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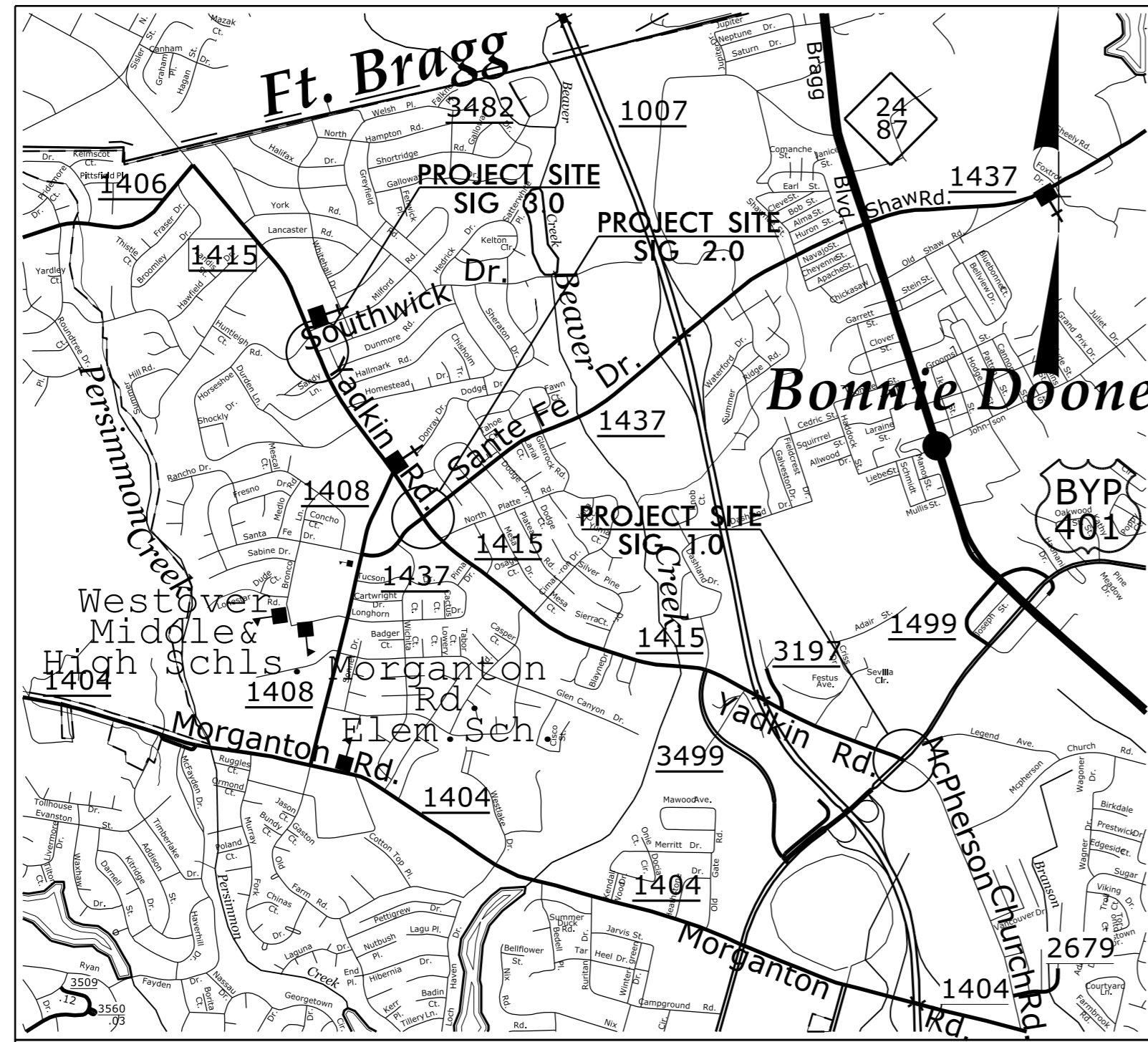
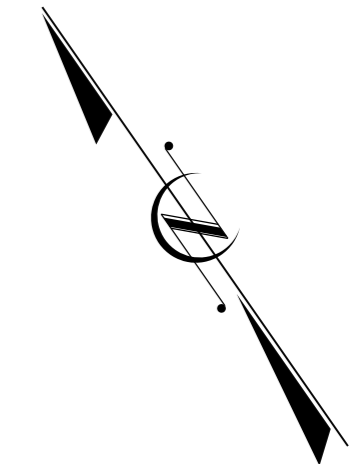
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2006A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49312.1.2	HSIP-1415 (005)	PE	
49312.3.2	HSIP-1415 (005)	CONST	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CUMBERLAND COUNTY

**LOCATION:** SR 1415(YADKIN ROAD) AT US 401 BYP (SKIBO ROAD), AT SR 1437 (SANTE FE DRIVE), AND AT SOUTHWICK DRIVE

**TYPE OF WORK:** ADD SIGNALIZED PERDESTRIAN CROSSINGS TO ALL THREE INTERSECTIONS, AND UPGRADE SIGNAL AT SOUTHWICK DRIVE.



**VICINITY MAP**

**TIP PROJECT: HS-2006A**

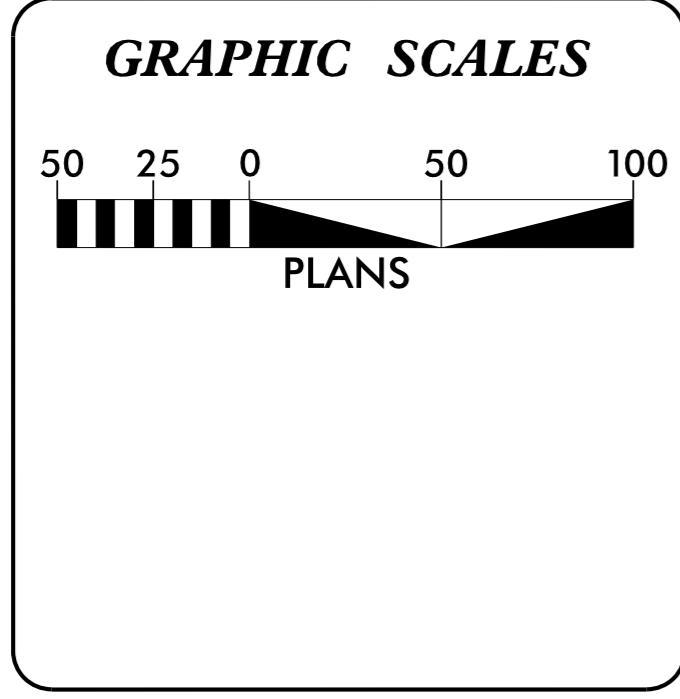
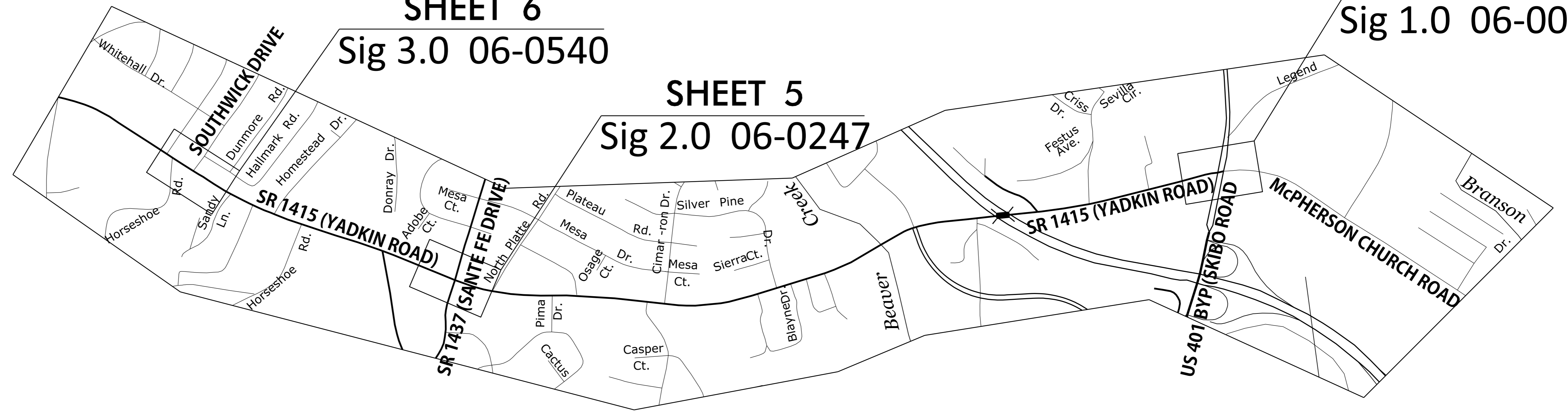
**CONTRACT: DF00459**

**SHEET 4**

**Sig 1.0 06-0055**

**SHEET 6**  
**Sig 3.0 06-0540**

**SHEET 5**  
**Sig 2.0 06-0247**



**DESIGN DATA**

**PROJECT LENGTH**

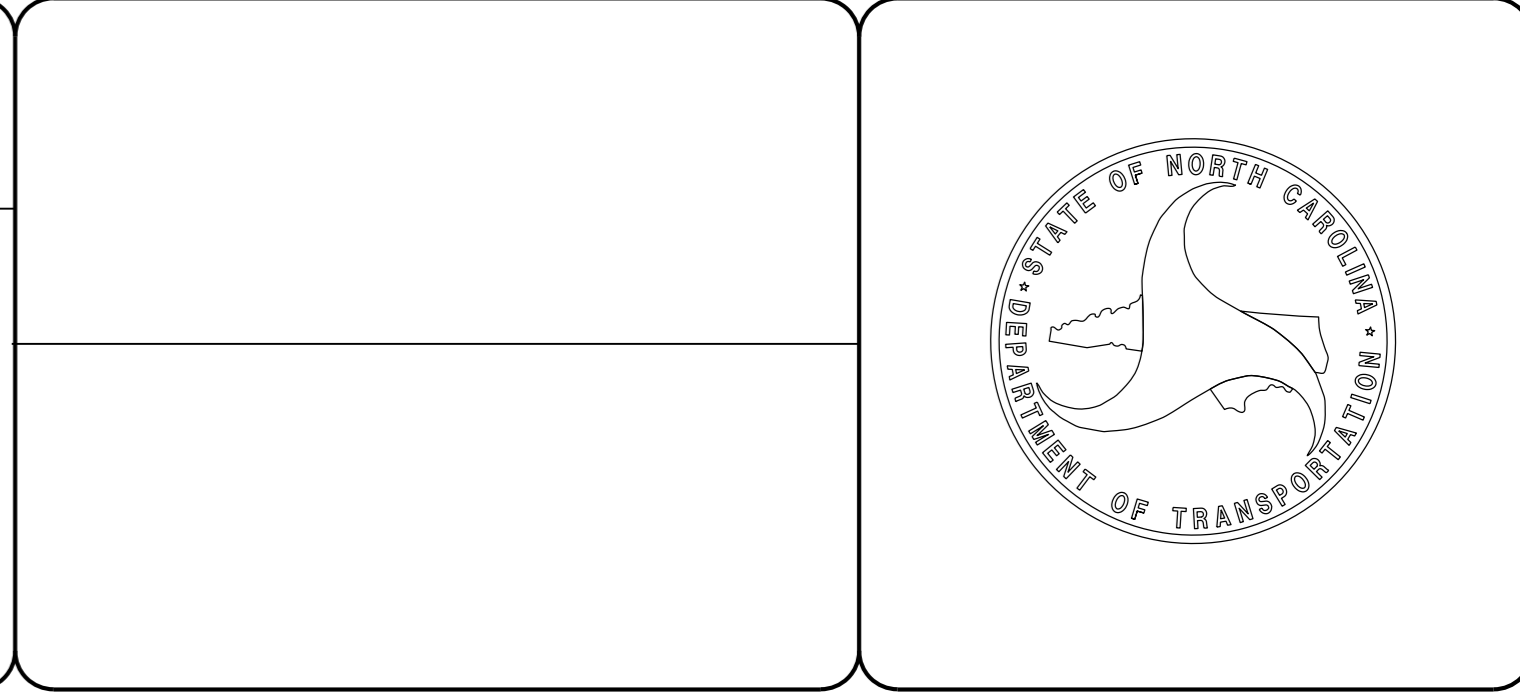
Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
DIVISION 6  
431 Transportation Dr., Fayetteville NC, 28301  
2024 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
N/A

**LETTING DATE:**  
FEBRUARY 21, 2024

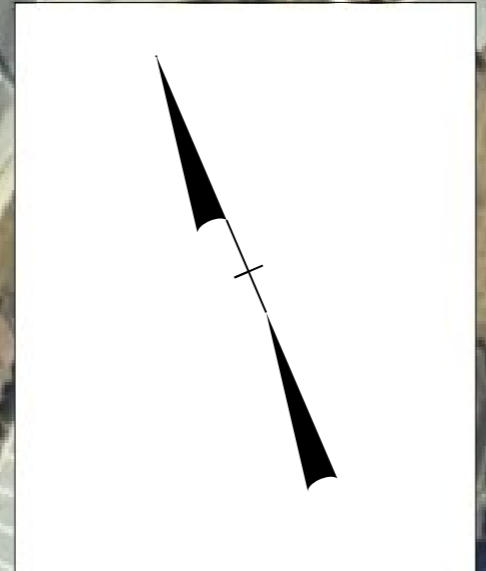
**JOHN GAUTHIER**  
PROJECT ENGINEER

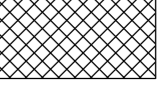
**BRIAN MATTHEWS**  
PROJECT DESIGN ENGINEER



31-JAN-2024 13:48 S:\DDC\Projects\HS-2006A\_Yadkin Sidewalks\Roadway\proj\HS-2006A\_Rdy\_1sh.dgn \$\$\$\$USERNAME\$\$\$

PROJECT REFERENCE NO. <i>HS-2006A</i>	SHEET NO. <i>04</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



 PAVEMENT REMOVAL

NOTE: REMOVE RAILROAD TRACK WITHIN THE LIMITS OF PAVEMENT REMOVAL AND TO THE EXTENT POSSIBLE ALONG SKIBO ROAD ON WEST SIDE BERM.

FOR SIGNAL PLAN SEE SHEET SIG. 1.0

5/14/99

08-NOV-2023 16:18  
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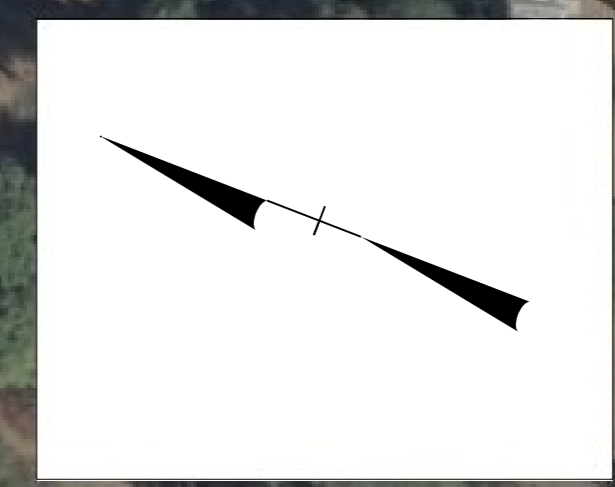
PROJECT REFERENCE NO. <i>HS-2006A</i>	SHEET NO. <i>05</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



FOR SIGNAL PLAN SEE SHETT SIG. 2.0

5/14/99  
 17-JUL-2023 15:42  
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PROJECT REFERENCE NO. <i>HS-2006A</i>	SHEET NO. <i>06</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



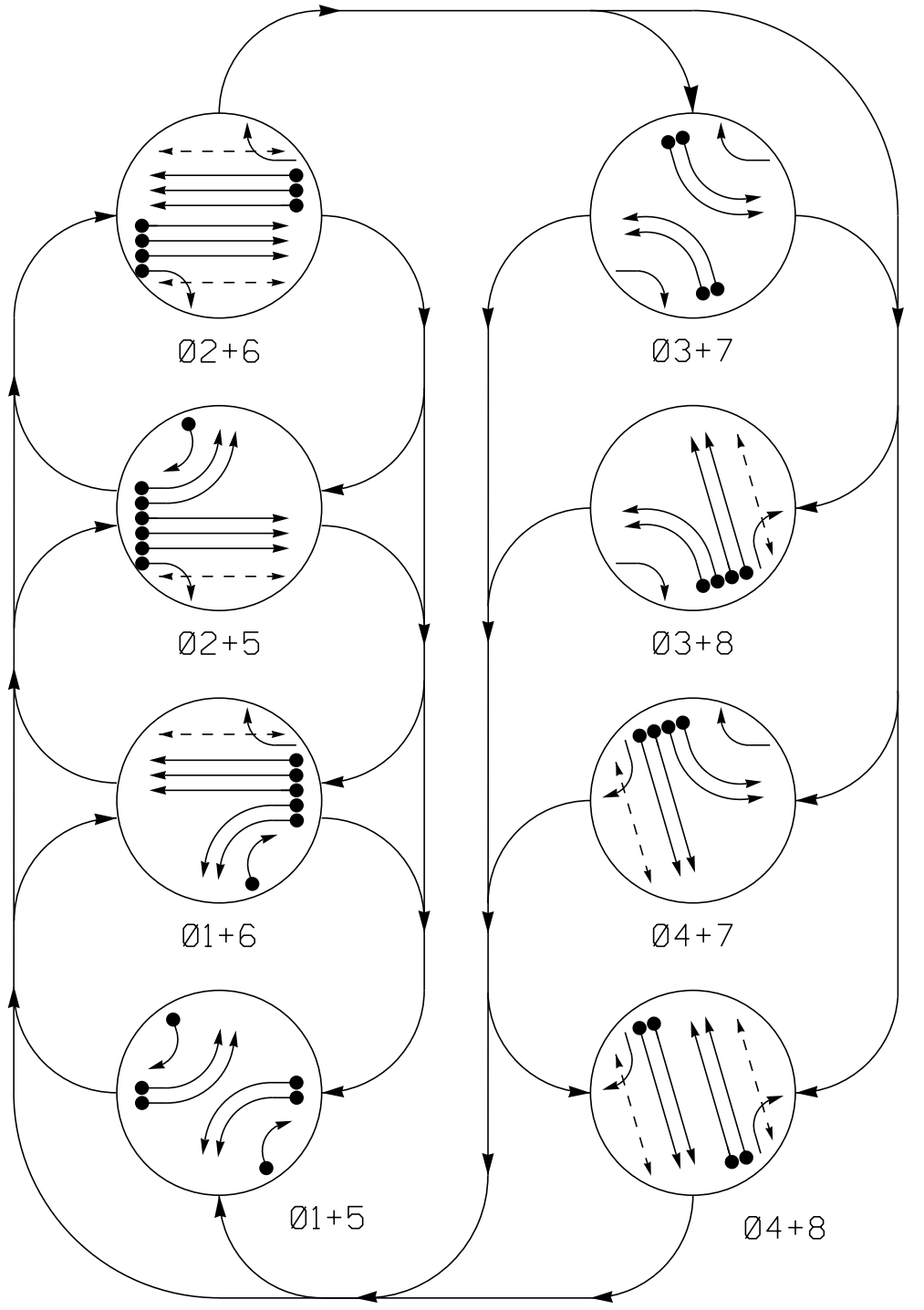
5/14/99



I:\JUL-2023\_16122\HS-2006A\_Yadkin\0106-300223\Roadway\proj\HS-2006A\_Rdy\_psh\_06.dgn

FOR SIGNAL PLAN SEE SHETT SIG. 3.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

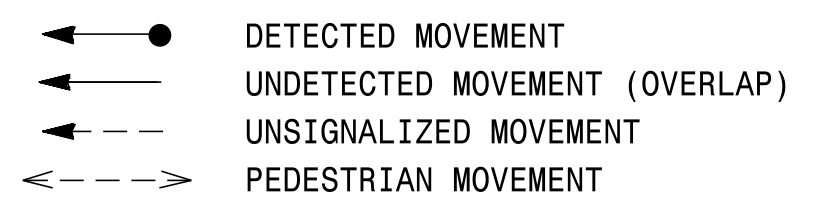
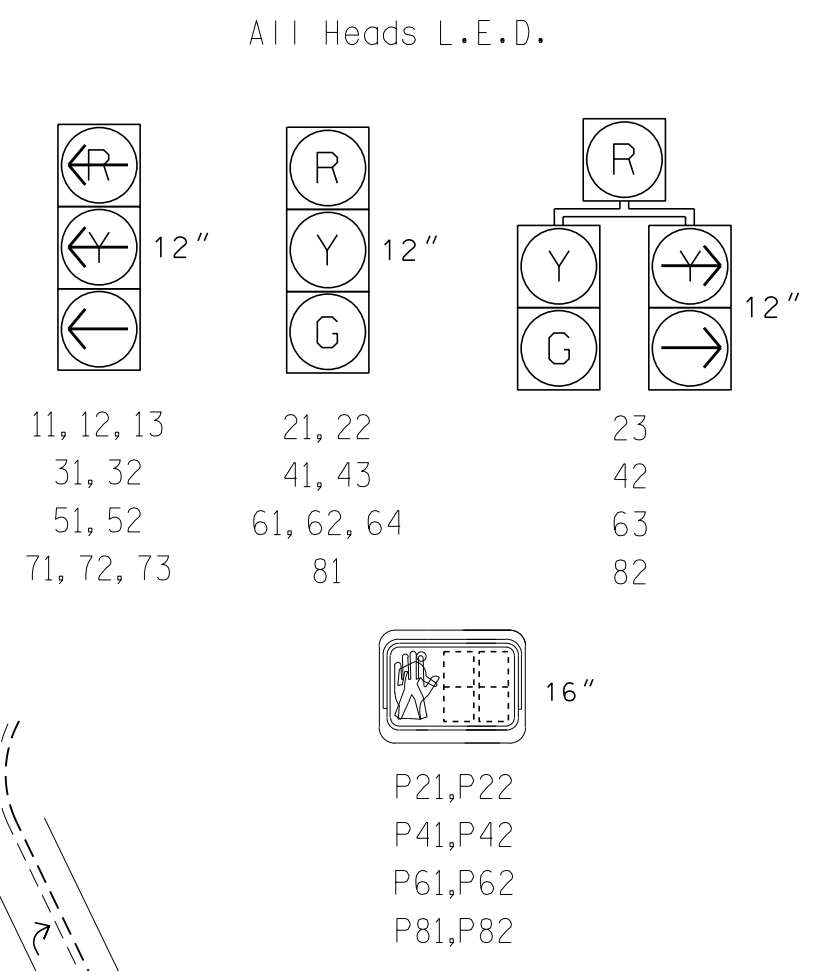


TABLE OF OPERATION

SIGNAL FACE	PHASE							
	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6	Ø 3+7	Ø 3+8	Ø 4+7	Ø 4+8
11,12,13	←	←	←	←	←	←	←	←
21,22	R	R	G	G	R	R	R	Y
23	R	R	G	G	R	R	R	Y
31,32	←	←	←	←	←	←	←	←
41,43	R	R	R	R	R	R	G	G
42	R	R	R	R	R	R	G	G
51,52	←	←	←	←	←	←	←	←
61,62,64	R	G	R	G	R	R	R	Y
63	R	G	R	G	R	R	R	Y
71,72,73	←	←	←	←	←	←	←	←
81	R	R	R	R	R	G	R	G
82	R	R	R	R	R	G	R	G
P21,P22	DW	DW	W	W	DW	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	W	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	W	DW	W	DRK

SIGNAL FACE I.D.



