

DISTRICT #: Metro  
 IPLOT NAME: T1735672.sgl  
 PATH & FILENAME: Projects\DM罗斯\20\0000\Traffic\Signal\3.82\_HARVESTER AV N&S\5TH ST N\T1735672\REVISED: 18-JAN-2023

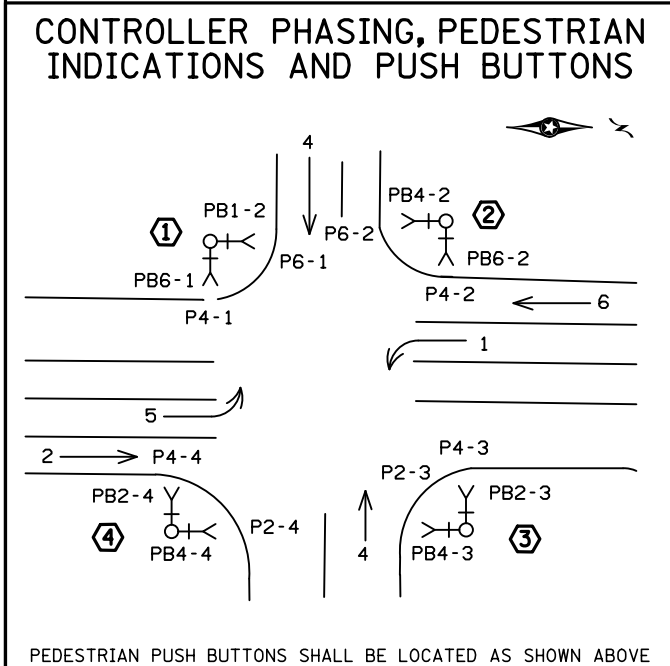
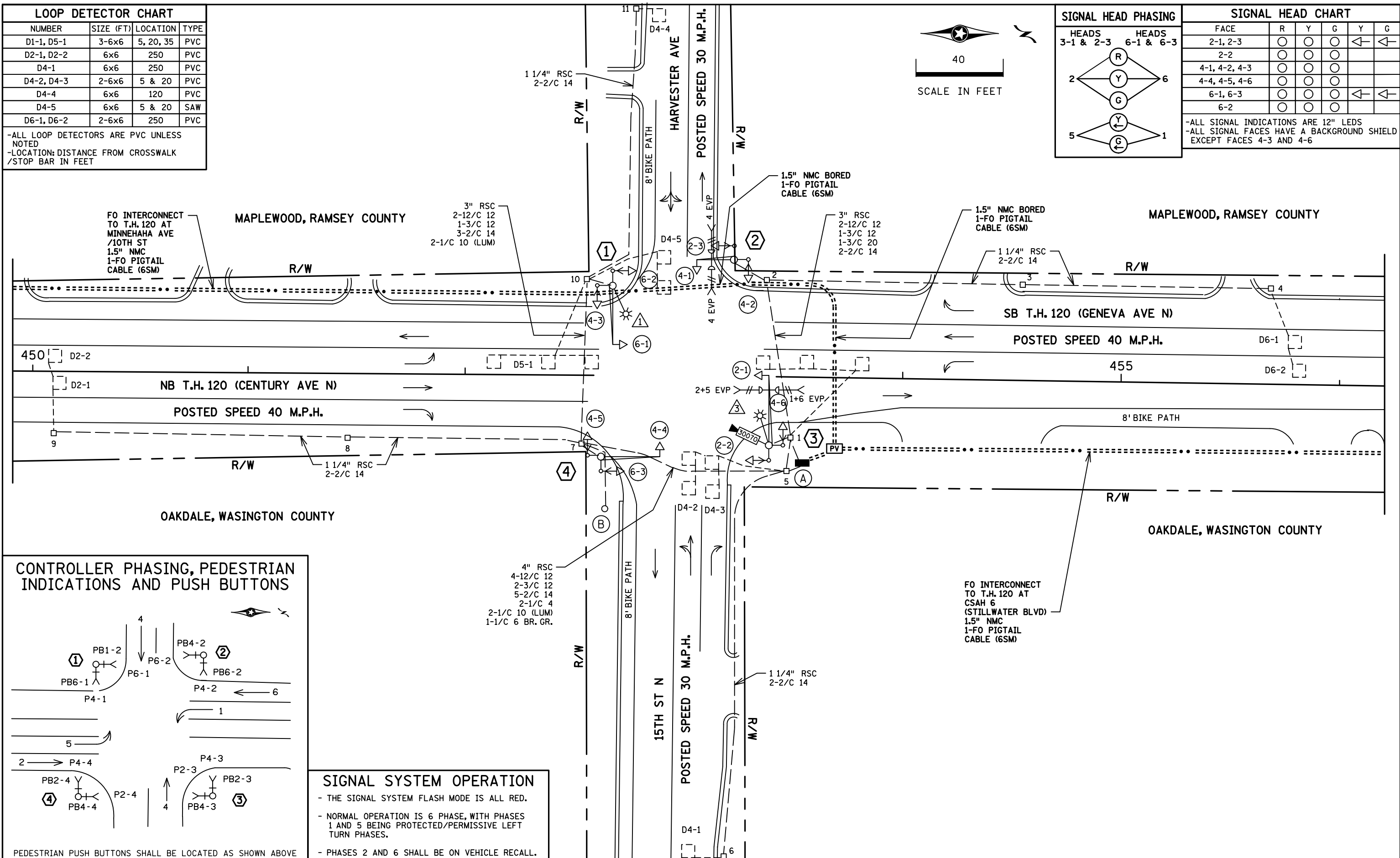
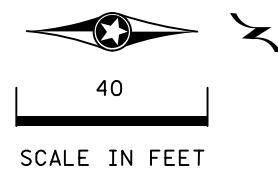
LOOP DETECTOR CHART			
NUMBER	SIZE (FT)	LOCATION	TYPE
D1-1, D5-1	3-6x6	5, 20, 35	PVC
D2-1, D2-2	6x6	250	PVC
D4-1	6x6	250	PVC
D4-2, D4-3	2-6x6	5 & 20	PVC
D4-4	6x6	120	PVC
D4-5	6x6	5 & 20	SAW
D6-1, D6-2	2-6x6	250	PVC

