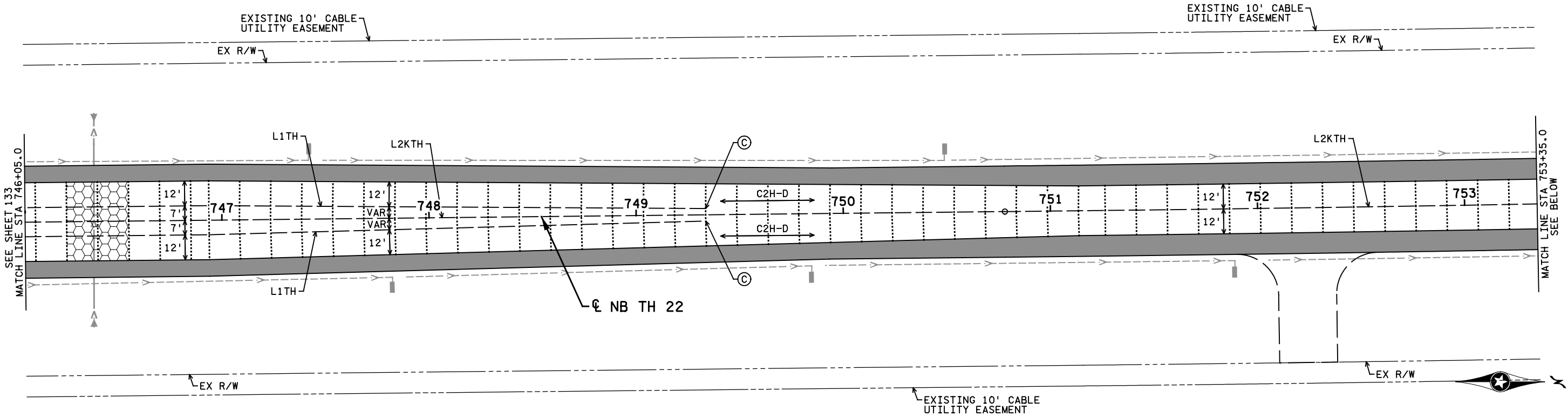
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 CONCRETE PAVEMENT PLANS
 TH 22 & CSAH 90

SHEET 133 OF 276



SEE SHEET 131 FOR GENERAL NOTES AND LEGEND.

- NOTES:
- (A) CONSTRUCT TERMINAL HEADER JOINT
 - (C) PLACE 2 #4 X18" REINFORCEMENT BARS AT ENDS OF L1TH JOINTS (INCIDENTAL)

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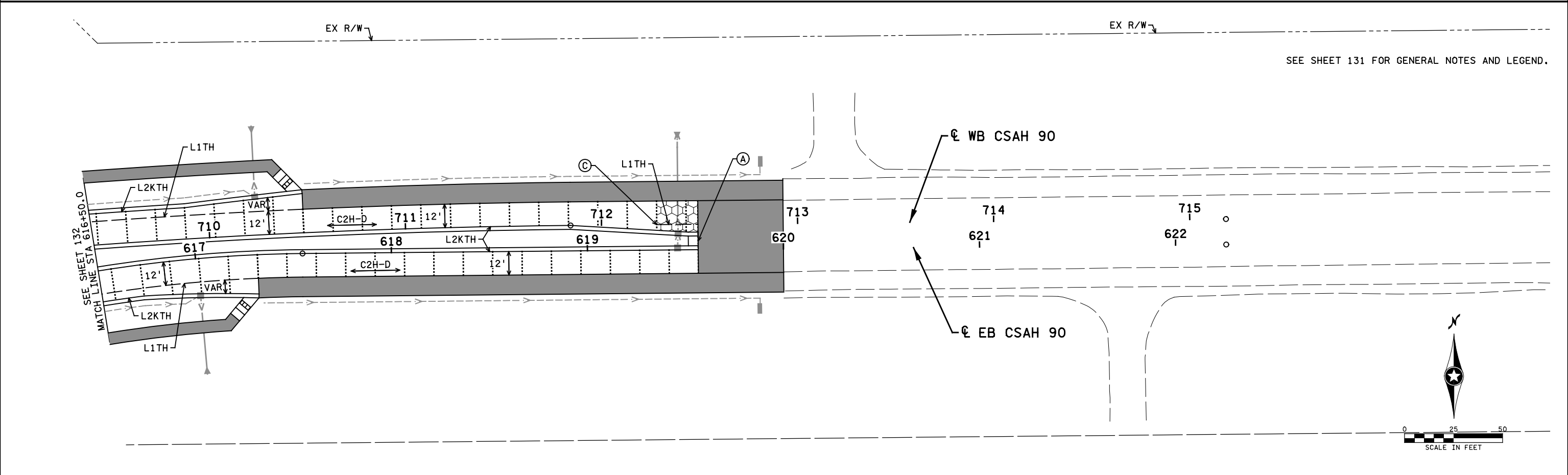
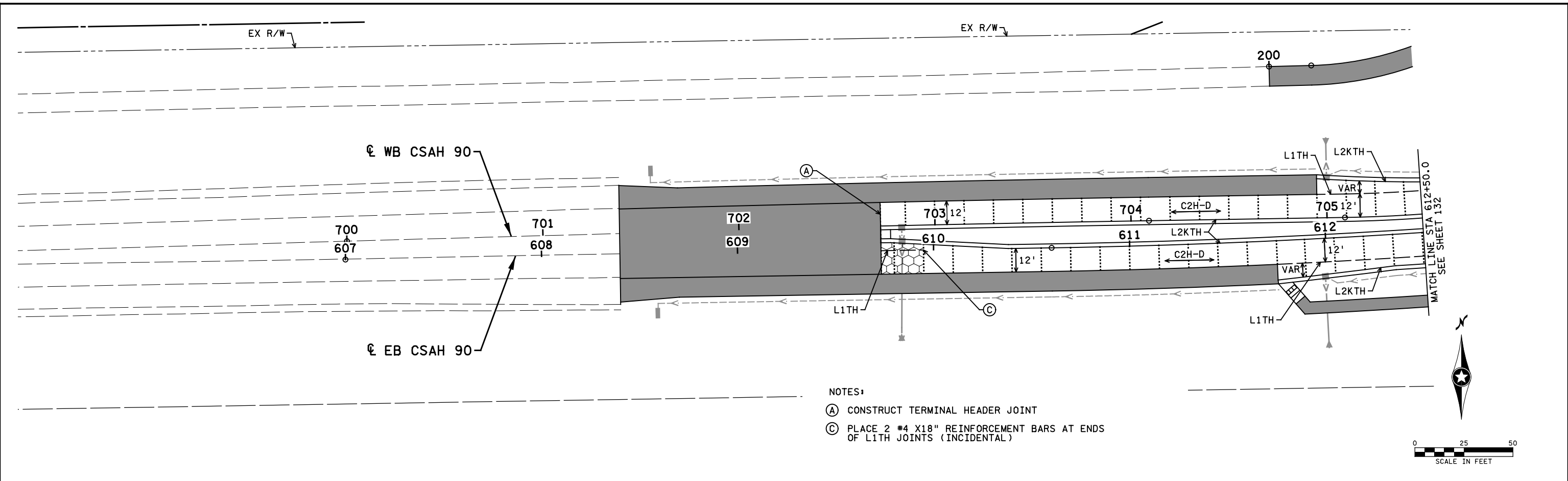


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CONCRETE PAVEMENT PLANS

TH 22 & CSAH 90

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P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321

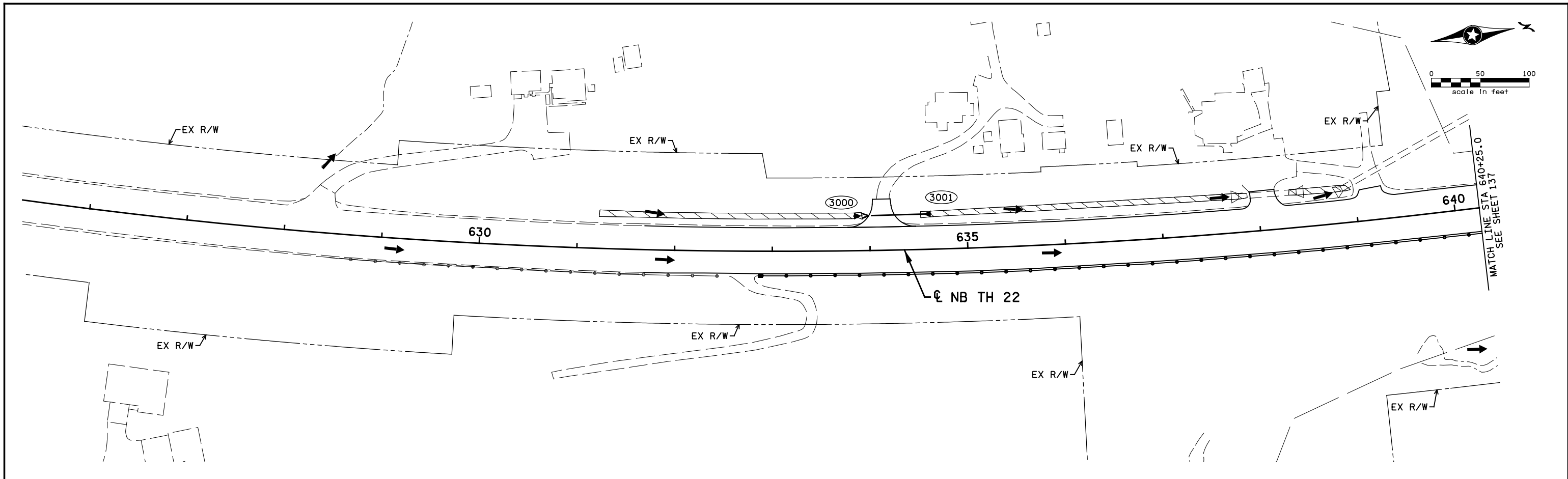


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CONCRETE PAVEMENT PLANS
TH 22 & CSAH 90

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LEGEND	
	PROPOSED STORM SEWER/PIPE CULVERT
	EXISTING STORM SEWER
	EXISTING PIPE CULVERT
	EXISTING BOX CULVERT
	PROPOSED CATCH BASIN
	PROPOSED DROP INLET
	EXISTING DROP INLET
	PROPOSED APRON
	EXISTING APRON
	PROPOSED MANHOLE
	SURFACE FLOW
	STORM SEWER STRUCTURE NO.
	BLANKET & SEED PER MNDOT STD. PLAN 5-297.404
	RIPRAP PER MNDOT STD. PLATE 3133D/3134D
	PROPOSED DITCH FLOW LINE
	PROPOSED SUBSURFACE DRAIN
	EXISTING SUBSURFACE DRAIN
	PROPOSED CLEAN OUT
	EXISTING CONCRETE FLUME
	PROPOSED DRAIN HEADWALL
	SUPERELEVATION TRANSITION FT/FT

GENERAL NOTES:

CROSS SLOPES ARE FT./FT.

SEE CONTOUR PLANS FOR PROPOSED AND EXISTING CONTOURS.

FOR SPECIAL DITCH GRADES, SEE PROFILE SHEETS, AND CROSS SECTIONS.

SUBSURFACE DRAINAGE IS DRAWN SCHEMATICALLY FOR CLARITY. SEE TYPICAL SECTIONS AND STD PLANS FOR INSTALLATION LOCATIONS.

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Print Name: ROBERT J. LEB

Date: _____ License # 41951

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 DESIGNED BY D. ANDERSON
 CHECKED BY B. LEB

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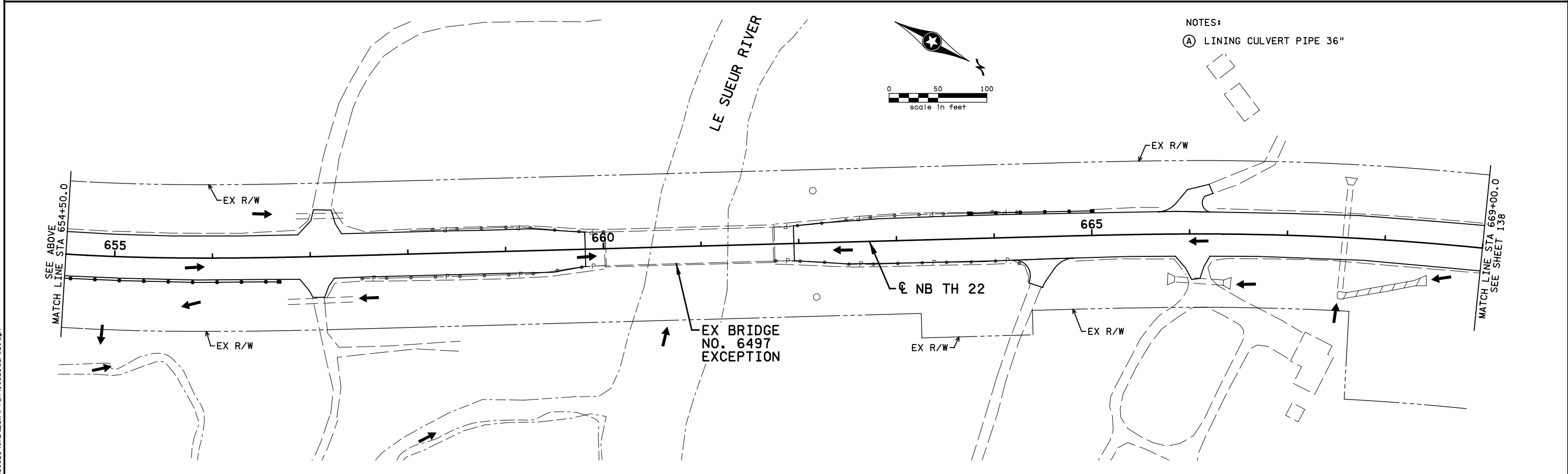
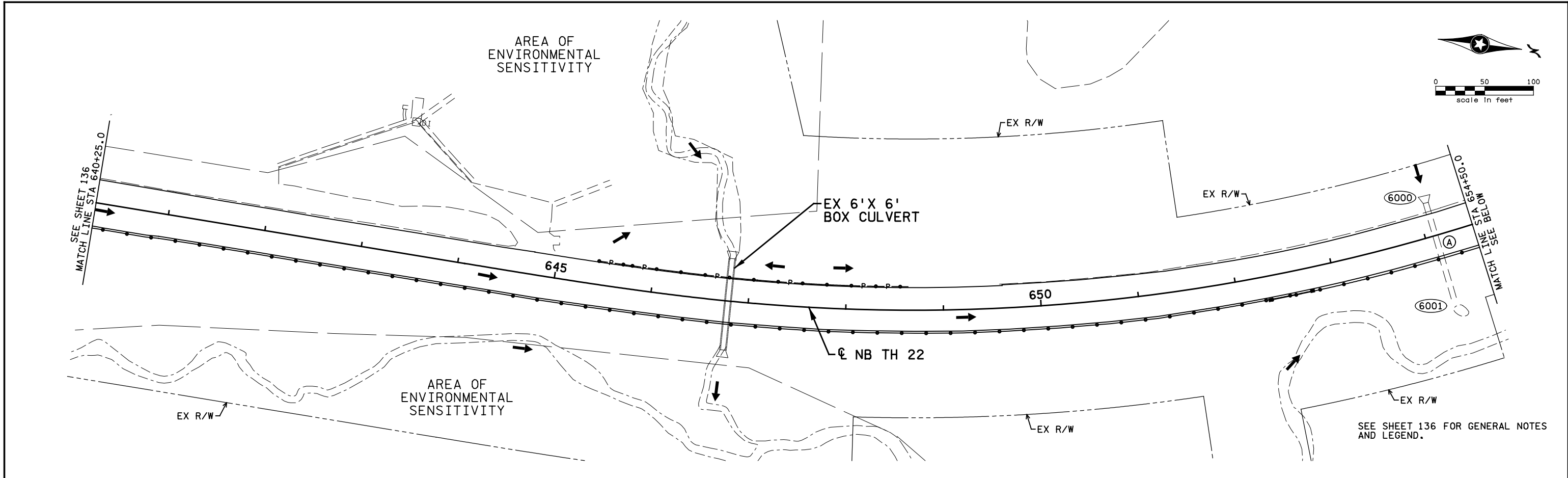
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DRAINAGE AND SUPERELEVATION PLANS

TH 22 & CSAH 90

SHEET 136 OF 276



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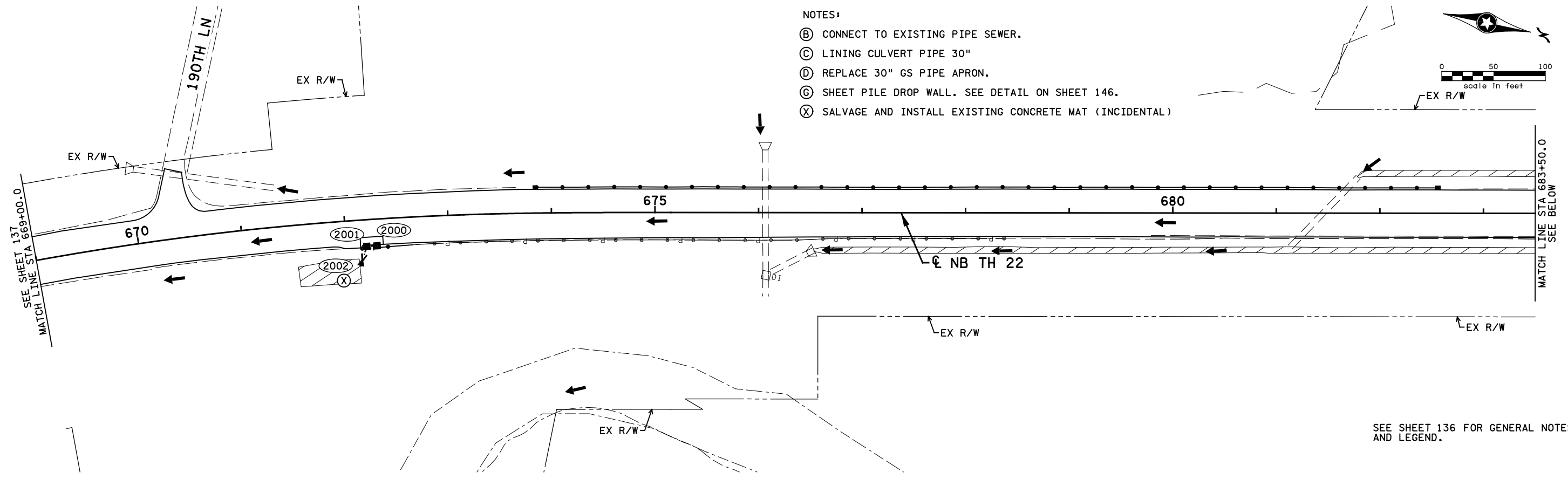
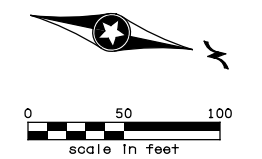
DRAINAGE AND SUPERELEVATION PLANS

TH 22 & CSAH 90

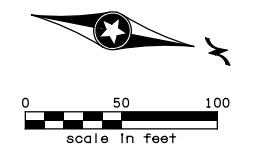
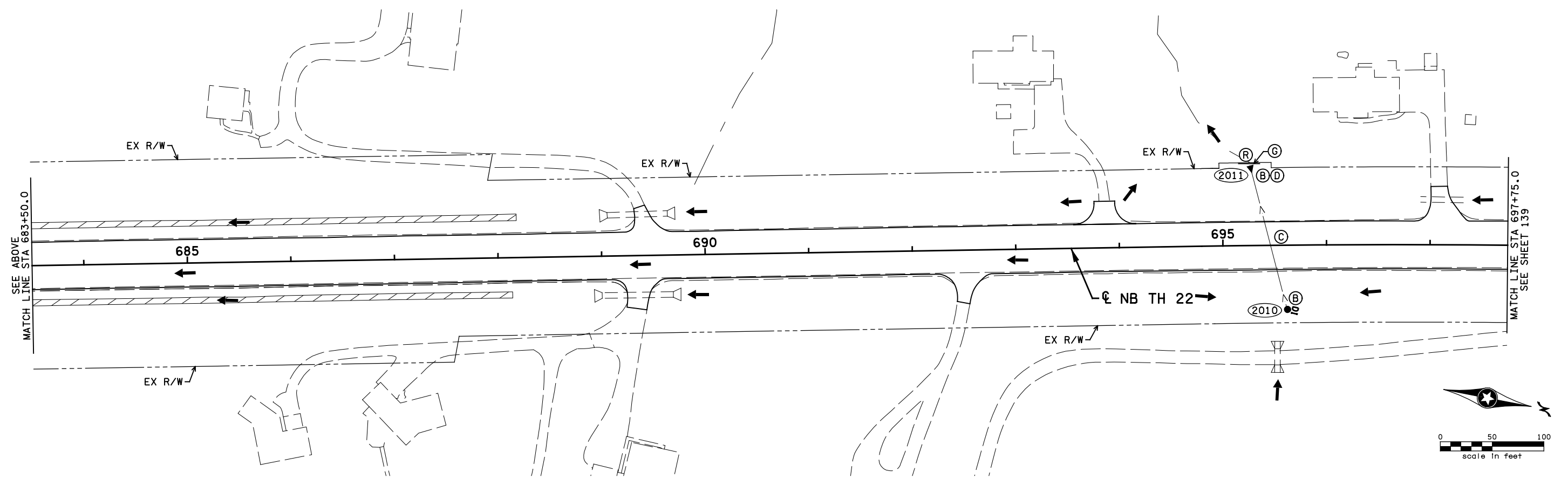
SHEET 137 OF 276

NOTES:

- (B) CONNECT TO EXISTING PIPE SEWER.
- (C) LINING CULVERT PIPE 30"
- (D) REPLACE 30" GS PIPE APRON.
- (G) SHEET PILE DROP WALL. SEE DETAIL ON SHEET 146.
- (X) SALVAGE AND INSTALL EXISTING CONCRETE MAT (INCIDENTAL)



SEE SHEET 136 FOR GENERAL NOTES AND LEGEND.



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D. ANDERSON

CHECKED BY
B. LEBA

COMM. NO. 01710321



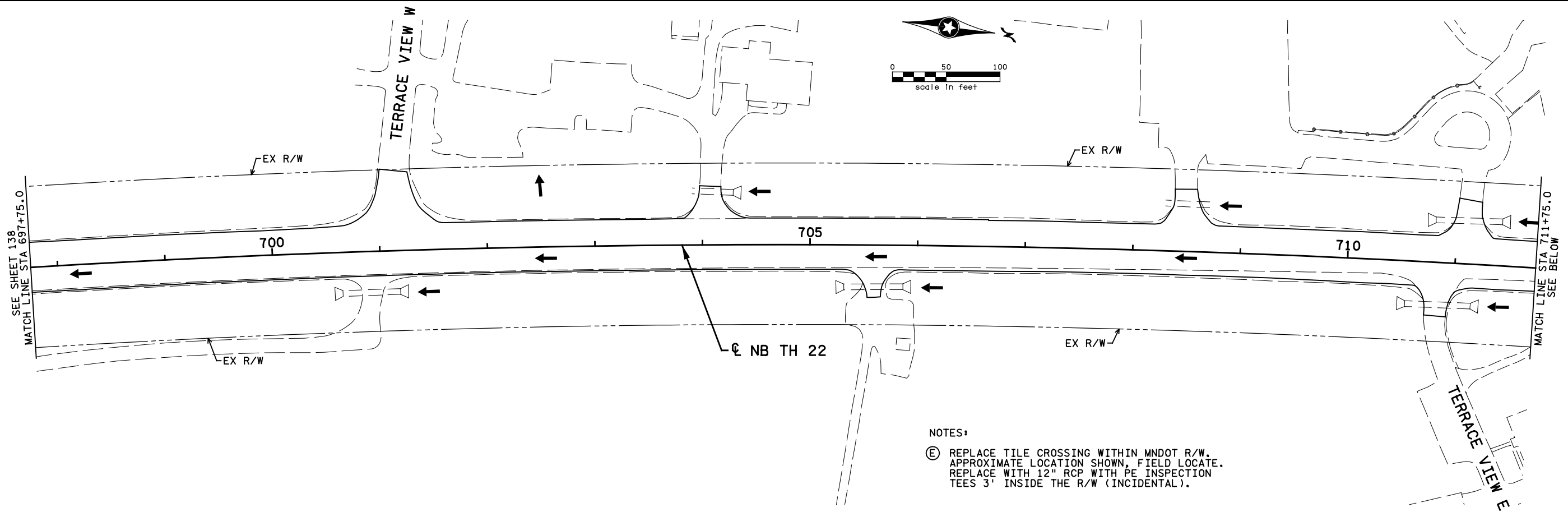
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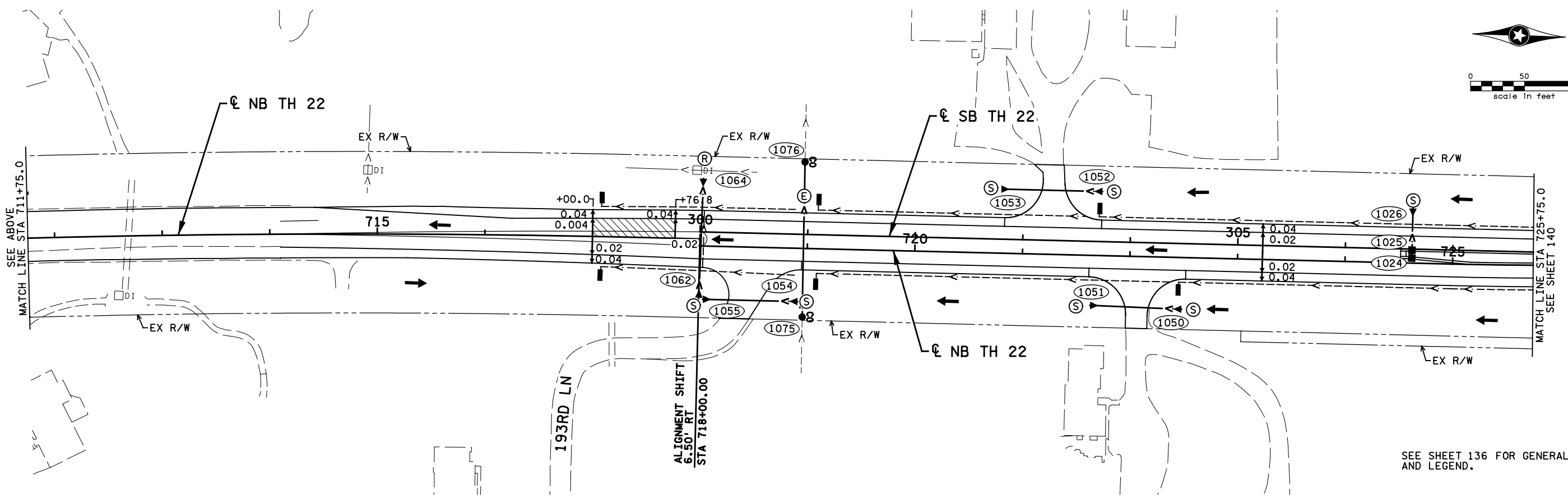
DRAINAGE AND SUPERELEVATION PLANS

TH 22 & CSAH 90

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NOTES:
 (E) REPLACE TILE CROSSING WITHIN MNDOT R/W. APPROXIMATE LOCATION SHOWN, FIELD LOCATE. REPLACE WITH 12" RCP WITH PE INSPECTION TEES 3' INSIDE THE R/W (INCIDENTAL).



SEE SHEET 136 FOR GENERAL NOTES AND LEGEND.

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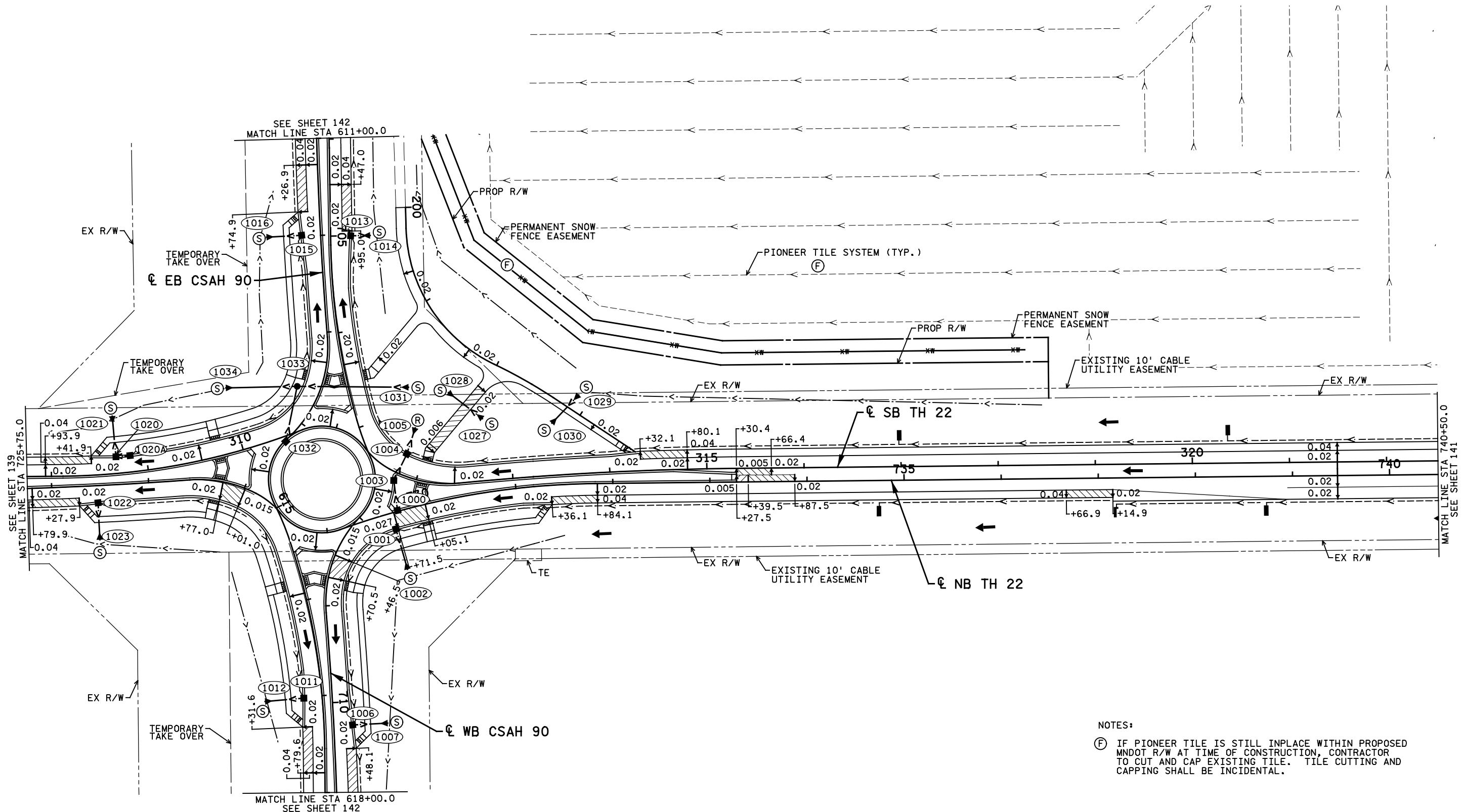
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 DRAINAGE AND SUPERELEVATION PLANS
 TH 22 & CSAH 90

SHEET
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NOTES:
 (F) IF PIONEER TILE IS STILL INPLACE WITHIN PROPOSED MNDOT R/W AT TIME OF CONSTRUCTION, CONTRACTOR TO CUT AND CAP EXISTING TILE. TILE CUTTING AND CAPPING SHALL BE INCIDENTAL.



SEE SHEET 136 FOR GENERAL NOTES AND LEGEND.

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 Date: _____ License # 41951

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

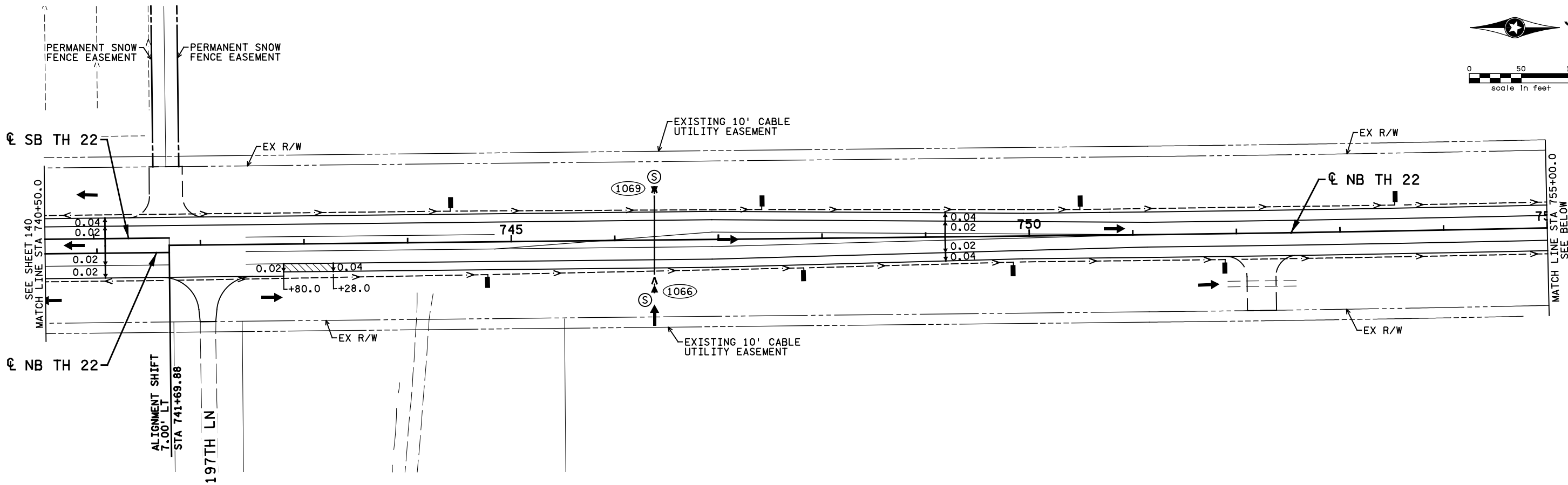
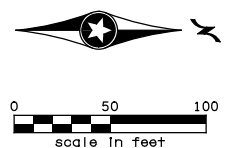
DRAWN BY S. MARTINS
 DESIGNED BY D. ANDERSON
 CHECKED BY B. LEBA
 COMM. NO. 01710321



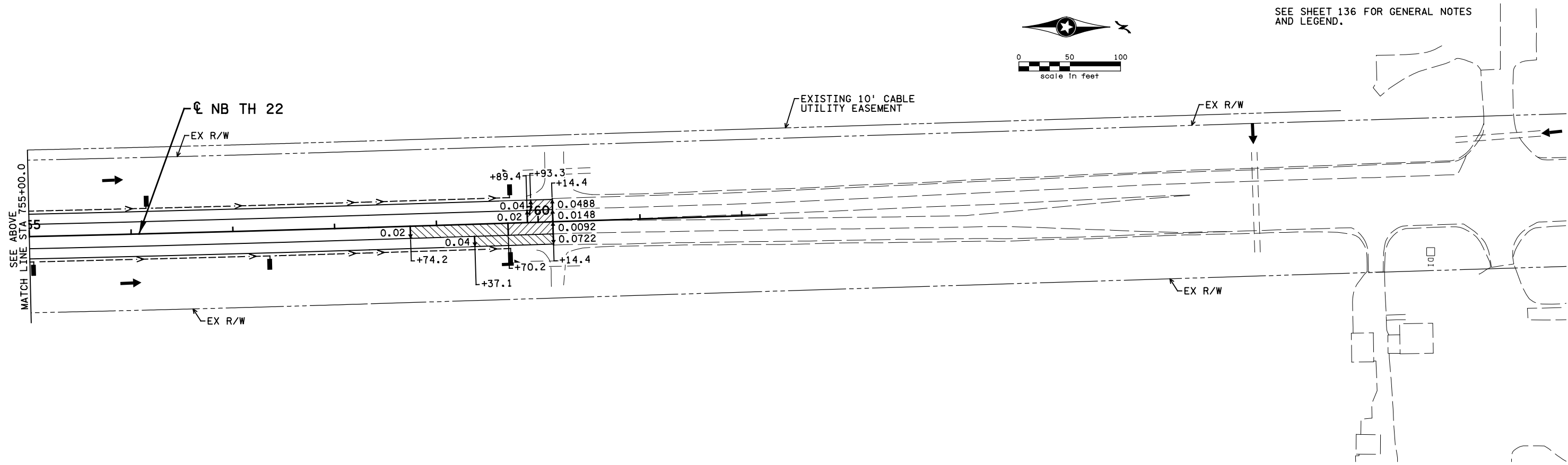
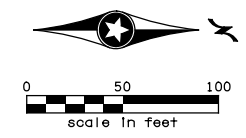
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 DRAINAGE AND SUPERELEVATION PLANS
 TH 22 & CSAH 90

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 140
 OF
 276



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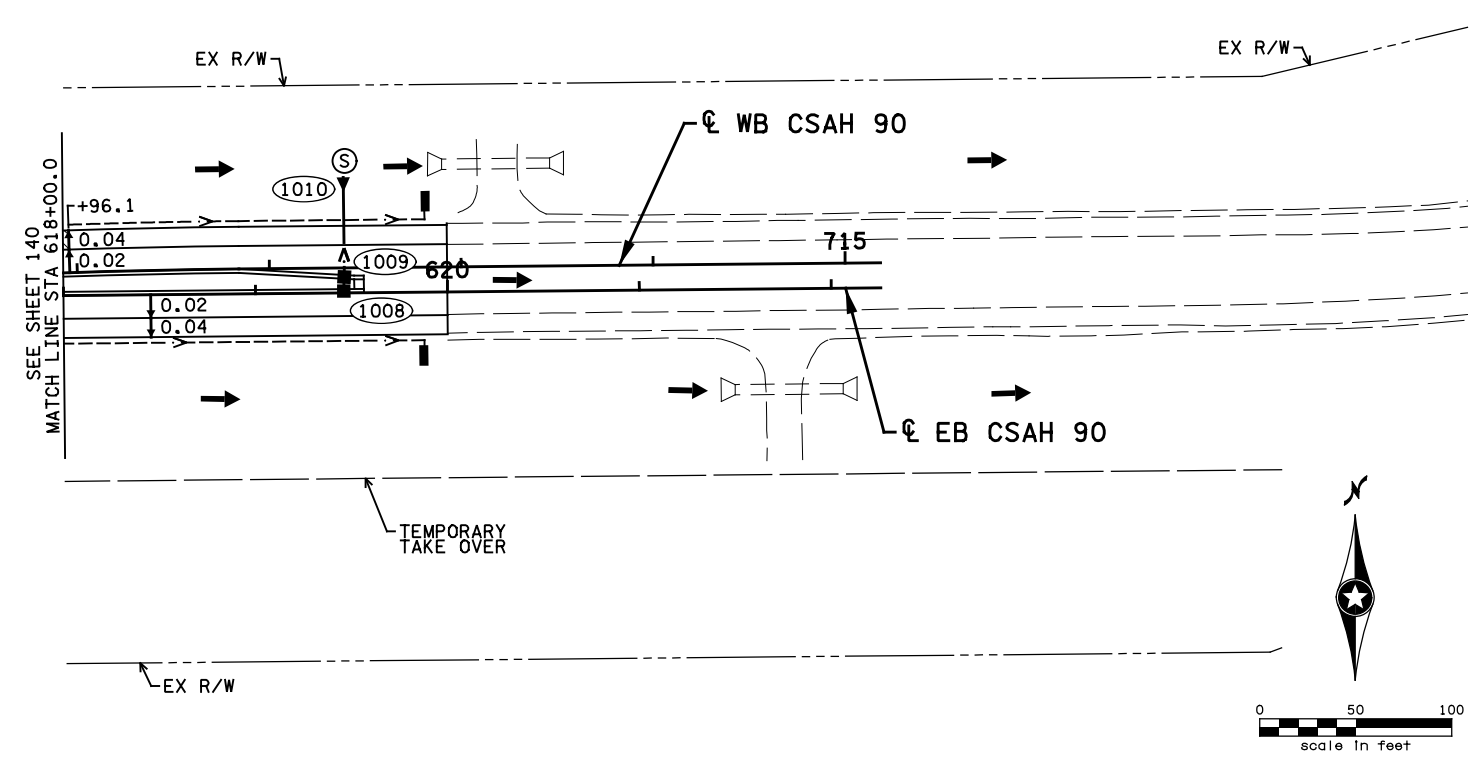
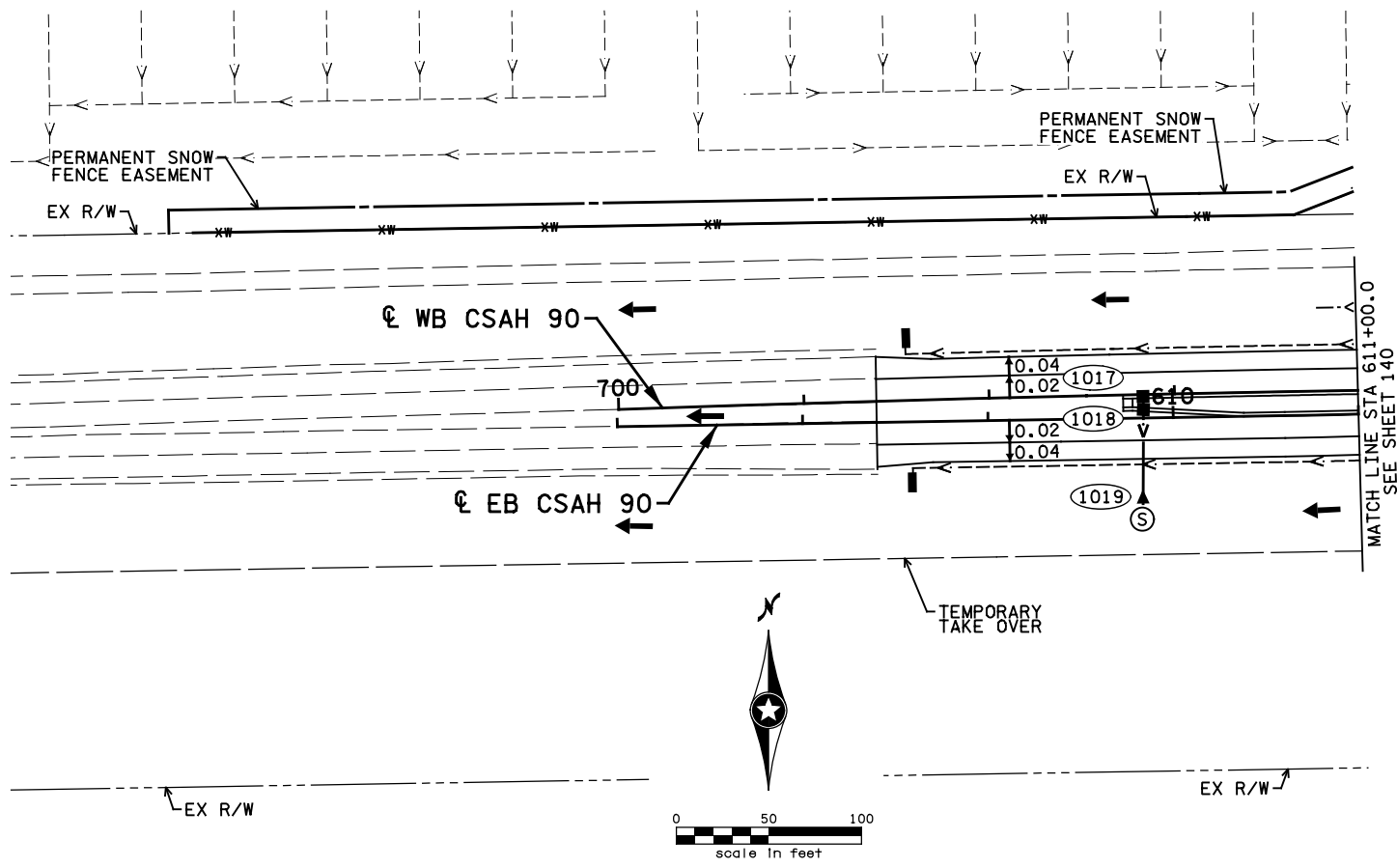
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 DRAINAGE AND SUPERELEVATION PLANS
 TH 22 & CSAH 90

SHEET 141 OF 276

SEE SHEET 136 FOR GENERAL NOTES AND LEGEND.



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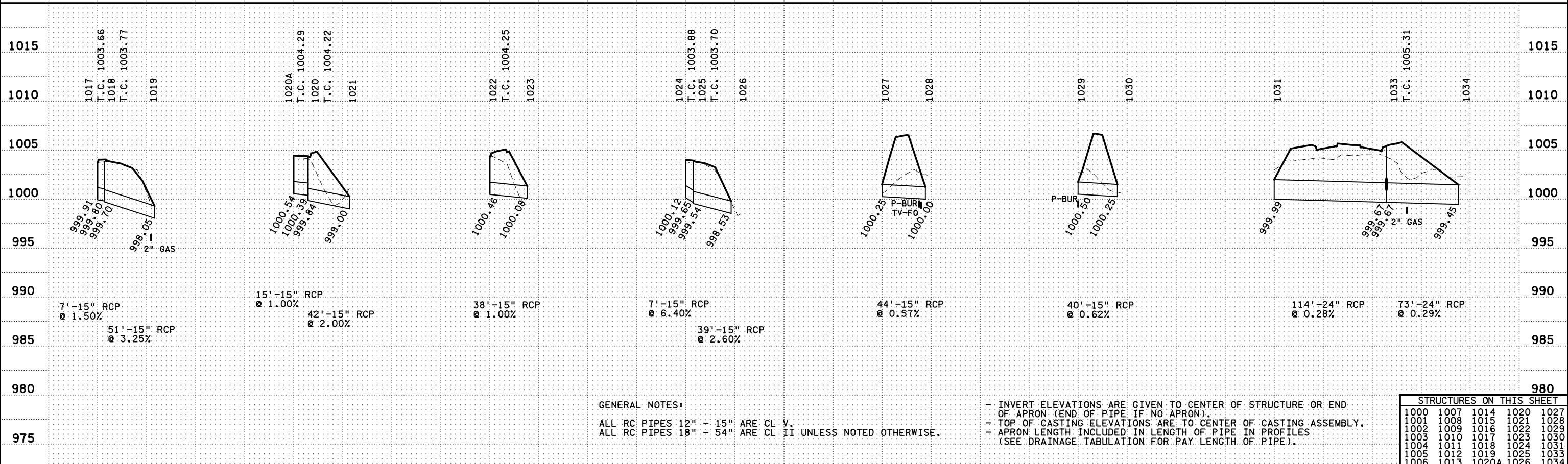
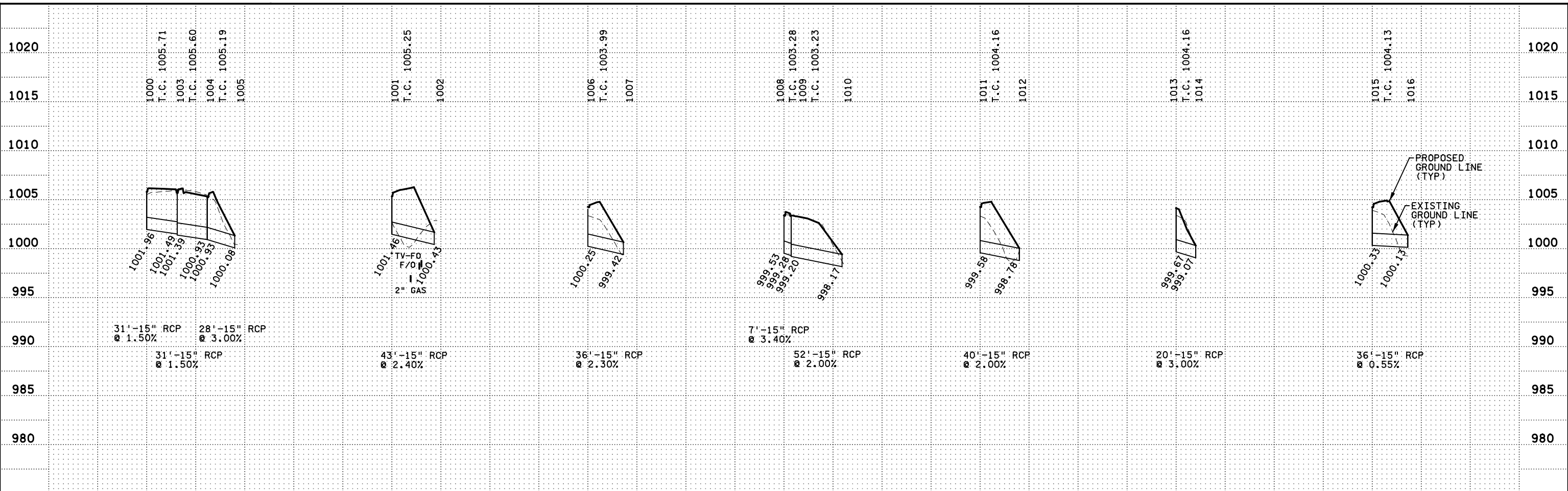
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 DRAINAGE AND SUPERELEVATION PLANS
 TH 22 & CSAH 90

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STRUCTURES ON THIS SHEET					
1000	1007	1014	1020	1027	
1001	1008	1015	1021	1028	
1002	1009	1016	1022	1029	
1003	1010	1017	1023	1030	
1004	1011	1018	1024	1031	
1005	1012	1019	1025	1033	
1006	1013	1020A	1026	1034	

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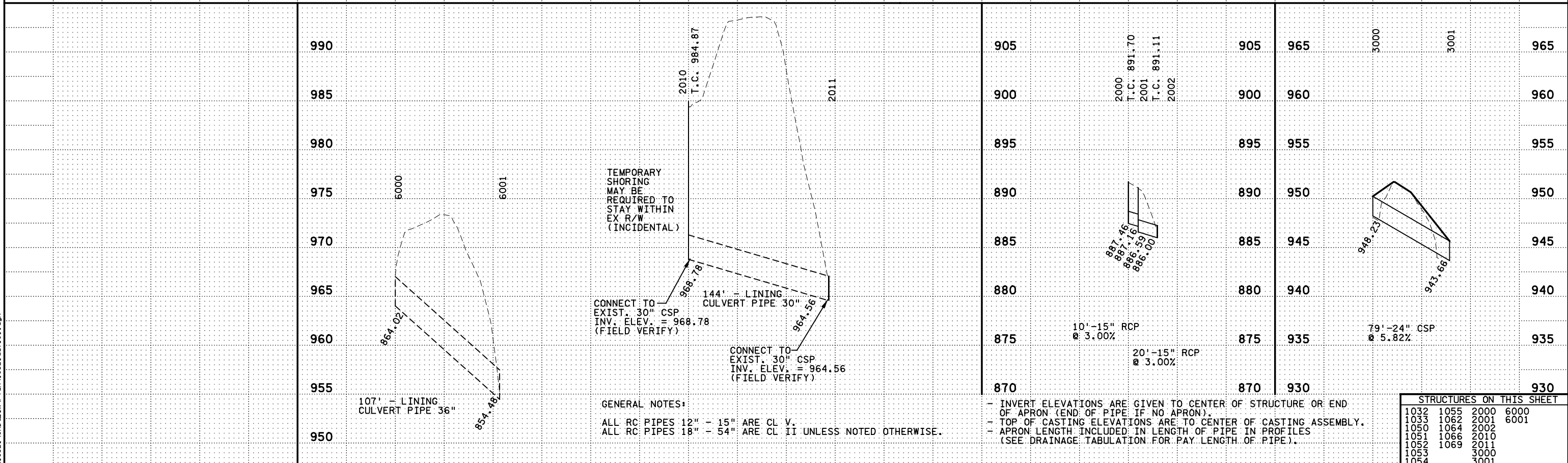
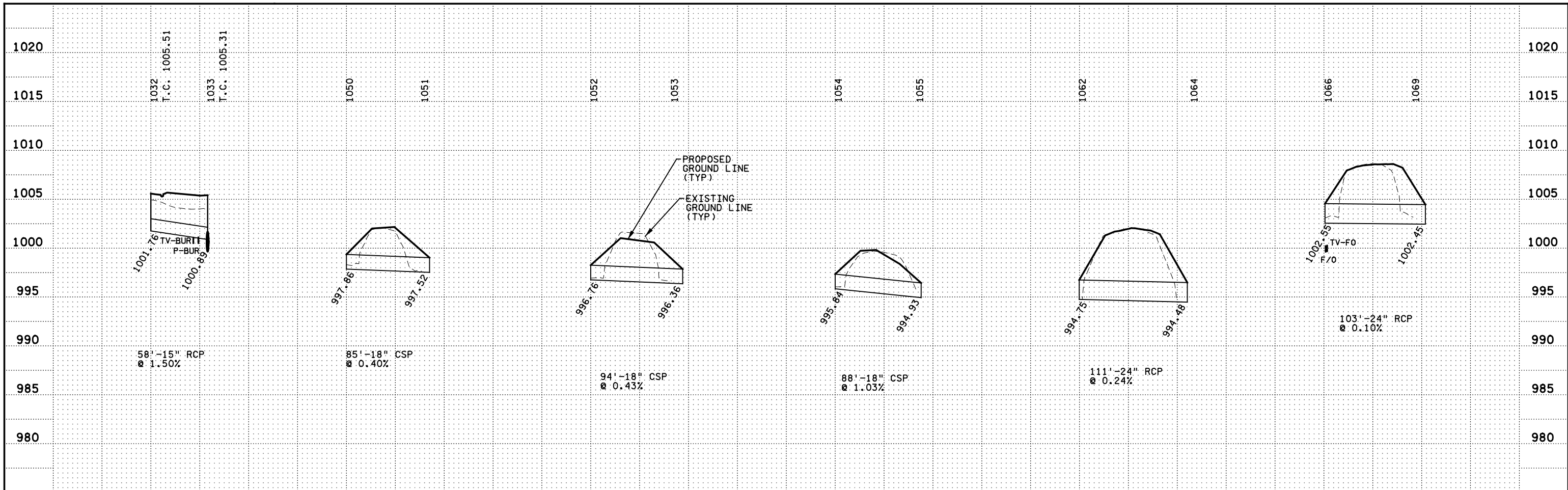
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MINNESOTA DEPARTMENT OF TRANSPORTATION
DRAINAGE PROFILES
TH 22 & CSAH 90
SHEET 143 OF 276



GENERAL NOTES:
 ALL RC PIPES 12" - 15" ARE CL V.
 ALL RC PIPES 18" - 54" ARE CL II UNLESS NOTED OTHERWISE.

- INVERT ELEVATIONS ARE GIVEN TO CENTER OF STRUCTURE OR END OF APRON (END OF PIPE IF NO APRON).
 - TOP OF CASTING ELEVATIONS ARE TO CENTER OF CASTING ASSEMBLY.
 - APRON LENGTH INCLUDED IN LENGTH OF PIPE IN PROFILES (SEE DRAINAGE TABULATION FOR PAY LENGTH OF PIPE).

STRUCTURES ON THIS SHEET			
1032	1055	2000	6000
1033	1062	2001	6001
1050	1064	2002	
1051	1066	2010	
1052	1069	2011	
1053		3000	
1054		3001	

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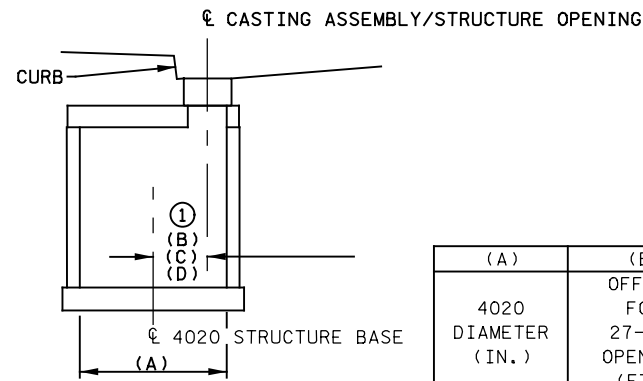
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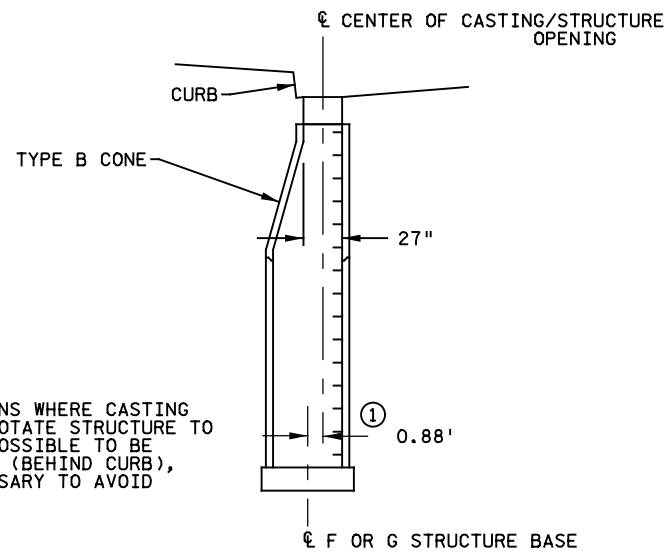
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 STATE PROJECT NO. 007-070-005
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(A)	(B)
4020 DIAMETER (IN.)	OFFSET FOR 27-IN. OPENING (FT.)
48	0.79
54	1.08
60	1.29
66	1.58
72	1.79
78	2.08
84	2.29
90	2.58
96	2.87
102	3.16
108	3.29
120	3.79

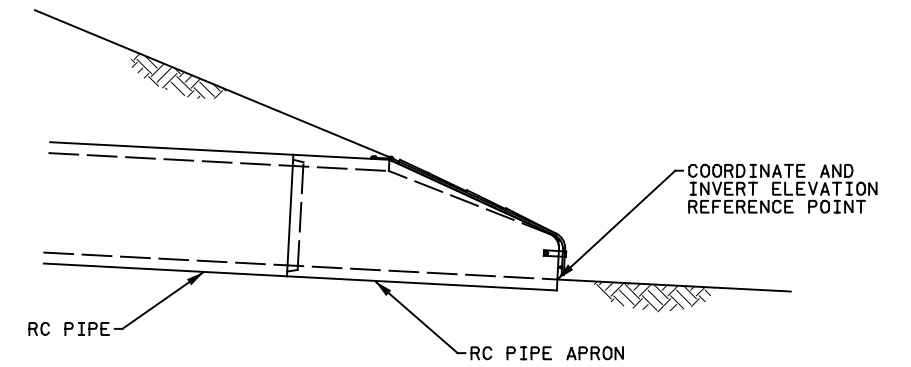
STAKING DETAIL: DESIGN XX-4020 OR SD-XX STRUCTURE
NOT TO SCALE



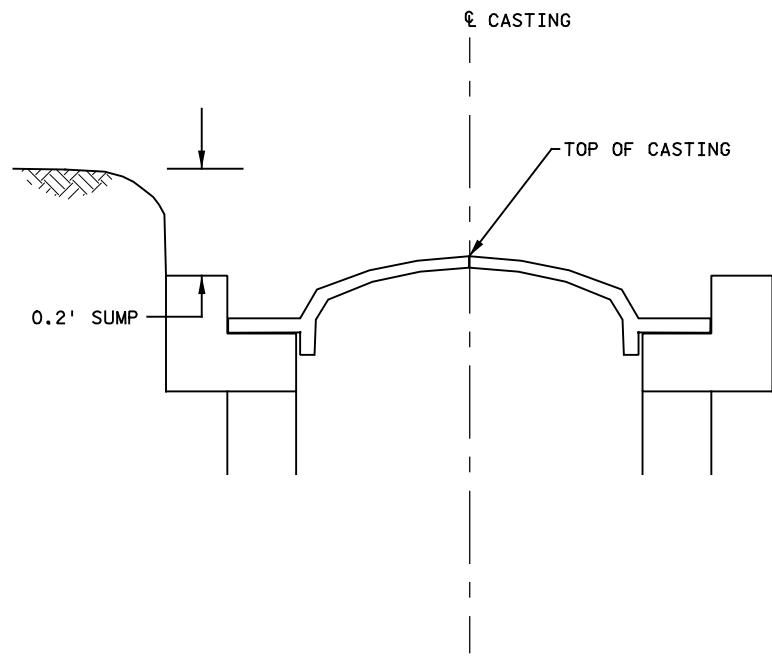
① NOTES:
IN TYPICAL LOCATIONS WHERE CASTING IS IN CURB LINE, ROTATE STRUCTURE TO ALLOW AS MUCH AS POSSIBLE TO BE OUTSIDE OF ROADWAY (BEHIND CURB), OR ROTATE AS NECESSARY TO AVOID CONFLICTS.

LOCATE CENTER OF STRUCTURE 0.88' FROM CENTER OF STRUCTURE OPENING.

STAKING DETAIL: F OR G STRUCTURE AT CURB AND GUTTER
NOT TO SCALE

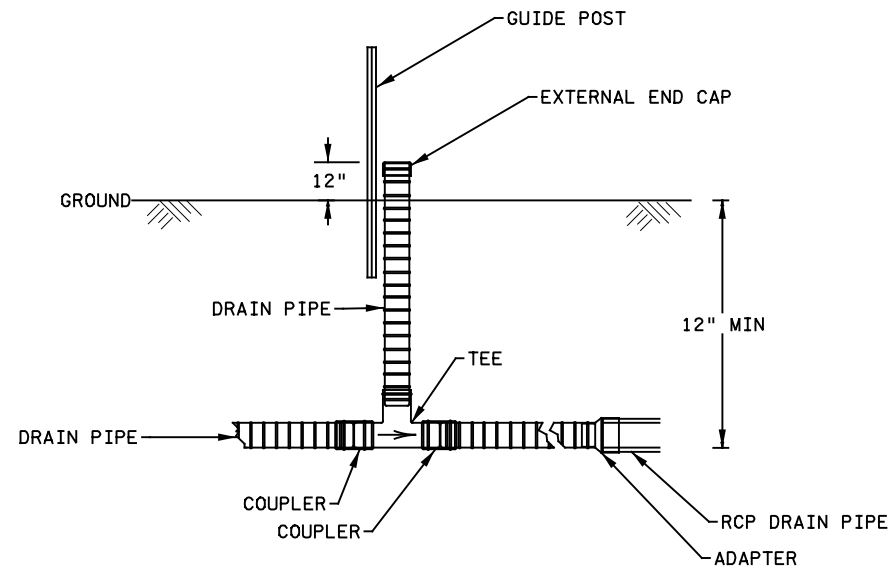


STAKING DETAIL: PIPE APRONS
NOT TO SCALE



STAKING DETAIL: CASTING ASSEMBLY M-11
NOT TO SCALE

NOTE: FITTINGS AND ADAPTERS ARE INCIDENTAL



PE INSPECTION TEE DETAIL
NOT TO SCALE

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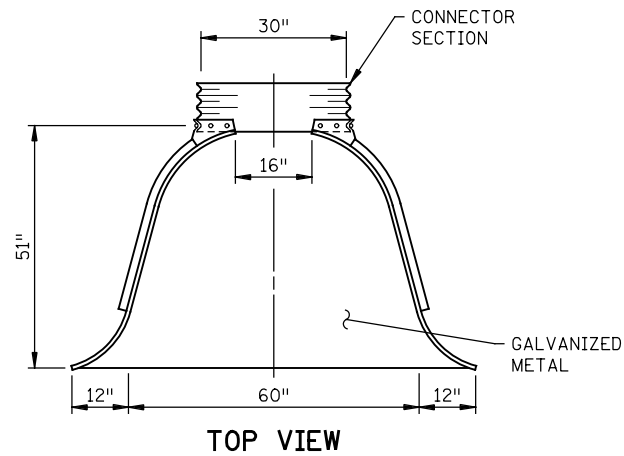
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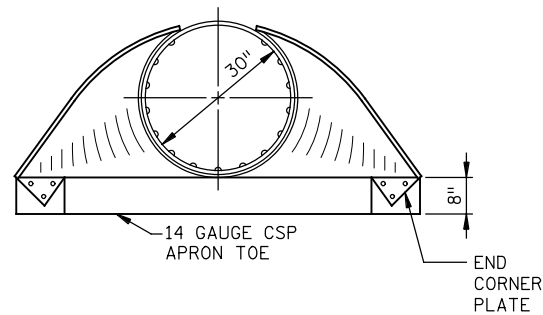
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DRAINAGE DETAILS
TH 22 & CSAH 90
STAKING DETAILS / INSPECTION TEE

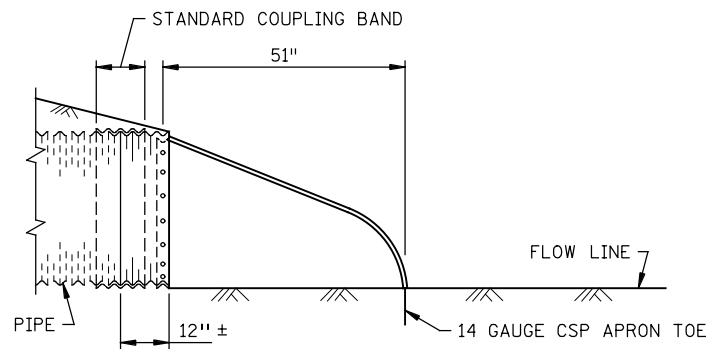
SHEET
145
OF
276



TOP VIEW

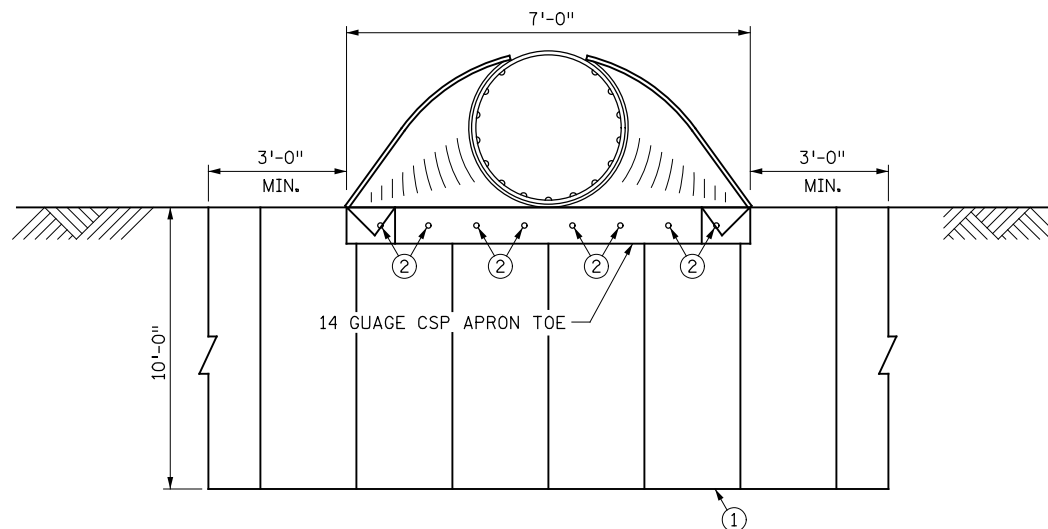


ELEVATION

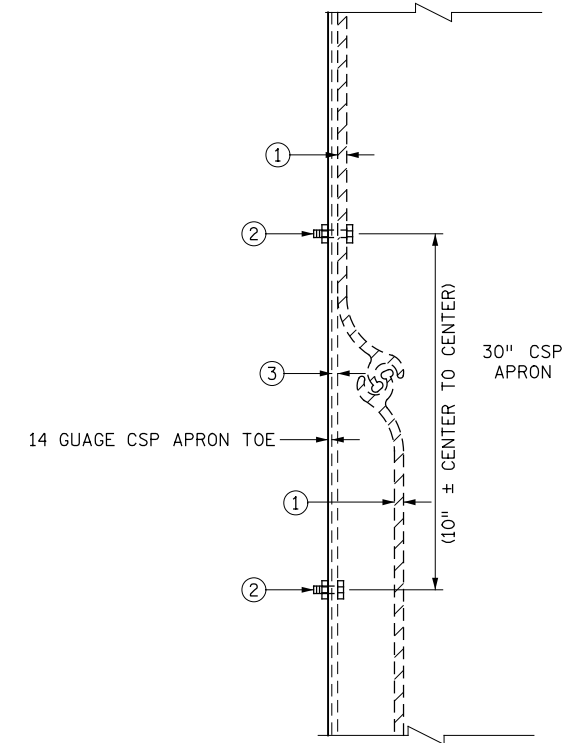


CROSS SECTION

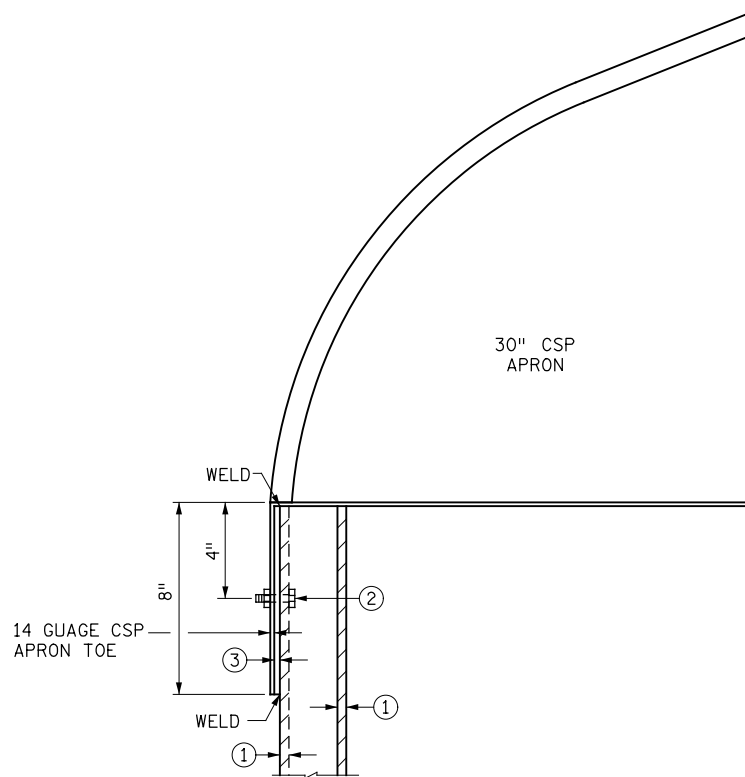
30" CSP APRON



END VIEW



PLAN



ELEVATION

30" CSP APRON CONNECTION TO SHEET PILE

CONSTRUCTION NOTES

GALVANIZE ALL FASTENERS AND ANCHORS PER SPEC. 3392.
SHEET PILE SHALL BE PAID FOR AS STEEL
SHEET PILING (PERMANENT) - LUMP SUM

- ① SHEET PILING, SECTION NO. PS-27.5 OR EQUAL.
- ② FASTEN THE SHEET PILE TO THE APRON TOE WITH $\frac{3}{8}$ " DIAMETER BY $1\frac{1}{2}$ " LONG BOLTS (10" \pm CENTER TO CENTER).
- ③ 7'-0" X 8" X $\frac{1}{4}$ " STEEL MOUNTING PLATE WELDED TO SHEET PILE (GALVANIZED). CONTRACTOR MAY BEND OR CUT PILE TO PILE CONNECTIONS TO CREATE FLAT SURFACE FOR STEEL MOUNTING PLATE
- ④ ALL HARDWARE AND CONNECTIONS SHALL BE GALVANIZED AND INCIDENTAL.

