

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR BITUMINOUS SURFACE, BITUMINOUS SURFACING, DRAINAGE, CURB & GUTTER, SIGNAL SYSTEM

LOCATED ON C.S.A.H. 11 BETWEEN C.S.A.H. 18 (CROOKED LAKE BLVD.) AND RAVEN ST.

COUNTY PROJ. NO. 10-13-11
C.S.A.H. 11

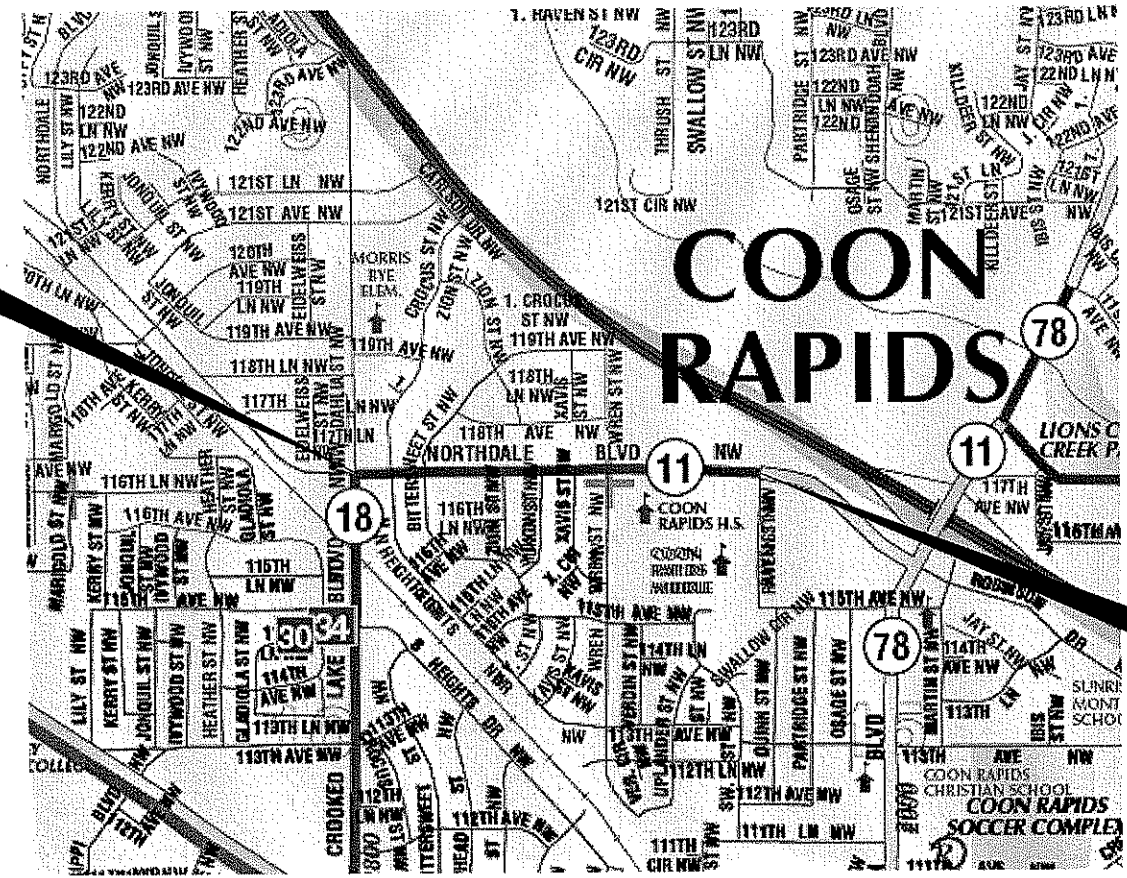
GROSS LENGTH	3965 FEET	0.751 MILES
BRIDGES-LENGTH	0.00 FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	3965 FEET	0.751 MILES



CITY OF
COON RAPIDS

BEGIN COUNTY PROJECT 10-13-11
C.S.A.H. 11 STA. 10+10

END COUNTY PROJECT 10-13-11
C.S.A.H. 11 STA. 49+75



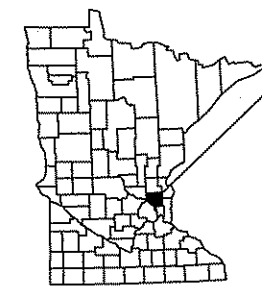
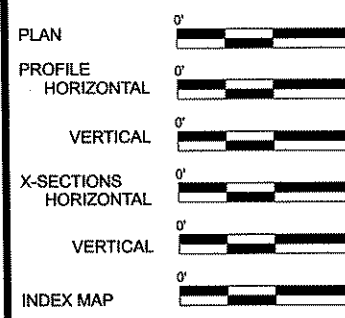
PLAN SYMBOLS

- 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 _____
- CATTLE GUARD _____
- OVERPASS (Highway Over) _____
- UNDERPASS (Highway Under) _____
- BRIDGE _____
- BUILDING (One Story Frame) _____
- F-FRAME C-CONCRETE _____
- S-STONE T-TILE _____
- B-BRICK ST-STUCCO _____
- RAILROAD CROSSING BELL _____
- RAILROAD CROSSING GATE _____
- MANHOLE _____
- CATCH BASIN _____
- FIRE HYDRANT _____
- CAST IRON MONUMENT _____
- IRON PIN _____
- GRAVEL PIT _____
- SAND PIT _____
- BORROW PIT _____
- ROCK QUARRY _____

UTILITY SYMBOLS

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

SCALES



PROJECT LOCATION
CITY OF COON RAPIDS
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 16
TOWNSHIP 31 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 PAR VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES,
3	TYPICAL SECTIONS
4	MISCELLANEOUS DETAILS
5-6	CONSTRUCTION STAGING PLAN
7	SIGNAL LOOP DETAIL
8-9	SIGNING & STRIPING PLAN, TAB , & DETAILS
9A-9B	MISCELLANEOUS SIGNAL SHEETS

Approved 3/26/10
ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_11_(RAV-CROOKEDLAKE)\PLAN\1 3/26/10.DGN 8:31:19 AM

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

PRINT NAME: CHARLES CADONHEAD
SIGNATURE:
DATE: 3/26/10 LICENSE NO. 90416

DRAWN BY: KPR DATE: 3/1/10
DESIGN BY: KPR DATE: 3/1/10
CHECKED BY: JO DATE: _____

**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT NO. 10-13-11

TITLE SHEET

Sheet 1 of 9B Sheets

CSAH 11		STATEMENT OF ESTIMATED QUANTITIES			
TAB NO.	ITEM NO.	ITEM	NOTE OR TAB NO.	UNIT	TOTAL EST. QUANT.
	2021.501	MOBILIZATION		LUMP SUM	1
A	2104.501	REMOVE CONCRETE CURB AND GUTTER	9	LIN FT	20
A	2104.505	REMOVE BITUMINOUS PAVEMENT	9	SQ YD	4
A	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	9	LIN FT	6
A	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	9	LIN FT	24
	2232.501	MILL BITUMINOUS SURFACE (2.0")	1,7,8,11	SQ YD	21239
	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	4	GALLON	1062
	2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,E) (SPWEB440E)		TON	2442
A	2360.609	TYPE LV3 NON-WEAR COURSE MIX FOR CB PATCH (LVNW35030 B)	9	TON	1
A	2506.503	RECONSTRUCT DRAINAGE STRUCTURE	6,8,11	LIN FT	0.2
AB	2506.516	CASTING ASSEMBLY	9	EACH	1
A	2506.602	GROUT CATCH BASIN OR MANHOLE	9	EACH	4
A	2531.501	CONCRETE CURB AND GUTTER DESIGN B618	6,9	LIN FT	20
	2563.601	TRAFFIC CONTROL		LUMP SUM	1
	2563.610	POLICE OFFICER		HOUR	16
	2565.602	LOOP DETECTOR 6' X 6'	2	EACH	8
A	2575.604	EROSION CONTROL BLANKET	9,10	SQ YD	9
	2581.501	REMOVABLE PREFORM PLASTIC MARKINGS	5	LIN FT	640
	2582.502	4" SOLID LINE WHITE - EPOXY	3	LIN FT	7543
	2582.502	4" SOLID LINE YELLOW - EPOXY	3	LIN FT	1000
	2582.502	4" BROKEN LINE YELLOW - EPOXY	3	LIN FT	320
	2582.502	4" DOUBLE YELLOW-EPOXY	3	LIN FT	3181
	2582.602	PAVEMENT MESSAGE (RT ARROW)- PREFORMED THERMOPLASTIC	3	EACH	2
	2582.602	PAVEMENT MESSAGE (LT ARROW)- PREFORMED THERMOPLASTIC	3	EACH	2
	2582.602	PAVEMENT MESSAGE (THRU/ RT ARROW)- PREFORMED THERMOPLASTIC	3	EACH	2
	2582.603	24" WHITE PREFORMED THERMOPLASTIC	3	LIN FT	202
	2582.603	24" YELLOW PREFORMED THERMOPLASTIC	3	LIN FT	430
	2582.618	3' X 6' ZEBRA CROSSWALK PREFORMED THERMOPLASTIC	3	SQ FT	1314