-ALL LOOP DETECTORS ARE PVC UNLESS NOTED  
 -LOCATION: DISTANCE FROM CROSSWALK /STOP BAR IN FEET

SIGNAL HEAD PHASING					
HEADS 3-1 & 2-3		HEADS 6-1 & 6-3			
2	(R)	6	(R)		
	(Y)		(Y)		
	(G)		(G)		
5	(Y)	1	(Y)		
	(G)		(G)		

SIGNAL HEAD CHART					
FACE	R	Y	G	Y	G
2-1, 2-3	○	○	○	◄	◄
2-2	○	○	○		
4-1, 4-2, 4-3	○	○	○		
4-4, 4-5, 4-6	○	○	○		
6-1, 6-3	○	○	○	◄	◄
6-2	○	○	○		

-ALL SIGNAL INDICATIONS ARE 12" LEDS  
 -ALL SIGNAL FACES HAVE A BACKGROUND SHIELD EXCEPT FACES 4-3 AND 4-6



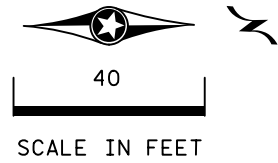
### SIGNAL SYSTEM OPERATION

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

BY	DATE	REVISIONS	SYSTEM ID: 1735672	T.E. 6050	S.A.P. NO.	DRAWN BY:GDS	CKD BY:GBB	DATE:05-03-18
SJK	1/18/23	AS-BUILT PLAN SP 6227-83	METER ADDRESS: 1501 GENEVA AVE N		CERTIFIED BY _____		LIC. NO. 19863	DATE: 06-06-18
			OLD SYSTEM ID: 21436		STATE PROJ.NO. 6227-83 (T.H.120)			SHEET NO. 49 OF 89 SHEETS

**INTERSECTION LAYOUT**  
**REVISE SIGNAL SYSTEM E**  
**T.H. 120 AT HARVESTER AVE./15TH ST.**  
**IN MAPLEWOOD, RAMSEY COUNTY AND**  
**OAKDALE, WASHINGTON COUNTY**

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**①** P90 POLE FOUNDATION  
 TYPE P90-A-25-D40-9 (DAVIT AT 350 DEG)  
 TYPE 10B POLE MOUNTED 90 DEG  
 TYPE 10B POLE MOUNTED 180 DEG  
 ONE WAY SIGNAL OVERHEAD  
 LUMINAIRE 200 WATT H.P.S. W/PEC  
 R10-12 SIGN (ADJACENT TO HEAD 6-1)  
 2-PED PBS AND SIGNS  
 EXTEND INTO HH 10:  
 3" RSC  
 2-12/C 12  
 1-3/C 12  
 2-1/C 10 (LUM)

**④** P90 POLE FOUNDATION  
 TYPE P90-A-25  
 ONE WAY SIGNAL OVERHEAD  
 TYPE 10B POLE MOUNTED 90 DEG  
 TYPE 10B POLE MOUNTED 180 DEG  
 2-PED PBS AND SIGNS  
 EXTEND INTO HH 7:  
 3" RSC  
 2-12/C 12  
 1-3/C 12

**②** P90 POLE FOUNDATION  
 TYPE P90-A-15  
 ONE WAY SIGNAL OVERHEAD  
 1-TWO WAY EVP DETECTORS AND  
 CONFIRMATORY LIGHTS (PHASE 4)  
 TYPE 10B POLE MOUNTED 90 DEG  
 TYPE 10B POLE MOUNTED 180 DEG  
 2-PED PBS AND SIGNS  
 EXTEND INTO HH 2:  
 3" RSC  
 2-12/C 12  
 1-3/C 12  
 1-3/C 20

**③** P90 POLE FOUNDATION  
 TYPE P90-A-30-D40-9 (DAVIT AT 350 DEG)  
  
 1-X6-350/CAM 400 EXTENSION  
 (MOUNTED AT 350 DEG)  
 (INCLUDES LIGHTNING ROD)  
 7/16" GROUND BRAID  
 1-VIDEO CAMERA WITH MOUNT  
  
