

**INTERCONNECT NOTES:**

- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- (\*) DENOTES ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED, PROTECTED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED BY BOTH (\*) AND BY F & I (ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR).
- EXISTING HANDHOLES WITH CONCRETE OR METAL COVERS IN THE BOULEVARD AREAS (USED WITH INTERCONNECT SYSTEM CABLES) SHALL BE ADJUSTED TO FINISHED SURROUNDING GRADE (INCIDENTAL).
- FOR EXISTING CONDUITS BEING REUSED AS PART OF THE COMPLETE INTERCONNECT SYSTEM, THE CONTRACTOR SHALL PULL A FISH TAPE THROUGH THESE CONDUITS TO CONFIRM THAT CONDUITS ARE ABLE TO BE REUSED WITH NEW CABLE INSTALLATIONS, PRIOR TO NEW INTERCONNECT CABLES BEING INSTALLED IN THESE CONDUITS.
- SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING LABOR AND MATERIALS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR IN EACH INPLACE TRAFFIC SIGNAL CONTROLLER CABINET AS PART OF THE "TRAFFIC CONTROL INTERCONNECT" PAY ITEM.
- CONTRACTOR SHALL COORDINATE INTERCONNECT INSTALLATION WORK WITH OTHER TRAFFIC SIGNAL REVISION WORK TO BE COMPLETED BY OTHERS AS PART OF A SEPARATE ONGOING PROJECT (FROM 111TH AVENUE SOUTH TO COON RAPIDS BOULEVARD).

**INPLACE PVC LOOP DETECTORS**

NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 35'	1
D1-2	2-6x6	-10' & 5'	1
D2-1	6x6	250'	1
D2-2	6x6	250'	1
D3-1	6x6	120'	3,8
D3-2	6x6	120'	3,8
D3-3	2-6x6	0' & 15'	7
D3-4	2-6x6	0' & 15'	1
D4-1	2-6x6	AS SHOWN	7
D4-2	2-6x6	AS SHOWN	7
D5-1	2-6x6	20' & 35'	1
D5-2	2-6x6	-10' & 5'	1
D6-1	6x6	250'	1
D6-2	6x6	250'	1

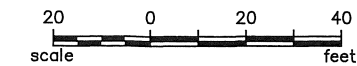
NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

**LOOP DETECTORS FUNCTIONS:**

- CALL AND EXTEND
- EXTEND ONLY
- DELAYED CALL, IMMEDIATE EXTEND
- CARRY OVER (STRETCH)