NOTES:

- 1 MILL AREAS TO BE MARKED BY ENGINEER.
- 2 CONTRACTOR MUST REQUEST LOOP LOCATIONS 48 HOURS PRIOR TO MILLING AND REPLACE ONLY IF DAMAGED DURING MILLING OPERATION.
- 3 MARKINGS SHALL BE PLACED WITH IN 72 HOURS OF FINAL MAINLINE PAVING.
- 4 TACK FOR MILLED BITUMINOUS AREAS. EST. AT 0.05 GAL / SQ YD.
- 5 TEMP LANE TAPE SKIPS TO BE PLACED ON NEW MAT AT END OF EACH PAVING DAY.
- 6 AGGREGATE BASE CLASS 7B USED FOR COMPACTING AROUND CB'S IS INCIDENTAL TO RECONSTRUCT.
- 7 MAINLINE MILLING INCLUDES DETAIL MILLING AROUND MANHOLES, GATE VALVES, AND ALL STRUCTURES IN BIT. PAVEMENT AREA TO BE MILLED.
- 8 ALL MANHOLES SHALL BE LOCATED AND PROTECTED AT ALL TIMES DURING MILLING AND PAVING OPERATIONS. CONTRACTORS RESPONSIBILITY
- 9 SEE CB REPAIR DETAIL.
- 10 SEED, FERTILIZER, TOPSOIL AT ALL CB REPAIRS ARE INCIDENTAL TO EROSION CONTROL BLANKET.
- 11 AT GATE VALVES AND MANHOLES MILL 1 1/2" INCHES TAPER TO 2 INCHES.
- 12 DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, STOP HERE ON RED, BUMP AND BUMP AHEAD SIGNS TO BE INPLACE DURING MILL AND PAVING OPERATIONS.

ITEM NO.	BASIS OF PLANNED QUANTITIES	
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL / SQ YD
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4, B)	(SQ YD * IN. *115 LBS)/2000 = TONS
2360.609	TYPE LV3 NON-WEAR COURSE MIX FOR CB PATCH (LVNW35030 B)	(SQ YD * IN. *115 LBS)/2000 = TONS
2581.501	REMOVABLE PREFORM PLASTIC MARKINGS	((PROJECT LENGTH /50) *4)

PLATE NO.	DESCRIPTION	STANDARD PLATE DETAIL
4006L	MANHOLE OR CATCH BASIN	4126F CATCH BASIN FRAME CASTING
4010H	CONCRETE SHORT CONE AND ADJUSTING RING	4161F CURB BOX CASTING FOR CATCH BASIN
4020J	MANHOLE OR CATCH BASIN	4149C CATCH BASIN GRATE CASTING
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS	7100H CONCRETE CURB AND GUTTER
4101D	RING CASTING FOR MANHOLE	7111J INSTALLATION OF CATCH BASIN CASTINGS
4110F	COVER CASTING FOR MANHOLE	8000I STANDARD BARRICADES

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_11_(Ray-Crookedlake)\Plan2 Seq.dgn 3/11/2010 1:10:27 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: *Charles Cadenhead*
 DATE: 3/26/10 LICENSE NO. 46416

DRAWN BY: KPR DATE: 3/1/10
 DESIGN BY: KPR DATE: 3/1/10
 CHECKED BY: JO DATE: _____



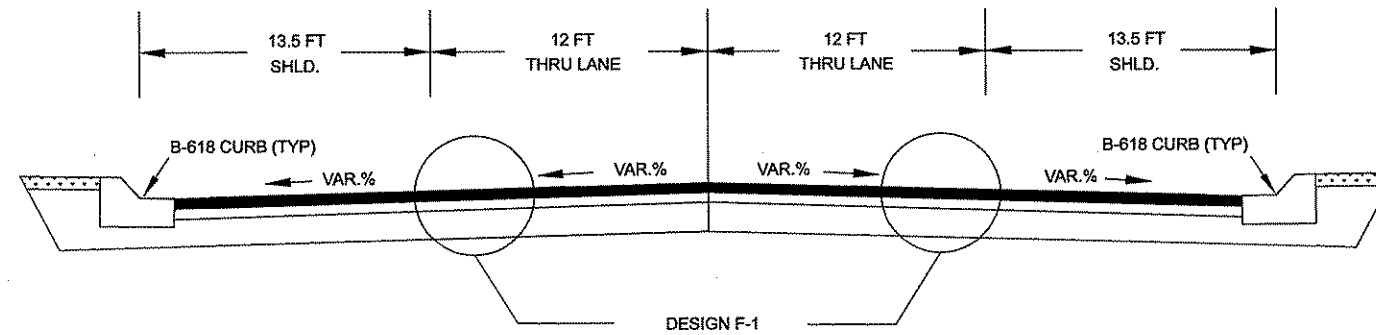
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-13-11

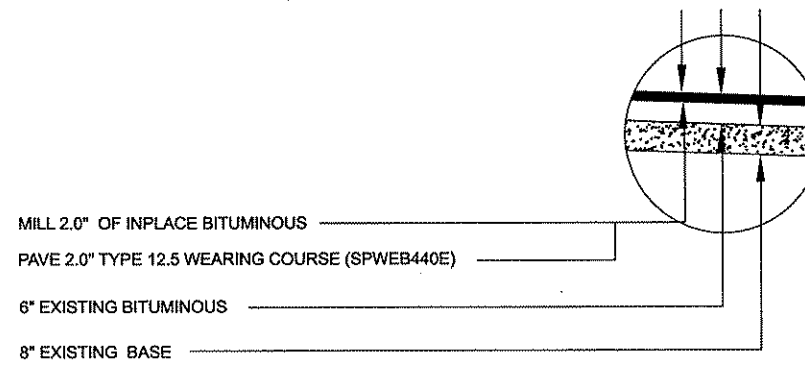
STATEMENT OF ESTIMATED QUANTITIES
 Sheet 2 of 9B Sheets

TYPICAL SECTION

STA. 10+00 - STA. 49+75



DESIGN F-1



MILL 2.0" OF INPLACE BITUMINOUS
 PAVE 2.0" TYPE 12.5 WEARING COURSE (SPWEB440E)
 6" EXISTING BITUMINOUS
 8" EXISTING BASE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\10-01-00\CSAH_11_Rav-Crookedlake\Plan\typ.dgn 3/1/2010 11:53:21 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: 3/26/10 LICENSE NO. 40416

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 CHECKED BY: JO DATE:

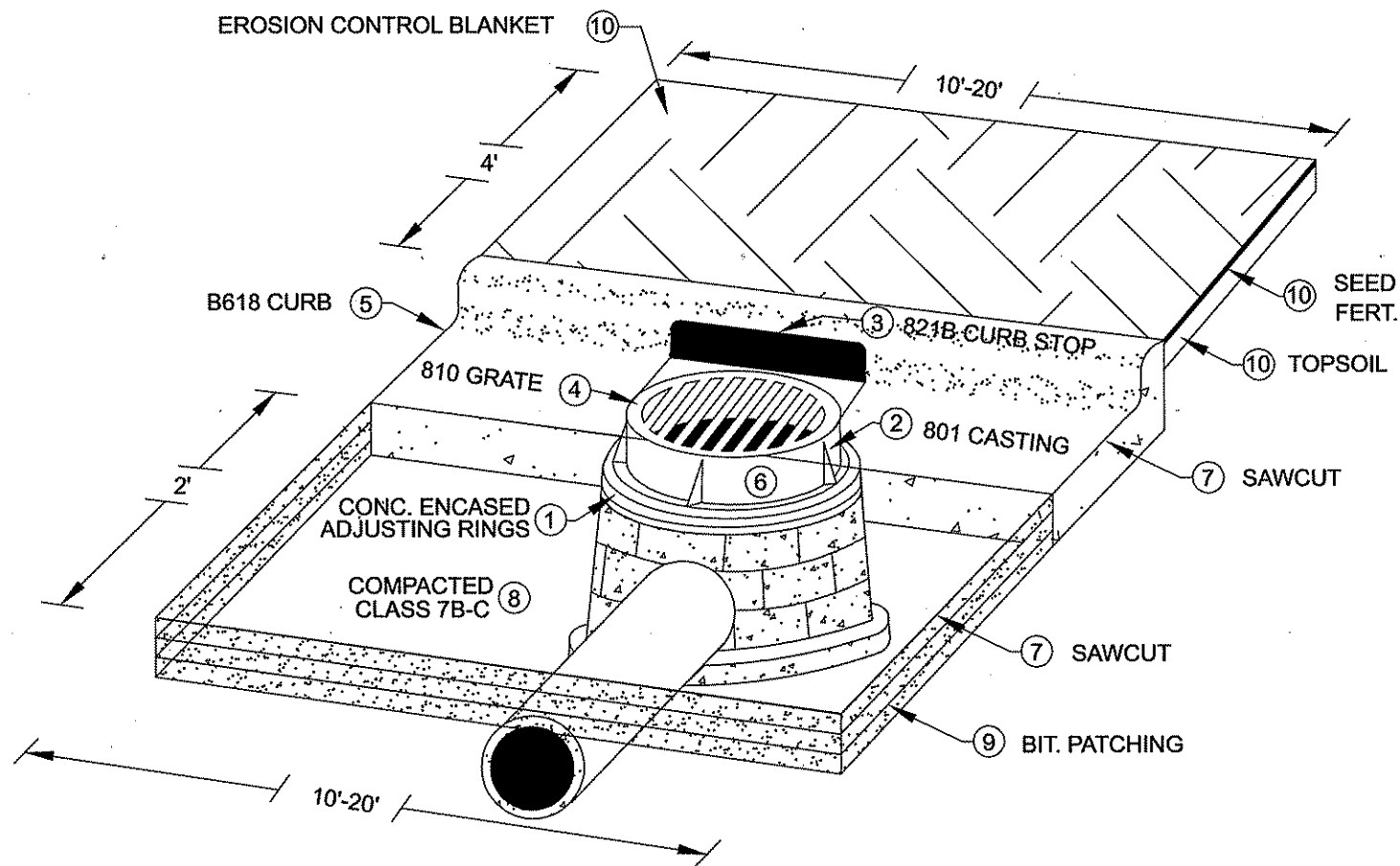


ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT NO. 10-13-11

TYPICAL SECTION
 Sheet 3 of 93 Sheets

C.B. REPAIR DETAIL



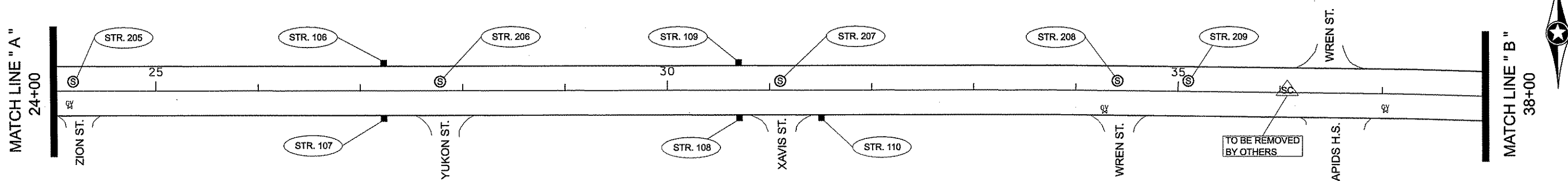
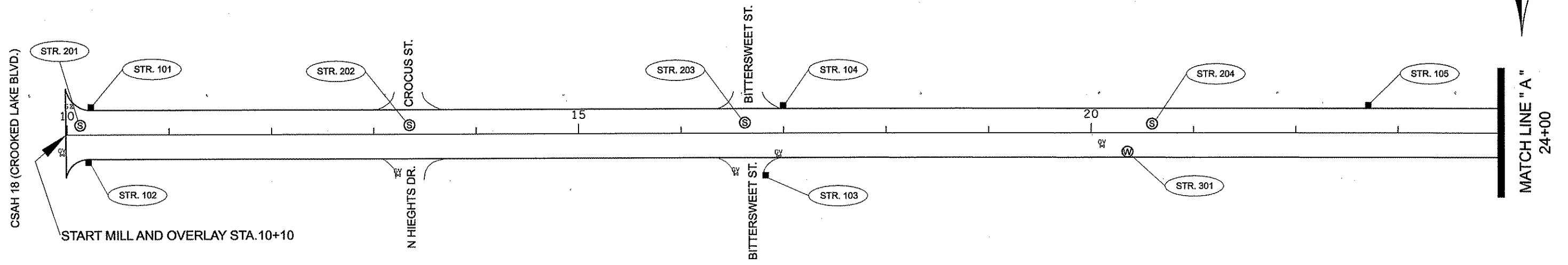
NOTES.. FOR TRAFFIC CONTROL AT CATCH BASIN REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL. REFER TO MINNESOTA STANDARD PLATES MANUAL FOR THE FOLLOWING...

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING 801 STANDARD PLATE 4126F
- ③ CURB BOX 821B STANDARD PLATE 4161F
- ④ GRATE CASTING 810 STANDARD PLATE 4149C
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G
- ⑥ INSTALLATION OF CATCH BASIN CASTINGS STANDARD PLATE 7111J
- ⑦ SAWCUT BIT./CONCRETE BUS PADS/CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT CL-7B-C AROUND REPAIRED STRUCTURE.
- ⑨ REMOVE VAR. DEPTH BITUMINOUS 3"-7" / PATCH 2-LIFTS OF BITUMINOUS.
- ⑩ REPLACE DISPLACED TOPSOIL- SEED, FERT. AND COVER WITH EROS. BLANKET. SEED , FERT. AND TOPSOIL INNcidental TO BLANKET.

STRUCTURE	STATION	LOC.		STRUCTURE REPAIRS											ACTION
				SAW BIT. PAVEMENT	REMOVE BIT. PAVEMENT	REPLACE BIT. PAVEMENT	SAW CONC. PAVEMENT	EROSION CONT. BLANKET	REMOVE C&G	REPLACE B618 C&G	CASTING	GROUT	RE-RING / GROUT		
				LF	SY	TON	LF	SY	LF	LF	EA	EA	FT		
101	10+23	26	LT										1		GROUT
102	10+21	26	RT												NONE
103	16+82	42	RT												NONE
104	16+99	26	LT												NONE
105	22+71	26	LT												NONE
106	27+23	26	LT												NONE
107	27+23	26	LT												NONE
108	30+70	26	RT												NONE
109	30+70	26	LT										1		GROUT
110	31+51	26	RT												NONE
111	48+75	26	LT										1		GROUT
112	48+73	26	RT										1		GROUT
113	49+46	24	RT	24	4.4	1	6	8.8	20	20	1		0.2		RE-RING / GROUT
201	10+13	9	LT												NONE
202	13+35	9	LT												NONE
203	16+62	10	LT												NONE
204	20+59	9	LT												NONE
205	24+19	9	LT												NONE
206	27+78	9	LT												NONE
207	31+10	9	LT												NONE
208	34+40	10	LT												NONE
209	35+10	10	LT												NONE
210	49+26	5	LT												NONE
301	20+35	19	RT												NONE
TOTALS				24	4	1	6	9	20	20	1	4	0.2		

B. SCHEDULE OF CASTINGS				
ASSEMBLY	CASTING	GRATE	CURB BOX	QTY.
	801	810	821B	1
	700-8	716		

NOTE: NOT TO SCALE



- ⊙ STORM SEWER MANHOLE
- ⊕ WATERMAIN MANHOLE
- ⊙ SANITARY SEWER MANHOLE
- STORM SEWER CATCH BASIN
- ⊗ WATERMAIN GATE VALVE

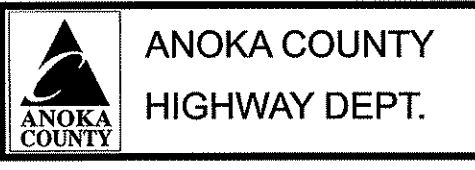
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 3/26/10 LICENSE NO. 40416