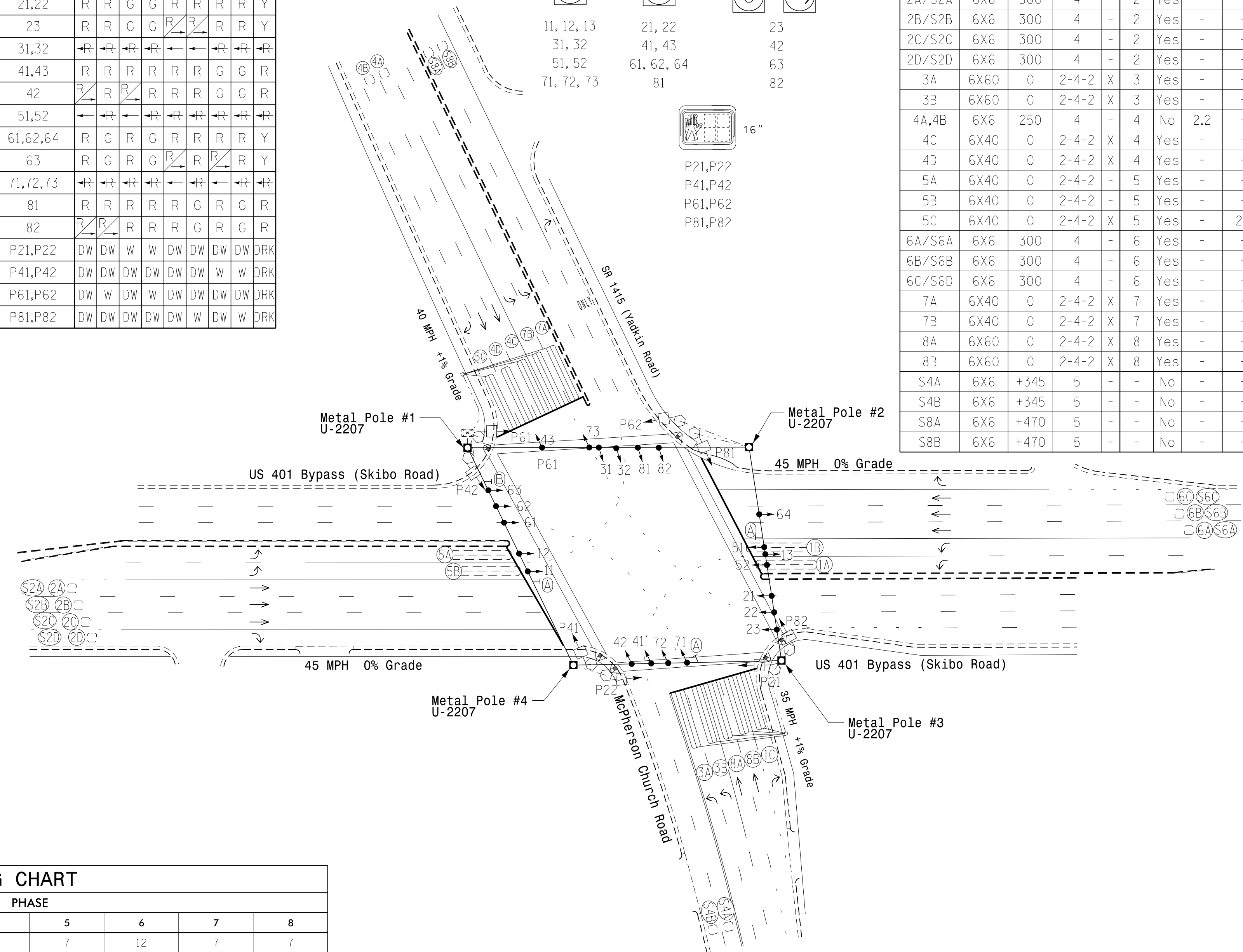
ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING					
					PHASE	CALLING	EXTEND TIME	DELAY TIME	TYPE	SYSTEM LOOP NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	-	N	-
1B	6X40	0	2-4-2	-	1	Yes	-	-	N	-
1C	6X60	0	2-4-2	X	1	Yes	-	20	N	-
2A/S2A	6X6	300	4	-	2	Yes	-	-	N	X
2B/S2B	6X6	300	4	-	2	Yes	-	-	N	X
2C/S2C	6X6	300	4	-	2	Yes	-	-	N	X
2D/S2D	6X6	300	4	-	2	Yes	-	-	N	X
3A	6X60	0	2-4-2	X	3	Yes	-	-	N	-
3B	6X60	0	2-4-2	X	3	Yes	-	-	N	-
4A,4B	6X6	250	4	-	4	No	2.2	-	N	-
4C	6X40	0	2-4-2	X	4	Yes	-	-	N	-
4D	6X40	0	2-4-2	X	4	Yes	-	-	N	-
5A	6X40	0	2-4-2	-	5	Yes	-	-	N	-
5B	6X40	0	2-4-2	-	5	Yes	-	-	N	-
5C	6X40	0	2-4-2	X	5	Yes	-	20	N	-
6A/S6A	6X6	300	4	-	6	Yes	-	-	N	X
6B/S6B	6X6	300	4	-	6	Yes	-	-	N	X
6C/S6C	6X6	300	4	-	6	Yes	-	-	N	X
6D/S6D	6X6	300	4	-	6	Yes	-	-	N	X
7A	6X40	0	2-4-2	X	7	Yes	-	-	N	-
7B	6X40	0	2-4-2	X	7	Yes	-	-	N	-
8A	6X60	0	2-4-2	X	8	Yes	-	-	N	-
8B	6X60	0	2-4-2	X	8	Yes	-	-	N	-
S4A	6X6	+345	5	-	-	No	-	-	N	X
S4B	6X6	+345	5	-	-	No	-	-	N	X
S8A	6X6	+470	5	-	-	No	-	-	N	X
S8B	6X6	+470	5	-	-	No	-	-	N	X

8 Phase Fully Actuated Fayetteville Signal System

NOTES

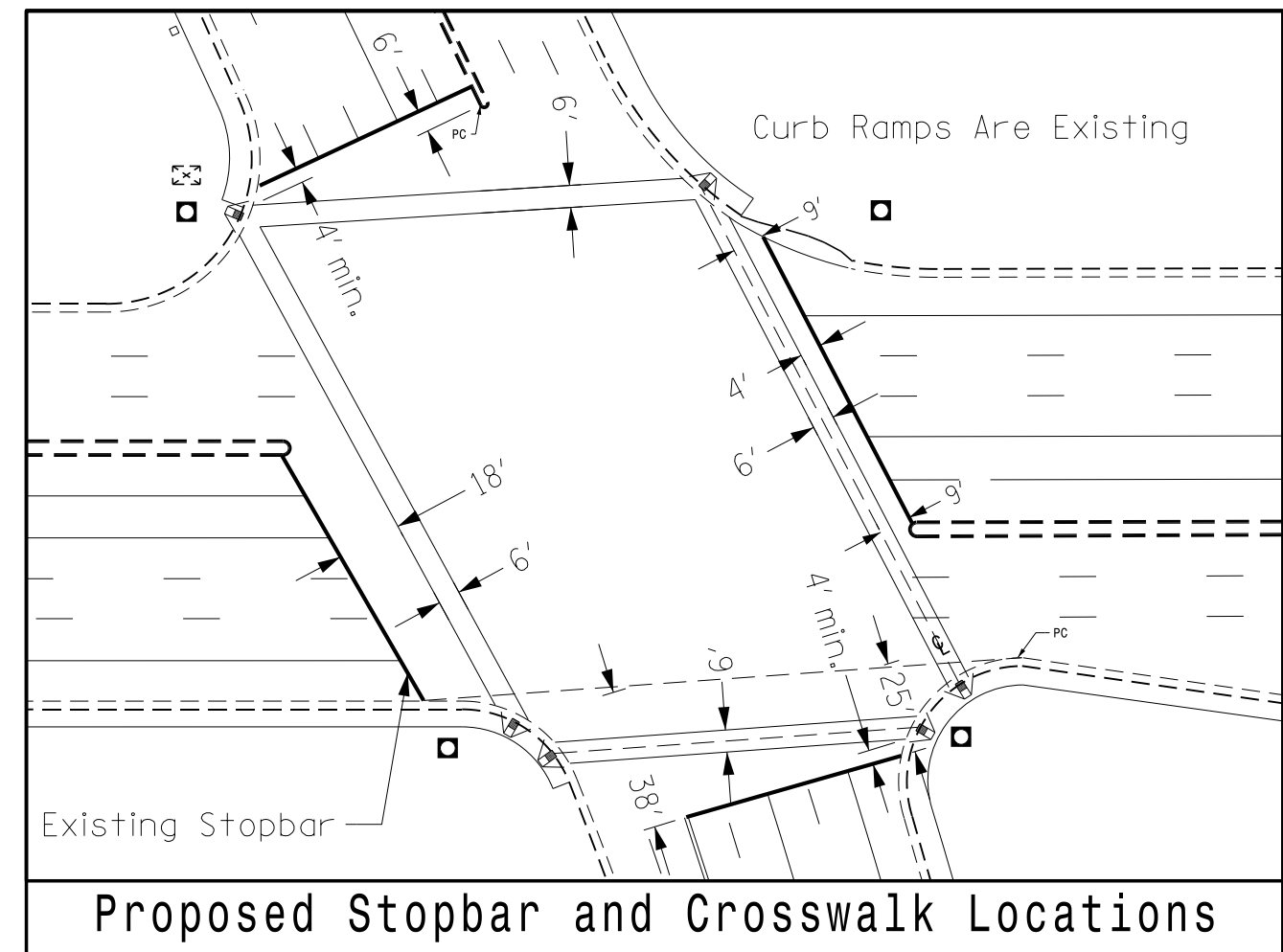
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



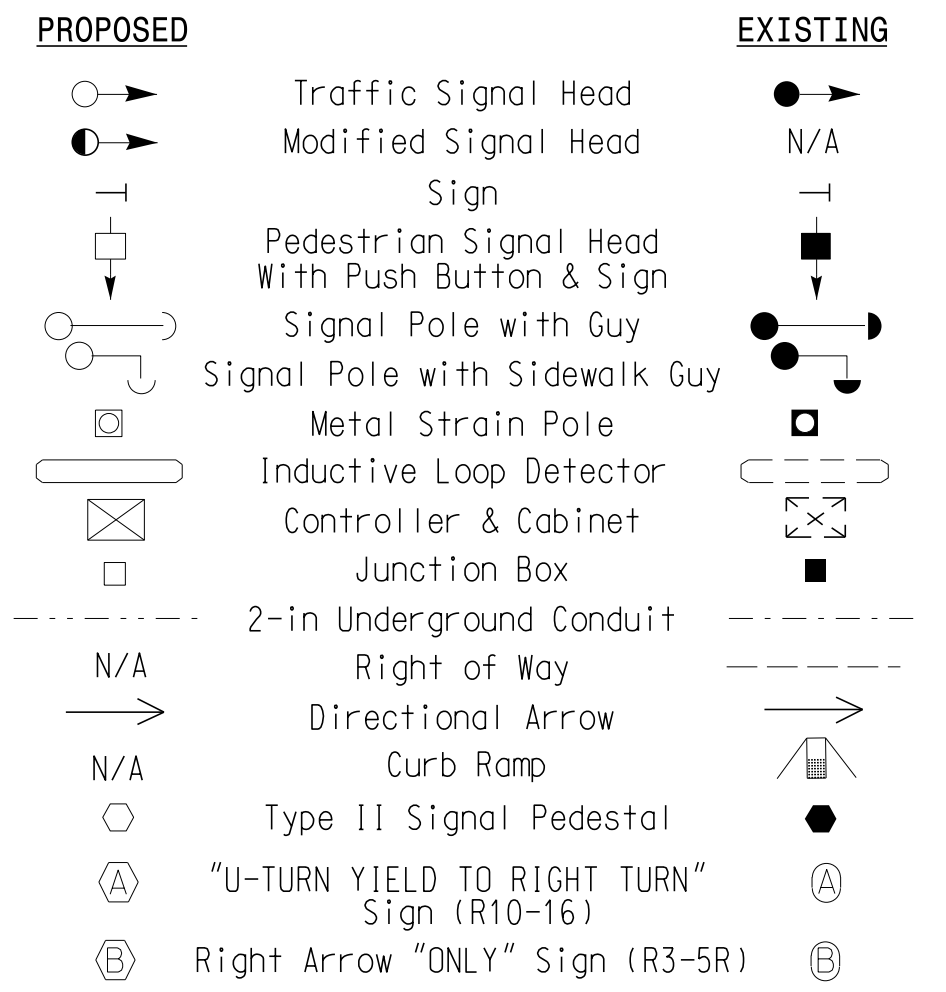
ASC/3 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	12	7	7	7	12	7	7
Delay Green *	-	7	-	7	-	7	-	7
Walk *	-	7	-	7	-	7	-	7
Ped Clear	-	24	-	41	-	32	-	40
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max 1 *	25	90	20	40	50	90	20	40
Yellow	3.0	4.5	3.0	4.1	3.0	4.5	3.0	3.8
Red Clear	3.4	2.2	4.2	3.0	3.5	2.1	4.7	3.2
Actions B4 Add *	-	-	-	-	-	-	-	-
Seconds / Actuation *	-	1.5	-	-	-	1.5	-	-
Max Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	20	-	-	-	20	-	-
Time To Reduce *	-	25	-	-	-	25	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X	X	X

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



LEGEND



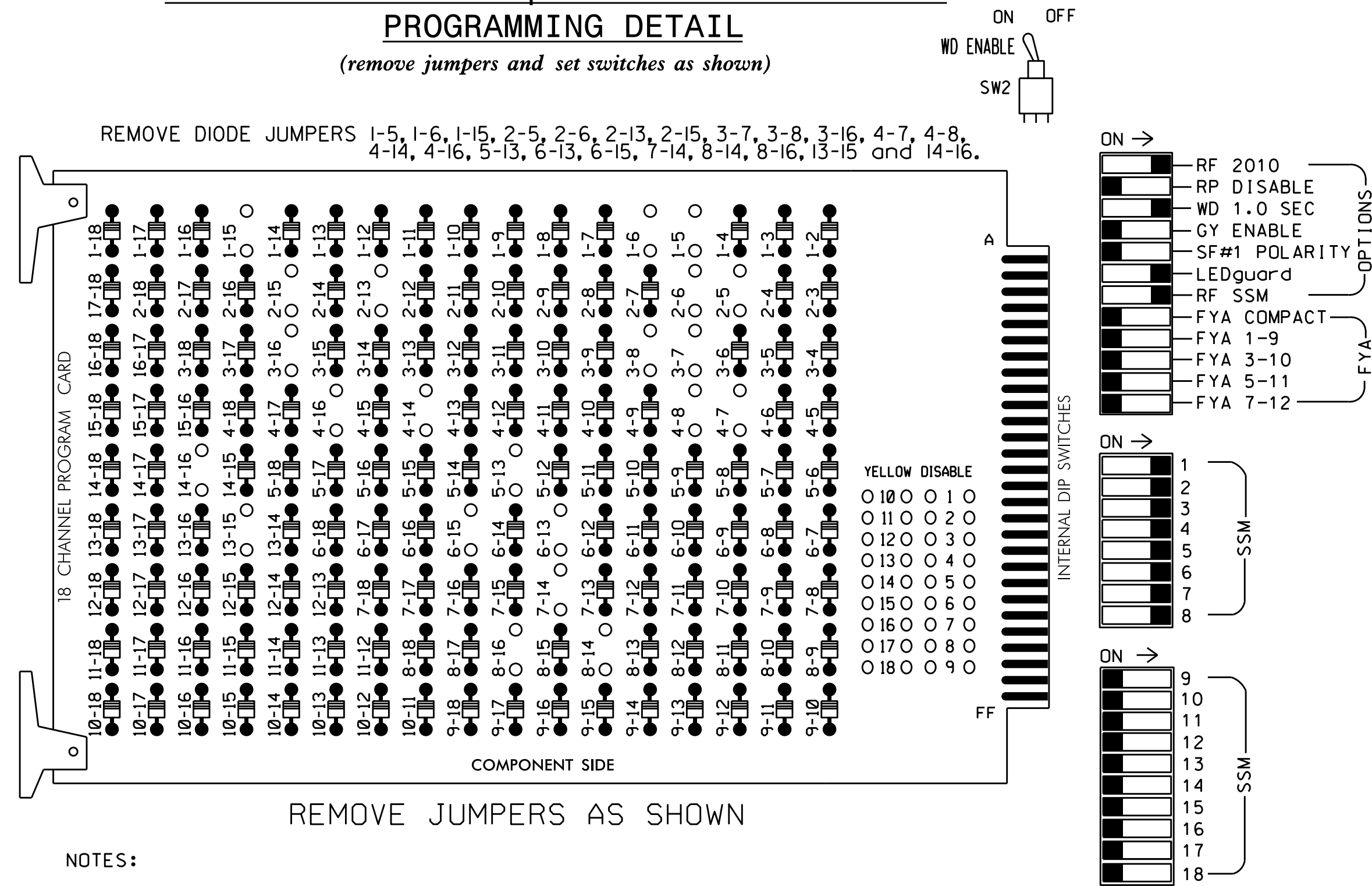
Signal Upgrade - Corr. File No. 06-19-59136

Prepared in the Offices of:  
**US 401 Bypass (Skibo Road) At SR 1415 (Yadkin Road) / McPherson Church Road**  
 Division 6 Cumberland County Fayetteville  
 PLAN DATE: December 2022 REVIEWED BY: ZML  
 PREPARED BY: KGP, Jr. REVIEWED BY:  
 REVISIONS: INIT. DATE  
 SCALE: 0 50  
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  
 SEAL: ZACHARY M. LITTLE, ENGINEER, 030530  
 DATE: 02/01/2023  
 SIG. INVENTORY NO. 06-0055

01-FEB-2023, 15:50  
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 kpbredin

**EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL**

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

**NOTES:**

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

**NOTES**

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Fayetteville Signal System.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070  
 CABINET.....332  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,  
 S9,S10,S11,S12  
 PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,  
 6 PED,7,8,8 PED  
 OVERLAPS.....NONE

**SIGNAL HEAD HOOK-UP CHART**

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12				
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16				
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED				
SIGNAL HEAD NO.	11,12 13	82	21,22 23	P21, P22	23	31,32	41,42 43	P41, P42	42	51,52	61,62 63,64	P61, P62	63	71,72 73	81,82	P81, P82
RED		128				101		134				107				
YELLOW		129				102		135				108				
GREEN		130				103		136				109				
RED ARROW	125			116			131				122					
YELLOW ARROW	126	126		117	117		132	132			123	123				
GREEN ARROW	127	127		118	118		133	133			124	124				
Hand icon			113			104			119			110				
Walking person icon			115			106			121			112				

NU = Not Used

**COUNTDOWN PEDESTRIAN SIGNAL OPERATION**

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

**INPUT FILE POSITION LAYOUT**

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 1	∅ 2/SYS	∅ 2/SYS	S	∅ 3	∅ 4	∅ 4	SYS. DET. S4A	S	S	∅ 2 PED	∅ 6 PED	FS
L	1A	1C	2B/S2B	2D/S2D	NOT USED	3A	4A,4B	4D	SYS. DET. S4B	S	S	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
U	∅ 1	∅ 2/SYS	∅ 2/SYS	NOT USED	∅ 4	∅ 4	∅ 4	∅ 4	SYS. DET. S4B	S	S	∅ 4 PED	∅ 8 PED	ST
L	1B	2A/S2A	2C/S2C	NOT USED	3B	4C	NOT USED	NOT USED	SYS. DET. S4B	S	S	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
U	∅ 5	∅ 5	∅ 6/SYS	S	∅ 7	∅ 8	∅ 8	SYS. DET. S8A	S	S	S	S	S	S
L	5A	5C	6B/S6B	NOT USED	7A	8A	8A	SYS. DET. S8A	S	S	S	S	S	S
U	∅ 5	∅ 6/SYS	∅ 6/SYS	∅ 7	∅ 7	∅ 8	∅ 8	SYS. DET. S8B	S	S	S	S	S	S
L	5B	6A/S6A	6C/S6C	NOT USED	7B	8B	8B	SYS. DET. S8B	S	S	S	S	S	S

EX.: 1A, 2A, ETC. = LOOP NO.'S

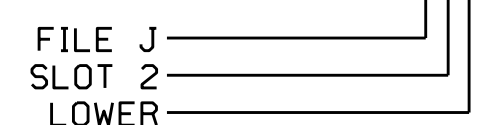
FS = FLASH SENSE  
 ST = STOP TIME

**INPUT FILE CONNECTION & PROGRAMMING CHART**

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES				N
1B	TB2-3,4	I1U	56	1	1	YES				N
1C	TB2-5,6	I2U	39	2	1	YES		20		N
2A/S2A	TB2-7,8	I2L	43	12	2/SYS	YES				N
2B/S2B	TB2-9,10	I3U	63	32	2/SYS	YES				N
2C/S2C	TB2-11,12	I3L	76	42	2/SYS	YES				N
2D/S2D	TB4-1,2	I4U	47	22	2/SYS	YES				N
3A	TB4-9,10	I6U	41	4	3	YES				N
3B	TB4-11,12	I6L	45	14	3	YES				N
4A,4B	TB6-1,2	I7U	65	34	4	NO	2,2			N
4C	TB6-3,4	I7L	78	44	4	YES				N
4D	TB6-5,6	I8U	49	24	4	YES				N
5A	TB3-1,2	J1U	55	5	5	YES				N
5B	TB3-3,4	J1U	55	5	5	YES				N
5C	TB3-5,6	J2U	40	6	5	YES		20		N
6A/S6A	TB3-7,8	J2L	44	16	6/SYS	YES				N
6B/S6B	TB3-9,10	J3U	64	36	6/SYS	YES				N
6C/S6C	TB3-11,12	J3L	77	46	6/SYS	YES				N
7A	TB5-9,10	J6U	42	8	7	YES				N
7B	TB5-11,12	J6L	46	18	7	YES				N
8A	TB7-1,2	J7U	66	38	8	YES				N
8B	TB7-3,4	J7L	79	48	8	YES				N
*S4A	TB6-9,10	I9U	60	11	SYS	NO				N
*S4B	TB6-11,12	I9L	62	13	SYS	NO				N
*S8A	TB7-9,10	J9U	59	15	SYS	NO				N
*S8B	TB7-11,12	J9L	61	17	SYS	NO				N
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

NOTE:  
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

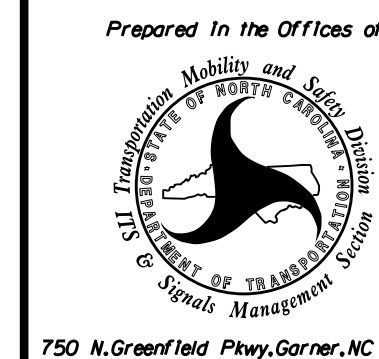
INPUT FILE POSITION LEGEND: J2L



\* System detector only. Remove any assigned vehicle phase.

