

PLOTTED/REVISED: 17-JAN-2024

DISTRICT *: Metro
PLOT NAME: LAYOUT
FILENAME: Projects\DM_FROSA\212\00007\Traffic\Signals\47.58.110\ENGLER BLVD WR-1736520\1736520_sgl.dgn

LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1	6x6	55
D1-2	3-6x6	10, 25 & 40
D2-1, D2-2	2-6x6	475
D4-1, D4-2	2-6x6	180
D4-3	2-6x6	-5 & 10
D4-4, D4-5	2-6x6	5 & 20
D6-1, 62-2	6x6	486

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

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

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
-FYA DENOTES FLASHING YELLOW ARROW

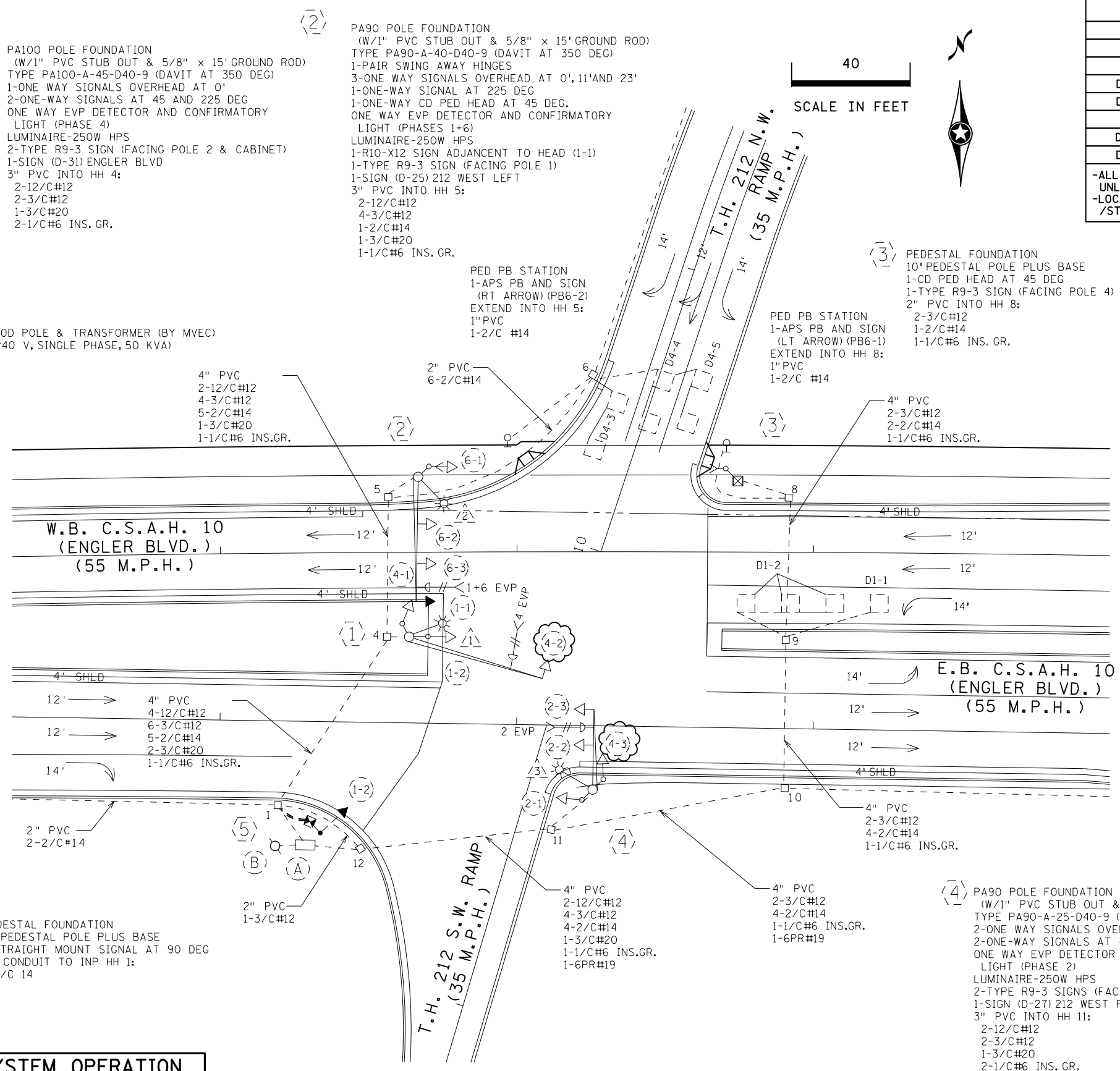
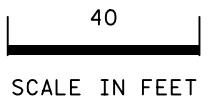
→ REVISE SIGNAL INDICATIONS 4-2 AND 4-3 AS-SHOWN

- (A) COMBINATION EQUIPMENT PAD - TYPE 2 (SIGNAL AND LIGHTING)
CONTROLLER AND CABINET
MASTER CONTROLLER
SERVICE CABINET
3/4" PVC FOR PHONE DROP
CABLE PROVIDED BY PHONE COMPANY (SPRINT)
4" PVC TO HH 1: 4" PVC TO HH 12:
4-12/C#12 2-12/C#12
4-3/C#12 3-3/C#12
7-2/C#14 4-2/C#14
1-6/C#14 1-3/C#20
2-3/C#20 1-1/C#6 INS. GR.
1-1/C#6 INS. GR. 1-6PR#19
- 3" PVC STUBBED OUT (CAPPED BOTH ENDS)
- 2" PVC TO SERVICE CABINET 2" PVC
2-1/C#6 3-3/C#12
1-1/C#6 INS. GR.
- SERVICE CABINET TO TRANSFORMER
2" PVC RISER, WEATHER HEAD, AND CONDUIT
3-1/C#2
- SERVICE CABINET TO HH 1:
2" PVC
3-3/C#12

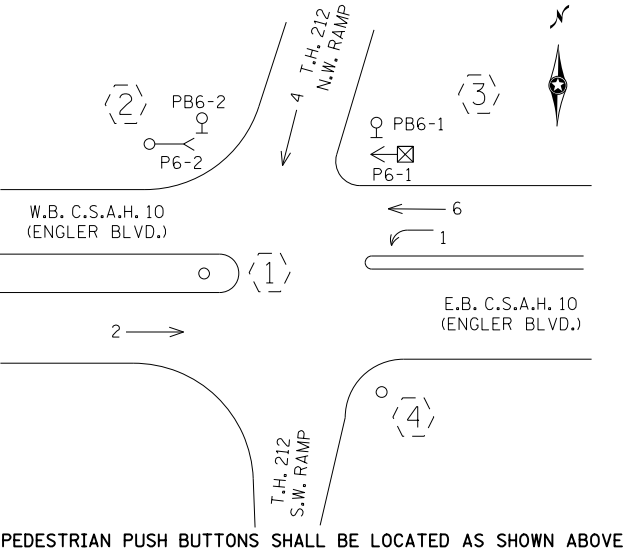
- (1) PA100 POLE FOUNDATION (W/1" PVC STUB OUT & 5/8" x 15' GROUND ROD)
TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)
1-ONE WAY SIGNALS OVERHEAD AT 0'
2-ONE-WAY SIGNALS AT 45 AND 225 DEG
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)
LUMINAIRE-250W HPS
2-TYPE R9-3 SIGN (FACING POLE 2 & CABINET)
1-SIGN (D-31) ENGLER BLVD
3" PVC INTO HH 4:
2-12/C#12
2-3/C#12
1-3/C#20
2-1/C#6 INS. GR.

