

PLAN SYMBOLS

- COUNTY LINE \_\_\_\_\_
- TOWNSHIP OR RANGE LINE \_\_\_\_\_
- SECTION LINE \_\_\_\_\_
- QUARTER LINE \_\_\_\_\_
- SIXTEENTH LINE \_\_\_\_\_
- RIGHT OF WAY LINE \_\_\_\_\_
- SLOPE EASEMENT \_\_\_\_\_
- EXISTING RIGHT OF WAY \_\_\_\_\_
- PROPERTY LINE \_\_\_\_\_
- CORPORATE OR CITY LIMITS \_\_\_\_\_
- RETAINING WALL \_\_\_\_\_
- RAILROAD \_\_\_\_\_
- RAILROAD RIGHT OF WAY \_\_\_\_\_
- RIVER OR CREEK \_\_\_\_\_
- DRAINAGE DITCH \_\_\_\_\_
- CULVERT \_\_\_\_\_
- DROP INLET \_\_\_\_\_
- GUARDRAIL \_\_\_\_\_
- BARBED WIRE FENCE \_\_\_\_\_
- WOVEN WIRE FENCE \_\_\_\_\_
- CHAIN LINK FENCE \_\_\_\_\_
- WOOD FENCE \_\_\_\_\_
- STONE WALL OR FENCE \_\_\_\_\_
- HEDGE \_\_\_\_\_

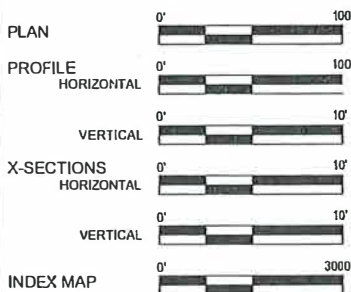
- LOWLAND \_\_\_\_\_
- TIMBER \_\_\_\_\_
- ORCHARD \_\_\_\_\_
- BRUSH \_\_\_\_\_
- NURSERY \_\_\_\_\_
- CATTLE GUARD \_\_\_\_\_
- OVERPASS (Highway Over) \_\_\_\_\_
- UNDERPASS (Highway Under) \_\_\_\_\_
- BRIDGE \_\_\_\_\_

- BUILDING (One Story Frame) \_\_\_\_\_
- F-FRAME C-CONCRETE \_\_\_\_\_
- S-STONE T-TILE \_\_\_\_\_
- B-BRICK ST-STUCCO \_\_\_\_\_
- RAILROAD CROSSING BELL \_\_\_\_\_
- RAILROAD CROSSING GATE \_\_\_\_\_
- MANHOLE \_\_\_\_\_
- CATCH BASIN \_\_\_\_\_
- FIRE HYDRANT \_\_\_\_\_
- CAST IRON MONUMENT \_\_\_\_\_
- IRON PIN \_\_\_\_\_
- GRAVEL PIT \_\_\_\_\_
- SAND PIT \_\_\_\_\_
- BORROW PIT \_\_\_\_\_
- ROCK QUARRY \_\_\_\_\_

UTILITY SYMBOLS

- POWER POLE LINE \_\_\_\_\_
- TELEPHONE OR TELEGRAPH POLE LINE \_\_\_\_\_
- JOINT TELEPHONE & POWER ON POWER POLES \_\_\_\_\_
- ON TELEPHONE POLES \_\_\_\_\_
- ANCHOR \_\_\_\_\_
- STEEL TOWER \_\_\_\_\_
- STREETLIGHT \_\_\_\_\_
- PEDESTAL (Cable Terminal) \_\_\_\_\_
- GAS MAIN \_\_\_\_\_
- WATER MAIN \_\_\_\_\_
- TELEPHONE CABLE IN CONDUIT \_\_\_\_\_
- ELECTRIC CABLE IN CONDUIT \_\_\_\_\_
- TELEPHONE MANHOLE \_\_\_\_\_
- ELECTRIC MANHOLE \_\_\_\_\_
- BURIED TELEPHONE CABLE \_\_\_\_\_
- BURIED ELECTRIC CABLE \_\_\_\_\_
- OVERHEAD UTILITY CABLE \_\_\_\_\_
- SEWER (Sanitary or Storm) \_\_\_\_\_
- SEWER MANHOLE \_\_\_\_\_

SCALES



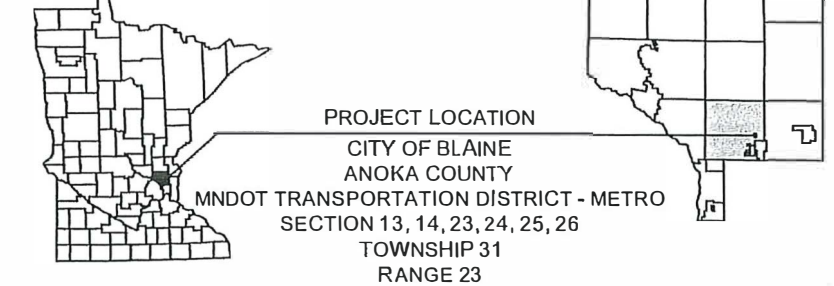
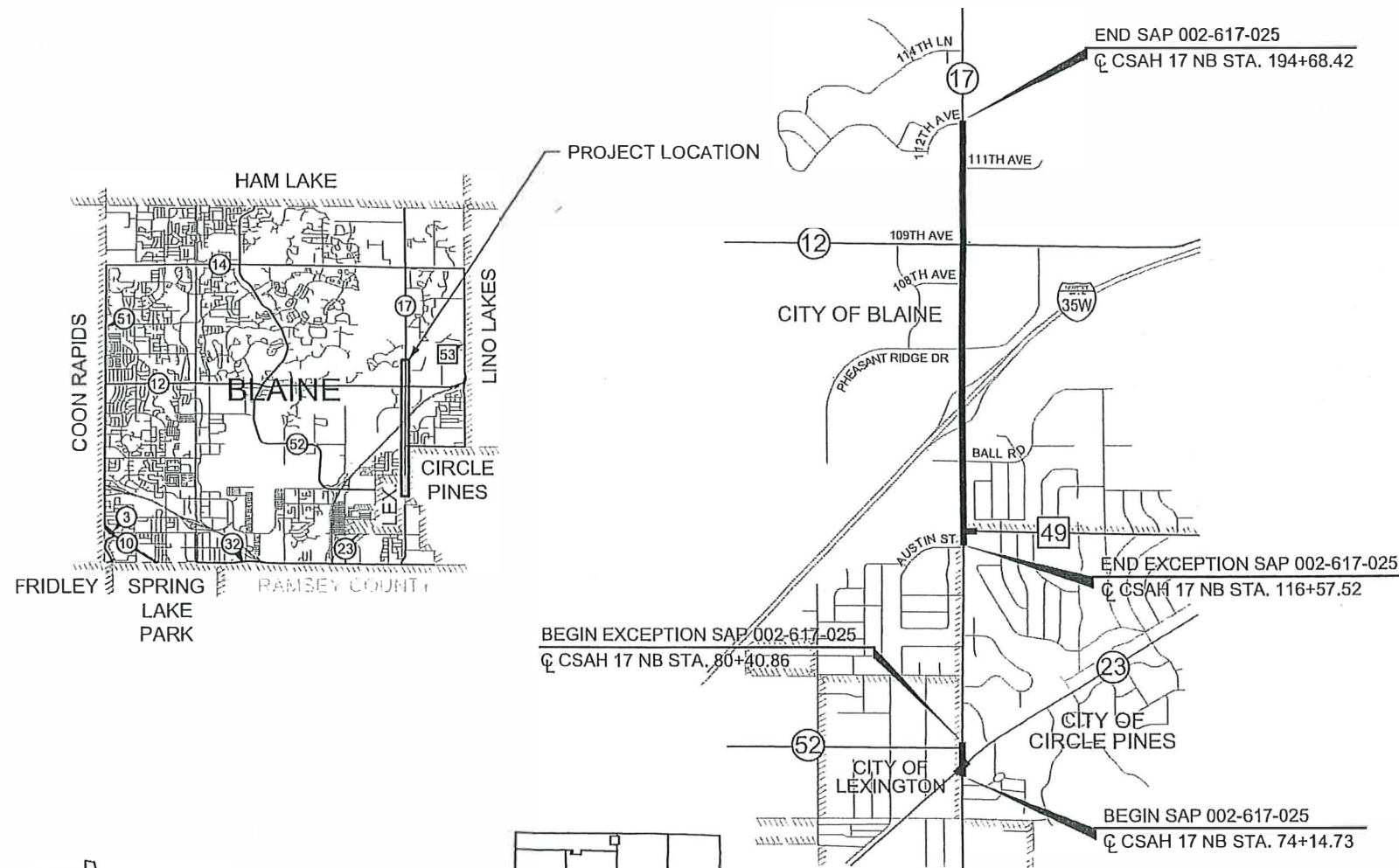
MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR \_\_\_\_\_  
 MILL BITUMINOUS, BITUMINOUS SURFACING, GRADING, AGGREGATE BASE,  
 BITUMINOUS SURFACING, CURB AND GUTTER, AND SEWER REPAIRS  
 LOCATED ON CSAH 17 BETWEEN CSAH 23 (LAKE DR NE) AND 112TH AVE NE

STATE AID PROJ. NO. 002-617-025  
CSAH 17

GROSS LENGTH	<u>12,053.69</u>	FEET	<u>2,283</u>	MILES
BRIDGES-LENGTH	<u>0.00</u>	FEET	<u>0.000</u>	MILES
EXCEPTIONS-LENGTH	<u>3,616.66</u>	FEET	<u>0.685</u>	MILES
NET LENGTH	<u>8,437.03</u>	FEET	<u>1,598</u>	MILES



DESIGN DESIGNATION (CSAH 17)			
ESAL <sub>20</sub>	3,032,000	FUNCTIONAL CLASSIFICATION	A-MINOR EXPANDER
R VALUE	55	NO. OF TRAFFIC LANES	4
ADT (2022)	30,150	DESIGN SPEED	45-55 MPH
PROJ. ADT (2042)	43,410	BASED ON STOPPING SIGHT DISTANCE:	
PROJ. HCADT (2042)	1,550	HEIGHT OF EYE	3.5'
SOIL FACTOR	N/A	DESIGN SPEED NOT ACHIEVED AT:	
		STA.	TO STA.
10 TON DESIGN			MPH

GOVERNING SPECIFICATIONS  
 THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN  
 ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

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THIS PLAN CONTAINS 94 SHEETS

APPROVED		<u>5-6-22</u>
	ANOKA COUNTY ENGINEER	DATE
APPROVED		<u>5.10.22</u>
	CITY OF BLAINE ENGINEER	DATE
APPROVED		<u>5/10/22</u>
	CITY OF CIRCLE PINES ENGINEER	DATE
APPROVED		<u>5/19/22</u>
	CITY OF LEXINGTON ENGINEER	DATE
		<u>5/19/2022</u>
	For	DATE
	DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY	DATE
		<u>5/19/2022</u>
	For	DATE
	STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING	DATE

NO	DATE	BY	CHKD	APPR	REVISION
1	04/06/2022	MR	NJD		UPDATED PROJECT EXTENTS

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

DRAWN BY BTU DATE 04/06/22  
 DESIGN BY BTU DATE 04/06/22  
 CHECKED BY NJD DATE 04/06/22

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-617-025

TITLE SHEET  
 Sheet 1 of 94 Sheets

002-617-025					
STATEMENT OF ESTIMATED QUANTITIES					
TAB / NOTE	ITEM NUMBER	ITEM DESCRIPTION	UNIT	SAP 002-617-025 TOTAL ESTIMATED QUANTITIES	CP 22-18-17 TOTAL ESTIMATED QUANTITIES
	2021.501	MOBILIZATION	LUMP SUM	1	
F	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	2	
	2104.502	REMOVE SIGN TYPE C	EACH	20	
[1]	2104.502	SALVAGE SIGN TYPE C	EACH	1	
A, [2]	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	428	
A, [2]	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	7971	
A, [2]	2104.503	REMOVE CURB AND GUTTER	LIN FT	1581	
A, [2]	2104.503	REMOVE CONCRETE GUTTER	LIN FT	110	
A	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	4074	
A	2104.518	REMOVE BITUMINOUS WALK	SQ FT	421	
A, [2]	2104.518	REMOVE CONCRETE WALK	SQ FT	3273	
A, [2]	2104.518	REMOVE CONCRETE MEDIAN	SQ FT	2507	
AA	2106.507	EXCAVATION - COMMON (P)	CU YD	2413	
AA	2106.507	EXCAVATION - SUBGRADE (P)	CU YD	2758	
AA	2106.507	SELECT GRANULAR EMBANKMENT (CV) (P)	CU YD	3730	
AA	2106.507	COMMON EMBANKMENT (CV) (P)	CU YD	1931	
B, E	2211.509	AGGREGATE BASE CLASS 5	TON	3297	
A, [4], [7], [8]	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	5544	
A, [4]	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	58580	
A, [5], [7], [8]	2232.504	MILL BITUMINOUS SURFACE (6.0")	SQ YD	1277	
A, [6]	2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	2412	
E	2301.504	CONCRETE PAVEMENT 8.0"	SQ YD	43	
	2301.602	DRILL AND GROUT REINFORCMENT BAR (EPOXY COATED)	EACH	90	
B	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	4480	
B, [9]	2360.509	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	TON	109	
B	2360.509	TYPE SP 12.5 NON-WEARING COURSE MIX (4,B)	TON	1253	
B	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,F)	TON	8980	
B, [10]	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,F)	TON	277	
B, [7], [8]	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,F)	TON	950	
[11]	2504.602	ADJUST GATE VALVE	EACH	2	
F, [12]	2506.502	CASTING ASSEMBLY	EACH	27	
F, [13]	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LIN FT	4.5	
F, [13]	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020	LIN FT	4.8	
F, [14]	2506.602	GROUT CATCH BASIN OR MANHOLE	EACH	84	
E, [3], [15]	2521.518	4" CONCRETE WALK	SQ FT	2257	
E, [3]	2521.518	6" CONCRETE WALK	SQ FT	240	
E	2521.618	CONCRETE CURB RAMP WALK	SQ FT	3451	
E	2531.503	CONCRETE CURB & GUTTER DESIGN B412 (MOD)	LIN FT	20	
E	2531.503	CONCRETE CURB & GUTTER DESIGN B418 (MOD)	LIN FT	472	
E	2531.503	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	215	
E	2531.503	CONCRETE CURB & GUTTER DESIGN B612 (MOD)	LIN FT	30	
E	2531.503	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	964	
E, [16], [17]	2531.604	8" CONCRETE VALLEY GUTTER	SQ YD	37	
E	2531.618	TRUNCATED DOMES	SQ FT	308	
	2545.602	ADJUST HANDHOLE	EACH	1	
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	
[18], [19]	2563.601	TRAFFIC CONTROL	LUMP SUM	1	
[20]	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20	

002-617-025					
STATEMENT OF ESTIMATED QUANTITIES					
TAB / NOTE	ITEM NUMBER	ITEM DESCRIPTION	UNIT	SAP 002-617-025 TOTAL ESTIMATED QUANTITIES	CP 22-18-17 TOTAL ESTIMATED QUANTITIES
	2564.502	INSTALL MARKER	EACH	8	
	2564.502	INSTALL SIGN TYPE C	EACH	1	
	2564.518	SIGN PANELS TYPE C	SQ FT	129.94	
	2564.602	DELINEATOR / MARKER PANEL	EACH	8	
	2565.602	RIGID PVC LOOP DETECTOR 6' X 6'	EACH		4
	2565.616	REVISE SIGNAL SYSTEM A	EACH		1
	2565.616	REVISE SIGNAL SYSTEM B	EACH		1
	2565.616	REVISE SIGNAL SYSTEM C	EACH		1
	2565.616	REVISE SIGNAL SYSTEM D	EACH		1
	2565.616	REVISE SIGNAL SYSTEM E	EACH		1
F, [21]	2573.502	STORM DRAIN INLET PROTECTION	EACH	107	
	2574.507	COMMON TOPSOIL BORROW	CU YD	139	
D	2574.508	FERTILIZER TYPE 3	POUND	581	
	2575.504	ROLLED EROSION PREVENTION CATEGORY 15	SQ YD	416	
D	2575.505	SEEDING	ACRE	1.7	
D	2575.508	SEED MIXTURE 25-121	POUND	101	
D	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	6471	
[22]	2582.503	4" SOLID LINE MULTI-COMPONENT	LIN FT	42053	
	2582.503	8" SOLID LINE MULTI-COMPONENT	LIN FT	800	
[22]	2582.503	4" BROKEN LINE MULTI-COMPONENT	LIN FT	3967	
	2582.503	4" DOTTED LINE MULTI-COMPONENT	LIN FT	231	
	2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	745	
[23]	2582.518	CROSSWALK PREFORM THERMOPLASTIC	SQ FT	4014	
[24]	2582.603	PAVEMENT MARKING SPECIAL	LIN FT	776	

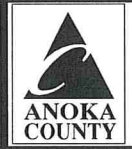
**CONSTRUCTION NOTES**

- [1] ITEM USED FOR SIGNS IN MEDIAN AND / OR PEDESTRIAN RAMP REPLACEMENT AREAS
- [2] REFERENCE DETAILS FOR REMOVAL DETAILS. INCLUDES CURB, WALK, AND MEDIAN
- [3] CONCRETE APPROACH NOSE PAID FOR AS 6" CONCRETE WALK. CONCRETE MEDIAN PAID FOR AS 4" CONCRETE WALK.
- [4] DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL
- [5] MILLING SHALL "DAYLIGHT" BETWEEN 6" AND 2" MILL DEPTHS. TRANSITION TO BE PAID AS 6" MILL.
- [6] TO BE USED FOR MILLING STREET APPROACHES AND / OR DETAIL MILLING AREAS AS DEFINED IN THE PLAN
- [7] ITEM USED FOR QUANTITY AT LEXINGTON AND LAKE DRIVE INTERSECTION
- [8] MUST OCCUR AT NIGHT. NIGHT CONSTRUCTION IS CONSIDERED BETWEEN 8PM AND 5AM
- [9] ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, AND ANY POTHOLES.
- [10] STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING.
- [11] GATE VALVES TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
- [12] ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS. CASTINGS IN ROADWAY SHALL BE INSTALLED BETWEEN BASE AND WEAR LIFT PAVING
- [13] PAY HEIGHT IS MEASURED FROM INVERT OF OUTLET PIPE TO TOP OF PRECAST CONCRETE STRUCTURE PLUS AN ALLOWANCE OF 0.70 FEET FOR THE DEPTH OF THE CONCRETE BASE, REGARDLESS OF ITS ACTUAL THICKNESS. CONCRETE ADJUSTMENT RINGS ARE INCIDENTAL. CONNECTIONS TO EXISTING STORM SEWER ARE INCIDENTAL.
- [14] ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, STRUCTURES AND CASTINGS, AND CLEANING AS DIRECTED BY PLAN AND ENGINEER. SEE DRAINAGE TAB.
- [15] ITEM USED FOR CONCRETE MEDIAN AND SIDEWALK.
- [16] TO BE CONSTRUCTED IN TWO HALVES AS TO NOT DISTURB TRAFFIC.
- [17] #4 REINFORCEMENT BARS TO BE INSTALLED IN VALLEY GUTTER (SEE PLAN)
- [18] CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
- [19] ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO, AND BE INSTALLED IN ACCORDANCE WITH, THE MOST CURRENT REVISION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, AND STOP HERE ON RED SIGNS SHALL BE INPLACE WHENEVER PERMANENT MARKINGS ARE NOT PRESENT.
- [20] 2 MESSAGE BOARDS, ONE ON EACH END OF THE PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
- [21] ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
- [22] INCLUDES YELLOW AND WHITE QUANTITIES. SEE PAVEMENT MARKING TABULATION.
- [23] CROSSWALK MARKINGS SHALL BE 3' X 6'
- [24] 24" SOLID LINE PREFORM THERMOPLASTIC. INCLUDES STOPBAR AND CROSSHATCH

1	04/06/2022	MR	NJD	REVISED TABULATION LABELS
2	05/04/2022	BTU	NJD	REVISED NOTES
NO	DATE	BY	CHKD	APPR
REVISION				
NAME: P:\002-617-025\Plan\002-617-025_TAB.dgn 05/06/2022 10:18:19 AM				

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 5/17/22 LICENSE NO. 49046

DRAWN BY BTU DATE 05/04/22  
 DESIGN BY BTU DATE 05/04/22  
 CHECKED BY NJD DATE 05/04/22



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-617-025

STATEMENT OF ESTIMATED QUANTITIES

THE FOLLOWING STANDARD PLATES APPROVED BY THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

<b>STANDARD PLATES</b>	
PLATE NO.	DESCRIPTION
3007F	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4024A	48" DIA. PRECAST SHALLOW DEPTH CATCH BASIN - DESIGN SD
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)- CASTING NO. 825
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS TYPE A, B, AND C (3 SHEETS)
8123G	POLE AND MAST ARM - LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (FOR ALL POLE TYPES) (2 SHEETS)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)

<b>INDEX OF TABULATION CHARTS</b>		
TAB.	DESCRIPTION	SHEET NO.
AA	EARTHWORK TABULATION	4
A	REMOVALS, SAWING, AND MILLING	5
B	AGGREGATE AND BITUMINOUS SUMMARY	5
C	CASTING ASSEMBLIES SUMMARY	5
D	TURF ESTABLISHMENT	5
E	CONCRETE	6
F	STORM DRAINAGE TABULATION	7

<b>BASIS OF QUANTITIES</b>		
SPEC NO	DESCRIPTION	RATE
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD / LIFT
2211.000	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360.501	TYPE SP12.5 WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2360.502	TYPE SP12.5 NON-WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2575.502	SEED MIXTURE 25-121	61 LBS / ACRE
2575.502	FERTILIZER TYPE 3	350 LBS / ACRE
2575.502	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS / ACRE

1	04/06/2022	MR	NJD	REVISED TABULATION LABELS & UPDATED STANDARD PLATES
2	05/04/2022	BTU	NJD	REVISED TABULATION INDEX
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_TAB.dgn				

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

PRINT NAME: NICHOLAS J. DOBDA

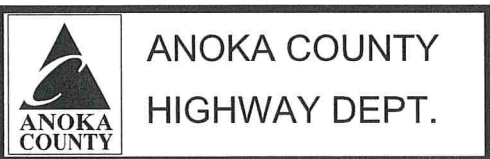
SIGNATURE: *NJD*

DATE: 5/17/22 LICENSE NO. 49046

DRAWN BY BTU DATE 05/04/22

DESIGN BY BTU DATE 05/04/22

CHECKED BY NJD DATE 05/04/22



SAP 002-617-025

EARTHWORK SUMMARY				AA
	EXCAVATION TOTALS		EMBANKMENT TOTALS	
	EXCAVATION - COMMON	EXCAVATION - SUBGRADE	SELECT GRANULAR EMBANKMENT	COMMON EMBANKMENT
	CY	CY	CY	CY
SUBTOTAL (A)	1,073	1,286	1,686	809
SUBTOTAL (B)	1,340	1,472	2,044	1,122
PROJECT TOTAL	2,413	2,758	3,730	1,931

EARTHWORK TABULATIONS				AA
STATION	EXCAVATION TOTALS		EMBANKMENT TOTALS	
	EXCAVATION - COMMON	EXCAVATION - SUBGRADE	SELECT GRANULAR EMBANKMENT	COMMON EMBANKMENT
	CY	CY	CY	CY

EARTHWORK TABULATIONS				AA
STATION	EXCAVATION TOTALS		EMBANKMENT TOTALS	
	EXCAVATION - COMMON	EXCAVATION - SUBGRADE	SELECT GRANULAR EMBANKMENT	COMMON EMBANKMENT
	CY	CY	CY	CY
CSAH 17 (LEXINGTON AVE NE) SOUTH OF CSAH 12 (109TH AVE NE)				
157+50.00				
158+00.00	41	48	48	6
158+08.53	6	8	8	1
158+50.00	33	40	40	7
159+00.00	34	46	46	9
159+50.00	25	36	42	15
160+00.00	31	34	47	33
160+50.00	38	38	53	50
160+60.43	8	8	11	11
161+00.00	29	29	41	40
161+50.00	36	37	52	43
162+00.00	38	38	52	36
162+50.00	38	39	52	40
163+00.00	39	39	52	43
163+17.33	14	14	18	14
163+50.00	28	31	41	22
164+00.00	43	53	72	29
164+50.00	36	49	72	31
165+00.00	35	50	72	32
165+50.00	44	54	72	30
165+75.88	23	28	38	15
166+00.00	21	26	35	15
166+50.00	44	53	72	29
167+00.00	43	52	72	31
167+50.00	41	49	72	33
168+00.00	41	49	72	33
168+27.18	23	27	39	18
168+50.00	19	23	33	16
169+00.00	41	50	72	34
169+50.00	42	51	72	32
169+95.46	40	50	66	26
170+00.00	4	5	7	3
170+50.00	48	62	72	21
171+00.00	47	70	73	11
SUBTOTAL (A)	1,073	1,286	1,686	809

CSAH 17 (LEXINGTON AVE NE) NORTH OF CSAH 12 (109TH AVE NE)				
172+50.00				
172+81.89	31	42	46	8
173+00.00	16	20	26	7
173+50.00	42	51	73	27
174+00.00	41	48	73	31
174+50.00	41	49	73	32
174+57.58	6	8	11	4
175+00.00	35	43	62	24
175+50.00	40	49	73	31
176+00.00	41	51	73	30
176+50.00	43	52	73	32
177+00.00	42	47	73	33
177+50.00	41	47	73	29
178+00.00	41	50	73	26
178+50.00	43	52	73	25
179+00.00	44	54	73	23
179+50.00	50	56	73	22
180+00.00	48	55	73	25
180+50.00	41	47	73	32
181+00.00	41	42	73	40
181+50.00	42	42	73	55
181+97.14	39	40	68	63
182+00.00	3	2	4	5
182+50.00	41	48	73	61
183+00.00	32	37	52	47
183+50.00	23	20	32	42
184+00.00	22	20	32	41
184+47.07	20	19	30	36
184+50.00	1	1	2	3
185+00.00	22	20	32	35
185+50.00	21	21	32	31
186+00.00	23	24	32	26
186+46.65	29	27	30	12
186+50.00	3	2	2	
187+00.00	30	28	28	3
187+50.00	23	24	24	5
188+00.00	25	26	26	7
188+50.00	21	21	23	16
188+78.86	10	9	12	13
189+00.00	7	7	9	9
189+50.00	19	18	21	18
190+00.00	20	19	21	15
190+50.00	20	19	21	16
191+00.00	20	19	21	15
191+08.77	3	3	4	2
191+50.00	16	16	17	13
192+00.00	20	19	21	16
192+50.00	21	19	21	17
193+00.00	19	19	21	15
193+34.75	12	14	14	4
193+50.00	6	6	6	
SUBTOTAL (B)	1,340	1,472	2,044	1,122

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-617-025\Plan\002-617-025_TAB.dgn					
03/29/2022 7:47:14 AM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 3/30/22 LICENSE NO. 49046

DRAWN BY BTU DATE 03/17/22  
 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-617-025

EARTHWORK SUMMARY

REMOVALS, SAWING, AND MILLING													A		
ALIGNMENT	LOCATION		REMOVE SPEC. 2104					SAWING SPEC. 2104		MILLING SPEC. 2232			NOTES		
			CONC. CURB & GUTTER	CONCRETE GUTTER	BITUMINOUS PAVEMENT	BITUMINOUS WALK	CONCRETE WALK	CONCRETE MEDIAN	BITUMINOUS PAVEMENT	CONCRETE PAVEMENT	MILL BITUMINOUS SURFACE (2.0")	MILL BITUMINOUS SURFACE (6.0")		MILL BITUMINOUS PAVEMENT (SPECIAL)	
	STATION	TO	STATION	(LIN FT)	(LIN FT)	(SQ YD)	(SQ FT)	(SQ FT)	(SQ FT)	(LIN FT)	(LIN FT)	(SQ YD)	(SQ YD)	(SQ YD)	
<17N_4>	74+14.73	-	80+40.86	595		160		1991		658	73	5544	1277		[1] [2]
<17N_4>	116+57.52	-	140+28.92	335		133	359	420	128	528	104	19944		635	[1]
<17N_4>	142+42.21	-	157+39.02	85	110	100		293	22	317	30	7468		306	
<17N_4>	157+39.02	-	171+70.91	34		858		97	156	1210	19	3957		283	
<17N_4>	171+70.91	-	186+53.59	27		840		71		1479	4	3921		404	
<17N_4>	186+53.59	-	188+24.50			162				180		511			
<17N_4>	188+24.50	-	193+75.17			147			90	599		2081			
<17N_4>	193+75.17	-	194+68.42									459			
<17S_4>	1142+55.28	-	1157+37.00	122		50		288	60	201	25	7173		198	
<17S_4>	1157+37.00	-	1171+68.82	173		898			1939	1458	166	4666		339	
<17S_4>	1171+68.82	-	1182+91.34	41		683	62	113	112	1165	4	3587		247	
<17S_4>	1182+91.34	-	1194+66.29									4047			
<49_4>	10+20.60	-	12+35.00	169		43				176	3	766			
<b>PROJECT TOTAL</b>				<b>1581</b>	<b>110</b>	<b>4074</b>	<b>421</b>	<b>3273</b>	<b>2507</b>	<b>7971</b>	<b>428</b>	<b>64124</b>	<b>1277</b>	<b>2412</b>	

[1] INCLUDES NORTHBOUND AND SOUTHBOUND CSAH 17 QUANTITIES  
[2] MILLING SHALL 'DAYLIGHT' BETWEEN 6" AND 2" MILL DEPTHS. TRANSITION TO BE PAID AS 6" MILL

**GENERAL REMOVAL NOTES**

- REFERENCE DETAILS FOR REMOVAL DETAILS, INCLUDES CURB, WALK, AND MEDIAN.
- DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO 2" MILL BITUMINOUS SURFACE

AGGREGATE AND BITUMINOUS SUMMARY								B		
ALIGNMENT	LOCATION		SPEC. 2211	SPEC. 2357	SPEC. 2360				NOTES	
			AGGREGATE BASE CLASS 5	BITUMINOUS MATERIAL FOR TACK COAT	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	TYPE SP 12.5 NON-WEARING COURSE MIX (4,B)	TYPE SP 12.5 WEARING COURSE MIX (4,F)	TYPE SP 12.5 WEARING COURSE MIX (4,F) (STREET APPROACH)		
	STATION	TO	STATION	(TON)	(GALLON)	(TON)	(TON)	(TON)	(TON)	
<17N_4>	74+14.73	-	80+40.86	49	469	37	147	950		[1]
<17N_4>	116+57.52	-	140+28.92	46	1029	35		2311	73	[1]
<17N_4>	142+42.21	-	157+39.02	18	389	14		866	35	
<17N_4>	157+39.02	-	171+70.91	602	409	3	227	910	33	
<17N_4>	171+70.91	-	186+53.59	679	440	1	257	965	46	
<17N_4>	186+53.59	-	188+24.50	58	45		22	103		
<17N_4>	188+24.50	-	193+75.17	157	156		60	359		
<17N_4>	193+75.17	-	194+68.42		23			53		
<17S_4>	1142+55.28	-	1157+37.00	17	369	13		831	23	
<17S_4>	1157+37.00	-	1171+68.82	715	485	3	270	1077	39	
<17S_4>	1171+68.82	-	1182+91.34	688	417	3	260	933	28	
<17S_4>	1182+91.34	-	1194+66.29		202			465		
<49_4>	10+20.60	-	12+35.00	25	47		10	107		
<b>PROJECT TOTAL</b>				<b>3054</b>	<b>4480</b>	<b>109</b>	<b>1253</b>	<b>9930</b>	<b>277</b>	

[1] INCLUDES NORTHBOUND AND SOUTHBOUND CSAH 17 QUANTITIES

CASTING ASSEMBLIES SUMMARY						C
ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	DESCRIPTION	NOTES	QUANTITY
A-7D	700-7	715		301-CP LID WITH RUBBER GASKET ON BOTTOM	CASTING COVER STAMPED "STORM SEWER"	1
TYPE A	SEE DETAILS - PAGE 15					27
ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD						
ALL MANHOLE COVERS SHOULD BE LABELED AS STORM OR SANITARY						
NEW CASTINGS TO BE INSTALLED AFTER ASPHALT MILLING IS COMPLETED						
MANHOLE CASTINGS TO BE RECESSED 1/4" FROM TOP OF FINISHED MAT						

TURF ESTABLISHMENT						D		
ALIGNMENT	LOCATION		SPEC. 2574	SPEC. 2575		NOTES		
			FERTILIZER TYPE 3 (22-5-10)	SEEDING	SEED MIXTURE 25-121		HYDRAULIC REINFORCED FIBER MATRIX	
	STATION	TO	STATION	(ACRE)	(POUND)	(POUND)		
<17N_4>	158+90.30	-	171+00.20	163	0.5	28	1813	[1]
<17N_4>	172+41.70	-	193+65.20	418	1.2	73	4658	[1]
<b>PROJECT TOTAL</b>				<b>581</b>	<b>1.7</b>	<b>101</b>	<b>6471</b>	

GENERAL NOTES:  
- TURF ESTABLISHMENT TO BE COMPLETED AS DIRECTED IN THE SWPPP.

1	04/06/2022	MR	NJD		REVISED CASTING ASSEMBLY TAB
2	05/04/2022	BTU	NJD		ADDED TURF ESTABLISHMENT TAB
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-617-025\Plan\002-617-025_TAB.dgn 05/04/2022 3:03:53 PM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *NJD*  
DATE: 5/17/22 LICENSE NO. 49046

DRAWN BY BTU DATE 05/04/22  
DESIGN BY BTU DATE 05/04/22  
CHECKED BY NJD DATE 05/04/22



ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

TABULATIONS

CONCRETE																	E	
CB / MH LABEL	ALIGNMENT	LOCATION		OFFSET		SPEC. 2211	SPEC. 2301	SPEC. 2521			SPEC. 2531					NOTES		
						AGGREGATE	8" CONC.	4" CONC.	6" CONC.	CONC	CONCRETE CURB AND GUTTER						8"	TRUNCATED
						BASE CLASS 5 (4.0")	PAVEMENT	WALK	WALK	CURB RAMP WALK	DESIGN B412 (MOD.)	DESIGN B418 (MOD.)	DESIGN B424	DESIGN B612 (MOD)	DESIGN B618		CONC. VALLEY GUTTER	DOMES
STATION	TO	STATION	FROM	TO	(TON)	(SQ YD)	(SQ FT)	(SQ FT)	(SQ FT)	(LIN FT)	(LIN FT)	(LIN FT)	(LIN FT)	(LIN FT)	(SQ YD)	(SQ FT)		
	<17N_4>	75+41.03	-	75+86.17	14 RT	-	36 RT	10							52		24	
	<17N_4>	76+52.16	-	76+88.90	15 RT	-	37 RT	21							89		24	
107	<17N_4>	77+42.15	-	80+31.25	21 RT	-	14 RT	14							290			
	<17S_4>	1074+53.56	-	1074+95.17	37 LT	-	16 LT	16		300	15				83		[1]	
	<17S_4>	1075+57.99	-	1076+07.83	44 LT	-	25 LT	9		104					55		24	
	<17N_4>	118+32.29	-	118+62.19	26 RT	-	36 RT	6							36		16	
	<17N_4>	119+10.41	-	119+34.58	41 RT	-	16 RT	9			57				36		16	
127, 128	<17N_4>	123+54.92	-	123+83.73	14 RT	-	14 RT	2							29			
131	<17N_4>	126+07.03	-	126+17.03	14 RT	-	14 RT	1							10			
134	<17N_4>	127+81.10	-	127+91.10	26 LT	-	26 LT	2		53			10				[1]	
135	<17N_4>	128+33.40	-	128+43.40	25 RT	-	26 RT	1							10			
137	<17N_4>	129+19.67	-	129+29.67	26 RT	-	26 RT	1							10			
147	<17N_4>	134+87.73	-	134+99.73	25 RT	-	25 RT	1							10			
115	<17S_4>	1118+05.79	-	1118+19.78	14 RT	-	14 RT	1		19	13			10			[1]	
	<17S_4>	1118+32.94	-	1118+62.37	15 LT	-	40 LT	8							41		24	
117	<17S_4>	1119+18.48	-	1119+70.10	48 LT	-	26 LT	9		116					63		28	
121	<17S_4>	1122+17.66	-	1122+27.66	26 LT	-	26 LT	1							10			
123	<17S_4>	1123+08.26	-	1123+21.13	21 LT	-	21 LT	1							10			
129	<17S_4>	1124+46.87	-	1124+56.88	14 LT	-	14 LT	1							10			
130	<17S_4>	1126+04.78	-	1126+14.67	14 LT	-	14 LT	1							10			
138	<17S_4>	1130+68.60	-	1130+81.25	14 LT	-	16 LT	1							13			
140	<17S_4>	1132+19.54	-	1132+31.53	37 RT	-	37 RT	2		48					12		[1]	
158	<17N_4>	147+95.42	-	148+05.26	22 LT	-	23 LT	1		30				10			[1]	
	<17N_4>	151+46.18	-	151+74.87	27 RT	-	51 RT	4							40		16	
	<17N_4>	151+46.18	-	152+72.15	27 RT	-	29 RT	11	43							37	[3]	
	<17N_4>	152+59.45	-	152+78.17	56 RT	-	28 RT	8					36				16	
178	<17N_4>	161+51.15	-	161+61.15	25 RT	-	25 RT	1					10					
	<17N_4>	171+03.87	-	171+17.61	37 RT	-	56 RT	4		31			24				16	
	<17N_4>	172+27.79	-	172+46.27	51 RT	-	32 RT	4					27				20	
	<17N_4>	172+36.53	-	172+41.53	17 LT	-	14 LT	1										
	<17N_4>	193+60.17	-	193+65.17	32 LT	-	35 LT	2			54						[2]	
	<17N_4>	193+60.17	-	193+65.17	32 LT	-	35 LT	2			78						[2]	
156	<17S_4>	1147+91.56	-	1148+1.56	37 LT	-	37 LT	1							10			
160	<17S_4>	1149+57.74	-	1149+67.71	27 LT	-	27 LT	1							10			
	<17S_4>	1151+47.91	-	1151+68.93	26 LT	-	39 LT	7							25		16	
	<17S_4>	1152+53.35	-	1152+82.17	46 LT	-	26 LT	8					37				16	
167	<17S_4>	1154+66.56	-	1154+76.55	26 LT	-	26 LT	1					10					
167A	<17S_4>	1154+67.39	-	1154+77.39	24 RT	-	24 RT	1									[1]	
169	<17S_4>	1156+43.37	-	1156+53.36	26 LT	-	26 LT	1					10					
170	<17S_4>	1156+43.44	-	1156+53.44	24 RT	-	24 RT	1		26							[1]	
	<17S_4>	1157+37.00	-	1160+38.56	24 RT	-	14 RT	46		1389			303				[1]	
172	<17S_4>	1158+37.69	-	1158+47.68	26 LT	-	26 LT	1					10					
179	<17S_4>	1163+44.83	-	1163+54.82	26 LT	-	26 LT	1					10					
	<17S_4>	1170+98.20	-	1171+03.20	14 RT	-	17 RT	1									[2]	
	<17S_4>	1172+12.60	-	1172+42.35	55 LT	-	29 LT	7		58	54			41			24	
	<49_4>	10+65.31	-	12+35.00	21 LT	-	17 LT	12					169					
<b>PROJECT TOTAL</b>						243	43	2257	240	3451	20	472	215	30	964	37	308	

CONCRETE NOTES:  
[1] CONCRETE MEDIAN PAID FOR AS 4" CONCRETE WALK  
[2] CONCRETE APPROACH NOSE PAID FOR AS 6" CONCRETE WALK  
[3] #4 REINFORCEMENT BARS TO BE INSTALLED IN VALLEY GUTTER

1	05/04/2022	BTU	NJD	UPDATED TAB INDEX
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_TAB.dgn				
05/04/2022 3:04:03 PM				

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *NJD*  
DATE: 5/17/22 LICENSE NO. 49046

DRAWN BY BTU DATE 05/04/22  
DESIGN BY BTU DATE 05/04/22  
CHECKED BY NJD DATE 05/04/22



ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

TABULATIONS

**STORM DRAINAGE TAB**

**F**

NO.	TYPE	ACTION	NEW CASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	RING HEIGHT (INCIDENTAL)	STORM DRAIN INLET PROTECTION	REMOVE STRUCTURE	GROUT CATCH BASIN OR MANHOLE	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48"	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60"	CONNECT TO EXISTING STORM SEWER (INCIDENTAL)	NOTES
				(EACH)	(LIN FT)	(EACH)	(EACH)	(EACH)	(LIN FT)	(LIN FT)	(EACH)	
103	CB	OK				1						
103A	CB	GROUT				1		1				Clean
104	CB	GROUT				1		1				Clean
105	CB	GROUT				1		1				
106	CB	GROUT				1		1				
107	CB	RE-RING	Type A	1	0.8	1						
108	CB	GROUT				1		1				Grout structure and clean
109	CB	OK				1						
112	CB	GROUT				1		1				Grout invert
113	CB	GROUT				1		1				Grout invert
114	CB	GROUT				1		1				Grout doghouse, repour invert, and clean
115	CB	RE-RING	Type A	1	0.7	1						
116	CB	GROUT				1		1				
117	CB	RE-RING	Type A	1	0.6	1						Grout invert
118	CB	OK				1						
119	CB	GROUT				1		1				Grout doghouse and invert
120	CB	GROUT				1		1				Clean
121	CB	RE-RING	Type A	1	0.4	1						
122	CB	GROUT				1		1				
123	CB	RECON	Type A	1	0.2	1	1		4.8	2		
124	CB	GROUT				1		1				Grout doghouse and invert
125	CB	GROUT				1		1				Grout doghouse and invert
126	CB	GROUT				1		1				
127	CB	RE-RING	Type A	1	0.4	1						
128	CB	RE-RING	Type A	1	0.4	1						Grout structure
129	CB	RECON	Type A	1	0.3	1	1		4.5	2		
130	CB	RE-RING	Type A	1	0.4	1						
131	CB	RE-RING	Type A	1	0.5	1						Grout structure
132	CB	GROUT				1		1				Grout doghouse and invert
133	CB	GROUT				1		1				Grout doghouse
134	CB	RE-RING	Type A	1	0.4	1						
135	CB	RE-RING	Type A	1	0.2	1						Grout structure
136	CB	GROUT				1		1				
137	CB	RE-RING	Type A	1	0.2	1						Grout structure
138	CB	RE-RING	Type A	1	0.2	1						Grout doghouse
139	CB	GROUT				1		1				
140	CB	RE-RING	Type A	1	0.6	1						
141	CB	GROUT				1		1				Clean
142	CB	GROUT				1		1				Clean
143	CB	GROUT				1		1				Grout structure and doghouse
144	CB	GROUT				1		1				
145	CB	GROUT				1		1				Clean
146	CB	GROUT				1		1				
147	CB	RE-RING	Type A	1	0.7	1						
148	CB	GROUT				1		1				Repour invert and grout doghouse
149	CB	GROUT				1		1				
150	CB	GROUT				1		1				
151	CB	OK				1						
152	CB	GROUT				1		1				Grout doghouse
153	CB	GROUT				1		1				Grout doghouse
154	CB	GROUT				1		1				Clean
155	CB	GROUT				1		1				Grout doghouse
156	CB	RE-RING	Type A	1	0.7	1						
157	CB	GROUT				1		1				Clean
158	CB	RE-RING	Type A	1	0.7	1						
159	CB	GROUT				1		1				Clean
160	CB	RE-RING	Type A	1	1.2	1						
161	CB	GROUT				1		1				
162	CB	GROUT				1		1				Clean
162A	CB	GROUT				1		1				Clean
163	CB	GROUT				1		1				Grout under casting
164	CB	GROUT				1		1				Clean
165	CB	GROUT				1		1				Clean
<b>TOTALS</b>				<b>19</b>	<b>9.6</b>	<b>63</b>	<b>2</b>	<b>40</b>	<b>4.5</b>	<b>4.8</b>	<b>4</b>	

**STORM DRAINAGE TAB**

**F**

NO.	TYPE	ACTION	NEW CASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	RING HEIGHT (INCIDENTAL)	STORM DRAIN INLET PROTECTION	GROUT CATCH BASIN OR MANHOLE	NOTES
				(EACH)	(LIN FT)	(EACH)	(EACH)	
166	CB	GROUT				1	1	Clean
167	CB	RE-RING	Type A	1	1.0	1		Clean
167A	CB	RE-RING	Type A	1	0.9	1		Clean
168	CB	GROUT				1	1	
169	CB	RE-RING	Type A	1	1.1	1		
170	CB	RE-RING	Type A	1	1.3	1		Clean
171	CB	GROUT				1	1	Grout doghouse
172	CB	RE-RING	Type A	1	1.0	1		Grout doghouse
173	CB	GROUT				1	1	
174	CB	GROUT				1	1	Clean
175	CB	GROUT				1		
176	CB	GROUT				1	1	Clean
177	CB	GROUT				1	1	
178	CB	RE-RING	Type A	1	0.3	1		Clean
179	CB	RE-RING	Type A	1	1.0	1		Grout invert
180	CB	GROUT				1	1	Clean
181	CB	OK				1		
182	CB	GROUT				1	1	
183	CB	OK				1		
184	CB	GROUT				1	1	
186	CB	GROUT				1	1	Grout doghouse
187	CB	GROUT				1	1	
188	CB	GROUT				1	1	Grout under casting
189	CB	GROUT				1	1	Clean
190	CB	GROUT				1	1	Grout under casting
191	CB	GROUT				1	1	
192	CB	GROUT				1	1	Grout under casting
193	CB	GROUT				1	1	
194	CB	GROUT				1	1	Grout doghouse
195	CB	GROUT				1	1	Grout doghouse
196	CB	GROUT				1	1	
197	CB	GROUT				1	1	
198	CB	GROUT				1	1	
199	CB	GROUT				1	1	
200	CB	GROUT				1	1	
201	CB	GROUT				1	1	
202	CB	GROUT				1	1	
203	CB	GROUT				1	1	Grout doghouse
204	CB	GROUT				1	1	
205	CB	GROUT				1	1	
206	CB	GROUT				1	1	
207	CB	GROUT				1	1	
208	CB	GROUT				1	1	
209	CB	GROUT				1	1	Grout doghouse and clean
300	MH	GROUT					1	Grout structure and clean
301	MH	OK						
302	MH	GROUT					1	Clean
303	MH	GROUT					1	Clean
304	MH	GROUT					1	Clean
305	MH	GROUT					1	Clean
306	MH	GROUT					1	Grout doghouse and invert
307	MH	RE-RING	A-7D	1	0.6			Wrap rings w/ infi-shield
308	MH	GROUT					1	Clean
309	MH	GROUT					1	Clean
310	MH	GROUT					1	Clean
311	MH	GROUT					1	
320	APRON	OK						
322	APRON	OK						
324	APRON	OK						
400	MH SAN	OK						
401	MH SAN	OK						
402	MH SAN	OK						
403	MH SAN	OK						
<b>TOTALS</b>				<b>8</b>	<b>7.2</b>	<b>44</b>	<b>44</b>	

3 OF 3

1	05/04/2022	BTU	NJD	UPDATED TAB INDEX & REVISED TAB
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_TAB.dgn				05/04/2022 3:04:11 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 5/17/22 LICENSE NO. 49046

DRAWN BY MR DATE 05/04/22  
 DESIGN BY MR DATE 05/04/22  
 CHECKED BY CO DATE 05/04/22



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-617-025

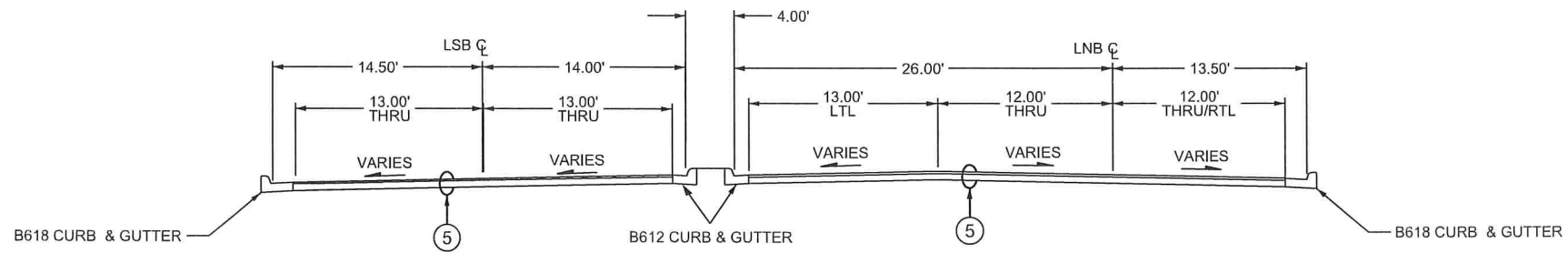
TABULATIONS

Sheet 7 of 96 Sheets

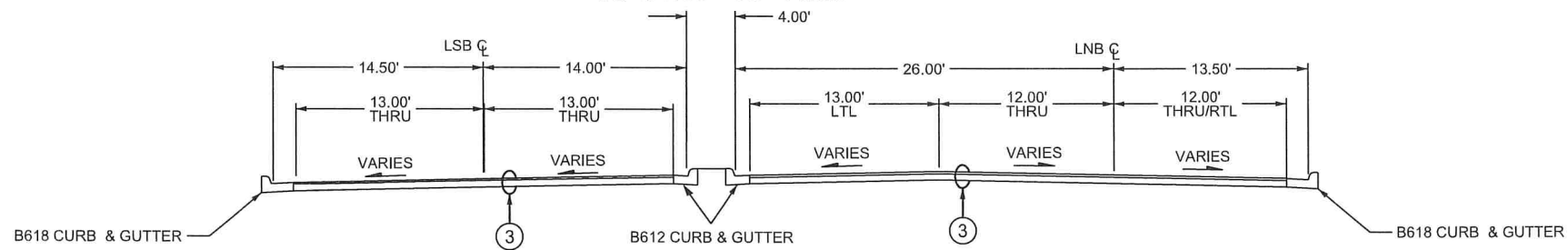
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- ③ SEE INSET "A" PAGE 15
- ⑤ SEE INSET "M" PAGE 15

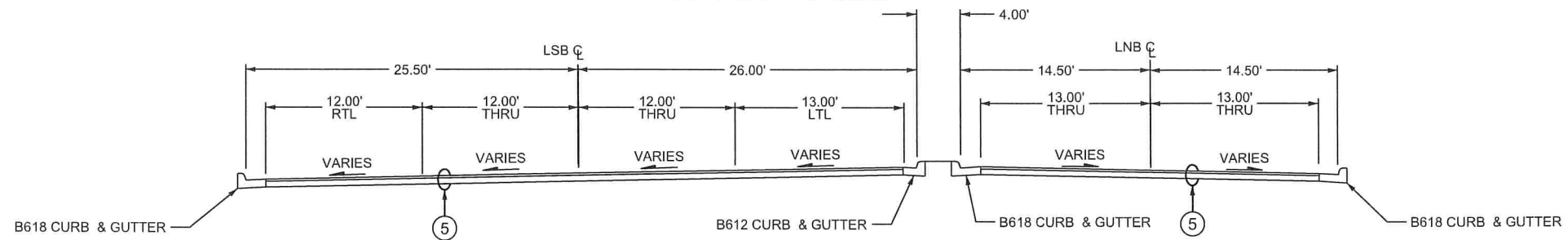
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(EXISTING/PROPOSED) SECTION  
75+15.00 - 75+34.00



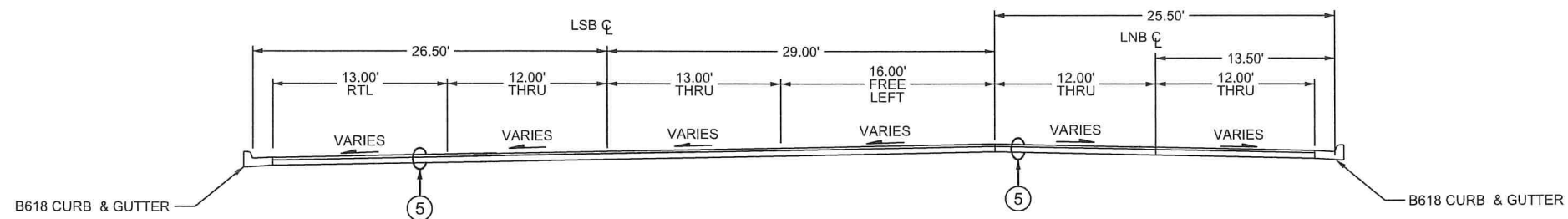
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(EXISTING/PROPOSED) SECTION  
75+34.00 - 76+44.00



**CSAH 17 - Lexington AVE NE**  
(EXISTING/PROPOSED) SECTION  
76+44.00 - 79+00.00



**CSAH 17 - Lexington AVE NE**  
(EXISTING/PROPOSED) SECTION  
79+00.00 - 80+40.00



1	04/06/2022	MR	NJD		UPDATED DIMENSIONS
NO	DATE	BY	CKD	APPR	REVISION
					04/06/2022 10:55:26 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: MR DATE: 04/06/22  
 DESIGN BY: MR DATE: 04/06/22  
 CHECKED BY: CO DATE: 04/06/22



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-617-025

TYPICAL SECTIONS  
EXISTING / PROPOSED

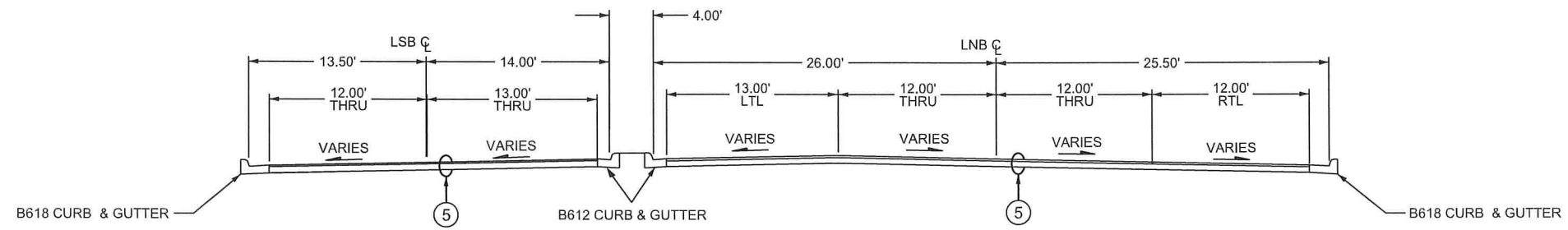
Sheet 8 of 94 Sheets



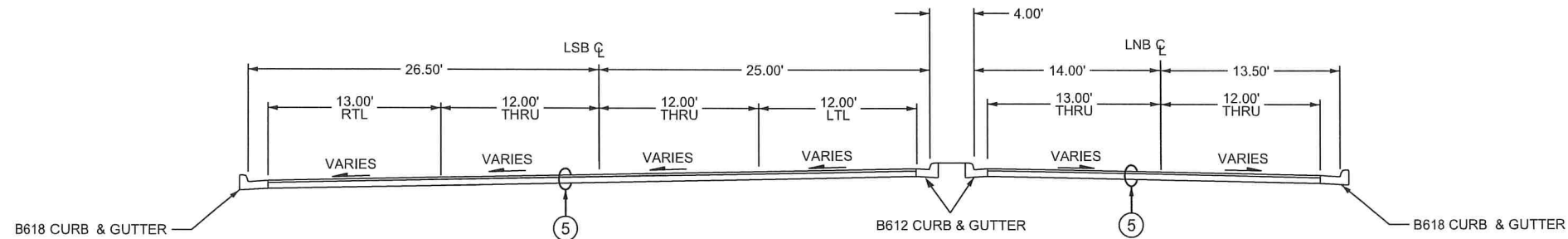
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5 SEE INSET "M" PAGE 15

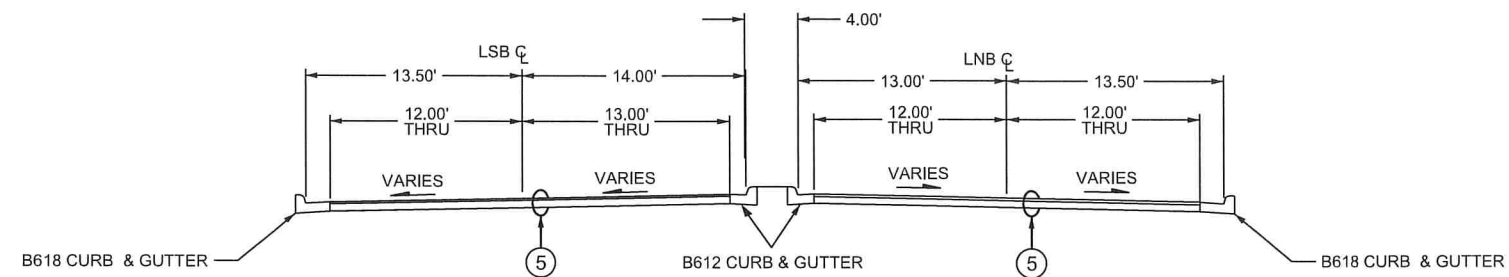
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116+42.00 - 119+31.00



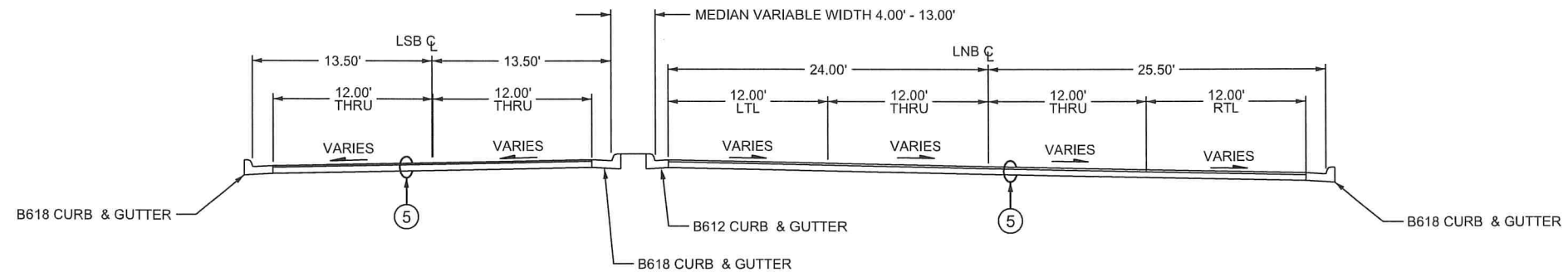
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(EXISTING/PROPOSED) SECTION  
119+31.00 - 122+32.00



CSAH 17 - Lexington AVE NE  
(EXISTING/PROPOSED) SECTION  
122+32.00 - 127+80.00



CSAH 17 - Lexington AVE NE  
(EXISTING/PROPOSED) SECTION  
127+80.00 - 130+85.00



1	04/06/2022	MR	NJD	UPDATED DIMENSIONS			
NO	DATE	BY	CKD	APPR	REVISION	04/06/2022	10:55:26 AM

NAME: P:\002-617-025\Plan\002-617-025\_TYP.dgn

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: MR. DATE: 04/06/22  
 DESIGN BY: MR. DATE: 04/06/22  
 CHECKED BY: CO. DATE: 04/06/22



ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-617-025

TYPICAL SECTIONS  
EXISTING / PROPOSED

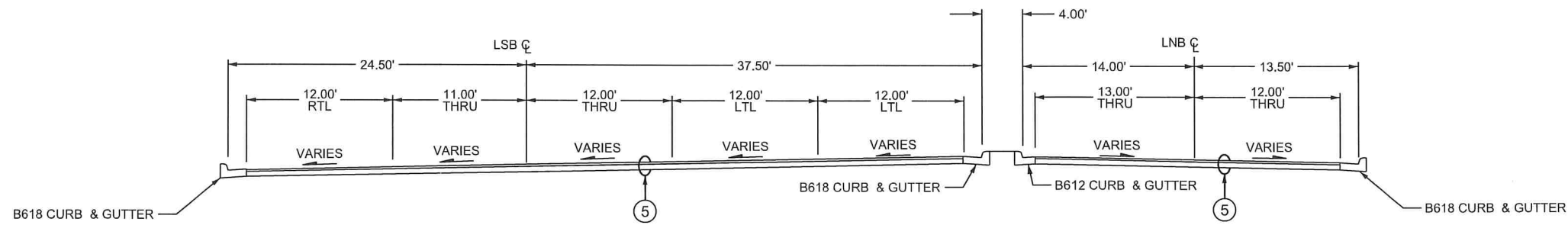
Sheet 9 of 94 Sheets

BTUlvenc

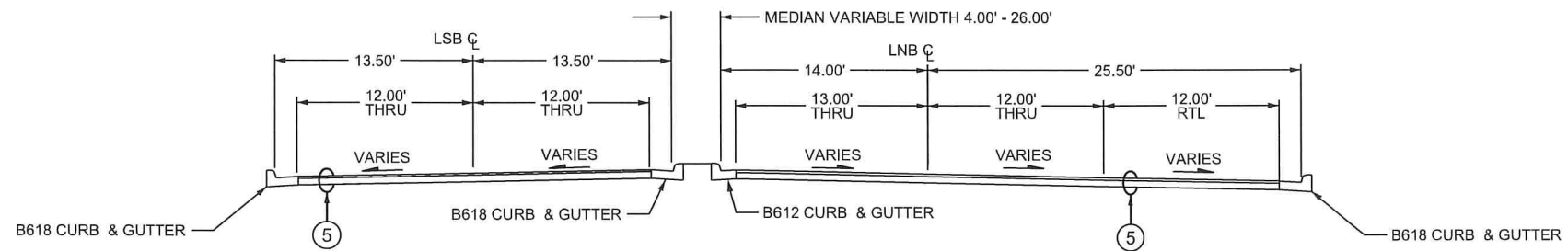
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5 SEE INSET "M" PAGE 15

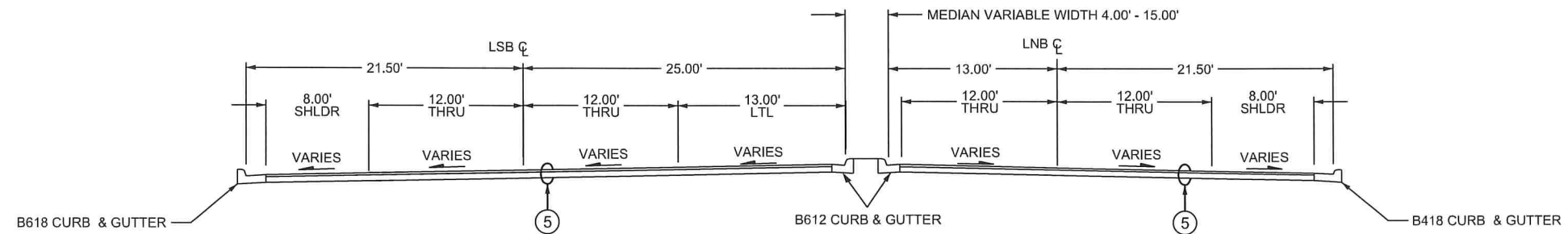
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(EXISTING/PROPOSED) SECTION  
130+85.00 - 134+55.00



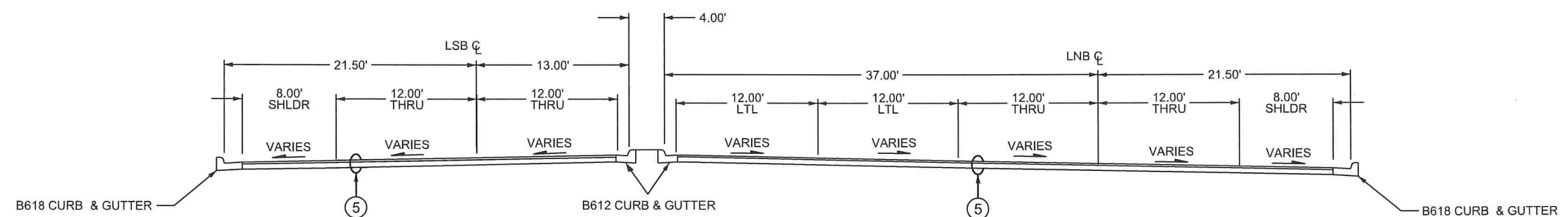
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(EXISTING/PROPOSED) SECTION  
134+55.00 - 138+75.00



CSAH 17 - Lexington AVE NE  
(EXISTING/PROPOSED) SECTION  
138+75.00 - 140+24.00



CSAH 17 - Lexington AVE NE  
(EXISTING/PROPOSED) SECTION  
140+24.00 - 145+20.00



1	04/06/2022	MR	NJD	UPDATED DIMENSIONS
NO	DATE	BY	CKD	APPR
	04/06/2022			
NAME: P:\002-617-025\Plan\002-617-025_TYP.dgn		10:55:27 AM		

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
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 DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY MR DATE 04/06/22  
 DESIGN BY MR DATE 04/06/22  
 CHECKED BY CO DATE 04/06/22



ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-617-025

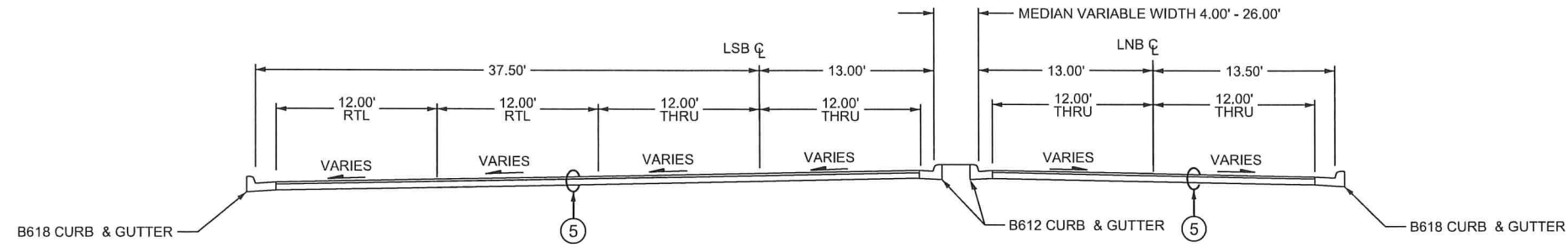
TYPICAL SECTIONS  
EXISTING / PROPOSED

Sheet 10 of 94 Sheets

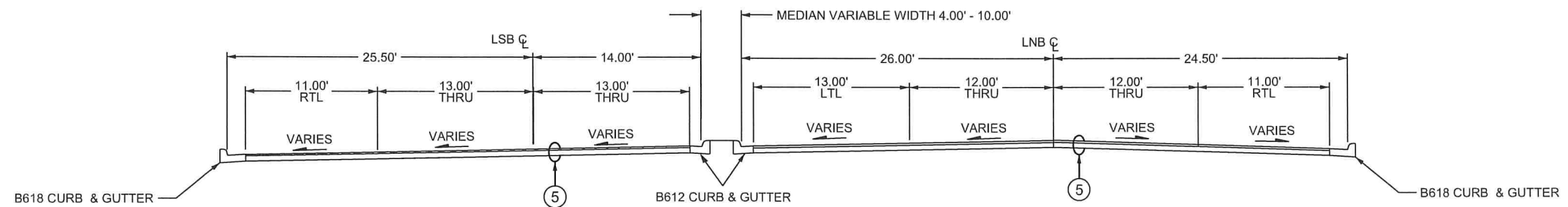
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5 SEE INSET "M" PAGE 15

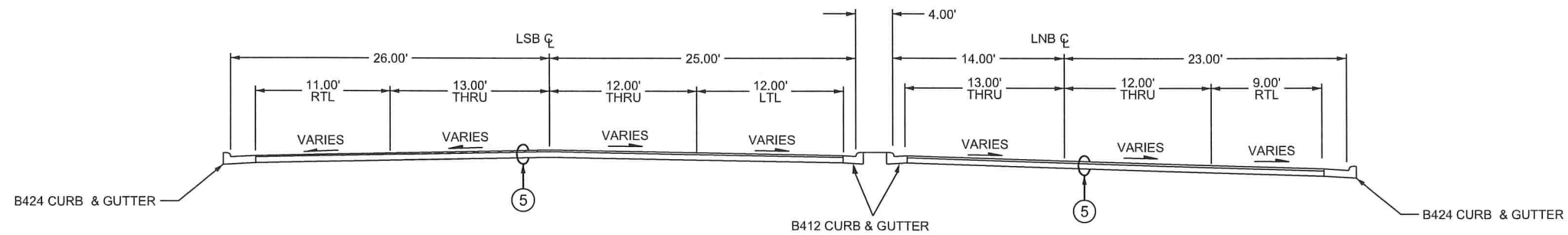
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 (EXISTING/PROPOSED) SECTION  
 145+20.00 - 149+14.00



**CSAH 17 - Lexington AVE NE**  
 (EXISTING/PROPOSED) SECTION  
 149+14.00 - 152+77.00



**CSAH 17 - Lexington AVE NE**  
 (EXISTING/PROPOSED) SECTION  
 152+77.00 - 157+39.02



1	04/06/2022	MR	NJD		UPDATED DIMENSIONS
NO	DATE	BY	CKD	APPR	REVISION
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY MR DATE 04/06/22  
 DESIGN BY MR DATE 04/06/22  
 CHECKED BY CO DATE 04/06/22



**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE AID PROJECT 002-617-025

TYPICAL SECTIONS  
 EXISTING / PROPOSED

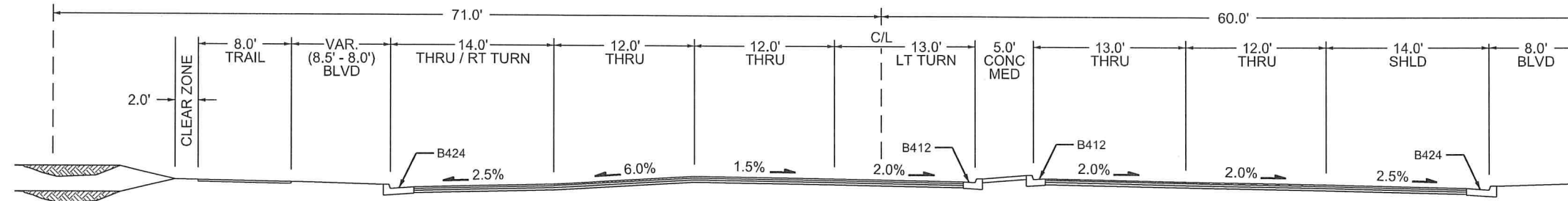
Sheet 11 of 94 Sheets

GENERAL NOTES:

- EXISTING CROSS SLOPES ARE APPROXIMATE.

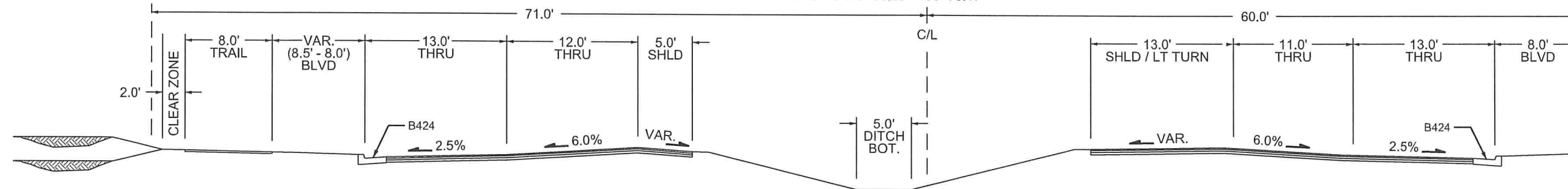
EXISTING CSAH 17 (LEXINGTON AVE NE)

NB STA. 149+14.00 - 157+39.02



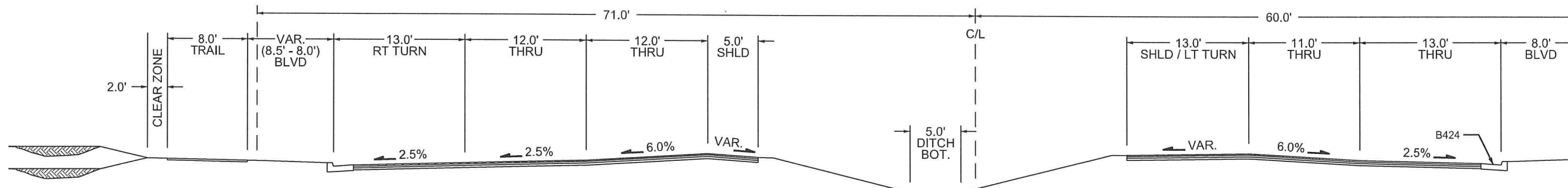
EXISTING CSAH 17 (LEXINGTON AVE NE)

NB STA. 158+90.18 - 164+35.23  
NB STA. 169+29.93 - 171+64.39  
NB STA. 179+58.20 - 193+75.17



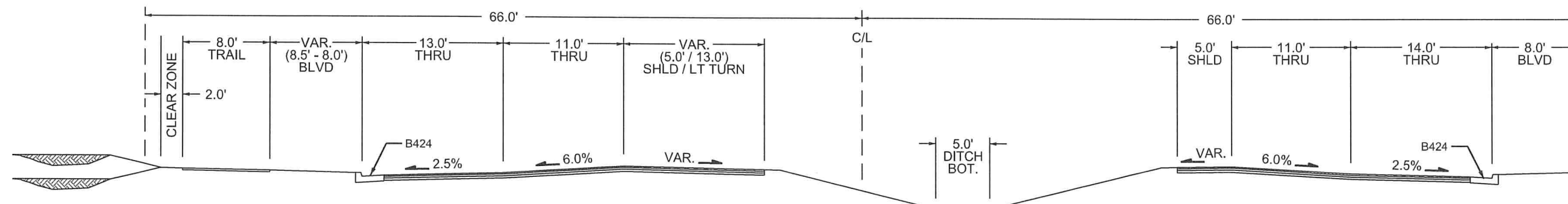
EXISTING CSAH 17 (LEXINGTON AVE NE)

NB STA. 164+35.23 - 169+29.93



EXISTING CSAH 17 (LEXINGTON AVE NE)

EB STA. 171+64.39 - 179+58.20

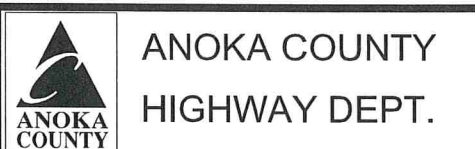


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-617-025\Plan\002-617-025\_TYP.dgn 03/29/2022 7:47:59 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *[Signature]*  
DATE: 3/30/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 03/17/22  
DESIGN BY: BTU DATE: 03/17/22  
CHECKED BY: NJD DATE: 03/17/22



SAP 002-617-025

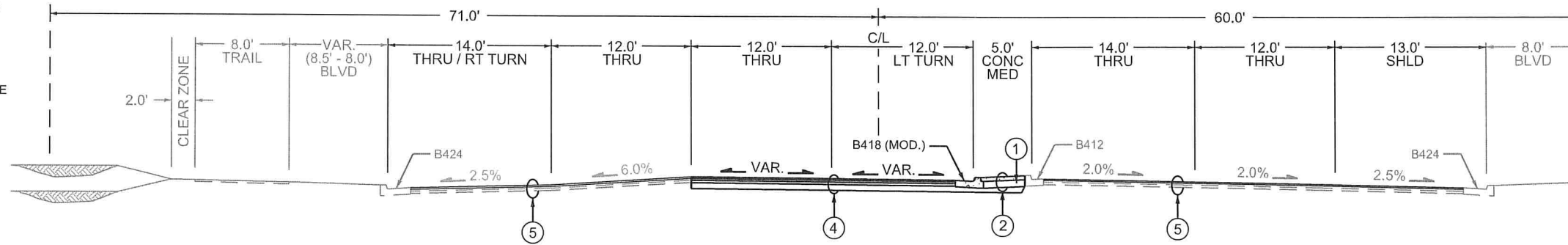
TYPICAL SECTIONS EXISTING  
Sheet 12 of 94 Sheets

**GENERAL NOTES:**

- SEE CONSTRUCTION PLAN SHEETS FOR TURN LANE LOCATIONS.
- ALL CROSS SLOPES ARE EXPRESSED AS A PERCENTAGE.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- ALL STATIONING BASED ON NB ALIGNMENT OF CSAH 17 <17E\_3> UNLESS OTHERWISE NOTED.
- FOR MID-LANE SAWCUTS, MATCH CROSS SLOPE TO EXISTING.
- 1' SUBCUT TO BE PAID FOR BY EXCAVATION - SUBGRADE + SELECT GRANULAR EMBANKMENT

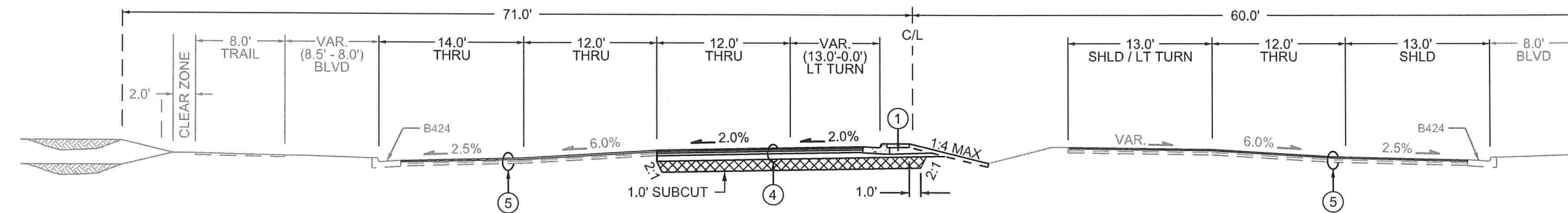
**PROPOSED CSAH 17 (LEXINGTON AVE NE)**

NB STA. 157+39.02 - 158+90.26



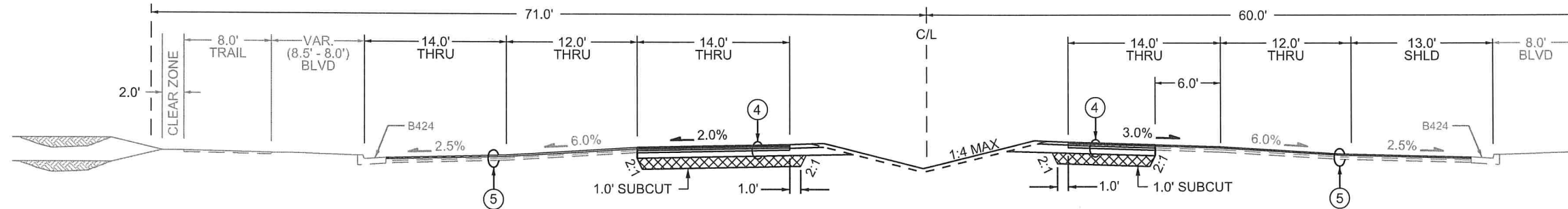
**PROPOSED CSAH 17 (LEXINGTON AVE NE)**

NB STA. 158+90.26 - 160+40.84



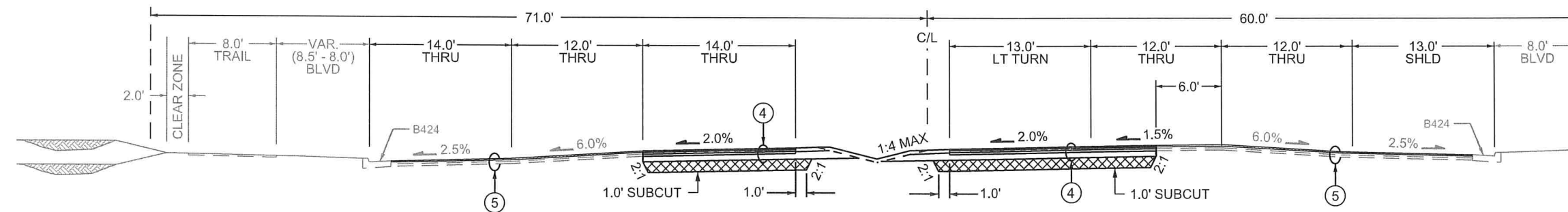
**PROPOSED CSAH 17 (LEXINGTON AVE NE)**

NB STA. 160+40.84 - 163+20.23



**PROPOSED CSAH 17 (LEXINGTON AVE NE)**

NB STA. 163+20.23 - 171+64.39



**NOTES:**

- ① SUITABLE MATERIAL
- ② SEE DETAIL "B" PAGE 15
- ③ SEE INSET "A" PAGE 15
- ④ SEE INSET "B" PAGE 15
- ⑤ SEE INSET "M" PAGE 15

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-617-025\Plan\002-617-025\_TYP.dgn 03/29/2022 7:47:59 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 3/30/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 03/17/22  
 DESIGN BY: BTU DATE: 03/17/22  
 CHECKED BY: NJD DATE: 03/17/22



**ANOKA COUNTY  
 HIGHWAY DEPT.**

SAP 002-617-025

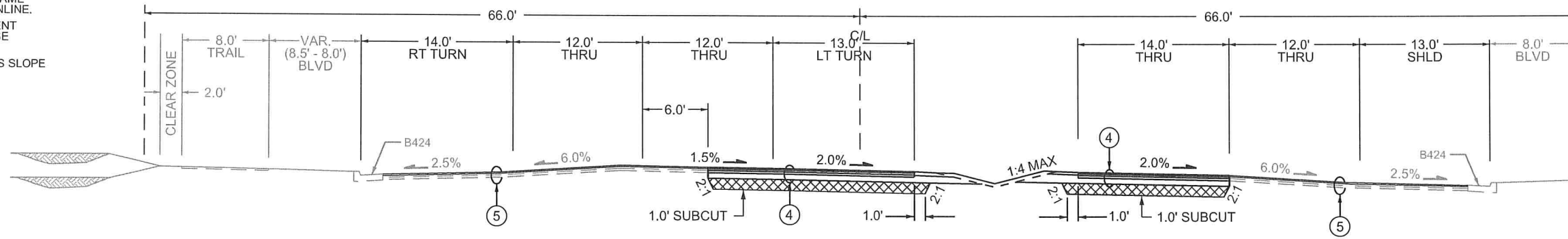
TYPICAL SECTIONS  
 PROPOSED

**GENERAL NOTES:**

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- FOR MID-LANE SAWCUTS, MATCH CROSS SLOPE TO EXISTING.
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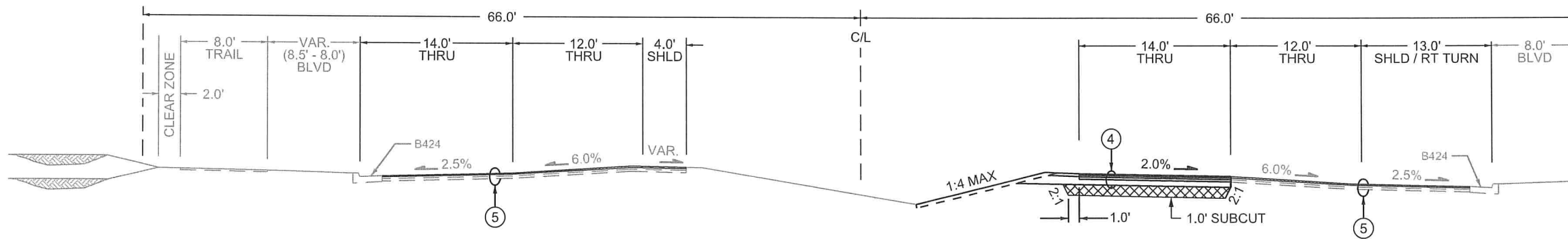
**PROPOSED CSAH 17 (LEXINGTON AVE NE)**

EB STA. 171+64.39 - 182+93.49



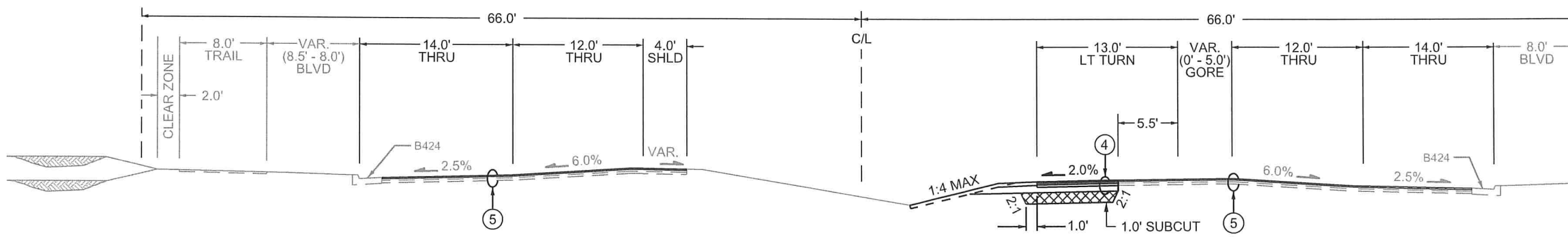
**PROPOSED CSAH 17 (LEXINGTON AVE NE)**

EB STA. 182+93.49 - 188+24.50



**PROPOSED CSAH 17 (LEXINGTON AVE NE)**

EB STA. 188+24.50 - 193+75.17



**NOTES:**

- ① SUITABLE MATERIAL
- ② SEE DETAIL "B" PAGE 15
- ③ SEE INSET "A" PAGE 15
- ④ SEE INSET "B" PAGE 15
- ⑤ SEE INSET "M" PAGE 15

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-617-025\Plan\002-617-025\_TYP.dgn      03/29/2022      7:48:00 AM

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE: *Nicholas J. Dobda*

DATE: 3/30/22      LICENSE NO. 49046

DRAWN BY: BTU      DATE: 03/17/22

DESIGN BY: BTU      DATE: 03/17/22

CHECKED BY: NJD      DATE: 03/17/22



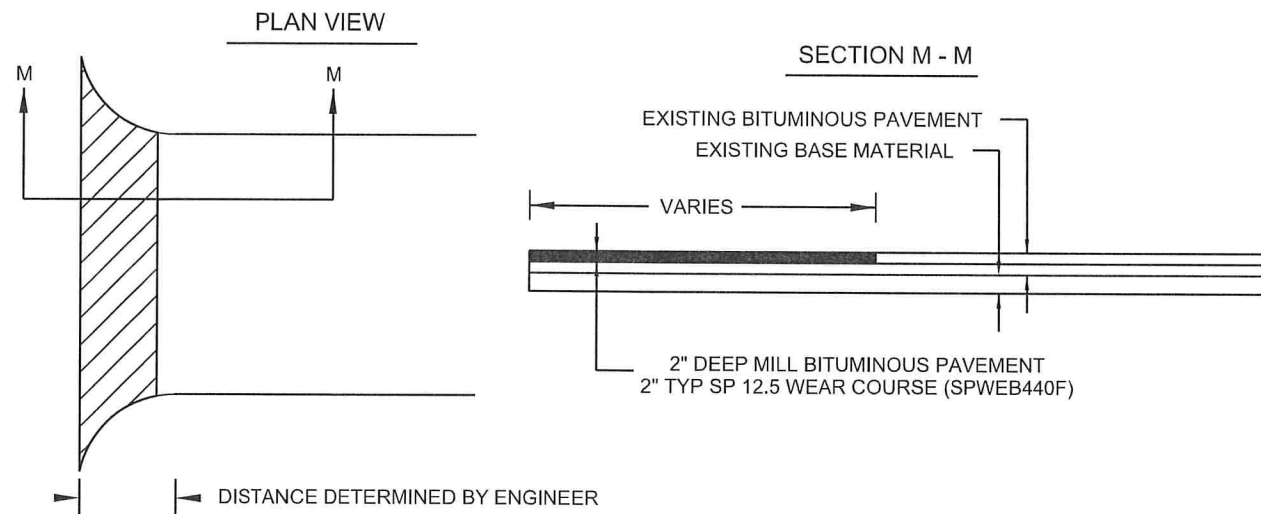
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

SAP 002-617-025

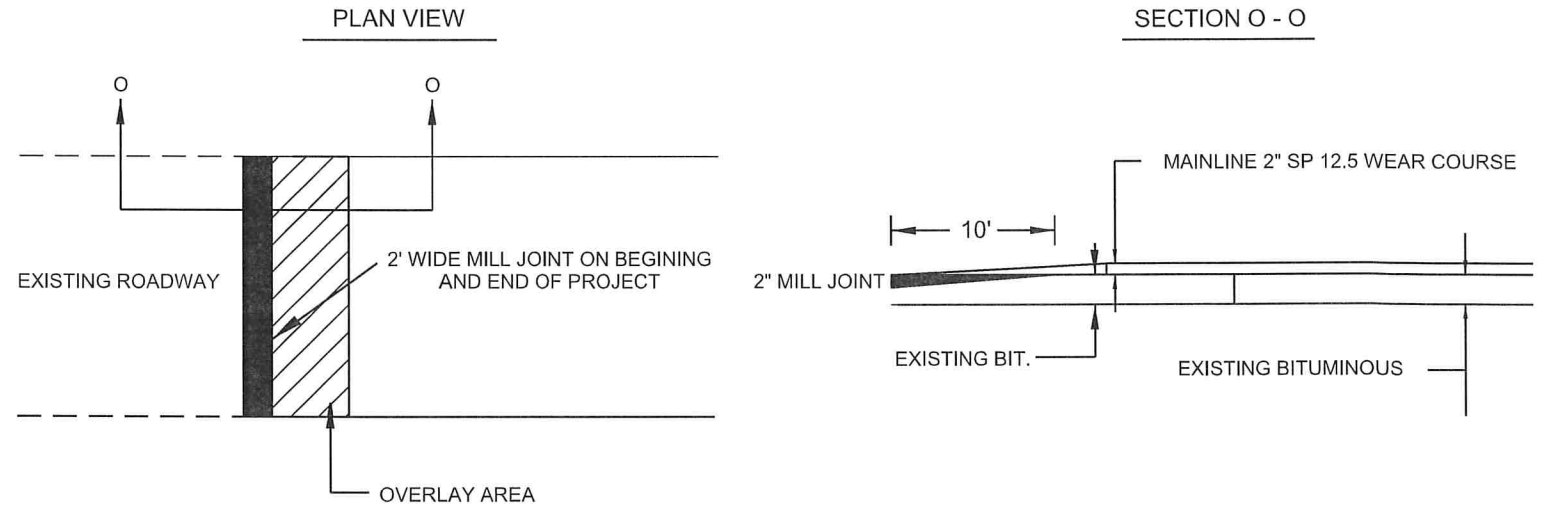
TYPICAL SECTIONS  
PROPOSED

### STREET APPROACH DETAIL (MILL & OVERLAY)

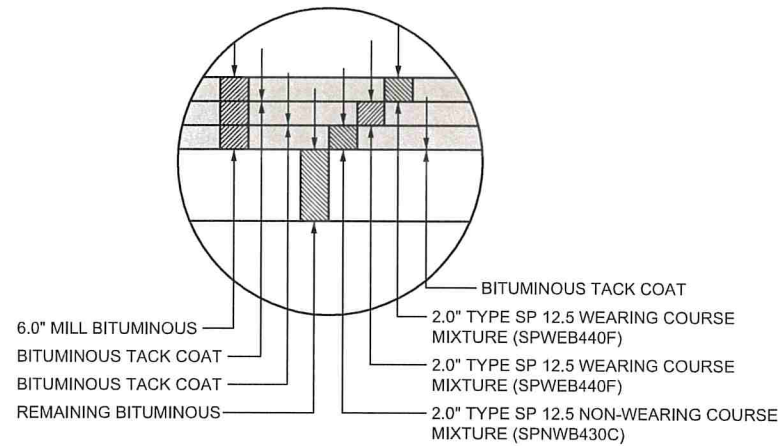
#### BITUMINOUS STREET



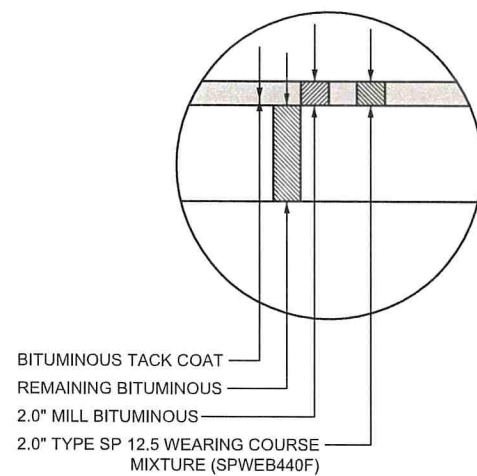
### MAINLINE JOINT DETAIL (OVERLAY)



#### DESIGN A MILL SECTION

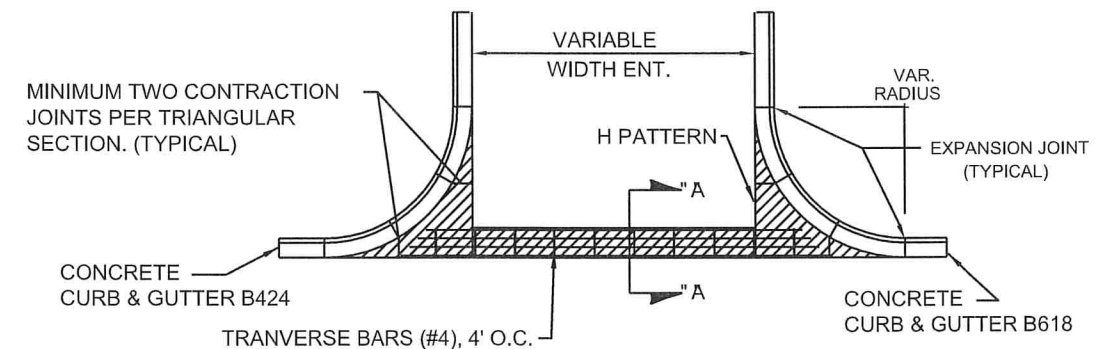


#### DESIGN M MILL SECTION

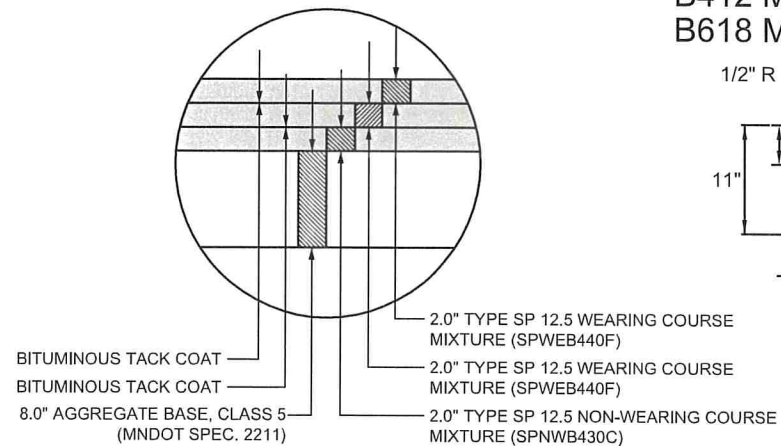


### CROSS GUTTER DETAIL

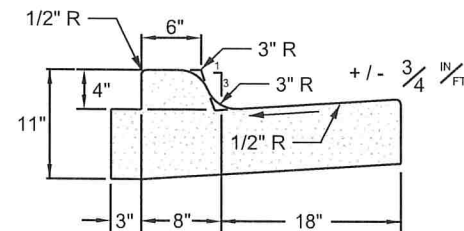
PAID FOR AS 8" VALLEY GUTTER



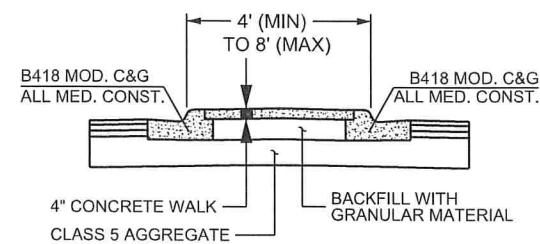
#### DESIGN B RECONSTRUCTION MAINLINE AND SHOULDERS



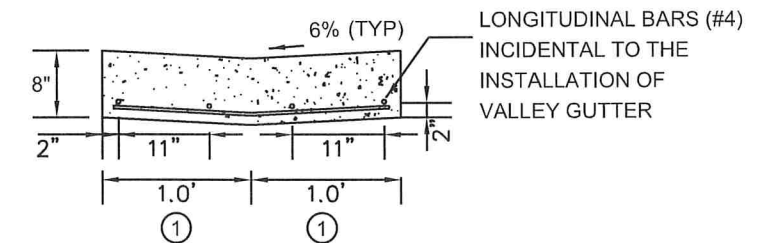
#### DETAIL "A" B418 MODIFIED CURB & GUTTER B412 MODIFIED CURB & GUTTER B618 MODIFIED CURB & GUTTER



#### DETAIL "B" 4' TO 8' MEDIAN



#### SECTION "A"- "A"



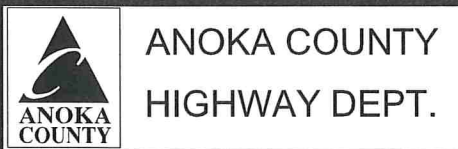
DESIGNATES 8 INCH DEPTH CONCRETE

① MATCH GUTTER WIDTH.

