

LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D4-1	6x6	120
D8-1	6x6	120
D2-1, D2-2	2-6x6	300
D6-1, D6-2	2-6x6	300

VIDEO DETECTOR CHART		
CAMERA NO.	LOCATION	PHASE
V-1	POLE 1	3 & 8
V-2	POLE 4	2 & 5
V-3	POLE 5	4 & 7
V-4	POLE 8	1 & 6

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

-ALL VIDEO DETECTORS SHALL BE MAST ARM MOUNTED UNLESS NOTED OTHERWISE

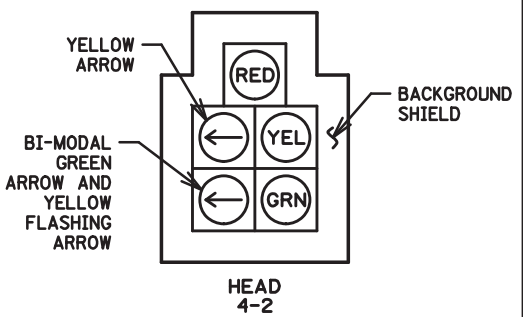
SIGNAL HEAD CHART					
FACE	R	Y	FYA	G	G
3-1, 3-2, 7-1, 7-2	←	←	←		←
1-1, 1-2, 5-1, 5-2, 5-3	←	←			←
2-1, 6-1	●	●			●
2-2, 2-3, 6-2, 6-3	●	●			●
8-1, 8-2	●	●			●
4-1	●	●			●
4-2	●	●	←	←	●
OL1, OL2	→	→	→		

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS WITH 2" YELLOW REFLECTIVE BORDER.
-FYA DENOTES FLASHING YELLOW ARROW

SIGNAL SYSTEM OPERATION

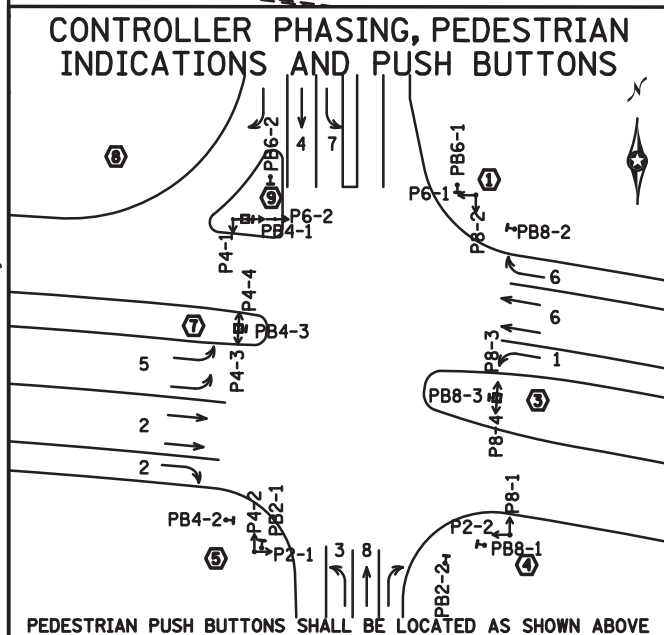
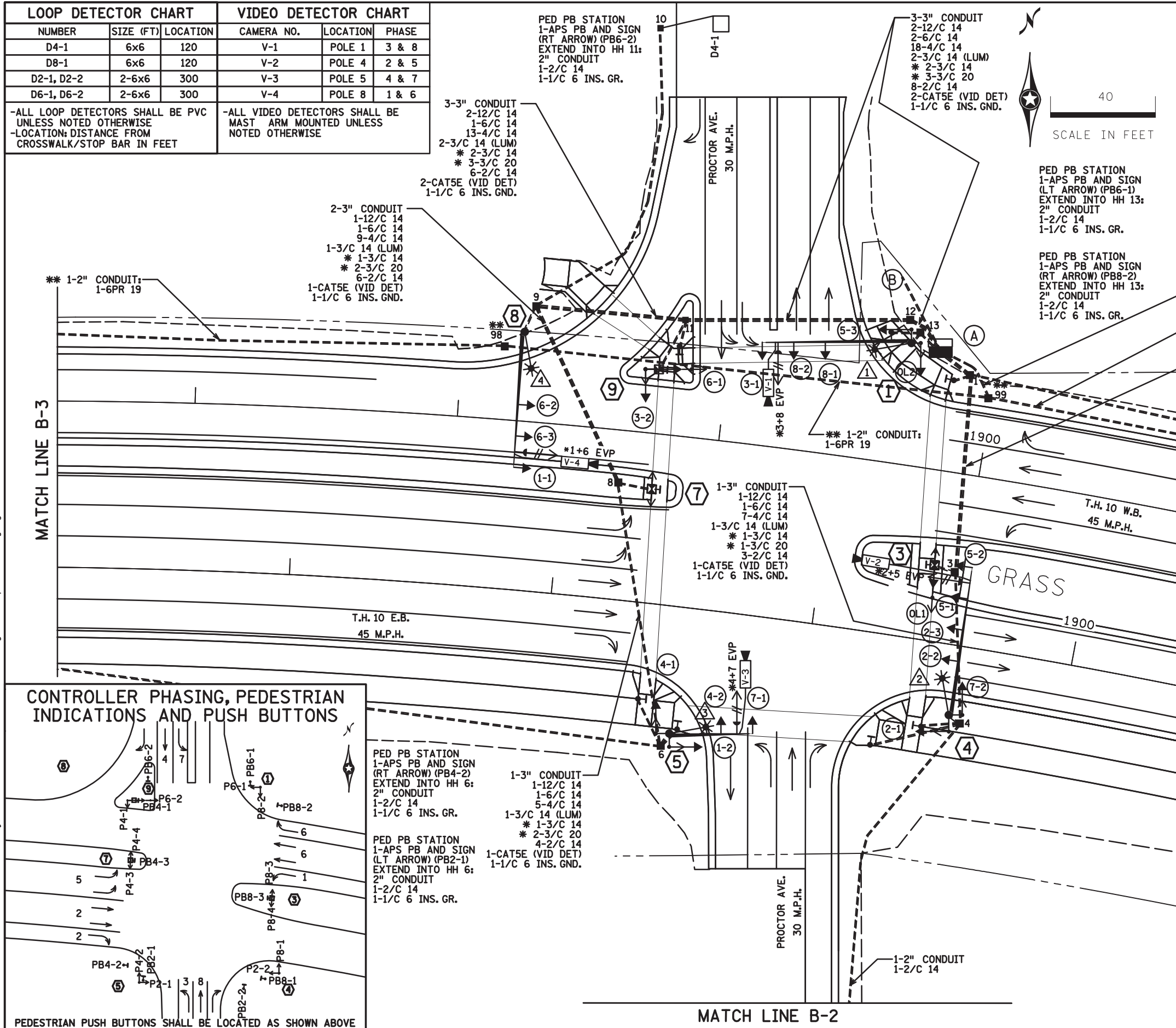
- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASE(S) 3, AND 7 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.
- OL1, AND OL2 WILL BE OVERLAPPED WITH PHASE 1, 2 AND 8.