- (2) PA90 POLE FOUNDATION (W/1" PVC STUB OUT & 5/8" x 15' GROUND ROD)
TYPE PA90-A-40-D40-9 (DAVIT AT 350 DEG)
1-PAIR SWING AWAY HINGES
3-ONE WAY SIGNALS OVERHEAD AT 0', 11' AND 23'
1-ONE-WAY SIGNAL AT 225 DEG
1-ONE-WAY CD PED HEAD AT 45 DEG.
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)
LUMINAIRE-250W HPS
1-R10-X12 SIGN ADJACENT TO HEAD (1-1)
1-TYPE R9-3 SIGN (FACING POLE 1)
1-SIGN (D-25) 212 WEST LEFT
3" PVC INTO HH 5:
2-12/C#12
4-3/C#12
1-2/C#14
1-3/C#20
1-1/C#6 INS. GR.

- (B) SOP-WOOD POLE & TRANSFORMER (BY MVEC)
(120/240 V, SINGLE PHASE, 50 KVA)



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASE 1 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.

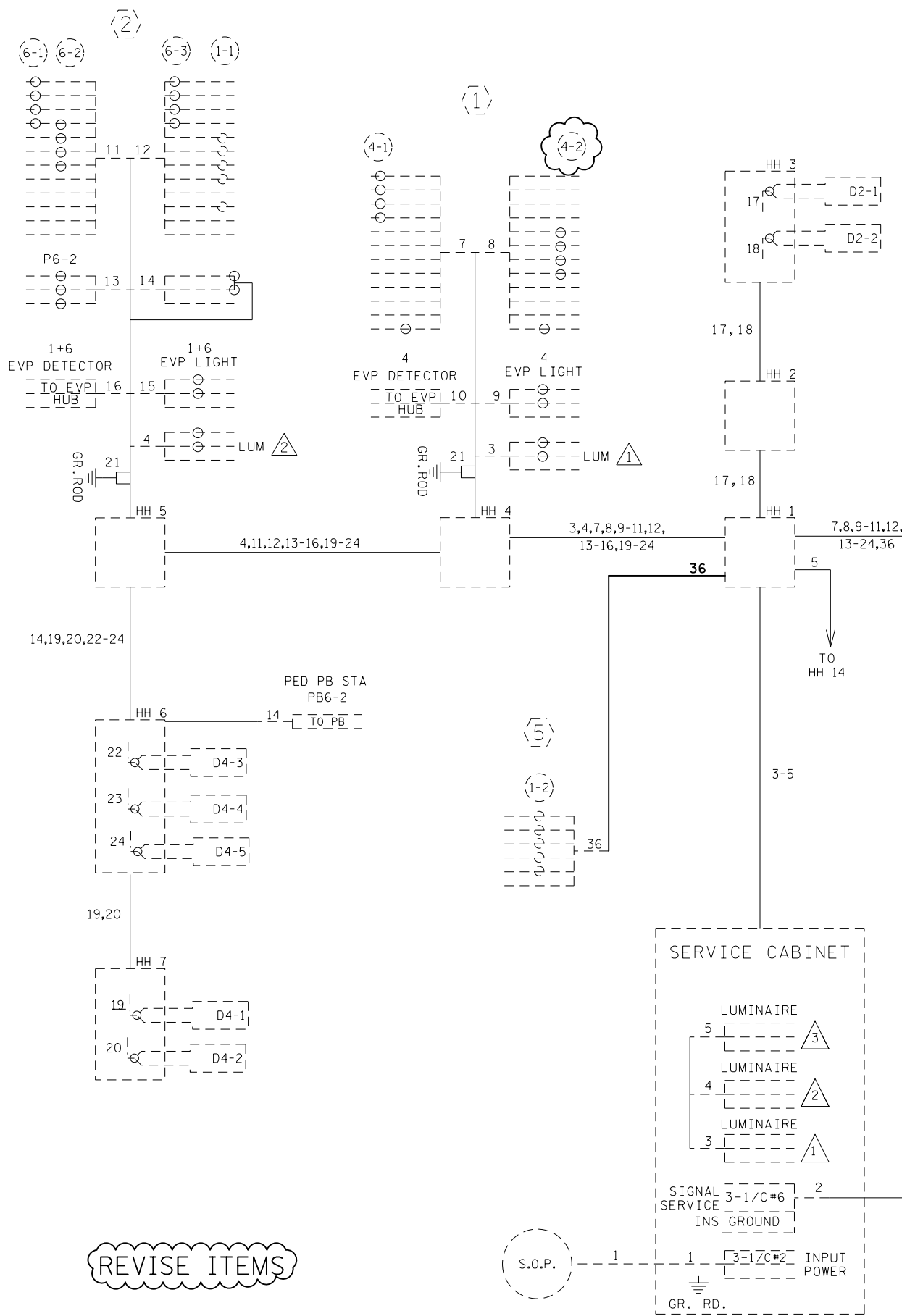
REVISE ITEMS

BY	DATE	REVISIONS	SYSTEM ID:	T.E.	S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
SJK	11/22/22	AS-BUILT PLAN SP 1017-106	1736520	T.E.				
SJK	01/16/24	UPDATE SIGNAL HEADS 4-2 AND 4-3						
			METER ADDRESS: 4250 ENGLER BLVD		CERTIFIED BY _____ LIC. NO. _____ DATE: _____			
			OLD SYSTEM ID: 38511		STATE PROJ. NO. 1017-106 (T.H.212) SHEET NO. 1 OF 2 SHEETS			

