

PLAN SYMBOLS

- STATE LINE.
- COUNTY LINE.
- TOWNSHIP OR RANGE LINE.
- SECTION LINE.
- QUARTER LINE.
- SIXTEENTH LINE.
- RIGHT-OF-WAY LINE.
- PRESENT RIGHT-OF-WAY LINE.
- CONTROL OF ACCESS LINE.
- PROPERTY LINE (Except Land Lines).
- VACATED PLATTED PROPERTY.
- CORPORATE OR CITY LIMITS.
- TRUNK HIGHWAY CENTER LINE.
- RETAINING WALL.
- RAILROAD.
- RAILROAD RIGHT-OF-WAY LINE.
- RIVER OR CREEK.
- DRY RUN.
- DRAINAGE DITCH.
- DRAIN TILE.
- CULVERT.
- DROP INLET.
- GUARD RAIL.
- BARBED WIRE FENCE.
- WOVEN WIRE FENCE.
- CHAIN LINK FENCE.
- WOODEN FENCE.
- STONE WALL OR FENCE.
- HEDGE.
- RAILROAD CROSSING SIGN.
- RAILROAD CROSSING BELL.
- ELECTRIC WARNING SIGN.
- CROSSING GATE.
- MEANDER CORNER.
- SPRINGS.
- MARSH.
- TIMBER ORCHARD.
- BRUSH NURSERY.
- CATCH BASIN.
- FIRE HYDRANT.
- 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
- IRON PIPE OR ROD.
- MONUMENT (STONE, CONCRETE, OR METAL).
- WOODEN HUB.
- GRAVEL PIT.
- SAND PIT.
- BORROW PIT.
- ROCK QUARRY.
- UTILITY SYMBOLS**
- POWER POLE LINE.
- TELEPHONE OR TELEGRAPH POLE LINE.
- JOINT TELEPHONE AND POWER ON POWER POLES ON TELEPHONE POLES.
- ANCHOR.
- STEEL TOWER.
- STREET LIGHT.
- PEDESTAL (TELEPHONE CABLE TERMINAL).
- GAS MAIN.
- WATER MAIN CONDUIT.
- TELEPHONE CABLE IN CONDUIT.
- ELECTRIC CABLE IN CONDUIT.
- TELEPHONE MANHOLE.
- ELECTRIC MANHOLE.
- BURIED COMMUNICATION CABLE.
- BURIED TELEPHONE CABLE.
- BURIED ELECTRIC CABLE.
- SEWER, (SANITARY).
- SEWER, (STORM).
- SEWER MANHOLE.
- HANDHOLE.
- CATCH BASIN.

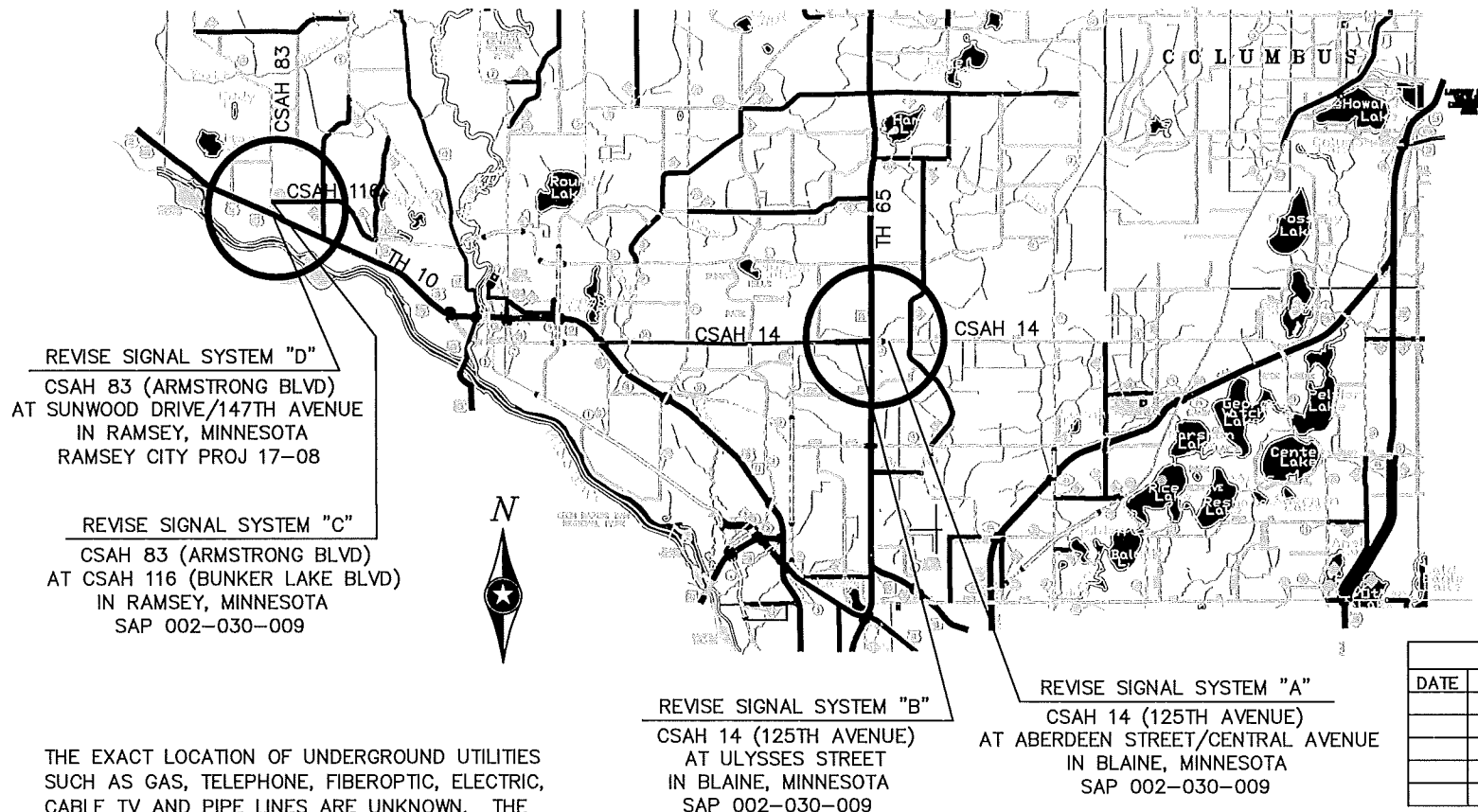
MINNESOTA DEPARTMENT OF TRANSPORTATION

**ANOKA COUNTY, MINNESOTA
CITIES OF BLAINE AND RAMSEY**

**CONSTRUCTION PLAN FOR: FOUR (4) REVISE SIGNAL SYSTEMS
(FLASHING YELLOW ARROW MODIFICATIONS)**

- REVISE SIGNAL SYSTEM "A" - CSAH 14 (125TH AVENUE) AT ABERDEEN STREET/CENTRAL AVENUE**
- REVISE SIGNAL SYSTEM "B" - CSAH 14 (125TH AVENUE) AT ULYSSES STREET**
- REVISE SIGNAL SYSTEM "C" - CSAH 83 (ARMSTRONG BLVD) AT CSAH 116 (BUNKER LAKE BLVD)**
- REVISE SIGNAL SYSTEM "D" - CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DRIVE/147TH AVENUE**

**STATE AID PROJECT NO. 002-030-009
RAMSEY CITY PROJECT NO. 17-08**



REVISE SIGNAL SYSTEM "D"
CSAH 83 (ARMSTRONG BLVD)
AT SUNWOOD DRIVE/147TH AVENUE
IN RAMSEY, MINNESOTA
RAMSEY CITY PROJ 17-08

REVISE SIGNAL SYSTEM "C"
CSAH 83 (ARMSTRONG BLVD)
AT CSAH 116 (BUNKER LAKE BLVD)
IN RAMSEY, MINNESOTA
SAP 002-030-009

REVISE SIGNAL SYSTEM "B"
CSAH 14 (125TH AVENUE)
AT ULYSSES STREET
IN BLAINE, MINNESOTA
SAP 002-030-009

REVISE SIGNAL SYSTEM "A"
CSAH 14 (125TH AVENUE)
AT ABERDEEN STREET/CENTRAL AVENUE
IN BLAINE, MINNESOTA
SAP 002-030-009

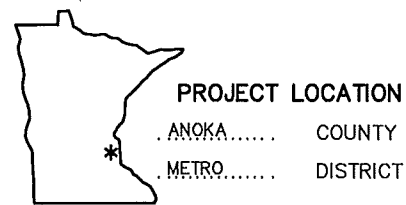
THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS GAS, TELEPHONE, FIBEROPTIC, ELECTRIC, CABLE TV AND PIPE LINES ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL BEFORE COMMENCING EXCAVATION.
GOPHER STATE ONE CALL SYSTEM - 1-800-252-1166

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 3802, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE MnMUTCD AND PART VI "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS." (CURRENT EDITION).

GEOMETRICS DESIGN DESCRIPTION	CSAH 14 (125TH AVE)	ABERDEEN STREET/CENTRAL AVENUE	ULYSSES ST	CSAH 83 (ARMSTRONG BLVD)	CSAH 116 (BUNKER LAKE BLVD)	SUNWOOD DR/147TH AVENUE
EXISTING A.D.T. (2018)	20,900	7,100	7,100	6,200	2,700	3,950
PROJECTED A.D.T. (2038)	31,000	8,600	8,600	9,200	4,000	4,800
NO. OF TRAFFIC LANES	4	2	2	4	4	2
NO. OF PARKING LANES	0	0	0	0	0	0
DESIGN SPEED (MPH)	40	30	30	55	40/55	30
POSTED SPEED (MPH)	40	30	30	55	40/55	30
ROADWAY CLASSIFICATION	ARTERIAL	COLLECTOR	COLLECTOR	ARTERIAL	ARTERIAL	COLLECTOR



GOVERNING SPECIFICATIONS

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

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD PLATES/STATEMENT OF ESTIMATED QUANTITIES
3-4	TRAFFIC SIGNAL DETAILS
5-9	REVISE SIGNAL SYSTEM "A"
10-14	REVISE SIGNAL SYSTEM "B"
15-19	REVISE SIGNAL SYSTEM "C"
20-24	REVISE SIGNAL SYSTEM "D"

THIS PLAN CONTAINS 24 SHEETS.

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

SIGNATURE: *John M. Gray* DATE: **3-7-18**

PRINTED NAME: JOHN M. GRAY LIC.NO. 22457

SIGNAL DESIGN ENGINEER: I HEREBY CERTIFY THAT THESE SIGNAL PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, THAT THIS PLAN CONFORMS TO THE MMUTCD (EXCEPT WHERE A VARIANCE HAS BEEN GRANTED), AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *John M. Gray* DATE: **3-7-18**

PRINTED NAME: JOHN M. GRAY LIC.NO. 22457

APPROVED	ANOKA COUNTY ENGINEER	DATE
APPROVED	CITY OF BLAINE ENGINEER	DATE
APPROVED	CITY OF RAMSEY ENGINEER	DATE
APPROVED	DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY	DATE
APPROVED	APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER	DATE

**ANOKA COUNTY, MINNESOTA
CITIES OF BLAINE AND RAMSEY**

TITLE SHEET



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

**FOUR (4) REVISE SIGNAL SYSTEMS
(FLASHING YELLOW ARROW MODIFICATIONS)**

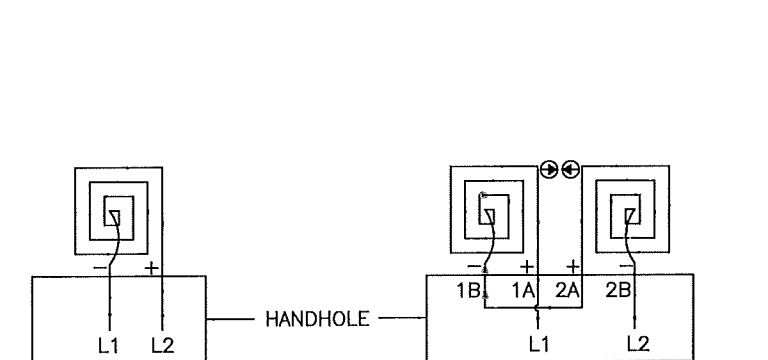
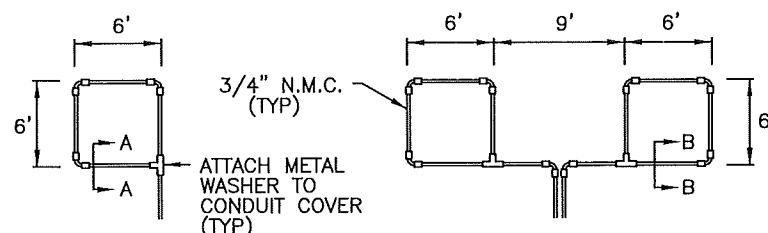
FILE NO.
ANOKC 142726
RAMSY 142728

STATE AID PROJ. NO: 002-030-009
RAMSEY PROJECT NO: 17-08

1
24

SCALE

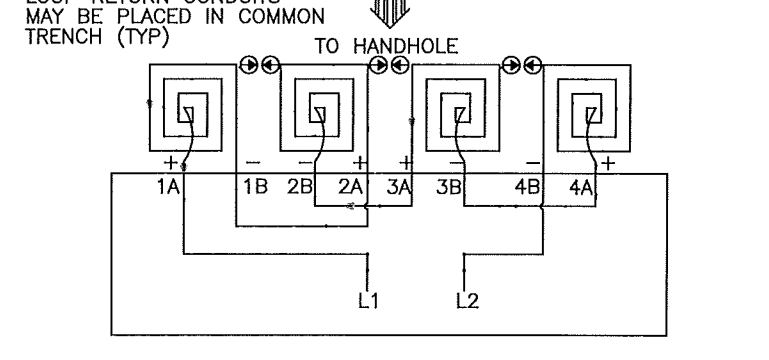
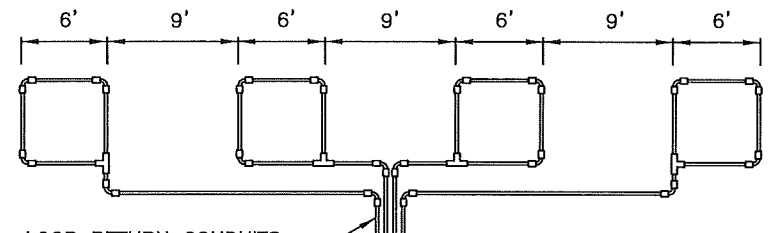
INDEX MAP
GENERAL LAYOUT



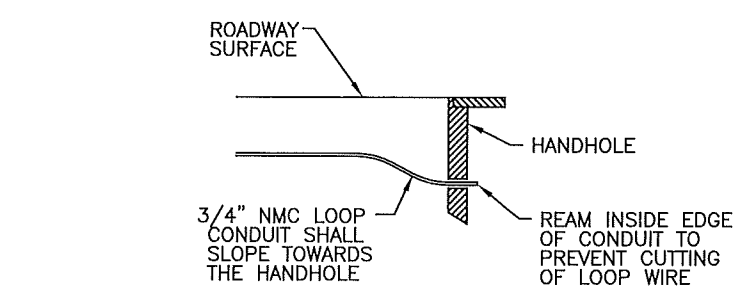
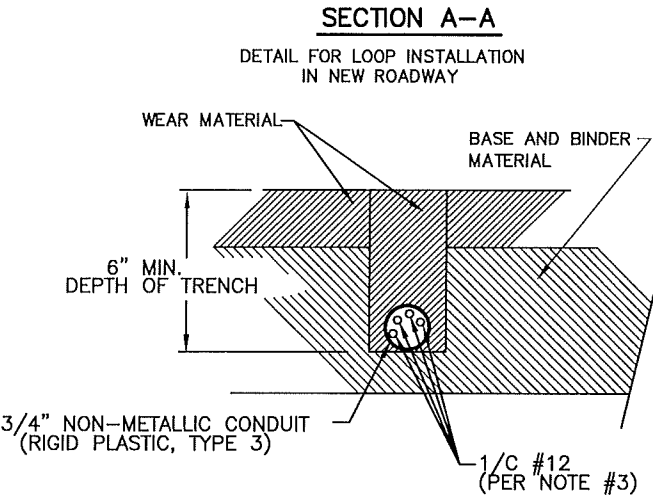
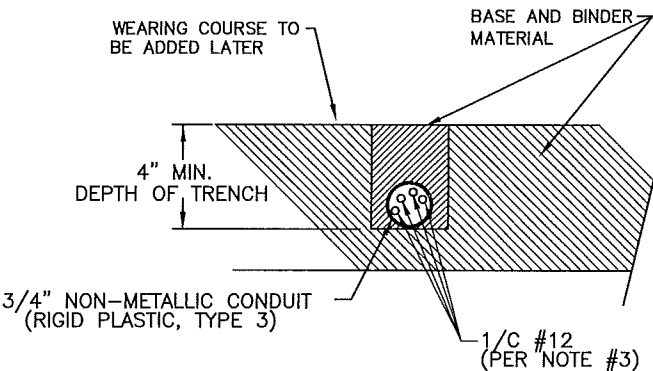
LOOP DETECTOR DETAIL A
(LOOP PHASING FOR SINGLE CONNECTION)

LOOP DETECTOR DETAIL B
(LOOP PHASING FOR SERIES CONNECTION)

LOOP DETECTOR DETAIL C
(LOOP PHASING FOR SERIES CONNECTION)



LOOP DETECTOR DETAIL C
(LOOP PHASING FOR SERIES CONNECTION)



- 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.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(1)
SIGNAL FACE NO.	(-)
LUMINAIRE NO.	(L)
CONTROLLER AND CABINET	(C)
CONTROLLER AND CABINET - IN PLACE	(C)
HANDHOLE	(H)
HANDHOLE - IN PLACE	(H)
RIGID STEEL CONDUIT (RSC)	(RSC)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(RSC)
SIGNAL FACE WITH BACKGROUND SHIELD	(S)
SIGNAL FACE W/O BACKGROUND SHIELD	(S)
SIGNAL FACE - IN PLACE	(S)
PEDESTRIAN INDICATORS	(P)
PEDESTRIAN INDICATORS - IN PLACE	(P)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(PB)
PEDESTRIAN PUSH BUTTON STATION	(PB)
TRAFFIC SIGNAL PEDESTAL	(T)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(T)
TRAFFIC SIGNAL POLE AND MAST ARM	(M)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(M)
STREET LIGHT POLE AND LUMINAIRE	(S)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(S)
MAST ARM AND LUMINAIRE	(M)
MAST ARM AND LUMINAIRE - INPLACE	(M)
WOOD POLE	(W)
WOOD POLE - IN PLACE	(W)
SOURCE OF POWER	(S)
RAILROAD SIGNAL - IN PLACE	(R)
RIGHT OF WAY LINE	(R)
CENTERLINE	(C)
EDGE OF ROADWAY	(E)
SHOULDERLINE	(S)
CURB LINE	(C)
STOP BAR	(S)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(E)

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

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

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	PARTICIPATION	
				SAP 002-030-009	CP 17-08
2563.610	POLICE OFFICER	HOUR	12	9	3
2565.616	REVISE SIGNAL SYSTEM A	SYSTEM	1	1	
2565.616	REVISE SIGNAL SYSTEM B	SYSTEM	1	1	
2565.616	REVISE SIGNAL SYSTEM C	SYSTEM	1	1	
2565.616	REVISE SIGNAL SYSTEM D	SYSTEM	1		1

TRAFFIC SIGNAL STANDARD PLATES

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

PLATE NO.	DESCRIPTION
* 8000J	CHANNELIZERS - TYPE A, B, C (3 SHEETS)
* 8120Q	POLE FOUNDATION (PA85)
* 8121H	TRANSFORMER BASE AND POLE BASE PLATE (2 SHEETS)
* 8122F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
* 8123G	POLE & MAST ARM-LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
* 8129A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

* - STANDARD PLATES APPLICABLE TO THIS PROJECT

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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