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STATE PROJECT NO. 007-070-005

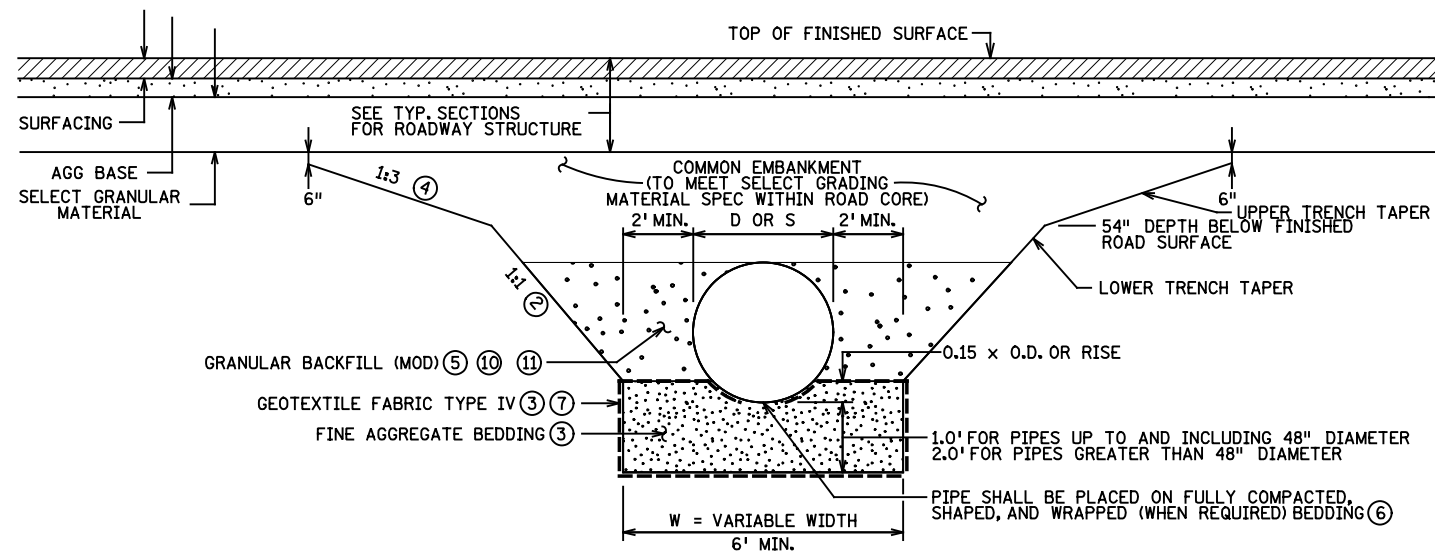
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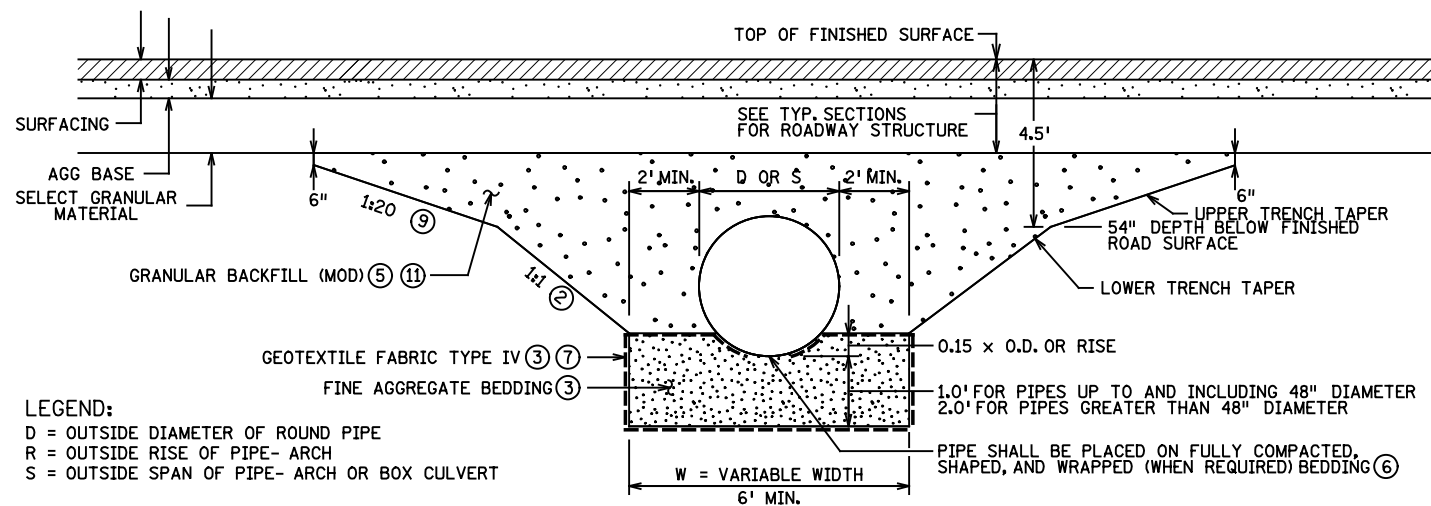
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DRAINAGE DETAILS
TH 22 & CSAH 90
SHEET PILE DROP WALL

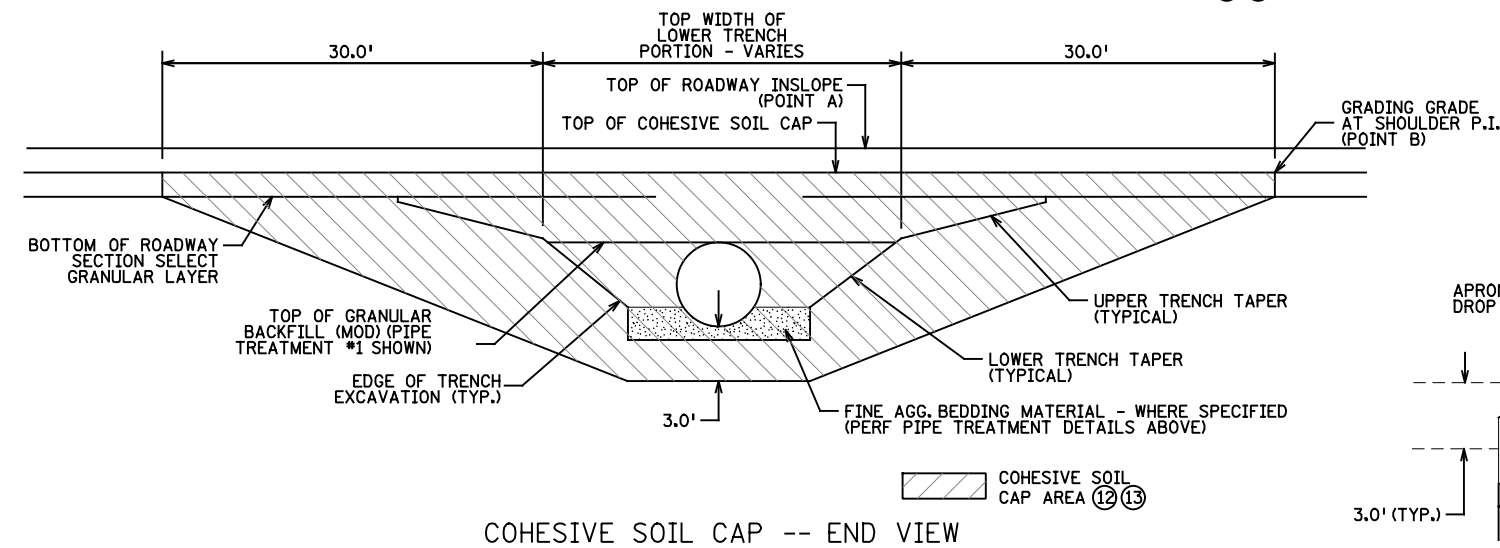
SHEET
146
OF
276



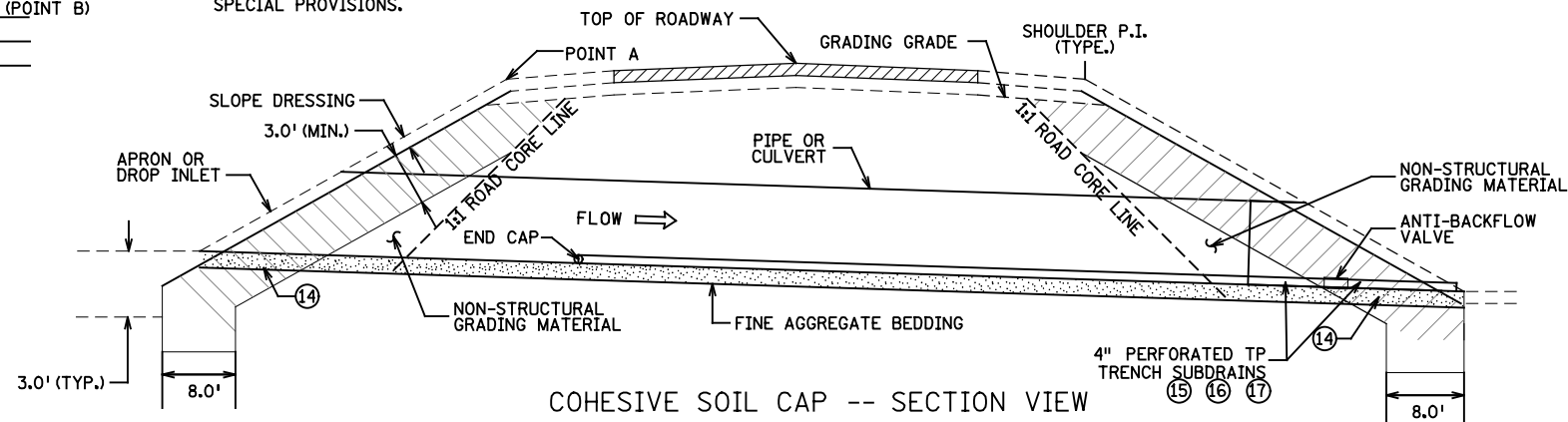
CULVERT PIPE TREATMENT #1 - FOR PIPE AND TILE UNDER PAVED ROADWAYS (TOP OF PIPE 54" OR MORE FROM TOP OF FINISHED HIGHWAY SURFACE) ① ⑧



CULVERT PIPE TREATMENT #2 - FOR PIPE AND TILE UNDER PAVED ROADWAYS (TOP OF PIPE LESS THAN 54" FROM TOP OF FINISHED HIGHWAY SURFACE) ① ⑧



COHESIVE SOIL CAP -- END VIEW



COHESIVE SOIL CAP -- SECTION VIEW

GENERAL NOTES:

- A. SPECIFICATION 2451 SHALL APPLY TO ALL PIPE TRENCHING, BEDDING AND BACKFILL CONSTRUCTION.
- B. AGGREGATE BEDDING PLACED BENEATH THE PIPE OR PIPE CULVERT SHALL EXTEND THROUGH THE DOWNSTREAM (OUTLET) COHESIVE SOIL CAP, BUT SHALL NOT EXTEND THROUGH THE UPSTREAM (INLET) COHESIVE SOIL CAP.
- C. PUMPING MAY BE REQUIRED IN SOME LOCATIONS TO FACILITATE PROPER FLOOD COMPACTION (INCIDENTAL).
- D. TRENCH BACKFILL COMPACTION REQUIREMENTS SHALL BE AS FOLLOWS:
 - FINE AGGREGATE BEDDING: PENETRATION INDEX METHOD (DCP)
 - COARSE AGGREGATE BEDDING (FOR WET CONDITIONS ONLY, WHERE APPROVED): COMPACT TO THE SATISFACTION OF THE ENGINEER, SEE NOTE 3.
 - GRANULAR BACKFILL (MOD): PER THE FLOOD COMPACTION SPEC. PROV.
 - COMMON EMBANKMENT WITHIN ROAD CORE SHALL MEET SELECT GRADING MATERIAL SPEC, SPECIFIED DENSITY (100% COMPACTION).
 - NON-STRUCTURAL GRADING MATERIAL (OUTSIDE ROAD CORE): SPECIFIED DENSITY (100% COMPACTION)

SPECIFIC NOTES:

- ① AS MEASURED AT THE MINIMUM ELEVATION DIFFERENCE LOCATION UNDER DRIVING SURFACE PAVEMENT.
- ② THE LOWER TRENCH TAPER RATE SHALL BE ADJUSTED (FLATTENED) AS NEEDED TO COMPLY WITH OSHA TRENCH STANDARDS FOR THE SOILS TYPES ENCOUNTERED.
- ③ IN LOCATIONS ABOVE THE WATER TABLE, THE PIPE BEDDING MATERIAL SHALL BE FINE AGGREGATE BEDDING (SPEC. 3149.2G.1) AND GEOTEXTILE WRAPPING WILL NOT BE REQUIRED. IN LOCATIONS AT OR BELOW THE WATER TABLE, THE CONTRACTOR MAY CHOOSE TO SUBSTITUTE COARSE AGGREGATE BEDDING (SPEC. 3149.2G.2) FOR THE FINE AGGREGATE BEDDING AT NO ADDITIONAL COST TO THE STATE. COARSE AGGREGATE BEDDING, IF UTILIZED, SHALL BE FULLY WRAPPED (INCLUDING ON THE ENDS) WITH GEOTEXTILE FABRIC TYPE IV (SPEC 3733) AS SHOWN AND THE FABRIC SHALL BE INCIDENTAL.
- ④ THE UPPER TRENCH TAPER RATE SHALL BE 1:3 FOR ALL TREATMENT #1 PIPE PLACEMENTS SINCE INPLACE MATERIAL MATCHES THE MATERIAL IN THE UPPER PORTION OF THE TRENCH BACKFILL. THE UPPER TRENCH TAPER SHALL END 6 INCHES BELOW THE BOTTOM OF THE ROADWAY SECTION SELECT GRANULAR MATERIAL AS SHOWN.
- ⑤ THE GRANULAR BACKFILL (MOD.) MATERIAL SHALL BE PLACED AND THEN COMPACTED USING THE FLOOD COMPACTION PROCEDURE SPECIFIED IN THE SPECIAL PROVISIONS. SATURATION AND COMPACTION IS REQUIRED FOR EACH LIFT (2.0' MAXIMUM LIFT THICKNESS). MECHANICAL COMPACTION PRIOR TO FLOOD COMPACTION WILL NOT BE ALLOWED.
- ⑥ THE ENTIRE PIPE TRENCH SHALL BE PREPARED (INCLUDING PLACEMENT, COMPACTION AND SHAPING OF BEDDING WITH A TEMPLATE OR OTHER METHOD ACCEPTABLE TO THE ENGINEER) PRIOR TO THE PLACEMENT OF ANY PORTION OF THE PIPE. THE PIPE SHALL THEN BE PLACED FROM END TO END IN A SINGLE OPERATION. PLACEMENT AND COMPACTION OF BEDDING JUST AHEAD OF THE PIPE, ONE SECTION AT A TIME, WILL NOT BE ALLOWED. EXCAVATION AND SHAPING OF THE BEDDING TO FIT THE BELL OF THE PIPE, JUST AHEAD OF PIPE PLACEMENT, WILL BE ALLOWED.
- ⑦ THE CONTRACTOR SHALL PROVIDE A MINIMUM GEOTEXTILE FABRIC TYPE IV OVERLAP OF 24 INCHES ON ANY ALLOWED UNSEAMED FABRIC JOINTS, INCLUDING BENEATH THE PIPE (IF UTILIZED).
- ⑧ ALL EXCAVATION REQUIRED TO PLACE THE PIPE, PIPE CULVERT, AGGREGATE BEDDING, AND COHESIVE SOIL CAPS, IS INCIDENTAL. ALL TRENCH BACKFILL MATERIALS OTHER THAN AGGREGATE BEDDING AND GRANULAR BACKFILL (MOD.) ARE INCIDENTAL.
- ⑨ THE UPPER TRENCH TAPER RATE SHALL BE 1:20 FOR ALL TREATMENT #2 PIPE PLACEMENTS SINCE GRANULAR BACKFILL (MOD.) MATERIAL WILL OVERLAY INPLACE MATERIAL. THE UPPER TRENCH TAPER SHALL END 6 INCHES BELOW THE BOTTOM OF THE ROADWAY SECTION SELECT GRANULAR MATERIAL AS SHOWN.
- ⑩ FLOOD COMPACTED GRANULAR BACKFILL (MOD.) MATERIAL SHALL BE PLACED AS TRENCH BACKFILL FROM THE TOP OF THE PIPE BEDDING MATERIAL THE CONTROLLING (HIGH) TOP OF PIPE ELEVATION AT THE ROAD CORE LINE FOR ALL TREATMENT #1 PIPES; AND TO THE BOTTOM OF THE ROADWAY SECTION SELECT GRANULAR MATERIAL LAYER FOR ALL TREATMENT #2 PIPES. NO COMPENSATION WILL BE PAID FOR FLOOD COMPACTED GRANULAR BACKFILL (MOD.) MATERIAL PLACED OUTSIDE OF THE ROAD CORE.
- ⑪ GRANULAR BACKFILL (MOD) SHALL MEET THE MATERIAL SPECIFICATIONS OF "SELECT GRANULAR BACKFILL" (STD. SPEC. 3149.2D.3).
- ⑫ A COHESIVE SOIL CAP SHALL BE CONSTRUCTED ON BOTH THE INLET AND OUTLET ENDS OF ALL PIPE INSTALLATIONS UNDER THE HIGHWAY OR PAVED ROADWAY WHERE ANY GRANULAR OR OTHER HIGHLY PERMEABLE MATERIALS HAVE BEEN UTILIZED IN THE TRENCH BACKFILL OR IN CONSTRUCTED SOIL EMBANKMENT ABOVE OR AROUND THE PIPE. THE COHESIVE SOIL CAP SHALL NOT BE LESS THAN 3" THICK IN ANY LOCATION, MEASURED PERPENDICULARLY IN FROM THE SLOPE (AND NOT INCLUDE RIPRAP OR SLOPE DRESSING), AND SHALL BE CONSTRUCTED TO FULLY OVERLAP ALL GRANULAR BACKFILL MATERIALS, WITH DIMENSIONS BEING AS SHOWN BELOW. VERTICALLY, THE COHESIVE SOIL CAP SHALL EXTEND FROM 3' BENEATH THE PIPE INVERT ELEVATION UP TO A MINIMUM HEIGHT OF THE GRADING GRADE AT THE SHOULDER P.I. (TOP OF THE ROADWAY INSLOPE), OR TO 5' ABOVE THE TOP OF THE FLOOD COMPACTED GRANULAR TRENCH BACKFILL MATERIALS, WHICHEVER IS LOWER.
- ⑬ MATERIAL USED IN COHESIVE SOIL CAPS SHALL BE ANY SUITABLE GRADING MATERIAL THAT HAS A MINIMUM OF 50% PASSING THE #200 SIEVE AND CONTAINS NOT LESS THAN 20% CLAY-SIZED PARTICLES (0.002 MILLIMETERS OR LESS). COHESIVE SOIL CAPS ARE CONSIDERED COMMON EMBANKMENT.
- ⑭ THE PIPE OR PIPE CULVERT AGGREGATE BEDDING MATERIAL SHALL EXTEND THROUGH THE COHESIVE SOIL CAP ON THE DOWNSTREAM (OUTLET) END, BUT SHALL NOT EXTEND THROUGH THE COHESIVE SOIL CAP ON THE UPSTREAM (INLET) END. ANY PERMEABLE PIPE BEDDING MATERIALS, SUCH AS COARSE AGGREGATE BEDDING (IF UTILIZED), MUST BE FULLY WRAPPED ON ALL SIDES, INCLUDING ON THE ENDS, WITH TYPE IV GEOTEXTILE FABRIC (INCIDENTAL).
- ⑮ THE 4" PERFORATED TP TRENCH SUBDRAINS SHALL EXTEND TO WITHIN 10 FT OF THE UPSTREAM ROAD CORE LINE.
- ⑯ PROVIDE A MANUFACTURERS END CAP ON THE UPSTREAM END OF THE 4" PERFORATED TP TRENCH SUBDRAINS, AND A COMMERCIAL ANTI-BACKFLOW VALVE APPROXIMATELY 6' FROM THE DOWNSTREAM (OUTLET) END. ANTI-BACKFLOW VALVES TO BE PLACED SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. THE 4" PERFORATED TP TRENCH SUBDRAINS, END CAPS, ANTI-BACKFLOW VALVES, AND TYPE I GEOTEXTILE FABRIC WRAP ARE INCIDENTAL.
- ⑰ THE 4" PERFORATED TP TRENCH SUBDRAINS CAN BE OMITTED IN LOCATIONS WHERE THE CONTRACTOR ELECTS TO FURNISH GEOTEXTILE WRAPPED COARSE AGGREGATE BEDDING AS A "NO-COST" OPTION DUE TO WET CONDITIONS, AS PER NOTE 3 ABOVE AND THE FLOOD COMPACTION SPECIAL PROVISIONS.

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STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
DESIGNED BY D. ANDERSON
CHECKED BY B. LEBA
COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

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DRAINAGE DETAILS
TH 22 & CSAH 90
CULVERT TREATMENTS

SHEET 147 OF 276

FLOWS FROM	STORM SEWER DRAINAGE TABULATION																				S							
	STR. OR APRON INLET	STRUCTURE LOCATION			STR. OR APRON OUTLET	NEW STRUCTURE CONSTRUCTION				INVERT ELEV.	RC PIPE (DESIGN 3006)								EROSION CONTROL BLANKET AND SEED (C)	RIPRAP (B)			GUIDE POST TYPE B	NOTES				
						DESIGN	PAY HEIGHT LIN FT	CASTING ASSEMBLY TYPE	STEPS REQ'D (A)		TOP OF CASTING ELEV.	OUTLET	12" CLV		15" CLV		24" CLII								CLASS II	CLASS III	GEOTEXTILE FILTER TYPE IV	
POINT NO.	ALIGNMENT NAME	STATION	OFFSET FT	POINT NO.						L.F.	APR	L.F.	APR	L.F.	APR	L.F.	APR	L.F.	L.F.	SQ YD	CU YD	CU YD	SQ YD	EACH				
1000	NB TH 22	729+76.00	1.00 L	1003	G	3.7	S - 5	Y	1005.71	1001.49															(2)			
1001	NB TH 22	729+69.24	17.00 R	1002	G	3.7	S - 5	Y	1005.25	1000.43															(2)			
1002	NB TH 22	729+69.24	60.25 R		APRON																10			1	(D) (2)			
1003	ROUNDAABOUT	101+72.00	19.00 R	1004	G	4.1	S - 5	Y	1005.60	1000.93															(2)			
1004	SB TH 22	311+80.19	21.86 L	1005	G	4.2	S - 5	Y	1005.19	1000.08															(2)			
1005	SB TH 22	311+74.91	49.75 L		APRON																		3.4	18.0	1	(D) (2)		
1006	WB CSAH 90	710+24.00	19.40 L	1007	G	3.7	S - 5	Y	1003.99	999.42															(3)			
1007	WB CSAH 90	710+24.00	55.57 L		APRON																				(3)			
1008	EB CSAH 90	619+46.00	1.00 L	1009	G	3.7	S - 5	Y	1003.28	999.28															(3)			
1009	WB CSAH 90	712+39.00	4.66 R	1010	G	4.0	B - 9	Y	1003.23	998.17															(3)			
1010	WB CSAH 90	712+39.00	47.25 L		APRON																				(3)			
1011	EB CSAH 90	617+01.00	18.97 R	1012	G	4.5	S - 5	Y	1004.16	998.78															(3)			
1012	EB CSAH 90	617+01.00	59.04 R		APRON																				(3)			
1013	WB CSAH 90	705+00.00	20.61 L	1014	G	4.4	S - 5	Y	1004.16	999.07															(3)			
1014	WB CSAH 90	705+00.00	40.64 L		APRON																				(3)			
1015	EB CSAH 90	611+99.00	19.40 R	1016	G	3.7	S - 5	Y	1004.13	1000.13															(3)			
1016	EB CSAH 90	611+99.00	55.65 R		APRON																				(3)			
1017	WB CSAH 90	702+83.00	1.00 R	1018	G	3.7	S - 5	Y	1003.66	999.80															(3)			
1018	EB CSAH 90	609+84.00	4.61 L	1019	G	4.0	B - 9	Y	1003.77	998.05															(3)			
1019	EB CSAH 90	609+83.00	46.14 R		APRON																				(3)			
1020A	SB TH 22	308+83.00	17.00 L	1020	G	3.7	S - 5	Y	1004.29	1000.39															(2)			
1020	SB TH 22	308+68.00	17.27 L	1021	G	4.3	S - 5	Y	1004.22	999.00															(2)			
1021	SB TH 22	308+68.00	59.31 L		APRON																				(2)			
1022	NB TH 22	726+47.00	17.73 R	1023	G	3.7	S - 5	Y	1004.25	1000.08															(2)			
1023	NB TH 22	726+47.00	55.84 R		APRON																				(2)			
1024	NB TH 22	724+62.00	4.64 L	1025	G	3.7	B - 9	Y	1003.88	999.65															(2)			
1025	SB TH 22	306+62.00	1.00 R	1026	G	4.1	S - 5	Y	1003.70	998.53															(2)			
1026	SB TH 22	306+62.00	37.71 L		APRON																				(2)			
1031	SB TH 22	311+26.41	75.21 L	1033	APRON					999.67															(3)			
1032	ROUNDAABOUT	103+01.00	1.00 L	1033	G	3.7	S - 5	Y	1005.51	1000.89															(2)			
1033	SB TH 22	310+70.71	44.25 L	1034	60-4020	5.8	A - 7D	Y	1005.31	999.45															(3)			
1034	SB TH 22	310+00.46	66.22 L		APRON																				(2)			
1075	NB TH 22	718+97.00	66.74 R	1076	CO						150														(1)			
1076	SB TH 22	300+96.00	70.26 L		CO																				(1)			
2000	NB TH 22	672+30.00	25.80 R	2001	G	4.2	D - 4	Y	891.70	887.16															(1)			
2001	NB TH 22	672+20.00	25.80 R	2002	G	4.4	D - 4	Y	891.11	886.00															(1)			
2002	NB TH 22	672+12.80	44.18 R		APRON																				(1)			
STORM SEWER SUBTOTAL THIS SHEET											150	539	12	175	2							133	3.4		18.0	16		
SP 0704-108 (NHPP (OTHER)) DRAINAGE SUBTOTAL THIS SHEET											150	24	1														3	
SP 0704-108 (HSIP (RAB)) DRAINAGE SUBTOTAL THIS SHEET												302	5		1								58	3.4		18.0	6	
SP 007-070-005 (HSIP (RAB)) DRAINAGE SUBTOTAL THIS SHEET												213	6	175	1								75				7	

GENERAL NOTES:

STA., OFFSETS, AND COORDINATES ARE GIVEN TO THE END OF APRON OR CENTER OF CASTING ASSEMBLY
CASTING SUMP = 0.10 FT FOR CATCH BASIN CASTINGS, AND 0.20 FT FOR DROP INLET CASTINGS. SUMP HAS
BEEN INCLUDED IN TOP OF CASTING ELEVATIONS.
ROTATE STRUCTURES SUCH THAT MAJORITY OF STRUCTURE IS BEHIND CURB LINE UNLESS DIRECTED BY THE ENGINEER
OR ALTERNATE ROTATION IS REQUIRED TO AVOID CONFLICTS (SEE DRAINAGE DETAILS).
SEE 150 FOR CASTING KEY AND SUMMARY TABULATION.
SEE APPLICABLE MNDOT STANDARD PLATES FOR DETAILS OF DRAINAGE STRUCTURE DESIGN, EXCEPT AS NOTED BELOW.
ALL DESIGN F STRUCTURES SHALL UTILIZE A TYPE B CONE.

ITEMS IN EACH ROW ARE PAID UNDER THE SP AS INDICATED BY THE NOTES BELOW:

- (1) PAID FOR UNDER SP 0704-108 (NHPP (OTHER)) - 80% FEDERAL, 20% STATE
- (2) PAID FOR UNDER SP 0704-108 (HSIP (RAB)) - 90% FEDERAL, 10% STATE
- (3) PAID FOR UNDER SP 007-070-005 (HSIP (RAB)) - 90% FEDERAL, 10% LOCAL

- (A) STEPS REQUIRED WHEN DEPTH FROM TOP OF CASTING TO STRUCTURE INVERT IS GREATER THAN 3.5 FT.
- (B) RIPRAP QUANTITY ASSUMES RIPRAP UTILIZED UNDER APRONS (INSTEAD OF GRANULAR FILTER) UNLESS NOTED OTHERWISE. GRANULAR FILTER MAY BE SUBSTITUTED FOR THE RIPRAP UNDER THE APRON PER MNDOT STANDARD PLATE 3133. IF GRANULAR FILTER IS SUBSTITUTED IT SHALL BE PAID FOR AS RIPRAP OF THE CLASS INDICATED AT THAT LOCATION. GEOTEXTILE FILTER SHALL BE TYPE IV AT ALL RIPRAP LOCATIONS.
- (C) EROSION CONTROL BLANKET CATEGORY 3N (NATURAL NETTING) SHALL BE PLACED PER MNDOT STANDARD PLAN 5-297.404 WITH THE SEED MIX SHOWN IN THE EROSION CONTROL PLANS.
- (D) TIE ALL JOINTS PER STANDARD PLATE 3145 FOR CULVERTS AND LAST 3 JOINTS FOR STORM SEWER RUNS CONTAINING APRONS. TIED JOINTS SHALL BE INCIDENTAL. MODIFY STANDARD PLATE TO REQUIRE NUTS AND WASHER ON THE INSIDE OF ALL TIED PIPE 21" AND LARGER.
- (E) BUILD OVER EXISTING PIPE OR CONNECT TO EXISTING PIPE. PIPE TO PIPE CONNECTIONS SHALL BE MADE AT AN EXISTING PIPE JOINT. FIELD VERIFY LOCATION AND ELEVATION.
- (F) FURNISH AND INSTALL PILING AND CORRUGATED METAL END SECTION WITH APRON. SEE DRAINAGE DETAILS.
- (G) USE POSITIVE JOINTS ON ALL CORRUGATED STEEL PIPE.
- (J) FURNISH AND INSTALL 1:4 SAFETY APRON PER MNDOT STANDARD PLATE 3022 (OPTION 1 ASSUMED FOR LENGTH).
- (K) FURNISH AND INSTALL 1:6 SAFETY APRON PER MNDOT STANDARD PLATE 3148.
- (L) SEE DRAINAGE DETAILS FOR CULVERT BEDDING AND BACKFILL. USE CULVERT PIPE TREATMENT #2. FINE AGGREGATE BEDDING AND GEOTEXTILE FABRIC TYPE IV INCLUDED IN DRAINAGE TABULATION. GRANULAR BACKFILL (MOD) INCLUDED IN EARTHWORK SUMMARY
- (M) CONNECT TO EXISTING DRAINTILE WITH A PE INSPECTION TEE STRUCTURE. PE INSPECTION TEE AND CONNECTION SHALL BE INCIDENTAL. SEE DRAINAGE DETAILS
- (N) LINE CULVERT PIPE WITH A CIPP LINER. SEE SPECIAL PROVISIONS.

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NO	DATE	BY	CHKD	APPR	REVISION

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.
Print Name: ROBERT J. LEBA
Date: License # 41951

STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005
DRAWN BY S. MARTINS
DESIGNED BY D. ANDERSON
CHECKED BY B. LEBA
COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
DRAINAGE TABULATIONS
TH 22 & CSAH 90

SHEET
148
OF
276

CASTING ASSEMBLIES SUMMARY					R	
ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING (A)	CURB BOX	STANDARD PLATE NO.	QUANTITY (EACH)	REMARKS
A - 7D	700-7			4101	1	MANHOLE
		715		4110		
B - 9	805		N/A	4132	3	CATCH BASIN
		816		4154		
D - 4	805		N/A	4132	2	CATCH BASIN
		816		4154		
M - 11	ROUND CONC			4143	1	DROP INLET
		731		4143		
S - 5	805		N/A	4132	15	CATCH BASIN
		816		4154		
PROJECT TOTALS:					22	


NOTES:
(A) USE BENT BOLT WITH 816 GRATE.

DRAINAGE SUMMARY TABULATION						EE
SHEET	DRAINAGE STRUCTURE DESIGN			TRASH GUARD	CASTING	CONN. TO EX. STORM SEWER
	G L.F.	F L.F.	60-4020 L.F.	24" EACH		
SP 0704-108 (NHPP (OTHER)) - 80% FEDERAL, 20% STATE						
148	8.6				2	
149		16.1			1	2
SP 0704-108 (NHPP (OTHER)) DRAINAGE TOTAL	8.6	16.1			3	2
PAID FOR UNDER SP 0704-108 (HSIP (RAB)) - 90% FEDERAL, 10% STATE						
148	38.9				10	
149						
SP 0704-108 (HSIP (RAB)) DRAINAGE TOTAL	38.9				10	
PAID FOR UNDER SP 007-070-005 (HSIP (RAB)) - 90% FEDERAL, 10% LOCAL						
148	31.7		5.8		9	
149						
SP 007-070-005 (HSIP (RAB)) DRAINAGE TOTAL	31.7		5.8		9	

DRAINAGE SUMMARY TABULATION																			EE							
SHEET	RC PIPE (DESIGN 3006)			RC PIPE CULVERT (DESIGN 3006)		CS PIPE			LINING CULVERT PIPE		FINE AGGREGATE BEDDING	STEEL SHEET PILING (PERMANENT)	EROSION CONTROL	RIPRAP				GUIDE POST TYPE B	NOTES							
	12" CLV	15" CLV	24" CLII	15" CLV	24" CLII	18"	24"	30"	30"	36"				BLANKET AND SEED	CLASS II	CLASS III	GEOTEXTILE FILTER TYPE IV			EACH						
SP 0704-108 (NHPP (OTHER)) - 80% FEDERAL, 20% STATE																										
148	150		24	1															3							
149								180	4	243	6	65	2		1	144	107	73.1	1	154		13.9	43.2	14	(1) (2) (3)	
SP 0704-108 (NHPP (OTHER)) DRAINAGE TOTAL	150		24	1				180	4	243	6	65	2		1	144	107	73.1	1	154		13.9	43.2	17		
PAID FOR UNDER SP 0704-108 (HSIP (RAB)) - 90% FEDERAL, 10% STATE																										
148			302	5		1														58	3.4		18.0	6		
149							60	4												38				4		
SP 0704-108 (HSIP (RAB)) DRAINAGE TOTAL			302	5		1	60	4												96	3.4		18.0	10		
PAID FOR UNDER SP 007-070-005 (HSIP (RAB)) - 90% FEDERAL, 10% LOCAL																										
148			213	6	175	1																			7	
149																										
SP 007-070-005 (HSIP (RAB)) DRAINAGE TOTAL			213	6	175	1																			7	

NOTES:
(1) 24" CS PIPE APRON COLUMN INCLUDES 2-24"CS SAFETY APRONS
(2) 18" CS PIPE APRON COLUMN INCLUDES 6-18"CS SAFETY APRONS
(3) 24" RC PIPE CL II APRON COLUMN INCLUDES 4-24" RC SAFETY APRONS

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: <u>ROBERT J. LEBA</u> Date: _____ License # <u>41951</u>					STATE PROJECT NO. 0704-108 (TH 22) STATE PROJECT NO. 007-070-005	DRAWN BY S. MARTINS DESIGNED BY D. ANDERSON CHECKED BY B. LEBA COMM. NO. 01710321	 ENGINEERS PLANNERS DESIGNERS Consulting Group, Inc.	MINNESOTA DEPARTMENT OF TRANSPORTATION DRAINAGE TABULATIONS TH 22 & CSAH 90	SHEET 150 OF 276	
NO DATE BY CKD APPR REVISION ... \CAD_BIM\plan\10321_dsa03.dgn										

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

(NPDES PERMIT IS REQUIRED ON THIS PROJECT)

PROJECT NAME/LOCATION

S.P. 0704-108 is located on T.H. 22 from RP 46+00.100 to RP 48+00.339 in the county of Blue Earth, Mankato, 56001.
Latitude: 44.1153 (north limit), 44.0831 (south limit) Longitude: -93.9589 (north limit), -93.9530 (south limit)

ENVIRONMENTAL REVIEW

The environmental review that was completed on 09/18/2017 was a categorical exclusion. 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 or Drinking Water Supply Management Area (DWSMA).

PROJECT DESCRIPTION/NARRATIVE

Grading, bituminous & concrete pavement, concrete curb & gutter, drainage, and lighting.

LONG TERM MAINTENANCE AND OPERATION

MnDOT District 7 maintenance staff are responsible for the long term maintenance and operation of the permanent stormwater system.
or
MnDOT has entered into a cooperative agreement with (city/county) that identifies the agency that is responsible for ongoing maintenance. See agreement number ###, on file with MnDOT, for more information.
No permanent stormwater treatment systems are required for this project.

PROJECT CONTACTS

The project engineer and contractor are responsible for implementation of the SWPPP and installation, inspection, and maintenance of the erosion prevention and sediment control BMPs before, during and after construction until the Notice of Termination (NOT) has been submitted with the Minnesota Pollution Control Agency (MPCA). MnDOT District 7 staff and members of MnDOT's Office of Environmental Stewardship are also available for technical assistance.

MnDOT District 7
Construction Engineer
Name
Phone
Address
email

MnDOT District 7
Maintenance Supervisor (owner)
Name
Phone
Address
email

Contractor is:
Co-Permitee

ORGANIZATION	CONTACT NAME	PHONE	PERMIT NO.
MnDOT District 7 Design	Andrew Lawver	507-304-6216	N/A
MnDOT District 7 Hydraulics	Jared DeMaster	507-304-6237	N/A
Construction Site Manager	Adam Schendel	507-304-6201	N/A
MnDOT Office of Environmental Stewardship	Kenneth Graeve	651-366-3613	N/A
MN Department of Natural Resources	Peter Leete	651-366-3634	N/A
Minnesota Pollution Control Agency	Brian Green	507-206-2610	XXXX
Army Corp of Engineers	Ben Orne	651-290-5358	XXXX
County Ag Inspector	Mike Samuelson	507-304-4025	N/A
SWPPP Designer	Robert Leba	763-475-0010	N/A

MPCA 24 HOUR EMERGENCY NOTIFICATION: 651-649-5451 TOLL FREE: 800-422-0798

EROSION CONTROL SUPERVISOR

In accordance with spec. 2573.3 A1 the contractor shall provide an Erosion Control Supervisor with a valid certification to direct the contractor and subcontractors operations and insure compliance with federal, state and local ordinances and regulations. The Erosion Control Supervisor will work with the project engineer to oversee the implementation of the SWPPP and the installation, inspection, and maintenance and repair of the erosion prevention and sediment control BMPs before, during and after construction until the NOT has been filed with the MPCA.

The Erosion Control Supervisor is responsible for complying with all the inspection and maintenance requirements stated in the NPDES permit. Inspections of the entire construction site will occur 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. The Erosion Control Supervisor will oversee inspection of all erosion prevention and sediment control BMPs to ensure integrity and effectiveness of each BMP. All inspections and maintenance conducted during construction must be recorded in writing (within 24 hrs.) and these records must become part of the SWPPP. Inspection reports must be submitted to the project engineer in a format that meets or exceeds the project engineer's expectations. Records of each inspection and maintenance activity shall include:

- A. Date and time of inspections;
- B. Name of persons conducting inspections;
- C. Findings of inspections, including specific locations 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;
- F. Photograph and description of discharge (i.e. color, odor, floating, settled or suspended solids, foam, oil sheen, etc.); and
- G. Documents and changes made to the SWPPP.

Rainfall amounts must be obtained by a properly maintained rain gage on site, a weather station within 1 mile of site, or a weather reporting system that provides site specific rainfall data from radar summaries.

LOCATION OF SWPPP REQUIREMENTS

The required SWPPP elements are located in several places within the plan set as well as in the special provisions and MnDOT spec book (2018 edition). Soils maps are on file at the MnDOT Mankato office. The notes and table below are a quick reference for the contractor and project engineer to use in the field. There may be additional required SWPPP elements included on the project that are not listed on this sheet.

SWPPP TRAINING

This SWPPP was prepared by MnDOT personnel certified, or under the supervision of someone certified, in the design of construction SWPPPs. Copies of the certifications are on file with MnDOT and are available upon request. The contractor is responsible for providing an erosion control supervisor with valid certification that is responsible for overseeing the implementation of the SWPPP. The contractor must provide proof of certification at the preconstruction meeting and will not be allowed to commence work until proof of certification has been provided to the project engineer.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	LOCATION
EROSION CONTROL SHEETS	SHEETS NO. 153 - 159
SNOW BASIN CONTOUR SHEETS	SHEETS NO. 208
DIRECTION OF FLOW	SHEETS NO. 136 - 142
FINAL STABILIZATION	SHEETS NO. 153 - 159
SOILS AND CONSTRUCTION NOTES	SHEETS NO. 8
DRAINAGE STRUCTURES	SHEETS NO. 136 - 142
DRAINAGE TABULATION	SHEETS NO. 148 - 150
DRAINAGE PLAN/PROFILE SHEETS	SHEETS NO. 136 - 144
DRAINAGE TABULATION	SHEETS NO. 148 - 150
EROSION AND SEDIMENT CONTROL DETAILS	SHEETS NO. 47 - 56
EROSION CONTROL TABULATION	SHEETS NO. 14
TURF ESTABLISHMENT TABULATION	SHEETS NO. 14

PROJECT WATERBODIES

The following waterbodies are located within one mile of the project limits and receive runoff from the project site. If any of the waterbodies are special or impaired waters, the BMPs described in Appendix A of the NPDES permit will apply to all areas of the site. Approved TMDL implementation plans are also listed.

NAME	TYPE	SPECIAL?	IMPAIRED?	APPROVED TMDL?
Le Sueur River	River	No	Yes	No

No work shall occur within the banks of DNR designated Public Waters between March 1 and June 15. Stabilization of soils within 200 feet of the waters edge must be completed within 24 hours during this period.

STORMWATER CONTROLS AND PRECIPITATION

The contractor must plan and implement BMPs to protect receiving waters. The average annual rainfall amount for the project area is 30.7 inches. Average 2-year and 10-year rainfall intensities are 0.121 in/hr and 0.181 in/hr respectively.
Type of stormwater management: None required


LAND FEATURE CHANGES

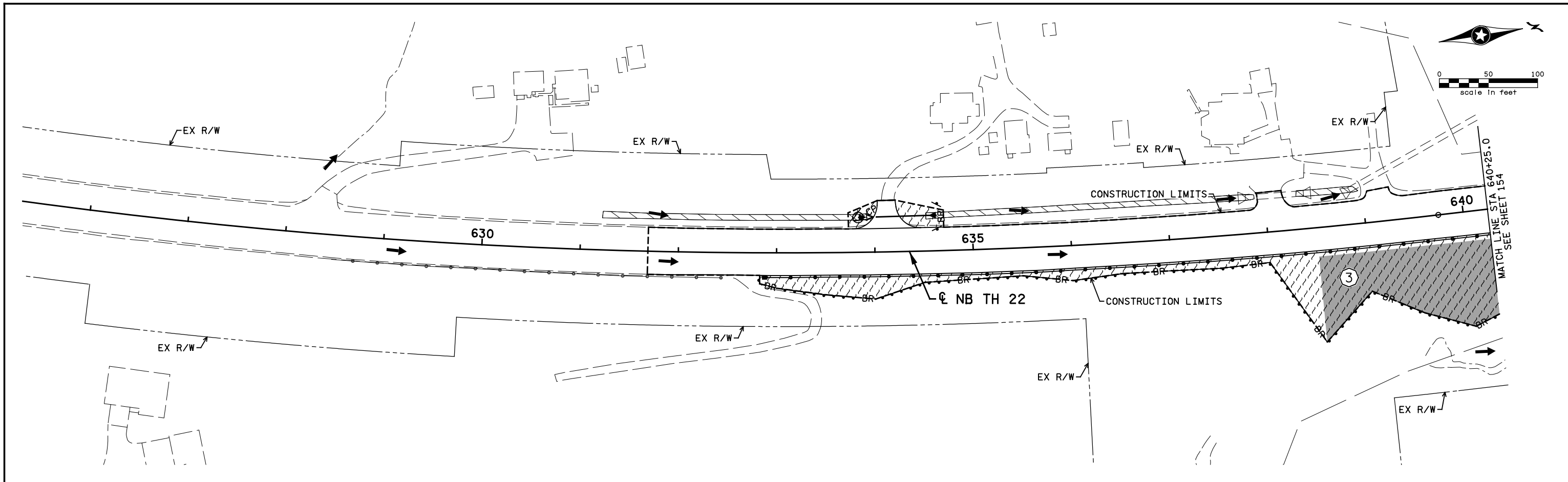
Total disturbed area: 26.8 acres (Includes 9.1 acres of mill and overlay)
Total existing impervious surface area: 16.7 acres
Total post construction surface area: 16.1 acres
Total proposed net change in impervious surface area: -0.6 acres

ADDITIONAL SWPPP REQUIREMENTS

- Timing for Installation is described in General SWPPP notes and are specified relative to contractor schedule.
- BMP Design Factors are incorporated in the design of BMP Standard Detail Sheets.
- Soil Management:
Soil types typically found on this project are silty clay loam.
Preservation Projects: all work is done within road core so there will be no disturbance or compaction outside of road core.
Grading Projects: subsoiling and seeding practices will be done to mitigate for compaction and disturbance beyond road core.
- All MPCA Construction Activity Requirements are incorporated into this SWPPP and associated plan documents.

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: ROBERT J. LEBA Date: _____ License #: 41951					STATE PROJECT NO. 0704-108 (TH 22)	DRAWN BY S. MARTINS DESIGNED BY D. ANDERSON CHECKED BY B. LEBE COMM. NO. 01710321		MINNESOTA DEPARTMENT OF TRANSPORTATION STORM WATER POLLUTION PREVENTION PLAN (SWPPP) TH 22 & CSAH 90	SHEET 151 OF 276
NO	DATE	BY	CKD	APPR	REVISION				
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LEGEND

	SEED MIXTURE 35-241
	EROSION CONTROL BLANKET (CATEGORY 3N)
	SEDIMENT CONTROL LOG TYPE STRAW
	SILT FENCE, TYPE MS
	FILTER BERM, TYPE 3
	DIRECTION OF FLOW
	STORM DRAIN INLET PROTECTION
	CULVERT END CONTROLS

GENERAL NOTES:

SEE CONSTRUCTION AND SOILS NOTES FOR TYPES OF SEEDING, MULCH AND FERTILIZER.

RAPID STABILIZATION METHOD 3 SHALL BE APPLIED TO TEMPORARILY STABILIZE DISTURBED AREAS PER MNDOT SPED. 2575.

PLACE PERMANENT TURF ESTABLISHMENT AND EROSION CONTROL MEASURES ALONG THE PERMANENT CONSTRUCTION.

MULCH ALL AREAS NOT COVERED BY BLANKET.

SILT FENCE SHALL FOLLOW A SINGLE CONTOUR LINE AS CLOSE AS POSSIBLE WHEN PLACED.

ADDITIONAL EROSION CONTROL MEASURES MAY BE NEEDED AS CONDITIONS WARRANT. PLACE ADDITIONAL MEASURES AT THE DIRECTION OF THE ENGINEER.

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NO	DATE	BY	CKD	APPR	REVISION

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

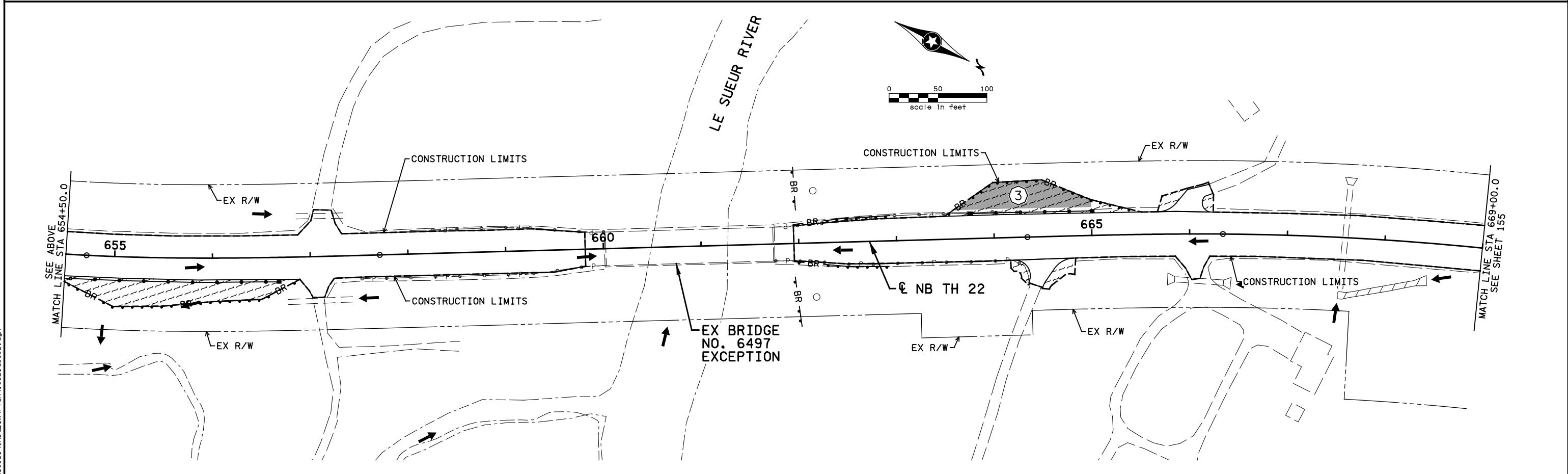
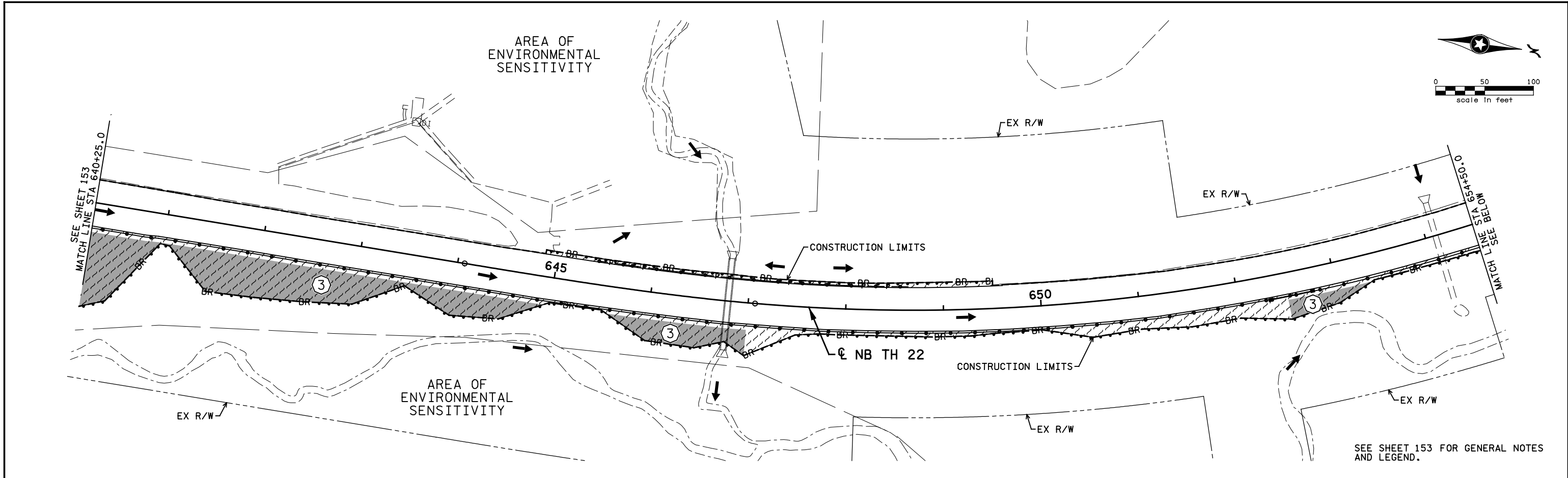
DRAWN BY
S. MARTINS

DESIGNED BY
P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321





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.

Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS

DESIGNED BY P. ENGELMEYER

CHECKED BY A. TRACY

COMM. NO. 01710321



ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS

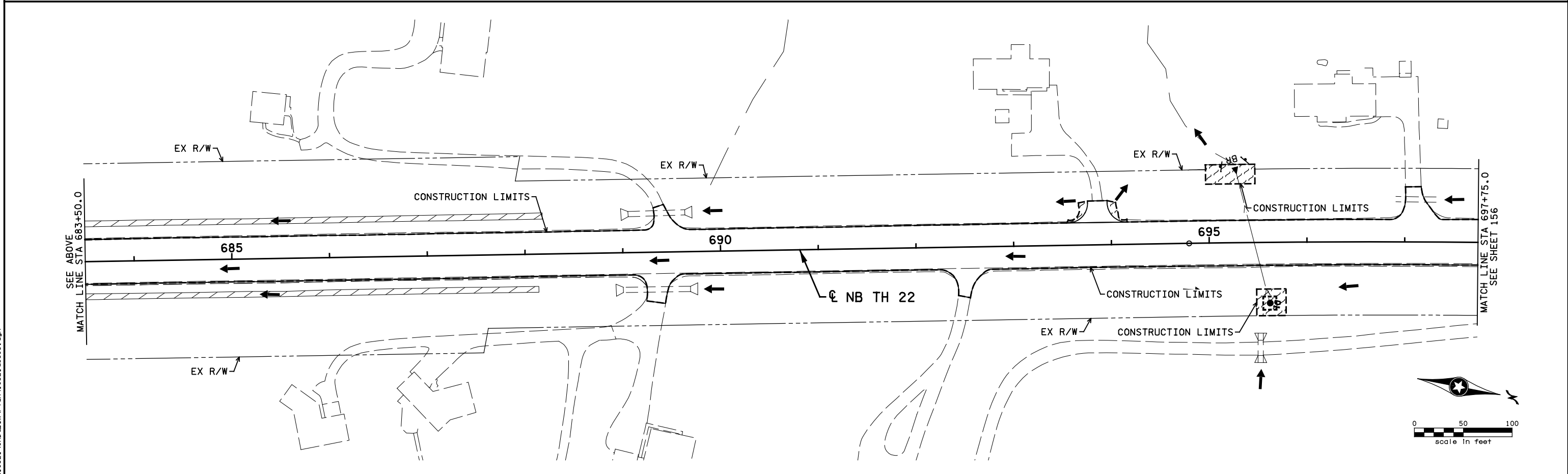
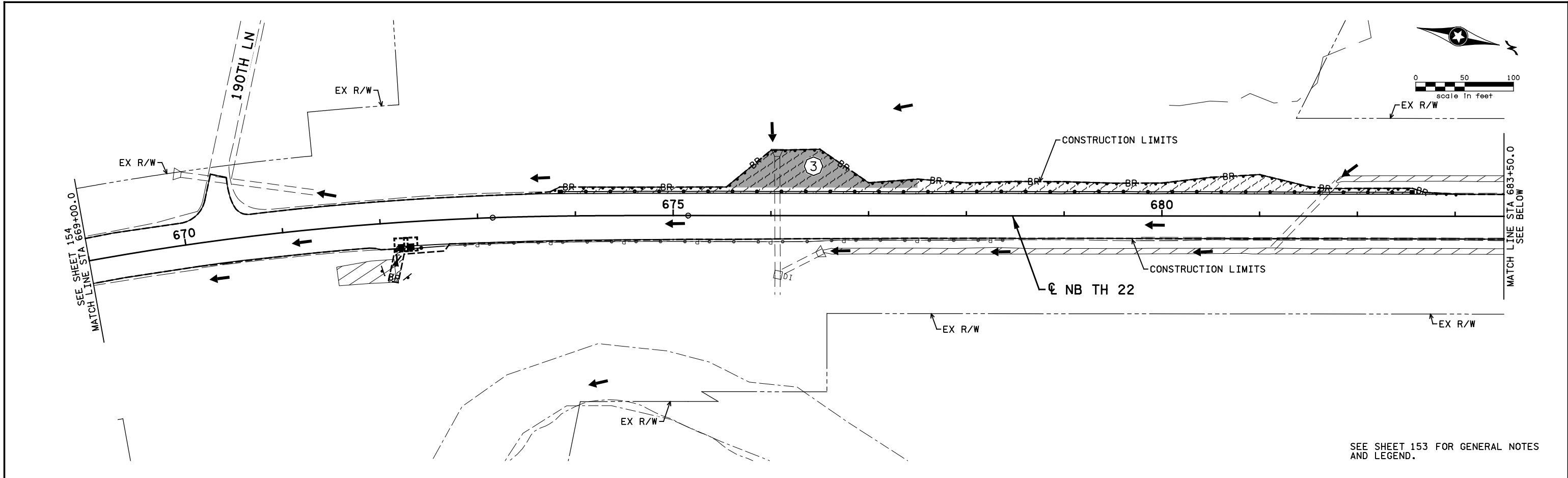
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NO	DATE	BY	CKD	APPR	REVISION

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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
 DESIGNED BY P. ENGELMEYER
 CHECKED BY A. TRACY
 COMM. NO. 01710321



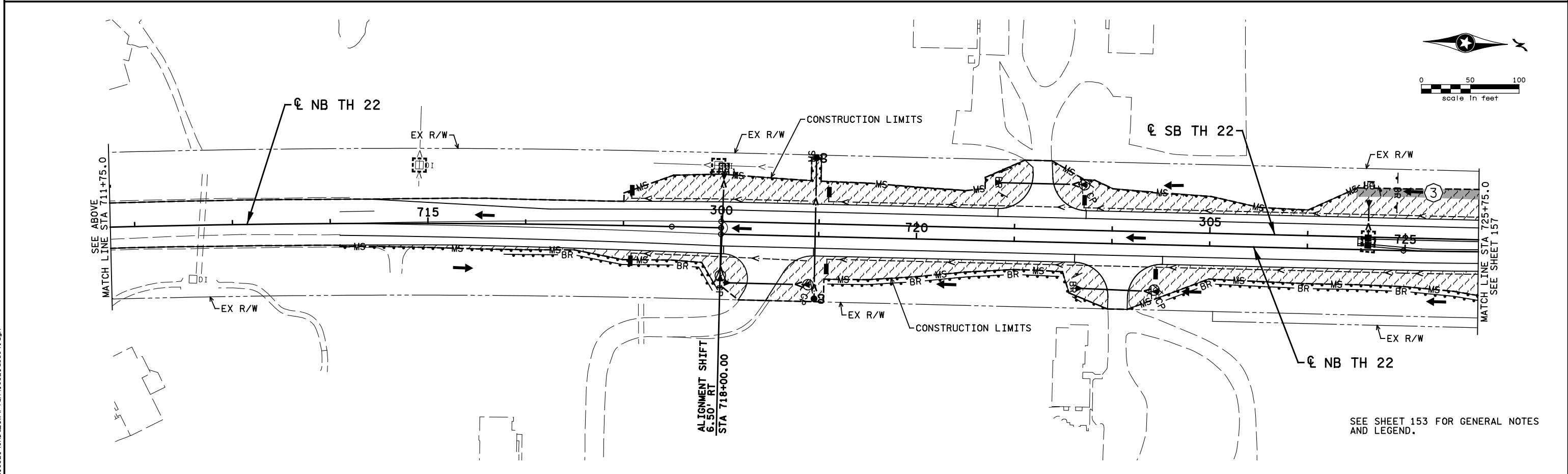
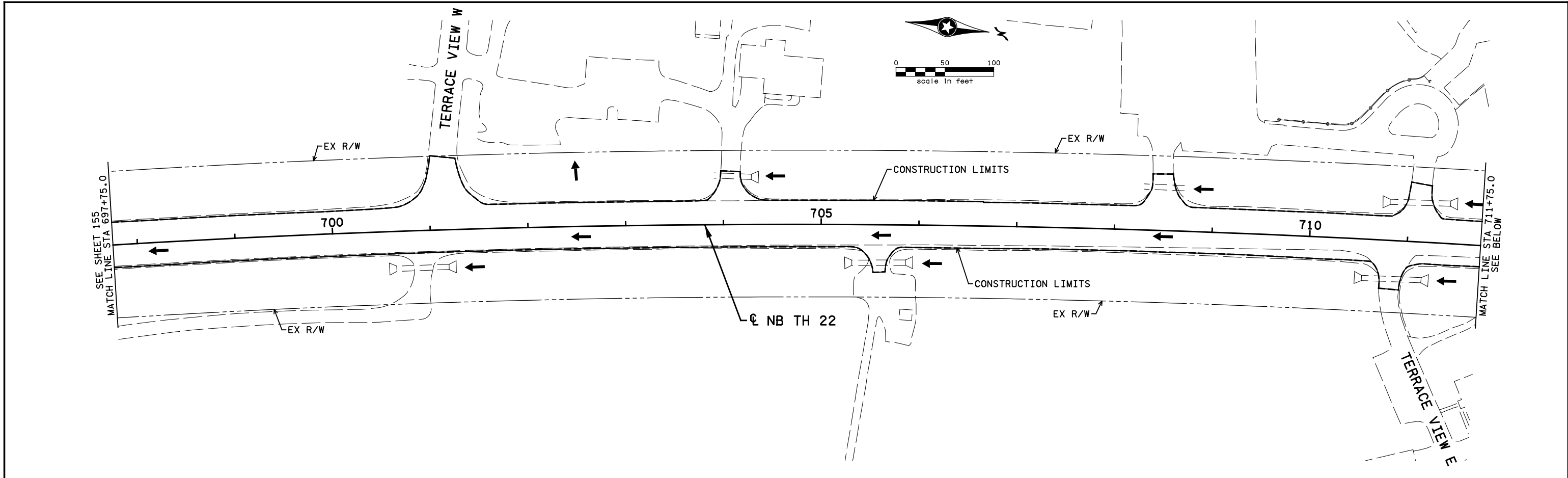
ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 EROSION CONTROL AND TURF ESTABLISHMENT PLANS
 TH 22 & CSAH 90

SHEET 155 OF 276

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SEE SHEET 153 FOR GENERAL NOTES AND LEGEND.

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Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS

DESIGNED BY
P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321



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PLANNERS
DESIGNERS

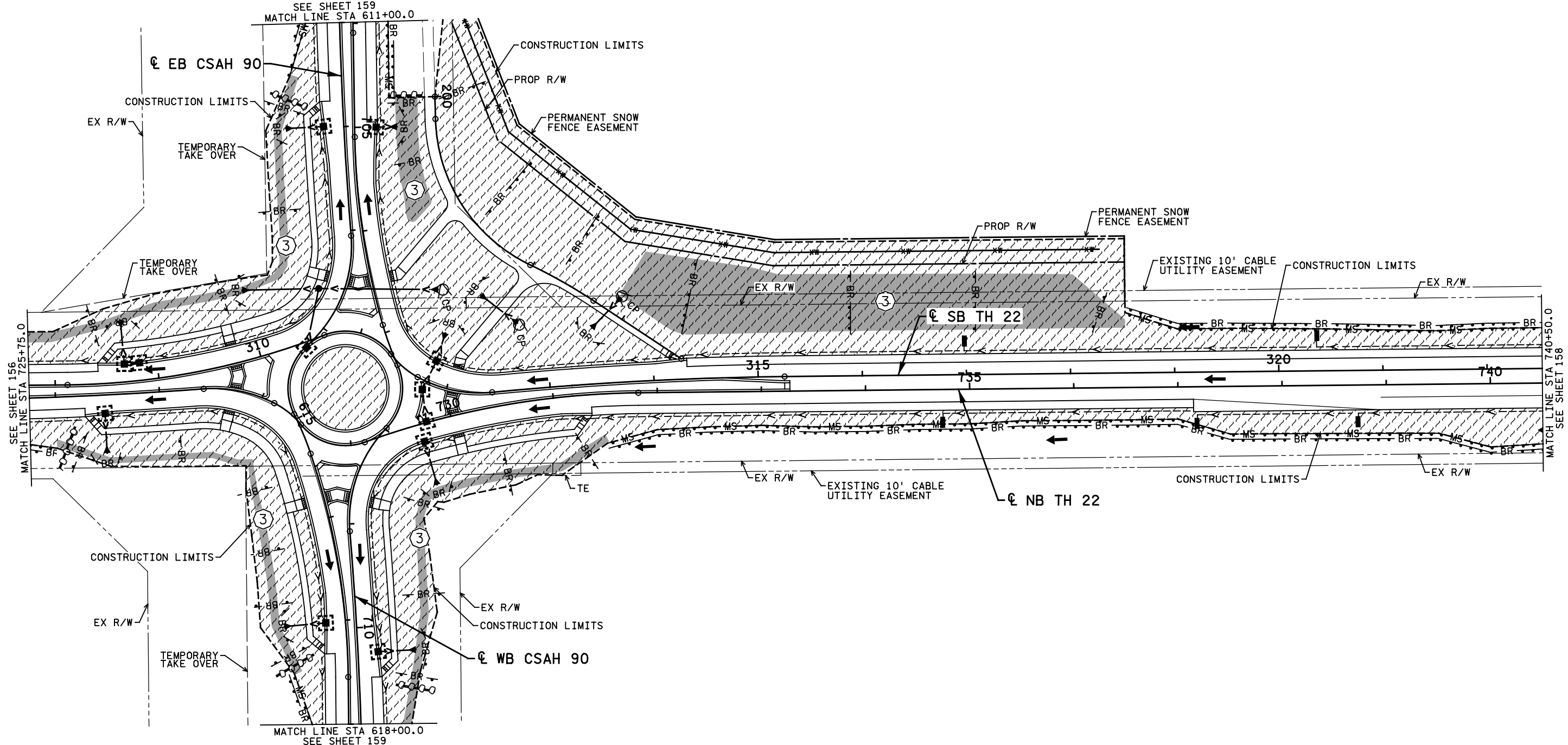
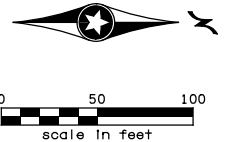
MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS

TH 22 & CSAH 90

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SEE SHEET 160 FOR TURF ESTABLISHMENT IN SNOW FENCE AREA



SEE SHEET 153 FOR GENERAL NOTES AND LEGEND.

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 STATE PROJECT NO. 007-070-005

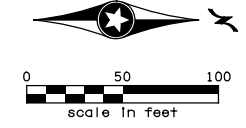
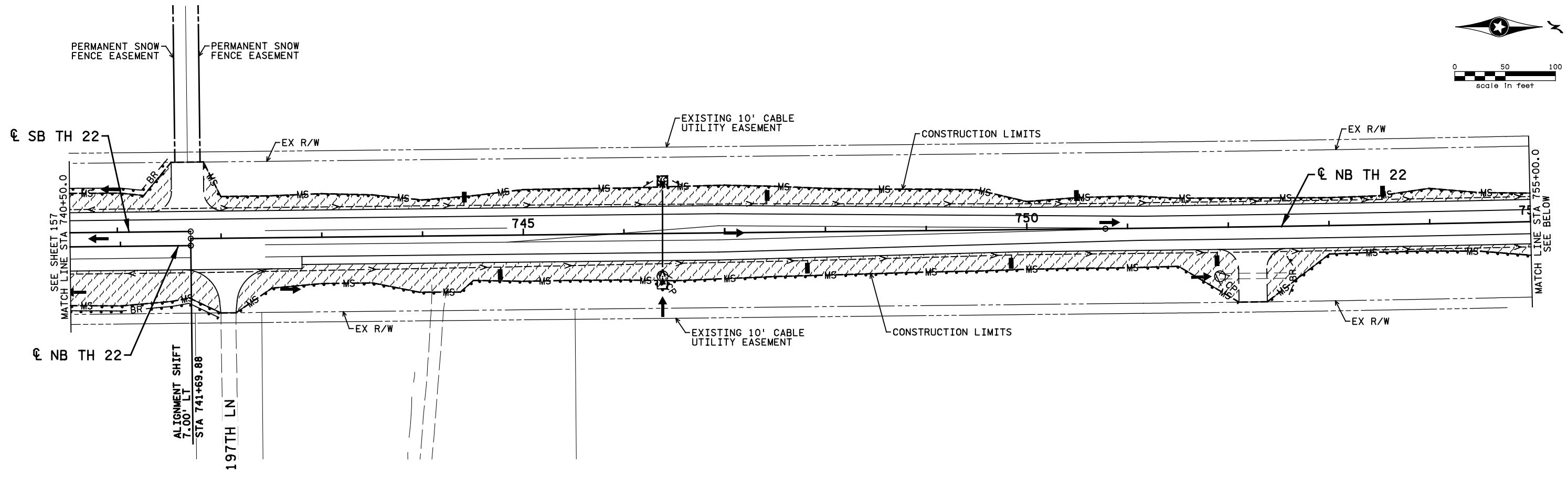
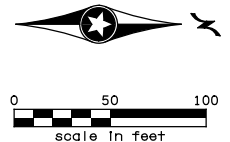
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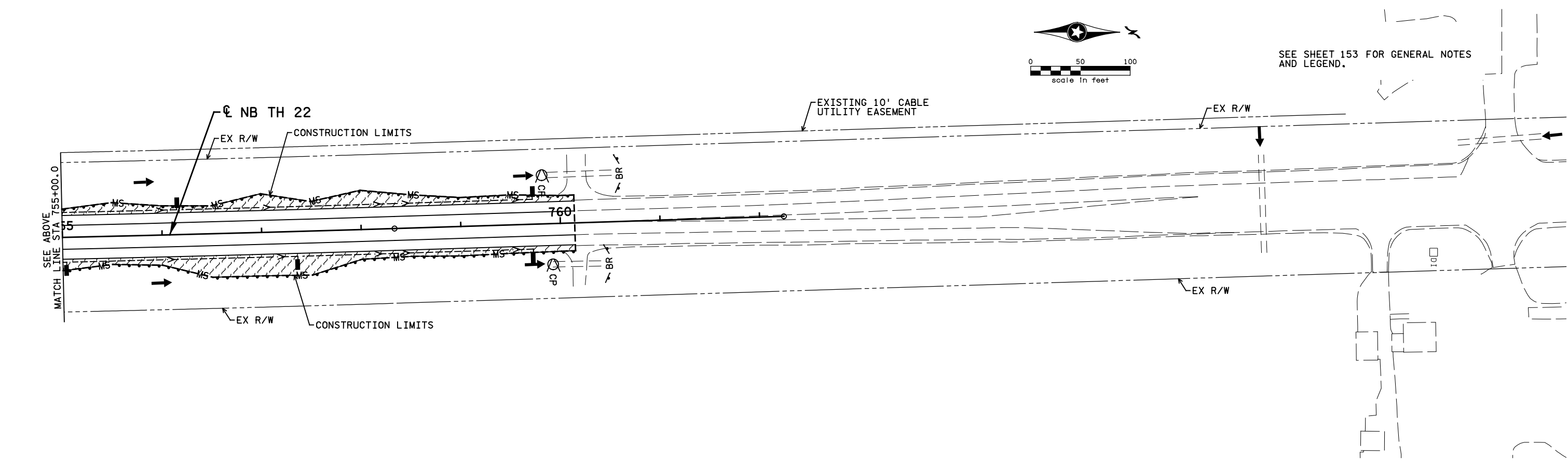
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 EROSION CONTROL AND TURF ESTABLISHMENT PLANS
 TH 22 & CSAH 90

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 S. MARTINS
 DESIGNED BY
 P. ENGELMEYER
 CHECKED BY
 A. TRACY
 COMM. NO. 01710321

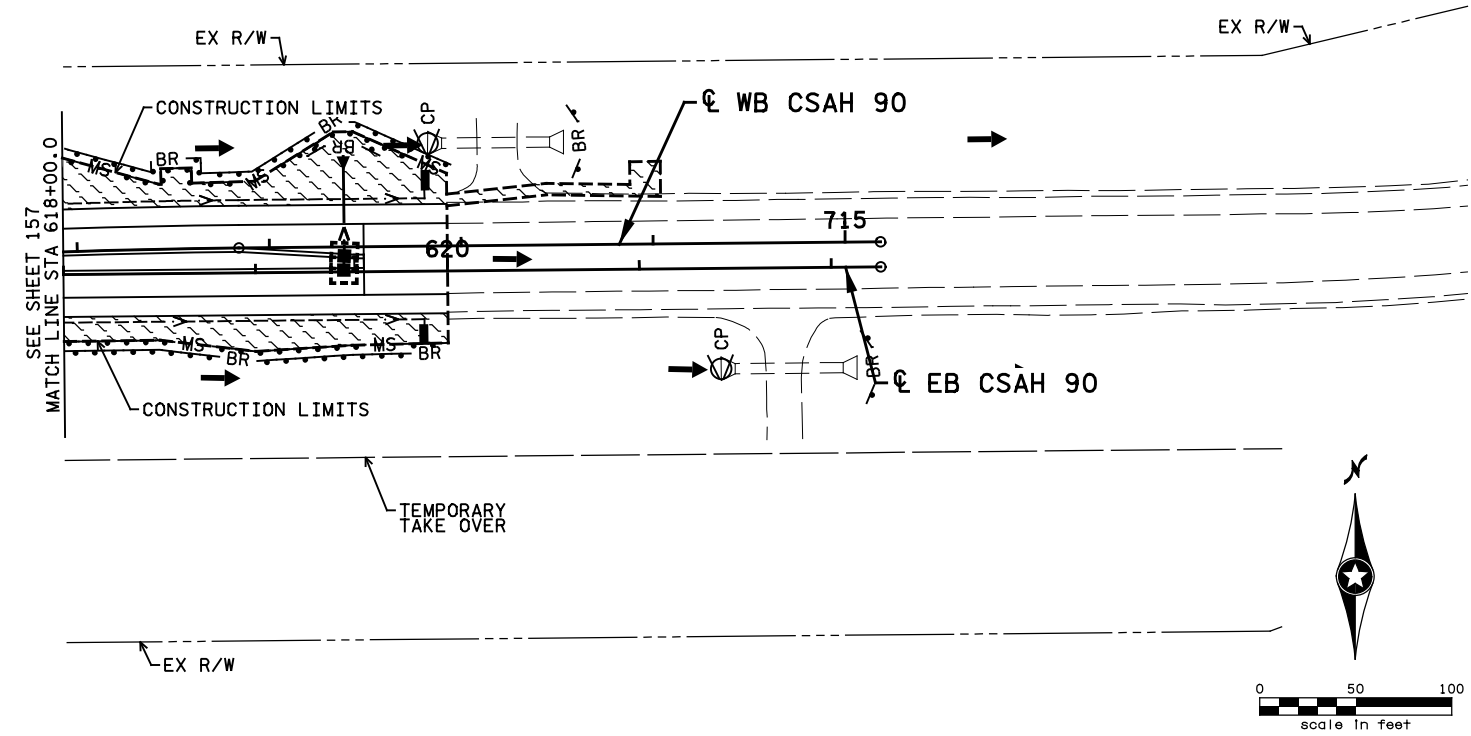
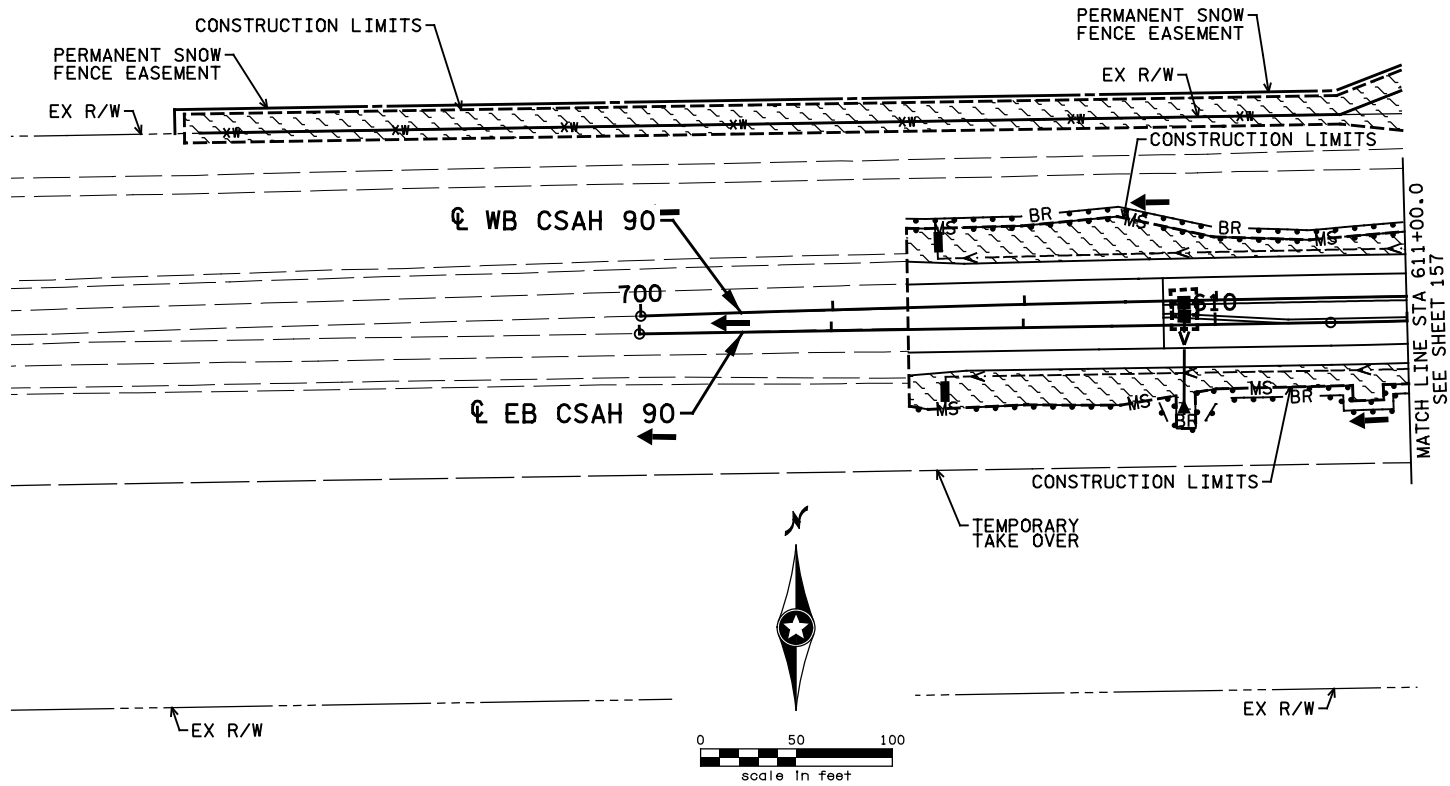


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 EROSION CONTROL AND TURF ESTABLISHMENT PLANS
 TH 22 & CSAH 90

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SEE SHEET 153 FOR GENERAL NOTES AND LEGEND.



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Date: _____ License # 50890

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0704-108 (TH 22)

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007-070-005

DRAWN BY
S. MARTINS

DESIGNED BY
P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321



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DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS

TH 22 & CSAH 90

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GENERAL NOTES:

THE RIGHT-OF-WAY SHOWN IN THIS PLAN GIVES A GRAPHICAL LOCATION WITH RESPECT TO THE GEOMETRIC DESIGN AND MAP DATA. THE EXACT RIGHT OF WAY AND BOUNDARY CORNERS ARE LOCATED BY REFERENCE TO THE RIGHT OF WAY PLATS AND ARE IDENTIFIED ON THE RIGHT OF WAY MAP.

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

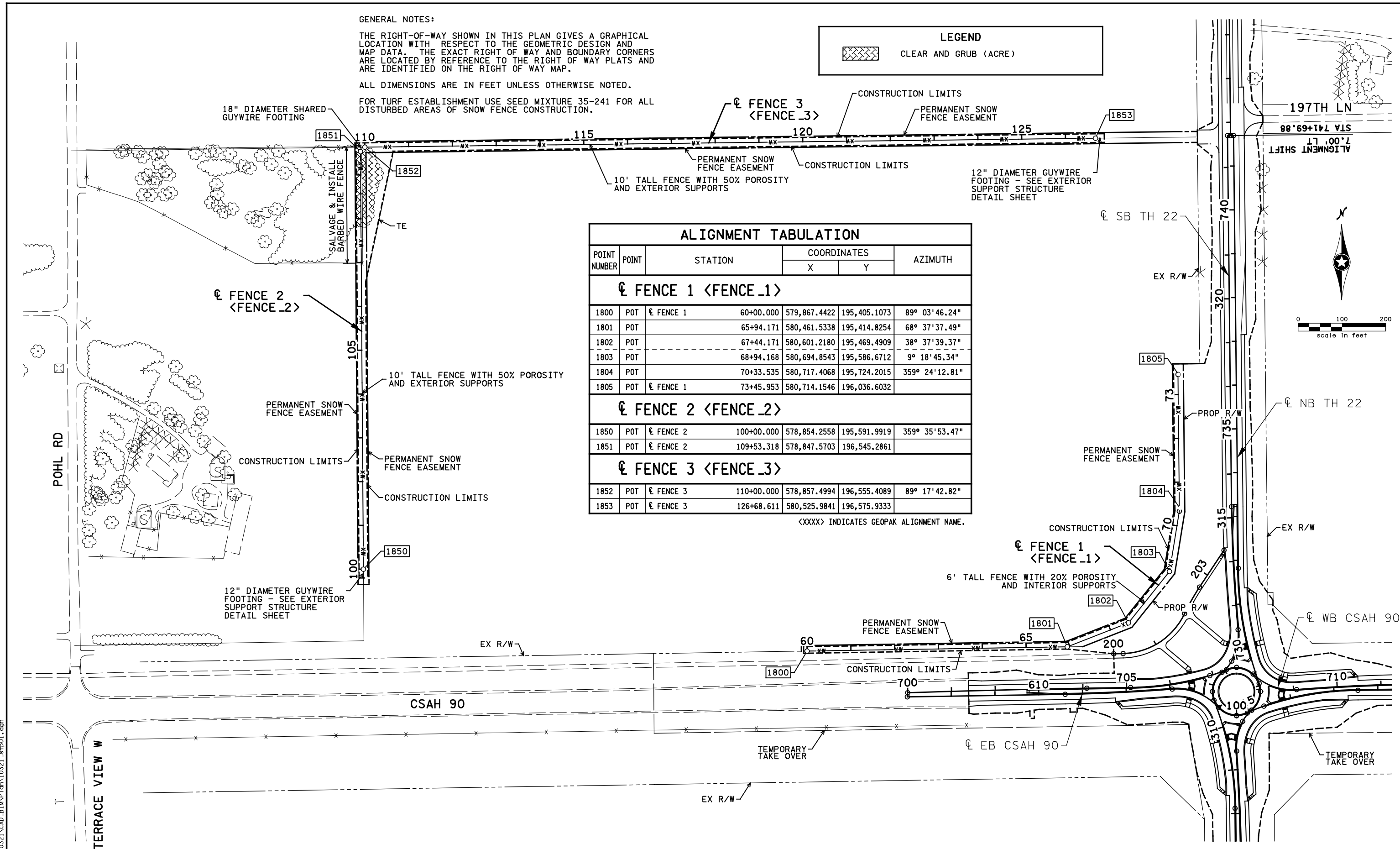
FOR TURF ESTABLISHMENT USE SEED MIXTURE 35-241 FOR ALL DISTURBED AREAS OF SNOW FENCE CONSTRUCTION.

LEGEND

 CLEAR AND GRUB (ACRE)

ALIGNMENT TABULATION						
POINT NUMBER	POINT	STATION	COORDINATES		AZIMUTH	
			X	Y		
☉ FENCE 1 <FENCE_1>						
1800	POT	☉ FENCE 1	60+00.000	579,867.4422	195,405.1073	89° 03' 46.24"
1801	POT		65+94.171	580,461.5338	195,414.8254	68° 37' 37.49"
1802	POT		67+44.171	580,601.2180	195,469.4909	38° 37' 39.37"
1803	POT		68+94.168	580,694.8543	195,586.6712	9° 18' 45.34"
1804	POT		70+33.535	580,717.4068	195,724.2015	359° 24' 12.81"
1805	POT	☉ FENCE 1	73+45.953	580,714.1546	196,036.6032	
☉ FENCE 2 <FENCE_2>						
1850	POT	☉ FENCE 2	100+00.000	578,854.2558	195,591.9919	359° 35' 53.47"
1851	POT	☉ FENCE 2	109+53.318	578,847.5703	196,545.2861	
☉ FENCE 3 <FENCE_3>						
1852	POT	☉ FENCE 3	110+00.000	578,857.4994	196,555.4089	89° 17' 42.82"
1853	POT	☉ FENCE 3	126+68.611	580,525.9841	196,575.9333	

<XXXX> INDICATES GEOPAK ALIGNMENT NAME.



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Date: _____ License # 50890

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY S. MARTINS
DESIGNED BY P. ENGELMEYER
CHECKED BY A. TRACY
COMM. NO. 01710321

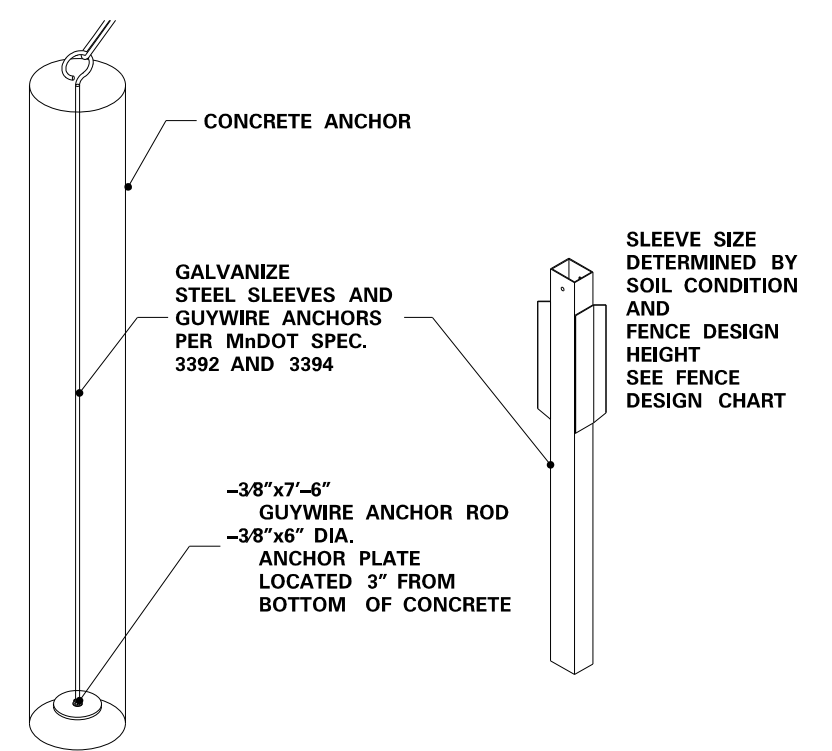
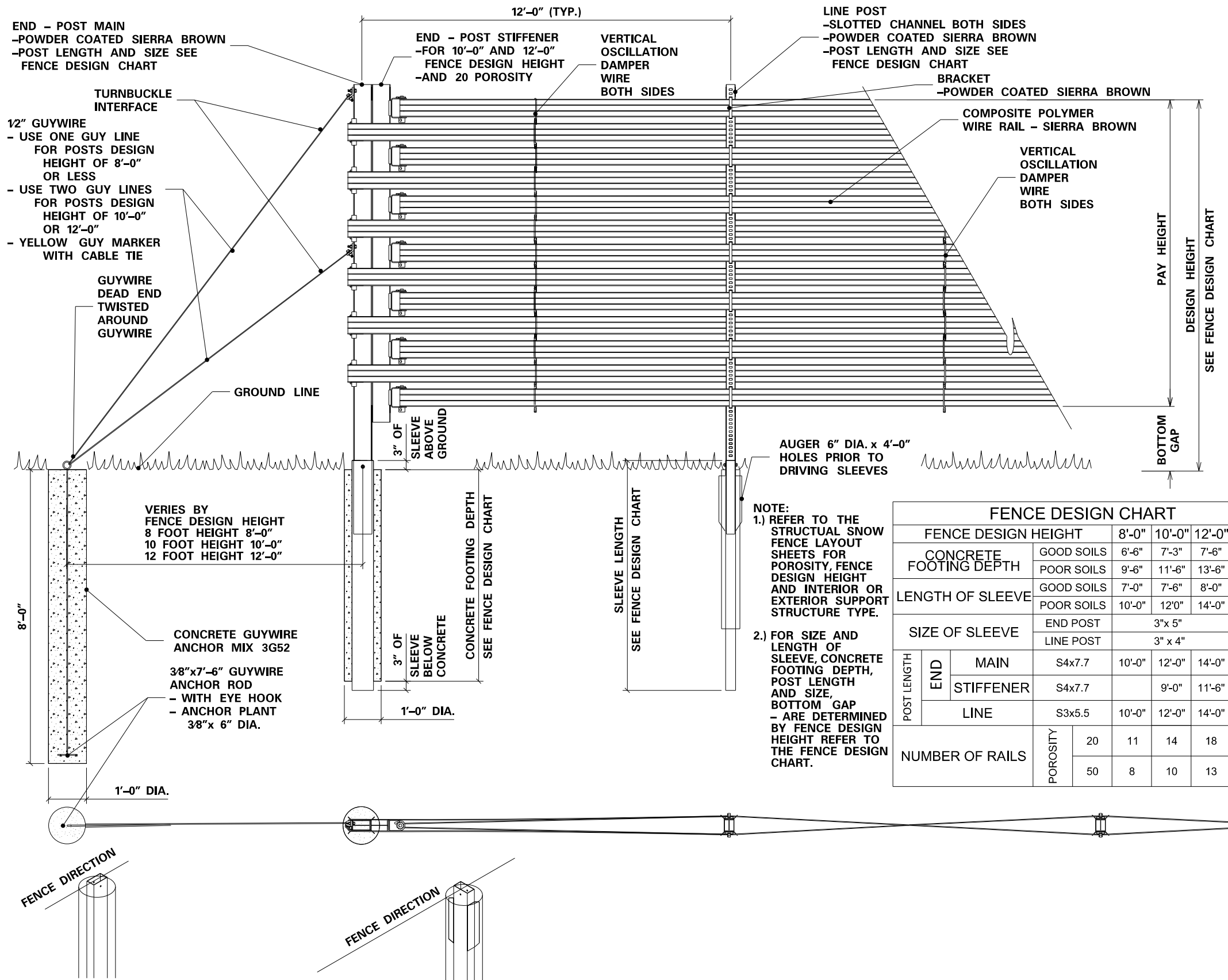


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SNOW FENCE PLANS
TH 22 & CSAH 90

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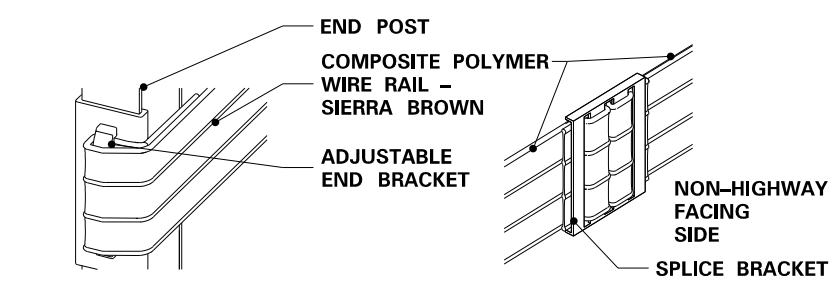


GUYWIRE ANCHOR **SLEEVE**

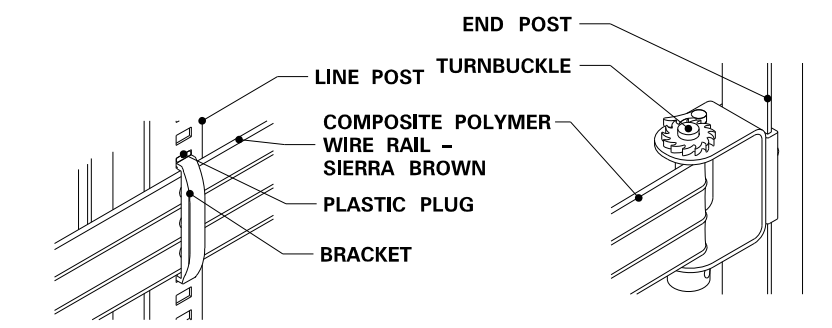
FENCE DESIGN CHART

FENCE DESIGN HEIGHT		8'-0"	10'-0"	12'-0"	BOTTOM GAP - IS DETERMINED FROM GROUND TO BOTTOM RAIL	
CONCRETE FOOTING DEPTH	GOOD SOILS	6'-6"	7'-3"	7'-6"		
	POOR SOILS	9'-6"	11'-6"	13'-6"		
LENGTH OF SLEEVE	GOOD SOILS	7'-0"	7'-6"	8'-0"		
	POOR SOILS	10'-0"	12'-0"	14'-0"		
SIZE OF SLEEVE	END POST	3" x 5"				
	LINE POST	3" x 4"				
POST LENGTH	END	MAIN	10'-0"	12'-0"	14'-0"	
		STIFFENER		9'-0"	11'-6"	
	LINE	S3x5.5	10'-0"	12'-0"	14'-0"	
NUMBER OF RAILS	POROSITY	20	11	14	18	6"
		50	8	10	13	12"

NOTE:
 1.) REFER TO THE STRUCTURAL SNOW FENCE LAYOUT SHEETS FOR POROSITY, FENCE DESIGN HEIGHT AND INTERIOR OR EXTERIOR SUPPORT STRUCTURE TYPE.
 2.) FOR SIZE AND LENGTH OF SLEEVE, CONCRETE FOOTING DEPTH, POST LENGTH AND SIZE, BOTTOM GAP - ARE DETERMINED BY FENCE DESIGN HEIGHT REFER TO THE FENCE DESIGN CHART.