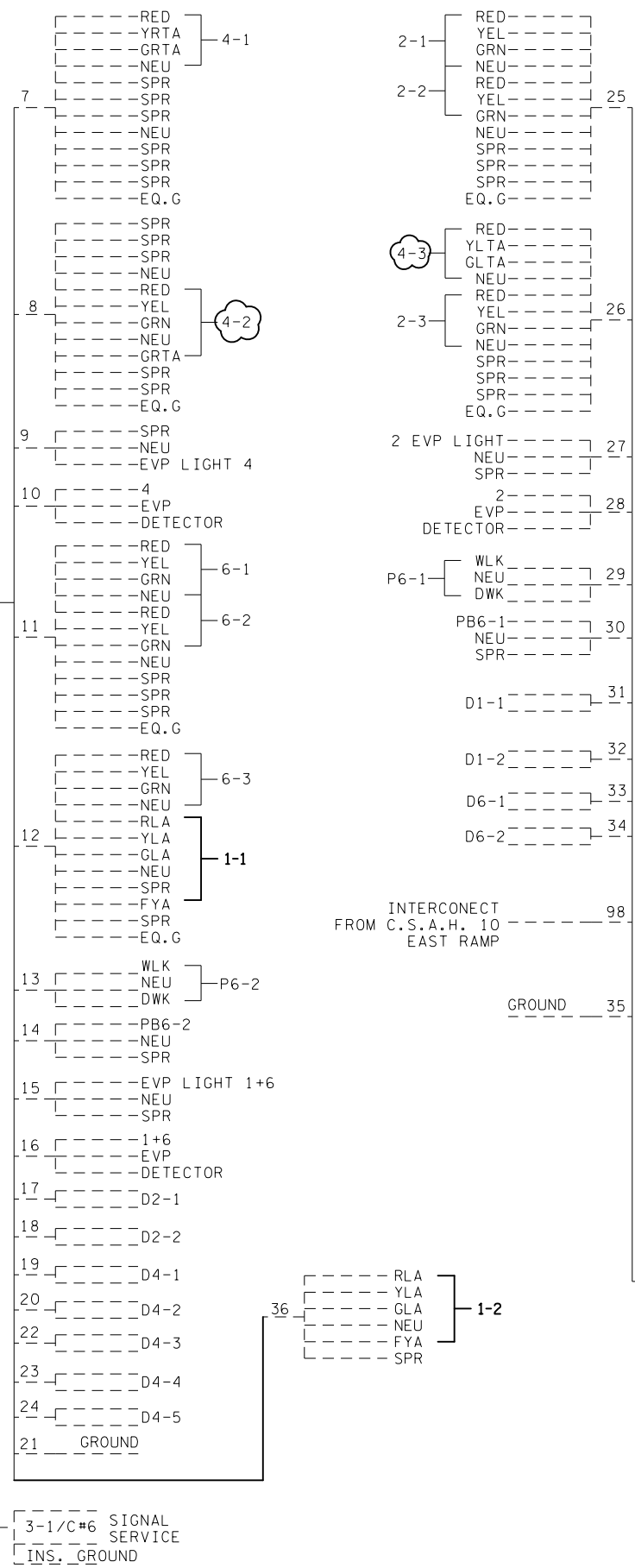
**INTERSECTION LAYOUT
TH 212 AT ENGLER BLVD WR
IN THE CITY OF CHASKA, CARVER COUNTY**

PLOTTED/REVISED: 17-JAN-2024

DISTRICT *: Metro
PLOT NAME: WIRING DIAGRAM
FILENAME: Projects\DM_FOS\212\00007\Traffic\Signals\47.58.10\ENGLER BLVD WR\1736520\1736520_sgl.dgn



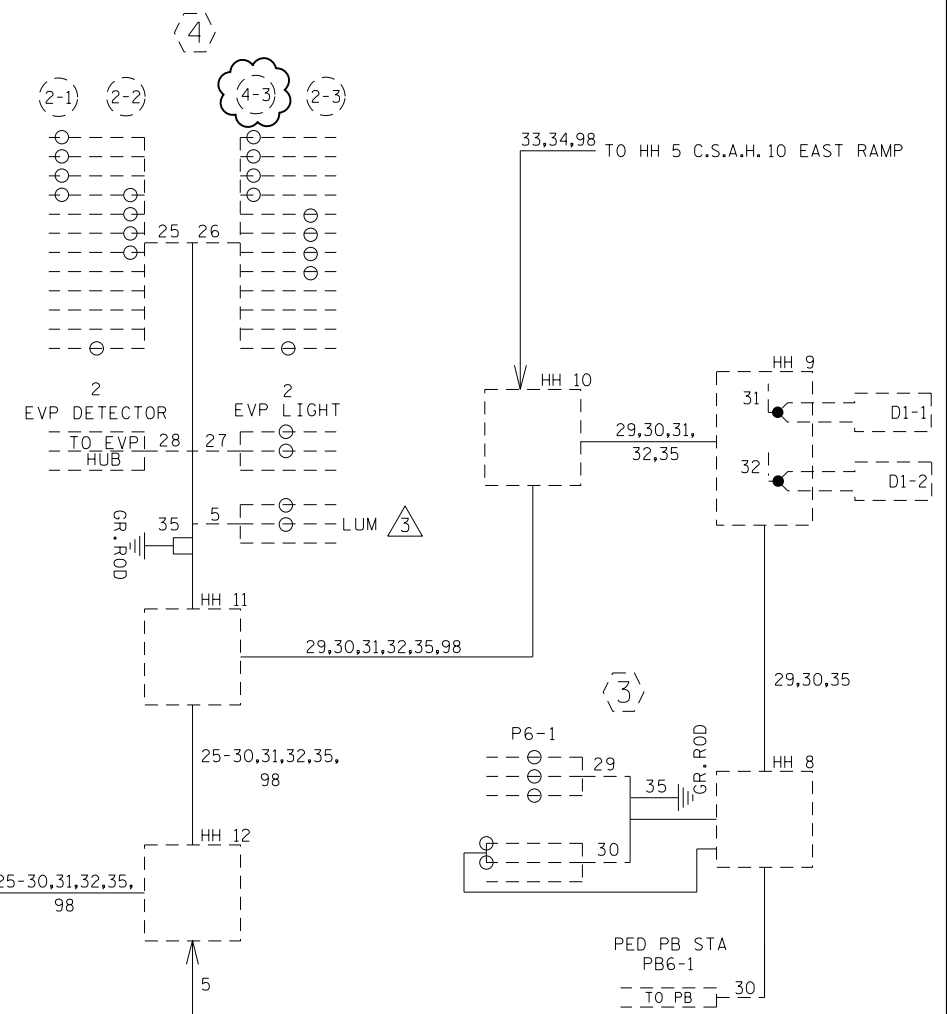
CONTROLLER CABINET



CONDUCTOR COLOR CODE

TO SIGNAL CABINET		TO DEVICE	
3/C#20	R OR O WH OR YEL BLK OR BL	12/C#12	R O BL WH R/BLK O/BLK BL/BLK WH/BLK BLK BLK/WH G/BLK G
2/C#14	BLK CLR	5/C#12	R O BL WH G
2-1/C	BLK WH	4/C#14	R BL WH BLK
6PR#19		2/C#14	BLK WH
1-1/C #6	INS. GR. GREEN		

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



REVISE ITEMS

S.O.P.

BY	DATE	REVISIONS
SJK	11/22/22	AS-BUILT PLAN SP 1017-106
SJK	01/16/24	UPDATE SIGNAL HEADS 4-2 AND 4-3

SYSTEM ID: 1736520 T.E.
 METER ADDRESS: 4250 ENGLER BLVD
 OLD SYSTEM ID: 38511

FIELD WIRING DIAGRAM
TH 212 AT ENGLER BLVD WR
IN THE CITY OF CHASKA, CARVER COUNTY

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO. 1017-106 (T.H.212)		SHEET NO. 2 OF	2 SHEETS

LOOP DETECTORS		
DESIGNATION	NO. OF LOOPS	LOCATION
D1-1, D1-2	1	40, 10
D2-1, D2-2	1	475
D4-1, D4-2	1	180
D4-3	2	-5 & 10
D4-4, D4-5	2	5 & 20
D6-1, D6-2	1	486

