

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR _____ MILL BITUMINOUS, BITUMINOUS SURFACING, CURB & GUTTER, AND SEWER REPAIRS
LOCATED ON CSAH 51 BETWEEN 250' SOUTH OF 105 TH LANE AND 240' NORTH OF 109 TH AVE

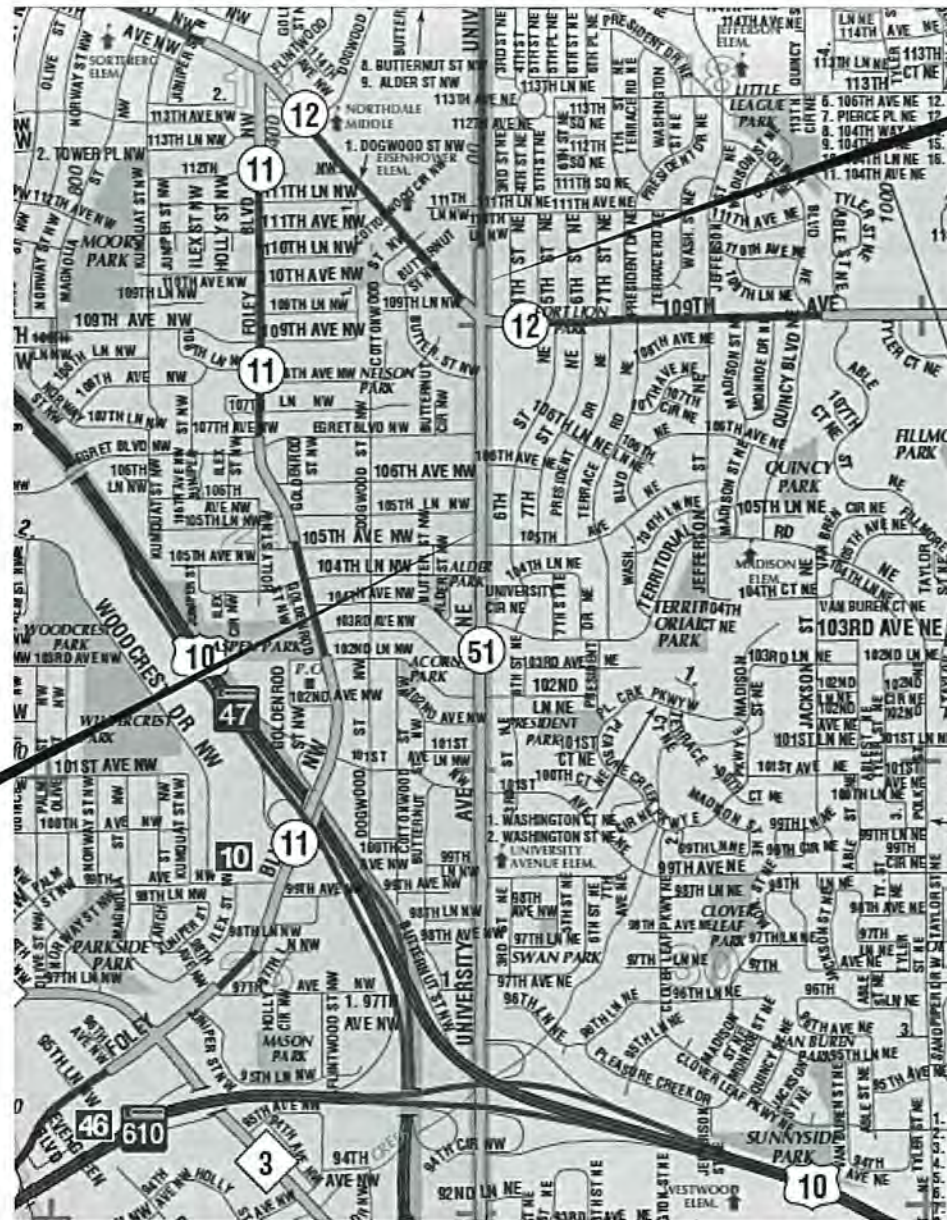
GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

THIS PLAN CONTAINS 19 SHEETS

INDEX

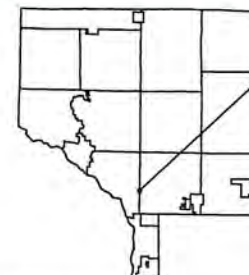
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TABULATIONS
4	TYPICAL SECTIONS
5	DETAILS
6 - 7	CONSTRUCTION PLAN
8	PERMANENT MARKING TABULATION
9 - 10	TEMPORARY SIGNING, PERMANENT SIGNING, AND STRIPING
11	TRAFFIC CONTROL QUANTITY
12 - 13	SIGNING AND STRIPING DETAILS
14 - 19	ORIGINAL SIGNAL PLANS (FOR REFERENCE ONLY)



END CP 16-12-51
CSAH 51, STA: 94+43

BEGIN CP 16-12-51
CSAH 51, STA: 66+00

PROJECT LOCATION



CITY OF COON RAPIDS AND BLAINE
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 12
TOWNSHIP 31 NORTH
RANGE 24 WEST

CSAH 51			
GROSS LENGTH	2843 FEET	0.538 MILES	
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES	
NET LENGTH	2843 FEET	0.538 MILES	
DESIGN SPEED	45 MPH		
CURRENT ADT	21533		

Approved

[Signature]
ANOKA COUNTY ENGINEER 4/11/2016

NO	DATE	BY	CKD	APPR	REVISION	TIME

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: MATTHEW J. JOHN
SIGNATURE: *[Signature]*
DATE: 4/8/2016 LICENSE NO. 51639

DRAWN BY: KPR DATE: 02/17/2016
DESIGN BY: KPR DATE: 02/17/2016
CHECKED BY: MJJ DATE: 03/29/2016



**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 16-12-51

TITLE SHEET

Sheet 1 of 19 Sheets

STATEMENT OF ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	NOTES	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE CURB & GUTTER	1,2	LIN FT	2131
2104.503	REMOVE CONCRETE WALK	2	SQ FT	1466
2104.503	REMOVE CONCRETE MEDIAN	2	SQ FT	507
2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT	2,16	SQ YD	24
2104.505	REMOVE BITUMINOUS PAVEMENT	1,3	SQ YD	260
2104.509	REMOVE CASTING	2	EACH	19
2104.509	REMOVE DRAINAGE STRUCTURE	2	EACH	3
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	2	LIN FT	296
2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	1,2	LIN FT	2583
2104.523	SALVAGE SIGN	4	EACH	6
2211.501	AGGREGATE BASE CLASS 5	5,6	TON	44
2232.501	MILL BITUMINOUS SURFACE (2.0")	7	SQ YD	25879
2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	8	SQ YD	1560
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	1372
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	9	TON	179
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (4,E)		TON	2976
2360.505	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	10	TON	119
2504.602	ADJUST GATE VALVE	11	EACH	1
2506.501	CONST DRAINAGE STRUCTURE DESIGN H	12	LIN FT	3.0
2506.501	CONST DRAINAGE STRUCTURE DESIGN 48-4020	12	LIN FT	3.7
2506.501	CONST DRAINAGE STRUCTURE DESIGN 60-4020	12	LIN FT	4.2
2506.516	CASTING ASSEMBLY	13	EACH	19
2506.602	GROUT CATCH BASIN OR MANHOLE	14	EACH	18
2521.501	4" CONCRETE WALK	15	SQ FT	462
2521.501	6" CONCRETE WALK		SQ FT	2466
2531.501	CONCRETE CURB AND GUTTER DESIGN B612		LIN FT	80
2531.501	CONCRETE CURB AND GUTTER DESIGN B618	1	LIN FT	1907
2531.507	8" CONCRETE DRIVEWAY PAVEMENT	16	SQ YD	24
2531.618	TRUNCATED DOMES		SQ FT	224
2545.602	ADJUST HANDHOLE	11	EACH	8
2550.602	LOOP DETECTOR DESIGN NMC	17	EACH	62
2563.601	TRAFFIC CONTROL (STAGE 1)	18,19,26	LUMP SUM	1
2563.601	TRAFFIC CONTROL (STAGE 2)	18,19,27	LUMP SUM	1
2563.601	TRAFFIC CONTROL (STAGE 3)	18,19,28	LUMP SUM	1
2563.610	POLICE OFFICER		HR	128
2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	20	UNIT DAY	14
2564.602	INSTALL SIGN	4	EACH	6
2565.602	RELOCATE PUSH BUTTON	11	EACH	8
2573.530	STORM DRAIN INLET PROTECTION	21	EACH	29
2574.525	COMMON TOPSOIL BORROW (LV)		CU YD	204
2575.523	EROSION CONTROL BLANKETS CATEGORY 0	22	SQ YD	941
2581.501	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	23	LN FT	490
2582.501	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	24, 25	SQ FT	2521
2582.502	4" SOLID LINE EPOXY	24	LN FT	16120
2582.502	4" BROKEN LINE EPOXY	24	LN FT	1300

MNDOT STANDARD PLATES


PLATE NUMBER	DESCRIPTION
4006L	MANHOLE OR CATCH BASIN
4020J	MANHOLE OR CATCH BASIN
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4035N	CONCRETE WALK
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE
7038A	DETECTABLE WARNING SURFACE
7100H	CONCRETE CURB AND GUTTER

CONSTRUCTION NOTES

1	INCLUDES CURB REPLACEMENT QUANTITY OF 1500 LIN FT NOT SHOWN ON THE PLAN, TO BE USED TO REPLACE SEGMENTS OF DETERIORATED CURB AS DIRECTED BY THE ENGINEER.
2	REFERENCE DETAILS (PAGE 5) FOR REMOVAL DETAILS
3	ITEM INCLUDES BITUMINOUS TRAIL
4	ITEM USED FOR SIGNS IN MEDIAN AND/OR PEDESTRIAN PRAM REPLACEMENT AREAS.
5	EXCAVATION AND DISPOSAL OF EXISTING GRADING MATERIAL IS INCIDENTAL TO AGGREGATE BASE CLASS 5.
6	ITEM TO BE USED FOR NEW CONCRETE WALK.
7	DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
8	TO BE USED FOR MILLING STREET APPROACHES AND/OR DETAIL MILLING AREAS AS IDENTIFIED IN THE PLAN. DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
9	STREET APPROACHES ARE TO BE PAVED AFTER MAINLINE PAVING BUT BEFORE FINAL STRIPING.
10	ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, AND ANY POTHOLES.
11	ITEM TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
12	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.
13	ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS.
14	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, AND CASTINGS AS REQUIRED (SEE DRAINAGE TAB, PAGE 3).
15	ITEM USED FOR CONCRETE MEDIAN.
16	CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
17	FULL LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY TO DETERMINE PLACEMENT. SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN. INCLUDES ADVANCE LOOPS ON SIDE STREETS. (OUTSIDE OF MILL AREA, NOT SHOWN)
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 PAVEMENT MARKINGS ARE NOT PRESENT.
20	2 MESSAGE BOARDS, ONE ON EACH END OF PROJECT WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
21	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
22	TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM.
23	CENTERLINE AND LANE DESIGNATION SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL PAINT STRIPING.
24	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
25	INCLUDES ALL THERMOPLASTIC STOP BARS, GORE AREA HATCHING, CROSSWALKS, LANE DESIGNATION ARROWS, AND PAVEMENT MESSAGES.
26	STAGE 1 ENCOMPASSES ALL TRAFFIC CONTROL REQUIRED FOR THE COMPLETION OF WORK ALONG THE LEFT-TURN AND LEFT-THRU LANES (INCLUDING BUT NOT LIMITED TO REPLACEMENT OF CURB, MEDIAN, AND WALK, SIGNAL LOOP DETECTOR REPLACEMENT, PATCHING, AND RESTORATION). NO PERMANENT LEFT-TURN LANE CLOSURES WILL BE ALLOWED. LEFT-TURN LANES MAY ONLY BE CLOSED DURING THOSE TIMES THAT THE SIGNAL SYSTEMS ARE IN "FLASHING OPERATION" (SEE SECTION 9.4 OF THE SPECIAL PROVISIONS FOR TIME RESTRICTIONS ON "FLASHING OPERATION" OF TRAFFIC SIGNALS). A TRAFFIC CONTROL LAYOUT/PLAN SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND APPROVAL AT LEAST 14 DAYS PRIOR TO COMMENCING WORK. ALL TRAFFIC CONTROL MUST BE COMPLIANT WITH THE MOST CURRENT REVISIONS OF BOTH THE MMUTCD AND THE MN/DOT TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL.
27	STAGE 2 ENCOMPASSES ALL TRAFFIC CONTROL REQUIRED FOR THE COMPLETION OF WORK ALONG THE RIGHT-THRU LANES, RIGHT-TURN LANES, AND SHOULDERS (INCLUDING BUT NOT LIMITED TO REPLACEMENT OF CURB, MEDIAN, AND WALK, SIGNAL LOOP DETECTOR REPLACEMENT, PATCHING, AND RESTORATION). NO PERMANENT RIGHT-TURN LANE CLOSURES WILL BE ALLOWED. RIGHT-TURN LANES MAY ONLY BE CLOSED DURING THOSE TIMES THAT THE SIGNAL SYSTEMS ARE IN "FLASHING OPERATION" (SEE SECTION 9.4 OF THE SPECIAL PROVISIONS FOR TIME RESTRICTIONS ON "FLASHING OPERATION" OF TRAFFIC SIGNALS). A TRAFFIC CONTROL LAYOUT/PLAN SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND APPROVAL AT LEAST 14 DAYS PRIOR TO COMMENCING WORK. ALL TRAFFIC CONTROL MUST BE COMPLIANT WITH THE MOST CURRENT REVISIONS OF BOTH THE MMUTCD AND THE MN/DOT TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL.
28	STAGE 3 ENCOMPASSES ALL TRAFFIC CONTROL REQUIRED FOR THE COMPLETION OF MILLING, BITUMINOUS PAVING, RESTORATION, AND ANY AND ALL REMAINING WORK THAT IS NOT INCLUDED IN STAGES 1 OR 2. A TRAFFIC CONTROL LAYOUT/PLAN SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND APPROVAL AT LEAST 14 DAYS PRIOR TO COMMENCING WORK. ALL TRAFFIC CONTROL MUST BE COMPLIANT WITH THE MOST CURRENT REVISIONS OF BOTH THE MMUTCD AND THE MN/DOT TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL.

