

PLOTTED/REVISED: 11/14/2015

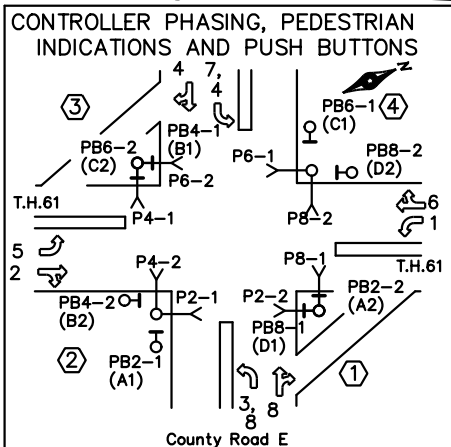
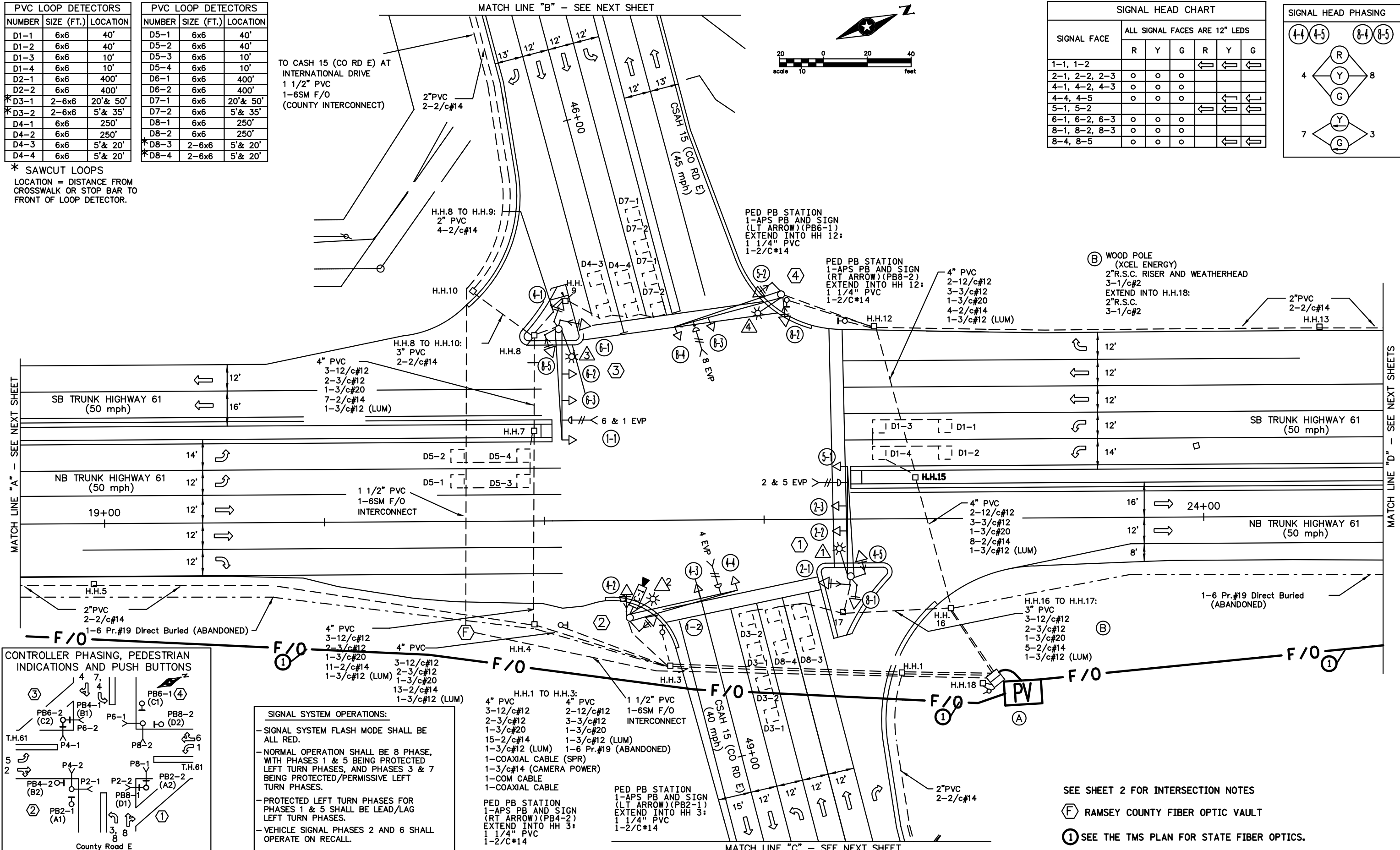
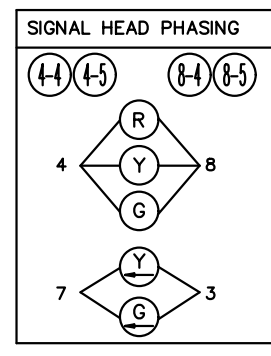
DISTRICT #: METRO  
IPLOT NAME: LAYOUT  
PATH & FILENAME: IP\_PWP-d077995NT21041L.sgl.dgn