NO	DATE	BY	CKD	APPR	REVISION	03/29/2022	7:48:00 AM
NAME: P:\002-617-025\Plan\002-617-025_TYP.dgn							

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 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 3/30/22 LICENSE NO. 49046

DRAWN BY: MR. DATE 01/03/2022  
 DESIGN BY: MR. DATE 01/03/2022  
 CHECKED BY: CO. DATE 03/29/2022

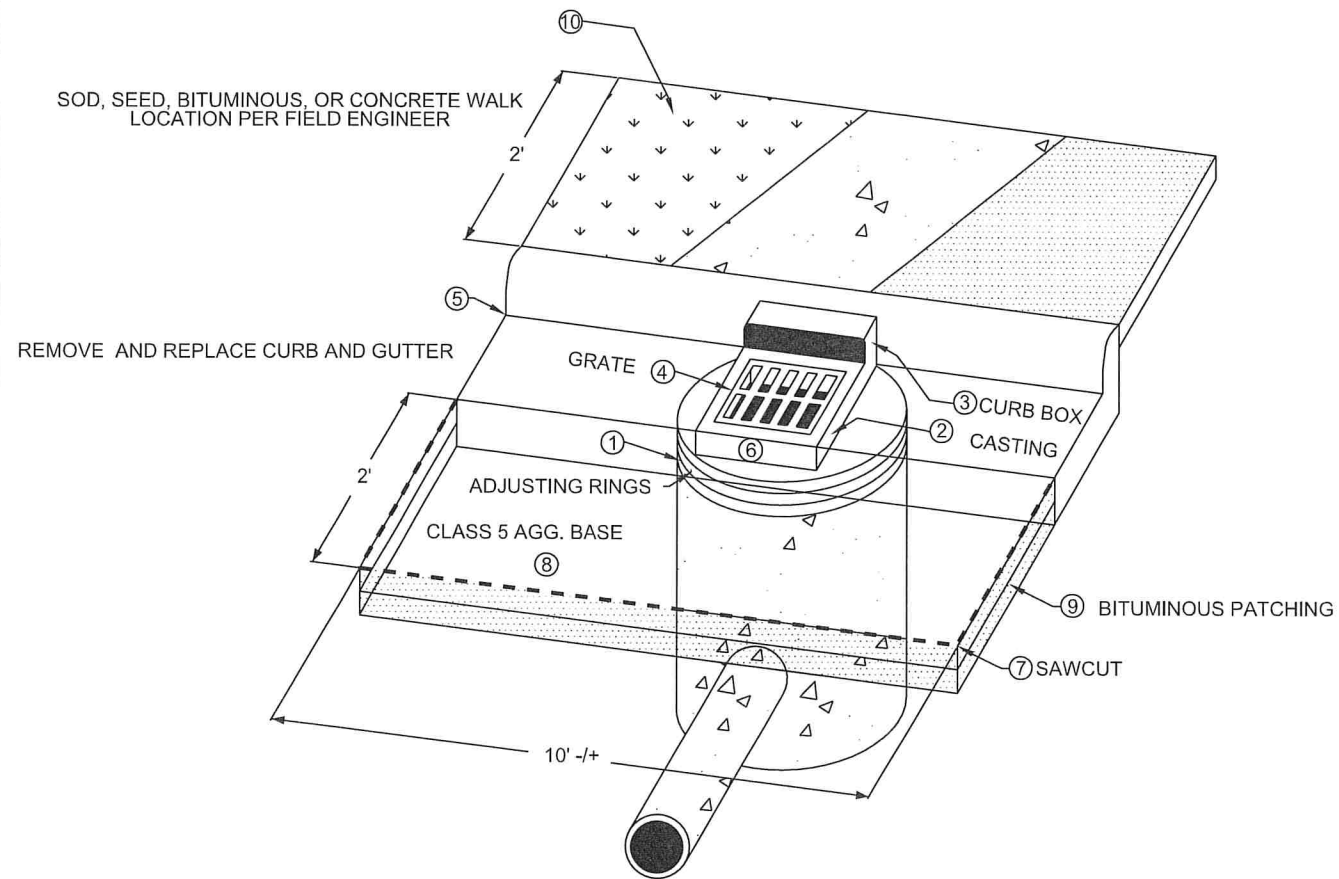


STATE AID PROJECT 002-617-025

DETAILS  
 Sheet 15 of 94 Sheets

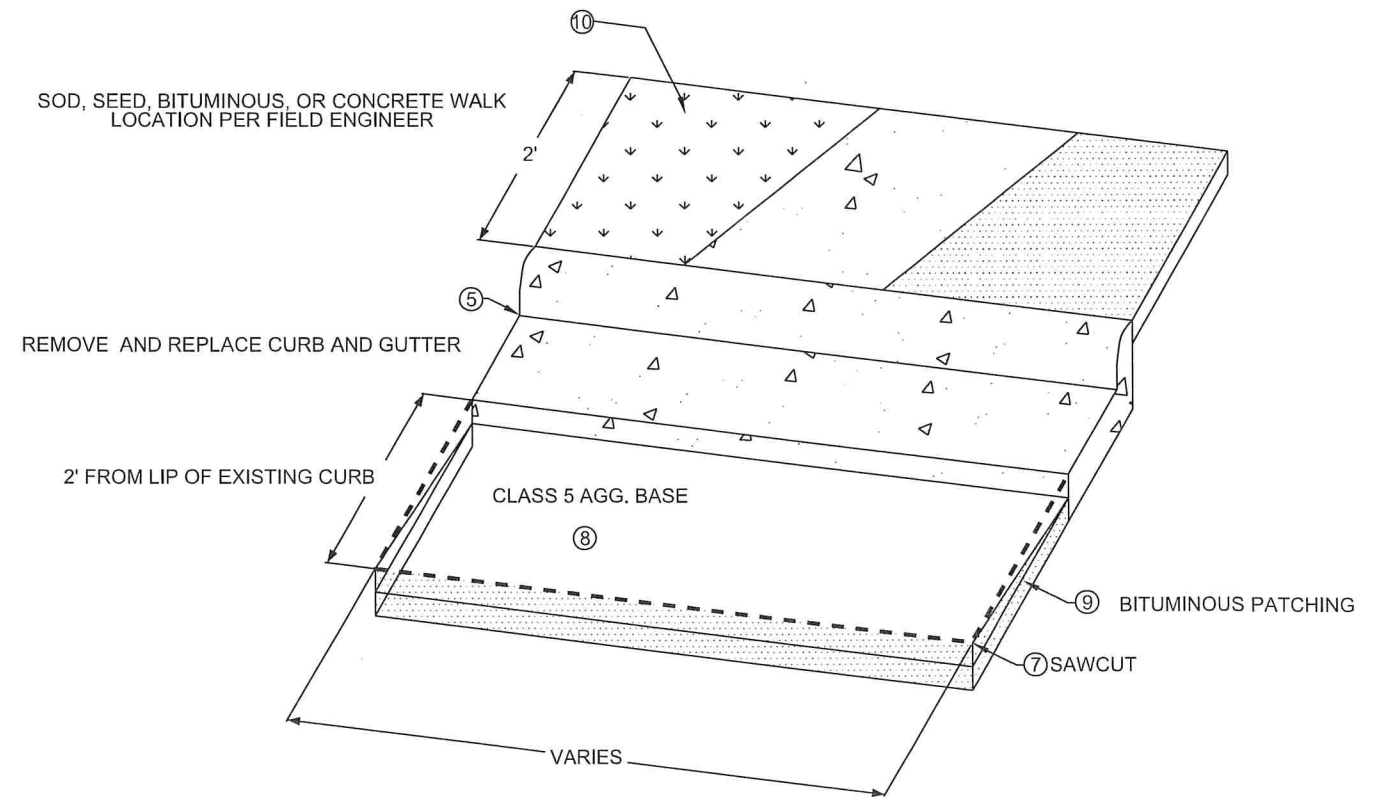
### CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION



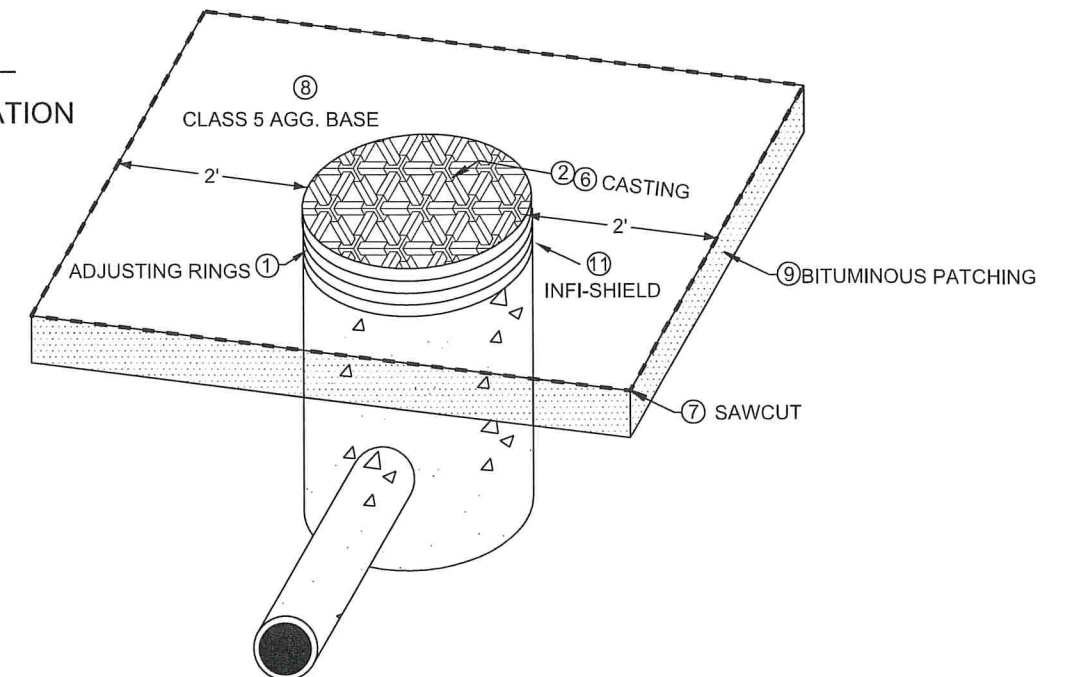
### NEW CURB DETAIL

SEE PLAN FOR LOCATION



### MANHOLE DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 3)



### NOTES

FOR TRAFFIC CONTROL AT CATCH BASIN AND MANHOLE REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ CURB BOX MATCHES CASTING REFERENCE CHART FOR CASTING TYPE
- ④ GRATE CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100H, FORM CURB TO FIT CASTING
- ⑥ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT AGGREGATE BASE CLASS 5 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO ENTIRE STRUCTURE REPAIR
- ⑨ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 2, 3" LIFTS OF BITUMINOUS, TOP LIFT SHOULD TAPER TO BOTTOM LIFT AT CURB.
- ⑩ REPLACE DISTURBED AREA BEHIND CATCH BASIN WITH EITHER SOD (RESIDENTIAL AREAS), ROLLED EROSION PREVENTION, BITUMINOUS, OR CONCRETE
- ⑪ WRAP STORM SEWER MANHOLE AND SANITARY SEWER MANHOLE CONCRETE ADJUSTING RINGS & CASTINGS WITH INFI-SHIELD SEAL WRAP OR APPROVED EQUIVALENT, INSTALL PER MANUFACTURER'S RECOMMENDATIONS, INFI-SHIELD WRAP INCIDENTAL TO ADJUSTMENT.

NO	DATE	BY	CKD	APPR	REVISION	03/29/2022	7:48:00 AM
NAME: P:\002-617-025\Plan\002-617-025_TYP.dgn							

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 3/30/22 LICENSE NO. 49046

DRAWN BY MR DATE 01/03/2022  
 DESIGN BY MR DATE 01/03/2022  
 CHECKED BY CO DATE 03/29/2022



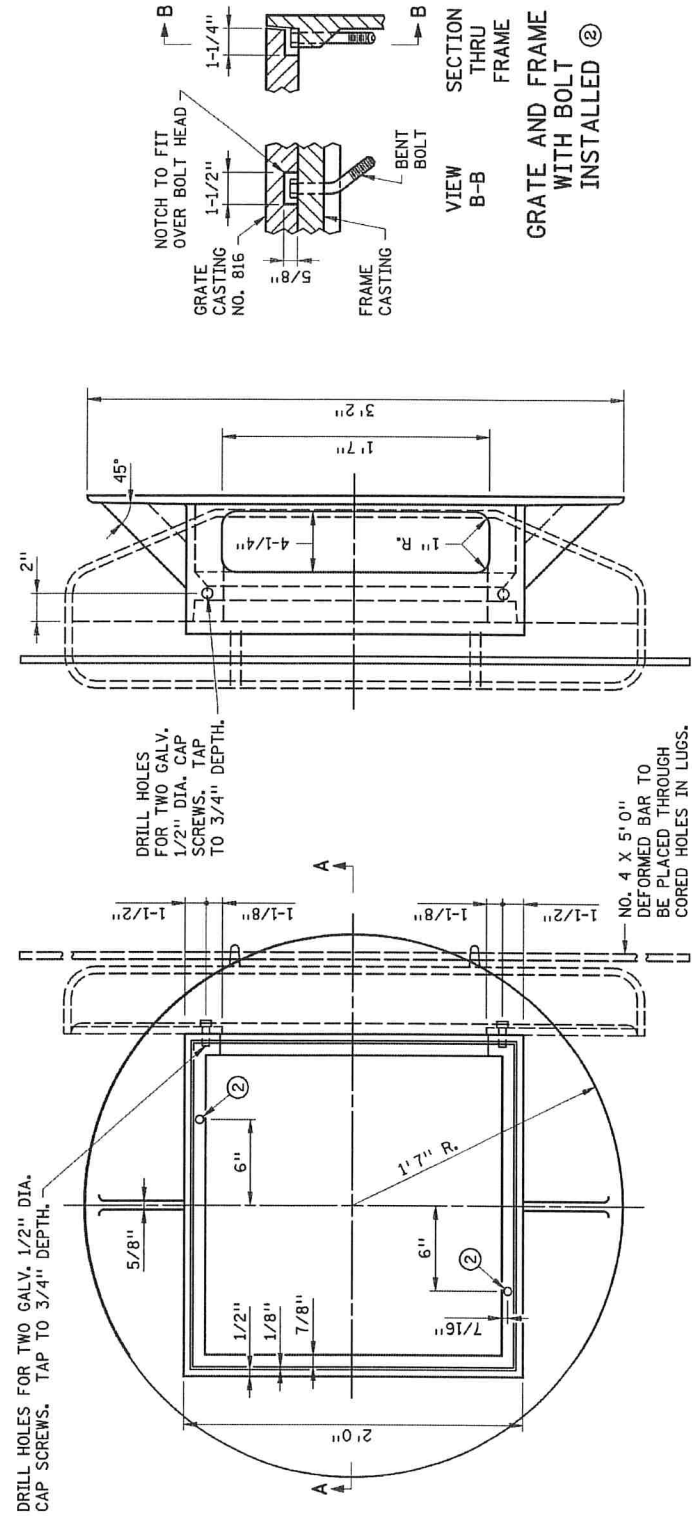
ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-617-025

DETAILS

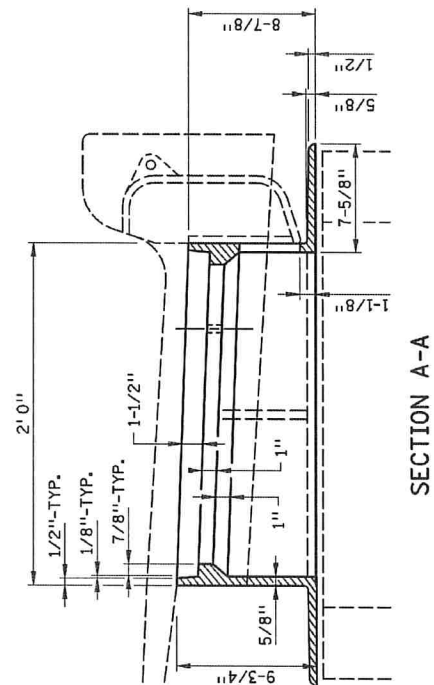
Sheet 16 of 94 Sheets





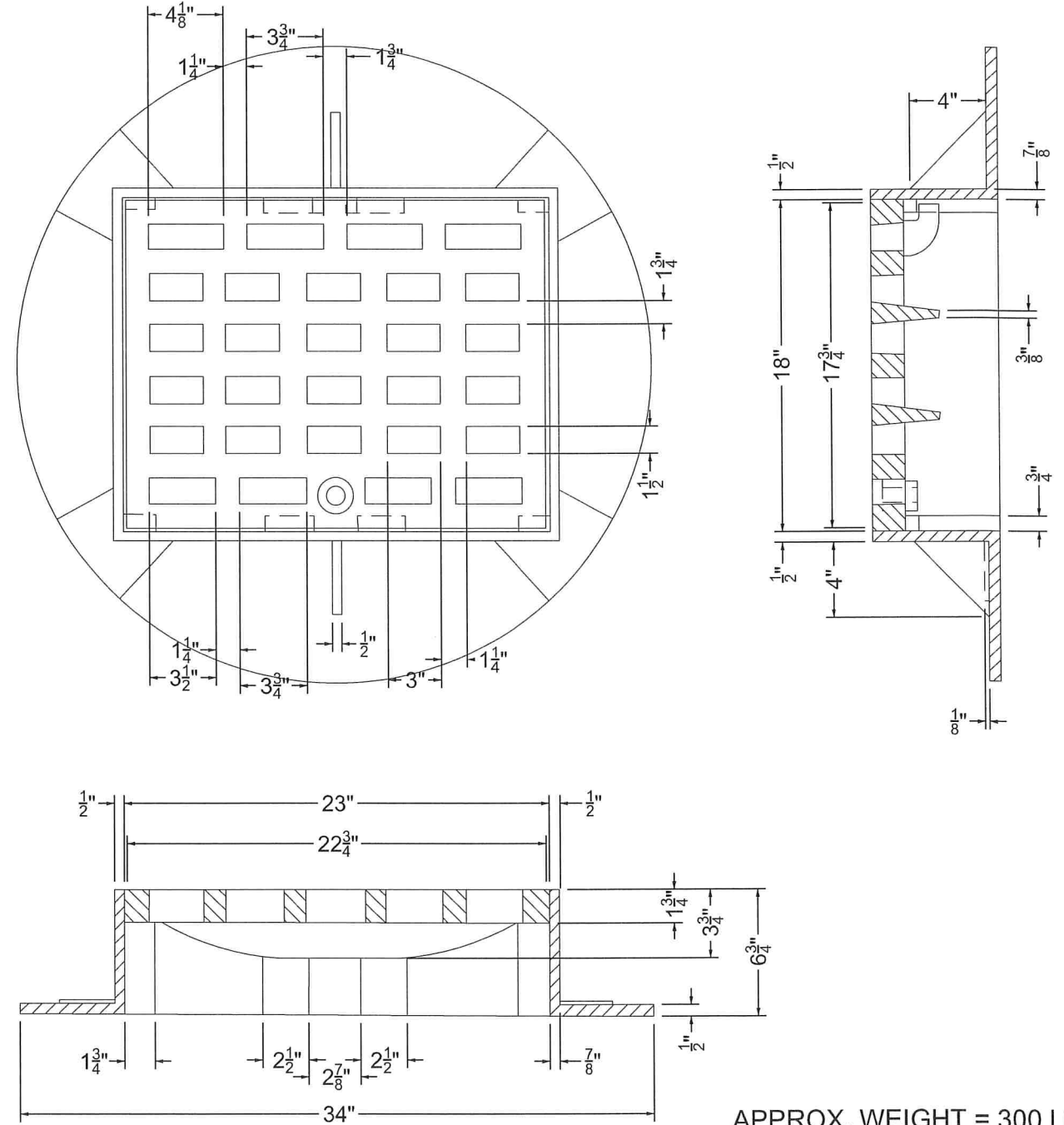
**CASTINGS USED FOR ASSEMBLY**  
 GRATE NO. 816 (MNDOT STD PLATE 4154B)  
 CURB BOX ① NO. 823A (MNDOT STD PLATE 4160) OR

**NOTES:**  
 USE 1/4" FILLETS IN ALL CORNERS. SEE MNDOT STANDARD PLATE 7111 FOR INSTALLATION REQUIREMENTS.  
 ① APPLIES TO DESIGN B OR V CURB AND CURB AND GUTTER.  
 ② AT LOCATIONS INDICATED IN TOP VIEW, PROVIDE 9/16" DIA. HOLES WHEN GRATE NO. 816 (MNDOT STD PLATE 4154) IS USED WITH THIS FRAME. FIELD PLACE 1/2" DIA X 4" LONG GALV BOLT IN UP-STREAM SIDE AND BENT UNDERSIDE TO PREVENT REMOVAL. THIS WILL PREVENT GRATE NO. 816 (MNDOT STD PLATE 4154) FROM BEING PLACED IN WRONG AND NOT BEING BICYCLE SAFE



GRATE FRAME CASTING TYPE C & D

FRAME RING AND CASTING TYPE A



NO	DATE	BY	CKD	APPR	REVISION	03/29/2022	7:48:01 AM
NAME: P:\002-617-025\Plan\002-617-025_TYP.dgn							

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 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 3/30/22 LICENSE NO. 49046

DRAWN BY MR DATE 01/03/2022  
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 CHECKED BY CO DATE 03/29/2022



ANOKA COUNTY  
 HIGHWAY DEPT.

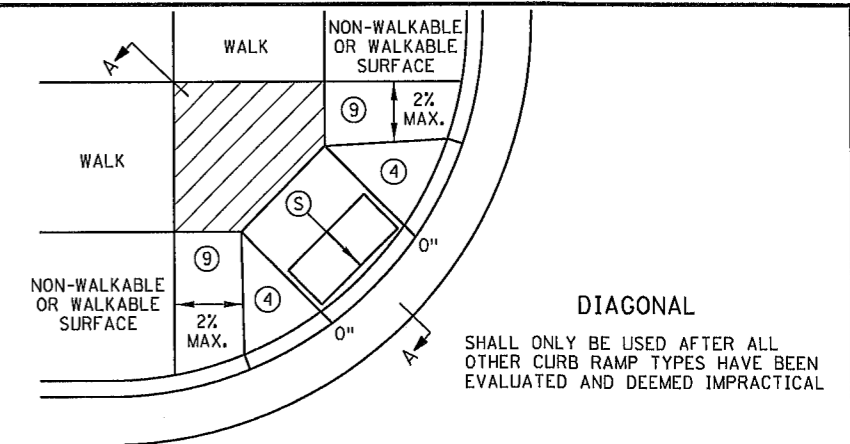
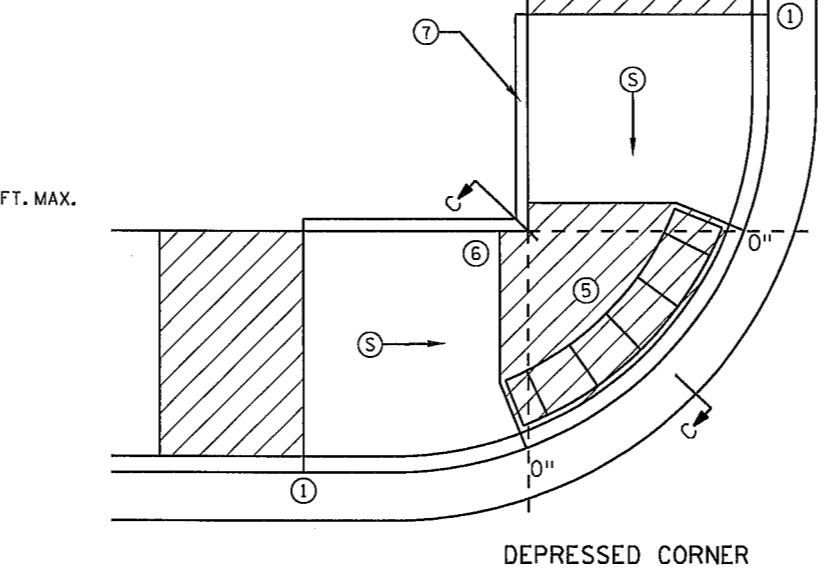
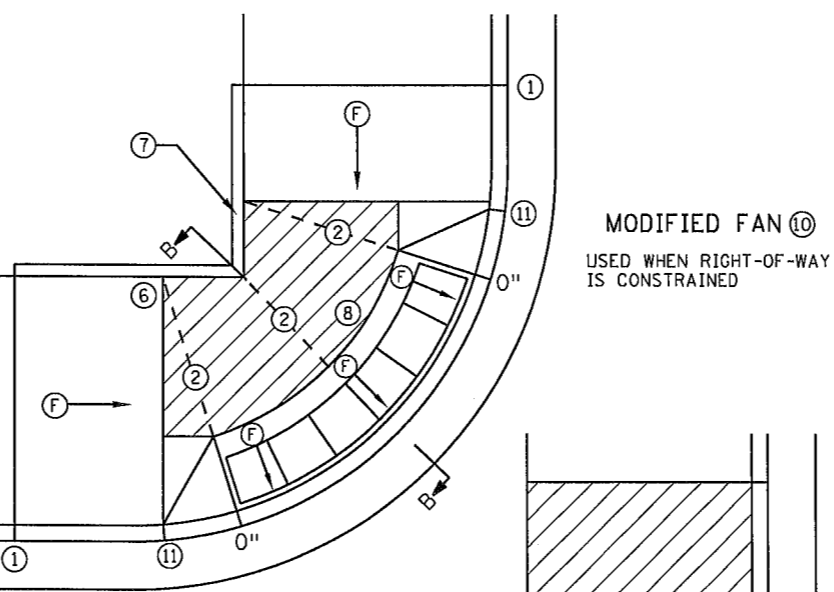
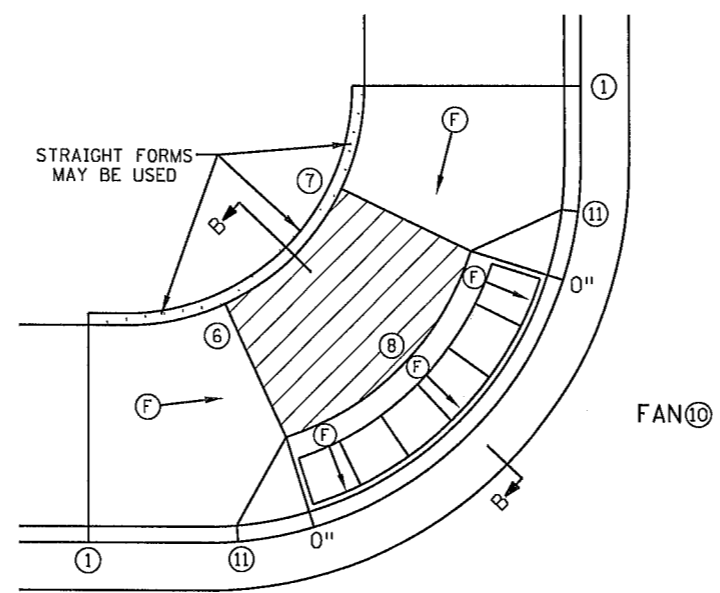
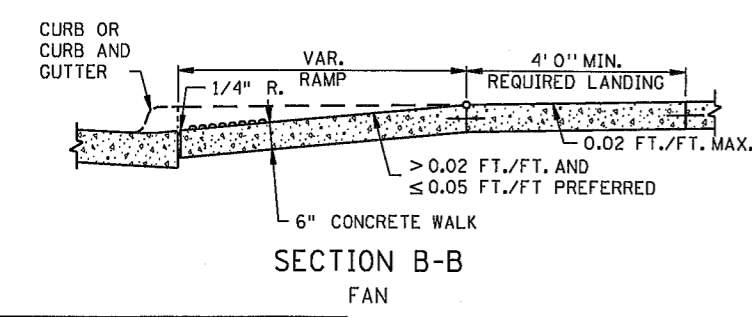
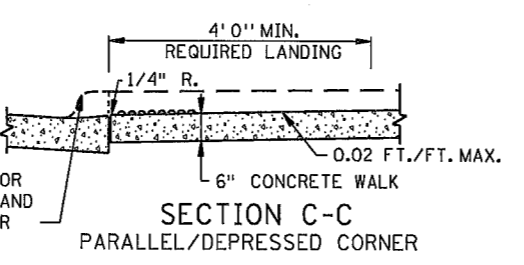
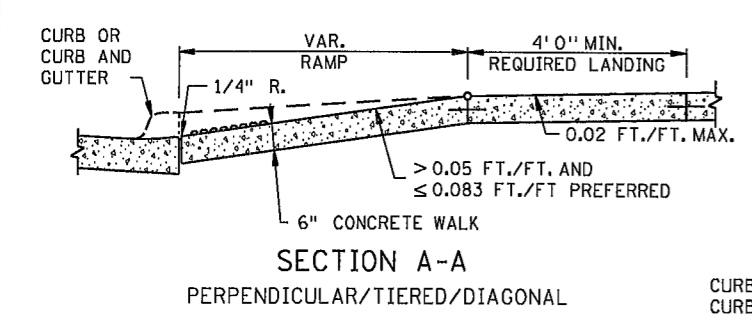
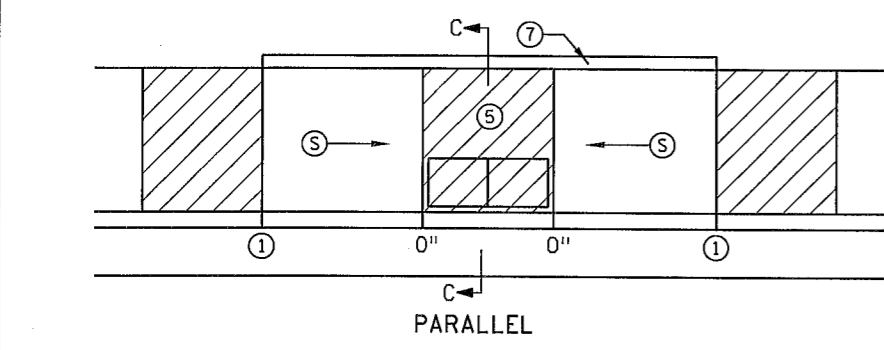
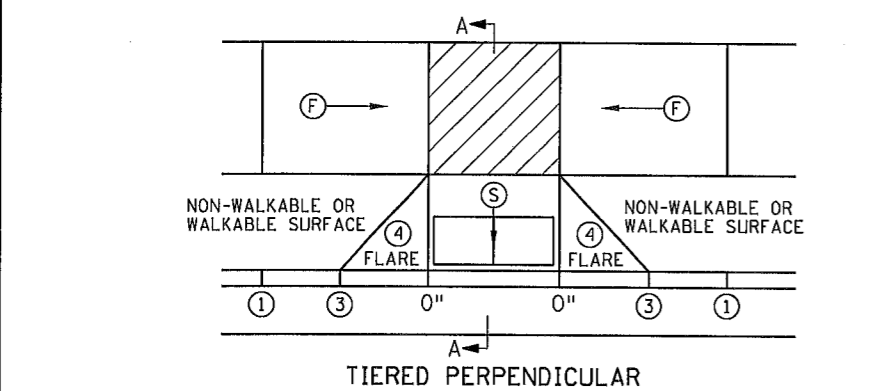
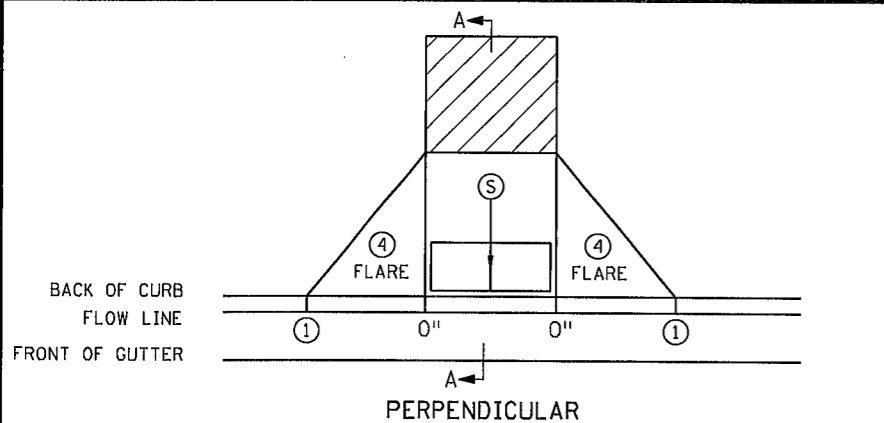
STATE AID PROJECT 002-617-025

DETAILS

Sheet 17 of 94 Sheets

PLOTTED/REVISED: 03/29/2022

DISTRICT #: PLOT NAME: \$\$\$IPL0T\$NAME\$\$\$  
 PATH & FILENAME: P:\002-617-025\Plan\002-617-025-STD.dgn



NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
  - INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
  - SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
  - CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
  - ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN 6) BELOW.
  - TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.
  - WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.
  - ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
  - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.
  - WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
  - RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- 1 MATCH FULL HEIGHT CURB.
  - 2 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
  - 3 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
  - 4 SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
  - 5 DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
  - 6 THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK, THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
  - 7 WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
  - 8 A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
  - 9 PAVE FULL WALK WIDTH.
  - 10 "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
  - 11 INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT, IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
[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

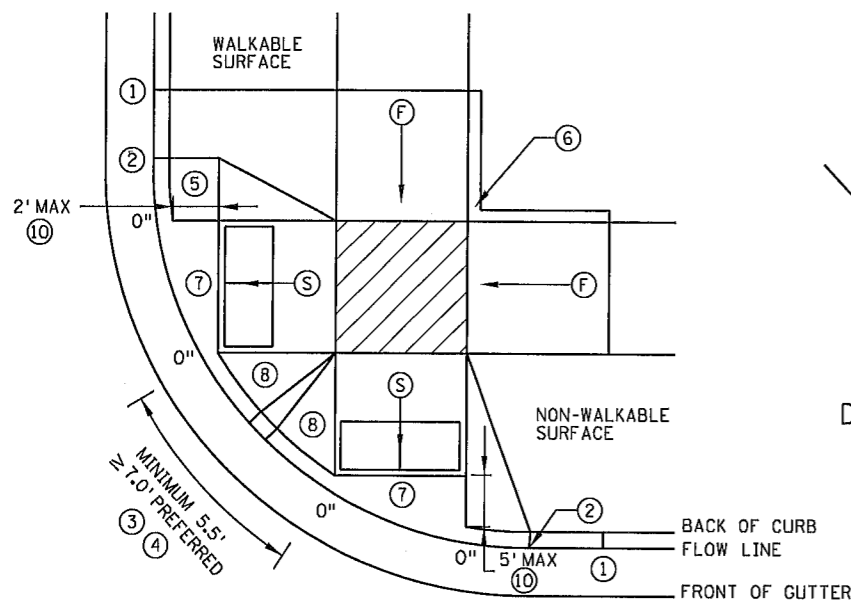
REVISION:  
 APPROVED: 11-04-2021  
 Jeff J. Pel  
 OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STANDARD PLAN 5-297.250 1 OF 6  
 APPROVED: 11-04-2021  
 REVISOR:  
 STATE PROJ. NO. SAP 002-617-025

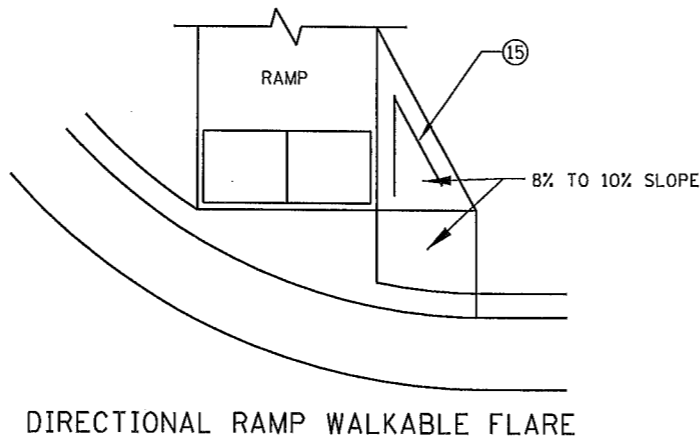
PEDESTRIAN CURB RAMP DETAILS  
 SHEET NO. 18 OF 94 SHEETS

PLOTTED/REVISED: 03/29/2022

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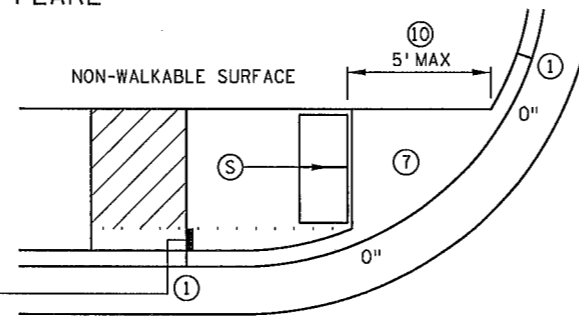


COMBINED DIRECTIONAL

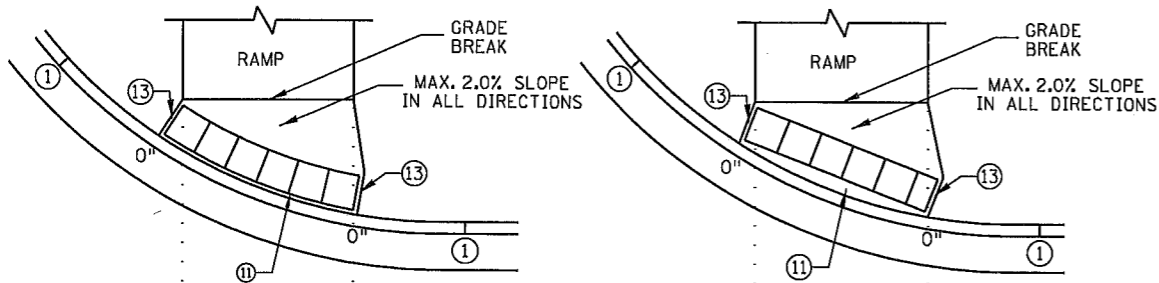


DIRECTIONAL RAMP WALKABLE FLARE

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

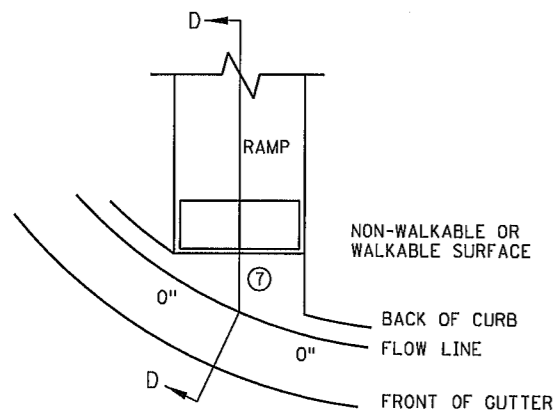


STANDARD ONE-WAY DIRECTIONAL ⑨

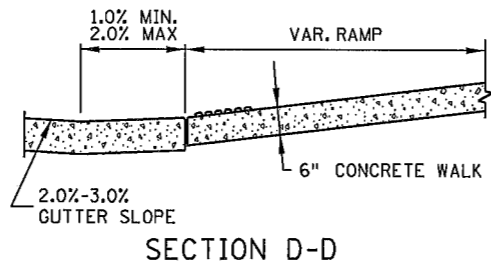


DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

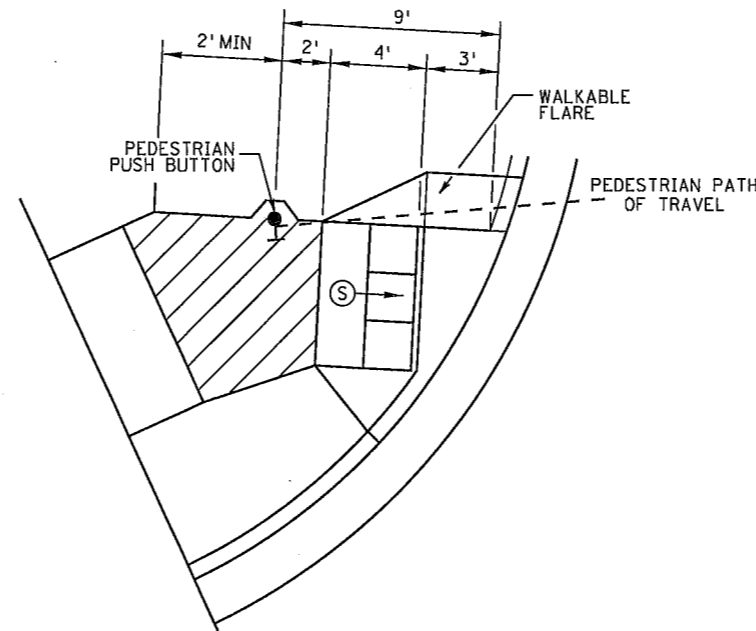
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



SEMI-DIRECTIONAL RAMP ③④⑨

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

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

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

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

- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP  
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)  
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.
- ⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND

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

- Ⓢ 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%.
- Ⓣ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ▨ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- X" CURB HEIGHT

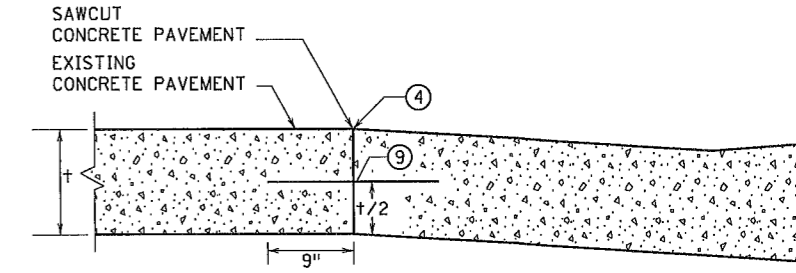
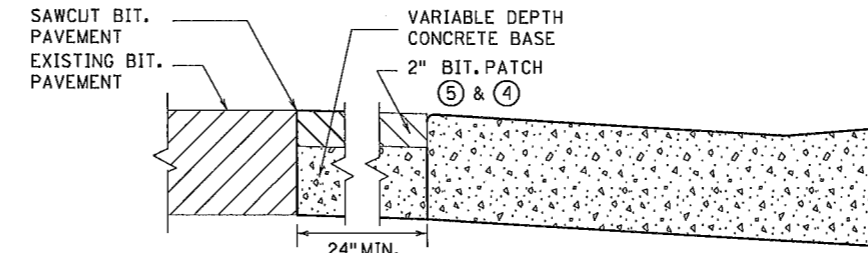
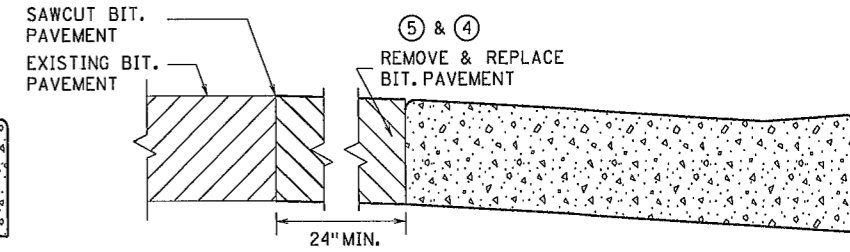
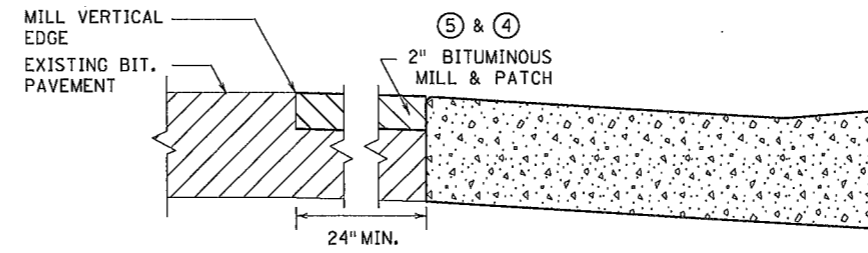
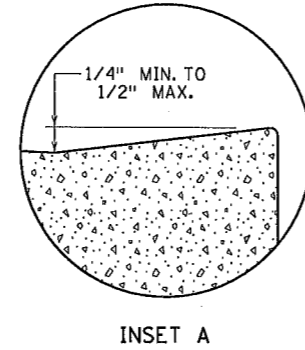
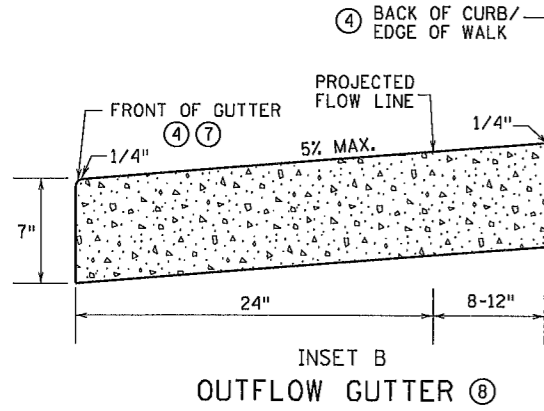
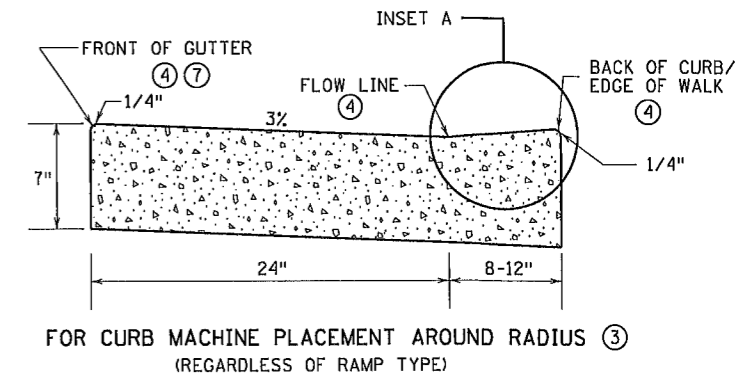
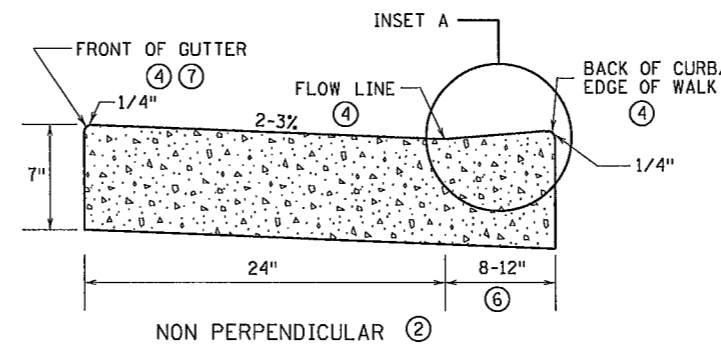
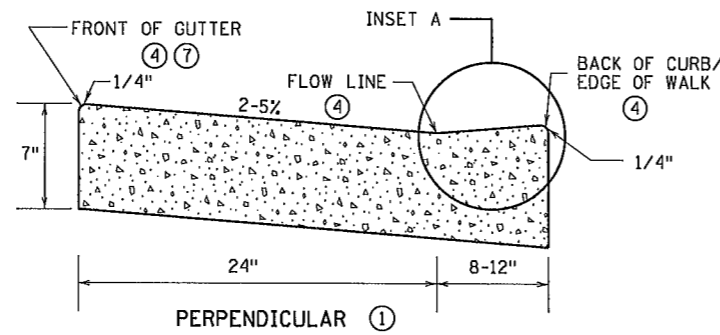
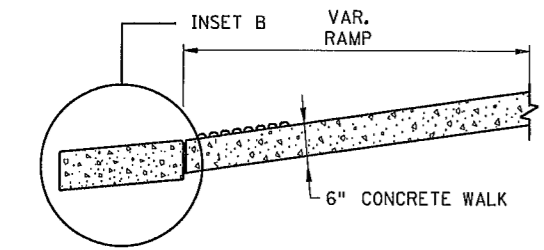
REVISION:  
 APPROVED: 11-04-2021  
 Jeff J. Perkins  
 OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STANDARD PLAN 5-297.250 2 OF 6  
 APPROVED: 11-04-2021  
 REVISOR:  
 STATE PROJ. NO. SAP 002-617-025

PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 03/29/2022

DISTRICT #: PLOT NAME: \$\$\$PLOTNAME\$\$\$  
 PATH & FILENAME: P:\002-617-025\Plan\002-617-025-STD.dgn



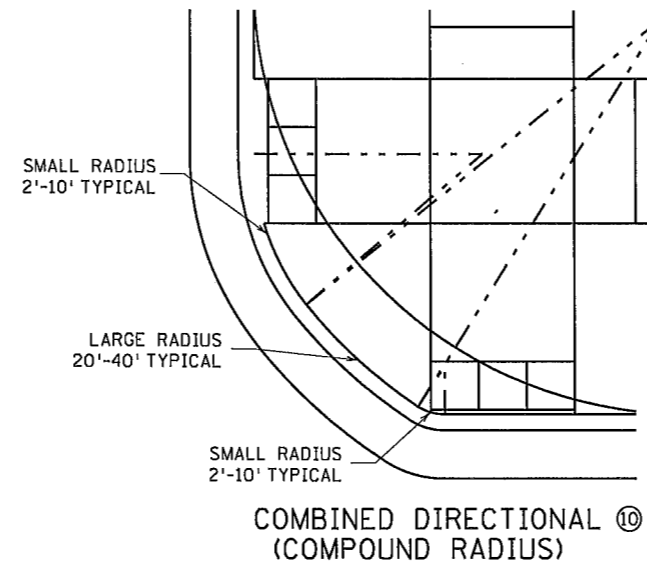
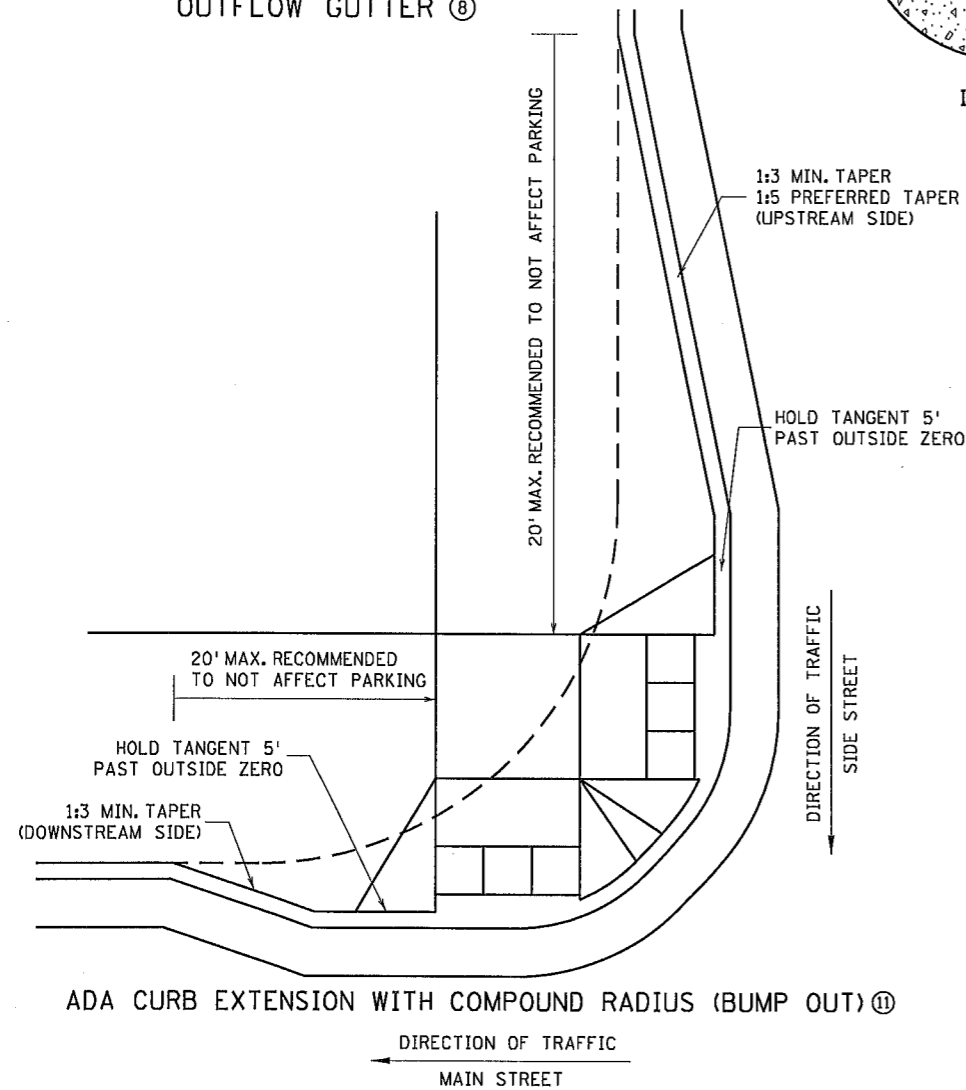
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER FOR USE ON CURB RAMP RETROFITS

NOTES:

- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
- ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
- ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
- ② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
- ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
- ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
- ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
- ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
- ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
- ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
- ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.



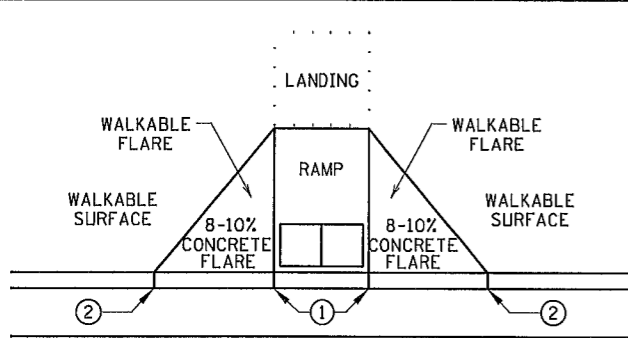
REVISION:
APPROVED: 11-04-2021  JEFFREY PERKINS OPERATIONS DIVISION

 MINNESOTA DEPARTMENT OF TRANSPORTATION	STANDARD PLAN 5-297.250	3 OF 6
	APPROVED: 11-04-2021 REVISED:  THOMAS STYRUBICKI STATE DESIGN ENGINEER	
STATE PROJ. NO.		SAP 002-617-025

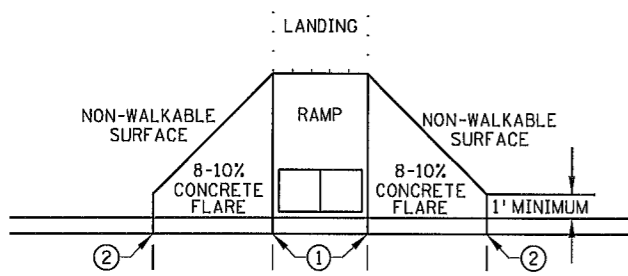
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 03/29/2022

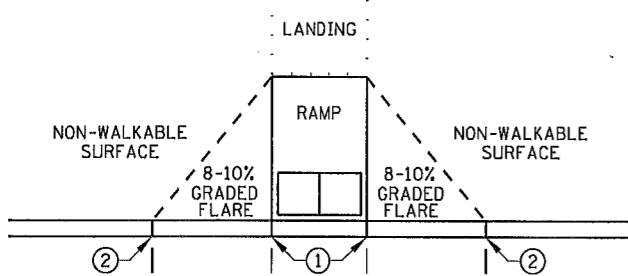
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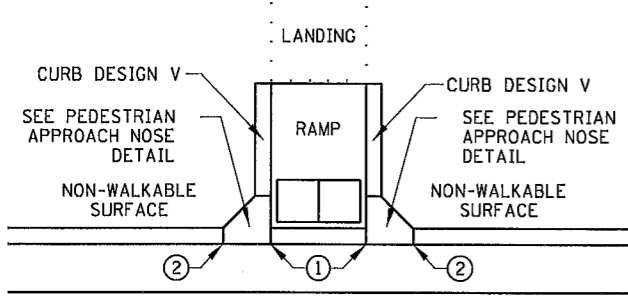
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

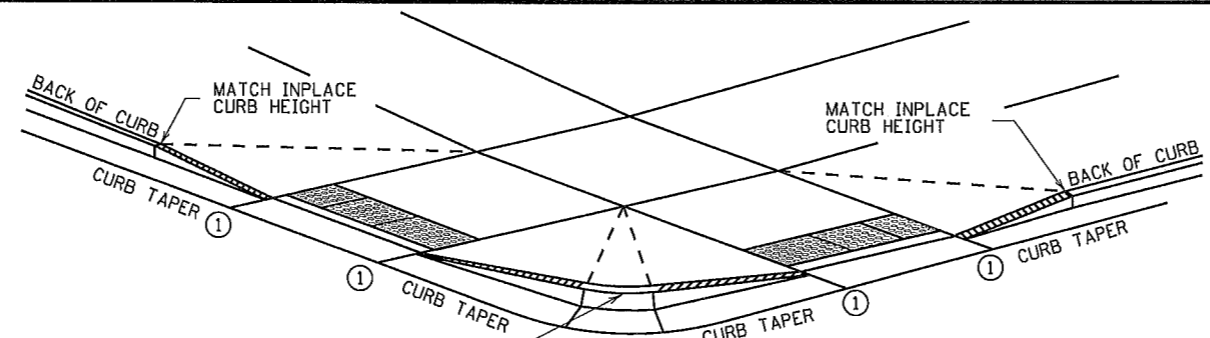


GRADED FLARES



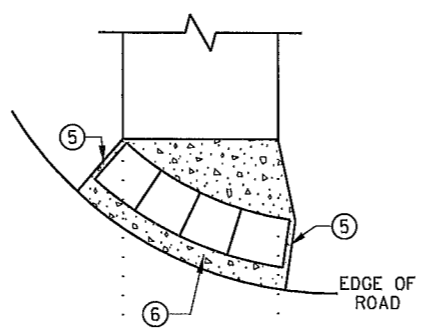
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

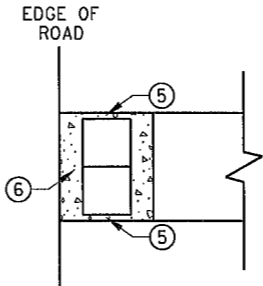


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

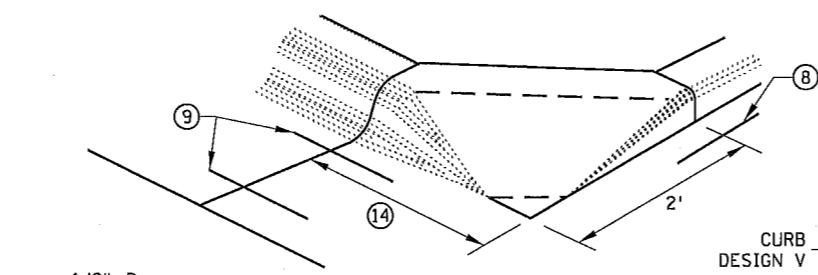


RADIAL DETECTABLE WARNING

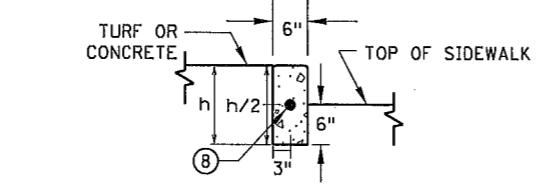


RECTANGULAR DETECTABLE WARNING

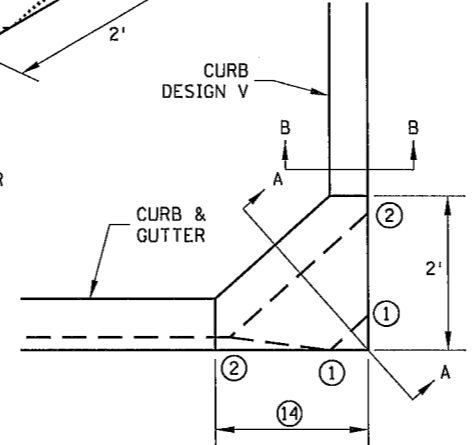
DETECTABLE EDGE WITHOUT CURB AND GUTTER



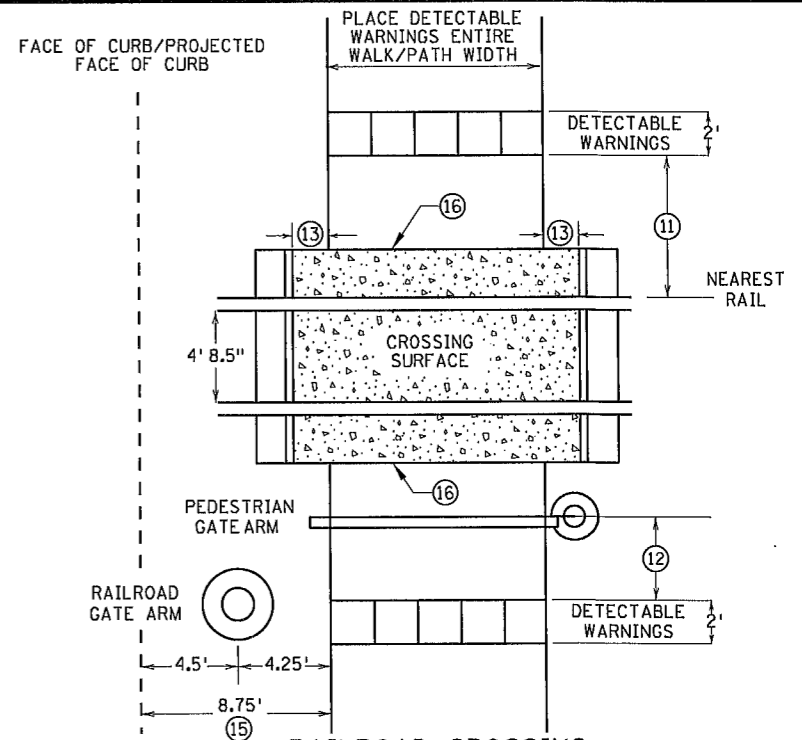
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH NOSE DETAIL (FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

NOTES:

- INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.
- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.
- ② FULL CURB HEIGHT.
- ③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ④ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑥ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
- ⑦ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS. AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
- ⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
- ⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
- ⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPERS AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.
- ⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑪.
- ⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.
- ⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

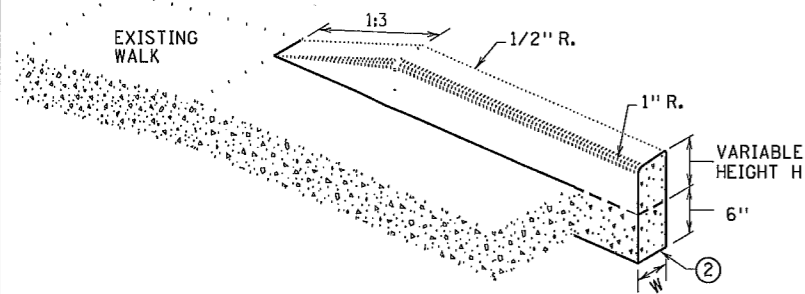
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 JEFFREY PERKINS  
 OPERATIONS DIVISION

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 STANDARD PLAN 5-297.250 4 OF 6  
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 STATE PROJ. NO. SAP 002-617-025  
 THOMAS STYBRICKI  
 STATE DESIGN ENGINEER

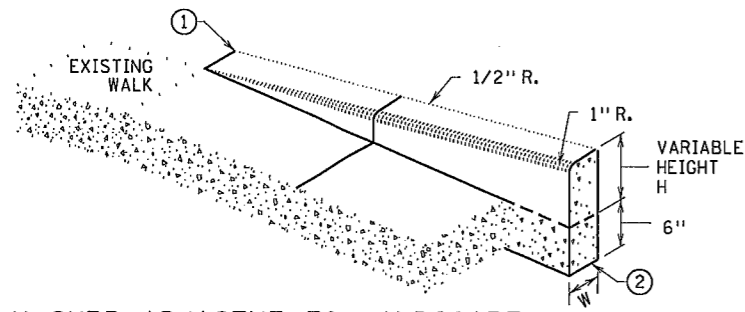
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 03/29/2022

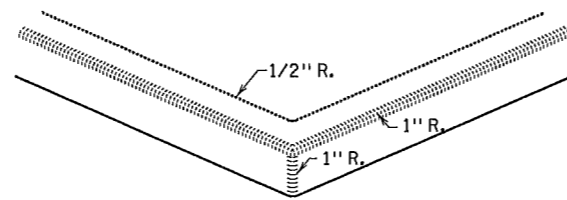
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V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS

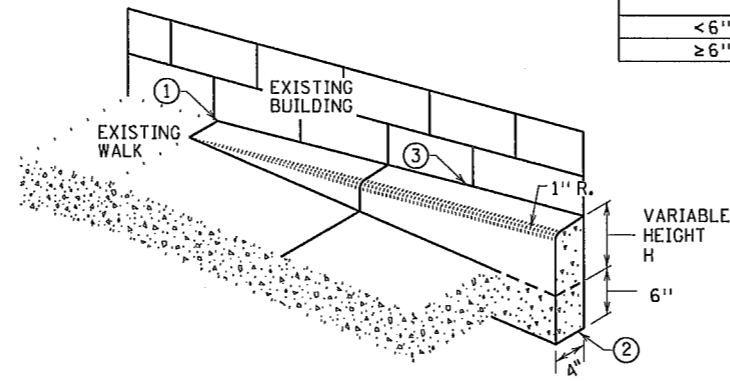


V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

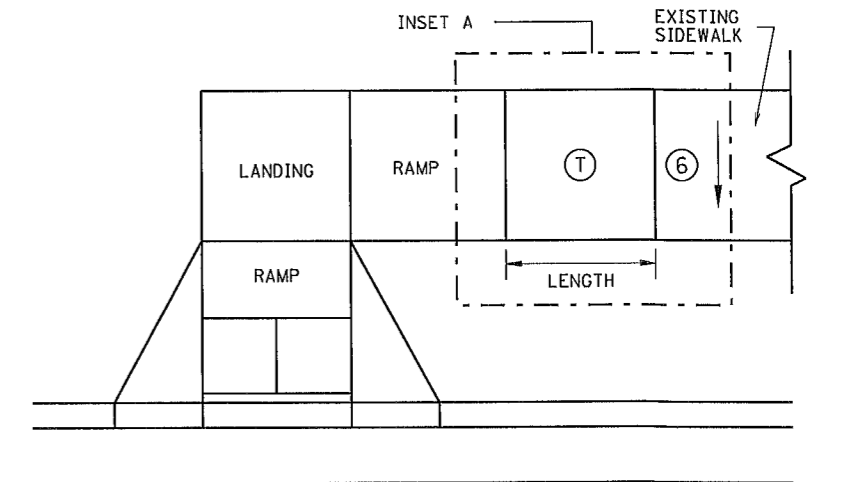


V CURB INTERSECTION

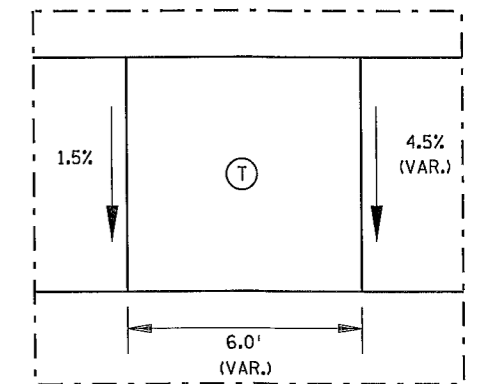
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



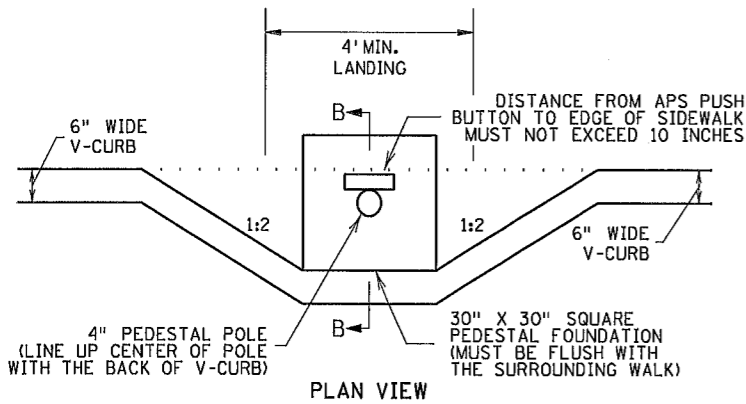
V CURB ADJACENT TO BUILDING  
OR BARRIER



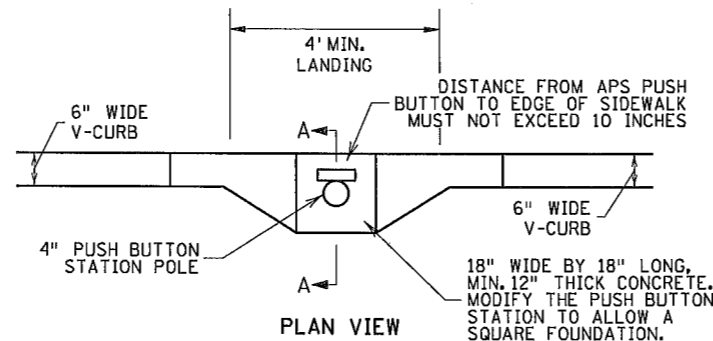
TRANSITION PANEL ④ ⑤



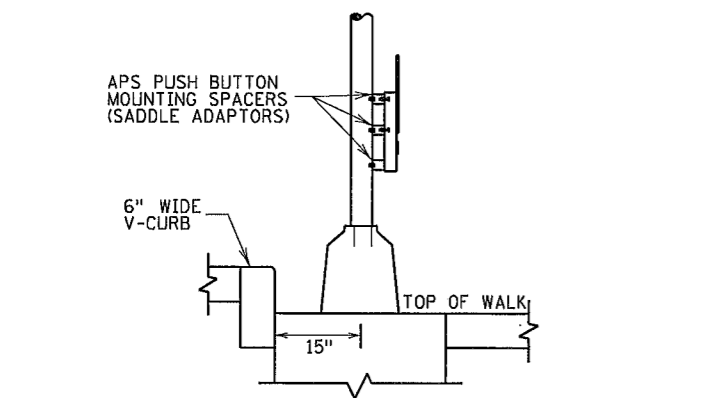
INSET A



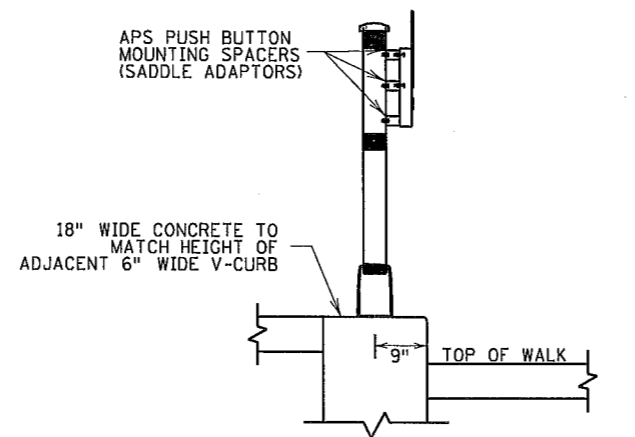
PLAN VIEW



PLAN VIEW



SECTION B-B  
SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A  
PUSH BUTTON STATION (V-CURB)

**NOTES:**

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

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

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

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

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

- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION 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%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- Ⓣ TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1' LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

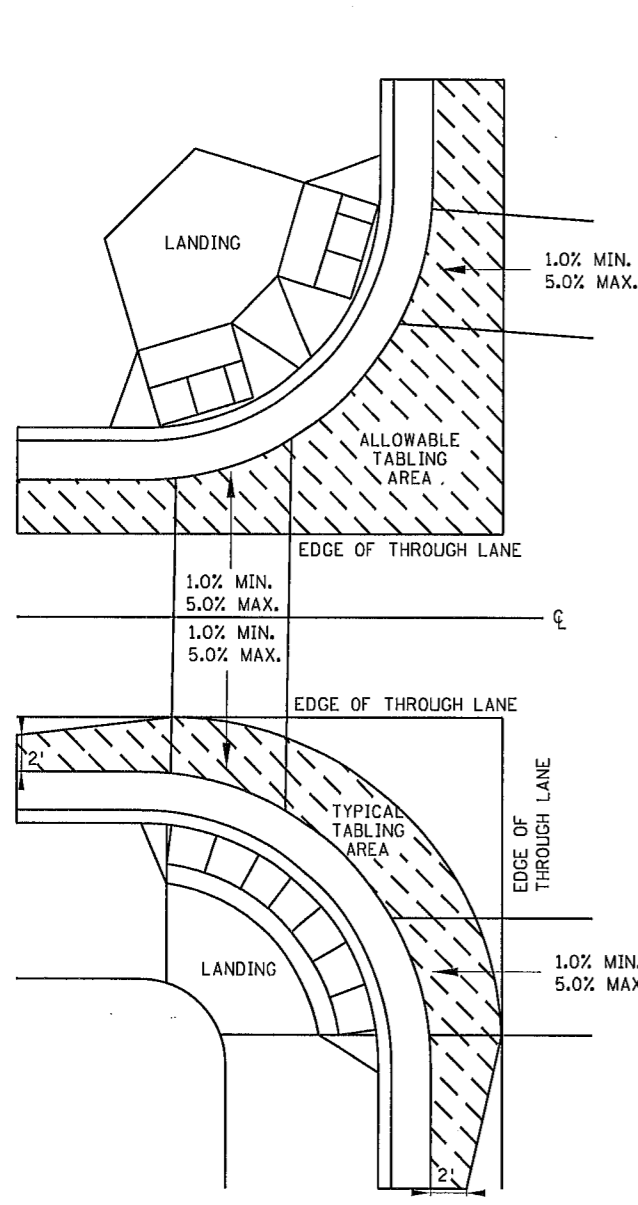
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*Jeffrey Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

**MINNESOTA**  
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STANDARD PLAN 5-297.250 5 OF 6  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER  
APPROVED: 11-04-2021  
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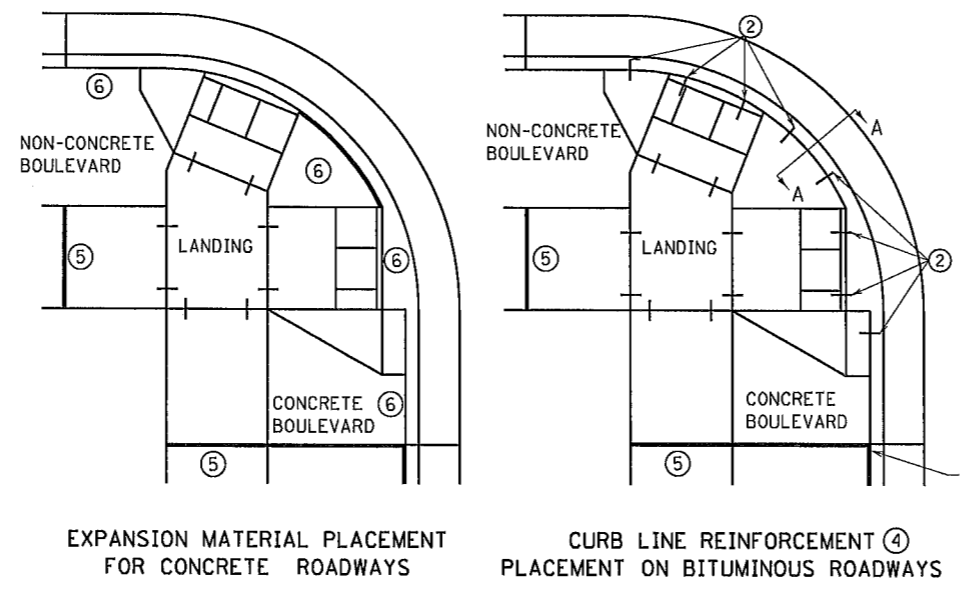
**PEDESTRIAN CURB RAMP DETAILS**

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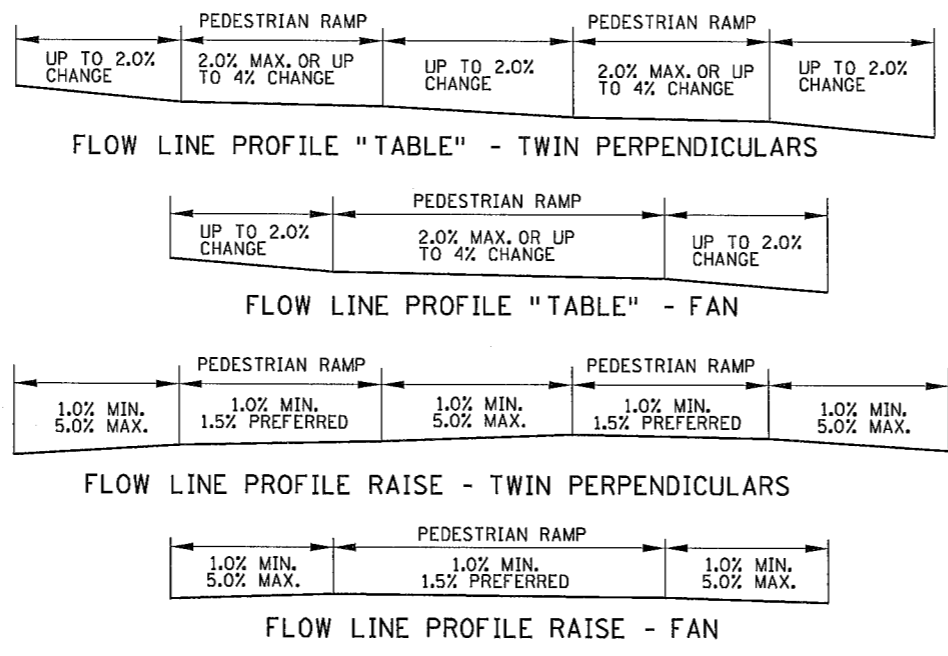
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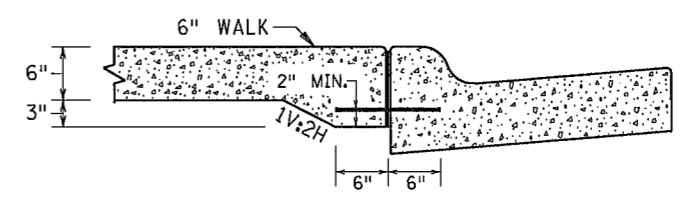
CURB LINE AND ROAD CROSSING ADJUSTMENTS



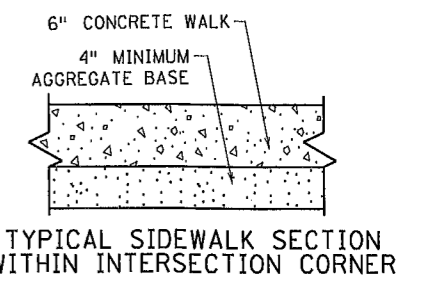
EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



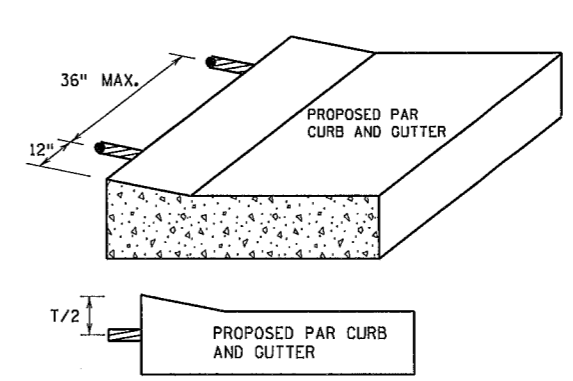
FLOW LINE PROFILE TABLE - TWIN PERPENDICULARS FLOW LINE PROFILE TABLE - FAN FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS FLOW LINE PROFILE RAISE - FAN



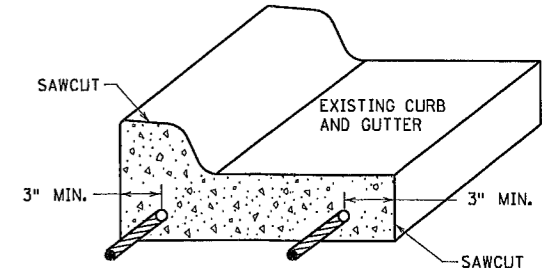
SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES



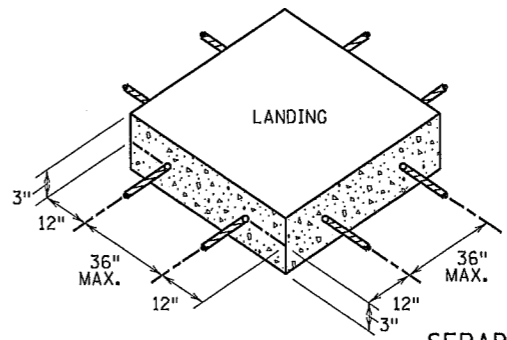
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER



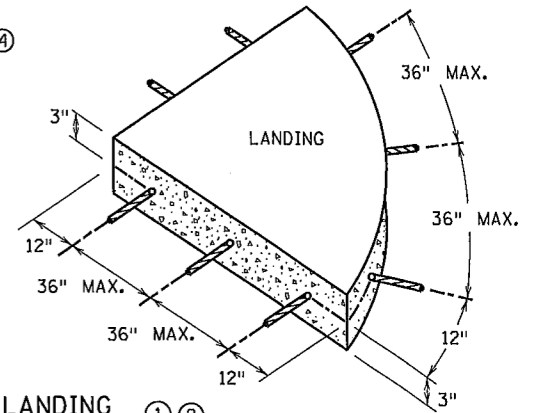
CURB RAMP REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



GENERAL NOTES:

- "TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.
- RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.
- MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:
  - 1.0% MIN. CROSS-SLOPE OF THE ROAD
  - 5.0% MAX. CROSS-SLOPE OF THE ROAD
  - "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
  - 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:
  - 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
  - 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
  - 5.0% RECOMMENDED MAX. FLOW LINE
  - LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

- 1) TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- 2) DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.
- 3) DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.
- 4) THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.
- 5) CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
- 6) USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021

*Jeffrey Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

**mn**  
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DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 6 OF 6

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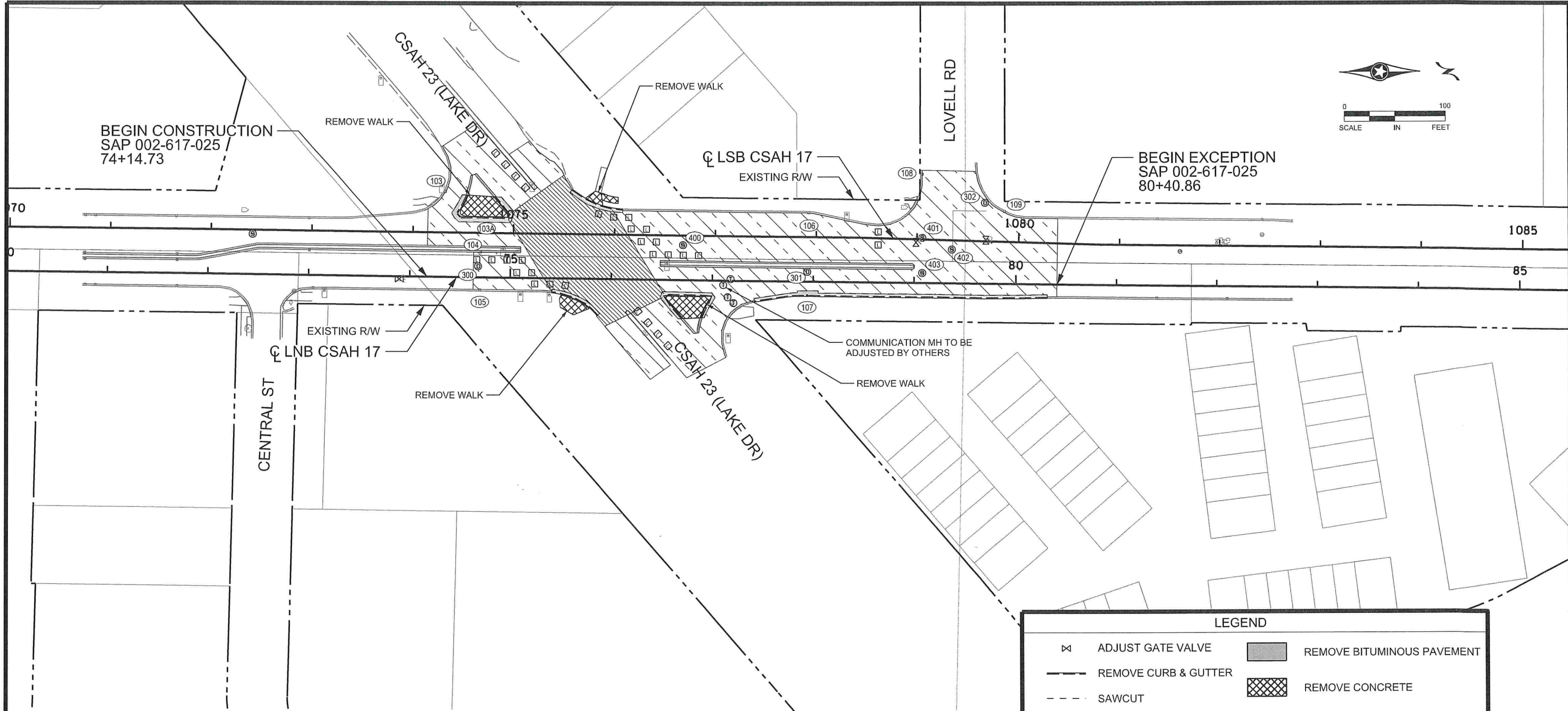
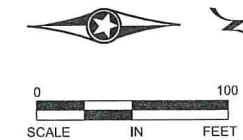
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. SAP 002-617-025

SHEET NO. 23 OF 94 SHEETS

BTUlvenc



**LEGEND**

	ADJUST GATE VALVE		REMOVE BITUMINOUS PAVEMENT
	REMOVE CURB & GUTTER		REMOVE CONCRETE
	SAWCUT		MILL BITUMINOUS SURFACE (2.0")
	APPROX. LOOP LOCATION		MILL BITUMINOUS SURFACE (6.0")

NO	DATE	BY	CHKD	APPR	REVISION	DATE	TIME
1	04/06/2022	MR	NJD		UPDATED NOTES / LABELS		

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE: *NJD*

DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: MR DATE 04/06/22

DESIGN BY: MR DATE 04/06/22

CHECKED BY: CO DATE 04/06/22



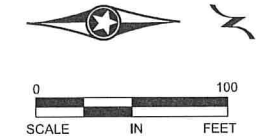
**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-617-025

**REMOVAL PLAN**  
STA 74+14.73 TO 80+40.86  
Sheet 24 of 94 Sheets



BTUlvenc



END EXCEPTION  
SAP 002-617-025  
116+57.52

REMOVE 6" CONC. WALK

REMOVE 6" CONC. WALK

CLSB CSAH 17  
EXISTING R/W

SALVAGE SIGN

REMOVE BIT. WALK

MATCHLINE 10+50  
NORTH ROAD (CR 49)  
(SEE PAGE 28 )

COMMUNICATION MH TO BE  
ADJUSTED BY OTHERS

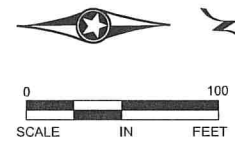
REMOVE BIT. WALK

EXISTING R/W  
CLNB CSAH 17

MATCHLINE 130+00

**LEGEND**

- ⊗ ADJUST GATE VALVE
- REMOVE CURB & GUTTER
- - - SAWCUT
- [ ] APPROX. LOOP LOCATION
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE
- MILL BITUMINOUS SURFACE (2.0")
- MILL BIT. PAVEMENT (SPECIAL) (STREET APPROACH)



IF ANY LOOPS ARE DAMAGED DURING MILLING PROCESS  
CONTACT PETE ELLWANGER, 651-775-1279 (MnDOT), FOR  
COORDINATION ON PLACEMENT SIGNAL FLASH  
OPERATION, AND INSTALL.