BASIS OF PLANNED QUANTITIES

2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS

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: MATTHEW J. JOHN SIGNATURE: <i>[Signature]</i> DATE: 4/8/2016 LICENSE NO. 51639					DRAWN BY: KPR DATE: 02/17/2016 DESIGN BY: KPR DATE: 02/17/2016 CHECKED BY: MJJ DATE: 04/08/2016	 ANOKA COUNTY HIGHWAY DEPT.	STATEMENT OF ESTIMATED QUANTITIES COUNTY PROJECT 16-12-51 Sheet 2 of 19 Sheets
NO	DATE	BY	CKD	APPR	REVISION	04/08/2016	9:02:52 AM
NAME: P:\15-01-00\CSAH_51\97th-106th\Bases\PROPOSED\TEMPLATE_PLAN.dgn							

m john

STORM DRAINAGE TAB

NUMBER	TYPE	ACTION	NEW CASTING	FURNISH AND INSTALL CASTING ASSEMBLY	STRUCTURE TYPE	RING HIEGHT	REMOVE DRAINAGE STRUCTURE	GROUT CATCH BASIN OR MANHOLE	DRAINAGE STRUCTURES H	DRAINAGE STRUCTURES 48-4020	DRAINAGE STRUCTURES 60-4020	SAWING CONCRETE PAVEMENT (FULL DEPTH)	REMOVE CURB & GUTTER	CONCRETE CURB & GUTTER DESIGN B612	CONCRETE CURB & GUTTER DESIGN B618	SAWING PAVEMENT (FULL DEPTH)	REMOVE BITUMINOUS PAVEMENT	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	NOTES	
						LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ YD	TON		
131	CB	RE-RING	R-3030	1		1.2						6	10			14	2	1		
132	CB	GROUT STRUCTURE						1												
133	MH/SAN	RE-RING	A-7D	1		0.7										32	7	2		
134	CB	RECONSTRUCT	R-3030	1	48-4020		1			3.7		6	10		10	14	2	1		
135	CB	OK																		
136	CB	RE-RING / GROUT STRUCTURE	R-3250-1	1		0.9		1				6	10	10		14	2	1		
137	MH	RE-RING / GROUT STRUCTURE	A-7D	1		0.4		1								32	7	2		
138	CB	RECONSTRUCT	R-3030	1	H		1		3.0			6	10		10	14	2	1		
139	MH	RE-RING	A-7D	1		0.7										32	7	2		
140	CB	RE-RING	R-3030	1		1.3						6	10		10	14	2	1		
141	CB	GROUT STRUCTURE						1												
141A	MH/SAN	GROUT STRUCTURE						1												
142	CB	RE-RING / GROUT STRUCTURE	R-3250-1	1		0.4		1				6	10	10		14	2	1		
143	CB	OK																		
144	CB	GROUT STRUCTURE						1												
145	MH	RECONSTRUCT	A-7D	1	60-4020		1			4.2						32	7	2		
146	CB	OK																		
147	CB	OK																		
148	MH	OK																		
149	CB	RE-RING	R-3030	1		1.1						6	10		10	14	2	1		
150	MH	OK																		
151	CB	GROUT STRUCTURE						1												
152	CB	RE-RING	R-3250-1	1		0.6						6	10	10		14	2	1		
401	MH	RE-RING / GROUT STRUCTURE	A-7D	1		0.3		1								32	7	2		
403	CB	OK																		
404	CB/MH	OK																		
405	CB	OK																		
406	CB	GROUT STRUCTURE						1												
407	CB	RE-RING / GROUT STRUCTURE	R-3250-1	1		0.8		1				6	10	10		14	2	1		
408	CB	RE-RING / GROUT STRUCTURE	R-3250-1	1		1.0		1				6	10	10		14	2	1		
409	CB	GROUT STRUCTURE						1												
410	CB	GROUT STRUCTURE						1												
411	CB	GROUT STRUCTURE						1												
412	CB	RE-RING	R-3250-1	1		1.2						6	10	10		14	2	1		
413	MH	OK																		
414	CB	GROUT STRUCTURE						1												
415	CB	GROUT STRUCTURE						1												
416	CB	RE-RING	R-3250-1	1		1.2						6	10	10		14	2	1		
417	CB	RE-RING / GROUT STRUCTURE	R-3250-1	1		1.0		1				6	10	10		14	2	1		
418	CB	RE-RING	R-3030	1		1.0						6	10		10	14	2	1		
TOTALS				19			3	18	3.0	3.7	4.2	84	140	80	60	356	63	24		

CASTING ASSEMBLIES SUMMARY

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	PLATE	QUANTITY	DESCRIPTION	NOTES
A-7D	700-7	716			4	STD. PLATE: 4101D, 4110F	CASTING COVER STAMPED "STORM SEWER"
A-7D	700-7	716			1	STD. PLATE: 4101D, 4110F	CASTING COVER STAMPED "STORM SANITARY"
NEENAH*	R-3250-1		YES		8		
NEENAH*	R-3030	L	YES	1	6		PLATE AT STR. 138
*OR APPROVED EQUAL							
ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD.							
ALL MANHOLE COVERS SHALL BE STAMPED AS STORM SEWER OR SANITARY SEWER.							

NO	DATE	BY	CKD	APPR	REVISION	
	03/29/2016					8:02:55 AM

NAME: P:\15-01-00\CSAH_51(97th-105th)\Base\PROPOSED\TEMPLATE_PLAN.dgn

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**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 16-12-51

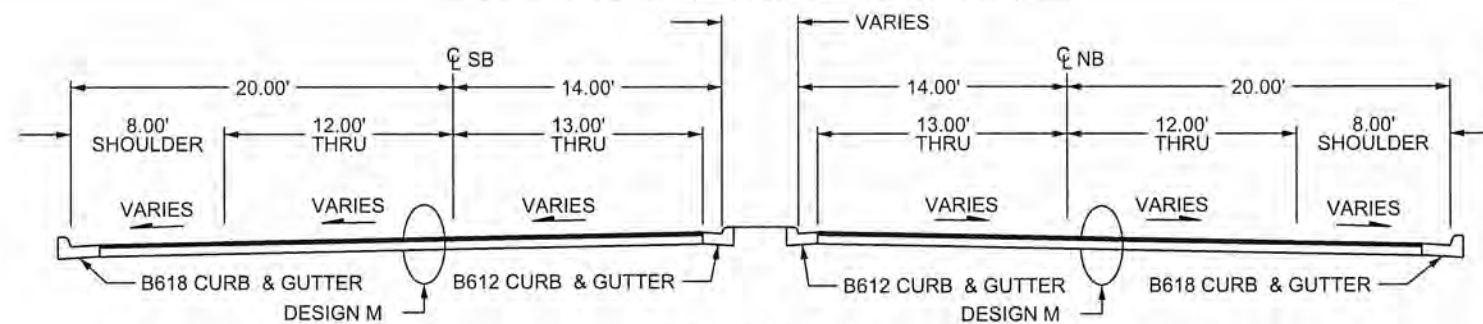
TABLICATIONS
Sheet 3 of 19 Sheets

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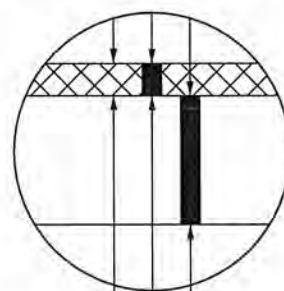
UNIVERSITY AVE (CSAH 51)

TYPICAL MAINLINE

66+00 - 94+43 (TURN LANES EXEMPT)



DESIGN M MILL SECTION



2.0" MILL BITUMINOUS
2.0" BITUMINOUS WEAR (SPWEB440E)
REMAINING BITUMINOUS

RIGHT TURN LANE

66+00 - 75+50
78+10 - 81+10
84+50 - 87+50
92+10 - 94+43

UNIVERSITY AVE (CSAH 51) TYPICAL LSB TURN LANES

LEFT TURN LANE

66+00 - 67+80
78+10 - 81+10
92+10 - 94+43

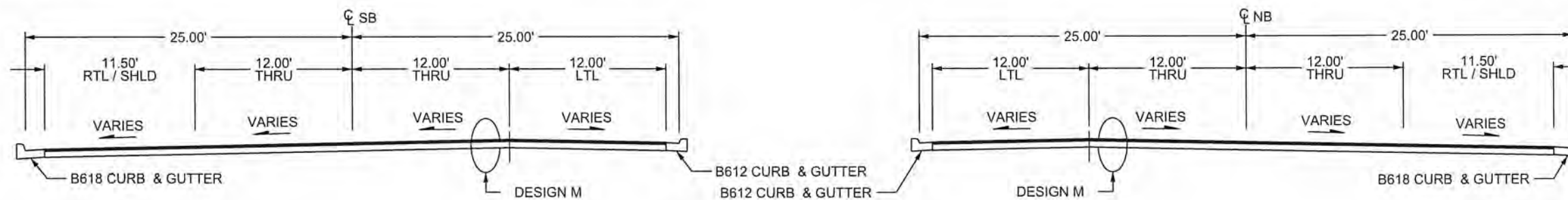
LEFT TURN LANE

74+00 - 77+80
88+00 - 91+00

UNIVERSITY AVE (CSAH 51) TYPICAL LNB TURN LANES

RIGHT TURN LANE

66+00 - 68+30
71+00 - 77+50
81+20 - 84+00
87+60 - 91+00



NO	DATE	BY	CKD	APPR	REVISION	03/29/2016	8:02:59 AM

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ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-12-51

