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
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- WOOD FENCE
- STONE WALL OR FENCE
- HEDGE
- LOWLAND
- TIMBER / ORCHARD / BRUSH / NURSERY — TIMBER (AERIAL TELEPHONE CABLE)
- CATTLE GUARD — ROAD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame) — 1-S-F
  - F-FRAME C-CONCRETE
  - S-STONE T-TILE
  - B-BRICK ST-STUCCO
- RAILROAD CROSSING BELL
- RAILROAD CROSSING GATE
- MANHOLE — M.H.
- CATCH BASIN — C.B.
- FIRE HYDRANT
- CAST IRON MONUMENT
- IRON PIN
- GRAVEL PIT — G
- SAND PIT — S
- BORROW PIT — B
- ROCK QUARRY — Q

UTILITY SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE & POWER
  - ON POWER POLES
  - ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL (Cable Terminal)
- GAS MAIN — G
- WATERMAIN
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT — P
- TELEPHONE MANHOLE — T
- ELECTRIC MANHOLE — P
- BURIED TELEPHONE CABLE — T-BUR
- BURIED ELECTRIC CABLE — P-BUR
- T-AE
- SEWER (Sanitary or Storm)
- SEWER MANHOLE

SCALES

PLAN		0' – 100'
PROFILE	HORIZONTAL	0' – 100'
	VERTICAL	0' – 10'
X-SECTIONS	HORIZONTAL	0' – 10'
	VERTICAL	0' – 10'

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR MILL BITUMINOUS SURFACE, BITUMINOUS SURFACING, DRAINAGE AND CURB AND GUTTER

LOCATED ON C.S.A.H. 1 BETWEEN S. On/Off ramp AND Charles St.

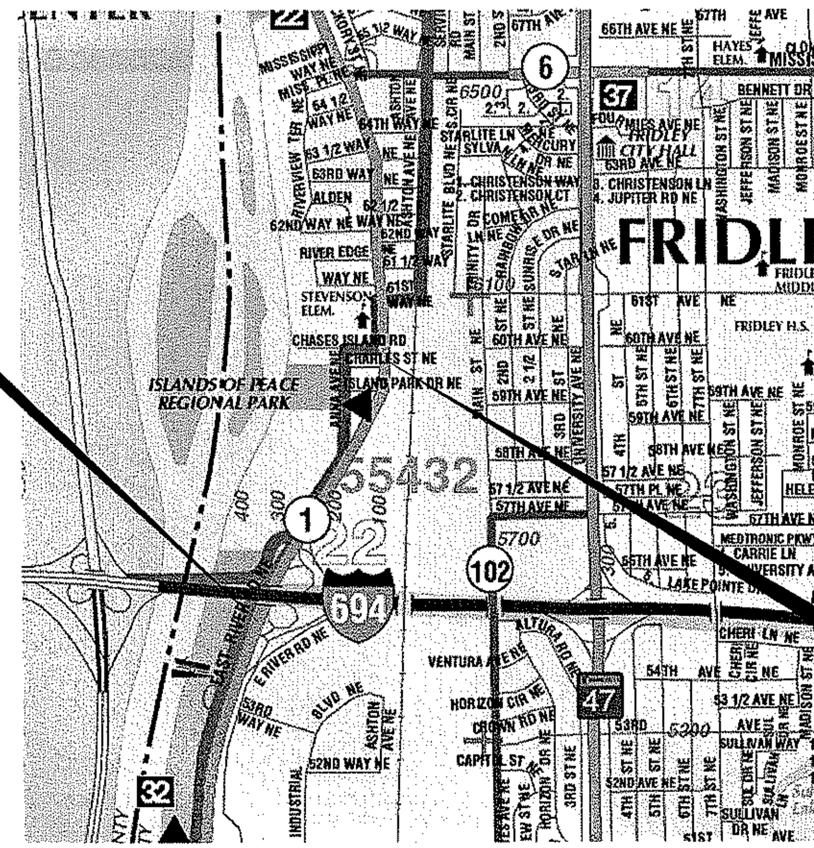
COUNTY PROJ. NO. C.P. 12-10-01

C.S.A.H. 1

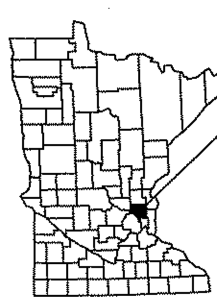
GROSS LENGTH	3669	FEET	0.695	MILES
BRIDGES-LENGTH	0.00	FEET	0.000	MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	3669	FEET	0.695	MILES

CITY OF FRIDLEY

BEGIN C.P. 12-10-01
C.S.A.H. 1 STA. 17+25

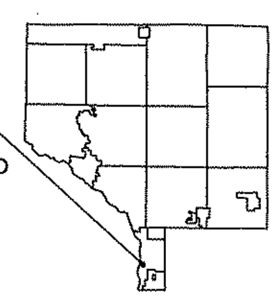


END C.P. 12-10-01
C.S.A.H. 1 STA. 53+94



PROJECT LOCATION

CITY OF FRIDLEY
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 22
TOWNSHIP 30 NORTH
RANGE 24 WEST



GOVERNING SPECIFICATIONS

THE 2005 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."

INDEX

THIS PLAN CONTAINS 22 SHEETS

DESIGN DESIGNATION

$ESAL_{20}$	753300
R VALUE	50
ADT (2010) =	19100
Proj. ADT (2030) =	26500
Proj. HCADT (2030) =	760
Soil Factor	NA

9 TON DESIGN

Functional Classification A MINOR EXPANDER
No. of Traffic Lanes 4 No. of Parking Lanes 0
Design Speed 40 MPH N/A
Based on Stopping Sight Distance
Height of eye 3.5' Height of object 2.0'

Approved [signature] 3/4/2012
ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\title.dgn 02/24/2012 9:25:18 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: CHARLES CADENHEAD
SIGNATURE: [signature]
DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12
DESIGN BY KPR DATE 1/06/12
CHECKED BY DFF DATE

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.
STATE AID PROJECT NO.
CITY PROJECT NO.
COUNTY PROJECT NO. 12-10-01

TITLE SHEET

Sheet 1 of 22 Sheets

CSAH 1	STATEMENT OF ESTIMATED QUANTITIES			
ITEM NO.	ITEM	NOTES	UNIT	TOTAL EST. QUANT.
2011.601	CONSTRUCTION SURVEYING		LUMP SUM	1
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE CURB AND GUTTER	1	LIN FT	1051
2104.503	REMOVE CONCRETE WALK		SQ FT	1190
2104.503	REMOVE BRICK MEDIAN		SQ FT	12283
2104.505	REMOVE BITUMINOUS PAVEMENT	1	SQ YD	339
2104.509	REMOVE MANHOLES OR CATCH BASINS		EACH	8
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	1	LIN FT	176
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	1	LIN FT	850
2232.501	MILL BITUMINOUS SURFACE (2.0")	11	SQ YD	33953
2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	13	SQ YD	422
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GAL	1719
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE(4,B)	2	TON	50
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE(4,E)	16	TON	3905
2360.502	TYPE SP 12.5 NON-WEARING COURSE MIXTURE(4,B)	1,3	TON	48
2504.602	ADJUST GATE VALVE		EACH	3
2506.501	CONST DRAINAGE STRUCTURE G	1,10,12	LIN FT	8.1
2506.501	CONST DRAINAGE STRUCTURE H	1,10,12	LIN FT	15.2
2506.501	CONST DRAINAGE STRUCTURE DES 48-4020	1,10,12	LIN FT	7.8
2506.503	RECONSTRUCT DRAINAGE STRUCTURE	1,4,10,12	LIN FT	11.8
2506.516	CASTING ASSEMBLY	14	EACH	40
2506.602	GROUT CATCH BASIN OR MANHOLE	1	EACH	8
2521.501	4" CONCRETE WALK	15	SQ FT	12586
2521.501	6" CONCRETE WALK		SQ FT	194
2531.501	CONCRETE CURB & GUTTER DESIGN B612		LIN FT	362
2531.501	CONCRETE CURB & GUTTER DESIGN B618		LIN FT	308
2531.501	CONCRETE CURB & GUTTER DESIGN B624		LIN FT	130
2531.501	CONCRETE CURB & GUTTER DESIGN B824		LIN FT	251
2531.501	CONCRETE CURB & GUTTER DESIGN D424		LIN FT	10
2531.618	TRUNCATED DOMES	5	SQ FT	72
2563.601	TRAFFIC CONTROL	8	LUMP SUM	1
2565.602	NMC LOOP DETECTOR 6'X6'		EACH	24
2573.530	STORM DRAINAGE INLET PROTECTION	1	EACH	42
2575.601	RAPID STABILIZATION METHOD 3	1,6	M-GAL	1
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	7	LIN FT	591
2582.502	4" SOLID LINE WHITE-EPOXY	9	LIN FT	11197
2582.502	4" BROKEN WHITE LINE-EPOXY	9	LIN FT	1450
2582.502	8" SOLID LINE WHITE-EPOXY	9	LIN FT	1280
2582.502	8" BROKEN WHITE LINE-EPOXY	9	LIN FT	183
2582.503	4" SOLID LINE YELLOW-EPOXY	9	LIN FT	7500
2582.602	PAVT MSSG (RT ARROW) PREF THERMOPLASTIC	9	EACH	3
2582.602	PAVT MSSG (LT ARROW) PREF THERMOPLASTIC	9	EACH	4
2582.603	24" SOLID LINE WHITE PREF THERMOPLASTIC	9	LIN FT	230
2582.618	3 X 6 ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	9	SQ FT	846

NOTES:

1. REFERENCE STRUCTURE REPAIR TAB.
2. ITEM FOR PAVING STREET APPROACHES.
3. ITEM FOR PATCHING AROUND M.H., C.B., INFRONT OF NEW CURB, AND DRIVEWAY TIE-IN TO NEW CURB.
4. ITEM INCLUDES STORM AND SANITARY M.H.
5. ITEM INCLUDES RADIAL TRUNCATED DOMES AS NEEDED.
6. ITEM INCLUDES FERTILIZER, SEED, AND TOPSOIL.
7. CENTERLINE WHITE SKIPS MUST BE APPLIED BEFORE CONTRACTOR LEAVES FOR THE DAY.
8. ROAD WORK AHEAD, DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, AND BUMP / BUMP AHEAD SIGNS TO BE INPLACE DURING MILL / OVERLAY OPERATIONS.
9. MARKINGS SHALL BE IN PLACE WITH IN 72 HOURS OF FINAL MAINLINE PAVING.
10. AGGREGATE BASE CLASS 5 IS INCIDENTAL FOR COMPACTING AROUND CB'S AND MH'S.
11. MAINLINE MILLING INCLUDES DETAIL MILLING AROUND MANHOLES, GATE VALVES, AND ALL STRUCTURES IN BIT. PAVEMENT AREA TO BE MILLED.
12. ALL MANHOLES MUST BE LOCATED AND PROTECTED AT ALL TIMES DURING MILLING AND PAVING OPERATIONS. CONTRACTORS RESPONSIBILITY.
13. ITEM USED FOR MILLING 2" ON DRIVEWAYS STREET APPROACHES.
14. FURNISH AND INSTALL. CASTING TYPE TO BE DETERMINED BY ENGINEER
15. ALL 4" MEDIAN WALK IS PAID UNDER 4" CONCRETE WALK.
16. ITEM INCLUDES CONSTRUCTION OF SAFTEY EDGE, REFER TO SPECAIL PROVISIONS.

BASIS OF PLANNED QUANTITIES

ITEM NO.		
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL / SQ YD
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (4, E)	115 LBS / SQ YD / INCH THICHNESS
2360.502	TYPE SP 12.5 NON-WEARING COURSE MIXTURE (4, B)	115 LBS / SQ YD / INCH THICHNESS
2575.601	RAPID STABILIZATION METHOD 3	6 MGAL / ACRE
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	2' AT 50' INTERVALS FOR SKIPS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\seq.dgn 03/01/2012 11:00:50 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: CHARLES CADENHEAD

SIGNATURE:

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12

DESIGN BY KPR DATE 1/06/12

CHECKED BY JO DATE

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE AID PROJECT NO.

CITY PROJECT NO.

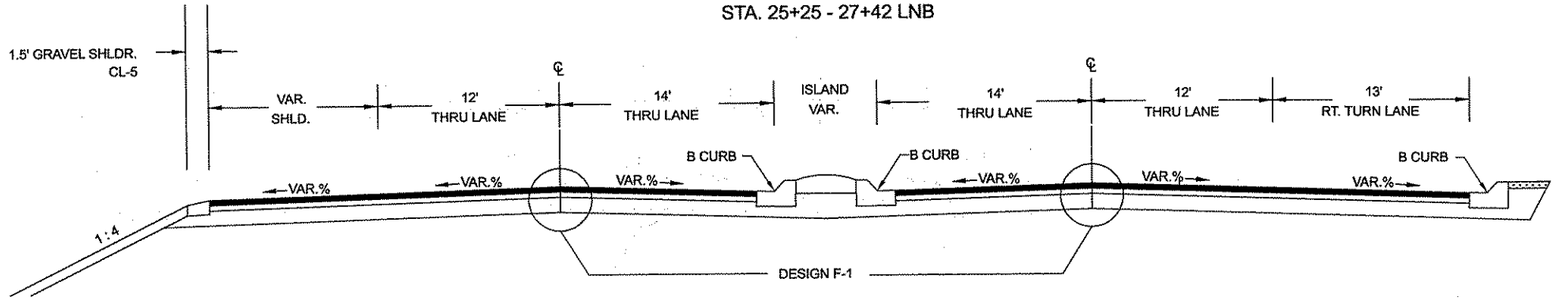
COUNTY PROJECT NO. 12-10-01

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 22 Sheets

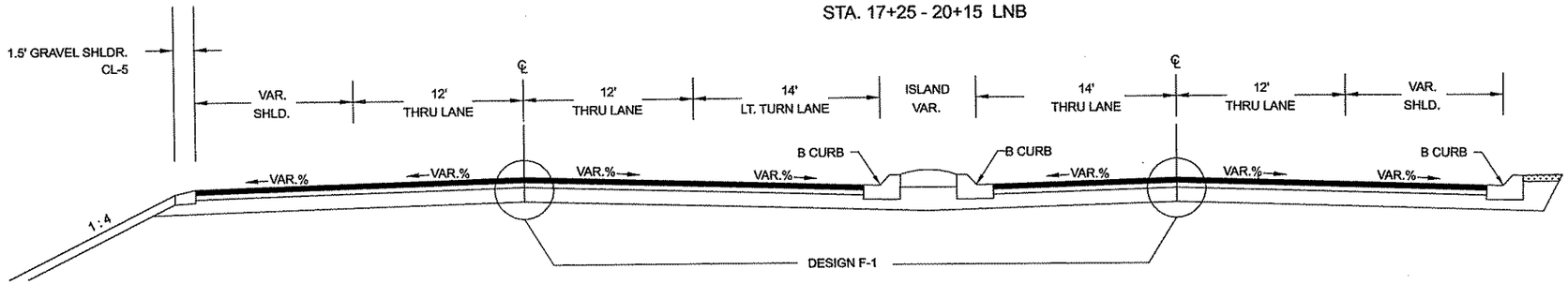
TYPICAL SECTION

STA. 25+25 - 27+42 LNB



TYPICAL SECTION

STA. 17+25 - 20+15 LNB



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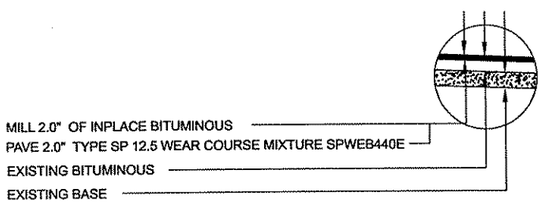

NO	DATE	BY	CKD	APPR	REVISION

NAME: p:\12-01-00\csah_01_(694-charles)\plan\typ.dgn 01/19/2012 1:30:20 PM

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PRINT NAME: Charles Cadenhead

SIGNATURE:

DATE: 3/9/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12

DESIGN BY KPR DATE 1/06/12

CHECKED BY JO DATE

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE AID PROJECT NO.

