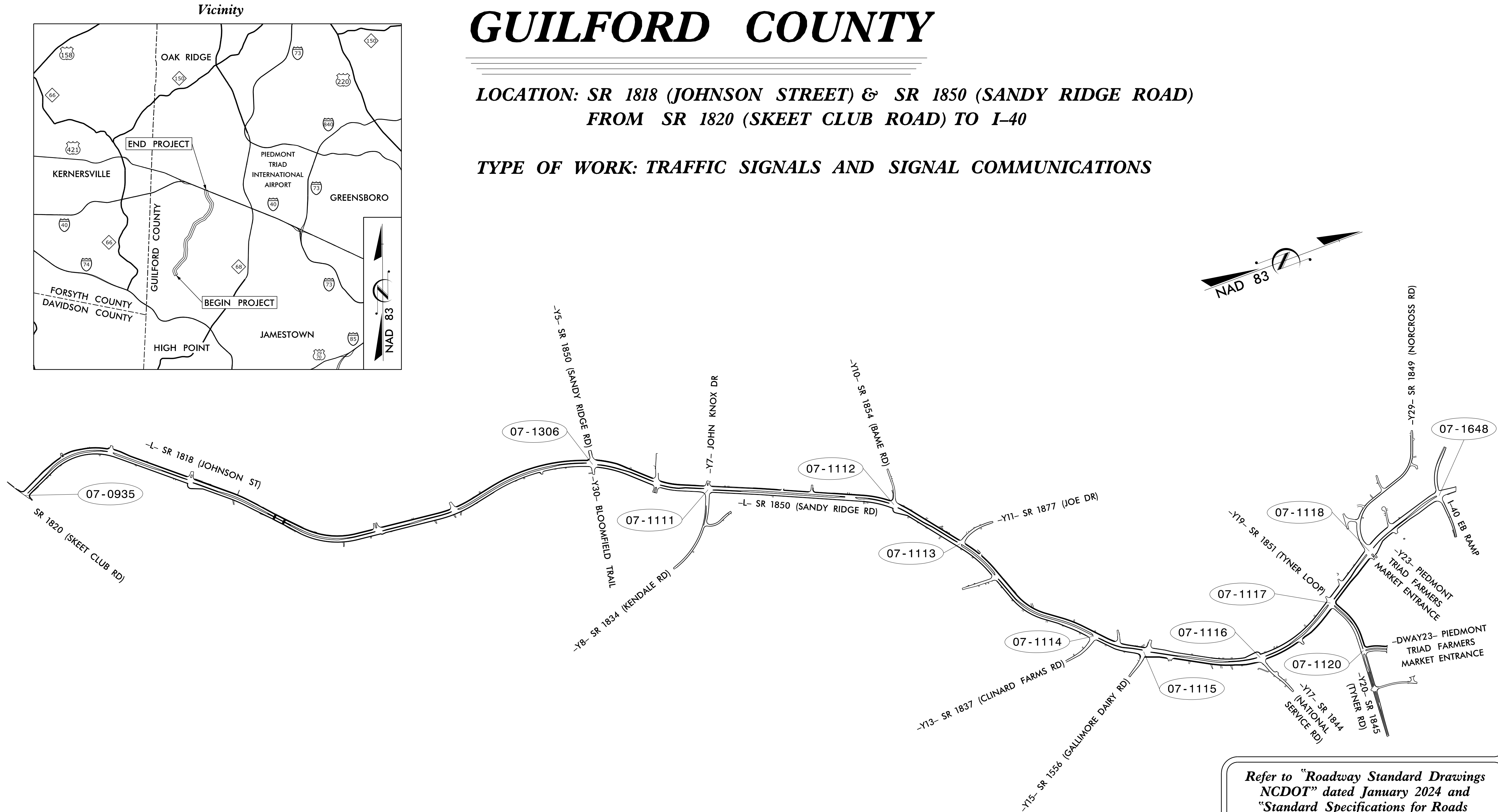


Contract: C204971

GUILFORD COUNTY

TYPE OF WORK: TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS

<i>Project No.</i>	<i>Sheet No.</i>
<i>U-4758</i>	<i>Sig. 1.0</i>



***Refer to "Roadway Standard Drawings
NCDOT" dated January 2024 and
"Standard Specifications for Roads
and Structures" dated January 2024.***

Index of Plans		
Sheet #	Reference #	Location/Description
Fig. 1.0	-----	Title Sheet
Fig. 2.0-7.5	07-0935	SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)
Fig. 8.0-11.4	07-1306	SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/Bloomfield Trail
Fig. 12.0-12.4	07-1111	SR 1850 (Sandy Ridge Road) at SR 1834 (Kendale Road)/John Knox Drive
Fig. 13.0-13.4	07-1112	SR 1850 (Sandy Ridge Road) at SR 1854 (Bame Road)
Fig. 14.0-14.4	07-1113	SR 1850 (Sandy Ridge Road) at SR 1877 (Joe Drive)
Fig. 15.0-15.4	07-1114	SR 1850 (Sandy Ridge Road) at SR 1837 (Clinard Farms Road)
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Fig. 20.0-20.4	07-1116	SR 1850 (Sandy Ridge Road) at SR 1844 (National Service Road)
Fig. 21.0-21.2	07-1117	SR 1850 (Sandy Ridge Road) at SR 1845 (Tyner Road)/SR 1851 (Tyner Loop)
Fig. 22.0-22.3	07-1118	SR 1850 (Sandy Ridge Road) at SR 1849 (Norcross Road)/Piedmont Triad Farmers Market
Fig. 23.0-27.3	07-1648	SR 1850 (Sandy Ridge Road) at I-40 EB Ramps
Fig. 28.0-28.2	07-1120	SR 1845 (Tyner Road) at Piedmont Triad Farmers Market
Fig. M1A-M9	-----	Standard Metal Pole Details
SCP 1-28	-----	Signal Communication Plans

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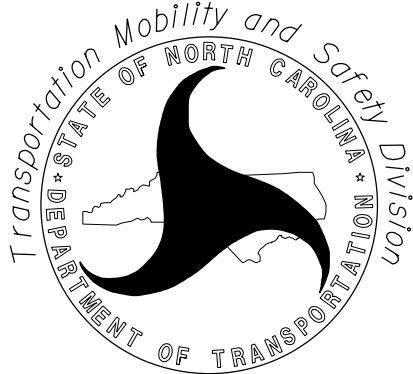
Anthony M. Encarnacion, PE
Senior Traffic Engineer
James T. Stiff, PE
Traffic Engineer

A circular professional engineer seal for the state of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "ANTHONY M. ENCARNACION" at the bottom. Inside this ring, the word "PROFESSIONAL" is at the top and "ENGINEER" is at the bottom. In the center of the seal, the word "SEAL" is positioned above the license number "044476".

DocuSigned by:
Anthony Encarnacion 3/14/2025
085C637F823040F
SIGNATURE DATE

***Robert J. Ziemba, PE –
Central Region Signals Engineer
Ryan W. Hough, PE –
Signal Equipment Project Engineer
Gregory A. Green –
Signal Communications Project Engineer***

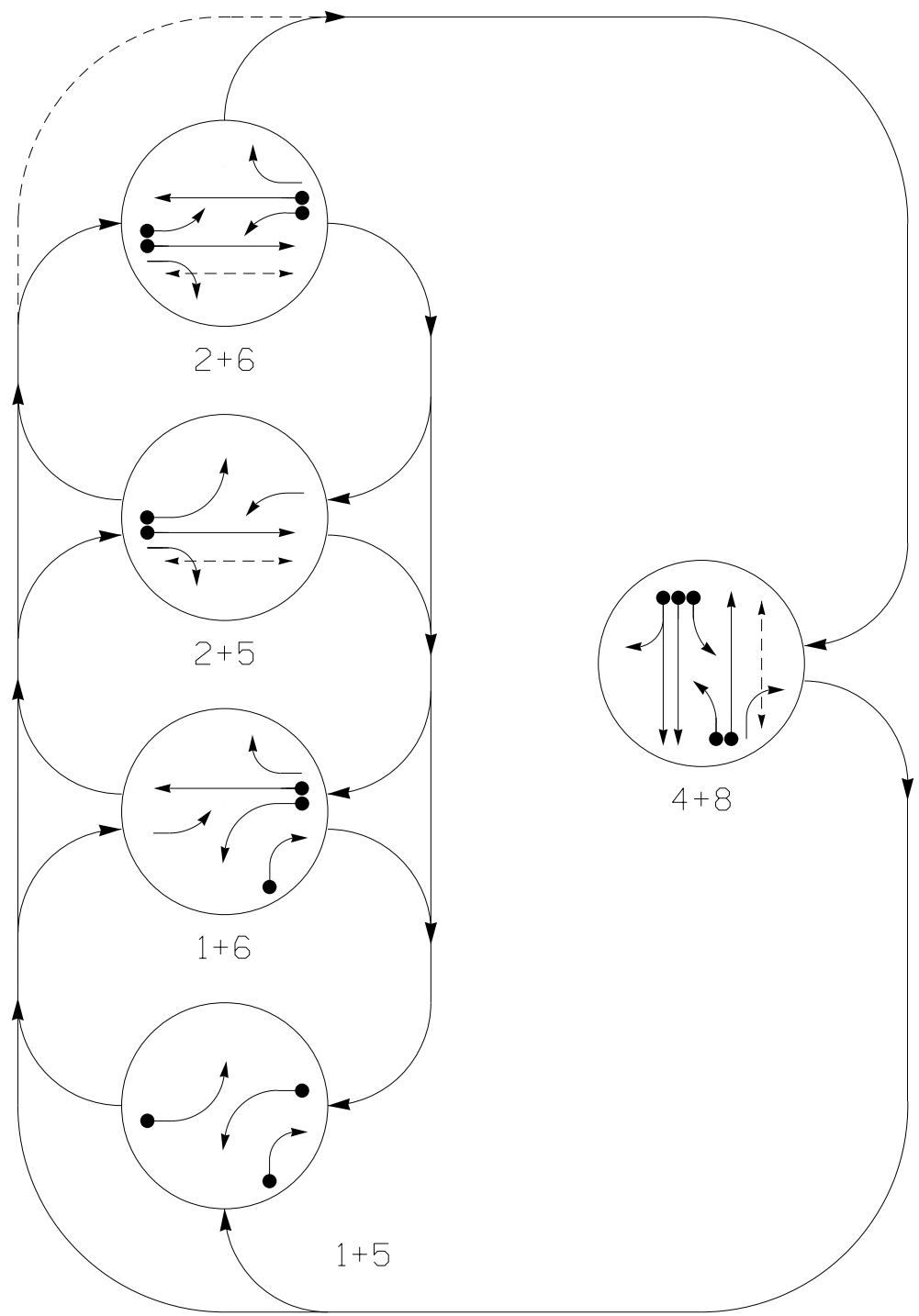
Prepared for the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY & SAFETY DIVISION



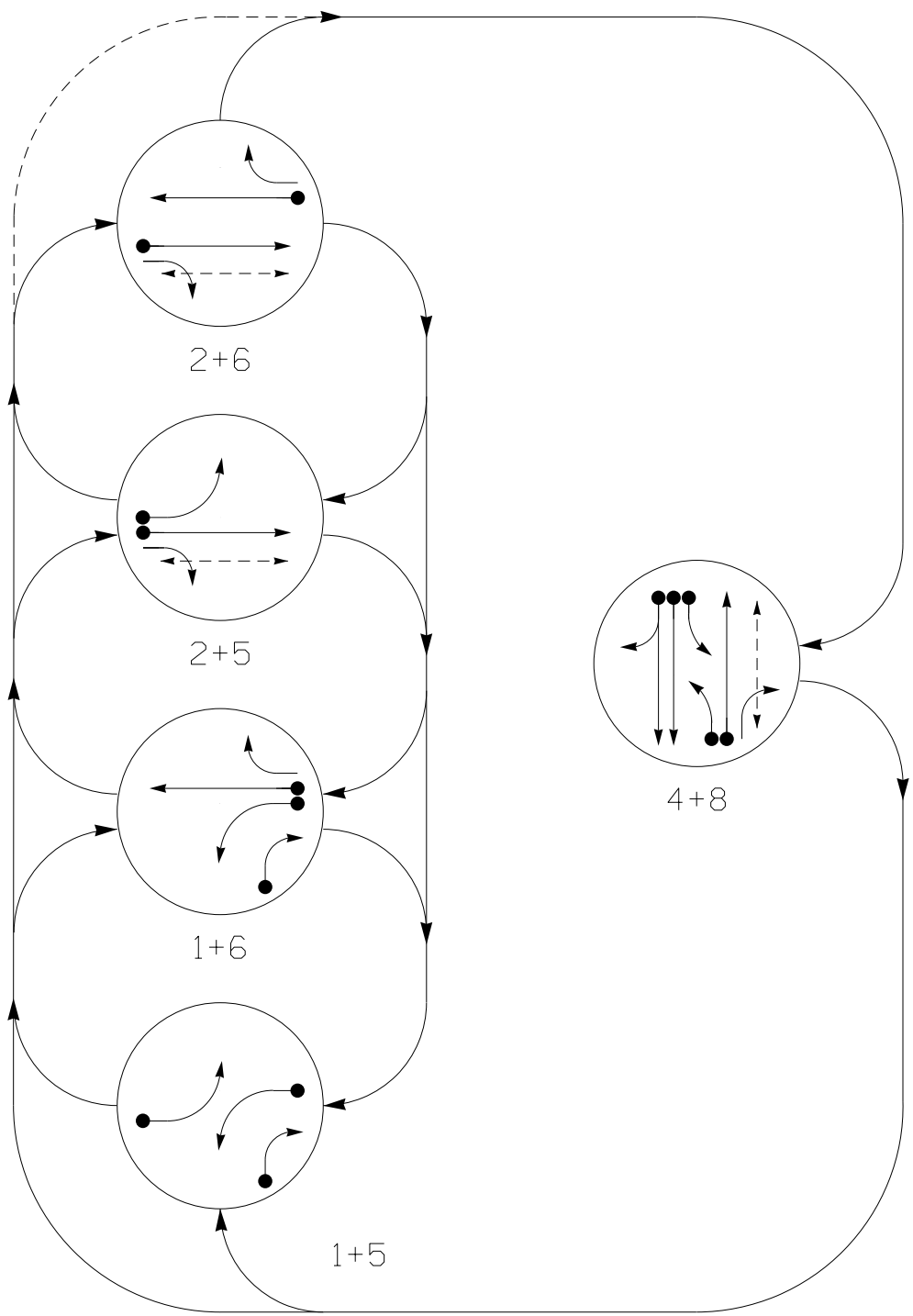
750 N. Greenfield Parkway, Garner, NC 27529

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END5366 AT LUS21624

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	4 + 9
11	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
81	←	←	←	←	←	←
82, 84	R	R	R	R	G	R
83	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK
P81, P82	DW	DW	DW	DW	W	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	4 + 9
11	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
81	←	←	←	←	←	←
82, 84	R	R	R	R	G	R
83	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK
P81, P82	DW	DW	DW	DW	W	DRK

ASC/3 DETECTOR INSTALLATION CHART												
DETECTION					PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW ZONE	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM ZONE	NEW CARD
1A*	6X40	0	*	*	1	Yes	-	15.0**	-	N	-	*
1B*	6X40	0	*	*	6#	Yes	-	3.0	-	G	-	*
2A*	6X6	300	*	*	2	Yes	-	-	X	N	-	*
4A*	6X40	0	*	*	4	Yes	-	3.0	-	N	-	*
4B*	6X40	0	*	*	4	Yes	-	-	-	N	-	*
4C*	6X40	0	*	*	4	Yes	-	10.0	-	N	-	*
5A*	6X40	0	*	*	5	Yes	-	15.0**	-	N	-	*
6A*	6X6	300	*	*	2#	Yes	-	3.0	-	G	-	*
8A*	6X40	0	*	*	8	Yes	-	3.0	-	N	-	*
8B*	6X40	0	*	*	8	Yes	-	-	-	N	-	*

*Non-Intrusive Detection Zone

**Reduce delay to 3 seconds during alternate phasing operation

#Disable phase call for loop(s) during alternate phasing operation

5 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 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.
- The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
- This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
- Relocate existing Street Name Signs onto new spanwire from existing spanwire.
- Disconnect and bag pedestrian signal head and pushbutton for P41 and P62.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

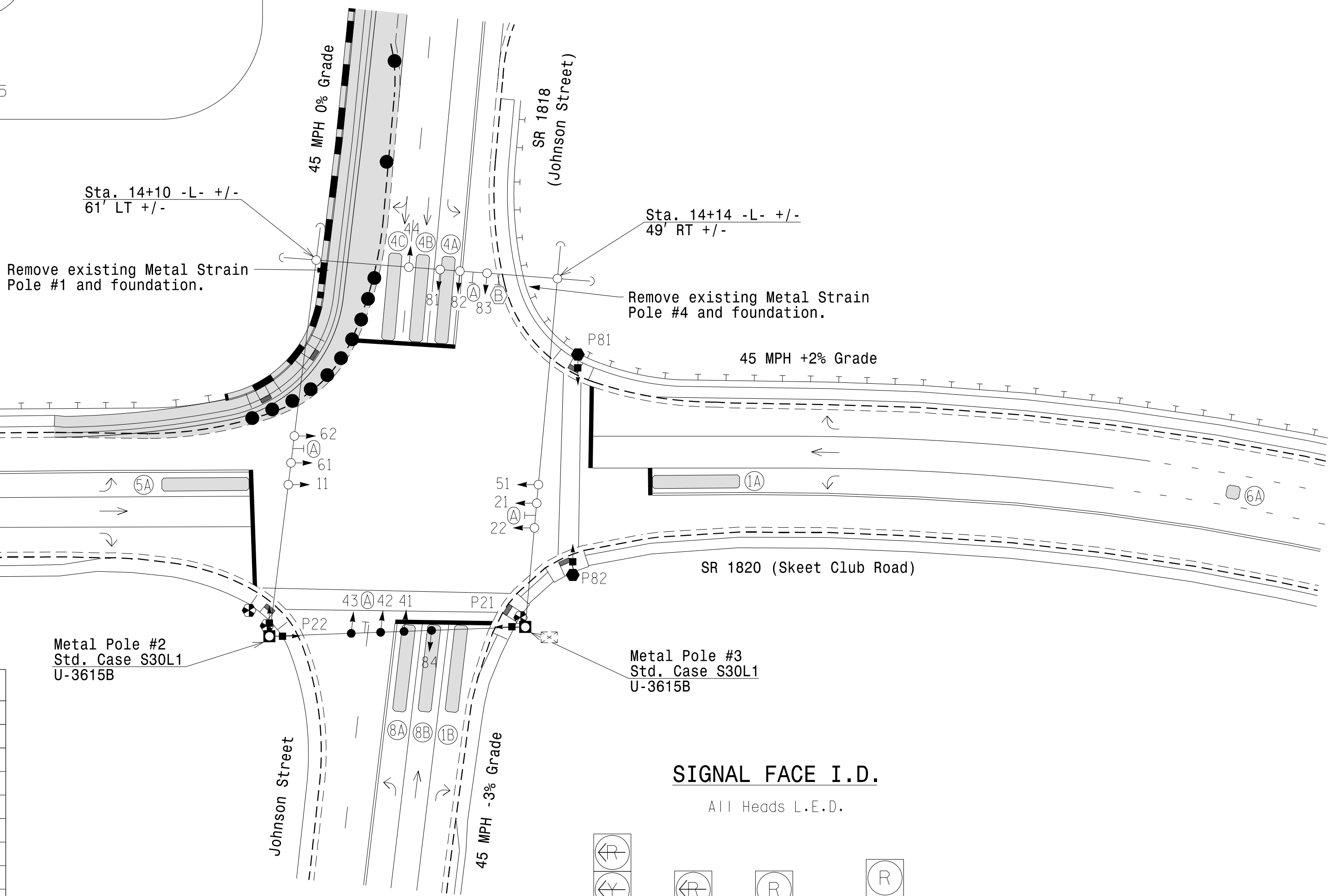
LEGEND

PROPOSED	EXISTING

ASC/3 TIMING CHART						
FEATURE	PHASE					
	1	2	4	5	6	8
Min Green *	7	12	7	7	12	7
Delayed Green	-	7	-	-	-	7
Walk *	-	14	-	-	-	14
Ped Clear	-	28	-	-	-	20
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	20	75	40	20	75	40
Yellow	3.0	4.7	4.8	3.0	4.7	4.8
Red Clear	3.7	2.4	1.8	3.3	2.4	1.8
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	2.5	-	-	2.5	-
Max Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Locking Detector	-	X	-	-	X	-
Recall Position **	-	SOFT RECALL	-	-	SOFT RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

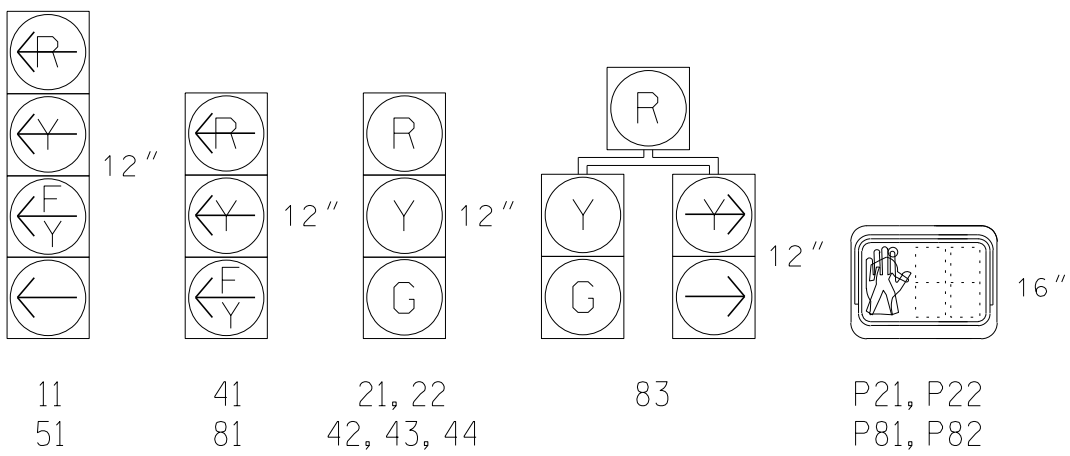
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



SIGNAL FACE I.D.

All Heads L.E.D.



Signal Upgrade - Temporary Design 1 (TMP Phase I)

Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529		SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Division 7		Guilford County		High Point	
PLAN DATE: August 2025		REVIEWED BY: AM Encarnacion		SEAL 056276	
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		ENGINEER JAMES T. STIFF	
REVISIONS		INIT.		DATE	
0		40		8/14/2025	
1"=40'		1"=40'		DATE	
SIGNED BY: James Stiff		SIGNED BY: PL Alexander		SIGNED BY: JAMES T. STIFF	
SIC. INVENTORY NO.		07-0935T1		07-0935T1	

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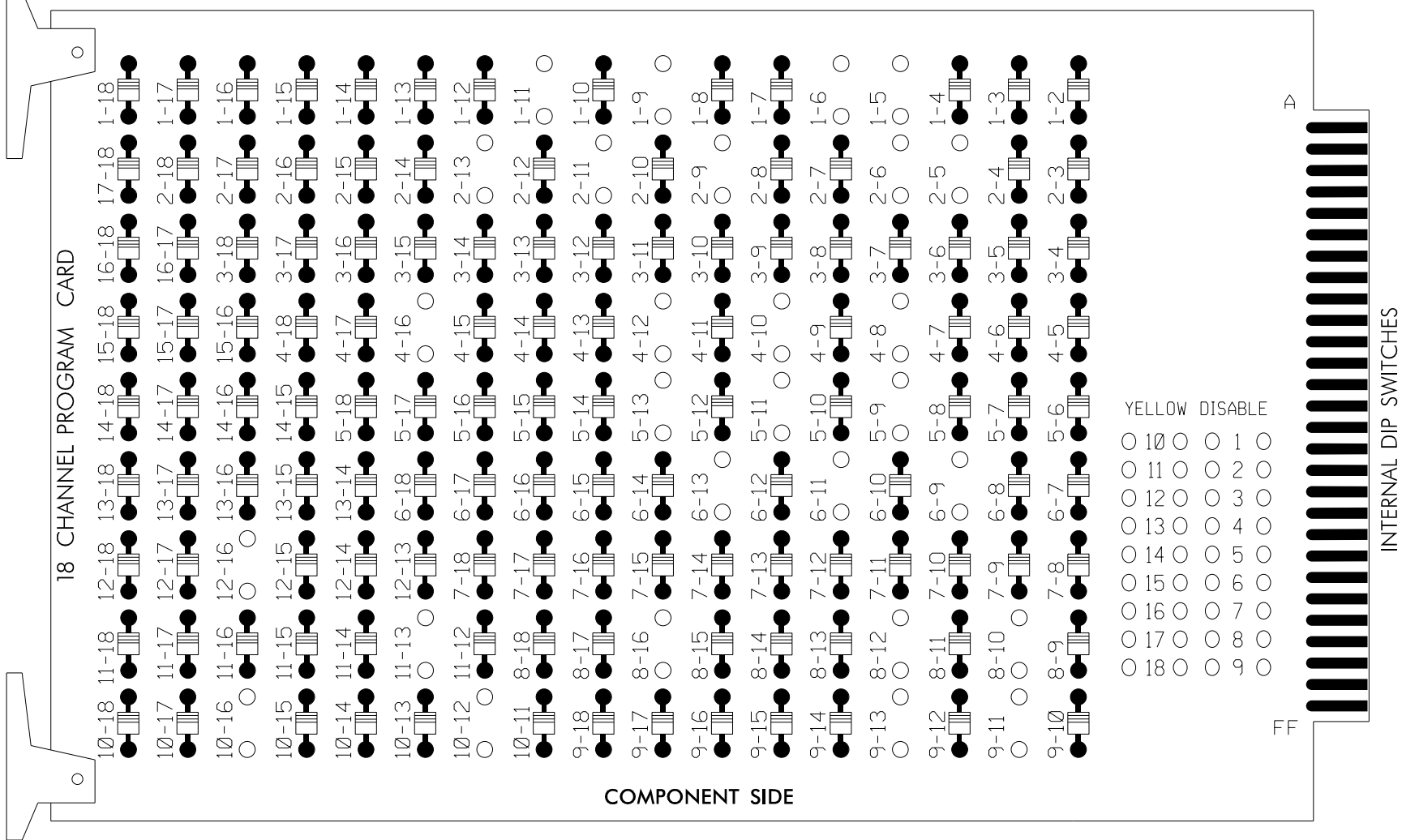
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ENC4586 AT LUS21624

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 2-13, 4-8, 4-10, 4-12, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 8-10, 8-12, 8-16, 9-11, 9-13, 10-12, 10-16, 11-13 and 12-16.



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 vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the High Point Signal System.

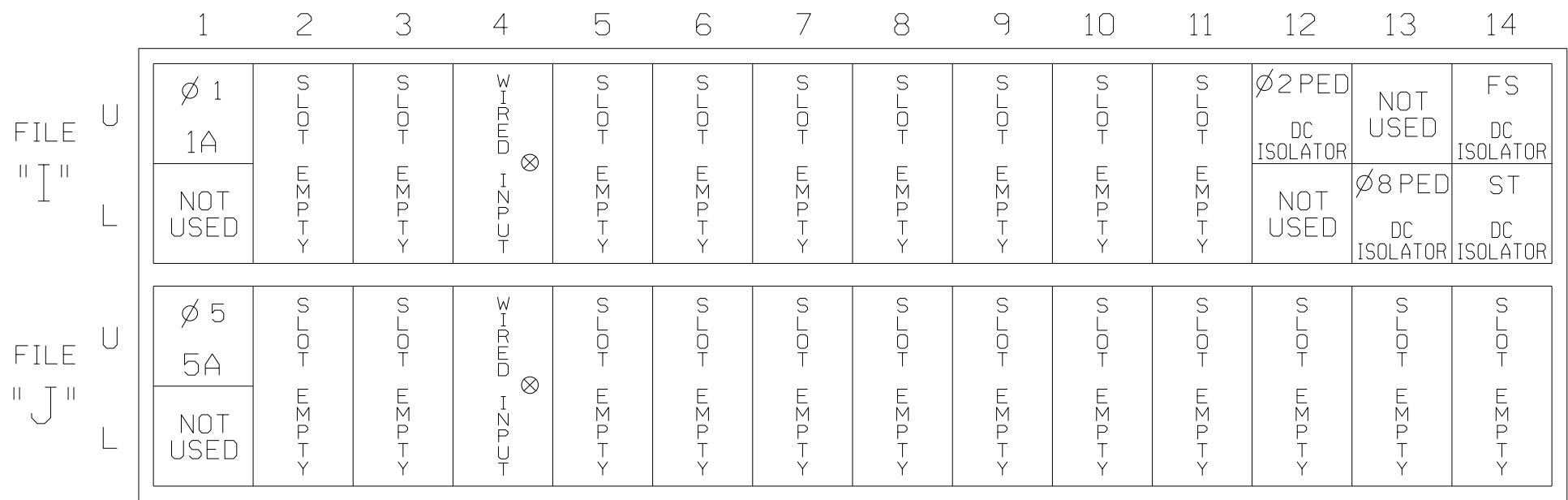
EQUIPMENT INFORMATION

CONTROLLER.....2070LX
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,S5,S7,S8,S11,S12,
AUX S1,AUX S2,AUX S4,AUX S5
PHASES USED.....1,2,2 PED,4,5,6,8,8 PED
OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*

* See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME

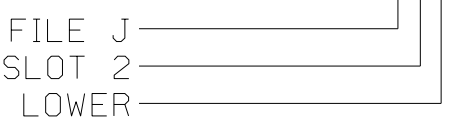
Wired Input - Do not populate slot with detector card

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 ¹	TB2-1,2	I1U	56	1 ★	1	YES		15.0		N
	-	J4U	48	26 ★	6	YES		3.0		G
5A ²	TB3-1,2	J1U	55	5 ★	5	YES		15.0		N
	-	I4U	47	22 ★	2	YES		3.0		G
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

- ¹Add jumper from I1-W to J4-W, on rear of input file.
- ²Add jumper from J1-W to I4-W, on rear of input file.
- ★For the detectors to work as shown on the signal design plan. See the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



SPECIAL DETECTOR NOTE

- Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- For detection areas 1A and 5A detector card placement and slots reserved for wired inputs are typical for a NCDOT installation. Inputs associated with these slots are compatible with time of day instructions located on sheets 2 and 3 of this electrical detail.

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 ★	83	21,22	P21, P22	NU	42, 43,44	NU	51 ★	61,62	NU	NU	82, 83,84	P81, P82	11 ★	81 ★	NU	51 ★	41 ★
RED		*	128			101			134			107						
YELLOW			129			102		*	135			108						
GREEN			130			103			136			109						
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW		126											A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127	127						133										
Hand icon				113									110					
Walking person icon				115									112					

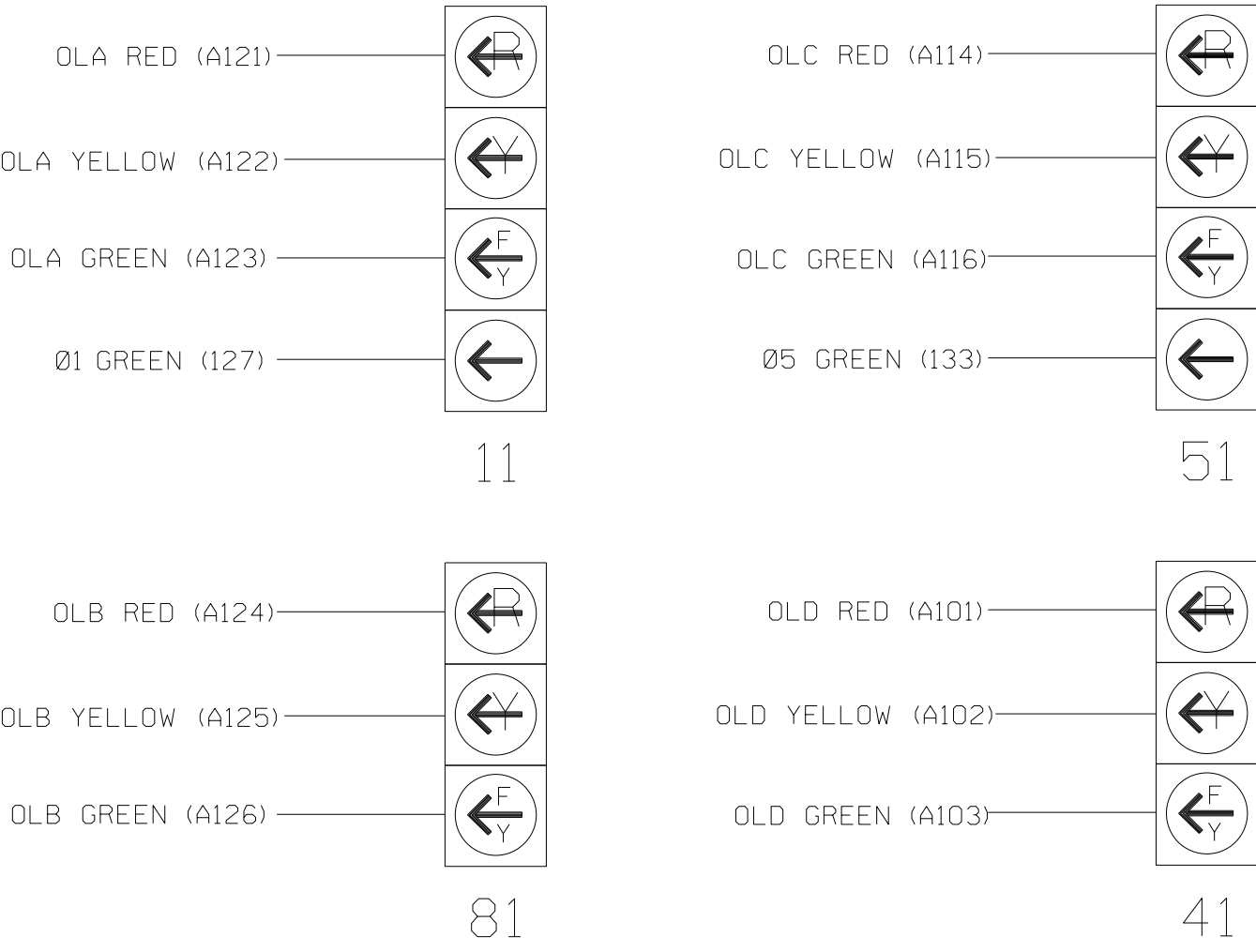
NU = Not Used

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

★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0935T1
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4
Temporary Design 1

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:		Division 7		Seal of the State of North Carolina	
PLAN DATE: August 2025		REVIEWED BY: AM Encarnacion		Seal of the State of North Carolina	
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		Seal of the State of North Carolina	
REVISIONS		INIT.		DATE	
750 N.Greenfield Pkwy,Garner,NC 27529		Anthony Encarnacion		8/14/2025	
		DATE		DATE	
		SIC. INVENTORY NO.		07-0935T1	

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(919) 876-6888 NCBEES #F-0326

(program controller as shown)

- OVERLAP A

```

TMG VEH OVLPL...[A] TYPE: .....PPLT FYA
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..... 1

```

← NOTICE ACTION
PLAN SF BIT "1"

Toggle Once

OVERLAP 5

TMG	VEH	OVL P... [B]		TYPE:	OTHER/ECONOLITE																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6						
INCLUDED	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.						
PROTECT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
PED PR TC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
NOT O VLP	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
FLSH GRN	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.						
LAG X PH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
LAG 2 PH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
LAG GRN	0.0	YEL	0.0	RED	0.0	ADV	GRN	0.0														

Toggle Once

OVERLAP C

```

TMG VEH DVLP...[C] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 5
OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 5

```

← NOTICE ACTION
PLAN SE BIT "5"

Toggle Once

OVERLAP C

```

TMO VEH OVLP...[D] TYPE:OTHER/ECONOLITE
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . . . X . . . . .
PROTECT . . . . . . . . . . .
PED PRTC . . . . . . . . . . .
NOT OVLP . . . . . . . . . . .
FLSH GRN . . . . . 1 . . . . .
LAG X PH . . . . . . . . . . .
LAG 2 PH . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

```

END PROGRAMMING

LOOPS 1A AND 5A

(program controller as shown)

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select **8. UTILITIES**
2. From UTILITIES Submenu select **1. COPY/CLEAR**
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

```

COPY / CLEAR UTILITY          FROM          TO
PHASE TIMING.... . > PHASE TIMING.... .
TIMING PLAN..... . > TIMING PLAN..... .
PH DET OPT PLAN. . > PH DET OPT PLAN. .
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
    TOGGLE TO SELECT A "FROM" AND A "TO"
          THEN PRESS ENTER

```

4. From Main Menu select **6. DETECTORS**
5. From DETECTOR Submenu select **2. VEHICLE DETECTOR SETUP**
6. Place cursor in VEH DET PLAN [] position and enter "2".

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

```

VEH DETECTOR [ 1 ]      VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... N
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
      1 1      . . . . .
CALL OPTION.... YES DELAY TIME... 3.
EXT OPTION. PASSAGE EXTENSION TIME. 0.
USE ADDED INITIAL . CROSS SWITCH PH..
LOCK IN..... NONE NTCIP VOL . OR OCC
PMT QUEUE DELAY- NO

```

← NOTICE VEH
DET PLAN 2

← ENSURE DELAY
IS SET TO '3'

- Place cursor in VEH DETECTOR [] position and enter "26".
- Set assigned phase to "0".

```
VEH DETECTOR [26]    VEH DET PLAN [ 2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... N
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
      26 0          . . . . .
EXTEND TIME... 0.0 DELAY TIME... 3.
USE ADDED INITIAL . CROSS SWITCH PH..
LOCK IN..... NONE NTCIP VOL . OR OCC
PMT QUEUE DELAY. NO
```

← NOTICE VEH
DET PLAN 2

ENSURE PHASE
IS SET TO "0" →

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".

```

VEH DETECTOR [ 5 ]      VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... N
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
5      . . . . .
CALL OPTION.... YES DELAY TIME... 3.
EXT OPTION. PASSAGE EXTENSION TIME. 0.
USE ADDED INITIAL . CROSS SWITCH PH..
LOCK IN..... NONE NTCIP VOL . OR OCC
PMT QUEUE DELAY- NO

```

NOTICE VEH
DET PLAN 2

← ENSURE DELAY
IS SET TO '3'

- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".

```

VEH DETECTOR [22]   VEH DET PLAN [ 2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... N
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
22 0      . . . . .
EXTEND TIME... 0.0 DELAY TIME... 3.
USE ADDED INITIAL . CROSS SWITCH PH..
LOCK IN..... NONE NTCIP VOL . OR OCC
PMT QUEUE DELAY. NO

```

NOTICE VEH
DET PLAN 2

ENSURE PHASE
IS SET TO "0" →

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T1
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4
Temporary Design 1

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBES #F-0326

**ELECTRICAL AND PROGRAMMING
DETAILS FOR:**

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

[illegible]

Seal of the Professional Engineer, North Carolina. The seal is circular with a double-lined border. The outer ring contains the text "NORTH CAROLINA" at the top and "ANTHONY M. ENCARNACION" at the bottom. The inner circle contains the text "PROFESSIONAL" at the top, "SEAL" in the center, "044476" below the seal, and "ENGINEER" at the bottom.

DocuSigned by:
Anthony Encarnacion
 749D0A0D-5543-40A0-9A7E-749D0A0D-5543-40A0-9A7E

8/14/2025
 DATE

SIG. INVENTORY NO. 07-0935

14-AUG-2025 15:24
DW:///S:\00036343\work\Tins.com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_USSR S1g and ITS/Task 05_11_Signals/070935T1_sm.ele_20250314.dgn
ENC45366 AT L05421624

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 3 seconds.

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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

```
ACTION PLAN...[ *]  
PATTERN.....AUTO    SYS OVERRIDE.... NO  
TIMING PLAN..... 0    SEQUENCE..... 0  
VEH DETECTOR PLAN.. 2    DET LOG.....NONE  
FLASH.....      --    RED REST..... NO  
VEH DET DIAG PLN... 0    PED DET DIAG PLN..0  
DIMMING ENABLE..  NO    PRIORITY RETURN. NO  
PED PR RETURN..  NO    QUEUE DELAY..... NO  
PMT COND DELAY  NO  
  PHASE  1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6  
PED RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
WALK 2    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
VEX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
VEH RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
MAX RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
MAX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
  PHASE  1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6  
MAX 3     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
CS INH    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
OMIT      .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
SPC FCT   X  .  .  .  X  .  .  .  (1-8)  
AUX FCT   .  .  .  (1-3)  
          1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  
LP 1-15   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
LP 16-30  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
LP 31-45  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
LP 46-60  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
LP 61-75  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
LP 76-90  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  
LP 91-100 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
```

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T1
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Temporary Design 1

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1820 (Skeet Club Road)
at
SR 1818 (Johnson Street)

Division 7 Guilford County High Point

PLAN DATE: August 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
044476
ANTHONY M. ENCARNACION

DocuSigned by:
Anthony Encarnacion
8/14/2025

SIG. INVENTORY NO. 07-0935T1

(program controller as shown)

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

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		
THEN	SIG SET OLP RED	1			ON	
	SIG SET OLP YELLOW	1			OFF	
	SIG SET OVLP GREEN	1			OFF	
ELSE						

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

[illegible]

END PROGRAMMING

(program controller as shown)

1. From Main Menu select **2. CONTROLLER**
2. From CONTROLLER Submenu select **5. START/FLASH**

```

START/FLASH DATA
-----START UP-----
          1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASE      G          G
          A B C D E F G H I J K L M N O P
OVERLAP    X X X X X X X X X X X X X X X
FLASH>MON. NO FL TIME.. 0 ALL RED... 6
PWR START SEQ.. 1 MUTCD> YES   Y- G: NO

```

Scroll down on this screen and set "Exit Fl" to Green "G"

*The NCDOT default database is programmed to address Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

```

LP##:100 COPY FROM:100 ACTIVE: M FALSE
IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS
LP SET CIB ON 427

ELSE

```

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING



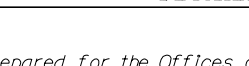
1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

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

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.