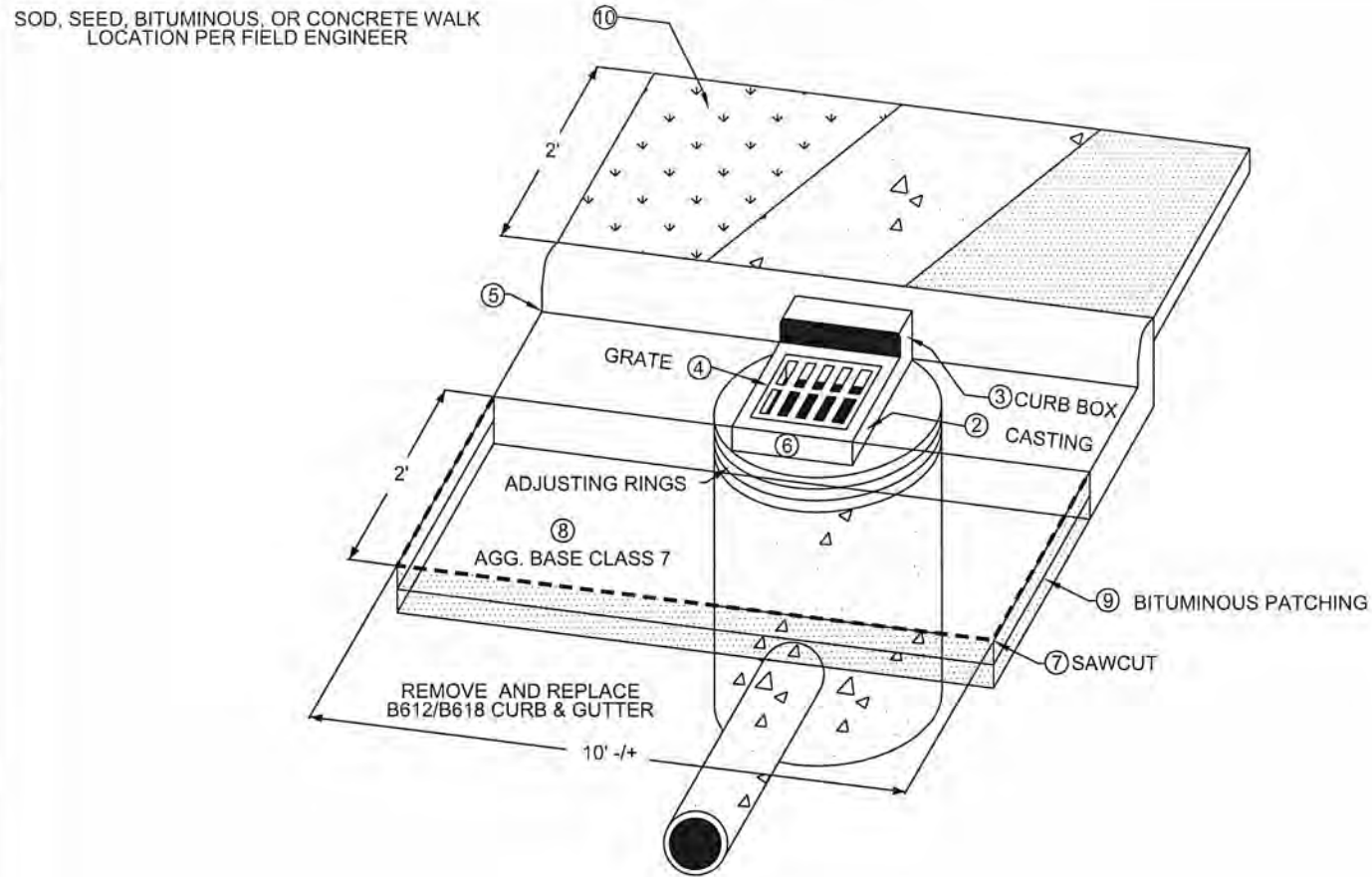
TYPICAL SECTIONS

Sheet 4 of 19 Sheets

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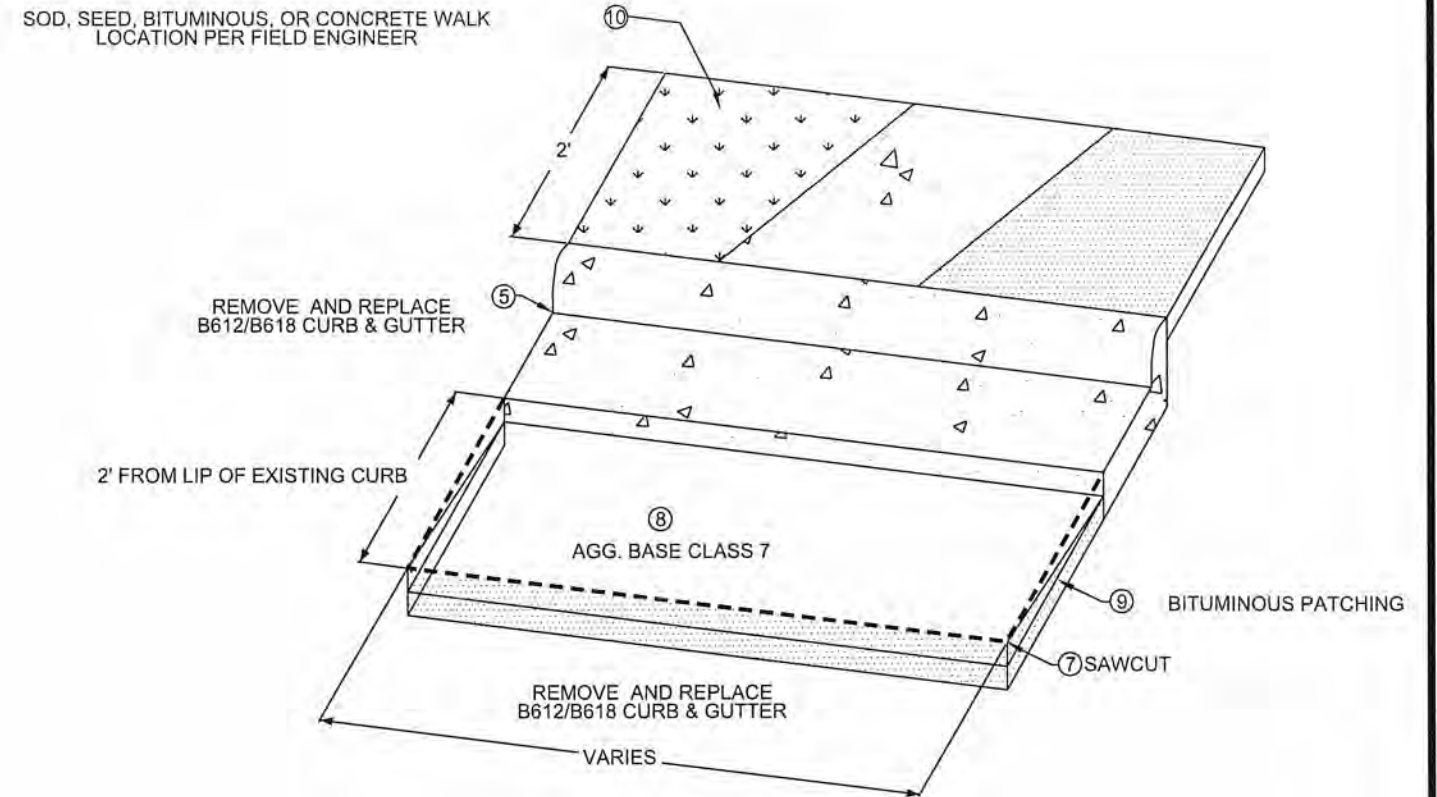
CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION
(PAGE 3)



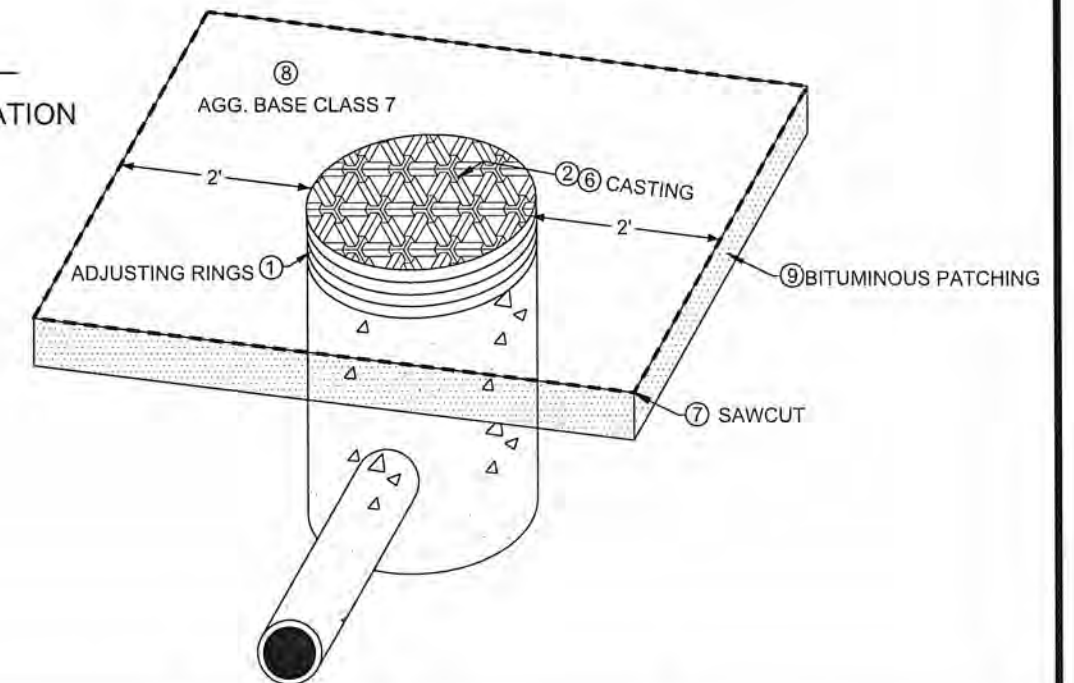
NEW CURB DETAIL

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 7100G
- 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 7 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), EROSION CONTROL BLANKET, BITUMINOUS, OR CONCRETE

NO	DATE	BY	CKD	APPR	REVISION	03/29/2016	8:03:02 AM
NAME: P:\15-01-00\CSAH_51(97th-105th)\Base\PROPOSED\TEMPLATE_PLAN.dgn							

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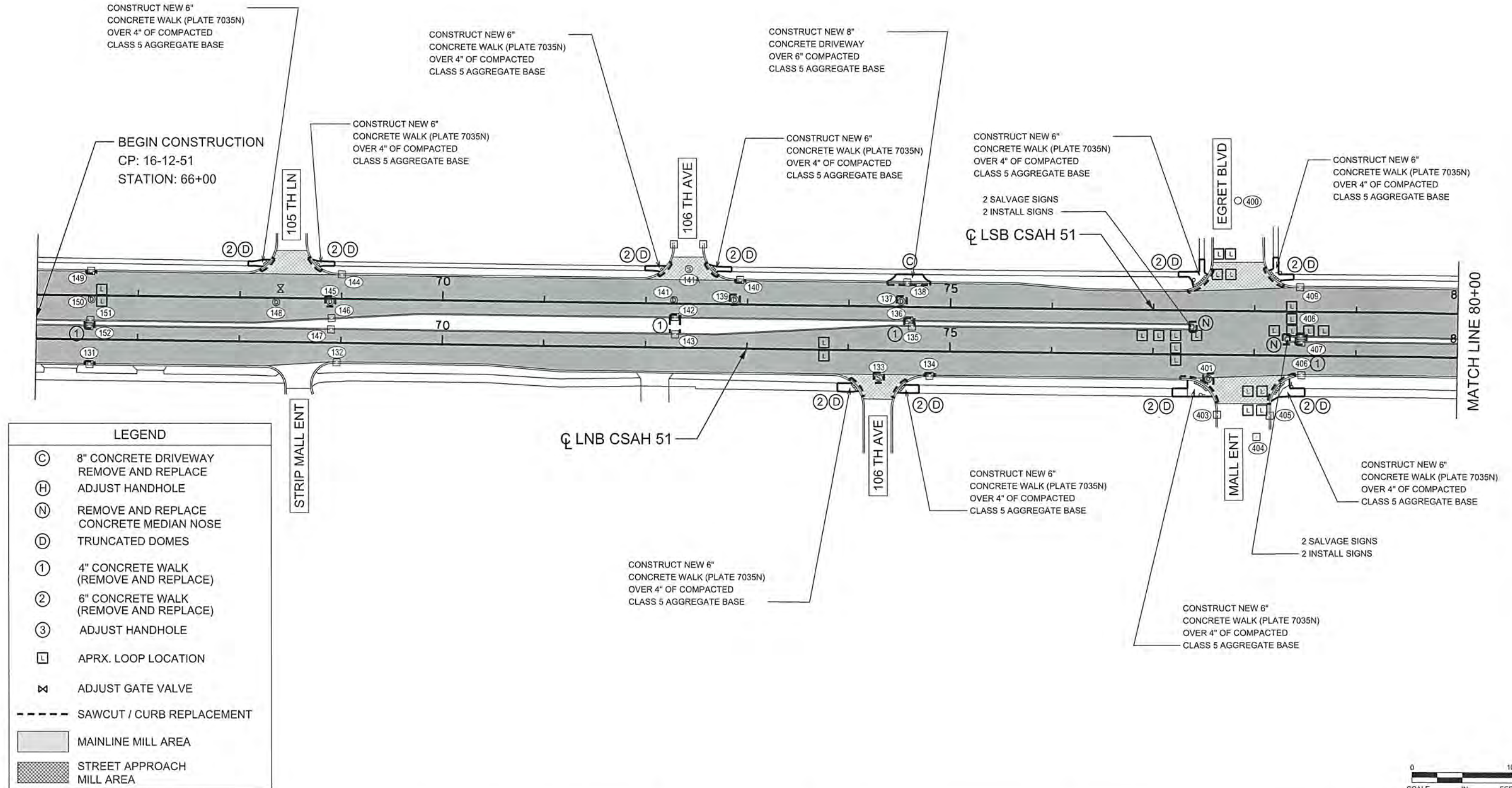
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-12-51

DETAILS

Sheet 5 of 19 Sheets

mjohn



LEGEND	
(C)	8" CONCRETE DRIVEWAY REMOVE AND REPLACE
(H)	ADJUST HANDHOLE
(N)	REMOVE AND REPLACE CONCRETE MEDIAN NOSE
(D)	TRUNCATED DOMES
(1)	4" CONCRETE WALK (REMOVE AND REPLACE)
(2)	6" CONCRETE WALK (REMOVE AND REPLACE)
(3)	ADJUST HANDHOLE
(L)	APRX. LOOP LOCATION
(X)	ADJUST GATE VALVE
---	SAWCUT / CURB REPLACEMENT
[Solid Grey Box]	MAINLINE MILL AREA
[Hatched Box]	STREET APPROACH MILL AREA