END POST BRACKET **SPLICE BRACKET**



LOCKING BRACKET **TENSIONING WINCH BRACKET**

RAIL CONNECTIONS ISOMETRIC VIEWS

END POST ISOMETRIC VIEW **LINE POSTS ISOMETRIC VIEW**

END TREATMENT EXTERIOR SUPPORT

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This is a proprietary item as per spec. 1703.
 This drawing is to be used only for pictorial representation.
 Design changes are not always shown.
 This drawing is for information only.
 Contact the Manufacturer Perma-Rail International Inc. for installation instructions.

PERMANENT PAVEMENT MARKINGS									T
ALIGNMENT	STATION TO STATION	4" SOLID LINE EPOXY GR IN (WR) LIN FT	24" SOLID LINE EPOXY GR IN (WR) LIN FT	4" BROKEN LINE EPOXY GR IN (WR) LIN FT	4" DOTTED LINE EPOXY GR IN (WR) LIN FT	8" DOTTED LINE EPOXY GR IN (WR) (C) LIN FT	4" DOUBLE SOLID LINE EPOXY GROUND IN (WR) LIN FT	PAVEMENT MESSAGE PREFORM THERMOPLASTIC GROUND IN SQ FT	PAVEMENT MARKING SPECIAL (T-1) SQ FT
SP 0704-108 (TH 22) NHPP FUNDS									
NB TH 22	631+69 TO 717+00	17748	52	880	42		8247		
NB TH 22	717+00 TO 724+52	557	52				13	90	
NB TH 22	733+27 TO 760+14	4148	733		102		3921		
SP 0704-108 (TH 22) NHPP FUNDS TOTAL		22453	837	880	144		12181	90	
SP 0704-108 (TH 22) HSIP FUNDS									
NB TH 22	724+52 TO 733+27	3235				100		36	1775
SP 0704-108 (TH 22) HSIP FUNDS TOTAL		3235				100		36	1775
SP 007-070-005 (CSAH 90) HSIP FUNDS									
EB CSAH 90	608+40 TO 613+83	1931	66				302	18	59
EB CSAH 90	615+39 TO 620+00	2114					122	18	61
SP 007-070-005 (CSAH 90) HSIP FUNDS TOTAL		4045	66				424	36	120
PROJECT TOTALS		29733	903	880	144	100	12605	162	1895

NOTES:

(T-1) YELLOW EPOXY ON MEDIAN NOSE AND CURB OF TRUCK APRON IN ROUNDABOUT. SEE PLANS.

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 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO.
0704-108 (TH 22)
 STATE PROJECT NO.
007-070-005

DRAWN BY
B. BETTS
 DESIGNED BY
B. BETTS
 CHECKED BY
A. POTTER
 COMM. NO. 01710321

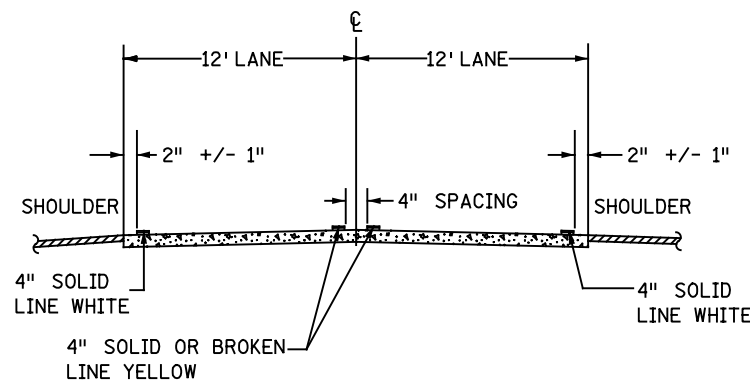


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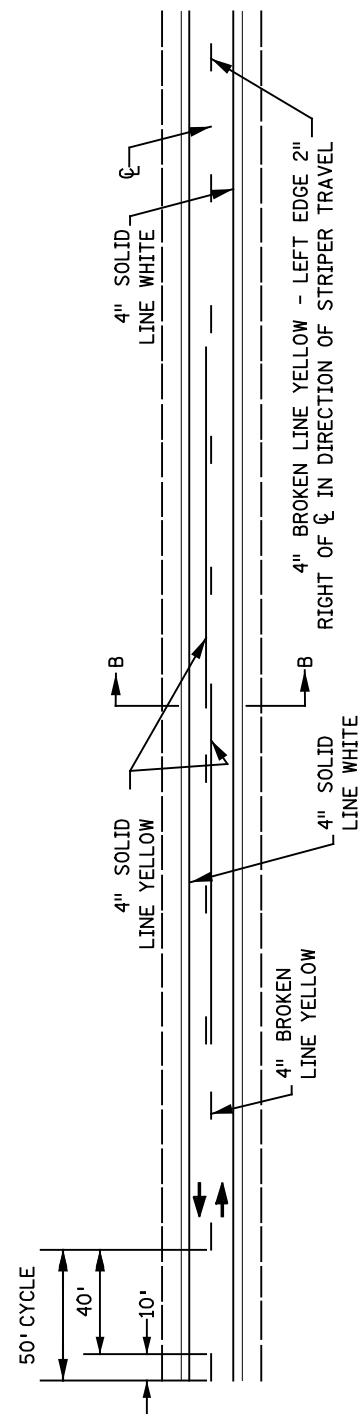
MINNESOTA DEPARTMENT OF TRANSPORTATION
 PAVEMENT MARKING PLANS
 TH 22 & CSAH 90
 TABULATIONS

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TWO-LANE, TWO-WAY



SECTION B-B

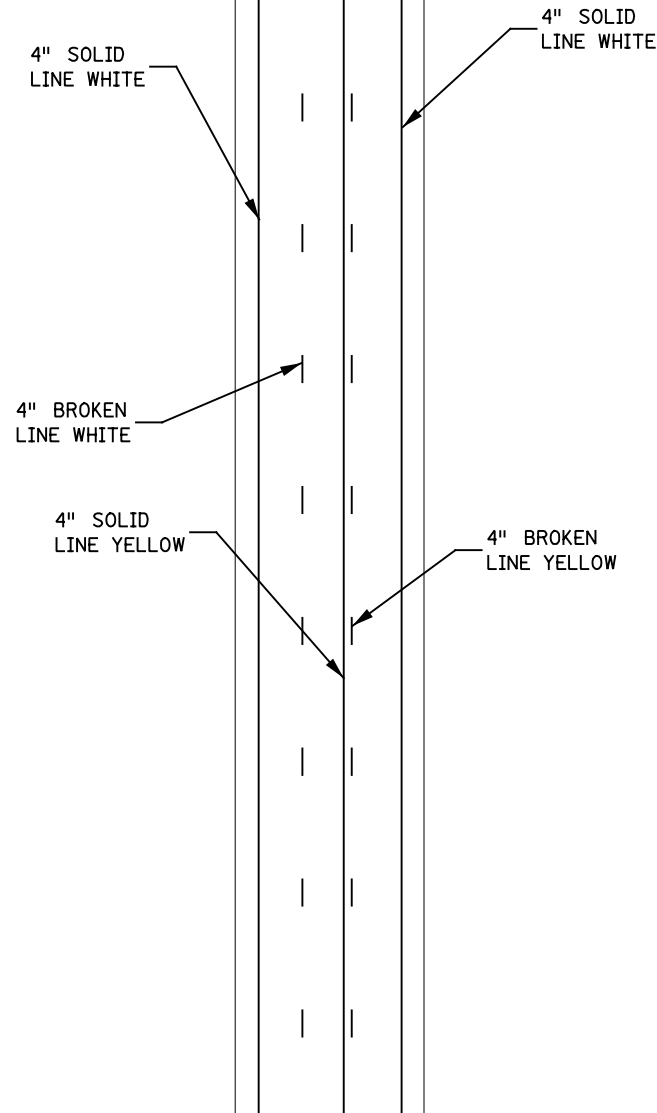


NOTE:
CONTRACTOR IS RESPONSIBLE FOR PERPETUATING EXISTING NO PASSING ZONES.

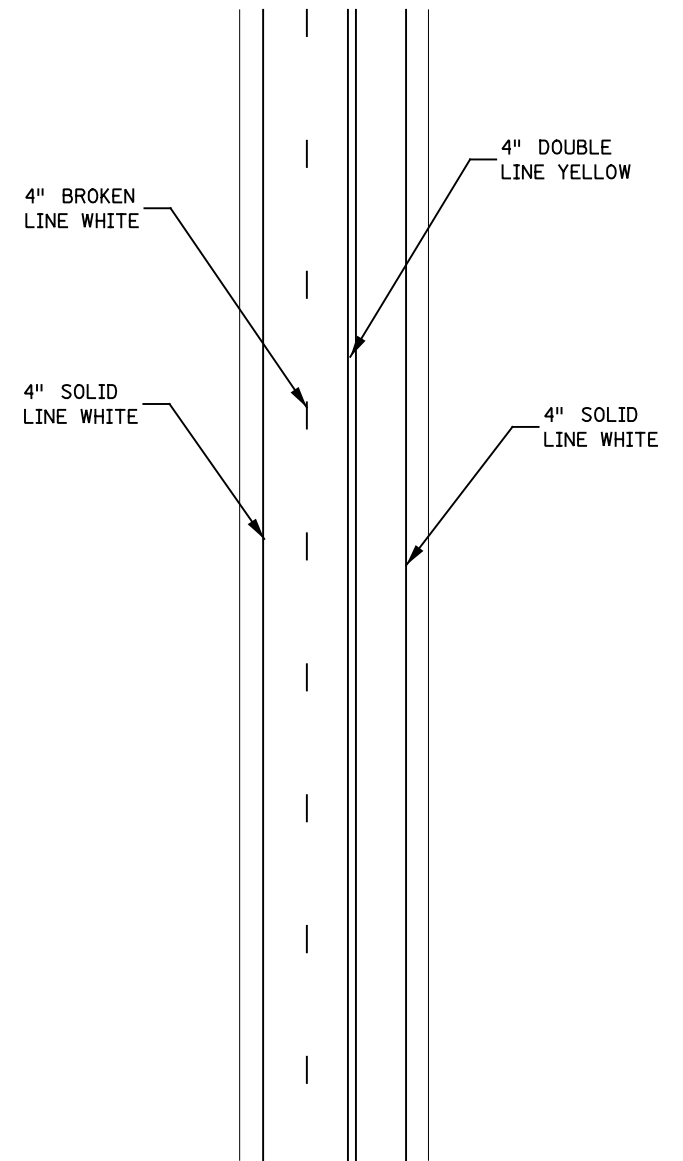
PUBLISHED BY OTST: 20 NOV 2015 MODIFIED:

THREE-LANE, TWO-WAY

PASSING PERMITTED IN SINGLE-LANE DIRECTION



PASSING PROHIBITED IN SINGLE-LANE DIRECTION



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CHECKED BY A. POTTER
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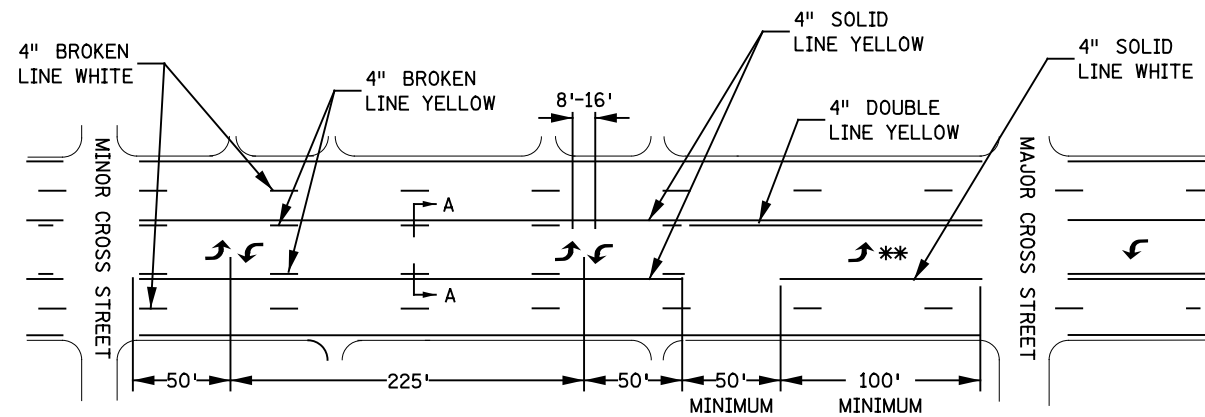


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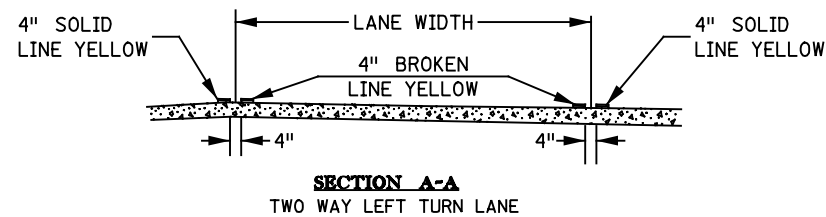
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PAVEMENT MARKING PLANS
TH 22 & CSAH 90

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276

TWO-WAY LEFT-TURN LANE



** SEE "TURN LANE WITH DOTTED LINE EXTENSION" TYPICALS FOR LANE LINE EXTENSIONS. (MNMUTCD SECTION 3B.20)

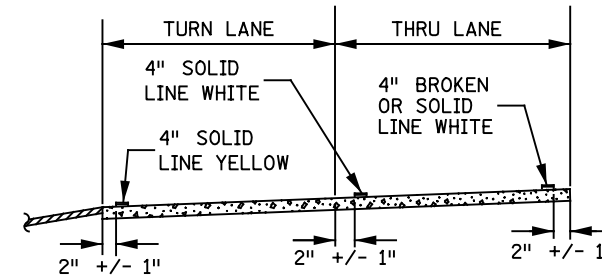


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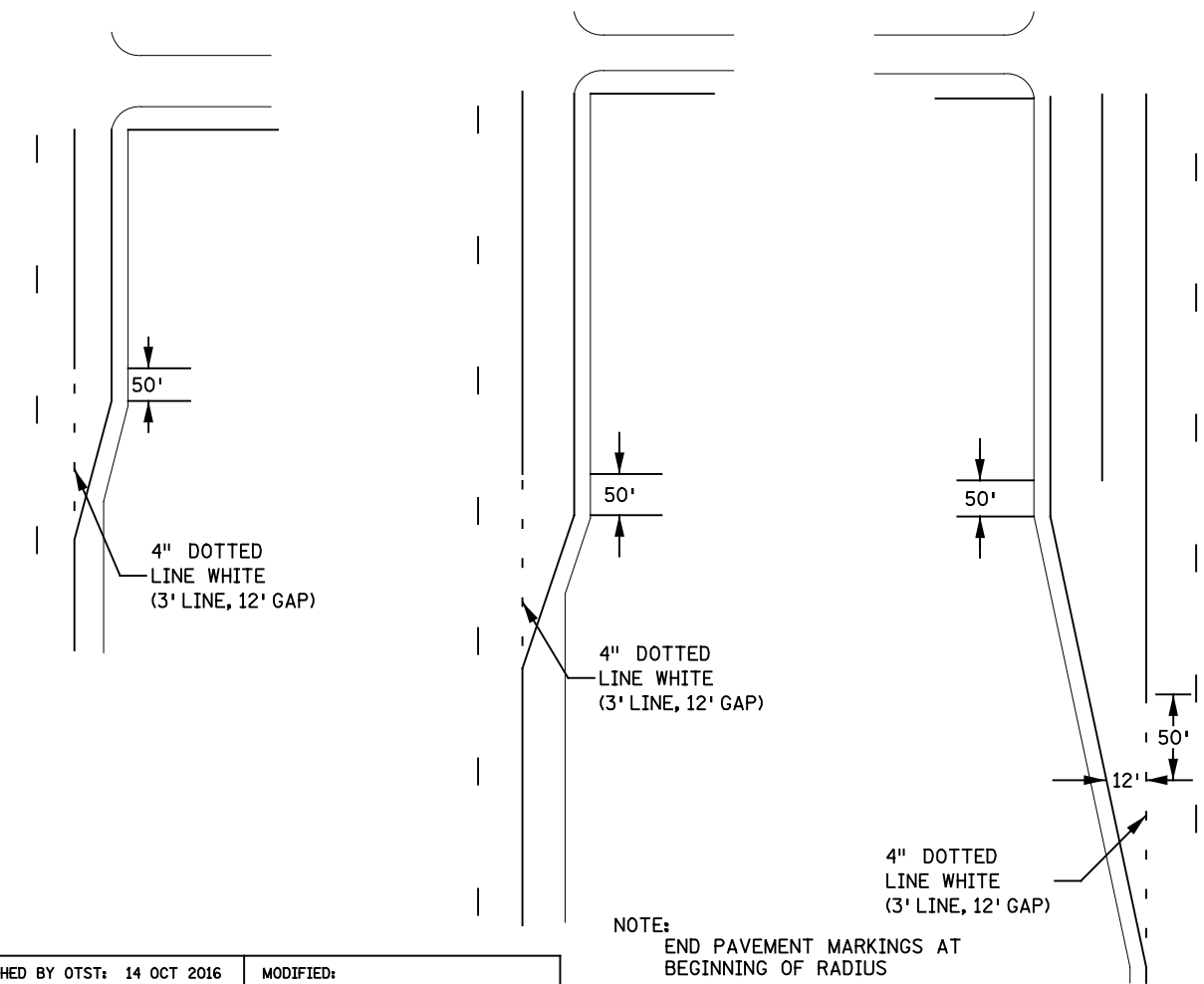
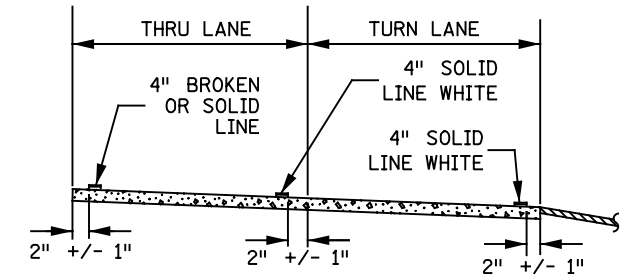
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TURN LANE WITH DOTTED LINE EXTENSION

LEFT TURN LANE



RIGHT TURN LANE



PUBLISHED BY OTST: 14 OCT 2016

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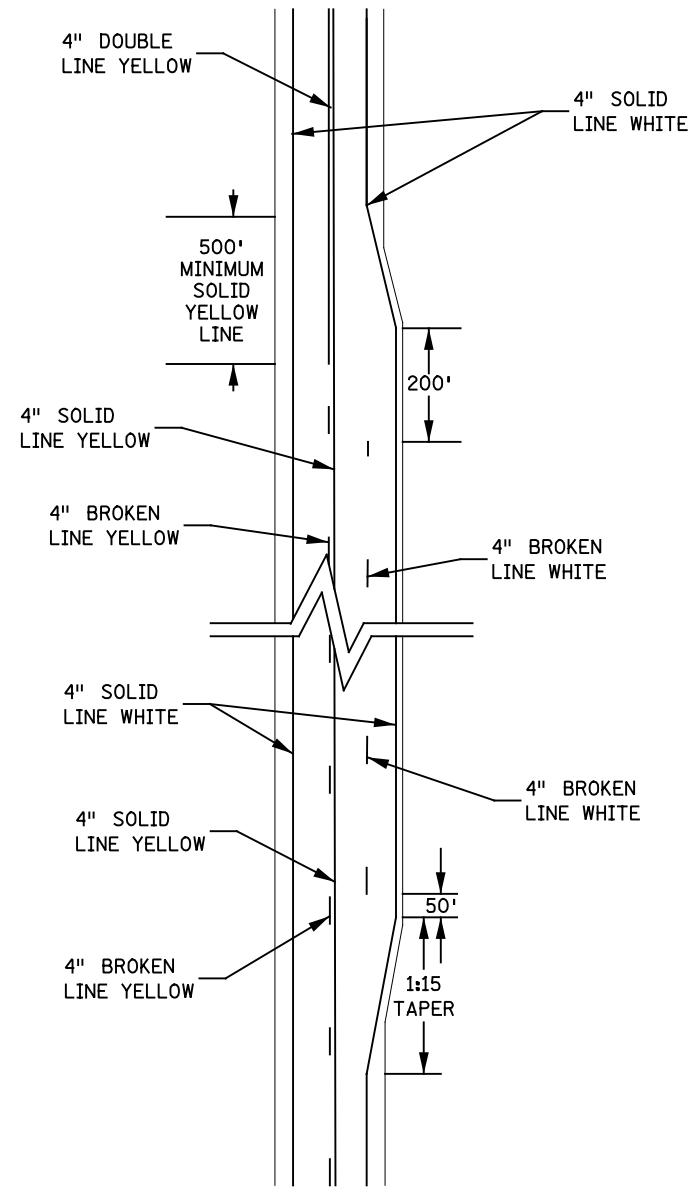


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 PAVEMENT MARKING PLANS
 TH 22 & CSAH 90

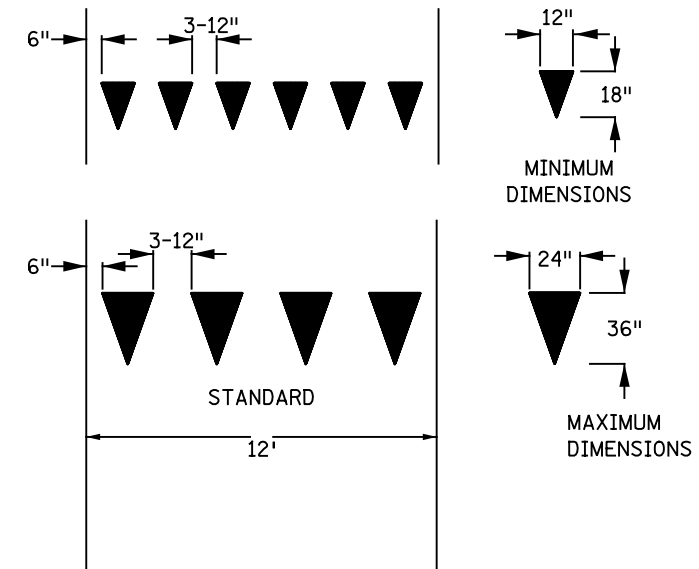
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 276

TRUCK CLIMBING LANE

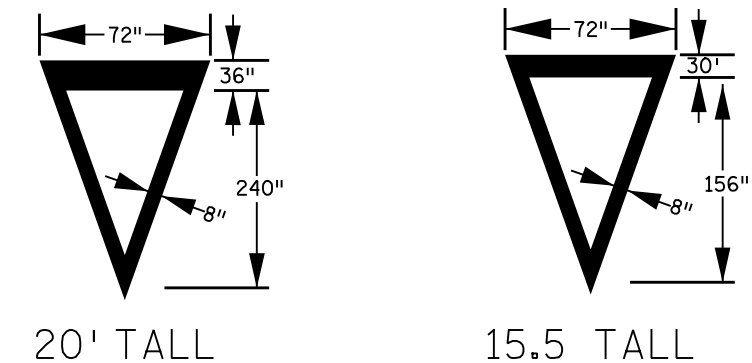


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RECOMMENDED YIELD LINE LAYOUT



YIELD AHEAD PAVEMENT MARKING



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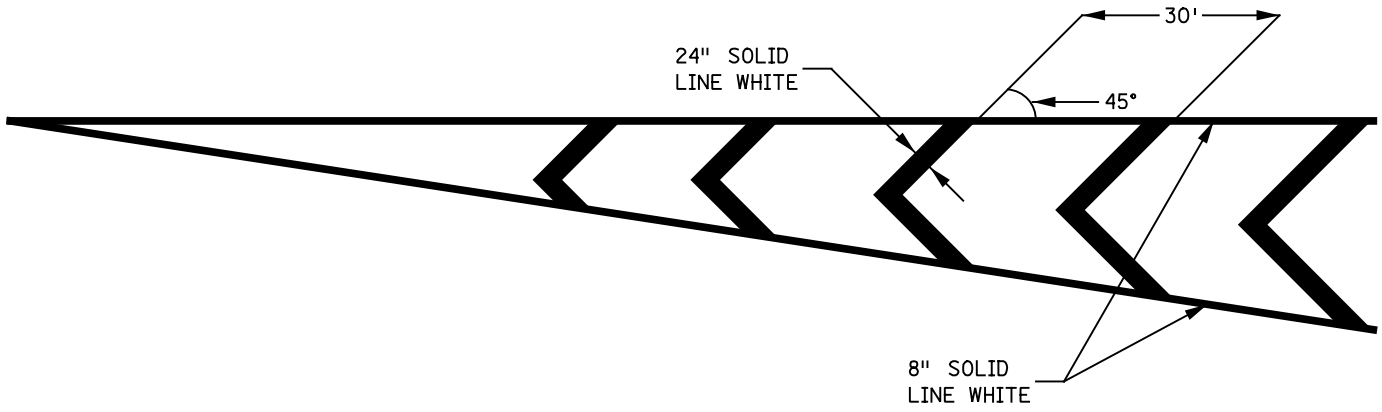
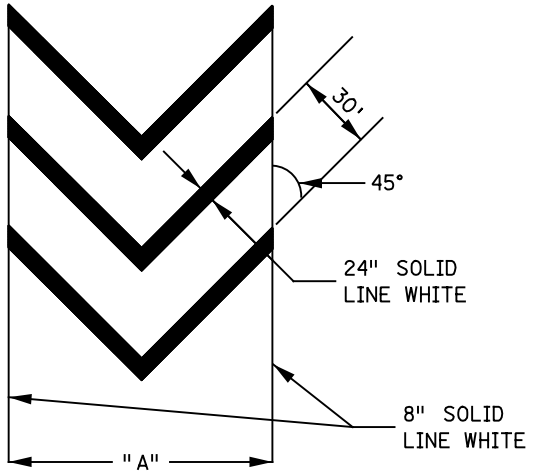
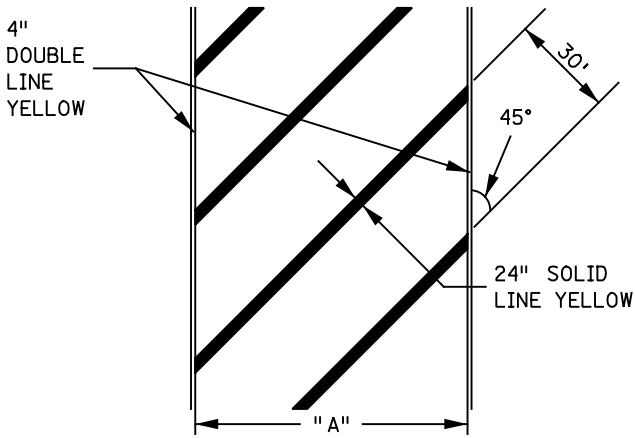


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 PAVEMENT MARKING PLANS
 TH 22 & CSAH 90

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 276

CROSSHATCHING



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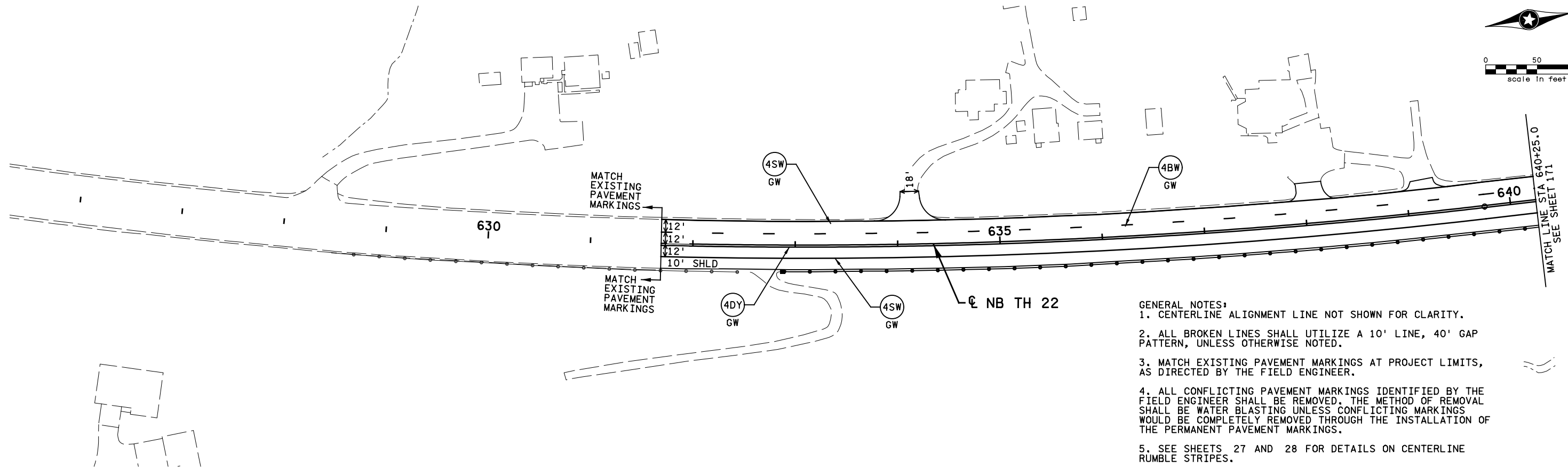
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 PAVEMENT MARKING PLANS
 TH 22 & CSAH 90

SHEET
168
OF
276



0 50 100
scale in feet



- GENERAL NOTES:
1. CENTERLINE ALIGNMENT LINE NOT SHOWN FOR CLARITY.
 2. ALL BROKEN LINES SHALL UTILIZE A 10' LINE, 40' GAP PATTERN, UNLESS OTHERWISE NOTED.
 3. MATCH EXISTING PAVEMENT MARKINGS AT PROJECT LIMITS, AS DIRECTED BY THE FIELD ENGINEER.
 4. ALL CONFLICTING PAVEMENT MARKINGS IDENTIFIED BY THE FIELD ENGINEER SHALL BE REMOVED. THE METHOD OF REMOVAL SHALL BE WATER BLASTING UNLESS CONFLICTING MARKINGS WOULD BE COMPLETELY REMOVED THROUGH THE INSTALLATION OF THE PERMANENT PAVEMENT MARKINGS.
 5. SEE SHEETS 27 AND 28 FOR DETAILS ON CENTERLINE RUMBLE STRIPES.

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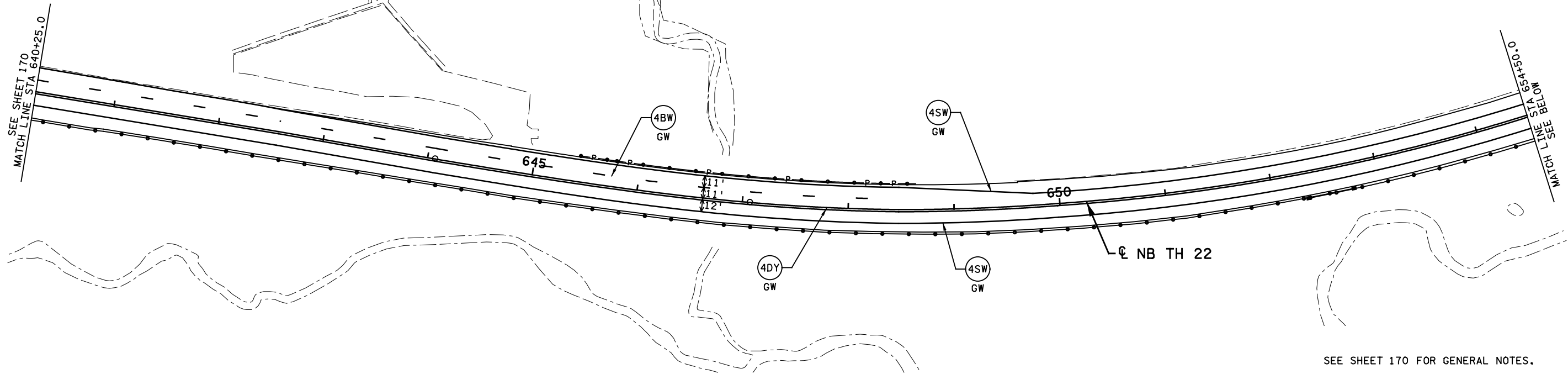
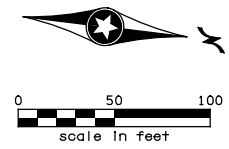


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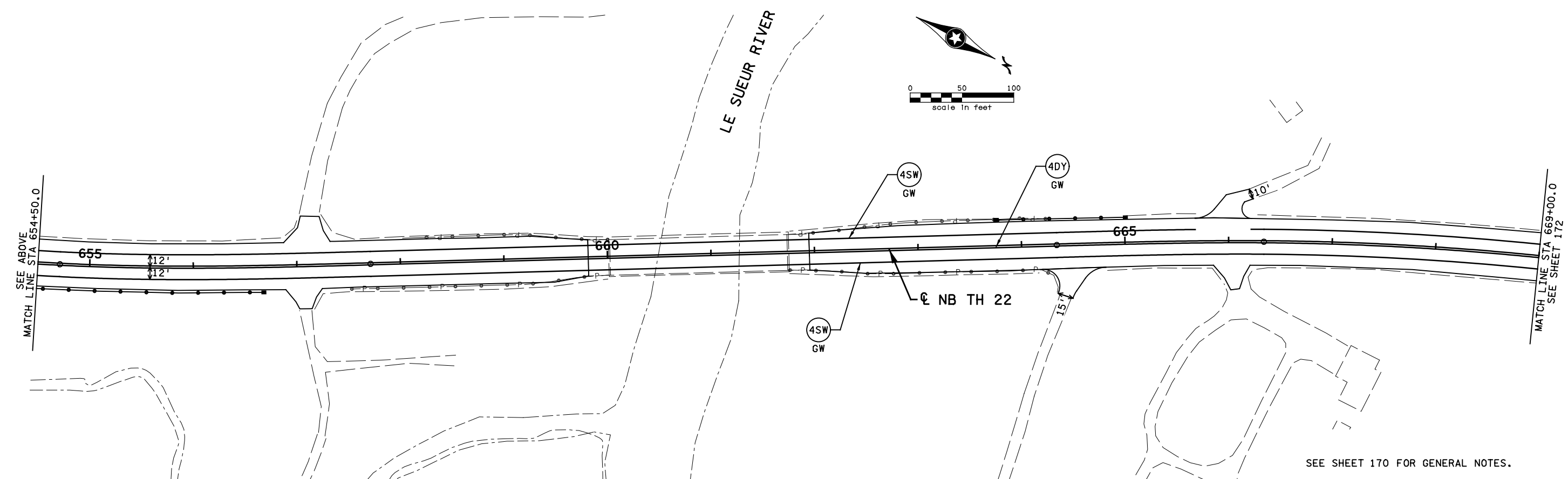
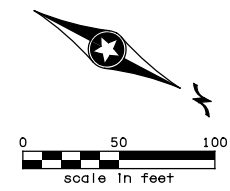
MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS
TH 22 & CSAH 90

SHEET
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OF
276



SEE SHEET 170 FOR GENERAL NOTES.



SEE SHEET 170 FOR GENERAL NOTES.

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NO	DATE	BY	CKD	APPR	REVISION

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.
 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

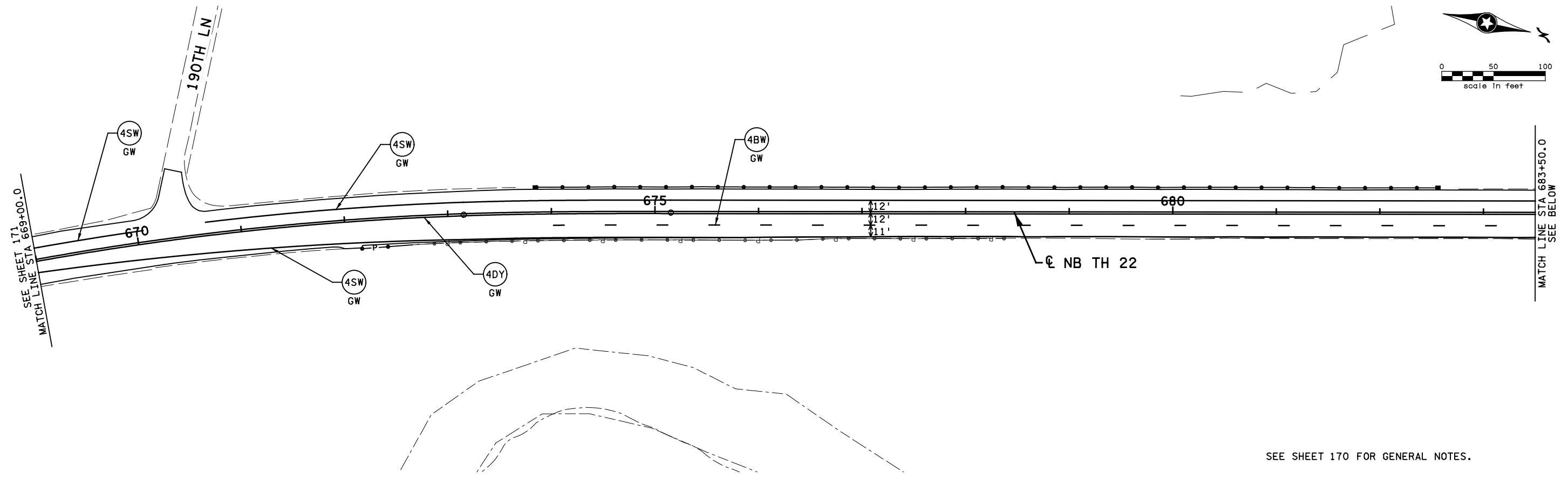
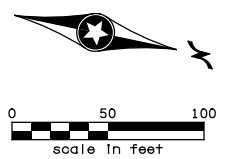
DRAWN BY B. BETTS
 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
 COMM. NO. 01710321



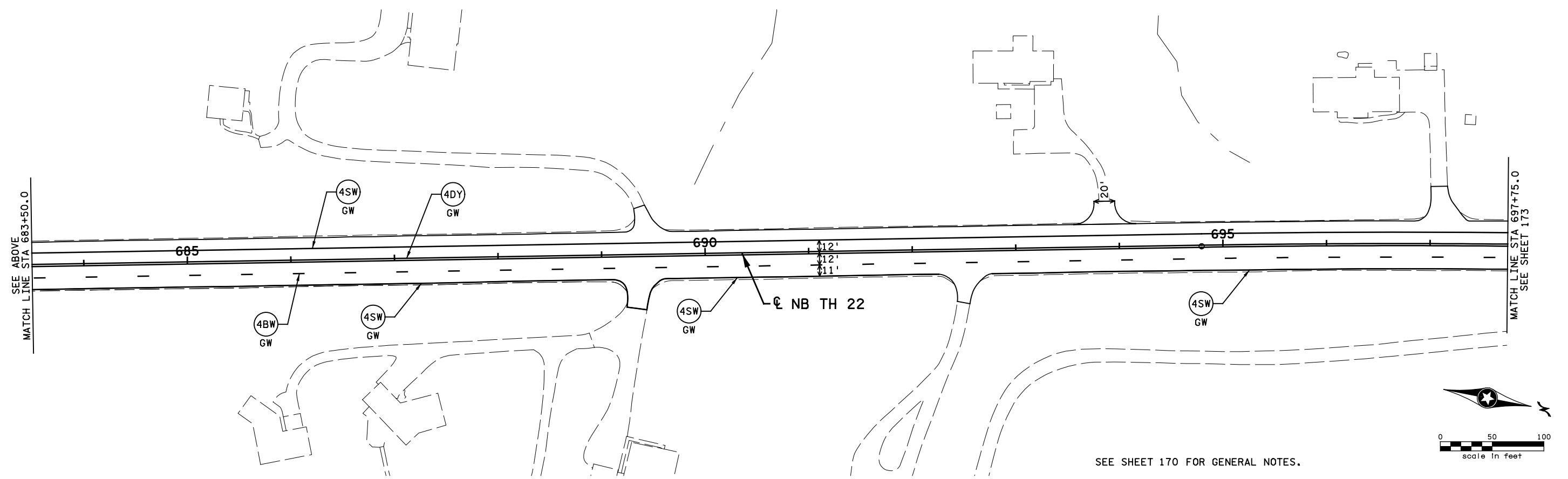
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MINNESOTA DEPARTMENT OF TRANSPORTATION
 PAVEMENT MARKING PLANS
 TH 22 & CSAH 90

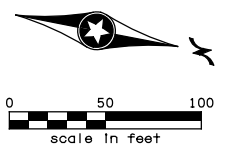
SHEET 171 OF 276



SEE SHEET 170 FOR GENERAL NOTES.



SEE SHEET 170 FOR GENERAL NOTES.



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Print Name: ADRIAN S. POTTER

Date: _____ License # 42785

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321

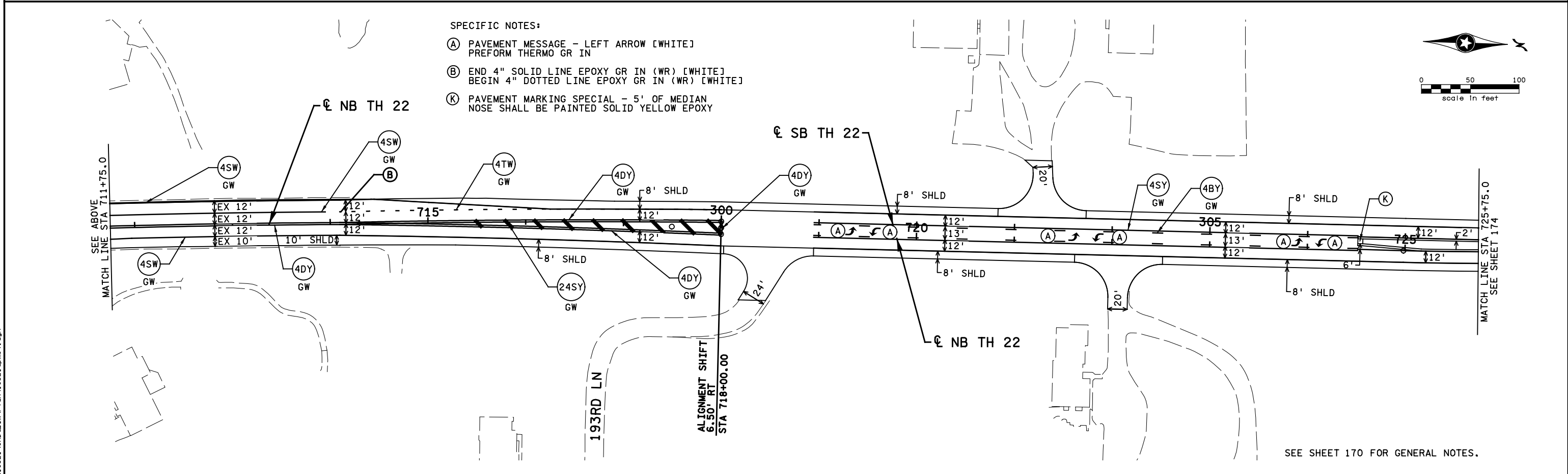
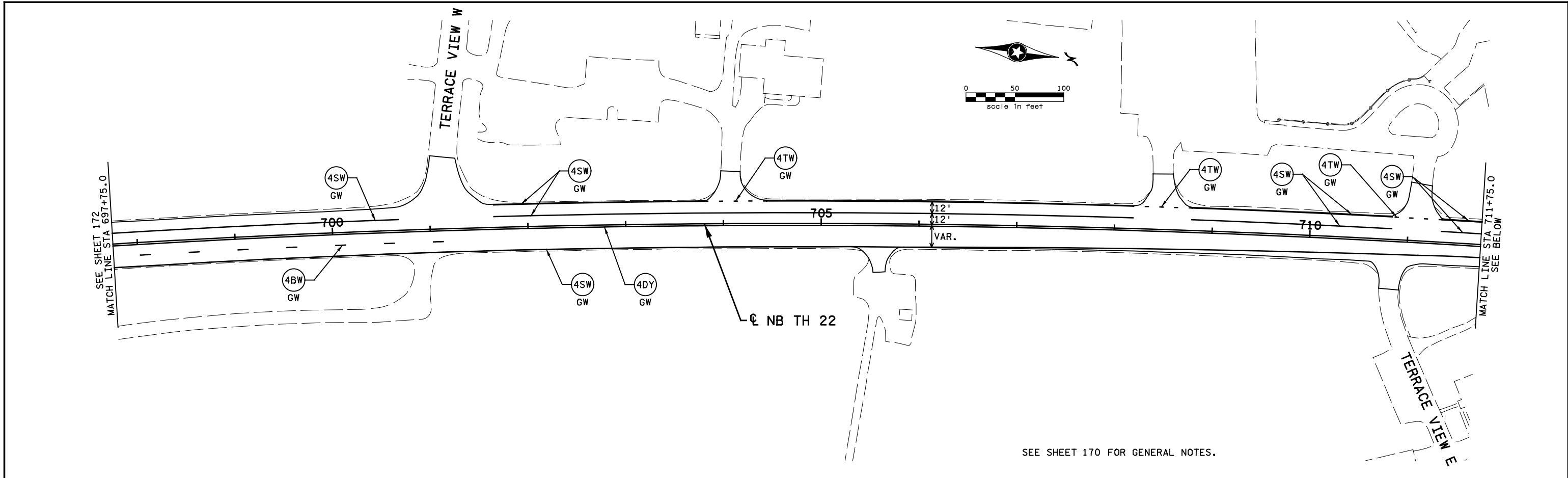


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MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS
TH 22 & CSAH 90

SHEET
172
OF
276



- SPECIFIC NOTES:**
- (A) PAVEMENT MESSAGE - LEFT ARROW [WHITE]
PREFORM THERMO GR IN
 - (B) END 4" SOLID LINE EPOXY GR IN (WR) [WHITE]
BEGIN 4" DOTTED LINE EPOXY GR IN (WR) [WHITE]
 - (K) PAVEMENT MARKING SPECIAL - 5' OF MEDIAN
NOSE SHALL BE PAINTED SOLID YELLOW EPOXY

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NO	DATE	BY	CKD	APPR	REVISION

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Print Name: ADRIAN S. POTTER

Date: _____ License # 42785

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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B. BETTS

DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321

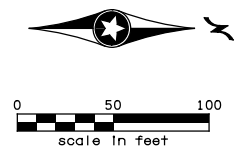


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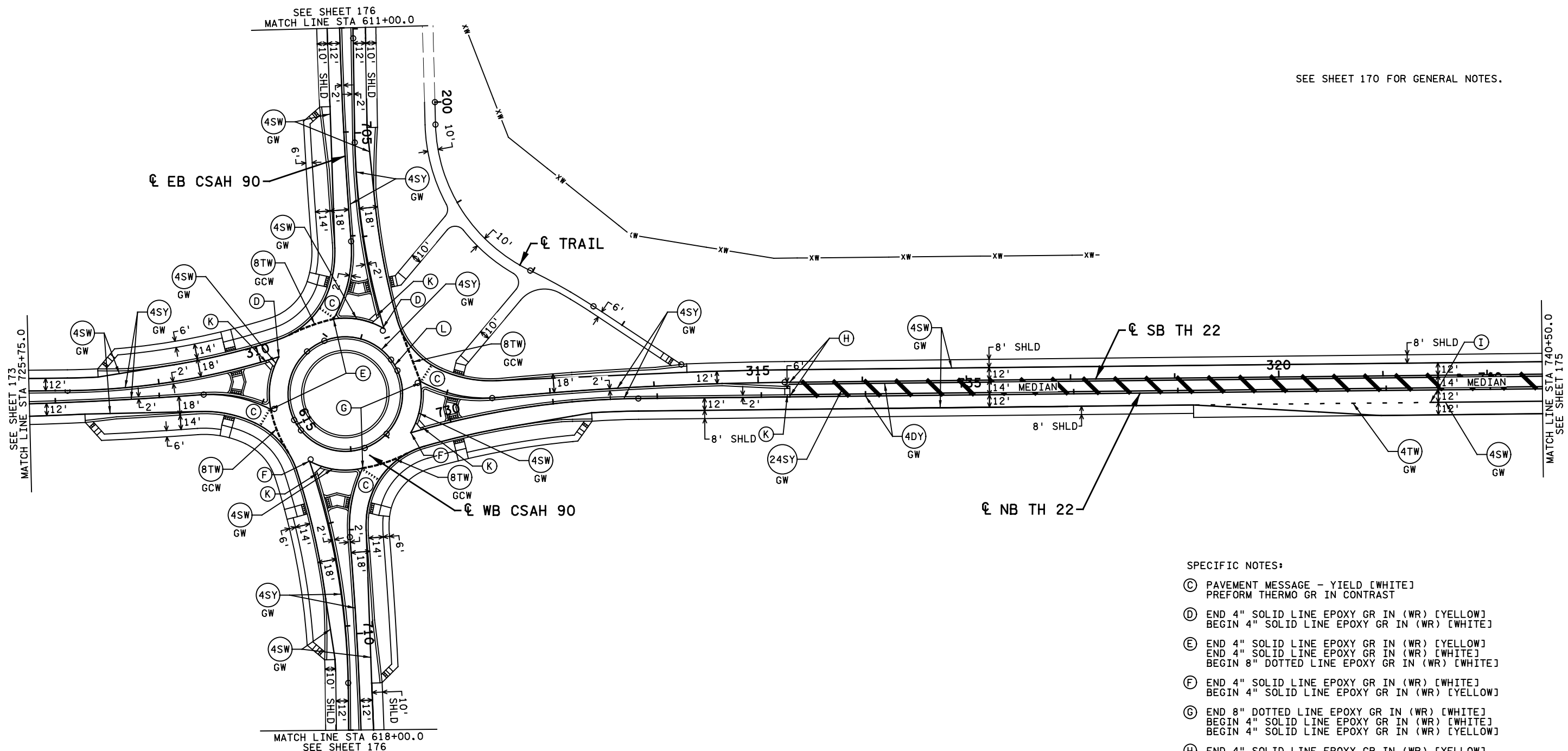
MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS
TH 22 & CSAH 90

SHEET
173
OF
276



SEE SHEET 170 FOR GENERAL NOTES.



- SPECIFIC NOTES:**
- (C) PAVEMENT MESSAGE - YIELD [WHITE]
PREFORM THERMO GR IN CONTRAST
 - (D) END 4" SOLID LINE EPOXY GR IN (WR) [YELLOW]
BEGIN 4" SOLID LINE EPOXY GR IN (WR) [WHITE]
 - (E) END 4" SOLID LINE EPOXY GR IN (WR) [YELLOW]
END 4" SOLID LINE EPOXY GR IN (WR) [WHITE]
BEGIN 8" DOTTED LINE EPOXY GR IN (WR) [WHITE]
 - (F) END 4" SOLID LINE EPOXY GR IN (WR) [WHITE]
BEGIN 4" SOLID LINE EPOXY GR IN (WR) [YELLOW]
 - (G) END 8" DOTTED LINE EPOXY GR IN (WR) [WHITE]
BEGIN 4" SOLID LINE EPOXY GR IN (WR) [WHITE]
BEGIN 4" SOLID LINE EPOXY GR IN (WR) [YELLOW]
 - (H) END 4" SOLID LINE EPOXY GR IN (WR) [YELLOW]
BEGIN 4" DOUBLE SOLID LINE EPOXY GR IN (WR) [YELLOW]
 - (I) END 4" DOTTED LINE EPOXY GR IN (WR) [WHITE]
BEGIN 4" SOLID LINE EPOXY GR IN (WR) [WHITE]
 - (K) PAVEMENT MARKING SPECIAL - 5' OF MEDIAN
NOSE SHALL BE PAINTED SOLID YELLOW EPOXY
 - (L) PAVEMENT MARKING SPECIAL - OUTSIDE TRUCK
APRON CURB SHALL BE PAINTED SOLID YELLOW EPOXY

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Print Name: ADRIAN S. POTTER

Date: _____ License # 42785

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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B. BETTS

DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321

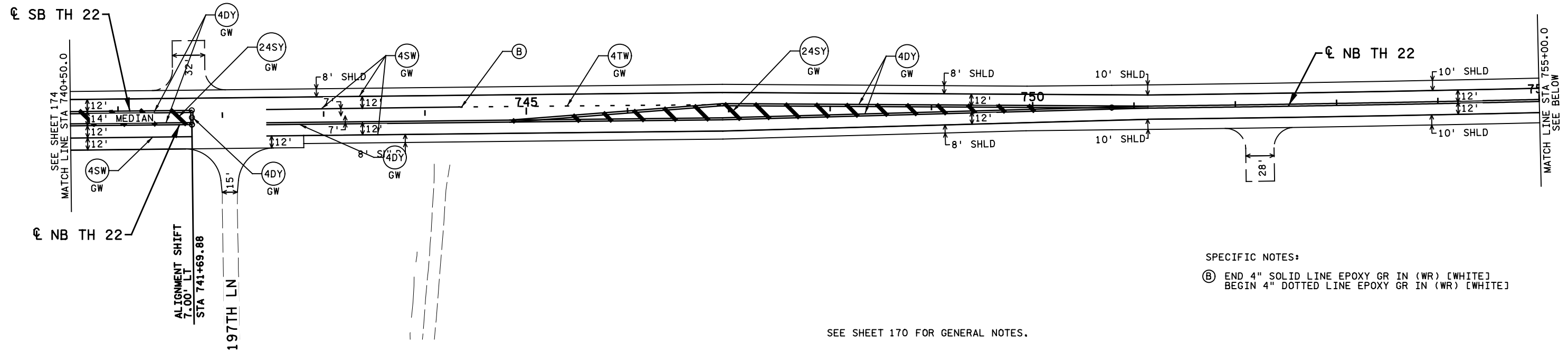
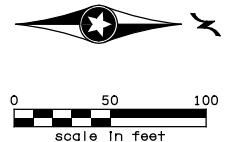


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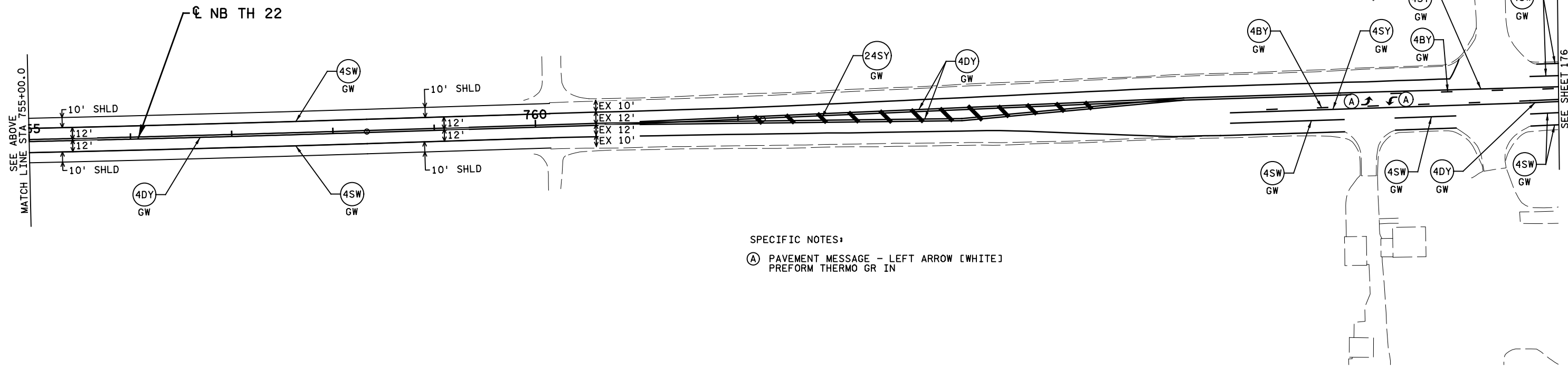
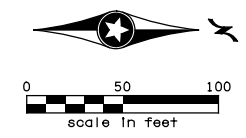
PAVEMENT MARKING PLANS
TH 22 & CSAH 90

SHEET
174
OF
276



SPECIFIC NOTES:
 (B) END 4" SOLID LINE EPOXY GR IN (WR) [WHITE]
 BEGIN 4" DOTTED LINE EPOXY GR IN (WR) [WHITE]

SEE SHEET 170 FOR GENERAL NOTES.



SPECIFIC NOTES:
 (A) PAVEMENT MESSAGE - LEFT ARROW [WHITE]
 PREFORM THERMO GR IN

SEE SHEET 170 FOR GENERAL NOTES.

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 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

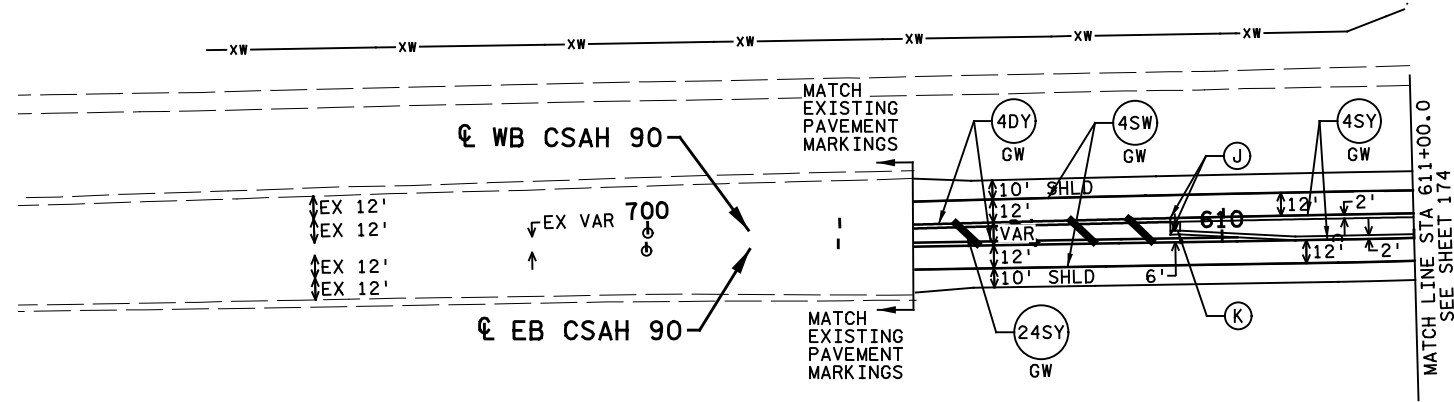
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 CHECKED BY A. POTTER
 COMM. NO. 01710321



MINNESOTA DEPARTMENT OF TRANSPORTATION
 PAVEMENT MARKING PLANS
 TH 22 & CSAH 90

SHEET 175 OF 276

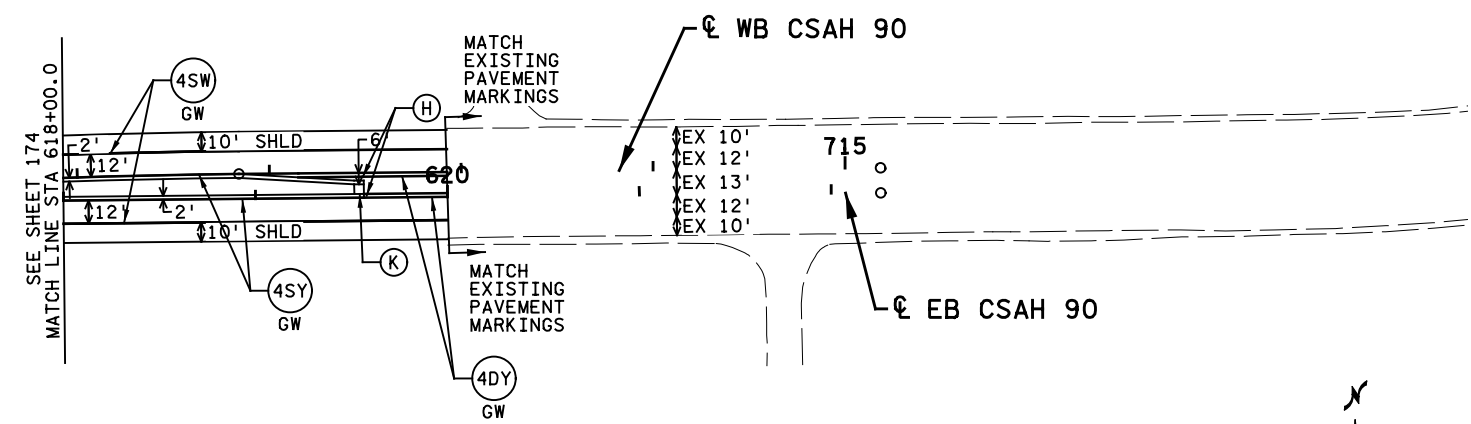
SEE SHEET 170 FOR GENERAL NOTES.



SPECIFIC NOTES:

- (J) END 4" DOUBLE SOLID LINE EPOXY GR IN (WR) [YELLOW]
BEGIN 4" SOLID LINE EPOXY GR IN (WR) [YELLOW]
- (K) PAVEMENT MARKING SPECIAL - 5' OF MEDIAN
NOSE SHALL BE PAINTED SOLID YELLOW EPOXY

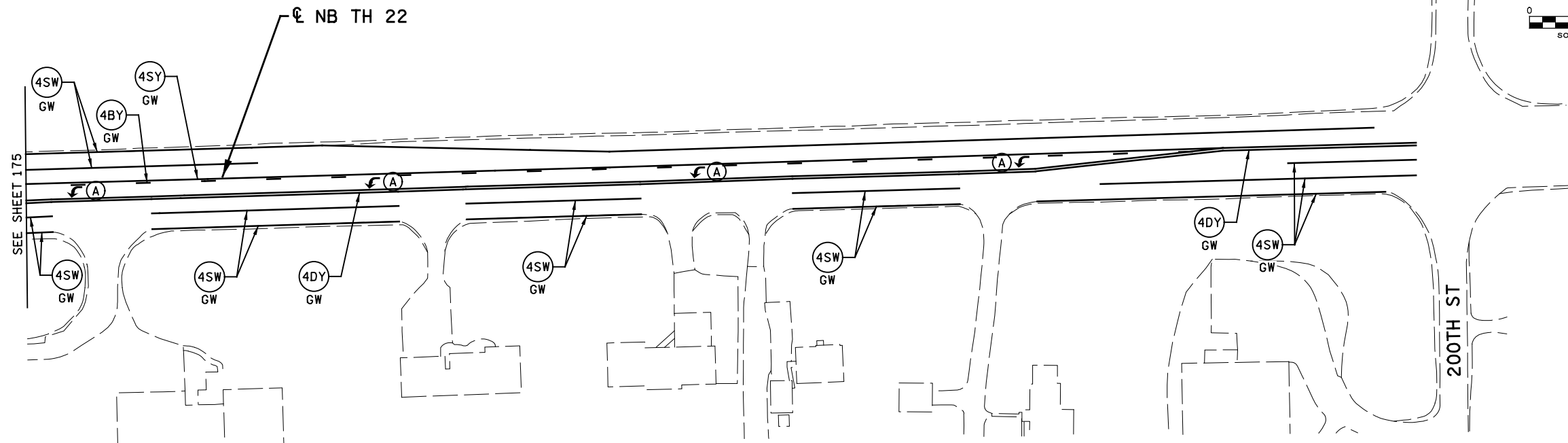
SEE SHEET 170 FOR GENERAL NOTES.



SPECIFIC NOTES:

- (H) END 4" SOLID LINE EPOXY GR IN (WR) [YELLOW]
BEGIN 4" DOUBLE SOLID LINE EPOXY GR IN (WR) [YELLOW]
- (K) PAVEMENT MARKING SPECIAL - 5' OF MEDIAN
NOSE SHALL BE PAINTED SOLID YELLOW EPOXY

SEE SHEET 170 FOR GENERAL NOTES.



SPECIFIC NOTES:

- (A) PAVEMENT MESSAGE - LEFT ARROW [WHITE]
PREFORM THERMO GR IN

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Print Name: ADRIAN S. POTTER

Date: License # 42785

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY B. BETTS
DESIGNED BY B. BETTS
CHECKED BY A. POTTER

COMM. NO. 01710321



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PAVEMENT MARKING PLANS
TH 22 & CSAH 90

SHEET
176
OF
276

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NO	DATE	BY	CKD	APPR	REVISION

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REMOVE SIGN TYPE C				U
	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	QTY
	22	4	12	EACH 38
TOTALS	22	4	12	
PROJECT TOTAL				38

REMOVE MARKERS AND DELINEATORS				Y
	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	QTY
				EACH 4
REMOVE DELINEATOR	4			
REMOVE MARKER	1			
TOTALS	5			
PROJECT TOTAL				5


SALVAGE SIGN TYPE C							Z			
SIGN NO	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	QTY	POSTS		PANEL		PANEL LEGEND	
					NO & TYPE	KNEE BRACES QTY	SIZE			
				EACH			INCH			
C-101	1			1	2-U	1	60	x	36	ADOPT A HWY
TOTALS				1						
PROJECT TOTAL				1						

SPECIFIC NOTES:
(Z-1) SIGN PANEL IS TO BE SALVAGED AND RETURNED TO MNDOT DISTRICT 7 SIGN SHOP IN MANKATO.
PLEASE CONTACT TOM BROOKS AT 507.317.6406 TO DROP OFF SIGN.

SALVAGE AND INSTALL SIGN TYPE SPECIAL							FF	
SIGN NO	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	QTY	POSTS		MTG HEIGHT (FF-1)	PANEL LEGEND
					NO & TYPE	LENGTH (FF-2)		
				EACH		FEET	FEET	
(FF-3) C-201			1	1	1-U	12	7	197 LN
								197 LN
TOTALS				1				
PROJECT TOTAL				1				

SPECIFIC NOTES:
(FF-1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE)
(FF-2) LENGTH IS APPROXIMATE.
(FF-3) MOUNTED BACK TO BACK.

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: <u>ADRIAN S. POTTER</u> Date: _____ License # <u>42785</u>					STATE PROJECT NO. 0704-108 (TH 22) STATE PROJECT NO. 007-070-005	DRAWN BY B. BETTS DESIGNED BY B. BETTS CHECKED BY A. POTTER COMM. NO. 01710321	 ENGINEERS PLANNERS DESIGNERS	MINNESOTA DEPARTMENT OF TRANSPORTATION SIGNING PLANS TH 22 & CSAH 90 TABULATIONS	SHEET 177 OF 276	
NO DATE BY CKD APPR REVISION										

SIGN PANELS TYPE C

W

SIGN	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	TOTAL QTY	POSTS			MTG HT (W-1)	PANEL				CODE NO	PANEL LEGEND		
					NO & TYPE	KNEE BRACE QTY	LENGTH		SIZE	AREA	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS			SP 007-070-005 (CSAH 90) HSIP FUNDS	TOTAL AREA
C-1	2			2	2-U		15	7	24 x 30	5.00	10.00		10.00	R4-3	SLOWER TRAFFIC KEEP RIGHT	
C-2	5			5	2-U	1	16	7	36 x 36	9.00	45.00		45.00	R1-1	STOP	
C-3	1			1	2-U		15	7	30 x 30	6.25	6.25		6.25	W14-1	DEAD END	
C-4	1			1	2-U	1	12	7	48 x 24	8.00	8.00		8.00	W1-7	DOUBLE ARROW	
C-5	1			1	2-U	1	16	7	36 x 36	9.00	9.00		9.00	S3-1	SCHOOL BUS STOP AHEAD	
C-6	1			1	2-U	1	16	7	36 x 36	9.00	9.00		9.00	W9-1R	RIGHT LANE ENDS	
C-7	1			1	2-U	1	16	7	60 x 36	15.00	15.00		15.00	I-X1	ADOPT A HIGHWAY (BETHANY LUTHERAN COLLEGE SINCE 2001)	
C-8	1			1	2-U	1	16	7	60 x 36	15.00	15.00		15.00	I-X1	ADOPT A HIGHWAY (SIGMA NU FRATERNITY SINCE 2008)	
C-9	1			1	2-U	1	16	7	36 x 36	9.00	9.00		9.00	W20-X3R	MERGE RIGHT	
C-10	4			4	2-U	1	16	7	36 x 36	9.00	36.00		36.00	R3-7R	RIGHT LANE MUST TURN RIGHT	
C-11	2			2	2-U		16	7	30 x 36	7.50	15.00		15.00	R2-1	SPEED LIMIT 60	
C-12	2			2	2-U	1	17	7	24 x 12	2.00	4.00		4.00	M4-14	BEGIN	
C-13	1			1	2-U		16	7	24 x 36	6.00	12.00		12.00	R3-9b	CENTER LEFT TURN LANE	
C-14	2		2	4	2-U	1	16	7	24 x 12	2.00	2.00		2.00	M3-3a	SOUTH (BLUE)	
(W-3) C-15		2	2	4	2-U		15	7	24 x 24	4.00	4.00		4.00	M1-5a	MINNESOTA HWY 22	
C-16		2	2	4	2-U	1	18	7	24 x 30	5.00	10.00	10.00	18.00	36.00	W3-2	YIELD AHEAD
(W-3) C-17		2	2	4	2-U	2	20	7	24 x 30	5.00		10.00	10.00	20.00	R4-7	KEEP RIGHT
C-18		2	2	4	2-U	1	17	7						X4-2	OBJECT MARKER	
(W-3) C-19		4		4	2-U	1	16	7	36 x 12	3.00	6.00	6.00	12.00	W16-17P	ROUNDBOUT PLAQUE	
C-20			1	1	2-U		16	7	30 x 30	6.25	12.50	12.50	25.00	W2-6a	ROUNDBOUT	
(W-5) C-21	1			1	2-U		14	7	18 x 18	2.25	4.50	4.50	9.00	W13-1P	20 MPH	
C-22			1	1	2-U		16	7	48 x 48 x 48	6.93	13.86	13.86	27.72	R1-2	YIELD	
C-23	1			1	2-U		17	7	30 x 36	7.50	15.00	15.00	30.00	R6-2R	ONE WAY RIGHT	
C-24			2	2	2-U		16	7	48 x 48 x 48	6.93	13.86	13.86	27.72	R1-2	YIELD	
C-25			2	2	2-U		16	7	54 x 18	6.93	27.72	27.72	27.72	R6-1R	ONE WAY RIGHT	
C-26	2			2	2-U	1	17	7	60 x 24	10.00	40.00		40.00	R6-4b	ROUNDBOUT DIRECTIONAL (4 ARROWS)	
									24 x 12	2.00		2.00	2.00	M3-2a	EAST (BLUE)	
									24 x 24	4.00		4.00	4.00	M1-6	BLUE EARTH COUNTY 90	
									24 x 12	2.00	2.00		2.00	M3-1a	NORTH (BLUE)	
									24 x 24	4.00	4.00		4.00	M1-5a	MINNESOTA HWY 22	
														D10-2	MILE 48	
									24 x 12	2.00		2.00	2.00	M3-4a	WEST (BLUE)	
									24 x 24	4.00		4.00	4.00	M1-6	BLUE EARTH COUNTY 90	
									36 x 30	7.50	7.50		7.50	R3-8AC	LANE USE (L/T)	
									30 x 36	7.50		15.00	15.00	R2-1	SPEED LIMIT 55	
									24 x 12	2.00	4.00		4.00	M4-6	END	
									24 x 36	6.00	12.00		12.00	R3-9b	CENTER LEFT TURN LANE	
TOTALS											246.75	143.44	120.72			
PROJECT TOTAL														511.00		

SPECIFIC NOTES:

- (W-1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE) SEE SHEET NO. 201 FOR TYPICAL MOUNTING.
- (W-2) FOR PUNCHING AND MOUNTING DETAILS, SEE MNDOT STANDARD SIGNS AND MARKING MANUAL PAGE 110.
- (W-3) MOUNT IN CONCRETE, SEE SHEET NO. #SD07.
- (W-4) PLACE PER MANUFACTURER'S DETAIL USING A 10 GAUGE, 2-1/2" x 2-1/2" PRE-PUNCHED, GALVANIZED STEEL, SQUARE TUBE POST WITH A 10 GAUGE, 2-3/16" x 2-3/16" x 8', PRE-PUNCHED GALVANIZED STEEL INTERNAL SQUARE TUBE INSERT. THIS ASSEMBLY REQUIRES STRINGERS AND SLIP BASES.
- (W-5) MOUNT MILE 48 REFERENCE LOCATION SIGN TO TYPE C SIGN POST. SEE TAB CC.

GENERAL NOTES:

- 1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
- 2. SEE SHEET 198 FOR SIGN PLACEMENT DETAILS.
- 3. SEE SHEETS 200 TO 201 FOR STRUCTURAL DETAILS.
- 4. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.

2:50:51 PM H:\P\2010\Projects\10000\10321\CAD_BIM\plan\10321_sd02.dgn

NO	DATE	BY	CKD	APPR	REVISION

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 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY B. BETTS
 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
 COMM. NO. 01710321



ENGINEERS
 PLANNERS
 DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
 SIGNING PLANS
 TH 22 & CSAH 90
 TABULATIONS

SHEET
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 OF
 276

SIGN PANELS TYPE D																X
SIGN NO	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	TOTAL QTY	POSTS				MTG HT (X-1) FEET	PANEL						PANEL LEGEND
					NO & TYPE	KNEE BRACE QTY	LENGTH	SPACING		SIZE	AREA	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	TOTAL AREA	
							FEET	INCH		INCH	SQ FT	SQ FT	SQ FT	SQ FT		
D-1	1			1	4-U	4	20	45	7	144 x 84	84.00	84.00			84.00	WEST 90 22 NORTH EAST 90 RAB
D-2	1			1	4-U	4	20	45	7	144 x 84	84.00	84.00			84.00	EAST 90 22 SOUTH WEST 90 RAB
D-3			1	1	4-U	4	20	45	7	150 x 84	87.50			87.50	87.50	NORTH 22 EAST 90 SOUTH 22 RAB
D-4			1	1	4-U	4	20	45	7	150 x 84	87.50			87.50	87.50	SOUTH 22 WEST 90 NORTH 22 RAB
D-5			2	2	3-U	3	19	45	7	108 x 72	54.00			108.00	108.00	MN 22 ROUNDABOUT 1/2 MILE
(X-3) D-6		1		1	2-U	2	18	30	7	54 x 66	24.75		24.75		24.75	NORTH 22
(X-3) D-7			1	1	2-U	1	18	30	7	48 x 66	22.00			22.00	22.00	EAST 90
(X-3) D-8			1	1	2-U	1	18	30	7	48 x 66	22.00			22.00	22.00	WEST 90
(X-3) D-9		1		1	2-U	2	18	30	7	54 x 66	24.75		24.75		24.75	SOUTH 22
D-10	1			1	3-U	3	19	45	7	108 x 78	58.50	58.50			58.50	ROUNDABOUT 1/2 MILE
TOTALS												226.50	49.50	327.00		
PROJECT TOTAL															603.00	

SPECIFIC NOTES:

- (X-1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE) SEE SHEET 201 FOR TYPICAL MOUNTING.
- (X-2) SEE STANDARD SIGNS MANUAL (E5-1).
- (X-3) MOUNT IN CONCRETE, SEE SHEET 202.
- (X-4) 2-1/2" x 2-1/2" 10 GAUGE PRE-PUNCHED GALVANIZED STEEL SQUARE TUBE POST WITH A 2-3/16" x 2-3/16" 10 GAUGE PRE-PUNCHED GALVANIZED STEEL SQUARE TUBE INTERNAL POST. THIS ASSEMBLY REQUIRES STRINGERS AND SLIP BASES. PLACE PER MANUFACTURER'S DETAIL.

GENERAL NOTES:

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 198 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 200 TO 201 FOR STRUCTURAL DETAILS.
4. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR TYPE D STRINGER AND PANEL JOINT DETAILS.
5. SEE SHEETS 196 TO 197 FOR SIGN PANELS.

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NO	DATE	BY	CKD	APPR	REVISION
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 Print Name: ADRIAN S. POTTER
 Date: _____ License # 42785

STATE PROJECT NO. 0704-108 (TH 22)
 DESIGNED BY B. BETTS
 STATE PROJECT NO. 007-070-005
 CHECKED BY A. POTTER
 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
SIGNING PLANS
TH 22 & CSAH 90
TABULATIONS

SHEET
179
OF
276


MARKERS AND DELINEATORS							V
CODE NO	SIZE (INCH)	COLOR	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	QUANTITY (EACH)	
(V-2) X3-1	9.5X12.75	GREEN ON WHITE	23			23	
(V-1) X4-2	18 x 18	YELLOW ON YELLOW	5			5	
(V-1) X4-3	6 x 12	YELLOW	4			4	
(V-3) X4-4 (C)	12 x 36	BLACK ON YELLOW					
(V-3) DELINEATOR TYPE RECOVERABLE				2	2	4	
(V-1) X4-12a	6 x 15	BLACK ON WHITE	1			1	
(V-4) X4-13		WHITE	5			5	
TOTALS			38	2	2		
PROJECT TOTAL						42	

SPECIFIC NOTES:
(V-1) MOUNT ON 3LB/FT POST (MNDOT 3401).
(V-2) X4-2 ARE MOUNTED BELOW C-15. X4-2 ARE MOUNTED ON 3 LB POSTS.
(V-3) X4-4(C) MOUNTED ATOP DELINEATOR TYPE RECOVERABLE AT MEDIAN NOSES.
(V-4) X4-13 ARE MOUNTED BELOW C-2 SIGNS.
GENERAL NOTES:
1. FOR MARKER PLACEMENT, SEE SHEET NO. 199 .
2. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR MARKER DETAIL.

REFERENCE LOCATION SIGN (CC-1)							CC
CODE NO	SP 0704-108 (TH 22) NHPP FUNDS	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS	QTY	SIZE (INCH)	LEGEND	
				EACH			
(CC-2) D10-2	1			1	10 x 27	MILE 47	
(CC-3) D10-2	1			1	10 x 27	MILE 48	
TOTALS				2			
PROJECT TOTAL				2			

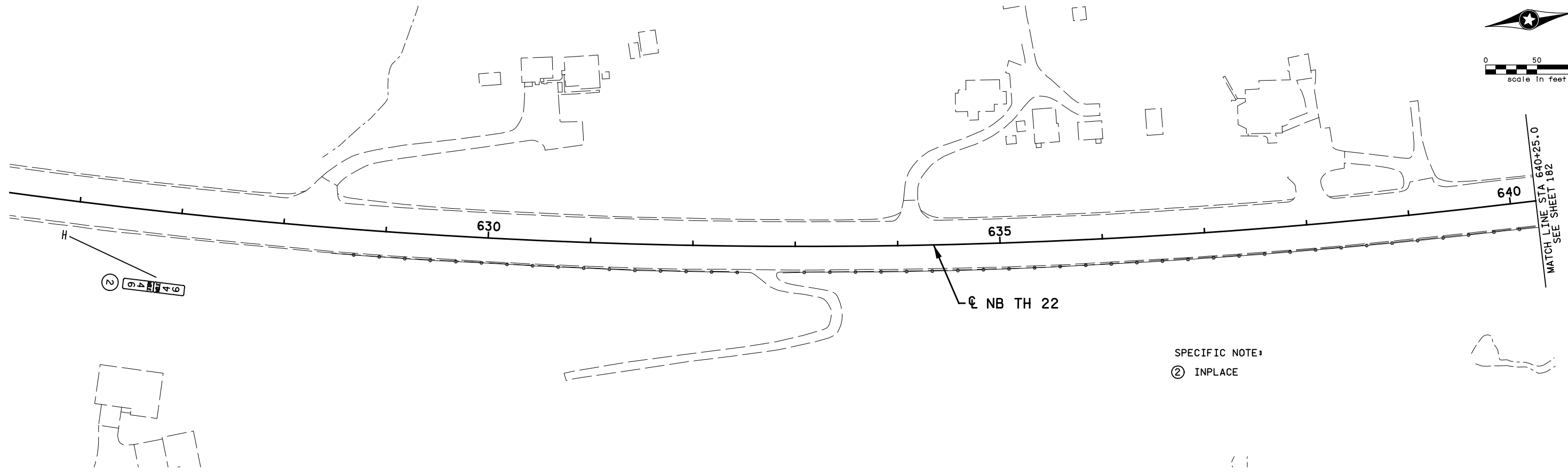
SPECIFIC NOTES:
(CC-1) MOUNT ON 3 LB/FT POST (MNDOT 3401).
(CC-2) MOUNT BACK TO BACK.
(CC-3) MOUNT WITH C-21.
GENERAL NOTE:
1. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR REFERENCE LOCATION SIGN DETAIL.
2. FOR REFERENCE LOCATION SIGN PLACEMENT, SEE SHEET NO. #SD04.

