

VIDEO DETECTOR CHART			
DESIGNATION	DETECTOR	MOUNT	LOCATION
V1-1, V1-2	V-3	MASTARM	35' & 5'
V3-2	V-4	MASTARM	5'
V3-3, V3-4	V-4	MASTARM	35'
V3-5	V-4	MASTARM	-5'
V3-6, V3-7	V-4	MASTARM	5'
V4-1, V4-2	V-2	MASTARM	120'
V4-4, V4-5	V-2	MASTARM	35'
V4-7, V4-8	V-2	MASTARM	5'
V4-9	V-2	MASTARM	5'
V5-1, V5-2	V-1	MASTARM	35' & 5'

LOOP DETECTOR CHART			
NUMBER	SIZE (FT)	LOCATION	STATUS
D2-1, D2-2	6x6	400	F&I
D3-1	2-6x6	130	INPLACE
D4-3	6x6	10	F&I
D4-6	6x6	-5	F&I
D6-1, D6-2	6x6	400	F&I

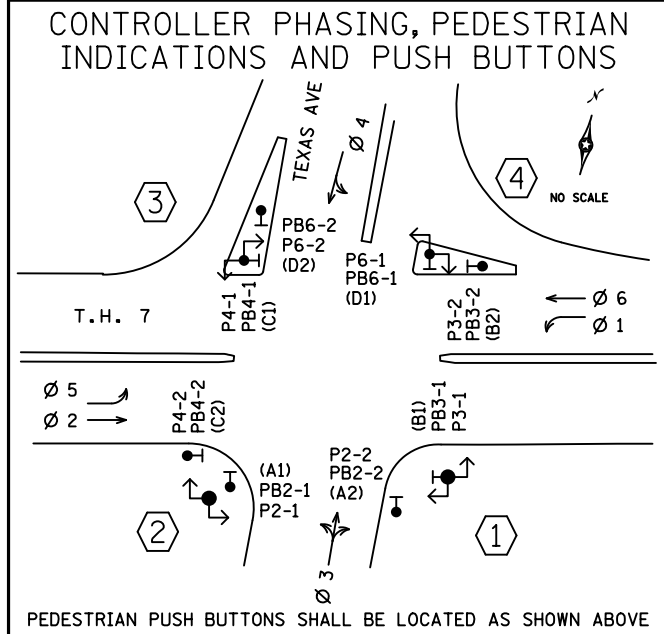
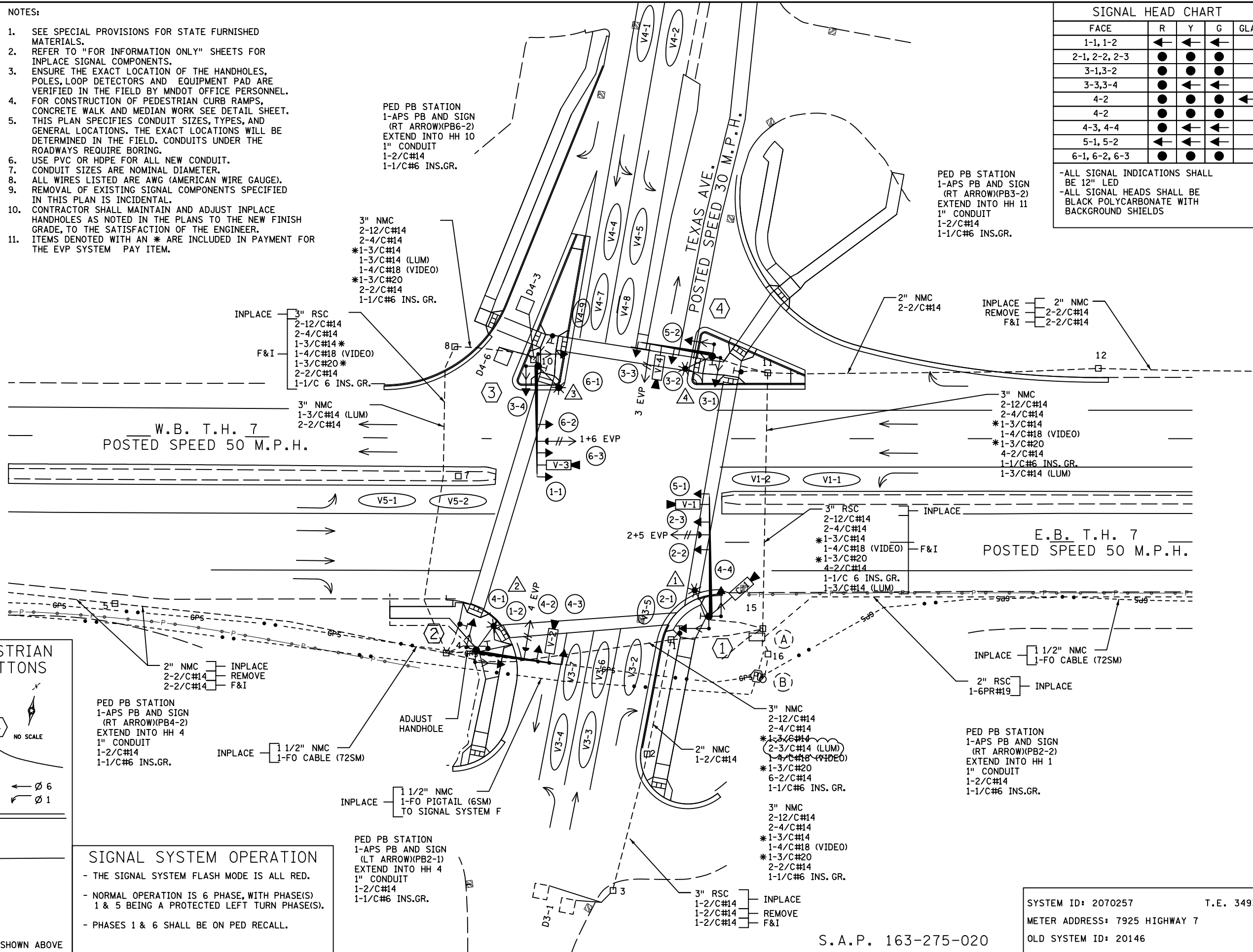
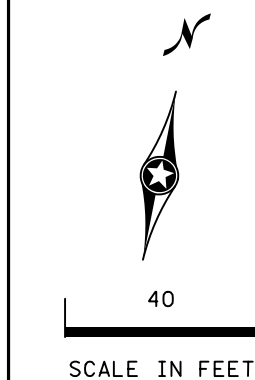
-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE  
 -LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