John M. Gray
Name: John M. Gray, PE
Lic. No. 22457
Date: March 7, 2018

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

ANOKA COUNTY
CITIES OF BLAINE, RAMSEY

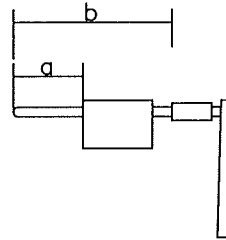
REVISE SIGNAL SYSTEMS 'A-D'
DETAILS, STANDARD PLATES AND
STATEMENT OF ESTIMATED QUANTITIES
FLASHING YELLOW ARROW MODIFICATIONS

FILE NO.
ANOKC 142726
RAMSY 142728

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SIGNS FOR TRAFFIC SIGNAL SYSTEM										
SIGN PANELS - TYPE C (FURNISH AND INSTALL)										
SIGNAL SYSTEM	SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET		AREA/SIGN (SQ. FT.)	NO. REQ.	PANEL LEGEND
						QUANTITY	SPACING (1)			
A	R9-3	1,2,3,4	--	--	18 x 18	①	----	2.25	6	NO PEDESTRIAN CROSSING (SYMBOL)
B	R9-3	1,5,6	--	--	18 x 18	①	----	2.25	4	NO PEDESTRIAN CROSSING (SYMBOL)
A	R10-3e	1,4,6	--	--	9 x 15	①	----	0.94	4	PEDESTRIAN INSTRUCTION SIGN (METAL)
B	R10-3e	1,2,4,5	--	--	9 x 15	①	----	0.94	6	PEDESTRIAN INSTRUCTION SIGN (METAL)
C	R10-3e	1,2,4,6	--	--	9 x 15	①	----	0.94	8	PEDESTRIAN INSTRUCTION SIGN (METAL)
A	R10-X12	1,4,5	1'	--	42 x 48	2	----	14.00	3	LEFT TURN YIELD ON FLASHING YELLOW ARROW
A	R10-X12	2	--	--	42 x 48	①	----	14.00	2	LEFT TURN YIELD ON FLASHING YELLOW ARROW
B	R10-X12	2,3,5,6	1'	--	42 x 48	2	----	14.00	4	LEFT TURN YIELD ON FLASHING YELLOW ARROW
C	R10-X12	1,2,4,6	1'	--	42 x 48	2	----	14.00	4	LEFT TURN YIELD ON FLASHING YELLOW ARROW
D	R10-X12	1,2,3,4	1'	--	42 x 48	2	----	14.00	4	LEFT TURN YIELD ON FLASHING YELLOW ARROW
TOTAL QUANTITIES								277.42	45	

SIGNS FOR TRAFFIC SIGNAL SYSTEM						
SIGN PANELS - TYPE C (SALVAGE AND INSTALL)						
SIGNAL SYSTEM	SIGN PANEL	POLE NO.	SIZE (IN)	MOUNTING QUANTITY	NO. REQ.	PANEL LEGEND
A	R4-7	5	24 x 30	②	1	KEEP RIGHT
A	R5-1	--	30 x 30	③	1	DO NOT ENTER
A	X4-2	5	18 x 18	②	1	HAZARD MARKER
TOTAL QUANTITIES					3	



SIGNS FOR TRAFFIC SIGNAL SYSTEM										
SIGN PANELS - TYPE D (SALVAGE AND INSTALL)										
SIGNAL SYSTEM	SIGN PANEL	POLE NO.	a (FT)	b (FT)	APPROX SIZE (IN)	MOUNTING BRACKET		NO. REQ.	PANEL LEGEND	
						QUANTITY	SPACING (1)			
A	D-1	1	--	15'	42 x 48	2	----	1	CSAH 14 WITH DOUBLE ARROW	
A	D-2	4	--	15'	42 x 48	2	----	1	CSAH 14 WITH DOUBLE ARROW	
B	D-3	2	--	15'	42 x 48	2	----	1	CSAH 14 WITH DOUBLE ARROW	
B	D-4	5	--	15'	42 x 48	2	----	1	CSAH 14 WITH DOUBLE ARROW	
TOTAL QUANTITIES								4		

GENERAL SIGNING NOTES:

- DIRECTIONAL ARROWS FOR ALL NEW R10-3e PEDESTRIAN PUSH BUTTON INSTRUCTION SIGNS SHALL BE DETERMINED BY CONTRACTOR BASED ON LOCATION OF PUSH BUTTONS AT THE TIME OF CONSTRUCTION.
- CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 7/06/07), AND SPECIAL PROVISIONS.
- SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS.
- FURNISHING AND INSTALLING TYPE C SIGNS (AND SALVAGING AND REINSTALLING TYPE C AND TYPE D SIGNS) SHALL BE INCLUDED UNDER THE PAY ITEMS FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEMS "A-D"). SEE SPECIAL PROVISIONS.
- ALL NEW TYPE C SIGN PANELS SHALL BE FABRICATED USING DG3 SHEETING.
- ① = INSTALL SIGN PANEL ON TRAFFIC SIGNAL MAST ARM POLE OR TRAFFIC SIGNAL PEDESTAL POLE.
- ② = SALVAGE R4-7/X4-2 SIGNS FROM SIGN POST ON EAST MEDIAN AT REVISE SIGNAL SYSTEM "A" AND REINSTALL ON NEW MAST ARM POLE 5 (FACING EB TRAFFIC) (PROVIDE & INSTALL ALL REQUIRED MOUNTING HARDWARE TO MOUNT ON MAST ARM POLE) (INCIDENTAL).
- ③ = SALVAGE AND REINSTALL R5-1 SIGN ON NEW 1-U CHANNEL POST ON EAST MEDIAN AT REVISE SIGNAL SYSTEM "A" (PROVIDE & INSTALL ALL REQUIRED SIDEWALK MOUNTING HARDWARE, SIGN PANEL AND POST MOUNTING HARDWARE, AND REMOVE AND DISPOSE OF EXISTING POST) (INCIDENTAL).
- WHEN SALVAGING AND REINSTALLING TYPE D SIGN PANELS ON MAST ARMS AT SYSTEMS "A" AND "B", PROVIDE AND INSTALL ALL NEW MAST ARM MOUNTING HARDWARE AND BRACKETING TO ATTACH TO EACH MAST ARM (INCIDENTAL).

TRAFFIC CONTROL NOTES:

- ITEM NO. 2565.616 FOR EACH REVISE SIGNAL SYSTEM SHALL INCLUDE ALL LABOR AND MATERIALS REQUIRED TO MAINTAIN VEHICULAR AND PEDESTRIAN TRAFFIC THROUGH EACH INTERSECTION DURING THE ENTIRE CONSTRUCTION PERIOD. THIS INCLUDES BUT IS NOT LIMITED TO: ALL REQUIRED SIGNS AND SIGN SUPPORTS ("STOP", "STOP AHEAD", "ROAD WORK AHEAD", ETC.), CONES, BARRELS, STANDARD BARRICADES, ETC. AS WELL AS SAND BAGS NEEDED TO KEEP SIGNS UPRIGHT AND VISIBLE TO ONCOMING TRAFFIC AND PEDESTRIANS AT ALL TIMES.
- ALL TRAFFIC CONTROL DEVICES MUST CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" (CURRENT EDITION).
- ALL TRAFFIC LANES MUST BE KEPT OPEN TO TRAFFIC AT ALL TIMES, EXCEPT FOR ALLOWABLE SHORT TERM LANE CLOSURES TO COMPLETE INSTALLATION OF OVERHEAD MAST ARM MOUNTED SIGNALS AND SIGNS AND FOR LOOP DETECTOR INSTALLATION WORK. SHORT TERM LANE CLOSURES ARE LIMITED TO THE HOURS OF 9:00 AM TO 3:00 PM, MONDAY THROUGH THURSDAY, UNLESS OTHERWISE APPROVED BY ENGINEER FOR THESE TIME LIMITS TO BE EXTENDED TO ACCOMMODATE IMMEDIATE WORK AT THE INTERSECTION. LONG TERM LANE CLOSURES WILL NOT BE ALLOWED.
- CONTRACTOR MUST PROVIDE, MAINTAIN, COVER (WHEN NOT IN USE) OR TURN AWAY FROM TRAFFIC ALL REQUIRED TRAFFIC CONTROL DEVICES AT ALL TIMES. NOTE THAT ENGINEER WILL SUSPEND WORK IF REQUIRED TRAFFIC CONTROL DEVICES ARE NOT INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE FIELD MANUAL FOR THE APPROPRIATE TRAFFIC CONTROL SITUATIONS.
- A SIGNAL SYSTEM MUST BE IN OPERATION AT EACH INTERSECTION AT ALL TIMES, EXCEPT THAT AN EXISTING SIGNAL SYSTEM MAY BE PUT IN RED FLASH (AND AN ALL-WAY STOP PROVIDED AND INSTALLED) DURING THE HOURS OF 9:00 AM TO 3:00 PM ONLY IN ORDER TO COMPLETE TRAFFIC SIGNAL REVISION WORK REQUIRING THE SIGNAL SYSTEM TO BE PLACED IN RED FLASH TO EXPEDITE CONSTRUCTION.
- DURING ANY SIGNAL DOWN TIME, CONTRACTOR MUST PROVIDE, INSTALL, AND MAINTAIN AN ALL-WAY STOP AT THE INTERSECTION (TWO 48" STOP SIGNS AND TWO 48" STOP AHEAD SIGNS ON EACH APPROACH).
- CONTRACTOR MUST PROVIDE TO THE ENGINEER, FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION, A DETAILED TRAFFIC CONTROL AND STAGING PLAN NOTING TRAFFIC CONTROL DEVICES TO BE USED AND THEIR PLACEMENT, DETAILS SHOWING HOW TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION, AND ESTIMATED MILESTONE DATES FOR EACH STAGE OF CONSTRUCTION. NO WORK WILL BE ALLOWED ON THE PROJECT UNTIL TRAFFIC CONTROL AND STAGING PLAN IS APPROVED BY THE ENGINEER.
- SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION REGARDING TRAFFIC CONTROL TO BE PROVIDED, INSTALLED, MAINTAINED AND REMOVED BY THE CONTRACTOR DURING THE ENTIRE PROJECT.
- ITEM NO. 2563.610 SHALL INCLUDE ALL COSTS TO PROVIDE A POLICE OFFICER TO DIRECT TRAFFIC DURING PEAK TRAFFIC PERIODS WHERE A SIGNAL SYSTEM IS NOT YET ABLE TO BE MADE OPERATIONAL DUE TO CONTROLLER CABINET REPLACEMENT WORK THAT EXTENDS OUTSIDE OF THE ALLOWABLE 9:00 AM-3:00 PM ALL RED FLASH PERIOD, OR AT LOCATIONS WHERE OVERHEAD SIGNAL REPLACEMENT WORK IS BEING COMPLETED DURING HEAVY NON-PEAK TRAFFIC PERIODS AND THE ENGINEER DETERMINES THAT A POLICE OFFICER IS NEEDED TO SAFELY DIRECT TRAFFIC DURING THE ALL RED FLASH PERIOD.

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

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

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

John M. Gray
Date: March 7, 2018 Name: John M. Gray, PE Lic. No. 22457

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

SEH

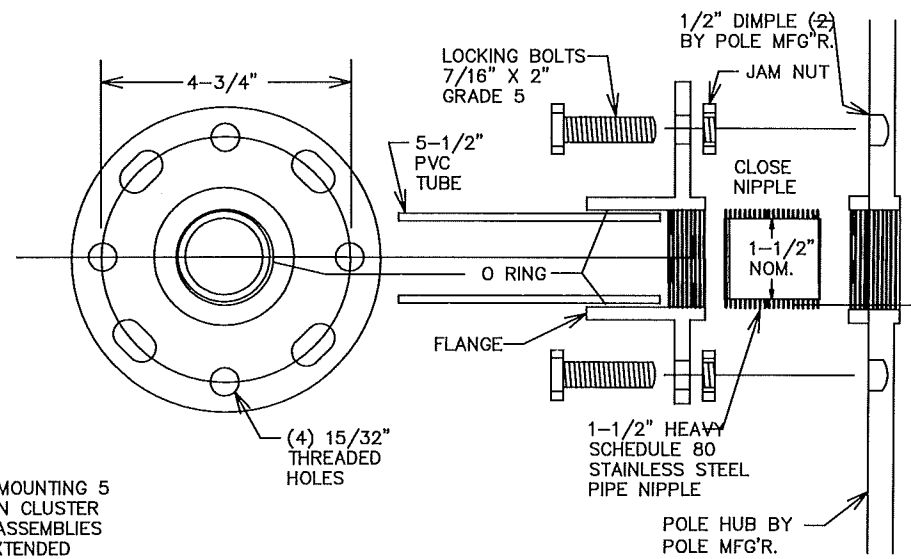
ANOKA COUNTY
CITIES OF BLAINE, RAMSEY

REVISE SIGNAL SYSTEMS "A-D"
SIGNING AND TRAFFIC CONTROL
FLASHING YELLOW ARROW MODIFICATIONS

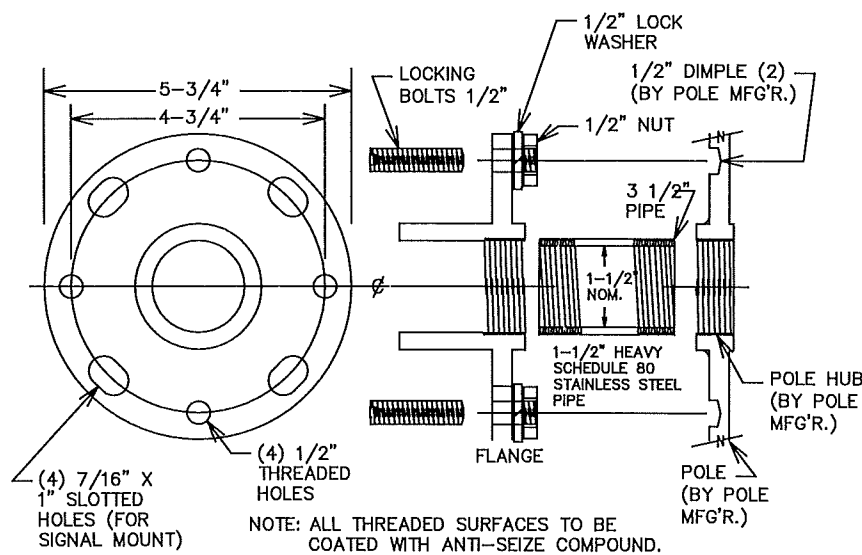
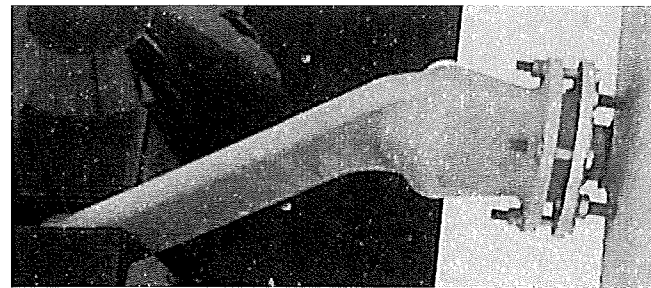
FILE NO.
ANOKC 142726
RAMSY 142728

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2017FY-BASE.DWG

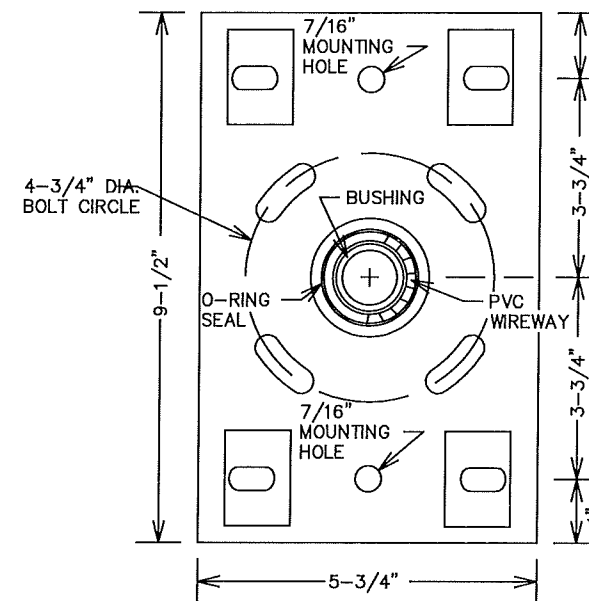


THREADED HUB AND FLANGE POLE ADAPTOR

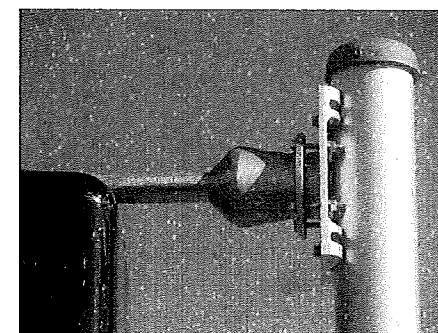
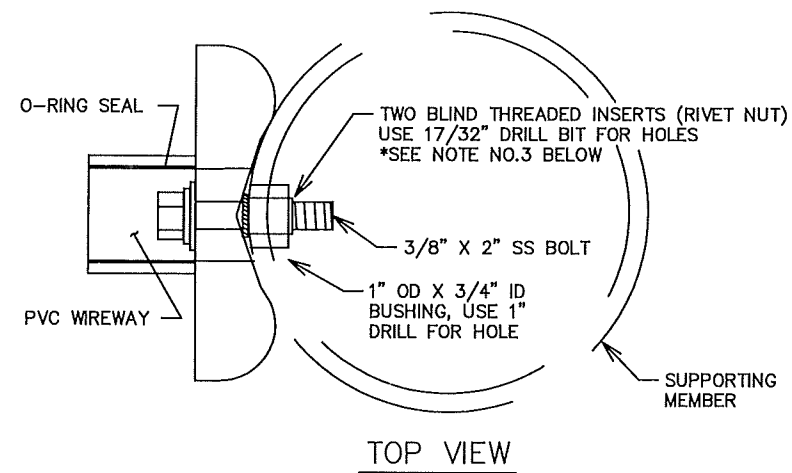


EXTENDED THREADED POLE ADAPTER

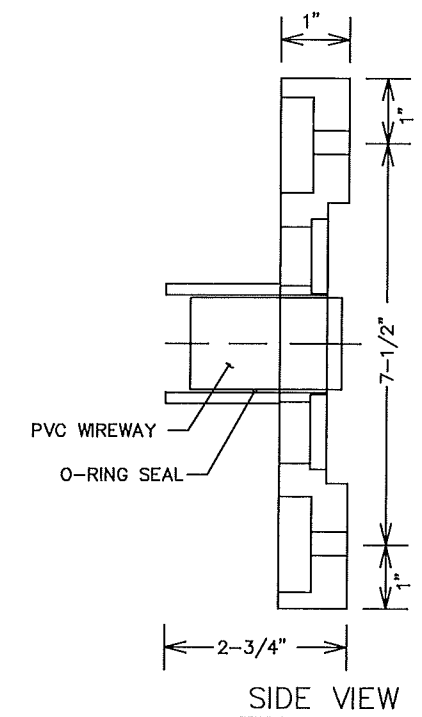
- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
 4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



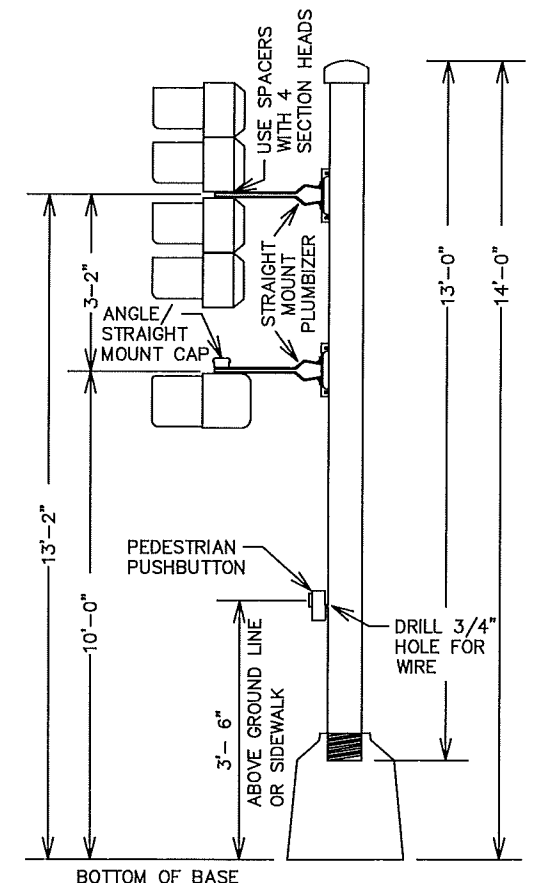
BOLT ON HUB & FLANGE



- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
 4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.