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NO DATE BY CKD APPR REVISION										



0 50 100
scale in feet



SPECIFIC NOTE:
② INPLACE

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Date: _____ License # 42785

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0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321



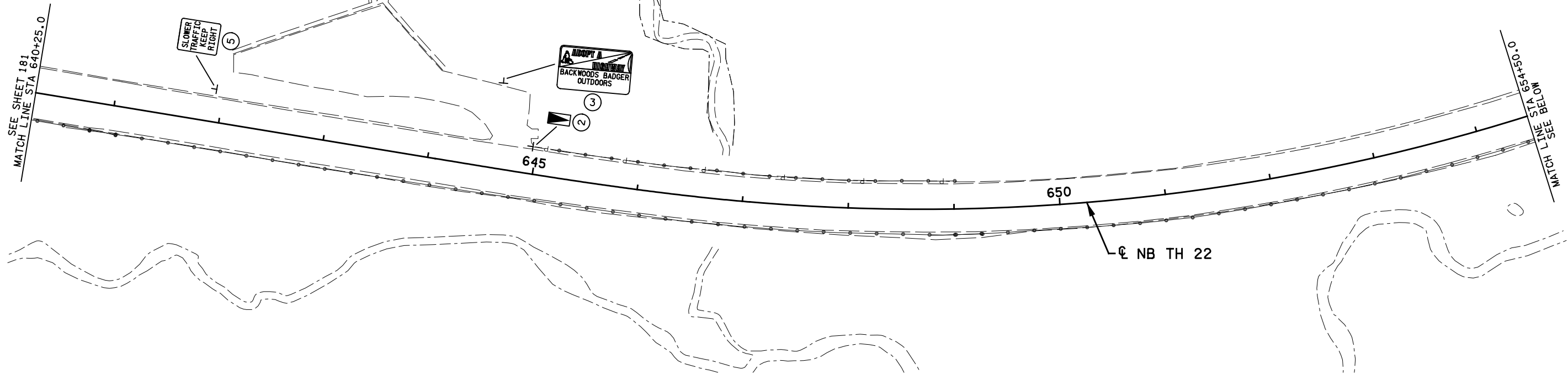
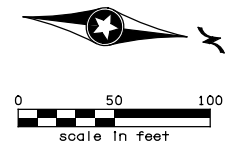
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PLANNERS
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MINNESOTA DEPARTMENT OF TRANSPORTATION

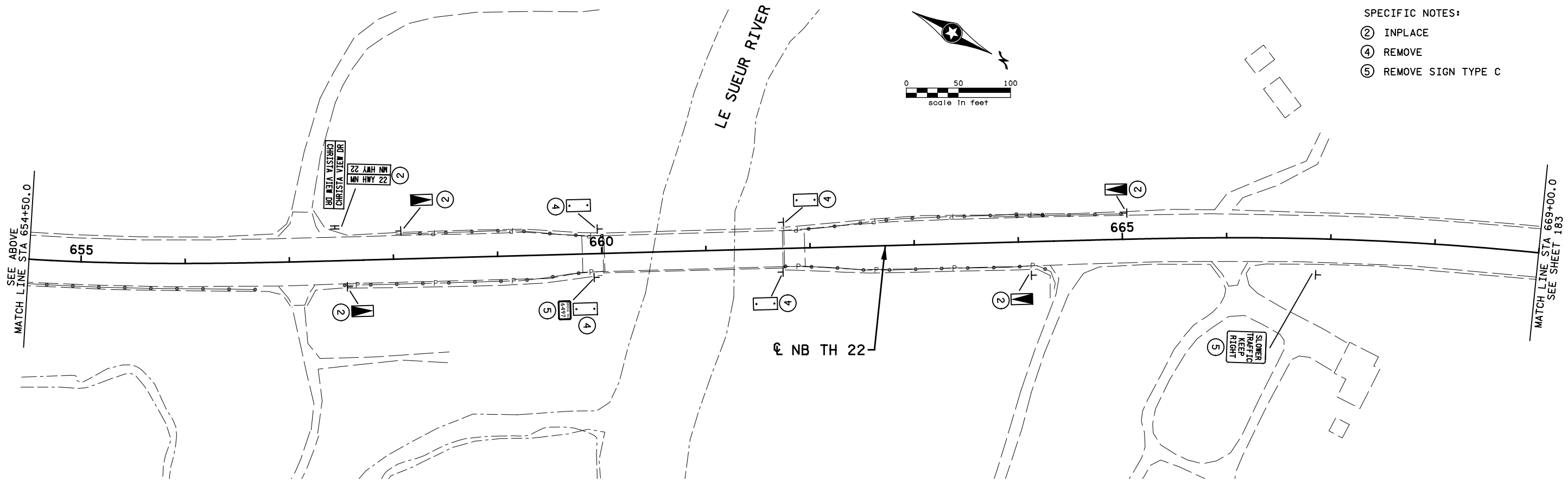
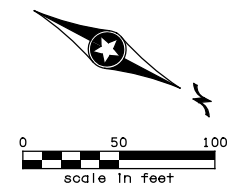
SIGNING REMOVAL PLANS
TH 22 & CSAH 90

SHEET
181
OF
276

- SPECIFIC NOTES:
- ② INPLACE
 - ③ SALVAGE
 - ⑤ REMOVE SIGN TYPE C



- SPECIFIC NOTES:
- ② INPLACE
 - ④ REMOVE
 - ⑤ REMOVE SIGN TYPE C



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 SIGNING REMOVAL PLANS
 TH 22 & CSAH 90

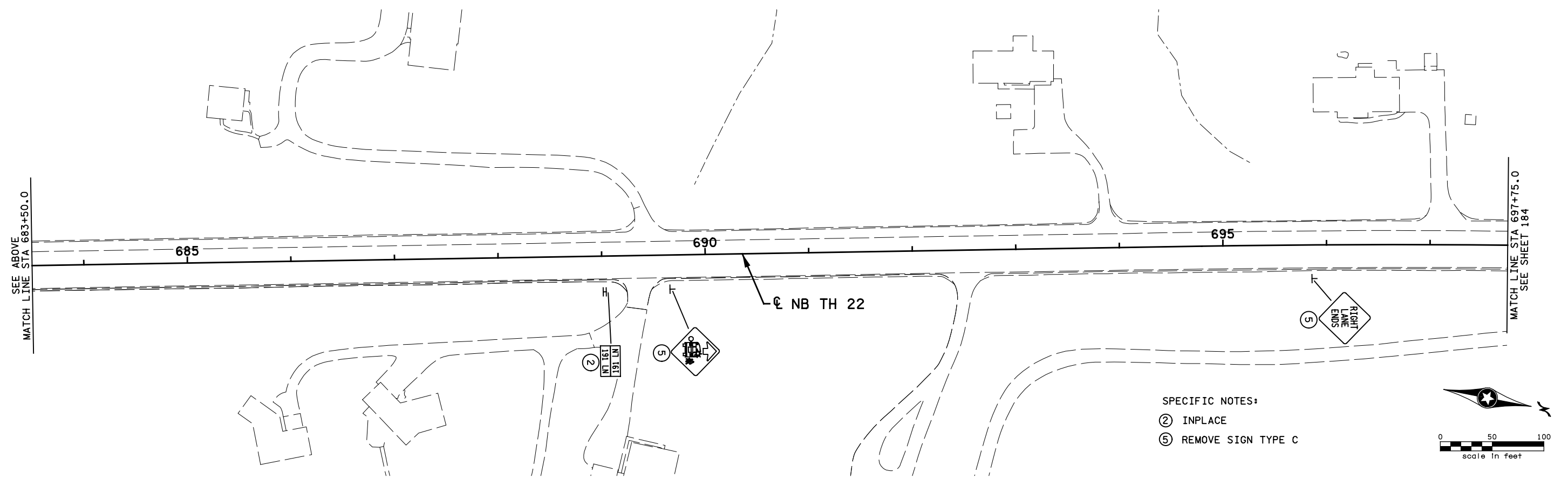
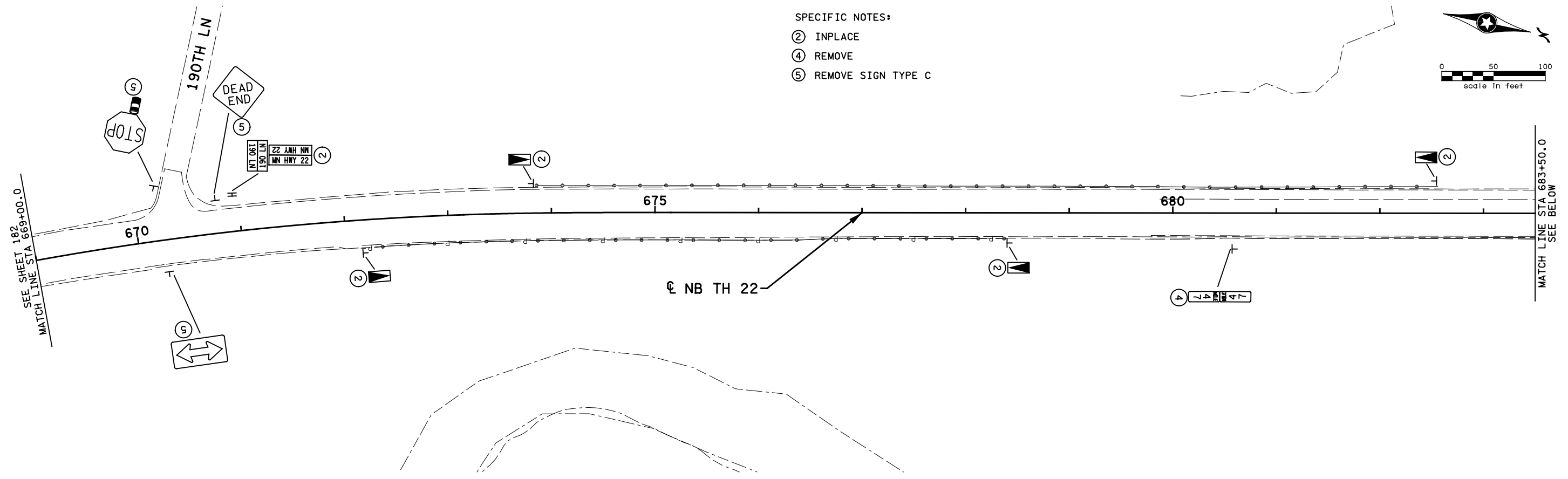
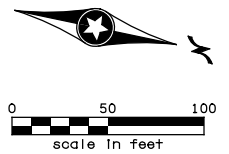
SHEET
 182
 OF
 276

NO	DATE	BY	CKD	APPR	REVISION

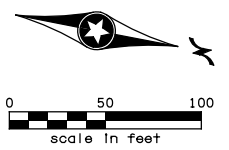
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- SPECIFIC NOTES:
- ② INPLACE
 - ④ REMOVE
 - ⑤ REMOVE SIGN TYPE C



- SPECIFIC NOTES:
- ② INPLACE
 - ⑤ REMOVE SIGN TYPE C



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Date: _____ License # 42785

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007-070-005

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COMM. NO. 01710321

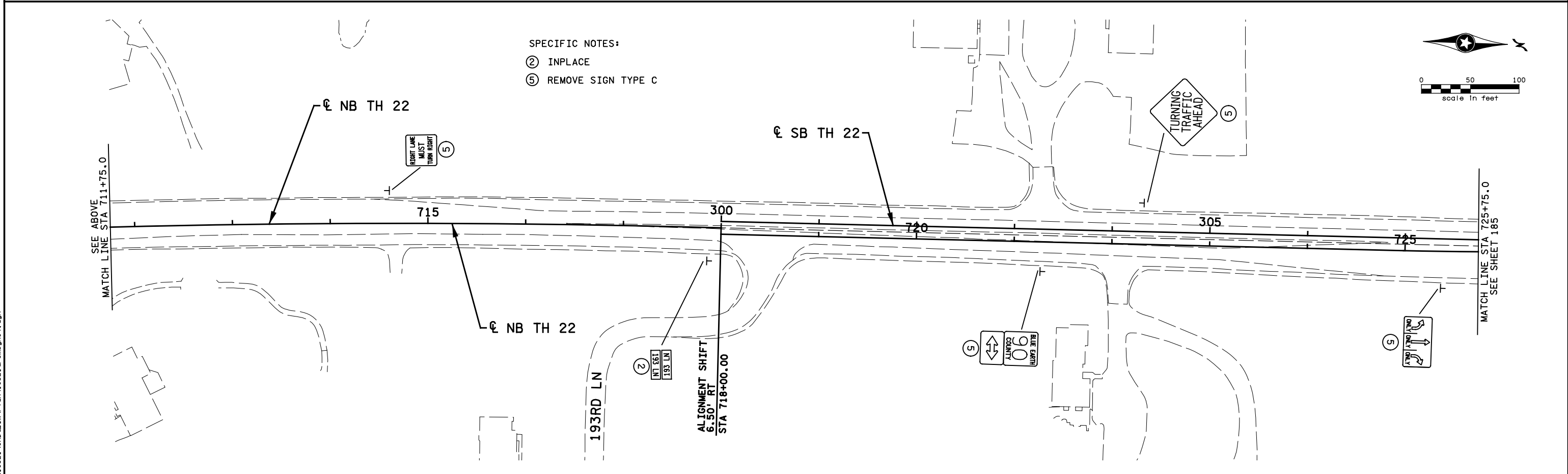
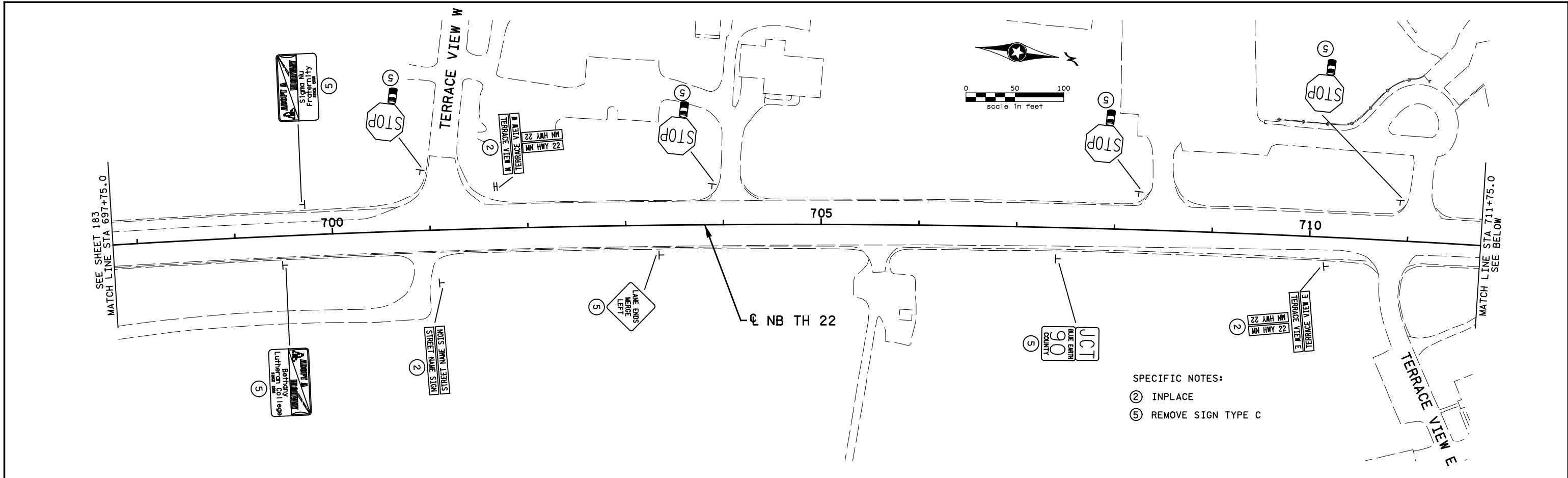


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SIGNING REMOVAL PLANS
TH 22 & CSAH 90

SHEET
183
OF
276



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 STATE PROJECT NO. 007-070-005

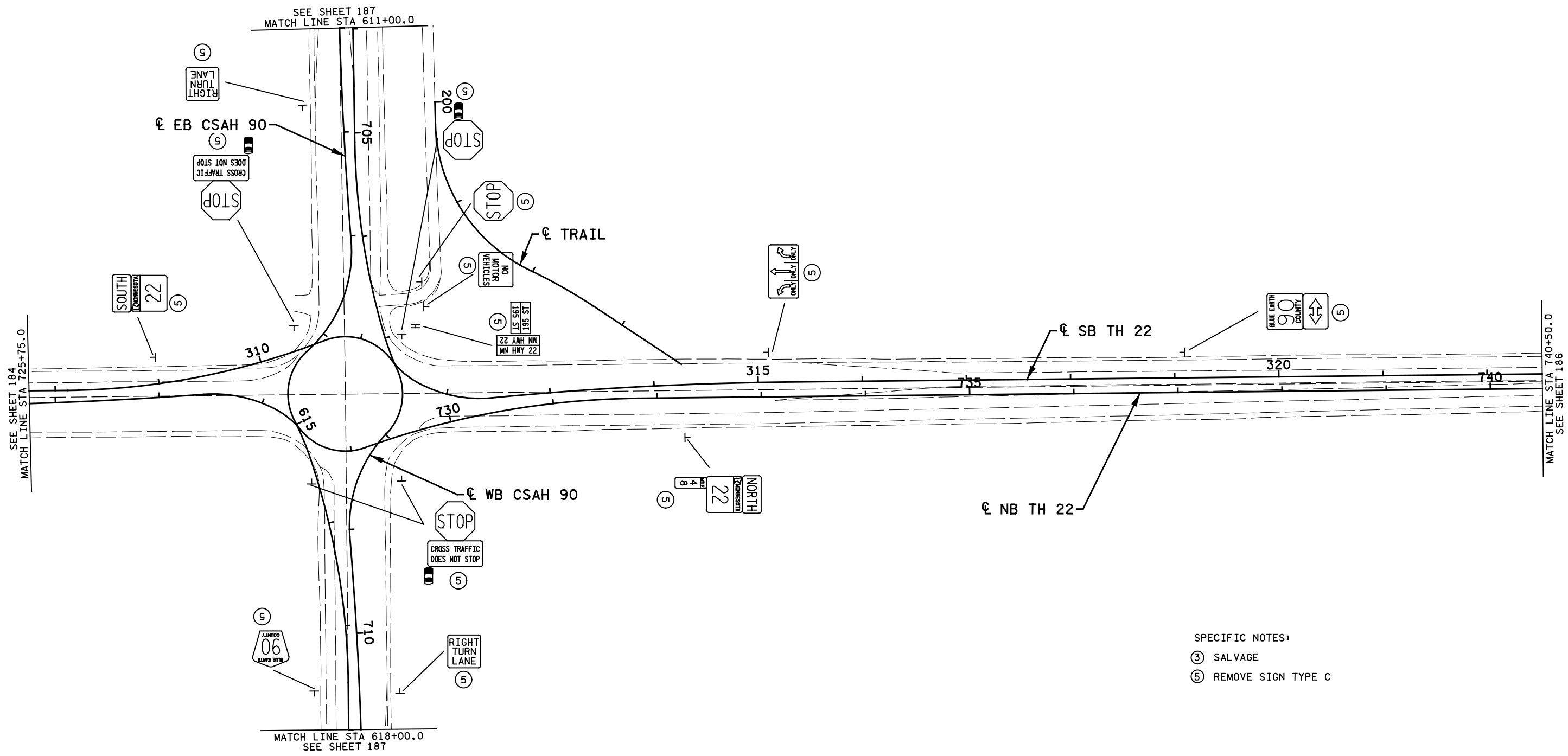
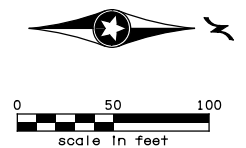
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 DESIGNED BY B. BETTS
 CHECKED BY A. POTTER
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 SIGNING REMOVAL PLANS
 TH 22 & CSAH 90

SHEET
 184
 OF
 276



SPECIFIC NOTES:
 ③ SALVAGE
 ⑤ REMOVE SIGN TYPE C

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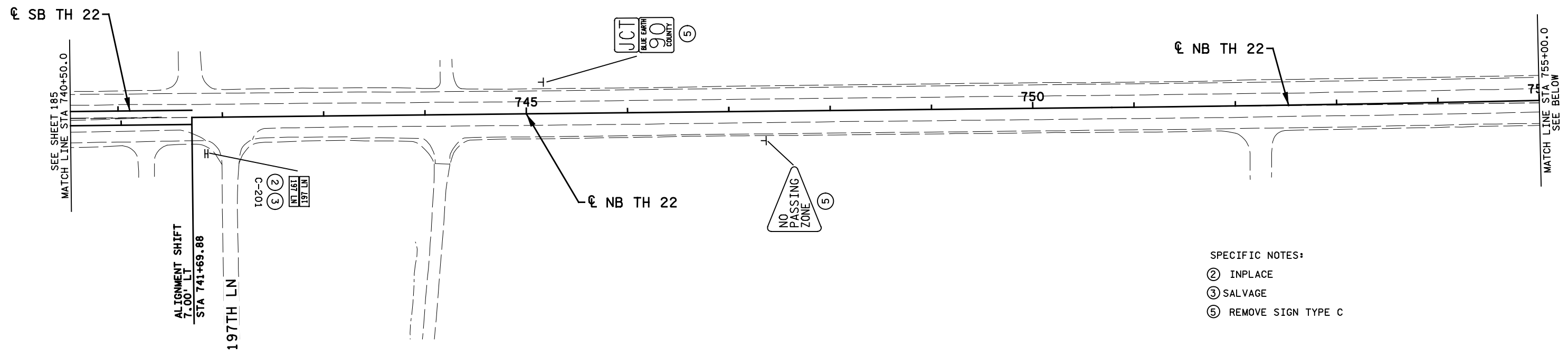
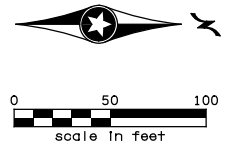


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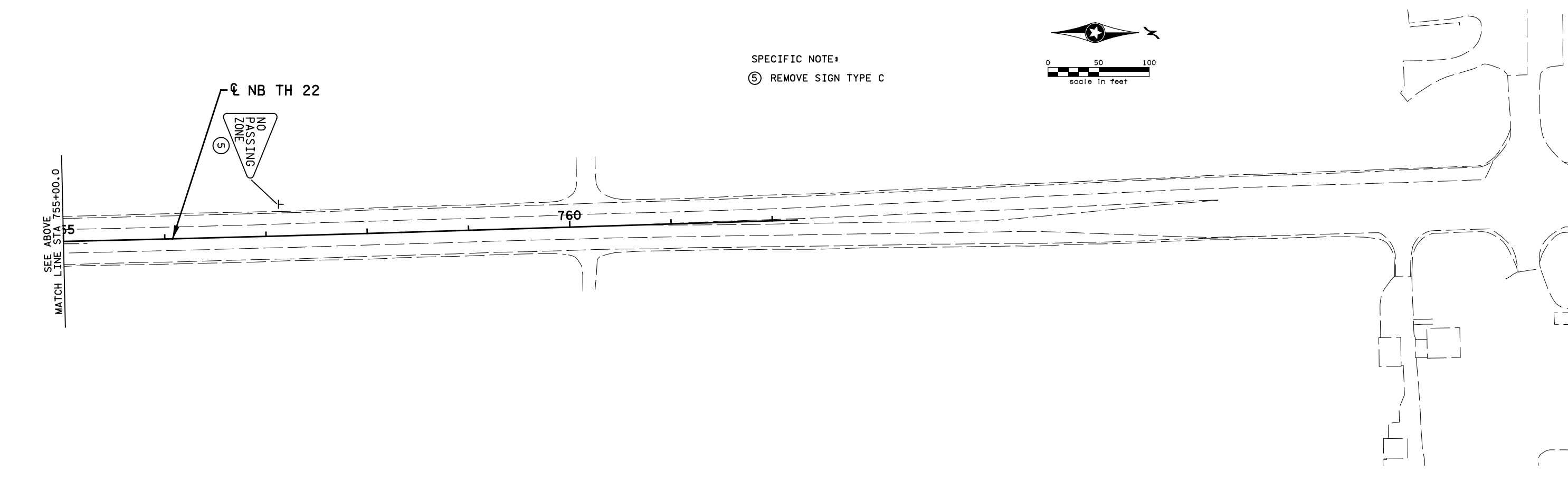
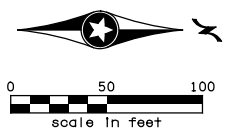
MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGNING REMOVAL PLANS
TH 22 & CSAH 90

SHEET
185
OF
276



- SPECIFIC NOTES:
- ② INPLACE
 - ③ SALVAGE
 - ⑤ REMOVE SIGN TYPE C



- SPECIFIC NOTE:
- ⑤ REMOVE SIGN TYPE C

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Date: _____ License # 42785

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STATE PROJECT NO. 007-070-005

COMM. NO. 01710321

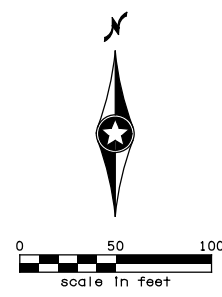
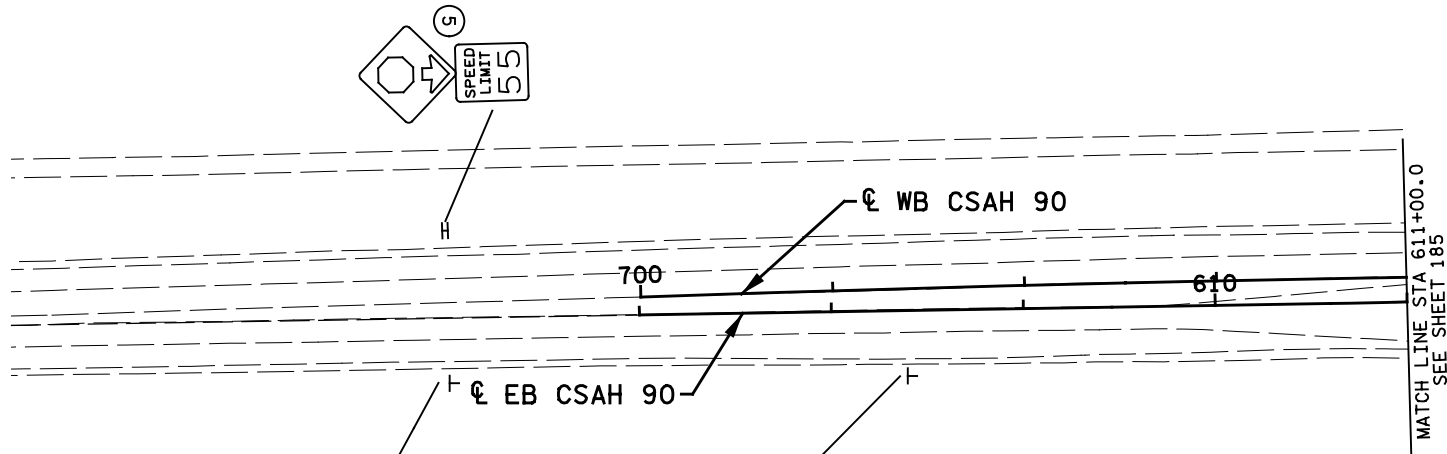
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 PLANNERS
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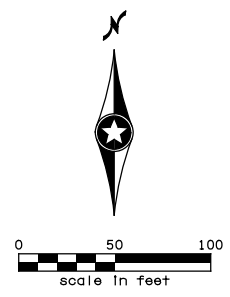
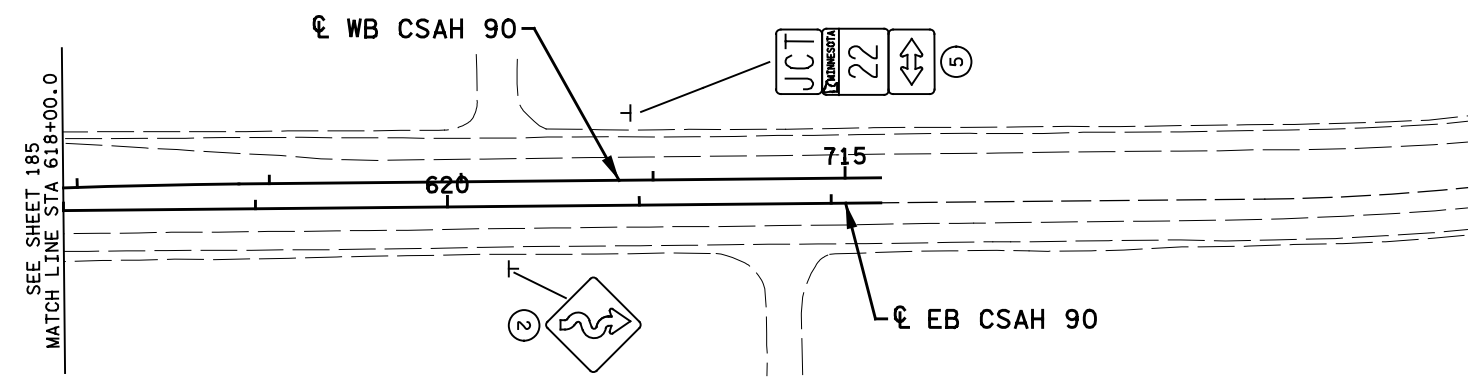
MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGNING REMOVAL PLANS
 TH 22 & CSAH 90

SHEET
 186
 OF
 276



SPECIFIC NOTES:
 ② INPLACE
 ⑤ REMOVE SIGN TYPE C



SPECIFIC NOTES:
 ② INPLACE
 ⑤ REMOVE SIGN TYPE C

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 STATE PROJECT NO.
 007-070-005

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 DESIGNED BY
 B. BETTS
 CHECKED BY
 A. POTTER
 COMM. NO. 01710321

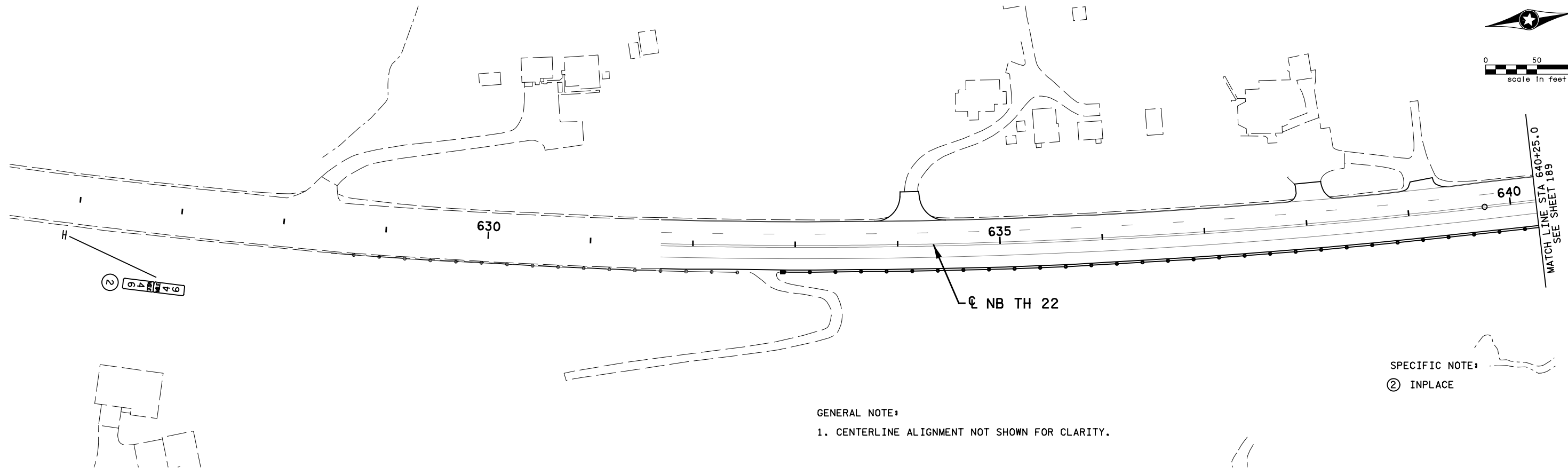


MINNESOTA DEPARTMENT OF TRANSPORTATION
 SIGNING REMOVAL PLANS
 TH 22 & CSAH 90

SHEET
 187
 OF
 276



0 50 100
scale in feet



SPECIFIC NOTE:
② INPLACE

GENERAL NOTE:
1. CENTERLINE ALIGNMENT NOT SHOWN FOR CLARITY.

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CHECKED BY
A. POTTER

COMM. NO. 01710321



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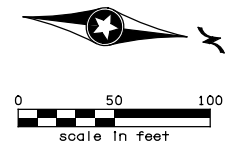
SIGNING PLANS
TH 22 & CSAH 90

SHEET
188
OF
276

SPECIFIC NOTES:

- ① F & I
- ② INPLACE

SEE SHEET 188 FOR GENERAL NOTE.



SEE SHEET 188
MATCH LINE STA 640+25.0

SLOWER
TRAFFIC
KEEP
RIGHT

①

645

②

650

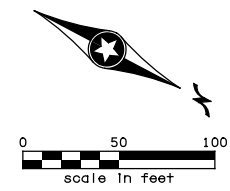
☉ NB TH 22

MATCH LINE BELOW
STA 654+50.0
SEE SHEET 189

SPECIFIC NOTES:

- ① F & I
- ② INPLACE

SEE SHEET 188 FOR GENERAL NOTE.



LE SUEUR RIVER

CHRISTIA VIEW DR
MIN HWY 22

②

①

①

①

①

②

665

☉ NB TH 22

①

SLOWER
TRAFFIC
KEEP
RIGHT

SEE ABOVE
MATCH LINE STA 654+50.0

655

②

①

①

MATCH LINE STA 669+00.0
SEE SHEET 190

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007-070-005

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B. BETTS

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COMM. NO. 01710321



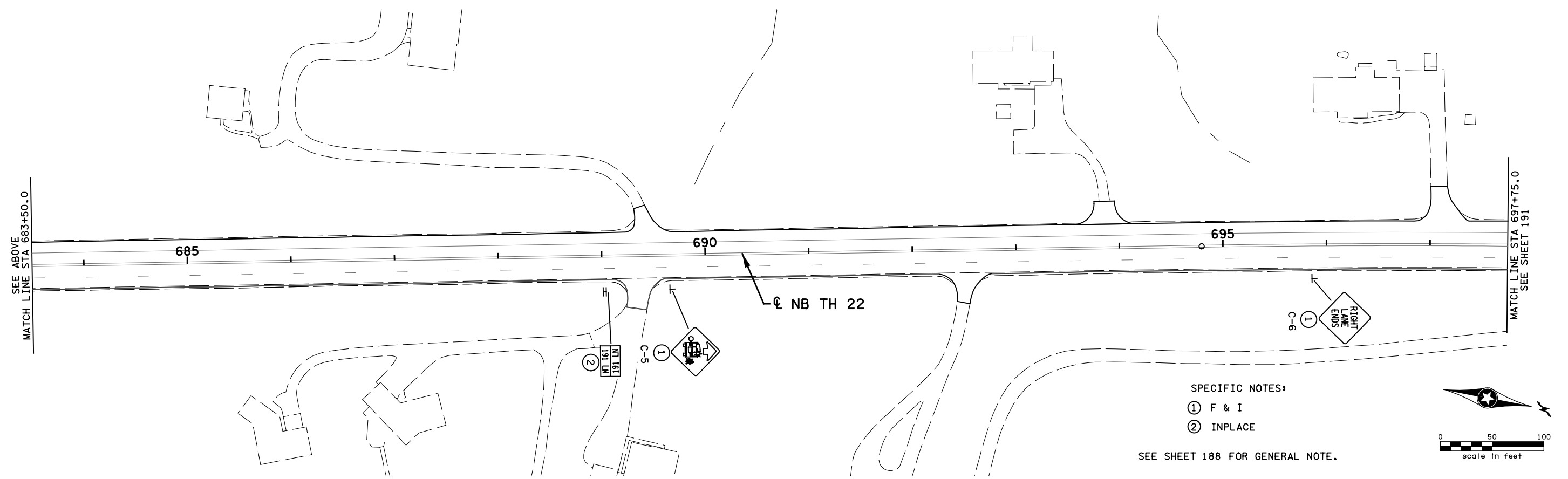
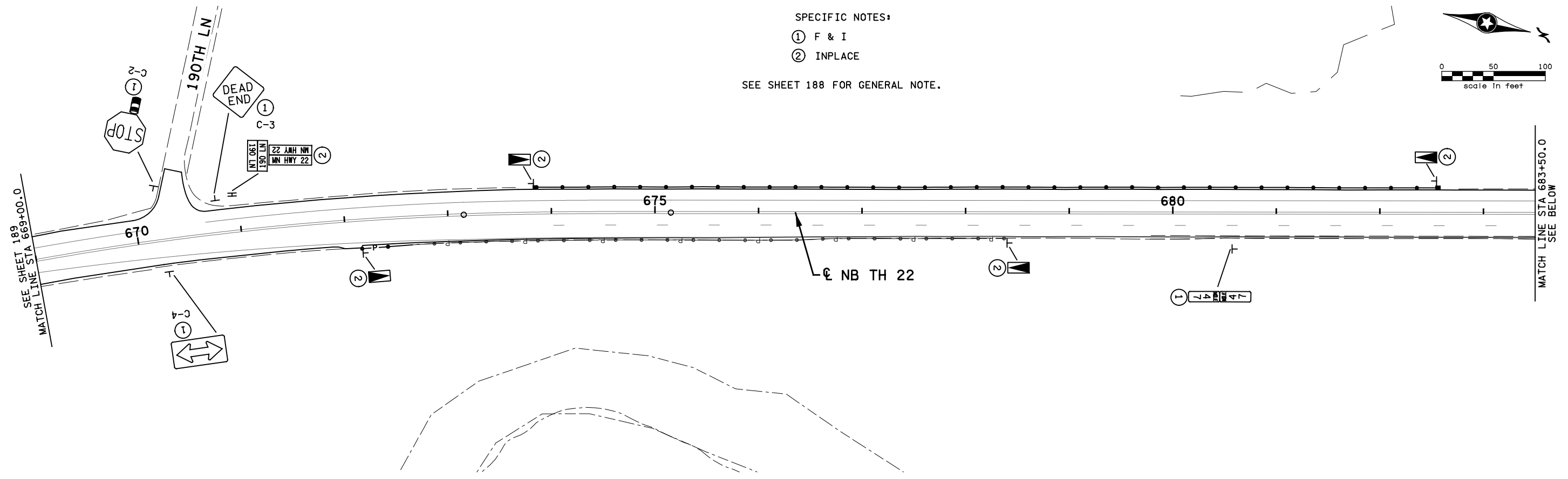
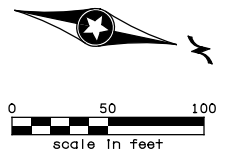
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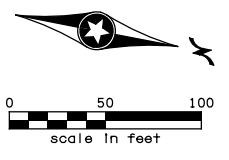
SIGNING PLANS
TH 22 & CSAH 90

SHEET
189
OF
276

SPECIFIC NOTES:
 ① F & I
 ② INPLACE
 SEE SHEET 188 FOR GENERAL NOTE.



SPECIFIC NOTES:
 ① F & I
 ② INPLACE
 SEE SHEET 188 FOR GENERAL NOTE.



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 B. BETTS
 CHECKED BY
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 COMM. NO. 01710321



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 SIGNING PLANS
 TH 22 & CSAH 90

SHEET
 190
 OF
 276

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STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

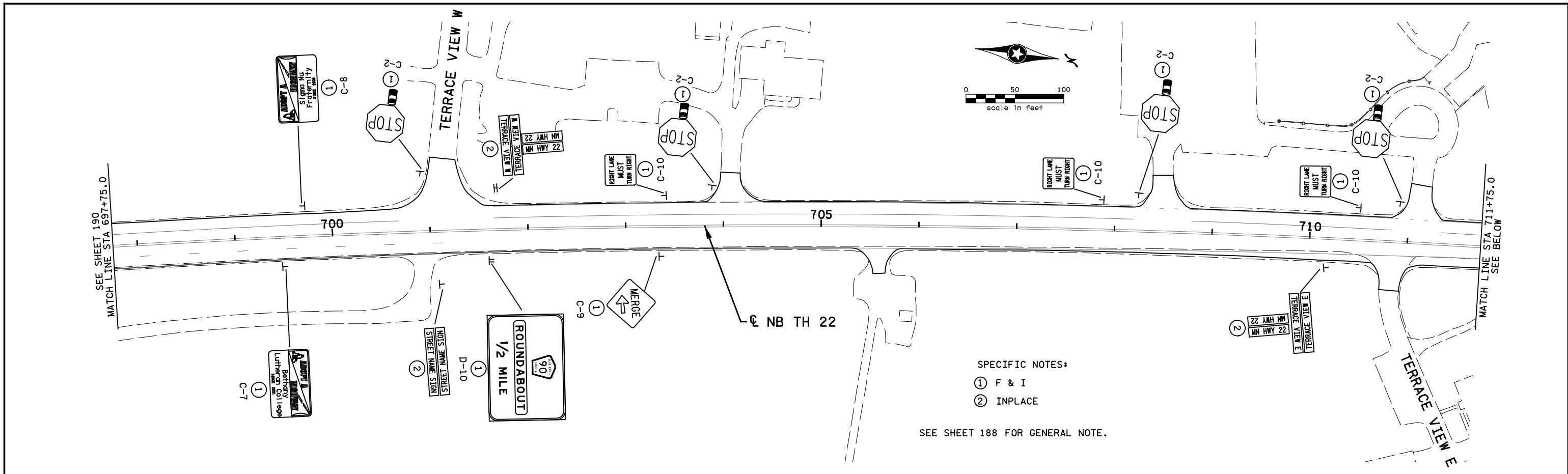
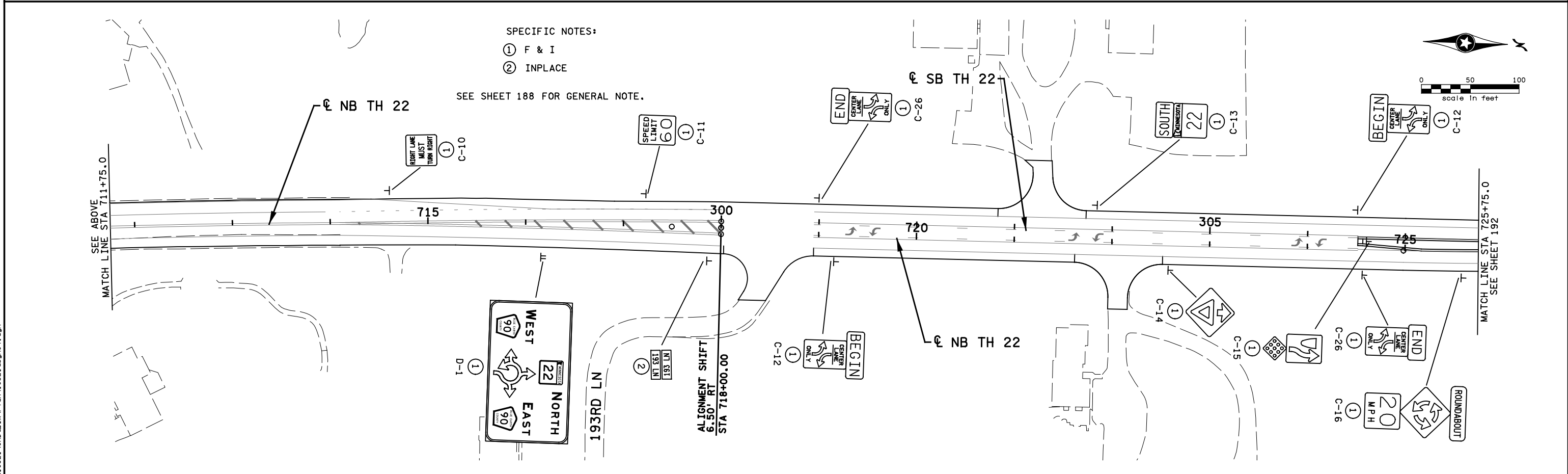
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 COMM. NO. 01710321



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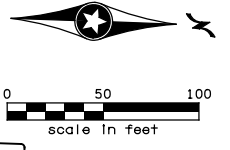
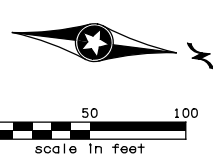
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 SIGNING PLANS
 TH 22 & CSAH 90

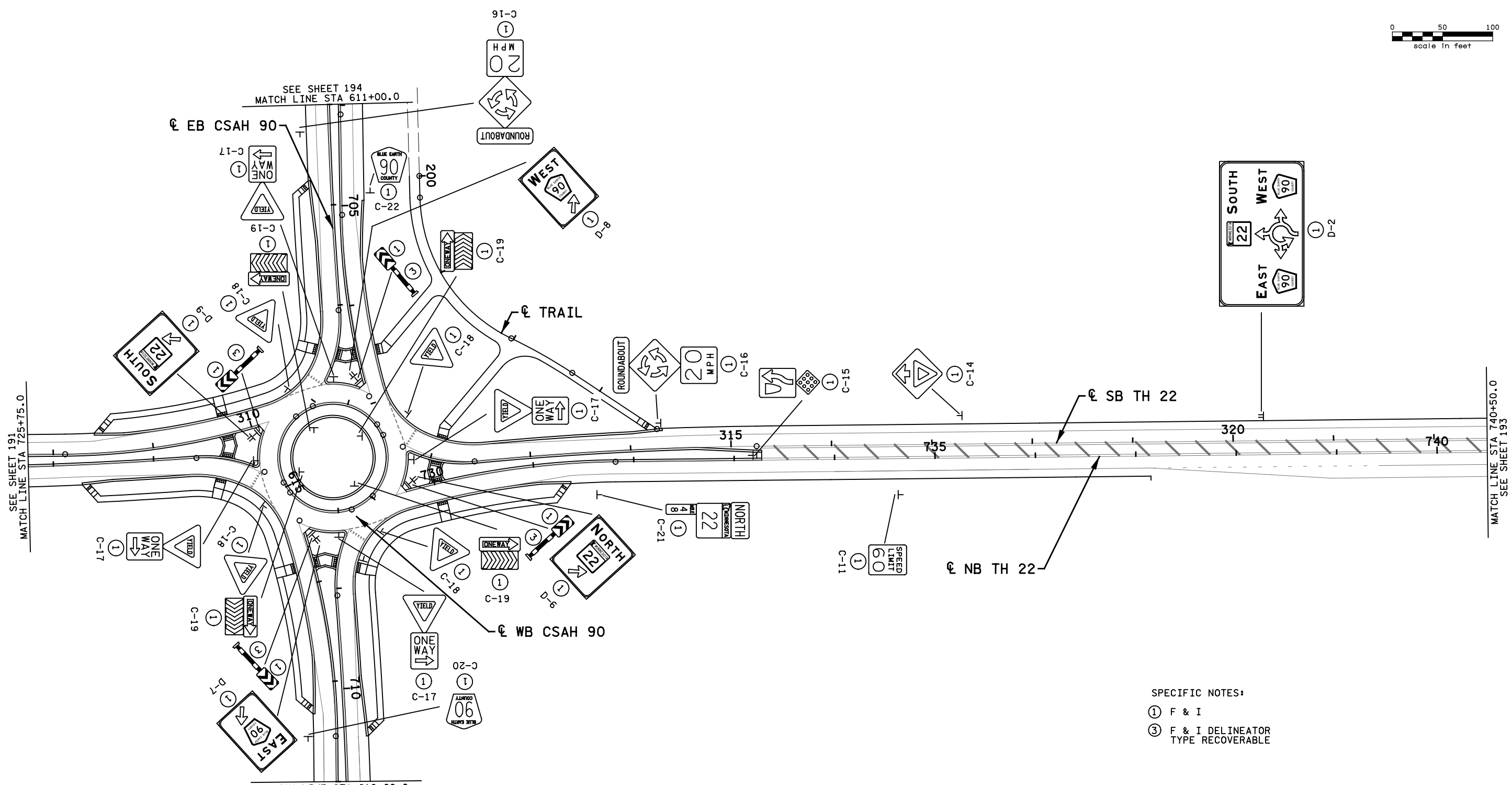
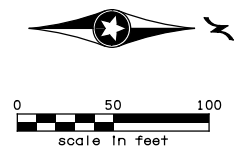
SHEET
 191
 OF
 276



SPECIFIC NOTES:
 ① F & I
 ② INPLACE
 SEE SHEET 188 FOR GENERAL NOTE.

SPECIFIC NOTES:
 ① F & I
 ② INPLACE
 SEE SHEET 188 FOR GENERAL NOTE.





SPECIFIC NOTES:
 ① F & I
 ② F & I DELINEATOR TYPE RECOVERABLE

SEE SHEET 188 FOR GENERAL NOTE.

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Date: _____ License # 42785

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0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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COMM. NO. 01710321

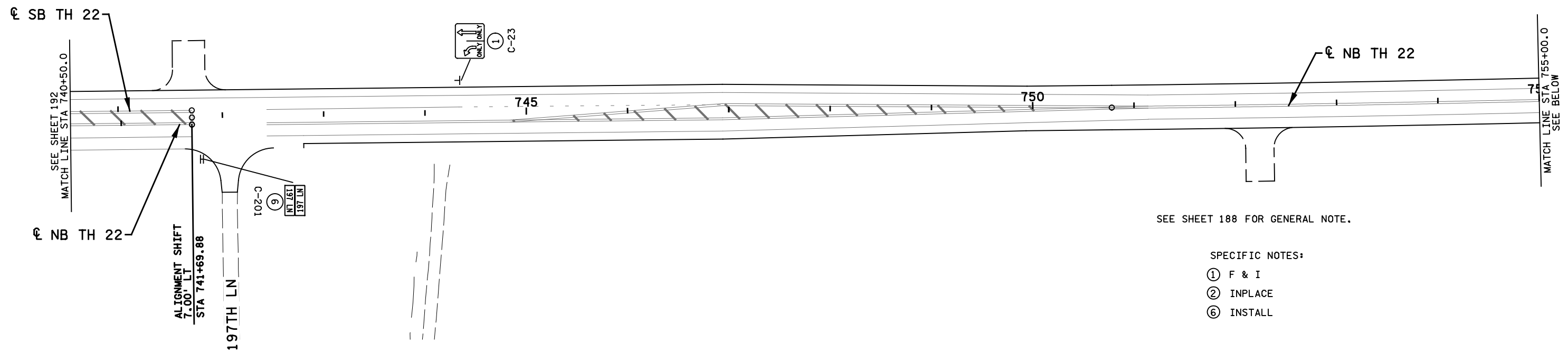
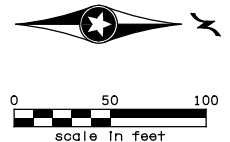


MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGNING PLANS

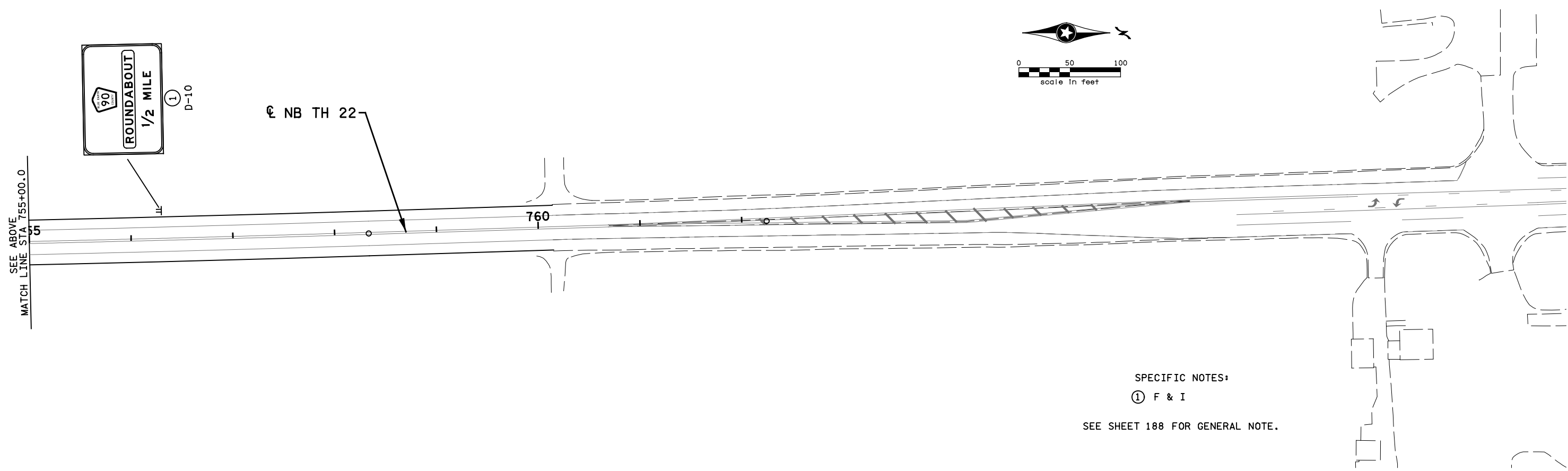
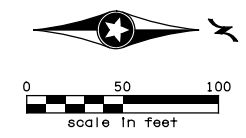
TH 22 & CSAH 90

SHEET
192
OF
276



SEE SHEET 188 FOR GENERAL NOTE.

- SPECIFIC NOTES:
- ① F & I
 - ② INPLACE
 - ⑥ INSTALL



SPECIFIC NOTES:

- ① F & I

SEE SHEET 188 FOR GENERAL NOTE.

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Print Name: ADRIAN S. POTTER

Date: _____ License # 42785

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

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B. BETTS

DESIGNED BY
B. BETTS

CHECKED BY
A. POTTER

COMM. NO. 01710321

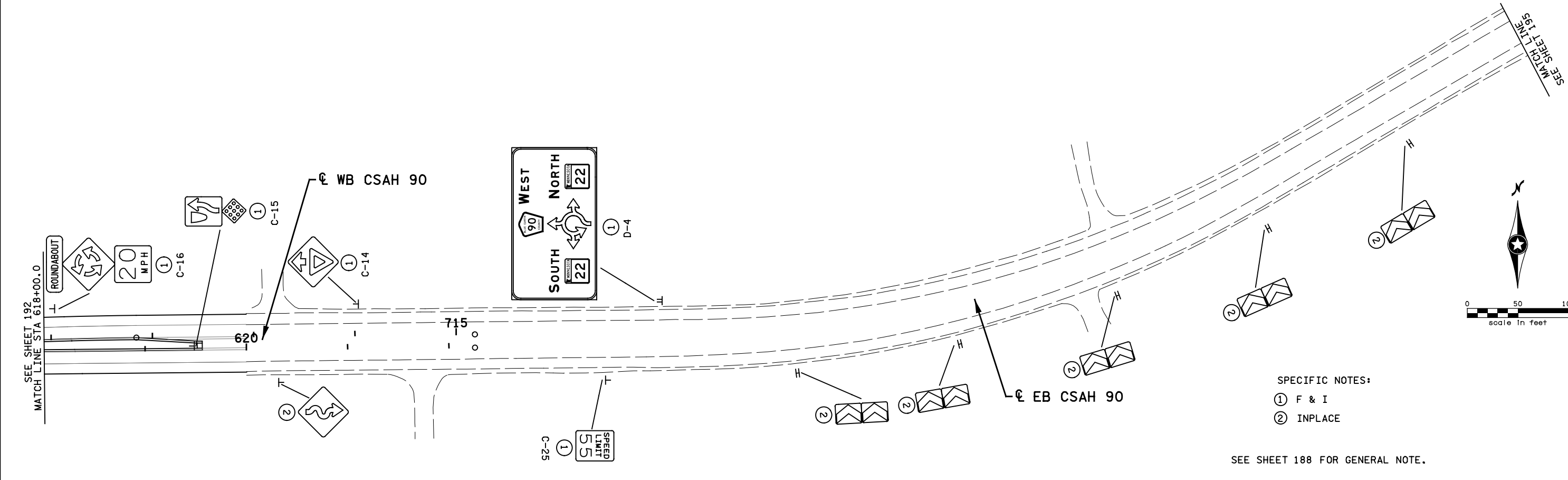
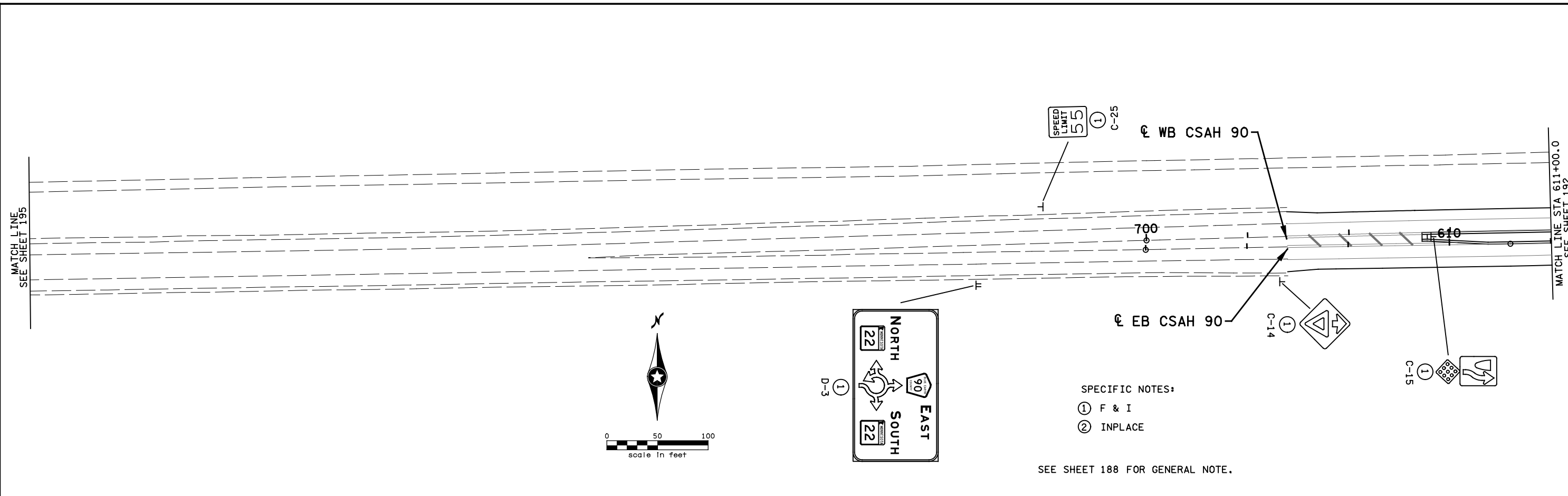


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TH 22 & CSAH 90

SHEET
193
OF
276



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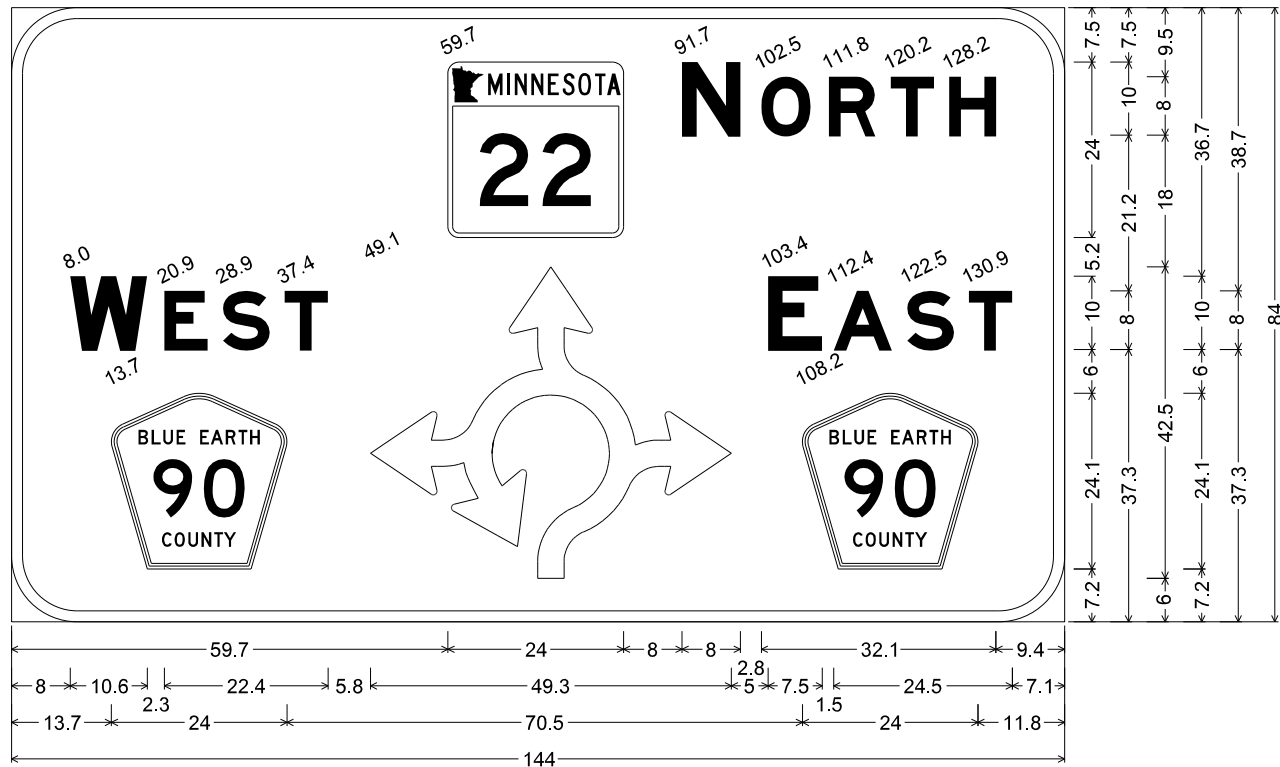
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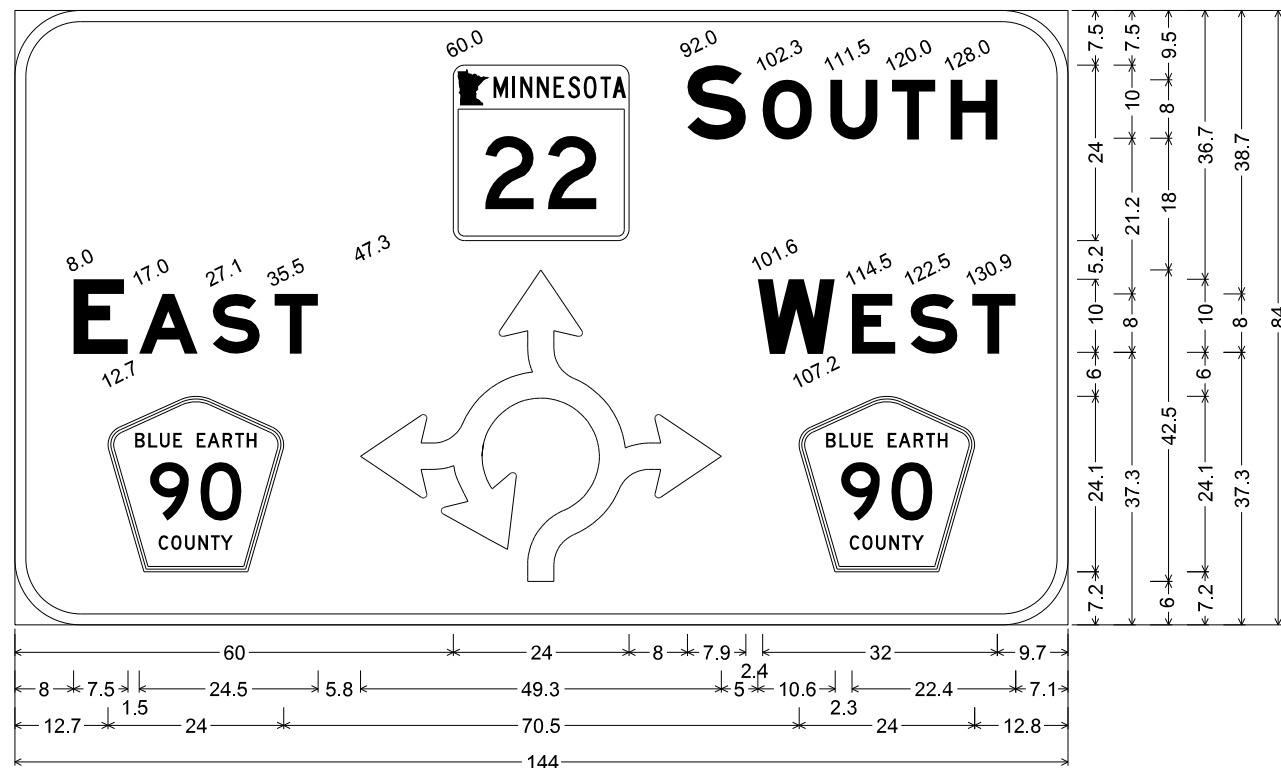
SIGNING PLANS

TH 22 & CSAH 90

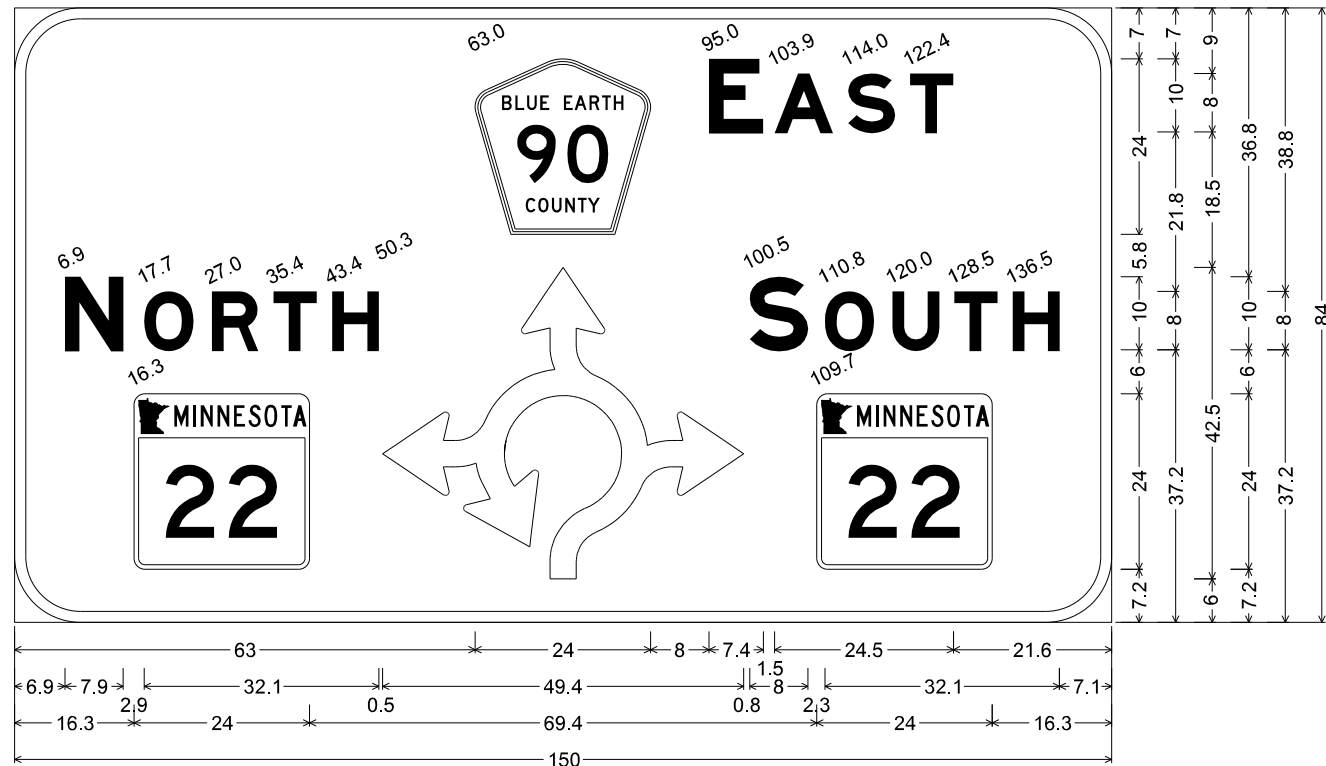
SHEET 194 OF 276



D-1; 9.0" Radius, 1.5" Border, White on Green;
 [NORTH] E Mod; [WEST] E Mod; RA Arrow-4hd; [EAST] E Mod;



D-2; 9.0" Radius, 1.5" Border, White on Green;
 [SOUTH] E Mod; [EAST] E Mod; RA Arrow-4hd; [WEST] E Mod;



D-3; 9.0" Radius, 1.5" Border, White on Green;
 [EAST] E Mod; [NORTH] E Mod; RA Arrow-4hd; [SOUTH] E Mod;

NOTE:
 ALL DIMENSIONS ARE IN INCHES.

TYPE D SIGN PANELS

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 STATE PROJECT NO.
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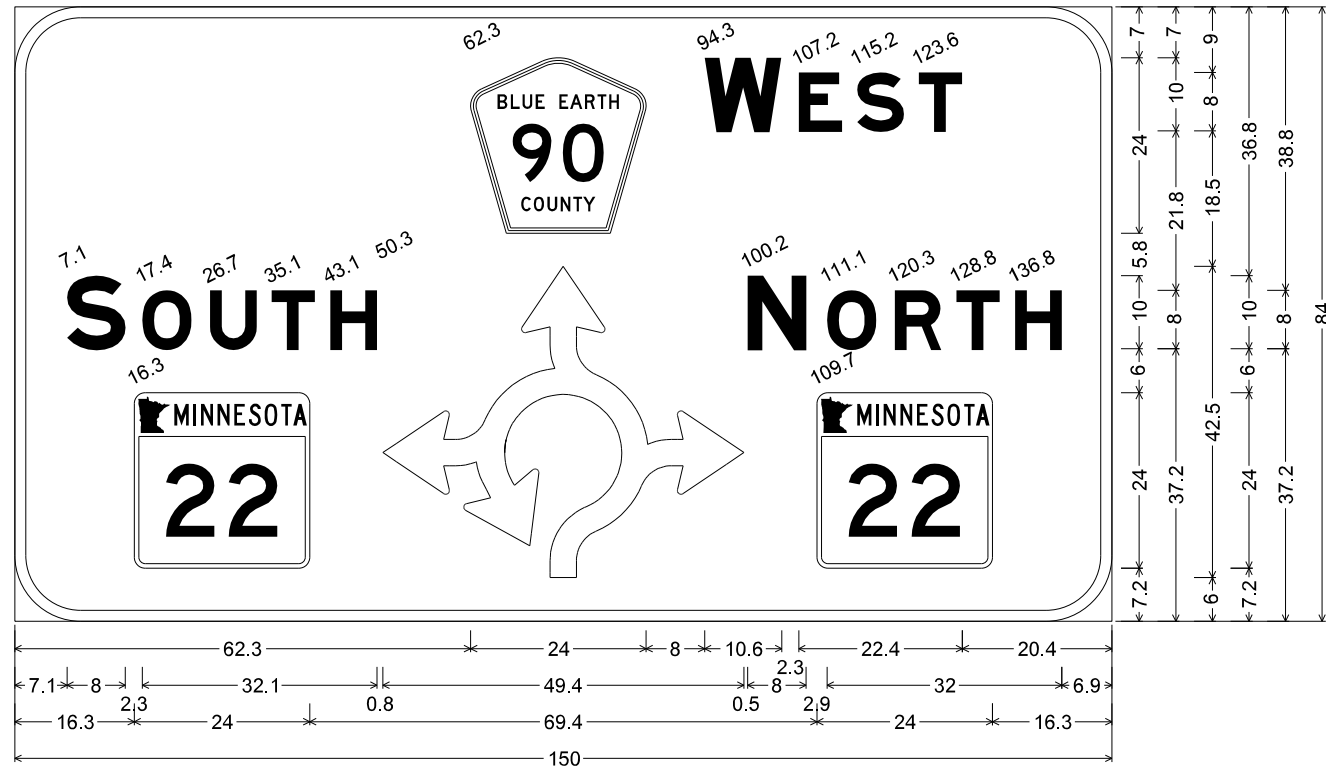
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 B. BETTS
 DESIGNED BY
 B. BETTS
 CHECKED BY
 A. POTTER
 COMM. NO. 01710321



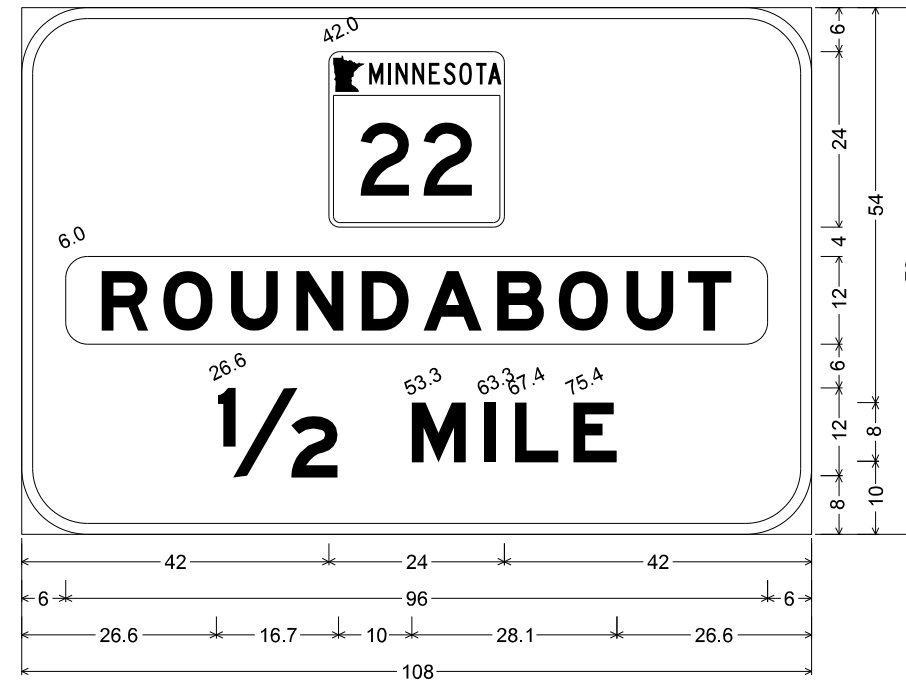
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 SIGNING PLANS
 TH 22 & CSAH 90
 PANEL DETAILS

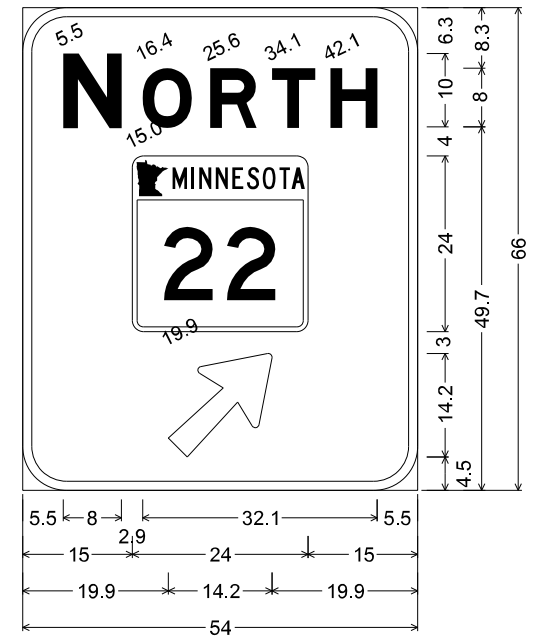
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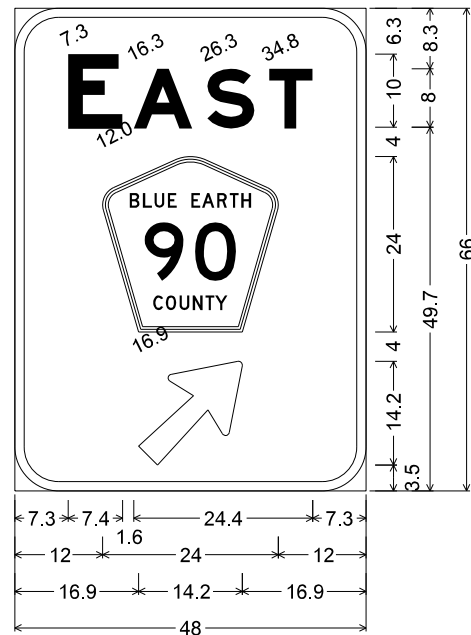
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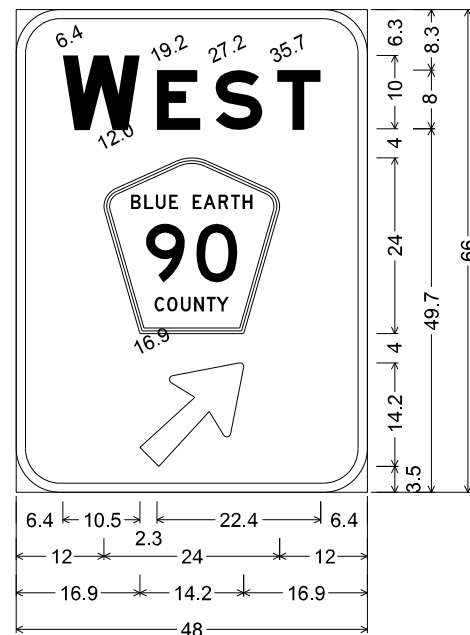
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[1/2 MILE] E Mod;



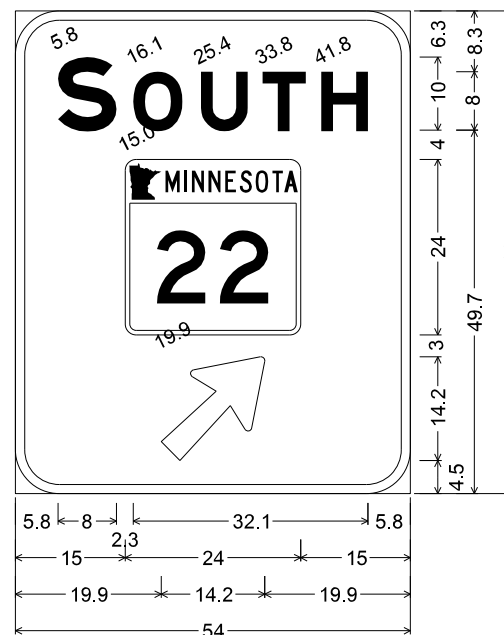
D-6;
6.0" Radius, 1.3" Border, White on Green;
[NORTH] E Mod;
Arrow 14 - 18.0" 45°;



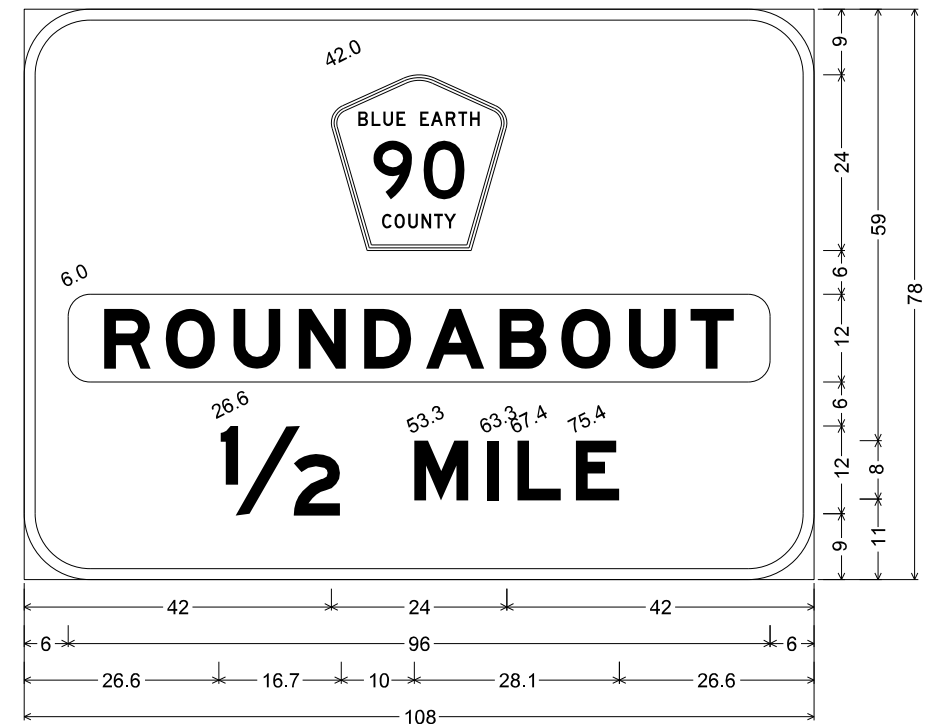
D-7;
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[EAST] E Mod;
Arrow 14 - 18.0" 45°;



D-8;
6.0" Radius, 1.3" Border, White on Green;
[WEST] E Mod;
Arrow 14 - 18.0" 45°;



D-9;
6.0" Radius, 1.3" Border, White on Green;
[SOUTH] E Mod;
Arrow 14 - 18.0" 45°;



D-10; 9.0" Radius, 1.5" Border, White on Green;
[1/2 MILE] E Mod;

NOTE:
ALL DIMENSIONS ARE IN INCHES.