CITY PROJECT NO.

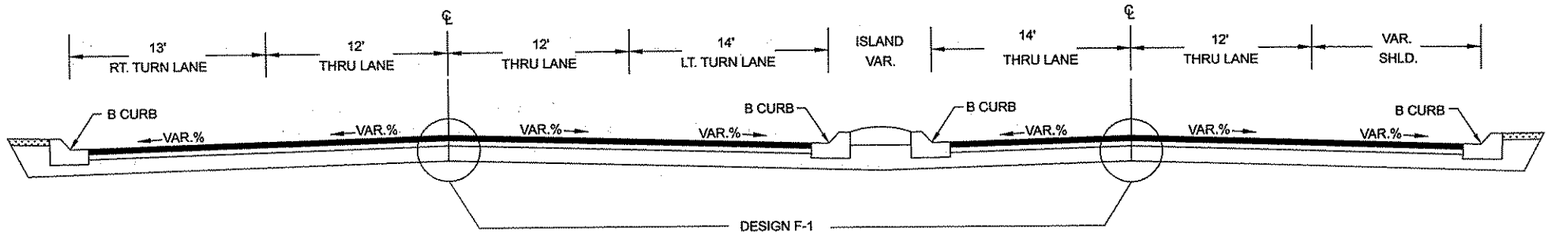
COUNTY PROJECT NO. 12-10-01

TYPICALS SECTIONS

Sheet 3 of 22 Sheets

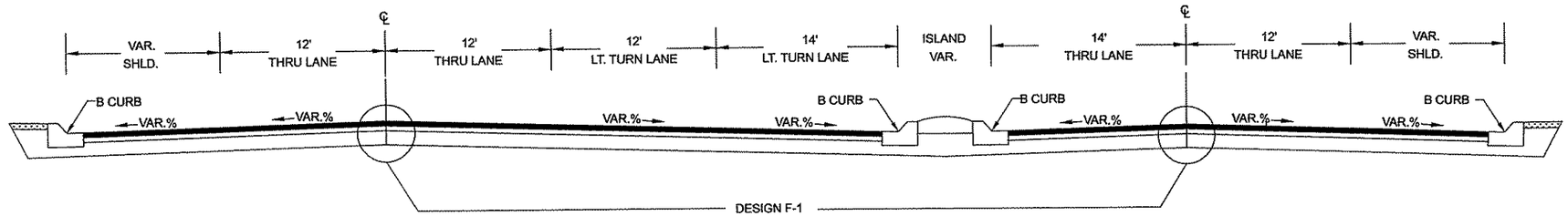
TYPICAL SECTION

STA. 36+60 - 43+42 LNB



TYPICAL SECTION

STA. 27+42 - 34+45 LNB



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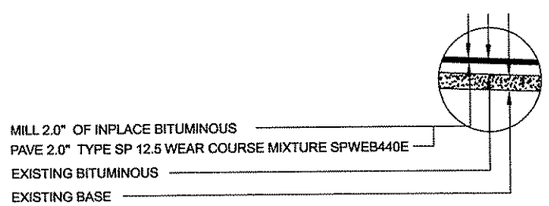

NO	DATE	BY	CKD	APPR	REVISION
					01/19/2012 1:30:21 PM

NAME: p:\12-01-00\csah_01_(694-charles)\plan\typ.dgn

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PRINT NAME: Charles Cadenhead

SIGNATURE:

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12

DESIGN BY KPR DATE 1/06/12

CHECKED BY JO DATE

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

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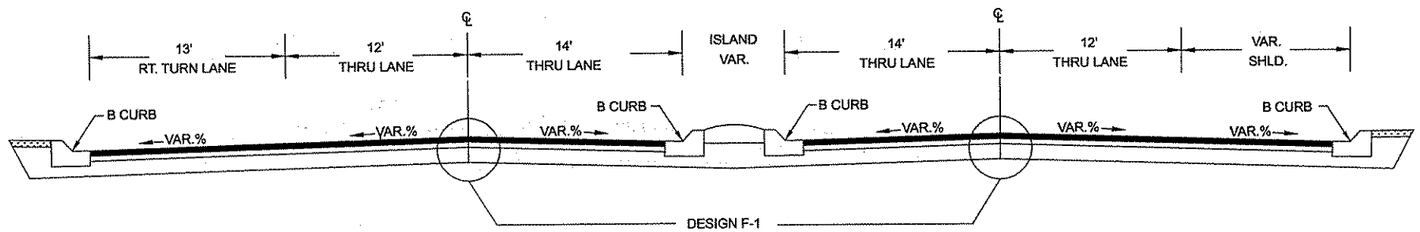
COUNTY PROJECT NO. 12-10-01

TYPICALS SECTIONS

Sheet 4 of 22 Sheets

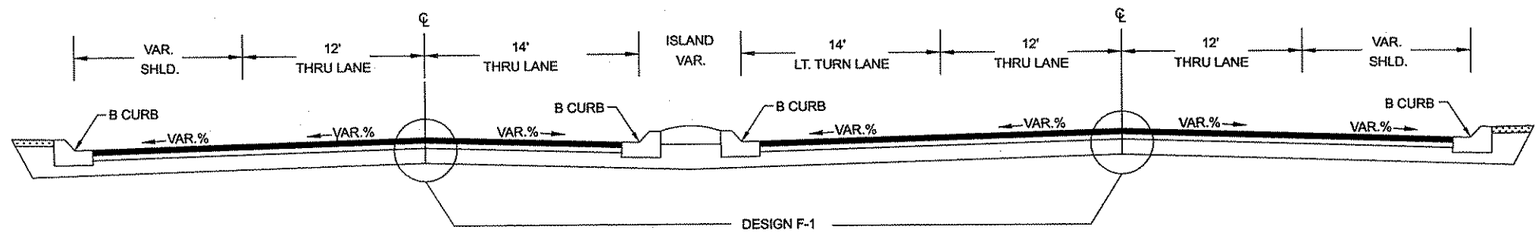
TYPICAL SECTION

STA. 34+45 - 36+60, 53+00 - 53+94 LNB



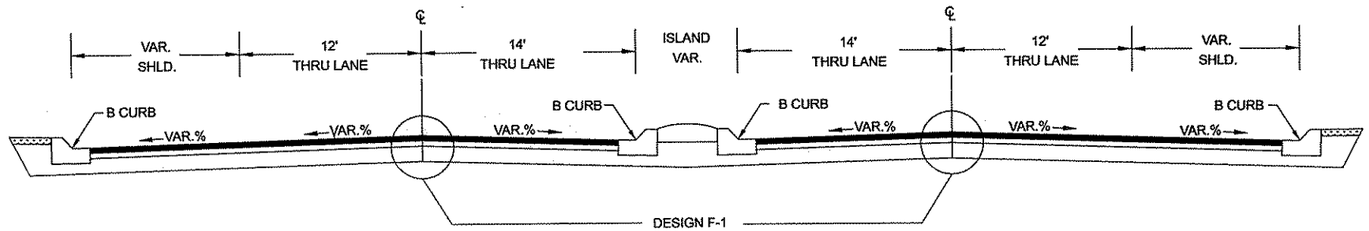
TYPICAL SECTION

STA. 50+75 - 53+00 LNB



TYPICAL SECTION

43+42 - 50+75 LNB



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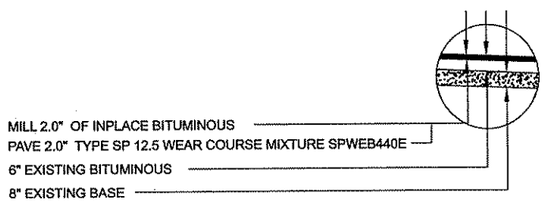

NO	DATE	BY	CKD	APPR	REVISION

NAME: p:\12-01-00\csah_01_(694-charles)\plan\typ.dgn 01/19/2012 1:30:22 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: Charles Cadenhead

SIGNATURE: [signature]

DATE: 1/19/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12

DESIGN BY KPR DATE 1/06/12

CHECKED BY JO DATE

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE AID PROJECT NO.

CITY PROJECT NO.

COUNTY PROJECT NO. 12-10-01

TYPICALS SECTIONS

Sheet 5 of 22 Sheets

A. STRUCTURE REPAIRS

STRUCTURE	STATION	LOC.		REMOVE C&G	REMOVE CONCRETE WALK	REMOVE BIT. PAVEMENT	REMOVE DRAINAGE STRUCTURE	SAW CONC.	SAW BIT. PAVEMENT OR BIT. CURB	REPLACE BIT. PAVEMENT	CONSTRUCT DRAIN STR H	CONSTRUCT DRAIN STR G	CONSTRUCT DRAIN STR 48-4020	RECONSTRUCT DRAINAGE STR. (RING HT)	GROUT AND CLEAN OUT STRUCTURE	FURNISH & INSTALL CASTING	CURB AND GUTTER B612	CURB AND GUTTER B618	CURB AND GUTTER B624	CURB AND GUTTER B324	CURB AND GUTTER D424	INLET PROTECTION	EROSION CONT. BLANKET	ACTION
				LF	SF	SY	EA	LF	LF	TON	FT	FT	FT	FT	FT	EA	LF	LF	LF	LF	LF	EA	SY	
101	17+29	RT	LNB												1							1		
102	19+40	RT	LNB	10		4.4	1	6	18	1		3.9				1			10			1	5	
103	121+44	RT	LSB												1							1		
104	21+47	LT	LNB												1							1		
105	21+47	RT	LNB	10		4.4		6	18	1				0.6		1			10			1		
106	122+04	LT	LSB	10		4.4		6	18	1				0.4		1			10			1		
107	122+04	RT	LSB												1							1		
108	22+00	LT	LNB												1							1		
109	22+00	RT	LNB	10		4.4		6	18	1				0.4		1			10			1		
110	22+55	LT	LNB	10		4.4		6	18	1				0.4		1				10		1	5	
111	22+50	RT	LNB	10		4.4		6	18	1				0.2		1			10			1	5	
112	123+70	RT	LSB	10		4.4	1	6	18	1	2.7					1				10		1	5	
113	124+00	RT	LSB	10		4.4		6	18	1				0.4		1				10		1	5	
114	23+92	LT	LNB	10		4.4	1	6	18	1		4.2				1				10		1	5	
115	23+92	RT	LNB	10		4.4		6	18	1				0.6		1			10			1	5	
116	27+53	RT	LNB	10		4.4	1	6	18	1	4.2					1					10	1	5	BLOCK
117	128+37	LT	LSB												1							1		
118	128+63	RT	LSB	10		4.4		6	18	1				0.4		1			10			1		
119	129+84	RT	LSB	10		4.4		4	18	1				0.4		1	10					1		
120	29+62	LT	LNB	10		4.4		6	18	1				0.4		1			10			1		
121	29+55	RT	LNB	10		4.4	1	6	18	1			4.9			1			10			1	5	TOP SLAB, BLOCK
122	130+45	LT	LSB	10		4.4	1	6	18	1	2.7					1			10			1	5	BLOCK
123	131+35	RT	LSB	10		4.4		4	18	1				0.2		1	10					1		
124	31+26	LT	LNB	10		4.4		6	18	1				0.2		1			10			1		
125	31+26	RT	LNB	10		4.4		4	18	1				0.6		1		10				1	5	
126	136+50	LT	LSB	10		4.4		6	18	1				0.2		1			10			1	5	
127	136+50	RT	LSB	10		4.4		4	18	1				0.4		1	10					1		
128	137+15	LT	LSB	10		4.4		6	18	1				0.4		1			10			1	5	
129	136+90	RT	LSB	10		4.4		4	18	1				0.0		1	10					1		
130	37+11	LT	LNB	10		4.4		4	18	1	3.2					1	10					1		
131	37+11	RT	LNB	10		4.4		4	18	1				0.6		1		10				1	5	
132	39+53	RT	LNB	10		4.4		4	18	1				0.4		1		10				1		
133	143+15	LT	LSB	10		4.4	1	4	18	1	2.4					1		10				1	5	BLOCK
134	143+15	RT	LSB	10	4.4	4.4	1	4	18	1			2.9			1	10					1		TOP SLAB, BLOCK
135	43+10	LT	LNB	10	4.4	4.4		4	18	1				0.4		1	10					1		
136	43+10	RT	LNB			11.1			40	2.5				0.6		1								
137	43+10	RT	LNB	10		4.4		4	18	1				0.6		1		10				1	5	
138	45+34	RT	LNB			11.1			40	2.5				0.4		1								
139	46+21	LT	LNB			11.1			40	2.5				0.4		1								
140	48+05	RT	LNB			11.1			40	2.5				0.6		1								
141	149+03	LT	LSB	10		4.4		4	18	1				0.2		1		10				1	5	
142	150+44	LT	LSB			4.4		4	18	1				0.2		1		10				1	5	
143	52+35	LT	LNB	10	4.4	4.4		4	18	1				0.4		1	10					1		
144	52+35	RT	LNB												1							1		GROUT DOGHOSE
145	52+90	RT	LNB			11.1			40	2.5				0.2		1								
146	53+38	LT	LNB												1							1		
147	53+46	RT	LNB																			1		OK
201	43+20	RT	LNB	10		4.4		4	18	1				0.2		1		10					5	
202	46+13	RT	LNB	10		4.4		4	18	1				0.4		1		10					5	
TOTALS				340	13	210	8	176	830	48	15.2	8.1	7.8	11.8	8	40	80	90	130	40	10	42	100	

B. SCHEDULE OF CASTING

ASSEMBLY	FRAME	COVER	CURB BOX	PLATE		REMARKS
A-7	700-7			4101		CHECK WITH CITY FOR TYPE OF CASTING AND LID FOR SANITARY MANHOLES.
		716		4110		
B-1	801			4126		
		810		4149		
			821B	4161		
B-9	805			4132		USE NEENAH R-3250 EVSP CB OR EQUIVALENT
		816		4154		
B-17	806			4125		USE NEENAH R-3250 DVSP CB OR EQUIVALENT
		816		4154		
			825	4134		
C-1						USE NEENAH R-3070 OR EQUIVALENT

NOTE: NOT TO SCALE

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SIGNATURE:

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ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE AID PROJECT NO.