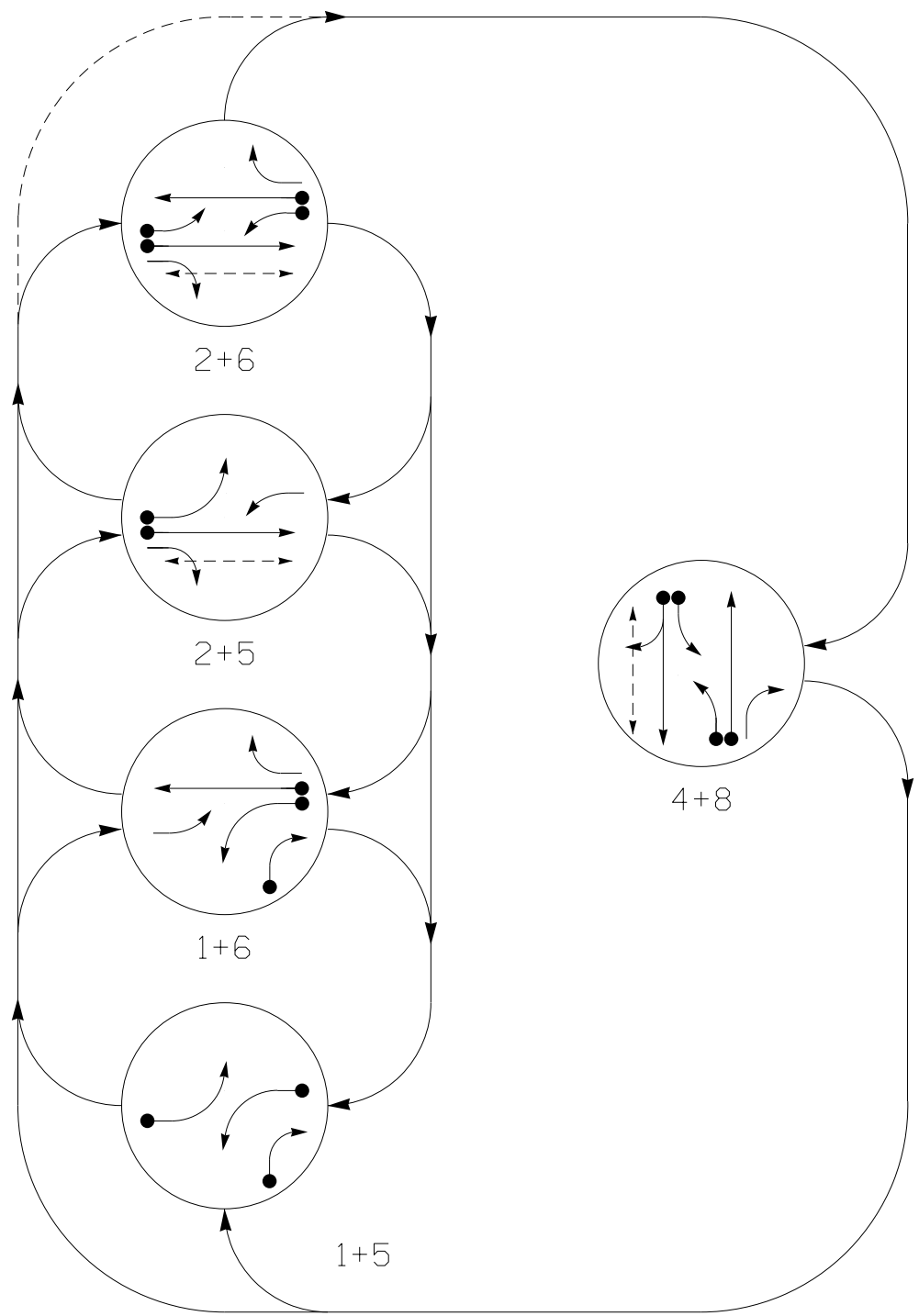
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T1
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 4 of 4
Temporary Design 1

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: 	SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)	SEAL  SEAL 044476 ENGINEER ANTHONY M. ENCARNACION
	Division 7 Guilford County High Point	
	PLAN DATE: August 2025	REVIEWED BY: AM Encarnacion
	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander
	REVISIONS	INIT.
		DATE
750 N.Greenfield Pkwy,Garner,NC 27529	Drawn by: <u>Anthony Encarnacion</u> 8/14/2025 /N/A/DIA/SEA/SIGD,T L/E DATE	
	SIG. INVENTORY NO. 07-0935T1	

14-AUG-2025 15:24
DW:///S:\00036343\work\trns-com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_JSR S1g and ITS\Task 05_11_Signals/07093572.sig.dgn, 20250314.dgn
END5366 AT LUS21624

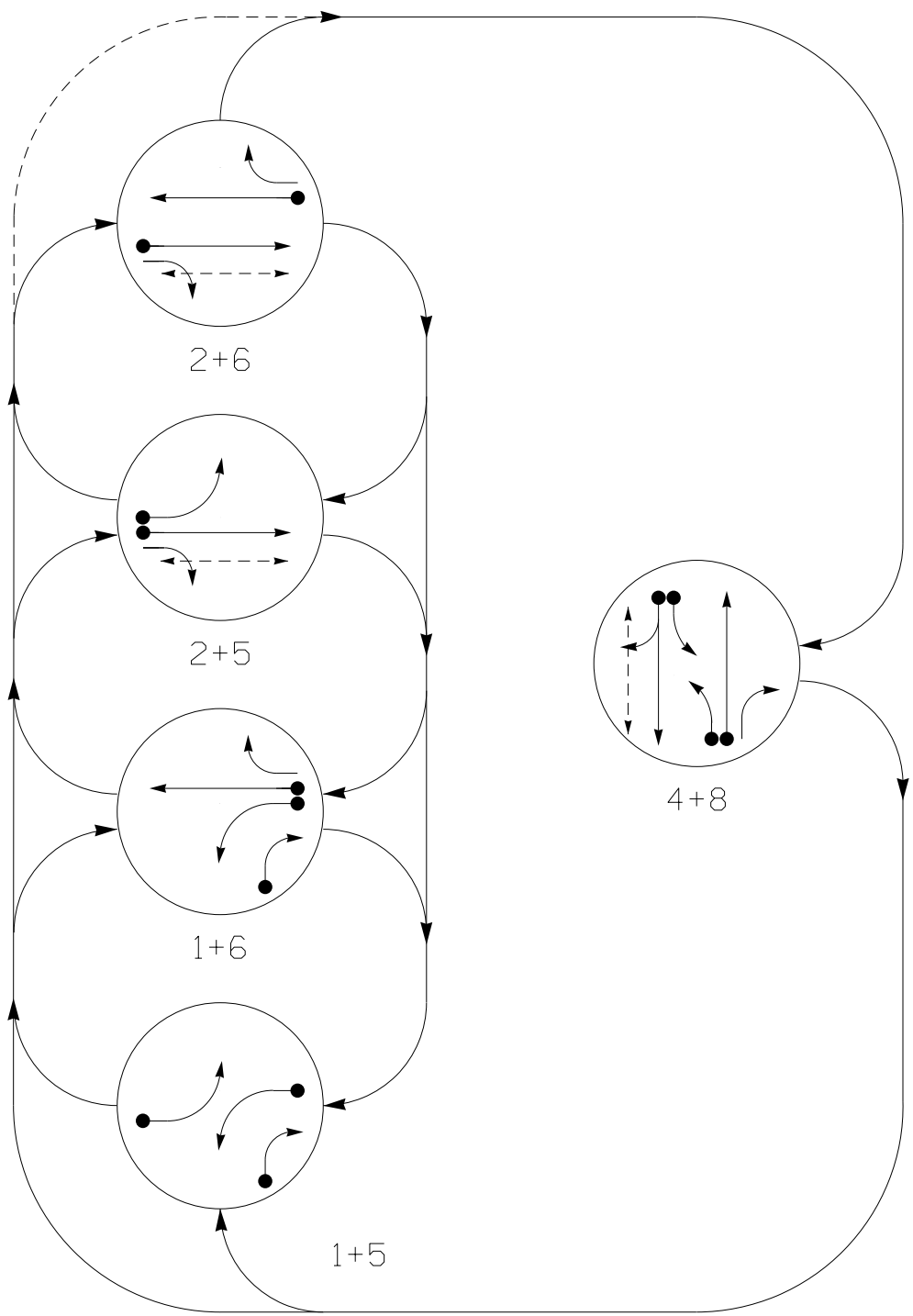
DEFAULT PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

ALTERNATE PHASING DIAGRAM



DEFAULT PHASING
TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	F L O O D
11	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
81	←	←	←	←	←	←
82, 84	R	R	R	R	G	R
83	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK
P41, P42	DW	DW	DW	DW	W	DRK

ALTERNATE PHASING
TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	F L O O D
11	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
81	←	←	←	←	←	←
82, 84	R	R	R	R	G	R
83	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK
P41, P42	DW	DW	DW	DW	W	DRK

ASC/3 DETECTOR INSTALLATION CHART												
DETECTION					PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW ZONE	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM ZONE	NEW CARD
1A*	6X40	0	*	*	1	Yes	-	15.0**	-	N	-	*
1B*	6X40	0	*	*	6#	Yes	-	3.0	-	G	-	*
2A*	6X6	300	*	*	2	Yes	-	-	X	N	-	*
4A*	6X40	0	*	*	4	Yes	-	3.0	-	N	-	*
4B*	6X40	0	*	*	4	Yes	-	10.0	-	N	-	*
5A*	6X40	0	*	*	5	Yes	-	15.0**	-	N	-	*
6A*	6X6	300	*	*	2#	Yes	-	3.0	-	G	-	*
8A*	6X40	0	*	*	8	Yes	-	3.0	-	N	-	*
8B*	6X40	0	*	*	8	Yes	-	-	-	N	-	*

* Non-Intrusive Detection Zone

** Reduce delay to 3 seconds during alternate phasing operation

Disable phase call for loop(s) during alternate phasing operation

5 Phase
Fully Actuated
(High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Reposition existing signal heads numbered 41, 42, 43, 44, 81, 82, 83 and 84.
- 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.
- The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
- This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
- Disconnect and bag pedestrian signal head for P82.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

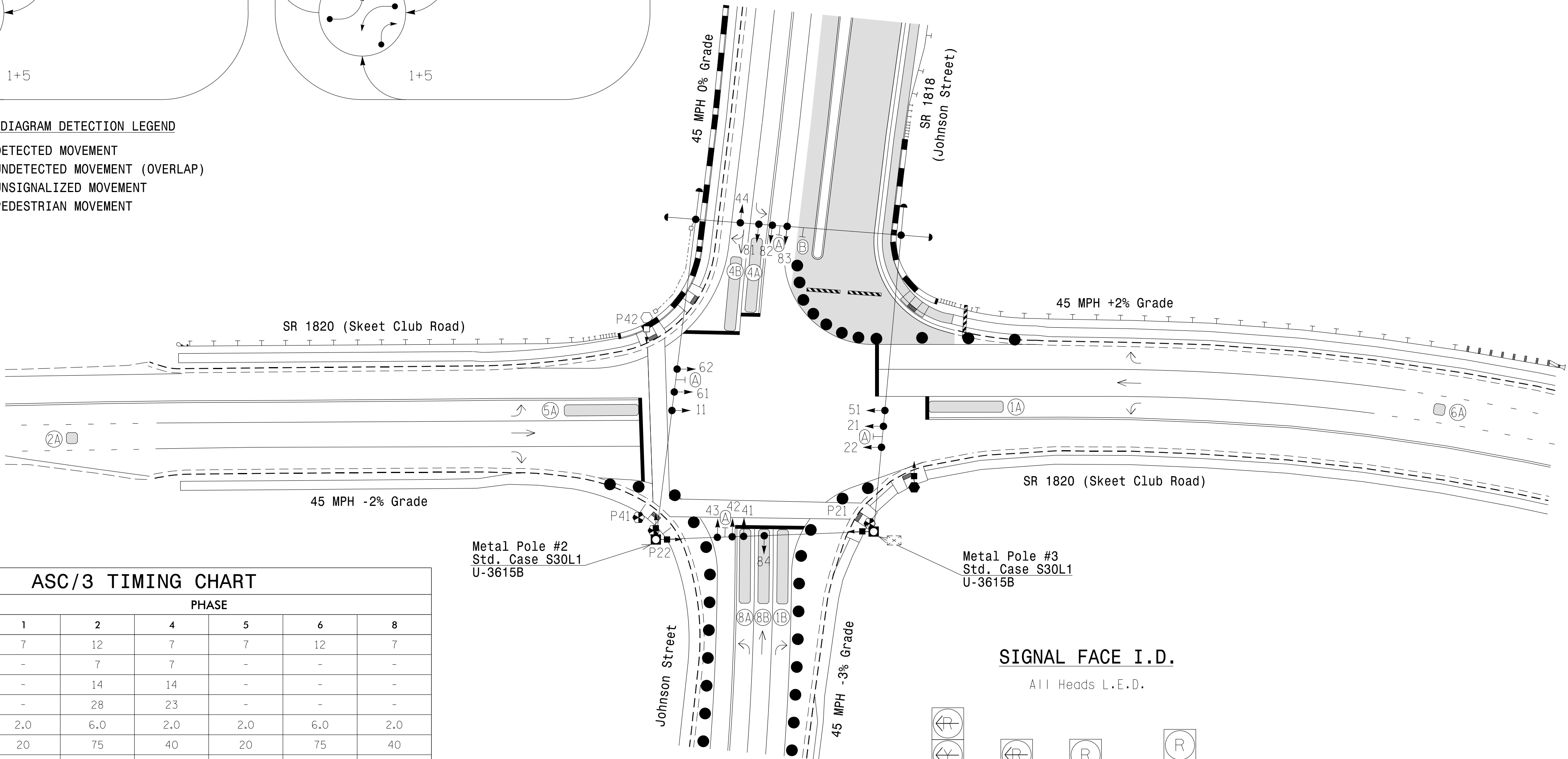
LEGEND

PROPOSED	EXISTING

ASC/3 TIMING CHART						
FEATURE	PHASE					
	1	2	4	5	6	8
Min Green *	7	12	7	7	12	7
Delayed Green	-	7	7	-	-	-
Walk *	-	14	14	-	-	-
Ped Clear	-	28	23	-	-	-
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	20	75	40	20	75	40
Yellow	3.0	4.7	4.8	3.0	4.7	4.8
Red Clear	3.6	2.3	1.6	2.6	2.3	1.6
Actuations B4 Add *	-	-	-	-	-	-
Seconds / Actuation *	-	2.5	-	-	2.5	-
Max Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Locking Detector	-	X	-	-	X	-
Recall Position **	-	SOFT RECALL	-	-	SOFT RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

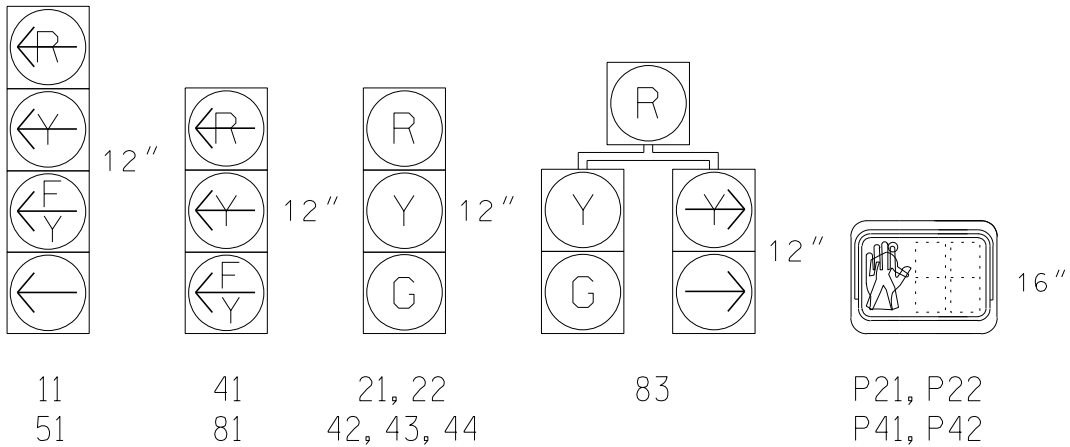
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



SIGNAL FACE I.D.

All Heads L.E.D.



Signal Upgrade - Temporary Design 2
(TMP Phase II)

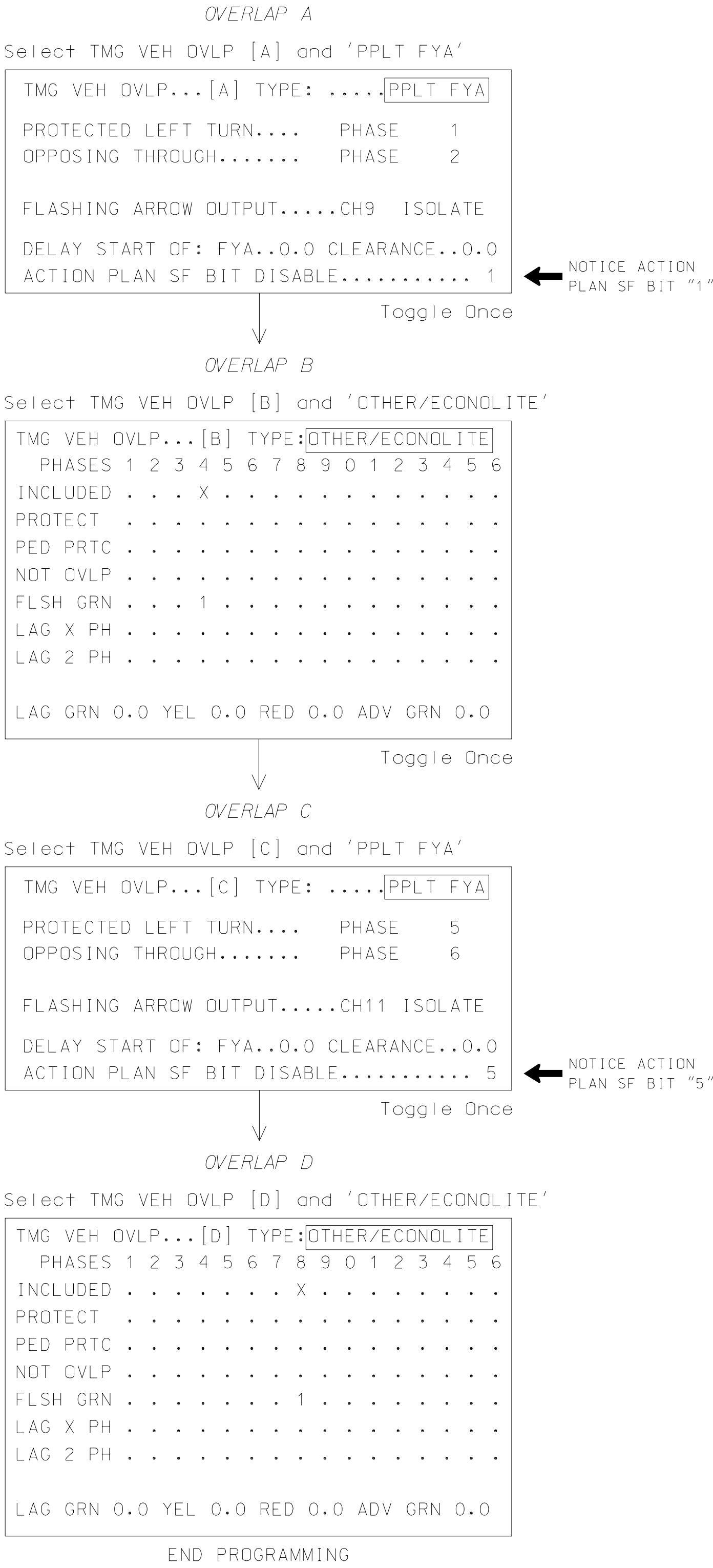
Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529		SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Division 7		Guilford County		High Point	
PLAN DATE: August 2025		REVIEWED BY: AM Encarnacion		SEAL 056276 ENGINEER JAMES T. STIFF	
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		Signed by: James Stiff DATE: 8/14/2025	
REVISIONS		INIT.		DATE	
0 40 1"=40'		SIC. INVENTORY NO. 07-093572			

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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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



ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

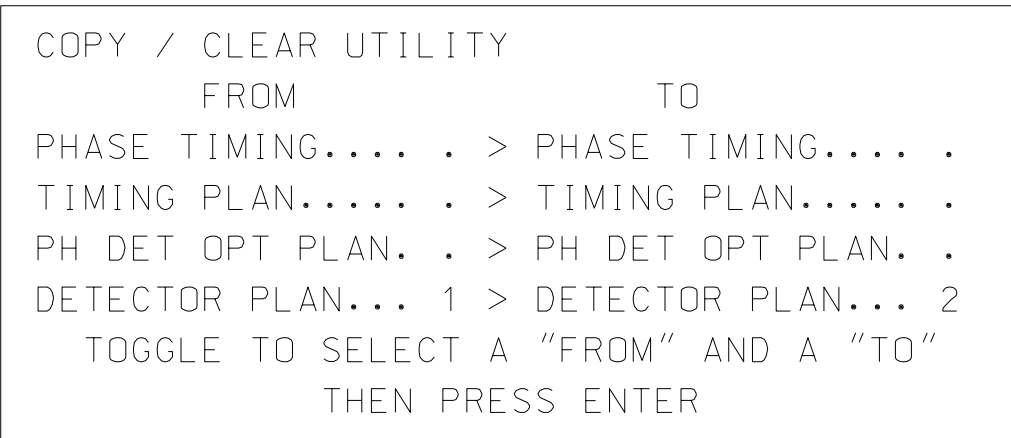
LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

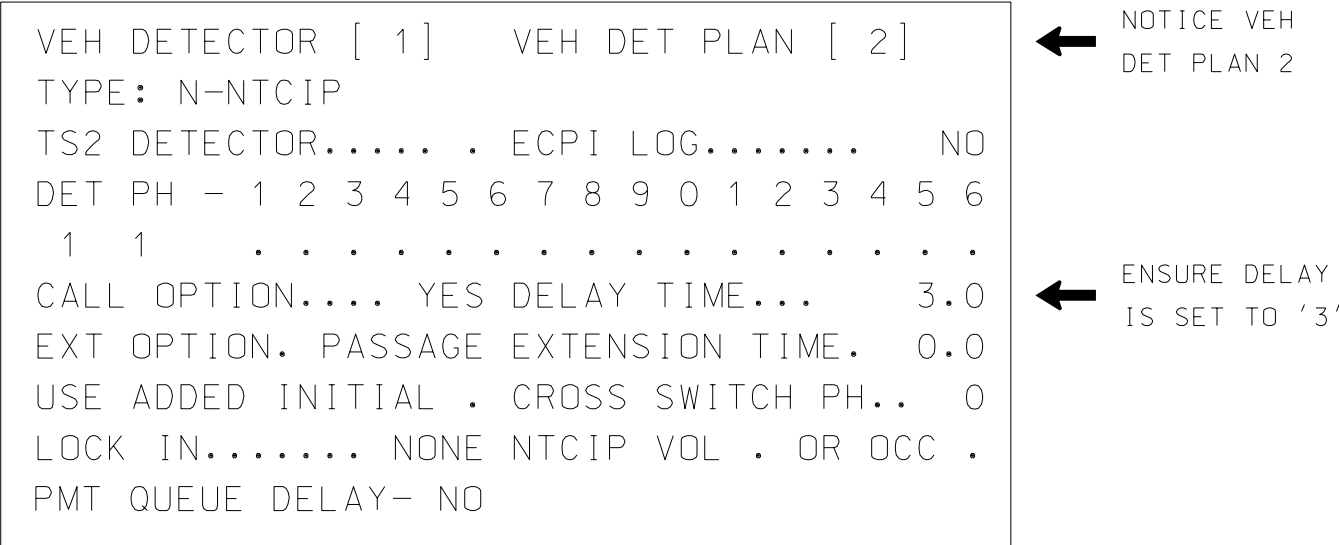
Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

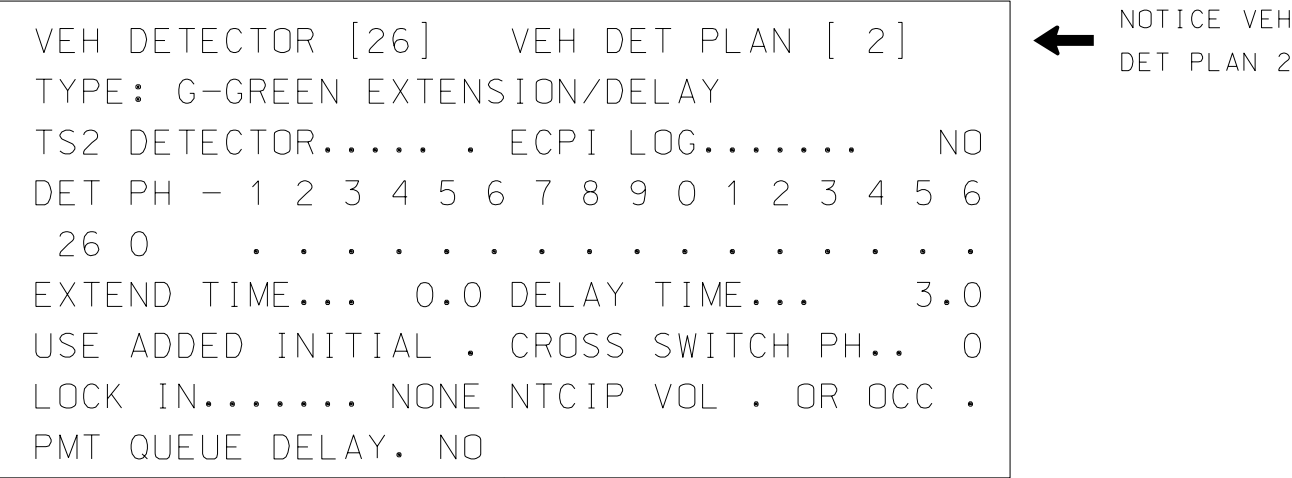


4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [] position and enter "2".

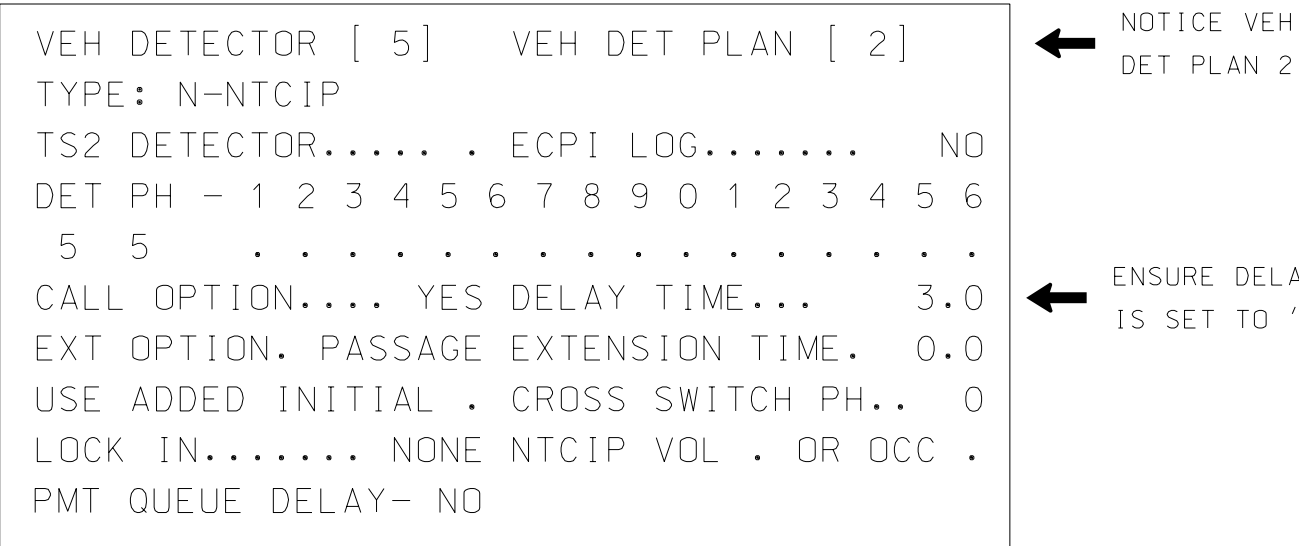
- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".



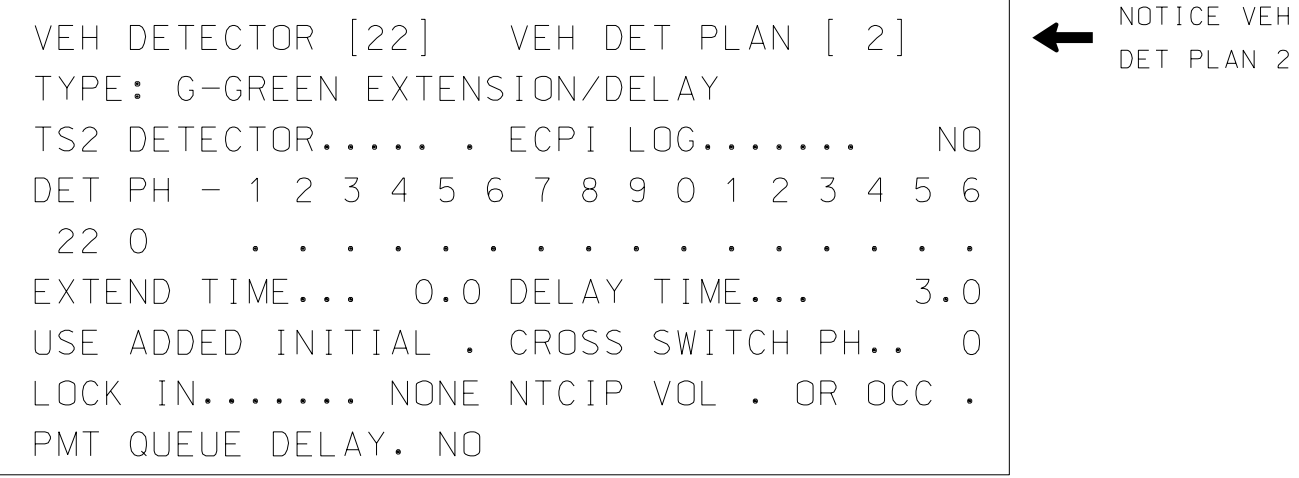
- Place cursor in VEH DETECTOR [] position and enter "26".
- Set assigned phase to "0".



- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".



- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".



END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T2
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4
Temporary Design 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:		Division 7		Guilford County	
High Point		PLAN DATE: August 2025		REVIEWED BY: AM Encarnacion	
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		DATE	
REVISIONS		INIT.		DATE	
750 N.Greenfield Pkwy,Garner,NC 27529		Seal of the State of North Carolina Department of Transportation Signal Management Section		Seal of the State of North Carolina Professional Engineer Anthony M. Encarnacion 044476	
1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326		Division 7		High Point	
14-AUG-2025 15:24 DW//SUD0036343-works-ins-com:ATKMANC01/Documents/Roads and Bridges/Projects/100059632_JSSR S1g and ITS/Task 05.11_Signals/070935T2_sme.le_20250314.dgn ENC45366 AT LUS21624		Seal of the State of North Carolina Professional Engineer Anthony M. Encarnacion 044476		Seal of the State of North Carolina Professional Engineer Anthony M. Encarnacion 044476	
1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326		Division 7		High Point	
14-AUG-2025 15:24 DW//SUD0036343-works-ins-com:ATKMANC01/Documents/Roads and Bridges/Projects/100059632_JSSR S1g and ITS/Task 05.11_Signals/070935T2_sme.le_20250314.dgn ENC45366 AT LUS21624		Seal of the State of North Carolina Professional Engineer Anthony M. Encarnacion 044476		Seal of the State of North Carolina Professional Engineer Anthony M. Encarnacion 044476	

14-AUG-2025 15:25
DW:///S:\00036343\work\Tins.com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_USSR S1g and ITS/Task 05_11_Signals/070935T2_sml.ele_20250314.dgn
ENC45366 AT L05421624

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 3 seconds.

**AtkinsRéal**
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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																		
PATTERN.....	AUTO			SYS OVERRIDE.... NO														
TIMING PLAN.....	0			SEQUENCE..... 0														
VEH DETECTOR PLAN..	2			DET LOG.....NONE														
FLASH.....	--			RED REST..... NO														
VEH DET DIAG PLN...	0			PED DET DIAG PLN..0														
DIMMING ENABLE..	NO			PRIORITY RETURN. NO														
PED PR RETURN..	NO			QUEUE DELAY..... NO														
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	X	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T2
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Temporary Design 2

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1820 (Skeet Club Road)
at
SR 1818 (Johnson Street)

Division 7 Guilford County High Point

PLAN DATE: August 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS

INIT. DATE

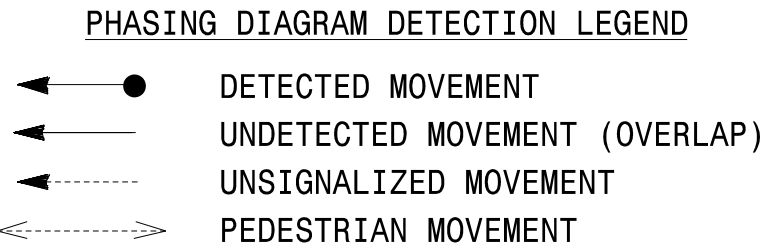
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
044476
ANTHONY M. ENCARNACION

DocuSigned by:
Anthony Encarnacion
8/14/2025

SIG. INVENTORY NO. 07-0935T2

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Reposition existing signal heads numbered 41, 42, 43, 44, 81, 82 and 84.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
9. This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



ALTERNATE PHASING TABLE OF OPERATION						
SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	F L A S H
11	←	←	→	→	→	→
21, 22	R	R	G	G	R	R
41	→	→	→	→	F	→
42, 43, 44	R	R	R	R	G	R
51	←	→	←	→	→	→
61, 62	R	G	R	G	R	R
81	→	→	→	→	F	→
82, 83, 84	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK
P41, P42	DW	DW	DW	DW	W	DRK
P61, P62	DW	W	DW	W	DW	DRK
P81, P82	DW	DW	DW	DW	W	DRK

```
* Non-Intrusive Detection Zone
** Reduce delay to 3 seconds during alternate phasing operation
# Disable phase call for loop(s) during alternate phasing operation
```



* 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.

** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Non-Intrusive Detection Zone	N/A
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
N/A	Guardrail	
N/A	Concrete Barrier	
N/A	Construction Zone	
N/A	Construction Zone Drums	
N/A	Type III Barrier	
	Metal Strain Pole	
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Curb Ramp	
	Street Name Sign (D3-1) By Others	

Signal Upgrade - Temporary Design 3
(TMP Phase III)

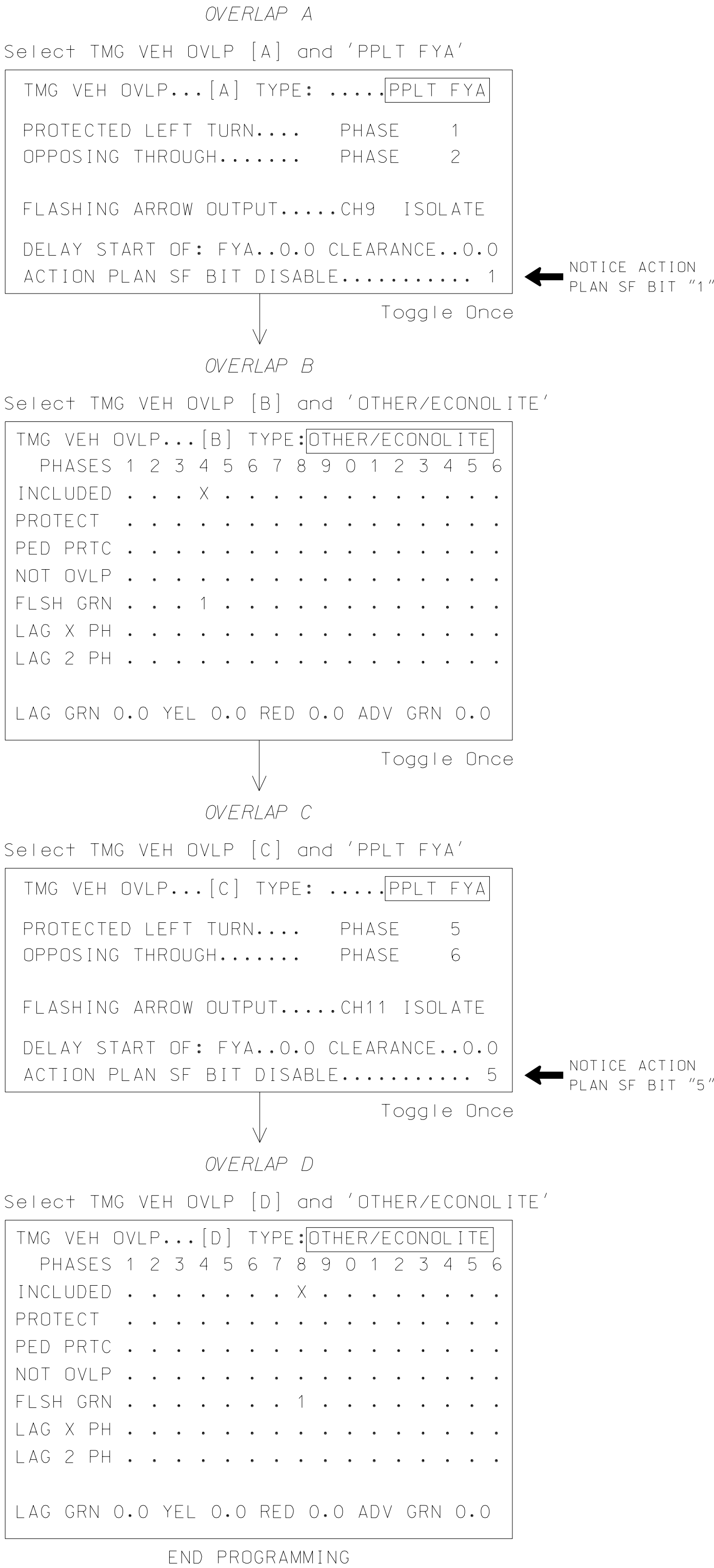
AtkinsRéalis
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:  Transportation Mobility and Safety Division DEPARTMENT OF TRANSPORTATION Signal Design Section	SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)	
Division 7 Guilford County High Point		
PLAN DATE: August 2025		REVIEWED BY: AM Encarnacion
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander
REVISIONS INIT. DATE		

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



ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

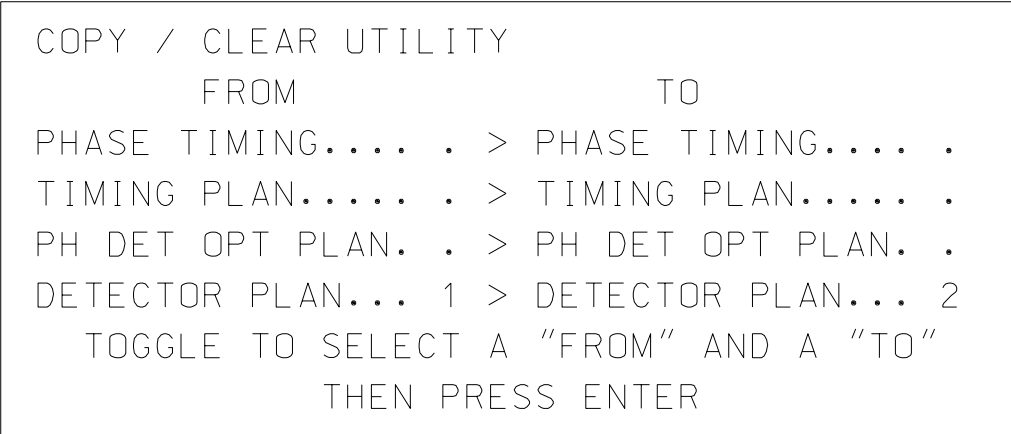
LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

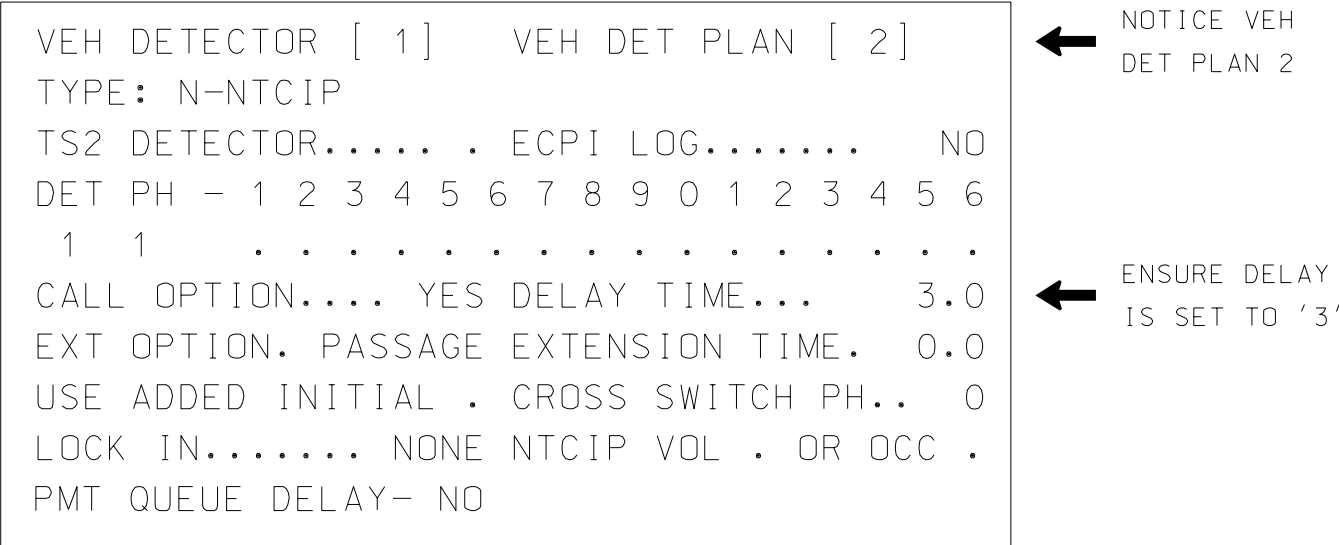
Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

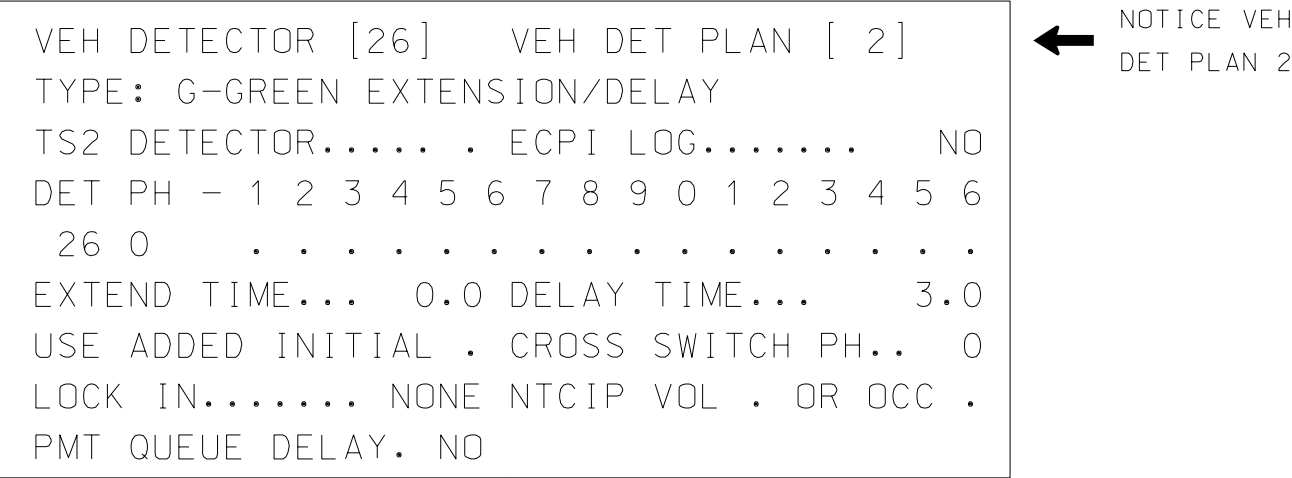


4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [] position and enter "2".

