

PLOTTED/REVISED: 10-APR-2023

PLOT NAME: 03 of 10
FILENAME: Projects\DM_PROS\005\0000\Traffic\Signals\75.0 TH5 @ (34)E MINNEHAHA AVE-STILLWATER\68\MCKNIGHT 1734978\PEPENDING\1734978.dwg

LOOP DETECTOR CHART			
NUMBER	SIZE (FT)	TYPE	LOCATION
D1-1	MULTIPLE	PVC	5'
D2-1,D2-2,D2-3	6'X6'	SAWCUT	180'
D3-1	2-6'X6'	SAWCUT	5'x20'
D4-1	6'X6'	SAWCUT	180'
D4-2	6'X20'	SAWCUT	5'
D5-1	MULTIPLE	PVC	5'
D6-1,D6-2	6'X6'	PVC	375'
D6-3	6'X6'	PVC	180'
D7-1,D7-2	2-6'X6'	PVC	5'x20'
D8-1	6'X6'	PVC	200'
D8-2	6'X6'	PVC	180'
D8-3	6'X6'	SAWCUT	5'x20'

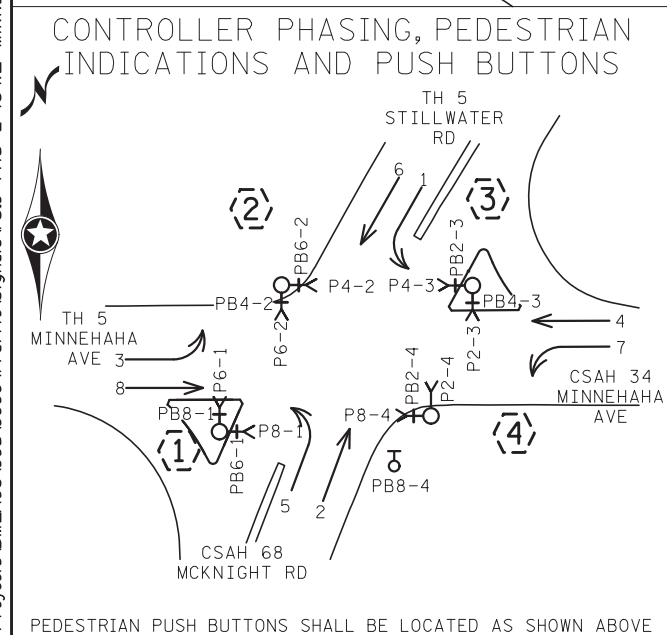
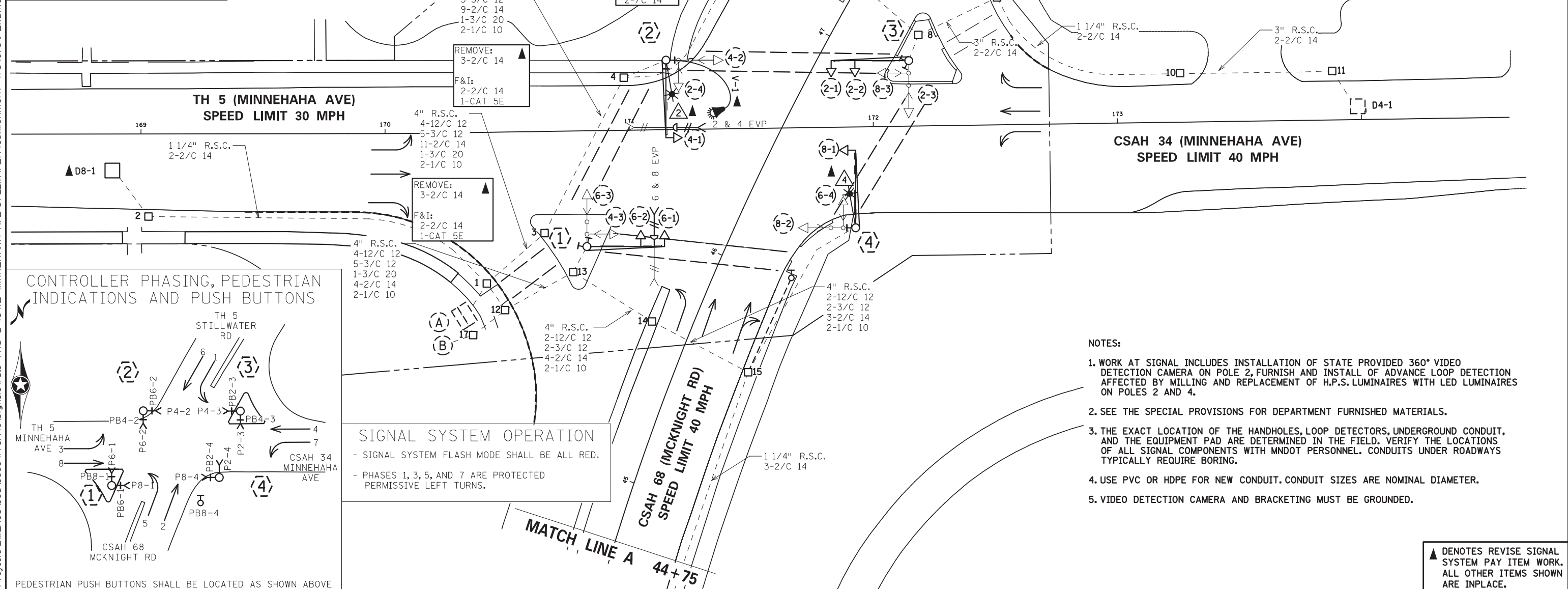
ABANDON
IN PLACE
ABANDON
IN PLACE
ABANDON
ABANDON
FURNISH AND INSTALL ▲
ABANDON
ABANDON
FURNISH AND INSTALL ▲
ABANDON
ABANDON

SIGNAL HEAD CHART					
FACE	R	Y	G	Y	G
2-1, 2-4	○	○	○	◁	◁
2-2, 2-3	○	○	○		
4-1, 4-3	○	○	○	◁	◁
4-2	○	○	○		
6-1	○	○	○	◁	◁
6-2, 6-3	○	○	○		
8-1, 8-3	○	○	○	◁	◁
8-2	○	○	○		