 ONE WAY SIGNAL OVERHEAD  
 1-TWO WAY EVP DETECTORS AND  
 CONFIRMATORY LIGHTS (PHASES 2+5 AND 1+6)  
 TYPE 10B POLE MOUNTED 90 DEG  
 TYPE 10B POLE MOUNTED 180 DEG  
 2-PED PBS AND SIGNS  
  
 LUMINAIRE 200 WATT H.P.S. W/PEC  
 R10-12 SIGN (ADJACENT TO HEAD 2-1)  
 EXTEND INTO HH 1:  
 3" RSC  
 2-12/C 12  
 1-3/C 12  
 1-3/C 20  
 2-1/C 10 (LUM)  
  
 1-7/16" GROUND BRAID  
 TO GROUND ROD  
 1-COM CABLE (CAT 5E)

**Ⓐ** EQUIPMENT PAD  
 LOAD CENTER  
  
**CONTROLLER AND CABINET**  
 4" RSC TO HH 1: 4" RSC TO HH 5:  
 4-12/C 12 4-12/C 12  
 2-3/C 12 2-3/C 12  
 2-3/C 20 8-2/C 14  
 3-2/C 14  
  
**1-COM CABLE (CAT 5E)**  
  
 3/4" RSC STUBBED OUT  
 (CAPPED BOTH ENDS)