-ALL LOOP DETECTORS SHALL BE 6' X 6' PVC.
-LOCATION: DISTANCE FROM CROSSWALK/ STOP LINE IN FEET

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

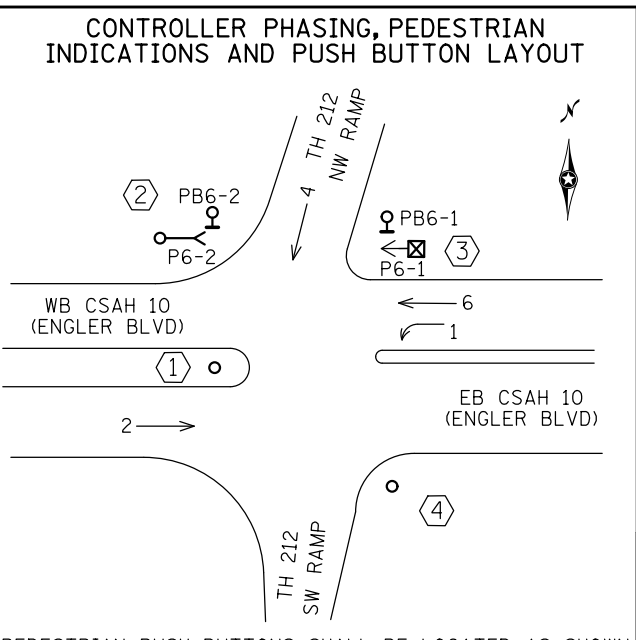
-ALL SIGNAL INDICATIONS ARE 12"LEDS
-ALL SIGNAL FACES HAVE A BACKGROUND SHIELD
-ALL SIGNAL HEADS ARE BLACK POLYCARBONATE



PLOTTED/REVISED: 1/29/2015

DISTRICT #: METRO
IPLOT NAME: T38430.LAY
PATH & FILENAME: IP_PWP-d0784962T38430_SGL.dgn

- (A) COMBINATION EQUIPMENT PAD - TYPE 2**
(SIGNAL AND LIGHTING)
CONTROLLER AND CABINET
MASTER CONTROLLER
SERVICE CABINET
3/4" PVC FOR PHONE DROP
CABLE PROVIDED BY PHONE COMPANY (SPRINT)
4" PVC TO HH 1:
4-12/C#12
4-3/C#12
7-2/C#14
2-3/C#20
1-1/C#6 INS. GR.
- 4" PVC TO HH 12:
2-12/C#12
3-3/C#12
4-2/C#14
1-3/C#20
1-1/C#6 INS. GR.
1-6PR#19
- 3" PVC STUBBED OUT (CAPPED BOTH ENDS)
SERVICE CABINET TO HH 1:
2" PVC
3-3/C#12
- 2" PVC TO SERVICE CABINET
2-1/C#6
1-1/C#6 INS. GR.
- SERVICE CABINET TO TRANSFORMER
2" PVC RISER, WEATHER HEAD, AND CONDUIT
3-1/C#2



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASE 1 BEING A PROTECTED LEFT TURN.

- (1) PA100 POLE FOUNDATION**
(W/1" PVC STUB OUT & 5/8" x 15' GROUND ROD)
TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)
1-ONE WAY SIGNALS OVERHEAD AT 0'
2-ONE WAY SIGNALS AT 45 AND 225 DEG
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)
LUMINAIRE-250W HPS
2-TYPE R9-3 SIGN (FACING POLE 2 & CABINET)
1-SIGN (D-31) ENGLER BLVD
3" PVC INTO HH 4:
2-12/C#12
2-3/C#12
1-3/C#20
2-1/C#6 INS. GR.

- (2) PA90 POLE FOUNDATION**
(W/1" PVC STUB OUT & 5/8" x 15' GROUND ROD)
TYPE PA90-A-40-D40-9 (DAVIT AT 350 DEG)
1-PAIR SWING AWAY HINGES
3-ONE WAY SIGNALS OVERHEAD AT 0', 11' AND 23'
1-ONE WAY SIGNAL AT 225 DEG
1-ONE WAY CD PED HEAD AT 45 DEG.
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 6 & 1)
LUMINAIRE-250W HPS
1-TYPE R9-3 SIGN (FACING POLE 1)
1-SIGN (D-25) 212 WEST LEFT
3" PVC INTO HH 5:
2-12/C#12
4-3/C#12
1-2/C#14
1-3/C#20
1-1/C#6 INS. GR.

- PED PB STATION**
1-APS PB AND SIGN (RT ARROW) (PB6-2)
EXTEND INTO HH 5:
1" PVC
1-2/C#14

- PED PB STATION**
1-APS PB AND SIGN (LT ARROW) (PB6-1)
EXTEND INTO HH 8:
1" PVC
1-2/C#14

- (3) PEDESTAL FOUNDATION**
10' PEDESTAL POLE PLUS BASE
1-CD PED HEAD AT 45 DEG
1-TYPE R9-3 SIGN (FACING POLE 4)
2" PVC INTO HH 8:
2-3/C#12
1-2/C#14
1-1/C#6 INS. GR.

- (4) PA90 POLE FOUNDATION**
(W/1" PVC STUB OUT & 5/8" x 15' GROUND ROD)
TYPE PA90-A-25-D40-9 (DAVIT AT 350 DEG)
2-ONE WAY SIGNALS OVERHEAD AT 0' AND 11'
2-ONE WAY SIGNALS AT 45 AND 225 DEG
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2)
LUMINAIRE-250W HPS
2-TYPE R9-3 SIGNS (FACING POLE 3 & CABINET)
1-SIGN (D-27) 212 WEST RIGHT
3" PVC INTO HH 11:
2-12/C#12
2-3/C#12
1-3/C#20
2-1/C#6 INS. GR.

- (B) SOP-WOOD POLE & TRANSFORMER (BY MVEC)**
(120/240 V, SINGLE PHASE, 50 KVA)

