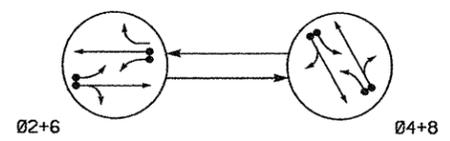


**PHASING DIAGRAM**



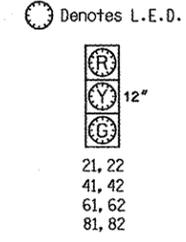
**PHASING DIAGRAM DETECTION LEGEND**

- ← ● DETECTED MOVEMENT
- ← ○ UNDETECTED MOVEMENT (OVERLAP)
- ← - - UNSIGNALIZED MOVEMENT
- ← - - PEDESTRIAN MOVEMENT

**TABLE OF OPERATION**

SIGNAL FACE	PHASE		
	Ø2+6	Ø4+8	LOCAL HIGH
21, 22	G	R	Y
41, 42	R	G	R
61, 62	G	R	Y
81, 82	R	G	R

**SIGNAL FACE I.D.**



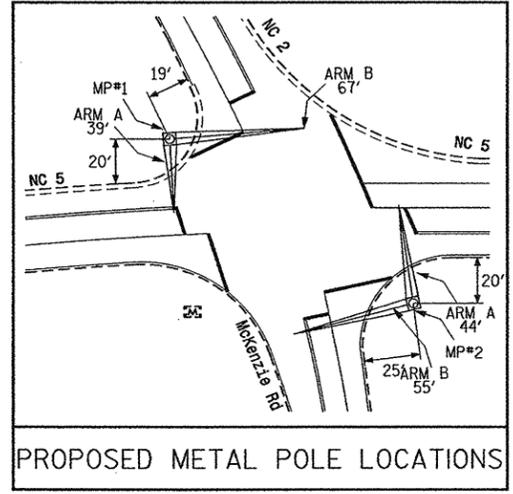
**2070L LOOP & DETECTOR INSTALLATION**

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	STRETCH TIME			DELAY TIME
2A	6X6	70	4	Y	2	Y	Y	-	-	-	N
2B	6X40	0	2-4-2	Y	2	Y	Y	-	-	-	N
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	N
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	N
6A	6X6	70	3	Y	6	Y	Y	-	-	-	N
6B	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	N
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	3	N
8B	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	N
S6	6X6	+200	4	Y	SYSTEM LOOP	-	-	-	-	-	Y