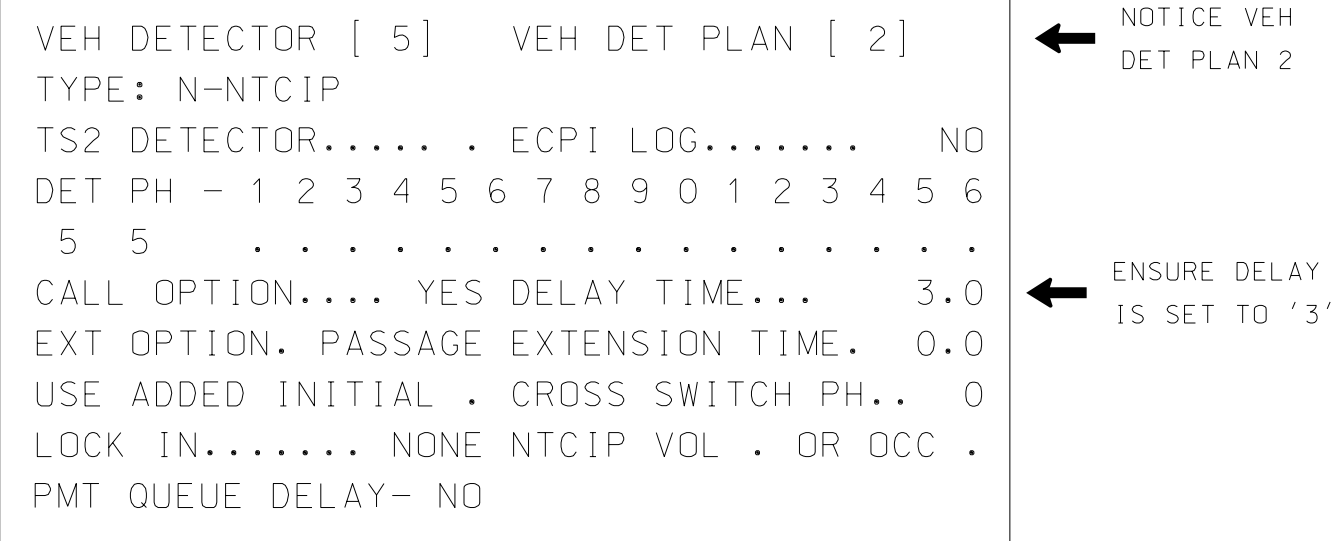
- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".



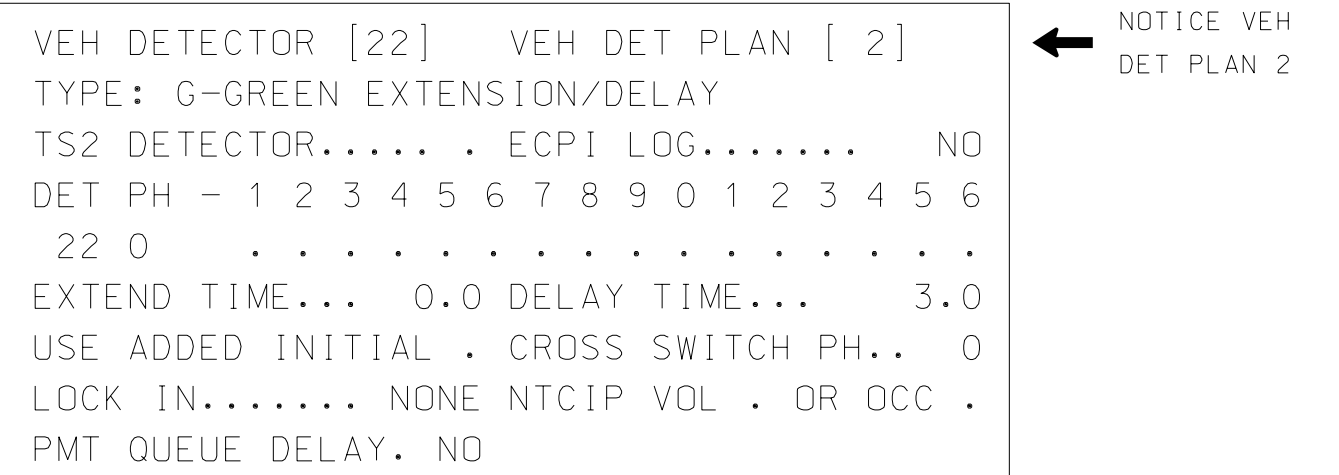
- Place cursor in VEH DETECTOR [] position and enter "26".
- Set assigned phase to "0".



- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".



- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".



END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T3
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4
Temporary Design 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:		Division 7		Guilford County	
High Point		PLAN DATE: August 2025		REVIEWED BY: AM Encarnacion	
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		DATE	
REVISIONS		INIT.		DATE	
750 N.Greenfield Pkwy,Garner,NC 27529		Seal of the State of North Carolina Department of Transportation Division of Signal Management		Seal of the State of North Carolina Professional Engineer Anthony M. Encarnacion 044476	
1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326		Division 7		High Point	
14-AUG-2025 15:25 DW//SUD0036343-works-ins-com-atkmanco1/Documents/Roads and Bridges/Projects/100059632_JSSR S1g and ITS/Task 05.11_Signals/070935T3_sml.e-20250314.dgn ENC45366 AT LUS21624		1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326		1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326	

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ENC45366 AT L05421624

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 3 seconds.

**AtkinsRéal**
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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																		
PATTERN.....	AUTO				SYS OVERRIDE.... NO													
TIMING PLAN.....	0				SEQUENCE..... 0													
VEH DETECTOR PLAN..	2				DET LOG.....NONE													
FLASH.....	--				RED REST..... NO													
VEH DET DIAG PLN...	0				PED DET DIAG PLN..0													
DIMMING ENABLE..	NO				PRIORITY RETURN. NO													
PED PR RETURN..	NO				QUEUE DELAY..... NO													
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	X	.	.	.	X	.	.	.	(1-8)								.	.
AUX FCT	.	.	.	(1-3)													.	.
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T3
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Temporary Design 3

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1820 (Skeet Club Road)
at
SR 1818 (Johnson Street)

Division 7 Guilford County High Point

PLAN DATE: August 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
044476
ANTHONY M. ENCARNACION

DocuSigned by:
Anthony Encarnacion
8/14/2025

SIG. INVENTORY NO. 07-0935T3

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ENC5386 AT LUS21624

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 and 51 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	
THEN	SIG SET OLP RED		1		ON	
	SIG SET OLP YELLOW		1		OFF	
	SIG SET OVLP GREEN		1		OFF	
ELSE						

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

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#:	2	COPY FROM:	2	ACTIVE:	M	(T/F)
IF	PED ON PH WALK		6	IS	ON	
AND	VEH GREEN ON PH		6	IS	OFF	
THEN	SIG SET OLP RED		3		ON	
	SIG SET OLP YELLOW		3		OFF	
	SIG SET OVLP GREEN		3		OFF	
ELSE						

HOLD SIGNAL HEAD 51 FYA
RED DURING THE PHASE 6
DELAYED GREEN TIME
(LEADING PED INTERVAL)

ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA																	
-----START UP-----																	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	
PHASE	G					G											
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
OVERLAP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
FLASH>MON.	NO FL TIME..									0	ALL RED...				6		
PWR START SEQ..	1	MUTCD>				YES				Y-	G:				NO		

Scroll down on this screen and set "Exit Fl" to Green "G"

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 1-2 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	E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

END PROGRAMMING

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to address Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:	100	COPY FROM:	100	ACTIVE:	M	FALSE
IF	LP CIB CODE ON				331	F
THEN LP	DELAY FOR			1.0 SECONDS		
	LP SET CIB ON			427		
ELSE						

THIS STATEMENT IS USED TO CONTROL THE FLASH SENSE INPUT WHEN RUNNING RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING



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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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.

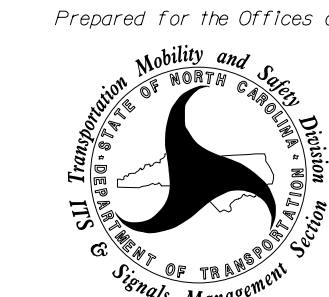
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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.

Electrical Detail - Sheet 4 of 4
Temporary Design 3

Electrical and Programming Details For:

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

SR 1820 (Skeet Club Road)
at
SR 1818 (Johnson Street)

Division 7 Guilford County High Point

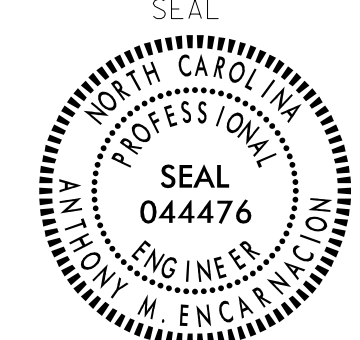
PLAN DATE: August 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL



SEAL 044476

DocuSigned by: Anthony Encarnacion 8/14/2025

DATE

SIG. INVENTORY NO. 07-0935T3

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Reposition existing signal heads numbered 41, 42, 44, 81, 82, 83 and 84.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
9. This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PROGRAMMING



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

ASC/3 DETECTOR INSTALLATION CHART											
DETECTION					PROGRAMMING						
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM ZONE NEW CARD
1A*	6X40	0	*	*	1	Yes	-	15.0**	-	N	- *
					6#	Yes	-	3.0	-	G	- *
2A*	6X6	300	*	*	2	Yes	-	-	X	N	- *
4A*	6X40	0	*	*	4	Yes	-	-	-	N	- *
4B*	6X40	0	*	*	4	Yes	-	-	-	N	- *
5A*	6X40	0	*	*	5	Yes	-	15.0**	-	N	- *
					2#	Yes	-	3.0	-	G	- *
5B*	6X40	0	*	*	5	Yes	-	15.0	-	N	- *
6A*	6X6	300	*	*	6	Yes	-	-	X	N	- *
8A*	6X40	0	*	*	8	Yes	-	-	-	N	- *
8B*	6X40	0	*	*	8	Yes	-	10.0	-	N	- *

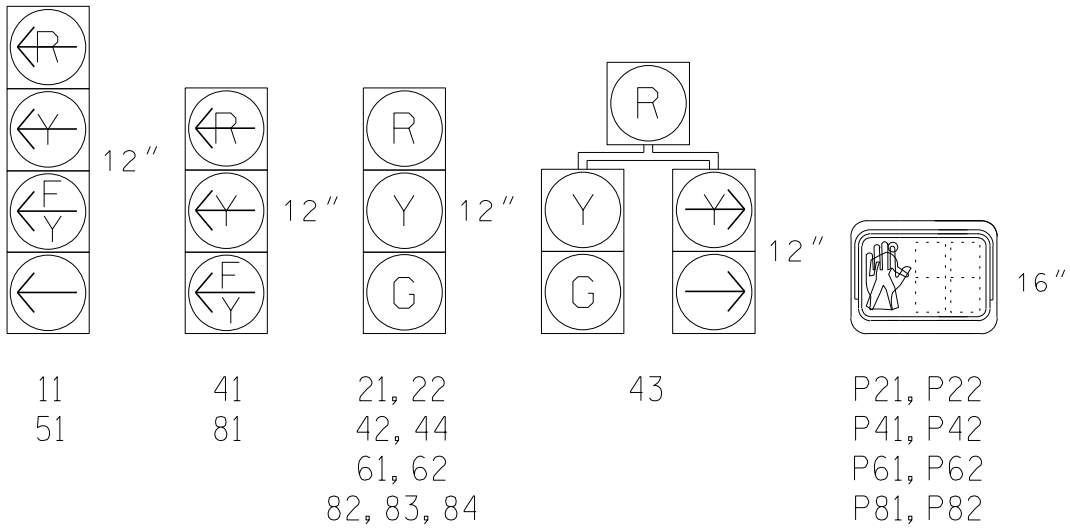
* Non-Intrusive Detection Zone

- * Reduce delay to 3 seconds during alternate phasing operation

```
# Disable phase call for loop(s) during alternate phasing operation
```



All Heads L.E.D.



ASC/3 TIMING CHART						
FEATURE	PHASE					
	1	2	4	5	6	8
Min Green *	7	12	7	7	12	7
Delayed Green	-	7	7	-	7	7
Walk *	-	14	14	-	14	14
Ped Clear	-	28	23	-	30	20
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	20	75	40	20	75	40
Yellow	3.0	4.7	4.8	3.0	4.7	4.8
Red Clear	3.9	2.6	1.8	3.6	2.6	1.8
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	2.5	-	-	2.5	-
Max Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Locking Detector	-	X	-	-	X	-
Recall Position **	-	SOFT RECALL	-	-	SOFT RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

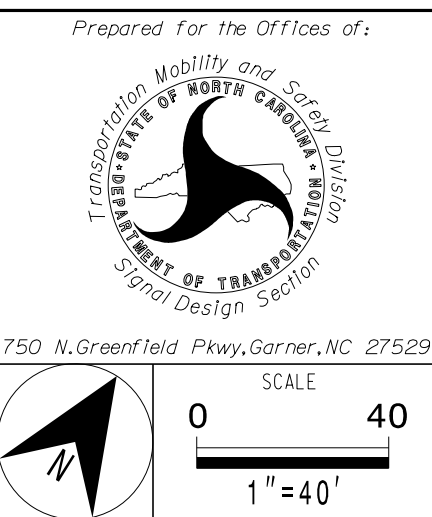
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

LEGEND

- | PROPOSED | | EXISTING |
|----------|-------------------------------------|----------|
| | Traffic Signal Head | |
| | Modified Signal Head | N/A |
| | Sign | N/A |
| | Pedestrian Signal Head | |
| | Signal Pole with Push Button & Sign | |
| | Signal Pole with Guy | |
| | Signal Pole with Sidewalk Guy | |
| | Inductive Loop Detector | |
| | Non-Intrusive Detection Zone | N/A |
| | Controller & Cabinet | |
| | Junction Box | |
| | 2-in Underground Conduit | |
| N/A | Right of Way | |
| N/A | Guardrail | |
| N/A | Concrete Barrier | |
| N/A | Construction Zone | |
| N/A | Construction Zone Drums | |
| | Metal Strain Pole | |
| | Type I Pushbutton Post | |
| | Type II Signal Pedestal | |
| N/A | Curb Ramp | |
| | Street Name Sign (D3-1) By Others | |

Signal Upgrade - Temporary Design 4
(TMP Phase IV)



SR 1820 (Skeet Club Road)
at
SR 1818 (Johnson Street)

Division 7 Guilford County High Point

PLAN DATE: August 2025	REVIEWED BY: AM Encarnacion
------------------------	-----------------------------

PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander
-----------------------	---------------------------

REVISIONS	INIT.	DATE

[illegible][illegible]

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



Signed by: James Hill 8/14/2025

PC3684973 SIGNATURE _____ DATE _____

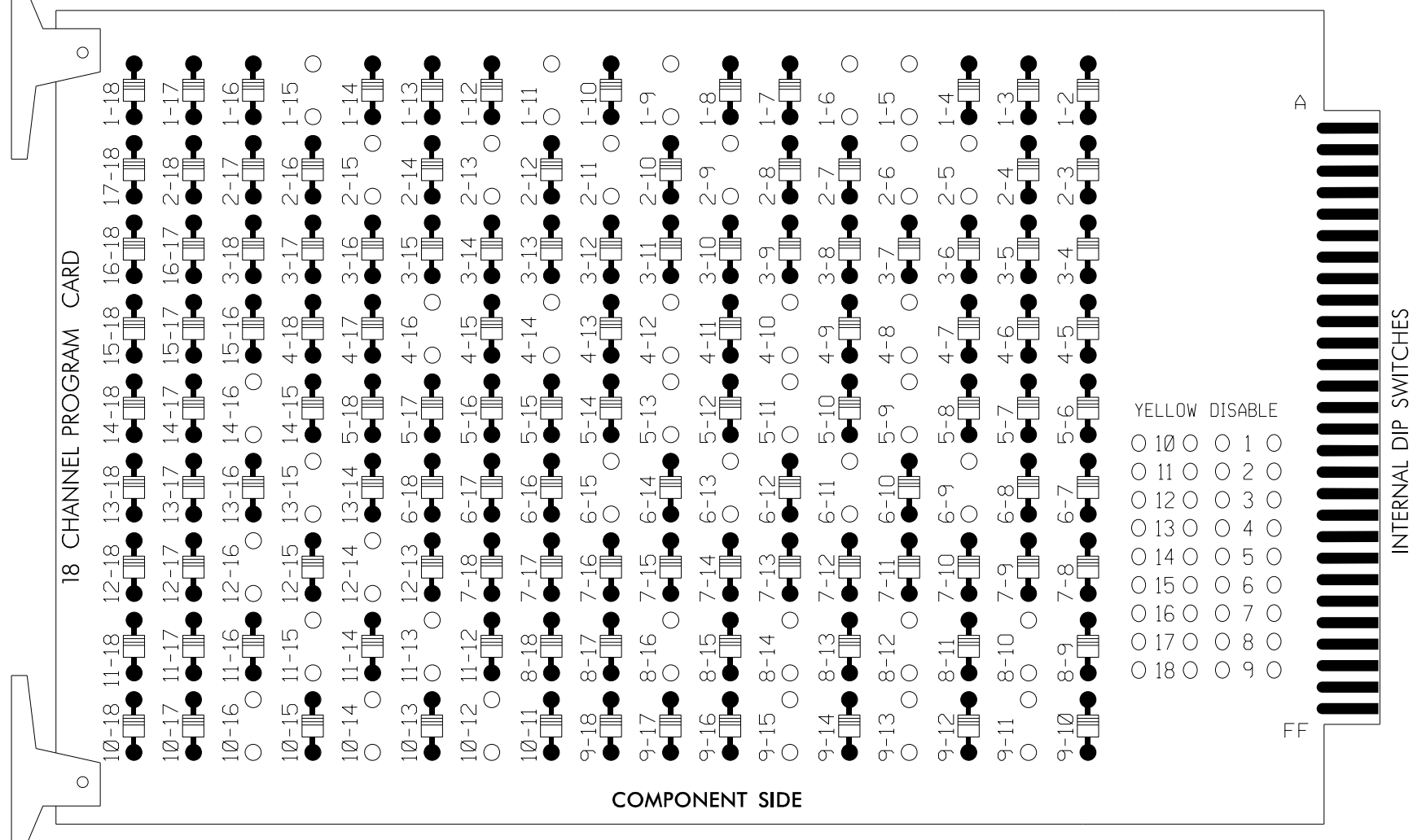
SIG. INVENTORY NO. 07-0935

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 4-8, 4-10, 4-12, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 8-10, 8-12, 8-14, 8-16, 9-11, 9-13, 9-15, 10-12, 10-14, 10-16, 11-13, 11-15, 12-14, 12-16, 13-15 and 14-16.



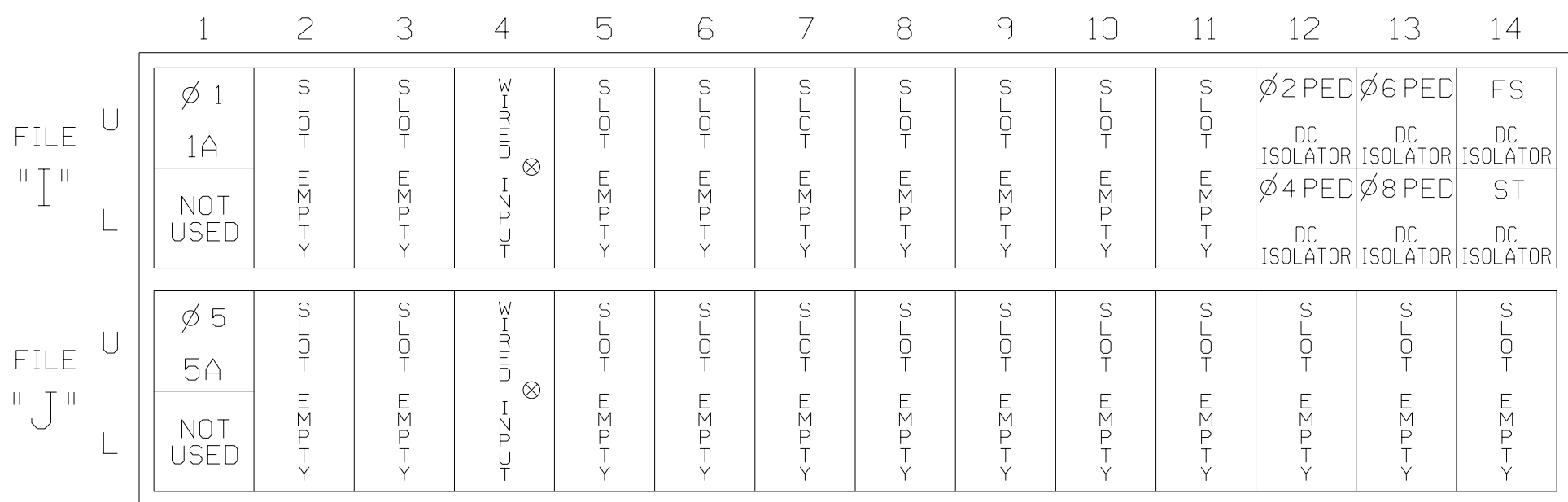
REMOVE JUMPERS AS SHOWN

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.

INPUT FILE POSITION LAYOUT

(front view)



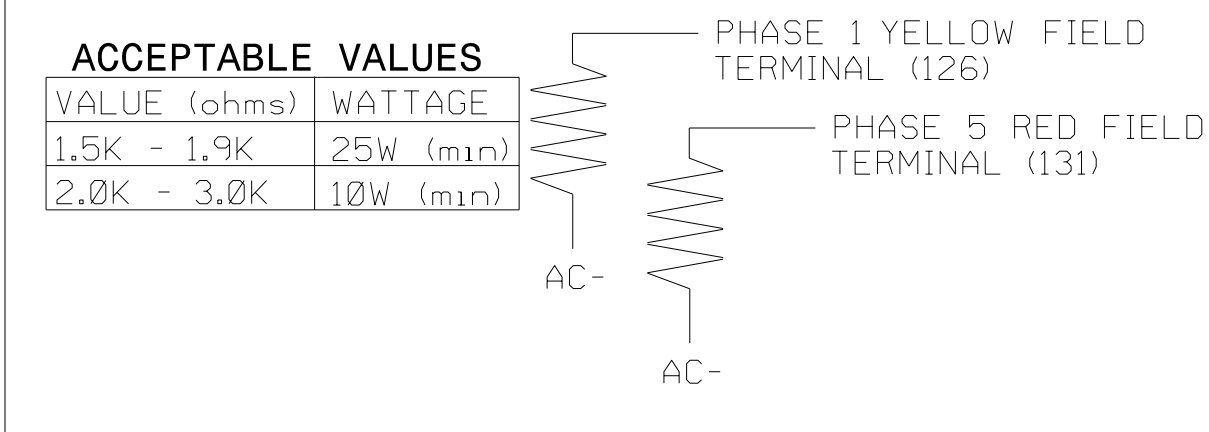
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green and 6 Green.
4. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

```
CONTROLLER.....2070LX
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,S5,S6,S7,S8,S9,S11,S12,
                        AUX S1,AUX S2,AUX S4,AUX S5
PHASES USED.....1,2,2 PED,4,4 PED,5,6,6 PED,8,8 PED
OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
```

INPUT FILE CONNECTION & PROGRAMMING CHART

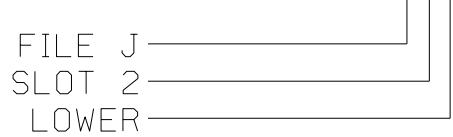
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A ¹	TB2-1,2	I1U	56	1 ★	1	YES		15.0		N
	-	J4U	48	26 ★	6	YES		3.0		G
5A ²	TB3-1,2	J1U	55	5 ★	5	YES		15.0		N
	-	I4U	47	22 ★	2	YES		3.0		G
PED PUSH BUTTONS						NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.				
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					

¹Add jumper from I1-W to J4-W, on rear of input file.

²Add jumper from J1-W to I4-W, on rear of input file.

★ For the detectors to work as shown on the signal design plan, See the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



SPECIAL DETECTOR NOTE

- 1) Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2) For detection areas 1A and 5A detector card placement and slots reserved for wired inputs are typical for a NCDOT installation. Inputs associated with these slots are compatible with time of day instructions located on sheets 2 and 3 of this electrical detail.

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	NU	42 43,44	P41, P42	43	51★	61,62	P61, P62	NU	82, 83,84	P81, P82	11★	81★	NU	51★	41★	NU
RED		128			101		*		134			107							
YELLOW	*	129			102				135			108							
GREEN		130			103				136			109							
RED ARROW														A121	A124		A114	A101	
YELLOW ARROW							132							A122	A125		A115	A102	
FLASHING YELLOW ARROW														A123	A126		A116	A103	
GREEN ARROW	127						133	133											
			113			104				119			110						
			115			106				121			112						

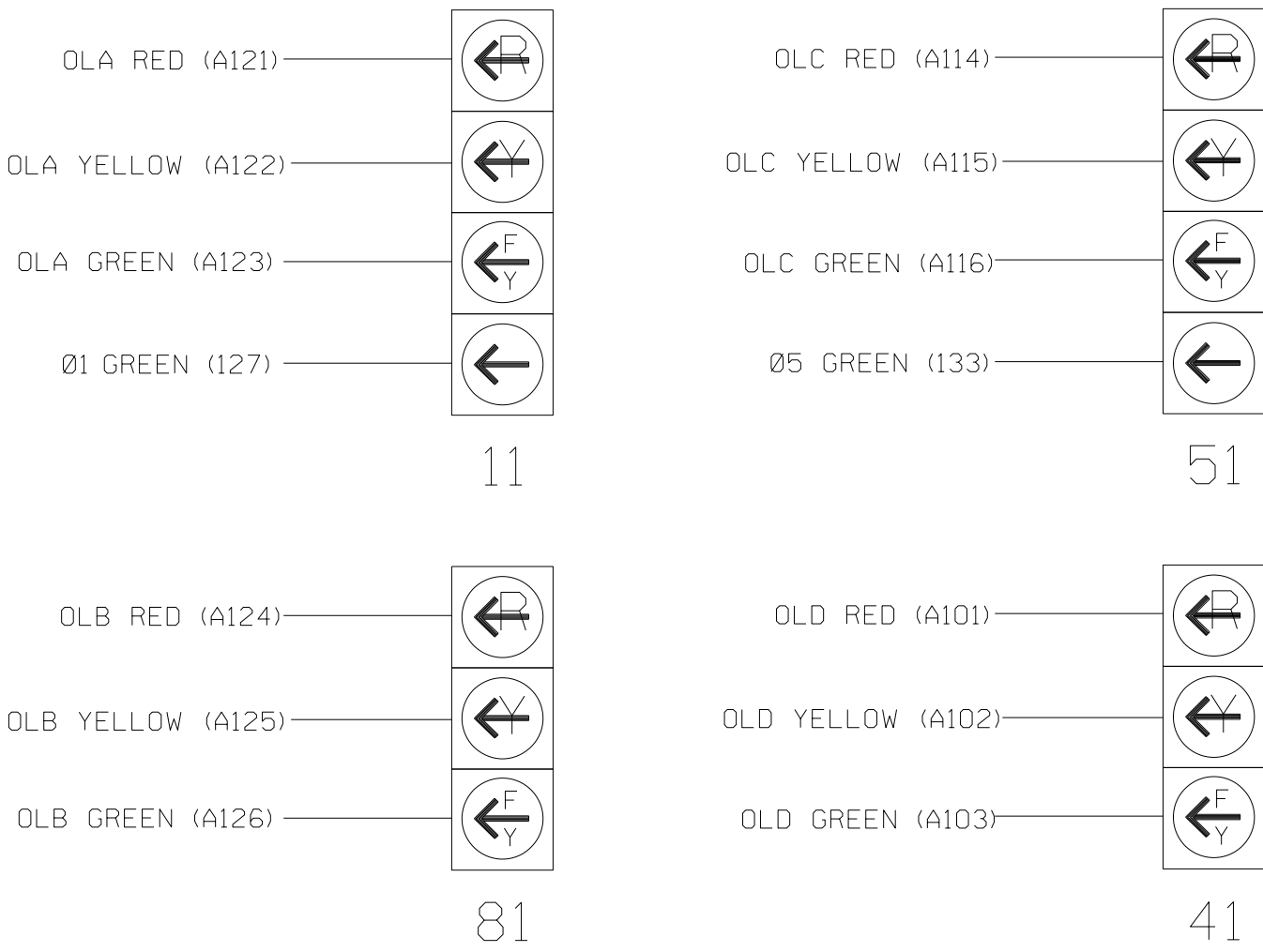
NU = Not Used

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

★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



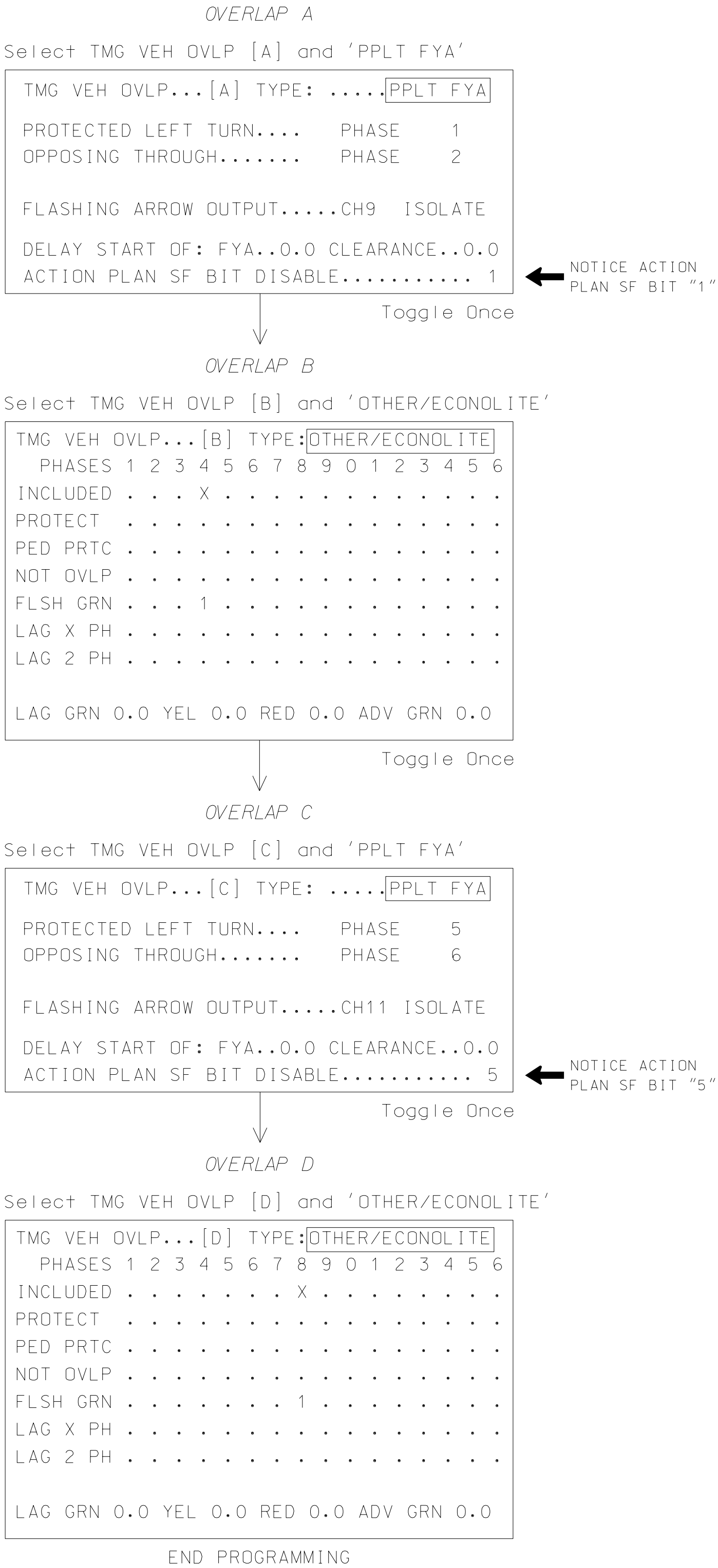
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T4
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4
Temporary Design 4

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



ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

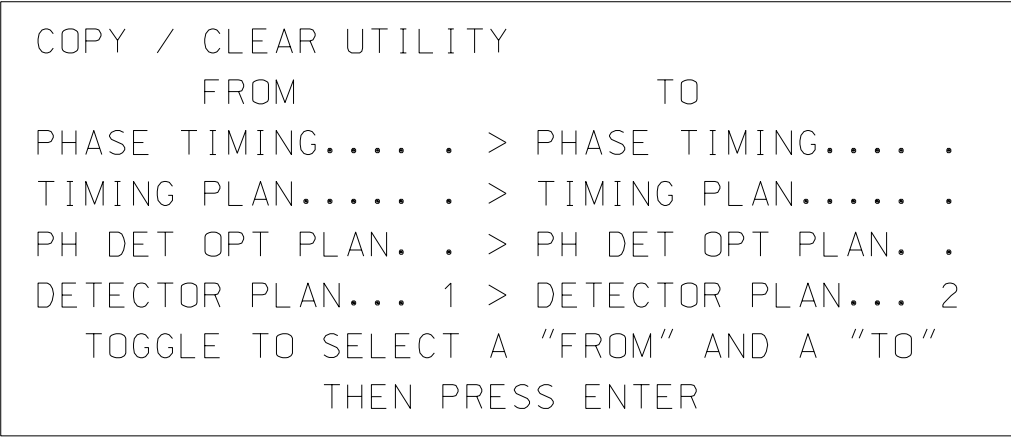
LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

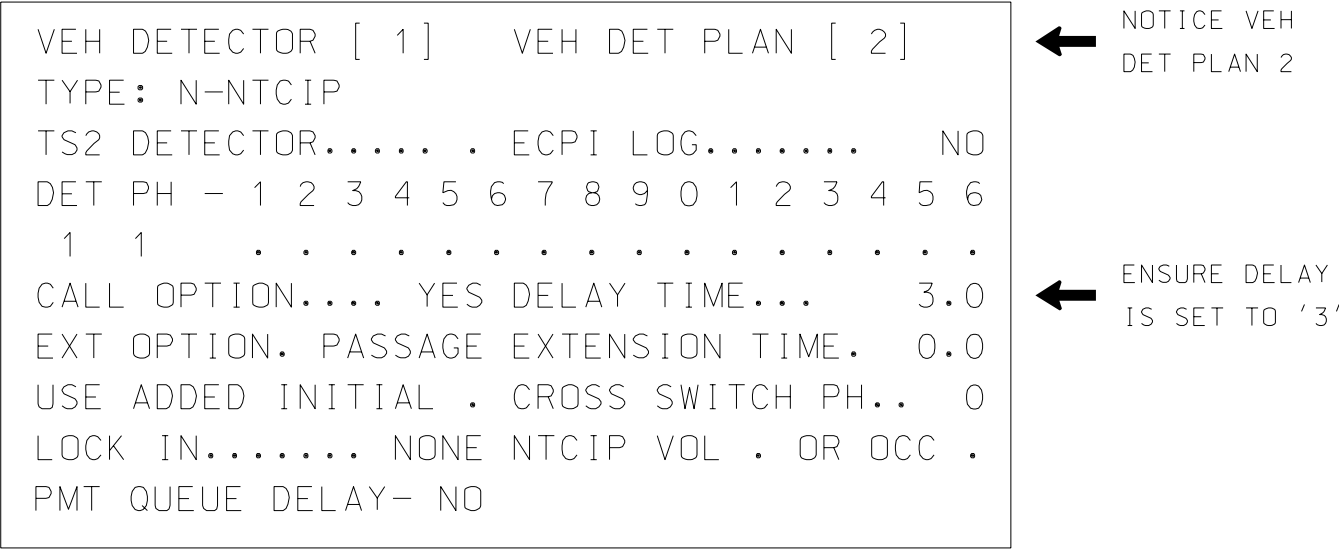
Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select 8. UTILITIES
2. From UTILITIES Submenu select 1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

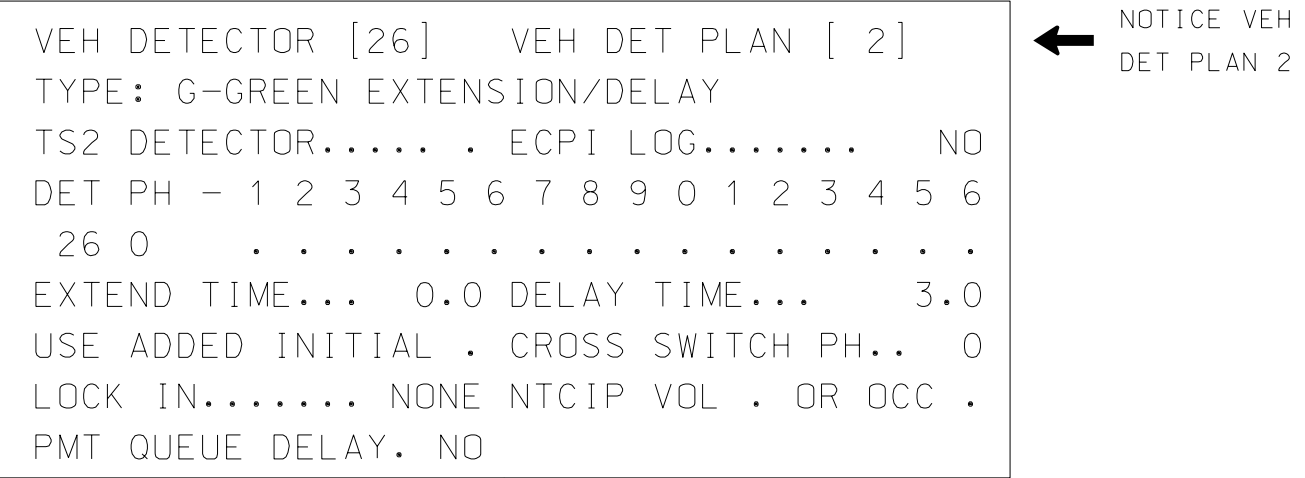


4. From Main Menu select 6. DETECTORS
5. From DETECTOR Submenu select 2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [] position and enter "2".

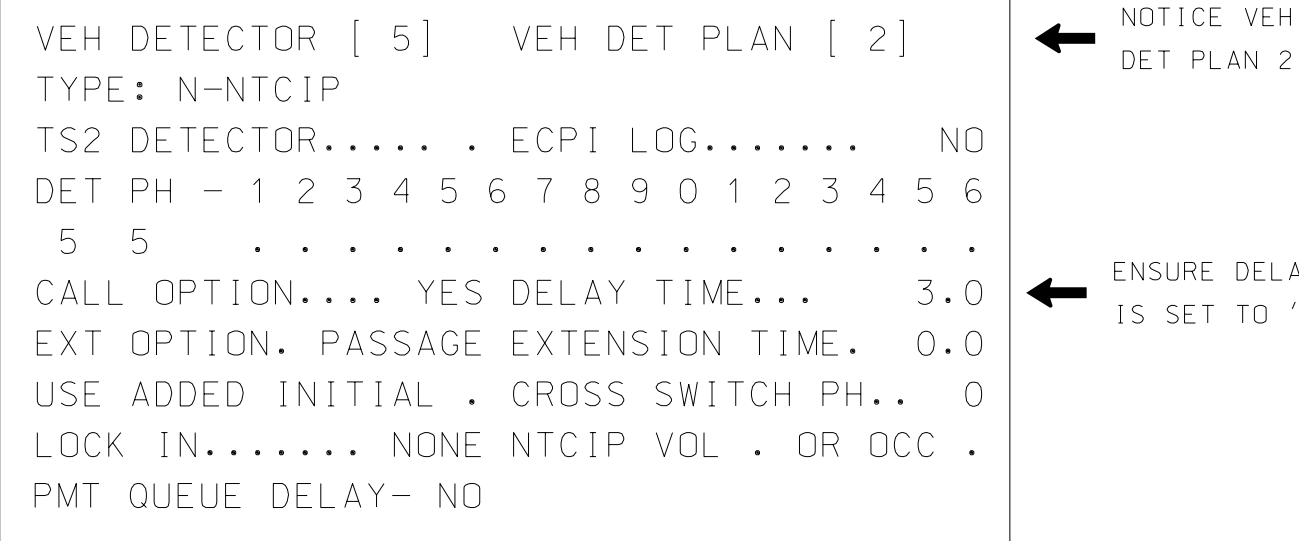
- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".