NO	DATE	BY	CKD	APPR	REVISION	04/11/2016	11:33:47 AM

NAME: P:\15-01-00\CSAH_51(97fr-106th)\Base\PROPOSED\TEMPLATE_PLAN.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: MATTHEW J. JOHN
 SIGNATURE: *[Signature]*
 DATE: 4/11/2016 LICENSE NO. 51639

DRAWN BY: KPR DATE: 02/17/2016
 DESIGN BY: KPR DATE: 02/17/2016
 CHECKED BY: MJJ DATE: 04/11/2016

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-12-51

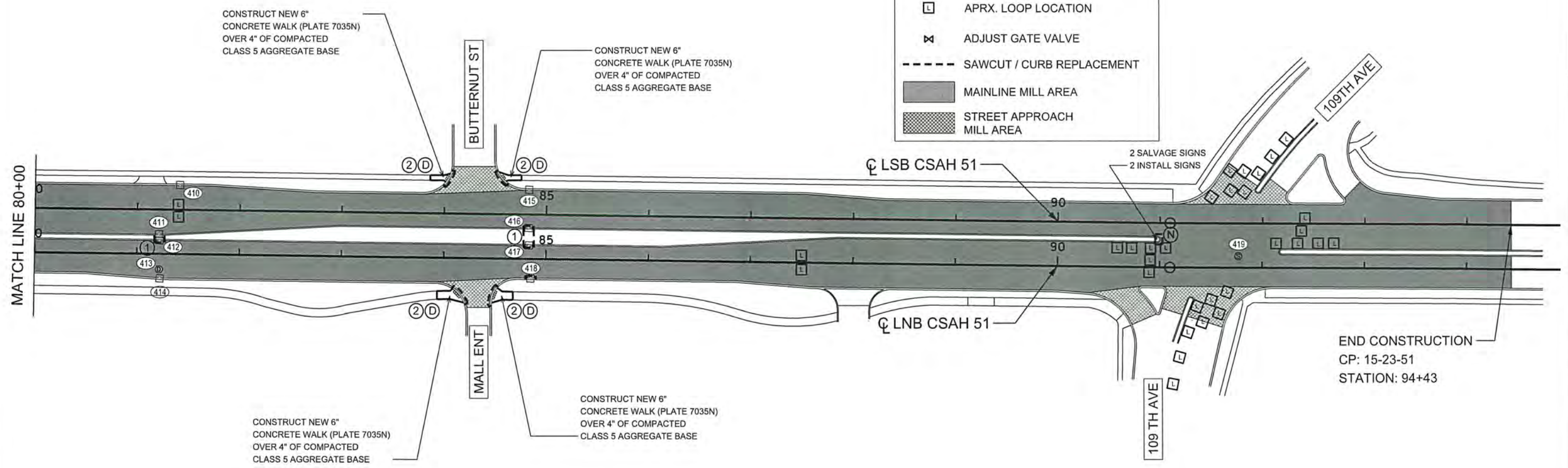
CONSTRUCTION PLAN
 STA 66+00 TO 80+00
 Sheet 6 of 19 Sheets

mjohn



LEGEND

- ⊙ 8" CONCRETE DRIVEWAY REMOVE AND REPLACE
- ⊙ ADJUST HANDHOLE
- ⊙ REMOVE AND REPLACE CONCRETE MEDIAN NOSE
- ⊙ TRUNCATED DOMES
- ① 4" CONCRETE WALK (REMOVE AND REPLACE)
- ② 6" CONCRETE WALK (REMOVE AND REPLACE)
- ③ ADJUST HANDHOLE
- ⊠ APRX. LOOP LOCATION
- ⊠ ADJUST GATE VALVE
- - - SAWCUT / CURB REPLACEMENT
- ▒ MAINLINE MILL AREA
- ▒ STREET APPROACH MILL AREA



END CONSTRUCTION
 CP: 15-23-51
 STATION: 94+43



NO	DATE	BY	CKD	APPR	REVISION	03/29/2016	8:03:12 AM

NAME: P:\15-01-00\CSAH_51(97th-106th)\Base\PROPOSED\TEMPLATE_PLAN.dgn

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ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-12-51

CONSTRUCTION PLAN
 STA 80+00 TO 94+43
 Sheet 7 of 19 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.

EPOXY:

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 EPOXY PAVEMENT MARKINGS.

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

AN EPOXY RESIN LINE 4" WIDE AND 15 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND 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 FILM 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.

PERMANENT MARKING QUANTITIES		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - EPOXY PAINT	LIN FT	10610
4" BROKEN LINE WHITE - EPOXY PAINT	LIN FT	1300
4" SOLID LINE YELLOW - EPOXY PAINT	LIN FT	5510
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC	SQ FT	646
3' X 6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	1710
PAVEMENT MESSAGE (LFT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	90
PAVEMENT MESSAGE (RT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	75

SYMBOLS & MATERIALS LEGEND

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

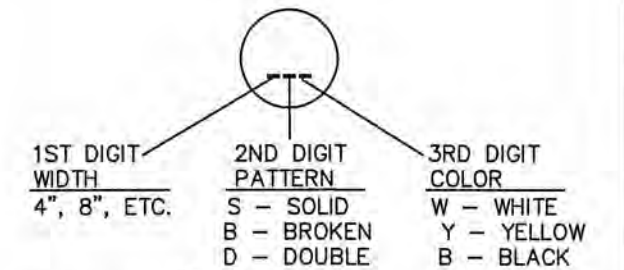
↩ PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

STRIPING KEY

○ CIRCLE - EPOXY □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

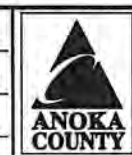


EXAMPLE: (4SW) = 4" SOLID LINE WHITE - EPOXY

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ANOKA COUNTY
HIGHWAY DEPT.

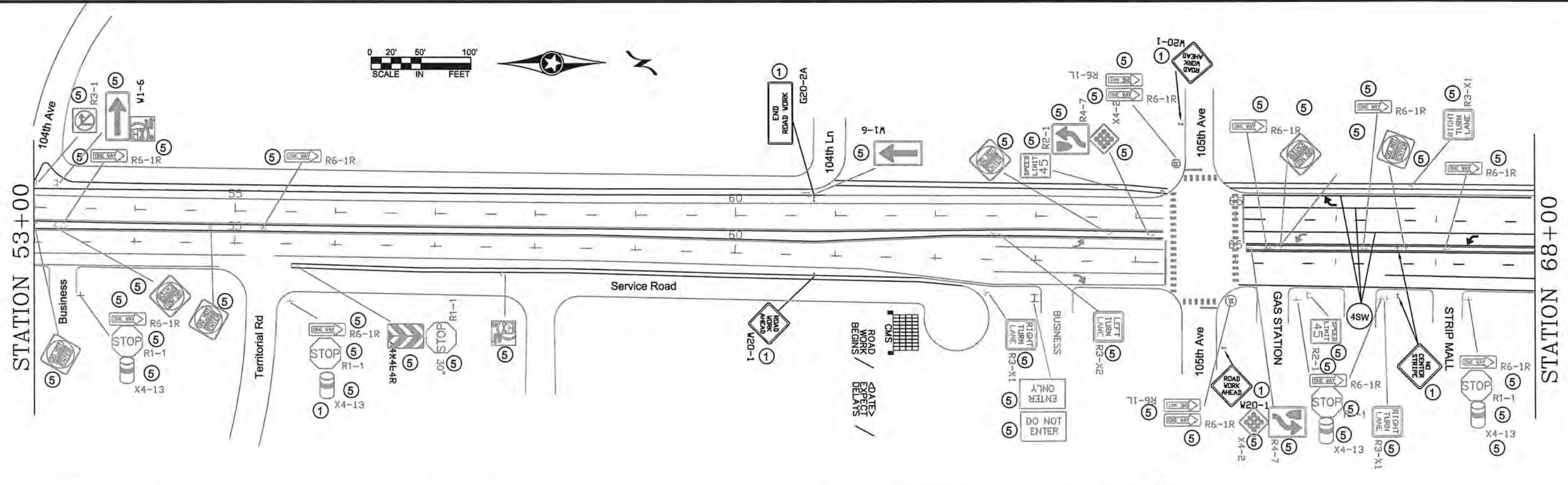
STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 16-12-51

PERMANENT MARKING TABULATION
 Sheet 8 of 19 Sheets

NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
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- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
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- 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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- COVER INPLACE G20-2A, WHICH WAS PREVIOUSLY PLACED FOR 02-651-07, PRIOR TO COMMENCEMENT OF WORK.
- UNCOVER THE G20-2A WHEN ALL WORK IS COMPLETE.

- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
 - ② F & I PERMANENT SIGN
 - ③ SALVAGE PERMANENT SIGN
 - ④ RE-INSTALL PERMANENT SIGN
 - ⑤ RETAIN INPLACE SIGN
 - ⑥ COVER INPLACE SIGN



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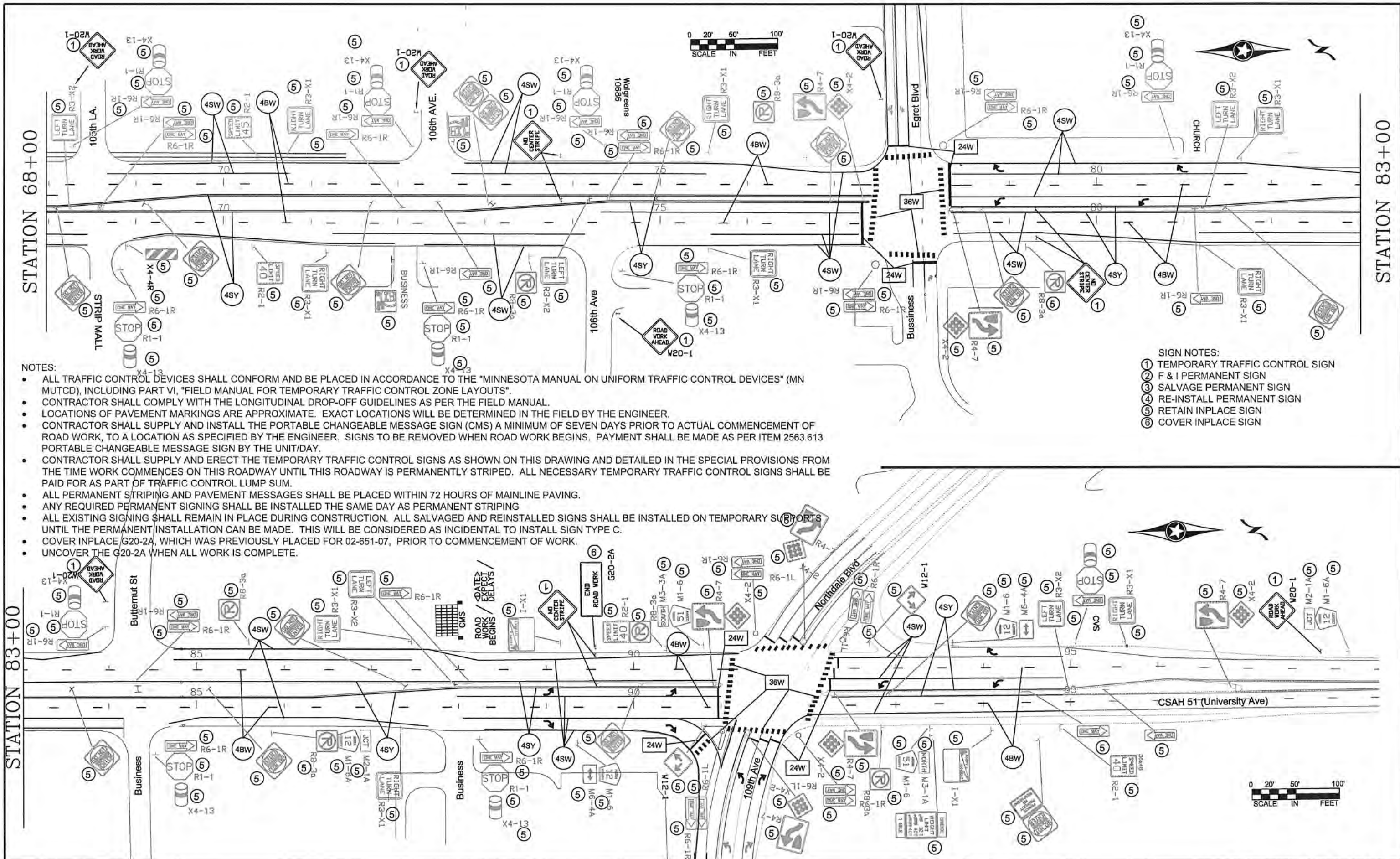
ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
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 COUNTY PROJECT NO. 16-12-51

TEMPORARY SIGNING,
 PERMANENT SIGNING
 AND STRIPING
 Sheet 9 of 19 Sheets

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CSAH 51\Bose\Traffic\Signing_Striping.dwg



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NAME: P:\16-01-00\CSAH 51\Base\Traffic\Signing_Striping.dwg

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ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

STATE AID PROJECT NO. _____

COUNTY PROJECT NO. 16-12-51

TEMPORARY SIGNING,
PERMANENT SIGNING
AND STRIPING

Sheet 10 of 19 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS

M.U.T.C.D. CODE	SIZE	PANEL AREA	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT TO PAVEMENT EDGE FT.
		FT. ²				
W8-12	48" x 48"	16.00		8	2	7.0'
R4-1	24" x 30"	5.00		0	1	7.0'
R4-2	24" x 30"	5.00		0	1	7.0'
G20-2A	48" x 24"	8.00		1	2	7.0'
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-9	48" x 48"	16.00		AS NEEDED		
	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00		AS NEEDED		
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 9)		
CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.				1		

NOTES:

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CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

		R	O	A	D		
		W	O	R	K		
		B	E	G	I	N	S
	<	D	A	T	E	>	
		E	X	P	E	C	T
		D	E	L	A	Y	S

CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.