MATCHLINE 130+00

BALL RD

CLSB CSAH 17  
EXISTING R/W

MNDOT R/W

NB I-35W OFF-RAMP

SALVAGE SIGN

COMMUNICATION MH TO BE  
ADJUSTED BY OTHERS

EXISTING R/W

CLNB CSAH 17

MNDOT R/W

NB I-35W ON-RAMP

END MILL AND OVERLAY

MATCHLINE 142+00

1	04/06/2022	MR	NJD	UPDATED NOTES / LABELS
NO	DATE	BY	CKD	APPR
	04/06/2022			
NAME: P:\002-617-025\Plan\002-617-025_RM-P0.dgn		10:55:53 AM		

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME  
OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY  
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF  
THE STATE OF MINNESOTA.  
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *NJD*  
DATE: 4/12/22 LICENSE NO. 49046

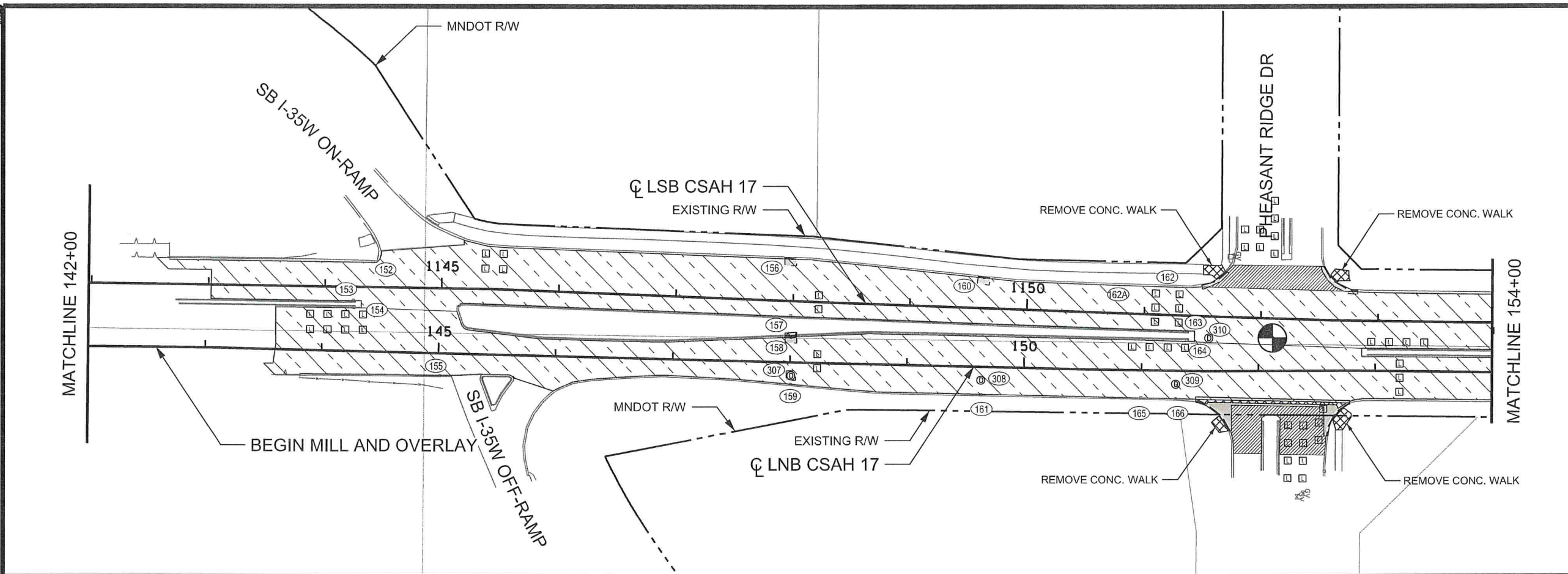
DRAWN BY MR DATE 04/06/22  
DESIGN BY MR DATE 04/06/22  
CHECKED BY CO DATE 04/06/22



ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-617-025

REMOVAL PLAN  
STA 116+57.52 TO 142+00  
Sheet 25 of 94 Sheets



**LEGEND**

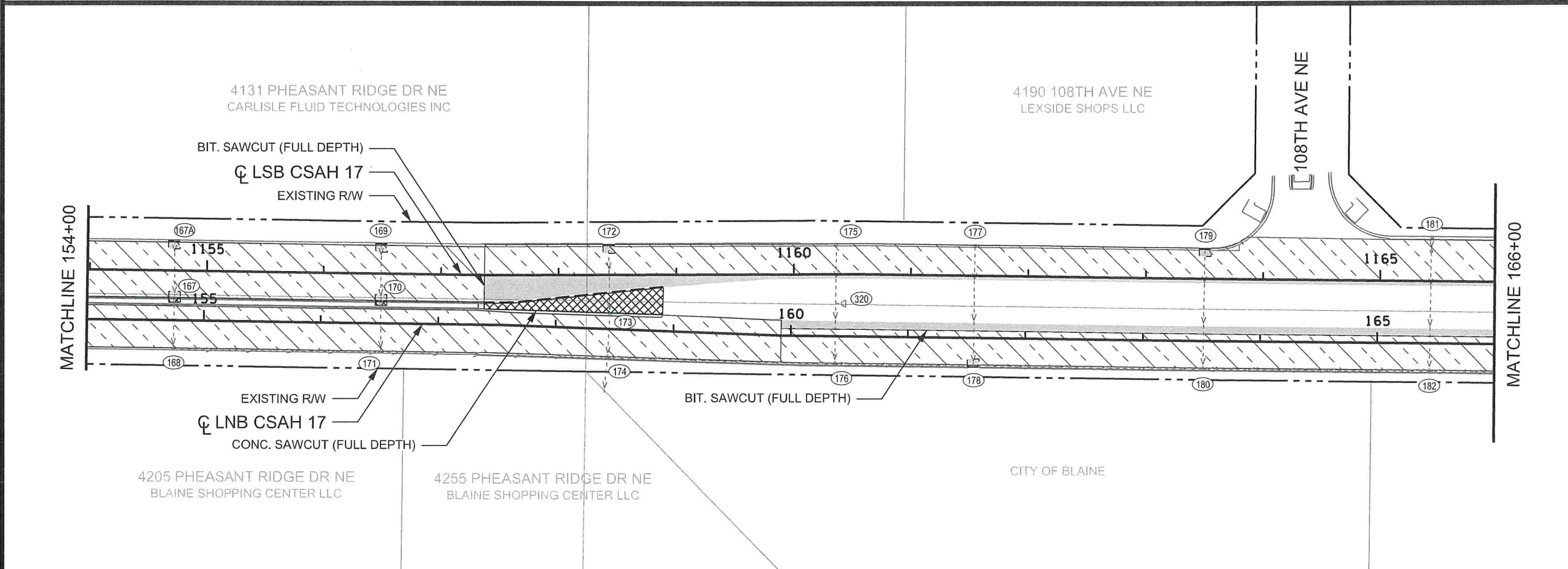
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE
- MILL BITUMINOUS SURFACE (2.0")
- MILL BIT. PAVEMENT (SPECIAL) (STREET APPROACH)
- REMOVE CURB AND GUTTER
- SAWCUT
- APPROX. LOOP LOCATION

**REMOVAL NOTES:**

REMOVE MISC. STRUCTURES INCLUDES BOULDERS SIGNS AND LANDSCAPING AS DIRECTED BY ENGINEER.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.



3 OF 5

SCALE 0 100 IN FEET

1	04/06/2022	MR	NJD	UPDATED NOTES / LABELS
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_RM-P1.dgn				04/06/2022 10:55:55 AM

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE: *[Signature]*

DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 04/06/22

DESIGN BY: BTU DATE: 04/06/22

CHECKED BY: NJD DATE: 04/06/22

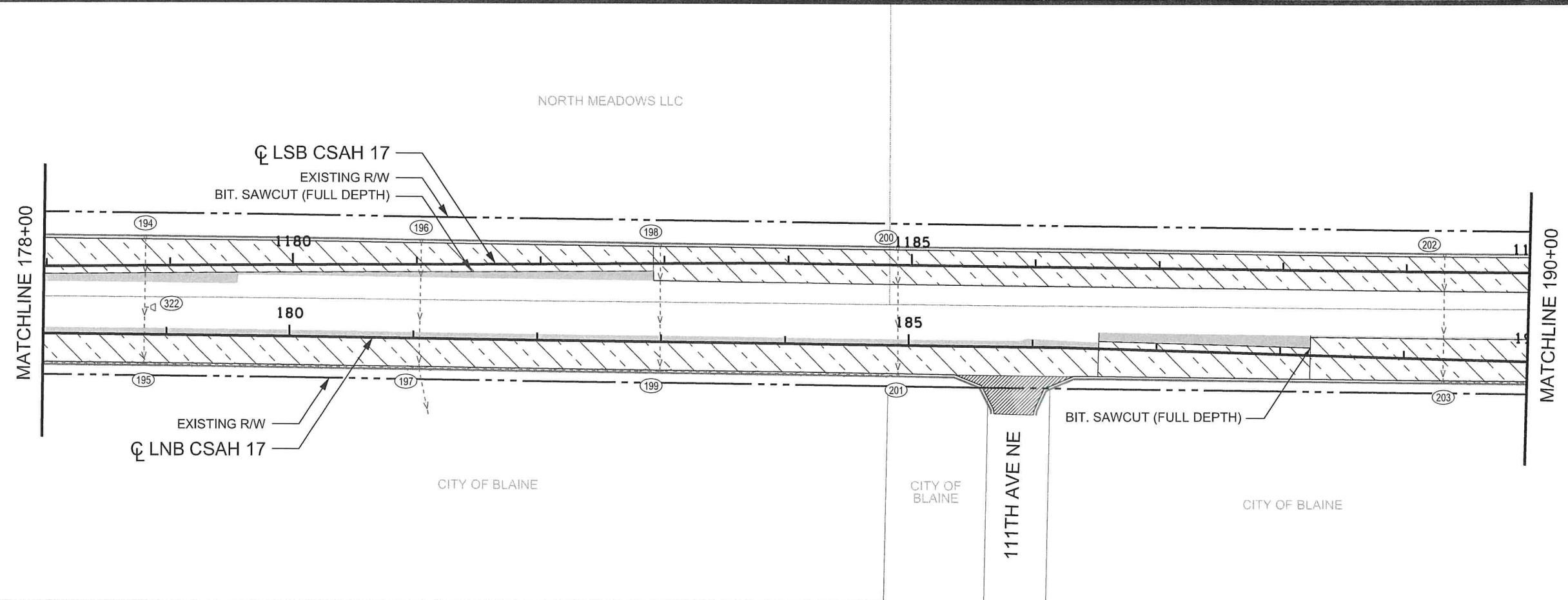
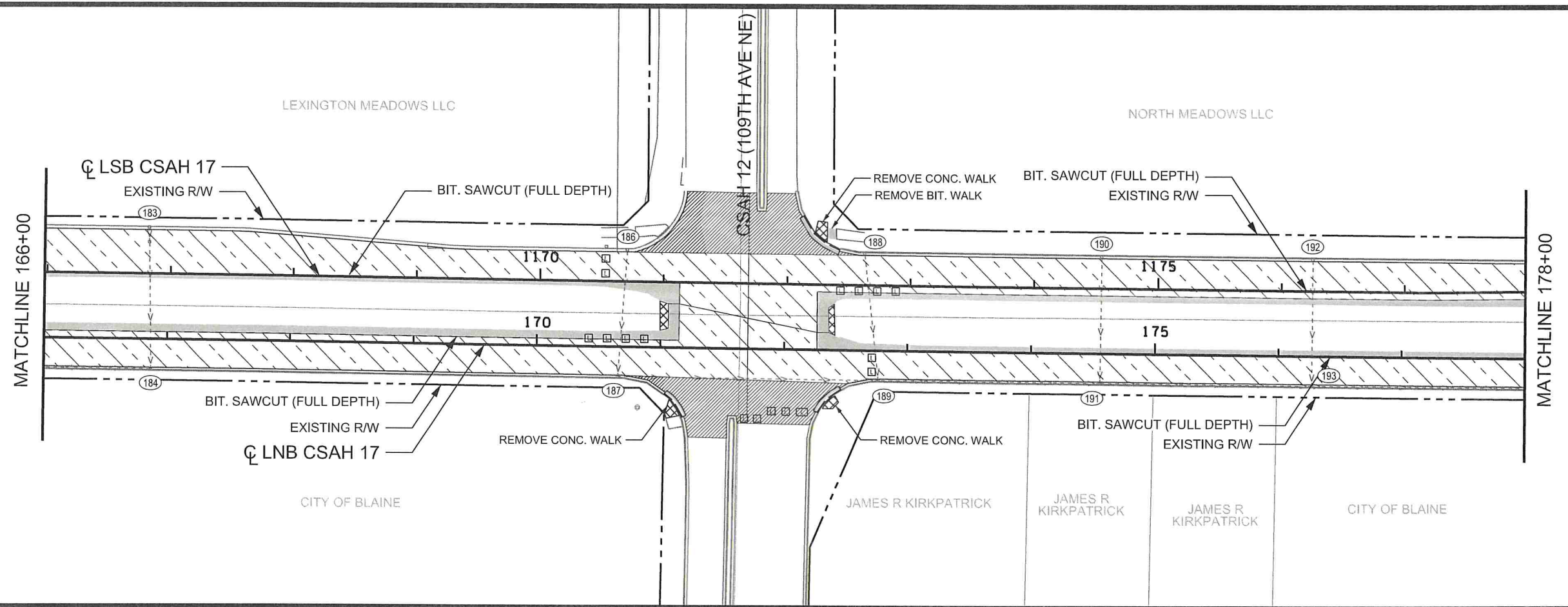
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

SAP 002-617-025

**REMOVAL PLAN**

STA 142+00 TO 166+00

Sheet 26 of 94 Sheets



**LEGEND**

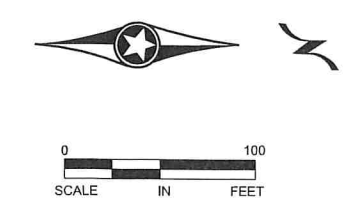
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE
- MILL BITUMINOUS SURFACE (2.0")
- MILL BIT. PAVEMENT (SPECIAL) (STREET APPROACH)
- REMOVE CURB AND GUTTER
- SAWCUT
- APPROX. LOOP LOCATION

**REMOVAL NOTES:**

REMOVE MISC. STRUCTURES INCLUDES BOULDERS SIGNS AND LANDSCAPING AS DIRECTED BY ENGINEER.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-617-025\Plan\002-617-025\_RM-P2.dgn      03/31/2022      11:37:20 AM

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE: *N. Dobda*

DATE: 3/31/22      LICENSE NO. 49046

DRAWN BY: BTU      DATE: 03/17/22

DESIGN BY: BTU      DATE: 03/17/22

CHECKED BY: NJD      DATE: 03/17/22

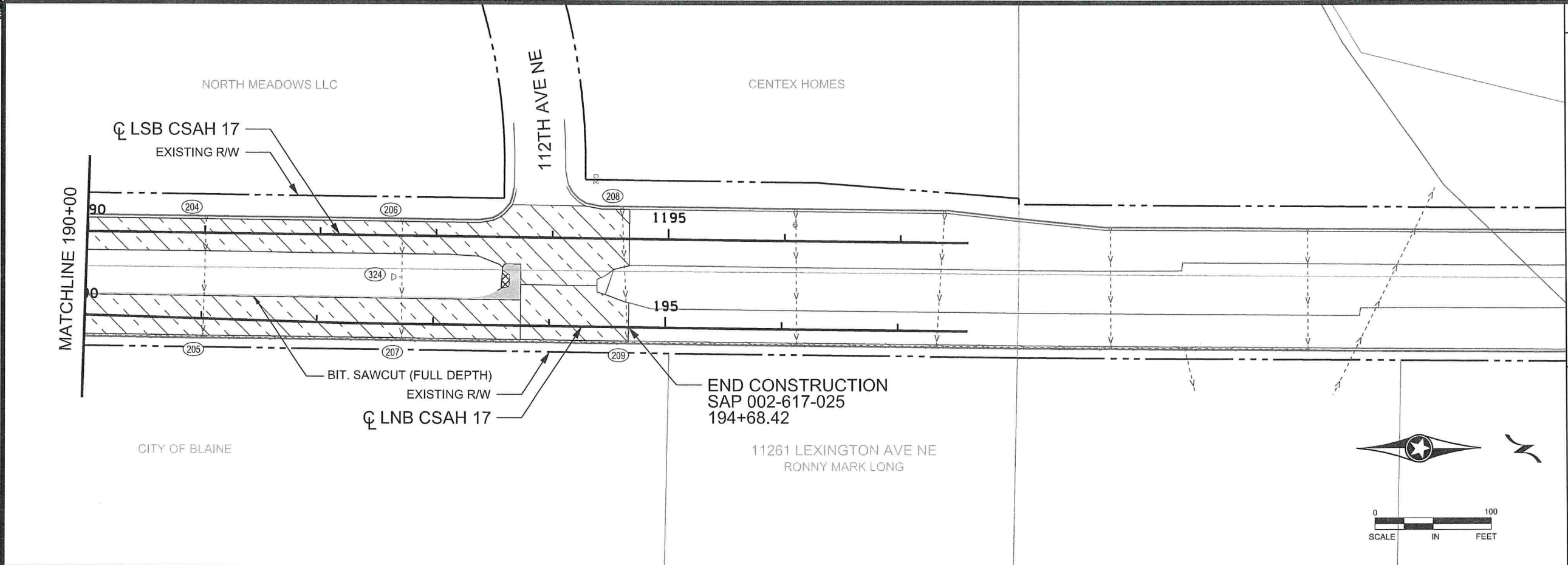
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

SAP 002-617-025

REMOVAL PLAN

STA 166+00 TO 190+00

Sheet 27 of 94 Sheets



**LEGEND**

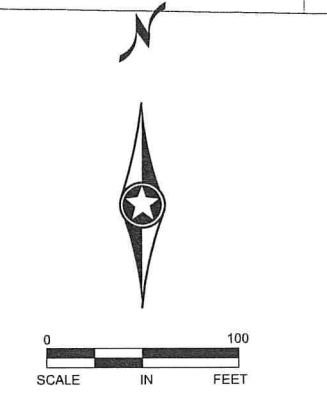
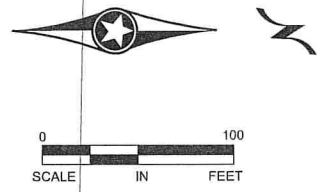
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE
	MILL BITUMINOUS SURFACE (2.0")
	MILL BIT. PAVEMENT (SPECIAL) (STREET APPROACH)
	REMOVE CURB AND GUTTER
	SAWCUT
	APPROX. LOOP LOCATION

**REMOVAL NOTES:**

REMOVE MISC. STRUCTURES INCLUDES BOULDERS SIGNS AND LANDSCAPING AS DIRECTED BY ENGINEER.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.



1	04/06/2022	BTU	NJD	UPDATED NOTES / LABELS
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_RM-P3.dgn 04/06/2022 10:56:32 AM				

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

PRINT NAME: NICHOLAS J. DOBDA

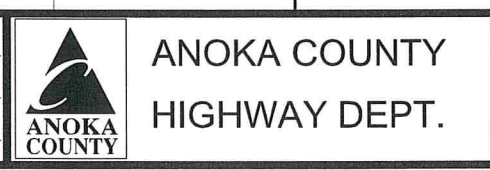
SIGNATURE: *NJD*

DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 04/06/22

DESIGN BY: BTU DATE: 04/06/22

CHECKED BY: NJD DATE: 04/06/22



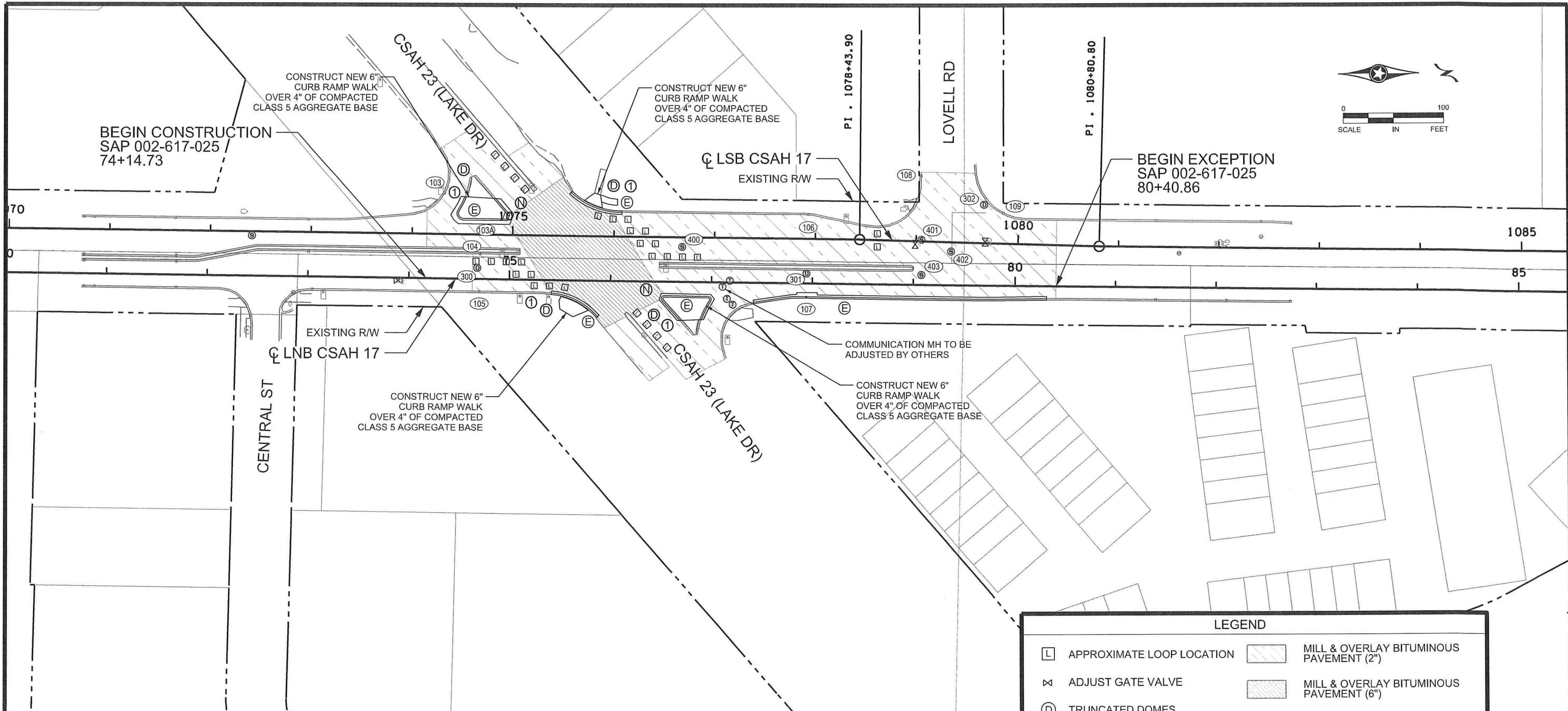
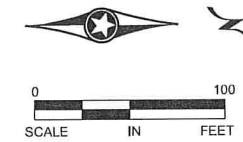
SAP 002-617-025

**REMOVAL PLAN**

STA 190+00 TO 194+68.42  
STA 10+50 TO 12+35

Sheet 28 of 94 Sheets

BTU/vene



**LEGEND**

[L]	APPROXIMATE LOOP LOCATION	[Hatched Box]	MILL & OVERLAY BITUMINOUS PAVEMENT (2")
[X]	ADJUST GATE VALVE	[Hatched Box]	MILL & OVERLAY BITUMINOUS PAVEMENT (6")
(D)	TRUNCATED DOMES	(XXX)	STORM SEWER STRUCTURE (SEE TAB E)
(E)	B618 CURB & GUTTER		
(N)	CONCRETE MEDIAN NOSE - SPECIAL		
(1)	REPLACE CONCRETE CURB RAMP		

1	04/06/2022	MR	NJD	UPDATED NOTES / LABELS			
NO	DATE	BY	CKD	APPR	REVISION	04/06/2022	10:56:38 AM

NAME: P:\002-617-025\Plan\002-617-025\_PP-P\_dgn

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

PRINT NAME: NICHOLAS J. DOBDA

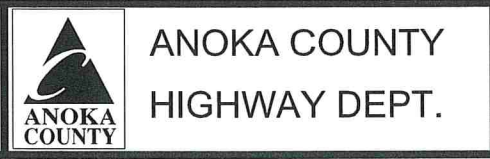
SIGNATURE: *NJD*

DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY MR DATE 04/06/22

DESIGN BY MR DATE 04/06/22

CHECKED BY CO DATE 04/06/22

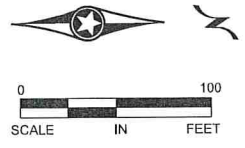
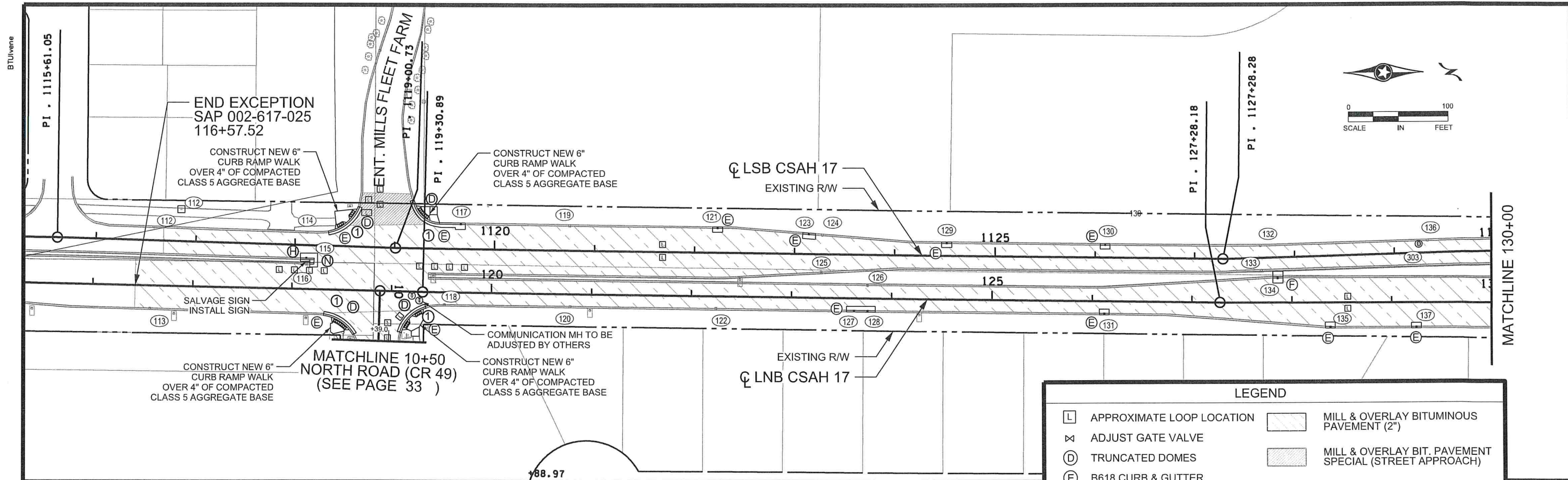


STATE AID PROJECT 002-617-025

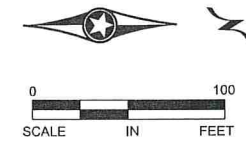
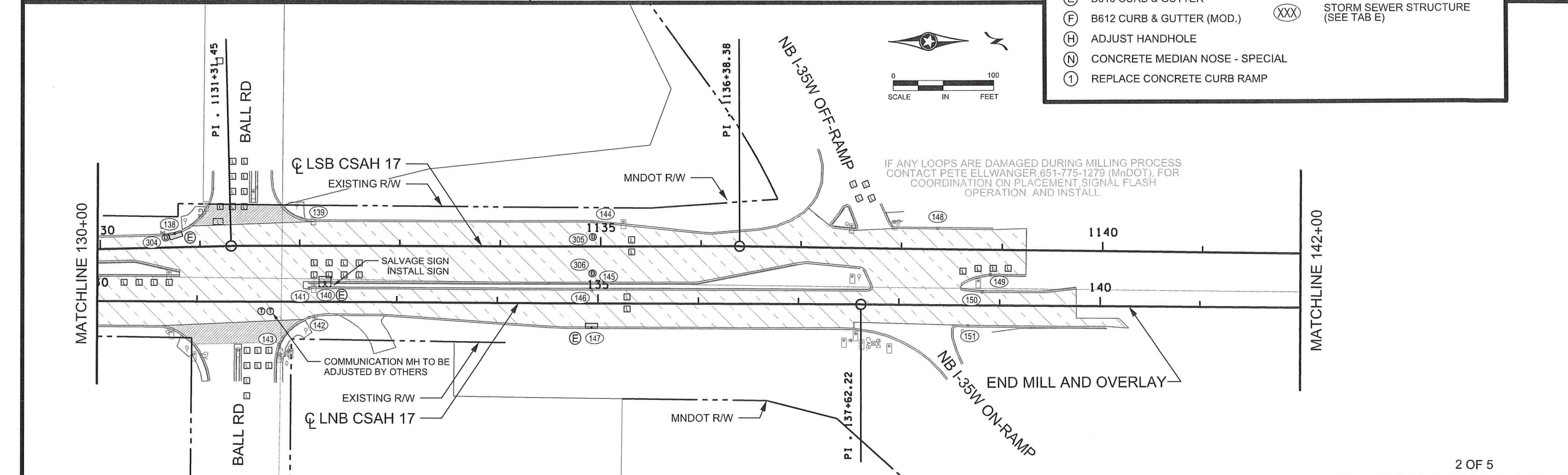
CONSTRUCTION PLAN

STA 74+14.73 TO 80+40.86

Sheet 29 of 94 Sheets



LEGEND			
[L]	APPROXIMATE LOOP LOCATION	[Hatched Box]	MILL & OVERLAY BITUMINOUS PAVEMENT (2")
[X]	ADJUST GATE VALVE	[Hatched Box]	MILL & OVERLAY BIT. PAVEMENT SPECIAL (STREET APPROACH)
[D]	TRUNCATED DOMES	[Circle with XXX]	STORM SEWER STRUCTURE (SEE TAB E)
[E]	B618 CURB & GUTTER		
[F]	B612 CURB & GUTTER (MOD.)		
[H]	ADJUST HANDHOLE		
[N]	CONCRETE MEDIAN NOSE - SPECIAL		
[1]	REPLACE CONCRETE CURB RAMP		



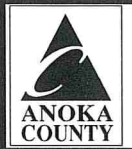
2 OF 5

1	04/06/2022	MR	NJD	UPDATED NOTES / LABELS			
NO	DATE	BY	CKD	APPR	REVISION	04/06/2022	10:56:40 AM

NAME: P:\002-617-025\Plan\002-617-025\_PP-P0.dgn

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 4/12/22 LICENSE NO. 49046

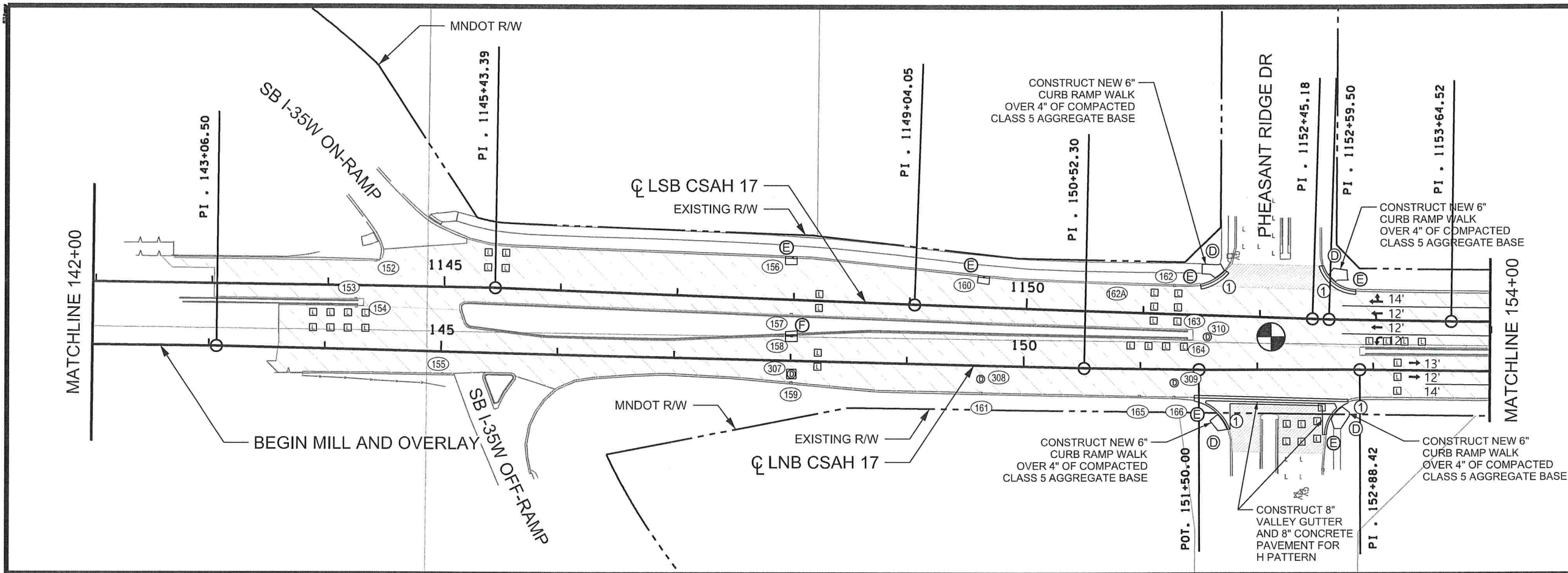
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 DESIGN BY: MR DATE 04/06/22  
 CHECKED BY: CO DATE 04/06/22



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-617-025

CONSTRUCTION PLAN  
 STA 116+57.52 TO 142+00  
 Sheet 30 of 94 Sheets



**LEGEND**

- SEEDING MIX 25-121  
FERT. TYPE 3 (22-5-10)  
HYD. REINFORCED FIBER MATRIX
- MILL & OVERLAY BITUMINOUS  
PAVEMENT (2")
- MILL & OVERLAY BIT. PAVEMENT  
SPECIAL (STREET APPROACH)
- INPLACE SIGNAL SYSTEM
- STORM SEWER STRUCTURE  
(SEE TAB E)
- APPROXIMATE LOOP LOCATION
- EXISTING STORM SEWER
- CONCRETE MEDIAN
- B418 CURB & GUTTER (MOD.)
- TRUNCATED DOMES
- B618 CURB & GUTTER
- B612 CURB & GUTTER (MOD.)
- B424 CURB & GUTTER
- B412 CURB & GUTTER (MOD.)
- REPLACE CONCRETE CURB RAMP

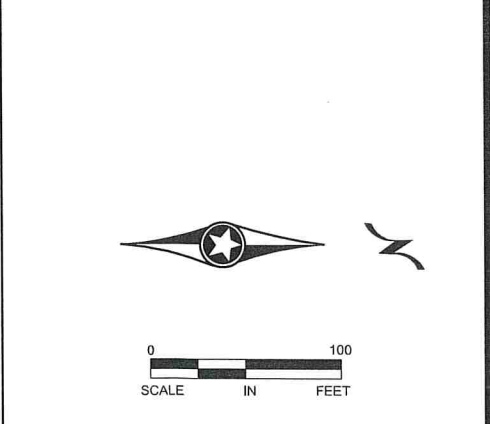
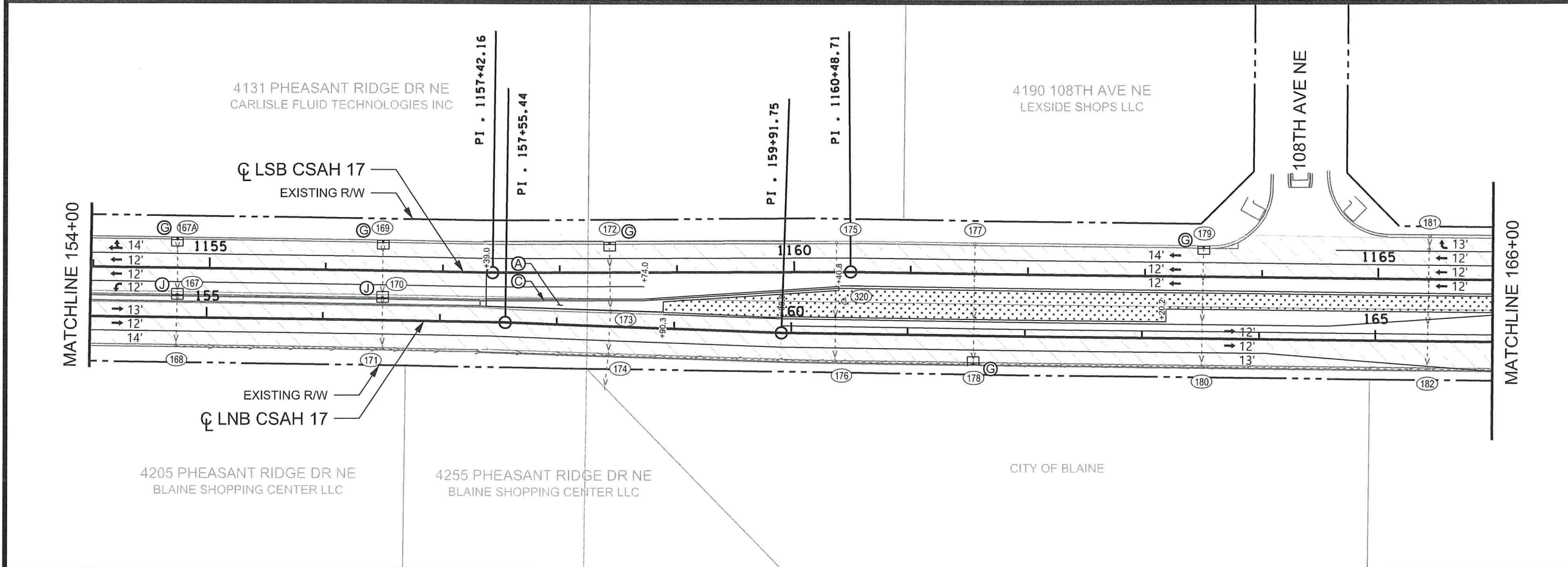
**CONSTRUCTION NOTES:**

ALL DIMENSIONS ARE FACE OF CURB OR  
EDGE OF PAVEMENT UNLESS OTHERWISE  
NOTED

STABILIZE VEGETATION AND SOIL  
STOCKPILES WITHIN 7 DAYS OF ROUGH  
GRADING OR INACTIVITY. ADDITIONAL  
TEMPORARY AND PERMANENT EROSION  
CONTROL AS DIRECTED BY ENGINEER.

**STAGING REQUIREMENTS  
/ TRAFFIC CONTROL  
PERFORMANCE SPEC**

1. 12' MINIMUM LANE WIDTH
2. 1 LANE IN EACH DIRECTION WITH 1 RIGHT  
OR LEFT TURN LANE



1	04/06/2022	MR	NJD	UPDATED NOTES / LABELS
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_PP-P1.dgn				04/06/2022 10:56:47 AM

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE: *NJD*

DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 04/06/22

DESIGN BY: BTU DATE: 04/06/22

CHECKED BY: NJD DATE: 04/06/22

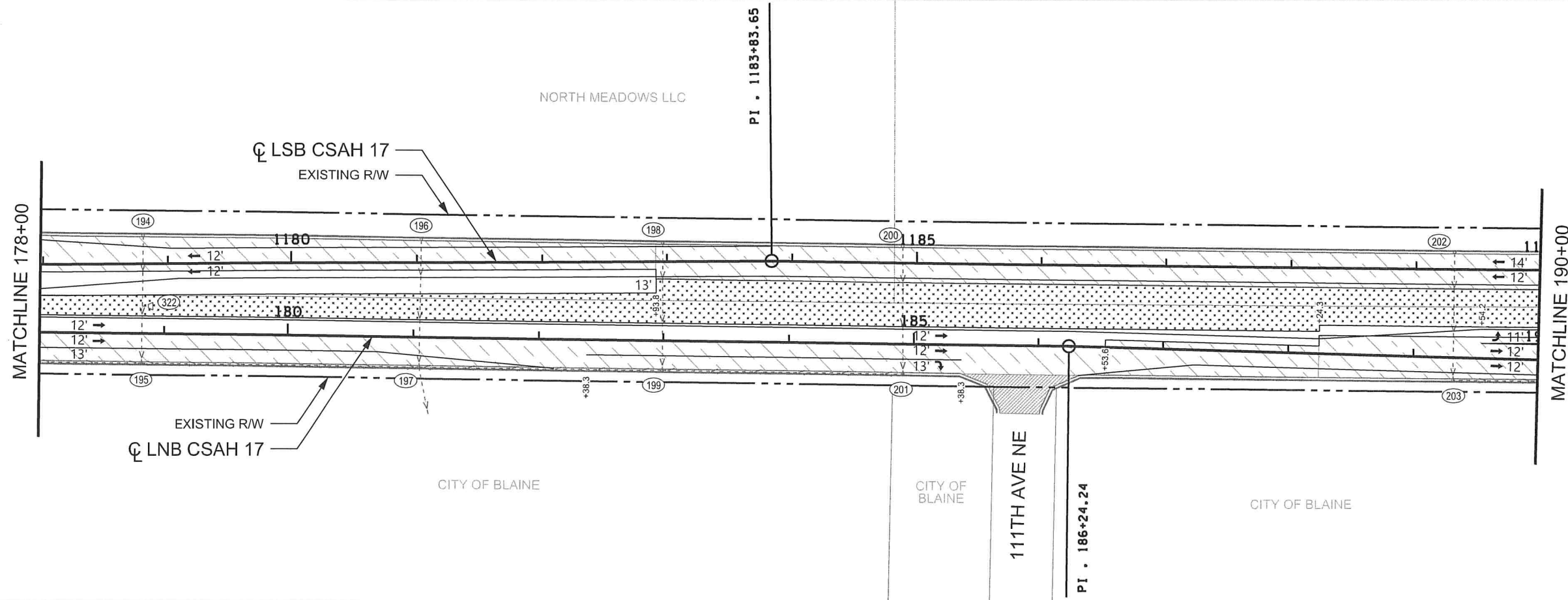
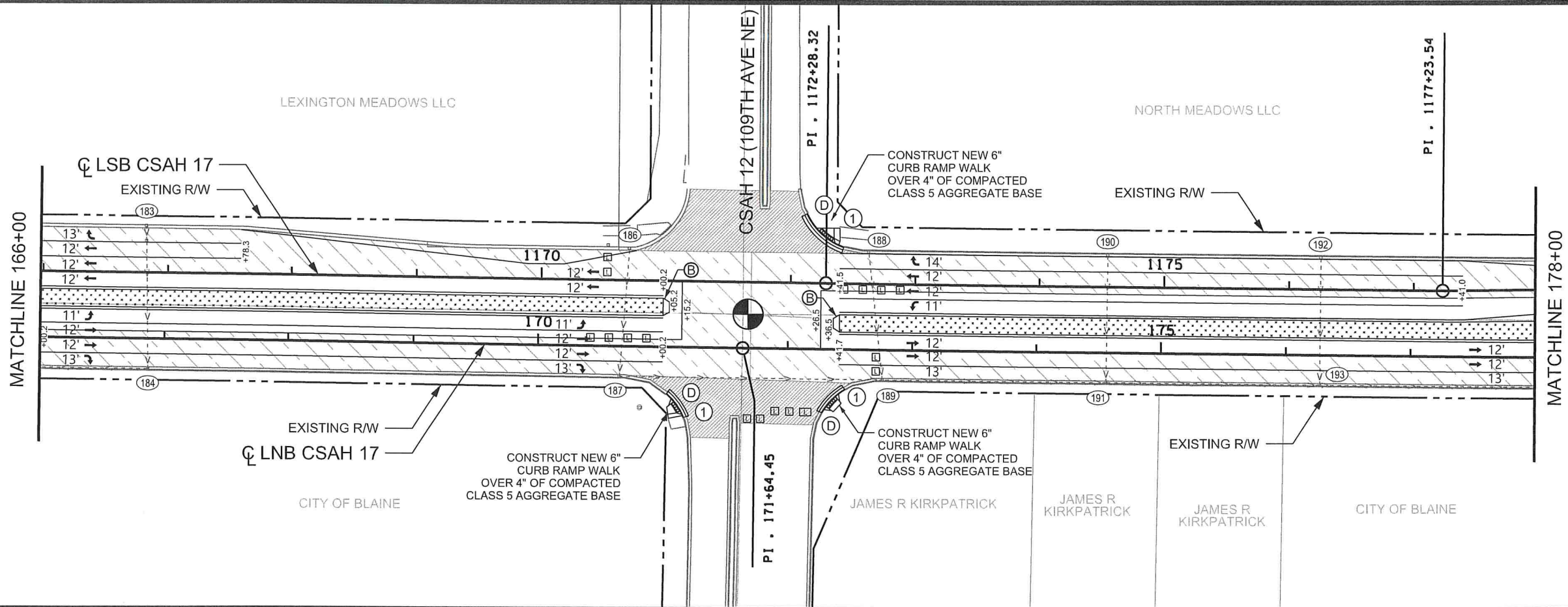
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-617-025

**CONSTRUCTION PLAN**

STA 142+00 TO 166+00

Sheet 31 of 94 Sheets



**LEGEND**

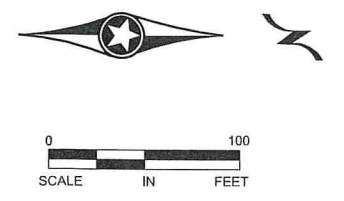
- SEEDING MIX 25-121  
FERT. TYPE 3 (22-5-10)  
HYD. REINFORCED FIBER MATRIX
- MILL & OVERLAY BITUMINOUS  
PAVEMENT (2")
- MILL & OVERLAY BIT. PAVEMENT  
SPECIAL (STREET APPROACH)
- INPLACE SIGNAL SYSTEM
- STORM SEWER STRUCTURE  
(SEE TAB E)
- APPROXIMATE LOOP LOCATION
- EXISTING STORM SEWER
- CONSTRUCT CONCRETE MEDIAN  
NOSE PER STANDARD PLATE 7113
- TRUNCATED DOMES
- REPLACE CONCRETE CURB RAMP

**CONSTRUCTION NOTES:**

ALL DIMENSIONS ARE FACE OF CURB OR  
EDGE OF PAVEMENT UNLESS OTHERWISE  
NOTED

STABILIZE VEGETATION AND SOIL  
STACKPILES WITHIN 7 DAYS OF ROUGH  
GRADING OR INACTIVITY. ADDITIONAL  
TEMPORARY AND PERMANENT EROSION  
CONTROL AS DIRECTED BY ENGINEER.

- STAGING REQUIREMENTS  
/ TRAFFIC CONTROL  
PERFORMANCE SPEC**
1. 12' MINIMUM LANE WIDTH
  2. 1 LANE IN EACH DIRECTION WITH 1 RIGHT  
OR LEFT TURN LANE



1	04/20/2022	BTU	NJD		REVISED SB RT TURN LANE AT CSAH 12 INTERSECTION
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-617-025\Plan\002-617-025_PP-P2.dgn 04/20/2022 10:26:54 AM					

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

PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *NJD*  
DATE: 4/20/22 LICENSE NO. 49046

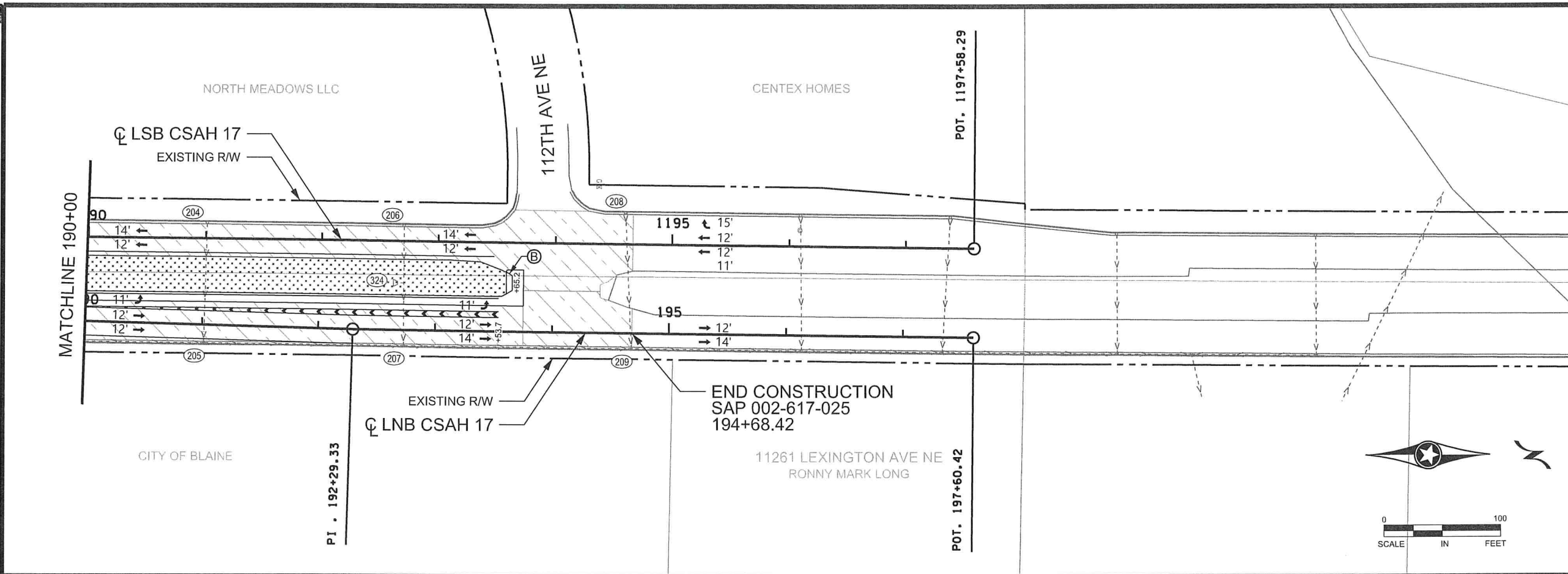
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DESIGN BY: BTU DATE: 04/06/22  
CHECKED BY: NJD DATE: 04/06/22

**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-617-025

CONSTRUCTION PLAN  
STA 166+00 TO 190+00  
Sheet 32 of 94 Sheets





**LEGEND**

- SEEDING MIX 25-121  
FERT. TYPE 3 (22-5-10)  
HYD. REINFORCED FIBER MATRIX
- MILL & OVERLAY BITUMINOUS  
PAVEMENT (2")
- INPLACE SIGNAL SYSTEM
- STORM SEWER STRUCTURE  
(SEE TAB E)
- APPROXIMATE LOOP LOCATION
- EXISTING STORM SEWER
- CONSTRUCT CONCRETE MEDIAN  
NOSE PER STANDARD PLATE 7113
- B618 CURB & GUTTER

**CONSTRUCTION NOTES:**

ALL DIMENSIONS ARE FACE OF CURB OR  
EDGE OF PAVEMENT UNLESS OTHERWISE  
NOTED

STABILIZE VEGETATION AND SOIL  
STOCKPILES WITHIN 7 DAYS OF ROUGH  
GRADING OR INACTIVITY. ADDITIONAL  
TEMPORARY AND PERMANENT EROSION  
CONTROL AS DIRECTED BY ENGINEER.



**STAGING REQUIREMENTS  
/ TRAFFIC CONTROL  
PERFORMANCE SPEC**

1. 12' MINIMUM LANE WIDTH
2. 1 LANE IN EACH DIRECTION WITH 1 RIGHT  
OR LEFT TURN LANE

1	04/06/2022	BTU	NJD	UPDATED NOTES / LABELS
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_PP-P3.dgn 04/06/2022 10:57:12 AM				

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

PRINT NAME: NICHOLAS J. DOBDA

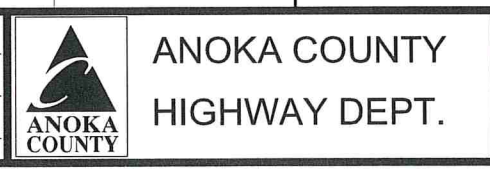
SIGNATURE: *NJD*

DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 04/06/22

DESIGN BY: BTU DATE: 04/06/22

CHECKED BY: NJD DATE: 04/06/22

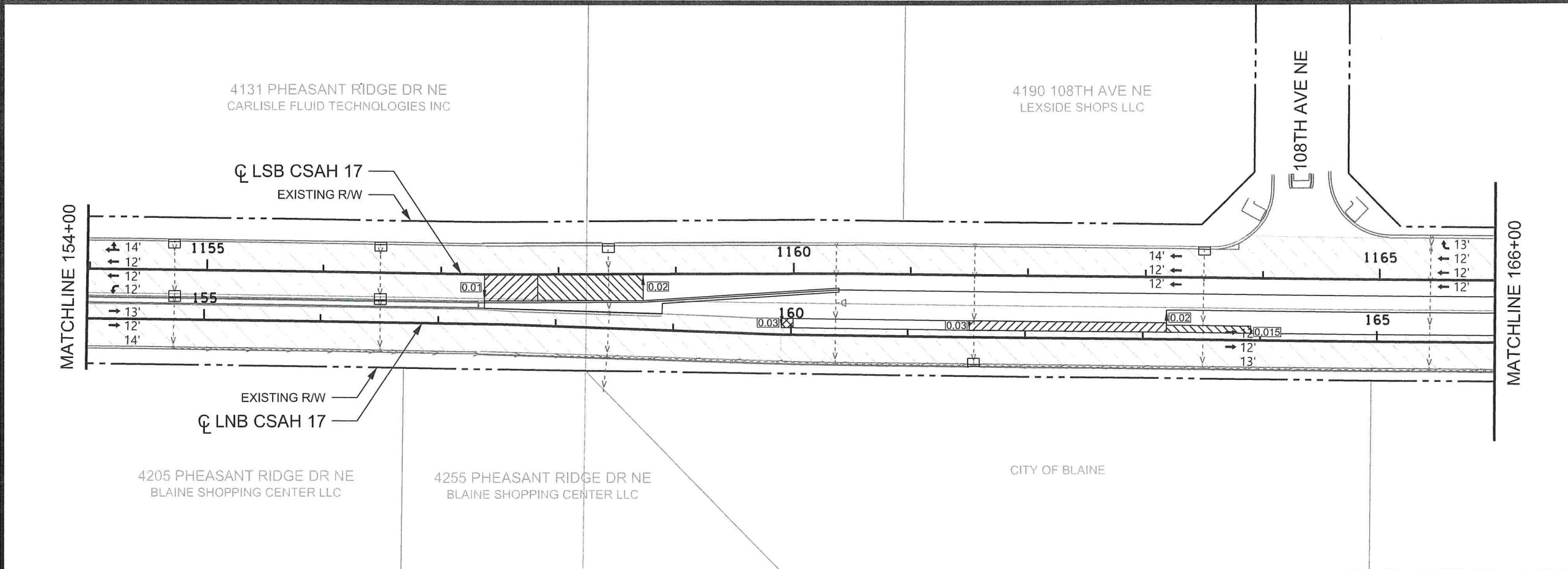
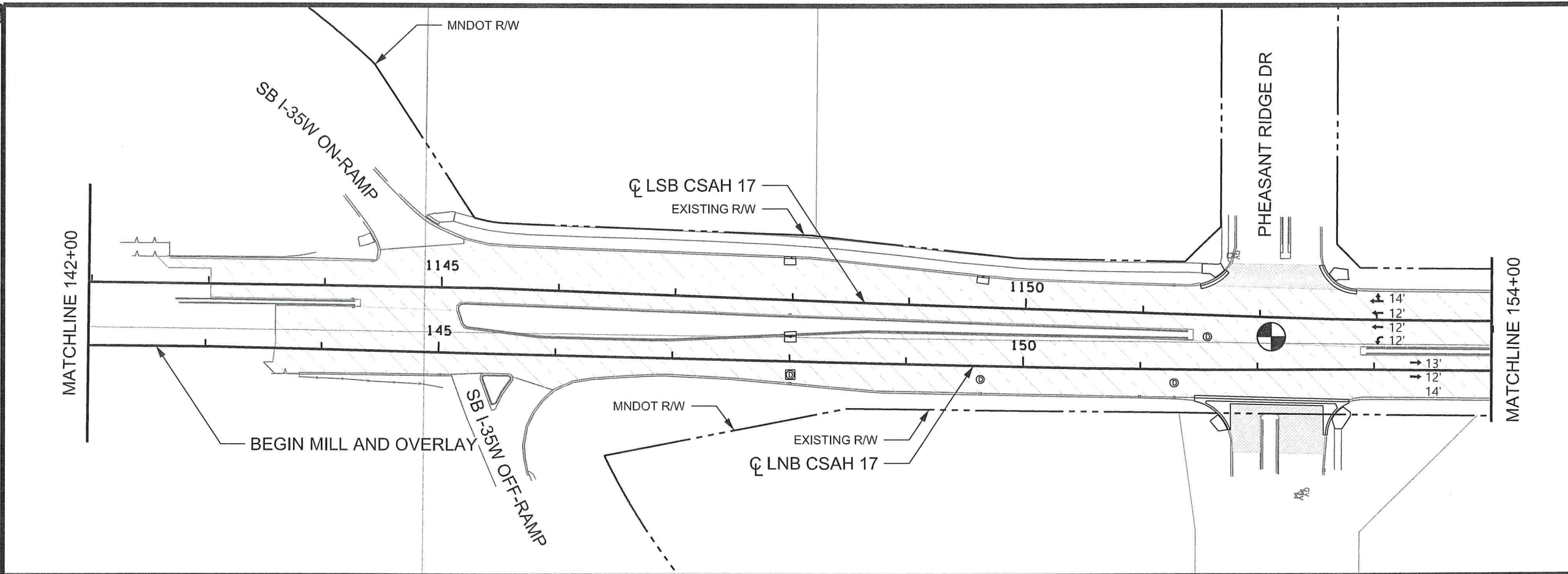


SAP 002-617-025

**CONSTRUCTION PLAN**

STA 190+00 TO 194+68.42  
STA 10+50 TO 12+35

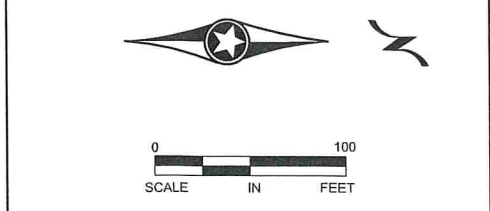
Sheet 33 of 94 Sheets



**LEGEND**

	SUPERELEVATION TRANSITION
	MATCH TO EXISTING

- SUPERELEVATION NOTES:**
1. ALL CROSS SLOPES ARE IN FEET PER FEET.
  2. STATIONING FOR NORTHBOUND CSAH 17 BASED ON SOUTHBOUND ALIGNMENT.
  3. STATIONING FOR SOUTHBOUND CSAH 17 BASED ON SOUTHBOUND ALIGNMENT.



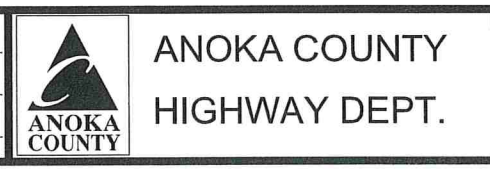
NO	DATE	BY	CKD	APPR	REVISION
1	04/06/2022	MR	NJD		UPDATED NOTES / LABELS

NAME: P:\002-617-025\Plan\002-617-025\_SE-P1.dgn 04/06/2022 10:57:28 AM

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

PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 4/12/22 LICENSE NO. 49046



DRAWN BY: BTU DATE: 04/06/22  
 DESIGN BY: BTU DATE: 04/06/22  
 CHECKED BY: NJD DATE: 04/06/22



SAP 002-617-025

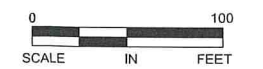
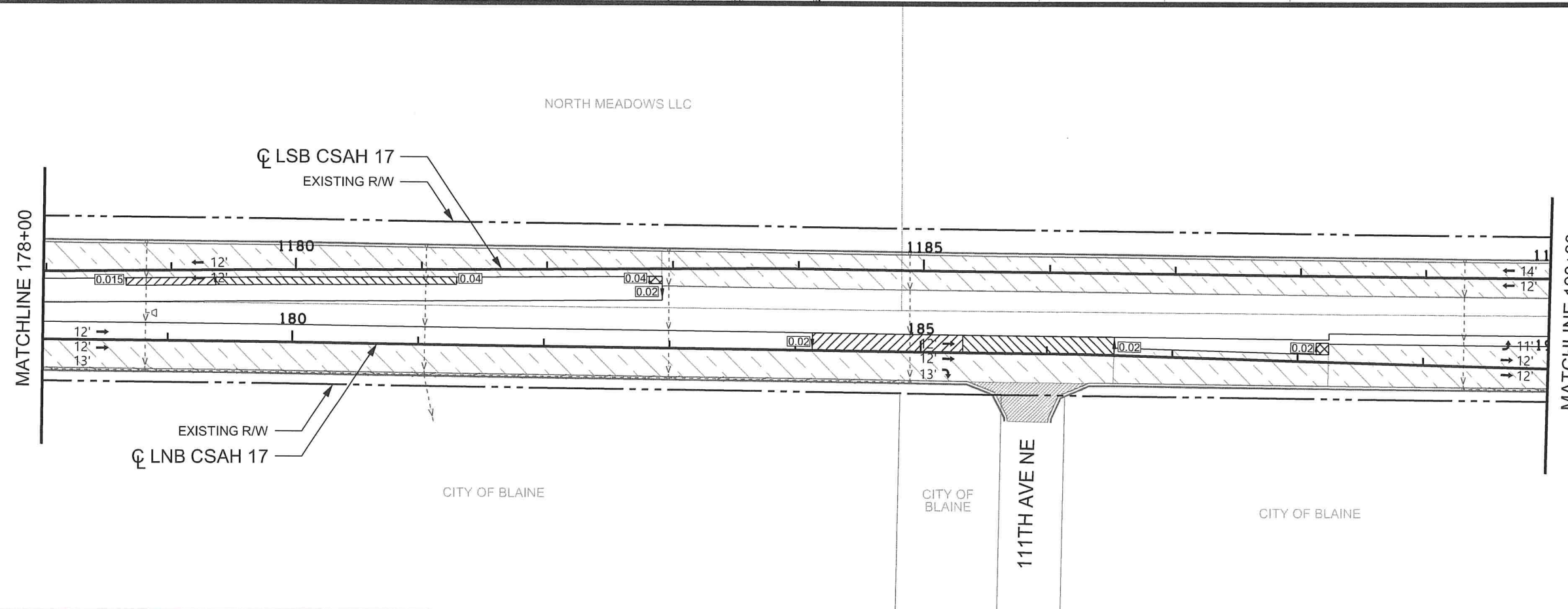
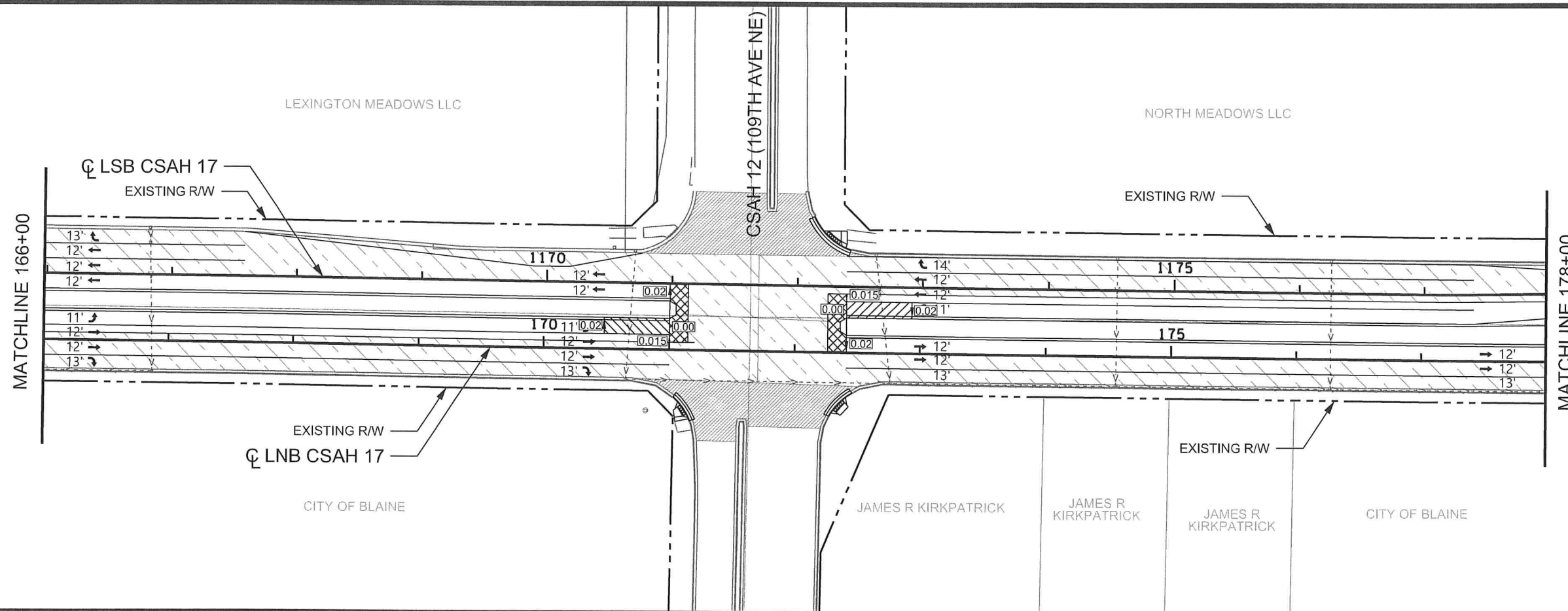
**SUPERELEVATION PLAN**  
 STA 142+00 TO 166+00  
 Sheet 34 of 94 Sheets

LEGEND

-  SUPERELEVATION TRANSITION
-  MATCH TO EXISTING

SUPERELEVATION NOTES:

1. ALL CROSS SLOPES ARE IN FEET PER FEET.
2. STATIONING FOR NORTHBOUND CSAH 17 BASED ON SOUTHBOUND ALIGNMENT.
3. STATIONING FOR SOUTHBOUND CSAH 17 BASED ON SOUTHBOUND ALIGNMENT.



1	04/20/2022	BTU	NJD	REVISED SB RT TURN LANE AT CSAH 12 INTERSECTION
NO	DATE	BY	CKD	APPR
				REVISION
				04/20/2022 10:26:58 AM

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE: *N. Dobda*

DATE: 4/20/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 04/06/22

DESIGN BY: BTU DATE: 04/06/22

CHECKED BY: NJD DATE: 04/06/22



ANOKA COUNTY  
HIGHWAY DEPT.



SAP 002-617-025

SUPERELEVATION PLAN

STA 166+00 TO 190+00

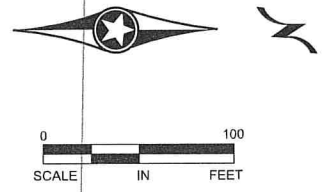
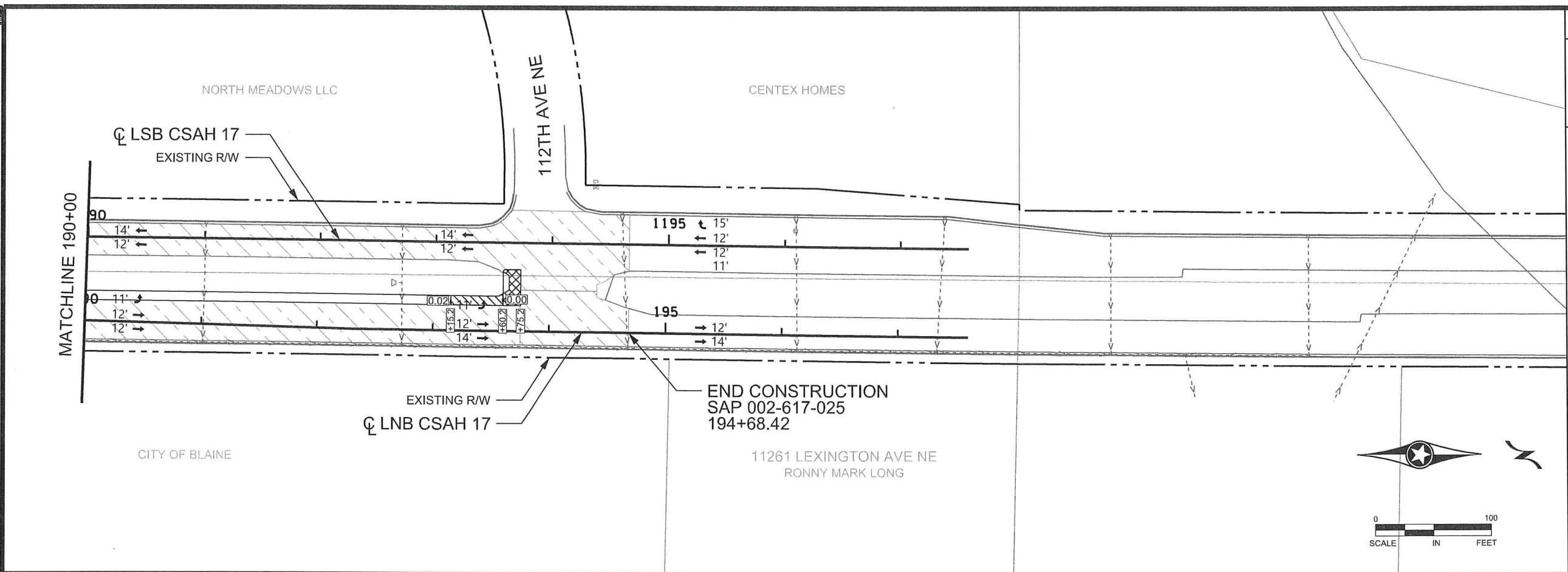
Sheet 35 of 94 Sheets

LEGEND

-  SUPERELEVATION TRANSITION
-  MATCH TO EXISTING

SUPERELEVATION NOTES:

1. ALL CROSS SLOPES ARE IN FEET PER FEET.
2. STATIONING FOR NORTHBOUND CSAH 17 BASED ON SOUTHBOUND ALIGNMENT.
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1	04/06/2022	BTU	NJD	UPDATED NOTES / LABELS
NO	DATE	BY	CKD	APPR
				REVISION
NAME: P:\002-617-025\Plan\002-617-025_SE-P3.dgn 04/06/2022 10:57:44 AM				

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

PRINT NAME: NICHOLAS J. DOBDA

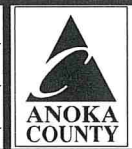
SIGNATURE: *N. Dobda*

DATE: 4/12/22 LICENSE NO. 49046

DRAWN BY: BTU DATE: 04/06/22

DESIGN BY: BTU DATE: 04/06/22

CHECKED BY: NJD DATE: 04/06/22



ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

SUPERELEVATION PLAN  
STA 190+00 TO 194+68.42  
STA 10+50 TO 12+35

Sheet 36 of 94 Sheets

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE**

**PROJECT LOCATION AND GENERAL INFORMATION**

THIS PROJECT IS LOCATED ON CSAH 17 (LEXINGTON AVENUE) BETWEEN PHEASANT RIDGE AND 112TH AVENUE IN THE CITY OF BLAINE. THE PROJECT LIES IN THE RICE CREEK WATERSHED DISTRICT.

THIS PROJECT ADDS TURN LANES TO THE ROADWAY, WITH EXPANSION RESTRICTED TO THE DEPRESSED MEDIAN. THE PROJECT WILL PRIMARILY CONSIST OF GRADING, PLACING AGGREGATE BASE, AND BITUMINOUS PAVING. STORM WATER RUNOFF WILL BE DIRECT TO THREE EXISTING PONDS ADJACENT TO THE PROJECT AREA.

**THE SWPPP MUST BE AMENDED TO DOCUMENT ANY CHANGES TO EROSION AND SEDIMENT CONTROLS, METHODS OR PRACTICES. THESE AMENDMENTS MUST BE TIMELY TO KEEP THE SWPPP UPDATED AND NEED TO BE KEPT ON SITE.**

**PROJECT PERSONNEL AND TRAINING**

THIS SWPPP WAS PREPARED BY MICHELLE PRITCHARD, WHO IS CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPPS. A COPY OF THE CERTIFICATION IS ON FILE WITH THE COUNTY AND IS AVAILABLE UPON REQUEST.

PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR PER MNDOT SPECIFICATION 2573.3.A.1. EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER TO OVERSEE IMPLEMENTATION OF SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED.

PROVIDE AT LEAST ONE CERTIFIED INSTALLER PER MNDOT SPECIFICATION 2573.3.A.2 FOR EACH CONTRACTOR OR SUBCONTRACTOR THAT PLACES THE PRODUCTS LISTED IN MNDOT SPECIFICATION SECTION 2573.3.A.2.

**CHAIN OF RESPONSIBILITY**

ANOKA COUNTY AND THE CONTRACTOR ARE CO-PERMITTEES FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION PERMIT. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL ASPECTS OF THE NPDES PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. THE COUNTY'S CONSTRUCTION PROJECT ENGINEER WILL ENSURE THAT THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL SUPERVISOR FULFILLS THEIR DUTIES.

**LONG TERM OPERATION AND MAINTENANCE**

THE CITY OF BLAINE STREETS DEPARTMENT IS RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT.

Dan Schluender  
City of Blaine  
10801 Town Square Drive NE  
Blaine, MN 55449  
Phone: 763-785-6158

**LAND FEATURE CHANGES**

TOTAL DISTURBED AREA	3.56 ACRES
TOTAL EXISTING IMPERVIOUS SURFACE AREA	10.47 ACRES
TOTAL PROPOSED IMPERVIOUS SURFACE AREA	11.69 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA	1.22 ACRES

**RECEIVING SURFACE WATERS, DISCHARGE TO IMPAIRED WATERS & SPECIAL WATERS**

THE FOLLOWING TABLE IDENTIFIES ALL SURFACE WATERS WITHIN 1 MILE OF THE PROJECT DISTURBED SOIL BOUNDARIES WHICH WILL RECEIVE STORMWATER RUNOFF FROM THE CONSTRUCTION SITE DURING OR AFTER CONSTRUCTION.

STORMWATER FROM A DISCHARGE POINT ON THE PROJECT THAT FLOWS TO A SURFACE WATER IDENTIFIED AS IMPAIRED AND/OR SPECIAL MUST INCLUDE THE FOLLOWING ADDITIONAL BMP REQUIREMENTS:

- 1) ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE MORE THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
- 2) TEMPORARY SEDIMENT BASINS OR PERMANENT PONDS MUST BE USED FOR COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH FIVE (5+) OR MORE ACRES DISTURBED AT ONE TIME. THE PROJECT AS DESIGNED DOES NOT MEET THIS THRESHOLD.

RECEIVING SURFACE WATERS WITHIN 1 MILE OF PROJECT		
NAME OF WATER BODY	SPECIAL	IMPAIRED
NONE		

**LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN**

SWPPP SHEET DESCRIPTIONS	LOCATION
TEMPORARY EROSION CONTROL MEASURES	SHEET NO. 7
PERMANENT EROSION CONTROL MEASURES	SHEET NO. 31-33
FINAL STABILIZATION	SHEET NO. 31-33
SOILS AND CONSTRUCTION NOTES	SHEET NO. 2
DRAINAGE STRUCTURES	SHEET NO. 29-33
DRAINAGE TABULATION	SHEET NO. 7
EROSION CONTROL TABULATION	SHEET NO. 5
TURF ESTABLISHMENT TABULATION	SHEET NO. 5
SITE MAP	SHEET NO. 1
STORMWATER CALCULATIONS	AVAILABLE ON REQUEST
SWPPP	SHEET NO. 36A-36B

PROJECT CONTACTS			
MPCA	NPDES	LAUREL MEZNER	218-316-3889
MPCA	EMERGENCY	STATE DUTY OFFICER	800-422-0798
RCWD	WATERSHED	PATRICK HUGHES	763-389-3080
ANOKA COUNTY DESIGN SWPPP PREPARATION	U OF MN DESIGN OF SWPPP EXPIRES 5/25	MICHELLE PRITCHARD	763-324-3162
ANOKA COUNTY PROJECT REPRESENTATIVE	U OF MN SITE MANAGEMENT EXPIRES 5/23	CHRIS OSTERHUS	651-233-3168
EROSION CONTROL SUPERVISOR	CONTRACTOR		
EROSION CONTROL INSTALLER	CONTRACTOR		

**POLLUTION PREVENTION MEASURES**

THE CONTRACTOR WILL IMPLEMENT THE POLLUTION PREVENTION MANAGEMENT MEASURES AS DIRECTED IN THE NPDES PERMIT PART IV.F AS PERTAINING TO SOLID WASTE, HAZARDOUS MATERIALS, EXTERNAL TRUCK WASHING, AND CONCRETE WASHOUT ONSITE. THESE MANAGEMENT MEASURES FOR POLLUTION PREVENTION WILL BE STRICTLY ENFORCED.

**CONSTRUCTION PHASING**

SILT FENCE AND/OR OTHER SUITABLE PERIMETER BMPs AS PROVIDED IN THE PLANS WILL BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY. CONSTRUCTION WILL BE REQUIRED TO BE PHASED SO THAT ALL DOWN GRADIENT SEDIMENT CONTROL MEASURES ARE INSTALLED PRIOR TO OR IN CONJUNCTION WITH ANY SOIL DISTURBING ACTIVITIES.

WHEN TOPSOIL IS DISTURBED, THE TOPSOIL WILL BE STRIPPED AND STOCKPILED IN SOIL BERMS AT THE TOE OF THE STRIPPED SLOPES ALONG THE PROJECT LIMITS. TEMPORARY VEGETATION WILL BE ESTABLISHED ON THE STOCKPILED TOPSOIL BERMS WITH RAPID STABILIZATION AS PROVIDED IN THE PLAN. STOCKPILED TOPSOIL BERMS WILL NOT BE PLACED IN ANY STORMWATER CONVEYANCES.

AFTER STRIPPING THE TOPSOIL, THE EXPOSED SOIL INSLOPES WILL BE STABILIZED WITH DISK ANCHORED TYPE 3 MULCH AND SEED WITHIN 7 DAYS OR RAPID STABILIZATION 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS BEEN TEMPORARILY OR PERMANENTLY CEASED.

**PERMANENT STORMWATER MANAGEMENT SYSTEM**

ALL STORMWATER MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING WATERS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING A SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.

**SEDIMENT CONTROL PRACTICES**

ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMPs DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL DISCHARGE TO THE INLET HAVE BEEN STABILIZED.

**EROSION PREVENTION PRACTICES**

ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EORSION, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER. STABILIZATION OF THE LAST 200 FEET MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER.

PIPE CULVERT OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER. THIS WILL INCLUDE DRAINAGE DITCHES THAT DRAIN WATER FROM ANY PORTION OF THE CONSTRUCTION SITE.

**LOCATION OF SWPPP REQUIREMENTS**

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET, AS WELL AS IN THE SPECIAL PROVISIONS, MNDOT SPEC BOOK (REFER TO PLAN TITLE SHEET FOR VERSION), OR ON FILE WITH THE COUNTY. THE NOTES AND TABLE BELOW ARE INTENDED TO BE 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.


**SOIL TYPES**

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT PER THE USDA WEB SOIL SURVEY DATA ARE PREDOMINANTLY ISANTI FINE LOAMY SAND AND MARKEY MUCK-OCCASIONALLY PONDED.

**ENVIRONMENTAL REVIEW**

THERE ARE NO STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS NOT LOCATED IN A WELL HEAD PROTECTION AREA.  
THIS PROJECT IS NOT LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA).  
THIS PROJECT IS NOT LOCATED IN A KARST AREA.  
THIS PROJECT IS NOT LOCATED IN AN EMERGENCY RESPONSE AREA (ERA) PER DEPARTMENT OF HEALTH.  
THIS PROJECT IS NOT LOCATED WITHIN AREAS OF KNOWN SOIL AND GROUNDWATER CONTAMINATION.

					I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: NICHOLAS J. DOBDA SIGNATURE: <i>NJD</i> DATE: 5/17/22 LICENSE NO. 49046		DRAWN BY MP DATE 05/04/22 DESIGN BY MP DATE 05/04/22 CHECKED BY NJD DATE 05/04/22		 <b>ANOKA COUNTY HIGHWAY DEPT.</b>	SAP 002-617-025	<b>STORMWATER POLLUTION PREVENTION PLAN</b>  Sheet <u>36A</u> of <u>96</u> Sheets
NO	DATE	BY	CHKD	APPR	REVISION						
NAME: P:\002-617-025\Plan\002-617-025_SWP.dgn					05/04/2022	2:03:20 PM					

## STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

### Training

Individual revising or amending the SWPPP and individuals performing inspections must fill in the following table.

<b>Name of on-site personnel trained</b>	
<b>Dates of training</b>	
<b>Name of instructor(s)</b>	
<b>Entity providing training</b>	
<b>Content of training course or workshop</b>	

### Amending the SWPPP

The SWPPP must be amended to record changes or modifications to permanent BMPs or other storm water treatment systems and removals of temporary BMPs. Changes to temporary BMPs may be recorded on this sheet. Include a brief description of the problem, location, nature of alteration, and comments. This record is to be retained for three years after project completion.

Date Reported	Plan Location (sheet)	Project Location (station)	Problem, solution, and notes

1	04/06/2022	MR	NJD	REVISED TABULATION LABELS
NO	DATE	BY	CHKD	APPR
REVISION		DATE	TIME	
NAME: P:\002-617-025\Plan\002-617-025_SWP.dgn				05/04/2022 2:03:26 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: [Signature]  
 DATE: 5/17/22 LICENSE NO. 49046

DRAWN BY MP DATE 05/04/22  
 DESIGN BY MP DATE 05/04/22  
 CHECKED BY NJD DATE 05/04/22



**ANOKA COUNTY  
 HIGHWAY DEPT.**

SAP 002-617-025

**STORMWATER POLLUTION  
 PREVENTION PLAN**  
 Sheet 36B of 96 Sheets

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE**

**PROJECT LOCATION AND GENERAL INFORMATION**

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THE CITY OF BLAINE STREETS DEPARTMENT IS RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT.

Dan Schluender  
City of Blaine  
10801 Town Square Drive NE  
Blaine, MN 55449  
Phone: 763-785-6158

**LAND FEATURE CHANGES**

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NAME OF WATER BODY	SPECIAL	IMPAIRED
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STORMWATER CALCULATIONS	AVAILABLE ON REQUEST
SWPPP	SHEET NO. 36A-36B

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EROSION CONTROL SUPERVISOR	CONTRACTOR		
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**POLLUTION PREVENTION MEASURES**

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THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET, AS WELL AS IN THE SPECIAL PROVISIONS, MNDOT SPEC BOOK (REFER TO PLAN TITLE SHEET FOR VERSION), OR ON FILE WITH THE COUNTY. THE NOTES AND TABLE BELOW ARE INTENDED TO BE 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.

**SOIL TYPES**

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT PER THE USDA WEB SOIL SURVEY DATA ARE PREDOMINANTLY ISANTI FINE LOAMY SAND AND MARKEY MUCK-OCCASIONALLY PONDED.