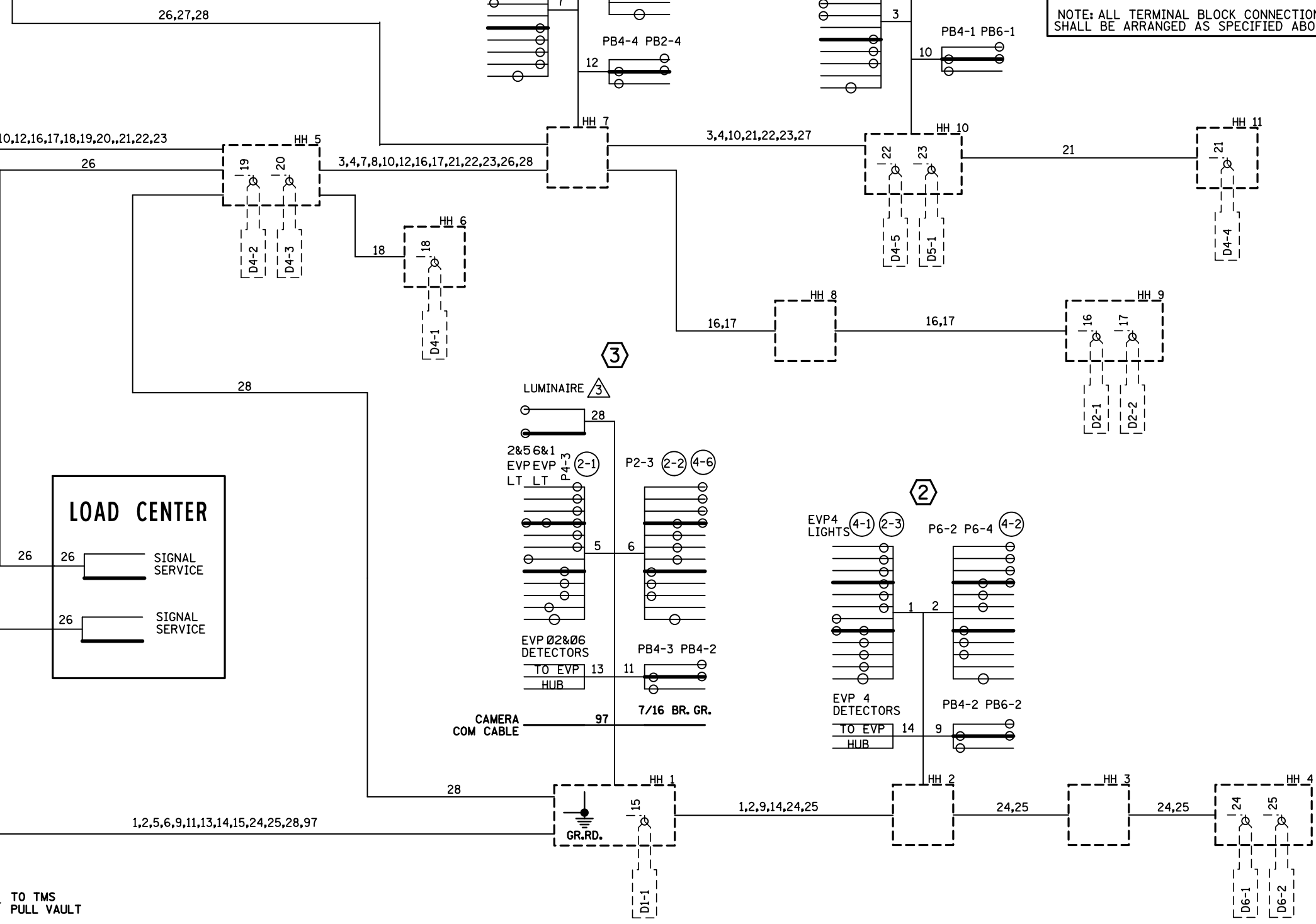
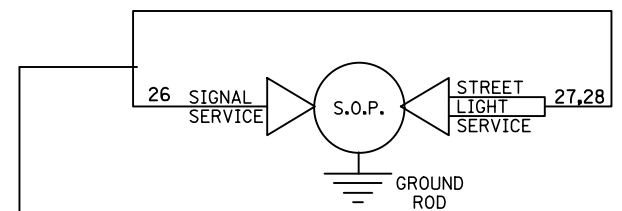
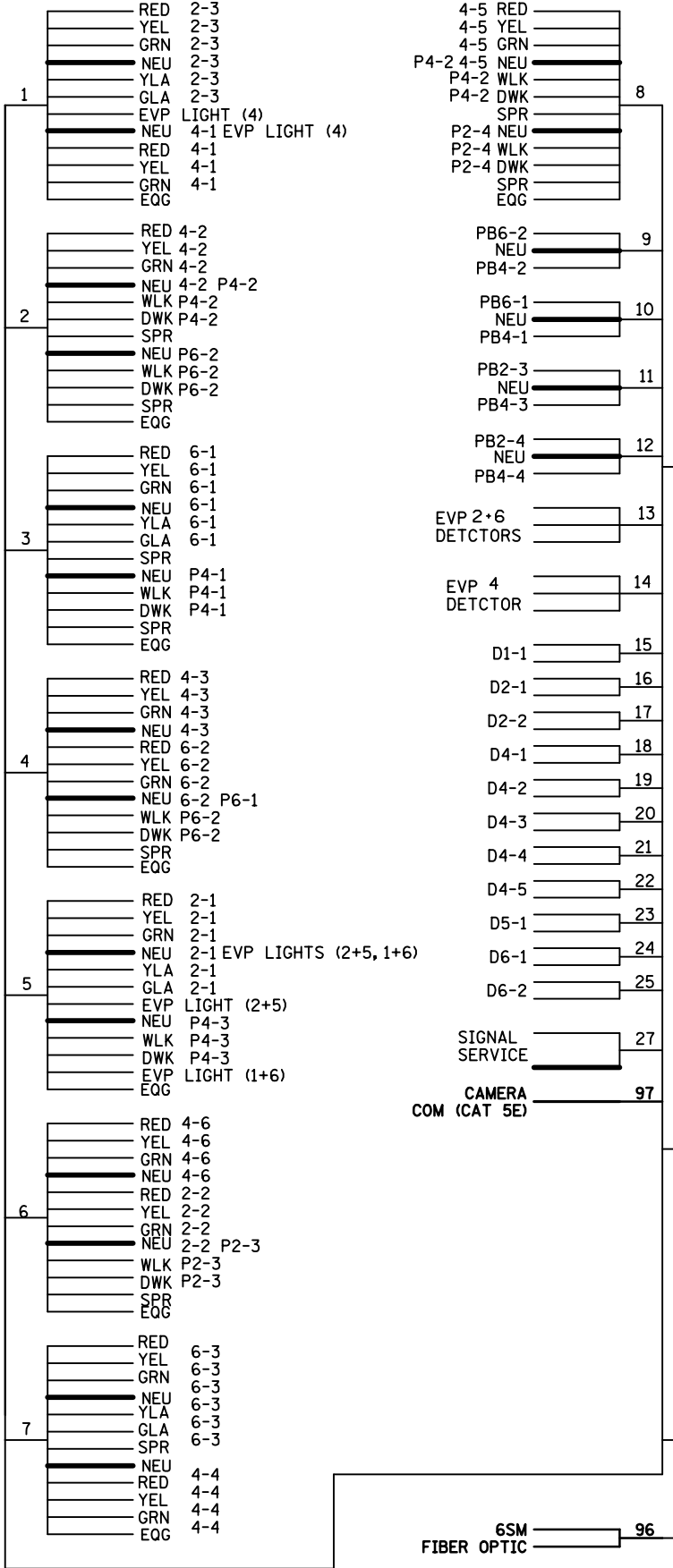
**CONTROLLER CABINET TO PULL VAULT:**  
 1-1.5" NMC  
 1-PRE TERMINATED ARMORED  
 FO PIGTAIL CABLE (6SM)  
  
**LOAD CENTER TO CONTROLLER CABINET:**  
 2" IMC  
 2-1/C 4  
 1-1/C 6 BR. GR.  
 HH 1 TO HH 5:  
 2" IMC  
 2-1/C 10 (LUM)

**Ⓑ** SOP ON WOOD POLE  
 1 1/4" RSC RISER AND WEATHERHEAD  
 3-1/C 4  
 SERVICE EQUIPMENT  
 1 1/4" RSC RISER, EXTEND INTO HH7:  
 2-1/C 4  
 1-1/C 6 BR. GR.  
 4-1/C 10 (LUM)