5 SECTION FYA CLUSTER HEAD DETAIL



PLOTTED/REVISED: 17-NOV-2020

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MATCH LINE B-1

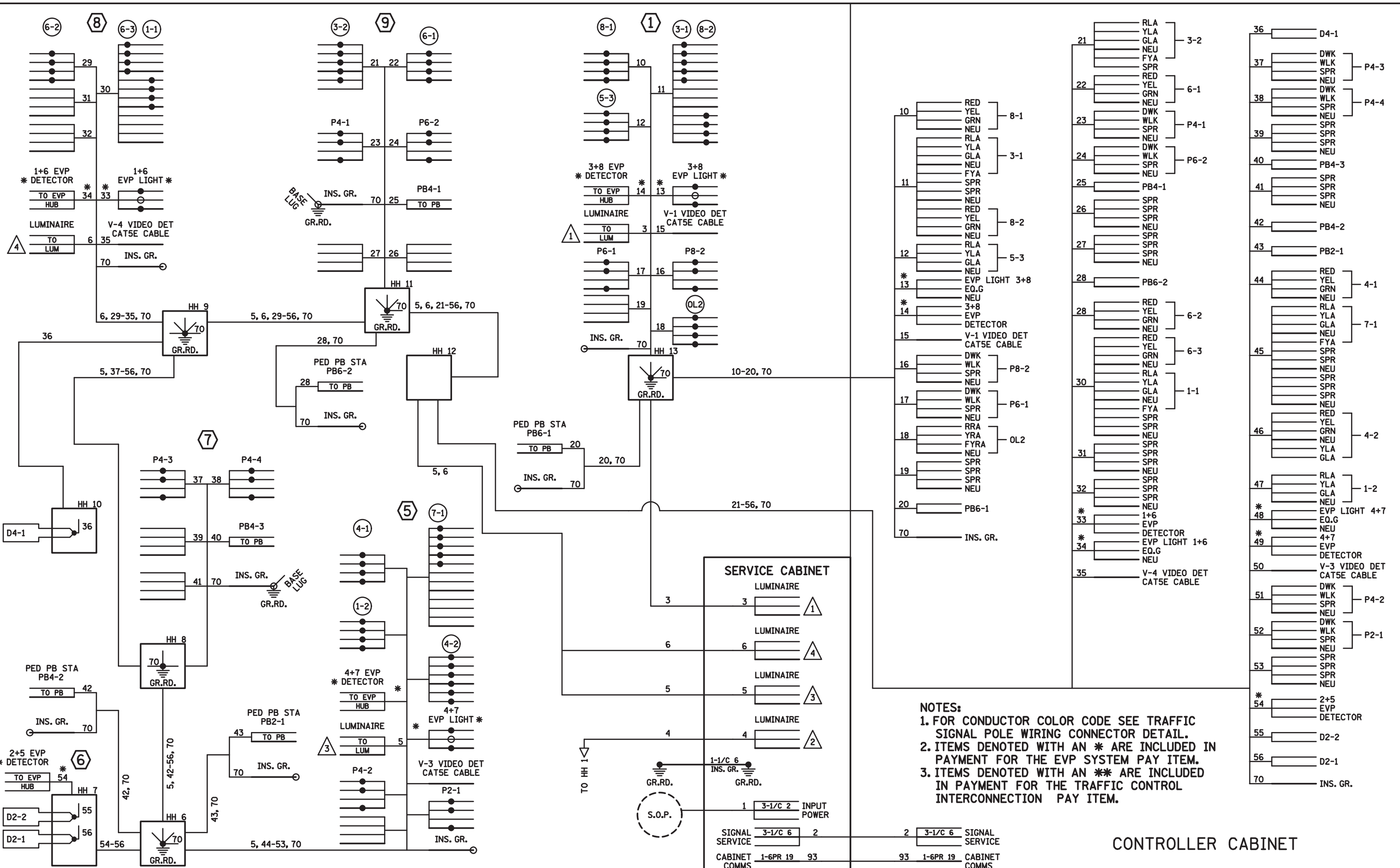
MATCH LINE B-2

- NOTES:**
- SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
 - ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD ARE VERIFIED IN THE FIELD BY MNDOT OFFICE PERSONNEL.
 - THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
 - FOR TYPE D SIGNS SEE SIGNING PLAN.
 - FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING PLAN.
 - FOR CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK SEE ADA CONSTRUCTION PLAN.
 - 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).
 - 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 INTERCONNECTION PAY ITEM.