PVC LOOP DETECTORS		
NUMBER	SIZE (FT.)	LOCATION
D1-1	6x6	40'
D1-2	6x6	40'
D1-3	6x6	10'
D1-4	6x6	10'
D2-1	6x6	400'
D2-2	6x6	400'
*D3-1	2-6x6	20' & 50'
*D3-2	2-6x6	5' & 35'
D4-1	6x6	250'
D4-2	6x6	250'
D4-3	6x6	5' & 20'
D4-4	6x6	5' & 20'

PVC LOOP DETECTORS		
NUMBER	SIZE (FT.)	LOCATION
D5-1	6x6	40'
D5-2	6x6	40'
D5-3	6x6	10'
D5-4	6x6	10'
D6-1	6x6	400'
D6-2	6x6	400'
D7-1	6x6	20' & 50'
D7-2	6x6	5' & 35'
D8-1	6x6	250'
D8-2	6x6	250'
*D8-3	2-6x6	5' & 20'
*D8-4	2-6x6	5' & 20'

\* SAWCUT LOOPS  
LOCATION = DISTANCE FROM CROSSWALK OR STOP BAR TO FRONT OF LOOP DETECTOR.

SIGNAL HEAD CHART						
SIGNAL FACE	ALL SIGNAL FACES ARE 12" LEDS					
	R	Y	G	R	Y	G
1-1, 1-2				←	←	←
2-1, 2-2, 2-3	o	o	o			
4-1, 4-2, 4-3	o	o	o			
4-4, 4-5	o	o	o	←	←	←
5-1, 5-2				←	←	←
6-1, 6-2, 6-3	o	o	o			
8-1, 8-2, 8-3	o	o	o			
8-4, 8-5	o	o	o	←	←	←



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1 & 5 BEING PROTECTED LEFT TURN PHASES, AND PHASES 3 & 7 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES.
- PROTECTED LEFT TURN PHASES FOR PHASES 1 & 5 SHALL BE LEAD/LAG LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

BY	DATE	REVISIONS
EJA	11-04-15	AS-BUILT OF SP 6222-168 FIBER & CAMERA

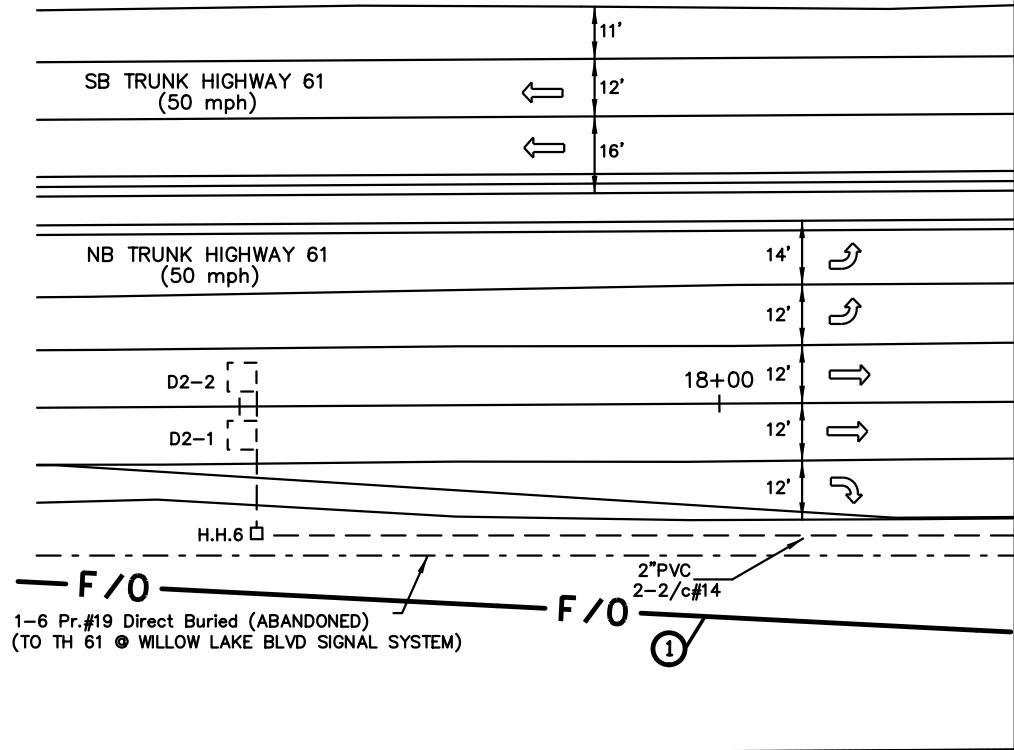
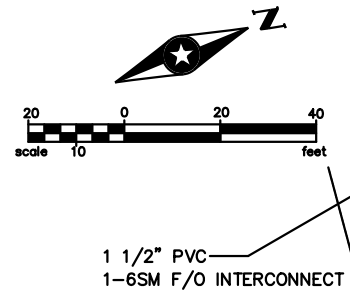
SYSTEM ID: 21041 T.E.  
METER ADDRESS: 1501 COUTNY RD E  
MASTER ID: T.E.

