

PVC LOOP DETECTORS				
NUMBER	SIZE (FT)	LOCATION	FUNCTION	STATUS
D1-1	6 x 6	40'	1	INPLACE
D1-2	6 x 6	10'	1	INPLACE
D2-1	6 x 6	300'	1	INPLACE
D2-2	6 x 6	300'	1	INPLACE
D4-1	6 x 6	120'	3,8	F & I
D4-2	2-6 x 6	0' & 15'	7	INPLACE
D4-3	2-6 x 6	0' & 15'	1	INPLACE
D5-1	6 x 6	40'	1	INPLACE
D5-2	6 x 6	10'	1	INPLACE
D6-1	6 x 6	300'	1	INPLACE
D6-2	6 x 6	300'	1	INPLACE
D8-1	6 x 6	120'	3,8	INPLACE
D8-2	6x8 & 6x6	0' & 15'	7	INPLACE
D8-2	2-6 x 6	0' & 15'	1	INPLACE

**LOOP DETECTORS FUNCTIONS:**

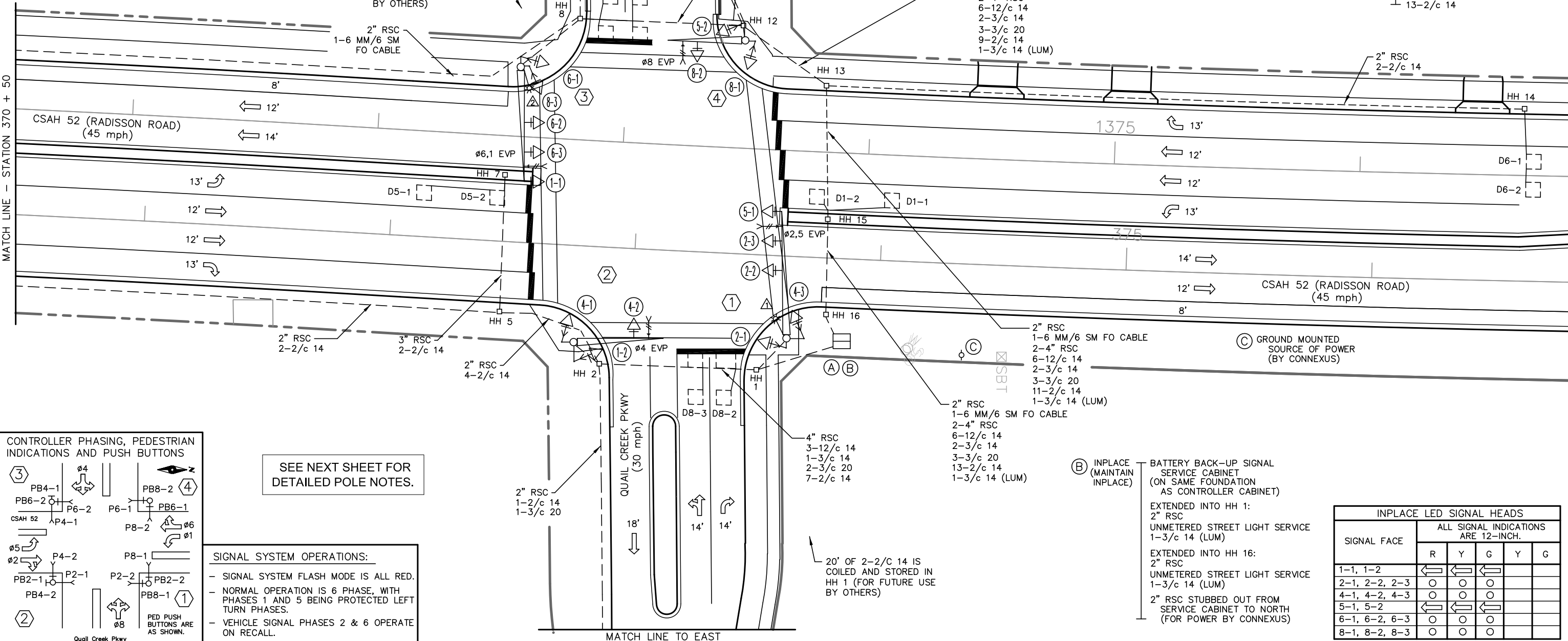
- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