BY	DATE	REVISIONS	SYSTEM ID: 1735033	T.E.26123	LAYOUT	S.A.P. NO. 204-122-002, 071-601-025, 204-101-001	DRAWN BY: JBA	CKD BY: RFD	DATE: 06/29/20
			METER ADDRESS:		TRAFFIC CONTROL SIGNAL SYSTEM B	S.P. 204-090-004			
			OLD SYSTEM ID: 20196		TH 10 AT PROCTOR AVENUE (C.S.A.H. 1)	CERTIFIED BY: <i>R.D. Hays</i>	LIC. NO. 22762		DATE: 11/17/2020
					IN ELK RIVER, SHERBURNE COUNTY	STATE PROJ. NO. 7102-135 (T.H.10)		SHEET NO. SS24 OF SS30 SHEETS	

PLOTTED/REVISED: 17-NOV-2020

DISTRICT #: DISTRICT 3 - BAXTER, MN
I/PLOT NAME: T_sp7102-135_sgl.dgn
PATH & FILENAME: Projects\0102135\Traffic\Signals\T_sp7102-135_sgl.dgn



- NOTES:**
- FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 - 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 INTERCONNECTION PAY ITEM.

CONTROLLER CABINET

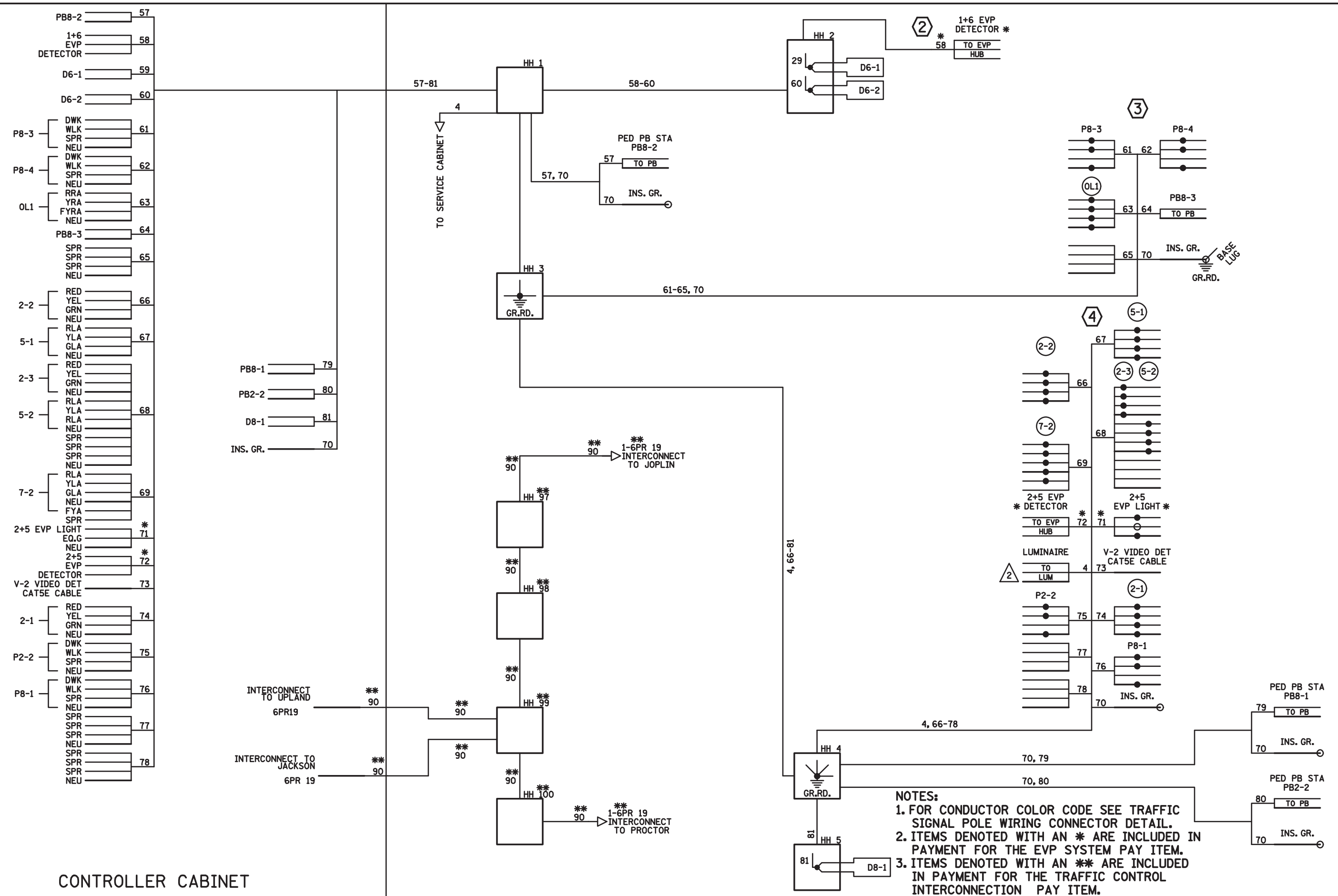
BY	DATE	REVISIONS

SYSTEM ID: 1735033
 T.E.26123
 METER ADDRESS:
 OLD SYSTEM ID: 20196

WIRING DIAGRAM 1 OF 2
TRAFFIC CONTROL SIGNAL SYSTEM B
TH 10 AT PROCTOR AVENUE (C.S.A.H. 1)
IN ELK RIVER, SHERBURNE COUNTY