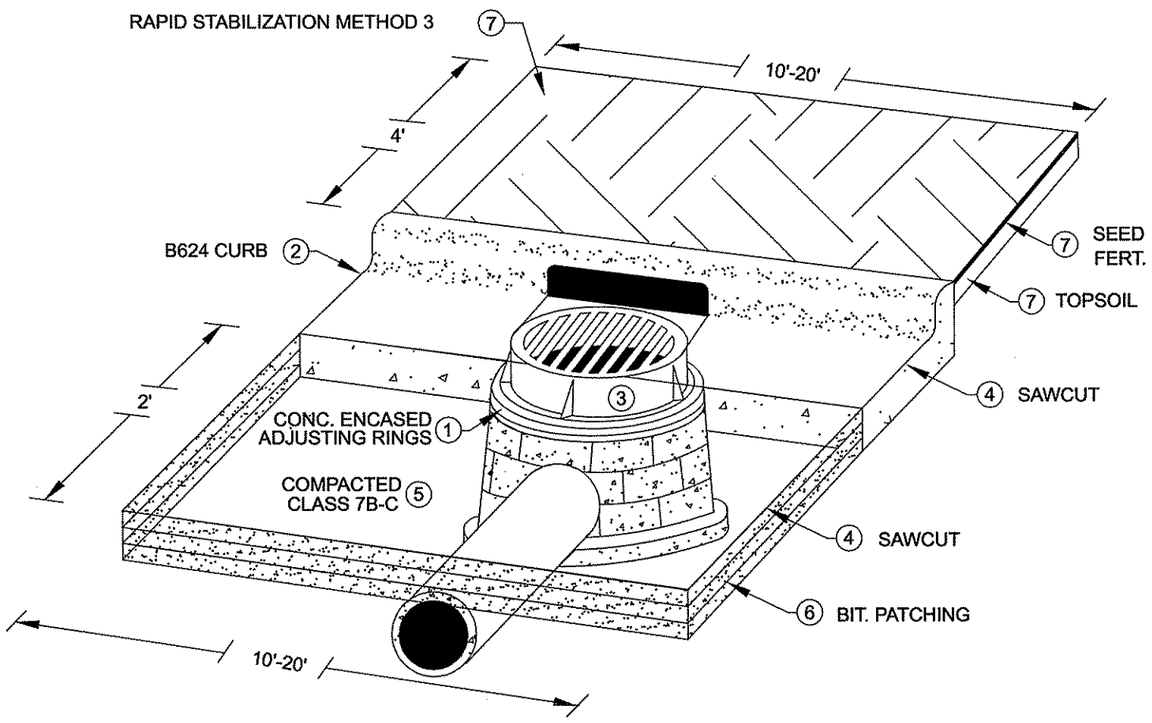
CITY PROJECT NO.

COUNTY PROJECT NO. 12-10-01

DRAINAGE TABULATIONS AND DETAILS

Sheet 6 of 22 Sheets

C.B. REPAIR DETAIL



NOTES.. FOR TRAFFIC CONTROL AT CATCH BASIN REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL. REFER TO MINNESOTA STANDARD PLATES MANUAL FOR THE FOLLOWING...

(1) CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A

(2) CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G

(3) INSTALLATION OF CATCH BASIN CASTINGS STANDARD PLATE 7111J

(4) SAWCUT BIT./CONCRETE BUS PADS/CONCRETE CURB FULL DEPTH.

(5) ADD AND COMPACT CL-5 AROUND REPAIRED STRUCTURE.

(6) REMOVE VAR. DEPTH BITUMINOUS 3"-7" / PATCH 2-LIFTS OF BITUMINOUS.

(7) REPLACE DISPLACED TOPSOIL- WITH RAPID STABILIZATION METHOD 3. SEED , FERT. AND TOPSOIL INNCIDENTAL.

NOTE: NOT TO SCALE

NOTES:

1 ALL STRUCTURE TYPES AND BUILD HIEGHTS ARE TO BE VERIFIED AND DETERMINED IN THE FIELD.

2 R-1733, R-3250, R-3250 EVSP, R-3250 DVSP CB DENOTE NEENAH CASTING ASSEMBLIES OR APPROVED EQUALS.

3 ALL CASTING TYPES AND CASTING HIEGHTS ARE TO BE VERIFIED AND DETERMINED IN THE FIELD.

4 ALL MANHOLE CASTINGS NEED TO HAVE "SANITARY SEWER" OR "STORM" STAMPED ON THEM.

5 CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A.

SAFETY EDGE CONSTRUCTION DETAIL

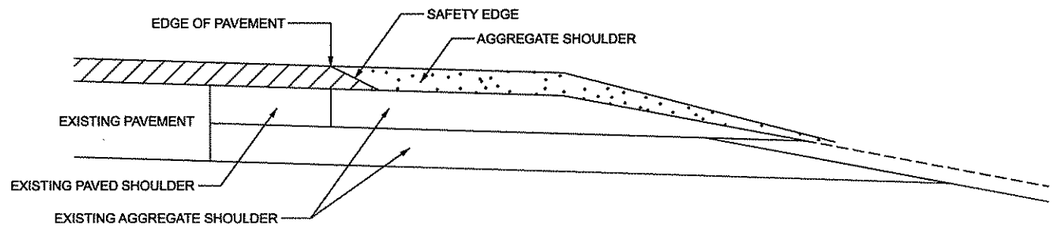


FIGURE C
BITUMINOUS MILL AND OVERLAY

NOTE: NOT TO SCALE

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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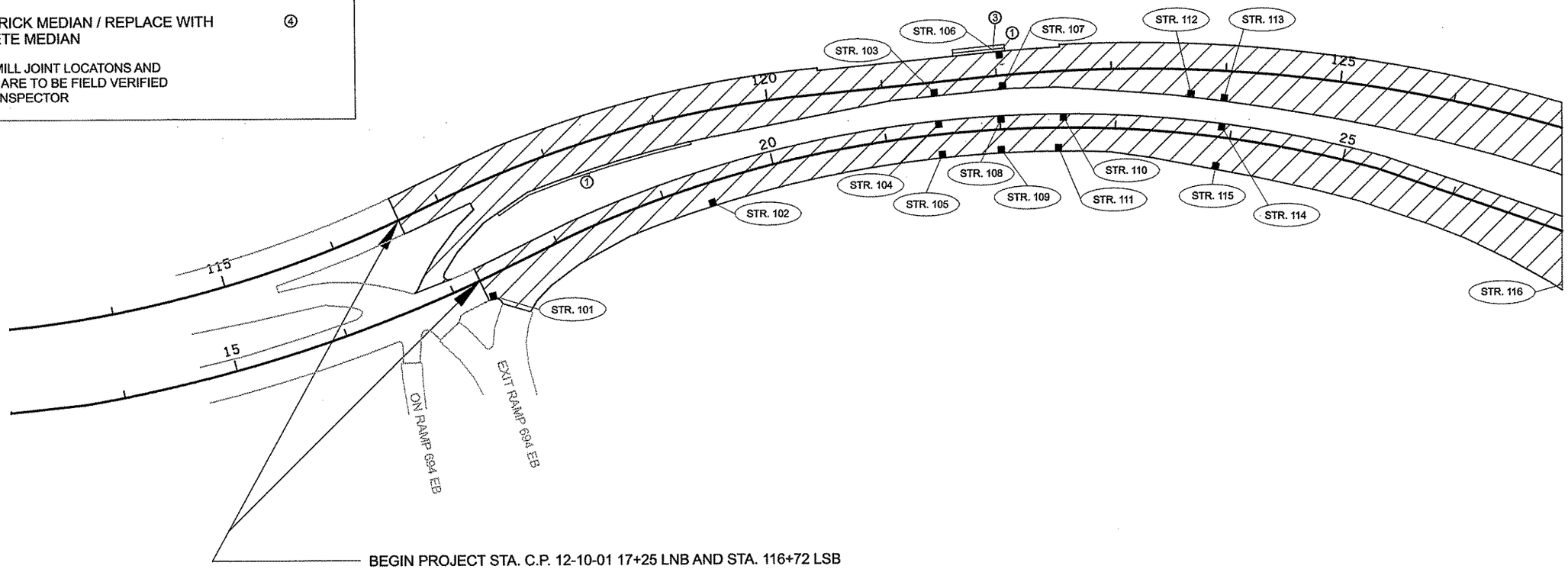
DRAINAGE TABULATIONS AND DETAILS

Sheet 7 of 22 Sheets

MILLED AREA	
MILLED DRIVEWAYS AND APPROACHES	
STORM SEWER MANHOLE	Ⓓ
SANITARY SEWER MANHOLE	Ⓢ
GATE VALVE	⋈
CATCH BASIN	● ■
REMOVE CURB AND GUTTER / REPLACE CURB AND GUTTER	①
REMOVE CONCRETE WALK / REPLACE WITH 6" CONCRETE WALK AND TRUNCATED DOMES	②
REMOVE CONCRETE WALK / REPLACE WITH 4" CONCRETE WALK	③
REMOVE BRICK MEDIAN / REPLACE WITH 4" CONCRETE MEDIAN	④

*NOTE: ALL MILL JOINT LOCATONS AND MILL AREAS, ARE TO BE FIELD VERIFIED BY ON SITE INSPECTOR



0 100
SCALE IN FEET

1 OF 3

NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY
HIGHWAY DEPT.

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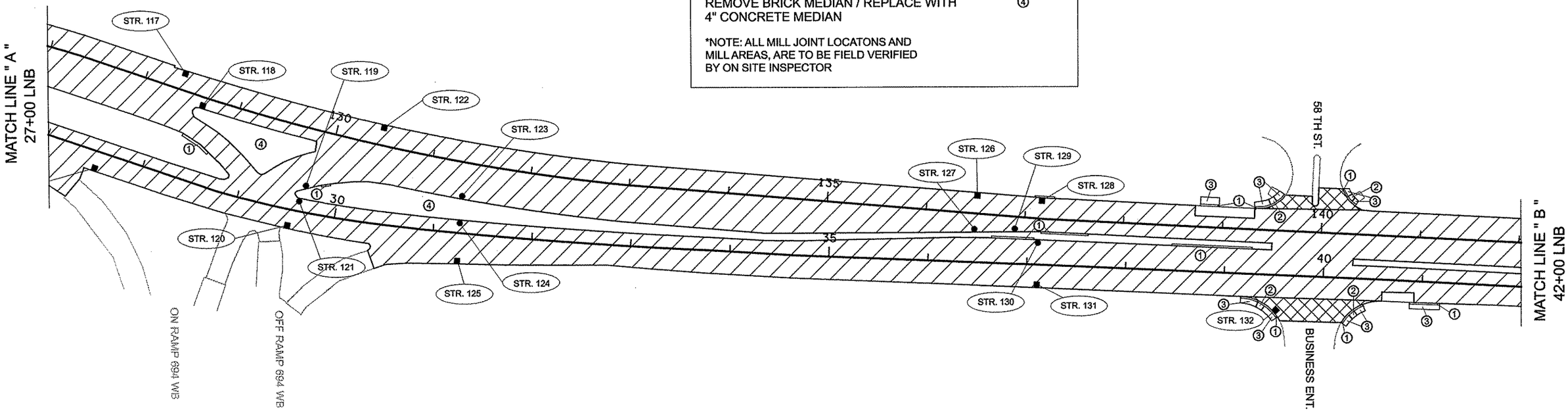
CONSTRUCTION PLAN
STA 10+25 LNB TO 27+00 LNB
Sheet 8 of 22 Sheets

MILLED AREA	
MILLED DRIVEWAYS AND APPROACHES	
STORM SEWER MANHOLE	Ⓓ
SANITARY SEWER MANHOLE	Ⓢ
GATE VALVE	⋈
CATCH BASIN	● ■
REMOVE CURB AND GUTTER / REPLACE CURB AND GUTTER	①
REMOVE CONCRETE WALK / REPLACE WITH 6" CONCRETE WALK AND TRUNCATED DOMES	②
REMOVE CONCRETE WALK / REPLACE WITH 4" CONCRETE WALK	③
REMOVE BRICK MEDIAN / REPLACE WITH 4" CONCRETE MEDIAN	④

*NOTE: ALL MILL JOINT LOCATONS AND MILL AREAS, ARE TO BE FIELD VERIFIED BY ON SITE INSPECTOR



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2 OF 3

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE AID PROJECT NO.

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COUNTY PROJECT NO. 12-10-01

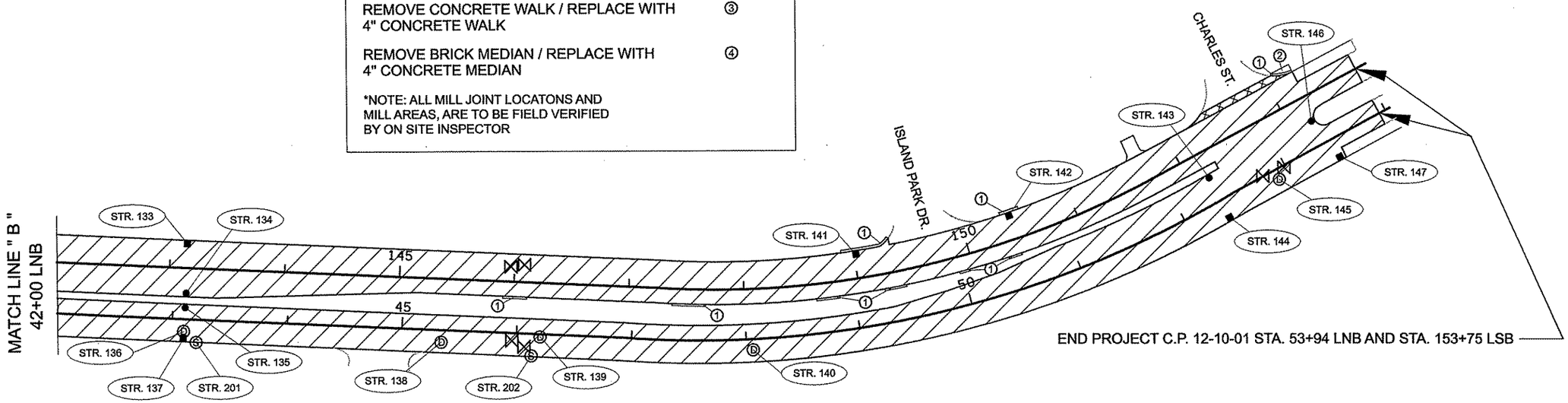
CONSTRUCTION PLAN

STA 27+00 LNB TO 42+00 LNB

Sheet 9 of 22 Sheets

MILLED AREA	
MILLED DRIVEWAYS AND APPROACHES	
STORM SEWER MANHOLE	Ⓓ
SANITARY SEWER MANHOLE	Ⓢ
GATE VALVE	⋈
CATCH BASIN	● ■
REMOVE CURB AND GUTTER / REPLACE CURB AND GUTTER	①
REMOVE CONCRETE WALK / REPLACE WITH 6" CONCRETE WALK AND TRUNCATED DOMES	②
REMOVE CONCRETE WALK / REPLACE WITH 4" CONCRETE WALK	③
REMOVE BRICK MEDIAN / REPLACE WITH 4" CONCRETE MEDIAN	④

*NOTE: ALL MILL JOINT LOCATONS AND MILL AREAS, ARE TO BE FIELD VERIFIED BY ON SITE INSPECTOR



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3 OF 3

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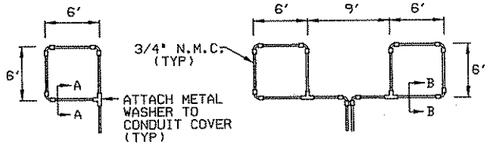
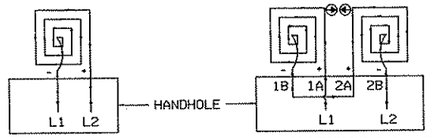
COUNTY PROJECT NO. 12-10-01

CONSTRUCTION PLAN
STA 42+00 LNB TO 53+94 LNB
Sheet 10 of 22 Sheets

ANOKA COUNTY SIGNAL LOOP DETAIL



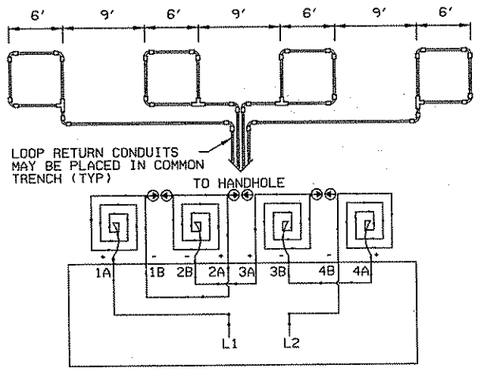


LOOP DETECTOR DETAIL 'A'
(LOOP PHASING FOR SINGLE CONNECTION)

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)

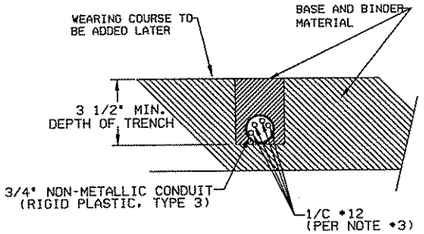


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

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

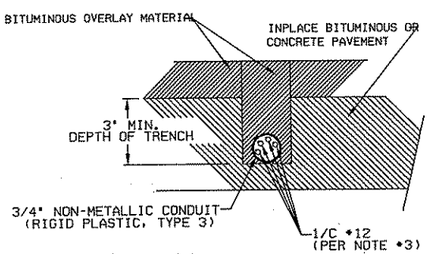
SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

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



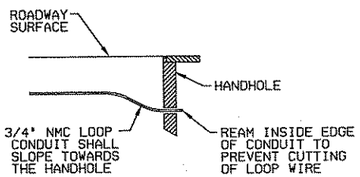
SECTION A-A

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.