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

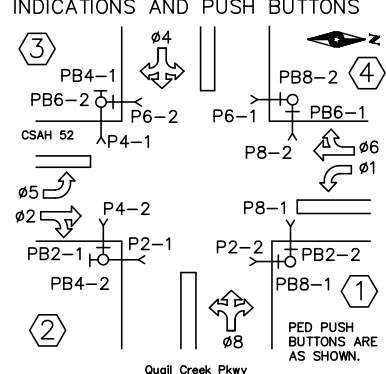
MATCH LINE "A" - SEE NEXT SHEET



- (A) INPLACE (MAINTAIN INPLACE)
- CONTROLLER AND CABINET EQUIPMENT PAD FOUNDATION BETWEEN CONTROLLER CABINET AND SERVICE CABINET: METERED SIGNAL SERVICE  
2" RSC  
3-1/c 6  
3" RSC STUBBED OUT FROM CABINET TO WEST (BOTH ENDS THREADED & CAPPED)  
1" RSC STUBBED OUT FROM CABINET (FOR FUTURE PHONE LINE BY OTHERS)  
EXTENDED INTO HH 16:  
2" RSC  
1-6 MM/6 SM FO CABLE  
EXTENDED INTO HH 16:  
4" RSC  
6-12/c 14  
2-3/c 14  
3-3/c 20  
13-2/c 14  
EXTENDED INTO HH 1:  
4" RSC  
6-12/c 14  
2-3/c 14  
3-3/c 20  
13-2/c 14



**CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS**



SEE NEXT SHEET FOR DETAILED POLE NOTES.

**SIGNAL SYSTEM OPERATIONS:**

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

- (B) INPLACE (MAINTAIN INPLACE)
- BATTERY BACK-UP SIGNAL SERVICE CABINET (ON SAME FOUNDATION AS CONTROLLER CABINET)  
EXTENDED INTO HH 1:  
2" RSC  
UNMETERED STREET LIGHT SERVICE  
1-3/c 14 (LUM)  
EXTENDED INTO HH 16:  
2" RSC  
UNMETERED STREET LIGHT SERVICE  
1-3/c 14 (LUM)  
2" RSC STUBBED OUT FROM SERVICE CABINET TO NORTH (FOR POWER BY CONNEXUS)

INPLACE LED SIGNAL HEADS					
SIGNAL FACE	ALL SIGNAL INDICATIONS ARE 12-INCH.				
	R	Y	G	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	○	○	○		

REVISE SIGNAL SYSTEM NOTES:

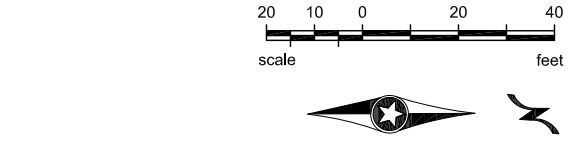
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- 2) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING HANDHOLES IN THE VICINITY OF CONSTRUCTION; SHALL REMOVE AND DISPOSE OF HANDHOLES 10 AND 11; SHALL FURNISH AND INSTALL NEW HANDHOLE 20 (PVC HANDHOLE WITH METAL FRAME AND COVER); AND SHALL ADJUST INPLACE HANDHOLES 8, 9, AND 12 AS NECESSARY TO MATCH FINISHED SURROUNDING GRADE AFTER ROAD AND SIDEWALK WORK HAS BEEN COMPLETED. SEE SPECIAL PROVISIONS (INCIDENTAL).
- 3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. NEW LOOP DETECTOR D4-1 SHALL BE FURNISHED, INSTALLED AND MADE OPERATIONAL BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND THE ANOKA COUNTY HIGHWAY DEPARTMENT. SEE DETAILS AND SPECIAL PROVISIONS.
- 4) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.) SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE CITY.
- 5) CONTRACTOR SHALL MAINTAIN OPERATION OF SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER, THE CITY, AND THE COUNTY.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR LOOP DETECTOR D4-1) AND SHALL FURNISH & INSTALL NEW LOOP DETECTOR KIT IN THE ADJACENT HANDHOLE FOR D4-1 AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) NEW LOOP DETECTORS AND HANDHOLES TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR ARE BOXED IN AND DENOTED BY F & I (FURNISH AND INSTALL).
- 8) SEE SPECIAL PROVISIONS REGARDING VIDEO DETECTION SYSTEM TO BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR DURING CONSTRUCTION, AND REMOVED BY CONTRACTOR AFTER THE PERMANENT Ø4 LOOP DETECTORS ARE MADE OPERATIONAL (INCIDENTAL TO REVISE SIGNAL SYSTEM PAY ITEM). SEE DIVISION SS SPECIAL PROVISIONS.
- 9) VIDEO DETECTOR CABLES TO BE FURNISHED & INSTALLED BY THE CONTRACTOR FOR USE DURING CONSTRUCTION SHALL BE FULLY COMPATIBLE WITH VIDEO CAMERA AND CABINET EQUIPMENT.
- 10) MOVEMENT/REAIMING OF VIDEO CAMERA AND ALL LABOR AND MATERIALS NEEDED TO REVISE THIS SIGNAL SYSTEM DURING CONSTRUCTION ARE INCIDENTAL.