TYPE D SIGN PANELS

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CHECKED BY
A. POTTER
COMM. NO. 01710321

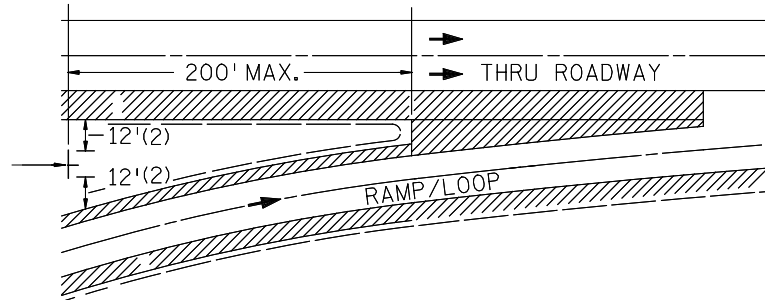
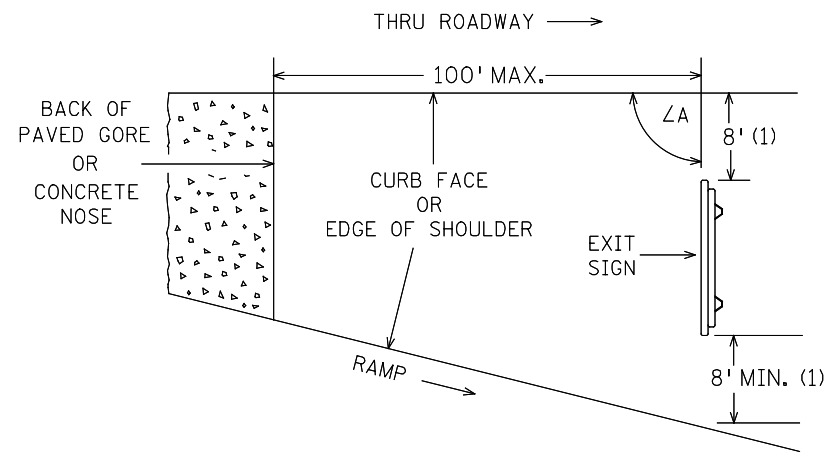


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TH 22 & CSAH 90
PANEL DETAILS

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OF
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GORE PLACEMENT



SPECIFIC NOTES:

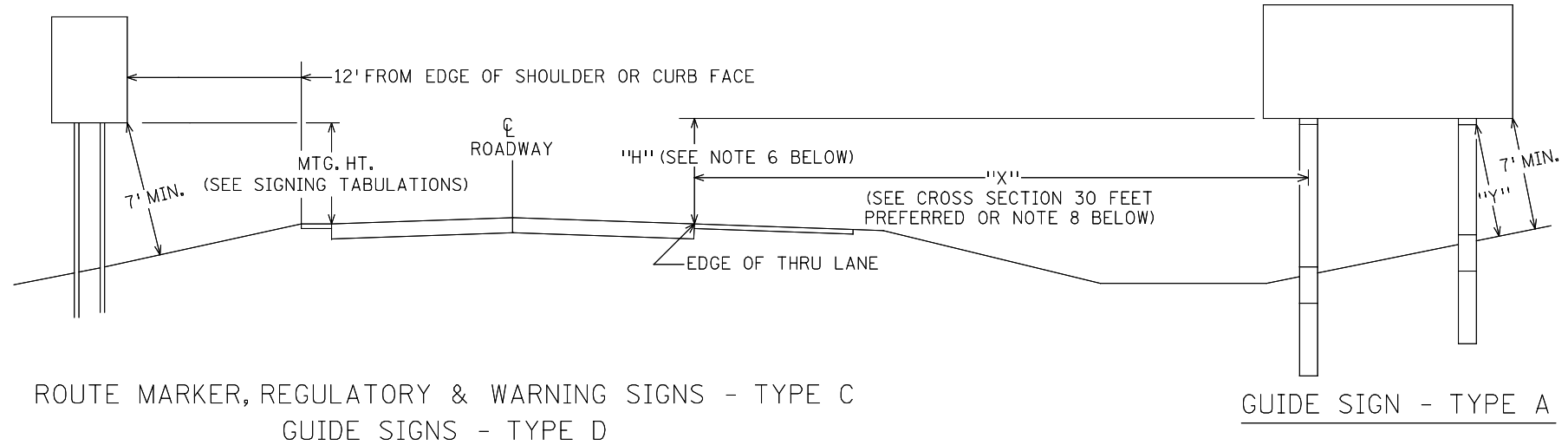
(1) EXIT SIGN

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

(2) MERGE OR ADDED LANE SIGN

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

ROADSIDE PLACEMENT



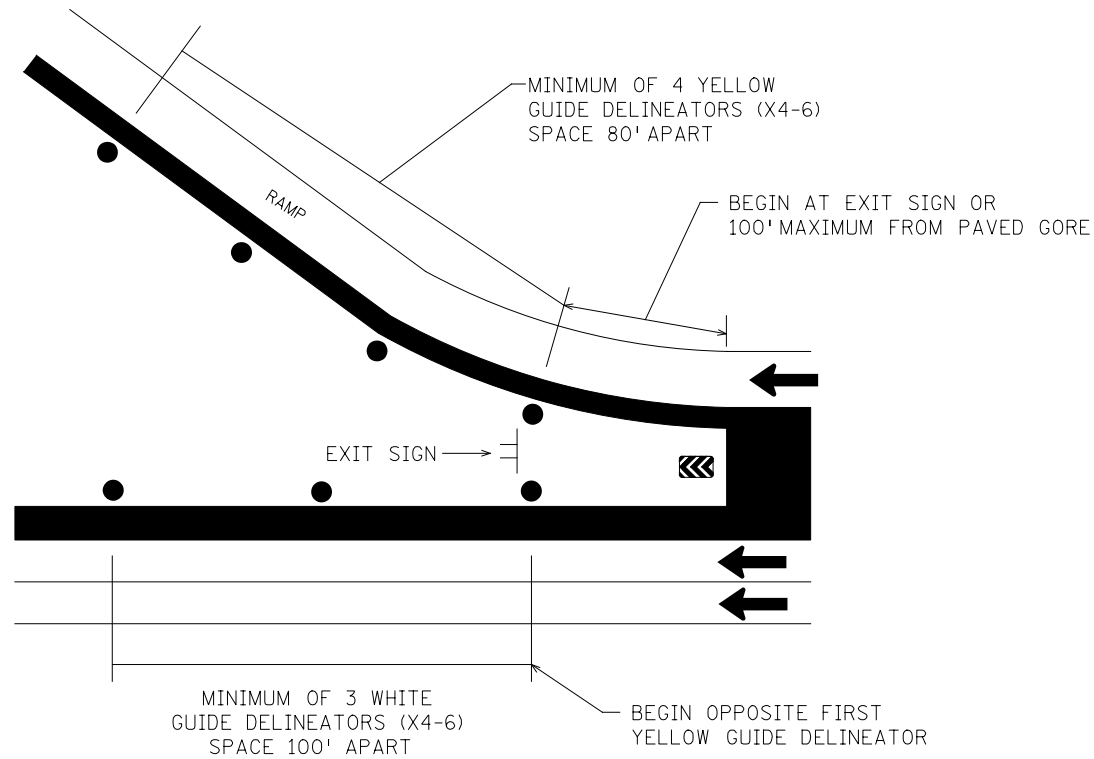
NOTES:

1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSCENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.
2. SIGN FACES SHALL BE VERTICAL.
3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
4. TO AVOID SPECULAR GLARE, $\angle A$ SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
5. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
6. WHERE "X" IS LESS THAN 30', "H" SHALL BE 7'. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
8. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

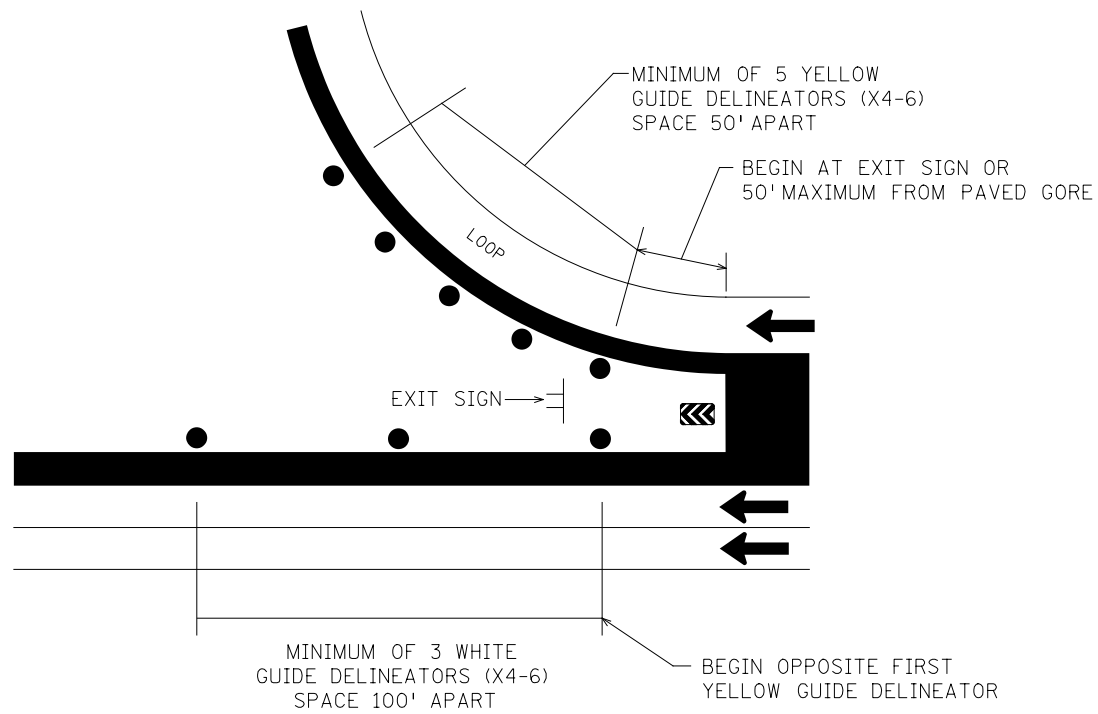
SIGN PLACEMENT

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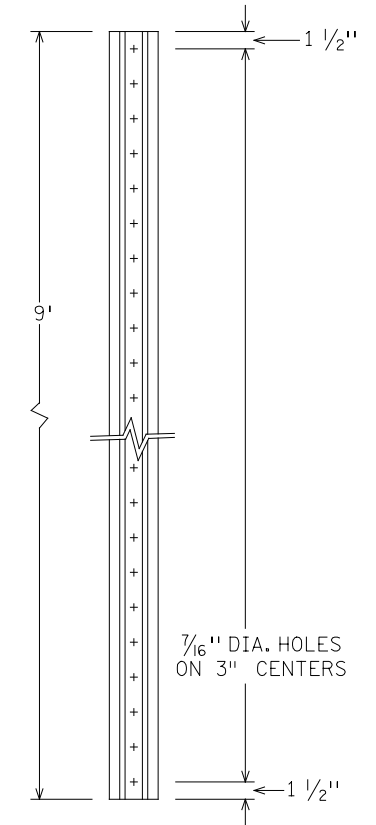
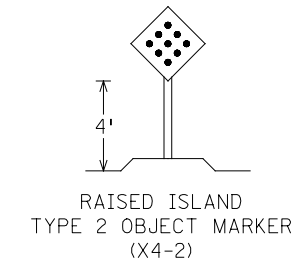
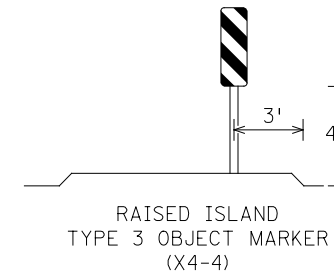
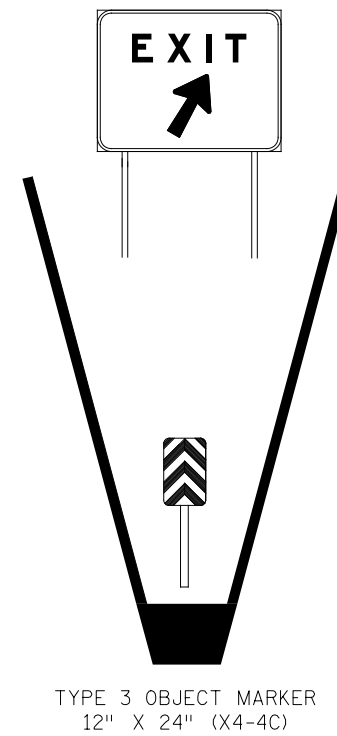
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NO	DATE	BY	CKD	APPR	REVISION			
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PLAN A
RAMP DELINEATION

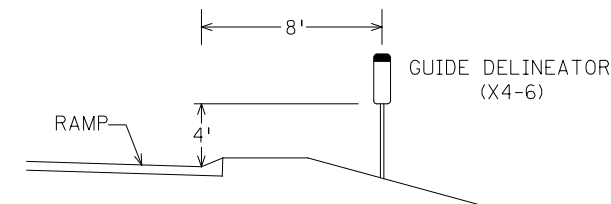
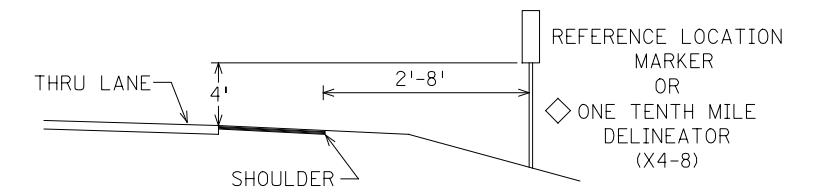
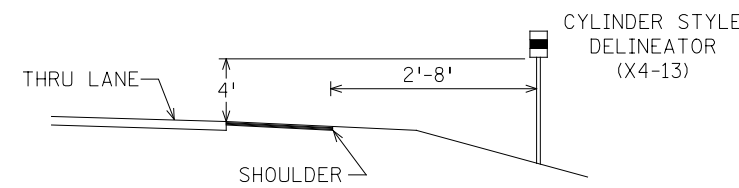


PLAN B
LOOP DELINEATION



MNDOT 3401
NORMAL WEIGHT= 3 LB./FT.

DELINEATOR POST



TYPICAL PLACEMENT

DELINEATORS AND MARKERS

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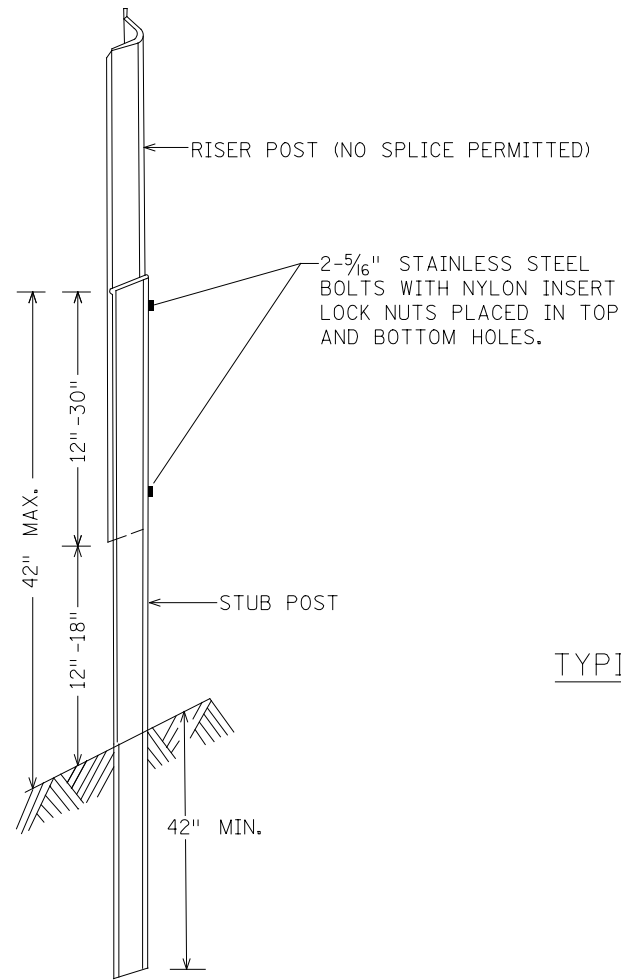
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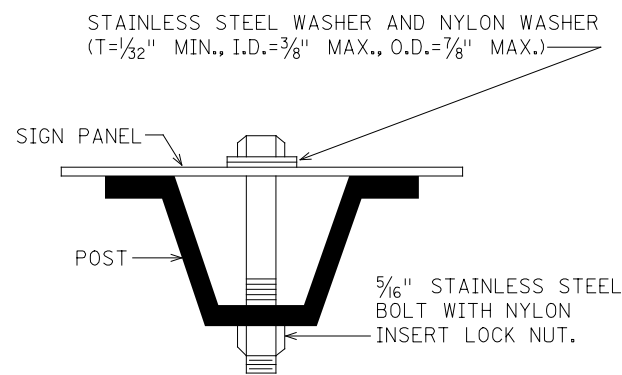
SIGNING PLAN
TH 22 & CSAH 90

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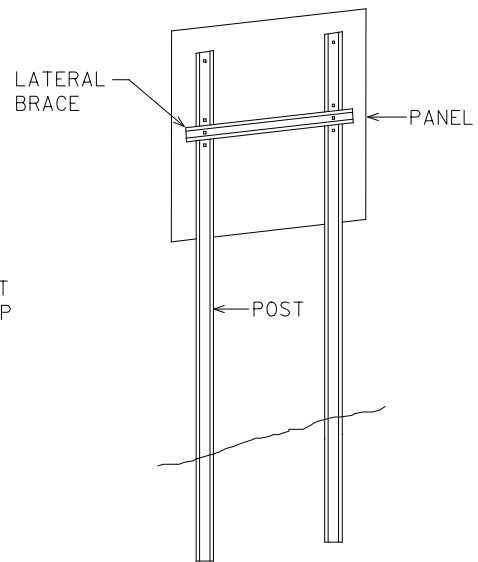
TYPE C & D POST



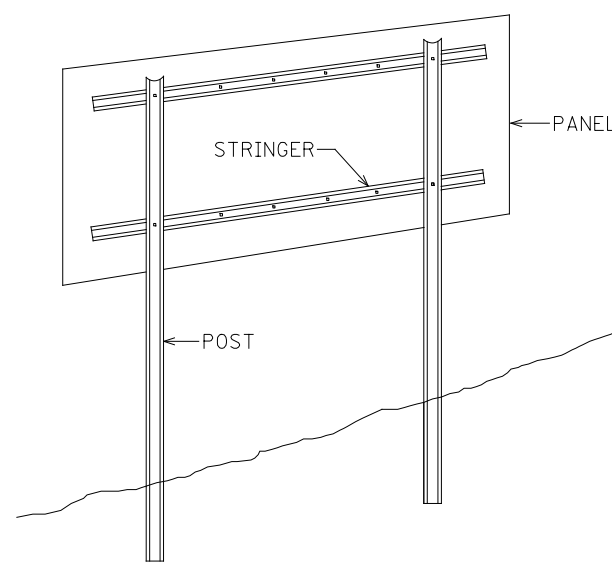
U POST BREAKAWAY SPLICE



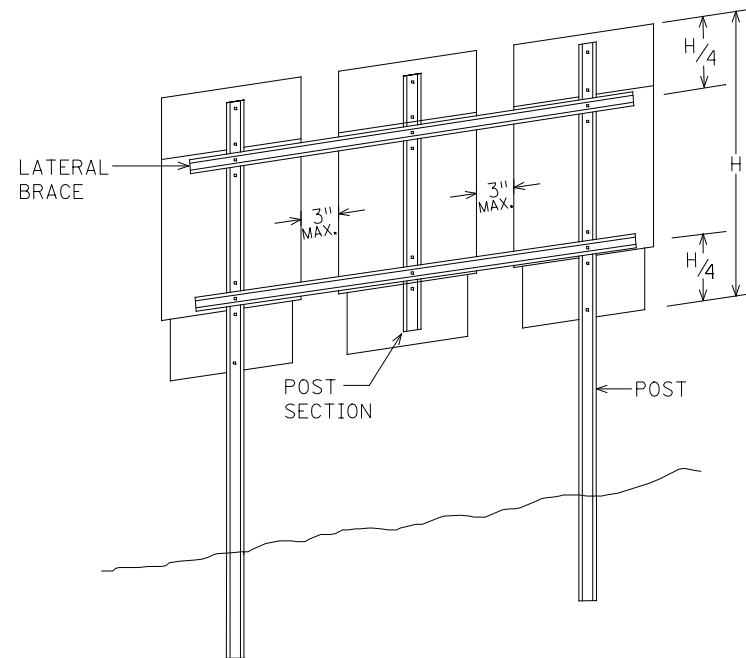
U POST MOUNTING TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

1. USE 3 LB/FT STUB POSTS. SHALL CONFORM TO MNDOT 3401.
2. USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
3. SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
4. IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
5. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL UNLESS OTHERWISE SPECIFIED.
7. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
8. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
9. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
10. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 42".
11. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
12. COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
13. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
14. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
15. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN STRUCTURAL DETAILS

Sheet 1 of 2

REVISED: 5-5-2017

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Date: _____ License # 42785

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 CHECKED BY A. POTTER
 COMM. NO. 01710321

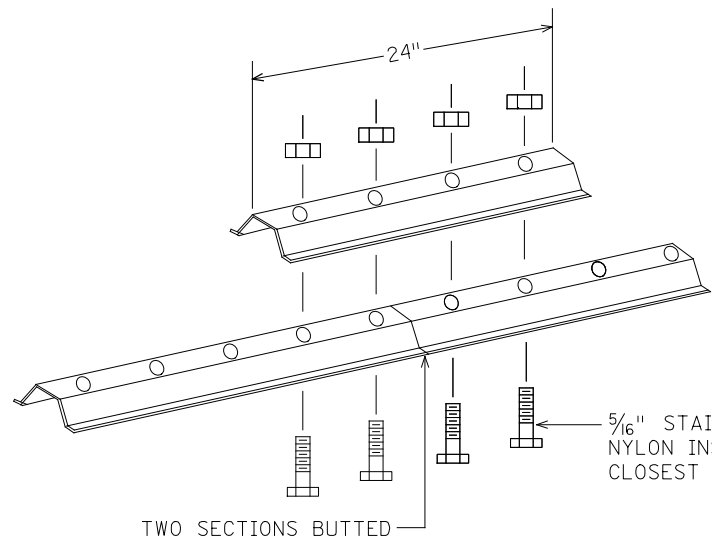


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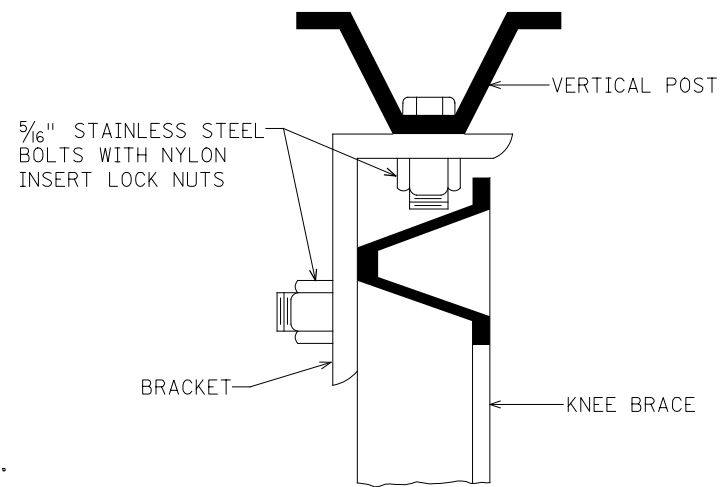
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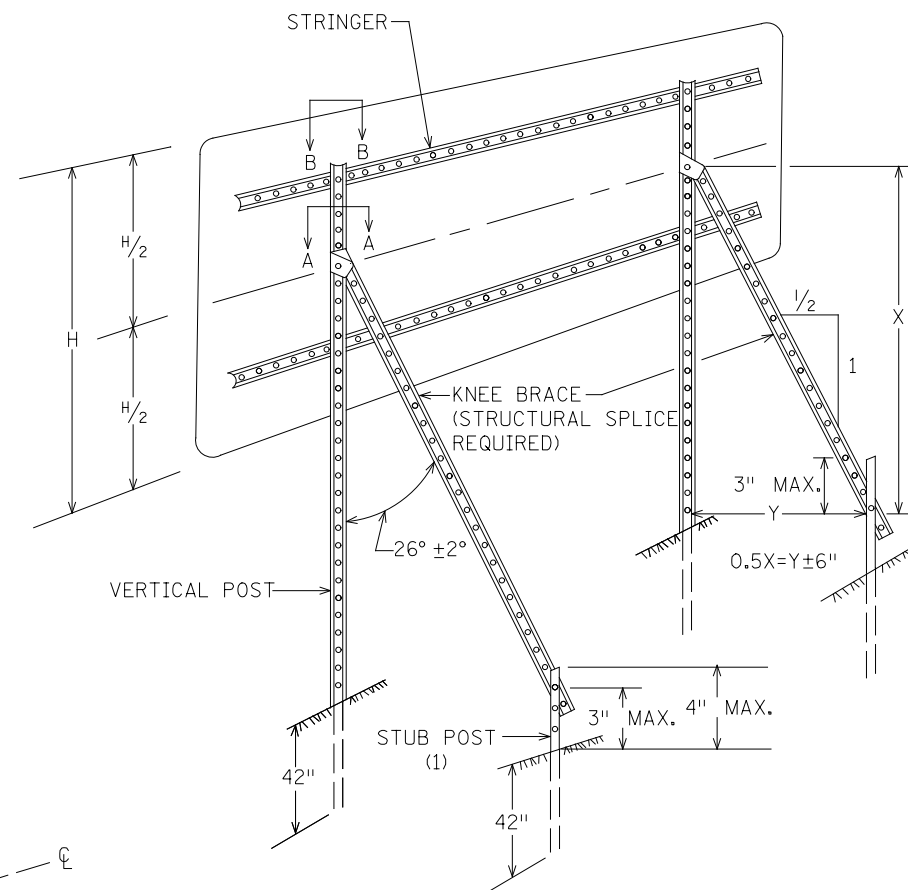
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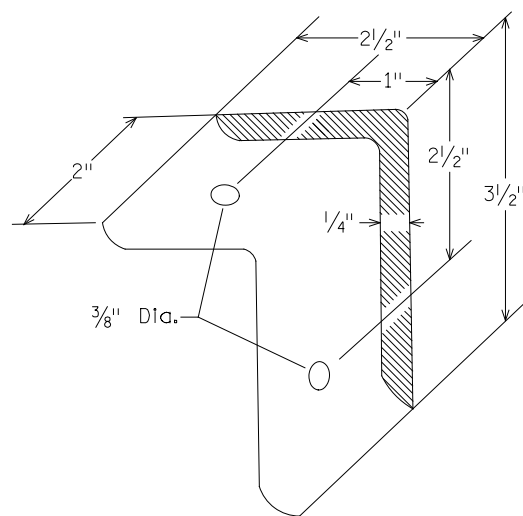
LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

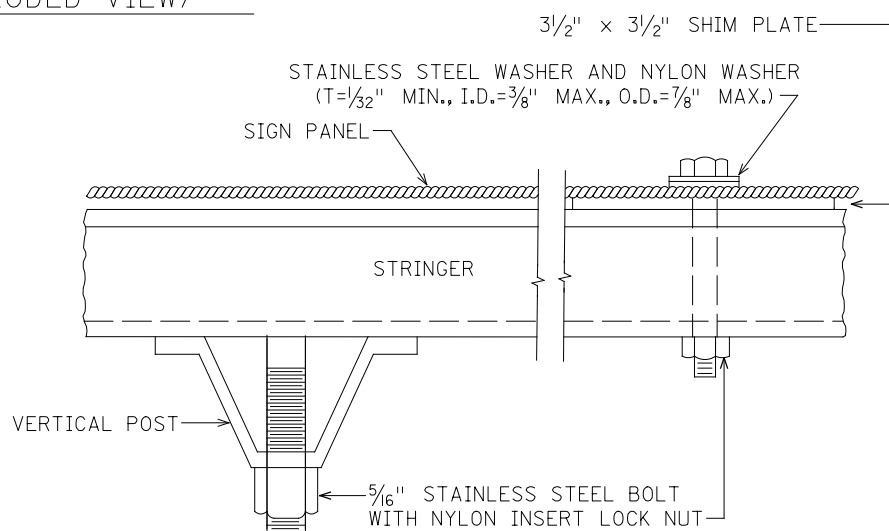


TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

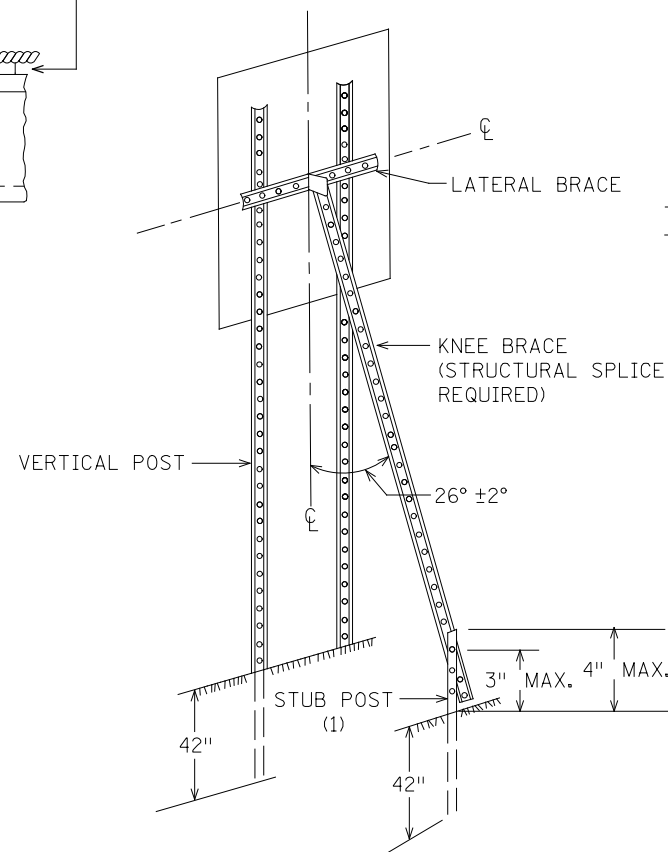


A-FRAME BRACKET

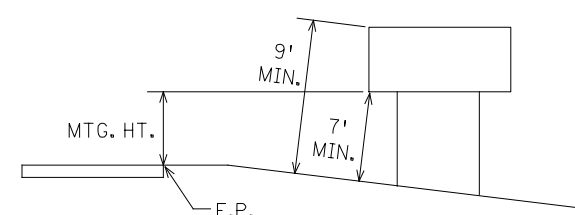
(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



SECTION B-B

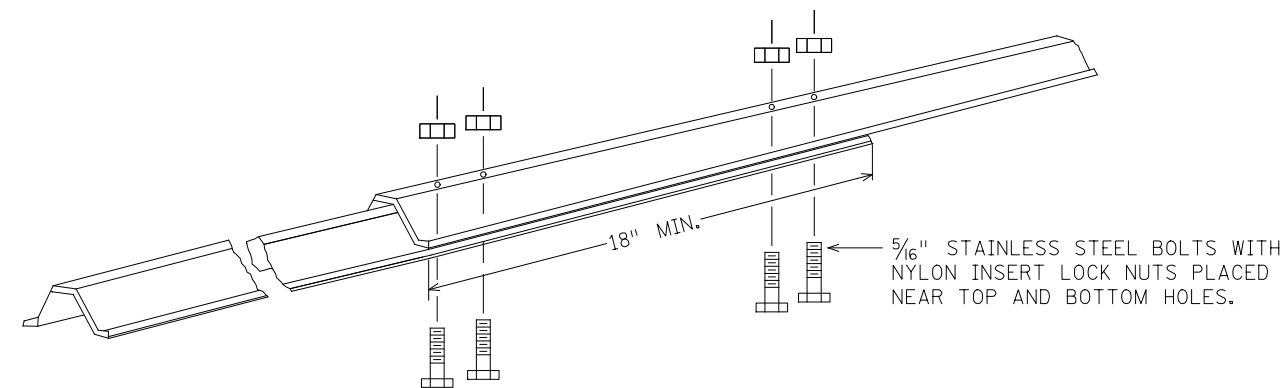


TYPICAL "A-FRAME" INSTALLATION
TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY
RELATIVE TO VERTICAL POST. ATTACH STUB
POST AND KNEE BRACE BACK TO BACK.



STRUCTURAL SPLICE

(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)

REVISED: 5-5-2017

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 2 of 2

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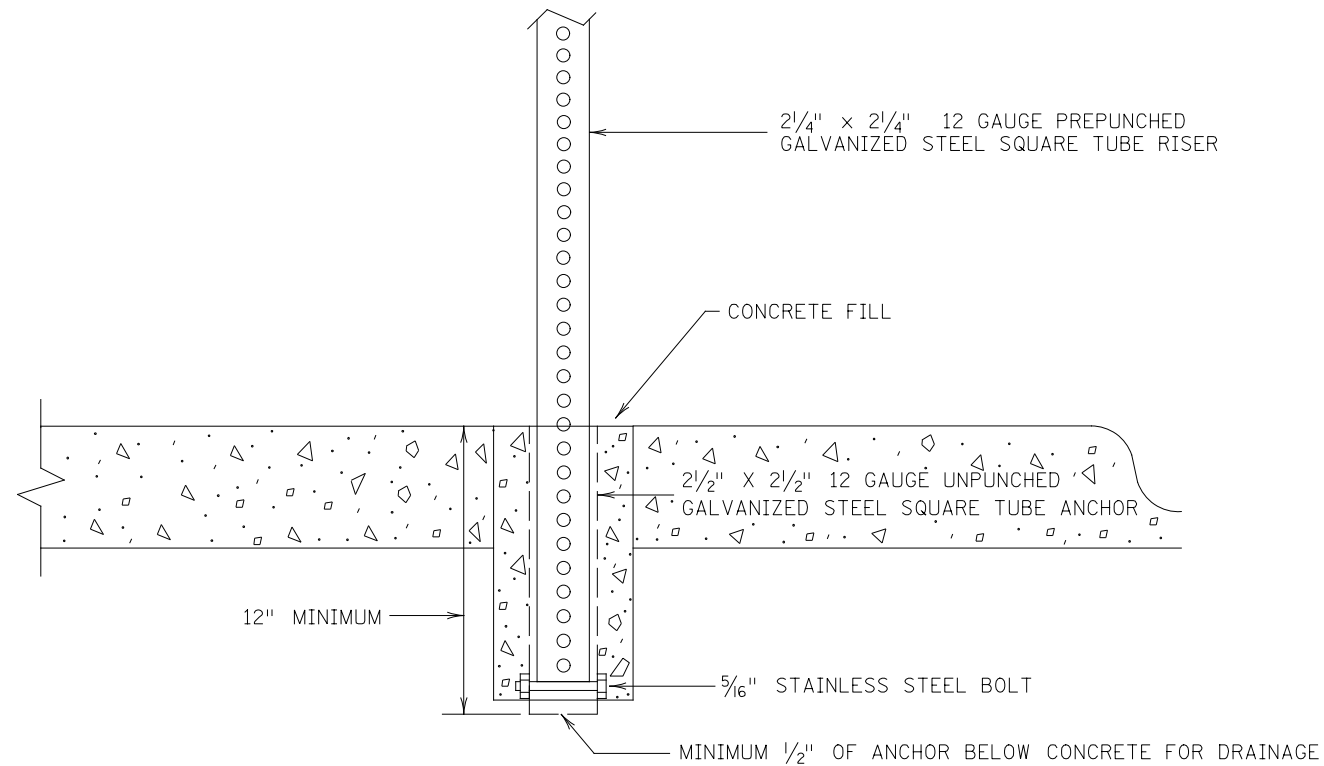
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NOTES;

1. DRILL AN 8" DIAMETER HOLE THE FULL DEPTH OF THE ANCHOR.
2. DRILL $\frac{3}{8}$ " HOLES ON OPPOSITE SIDES OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR APPROX. 1" FROM THE BOTTOM OF THE ANCHOR. INSERT A $\frac{5}{16}$ " STAINLESS STEEL BOLT THROUGH THE HOLES AND SECURE WITH A STAINLESS STEEL LOCK NUT WITH NYLON INSERT. THE PREPUNCHED GALVANIZED STEEL SQUARE TUBE RISER (TO BE INSERTED INSIDE THE UNPUNCHED GALVANIZED SQUARE TUBE ANCHOR) WILL REST ON BOLT.
3. INSERT THE ANCHOR IN THE HOLE.
4. AFTER INSTALLATION OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR, FILL THE HOLE WITH A CONCRETE MIX APPROVED BY THE ENGINEER AND LEVEL OFF THE TOP OF CONCRETE.
5. MAXIMUM SIGN PANEL SIZE IS 42" WIDE X 48" HIGH.
6. SIGN PANEL TO BE MOUNTED 7 FT ABOVE THE GROUND.

TYPE C SIGNS, DELINEATORS &
MARKERS IN CONCRETE

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B. BETTS
 DESIGNED BY
B. BETTS
 CHECKED BY
A. POTTER
 COMM. NO. 01710321









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MINNESOTA DEPARTMENT OF TRANSPORTATION
 SIGNING PLAN
 TH 22 & CSAH 90

SHEET
202
OF
276

LEGEND

-  LIGHTING UNIT TYPE 9-40
-  PAD MOUNTED SOURCE OF POWER (BY OTHERS)
-  PAD MOUNTED SERVICE CABINET
-  PERMANENT GROUND ROD (25 OHMS OR LESS)
-  3" NON-METALLIC CONDUIT (UNLESS OTHERWISE NOTED)
-  DIRECT BURIED LIGHTING CABLE 4 COND NO 4

LIGHTING TABULATION

AA

NOTES	ITEM DESCRIPTION	UNIT	PROJECT TOTAL	SP 0704-108 (TH 22) HSIP FUNDS	SP 007-070-005 (CSAH 90) HSIP FUNDS
	LIGHTING SYSTEM	LUMP SUM	1	0.5	0.5

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NO	DATE	BY	CKD	APPR	REVISION

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Print Name: STEVE MCHENRY

Date: _____ License # 46710

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

DRAWN BY
T. RICHARDSON

DESIGNED BY
T. RICHARDSON

CHECKED BY
S. MCHENRY

COMM. NO. 01710321



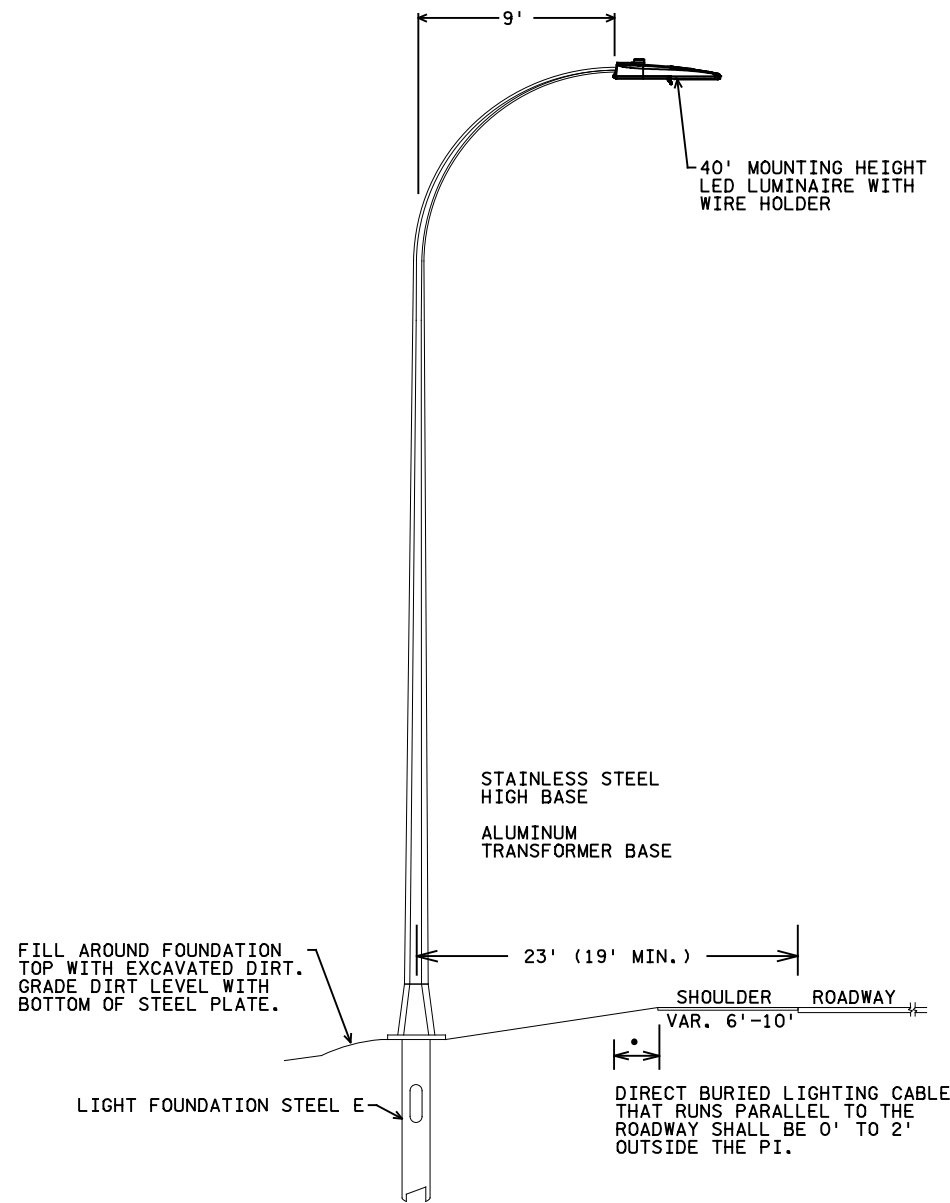
ENGINEERS
PLANNERS
DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

LIGHTING TAB AND LEGEND
TH 22 & CSAH 90

SHEET
203
OF
276

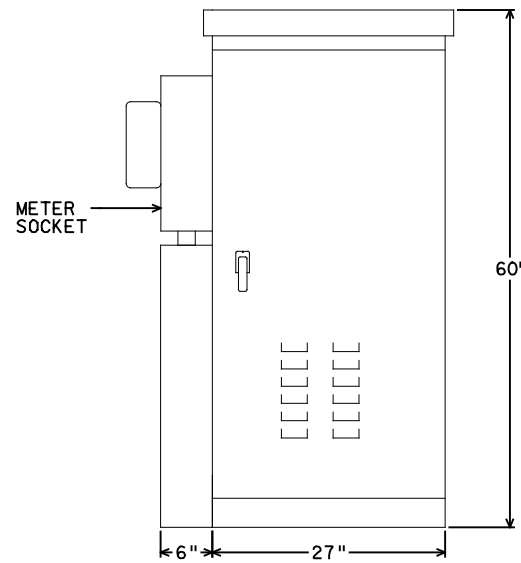
USE THE MAXIMUM DISTANCE WHENEVER POSSIBLE, IF THE MINIMUM DISTANCE CANNOT BE OBTAINED CONTACT THE DISTRICT/DIVISION TRAFFIC ENGINEER. LIGHT FOUNDATIONS SHALL BE PLACED IN ACCORDANCE WITH 2545.3F2. DISTANCES SHALL BE MEASURED FROM THE EDGE OF DRIVING LANE OR TURN LANE.



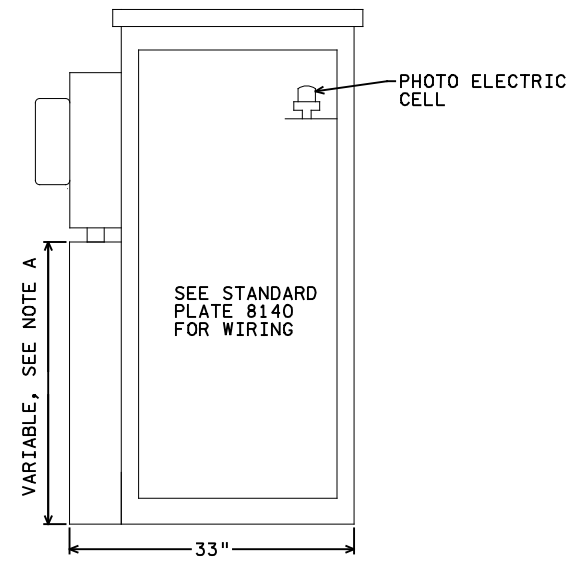
TYPICAL PLACEMENT OF LIGHTING UNIT TYPE 9-40

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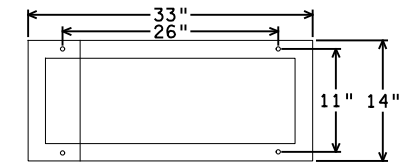
EXTERNAL



INTERNAL



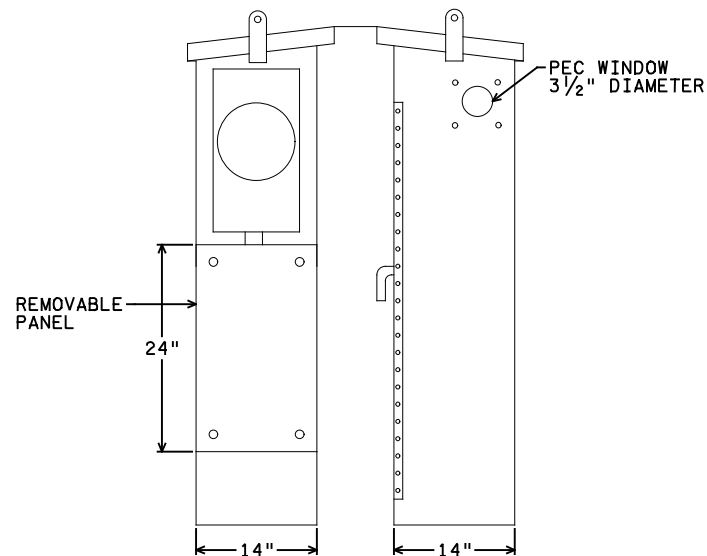
PAD MOUNTING PATTERN



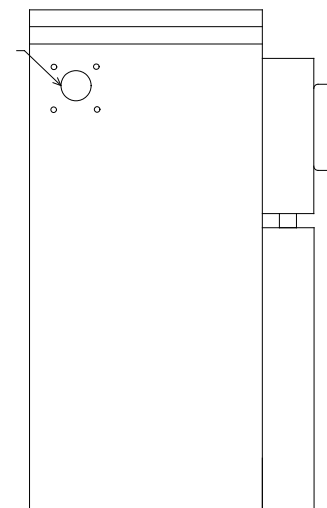
NOTE A: HEIGHT OF COMPARTMENT IS APPROXIMATELY 33". MAY VARY DEPEND UPON SIZE OF METER SOCKET.

SIDE VIEWS

LEFT RIGHT



BACK VIEW



LOCK SHALL BE STANDARD POLICE LOCK AND KEY. DOOR SHALL HAVE 3 POINT LATCHING AND LOCKING.

2" NMC AND 3-1/C #2 TO SOP

LIGHT FOUNDATION STEEL E WITH ADAPTER PLATE, SEE DIV SL SPECIAL PROVISIONS

5/8" DIA. X 15' GROUND ROD

DIRECT BURIED LIGHTING CABLE 4 COND NO 4 TO LIGHTING

PEDESTAL POLE LIGHT FOUNDATION STEEL E FILL ANY VOIDS WITH SAND

LIGHTING SERVICE PANEL

SERVICE CABINET TYPE L1

(NOT TO SCALE)

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 Electrical Engineer under the laws of the State of Minnesota.

Print Name: STEVE MCHENRY

Date: License # 46710

STATE PROJECT NO. 0704-108 (TH 22)

STATE PROJECT NO. 007-070-005

DRAWN BY T. RICHARDSON
DESIGNED BY T. RICHARDSON
CHECKED BY S. MCHENRY

COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION

LIGHTING DETAILS
TH 22 & CSAH 90

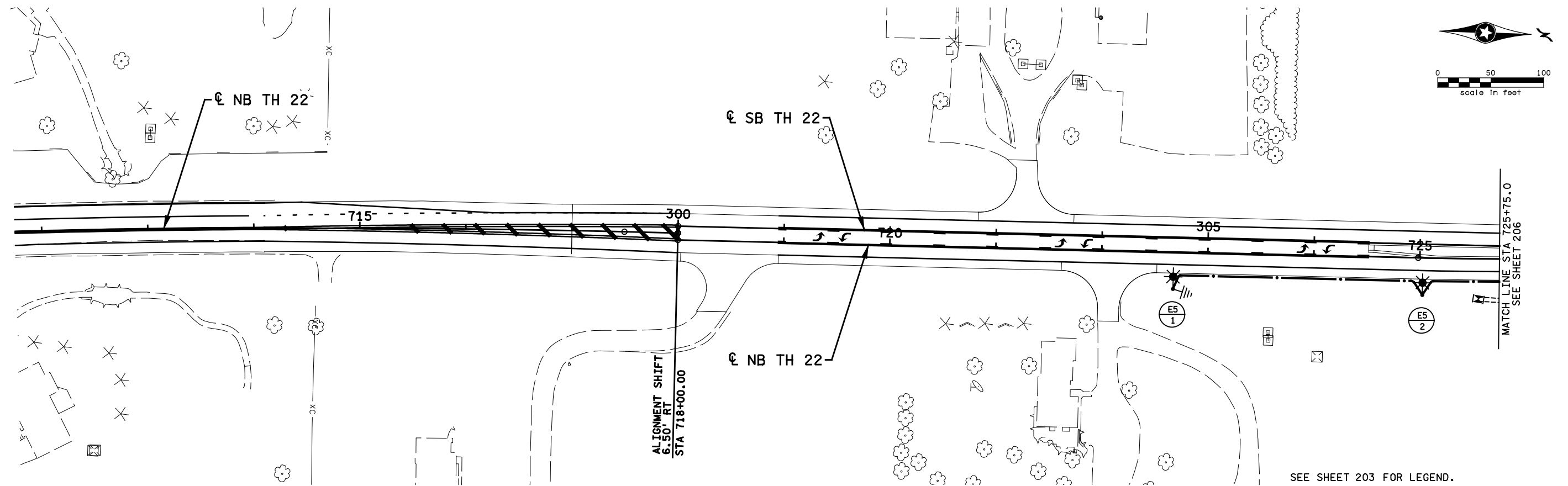
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204
OF
276

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NO	DATE	BY	CKD	APPR	REVISION

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FEED POINT 07E5						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
1	722+68		X	NB TH 22	9-40	STEEL E
2	725+03		X	NB TH 22	9-40	STEEL E



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Print Name: STEVE MCHENRY

Date: _____ License # 46710

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

DRAWN BY
T. RICHARDSON

DESIGNED BY
T. RICHARDSON

CHECKED BY
S. MCHENRY

COMM. NO. 01710321

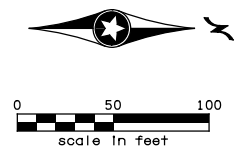


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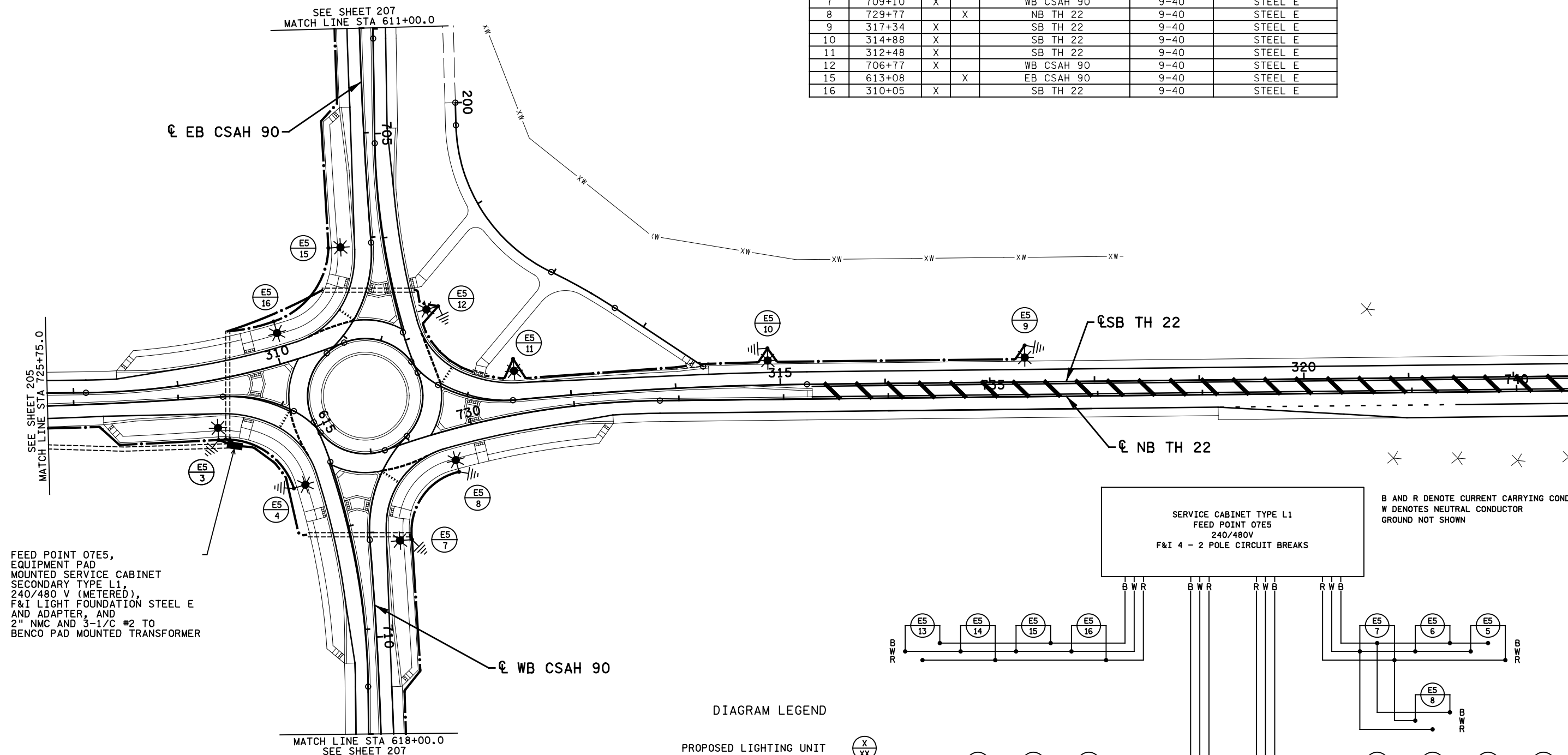
MINNESOTA DEPARTMENT OF TRANSPORTATION

LIGHTING PLANS
TH 22 & CSAH 90

SHEET
205
OF
276



FEED POINT 07E5						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
3	727+36		X	NB TH 22	9-40	STEEL E
4	615+50		X	EB CSAH 90	9-40	STEEL E
7	709+10	X		WB CSAH 90	9-40	STEEL E
8	729+77		X	NB TH 22	9-40	STEEL E
9	317+34	X		SB TH 22	9-40	STEEL E
10	314+88	X		SB TH 22	9-40	STEEL E
11	312+48	X		SB TH 22	9-40	STEEL E
12	706+77	X		WB CSAH 90	9-40	STEEL E
15	613+08		X	EB CSAH 90	9-40	STEEL E
16	310+05	X		SB TH 22	9-40	STEEL E



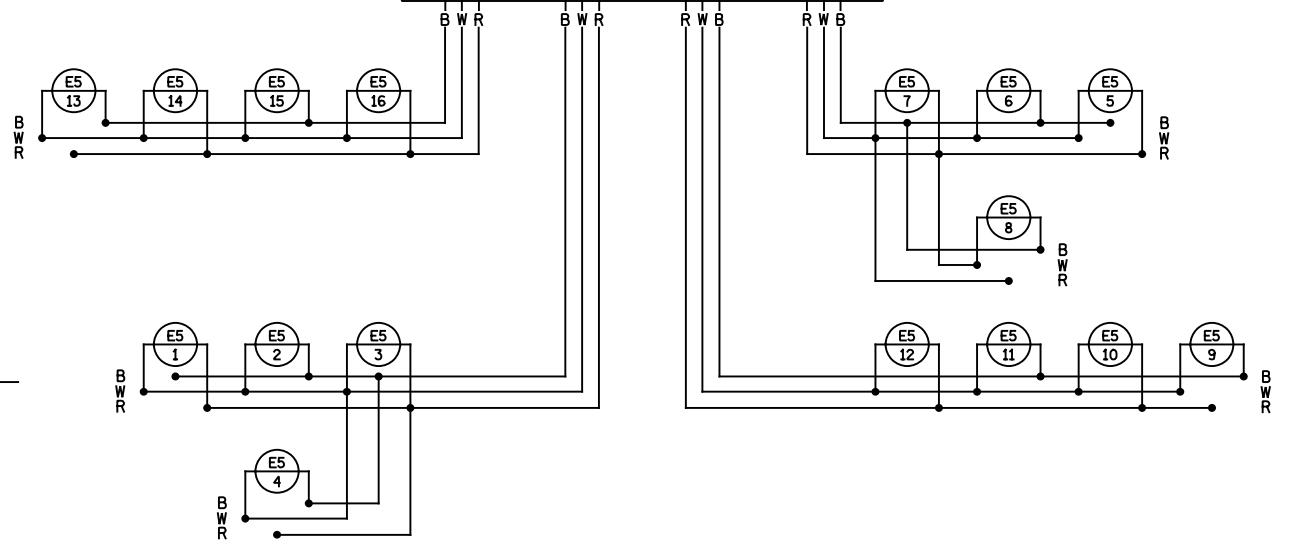
FEED POINT 07E5,
EQUIPMENT PAD
MOUNTED SERVICE CABINET
SECONDARY TYPE L1,
240/480 V (METERED),
F&I LIGHT FOUNDATION STEEL E
AND ADAPTER, AND
2" NMC AND 3-1/2" #2 TO
BENCO PAD MOUNTED TRANSFORMER

SERVICE CABINET TYPE L1
FEED POINT 07E5
240/480V
F&I 4 - 2 POLE CIRCUIT BREAKS

B AND R DENOTE CURRENT CARRYING CONDUCTORS
W DENOTES NEUTRAL CONDUCTOR
GROUND NOT SHOWN

DIAGRAM LEGEND

- PROPOSED LIGHTING UNIT
- PROPOSED CIRCUITRY
- PROPOSED SPLICE



SEE SHEET 203 FOR LEGEND.

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Print Name: STEVE MCHENRY
Date: _____ License # 46710

STATE PROJECT NO. 0704-108 (TH 22)
STATE PROJECT NO. 007-070-005

DRAWN BY T. RICHARDSON
DESIGNED BY T. RICHARDSON
CHECKED BY S. MCHENRY
COMM. NO. 01710321

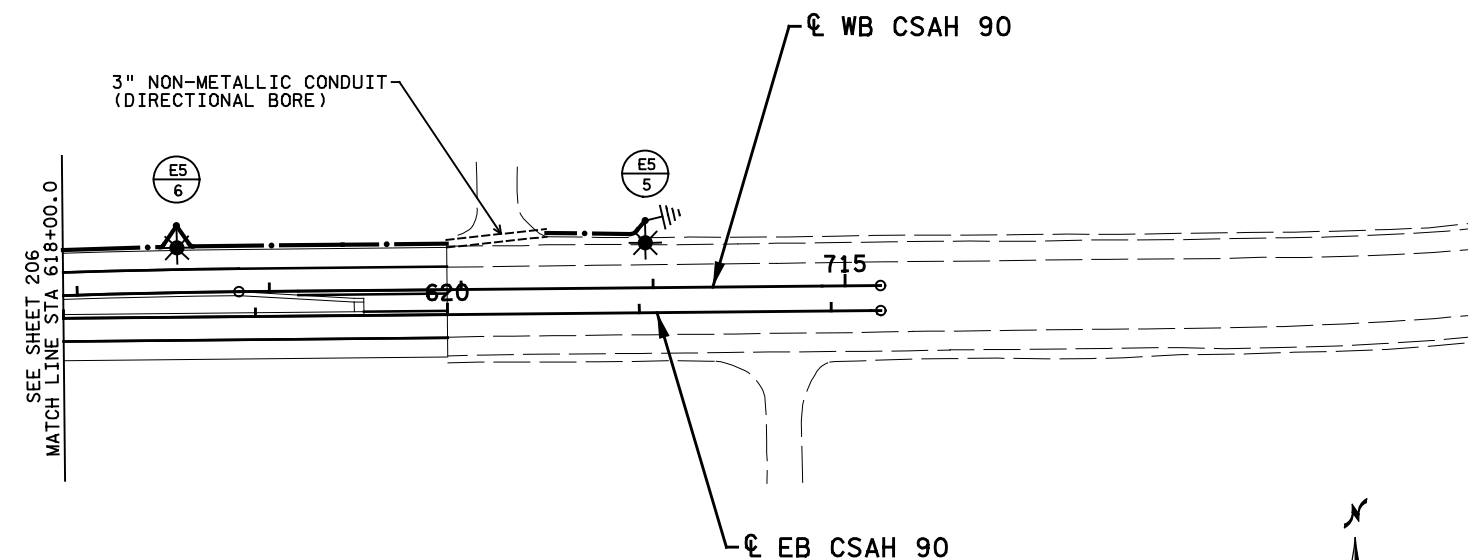
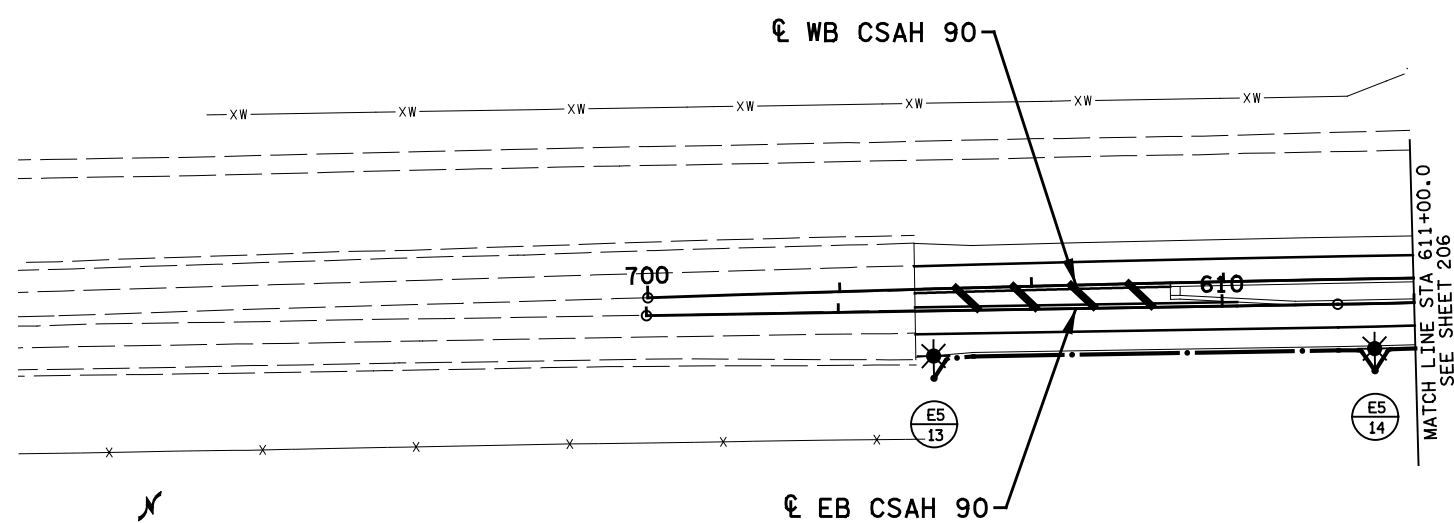


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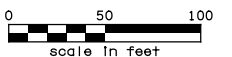
MINNESOTA DEPARTMENT OF TRANSPORTATION
LIGHTING PLANS
TH 22 & CSAH 90

SHEET
206
OF
276

FEED POINT 07E5						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
5	713+96	X		WB CSAH 90	9-40	STEEL E
6	711+52	X		WB CSAH 90	9-40	STEEL E
13	608+49		X	EB CSAH 90	9-40	STEEL E
14	610+79		X	EB CSAH 90	9-40	STEEL E



SEE SHEET 203 FOR LEGEND.



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 Print Name: STEVE MCHENRY
 Date: _____ License # 46710

STATE PROJECT NO. 0704-108 (TH 22)
 STATE PROJECT NO. 007-070-005

DRAWN BY T. RICHARDSON
 DESIGNED BY T. RICHARDSON
 CHECKED BY S. MCHENRY
 COMM. NO. 01710321



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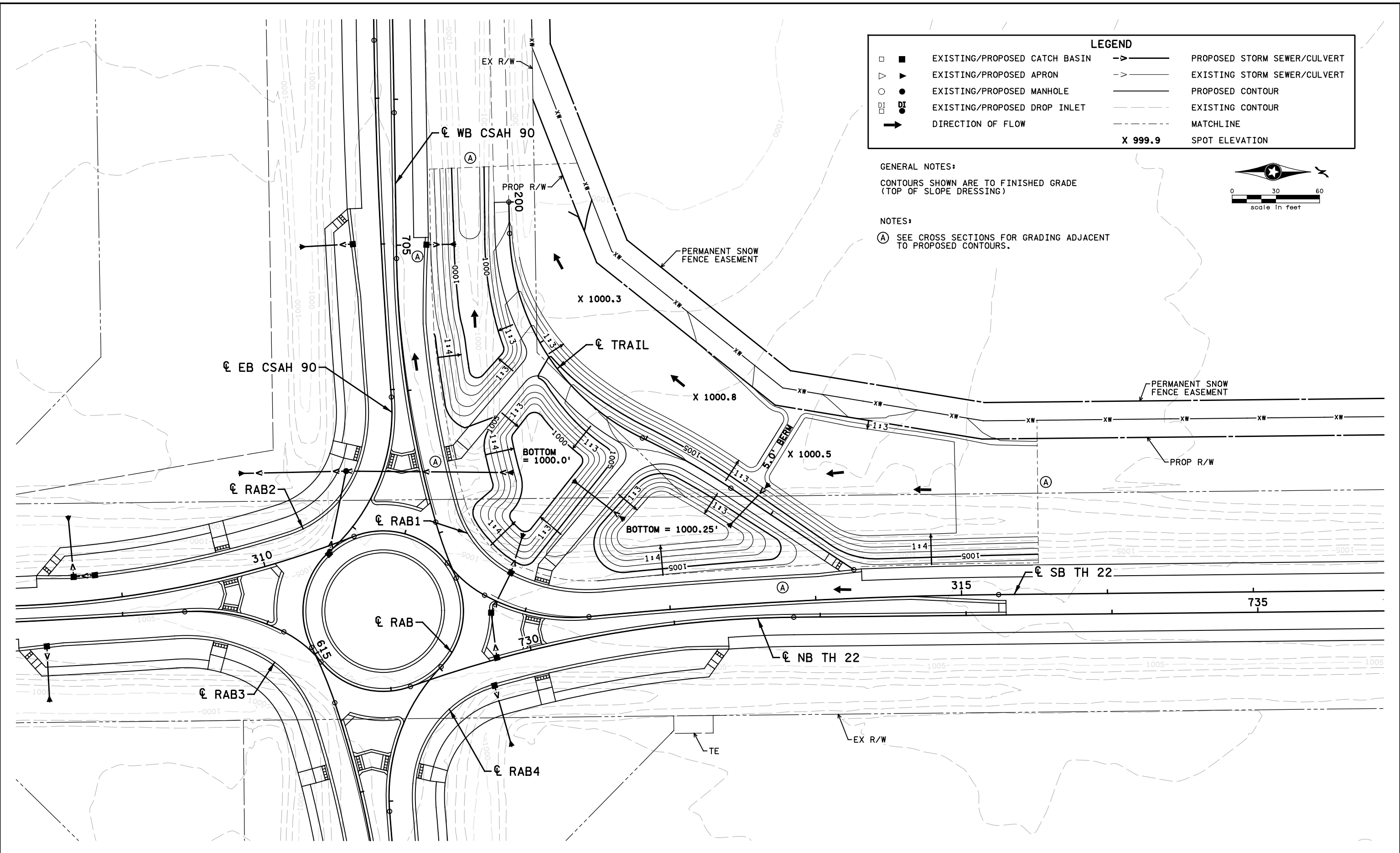
MINNESOTA DEPARTMENT OF TRANSPORTATION
 LIGHTING PLANS
 TH 22 & CSAH 90

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 207
 OF
 276

NO	DATE	BY	CKD	APPR	REVISION

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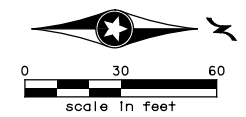
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LEGEND			
□	EXISTING/PROPOSED CATCH BASIN	->	PROPOSED STORM SEWER/CULVERT
△	EXISTING/PROPOSED APRON	->	EXISTING STORM SEWER/CULVERT
○	EXISTING/PROPOSED MANHOLE	---	PROPOSED CONTOUR
⊠	EXISTING/PROPOSED DROP INLET	---	EXISTING CONTOUR
→	DIRECTION OF FLOW	- - - -	MATCHLINE
		X 999.9	SPOT ELEVATION

GENERAL NOTES:
 CONTOURS SHOWN ARE TO FINISHED GRADE
 (TOP OF SLOPE DRESSING)

NOTES:
 (A) SEE CROSS SECTIONS FOR GRADING ADJACENT
 TO PROPOSED CONTOURS.