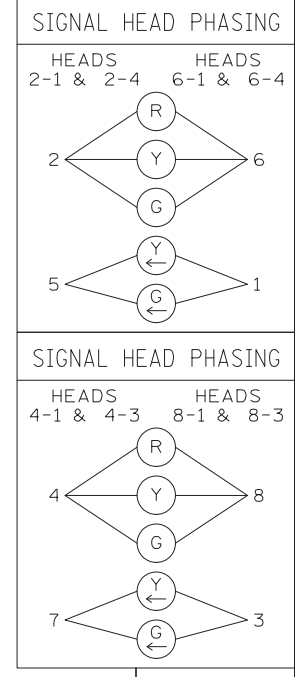
-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

VIDEO DETECTION				
CAMERA	LOCATION		PHASE	
NO.	TYPE	POLE	MOUNT LOC.	
V-1	360 DEG.	2	LUM EXTENSION	ALL

- VIDEO DETECTION CAMERAS AND MOUNTING HARDWARE ARE STATE FURNISHED.



SIGNAL SYSTEM OPERATION
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- PHASES 1, 3, 5, AND 7 ARE PROTECTED PERMISSIVE LEFT TURNS.



- NOTES:**
1. WORK AT SIGNAL INCLUDES INSTALLATION OF STATE PROVIDED 360° VIDEO DETECTION CAMERA ON POLE 2, FURNISH AND INSTALL OF ADVANCE LOOP DETECTION AFFECTED BY MILLING AND REPLACEMENT OF H.P.S. LUMINAIRES WITH LED LUMINAIRES ON POLES 2 AND 4.
 2. SEE THE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.
 3. THE EXACT LOCATION OF THE HANDHOLES, LOOP DETECTORS, UNDERGROUND CONDUIT, AND THE EQUIPMENT PAD ARE DETERMINED IN THE FIELD. VERIFY THE LOCATIONS OF ALL SIGNAL COMPONENTS WITH MNDOT PERSONNEL. CONDUITS UNDER ROADWAYS TYPICALLY REQUIRE BORING.
 4. USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
 5. VIDEO DETECTION CAMERA AND BRACKETING MUST BE GROUNDED.

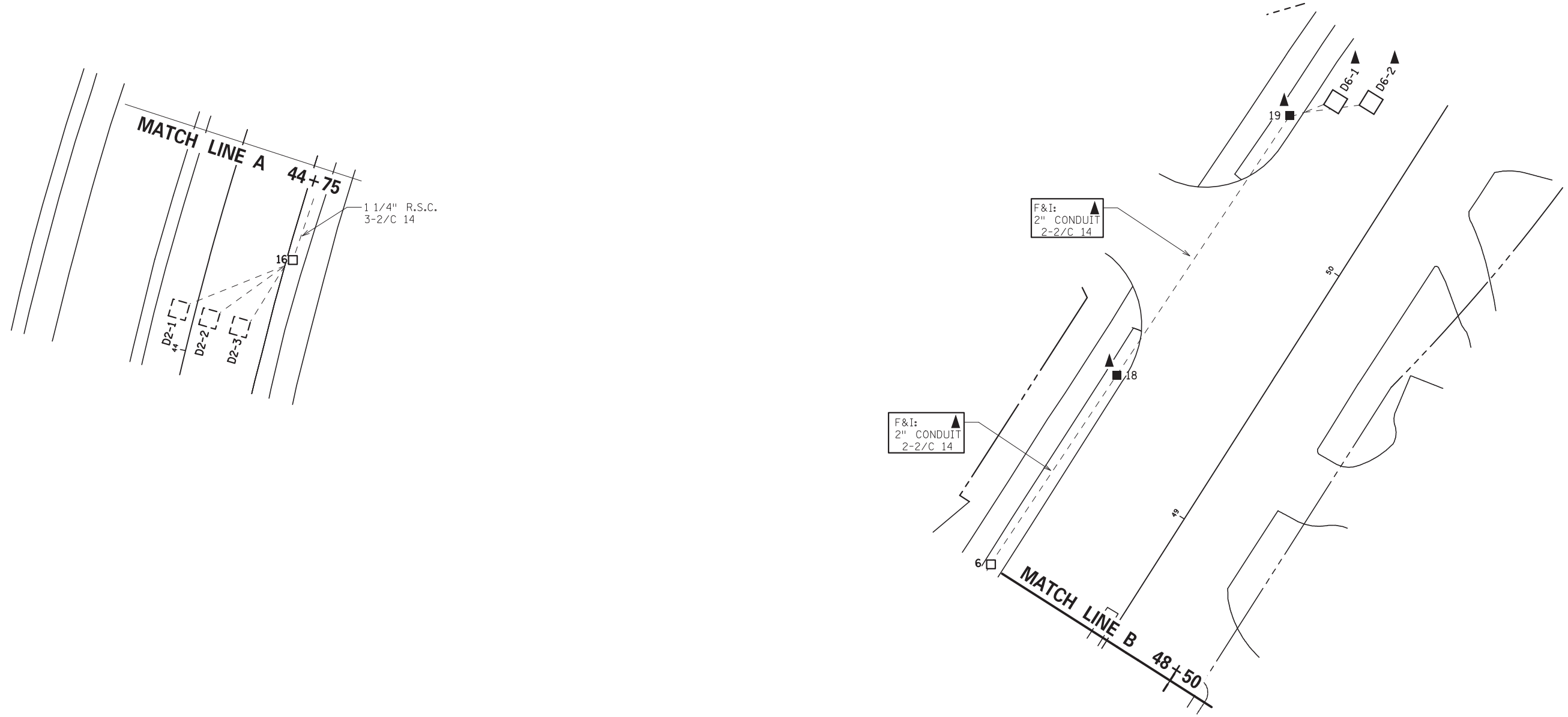
▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE IN PLACE.