**INTERSECTION LAYOUT**  
**TH 61 AT CSAH 15 (CO RD E)**  
**IN GEM LAKE & VADNAIS HEIGHTS,**  
**RAMSEY COUNTY**

S.A.P. NO.	DRAWN BY: SJK	CKD BY: EJA	DATE: 06-14-12
CERTIFIED BY: _____	LIC. NO. _____ DATE: _____		
STATE PROJ. NO.	(T.H.61)	SHEET NO.	1 OF 5 SHEETS

PLOTTED/REVISED: 11/4/2015

DISTRICT #: METRO  
IPLOT NAME: MATCH LINES 1 OF 2  
PATH & FILENAME: IP\_PWP-d077995\T21041\_sgl.dgn



MATCH LINE "A" - SEE PREVIOUS SHEET

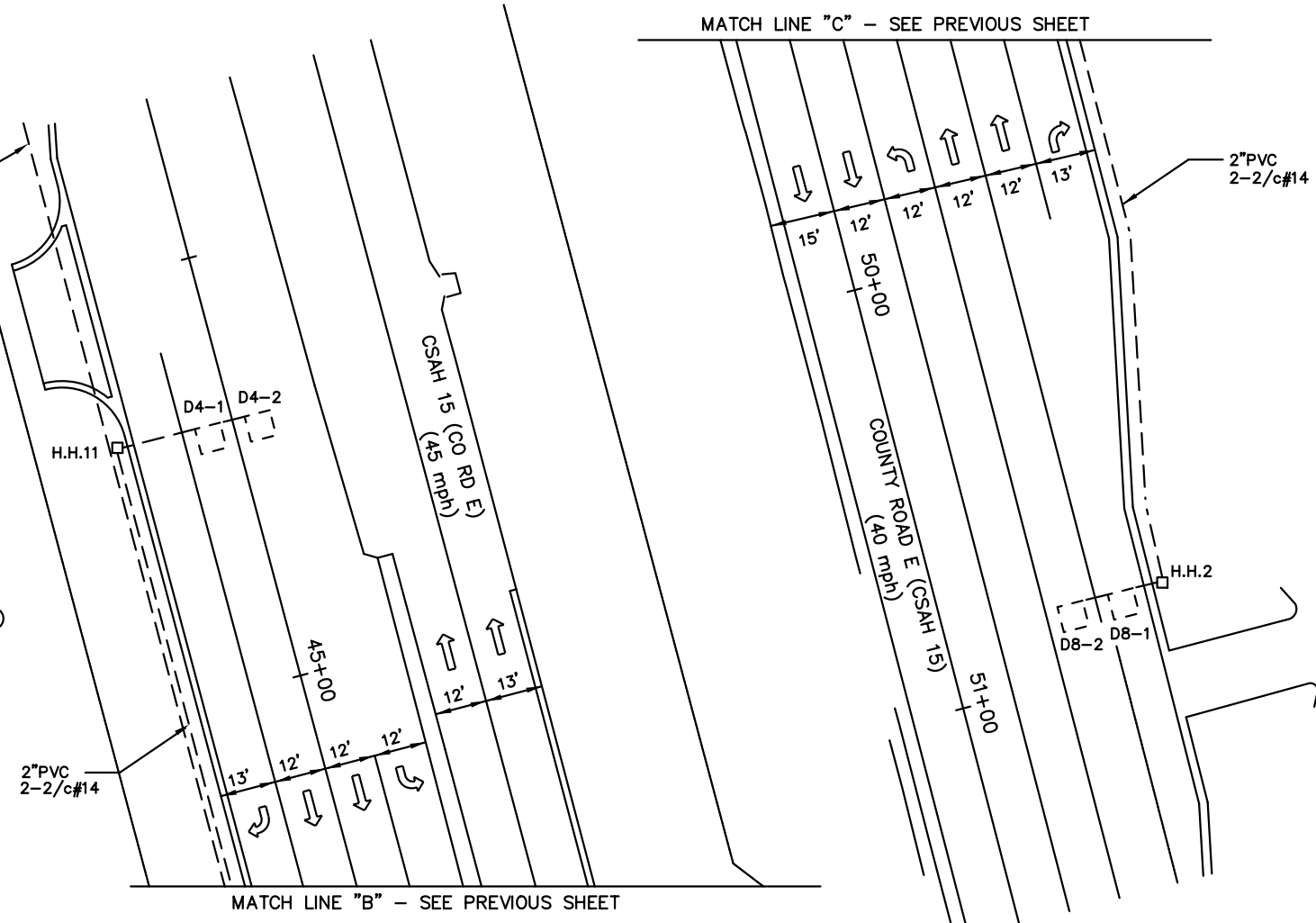
- ④ PA100 POLE FOUNDATION  
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
2-ONE WAY SIGNALS AT 0' & 17'  
ONE WAY EVP DETECTOR & LIGHT (8)  
2-ONE WAY SIGNALS AT 45 & 225 DEG  
2-CD PED HEADS AT 45 & 225 DEG  
R10-12 SIGN (ADJACENT TO HEAD 8-4)  
TYPE D SIGN  
EXTEND INTO H.H.12:  
3" PVC  
2-12/c#12  
2-3/c#12  
1-3/c#20  
1-3/c#12 (LUM)

