

PLOTTED/REVISED: 8-JAN-2019

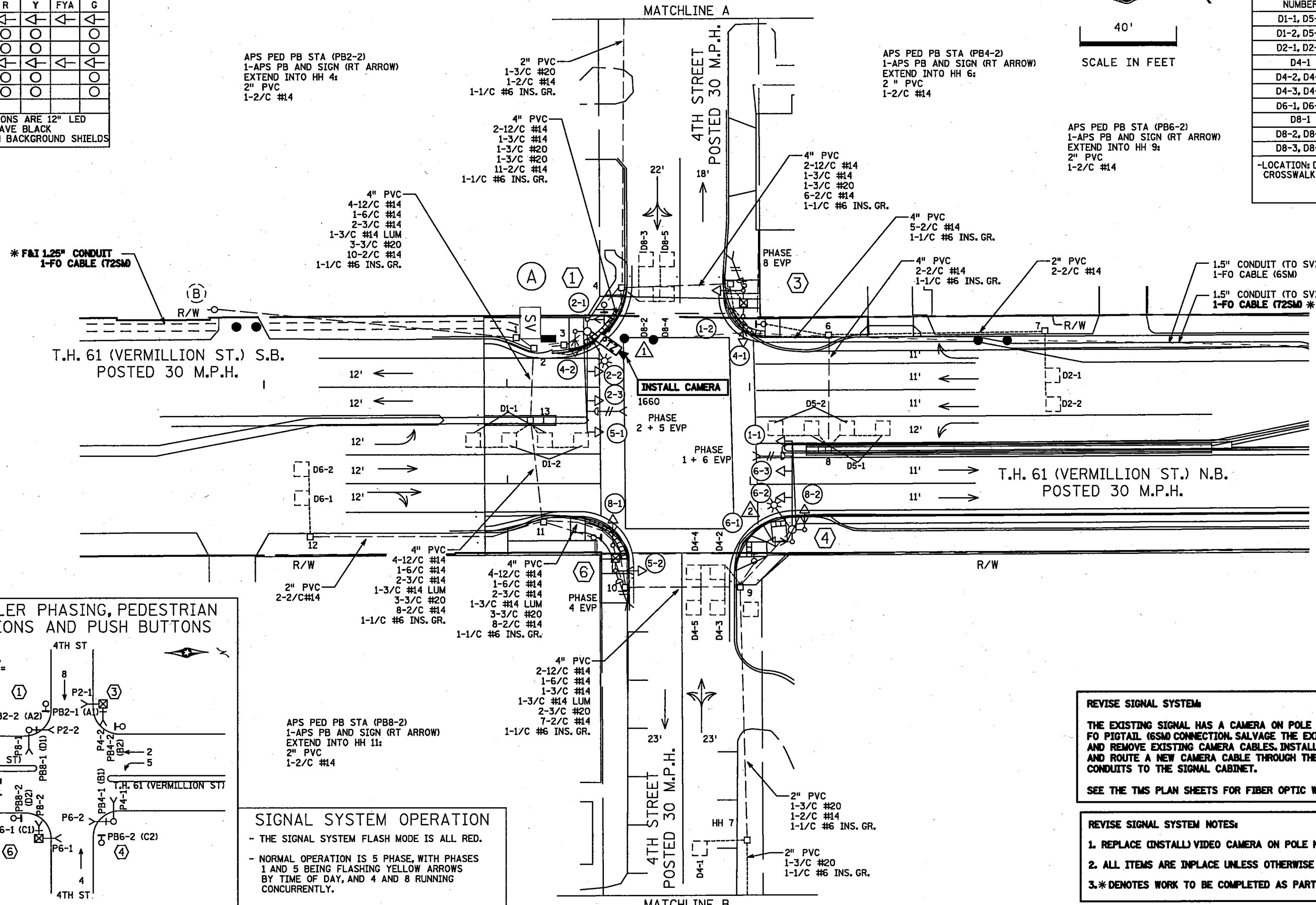
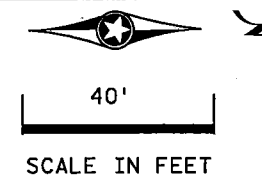
PLOT NAME: system j layout  
PATH & FILENAME: Projects\DM\_R05\06\0000\TrafficSignals\21004 4th SNT\21004\_sgl.dgn

SIGNAL HEAD CHART				
FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○	○	○
4-1, 4-2	○	○	○	○
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	○	○	○	○
8-1, 8-2	○	○	○	○

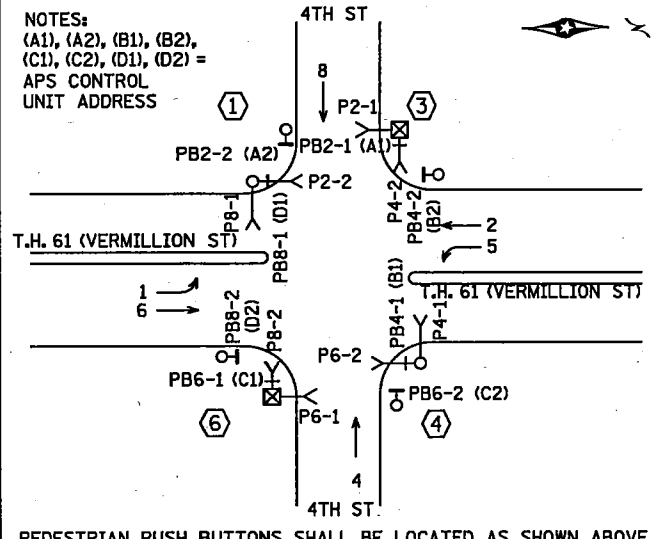
ALL SIGNAL INDICATIONS ARE 12" LED  
ALL SIGNAL HEADS HAVE BLACK POLYCARBONITE WITH BACKGROUND SHIELDS

PVC LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1, D5-1	2-6x6	20 & 50
D1-2, D5-2	2-6x6	5 & 35
D2-1, D2-2	1-6x6	120
D4-1	1-6x6	120
D4-2, D4-4	1-6x6	5
D4-3, D4-5	1-6x6	35
D6-1, D6-2	1-6x6	120
D8-1	1-6x6	125
D8-2, D8-4	1-6x6	5
D8-3, D8-5	1-6x6	35

-LOCATION; DISTANCE FROM CROSSWALK/STOP BAR IN FEET



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



**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE, WITH PHASES 1 AND 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY, AND 4 AND 8 RUNNING CONCURRENTLY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

**REVISE SIGNAL SYSTEM**

THE EXISTING SIGNAL HAS A CAMERA ON POLE NUMBER 1 AND A FO PIGTAIL (6SM) CONNECTION. SALVAGE THE EXISTING CAMERA AND REMOVE EXISTING CAMERA CABLES. INSTALL A NEW CAMERA AND ROUTE A NEW CAMERA CABLE THROUGH THE EXISTING CONDUITS TO THE SIGNAL CABINET.