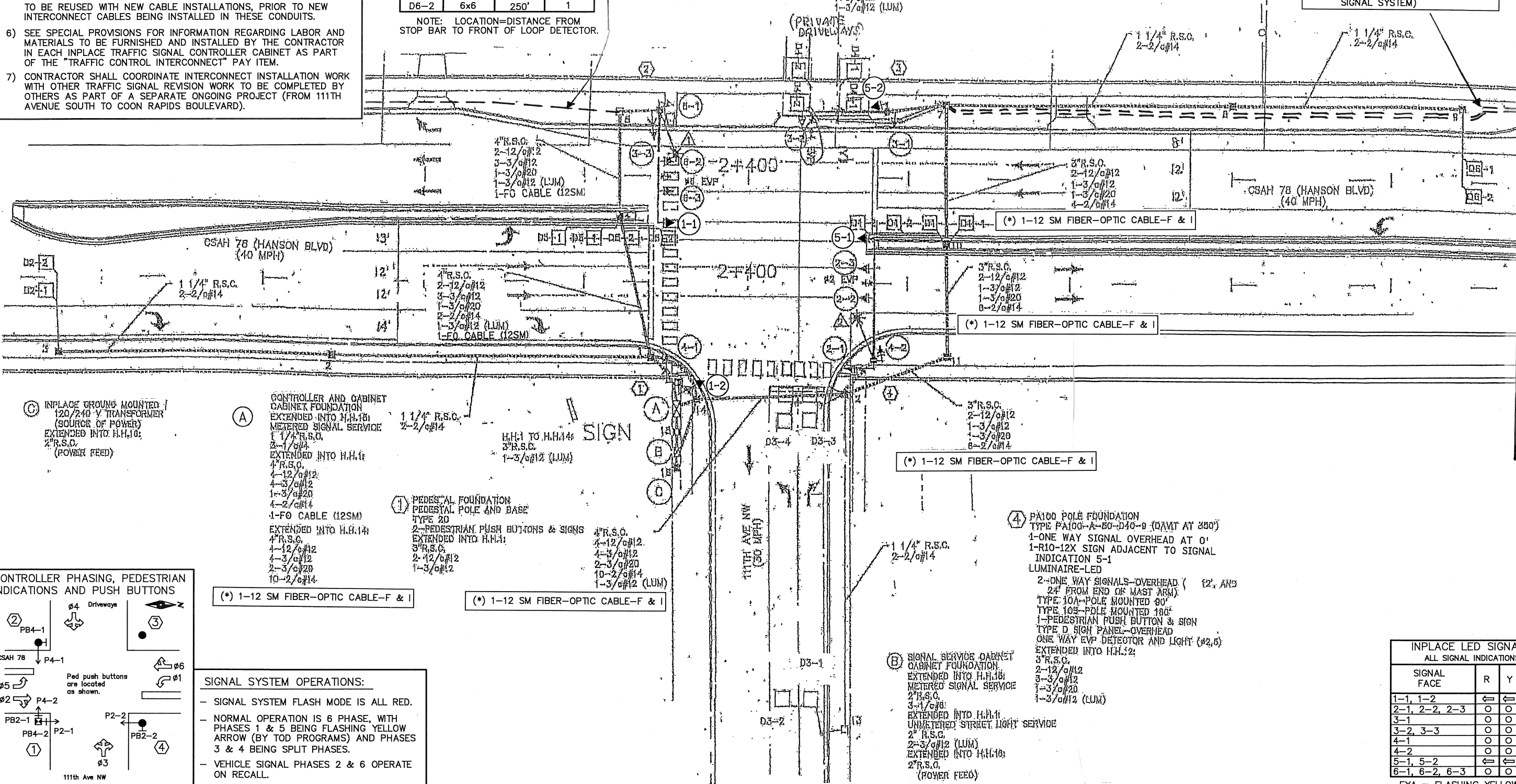
- ② PA100 POLE FOUNDATION  
TYPE PA100-A-40-D40-9 (DAVIT AT 380')  
1-ONE WAY SIGNAL OVERHEAD AT 0'  
1-R10-12X SIGN ADJACENT TO SIGNAL INDICATION 1-1  
LUMINAIRE-LED  
2-ONE WAY SIGNALS-OVERHEAD ( 12', AND 24' FROM END OF MAST ARM)  
TYPE 10A-POLE MOUNTED 90'  
TYPE 10A-POLE MOUNTED 270'  
1-PEDESTRIAN PUSH BUTTON & SIGN  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (#6,1)  
EXTENDED INTO H.H.6:  
3" R.S.C.  
2-12/c#12  
3-3/c#12  
1-3/c#20  
1-3/c#20 (LUM)

- ③ PA90 POLE FOUNDATION  
TYPE PA90-A-30  
ONE WAY SIGNAL-OVERHEAD  
1-TYPE 10A-POLE MOUNTED 270'  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (#3)  
EXTENDED INTO H.H.7:  
3" R.S.C.  
2-12/c#12  
1-3/c#12  
1-3/c#20  
1-3/c#20  
1-TYPE 10A-POLE MOUNTED AT 90'



H.H.5 TO H.H.90:  
2" CONDUIT (TO BE F & I BY OTHERS UNDER SP 002-678-023)  
(\*) 1-12 SM FIBER-OPTIC CABLE-F & I

H.H.7 TO H.H.100:  
(\*) 1 1/2" CONDUIT-F & I (BORE UNDER EXISTING ROADWAYS AND DRIVEWAYS)  
(\*) 1-12 SM FIBER-OPTIC CABLE-F & I (TO CSAH 78/113TH AVENUE SIGNAL SYSTEM)



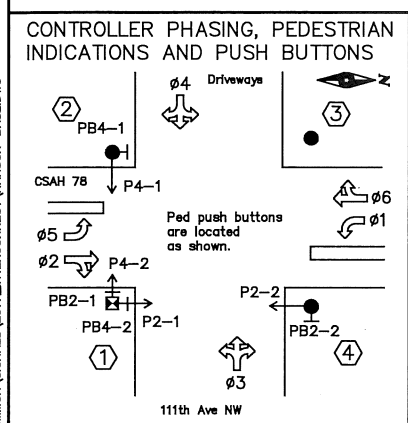
MATCH LINE "E" (INTERCONNECT) (TO CSAH 78/113TH AVE SIGNAL SYSTEM)

③ INPLACE GROUND MOUNTED 120/240 V TRANSFORMER (SOURCE OF POWER) EXTENDED INTO H.H.10; 2" R.S.C. (POWER FEED)