- ① PA100 POLE FOUNDATION  
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
3-ONE WAY SIGNALS AT 0', 17', & 29'  
ONE WAY EVP DETECTOR & LIGHT (2 & 5)  
3-ONE WAY SIGNALS 45, 135, & 225 DEG  
2-CD PED HEADS AT 45 & 225 DEG  
1-APS PB & SIGN (LT ARROW) (PB8-1)  
1-APS PB & SIGN (RT ARROW) (PB2-2)  
2-R6-1 SIGNS (R & L)  
TYPE D SIGN  
EXTEND INTO H.H.17:  
3" PVC  
3-12/c#12  
2-3/c#12  
1-3/c#20  
1-3/c#12 (LUM)

- ② PA100 POLE FOUNDATION  
TYPE PA100-A-50-X6-350/CAM 400 (X6 AT 350 DEG)  
LUMINAIRE 250 WATT HPS  
ONE WAY EVP DETECTOR & LIGHT (4)  
VIDEO CAMERA  
2-ONE WAY SIGNALS AT 0' & 17'  
2-ONE WAY SIGNALS AT 45 & 225 DEG  
2-CD PED HEADS AT 45 & 225 DEG  
R10-12 SIGN (ADJACENT TO HEAD 4-4)  
TYPE D SIGN  
EXTEND INTO H.H.3:  
3" PVC  
2-12/c#12  
2-3/c#12  
1-3/c#20  
1-3/c#12 (LUM)  
1-COAXIAL CABLE (SPR)  
1-7/16" GROUNDING BRAID TO GROUND ROD IN H.H.3  
1-3/C#14 (CAMERA POWER)  
1-COM CABLE  
1-COAXIAL CABLE

- ③ PA100 POLE FOUNDATION  
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
3-ONE WAY SIGNALS AT 0', 17', & 29'  
ONE WAY EVP DETECTOR & LIGHT (6 & 1)  
3-ONE WAY SIGNALS AT 45, 135, & 225 DEG  
2-CD PED HEADS AT 45 & 225 DEG  
1-APS PB & SIGN (LT ARROW) (PB4-1)  
1-APS PB & SIGN (RT ARROW) (PB6-2)  
2-R6-1 SIGNS (R & L)  
TYPE D SIGN  
EXTEND INTO H.H.8:  
3" PVC  
3-12/c#12  
2-3/c#12  
1-3/c#20  
1-3/c#12 (LUM)

1-2/C#14



MATCH LINE "C" - SEE PREVIOUS SHEET

MATCH LINE "B" - SEE PREVIOUS SHEET

- Ⓐ EQUIPMENT PAD  
CONTROLLER AND CABINET  
SIGNAL SERVICE CABINET  
CONTROLLER CABINET TO H.H.1:  
4" PVC  
3-12/c#12  
2-3/c#12  
1-3/c#20  
15-2/c#14  
1-COAXIAL CABLE (SPR)  
1-3/c#14 (CAMERA POWER)  
1-COM CABLE  
1-COAXIAL CABLE

- SERVICE CABINET TO H.H.1:  
2" PVC  
2-3/c#12 (LUM)
- SERVICE CABINET TO H.H.16:  
2" PVC  
2-3/c#12 (LUM)
- BETWEEN SERVICE CABINET AND CONTROLLER CABINET:  
2" PVC  
2-1/c#6  
1-1/c#6 Ins. Gr.
- SERVICE CABINET TO H.H.18:  
2" PVC  
3-1/c#2
- STUB OUT 1-3/4" PVC FROM CONTROLLER CABINET TO EAST (FOR FUTURE USE)

- CONTROLLER CABINET TO H.H.16:  
4" PVC  
2-12/c#12  
3-3/c#12  
1-3/c#20  
6-2/c#14  
1-6 Pr.#19 Direct Buried (ABANDONED)