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:



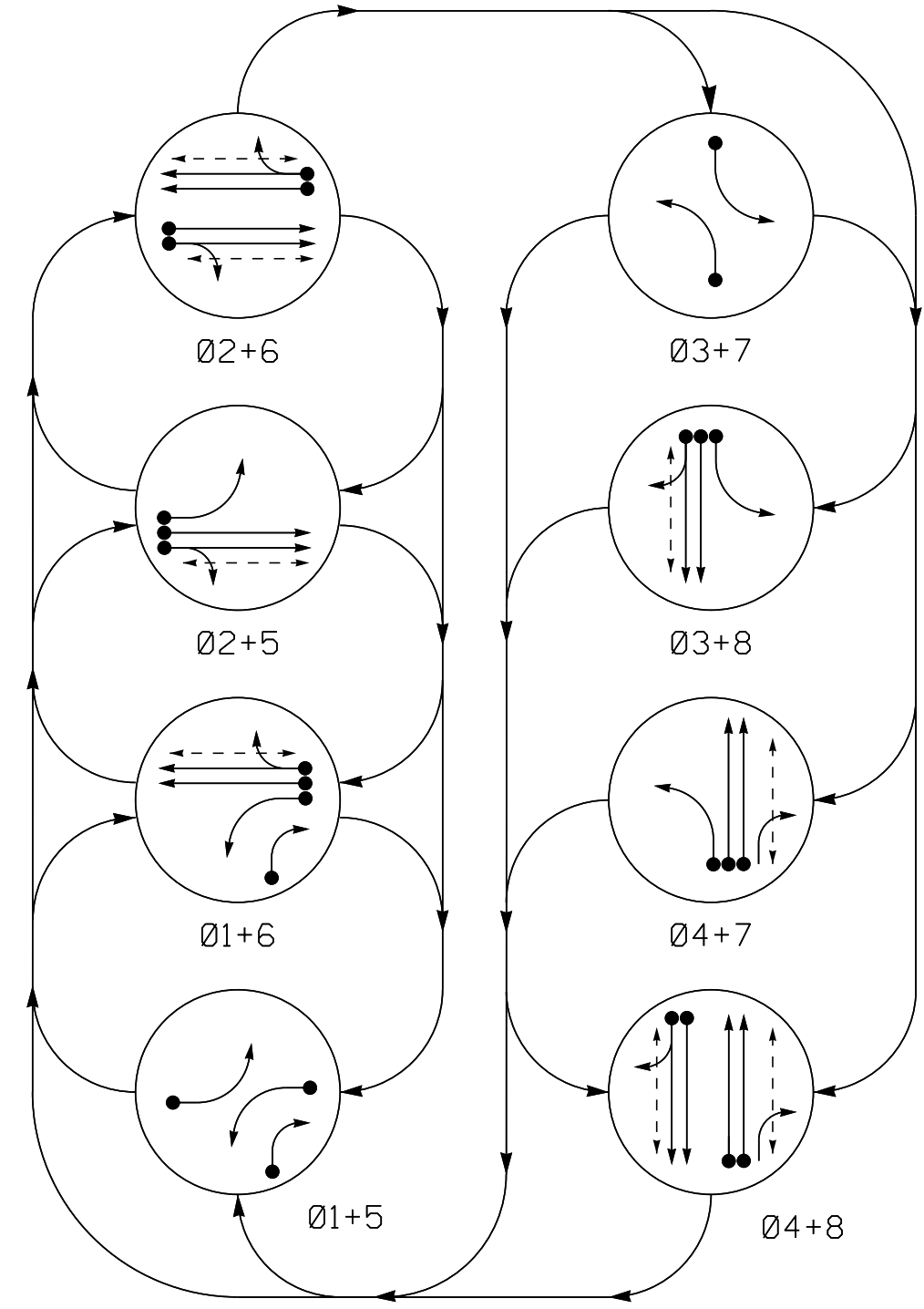
US 401 Bypass (Skibo Road)  
 at  
 SR 1415 (Yadkin Road)/  
 McPherson Church Road

Division 6	Cumberland County	Fayetteville
PLAN DATE: January 2023	REVIEWED BY:	
PREPARED BY: Zarrar Zafar	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL	02/02/2023
Signature: Todd Joye	DATE
SIG. INVENTORY NO. 06-0055	

**PHASING DIAGRAM**



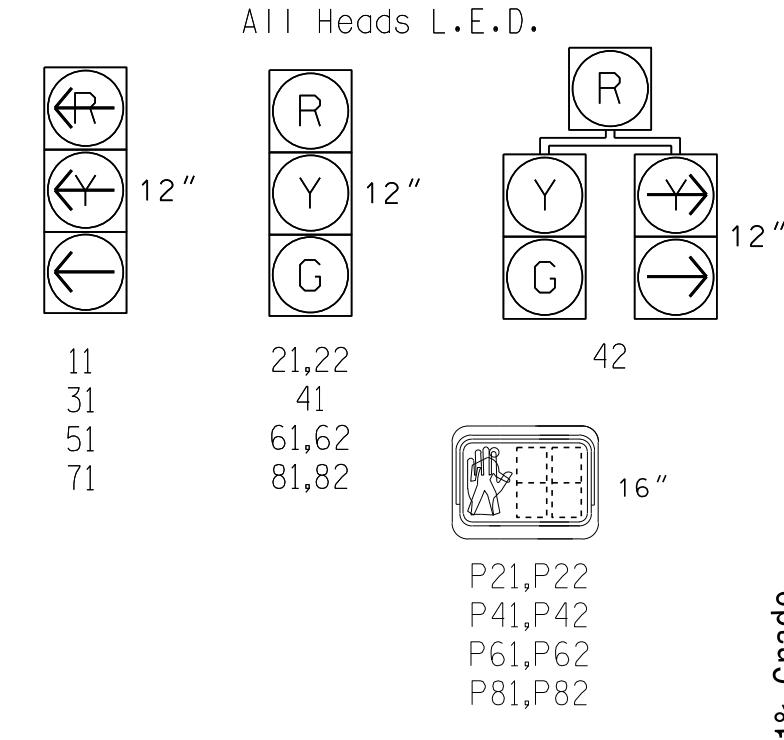
**PHASING DIAGRAM DETECTION LEGEND**

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ⚡ PEDESTRIAN MOVEMENT

**TABLE OF OPERATION**

SIGNAL FACE	PHASE							
	01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8
11	←	←	←	←	←	←	←	←
21,22	R	R	G	G	R	R	R	Y
31	←	←	←	←	←	←	←	←
41	R	R	R	R	R	G	G	R
42	←	←	R	R	R	R	G	G
51	←	←	←	←	←	←	←	←
61,62	R	G	R	G	R	R	R	Y
71	←	←	←	←	←	←	←	←
81,82	R	R	R	R	R	G	R	G
P21,P22	DW	DW	W	W	DW	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	W	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	W	DW	W	DRK

**SIGNAL FACE I.D.**



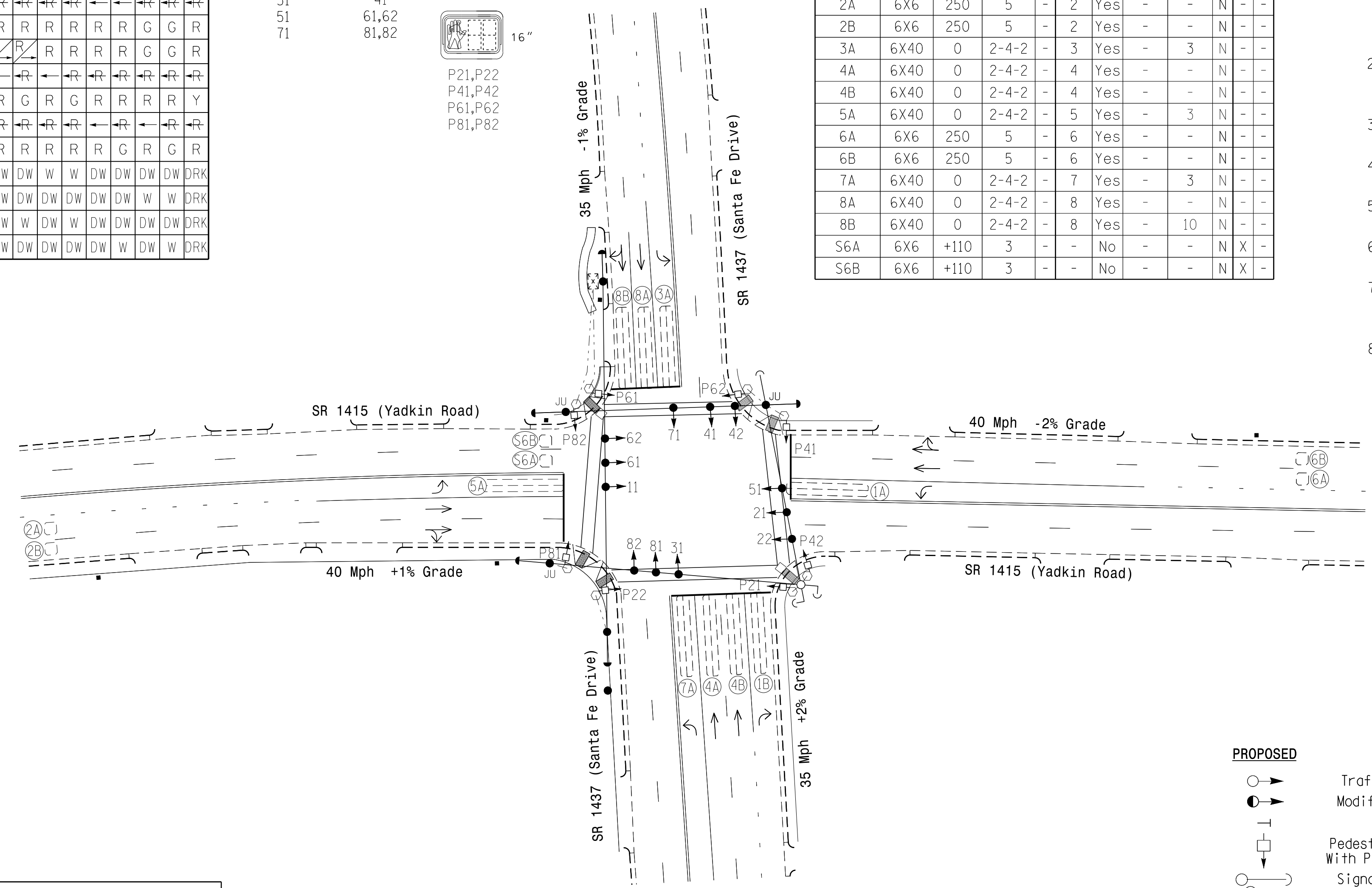
**ASC/3 DETECTOR INSTALLATION CHART**

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING					
					PHASE	CALLING	EXTEND TIME	DELAY TIME	TYPE	SYSTEM LOOP
1A	6X40	+3	2-4-2	-	1	Yes	-	3	N	-
1B	6X40	0	2-4-2	-	1	Yes	-	15	N	-
2A	6X6	250	5	-	2	Yes	-	-	N	-
2B	6X6	250	5	-	2	Yes	-	-	N	-
3A	6X40	0	2-4-2	-	3	Yes	-	3	N	-
4A	6X40	0	2-4-2	-	4	Yes	-	-	N	-
4B	6X40	0	2-4-2	-	4	Yes	-	-	N	-
5A	6X40	0	2-4-2	-	5	Yes	-	3	N	-
6A	6X6	250	5	-	6	Yes	-	-	N	-
6B	6X6	250	5	-	6	Yes	-	-	N	-
7A	6X40	0	2-4-2	-	7	Yes	-	3	N	-
8A	6X40	0	2-4-2	-	8	Yes	-	-	N	-
8B	6X40	0	2-4-2	-	8	Yes	-	10	N	-
S6A	6X6	+110	3	-	-	No	-	-	N	X
S6B	6X6	+110	3	-	-	No	-	-	N	X

**8 Phase Fully Actuated Fayetteville Signal System**

**NOTES**

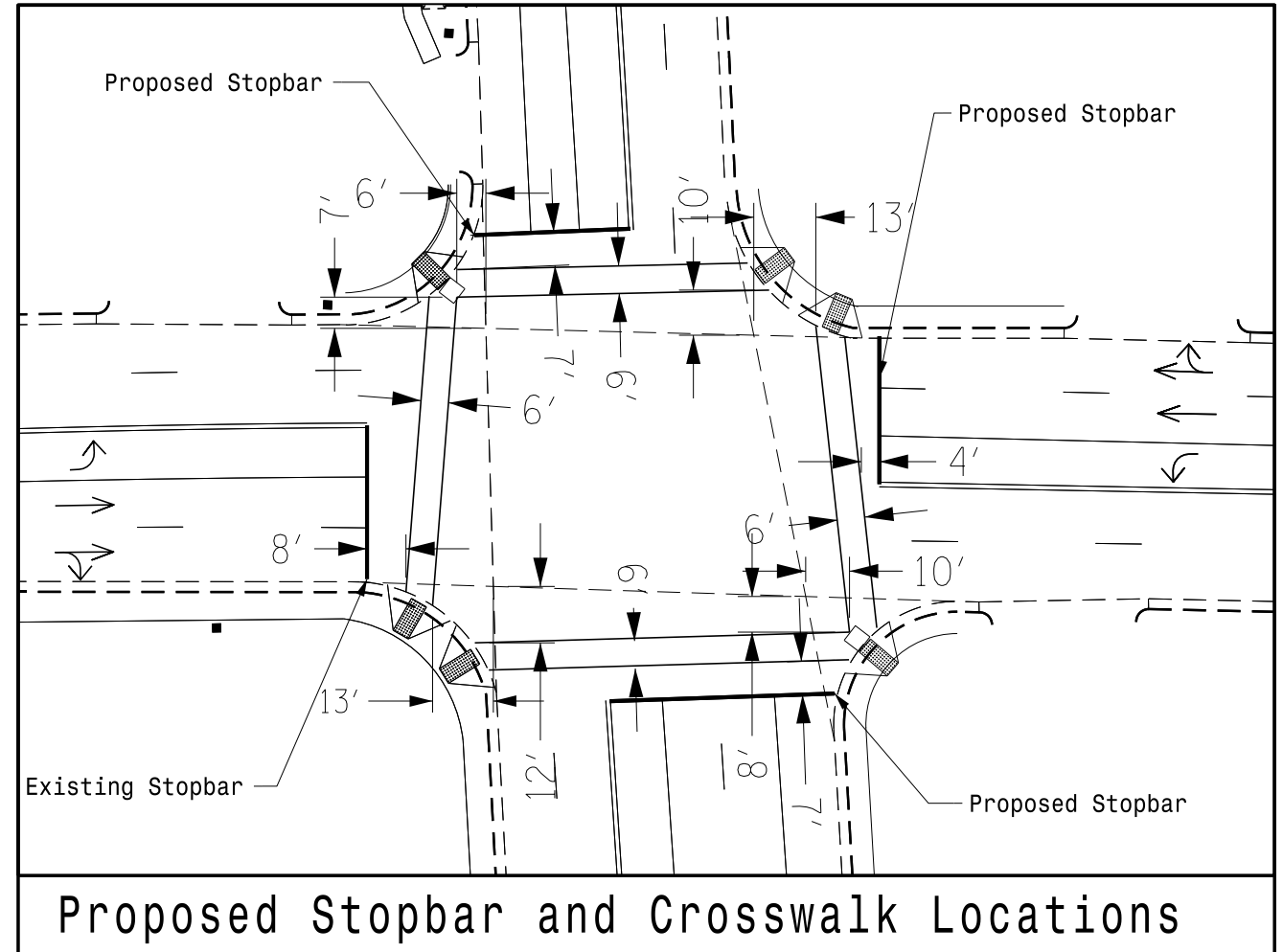
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



**ASC/3 TIMING CHART**

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	12	7	7	7	12	7	7
Delay Green *	0	7	0	7	0	6	0	6
Walk *	0	7	0	7	0	7	0	7
Ped Clear	0	21	0	17	0	17	0	17
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max 1 *	40	90	20	90	40	90	20	90
Yellow	3.0	4.3	3.0	3.9	3.0	4.3	3.0	3.9
Red Clear	2.6	1.8	2.8	1.8	2.4	1.7	2.6	1.8
Actuations B4 Add *	-	0	-	-	-	0	-	-
Seconds / Actuation *	-	1.5	-	-	-	1.5	-	-
Max Initial *	-	29	-	-	-	29	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	45	-	-	-	45	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X	X	X

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



**LEGEND**

- | PROPOSED   | EXISTING   |
|--|--|
| ○ → Traffic Signal Head                          | ● → N/A  |
| ● → Modified Signal Head                         | ○ → N/A  |
| ⊥ Sign   | ⊥ Sign   |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Pedestrian Signal Head With Push Button & Sign |
| ⊥ Signal Pole with Guy                           | ⊥ Signal Pole with Guy                           |
| ⊥ Signal Pole with Sidewalk Guy                  | ⊥ Signal Pole with Sidewalk Guy                  |
| ⊥ Inductive Loop Detector                        | ⊥ Inductive Loop Detector                        |
| ⊥ Controller & Cabinet                           | ⊥ Controller & Cabinet                           |
| ⊥ Junction Box                                   | ⊥ Junction Box                                   |
| --- 2-in Underground Conduit                     | --- 2-in Underground Conduit                     |
| N/A Right of Way                                 | --- Right of Way                                 |
| → Directional Arrow                              | → Directional Arrow                              |
| N/A Curb Ramp                                    | → Curb Ramp                                      |
| ○ Type II Signal Pedestal                        | ● Type II Signal Pedestal                        |

Signal Upgrade - Corr. File No. 06-19-59136

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**SR 1415 (Yadkin Road) at SR 1437 (Santa Fe Drive)**

Division 6 Cumberland County Fayetteville

PLAN DATE: December 2022 REVIEWED BY: ZML

PREPARED BY: KGP, Jr. REVIEWED BY:

SEAL

02/01/2023

DATE

SIG. INVENTORY NO. 06-0247

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE 0 40 1"=40'

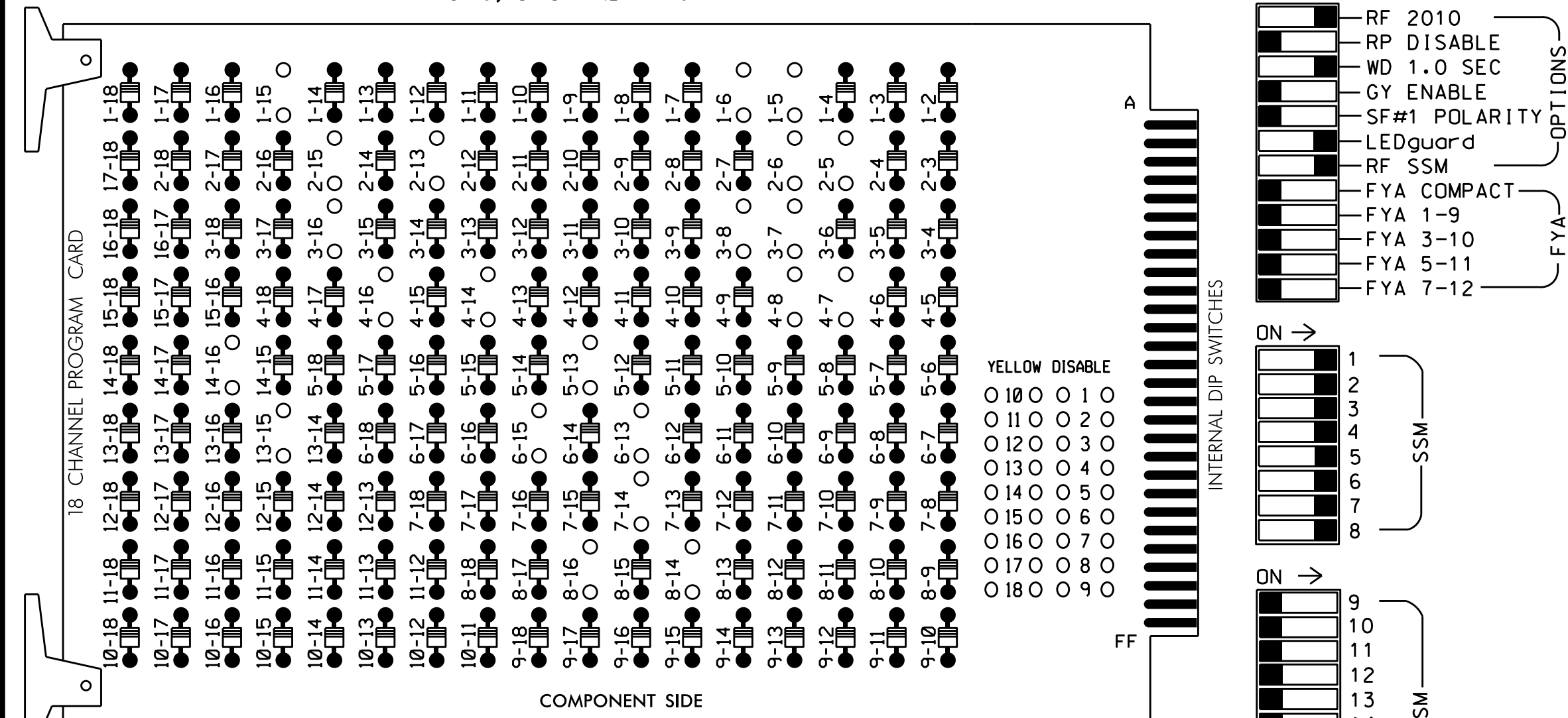
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 kgp\edc\in



### 18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-15, 2-5, 2-6, 2-13, 2-15, 3-7, 3-8, 3-16, 4-7, 4-8, 4-14, 4-16, 5-13, 6-13, 6-15, 7-14, 8-14, 8-16, 13-15 AND 14-16



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

### NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the Fayetteville Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....332  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,  
 S10,S11,S12  
 PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,  
 6 PED,7,8,8 PED  
 OVERLAPS.....NONE

### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	
SIGNAL HEAD NO.	11	42	21,22	P21, P22	31	41,42	P41, P42	51	61,62	P61, P62	71	81,82	P81, P82
RED		128			101			134			107		
YELLOW			129			102			135			108	
GREEN				130			103			136			
RED ARROW	125				116			131			122		
YELLOW ARROW	126	126			117			132			123		
GREEN ARROW	127	127			118			133			124		
Hand icon				113			104			119		110	
Walking person icon				115			106			121		112	

NU = Not Used

### INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 1	∅ 2	S	∅ 3	∅ 4	S	S	S	S	S	∅ 2 PED	∅ 6 PED	FS
L	1A	1B	2A	←-→	3A	4A	←-→	←-→	←-→	←-→	←-→	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
U	NOT USED	NOT USED	∅ 2	←-→	NOT USED	∅ 4	←-→	←-→	←-→	←-→	←-→	∅ 4 PED	∅ 8 PED	ST
L			2B	←-→		4B	←-→	←-→	←-→	←-→	←-→	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
U	∅ 5	∅ 6	←-→	S	∅ 7	∅ 8	S	S	S	S	S	S	S	S
L	5A	6A	←-→	←-→	7A	8A	←-→	←-→	←-→	←-→	←-→	←-→	←-→	←-→
U	NOT USED	∅ 6	←-→	←-→	NOT USED	∅ 8	←-→	←-→	←-→	←-→	←-→	←-→	←-→	←-→
L		6B	←-→	←-→		8B	←-→	←-→	←-→	←-→	←-→	←-→	←-→	←-→

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

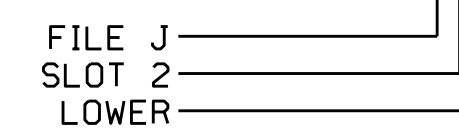
### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES		3		N
1B	TB2-5,6	I2U	39	2	1	YES		15		N
2A	TB2-9,10	I3U	63	32	2	YES				N
2B	TB2-11,12	I3L	76	42	2	YES				N
3A	TB4-5,6	I5U	58	3	3	YES		3		N
4A	TB4-9,10	I6U	41	4	4	YES				N
4B	TB4-11,12	I6L	45	14	4	YES				N
5A	TB3-1,2	J1U	55	5	5	YES		3		N
6A	TB3-5,6	J2U	40	6	6	YES				N
6B	TB3-7,8	J2L	44	16	6	YES				N
7A	TB5-5,6	J5U	57	7	7	YES		3		N
8A	TB5-9,10	J6U	42	8	8	YES				N
8B	TB5-11,12	J6L	46	18	8	YES		10		N
*S6A	TB7-9,10	J9U	59	15	SYS	NO				N
*S6B	TB7-11,12	J9L	61	17	SYS	NO				N
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

NOTE:  
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

\* System detector only. Remove any assigned vehicle phase.