S.A.P. NO. 204-122-002, 071-601-025, 204-101-001
 S.P. 204-090-004
 CERTIFIED BY: [Signature] LIC. NO. 22762 DATE: 11/17/2020
 STATE PROJ.NO. 7102-135 (T.H.10) SHEET NO. SS25 OF SS30 SHEETS

DISTRICT #: DISTRICT 3 - BAXTER, MN
 IPLOT NAME: T_sp7102-135_sgl.dgn
 PATH & FILENAME: Projects\07102\135\Traffic\Signals\T_sp7102-135_sgl.dgn
 PLOTTED/REVISED: 17-NOV-2020



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.
3. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

BY	DATE	REVISIONS	SYSTEM ID: 1735033	T.E.26123	S.A.P. NO. 204-122-002, 071-601-025, 204-101-001	DRAWN BY: JBA	CKD BY: RFD	DATE: 06/29/20
			METER ADDRESS:		S.P. 204-090-004			
			OLD SYSTEM ID: 20196		CERTIFIED BY: <i>Richard D. Hays</i>	LIC. NO. 22762		DATE: 11/17/2020
					STATE PROJ. NO. 7102-135 (T.H.10) SHEET NO. SS26 OF SS30 SHEETS			

PLOTTED/REVISED: 17-NOV-2020

DISTRICT #: DISTRICT 3 - BAXTER, MN
IPLOT NAME: T_spt102-135_sgl.dgn
PATH & FILENAME: Proj\proj\102-135\T.traffic\Signals\T_spt102-135_sgl.dgn

8 PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12' AND 24'
WELDED HUB AT 36'
1-ONE WAY EVP DETECTOR AND
CONFIRMATORY LIGHT (PHASE 1+6)
1-VIDEO DETECTION CAMERA ON 6' EXTENSION
MOUNTED AT 5'
LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
3" CONDUIT TO HH 9:
1-12/C 14
3-4/C 14
* 1-3/C 14
1-3/C 14 (LUM)
1-CAT5E (VIDEO)
* 1-3/C 20
1-1/C 6 INS. GR.

9 PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
2-ANGLE MOUNT SIGNALS AT 0 AND 180 DEG
2-STRAIGHT MOUNT C.D. PED HEADS AT 0 AND 180 DEG
1-APS PB AND SIGN
(LT ARROW) (PB4-1)
3" CONDUIT TO HH 9:
1-6/C 14
5-4/C 14
1-2/C 14
1-1/C 6 INS. GR.

1 PA100 POLE FOUNDATION
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS OVERHEAD
AT 12' AND 24'
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 3+8)
1-VIDEO DETECTION CAMERA ON 6' EXTENSION
MOUNTED AT 5'
LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
3" CONDUIT TO HH 13:
1-12/C 14
6-4/C 14
* 1-3/C 14
* 1-3/C 20
1-3/C 14 (LUM)
1-CAT5E (VIDEO)
1-1/C 6 INS. GR.

A EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET (SSB) NO BATTERY BACKUP SYSTEM OR BATTERIES
CONTROLLER AND CABINET (STATE FURNISHED)

3" CONDUIT TO HH 1:
1-12/C 14
1-6/C 14
6-4/C 14
* 1-3/C 14
* 1-3/C 20
3-2/C 14
1-CAT5E (VIDEO)
1-1/C 6 INS. GND.

3" CONDUIT TO HH 1:
4-4/C 14
* 1-3/C 20
4-2/C 14
1-1/C 6 INS. GND.

** 2" CONDUIT TO HH 99:
1-6/PR 19

3" CONDUIT TO HH 12:
1-12/C 14
1-6/C 14
4-4/C 14
* 1-3/C 14
* 1-3/C 20
4-2/C 14
1-CAT5E (VIDEO)
1-1/C 6 INS. GND.

3" CONDUIT TO HH 12:
1-12/C 14
3-4/C 14
* 1-3/C 14
* 1-3/C 20
1-2/C 14
1-CAT5E (VIDEO)
1-1/C 6 INS. GR.

3" CONDUIT TO HH 13:
1-12/C 14
5-4/C 14
* 1-3/C 14
* 1-3/C 20
1-2/C 14
1-CAT5E (VIDEO)
1-1/C 6 INS. GR.

3" CONDUIT TO HH 12:
1-6/C 14
9-4/C 14
3-2/C 14
1-1/C 6 INS. GR.

GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD
2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
*#1-2" CONDUIT TO HH 98:
1-6PR 19
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
1-3/C 14 (LUM)
SERVICE CABINET TO HH 12:
2" CONDUIT
2-3/C 14 (LUM)
SERVICE CABINET TO HH 13:
2" CONDUIT
1-3/C 14 (LUM)
SERVICE CABINET TO EXTERNAL GR. RD.:
1" CONDUIT
1-1/C 6 INS. GR.