- CONTROLLER CABINET TO RAMSEY COUNTY FIBER VAULT  
11/2" PVC INSIDE EXISTING 3" PVC STUB OUT:  
1-6SM FIBER OPTIC CABLE

- CONTROLLER CABINET TO TMS PULL VAULT  
11/2" PVC INSIDE EXISTING 3" PVC STUB OUT:  
1-6SM FIBER OPTIC CABLE

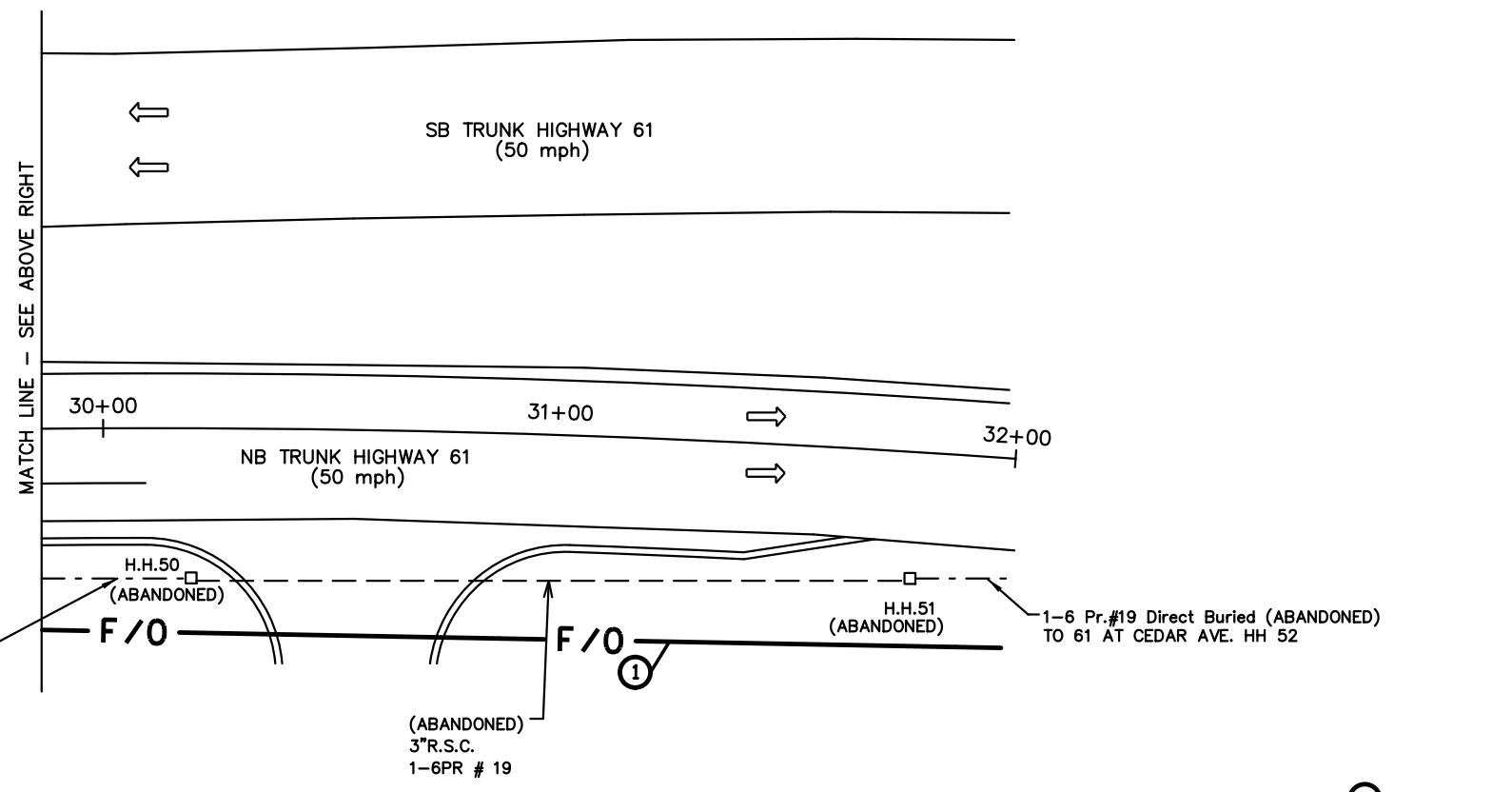
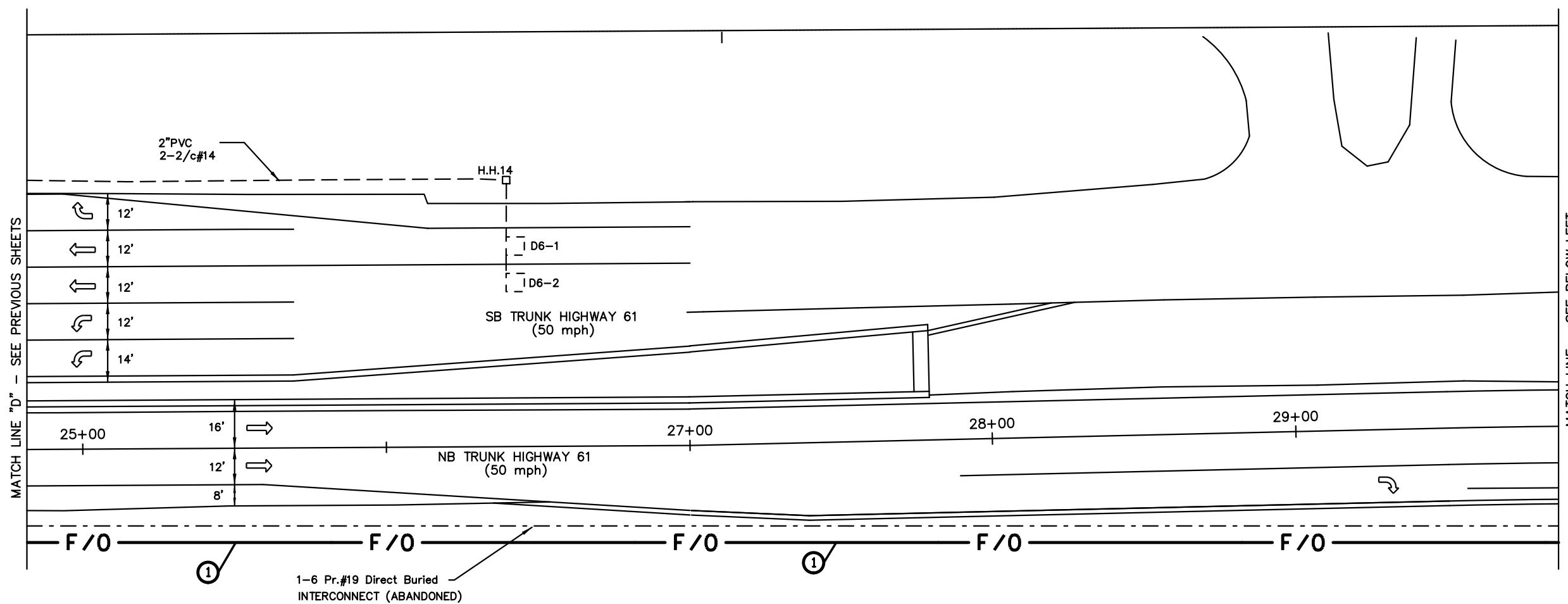
① SEE THE TMS PLAN FOR STATE FIBER OPTICS.