NOTES:

- SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
- REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD ARE VERIFIED IN THE FIELD BY MNDOT OFFICE PERSONNEL.
- FOR CONSTRUCTION OF PEDESTRIAN CURB RAMP, CONCRETE WALK AND MEDIAN WORK SEE DETAIL SHEET.
- THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
- USE PVC OR HDPE FOR ALL NEW CONDUIT.
- CONDUIT SIZES ARE NOMINAL DIAMETER.
- ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
- REMOVAL OF EXISTING SIGNAL COMPONENTS SPECIFIED IN THIS PLAN IS INCIDENTAL.
- CONTRACTOR SHALL MAINTAIN AND ADJUST INPLACE HANDHOLES AS NOTED IN THE PLANS TO THE NEW FINISH GRADE, TO THE SATISFACTION OF THE ENGINEER.
- ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.

SIGNAL HEAD CHART				
FACE	R	Y	G	GLA
1-1, 1-2	←	←	←	
2-1, 2-2, 2-3	●	●	●	
3-1, 3-2	●	●	●	
3-3, 3-4	●	←	←	
4-2	●	●	●	←
4-2	●	●	●	
4-3, 4-4	●	←	←	
5-1, 5-2	←	←	←	
6-1, 6-2, 6-3	●	●	●	

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



**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASE(S) 1 & 5 BEING A PROTECTED LEFT TURN PHASE(S).
- PHASES 1 & 6 SHALL BE ON PED RECALL.