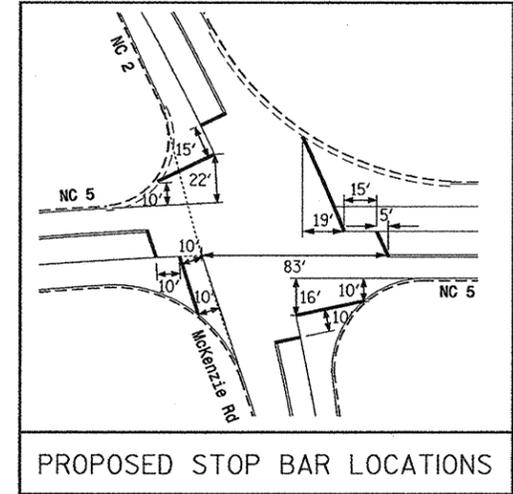
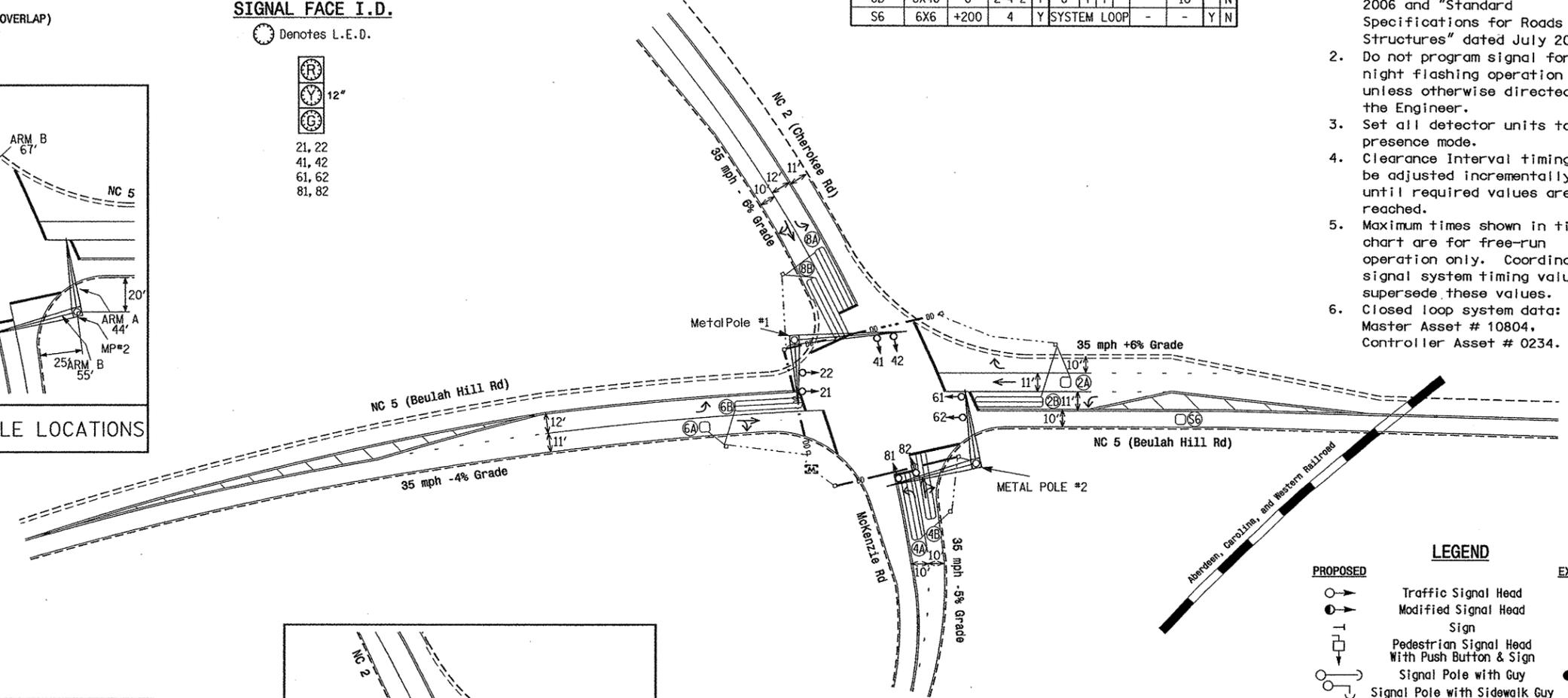
**2 Phase Fully Actuated (Pinehurst Closed Loop System)**

**NOTES**

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Clearance Interval timings may be adjusted incrementally until required values are reached.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Master Asset # 10804, Controller Asset # 0234.