ABBREVIATIONS

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

STANDARD PLATES

THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY.

PLATE NO.	DESCRIPTION
7035 I	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
7036 E	PEDESTRIAN CURB RAMP
7100 G	CONCRETE CURB AND GUTTER (DESIGN B)
8110 D	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
8111 C	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED
8112 C	PEDESTAL FOUNDATION
8114 A	PVC HANDHOLE/PULLBOX
8115 D	PEDESTRIAN PUSH BUTTON INSTALLATION
8118 C	SERVICE EQUIPMENT AND POLE-TRAFFIC CONTROL SIGNALS
8119 C	GROUND MOUNTED CABINET FOUNDATION
8120 K	PA85 POLE FOUNDATION
8121 D	TRANSFORMER BASE AND POLE BASE PLATE
8122 C	PEDESTAL AND PEDESTAL BASE
8123 E	POLE AND MAST ARM
8124 E	MAST ARM SIGNAL HEAD MOUNTS
8126 F	PA90 AND PA100 POLE FOUNDATION

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

LEGEND OF SYMBOLS

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

NOTE: NOT TO SCALE

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SIGNAL LOOP DETAIL

Sheet 11 of 22 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 $\frac{1}{4}$ INCH UNDER OR $\frac{1}{4}$ 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 BEANS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOLY 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 APPLICAITON 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.

PERMANENT PAVEMENT MARKING TABULATION

ITEM	Quantity	Units
4" Solid Line Yellow - Epoxy	7500	Lin Ft
4" Solid Line White - Epoxy	11197	Lin Ft
4" Broken White Line - Epoxy (10 ft stripe / 40 ft gap)	1450	Lin Ft
8" Broken White Line - Epoxy (3 ft stripe / 12 ft gap)	183	Lin Ft
8" Solid White Line - Epoxy	1280	Lin Ft
24" White Pref Thermoplastic	230	Lin Ft
3'x6' Zebra Crossw alk Pref Thermoplastic	846	SQ FT
Pvmt Mssg (Rt Arrow) Pref Thermoplastic	3	Each
Pvmt Mssg (Lt Arrow) Pref Thermoplastic	4	Each

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK WHITE-POLY PREFORM

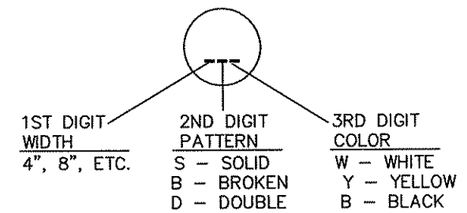
PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

STRIPING KEY

CIRCLE - EPOXY SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 1\Plan\Perm pvmt mrkg guide notes_guidelines.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: CHARLES CADENHEAD
SIGNATURE:
DATE: 3/2/12 LICENSE NO. 40418

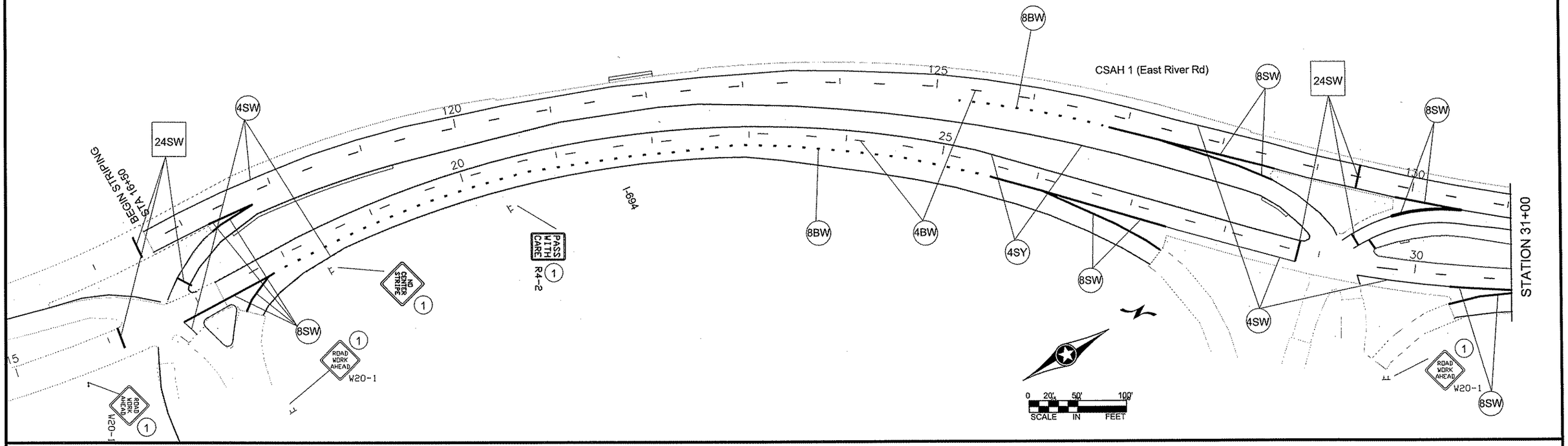
DRAWN BY MTH DATE 12/01/2011
DESIGN BY MTH DATE 12/01/2011
CHECKED BY RB DATE 12/01/2011

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.
STATE AID PROJECT NO.
STATE AID PROJECT NO.
COUNTY PROJECT NO. 12-10-01

PERMANENT MARKING TABULATION

Sheet 12 of 22 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".
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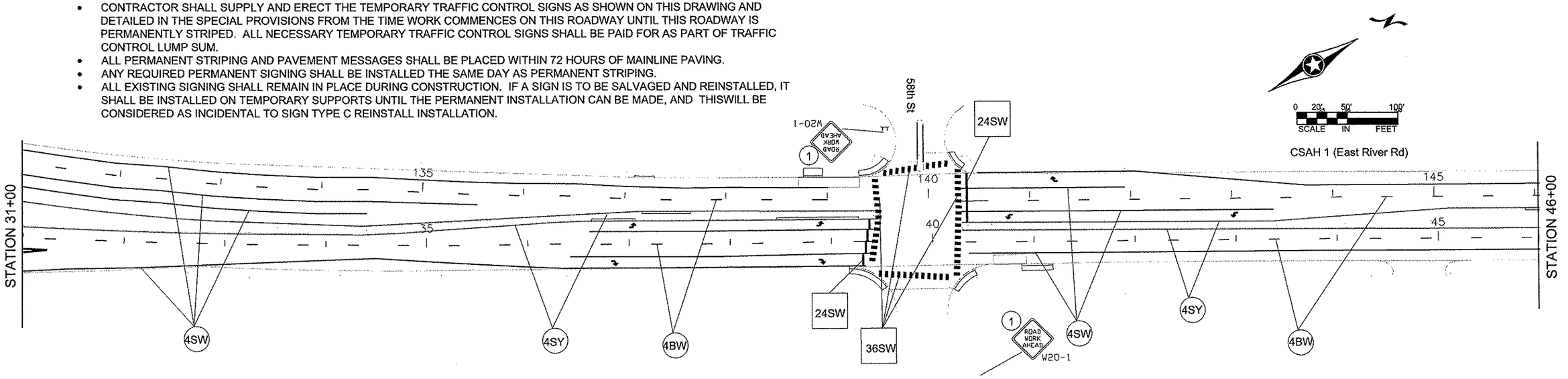
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. IF A SIGN IS TO BE SALVAGED AND REINSTALLED, IT SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE, AND THISWILL BE CONSIDERED AS INCIDENTAL TO SIGN TYPE C REINSTALL INSTALLATION.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12--01--00\CSAH_01_(694_Charles)\Plan\permanent signing & striping.dwg

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PRINT NAME: CHARLES CADENHEAD

SIGNATURE: Charles Cadenhead

DATE: 3/2/12 REG. NO. 40416

DRAWN BY MTH DATE 12/04/11

DESIGN BY MTH DATE 12/04/11

CHECKED BY JR DATE 01/30/12

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

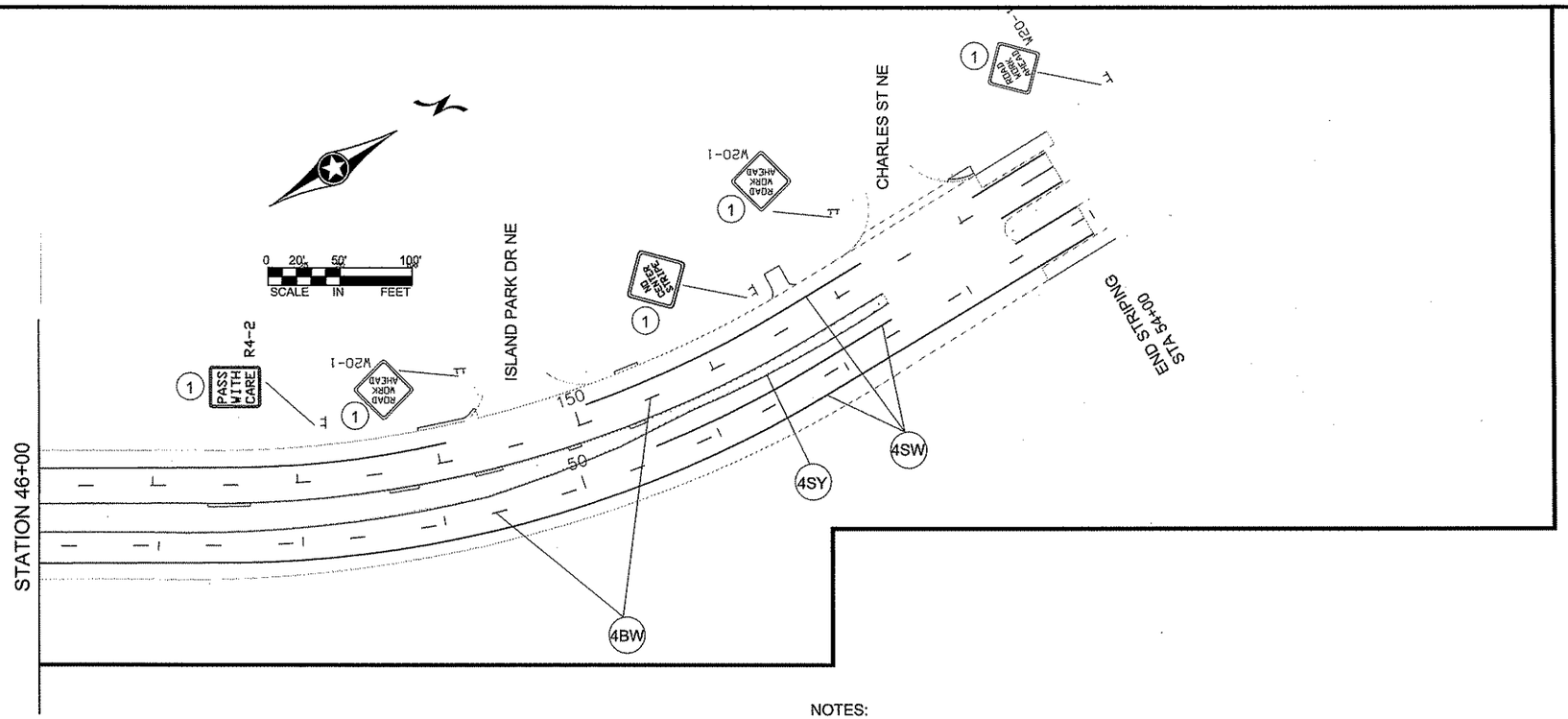
STATE AID PROJECT NO.

STATE AID PROJECT NO.

COUNTY PROJECT NO. 12-10-01

CSAH 1 (EAST RIVER RD)
TEMPORARY SIGNING
PERMANENT STRIPING
AND PAVEMENT MESSAGES

Sheet 13 of 22 Sheets



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SEE SPECIAL PROVISIONS

① TEMPORARY TRAFFIC CONTROL SIGN
② F & I PERMANENT SIGN
③ SALVAGE PERMANENT SIGN
④ RE-INSTALL PERMANENT SIGN

TEMPORARY TRAFFIC CONTROL SIGNS

M.U.T.C.D. CODE	SIZE	PANEL AREA FT.²	INSERT	QUANTITY	No. POST	
W8-12	48" x 48"	16.00	NO CENTER STRIPE	2	2	
R4-1	24" x 30"	5.00	DO NOT PASS R4-1	0	1	
R4-2	24" x 30"	5.00	PASS WITH CARE R4-2	2	1	
R10-6	48" x 48"	16.00	STOP HERE ON RED R10-6	AS NEEDED		
W8-1A	48" x 48"	16.00	BUMP AHEAD W8-1A	AS NEEDED		
W8-1A	48" x 48"	16.00	BUMP W8-1A	AS NEEDED		
W8-8	48" x 48"	16.00	ROUGH ROAD W8-8	AS NEEDED		
W8-11	48" x 48"	16.00	UNEVEN LANES W8-11	AS NEEDED		
W20-1	48" x 48"	16.00	ROAD WORK AHEAD W20-1	AS NEEDED (ESTIMATED 7)		

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\12-01-00\CSAH_01_(694_Charles)\Plan\permanent signing & striping.dwg					

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PRINT NAME: C. CHARLES CADENHEAD
SIGNATURE:
DATE: 12/12 REG. NO. 40416

DRAWN BY MTH DATE 12/04/11
DESIGN BY MTH DATE 12/04/11
CHECKED BY ____ DATE ____

ANOKA COUNTY HIGHWAY DEPT.