**ENVIRONMENTAL REVIEW**

THERE ARE NO STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS NOT LOCATED IN A WELL HEAD PROTECTION AREA.  
THIS PROJECT IS NOT LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA).  
THIS PROJECT IS NOT LOCATED IN A KARST AREA.  
THIS PROJECT IS NOT LOCATED IN AN EMERGENCY RESPONSE AREA (ERA) PER DEPARTMENT OF HEALTH.  
THIS PROJECT IS NOT LOCATED WITHIN AREAS OF KNOWN SOIL AND GROUNDWATER CONTAMINATION.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-617-025\Plan\002-617-025_SWP.dgn					
05/04/2022 2:03:20 PM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE NO. 49046

DRAWN BY MP DATE 05/04/22  
DESIGN BY MP DATE 05/04/22  
CHECKED BY NJD DATE 05/04/22



**ANOKA COUNTY  
HIGHWAY DEPT.**

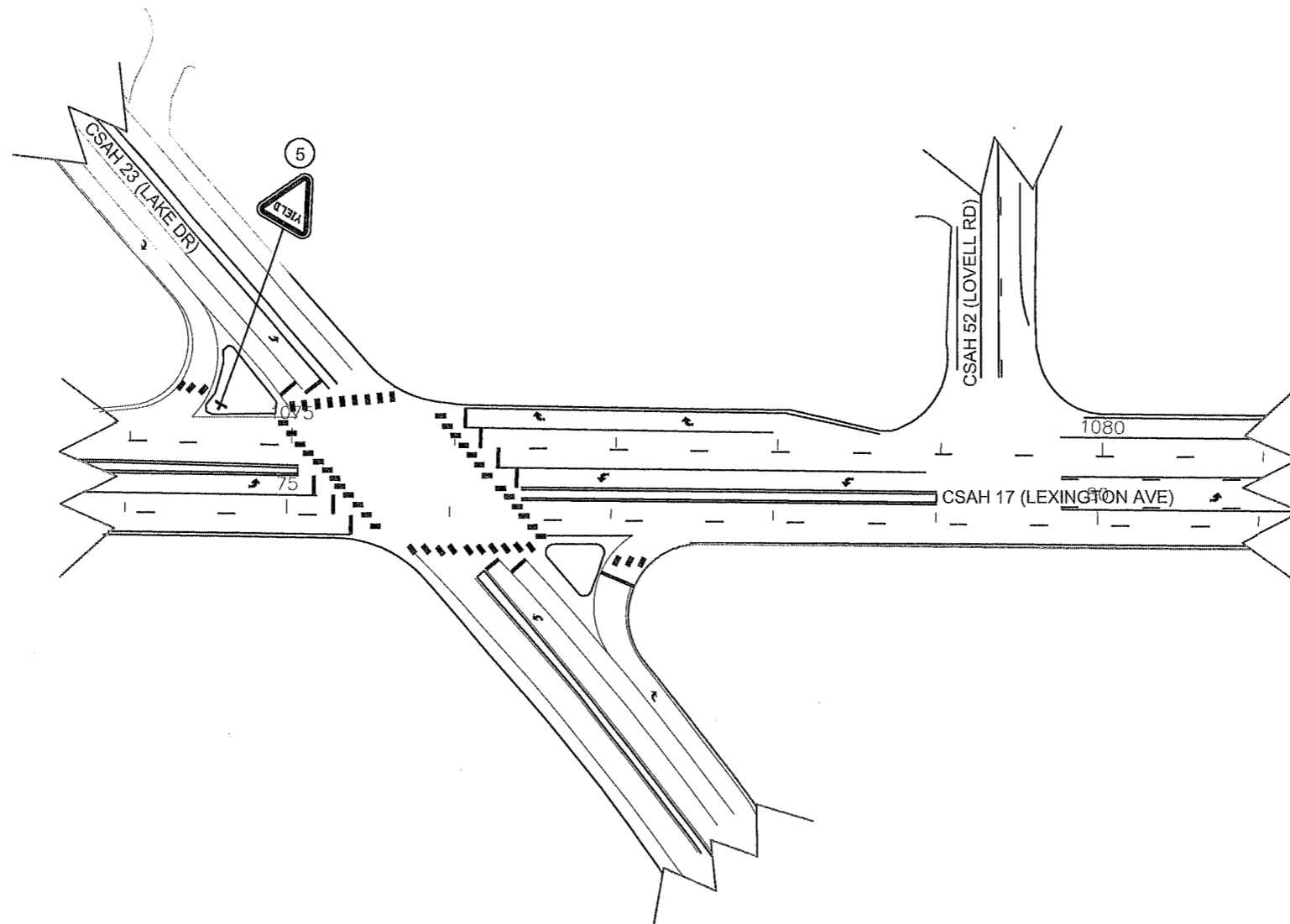
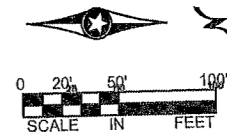
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**STORMWATER POLLUTION  
PREVENTION PLAN**

Sheet 36A of 96 Sheets







1070  
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70  
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1085  
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85  
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- SIGN NOTES:  
 ③ SALVAGE SIGN FOR RE-USE ON THIS PROJECT  
 ⑤ REMOVE SIGN

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109th\Base\Traffic\Existing Sign Removals.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: SEAN R. THIEL DATE: 3/23/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

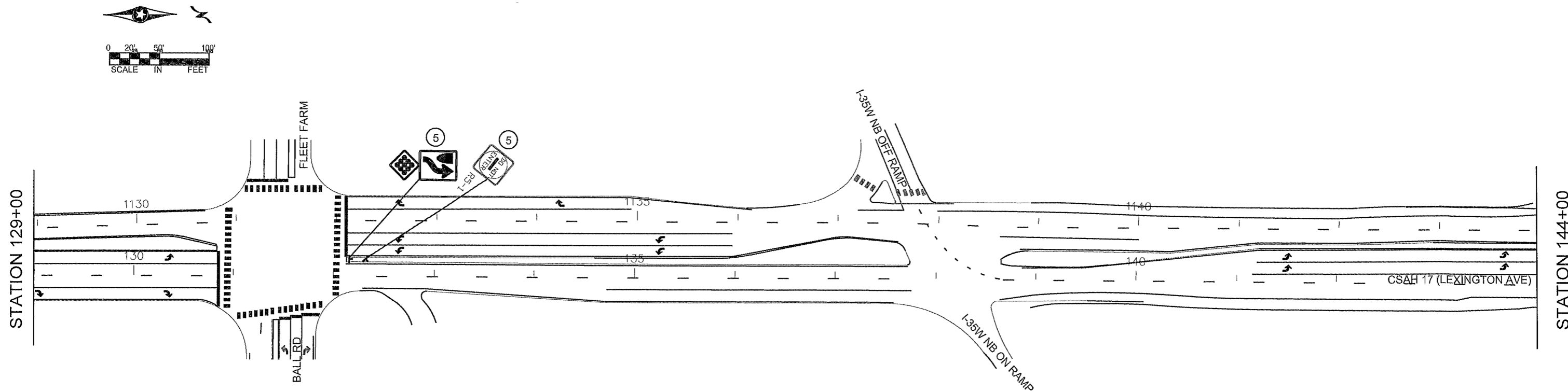
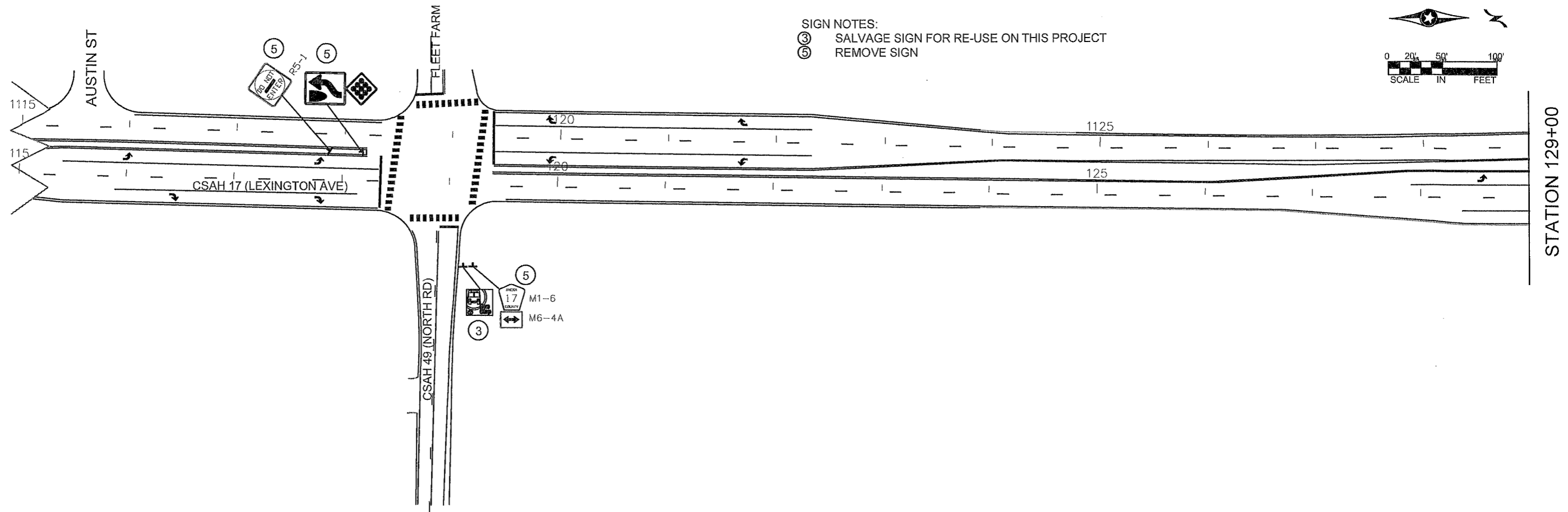
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 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY SRT DATE 03/23/22



ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

EXISTING SIGN  
REMOVALS  
SHEET 37 OF 94 SHEETS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109\InBase\Traffic\Existing Sign Removals.dwg

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PRINT NAME: SEAN R. THIEL DATE: 3/23/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

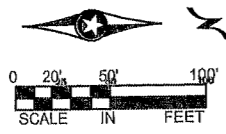
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 CHECKED BY: SRT DATE: 03/23/22



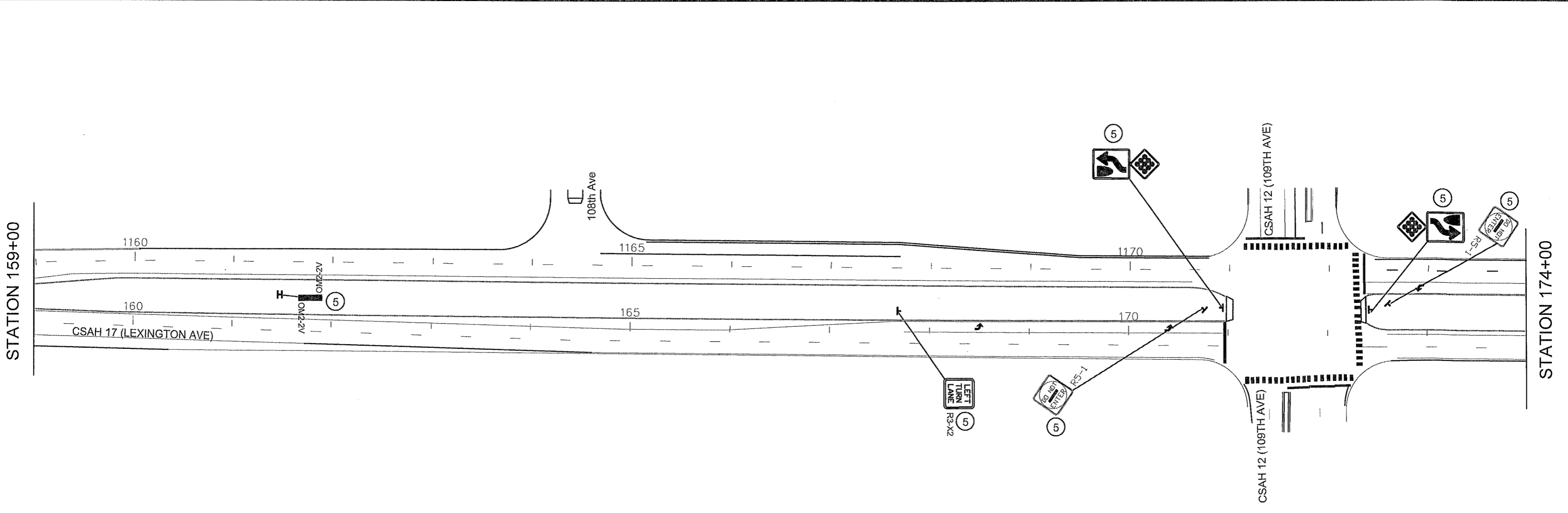
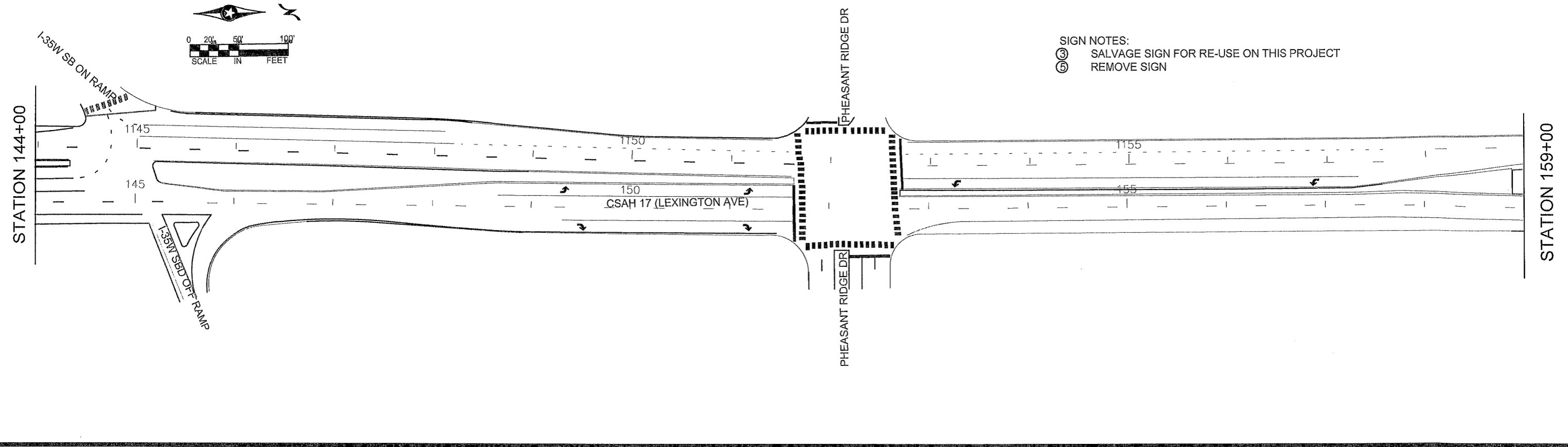
**ANOKA COUNTY  
 HIGHWAY DEPT.**

SAP 002-617-025

EXISTING SIGN  
 REMOVALS  
 SHEET 38 OF 94 SHEETS



SIGN NOTES:  
 (3) SALVAGE SIGN FOR RE-USE ON THIS PROJECT  
 (5) REMOVE SIGN



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109th\Base\Traffic\Existing Sign Removals.dwg

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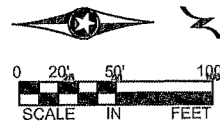
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 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 03/11/22  
 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: SRT DATE: 03/23/22

**ANOKA COUNTY**  
**HIGHWAY DEPT.**

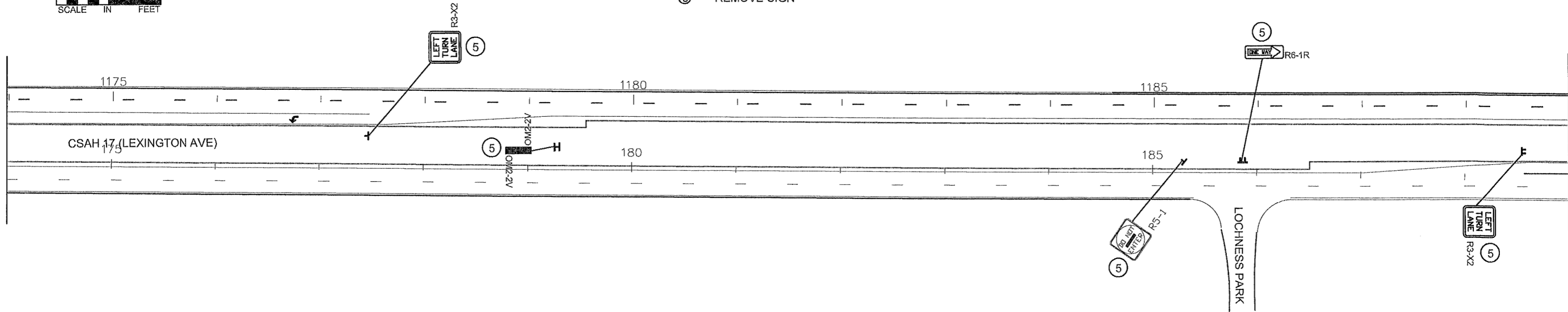
SAP 002-617-025

EXISTING SIGN REMOVALS  
 SHEET 39 OF 94 SHEETS

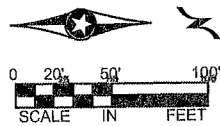


SIGN NOTES:  
 (3) SALVAGE SIGN FOR RE-USE ON THIS PROJECT  
 (5) REMOVE SIGN

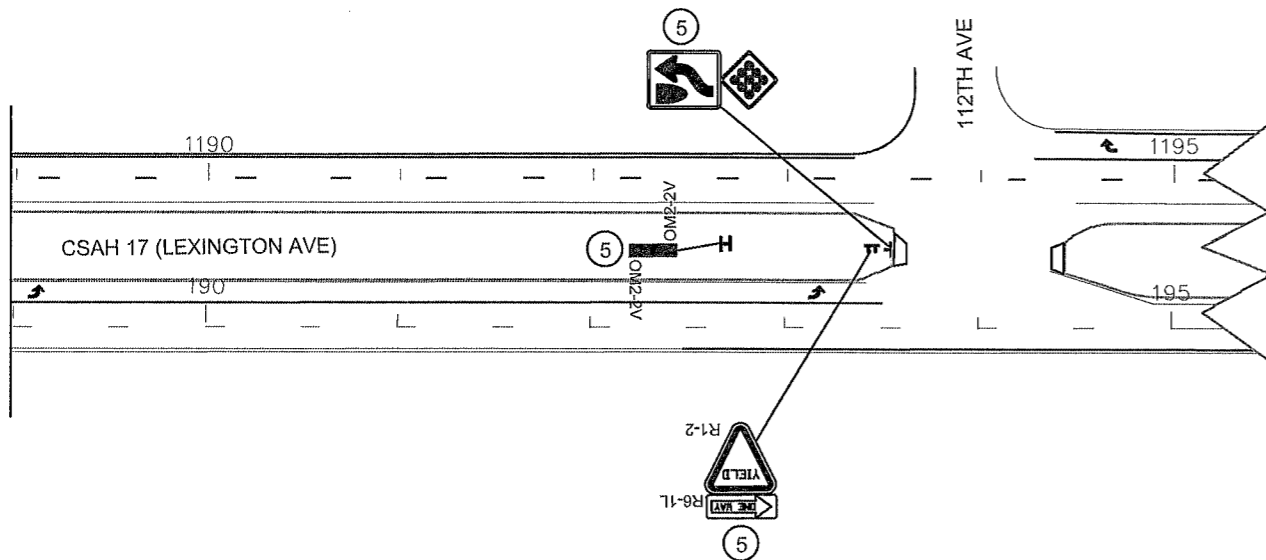
STATION 174+00



STATION 189+00



STATION 189+00



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109th\Base\Traffic\Existing Sign Removals.dwg

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 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: SRT DATE: 03/23/22



ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-617-025

EXISTING SIGN  
 REMOVALS  
 SHEET 40 OF 94 SHEETS

EXISTING SIGN TAB						
STATION	ADDRESS/ DESCRIPTION (NOTES)	REMOVE SIGN TYPE C	SALVAGE SIGN TYP C	REINSTALL SALVAGED SIGH TYPE C	SIGN NUMBER	SIGN LEGEND
		EACH	EACH	EACH		
74+54	ISLAND	1			R1-2	YIELD
117+89	MEDIAN	1			R5-1	DO NOT ENTER
118+19	MEDIAN	1			R4-7	KEEP RIGHT
					OM1-1	9 BUTTON
132+16	MEDIAN	1			R4-7	KEEP RIGHT
					OM1-1	9 BUTTON
132+32	MEDIAN	1			R5-1	DO NOT ENTER
161+47	MEDIAN	1			OM2-2V	CULVERT MKR
					OM2-2V	CULVERT MKR
167+67	MEDIAN	1			R3-X2	LEFT TURN LANE
170+75	MEDIAN	1			R5-1	DO NOT ENTER
170+95	MEDIAN	1			R4-7	KEEP RIGHT
					OM1-1	9 BUTTON
172+42	MEDIAN	1			R4-7	KEEP RIGHT
					OM1-1	9 BUTTON
172+61	MEDIAN	1			R5-1	DO NOT ENTER
177+47	MEDIAN	1			R3-X2	LEFT TURN LANE
179+30	MEDIAN	1			OM2-2V	CULVERT MKR
					OM2-2V	CULVERT MKR
185+29	MEDIAN	1			R5-1	DO NOT ENTER
185+87	MEDIAN	1			R6-1R	ONE WAY
188+55	MEDIAN	1			R3-X2	LEFT TURN LANE
192+70	MEDIAN	1			OM2-2V	CULVERT MKR
					OM2-2V	CULVERT MKR
193+44	MEDIAN	1			R1-2	YIELD
					R6-1L	ONE WAY
193+54	MEDIAN	1			R4-7	KEEP RIGHT
					OM1-1	9 BUTTON
VB CSAH4	RT		1	1		BUS STOP
	RT	1			M1-6M	17 RTE MKR
					M6-4	DBLE ARROW
TOTAL		20	1	1		

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_17_S of North Rd-109th\Bases\Traffic\Existing Sign Removals.dwg					

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SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 03/11/22

DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_

CHECKED BY: SRT DATE: 03/23/22



ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

EXISTING SIGN  
REMOVAL QUANTITIES

SHEET 41 OF 94 SHEETS

**PERMANENT PAVEMENT MARKING PLAN  
NOTES AND GUIDELINES**

**GENERAL INFORMATION:**

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. ANOKA COUNTY HIGHWAY DEPARTMENT WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

**MULTI COMPONENT (MULTI COMP):**

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL MULTI COMP PAVEMENT MARKINGS.

THE MULTI COMP MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI COMP LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

A MULTI COMP LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE. GLASS BEADS SHALL BE APPLIED AT A MINIMUM RATE OF 25LBS POUNDS PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES FAHRENHEIT OR GREATER.

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

**PREFORMED THERMOPLASTIC:**

THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

**PAINT:**

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES FARHENHEIT OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILD OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

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

PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - MULTI COMP	LIN FT	25988
8" SOLID LINE WHITE - MULTI COMP	LIN FT	800
1 4" BROKEN LINE WHITE - MULTI COMP	LIN FT	3845
2 4" DOTTED LINE WHITE - MULTI COMP	LIN FT	180
3 4" DOTTED LINE WHITE - MULTI COMP	LIN FT	51
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	16139
4" BROKEN LINE YELLOW - MULTI COMP	LIN FT	122
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (PMS)*	LIN FT	776
3'X6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	4014
PAVEMENT MESSAGE (RIGHT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	327
PAVEMENT MESSAGE (LEFT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	360
PAVEMENT MESSAGE (THRU/RIGHT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	0
PAVEMENT MESSAGE (ONLY) - PREFORMED THERMOPLASTIC	SQ FT	21

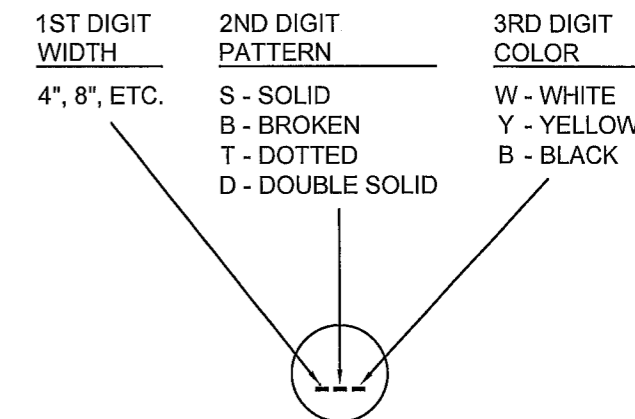
- 1 - 10' STRIPE, 40' GAP
- 2 - 3' STRIPE, 12' GAP
- 3 - 2' STRIPE, 6' GAP
- \* PAVEMENT MARKING SPECIAL

**SYMBOLS & MATERIALS LEGEND**

- CROSSWALK BLOCK WHITE - POLY PREFORM
- ↩ PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

**STRIPING KEY**

- CIRCLE - MULTI COMP
- △ TRIANGLE - PAINT
- SQUARE - POLY PREFORM THERMOPLASTIC
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



EXAMPLE: (4SW) = SOLID LINE WHITE - MULTI COMP

- - - BROKEN LINE - 50' CYCLE (10' LINE, 40' GAP)
- - - DOTTED LINE - 15' CYCLE (3' LINE, 12' GAP) UNLESS SHOWN OTHERWISE IN THE PLAN

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109\thiBase\Traffic\Perm Pvrnt Mrkg Guide Notes 2021.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/20/22  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 03/15/22  
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CHECKED BY: SRT DATE: 03/23/22

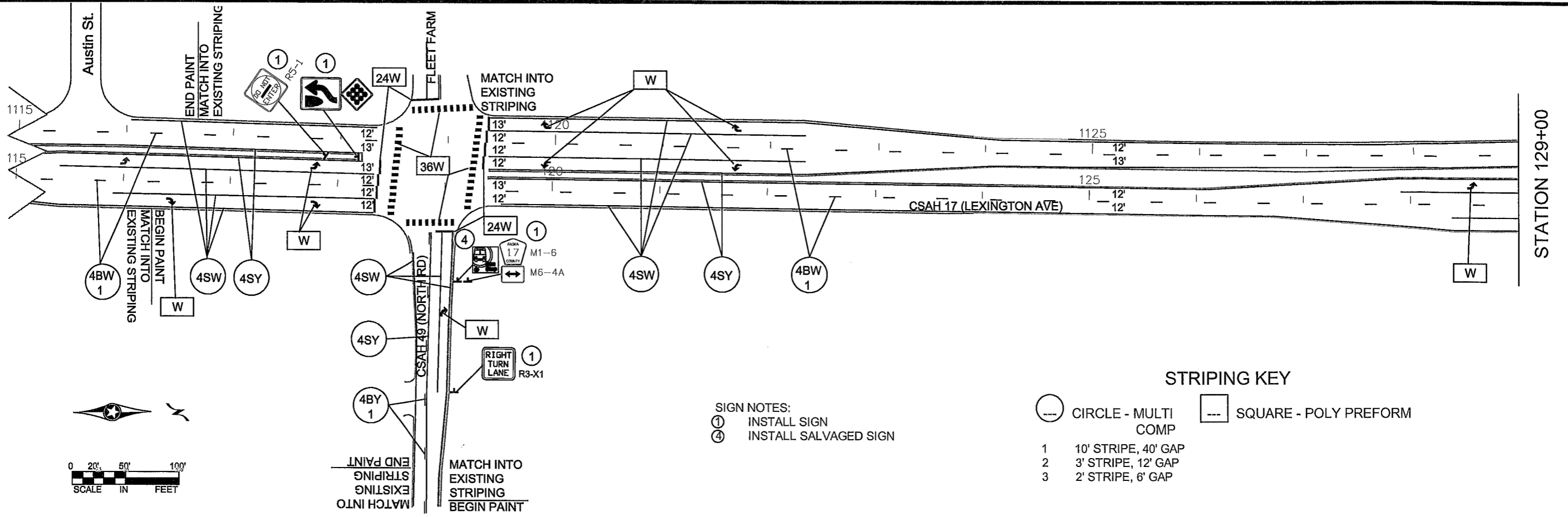


**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-617-025

PERMANENT PAVEMENT  
MARKING PLAN DETAILS

SHEET 42 OF 94 SHEETS

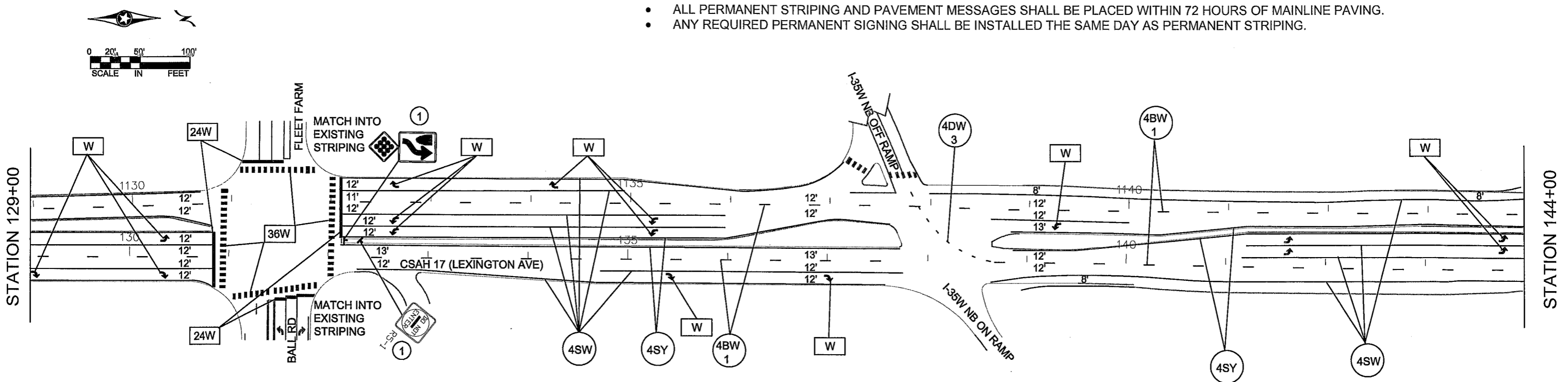


SIGN NOTES:  
 ① INSTALL SIGN  
 ④ INSTALL SALVAGED SIGN

STRIPING KEY

○	CIRCLE - MULTI COMP	□	SQUARE - POLY PREFORM
1	10' STRIPE, 40' GAP		
2	3' STRIPE, 12' GAP		
3	2' STRIPE, 6' GAP		

- NOTES:
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAYS IN CONSTRUCTION AREA.
  - MATCH INTO EXISTING STRIPING ON MAINLINE ENDS AND SIDE STREETS.
  - ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
  - ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.



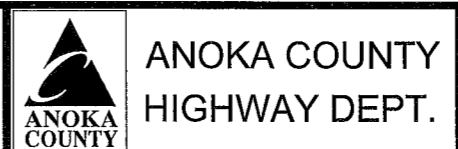
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NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109th\BaselTrafficPerm S&S.dwg

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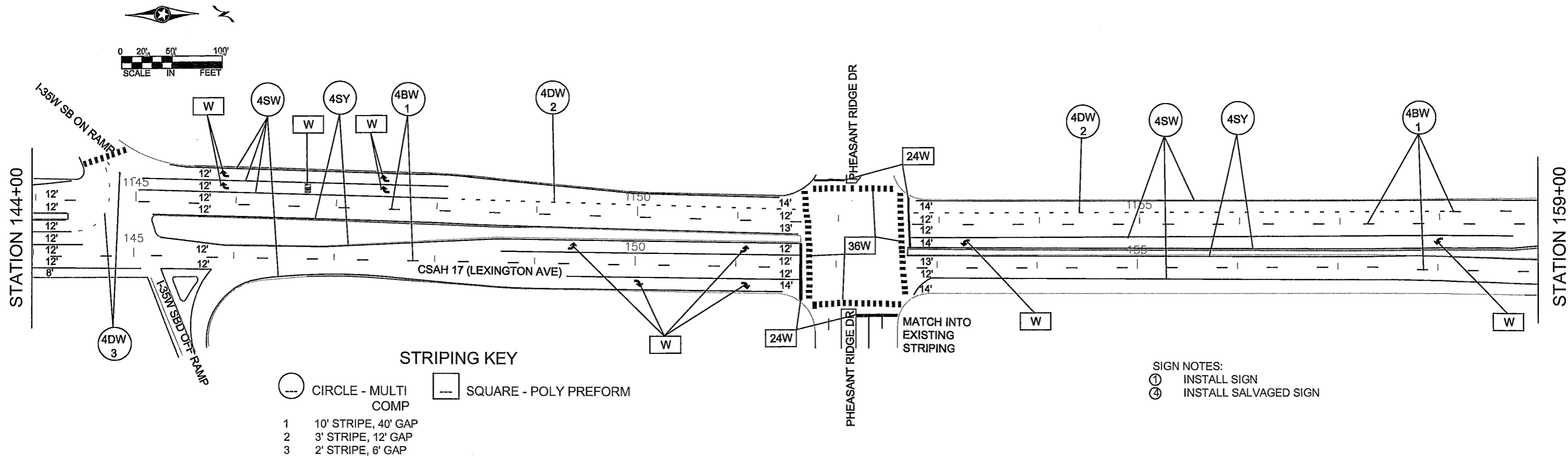
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 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 03/23/22  
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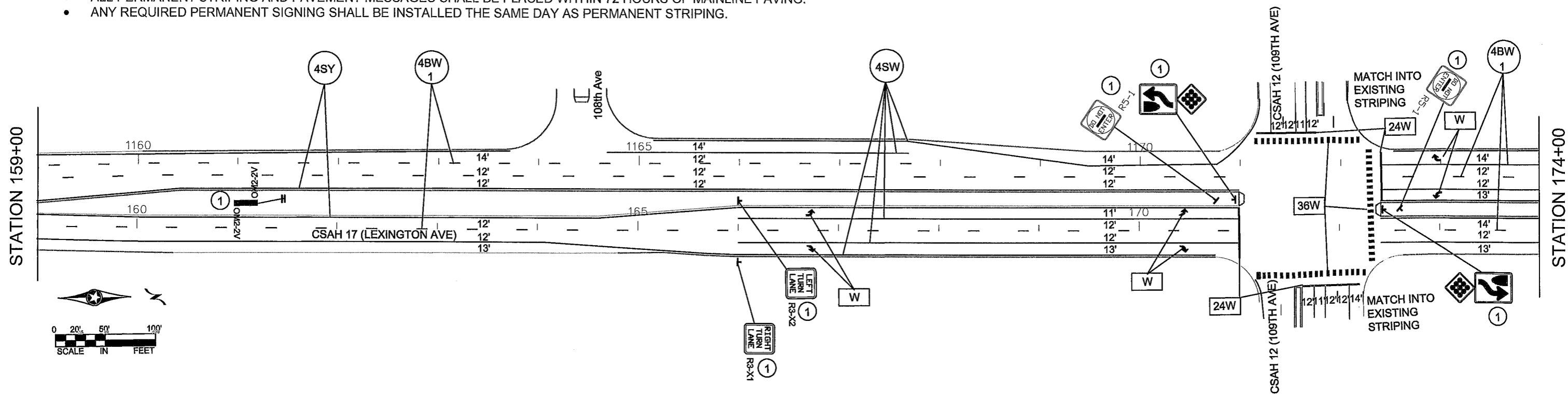


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PERMANENT SIGNING & STRIPING  
 SHEET 44 OF 94 SHEETS



- NOTES:
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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109th\Base\Traffic\Perm S&S.dwg

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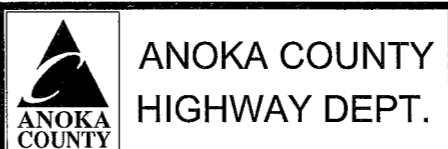
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SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 03/23/22

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CHECKED BY: SRT/JR DATE: 03/23/22

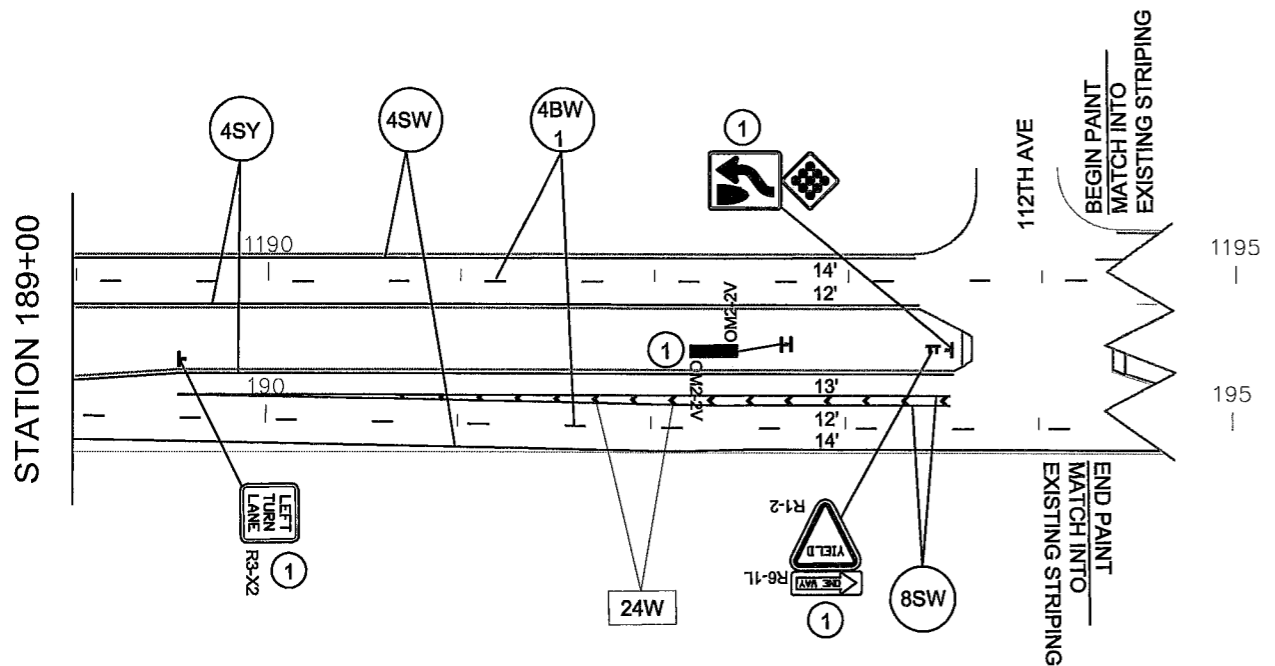
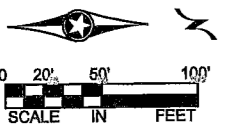
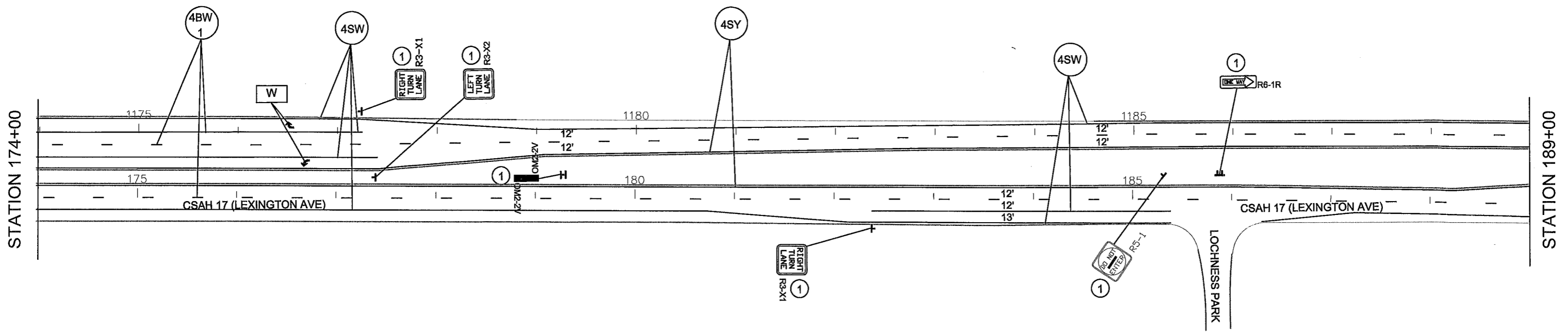
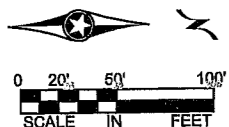


SAP 002-617-025

PERMANENT SIGNING & STRIPING

SHEET 45 OF 94 SHEETS





**STRIPING KEY**

- CIRCLE - MULTI COMP
- SQUARE - POLY PREFORM
- 1 10' STRIPE, 40' GAP
- 2 3' STRIPE, 12' GAP
- 3 2' STRIPE, 6' GAP

- SIGN NOTES:**
- ① INSTALL SIGN
  - ④ INSTALL SALVAGED SIGN

- NOTES:**
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  - ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109\tr\Basetraffic\Perm S&S.dwg

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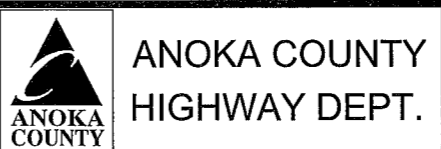
PRINT NAME: SEAN R. THIEL DATE: 4/20/22

SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 03/23/22

DESIGN BY: DATE:

CHECKED BY: SRT/JR DATE: 03/23/22



SAP 002-617-025

PERMANENT SIGNING & STRIPING

SHEET 46 OF 94 SHEETS

F & I SIGN TYPE C PANELS

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	PANEL AREA	TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT To pavement edge
				SQ. FT.	SQ. FT.		
R6-1L	36" x 12"		1	3.00	3.00		
R1-2	36" x 36" X 36"		2	4.50	9.00	1	7.0'
R3-X2	30" x 30"		3	6.25	18.75	1	7.0'
R3-X2	30" x 30"		4	6.25	18.75	1	7.0'
R4-7	24" x 30"		5	5.00	25.00	1	7.0'
OM1-1	18" x 18"		5	2.25	11.25		
R5-1	30" x 30"		5	6.25	31.25	1	7.0'
R6-1R	54" x 18"		1	6.75	6.75	1	7.0'
M1-6M	24" x 24"		1	4.00	4.00	1	7.0'
M6-4	21" x 15"		1	2.19	2.19		
<b>TYPE C SIGN TOTAL SQ FT</b>				<b>136.19</b>			

F & I MARKER PANELS

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	PANEL AREA	TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT To pavement edge
				SQ. FT.	SQ. FT.		
OM2-2V	6" x 12"		6	0.50	3.00	1	4.0'
OM3-R	12" x 36"		2	3.00	6.00	1	4.0'
<b>MARKER SIGN TOTAL SQ FT</b>				<b>9.00</b>			

<b>PROJECT TOTAL SQ FT</b>	<b>145.19</b>
----------------------------	---------------

NOTES:

- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109th\Bases\Traffic\Perm S&S.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 4/20/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 03/23/22  
 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: SRT/JR DATE: 03/23/22

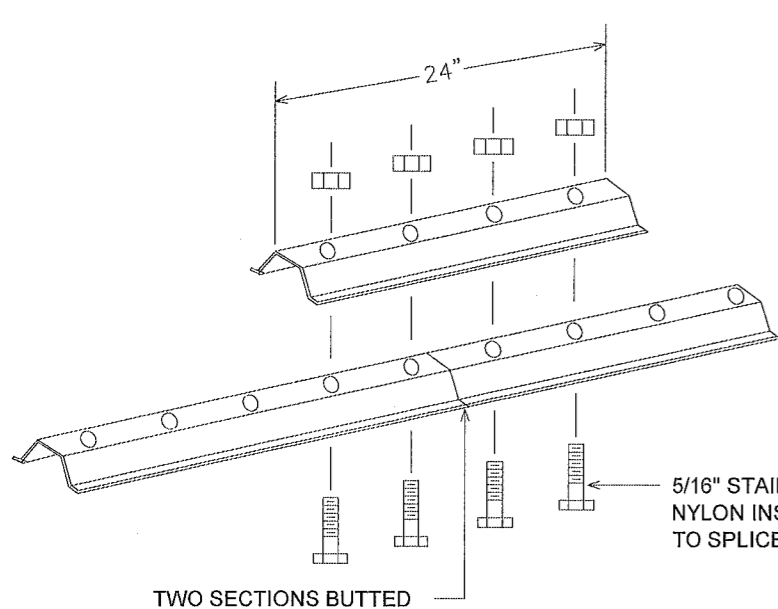


ANOKA COUNTY  
HIGHWAY DEPT.

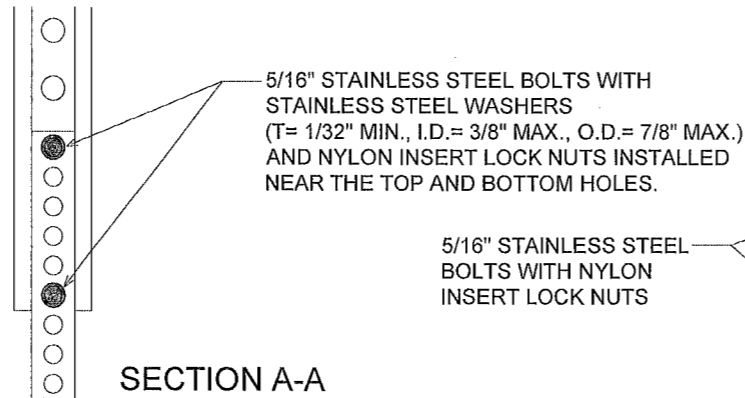
SAP 002-617-025

PERMANENT SIGNING  
QUANTITIES

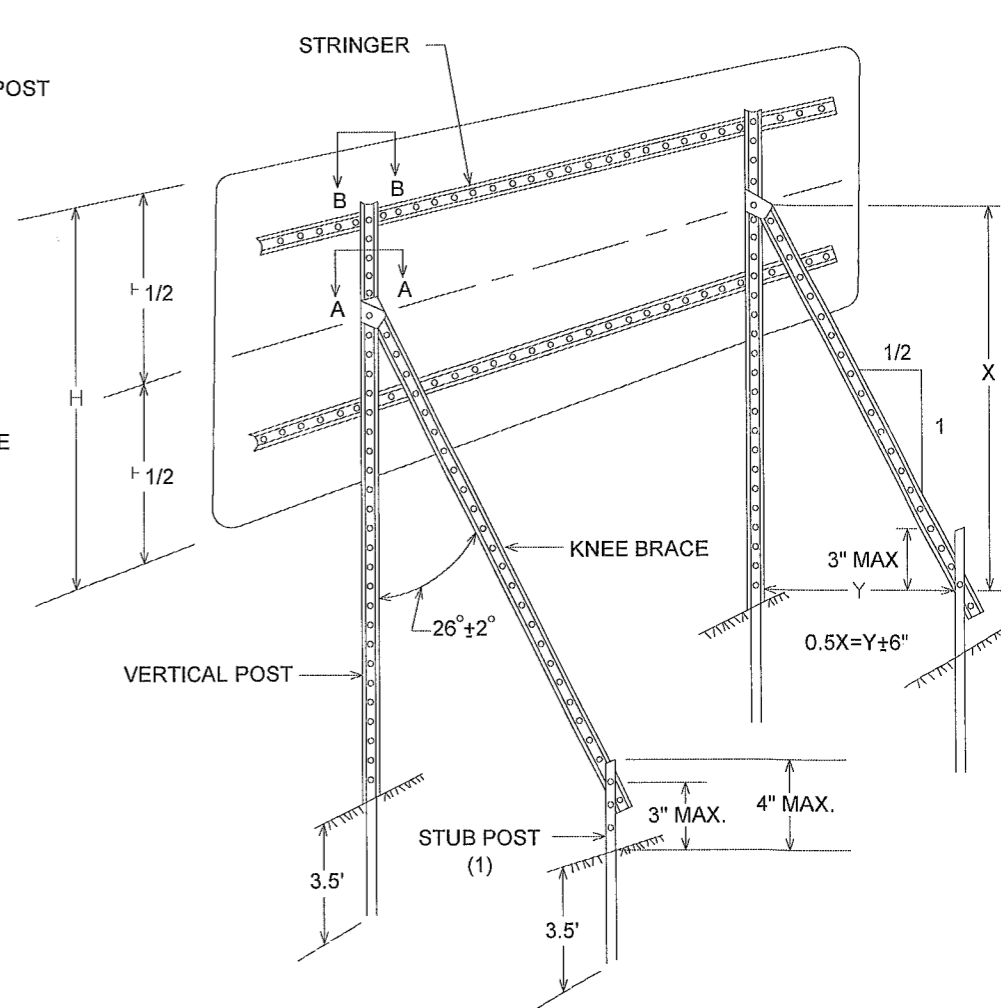
SHEET 47 OF 94 SHEETS



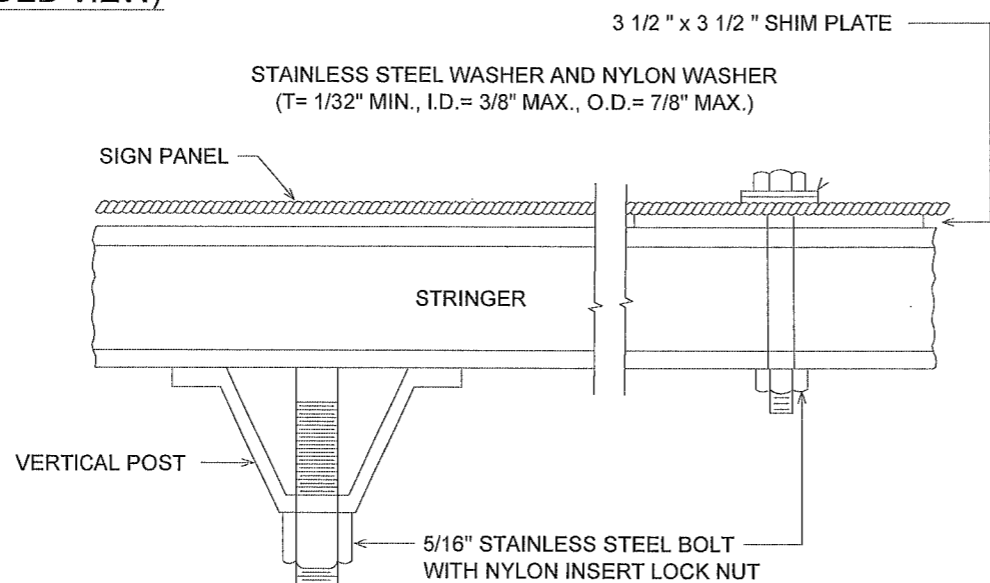
LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A



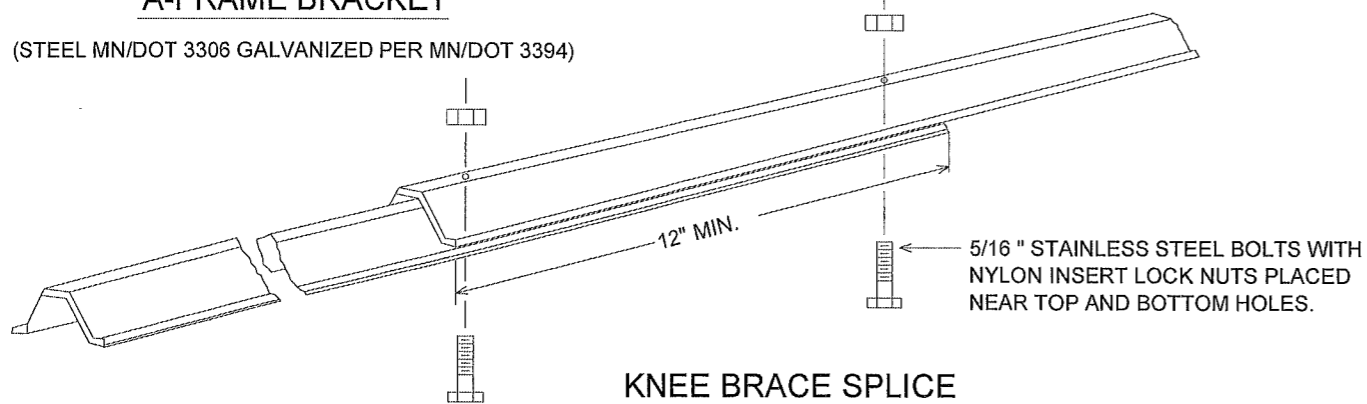
TYPICAL "A-FRAME" INSTALLATION  
TYPE "D" SIGNS



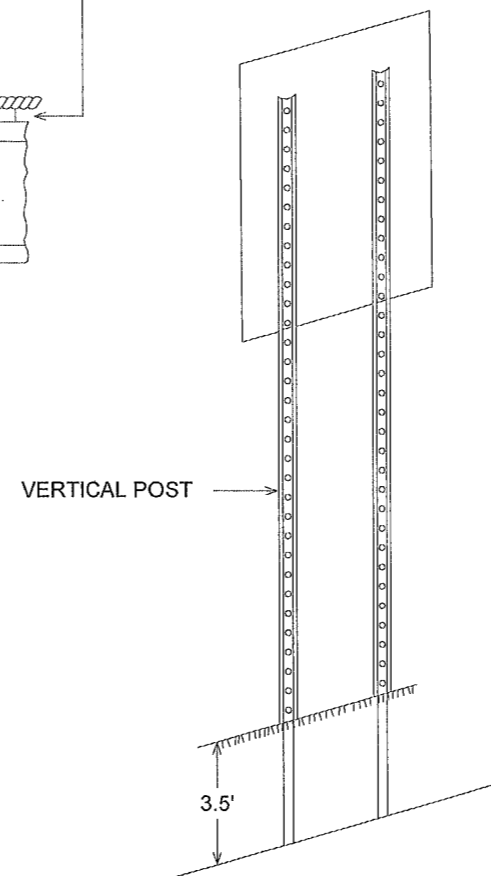
SECTION B-B

A-FRAME BRACKET

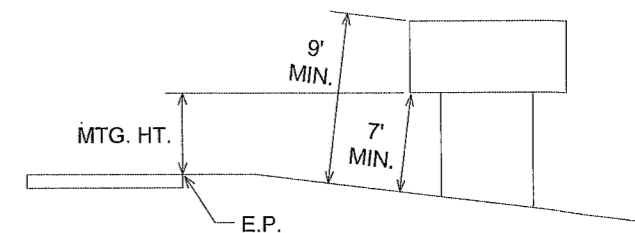
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



KNEE BRACE SPLICE



TYPICAL INSTALLATION 36" AND LARGER  
TYPE "C" SIGNS



TYPICAL MOUNTING

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

TYPE C & D SIGN  
STRUCTURAL DETAILS

NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: SEAN R. THIEL DATE: 3/23/22  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

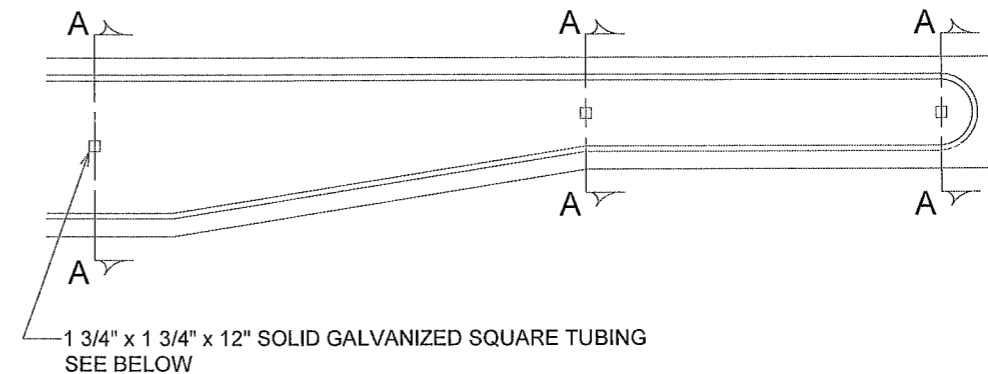
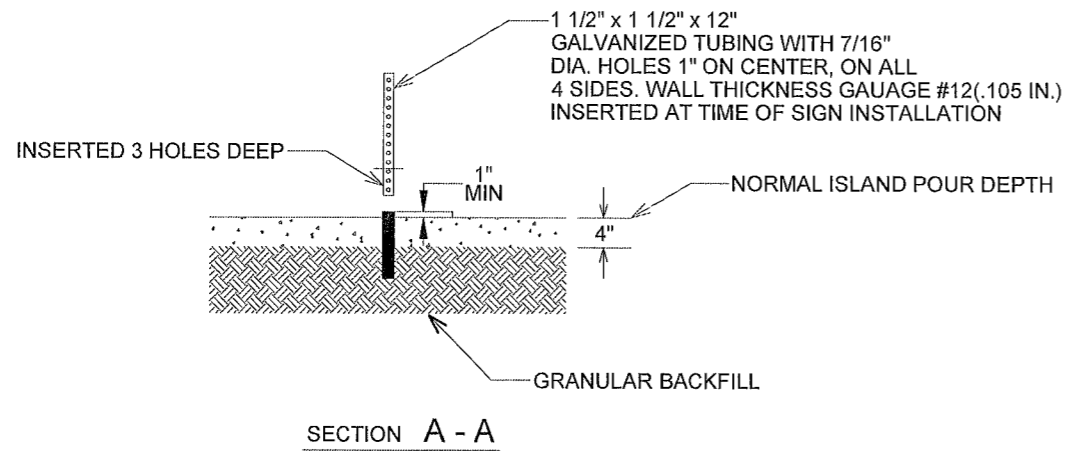
DRAWN BY: TMV DATE: 03/15/22  
DESIGN BY: DATE:   
CHECKED BY: SRT DATE: 03/23/22



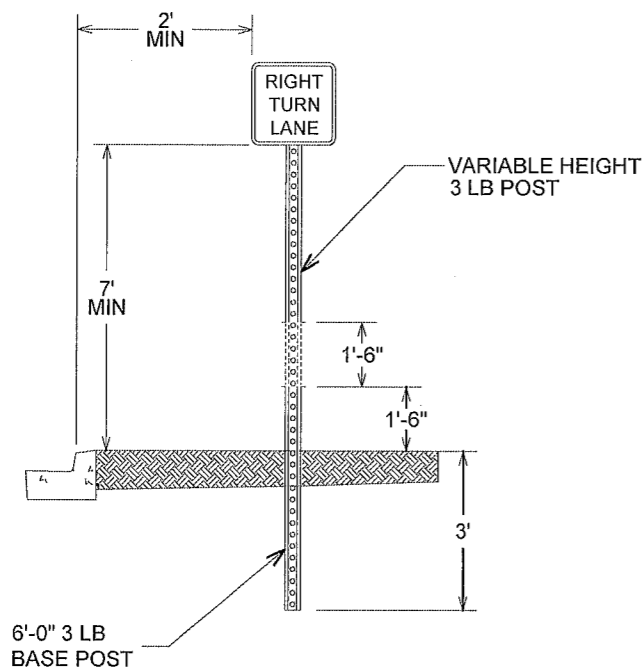
ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

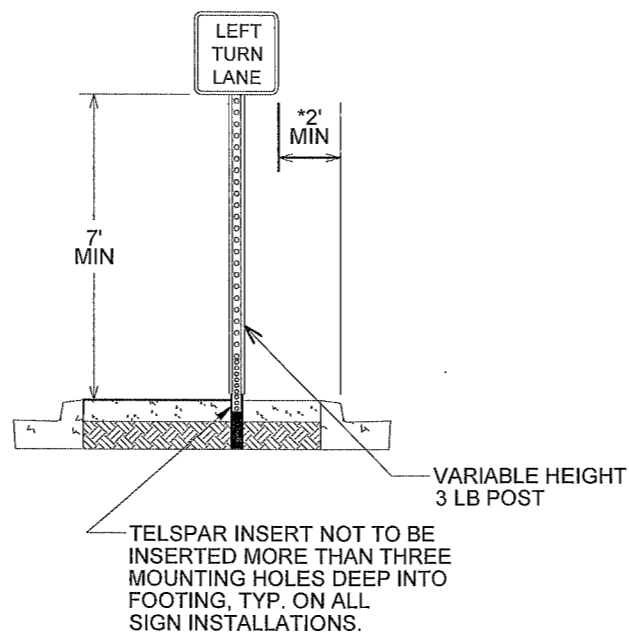
SIGNING & STRIPING  
DETAILS



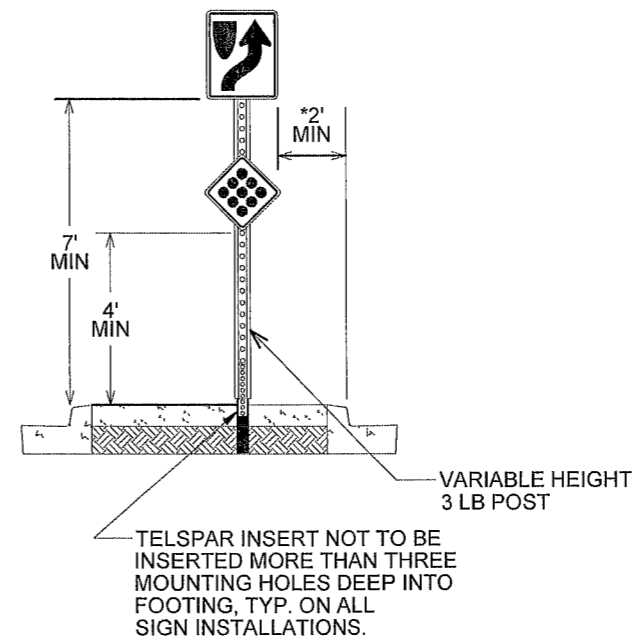
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



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



\*1' MIN FOR NARROW URBAN LOCATIONS

**INSTALLATION NEAR SIDEWALK (MN MUTCD)**  
 The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway, the secondary sign shall not project more than 4 inches into the pedestrian facility.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_17\_S of North Rd-109th\Bases\Traffic\Sign&Stripe\_Details 2019.dwg

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DRAWN BY: TMV DATE: 03/15/22

DESIGN BY: DATE:

CHECKED BY: SRT DATE: 03/23/22



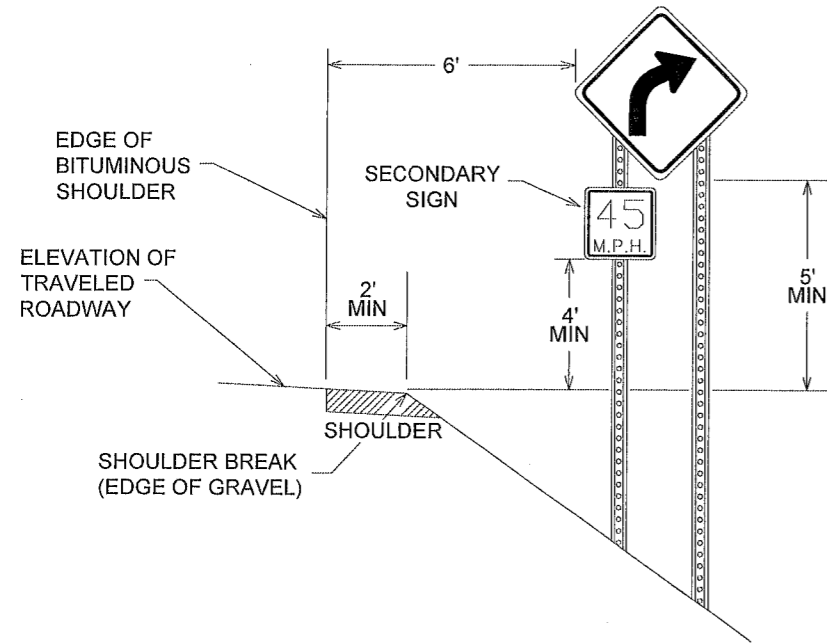
ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

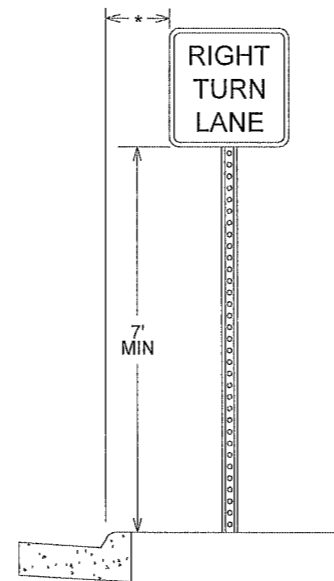
SIGNING & STRIPING  
DETAILS

SHEET 49 OF 94 SHEETS

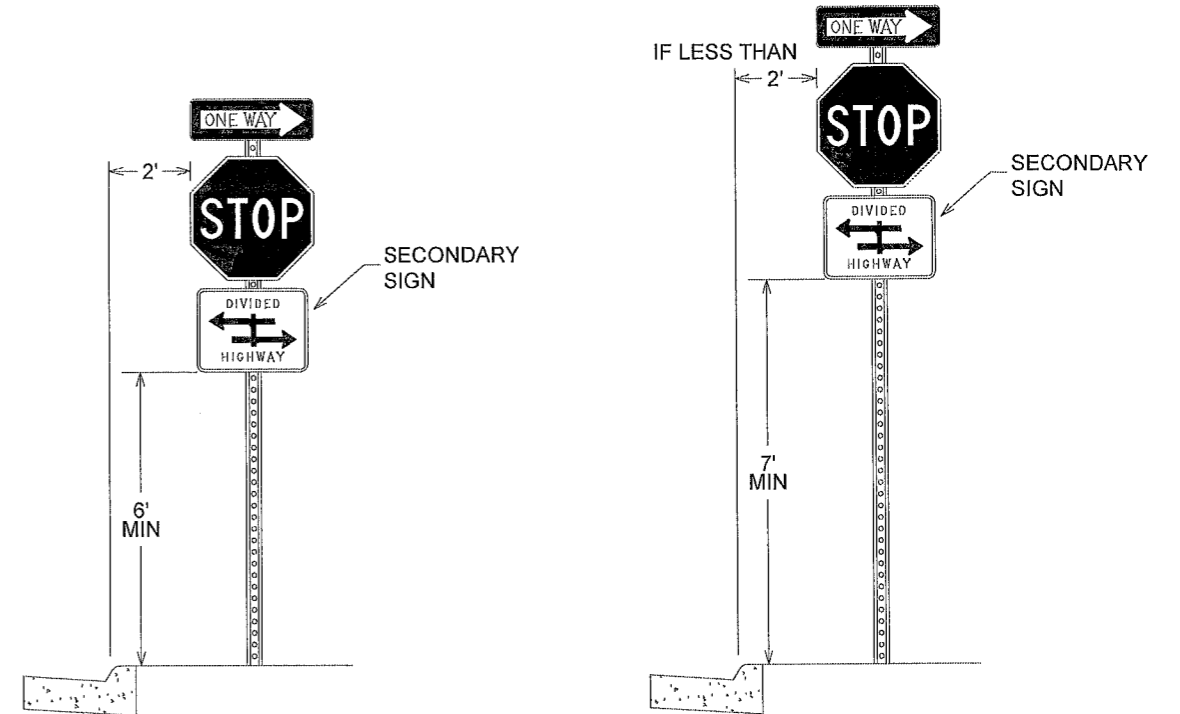
TYPICAL SIGN PLACEMENT  
(RURAL)



TYPICAL SIGN PLACEMENT  
(URBAN)



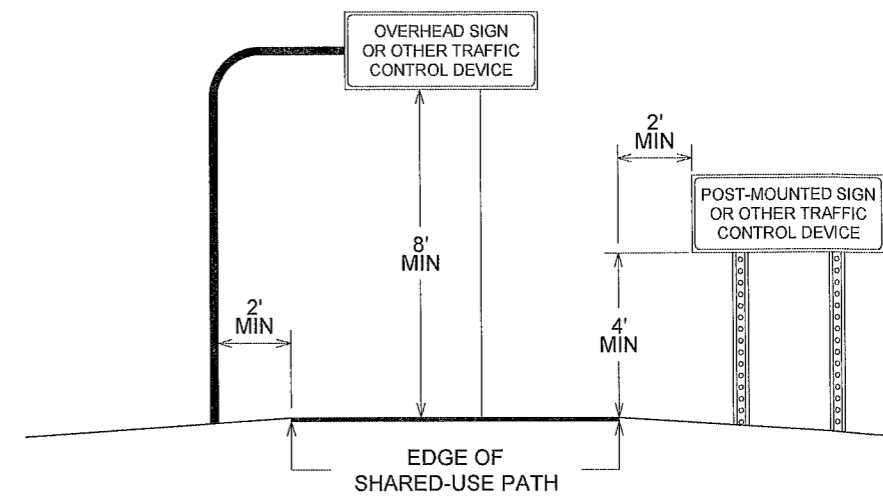
\*2' - NARROW BOULEVARD ( ≤ 8' WIDE)  
6' - WIDE BOULEVARD



NOTES:

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

TYPICAL SIGN PLACEMENT  
SHARED-USE PATH



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: SEAN R. THIEL DATE: 3/23/22  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY TMV DATE 03/15/22

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY SRT DATE 03/23/22

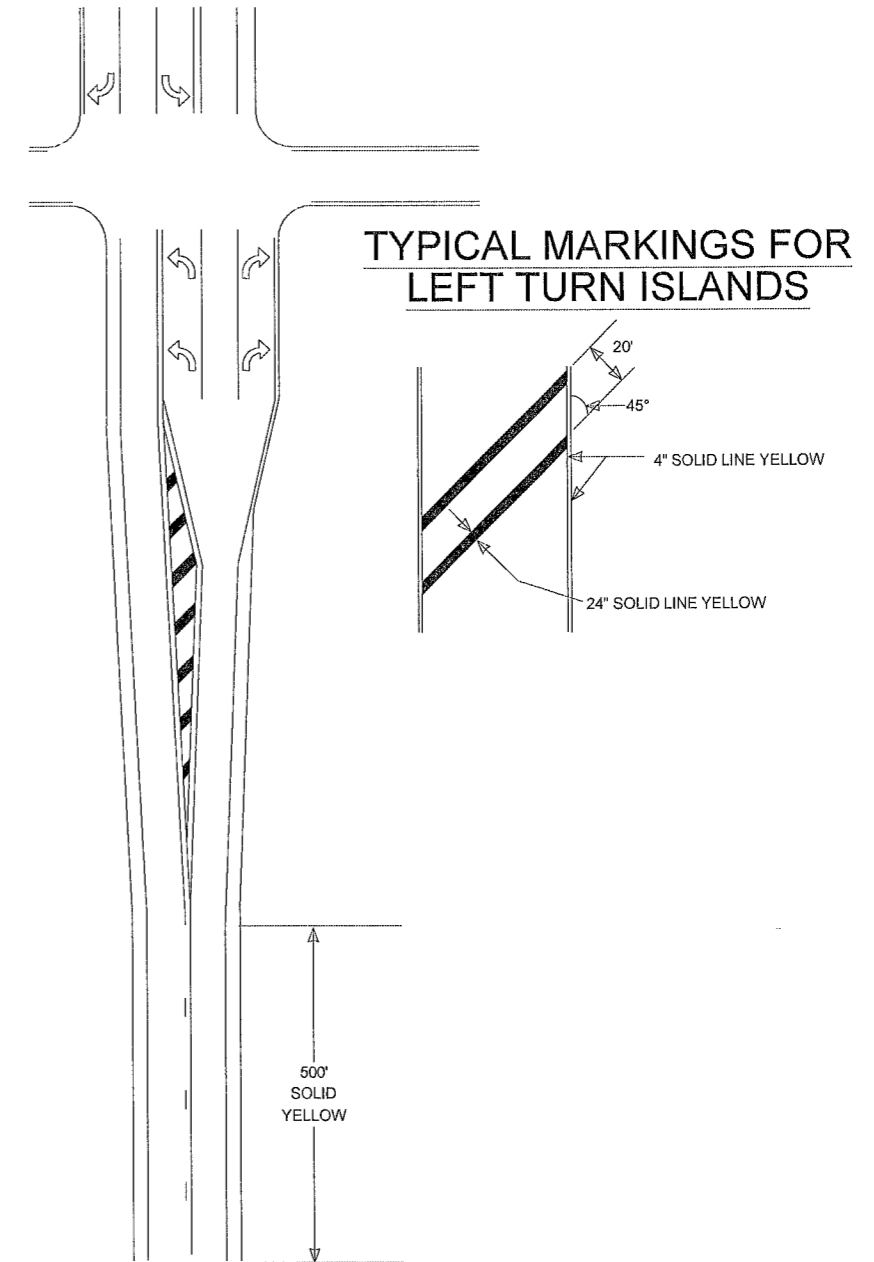
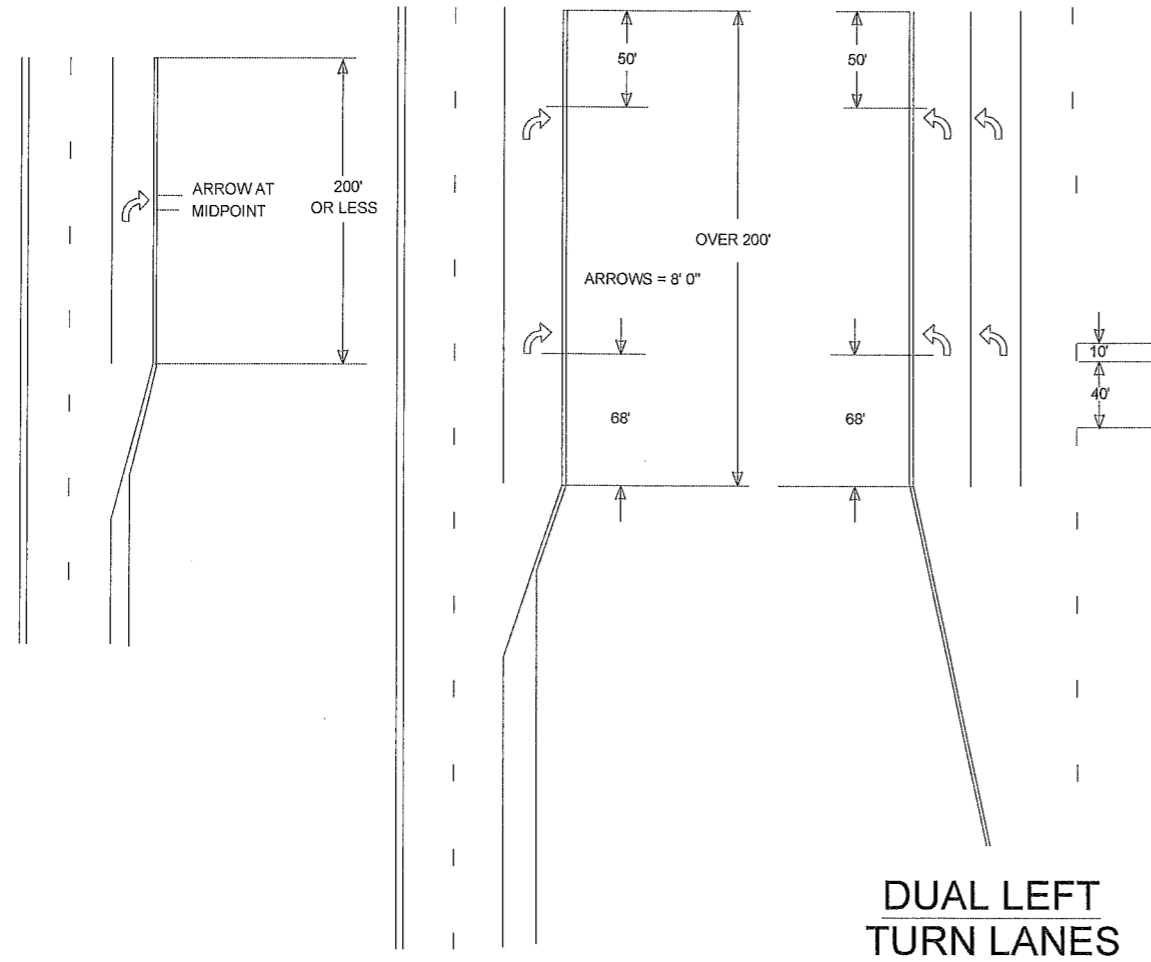


ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

SIGNING & STRIPING  
DETAILS

TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: SEAN R. THIEL DATE: 3/23/22  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY TMV DATE 03/15/22  
DESIGN BY DATE  
CHECKED BY SRT DATE 03/23/22



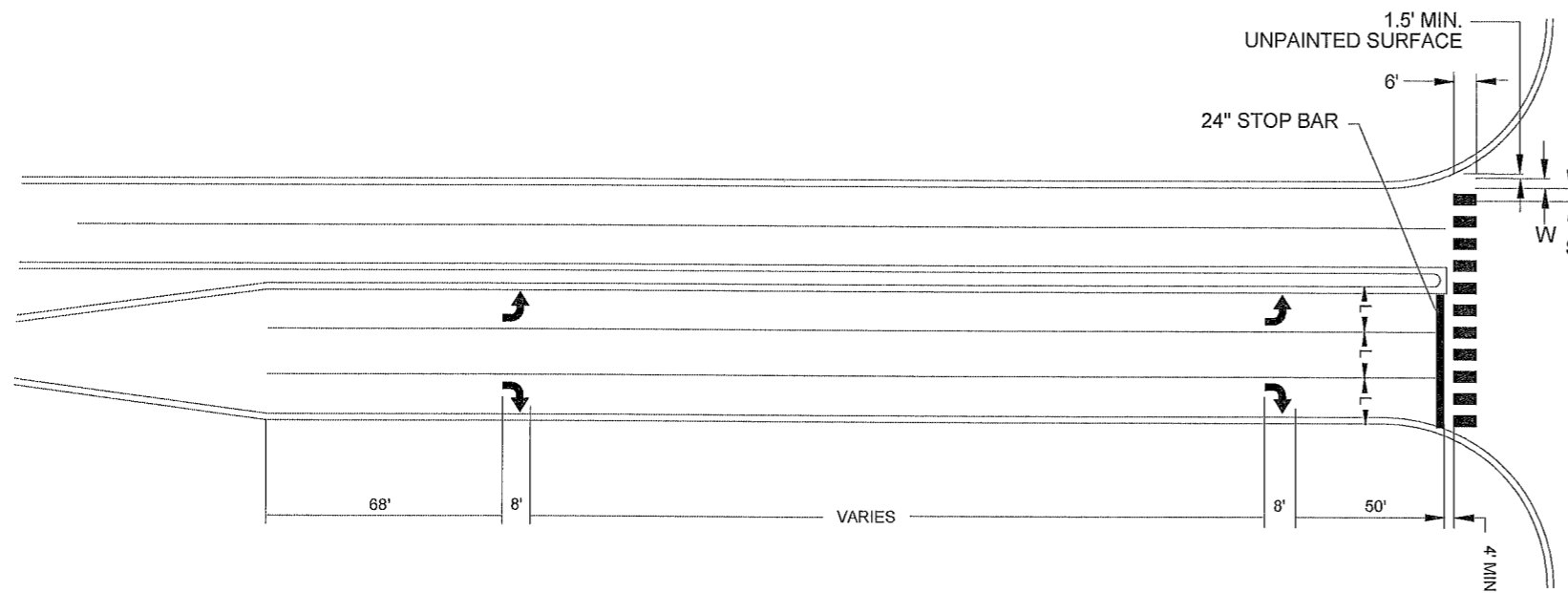
ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-617-025

SIGNING & STRIPING  
DETAILS

SHEET 51 OF 94 SHEETS

MARKINGS FOR PEDESTRIAN CROSSWALKS

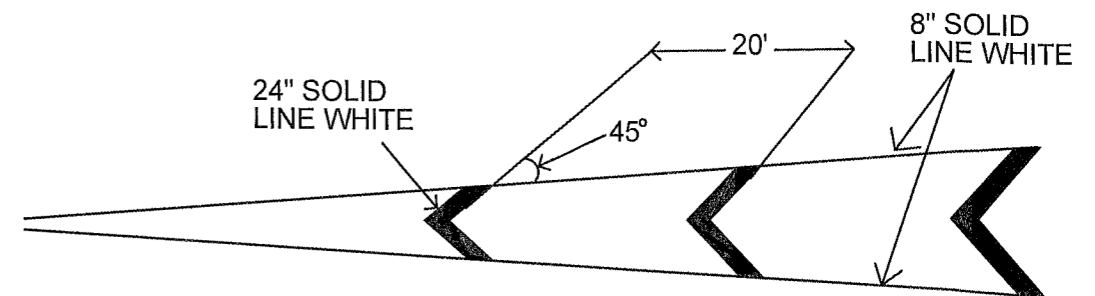


(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMP ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES. EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3m) INSIDE LANE.

MARKINGS FOR CHANNELIZED LEFT TURN LANE



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: SEAN R. THIEL DATE: 3/23/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY TMV DATE 03/15/22  
 DESIGN BY DATE  
 CHECKED BY SRT DATE 03/23/22



ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-617-025

SIGNING & STRIPING  
 DETAILS

SHEET 52 OF 94 SHEETS

**LEGEND OF SYMBOLS**

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(1)
SIGNAL FACE NO.	(2)
LUMINAIRE NO.	(3)
CONTROLLER AND CABINET	[Symbol]
CONTROLLER AND CABINET - IN PLACE	[Symbol]
HANDHOLE	[Symbol]
HANDHOLE - IN PLACE	[Symbol]
RIGID STEEL CONDUIT (RSC)	[Symbol]
RIGID STEEL CONDUIT (RSC) - IN PLACE	[Symbol]
SIGNAL FACE WITH BACKGROUND SHIELD	[Symbol]
SIGNAL FACE W/O BACKGROUND SHIELD	[Symbol]
SIGNAL FACE - IN PLACE	[Symbol]
PEDESTRIAN INDICATORS	[Symbol]
PEDESTRIAN INDICATORS - IN PLACE	[Symbol]
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	[Symbol]
PEDESTRIAN PUSH BUTTON STATION	[Symbol]
TRAFFIC SIGNAL PEDESTAL	[Symbol]
TRAFFIC SIGNAL PEDESTAL - INPLACE	[Symbol]
TRAFFIC SIGNAL POLE AND MAST ARM	[Symbol]
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	[Symbol]
STREET LIGHT POLE AND LUMINAIRE	[Symbol]
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	[Symbol]
MAST ARM AND LUMINAIRE	[Symbol]
MAST ARM AND LUMINAIRE - INPLACE	[Symbol]
WOOD POLE	[Symbol]
WOOD POLE - IN PLACE	[Symbol]
SOURCE OF POWER	[Symbol]
RAILROAD SIGNAL - IN PLACE	[Symbol]
RIGHT OF WAY LINE	[Symbol]
CENTERLINE	[Symbol]
EDGE OF ROADWAY	[Symbol]
SHOULDERLINE	[Symbol]
CURB LINE	[Symbol]
STOP BAR	[Symbol]
EMERGENCY VEHICLE PREEMPTION DETECTOR	[Symbol]

**ABBREVIATIONS**

3-1(EG)	SIGNAL HEAD PHASE "3" - NO "1"
BR. GR.	BARE GROUND
CH. SW.	CHECK SWITCH
CLR	CLEAR
D2-1(EG)	DETECTOR PHASE "2" - NO. "1"
DWK	DON'T WALK
EQG	EQUIPMENT GROUND
EVP	EMERGENCY VEHICLE PRE-EMPTION
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
G	GREEN
GLTA	GREEN LEFT TURN ARROW
GRN	GREEN
GR. R	GROUND ROD
GRTA	GREEN RIGHT TURN ARROW
GTHA	GREEN THRU ARROW
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
JB	JUNCTION BOX
LUM	LUMINAIRE
NEU	NEUTRAL
NMC	NONMETALLIC CONDUIT
P2-1(EG)	PED INDICATION PHASE "2" - NO. "1"
PB	PUSH BUTTON
PB2-1(EG)	PUSH BUTTON PHASE "2" - NO. "1"
PEC	PHOTOELECTRIC CELL
PED	PEDESTRIAN
R	RED
R&S	REMOVE AND SALVAGE
RLTA	RED LEFT TURN ARROW
RRTA	RED RIGHT TURN ARROW
RSC	RIGID STEEL CONDUIT
SOP	SOURCE OF POWER
SPR	SPARE
ST. LHT	STREET LIGHT
STA	STATION
SW	SWITCH
SWD	SWITCHED
S&R	SALVAGE AND REINSTALL
TDW	TELEPHONE DROP WIRE
WLK	WALK
YEL	YELLOW
YLTA	YELLOW LEFT TURN ARROW
YRTA	YELLOW RIGHT TURN ARROW
YTHA	YELLOW THRU ARROW

**CONDUCTOR COLOR CODE**

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

TRAFFIC SIGNAL TABULATION						
ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	PARTICIPATION		
				CP 22-18-17	CP 22-19-01	CP 22-20-01
(1) 2565	RIGID PVC LOOP DETECTOR 6' x 6'	EACH	4	4		
2565	REVISE SIGNAL SYSTEM A	SYSTEM	1	1		
2565	REVISE SIGNAL SYSTEM B	SYSTEM	1	1		
2565	REVISE SIGNAL SYSTEM C	SYSTEM	1	1		
2565	REVISE SIGNAL SYSTEM D	SYSTEM	1	1		
2565	REVISE SIGNAL SYSTEM E	SYSTEM	1	1		
2565	REVISE SIGNAL SYSTEM F	SYSTEM	1			1
2565	REVISE SIGNAL SYSTEM G	SYSTEM	1			1
2565	REVISE SIGNAL SYSTEM H	SYSTEM	1		1	
2565	REVISE SIGNAL SYSTEM J	SYSTEM	1		1	

(1) = A BID ITEM HAS BEEN ADDED FOR LOOP DETECTOR REPLACEMENT, SHOULD EXISTING LOOP DETECTORS BE IMPACTED BY ROADWAY OR CURB RAMP CONSTRUCTION WORK (SEE SPECIAL PROVISIONS.).

COUNTY PROJECT 22-18-17  
 COUNTY PROJECT 22-19-01  
 COUNTY PROJECT 22-20-01

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.

*John M. Gray*  
 Name: John M Gray, PE  
 Date: May 9, 2022  
 Lic. No. 22457

PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

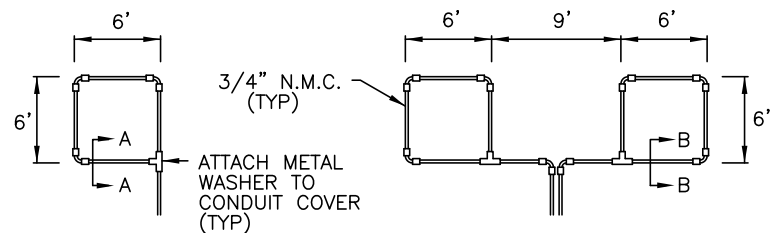
**SEH**

**ANOKA COUNTY**  
 CITIES OF BLAINE,  
 COON RAPIDS, FRIDLEY

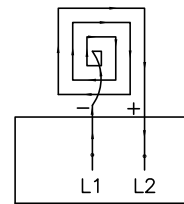
**REVISE SIGNAL SYSTEMS 'A-J'**  
 DETAILS AND QUANTITIES

FILE NO. ANOKC 122928	<b>53A</b>
SIGNAL SHEET 1 OF 35	<b>94</b>

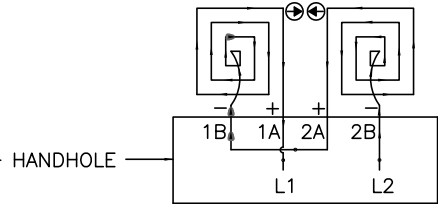




3/4" N.M.C. (TYP)  
ATTACH METAL WASHER TO CONDUIT COVER (TYP)



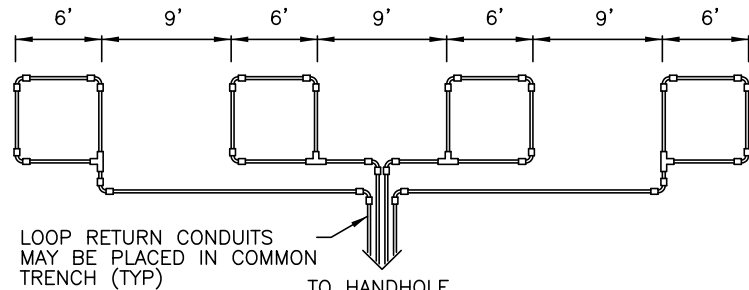
**LOOP DETECTOR  
DETAIL 'A'**  
(LOOP PHASING FOR  
SINGLE CONNECTION)



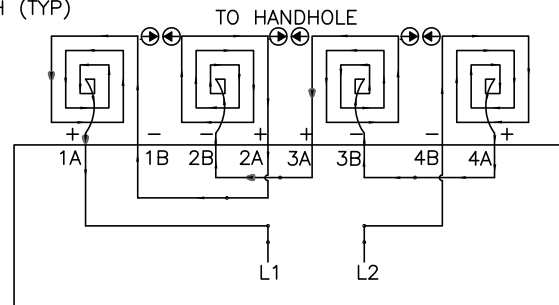
LOOP CONNECTIONS SHALL BE  
LABELED AND SPLICED IN THE  
HANDHOLE AS FOLLOWS:

- L1 TO 1A
- 1B TO 2A
- 2B TO L2

**LOOP DETECTOR  
DETAIL 'B'**  
(LOOP PHASING FOR  
SERIES CONNECTION)



LOOP RETURN CONDUITS  
MAY BE PLACED IN COMMON  
TRENCH (TYP)

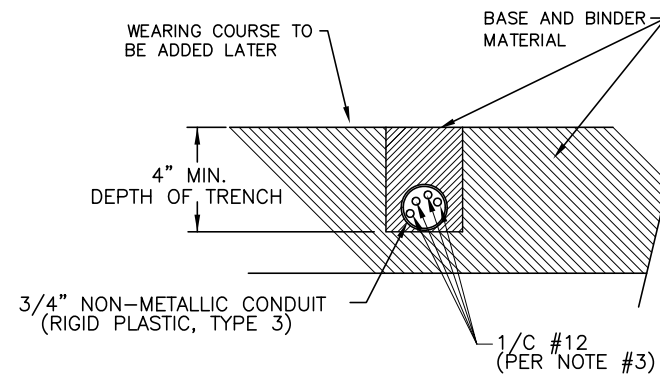


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED  
IN THE HANDHOLE AS FOLLOWS:

- L1 TO 1A      3B TO 4A
- 1B TO 2A      4B TO L2
- 2B TO 3A

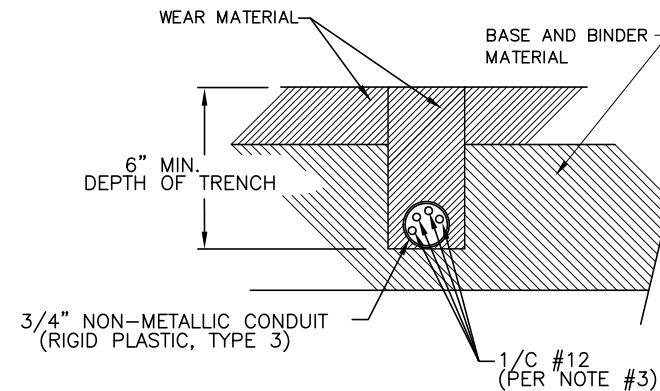
SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE.  
ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE  
(1A, 1B, ECT)

**LOOP DETECTOR  
DETAIL 'C'**  
(LOOP PHASING FOR  
SERIES CONNECTION)



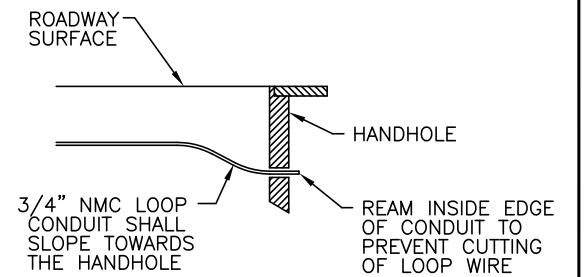
**SECTION A-A**

DETAIL FOR LOOP INSTALLATION  
IN NEW ROADWAY



**SECTION B-B**

DETAIL FOR LOOP INSTALLATION  
IN EXISTING ROADWAY



**DRAINAGE DETAIL**

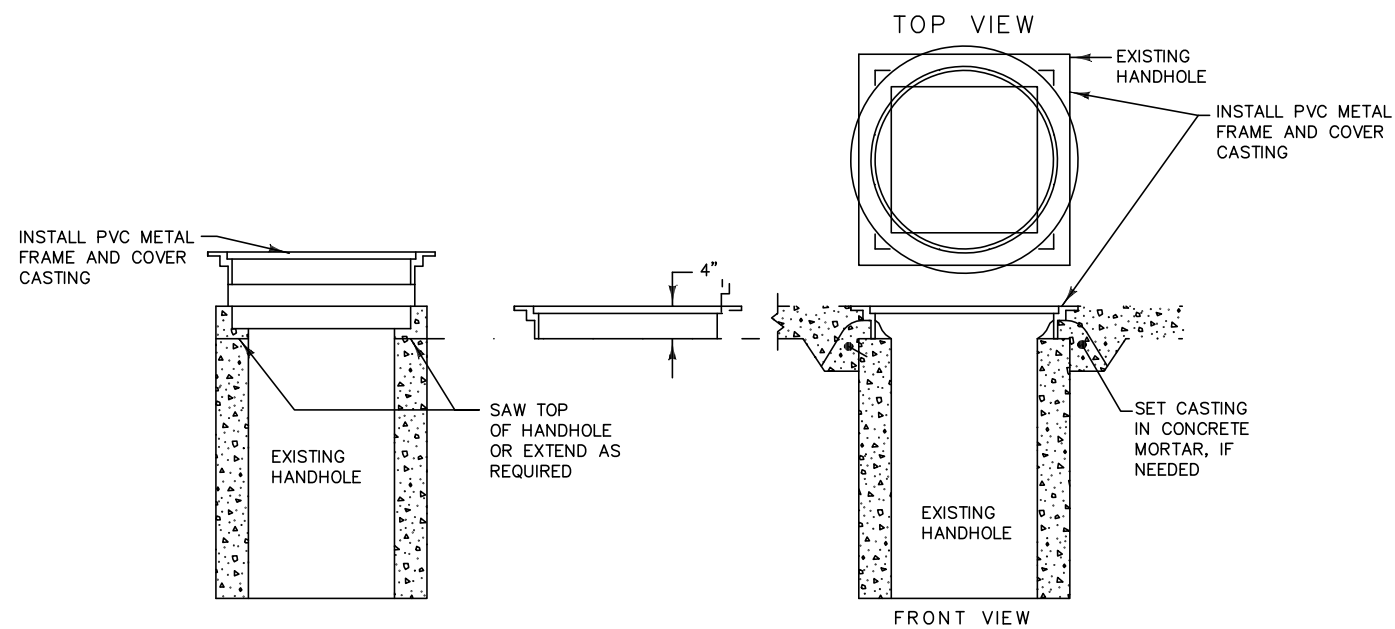
**LOOP DETECTOR WIRING**

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

**ADJUST SIGNAL HANDHOLE**

WHERE EXISTING CONCRETE HANDHOLES WITH EITHER CONCRETE OR TYPE LD COVERS ARE REQUIRED TO BE ADJUSTED TO MATCH FINISHED SURROUNDING SIDEWALK, MEDIAN OR BOULEVARD GRADE, CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING CONCRETE / LD COVER AND SHALL PROVIDE AND INSTALL A NEW PVC METAL FRAME AND COVER IN THEIR PLACE. ADJUSTMENT WORK WILL REQUIRE EITHER THE CUTTING THE TOP OF THE HANDHOLE OR EXTENDING THE CONCRETE HANDHOLE BODY SO THAT THE TOP OF THE NEW PVC METAL FRAME AND COVER FITS THE ELEVATION OF THE SURROUNDING SIDEWALK/MEDIAN/BOULEVARD. THIS WORK (INCLUDING THE REPLACEMENT OF THE CONCRETE/LD FRAME AND COVER) WILL BE INCLUDED AS PART OF THE PAY ITEM FOR THE APPLICABLE "REVISE SIGNAL SYSTEMS A-J", WITH NO DIRECT COMPENSATION BEING MADE THEREFORE.