BY	DATE	REVISIONS	SYSTEM ID: 1735672	T.E. 6050	S.A.P. NO.	DRAWN BY:GDS	CKD BY:GDB	DATE:05-03-18
SJK	1/18/23	AS-BUILT PLAN SP 6227-83	METER ADDRESS: 1501 GENEVA AVE N		CERTIFIED BY _____			LIC. NO. 19863 DATE: 06-06-18
			OLD SYSTEM ID: 21436		LICENSED PROFESSIONAL ENGINEER			
				<b>INTERSECTION NOTES</b> REVISE SIGNAL SYSTEM E T.H. 120 AT HARVESTER AVE./15TH ST. IN MAPLEWOOD, RAMSEY COUNTY AND OAKDALE, WASHINGTON COUNTY	<b>STATE PROJ. NO. 6227-83 (T.H.120)</b>		<b>SHEET NO. 50 OF 89 SHEETS</b>	

DISTRICT #: Metro  
 IPLOT NAME: T1735672\_sgl  
 PATH & FILENAME: Projects\DM\_POS\20\0000\Traffic\Signal\3.82\_HARVESTER AV N&S\5TH ST N\T1735672\_sgl\REVISED: 18-JAN-2023

### CONTROLLER CABINET



### CONDUCTOR COLOR CODING

R	R		
O	BL		5/C#12
BL	WH		
WH	R/BLK		
	O/BLK		
	BL/BLK		
	WH/BLK		3/C#12
	BLK		
	BLK/WH		R OR O
	G/BLK		WH OR YEL
	G		BLK OR BL
	BLK		
	WH		2/C#14

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

BY	DATE	REVISIONS	SYSTEM ID: 1735672	T.E. 6050	FIELD WIRING DIAGRAM	S.A.P. NO.	DRAWN BY:GDS	CKD BY:GBB	DATE:05-03-18
SJK	1/18/23	AS-BUILT PLAN SP 6227-83	METER ADDRESS: 1501 GENEVA AVE N		REVISE SIGNAL SYSTEM E	CERTIFIED BY _____			LIC. NO. 19863
			OLD SYSTEM ID: 21436		T.H. 120 AT HARVESTER AVE./15TH ST.	LICENSED PROFESSIONAL ENGINEER			DATE: 06-06-18
					IN MAPLEWOOD, RAMSEY COUNTY AND				
					OAKDALE, WASHINGTON COUNTY				
						STATE PROJ.NO. 6227-83 (T.H.120)			SHEET NO. 51 OF 89 SHEETS

# LOOP DETECTORS

NUMBER	SIZE (METERS)	LOCATION	TYPE
D1-1	3-6 X 6	5,20,35	PVC
D2-1	6 X 6	250	PVC
D2-2	6 X 6	250	PVC
D4-1	6 X 6	250	PVC
D4-2	2-6 X 6	5,20	PVC
D4-3	2-6 X 6	5,20	PVC
D4-4	6 X 6	120	PVC
D4-5	2-6 X 6	5,20	SAWCUT
D5-1	3-6 X 6	5,20,35	PVC
D6-1	6 X 6	250	PVC
D6-2	6 X 6	250	PVC

LOCATION = DISTANCE IN FEET FROM STOP LINE/PEDESTRIAN MARKINGS TO FRONT EDGE OF DETECTOR

PLOTTED/REVISED: \$\$\$@DATE\$\$\$

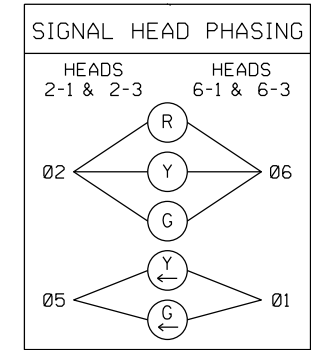
1

TYPE P90-A-25-D40-9 (DAVIT AT 350 DEG)  
 P90 POLE FOUNDATION  
 2-TYPE 10B AT 90° & 180 DEG  
 ONE WAY SIGNAL OVERHEAD  
 LUMINAIRE 200 WATT HP.S W/PEC AND TEST SW  
 R10-12 SIGN (ADJACENT TO HEAD 6-1)  
 2-PED PBS & SIGNS  
 EXTEND INTO HH10:  
 3" RSC  
 2-12/C # 12  
 1-3/C # 12  
 2-1/C # 10 (LUM)

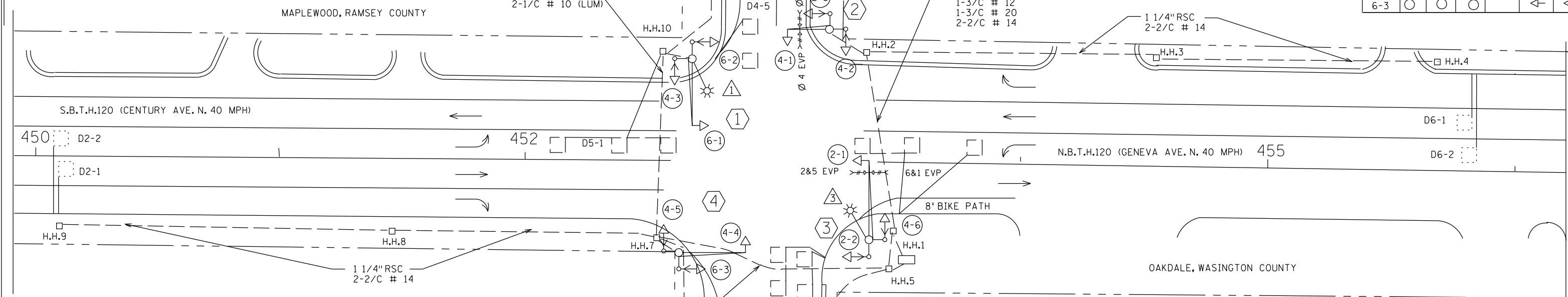
3" RSC  
 2-12/C # 12  
 1-3/C # 12  
 3-2/C # 14  
 2-1/C # 10 (LUM)