① INPLACE (MAINTAIN INPLACE)  
 PA100 POLE FOUNDATION  
 TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG  
 2-ANGLE MOUNT CD PED INDICATIONS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR AND LIGHT (Ø2,5)  
 EXTENDED INTO HH 1:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)

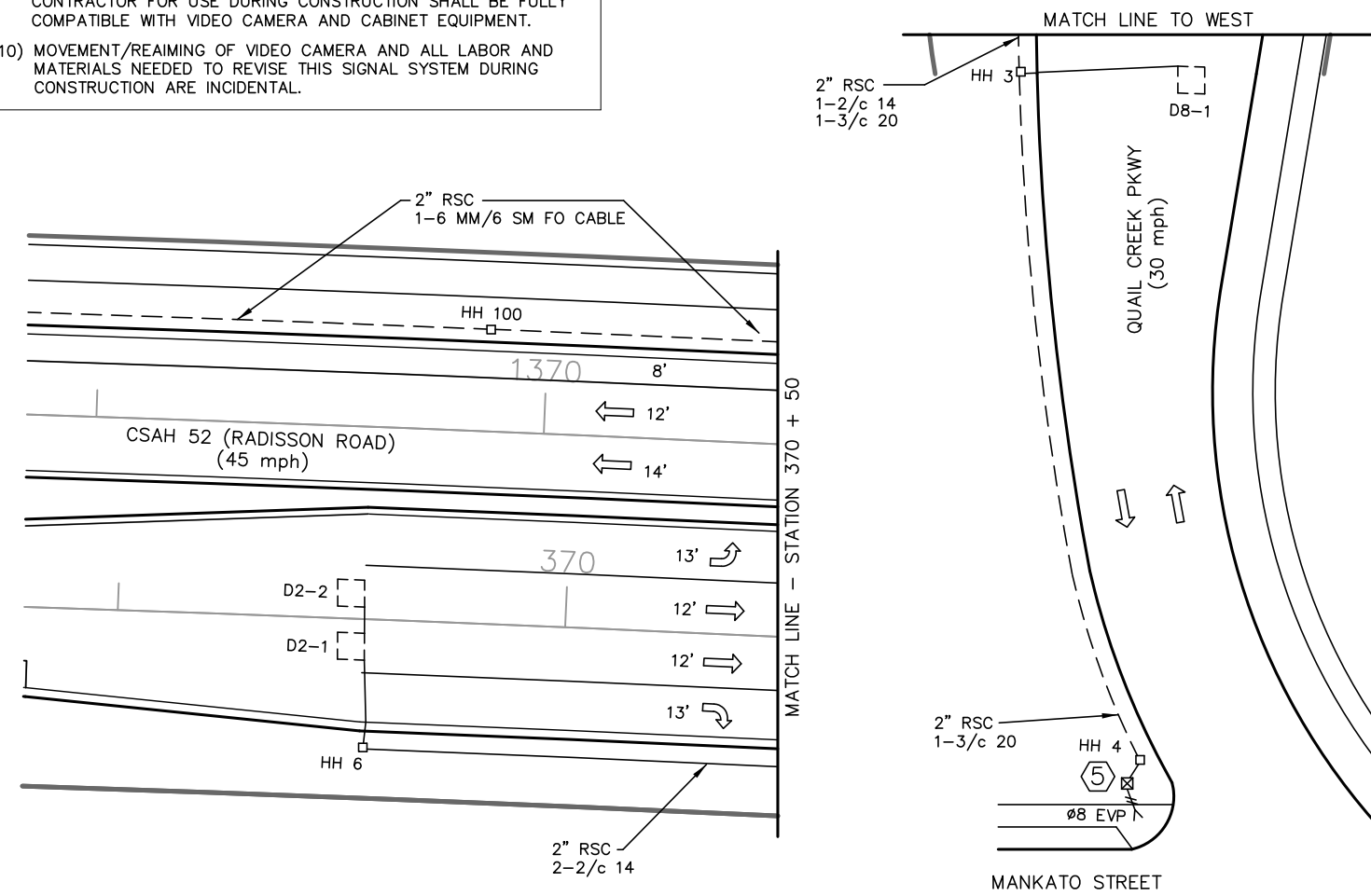
② INPLACE (MAINTAIN INPLACE)  
 PA90 POLE FOUNDATION  
 TYPE PA90-A-35  
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
 MAST ARM HUB AT 0' FROM END OF MAST ARM  
 END MOUNT CAPPED (FOR FUTURE USE)  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG  
 2-ANGLE MOUNT CD PED INDICATIONS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR AND LIGHT (Ø4)  
 EXTENDED INTO HH 2:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14

