

### PHASING DIAGRAM DETECTION LEGEND

DETECTED MOVEMENT

UNDETECTED MOVEMENT (OVERLAP)

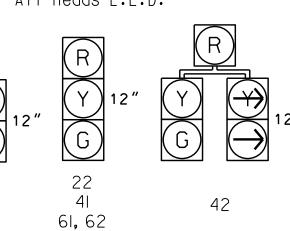
UNSIGNALIZED MOVEMENT

PEDESTRIAN MOVEMENT

# TABLE OF OPERATION PHASE SIGNAL Ø Ø Ø F 2 + 5 6 4 F 4 - 5 6 7 F 2 - 4 - 5 6 7 F 2 - 4 - 5 6 7 F 4 - 5 - 6 7 7 F 4 - 4 - 5 7 7 7 4 - 4 - 6 7 7 7 7 4 - 4 - 7 7 7 7 7 7 4 - 7 8 7 8 7

## SIGNAL FACE I.D.

All Heads L.E.D.



SR 1118 (Fayetteville Road)

2033 SOFTWARE w/	2070 CONTROLLER
LOOP & DETECTOR UNIT	Γ INSTALLATION CHART

												• • • •					<u> </u>							
	INDUCT	IVE LOC	)PS				TIMINIC					ATTRIBUTES										PS	STA	TUS
							TIMING				1	2	3	4	5	6	7	8	OOPS		,,			
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	ZEK	EXISTING	NEMA PHASE	DEL	ΑY	CAR (STRE		FULL TIME DELAY	PEDESTRIAN CALL	RESERVED	COUNT	EXTENSION	TYPE 3	CALLING	ALTERNATE	SYSTEM L	NEW	EXISTING			
2A	6X6	4	300	Х	-	2	-	SEC.	ı	SEC.	_	-	ı	Χ	Χ	_	Χ	-	ı	Χ	-			
4A	6X40	2-4-2	0	Х	-	4	-	SEC.	ı	SEC.	_	-	ı	-	Χ	_	Χ	1	ı	Χ	-			
4B	6X40	2-4-2	0	Х	-	4	15	SEC.	-	SEC.	_	-	-	-	Х	_	Χ	-	-	Χ	-			
						5	10	SEC.	-	SEC.	_	1	ı	-	Χ	-	Х	-	-	Χ	-			
5A	6X40	2-4-2	0	X	-	4	10	SEC.	ı	SEC.	_	1	ı	-	_	-	Х	-	ı	Χ	-			
						2	5	SEC.	2.0	SEC.	Χ	-	ı	_	Х	-	Х	_	-	Χ	-			
5B	6X40	2-4-2	0	X	-	5	15	SEC.	ı	SEC.	_	_	-	_	Χ	-	Χ	-	ı	Χ	-			
6A	6X6	4	300	Х	-	6	_	SEC.	ı	SEC.	-	-	1	Χ	Χ	_	Χ	-	I	Χ	-			

DETECTOR PROGRAMMING

SR 1118 (Fayetteville Road)

3 Phase Fully Actuated (Isolated)

### <u>NOTES</u>

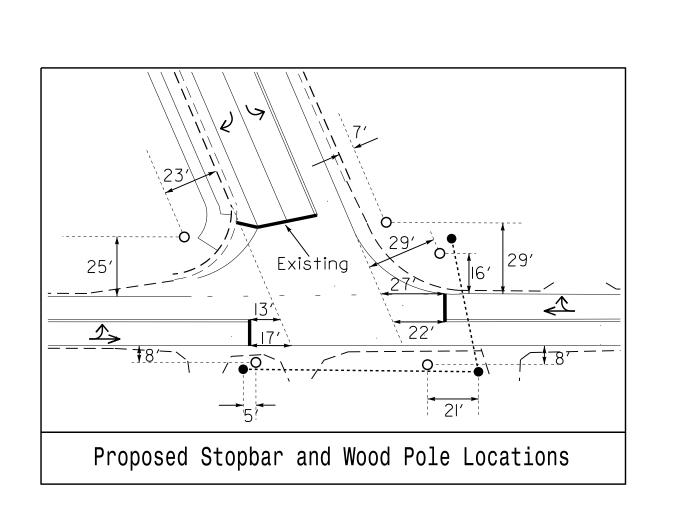
- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Program phase 5 as protected/permissive.
- 4. Set all detector units to presence mode.
- 5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- 6. The cabinet should be designed to include an Auxiliary Output file for future use.
- 7. Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
- 8. Set phase bank 3 maximum limit to 250 seconds for phases used.
- 9. Pavement markings are existing unless otherwise shown.
- 10. Maximum times shown in timing
   chart are for free-run
   operation only. Coordinated
   signal system timing values
  = supersede these values.