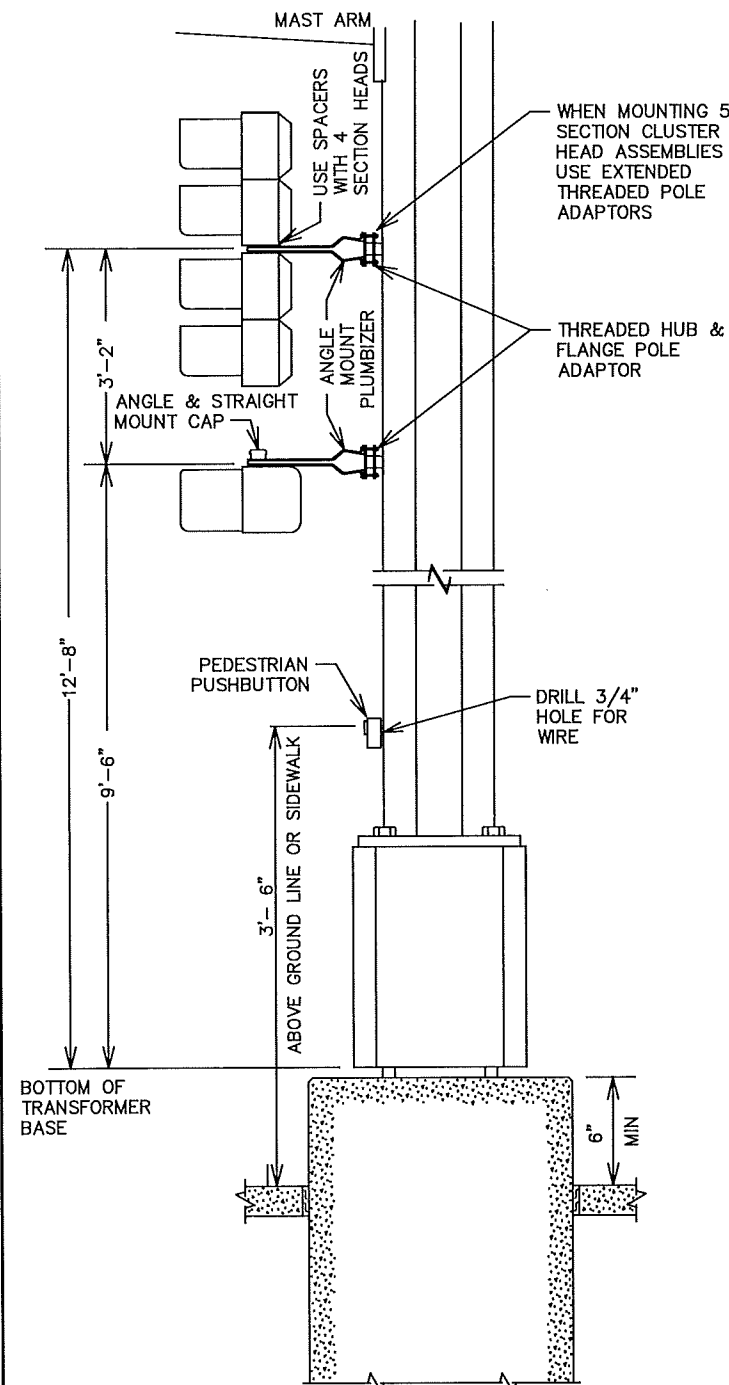


SIDE VIEW



TYPICAL PEDESTAL MOUNTING

NOT TO SCALE



TYPICAL SIGNAL POLE MOUNTING

NOT TO SCALE

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

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DESIGNER: JMG
CHECKED BY: JMG
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

ANOKA COUNTY
CITIES OF BLAINE, RAMSEY

REVISE SIGNAL SYSTEMS 'A-D'
ONE-WAY POLE MOUNT DETAILS
FLASHING YELLOW ARROW MODIFICATIONS

FILE NO.
ANOKC 142726
RAMSY 142728

4
24

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1	2-6x6	10' & 40'	1	1
D1-2	2-6x6	-5' & 25'	1	2
D2-1, D2-2, D2-3	6x6	250'	1	INPLACE
D3-1, D7-1	2-6x6	20' & 50'	1	3
D3-2, D7-2	2-6x6	5' & 35'	7	4
D4-1, D4-2	6x6	120'	3,8	INPLACE
D4-3, D8-3	6x6	5'	7	INPLACE
D4-4, D8-4	2-6x6	5' & 20'	1	INPLACE
D5-1, D5-2	2-6x6	10' & 40'	1	1
D5-3, D5-4	2-6x6	-5' & 25'	1	2
D6-1, D6-2	6x6	250'	1	INPLACE
D8-1, D8-2	6x6	120'	3,8	INPLACE

LOOP DETECTORS FUNCTIONS:

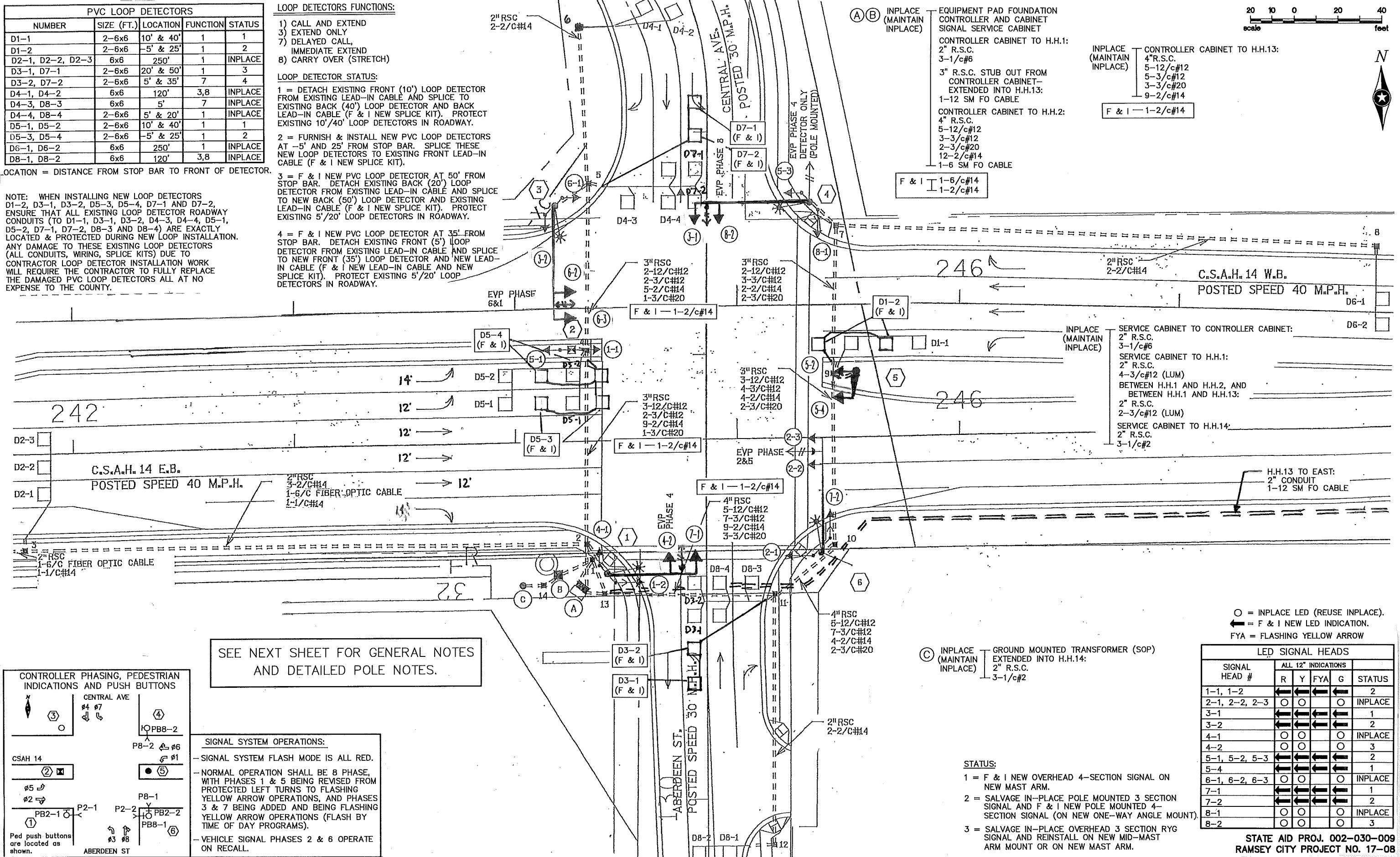
- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

LOOP DETECTOR STATUS:

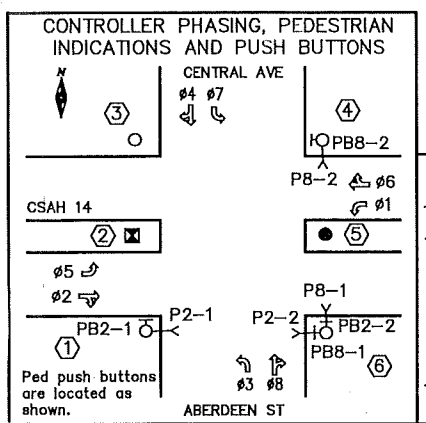
- 1 = DETACH EXISTING FRONT (10') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO EXISTING BACK (40') LOOP DETECTOR AND BACK LEAD-IN CABLE (F & I NEW SPLICE KIT). PROTECT EXISTING 10'/40' LOOP DETECTORS IN ROADWAY.
- 2 = FURNISH & INSTALL NEW PVC LOOP DETECTORS AT -5' AND 25' FROM STOP BAR. SPLICE THESE NEW LOOP DETECTORS TO EXISTING FRONT LEAD-IN CABLE (F & I NEW SPLICE KIT).
- 3 = F & I NEW PVC LOOP DETECTOR AT 50' FROM STOP BAR. DETACH EXISTING BACK (20') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO NEW BACK (50') LOOP DETECTOR AND EXISTING LEAD-IN CABLE (F & I NEW SPLICE KIT). PROTECT EXISTING 5'/20' LOOP DETECTORS IN ROADWAY.
- 4 = F & I NEW PVC LOOP DETECTOR AT 35' FROM STOP BAR. DETACH EXISTING FRONT (5') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO NEW FRONT (35') LOOP DETECTOR AND NEW LEAD-IN CABLE (F & I NEW LEAD-IN CABLE AND NEW SPLICE KIT). PROTECT EXISTING 5'/20' LOOP DETECTORS IN ROADWAY.

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.

NOTE: WHEN INSTALLING NEW LOOP DETECTORS D1-2, D3-1, D3-2, D5-3, D5-4, D7-1 AND D7-2, ENSURE THAT ALL EXISTING LOOP DETECTOR ROADWAY CONDUITS (TO D1-1, D3-1, D3-2, D4-3, D4-4, D5-1, D5-3, D7-1, D7-2, D8-3 AND D8-4) ARE EXACTLY LOCATED & PROTECTED DURING NEW LOOP INSTALLATION. ANY DAMAGE TO THESE EXISTING LOOP DETECTORS (ALL CONDUITS, WIRING, SPLICE KITS) DUE TO CONTRACTOR LOOP DETECTOR INSTALLATION WORK WILL REQUIRE THE CONTRACTOR TO FULLY REPLACE THE DAMAGED PVC LOOP DETECTORS ALL AT NO EXPENSE TO THE COUNTY.



SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES.



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1 & 5 BEING REVISED FROM PROTECTED LEFT TURNS TO FLASHING YELLOW ARROW OPERATIONS, AND PHASES 3 & 7 BEING ADDED AND BEING FLASHING YELLOW ARROW OPERATIONS (FLASH BY TIME OF DAY PROGRAMS).
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

- = INPLACE LED (REUSE INPLACE).
- ◄ = F & I NEW LED INDICATION.
- FYA = FLASHING YELLOW ARROW

SIGNAL HEAD #	LED SIGNAL HEADS				STATUS
	R	Y	FYA	G	
1-1, 1-2	◄	◄	◄	◄	2
2-1, 2-2, 2-3	○	○	○	○	INPLACE
3-1	◄	◄	◄	◄	1
3-2	◄	◄	◄	◄	2
4-1	○	○	○	○	INPLACE
4-2	○	○	○	○	3
5-1, 5-2, 5-3	◄	◄	◄	◄	2
5-4	◄	◄	◄	◄	1
6-1, 6-2, 6-3	○	○	○	○	INPLACE
7-1	◄	◄	◄	◄	1
7-2	◄	◄	◄	◄	2
8-1	○	○	○	○	INPLACE
8-2	○	○	○	○	3

- STATUS:**
- 1 = F & I NEW OVERHEAD 4-SECTION SIGNAL ON NEW MAST ARM.
 - 2 = SALVAGE IN-PLACE POLE MOUNTED 3 SECTION SIGNAL AND F & I NEW POLE MOUNTED 4-SECTION SIGNAL (ON NEW ONE-WAY ANGLE MOUNT).
 - 3 = SALVAGE IN-PLACE OVERHEAD 3 SECTION RYG SIGNAL AND REINSTALL ON NEW MID-MAST ARM MOUNT OR ON NEW MAST ARM.

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

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CHECKED BY: JMG

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ANOKA COUNTY
CITY OF BLAINE

REVISE SIGNAL SYSTEM 'A'
INTERSECTION LAYOUT
CSAH 14 (125TH AVE) AT ABERDEEN ST/CENTRAL AVE

FILE NO. ANOKC 142726
5
24

NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- 2) ALL HANDHOLES ARE PVC HANDHOLES WITH METAL FRAMES AND COVERS AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
- 3) ALL PEDESTRIAN SIGNAL HEADS ARE ONE-SECTION LED "HAND/WALKING PERSON" COUNTDOWN TIMER INDICATIONS AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
- 4) ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D1-2, D3-1, D3-2, D5-3, D5-4, D7-1, AND D7-2 IN PVC PER DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS-LINKED POLY-ETHYLENE (XLP) #12 AWG IN 3/4" NMC. SEE SPECIAL PROVISIONS.
- 5) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL REVISION WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 6) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
- 7) ALL NEW VEHICULAR SIGNAL HEADS SHALL HAVE BACKGROUND SHIELDS FURNISHED & INSTALLED BY CONTRACTOR. ALL INPLACE VEHICULAR SIGNAL HEADS BEING REUSED AS PART OF REVISE SIGNAL SYSTEM "A" HAVE BACKGROUND SHIELDS (REUSE AND MAINTAIN INPLACE).
- 8) LOCATION OF NEW FOUNDATION AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 9) F & I = NEW, FURNISH AND INSTALL.
S & I = INPLACE, SALVAGE AND INSTALL.
- 10) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS TO BE INSTALLED AND MADE OPERATIONAL BY CONTRACTOR.
- 11) ALL NEW VEHICULAR SIGNAL HOUSINGS, BACKGROUND SHIELDS AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
- 12) SEE SPECIAL PROVISIONS REGARDING NEW TYPE C SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "REVISE SIGNAL SYSTEM A").
- 13) ALL MEDIAN CONCRETE REMOVAL AND REINSTALLATION (ESTIMATED TO INCLUDE APPROXIMATELY 180 SQ.FT. OF 4" CONCRETE), AND SIGN/POST RELOCATION WORK (2 SETS OF SIGNS) REQUIRED TO BE COMPLETED BY CONTRACTOR TO ACCOMMODATE NEW MAST ARM POLE FOUNDATION INSTALLATION & PEDESTAL FOUNDATION REMOVAL WORK ON EAST MEDIAN IS INCIDENTAL.

① INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION
TYPE PA90-A-D40-9 MAST ARM POLE (DAVIT AT 350 DEG)
LUMINAIRE-250 W HPS
1-ONE WAY SIGNAL-POLE MOUNTED 225 DEG (4-1)
1-SET CD PED SIGNALS-POLE MOUNTED 45 DEG (P2-1)
1-PEDESTRIAN PUSH BUTTON (PB2-1)
EXTENDED INTO H.H.2:
3" R.S.C.
2-12/c#12
2-3/c#12
1-3/c#20
1-3/c#12 (LUM)

INPLACE (REMOVE) 30-FOOT MAST ARM
ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 1-2)
1-PED PB INSTRUCTION SIGN (R10-4b)
1-R9-3 SIGN-FACING POLE 2
R10-12 SIGN PANEL-OVERHEAD

INPLACE (S & I) ONE WAY SIGNAL-OVERHEAD AT 10' (4-2)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (#4,7)
TYPE D SIGN PANEL-OVERHEAD AT 15' (D-1)

F & I 40-FOOT MAST ARM (WITH MID-MAST ARM MOUNT AT 10')
1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 7-1)
1-STRAIGHT MOUNT-OVERHEAD AT 10' (FOR 4-2)
1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 1-2)
1-PED PB INSTRUCTION SIGN (R10-3e)
1-R9-3 (NO PED XING) SIGN-FACING POLE 2
R10-X12 SIGN PANEL-ADJACENT TO 7-1
1-6/c#14

② INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION
EXTENDED INTO H.H.4:
3" R.S.C.
1-12/c#12

INPLACE (REMOVE) 13' PEDESTAL POLE, BASE, AND WIND COLLAR
2-ONE WAY SIGNALS-POLE MOUNTED (OLD 1-1, 5-1)
2-R9-3 SIGNS-POLE MOUNTED

F & I 15' PEDESTAL POLE, BASE, AND WIND COLLAR
2-ONE WAY SIGNALS AND STRAIGHT MOUNTS (NEW 1-1, 5-1)
2-R9-3 (NO PED XING) SIGNS-FACING POLES 1 AND 3
2-R10-X12 SIGN PANELS-POLE MOUNTED (BELOW 1-1, 5-1)

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
LUMINAIRE-250 W HPS
2-ONE WAY SIGNALS-OVERHEAD AT 0' (6-3)
AND 12' (6-2)
1-ONE WAY SIGNAL-POLE MOUNTED 225 DEG (6-1)
TYPE D SIGN PANEL-OVERHEAD AT 15'
ONE WAY EVP DETECTOR AND LIGHT AT 6' (#6,1)
EXTENDED INTO H.H.5:
3" R.S.C.
2-12/c#12
1-3/c#12
1-3/c#20
1-3/c#12 (LUM)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 8-4)
2-R9-3 SIGNS-POLE MOUNTED

F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 3-2)
2-R9-3 (NO PED XING) SIGNS-FACING POLES 2 AND 4

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
TYPE PA100-A-D40-9 MAST ARM POLE (DAVIT AT 350 DEG)
LUMINAIRE-250 W HPS
1-ONE WAY SIGNAL-POLE MOUNTED 225 DEG (8-1)
1-SET CD PED SIGNALS-POLE MOUNTED 225 DEG (P8-2)
1-PEDESTRIAN PUSH BUTTON
ONE WAY EVP DETECTOR-POLE MOUNTED 135 DEG (#4,7)
EXTENDED INTO H.H.7:
3" R.S.C.
2-12/c#12
2-3/c#12
2-3/c#20
1-3/c#12 (LUM)

INPLACE (REMOVE) 45-FOOT MAST ARM
ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 8-3)
ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 5-3)
1-PED PB INSTRUCTION SIGN (R10-4b)
1-R9-3 SIGN-FACING POLE 3
R10-12 SIGN PANEL-OVERHEAD

INPLACE (S & I) ONE WAY SIGNAL-OVERHEAD AT 11' (8-2)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (#8,3)
TYPE D SIGN PANEL-OVERHEAD AT 15' (D-2)

F & I 50-FOOT MAST ARM (WITH MID-MAST ARM MOUNT AT 11')
1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 3-1)
1-STRAIGHT MOUNT-OVERHEAD AT 11' (FOR 8-2)
1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 5-3)
1-PED PB INSTRUCTION SIGN (R10-3e)
1-R9-3 (NO PED XING) SIGN-FACING POLE 3
R10-X12 SIGN PANEL-ADJACENT TO 3-1