③ INPLACE (MAINTAIN INPLACE)  
 PA100 POLE FOUNDATION  
 TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 180/270 DEG  
 2-ANGLE MOUNT CD PED INDICATIONS-POLE MOUNTED 180/270 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR AND LIGHT (Ø6,1)  
 EXTENDED INTO HH 8:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)

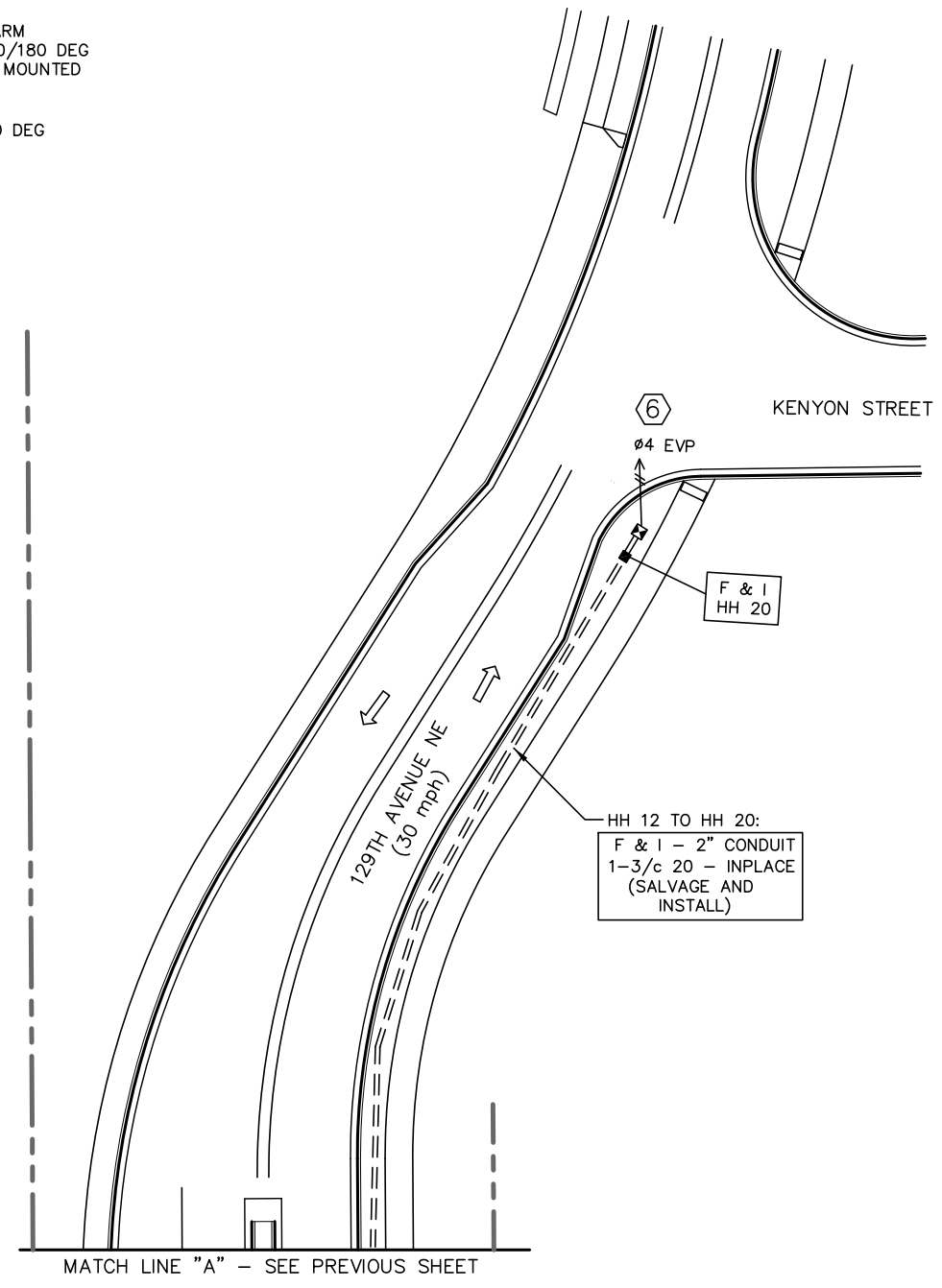
④ INPLACE (MAINTAIN INPLACE)  
 PA90 POLE FOUNDATION  
 TYPE PA90-A-30  
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
 END MOUNT CAPPED (FOR FUTURE USE)  
 MAST ARM HUB AT 0' FROM END OF MAST ARM  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG  
 2-ANGLE MOUNT CD PED INDICATIONS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR AND LIGHT (Ø8)  
 EXTENDED INTO HH 12:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14