SYSTEM ID: 2070257 T.E. 3493  
 METER ADDRESS: 7925 HIGHWAY 7  
 OLD SYSTEM ID: 20146

S.A.P. 163-275-020

NO	DATE	DWN	CKD	REVISIONS
1	02/21/18	KAS	NHV	LUMINAIRES

REVISED AT MN/DOT  
 RED LINE AS BUILT  
 BY JBA 4/8/19

I HEREBY CERTIFY THAT THIS SHEET 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.

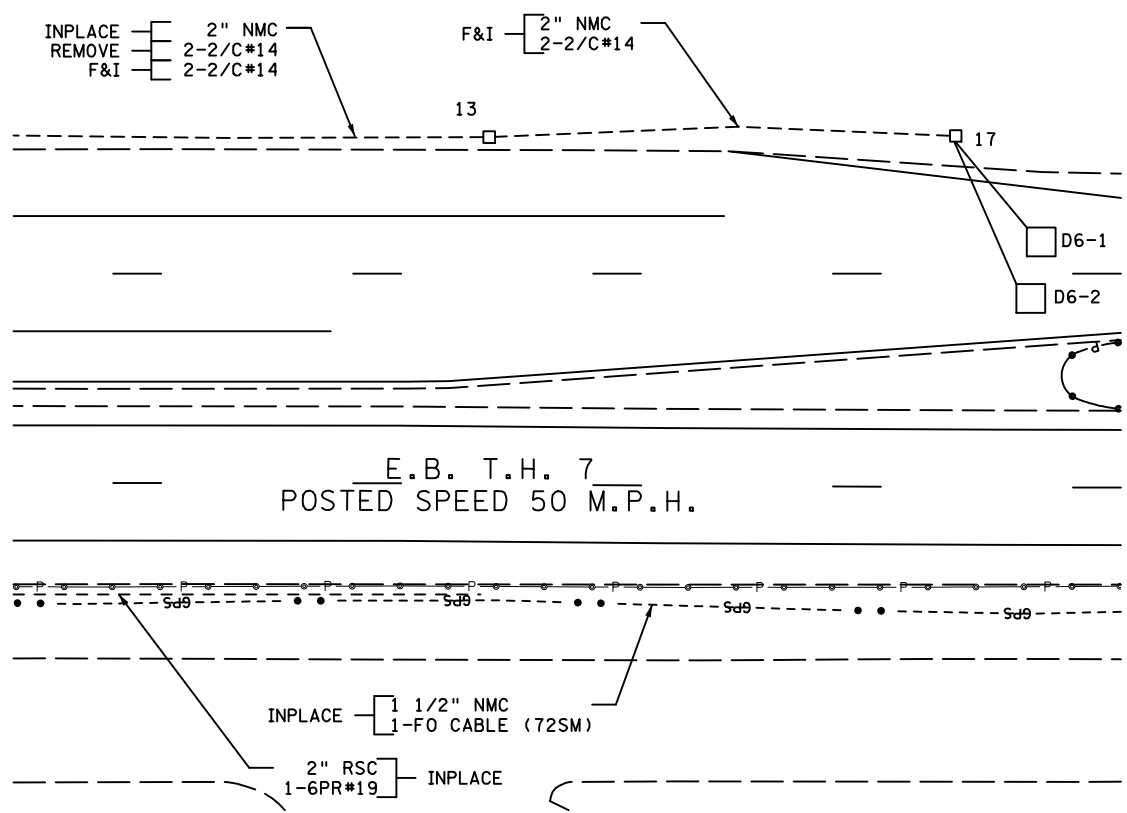
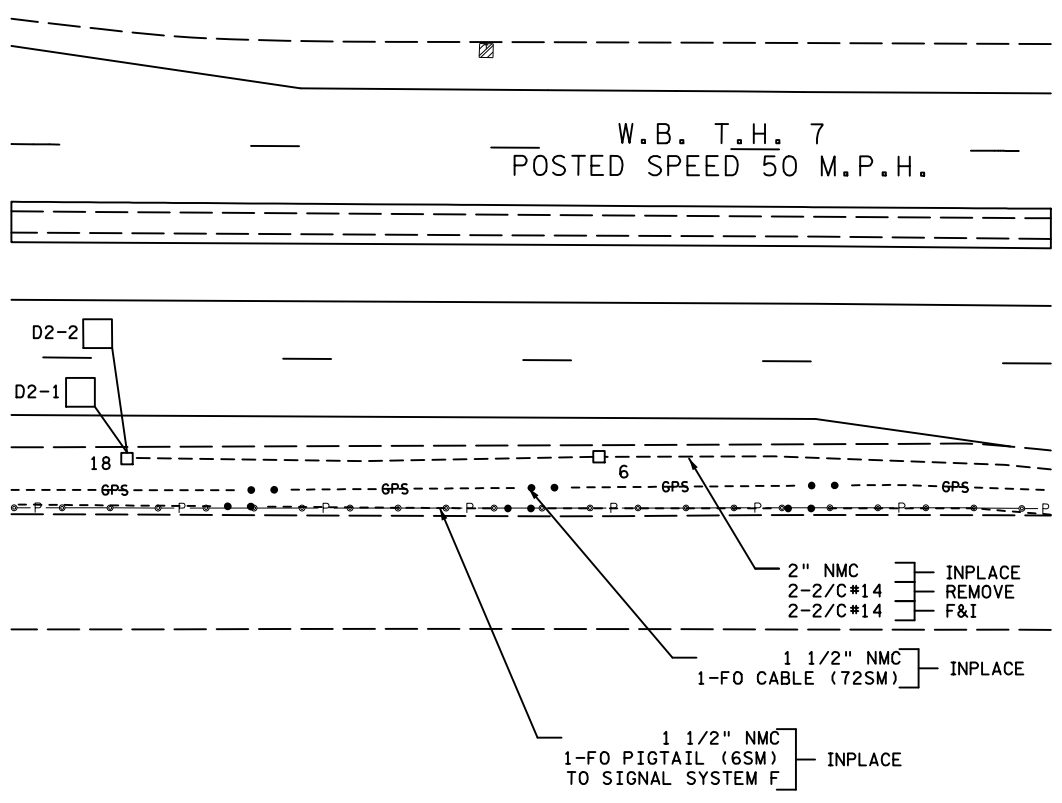
PRINT NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE # \_\_\_\_\_