⑤ INPLACE (REMOVE) PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
1-ONE WAY SIGNAL-POLE MOUNTED (OLD 5-2)
3" R.S.C. INTO H.H.9

INPLACE (S & I) R4-7 (24"x30") AND X4-2 (18"x18") SIGN PANELS- REMOVE FROM
MEDIAN MOUNTED SIGN POST AND REINSTALL ON MAST ARM
POLE (FACING EB TRAFFIC) (REMOVE SIGN POST)
1-12/c#12
1-3/c#12

F & I PA85 POLE FOUNDATION
TYPE PA85-A-10
1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 5-4)
1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG
(FACING EB TRAFFIC) (NEW 5-2)
R10-X12 SIGN PANEL-ADJACENT TO 5-4
3" R.S.C. INTO H.H.9

⑥ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
LUMINAIRE-250 W HPS
2-ONE WAY SIGNALS-OVERHEAD AT 0' (2-3)
AND 12' (2-2)
1-ONE WAY SIGNAL-POLE MOUNTED 225 DEG (2-1)
2-SETS CD PED SIGNALS-POLE MOUNTED 45 DEG
(P8-1) AND 225 DEG (P2-2)
2-PEDESTRIAN PUSH BUTTONS
TYPE D SIGN PANEL-OVERHEAD AT 15'
ONE WAY EVP DETECTOR AND LIGHT AT 6' (#2,5)
EXTENDED INTO H.H.10:
3" R.S.C.
2-12/c#12
2-3/c#12
1-3/c#20
1-3/c#12 (LUM)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 4-3)
2-PED INSTRUCTION SIGNS (R10-4b)

F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 7-2)
2-PED INSTRUCTION SIGNS (R10-3e)

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

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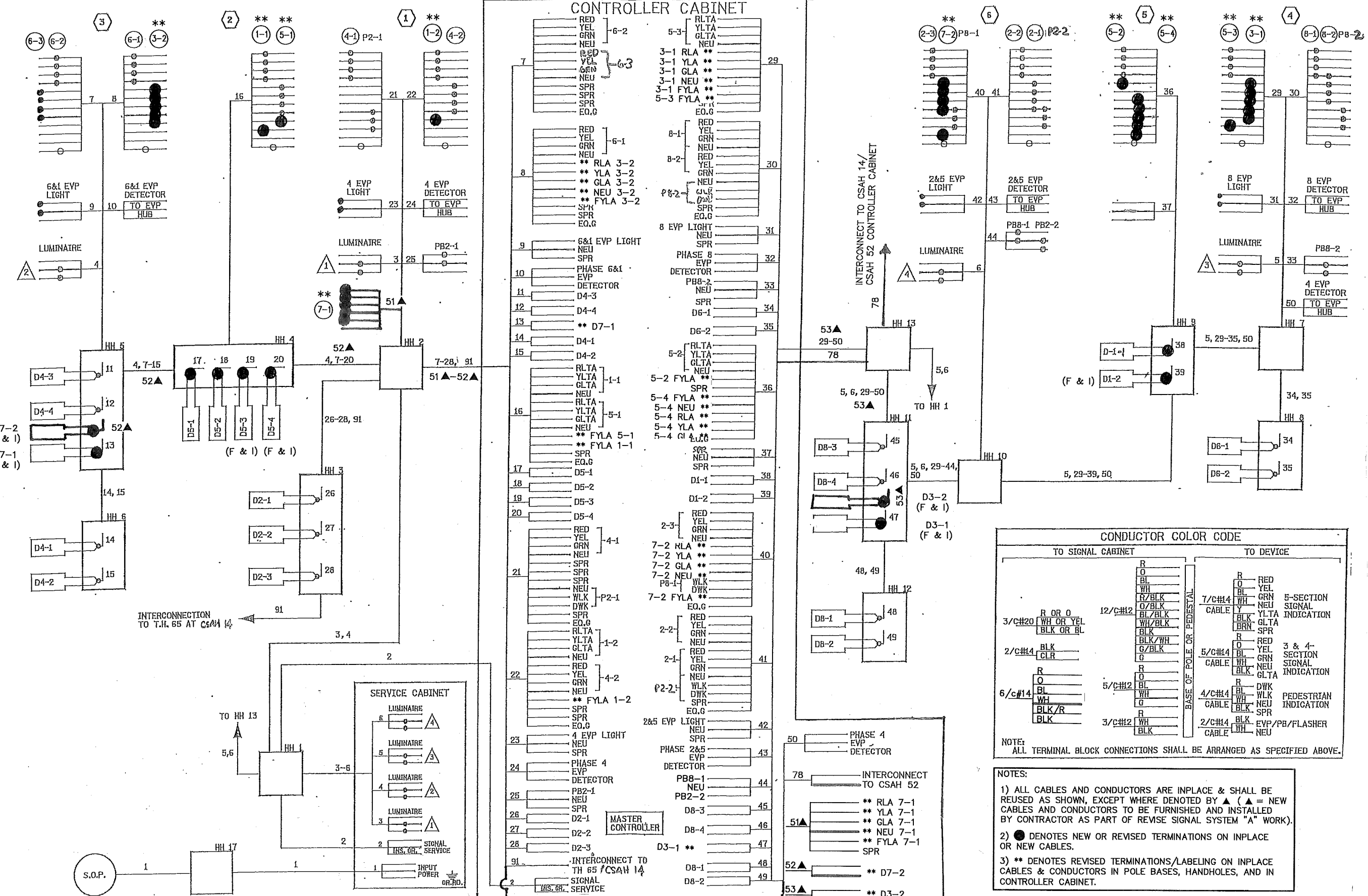
SEH
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3535 VADNAIS CENTER DR.
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ANOKA COUNTY
CITY OF BLAINE

REVISE SIGNAL SYSTEM 'A'
POLE, CABINET AND GENERAL NOTES
C8AH 14 (125TH AVE) AT ABERDEEN ST/CENTRAL AVE

FILE NO.
ANOKC 142726
6
24

2017FYA-BASE.DWG



CONDUCTOR COLOR CODE

TO SIGNAL CABINET	TO DEVICE
R	R RED
O	O YEL
BL	BL GRN
WH	WH NEU
R/BLK	Y/BLK 5-SECTION SIGNAL
O/BLK	BL/BLK 5-SECTION SIGNAL INDICATION
Y/BLK	BLK GRN
BLK/BLK	BLK GLTA
WH/BLK	BLK SPR
BLK	R RED
BLK/WH	O YEL
G/BLK	BL GRN
G	WH NEU
R	BLK GLTA
O	DWK PEDESTRIAN
BL	WH WLK INDICATION
WH	WH NEU
G	BLK SPR
R	R
O	O
BL	BL
WH	WH
G	G
BLK/R	3/C#12 WH
BLK	BLK
	WH

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

- NOTES:**
- 1) ALL CABLES AND CONDUCTORS ARE INPLACE & SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY ▲ (▲ = NEW CABLES AND CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "A" WORK).
 - 2) ● DENOTES NEW OR REVISED TERMINATIONS ON INPLACE OR NEW CABLES.
 - 3) ** DENOTES REVISED TERMINATIONS/LABELING ON INPLACE CABLES & CONDUCTORS IN POLE BASES, HANDHOLES, AND IN CONTROLLER CABINET.

2017YLA-BASE.DWG	DESIGN TEAM	NO.	BY	DATE	REVISIONS

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ANOKA COUNTY
CITY OF BLAINE

REVISE SIGNAL SYSTEM "A"
FIELD WIRING DIAGRAM
 CSAH 14 (125TH AVE) AT ABERDEEN ST/CENTRAL AVE

FILE NO.
 ANOKC 142726

7
24

STATE AID PROJ. 002-030-009
 RAMSEY CITY PROJECT NO. 17-08

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1	2-6x6	10' & 40'	1	1
D1-2	2-6x6	-5' & 25'	1	2
D2-1, D2-2	6x6	250'	1	INPLACE
D3-1, D7-1	2-6x6	20' & 50'	1	3
D3-2, D7-2	2-6x6	5' & 35'	7	4
D4-1, D4-2	6x6	120'	3,8	INPLACE
D4-3, D8-3	6x6	5'	7	INPLACE
D4-4, D8-4	2-6x6	5' & 20'	1	INPLACE
D5-1	2-6x6	10' & 40'	1	1
D5-2	2-6x6	-5' & 25'	1	2
D6-1, D6-2, D6-3	6x6	250'	1	INPLACE
D8-1, D8-2	6x6	120'	3,8	INPLACE

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.

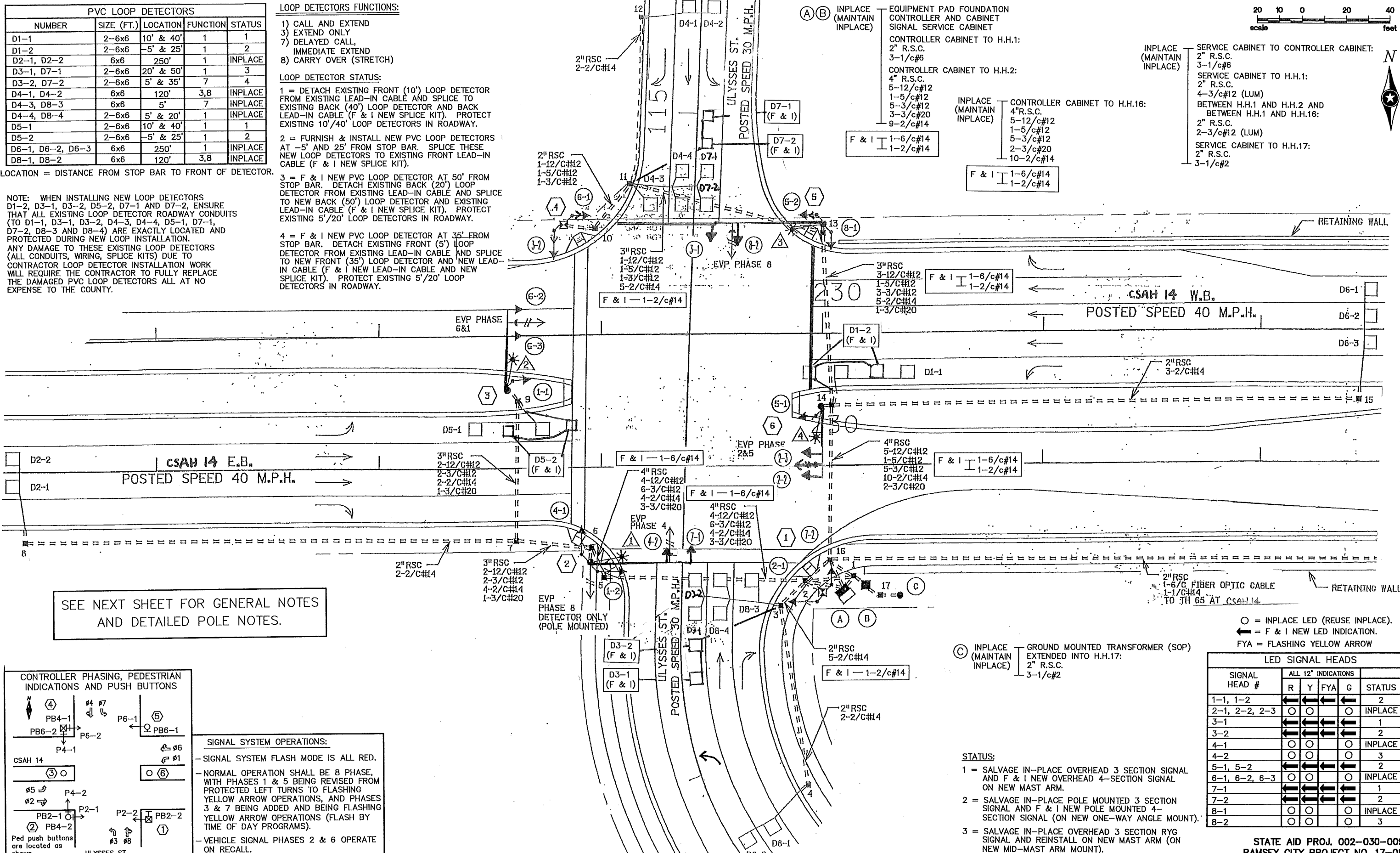
NOTE: WHEN INSTALLING NEW LOOP DETECTORS D1-2, D3-1, D3-2, D5-2, D7-1 AND D7-2, ENSURE THAT ALL EXISTING LOOP DETECTOR ROADWAY CONDUITS (TO D1-1, D3-1, D3-2, D4-3, D4-4, D5-1, D7-1, D7-2, D8-3 AND D8-4) ARE EXACTLY LOCATED AND PROTECTED DURING NEW LOOP INSTALLATION. ANY DAMAGE TO THESE EXISTING LOOP DETECTORS (ALL CONDUITS, WIRING, SPLICE KITS) DUE TO CONTRACTOR LOOP DETECTOR INSTALLATION WORK WILL REQUIRE THE CONTRACTOR TO FULLY REPLACE THE DAMAGED PVC LOOP DETECTORS ALL AT NO EXPENSE TO THE COUNTY.

LOOP DETECTORS FUNCTIONS:

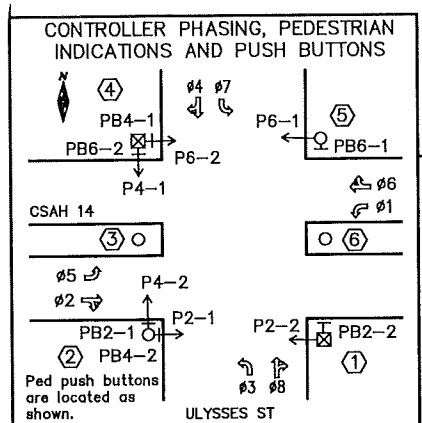
- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

LOOP DETECTOR STATUS:

- 1 = DETACH EXISTING FRONT (10') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO EXISTING BACK (40') LOOP DETECTOR AND BACK LEAD-IN CABLE (F & I NEW SPLICE KIT). PROTECT EXISTING 10'/40' LOOP DETECTORS IN ROADWAY.
- 2 = FURNISH & INSTALL NEW PVC LOOP DETECTORS AT -5' AND 25' FROM STOP BAR. SPLICE THESE NEW LOOP DETECTORS TO EXISTING FRONT LEAD-IN CABLE (F & I NEW SPLICE KIT).
- 3 = F & I NEW PVC LOOP DETECTOR AT 50' FROM STOP BAR. DETACH EXISTING BACK (20') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO NEW BACK (50') LOOP DETECTOR AND EXISTING LEAD-IN CABLE (F & I NEW SPLICE KIT). PROTECT EXISTING 5'/20' LOOP DETECTORS IN ROADWAY.
- 4 = F & I NEW PVC LOOP DETECTOR AT 35' FROM STOP BAR. DETACH EXISTING FRONT (5') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO NEW FRONT (35') LOOP DETECTOR AND NEW LEAD-IN CABLE (F & I NEW LEAD-IN CABLE AND NEW SPLICE KIT). PROTECT EXISTING 5'/20' LOOP DETECTORS IN ROADWAY.



SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES.



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1 & 5 BEING REVISED FROM PROTECTED LEFT TURNS TO FLASHING YELLOW ARROW OPERATIONS, AND PHASES 3 & 7 BEING ADDED AND BEING FLASHING YELLOW ARROW OPERATIONS (FLASH BY TIME OF DAY PROGRAMS).
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

- = INPLACE LED (REUSE INPLACE).
- ◄ = F & I NEW LED INDICATION.
- FYA = FLASHING YELLOW ARROW
- Ⓒ INPLACE (MAINTAIN INPLACE) GROUND MOUNTED TRANSFORMER (SOP) EXTENDED INTO H.H.17: 2" R.S.C. 3-1/c#2

- STATUS:**
- 1 = SALVAGE IN-PLACE OVERHEAD 3 SECTION SIGNAL AND F & I NEW OVERHEAD 4-SECTION SIGNAL ON NEW MAST ARM.
 - 2 = SALVAGE IN-PLACE POLE MOUNTED 3 SECTION SIGNAL AND F & I NEW POLE MOUNTED 4-SECTION SIGNAL (ON NEW ONE-WAY ANGLE MOUNT).
 - 3 = SALVAGE IN-PLACE OVERHEAD 3 SECTION RYG SIGNAL AND REINSTALL ON NEW MAST ARM (ON NEW MID-MAST ARM MOUNT).

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

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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

Name: John M. Gray, PE
Lic. No. 22457
Date: March 7, 2018

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

ANOKA COUNTY
CITY OF BLAINE

REVISE SIGNAL SYSTEM 'B'
INTERSECTION LAYOUT
CSAH 14 (125TH AVE) AT ULYSSES STREET

FILE NO. ANOKC 142726
10
24

- NOTES:**
- ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
 - ALL HANDHOLES ARE PVC HANDHOLES WITH METAL FRAMES AND COVERS AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
 - CONTRACTOR SHALL REMOVE ALL INPLACE "HAND/WALKING PERSON" LENSES FROM EXISTING ONE-SECTION McCAIN PEDESTRIAN SIGNAL HOUSINGS, AND SHALL FURNISH AND INSTALL NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" LENSES IN THEIR PLACE (REUSE HOUSINGS AND VISORS AS DENOTED IN THE PLANS). SEE SPECIAL PROVISIONS.
 - ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D1-2, D3-1, D3-2, D5-2, D7-1, AND D7-2 IN PVC PER DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS-LINKED POLY-ETHYLENE (XLP) #12 AWG IN 3/4" NMC. SEE SPECIAL PROVISIONS.
 - ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL REVISION WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
 - CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
 - ALL NEW VEHICULAR SIGNAL HEADS SHALL HAVE BACKGROUND SHIELDS FURNISHED & INSTALLED BY CONTRACTOR. ALL INPLACE VEHICULAR SIGNAL HEADS BEING REUSED AS PART OF REVISE SIGNAL SYSTEM "B" HAVE BACKGROUND SHIELDS (REUSE AND MAINTAIN INPLACE).
 - LOCATION OF NEW LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - F & I = NEW, FURNISH AND INSTALL.
S & I = INPLACE, SALVAGE AND INSTALL.
 - SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS TO BE INSTALLED AND MADE OPERATIONAL BY CONTRACTOR.
 - ALL NEW VEHICULAR SIGNAL HOUSINGS, BACKGROUND SHIELDS AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
 - SEE SPECIAL PROVISIONS REGARDING NEW TYPE C SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "REVISE SIGNAL SYSTEM B").

① INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION
 13' PEDESTAL POLE, BASE, WIND COLLAR
 1-ONE WAY SIGNAL-POLE MOUNTED (2-1)
 1-SET CD PED SIGNALS-POLE MOUNTED (P2-2)
 1-PEDESTRIAN PUSH BUTTON
 2-R6-1 SIGN PANELS-POLE MOUNTED
 EXTENDED INTO H.H.2:
 3" R.S.C.
 1-12/c#12
 1-5/c#12
 1-3/c#12

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-POLE MOUNTED (OLD 4-3)
 1-"HAND/WALKING PERSON" LENS
 1-PED PB INSTRUCTION SIGN (R10-4b)
 1-R9-3 SIGN-FACING POLE 6

F & I 1-ONE WAY SIGNAL AND STRAIGHT MOUNT-POLE MOUNTED (NEW 7-2)
 1-SET LED CD "HAND/WALKING PERSON" LENS (FOR P2-2)
 1-PED PB INSTRUCTION SIGN (R10-3e)
 1-R9-3 (NO PED XING) SIGN-FACING POLE 6

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-D40-9 MAST ARM POLE (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 1-ONE WAY SIGNAL-POLE MOUNTED 225 DEG (4-1)
 2-SETS CD PED SIGNALS-POLE MOUNTED 45/225 DEG (P2-1, P4-2)
 2-PEDESTRIAN PUSH BUTTONS
 ONE WAY EVP DETECTOR-POLE MOUNTED 135 DEG (Ø8,3)
 EXTENDED INTO H.H.6:
 3" R.S.C.
 2-12/c#12
 3-3/c#12
 2-3/c#20
 1-3/c#12 (LUM)

INPLACE (REMOVE) 40-FOOT MAST ARM
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 1-2)
 2-"HAND/WALKING PERSON" LENSES
 2-PED PB INSTRUCTION SIGNS (R10-4b)
 R10-12 SIGN PANEL-OVERHEAD

INPLACE (S & I) ONE WAY SIGNAL-OVERHEAD AT 11' (4-2)
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (Ø4,7)
 TYPE D SIGN PANEL-OVERHEAD AT 15' (D-3)

F & I 45-FOOT MAST ARM (WITH MID-MAST ARM MOUNT AT 11')
 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 7-1)
 1-STRAIGHT MOUNT-OVERHEAD AT 11' (FOR 4-2)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 1-2)
 2-SETS LED CD "HAND/WALKING PERSON" LENSES (FOR P2-1, P4-2)
 2-PED PB INSTRUCTION SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 7-1
 1-6/c#14

③ INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION
 TYPE PA90-A-35-D40-9 (DAVIT AT 10 DEG)
 LUMINAIRE-250 W HPS
 2-ONE WAY SIGNALS-OVERHEAD AT 0' AND 11' (6-2, 6-3)
 LUMINAIRE-250 W HPS
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (Ø6,1)
 TYPE D SIGN PANEL-OVERHEAD AT 20'
 EXTENDED INTO H.H.9:
 3" R.S.C.
 2-12/c#12
 1-3/c#12
 1-3/c#20
 1-3/c#12 (LUM)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 1-1)

F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 1-1) (MOUNT SIGNAL HEAD SO THAT MOUNT IS BETWEEN YELLOW AND FYLA INDICATIONS, SO THAT POST MOUNTED "KEEP RIGHT" SIGN DOES NOT BLOCK SIGNAL INDICATIONS)
 R10-X12 SIGN PANEL - INSTALL EITHER ABOVE SIGNAL HEAD 1-1 OR ON MAST ARM CLOSE TO POLE

④ INPLACE (MAINTAIN INPLACE) PEDESTAL FOUNDATION
 13' PEDESTAL POLE, BASE, WIND COLLAR
 1-ONE WAY SIGNAL-POLE MOUNTED (6-1)
 2-SETS CD PED SIGNALS-POLE MOUNTED (P4-1, P6-2)
 2-PEDESTRIAN PUSH BUTTONS
 2-R6-1 SIGN PANELS-POLE MOUNTED
 EXTENDED INTO H.H.10:
 3" R.S.C.
 1-12/c#12
 1-5/c#12
 2-3/c#12

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-POLE MOUNTED (OLD 8-3)
 2-"HAND/WALKING PERSON" LENSES
 2-PED PB INSTRUCTION SIGNS (R10-4b)

F & I 1-ONE WAY SIGNAL AND STRAIGHT MOUNT-POLE MOUNTED (NEW 3-2) (MOUNT SIGNAL HEAD SO THAT MOUNT IS BETWEEN YELLOW AND FYLA INDICATIONS, SO THAT PED SIGNAL HEAD P4-1 IS NOT IMPACTED)
 2-SETS LED CD "HAND/WALKING PERSON" LENSES (FOR P4-1, P6-2)
 2-PED PB INSTRUCTION SIGNS (R10-3e)

⑤ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-D40-9 MAST ARM POLE (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 1-ONE WAY SIGNAL-POLE MOUNTED 225 DEG (8-1)
 1-SET CD PED SIGNALS-POLE MOUNTED 45 DEG (P6-1)
 1-PEDESTRIAN PUSH BUTTON
 EXTENDED INTO H.H.13:
 3" R.S.C.
 2-12/c#12
 2-3/c#12
 1-3/c#20
 1-3/c#12 (LUM)

INPLACE (REMOVE) 45-FOOT MAST ARM
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 5-2)
 1-"HAND/WALKING PERSON" LENS
 1-PED PB INSTRUCTION SIGN (R10-4b)
 1-R9-3 SIGN-FACING POLE 6
 R10-12 SIGN PANEL-OVERHEAD

INPLACE (S & I) ONE WAY SIGNAL-OVERHEAD AT 11' (8-2)
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (Ø8,3)
 TYPE D SIGN PANEL-OVERHEAD AT 15' (D-4)

F & I 50-FOOT MAST ARM (WITH MID-MAST ARM MOUNT AT 11')
 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 3-1)
 1-STRAIGHT MOUNT-OVERHEAD AT 11' (FOR 8-2)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 5-2)
 1-SET LED CD "HAND/WALKING PERSON" LENSES (FOR P6-1)
 1-PED PB INSTRUCTION SIGN (R10-3e)
 1-R9-3 (NO PED XING) SIGN-FACING POLE 6
 R10-X12 SIGN PANEL-ADJACENT TO 3-1
 1-6/c#14

⑥ INPLACE (MAINTAIN INPLACE) PA85 POLE FOUNDATION
 TYPE PA85-A-30-D40-9 (DAVIT AT 10 DEG)
 LUMINAIRE-250 W HPS
 2-ONE WAY SIGNALS-OVERHEAD AT 0' AND 11' (2-2, 2-3)
 LUMINAIRE-250 W HPS
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (Ø2,5)
 TYPE D SIGN PANEL-OVERHEAD AT 15'
 EXTENDED INTO H.H.14:
 3" R.S.C.
 2-12/c#12
 1-3/c#12
 1-3/c#20
 1-3/c#12 (LUM)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 45 DEG (OLD 5-1)
 2-R9-3 SIGNS-FACING POLES 1 AND 5

F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 45 DEG (NEW 5-1) (MOUNT SIGNAL HEAD SO THAT MOUNT IS BETWEEN YELLOW AND FYLA INDICATIONS, SO THAT POST MOUNTED "KEEP RIGHT" SIGN DOES NOT BLOCK SIGNAL INDICATIONS)
 2-R9-3 (NO PED XING) SIGNS-FACING POLES 1 AND 5
 R10-X12 SIGN PANEL - INSTALL EITHER ABOVE SIGNAL HEAD 5-1 OR ON MAST ARM CLOSE TO POLE

STATE AID PROJ. 002-030-009
 RAMSEY CITY PROJECT NO. 17-08

2017FYA-BASE.DWG
 DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG
 DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

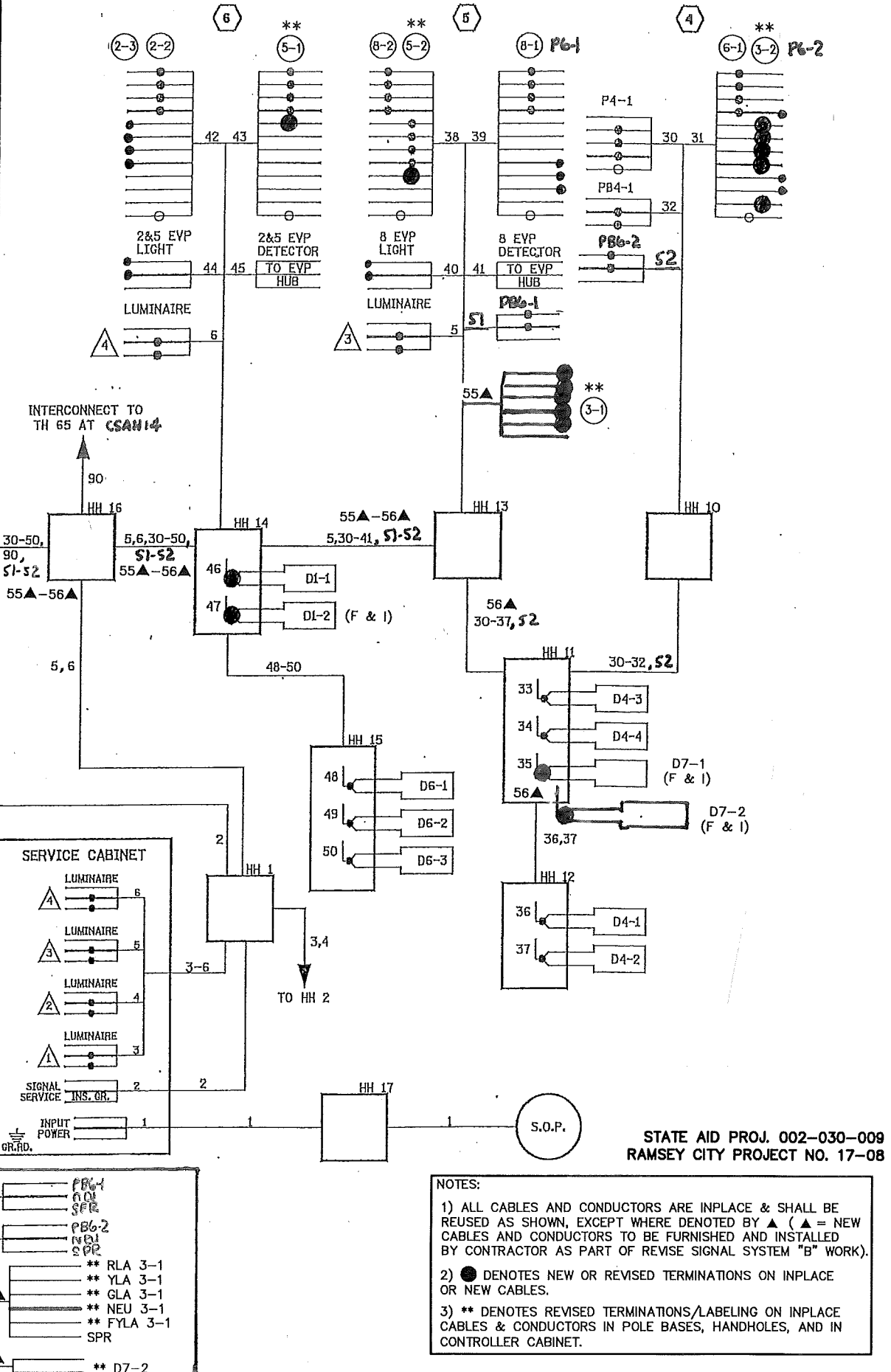
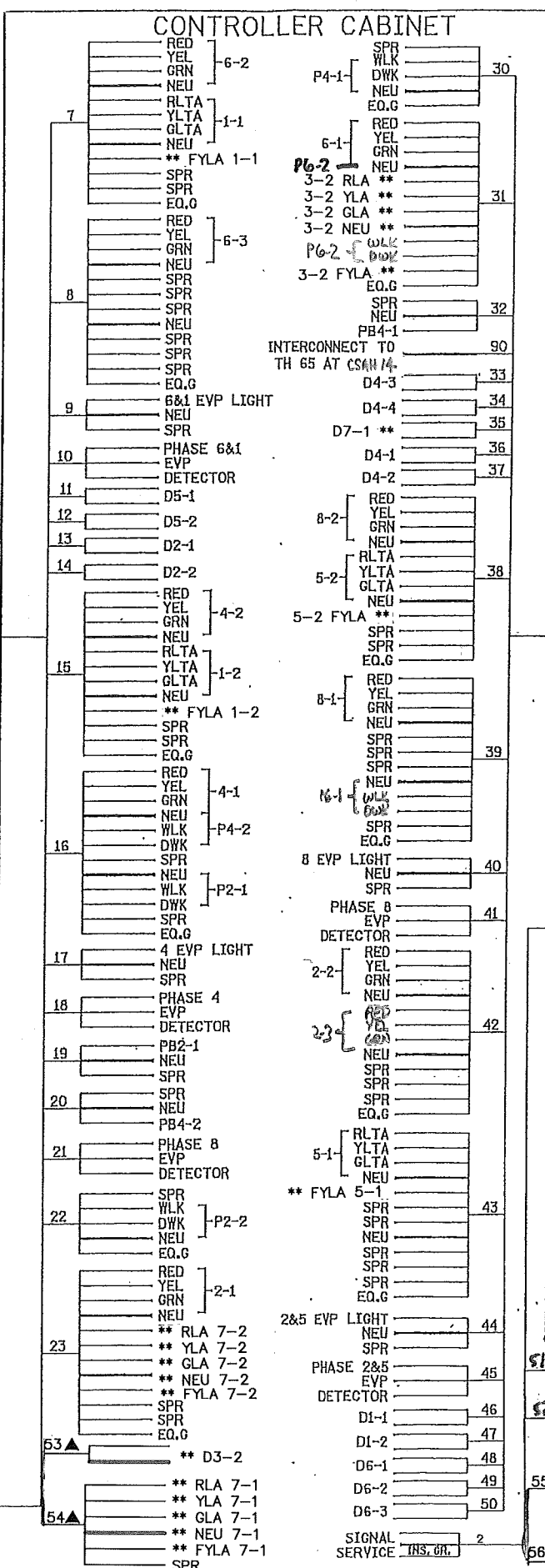
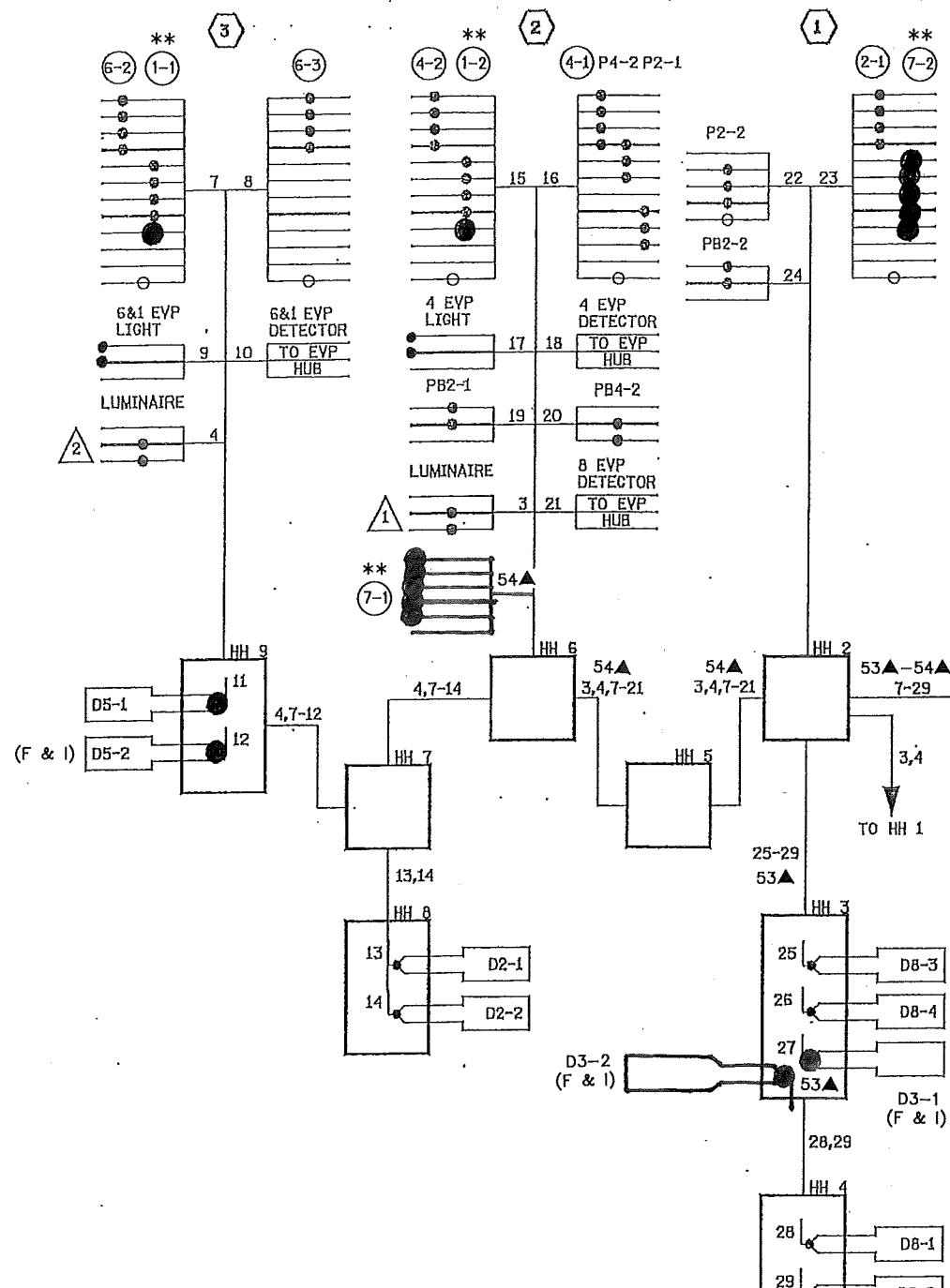
John M. Gray
 Name: John M. Gray, PE
 Date: March 7, 2018 Lic. No. 22457

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

ANOKA COUNTY
 CITY OF BLAINE

REVISE SIGNAL SYSTEM 'B'
 POLE, CABINET AND GENERAL NOTES
 CSAH 14 (125TH AVE) AT ULYSSES STREET

FILE NO. ANOKC 142726
 11
 24



CONDUCTOR COLOR CODE

TO SIGNAL CABINET		TO DEVICE	
R	RED	R	RED
O	YEL	O	YEL
BL	GRN	BL	GRN
WH	NEU	WH	NEU
R/BLK	YLTA	Y	YLTA
O/BLK	GLTA	BLK	GLTA
BLK/BLK	INDICATION	BRN	SPR
3/C#20		R	RED
WH OR YEL		O	YEL
BLK OR BL		BL	GRN
		WH	NEU
		Y	YLTA
		BLK	GLTA
		BRN	SPR
		R	RED
		O	YEL
		BL	GRN
		WH	NEU
		Y	YLTA
		BLK	GLTA
		BRN	SPR
		R	RED
		O	YEL
		BL	GRN
		WH	NEU
		Y	YLTA
		BLK	GLTA
		BRN	SPR
		R	RED
		O	YEL
		BL	GRN
		WH	NEU
		Y	YLTA
		BLK	GLTA
		BRN	SPR
		R	RED
		O	YEL
		BL	GRN
		WH	NEU
		Y	YLTA
		BLK	GLTA
		BRN	SPR
		R	RED
		O	YEL
		BL	GRN
		WH	NEU
		Y	YLTA
		BLK	GLTA
		BRN	SPR

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

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

NOTES:
1) ALL CABLES AND CONDUCTORS ARE INPLACE & SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY ▲ (▲ = NEW CABLES AND CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "B" WORK).
2) ● DENOTES NEW OR REVISED TERMINATIONS ON INPLACE OR NEW CABLES.
3) ** DENOTES REVISED TERMINATIONS/LABELING ON INPLACE CABLES & CONDUCTORS IN POLE BASES, HANDHOLES, AND IN CONTROLLER CABINET.

2017FA-BASE.DWG
DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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

John M. Gray
Name: John M. Gray, PE
Lic. No. 22457
Date: March 7, 2018

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3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF BLAINE

REVISE SIGNAL SYSTEM "B"
FIELD WIRING DIAGRAM
CSAH 14 (125TH AVE) AT ULYSSES STREET

FILE NO.
ANOK 142726
12
24

LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION	FUNCTION
D1-1, D1-2	6X6	10' & 40'	1
D2-1, D2-2	6X6	250'	1
D4-1, D4-2	6X6	120'	3, 8
D4-3	6X6	5'	7
D4-4, D4-5	2-6X6	5' & 20'	1
D5-1, D5-2	6X6	10' & 40'	1
D6-1, D6-2, D6-3	6X6	250'	1
D8-1, D8-2	6X6	120'	3, 8
D8-3	6X6	5'	7
D8-4, D8-5	2-6X6	5' & 20'	1

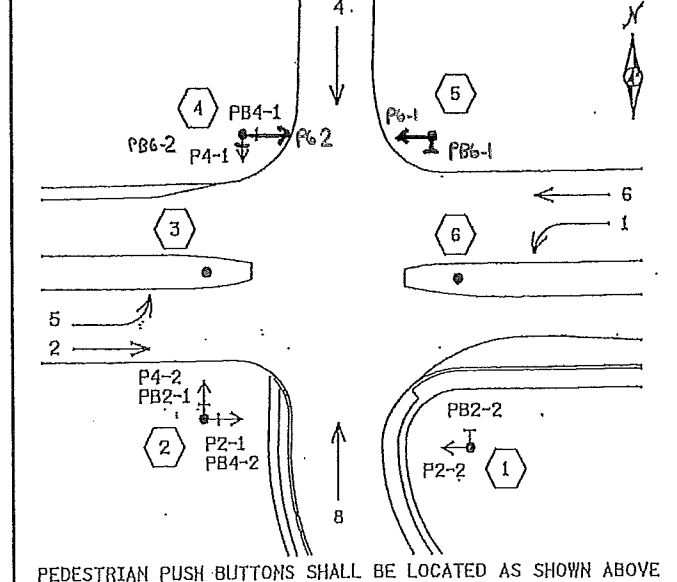
-LOCATION IS DISTANCE FROM STOP LINE TO FRONT OF LOOP DETECTOR IN FEET.
-ALL LOOP DETECTORS SHALL BE N.M.C.