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Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO.
 0704-108 (TH 22)

STATE PROJECT NO.
 007-070-005

DRAWN BY
 S. MARTINS

DESIGNED BY
 P. ENGELMEYER

CHECKED BY
 A. TRACY

COMM. NO. 01710321

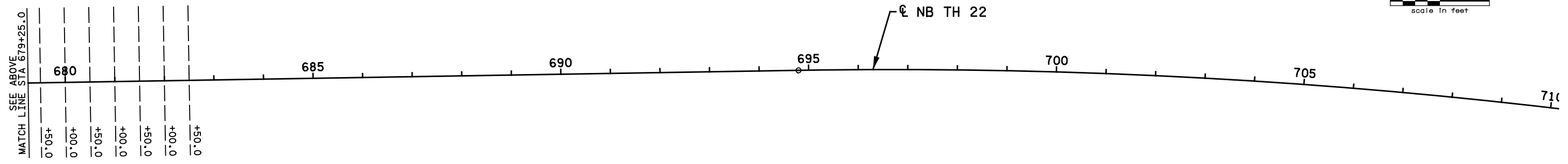
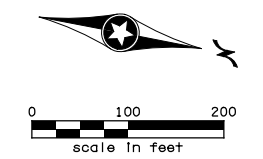
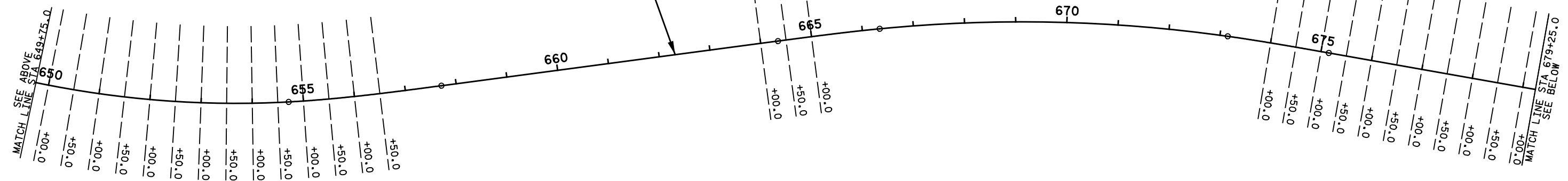
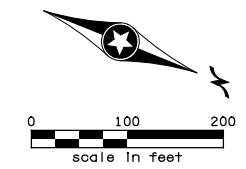
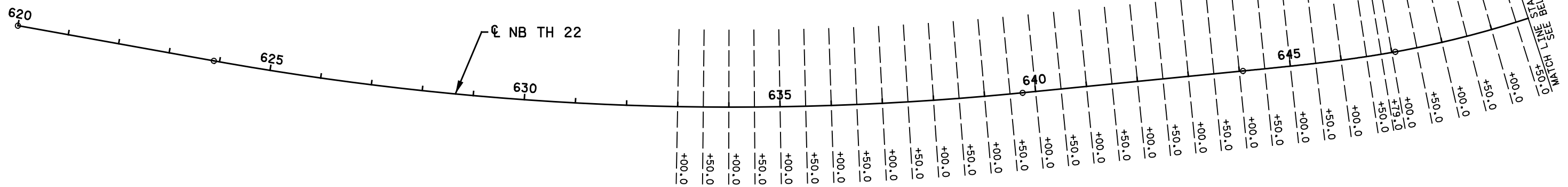
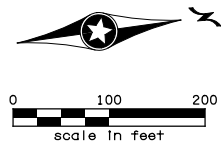


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MINNESOTA DEPARTMENT OF TRANSPORTATION

CONTOUR PLANS
 TH 22 & CSAH 90

SHEET
 208
 OF
 276



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 Print Name: AMBER E. TRACY
 Date: _____ License # 50890

STATE PROJECT NO.
 0704-108 (TH 22)
 STATE PROJECT NO.
 007-070-005

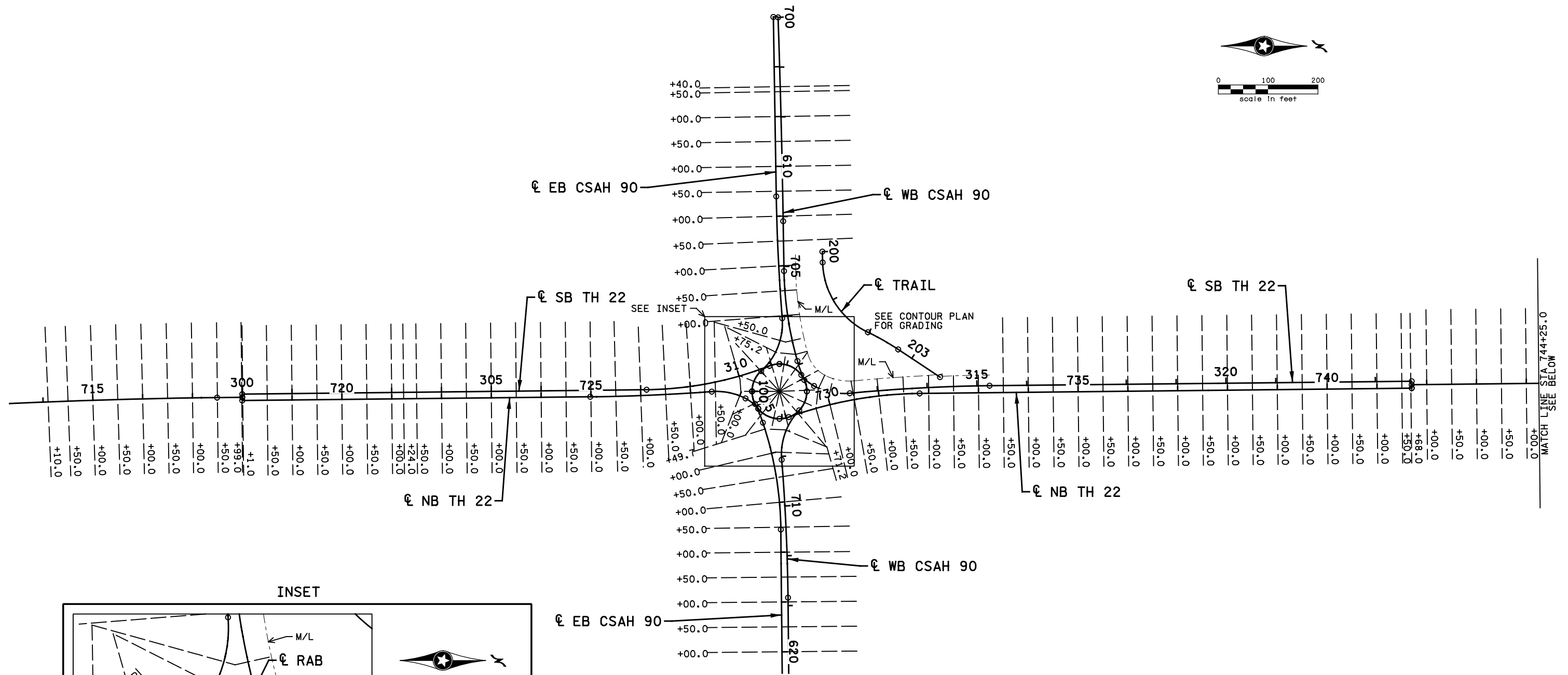
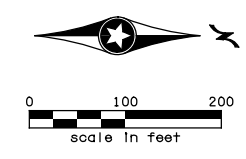
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 S. MARTINS
 DESIGNED BY
 P. ENGELMEYER
 CHECKED BY
 A. TRACY
 COMM. NO. 01710321



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MINNESOTA DEPARTMENT OF TRANSPORTATION
 CROSS SECTION MATCHLINE LAYOUT PLAN
 TH 22 & CSAH 90

SHEET
 209
 OF
 276



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Print Name: AMBER E. TRACY

Date: _____ License # 50890

STATE PROJECT NO.
0704-108 (TH 22)

STATE PROJECT NO.
007-070-005

DRAWN BY
S. MARTINS

DESIGNED BY
P. ENGELMEYER

CHECKED BY
A. TRACY

COMM. NO. 01710321



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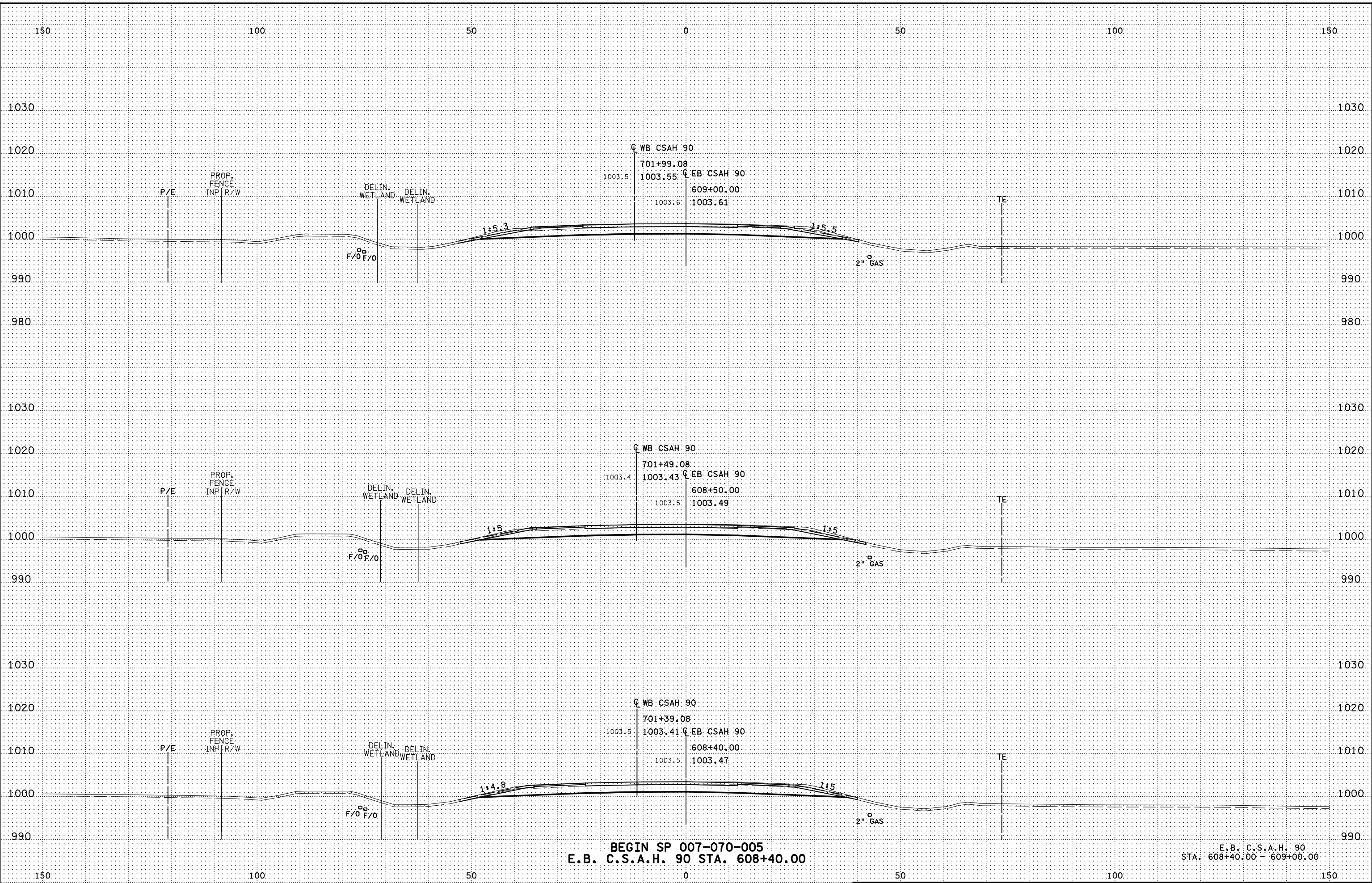
MINNESOTA DEPARTMENT OF TRANSPORTATION

CROSS SECTION MATCHLINE LAYOUT PLAN

TH 22 & CSAH 90

SHEET
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OF
276

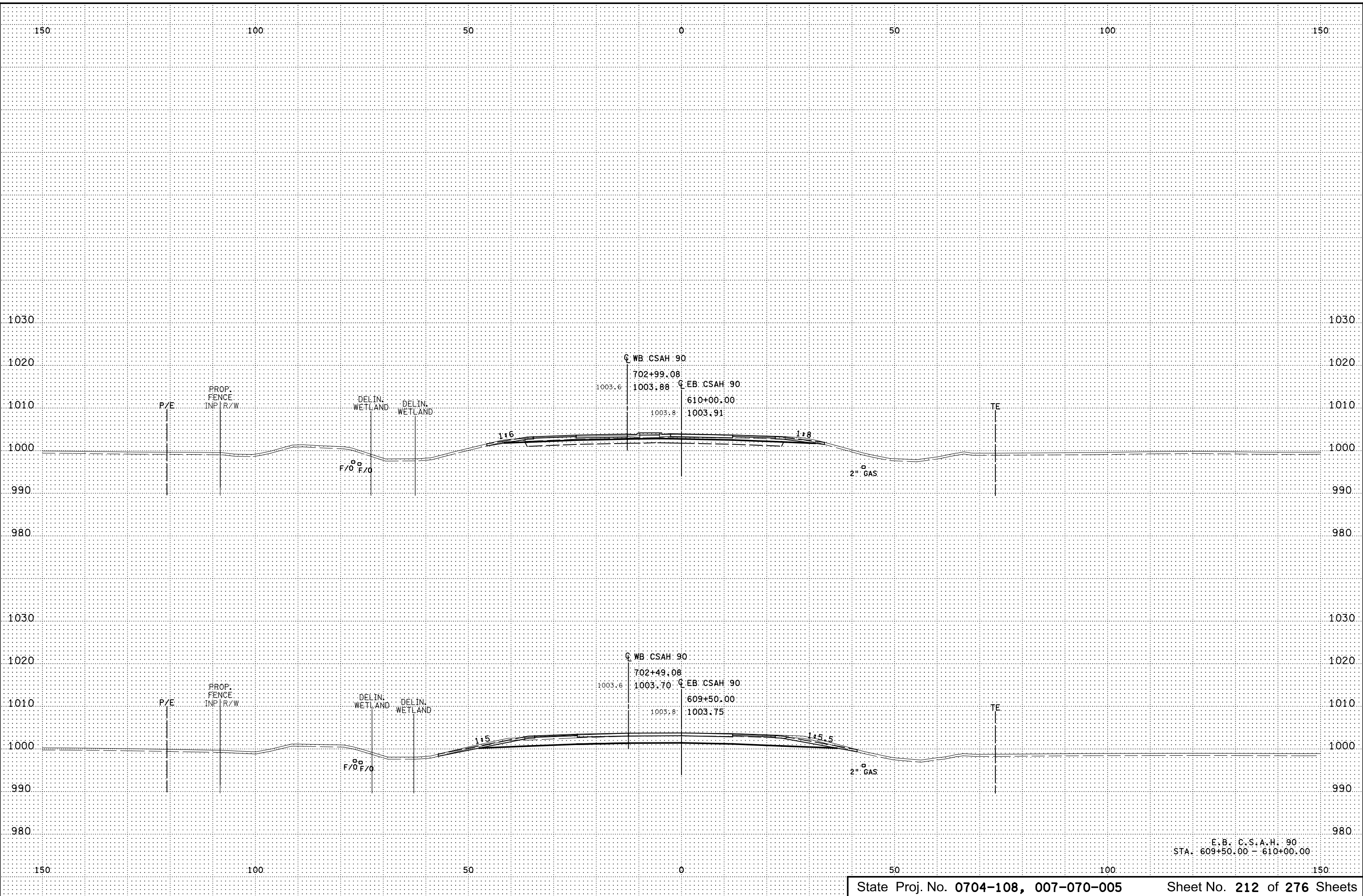
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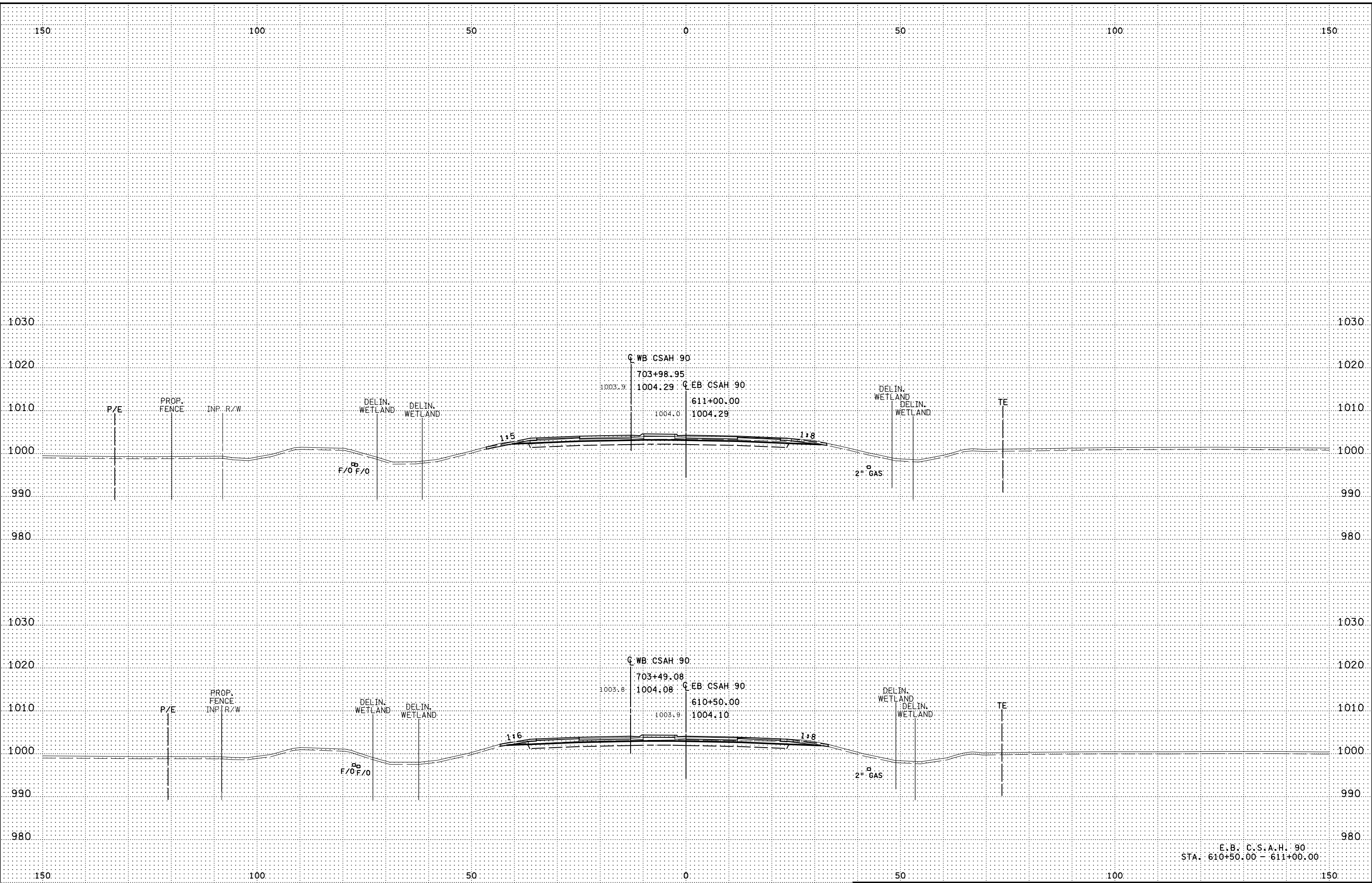
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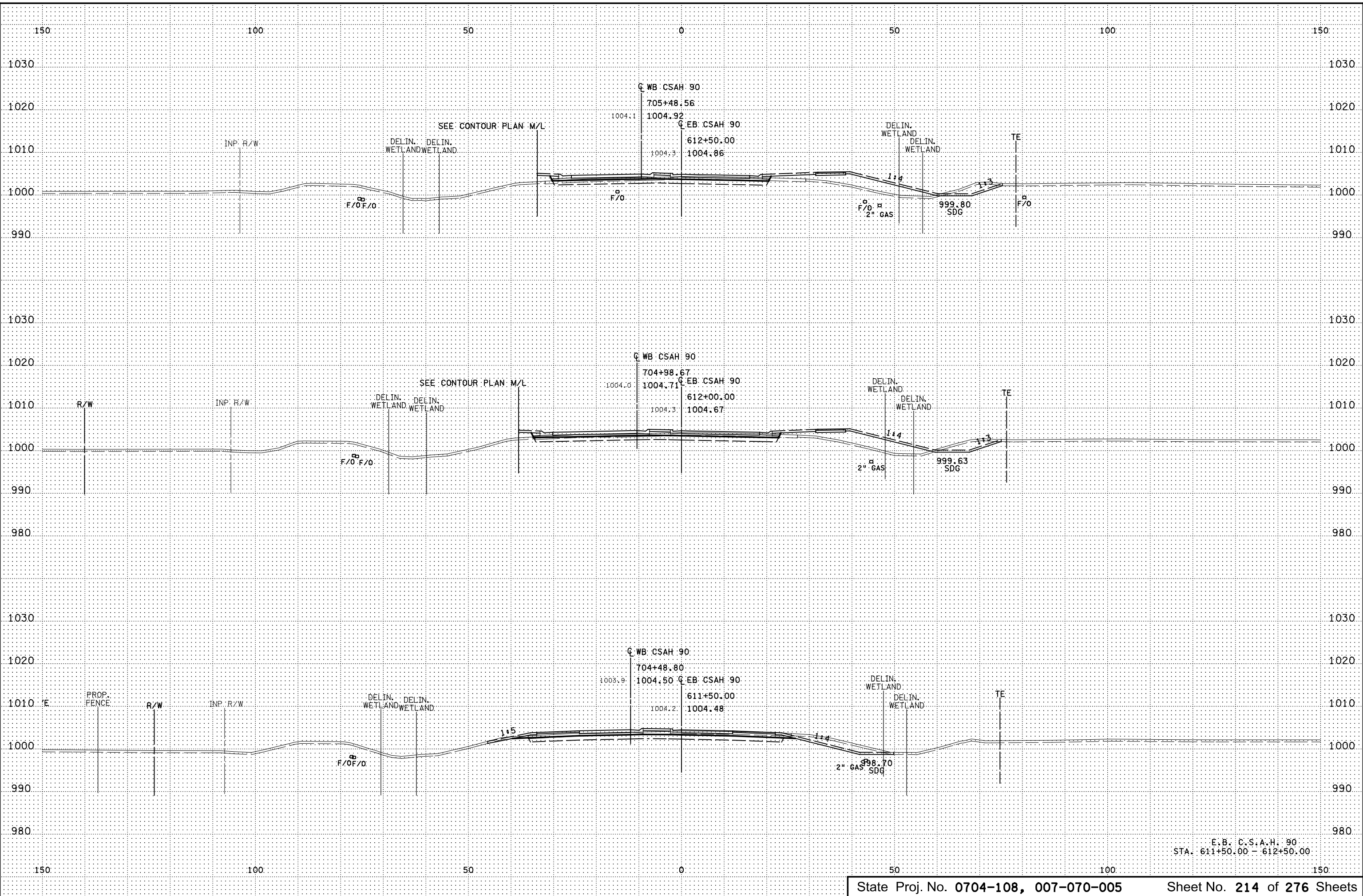
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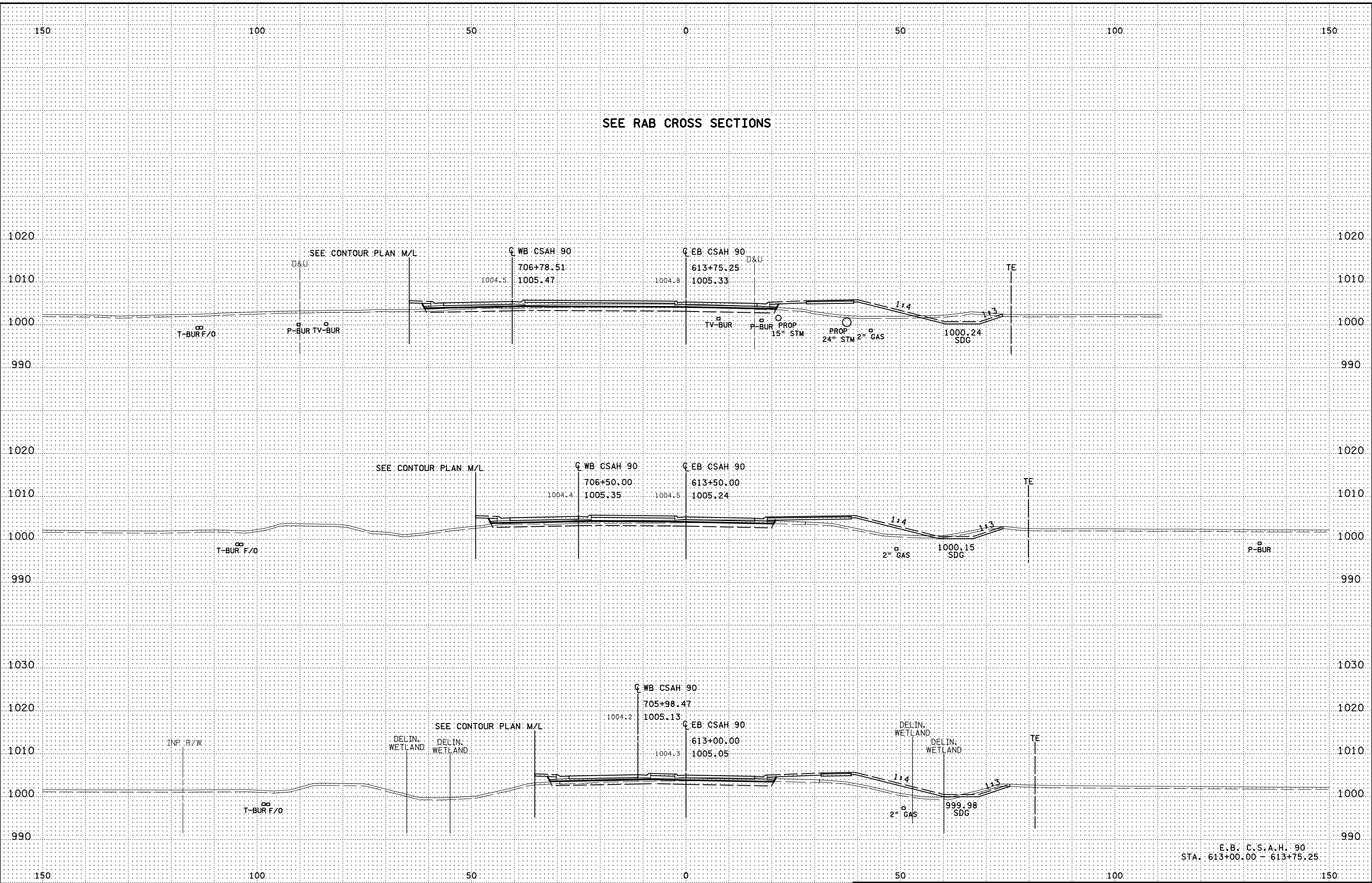


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SEE RAB CROSS SECTIONS

SEE CONTOUR PLAN M/L

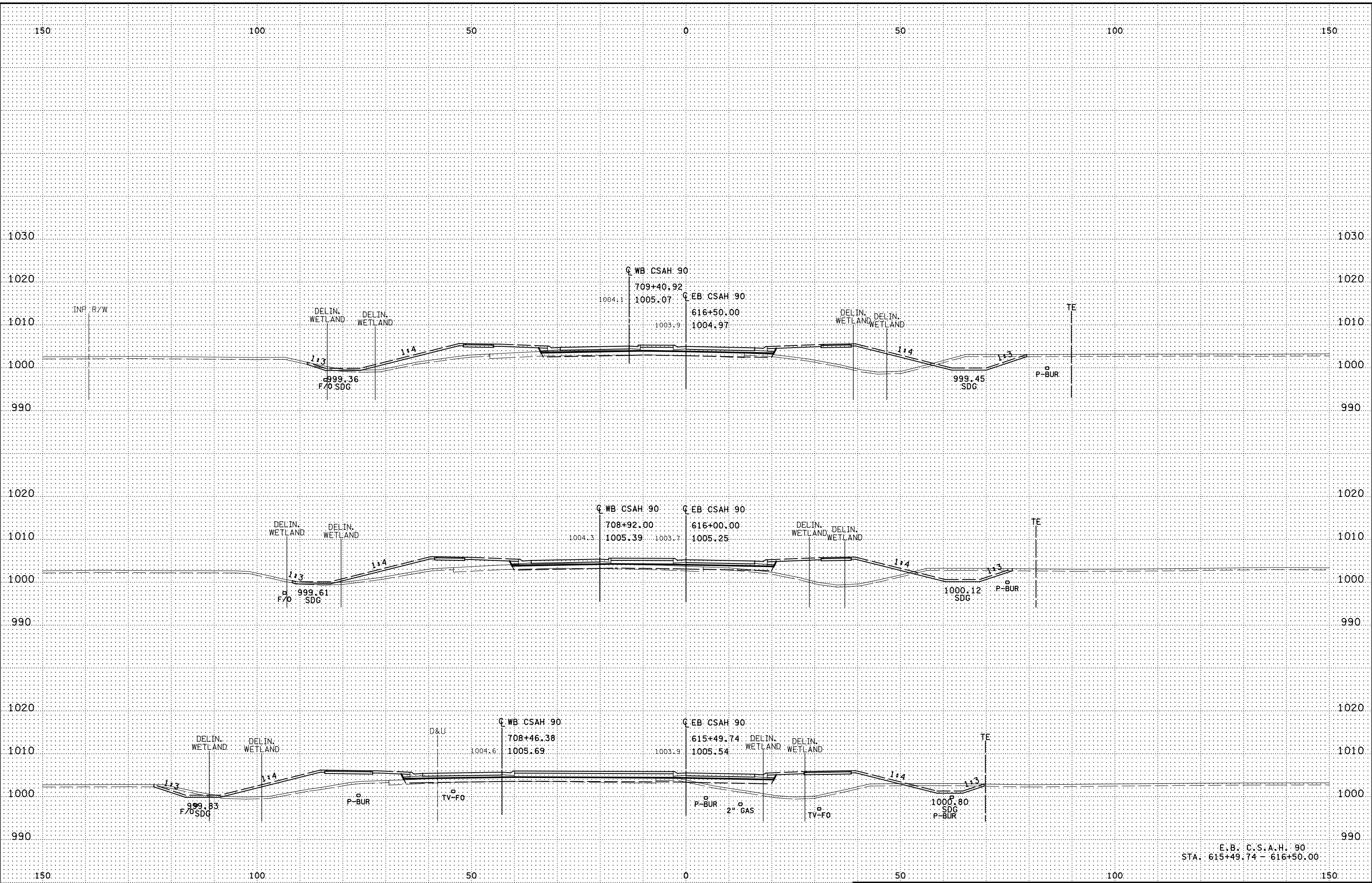
SEE CONTOUR PLAN M/L

SEE CONTOUR PLAN M/L

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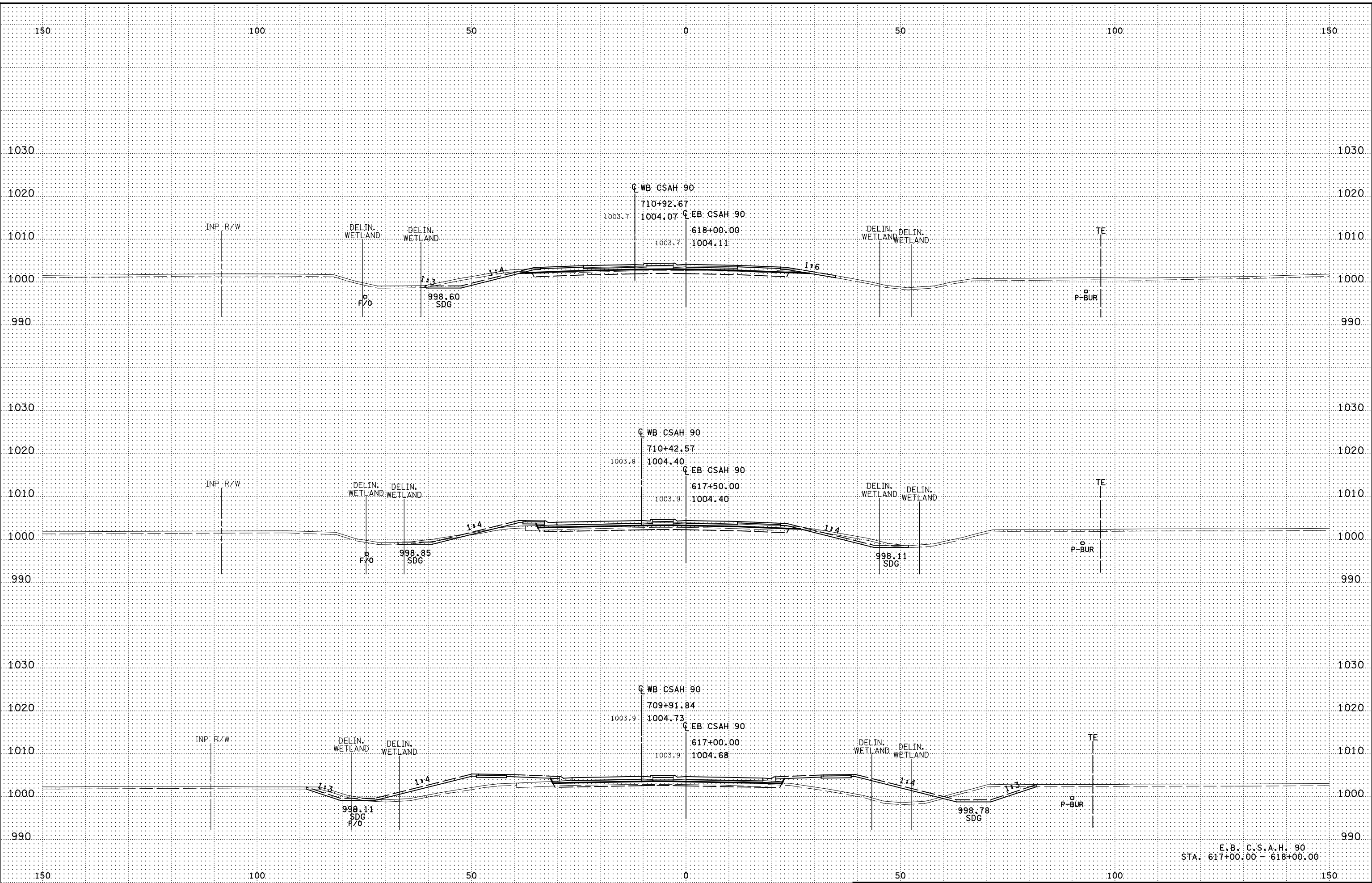
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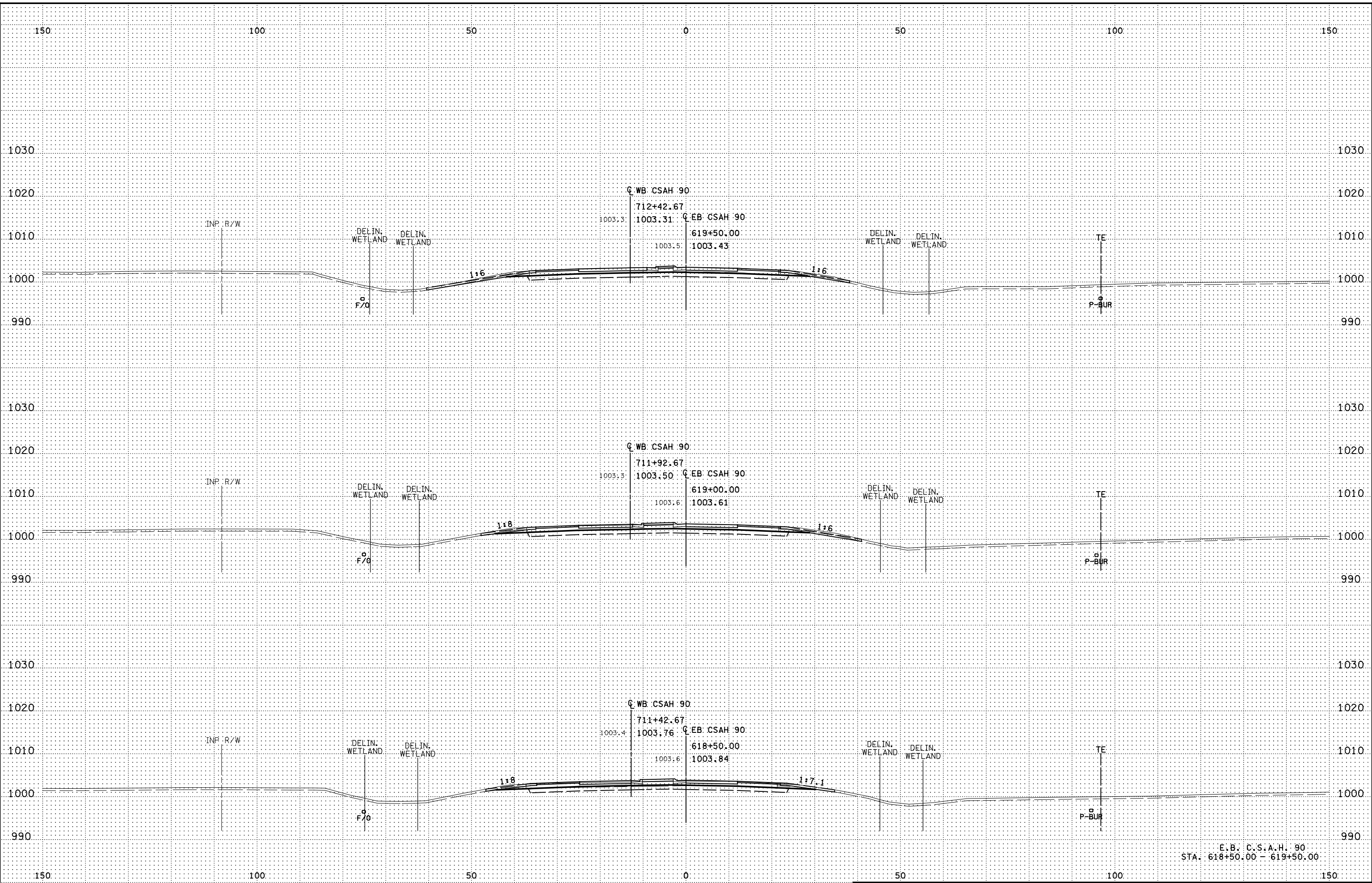
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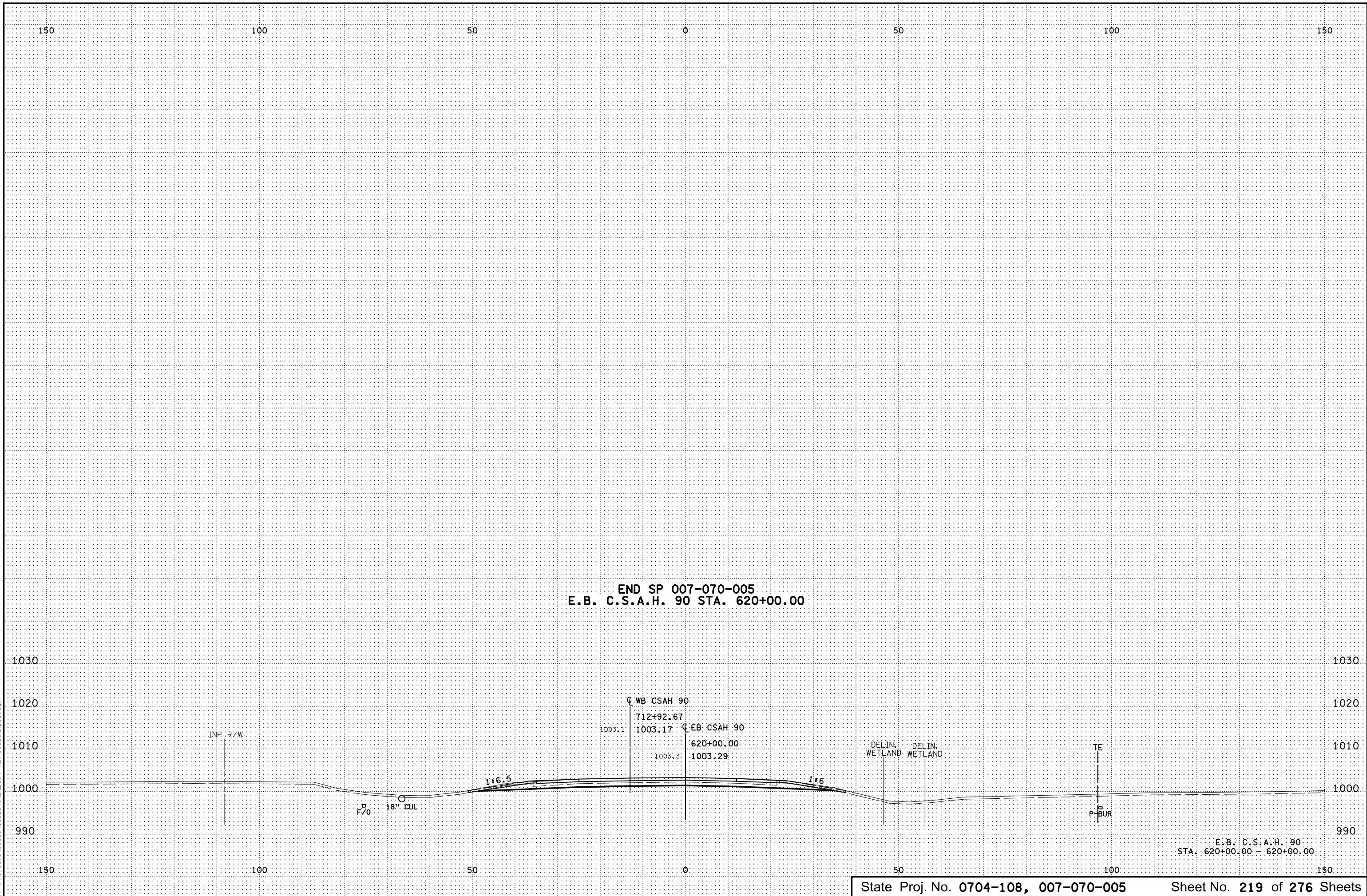
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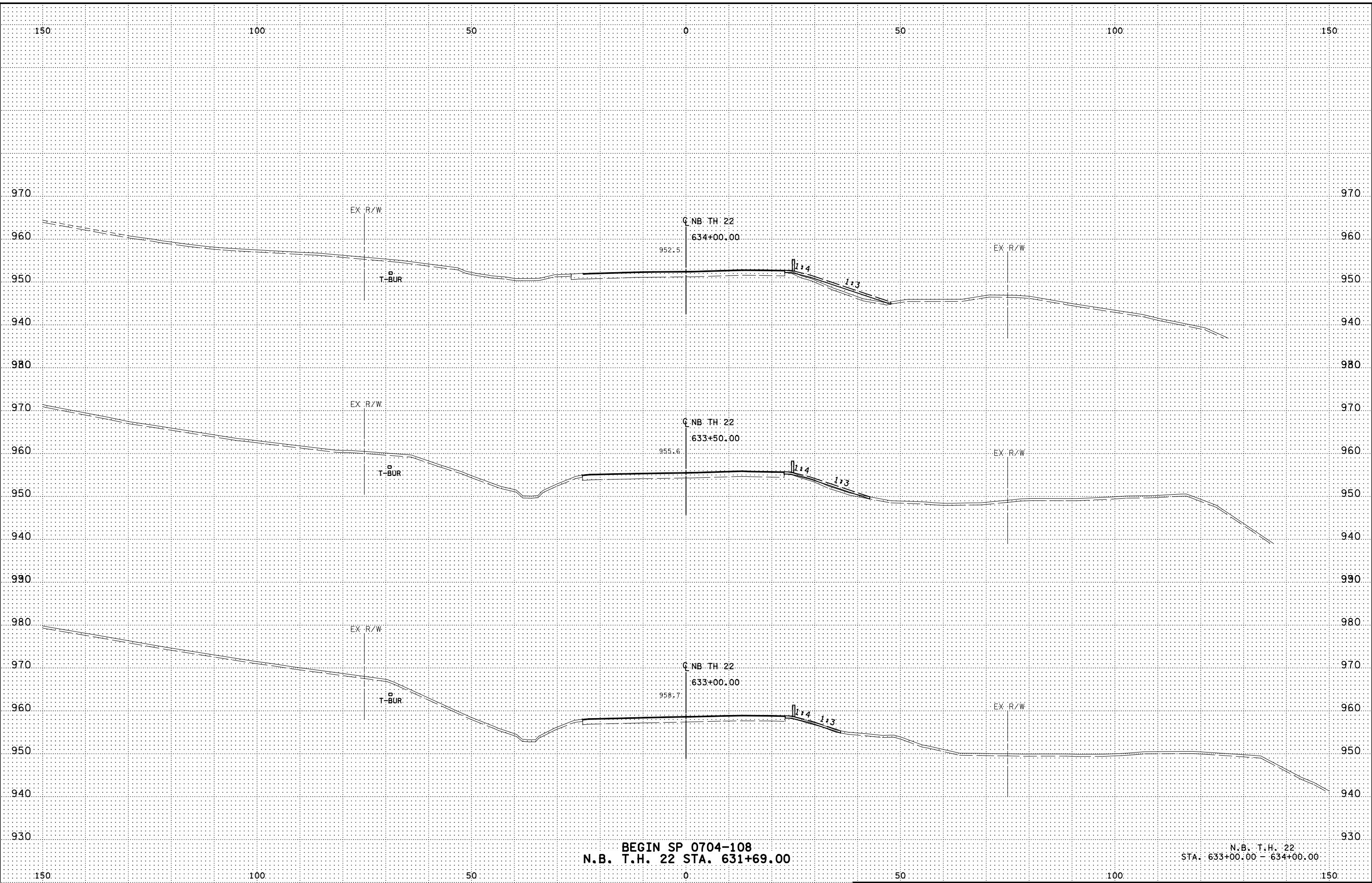
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620+00.00
1003.3 1003.29

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P-BUR

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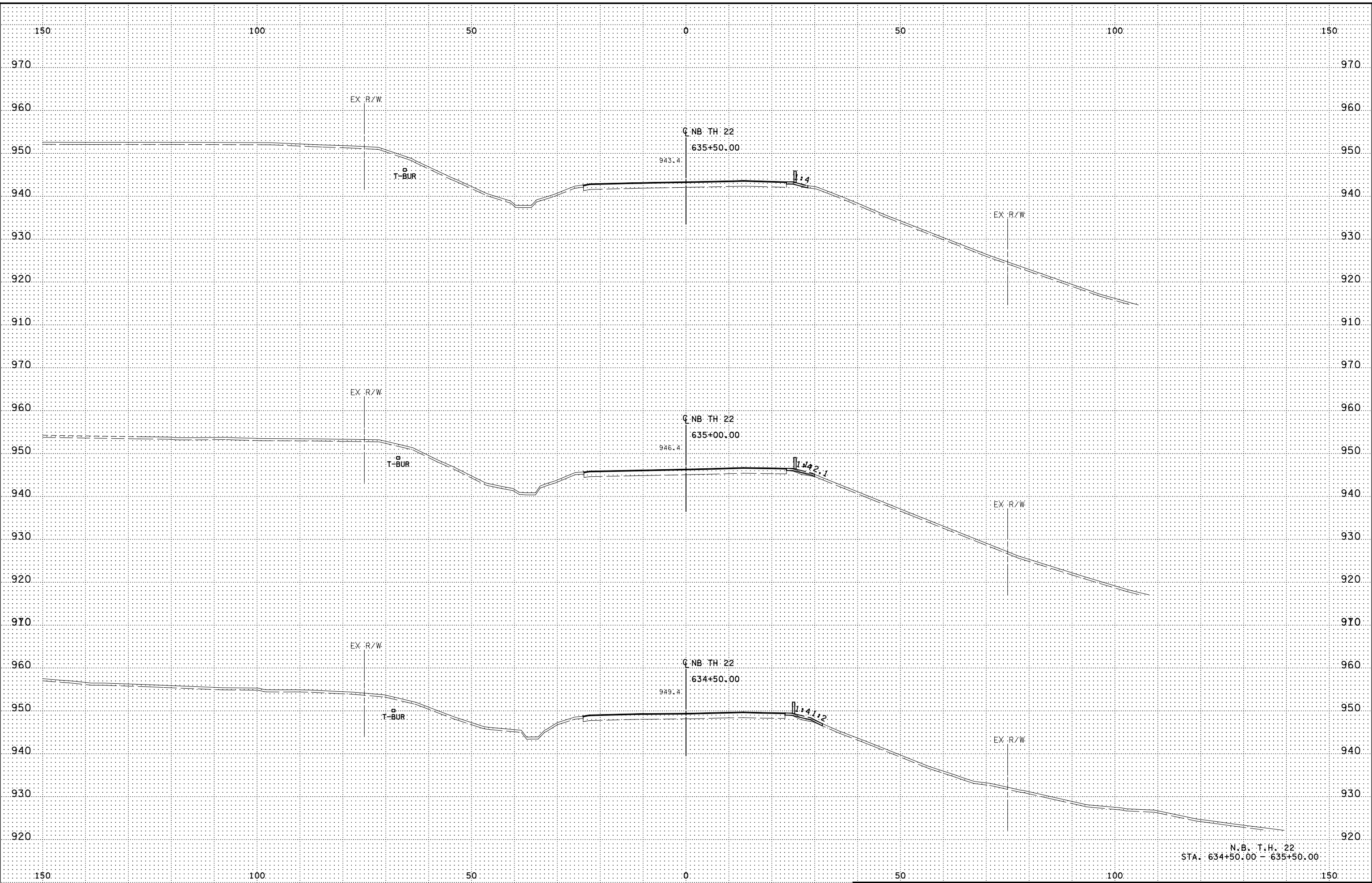
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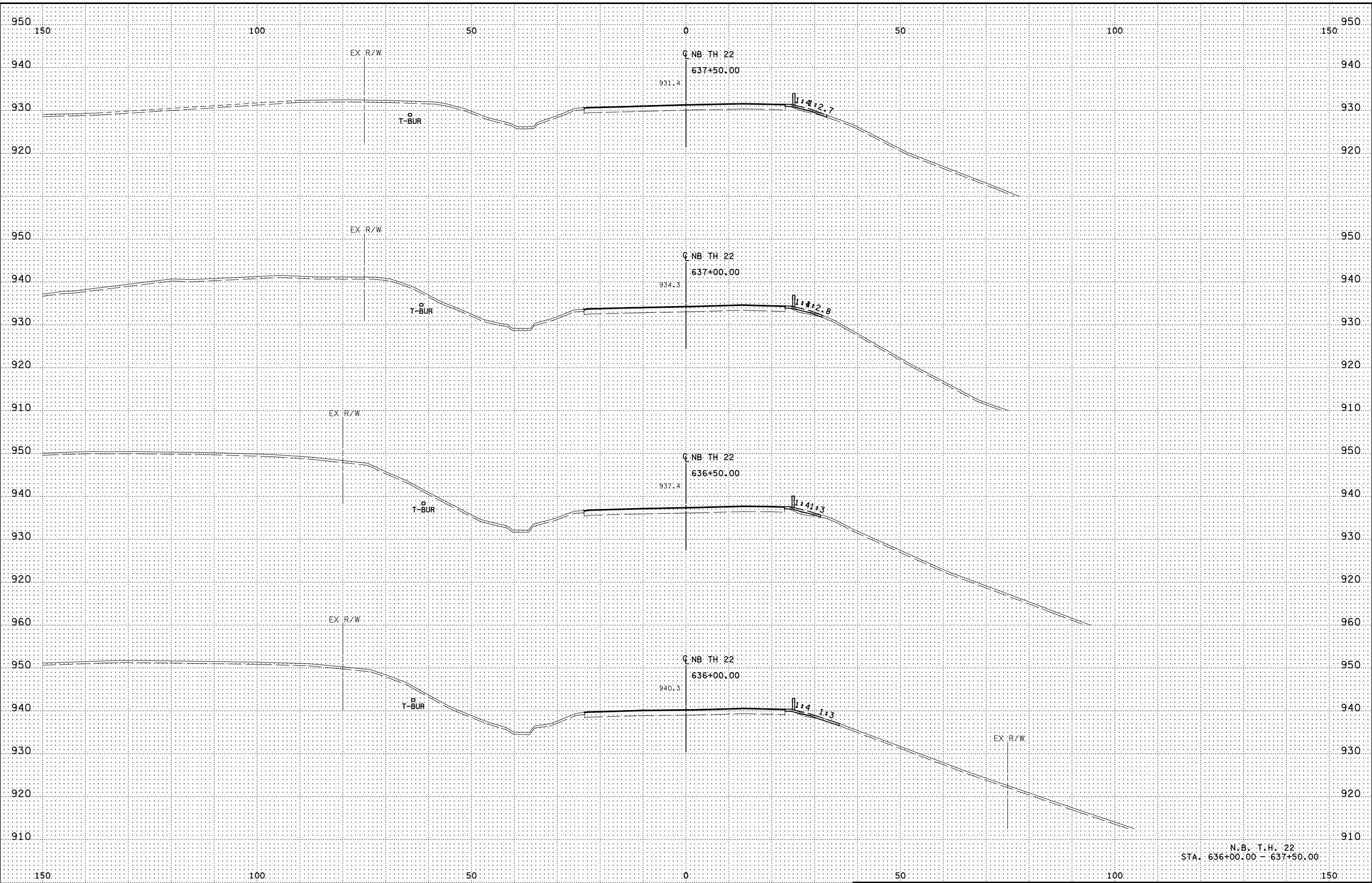
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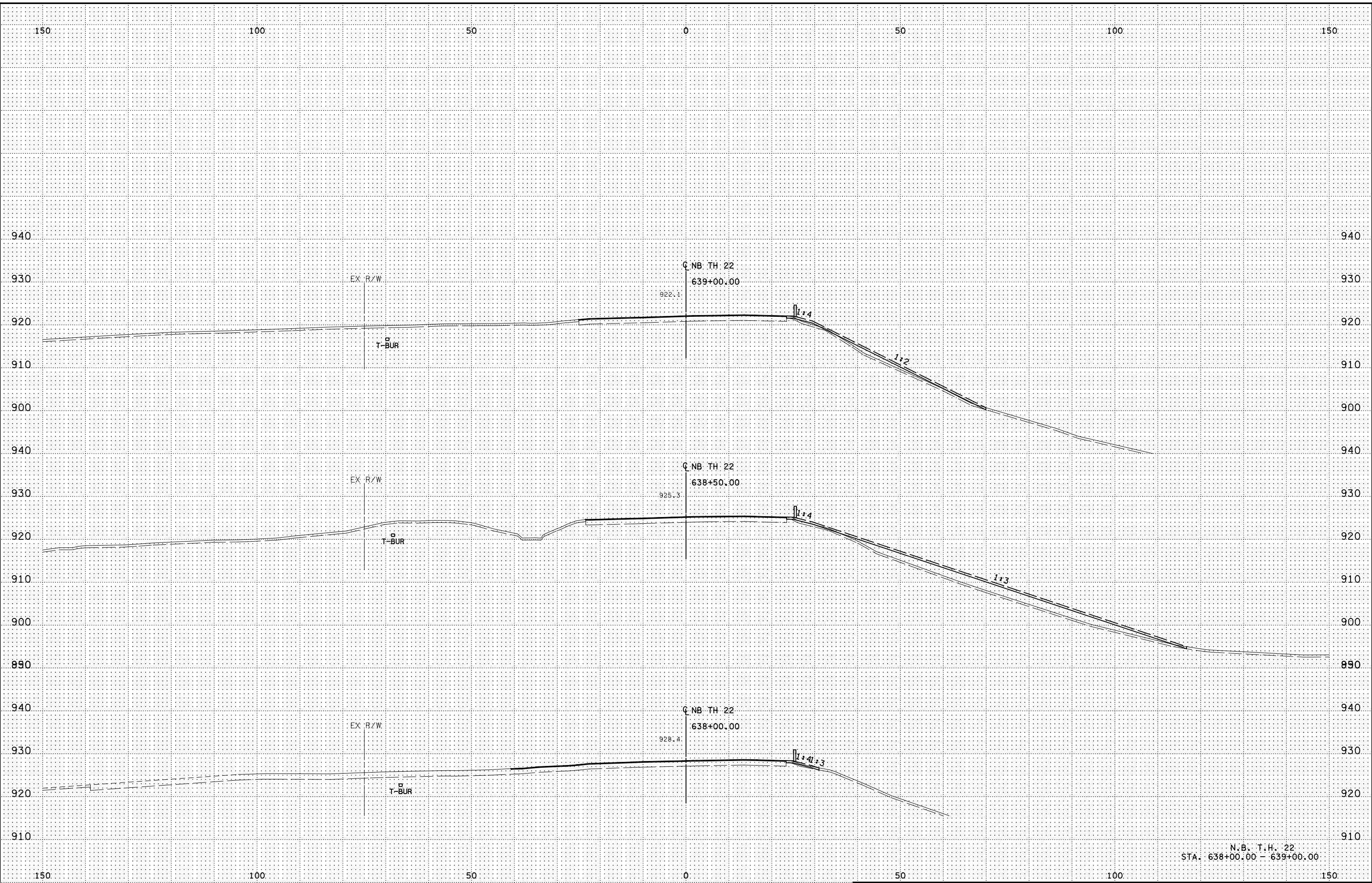
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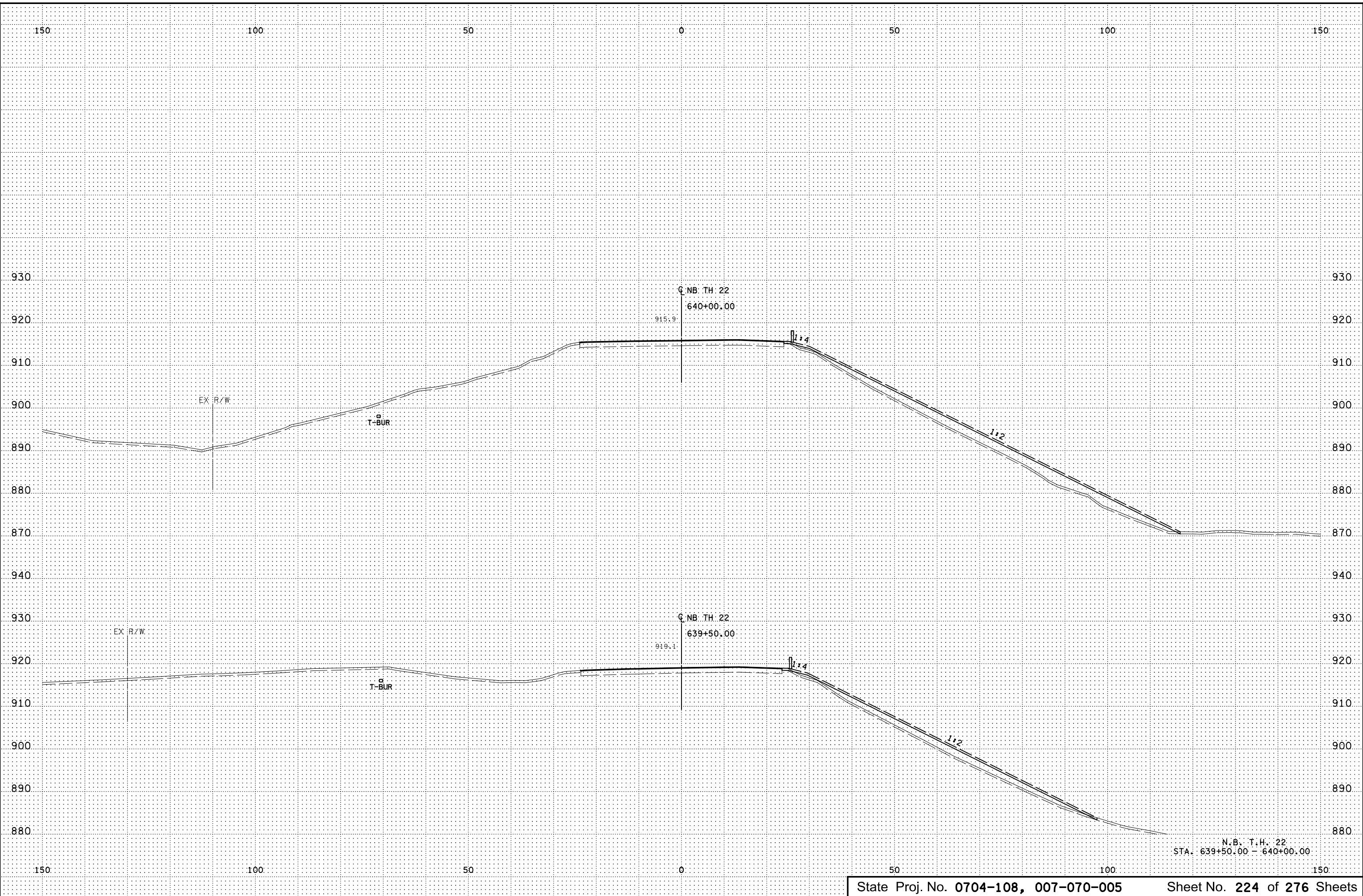
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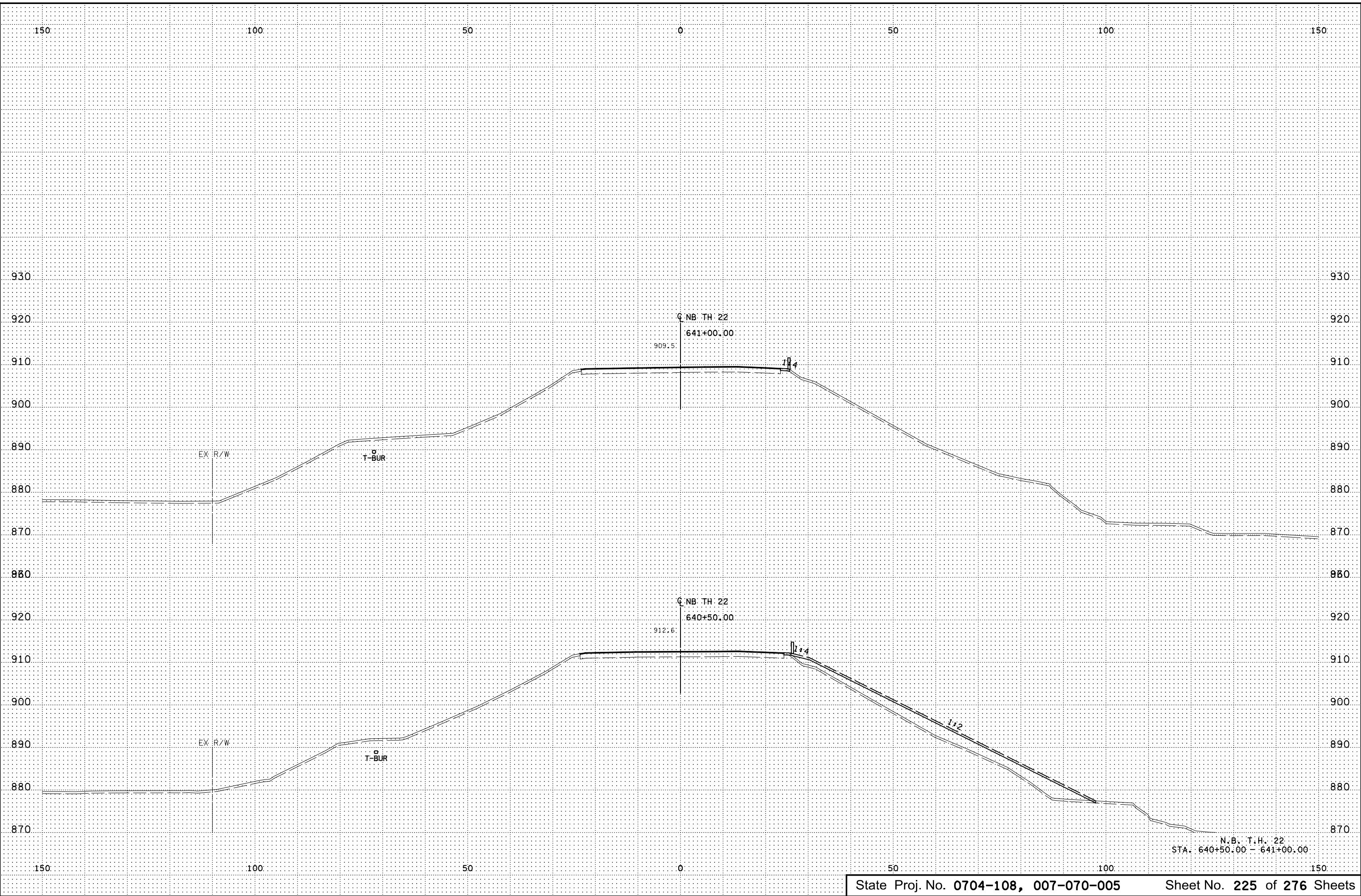


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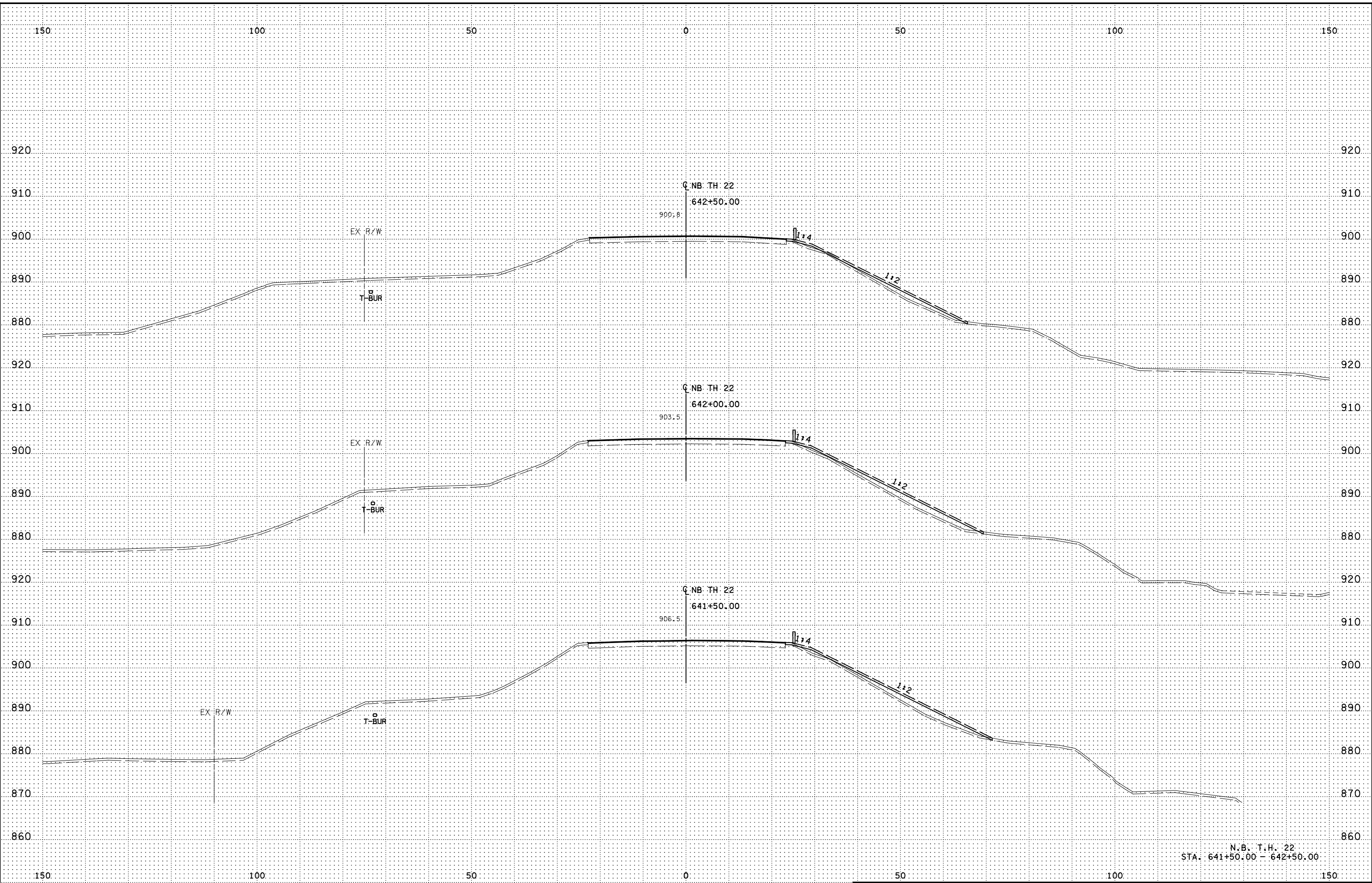
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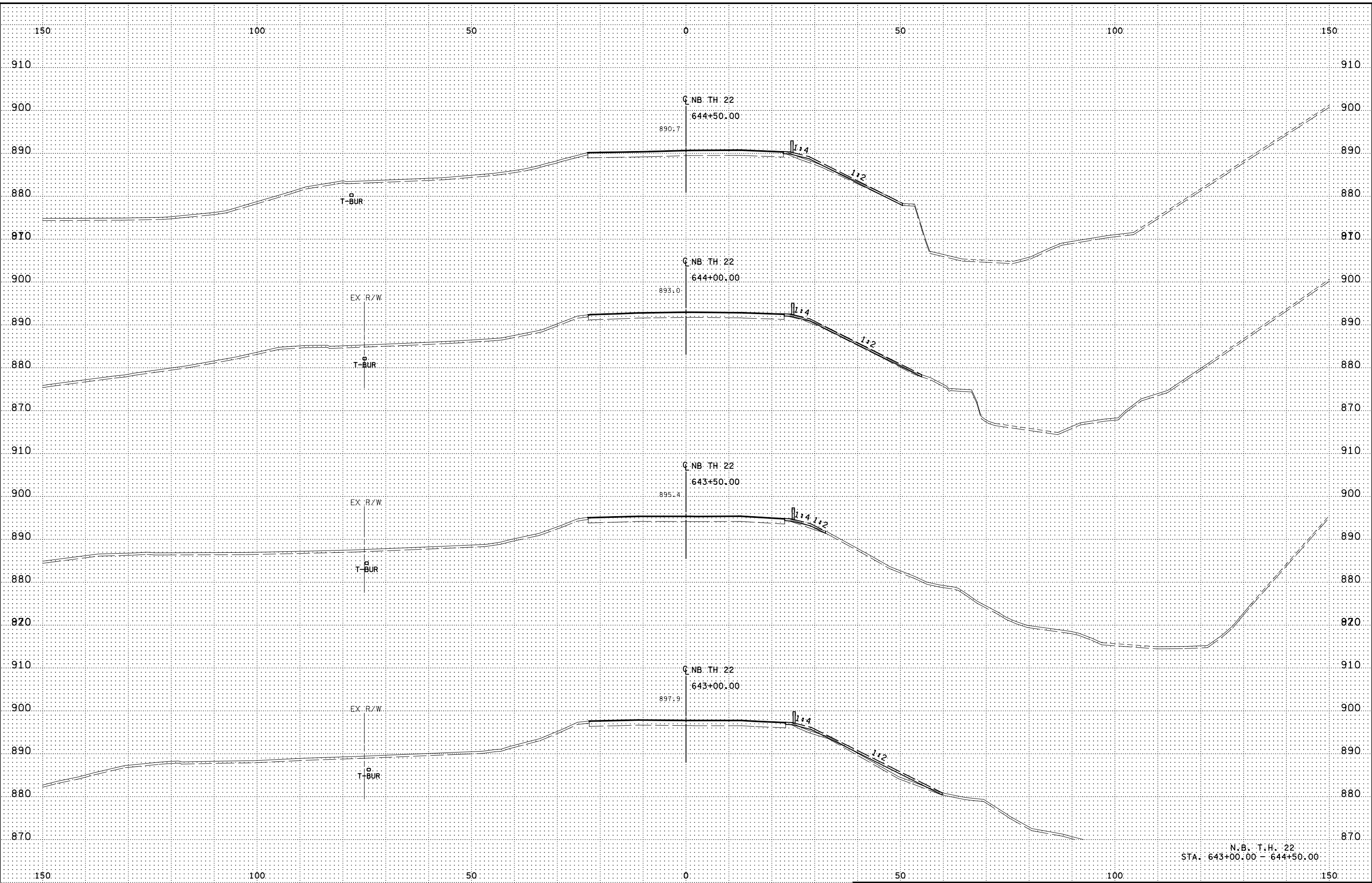


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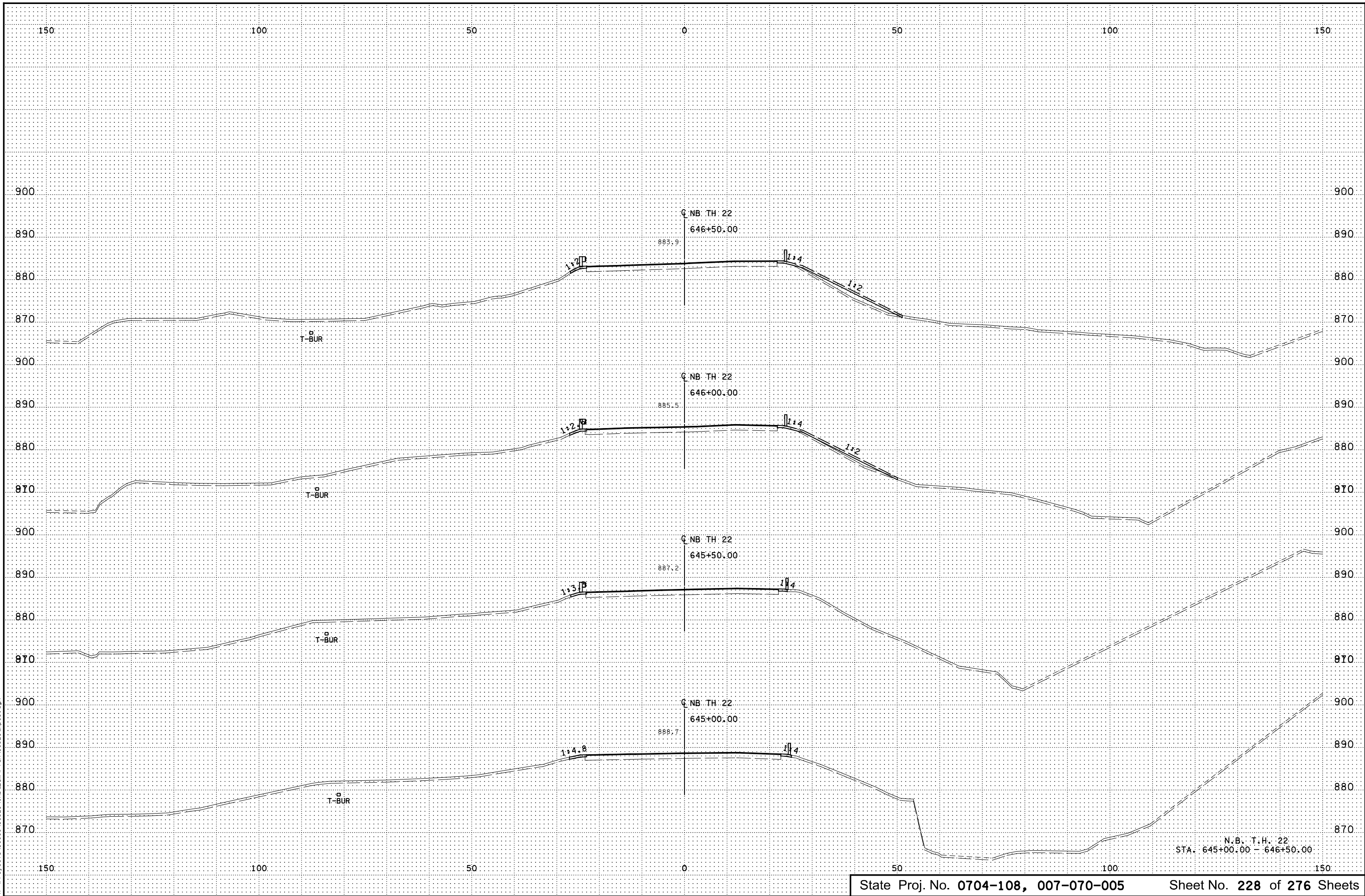
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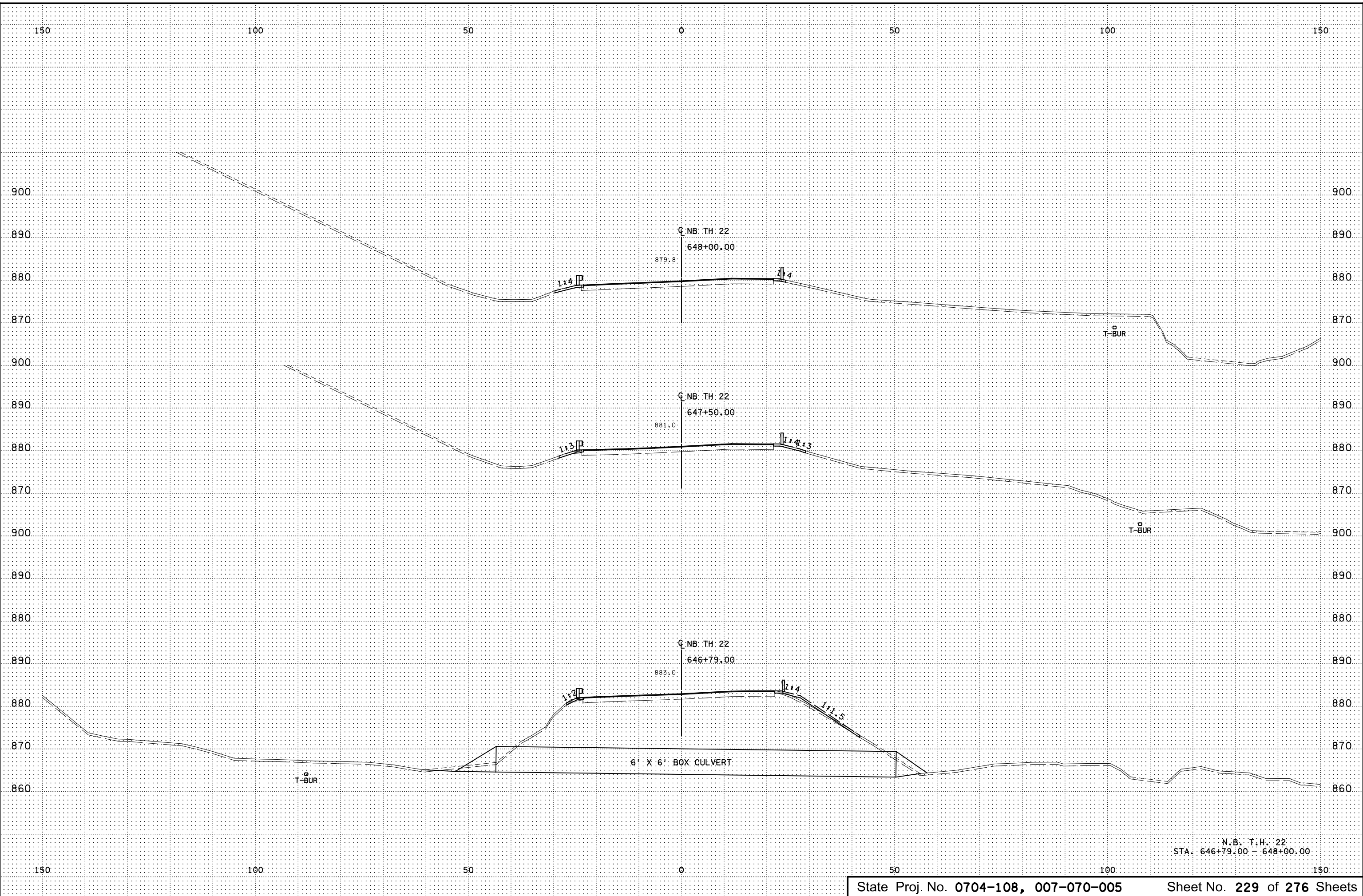
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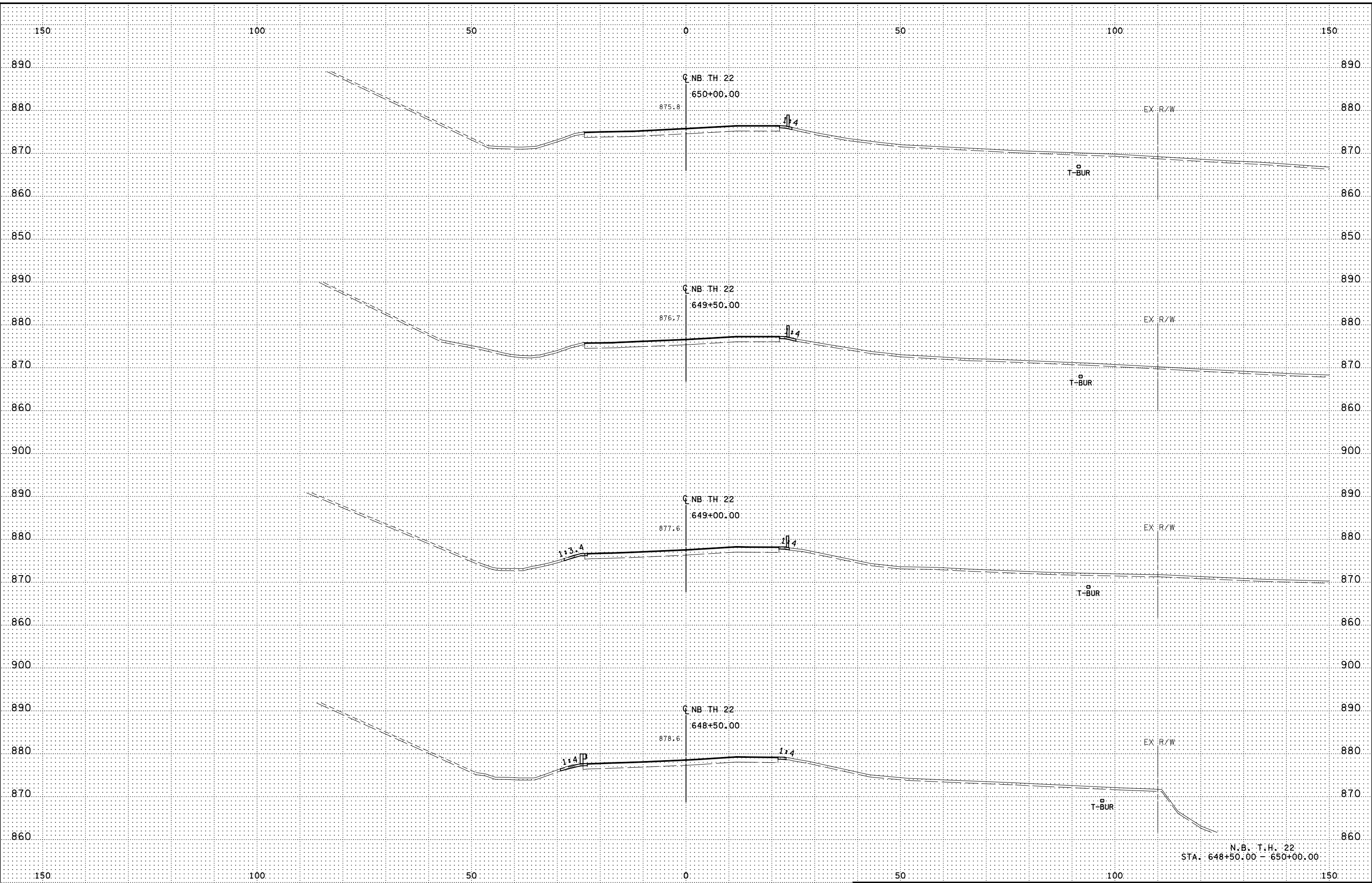
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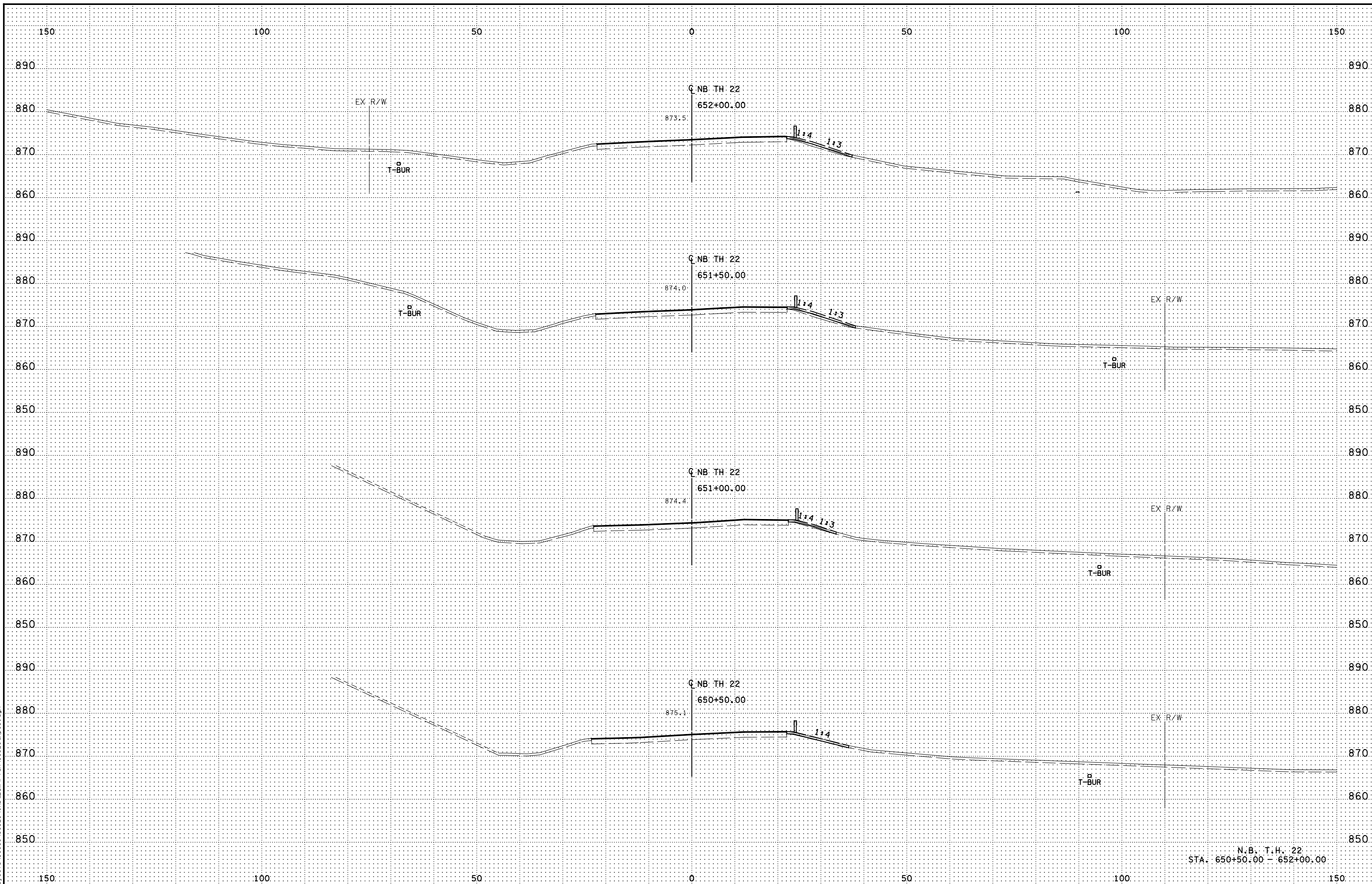


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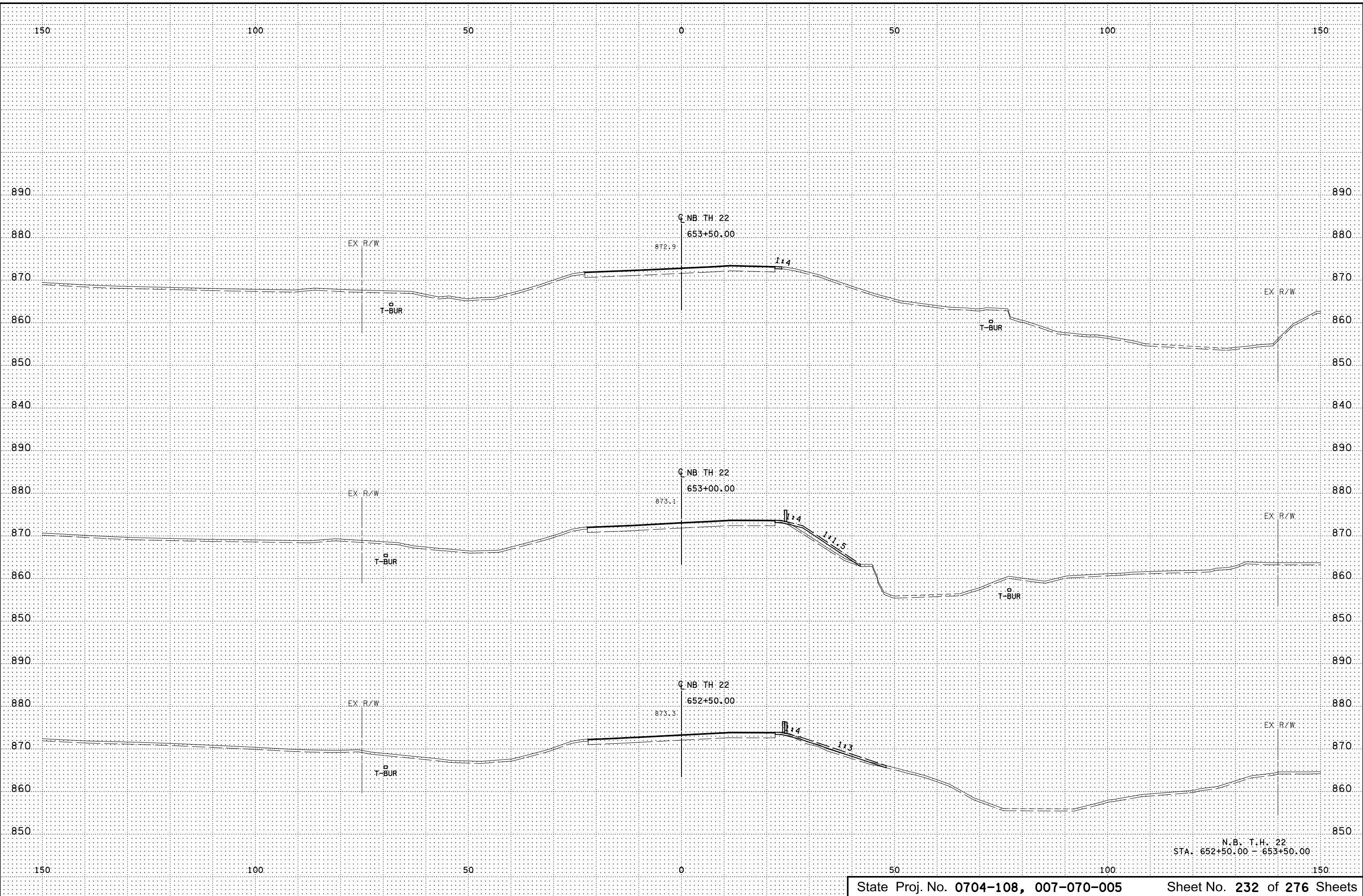