B SOP-INPLACE WOOD POLE MOUNTED
TRANSFORMER (ELK RIVER ENERGY)
F&I:
2" CONDUIT, RISER, AND WEATHERHEAD INTO SERVICE CABINET:
3-1/C 2

7 PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
2-STRAIGHT MOUNT C.D. PED HEADS AT 0 AND 180 DEG
1-APS PB AND SIGN
(DOUBLE ARROW) (PB4-3)
3" CONDUIT TO HH 3:
4-4/C 14
1-2/C 14
1-1/C 6 INS. GR.

3 PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
1-STRAIGHT MOUNT SIGNAL
2-STRAIGHT MOUNT C.D. PED HEADS AT 0 AND 180 DEG
1-APS PB AND SIGN
(DOUBLE ARROW) (PB8-3)
3" CONDUIT TO HH 3:
4-4/C 14
1-2/C 14
1-1/C 6 INS. GR.

5 PA100 POLE FOUNDATION
TYPE PA100-A-30-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL OVERHEAD
AT 12'
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+7)
1-VIDEO DETECTION CAMERA ON 6' EXTENSION
MOUNTED AT 5'
LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
3" CONDUIT TO HH 6:
1-12/C 14
1-6/C 14
5-4/C 14
* 1-3/C 14
1-3/C 14 (LUM)
1-CAT5E (VIDEO)
* 1-3/C 20
1-1/C 6 INS. GR.

4 PA100 POLE FOUNDATION
TYPE PA100-A-55-D40-9 (DAVIT AT 315 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12' AND 24'
WELDED HUB AT 36'
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 2+5)
1-VIDEO DETECTION CAMERA ON 6' EXTENSION
MOUNTED AT 5'
LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
3" CONDUIT TO HH 4:
1-12/C 14
1-6/C 14
7-4/C 14
* 1-3/C 14
1-3/C 14 (LUM)
1-CAT5E (VIDEO)
* 1-3/C 20
1-1/C 6 INS. GR.