SEE THE TMS PLAN SHEETS FOR FIBER OPTIC WORK NEAR THE SIGNAL.

**REVISE SIGNAL SYSTEM NOTES:**

1. REPLACE (INSTALL) VIDEO CAMERA ON POLE NO. 1 (STATE FURNISHED)
2. ALL ITEMS ARE IN PLACE UNLESS OTHERWISE NOTED.
3. \* DENOTES WORK TO BE COMPLETED AS PART OF THE TMS PLAN.

BY	DATE	REVISIONS

SYSTEM ID: 1735476 T.E.  
METER ADDRESS: 406 VERMILLION ST. N.  
OLD SYSTEM ID: 21004

**INTERSECTION LAYOUT  
REVISE SIGNAL SYSTEM J  
T.H. 61 AT 4TH STREET  
IN HASTINGS, DAKOTA COUNTY**

S.A.P. NO. \_\_\_\_\_ DRAWN BY: SJK CKD BY: COB DATE: 12/12/18  
CERTIFIED BY: *Michael P. Libinsky* LIC. NO. 19863 DATE: 01/08/19  
STATE PROJ. NO. 1910-50 (T.H.55) SHEET NO. SS33 OF SS35 SHEETS

PLOTTED/REVISED: 13-DEC-2018

I/PLOT NAME: system j pole notes match lines  
 PATH & FILENAME: Projects\DL\ROS\06\00000\Traffic\Signals\21004 4th ST\21004\_sgl.dgn

- ① PA90 POLE FOUNDATION  
 TYPE PA90-A-40-X6-350/CAM 400 (AT 350 DEG)  
 SALVAGE INSTALL — 1-VIDEO CAMERA WITH MOUNT  
 1-VIDEO CAMERA WITH MOUNT  
 1-LUMINAIRE-250W HPS  
 2-SWING AWAY HINGES  
 1-ANGLE MOUNT SIGNAL AT 0'  
 2-STRAIGHT MOUNT SIGNALS AT 11' AND 23'  
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)  
 1-TYPE D SIGN (D1) (SEE SIGN DETAIL)  
 1-TYPE R10-X12 (LT YIELD ON FYA)  
 LUMINAIRE-250W MH  
 1-APS PB AND SIGN (LT ARROW) PB8-1  
 3" PVC TO HH 3:  
 2-12/C #14  
 1-6/C #14  
 1-3/C #14  
 1-3/C #14 LUM  
 1-3/C #20  
 1-2/C #14  
 1-1/C #6 INS. GR.  
 1-7/16" GROUNDING BRAID TO GROUND ROD IN HH 3  
 REMOVE — 1-3/C #14 (CAMERA POWER)  
 1-COM CABLE  
 1-COAXIAL CABLE  
 F&I — 1-COM CABLE (CAT 5E)

- ② LIGHT POLE FOUNDATION  
 1-ONE WAY EVP DETECTOR (PHASE 8)  
 2" PVC TO HH 53:  
 1-3/C #20  
 1-1/C #6 INS. GR.

- ③ PEDESTAL POLE FOUNDATION  
 14 FT PEDESTAL POLE AND BASE  
 2-STRAIGHT MOUNT SIGNALS AT 90 AND 180 DEG  
 2-STRAIGHT MOUNT C.D. PED HEADS AT 90 AND 180 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8)  
 1-APS PB AND SIGN (LT ARROW) PB2-1  
 3" PVC TO HH 5:  
 2-12/C #14  
 1-3/C #14  
 1-3/C #20  
 1-2/C #14  
 1-1/C #6 INS. GR.

- ④ PA90 POLE FOUNDATION  
 TYPE PA90-A-35-D40-9 (DAVIT AT 350 DEG)  
 2-SWING AWAY HINGES  
 1-ANGLE MOUNT SIGNAL AT 0'  
 2-STRAIGHT MOUNT SIGNALS AT 11' AND 23'  
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)  
 1-TYPE D SIGN (D1) (SEE SIGN DETAIL)  
 1-TYPE R10-X12 (LT YIELD ON FYA)  
 LUMINAIRE-250W MH  
 1-APS PB AND SIGN (LT ARROW) PB4-1  
 3" PVC TO HH 9:  
 2-12/C #14  
 1-6/C #14  
 1-3/C #14  
 1-3/C #14 LUM  
 1-3/C #20  
 1-2/C #14  
 1-1/C #6 INS. GR.

- ⑤ PEDESTAL POLE FOUNDATION  
 1-ONE WAY EVP DETECTOR (PHASE 4)  
 2" PVC TO HH 52:  
 1-3/C #20  
 1-1/C #6 INS. GR.

- ⑥ PEDESTAL POLE FOUNDATION  
 14 FT PEDESTAL POLE AND BASE  
 2-STRAIGHT MOUNT SIGNALS AT 90 AND 180 DEG  
 2-STRAIGHT MOUNT C.D. PED HEADS AT 90 AND 180 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)  
 1-APS PB AND SIGN (LT ARROW) PB6-1  
 3" PVC TO HH 10:  
 2-12/C #14  
 1-3/C #14  
 1-3/C #20  
 1-2/C #14  
 1-1/C #6 INS. GR.