① CONTROLLER AND CABINET CABINET FOUNDATION EXTENDED INTO H.H.18; METERED SIGNAL SERVICE 1 1/4" R.S.C. EXTENDED INTO H.H.1; 4" R.S.C. 4-12/c#12 4-3/c#12 1-3/c#20 4-2/c#14 1-FO CABLE (12SM) EXTENDED INTO H.H.14; 4" R.S.C. 4-12/c#12 4-3/c#12 2-3/c#20 10-2/c#14

① PEDESTAL FOUNDATION PEDESTAL POLE AND BASE TYPE 20 2-PEDESTRIAN PUSH BUTTONS & SIGNS EXTENDED INTO H.H.1; 4" R.S.C. 4-12/c#12 3" R.S.C. 2-12/c#12 2-3/c#20 10-2/c#14 1-3/c#12 (LUM)

④ PA100 POLE FOUNDATION TYPE PA100-A-60-D40-9 (DAVIT AT 380') 1-ONE WAY SIGNAL OVERHEAD AT 0' 1-R10-12X SIGN ADJACENT TO SIGNAL INDICATION 5-1 LUMINAIRE-LED 2-ONE WAY SIGNALS-OVERHEAD ( 12', AND 24' FROM END OF MAST ARM) TYPE 10A-POLE MOUNTED 90' TYPE 10A-POLE MOUNTED 180' 1-PEDESTRIAN PUSH BUTTON & SIGN TYPE D SIGN PANEL-OVERHEAD ONE WAY EVP DETECTOR AND LIGHT (#2,5) EXTENDED INTO H.H.12; 3" R.S.C. 2-12/c#12 3-3/c#12 1-3/c#20 1-3/c#20 (LUM)



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 & 5 BEING FLASHING YELLOW ARROW (BY TOD PROGRAMS) AND PHASES 3 & 4 BEING SPLIT PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

**INPLACE LED SIGNAL FACES**  
ALL SIGNAL INDICATIONS ARE 12"

SIGNAL FACE	R	Y	FYA	G	G
1-1, 1-2	←	←	←	←	
2-1, 2-2, 2-3	○	○	○	○	
3-1	○	○	○	○	
3-2, 3-3	○	○	○	○	←
4-1	○	○	○	○	
4-2	○	○	○	○	←
5-1, 5-2	←	←	←	←	
6-1, 6-2, 6-3	○	○	○	○	

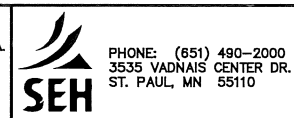
FYA = FLASHING YELLOW ARROW

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

DESIGN TEAM	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.