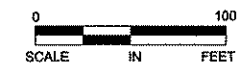
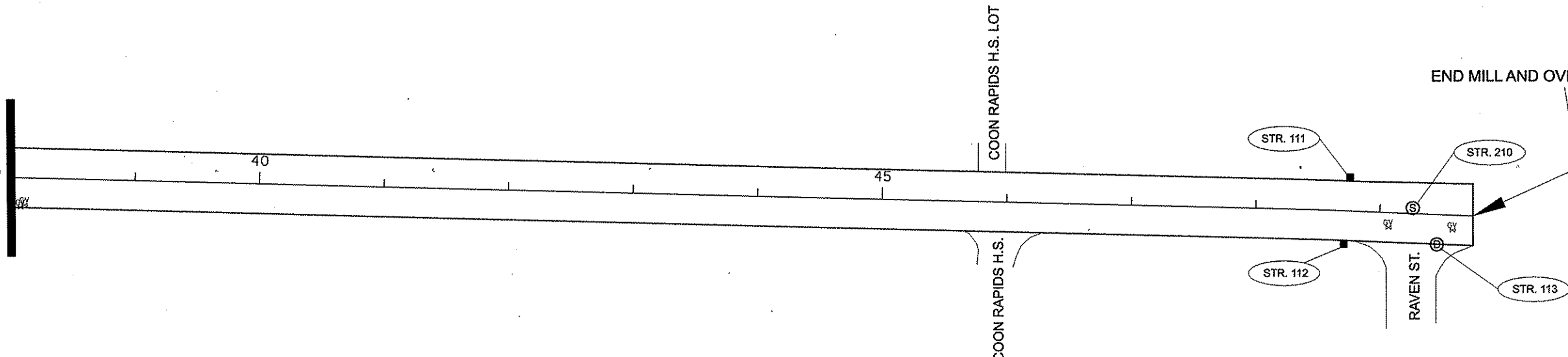
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 DESIGN BY: KPR DATE: 3/1/10
 CHECKED BY: JO DATE: _____



COUNTY PROJECT NO. 10-13-11

CONSTRUCTION PLAN
 STA 10+00 TO 38+00
 Sheet 5 of 98 Sheets

MATCH LINE "B"
38+00



- ⊙ STORM SEWER MANHOLE
- ⊙ WATERMAIN MANHOLE
- ⊙ SANITARY SEWER MANHOLE
- STORM SEWER CATCH BASIN
- ⊙ WATERMAIN GATE VALVE

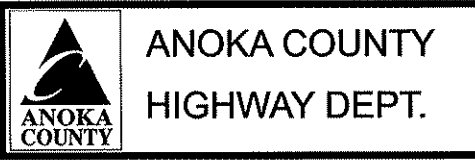
2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

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3/1/2010 11:59:32 AM

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 SIGNATURE: *Charles Cadenhead*
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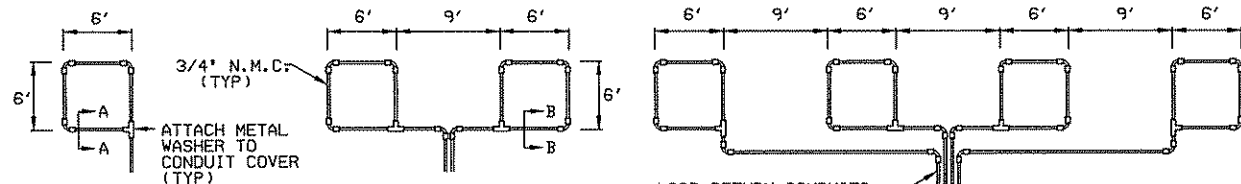
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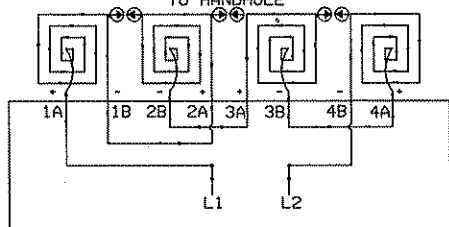
COUNTY PROJECT NO. 10-13-11

CONSTRUCTION PLAN
 STA 38+00 TO 45+00
 Sheet 6 of 98 Sheets

ANOKA COUNTY SIGNAL LOOP DETAIL



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



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

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

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

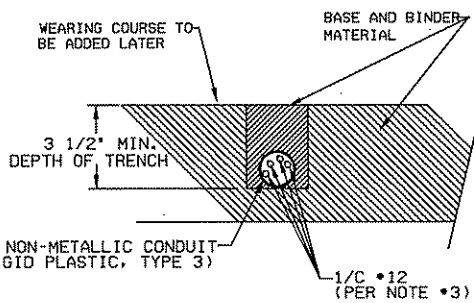
**LOOP DETECTOR
DETAIL 'C'**
(LOOP PHASING FOR
SERIES CONNECTION)

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

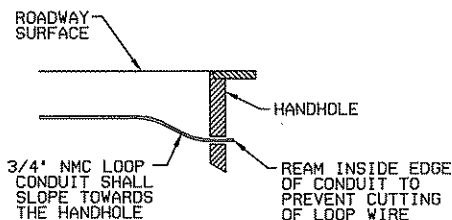
LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

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

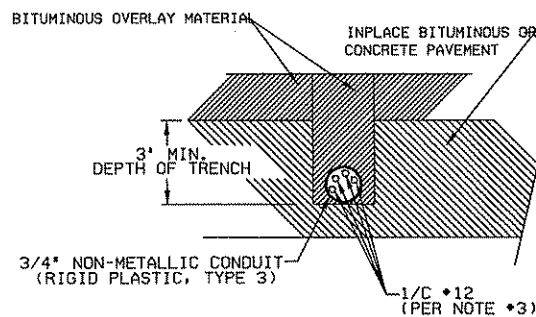
**LOOP DETECTOR
DETAIL 'B'**
(LOOP PHASING FOR
SERIES CONNECTION)



SECTION A-A
DETAIL FOR LOOP INSTALLATION
IN NEW ROADWAY



DRAINAGE DETAIL



SECTION B-B
DETAIL FOR LOOP INSTALLATION
IN EXISTING ROADWAY

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'	PEP	PEDESTRIAN
DWK	DDN'T WALK	R	RED
EGG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
FBI	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