**PROPOSED METAL POLE LOCATIONS**

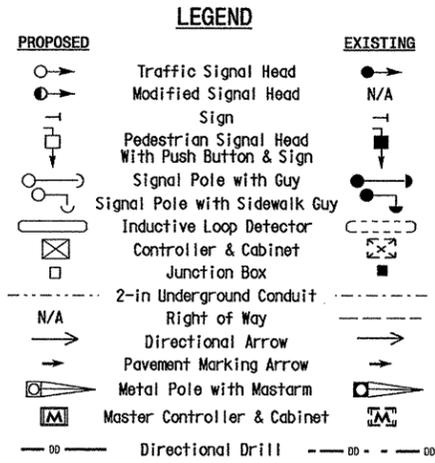


**PROPOSED STOP BAR LOCATIONS**

**2070L TIMING CHART**

FEATURE	PHASE			
	2	4	6	8
Min Green 1*	10	7	10	7
Extension 1*	3.0	1.0	3.0	1.0
Max Green 1*	45	20	45	20
Yellow Clearance	3.5	4.2	4.1	4.3
Red Clearance	1.6	1.3	1.2	1.6
Walk 1*	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation*	-	-	-	-
Max Variable Initial*	-	-	-	-
Time Before Reduction*	-	-	-	-
Time To Reduce*	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

\* 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.



**SIGNAL UPGRADE**

Prepared in the Offices of:  
**NC 5 (Beulah Hill Rd) at NC 2/ McKenzie Rd**  
 Division 8 Moore County Pinehurst  
 PLAN DATE: August 2007 REVIEWED BY: N. Bitting  
 PREPARED BY: R. Hough REVIEWED BY:  
 SCALE: 1"=40'  
 REVISIONS: INIT. DATE  
 SIGNATURE: N. Bitting 12/13/06  
 DATE: 12/13/06  
 SEAL: 25463  
 S.C. INVENTORY NO. 08-0234

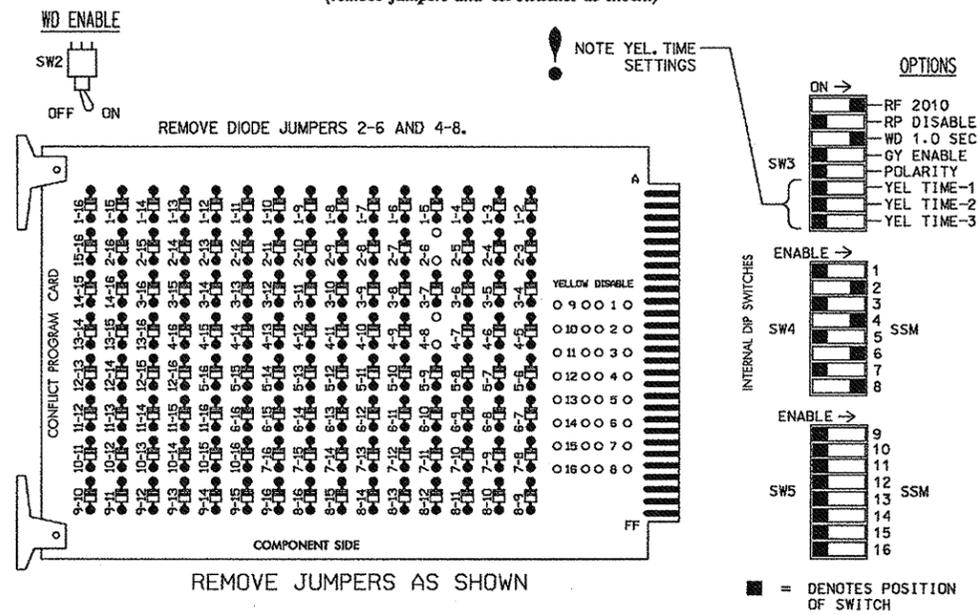
14-110-2007 10.10  
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 12/13/06





### EDI MODEL 2010ECL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



**NOTES:**

- CARD IS PROVIDED WITH ALL DIODE JUMPERS IN PLACE. REMOVAL OF ANY JUMPER ALLOWS ITS CHANNELS TO RUN CONCURRENTLY.
- MAKE SURE JUMPERS SEL1-SEL5 ARE PRESENT ON THE MONITOR BOARD.