REVISE SIGNAL SYSTEM G LAYOUT  
 T.H. 7 AT TEXAS AVE

S.P. 2706-237 (T.H.7)  
 SHEET NO. SS37R OF SS61 SHEETS



40  
SCALE IN FEET



- (A) EQUIPMENT PAD  
SERVICE CABINET  
CONTROLLER AND CABINET  
CABINET TO HH 1:  
INPLACE 4" RSC  
2-12/C#14  
2-4/C#14  
1-3/C#14 \*  
2-4/C#18 (VIDEO)  
1-3/C#20 \*  
8-2/C#14  
1-1/2 6 INS. GR.
- F&I 3" NMC  
2-12/C#14  
2-4/C#14  
1-3/C#14 \*  
1-3/C#20 \*  
2-2/C#14  
1-1/2 6 INS. GR.
- HH 1 TO HH 15:  
INPLACE 2" RSC  
F&I 2-3/C#14 (LUM)  
HH 15 TO LOAD CENTER:  
INPLACE 1 1/4" RSC  
F&I 4-3/C#14 (LUM)
- LOAD CENTER TO CABINET:  
INPLACE 1 1/4" RSC  
2-1/C#6  
1-1/C#6 BR. GR.
- CABINET TO TMS VAULT:  
INPLACE 1 1/2" NMC  
1-FO PIGTAIL (6SM)
- CABINET TO HH 15:  
INPLACE 4" RSC  
4-12/C#14  
4-4/C#14  
2-3/C#14 \*  
2-4/C#18 (VIDEO)  
F&I 2-3/C#20 \*  
5-2/C#14  
1-CAT5E  
1-1/C#6 INS. GR.