BY	DATE	REVISIONS	SYSTEM ID: 1734978	T.E. 79795	S.A.P. 062-665-062,164-010-082 S.P. 062-664-009,164-010-075	DRAWN BY: MJB	CKD BY:	DATE: 12/14/22
			METER ADDRESS: 715 MCKNIGHT RD. N.		CERTIFIED BY: <i>Gregory Kern</i>	LIC. NO. 26829	DATE: 12/14/22	
			OLD SYSTEM ID: 20120		STATE PROJ. NO. 6229-37 (T.H.5) SHEET NO. SG3 OF SG10 SHEETS			

INTERSECTION LAYOUT
REVISE SIGNAL SYSTEM A
TH 5 (MINNEHAHA AVE)/STILLWATER RD) AT
CSAH 34 (MINNEHAHA AVE)/CSAH 68 (MCKNIGHT RD)
IN MAPLEWOOD, RAMSEY COUNTY

PLOTTED/REVISED: 10-APR-2023

IPLOT NAME: 04 of 10
 FILENAME: Projects\DM_FRO\005\0000\Traffic\Signal\75.0 TH5 @ (34)E MINNEHAHA AVE-STILLWATER\68\MCKNIGHT 1734978\PEPENDING\1734978.sgl



▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

BY	DATE	REVISIONS

SYSTEM ID: 1734978 T.E. 79795
 METER ADDRESS: 715 MCKNIGHT RD. N.
 OLD SYSTEM ID: 20120

MATCHLINES
 REVISE SIGNAL SYSTEM A
 TH 5 (MINNEHAHA AVE/STILLWATER RD) AT
 CSAH 34 (MINNEHAHA AVE)/CSAH 68 (MCKNIGHT RD)
 IN MAPLEWOOD, RAMSEY COUNTY

S.A.P. 062-665-062,164-010-082 S.P. 062-664-009,164-010-075 DRAWN BY: MJB CKD BY: DATE: 12/09/22
 CERTIFIED BY: *Gregory Ken* LIC. NO. 26829 DATE: 12/14/22
 STATE PROJ. NO. 6229-37 (T.H.5) SHEET NO. SG4 OF SG10 SHEETS

PLOTTED/REVISED: 10-APR-2023

I/PLOT NAME: 05 of 10
 FILENAME: Projects\DM_FRO5\005\0000\Traffic\Signals\750 TH5 @ (34)E MINNEHAHA AVE-STILLWATER\68\MCKNIGHT 1734978\PEPENDING\1734978.sgl

(2)
 TYPE P90-A-30-D40-9 (DAVIT AT 350°)
 P90 POLE FOUNDATION
 ONE WAY SIGNAL-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 LUMINAIRE-200 WATT H.P.S.
 2 PEDESTRIAN PUSH BUTTONS AND SIGNS
 R10-12 SIGN (36"X48")
 TWO WAY EVP DETECTOR AND LIGHTS
 EXTEND INTO H.H. 4
 3" I.M.C.
 2-12/C 12
 4-3/C 12
 1-3/C 20
 2-1/C 10

REMOVE:
 LUMINAIRE-200 WATT H.P.S. ▲

FURNISH AND INSTALL:
 LED LUMINAIRE
 1-CAT 5E IN 3" I.M.C.
 1-7/16" GROUNDING BRAID

INSTALL:
 1-GRIDSMArt CAMERA W/ EXTENSION ABOVE
 LUMINAIRE (V-1) (STATE FURNISHED)

(3)
 TYPE P90-A-30
 P90 POLE FOUNDATION
 2 ONE WAY SIGNALS-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 R10-12 SIGN (36"X48")
 EXTEND INTO H.H. 8
 3" I.M.C.
 2-12/C 12
 2-3/C 12
 1-3/C 12
 1-2/C 14

(1)
 TYPE P90-A-30
 P90 POLE FOUNDATION
 2 ONE WAY SIGNALS-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 TWO WAY EVP DETECTOR AND LIGHTS
 R10-12 SIGN (36"X48")
 3" I.M.C.
 2-12/C 12
 5-3/C 12
 1-3/C 20

(4)
 TYPE P90-A-30-D40-9 (DAVIT AT 350°)
 P90 POLE FOUNDATION
 ONE WAY SIGNAL-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 LUMINAIRE 200 WATT H.P.S.
 2-PEDESTRIAN INDICATIONS ON TYPE 20C
 1-PEDESTRIAN PUSH BUTTON AND SIGN
 R10-12 SIGN (36"X48")
 EXTEND INTO H.H. 15
 3" I.M.C.
 2-12/C 12
 2-3/C 12
 2-1/C 10

REMOVE:
 LUMINAIRE 200 WATT H.P.S. ▲

FURNISH AND INSTALL:
 LED LUMINAIRE

(A)
 CONTROLLER AND CABINET
 CABINET FOUNDATION
 EXTEND INTO H.H. 1
 4" I.M.C.
 4-12/C 12
 5-3/C 12
 1-3/C 20
 13-2/C 14

REMOVE:
 3-2/C 14 ▲

F&I:
 2-2/C 14
 1-CAT 5E (VID DET)

EXTEND INTO H.H. 12
 4" I.M.C.
 4-12/C 12
 5-3/C 12
 1-3/C 20
 4-2/C 14

EXTEND INTO H.H. 17
 2" R.S.C.
 2-1/C#6
 1-1/C#6 BR.GR.

1" R.S.C.
 STUB OUT (CAP BOTH ENDS)