- Ⓐ EQUIPMENT PAD  
 SERVICE CABINET  
 CONTROLLER AND CABINET  
 4" PVC TO HH 3:  
 4-12/C #14  
 1-6/C #14  
 2-3/C #14  
 2-3/C #20  
 1-3/C #20  
 12-2/C #14  
 1-1/C #6 INS. GR.  
 1-3/C #14 (CAMERA POWER)  
 1-COM CABLE  
 1-COAXIAL CABLE  
 REMOVE — 1-COM CABLE (CAT 5E)  
 F&I — 1-COM CABLE (CAT 5E)

- 4" PVC TO HH 2:  
 4-12/C #14  
 1-6/C #14  
 2-3/C #14  
 3-3/C #20  
 13-2/C #14  
 1-1/C #6 INS. GR.

- 2" PVC TO SERVICE CABINET  
 2-1/C #6  
 1-1/C #6 INS. GR.

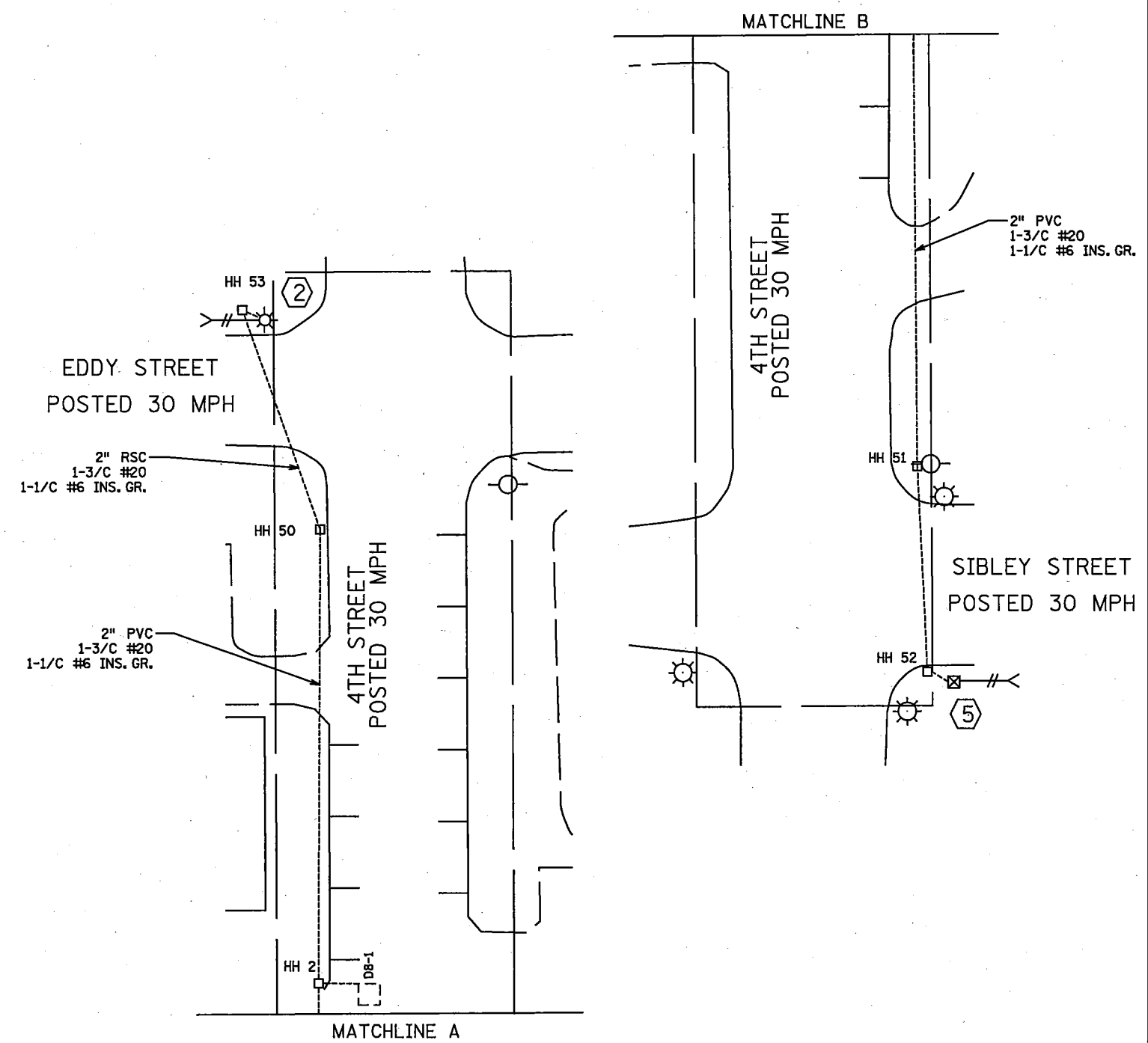
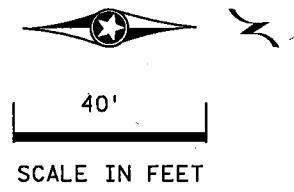
- SERVICE CABINET TO HH 1:  
 2" PVC  
 3-1/C #2

- SERVICE CABINET TO HH 2:  
 2" PVC  
 2-3/C #14 (LUM)

- HH 2 TO HH 3:  
 2" PVC  
 1-3/C #14 (LUM)

- CONTROLLER CABINET TO TMS VAULT  
 2" PVC STUB OUT  
 1-FIBER OPTIC CABLE (6SM) (WITH FIELD TERMINATED CABLE END)

