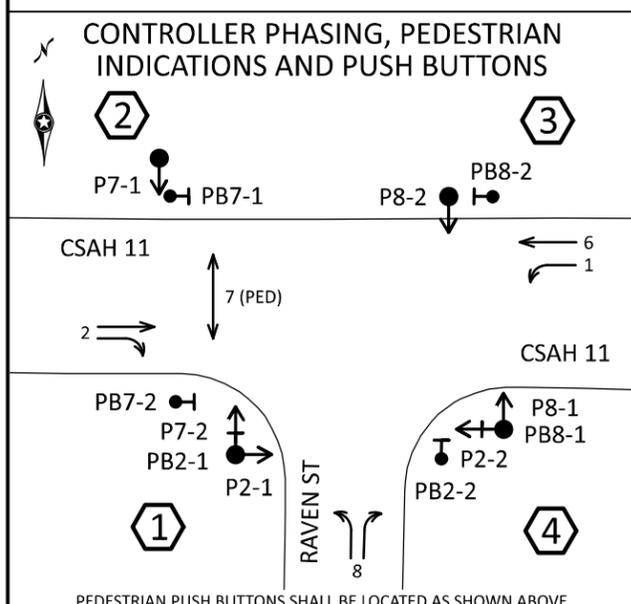
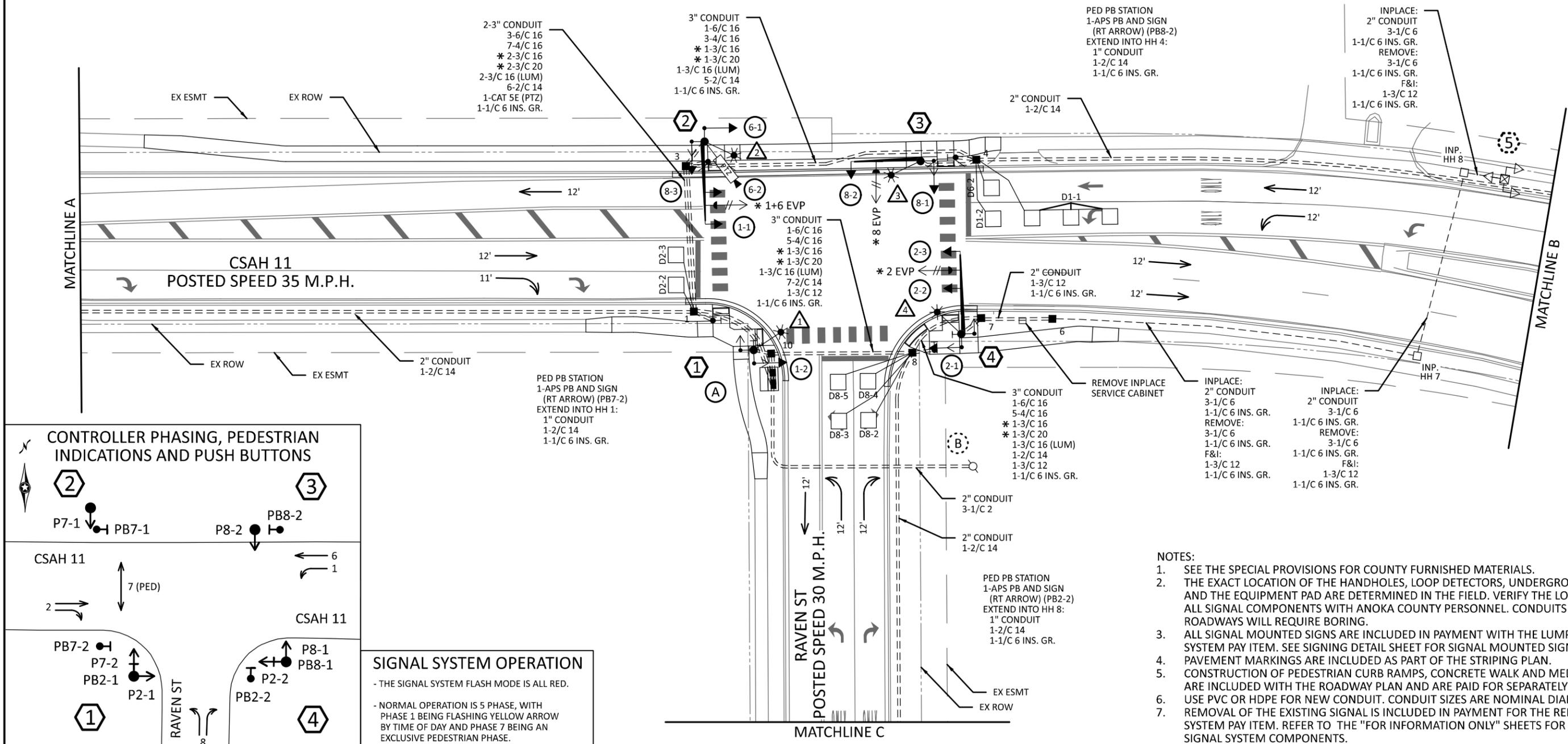