- (B) INPLACE SOP - WOOD POLE  
(BY XCEL ENERGY  
2" CONDUIT RISER, WEATHERHEAD  
AND CONDUIT TO SERVICE CABINET:  
3-1/C#2

- ① PA100 POLE FOUNDATION  
TYPE PA100-A-50-X6-350/CAM 400 (AT 350 DEG)  
1-VIDEO DETECTION CAMERA WITH MOUNT AT 6'  
1-VIDEO CAMERA WITH MOUNT  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
2-ANGLE MOUNT C.D. PED HEADS AT 90 DEG AND 180 DEG  
LUMINAIRE LED (FOR 35' MOUNTING HEIGHT)  
1-APS PUSHBUTTON AND SIGN (LT ARROW)(PB3-1)  
1-ONE WAY EVP DETECTOR AND \*  
CONFIRMATORY LIGHT (PHASE 2+5)  
(2' FROM END OF MAST ARM)
- F&I 3" NMC TO HH 15:  
2-12/C#14  
2-4/C#14  
1-3/C#14 \*  
1-3/C#14 (LUM)  
1-4/C#18 (VIDEO)  
1-3/C#20 \*  
1-CAT5E  
1-2/C#14  
7/16" GROUND BRAID TO GROUND ROD  
1-1/C#6 INS. GR.

- ② PA85 POLE FOUNDATION  
TYPE PA90-A-30-D40-9 (AT 350 DEG)  
1-VIDEO DETECTION CAMERA WITH MOUNT AT 6'  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'  
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 (PHASE 4)  
LUMINAIRE LED (FOR 40' MOUNTING HEIGHT)
- F&I 3" NMC TO HH 4:  
2-12/C#14  
2-4/C#14  
1-3/C#14 \*  
1-3/C#20 \*  
1-3/C#14 (LUM)  
1-1/C#6 INS. GR.

- ③ PA100 POLE FOUNDATION  
TYPE PA100-A-45-D40-9 (AT 350 DEG)  
1-VIDEO DETECTION CAMERA WITH MOUNT AT 6'  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS OVERHEAD 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-APS PB AND SIGN (LT ARROW)(PB4-1)  
1-ONE WAY EVP DETECTOR AND \*  
CONFIRMATORY LIGHT (PHASE 1+6)  
LUMINAIRE LED (FOR 40' MOUNTING HEIGHT)
- F&I 3" NMC INTO HH 10:  
2-12/C#14  
2-4/C#14  
1-3/C#14 \*  
1-3/C#14 (LUM)  
1-4/C#18 (VIDEO)  
1-3/C#20 \*  
1-2/C#14  
1-1/C#6 INS. GR.

- ④ PA85 POLE FOUNDATION  
TYPE PA85-A-30-D40-9 (AT 350 DEG)  
1-VIDEO DETECTION CAMERA WITH MOUNT AT 10'  
1-ANGLE MOUNT SIGNAL AT 0'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG  
1-ONE WAY SIGNAL OVERHEAD AT 16' FROM END OF MAST ARM  
1-APS PUSHBUTTON AND SIGN (LT ARROW)(PB6-1)  
1-ONE WAY EVP DETECTOR AND \*  
CONFIRMATORY LIGHT (PHASE 3)  
LUMINAIRE LED (FOR 40' MOUNTING HEIGHT, TYPE 5 DISTRIBUTION)
- F&I 3" NMC TO HH 11:  
2-12/C#14  
2-4/C#14  
1-3/C#14 \*  
1-3/C#20 \*  
1-2/C#14  
1-3/C#14 (LUM)  
1-1/C#6 INS. GR.