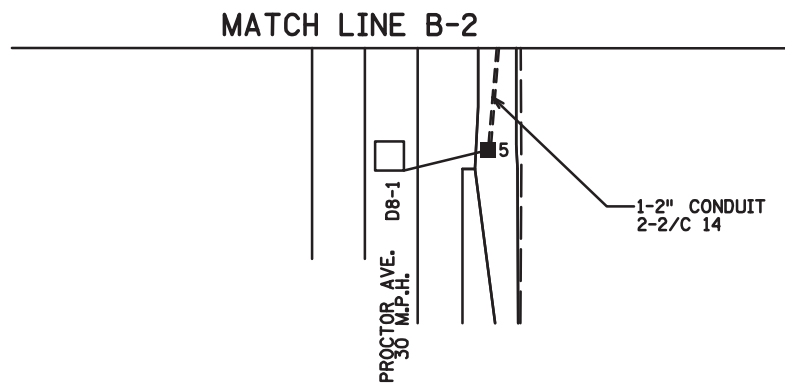
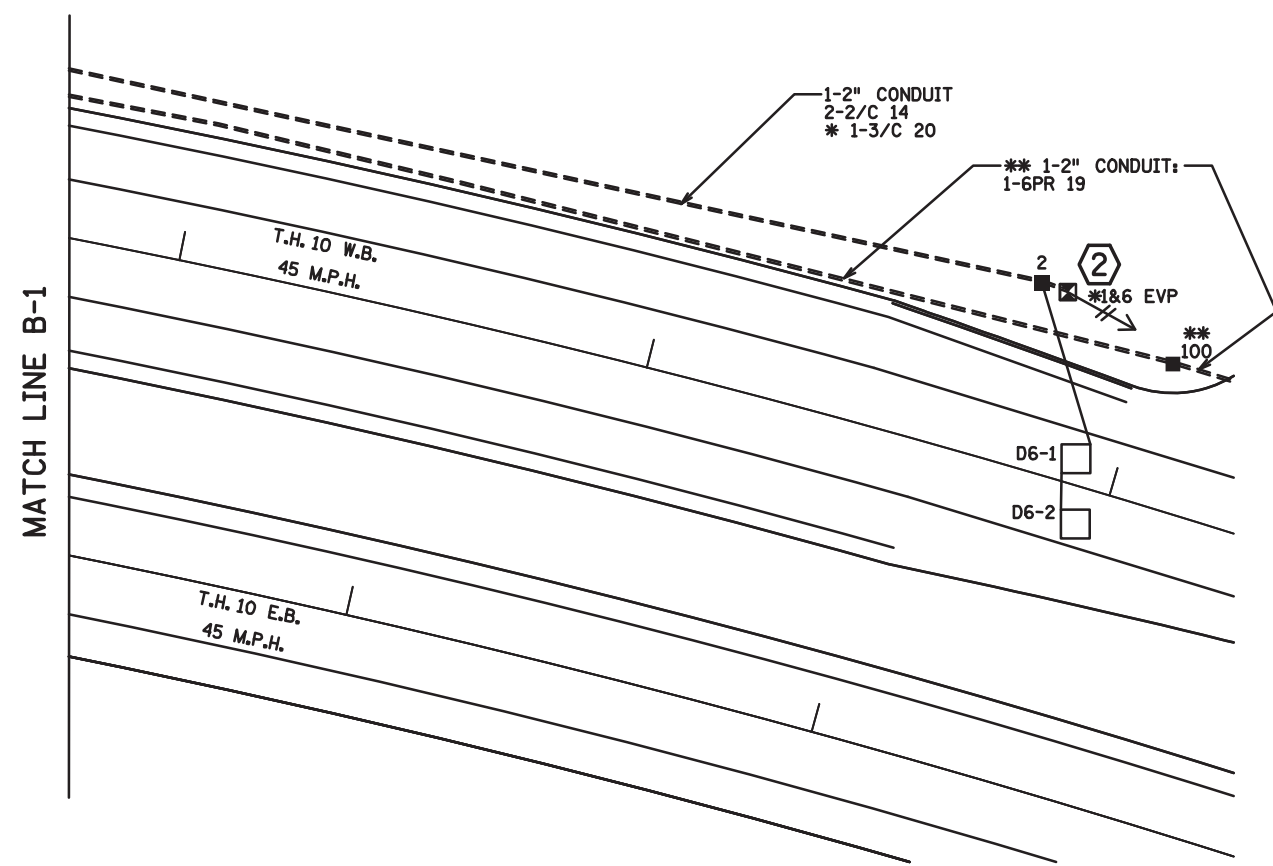
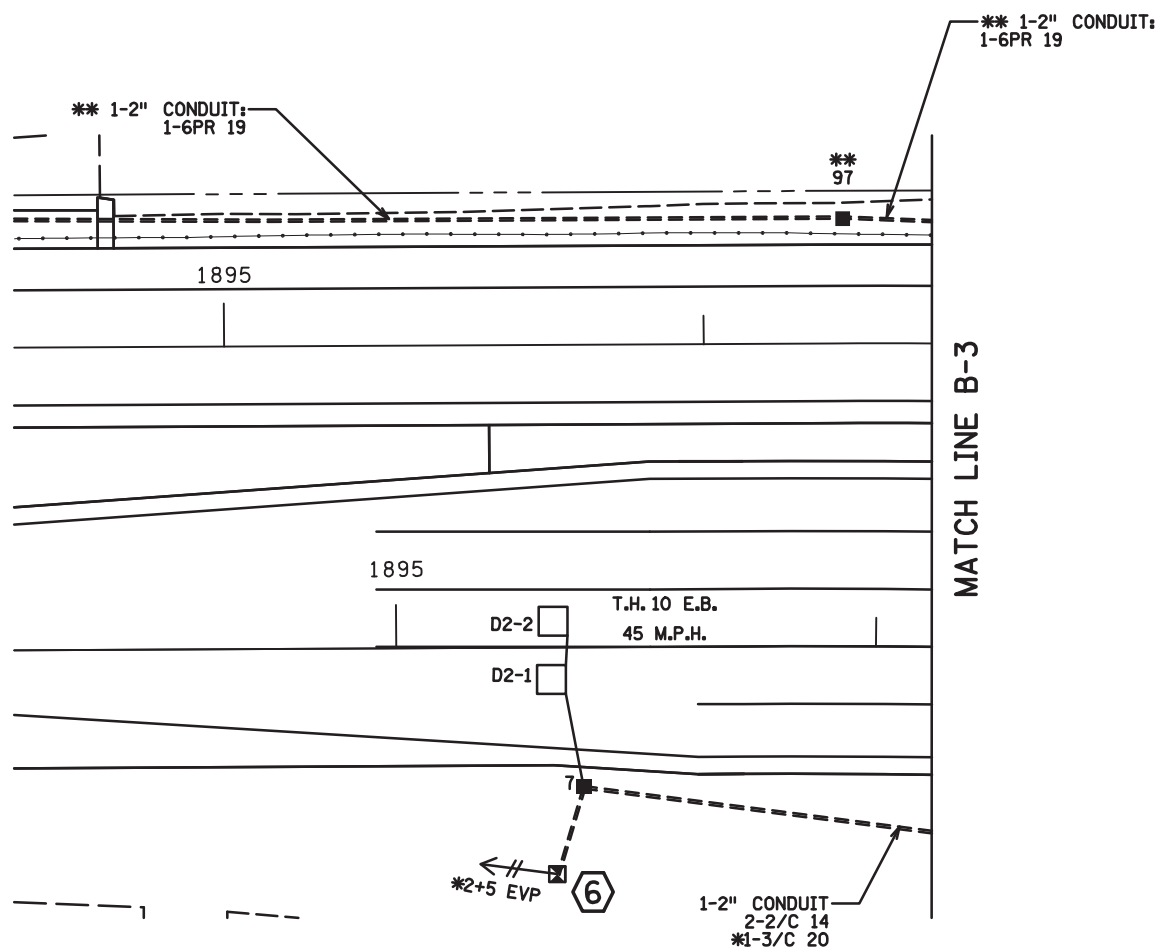
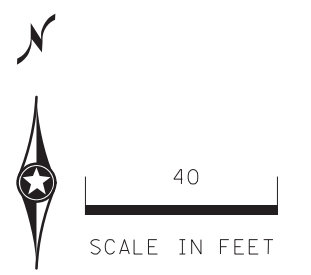
6 PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
1-ONE WAY EVP DETECTOR
2" CONDUIT TO HH 7:
* 1-3/C 20

NOTES:

- 1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
- 2. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