Date: May 29, 2018 Name: John M. Gray, PE Lic. No. 22457



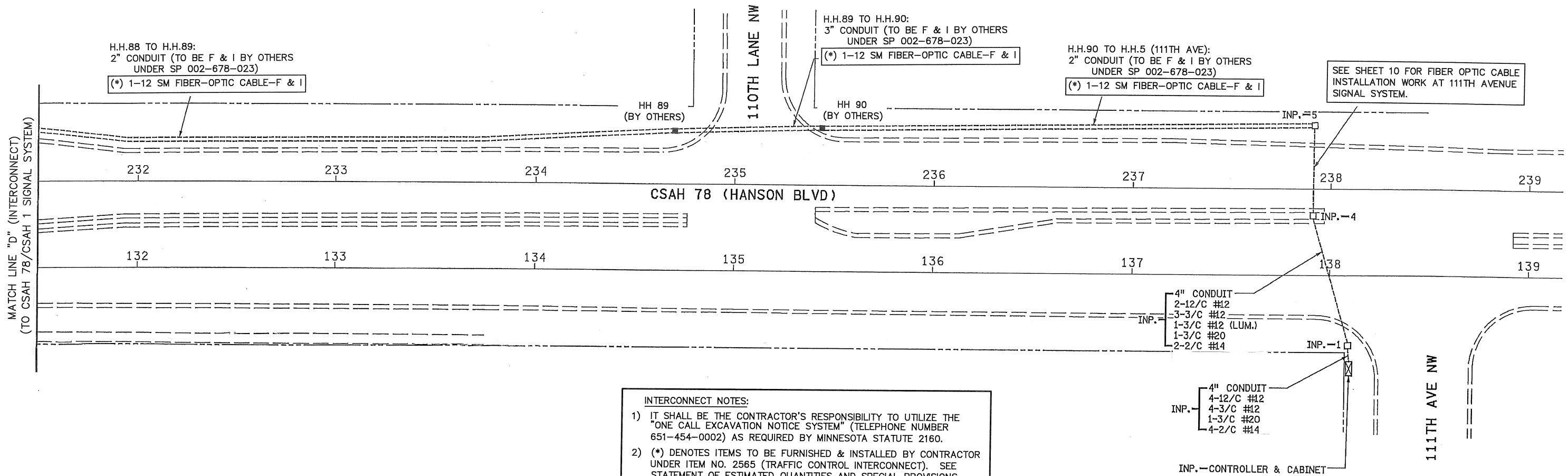
**ANOKA COUNTY, MN**  
CITY OF COON RAPIDS  
STATE PROJECT 002-678-021

**TRAFFIC SIGNAL INTERCONNECT**  
INTERSECTION LAYOUT  
CSAH 78 (HANSON BLVD) AT  
111TH AVENUE NW

FILE NO. ANOKC 122928  
10  
32



NOTE SCALE CHANGE ON THIS PLAN SHEET.



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- 2) (\*) DENOTES ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 3) ALL ITEMS SHOWN ON THIS PLAN SHEET WILL BE FURNISHED AND INSTALLED BY OTHERS AS PART OF SP 002-678-023, EXCEPT FOR ITEMS BOXED IN AND DENOTED BY BOTH (\*) AND BY F & I (ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR AS PART OF SP 002-678-021).
- 4) AS PART OF AN ONGOING COUNTY PROJECT BY OTHERS (UNDER SP 002-678-023), CSAH 78 WILL BE RECONSTRUCTED THROUGH THIS AREA AND NORTH TO THE EXISTING EPIPHANY CHURCH DRIVEWAY. AS PART OF THAT CONSTRUCTION, NEW CONDUIT AND HANDHOLES WILL BE INSTALLED BY OTHERS FROM CSAH 1 TO THE SOUTHWEST CORNER AT 111TH AVENUE AT NO EXPENSE TO THE CONTRACTOR. THE CONTRACTOR FOR SP 002-678-021 SHALL COORDINATE NEW FIBER OPTIC CABLE INSTALLATION WORK FROM THE CSAH 1 CABINET TO THE 111TH AVENUE CONTROLLER CABINET WITH THE NEW CONDUIT/HANDHOLE AND OTHER TRAFFIC SIGNAL WORK TO BE COMPLETED BY OTHERS AS PART OF THE SEPARATE ONGOING PROJECT (INCIDENTAL).

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 CHECKED BY: JMG

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*John M. Gray*  
 Name: John M. Gray, PE  
 Date: May 29, 2018  
 Lic. No. 22457

**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY, MN**  
**CITY OF COON RAPIDS**  
 STATE PROJECT 002-678-021

**TRAFFIC SIGNAL INTERCONNECT**  
**INTERSECTION LAYOUT**  
**CSAH 78 (HANSON BLVD)**  
**(CSAH 1 TO 111TH AVENUE)**

FILE NO.  
 ANOKC 122928

**9**  
**32**



(TO CSAH 78/111TH AVE SIGNAL SYSTEM)  
MATCH LINE "E" (INTERCONNECT)

MATCH LINE FOR INTERCONNECT—SEE BELOW LEFT

H.H.7 (111TH AVE) TO H.H.100:  
(\* ) 1 1/2" CONDUIT—F & I  
(BORE UNDER EXISTING ROADWAYS AND DRIVEWAYS)  
(\* ) 1-12 SM FIBER—OPTIC CABLE—F & I