⑥ INPLACE (S & I)  
 PEDESTAL FOUNDATION  
 10' PEDESTAL POLE (INCLUDES BASE)  
 WIND COLLAR FOR PEDESTAL POLE  
 ONE WAY EVP DETECTOR-MOUNT ON TOP OF PEDESTAL POLE (Ø4)  
 1-3/c 20  
 F & I  
 EXTEND INTO HH 20:  
 2" CONDUIT  
 1-1/c 6 (INS GR)



⑤ INPLACE (MAINTAIN INPLACE)  
 PEDESTAL FOUNDATION  
 10' PEDESTAL POLE (INCLUDES BASE)  
 WIND COLLAR FOR PEDESTAL POLE  
 ONE WAY EVP DETECTOR-MOUNTED ON TOP OF PEDESTAL POLE (Ø8)  
 EXTENDED INTO HH 4:  
 2" RSC  
 1-3/c 20



SEH Project	165899	Rev.#	1	Revision Issue Description	Date	12/2/22
Drawn By	JMG			Record Drawing		
Designed By	JMG					
Checked By						

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.

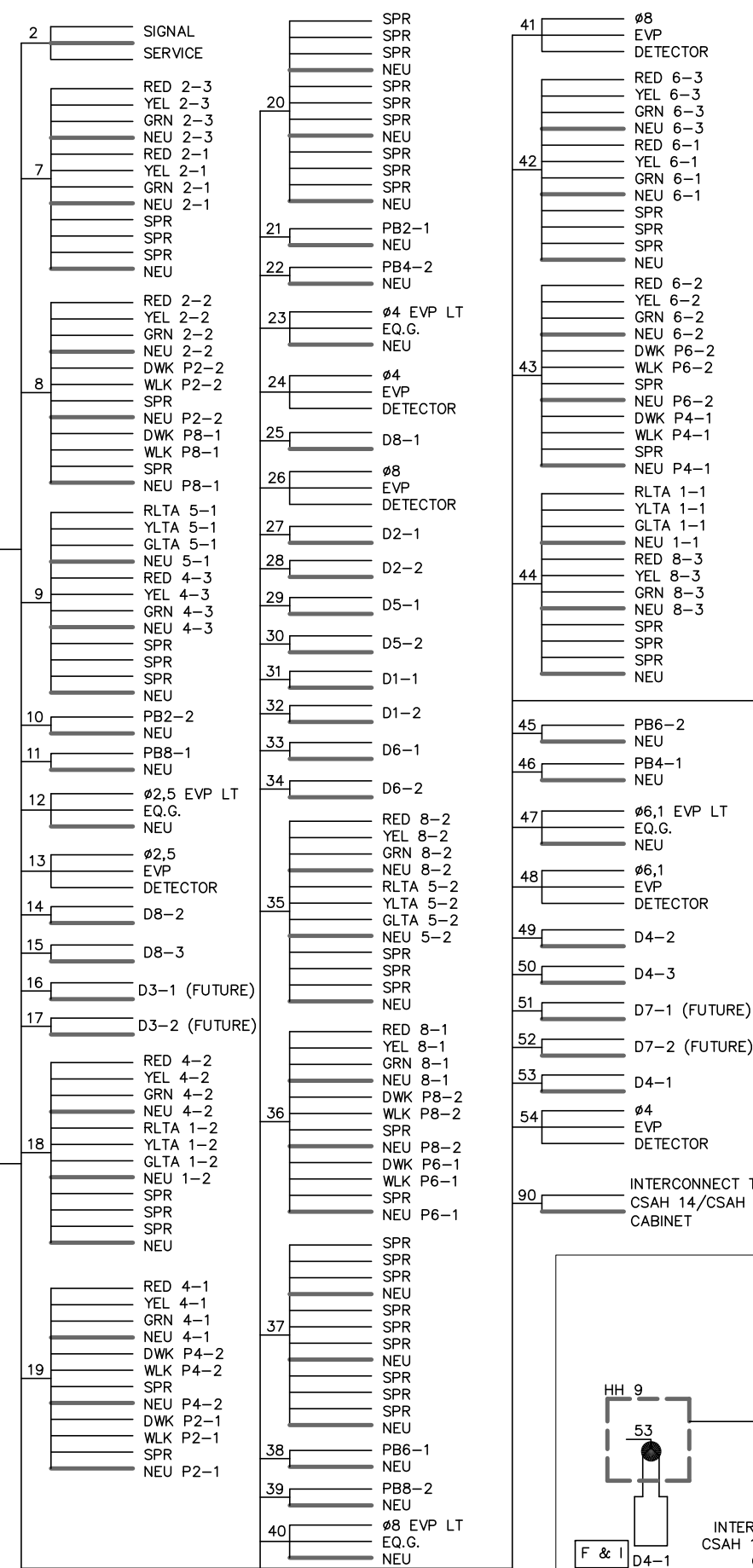
**SEH**  
 John M. Gray, PE  
 DATE 3/04/2022 LICENSE NO. 22457