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

- #### 3) PA90 POLE FOUNDATION
- TYPE PA90-A-35-D40-9 (DAVIT AT 10')
2-ONE WAY SIGNALS OVERHEAD
(0' AND 11' FROM THE END OF MASTARM)
1-ONE WAY SIGNAL POLE MOUNTED AT 45°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT
LUMINAIRE 250W HPS
TYPE D SIGN
EXTEND INTO HH 9:
3" RSC
2-12/C#12
2-3/C#12
1-3/C#20

- #### 4) 13' PEDESTAL AND BASE PEDESTAL FOUNDATION
- 2-ONE WAY SIGNALS POLE MOUNTED
2-PEDESTRIAN INDICATION POLE MOUNTED
2-PEDESTRIAN PUSHBUTTONS AND SIGNS
EXTEND INTO HH 10:
3" RSC
1-12/C#12
1-5/C#12
1-3/C#12

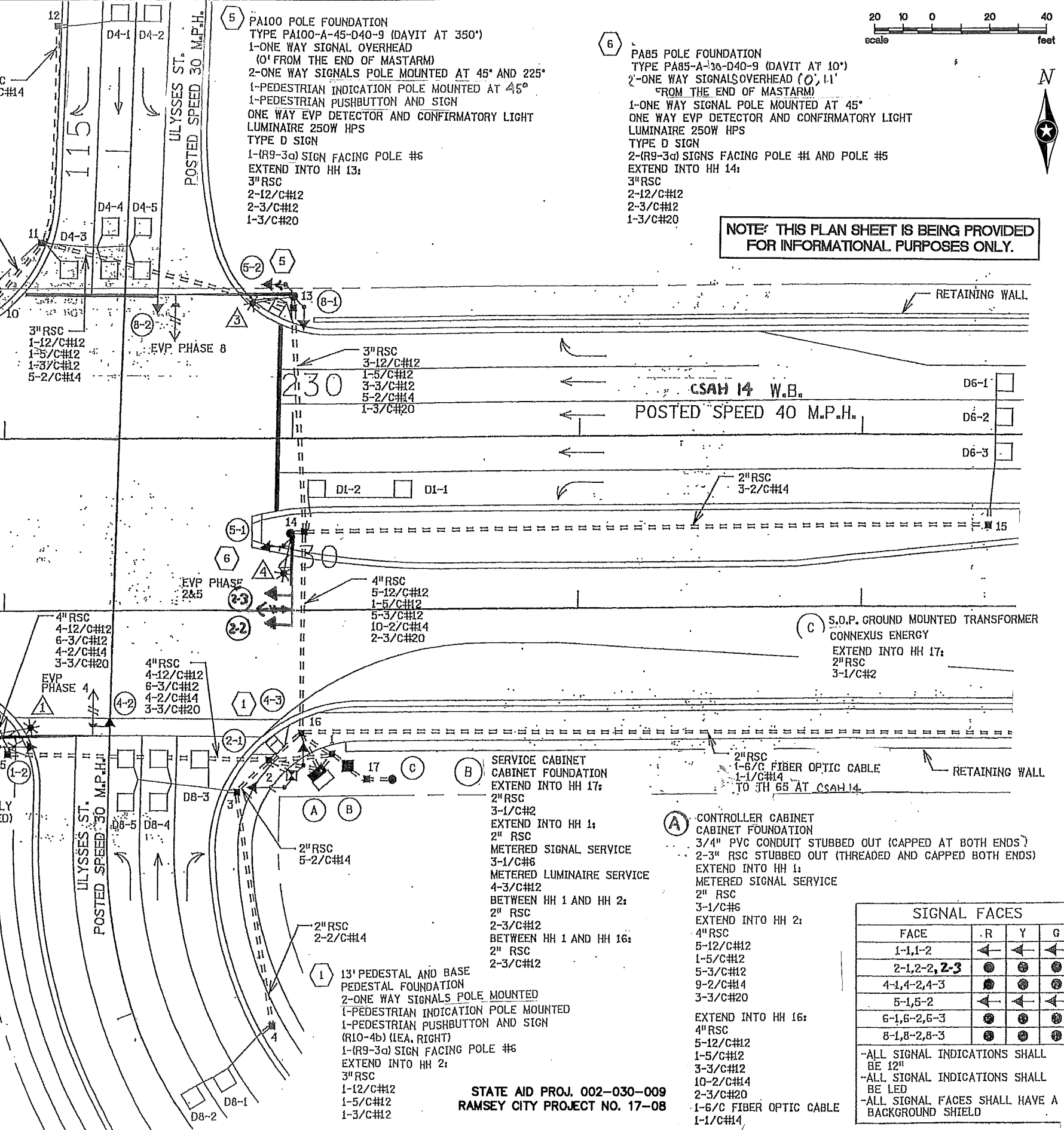
CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



- #### 2) PA100 POLE FOUNDATION
- TYPE PA100-A-40-D40-9 (DAVIT AT 350')
1-ONE WAY SIGNAL OVERHEAD
(0' FROM THE END OF MASTARM)
2-ONE WAY SIGNALS POLE MOUNTED AT 45° AND 225°
2-PEDESTRIAN INDICATIONS POLE MOUNTED AT 45°/225°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (#4)
ONE WAY EVP DETECTOR ONLY PHASE 8 (POLE MOUNTED 135°)
LUMINAIRE 250W HPS
TYPE D SIGN
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
(R10-4b) (IEA, LEFT AND RIGHT)
EXTEND INTO HH 6:
3" RSC
2-12/C#12
4-3/C#12
2-3/C#20

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.



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

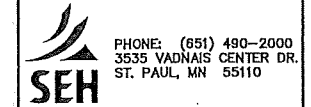
SIGNAL FACES

FACE	R	Y	G
1-1,1-2	←	←	←
2-1,2-2,2-3	●	●	●
4-1,4-2,4-3	●	●	●
5-1,5-2	←	←	←
6-1,6-2,6-3	●	●	●
8-1,8-2,8-3	●	●	●

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

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS



ANOKA COUNTY
CITY OF BLAINE

INPLACE SIGNAL SYSTEM 'B'
FOR INFORMATION ONLY
CSAH 14 (125TH AVE) AT ULYSSES STREET

FILE NO. 13
ANOKC 142726 24

PVC LOOP DETECTORS 1				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1, D1-2	2-6x6	10' & 40'	1	1
D1-3, D1-4	2-6x6	-5' & 25'	1	2
D2-1, D2-2	6x6	475'	1	INPLACE
D2-3, D2-4	2-6x6	5' & 20'	1	INPLACE
D3-1, D3-2	2-6x6	10' & 40'	1	1
D3-3, D3-4	2-6x6	-5' & 25'	1	2
D4-1, D4-2	6x6	250'	3,8	INPLACE
D4-3, D8-3	2-6x6	-5' & 5'	7	INPLACE
D4-4, D4-5	2-6x6	5' & 20'	1	INPLACE
D5-1, D5-2	2-6x6	10' & 40'	1	1
D5-3, D5-4	2-6x6	-5' & 25'	1	2
D6-1, D6-2	6x6	475'	1	INPLACE
D6-3, D6-4	2-6x6	5' & 20'	1	INPLACE
D7-1	2-6x6	10' & 40'	1	1
D7-2	2-6x6	-5' & 25'	1	2
D8-1, D8-2	6x6	475'	3,8	INPLACE
D8-4, D8-5	2-6x6	5' & 20'	1	INPLACE

LOOP DETECTORS FUNCTIONS:

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

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.

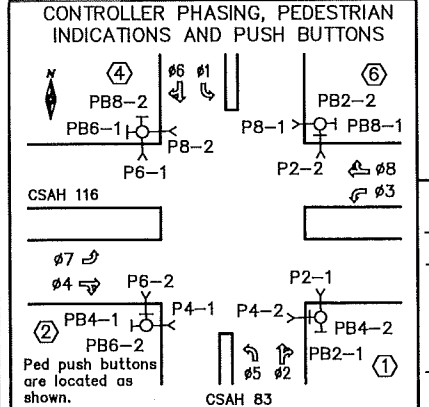
NOTE: WHEN INSTALLING NEW LOOP DETECTORS D1-3, D1-4, D3-3, D3-4, D5-3, D5-4, AND D7-2, ENSURE THAT ALL EXISTING LOOP DETECTOR ROADWAY CONDUITS (TO D1-1, D1-2, D3-1, D3-2, D5-1, D5-2, AND D7-1) ARE EXACTLY LOCATED AND PROTECTED DURING NEW LOOP INSTALLATION. ANY DAMAGE TO THESE EXISTING LOOP DETECTORS (ALL CONDUITS, WIRING, SPLICE KITS) DUE TO CONTRACTOR LOOP DETECTOR INSTALLATION WORK WILL REQUIRE THE CONTRACTOR TO FULLY REPLACE THE DAMAGED PVC LOOP DETECTORS ALL AT NO EXPENSE TO COUNTY.

LOOP DETECTOR STATUS:

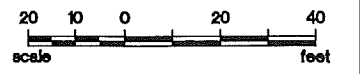
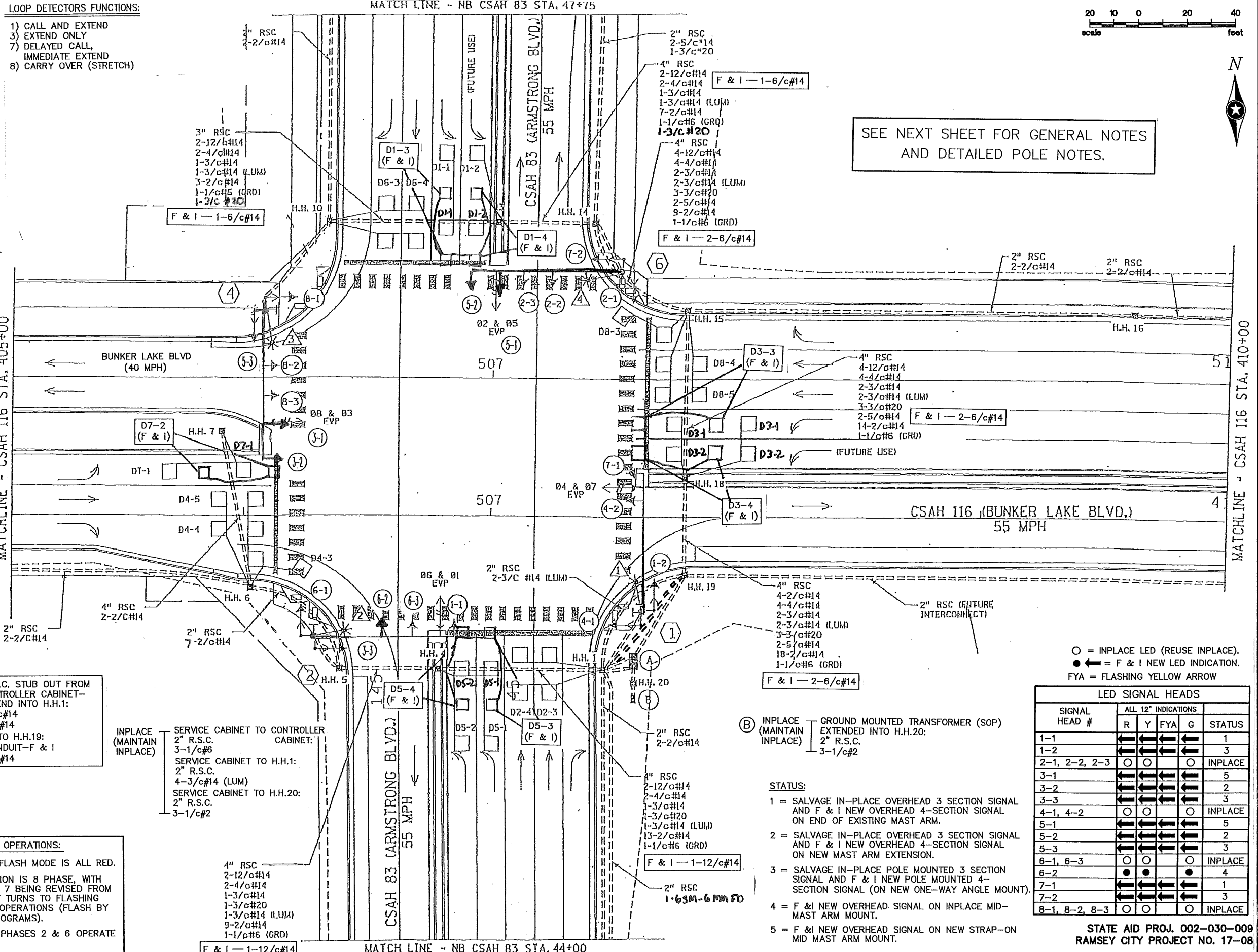
- 1 = DETACH EXISTING FRONT (10') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO EXISTING BACK (40') LOOP DETECTOR AND BACK LEAD-IN CABLE (F & I NEW SPLICE KIT). PROTECT EXISTING 10'/40' LOOP DETECTORS IN ROADWAY.
- 2 = FURNISH & INSTALL NEW PVC LOOP DETECTORS AT -5' AND 25' FROM STOP BAR. SPLICE THESE NEW LOOP DETECTORS TO EXISTING FRONT LEAD-IN CABLE (F & I NEW SPLICE KIT).

- (A) INPLACE — CONTROLLER AND CABINET (SALVAGE)
 INSTALL — CONTROLLER AND CABINET (FURNISHED BY COUNTY)

- INPLACE (MAINTAIN INPLACE) EQUIPMENT PAD FOUNDATION
 SIGNAL SERVICE CABINET
 CONTROLLER CABINET TO H.H.1:
 4" R.S.C.
 4-12/c#14
 4-4/c#14
 2-3/c#14
 2-3/c#20
 19-2/c#14
 1-FO CABLE
 CONTROLLER CABINET TO H.H.19:
 4" R.S.C.
 4-12/c#14
 2-5/c#14
 4-4/c#14
 2-3/c#14
 3-3/c#20
 21-2/c#14



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



SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES.

○ = INPLACE LED (REUSE INPLACE).
 ● ← = F & I NEW LED INDICATION.
 FYA = FLASHING YELLOW ARROW

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

- STATUS:
- 1 = SALVAGE IN-PLACE OVERHEAD 3 SECTION SIGNAL AND F & I NEW OVERHEAD 4-SECTION SIGNAL ON END OF EXISTING MAST ARM.
 - 2 = SALVAGE IN-PLACE OVERHEAD 3 SECTION SIGNAL AND F & I NEW OVERHEAD 4-SECTION SIGNAL ON NEW MAST ARM EXTENSION.
 - 3 = SALVAGE IN-PLACE POLE MOUNTED 3 SECTION SIGNAL AND F & I NEW POLE MOUNTED 4-SECTION SIGNAL (ON NEW ONE-WAY ANGLE MOUNT).
 - 4 = F & I NEW OVERHEAD SIGNAL ON INPLACE MID-MAST ARM MOUNT.
 - 5 = F & I NEW OVERHEAD SIGNAL ON NEW STRAP-ON MID MAST ARM MOUNT.

DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 Date: March 7, 2018 Name: John M. Gray, PE Lic. No. 22457

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

ANOKA COUNTY
 CITY OF RAMSEY

REVISE SIGNAL SYSTEM 'C'
 INTERSECTION LAYOUT
 CSAH 83 (ARMSTRONG BLVD)
 AT CSAH 116 (BUNKER LAKE BLVD)

FILE NO. ANOKC 142726
 15
 24

NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- 2) ALL HANDHOLES ARE PVC HANDHOLES WITH METAL FRAMES AND COVERS AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
- 3) ALL PEDESTRIAN SIGNAL HEADS ARE ONE-SECTION LED "HAND/WALKING PERSON" COUNTDOWN TIMER INDICATIONS AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
- 4) ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D1-3, D1-4, D3-3, D3-4, D5-3, D5-4, AND D7-2 IN PVC PER DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS-LINKED POLY-ETHYLENE (XLP) #12 AWG IN 3/4" NMC. SEE SPECIAL PROVISIONS.
- 5) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL REVISION WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 6) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
- 7) ALL NEW VEHICULAR SIGNAL HEADS SHALL HAVE BACKGROUND SHIELDS FURNISHED & INSTALLED BY CONTRACTOR. ALL INPLACE VEHICULAR SIGNAL HEADS BEING REUSED AS PART OF REVISE SIGNAL SYSTEM "C" HAVE BACKGROUND SHIELDS (REUSE AND MAINTAIN INPLACE).
- 8) LOCATION OF NEW LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 9) F & I = NEW, FURNISH AND INSTALL.
S & I = INPLACE, SALVAGE AND INSTALL.
- 10) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS TO BE INSTALLED AND MADE OPERATIONAL BY CONTRACTOR.
- 11) ALL NEW VEHICULAR SIGNAL HOUSINGS, BACKGROUND SHIELDS AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
- 12) SEE SPECIAL PROVISIONS REGARDING NEW TYPE C SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "REVISE SIGNAL SYSTEM C").
- 13) CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAKING OPERATIONAL A NEW COUNTY FURNISHED CONTROLLER CABINET COMPLETE WITH NEW CONTROL EQUIPMENT ON THE INPLACE CABINET FOUNDATION & FOR SALVAGING THE EXISTING CONTROLLER AND CABINET TO THE COUNTY. SEE SPECIAL PROVISIONS (INCIDENTAL).

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 1-ONE WAY SIGNAL-OVERHEAD AT 11' (4-2)
 CAPPED MID-MOUNT AT 23' (FOR FUTURE USE)
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (4-1)
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG (P2-1, P4-2)
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD AT 24'
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø4,7)
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.1:
 3" R.S.C.
 2-12/c#14
 2-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 7-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 1-2)
 2-PED PB INSTRUCTION SIGNS (R10-4b)

F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 7-1)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 1-2)
 2-PED PB INSTRUCTION SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 7-1

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 2-ONE WAY SIGNALS-OVERHEAD AT 17'/29' (8-3, 8-2)
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (8-1)
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG (P6-1, P8-2)
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD AT 32'
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.9:
 3" R.S.C.
 2-12/c#14
 2-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 3-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 5-2)
 2-PED PB INSTRUCTION SIGNS (R10-4b)

INPLACE (S & I) ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (ø8,3)
 (F & I 3/4" R.S.C. EXTENSION OVER SIGNAL HEAD 3-1)

F & I 5 FOOT MAST ARM EXTENSION
 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT -5' (NEW 3-2)
 1-ONE WAY SIGNAL AND STRAIGHT MOUNT-OVERHEAD AT 6' (NEW 3-1)
 STRAP-ON MID-MAST ARM MOUNT AT 6' (FOR 3-1)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 5-3)
 2-PED PB INSTRUCTION SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 3-2
 1-6/c#14

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 1-ONE WAY SIGNAL-OVERHEAD AT 17' (6-3)
 CAPPED MID-MOUNT AT 29'
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (6-1)
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG (P4-1, P6-2)
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD AT 33'
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø6,1)
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.5:
 3" R.S.C.
 2-12/c#14
 2-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 1-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 3-2)
 2-PED PB INSTRUCTION SIGNS (R10-4b)

F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 1-1)
 1-ONE WAY SIGNAL AND STRAIGHT MOUNT-OVERHEAD AT 29' (NEW 6-2)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 3-3)
 2-PED PB INSTRUCTION SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 1-1
 1-12/c#14

⑥ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 2-ONE WAY SIGNALS-OVERHEAD AT 17'/29' (2-3, 2-2)
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (2-1)
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG (P2-2, P8-1)
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD AT 32'
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.14:
 3" R.S.C.
 2-12/c#14
 2-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 5-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 7-2)
 2-PED PB INSTRUCTION SIGNS (R10-4b)

INPLACE (S & I) ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (ø2,5)
 (F & I 3/4" R.S.C. EXTENSION OVER SIGNAL HEAD 5-1)

F & I 5 FOOT MAST ARM EXTENSION
 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT -5' (NEW 5-2)
 1-ONE WAY SIGNAL AND STRAIGHT MOUNT-OVERHEAD AT 6' (NEW 5-1)
 STRAP-ON MID-MAST ARM MOUNT AT 6' (FOR 5-1)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 7-2)
 2-PED PB INSTRUCTION SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 5-2
 1-6/c#14

STATE AID PROJ. 002-030-009
 RAMSEY CITY PROJECT NO. 17-08

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

NO.	BY	DATE	REVISIONS

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

John M. Gray
 Name: John M. Gray, PE
 Lic. No. 22457
 Date: March 7, 2018

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

ANOKA COUNTY
 CITY OF RAMSEY

REVISE SIGNAL SYSTEM "C"
 POLE, CABINET AND GENERAL NOTES
 CSAH 83 (ARMSTRONG BLVD)
 AT CSAH 116 (BUNKER LAKE BLVD)

FILE NO.
 ANOKC 142726

16
 24

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1, D5-1	2-6x6	10' & 40'	1	1
D1-2, D5-2	2-6x6	-5' & 25'	1	2
D2-1, D2-2	6x6	475'	1	INPLACE
D3-1, D3-2	2-6x6	10' & 40'	1	1
D3-3, D3-4	2-6x6	-5' & 25'	1	2
D4-1, D8-1	6x6	120'	3,8	INPLACE
D4-2, D8-2	2-6x6	-5' & 5'	7	INPLACE
D4-3, D8-3	2-6x6	5' & 20'	1	INPLACE
D6-1, D6-2	6x6	475'	1	INPLACE
D7-1	2-6x6	20' & 50'	1	INPLACE
D7-2	2-6x6	5' & 35'	1	INPLACE

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.