BETWEEN H.H. 1 AND H.H. 12
 2" R.S.C.
 2-1/C#10

BETWEEN H.H. 12 AND H.H. 17
 2" R.S.C.
 4-1/C#10

(B)
 45' WOOD POLE
 SERVICE EQUIPMENT
 EXTEND INTO H.H. 17
 2" R.S.C.
 2-1/C#6
 1-1/C#6 BR.GR.
 4-1/C#10

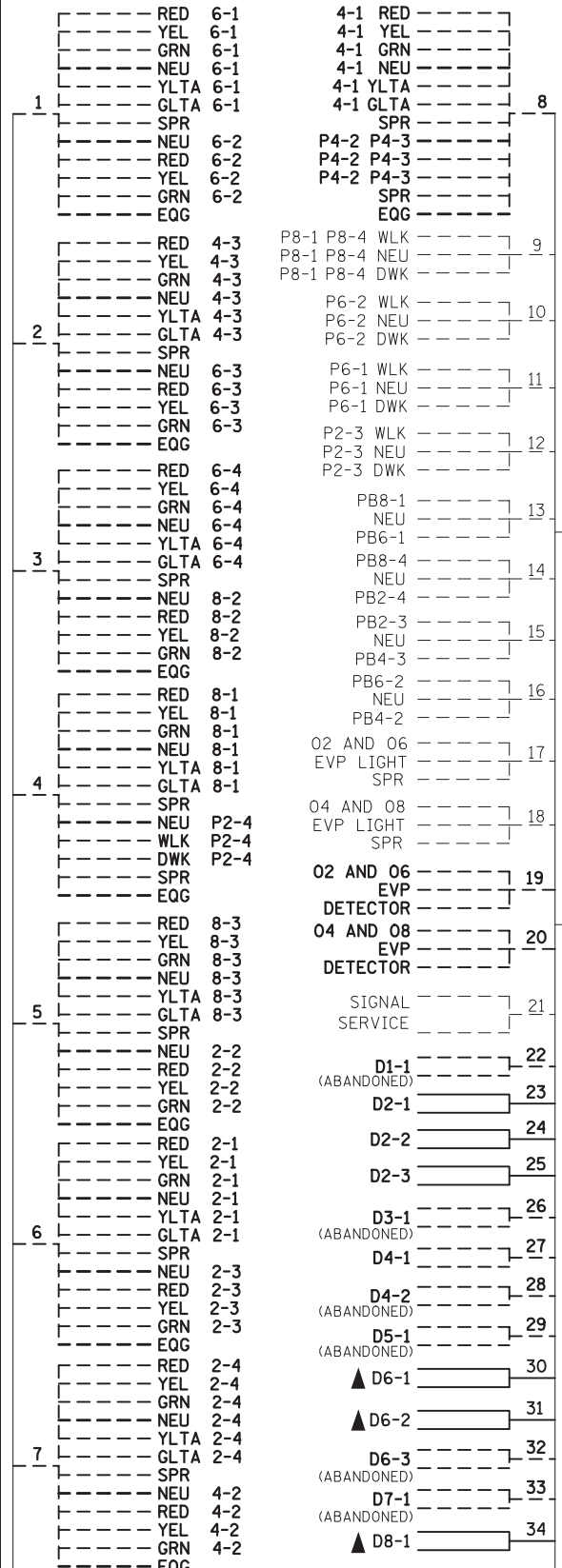
▲ DENOTES REVISE SIGNAL
 SYSTEM PAY ITEM WORK.
 ALL OTHER ITEMS SHOWN
 ARE INPLACE.

BY	DATE	REVISIONS	SYSTEM ID: 1734978	T.E. 79795	POLE NOTES	S.A.P. 062-665-062,164-010-082 S.P. 062-664-009,164-010-075	DRAWN BY: MJB	CKD BY:	DATE: 12/02/22
			METER ADDRESS: 715 MCKNIGHT RD. N.		REVISE SIGNAL SYSTEM A				
			OLD SYSTEM ID: 20120		TH 5 (MINNEHAHA AVE/STILLWATER RD) AT				
					CSAH 34 (MINNEHAHA AVE)/CSAH 68 (MCKNIGHT RD)				
					IN MAPLEWOOD, RAMSEY COUNTY				
						CERTIFIED BY <i>Gregory Kern</i>	LIC. NO. 26829	DATE: 12/14/22	
						STATE PROJ.NO. 6229-37 (T.H.5)	SHEET NO. SG5 OF SG10 SHEETS		