2022 STREET IMPROVEMENTS  
 S.A.P. 106-141-003  
 BLAINE, MN

REVISE SIGNAL SYSTEM  
 INTERSECTION LAYOUT AND NOTES  
 CSAH 52 AND 129TH AVE NE/QUAIL CREEK PKWY

93  
 of 135

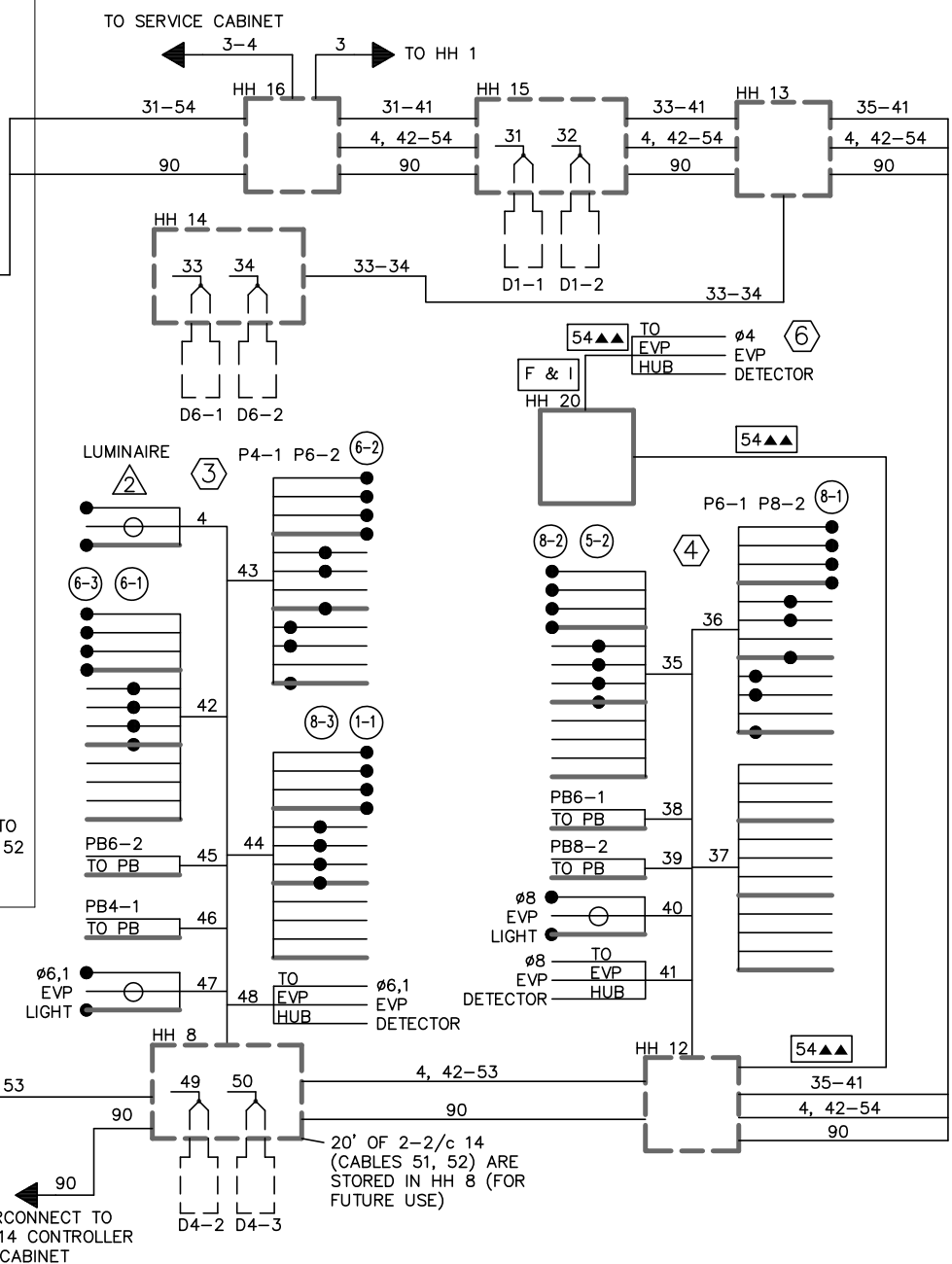
CONTROLLER AND CABINET



**CONDUCTOR COLOR CODE (14 GAUGE)**

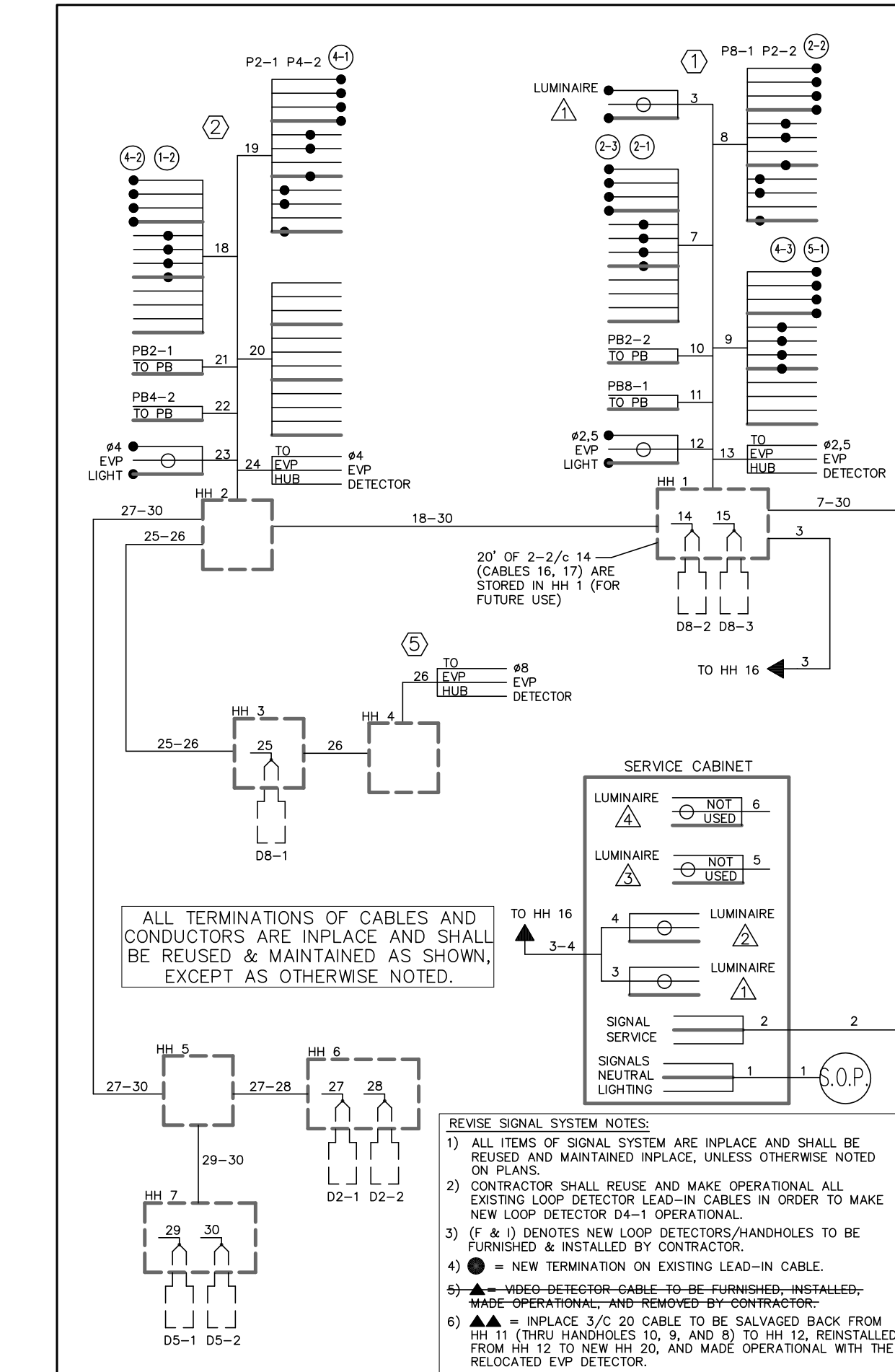
TO SIGNAL CABINET		TO DEVICE	
1/C#6 G	R	R	RED
6PR#19	O	O	YEL
	BL	BL	GRN
	WH	WH	NEU
	BLK/R	BLK/R	YLTA
	BLK	BLK	GLTA
3-1/C#2	R	R	RED/DWK
	WH	WH	YEL/WLK
	BLK	BLK	GRN/SPR
	G	WH	NEU
3-1/C#6	R	R	RED/DWK
	WH	WH	YEL/WLK
	G	BLK	GRN/SPR
	BLK/R	WH	NEU
	O	BLK	RED/DWK
	BL	BLK	YEL/WLK
	WH	BLK	GRN/SPR
	R/BLK	WH	NEU
	O/BLK	G	EVP LIGHT
	WH/BLK	WH	LUM/FLASHER
	BLK	BLK	
	BLK/WH	R or O	
	BLK/R	WH or YEL	
	WH/R	BLK or BL	
		WH or CL	PED PUSH BUTTON (if required)