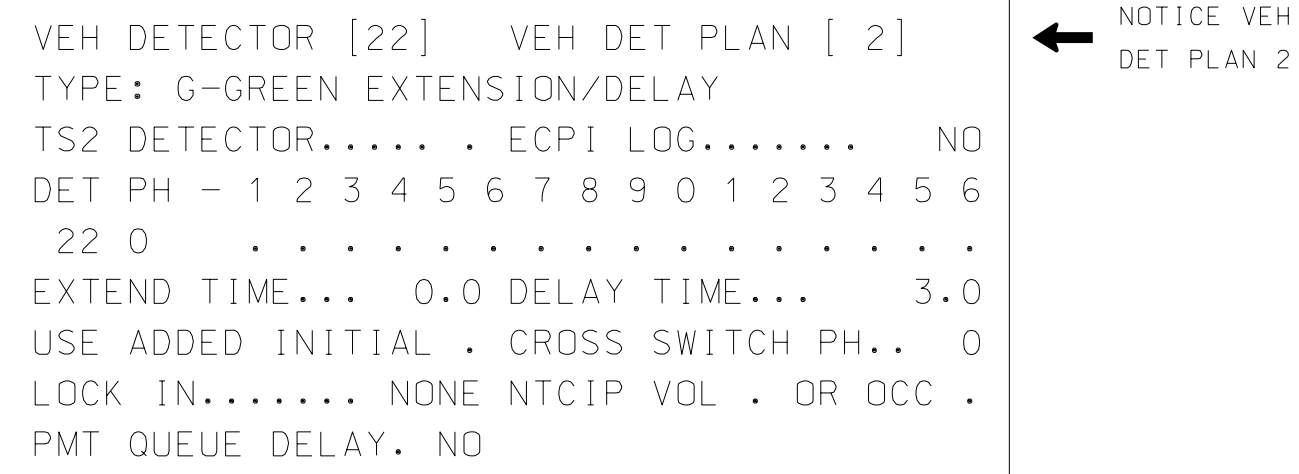
- Place cursor in VEH DETECTOR [] position and enter "26".
- Set assigned phase to "0".



- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".



- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".



END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T4
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4
Temporary Design 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:		Division 7 Guilford County High Point		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044476 ANTHONY M. ENCARNACION	
750 N.Greenfield Pkwy,Garner,NC 27529		PLAN DATE: August 2025 REVIEWED BY: AM Encarnacion		DocuSigned by: Anthony Encarnacion 8/14/2025	
		PREPARED BY: JT Stiff REVIEWED BY: PL Alexander		DATE	
		REVISIONS		INIT. DATE	
				SIG. INVENTORY NO. 07-0935T4	

AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

14-AUG-2025 15:25
DW:///S:\00036343\work\Tins.com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_USSR_Sig and ITS/Task 05_11_Signals/070935T4_sml.e_20250314.dgn
ENC45366 AT L05421624

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 3 seconds.

**AtkinsRéal**
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																
PATTERN.....	AUTO	SYS OVERRIDE.... NO														
TIMING PLAN.....	0	SEQUENCE..... 0														
VEH DETECTOR PLAN..	2	DET LOG.....NONE														
FLASH.....	--	RED REST..... NO														
VEH DET DIAG PLN...	0	PED DET DIAG PLN..0														
DIMMING ENABLE..	NO	PRIORITY RETURN. NO														
PED PR RETURN..	NO	QUEUE DELAY..... NO														
PMT COND DELAY	NO															
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SPC FCT	X	.	.	.	X	.	.	.	(1-8)							
AUX FCT	.	.	.	(1-3)												
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935T4
DESIGNED: August 2025
SEALED: 08-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Temporary Design 4

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1820 (Skeet Club Road)
at
SR 1818 (Johnson Street)

Division 7

Guilford County

High Point

PLAN DATE: August 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
044476
ANTHONY M. ENCARNACION

DocuSigned by:
Anthony Encarnacion

8/14/2025

SIG. INVENTORY NO.

07-0935T4

14-AUG-2025 15:25
PW:///SUD0036433.work\Tins.com\ATKMANC01\Documents\Roads and Bridges\Projects\100059632_USSR Sig and ITS\Task 05_11_Signals\070935T4_sml.e_20250314.dgn
ENC5386 AT LUS21624

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 and 51 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	
THEN	SIG SET OLP RED		1		ON	
	SIG SET OLP YELLOW		1		OFF	
	SIG SET OVLP GREEN		1		OFF	
ELSE						

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

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#:	2	COPY FROM:	2	ACTIVE:	M	(T/F)
IF	PED ON PH WALK		6	IS	ON	
AND	VEH GREEN ON PH		6	IS	OFF	
THEN	SIG SET OLP RED		3		ON	
	SIG SET OLP YELLOW		3		OFF	
	SIG SET OVLP GREEN		3		OFF	
ELSE						

HOLD SIGNAL HEAD 51 FYA
RED DURING THE PHASE 6
DELAYED GREEN TIME
(LEADING PED INTERVAL)

ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA																	
-----START UP-----																	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	
PHASE	G					G											
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
OVERLAP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
FLASH>MON.	NO FL TIME..									0	ALL RED...				6		
PWR START SEQ..	1	MUTCD>				YES				Y-	G:				NO		

Scroll down on this screen and set "Exit Fl" to Green "G"

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 1-2 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	E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

END PROGRAMMING

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:	100	COPY FROM:	100	ACTIVE:	M	FALSE
IF	LP CIB CODE ON				331	F
THEN LP	DELAY FOR			1.0 SECONDS		
	LP SET CIB ON			427		
ELSE						

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING



1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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.

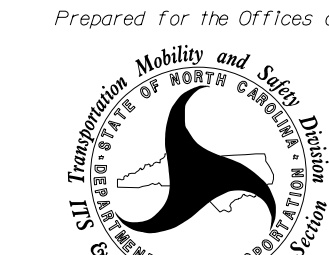
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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.

Electrical Detail - Sheet 4 of 4
Temporary Design 4

Electrical and Programming Details For:

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

SR 1820 (Skeet Club Road)
at
SR 1818 (Johnson Street)

Division 7 Guilford County High Point

PLAN DATE: August 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

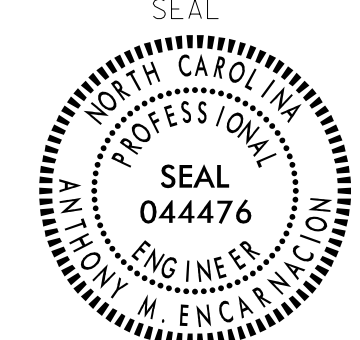
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL



Seal 044476

ENGINEER

DocuSigned by:
Anthony Encarnacion
8/14/2025

SIG. INVENTORY NO. 07-0935T4

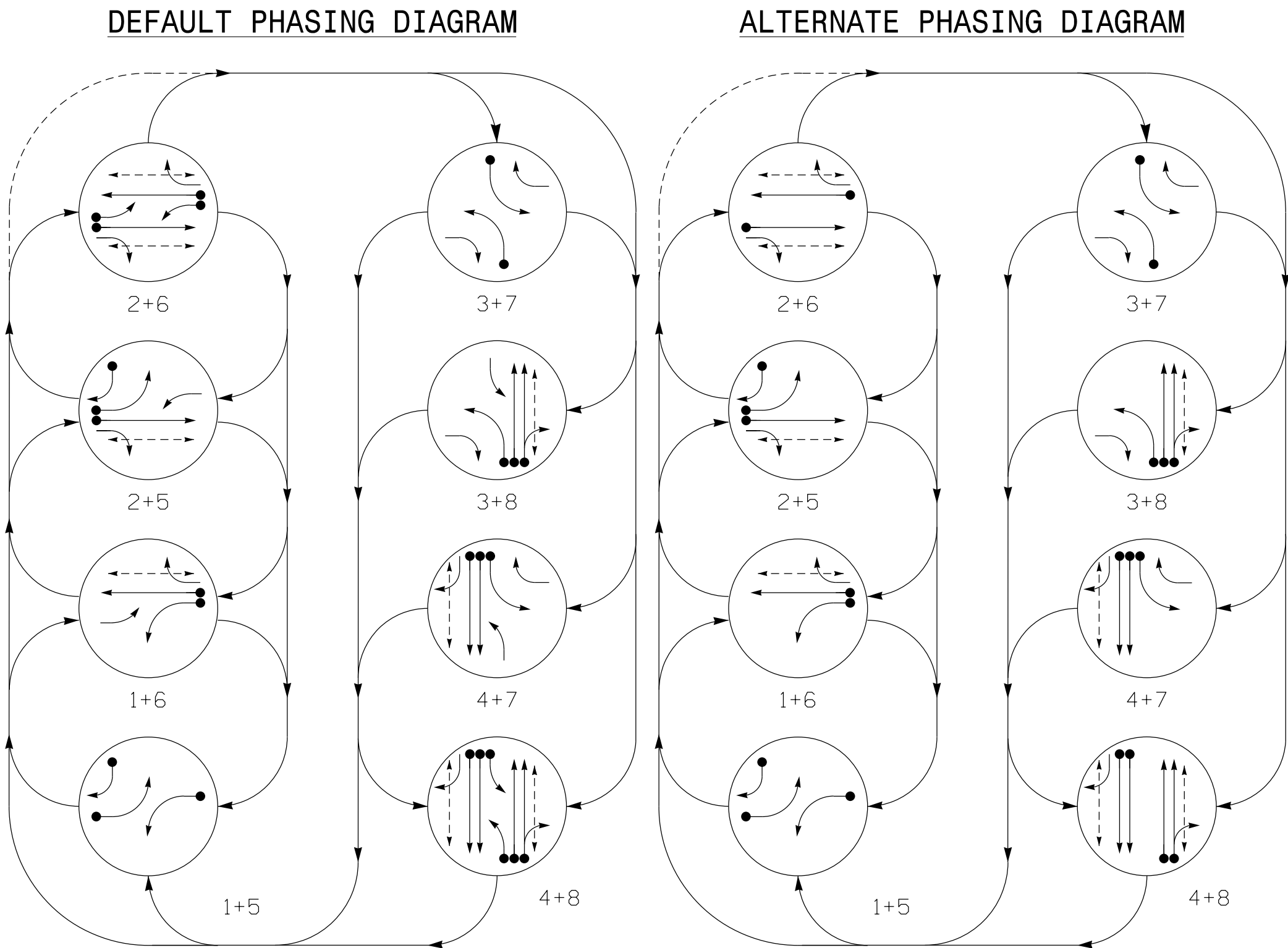
8 Phase
Fully Actuated
(High Point Signal System)
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
8. This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
9. Relocate existing Street Name signs onto new spanwire from existing spanwire.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

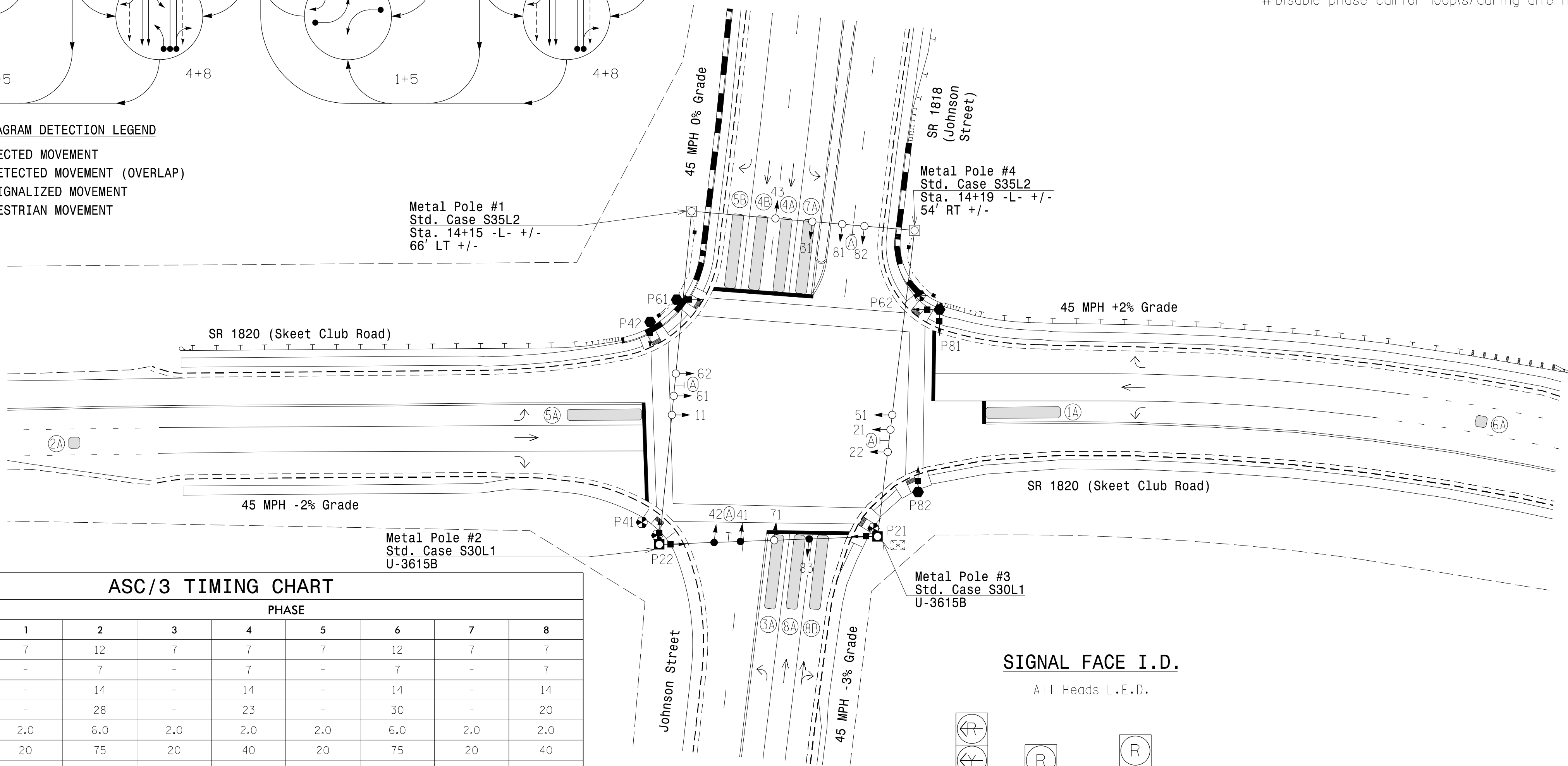
- * Non-Intrusive Detection Zone
- * Reduce delay to 3 seconds during alternate phasing operation
- # Disable phase call for loop(s) during alternate phasing operation

DEFAULT PHASING TABLE OF OPERATION									
SIGNAL FACE	PHASE								
	1 + 5	1 + 6	2 + 5	2 + 6	3 + 7	3 + 8	4 + 7	4 + 8	FL ASH
11	←	←	← _F	← _F	← _R	← _R	← _R	← _R	← _R
21	R	R	G	G	R	R	R	R	R
22	R	R	G	G	R _/	R _/	R	R	R
31	← _R	← _R	← _R	← _R	←	←	← _F	← _F	← _R
41, 43	R	R	R	R	R	R	G	G	R
42	R _/	R _/	R _/	R _/	R	R	G	G	R
51	←	← _F	←	← _F	← _R	← _R	← _R	← _R	← _R
61	R	G	R	G	R	R	R	R	R
62	R	G	R	G	R _/	R _/	R	R	R
71	← _R	← _R	← _R	← _R	←	← _F	← _F	← _R	← _R
81, 82, 83	R	R	R	R	R	G	R	G	R
P21, P22	DW	DW	W	W	DW	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	DW	W	DW	W	DRK

ALTERNATE PHASING TABLE OF OPERATION									
SIGNAL FACE	PHASE								
	1 + 5	1 + 6	2 + 5	2 + 6	3 + 7	3 + 8	4 + 7	4 + 8	FL ASH
11	←	←	← _F	← _F	← _R	← _R	← _R	← _R	← _R
21	R	R	G	G	R	R	R	R	R
22	R	R	G	G	R _/	R _/	R	R	R
31	← _R	← _R	← _R	← _R	←	←	← _R	← _R	← _R
41, 43	R	R	R	R	R	R	G	G	R
42	R _/	R _/	R _/	R _/	R	R	G	G	R
51	←	← _F	←	← _F	← _R	← _R	← _R	← _R	← _R
61	R	G	R	G	R	R	R	R	R
62	R	G	R	G	R _/	R _/	R	R	R
71	← _R	← _R	← _R	← _R	←	←	← _R	← _R	← _R
81, 82, 83	R	R	R	R	R	G	R	G	R
P21, P22	DW	DW	W	W	DW	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	DW	W	DW	W	DRK



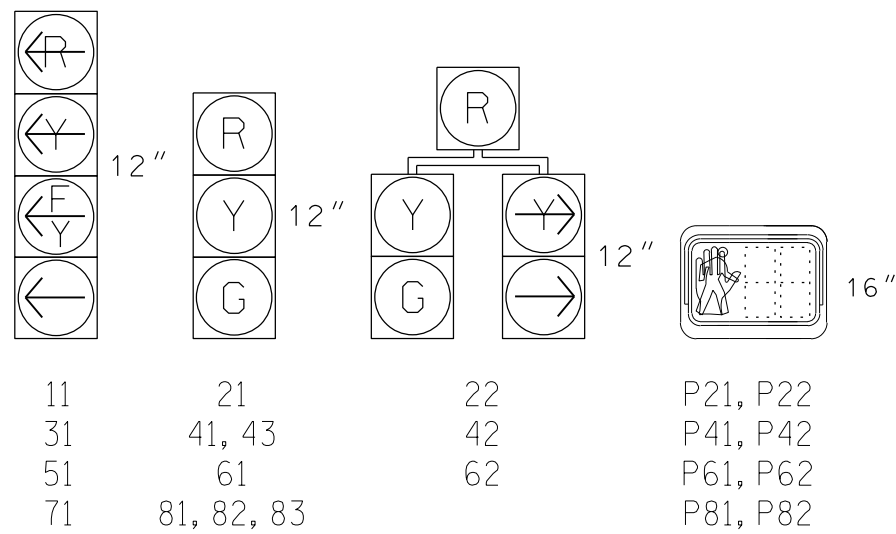
	DETECTED MOVEMENT
	UNDETECTED MOVEMENT (OVERLAP)
	UNSIGNALIZED MOVEMENT
	PEDESTRIAN MOVEMENT



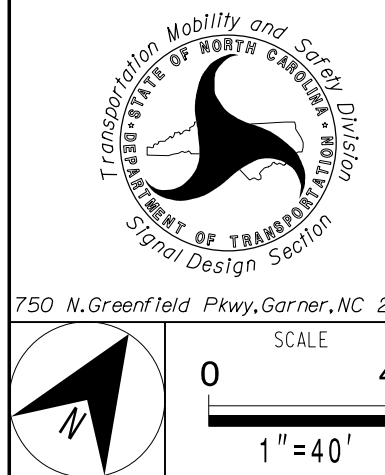
FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	12	7	7	7	12	7	7
Delayed Green	-	7	-	7	-	7	-	7
Walk *	-	14	-	14	-	14	-	14
Ped Clear	-	28	-	23	-	30	-	20
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max 1 *	20	75	20	40	20	75	20	40
Yellow	3.0	4.7	3.0	4.8	3.0	4.7	3.0	4.8
Red Clear	3.7	2.4	3.2	1.8	3.4	2.4	3.2	1.8
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds /Actuation *	-	2.5	-	-	-	2.5	-	-
Max Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position **	-	SOFT RECALL	-	-	-	SOFT RECALL	-	-
Dual Entry	-	-	-	X	-	-	-	X
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.

All Heads L.E.D.



Prepared for the Offices of:



Division 7 Guilford County High Point

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
-------------------------	-----------------------------

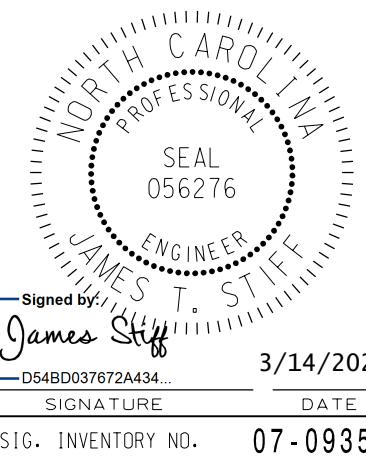
PREPARED BY:	JT Stiff	REVIEWED BY:	PL Alexander
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REVISED	INT.	DATE

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DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

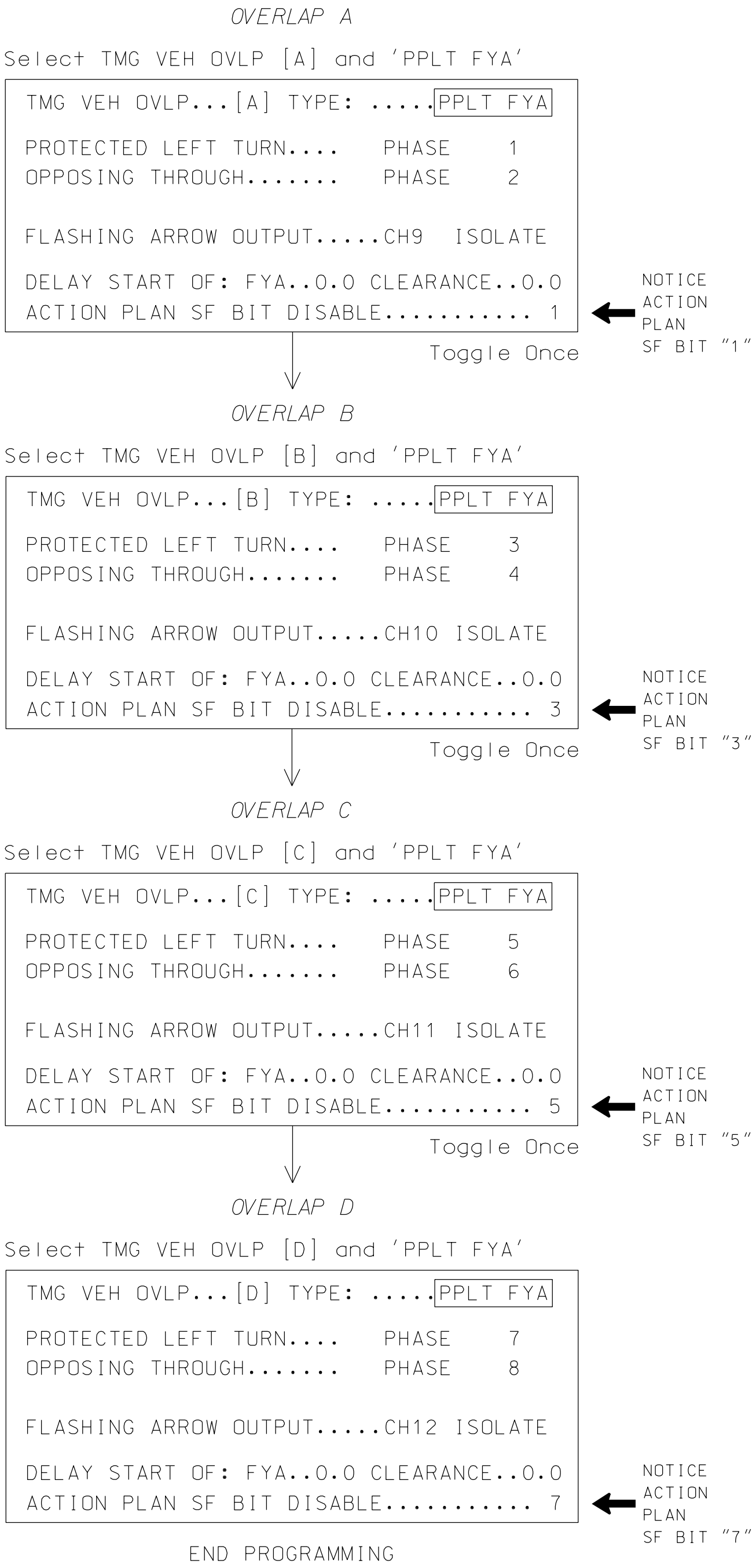
SEAL



SIG. INVENTORY NO. 07-0935

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



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.

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: 07-0935
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 5
Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: AtkinsRéalisis 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326 Seal of the State of North Carolina Department of Transportation & Signal Management System 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
	Division 7 Guilford County High Point		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044476 ANTHONY M. ENCARNACION Designed by: Anthony Encarnacion 3/14/2025 SIGNATURE DATE SIG. INVENTORY NO. 07-0935			
	PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion				
	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander				
	REVISIONS	INIT.			DATE	

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL
FOR ALTERNATE PHASING LOOPS 1A, 3A, 5A AND 7A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

- From Main Menu select 8. UTILITIES
- From UTILITIES Submenu select 1. COPY/CLEAR
- Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY
FROM TO
PHASE TIMING.... > PHASE TIMING....
TIMING PLAN..... > TIMING PLAN.....
PH DET OPT PLAN. > PH DET OPT PLAN..
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
TOGGLE TO SELECT A "FROM" AND A "TO"
THEN PRESS ENTER

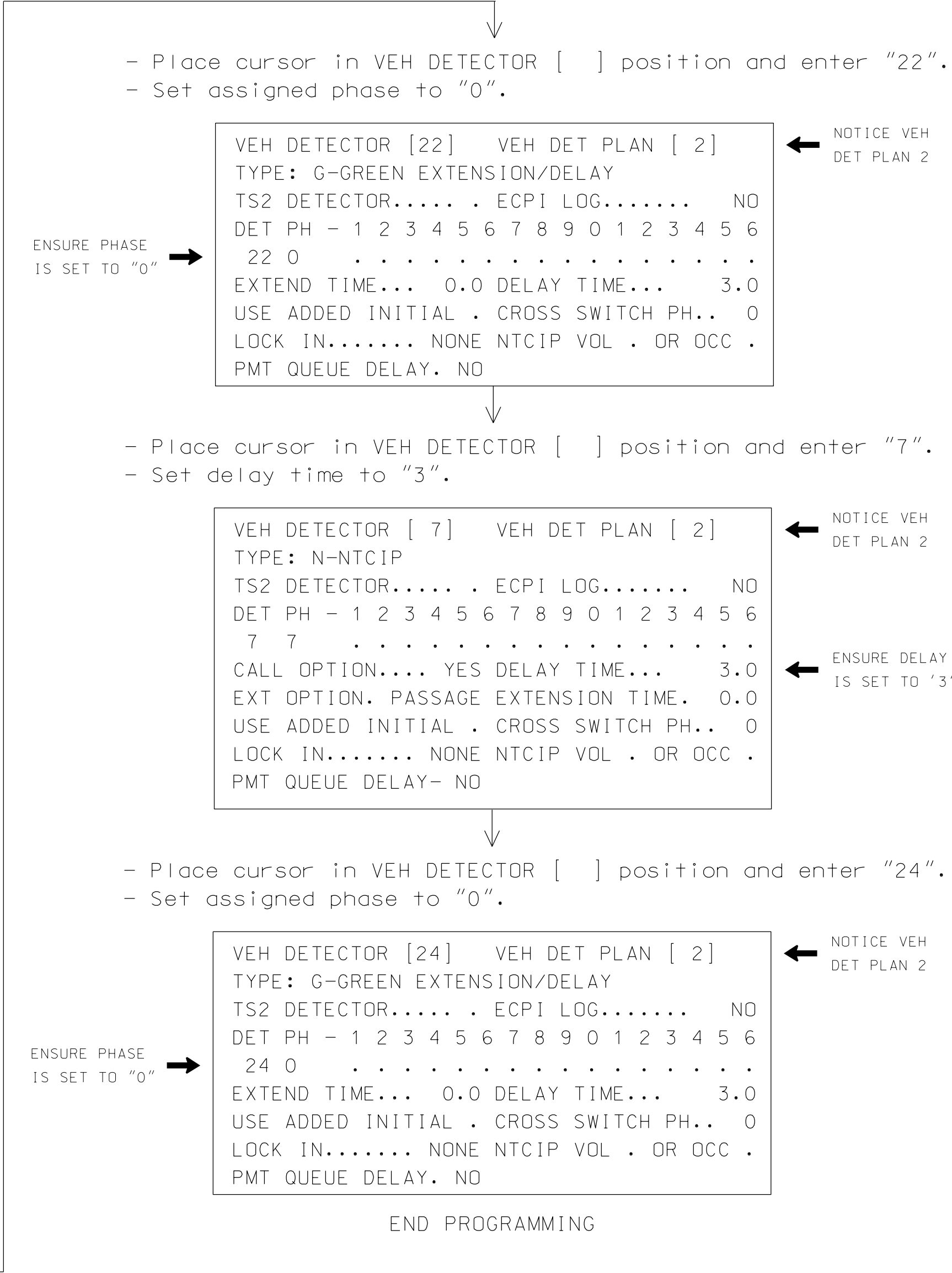
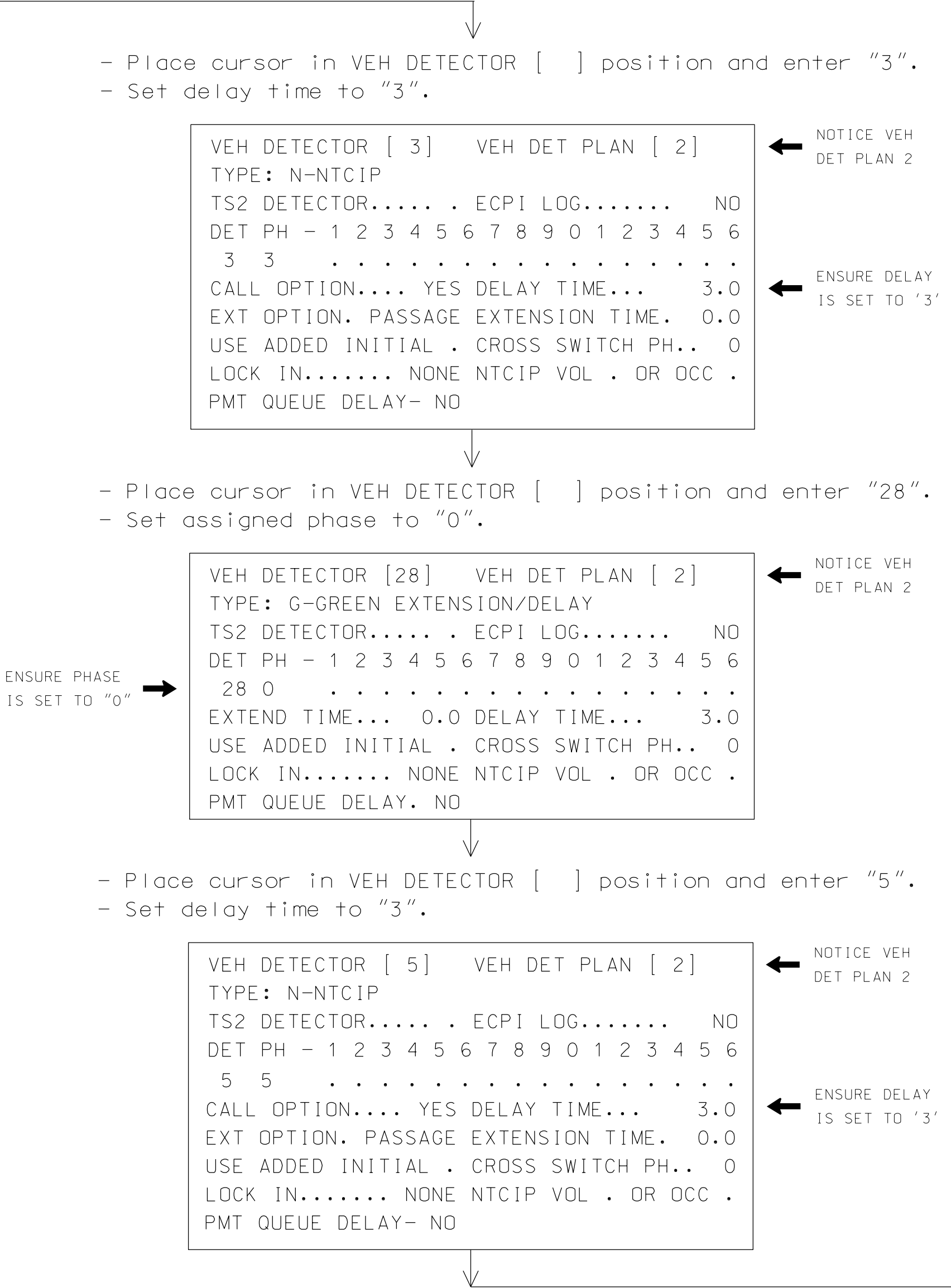
- From Main Menu select 6. DETECTORS
- From DETECTOR Submenu select 2. VEHICLE DETECTOR SETUP
- Place cursor in VEH DET PLAN [] position and enter "2".

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

VEH DETECTOR [1] VEH DET PLAN [2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
1 1
CALL OPTION.... YES DELAY TIME... 3.0
EXT OPTION. PASSAGE EXTENSION TIME. 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY- NO

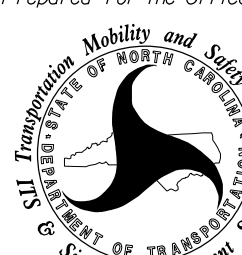
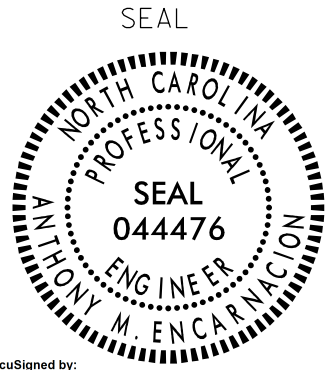
- Place cursor in VEH DETECTOR [] position and enter "26".
- Set assigned phase to "0".

VEH DETECTOR [26] VEH DET PLAN [2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
26 0
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 5
Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529		SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street) Division 7 Guilford County High Point PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion PREPARED BY: JT Stiff REVIEWED BY: PL Alexander <table><tr><td>REVISIONS</td><td>INIT.</td><td>DATE</td></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										DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL  Designed by: Anthony Encarnacion 3/14/2025 SIGNATURE DATE SIG. INVENTORY NO. 07-0935	
REVISIONS	INIT.	DATE															

 **AtkinsRéal**
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SIG. INVENTORY NO.	07-093
--------------------	--------

(program controller as shown)

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

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	
THEN	SIG SET OLP RED		1		ON	
	SIG SET OLP YELLOW		1		OFF	
	SIG SET OVLP GREEN		1		OFF	
ELSE						

```

LP#::      2  COPY FROM:      2  ACTIVE:  M  (T/F)
IF         PED ON PH WALK      4      IS  ON
AND        VEH GREEN ON PH    4      IS  OFF

THEN      SIG SET OLP RED      2      ON
          SIG SET OLP YELLOW   2      OFF
          SIG SET OVLP GREEN   2      OFF

ELSE

```

```

LP##:      3   COPY FROM:      3   ACTIVE:  M   (T/F)
IF         PED ON PH WALK      6   IS   ON
AND        VEH GREEN ON PH    6   IS   OFF

THEN      SIG SET OLP RED      3           ON
          SIG SET OLP YELLOW   3           OFF
          SIG SET OVLP GREEN   3           OFF

ELSE

```

LP#:	4	COPY FROM:	4	ACTIVE:	M	(T/F)
IF	PED ON PH WALK		8	IS	ON	
AND	VEH GREEN ON PH		8	IS	OFF	
THEN	SIG SET OLP RED		4		ON	
	SIG SET OLP YELLOW		4		OFF	
	SIG SET OVLP GREEN		4		OFF	
ELSE						

HOLD SIGNAL HEAD 71 FYA
RED DURING THE PHASE 8
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

[illegible]

END PROGRAMMING

*The NCDOT default database is programmed to address Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key, then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

```

LP#:100 COPY FROM:100 ACTIVE: M FALSE
IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS
LP SET CIB ON 427

ELSE

```

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING



(program controller as shown)