BY	DATE	REVISIONS
EJA	1-29-15	AS-BUILT OF SP 8825-473 APS & CD PEDS

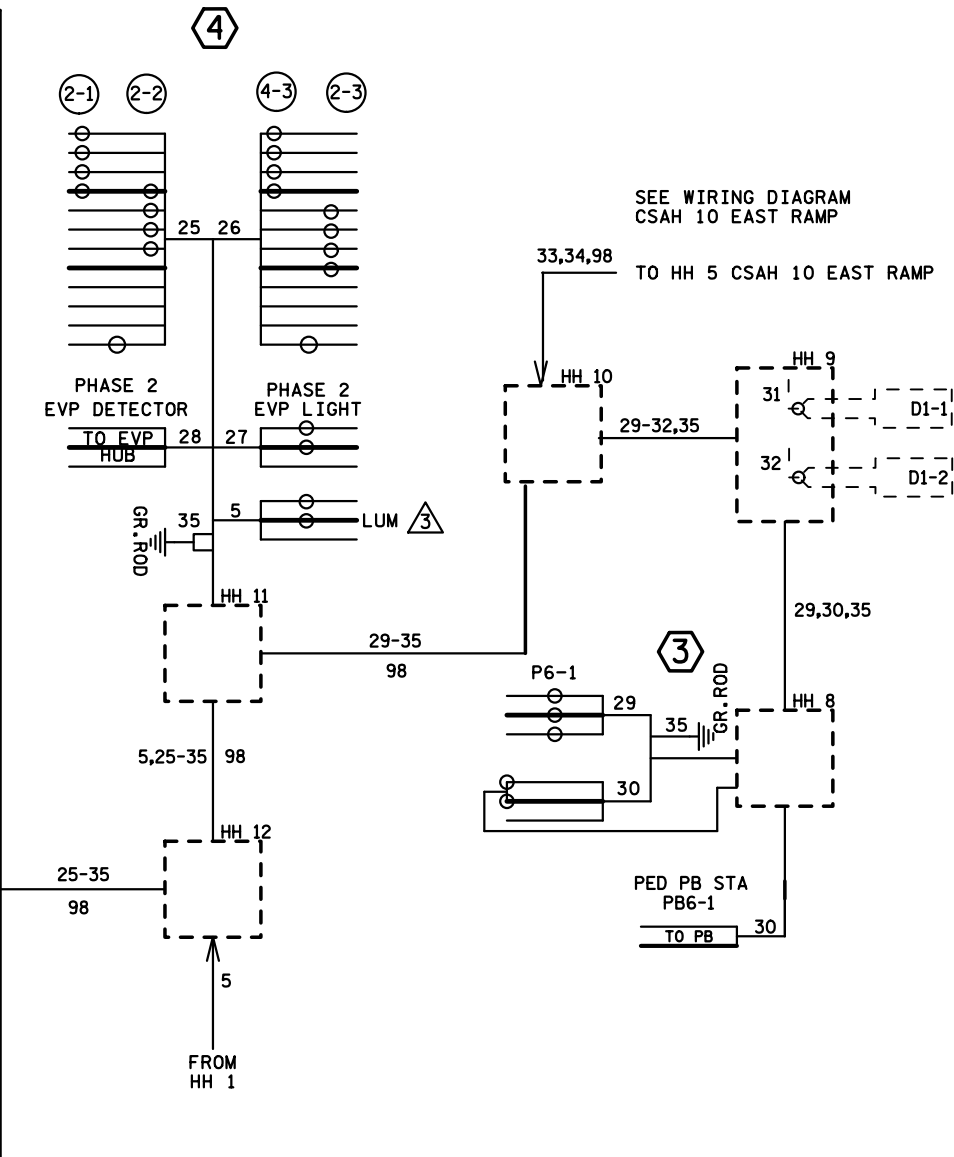
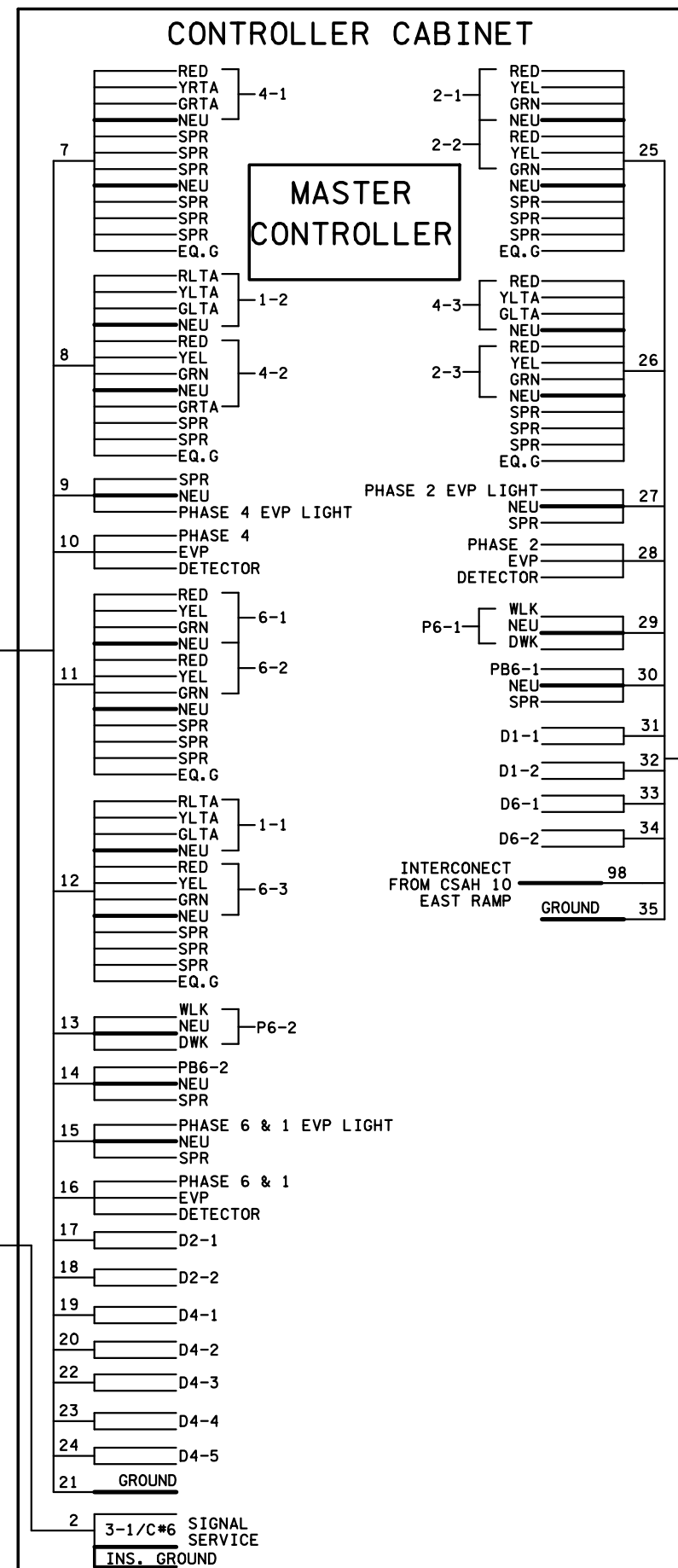
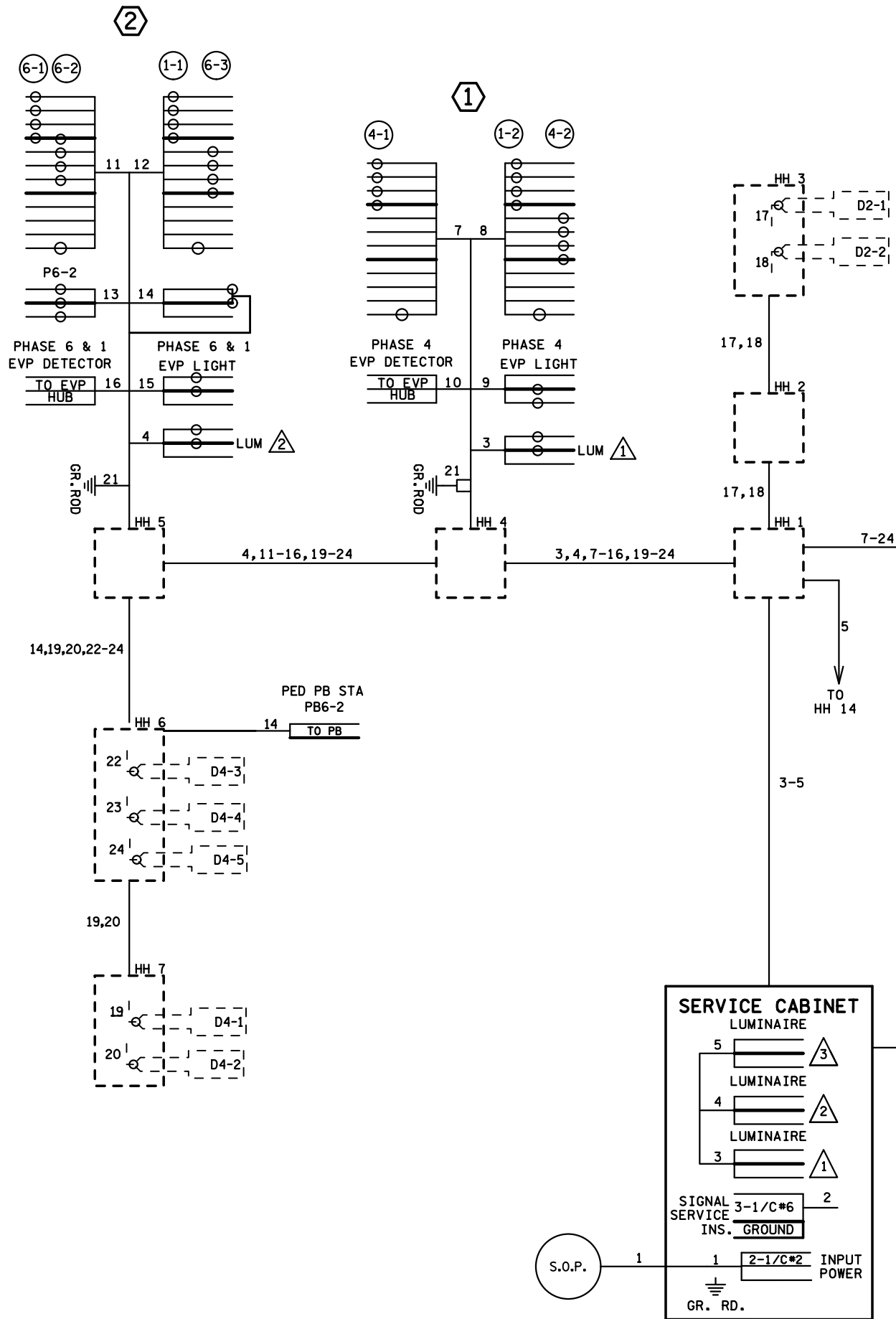
SYSTEM ID: 38430	T.E.
METER ADDRESS: 4250 ENGLER BLVD	
MASTER ID: 38511	T.E.