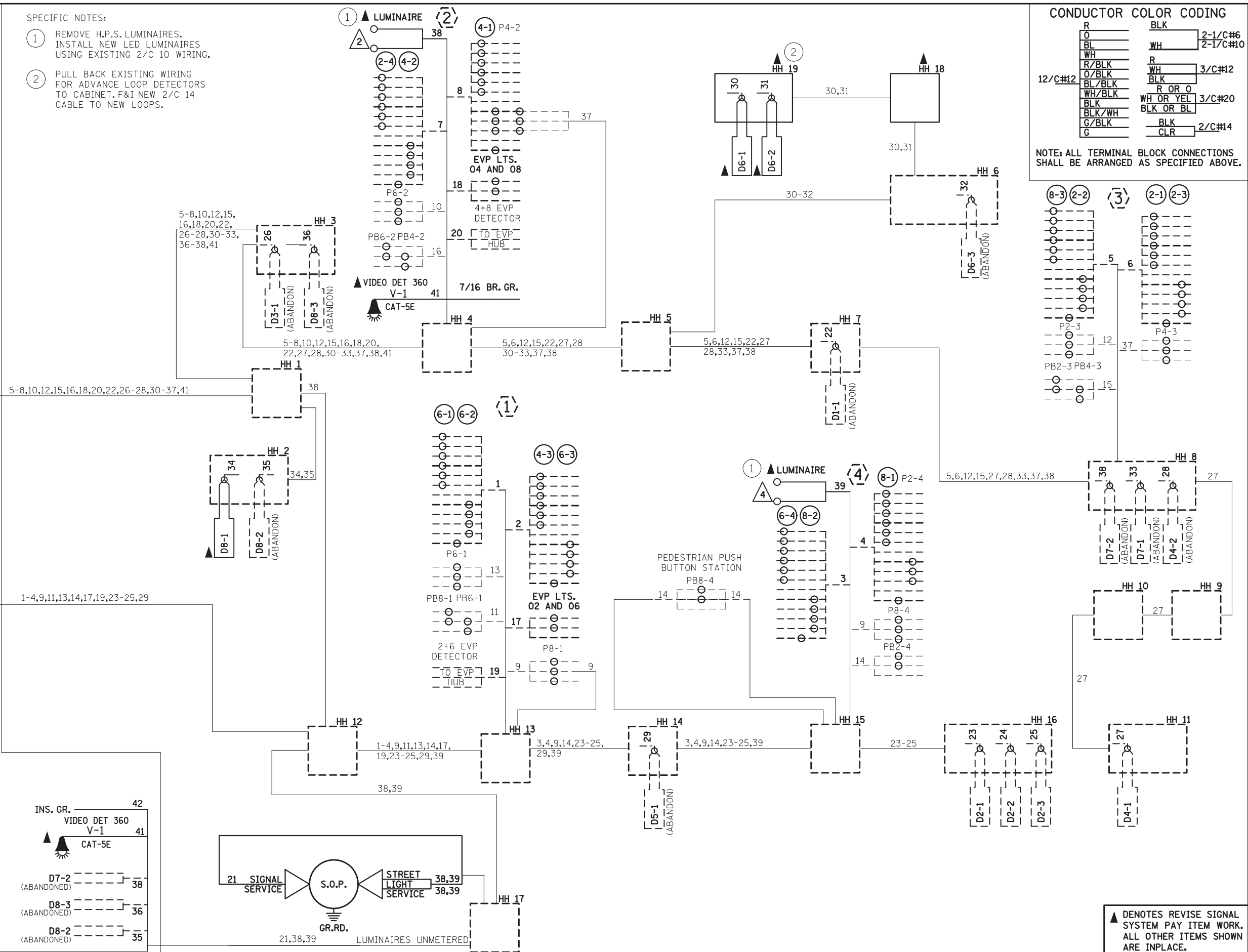
CONTROLLER CABINET

PLOTTED/REVISED: 10-APR-2023

I/PLOT NAME: 06 of 10
 FILENAME: Projects\DM_FOS\005\0000\Traffic\Signals\75.0 TH5 @ (34)E MINNEHAHA AVE-STILLWATER\68\MCKNIGHT 1734978\REVISED\1734978.PENDING\1734978.dwg



- SPECIFIC NOTES:
- ① REMOVE H.P.S. LUMINAIRES. INSTALL NEW LED LUMINAIRES USING EXISTING 2/C 10 WIRING.
 - ② PULL BACK EXISTING WIRING FOR ADVANCE LOOP DETECTORS TO CABINET. F&I NEW 2/C 14 CABLE TO NEW LOOPS.



CONDUCTOR COLOR CODING

R	BLK	
0	WH	2-1/C#6
BL	BLK	2-1/C#10
WH	R	
R/BLK	WH	3/C#12
O/BLK	BLK	
BL/BLK	R OR O	
WH/BLK	WH OR YEL	3/C#20
BLK	BLK OR BL	
BLK/WH	BLK	
G/BLK	CLR	2/C#14

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

BY	DATE	REVISIONS

SYSTEM ID: 1734978 T.E. 79795
 METER ADDRESS: 715 MCKNIGHT RD. N.
 OLD SYSTEM ID: 20120

WIRING DIAGRAM (1 OF 1)
 REVISE SIGNAL SYSTEM A
 TH 5 (MINNEHAHA AVE/STILLWATER RD) AT
 CSAH 34 (MINNEHAHA AVE)/CSAH 68 (MCKNIGHT RD)
 IN MAPLEWOOD, RAMSEY COUNTY

S.A.P. 062-665-062,164-010-082 S.P. 062-664-009,164-010-075
 DRAWN BY: MJB CKD BY: DATE: 12/14/22
 CERTIFIED BY: *Gregory Ken* LIC. NO. 26829 DATE: 12/14/22
 STATE PROJ. NO. 6229-37 (T.H.5) SHEET NO. SG6 OF SG10 SHEETS

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

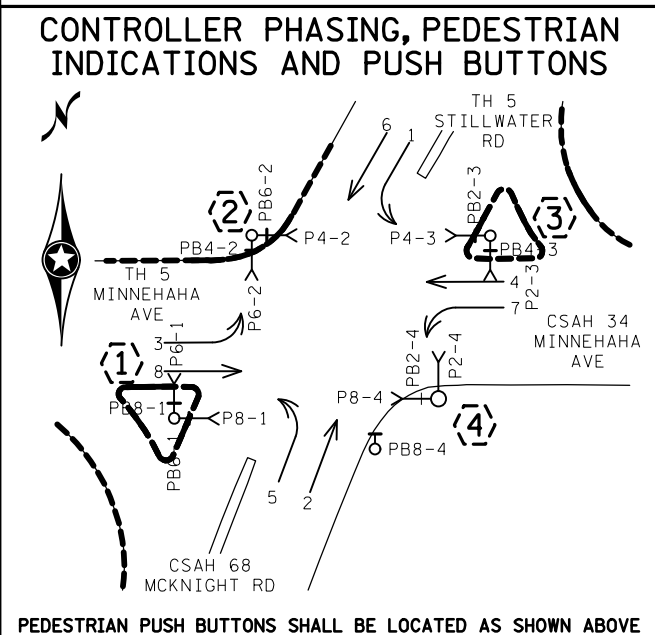
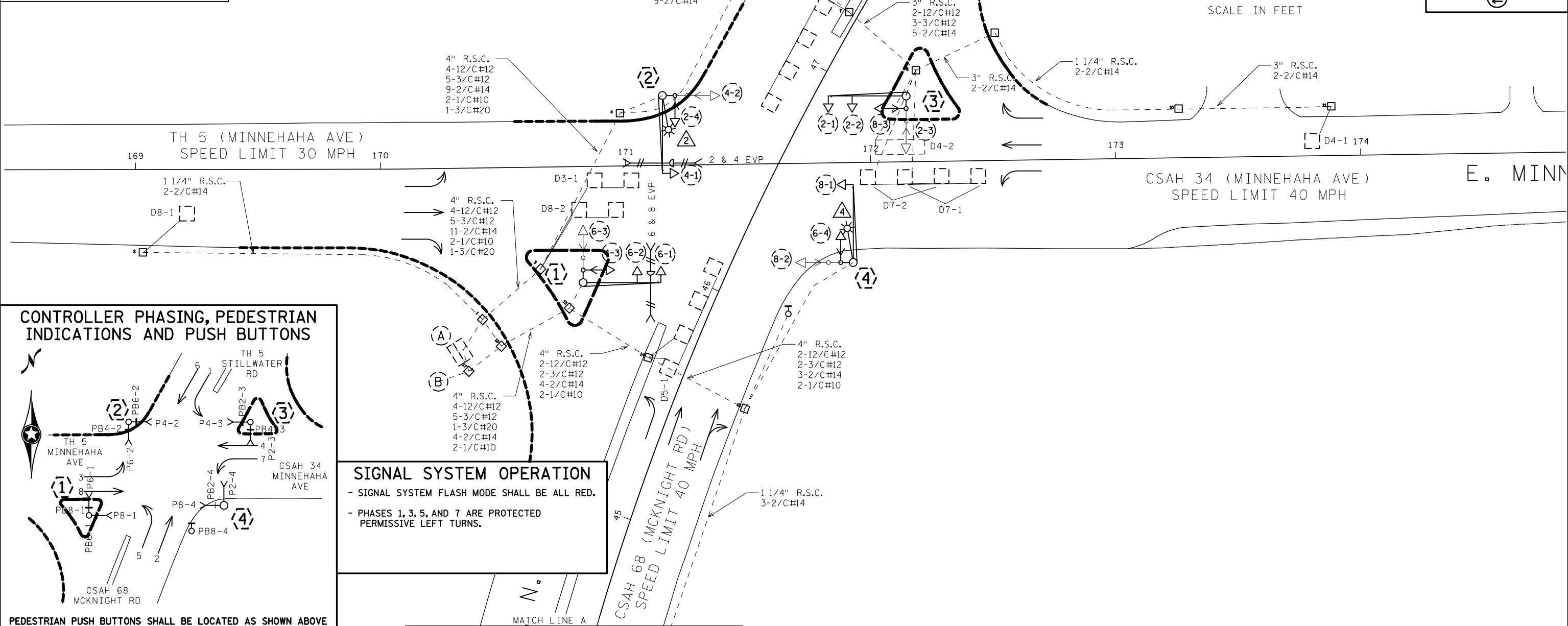
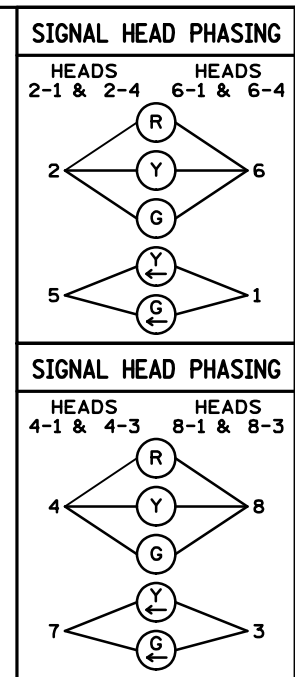
PLOTTED/REVISED: 7-JAN-2022