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



- REVISE SIGNAL SYSTEM NOTES:**
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
  - 2) CONTRACTOR SHALL REUSE AND MAKE OPERATIONAL ALL EXISTING LOOP DETECTOR LEAD-IN CABLES IN ORDER TO MAKE NEW LOOP DETECTOR D4-1 OPERATIONAL.
  - 3) (F & I) DENOTES NEW LOOP DETECTORS/HANDHOLES TO BE FURNISHED & INSTALLED BY CONTRACTOR.
  - 4) ● = NEW TERMINATION ON EXISTING LEAD-IN CABLE.
  - 5) ▲ = VIDEO DETECTOR CABLE TO BE FURNISHED, INSTALLED, MADE OPERATIONAL, AND REMOVED BY CONTRACTOR.
  - 6) ▲ = INPLACE 3/C 20 CABLE TO BE SALVAGED BACK FROM HH 11 (THRU HANDHOLES 10, 9, AND 8) TO HH 12, REINSTALLED FROM HH 12 TO NEW HH 20, AND MADE OPERATIONAL WITH THE RELOCATED EVP DETECTOR.

ALL TERMINATIONS OF CABLES AND CONDUCTORS ARE INPLACE AND SHALL BE REUSED & MAINTAINED AS SHOWN, EXCEPT AS OTHERWISE NOTED.



SEH Project	165899	Rev.#	1	Revision Issue Description	Date	12/2/22
Drawn By	JMG			Record Drawing		
Designed By	JMG					
Checked By						

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**SEH** *John M. Gray*  
 Name: John M. Gray, PE  
 License No. 22457  
 DATE 3/04/2022

**2022 STREET IMPROVEMENTS**  
 S.A.P. 106-141-003  
 BLAINE, MN

**REVISE SIGNAL SYSTEM**  
 FIELD WIRING DIAGRAM  
 CSAH 52 AND 129TH AVE NE/QUAIL CREEK PKWY