INPUT FILE POSITION LEGEND: J2L



### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

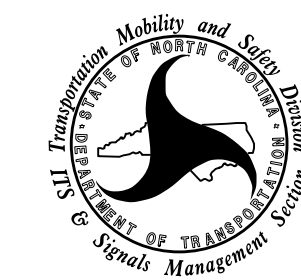
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0247  
 DESIGNED: December 2022  
 SEALED: 2/1/2023  
 REVISED: N/A

### Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1415 (Yadkin Road)  
 at  
 SR 1437 (Santa Fe Drive)

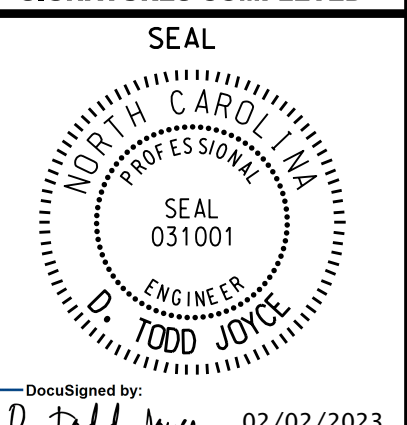
Division 6 Cumberland County Fayetteville

PLAN DATE: January 2023 REVIEWED BY:

PREPARED BY: Zarrar Zafar REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: D. Todd Joyce 02/02/2023

DATE

SIG. INVENTORY NO. 06-0247





## ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL FOR LEADING PED INTERVAL (DELAYED GREEN)

(program controller as shown)

The following logic processor configuration holds the FYA's on signal heads  
11 red for the duration of the delayed green time (leading ped interval)  
when serving a ped call on the opposing through phase.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

ENTER A "1" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#:	1	COPY FROM:	1	ACTIVE:	M	(T/F)
IF	PED ON PH WALK			2	IS	ON
AND	VEH GREEN ON PH			2	IS	OFF
ELSE						
THEN	SIG SET OLP RED			1		ON
	SIG SET OLP YELLOW			1		OFF
	SIG SET OVLP GREEN			1		OFF

HOLD SIGNAL HEAD 11 FYA  
RED DURING THE PHASE 2  
DELAYED GREEN TIME  
(LEADING PED INTERVAL)

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 1. LOGIC STATEMENT CONTROL

ENABLE LOGIC PROCESSOR STATEMENTS 1-4 BY POSITIONING  
THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE  
TOGGLE KEY TO ENABLE THEM .

LOGIC STATEMENT CONTROL	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
LP 1-15	E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

END PROGRAMMING

## ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 2. VEHICLE OVERLAPS

### OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

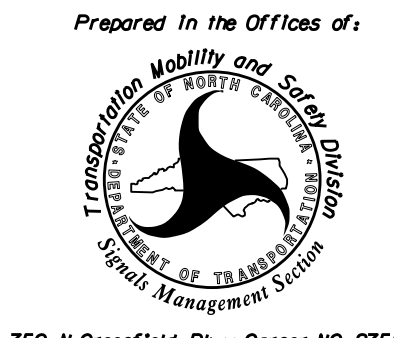
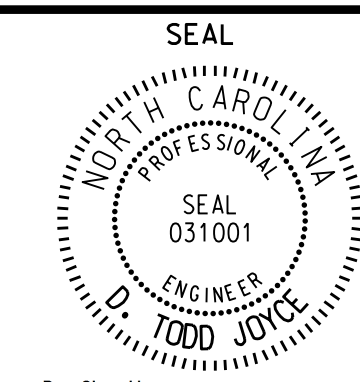
TMG VEH OVLP...[A] TYPE: ....	<span style="border: 1px solid black; padding: 2px;">PPLT FYA</span>
PROTECTED LEFT TURN....	PHASE 1
OPPOSING THROUGH.....	PHASE 2
FLASHING ARROW OUTPUT.....	CH9 ISOLATE
DELAY START OF: FYA..0.0	CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.....	0

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 06-0540  
DESIGNED: December 2022  
SEALED: 2/01/2023  
REVISED: N/A

Electrical Detail Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

	<p><b>SR 1415 (Yadkin Road) at Southwick Road</b></p> <p>Division 6 Cumberland County Fayetteville</p> <p>PLAN DATE: January 2023 REVIEWED BY: DTJ</p> <p>PREPARED BY: D.J. Craddock REVIEWED BY:</p>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE							<p>DocuSigned by: <i>Todd Joyce</i> 02/02/2023</p> <p>SIG. INVENTORY NO. 06-0540</p>
REVISIONS	INIT.	DATE									

09/08/99

TIP PROJECT: HS-2006X

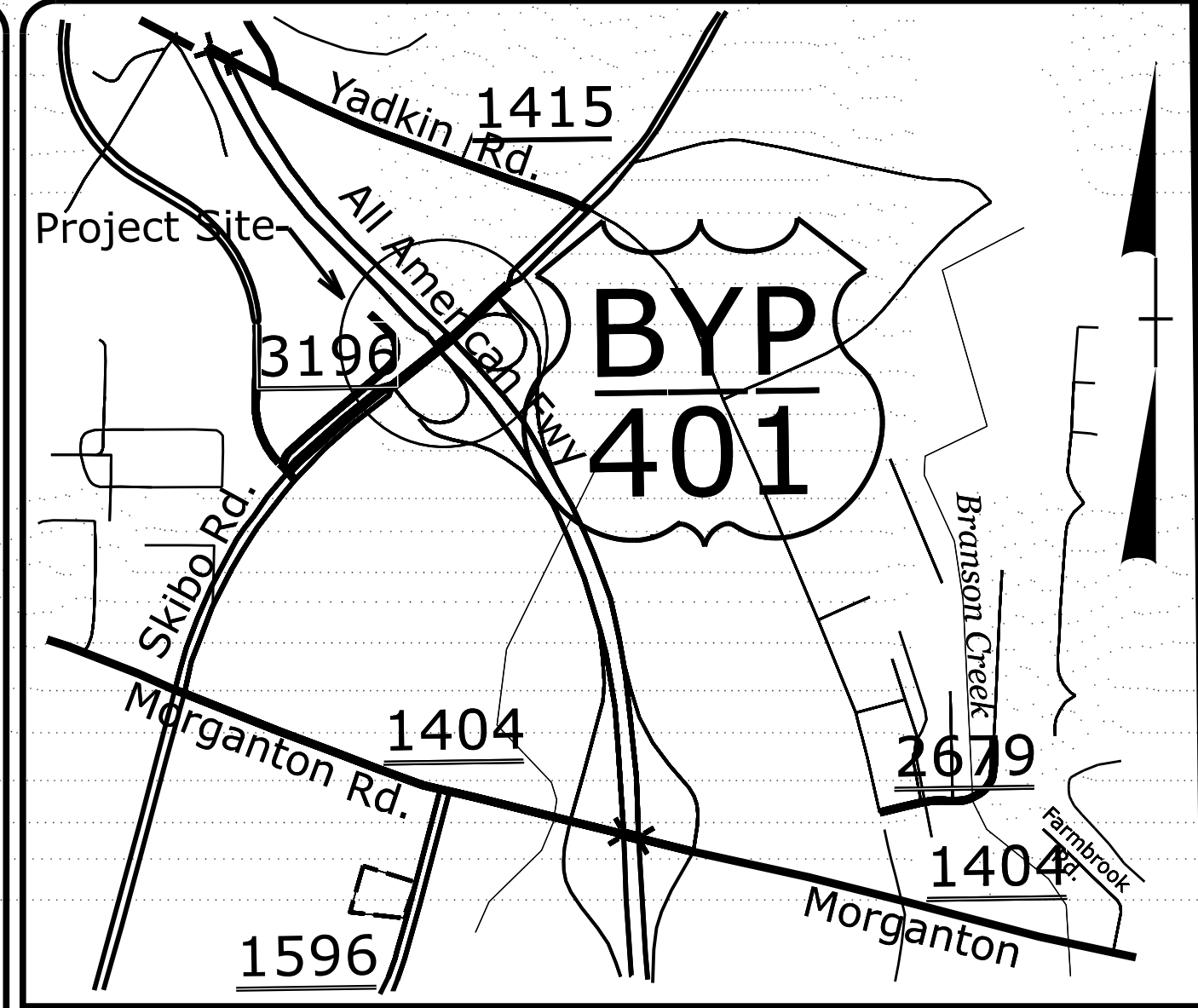
CONTRACT: DF00459

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

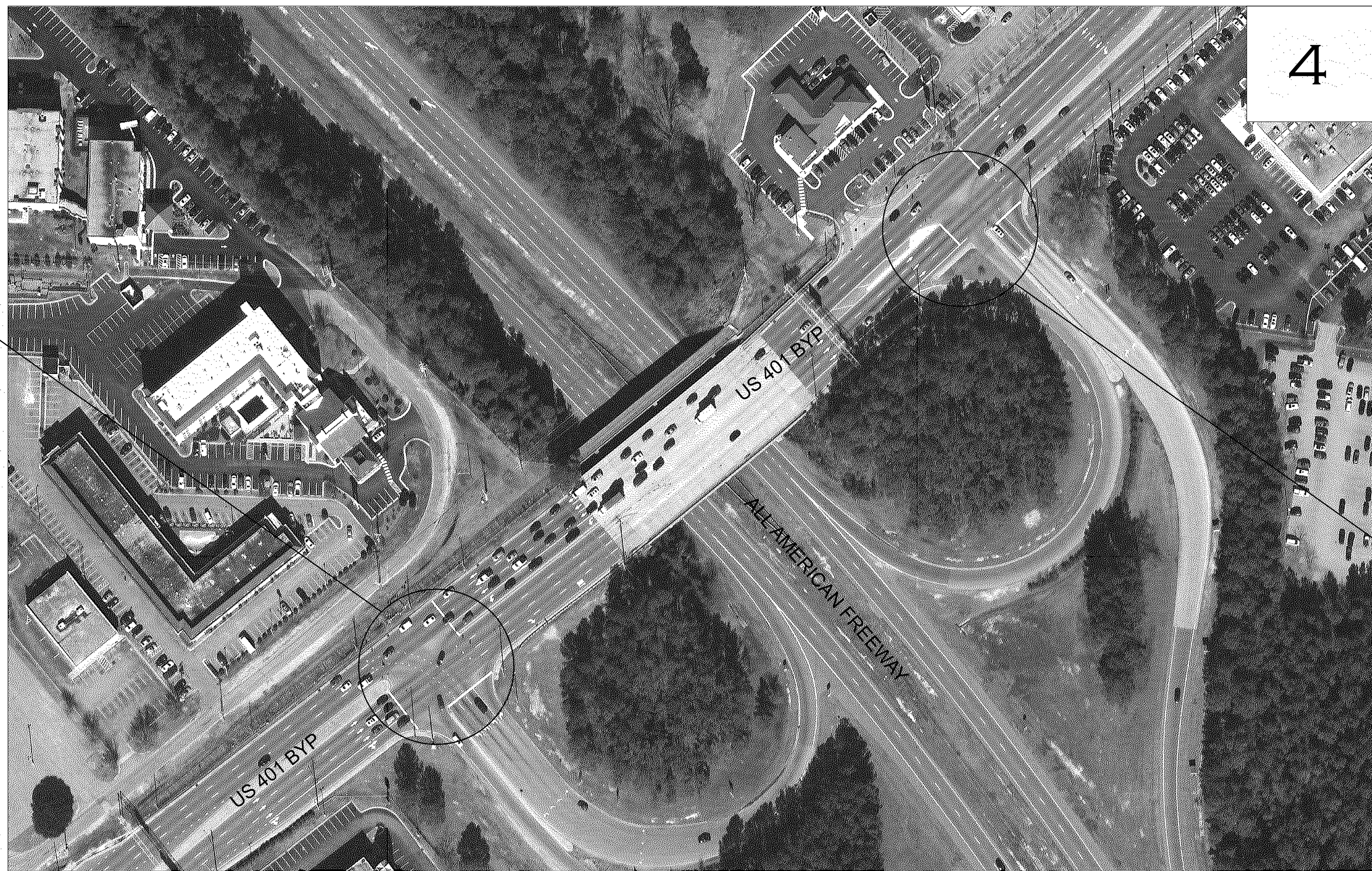
## CUMBERLAND COUNTY

LOCATION: *US 401 (SKIBO ROAD) AT SR 1007  
(ALL AMERICAN FREEWAY) NORTHBOUND  
AND SOUTHBOUND RAMPS*  
TYPE OF WORK: *REPLACE SIGNAL AND  
ADD PEDESTRIAN  
ACCOMMODATIONS*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2006X	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
49312.3.28	4931202	CON.	

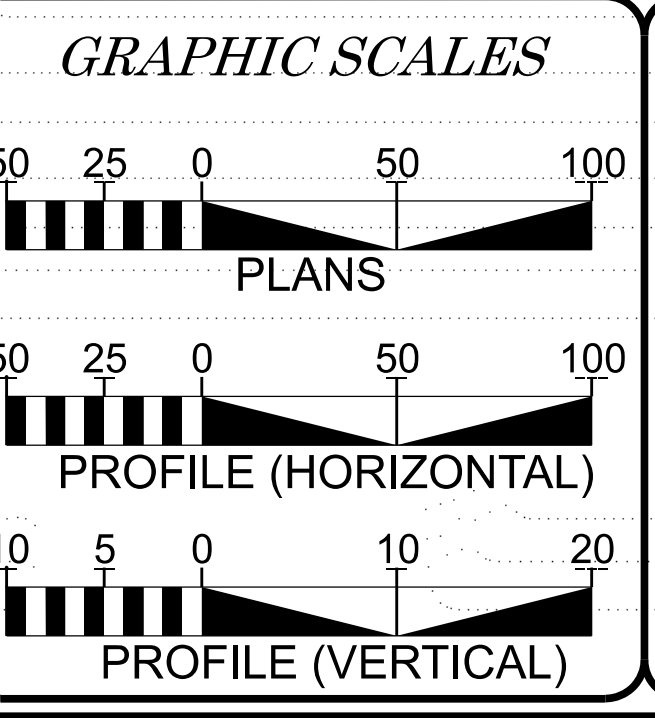


VICINITY MAP (NTS)



SHEET 4  
Sig 1.0 06-0321

SHEET 4  
Sig 1.0 06-0318



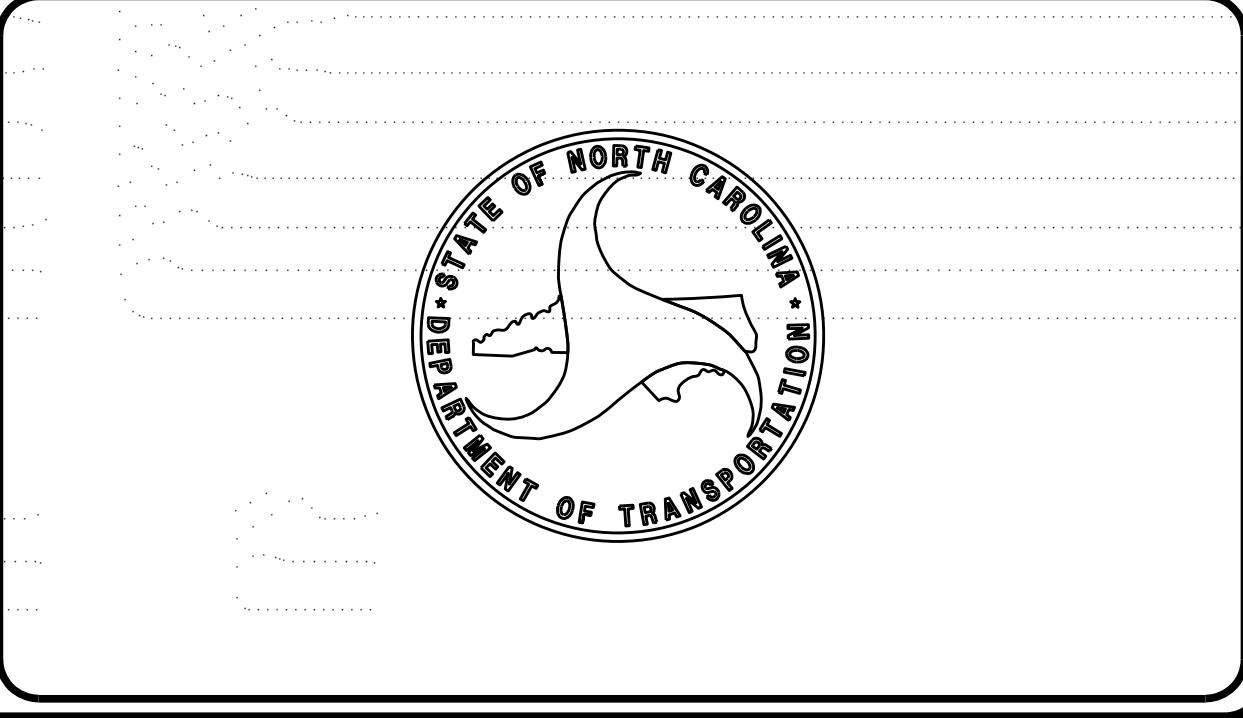
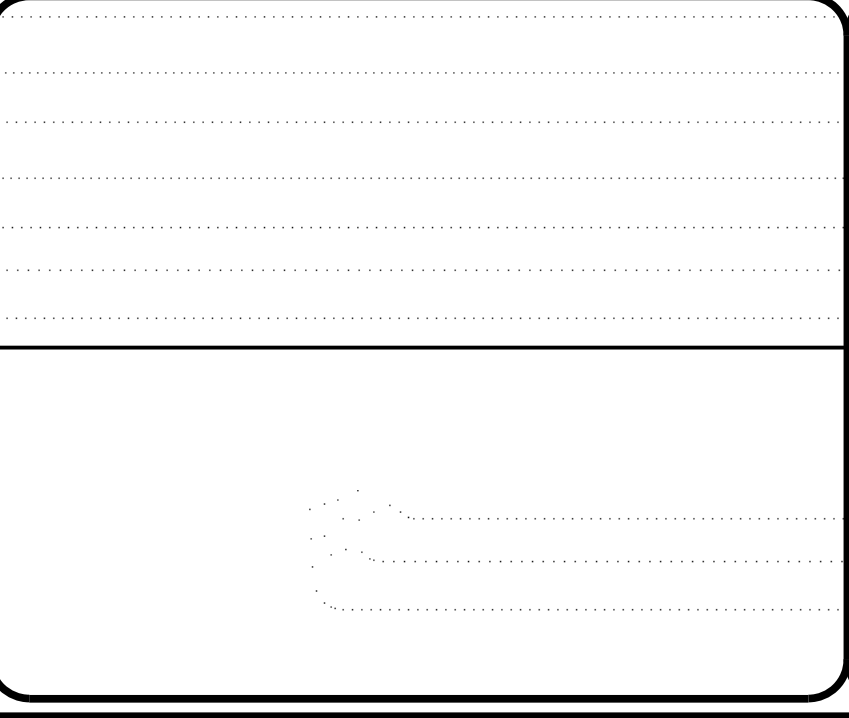
**PROJECT LENGTH**  
LENGTH ROADWAY HS PROJECT = 0.186 MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
DIVISION 6  
431 Transportation Dr., Fayetteville NC, 28301  
2024 STANDARD SPECIFICATIONS

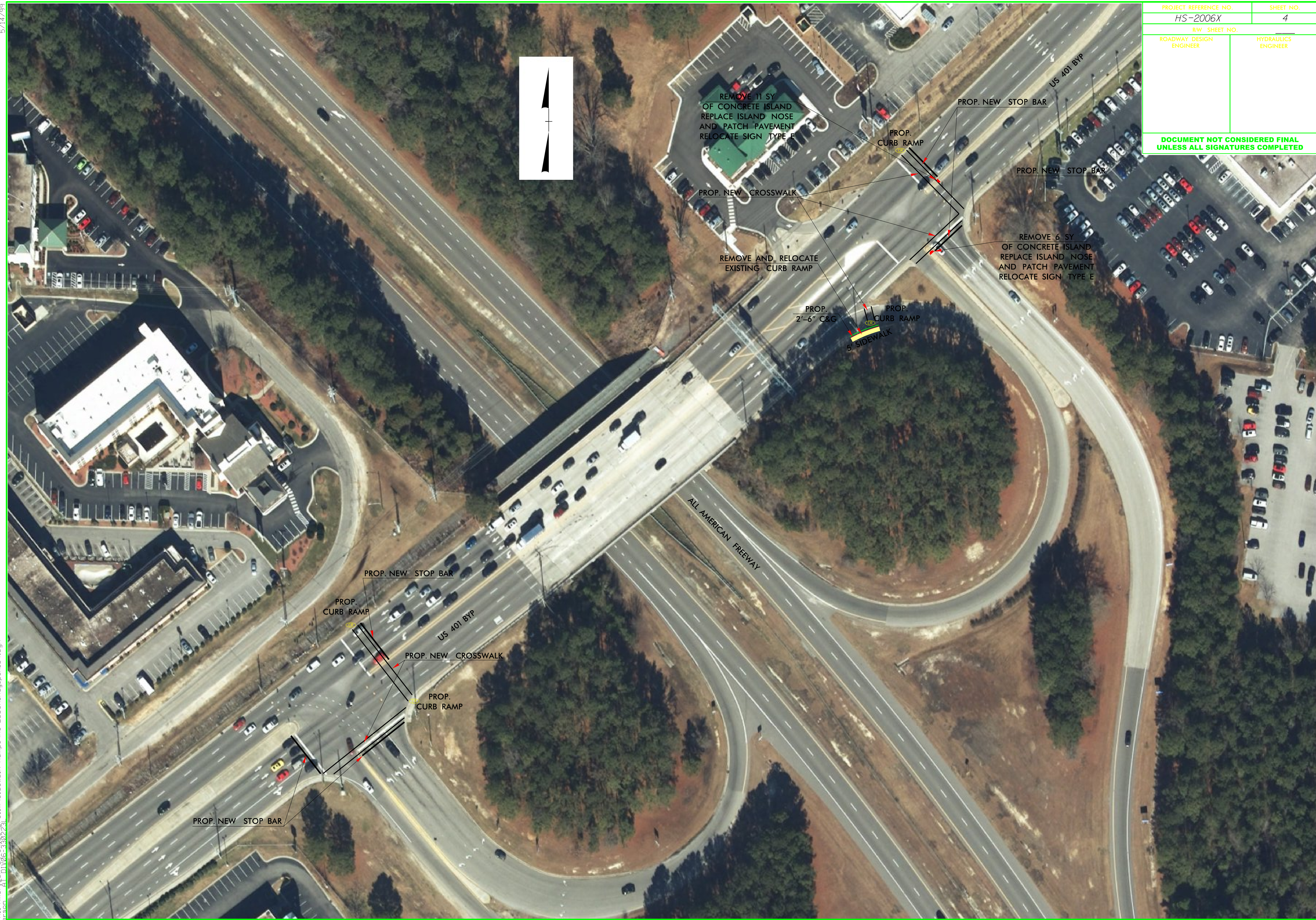
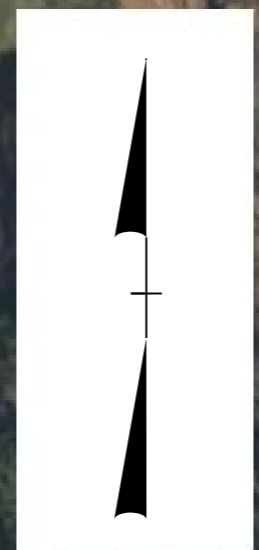
**JOHN GAUTHIER**  
PROJECT ENGINEER

**BRIAN MATTHEWS**  
PROJECT DESIGN ENGINEER

LETTING DATE:  
FEBRUARY 21, 2024



PROJECT REFERENCE NO. HS-2006X	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



5/14/99

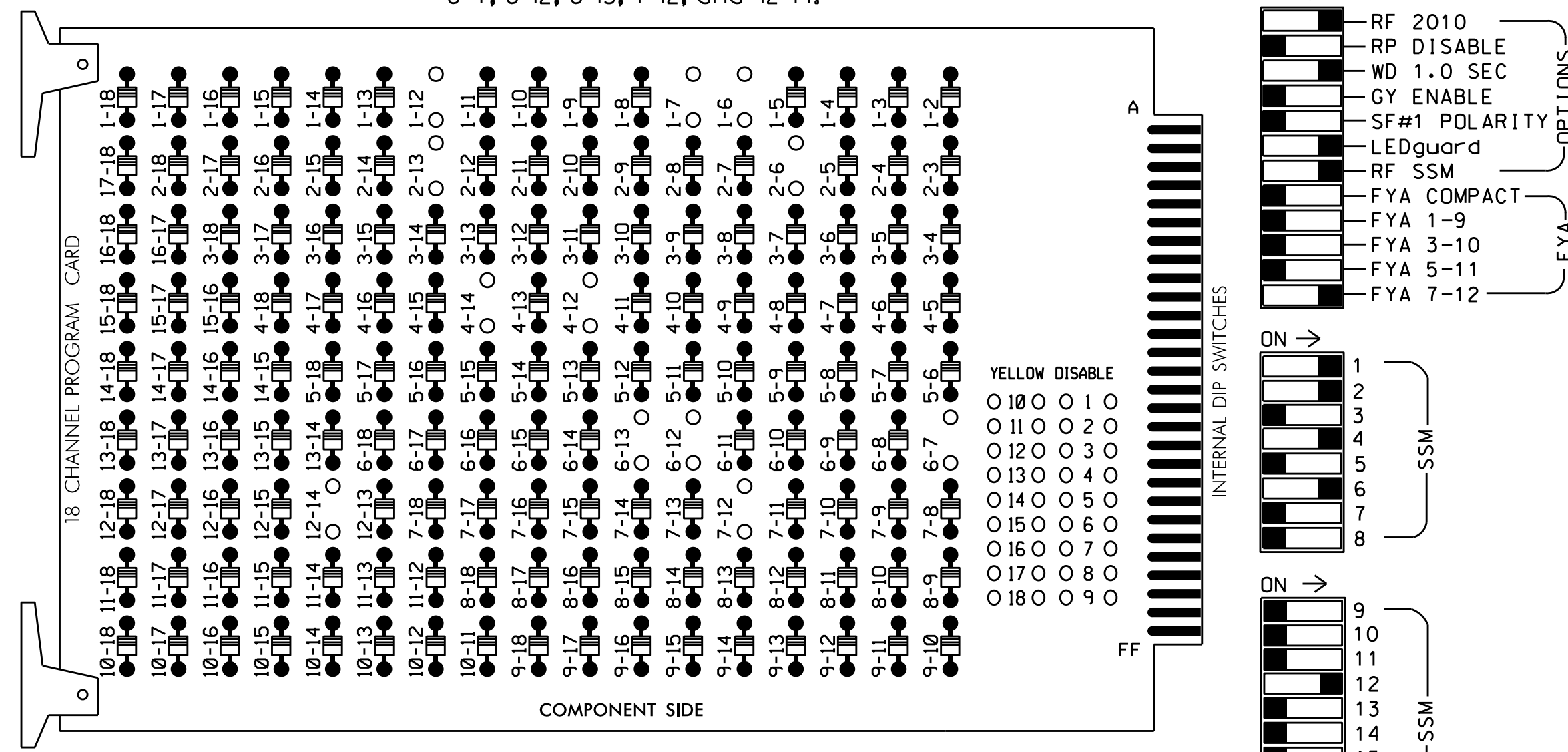
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### 18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 1-7, 1-12, 2-6, 2-13, 4-12, 4-14, 6-7, 6-12, 6-13, 7-12, and 12-14.