2

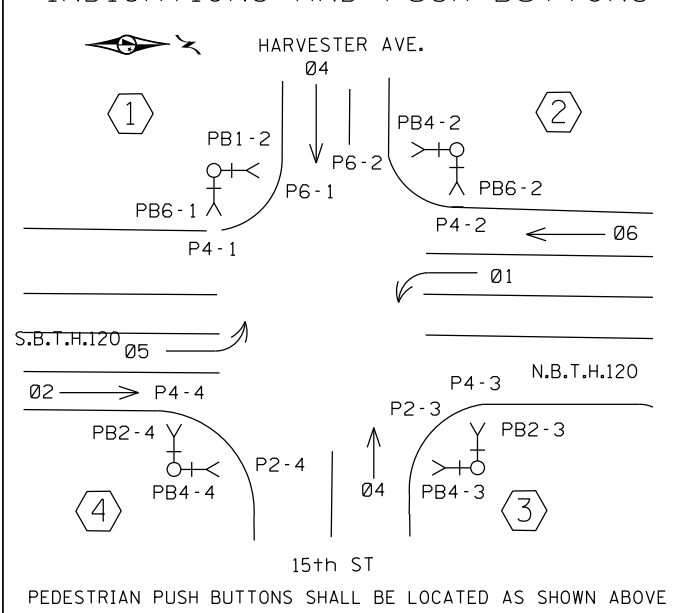
TYPE P90-A-15  
 P90 POLE FOUNDATION  
 ONE WAY SIGNAL OVERHEAD  
 TWO WAY EVP DETECTORS AND LIGHTS (4)  
 2-TYPE 10B AT 90 & 180 DEG  
 2-PED PBS & SIGNS  
 EXTEND INTO HH2:  
 3" RSC  
 2-12/C # 12  
 1-3/C # 12  
 1-3/C # 20



SIGNAL HEAD CHART						
ALL SIGNAL INDICATIONS ARE 12"						
FACE	R LED	Y	G	RLTA	YLTA	GLTA
2-1	○	○	○		←	←
2-2	○	○	○			
2-3	○	○	○		←	←
4-1	○	○	○			
4-2	○	○	○			
4-3	○	○	○			
4-4	○	○	○			
4-5	○	○	○			
4-6	○	○	○			
6-1	○	○	○		←	←
6-2	○	○	○			
6-3	○	○	○		←	←



## CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



4

TYPE P90-A-25  
 P90 POLE FOUNDATION  
 ONE WAY SIGNAL OVERHEAD  
 2-TYPE 10B AT 90 & 180 DEG  
 2-PED PBS & SIGNS  
 EXTEND INTO HH7  
 3" RSC  
 2-12/C # 12  
 1-3/C # 12

4" RSC  
 4-12/C # 12  
 2-3/C # 12  
 5-2/C # 14  
 2-1/C # 4  
 1-1/C # 6 BR GR  
 2-1/C # 10 (LUM)

A

SOP ON WOOD POLE  
 1 1/4" RSC RISER AND WEATHERHEAD  
 3-1/C # 4  
 SERVICE EQUIPMENT  
 1 1/4" RSC RISER, EXTEND INTO HH7:  
 2-1/C # 4  
 1-1/C # 6 BR GR.  
 4-1/C # 10 (LUM)

B

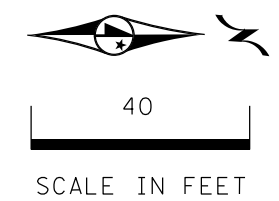
EQUIPMENT PAD  
 1" RSC STUB OUT-CAP BOTH ENDS  
 EXTEND INTO HH1:  
 4" RSC  
 4-12/C # 12  
 2-3/C # 12  
 2-3/C # 20  
 3-2/C # 14  
 EXTEND INTO HH5:  
 4" RSC  
 4-12/C # 12  
 2-3/C # 12  
 8-2/C # 14  
 2" IMC  
 2-1/C # 4  
 1-1/C # 6 BR GR  
 BETWEEN HH1 AND HH5:  
 2" IMC.  
 2-1/C # 10 (LUM)

3

TYPE P90-A-30-D40-9 (DAVIT AT 350 DEG)  
 P90 POLE FOUNDATION  
 ONE WAY SIGNAL OVERHEAD  
 TWO WAY EVP DETECTORS AND LIGHTS (2&5,6&1)  
 2-TYPE 10B AT 90 & 180 DEG  
 LUMINAIRE 200 WATT HPS W/PEC & TEST SW  
 R10-12 SIGN (ADJACENT TO HEAD 2-1)  
 2-PED PBS & SIGNS  
 EXTEND INTO HH1:  
 3" RSC  
 2-12/C # 12  
 1-3/C # 12  
 1-3/C # 20  
 2-1/C # 10 (LUM)