INTERSECTION LAYOUT
TH 212 AT
CSAH 10 (ENGLER BLVD) WEST RAMPS
IN CHASKA, CARVER COUNTY

S.A.P. NO.	DRAWN BY: CDB	CKD BY: CDB	DATE: 10-28-13
CERTIFIED BY _____	LIC. NO. 19863	DATE: 2/11/14	
STATE PROJ. NO.		SHEET NO. 1 OF 4 SHEETS	

PLOTTED/REVISED: 1/29/2015

DISTRICT #: METRO
IPLOT NAME: T38430_WIR
PATH & FILENAME: IP_PWP-d0784962\T38430_SGL.dgn



CONDUCTOR COLOR CODE		
TO SIGNAL CABINET	TO DEVICE	
R OR O	R	RED
WH OR YEL	BL	YEL
BLK OR BL	WH	GRN
	R/BLK	NEU
	O/BLK	YLTA
	BL/BLK	GLTA
	WH/BLK	SPR
	BLK/WH	
	BLK	
	G/BLK	
	G	
	R	
	BL	
	WH	
	G	
	R	
	BL	
	WH	
	G	
	R	
	BLK	
	WH	
	BLK	

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

BY	DATE	REVISIONS
EJA	1-29-15	AS-BUILT OF SP 8825-473 APS & CD PEDS

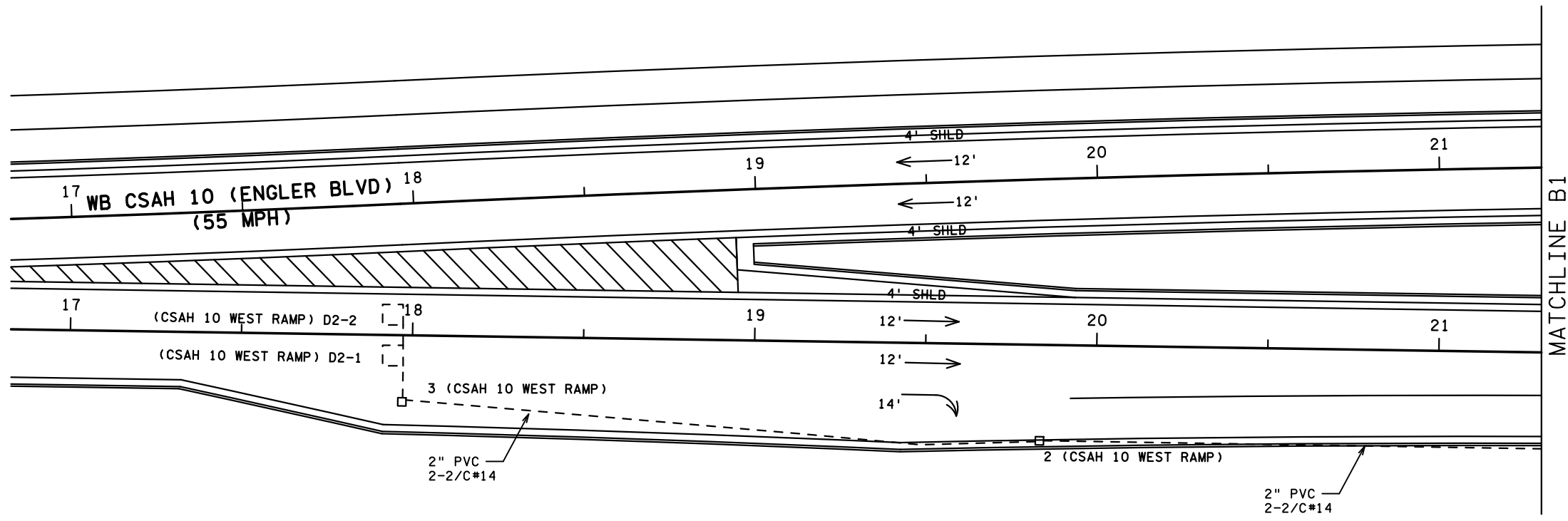
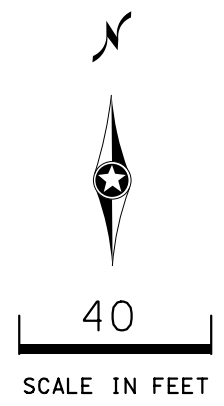
SYSTEM ID: 38430	T.E.
METER ADDRESS: 4250 ENGLER BLVD	
MASTER ID: 38511	T.E.