NOTE: WHEN INSTALLING NEW LOOP DETECTORS D1-2, D3-3, D3-4, AND D5-2, ENSURE THAT ALL EXISTING LOOP DETECTOR ROADWAY CONDUITS (TO D1-1, D3-1, D3-2, AND D5-1) ARE EXACTLY LOCATED AND PROTECTED DURING NEW LOOP INSTALLATION. ANY DAMAGE TO THESE EXISTING LOOP DETECTORS (ALL CONDUITS, WIRING, SPLICE KITS) DUE TO CONTRACTOR LOOP DETECTOR INSTALLATION WORK WILL REQUIRE THE CONTRACTOR TO FULLY REPLACE THE DAMAGED PVC LOOP DETECTORS ALL AT NO EXPENSE TO COUNTY.

LOOP DETECTORS FUNCTIONS:

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

LOOP DETECTOR STATUS:

- 1 = DETACH EXISTING FRONT (10') LOOP DETECTOR FROM EXISTING LEAD-IN CABLE AND SPLICE TO EXISTING BACK (40') LOOP DETECTOR AND BACK LEAD-IN CABLE (F & I NEW SPLICE KIT). PROTECT EXISTING 10'/40' LOOP DETECTORS IN ROADWAY.
- 2 = FURNISH & INSTALL NEW PVC LOOP DETECTORS AT -5' AND 25' FROM STOP BAR. SPLICE THESE NEW LOOP DETECTORS TO EXISTING FRONT LEAD-IN CABLE (F & I NEW SPLICE KIT).

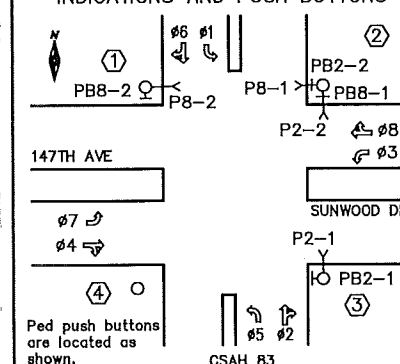
(A) INPLACE (MAINTAIN INPLACE) EQUIPMENT PAD FOUNDATION CONTROLLER AND CABINET SIGNAL SERVICE CABINET CONTROLLER CABINET TO H.H.2:
 4" R.S.C.
 4-12/c#14
 3-4/c#14
 2-3/c#14
 2-3/c#20
 15-2/c#14
 1-6 SM/6 MM FO CABLE

(A) INPLACE (MAINTAIN INPLACE) CONTROLLER CABINET TO H.H.16:
 4" R.S.C.
 4-12/c#14
 3-4/c#14
 2-3/c#14
 2-3/c#20
 13-2/c#14

(A) INPLACE (MAINTAIN INPLACE) SERVICE CABINET TO CONTROLLER CABINET:
 2" R.S.C.
 3-1/c#6
 SERVICE CABINET TO H.H.1:
 2" R.S.C.
 2-3/c#14 (LUM)
 SERVICE CABINET TO H.H.16:
 2" R.S.C.
 2-3/c#14 (LUM)
 SERVICE CABINET TO SOP:
 2" R.S.C.
 3-1/c#2

(B) INPLACE (MAINTAIN INPLACE) GROUND MOUNTED TRANSFORMER (SOP) EXTENDED INTO SERVICE CABINET:
 2" R.S.C.
 3-1/c#2

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



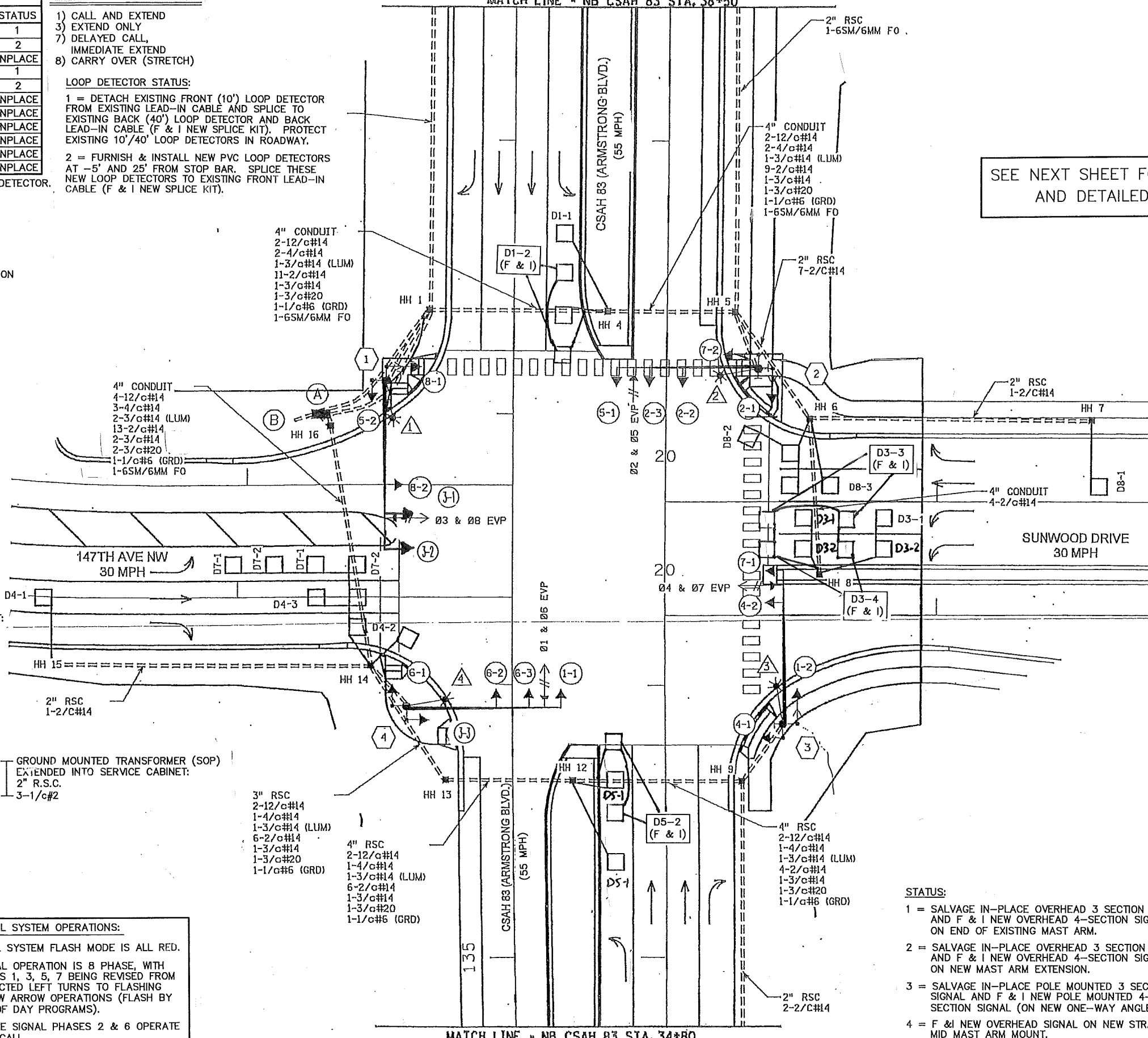
SIGNAL SYSTEM OPERATIONS:

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

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

NO.	BY	DATE	REVISIONS

MATCH LINE - NB CSAH 83 STA. 38+50



MATCH LINE - NB CSAH 83 STA. 34+80



SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES.

○ = INPLACE LED (REUSE INPLACE).
 ◄ = F & I NEW LED INDICATION.
 FYA = FLASHING YELLOW ARROW

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

- STATUS:**
- 1 = SALVAGE IN-PLACE OVERHEAD 3 SECTION SIGNAL AND F & I NEW OVERHEAD 4-SECTION SIGNAL ON END OF EXISTING MAST ARM.
 - 2 = SALVAGE IN-PLACE OVERHEAD 3 SECTION SIGNAL AND F & I NEW OVERHEAD 4-SECTION SIGNAL ON NEW MAST ARM EXTENSION.
 - 3 = SALVAGE IN-PLACE POLE MOUNTED 3 SECTION SIGNAL AND F & I NEW POLE MOUNTED 4-SECTION SIGNAL (ON NEW ONE-WAY ANGLE MOUNT).
 - 4 = F & I NEW OVERHEAD SIGNAL ON NEW STRAP-ON MID MAST ARM MOUNT.

STATE AID PROJ. 002-030-009
 RAMSEY CITY PROJECT NO. 17-08

HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 Date: March 7, 2018 Name: John M. Gray, PE Lic. No. 22457

SEH PHONE: (851) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

ANOKA COUNTY
 CITY OF RAMSEY

REVISE SIGNAL SYSTEM 'D'
 INTERSECTION LAYOUT
 CSAH 83 (ARMSTRONG BLVD)
 AT SUNWOOD DRIVE-147TH AVENUE NW

FILE NO. 20
 RAMSY 142728 24

NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- 2) ALL HANDHOLES ARE PVC HANDHOLES WITH METAL FRAMES AND COVERS AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
- 3) ALL PEDESTRIAN SIGNAL HEADS ARE ONE-SECTION LED "HAND/WALKING PERSON" COUNTDOWN TIMER INDICATIONS AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
- 4) ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D1-2, D3-3, D3-4, AND D5-2 IN PVC PER DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS-LINKED POLYETHYLENE (XLP) #12 AWG IN 3/4" NMC. SEE SPECIAL PROVISIONS.
- 5) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL REVISION WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 6) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
- 7) ALL NEW VEHICULAR SIGNAL HEADS SHALL HAVE BACKGROUND SHIELDS FURNISHED & INSTALLED BY CONTRACTOR. ALL INPLACE VEHICULAR SIGNAL HEADS BEING REUSED AS PART OF REVISE SIGNAL SYSTEM "D" HAVE BACKGROUND SHIELDS (REUSE AND MAINTAIN INPLACE).
- 8) LOCATION OF NEW LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 9) F & I = NEW, FURNISH AND INSTALL.
S & I = INPLACE, SALVAGE AND INSTALL.
- 10) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS TO BE INSTALLED AND MADE OPERATIONAL BY CONTRACTOR.
- 11) ALL NEW VEHICULAR SIGNAL HOUSINGS, BACKGROUND SHIELDS AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
- 12) SEE SPECIAL PROVISIONS REGARDING NEW TYPE C SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "REVISE SIGNAL SYSTEM D").

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 1-ONE WAY SIGNAL-OVERHEAD AT 17' (8-2)
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (8-1)
 1-SET CD PED SIGNALS-POLE MOUNTED 180 DEG (P8-2)
 1-PEDESTRIAN PUSH BUTTON & SIGN (R10-3e)
 TYPE D SIGN PANEL-OVERHEAD AT 23'
 1-R9-3 (NO PED XING) SIGN-FACING POLE 4
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.1:
 3" R.S.C.
 2-12/c#14
 1-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 3-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 5-2)
 INPLACE (S & I) ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (Ø8,3)
 (F & I 3/4" R.S.C. EXTENSION OVER SIGNAL HEAD 3-1)
 F & I 5 FOOT MAST ARM EXTENSION
 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT -5' (NEW 3-2)
 1-ONE WAY SIGNAL AND STRAIGHT MOUNT-OVERHEAD AT 6' (NEW 3-1)
 STRAP-ON MID-MAST ARM MOUNT AT 6' (FOR 3-1)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 5-2)
 R10-X12 SIGN PANEL-ADJACENT TO 3-2
 1-6/c#14

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 1-ONE WAY SIGNAL-OVERHEAD AT 11' (4-2)
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (4-1)
 1-SET CD PED SIGNALS-POLE MOUNTED 90 DEG (P2-1)
 1-PEDESTRIAN PUSH BUTTON & SIGN (R10-3e)
 TYPE D SIGN PANEL-OVERHEAD AT 21'
 1-R9-3 (NO PED XING) SIGN-FACING POLE 4
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.9:
 3" R.S.C.
 2-12/c#14
 1-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 7-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 1-2)
 F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 7-1)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 1-2)
 R10-X12 SIGN PANEL-ADJACENT TO 7-1

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 2-ONE WAY SIGNALS-OVERHEAD AT 11'/23' (2-3, 2-2)
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (2-1)
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG (P4-1, P2-2)
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 TYPE D SIGN PANEL-OVERHEAD AT 28'
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (Ø2,5)
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.5:
 3" R.S.C.
 2-12/c#14
 2-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 5-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 7-2)
 F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 5-1)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 7-2)
 R10-X12 SIGN PANEL-ADJACENT TO 5-1

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
 LUMINAIRE-250 W HPS
 2-ONE WAY SIGNALS-OVERHEAD AT 11'/23' (6-3, 6-2)
 1-ONE WAY SIGNAL-POLE MOUNTED 180 DEG (6-1)
 TYPE D SIGN PANEL-OVERHEAD AT 29'
 2-R9-3 (NO PED XING) SIGNS-FACING POLES 1 AND 3
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG
 EXTENDED INTO H.H.14:
 3" R.S.C.
 2-12/c#14
 2-4/c#14
 1-3/c#14
 1-3/c#20
 2-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

INPLACE (REMOVE) ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (OLD 1-1)
 ONE WAY SIGNAL AND MOUNT-POLE MOUNTED 90 DEG (OLD 3-2)
 F & I 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0' (NEW 1-1)
 1-ONE WAY SIGNAL AND ANGLE MOUNT-POLE MOUNTED 90 DEG (NEW 3-3)
 R10-X12 SIGN PANEL-ADJACENT TO 1-1

2017FA-BASE.DWG

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 Date: March 7, 2018 Name: John M. Gray, PE Lic. No. 22457