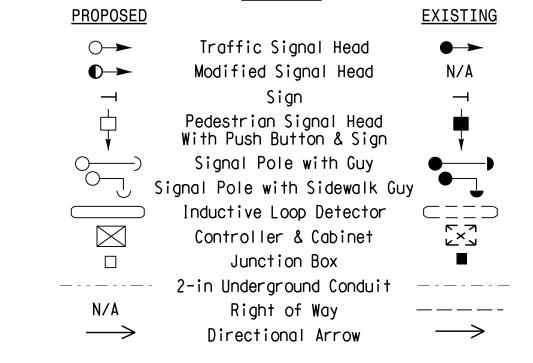
LEGEND

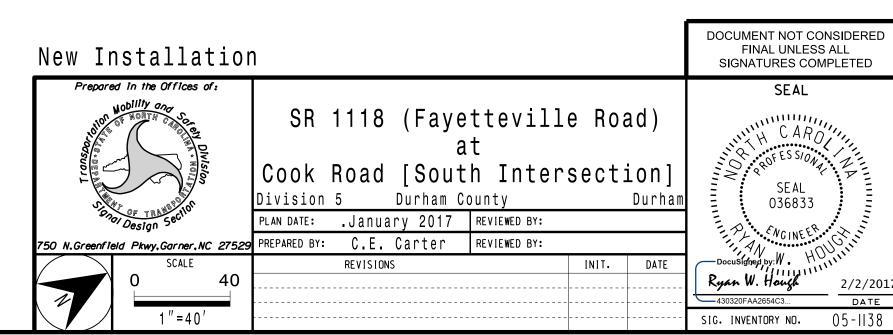
	<del></del> -	
<u>2A</u>	\	
	<u>2</u> A	