BY: EJA	DATE: 11-04-15	REVISIONS: AS-BUILT OF SP 6222-168 FIBER & CAMERA	SYSTEM ID: 21041	T.E. 5552	MATCH LINES (1 OF 2) TH 61 AT CSAH 15 (CO RD E) IN GEM LAKE & VADNAIS HEIGHTS, RAMSEY COUNTY	S.A.P. NO.	DRAWN BY: SJK	CKD BY: EJA	DATE: 06-14-12
			METER ADDRESS: 1501 COUTNY RD E			CERTIFIED BY: _____	LIC. NO. _____	DATE: _____	
			MASTER ID:	T.E.		STATE PROJ. NO. (T.H.61)	SHEET NO. 2 OF 5 SHEETS		



PLOTTED/REVISED: 11/4/2015

DISTRICT #: METRO  
 IPLOT NAME: MATCH LINES 2 OF 2  
 PATH & FILENAME: IP\_PWP-d077995\T2104L\_sgl.dgn

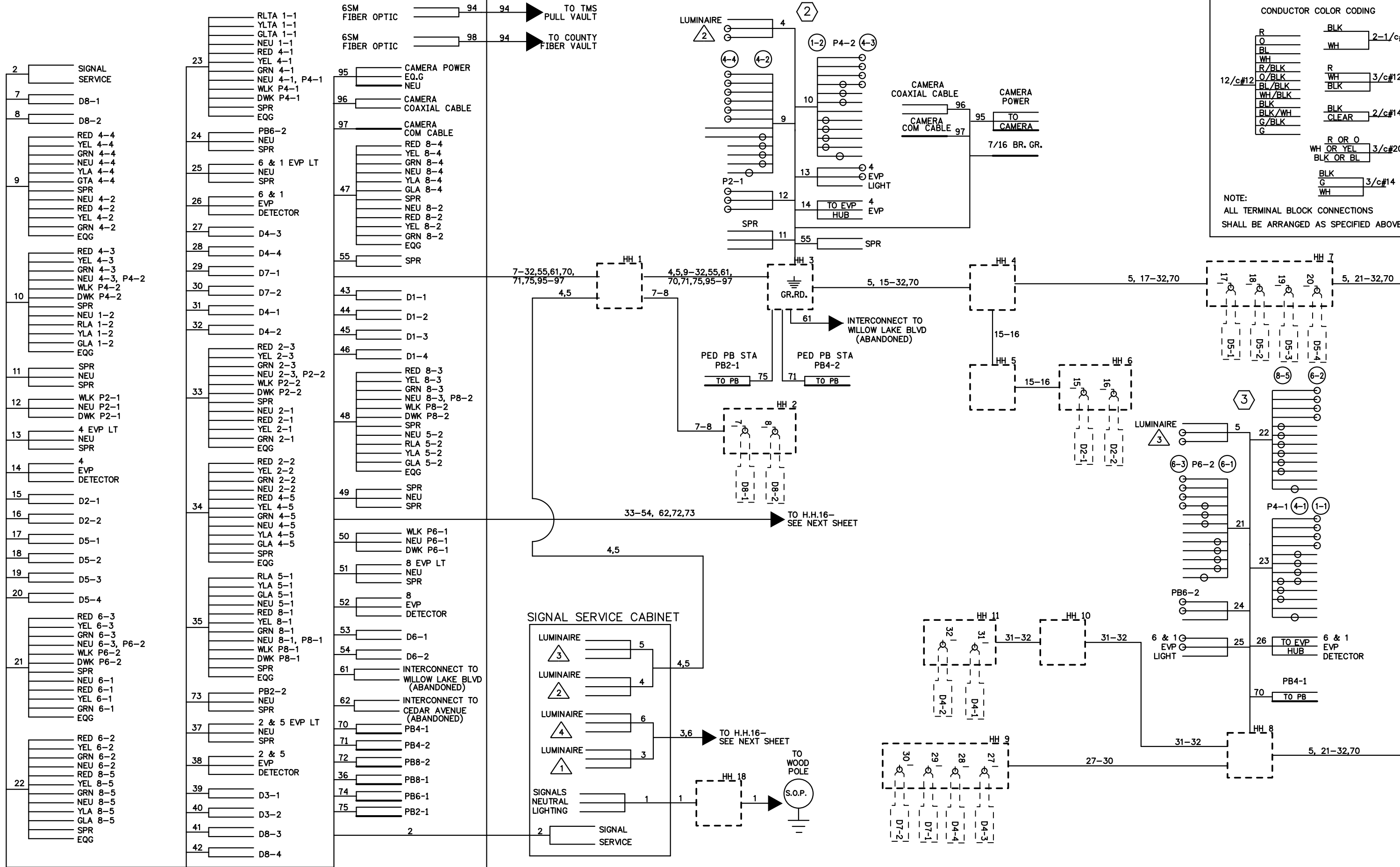


① SEE THE TMS PLAN FOR STATE FIBER OPTICS.