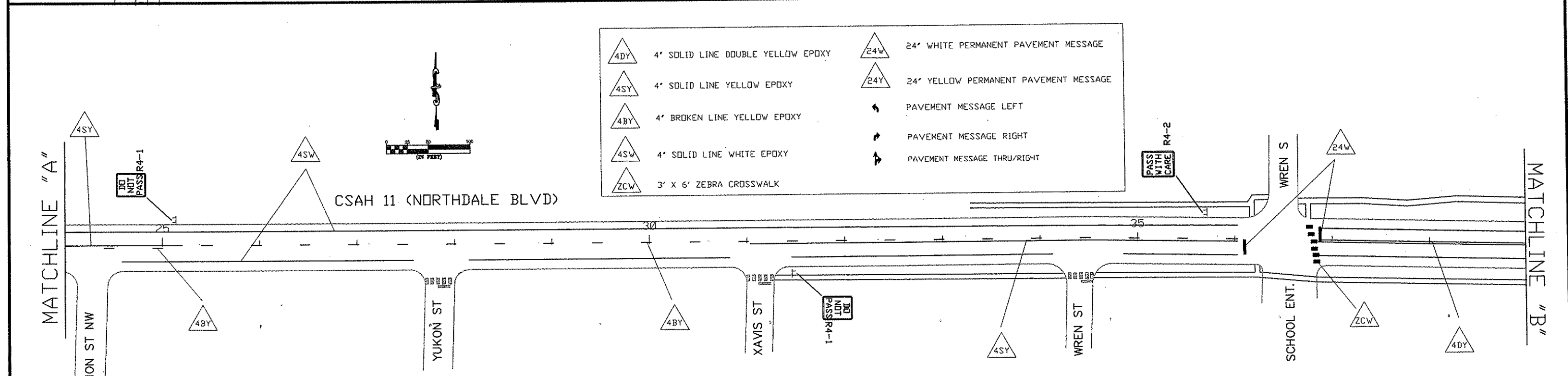
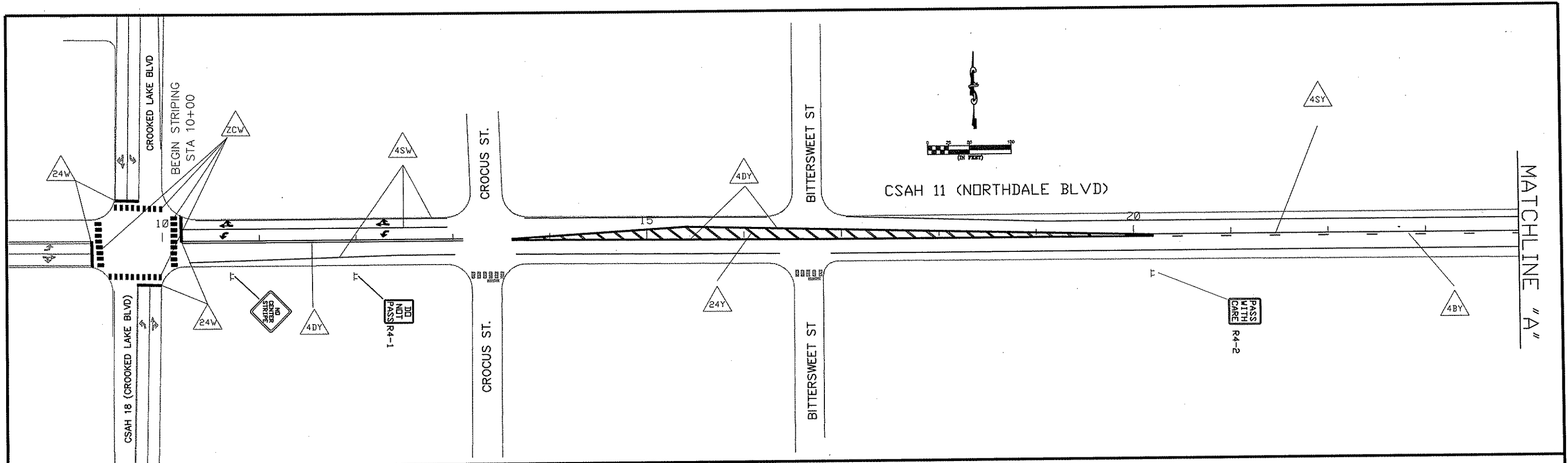
STANDARD PLATES	
THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:	
PLATE NO.	DESCRIPTION
7035 L	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
7036 E	PEDESTRIAN CURB RAMP
7100 G	CONCRETE CURB AND GUTTER (DESIGN B)
8110 D	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
8111 C	TRAFFIC SIGNAL BRACKETING - PEDESTAL 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
8125 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	(Symbol)
SIGNAL BASE NO.	(Symbol)
SIGNAL FACE NO.	(Symbol)
LUMINAIRE NO.	(Symbol)
CONTROLLER AND CABINET	(Symbol)
CONTROLLER AND CABINET - IN PLACE	(Symbol)
HANDHOLE	(Symbol)
HANDHOLE - IN PLACE	(Symbol)
RIGID STEEL CONDUIT (RSC)	(Symbol)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(Symbol)
SIGNAL FACE WITH BACKGROUND SHIELD	(Symbol)
SIGNAL FACE W/O BACKGROUND SHIELD	(Symbol)
SIGNAL FACE - IN PLACE	(Symbol)
PEDESTRIAN INDICATORS	(Symbol)
PEDESTRIAN INDICATORS - IN PLACE	(Symbol)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(Symbol)
PEDESTRIAN PUSH BUTTON STATION	(Symbol)
TRAFFIC SIGNAL PEDESTAL	(Symbol)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(Symbol)
TRAFFIC SIGNAL POLE AND MAST ARM	(Symbol)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(Symbol)
MAST ARM AND LUMINAIRE	(Symbol)
MAST ARM AND LUMINAIRE - INPLACE	(Symbol)
WOOD POLE	(Symbol)
WOOD POLE - IN PLACE	(Symbol)
SOURCE OF POWER	(Symbol)
RAILROAD SIGNAL - IN PLACE	(Symbol)
RIGHT OF WAY LINE	(Symbol)
CENTERLINE	(Symbol)
EDGE OF ROADWAY	(Symbol)
SHOULDERLINE	(Symbol)
CURB LINE	(Symbol)
STOP BAR	(Symbol)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(Symbol)

NOTE: NOT TO SCALE

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CKD</th> <th>APPR</th> <th>REVISION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>NAME: P:\10-01-00\CSAH_11 (Raw-Crookedlake)\Plant\detloop.dgn</p>	NO	DATE	BY	CKD	APPR	REVISION							<p>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.</p> <p>PRINT NAME: CHARLES CADENHEAD</p> <p>SIGNATURE: <i>Charles Cadenhead</i></p> <p>DATE: 3/26/10 LICENSE NO. 40418</p>	<p>DRAWN BY: KPR DATE: 3/1/10</p> <p>DESIGN BY: KPR DATE: 3/1/10</p> <p>CHECKED BY: JO DATE: _____</p>	<p>ANOKA COUNTY HIGHWAY DEPT.</p>	<p>COUNTY PROJECT NO. 10-13-11</p> <p style="text-align: right;">SIGNAL LOOP DETAIL</p> <p style="text-align: right;">Sheet 7 of 98 Sheets</p>
NO	DATE	BY	CKD	APPR	REVISION											



	4' SOLID LINE DOUBLE YELLOW EPOXY		24' WHITE PERMANENT PAVEMENT MESSAGE
	4' SOLID LINE YELLOW EPOXY		24' YELLOW PERMANENT PAVEMENT MESSAGE
	4' BROKEN LINE YELLOW EPOXY		PAVEMENT MESSAGE LEFT
	4' SOLID LINE WHITE EPOXY		PAVEMENT MESSAGE RIGHT
	3' X 6' ZEBRA CROSSWALK		PAVEMENT MESSAGE THRU/RIGHT

- NOTES:
1. LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 2. CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. THE TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
 3. ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.

NO	DATE	BY	CKD	APPR	REVISION

NAME: T:\Traffic\dwg\CSAH 11 (Foley_Northdale)\from CSAH 18 to CSAH 1.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: *Charles Cadenhead*
 DATE: *3/26/10* LICENSE NO. *40496*

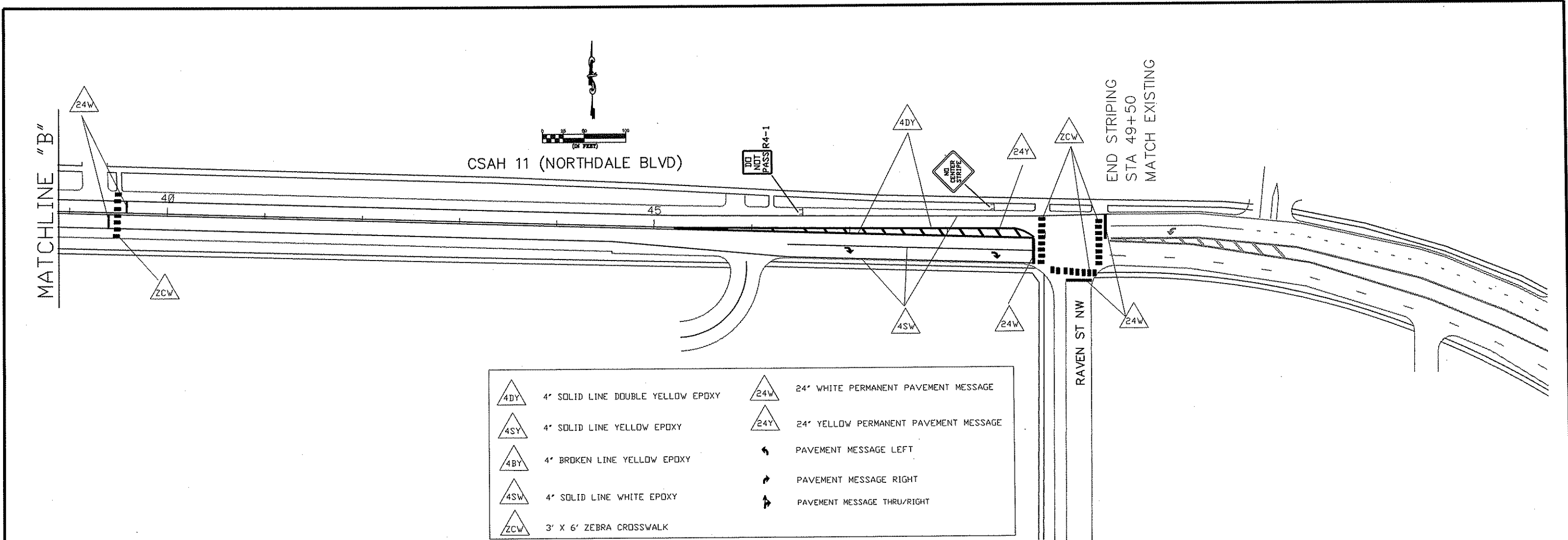
DRAWN BY: MTH DATE: 2/03/10
 DESIGN BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 10-13-11

CSAH 11 (NORTHDALE BLVD)
 TEMPORARY SIGNING
 PERMANENT STRIPING
 AND PAVEMENT MESSAGES

Sheet 8 of 98 Sheets



	4' SOLID LINE DOUBLE YELLOW EPOXY		24' WHITE PERMANENT PAVEMENT MESSAGE
	4' SOLID LINE YELLOW EPOXY		24' YELLOW PERMANENT PAVEMENT MESSAGE
	4' BROKEN LINE YELLOW EPOXY		PAVEMENT MESSAGE LEFT
	4' SOLID LINE WHITE EPOXY		PAVEMENT MESSAGE RIGHT
	3' X 6' ZEBRA CROSSWALK		PAVEMENT MESSAGE THRU/RIGHT

NOTES:
 1. LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 2. CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. THE TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
 3. ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.