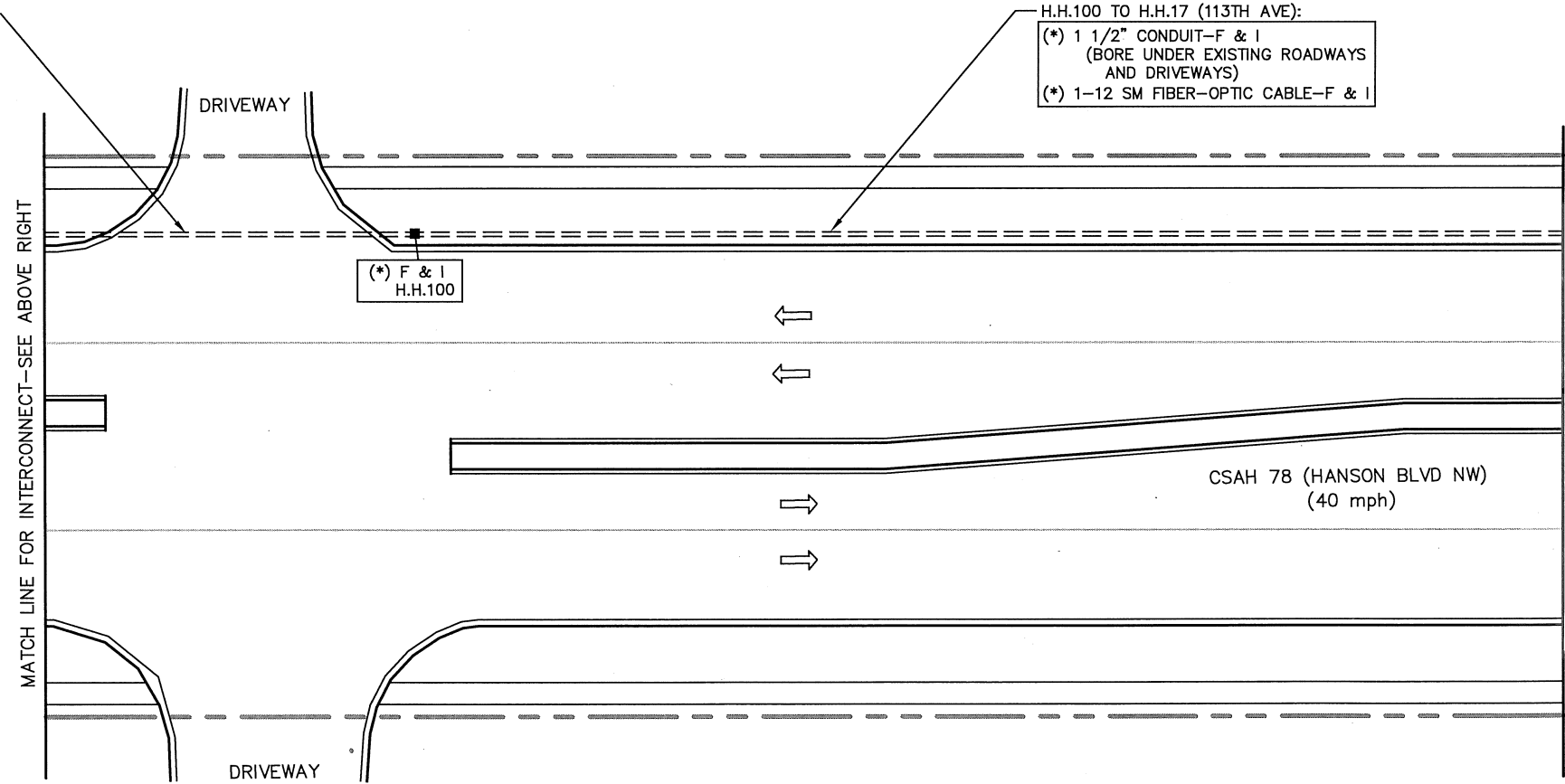
INPLACE SCHOOL FLASHER  
(PROTECT INPLACE)

CSAH 78 (HANSON BLVD NW)  
(40 mph)

CHURCH DRIVEWAY

H.H.7 (111TH AVE) TO H.H.100:  
(\* ) 1 1/2" CONDUIT—F & I  
(BORE UNDER EXISTING ROADWAYS AND DRIVEWAYS)  
(\* ) 1-12 SM FIBER—OPTIC CABLE—F & I

H.H.100 TO H.H.17 (113TH AVE):  
(\* ) 1 1/2" CONDUIT—F & I  
(BORE UNDER EXISTING ROADWAYS AND DRIVEWAYS)  
(\* ) 1-12 SM FIBER—OPTIC CABLE—F & I



MATCH LINE "F" (INTERCONNECT)  
(TO CSAH 78/113TH AVE SIGNAL SYSTEM)

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  - 3) NEW HANDHOLE 100 REQUIRED TO BE FURNISHED & INSTALLED BY CONTRACTOR AS PART OF PROJECT SHALL BE A PRE-CAST POLYMER CONCRETE STRUCTURE. SEE DETAILS/SPECIAL PROVISIONS.

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STATE PROJECT 002-678-021

**TRAFFIC SIGNAL INTERCONNECT**  
**INTERSECTION LAYOUT**  
**CSAH 78 (HANSON BLVD)**  
**(111TH AVENUE TO 113TH AVENUE)**

FILE NO.  
ANOKC 142312

**12**  
**32**