DISTRICT *: Metro
 PLOT NAME: E2Dseed
 FILENAME: Projects\DM_FOS\005\0000\Traffic\Signals\75.0 TH5 @ (34)E MINNEHAHA AVE-STILLWATER\68\MCKNIGHT 1734978\PEPENDING\E2Dseed.dgn

LOOP DETECTOR CHART			
NUMBER	SIZE (FT)	TYPE	LOCATION
D1-1	MULTIPLE	PVC	5'
D2-1	6' X 6'	SAWCUT	180'
D2-2	6' X 6'	SAWCUT	180'
D2-3	6' X 6'	SAWCUT	180'
D3-1	2-6' X 6'	SAWCUT	5'&20'
D4-1	6' X 6'	SAWCUT	180'
D4-2	6' X 20'	SAWCUT	5'
D4-3	6' X 6'	SAWCUT	180'
D5-1	MULTIPLE	PVC	5'
D6-1	6' X 6'	PVC	180'
D6-2	6' X 6'	PVC	180'
D6-3	6' X 6'	PVC	180'
D7-1	2-6' X 6'	PVC	20'&50'
D7-2	2-6' X 6'	PVC	5'&35'
D8-1	6' X 6'	SAWCUT	180'
D8-2	6' X 6'	SAWCUT	180'
D8-3	2-6' X 6'	SAWCUT	5'&20'

SIGNAL HEAD CHART					
FACE	R	Y	G	Y	G
2-1, 2-4	○	○	○	◀	◀
2-2, 2-3	○	○	○		
4-1, 4-3	○	○	○	◀	◀
4-2	○	○	○		
6-1	○	○	○	◀	◀
6-2, 6-3	○	○	○		
8-1, 8-3	○	○	○	◀	◀
8-2	○	○	○		

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



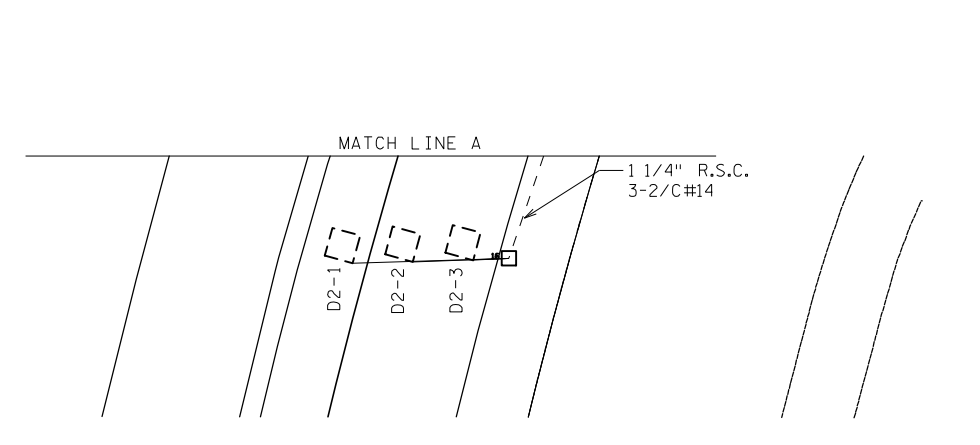
SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- PHASES 1, 3, 5, AND 7 ARE PROTECTED PERMISSIVE LEFT TURNS.

BY: MJB	DATE: 1/4/22	REVISIONS: SP 8825-427 AS BUILT PLAN	SYSTEM ID: 1734978	T.E.	S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
			METER ADDRESS: 715 MCKNIGHT RD. N.		CERTIFIED BY: _____	LIC. NO. _____	DATE: _____	
			OLD SYSTEM ID: 20120		STATE PROJ. NO. 8825-427 (T.H.5) SHEET NO. 1 OF 3 SHEETS			

PLOTTED/REVISED: 7-JAN-2022

DISTRICT *: Metro
 PLOT NAME: E2Dseed
 FILENAME: Projects\DM_FRO5\005\0000\Traffic\Signals\75.0 TH5 @ (34)E MINNEHAHA AVE-STILLWATER\68\MCKNIGHT 1734978\PEPENDING\E2Dseed.dgn



(A)
 CONTROLLER AND CABINET
 CABINET FOUNDATION
 EXTEND INTO H.H. 1
 4" I.M.C.
 4-12/C#12
 5-3/C#12
 1-3/C#20
 13-2/C#14

EXTEND INTO H.H. 12
 4" I.M.C.
 4-12/C#12
 5-3/C#12
 1-3/C#20
 4-2/C#14

EXTEND INTO H.H. 17
 2" R.S.C.
 2-1/C#6
 1-1/C#6 BR.GR.