SIGNAL HEAD CHART				LOOP DETECTOR CHART		
FACE	R	Y	FYA	NUMBER	SIZE (FT)	LOCATION
1-1, 1-2	←	←	←	D1-1	3-6x6	20, 35, 50
2-1, 2-2, 2-3	●	●	●	D1-2	6x6	5
6-1, 6-2	●	●	●	D2-1	6x6	450
8-1, 8-2, 8-3	●	●	●	D6-1	6x6	275
- ALL SIGNAL INDICATIONS SHALL BE 12" LED - ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS AND SHALL HAVE 2" YELLOW REFLECTIVE BORDERS ON ALL SIDES OF THE BACKGROUND SHIELD - FYA DENOTES FLASHING YELLOW ARROW				D2-2, D2-3, D6-2	6x6	5
				D8-1	6x6	230
				D8-2, D8-3	6x6	20
				D8-4, D8-5	6x6	5
				- ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE - 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 PHASE 1 BEING FLASHING YELLOW ARROW BY TIME OF DAY AND PHASE 7 BEING AN EXCLUSIVE PEDESTRIAN PHASE.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

- NOTES:**
- SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 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 ANOKA COUNTY PERSONNEL. CONDUITS UNDER ROADWAYS WILL REQUIRE BORING.
  - ALL SIGNAL MOUNTED SIGNS ARE INCLUDED IN PAYMENT WITH THE LUMP SUM SIGNAL SYSTEM PAY ITEM. SEE SIGNING DETAIL SHEET FOR SIGNAL MOUNTED SIGNS. PAVEMENT MARKINGS ARE INCLUDED AS PART OF THE STRIPING PLAN.
  - CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK ARE INCLUDED WITH THE ROADWAY PLAN AND ARE PAID FOR SEPARATELY.
  - USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
  - REMOVAL OF THE EXISTING SIGNAL IS INCLUDED IN PAYMENT FOR THE REMOVE SIGNAL SYSTEM PAY ITEM. REFER TO THE "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL SYSTEM COMPONENTS.
  - ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.

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NO.	DATE	DWN	CKD	REVISIONS

DESIGNED BY: MBG  
 DRAWN BY: MMD  
 CHECKED BY: BKV

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.