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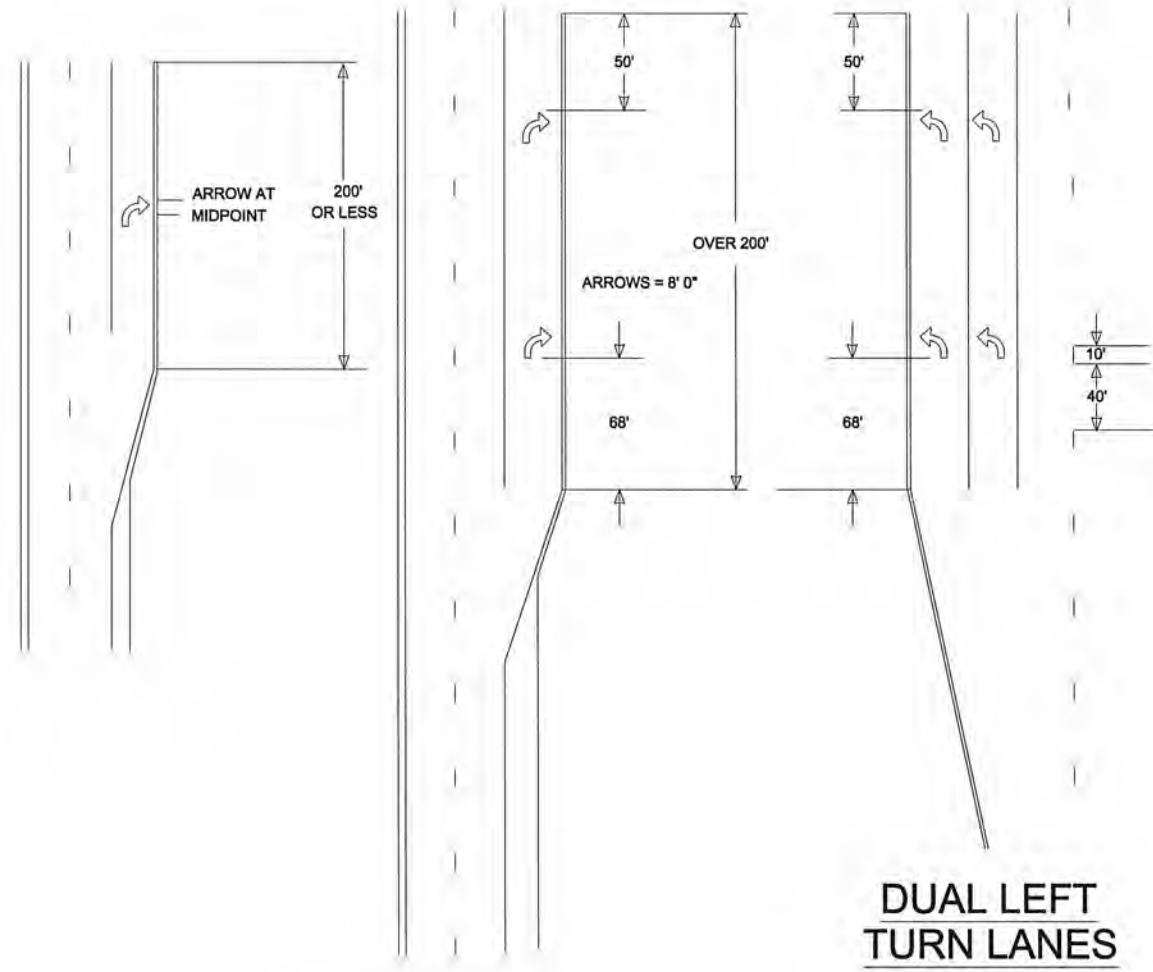


ANOKA COUNTY
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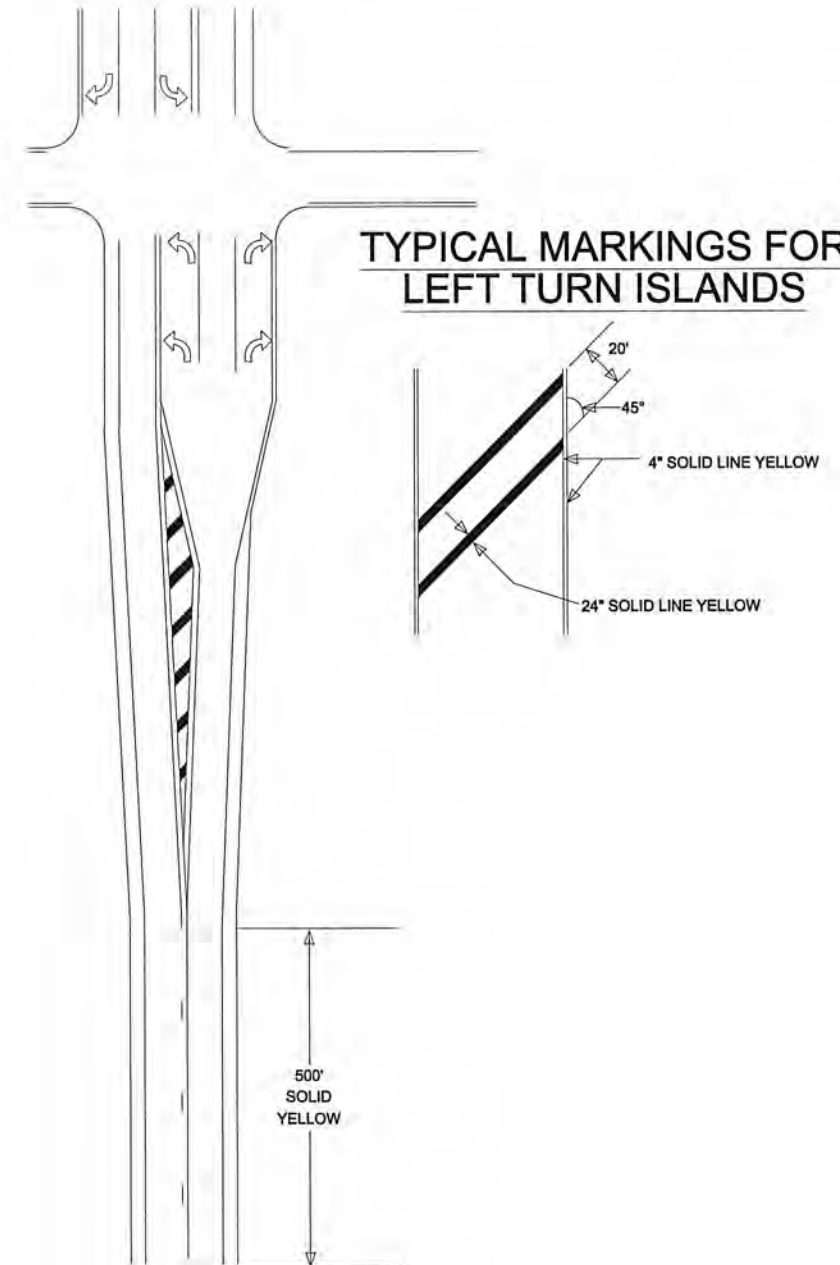
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 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 16-12-51

TRAFFIC CONTROL QUANTITY
 Sheet 11 of 19 Sheets

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



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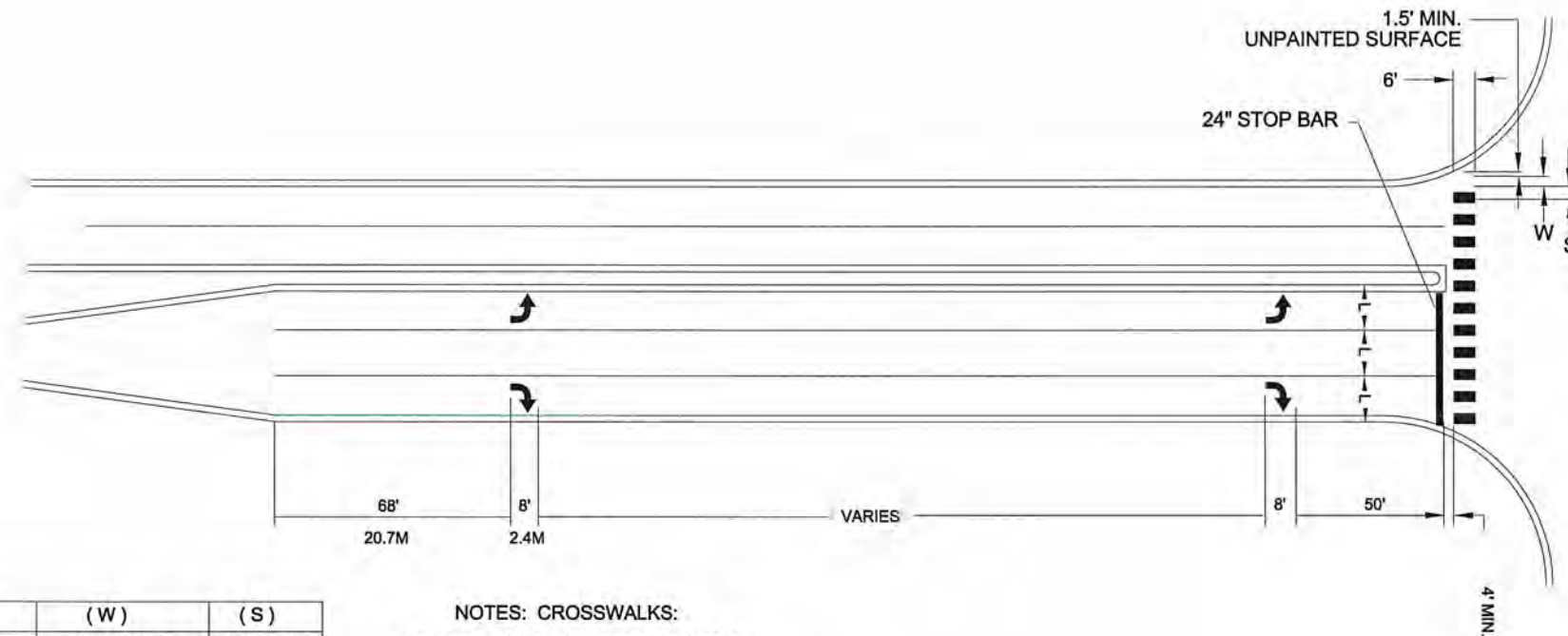
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**SIGNING & STRIPING
DETAILS**

Sheet 12 of 19 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 RAMPS 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' (3.3mm) INSIDE LANE.

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SIGNING & STRIPING
DETAILS

Sheet 13 of 19 Sheets

NOTES

- 1) LOCATION OF CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS, POLE BASES AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) EACH SIGNAL FACE SHALL BE 12"-3 SECTION R-Y-G, EXCEPT THAT SIGNAL FACES (1), (2), (3) AND (5) SHALL BE 12"-3 SECTION R-Y-G-LTA.
- 3) SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- 4) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
- 5) EACH PEDESTRIAN INDICATION SHALL BE 12"x12".
- 6) EACH LUMINAIRE SHALL INCLUDE PHOTOELECTRIC CELL AND STREET LIGHT CHECK SWITCH.
- 7) SEE SPECIAL PROVISIONS AND DETAILS FOR ANOKA COUNTY SERVICE CABINET INFORMATION.
- 8) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 9) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLPE) IN P.V.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
- 10) EACH HANDHOLE SHALL BE CONCRETE HANDHOLE WITH TYPE "C" COVER PER MHD/DOT STANDARD PLATE NO. 81172.