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CSAH 1 (EAST RIVER RD)
TEMPORARY SIGNING
PERMANENT STRIPING
AND PAVEMENT MESSAGES

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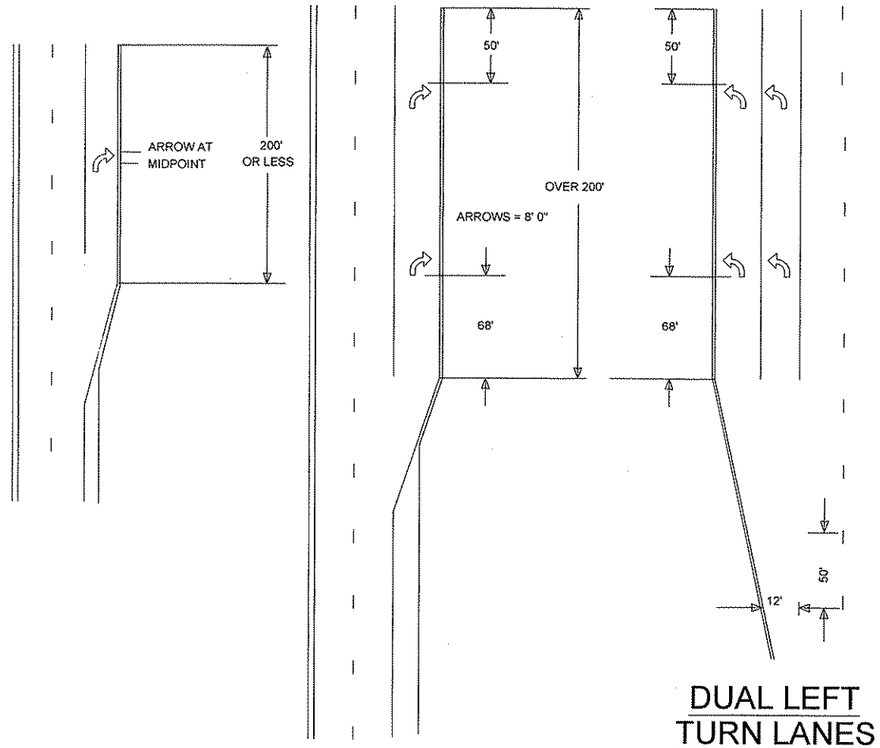
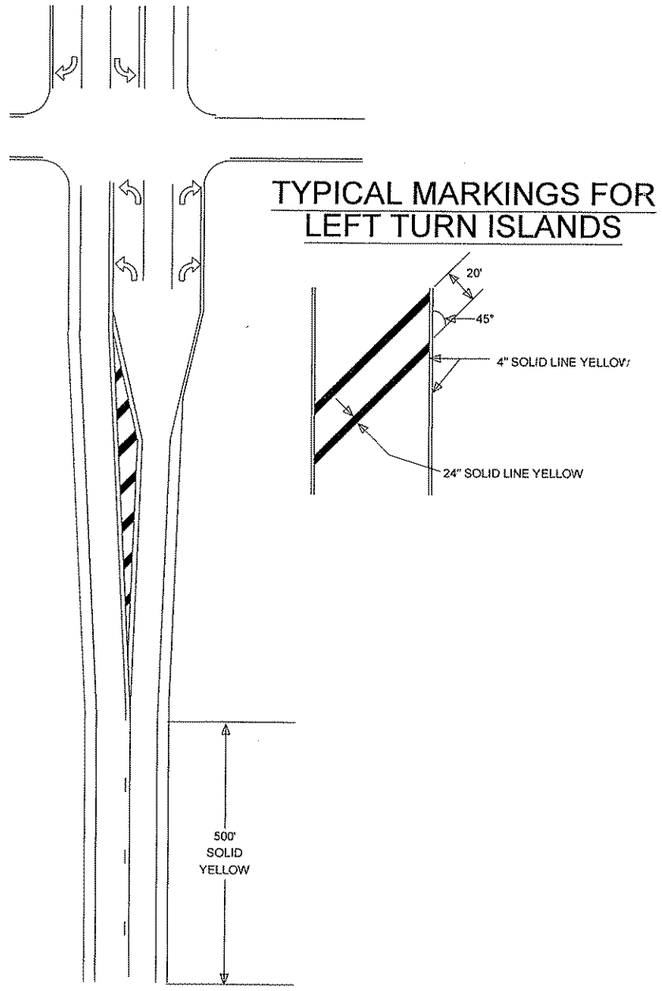
TYPICAL MESSAGE PLACEMENT FOR TURN LANES



DUAL LEFT TURN LANES

TYPICAL MARKINGS FOR LEFT TURN ISLANDS



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PRINT NAME: CHARLES CADENHEAD

SIGNATURE:

DATE: 1/21/12 LICENSE NO. 40416

DRAWN BY MTH DATE 1-21-12

DESIGN BY MTH DATE 1-21-12

CHECKED BY JR DATE 1-21-12

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SIGNING & STRIPING DETAILS

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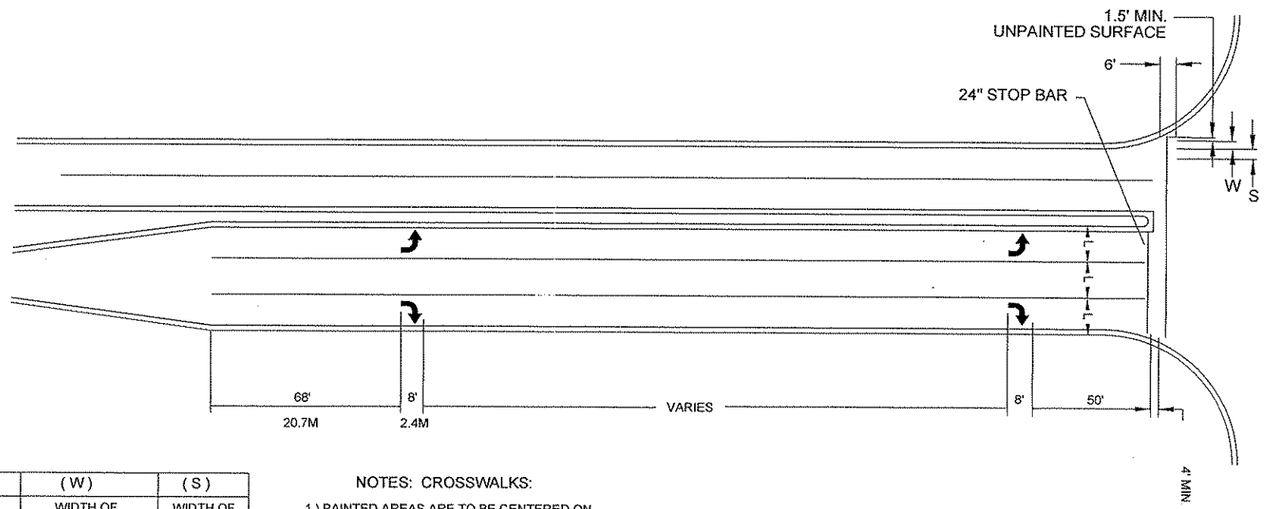
MARKINGS FOR PEDESTRIAN CROSSWALKS



(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 VERFIED 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) NSIDE LANE.

NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR 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 TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 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 F° OR GREATER.

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

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°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF 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.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 1\Base\TRAFFIC\Sign&Stripe_Details.dwg

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PRINT NAME: CHARLES CADENHEAD

SIGNATURE:

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY MTH DATE 1-21-12

DESIGN BY MTH DATE 1-21-12

CHECKED BY JR DATE 1-21-12

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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STATE PROJECT NO. _____

COUNTY PROJECT NO. 12-10-01

SIGNING & STRIPING DETAILS

Sheet 16 of 22 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 $\frac{1}{4}$ INCH UNDER OR $\frac{1}{4}$ 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 BEANS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

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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 APPLICAITON 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.

PERMANENT PAVEMENT MARKING TABULATION

ITEM	Quantity	Units
4" Solid Line Yellow - Epoxy	7500	Lin Ft
4" Solid Line White - Epoxy	11197	Lin Ft
4" Broken White Line - Epoxy (10 ft stripe / 40 ft gap)	1450	Lin Ft
8" Broken White Line - Epoxy (3 ft stripe / 12 ft gap)	183	Lin Ft
8" Solid White Line - Epoxy	1280	Lin Ft
24" White Pref Thermoplastic	230	Lin Ft
3'x6' Zebra Crossw alk Pref Thermoplastic	846	SQ FT
Pvmt Mssg (Rt Arrow) Pref Thermoplastic	3	Each
Pvmt Mssg (Lt Arrow) Pref Thermoplastic	4	Each

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

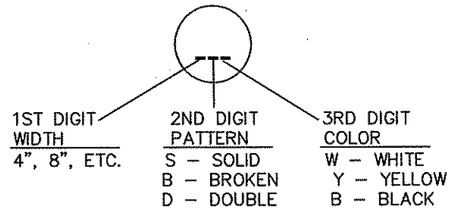
STRIPING KEY

CIRCLE - EPOXY

SQUARE PREFORMED THERMOPLASTIC

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 1\Plan\Perm pvmt mrkg guide notes_guidelines.dwg

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PRINT NAME: CHARLES CADENHEAD
SIGNATURE:
DATE: 3/12/12 LICENSE NO. 40416

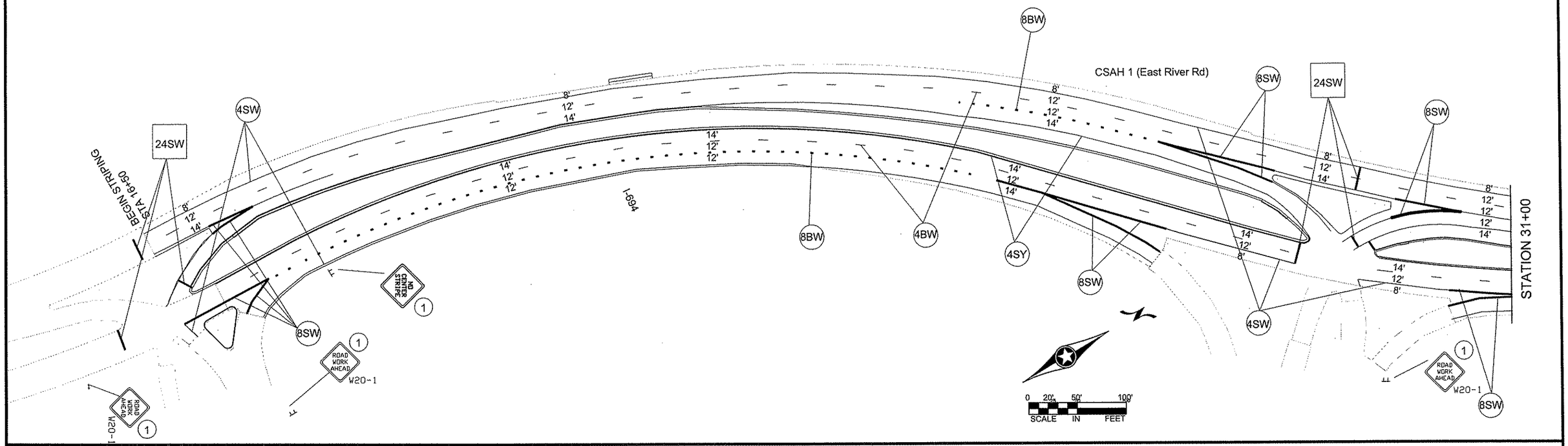
DRAWN BY MTH DATE 12/01/2011
DESIGN BY MTH DATE 12/01/2011
CHECKED BY JR DATE 2/14/2012

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.
STATE AID PROJECT NO.
STATE AID PROJECT NO.
COUNTY PROJECT NO. 12-10-01

PERMANENT MARKING TABULATION

Sheet 12 of 22 Sheets



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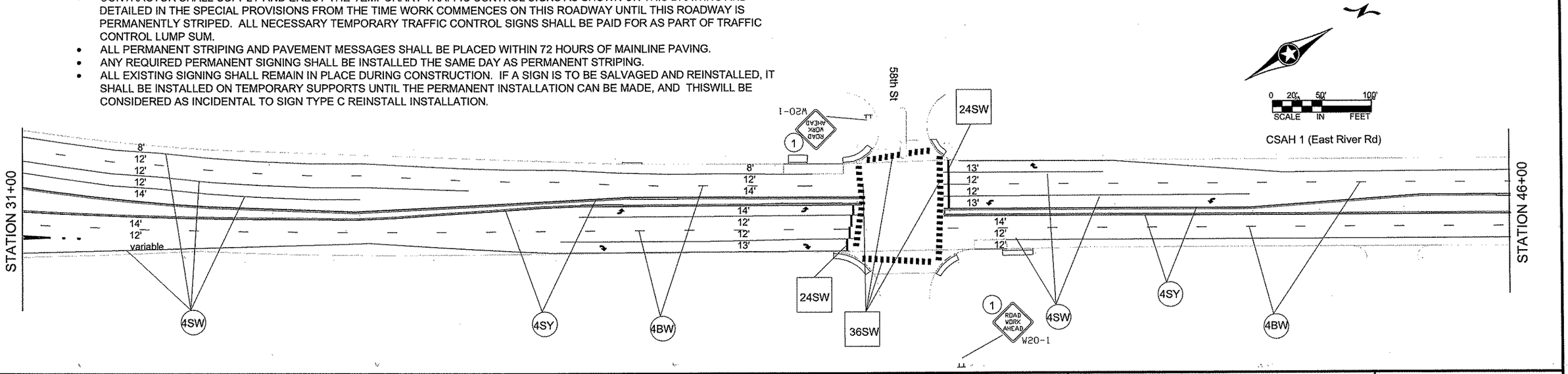

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\12-01-00\CSAH_01_(694_Charles)\Plan\permanent signing & striping.dwg					