WIRING DIAGRAM
TH 212 AT
CSAH 10 (ENGLER BLVD) WEST RAMPS
IN CHASKA, CARVER COUNTY

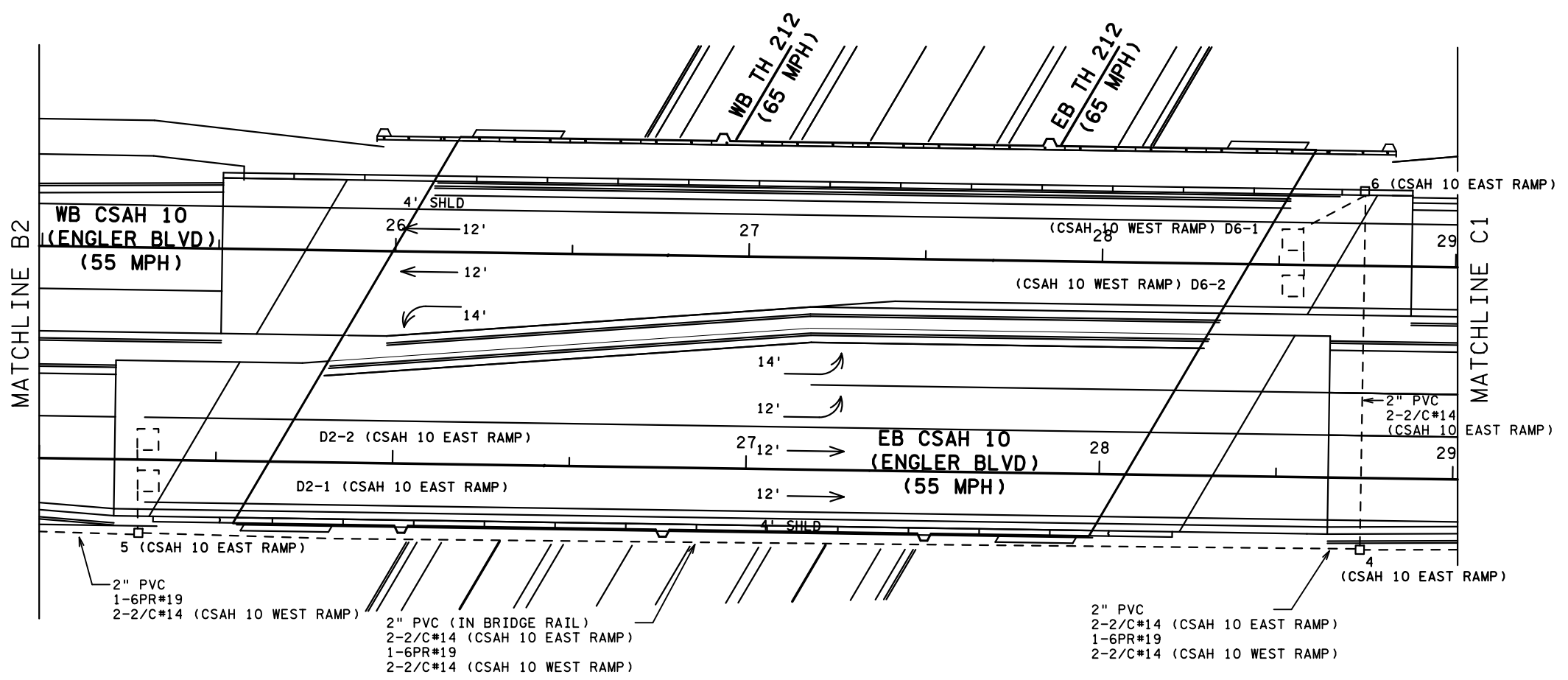
S.A.P. NO.	DRAWN BY: CDB	CKD BY: CDB	DATE: 10-28-13
CERTIFIED BY	LIC. NO. 19863	DATE: 2/11/14	
STATE PROJ. NO.	SHEET NO. 3 OF 4 SHEETS		

PLOTTED/REVISED: 1/29/2015

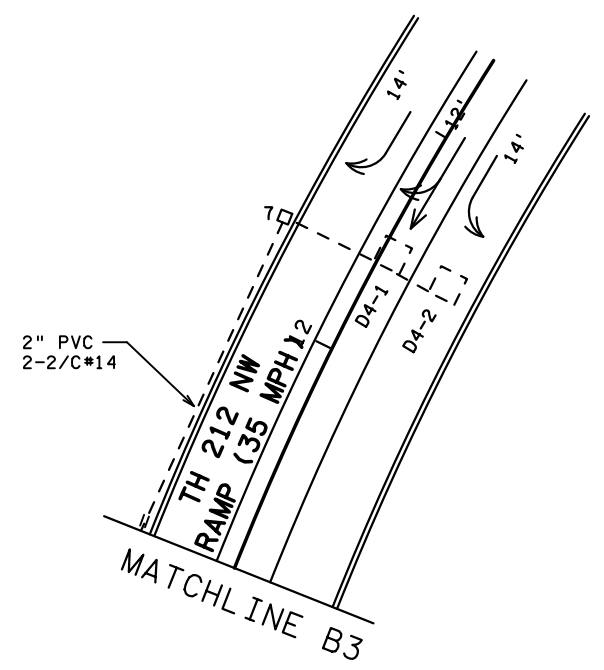
DISTRICT #: METRO
 IPLOT NAME: T38430.JML
 PATH & FILENAME: IP_PWP-d0784962T38430_SGL.dgn



MATCHLINE B1



MATCHLINE C1



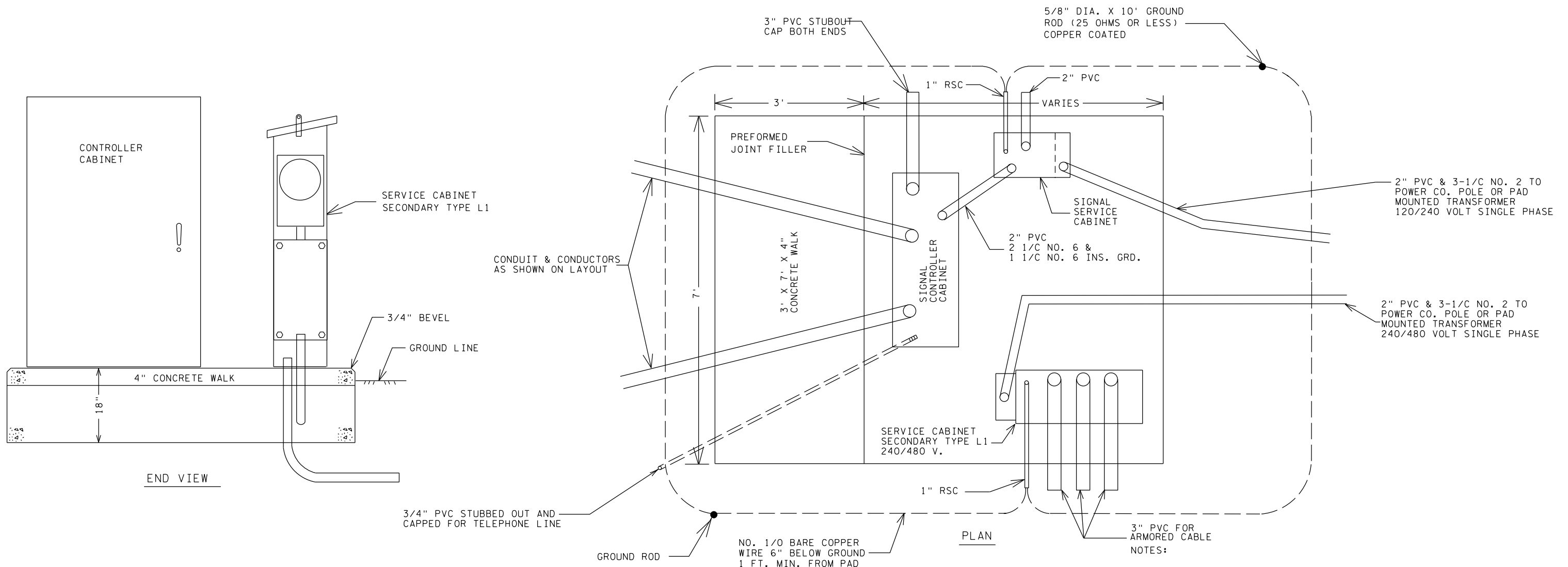
MATCHLINE B3

BY	DATE	REVISIONS	SYSTEM ID: 38430	T.E.	S.A.P. NO.	DRAWN BY: CDB	CKD BY: CDB	DATE: 10-28-13
EJA	1-29-15	AS-BUILT OF SP 8825-473 APS & CD PEDS	METER ADDRESS: 4250 ENGLER BLVD		CERTIFIED BY _____	LIC. NO. _____	DATE: 2/11/14	
			MASTER ID: 38511	T.E.	STATE PROJ. NO. 8825-473	SHEET NO. 2 OF 4 SHEETS		