WHERE EXISTING PVC HANDHOLES WITH METAL RINGS AND COVERS ARE REQUIRED TO BE ADJUSTED TO MATCH FINISHED SURROUNDING SIDEWALK, MEDIAN OR BOULEVARD GRADE, CONTRACTOR SHALL REUSE THE EXISTING METAL RING & COVER. ADJUSTMENT WORK WILL REQUIRE EITHER THE CUTTING THE TOP OF THE HANDHOLE OR EXTENDING THE PVC HANDHOLE CYLINDER SO THAT THE TOP OF THE SALVAGED AND REINSTALLED PVC METAL RING AND COVER FITS THE ELEVATION OF THE SURROUNDING SIDEWALK/MEDIAN/BOULEVARD. THIS WORK WILL BE INCLUDED AS PART OF THE PAY ITEM FOR THE APPLICABLE "REVISE SIGNAL SYSTEM A-J", WITH NO DIRECT COMPENSATION BEING MADE THEREFORE.



COUNTY PROJECT 22-18-17  
COUNTY PROJECT 22-19-01  
COUNTY PROJECT 22-20-01

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.  
Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457

SEH  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

**ANOKA COUNTY**  
CITIES OF BLAINE,  
COON RAPIDS, FRIDLEY

REVISE SIGNAL SYSTEMS 'A-J'  
HANDHOLE AND LOOP DETECTOR DETAILS

FILE NO.  
ANOKC 122928  
SIGNAL SHEET  
2 OF 35

53B  
94

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1	2-6x6	20' & 50'	1	INPLACE
D1-2	2-6x6	5' & 35'	1	INPLACE
D2-1	6x6	300'	1	INPLACE
D2-2	6x6	300'	1	INPLACE
D4-1	6x6	120'	3	INPLACE
D4-2	2-6x6	0' & 15'	1	INPLACE
D4-3	6x6	5'	7	INPLACE
D4-4	6x10	-10'	7	INPLACE
D5-1	2-6x6	20' & 50'	1	INPLACE
D5-2	2-6x6	5' & 35'	1	INPLACE
D6-1	6x6	300'	1	INPLACE
D6-2	6x6	300'	1	INPLACE
D8-1	6x6	180'	3	F & I
D8-2	2-6x6	-5' & 5'	7	F & I
D8-3	2-6x6	-5' & 5'	7	F & I

**INSTALL VIDEO DETECTORS (FURNISHED BY COUNTY)**

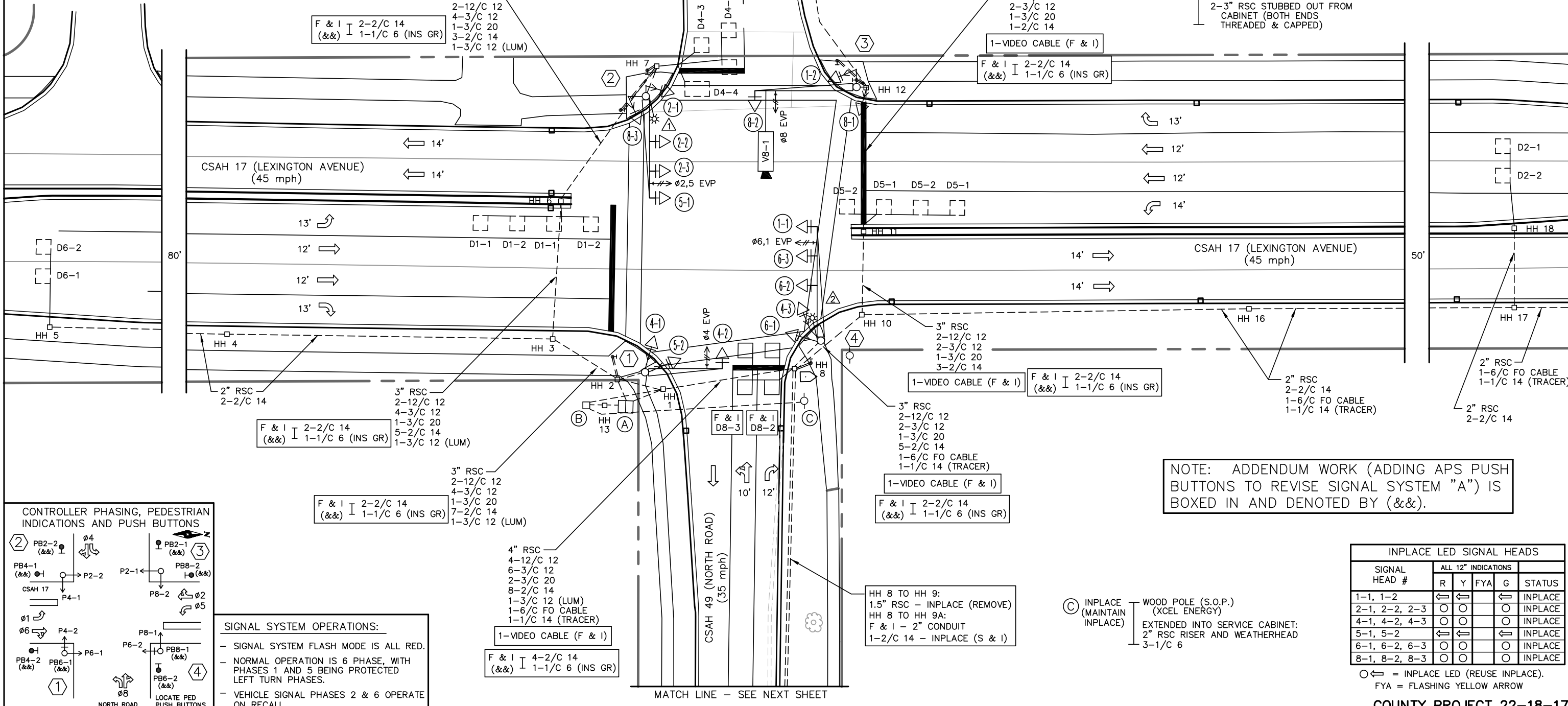
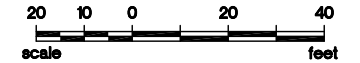
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V8-1	WB NORTH ROAD	MAST ARM 3	ON MAST ARM AT 2'	25'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.  
 TURN OFF INPLACE PHASE 8 LOOP DETECTORS IN CONTROLLER CABINET DURING OPERATION OF VIDEO DETECTION (DURING CONSTRUCTION ONLY).  
 REMOVE CAMERA AND CABLE AFTER PHASE 8 PERMANENT LOOP DETECTORS ARE ABLE TO BE MADE OPERATIONAL.

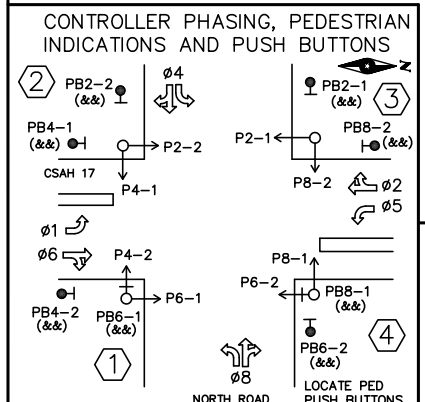
**LOOP DETECTORS FUNCTIONS:**

- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL- IMMEDIATE EXTEND

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



NOTE: ADDENDUM WORK (ADDING APS PUSH BUTTONS TO REVISE SIGNAL SYSTEM "A") IS BOXED IN AND DENOTED BY (&&).



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

INPLACE LED SIGNAL HEADS					
SIGNAL HEAD #	ALL 12" INDICATIONS				STATUS
	R	Y	FYA	G	
1-1, 1-2	←	←	←	←	INPLACE
2-1, 2-2, 2-3	○	○	○	○	INPLACE
4-1, 4-2, 4-3	○	○	○	○	INPLACE
5-1, 5-2	←	←	←	←	INPLACE
6-1, 6-2, 6-3	○	○	○	○	INPLACE
8-1, 8-2, 8-3	○	○	○	○	INPLACE

○ ← = INPLACE LED (REUSE INPLACE).  
 FYA = FLASHING YELLOW ARROW

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.  
 Name: John M Gray, PE  
 Lic. No. 22457  
 Date: May 9, 2022

SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY  
 CITY OF BLAINE**

**REVISE SIGNAL SYSTEM "A"  
 INTERSECTION LAYOUT**  
 CSAH 17 (LEXINGTON AVE NE) AT CSAH 49/NORTH ROAD

FILE NO. ANOKC 122928  
 SIGNAL SHEET 3 OF 35  
**54A**  
**94**

REVISE SIGNAL SYSTEM A NOTES:

- ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- ALL HANDHOLES (PVC WITH METAL FRAMES AND COVERS) ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 1, 2, 3, 7, 8, 10, 12, 16, AND 17 TO FINISHED SURROUNDING GRADE AFTER ALL WORK IS COMPLETED.
  - REMOVE INPLACE HANDHOLE 9.
  - FURNISH AND INSTALL NEW HANDHOLE 9A (PVC HANDHOLE WITH METAL FRAME AND COVER) (SEE DETAIL IN SPECIAL PROVISIONS).
 ALL HANDHOLE WORK IS INCLUDED AS PART OF "REVISE SIGNAL SYSTEM A" BID ITEM.
- LOCATION OF NEW HANDHOLES, LOOP DETECTORS, AND PUSH BUTTON STATIONS SHALL BE DETERMINED IN FIELD BY ENGINEER.
- ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. NEW LOOP DETECTORS D8-1, D8-2, AND D8-3 SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. SEE DETAILS AND SPECIAL PROVISIONS.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR LOOP DETECTORS D8-1, D8-2, AND D8-3), AND SHALL FURNISH & INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR D8-1, D8-2, AND D8-3 AS CALLED FOR IN THE SPECIAL PROVISIONS.
- A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR POTENTIAL REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY WORK OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- SEE SPECIAL PROVISIONS REGARDING VIDEO DETECTION SYSTEM TO BE FURNISHED BY THE COUNTY, INSTALLED & MADE OPERATIONAL BY THE CONTRACTOR DURING CONSTRUCTION, AND SALVAGED BY THE CONTRACTOR AFTER PERMANENT Ø8 LOOP DETECTORS ARE MADE OPERATIONAL (INCIDENTAL TO REVISE SIGNAL SYSTEM A PAY ITEM).
- VIDEO DETECTOR CABLES TO BE FURNISHED & INSTALLED BY THE CONTRACTOR FOR USE DURING CONSTRUCTION SHALL BE FULLY COMPATIBLE WITH VIDEO CAMERA AND CABINET EQUIPMENT.
- MOVEMENT/REAMING OF VIDEO CAMERA AND ALL LABOR AND MATERIALS NEEDED TO REVISE THIS SIGNAL SYSTEM DURING CONSTRUCTION ARE INCIDENTAL.
- CONTRACTOR SHALL MAINTAIN AND REUSE EXISTING PEDESTRIAN SIGNAL HOUSINGS AND VISORS, SHALL REMOVE INPLACE LED HAND/WALKING PERSON INDICATIONS, AND SHALL FURNISH AND INSTALL NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" INDICATIONS IN THEIR PLACE FOR ALL 8 PED SIGNALS (INCIDENTAL TO REVISE SIGNAL SYSTEM A PAY ITEM-ADDENDUM).

① INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION  
TYPE PA90-A-30  
ONE WAY SIGNAL-OVERHEAD  
ONE WAY MOUNT (CAPPED) AT 11'  
2-TYPE 10B-POLE MOUNTED 0/270 DEG  
ONE WAY EVP DETECTOR AND LIGHT (Ø4)  
EXTENDED INTO HH 2:  
3" RSC  
2-12/C 12  
2-3/C 12  
1-3/C 20

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
2-PEDESTRIAN PUSH BUTTONS AT 180/270 DEG  
INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 180/270 DEG  
(F & I) 2-LED COUNTDOWN TIMER PED INDICATIONS (P4-2, P6-1)  
1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB6-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 180/270 DEG)  
1-2/C 14

③ INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION  
TYPE PA90-A-40  
ONE WAY SIGNAL-OVERHEAD  
2-TYPE 10B-POLE MOUNTED 90/180 DEG  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø8)  
EXTENDED INTO HH 12:  
3" RSC  
2-12/C 12  
2-3/C 12  
1-3/C 20

(F & I) 5-FOOT EXTENSION, MOUNTING HARDWARE, AND KBR HUB AT 2' FOR VIDEO CAMERA (FOR MOUNTING ON MAST ARM)  
1-VIDEO CABLE  
INSTALL VIDEO CAMERA-MAST ARM MOUNTED (FACING WB TRAFFIC) (V8-1)  
(FURNISHED BY COUNTY)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
2-PEDESTRIAN PUSH BUTTONS AT 0/90 DEG  
INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/90 DEG  
(F & I) 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-1, P8-2)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/90 DEG)

(F & I) APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB4-2)  
EXTEND INTO HH 2:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

(F & I) APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (LT ARROW) (PB4-1)  
EXTEND INTO HH 7:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

(F & I) APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB2-2)  
EXTEND INTO HH 7:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-40-D30-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
3-ONE WAY SIGNALS-OVERHEAD (0', 11' AND 23' FROM END OF MAST ARM)  
2-TYPE 10B-POLE MOUNTED 90/180 DEG  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø2,5)  
2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
EXTENDED INTO HH 7:  
3" RSC  
2-12/C 12  
4-3/C 12  
1-3/C 20  
1-3/C 12 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
2-PEDESTRIAN PUSH BUTTONS AT 180/270 DEG  
INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 180/270 DEG  
(F & I) 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-2, P4-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 180/270 DEG)

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
3-ONE WAY SIGNALS-OVERHEAD (0', 11' AND 23' FROM END OF MAST ARM)  
2-TYPE 10B-POLE MOUNTED 0/270 DEG  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø6,1)  
2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
EXTENDED INTO HH 8:  
3" RSC  
2-12/C 12  
4-3/C 12  
1-3/C 20  
1-3/C 12 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
2-PEDESTRIAN PUSH BUTTONS AT 180/270 DEG  
INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 180/270 DEG  
(F & I) 2-LED COUNTDOWN TIMER PED INDICATIONS (P6-2, P8-1)  
1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB8-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 180/270 DEG)  
1-2/C 14

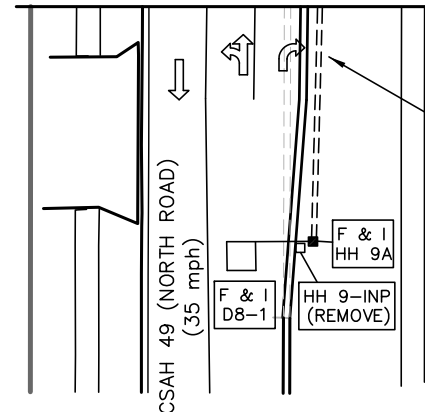
(F & I) APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB6-2)  
EXTEND INTO HH 8:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

(F & I) APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (LT ARROW) (PB2-1)  
EXTEND INTO HH 12:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

(F & I) APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB8-2)  
EXTEND INTO HH 12:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)



MATCH LINE - SEE PREVIOUS SHEET



HH 8 TO HH 9:  
1.5" RSC - INPLACE (REMOVE)  
HH 8 TO HH 9A:  
F & I - 2" CONDUIT  
1-2/C 14 - INPLACE (S & I)

NOTE: ADDENDUM WORK (ADDING APS PUSH BUTTONS TO REVISE SIGNAL SYSTEM "A") IS BOXED IN AND DENOTED BY (&&).

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG  
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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.  
Date: May 9, 2022  
Name: John M. Gray, PE  
Lic. No. 22457

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PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
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ANOKA COUNTY  
CITY OF BLAINE

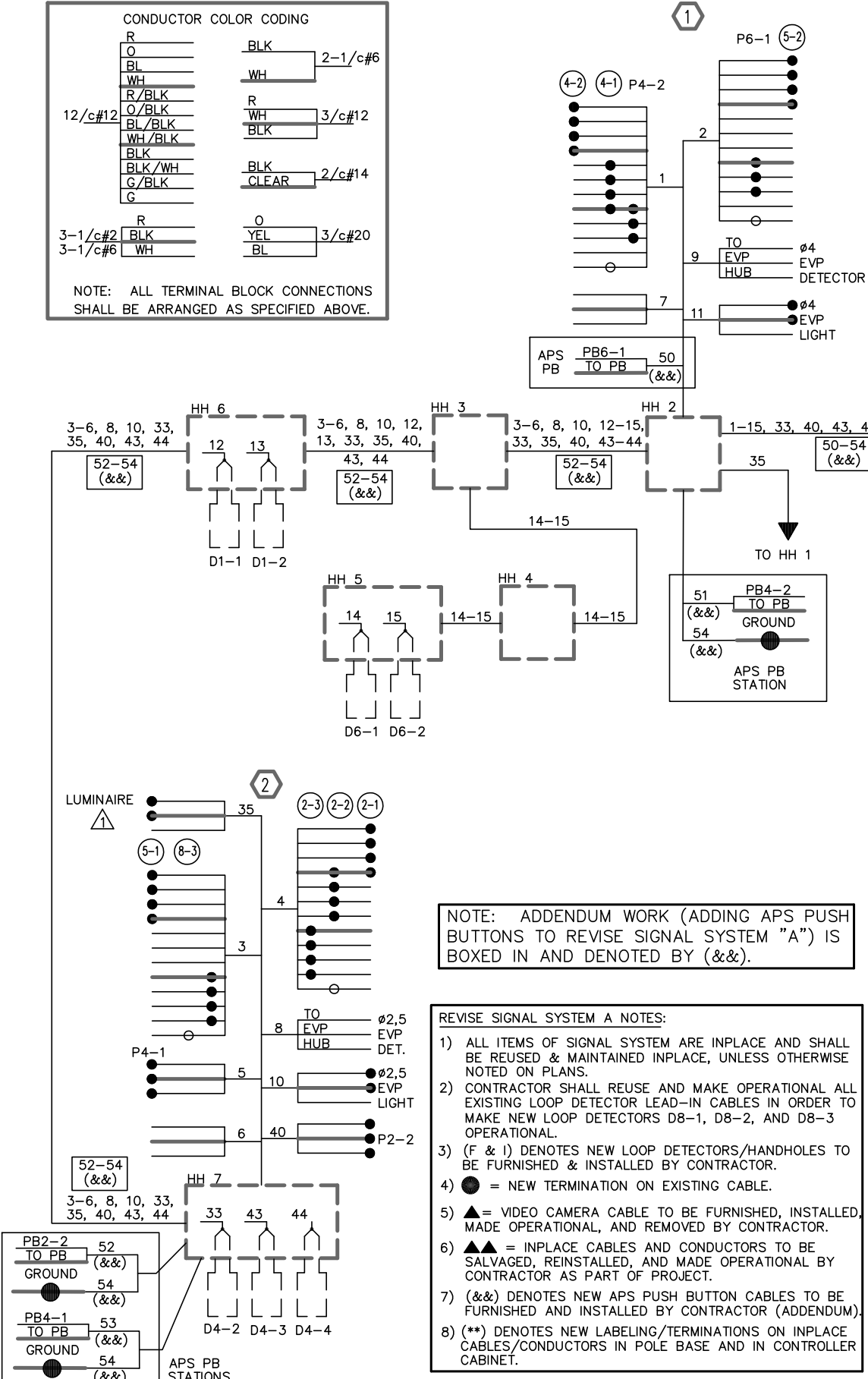
REVISE SIGNAL SYSTEM "A"  
INTERSECTION LAYOUT AND NOTES  
CSAH 17 (LEXINGTON AVE NE) AT CSAH 49/NORTH ROAD

FILE NO.  
ANOKC 122928  
SIGNAL SHEET  
4 OF 35  
55A  
94

**CONDUCTOR COLOR CODING**

R	BLK	2-1/c#6	
BL	WH		
WH			
R/BLK	R		
O/BLK	WH	3/c#12	
BL/BLK	BLK		
WH/BLK			
BLK			
BLK/WH	BLK	2/c#14	
G/BLK	CLEAR		
G			
3-1/c#2	R	O	
3-1/c#6	BLK	YEL	3/c#20
	WH	BL	

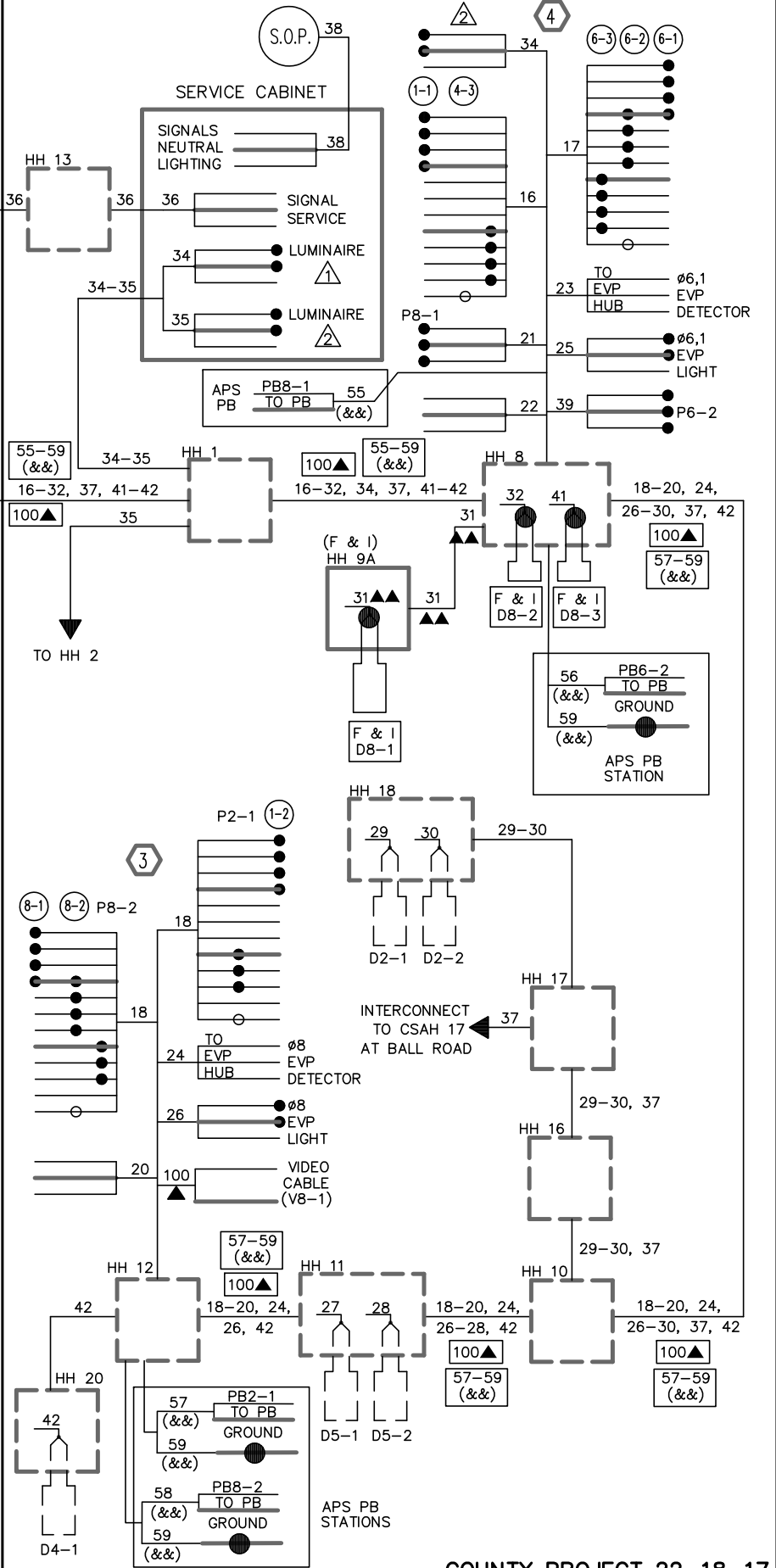
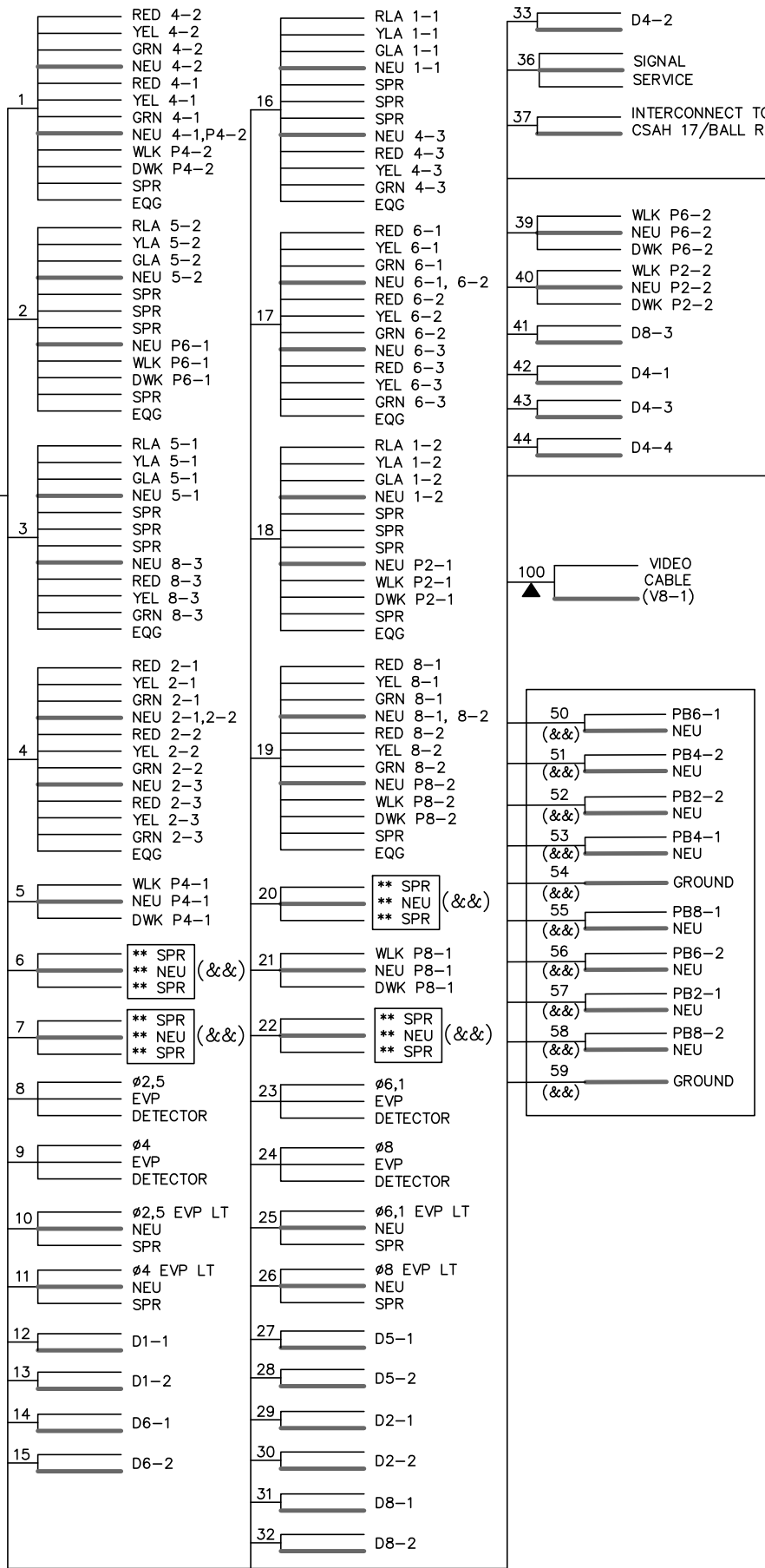
NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



NOTE: ADDENDUM WORK (ADDING APS PUSH BUTTONS TO REVISE SIGNAL SYSTEM "A") IS BOXED IN AND DENOTED BY (&&).

- REVISE SIGNAL SYSTEM A NOTES:**
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED & MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
  - 2) CONTRACTOR SHALL REUSE AND MAKE OPERATIONAL ALL EXISTING LOOP DETECTOR LEAD-IN CABLES IN ORDER TO MAKE NEW LOOP DETECTORS D8-1, D8-2, AND D8-3 OPERATIONAL.
  - 3) (F & I) DENOTES NEW LOOP DETECTORS/HANDHOLES TO BE FURNISHED & INSTALLED BY CONTRACTOR.
  - 4) ● = NEW TERMINATION ON EXISTING CABLE.
  - 5) ▲ = VIDEO CAMERA CABLE TO BE FURNISHED, INSTALLED, MADE OPERATIONAL, AND REMOVED BY CONTRACTOR.
  - 6) ▲▲ = INPLACE CABLES AND CONDUCTORS TO BE SALVAGED, REINSTALLED, AND MADE OPERATIONAL BY CONTRACTOR AS PART OF PROJECT.
  - 7) (&&) DENOTES NEW APS PUSH BUTTON CABLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR (ADDENDUM).
  - 8) (\*\*) DENOTES NEW LABELING/TERMINATIONS ON INPLACE CABLES/CONDUCTORS IN POLE BASE AND IN CONTROLLER CABINET.

**CONTROLLER AND CABINET**



COUNTY PROJECT 22-18-17

DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
DESIGN TEAM			
NO.	BY	DATE	REVISIONS

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.

*John M. Gray* Name: John M. Gray, PE  
Date: May 9, 2022 Lic. No. 22457



**ANOKA COUNTY  
CITY OF BLAINE**

**REVISE SIGNAL SYSTEM "A"  
FIELD WIRING DIAGRAM**  
CSAH 17 (LEXINGTON AVE NE) AT CSAH 40/NORTH ROAD

FILE NO.  
ANOKC 122928  
SIGNAL SHEET  
5 OF 35

**56A**  
**94**

**STATUS:**

1 = MAINTAIN 3-SECTION HEAD AT CURRENT LOCATION (AT 29') & REVISE SIGNAL HEAD NUMBER/LABELING (FROM 2-3 TO 2-2, AND FROM 6-3 TO 6-2).

2 = MAINTAIN 3-SECTION HEAD AT CURRENT LOCATION, (AT 17'), SWAP RLA-YLA-GLA LENSES WITH RYG LENSES IN RELOCATED SIGNAL HEAD AT 6', AND REVISE SIGNAL HEAD NUMBER/LABELING (FROM 5-1 TO 2-3, AND FROM 1-1 TO 6-3).

3 = SALVAGE INPLACE 3-SECTION HEAD FROM MOUNT AT 41' (OLD 2-2, 6-2) (CAP MOUNT), INSTALL ON NEW STRAP-ON MID-MAST ARM MOUNT AT 6', SWAP RYG LENSES WITH RLA-YLA-GLA LENSES IN INPLACE SIGNAL HEAD AT 17', AND REVISE SIGNAL HEAD NUMBER/LABELING (FROM 2-2 TO 5-1, AND FROM 6-2 TO 1-1).

4 = REVISE FROM TYPE 10A BRACKETING TO TYPE 10B BRACKETING (TO INCORPORATE NEW ONE SECTION PEDESTRIAN INDICATION INSTALLATION).

○ ← = INPLACE LED (REUSE INPLACE).  
FYA = FLASHING YELLOW ARROW

SIGNAL HEAD #	ALL 12" INDICATIONS				STATUS
	R	Y	FYA	G	
1-1	←	←	←	←	3
1-2	←	←	←	←	INPLACE
2-1	○	○	○	○	INPLACE
2-2	○	○	○	○	1
2-3	○	○	○	○	2
3-1	←	←	←	←	INPLACE
3-2 (&&)	←	←	←	←	4
4-1 (&&)	○	○	○	○	4
4-2, 4-3	○	○	○	○	INPLACE
5-1	←	←	←	←	3
5-2	←	←	←	←	INPLACE
6-1	○	○	○	○	INPLACE
6-2	○	○	○	○	1
6-3	○	○	○	○	2
7-1, 7-2	←	←	←	←	INPLACE
8-1, 8-2, 8-3	○	○	○	○	INPLACE

MATCH LINE TO WEST

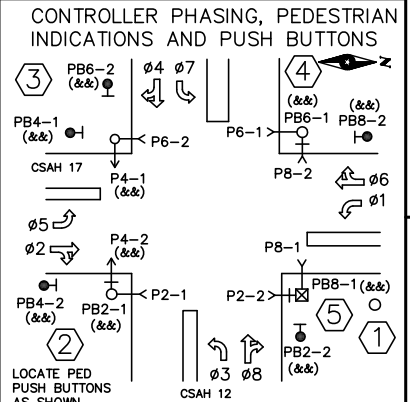
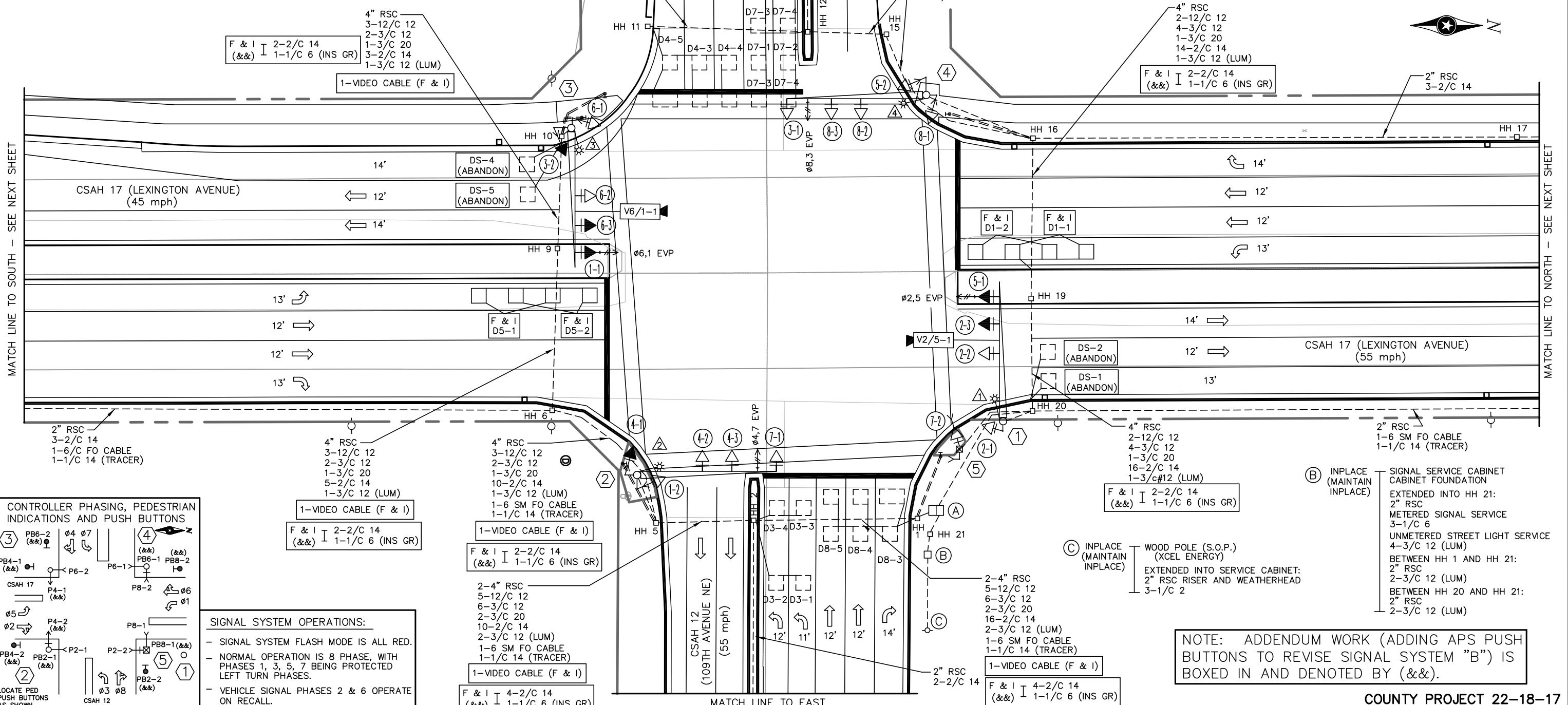
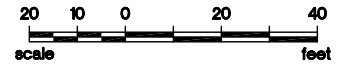
**LOOP DETECTORS FUNCTIONS:**

1) CALL AND EXTEND  
3) EXTEND ONLY  
7) DELAYED CALL- IMMEDIATE EXTEND  
8) CARRY OVER (STRETCH)

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1	2-6x6	20' & 50'	1	F & I
D1-2	2-6x6	5' & 35'	1	F & I
D2-1	6x6	300'	1	F & I
D2-2	6x6	300'	1	F & I
D3-1	6x6	40'	1	INPLACE
D3-2	6x6	40'	1	INPLACE
D3-3	6x6	10'	1	INPLACE
D3-4	6x6	10'	1	INPLACE
D4-1	6x6	475'	3,8	INPLACE
D4-2	6x6	475'	3,8	INPLACE
D4-3	2-6x6	-5' & 10'	1	INPLACE
D4-4	2-6x6	-5' & 10'	1	INPLACE
D4-5	6x10&6x6	-5' & 10'	7	INPLACE

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D5-1	2-6x6	20' & 50'	1	F & I
D5-2	2-6x6	5' & 35'	1	F & I
D6-1	6x6	475'	1	F & I
D6-2	6x6	475'	1	F & I
D7-1	2-6x6	10' & 40'	1	INPLACE
D7-2	2-6x6	10' & 40'	1	INPLACE
D7-3	2-6x6	-5' & 25'	1	INPLACE
D7-4	2-6x6	-5' & 25'	1	INPLACE
D8-1	6x6	475'	3,8	INPLACE
D8-2	6x6	475'	3,8	INPLACE
D8-3	6x10&6x6	5' & 20'	7	INPLACE
D8-4	2-6x6	5' & 20'	1	INPLACE
D8-5	2-6x6	5' & 20'	1	INPLACE

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

NOTE: ADDENDUM WORK (ADDING APS PUSH BUTTONS TO REVISE SIGNAL SYSTEM "B") IS BOXED IN AND DENOTED BY (&&).

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.

*John M. Gray*  
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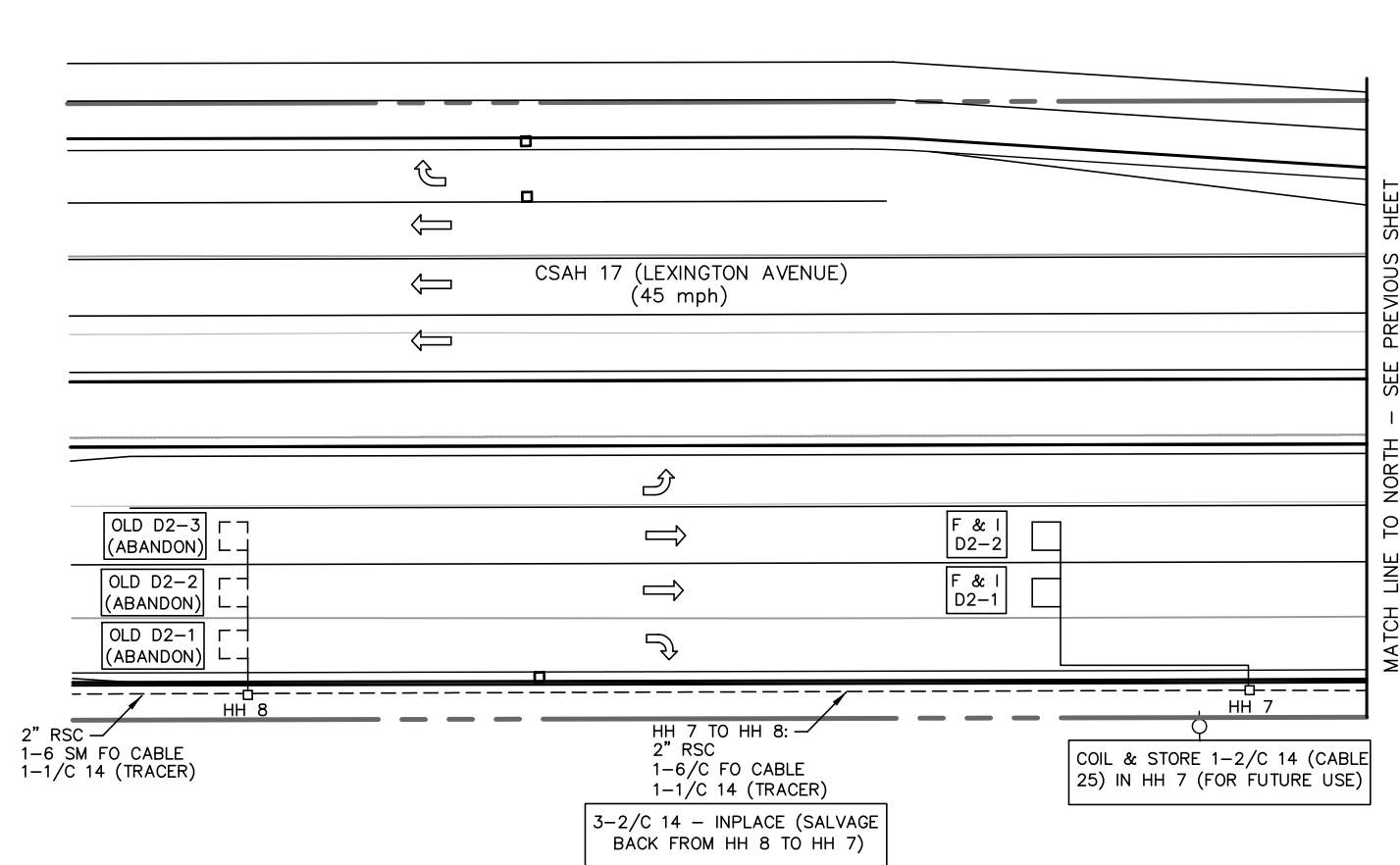
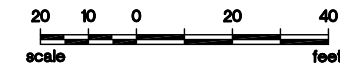
**ANOKA COUNTY  
CITY OF BLAINE**

**REVISE SIGNAL SYSTEM "B"  
INTERSECTION LAYOUT**  
CSAH 17 (LEXINGTON AVENUE NE)  
AT CSAH 12 (109TH AVENUE NE)

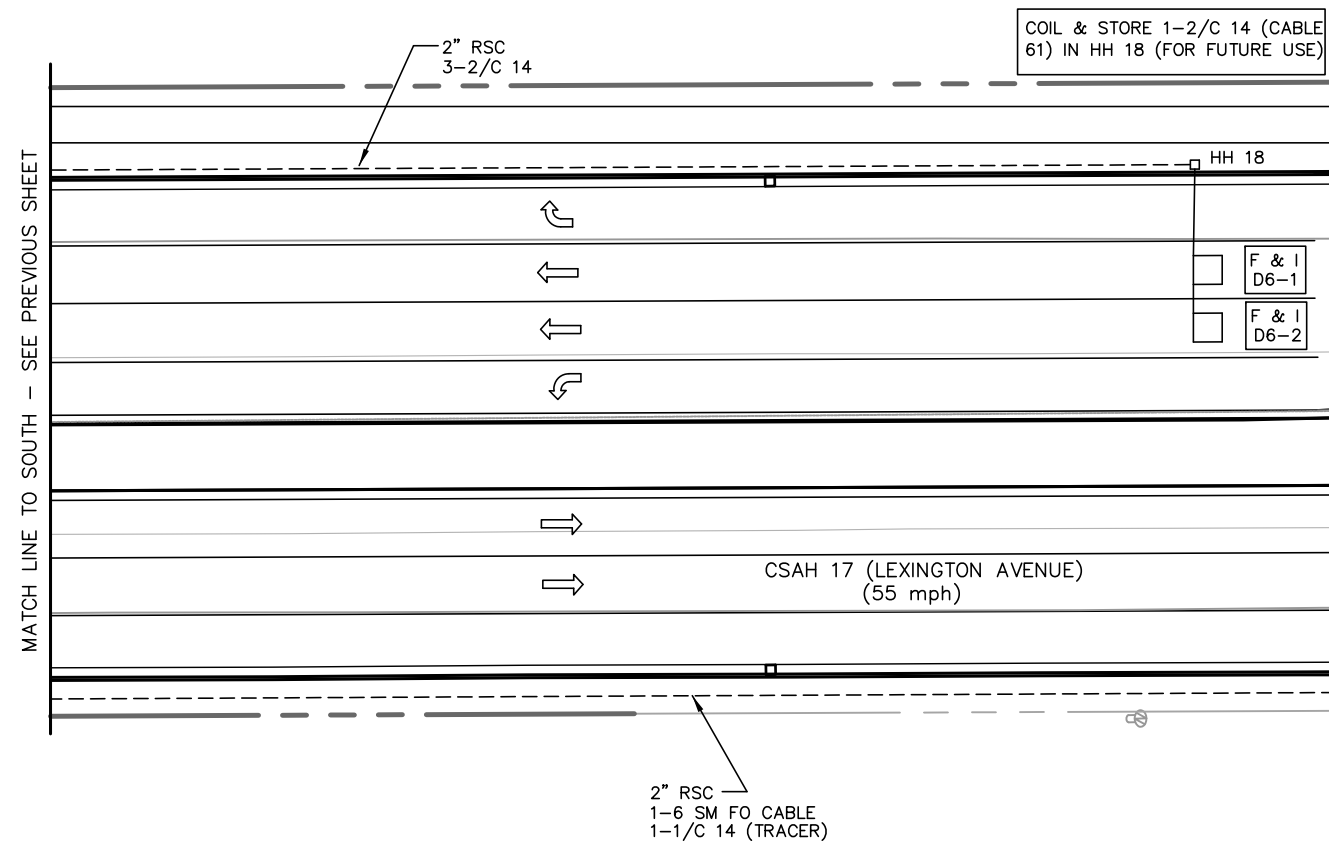
FILE NO.  
ANOKC 122928  
SIGNAL SHEET  
6 OF 35

**57A**  
**94**

COUNTY PROJECT 22-18-17



MATCH LINE TO NORTH - SEE PREVIOUS SHEET



MATCH LINE TO SOUTH - SEE PREVIOUS SHEET

COUNTY PROJECT 22-18-17

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG  
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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**ANOKA COUNTY  
CITY OF BLAINE**

**REVISE SIGNAL SYSTEM 'B'  
MATCH LINES**  
CSAH 17 (LEXINGTON AVENUE NE)  
AT CSAH 12 (109TH AVENUE NE)

FILE NO.  
ANOKC 122928  
SIGNAL SHEET  
7 OF 35

**58**  
**94**

REVISE SIGNAL SYSTEM B NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES (PVC WITH METAL FRAMES AND COVERS) ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:  
- ADJUST HANDHOLES 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, AND 20 TO FINISHED SURROUNDING GRADE AFTER ALL WORK IS COMPLETED (INCIDENTAL).
- 3) LOCATION OF NEW LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. NEW LOOP DETECTORS D1-1, D1-2, D2-1, D2-2, D5-1, D5-2, D6-1, AND D6-2 SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO THE SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR LOOP DETECTORS D1-1, D1-2, D2-1, D2-2, D5-1, D5-2, D6-1, D6-2) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR POTENTIAL REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY WORK OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- 11) SEE SPECIAL PROVISIONS REGARDING VIDEO DETECTION SYSTEM TO BE FURNISHED BY THE COUNTY, INSTALLED & MADE OPERATIONAL BY THE CONTRACTOR DURING CONSTRUCTION, AND SALVAGED BY THE CONTRACTOR AFTER PERMANENT Ø1, 2, 6 LOOP DETECTORS ARE MADE OPERATIONAL (INCIDENTAL TO REVISE SIGNAL SYSTEM B PAY ITEM).
- 12) VIDEO DETECTOR CABLES TO BE FURNISHED & INSTALLED BY THE CONTRACTOR FOR USE DURING CONSTRUCTION SHALL BE FULLY COMPATIBLE WITH VIDEO CAMERA AND CABINET EQUIPMENT.
- 13) MOVEMENT/REAIMING OF VIDEO CAMERAS AND ALL LABOR AND MATERIALS NEEDED TO REVISE THIS SIGNAL SYSTEM DURING CONSTRUCTION ARE INCIDENTAL.
- 14) CONTRACTOR SHALL FURNISH AND INSTALL TWO (2) NEW ONE-SECTION COUNTDOWN TIMER "HAND/WALKING PERSON" PEDESTRIAN SIGNALS (HOUSINGS, VISORS, LENSES, BRACKETING), ONE EACH ON POLES 2 AND 3 (TO ADD PEDESTRIAN CROSSING TO SOUTH SIDE OF SIGNAL SYSTEM) (INCLUDED AS PART OF THE REVISE SIGNAL SYSTEM B PAY ITEM - ADDENDUM).

NOTE: ADDENDUM WORK (ADDING APS PUSH BUTTONS TO REVISE SIGNAL SYSTEM "B") IS BOXED IN AND DENOTED BY (&&).

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
END MOUNT CAPPED (FOR FUTURE USE)  
2-ONE WAY SIGNALS-OVERHEAD (17' & 29'  
FROM END OF MAST ARM) (2-3, 2-2)  
TYPE 10A-POLE MOUNTED 180 DEG  
TYPE D SIGN PANEL-OVERHEAD  
2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
EXTENDED INTO HH 20:  
3" RSC  
2-12/C 12  
1-3/C 12  
1-3/C 20  
1-3/C 12 (LUM)

INPLACE (S & I) ONE WAY SIGNAL (HOUSING, VISORS, BACKGROUND SHIELD) - OVERHEAD AT 41' (RELOCATE TO 6')  
RLA-YLA-GLA LED LENSES - RELOCATE FROM SIGNAL HEAD AT 17' TO SIGNAL HEAD AT 6' (FOR 5-1)  
RYG LED LENSES - RELOCATE FROM SIGNAL HEAD AT 41' TO SIGNAL HEAD AT 17' (FOR 2-3)  
ONE WAY EVP DETECTOR & LIGHT AT 6' (Ø2,5)  
INSTALL VIDEO CAMERA-MAST ARM MOUNTED (FACING NB TRAFFIC) (FURNISHED BY COUNTY) (V2/5-1)  
F & I STRAP-ON MID MAST ARM MOUNT AT 6' (FOR 5-1)  
CAP MID-MAST ARM MOUNT AT 41'  
3/4" RSC EXTENSION AT 6' (FOR EVP EXTENSION OVER HEAD 5-1)  
5-FOOT EXTENSION, MOUNTING HARDWARE, AND KBR HUB AT 24' FOR VIDEO CAMERA (FOR MOUNTING ON MAST ARM)  
1-VIDEO CABLE

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
3-ONE WAY SIGNALS-OVERHEAD (0', 17'  
AND 29' FROM END OF MAST ARM)  
2-TYPE 10B-POLE MOUNTED 90/180 DEG  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø8,3)  
2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
EXTENDED INTO HH 16:  
3" RSC  
2-12/C 12  
4-3/C 12  
1-3/C 20  
1-3/C 12 (LUM)

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
2-R10-3e METAL SIGNS AT 0/270 DEG  
F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB6-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
1-2/C 14

⑤ INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION  
14' PEDESTAL POLE (INCLUDES BASE)  
WIND COLLAR FOR PEDESTAL POLE  
TYPE 5D  
EXTENDED INTO HH 20:  
3" RSC  
1-12/C 12  
1-3/C 12

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS (WEST/SOUTH SIDES)  
2-R10-3e METAL SIGNS AT WEST/SOUTH SIDES  
F & I 1-APS PB, SIGN (LT ARROW) AND APS PEDESTAL POLE SPACERS (PB8-1)  
PLUG HOLES ON PEDESTAL POLE WHERE PUSH BUTTONS USED TO BE (WEST/SOUTH SIDES)  
1-2/C 14

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
3-ONE WAY SIGNALS-OVERHEAD (0', 18'  
AND 30' FROM END OF MAST ARM)  
TYPE 10B-POLE MOUNTED 90 DEG  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø4,7)  
2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
EXTENDED INTO HH 5:  
3" RSC  
2-12/C 12  
4-3/C 12  
1-3/C 20  
1-3/C 12 (LUM)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON AT 270 DEG  
1-R10-3e METAL SIGN AT 270 DEG  
INPLACE (REVISE) 1-REVISE TYPE 10A BRACKETING AT 180 DEG TO BECOME TYPE 10B (INPLACE 4-1, NEW P4-2)  
INPLACE (REMOVE) R9-3 SIGN PANEL-FACING POLE 3  
F & I 1-SET CD PED SIGNAL (HOUSING, VISOR, LED CDT LENS) AT 180 DEG (NEW P4-2)  
REVISE TYPE 10A TO TYPE 10B AT 180 DEG  
1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB2-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTON USED TO BE (AT 270 DEG)  
1-2/C 14

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB2-2)  
EXTEND INTO HH 1:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB4-2)  
EXTEND INTO HH 5:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (LT ARROW) (PB4-1)  
EXTEND INTO HH 10:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB6-2)  
EXTEND INTO HH 10:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB8-2)  
EXTEND INTO HH 16:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
END MOUNT CAPPED (FOR FUTURE USE)  
2-ONE WAY SIGNALS-OVERHEAD (17' & 29'  
FROM END OF MAST ARM) (6-3, 6-2)  
TYPE 10B-POLE MOUNTED 180 DEG  
TYPE D SIGN PANEL-OVERHEAD  
2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
EXTENDED INTO HH 10:  
3" RSC  
3-12/C 12  
2-3/C 12  
1-3/C 20  
1-3/C 12 (LUM)

INPLACE (S & I) ONE WAY SIGNAL (HOUSING, VISORS, BACKGROUND SHIELD) - OVERHEAD AT 41' (RELOCATE TO 6')  
RLA-YLA-GLA LED LENSES - RELOCATE FROM SIGNAL HEAD AT 17' TO SIGNAL HEAD AT 6' (FOR 1-1)  
RYG LED LENSES - RELOCATE FROM SIGNAL HEAD AT 41' TO SIGNAL HEAD AT 17' (FOR 6-3)  
ONE WAY EVP DETECTOR & LIGHT AT 6' (Ø6,1)  
INSTALL VIDEO CAMERA-MAST ARM MOUNTED (FACING SB TRAFFIC) (FURNISHED BY COUNTY) (V6/1-1)  
F & I STRAP-ON MID MAST ARM MOUNT AT 6' (FOR 1-1)  
CAP MID-MAST ARM MOUNT AT 41'  
3/4" RSC EXTENSION AT 6' (FOR EVP EXTENSION OVER HEAD 1-1)  
5-FOOT EXTENSION, MOUNTING HARDWARE, AND KBR HUB AT 24' FOR VIDEO CAMERA (FOR MOUNTING ON MAST ARM)  
1-VIDEO CABLE

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON AT 180 DEG  
1-R10-3e METAL SIGN AT 180 DEG  
INPLACE (REVISE) 1-REVISE TYPE 10A BRACKETING AT 90 DEG TO BECOME TYPE 10B (INPLACE 3-2, NEW P4-1)  
INPLACE (REMOVE) R9-3 SIGN PANEL-FACING POLE 2  
F & I 1-SET CD PED SIGNAL (HOUSING, VISOR, LED CDT LENS) AT 90 DEG (NEW P4-1)  
REVISE TYPE 10A TO TYPE 10B AT 90 DEG  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTON USED TO BE (AT 180 DEG)

INSTALL VIDEO PROCESSOR AND INTERNAL VIDEO EQUIPMENT (FURNISHED BY COUNTY)

Ⓐ INPLACE (MAINTAIN INPLACE) CONTROLLER AND CABINET CABINET FOUNDATION  
EXTENDED INTO HH 21:  
METERED SIGNAL SERVICE  
2" RSC  
3-1/C 6  
EXTENDED INTO HH 1:  
2-4" RSC  
5-12/C 12  
6-3/C 12  
2-3/C 20  
19-2/C 14  
1-6 SM FO CABLE  
1-1/C 14 (TRACER)  
EXTENDED INTO HH 20:  
2-4" RSC  
5-12/C 12  
6-3/C 12  
2-3/C 20  
19-2/C 14  
1-6 SM FO CABLE  
1-1/C 14 (TRACER)  
2-3" RSC STUBBED OUT FROM CABINET TO SOUTH (BOTH ENDS THREADED & CAPPED)

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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Date: May 9, 2022  
Name: John M. Gray, PE  
Lic. No. 22457

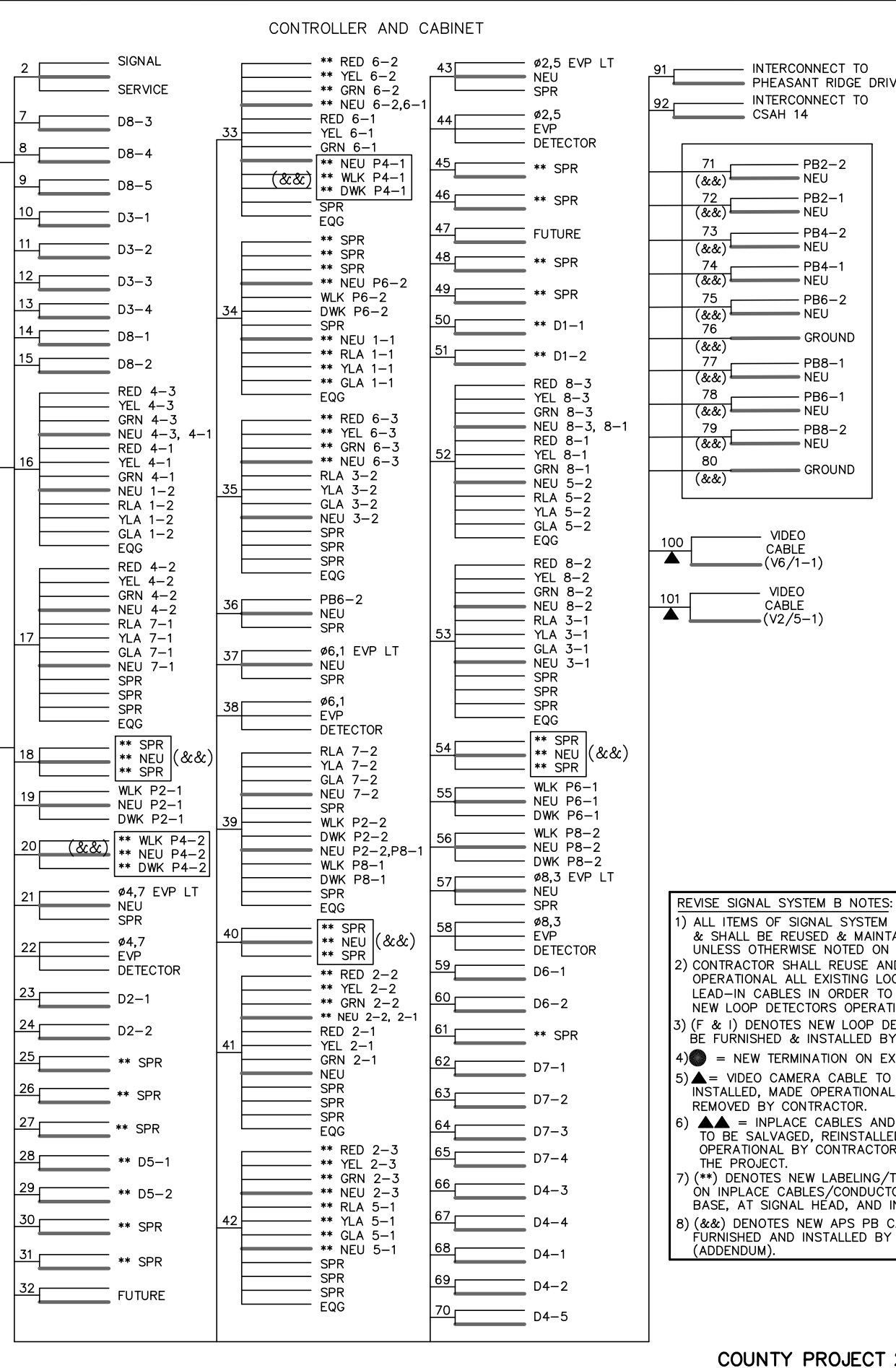
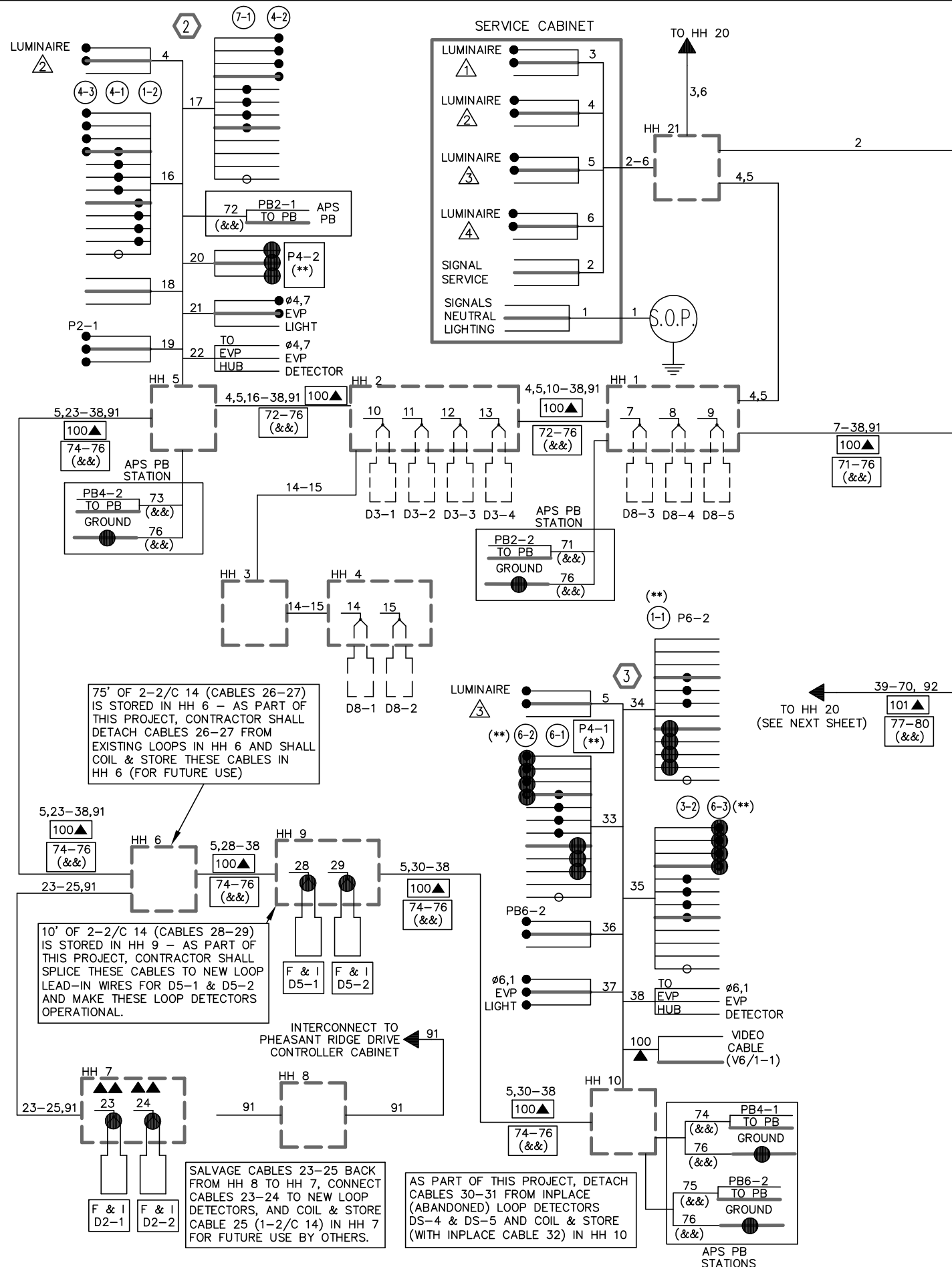
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ANOKA COUNTY  
CITY OF BLAINE

REVISE SIGNAL SYSTEM "B"  
NOTES  
CSAH 17 (LEXINGTON AVENUE NE)  
AT CSAH 12 (109TH AVENUE NE)

FILE NO.  
ANOKC 122928  
SIGNAL SHEET  
8 OF 35

58A  
94



NOTE: ADDENDUM WORK (ADDING APS PUSH BUTTONS TO REVISE SIGNAL SYSTEM "B") IS BOXED IN AND DENOTED BY (&&).

75' OF 2-2/C 14 (CABLES 26-27) IS STORED IN HH 6 - AS PART OF THIS PROJECT, CONTRACTOR SHALL DETACH CABLES 26-27 FROM EXISTING LOOPS IN HH 6 AND SHALL COIL & STORE THESE CABLES IN HH 6 (FOR FUTURE USE)

10' OF 2-2/C 14 (CABLES 28-29) IS STORED IN HH 9 - AS PART OF THIS PROJECT, CONTRACTOR SHALL SPLICE THESE CABLES TO NEW LOOP LEAD-IN WIRES FOR D5-1 & D5-2 AND MAKE THESE LOOP DETECTORS OPERATIONAL.

SALVAGE CABLES 23-25 BACK FROM HH 8 TO HH 7, CONNECT CABLES 23-24 TO NEW LOOP DETECTORS, AND COIL & STORE CABLE 25 (1-2/C 14) IN HH 7 FOR FUTURE USE BY OTHERS.

AS PART OF THIS PROJECT, DETACH CABLES 30-31 FROM INPLACE (ABANDONED) LOOP DETECTORS DS-4 & DS-5 AND COIL & STORE (WITH INPLACE CABLE 32) IN HH 10

- REVISE SIGNAL SYSTEM B NOTES:
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE & SHALL BE REUSED & MAINTAINED INPLACE UNLESS OTHERWISE NOTED ON PLANS.
  - 2) CONTRACTOR SHALL REUSE AND MAKE OPERATIONAL ALL EXISTING LOOP DETECTOR LEAD-IN CABLES IN ORDER TO MAKE ALL NEW LOOP DETECTORS OPERATIONAL.
  - 3) (F & I) DENOTES NEW LOOP DETECTORS TO BE FURNISHED & INSTALLED BY CONTRACTOR.
  - 4) ● = NEW TERMINATION ON EXISTING CABLE.
  - 5) ▲ = VIDEO CAMERA CABLE TO BE FURNISHED INSTALLED, MADE OPERATIONAL, AND REMOVED BY CONTRACTOR.
  - 6) ▲▲ = INPLACE CABLES AND CONDUCTORS TO BE SALVAGED, REINSTALLED, AND MADE OPERATIONAL BY CONTRACTOR AS PART OF THE PROJECT.
  - 7) (\*\*) DENOTES NEW LABELING/TERMINATION ON INPLACE CABLES/CONDUCTORS IN POLE BASE, AT SIGNAL HEAD, AND IN CABINET.
  - 8) (&&) DENOTES NEW APS PB CABLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR (ADDENDUM).

DRAWN BY: JMG	NO.	BY	DATE	REVISIONS
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM				

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.

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 Date: May 9, 2022

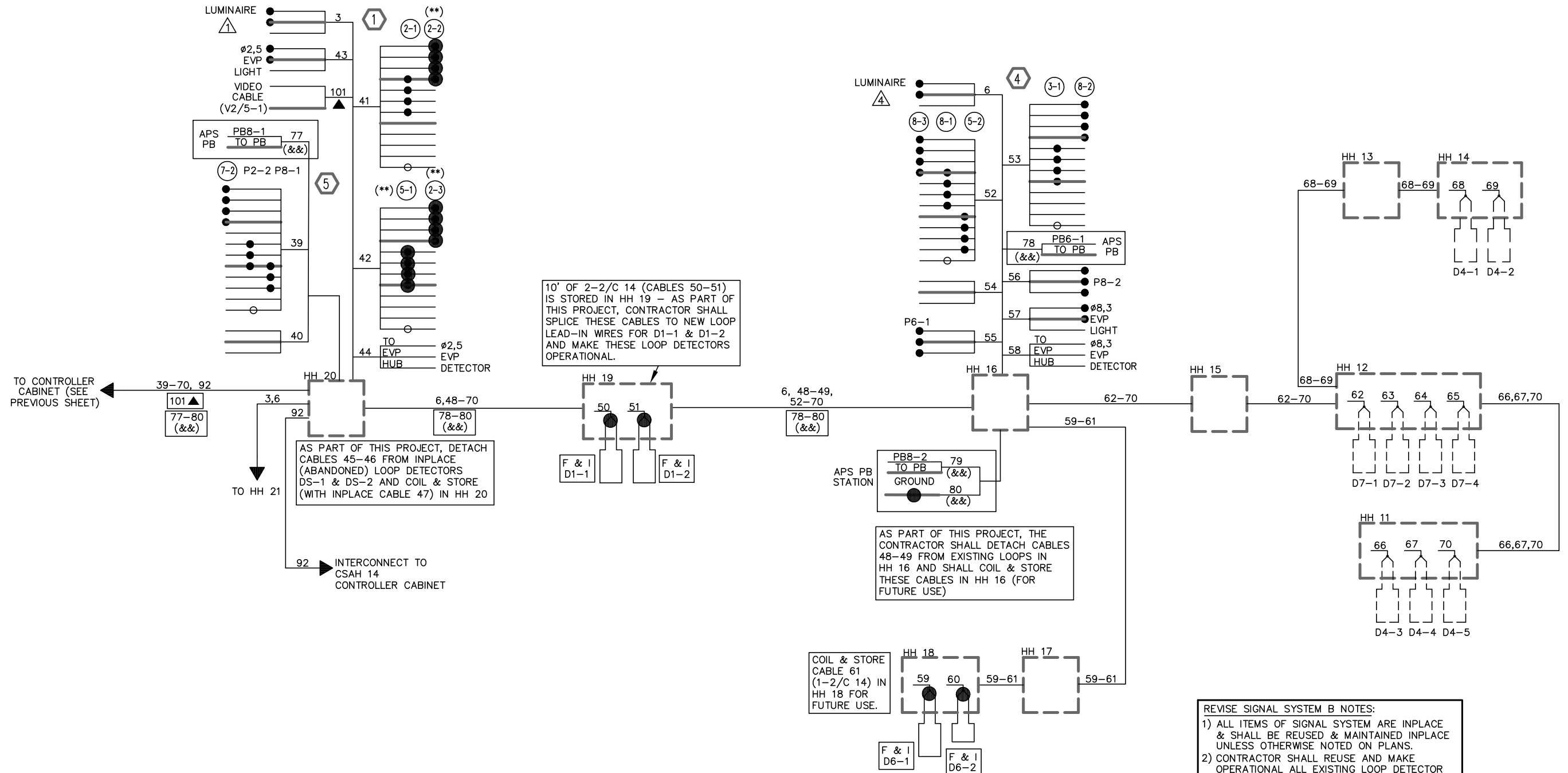
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ANOKA COUNTY  
 CITY OF BLAINE

REVISE SIGNAL SYSTEM "B"  
 FIELD WIRING DIAGRAM  
 CSAH 17 (LEXINGTON AVENUE NE)  
 AT CSAH 12 (109TH AVENUE NE)

FILE NO. ANOKC 122928  
 SIGNAL SHEET 9 OF 35  
 59A  
 94





NOTE: ADDENDUM WORK (ADDING APS PUSH BUTTONS TO REVISE SIGNAL SYSTEM "B") IS BOXED IN AND DENOTED BY (&&).

- REVISE SIGNAL SYSTEM B NOTES:
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE & SHALL BE REUSED & MAINTAINED INPLACE UNLESS OTHERWISE NOTED ON PLANS.
  - 2) CONTRACTOR SHALL REUSE AND MAKE OPERATIONAL ALL EXISTING LOOP DETECTOR LEAD-IN CABLES IN ORDER TO MAKE ALL NEW LOOP DETECTORS OPERATIONAL.
  - 3) (F & I) DENOTES NEW LOOP DETECTORS TO BE FURNISHED & INSTALLED BY CONTRACTOR.
  - 4) ● = NEW TERMINATION ON EXISTING CABLE.
  - 5) ▲ = VIDEO CAMERA CABLE TO BE FURNISHED INSTALLED, MADE OPERATIONAL, AND REMOVED BY CONTRACTOR.
  - 6) ▲▲ = INPLACE CABLES AND CONDUCTORS TO BE SALVAGED, REINSTALLED, AND MADE OPERATIONAL BY CONTRACTOR AS PART OF THE PROJECT.
  - 7) (\*\*) DENOTES NEW LABELING/TERMINATION ON INPLACE CABLES/CONDUCTORS IN POLE BASE, AT SIGNAL HEAD, AND IN CABINET.
  - 8) (&&) DENOTES NEW APS PB CABLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR (ADDENDUM).

COUNTY PROJECT 22-18-17

DRAWN BY: JMG	NO.	BY	DATE	REVISIONS
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM				

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.

*John M. Gray* Name: John M. Gray, PE  
 Date: May 9, 2022 Lic. No. 22457



**ANOKA COUNTY  
CITY OF BLAINE**

**REVISE SIGNAL SYSTEM "B"  
FIELD WIRING DIAGRAM**  
 CSAH 17 (LEXINGTON AVENUE NE)  
 AT CSAH 12 (109TH AVENUE NE)

FILE NO. ANOKC 122928	<b>59B</b>
SIGNAL SHEET 10 OF 35	<b>94</b>

- ① PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350°)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (17', 29' AND 41' FROM END OF MAST ARM)  
 CAP END MOUNT (FOR FUTURE USE BY OTHERS)  
 TYPE 10A-POLE MOUNTED 180°  
 TYPE D SIGN PANEL-OVERHEAD (D-1)  
 ONE WAY EVP DETECTOR AND LIGHT (Ø2,5)  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0° & 180°  
 EXTEND INTO H.H.20:  
 3"R.S.C.  
 2-12/c#12  
 1-3/c#12  
 1-3/c#20  
 1-3/c#12 (LUM)

- ③ PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350°)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (17', 29' AND 41' FROM END OF MAST ARM)  
 CAP END MOUNT (FOR FUTURE USE BY OTHERS)  
 TYPE 10A-POLE MOUNTED 90°  
 TYPE 10B-POLE MOUNTED 180°  
 1-PEDESTRIAN PUSH BUTTON  
 R9-3a SIGN PANEL-FACING POLE 2  
 TYPE D SIGN PANEL-OVERHEAD (D-3)  
 ONE WAY EVP DETECTOR AND LIGHT (Ø6,1)  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0° & 180°  
 EXTEND INTO H.H.10:  
 3"R.S.C.  
 3-12/c#12  
 2-3/c#12  
 1-3/c#20  
 1-3/c#12 (LUM)

- ② PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350°)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (0', 18' AND 30' FROM END OF MAST ARM)  
 TYPE 10B-POLE MOUNTED 90°  
 TYPE 10A-POLE MOUNTED 180°  
 1-PEDESTRIAN PUSH BUTTON  
 R9-3a SIGN PANEL-FACING POLE 3  
 TYPE D SIGN PANEL-OVERHEAD (D-2)  
 ONE WAY EVP DETECTOR AND LIGHT (Ø4,7)  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0° & 180°  
 EXTEND INTO H.H.5:  
 3"R.S.C.  
 2-12/c#12  
 4-3/c#12  
 1-3/c#20  
 1-3/c#12 (LUM)

- ⑤ PEDESTAL FOUNDATION  
 14" PEDESTAL POLE (INCLUDES BASE)  
 WIND COLLAR FOR PEDESTAL POLE  
 TYPE 5D  
 2-PEDESTRIAN PUSH BUTTONS  
 EXTEND INTO H.H.20:  
 3"R.S.C.  
 1-12/c#12  
 1-3/c#12

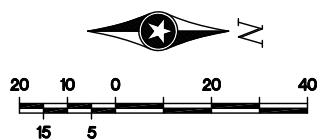
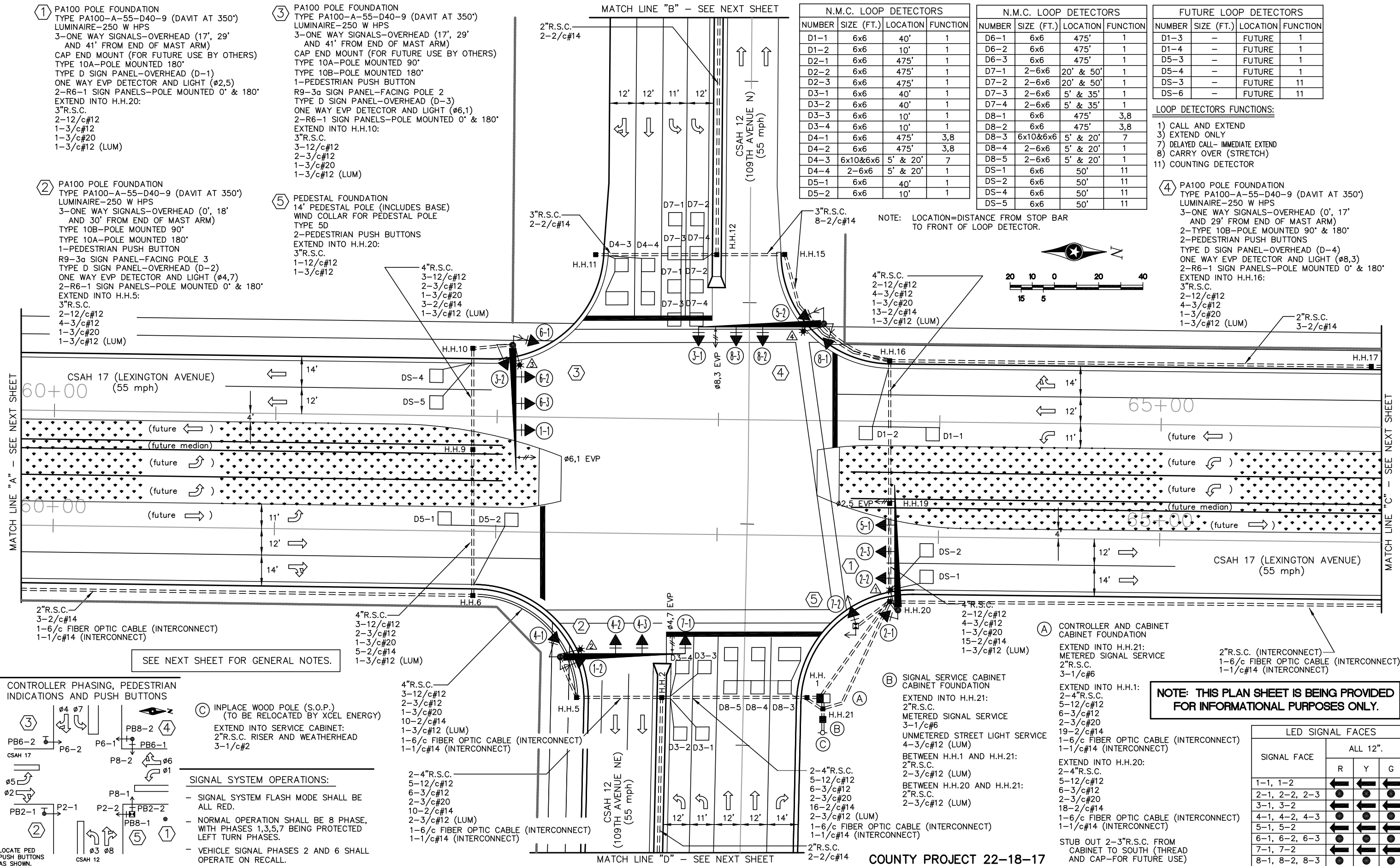
N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	6x6	40'	1
D1-2	6x6	10'	1
D2-1	6x6	475'	1
D2-2	6x6	475'	1
D2-3	6x6	475'	1
D3-1	6x6	40'	1
D3-2	6x6	40'	1
D3-3	6x6	10'	1
D3-4	6x6	10'	1
D4-1	6x6	475'	3,8
D4-2	6x6	475'	3,8
D4-3	6x10&6x6	5' & 20'	7
D4-4	2-6x6	5' & 20'	1
D5-1	6x6	40'	1
D5-2	6x6	10'	1

N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D6-1	6x6	475'	1
D6-2	6x6	475'	1
D6-3	6x6	475'	1
D7-1	2-6x6	20' & 50'	1
D7-2	2-6x6	20' & 50'	1
D7-3	2-6x6	5' & 35'	1
D7-4	2-6x6	5' & 35'	1
D8-1	6x6	475'	3,8
D8-2	6x6	475'	3,8
D8-3	6x10&6x6	5' & 20'	7
D8-4	2-6x6	5' & 20'	1
D8-5	2-6x6	5' & 20'	1
DS-1	6x6	50'	11
DS-2	6x6	50'	11
DS-4	6x6	50'	11
DS-5	6x6	50'	11

FUTURE LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-3	-	FUTURE	1
D1-4	-	FUTURE	1
D5-3	-	FUTURE	1
D5-4	-	FUTURE	1
DS-3	-	FUTURE	11
DS-6	-	FUTURE	11

- LOOP DETECTORS FUNCTIONS:  
 1) CALL AND EXTEND  
 3) EXTEND ONLY  
 7) DELAYED CALL- IMMEDIATE EXTEND  
 8) CARRY OVER (STRETCH)  
 11) COUNTING DETECTOR

- ④ PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350°)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (0', 17' AND 29' FROM END OF MAST ARM)  
 2-TYPE 10B-POLE MOUNTED 90° & 180°  
 2-PEDESTRIAN PUSH BUTTONS  
 TYPE D SIGN PANEL-OVERHEAD (D-4)  
 ONE WAY EVP DETECTOR AND LIGHT (Ø8,3)  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0° & 180°  
 EXTEND INTO H.H.16:  
 3"R.S.C.  
 2-12/c#12  
 4-3/c#12  
 1-3/c#20  
 1-3/c#12 (LUM)

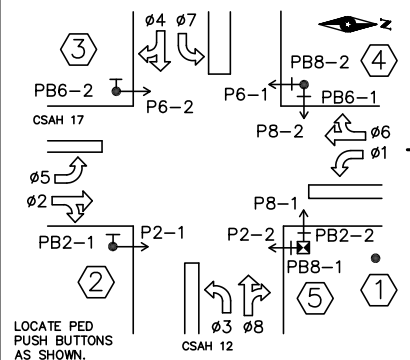


NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

SEE NEXT SHEET FOR GENERAL NOTES.

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



- ③ INPLACE WOOD POLE (S.O.P.) (TO BE RELOCATED BY XCEL ENERGY)  
 EXTEND INTO SERVICE CABINET:  
 2"R.S.C. RISER AND WEATHERHEAD  
 3-1/c#2

SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1,3,5,7 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

- 4"R.S.C.  
 3-12/c#12  
 2-3/c#12  
 1-3/c#20  
 10-2/c#14  
 1-3/c#12 (LUM)  
 1-6/c FIBER OPTIC CABLE (INTERCONNECT)  
 1-1/c#14 (INTERCONNECT)
- 2-4"R.S.C.  
 5-12/c#12  
 6-3/c#12  
 2-3/c#20  
 10-2/c#14  
 2-3/c#12 (LUM)  
 1-6/c FIBER OPTIC CABLE (INTERCONNECT)  
 1-1/c#14 (INTERCONNECT)

- ① CONTROLLER AND CABINET CABINET FOUNDATION  
 EXTEND INTO H.H.21:  
 METERED SIGNAL SERVICE  
 2"R.S.C.  
 3-1/c#6

- ② SIGNAL SERVICE CABINET CABINET FOUNDATION  
 EXTEND INTO H.H.21:  
 2"R.S.C.  
 METERED SIGNAL SERVICE  
 3-1/c#6  
 UNMETERED STREET LIGHT SERVICE  
 4-3/c#12 (LUM)
- BETWEEN H.H.1 AND H.H.21:  
 2"R.S.C.  
 2-3/c#12 (LUM)
- BETWEEN H.H.20 AND H.H.21:  
 2"R.S.C.  
 2-3/c#12 (LUM)

LED SIGNAL FACES			
SIGNAL FACE	ALL 12"		
	R	Y	G
1-1, 1-2	←	←	←
2-1, 2-2, 2-3	●	●	●
3-1, 3-2	←	←	←
4-1, 4-2, 4-3	●	●	●
5-1, 5-2	←	←	←
6-1, 6-2, 6-3	●	●	●
7-1, 7-2	←	←	←
8-1, 8-2, 8-3	●	●	●

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 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

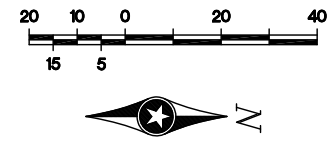
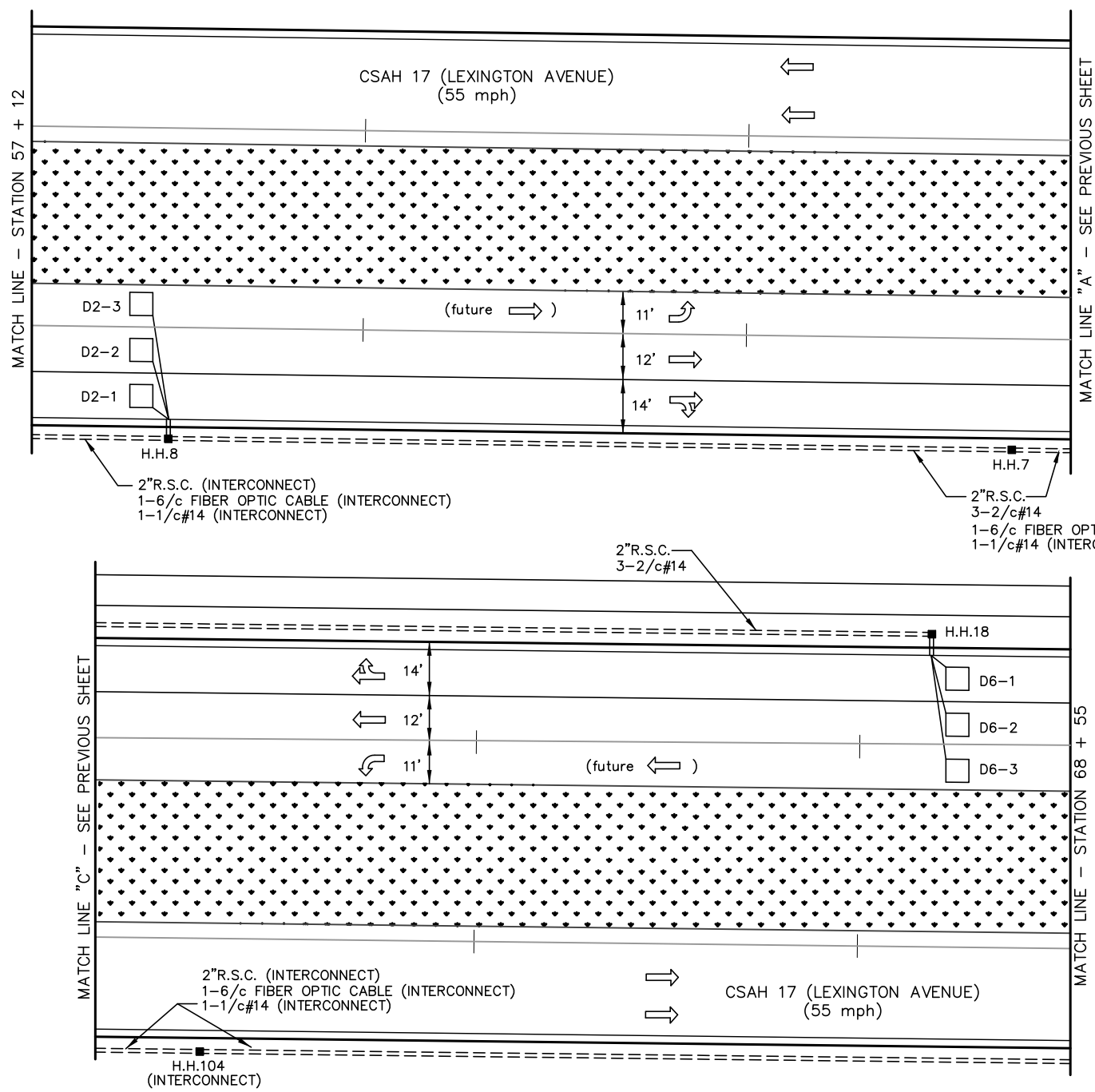
SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITY OF BLAINE

EXISTING SIGNAL SYSTEM 'B'  
 'FOR INFORMATION ONLY'  
 CSAH 17 (LEXINGTON AVENUE NE)  
 AT CSAH 12 (109TH AVENUE NE)

FILE NO.  
 ANOKC 122928  
 SIGNAL SHEET  
 11 OF 35  
 61  
 94

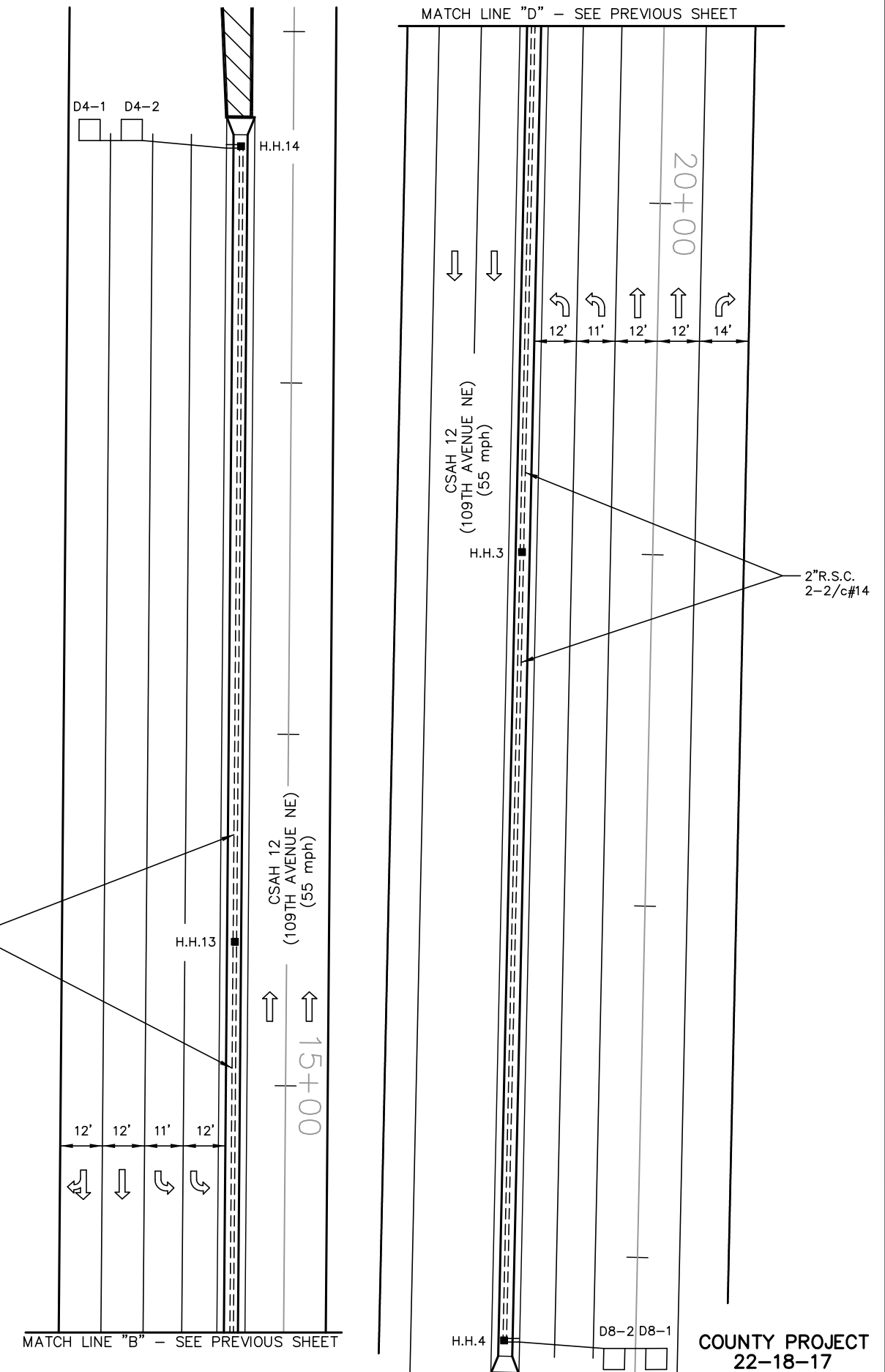
COUNTY PROJECT 22-18-17



- NOTES:**
- 1) LOCATION OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
  - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
  - 5) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
  - 6) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION HAND/WALKING PERSON INDICATION.
  - 7) ALL VEHICLE SIGNAL INDICATIONS, AND ALL PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
  - 8) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED & INSTALLED BY CONTRACTOR (INCIDENTAL TO ITEM NO. 2565.511 FOR THIS SIGNAL SYSTEM).
  - 9) CONTRACTOR SHALL PROVIDE EXTENDED BRACKETS FOR EACH POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL FACE.
  - 10) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).