1. From Main Menu select **2. CONTROLLER**
2. From CONTROLLER Submenu select **5. START/FLASH**

```

START/FLASH DATA
-----START UP-----
      1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASE      G          G
      A B C D E F G H I J K L M N O P
OVERLAP    X X X X X X X X X X X X X X
FLASH>MON. NO FL TIME.. 0 ALL RED... 6
PWR START SEQ.. 1 MUTCD> YES Y- G: NO

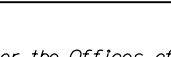
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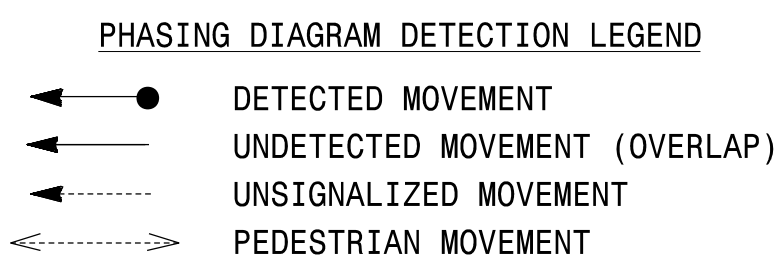
Scroll down on this screen and set "Exit Fl" to Green "G"

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0935
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 5 of 5
Final Design

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

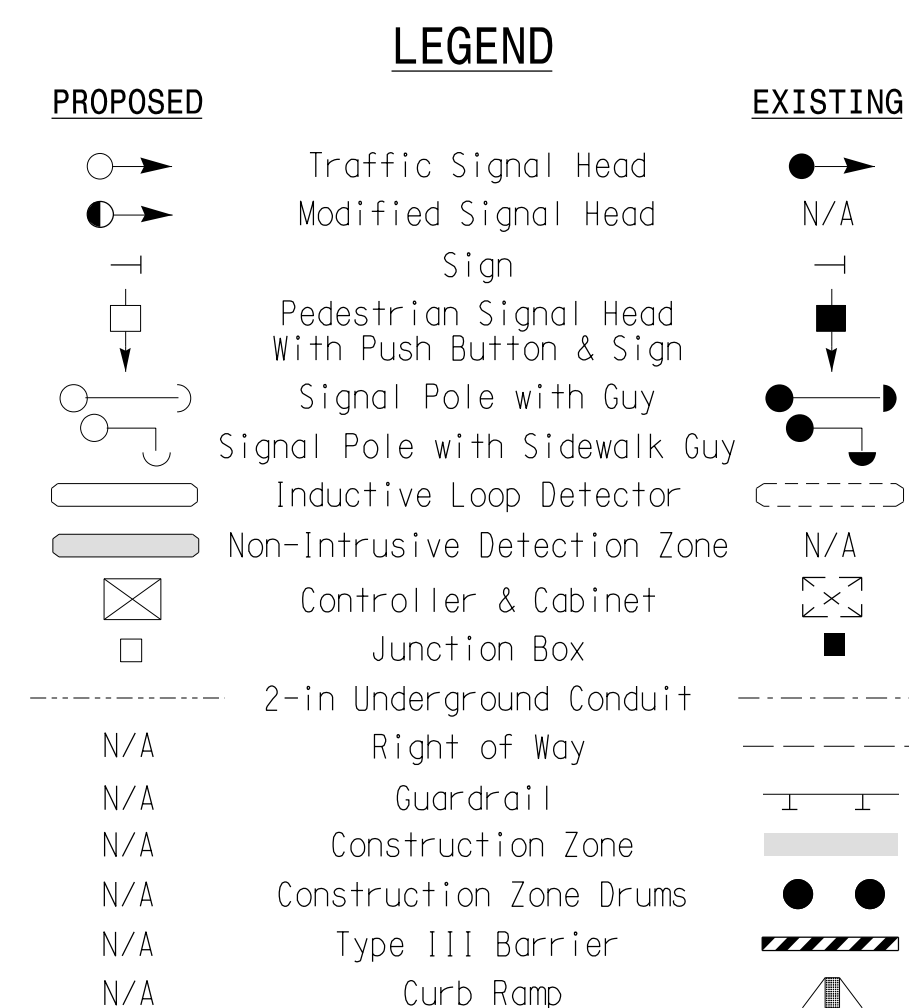
ELECTRICAL AND PROGRAMMING DETAILS FOR: <i>Prepared for the Offices of:</i>  North Carolina Department of Transportation 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1820 (Skeet Club Road) at SR 1818 (Johnson Street) Division 7 Guilford County High Point <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">PLAN DATE: January 2025</td> <td style="width: 50%;">REVIEWED BY: AM Encarnacion</td> </tr> <tr> <td>PREPARED BY: JT Stiff</td> <td>REVIEWED BY: PL Alexander</td> </tr> <tr> <td style="text-align: center;">REVISONS</td> <td style="text-align: center;">INIT. DATE</td> </tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander	REVISONS	INIT. DATE																			SEAL  Seal Description: A circular seal for the State of North Carolina. The outer ring contains the text 'NORTH CAROLINA' at the top and 'PROFESSIONAL ENGINEER' at the bottom. Inside the ring, the word 'SEAL' is at the top, the number '044476' is in the center, and the name 'JOHN M. ENCARNACION' is at the bottom.
PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion																									
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander																									
REVISONS	INIT. DATE																									
<i>Designed by:</i> Anthony Encarnacion PROFESSIONAL ENGINEER SIGNATURE		3/14/2025 DATE																								
SIG. INVENTORY NO. 07-0935																										



ALTERNATE PHASING TABLE OF OPERATION						
SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	FLASH
II	←	←	→	→	→	→
2I, 22	R	R	G	G	R	R
3I	R	R	R	R	G	R
32	R →	R ↘	R	R	G	R
4I	R	R	R	R	R	G
42	R ↘	R →	R ↘	R	R	G
43	R	R	R	R	R	G
5I	←	←	←	←	←	←
6I, 62, 63	R	G	R	G	R	R

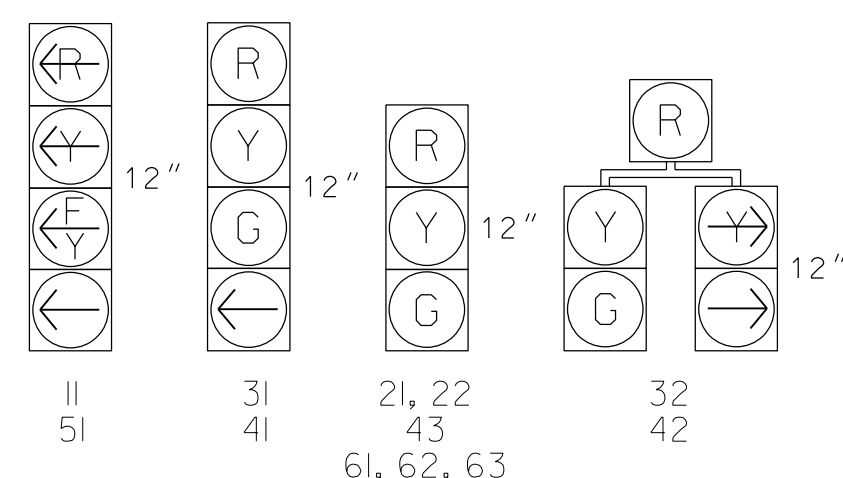
```
* Non-Intrusive Detection Zone
** Reduce delay to 3 seconds during alternate phasing operation
# Disable phase call for loop(s) during alternate phasing operation
```

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. The Division Traffic Engineer will determine the hours of use for each phasing plan.
7. This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
8. Install new controller and conflict monitor in existing cabinet.



* 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.

All Heads L.E.D.



Prepared for the Offices of:  TRANSPORTATION SYMBOL DESIGN SECTION	SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/ Bloomfield Trail	SEAL  SEAL 056276 ENGINEER JAMES T. STIFF
Division 7 Guilford County High Point		
PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion	
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander	
REVISIONS	INIT.	DATE

750 N. Greenfield Pkwy, Garner, NC 27529


SCALE


0 40
1" = 40'

Signed by

 3/14/2025

 SIGNATURE DATE

SIG. INVENTORY NO. 07-130671

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:PPLT FYA

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..... 1

NOTICE ACTION
PLAN SF BIT "1"

Toggle Twice

OVERLAP C

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

TMG VEH OVLP...[C] TYPE:PPLT FYA

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 5

NOTICE ACTION
PLAN SF BIT "5"

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY

FROM TO

PHASE TIMING.... . > PHASE TIMING.... .

TIMING PLAN..... . > TIMING PLAN..... .

PH DET OPT PLAN. . > PH DET OPT PLAN. .

DETECTOR PLAN... 1 > DETECTOR PLAN... 2

TOGGLE TO SELECT A "FROM" AND A "TO"

THEN PRESS ENTER

4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [] position and enter "2".

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

VEH DETECTOR [1] VEH DET PLAN [2]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1 1

CALL OPTION.... YES DELAY TIME... 3.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH
DET PLAN 2

ENSURE DELAY
IS SET TO '3'

- Place cursor in VEH DETECTOR [] position and enter "26".
- Set assigned phase to "0".

VEH DETECTOR [26] VEH DET PLAN [2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

26 0

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH
DET PLAN 2

ENSURE PHASE
IS SET TO "0"

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".

VEH DETECTOR [5] VEH DET PLAN [2]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

5 5

CALL OPTION.... YES DELAY TIME... 3.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH
DET PLAN 2

ENSURE DELAY
IS SET TO '3'

- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

22 0

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

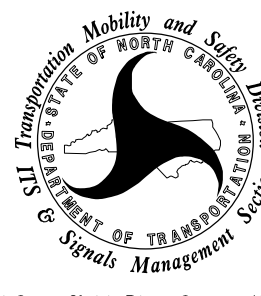
NOTICE VEH
DET PLAN 2

ENSURE PHASE
IS SET TO "0"

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4
Temporary Design 1

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/ Bloomfield Trail Division 7 Guilford County High Point		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:  750 N.Greenfield Pkwy, Garner, NC 27529				SEAL 	
PLAN DATE: January 2025		REVIEWED BY: AM Encarnacion		Designed by: Anthony Encarnacion 3/14/2025	
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		SIGNATURE DATE	
REVISIONS		INIT.		DATE	
				SIG. INVENTORY NO. 07-1306T1	

13-MAR-2025 15:16
D:\WORK\Projects\100059632_JSSR S1g and ITS\Task 05_11_Signals\071306T1_sml.e_2023mcd.dgn
S1F4685 - AT L05491089

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 3 seconds.



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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

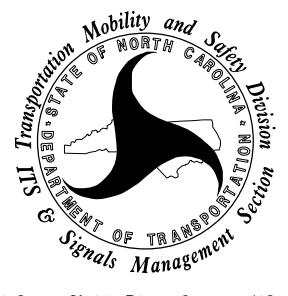
ACTION PLAN...[*]																		
PATTERN.....	AUTO					SYS OVERRIDE.... NO												
TIMING PLAN.....	0					SEQUENCE..... 0												
VEH DETECTOR PLAN..	2					DET LOG.....NONE												
FLASH.....	--					RED REST..... NO												
VEH DET DIAG PLN...	0					PED DET DIAG PLN..0												
DIMMING ENABLE..	NO					PRIORITY RETURN. NO												
PED PR RETURN..	NO					QUEUE DELAY..... NO												
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	X	.	.	.	X	.	.	.	(1-8)								.	.
AUX FCT	.	.	.	(1-3)													.	.
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Temporary Design 1

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1818 (Johnson Street)/
Bloomfield Trail
Division 7 Guilford County High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
044476
ANTHONY M. ENCARNACION

Designed by:
Anthony Encarnacion
3/14/2025
SIGNATURE DATE
SIG. INVENTORY NO. 07-1306T1

13-MAR-2025 15:17
PW:///SUD0036343/.work/ins-com/atkmnc01/Documents/Roads and Bridges/Projects/100059632_JSSR S1g and ITS/Task 05_11_Signals/071306T1_sme.le_2023mdd.dgn
S1F4685 AT L0591089

ECONOLITE ASC/3-2070 STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA
-----START UP-----
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASE G G
A B C D E F G H I J K L M N O P
OVERLAP X X X X X X X X X X X X X X
FLASH>MON. NO FL TIME.. 0 ALL RED... 6
PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "G"

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 8.4

ASC/3 FLASH SENSE INPUT CONTROL FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE
IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS
LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL",
next verify that LP#100 is ENABLED.

END PROGRAMMING

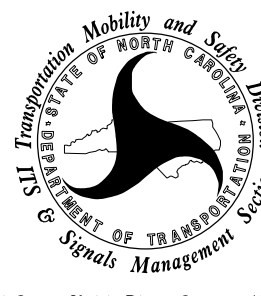
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 4 of 4
Temporary Design 1

AtkinsRéal

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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1818 (Johnson Street)/
Bloomfield Trail
Division 7 Guilford County High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

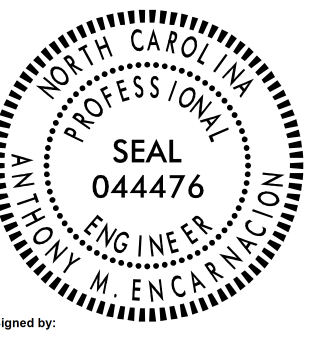
REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL

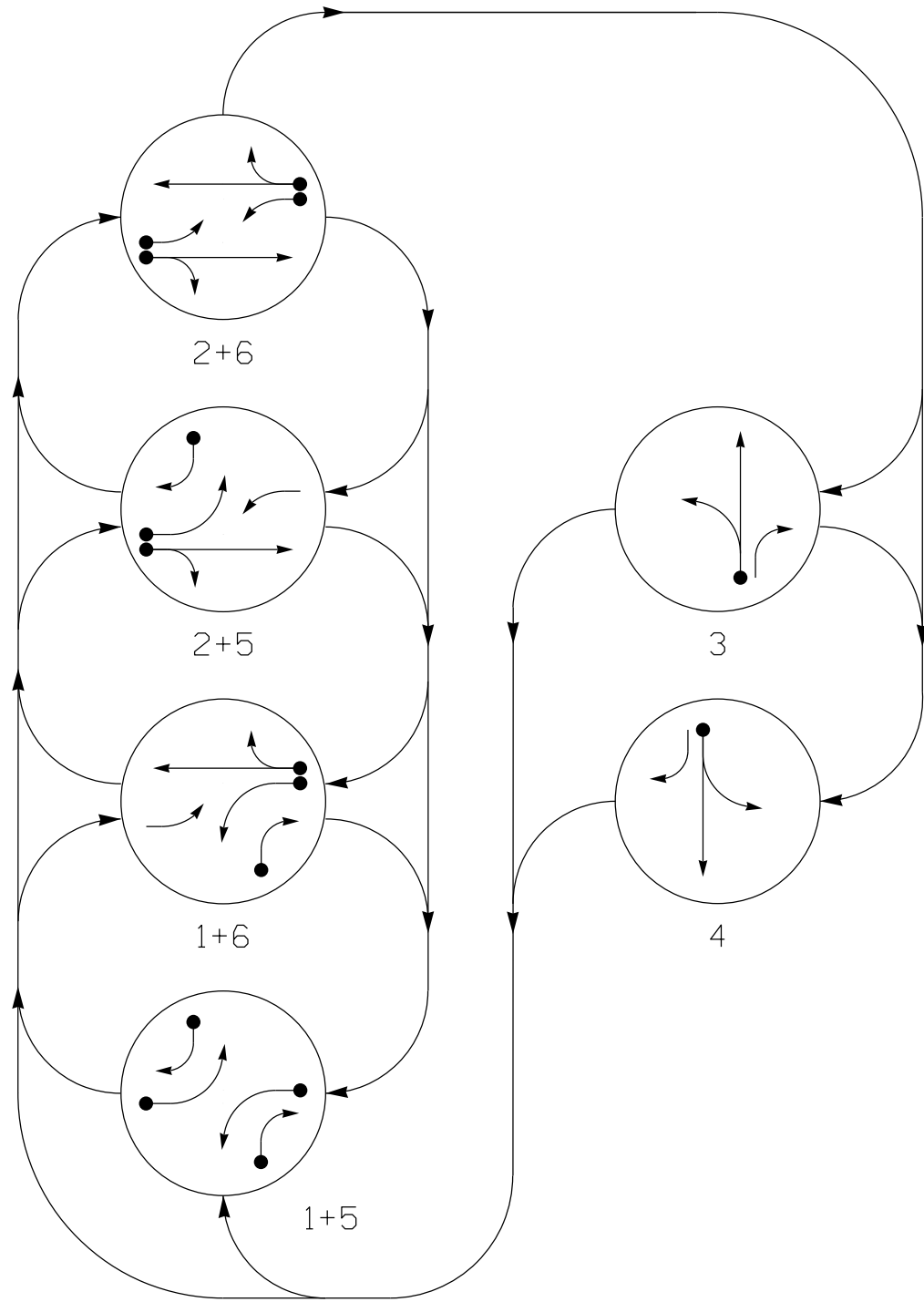


Designed by:
Anthony Encarnacion
3/14/2025
SIGNATURE DATE

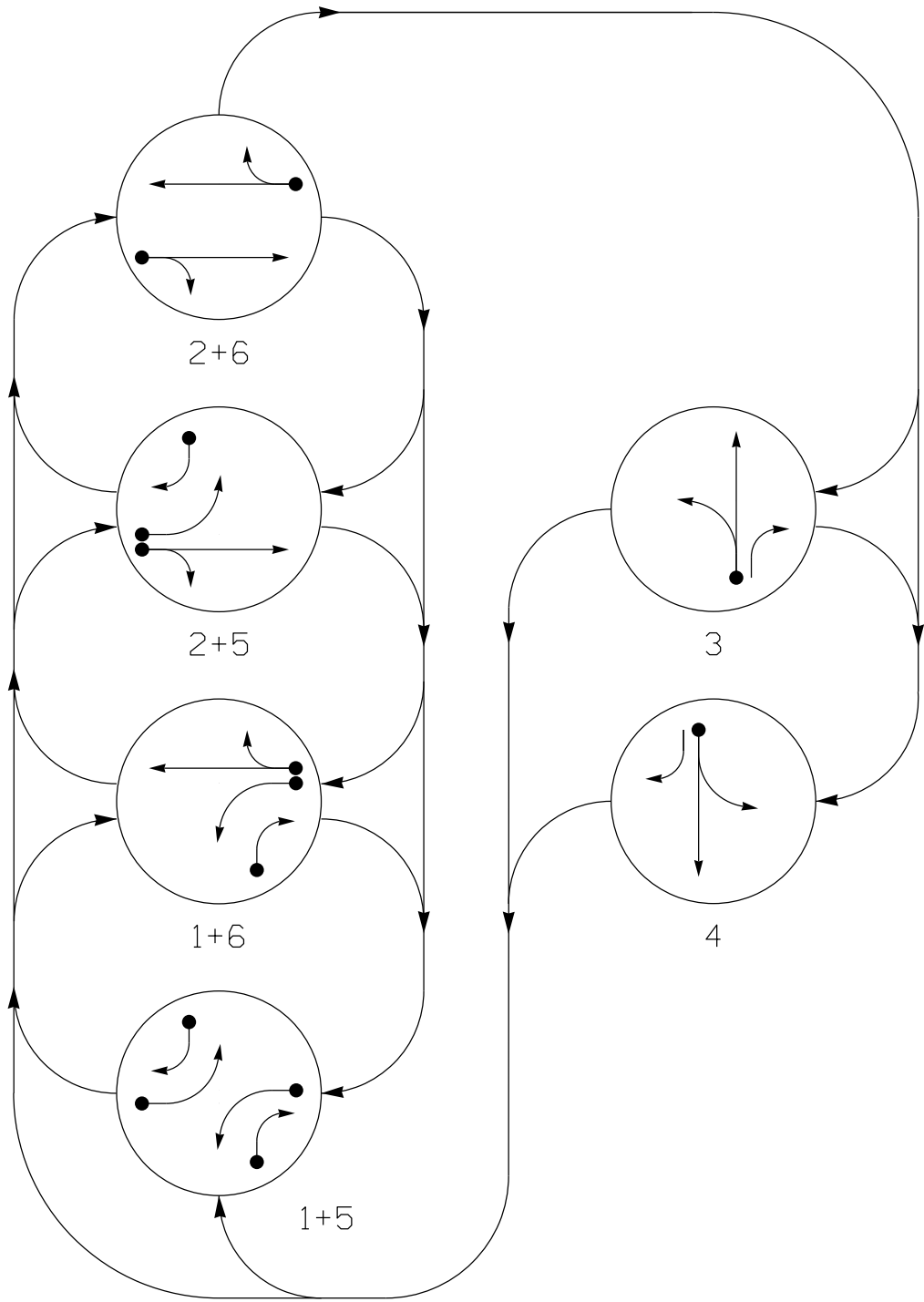
SIG. INVENTORY NO. 07-1306T1

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 9.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION							
SIGNAL FACE	PHASE						FLIGHT TIME
	1 + 5	1 + 6	2 + 5	2 + 6	3	4	
II	←	←	←	←	←	←	
2I, 22	R	R	G	G	R	R	R
3I	R	R	R	R	G	R	R
32	R	R	R	R	G	R	R
33	R	R	R	R	G	R	R
4I	R	R	R	R	G	R	R
42	R	R	R	R	G	R	R
43	R	R	R	R	G	R	R
5I	←	←	←	←	←	←	
6I, 62, 63	R	G	R	G	R	R	R

ALTERNATE PHASING TABLE OF OPERATION							
SIGNAL FACE	PHASE						FLIGHT TIME
	1 + 5	1 + 6	2 + 5	2 + 6	3	4	
II	←	←	←	←	←	←	
2I, 22	R	R	G	G	R	R	R
3I	R	R	R	R	G	R	R
32	R	R	R	R	G	R	R
33	R	R	R	R	G	R	R
4I	R	R	R	R	G	R	R
42	R	R	R	R	G	R	R
43	R	R	R	R	G	R	R
5I	←	←	←	←	←	←	
6I, 62, 63	R	G	R	G	R	R	R

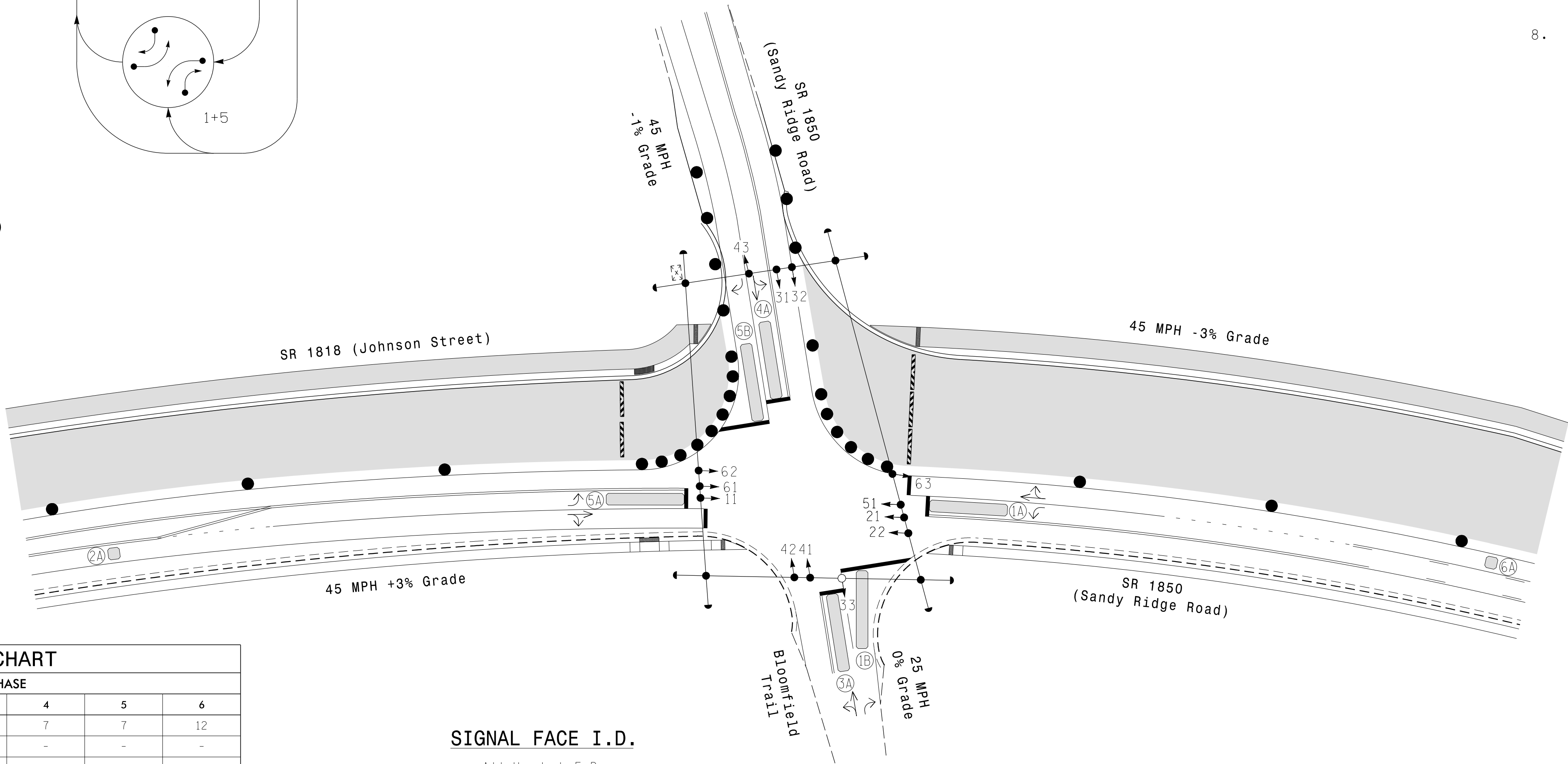
ASC/3 DETECTOR INSTALLATION CHART												
DETECTION						PROGRAMMING						
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW ZONE	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM ZONE	NEW CARD
1A*	6X40	0	*	*	1	Yes	-	15.0**	-	N	-	*
1B*	6X40	0	*	*	1	Yes	-	3.0	-	G	-	*
2A*	6X6	300	*	*	2	Yes	-	-	X	N	-	*
3A*	6X40	0	*	*	3	Yes	-	3.0	-	N	-	*
4A*	6X40	0	*	*	4	Yes	-	3.0	-	N	-	*
5A*	6X40	0	*	*	5	Yes	-	15.0**	-	N	-	*
5B*	6X40	0	*	*	5	Yes	-	15.0	-	N	-	*
6A*	6X6	300	*	*	6	Yes	-	-	X	N	-	*

* Non-Intrusive Detection Zone
** Reduce delay to 3 seconds during alternate phasing operation
Disable phase call for loop(s) during alternate phasing operation

6 Phase
Fully Actuated
(Isolated)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Reposition existing signal heads numbered 11, 21, 22, 51, 61, 62 and 63.
- Set all detector units to presence mode.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.



LEGEND

- | PROPOSED | EXISTING |
|--|----------|
| Traffic Signal Head | N/A |
| Modified Signal Head | N/A |
| Sign | N/A |
| Pedestrian Signal Head With Push Button & Sign | N/A |
| Signal Pole with Guy | N/A |
| Signal Pole with Sidewalk Guy | N/A |
| Inductive Loop Detector | N/A |
| Non-Intrusive Detection Zone | N/A |
| Controller & Cabinet | N/A |
| Junction Box | N/A |
| 2-in Underground Conduit | N/A |
| Right of Way | N/A |
| Guardrail | N/A |
| Construction Zone | N/A |
| Construction Zone Drums | N/A |
| Type III Barrier | N/A |
| Curb Ramp | N/A |

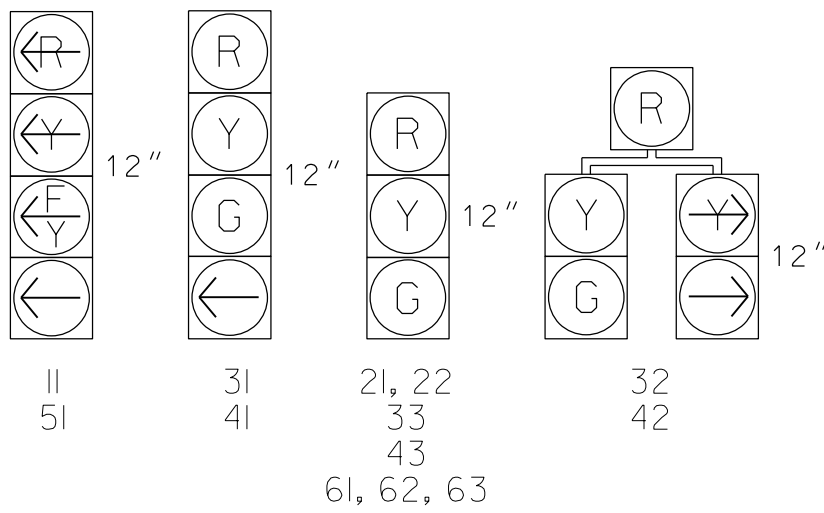
ASC/3 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green *	7	12	-	7	7	12
Delayed Green	-	-	-	-	-	-
Walk *	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0
Max 1 *	15	90	30	30	15	90
Yellow	3.0	4.8	3.2	4.6	3.0	4.8
Red Clear	2.3	1.3	2.2	1.1	2.3	1.3
Actuations B4 Add *	-	-	-	-	-	-
Seconds / Actuation *	-	2.5	-	-	-	2.5
Max Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Locking Detector	-	X	-	-	-	X
Recall Position	-	MIN RECALL	-	-	-	MIN RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	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.

SIGNAL FACE I.D.

All Heads L.E.D.



Signal Upgrade - Temporary Design 2
(TMP Phase III)

AtkinsRéalis
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE
0 40
1"=40'

SR 1850 (Sandy Ridge Road)
at
SR 1818 (Johnson Street)/
Bloomfield Trail

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS

INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL
056276
JAMES T. STIFF
SIGNED BY: James T. Stiff
DATE: 3/14/2025
SIGNATURE DATE
SIC. INVENTORY NO. 07-1306T2

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:PPLT FYA

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..... 1

NOTICE ACTION
PLAN SF BIT "1"

Toggle Twice

OVERLAP C

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

TMG VEH OVLP...[C] TYPE:PPLT FYA

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 5

NOTICE ACTION
PLAN SF BIT "5"

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY

FROM TO

PHASE TIMING.... . > PHASE TIMING.... .

TIMING PLAN..... . > TIMING PLAN..... .

PH DET OPT PLAN. . > PH DET OPT PLAN. .

DETECTOR PLAN... 1 > DETECTOR PLAN... 2

TOGGLE TO SELECT A "FROM" AND A "TO"

THEN PRESS ENTER

4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [] position and enter "2".

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

VEH DETECTOR [1] VEH DET PLAN [2]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1 1

CALL OPTION.... YES DELAY TIME... 3.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH
DET PLAN 2

ENSURE DELAY
IS SET TO '3'

- Place cursor in VEH DETECTOR [] position and enter "26".
- Set assigned phase to "0".

VEH DETECTOR [26] VEH DET PLAN [2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

26 0

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH
DET PLAN 2

ENSURE PHASE
IS SET TO "0"

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".

VEH DETECTOR [5] VEH DET PLAN [2]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

5 5

CALL OPTION.... YES DELAY TIME... 3.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH
DET PLAN 2

ENSURE DELAY
IS SET TO '3'

- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

22 0

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH
DET PLAN 2

ENSURE PHASE
IS SET TO "0"

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306T2
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4
Temporary Design 2

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:



750 N.Greenfield Pkwy, Garner, NC 27529


1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SR 1850 (Sandy Ridge Road)
at
SR 1818 (Johnson Street)/
Bloomfield Trail

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

Signature line

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
044476
ANTHONY M. ENCARNACION

Designed by: Anthony Encarnacion 3/14/2025

SIGNATURE DATE

SIG. INVENTORY NO. 07-1306T2

13-MAR-2025 15:18
DW://SUD0036343\work\ins-com\ATKMANC01\Documents\Roads and Bridges\Projects\100059632_JSSR S1g and ITS\Task 05_11_Signals\071306T2_sml.e_2023mmd.dgn
S1F4685 - AT L05491089

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 3 seconds.

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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																		
PATTERN.....	AUTO				SYS OVERRIDE.... NO													
TIMING PLAN.....	0				SEQUENCE..... 0													
VEH DETECTOR PLAN..	2				DET LOG.....NONE													
FLASH.....	--				RED REST..... NO													