REMOVE JUMPERS AS SHOWN

**NOTES:**

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

■ = DENOTES POSITION OF SWITCH

### NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Fayetteville Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....332 w/ AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18  
 LOAD SWITCHES USED.....S1,S2,S3,S5,S6,S8,S10,AUX S5  
 PHASES USED.....1,2,2 PED,4,4 PED,6  
 OVERLAP "A".....NOT USED  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....NOT USED  
 OVERLAP "D".....1+4  
 OVERLAP "G".....1

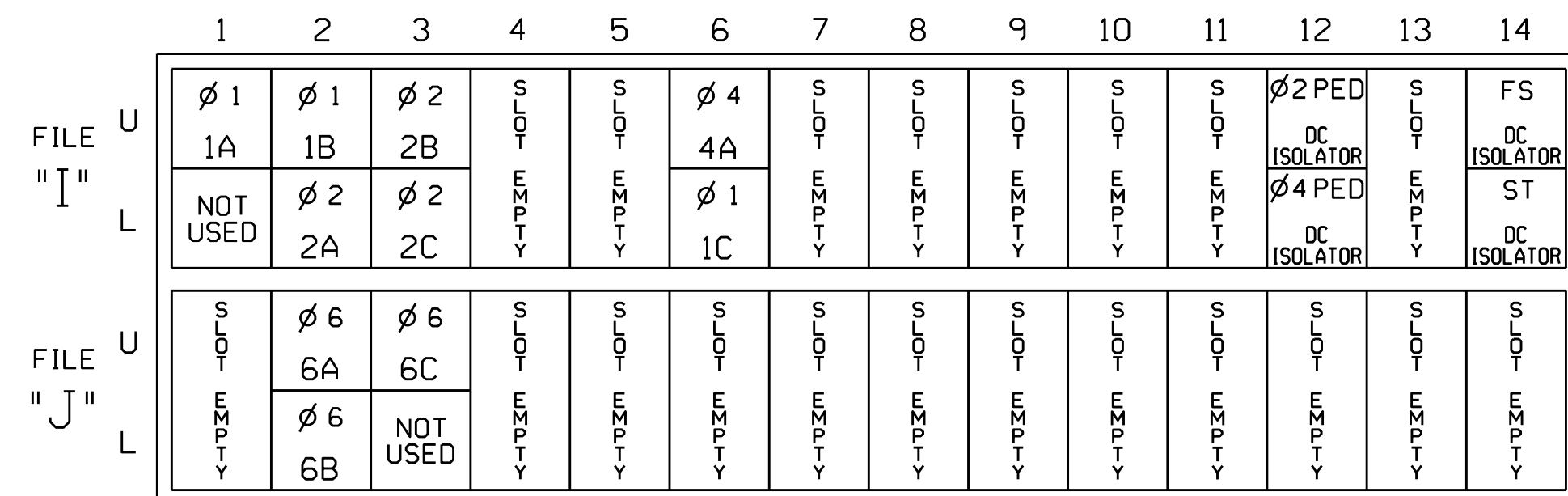
### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	OLG	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22, 23	P21, P22	NU	41	P41, P42	NU	61,62, 63	NU	42,43	NU	NU	NU	NU	NU	NU	42,43	NU
RED		128						134										A101
YELLOW		129						135		*								
GREEN		130						136										
RED ARROW	125					101												
YELLOW ARROW	126					102												A102
FLASHING YELLOW ARROW																		A103
GREEN ARROW	127					103				124								
Hand			113			104												
Walker			115			106												

\* Denotes install load resistor. See load resistor installation detail this sheet. NU = Not Used  
 \* See pictorial of head wiring in detail below. NOTE: Load switch S10 requires output reassignment. See Sheet 2 for details.

### INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES				N
1B	TB2-5,6	I2U	39	2	1	YES		20		N
1C	TB4-11,12	I6L	45	14	1	YES		20		N
2A	TB2-7,8	I2L	43	12	2	YES			X	N
2B	TB2-9,10	I3U	63	32	2	YES			X	N
2C	TB2-11,12	I3L	76	42	2	YES			X	N
4A	TB4-9,10	I6U	41	4	4	YES				N
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N
6C	TB3-9,10	J3U	64	36	6	YES			X	N
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					

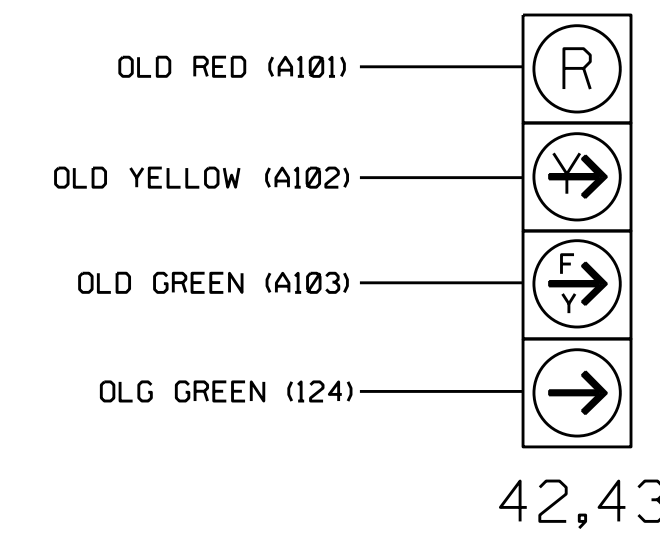
NOTE:  
 INSTALL DC ISOLATOR IN INPUT FILE SLOT I12.

INPUT FILE POSITION LEGEND: J2L



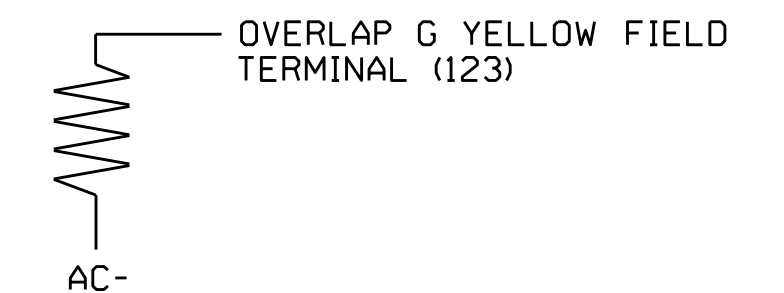
### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



### LOAD RESISTOR INSTALLATION DETAIL

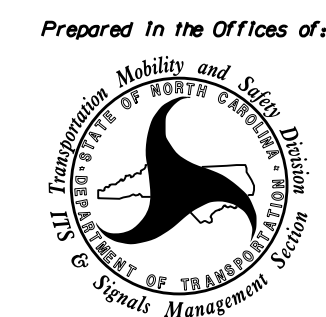
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0318  
 DESIGNED: September 2023  
 SEALED: 12/7/2023  
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:



750 N. Greenfield Pkwy, Garner, NC 27529

Prepared in the Offices of:

US 401 Bypass (Skibo Road) at All American Freeway NB Off/On Ramps

Division 6 Cumberland County Fayetteville

PLAN DATE: November 2023 REVIEWED BY: D.T.J.

PREPARED BY: D.J. Craddock REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NOTARY PUBLIC

SEAL 031001

ENGINEER

TODD JOYCE

DocuSigned by: D. Todd Joyce 12/08/2023

SIG. INVENTORY NO. 06-0318



**COUNTDOWN PEDESTRIAN SIGNAL OPERATION**

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

**FLASHER CIRCUIT MODIFICATION DETAIL**

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

**ECONOLITE ASC/3-2070  
LOAD SWITCH ASSIGNMENT DETAIL**

*(program controller as shown)*

To assign load switch S10 as OLG, program LD SWITCH '7' as OVLP '7' TYPE 'O' as shown below.

1. From Main Menu select **1. CONFIGURATION**
2. From CONFIGURATION Submenu select **3. LOAD SW ASSIGN**

NOTICE OVLP 7 IS ASSIGNED TO LD SWITCH 7

LD SWITCH ASSIGN	PHASE /OVLP	TYPE	DIMMING R Y G D	---FLASH---	PWR	AUT	TGR
1	1	V	. . . +	A	R	X	
2	2	V	. . . +	A	Y	.	
3	3	V	. . . +	A	R	X	
4	4	V	. . . +	A	R	.	
5	5	V	. . . -	A	R	.	
6	6	V	. . . -	A	Y	X	
7	7	O	. . . -	A	R	.	
8	8	V	. . . -	A	R	X	
9	1	O	. . . +	A	R	X	
10	2	O	. . . +	A	R	X	
11	3	O	. . . -	A	R	.	
12	4	O	. . . -	A	R	.	
13	2	P	. . . +	A	.	.	
14	4	P	. . . -	A	.	.	
15	6	P	. . . +	A	.	.	
16	8	P	. . . -	A	.	.	

**ECONOLITE ASC/3-2070  
OVERLAP PROGRAMMING DETAIL**

*(program controller as shown)*

1. From Main Menu select **2. CONTROLLER**
2. From CONTROLLER Submenu select **2. VEHICLE OVERLAPS**

Toggle Thrice

*OVERLAP D*

Select TMG VEH OVLP [D] and 'PPLT FYA'

TMG VEH OVLP...[D] TYPE: .....**PPLT FYA**

PROTECTED LEFT TURN.... OVERLAP G

OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH12 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 0

Toggle Thrice

*OVERLAP G*

Select TMG VEH OVLP [G] AND "NORMAL"

TMG VEH OVLP...[G] TYPE: .....**NORMAL**

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

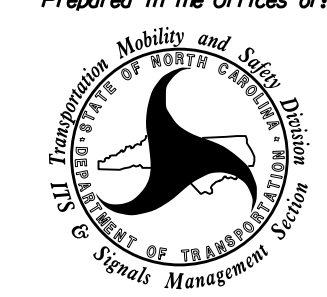
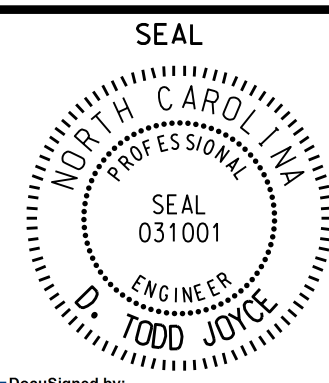
INCLUDED X . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0

END PROGRAMMING

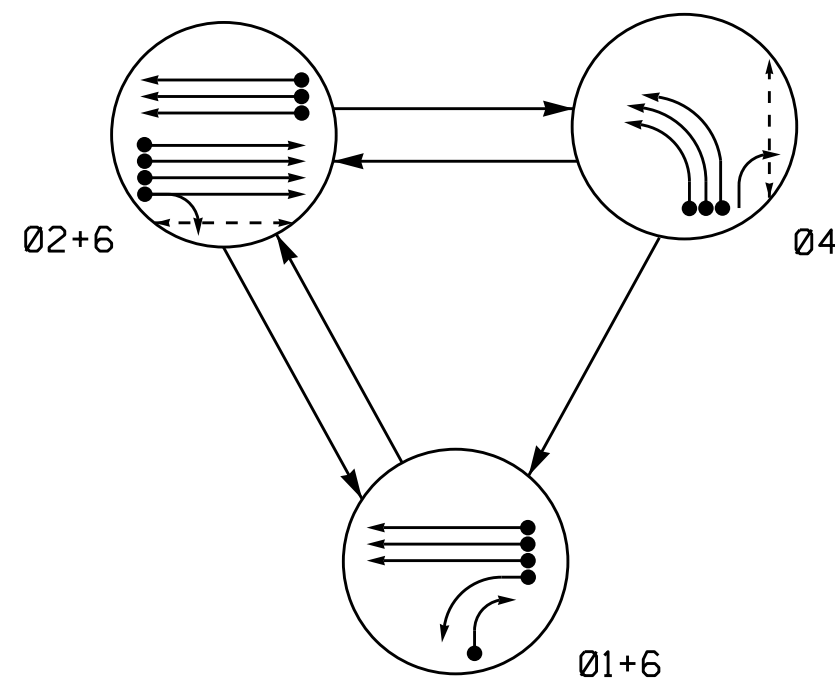
THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 06-0318  
DESIGNED: September 2023  
SEALED: 12/7/2023  
REVISED: N/A

Electrical Detail - Sheet 2 of 2

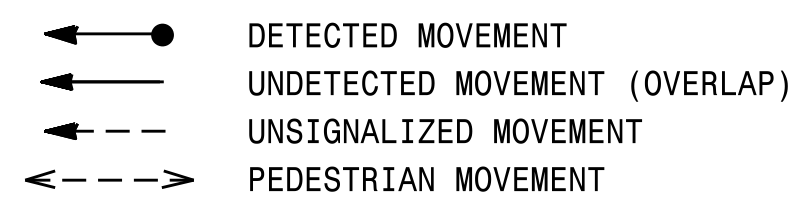
 Prepared in the Offices of: Transportation, Mobility and Safety Division STATE OF NORTH CAROLINA Department of Transportation Signal Management Section 750 N. Greenfield Pkwy, Corner, NC 27529	US 401 Bypass (Skibo Road) at All American Freeway NB Off/On Ramps Division 6 Cumberland County Fayetteville	 SEAL 031001 ENGINEER TODD JOYCE
	PLAN DATE: November 2023 REVIEWED BY: D.T.J. PREPARED BY: D.J. Craddock REVIEWED BY:	
REVISIONS _____ INIT. DATE	_____ INIT. DATE	_____ DATE D. Todd Joyce 12/08/2023 12/08/2023 SIG. INVENTORY NO. 06-0318

08-DEC-2023 09:03  
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 dj craddock1

PHASING DIAGRAM



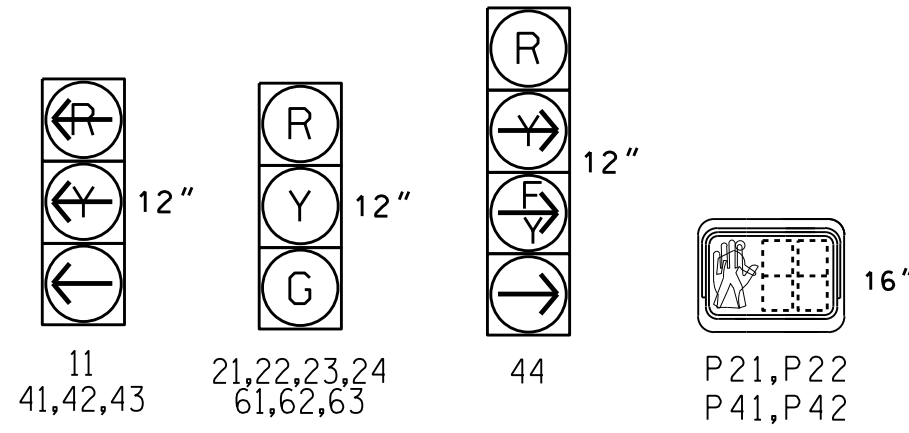
PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE	PHASE			
	01+6	02+6	04	F
11	←	←	←	←
21,22,23,24	R	G	R	Y
41,42,43	←	←	←	←
44	→	R	←	R
61,62,63	G	G	R	Y
P21,P22	DW	W	DW	DRK
P41,P42	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.

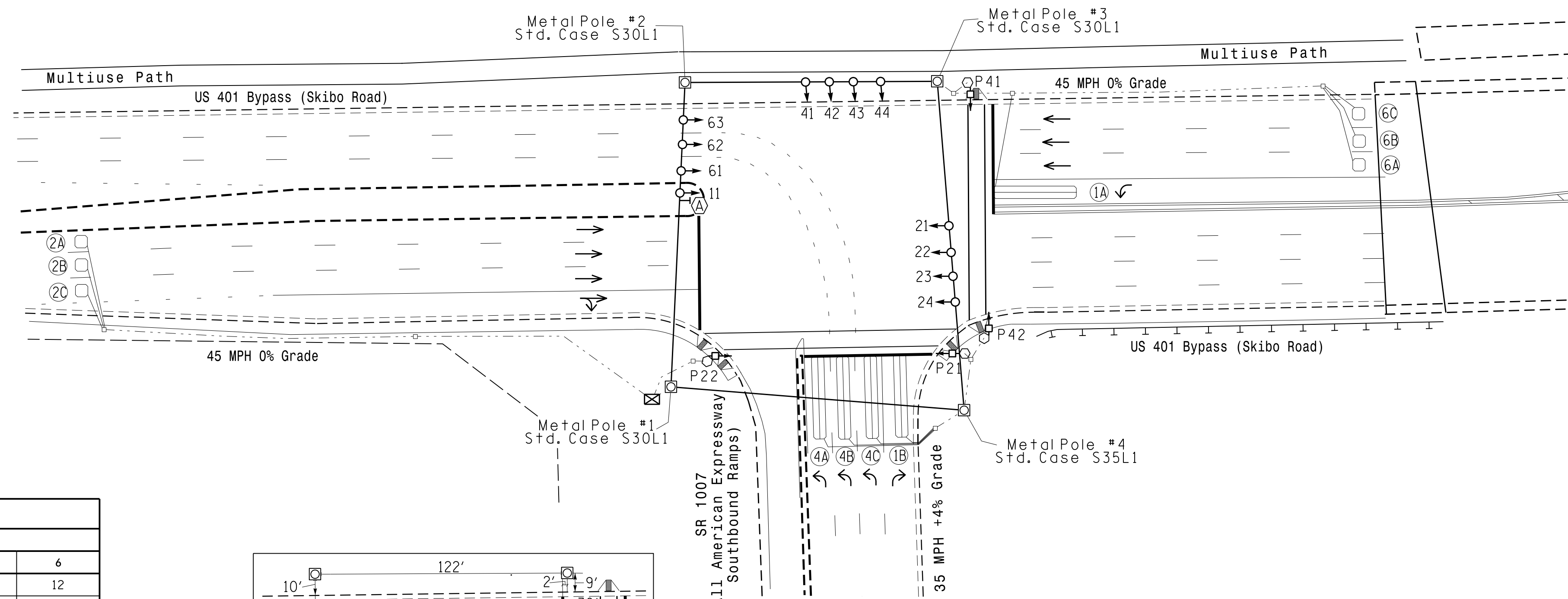


ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR				PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	X	1	Yes	-	-	-	N	-	X
1B	6X40	0	2-4-2	X	1	Yes	-	20	-	N	-	X
2A	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2B	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2C	6X6	300	4	X	2	Yes	-	-	X	N	-	X
4A	6X40	0	2-4-2	X	4	Yes	-	-	-	N	-	X
4B	6X40	0	2-4-2	X	4	Yes	-	-	-	N	-	X
4C	6X40	0	2-4-2	X	4	Yes	-	-	-	N	-	X
6A	6X6	170	6	X	6	Yes	-	-	X	N	-	X
6B	6X6	170	6	X	6	Yes	-	-	X	N	-	X
6C	6X6	170	6	X	6	Yes	-	-	X	N	-	X

3 Phase Fully Actuated Fayetteville Signal System

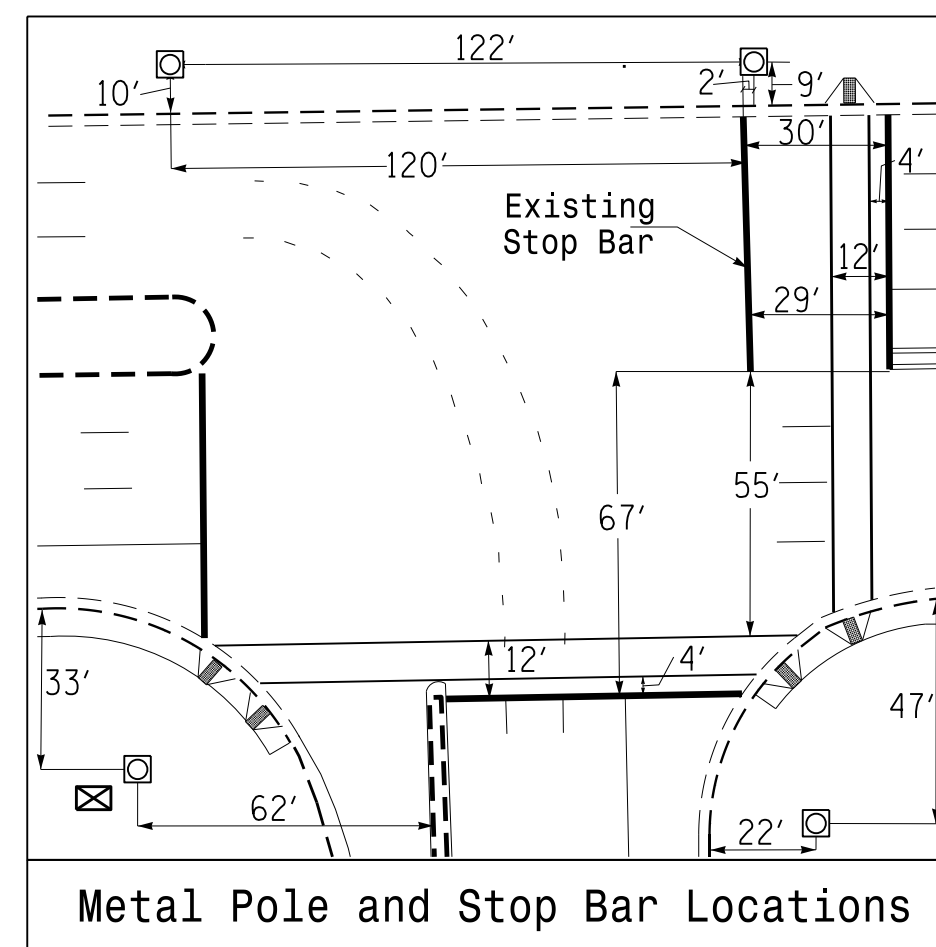
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