CONTRACTOR SHALL FURNISH AND INSTALL NEW LED RED SIGNAL INDICATORS IN EACH SIGNAL FACE WITH EXP SYSTEM INSTALLATION. SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL SALVAGE ALL INPLACE PEDESTRIAN SIGNAL INDICATORS (WITH ATTACHED POLE MOUNTED BRACKET) AND INPLACE RED INSTRUCTION SIGNS, AND SHALL FURNISH AND INSTALL NEW LED RED SIGNAL INDICATORS (WITH ATTACHED POLE MOUNTED BRACKET) AND INPLACE RED INSTRUCTION SIGNS, AND SHALL FURNISH AND INSTALL NEW LED RED SIGNAL INDICATORS (WITH ATTACHED POLE MOUNTED BRACKET) AT EACH LOCATION. HAND INDICATORS SHALL BE LED. SEE SPECIAL PROVISIONS AND DETAILS.

ANTICIPATED COUNTY WORK AT SYSTEM (AT NO COST TO THE CONTRACTOR), TO ACCOMMODATE E.V.P. MODIFICATIONS TO INPLACE CABINET.

F & I ONE WAY E.V.P. DETECTOR AND INDICATOR LIGHT (#6,1) - OVERHEAD
A1-3/c#12
A1-3/c#20

TYPE A100-A-45-D40-8 (DAVT AT 355')
A100 POLE FOUNDATION
3-ONE WAY SIGNALS-OVERHEAD
2-TYPE 108-POLE MOUNTED 90° AND 180° LUMINAIRE-200 WATT H.P.S.
40 MAST ARM MOUNTS AT 12' AND 24'
2-PEDESTRIAN PUSH BUTTONS
TYPE "D" SIGN PANEL (78"x18")-OVERHEAD
EXTEND INTO H.H.13:
3'R.S.C.
3-12/c#12
1-3/c#12
2-1/c#10

EMERGENCY VEHICLE PRE-EMPTION SYSTEM "Z"

NOTE: ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EXP EQUIPMENT TO BE FURNISHED AND INSTALLED AS INDICATED BY THE PLANS, ARE INPLACE AND SHALL REMAIN IN PLACE AT PART OF THE REMOVED SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR REQUIRED EXP EQUIPMENT IN CONTROLLER CABINET AND POSTAL INFORMATION.

LEGEND:
A NON CHANGES TO BE F & I AS PART OF EXP SYSTEM
H-H EXP DETECTOR UNIT (ONE WAY)
H-H EXP DETECTOR UNIT (TWO WAY)
H SIGNAL PHASE

ALL HANDHOLES TO BE F & I AS PART OF EXP SYSTEM ARE IDENTIFIED BY H-H AND SHOWN IN RED. SEE SPECIAL PROVISIONS.

F & I ONE WAY E.V.P. DETECTOR AND INDICATOR LIGHT (#8) - OVERHEAD
A1-3/c#12
A1-3/c#20

TYPE P80-A-20
P80 POLE FOUNDATION
ONE WAY SIGNAL-OVERHEAD
2-TYPE 108-POLE MOUNTED 90° AND 180° LUMINAIRE-200 WATT H.P.S.
2-PEDESTRIAN PUSH BUTTONS
TYPE "D" SIGN PANEL (78"x18")-OVERHEAD
EXTEND INTO H.H.13:
3'R.S.C.
2-12/c#12
1-3/c#12

SIGNAL FACES

SIGNAL FACE	SIGNAL INDICATIONS ARE 12"					
	LED R	Y	G	LED R	Y	G
1-1, 1-2	•	•	•	•	•	•
2-1, 2-2, 2-3	•	•	•	•	•	•
4-1, 4-2, 4-3	•	•	•	•	•	•
5-1, 5-2	•	•	•	•	•	•
8-1, 8-2, 8-3	•	•	•	•	•	•

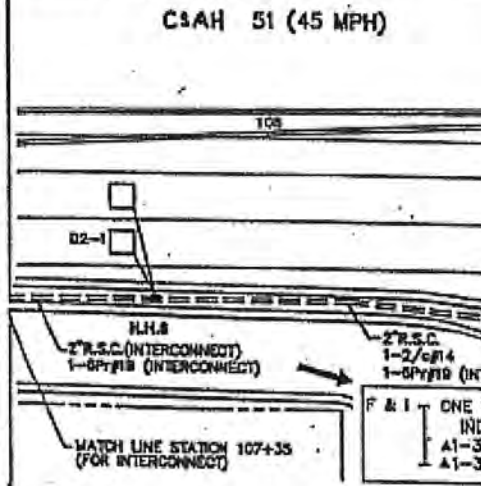
NOTE: CONTRACTOR SHALL CHECK EACH MAST ARM POLE FOR HUBS AND SHALL FURNISH AND INSTALL ANY HUBS THAT ARE NEEDED PRIOR TO BEGINNING ANY OTHER E.V.P. WORK. SEE SPECIAL PROVISIONS.

7255



INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)
CABINET FOUNDATION
EXTEND INTO H.H.15:
METERED SIGNAL SERVICE
1 1/4'R.S.C.
3-1/c#10
EXTEND INTO H.H.11:
4'R.S.C.
3-12/c#12
2-3/c#12
7-2/c#14
EXTEND INTO H.H.11:
4'R.S.C.
3-12/c#12
2-3/c#12
7-2/c#14
EXTEND INTO H.H.11:
4'R.S.C.
3-12/c#12
2-3/c#12
7-2/c#14

SERVICE CABINET CABINET FOUNDATION
STUB OUT 2'R.S.C. (FOR SERVICE BY AEC)
EXTEND INTO H.H.11:
UNMETERED STREET LIGHT SERVICE
1 1/4'R.S.C.
4-1/c#10
BETWEEN H.H.11 AND H.H.15:
2'R.S.C.
2-1/c#10
EXTEND INTO H.H.16:
METERED SIGNAL SERVICE
1 1/4'R.S.C.
3-1/c#10



LOOP DETECTORS

NUMBER	SIZE (ft.)	LOCATION	FUNCTION
D1-1	2-8x8	35'	7
D1-2	2-8x8	5'	7
D2-1	2-8x8	300'	1
D4-1	2-8x8	120'	3,8
D4-2	2-8x8	8'	7
D5-1	2-8x8	35'	7
D5-2	2-8x8	5'	7
D6-1	2-8x8	300'	1
D6-2	2-8x8	110'	3,8

- LOOP DETECTOR 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 DETECTOR

NOTE: LOCATION-DISTANCE FROM STOP BAR TO LOOP DETECTOR.

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.

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: MATTHEW J. JOHN
SIGNATURE: *Matthew J. John*
DATE: 4/8/2016 LICENSE NO. 51639

DRAWN BY: KPR DATE: 02/17/2016
DESIGN BY: KPR DATE: 02/17/2016
CHECKED BY: MJJ DATE: 03/29/2015



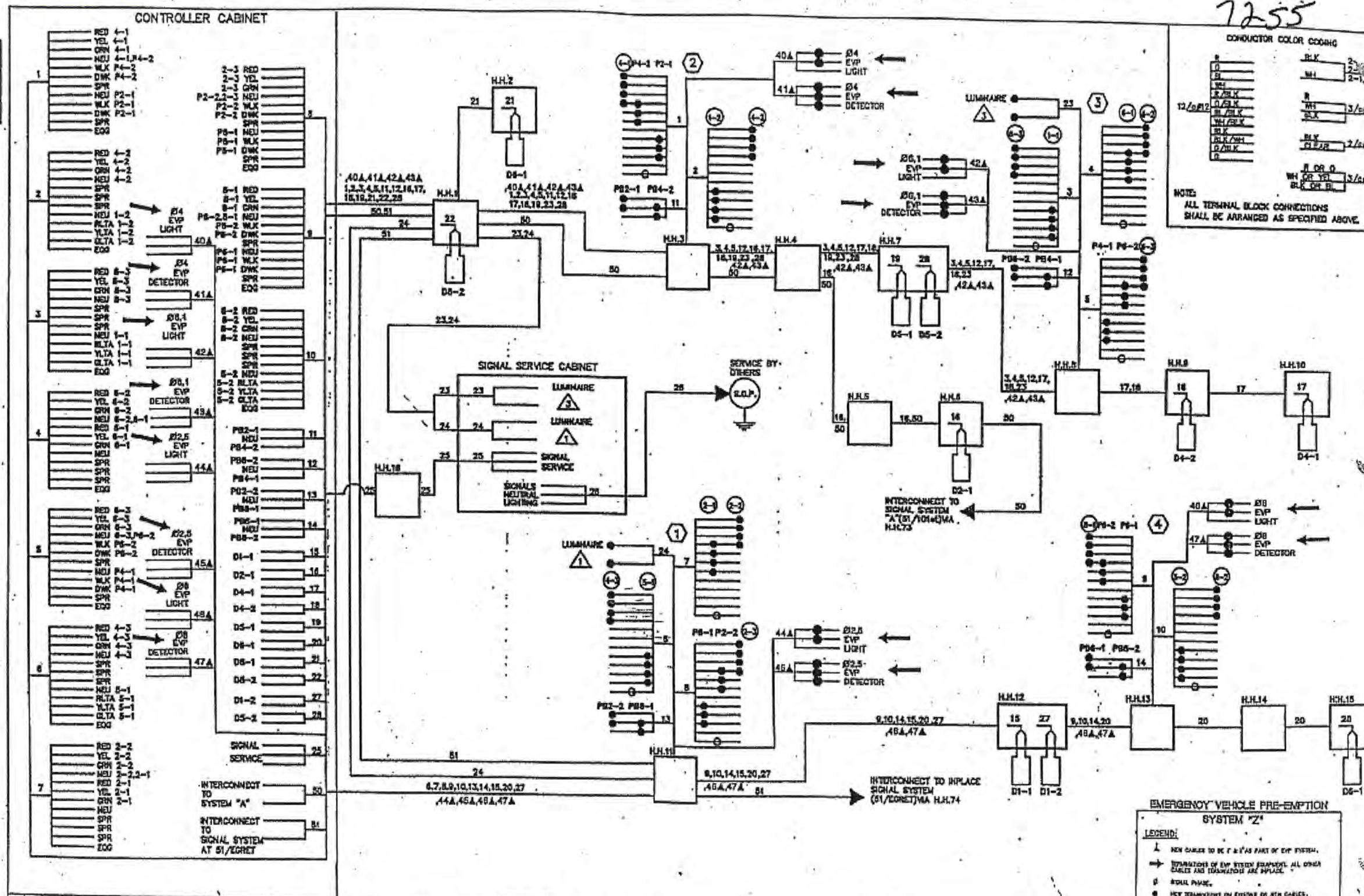
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-12-51

ORIGINAL SIGNAL PLANS

Sheet 14 of 19 Sheets

FOR REFERENCE PURPOSES ONLY



FOR REFERENCE PURPOSES ONLY

NO.	BY	DATE	REVISION	ITEM	DESCRIPTION	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.

Signature: *Matthew J. John* Date: 1/16/16 License No. 22457

ESEH BLAINE/COON RAPIDS, MINNESOTA
 ANOKA COUNTY
 S.A.P. 106-020-13, 114-020-16

EVP SYSTEM "Z"
 FIELD WIRING DIAGRAM

FILE NO. BLAIN502
 DATE 54

NO.	DATE	BY	CKD	APPR	REVISION	TIME

NAME: P:\15-01-00\CSAH_51(97th-105th)\Base\PROPOSED\TEMPLATE_PLAN.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: MATTHEW J. JOHN
 SIGNATURE: *Matthew J. John*
 DATE: 4/8/2016 LICENSE NO. 51639

DRAWN BY: KPR DATE: 02/17/2016
 DESIGN BY: KPR DATE: 02/17/2016
 CHECKED BY: MJJ DATE: 03/29/2016

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-12-51

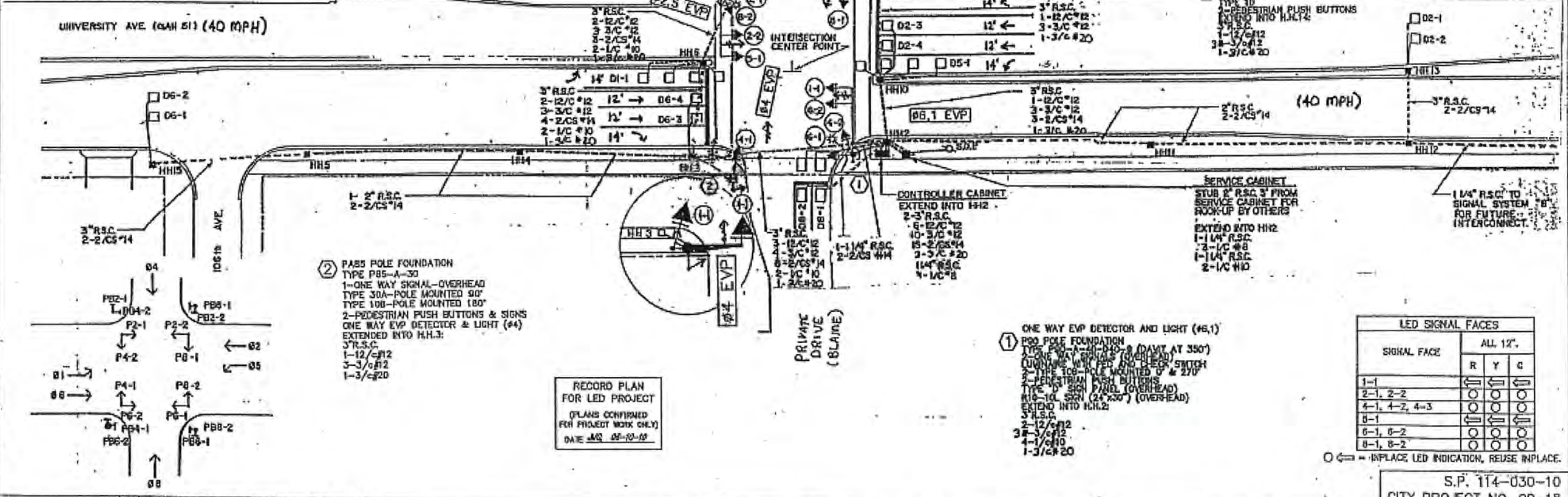
ORIGINAL SIGNAL PLANS
 Sheet 15 of 19 Sheets