SYSTEM ID: 2070257 T.E. 3493  
METER ADDRESS: 7925 HIGHWAY 7  
OLD SYSTEM ID: 20146

S.A.P. 163-275-020

NO	DATE	DWN	CKD	REVISIONS
1	02/21/18	KAS	NHV	LUMINAIRES

REVISED AT MN/DOT  
RED LINE AS BUILT  
BY JBA 4/8/19

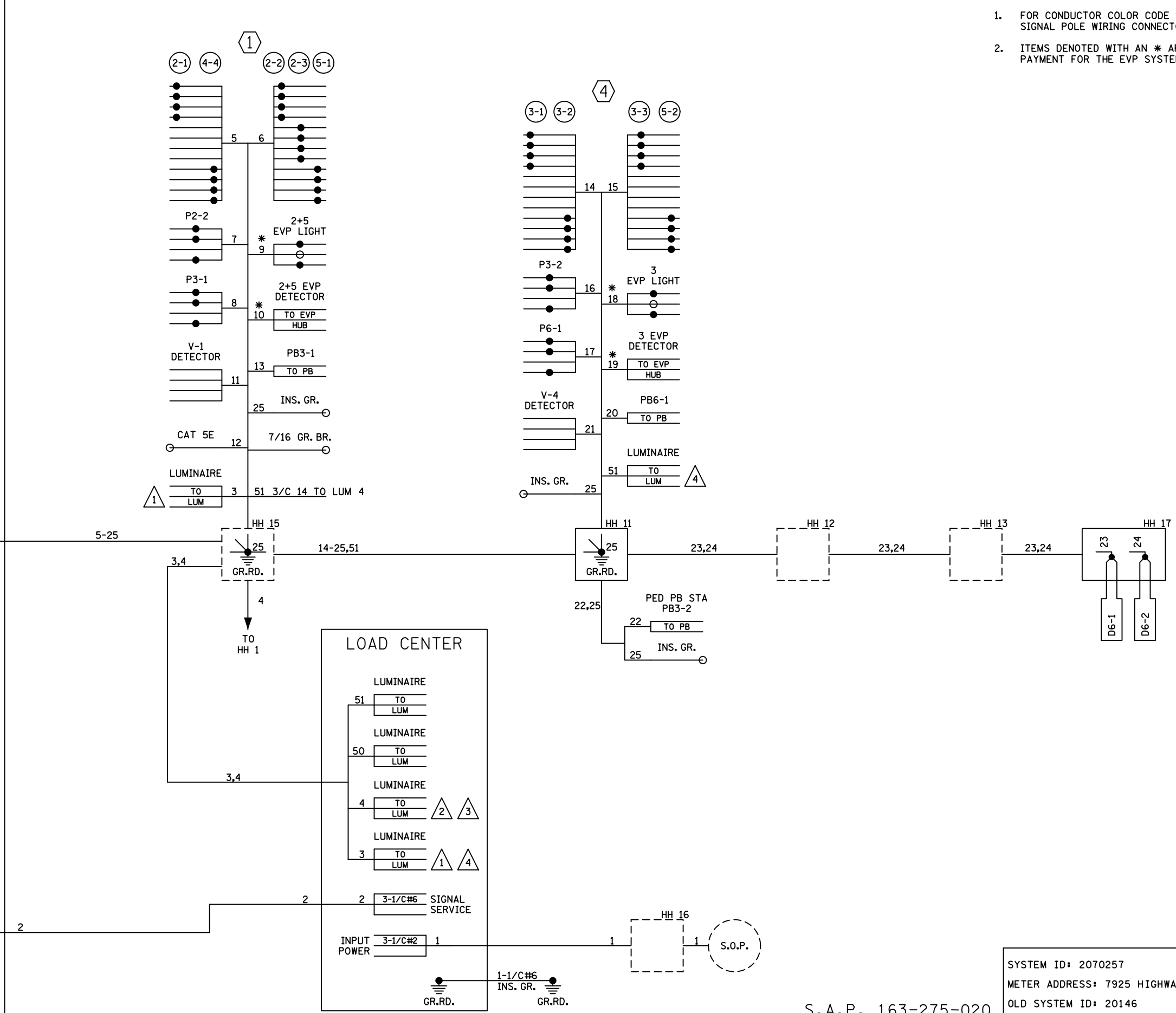