## SIGNAL SYSTEM OPERATION

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



BY	DATE	REVISIONS
EJA	05-29-15	PLAN UPDATES

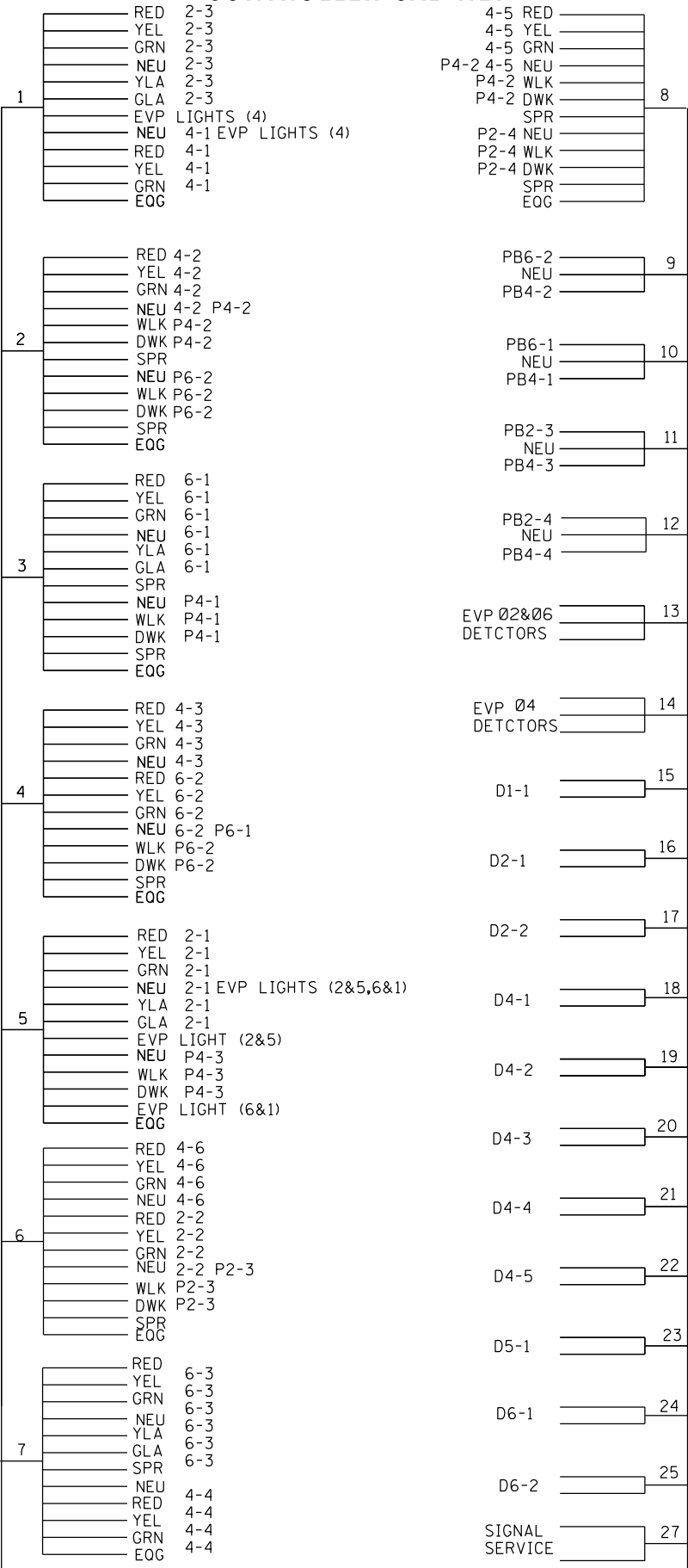
SYSTEM ID: 21436 T.E.  
 METER ADDRESS: 1501 GENEVA AVE N  
 MASTER ID: T.E.

INTERSECTION LAYOUT  
 TH 120 AT HARVESTER AVE/15TH ST  
 IN MAPLEWOOD, RAMSEY COUNTY &  
 OAKDALE, WASHINGTON COUNTY

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY: _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO. _____	(T.H.120) SHEET NO. _____	1 OF _____	2 SHEETS