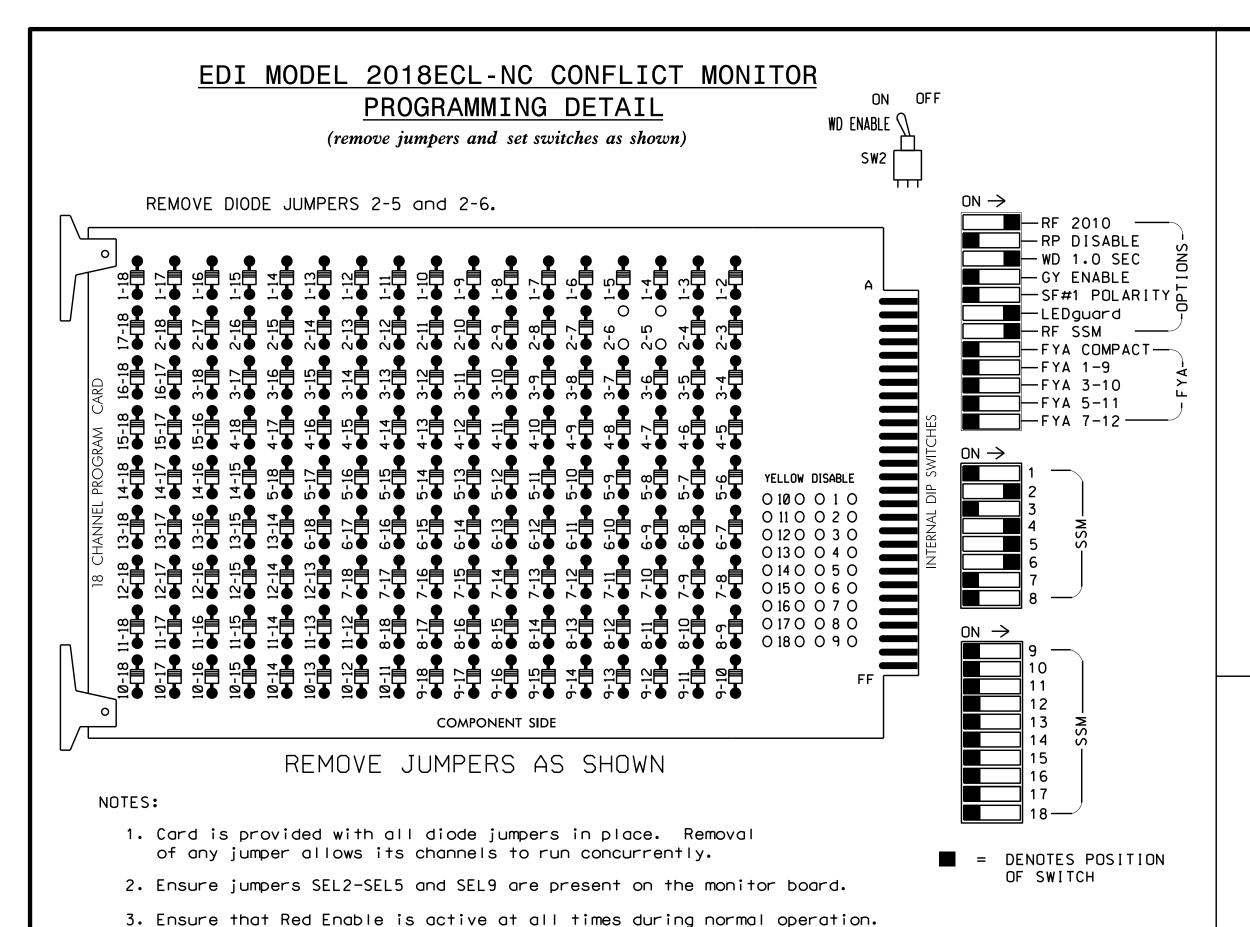
	ТТ	MTN	C CH	ΛΩΤ	ı						
TIMING CHART 2033 SOFTWARE w/ 2070 CONTROLLER											
PHASE	0/2		04		05		Ø6				
MINIMUM INITIAL *	12	SEC.	7	SEC.	7	SEC.	12	SEC.			
VEHICLE EXTENSION *	6.0	SEC.	2.0	SEC.	2.0	SEC.	6.0	SEC.			
YELLOW CHANGE INT.	4.4	SEC.	3.0	SEC.	3.0	SEC.	4.7	SEC.			
RED CLEARANCE	1.0	SEC.	2.3	SEC.	1.8	SEC.	1.0	SEC.			
MAXIMUM LIMIT *	90	SEC.	30	SEC.	15	SEC.	90	SEC.			
RECALL POSITION	VEH. RECALL		NONE		ИОИ	١E	VEH. RECALI				
VEHICLE CALL MEMORY	NONL	эск	NONLO	оск	YELLOW	LOCK	YELLOW	LOCK			
DOUBLE ENTRY	OFF		OFI	=	OFF	•	OFF				
WALK *	1	SEC.	1	SEC.	_	SEC.	_	SEC.			
FLASHING DON'T WALK	_	SEC.	1	SEC.	_	SEC.	_	SEC.			
TYPE 3 LIMIT	_	SEC.	1	SEC.	_	SEC.	_	SEC.			
ALTERNATE EXTENSION	-	SEC.	1	SEC.	_	SEC.	_	SEC.			
ADD PER VEHICLE *	ı	SEC.	ı	SEC.	_	SEC.	2.5	SEC.			
MAXIMUM INITIAL *	ı	SEC.	ı	SEC.	_	SEC.	34	SEC.			
MAXIMUM GAP*	7.0	SEC.	2.0	SEC.	2.0	SEC.	7.0	SEC.			
REDUCE 0.1 SEC EVERY *	1.5	SEC.		SEC.	_	SEC.	1.5	SEC.			
MINIMUM GAP	3.0	SEC.	2.0	SEC.	2.0	SEC.	3.0	SEC.			

\* 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









INPUT FILE POSITION LAYOUT

(front view)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

DC ISOLATOR

ST

FS = FLASH SENSE

ST = STOP TIME

4. Connect serial cable from conflict monitor to comm. port 1 of 2070

controller. Ensure conflict monitor communicates with 2070.