- LED RETROFIT-SYSTEM "TT" NOTES:**
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE IN PLACE AND SHALL BE REUSED AND MAINTAINED IN PLACE, UNLESS OTHERWISE NOTED ON PLANS.
 - 2) CONTRACTOR SHALL REMOVE THE INPLACE "HAND/WALKING PERSON" LENS FROM EACH INPLACE ONE SECTION PED SIGNAL INDICATION, AND SHALL FURNISH & INSTALL A NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" LENS IN ITS PLACE.
 - 3) CONTRACTOR SHALL PROTECT AND MAINTAIN EACH INPLACE ONE SECTION PEDESTRIAN SIGNAL HOUSING & VISOR WHEN REMOVING AND REPLACING EACH LENS, AND SHALL REPLACE THE COMPLETE PEDESTRIAN SIGNAL INDICATION UNIT (HOUSING, VISOR, AND LENS SHOULD ANY DAMAGE BE DONE TO THE UNIT BY CONTRACTOR DURING WORK ON THIS PROJECT (INCIDENTAL).
 - 4) IN LIEU OF THE LENS REPLACEMENT WORK DESCRIBED ABOVE, THE CONTRACTOR ALSO HAS THE OPTION OF REMOVING EACH INPLACE ONE SECTION PEDESTRIAN SIGNAL INDICATION (HOUSING, VISOR AND LENS) AND REPLACING THEM WITH NEW ONE SECTION PEDESTRIAN SIGNAL INDICATIONS (HOUSING, VISOR, AND LED LENSES), AT NO ADDITIONAL COST TO THE PROJECT.
 - 5) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS TO INPLACE POLE MOUNTED BRACKETING ON EACH TRAFFIC SIGNAL POLE TO ACCOMMODATE INSTALLATION OF NEW ONE SECTION PEDESTRIAN SIGNAL INDICATIONS (INCLUDING THE REPLACEMENT OF THE POLE MOUNTED BRACKETING IF NEEDED TO ACCOMMODATE EACH PEDESTRIAN SIGNAL INDICATION INSTALLATION) (INCIDENTAL).
 - 6) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL POLES OR VEHICLE SIGNAL HEADS & BRACKETING DUE TO WORK ON THIS PROJECT SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE CITY.
 - 7) IF NEW PEDESTRIAN HOUSINGS AND VISORS ARE USED, THEY SHALL BE FABRICATED USING NEW POLYCARBONATE MATERIALS.
 - 8) ALL VEHICULAR SIGNAL INDICATIONS ARE LED AND ARE IN PLACE (MAINTAIN AND REUSE INPLACE AS SHOWN).
 - 9) CONTRACTOR SHALL REMOVE ALL INPLACE R10-4b STICKER SIGNS, AND "MEANING OF WALK" STICKER SIGNS, AND SHALL FURNISH & INSTALL NEW R10-3a SIGNS IN THEIR PLACE. ALL PUSH BUTTONS ARE ADA COMPLIANT AND ARE IN PLACE (REUSE).
 - 10) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
 - 11) SEE STATEMENT OF ESTIMATED QUANTITIES FOR BID ITEMS FOR WORK AT THIS SIGNAL SYSTEM.

LOOP DETECTOR SCHEDULE

DESIGNATION	PHASE	SIZE IN FT.	LOCATION	FUNCTION
D1-1	1	4675	81'	(1)
D2-1	2	635	382'	(1) (1) (1)
D2-2	2	635	382'	(1) (1) (1)
D2-3	2	635	56'	(1)
D2-4	2	635	56'	(1)
D4-1	4	2-628 (7)	301'	(1) (1) (1) (1)
D4-2	4	2-628	54'	(7)
D4-3	4	2-628	54'	(1)
D5-1	5	4675	41'	(1)
D6-1	6	635	395'	(1) (1) (1)
D6-2	6	635	395'	(1) (1) (1)
D6-3	6	635	54'	(1)
D6-4	6	635	54'	(1)
D8-1	8	2-628	54'	(7)
D8-2	8	2-628	54'	(1)

- ① LOCATION MEASURED FROM INTERSECTION CENTER POINT
 ② 6' BETWEEN LOOPS



- ② PASS POLE FOUNDATION
 TYPE PB5-A-30
 1-ONE WAY SIGNAL-OVERHEAD
 TYPE 30A-POLE MOUNTED 90°
 TYPE 100-POLE MOUNTED 180°
 2-PEDESTRIAN PUSH BUTTONS & SIGNS
 ONE WAY EVP DETECTOR & LIGHT (#4)
 EXTENDED INTO H.H.T.3:
 3-R.S.C.
 1-12/C#12
 3-3/C#12
 1-3/C#20

RECORD PLAN FOR LED PROJECT
 (PLANS CONFIRMED FOR PROJECT WORK ONLY)
 DATE: 02-08-16

- ③ ONE WAY EVP DETECTOR AND LIGHT (#2.5)
 P80 POLE FOUNDATION
 TYPE P80-A-10-D40-B (DAVT AT 350°)
 2-ONE WAY SIGNALS (OVERHEAD)
 LUMINAIRE WITH PED AND CHECK SWITCH
 2-TYPE 100-POLE MOUNTED 0° & 270°
 2-PEDESTRIAN PUSH BUTTONS
 TYPE 100 SIGN PANEL (OVERHEAD)
 TYPE 100 SIGN PANEL (24"x30") (OVERHEAD)
 EXTEND INTO H.H.T.7:
 3-R.S.C.
 2-12/C#12
 3-3/C#12
 2-1/C#10
 1-3/C#20

- CONTROLLER CABINET
 EXTEND INTO HH2:
 2-3-R.S.C.
 6-12/C#12
 10-3/C#12
 15-2/C#14
 3-3/C#20
 14-R.S.C.
 4-1/C#8

- ① ONE WAY EVP DETECTOR AND LIGHT (#6.1)
 P80 POLE FOUNDATION
 TYPE P80-A-10-D40-B (DAVT AT 350°)
 2-ONE WAY SIGNALS (OVERHEAD)
 LUMINAIRE WITH PED AND CHECK SWITCH
 2-TYPE 100-POLE MOUNTED 0° & 270°
 2-PEDESTRIAN PUSH BUTTONS
 TYPE 100 SIGN PANEL (OVERHEAD)
 TYPE 100 SIGN PANEL (24"x30") (OVERHEAD)
 EXTEND INTO H.H.T.2:
 3-R.S.C.
 2-12/C#12
 3-3/C#12
 4-1/C#10
 1-3/C#20

LED SIGNAL FACES

SIGNAL FACE	ALL 12"		
	R	Y	G
1-1	○	○	○
2-1, 2-2	○	○	○
4-1, 4-2, 4-3	○	○	○
8-1	○	○	○
8-1, 8-2	○	○	○
8-1, 8-2	○	○	○

○ ← = INPLACE LED INDICATION, REUSE INPLACE.

DRAWN BY: JMS | DESIGNED BY: JMS | CHECKED BY: JMS | DATE: 02/17/2016

REVISIONS:

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.
 SIGNATURE: Matthew J. John | DATE: 02/17/2016 | LICENSE NO.: 51639

SEH ENGINEERING, INC. | 3535 VANDER CENTER DR. ST. PAUL, MN 55118 | PHONE: (612) 400-2000

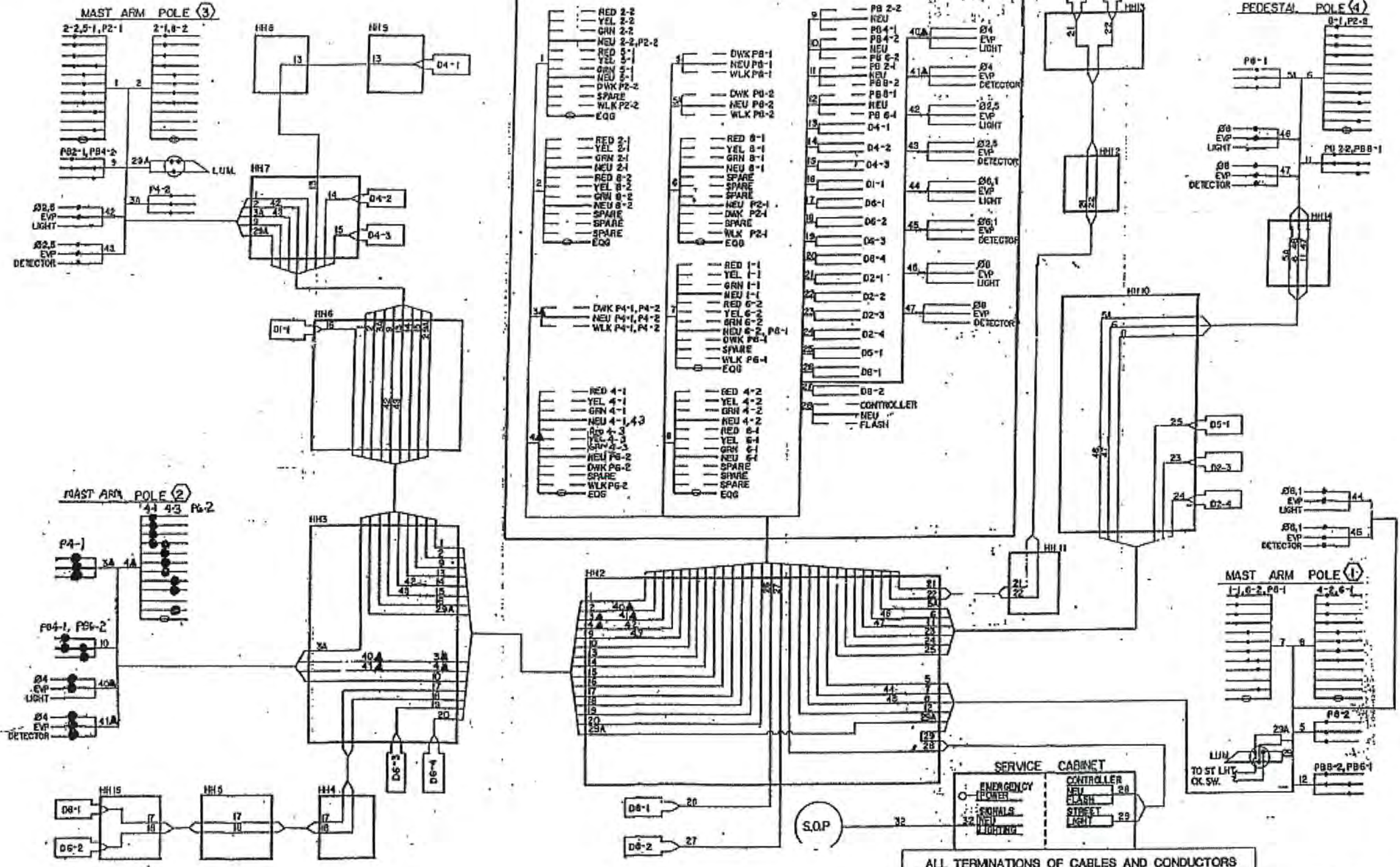
COON RAPIDS, MINNESOTA | LED RETROFIT-SYSTEM "TT" INTERSECTION LAYOUT | CSAH 81 AT EGRET BOULEVARD

S.P. 114-030-10 | CITY PROJECT NO. 09-1B | FILE NO. 107418 | DATE: 05/18/2009 | SHEET 131

FOR REFERENCE PURPOSES ONLY

mjohn

7256

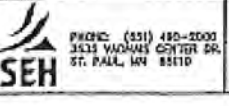


FOR REFERENCE PURPOSES ONLY

DESIGNER	JAG	NO.	BY	DATE	REVISIONS
CHECKER	JAG				
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.