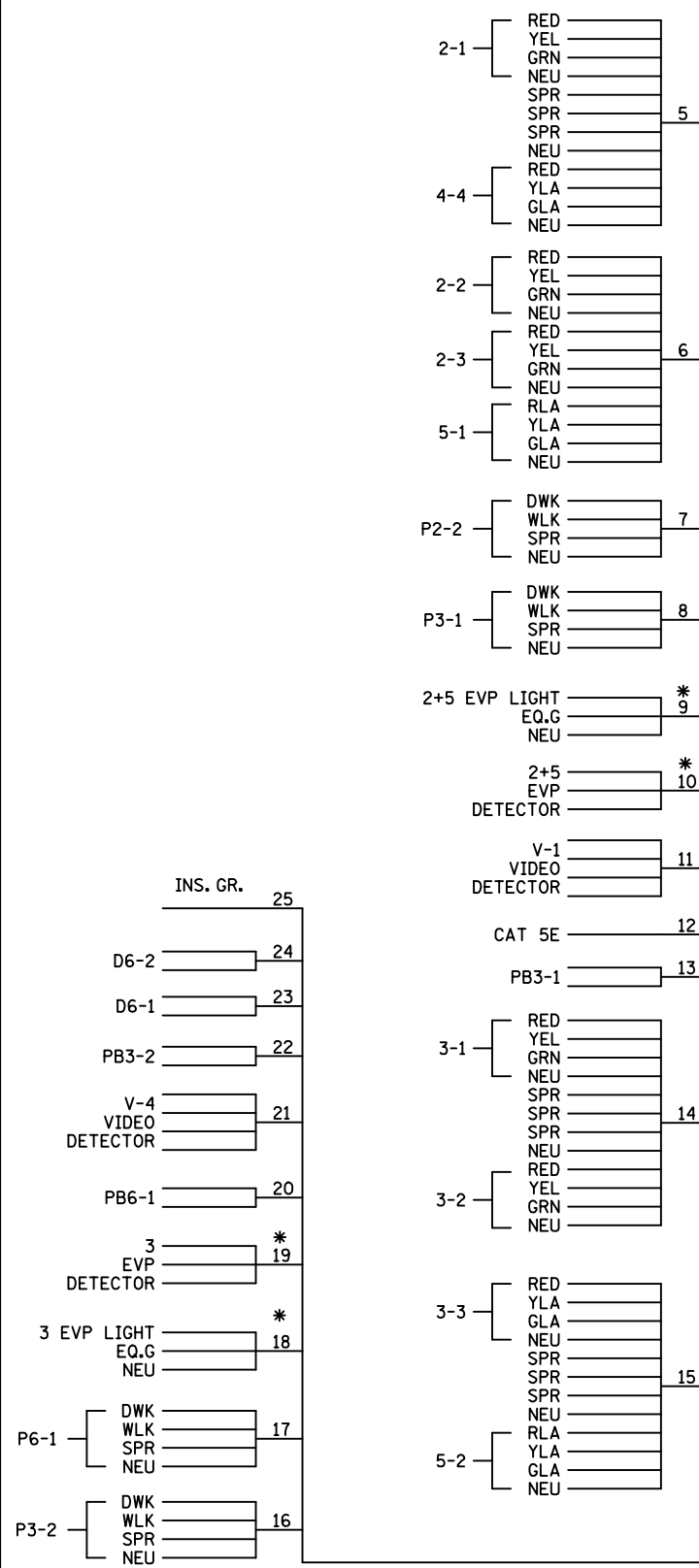
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I AM A DULY LICENSED PROFESSIONAL ENGINEER  
UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: \_\_\_\_\_  
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DATE \_\_\_\_\_ LICENSE # \_\_\_\_\_