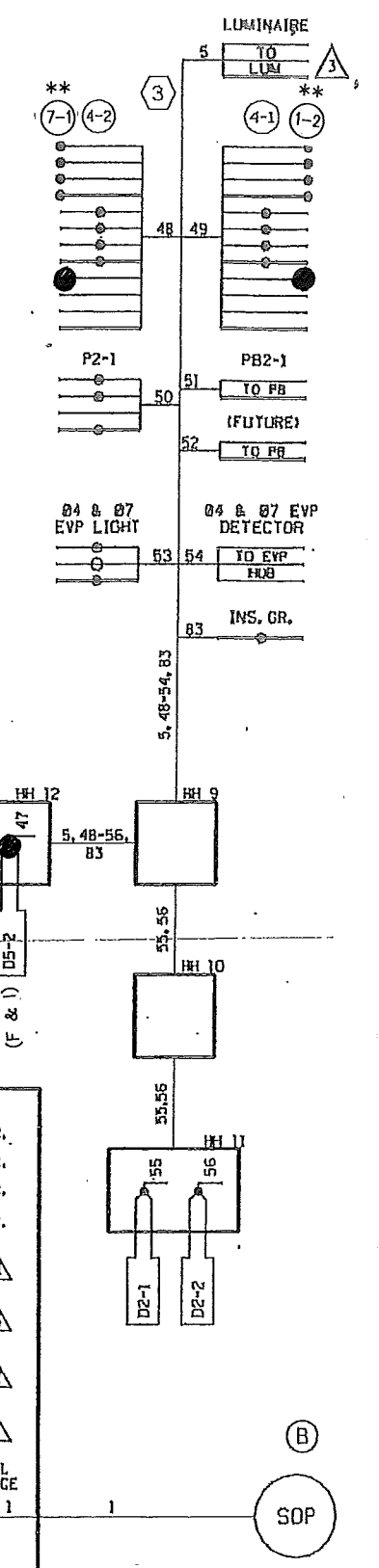
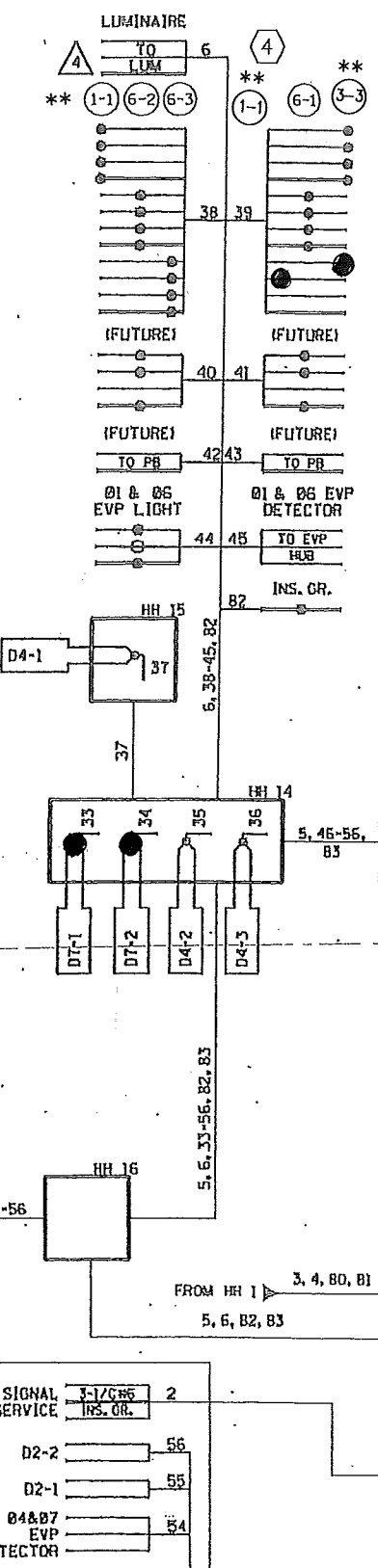
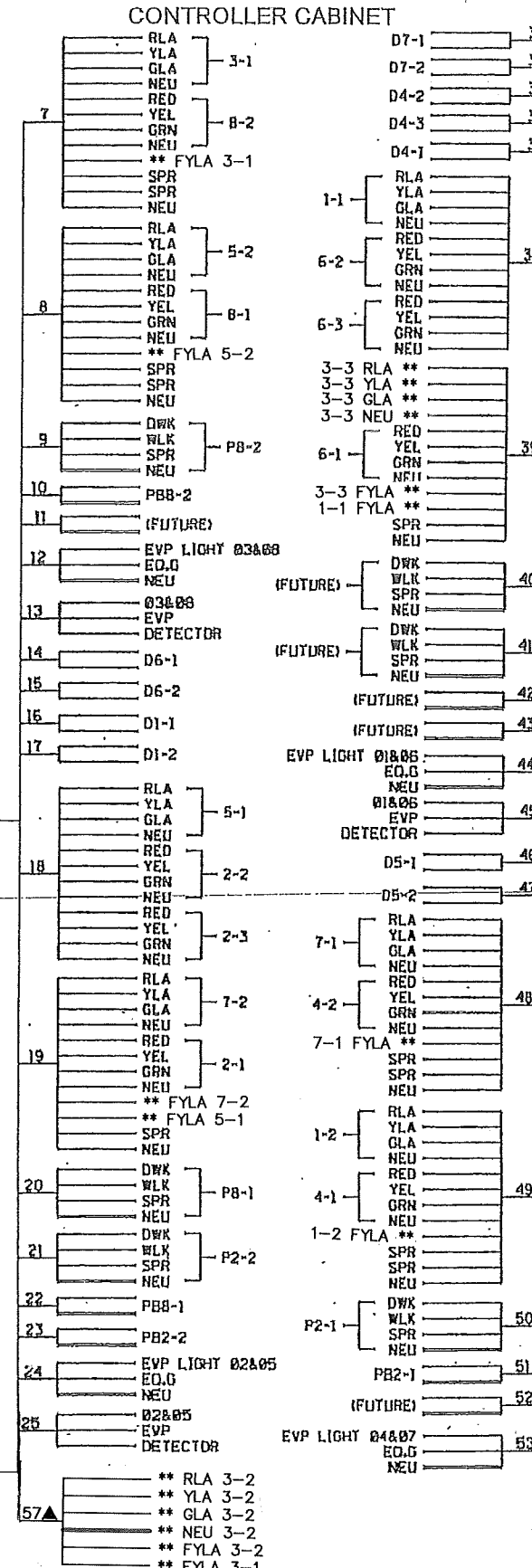
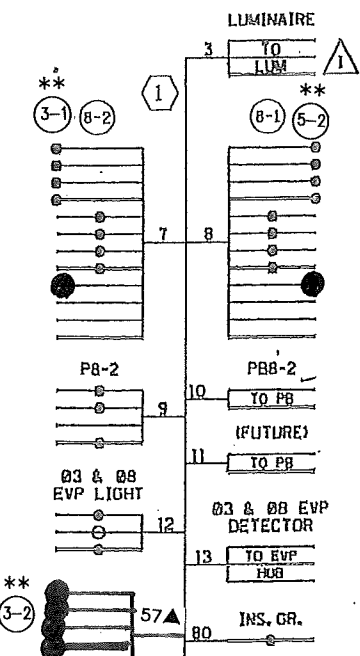
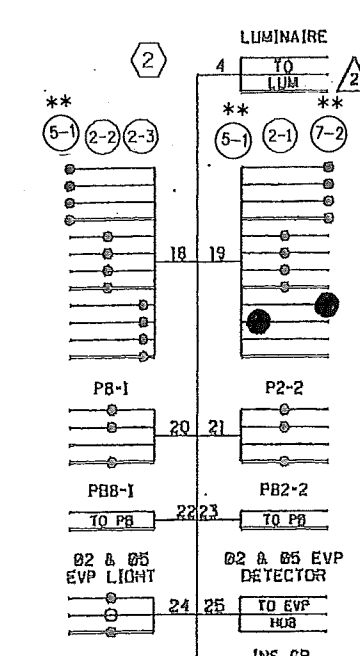
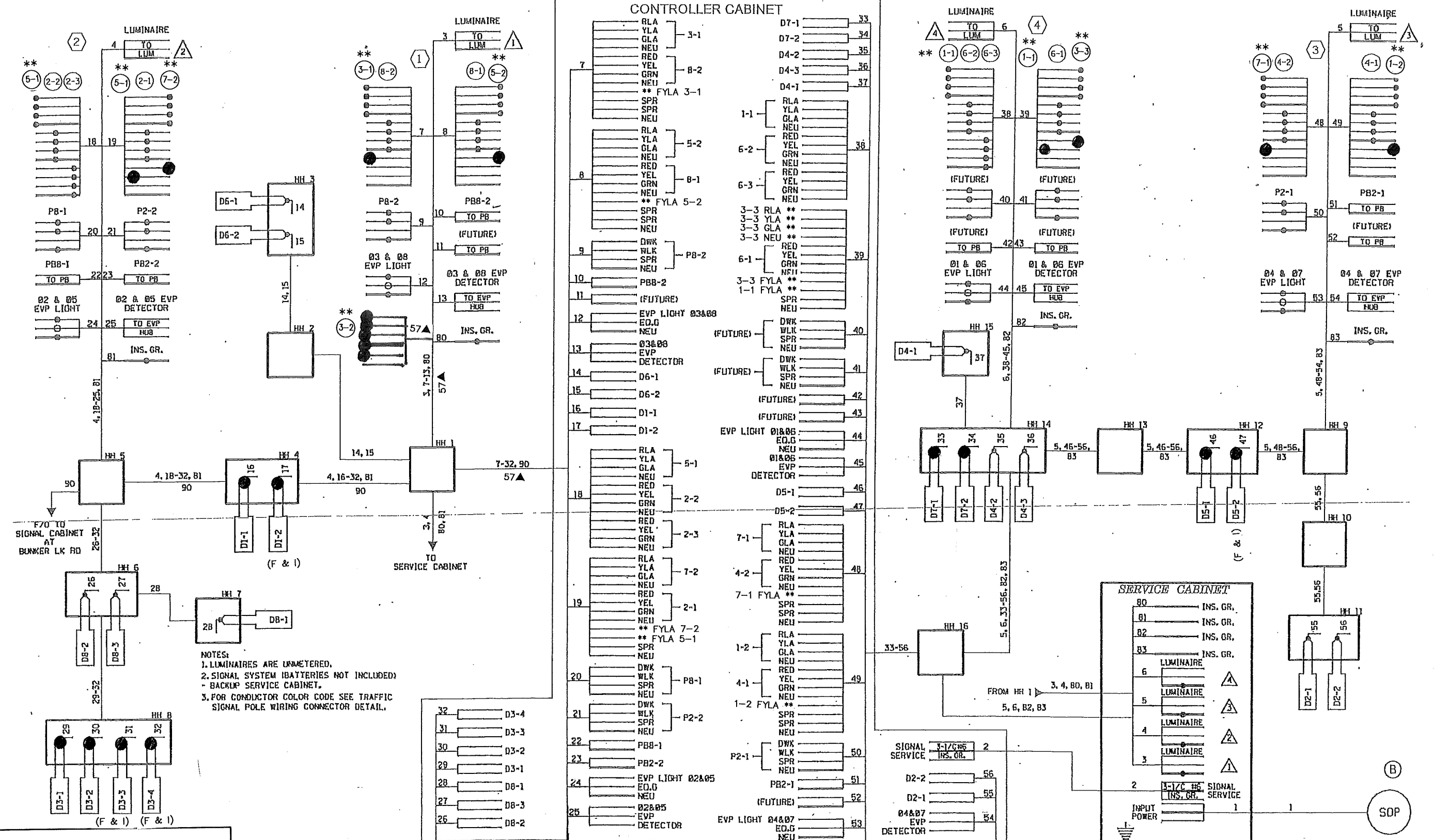
SEH
 PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

ANOKA COUNTY
 CITY OF RAMSEY

REVISE SIGNAL SYSTEM "D"
 POLE, CABINET AND GENERAL NOTES
 CSAH 83 (ARMSTRONG BLVD)
 AT SUNWOOD DRIVE-147TH AVENUE NW

FILE NO.
 RAMSY 142728

21
 24



NOTES:
 1. LUMINAIRES ARE UNMETERED.
 2. SIGNAL SYSTEM BATTERIES NOT INCLUDED - BACKUP SERVICE CABINET.
 3. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.

NOTES:
 1) ALL CABLES AND CONDUCTORS ARE INPLACE & SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY ▲ (▲ = NEW CABLES AND CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "D" WORK).
 2) ● DENOTES NEW OR REVISED TERMINATIONS ON INPLACE OR NEW CABLES.
 3) ** DENOTES REVISED TERMINATIONS/LABELING ON INPLACE CABLES & CONDUCTORS IN POLE BASES, HANDHOLES, AND IN CONTROLLER CABINET.

STATE AID PROJ. 002-030-009
 RAMSEY CITY PROJECT NO. 17-08

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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 Date: March 7, 2018
 Name: John M. Gray, PE
 Lic. No. 22457

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

ANOKA COUNTY
 CITY OF RAMSEY

REVISE SIGNAL SYSTEM "D"
 FIELD WIRING DIAGRAM
 CSAH 83 (ARMSTRONG BLVD)
 AT SUNWOOD DRIVE-147TH AVENUE NW

FILE NO. RAMSY 142728
 22
 24

NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.

EACH PEDESTRIAN INDICATION SHALL BE LED, ONE SECTION "FILLED" HAND/WALKING PERSON INDICATION.

ALL POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE MOUNTED USING ONE-WAY SIGNAL HEAD MOUNTS.

LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" NMC.

ALL VEHICLES AND PEDESTRIAN SIGNAL HOUSINGS, BACKGROUND SHIELD, AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS.

- 1 PA100 POLE FOUNDATION
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 18'
2-ANGLE MOUNT SIGNAL AT 90 AND 180 DEG
1-ANGLE MOUNT C.D. PED IND AT 180 DEG
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 3 & 8)
LUMINAIRE-250W HPS
1-PUSH BUTTON AND SIGN
1-SIGN D-1 ARMSTRONG BLVD
1-SIGN R6-1L ONE WAY
1-SIGN R6-1R ONE WAY
1-SIGN R9-3 FACING POLE 4
3" RSC INTO HH 1:
2-12/c#14
1-4/c#14
1-3/c#14 (LUM)
2-2/c#14
1-3/c#14
1-3/c#20
1-1/c#6 (GRD)

- 2" RSC
2-2/c#14
- 4" CONDUIT
2-12/c#14
2-4/c#14
1-3/c#14 (LUM)
11-2/c#14
1-3/c#14
1-3/c#20
1-1/c#6 (GRD)
1-6SM/6MM FO

- 2" RSC
1-6SM/6MM FO
- 2 PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'
2-ANGLE MOUNT SIGNAL AT 90 AND 180 DEG
2-ANGLE MOUNT C.D. PED IND AT 90 AND 180 DEG
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2 & 5)
LUMINAIRE-250W HPS
2-PUSH BUTTONS AND SIGNS
1-SIGN D-3 SUNWOOD DR & 147TH AVE
1-SIGN R6-1L ONE WAY
1-SIGN R6-1R ONE WAY
3" RSC INTO HH 5:
2-12/c#14
2-4/c#14
1-3/c#14 (LUM)
2-2/c#14
1-3/c#14
1-3/c#20
1-1/c#6 (GRD)

FACE	R	Y	G	Y	G
1-1, 1-2	←	←	←	←	←
2-1, 2-2, 2-3	●	●	●	●	●
3-1, 3-2	←	←	←	←	←
4-1, 4-2	●	●	●	●	●
5-1, 5-2	←	←	←	←	←
6-1, 6-2, 6-3	●	●	●	●	●
7-1, 7-2	←	←	←	←	←
8-1, 8-2	●	●	●	●	●

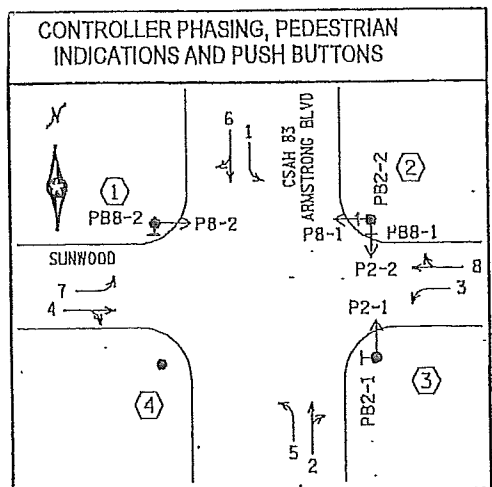
-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

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

- A EQUIPMENT PAD SERVICE CABINET CONTROLLER AND CABINET
4" RSC TO HH 1:
4-12/c#14
3-4/c#14
2-3/c#14
2-3/c#20
15-2/c#14
1-6SM/6MM FO
3" RSC STUBBED OUT (THREAD AND CAP FOR FUTURE USE)
2" RSC STUBBED OUT (THREAD AND CAP FOR FUTURE USE)
1" NMC STUBBED OUT (CAP FOR FUTURE TELEPHONE LINE)
- B SOP-TRANSFORMER (POWER BY CONNEXUS)
4" RSC TO HH 16:
4-12/c#14
3-4/c#14
2-3/c#14
2-3/c#20
13-2/c#14

- SIGNAL SERVICE CABINET (SAME FOUNDATION AS CONTROLLER CABINET)
2" RSC INTO HH 1:
UNMETERED STREET LIGHT SERVICE
2-3/c#14 (LUM)
2" RSC INTO HH 16:
UNMETERED STREET LIGHT SERVICE
2-3/c#14 (LUM)
2" RSC STUBBED OUT (FOR POWER BY CONNEXUS)

- 4 PA100 POLE FOUNDATION
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'
2-ANGLE MOUNT SIGNAL AT 90 AND 180 DEG
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1 & 6)
LUMINAIRE-250W HPS
1-SIGN D-2 SUNWOOD DR & 147TH AVE
1-SIGN R6-1L ONE WAY
1-SIGN R6-1R ONE WAY
2-SIGN R9-3 FACING POLE 1 & 3
3" RSC INTO HH 14:
2-12/c#14
2-4/c#14
1-3/c#14 (LUM)
2-2/c#14
1-3/c#14
1-3/c#20
1-1/c#6 (GRD)
- 3" RSC
2-12/c#14
1-4/c#14
1-3/c#14 (LUM)
6-2/c#14
1-3/c#14
1-3/c#20
1-1/c#6 (GRD)
- 4" RSC
2-12/c#14
1-4/c#14
1-3/c#14 (LUM)
6-2/c#14
1-3/c#14
1-3/c#20
1-1/c#6 (GRD)



SIGNAL SYSTEM OPERATION

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

MATCH LINE - NB CSAH 83 STA. 38+50

MATCH LINE - NB CSAH 83 STA. 34+80



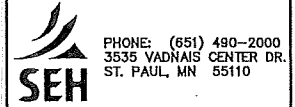
NUMBER	SIZE (FT)	LOCATION	FUNCTION
D1-1, 5-1	6x6	40	1
D1-2, D5-2	6x6	10	1
D2-1, D2-2	6x6	475	1
D3-1, 3-2	6x6	40	1
D3-3, D3-4	6x6	10	1
D4-1, D8-1	6x6	120	3, 8
D4-2	2-6x6	5 & -5	7
D4-3	2-6x6	5 & 20	1
D6-1, D6-2	6x6	475	1
D7-1	6x6	20 & 50	1
D7-2	6x6	5 & 35	1
D8-2	2-6x6	5 & -5	7
D8-3	2-6x6	5 & 20	1

-ALL LOOP DETECTORS SHALL BE PVC
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET
-LOOP DETECTOR FUNCTIONS:
(1) CALL AND EXTEND
(3) EXTEND ONLY
(7) DELAYED CALL, IMMEDIATE EXTEND
(8) CARRY OVER (STRETCH)

201717A-BASE.DWG

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS



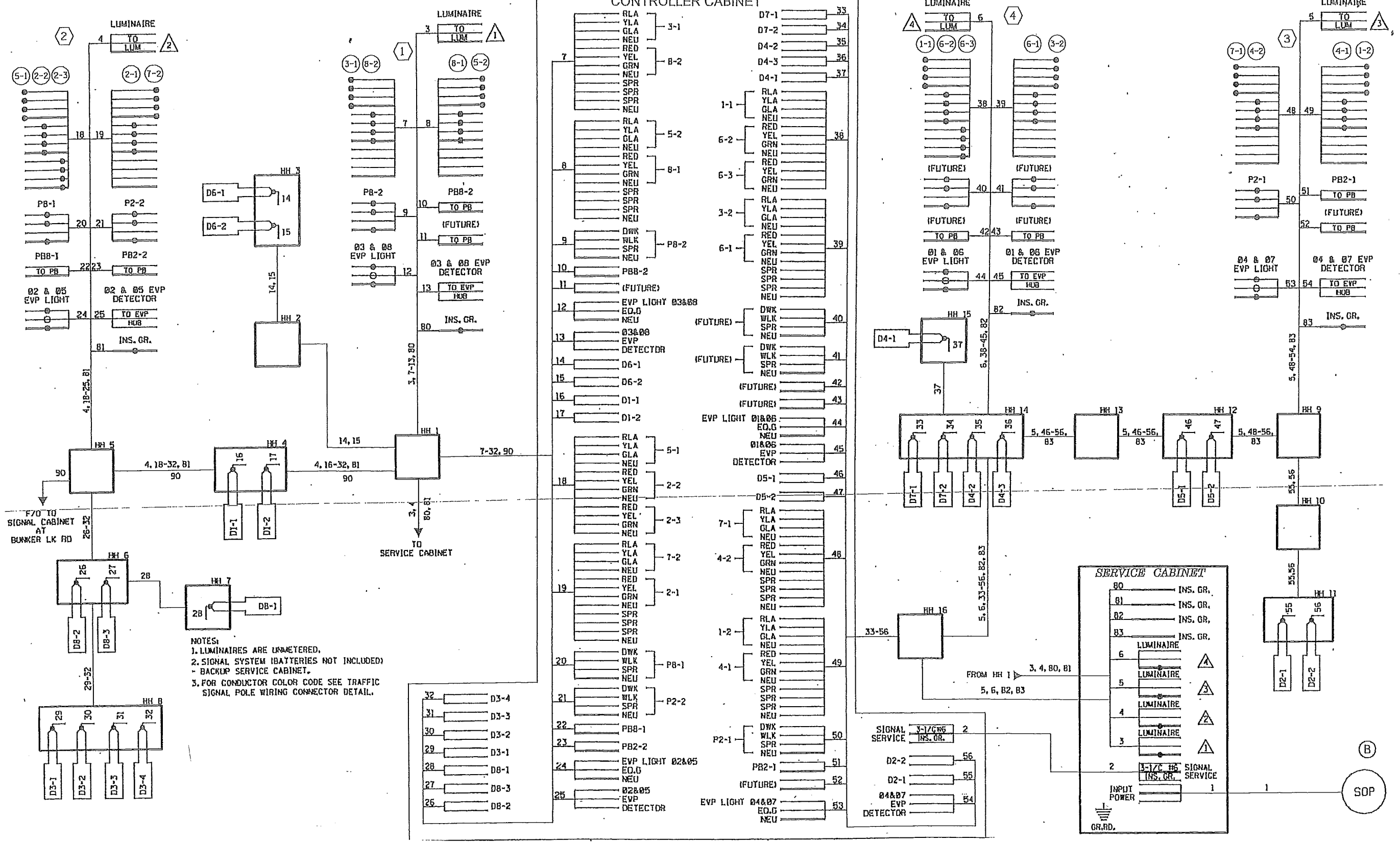
ANOKA COUNTY
CITY OF RAMSEY

INPLACE SIGNAL SYSTEM 'D'
FOR INFORMATION ONLY
CSAH 83 (ARMSTRONG BLVD)
AT SUNWOOD DRIVE-147TH AVENUE NW

FILE NO.
RAMSY 142728

23
24

STATE AID PROJ. 002-030-009
RAMSEY CITY PROJECT NO. 17-08

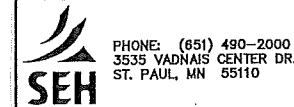


NOTES:
 1. LUMINAIRES ARE UNMETERED.
 2. SIGNAL SYSTEM BATTERIES NOT INCLUDED - BACKUP SERVICE CABINET.
 3. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.

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

STATE AID PROJ. 002-030-009
 RAMSEY CITY PROJECT NO. 17-08

2017FA-BASE.DWG	DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: JMG					
DESIGNER: JMG					
CHECKED BY: JMG					



ANOKA COUNTY
 CITY OF RAMSEY

INPLACE SIGNAL SYSTEM 'D'
 FOR INFORMATION ONLY
 CSAH 83 (ARMSTRONG BLVD)
 AT SUNWOOD DRIVE-147TH AVENUE NW

FILE NO. RAMSY 142728
 24
 24