SIGN PANELS TYPE C						
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		2	2	7.0'
R4-1	24' x 30'	5.00		4	1	7.0'
R4-2	24' x 30'	5.00		2	1	7.0'

GENERAL NOTES:
 1.) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

NO	DATE	BY	CKD	APPR	REVISION

NAME: T:\Traffic\dwg\CSAH 11 (Foley_Northdale)\from CSAH 18 to CSAH 1.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 Fadenbeard
 SIGNATURE: *Charles Fadenbeard*
 DATE: 7/26/10 LICENSE NO. 40416

DRAWN BY: MTH DATE: 2/03/10
 DESIGN BY: DATE:
 CHECKED BY: DATE:
 ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. 10-13-11

CSAH 11 (NORTHDALE BLVD)
 TEMPORARY SIGNING
 PERMANENT STRIPING
 AND PAVEMENT MESSAGES
 Sheet 9 of 98 Sheets

NOTES:

- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- 2) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- 3) CONTRACTOR SHALL SALVAGE INPLACE 12 x 12 PEDESTRIAN SIGNAL INDICATIONS, AND SHALL FURNISH AND INSTALL NEW ONE SECTION LED "HAND/WALKING PERSON" PEDESTRIAN INDICATIONS IN THEIR PLACE (SEE SPECIAL PROVISIONS).
- 4) CONTRACTOR SHALL SALVAGE ALL INPLACE INCANDESCENT VEHICLE SIGNAL INDICATION LENSES, AND SHALL FURNISH AND INSTALL NEW LED INDICATIONS IN THEIR PLACE (SEE SPECIAL PROVISIONS).
- 5) SEE SPECIAL PROVISIONS REGARDING REMOVAL, SALVAGING AND REINSTALLATION OF INPLACE SIGNAL EQUIPMENT.
- 6) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.
- 7) F & I = FURNISH & INSTALL BY CONTRACTOR.
S & I = SALVAGE & INSTALL BY CONTRACTOR.
- 8) ALL CABLES, CONDUCTORS AND CONDUIT ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE DENOTED TO BE FURNISHED AND INSTALLED BY CONTRACTOR (FOR EVP).
- 9) ALL WORK RELATED TO LED SIGNAL INSTALLATION, PEDESTRIAN SIGNAL INSTALLATION AND PUSH BUTTON & SIGN INSTALLATION SHALL BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (REVISE SIGNAL SYSTEM "C").
- 10) SEE NEXT SHEET FOR DETAILED POLE NOTES.
- 11) (V10) = INPLACE TO VILLAGE 10 EVP SYSTEM.

INPLACE NMC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	35' & 50'	1
D1-2	2-6x6	5' & 20'	1,11
D2-1	6x6	260'	1
D6-1	6x6	260'	1
DB-1	2-6x6	120'	3,B
DB-2	2-6x6	AS SHOWN	7
DB-3	2-6x6	AS SHOWN	1

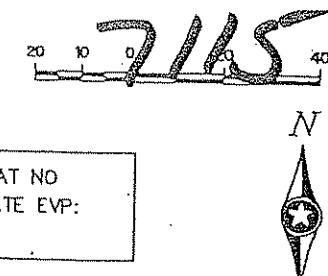
LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

FUNCTIONS:

- 1 = CALL AND EXTEND
- 3 = EXTEND ONLY
- 7 = DELAYED CALL IMMEDIATE EXTEND
- 8 = CARRY OVER (STRETCH)
- 11 = EXTEND PHASE 6 DURING PHASE 6 GREEN

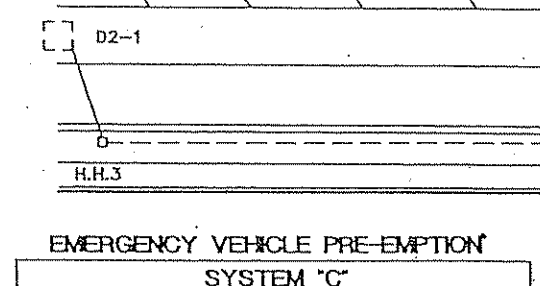
(B) INPLACE (MAINTAIN INPLACE)

CABINET FOUNDATION SIGNAL SERVICE CABINET STUB OUT 2" R.S.C. (FOR SERVICE BY OTHERS) EXTENDED INTO H.H.12: METERED SIGNAL SERVICE 1 1/4" R.S.C. 3-1/c#6
EXTENDED INTO H.H.5: UNMETERED STREET LIGHT SERVICE 1 1/4" R.S.C. 4-1/c#10 (LUM)
BETWEEN H.H.1 AND H.H.5: 2" R.S.C. 2-1/c#10 (LUM)



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

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.



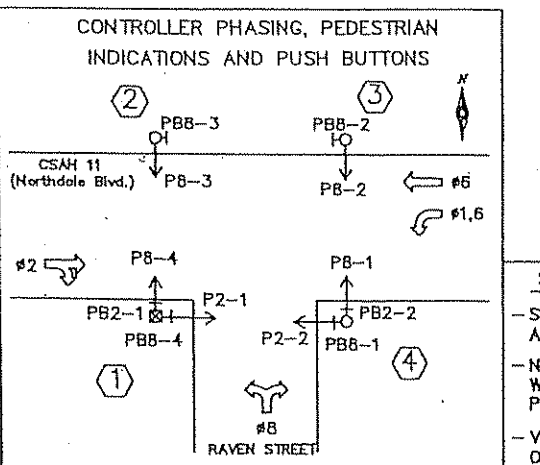
EMERGENCY VEHICLE PRE-EMPTION SYSTEM "C"

NOTE:
ALL COMPONENTS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE UNLESS OTHERWISE BOXED IN AND DENOTED AS WORK TO BE COMPLETED BY CONTRACTOR. SEE SPECIAL PROVISIONS.
SEE SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

LEGEND:

- A NEW CABLES TO BE F & I AS PART OF EVP SYSTEM
- /←/↔ EVP DETECTOR UNIT (ONE WAY) WITH INDICATOR LIGHT
- /←/↔ EVP DETECTOR UNIT (ONE WAY) ONLY (NO LIGHT)
- ↔ EVP DETECTOR UNIT (TWO WAY) W/ONE WAY INDICATOR LIGHT
- ∅ SIGNAL PHASE