REVISE SIGNAL SYSTEM G MATCHLINES AND NOTES  
T.H. 7 AT TEXAS AVE

S.P. 2706-237 (T.H.7)  
SHEET NO. SS38R OF SS61 SHEETS

CONTROLLER CABINET



- NOTES:
1. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
  2. ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.

NO	DATE	DWN	CKD	REVISIONS
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REVISED AT MN/DOT  
RED LINE AS BUILT  
BY JBA 4/8/19

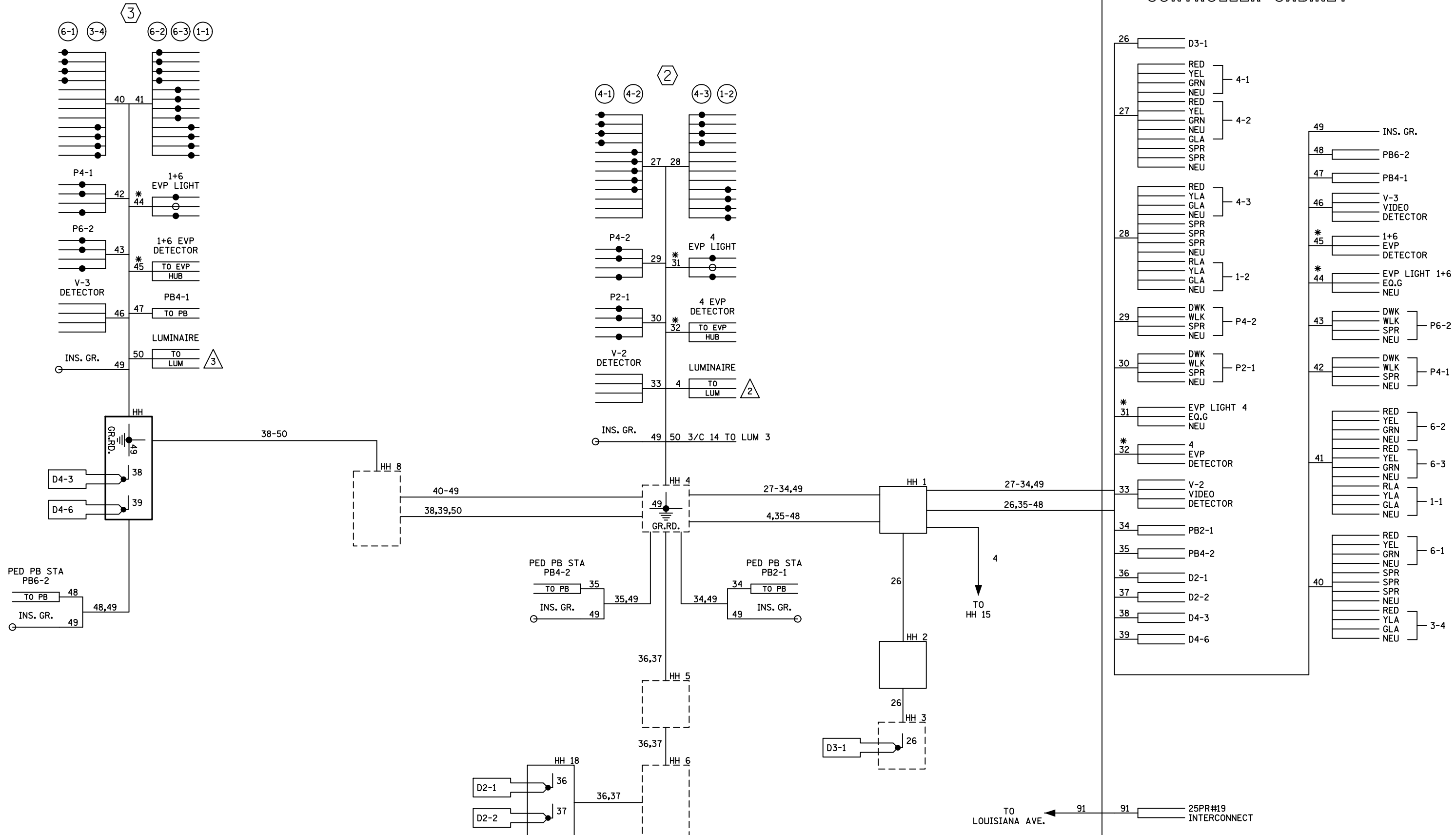
I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE # \_\_\_\_\_

REVISE SIGNAL SYSTEM G FIELD WIRING DIAGRAM  
T.H. 7 AT TEXAS AVE.

S.A.P. 163-275-020  
SYSTEM ID: 2070257 T.E. 3493  
METER ADDRESS: 7925 HIGHWAY 7  
OLD SYSTEM ID: 20146  
S.P. 2706-237 (T.H.7)  
SHEET NO. SS39R OF SS61 SHEETS

CONTROLLER CABINET



- NOTES:
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  - ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.

S.A.P. 163-275-020

SYSTEM ID: 2070257 T.E. 3493  
 METER ADDRESS: 7925 HIGHWAY 7  
 OLD SYSTEM ID: 20146

1	02/21/18	KAS	NHV	LUMINAIRES
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PRINT NAME: \_\_\_\_\_  
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REVISE SIGNAL SYSTEM G FIELD WIRING DIAGRAM  
 T.H. 7 AT TEXAS AVE.

S.P. 2706-237 (T.H.7)  
 SHEET NO. SS40R OF SS61 SHEETS

8 TIMES  
 80%  
 80%