- Ⓑ SOP-WOOD POLE  
 2" PVC RISER, WEATHERHEAD AND  
 2" PVC TO HH 1:  
 3-1/C #2



BY	DATE	REVISIONS

SYSTEM ID: 1735476 T.E.  
 METER ADDRESS: 406 VERMILLION ST. N.  
 OLD SYSTEM ID: 21004

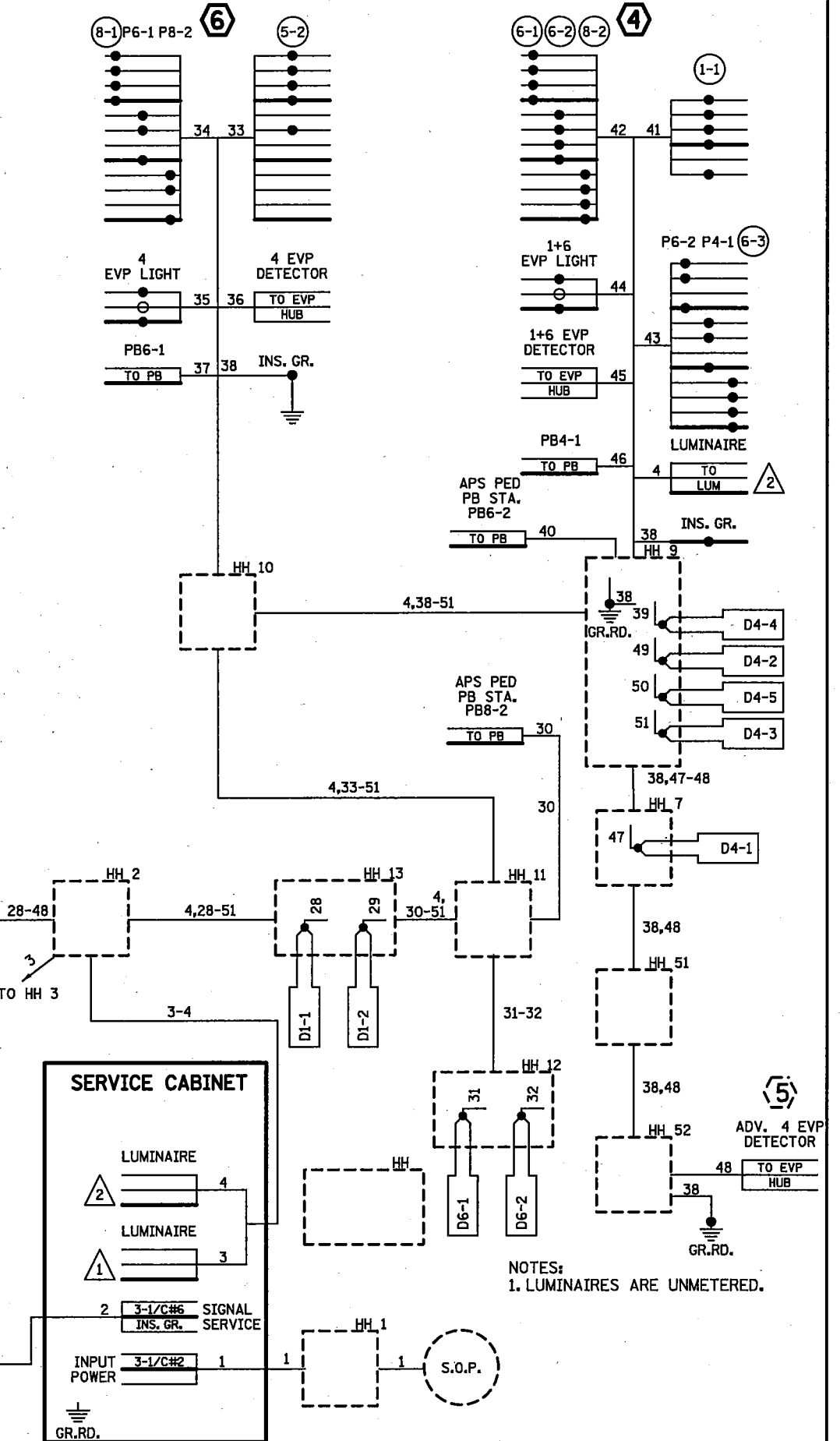
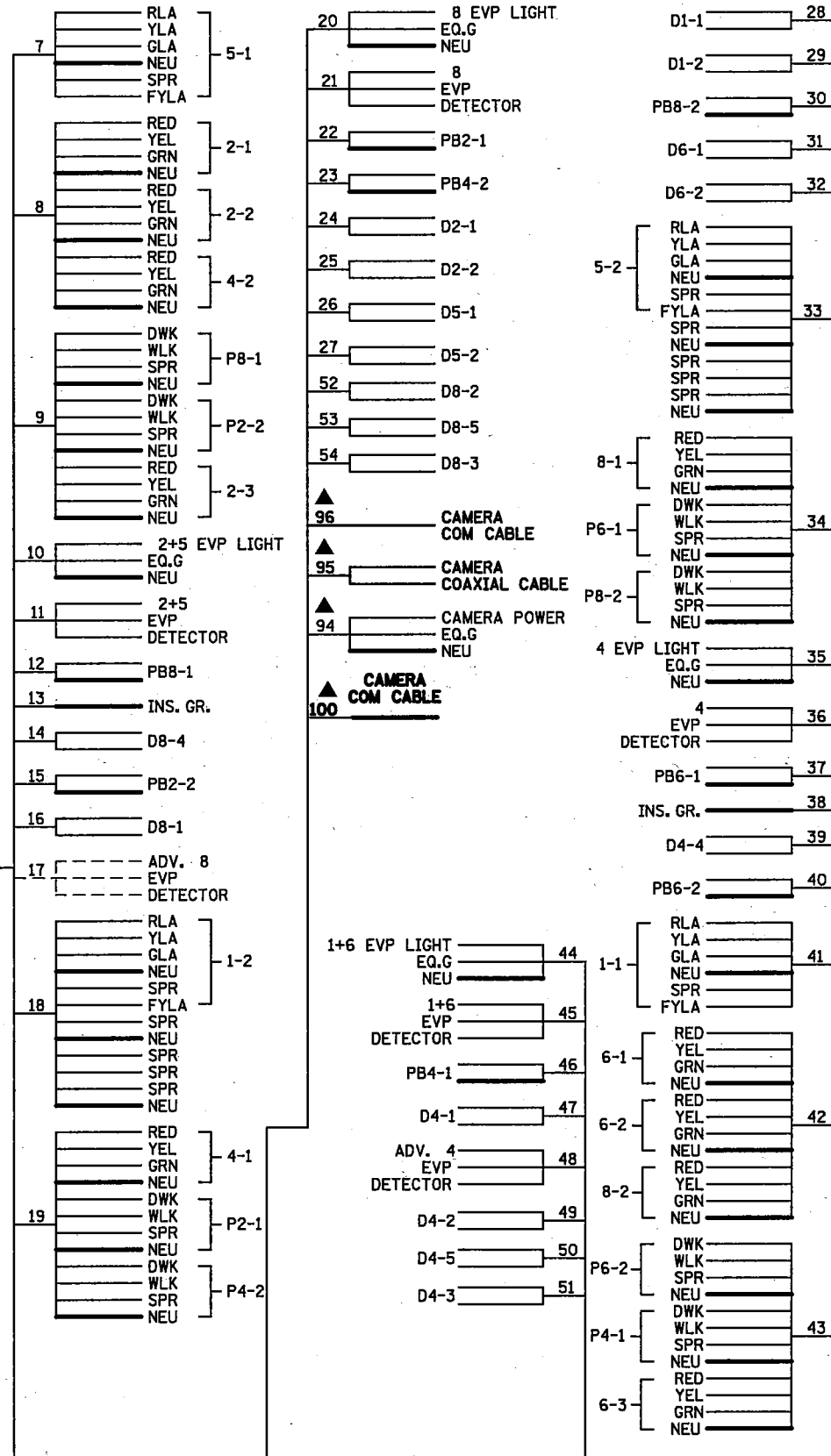
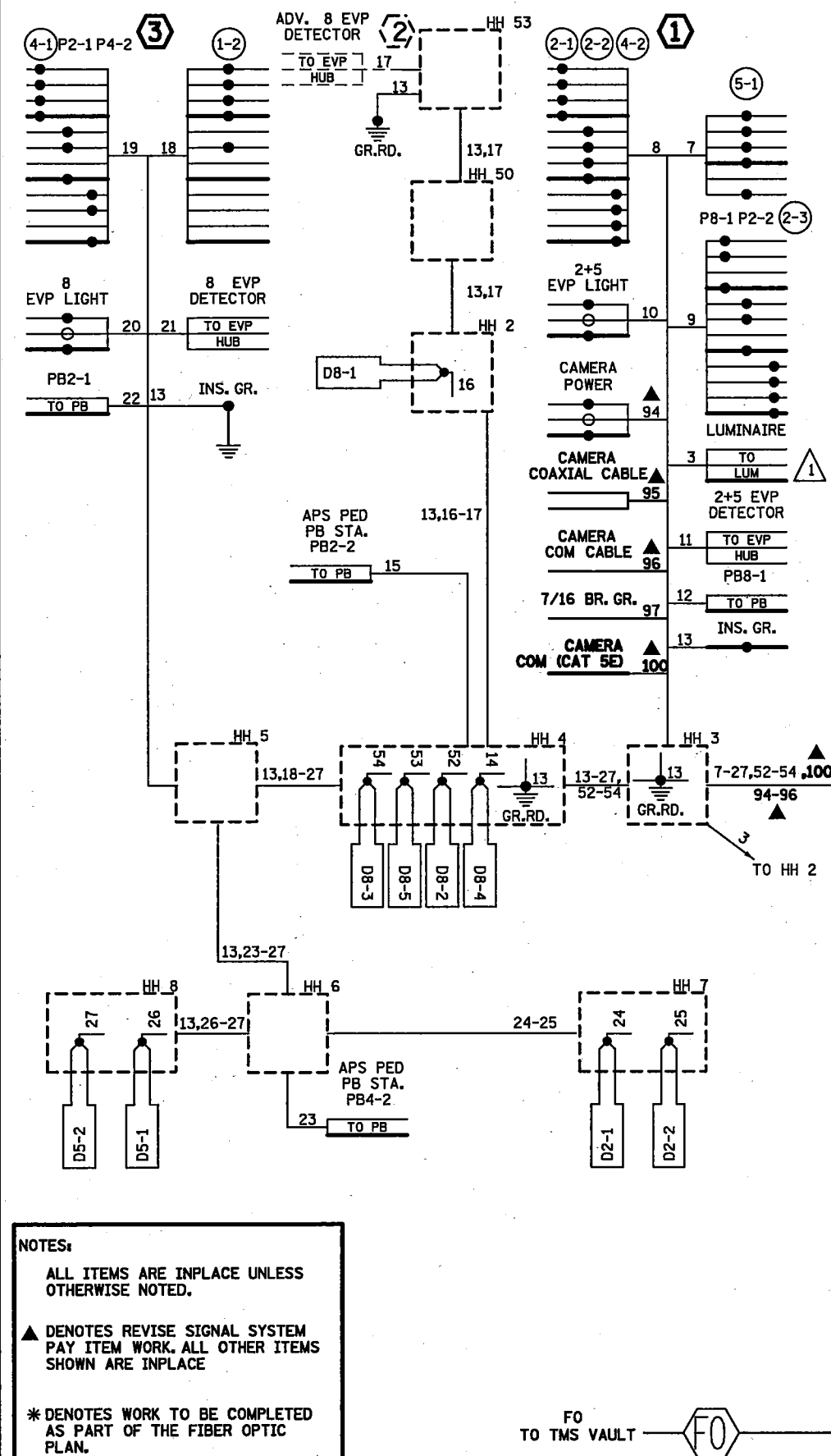
**POLE NOTES**  
 REVISE SIGNAL SYSTEM J  
 T.H. 61 AT 4TH STREET  
 IN HASTINGS, DAKOTA COUNTY