1" R.S.C.
 STUB OUT (CAP BOTH ENDS)

BETWEEN H.H. 1 AND H.H. 12
 2" R.S.C.
 2-1/C#10

BETWEEN H.H. 12 AND H.H. 17
 2" R.S.C.
 4-1/C#10

(B)
 45' WOOD POLE
 SERVICE EQUIPMENT
 EXTEND INTO H.H. 17
 2" R.S.C.
 2-1/C#6
 1-1/C#6 BR.GR.
 4-1/C#10

(2)
 TYPE P90-A-30-D40-9 (DAVIT AT 350°)
 P90 POLE FOUNDATION
 ONE WAY SIGNAL-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 LUMINAIRE-200 WATT H.P.S.
 2 PEDESTRIAN PUSH BUTTONS AND SIGNS
 R10-12 SIGN (36" X48")
 TWO WAY EVP DETECTOR AND LIGHTS
 EXTEND INTO H.H. 4
 3" I.M.C.
 2-12/C#12
 4-3/C#12
 1-3/C#20
 2-1/C#10

(3)
 TYPE P90-A-30
 P90 POLE FOUNDATION
 2 ONE WAY SIGNALS-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 R10-12 SIGN (36" X48")
 EXTEND INTO H.H. 8
 3" I.M.C.
 2-12/C#12
 3-3/C#12

(1)
 TYPE P90-A-30
 P90 POLE FOUNDATION
 2 ONE WAY SIGNALS-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 TWO WAY EVP DETECTOR AND LIGHTS
 R10-12 SIGN (36" X48")
 3" I.M.C.
 2-12/C#12
 5-3/C#12
 1-3/C#20

(4)
 TYPE P90-A-30-D40-9 (DAVIT AT 350°)
 P90 POLE FOUNDATION
 ONE WAY SIGNAL-OVERHEAD
 TYPE 20C-POLE MOUNTED-270°
 LUMINAIRE 200 WATT H.P.S.
 1-PEDESTRIAN PUSH BUTTON AND SIGN
 R10-12 SIGN (36" X48")
 EXTEND INTO H.H. 15
 3" I.M.C.
 2-12/C#12
 2-3/C#12
 2-1/C#10