- 11) SEE SPECIAL PROVISIONS & ESTIMATED QUANTITIES REGARDING INPLACE SIGNAL SYSTEM TO BE REMOVED AND SALVAGED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565.511).
- 12) CONTRACTOR SHALL MAINTAIN OPERATION OF INPLACE SIGNAL SYSTEM AT ALL TIMES, UNTIL APPROVED BY ENGINEER FOR SIGNAL SYSTEM TO BE TURNED OFF.
- 13) CONTRACTOR SHALL COORDINATE ALL TRAFFIC SIGNAL INSTALLATION WORK WITH ROAD CONSTRUCTION TO BE COMPLETED BY OTHERS AS PART OF ENTIRE PROJECT.
- 14) (INTERCONNECT) DENOTES ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565.601 (TRAFFIC CONTROL INTERCONNECTION). SEE ESTIMATED QUANTITIES & SPECIAL PROVISIONS.

**NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.**



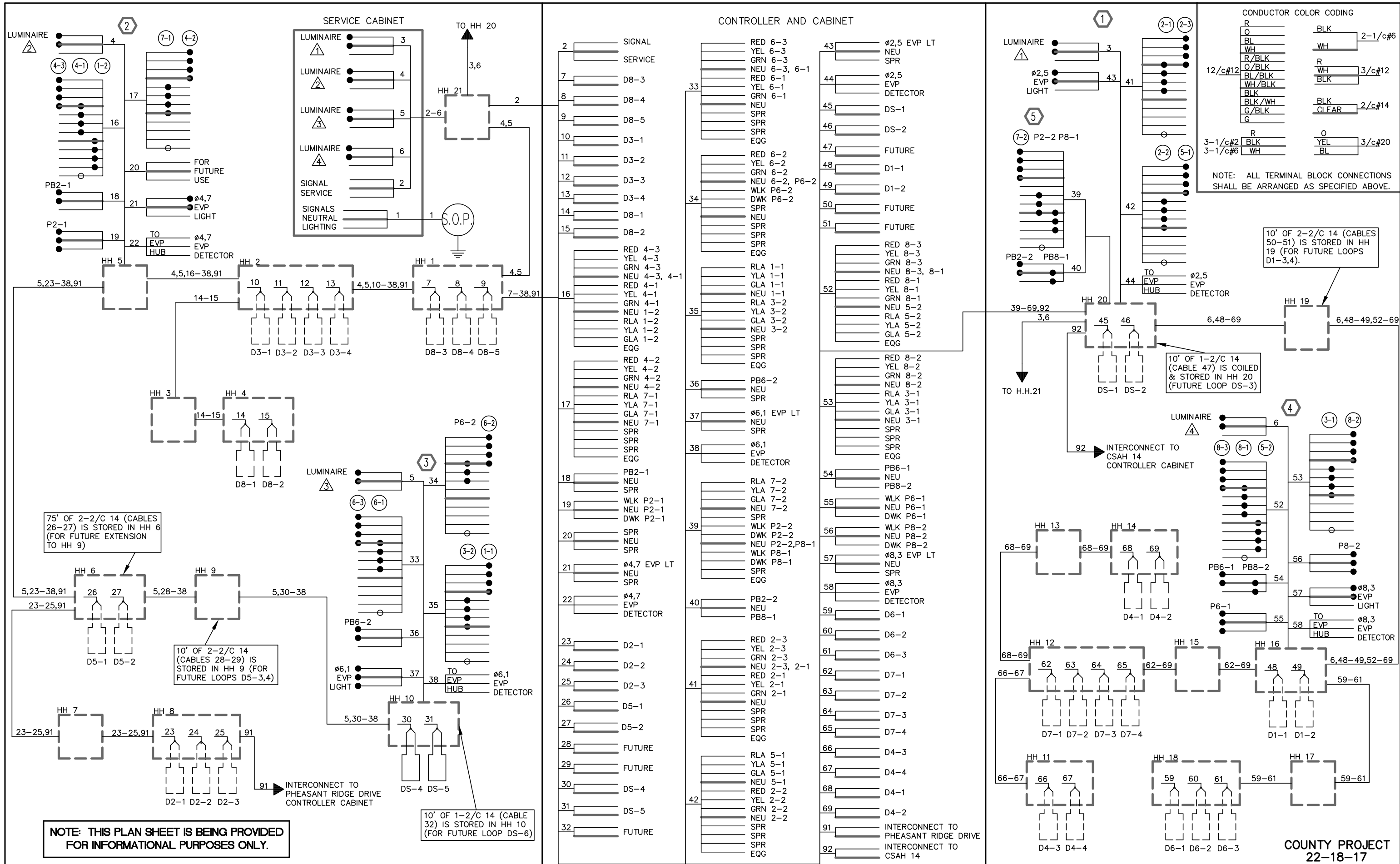
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DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY  
 CITY OF BLAINE**

**EXISTING SIGNAL SYSTEM "B"  
 "FOR INFORMATION ONLY"  
 CSAH 17 (LEXINGTON AVENUE NE)  
 AT CSAH 12 (109TH AVENUE NE)**

FILE NO. ANOKC 122928	<b>62</b>
SIGNAL SHEET 12 OF 35	



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**ANOKA COUNTY  
CITY OF BLAINE**

**EXISTING SIGNAL SYSTEM 'B'  
'FOR INFORMATION ONLY'  
CSAH 17 (LEXINGTON AVENUE NE)  
AT CSAH 12 (109TH AVENUE NE)**

FILE NO. ANOKC 122928  
 SIGNAL SHEET 13 OF 35  
**63**  
**94**

NMC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	10' & 40'	1
D1-2	2-6x6	0' & 25'	1
D2-1	6x6	350'	1
D3-1	2-6x6	10' & 40'	1
D3-2	2-6x6	0' & 25'	1
D4-1, D4-2	6x6	240'	3
D4-3, D4-4	2-6x6	0' & 10'	1
D4-5	4-6x6	AS SHOWN	7
D5-1	2-6x6	10' & 40'	1
D5-2	2-6x6	0' & 25'	1
D6-1	6x6	350'	1
D7-1	2-6x6	10' & 40'	1
D7-2	2-6x6	0' & 25'	1
D8-1, D8-2	6x6	240'	3
D8-3	3-6x6	AS SHOWN	1
D8-4	2-6x6	0' & 10'	1

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

FUNCTIONS:  
 (1) CALL AND EXTEND  
 (3) EXTEND ONLY  
 (7) DELAY CALL,  
 IMMEDIATE EXTEND

F & I | APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB2-2)  
 EXTEND INTO HH 1:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

F & I | APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB4-2)  
 EXTEND INTO HH 5:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

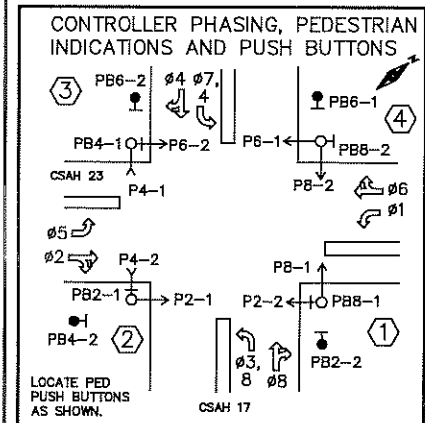
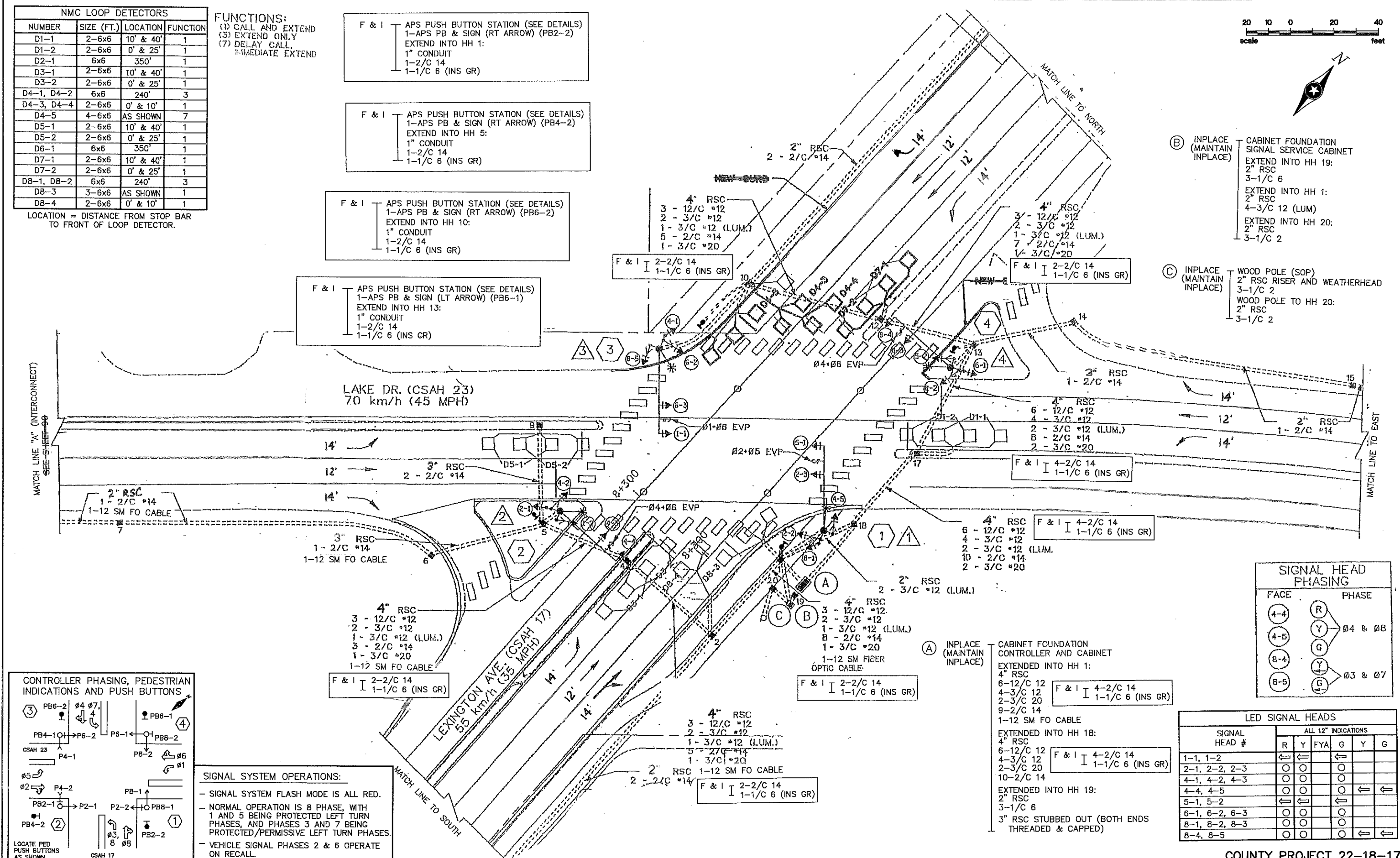
F & I | APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB6-2)  
 EXTEND INTO HH 10:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

F & I | APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (LT ARROW) (PB6-1)  
 EXTEND INTO HH 13:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)



(B) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION SIGNAL SERVICE CABINET  
 EXTEND INTO HH 19:  
 2" RSC  
 3-1/C 6  
 EXTEND INTO HH 1:  
 2" RSC  
 4-3/C 12 (LUM.)  
 EXTEND INTO HH 20:  
 2" RSC  
 3-1/C 2

(C) INPLACE (MAINTAIN INPLACE) WOOD POLE (SOP)  
 2" RSC RISER AND WEATHERHEAD  
 3-1/C 2  
 WOOD POLE TO HH 20:  
 2" RSC  
 3-1/C 2



SIGNAL SYSTEM OPERATIONS:  
 - SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 8 PHASE, WITH 1 AND 5 BEING PROTECTED LEFT TURN PHASES, AND PHASES 3 AND 7 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES.  
 - VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

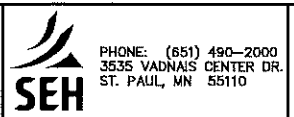
SIGNAL HEAD PHASING	
FACE	PHASE
(4-4)	(R)
(4-5)	(Y)
(8-4)	(G)
(8-5)	(Y)
	(G)

LED SIGNAL HEADS						
SIGNAL HEAD #	ALL 12" INDICATIONS					
	R	Y	FYA	G	Y	G
1-1, 1-2	←	←	←	←		
2-1, 2-2, 2-3	○	○	○			
4-1, 4-2, 4-3	○	○	○			
4-4, 4-5	○	○	○	←	←	
5-1, 5-2	←	←	←			
6-1, 6-2, 6-3	○	○	○			
8-1, 8-2, 8-3	○	○	○			
8-4, 8-5	○	○	○	←	←	

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.  
 Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457



ANOKA COUNTY  
 CITY OF BLAINE

REVISE SIGNAL SYSTEM 'C'  
 INTERSECTION LAYOUT  
 CSAH 17 (LEXINGTON AVENUE)  
 AT CSAH 23 (LAKE DRIVE)  
 FILE NO. ANOKC 122928  
 SIGNAL SHEET 14 OF 35  
 63A  
 94

COUNTY PROJECT 22-18-17

REVISE SIGNAL SYSTEM C NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 5 AND 13 TO FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED (REUSE EXISTING METAL FRAME & COVER).
  - ALL HANDHOLE ADJUSTMENT WORK IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM C). SEE DETAILS & SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- 11) CONTRACTOR SHALL MAINTAIN AND REUSE EXISTING PEDESTRIAN SIGNAL HOUSINGS AND VISORS, SHALL REMOVE INPLACE LED HAND/WALKING PERSON INDICATIONS, AND SHALL FURNISH AND INSTALL NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" INDICATIONS IN THEIR PLACE FOR 6 OF THE 8 PED SIGNALS (INCIDENTAL TO REVISE SIGNAL SYSTEM C PAY ITEM).

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-40-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-200 W HPS WITH PEC & CHK.SWITCH  
 2-ONE WAY SIGNALS-OVERHEAD AT 0.5' & 12.5'  
 TYPE 10B-POLE MOUNTED 90 DEG  
 TYPE 20B-POLE MOUNTED 180 DEG  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø2,5)  
 EXTENDED INTO HH 1:  
 3" RSC  
 3-12/c 12  
 2-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 225/315 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 225/315 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-2, P8-1)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB8-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 225/315 DEG)  
 1-2/C 14

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-40-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-200 W HPS WITH PEC & CHK.SWITCH  
 2-ONE WAY SIGNALS-OVERHEAD AT 0.5' & 12.5'  
 TYPE 10B-POLE MOUNTED 90 DEG (P4-1 IS CDT)  
 TYPE 20B-POLE MOUNTED 180 DEG  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø6,1)  
 EXTENDED INTO HH 10:  
 3" RSC  
 3-12/c 12  
 2-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

INPLACE (SALVAGE) 1-LED PED INDICATION AT 180 DEG (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 180/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 180/270 DEG  
 F & I 1-LED COUNTDOWN TIMER PED INDICATION AT 180 DEG (P6-2)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB4-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 180/270 DEG)  
 1-2/C 14

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-35-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-200 W HPS WITH PEC & CHK.SWITCH  
 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 12'  
 TYPE 10B-POLE MOUNTED 90 DEG  
 TYPE 20B-POLE MOUNTED 180 DEG (P4-2 IS CDT)  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 R10-12 SIGN PANEL-ADJACENT TO 4-4  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø4)  
 EXTENDED INTO HH 5:  
 3" RSC  
 3-12/c 12  
 2-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

INPLACE (SALVAGE) 1-LED PED INDICATION AT 90 DEG (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 1-LED COUNTDOWN TIMER PED INDICATION AT 90 DEG (P2-1)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB2-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-35-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-200 W HPS WITH PEC & CHK.SWITCH  
 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 12'  
 TYPE 10B-POLE MOUNTED 90 DEG  
 TYPE 20B-POLE MOUNTED 180 DEG  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 R10-12 SIGN PANEL-ADJACENT TO 8-4  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø8)  
 EXTENDED INTO HH 13:  
 3" RSC  
 3-12/c 12  
 2-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P6-1, P8-2)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB8-2)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

COUNTY PROJECT 22-18-17

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG  
 DESIGN TEAM

NO.	BY	DATE	REVISIONS

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.  
 Name: John M Gray, PE  
 Lic. No. 22457  
 Date: May 9, 2022

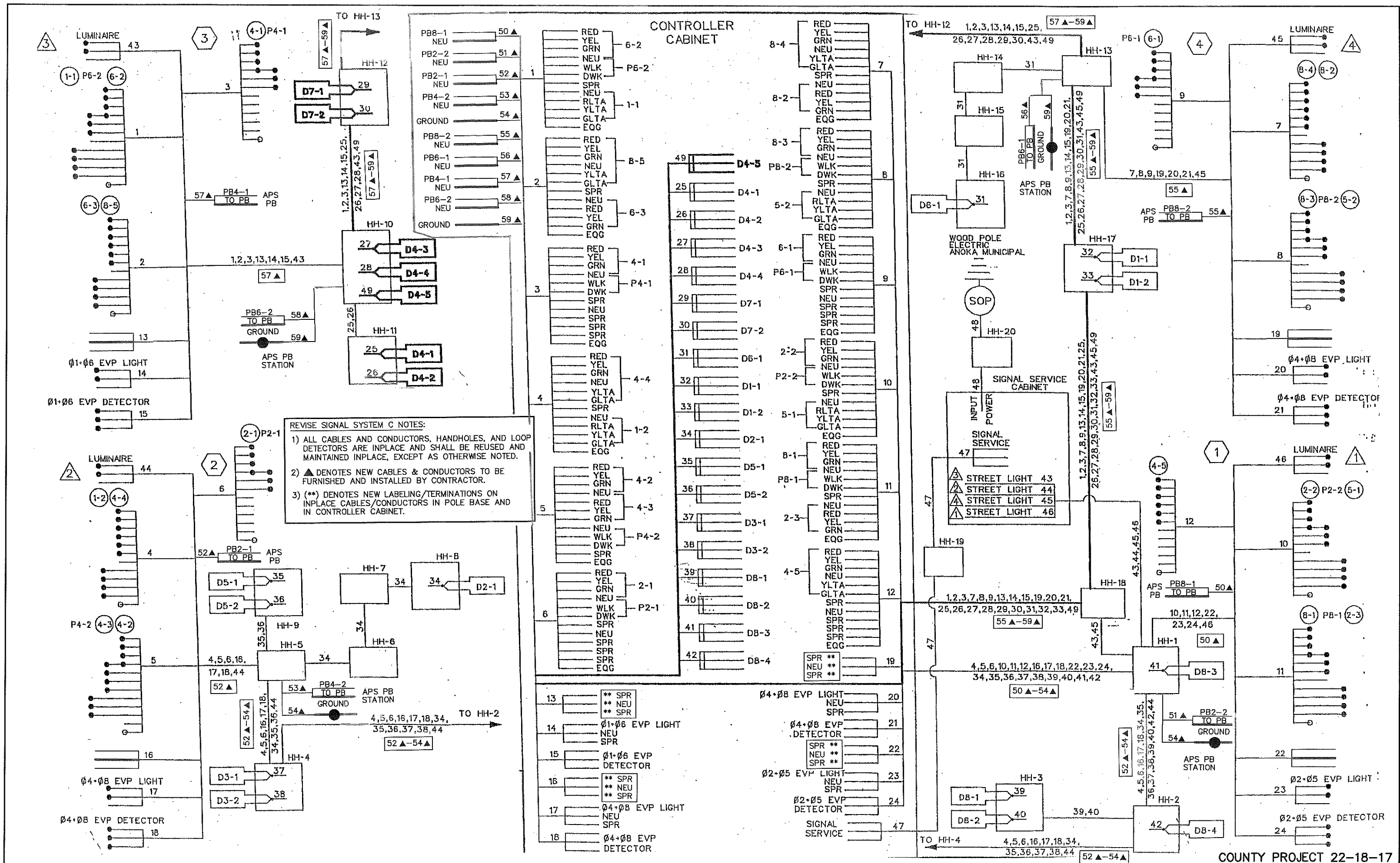
SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITY OF BLAINE

REVISE SIGNAL SYSTEM 'C'  
 SIGNAL SYSTEM NOTES  
 CSAH 17 (LEXINGTON AVENUE)  
 AT CSAH 23 (LAKE DRIVE)

FILE NO.  
 ANOK 122928  
 SIGNAL SHEET  
 15 OF 35

63B  
 94



DRAWN BY: JMG									
DESIGNER: JMG									
CHECKED BY: JMG									
DESIGN TEAM	NO.	BY	DATE	REVISIONS					

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.

Name: John M. Gray, PE  
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 Date: May 9, 2022

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 ST. PAUL, MN 55110

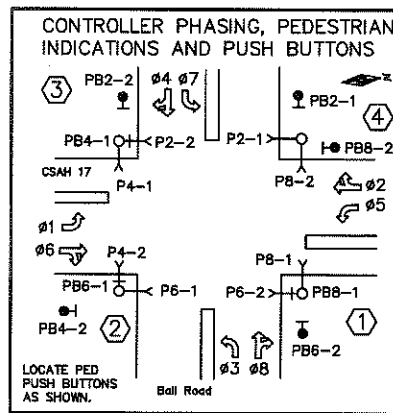
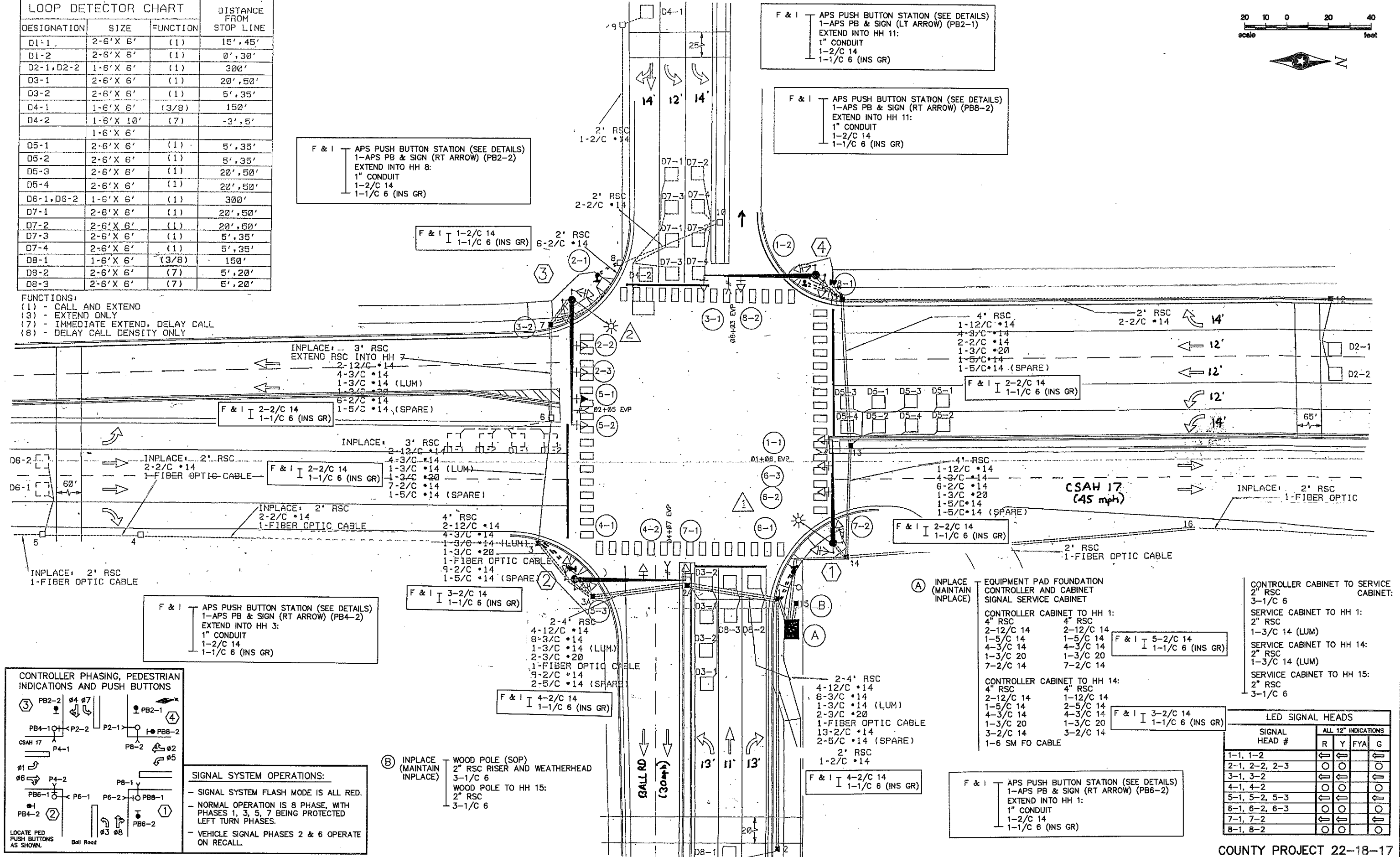
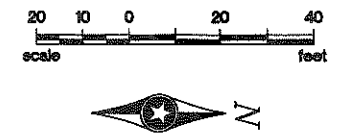
**ANOKA COUNTY  
CITY OF BLAINE**

**REVISE SIGNAL SYSTEM 'C'  
FIELD WIRING DIAGRAM**  
CSAH 17 (LEXINGTON AVENUE)  
AT CSAH 23 (LAKE DRIVE)

FILE NO. ANOKC 122928	<b>63C</b>
SIGNAL SHEET 16 OF 35	<b>94</b>

LOOP DETECTOR CHART			DISTANCE FROM STOP LINE
DESIGNATION	SIZE	FUNCTION	
D1-1	2-6'X 6'	(1)	15', 45'
D1-2	2-6'X 6'	(1)	0', 30'
D2-1, D2-2	1-6'X 6'	(1)	300'
D3-1	2-6'X 6'	(1)	20', 50'
D3-2	2-6'X 6'	(1)	5', 35'
D4-1	1-6'X 6'	(3/8)	150'
D4-2	1-6'X 10'	(7)	-3', 5'
D5-1	2-6'X 6'	(1)	5', 35'
D5-2	2-6'X 6'	(1)	5', 35'
D5-3	2-6'X 6'	(1)	20', 50'
D5-4	2-6'X 6'	(1)	20', 50'
D6-1, D6-2	1-6'X 6'	(1)	300'
D7-1	2-6'X 6'	(1)	20', 50'
D7-2	2-6'X 6'	(1)	20', 50'
D7-3	2-6'X 6'	(1)	5', 35'
D7-4	2-6'X 6'	(1)	5', 35'
D8-1	1-6'X 6'	(3/8)	150'
D8-2	2-6'X 6'	(7)	5', 20'
D8-3	2-6'X 6'	(7)	5', 20'

FUNCTIONS:  
 (1) - CALL AND EXTEND  
 (3) - EXTEND ONLY  
 (7) - IMMEDIATE EXTEND, DELAY CALL  
 (8) - DELAY CALL DENSITY ONLY



**SIGNAL SYSTEM OPERATIONS:**  
 - SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING PROTECTED LEFT TURN PHASES.  
 - VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

LED SIGNAL HEADS				
SIGNAL HEAD #	ALL 12" INDICATORS			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○	○	○
3-1, 3-2	←	←	←	←
4-1, 4-2	←	←	←	○
5-1, 5-2, 5-3	←	←	←	←
6-1, 6-2, 6-3	○	○	○	○
7-1, 7-2	←	←	←	←
8-1, 8-2	○	○	○	○

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG	DATE: May 9, 2022
DESIGN TEAM	NO. BY DATE	REVISIONS	

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 Lic. No. 22457

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**ANOKA COUNTY**  
**CITY OF BLAINE**

**REVISE SIGNAL SYSTEM 'D'**  
**INTERSECTION LAYOUT**  
**CSAH 17 (LEXINGTON AVENUE)**  
**AT BALL ROAD**

FILE NO. ANOKC 122928  
 SIGNAL SHEET 17 OF 35  
**63D**  
**94**



REVISE SIGNAL SYSTEM D NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 3A, 7, AND 8 FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED (REUSE EXISTING METAL FRAMES/COVERS).
  - ALL HANDHOLE ADJUSTMENT WORK IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM D). SEE DETAILS & SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-50-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED  
 3-ONE WAY SIGNALS-OVERHEAD (0', 12', 24')  
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG  
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø6,1)  
 EXTENDED INTO HH 14:  
 3" RSC  
 2-12/C 14  
 1-5/C 14  
 4-3/C 14  
 1-3/C 20  
 1-3/C 14 (LUM)

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 2-R10-3e METAL SIGNS AT 0/270 DEG  
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB8-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED  
 4-ONE WAY SIGNALS-OVERHEAD (0', 12', 24', 36')  
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG  
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø2,5)  
 EXTENDED INTO HH 7:  
 3" RSC  
 2-12/C 14  
 1-5/C 14  
 4-3/C 14  
 1-3/C 20  
 1-3/C 14 (LUM)

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 2-R10-3e METAL SIGNS AT 0/270 DEG  
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB4-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-50  
 2-ONE WAY SIGNALS-OVERHEAD (0', 22')  
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG  
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø4,7)  
 EXTENDED INTO HH 3A:  
 3" RSC  
 2-12/C 14  
 1-5/C 14  
 4-3/C 14  
 1-3/C 20

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 90/180 DEG  
 2-R10-3e METAL SIGNS AT 90/180 DEG  
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB2-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 90/180 DEG)  
 1-2/C 14

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-50  
 2-ONE WAY SIGNALS-OVERHEAD (0', 17')  
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG  
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø8,3)  
 EXTENDED INTO HH 11:  
 3" RSC  
 1-12/C 14  
 2-5/C 14  
 4-3/C 14  
 1-3/C 20

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 2-R10-3e METAL SIGNS AT 0/270 DEG  
 F & I PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG  
 DESIGN TEAM

NO.	BY	DATE	REVISIONS

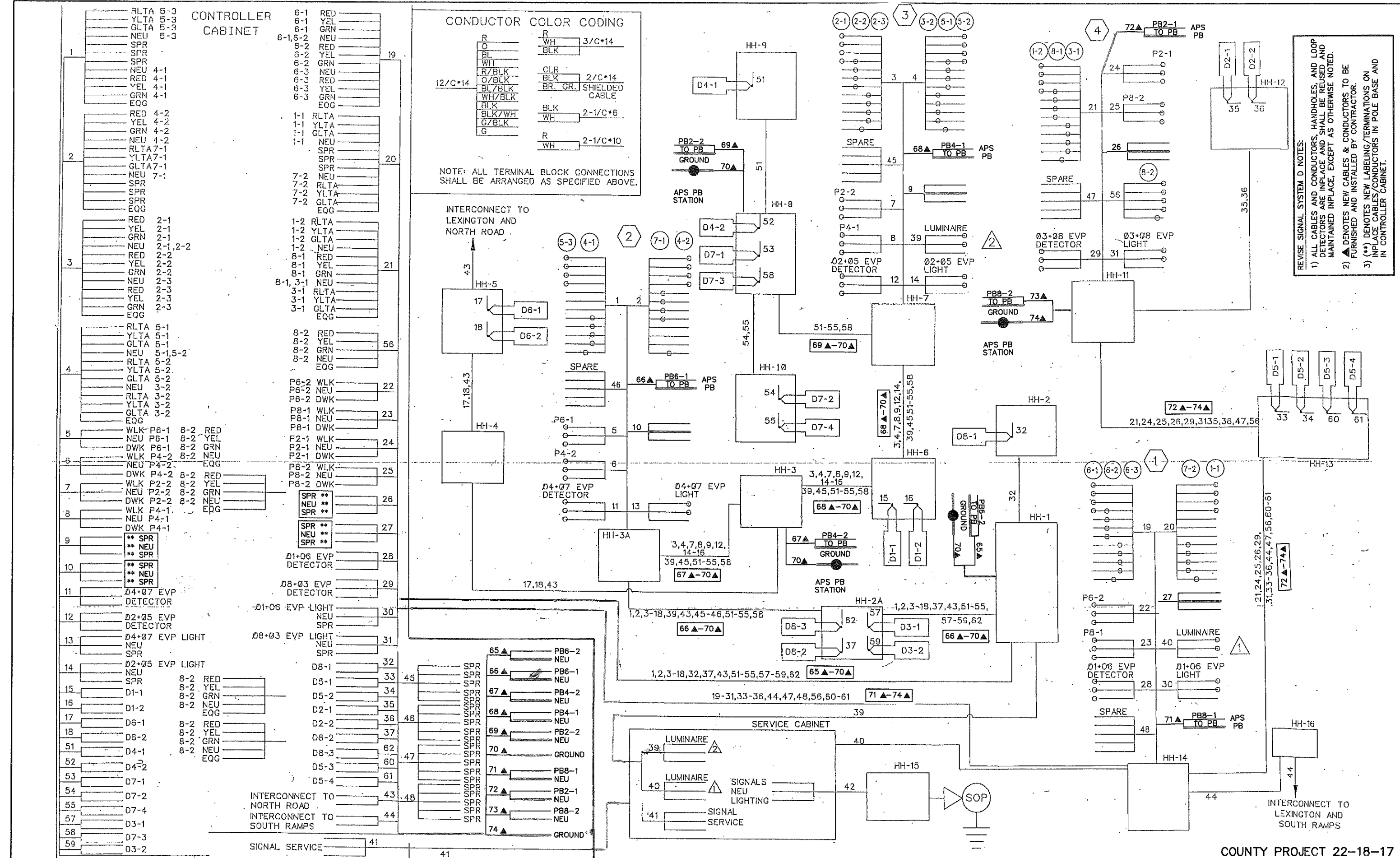
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ANOKA COUNTY  
 CITY OF BLAINE

REVISE SIGNAL SYSTEM 'D'  
 SIGNAL SYSTEM NOTES  
 CSAH 17 (LEXINGTON AVENUE)  
 AT BALL ROAD

FILE NO.  
 ANOKC 122928  
 SIGNAL SHEET  
 18 OF 35



### CONDUCTOR COLOR CODING

R	WH	3/C*14
BL	BLK	
WH	CLR	2/C*14
R/BLK	BLK	
O/BLK	BR. GR.	SHIELDED CABLE
BL/BLK	BLK	
WH/BLK	WH	2-1/C*6
BLK	R	2-1/C*10
BLK/WH	WH	
G/BLK		
G		

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

INTERCONNECT TO LEXINGTON AND NORTH ROAD

INTERCONNECT TO LEXINGTON AND SOUTH RAMPS

### CONTROLLER CABINET

- |    |                    |                    |                    |    |
|----|--------------------|--------------------|--------------------|----|
| 1  | RLTA 5-3           | 6-1                | RED                | 19 |
|    | YLTA 5-3           | 6-1                | YEL                |    |
|    | GLTA 5-3           | 6-1                | GRN                |    |
|    | NEU 5-3            | 6-1                | NEU                |    |
|    | SPR 4-1            | 6-2                | RED                |    |
|    | SPR 4-1            | 6-2                | YEL                |    |
|    | SPR 4-1            | 6-2                | GRN                |    |
|    | SPR 4-1            | 6-2                | NEU                |    |
|    | EQG 4-2            | 6-3                | RED                |    |
|    | EQG 4-2            | 6-3                | YEL                |    |
|    | EQG 4-2            | 6-3                | GRN                |    |
|    | EQG 4-2            | 6-3                | NEU                |    |
| 2  | RLTA 7-1           | 1-1                | RED                | 20 |
|    | YLTA 7-1           | 1-1                | YEL                |    |
|    | GLTA 7-1           | 1-1                | GRN                |    |
|    | NEU 7-1            | 1-1                | NEU                |    |
|    | SPR 7-2            | 7-2                | RED                |    |
|    | SPR 7-2            | 7-2                | YEL                |    |
|    | SPR 7-2            | 7-2                | GRN                |    |
|    | SPR 7-2            | 7-2                | NEU                |    |
|    | EQG 7-2            | 7-2                | RED                |    |
|    | EQG 7-2            | 7-2                | YEL                |    |
|    | EQG 7-2            | 7-2                | GRN                |    |
|    | EQG 7-2            | 7-2                | NEU                |    |
| 3  | RED 2-1            | 1-2                | RED                | 21 |
|    | RED 2-1            | 1-2                | YEL                |    |
|    | GRN 2-1            | 1-2                | GRN                |    |
|    | GRN 2-1            | 1-2                | NEU                |    |
|    | NEU 2-1,2-2        | 8-1                | RED                |    |
|    | RED 2-2            | 8-1                | YEL                |    |
|    | YEL 2-2            | 8-1                | GRN                |    |
|    | GRN 2-2            | 8-1                | NEU                |    |
|    | NEU 2-3            | 8-1,3-1            | RED                |    |
|    | RED 2-3            | 3-1                | YEL                |    |
|    | YEL 2-3            | 3-1                | GRN                |    |
|    | GRN 2-3            | 3-1                | NEU                |    |
|    | EQG 2-3            | 3-1                | EQG                |    |
| 4  | RLTA 5-1           | 8-2                | RED                | 56 |
|    | YLTA 5-1           | 8-2                | YEL                |    |
|    | GLTA 5-1           | 8-2                | GRN                |    |
|    | NEU 5-1,5-2        | 8-2                | NEU                |    |
|    | RLTA 5-2           | P6-2               | WLK                | 22 |
|    | YLTA 5-2           | P6-2               | NEU                |    |
|    | GLTA 5-2           | P6-2               | DKW                |    |
|    | NEU 3-2            | P6-2               | DKW                |    |
|    | RLTA 3-2           | P8-1               | WLK                | 23 |
|    | YLTA 3-2           | P8-1               | NEU                |    |
|    | GLTA 3-2           | P8-1               | DKW                |    |
|    | EQG 3-2            | P8-1               | DKW                |    |
| 5  | WLK P6-1           | P2-1               | WLK                | 24 |
|    | NEU P6-1           | P2-1               | NEU                |    |
|    | DKW P6-1           | P2-1               | DKW                |    |
|    | WLK P4-2           | P8-2               | WLK                | 25 |
|    | NEU P4-2           | P8-2               | NEU                |    |
|    | EQG P4-2           | P8-2               | DKW                |    |
| 6  | DKW P4-2           | P8-2               | WLK                | 25 |
|    | WLK P2-2           | 8-2                | RED                |    |
|    | NEU P2-2           | 8-2                | YEL                |    |
|    | DKW P2-2           | 8-2                | GRN                |    |
|    | WLK P4-1           | 8-2                | NEU                |    |
|    | NEU P4-1           | 8-2                | EQG                |    |
| 7  | DKW P4-2           | 8-2                | RED                |    |
|    | WLK P2-2           | 8-2                | YEL                |    |
|    | NEU P2-2           | 8-2                | GRN                |    |
|    | DKW P2-2           | 8-2                | NEU                |    |
| 8  | WLK P4-1           | 8-2                | RED                |    |
|    | NEU P4-1           | 8-2                | YEL                |    |
|    | DKW P4-1           | 8-2                | GRN                |    |
| 9  | ** SPR             | SPR **             | SPR **             | 26 |
|    | ** NEU             | SPR **             | SPR **             |    |
|    | ** SPR             | SPR **             | SPR **             |    |
| 10 | ** SPR             | SPR **             | SPR **             | 27 |
|    | ** NEU             | SPR **             | SPR **             |    |
|    | ** SPR             | SPR **             | SPR **             |    |
| 11 | 04+07 EVP DETECTOR | 01+06 EVP DETECTOR | 08+03 EVP DETECTOR | 28 |
|    | 02+05 EVP DETECTOR | 01+06 EVP LIGHT    | 08+03 EVP LIGHT    | 29 |
|    | 04+07 EVP LIGHT    | 01+06 EVP LIGHT    | 08+03 EVP LIGHT    | 30 |
|    | 02+05 EVP LIGHT    | 01+06 EVP LIGHT    | 08+03 EVP LIGHT    | 31 |
| 12 | 02+05 EVP DETECTOR | 01+06 EVP LIGHT    | 08+03 EVP LIGHT    | 30 |
|    | 04+07 EVP LIGHT    | 08+03 EVP LIGHT    | 01+06 EVP LIGHT    | 31 |
| 13 | 04+07 EVP LIGHT    | 08+03 EVP LIGHT    | 01+06 EVP LIGHT    | 31 |
|    | 02+05 EVP LIGHT    | 08+03 EVP LIGHT    | 01+06 EVP LIGHT    | 31 |
| 14 | 02+05 EVP LIGHT    | 08+03 EVP LIGHT    | 01+06 EVP LIGHT    | 31 |
|    | NEU                | 08+03 EVP LIGHT    | 01+06 EVP LIGHT    | 31 |
|    | SPR                | 08+03 EVP LIGHT    | 01+06 EVP LIGHT    | 31 |
| 15 | D1-1               | D8-1               | D5-1               | 32 |
|    | D1-2               | D8-1               | D5-2               | 33 |
| 16 | D1-1               | D8-1               | D5-2               | 34 |
|    | D1-2               | D8-1               | D5-2               | 34 |
| 17 | D6-1               | D8-2               | D2-1               | 35 |
|    | D6-2               | D8-2               | D2-2               | 36 |
| 18 | D6-1               | D8-2               | D8-2               | 62 |
|    | D6-2               | D8-2               | D8-3               | 60 |
| 51 | D4-1               | D8-2               | D8-3               | 62 |
|    | D4-2               | D8-2               | D5-3               | 61 |
| 52 | D4-2               | D8-2               | D5-4               | 61 |
| 53 | D7-1               | D8-2               | D5-4               | 61 |
| 54 | D7-2               | D8-2               | D5-4               | 61 |
| 55 | D7-4               | D8-2               | D5-4               | 61 |
| 57 | D3-1               | D8-2               | D5-4               | 61 |
| 58 | D7-3               | D8-2               | D5-4               | 61 |
| 59 | D3-2               | D8-2               | D5-4               | 61 |
|    | D3-2               | D8-2               | D5-4               | 61 |

NMC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	300'	1
D2-2	6x6	300'	1
D3-1	2-6x6	15' & 45'	1
D3-2	2-6x6	0' & 30'	1
D3-3	2-6x6	15' & 45'	1
D3-4	2-6x6	0' & 30'	1
D4-1	6x6	180'	3,8
D4-2	2-6x6	5' & 20'	7
D4-3	2-6x6	5' & 20'	1
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	1
D6-1	6x6	300'	1
D6-2	6x6	300'	1
D6-3	6x6	300'	1
D7-1	2-6x6	15' & 45'	1
D7-2	2-6x6	0' & 30'	1
D8-1	6x6	120'	3,8
D8-2	6x6	180'	-
D8-3	3-6x6	-10',0',15'	7
DS-1	6x6	50'	11
DS-2	6x6	50'	11
DS-3	6x6	50'	11
DS-4	6x6	10'	11
DS-5	6x6	10'	11
DS-6	6x6	10'	11

**LOOP DETECTORS FUNCTIONS:**

- CALL AND EXTEND
- EXTEND ONLY
- DELAYED CALL- IMMEDIATE EXTEND
- CARRY OVER (STRETCH)
- COUNTING DETECTOR

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB8-2)  
 EXTEND INTO HH 14:  
 1" CONDUIT  
 1-1/C 6 (INS GR)

INPLACE (S & I) 1-2/c 14 (CABLE 78) - SALVAGE BACK FROM POLE 4 TO HH 13-14, REINSTALL TO NEW PUSH BUTTON STATION

HH 14 TO HH 17  
 2-4" RSC  
 6-12/c 14  
 2-3/c 14  
 2-3/c 20  
 12-2/c 14  
 2-3/c 14 (LUM)

INPLACE (S & I) 1-2/c 14 (BACK TO HH 14)  
 2-3/c 14  
 2-3/c 20  
 8-2/c 14  
 2-3/c 14 (LUM)

HH 12A TO HH 13  
 4" CONDUIT  
 3-2/c 14

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

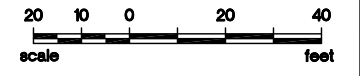
HH 14 TO HH 15  
 2" RSC  
 3-2/c 14

MATCH LINE TO NORTH

NOTE: CONTRACTOR INSTALLED LOOP DETECTORS D4-4 & D4-5 BUT THESE LOOPS WERE NOT HOOKED UP TO A LEAD-IN CABLE IN HH 9 AND 11 PER COUNTY.

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB2-2)  
 EXTEND INTO HH 1:  
 1" CONDUIT  
 1-1/C 6 (INS GR)

INPLACE (S & I) 1-2/c 14 (CABLE 61) - UNCOIL IN HH 1 AND EXTEND TO NEW PB STATION



(B) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION SIGNAL SERVICE CABINET EXTENDED INTO HH 19:  
 2" RSC  
 3-1/c 2  
 EXTENDED INTO HH 18:  
 METERED SIGNAL SERVICE  
 2" RSC  
 3-1/c 6  
 UNMETERED STREET LIGHT SERVICE  
 2-3/c 14 (LUM)  
 2" RSC  
 2-3/c 14 (LUM)

(A) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION CONTROLLER AND CABINET EXTENDED INTO HH 18:  
 METERED SIGNAL SERVICE  
 2" RSC  
 3-1/c 6  
 EXTENDED INTO HH 1:  
 2-4" RSC  
 5-12/c 12  
 5-3/c 12  
 2-3/c 20  
 16-2/c 14  
 1-6/c FO CABLE  
 1-1/c 14  
 EXTENDED INTO HH 17:  
 2-4" RSC  
 6-12/c 14  
 2-3/c 14  
 2-3/c 20  
 17-2/c 14  
 1-6/c FO CABLE  
 1-1/c 14

F & I 2-2/c 14  
 1-1/c 6 (INS GR)

HH 16A TO HH 17  
 4" CONDUIT  
 2-2/c 14

HH 1 TO HH 3  
 3" RSC  
 2-12/c 12  
 3-3/c 12  
 1-3/c 20  
 10-2/c 14  
 1-6/c FO CABLE  
 1-1/c 14

F & I 1-2/c 14  
 1-1/c 6 (INS GR)

HH 1 TO HH 2  
 2" RSC  
 2-2/c 14

(C) INPLACE (MAINTAIN INPLACE) WOOD POLE (S.O.P.) 2" RSC RISER AND WEATHERHEAD EXTENDED INTO HH 19:  
 2" RSC  
 3-1/c 2

F & I 1-2/c 14  
 1-1/c 6 (INS GR)

HH 4 TO HH 20  
 2" CONDUIT  
 5-2/c 14

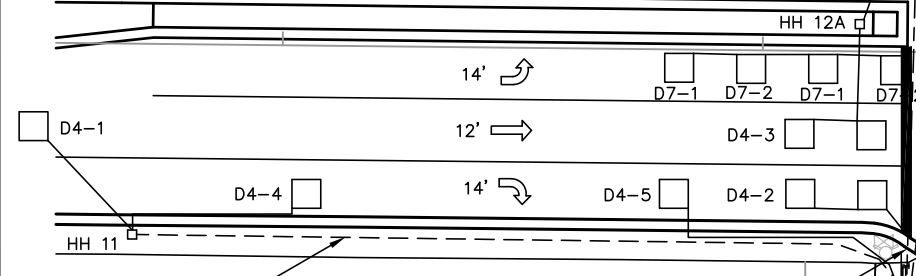
HH 7A TO HH 20  
 4" CONDUIT  
 5-2/c 14

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB4-2)  
 EXTEND INTO HH 4:  
 1" CONDUIT  
 1-1/C 6 (INS GR)

INPLACE (S & I) 1-2/c 14 (CABLE 63) - UNCOIL IN HH 4 AND EXTEND TO NEW PB STATION

PHEASANT RIDGE DRIVE (35 mph)

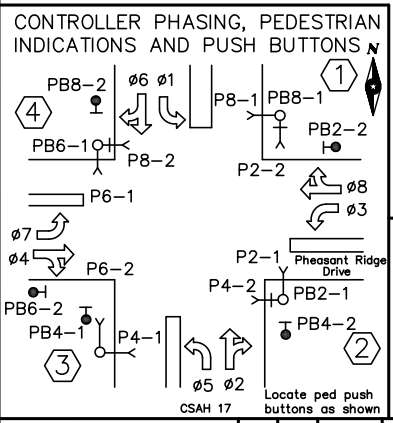
PHEASANT RIDGE DRIVE (30 mph)



F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (LT ARROW) (PB4-1)  
 EXTEND INTO HH 9:  
 1" CONDUIT  
 1-1/C 6 (INS GR)

INPLACE (S & I) 1-2/c 14 (CABLE 87) - SALVAGE BACK FROM POLE 3 TO HH 9 AND REINSTALL TO NEW PUSH BUTTON STATION

HH 9 TO HH 13  
 4" CONDUIT  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 4-2/c 14  
 1-3/c 14 (LUM)



F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB6-2)  
 EXTEND INTO HH 9:  
 1" CONDUIT  
 1-1/C 6 (INS GR)

INPLACE (S & I) 1-2/c 14 (CABLE 86) - SALVAGE BACK FROM POLE 3 TO HH 9 AND REINSTALL TO NEW PUSH BUTTON STATION

**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING FLASHING YELLOW ARROWS (FLASH BY TOD PROGRAMS).
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

LED SIGNAL HEADS				
SIGNAL HEAD #	ALL 12" INDICATIONS			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○	○	○
3-1, 3-2, 3-3	←	←	←	←
4-1, 4-2	○	○	○	○
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	○	○	○	○
7-1, 7-2	←	←	←	←
8-1, 8-2	○	○	○	○

FYA = FLASHING YELLOW ARROW

COUNTY PROJECT 22-18-17

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.

Name: John M Gray, PE  
 Lic. No. 22457  
 Date: May 9, 2022



**ANOKA COUNTY**  
**CITY OF BLAINE**

REVISE SIGNAL SYSTEM 'E'  
 INTERSECTION LAYOUT  
 CSAH 17 (LEXINGTON AVENUE)  
 AT PHEASANT RIDGE DRIVE

FILE NO. ANOKC 122928  
 SIGNAL SHEET 20 OF 35  
**63G**  
**94**

REVISE SIGNAL SYSTEM E NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 1, 3, 4, 9, 13, AND 14 TO FINISHED SURROUNDING SIDEWALK OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETE (REUSE METAL FRAME/COVER ON HH 1, 3, 4, 9, 14)
  - REMOVE INPLACE CONCRETE FRAME AND COVER (HH 13) AND FURNISH AND INSTALL NEW PVC METAL FRAME AND COVER ON THIS HANDHOLE AFTER CONCRETE HANDHOLE BODY HAS BEEN ADJUSTED, SO THAT NEW COVER IS INSTALLED TO BE FLUSH WITH FINISHED SURROUNDING GRADE.
  - ALL HANDHOLE ADJUSTMENT WORK (INCLUDING FRAME & COVER REMOVAL AND REPLACEMENT) IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM E). SEE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55 (WITH NEW 26" TRANSFORMER BASE)  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 12', AND 24'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-C.D. PEDESTRIAN SIGNAL LENSES  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD AT 32'  
 R10-X12 SIGN PANEL-ADJACENT TO 5-1  
 ONE WAY EVP DETECTOR AND LIGHT (Ø2,5) AT 6'  
 EXTENDED INTO HH 1:  
 3" RSC  
 3-12/c 12  
 2-3/c 12  
 1-3/c 20

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 2-R10-3e METAL SIGNS AT 0/270 DEG  
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB8-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-50-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED W/PEC  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 12', & 24'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-C.D. PEDESTRIAN SIGNAL LENSES  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR AND LIGHT (Ø6,1) AT 6'  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 1-1  
 EXTENDED INTO HH 9:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 1-3/c 14 (LUM)

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 180/270 DEG  
 2-R10-3e METAL SIGNS AT 180/270 DEG  
 INPLACE (S & I) 2-2/c 14 (CABLES 86-87) - SALVAGE BACK TO HH 9 AND REINSTALL TO NEW PUSH BUTTON STATIONS  
 F & I PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 180/270 DEG)

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-45 (WITH NEW 26" TRANSFORMER BASE)  
 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 14'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-C.D. PEDESTRIAN SIGNAL LENSES  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD AT 28'  
 R10-X12 SIGN PANEL-ADJACENT TO 7-1  
 ONE WAY EVP DETECTOR AND LIGHT (Ø4,7) AT 6'  
 EXTENDED INTO HH 4:  
 3" RSC  
 2-12/c 12  
 3-3/c 12  
 1-3/c 20

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 2-R10-3e METAL SIGNS AT 0/270 DEG  
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB2-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-40-D25-6 (DAVIT AT 270 DEG)  
 (WITH NEW 26" TRANSFORMER BASE)  
 LUMINAIRE-LED W/PEC  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 14', & 26'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-C.D. PEDESTRIAN SIGNAL LENSES  
 2-R6-1 (ONE WAY) SIGNS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD AT 28'  
 R10-X12 SIGN PANEL-ADJACENT TO 3-2  
 ONE WAY EVP DETECTOR AND LIGHT (Ø8,3) AT 6'  
 EXTENDED INTO HH 13:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 1-2/c 14  
 1-3/c 14 (LUM)

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 2-R10-3e METAL SIGNS AT 0/270 DEG  
 INPLACE (S & I) 1-2/c 14 (CABLE 78) - SALVAGE BACK TO HH 13 AND HH 14, AND REINSTALL TO NEW PB STATION  
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB6-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.  
 Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457

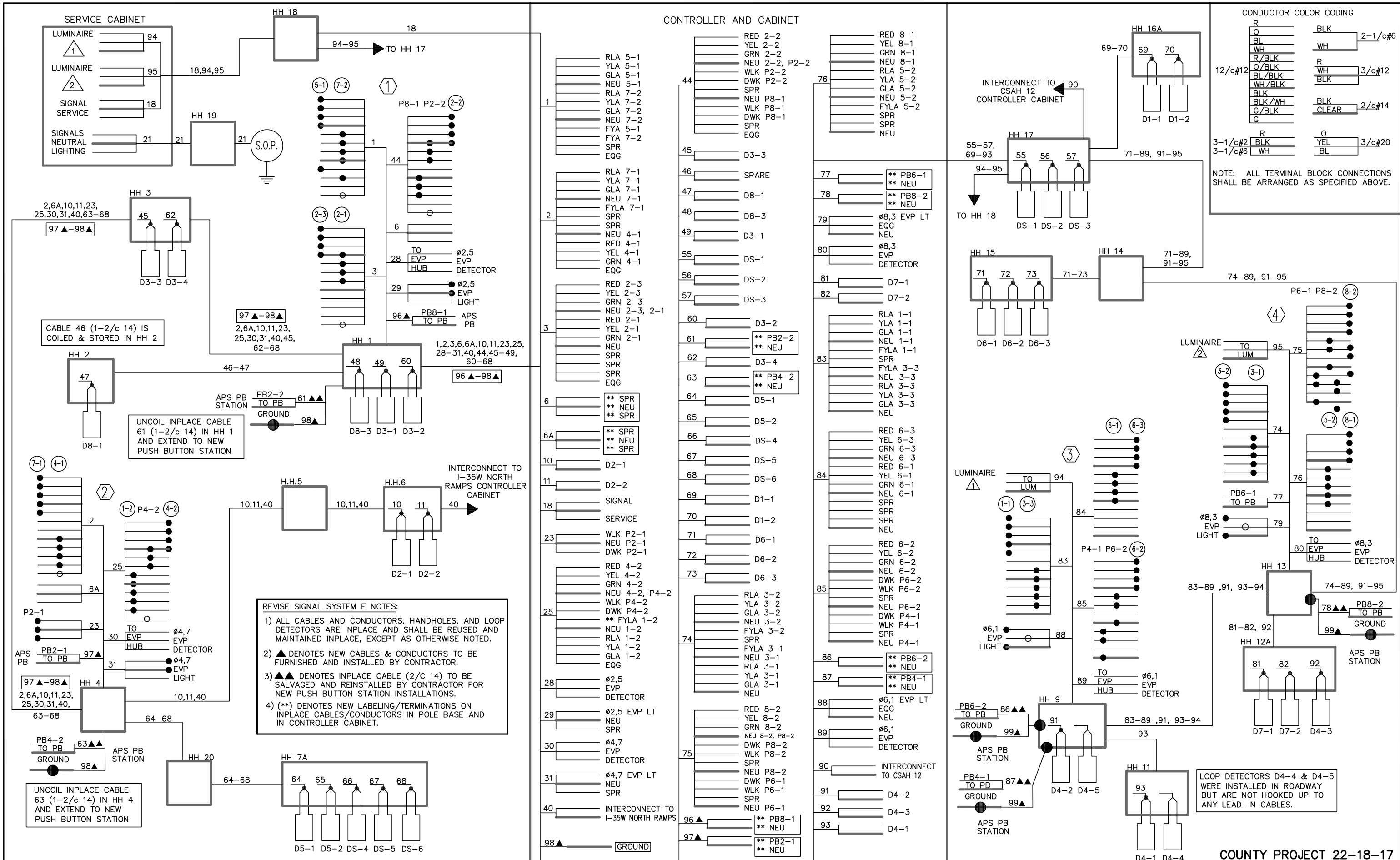
SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITY OF BLAINE

REVISE SIGNAL SYSTEM 'E'  
 SIGNAL SYSTEM NOTES  
 CSAH 17 (LEXINGTON AVENUE)  
 AT PHEASANT RIDGE DRIVE

FILE NO.  
 ANOKC 122928  
 SIGNAL SHEET  
 21 OF 35

63H  
 94



DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.

*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: May 9, 2022

SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITY OF BLAINE**

**REVISE SIGNAL SYSTEM 'E'**  
**FIELD WIRING DIAGRAM**  
 CSAH 17 (LEXINGTON AVENUE)  
 AT PHEASANT RIDGE DRIVE

FILE NO. ANOKC 122928  
 SIGNAL SHEET 22 OF 35  
**63J**  
**94**

COUNTY PROJECT 22-18-17

* LOOP DETECTORS			
NUMRF	SIZE	FUNCTION	LOCATION
C1-1	2-6' X 6'	1	5'
D1-2	2-6' X 6'	1	AS SHOWN
D2-1	6' X 6'	1	300'
D2-2	6' X 6'	1	300'
D4-1	6' X 6'	3/8	120'
D4-2	6' X 6'	7	5'
D4-3	6' X 6'	1	5'
D5-1	2-6' X 6'	1	5'
D5-2	2-6' X 6'	1	AS SHOWN
D6-1	6' X 6'	1	300'
D6-2	6' X 6'	1	300'
D8-1	6' X 6'	3/8	120'
D8-2	6' X 6'	7	5'

\* NOTE: ALL DETECTORS IN NMC CONDUIT

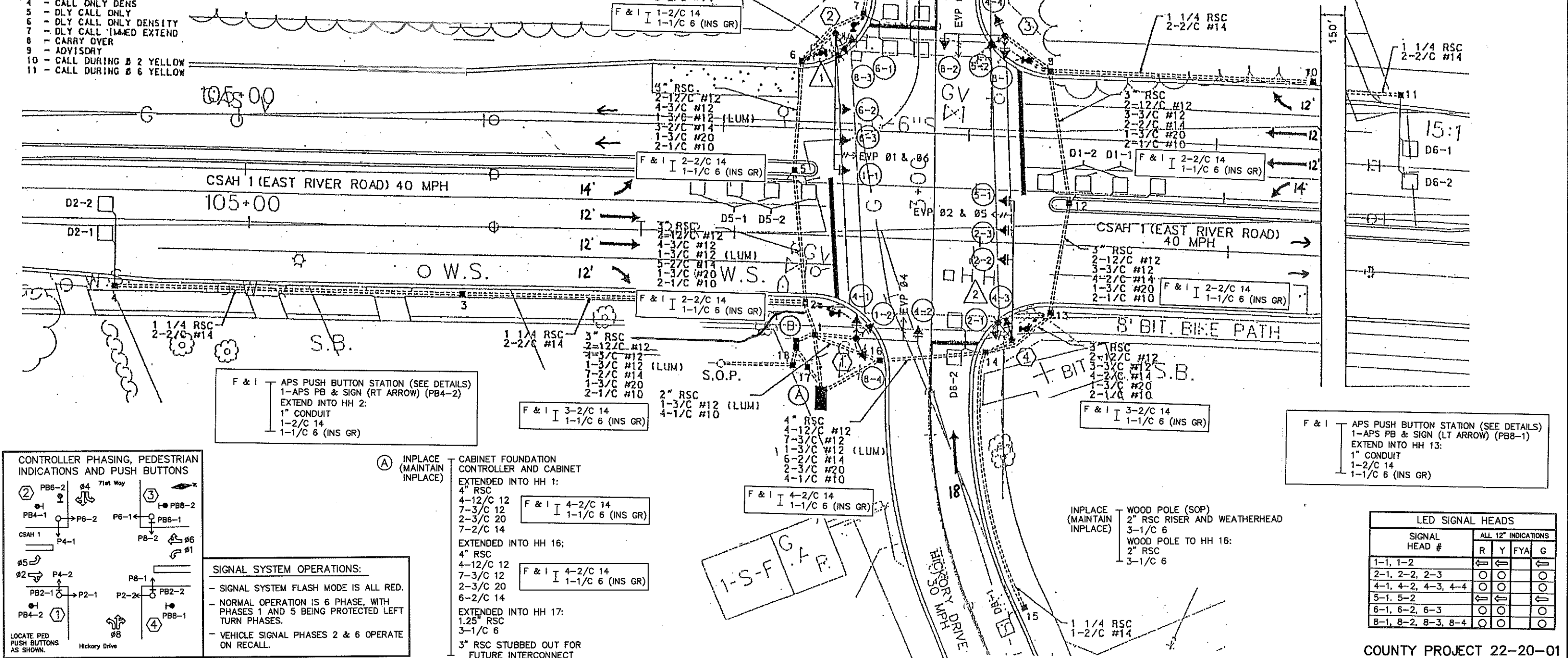
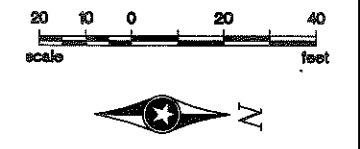
- FUNCTIONS:
- 1 - CALL AND EXTEND
  - 2 - CALL ONLY
  - 3 - EXTEND ONLY
  - 4 - CALL ONLY DENS
  - 5 - DLY CALL ONLY
  - 6 - DLY CALL ONLY DENSITY
  - 7 - DLY CALL IMMED EXTEND
  - 8 - CARRY OVER
  - 9 - ADVISORY
  - 10 - CALL DURING 2 YELLOW
  - 11 - CALL DURING 6 YELLOW
- LOCATION-DISTANCE FROM STOP LINE TO DETECTOR

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (LT ARROW) (PB4-1)  
EXTEND INTO HH 6:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB6-2)  
EXTEND INTO HH 7:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB8-2)  
EXTEND INTO HH 9:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

(B) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION SIGNAL SERVICE CABINET  
EXTENDED INTO HH 18:  
2" RSC  
3-1/C 6  
EXTENDED INTO HH 17:  
1.25" RSC  
3-1/C 6  
EXTENDED INTO HH 1:  
2" RSC  
2-3/C 12 (LUM)  
8-1/C 10 (SIGNS)



F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB4-2)  
EXTEND INTO HH 2:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

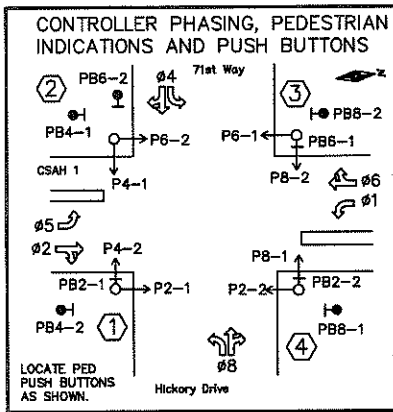
F & I 3-2/C 14  
1-1/C 6 (INS GR)

(A) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION CONTROLLER AND CABINET  
EXTENDED INTO HH 1:  
4" RSC  
4-12/C 12  
7-3/C 12  
2-3/C 20  
7-2/C 14  
EXTENDED INTO HH 16:  
4" RSC  
4-12/C 12  
7-3/C 12  
2-3/C 20  
6-2/C 14  
EXTENDED INTO HH 17:  
1.25" RSC  
3-1/C 6  
3" RSC STUBBED OUT FOR FUTURE INTERCONNECT

F & I 3-2/C 14  
1-1/C 6 (INS GR)

INPLACE (MAINTAIN INPLACE) WOOD POLE (SOP)  
2" RSC RISER AND WEATHERHEAD  
3-1/C 6  
WOOD POLE TO HH 16:  
2" RSC  
3-1/C 6

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (LT ARROW) (PB8-1)  
EXTEND INTO HH 13:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

LED SIGNAL HEADS				
SIGNAL HEAD #	ALL 12" INDICATIONS			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○	○	○
4-1, 4-2, 4-3, 4-4	○	○	○	○
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	○	○	○	○
8-1, 8-2, 8-3, 8-4	○	○	○	○

REVISE SIGNAL SYSTEM F NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 2, 5, 6, 12, 13, AND 14 TO FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED.
  - REMOVE INPLACE CONCRETE FRAME AND COVER (HH 2, 5, 6, 12, 13, AND 14) AND FURNISH AND INSTALL NEW PVC METAL FRAME AND COVER ON EACH OF THESE HANDHOLES AFTER CONCRETE HANDHOLE BODY HAS BEEN ADJUSTED, SO THAT NEW COVER IS INSTALLED TO BE FLUSH WITH FINISHED SURROUNDING GRADE.
  - ALL HANDHOLE ADJUSTMENT WORK (INCLUDING FRAME & COVER REMOVAL AND REPLACEMENT) IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM F). SEE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- 11) CONTRACTOR SHALL MAINTAIN AND REUSE EXISTING PEDESTRIAN SIGNAL HOUSINGS AND VISORS, SHALL REMOVE INPLACE LED HAND/WALKING PERSON INDICATIONS, AND SHALL FURNISH AND INSTALL NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" INDICATIONS IN THEIR PLACE FOR ALL 8 PED SIGNALS (INCIDENTAL TO REVISE SIGNAL SYSTEM F PAY ITEM).

① INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION  
 TYPE PA90-A-25  
 ONE WAY SIGNAL-OVERHEAD  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 TYPE 10A-POLE MOUNTED 90 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (Ø4)  
 EXTENDED INTO HH 1:  
 3" RSC  
 2-12/C 12  
 3-3/C 12  
 1-3/C 20  
 2-1/C 10 (SIGN)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-1, P4-2)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB2-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

③ INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION  
 TYPE PA90-A-25  
 ONE WAY SIGNAL-OVERHEAD  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 TYPE 10A-POLE MOUNTED 180 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 TWO WAY EVP DETECTOR & LIGHT-OVERHEAD (Ø4,8)  
 EXTENDED INTO HH 9:  
 3" RSC  
 2-12/C 12  
 3-3/C 12  
 1-3/C 20  
 2-1/C 10 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P6-1, P8-2)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB6-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (0', 12', 24')  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (Ø6,1)  
 EXTENDED INTO HH 6:  
 3" RSC  
 2-12/C 12  
 4-3/C 12  
 1-3/C 20  
 1-3/C 12 (LUM)  
 2-1/C 10 (SIGN)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P4-1, P6-2)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (0', 12', 24')  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (Ø2,5)  
 EXTENDED INTO HH 14:  
 3" RSC  
 2-12/C 12  
 4-3/C 12  
 1-3/C 20  
 1-3/C 12 (LUM)  
 2-1/C 10 (SIGN)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-2, P8-1)  
 1-APS PB, SIGN (RT ARROW) AND APS MAST ARM POLE ADAPTOR AT 0 DEG (PB2-2)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG  
 DESIGN TEAM

NO.	BY	DATE	REVISIONS

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.  
 Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457

SEH PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITY OF FRIDLEY

REVISE SIGNAL SYSTEM 'F'  
 SIGNAL SYSTEM NOTES  
 CSAH 1 (EAST RIVER ROAD)  
 AT 71ST WAY / HICKORY DRIVE

FILE NO.  
 ANOKC 122928  
 SIGNAL SHEET  
 24 OF 35

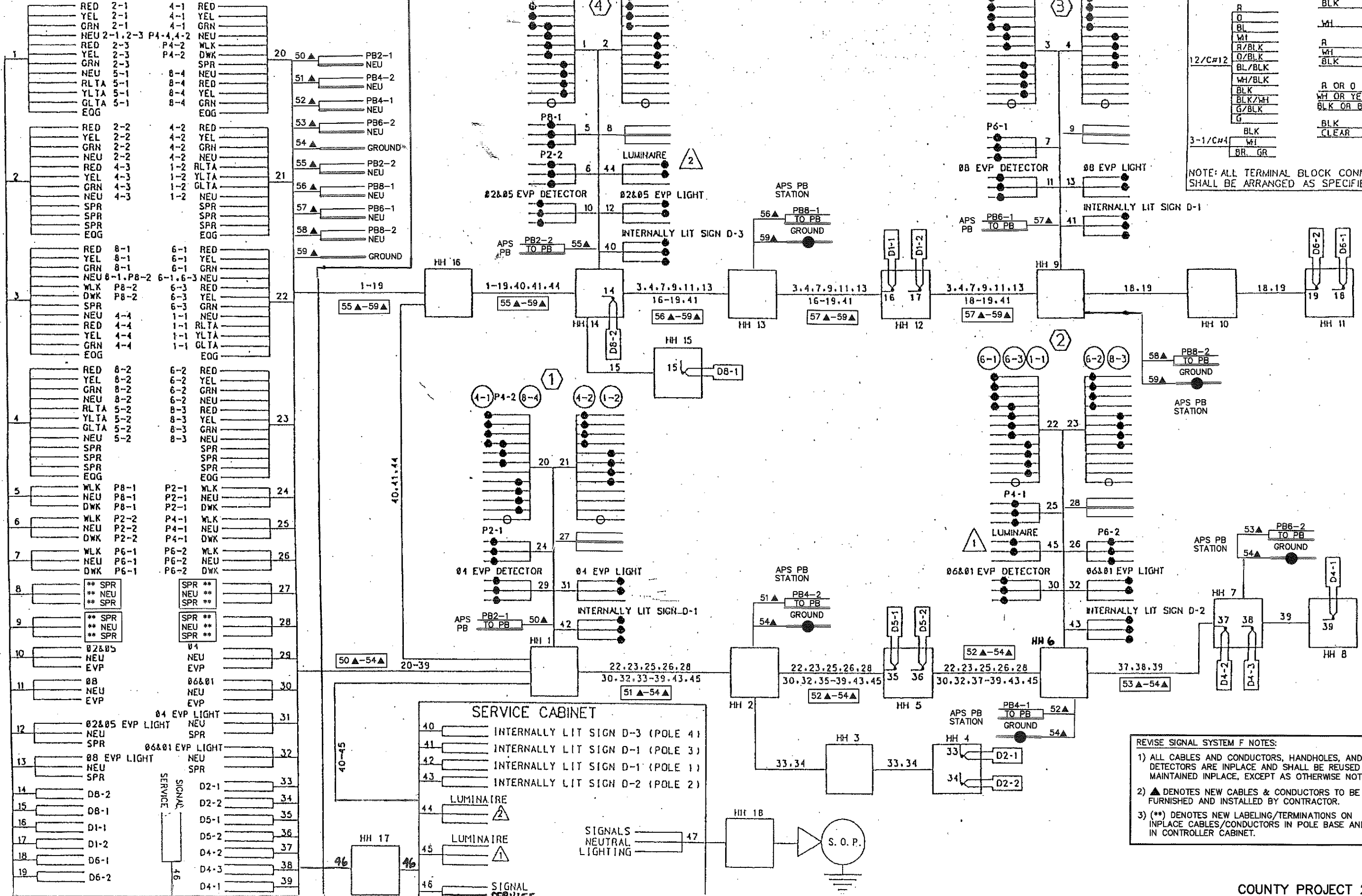
63L  
 94

# CONTROLLER CABINET

# CONDUCTOR COLOR CODING

R	BLK	2-1/C#10
O	WH	
BL	R	3/C#12
W/BLK	WH	
O/BLK	BLK	
BL/BLK	R OR O	3/C#20
W/BLK	WH OR YEL	BLK OR BL
BLK	BLK	2/C#14
BLK/WH	CLEAR	
G/BLK		
G		
BR GR		

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE



REVISE SIGNAL SYSTEM 'F' NOTES:

- 1) ALL CABLES AND CONDUCTORS, HANDHOLES, AND LOOP DETECTORS ARE IN PLACE AND SHALL BE REUSED AND MAINTAINED IN PLACE, EXCEPT AS OTHERWISE NOTED.
- 2) ▲ DENOTES NEW CABLES & CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
- 3) (\*\*\*) DENOTES NEW LABELING/TERMINATIONS ON IN PLACE CABLES/CONDUCTORS IN POLE BASE AND IN CONTROLLER CABINET.

COUNTY PROJECT 22-20-01

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.

Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457

SEH PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITY OF FRIDLEY

REVISE SIGNAL SYSTEM 'F'  
 FIELD WIRING DIAGRAM  
 CSAH 1 (EAST RIVER ROAD)  
 AT 71ST WAY / HICKORY DRIVE

FILE NO. ANOKC 122928  
 SIGNAL SHEET 25 OF 35  
**63M**  
**94**



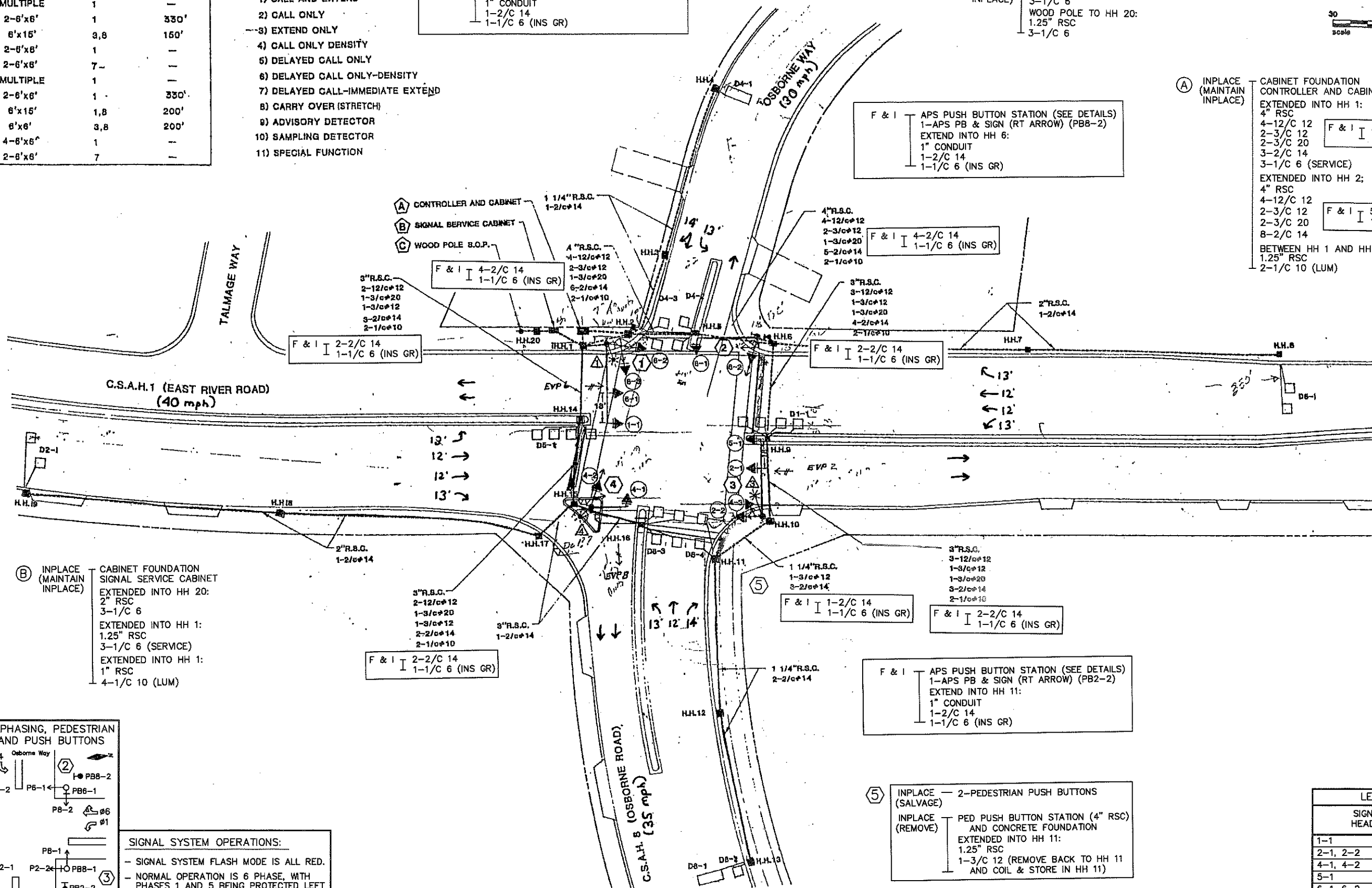
LOOP DETECTORS			
NUMBER	SIZE	FUNCTION	DISTANCE
D1-1	MULTIPLE	1	—
D2-1	2-6'x6'	1	330'
D4-1	6'x15'	3,8	150'
D4-2	2-6'x6'	1	—
D4-3	2-6'x6'	7-	—
D5-1	MULTIPLE	1	—
D6-1	2-6'x6'	1	330'
D8-1	6'x15'	1,8	200'
D8-2	6'x6'	3,8	200'
D8-3	4-6'x6'	1	—
D8-4	2-6'x6'	7	—

- FUNCTIONS:**
- 1) CALL AND EXTEND
  - 2) CALL ONLY
  - 3) EXTEND ONLY
  - 4) CALL ONLY DENSITY
  - 5) DELAYED CALL ONLY
  - 6) DELAYED CALL ONLY-DENSITY
  - 7) DELAYED CALL-IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)
  - 9) ADVISORY DETECTOR
  - 10) SAMPLING DETECTOR
  - 11) SPECIAL FUNCTION

F & I | APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB6-2)  
 EXTEND INTO HH 2:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

(C) INPLACE (MAINTAIN INPLACE) | WOOD POLE (SOP)  
 1.25" RSC RISER AND WEATHERHEAD  
 3-1/C 6  
 WOOD POLE TO HH 20:  
 1.25" RSC  
 3-1/C 6

(A) INPLACE (MAINTAIN INPLACE) | CABINET FOUNDATION  
 CONTROLLER AND CABINET  
 EXTENDED INTO HH 1:  
 4" RSC  
 4-12/C 12  
 2-3/C 12  
 2-3/C 20  
 3-2/C 14  
 3-1/C 6 (SERVICE)  
 EXTENDED INTO HH 2:  
 4" RSC  
 4-12/C 12  
 2-3/C 12  
 2-3/C 20  
 8-2/C 14  
 F & I | 3-2/C 14  
 1-1/C 6 (INS GR)  
 F & I | 5-2/C 14  
 1-1/C 6 (INS GR)  
 BETWEEN HH 1 AND HH 2:  
 1.25" RSC  
 2-1/C 10 (LUM)



(B) INPLACE (MAINTAIN INPLACE) | CABINET FOUNDATION  
 SIGNAL SERVICE CABINET  
 EXTENDED INTO HH 20:  
 2" RSC  
 3-1/C 6  
 EXTENDED INTO HH 1:  
 1.25" RSC  
 3-1/C 6 (SERVICE)  
 EXTENDED INTO HH 1:  
 1" RSC  
 4-1/C 10 (LUM)

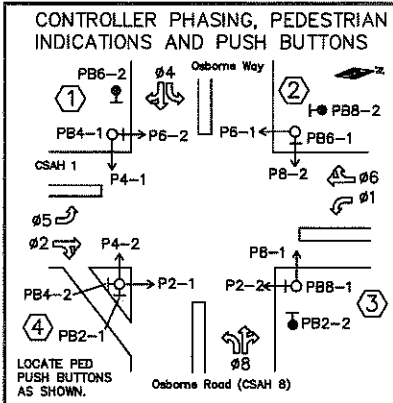
F & I | 2-2/C 14  
 1-1/C 6 (INS GR)

F & I | 1-2/C 14  
 1-1/C 6 (INS GR)

F & I | 2-2/C 14  
 1-1/C 6 (INS GR)

F & I | APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB2-2)  
 EXTEND INTO HH 11:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

(5) INPLACE (SALVAGE) | 2-PEDESTRIAN PUSH BUTTONS  
 INPLACE (REMOVE) | PED PUSH BUTTON STATION (4" RSC)  
 AND CONCRETE FOUNDATION  
 EXTENDED INTO HH 11:  
 1.25" RSC  
 1-3/C 12 (REMOVE BACK TO HH 11  
 AND COIL & STORE IN HH 11)



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

LED SIGNAL HEADS				
SIGNAL HEAD #	ALL 12" INDICATIONS			
	R	Y	FYA	G
1-1	◻	◻	◻	◻
2-1, 2-2	◻	◻	◻	◻
4-1, 4-2	◻	◻	◻	◻
5-1	◻	◻	◻	◻
6-1, 6-2	◻	◻	◻	◻
8-1, 8-2, 8-3	◻	◻	◻	◻

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG	DATE: May 9, 2022
DESIGN TEAM	NO.	BY	DATE

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.  
 Name: John M Gray, PE  
 Lic. No. 22457

SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITY OF FRIDLEY**

**REVISE SIGNAL SYSTEM 'G'**  
**INTERSECTION LAYOUT**  
 CSAH 1 (EAST RIVER ROAD)  
 AT CSAH 8 (OSBORNE RD) / OSBORNE WAY

FILE NO. ANOKC 12292B  
 SIGNAL SHEET 26 OF 35  
**63N**  
**94**

COUNTY PROJECT 22-20-01

REVISE SIGNAL SYSTEM G NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 2, 6, AND 10 TO FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED (HH 10 HAS METAL FRAME/COVER-REUSE).
  - REMOVE INPLACE CONCRETE FRAME AND COVER (HH 2, 6) AND FURNISH AND INSTALL NEW PVC METAL FRAME AND COVER ON EACH OF THESE HANDHOLES AFTER CONCRETE HANDHOLE BODY HAS BEEN ADJUSTED, SO THAT NEW COVER IS INSTALLED TO BE FLUSH WITH FINISHED SURROUNDING GRADE.
  - ALL HANDHOLE ADJUSTMENT WORK (INCLUDING FRAME & COVER REMOVAL AND REPLACEMENT) IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM G). SEE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- 11) CONTRACTOR SHALL MAINTAIN AND REUSE EXISTING PEDESTRIAN SIGNAL HOUSINGS AND VISORS, SHALL REMOVE INPLACE LED HAND/WALKING PERSON INDICATIONS, AND SHALL FURNISH AND INSTALL NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" INDICATIONS IN THEIR PLACE FOR ALL 8 PED SIGNALS (INCIDENTAL TO REVISE SIGNAL SYSTEM G PAY ITEM).