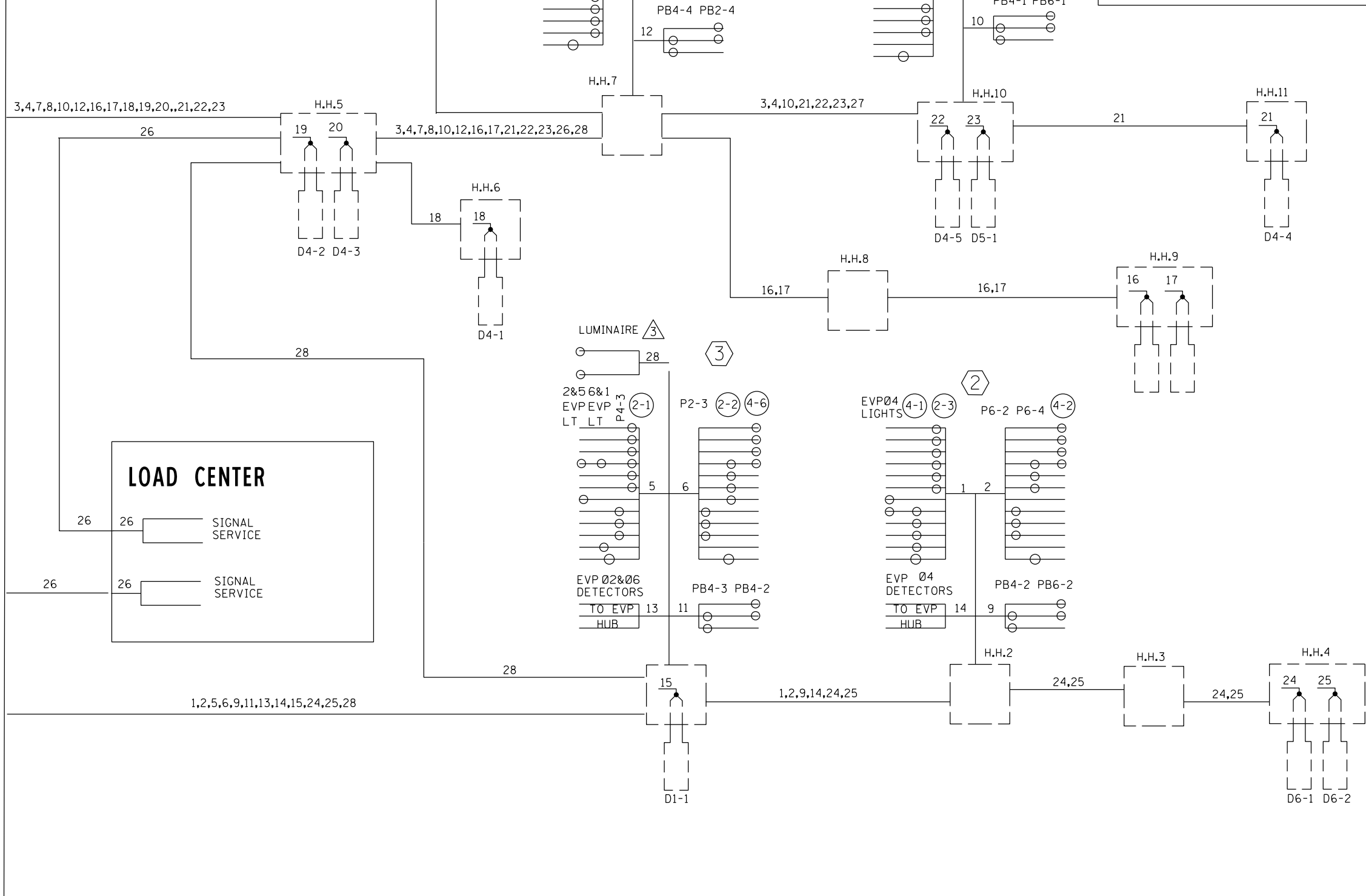
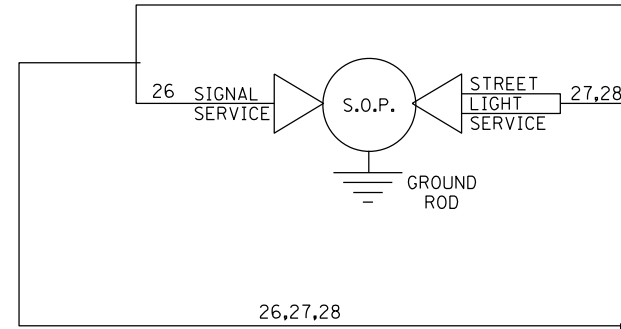
DISTRICT #: \$@DISTRICT@  
 IPLOT NAME: \$@IPLLOT\$NAME@  
 PATH & FILENAME: \$\$\$@PATH\$FILENAME\$\$\$

# CONTROLLER CABINET



PLOTTED/REVISED: \$\$\$@DATE@\$\$\$

DISTRICT #: \$\$\$@DISTRICT@\$\$  
 IPLOT NAME: \$\$\$@PLOT\$NAME@\$\$  
 PATH & FILENAME: \$\$\$@PATH\$FILENAME@\$\$\$



12/C#12	R	R	
	0	0	
	BL	BL	5/C#12
	WH	WH	
	R/BLK		
	O/BLK		
	BL/BLK		
	WH/BLK	R	
	BLK	WH	3/C#12
	BLK/WH	BLK	
	G/BLK	R OR 0	
	G	WH OR YEL	3/C#20
		BLK OR BL	
2-1/C#6	BLK	BLK	2/C#14
	WH	CLEAR	

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

BY	DATE	REVISIONS
EJA	05-29-15	PLAN UPDATES

SYSTEM ID: 21436 T.E.  
 METER ADDRESS: 1501 GENEVA AVE N  
 MASTER ID: T.E.

WIRING DIAGRAM  
 TH 120 AT HARVESTER AVE/15TH ST  
 IN MAPLEWOOD, RAMSEY COUNTY &  
 OAKDALE, WASHINGTON COUNTY

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY: _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO. _____	(T.H.120) SHEET NO. 2 OF 2 SHEETS		