### **NOTES**

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. Verify that signal heads flash in accordance with the signal plans.
- 2. Program controller to Start Up in phases 2 and 6 green.
- 3. Set power-up flash time to 0 seconds within the controller programming. The conflict monitor will govern startup flash. Ensure STARTUP "RED START" is set to 0 seconds.
- 4. Enable Simultaneous Gap-Out feature for all phases.
- 5. Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
- 6. Set phase bank 3 maximum limit to 250 seconds for phases
- 7. For Volume Density operation, program phase 6 for variable initial and phases 2 and 6 for gap reduction.
- 8. Ensure start up flash phases are coordinated with flash program block assignments.
- 9. Set the Red Revert interval on the controller to 1 second.
- 10. This cabinet and controller are part of the Durham Signal System.

### **EQUIPMENT INFORMATION**

CONTROLLER.....2070E CABINET MOUNT.....BASE OUTPUT FILE POSITIONS...18 WITH AUX FILE LOAD SWITCHES USED.....S2,S5,S7,S8 OVERLAP 1......NOT USED OVERLAP 2.....NOT USED

OVERLAP 3.....NOT USED OVERLAP 4......NOT USED

### PROJECT REFERENCE NO. Sig. 2 W-5601EH

				SI	GNA	LH	HEA	D F	H00	K-l	JP	CHA	ART					
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	<b>S</b> 9	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	OL1	OL2	SPARE	0L3	OL4	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	21,42	61,62	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED		128			101		*	134										
YELLOW		129			102			135										
GREEN		130			103			136										
RED ARROW																		
YELLOW ARROW							132											
GREEN ARROW							133											

NU = Not Used

\* Denotes install load resistor. See load resistor installation detail this sheet.

# LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

- PHASE 5 RED FIELD TERMINAL (131) ACCEPTABLE VALUES VALUE (ohms) WATTAGE 1.5K - 1.9K | 25W (min) 2.0K - 3.0K 10W (min)

### BACK-UP PROTECTION NOTE

To ensure that the controller will not sequence from Phase 2+6 directly to Phase 5, special progamming has to be enabled in the McCain 2033 Software. Program the 2070 Controller as follows:

1. Program Phase 5 as PROTECTED/PERMISSIVE Main Menu - 9) UTILITIES - 5) CONFIGURATION PROT/PERM = 5

2. Loop 5A will have to be programmed to call Phase 4 before proceeding to Phase 5. See Input File Connection & Programming Chart this sheet.

> THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1138 DESIGNED: January 2017 SEALED: 2/2/2017 REVISED:

### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	DETECTOR NO.	PIN NO.	ATTRIBU	TES	NEMA PHASE
2A	TB2-5 <b>,</b> 6	I2U	1	39	4 5	7	2
4A	TB4-9,10	I6U	3	41	5	7	4
4B	TB4-11,12	I6L	7	45	5	7	4
			13	55	5	7	5
5A	TB3-1 <b>,</b> 2	J1U	11	55		7	4
			9	55	1 5	7	2
5B	TB3-5 <b>,</b> 6	J2U	2	40	5	7	5
6A	TB3-7 <b>,</b> 8	J2L	6	44	4 5	7	6

NOTE: PROGRAM DETECTOR DELAY AND CARRYOVER TIMES AS SPECIFIED ON SIGNAL DESIGN PLANS.

DETECTOR ATTRIBUTES LEGEND: INPUT FILE POSITION LEGEND: J2L

1-FULL TIME DELAY

2-PED CALL 3-RESERVED

4-COUNTING

5-EXTENSION

8-ALTERNATE

6-TYPE 3 7-CALLING

FILE J SLOT 2-LOWER —

Electrical Detail

ELECTRICAL AND PROGRAMMING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAILS FOR

750 N.Greenfield Pkwy, Garner, NC 27529

SR 1118 (Fayetteville Road) Cook Road [South Intersection]

ivision 5 Durham County Durham PLAN DATE: January 2017 REVIEWED BY: T. Joyce

PREPARED BY: C. Strickland REVIEWED BY: REVISIONS INIT. DATE

SIG. INVENTORY NO. 05-1138

ROFES SION

030530

FILE

USED

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