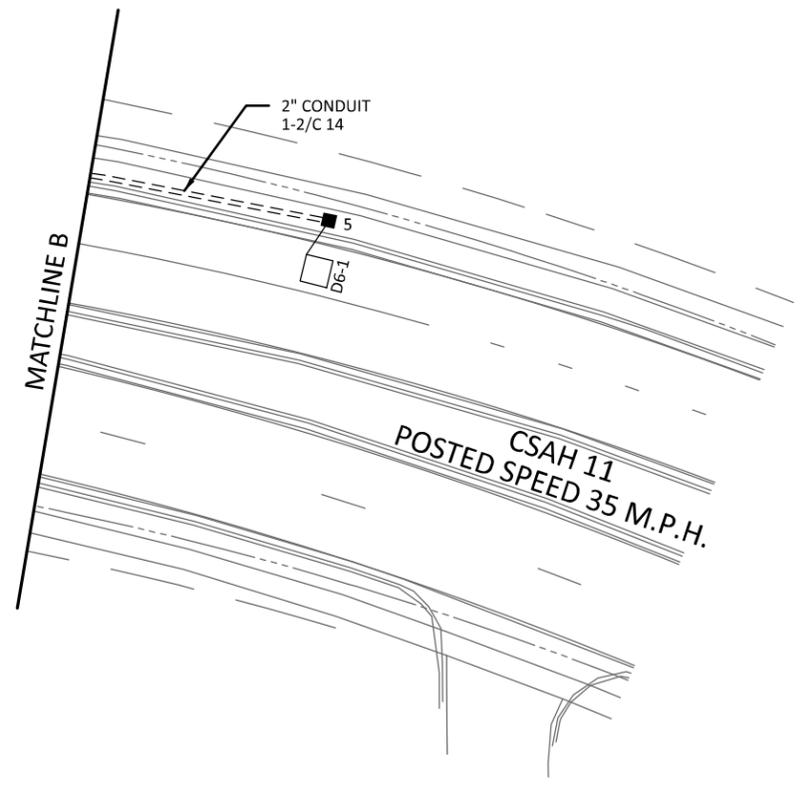
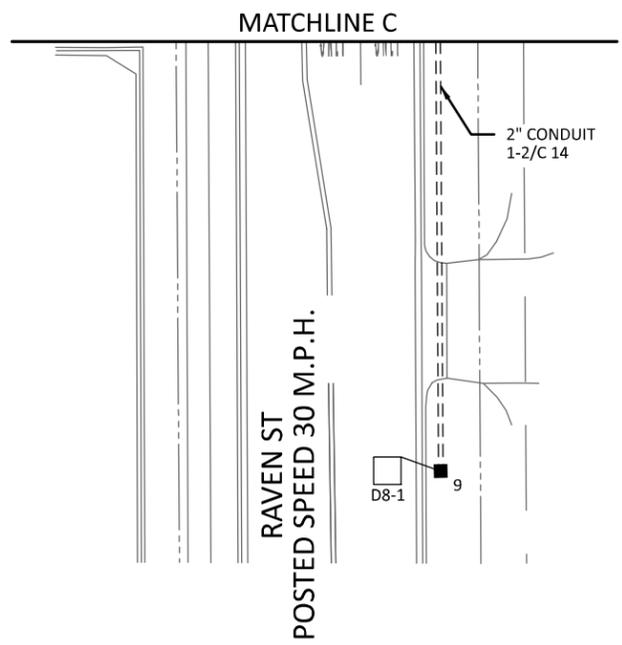
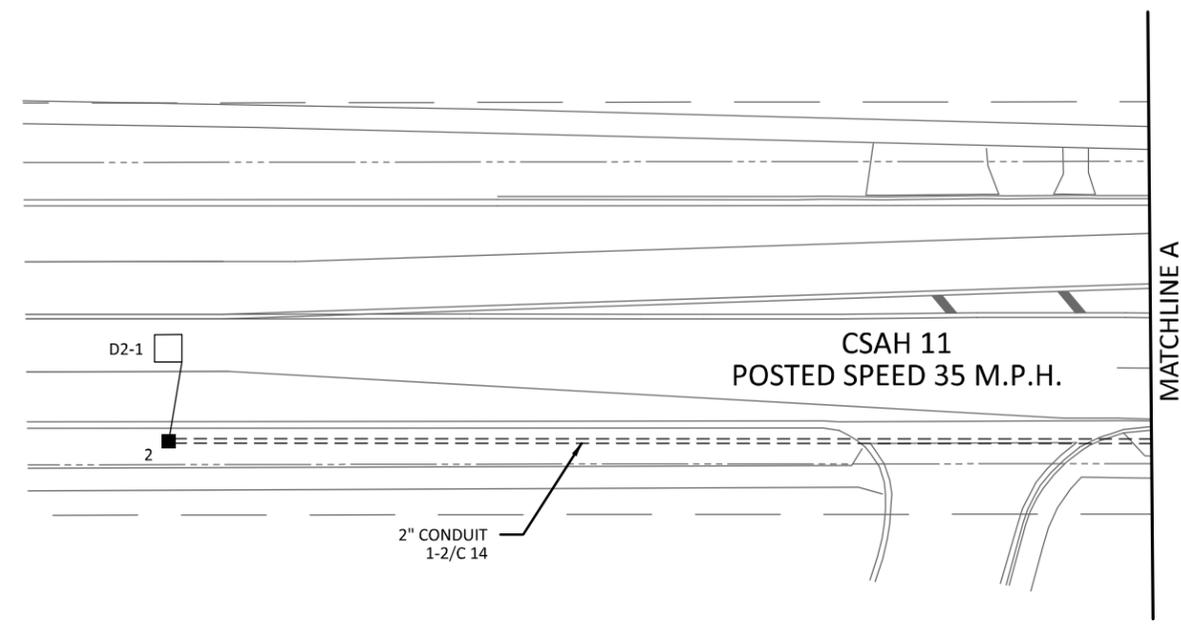
CERTIFIED BY: *[Signature]* LIC NO: 56080  
 Licensed Professional Engineer  
 PRINTED NAME: BRIAN K. VILVA, P.E. DATE: 12/03/2025