ALL MATERIALS TO BE FURNISHED AND/OR INSTALLED AS PART OF THIS PROJECT ARE LABELED F & I, BOXED IN, AND DENOTED BY →

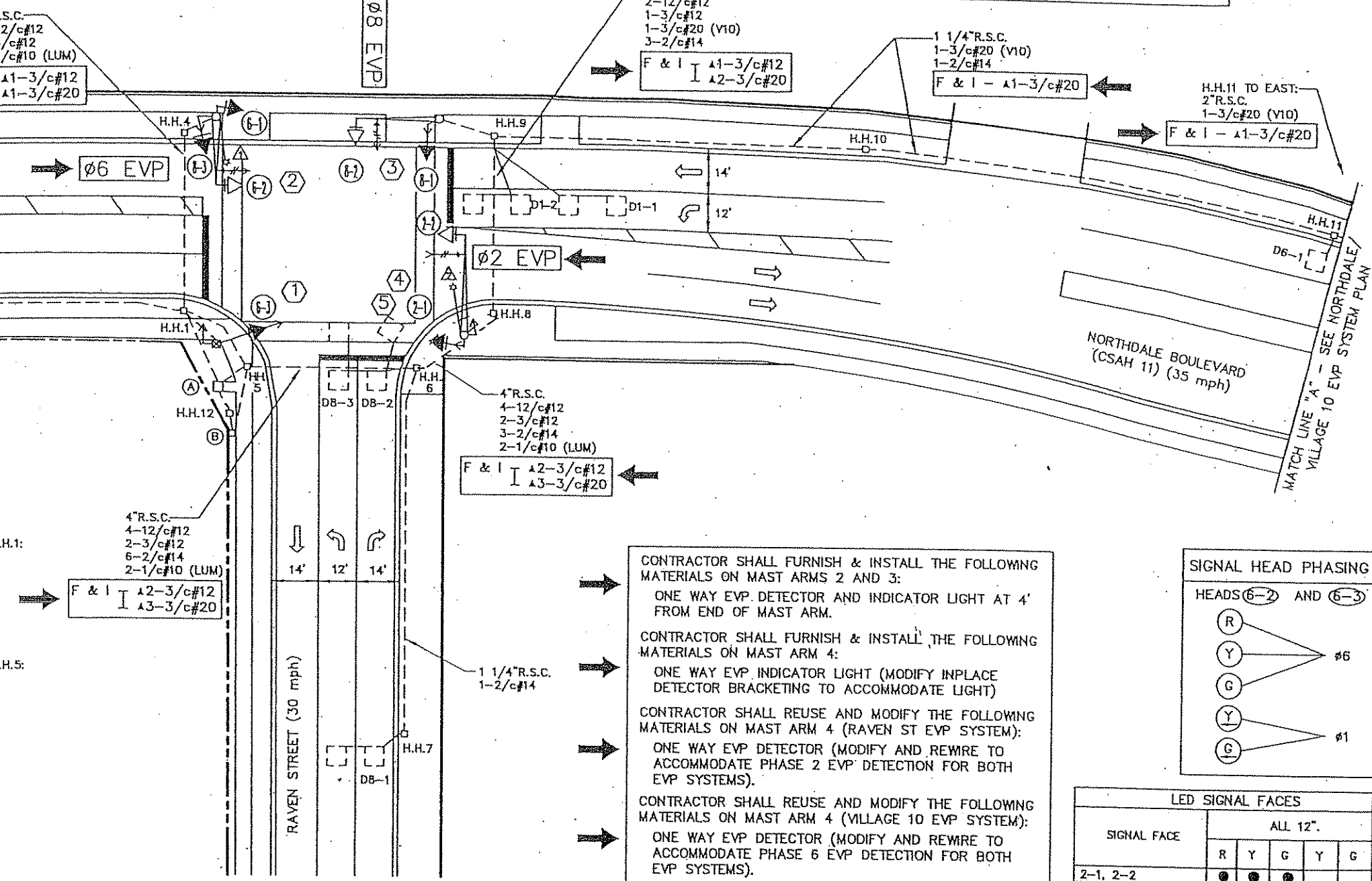


SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASE 1 BEING A PROTECTED/PERMISSIVE LEFT TURN PHASE.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

(A) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION CONTROLLER AND CABINET EXTENDED INTO H.H.12: METERED SIGNAL SERVICE 1 1/4" R.S.C. 3-1/c#6
CONTROLLER CABINET TO H.H.1: 4" R.S.C. 3-12/c#12 3-3/c#12 1-2/c#14

INPLACE (MAINTAIN INPLACE) CONTROLLER CABINET TO H.H.5: 4" R.S.C. 4-12/c#12 2-3/c#12 6-2/c#14



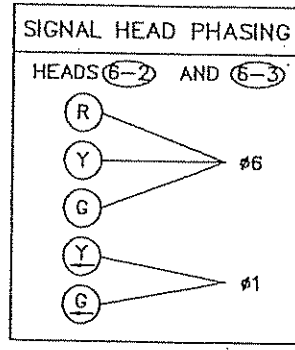
CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON MAST ARMS 2 AND 3:
ONE WAY EVP DETECTOR AND INDICATOR LIGHT AT 4' FROM END OF MAST ARM.

CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON MAST ARM 4:
ONE WAY EVP INDICATOR LIGHT (MODIFY INPLACE DETECTOR BRACKETING TO ACCOMMODATE LIGHT)

CONTRACTOR SHALL REUSE AND MODIFY THE FOLLOWING MATERIALS ON MAST ARM 4 (RAVEN ST EVP SYSTEM):
ONE WAY EVP DETECTOR (MODIFY AND REWIRE TO ACCOMMODATE PHASE 2 EVP DETECTION FOR BOTH EVP SYSTEMS).

CONTRACTOR SHALL REUSE AND MODIFY THE FOLLOWING MATERIALS ON MAST ARM 4 (VILLAGE 10 EVP SYSTEM):
ONE WAY EVP DETECTOR (MODIFY AND REWIRE TO ACCOMMODATE PHASE 6 EVP DETECTION FOR BOTH EVP SYSTEMS).

ALL ITEMS OF EVP SYSTEM (INCLUDING CABLES, HUBS, BRACKETING AND HARDWARE NECESSARY FOR EVP SYSTEM OPERATION) SHALL BE FURNISHED & INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED IN SPECIAL PRO



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

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

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

Name: John W. Gray, PE
Date: June 5, 2002
Lic. No. 22457



STATE AID PROJECT NO. _____	MISCELLANEOUS SIGNAL SHEETS
STATE PROJECT NO. _____	
CITY PROJECT NO. _____	
COUNTY PROJECT NO. 10-13-11	
Sheet 9A of 9B Sheets	

- NOTES:**
- ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
 - ALL SIGNAL FACES HAVE BACKGROUND SHIELDS.
 - CONTRACTOR SHALL SALVAGE INPLACE 12 x 12 PEDESTRIAN SIGNAL INDICATIONS, AND SHALL FURNISH AND INSTALL NEW ONE SECTION LED "HAND/WALKING PERSON" PEDESTRIAN INDICATIONS IN THEIR PLACE (SEE SPECIAL PROVISIONS).
 - CONTRACTOR SHALL SALVAGE ALL INPLACE INCANDESCENT VEHICLE SIGNAL INDICATION LENSES, AND SHALL FURNISH AND INSTALL NEW LED INDICATIONS IN THEIR PLACE (SEE SPECIAL PROVISIONS).
 - INPLACE HANDHOLES ARE CONCRETE HANDHOLES WITH TYPE C COVERS (EXCEPT THAT H.H.12 HAS LD COVER) (REUSE AS SHOWN).
 - SEE SPECIAL PROVISIONS REGARDING REMOVAL, SALVAGING AND REINSTALLATION OF INPLACE SIGNAL EQUIPMENT.
 - CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.
 - F & I = FURNISH & INSTALL BY CONTRACTOR.
S & I = SALVAGE & INSTALL BY CONTRACTOR.
 - SEE NEXT SHEET FOR DETAILED POLE NOTES.
 - ALL CABLES, CONDUCTORS AND CONDUIT ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE DENOTED TO BE FURNISHED AND INSTALLED BY CONTRACTOR (FOR EVP).
 - ALL WORK RELATED TO LED SIGNAL INSTALLATION, PEDESTRIAN SIGNAL INSTALLATION AND PUSH BUTTON SIGN INSTALLATION SHALL BE MEASURED AND PAID FOR UNDER ITEM NO. 2565.616 (REVISE SIGNAL SYSTEM "B").
 - ALL CONDUIT INSTALLATIONS AT EXISTING DRIVEWAYS SHALL BE COMPLETED VIA DIRECTIONAL BORING, OR BY REPLACEMENT OF ENTIRE APRON AREA (NO TRENCHING ALLOWED THROUGH APRON AREA) (INCIDENTAL TO EVP SYSTEM WORK).