### 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.
- ENSURE THAT RED ENABLE IS ACTIVE AT ALL TIMES DURING NORMAL OPERATION. TO PREVENT RED FAILURES ON UNUSED MONITOR CHANNELS, TIE UNUSED RED MONITOR INPUTS 1,3,5,7,9,10,11,12,13,14,15 & 16 TO LOAD SWITCH AC+ PER THE CABINET MANUFACTURER'S INSTRUCTIONS.
- PROGRAM PHASES 2 AND 6, ON CONTROLLER UNIT, FOR START-UP IN GREEN.
- ENABLE SIMULTANEOUS GAP-OUT FEATURE, ON CONTROLLER UNIT, FOR ALL PHASES.
- PROGRAM PHASES 4 AND 8, ON CONTROLLER UNIT, FOR DUAL ENTRY.
- SET ALL DETECTOR CARD CHANNELS TO 'PRESENCE' MODE.
- THE CABINET AND CONTROLLER ARE PART OF THE PINEHURST CLOSED LOOP SYSTEM. CONTROLLER ASSET # 0234. MASTER CONTROLLER ASSET # 10804.

### FIELD CONNECTION HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU
GREEN		130			103			136			109	
YELLOW		129			102			135			108	
RED		128			101			134			107	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

NU = NOT USED

### EQUIPMENT INFORMATION

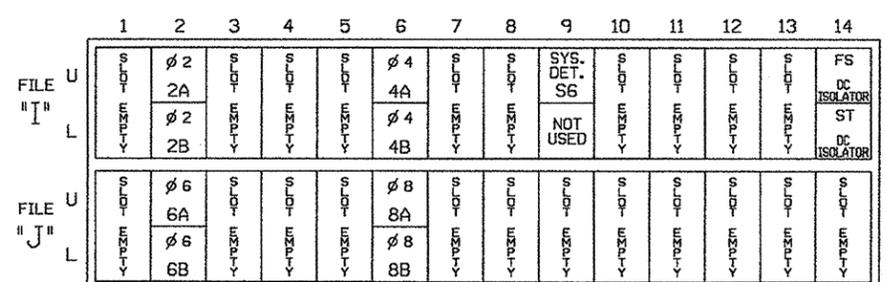
- \*CONTROLLER.....SAFETRAN MODEL 2070L
- \*CABINET .....SAFETRAN TYPE 332
- SOFTWARE .....ECONOLITE OASIS
- CABINET MOUNT.....BASE
- OUTPUT FILE POSITIONS...12
- LOAD SWITCHES USED.....S2,S4,S6,S8
- PHASES USED.....2,4,6,8
- OVERLAPS.....NONE

EXISTING TO REMAIN IN USE\*

--- MASTER CONTROLLER LOCATED IN THIS CABINET ---

### INPUT FILE POSITION LAYOUT

(front view)



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

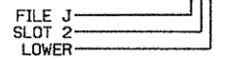
FS = FLASH SENSE  
ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB2-5,6	J2U	39	1	2	2	Y	Y			
2B	TB2-7,8	J2L	43	5	12	2	Y	Y			
4A	TB4-9,10	J6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	J6L	45	7	14	4	Y	Y			10
S6*	TB6-9,10	J9U	60	22	11	SYS					
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			10

\*SYSTEM DETECTOR ONLY. REMOVE THE VEHICLE PHASE ASSIGNED TO THIS DETECTOR IN THE DEFAULT PROGRAMMING.

### INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 08-0234  
DESIGNED: SEPTEMBER 2006  
SEALED: 10/3/06  
REVISED: N/A

ELECTRICAL AND PROGRAMMING DETAILS FOR:		NC 5 (BEULAH HILL RD) at NC 2 / MCKENZIE RD		SEAL	
Prepared in the Office of: 		DIVISION 8 PLAN DATE: OCTOBER 2006		MOORE COUNTY REVIEWED BY: <i>[Signature]</i>	
		PREPARED BY: F.E. RUSS		PINEHURST REVIEWED BY: <i>[Signature]</i>	
		REVISIONS		INT. DATE	
				SIGNATURE: <i>[Signature]</i> DATE: 10-16-06	