TRAFFIC SIGNAL PLANS  
SIGNAL LAYOUT

SAP 002-611-042  
SAP 114-020-068

SHEET NO. 46  
TOTAL SHEETS 59



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 11:02:32 AM  
 12/3/2025

NO.	DATE	DWN	CKD	REVISIONS

DESIGNED BY: **MBG**  
 DRAWN BY: **MMD**  
 CHECKED BY: **BKV**

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: *[Signature]* LIC NO: 56080  
 PRINTED NAME: BRIAN K. VILJA, P.E. DATE: 12/03/2025



TRAFFIC SIGNAL PLANS  
 SIGNAL LAYOUT

SAP 002-611-042  
 SAP 114-020-068

SHEET NO. 47  
 TOTAL SHEETS 59

② X=485550.6406 Y=153887.9804  
 PA90 POLE FOUNDATION  
 TYPE PA90-A-30-X6-300/CAM 350 (MOUNTED AT 350 DEG)  
 (INCLUDES LIGHTNING ROD, 7/16" GROUND BRAID AND  
 GROUND ROD)  
 1-PTZ VIDEO CAMERA  
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (1-1)  
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' (6-2)  
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (8-3, 6-1)  
 1-ANGLE MOUNT C.D. PED HEAD AT 90 DEG (P7-1)  
 \* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
 (PHASES 1+6)  
 1-R10-X12 SIGN  
 1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)  
 3" CONDUIT TO HH 3:  
 2-6/C 16  
 4-4/C 16  
 \* 1-3/C 16  
 \* 1-2/C 20  
 1-3/C 16 (LUM)  
 1-CAT 5E (PTZ)  
 1-1/C 6 INS. GR.

① X=485567.1444 Y=153807.9369  
 PA85 POLE FOUNDATION  
 TYPE PA85-D30-9  
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)  
 1-ANGLE MOUNT SIGNAL AT 90 DEG (1-2)  
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG  
 (P2-1, P7-2)  
 1-APS PB AND SIGN (LT ARROW) (PB2-1)  
 AND POLE MOUNTING ADAPTOR  
 3" CONDUIT TO HH 10:  
 2-6/C 16  
 2-4/C 16  
 1-3/C 16 (LUM)  
 1-2/C 14  
 1-1/C 6 INS. GR.

③ X=485633.5895 Y=153878.5641  
 PA85 POLE FOUNDATION  
 TYPE PA85-A-25-D30-9  
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (8-2)  
 1-ANGLE MOUNT SIGNAL AT 180 DEG (8-1)  
 1-ANGLE MOUNT C.D. PED HEAD AT 180 DEG (P8-2)  
 \* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
 (PHASE 8)  
 1-GUIDE SIGN (D-2) (SEE SIGN DETAILS)  
 3" CONDUIT TO HH 4:  
 1-6/C 16  
 3-4/C 16  
 \* 1-3/C 16  
 \* 1-3/C 20  
 1-3/C 16 (LUM)  
 1-1/C 6 INS. GR.

④ X=485647.2803 Y=153811.6784  
 PA90 POLE FOUNDATION  
 TYPE PA90-A-30-D30-9  
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (2-3)  
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 13' (2-2)  
 1-ANGLE MOUNT SIGNAL AT 180 DEG (2-1)  
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG  
 (P8-1, P2-2)  
 \* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
 (PHASE 2)  
 1-APS PB AND SIGN (LT ARROW) (PB8-1)  
 AND POLE MOUNTING ADAPTOR  
 1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)  
 3" CONDUIT TO HH 7:  
 1-6/C 16  
 5-4/C 16  
 \* 1-3/C 16  
 \* 1-3/C 20  
 1-3/C 16 (LUM)  
 1-2/C 14  
 1-1/C 6 INS. GR.