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CSAH 1 (EAST RIVER RD)
TEMPORARY SIGNING
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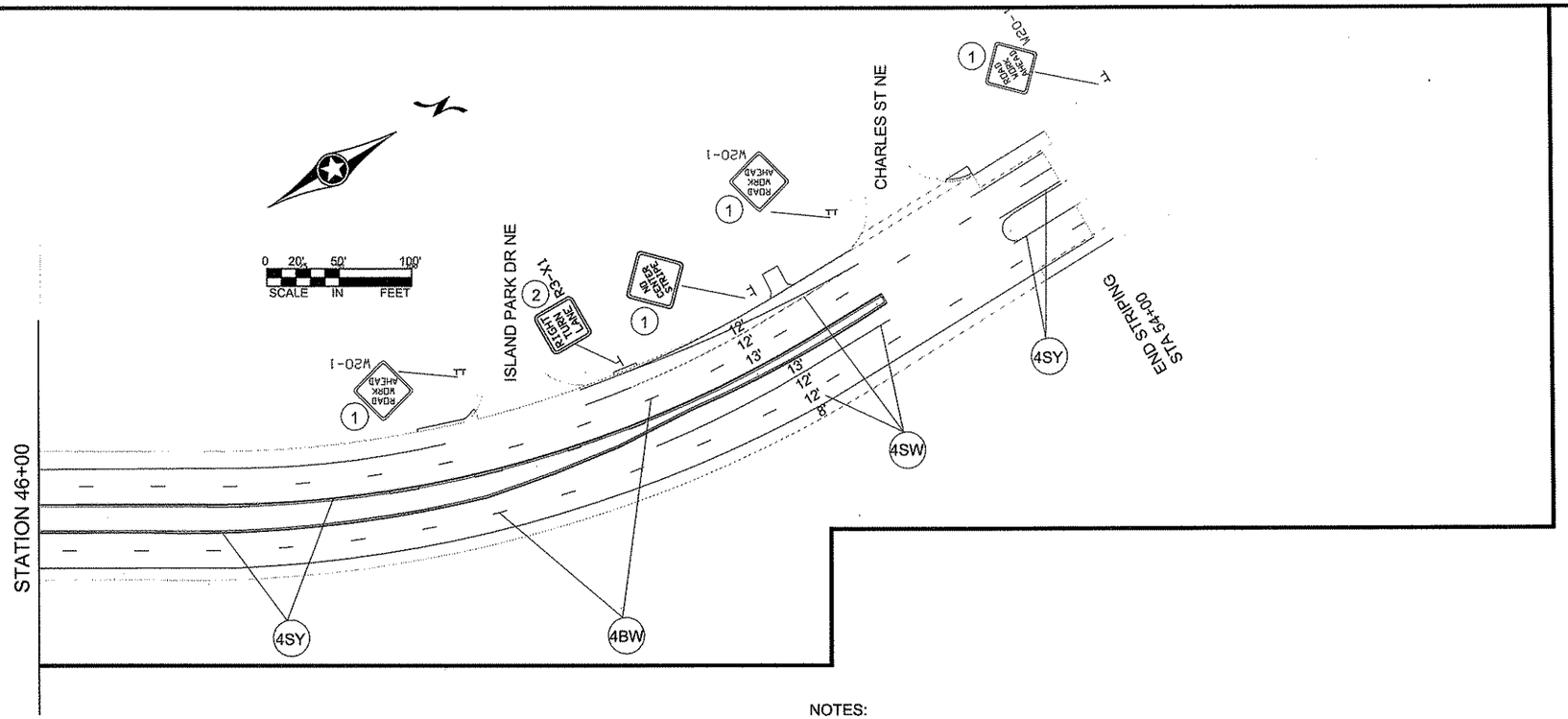
Sheet 13 of 22 Sheets



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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.
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. IF A SIGN IS TO BE SALVAGED AND REINSTALLED, IT SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE, AND THISWILL BE CONSIDERED AS INCIDENTAL TO SIGN TYPE C REINSTALL INSTALLATION.

SEE SPECIAL PROVISIONS

① TEMPORARY TRAFFIC CONTROL SIGN
② F & I PERMANENT SIGN
③ SALVAGE PERMANENT SIGN
④ RE-INSTALL PERMANENT SIGN

TEMPORARY TRAFFIC CONTROL SIGNS

M.U.T.C.D. CODE	SIZE	PANEL AREA FT.^{2}	INSERT	QUANTITY	No. POST	
W8-12	48" x 48"	16.00	NO CENTER STRIPE	2	2	
R4-1	24" x 30"	5.00	DO NOT PASS R4-1	0	1	
R4-2	24" x 30"	5.00	PASS WITH CARE R4-2	0	1	
R10-6	48" x 48"	16.00	STOP WHEN FLASHING RED R10-6	AS NEEDED		
W8-1A	48" x 48"	16.00	BUMP AHEAD W8-1A	AS NEEDED		
W8-1A	48" x 48"	16.00	BUMP W8-1A	AS NEEDED		
W8-8	48" x 48"	16.00	ROUGH ROAD W8-8	AS NEEDED		
W8-11	48" x 48"	16.00	UNEVEN LANES W8-11	AS NEEDED		
W20-1	48" x 48"	16.00	ROAD WORK AHEAD W20-1	AS NEEDED (ESTIMATED 7)		

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\12-01-00\CSAH_01_(694_Charles)\Plan\permanent signing & striping.dwg					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: CHARLES CADENHEAD
SIGNATURE: Charles B Cadenhead
DATE: 3/2/12 REG. NO. 40416

DRAWN BY MTH DATE 12/04/11
DESIGN BY MTH DATE 12/04/11
CHECKED BY JR DATE 2/14/12

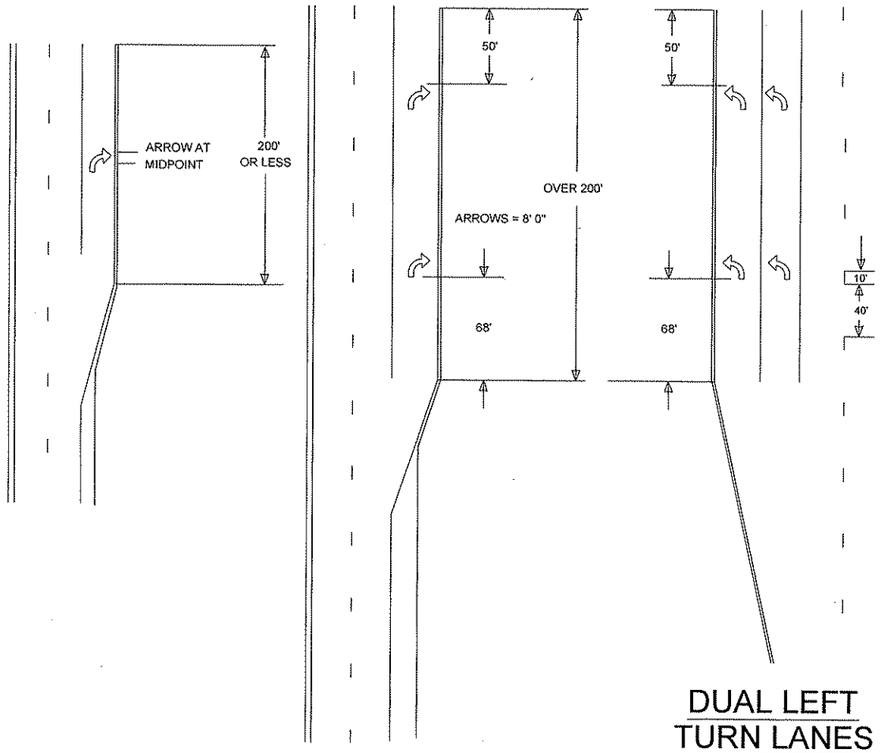
ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.
STATE AID PROJECT NO.
STATE AID PROJECT NO.
COUNTY PROJECT NO. 12-10-01

CSAH 1 (EAST RIVER RD)
TEMPORARY SIGNING
PERMANENT STRIPING
AND PAVEMENT MESSAGES

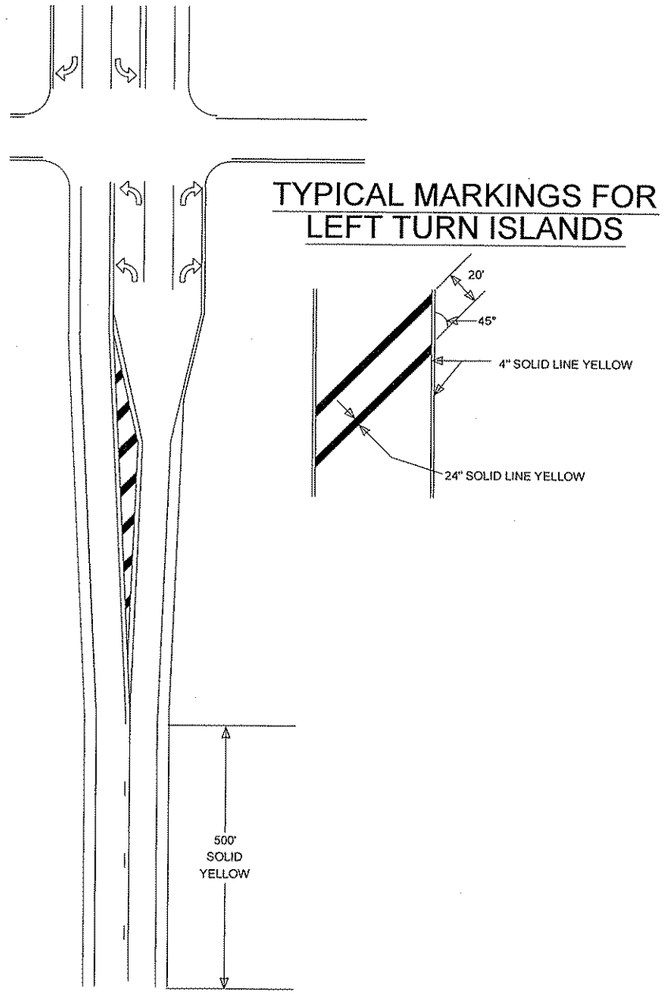
Sheet 14 of 22 Sheets

TYPICAL MESSAGE PLACEMENT FOR TURN LANES



DUAL LEFT TURN LANES

TYPICAL MARKINGS FOR LEFT TURN ISLANDS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 1\Base\TRAFFIC\Sign&Stripe_Details.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: CHARLES CADENHEAD

SIGNATURE:

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY MTH DATE 1-21-12

DESIGN BY MTH DATE 1-21-12

CHECKED BY JR DATE 2-14-12

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE PROJECT NO.

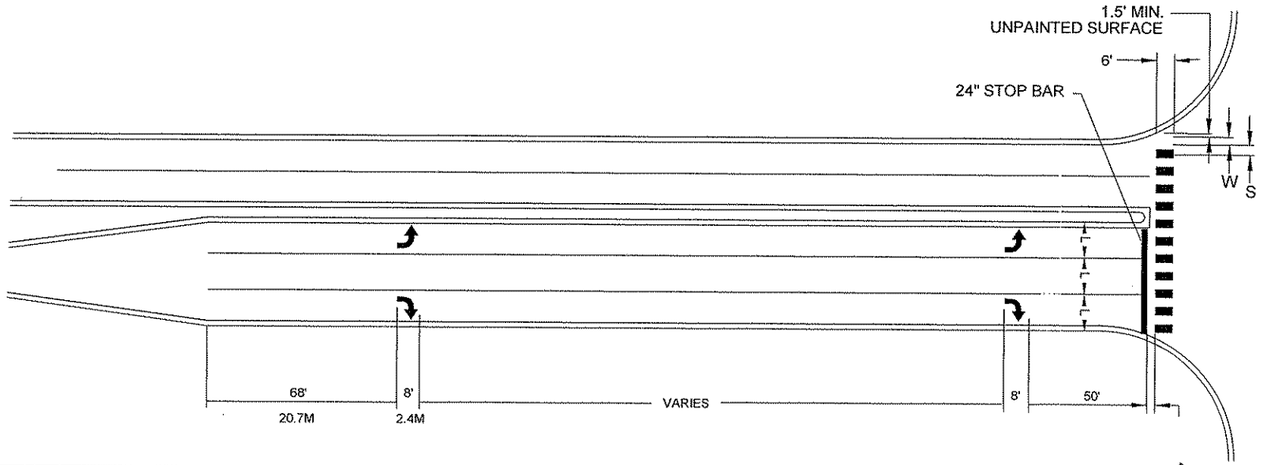
STATE PROJECT NO.

COUNTY PROJECT NO. 12-10-01

SIGNING & STRIPING DETAILS

Sheet 15 of 22 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 VERFIED 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) NSIDE LANE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 1\Bose\TRAFFIC\Sign&Stripe_Details.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: CHARLES CADENHEAD

SIGNATURE:

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY MTH DATE 1-21-12

DESIGN BY MTH DATE 1-21-12

CHECKED BY JR DATE 2-14-12

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE PROJECT NO.

STATE PROJECT NO.

COUNTY PROJECT NO. 12-10-01

SIGNING & STRIPING DETAILS

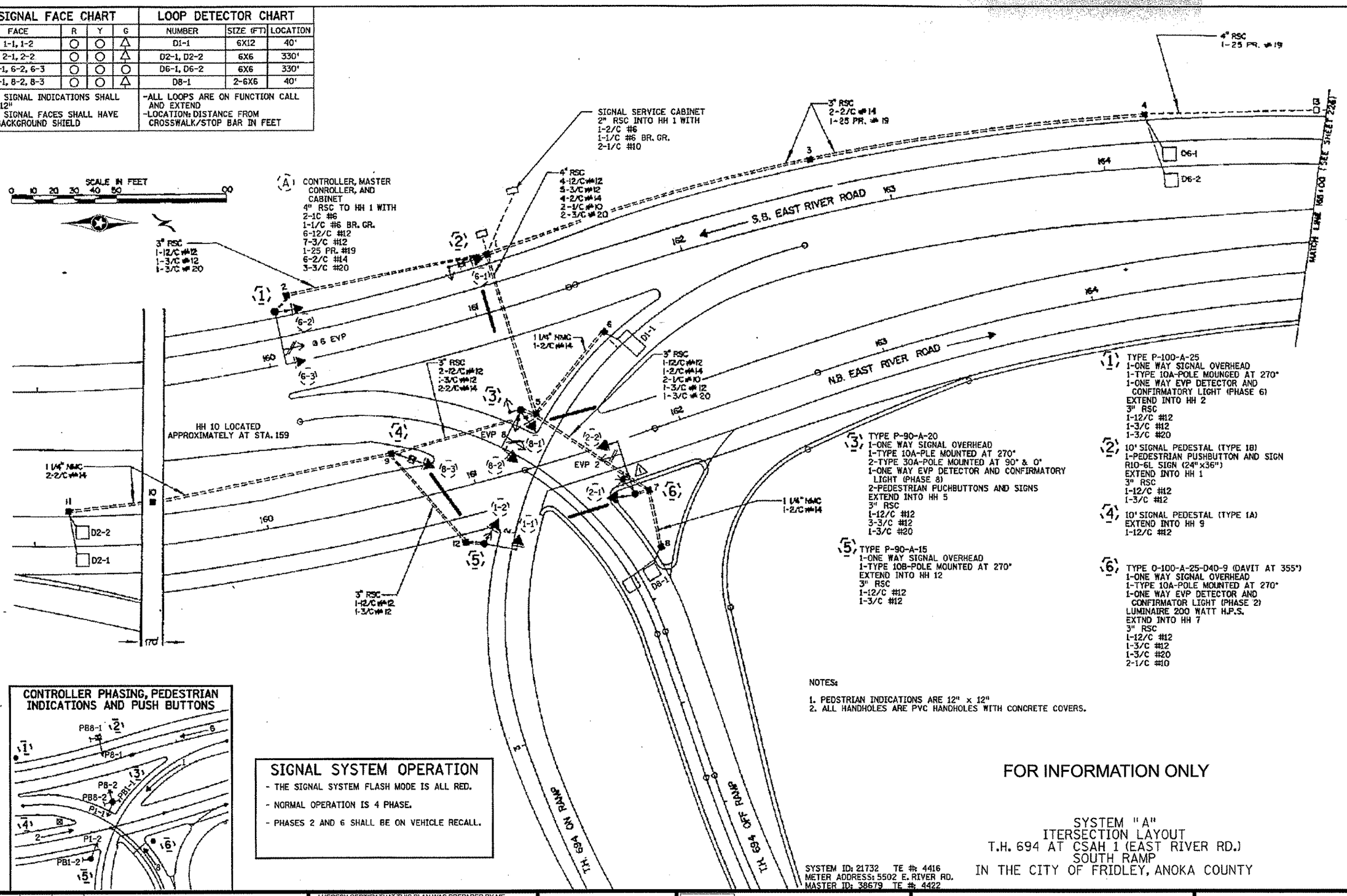
Sheet 16 of 22 Sheets

SIGNAL FACE CHART			
FACE	R	Y	G
1-1, 1-2	○	○	△
2-1, 2-2	○	○	△
6-1, 6-2, 6-3	○	○	○
8-1, 8-2, 8-3	○	○	△

-ALL SIGNAL INDICATIONS SHALL BE 12"
-ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD

LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1	6X12	40'
D2-1, D2-2	6X6	330'
D6-1, D6-2	6X6	330'
D8-1	2-6X6	40'

-ALL LOOPS ARE ON FUNCTION CALL AND EXTEND
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



NOTES:

1. PEDSTRIAN INDICATIONS ARE 12" x 12"
2. ALL HANDHOLES ARE PVC HANDHOLES WITH CONCRETE COVERS.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

FOR INFORMATION ONLY

SYSTEM "A"
ITERSECTION LAYOUT
T.H. 694 AT CSAH 1 (EAST RIVER RD.)
SOUTH RAMP
IN THE CITY OF FRIDLEY, ANOKA COUNTY

SYSTEM ID: 21732 TE #: 4416
METER ADDRESS: 5502 E. RIVER RD.
MASTER ID: 38679 TE #: 4422

DISTRICT #: METRO
PILOT NAME: LAYOUT
PATH & FILENAME: S:\TRAFFIC\Signal Design\plans\TH 694\21732\pend_3-07\21732a_sgl.dgn

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\sig.dgn 02/24/2012 9:48:29 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: CHARLES CADENHEAD
SIGNATURE:
DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12
DESIGN BY KPR DATE 1/06/12
CHECKED BY DFF DATE

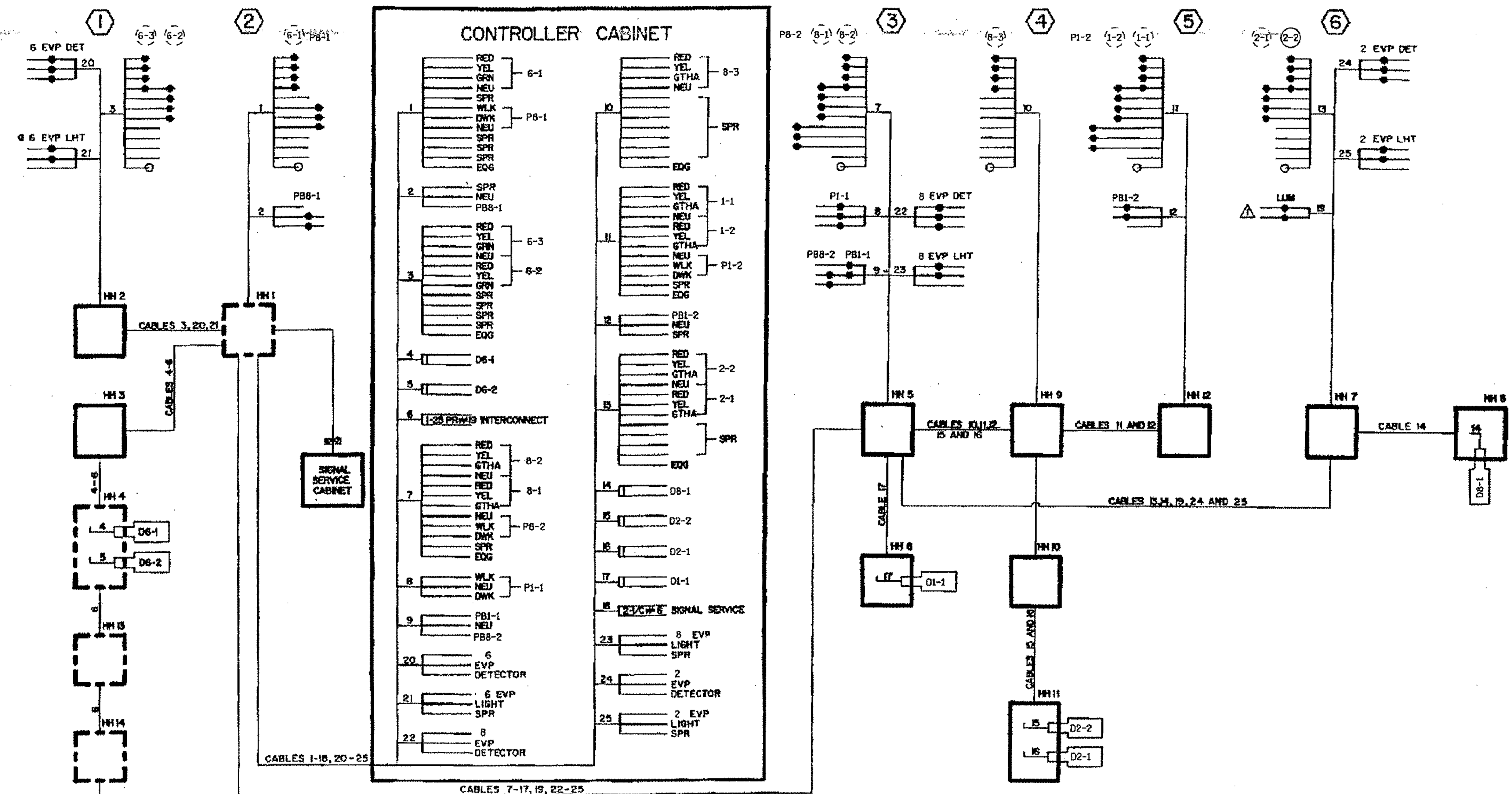
ANOKA COUNTY HIGHWAY DEPT.

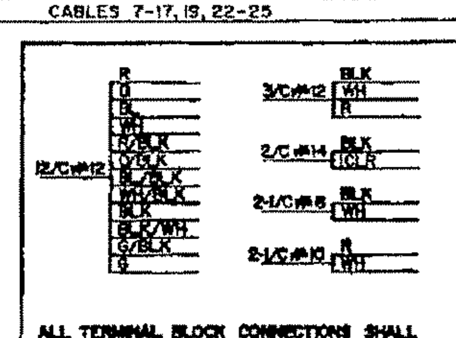
STATE PROJECT NO.
STATE AID PROJECT NO.
CITY PROJECT NO.
COUNTY PROJECT NO. 12-10-01

MISCELLANEOUS SIGNAL SHEETS

Sheet 17 of 22 Sheets

DISTRICT #: METRO
IPLOT NAME: WIRE
PATH & FILENAME: S:\TRAFFIC\Signal Design\plans\TH 694\2732\pend_3-07\2732a_sgl.dgn
PLOTTED/REVISED: 5/17/2007





FOR INFORMATION ONLY

SYSTEM "A"
ITERSECTION LAYOUT
T.H. 694 AT CSAH 1 (EAST RIVER RD.)
SOUTH RAMP
IN THE CITY OF FRIDLEY, ANOKA COUNTY

SYSTEM ID: 21732 TE #: 4416
METER ADDRESS: 5502 E. RIVER RD.
MASTER ID: 38679 TE #: 4422

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\sig.dgn 02/24/2012 9:49:07 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: CHARLES CADENHEAD
SIGNATURE: [signature]
DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12
DESIGN BY KPR DATE 1/06/12
CHECKED BY DFF DATE

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.
STATE AID PROJECT NO.
CITY PROJECT NO.
COUNTY PROJECT NO. 12-10-01

MISCELLANEOUS SIGNAL SHEETS

SIGNAL FACE CHART

FACE	R	Y	G
1-1, 1-2	○	○	△
2-1, 2-2	○	○	△
6-1, 6-2, 6-3	○	○	○
8-1, 8-2, 8-3	○	○	△

-ALL SIGNAL INDICATIONS SHALL BE 12"
-ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD

LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION
D1-1	6X12	40'
D1-2	6X6	40'
D2-1, D2-2	6X6	300'
D6-1, D6-2	6X6	300'
D8-1	2-6X6	50'

-ALL LOOPS ARE ON FUNCTION CALL AND EXTEND
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET
-D8-1 IS A SAWCUT LOOP

(A) CONTROLLER AND CABINET
4" RSC TO HH 26 WITH
2-1/C #6
1-1/C #6 BR. GR.
6-12/C #12
7-3/C #12
1-25 PR. #19
7-2/C #14
3-3/C #20

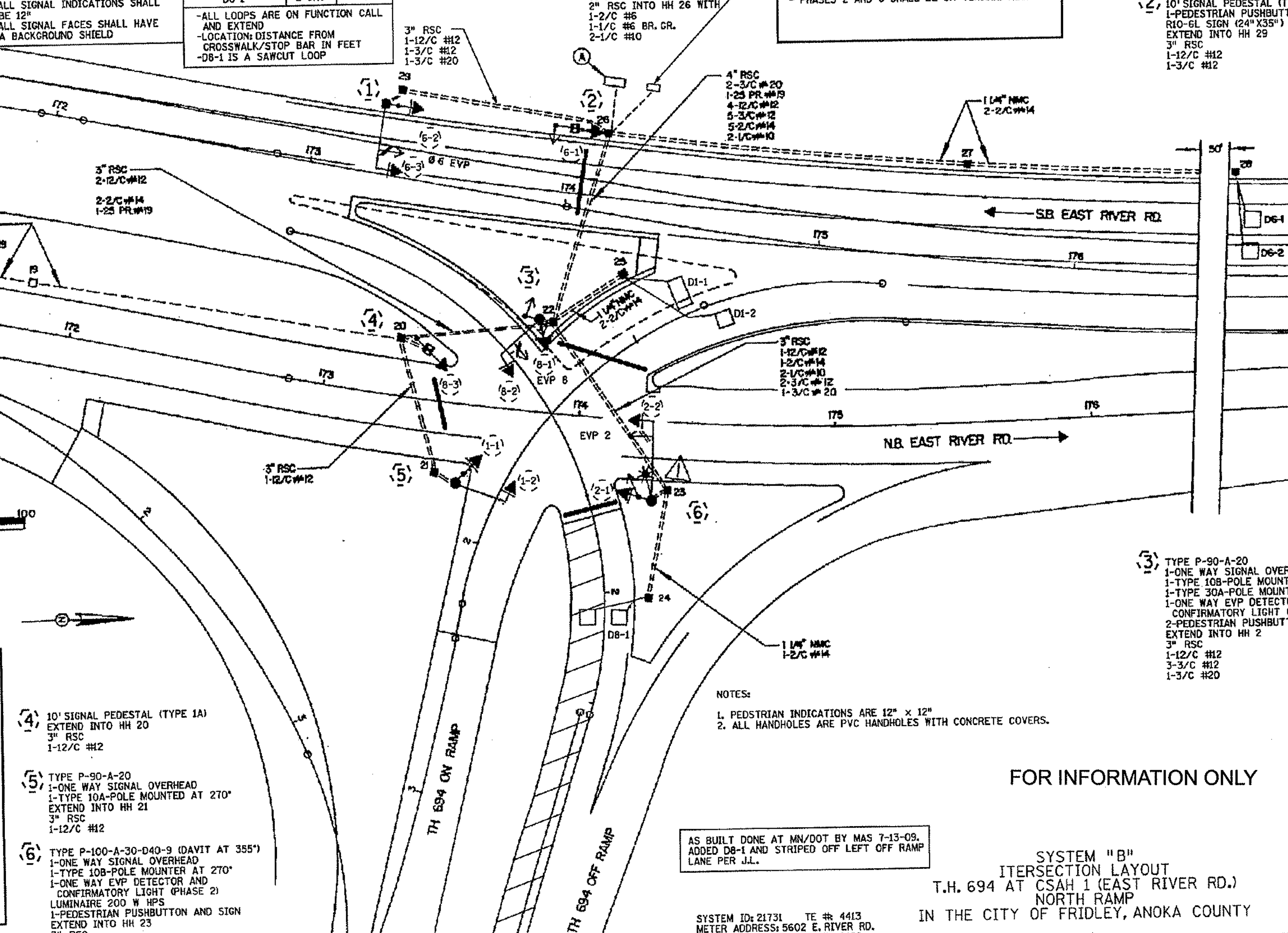
SIGNAL SERVICE CABINET
2" RSC INTO HH 26 WITH
1-2/C #6
1-1/C #6 BR. GR.
2-1/C #10

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

(1) TYPE P-100-A-25
1-ONE WAY SIGNAL OVERHEAD
1-TYPE 10A-POLE MOUNTED 270°
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 6)
EXTEND INTO HH 29
3" RSC
1-12/C #12
1-3/C #12
1-3/C #20

(2) 10' SIGNAL PEDESTAL (TYPE 1B)
1-PEDESTRIAN PUSHBUTTON AND SIGN R10-6L SIGN (24"X35")
EXTEND INTO HH 29
3" RSC
1-12/C #12
1-3/C #12

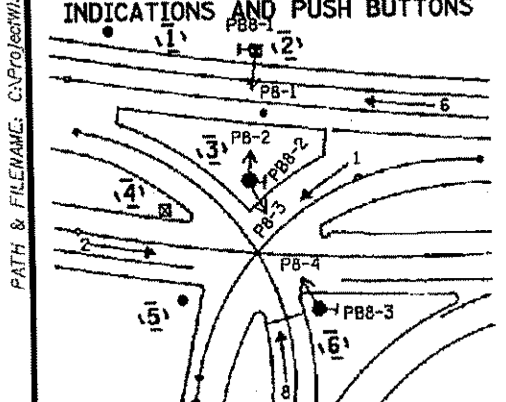


PLOTTED/REVISED: 7/14/2009

(3) TYPE P-90-A-20
1-ONE WAY SIGNAL OVERHEAD
1-TYPE 10B-POLE MOUNTED AT 270°
1-TYPE 30A-POLE MOUNTED AT 90°
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8)
2-PEDESTRIAN PUSHBUTTON AND SIGNS
EXTEND INTO HH 2
3" RSC
1-12/C #12
3-3/C #12
1-3/C #20

NOTES:
1. PEDSTRIAN INDICATIONS ARE 12" x 12"
2. ALL HANDHOLES ARE PVC HANDHOLES WITH CONCRETE COVERS.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

(4) 10' SIGNAL PEDESTAL (TYPE 1A)
EXTEND INTO HH 20
3" RSC
1-12/C #12

(5) TYPE P-90-A-20
1-ONE WAY SIGNAL OVERHEAD
1-TYPE 10A-POLE MOUNTED AT 270°
EXTEND INTO HH 21
3" RSC
1-12/C #12

(6) TYPE P-100-A-30-D40-9 (DAVIT AT 355°)
1-ONE WAY SIGNAL OVERHEAD
1-TYPE 10B-POLE MOUNTER AT 270°
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2)
LUMINAIRE 200 W HPS
1-PEDESTRIAN PUSHBUTTON AND SIGN
EXTEND INTO HH 23
3" RSC

FOR INFORMATION ONLY

AS BUILT DONE AT MN/DOT BY MAS 7-13-09.
ADDED D8-1 AND STRIPED OFF LEFT OFF RAMP LANE PER J.L.