BY	DATE	REVISIONS	SYSTEM ID: 1735033	T.E.26123	POLE NOTES	S.A.P. NO. 204-122-002, 071-601-025, 204-101-001	DRAWN BY: JBA	CKD BY: RFD	DATE: 06/29/20
			METER ADDRESS:		TRAFFIC CONTROL SIGNAL SYSTEM B	S.P. 204-090-004			
			OLD SYSTEM ID: 20196		TH 10 AT PROCTOR AVENUE (C.S.A.H. 1)	CERTIFIED BY: <i>R. D. Lopez</i>	LIC. NO. 22762		DATE: 11/17/2020
					IN ELK RIVER, SHERBURNE COUNTY	LICENSED PROFESSIONAL ENGINEER			
						STATE PROJ. NO. 7102-135 (T.H.10)			SHEET NO. SS27 OF SS30 SHEETS

DISTRICT #: DISTRICT 3 - BAXTER, MN
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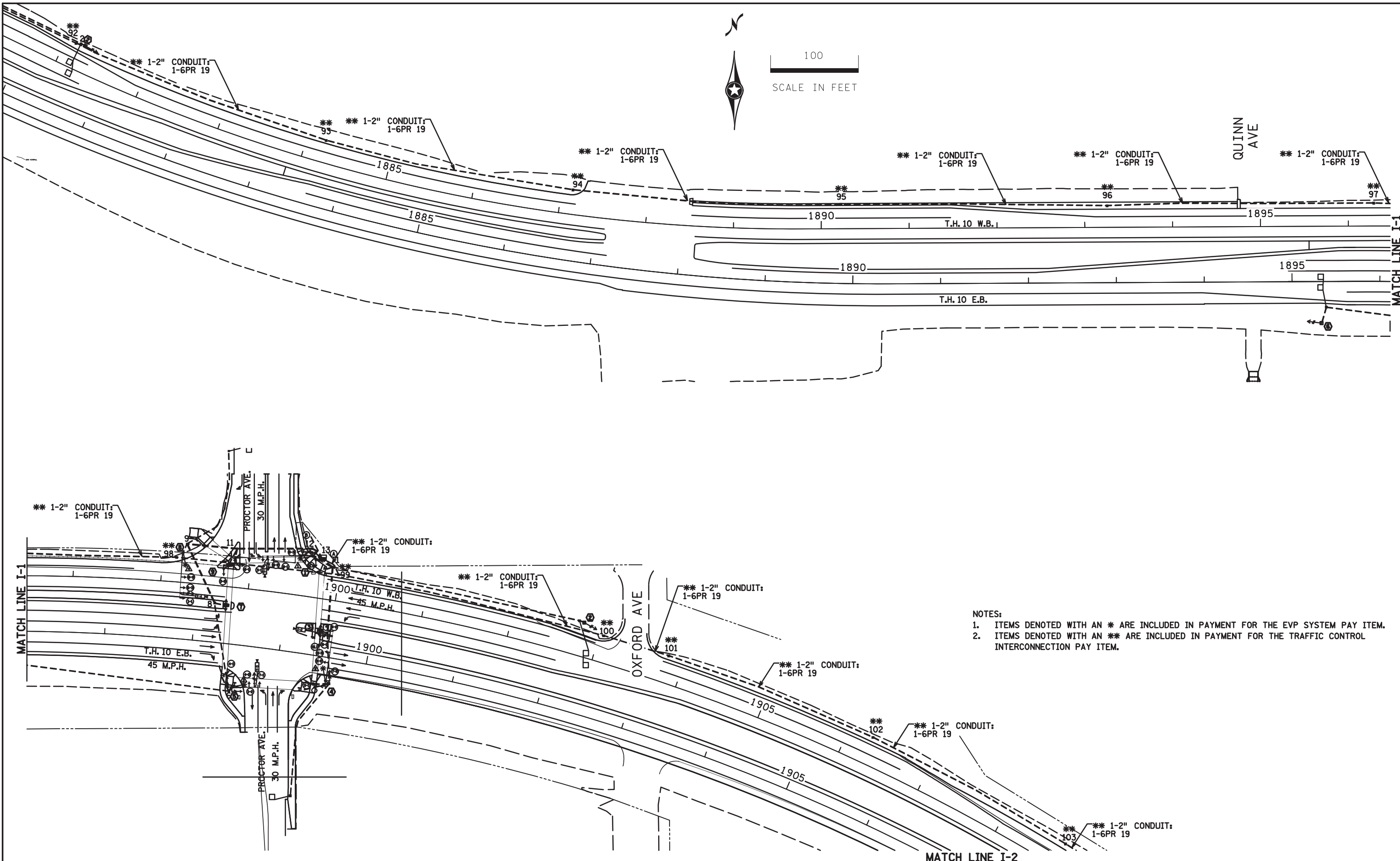


- NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 2. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

BY	DATE	REVISIONS	SYSTEM ID: 1735033	T.E.26123	MATCH LINES TRAFFIC CONTROL SIGNAL SYSTEM B TH 10 AT PROCTOR AVENUE (C.S.A.H. 1) IN ELK RIVER, SHERBURNE COUNTY	S.A.P. NO. 204-122-002, 071-601-025, 204-101-001	DRAWN BY: JBA	CKD BY: RFD	DATE: 06/29/20
			METER ADDRESS:			CERTIFIED BY: <i>Robert D. Lange</i>	LIC. NO. 22762	DATE: 11/17/2020	
			OLD SYSTEM ID: 20196				LICENSED PROFESSIONAL ENGINEER		
						STATE PROJ. NO. 7102-135 (T.H.10)	SHEET NO. SS28 OF SS30 SHEETS		