PEDESTRIAN PUSH BUTTON STATION
 1-PEDESTRIAN PUSH BUTTON AND SIGN
 EXTEND INTO H.H. 15
 1 1/4" R.S.C.
 2-3/C#12

BY	DATE	REVISIONS
MJB	1/6/22	SP 8825-427 AS BUILT PLAN

SYSTEM ID: 1734978 T.E.
 METER ADDRESS: 715 MCKNIGHT RD. N.
 OLD SYSTEM ID: 20120

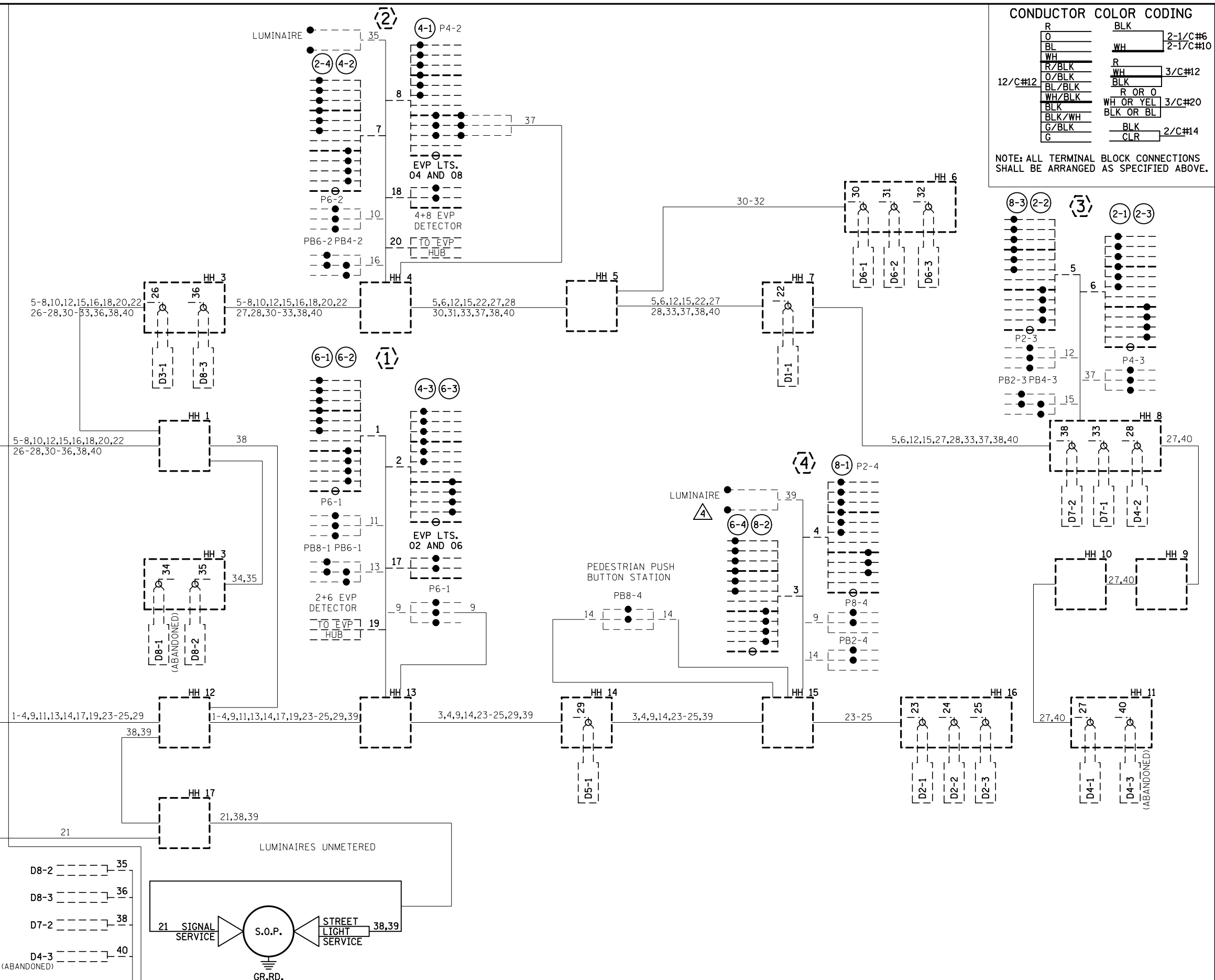
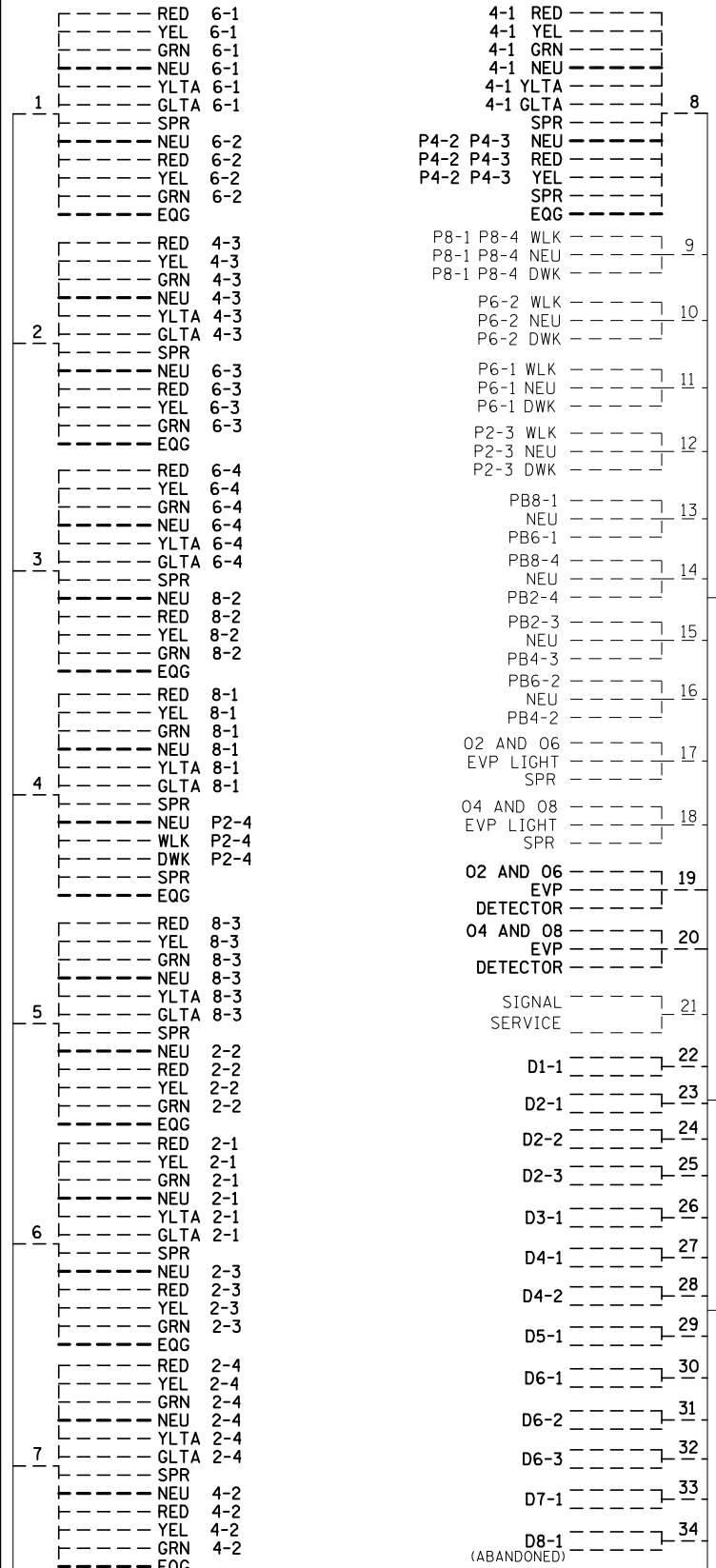
MATCH LINE LAYOUT / INTERSECTION NOTES
TH 5 (MINNEHAHA AVE) AT
CSAH 68 (MCKNIGHT RD)/STILLWATER RD
IN MAPLEWOOD, RAMSEY COUNTY

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO. 8825-427 (T.H.5)		SHEET NO. 2 OF 3 SHEETS	

CONTROLLER CABINET

PLOTTED/REVISED: 7-JAN-2022

DISTRICT *: Metro
 IPLOT NAME: E2Dseed
 FILENAME: Projects\DM_PROS\005\0000\Traffic\Signals\TH5 @ (34)E MINNEHAHA AVE-STILLWATER\68\MCKNIGHT 1734978\PENDING\E2Dseed.dgn



CONDUCTOR COLOR CODING

R	BLK	
0	WH	2-1/C#6
BL		2-1/C#10
WH	R	
R/BLK	WH	3/C#12
0/BLK	BLK	
BL/BLK	R OR O	
WH/BLK	WH OR YEL	3/C#20
BLK	BLK OR BL	
G/BLK	BLK	2/C#14
G	CLR	

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

BY	DATE	REVISIONS
MJB	1/7/22	SP 8825-427 AS BUILT PLAN

SYSTEM ID: 1734978 T.E.
 METER ADDRESS: 715 MCKNIGHT RD. N.
 OLD SYSTEM ID: 20120

WIRING DIAGRAM
 TH 5 (MINNEHAHA AVE) AT
 CSAH 68 (MCKNIGHT RD)/STILLWATER RD
 IN MAPLEWOOD, RAMSEY COUNTY

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY	LIC. NO.	DATE:	
STATE PROJ. NO. 8825-427 (T.H.5)		SHEET NO. 3 OF	3 SHEETS