**MATCHLINE LAYOUT
 TH 212 AT
 CSAH 10 (ENGLER BLVD) WEST RAMPS
 IN CHASKA, CARVER COUNTY**

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

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

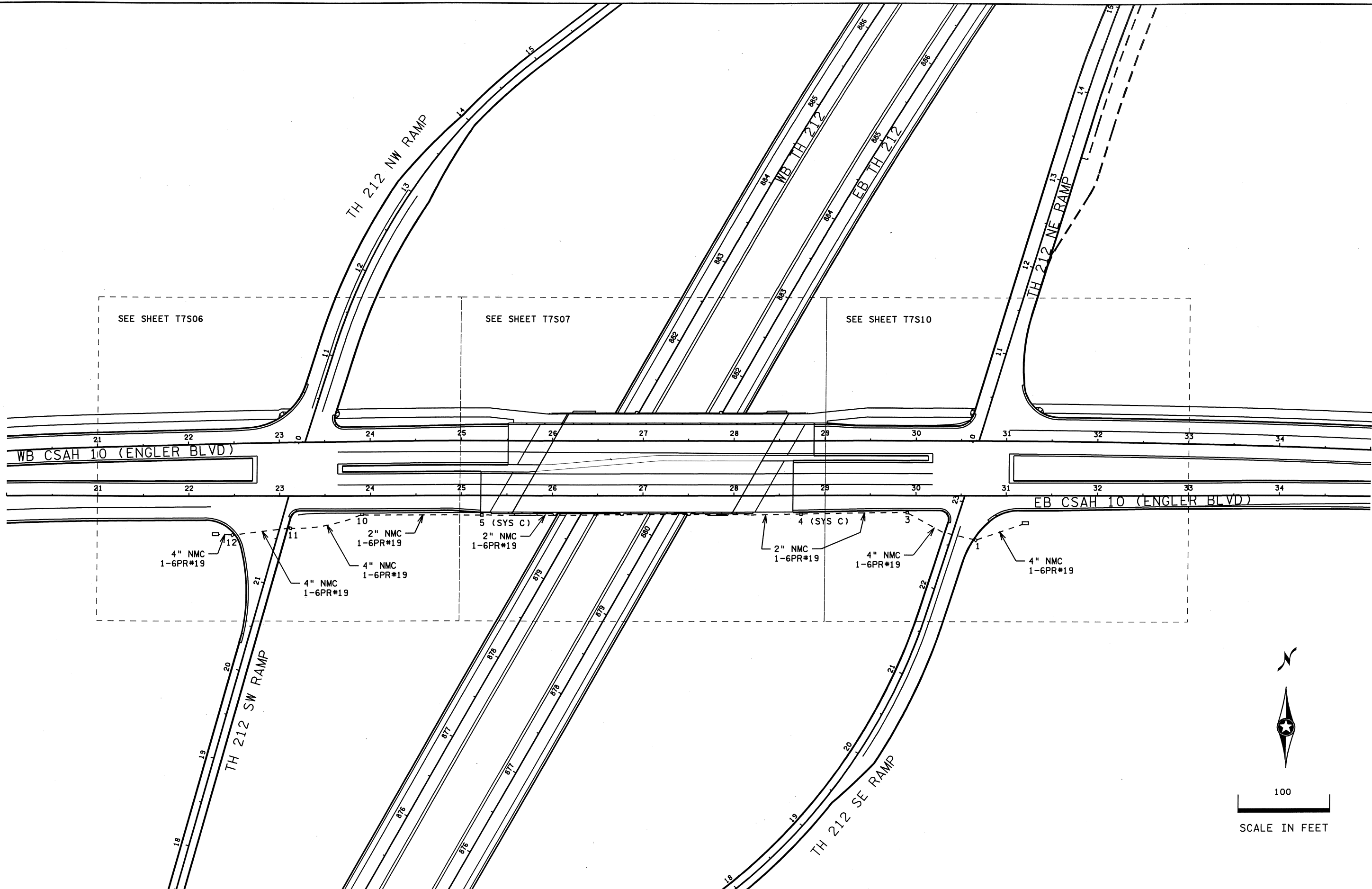


- NOTES:
1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE CONTROLLER CABINET SHALL BE FURNISHED BY MN/DOT.
 2. THE UPPER PARTS OF THE EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERRED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
 3. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC).
 4. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
 5. CONDUITS WHICH TERMINATE WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
 6. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
 7. THE NEUTRAL WIRE SHALL BE ISOLATED FROM THE EQUIPMENT GROUND AND THE GROUND RING WITHIN THE LIGHTING SERVICE CABINET, INCLUDING THE METER SOCKET
 8. THE NEUTRAL WIRE SHALL BE CONNECTED TO THE EQUIPMENT GROUND AND THE GROUND RING WITHIN THE SIGNAL SERVICE CABINET
 9. ALL CONDUIT SHALL BE PVC SCHEDULE 80 HDPE FOR UNDER ROADWAYS AND ABOVE GROUND AND SCHEDULE 40 FOR ALL OTHER RUNS UNLESS NOTED OTHERWISE.

BY	DATE	REVISIONS	SYSTEM ID: 38430	T.E.	EQUIPMENT PAD LAYOUT TH 212 AT CSAH 10 (ENGLER BLVD) WEST RAMPS IN CHASKA, CARVER COUNTY	S.A.P. NO.	DRAWN BY: CDB	CKD BY: CDB	DATE: 10-28-13
EJA	1-29-15	AS-BUILT OF SP 8825-473 APS & CD PEDS	METER ADDRESS: 4250 ENGLER BLVD			CERTIFIED BY _____	LIC. NO. _____	DATE: 2/11/14	
			MASTER ID: 38511	T.E.		STATE PROJ. NO.	SHEET NO.	4 OF	4 SHEETS

PLOTTED/REVISED: 4/22/2009

DISTRICT #: METRO
 IPLOT NAME: Interconnect
 PATH & FILENAME: S:\TRAFFIC\Signal Design\Plans\TH 212\384301\384301_sgl.dgn



0	3/13/06	KEL	PJZ	RJG	INITIAL RELEASE FOR CONSTRUCTION
1	10/8/08	KAS	RJG	RJG	AS-BUILT PLANS
2	4/22/09	GDS	EJA	EJA	FINAL AS-BUILT PLANS
NO	DATE	BY	CKD	APPR	REVISION
FILEA					

I hereby certify that this plan, specification, or report 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.
 Pr Int Name: ROBERT J GREEN
 Date _____ License # 22793

MN/DOT RELEASED FOR CONSTRUCTION
 Date _____ MnDOT



TH 212 DESIGN BUILD (SP 1017-12)
 TRAFFIC CONTROL INTERCONNECT
 CSAH 10 (ENGLER BLVD)
 CSAH 10 STA 20+00 TO STA 35+00

SHEET T7S74 OF T7S77