⑤ INPLACE:  
 PEDESTAL FOUNDATION  
 3-LED YELLOW FLASHERS  
 DYNAMIC SPEED DISPLAY SIGN  
 DISPLAY DISCONNECT CABINET  
 2" CONDUIT INTO INP. HH 8:  
 3-1/C 6 (SPEED SIGN SERVICE)  
 1-1/C 6 INS. GR.  
 REMOVE:  
 3-1/C 6 (SPEED SIGN SERVICE)  
 1-1/C 6 INS. GR.  
 F&I:  
 1-3/C 12 (SPEED SIGN SERVICE)  
 1-1/C 6 INS. GR.

Ⓐ EQUIPMENT PAD (SEE DETAIL SHEET)  
 SERVICE CABINET WITH BATTERY BACKUP (SEE DETAIL SHEET)  
 CONTROLLER AND CABINET (COUNTY PROVIDED)

2-3" CONDUITS TO HH 1:  
 3-6/C 16  
 7-4/C 16  
 \* 2-3/C 16  
 \* 2-3/C 20  
 2-3/C 16 (LUM)  
 7-2/C 14  
 1-CAT 5E (PTZ)  
 1-1/C 6 INS. GR.

2-3" CONDUITS TO HH 10:  
 3-6/C 16  
 7-4/C 16  
 \* 1-3/C 16  
 \* 1-3/C 20  
 2-3/C 16 (LUM)  
 8-2/C 14  
 1-3/C 12 (SPEED SIGN SERVICE)  
 1-1/C 6 INS. GR.

GROUND WIRE AND GROUND ROD - MIN 8' STUBBED OUT FROM PAD  
 2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)  
 1-1" CONDUIT STUBBED OUT (CAPPED BOTH ENDS) (FUTURE PHONE LINE)  
 CONTROLLER CABINET TO SERVICE CABINET:

2" CONDUIT  
 3-1/C 6  
 CONTROLLER CABINET TO SERVICE CABINET (COMMS):  
 2" CONDUIT  
 1-6PR 19  
 SERVICE CABINET TO POLE MOUNTED TRANSFORMER:  
 2" CONDUIT  
 3-1/C 2

SERVICE CABINET TO HH 1:  
 2" CONDUIT  
 2-3/C 16 (LUM)  
 SERVICE CABINET TO HH 10:  
 2" CONDUIT  
 2-3/C 16 (LUM)  
 SERVICE CABINET TO EXTERNAL GR. RD.:  
 1" CONDUIT  
 1-1/C 6 INS. GR.  
 (SEE EQUIPMENT PAD LAYOUT)

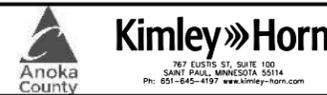
Ⓑ INPLACE SOP TRANSFORMER (CONNEXUS)

NOTES:

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

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 12/3/2025

DESIGNED BY:	MBG	<small>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.</small>  <small>CERTIFIED BY: Brian K. Villa, P.E. LIC NO: 56080</small> <small>PRINTED NAME: BRIAN K. VILLA, P.E. DATE: 12/03/2025</small>
DRAWN BY:	MMD	
CHECKED BY:	BKV	