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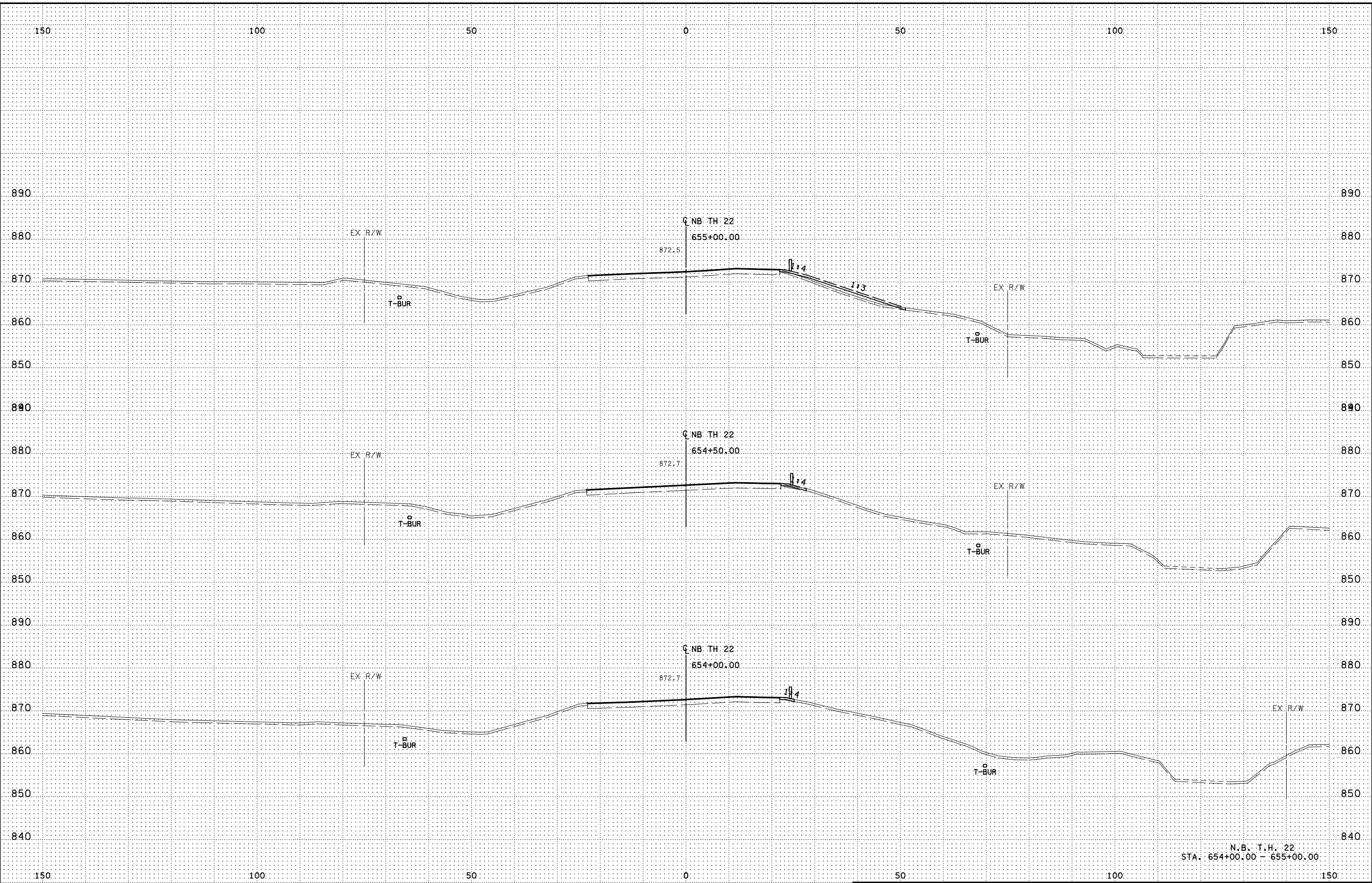
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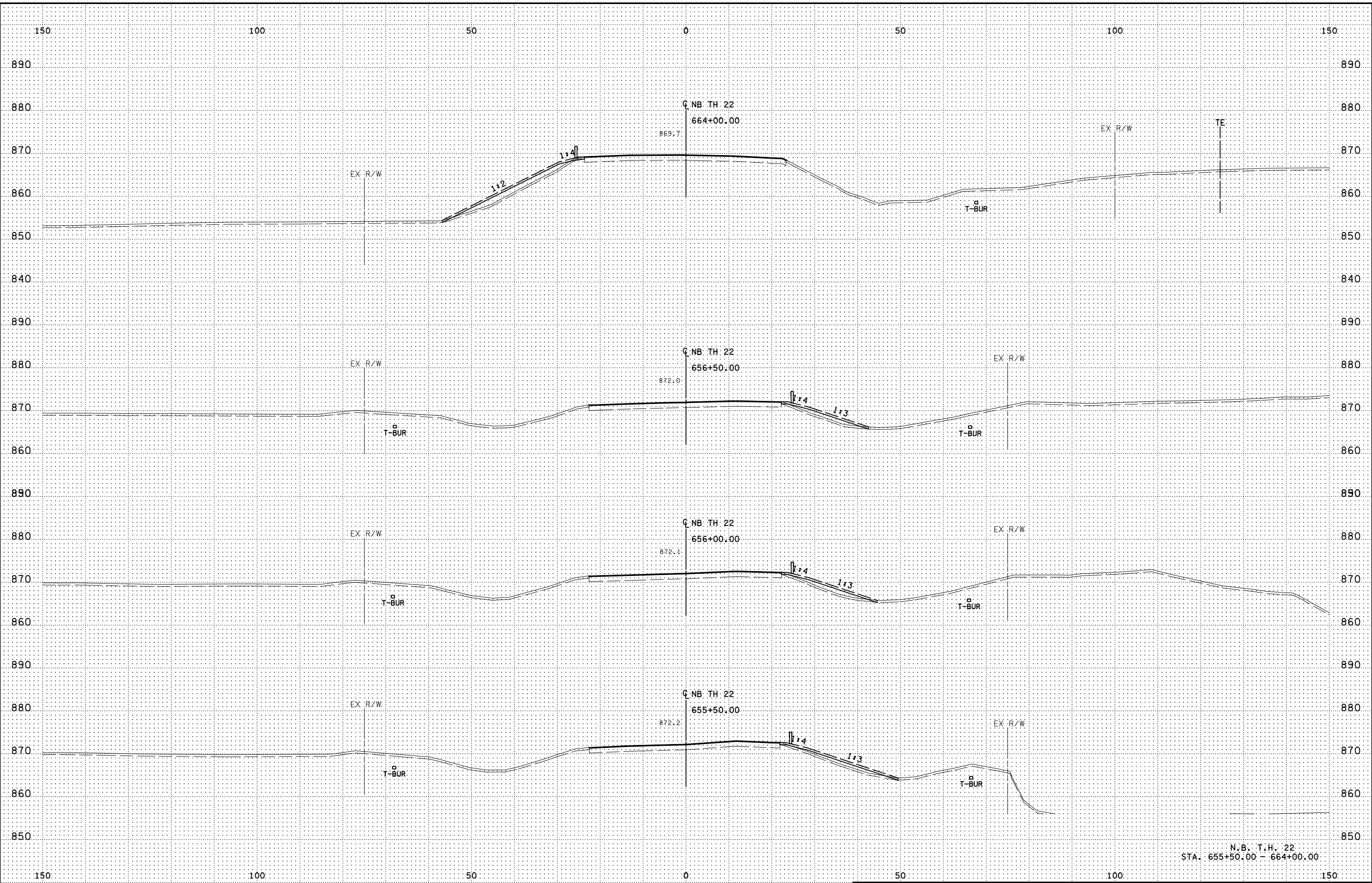
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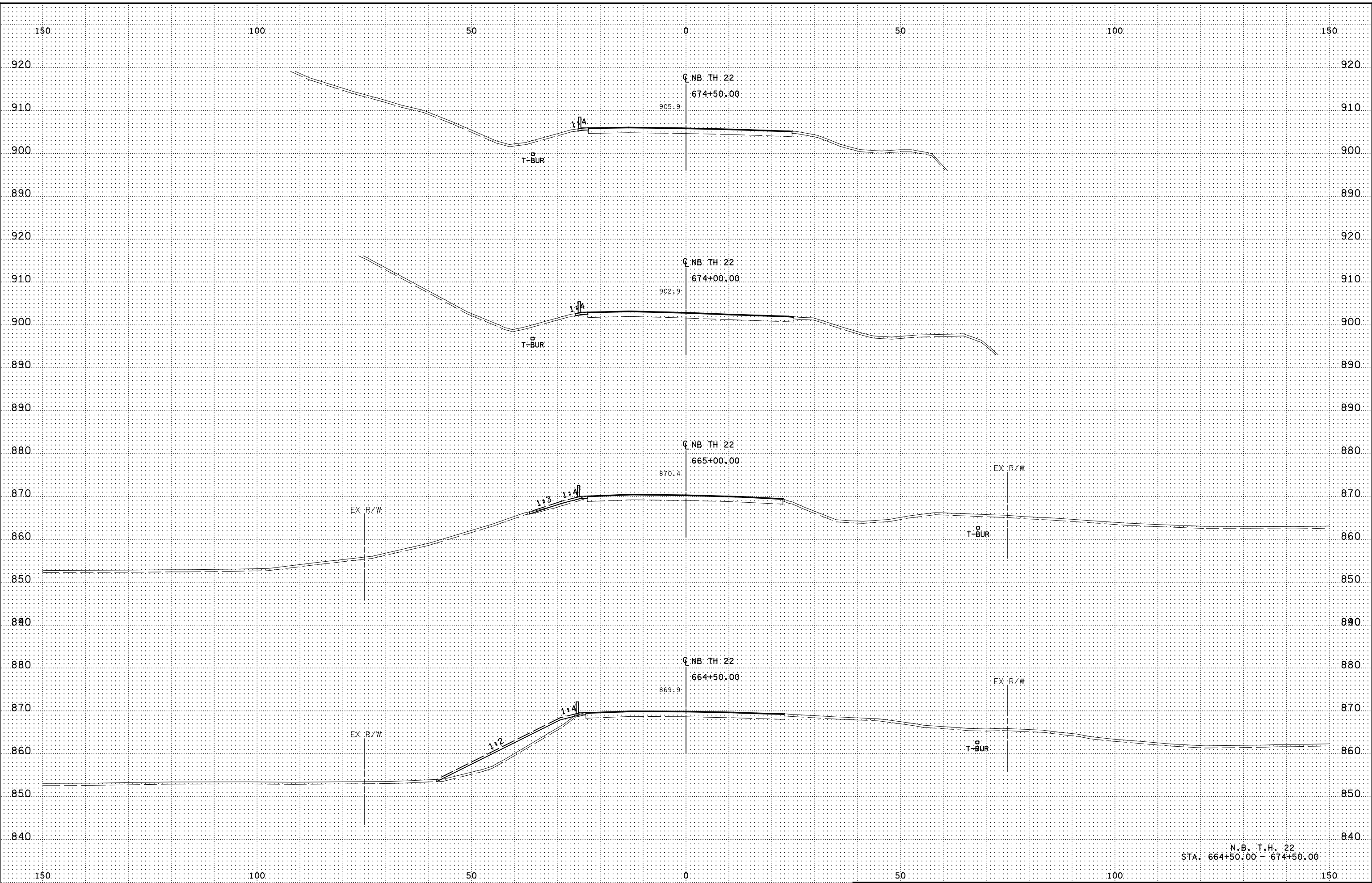
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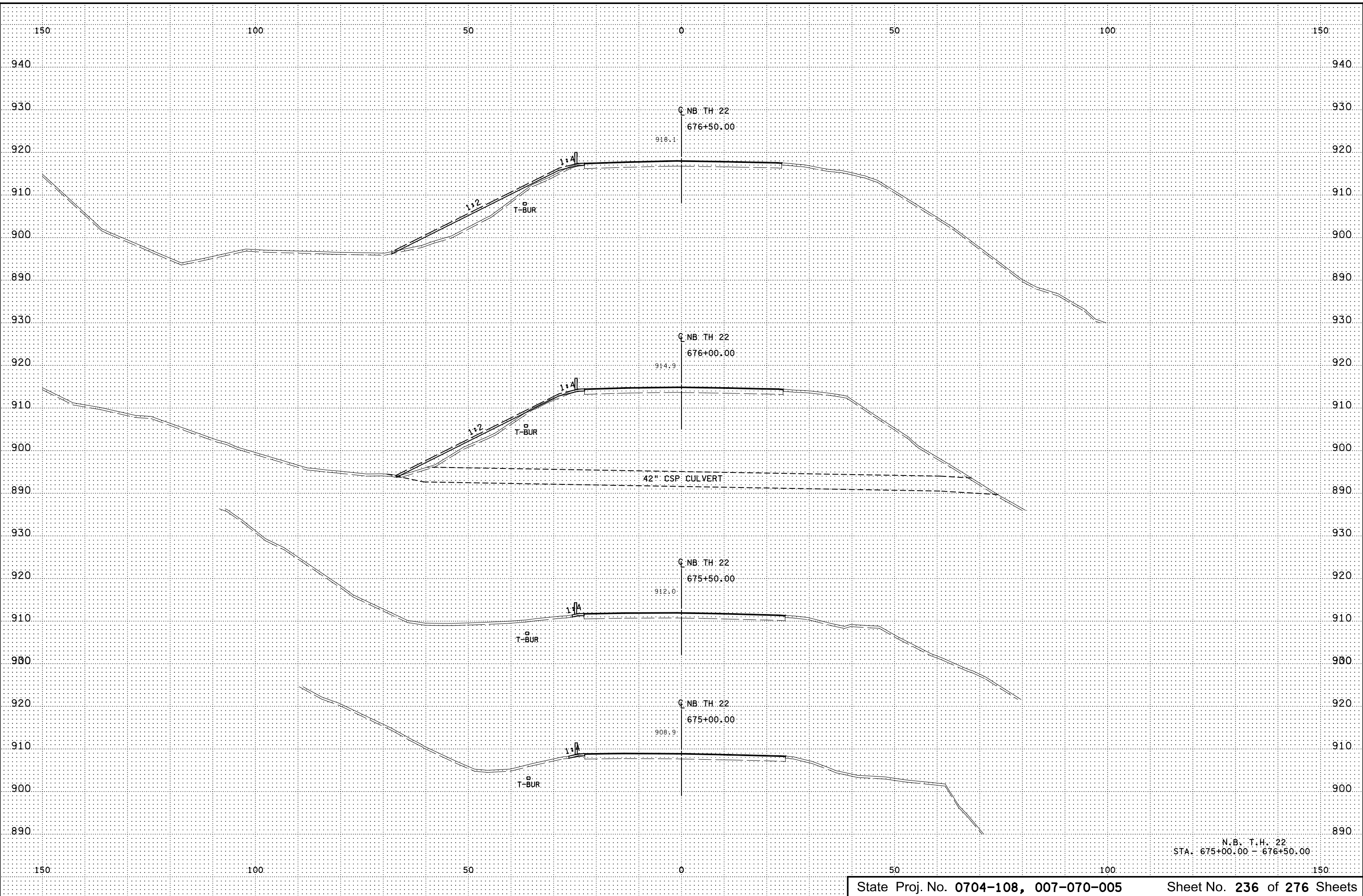
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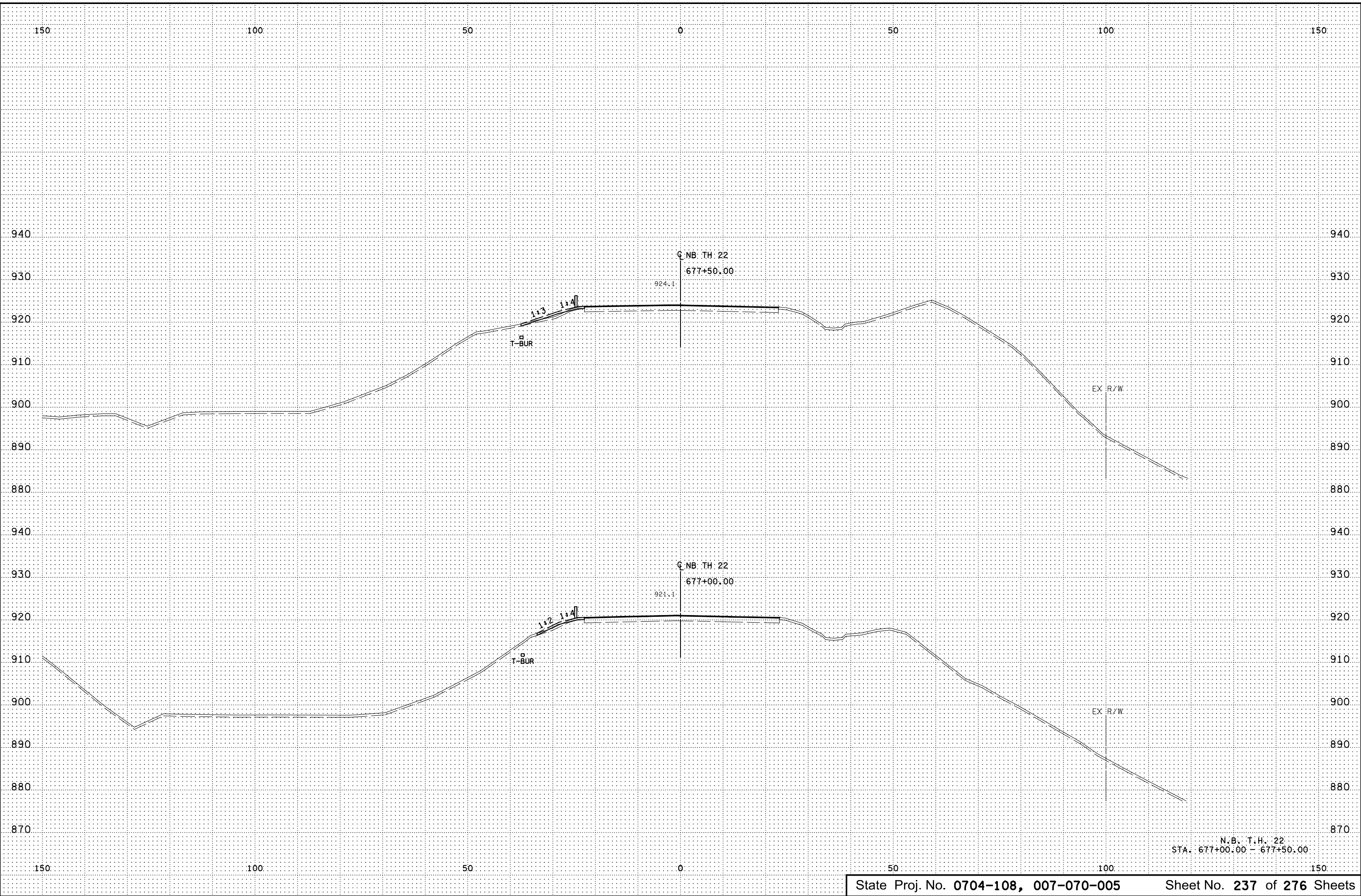
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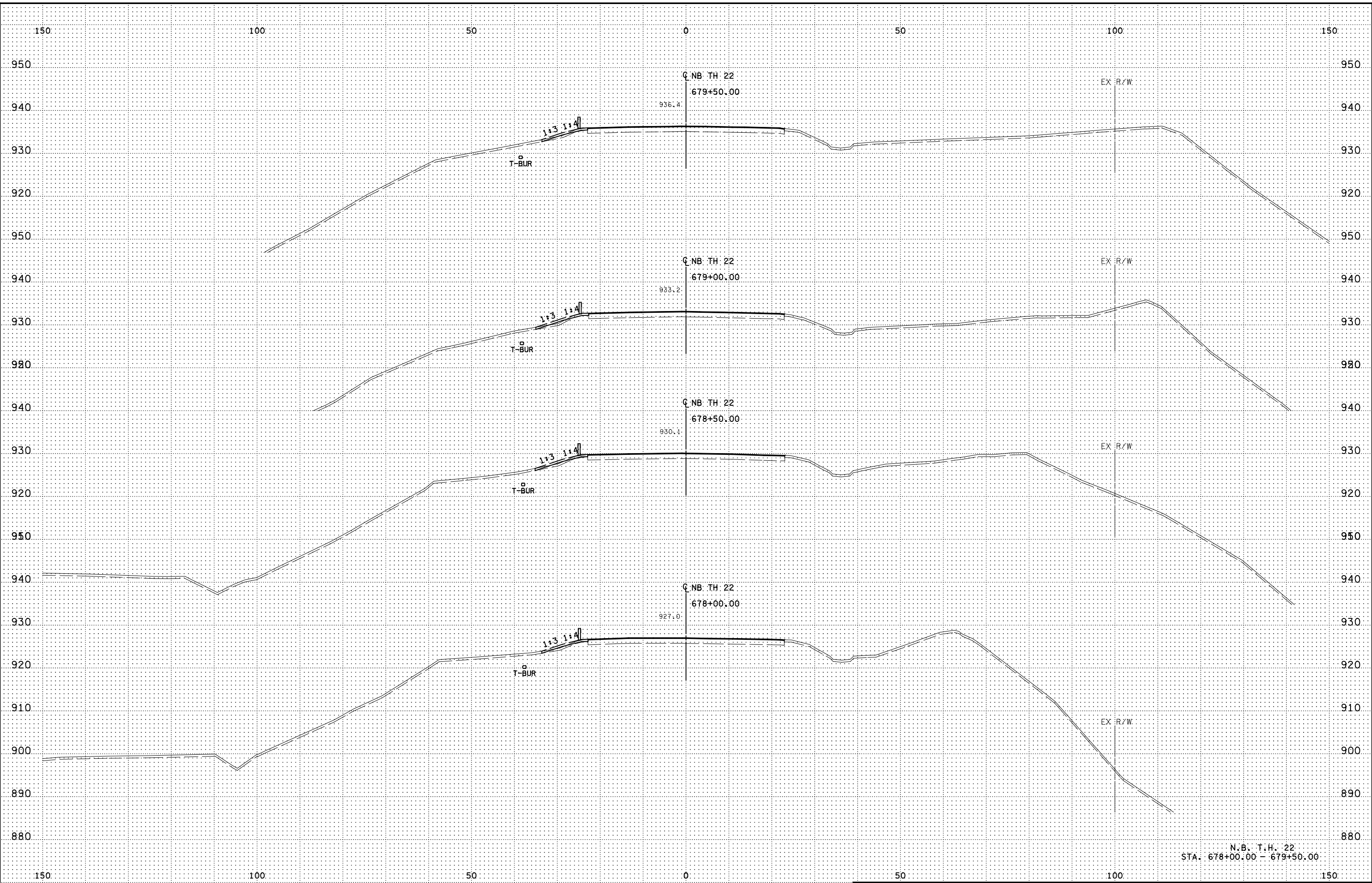
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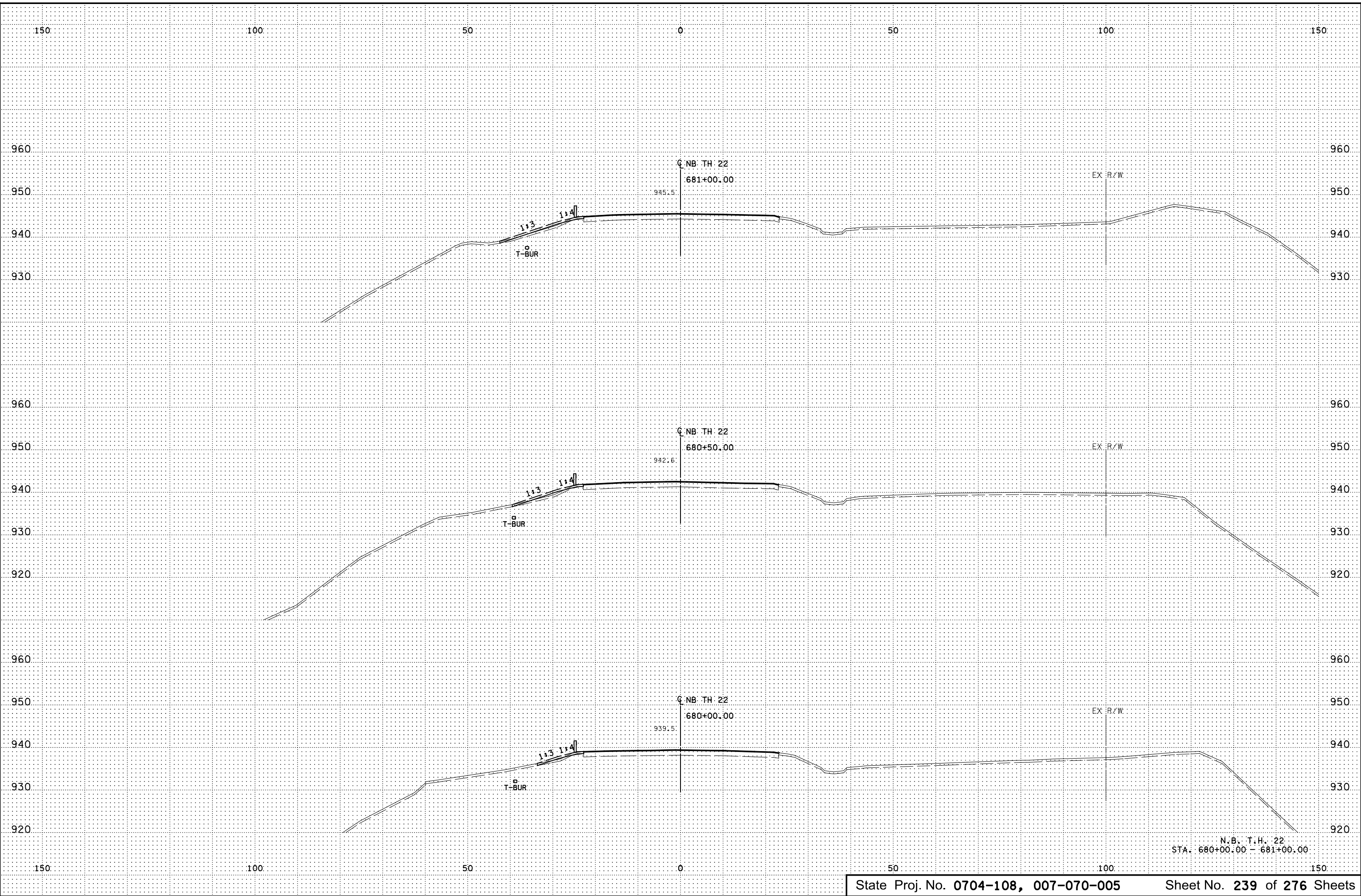
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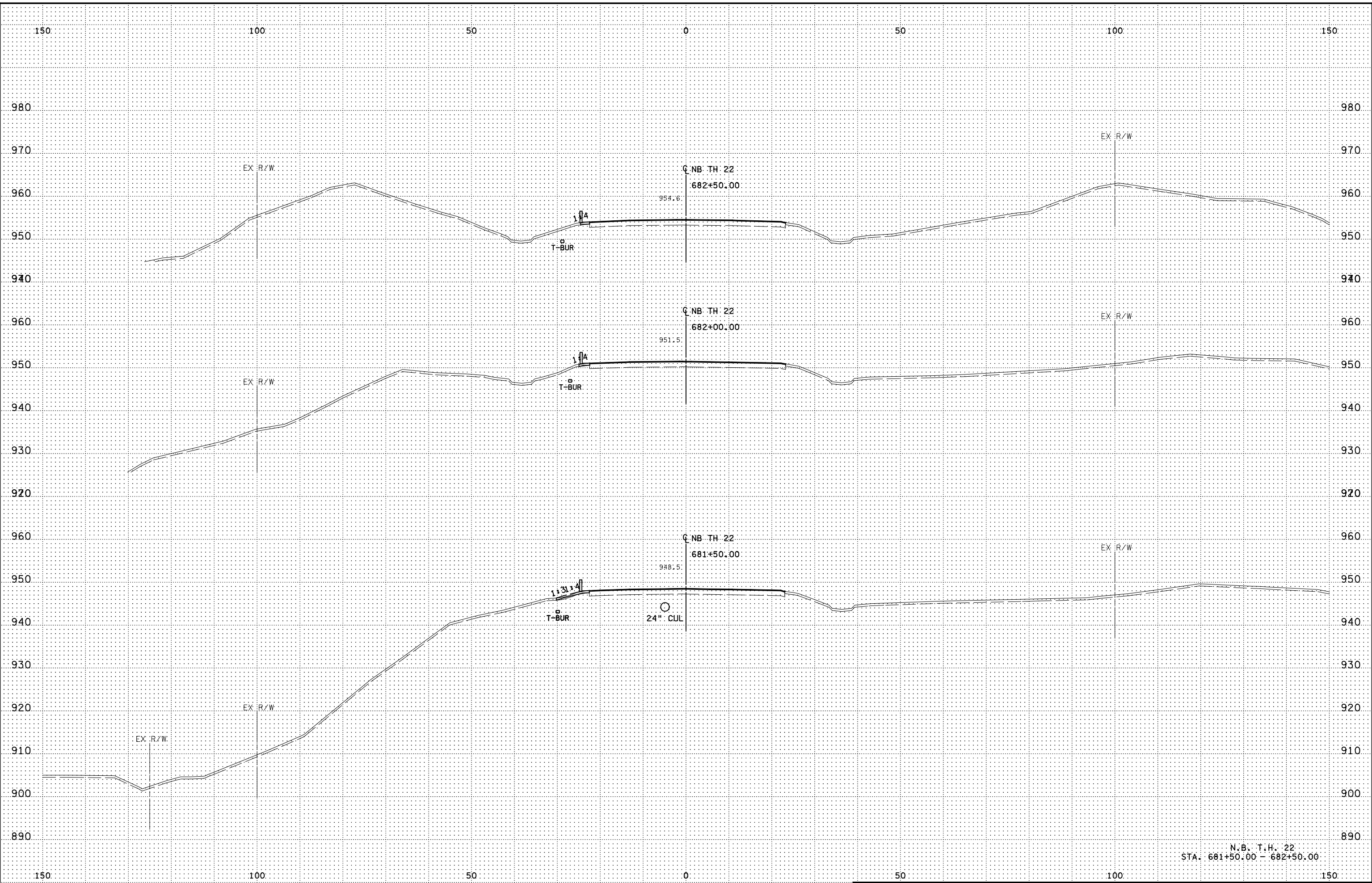
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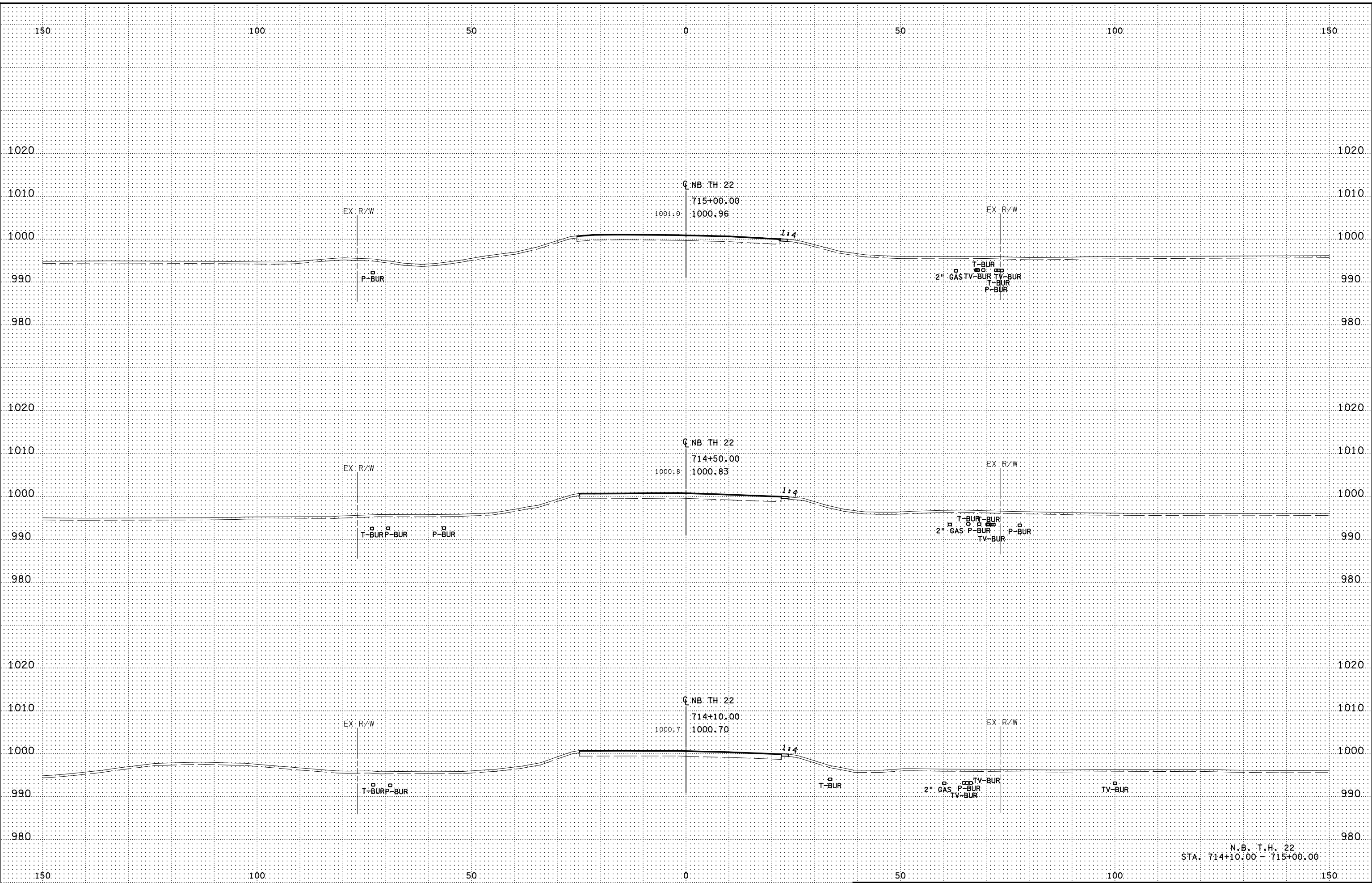
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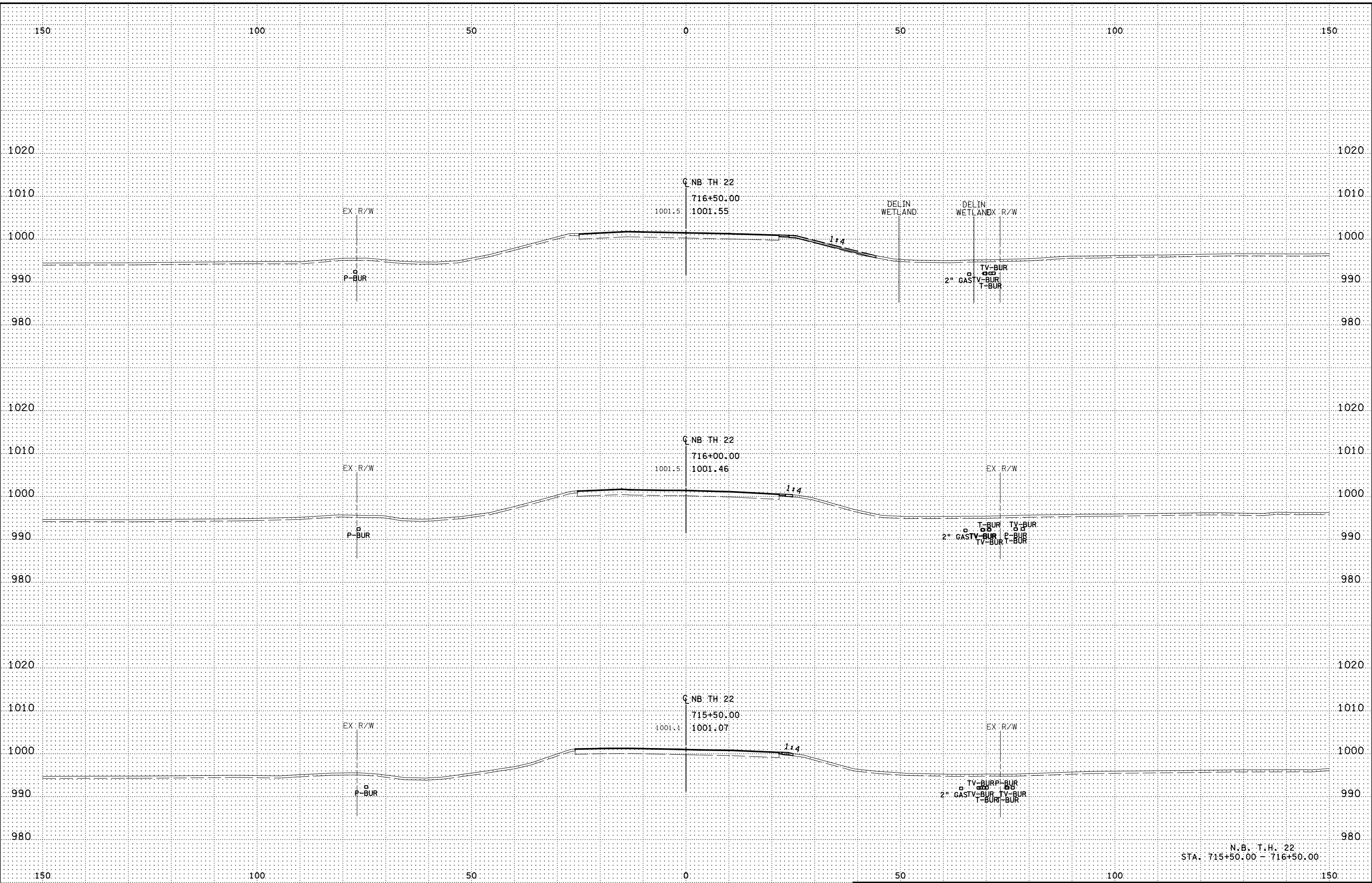
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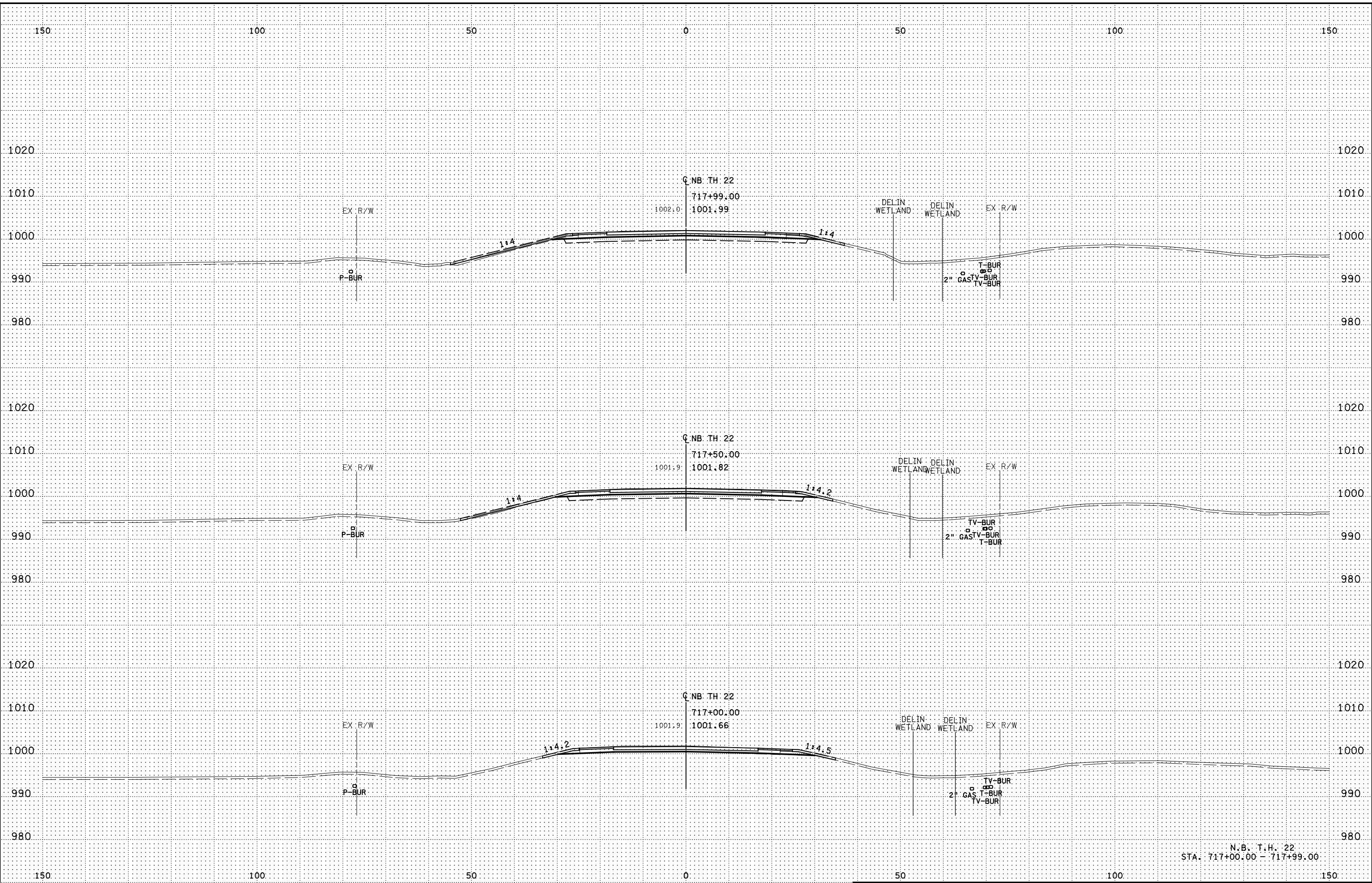
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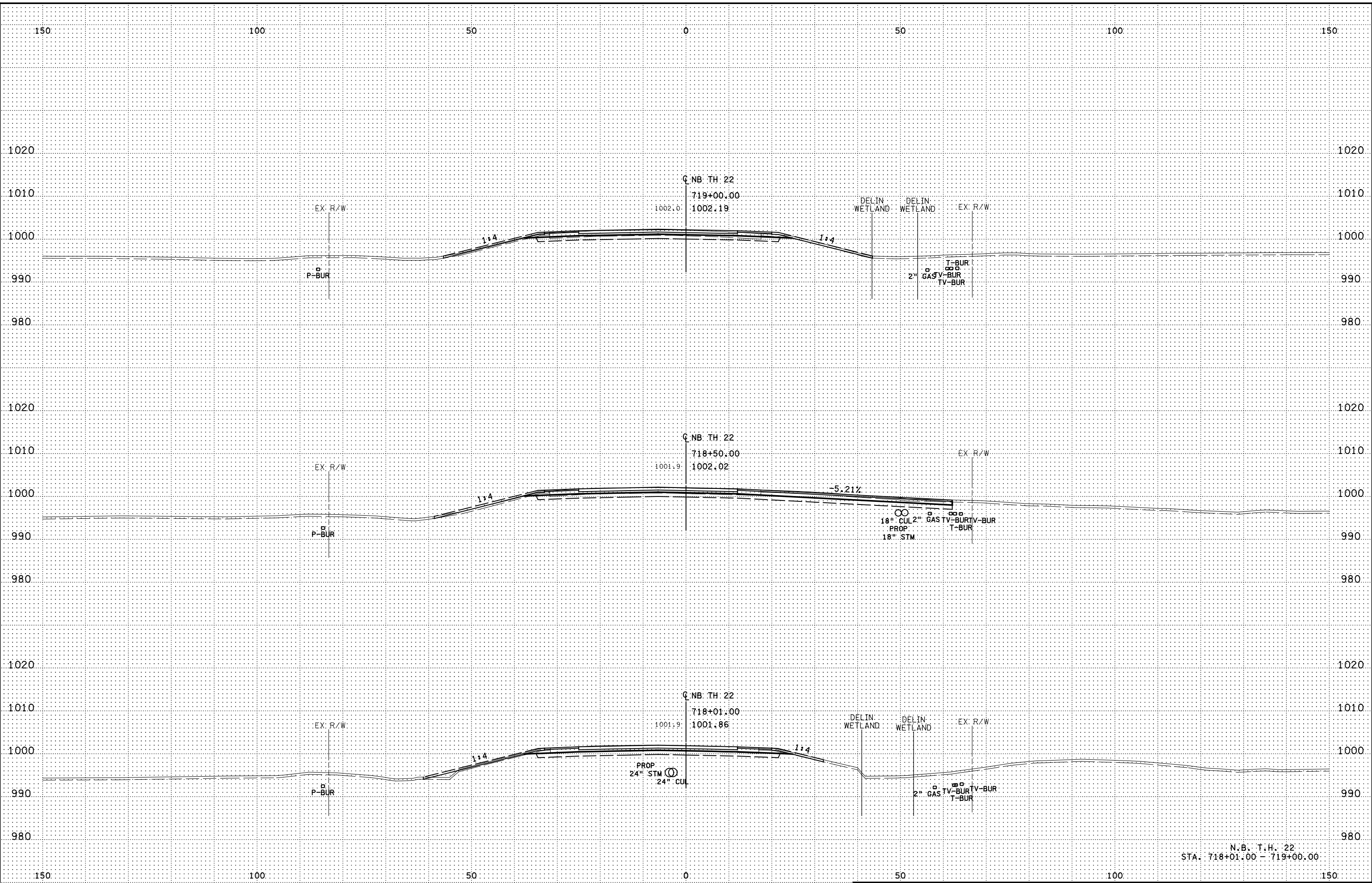
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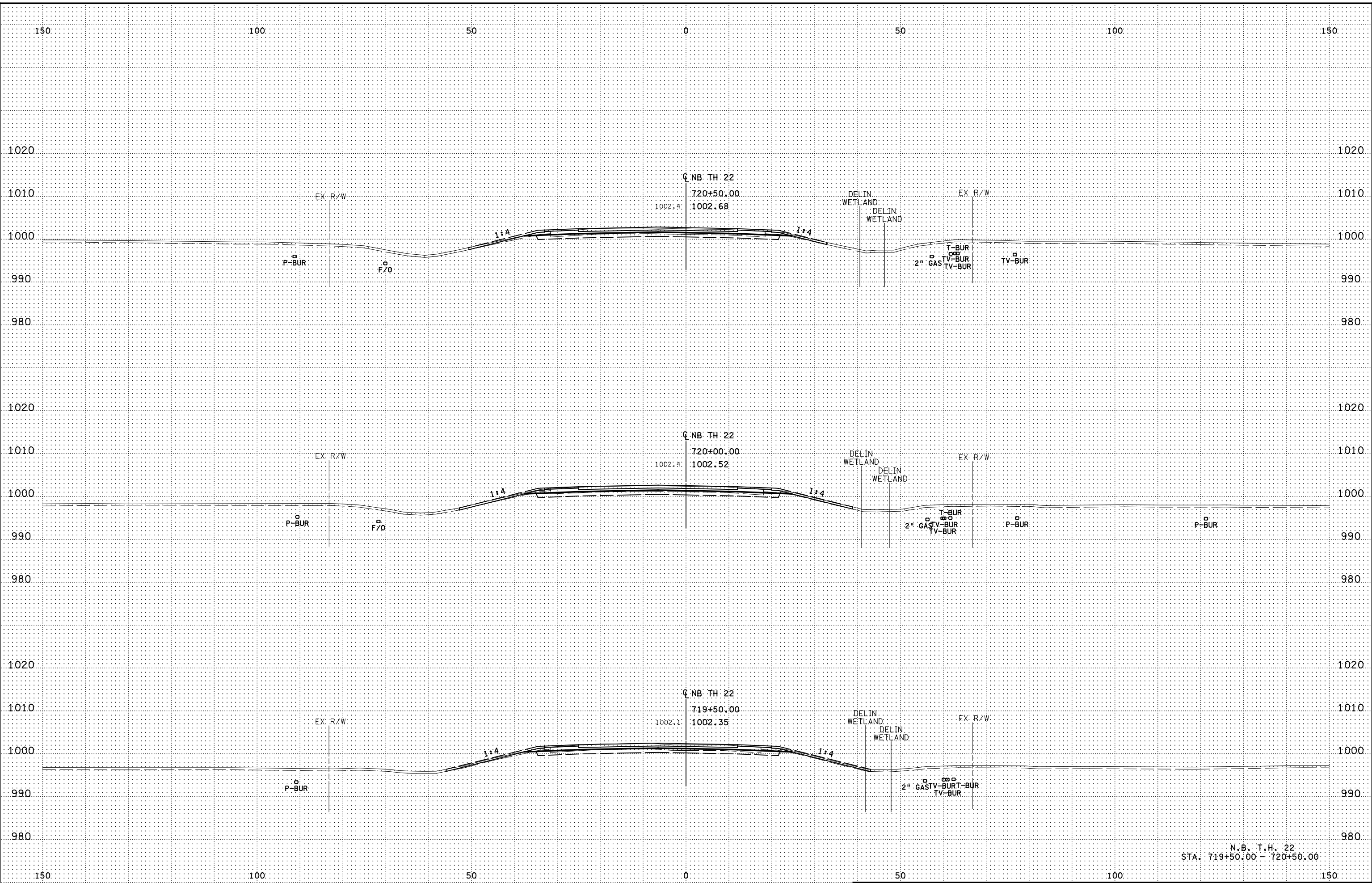
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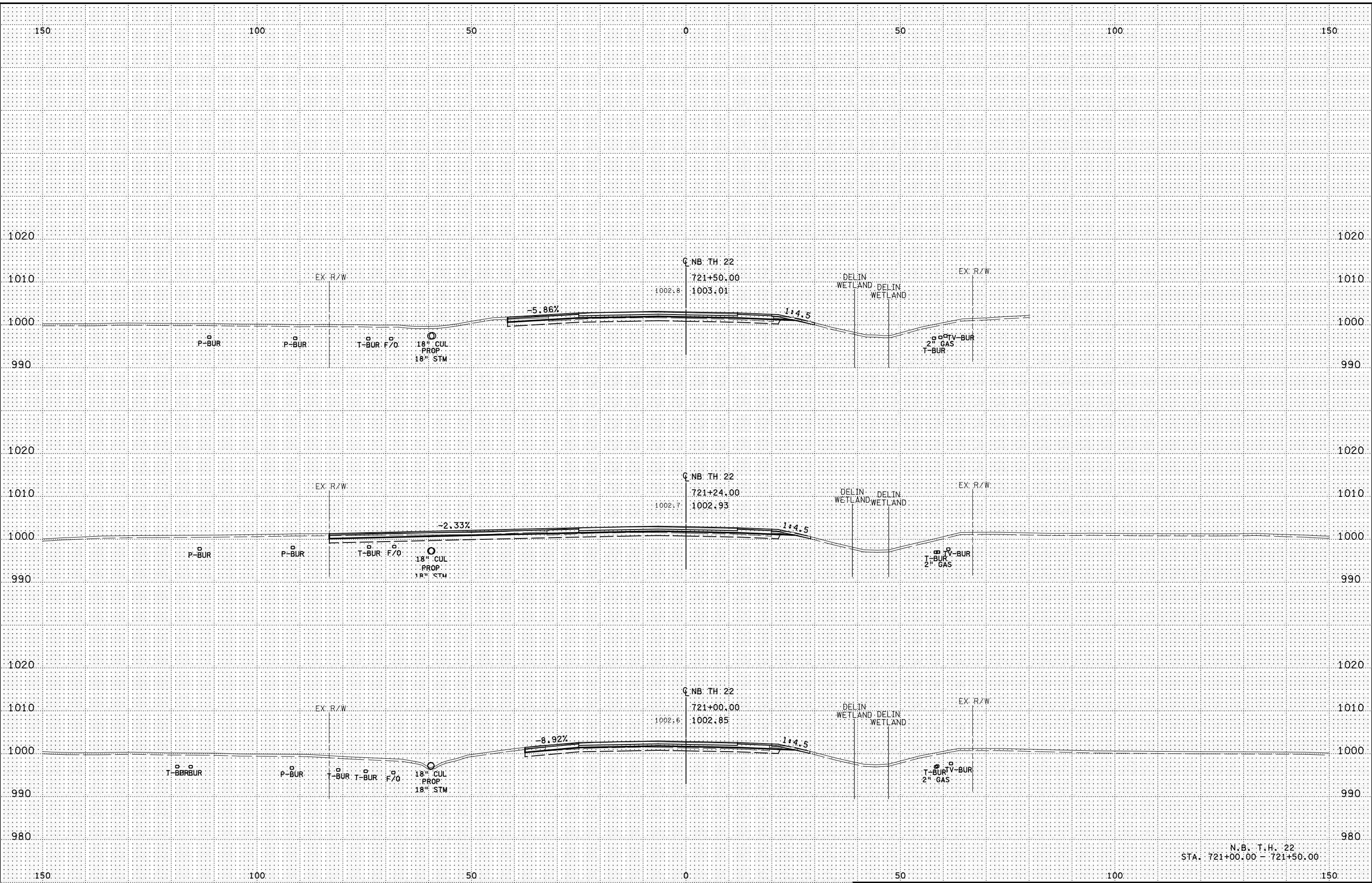
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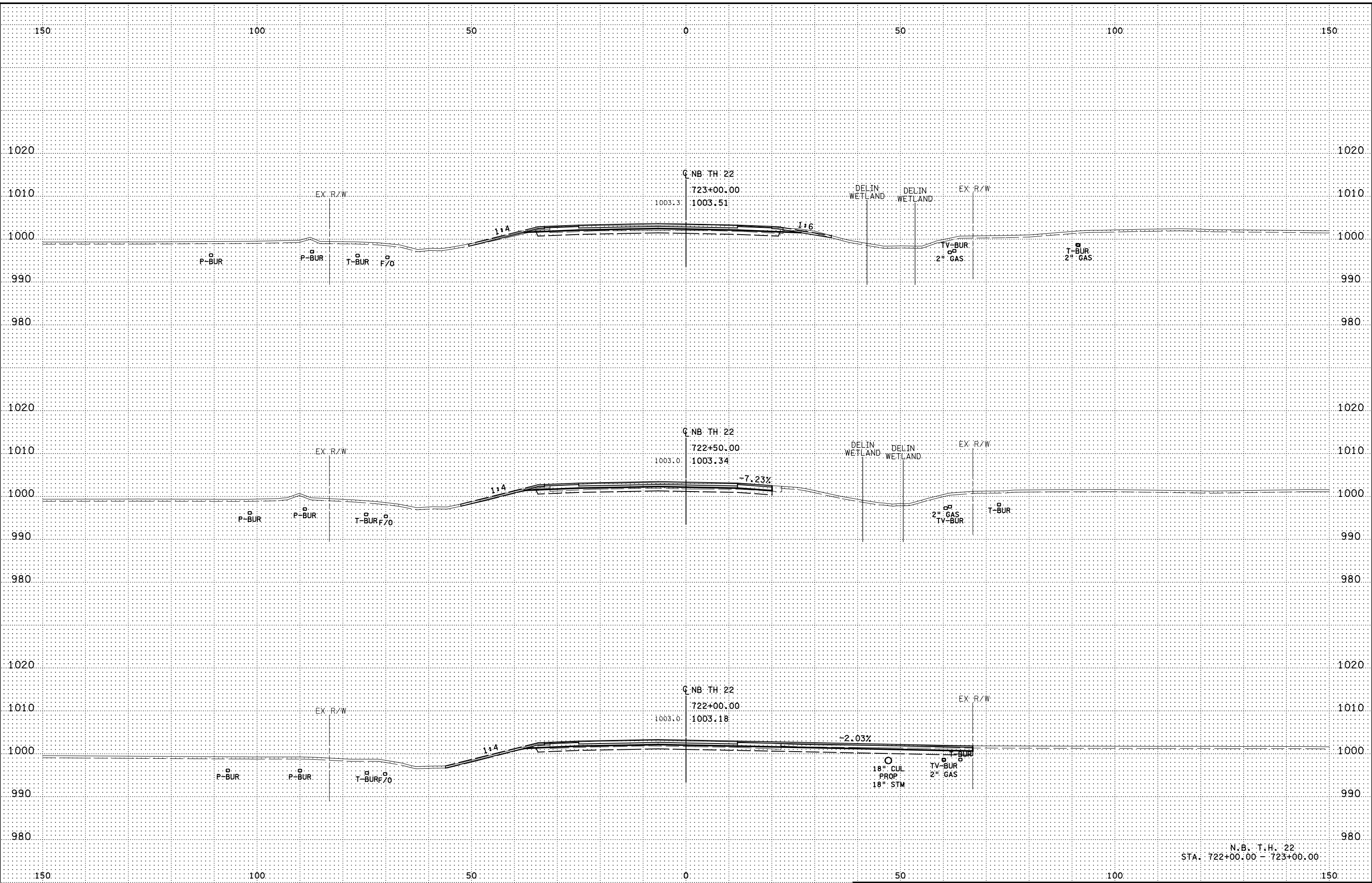
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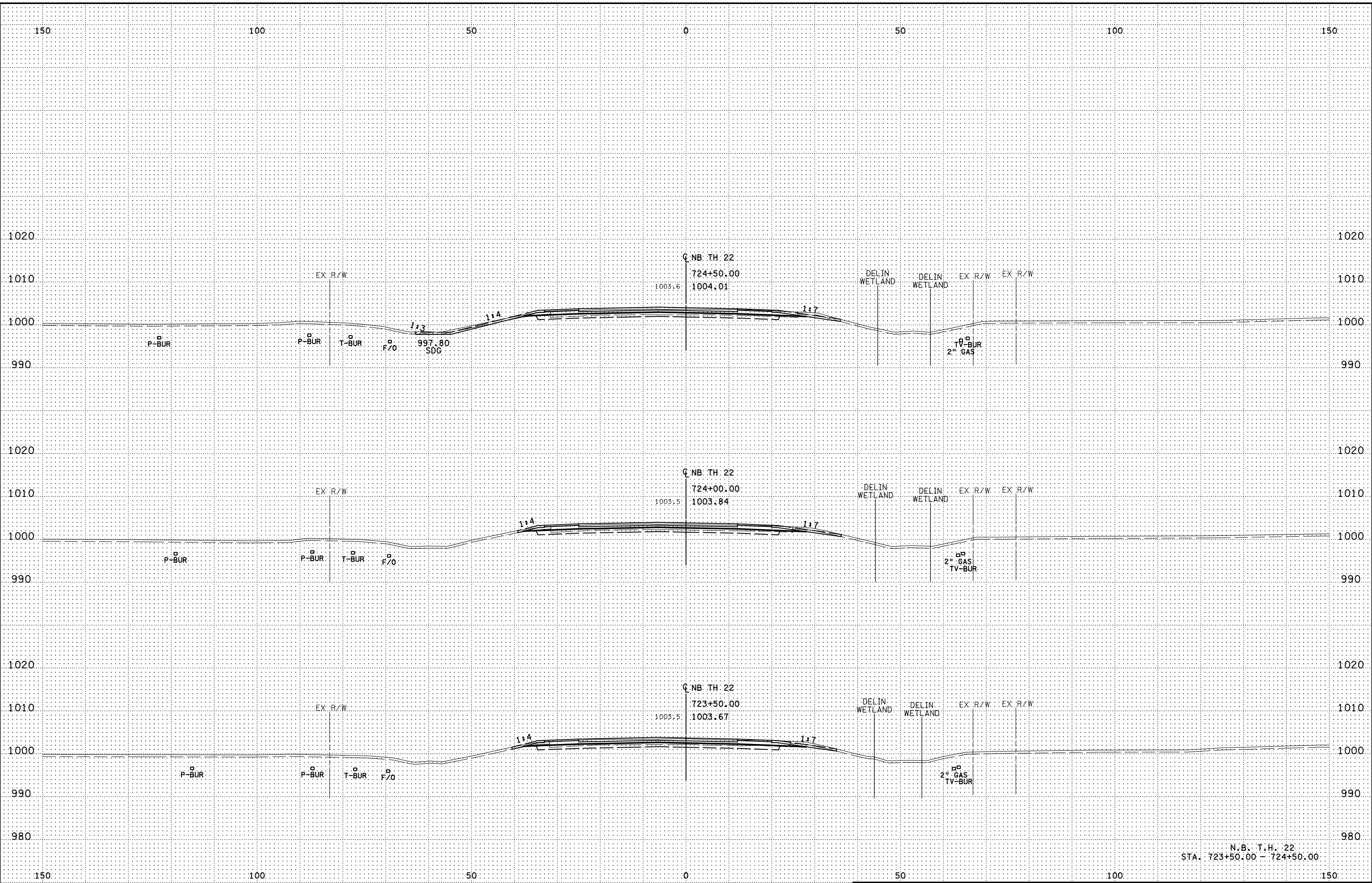
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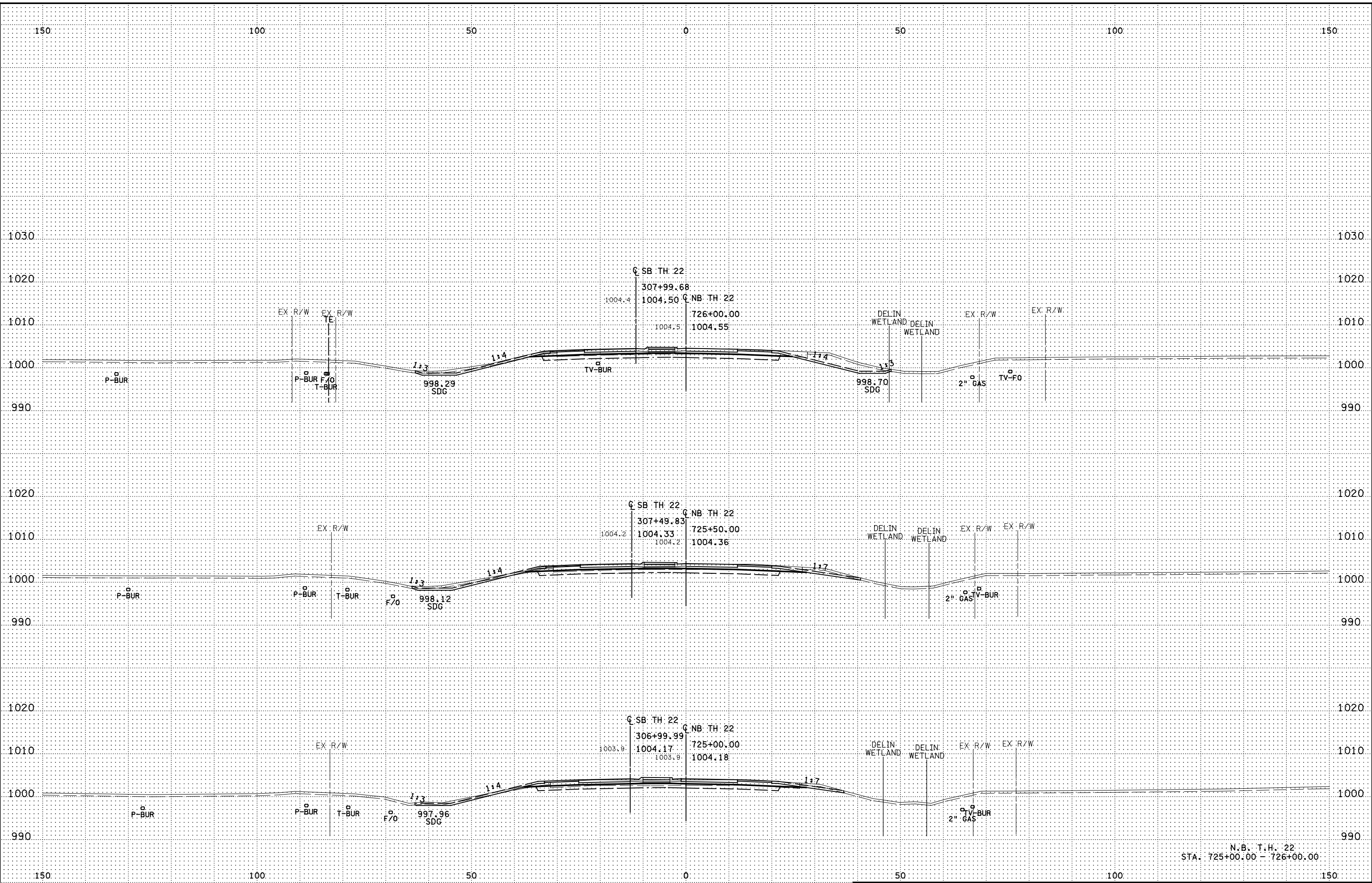
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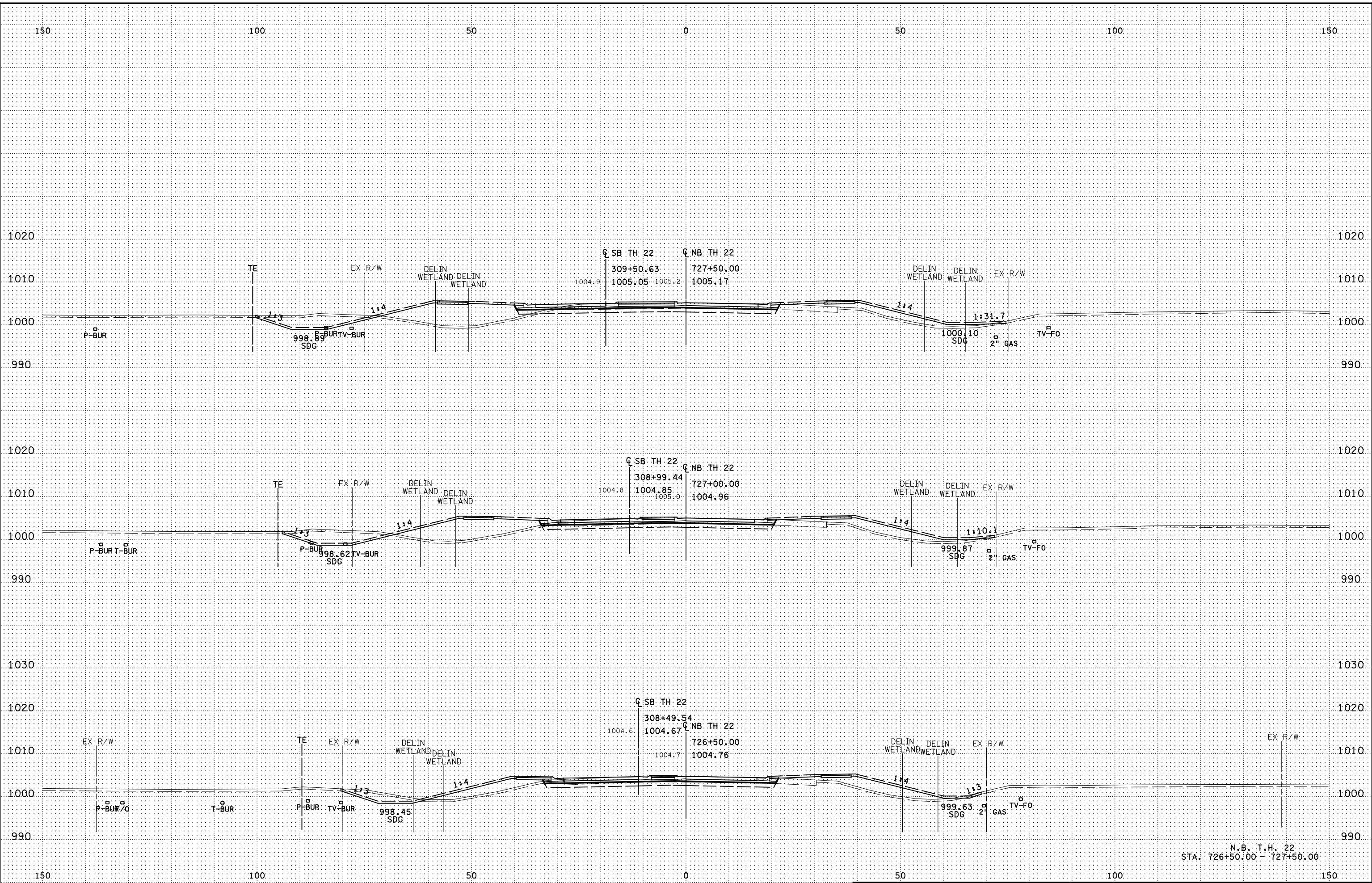
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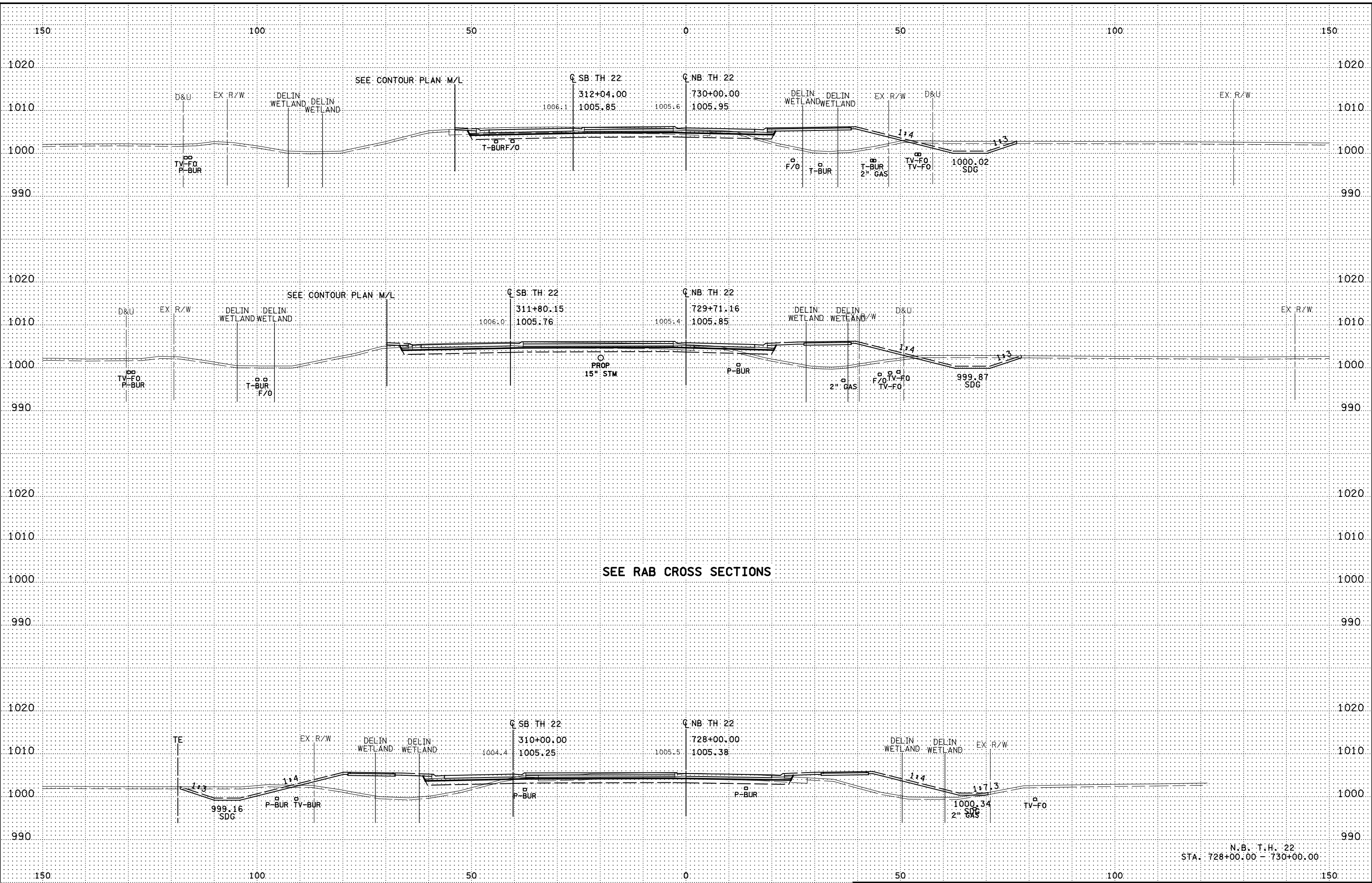


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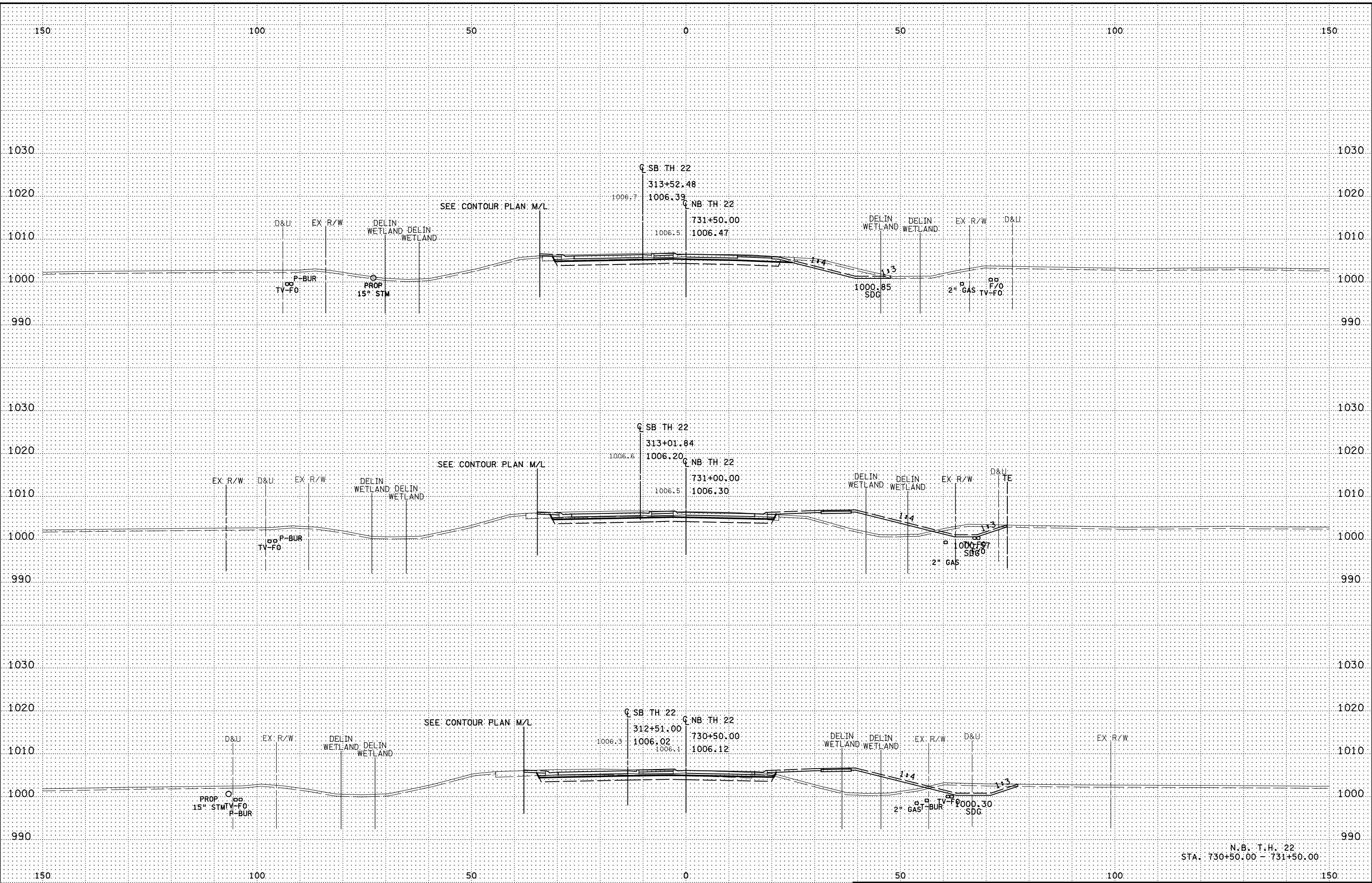