① INPLACE (MAINTAIN INPLACE) | A100 POLE FOUNDATION  
 TYPE A100-A-45-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 2-ONE WAY SIGNALS-OVERHEAD (0', 12')  
 MID-MAST ARM MOUNT AT 24' (CAPPED)  
 TYPE 20C-POLE MOUNTED 270 DEG  
 "NO LEFT TURN ON RED ARROW" SIGN-OVERHEAD  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø6,1)  
 EXTENDED INTO HH 1:  
 3" RSC  
 4-12/C 12  
 1-3/C 12  
 1-3/C 20  
 4-1/C 10 (LUM)

INPLACE (SALVAGE) | 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) | 2-R10-4b METAL SIGNS AT 0/270 DEG  
 F & I | 2-LED COUNTDOWN TIMER PED INDICATIONS (P4-1, P6-2)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB4-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

③ INPLACE (MAINTAIN INPLACE) | A100 POLE FOUNDATION  
 TYPE A100-A-45-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 2-ONE WAY SIGNALS-OVERHEAD (0', 18')  
 TYPE 20C-POLE MOUNTED 270 DEG  
 "NO LEFT TURN ON RED ARROW" SIGN-OVERHEAD  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø2,5)  
 EXTENDED INTO HH 10:  
 3" RSC  
 3-12/C 12  
 1-3/C 20  
 2-1/C 10 (LUM)

INPLACE (SALVAGE) | 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 F & I | 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-2, P8-1)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB8-1)  
 1-2/C 14

② INPLACE (MAINTAIN INPLACE) | A100 POLE FOUNDATION  
 TYPE A100-A-35  
 ONE WAY SIGNAL-OVERHEAD  
 TYPE 10C-POLE MOUNTED 270 DEG  
 R10-12 SIGN PANEL-ADJACENT TO 8-1  
 TYPE D SIGN PANEL-OVERHEAD  
 TWO WAY EVP LIGHT-OVERHEAD (ø4,8)  
 EXTENDED INTO HH 6:  
 3" RSC  
 3-12/C 12  
 1-3/C 12  
 1-3/C 20

INPLACE (SALVAGE) | 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) | 2-R10-4b METAL SIGNS AT 0/270 DEG  
 F & I | 2-LED COUNTDOWN TIMER PED INDICATIONS (P6-1, P8-2)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB6-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

④ INPLACE (MAINTAIN INPLACE) | P80 POLE FOUNDATION  
 TYPE P80-A-20-D40-9 (DAVIT AT 225 DEG)  
 LUMINAIRE-250 W HPS  
 ONE WAY SIGNAL-OVERHEAD  
 TYPE 30A-POLE MOUNTED 180 DEG  
 TYPE 10B-POLE MOUNTED 270 DEG  
 R10-12 SIGN PANEL-ADJACENT TO 4-1  
 TYPE D SIGN PANEL-OVERHEAD  
 TWO WAY EVP DETECTOR & LIGHT-OVERHEAD (ø4,8)  
 EXTENDED INTO HH 15:  
 3" RSC  
 2-12/C 12  
 1-3/C 12  
 1-3/C 20  
 2-1/C 10 (LUM)

INPLACE (SALVAGE) | 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 90/180 DEG  
 INPLACE (REMOVE) | 2-R10-4b METAL SIGNS AT 90/180 DEG  
 F & I | 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-1, P4-2)  
 1-APS PB, SIGN (RT ARROW) AND APS MAST ARM POLE ADAPTOR AT 90 DEG (PB2-1)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 180 DEG (PB4-2)  
 2-2/C 14

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG  
 DESIGN TEAM

NO.	BY	DATE	REVISIONS

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.  
 Name: John M Gray, PE  
 Lic. No. 22457  
 Date: May 9, 2022

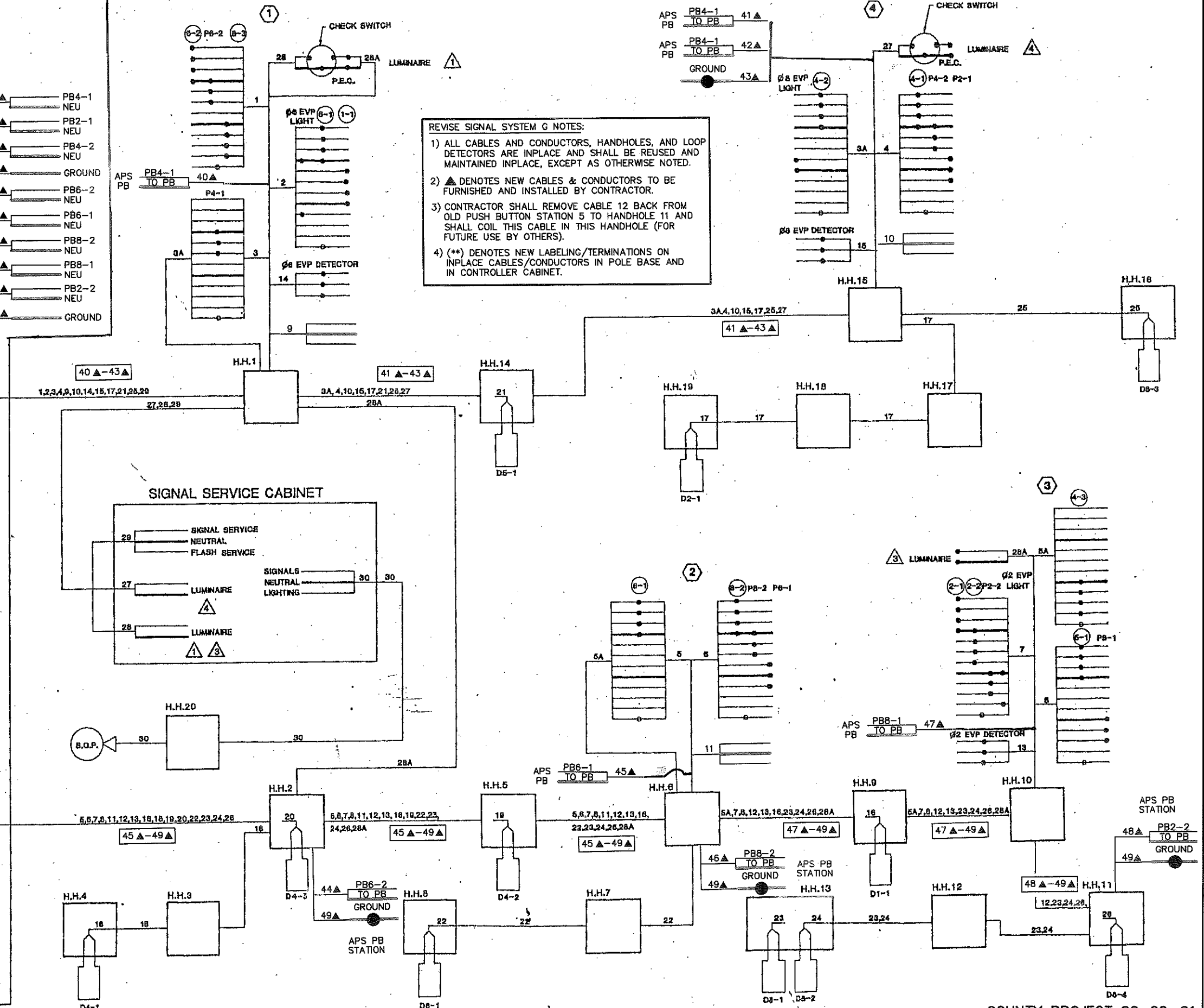
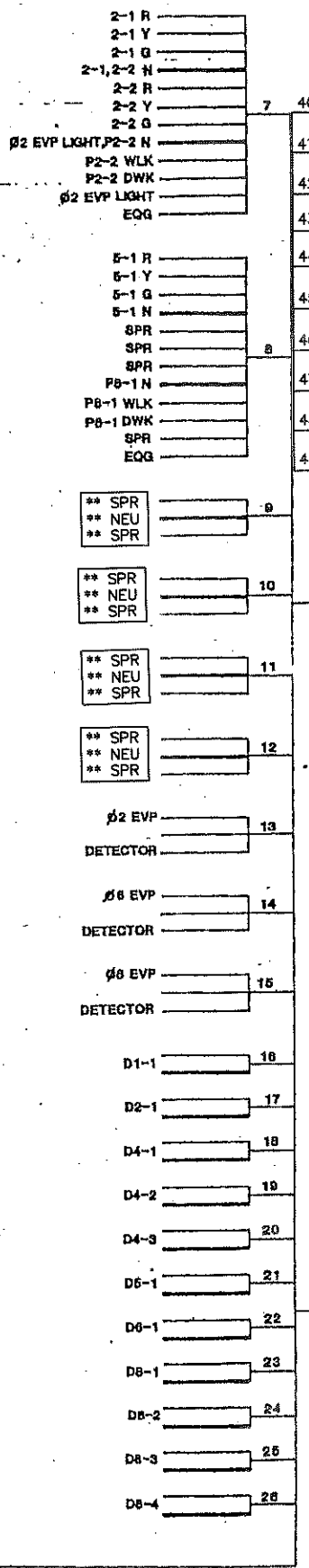
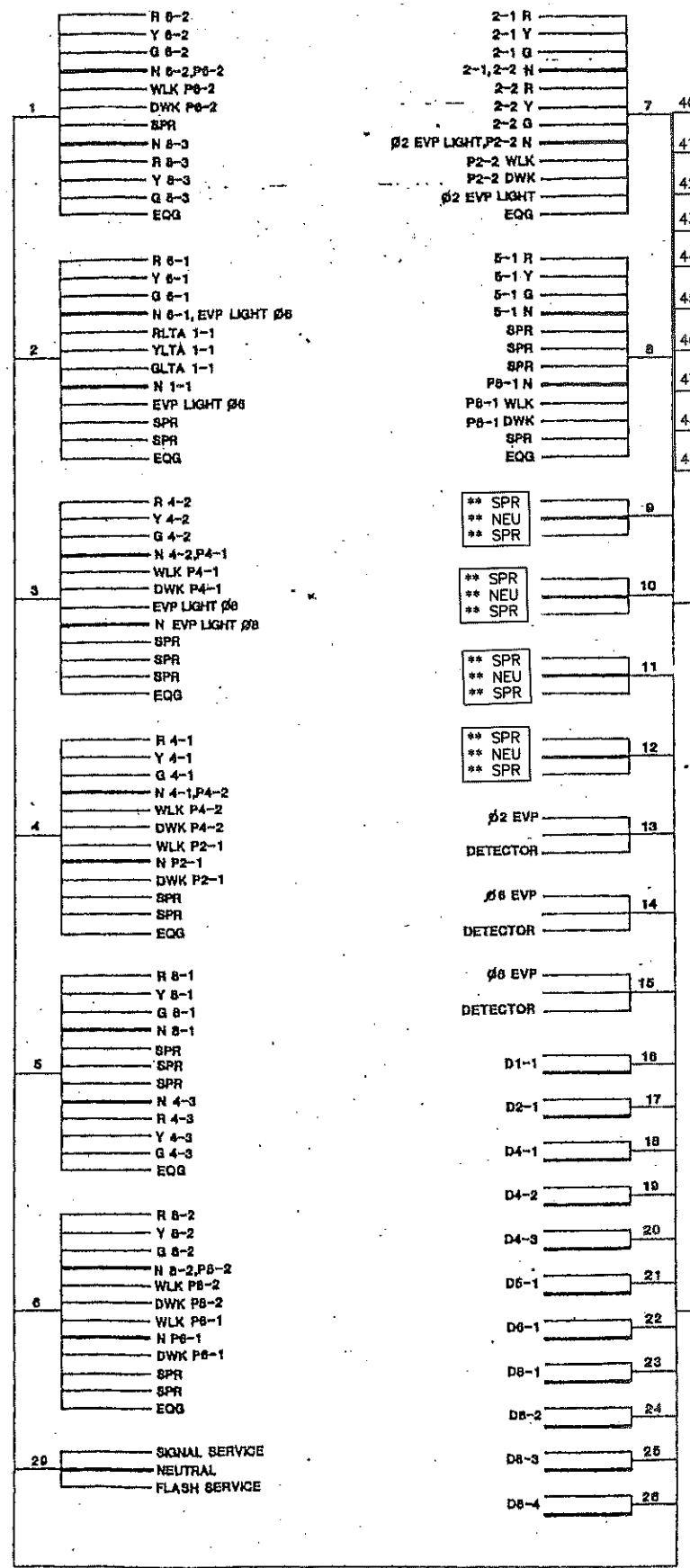
SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITY OF FRIDLEY

REVISE SIGNAL SYSTEM 'G'  
 SIGNAL SYSTEM NOTES  
 CSAH 1 (EAST RIVER ROAD)  
 AT CSAH 8 (OSBORNE RD) / OSBORNE WAY

FILE NO.  
 ANOKC 122928  
 SIGNAL SHEET  
 27 OF 35

CONTROLLER CABINET



REVISE SIGNAL SYSTEM G NOTES:

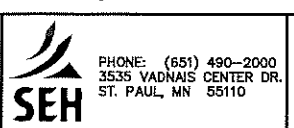
- 1) ALL CABLES AND CONDUCTORS, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS OTHERWISE NOTED.
- 2) ▲ DENOTES NEW CABLES & CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
- 3) CONTRACTOR SHALL REMOVE CABLE 12 BACK FROM OLD PUSH BUTTON STATION 5 TO HANDHOLE 11 AND SHALL COIL THIS CABLE IN THIS HANDHOLE (FOR FUTURE USE BY OTHERS).
- 4) (\*\*) DENOTES NEW LABELING/TERMINATIONS ON INPLACE CABLES/CONDUCTORS IN POLE BASE AND IN CONTROLLER CABINET.

COUNTY PROJECT 22-20-01

DRAWN BY: JMG	NO.	BY	DATE
DESIGNER: JMG			
CHECKED BY: JMG			
DESIGN TEAM			

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.

Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457



ANOKA COUNTY CITY OF FRIDLEY

REVISE SIGNAL SYSTEM 'G' FIELD WIRING DIAGRAM  
 CSAH 1 (EAST RIVER ROAD) AT CSAH 8 (OSBORNE RD) / OSBORNE WAY

FILE NO. ANOKC 122928 630  
 SIGNAL SHEET 28 OF 35 94



N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	4-6x6	AS SHOWN	1
D2-1	2-6x6	300'	1
D4-1	2-6x6	100'	3
D4-2	2-6x6	0' & 15'	7
D4-3	2-6x6	0' & 15'	1
D5-1	4-6x6	AS SHOWN	1
D6-1	2-6x6	400'	1
DB-1	6x18	100'	3
DB-2	2-6x6	AS SHOWN	7
DB-3	2-6x6	AS SHOWN	1

- FUNCTIONS:  
 1 = CALL AND EXTEND  
 3 = EXTEND ONLY  
 7 = DELAYED CALL, IMMEDIATE EXTEND

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB4-1)  
 EXTEND INTO HH 4:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (LT ARROW) (PB6-2)  
 EXTEND INTO HH 4:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB2-1)  
 EXTEND INTO HH 6:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (LT ARROW) (PB2-2)  
 EXTEND INTO HH 1:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB8-1)  
 EXTEND INTO HH 1:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PB6-1)  
 EXTEND INTO HH 3:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

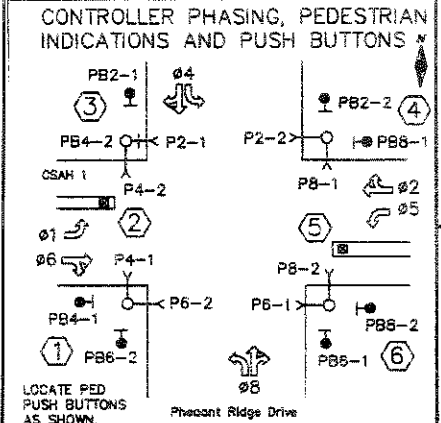
F & I APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (LT ARROW) (PB8-2)  
 EXTEND INTO HH 3:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

(B) CABINET FOUNDATION  
 SIGNAL SERVICE CABINET  
 EXTENDED INTO H.H.9:  
 METERED SIGNAL SERVICE  
 1 1/4" R.S.C.  
 3-1/c#5  
 EXTENDED INTO H.H.9 AND TO SOP:  
 1 1/4" R.S.C.  
 3-1/c#5  
 EXTENDED INTO H.H.4:  
 UNMETERED STREET LIGHT SERVICE  
 1-1/4" R.S.C.  
 4-1/c#10 (LUM)

(C) WOOD POLE (S.O.P.)  
 1 1/4" R.S.C. RISER AND WEATHERHEAD  
 3-1/c#5

MATCH LINE "E" (INTERCONNECT) TO CSAH 1/ROUND LAKE BLVD SIGNAL SYSTEM

MATCH LINE "F" (INTERCONNECT) TO CSAH 1/MISSISSIPPI BLVD SIGNAL SYSTEM



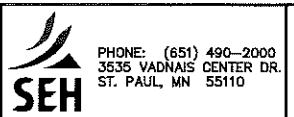
SIGNAL SYSTEM OPERATIONS:  
 - SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.  
 - VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

LED SIGNAL FACES			
SIGNAL FACE	ALL 12"		
	R	Y	G
1-1	←	←	←
2-1, 2-2	○	○	○
4-1, 4-2, 4-3, 4-4	○	○	○
5-1	←	←	←
6-1, 6-2	○	○	○
8-1, 8-2, 8-3	○	○	○

○ ← = INPLACE LED INDICATION, REUSE INPLACE.

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG	DATE: _____
NO.	BY	DATE	REVISIONS

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.  
 Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457



ANOKA COUNTY  
 CITY OF COON RAPIDS

REVISE SIGNAL SYSTEM "H"  
 INTERSECTION LAYOUT  
 CSAH 1 (COON RAPIDS BOULEVARD)  
 AT PHEASANT RIDGE DRIVE

FILE NO. ANOKC 122928  
 SIGNAL SHEET 29 OF 35  
**63R**  
**94**

REVISE SIGNAL SYSTEM H NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 1, 2, 3, 4, 5, 6, AND 14 TO FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED.
  - REMOVE INPLACE CONCRETE FRAME AND COVER (HH 2, 3, 4, 5, 6, AND 14) AND INPLACE TYPE LD FRAME AND COVER (HH 1), AND FURNISH AND INSTALL NEW PVC METAL FRAME AND COVER ON EACH OF THESE HANDHOLES AFTER CONCRETE HANDHOLE BODY HAS BEEN ADJUSTED, SO THAT NEW COVER IS INSTALLED TO BE FLUSH WITH FINISHED SURROUNDING GRADE.
  - ALL HANDHOLE ADJUSTMENT WORK (INCLUDING FRAME & COVER REMOVAL AND REPLACEMENT) IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM H). SEE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS. SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.

- ① P90 POLE FOUNDATION  
TYPE P90-B-35  
ONE WAY SIGNAL-OVERHEAD  
TYPE 30A-POLE MOUNTED 90'  
TYPE 10B-POLE MOUNTED 270'  
~~2-PEDESTRIAN PUSH BUTTONS & SIGNS~~  
DOWNLIGHT PEG-POLE MOUNTED  
ONE WAY EVP DETECTOR AND LIGHT (#4)  
EXTENDED INTO H.H.4:  
3"R.S.C.  
2-12/c#12  
3-3/c#12  
1-3/c#20

INPLACE — 2-PEDESTRIAN PUSH BUTTONS AT 225/315 DEG (SALVAGE)  
INPLACE — 2-R10-3e STICKER SIGNS AT 225/315 DEG (REMOVE)  
F & I | PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 225/315 DEG)

- ② PEDESTAL FOUNDATION  
PEDESTAL POLE, BASE & WIND COLLAR  
TYPE 1A  
R4-7 SIGN PANEL-POLE MOUNTED  
EXTENDED INTO H.H.5:  
3"R.S.C.  
2-12/c#12  
3-3/c#12

- ③ P90 POLE FOUNDATION  
TYPE P90-A-35-D40-9 (DAVIT AT 350')  
LUMINAIRE-250 W HPS WITH PEC AND CH.SW.  
ONE WAY SIGNAL-OVERHEAD  
2-TYPE 10B-POLE MOUNTED 45' & 315'  
~~2-PEDESTRIAN PUSH BUTTONS & SIGNS~~  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (#2,5)  
EXTENDED INTO H.H.6:  
3"R.S.C.  
2-12/c#12  
4-3/c#12  
1-3/c#20  
2-1/c#10 (LUM)

INPLACE — 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG (SALVAGE)  
INPLACE — 2-R10-3e STICKER SIGNS AT 0/270 DEG (REMOVE)  
F & I | 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB4-2)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
1-2/C 14

- ④ P90 POLE FOUNDATION  
TYPE P90-B-35  
ONE WAY SIGNAL-OVERHEAD  
2-TYPE 10B-POLE MOUNTED 45' & 315'  
~~2-PEDESTRIAN PUSH BUTTONS & SIGNS~~  
ONE WAY EVP DETECTOR AND LIGHT (#8)  
ONE WAY EVP DETECTOR-POLE MOUNTED 180' (#4)  
EXTENDED INTO H.H.1:  
3"R.S.C.  
2-12/c#12  
4-3/c#12  
2-3/c#20

INPLACE — 2-PEDESTRIAN PUSH BUTTONS AT 225/315 DEG (SALVAGE)  
INPLACE — 2-R10-3e STICKER SIGNS AT 225/315 DEG (REMOVE)  
F & I | PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 225/315 DEG)

- ⑤ PEDESTAL FOUNDATION  
PEDESTAL POLE, BASE & WIND COLLAR  
TYPE 1A  
R4-7 SIGN PANEL-POLE MOUNTED  
EXTENDED INTO H.H.2:  
3"R.S.C.  
1-12/c#12  
3-3/c#12

- ⑥ P90 POLE FOUNDATION  
TYPE P90-A-35-D40-9 (DAVIT AT 350')  
LUMINAIRE-250 W HPS WITH PEC AND CH.SW.  
ONE WAY SIGNAL-OVERHEAD  
2-TYPE 10B-POLE MOUNTED 90' & 270'  
~~2-PEDESTRIAN PUSH BUTTONS & SIGNS~~  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (#6,1)  
EXTENDED INTO H.H.3:  
3"R.S.C.  
6-12/c#12  
5-3/c#12  
1-3/c#20  
2-1/c#10 (LUM)

INPLACE — 2-PEDESTRIAN PUSH BUTTONS AT 180/270 DEG (SALVAGE)  
INPLACE — 2-R10-3e STICKER SIGNS AT 180/270 DEG (REMOVE)  
F & I | PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 180/270 DEG)

COUNTY PROJECT 22-19-01

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.  
Date: May 9, 2022 Name: John M Gray, PE Lic. No. 22457

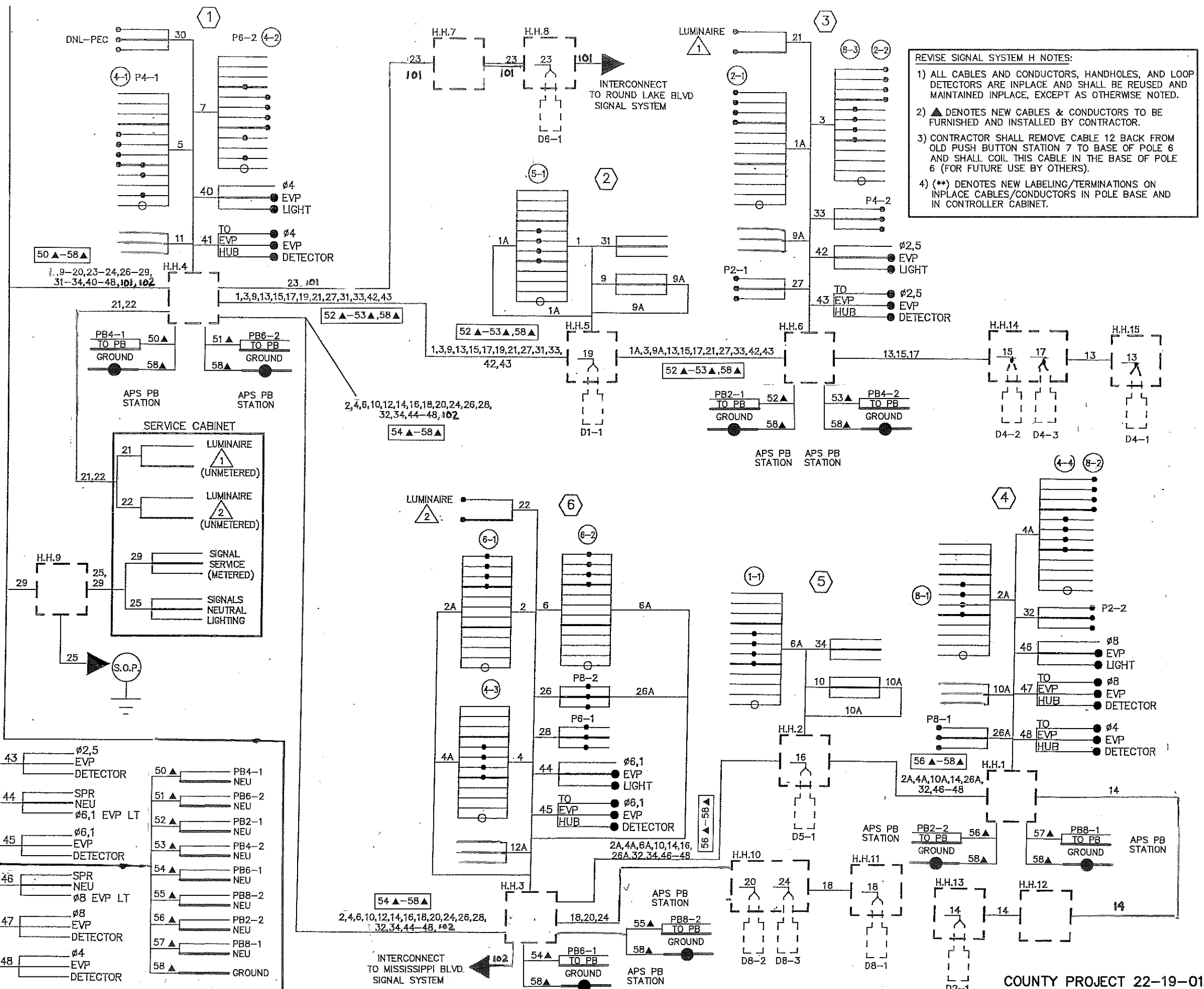
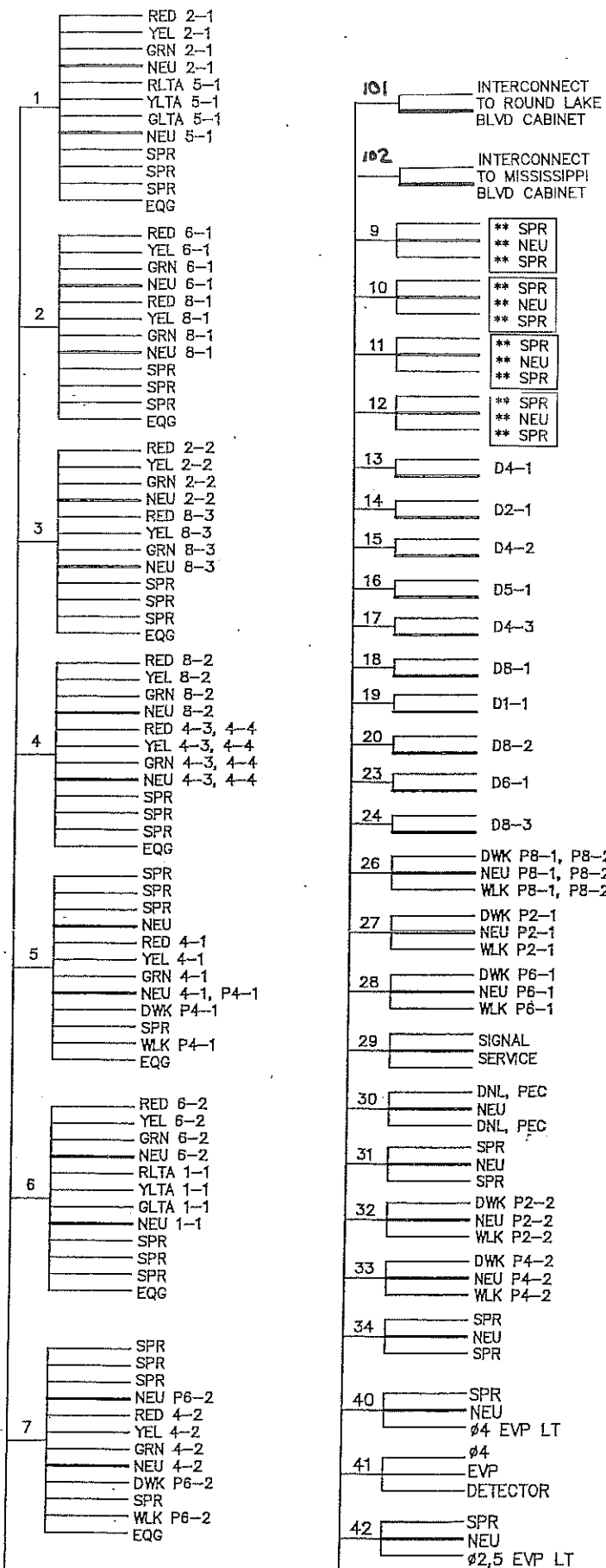
SEH  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

ANOKA COUNTY  
CITY OF COON RAPIDS

REVISE SIGNAL SYSTEM 'H'  
SIGNAL SYSTEM NOTES  
CSAH 1 (COON RAPIDS BOULEVARD)  
AT PHEASANT RIDGE DRIVE

FILE NO. ANOKC 122928  
SIGNAL SHEET 30 OF 35  
63S  
94

CONTROLLER CABINET



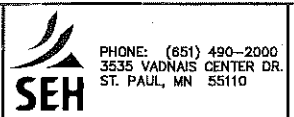
REVISE SIGNAL SYSTEM H NOTES:

- 1) ALL CABLES AND CONDUCTORS, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS OTHERWISE NOTED.
- 2) ▲ DENOTES NEW CABLES & CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
- 3) CONTRACTOR SHALL REMOVE CABLE 12 BACK FROM OLD PUSH BUTTON STATION 7 TO BASE OF POLE 6 AND SHALL COIL THIS CABLE IN THE BASE OF POLE 6 (FOR FUTURE USE BY OTHERS).
- 4) (\*\*) DENOTES NEW LABELING/TERMINATIONS ON INPLACE CABLES/CONDUCTORS IN POLE BASE AND IN CONTROLLER CABINET.

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG
DESIGN TEAM	NO. BY DATE	REVISIONS

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.

Name: John M Gray, PE  
Lic. No. 22457  
Date: May 9, 2022



ANOKA COUNTY  
CITY OF COON RAPIDS

REVISE SIGNAL SYSTEM 'H'  
FIELD WIRING DIAGRAM  
CSAH 1 (COON RAPIDS BOULEVARD)  
AT PHEASANT RIDGE DRIVE

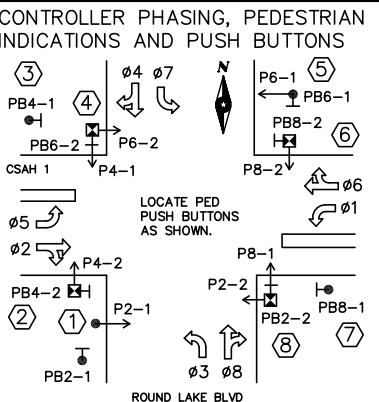
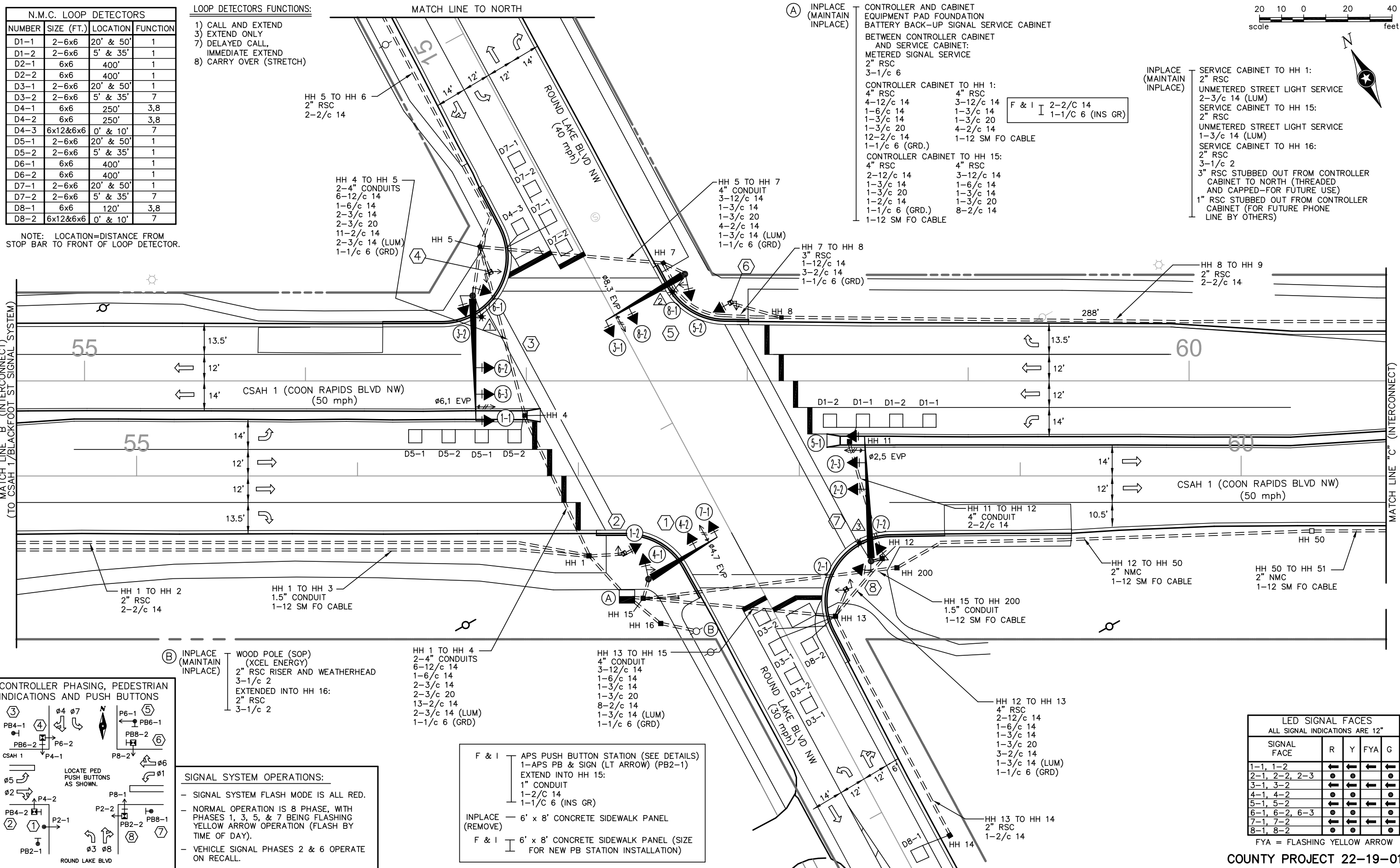
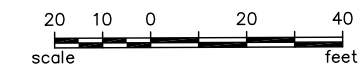
FILE NO. ANOKC 122928  
SIGNAL SHEET 31 OF 35  
63T  
94

N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	400'	1
D2-2	6x6	400'	1
D3-1	2-6x6	20' & 50'	1
D3-2	2-6x6	5' & 35'	7
D4-1	6x6	250'	3,8
D4-2	6x6	250'	3,8
D4-3	6x12&6x6	0' & 10'	7
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	1
D6-1	6x6	400'	1
D6-2	6x6	400'	1
D7-1	2-6x6	20' & 50'	1
D7-2	2-6x6	5' & 35'	7
D8-1	6x6	120'	3,8
D8-2	6x12&6x6	0' & 10'	7

**LOOP DETECTORS FUNCTIONS:**

- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, & 7 BEING FLASHING YELLOW ARROW OPERATION (FLASH BY TIME OF DAY).
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

**F & I** APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (LT ARROW) (PB2-1)  
 EXTEND INTO HH 15:  
 1" CONDUIT  
 1-2/c 14  
 1-1/c 6 (INS GR)

**INPLACE (REMOVE)** 6' x 8' CONCRETE SIDEWALK PANEL  
**F & I** 6' x 8' CONCRETE SIDEWALK PANEL (SIZE FOR NEW PB STATION INSTALLATION)

LED SIGNAL FACES ALL SIGNAL INDICATIONS ARE 12"				
SIGNAL FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	●	●	●	●
3-1, 3-2	←	←	←	←
4-1, 4-2	●	●	●	●
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	●	●	●	●
7-1, 7-2	←	←	←	←
8-1, 8-2	●	●	●	●

FYA = FLASHING YELLOW ARROW

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.

*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: May 9, 2022

SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITY OF COON RAPIDS**

**REVISE SIGNAL SYSTEM 'J'**  
**INTERSECTION LAYOUT**  
**CSAH 1 (COON RAPIDS BOULEVARD)**  
**AT ROUND LAKE BOULEVARD**

FILE NO. ANOKC 122928  
 SIGNAL SHEET 32 OF 35  
**63U**  
**94**

REVISE SIGNAL SYSTEM J NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE.
- 3) LOCATION OF NEW PUSH BUTTON STATION SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- 11) CONCRETE SIDEWALK REMOVAL AND REPLACEMENT ON THE SW QUADRANT (TO ALLOW FOR NEW PUSH BUTTON STATION PB2-1 TO BE FURNISHED AND INSTALLED) SHALL BE COMPLETED BY THE CONTRACTOR AND INCLUDED AS PART OF THE BID ITEM FOR REVISE SIGNAL SYSTEM J (ITEM NO. 2565), WITH NO DIRECT COMPENSATION BEING MADE THEREFORE.

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-35  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
1-ANGLE MOUNT SIGNAL-POLE MOUNTED 270'  
1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED 270'  
R10-X12 SIGN PANEL-ADJACENT TO 7-1  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø4,7)  
EXTENDED INTO HH 15:  
3" RSC  
2-12/c 14  
1-3/c 14  
1-3/c 20  
1-2/c 14  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON AT 90 DEG

INPLACE (REMOVE) 1-PED PB STICKER SIGN AT 90 DEG (R10-4b)

F & I PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTON USED TO BE (AT 90 DEG)

④ INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION  
12' PEDESTAL POLE (INCLUDES BASE, WIND COLLAR)  
2-STRAIGHT MOUNT C.D. PED INDICATIONS-POLE MOUNTED  
EXTENDED INTO HH 5:  
3" RSC  
1-12/c 14  
1-2/c 14  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON (SOUTH SIDE OF POLE)

INPLACE (REMOVE) 1-PED PB STICKER SIGN (R10-4b)

F & I 1-APS PB, SIGN (RT ARROW) AND APS PEDESTAL POLE SPACERS (PB6-2)  
PLUG HOLES ON PEDESTAL POLE WHERE PUSH BUTTON USED TO BE (SOUTH SIDE OF POLE)

⑦ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVIT AT 350')  
LUMINAIRE-COBRAHEAD LED  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90' & 180'  
R6-1L SIGN PANEL-POLE MOUNTED 0'  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø2,5)  
EXTENDED INTO HH 12:  
3" RSC  
2-12/c 14  
1-6/c 14  
1-3/c 14  
1-3/c 20  
1-2/c 14  
1-3/c 14 (LUM)  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON AT 270 DEG

INPLACE (REMOVE) 1-PED PB STICKER SIGN AT 270 DEG (R10-4b)

F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB8-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTON USED TO BE (AT 270 DEG)

② INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION  
12' PEDESTAL POLE (INCLUDES BASE, WIND COLLAR)  
1-STRAIGHT MOUNT SIGNAL-POLE MOUNTED (FACING WB LT TRAFFIC)  
1-STRAIGHT MOUNT C.D. PED INDICATION-POLE MOUNTED (FOR CROSSING CSAH 1)  
EXTENDED INTO HH 1:  
3" RSC  
1-12/c 14  
1-2/c 14  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON (EAST SIDE OF POLE)

INPLACE (REMOVE) 1-PED PB STICKER SIGN (R10-4b)

F & I 1-APS PB, SIGN (RT ARROW) AND APS PEDESTAL POLE SPACERS (PB4-2)  
PLUG HOLES ON PEDESTAL POLE WHERE PUSH BUTTON USED TO BE (EAST SIDE OF POLE)

⑤ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-40-D40-9 (DAVIT AT 350')  
LUMINAIRE-COBRAHEAD LED  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
1-ANGLE MOUNT SIGNAL-POLE MOUNTED 270'  
1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED 270'  
R10-X12 SIGN PANEL-ADJACENT TO 3-1  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø8,3)  
EXTENDED INTO HH 7:  
3" RSC  
2-12/c 14  
1-3/c 14  
1-3/c 20  
1-2/c 14  
1-3/c 14 (LUM)  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON AT 315 DEG

INPLACE (REMOVE) 1-PED PB STICKER SIGN AT 315 DEG (R10-4b)

F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB6-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTON USED TO BE (AT 315 DEG)

⑧ INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION  
12' PEDESTAL POLE (INCLUDES BASE, WIND COLLAR)  
2-STRAIGHT MOUNT C.D. PED INDICATIONS-POLE MOUNTED  
EXTENDED INTO HH 13:  
3" RSC  
1-12/c 14  
1-2/c 14  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON (NORTH SIDE OF POLE)

INPLACE (REMOVE) 1-PED PB STICKER SIGN (R10-4b)

F & I 1-APS PB, SIGN (RT ARROW) AND APS PEDESTAL POLE SPACERS (PB2-2)  
PLUG HOLES ON PEDESTAL POLE WHERE PUSH BUTTON USED TO BE (NORTH SIDE OF POLE)

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVIT AT 350')  
LUMINAIRE-COBRAHEAD LED  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90' & 180'  
R6-1L SIGN PANEL-POLE MOUNTED 0'  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (Ø6,1)  
EXTENDED INTO HH 5:  
3" RSC  
2-12/c 14  
1-6/c 14  
1-3/c 14  
1-3/c 20  
1-2/c 14  
1-3/c 14 (LUM)  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON AT 270 DEG

INPLACE (REMOVE) 1-PED PB STICKER SIGN AT 270 DEG (R10-4b)

F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB4-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTON USED TO BE (AT 270 DEG)

⑥ INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION  
12' PEDESTAL POLE (INCLUDES BASE, WIND COLLAR)  
1-STRAIGHT MOUNT SIGNAL-POLE MOUNTED (FACING EB LT TRAFFIC)  
1-STRAIGHT MOUNT C.D. PED INDICATION-POLE MOUNTED (FOR CROSSING CSAH 1)  
EXTENDED INTO HH 8:  
3" RSC  
1-12/c 14  
1-2/c 14  
1-1/c 6 (GRD.)

INPLACE (SALVAGE) 1-PEDESTRIAN PUSH BUTTON (WEST SIDE OF POLE)

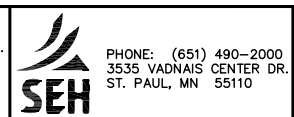
INPLACE (REMOVE) 1-PED PB STICKER SIGN (R10-4b)

F & I 1-APS PB, SIGN (RT ARROW) AND APS PEDESTAL POLE SPACERS (PB8-2)  
PLUG HOLES ON PEDESTAL POLE WHERE PUSH BUTTON USED TO BE (WEST SIDE OF POLE)

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.

*John M. Gray*  
Name: John M. Gray, PE  
Lic. No. 22457  
Date: May 9, 2022

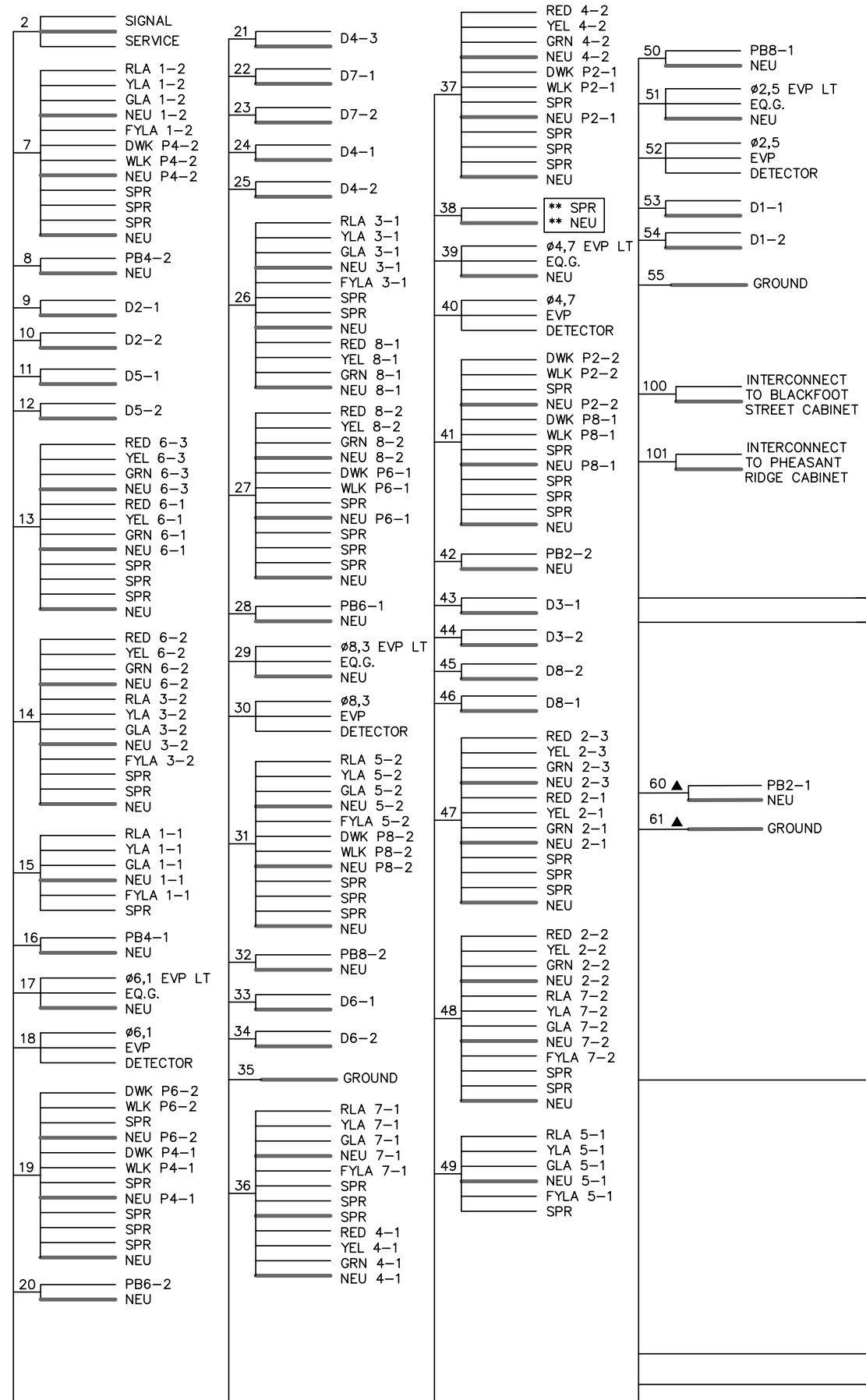


**ANOKA COUNTY**  
CITY OF COON RAPIDS

REVISE SIGNAL SYSTEM 'J'  
SIGNAL SYSTEM NOTES  
CSAH 1 (COON RAPIDS BOULEVARD)  
AT ROUND LAKE BOULEVARD



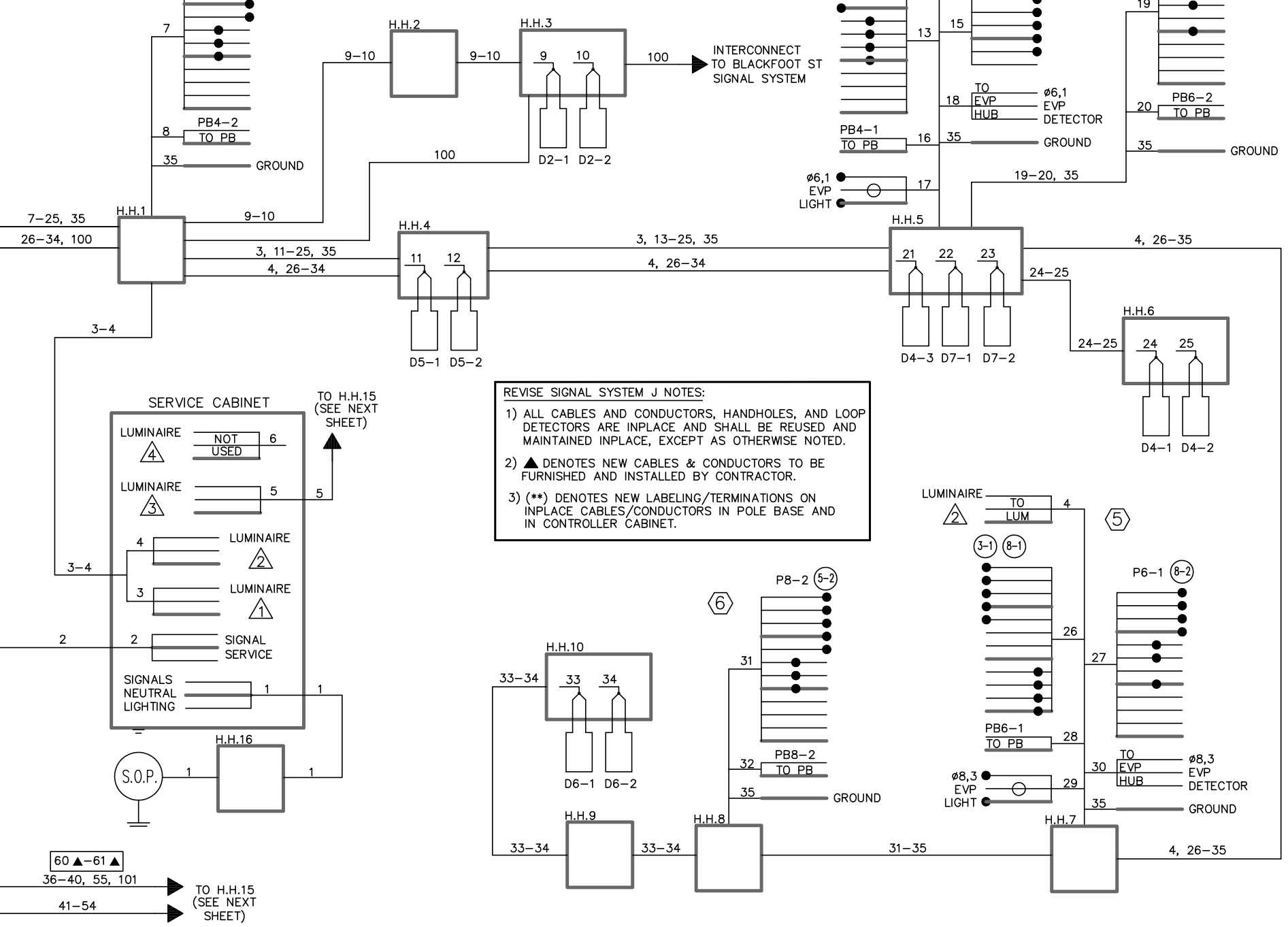
CONTROLLER AND CABINET



**CONDUCTOR COLOR CODE (14 GAUGE)**

TO SIGNAL CABINET	TO DEVICE
1/C#6 G	R
6PR#19	O
3-1/C#2 WH	BL
BLK	WH
INPUT POWER	BLK/R
BLK	BLK
3-1/C#6 WH	R
G	BLK/R
SIGNAL SERVICE	BLK
O	WH
BL	BLK/R
WH	BLK
RY/BLK	WH
OY/BLK	BLK
BL/BLK	WH
WH/BLK	BLK
BLK/WH	R or O
BLK/R	WH or YEL
WH/R	BLK or BL

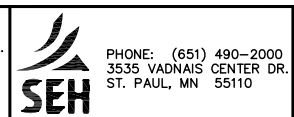
NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.

*John M. Gray*  
Name: John M. Gray, PE  
Lic. No. 22457  
Date: May 9, 2022



PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITY OF COON RAPIDS**

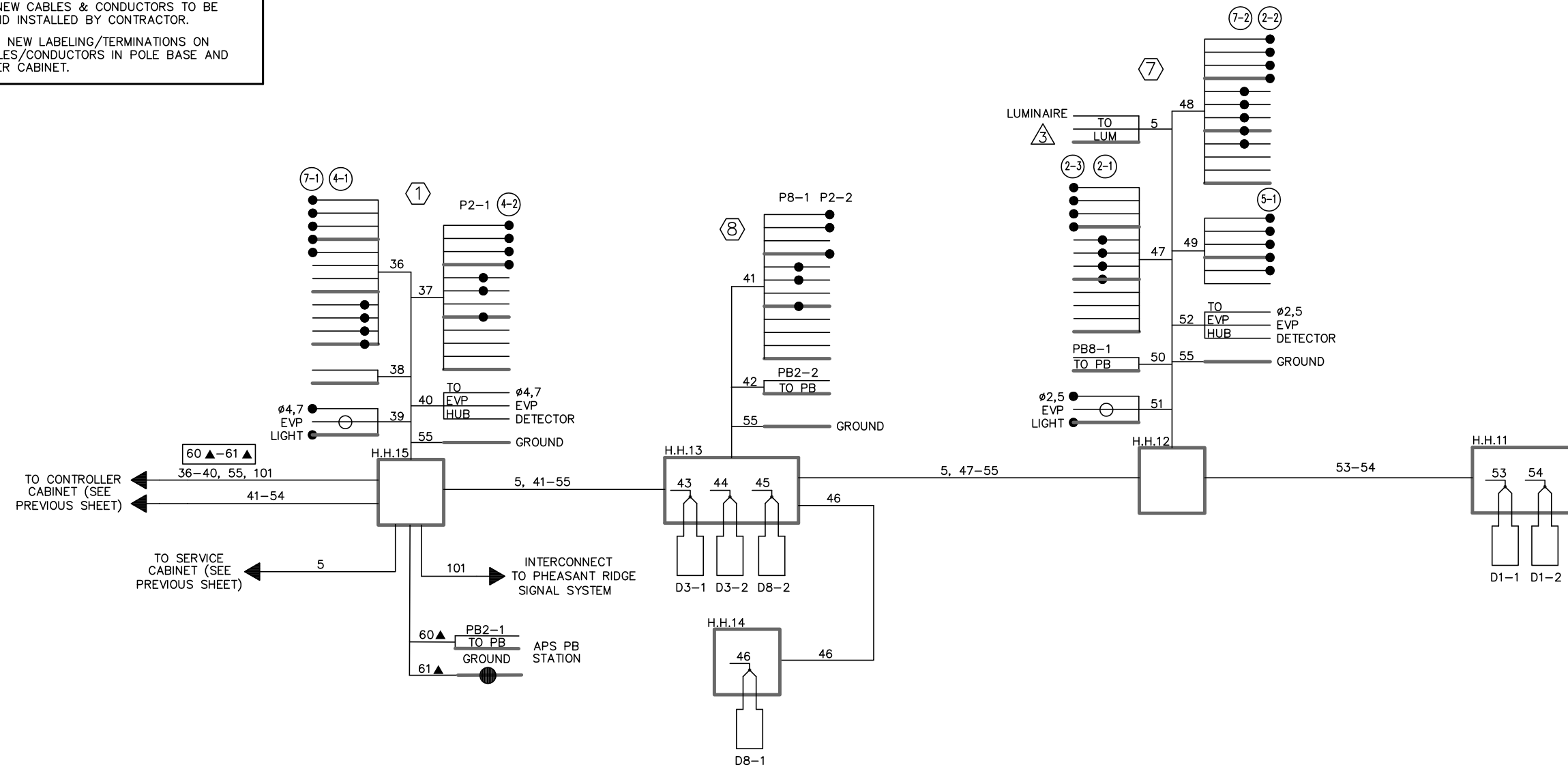
**REVISE SIGNAL SYSTEM 'J'**  
**FIELD WIRING DIAGRAM**  
CSAH 1 (COON RAPIDS BOULEVARD)  
AT ROUND LAKE BOULEVARD

FILE NO. ANOKC 122928	<b>63W</b>
SIGNAL SHEET 34 OF 35	<b>94</b>

- REVISE SIGNAL SYSTEM J NOTES:**
- 1) ALL CABLES AND CONDUCTORS, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS OTHERWISE NOTED.
  - 2) ▲ DENOTES NEW CABLES & CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
  - 3) (\*\*) DENOTES NEW LABELING/TERMINATIONS ON INPLACE CABLES/CONDUCTORS IN POLE BASE AND IN CONTROLLER CABINET.

CONDUCTOR COLOR CODE (14 GAUGE)				
TO SIGNAL CABINET	TO DEVICE			
1/C#6 G	R	R	RED	4 & 5
6PB#19	BL	O	YEL	SECTION
R	WH	BL	GRN	SIGNAL
3-1/C#2	BLK/R	WH	NEU	INDICATION
BLK	BLK	BLK	YLA	GLA
INPUT	BLK			
POWER				
3-1/C#6	BLK	R	RED/DWK	3 SECTION
WH	BLK/R	O	YEL/WLK	AND
G	WH	BLK	GRN/SPR	PED
SIGNAL SERVICE	WH	WH	NEU	INDICATION
R	4/C#14	BLK/R	RED/DWK	3 SECTION
U	BLK	BLK	YEL/WLK	AND
BL	WH	WH	GRN/SPR	PED
WH	BLK	WH	NEU	INDICATION
R/BLK	3/C#14	G	BLK	EVP LIGHT
O/BLK	WH	WH	WH	LUM/FLASHER
BL/BLK	2/C#14	BLK	BLK	PED PUSH BUTTON
WH/BLK	WH or CL	WH or YEL	WH or CL	(if required)
BLK/WH	R or O			
BLK/R	3/C#20	WH or YEL		
WH/R	BLK or BL			

NOTE:  
ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



DRAWN BY: JMG			
DESIGNER: JMG			
CHECKED BY: JMG			
DESIGN TEAM	NO.	BY	DATE
			REVISIONS

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.

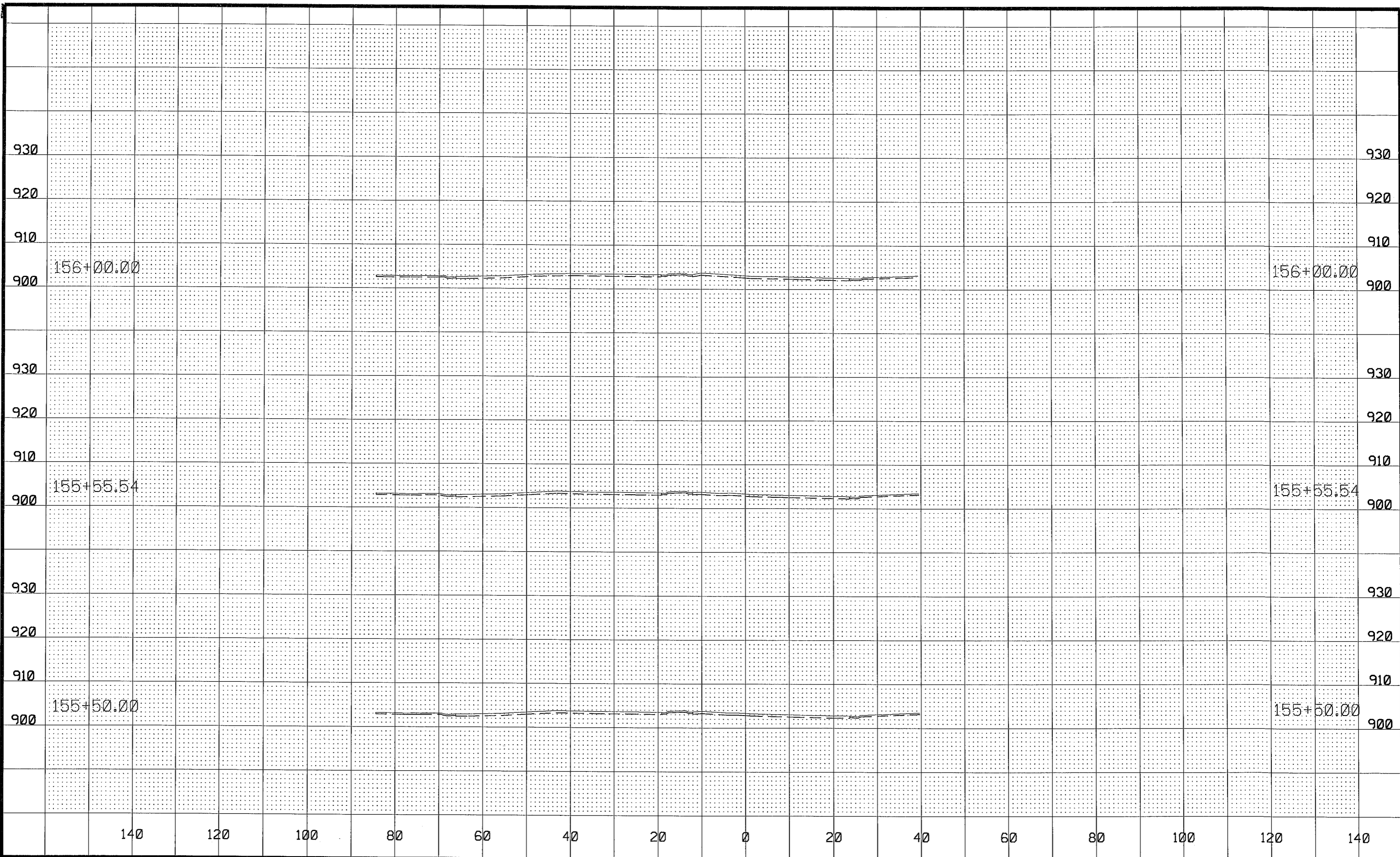
*John M. Gray*  
Name: John M. Gray, PE  
Lic. No. 22457  
Date: May 9, 2022

**SEH**  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

**ANOKA COUNTY  
CITY OF COON RAPIDS**

**REVISE SIGNAL SYSTEM 'J'  
FIELD WIRING DIAGRAM**  
CSAH 1 (COON RAPIDS BOULEVARD)  
AT ROUND LAKE BOULEVARD

FILE NO. ANOKC 122928	<b>63X</b>
SIGNAL SHEET 35 OF 35	
	<b>94</b>

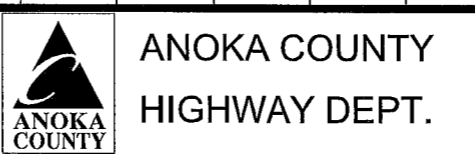


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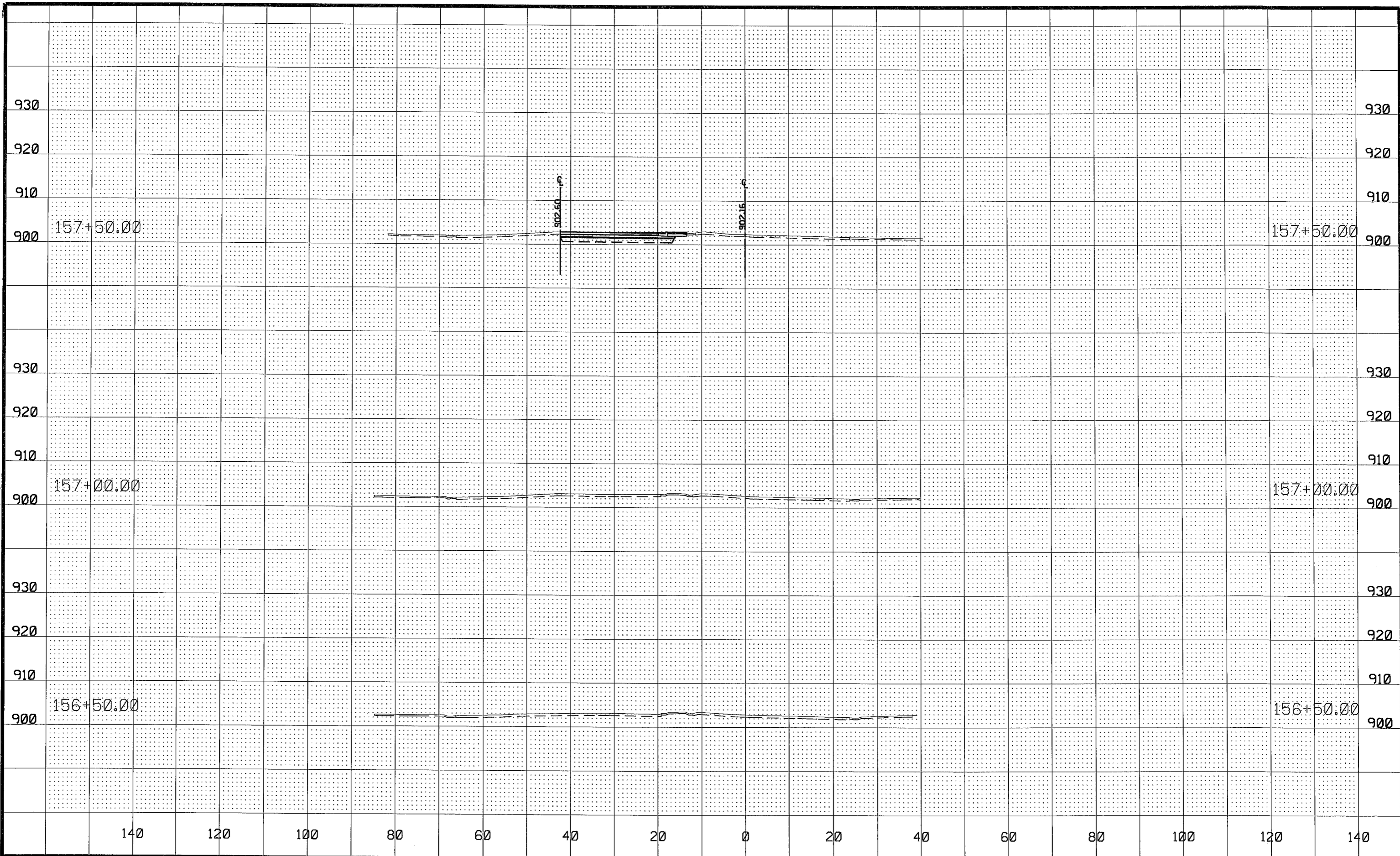
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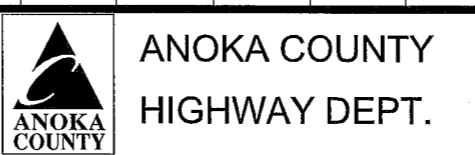
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 Sheet 64 of 94 Sheets



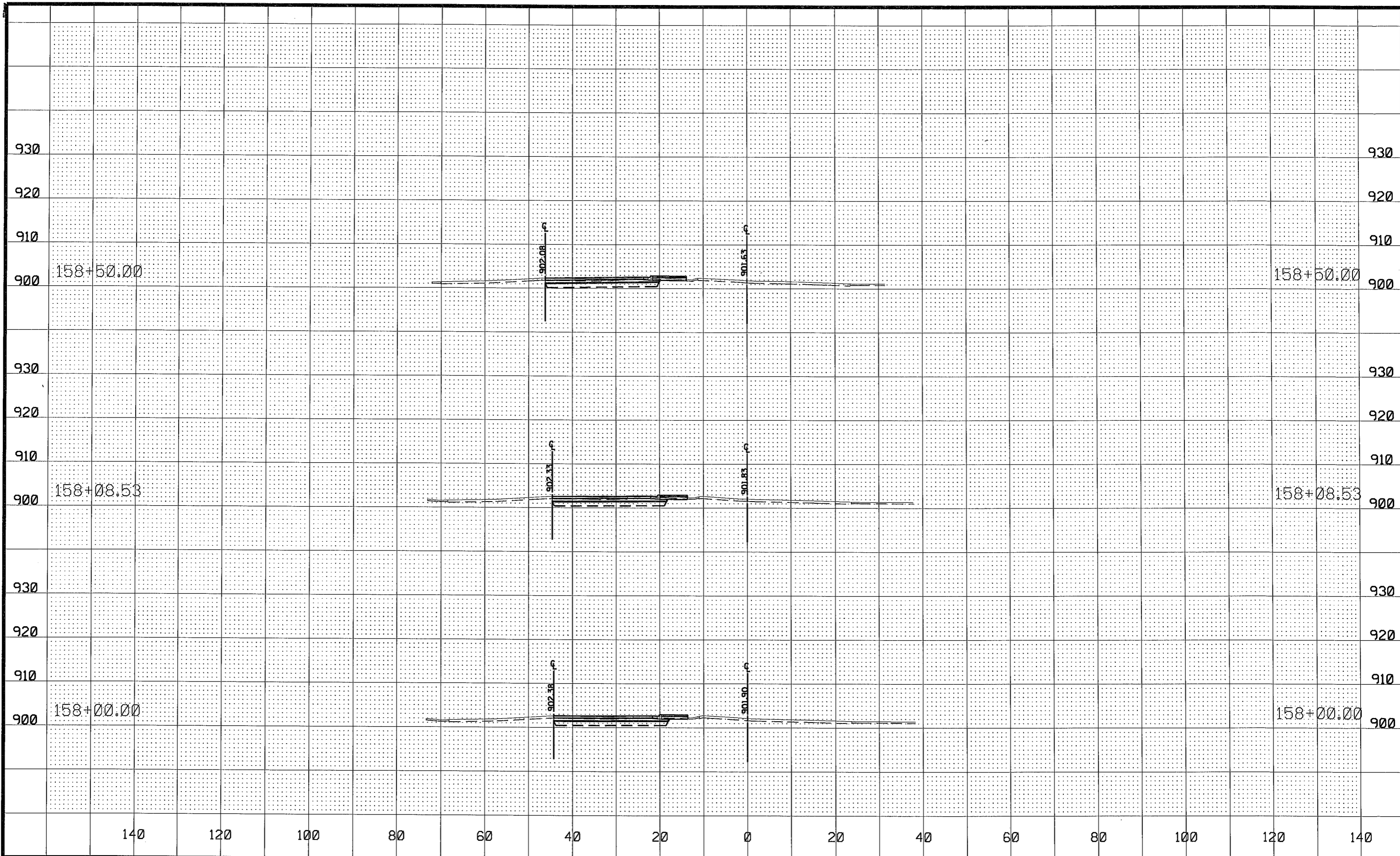
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CROSS SECTIONS  
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 Sheet 65 of 94 Sheets




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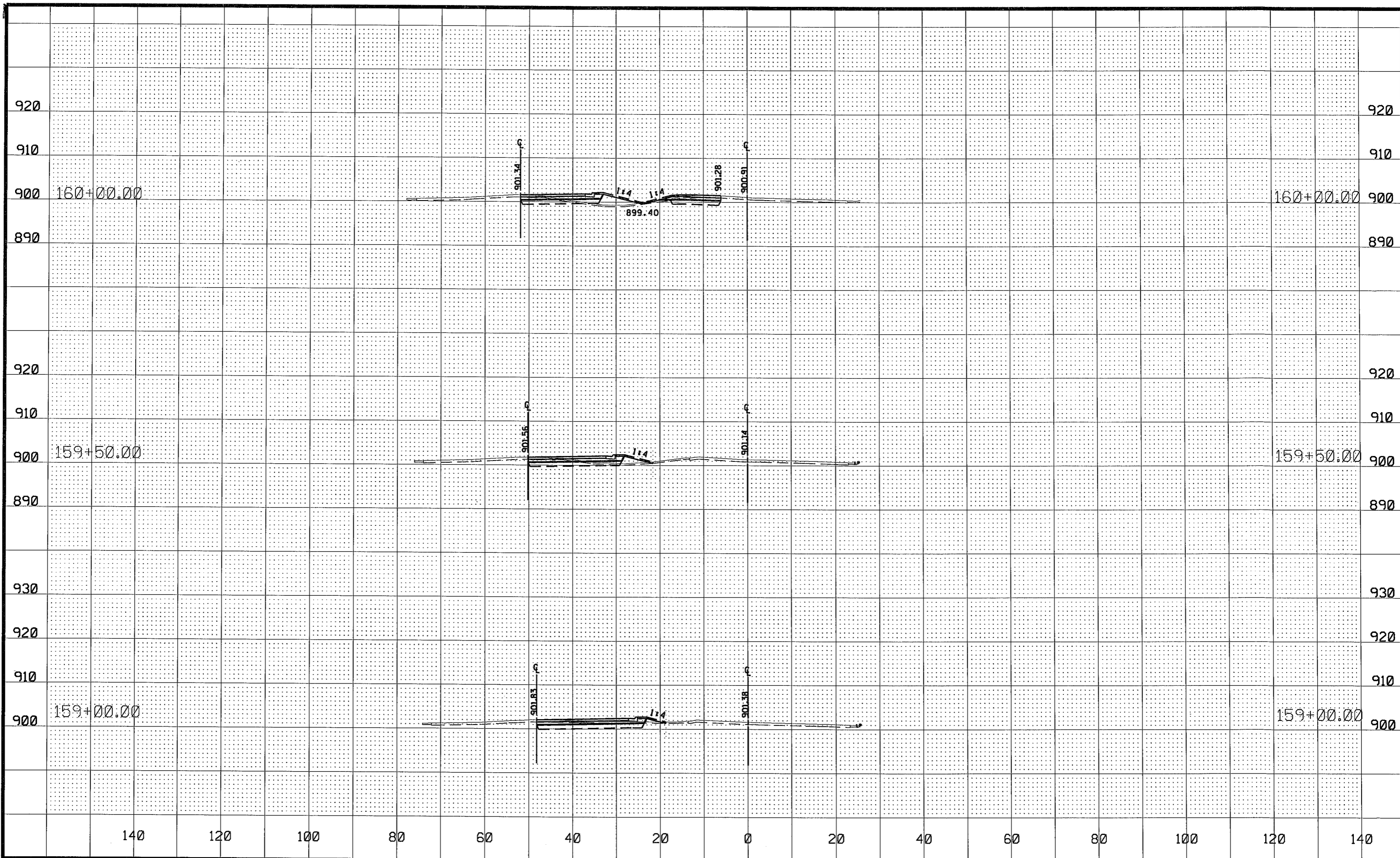

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**ANOKA COUNTY**  
**HIGHWAY DEPT.**



SAP 002-617-025

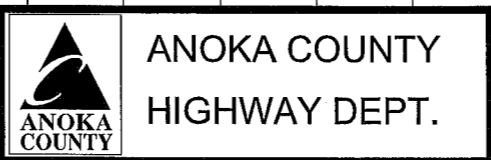
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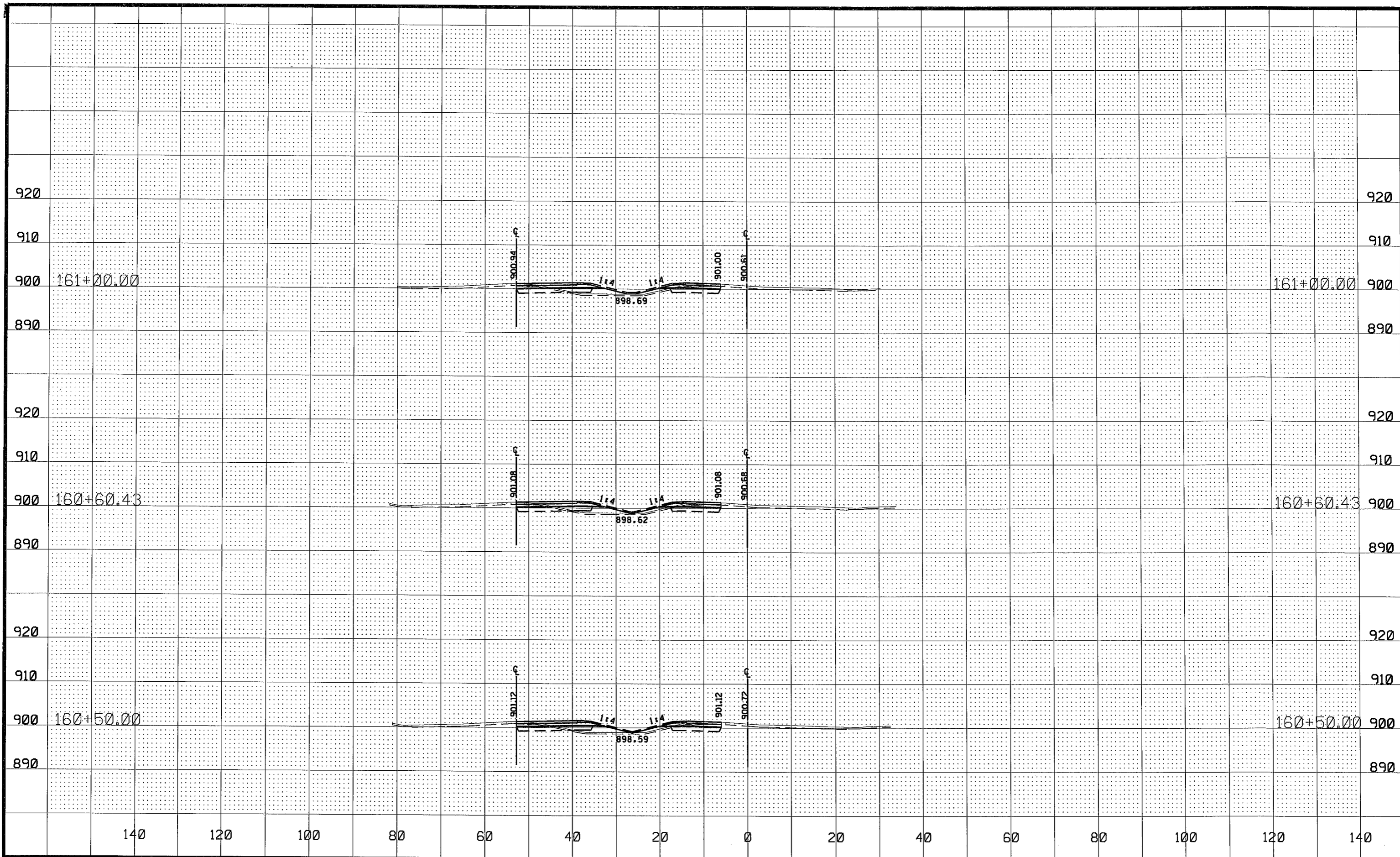
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 CHECKED BY NJD DATE 03/17/22



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CROSS SECTIONS  
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 Sheet 67 of 94 Sheets




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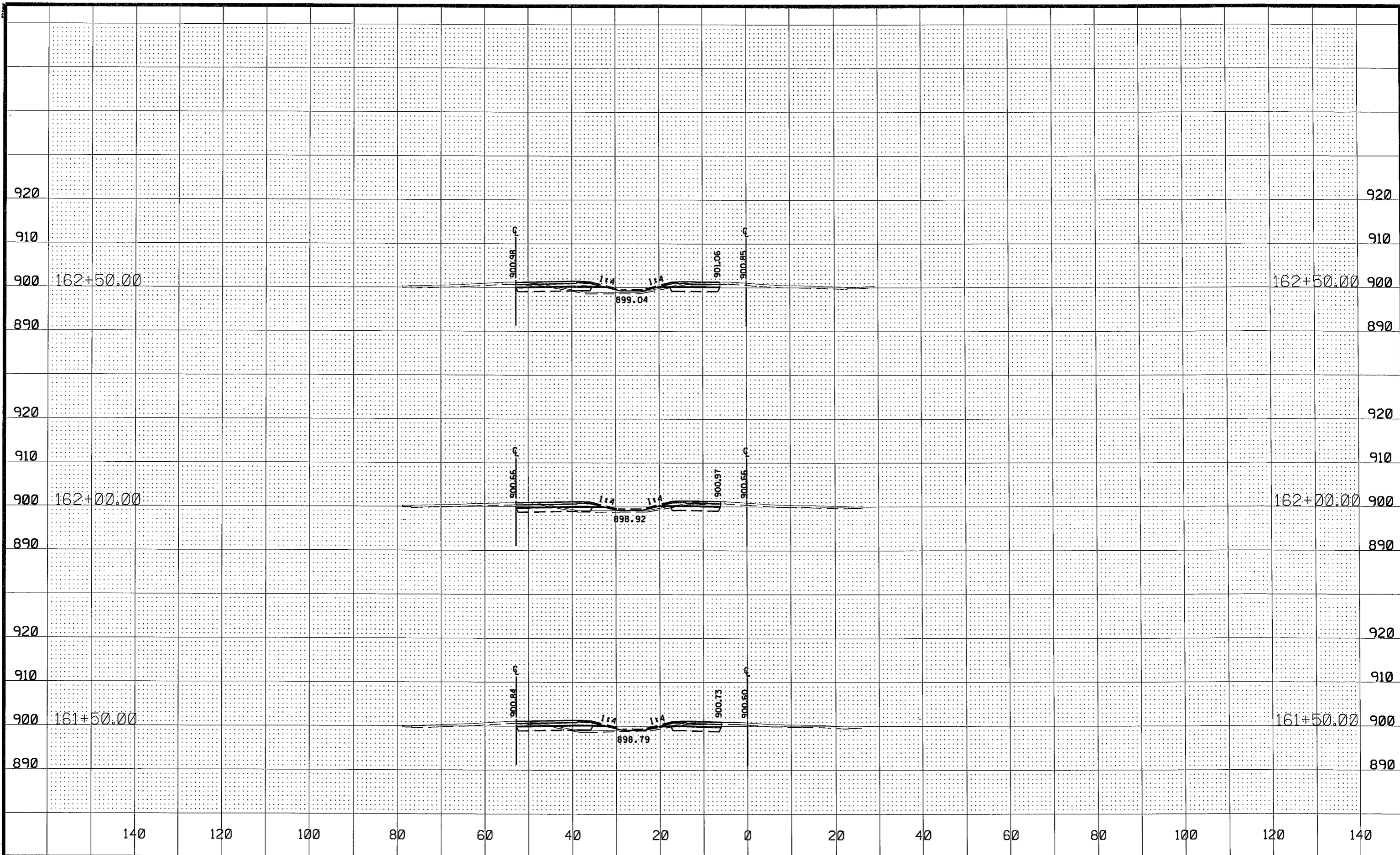

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**ANOKA COUNTY**  
**HIGHWAY DEPT.**



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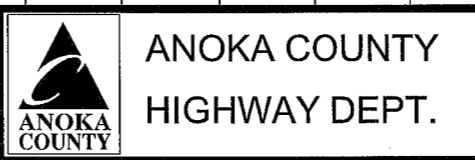
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 Sheet 68 of 94 Sheets



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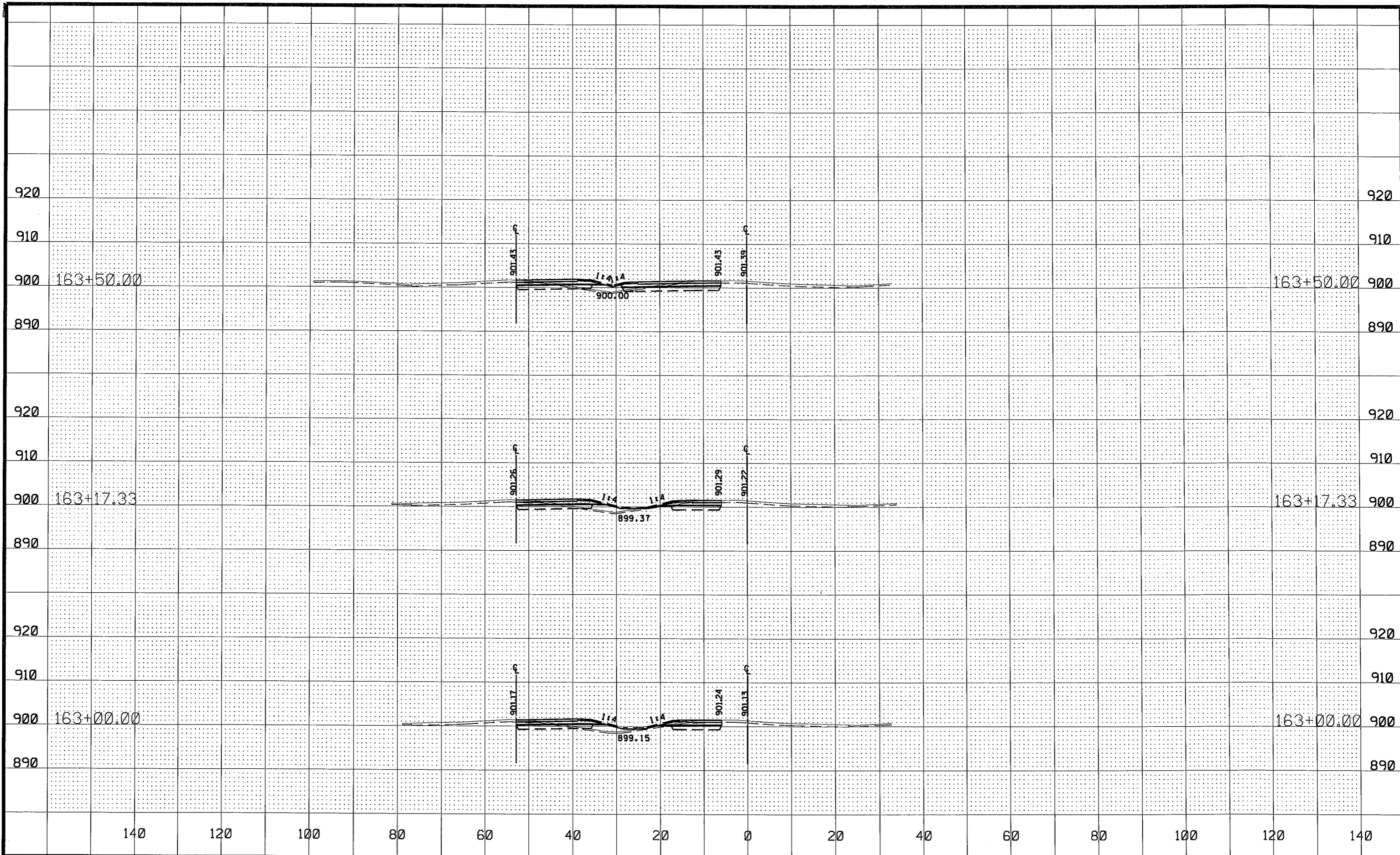
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SAP 002-617-025

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 Sheet 69 of 94 Sheets





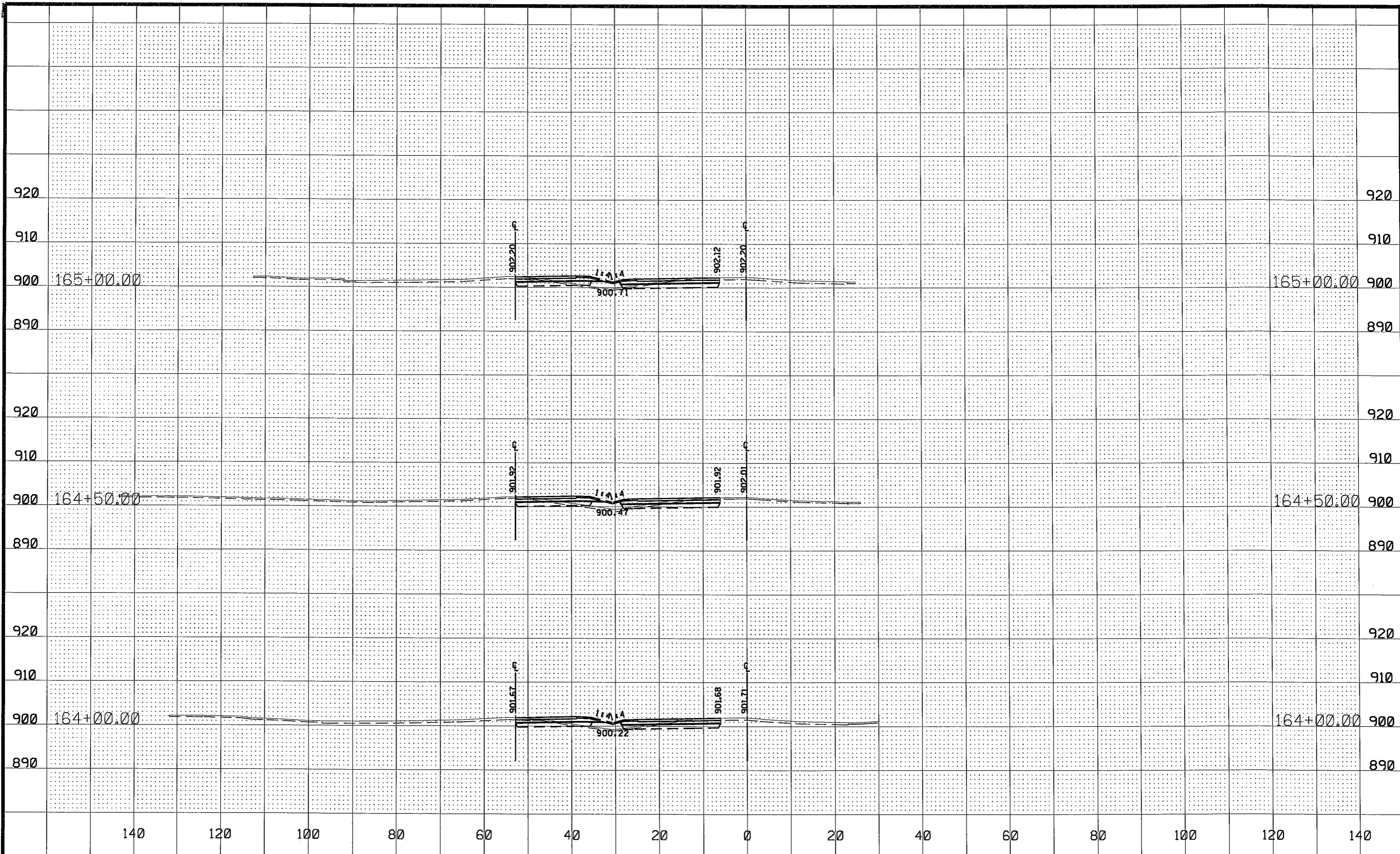
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 CHECKED BY NJD DATE 03/17/22

**ANOKA COUNTY**  
**HIGHWAY DEPT.**

SAP 002-617-025

CROSS SECTIONS  
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 Sheet 70 of 94 Sheets

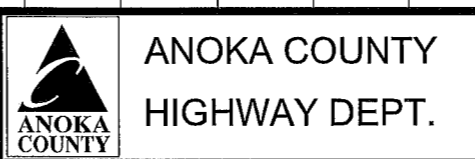


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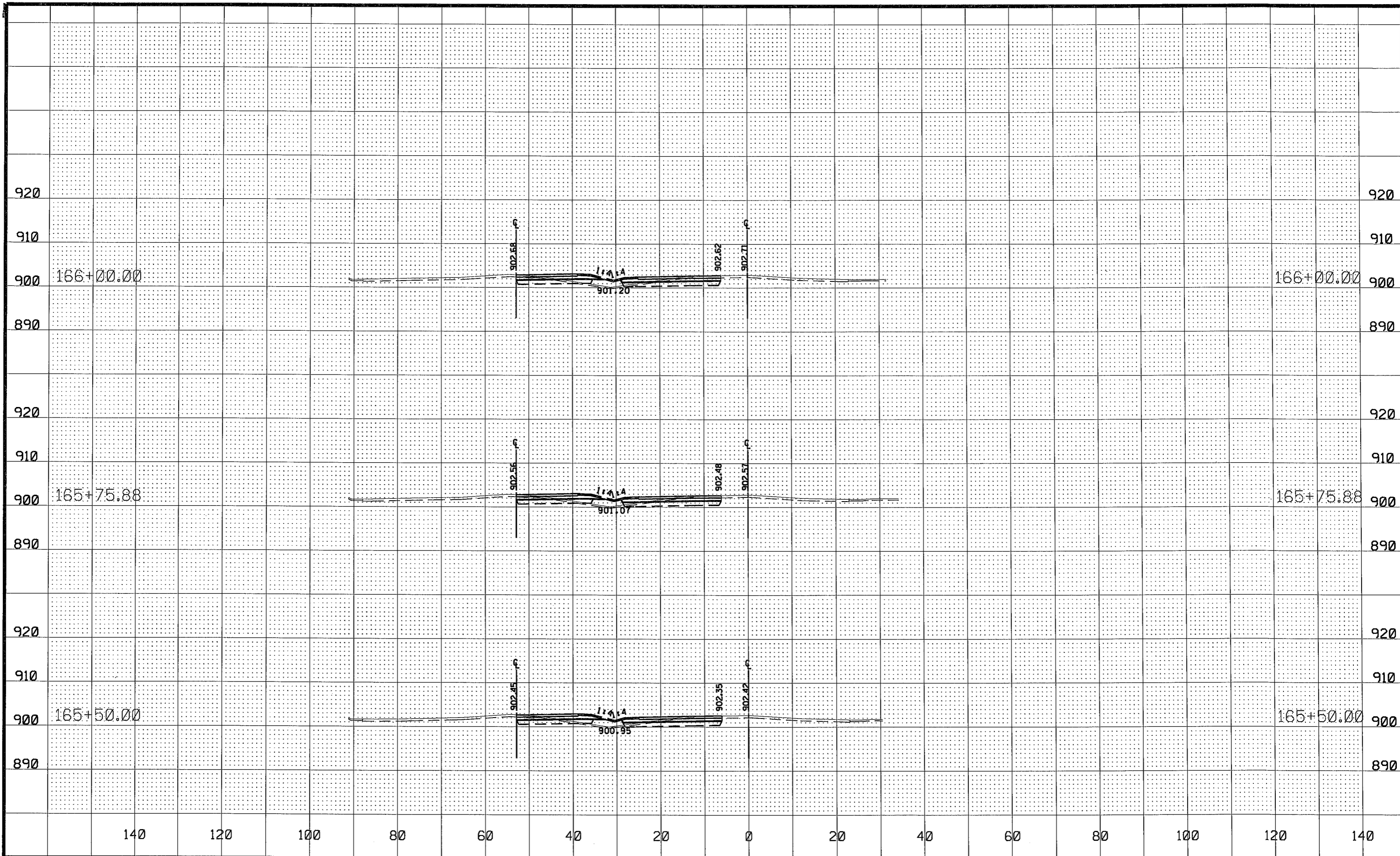
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SAP 002-617-025

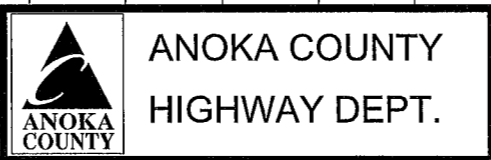
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 Sheet 71 of 94 Sheets