S.A.P. NO. \_\_\_\_\_ DRAWN BY: SJK CKD BY: CDB DATE: 12/12/18  
 CERTIFIED BY: *Michael P. Libensky* LIC. NO. 19863 DATE: 12/12/18  
 LICENSED PROFESSIONAL ENGINEER  
 STATE PROJ. NO. 1910-50 (T.H.55) SHEET NO. SS34 OF SS35 SHEETS

PLOTTED/REVISED: 13-DEC-2018

IPLOT NAME: system J wiring diagram  
PATH & FILENAME: Projects\DM\_R05\06\0000\Traffic\Signals\21004\_4th SVT\21004\_sgl.dgn

### CONTROLLER CABINET



**NOTES:**

ALL ITEMS ARE INPLACE UNLESS OTHERWISE NOTED.

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

\* DENOTES WORK TO BE COMPLETED AS PART OF THE FIBER OPTIC PLAN.

NOTES:  
1. LUMINAIRES ARE UNMETERED.

BY	DATE	REVISIONS

SYSTEM ID: 1735476 T.E.  
METER ADDRESS: 406 VERMILLION ST. N.  
OLD SYSTEM ID: 21004

**FIELD WIRING DIAGRAM**  
REVISE SIGNAL SYSTEM J  
T.H. 61 AT 4TH STREET  
IN HASTINGS, DAKOTA COUNTY

S.A.P. NO. \_\_\_\_\_  
DRAWN BY: SJK CKD BY: CDB DATE: 12/12/18  
CERTIFIED BY: *Michael P. Libinsky* LIC. NO. 19863 DATE: 12/12/18  
STATE PROJ. NO. 1910-50 (T.H.55) SHEET NO. SS35 OF SS35 SHEETS

PLOTTED/REVISED: 23-JAN-2019

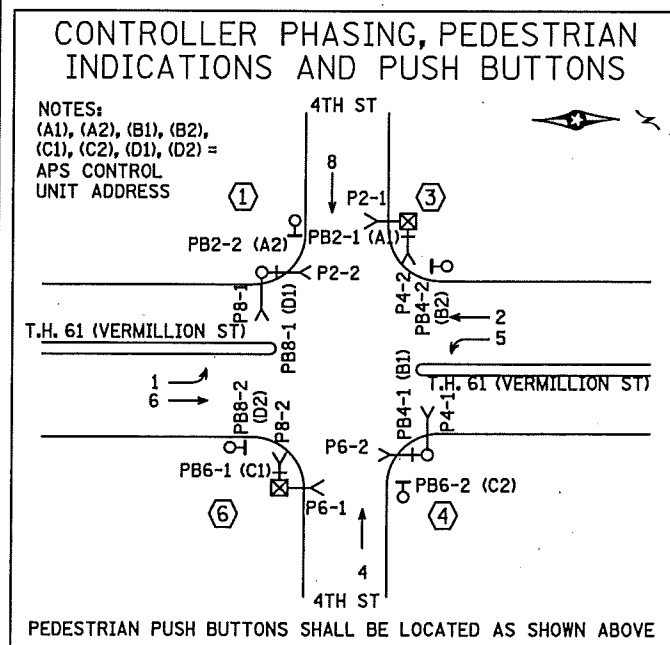
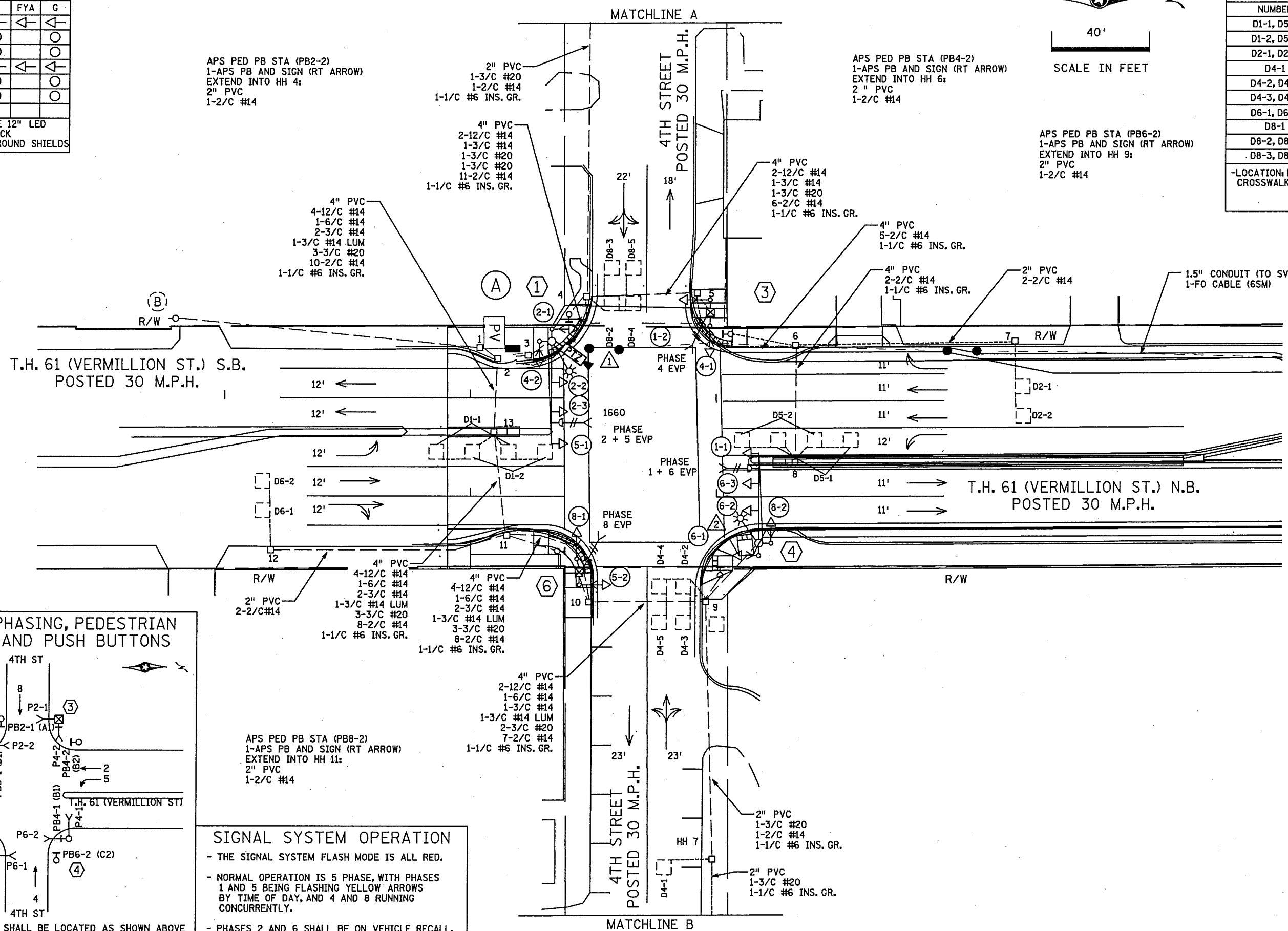
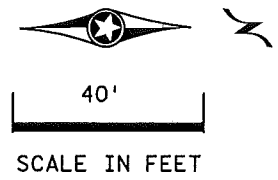
DISTRICT #: Metro  
I/PLOT NAME: T21004AL.sgl  
PATH & FILENAME: Projects\DM\_ROS\06\0000\Traffic\Signals\21004 4th SNO-2019\T21004AL.sgl.dgn