VEH DET DIAG PLN...	0				PED DET DIAG PLN..0													
DIMMING ENABLE..	NO				PRIORITY RETURN. NO													
PED PR RETURN..	NO				QUEUE DELAY..... NO													
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	X	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306T2
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Temporary Design 2

Prepared for the Offices of:

AtkinsRéalisis

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1818 (Johnson Street)/
Bloomfield Trail
Division 7 Guilford County High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL

SEAL
044476

ENGINEER

Anthony Encarnacion

3/14/2025

SIGNATURE

DATE

SIG. INVENTORY NO. 07-1306T2

13-MAR-2025 15:20
PW:///SUD0036433-works\ins-com\ATKMANC01\Documents\Roads and Bridges\Projects\100059632_JSSR S1g and ITS\Task 05_11_Signals\071306T2_sml.e_2023mdd.dgn
S1F4685 AT L0591089

ECONOLITE ASC/3-2070 STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA
-----START UP-----
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASE G G
A B C D E F G H I J K L M N O P
OVERLAP X X X X X X X X X X X X X X
FLASH>MON. NO FL TIME.. 0 ALL RED... 6
PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "G"

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 9.4

ASC/3 FLASH SENSE INPUT CONTROL FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE
IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS
LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL",
next verify that LP#100 is ENABLED.

END PROGRAMMING

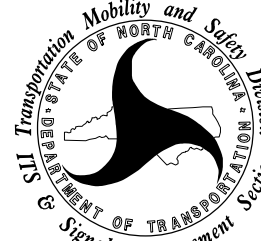
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306T2
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 4 of 4
Temporary Design 2

 **AtkinsRéal**

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1818 (Johnson Street)/
Bloomfield Trail
Division 7 Guilford County High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

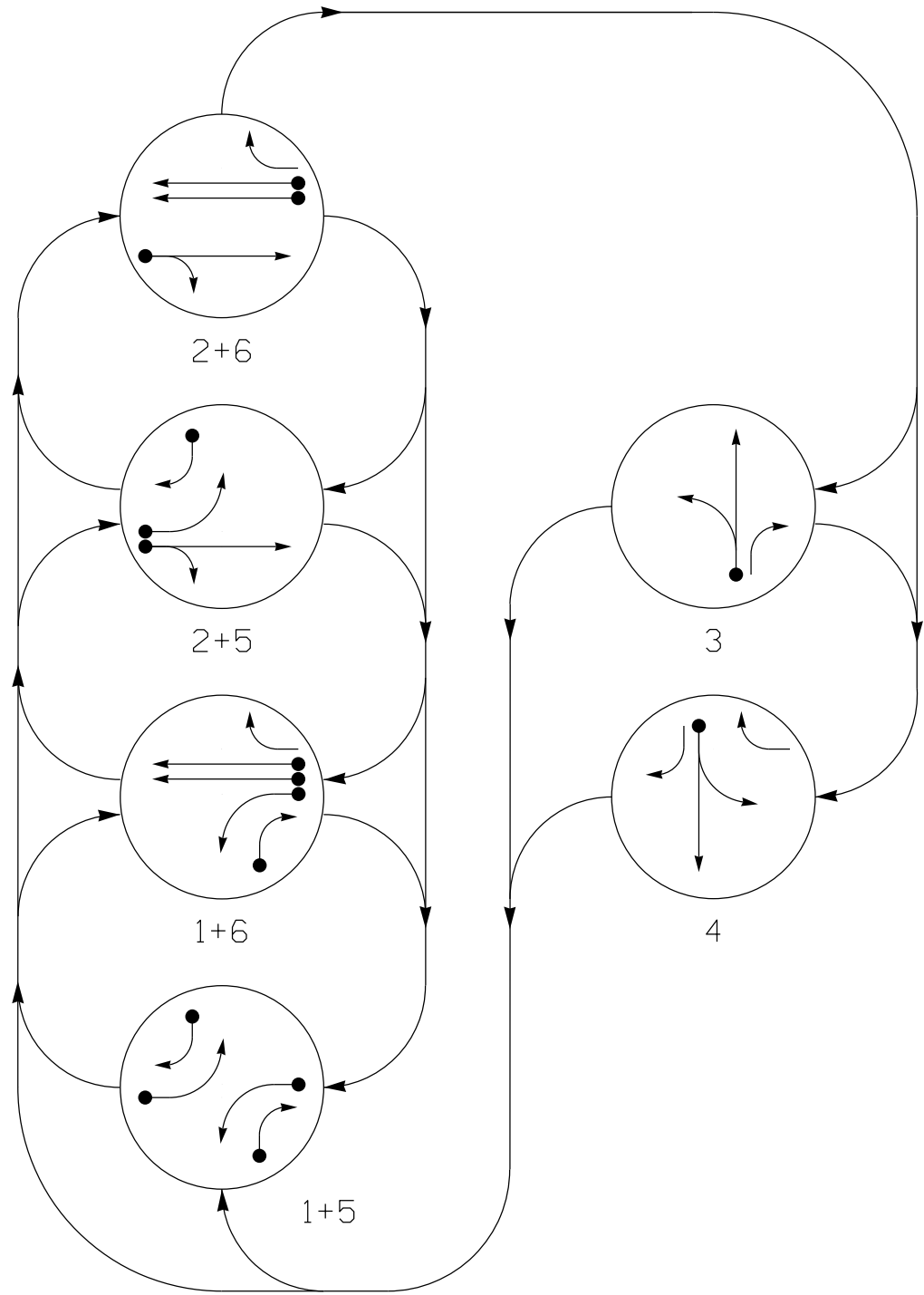
Seal of North Carolina Professional Engineer
ANTHONY M. ENCARNACION
SEAL 044476

Designed by:
Anthony Encarnacion
3/14/2025

SIGNATURE DATE

SIG. INVENTORY NO. 07-1306T2

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	4
II	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
31	R	R	R	R	G	R
32	R	R	R	R	G	R
33	R	R	R	R	G	R
41	R	R	R	R	R	G
42	R	R	R	R	R	G
43	R	R	R	R	R	G
51	←	←	←	←	←	←
61, 63	R	G	R	G	R	R
62	R	G	R	G	R	R

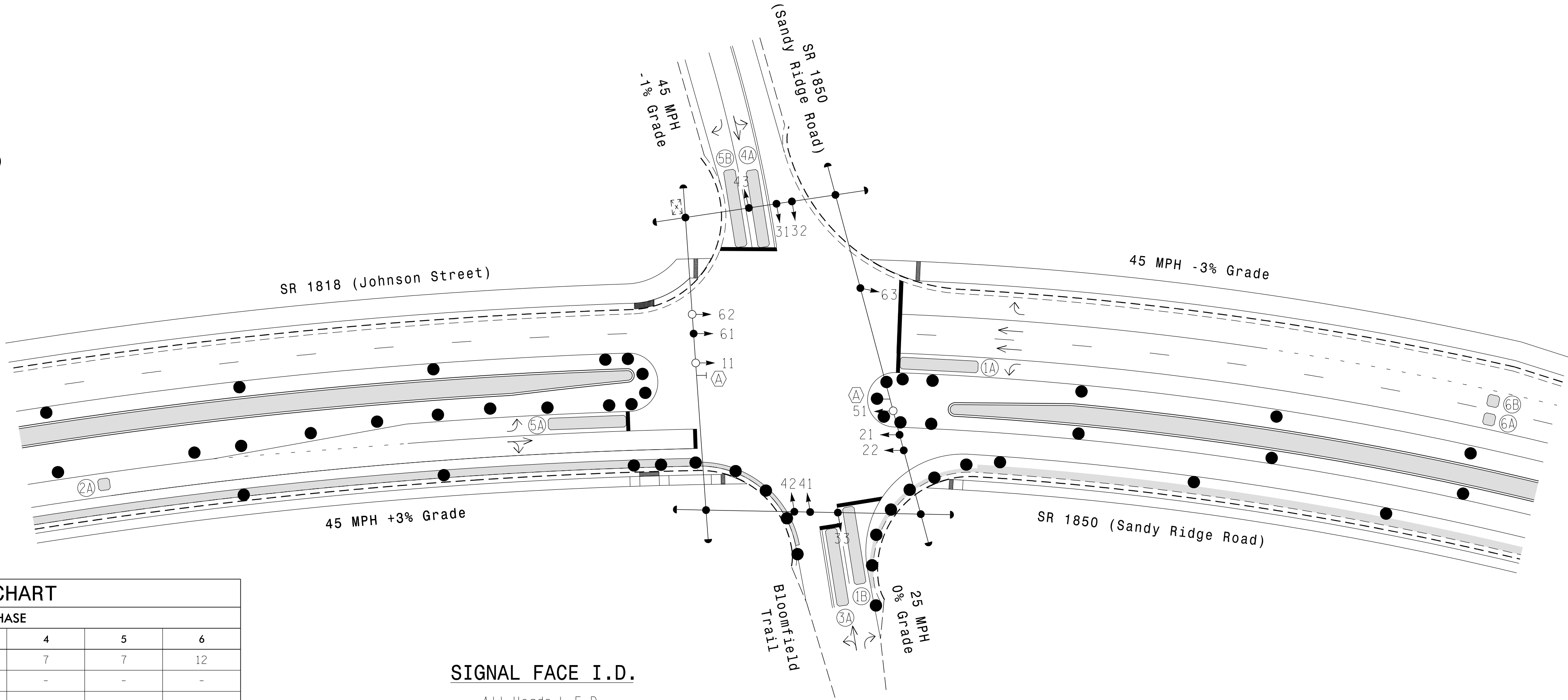
ASC/3 DETECTOR INSTALLATION CHART												
DETECTION					PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW ZONE	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM ZONE	NEW CARD
1A*	6X40	0	*	*	1	Yes	-	-	-	N	-	*
1B*	6X40	0	*	*	1	Yes	-	15.0	-	N	-	*
2A*	6X6	300	*	*	2	Yes	-	-	X	N	-	*
3A*	6X40	0	*	*	3	Yes	-	3.0	-	N	-	*
4A*	6X40	0	*	*	4	Yes	-	3.0	-	N	-	*
5A*	6X40	0	*	*	5	Yes	-	-	-	N	-	*
5B*	6X40	0	*	*	5	Yes	-	15.0	-	N	-	*
6A*	6X6	300	*	*	6	Yes	-	-	X	N	-	*
6B*	6X6	300	*	*	6	Yes	-	-	X	N	-	*

*Non-Intrusive Detection Zone

6 Phase Fully Actuated (Isolated)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Reposition existing signal heads numbered 21, 22, 61 and 63.
- Set all detector units to presence mode.
- This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.

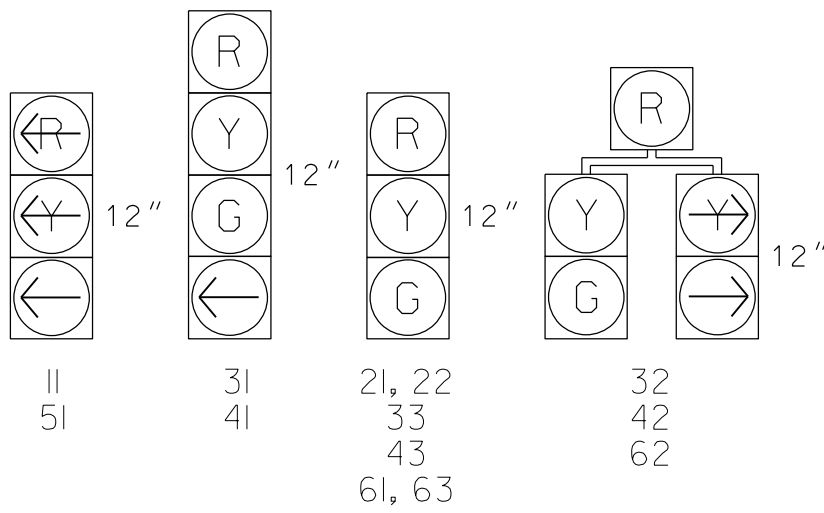


ASC/3 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green *	7	12	7	7	7	12
Delayed Green	-	-	-	-	-	-
Walk *	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0
Max 1 *	15	90	30	30	15	90
Yellow	3.0	4.8	3.2	4.6	3.0	4.8
Red Clear	2.8	1.4	3.3	1.8	3.4	1.4
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	2.5	-	-	-	2.5
Max Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Locking Detector	-	X	-	-	-	X
Recall Position	-	MIN RECALL	-	-	-	MIN RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X

SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

- | PROPOSED | EXISTING |
|--|----------|
| Traffic Signal Head | N/A |
| Modified Signal Head | N/A |
| Sign | N/A |
| Pedestrian Signal Head With Push Button & Sign | N/A |
| Signal Pole with Guy | N/A |
| Signal Pole with Sidewalk Guy | N/A |
| Inductive Loop Detector | N/A |
| Non-Intrusive Detection Zone | N/A |
| Controller & Cabinet | N/A |
| Junction Box | N/A |
| 2-in Underground Conduit | N/A |
| Right of Way | N/A |
| Guardrail | N/A |
| Construction Zone | N/A |
| Construction Zone Drums | N/A |
| Curb Ramp | N/A |
| "U-TURN YIELD TO RIGHT TURN" Sign (R10-16) | N/A |

Signal Upgrade - Temporary Design 3 (TMP Phase IV)

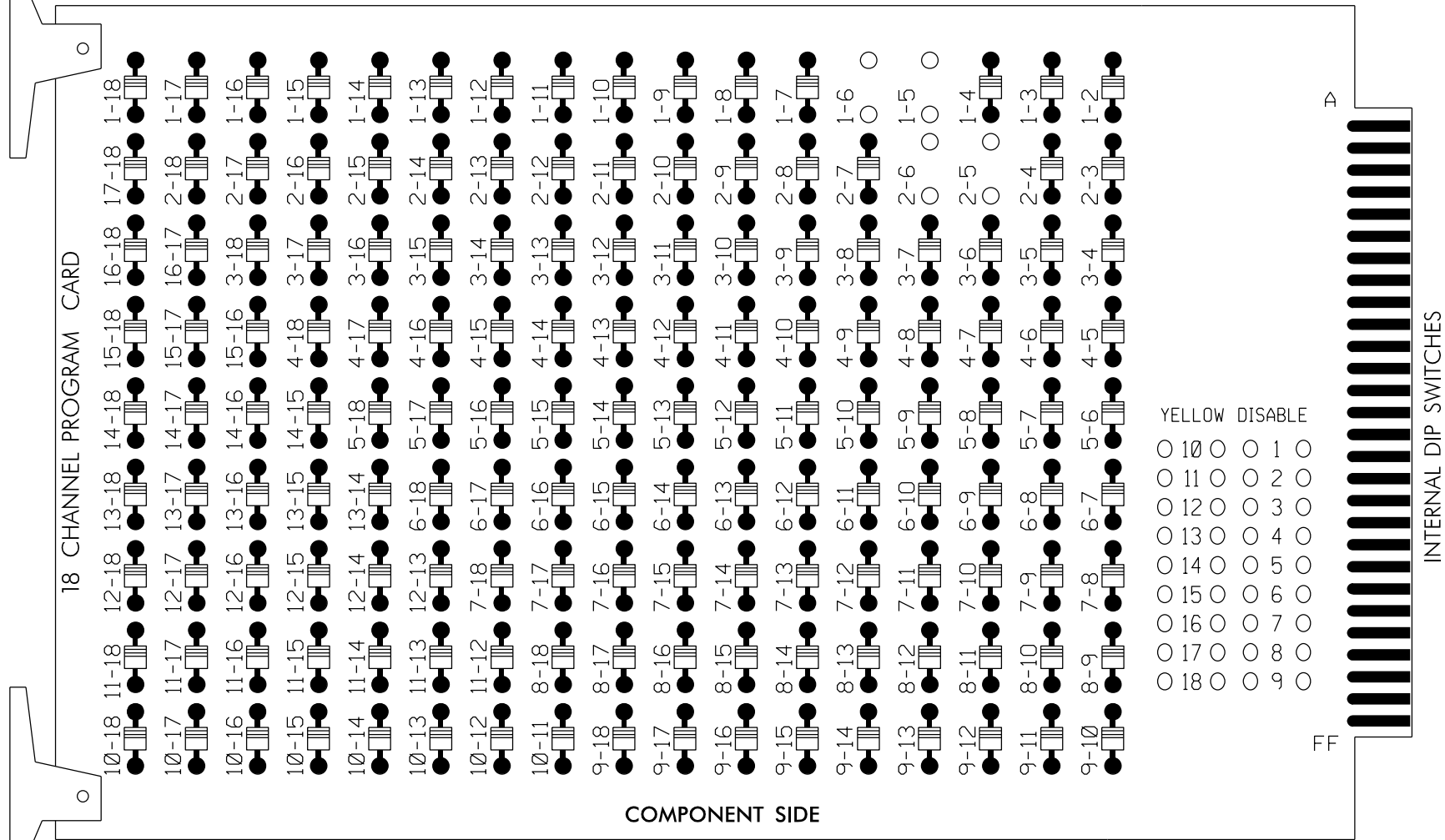
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1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of: TRANSPORTATION MOBILITY AND SAFETY DIVISION DEPARTMENT OF TRANSPORTATION Signal Design Section 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/ Bloomfield Trail Division 7 Guilford County High Point PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion PREPARED BY: JT Stiff REVIEWED BY: PL Alexander	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES T. STIFF 056276 3/14/2025 SIC. INVENTORY NO. 07-1306T3
--	--	--

18 CHANNEL IP CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

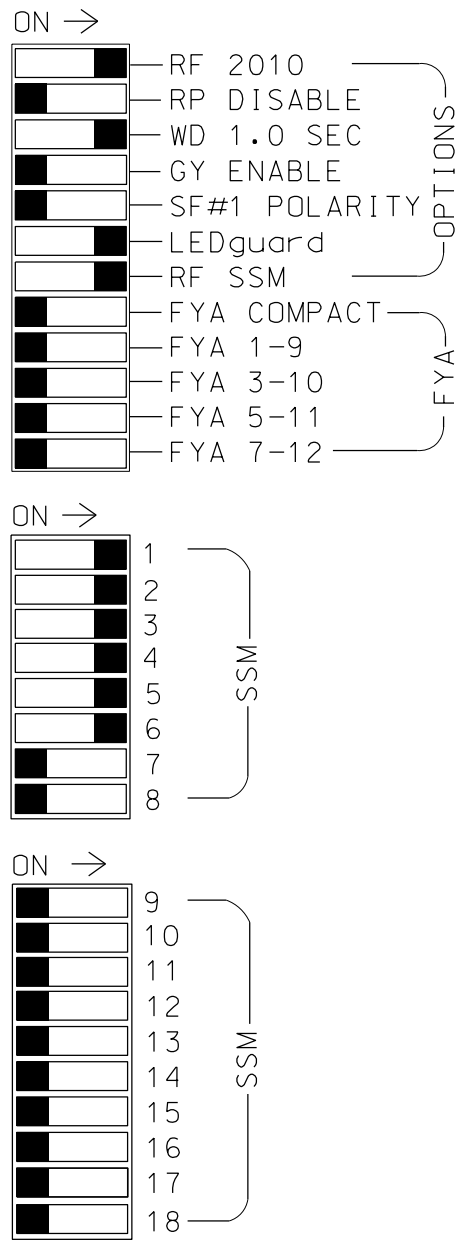
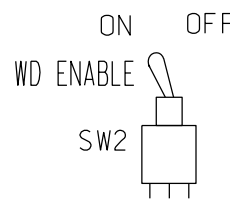
REMOVE DIODE JUMPERS 1-5, 1-6, 2-5 AND 2-6.



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.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.



NOTES

- To prevent “flash-conflict” problems, insert red flash program blocks for all 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.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8
PHASES USED.....1,2,3,4,5,6
OVERLAP “A”.....NOT USED
OVERLAP “B”.....NOT USED
OVERLAP “C”.....NOT USED
OVERLAP “D”.....NOT USED

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	32	21,22	NU	31	32,33	41	42,43	62	NU	42	51	61, 62,63	NU	NU	NU	NU	NU
RED			128		116	116	101	101					134					
YELLOW			129		117	117	102	102					135					
GREEN			130		118	118	103	103					136					
RED ARROW	125											131						
YELLOW ARROW	126	126						102		132	132							
FLASHING YELLOW ARROW																		
GREEN ARROW	127	127			118		103		103		133	133						

NU = Not Used

ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select 2. CONTROLLER
- From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA

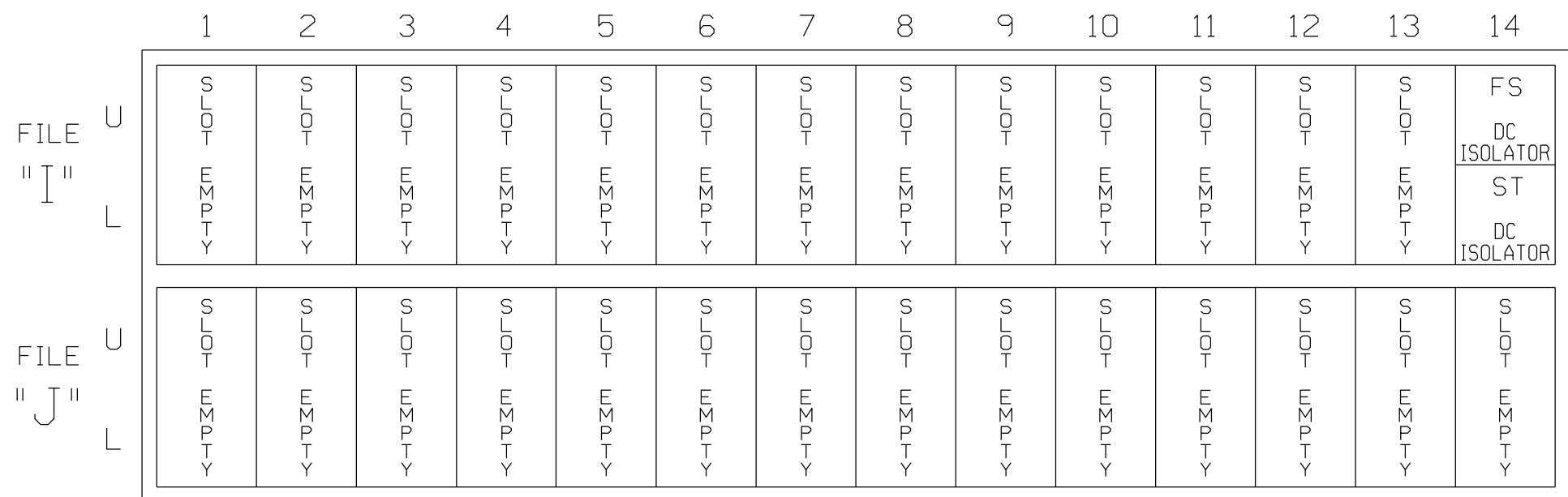
-----START UP-----
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASE G G
A B C D E F G H I J K L M N O P
OVERLAP X X X X X X X X X X X X X X
FLASH>MON. NO FL TIME.. 0 ALL RED... 6
PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set “Exit FI” to Green “G”

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306T3
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

DETECTOR NOTES

- Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer’s directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the “LP” to 100 and move the cursor down. Delete the two “CTR-SET” statements by moving the cursor over them and hitting the “C” key. then hit “ENTER”. select “LP SET CIB ON”, hit “ENT”, and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE
IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS
LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit “ESC”, then 1 for “LOGIC STATEMENT CONTROL”, next verify that LP#100 is ENABLED.

END PROGRAMMING

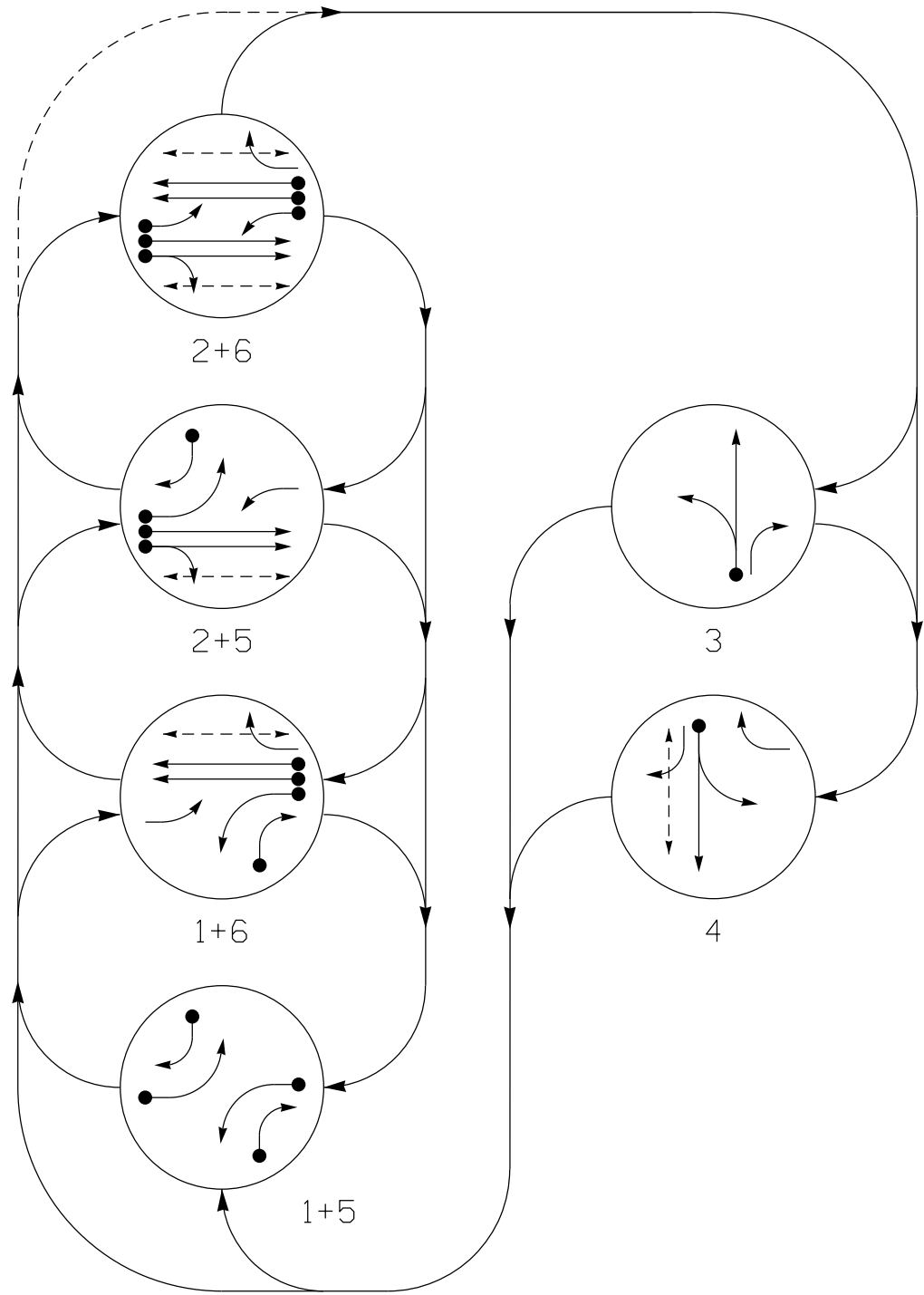
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1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Electrical Detail - Temporary Design 3

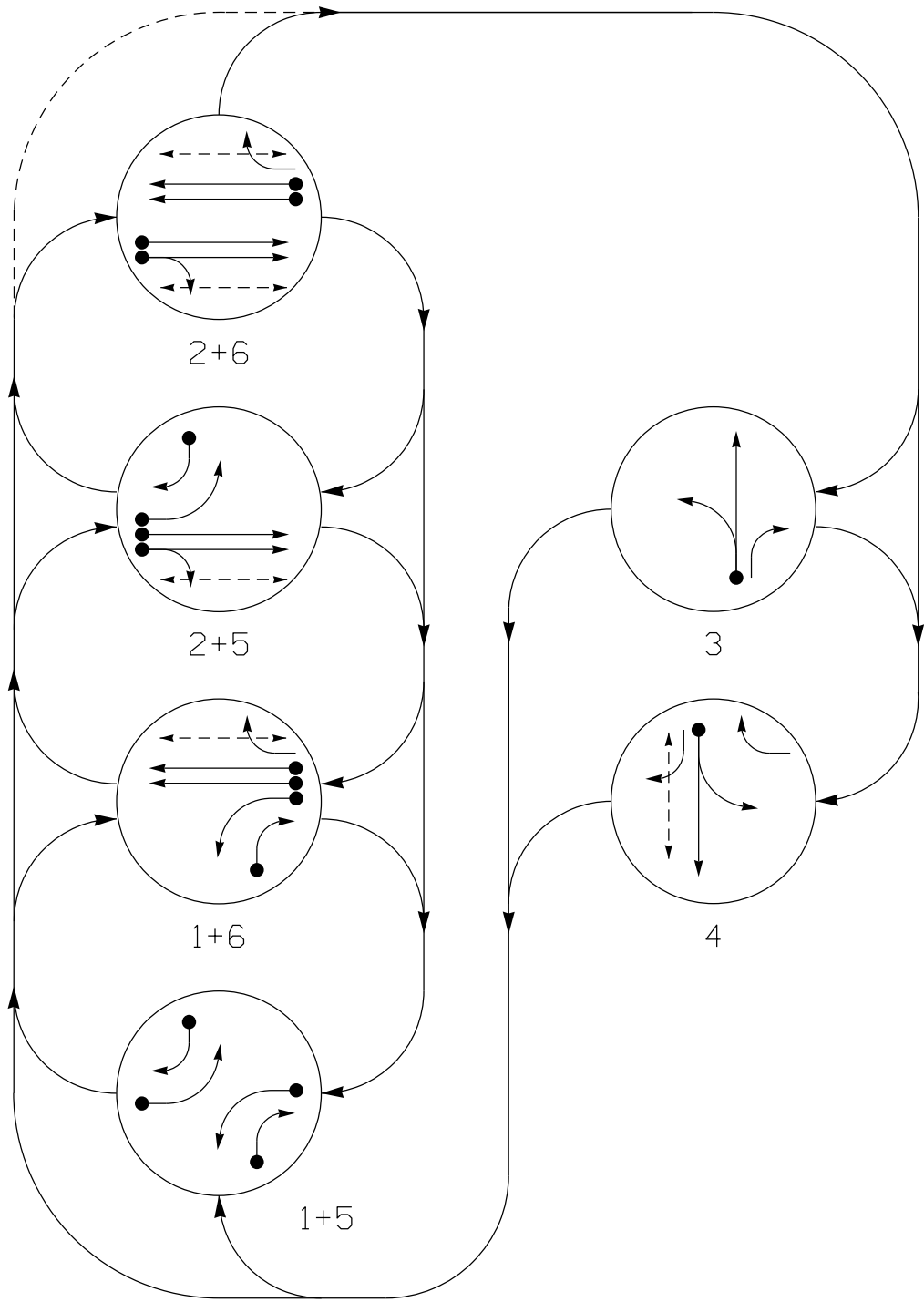
ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/ Bloomfield Trail		Division 7		Guilford County		High Point	
PLAN DATE: January 2025		REVIEWED BY: AM Encarnacion		PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		REVISIONS	
INIT.		DATE		DATE		DATE		DATE	
Seal		Seal		Seal		Seal		Seal	
Signature		Signature		Signature		Signature		Signature	
Date		Date		Date		Date		Date	
Sig. Inventory No.		Sig. Inventory No.		Sig. Inventory No.		Sig. Inventory No.		Sig. Inventory No.	

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 11.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	4
II	←	←	←	←	←	←
2L, 22	R	R	G	G	R	R
3L	R	R	R	R	G	R
32	R	R	R	R	G	R
4L	R	R	R	R	R	G
42	R	R	R	R	R	G
43	→	→	→	→	→	→
5L	←	←	←	←	←	←
6L, 62, 64	R	G	R	G	R	R
63	R	←	R	←	R	→
P2L, P22	DW	DW	W	W	DW	DRK
P4L, P42	DW	DW	DW	DW	DW	W
P6L, P62	DW	W	DW	W	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	4
II	←	←	←	←	←	←
2L, 22	R	R	G	G	R	R
3L	R	R	R	R	G	R
32	R	R	R	R	G	R
4L	R	R	R	R	R	G
42	R	R	R	R	R	G
43	→	→	→	→	→	→
5L	←	←	←	←	←	←
6L, 62, 64	R	G	R	G	R	R
63	R	←	R	←	R	→
P2L, P22	DW	DW	W	W	DW	DRK
P4L, P42	DW	DW	DW	DW	DW	W
P6L, P62	DW	W	DW	W	DW	DRK

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	LOOP NEW CARD
1A	6X40	0	2-4-2	X	1	Yes	-	15.0*	-	N	- X
1B	6X40	0	2-4-2	X	1	Yes	-	15.0	-	N	- X
2A	6X6	300	4	X	2	Yes	-	-	X	N	- X
2B	6X6	300	4	X	2	Yes	-	-	X	N	- X
3A	6X40	0	2-4-2	X	3	Yes	-	3.0	-	N	- X
4A	6X40	0	2-4-2	X	4	Yes	-	3.0	-	N	- X
5A	6X40	0	2-4-2	X	5	Yes	-	15.0*	-	N	- X
5B	6X40	0	2-4-2	X	5	Yes	-	15.0	-	G	- X
6A	6X6	300	4	X	6	Yes	-	-	X	N	- X
6B	6X6	300	4	X	6	Yes	-	-	X	N	- X

*Disable delay during alternate phasing operation

#Disable phase call for loop(s) during alternate phasing operation

6 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- 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.
- The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
- Metal poles, Type I pushbutton posts and Type II pedestals shall be BLACK in color.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

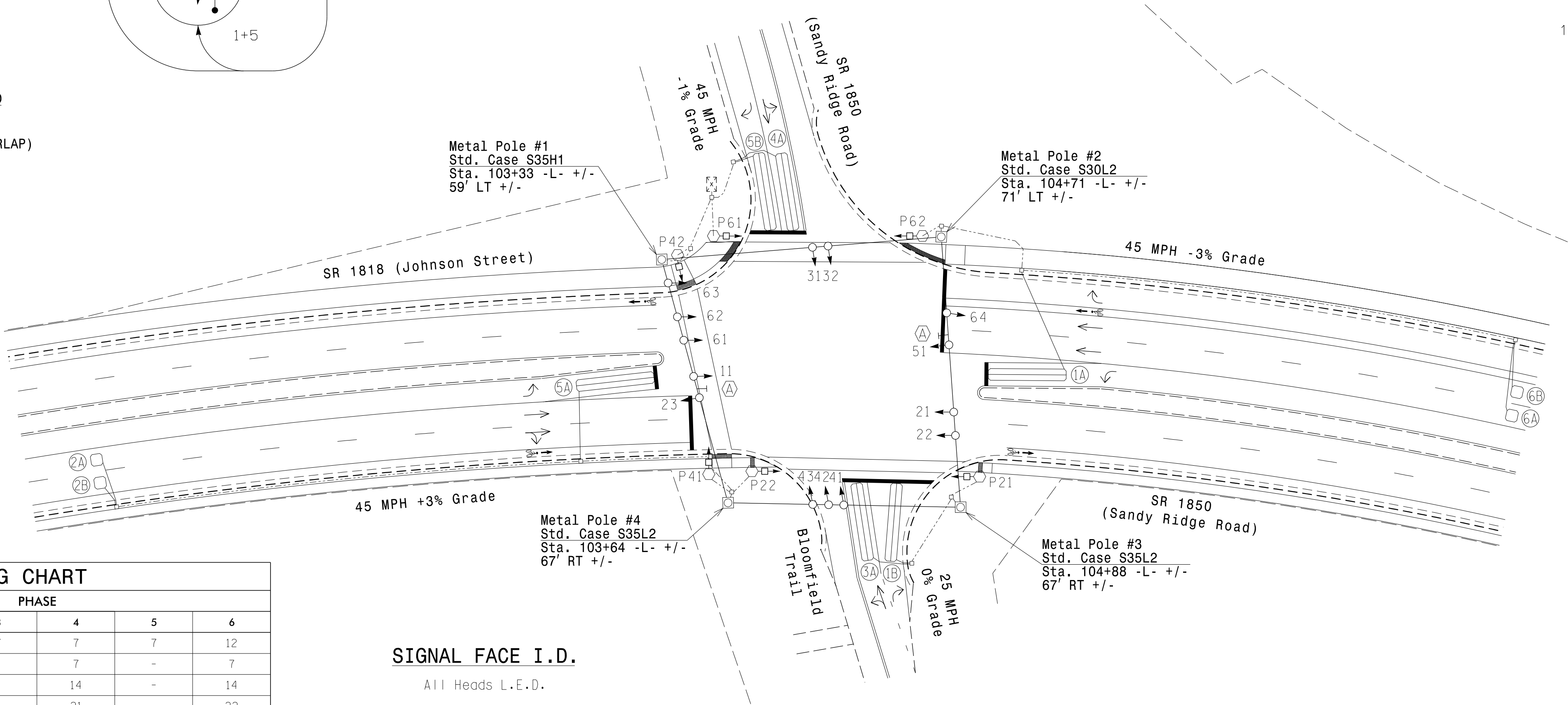
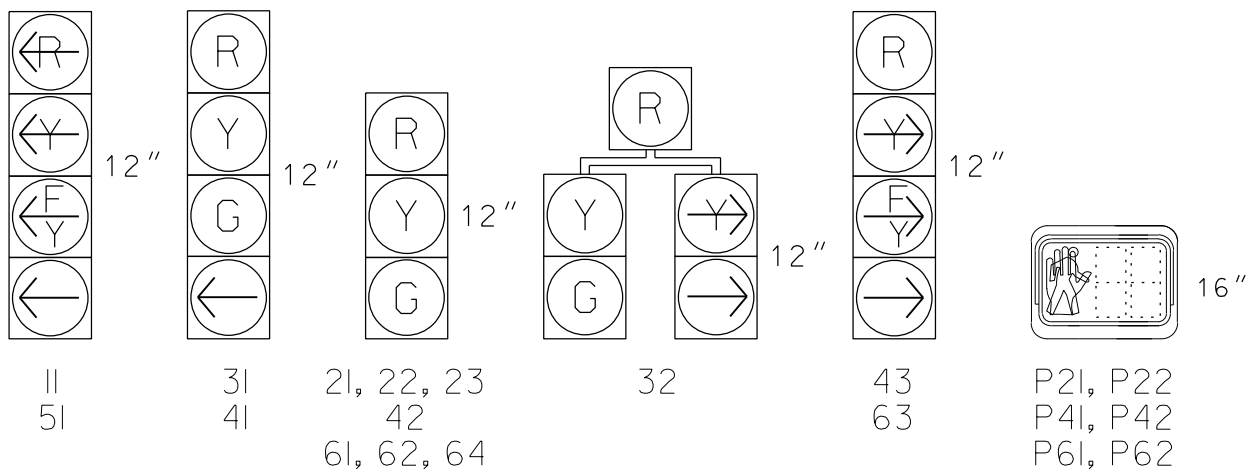
- | PROPOSED | EXISTING |
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ASC/3 TIMING CHART						
FEATURE	PHASE					
	1	2	3	4	5	6
Min Green *	7	12	7	7	7	12
Delayed Green	-	7	-	7	-	7
Walk *	-	14	-	14	-	14
Ped Clear	-	24	-	21	-	22
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0
Max 1 *	15	90	30	30	15	90
Yellow	3.0	4.8	3.2	4.6	3.0	4.8
Red Clear	3.1	2.0	3.1	1.9	3.3	2.0
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	1.5	-	-	-	1.5
Max Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Locking Detector	-	X	-	-	-	X
Recall Position **	-	SOFT RECALL	-	-	-	SOFT RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	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.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

SIGNAL FACE I.D.

All Heads L.E.D.



Signal Upgrade - Final Design

Prepared for the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 0 40 1"=40'

SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/Bloomfield Trail

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS: INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

James T. Stiff, Professional Engineer, No. 056276

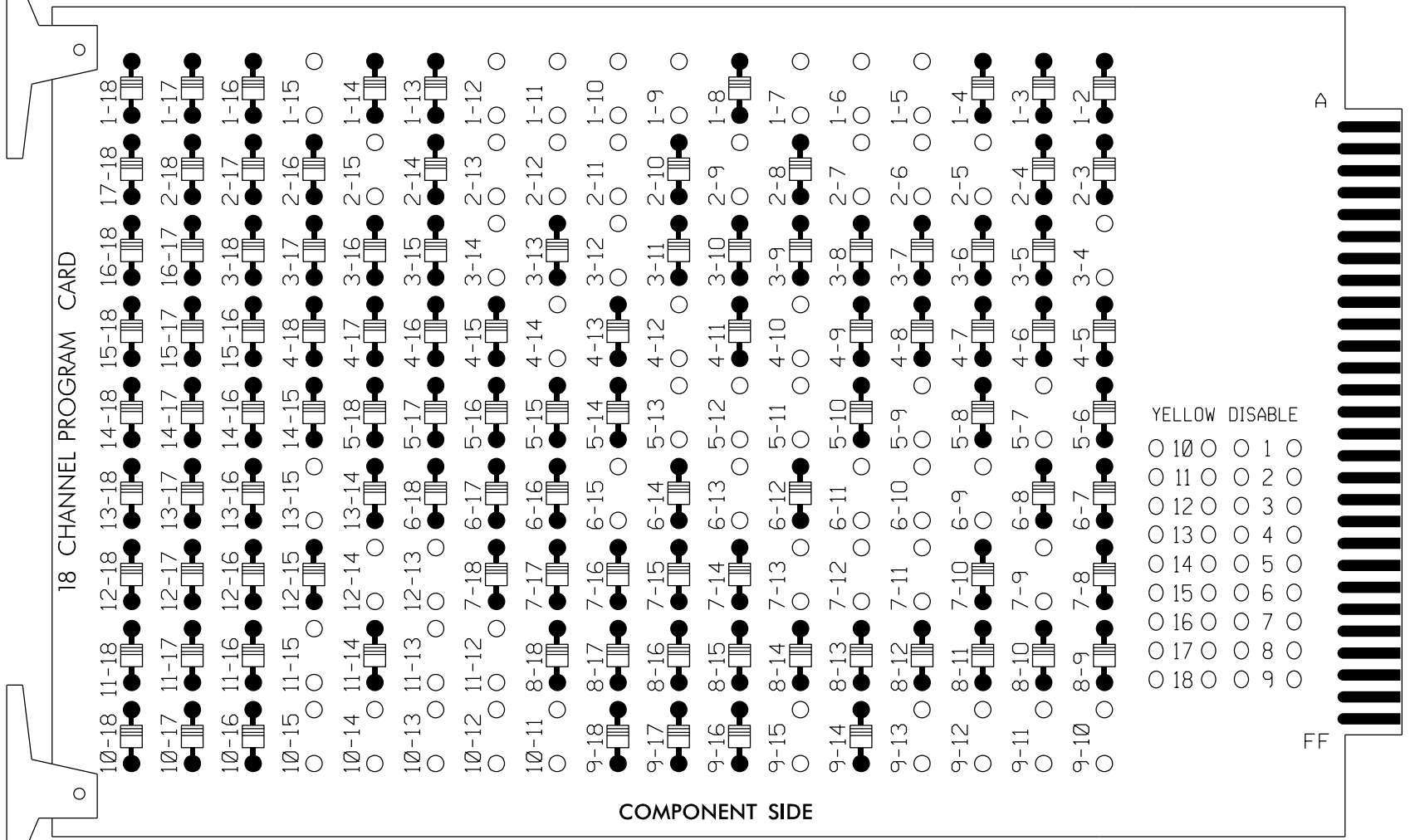
3/14/2025

SIG. INVENTORY NO. 07-1306

18 CHANNEL IP CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

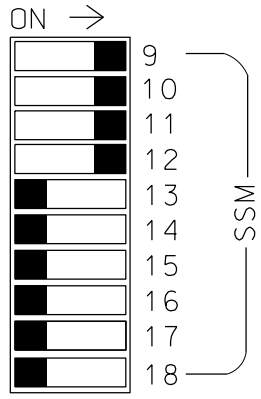
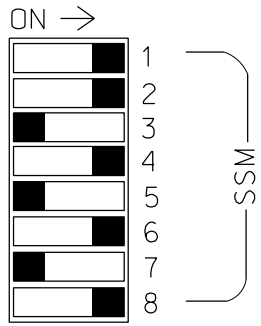
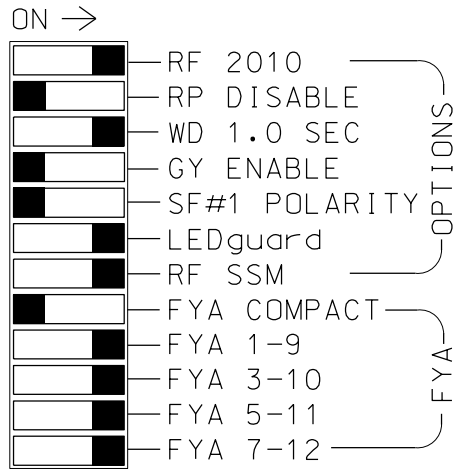
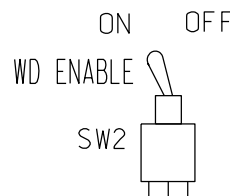
REMOVE DIODE JUMPERS 1-5, 1-6, 1-7, 1-9, 1-10, 1-11, 1-12, 1-15, 2-5, 2-6, 2-7, 2-9, 2-11, 2-12, 2-13, 2-15, 3-4, 3-12, 3-14, 4-10, 4-12, 4-14, 5-7, 5-9, 5-11, 5-12, 5-13, 6-9, 6-10, 6-11, 6-13, 6-15, 7-9, 7-11, 7-12, 7-13, 9-10, 9-11, 9-12, 9-13, 9-15, 10-11, 10-12, 10-13, 10-14, 10-15, 11-12, 11-13, 11-15, 12-13, 12-14 and 13-15.



NOTES:

REMOVE JUMPERS AS SHOWN

- 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 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 High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
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,S9,S10,
S11,AUX S1,AUX S2,AUX S4,AUX S5

PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,6 PED
OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
OVERLAP "E".....NOT USED
OVERLAP "F".....NOT USED
OVERLAP "G".....*
OVERLAP "H".....*
OVERLAP "I".....*

* See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT
(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	∅ 1 1A	∅ 1 1B	∅ 2 2A	∅ 3 3A	∅ 3 3A	∅ 4 4A	∅ 5 5A	∅ 5 5A	∅ 6 6A	∅ 6 6A	∅ 7 7A	∅ 8 8A	∅ 9 9A	∅ 10 10A
FILE "J" U	NOT USED	NOT USED	∅ 2 2B	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED

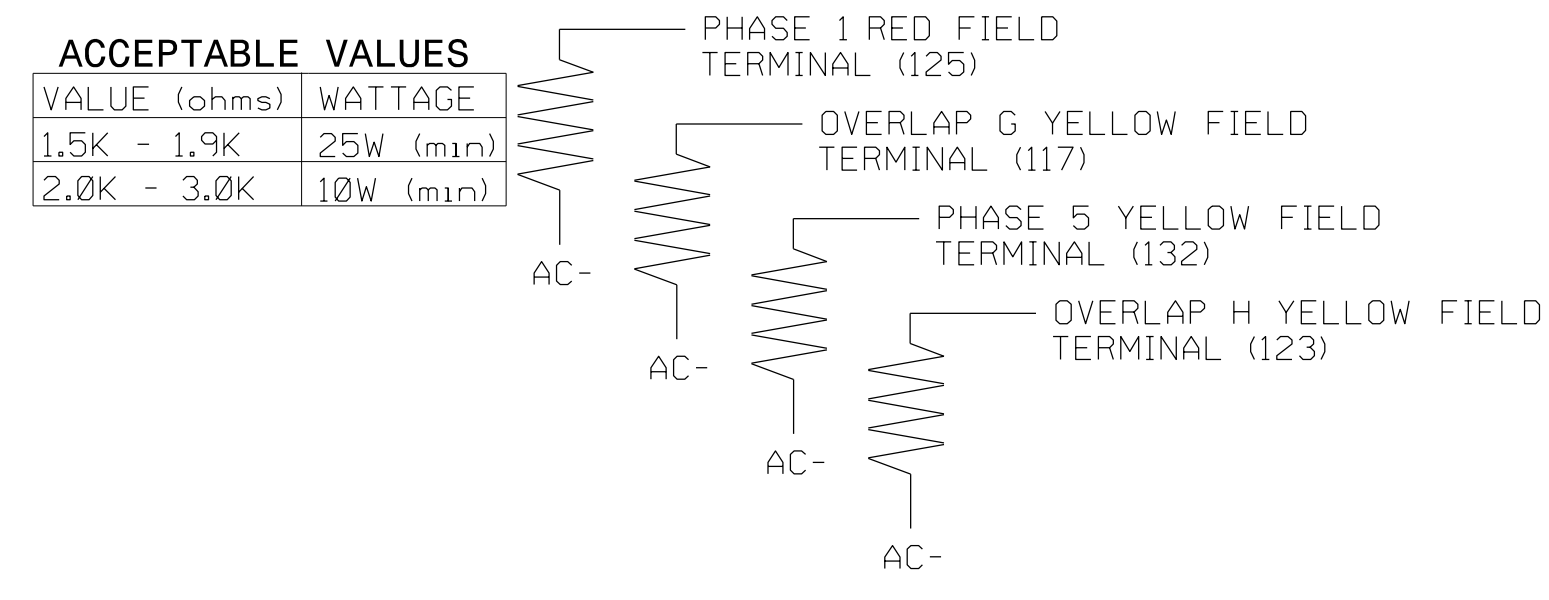
EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



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 ¹	TB2-1,2	I1U	56	1 ★	1	YES		15.0		N
	-	J4U	48	26 ★	6	YES		3.0		G
1B	TB2-5,6	I2U	39	2	1	YES		15.0		N
2A	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
3A	TB4-5,6	I5U	58	3	3	YES		3.0		N
4A	TB4-9,10	I6U	41	4	4	YES		3.0		N
5A ²	TB3-1,2	J1U	55	5 ★	5	YES		15.0		N
	-	I4U	47	22 ★	2	YES		3.0		G
5B	TB3-5,6	J2U	40	6	5	YES		15.0		N
6A	TB3-9,10	J3U	64	36	6	YES			X	N
6B	TB3-11,12	J3L	77	46	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					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

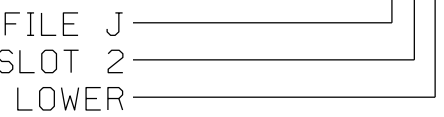
NOTE:
INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
112 AND 113.

¹Add jumper from I1-W to J4-W, on rear of input file.

²Add jumper from J1-W to I4-W, on rear of input file.

★ For the detectors to work as shown on the signal design plan.
See the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



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	OLG	4	4 PED	5	6	6 PED	OLH	OLI	8 PED	OLA	OLB	OLE	OLC	OLD	SPARE			
SIGNAL HEAD NO.	11★	32	21,22	P21, P22	63★	41	42	P41, P42	51★	61,62, 64	P61, P62	43★	31	32	NU	11★	63★	NU	51★	43★	NU
RED	*		128		101	101			134		107	107			A124			A101			
YELLOW			129	*	102	102		*	135		*	108	108								
GREEN			130		103	103			136		109	109									
RED ARROW													A121			A114					
YELLOW ARROW		126											A122	A125		A115	A102				
FLASHING YELLOW ARROW													A123	A126		A116	A103				
GREEN ARROW	127	127		118	103		133			124	109										
				113			104			119											
				115			106			121											

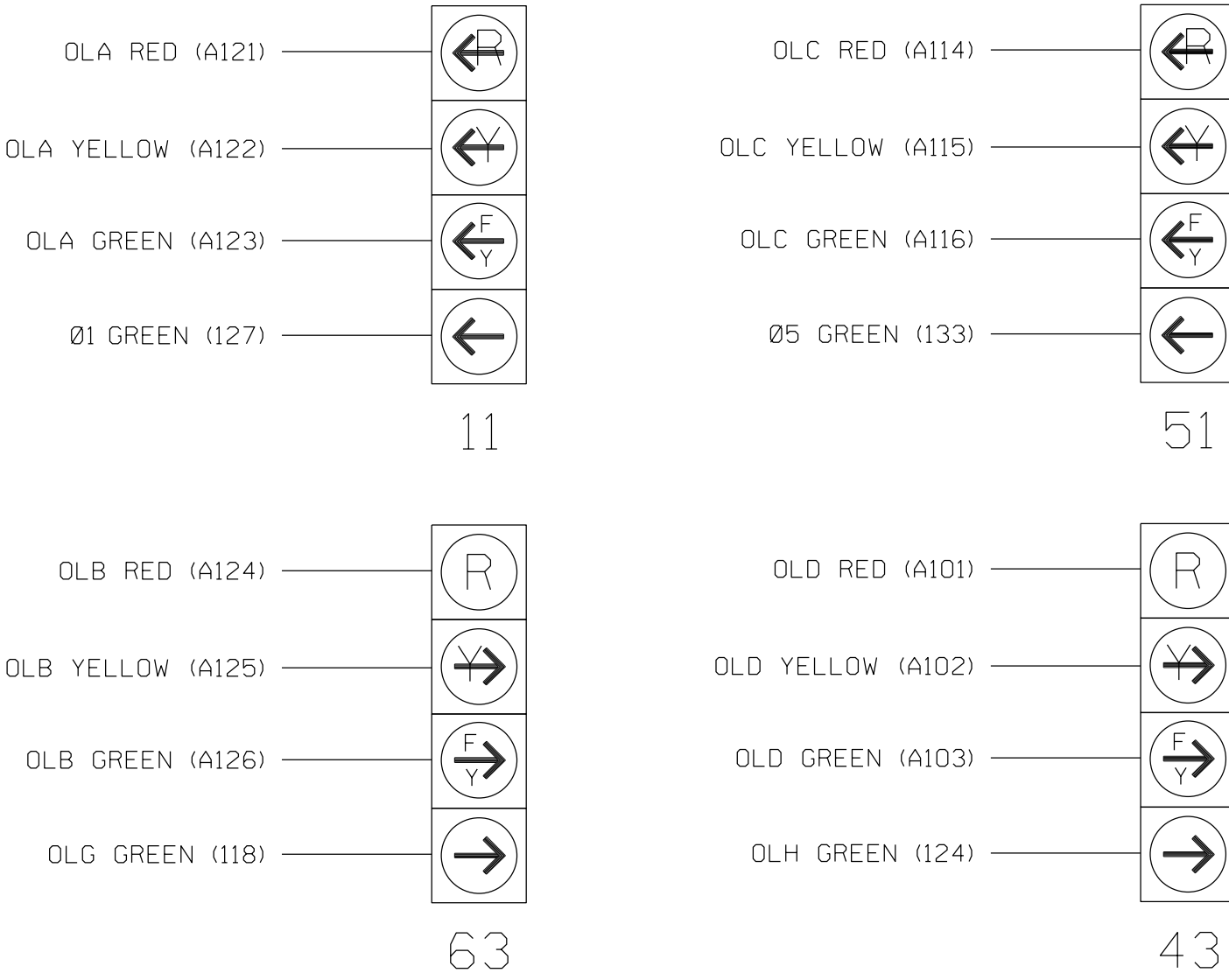
NU = Not Used

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

★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4
Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/ Bloomfield Trail Division 7 Guilford County High Point	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
Prepared for the Offices of:  750 N.Greenfield Pkwy,Garner,NC 27529	PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion PREPARED BY: JT Stiff REVIEWED BY: PL Alexander	SEAL NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SEAL 044476 ENGINEER ANTHONY ENCARNACION 3/14/2025 DATE SIC. INVENTORY NO. 07-1306

AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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 to 'Overlap G'

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

Toggle Once

OVERLAP H

Select TMG VEH OVLP [H] and 'NORMAL'