FEATURE	PHASE			
	1	2	4	6
Min Green *	7	12	7	12
Walk *	-	7	7	-
Ped Clear	-	29	28	-
Veh. Extension *	2.0	6.0	2.0	6.0
Max 1 *	25	150	20	150
Yellow	3.0	4.5	3.0	4.5
Red Clear	3.7	2.0	3.9	2.2
Red Revert	-	-	-	-
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	1.2	-	1.2
Max Initial *	-	34	-	24
Time Before Reduction *	-	20	-	20
Time To Reduce *	-	20	-	20
Minimum Gap	-	3.0	-	2.0
Locking Detector	-	X	-	X
Recall Position	-	VEH. RECALL	-	VEH. RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



PROPOSED	EXISTING
	N/A
	N/A
N/A	
N/A	
N/A	

Signal Upgrade

US 401 Bypass (Skibo Road) at SR 1007 (All American Expressway Southbound Ramps)

Division 6 Cumberland County Fayetteville

PLAN DATE: September 2023 REVIEWED BY: BMH

PREPARED BY: Jeff Spence REVIEWED BY:

REVISIONS: INIT. DATE

SCALE: 1"=40'

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

BAILEY M. HARDER

12/14/2023

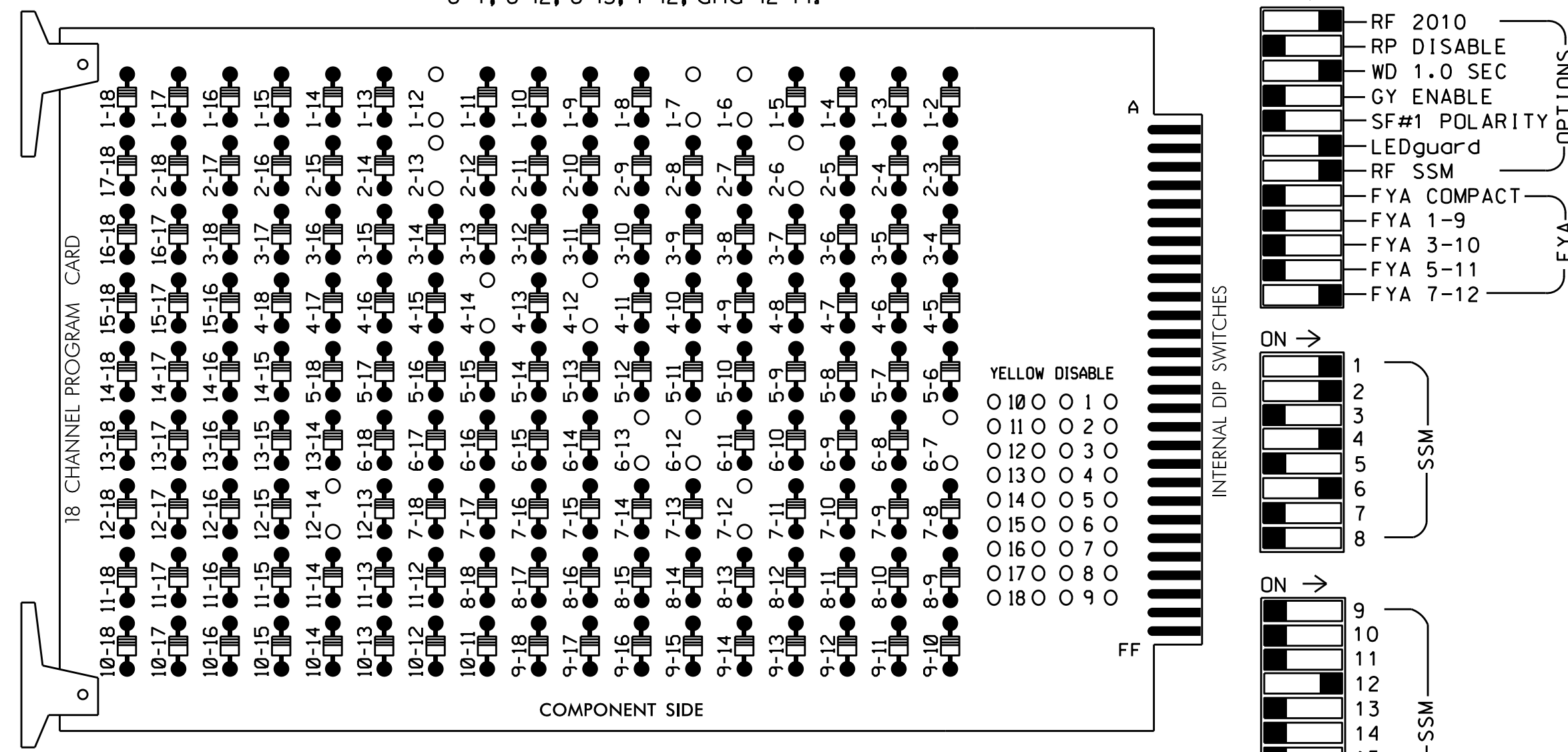
SIG. INVENTORY NO. 06-0321

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 7:58:58 AM 12/14/2023

### 18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 1-7, 1-12, 2-6, 2-13, 4-12, 4-14, 6-7, 6-12, 6-13, 7-12, and 12-14.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

■ = DENOTES POSITION OF SWITCH

### NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Fayetteville Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....332 w/ AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18  
 LOAD SWITCHES USED.....S1,S2,S3,S5,S6,S8,S10,AUX S5  
 PHASES USED.....1,2,2 PED,4,4 PED,6  
 OVERLAP "A".....NOT USED  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....NOT USED  
 OVERLAP "D".....1+4  
 OVERLAP "G".....1

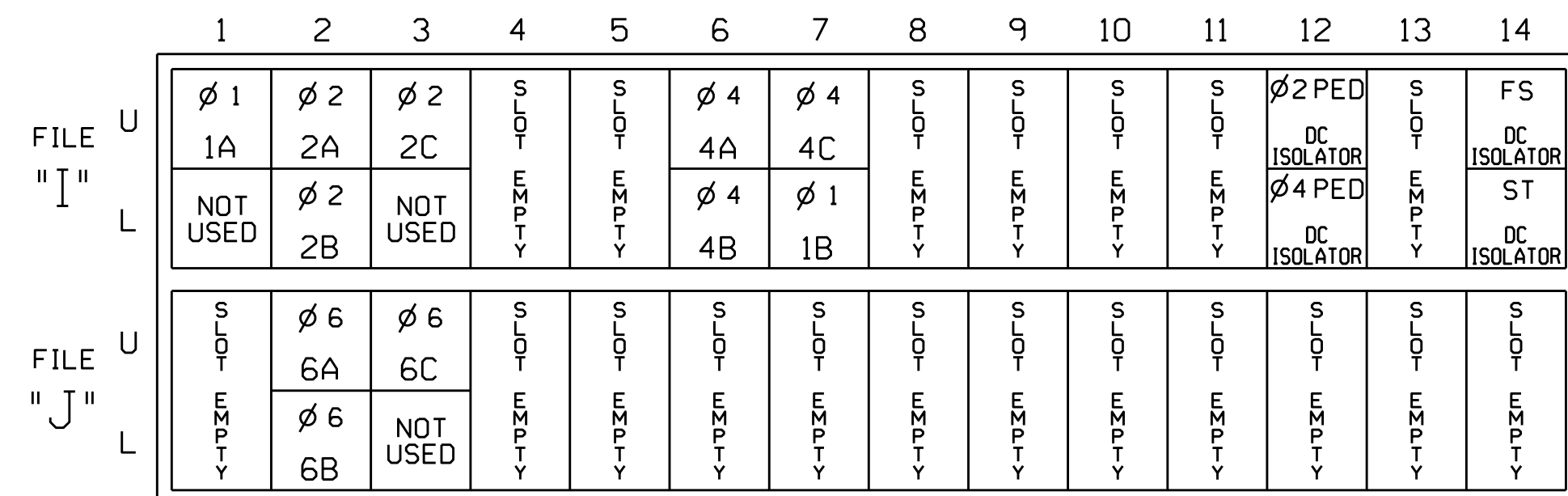
### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	OLG	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22, 23,24	P21, P22	NU	41,42, 43	P41, P42	NU	61,62, 63	NU	44	NU	NU	NU	NU	NU	NU	44	NU
RED		128						134										A101
YELLOW		129						135		*								
GREEN		130						136										
RED ARROW	125					101												
YELLOW ARROW	126					102												A102
FLASHING YELLOW ARROW																		A103
GREEN ARROW	127					103				124								
Hand			113			104												
Walker			115			106												

\* Denotes install load resistor. See load resistor installation detail this sheet. NOTE: Load switch S10 requires output reassignment. See Sheet 2 for details.  
 NU = Not Used  
 \* See pictorial of head wiring in detail below.

### INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

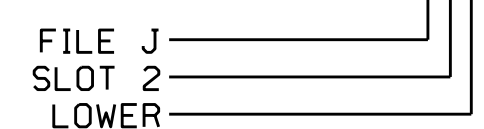
FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES				N
1B	TB6-3,4	I7L	78	44	1	YES		20		N
2A	TB2-5,6	I2U	39	2	2	YES			X	N
2B	TB2-7,8	I2L	43	12	2	YES			X	N
2C	TB2-9,10	I3U	63	32	2	YES			X	N
4A	TB4-9,10	I6U	41	4	4	YES				N
4B	TB4-11,12	I6L	45	14	4	YES				N
4C	TB6-1,2	I7U	65	34	4	YES				N
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N
6C	TB3-9,10	J3U	64	36	6	YES			X	N

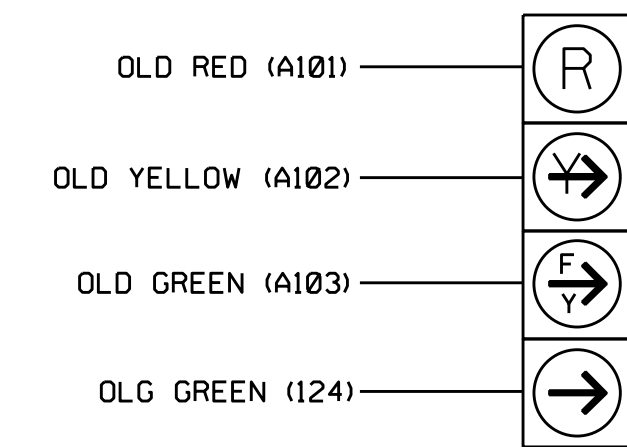
NOTE:  
 INSTALL DC ISOLATOR IN INPUT FILE SLOT I12.

INPUT FILE POSITION LEGEND: J2L



### FYA SIGNAL WIRING DETAIL

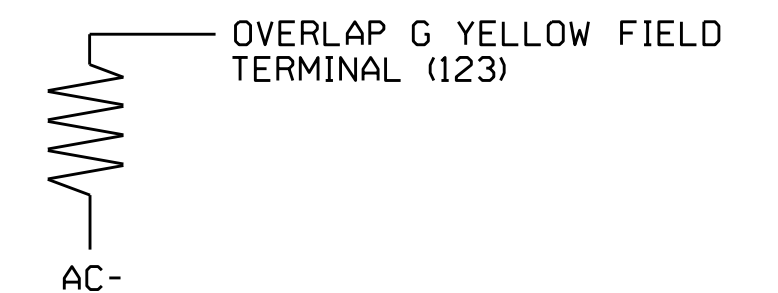
(wire signal heads as shown)



44

### LOAD RESISTOR INSTALLATION DETAIL

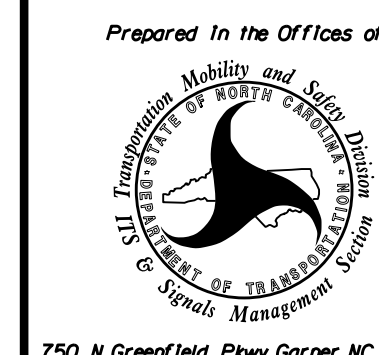
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0321  
 DESIGNED: September 2023  
 SEALED: 12/7/2023  
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

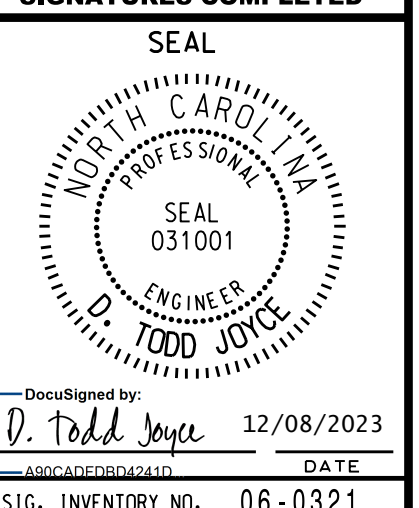
ELECTRICAL AND PROGRAMMING DETAILS FOR:



US 401 Bypass (Skibo Road) at SR 1007 (All American Expressway Southbound Ramps)

Division 6	Cumberland County	Fayetteville
PLAN DATE: November 2023	REVIEWED BY: D.T.J.	
PREPARED BY: D.J. Craddock	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



**COUNTDOWN PEDESTRIAN SIGNAL OPERATION**

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

**FLASHER CIRCUIT MODIFICATION DETAIL**

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

**ECONOLITE ASC/3-2070  
LOAD SWITCH ASSIGNMENT DETAIL**

*(program controller as shown)*

To assign load switch S10 as OLG, program LD SWITCH '7' as OVLP '7' TYPE 'O' as shown below.

1. From Main Menu select **1. CONFIGURATION**
2. From CONFIGURATION Submenu select **3. LOAD SW ASSIGN**

NOTICE OVLP 7 IS ASSIGNED TO LD SWITCH 7

LD SWITCH ASSIGN	PHASE /OVLP	TYPE	DIMMING R Y G D	---FLASH---	PWR	AUT	TGR
1	1	V	. . . +	A	R	X	
2	2	V	. . . +	A	Y	.	
3	3	V	. . . +	A	R	X	
4	4	V	. . . +	A	R	.	
5	5	V	. . . -	A	R	.	
6	6	V	. . . -	A	Y	X	
7	7	O	. . . -	A	R	.	
8	8	V	. . . -	A	R	X	
9	1	O	. . . +	A	R	X	
10	2	O	. . . +	A	R	X	
11	3	O	. . . -	A	R	.	
12	4	O	. . . -	A	R	.	
13	2	P	. . . +	A	.	.	
14	4	P	. . . -	A	.	.	
15	6	P	. . . +	A	.	.	
16	8	P	. . . -	A	.	.	

**ECONOLITE ASC/3-2070  
OVERLAP PROGRAMMING DETAIL**

*(program controller as shown)*

1. From Main Menu select **2. CONTROLLER**
2. From CONTROLLER Submenu select **2. VEHICLE OVERLAPS**

Toggle Thrice

*OVERLAP D*

Select TMG VEH OVLP [D] and 'PPLT FYA'

TMG VEH OVLP...[D] TYPE: .....**PPLT FYA**

PROTECTED LEFT TURN.... OVERLAP G

OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH12 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 0

Toggle Thrice

*OVERLAP G*

Select TMG VEH OVLP [G] AND "NORMAL"

TMG VEH OVLP...[G] TYPE: .....**NORMAL**

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

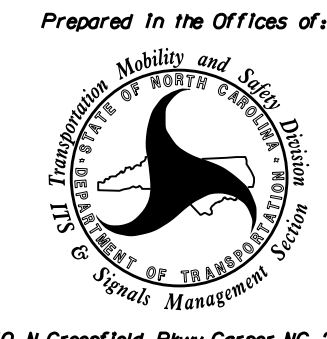
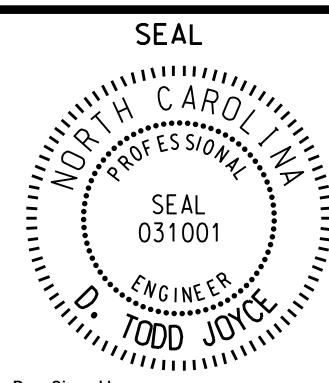
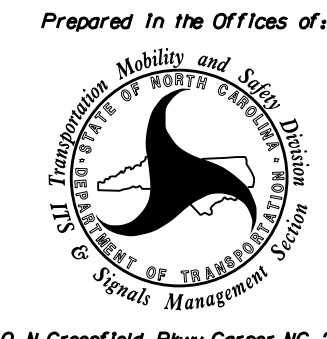
INCLUDED X . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 06-0321  
DESIGNED: September 2023  
SEALED: 12/7/2023  
REVISED: N/A

Electrical Detail - Sheet 2 of 2

 <p>750 N. Greenfield Pkwy, Corner, NC 27529</p>	<p>US 401 Bypass (Skibo Road) at SR 1007 (All American Expressway Southbound Ramps)</p>	<p>SEAL</p>  <p>SEAL 031001 TODD JOYCE ENGINEER</p>												
	<p>Division 6 Cumberland County Fayetteville</p> <p>PLAN DATE: November 2023 REVIEWED BY: D.T.J.</p> <p>PREPARED BY: D.J. Craddock REVIEWED BY:</p>													
<p>Prepared in the Offices of:</p> 	<p>REVISIONS</p> <table border="1"> <tr><th>REVISIONS</th><th>INIT.</th><th>DATE</th></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	REVISIONS	INIT.	DATE										<p>DocuSigned by: <b>D. Todd Joyce</b> 12/08/2023</p> <p>SIG. INVENTORY NO. 06-0321</p>
REVISIONS	INIT.	DATE												

- 1 INSTALL COAX CABLE
- 2 INSTALL ETHERNET CABLE
- 3 EXISTING ETHERNET (OR COAX) CABLE
- 4 INSTALL SMFO CABLE
- 5 EXISTING SMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 INSTALL NEW ETHERNET EDGE SWITCH
- 27 INSTALL NEW FIBER OPTIC TRANSCEIVER
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPlice CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPlice ENCLOSURE
- 30 INSTALL AERIAL SPlice ENCLOSURE
- 31 MODIFY EXISTING INTERCONNECT CENTER /SPlice ENCLOSURE
- 32 INSTALL POLE MOUNTED SPlice CABINET
- 33 INSTALL BASE MOUNTED SPlice CABINET

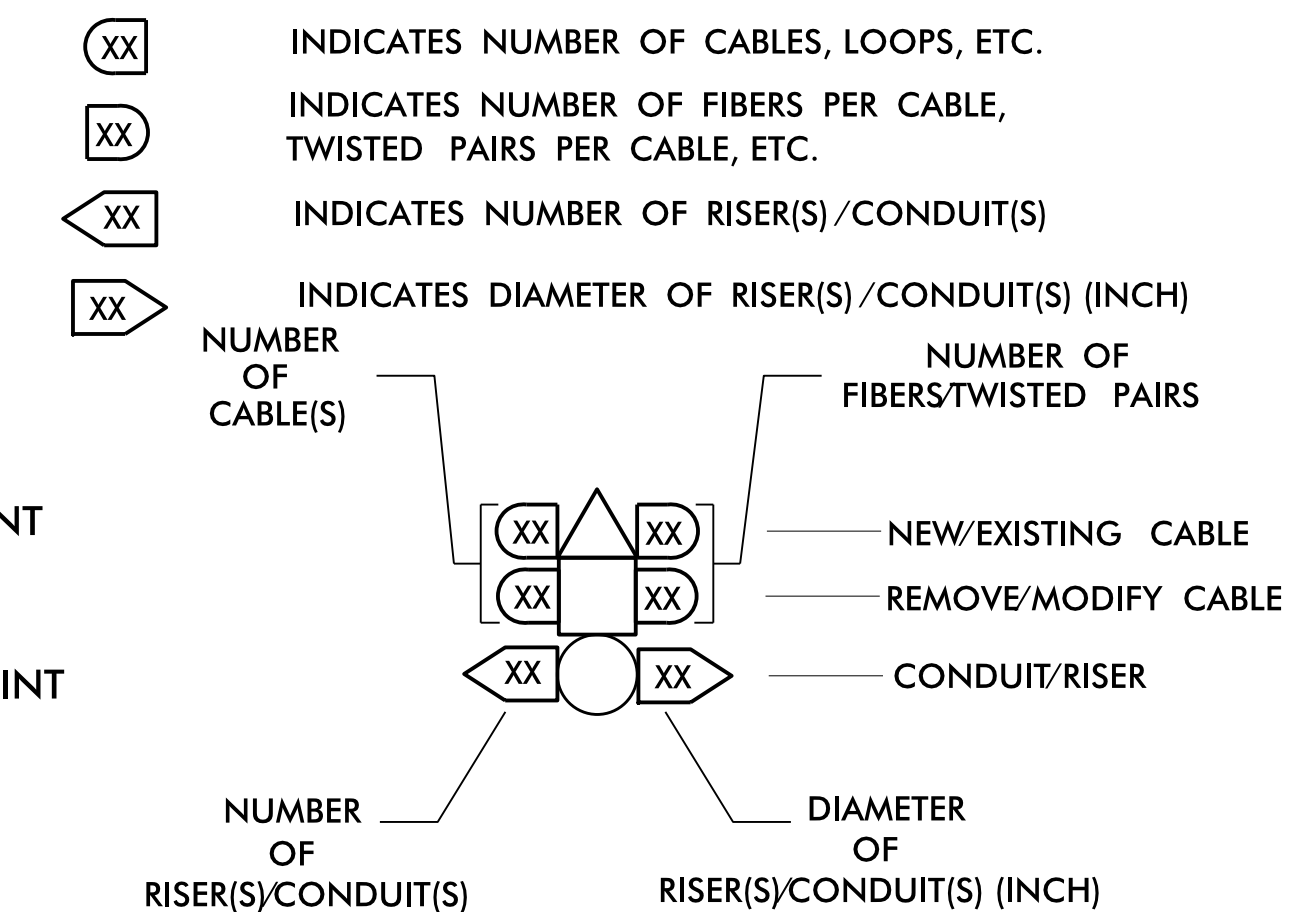
- 34 INSTALL CABINET FOUNDATION
- 35 INSTALL CCTV CAMERA POLE MOUNTED CABINET
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40A INSTALL OVERSIZED JUNCTION BOX
- 40B INSTALL SPECIAL OVERSIZED JUNCTION BOX (36" x 24" x 24")
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48A REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 48B REMOVE EXISTING COMMUNICATIONS CABLE
- 48C REMOVE EXISTING MESSENGER CABLE
- 49 BACK PULL EXISTING COMMUNICATIONS CABLE
- 50 INSTALL CELL MODEM AND ANTENNA
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52A INSTALL DELINEATOR MARKER
- 52B INSTALL JUNCTION BOX MARKER
- 53A STORE 20 FEET OF COMMUNICATIONS CABLE
- 53B STORE 50 FEET OF EACH COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 INSTALL NEW EQUIPMENT CABINET DISCONNECT
- 60 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
- 61 DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS
- 62 BOND RISER AND MESSENGER CABLE TO POLE GROUND
- 63 BOND RISER TO POLE GROUND
- 64 BOND MESSENGER CABLE TO POLE GROUND
- 65 INSTALL HEAT SHRINK TUBING RETROFIT KIT
- 66 INSTALL MOLDABLE DUCT SEAL
- 67 SLACK SPAN

**LEGEND**

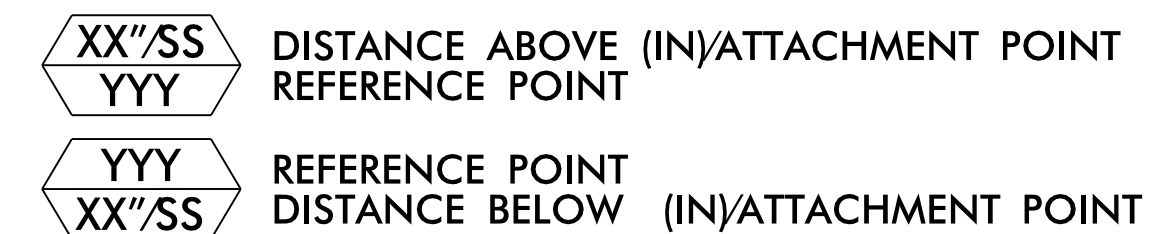
	NEW FIBER OPTIC COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
	NEW AERIAL GUY ASSEMBLY
	NEW CONDUIT
	EXISTING CONDUIT
	NEW DIRECTIONAL DRILLED CONDUIT