BY	DATE	REVISIONS	SYSTEM ID: 21041	T.E.	MATCH LINES (2 OF 2)		S.A.P. NO.	DRAWN BY: SJK	CKD BY: EJA	DATE: 06-14-12
EJA	11-04-15	AS-BUILT OF SP 6222-168 FIBER & CAMERA	METER ADDRESS: 1501 COUTNY RD E		TH 61 AT CSAH 15 (CO RD E)		CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
			MASTER ID:	T.E.	IN GEM LAKE & VADNAIS HEIGHTS,		STATE PROJ. NO.		(T.H.61)	SHEET NO. 3 OF 5 SHEETS
					RAMSEY COUNTY					

PLOTTED/REVISED: 11/14/2015

DISTRICT #: METRO  
IPLOT NAME: WIRING DIAGRAM 1 OF 2  
PATH & FILENAME: IP\_PWP-d077995N121041\_sgl.dgn



CONDUCTOR COLOR CODING

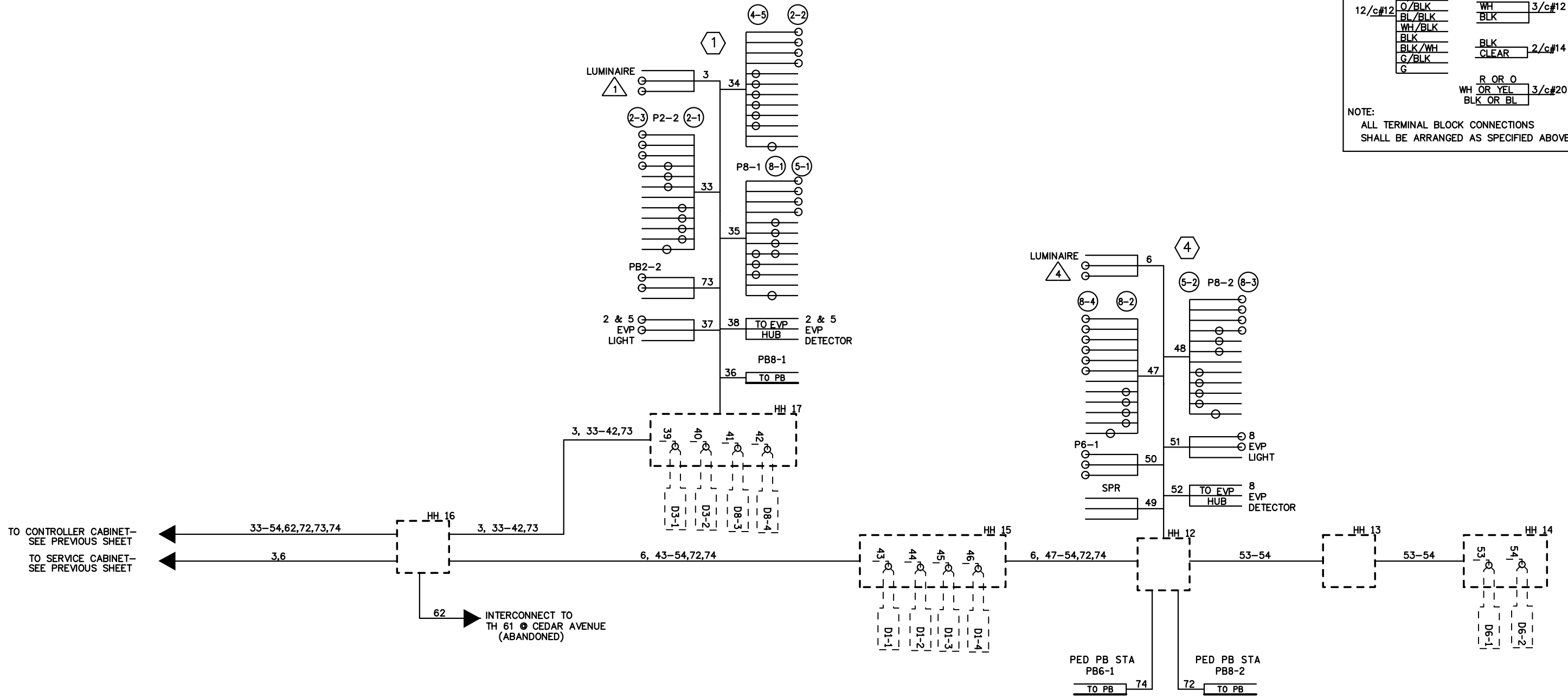
R	BLK	2-1/c#6
O	WH	
BL		
WH	R	3/c#12
R/BLK	WH	
O/BLK	BLK	
BL/BLK		
WH/BLK		
BLK	BLK	2/c#14
BLK/WH	CLEAR	
G/BLK		
G		
R OR O		
WH OR YEL		3/c#20
BLK OR BL		
BLK		
G		3/c#14
WH		