SIGNAL HEAD CHART				
FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○	○	○
4-1, 4-2	○	○	○	○
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	○	○	○	○
8-1, 8-2	○	○	○	○

ALL SIGNAL INDICATIONS ARE 12" LED  
ALL SIGNAL HEADS HAVE BLACK  
POLYCARBONITE WITH BACKGROUND SHIELDS

PVC LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1, D5-1	2-6x6	20 & 50
D1-2, D5-2	2-6x6	5 & 35
D2-1, D2-2	1-6x6	120
D4-1	1-6x6	120
D4-2, D4-4	1-6x6	5
D4-3, D4-5	1-6x6	35
D6-1, D6-2	1-6x6	120
D8-1	1-6x6	125
D8-2, D8-4	1-6x6	5
D8-3, D8-5	1-6x6	35

-LOCATION: DISTANCE FROM  
CROSSWALK/STOP BAR IN FEET



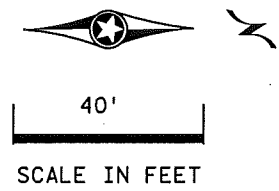
### SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE, WITH PHASES 1 AND 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY, AND 4 AND 8 RUNNING CONCURRENTLY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

BY: SJK	DATE: 01/23/19	OPERATION PLAN	REVISIONS	SYSTEM ID: 1735476	T.E.	METER ADDRESS: 406 VERMILLION ST. N.	OLD SYSTEM ID: 21004	INTERSECTION LAYOUT T.H. 61 AT 4TH STREET IN HASTINGS, DAKOTA COUNTY	S.A.P. NO.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	LIC. NO. _____	DATE: _____	DRAWN BY:	CKD BY:	DATE:	STATE PROJ. NO. (T.H.55)	SHEET NO. 1 OF 3 SHEETS
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PLOTTED/REVISED: 23-JAN-2019

DISTRICT #: Metro  
IPLOT NAME: T21004AL.sgl  
PATH & FILENAME: Projects\DM\_ROS\06100001Traffic\Signalis\21004 4th SVO-2019\T21004AL.sgl.dgn



- ① PA90 POLE FOUNDATION  
TYPE PA90-A-40-X6-350/CAM 400 (AT 350 DEG)  
1-VIDEO CAMERA WITH MOUNT  
1-LUMINAIRE-250W HPS  
2-SWING AWAY HINGES  
1-ANGLE MOUNT SIGNAL AT 0'  
2-STRAIGHT MOUNT SIGNALS AT 11' AND 23'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
2-ANGLE MOUNT C.D.PED HEADS AT 90 AND 180 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)  
1-TYPE D SIGN (D1) (SEE SIGN DETAIL)  
1-TYPE R10-X12 (LT YIELD ON FYA)  
LUMINAIRE-250W MH  
1-APS PB AND SIGN (LT ARROW) PB8-1  
3" PVC TO HH 3:  
2-12/C #14  
1-6/C #14  
1-3/C #14  
1-3/C #14 LUM  
1-3/C #20  
1-2/C #14  
1-1/C #6 INS. GR.  
1-7/16" GROUNDING BRAID TO GROUND ROD IN HH 3  
1-3/C #14 (CAMERA POWER)  
1-COM CABLE  
1-COAXIAL CABLE

- ⑥ PEDESTAL POLE FOUNDATION  
14 FT PEDESTAL POLE AND BASE  
2-STRAIGHT MOUNT SIGNALS AT 90 AND 180 DEG  
2-STRAIGHT MOUNT C.D.PED HEADS AT 90 AND 180 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8)  
1-APS PB AND SIGN (LT ARROW) PB6-1  
3" PVC TO HH 10:  
2-12/C #14  
1-3/C #14  
1-3/C #20  
1-2/C #14  
1-1/C #6 INS. GR.

- Ⓐ EQUIPMENT PAD  
SERVICE CABINET  
CONTROLLER AND CABINET  
4" PVC TO HH 3:  
4-12/C #14  
1-6/C #14  
2-3/C #14  
2-3/C #20  
1-3/C #20  
12-2/C #14  
1-1/C #6 INS. GR.  
1-3/C #14 (CAMERA POWER)  
1-COM CABLE  
1-COAXIAL CABLE

- ② LIGHT POLE FOUNDATION  
1-ONE WAY EVP DETECTOR (PHASE 8)  
2" PVC TO HH 53:  
1-3/C #20  
1-1/C #6 INS. GR.

- 4" PVC TO HH 2:  
4-12/C #14  
1-6/C #14  
2-3/C #14  
3-3/C #20  
13-2/C #14  
1-1/C #6 INS. GR.  
2" PVC TO SERVICE CABINET  
2-1/C #6  
1-1/C #6 INS. GR.