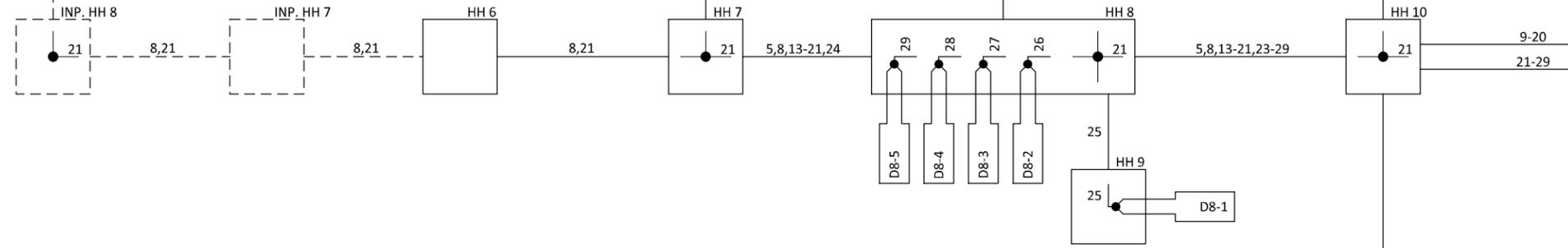
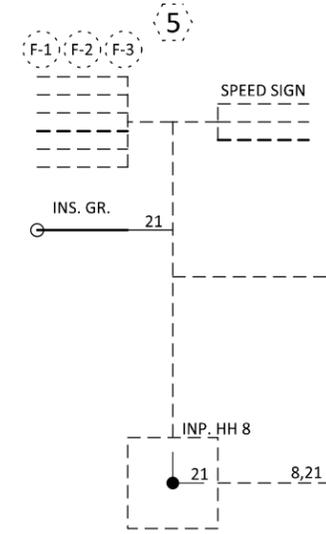
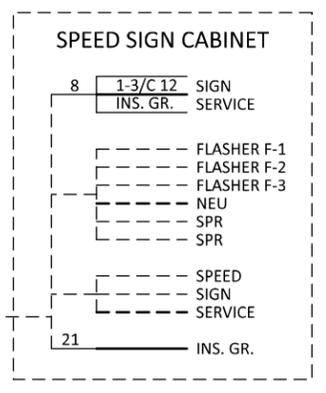
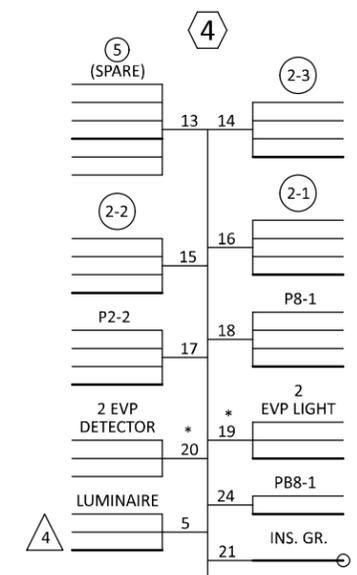