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

BY	DATE	REVISIONS	SYSTEM ID: 21041	T.E.	WIRING DIAGRAM (1 OF 2) TH 61 AT CSAH 15 (CO RD E) IN GEM LAKE & VADNAIS HEIGHTS, RAMSEY COUNTY	S.A.P. NO.	DRAWN BY: SJK	CKD BY: EJA	DATE: 06-14-12
EJA	11-04-15	AS-BUILT OF SP 6222-168 FIBER & CAMERA	METER ADDRESS: 1501 COUTNY RD E	T.E.		CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
			MASTER ID:		STATE PROJ. NO.	(T.H.61)	SHEET NO.	4 OF	5 SHEETS

PLOTTED/REVISED: 11/4/2015

DISTRICT #: METRO  
 IPLOT NAME: WIRING DIAGRAM 2 OF 2  
 PATH & FILENAME: IP\_PWP-d077995\T21041\_sgl.dgn



CONDUCTOR COLOR CODING		
R	BLK	2-1/c#6
O	WH	
BL	WH	
WH	R	3/c#12
R/BLK	WH	
O/BLK	BLK	
BL/BLK	BLK	2/c#14
WH/BLK	CLEAR	
BLK	BLK	
BLK/WH	BLK	3/c#20
G/BLK	WH OR YEL	
G	BLK OR BL	

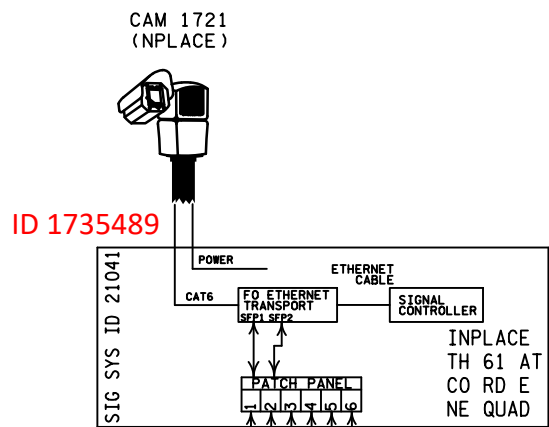
NOTE:  
 ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

BY	DATE	REVISIONS
EJA	11-04-15	AS-BUILT OF SP 6222-168 FIBER & CAMERA

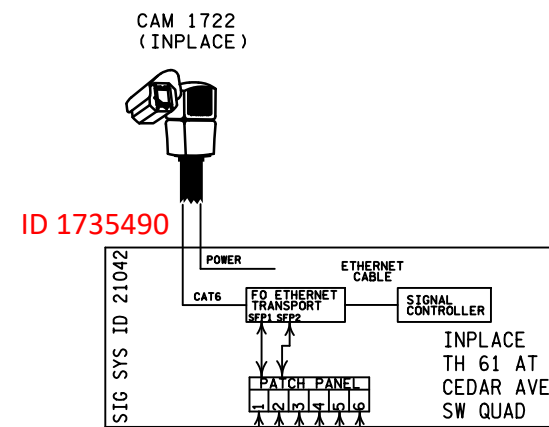
SYSTEM ID: 21041	T.E.
METER ADDRESS: 1501 COUTNY RD E	
MASTER ID:	T.E.

**WIRING DIAGRAM 2 OF 2)**  
**TH 61 AT CSAH 15 (CO RD E)**  
**IN GEM LAKE & VADNAIS HEIGHTS,**  
**RAMSEY COUNTY**

S.A.P. NO.	DRAWN BY: SJK	CKD BY: EJA	DATE: 06-14-12
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO.	(T.H.61)	SHEET NO.	5 OF 5 SHEETS



NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES. ALL FIBER INTERCONNECT CABLES, CAMERAS, AND VAULTS SHOWN ON THIS PAGE ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE (EXCEPT FOR FIBER-OPTIC CABLE SPLICING LOCATION TO BE COMPLETED BY THE CONTRACTOR AND PAID FOR UNDER THE "TRAFFIC CONTROL INTERCONNECT" PAY ITEM (ITEM NO. 2565). SEE SPECIAL PROVISIONS.



TRUNK ID# 61-190

TRUNK ID# 61-191

TRUNK ID# 61-192

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FIBER OPTIC CABLE MARKINGS @  
SPICE ENCLOSURE VAULT ENTRY

FIBER OPTIC CABLE MARKINGS @  
SPICE ENCLOSURE VAULT ENTRY

FIBER OPTIC CABLE MARKINGS @  
SPICE ENCLOSURE VAULT ENTRY

FIBER OPTIC CABLE MARKINGS @  
SPICE ENCLOSURE VAULT ENTRY

INPLACE PULL/SPLICE VAULT TH61 AT CO RD E (CSAH 15) NE QUAD

INPLACE PULL/SPLICE VAULT TH61 AT CEDAR AVE SW QUAD

DESIGN TEAM				REVISIONS
DRAWN BY:	MRB			
DESIGNER:	MRB			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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.  
Certified By: *John M. Gray* Lic. No. 22457  
Printed Name: JOHN M. GRAY Date: 12/22/2023



RAMSEY COUNTY, MINNESOTA  
**T.H. 61**  
S.P. 6222-197

**SIGNAL PLAN**  
FIBER OPTIC SCHEMATIC  
TRUCK HIGHWAY 61 (WILLOW LAKE RD TO CEDAR AVE)

SEH FILE NO. ISDWB170688  
SG13 OF 5627  
**81**  
**101**