TMG VEH OVLP...[H] 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

Toggle Once

OVERLAP I

Select TMG VEH OVLP [I] and 'NORMAL'

TMG VEH OVLP...[I] 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

Toggle to 'Overlap A'

OVERLAP A

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

TMG VEH OVLP...[A] TYPE:PPLT FYA

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..... 1

Toggle Once

OVERLAP B

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

TMG VEH OVLP...[B] TYPE:PPLT FYA

PROTECTED LEFT TURN.... OVERLAP G

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH10 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 0

Toggle Once

OVERLAP C

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

TMG VEH OVLP...[C] TYPE:PPLT FYA

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 5

Toggle Once

OVERLAP D

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

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

PROTECTED LEFT TURN.... OVERLAP H

OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH12 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 0

END PROGRAMMING

NOTICE
ACTION
PLAN SF
BIT "5"

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING
LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select 8. UTILITIES

2. From UTILITIES Submenu select 1. COPY/CLEAR

3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY

FROM TO

PHASE TIMING.... > PHASE TIMING....

TIMING PLAN..... > TIMING PLAN.....

PH DET OPT PLAN. . > PH DET OPT PLAN. .

DETECTOR PLAN... 1 > DETECTOR PLAN... 2

TOGGLE TO SELECT A "FROM" AND A "TO"

THEN PRESS ENTER

4. From Main Menu select 6. DETECTORS

5. From DETECTOR Submenu select 2. VEHICLE DETECTOR SETUP

6. Place cursor in VEH DET PLAN [] position and enter "2".

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "0".

VEH DETECTOR [1] VEH DET PLAN [2]

TYPE: N-NTCIP

TS2 DETECTOR..... ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1 1

CALL OPTION.... YES DELAY TIME... 0.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH
DET PLAN 2

ENSURE DELAY
IS SET TO '0'

ENSURE
PHASE
IS SET
TO "0"

VEH DETECTOR [26] VEH DET PLAN [2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

26 0

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH
DET PLAN 2

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "0".

VEH DETECTOR [5] VEH DET PLAN [2]

TYPE: N-NTCIP

TS2 DETECTOR..... ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

5 5

CALL OPTION.... YES DELAY TIME... 0.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE
VEH DET
PLAN 2

ENSURE
DELAY
IS SET
TO '0'

- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

22 0

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE
VEH DET
PLAN 2

ENSURE PHASE
IS SET TO "0"

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4
Final Design

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1818 (Johnson Street)/
Bloomfield Trail
Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

Signature line

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
M. ENCARNACION
044476

Designed by:
Anthony Encarnacion
3/14/2025
DATE

SIG. INVENTORY NO. 07-1306

 **AtkinsRéal**
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

(program controller as shown)

To assign load switches S4 as OLG, S10 as OLH, S11 as OLI, program LD SWITCH 3 as OVLP '7' TYPE 'O', LD SWITCH 7 as OVLP '8' TYPE 'O', and LD SWITCH 8 as OVLP '9' TYPE 'O' as shown below.

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

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

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

SF BITS 1,5: Modifies overlap parent phases for heads 11 and 51 to run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A
 and reduces delay time for phase 1
 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

[illegible]

* The Action Plan number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Final Design

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

[illegible]

(program controller as shown)

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

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	
THEN	SIG SET OLP RED		1		ON	
	SIG SET OLP YELLOW		1		OFF	
	SIG SET OVLP GREEN		1		OFF	
ELSE						

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**

[illegible]

END PROGRAMMING

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

Scroll down on this screen and set "Exit Fl" to Green "G"

*The NCDOT default database is programmed to address Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENTER", and then set the number to 427.

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING



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

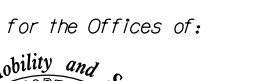
1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

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

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.

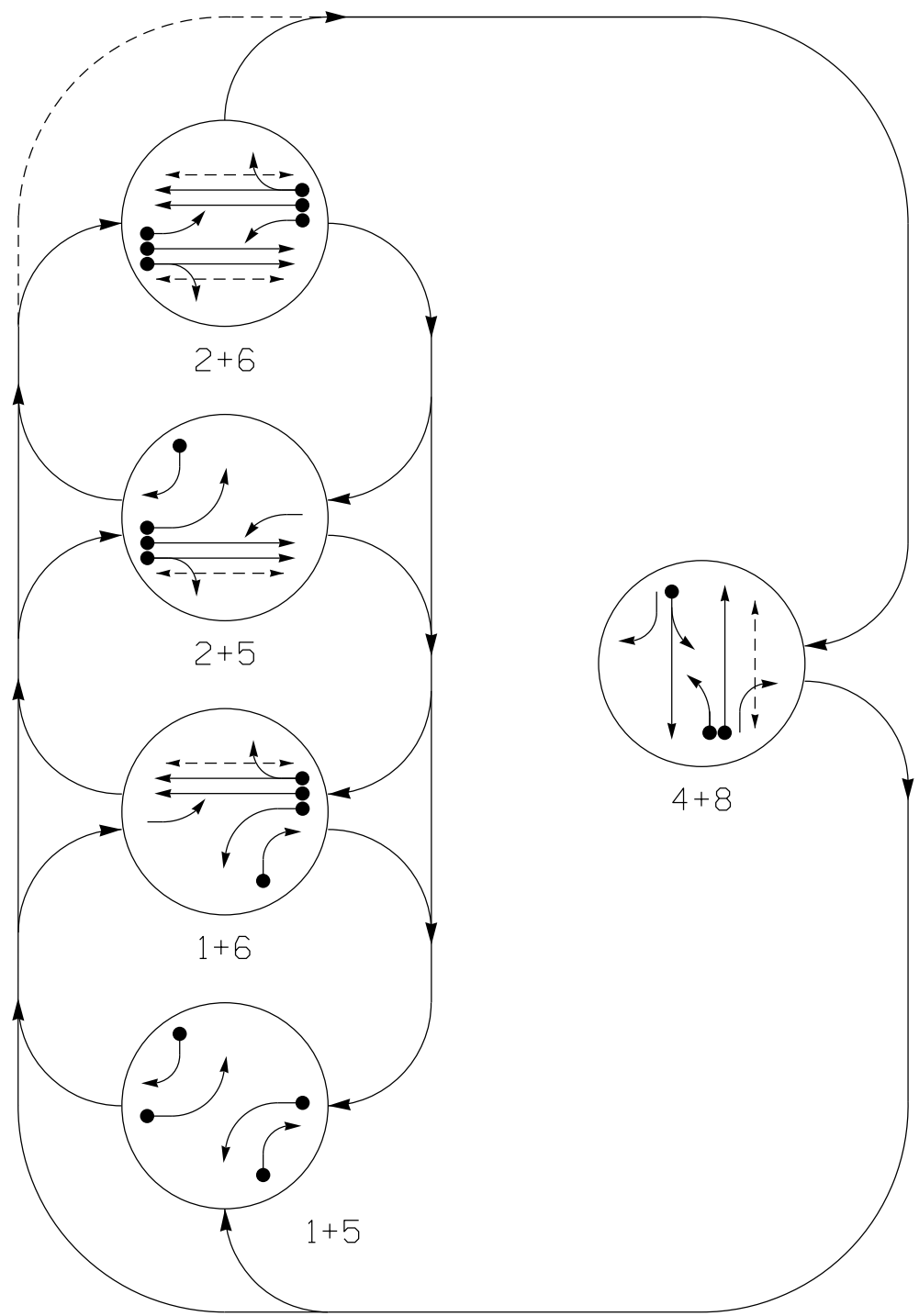
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1306
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 4 of 4
Final Design

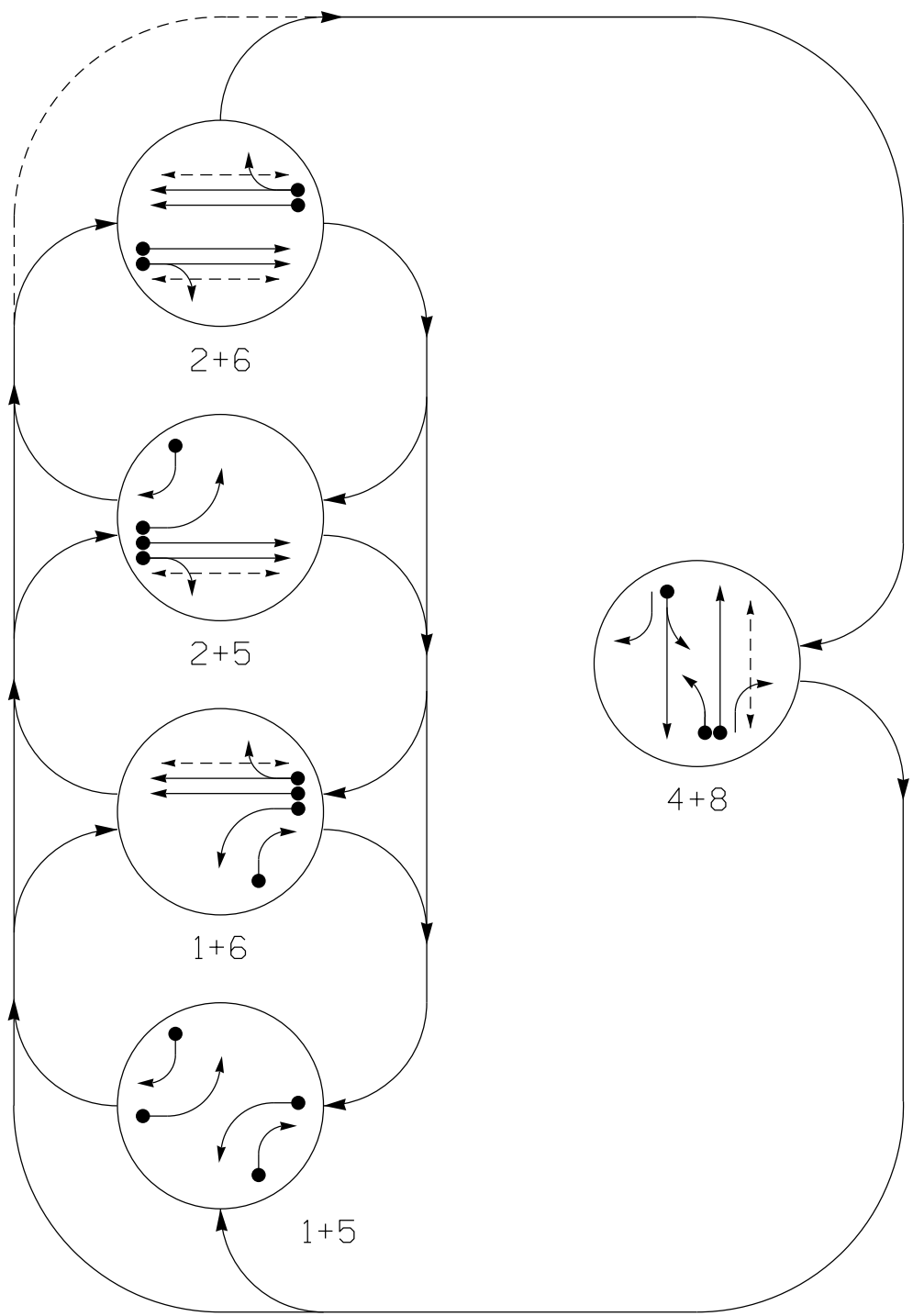
ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1850 (Sandy Ridge Road) at SR 1818 (Johnson Street)/ Bloomfield Trail	SEAL 
Prepared for the Offices of:		
	Division 7 Guilford County High Point	
PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion	
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander	
REVISIONS	INIT.	DATE
750 N. Greenfield Pkwy, Garner, NC 27529		

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 12.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING
TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	F L + T + H
II	←	←	←	←	←	←
2l, 22	R	R	G	G	R	R
4l	R	R	R	R	G	R
42	R	R	R	R	G	R
5l	←	←	←	←	←	←
6l, 62	R	G	R	G	R	R
8l	←	←	←	←	←	←
82, 83	R	R	R	R	G	R
84	→	→	R	R	←	←
P2l, P22	DW	DW	W	W	DW	DRK
P6l, P62	DW	W	DW	W	DW	DRK
P8l, P82	DW	DW	DW	DW	W	DRK

ALTERNATE PHASING
TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	F L + T + H
II	←	←	←	←	←	←
2l, 22	R	R	G	G	R	R
4l	R	R	R	R	G	R
42	R	R	R	R	G	R
5l	←	←	←	←	←	←
6l, 62	R	G	R	G	R	R
8l	←	←	←	←	←	←
82, 83	R	R	R	R	G	R
84	→	→	R	R	←	←
P2l, P22	DW	DW	W	W	DW	DRK
P6l, P62	DW	W	DW	W	DW	DRK
P8l, P82	DW	DW	DW	DW	W	DRK

ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR					PROGRAMMING							
LOOP/ZONE	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	-	15.0**	-	N	-	X
1B	6X40	0	2-4-2	X	6#	Yes	-	3.0	-	G	-	X
2A	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2B	6X6	300	4	X	2	Yes	-	-	X	N	-	X
4A*	6X40	0	*	*	4	Yes	-	-	-	N	-	-
5A	6X40	0	2-4-2	X	5	Yes	-	15.0**	-	N	-	X
5B*	6X40	0	*	*	5	Yes	-	15.0	-	N	-	-
6A	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6B	6X6	300	4	X	6	Yes	-	-	X	N	-	X
8A	6X40	0	2-4-2	X	8	Yes	-	3.0	-	N	-	X
8B	6X40	0	2-4-2	X	8	Yes	-	-	-	N	-	X

*Non-Intrusive Detection Zone

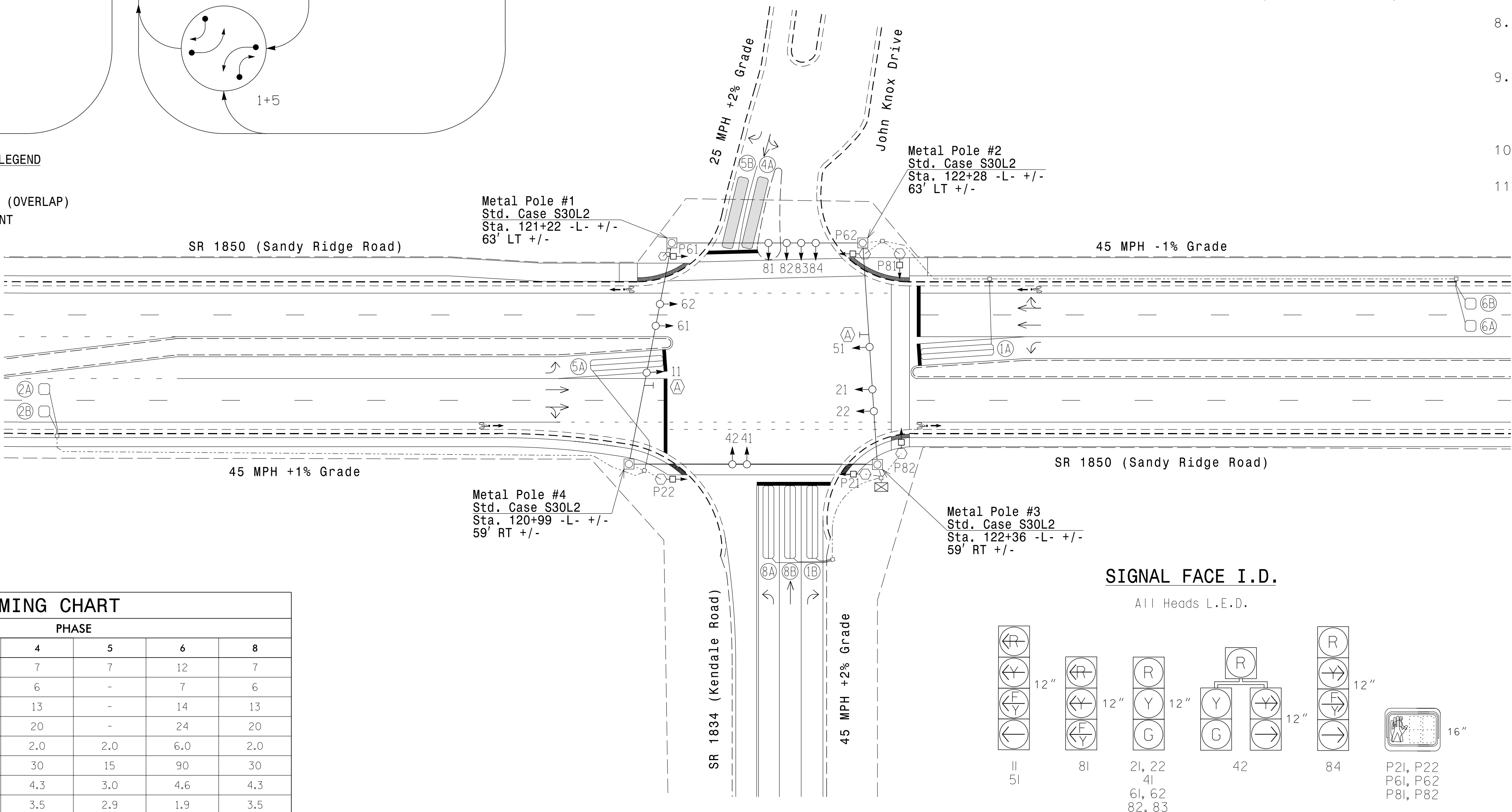
**Disable delay during alternate phasing operation

#Disable phase call for loop(s) during alternate phasing operation

5 Phase
Fully Actuated
(High Point Signal System)

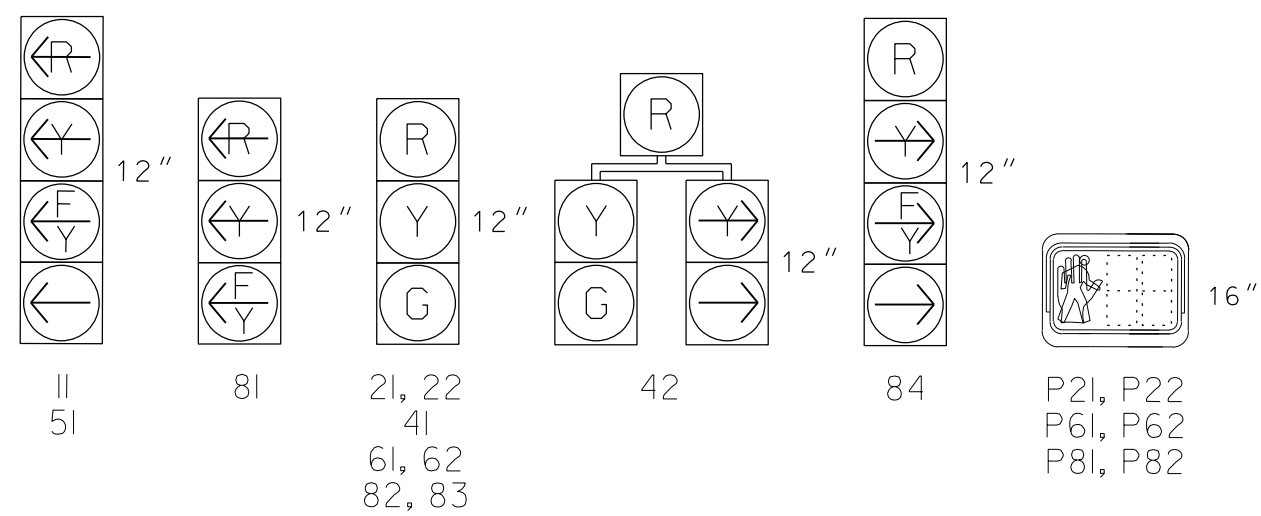
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 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.
- The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
- This intersection uses video detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
- Metal poles, Type I pushbutton posts and Type II pedestals shall be BLACK in color.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 TIMING CHART

FEATURE	PHASE					
	1	2	4	5	6	8
Min Green *	7	12	7	12	12	7
Delayed Green	-	7	6	-	7	6
Walk *	-	14	13	-	14	13
Ped Clear	-	22	20	-	24	20
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	15	90	30	15	90	30
Yellow	3.0	4.6	4.3	3.0	4.6	4.3
Red Clear	3.5	1.9	3.5	2.9	1.9	3.5
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	1.5	-	-	1.5	-
Max Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Locking Detector	-	X	-	-	X	-
Recall Position **	-	SOFT RECALL	-	-	SOFT RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	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.

** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

LEGEND

PROPOSED	EXISTING

New Installation

 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326	Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1850 (Sandy Ridge Road) at SR 1834 (Kendale Road)/ John Knox Drive Division 7 Guilford County High Point PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion PREPARED BY: JT Stiff REVIEWED BY: PL Alexander REVISIONS INIT. DATE	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES T. STIFF 056276 Signed By: DATE: 3/14/2025 SIG. INVENTORY NO. 07-1111
	SCALE 0 40 1"=40'		

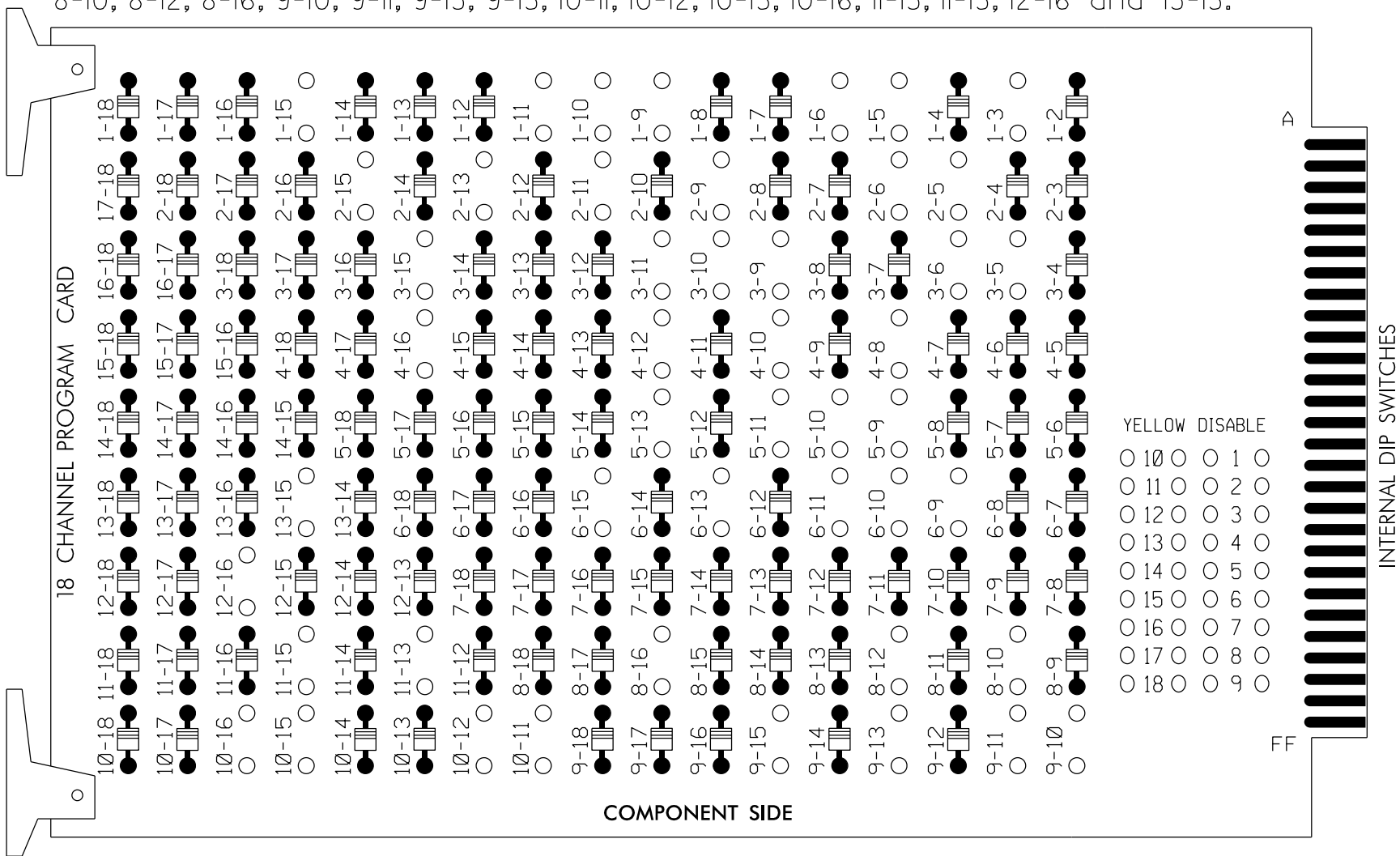
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ST14685 AT L0591089

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

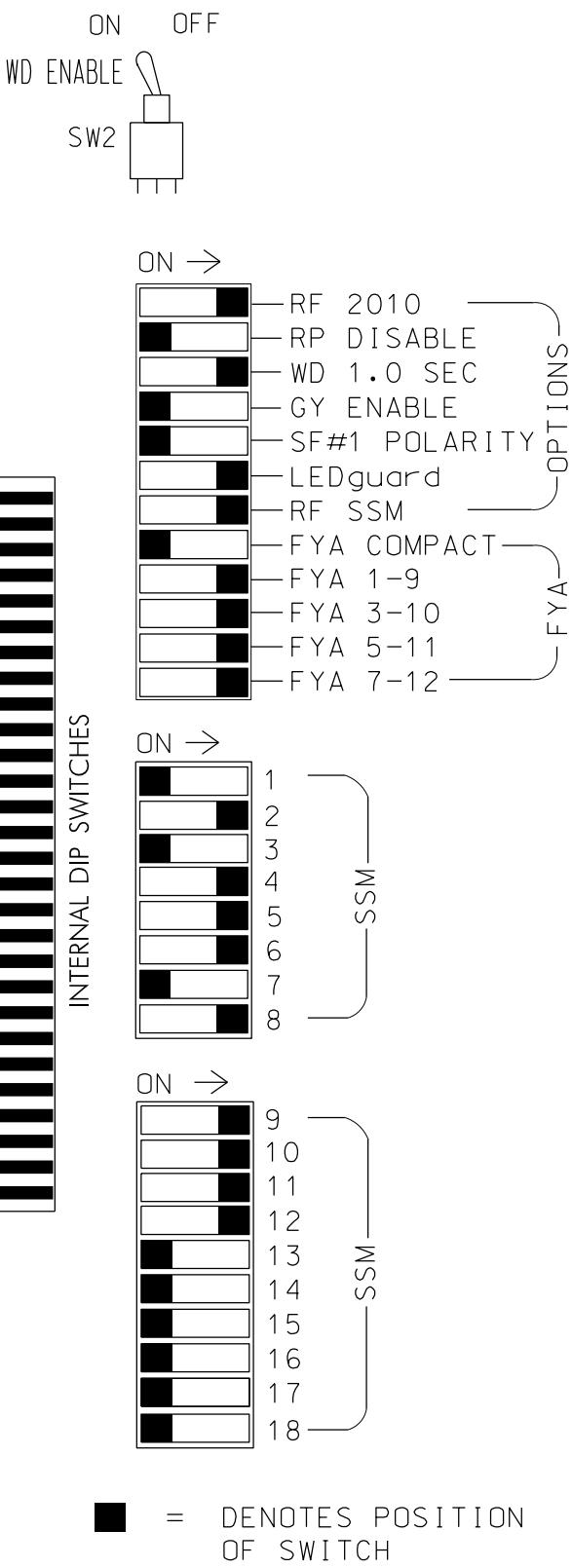
REMOVE DIODE JUMPERS 1-3, 1-5, 1-6, 1-9, 1-10, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-5, 3-6, 3-9, 3-10, 3-11, 3-15, 4-8, 4-10, 4-12, 4-16, 5-9, 5-10, 5-11, 5-13, 6-9, 6-10, 6-11, 6-13, 6-15, 8-10, 8-12, 8-16, 9-10, 9-11, 9-13, 9-15, 10-11, 10-12, 10-15, 10-16, 11-13, 11-15, 12-16 and 13-15.



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 vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
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,S7,S8,S9,S11,S12,
AUX S1,AUX S2,AUX S4,AUX S5
PHASES USED.....1,2,2 PED,4,5,6,6 PED,8,8 PED
OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
OVERLAP "E".....NOT USED
OVERLAP "F".....NOT USED
OVERLAP "G".....*

* See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	Ø 1 1A	Ø 1 1B	Ø 2 2A	Ø 2 2B	Ø 3 3A	Ø 3 3B	Ø 4 4A	Ø 4 4B	Ø 5 5A	Ø 5 5B	Ø 6 6A	Ø 6 6B	Ø 7 7A	Ø 7 7B
FILE "J"	Ø 5 5A	Ø 5 5B	Ø 6 6A	Ø 6 6B	Ø 7 7A	Ø 7 7B	Ø 8 8A	Ø 8 8B	Ø 9 9A	Ø 9 9B	Ø 10 10A	Ø 10 10B	Ø 11 11A	Ø 11 11B

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

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

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 ¹	TB2-1,2	I1U	56	1 ★	1	YES		15.0		N
	-	J4U	48	26 ★	6	YES		3.0		G
1B	TB2-5,6	I2U	39	2	1	YES		15.0		N
2A	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
5A ²	TB3-1,2	J1U	55	5 ★	5	YES		15.0		N
	-	I4U	47	22 ★	2	YES		3.0		G
6A	TB3-9,10	J3U	64	36	6	YES			X	N
6B	TB3-11,12	J3L	77	46	6	YES			X	N
8A	TB5-9,10	J6U	42	8	8	YES		3.0		N
8B	TB5-11,12	J6L	46	18	8	YES				N
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 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.

¹Add jumper from I1-W to J4-W, on rear of input file.

²Add jumper from J1-W to I4-W, on rear of input file.

★For the detectors to work as shown on the signal design plan.
See the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

Install a non-intrusive detection system for vehicle detection zones 4A and 5B. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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	PED	OLG	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	OLE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	P21, P22	84 ★	41,42	NU	42	51 ★	61,62	P61, P62	NU	82,83	P81, P82	11 ★	84 ★	NU	51 ★	81 ★
RED		128			101		*		134			107		A124				
YELLOW	*	129		*	102				135			108						
GREEN		130			103				136			109						
RED ARROW														A121			A114	A101
YELLOW ARROW							132							A122	A125		A115	A102
FLASHING YELLOW ARROW														A123	A126		A116	A103
GREEN ARROW	127			118			133	133										
Hand icon				113							119			110				
Walking person icon				115							121			112				

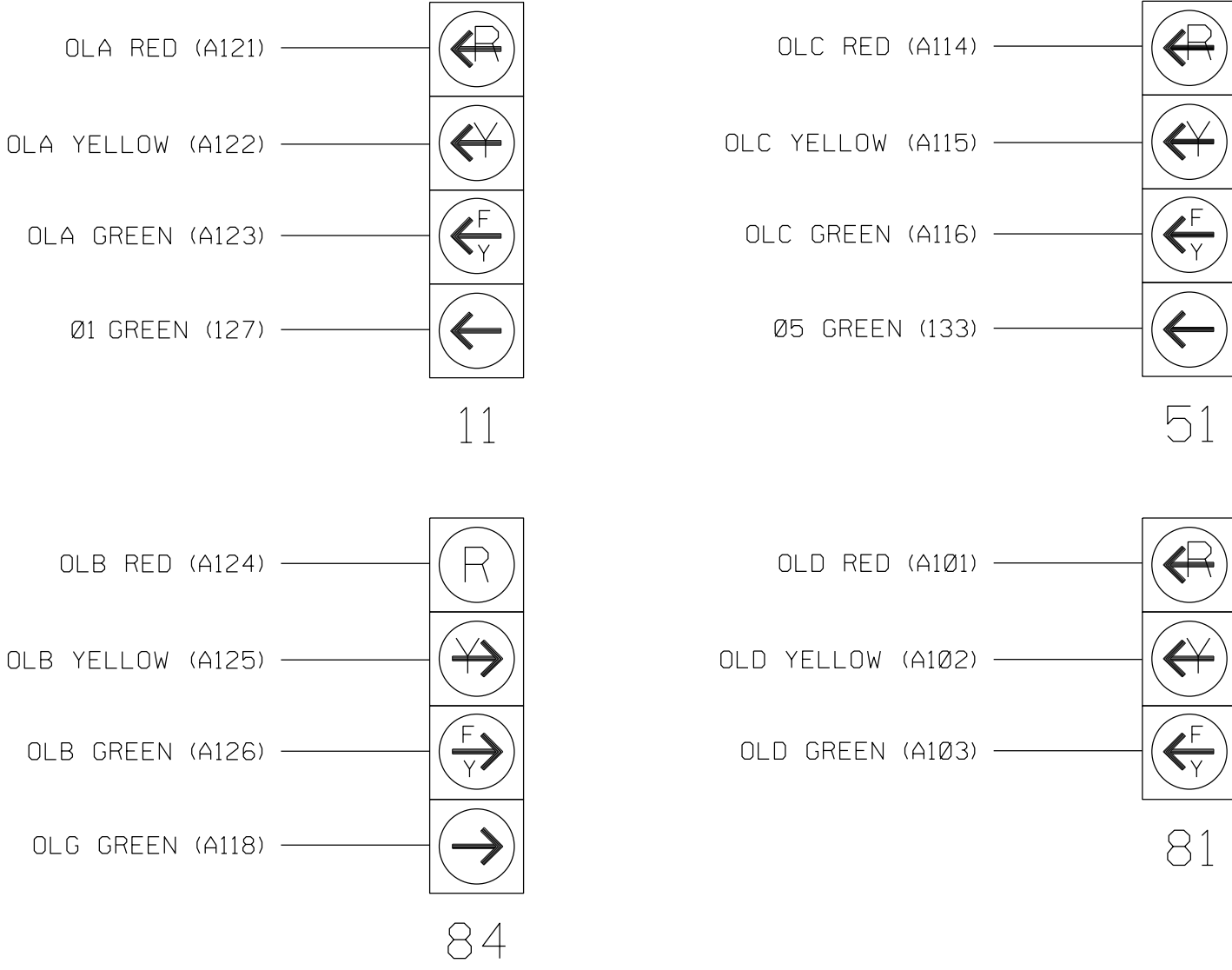
NU = Not Used

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

★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1111
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

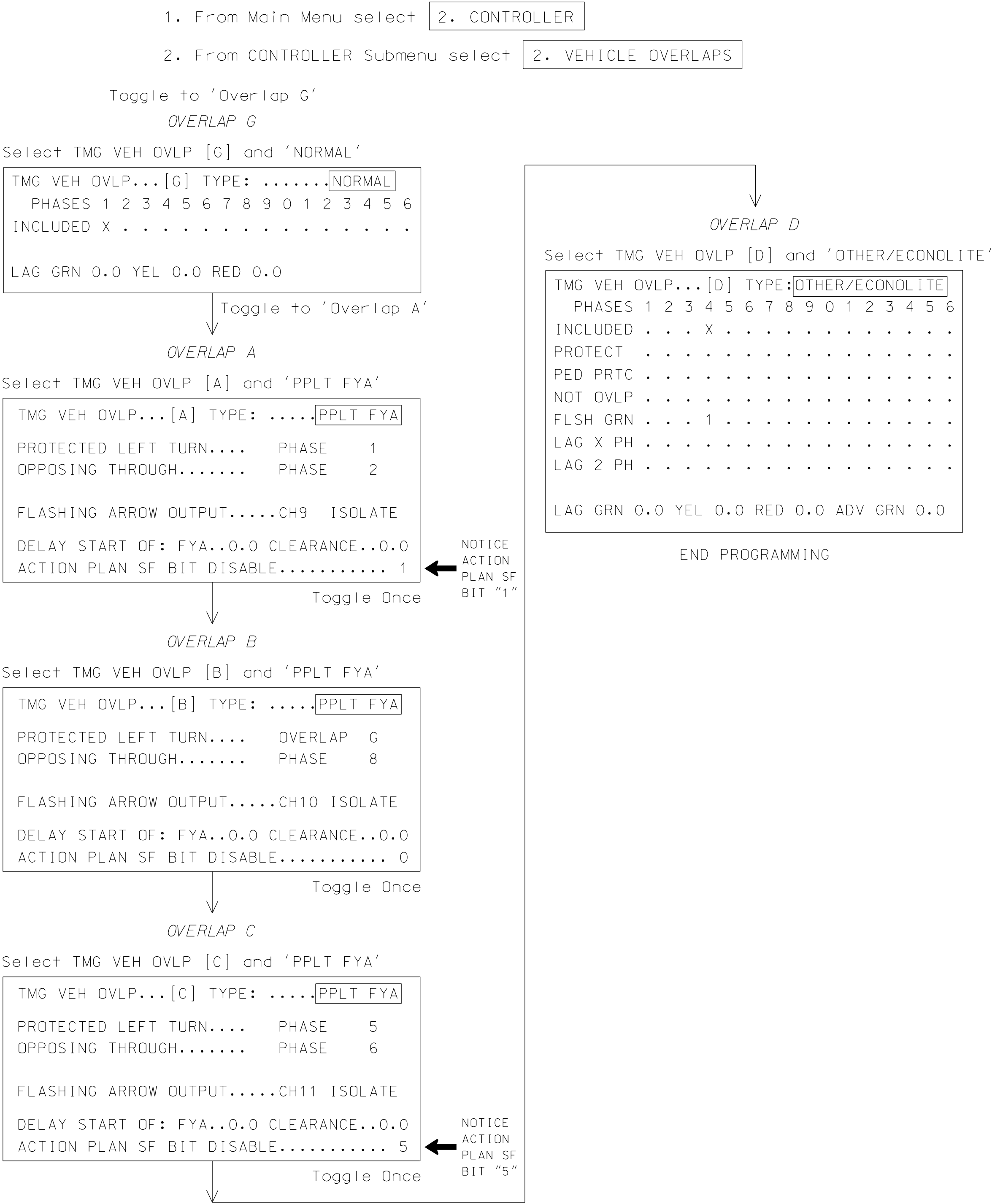
Electrical Detail - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1850 (Sandy Ridge Road) at SR 1834 (Kendale Road)/ John Knox Drive Division 7 Guilford County High Point
PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044476 ANTHONY M. ENCARNACION
Designed by: Anthony Encarnacion 3/14/2025 DATE
SIG. INVENTORY NO. 07-1111

ECONOLITE ASC/3-2070
OVERLAP PROGRAMMING DETAIL

(program controller as shown)



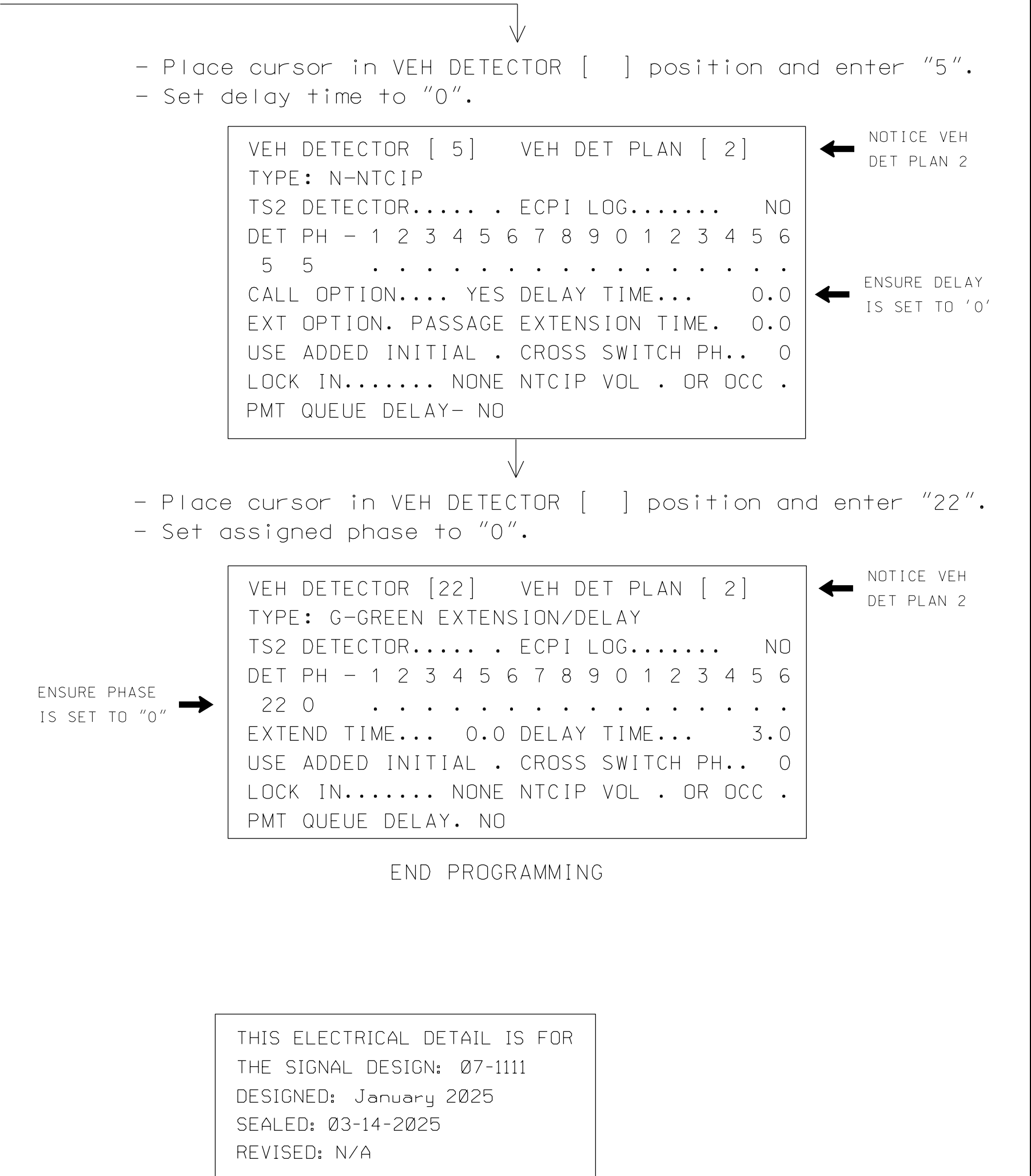
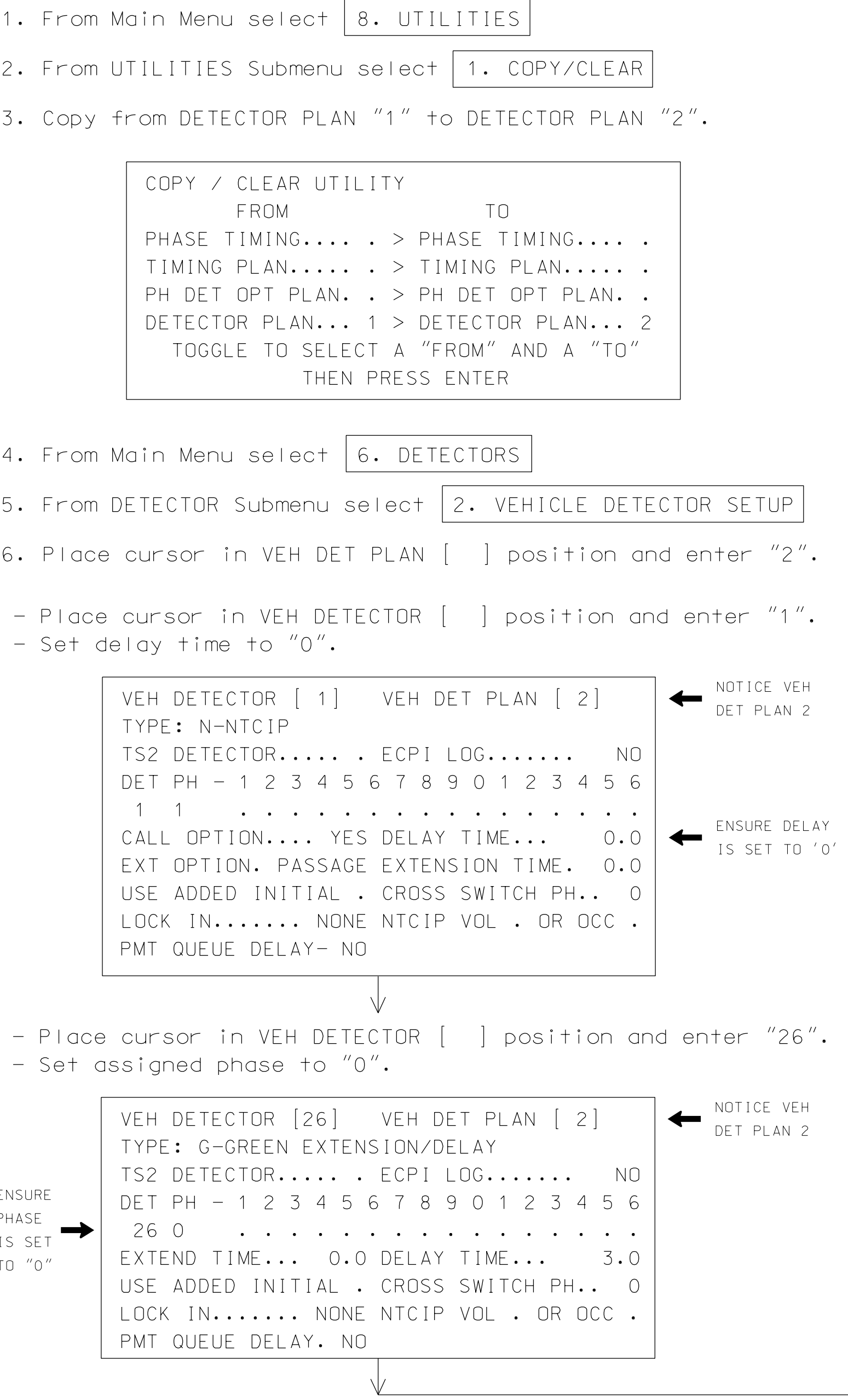
ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

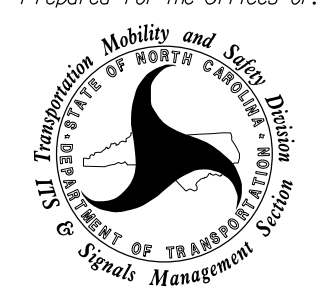


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S1F4685 AT L0591089

AtkinsRéalis

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfeld Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1834 (Kendale Road)/
John Knox Drive

Division 7 Guilford County High Point

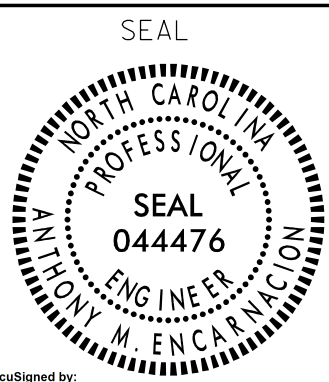
PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



Designed by:
Anthony Encarnacion
3/14/2025

SIG. INVENTORY NO. 07-1111

13-MAR-2025 16:44
PW:///SUD0036343..work\\rns-com\\ATKMANC01\\Documents\\Roads and Bridges\\Projects\\100059632_USSR S1g and ITS\\Task 05_11_Signals\\071111_sm_e_2023mdd.dgn
S1F4685 AT L0591089

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S4 as OLG, program LD SWITCH 3 as OVLP '7' TYPE '0' as shown below.

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

NOTICE OVERLAP G
ASSIGNED TO
LD SWITCH 3

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

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

PHASING	VEH DET PLAN	SF BITS ENABLED
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

SF BITS 1,5: Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 0 seconds.

 **AtkinsRéal**
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

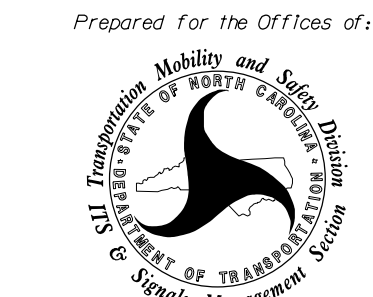
ACTION PLAN...[*]																		
PATTERN.....	AUTO				SYS OVERRIDE.... NO													
TIMING PLAN.....	0				SEQUENCE..... 0													
VEH DETECTOR PLAN..	2				DET LOG.....NONE													
FLASH.....	--				RED REST..... NO													
VEH DET DIAG PLN...	0				PED DET DIAG PLN..0													
DIMMING ENABLE..	NO				PRIORITY RETURN. NO													
PED PR RETURN..	NO				QUEUE DELAY..... NO													
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	X	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1111
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING
DETAILS FOR:



750 N.Greenfield Pkwy, Garner, NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1834 (Kendale Road)/
John Knox Drive

Division 7 Guilford County High Point

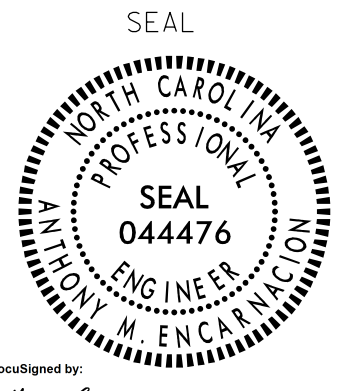
PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

Signature Date

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



Designed by: Anthony Encarnacion 3/14/2025

SIGNATURE DATE

SIG. INVENTORY NO. 07-1111

(program controller as shown)

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**