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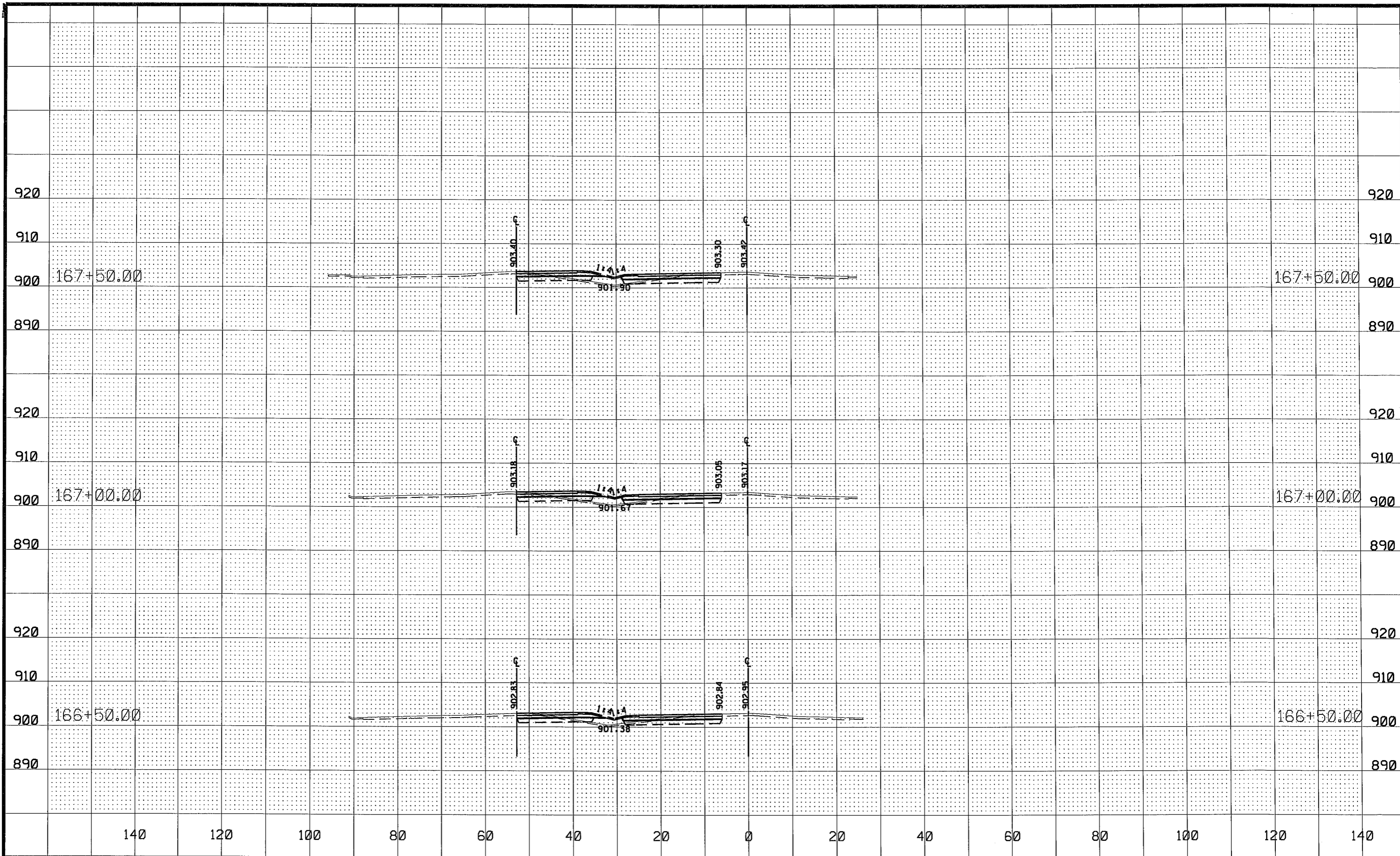
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SAP 002-617-025

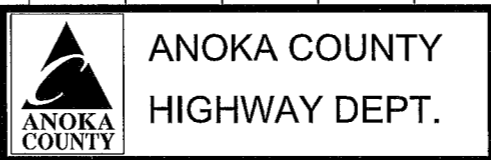
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 Sheet 72 of 94 Sheets



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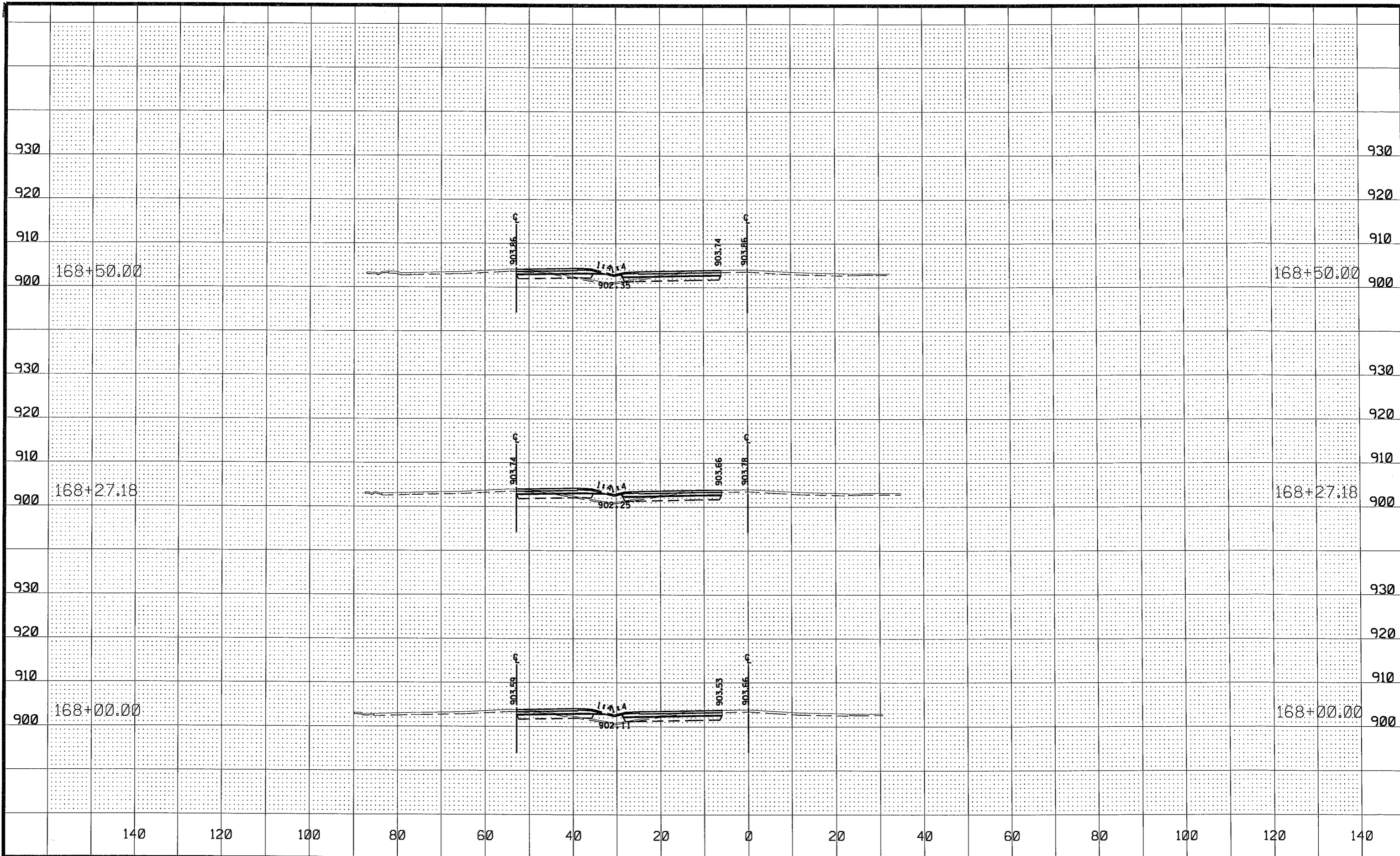
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 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



SAP 002-617-025

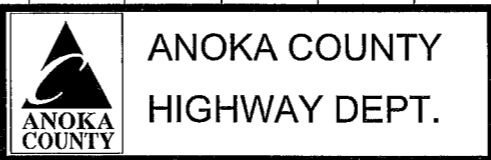
CROSS SECTIONS  
 STA 166+50.00 TO 167+50.00  
 Sheet 73 of 94 Sheets



NO	DATE	BY	CKD	APPR	REVISION

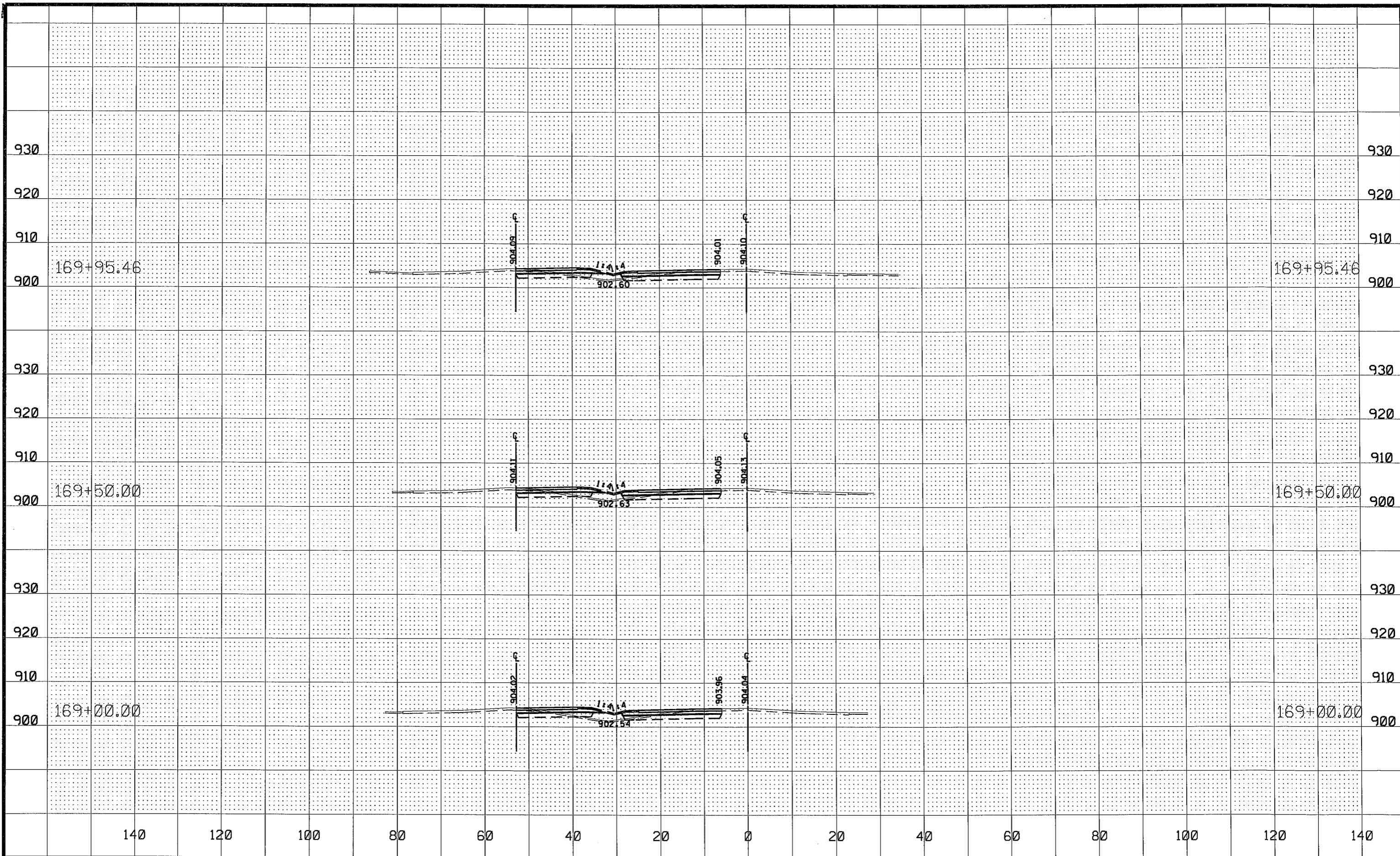
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DRAWN BY BTU DATE 03/17/22  
 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



SAP 002-617-025

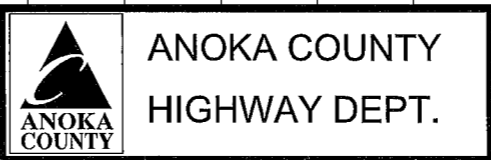
CROSS SECTIONS  
 STA 168+00.00 TO 168+50.00  
 Sheet 74 of 94 Sheets



NO	DATE	BY	CHKD	APPR	REVISION

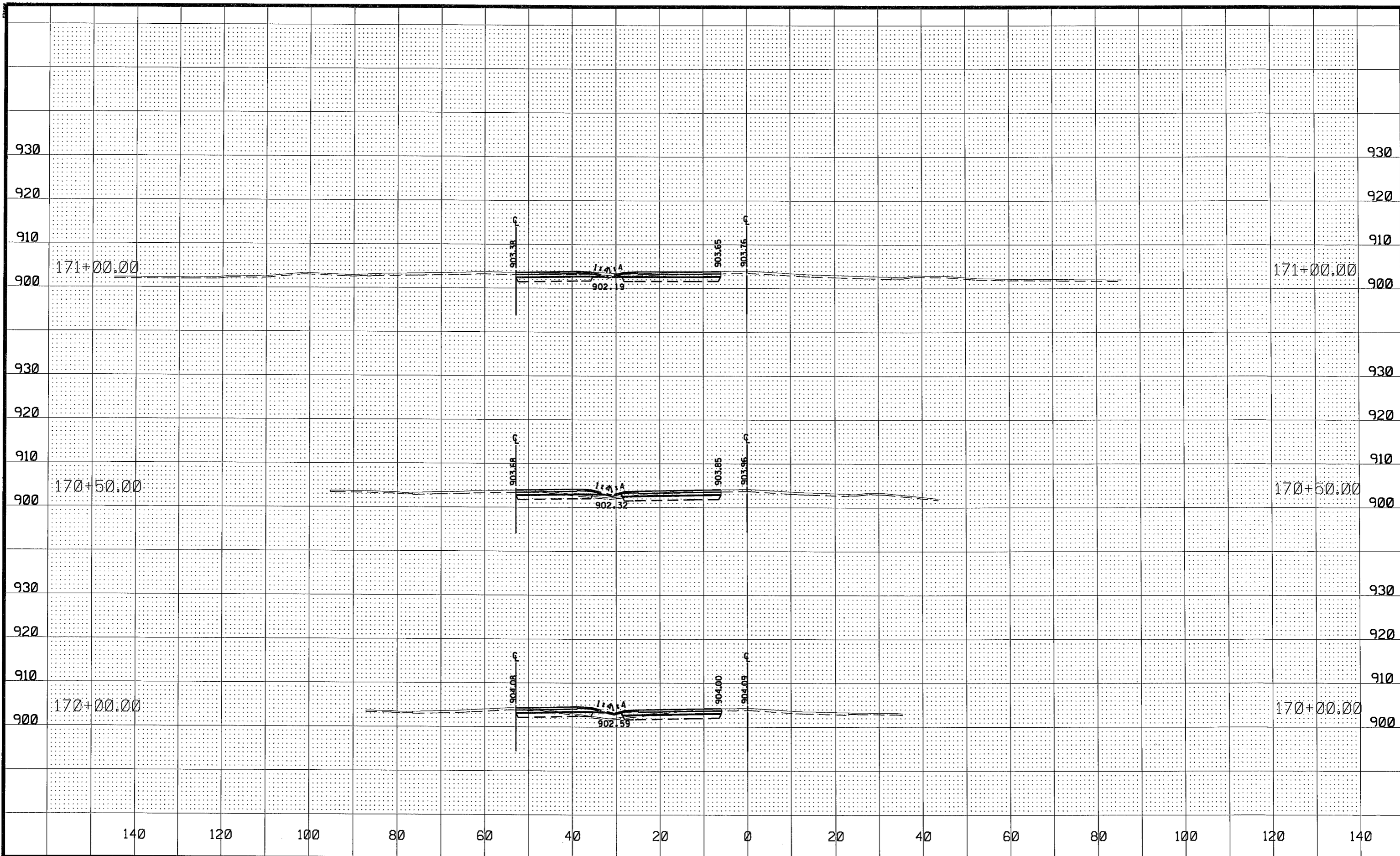
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 CHECKED BY NJD DATE 03/17/22



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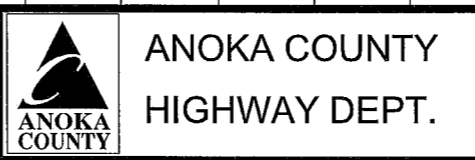
CROSS SECTIONS  
 STA 169+00.00 TO 169+95.46  
 Sheet 75 of 94 Sheets



NO	DATE	BY	CKD	APPR	REVISION

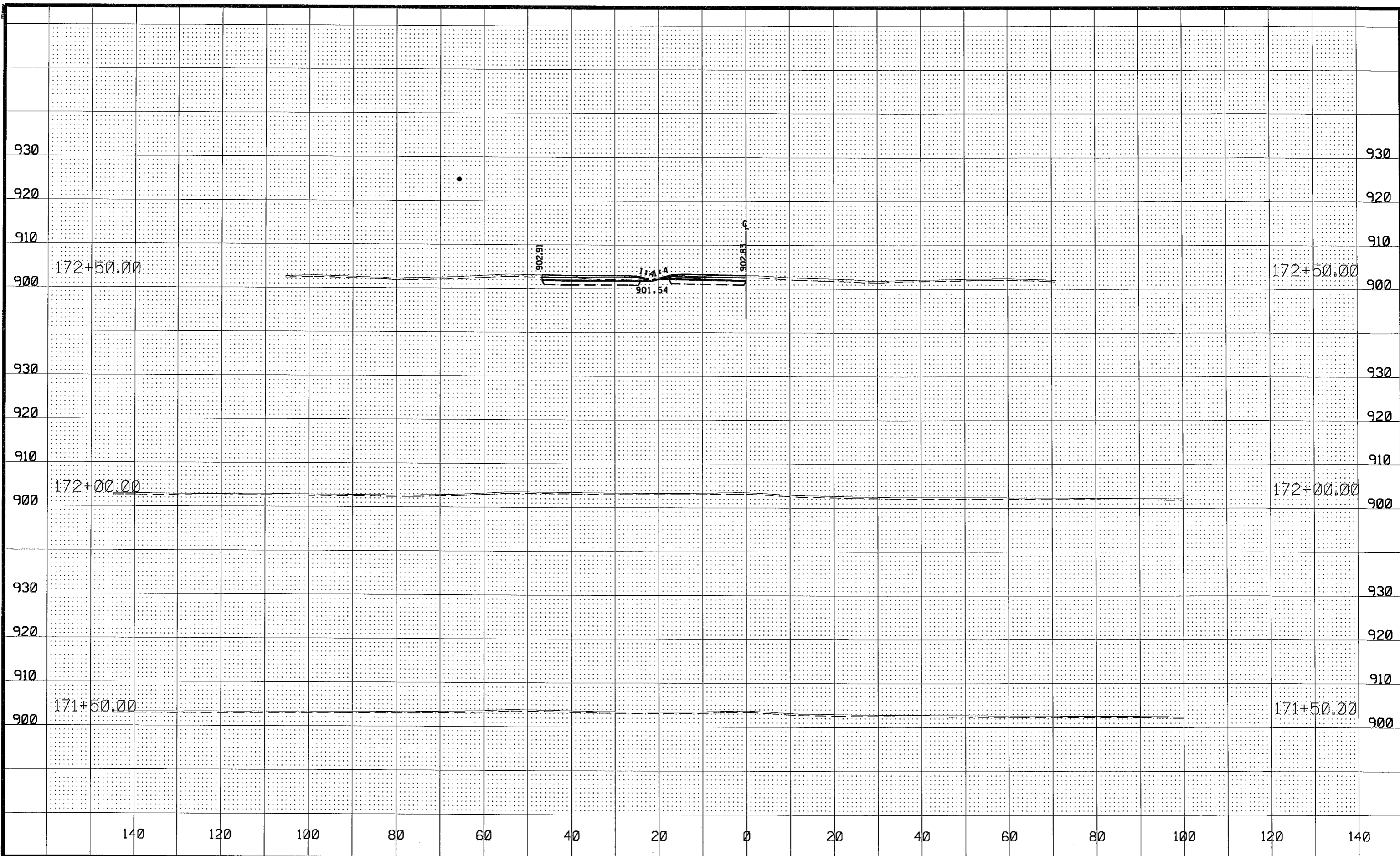
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 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



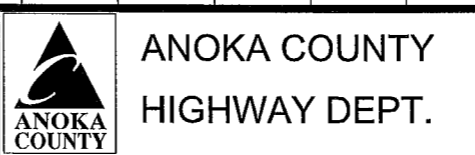
SAP 002-617-025

CROSS SECTIONS  
 STA 170+00.00 TO 171+00.00  
 Sheet 76 of 94 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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03/29/2022 7:49:27 AM					

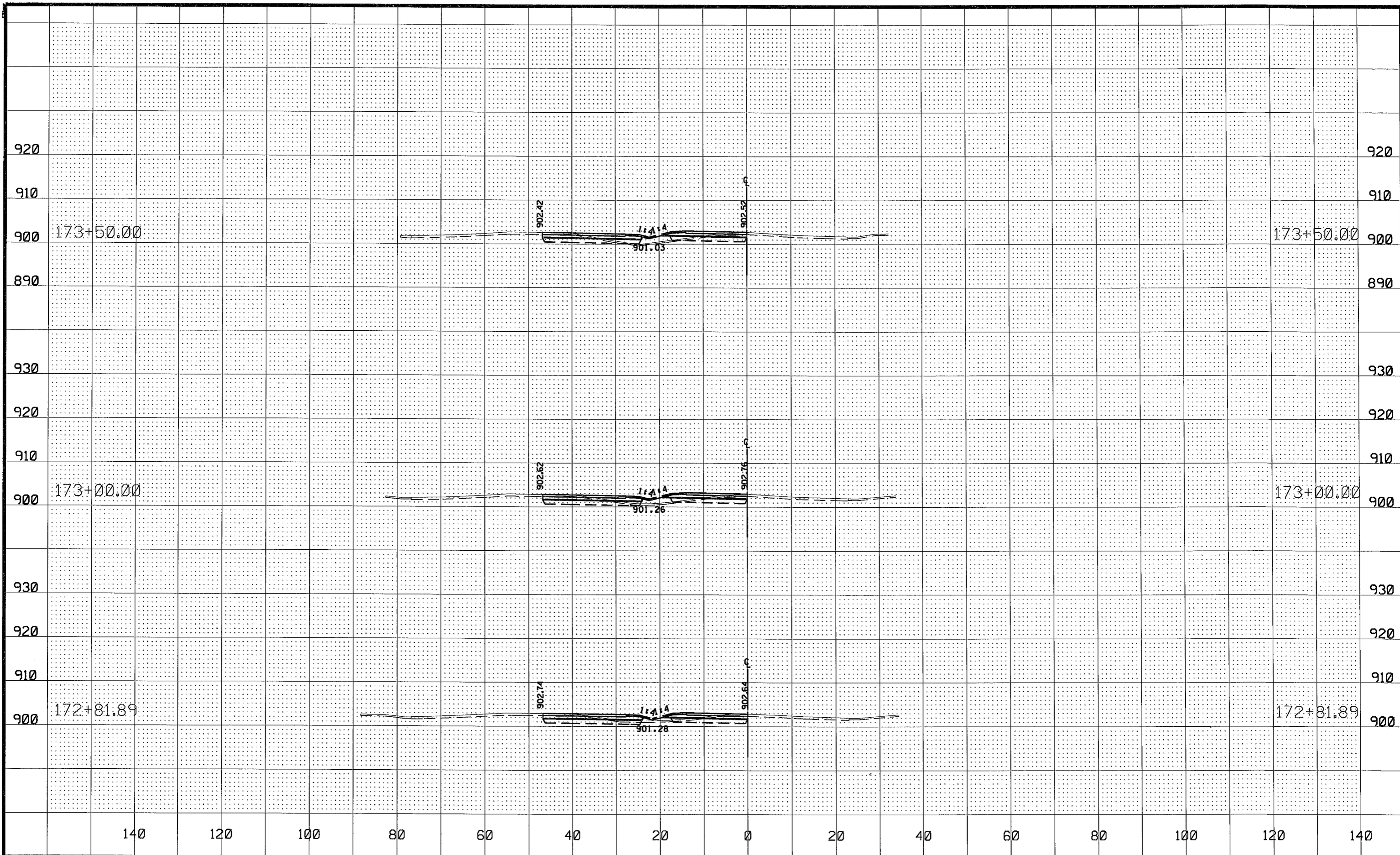

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 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



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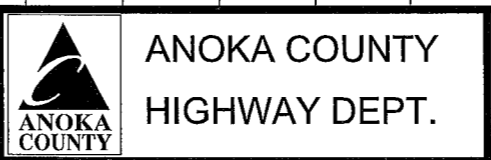
CROSS SECTIONS  
 STA 171+50.00 TO 172+50.00  
 Sheet 77 of 94 Sheets





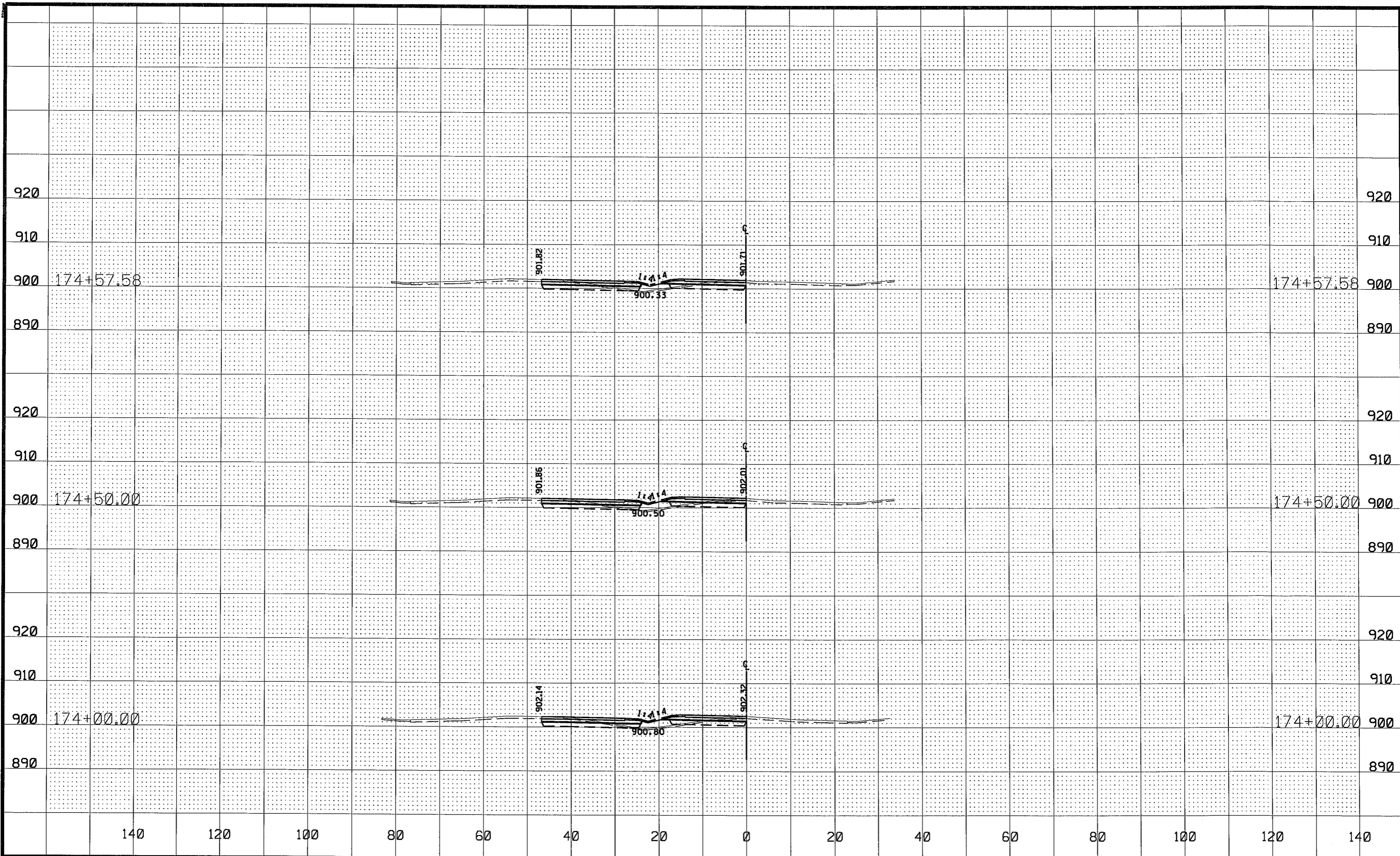
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 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



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CROSS SECTIONS  
 STA 172+81.89 TO 173+50.00  
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NO	DATE	BY	CKD	APPR	REVISION
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03/29/2022 7:49:29 AM					

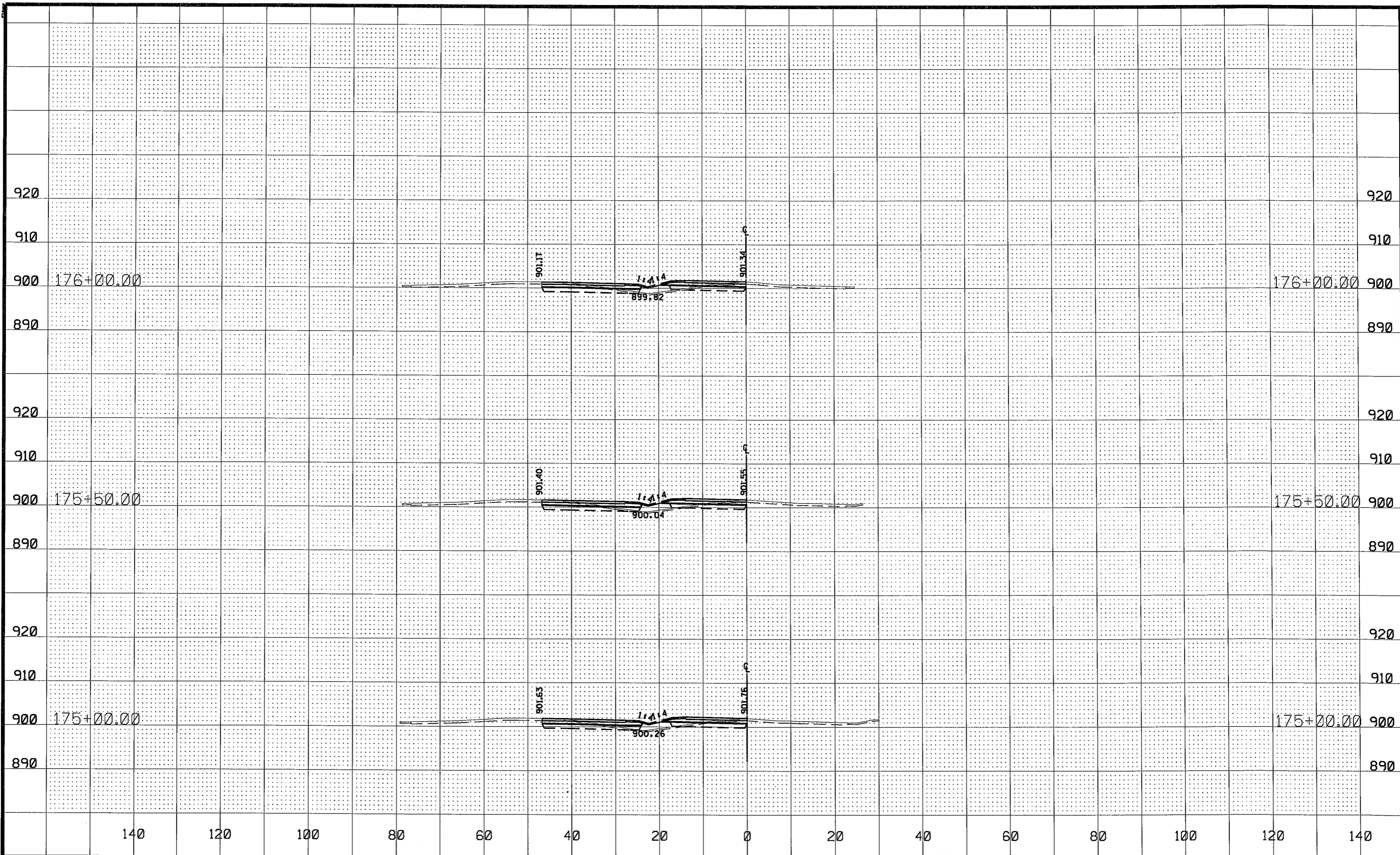
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 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



**ANOKA COUNTY**  
**HIGHWAY DEPT.**

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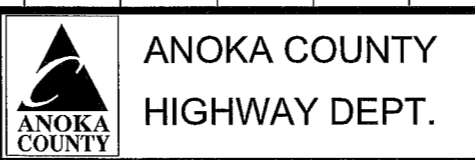
**CROSS SECTIONS**  
 STA 174+00.00 TO 174+57.58  
 Sheet 79 of 94 Sheets



NO	DATE	BY	CKD	APPR	REVISION

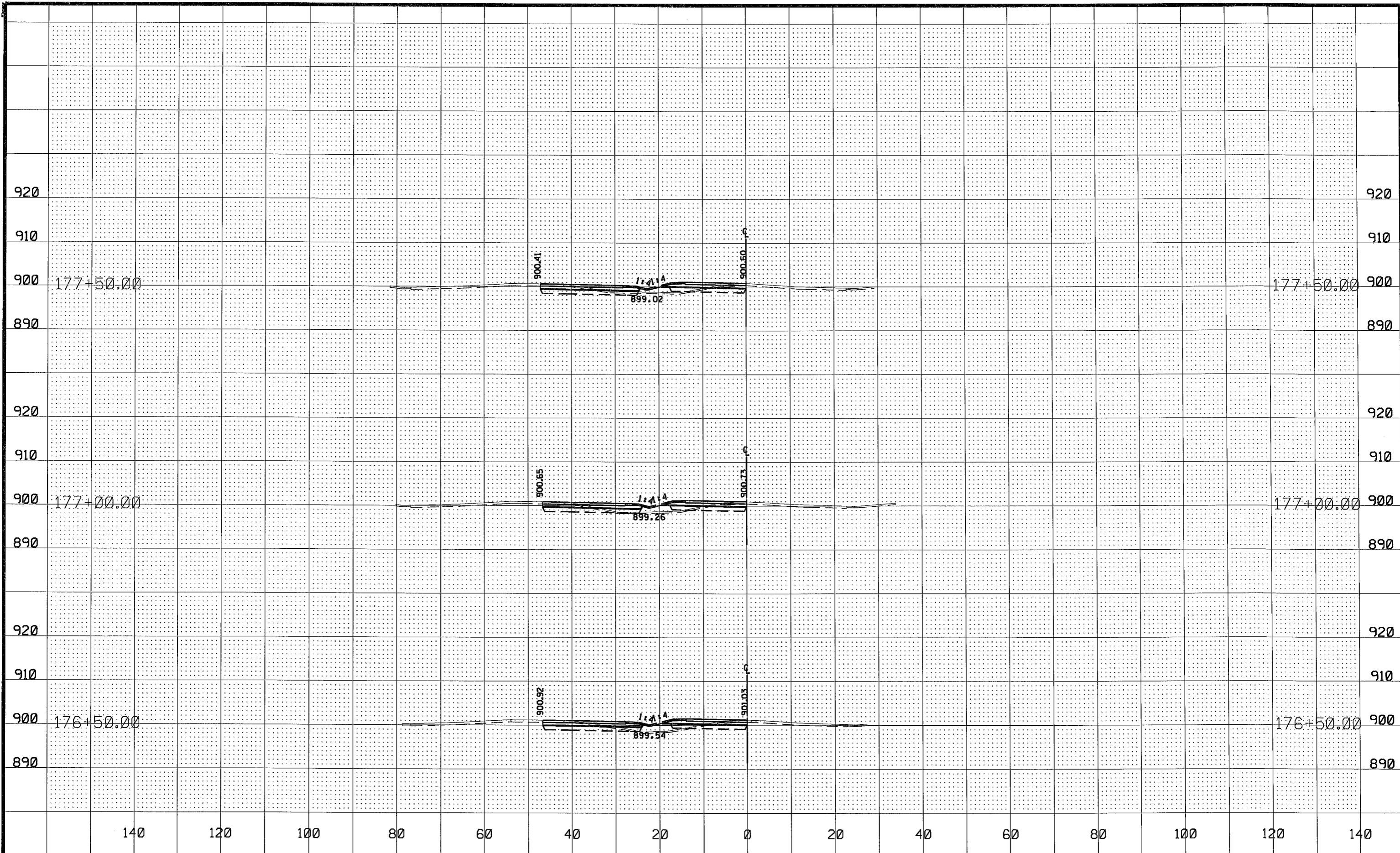
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 DESIGN BY BTU DATE 03/17/22  
 CHECKED BY NJD DATE 03/17/22



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CROSS SECTIONS  
 STA 175+00.00 TO 176+00.00  
 Sheet 80 of 94 Sheets



NO	DATE	BY	CKD	APPR	REVISION

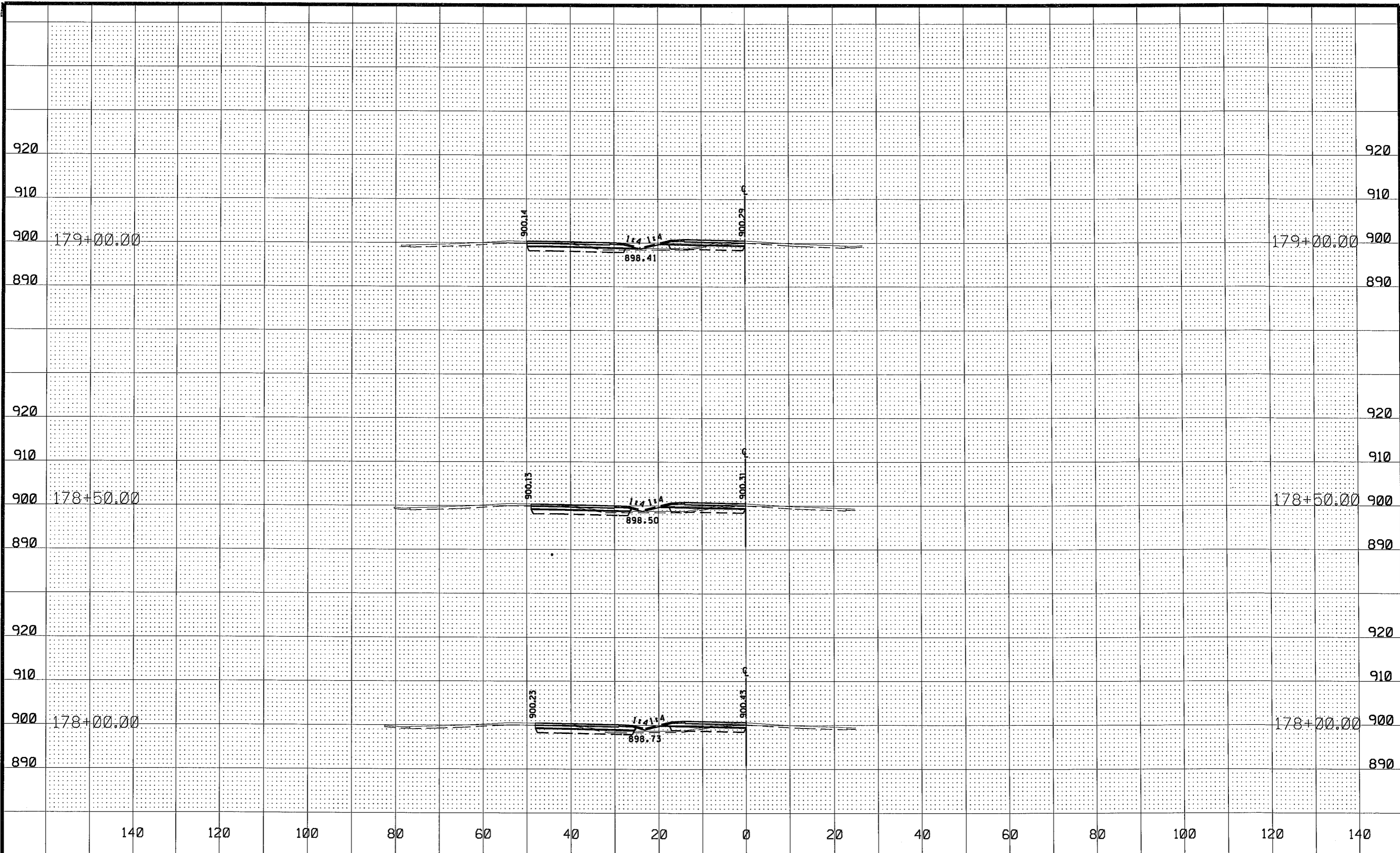
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 DESIGN BY BTU    DATE 03/17/22  
 CHECKED BY NJD    DATE 03/17/22

 **ANOKA COUNTY**  
**HIGHWAY DEPT.**

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**CROSS SECTIONS**  
 STA 176+50.00 TO 177+50.00  
 Sheet 81 of 94 Sheets

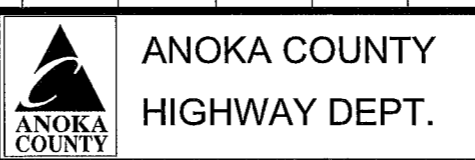


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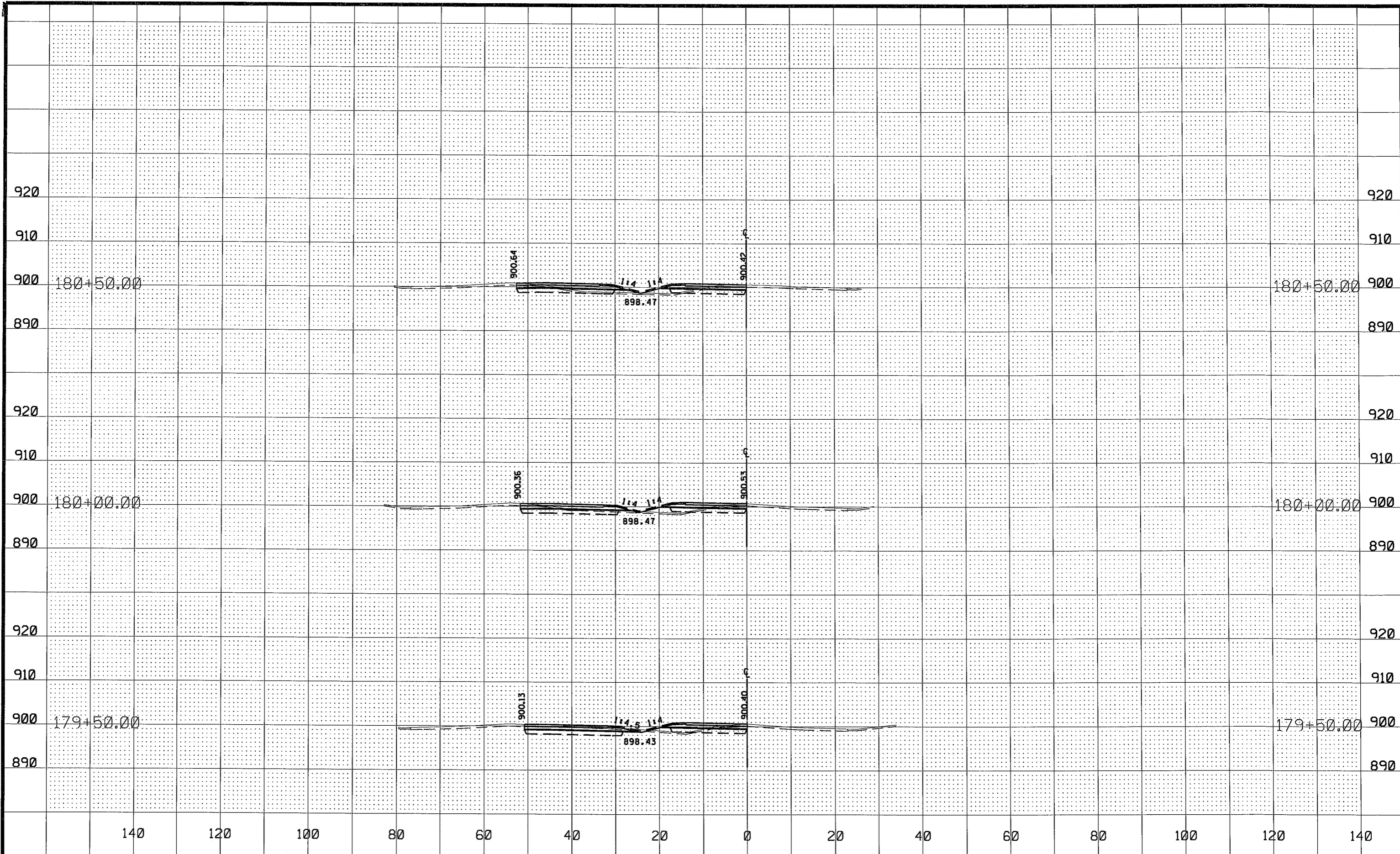
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DRAWN BY BTU    DATE 03/17/22  
 DESIGN BY BTU    DATE 03/17/22  
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SAP 002-617-025

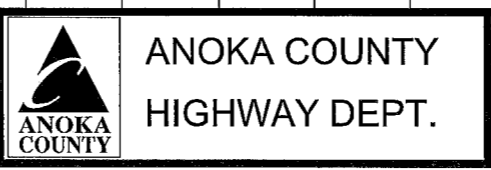
CROSS SECTIONS  
 STA 178+00.00 TO 179+00.00  
 Sheet 82 of 94 Sheets



NO	DATE	BY	CKD	APPR	REVISION

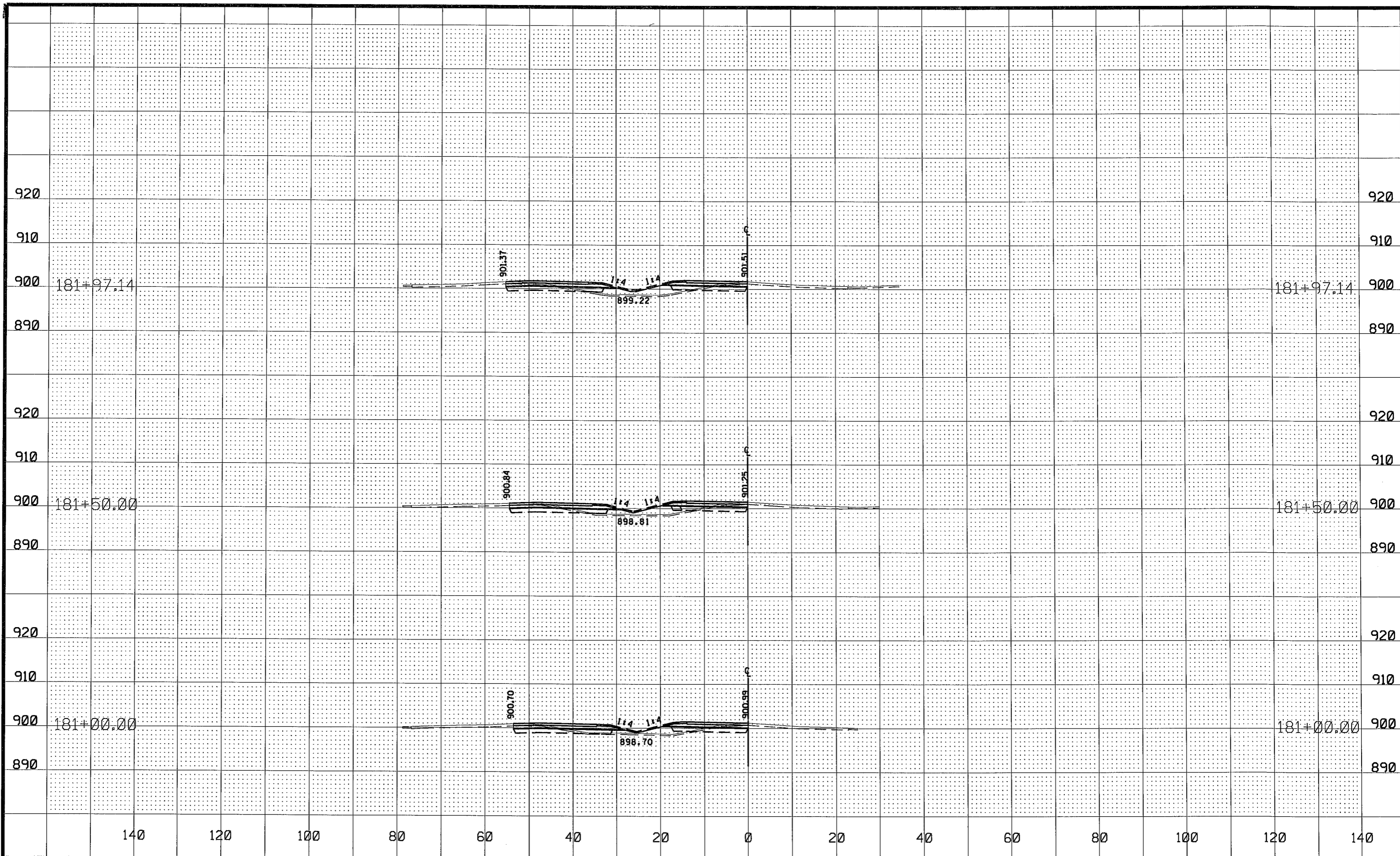
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 CHECKED BY NJD DATE 03/17/22



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CROSS SECTIONS  
 STA 179+50.00 TO 180+50.00  
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NO	DATE	BY	CKD	APPR	REVISION

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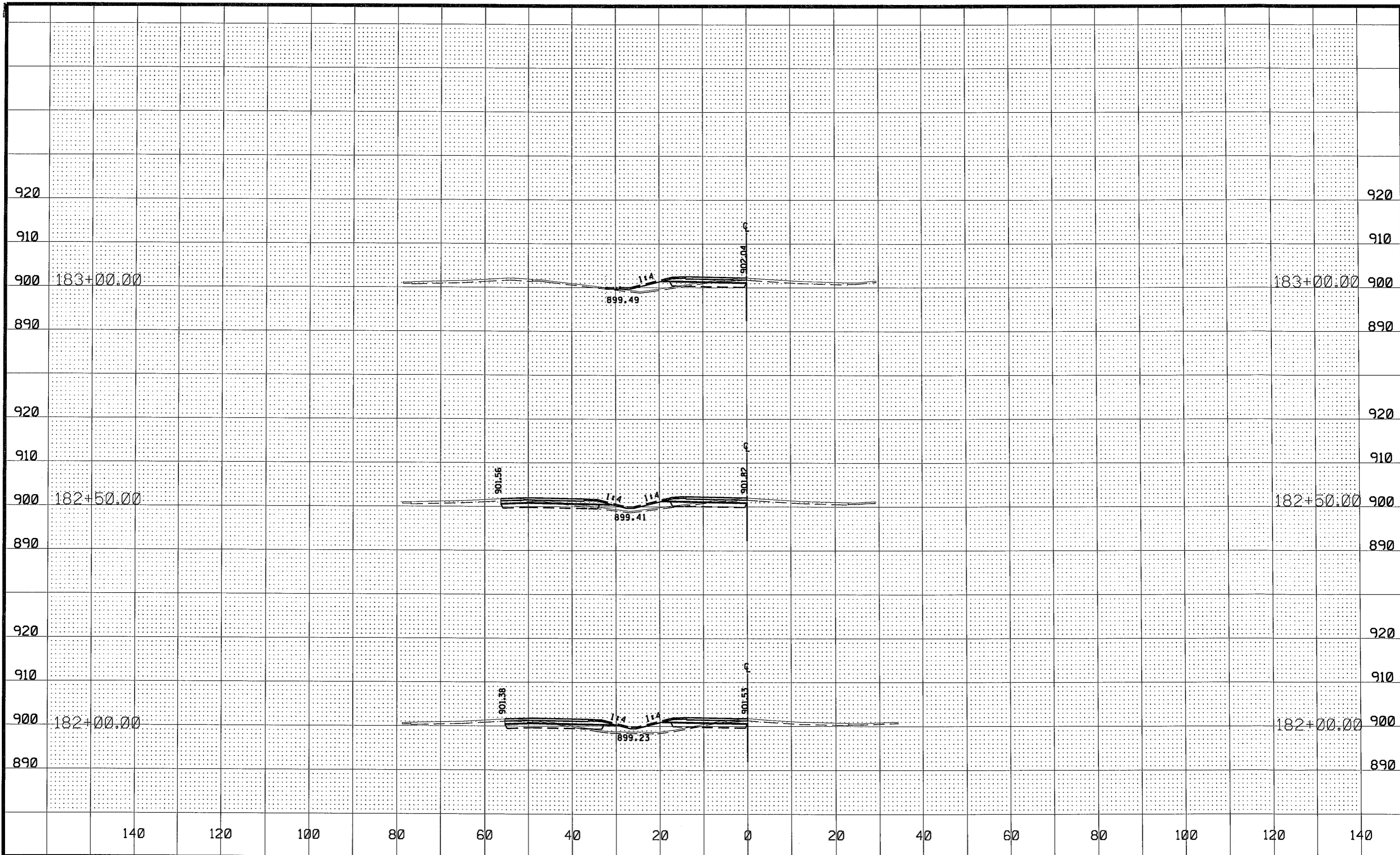
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 CHECKED BY NJD DATE 03/17/22



**ANOKA COUNTY  
HIGHWAY DEPT.**

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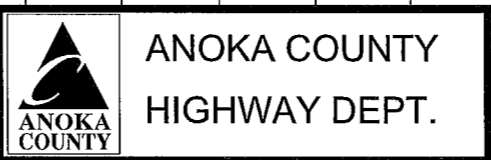
CROSS SECTIONS  
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 Sheet 84 of 94 Sheets



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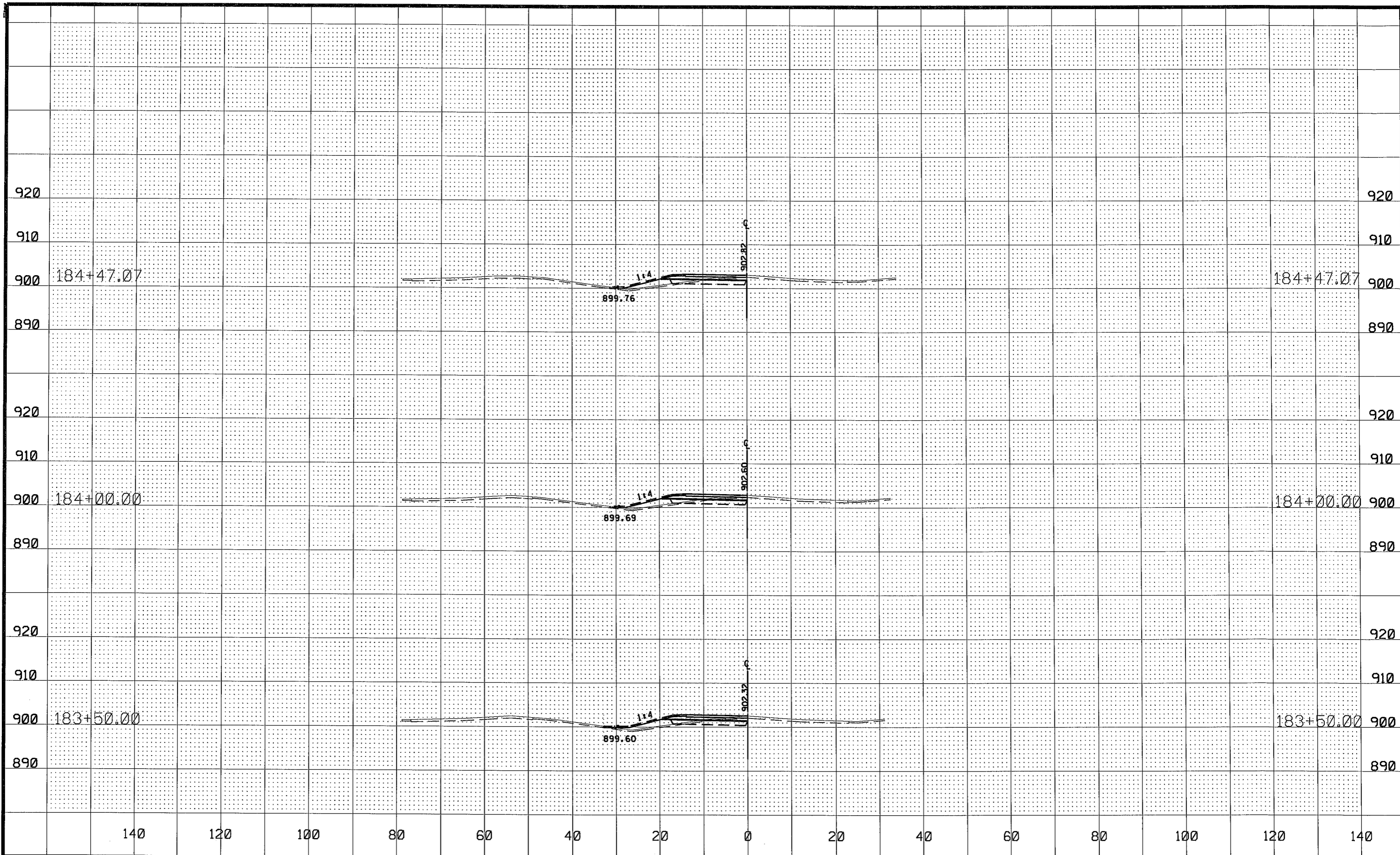
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CROSS SECTIONS  
 STA 182+00.00 TO 183+00.00  
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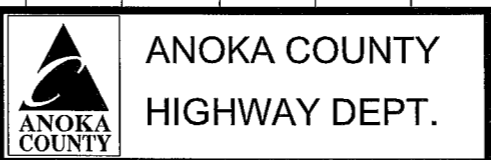


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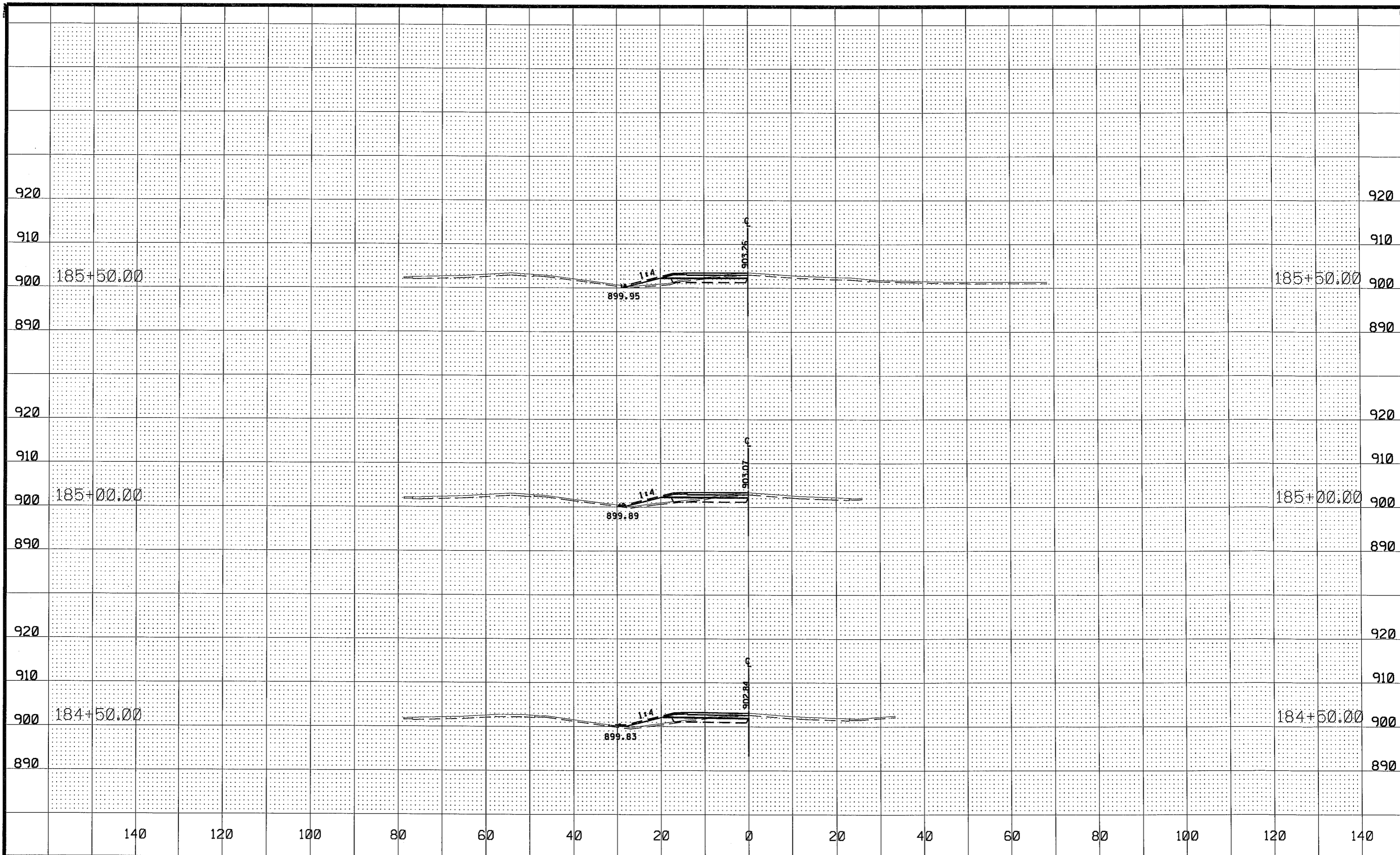
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DRAWN BY BTU    DATE 03/17/22  
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 CHECKED BY NJD    DATE 03/17/22



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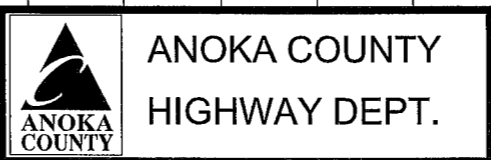
CROSS SECTIONS  
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 Sheet 86 of 94 Sheets



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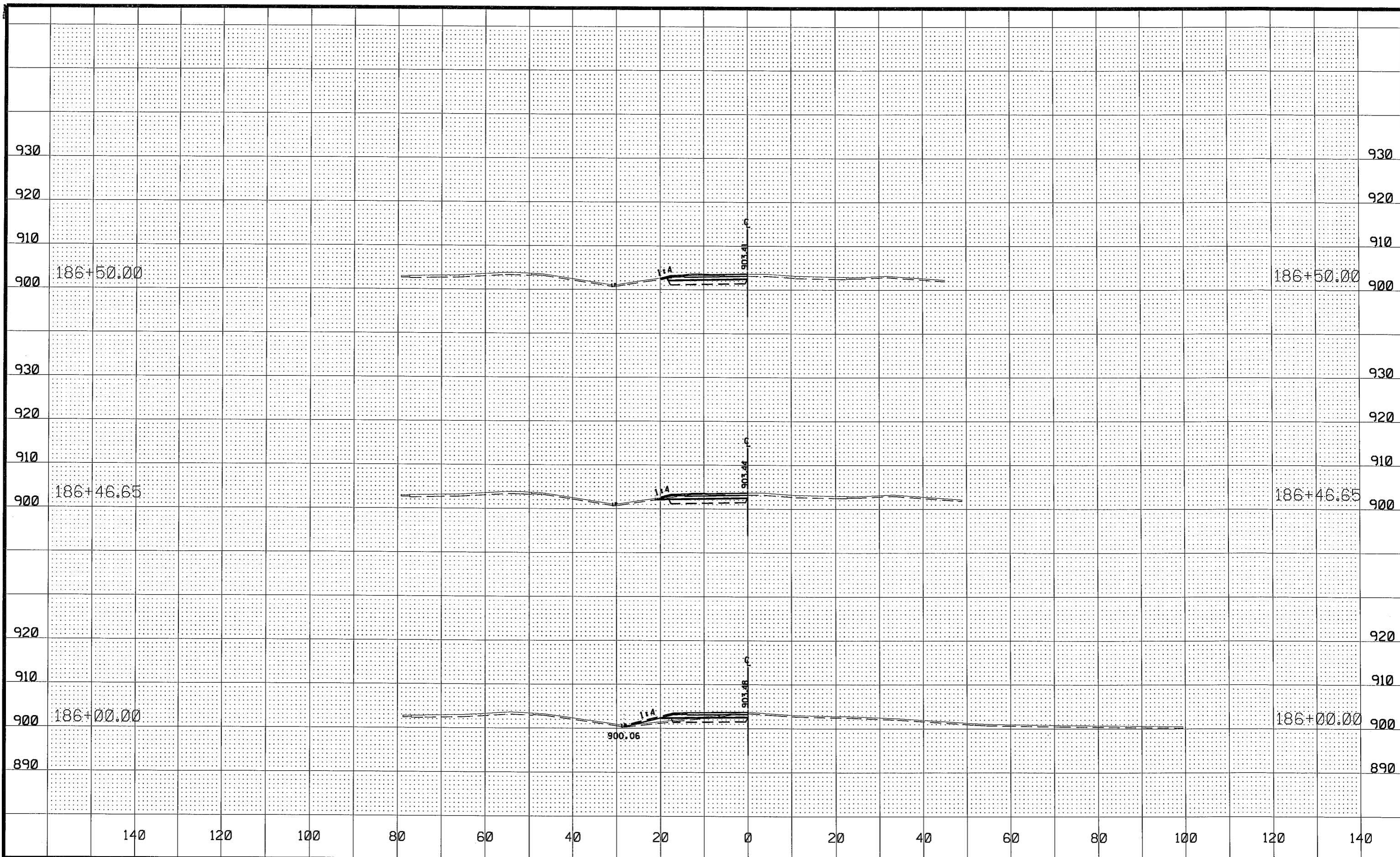
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DRAWN BY BTU DATE 03/17/22  
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 CHECKED BY NJD DATE 03/17/22



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CROSS SECTIONS  
 STA 184+50.00 TO 185+50.00  
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NO	DATE	BY	CKD	APPR	REVISION
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03/29/2022 7:49:48 AM					

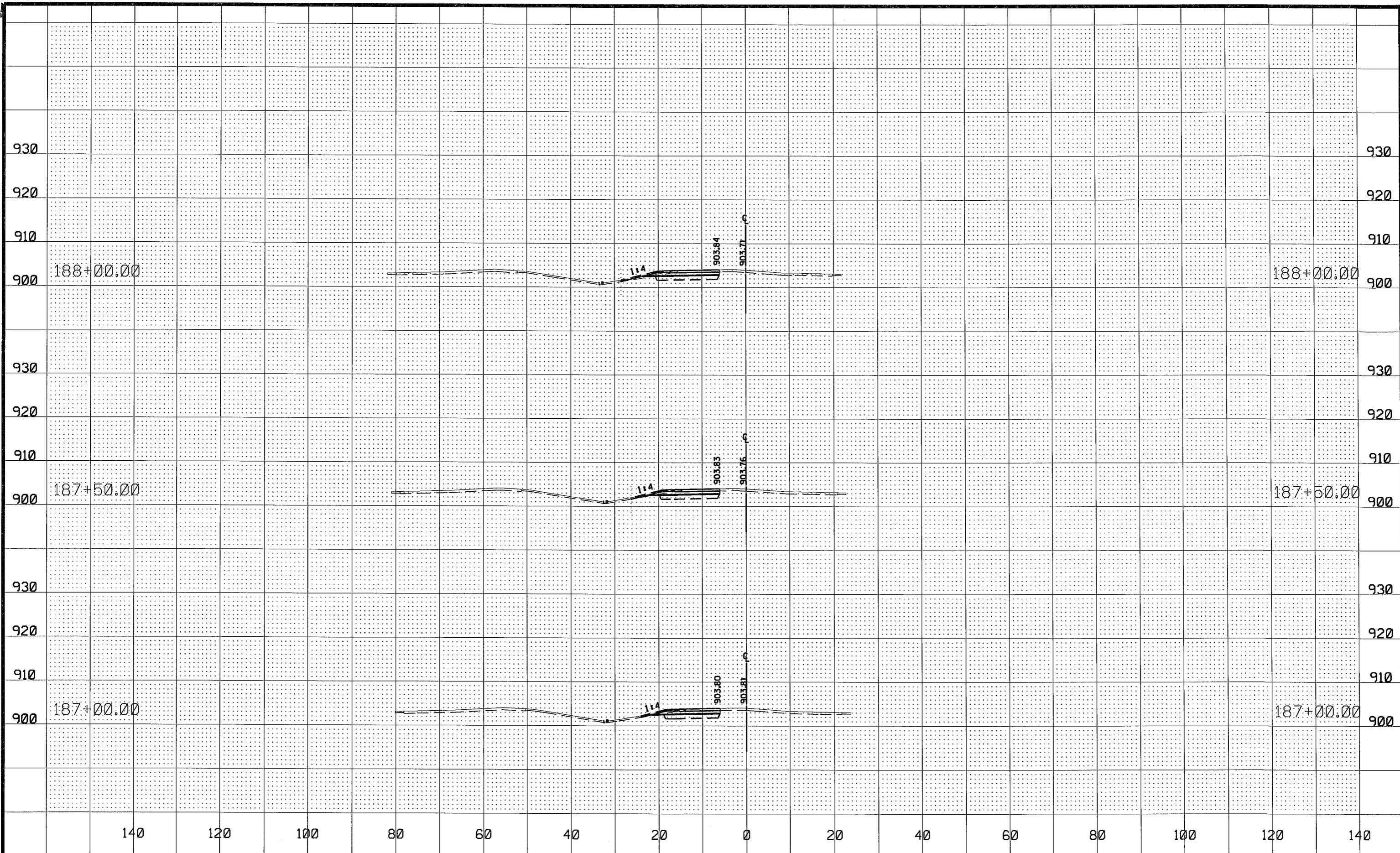
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HIGHWAY DEPT.**

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**CROSS SECTIONS**  
 STA 186+00.00 TO 186+50.00  
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NO	DATE	BY	CKD	APPR	REVISION
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03/29/2022 7:49:49 AM					

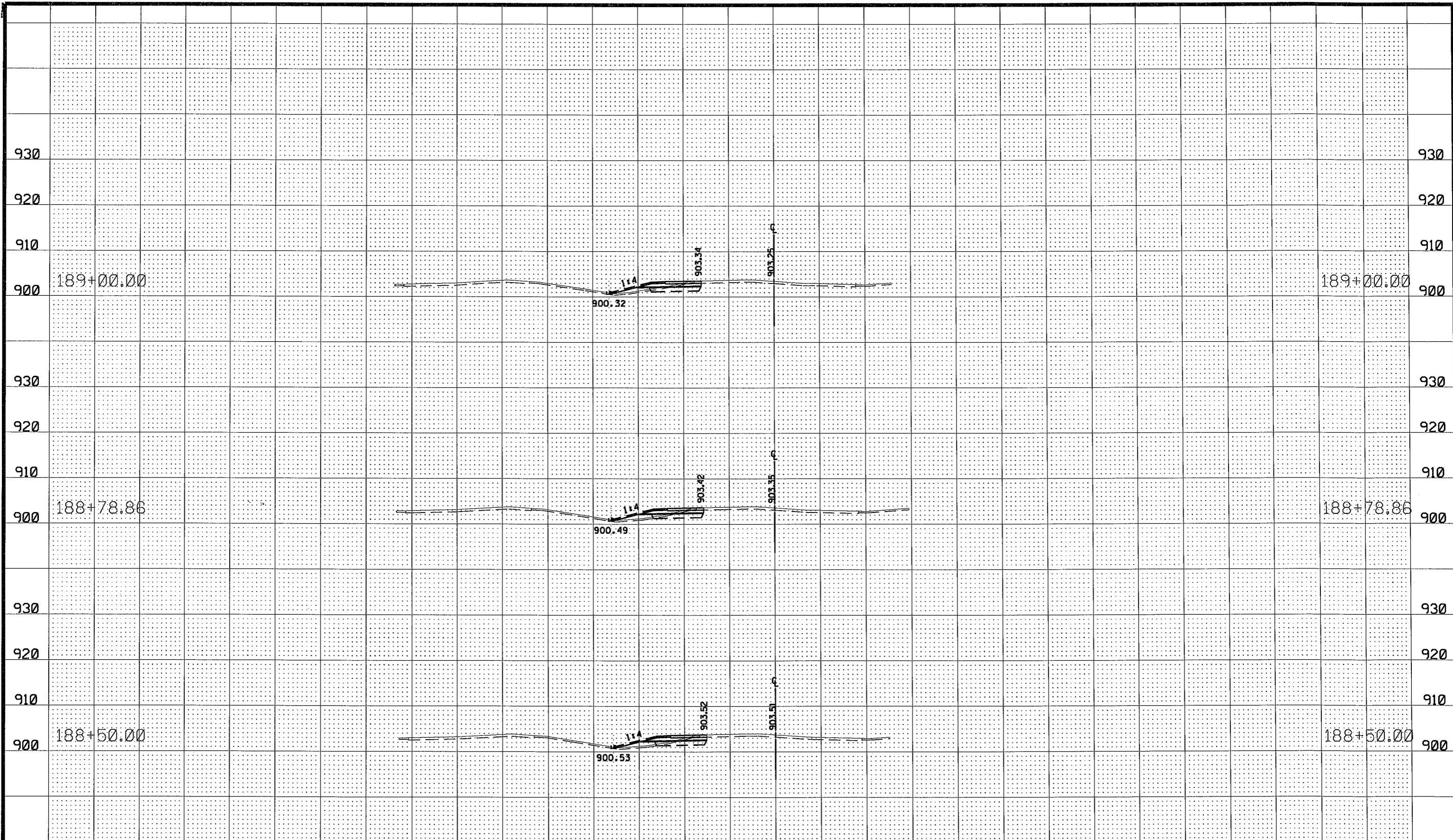
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**ANOKA COUNTY**  
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**CROSS SECTIONS**  
 STA 187+00.00 TO 188+00.00  
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140      120      100      80      60      40      20      0      20      40      60      80      100      120      140

NO	DATE	BY	CKD	APPR	REVISION

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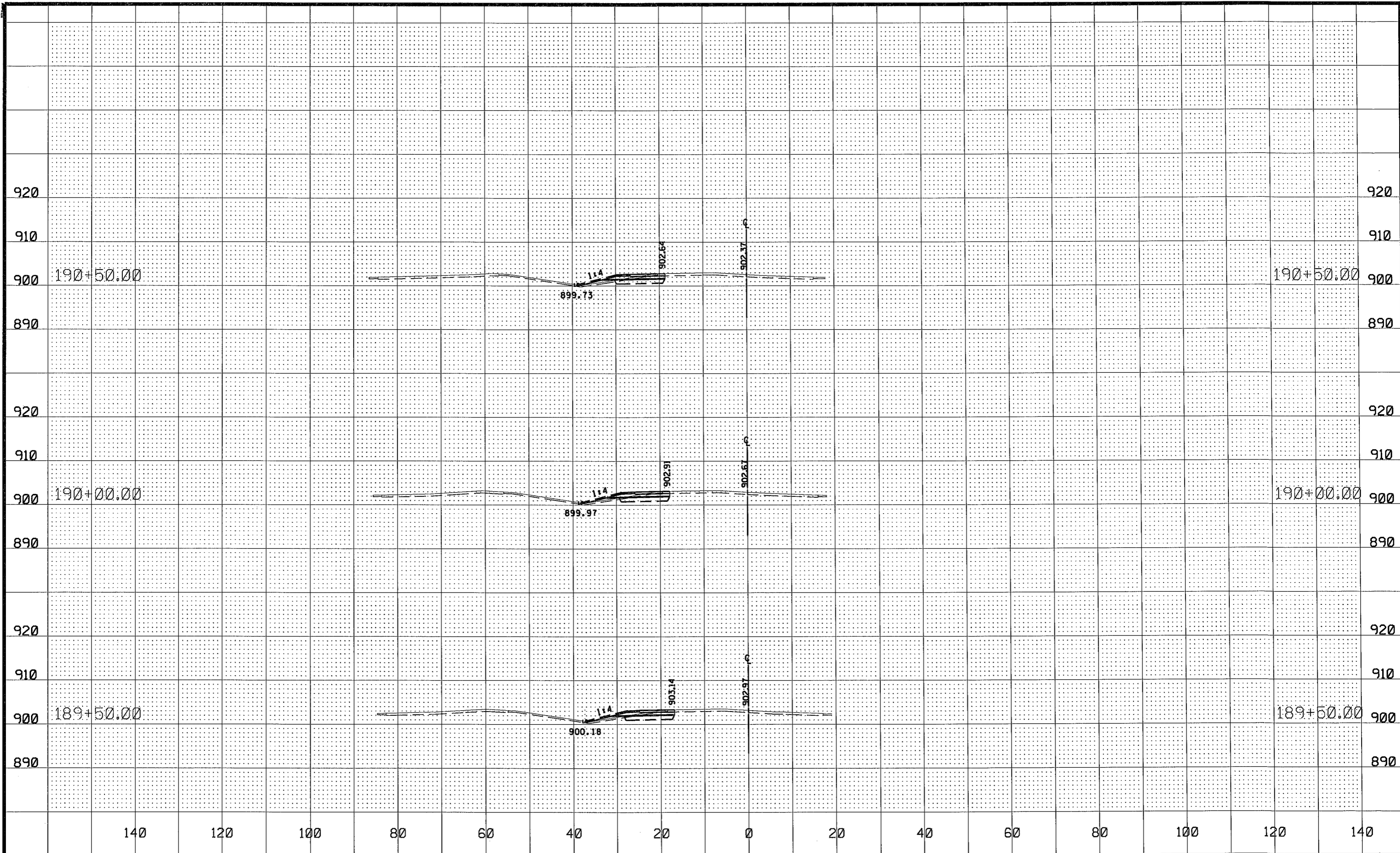
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**CROSS SECTIONS**  
 STA 188+50.00 TO 189+00.00  
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NO	DATE	BY	CHKD	APPR	REVISION
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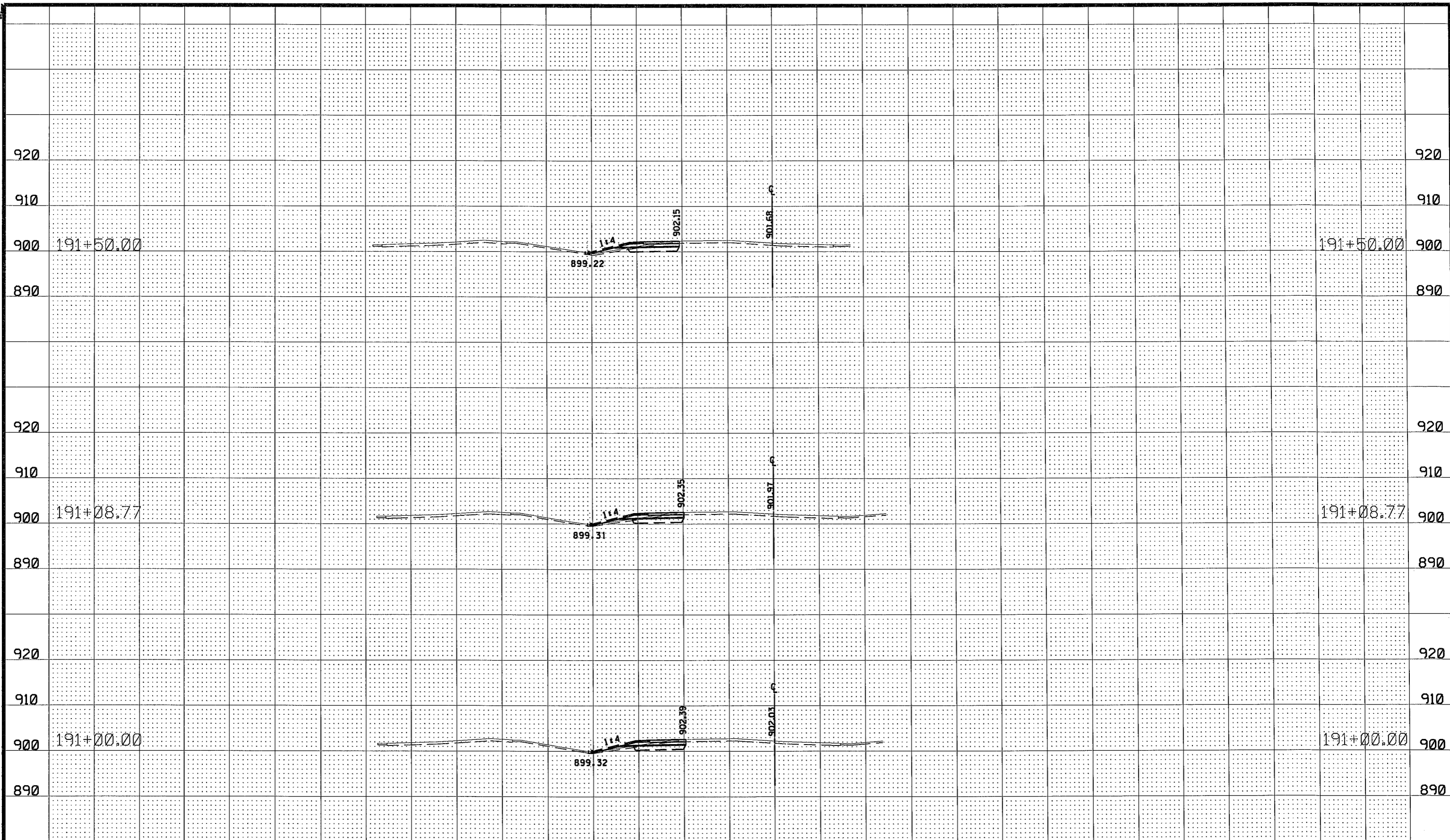
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ANOKA COUNTY  
 HIGHWAY DEPT.

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CROSS SECTIONS  
 STA 189+50.00 TO 190+50.00  
 Sheet 91 of 94 Sheets

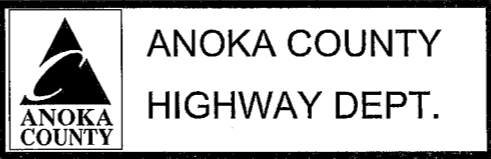


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NO	DATE	BY	CKD	APPR	REVISION

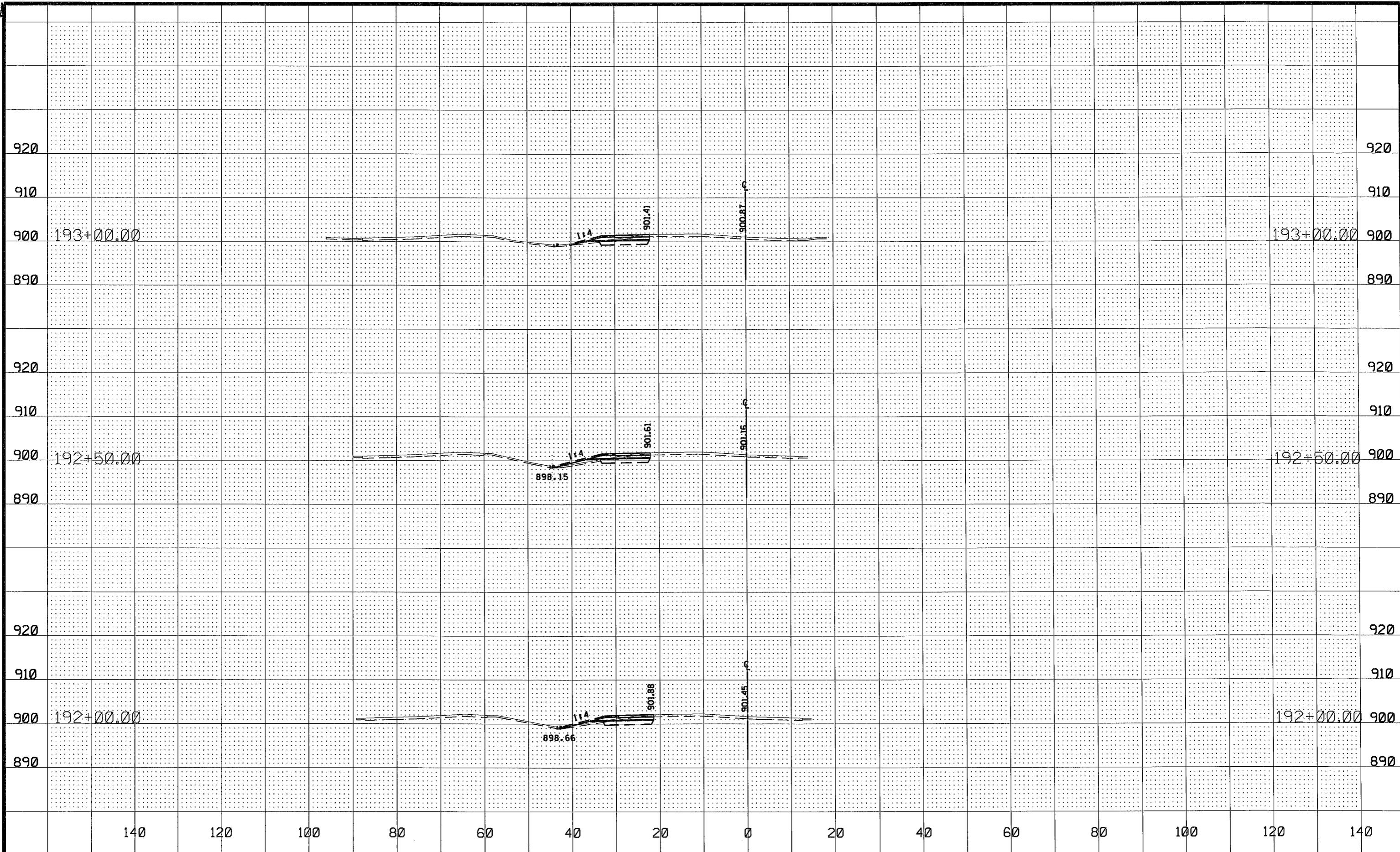
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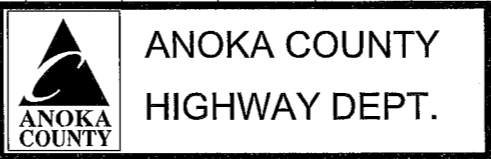
CROSS SECTIONS  
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 Sheet 92 of 94 Sheets



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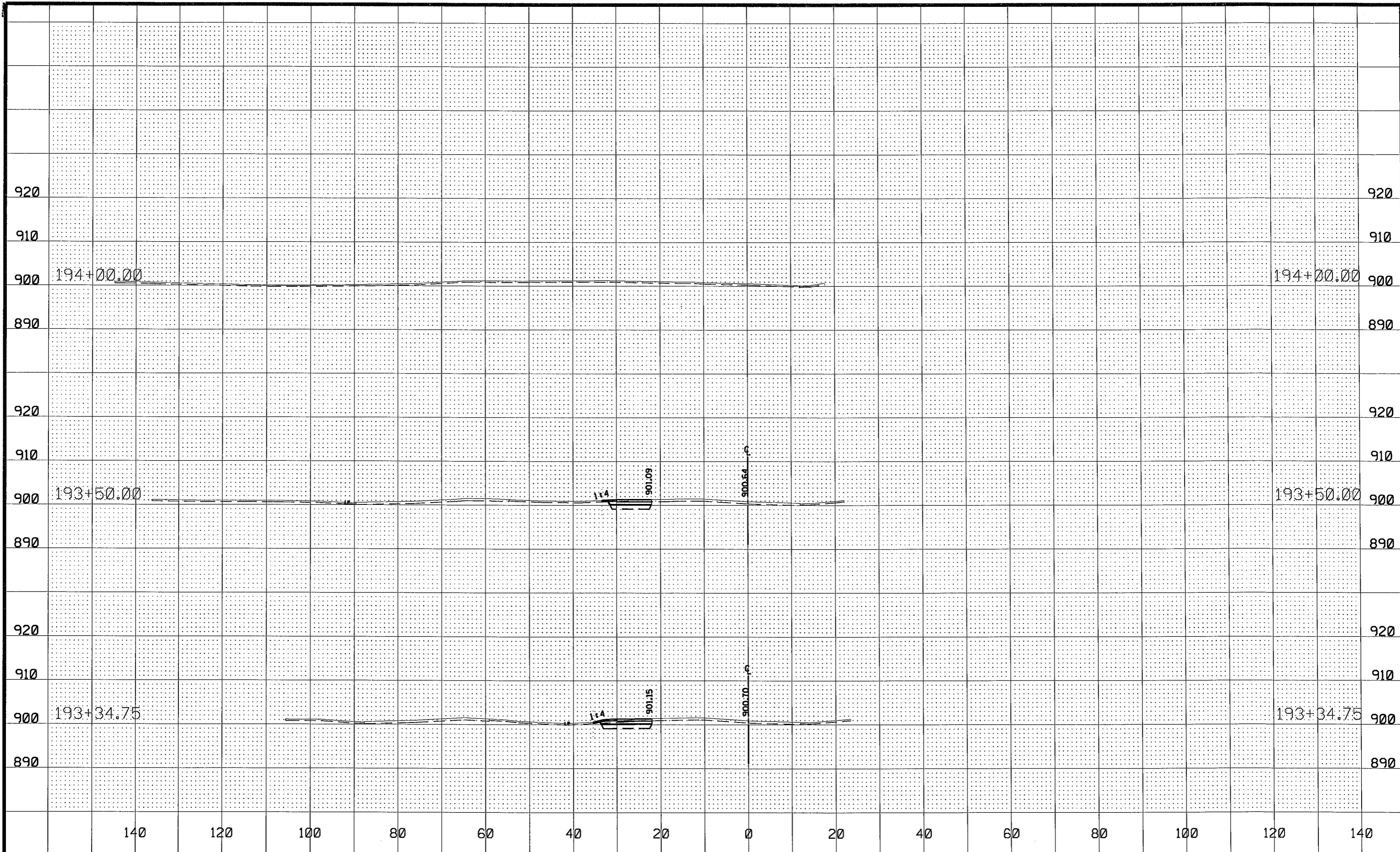
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CROSS SECTIONS  
 STA 192+00.00 TO 193+00.00  
 Sheet 93 of 94 Sheets

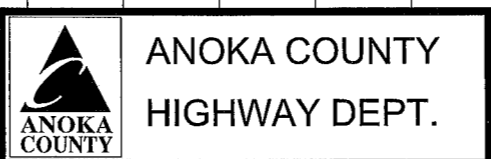




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DESIGN BY	BTU	DATE	03/17/22
CHECKED BY	NJD	DATE	03/17/22

ANOKA COUNTY  
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CROSS SECTIONS  
STA 193+34.75 TO 194+00.00  
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