SYSTEM "B"
ITERSECTION LAYOUT
T.H. 694 AT CSAH 1 (EAST RIVER RD.)
NORTH RAMP
IN THE CITY OF FRIDLEY, ANOKA COUNTY

SYSTEM ID: 21731 TE #: 4413
METER ADDRESS: 5602 E. RIVER RD.
MASTER ID: 38679 TE #: 4422

DISTRICT #: METRO
IPLOT NAME: t2i73la.sgl
PATH & FILENAME: C:\ProjectWise\PW_Working\SandiMar\d0783165\AS BUILT 7-13-09\t2i73la_sgl.dgn

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\sig.dgn 02/24/2012 9:49:40 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: CHARLES CADENHEAD
SIGNATURE:
DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12
DESIGN BY KPR DATE 1/06/12
CHECKED BY DFF DATE

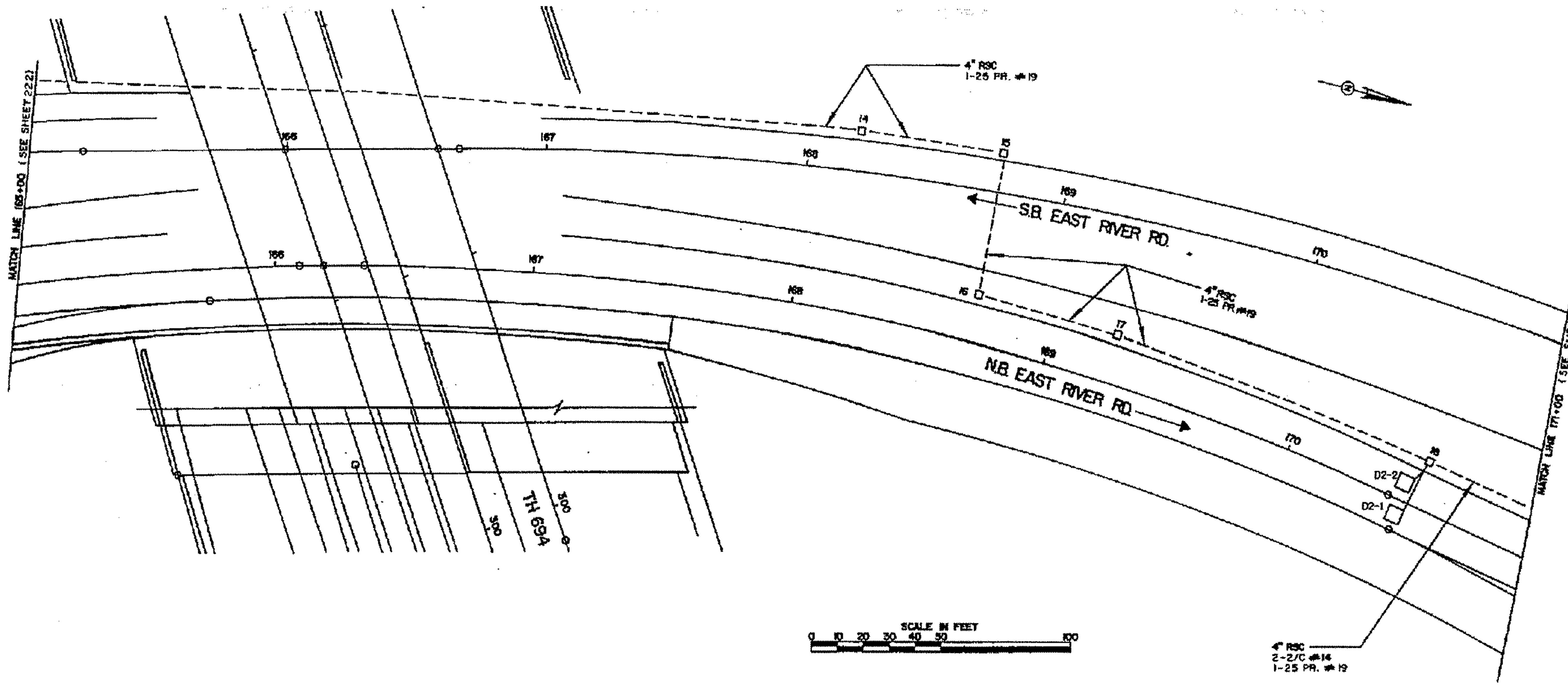
ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.
STATE AID PROJECT NO.
CITY PROJECT NO.
COUNTY PROJECT NO. 12-10-01

MISCELLANEOUS SIGNAL SHEETS

Sheet 19 of 22 Sheets

PLOTTED/REVISED: 4/26/2007



DISTRICT #: METRO
IPLOT NAME: MATCHLINE
PATH & FILENAME: S:\TRAFFIC\Signal Design\plans\TH 694\21732\pend_3-07\21732a_sgl.dgn

FOR INFORMATION ONLY

SYSTEM ID: 21732 TE #: 4416
METER ADDRESS: 5502 E. RIVER RD.
MASTER ID: 38679 TE #: 4422

INTERCONNECT LAYOUT
T.H. 694 AT CSAH 1 (EAST RIVER RD.)
IN THE CITY OF FRIDLEY, ANOKA COUNTY

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\sig.dgn 02/24/2012 9:50:18 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: CHARLES OADENHEAD
SIGNATURE:
DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12
DESIGN BY KPR DATE 1/06/12
CHECKED BY DFF DATE

ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

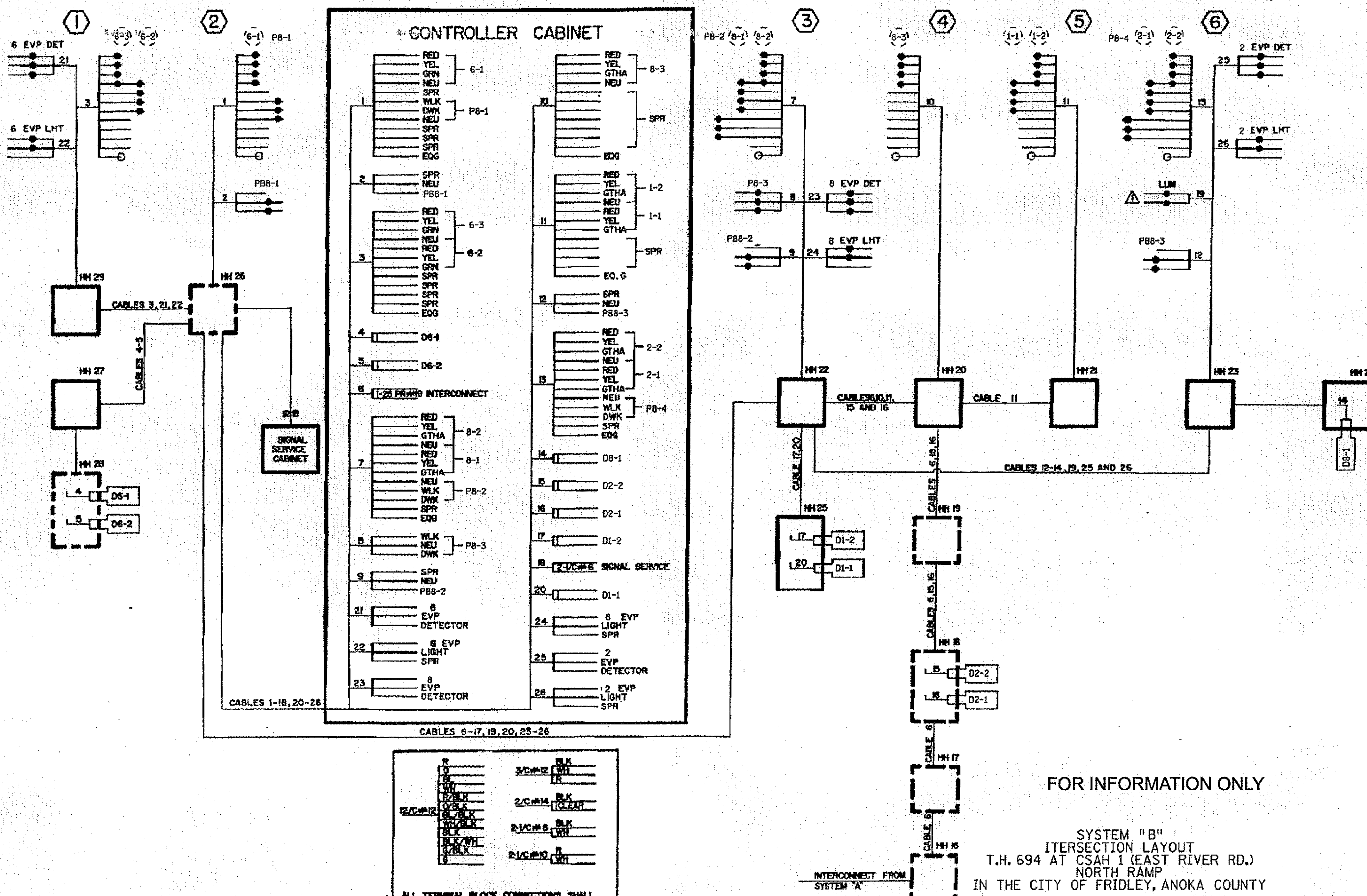
STATE PROJECT NO.
STATE AID PROJECT NO.
CITY PROJECT NO.
COUNTY PROJECT NO. 12-10-01

MISCELLANEOUS SIGNAL SHEETS

Sheet 20 of 22 Sheets

PLOTTED/REVISED: 4/26/2007

DISTRICT 4: METRO
IPLOT NAME: WIRE
PATH & FILENAME: S:\TRAFFIC\Signal Design\plans\TH 694\2173\PEND 3-07\2173\a_sgl.dgn



FOR INFORMATION ONLY

SYSTEM "B"
ITERSECTION LAYOUT
T.H. 694 AT CSAH 1 (EAST RIVER RD.)
NORTH RAMP
IN THE CITY OF FRIDLEY, ANOKA COUNTY

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\slg.dgn 02/24/2012 9:50:46 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: CHARLES CADENHEAD
SIGNATURE:
DATE: 3/2/12 LICENSE NO. 40416

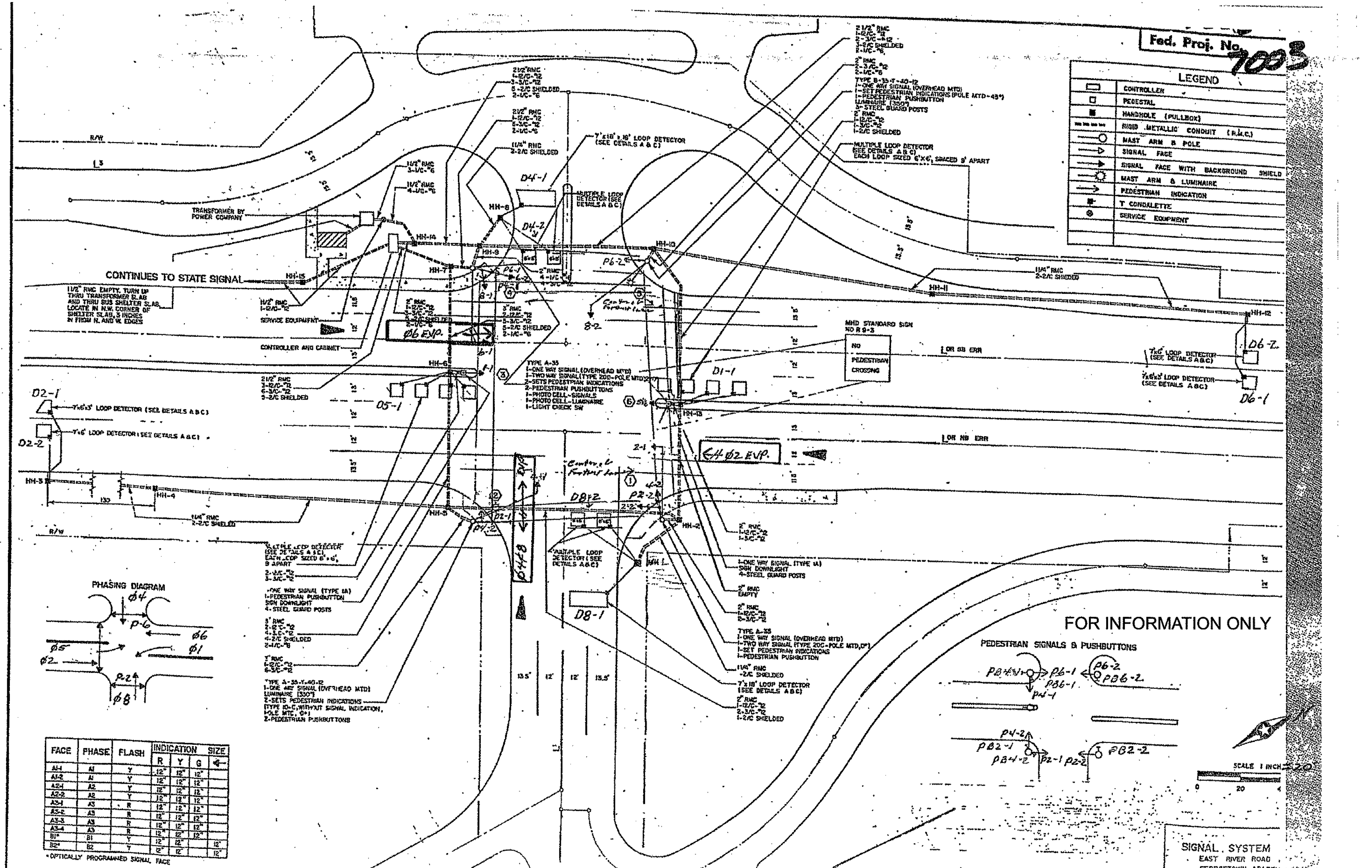
DRAWN BY KPR DATE 1/06/12
DESIGN BY KPR DATE 1/06/12
CHECKED BY DFF DATE

ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO.
STATE AID PROJECT NO.
CITY PROJECT NO.
COUNTY PROJECT NO. 12-10-01

MISCELLANEOUS SIGNAL SHEETS

Sheet 21 of 22 Sheets



FACE	PHASE	FLASH	INDICATION R	Y	G	SIZE ←
A1-1	A1	Y	12"	12"	12"	
A1-2	A1	Y	12"	12"	12"	
A2-1	A2	Y	12"	12"	12"	
A2-2	A2	Y	12"	12"	12"	
A3-1	A3	R	12"	12"	12"	
A3-2	A3	R	12"	12"	12"	
A3-3	A3	R	12"	12"	12"	
A3-4	A3	R	12"	12"	12"	
B1*	B1	Y	12"	12"	12"	
B2*	B2	Y	12"	12"		12"
			12"	12"		12"

*OPTICALLY PROGRAMMED SIGNAL FACE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_01_(694-Charles)\Plan\sig.dgn 02/24/2012 9:51:23 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: CHARLES CADENHEAD

SIGNATURE: [signature]

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/06/12

DESIGN BY KPR DATE 1/06/12

CHECKED BY DFF DATE

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO.

STATE AID PROJECT NO.

CITY PROJECT NO.

COUNTY PROJECT NO. 12-10-01

MISCELLANEOUS SIGNAL SHEETS

Sheet 22 of 22 Sheets