NEW		EXISTING
	OVERSIZED JUNCTION BOX	
	WOOD POLE	
	AERIAL SPlice ENCLOSURE	
	UNDERGROUND SPlice ENCLOSURE	
	METAL POLE	
	CCTV ASSEMBLY	
	STANDARD GUY ASSEMBLY	
	SIDEWALK GUY ASSEMBLY	
	CABLE STORAGE RACKS (SNOW SHOES)	
	SIGNAL/EQUIPMENT CABINET	
	SPlice CABINET	
	FLAT PANEL ANTENNA (SINGLE)	
	YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION	
	YAGI ANTENNA (SINGLE)	
	OMNI ANTENNA	
SP	SIGNAL POLE	SP
XX-XXXX	SIGNAL INVENTORY NUMBER	XX-XXXX

**CONSTRUCTION NOTE SYMBOLOGY KEY**



**ATTACHMENT POINT:**

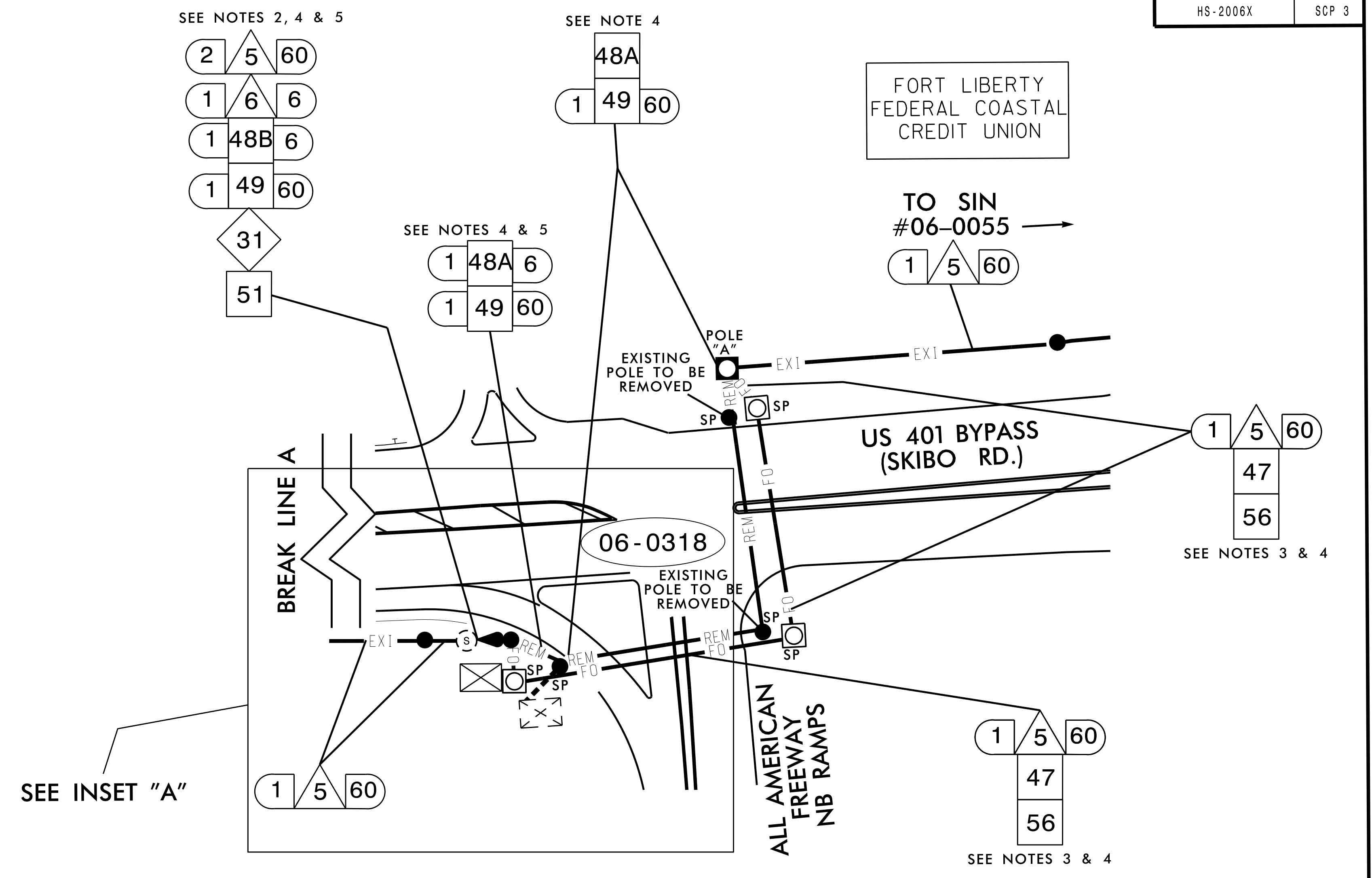
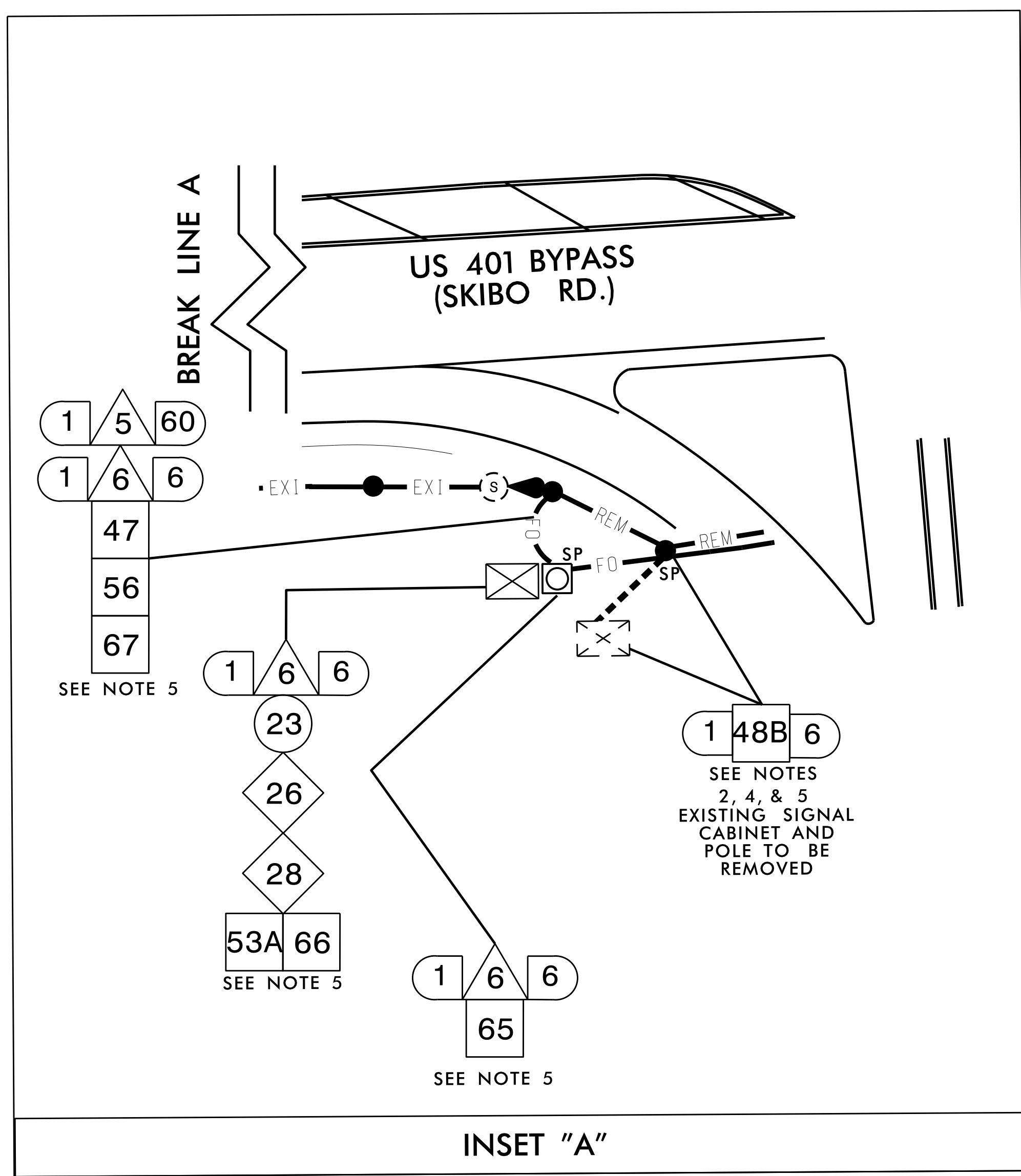


"SS" REFERENCE LOCATION  
 FS = FRONT SIDE OF POLE  
 BS = BACK SIDE OF POLE

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

	<b>FAYETTEVILLE SIGNAL SYSTEM CONSTRUCTION NOTES</b>		
	DIVISION 6 CUMBERLAND CO. FAYETTEVILLE PLAN DATE: SEPTEMBER 2023 REVIEWED BY: <i>Chris Gray II</i> PREPARED BY: H.T. BERGGREN, EIT		
250 N. Greenfield Pkwy., Garner, NC 27529		REVISIONS _____ _____ _____	INIT. DATE _____ _____ _____
			09/21/2023





- NOTES:**
1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF FAYETTEVILLE TRAFFIC ENGINEER AT 910-433-1170 TO ARRANGE FOR THE CITY TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE CITY TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
  2. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENTS FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
  3. NEW FIBER OPTIC CABLE ATTACHMENT POINTS ARE 12" BELOW SIGNAL CABLE, FRONT SIDE (FS) OF POLE.
  4. BREAK EXISTING SPLICES IN THE 60-FIBER CABLE AT THE EXISTING SPLICE ENCLOSURE AND BACK PULL TO POLE "A". REROUTE THE EXISTING 60-FIBER CABLE ON NEW SIGNAL POLES BACK TO THE EXISTING SPLICE ENCLOSURE, AS SHOWN.
  5. DISCONNECT, REMOVE, AND DISCARD THE EXISTING 6-FIBER DROP CABLE. INSTALL NEW 6-FIBER DROP CABLE AND RUN THROUGH THE METAL SIGNAL POLE TO THE SIGNAL CABINET, AS SHOWN.

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>	<p>FAYETTEVILLE SIGNAL SYSTEM COMMUNICATIONS CABLE ROUTING PLANS</p> <p>DIVISION 6 CUMBERLAND CO. FAYETTEVILLE</p> <p>PLAN DATE: SEPTEMBER 2023 REVIEWED BY: <i>Chris Gruff</i></p> <p>PREPARED BY: H. T. BERGGREN, ET AL. 09/21/2023</p>		
	<p>SCALE: 0 N/A</p>	<p>REVISIONS</p> <p>INIT. DATE</p>	

**EXISTING AERIAL SPLICE ENCLOSURE AT ALL AMERICAN FREEWAY SB ON RAMP**

SIG. INV. 06-0321

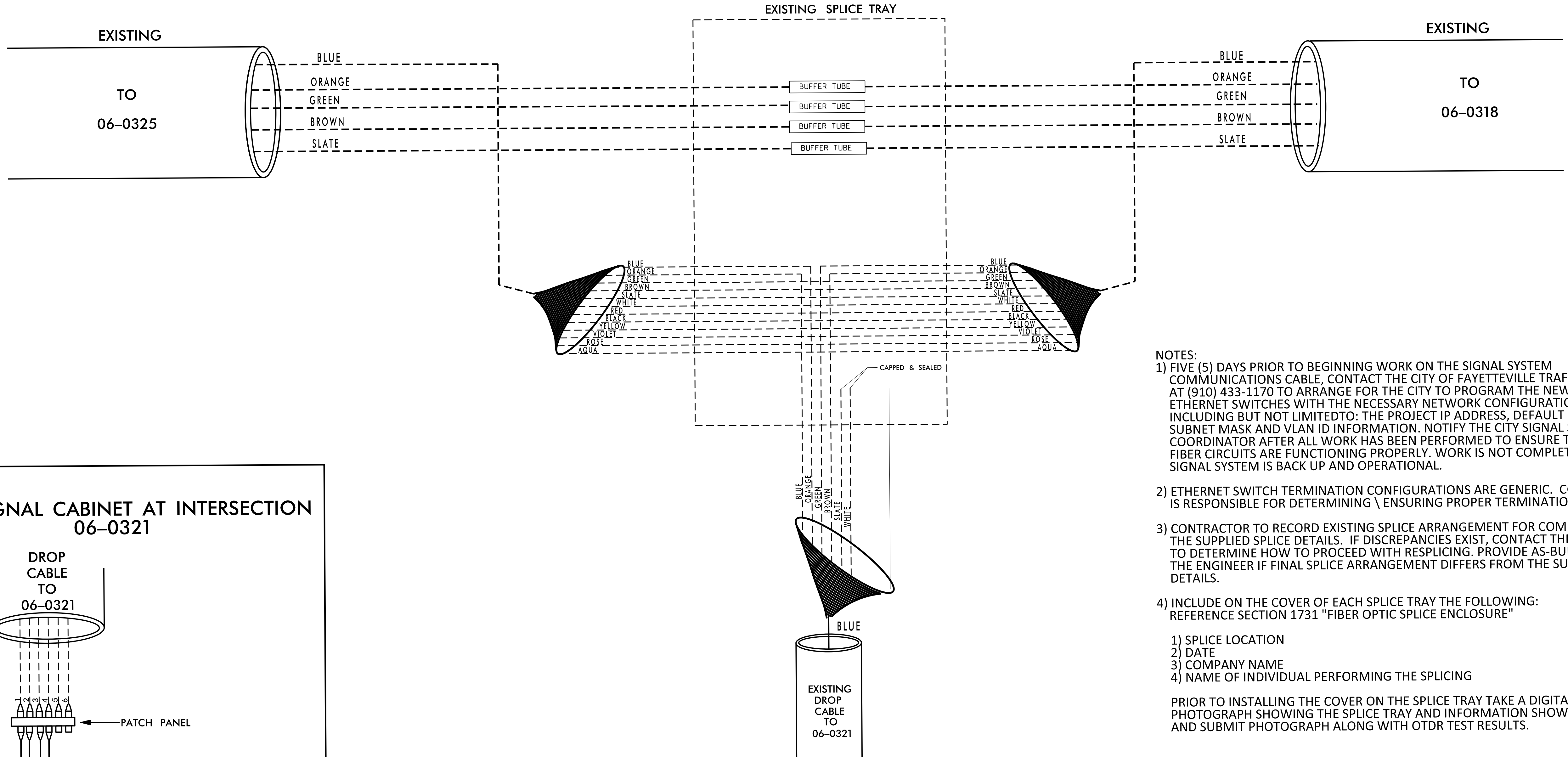
NO WORK TO BE PERFORMED IN THE EXISTING SPLICE TRAY. SHOWN FOR INFORMATION ONLY. SPLICE EXISTING 6-FIBER DROP CABLE IN NEW SIGNAL CABINET ACCORDING TO EXISTING SPLICES.

**LEGEND**

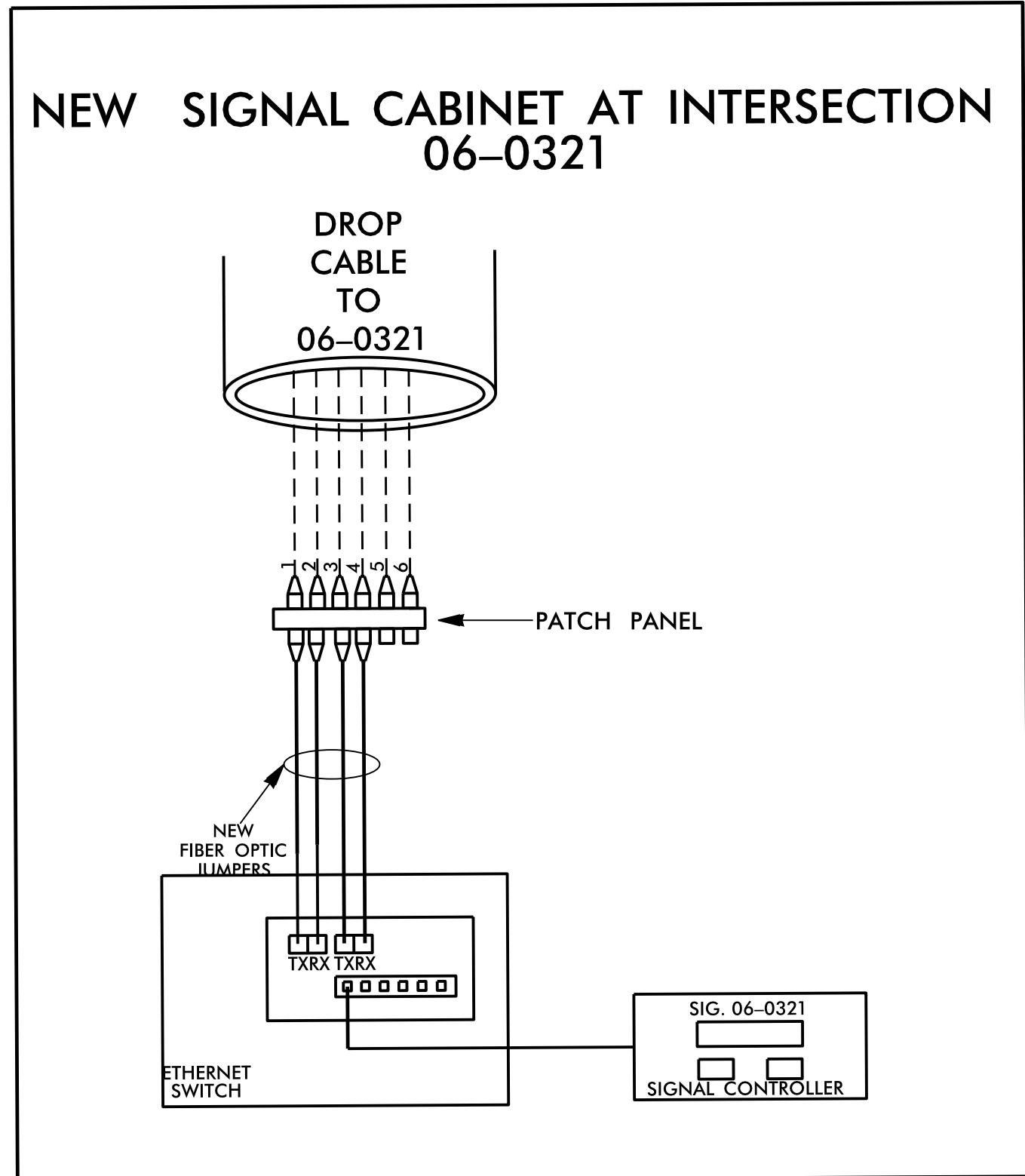
COLOR CODE TIA/EIA 598-A

(1) BLUE	(7) RED	X - FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	
(3) GREEN	(9) YELLOW	BUFFER TUBE - EXPRESS ENTIRE BUFFER TUBE AS NOTED
(4) BROWN	(10) VIOLET	
(5) SLATE	(11) ROSE	
(6) WHITE	(12) AQUA	

Notes:  
 Unused fibers left coiled and stored in splice tray.  
 Unused Buffer Tubes left coiled and stored in splice tray.



- NOTES:
- 1) FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS CABLE, CONTACT THE CITY OF FAYETTEVILLE TRAFFIC ENGINEER AT (910) 433-1170 TO ARRANGE FOR THE CITY TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE CITY SIGNAL SYSTEM COORDINATOR AFTER ALL WORK HAS BEEN PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
  - 2) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
  - 3) CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
  - 4) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
    - 1) SPLICE LOCATION
    - 2) DATE
    - 3) COMPANY NAME
    - 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING
- PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

Prepared in the Offices of:

**FAYETTEVILLE SIGNAL SYSTEM SPLICE PLANS**

DIVISION 6 CUMBERLAND CO. FAYETTEVILLE

PLAN DATE: SEPTEMBER 2023 REVIEWED BY: *Gregory R. ...*

PREPARED BY: H.T. BERGGREN, EI

REVISIONS: \_\_\_\_\_ INIT. DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046152

ENGINEER: *Alex D. Stewart*

09/21/2023



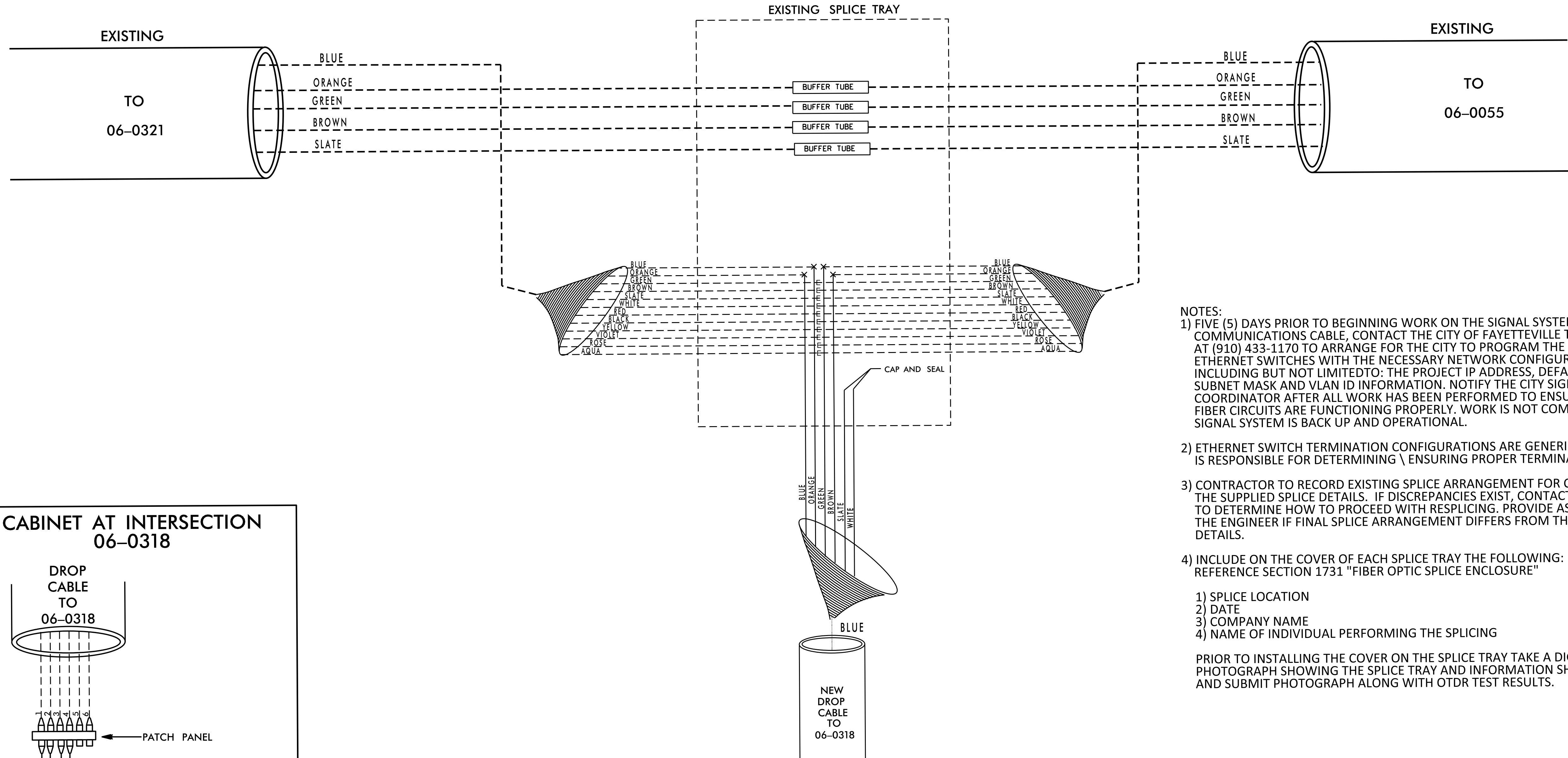
**MODIFY EXISTING AERIAL  
SPLICE ENCLOSURE AT  
ALL AMERICAN FREEWAY  
NB ON RAMP**