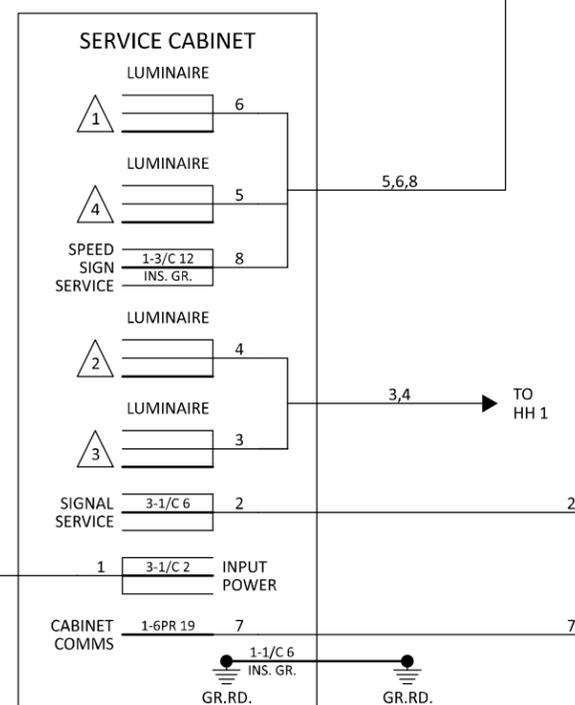
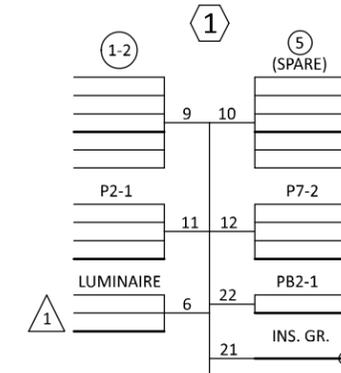
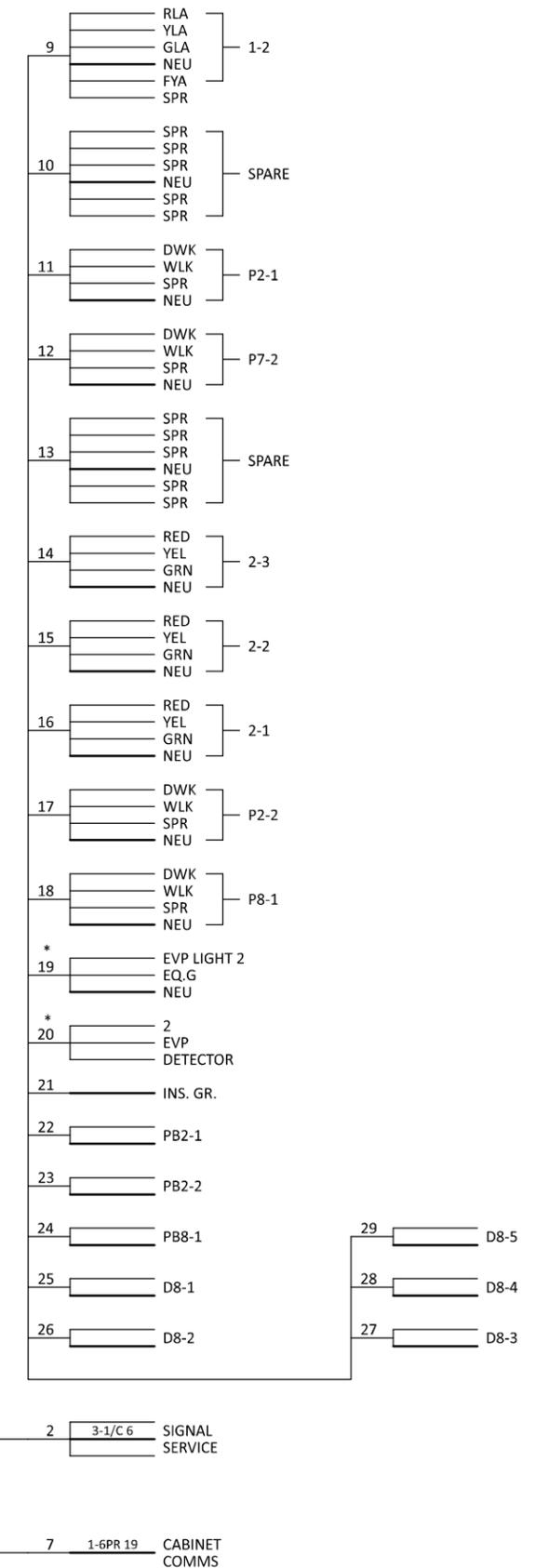
TRAFFIC SIGNAL PLANS  
 INTERSECTION NOTES