PLOTTED/REVISED: 25-NOV-2020

DISTRICT #: DISTRICT 3 - BAXTER, MN
 IPLOT NAME: T_sp7102-135_sgl.dgn
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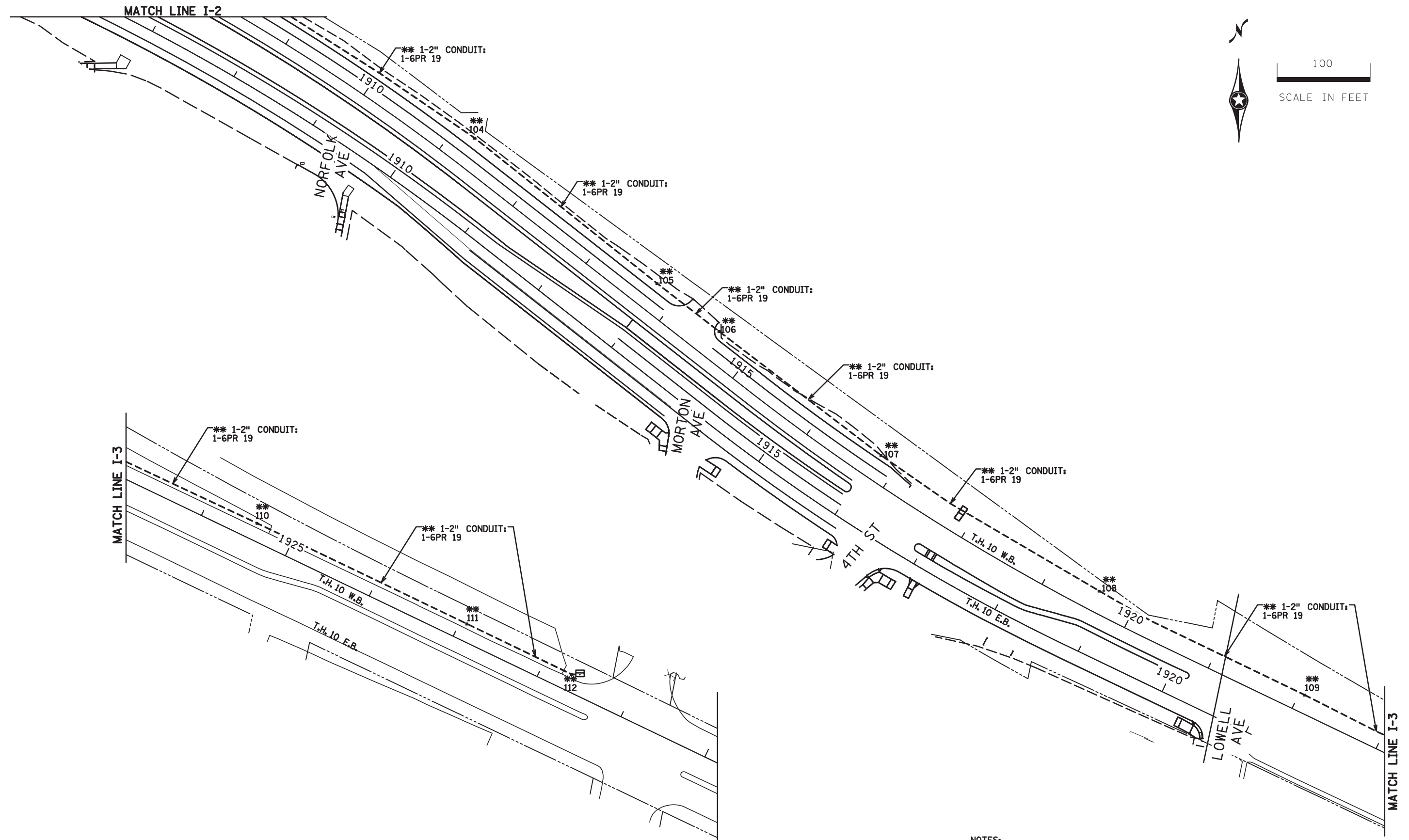


- NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 2. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

BY	DATE	REVISIONS	SYSTEM ID:	T.E.	INTERCONNECT LAYOUT 1 OF 2 TH 10 AT UPLAND AVENUE TH 10 AT PROCTOR AVENUE (C.S.A.H. 1) IN ELK RIVER, SHERBURNE COUNTY		S.A.P. NO. 204-122-002, 071-601-025, 204-101-001	DRAWN BY: JBA	CKD BY: RFD	DATE: 06/29/20
			METER ADDRESS:				S.P. 204-090-004			
			OLD SYSTEM ID:				CERTIFIED BY: <i>Robt D. Hoge</i>	LIC. NO. 22762		DATE: 11/25/2020
							STATE PROJ. NO. 7102-135 (T.H.10)	SHEET NO. SS29 OF SS30 SHEETS		

PLOTTED/REVISED: 25-NOV-2020

DISTRICT #: DISTRICT 3 - BAXTER, MN
 IPLOT NAME: T_sp7102-135_sgl.dgn
 PATH & FILENAME: Projects\02\135\Traffic\Signals\T_sp7102-135_sgl.dgn



- NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 2. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

BY	DATE	REVISIONS	SYSTEM ID:	T.E.	S.A.P. NO. 204-122-002, 071-601-025, 204-101-001	DRAWN BY: JBA	CKD BY: RFD	DATE: 06/29/20
			METER ADDRESS:		S.P. 204-090-004			
			OLD SYSTEM ID:		CERTIFIED BY: <i>R.D. Hoge</i>	LIC. NO. 22762		DATE: 11/25/2020
					STATE PROJ. NO. 7102-135 (T.H.10)	SHEET NO. SS30 OF SS30 SHEETS		