**SIG. INV. 06-0318**

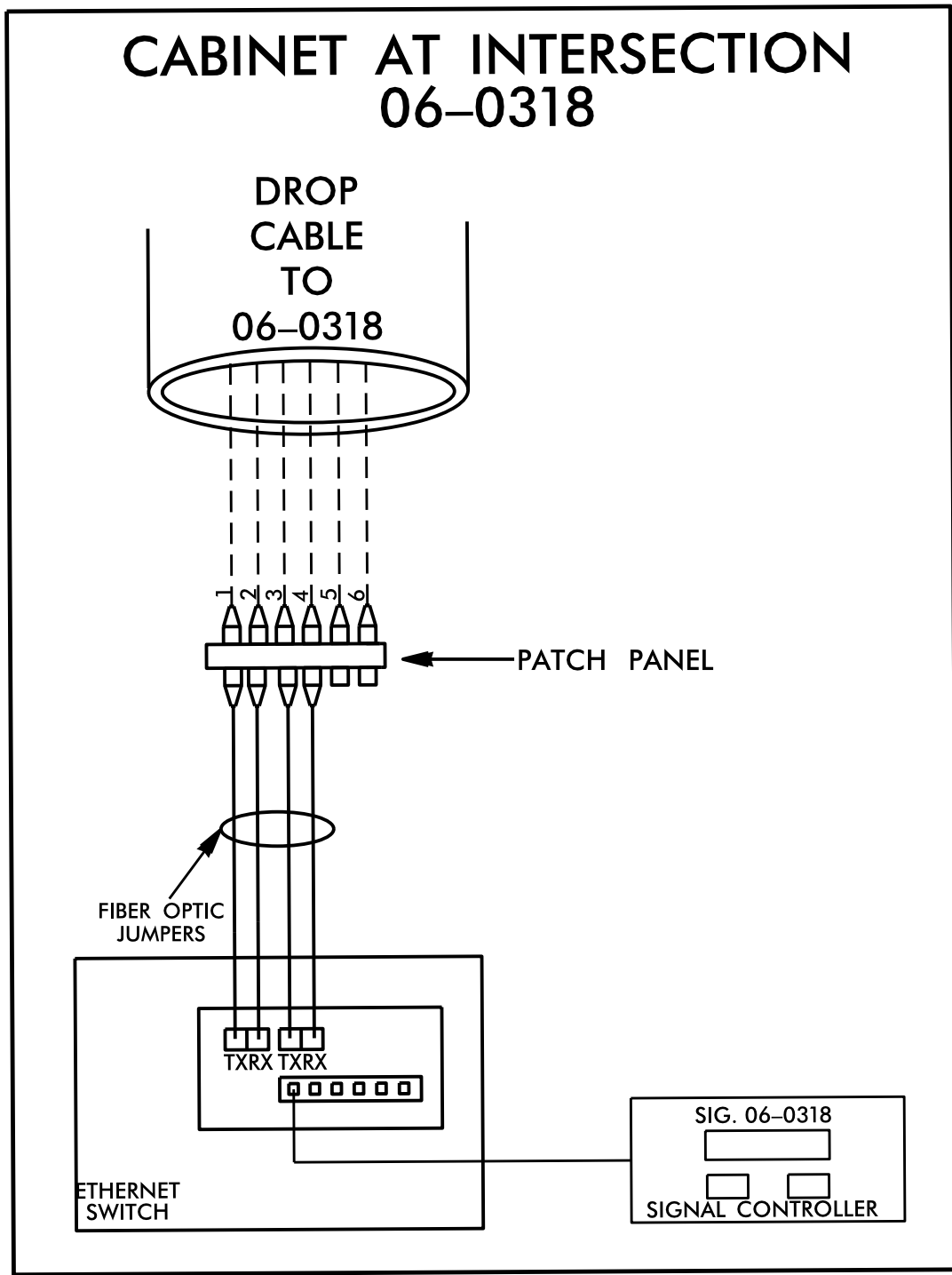
**LEGEND**

COLOR CODE TIA/EIA 598-A		E - EXISTING FUSION SPLICE
(1) BLUE	(7) RED	X - FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	<b>BUFFER TUBE</b> - EXPRESS ENTIRE BUFFER TUBE AS NOTED
(3) GREEN	(9) YELLOW	
(4) BROWN	(10) VIOLET	
(5) SLATE	(11) ROSE	
(6) WHITE	(12) AQUA	

**Notes:**  
Unused fibers left coiled and stored in splice tray.  
Unused Buffer Tubes left coiled and stored in splice tray.



- NOTES:**
- FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS CABLE, CONTACT THE CITY OF FAYETTEVILLE TRAFFIC ENGINEER AT (910) 433-1170 TO ARRANGE FOR THE CITY TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE CITY SIGNAL SYSTEM COORDINATOR AFTER ALL WORK HAS BEEN PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
  - ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
  - CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
  - INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:  
REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"  
1) SPLICE LOCATION  
2) DATE  
3) COMPANY NAME  
4) NAME OF INDIVIDUAL PERFORMING THE SPLICING
- PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

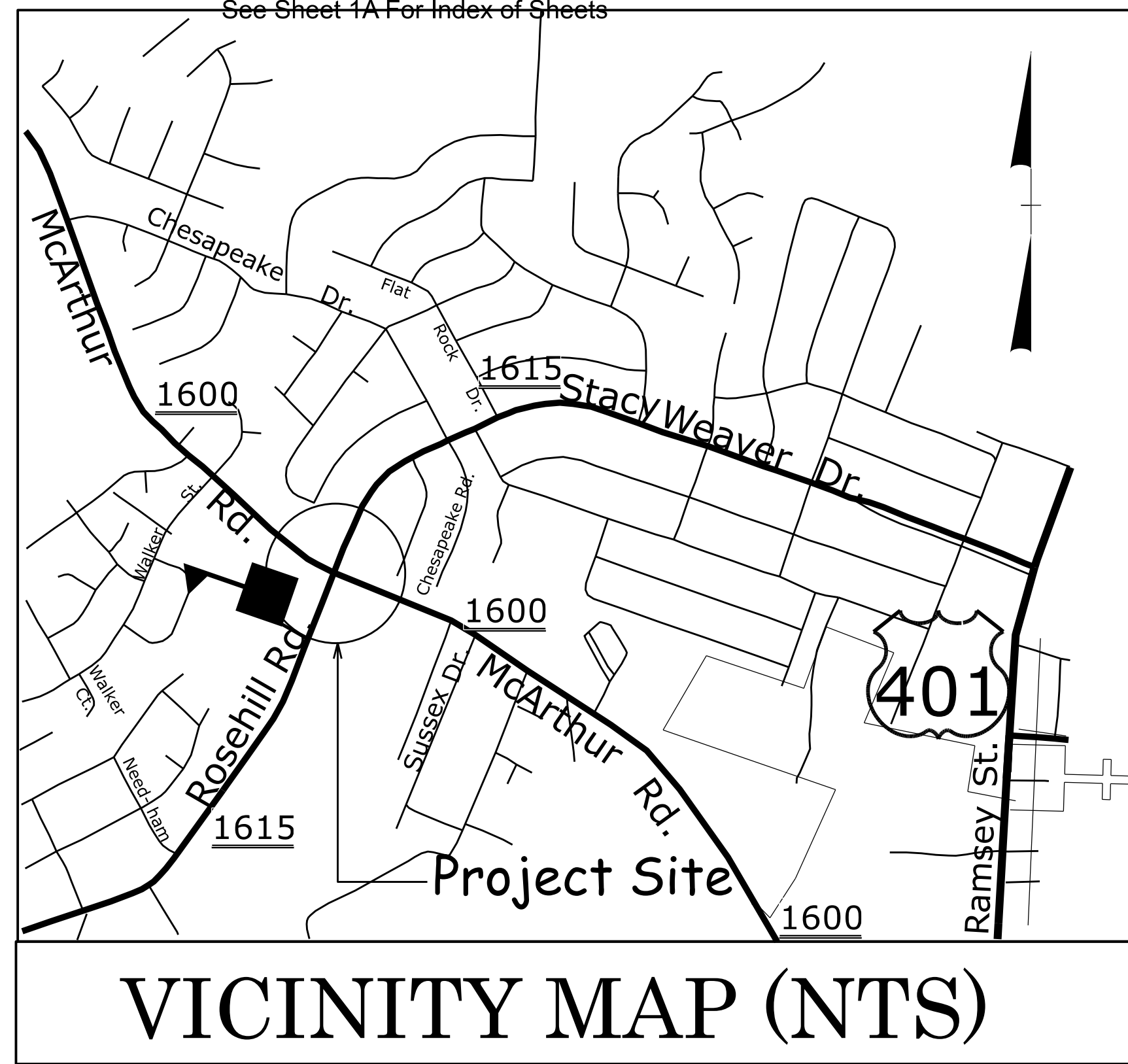
<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>	<p>FAYETTEVILLE SIGNAL SYSTEM SPLICE PLANS</p>		
	<p>DIVISION 6 CUMBERLAND CO. FAYETTEVILLE</p> <p>PLAN DATE: SEPTEMBER 2023 REVIEWED BY: <i>Grady</i></p> <p>PREPARED BY: H.T. BERGGREN, E1</p>	<p>INIT. DATE</p> <p>REVISIONS</p>	

09/08/99

TIP PROJECT: HS-2006V

CONTRACT: DF00459

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

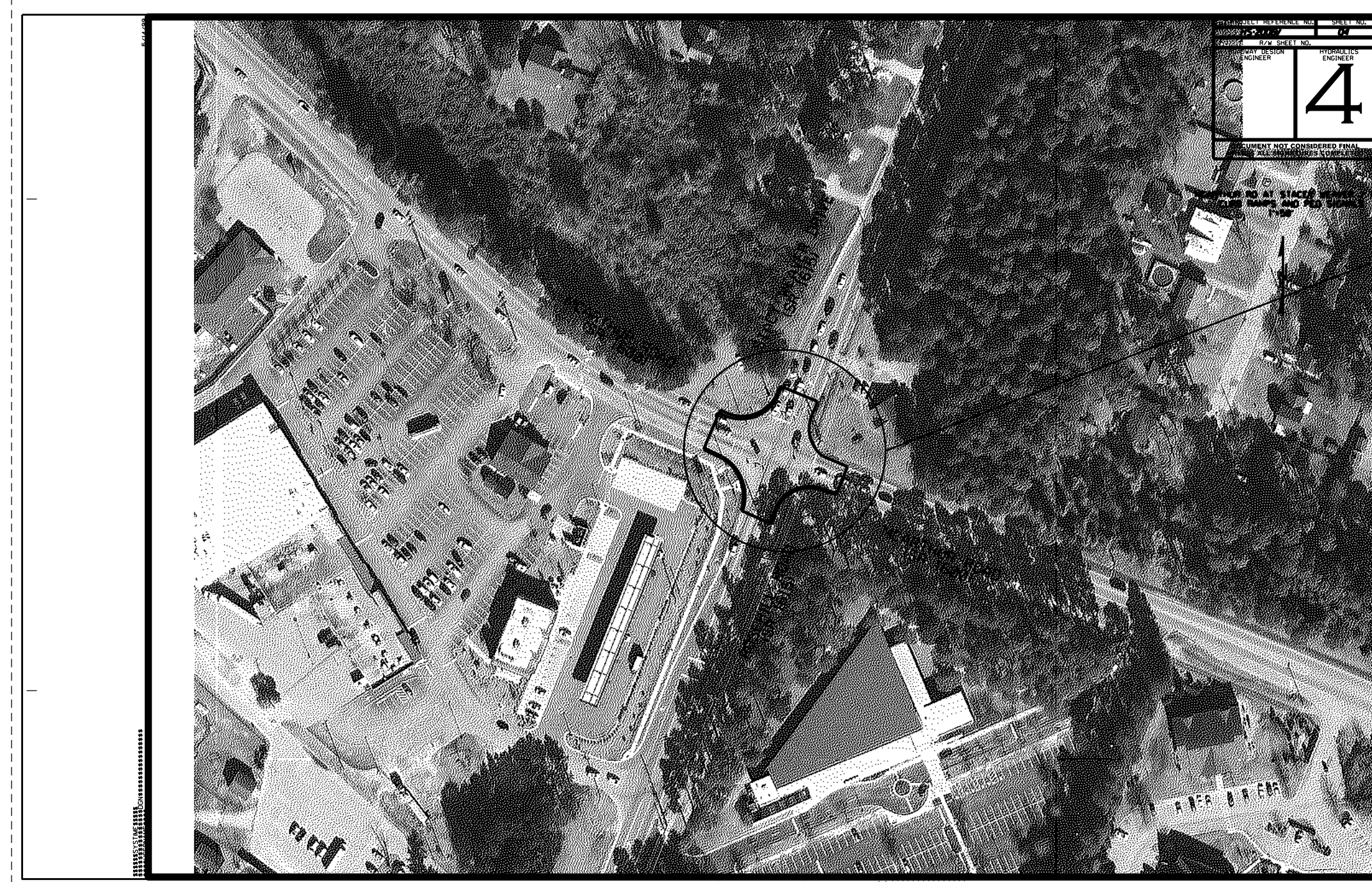
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## CUMBERLAND COUNTY

LOCATION: SR 1600 (MCARTHUR ROAD) AT  
SR 1615 (ROSEHILL ROAD/STACY WEAVER ROAD)

TYPE OF WORK: CONSTRUCT SIGNALIZED PEDESTRIAN ACCOMMODATIONS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2006V	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
49312.3.26	1600017	CON.	



SHEET 4  
Sig 1.0 06-0341

### GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)

Prepared in the Office of:

### DIVISION OF HIGHWAYS

DIVISION 6

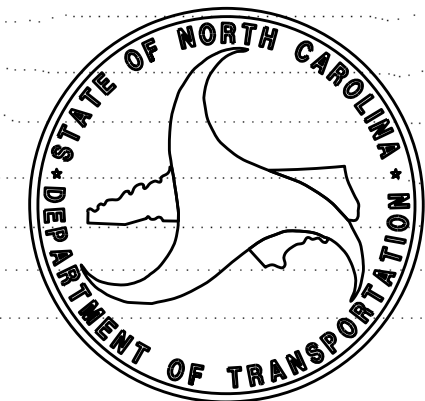
431 Transportation Dr., Fayetteville NC, 28301

2024 STANDARD SPECIFICATIONS

JOHN GAUTHIER  
PROJECT ENGINEER

BRIAN MATTHEWS  
PROJECT DESIGN ENGINEER

LETTING DATE:  
FEBRUARY 21, 2024



PROJECT REFERENCE NO.	SHEET NO.
HS-2006V	04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MCARTHUR RD AT STACY WEAVER / ROSEHILL  
CURB RAMP AND PED SIGNALS  
1" = 50'



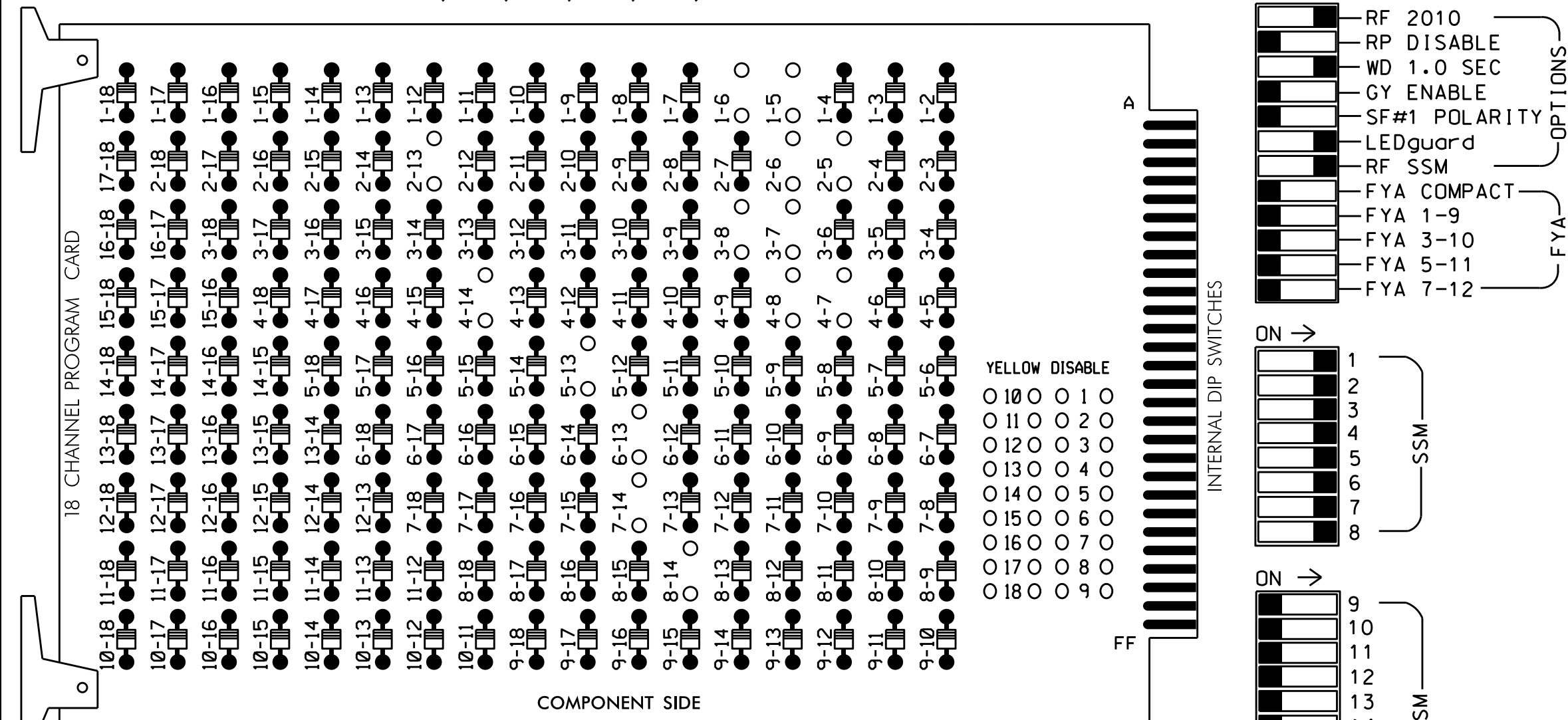
5/14/99  
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 01/08/2024 09:23:31  
 01/08/2024 09:23:31



### 18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 2-5, 2-6, 2-13, 3-7, 3-8, 4-7, 4-8, 4-14, 5-13, 6-13, 7-14, and 8-14.



REMOVE JUMPERS AS SHOWN

**NOTES:**

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

### NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Fayetteville Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....332 W/AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,  
 S6,S7,S8,S10,S11  
 PHASES USED.....1,2,2 PED,3,4,  
 4 PED,5,6,7,8  
 OVERLAPS.....NONE

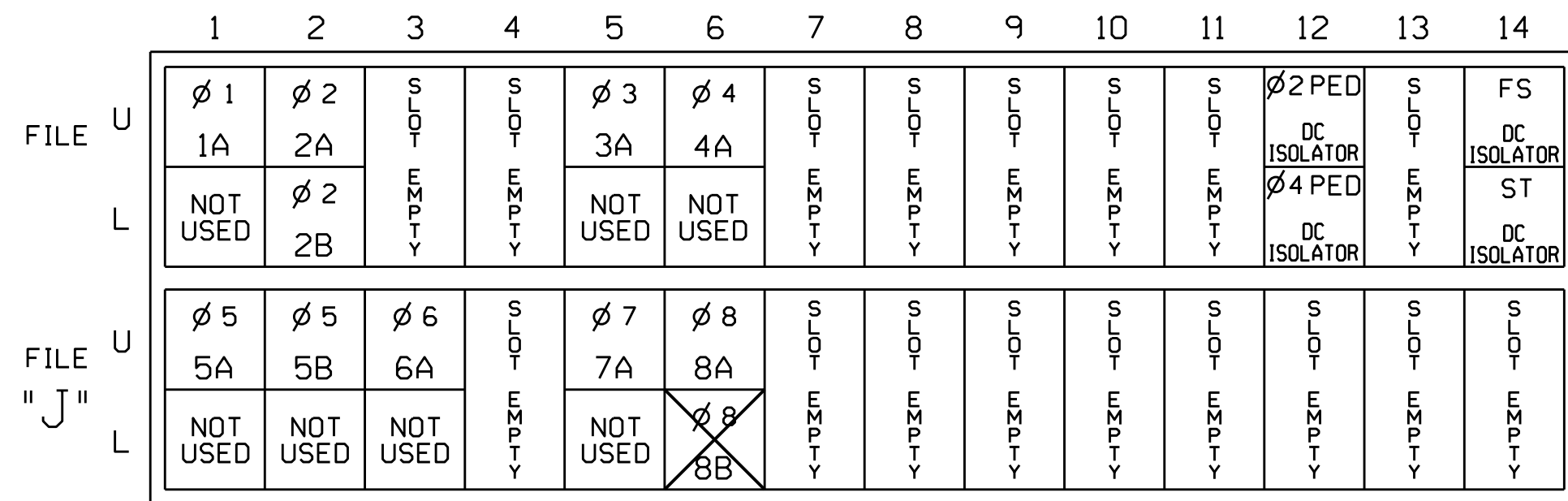
### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	22	31	41,42	P41, P42	42	51	61,62	NU	71	81,82	NU	NU	NU	NU	NU
RED		128			101					134		107						
YELLOW		129			102					135		108						
GREEN		130			103					136		109						
RED ARROW	125				116					131		122						
YELLOW ARROW	126				117	117				132	132	123						
GREEN ARROW	127				118	118				133	133	124						
Hand icon					113					104								
Person icon					115					106								

NU = Not Used

### INPUT FILE POSITION LAYOUT

(front view)



EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

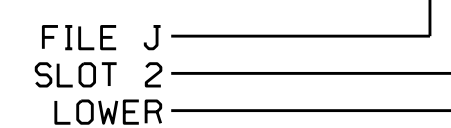
### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES		3		N
2A	TB2-5,6	I2U	39	2	2	YES				N
2B	TB2-7,8	I2L	43	12	2	YES				N
3A	TB4-5,6	I5U	58	3	3	YES		3		N
4A	TB4-9,10	I6U	41	4	4	YES		3		N
5A	TB3-1,2	J1U	55	5	5	YES				N
5B	TB3-5,6	J2U	40	6	5	YES		15		N
6A	TB3-9,10	J3U	64	36	6	YES				N
7A	TB5-5,6	J5U	57	7	7	YES		3		N
8A	TB5-9,10	J6U	42	8	8	YES		10		N
8B	TB5-11,12	J6L	46	18	8	YES		10		S

**NOTE:**

INSTALL DC ISOLATOR IN INPUT FILE SLOT 112.

INPUT FILE POSITION LEGEND: J2L



REMOVE LOOP 8B

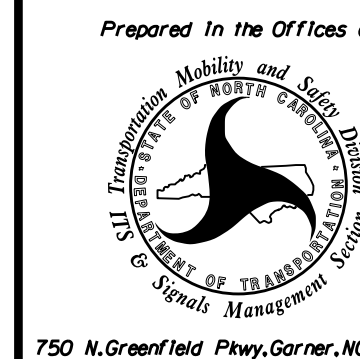
### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0341  
 DESIGNED: September 2023  
 SEALED: 12/11/2023  
 REVISED: N/A

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:



750 N. Greenfield Pkwy, Corner, NC 27529

SR 1600 (McArthur Road)  
 at  
 SR 1615  
 (Rosehill Road/Stacy Weaver Road)

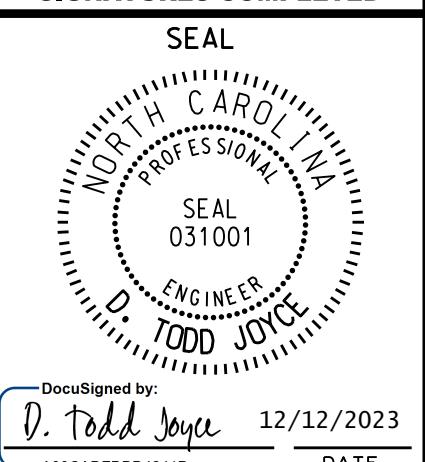
Division 6 Cumberland County Fayetteville

PLAN DATE: December 2023 REVIEWED BY: D.T.J.

PREPARED BY: D.J. Craddock REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



12/12/2023

SIG. INVENTORY NO. 06-0341