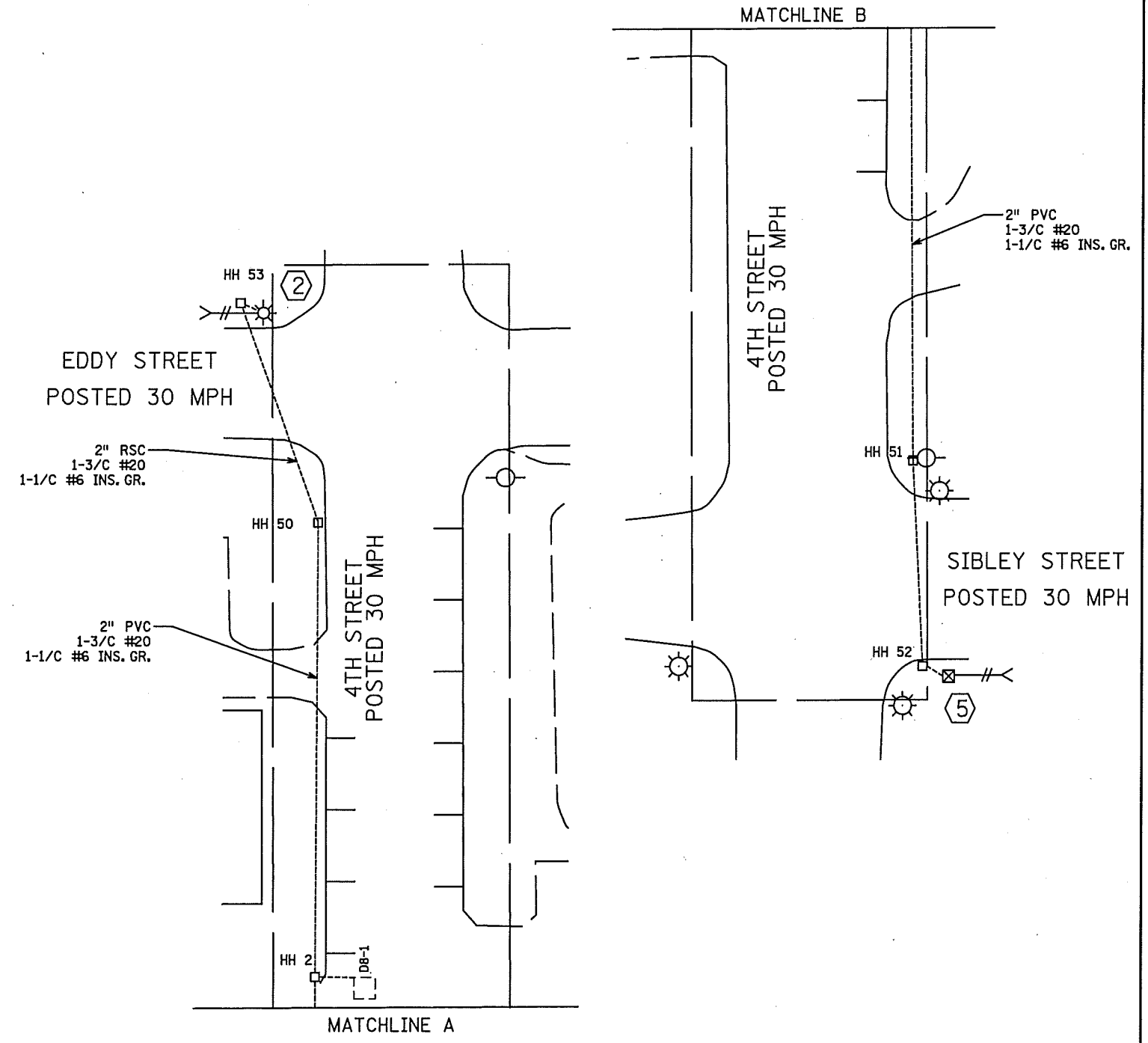
- ③ PEDESTAL POLE FOUNDATION  
14 FT PEDESTAL POLE AND BASE  
2-STRAIGHT MOUNT SIGNALS AT 90 AND 180 DEG  
2-STRAIGHT MOUNT C.D.PED HEADS AT 90 AND 180 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)  
1-APS PB AND SIGN (LT ARROW) PB2-1  
3" PVC TO HH 5:  
2-12/C #14  
1-3/C #14  
1-3/C #20  
1-2/C #14  
1-1/C #6 INS. GR.

- SERVICE CABINET TO HH 1:  
2" PVC  
3-1/C #2  
SERVICE CABINET TO HH 2:  
2" PVC  
2-3/C #14 (LUM)  
HH 2 TO HH 3:  
2" PVC  
1-3/C #14 (LUM)  
CONTROLLER CABINET TO TMS VAULT  
2" PVC STUB OUT  
1-FIBER OPTIC CABLE (6SM) (WITH FIELD TERMINATED CABLE END)

- ④ PA90 POLE FOUNDATION  
TYPE PA90-A-35-D40-9 (DAVIT AT 350 DEG)  
2-SWING AWAY HINGES  
1-ANGLE MOUNT SIGNAL AT 0'  
2-STRAIGHT MOUNT SIGNALS AT 11' AND 23'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
2-ANGLE MOUNT C.D.PED HEADS AT 90 AND 180 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)  
1-TYPE D SIGN (D1) (SEE SIGN DETAIL)  
1-TYPE R10-X12 (LT YIELD ON FYA) )  
LUMINAIRE-250W MH  
1-APS PB AND SIGN (LT ARROW) PB4-1  
3" PVC TO HH 9:  
2-12/C #14  
1-6/C #14  
1-3/C #14  
1-3/C #14 LUM  
1-3/C #20  
1-2/C #14  
1-1/C #6 INS. GR.

- Ⓑ SOP-WOOD POLE  
2" PVC RISER, WEATHERHEAD AND  
2" PVC TO HH 1:  
3-1/C #2

- ⑤ PEDESTAL POLE FOUNDATION  
1-ONE WAY EVP DETECTOR (PHASE 4)  
2" PVC TO HH 52:  
1-3/C #20  
1-1/C #6 INS. GR.



BY	DATE	REVISIONS
SJK	01/23/19	OPERATION PLAN

SYSTEM ID: 1735476 T.E.  
METER ADDRESS: 406 VERMILLION ST. N.  
OLD SYSTEM ID: 21004

**POLE NOTES**  
T.H. 61 AT 4TH STREET  
IN HASTINGS, DAKOTA COUNTY

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO.	(T.H.55)	SHEET NO.	2 OF 3 SHEETS