SAP 002-611-042  
 SAP 114-020-068

SHEET NO.	48
TOTAL SHEETS	59

NO.	DATE	DWN	CKD	REVISIONS

CONTROLLER CABINET



- NOTES:
- SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS AND GROUND WIRES.
  - FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAILS
  - ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
  - ITEMS DENOTED WITH AN \*\* ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
  - FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
  - LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
  - SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.

S.O.P.

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12/3/2025

NO.	DATE	DWN	CKD	REVISIONS

DESIGNED BY: MBG  
 DRAWN BY: MMD  
 CHECKED BY: BKV

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: *[Signature]* LIC NO.: 56080  
 Licensed Professional Engineer  
 PRINTED NAME: BRIAN K. VILJA, P.E. DATE: 12/03/2025



TRAFFIC SIGNAL PLANS  
 FIELD WIRING DIAGRAM (1 of 2)

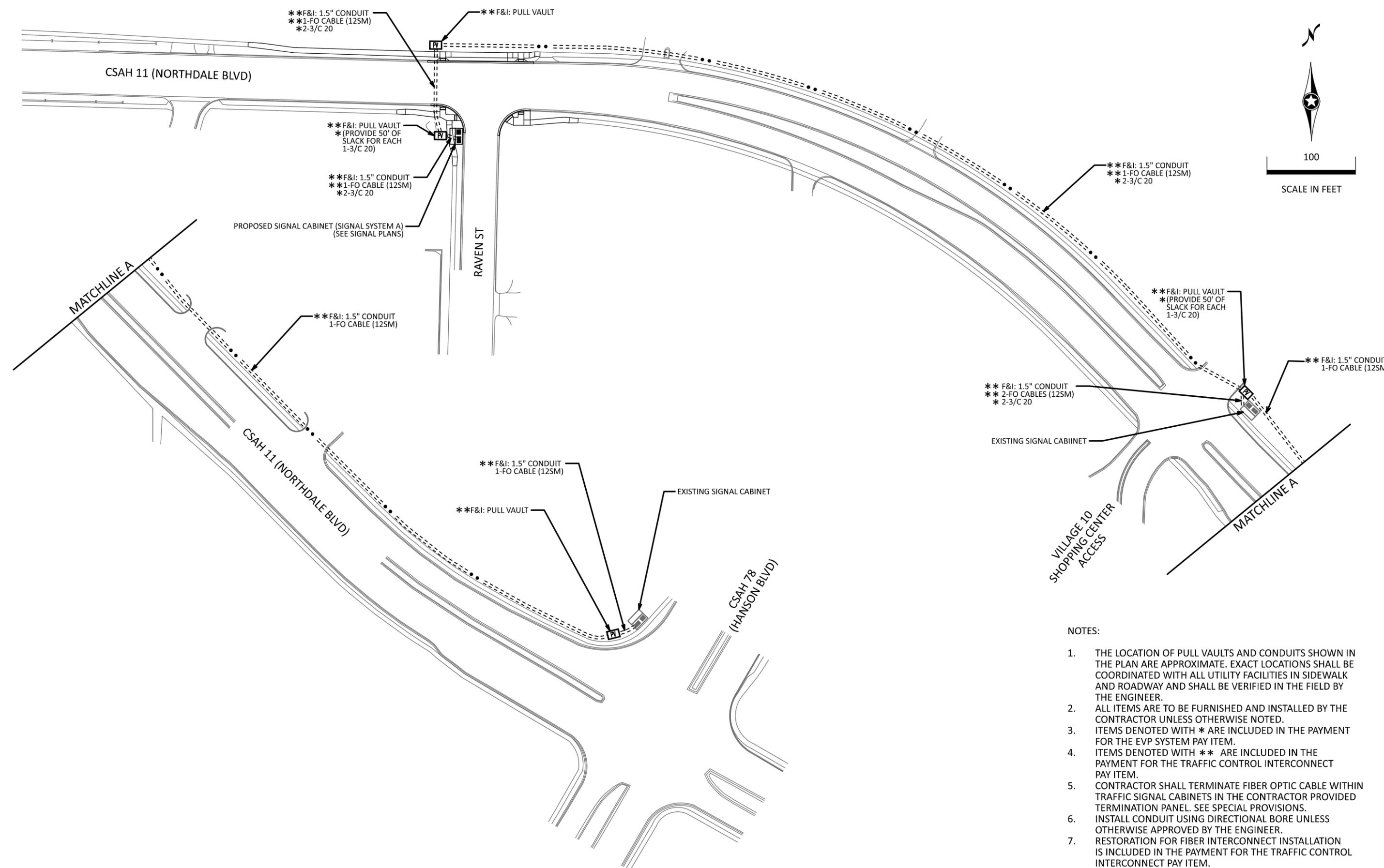
SAP 002-611-042  
 SAP 114-020-068

SHEET NO. 49  
 TOTAL SHEETS 59





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SCALE IN FEET



- NOTES:
1. THE LOCATION OF PULL VAULTS AND CONDUITS SHOWN IN THE PLAN ARE APPROXIMATE. EXACT LOCATIONS SHALL BE COORDINATED WITH ALL UTILITY FACILITIES IN SIDEWALK AND ROADWAY AND SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
  2. ALL ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
  3. ITEMS DENOTED WITH \* ARE INCLUDED IN THE PAYMENT FOR THE EVP SYSTEM PAY ITEM.
  4. ITEMS DENOTED WITH \*\* ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
  5. CONTRACTOR SHALL TERMINATE FIBER OPTIC CABLE WITHIN TRAFFIC SIGNAL CABINETS IN THE CONTRACTOR PROVIDED TERMINATION PANEL. SEE SPECIAL PROVISIONS.
  6. INSTALL CONDUIT USING DIRECTIONAL BORE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
  7. RESTORATION FOR FIBER INTERCONNECT INSTALLATION IS INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.

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 CHECKED BY: BKV

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 CERTIFIED BY: *[Signature]* LIC NO: 56080  
 PRINTED NAME: BRIAN K. VILJA, P.E. DATE: 12/03/2025



TRAFFIC SIGNAL PLANS  
INTERCONNECT PLAN

SAP 002-611-042  
SAP 114-020-068

SHEET NO. 59  
TOTAL SHEETS 59