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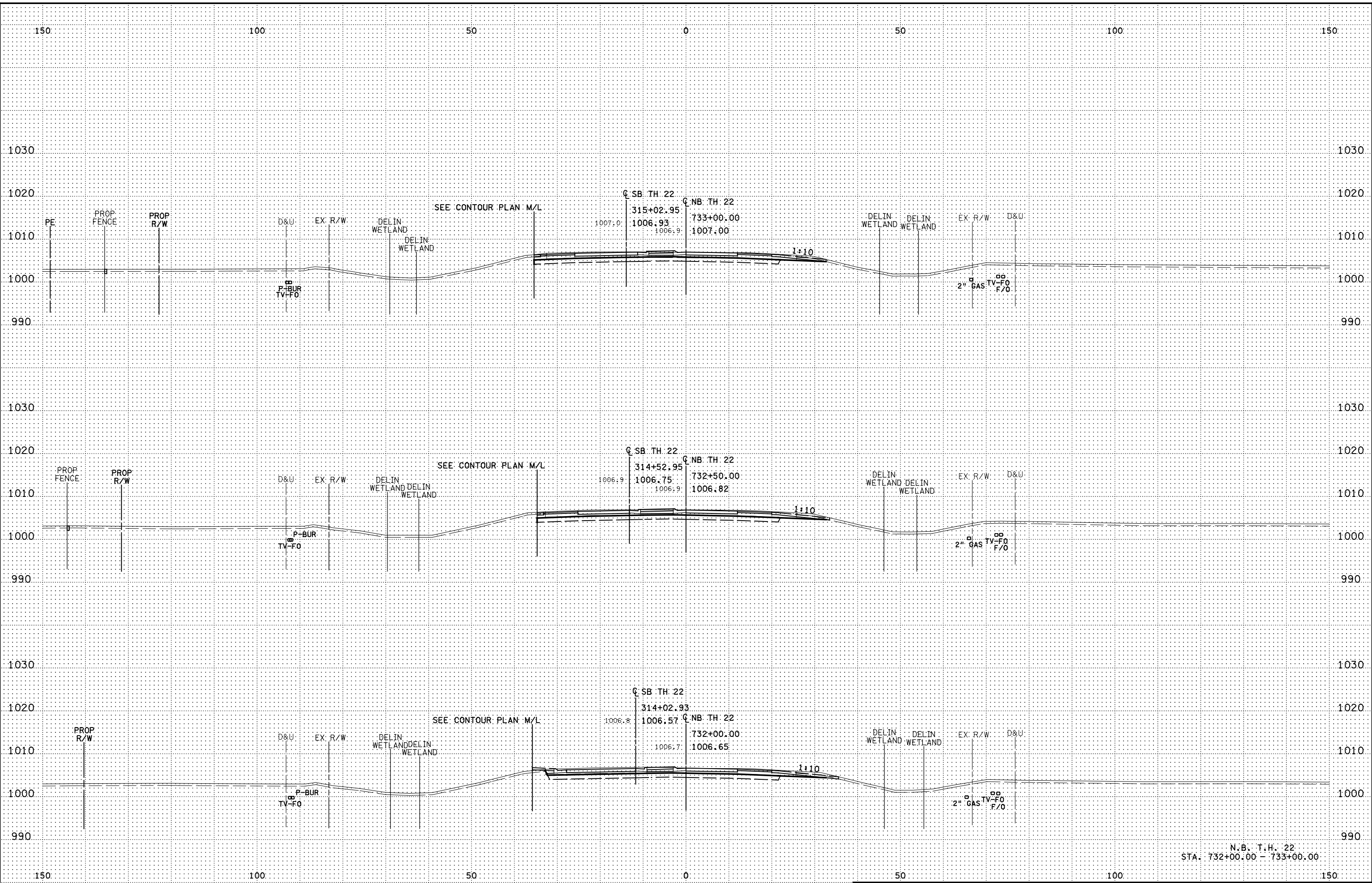
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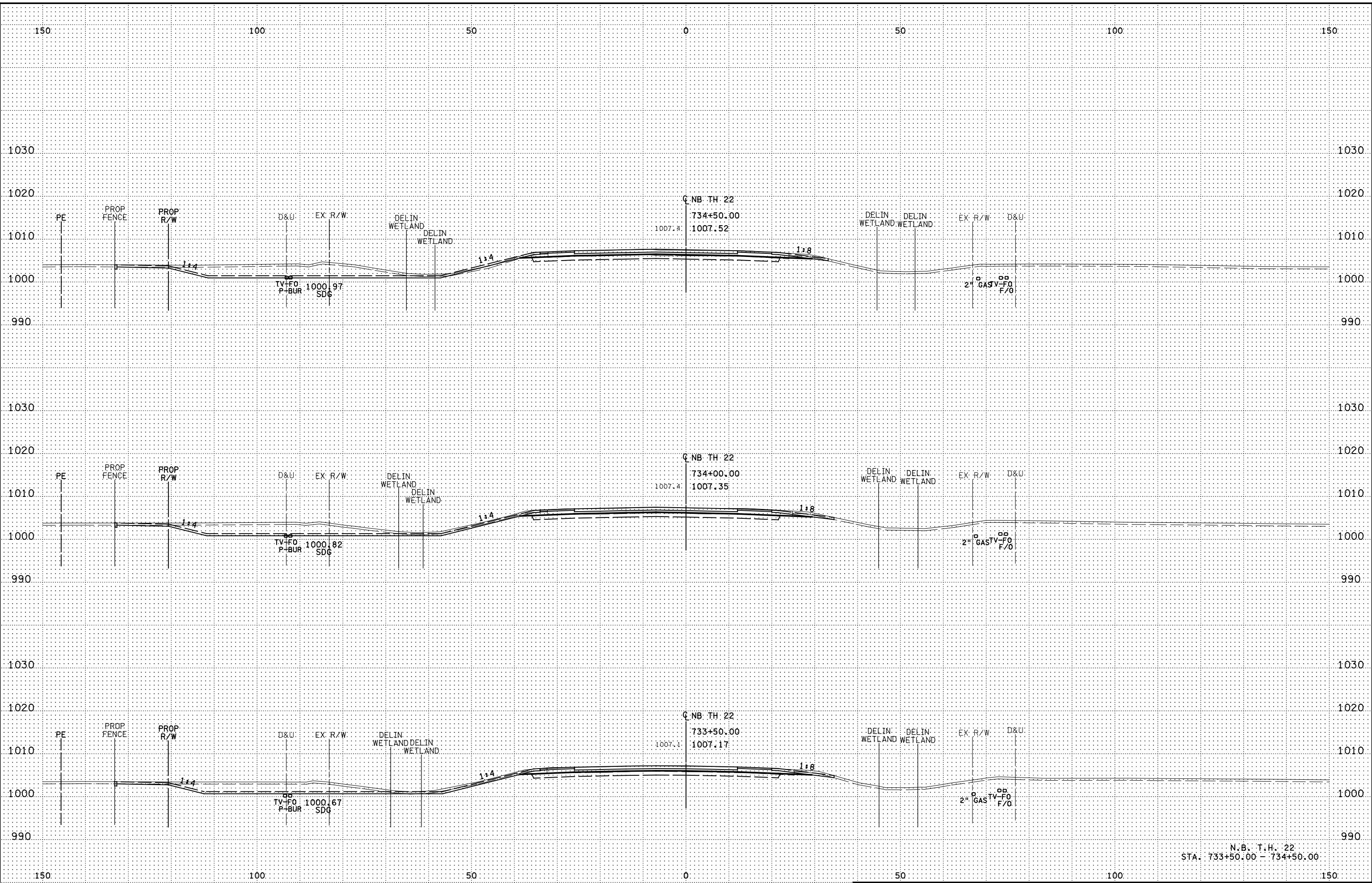
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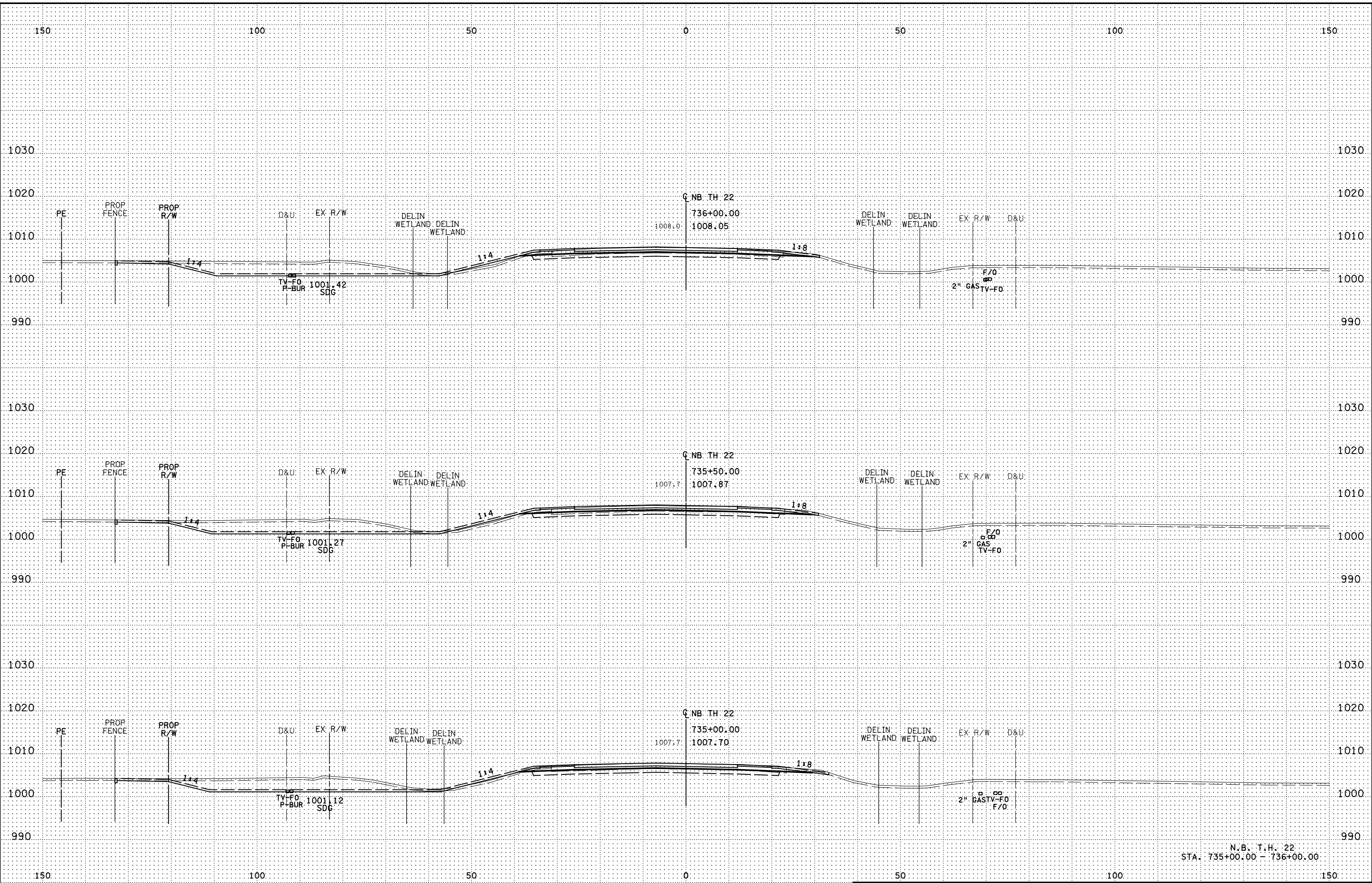
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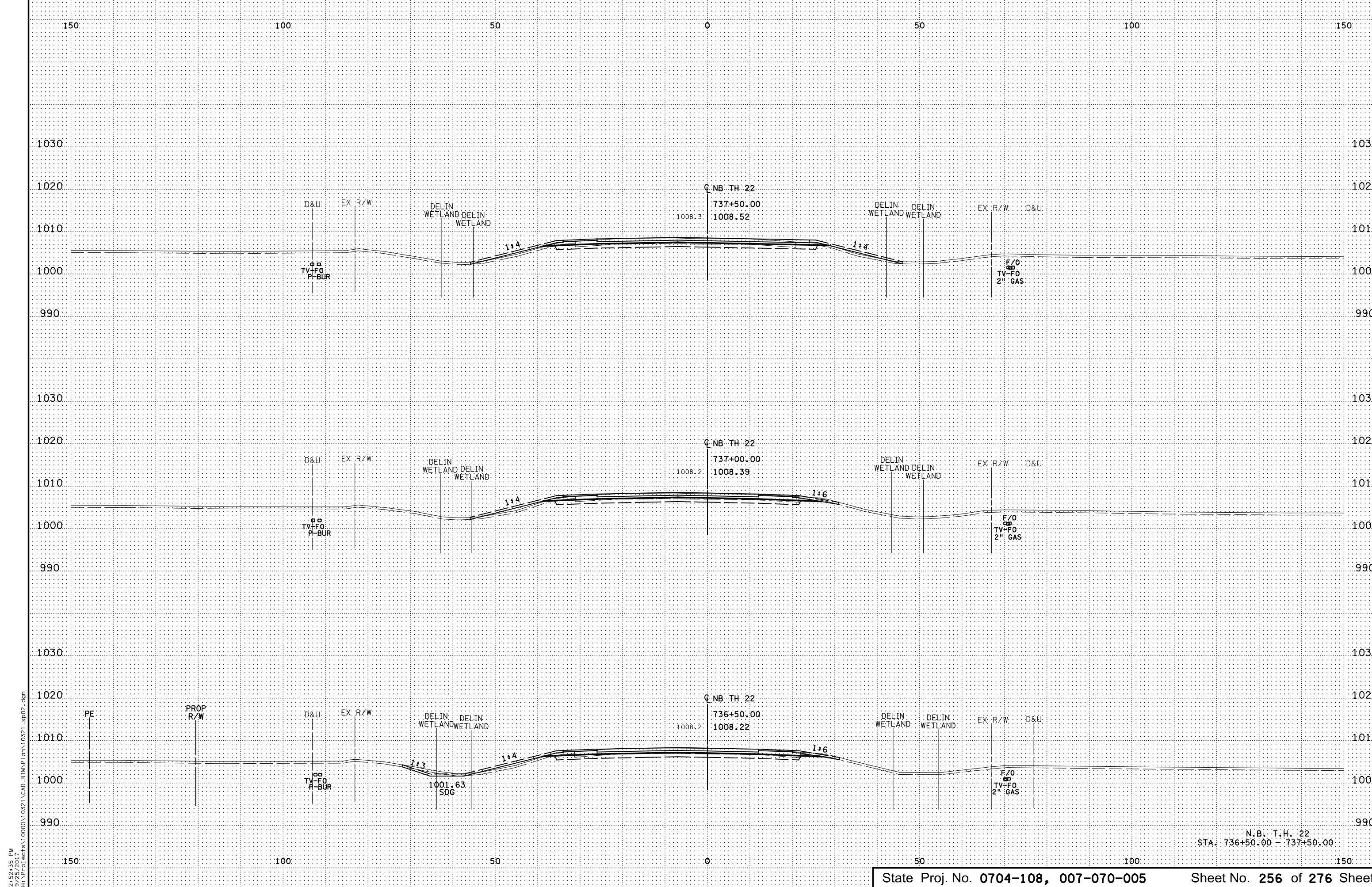


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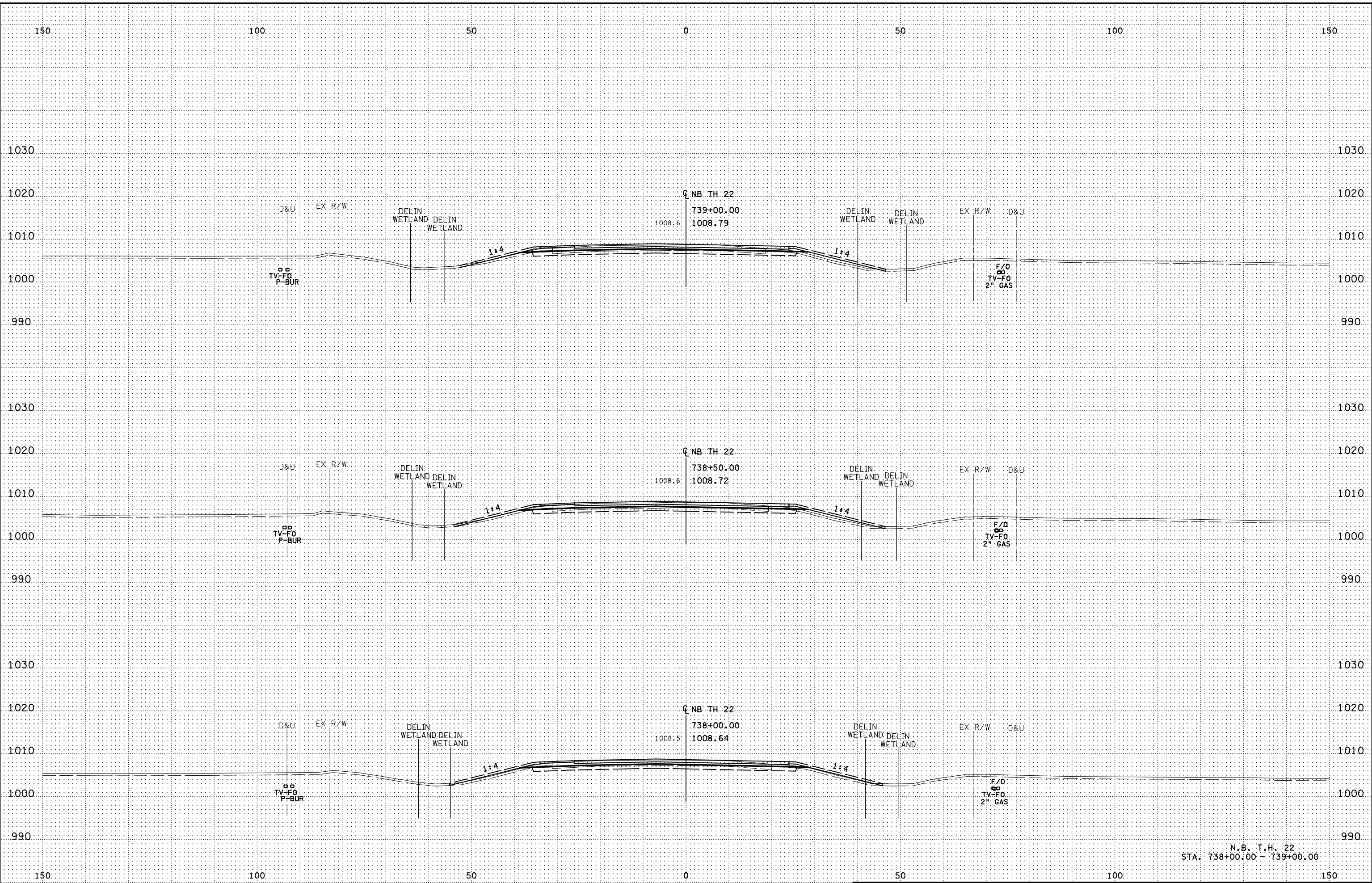
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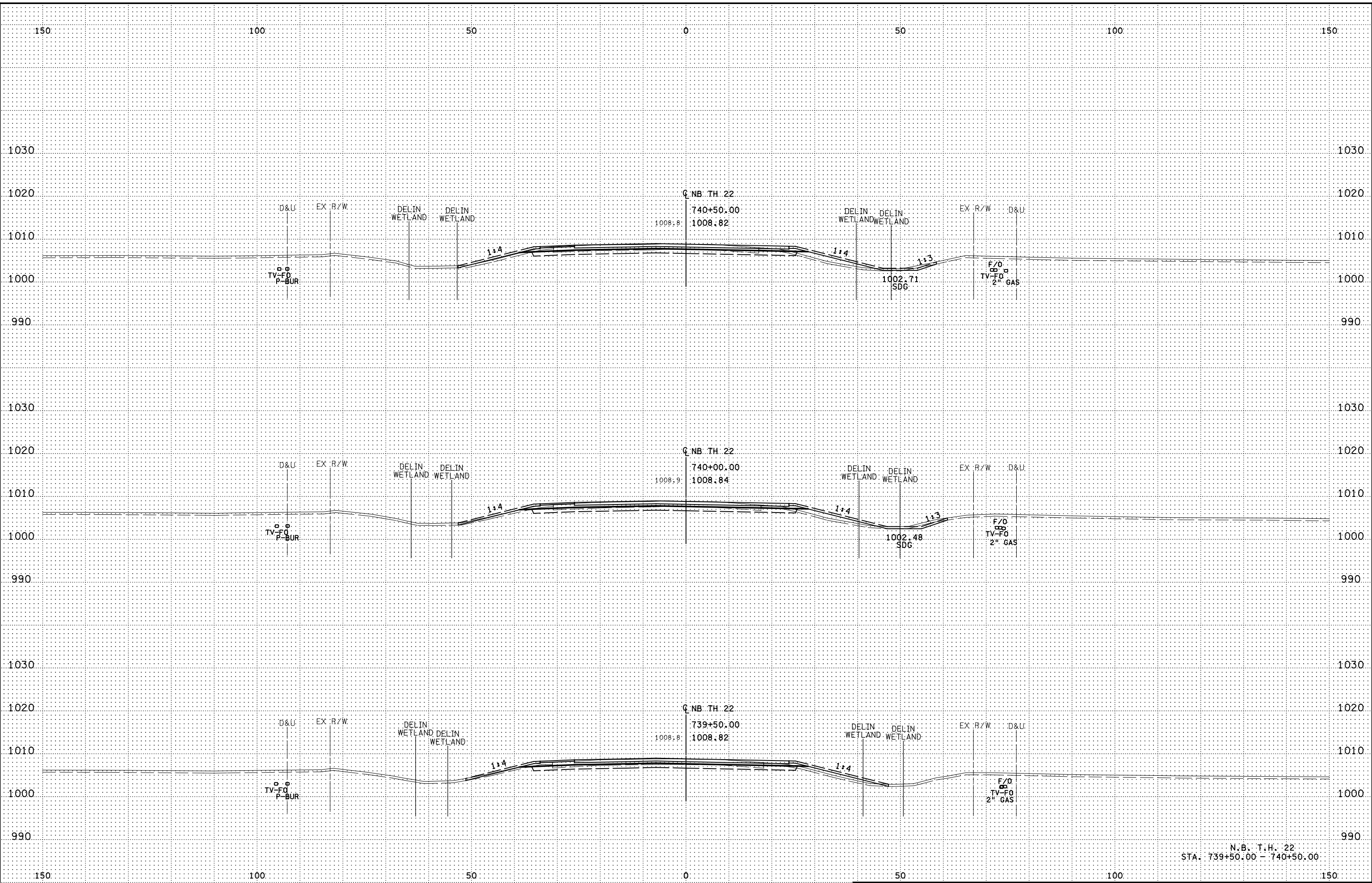
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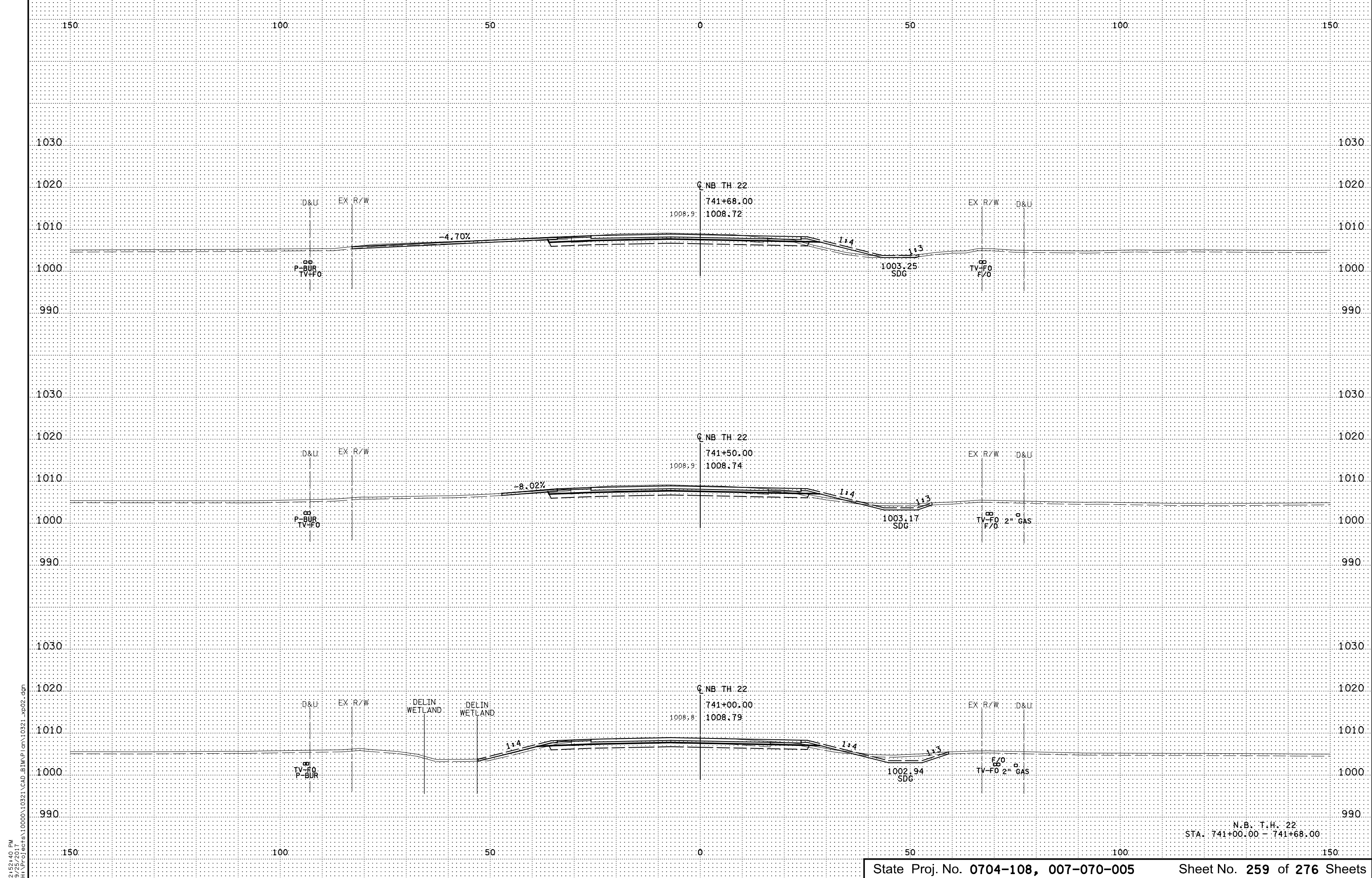


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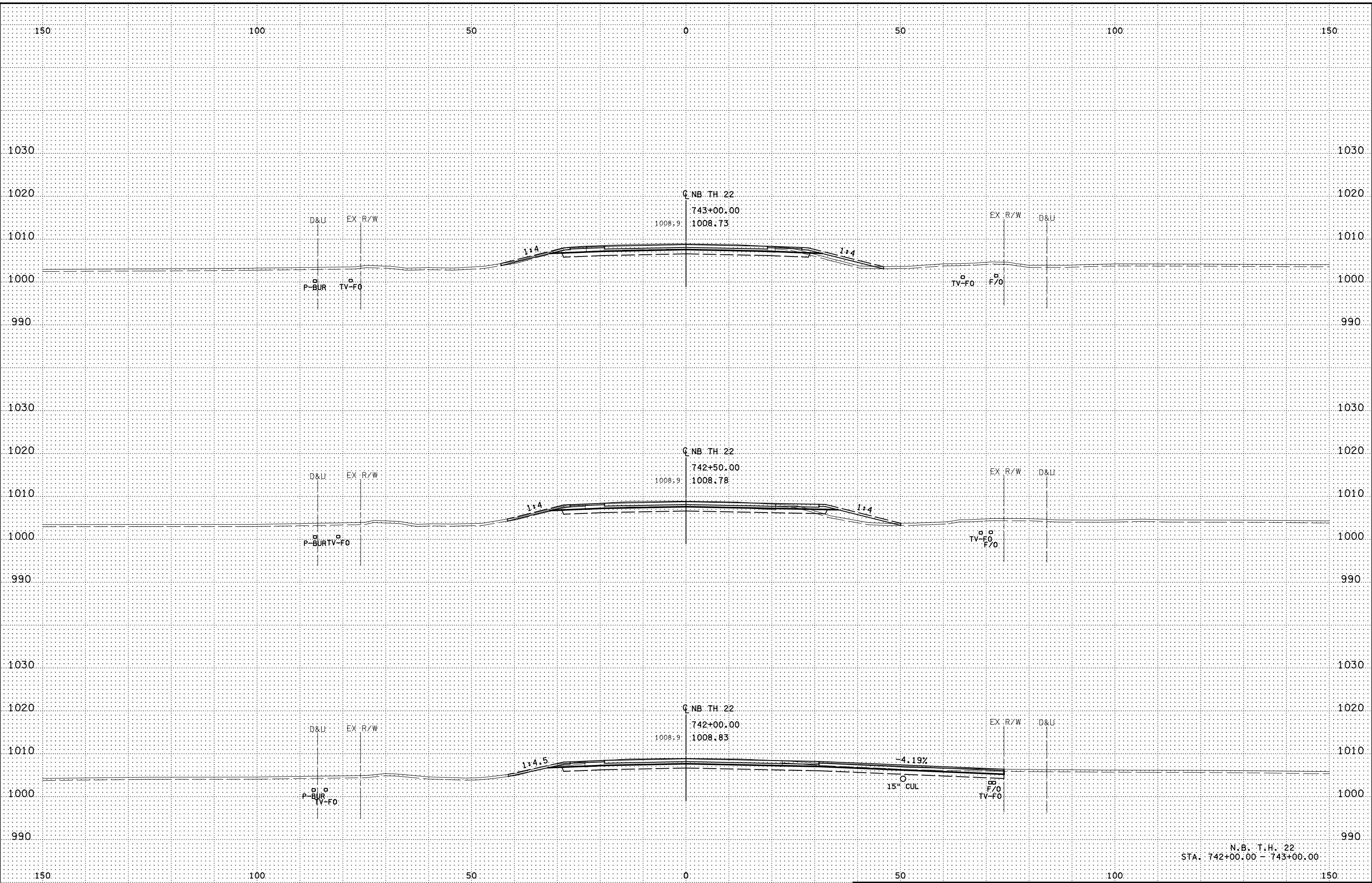
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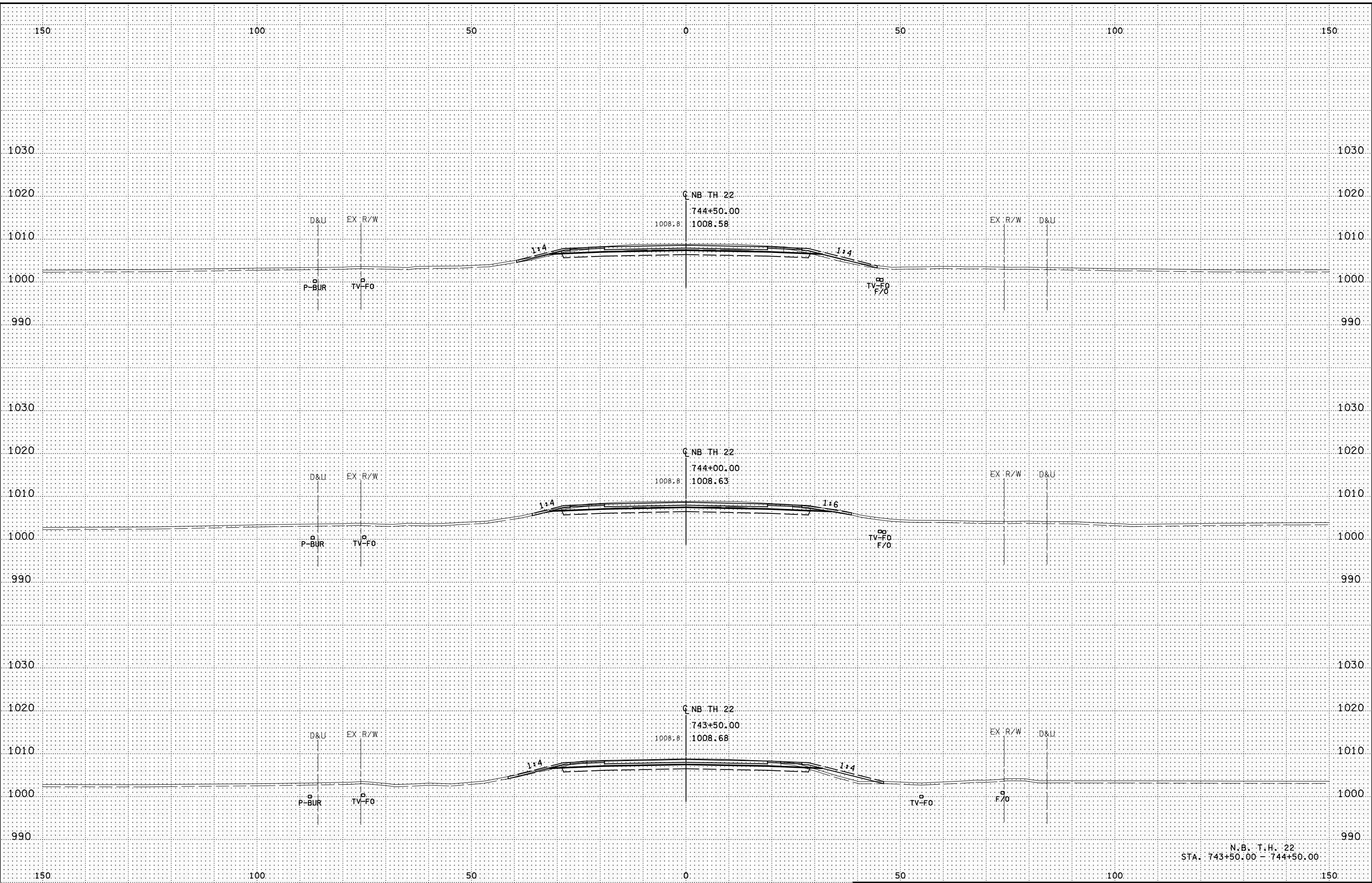
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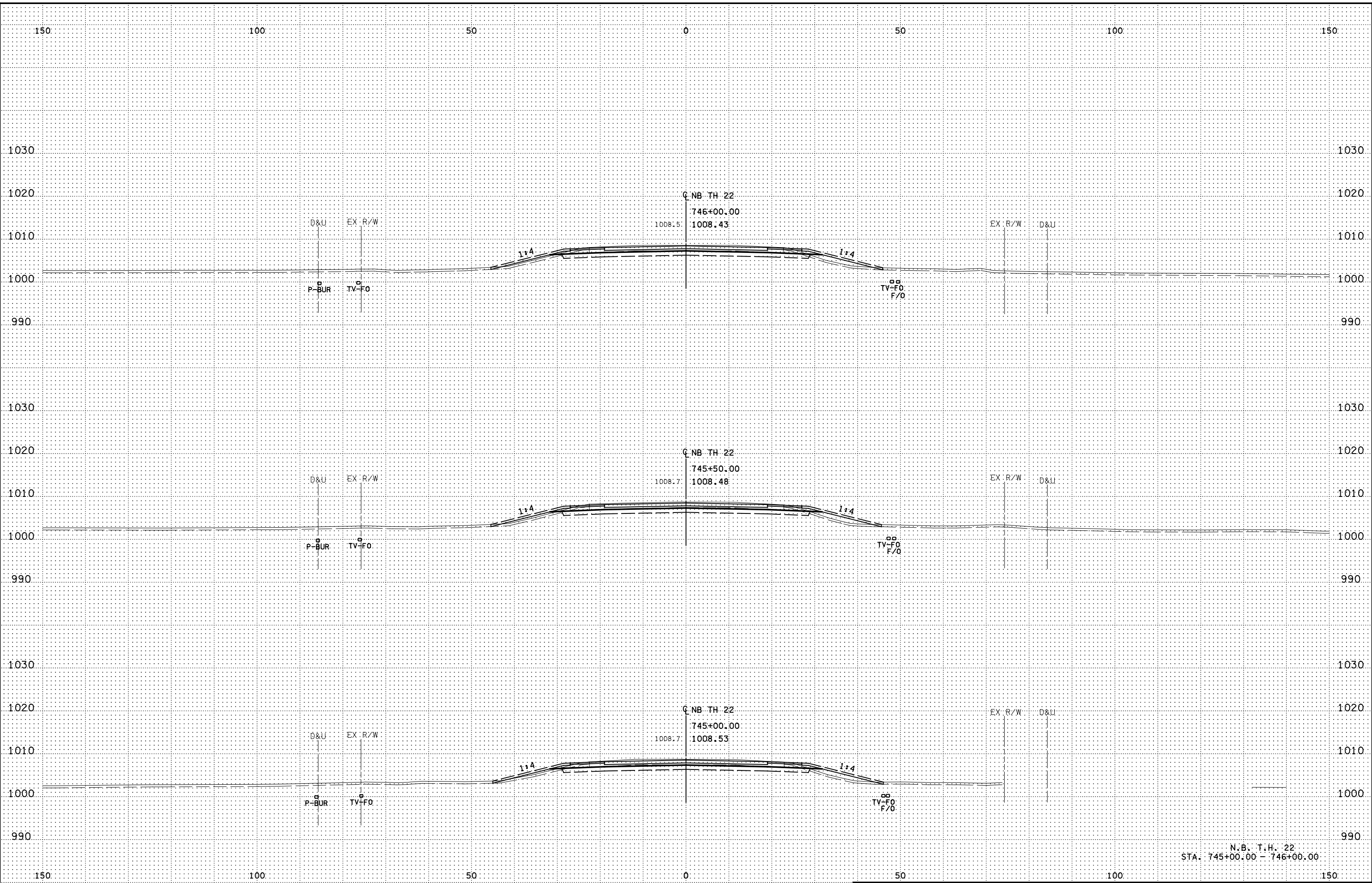
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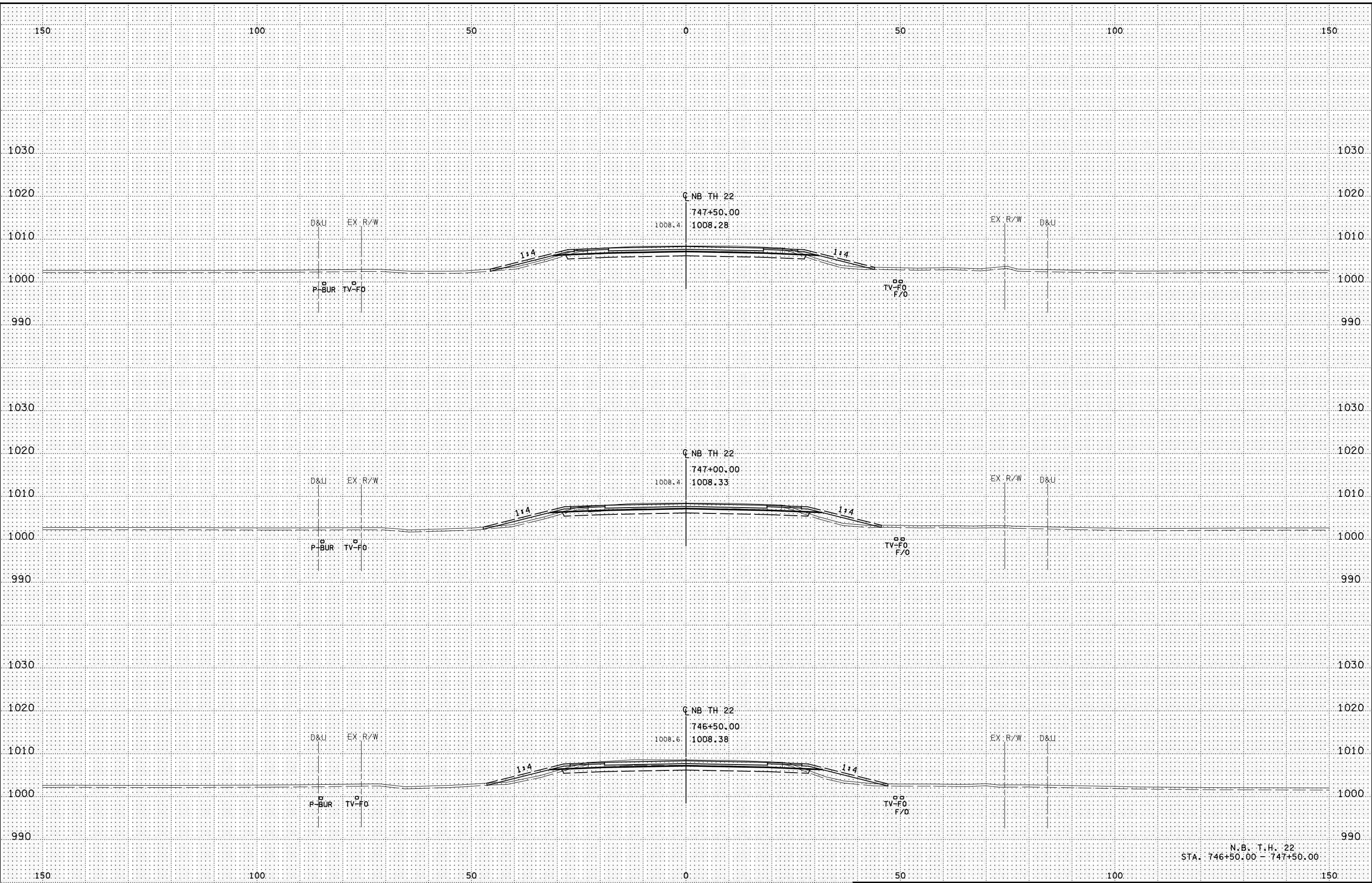
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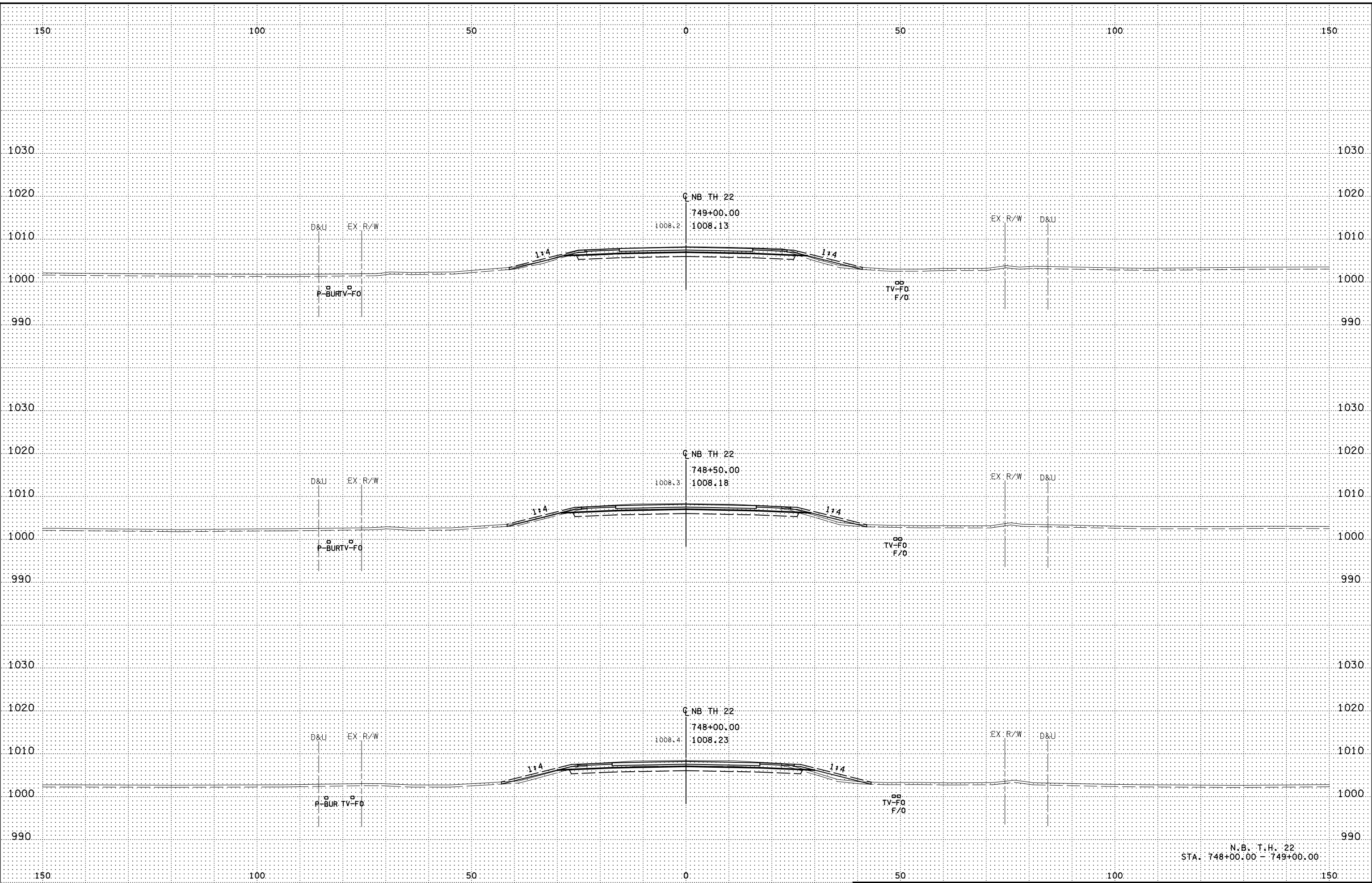
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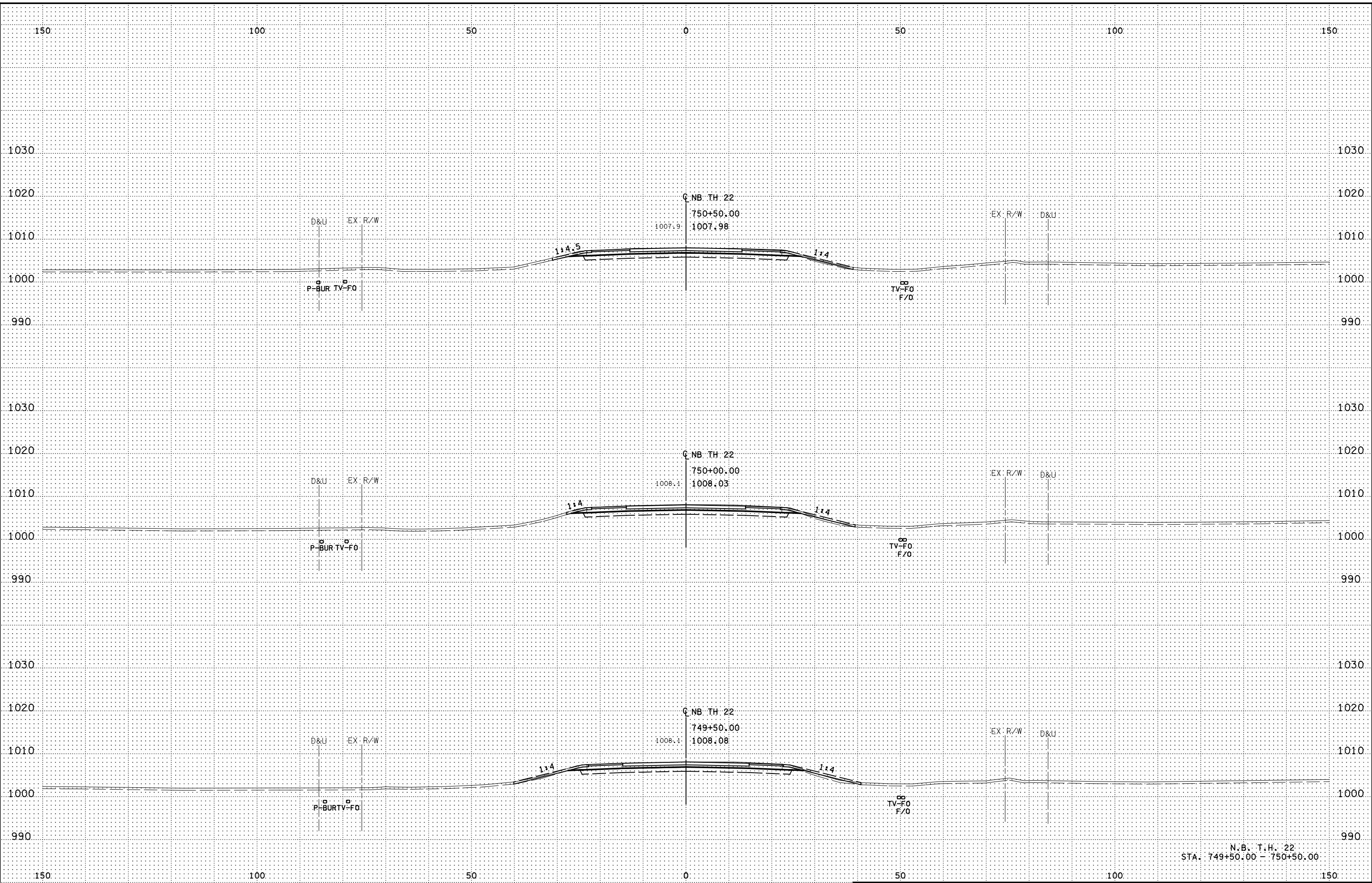
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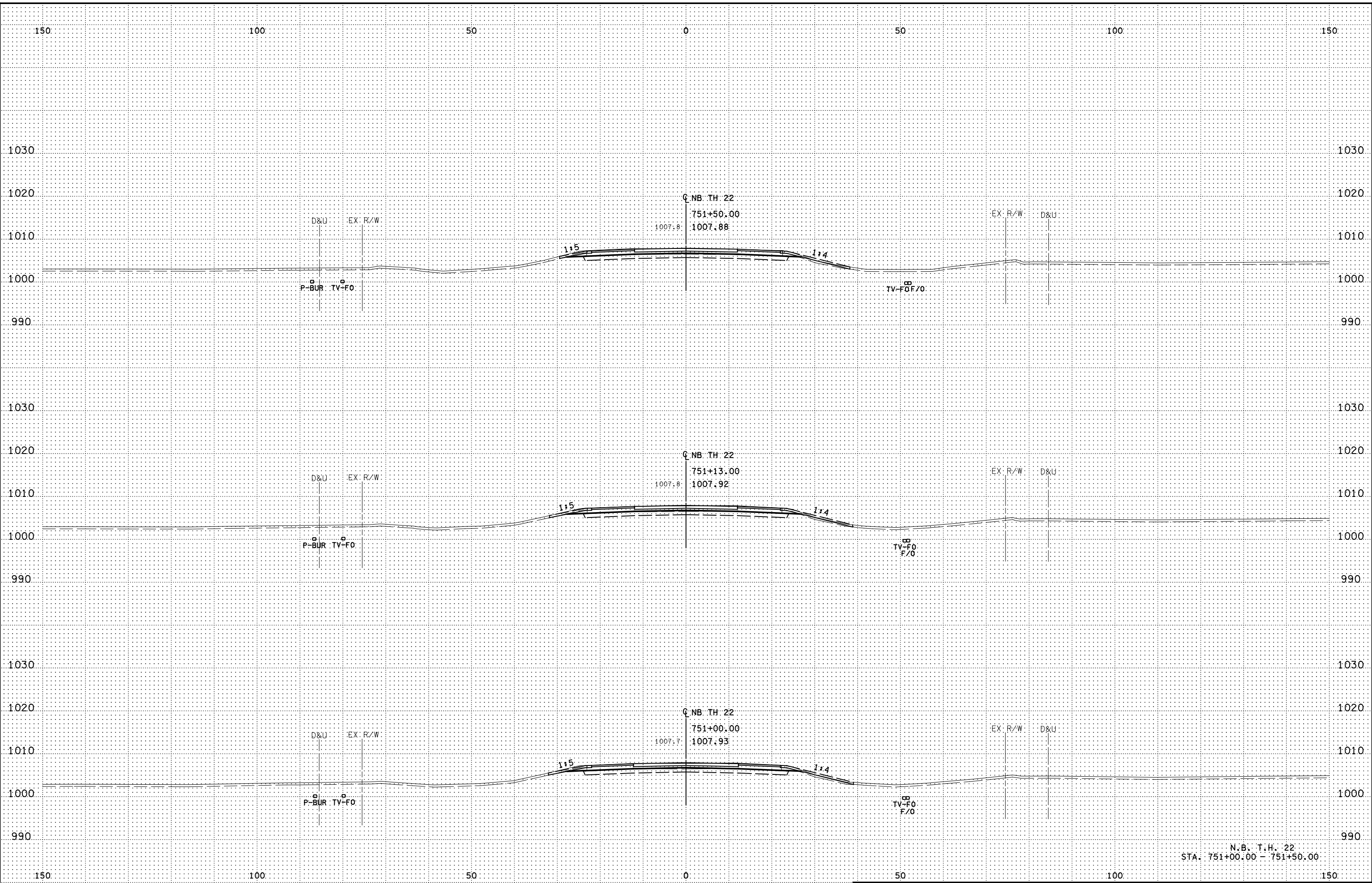
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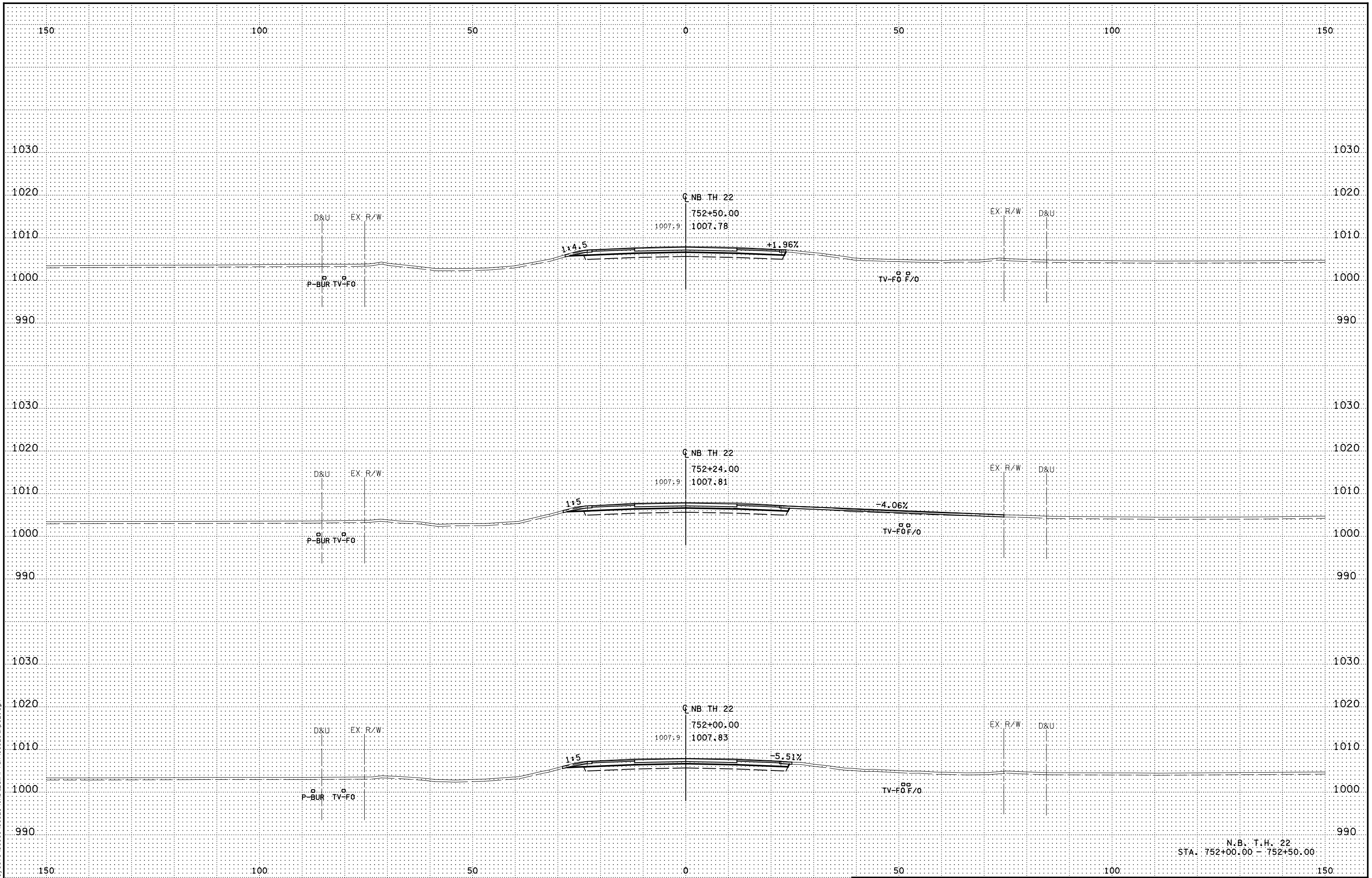
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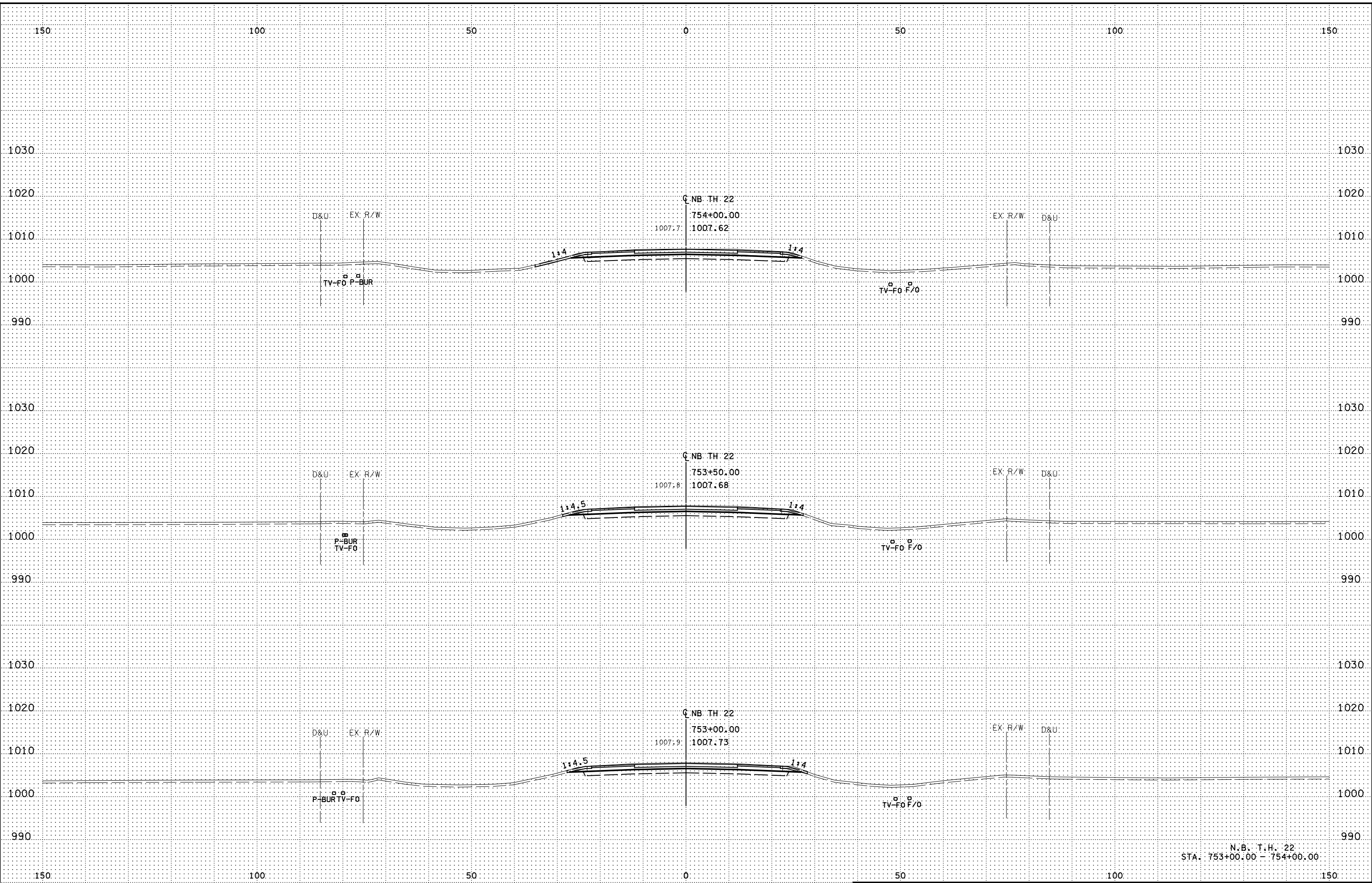
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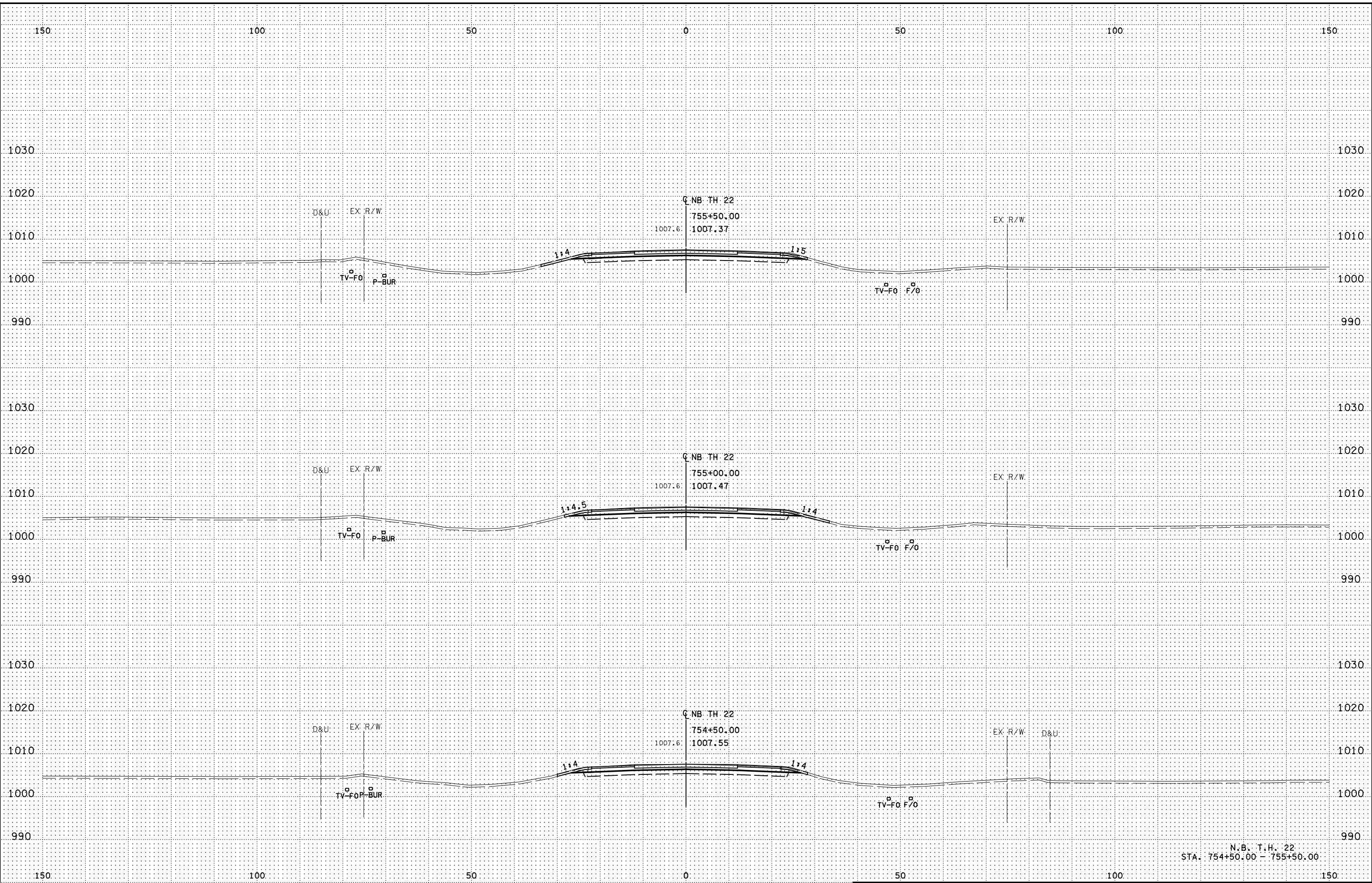
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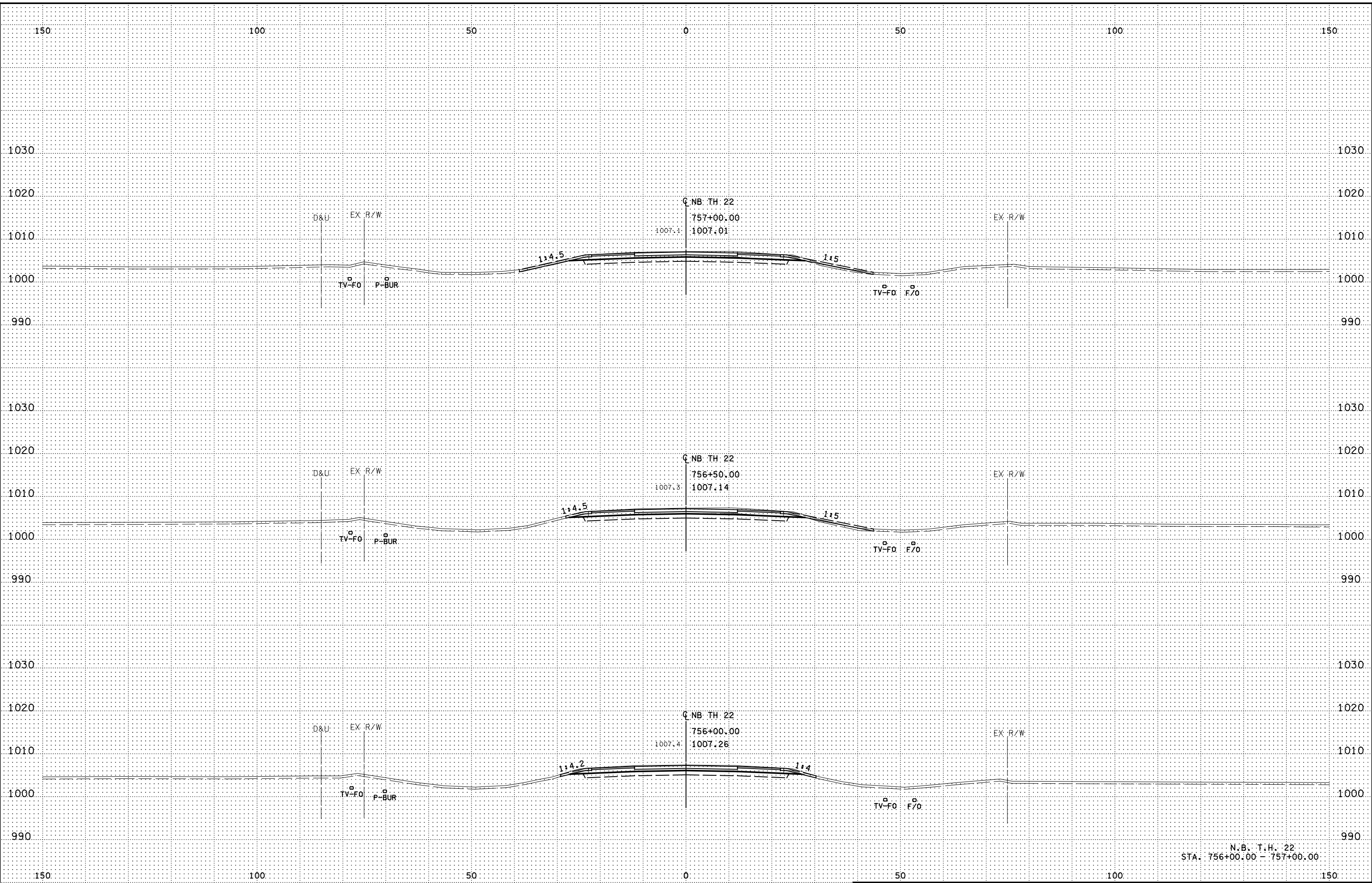
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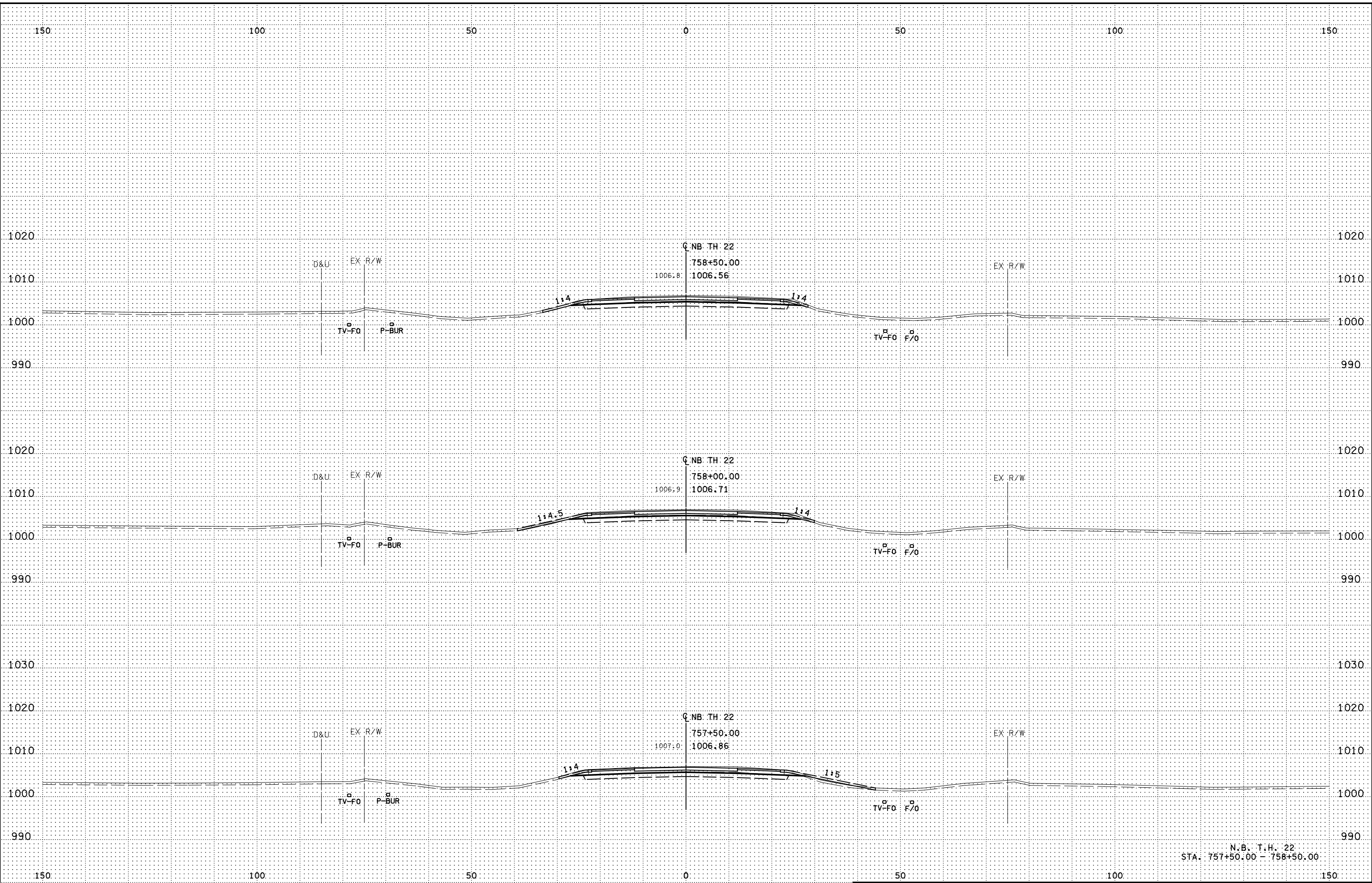
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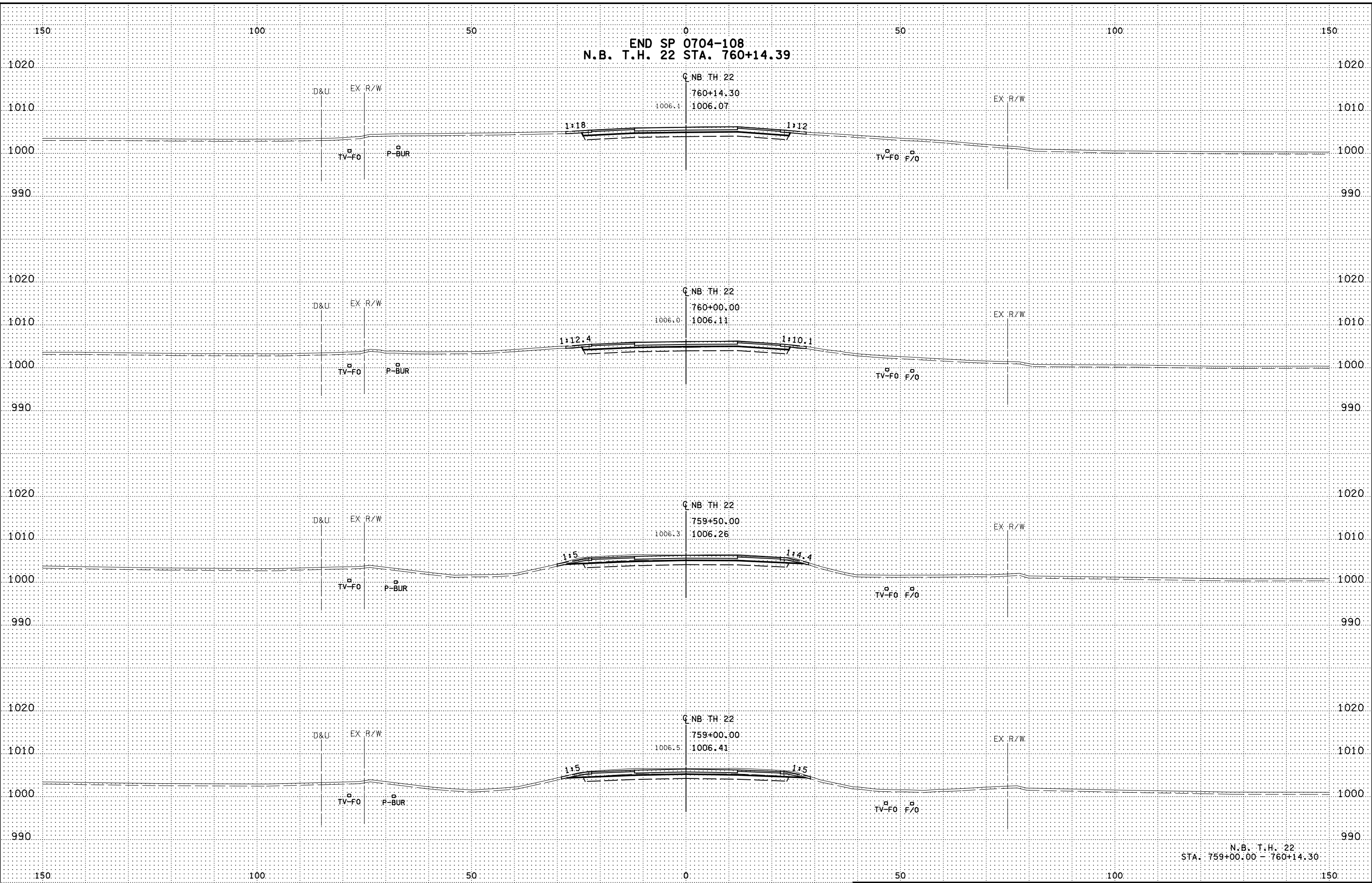
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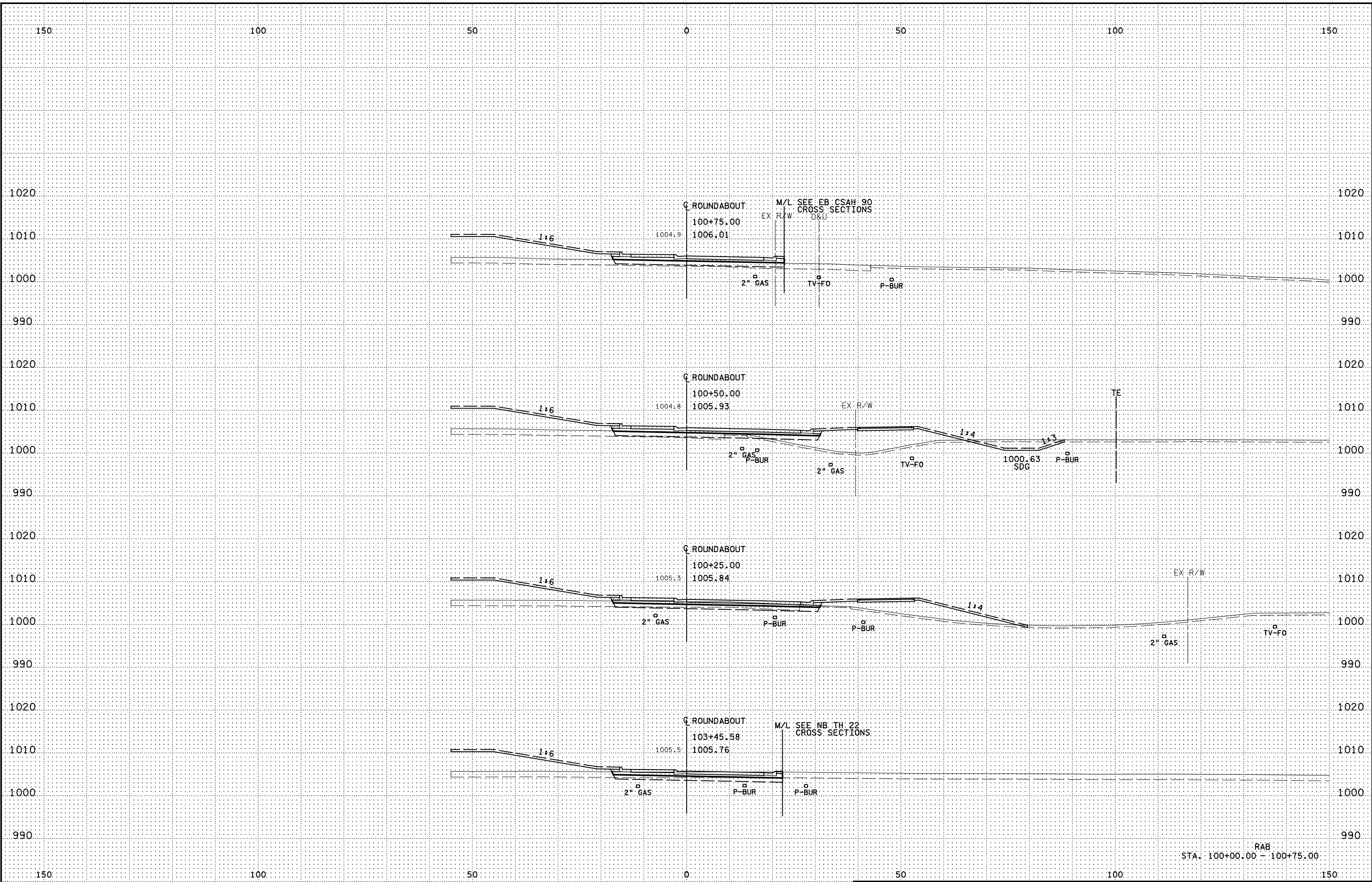
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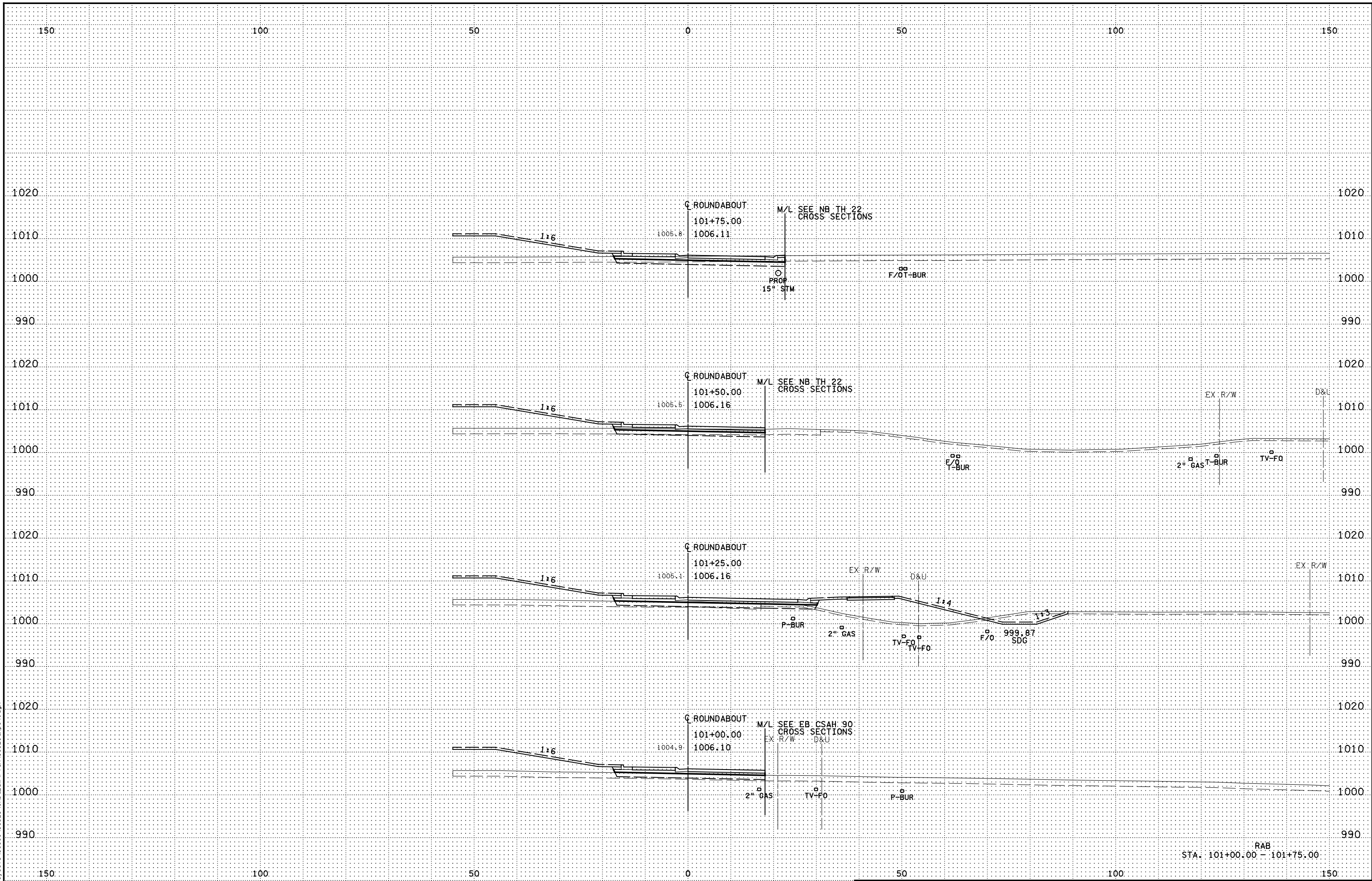
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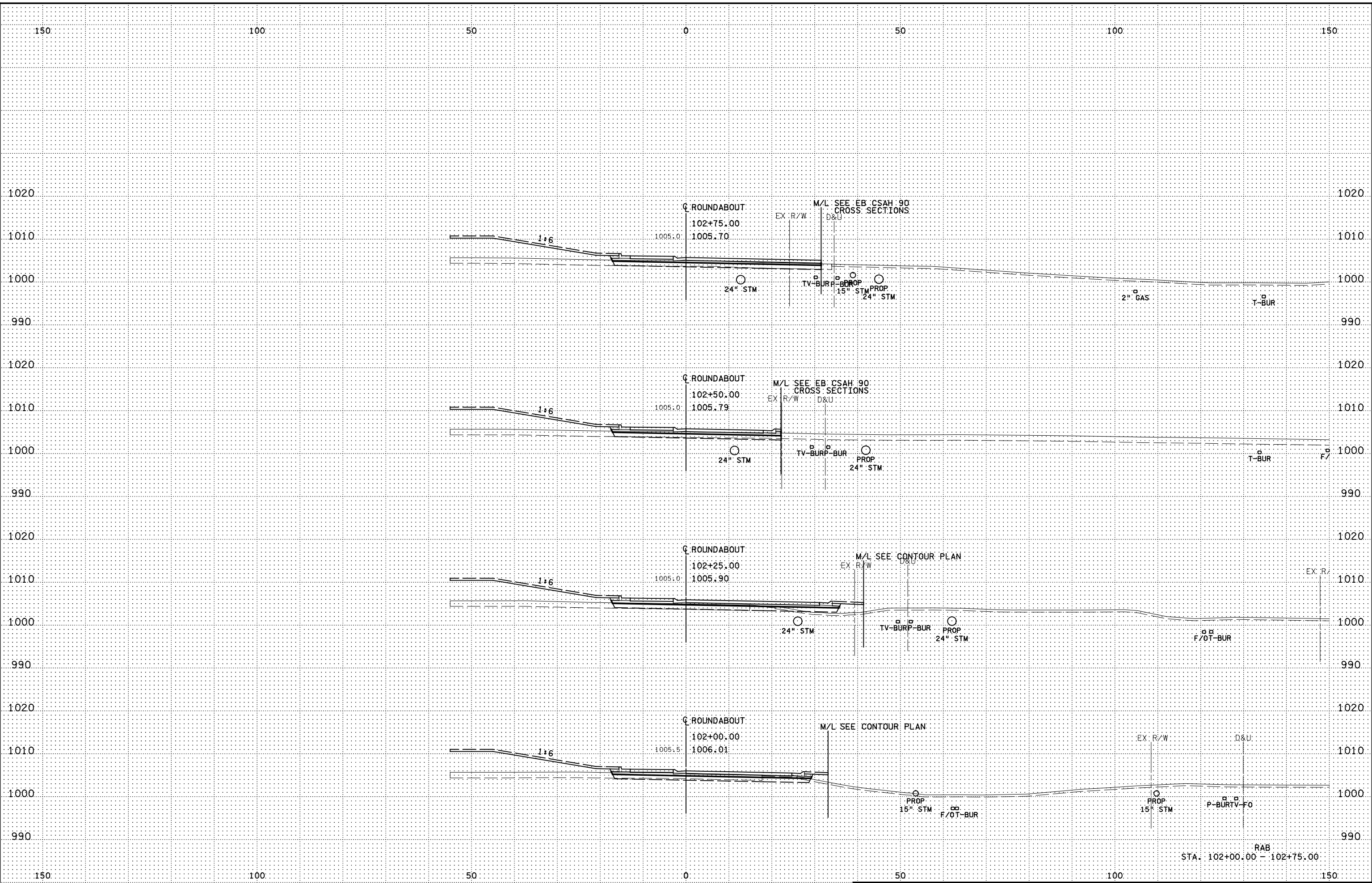
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