Signature: *J.M.S.* Name: John M. Sney, PE License No. 22187
Date: May 15, 2016



COON RAPIDS, MINNESOTA

LED RETROFIT-SYSTEM 'TT'
FIELD WIRING DIAGRAM
CSAH 51 AT EGRET BOULEVARD

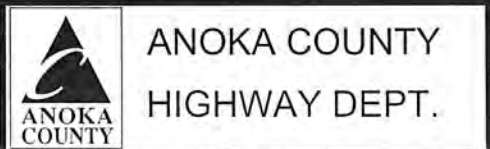
S.P. 114-03L
CITY PROJECT NO. 09-18
FILE NO. 107418
DATE 05/18/2016
108/131

NO.	DATE	BY	CKD	APPR	REVISION	TIME
	03/29/2016					8:03:34 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: MATTHEW J. JOHN
Signature: *M.J.J.*
DATE: 4/8/2016 LICENSE NO. 51639

DRAWN BY: KPR DATE: 02/17/2016
DESIGN BY: KPR DATE: 02/17/2016
CHECKED BY: MJJ DATE: 03/29/2016



COUNTY PROJECT 16-12-51

ORIGINAL SIGNAL PLANS
Sheet 17 of 19 Sheets

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DESIGNATION	PHASE	SIZE IN FT	LOCATION	FUNCTION
D1-1	1	4-6x6	48'	(1)
D2-1	2	6x6	428'	(1)
D2-2	2	6x6	428'	(1)
D2-3	2	6x6	87'	(2)
D2-4	2	6x6	80'	(2)
D3-1	3	4-6x6	60'	(1)
D4-1	4	2-6x6 (2)	293'	(9) (B) (1)
D4-2	4	2-6x6	65'	(1)
D4-3	4	2-6x6	52'	(7)
D5-1	5	4-6x6	54'	(1)
D5-2	6	6x6	393'	(1)
D5-3	6	6x6	183'	(1)
D5-4	6	6x6	58'	(2)
D5-5	6	6x6	62'	(2)
D7-1	7	4-6x6	61'	(1)
D8-1	8	2-6x6 (2)	301'	(9) (B) (1)
D8-2	8	2-6x6	74'	(1)
D8-3	8	2-6x6	60'	(7)

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

- NOTES**
- (1) LOCATION MEASURED FROM INTERSECTION CENTER POINT
 - (2) 6' BETWEEN LOOPS

- FUNCTIONS**
- (1) CALL AND EXTEND
 - (2) CALL ONLY
 - (3) EXTEND ONLY
 - (4) CALL ONLY, DENSITY
 - (5) RELAY CALL ONLY
 - (6) RELAY CALL ONLY, DENSITY
 - (7) RELAY CALL, IMMEDIATELY EXTEND
 - (8) CARRY OVER (STRETCH)
 - (9) ADVISORY
 - (10) SAMPLING
 - (11) SPECIAL (SEE NOTE)

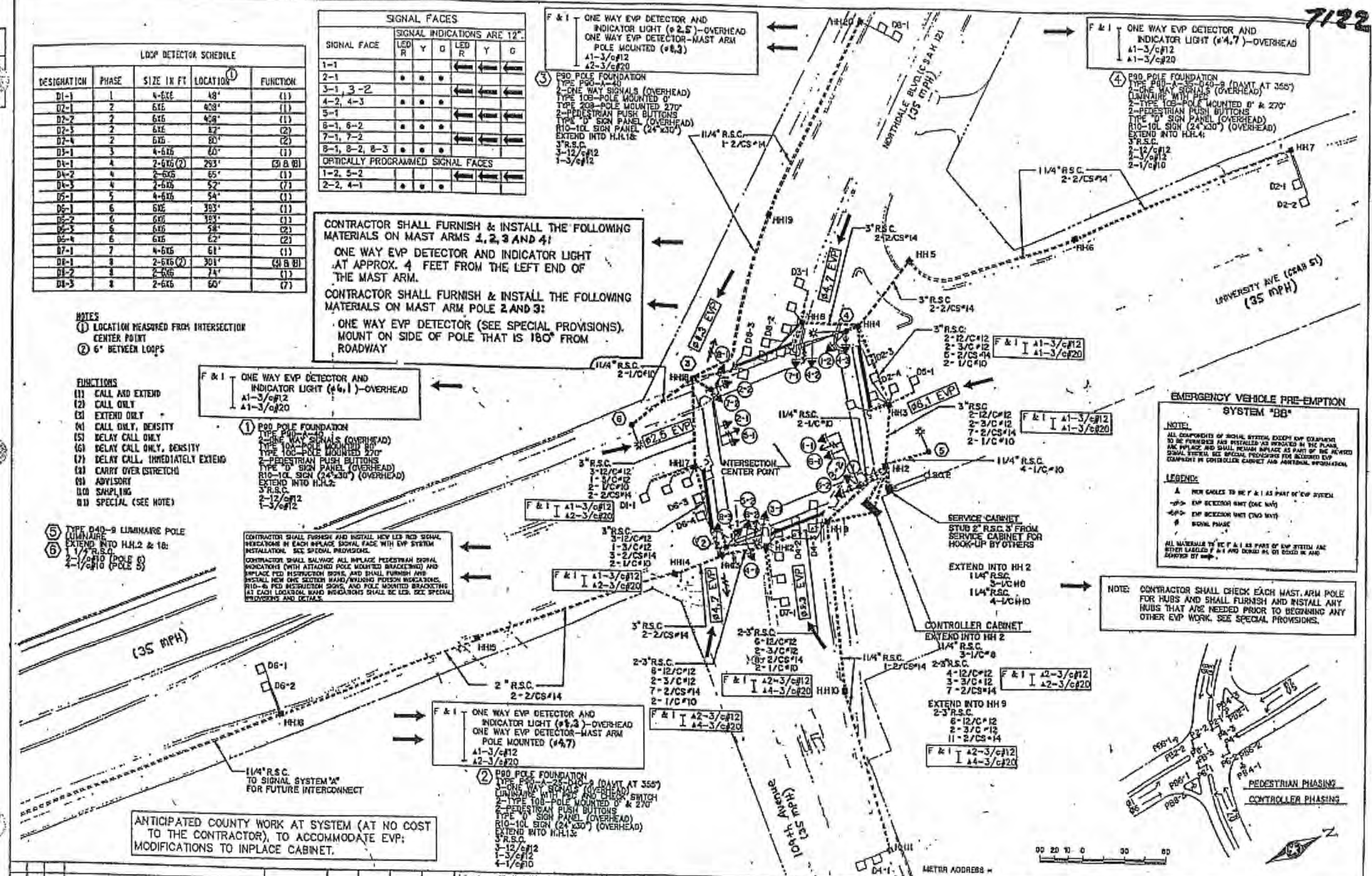
- (5) TYPE D40-8 LUMINAIRE POLE LUMINAIRE EXTEND INTO H.H.2 & 18: 1-1/2" R.S.C. 2-1/2" C/S#10 (POLE 5)
- (6)

CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON MAST ARMS 1, 2, 3 AND 4:

ONE WAY EVP DETECTOR AND INDICATOR LIGHT AT APPROX. 4 FEET FROM THE LEFT END OF THE MAST ARM.

CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON MAST ARM POLE 2 AND 3:

ONE WAY EVP DETECTOR (SEE SPECIAL PROVISIONS), MOUNT ON SIDE OF POLE THAT IS 180° FROM ROADWAY



EMERGENCY VEHICLE PRE-EMPTION SYSTEM "BB"

NOTE: ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EVP COMPONENT TO BE PROVIDED AND INSTALLED AS SHOWN IN THE PLANS. ALL POLES AND SHALL REMAIN IN PLACE AS PART OF THE INSTALLED SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR ACCEPTED EVP COMPONENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

LEGEND:

- ▲ PER POLES TO BE F & I AS PART OF EVP SYSTEM
- EVP SECTION UNIT (ONE WAY)
- EVP SECTION UNIT (TWO WAY)
- SIGNAL PHASE

NOTE: CONTRACTOR SHALL CHECK EACH MAST ARM POLE FOR HUBS AND SHALL FURNISH AND INSTALL ANY HUBS THAT ARE NEEDED PRIOR TO BEGINNING ANY OTHER EVP WORK. SEE SPECIAL PROVISIONS.

ANTICIPATED COUNTY WORK AT SYSTEM (AT NO COST TO THE CONTRACTOR), TO ACCOMMODATE EVP; MODIFICATIONS TO INPLACE CABINET.

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. At 4/8/2016



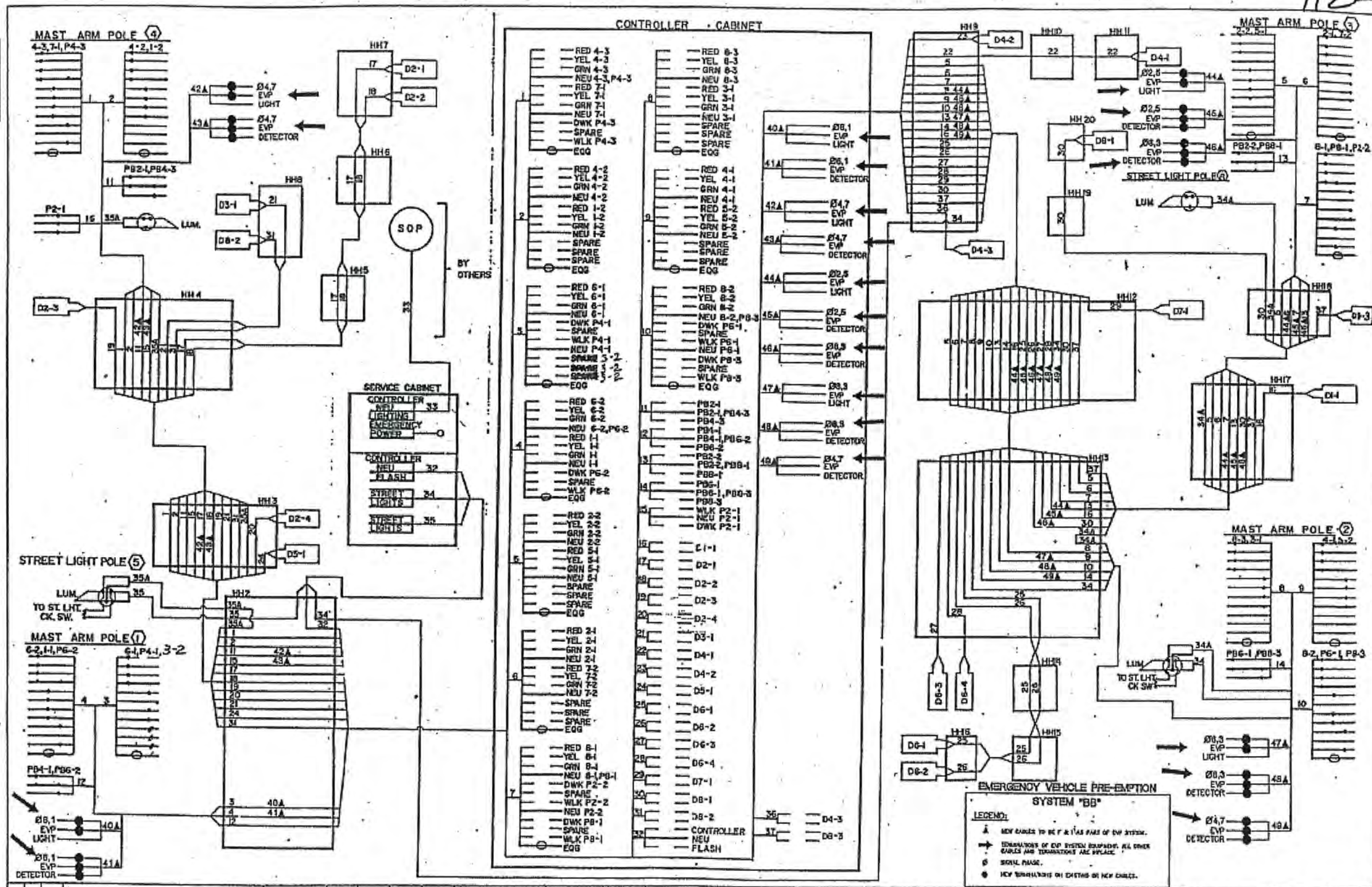
BLAINE/COON RAPIDS, MINNESOTA
ANOKA COUNTY

EVP SYSTEM "BB"
INTERSECTION

FILE NO. 57
BLAINE/COON RAPIDS

FOR REFERENCE PURPOSES ONLY

7122



FOR REFERENCE PURPOSES ONLY

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

Signature: *Matthew J. John* License No. 22467

SEH

BLAINE/COON RAPIDS, MINNESOTA
ANOKA COUNTY
S.A.P. 105-020-13, 114-020-16
BLAINE C.P. 98-10, COON RAPIDS C.P. 98-50

EVP SYSTEM "BB"
FIELD WIRING DIAGRAM
UNIVERSITY AVENUE (CSAH 61) AT
109TH AVENUE/NORTHDALE BOULEVARD

FILE NO. BLAINP802 58
DATE 6/19/98 82