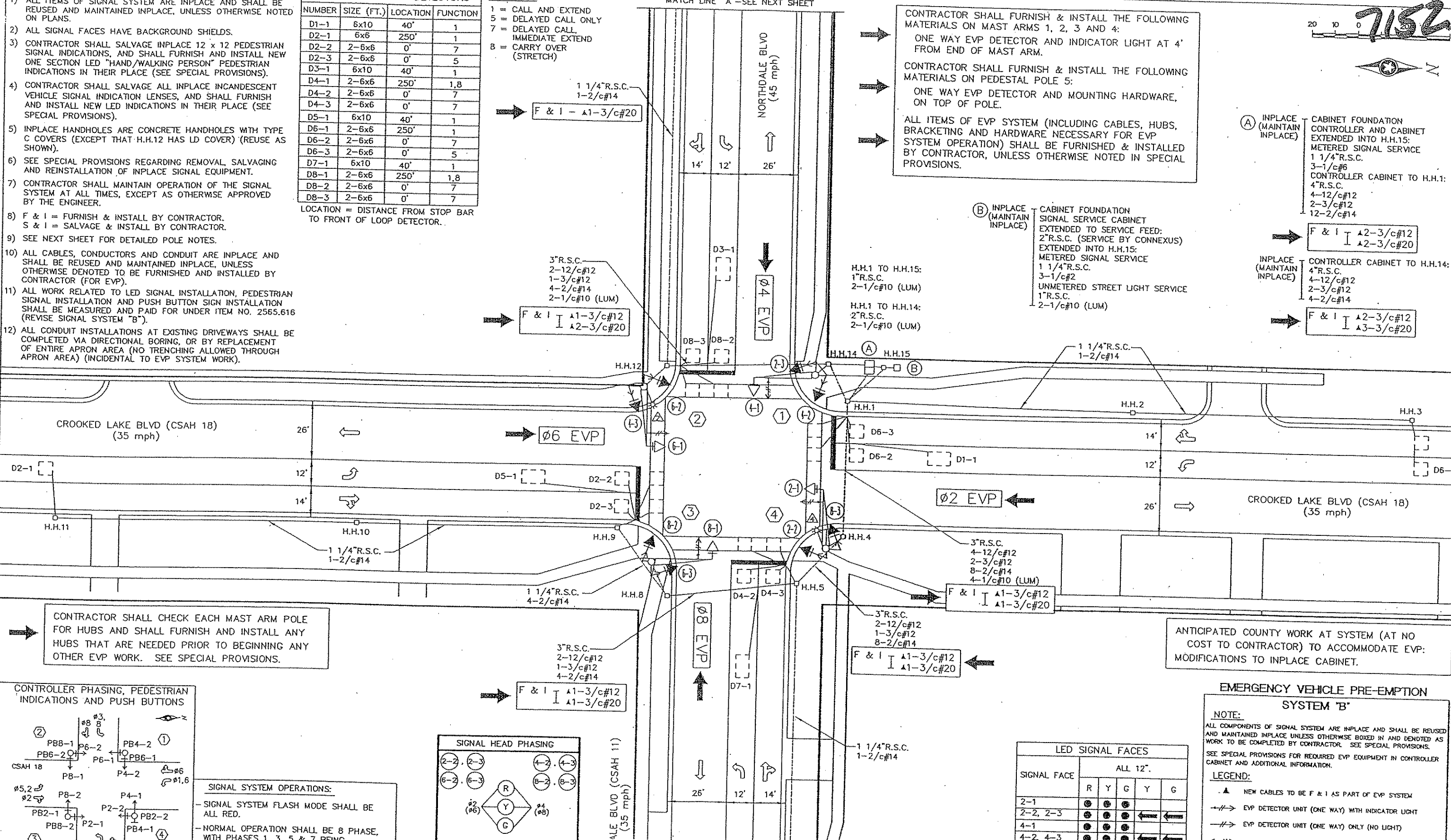
INPLACE NMC LOOP DETECTORS

NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	6x10	40'	1
D2-1	6x6	250'	1
D2-2	2-6x6	0'	7
D2-3	2-6x6	0'	5
D3-1	6x10	40'	1
D4-1	2-6x6	250'	1,8
D4-2	2-6x6	0'	7
D4-3	2-6x6	0'	7
D5-1	6x10	40'	1
D6-1	2-6x6	250'	1
D6-2	2-6x6	0'	7
D6-3	2-6x6	0'	5
D7-1	6x10	40'	1
D8-1	2-6x6	250'	1,8
D8-2	2-6x6	0'	7
D8-3	2-6x6	0'	7

- FUNCTIONS:**
- CALL AND EXTEND
 - DELAYED CALL ONLY
 - DELAYED CALL IMMEDIATE EXTEND
 - CARRY OVER (STRETCH)

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

MATCH LINE "A" - SEE NEXT SHEET



CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON MAST ARMS 1, 2, 3 AND 4:
ONE WAY EVP DETECTOR AND INDICATOR LIGHT AT 4' FROM END OF MAST ARM.

CONTRACTOR SHALL FURNISH & INSTALL THE FOLLOWING MATERIALS ON PEDESTAL POLE 5:
ONE WAY EVP DETECTOR AND MOUNTING HARDWARE, ON TOP OF POLE.

ALL ITEMS OF EVP SYSTEM (INCLUDING CABLES, HUBS, BRACKETING AND HARDWARE NECESSARY FOR EVP SYSTEM OPERATION) SHALL BE FURNISHED & INSTALLED BY CONTRACTOR, UNLESS OTHERWISE NOTED IN SPECIAL PROVISIONS.

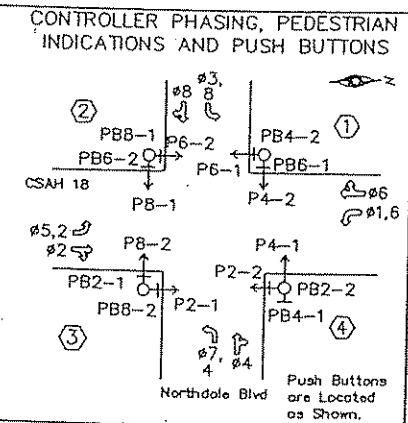
(A) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION CONTROLLER AND CABINET EXTENDED INTO H.H.15: METERED SIGNAL SERVICE 1 1/4" R.S.C. 3-1/c#6 CONTROLLER CABINET TO H.H.1: 4" R.S.C. 4-12/c#12 2-3/c#12 12-2/c#14

(B) INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION SIGNAL SERVICE CABINET EXTENDED TO SERVICE FEED: 2" R.S.C. (SERVICE BY CONNEXUS) EXTENDED INTO H.H.15: METERED SIGNAL SERVICE 1 1/4" R.S.C. 3-1/c#2 UNMETERED STREET LIGHT SERVICE 1" R.S.C. 2-1/c#10 (LUM)

INPLACE (MAINTAIN INPLACE) CONTROLLER CABINET TO H.H.14: 4" R.S.C. 4-12/c#12 2-3/c#12 4-2/c#14

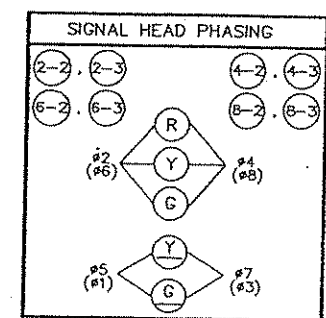
CONTRACTOR SHALL CHECK EACH MAST ARM POLE FOR HUBS AND SHALL FURNISH AND INSTALL ANY HUBS THAT ARE NEEDED PRIOR TO BEGINNING ANY OTHER EVP WORK. SEE SPECIAL PROVISIONS.

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



SIGNAL SYSTEM OPERATIONS:

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



LED SIGNAL FACES

SIGNAL FACE	ALL 12"				
	R	Y	G	Y	G
2-1	●	●	●	●	●
2-2, 2-3	●	●	●	←	←
4-1	●	●	●	←	←
4-2, 4-3	●	●	●	←	←
6-1	●	●	●	●	●

EMERGENCY VEHICLE PRE-EMPTION SYSTEM "B"

NOTE:
ALL COMPONENTS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE UNLESS OTHERWISE BOXED IN AND DENOTED AS WORK TO BE COMPLETED BY CONTRACTOR. SEE SPECIAL PROVISIONS. SEE SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

LEGEND:

- ▲ NEW CABLES TO BE F & I AS PART OF EVP SYSTEM
- ↔ EVP DETECTOR UNIT (ONE WAY) WITH INDICATOR LIGHT
- ↔ EVP DETECTOR UNIT (ONE WAY) ONLY (NO LIGHT)
- ↔ EVP DETECTOR UNIT (TWO WAY) W/ONE WAY INDICATOR LIGHT

FOR INFORMATIONAL PURPOSES ONLY

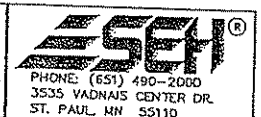
DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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

John M. Gray, PE
June 4, 2003 Lic. No. 22452



STATE AID PROJECT NO. _____
STATE PROJECT NO. _____
CITY PROJECT NO. _____
COUNTY PROJECT NO. 10-13-11

MISCELLANEOUS SIGNAL SHEETS
Sheet 9B of 9B Sheets