```

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

THEN      SIG SET OLP RED      1           ON
          SIG SET OLP YELLOW    1           OFF
          SIG SET OVLP GREEN    1           OFF

ELSE

```

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

[illegible]

END PROGRAMMING

(program controller as shown)

1. From Main Menu select **2. CONTROLLER**
2. From CONTROLLER Submenu select **5. START/FLASH**

Scroll down on this screen and set "Exit FI" to Green "G"

*The NCDOT default database is programmed to addresss Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING



(program controller as shown)

1. From Main Menu select 6. DETECTORS
2. From DETECTOR Submenu select 3. PED DETECTOR INPUT ASSIGNMENT

← NOTICE PED DETECTOR 8
ASSIGNED TO PHASES 4 & 8

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.

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

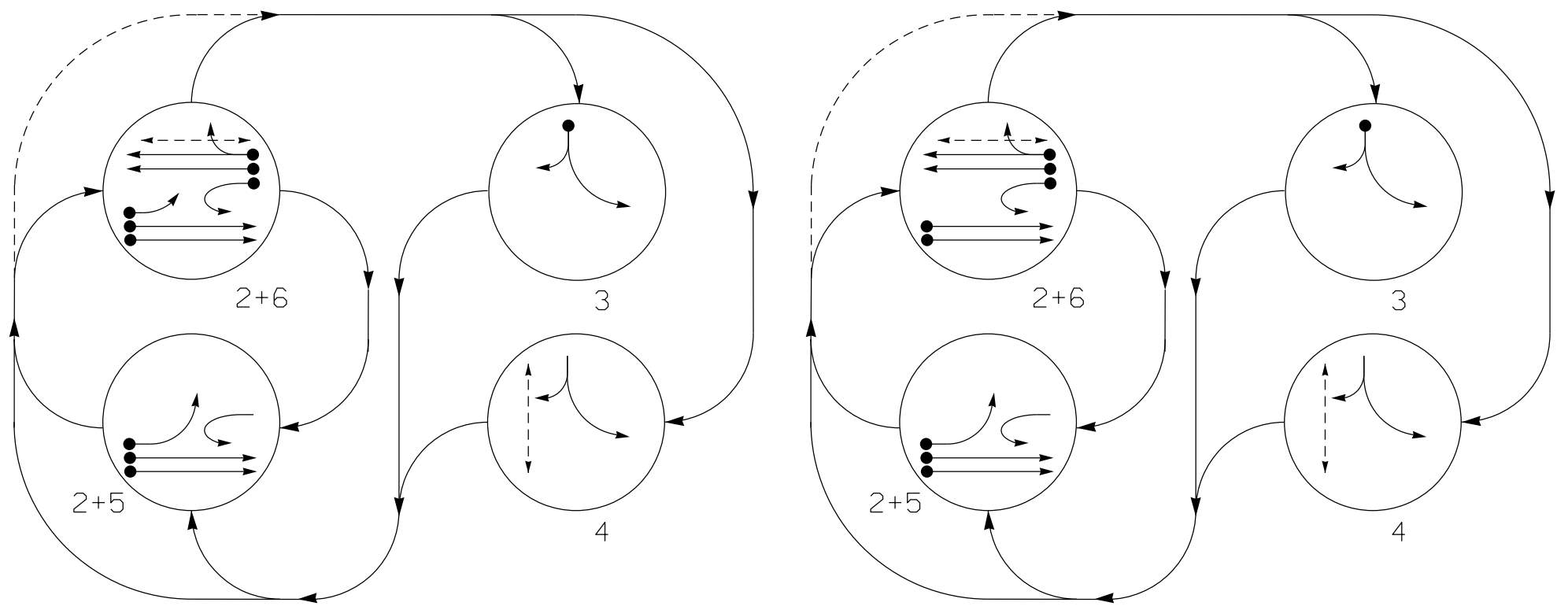
1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 1850 (Sandy Ridge Road) at SR 1834 (Kendale Road) / John Knox Drive		SEAL 	
	Division 7	Guilford County	High Point	
	PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion		
	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander		
	REVISIONS	INIT.	DATE	
				Designed by: <i>Anthony Encarnacion</i> 04444444444444444444 SIGNATURE 3/14/2025 DATE
				SIG. INVENTORY NO. 07-1111

ALTERNATE PHASING DIAGRAM



ALTERNATE PHASING
TABLE OF OPERATION

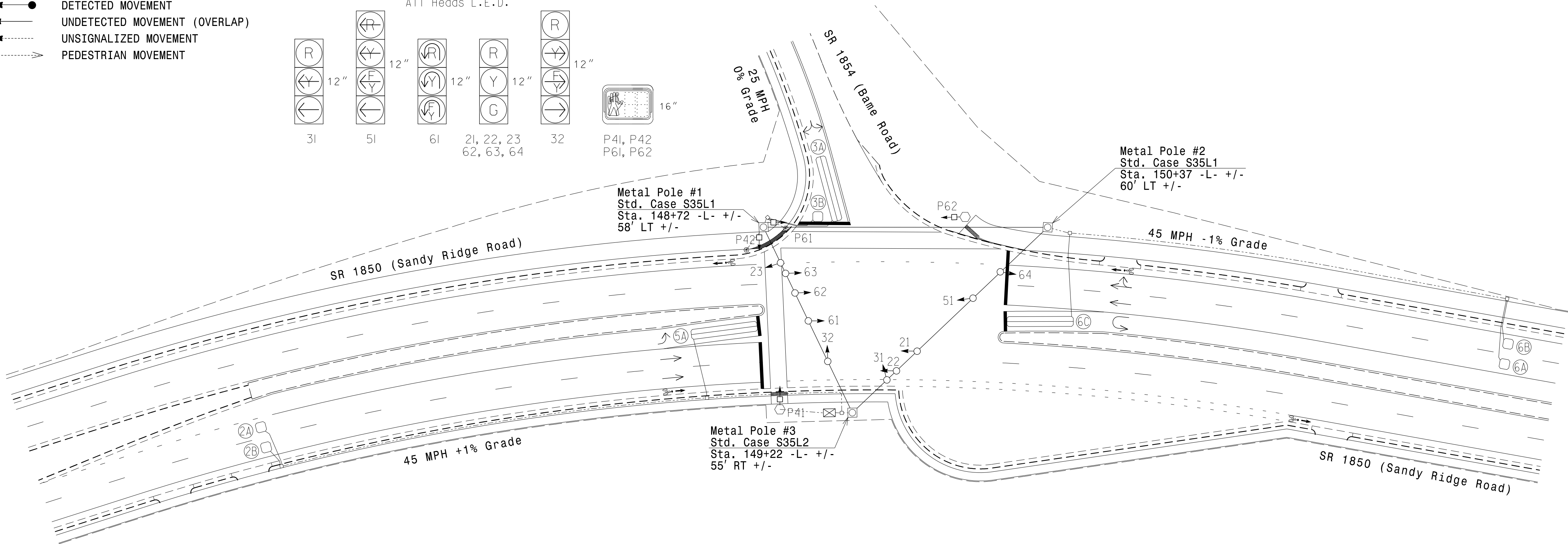
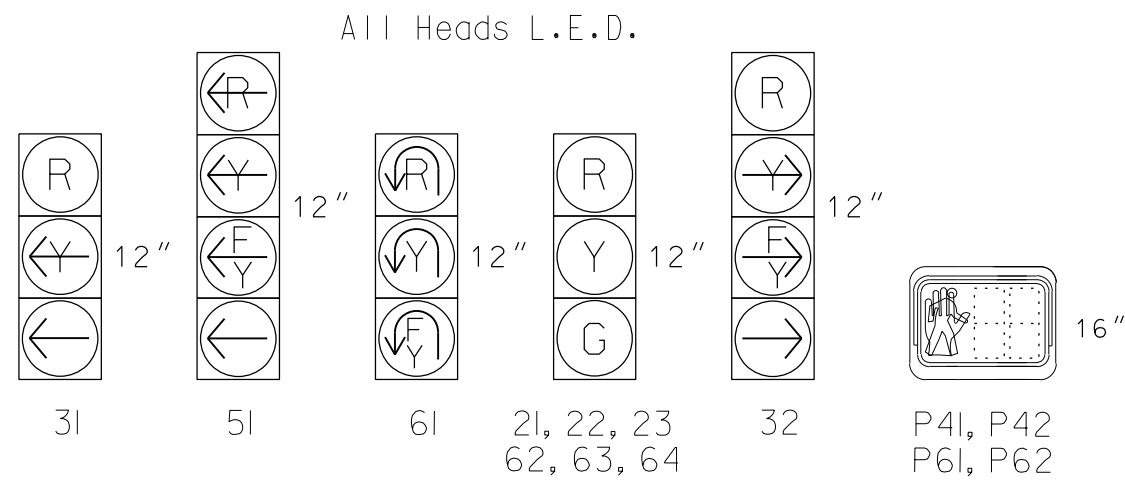
SIGNAL FACE	PHASE				
	2 + 5	2 + 6	3	4	FLASH
21, 22, 23	G	G	R	R	R
31	R	R	←	←	R
32	R	R	→	→	R
51	←	←	←	←	←
61	↻	↻	↻	↻	↻
62, 63, 64	R	G	R	R	R
P41, P42	DW	DW	DW	W	DRK
P61, P62	DW	W	DW	DW	DRK

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
2A	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2B	6X6	300	4	X	2	Yes	-	-	X	N	-	X
3A	6X40	0	2-4-2	X	3	Yes	-	10.0	-	N	-	X
3B	6X6	0	3	X	3	Yes	-	15.0	-	N	-	X
5A	6X40	0	2-4-2	X	5	Yes	-	15.0*	-	N	-	X
					2#	Yes	-	3.0	-	G	-	X
6A	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6B	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6C	6X40	0	2-4-2	X	6	Yes	-	3.0	-	G	-	X

```
# Disable phase call for loop(s) during alternate phasing operation
```

SIGNAL FACE I.D.

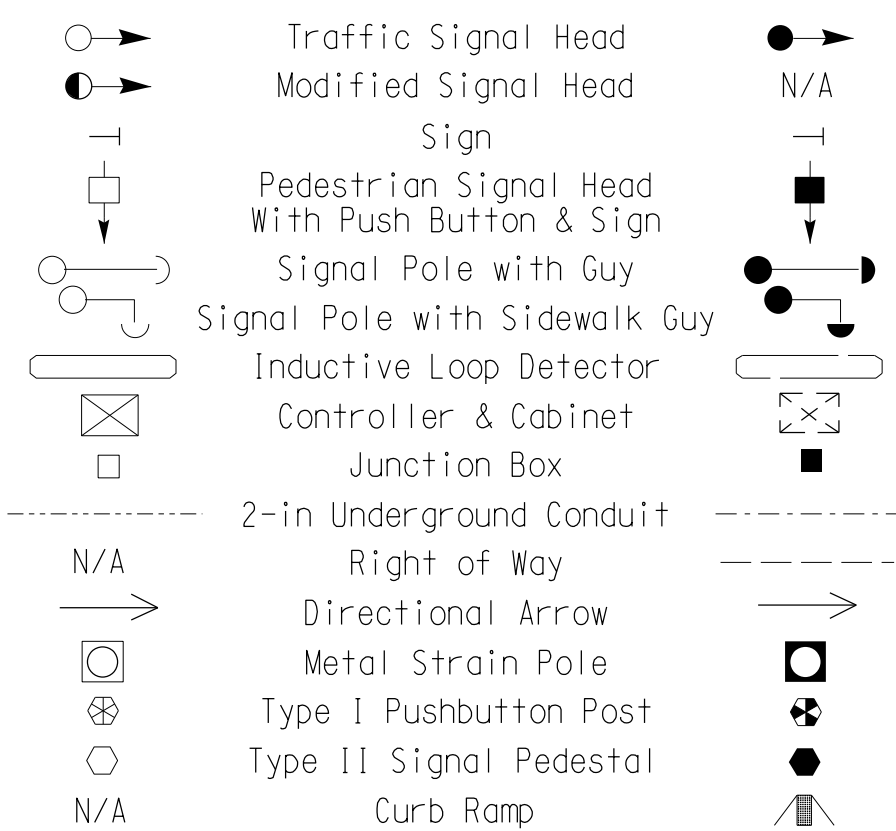


FEATURE	PHASE				
	2	3	4	5	6
min Green *	12	7	7	7	12
elayed Green	-	-	7	-	7
Walk *	-	-	14	-	14
ed Clear	-	-	23	-	28
eh. Extension *	6.0	2.0	2.0	2.0	6.0
ax 1 *	90	30	30	15	90
ellow	4.6	3.0	3.0	3.0	4.6
ed Clear	2.6	3.7	3.7	2.8	2.6
ituations B4 Add *	-	-	-	-	-
seconds /Actuation *	1.5	-	-	-	1.5
ax Initial *	34	-	-	-	34
me Before Reduction *	15	-	-	-	15
me To Reduce *	30	-	-	-	30
imum Gap	3.0	-	-	-	3.0
ocking Detector	X	-	-	-	X
recall Position **	SOFT RECALL	-	-	-	SOFT RECALL
ual Entry	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X

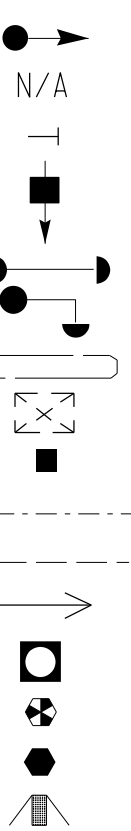
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

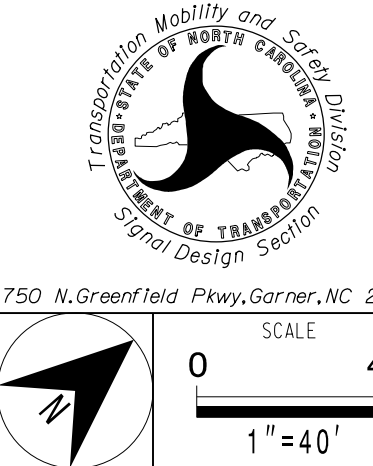
PROPOSED



EXISTING



Prepared for the Offices of:



Division 7 Guilford County High Point

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
-------------------------	-----------------------------

PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander
-----------------------	---------------------------

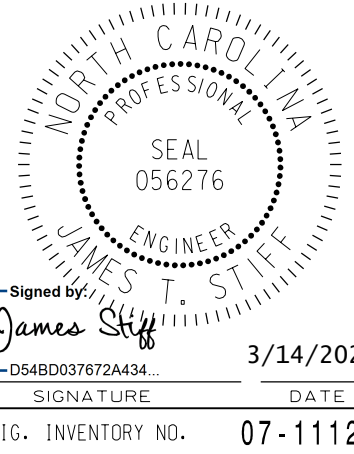
REVISIONS	INIT.	DATE
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[illegible]

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SIGNATURES COMPLETED

SEAL



IG. INVENTORY NO. 07-1112

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 to 'Overlap G'

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 X

LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle to 'Overlap A'

OVERLAP A

Select TMG VEH OVLP [A] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[A] TYPE:OTHER/ECONOLITE

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

INCLUDED . X

PROTECT

PED PRTC

NOT OVLP

FLSH GRN . 1

LAG X PH

LAG 2 PH

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

Toggle Once

OVERLAP B

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

TMG VEH OVLP...[B] TYPE:PPLT FYA

PROTECTED LEFT TURN.... PHASE 3

OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH10 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 0

Toggle Once

OVERLAP C

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

TMG VEH OVLP...[C] TYPE:PPLT FYA

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 5

NOTICE ACTION PLAN SF BIT "5"

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

LOOP 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY

FROM TO

PHASE TIMING.... > PHASE TIMING....

TIMING PLAN..... > TIMING PLAN.....

PH DET OPT PLAN. . > PH DET OPT PLAN. .

DETECTOR PLAN... 1 > DETECTOR PLAN... 2

TOGGLE TO SELECT A "FROM" AND A "TO"

THEN PRESS ENTER

4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [] position and enter "2".

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "0".

VEH DETECTOR [5] VEH DET PLAN [2]

TYPE: N-NTCIP

TS2 DETECTOR..... ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

5 5

CALL OPTION.... YES DELAY TIME... 0.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH DET PLAN 2

ENSURE DELAY IS SET TO '0'

- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

22 0

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH DET PLAN 2

ENSURE PHASE IS SET TO "0"

END PROGRAMMING

ECONOLITE ASC/3-2070
LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S11 as OLG, program LD SWITCH 8 as OVLP '7' TYPE '0' shown below.

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

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

NOTICE OVERLAP G
ASSIGNED TO
LD SWITCH 8

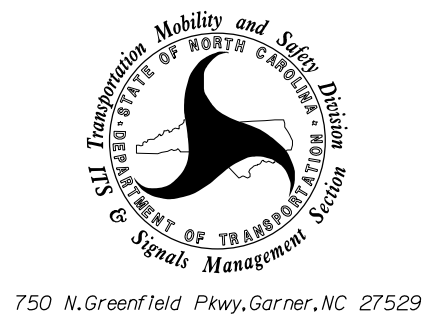


THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1112
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:



SR 1850 (Sandy Ridge Road)
at
SR 1854 (Bame Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

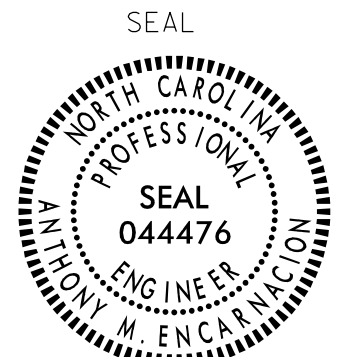
PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

750 N.Greenfeld Pkwy,Garner,NC 27529

AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



Designed by: Anthony Encarnacion 3/14/2025

SIGNATURE DATE

SIG. INVENTORY NO. 07-1112

13-MAR-2025 16:48
DW://SUD0036433-works\ins-com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_USSR S1g and ITS/Task 05_11_Signals/071112_sml_e_2023mmda.dgn
S1F4685 - AT L05491089

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BIT 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

SF BIT 5: Modifies overlap parent phase for
head 51 to run protected turns only.

INPUTS PAGE 2: Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 0 seconds.

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 13.3

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																		
PATTERN.....	AUTO				SYS OVERRIDE.... NO													
TIMING PLAN.....	0				SEQUENCE..... 0													
VEH DETECTOR PLAN..	2				DET LOG.....NONE													
FLASH.....	--				RED REST..... NO													
VEH DET DIAG PLN...	0				PED DET DIAG PLN..0													
DIMMING ENABLE..	NO				PRIORITY RETURN. NO													
PED PR RETURN..	NO				QUEUE DELAY..... NO													
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	.	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

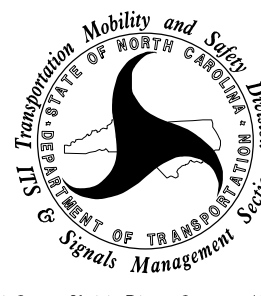
* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1112
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4

**AtkinsRéal**
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1854 (Bame Road)

Division 7

Guilford County

High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

Designed by:
Anthony Encarnacion

3/14/2025

SIGNATURE

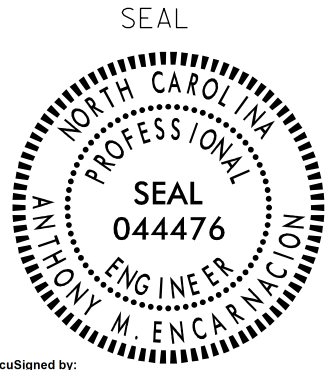
DATE

SIG. INVENTORY NO.

07-1112

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

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 on signal head 51 red for the duration of the delayed green time (leading ped interval) when serving a ped call on the opposing through phase and serve phase 4 instead of phase 3 if there is a phase 4 ped call.

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 6 IS ON

AND VEH GREEN ON PH 6 IS OFF

THEN SIG SET OLP RED 3 ON

SIG SET OLP YELLOW 3 OFF

SIG SET OVLP GREEN 3 OFF

ELSE

HOLD SIGNAL HEAD 51 FYA
RED DURING THE PHASE 6
DELAYED GREEN TIME
(LEADING PED INTERVAL)

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#: 2 COPY FROM: 2 ACTIVE: M (T/F)

IF CTR ON PH PED CHK 4 IS ON

THEN CTR OMIT PHASE 3 ON

ELSE

LOGIC TO SERVE PHASE
4 INSTEAD OF PHASE 3
IF THERE IS A PHASE 4
PED CALL.

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 E

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

END PROGRAMMING

ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA

-----START UP-----

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

PHASE G G

A B C D E F G H I J K L M N O P

OVERLAP X X X X X X X X X X X X X X X X

FLASH>MON. NO FL TIME.. 0 ALL RED... 6

PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "G"

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1112
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

ECONOLITE ASC/3-2070 BACKUP
PROTECTION ENABLE PROGRAMMING

(program controller as shown)

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 1. CONTROLLER SEQ
3. From CONTROLLER SEQUENCE Submenu select 3. BACKUP PREVENT PHASES

Follow programming as shown below. On the 'ENABLE BACKUP PREVENT' screen move cursor to the appropriate field and press 'YES/NO' on the controller keypad to toggle field value between 'X' and 'OFF'.

ENABLE BACKUP PREVENT

TMG/BKUP 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1

2

3 . X

4

5

6

7

8

9

10

11

12

13

14

15

16

END PROGRAMMING

NOTES

1. 'X' inhibits the controller from servicing the 'BACKUP' (column) phase when the 'TIMING' (row) phase is active or next.

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash. Logic Statement 100 must be modified as shown when running Red-Red flash.

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

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE

IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS

LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING

AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Electrical Detail - Sheet 4 of 4

Prepared for the Offices of:



ALL TRANSPORTATION PROJECTS OF NORTH CAROLINA

Department of Transportation and Safety

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1854 (Bame Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

Designed by: Anthony Encarnacion 3/14/2025

SIGNATURE DATE

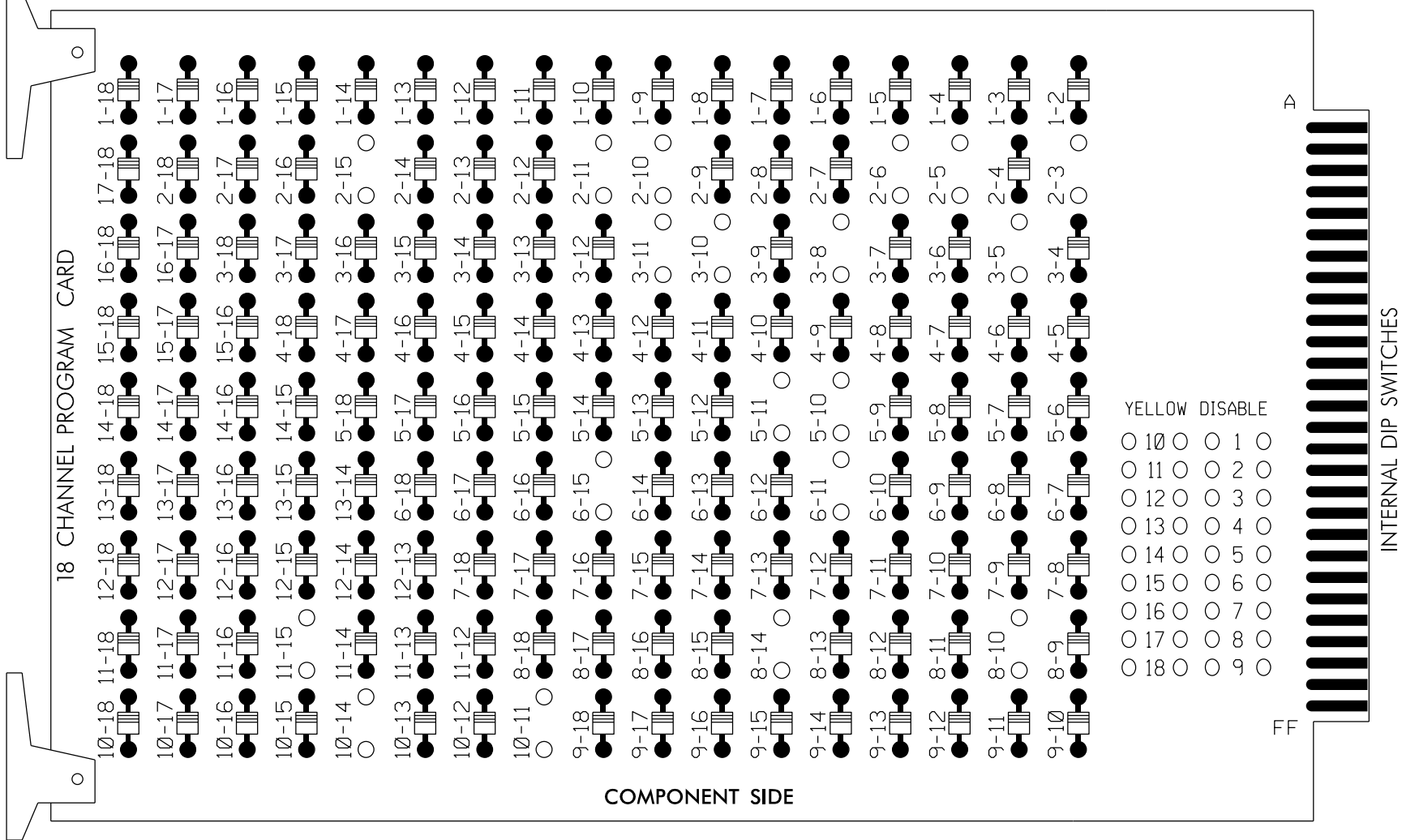
SIG. INVENTORY NO. 07-1112

SIG. INVENTORY NO. 07-1113

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-3, 2-5, 2-6, 2-10, 2-11, 2-15, 3-5, 3-8, 3-10, 3-11, 5-10, 5-11, 6-11, 6-15, 8-10, 8-14, 10-11, 10-14 and 11-15.



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.

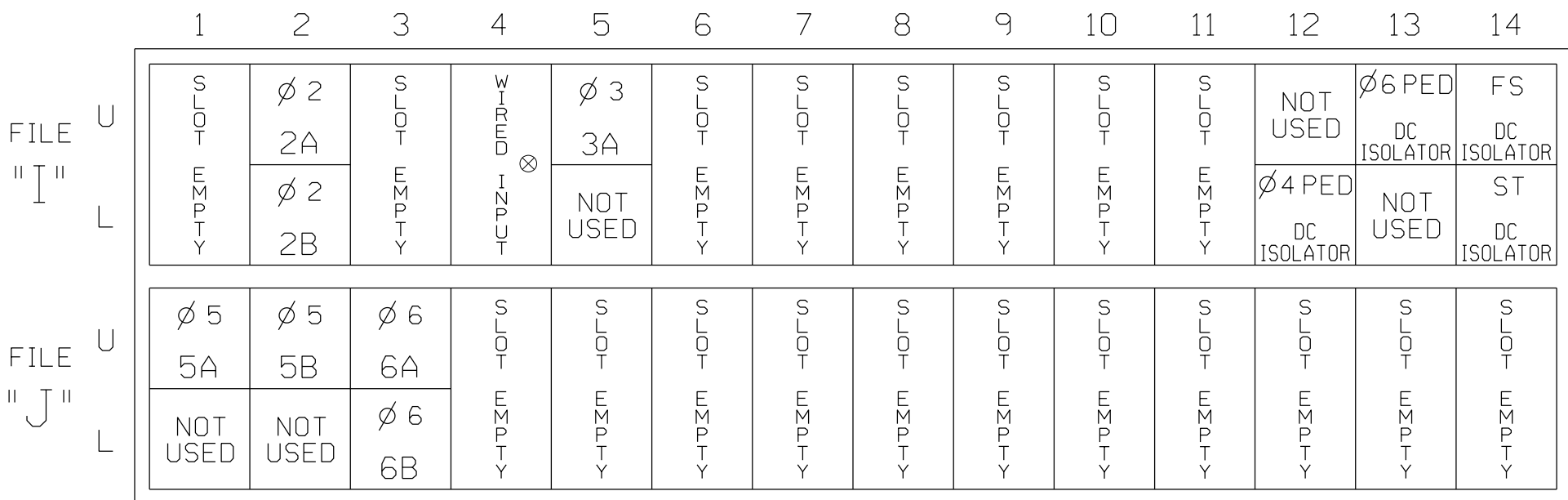
NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all 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 High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S4,S6,S7,S8,S9,S11,AUX S2,AUX S4
PHASES USED.....2,3,4*,4 PED,5,6,6 PED
OVERLAP "A".....NOT USED
OVERLAP "B".....**
OVERLAP "C".....**
OVERLAP "D".....NOT USED
OVERLAP "G".....**
OVERLAP "H".....**
* Phase used for timing purposes only
** See overlap programming detail on sheet 2

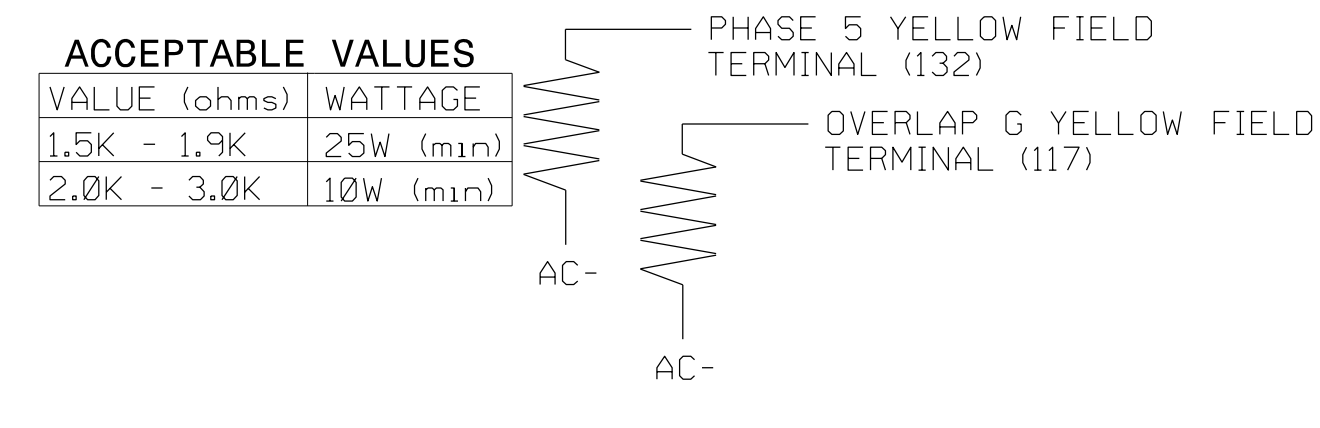
INPUT FILE POSITION LAYOUT
(front view)



⊗ Wired Input - Do not populate slot with detector card

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



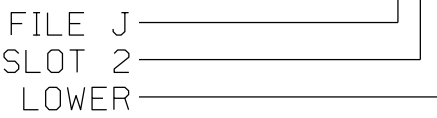
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
2A	TB2-5,6	I2U	39	2	2	YES			X	N
2B	TB2-7,8	I2L	43	12	2	YES			X	N
3A	TB4-5,6	I5U	58	3	3	YES		3.0		N
5A ¹	TB3-1,2	J1U	55	5 ★	5	YES		15.0		N
	-	I4U	47	22 ★	2	YES		3.0		G
5B	TB3-5,6	J2U	40	6	5	YES		15.0		N
6A	TB3-9,10	J3U	64	36	6	YES			X	N
6B	TB3-11,12	J3L	77	46	6	YES			X	N
PED PUSH BUTTONS										
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

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

- ¹Add jumper from J1-W to I4-W, on rear of input file.
★ For the detectors to work as shown on the signal design plan. See the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



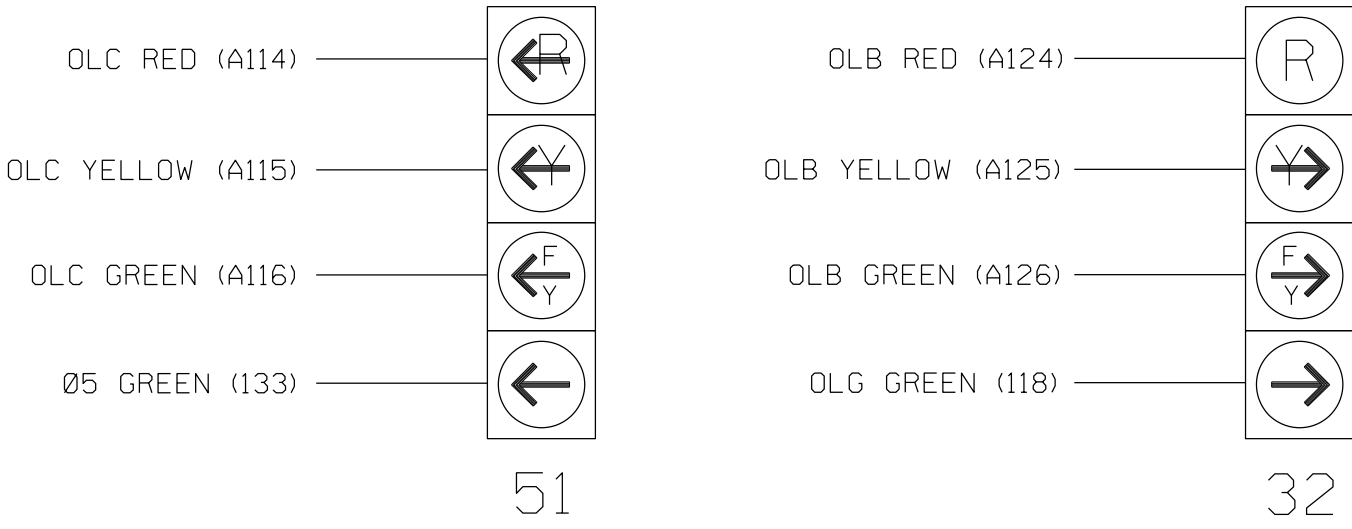
SIGNAL HEAD HOOK-UP CHART

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	OLG	4	4 PED	5	6	6 PED	7	OLH	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	32 ★	NC	P41, P42	51 ★	61	62	P61, P62	NU	31,33	NU	NU	32 ★	51 ★	NU	NU
RED		128						134	134						A124			
YELLOW		129		*			*	135	135									
GREEN		130						136										
RED ARROW												107					A114	
YELLOW ARROW												108			A125		A115	
FLASHING YELLOW ARROW															A126		A116	
GREEN ARROW				118			133	136			109							
Hand icon						104				119								
Walking person icon						106				121								

NU = Not Used
NC = Not Connected
* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1113
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1850 (Sandy Ridge Road) at SR 1877 (Joe Drive)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:		Division 7 Guilford County High Point		SEAL	
PLAN DATE: January 2025		REVIEWED BY: AM Encarnacion		SEAL 044476	
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander		ENGINEER	
REVISIONS		INIT.		DATE	
750 N.Greenfield Pkwy,Garner,NC 27529				Designed by: Anthony Encarnacion 3/14/2025	
				SIGNATURE DATE	
				SIC. INVENTORY NO. 07-1113	

AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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 to 'Overlap G'
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 . X
LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle Once

OVERLAP H

Select TMG VEH OVLP [H] and 'NORMAL'

TMG VEH OVLP...[H] TYPE:NORMAL
PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X X
LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle to 'Overlap B'

OVERLAP B

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

TMG VEH OVLP...[B] TYPE:PPLT FYA
PROTECTED LEFT TURN.... OVERLAP G
OPPOSING THROUGH..... PHASE 4
FLASHING ARROW OUTPUT.....CH10 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 0

Toggle Once

OVERLAP C

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

TMG VEH OVLP...[C] TYPE:PPLT FYA
PROTECTED LEFT TURN.... PHASE 5
OPPOSING THROUGH..... PHASE 6
FLASHING ARROW OUTPUT.....CH11 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 5

NOTICE ACTION
PLAN SF BIT "5"

Toggle Once

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP
PROGRAMMING DETAIL FOR ALTERNATE PHASING

LOOP 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select 8. UTILITIES

2. From UTILITIES Submenu select 1. COPY/CLEAR

3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY
FROM TO
PHASE TIMING.... > PHASE TIMING....
TIMING PLAN..... > TIMING PLAN.....
PH DET OPT PLAN. . > PH DET OPT PLAN. .
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
TOGGLE TO SELECT A "FROM" AND A "TO"
THEN PRESS ENTER

4. From Main Menu select 6. DETECTORS

5. From DETECTOR Submenu select 2. VEHICLE DETECTOR SETUP

6. Place cursor in VEH DET PLAN [] position and enter "2".

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "0".

VEH DETECTOR [5] VEH DET PLAN [2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
5 5
CALL OPTION.... YES DELAY TIME... 0.0
EXT OPTION. PASSAGE EXTENSION TIME. 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY- NO

NOTICE VEH
DET PLAN 2

ENSURE DELAY
IS SET TO '0'

- Place cursor in VEH DETECTOR [] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
22 0
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY- NO

NOTICE VEH
DET PLAN 2

ENSURE PHASE
IS SET TO "0"

END PROGRAMMING

ECONOLITE ASC/3-2070
LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switches S4 as OLG and S11 as OLH,
program LD SWITCH 3 as OVLP '7' TYPE '0' and LD
SWITCH 8 as OVLP '8' TYPE '0' shown below.

1. From Main Menu select 1. CONFIGURATION

2. From CONFIGURATION Submenu select 3. LOAD SW ASSIGN

NOTICE OVERLAP G
ASSIGNED TO
LD SWITCH 3 ➡

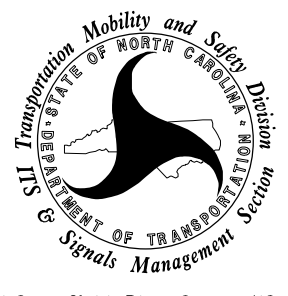
NOTICE OVERLAP H
ASSIGNED TO
LD SWITCH 8 ➡

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1113
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529



1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SR 1850 (Sandy Ridge Road)
at
SR 1877 (Joe Drive)

Division 7 Guilford County High Point

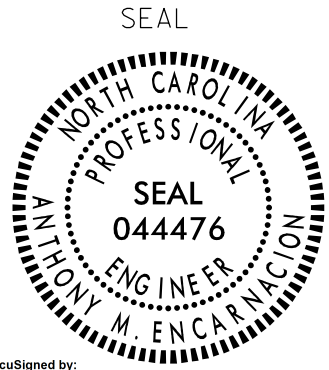
PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



Designed by:
Anthony Encarnacion
DATE: 3/14/2025

SIG. INVENTORY NO. 07-1113

13-MAR-2025 16:56
DW://SUD0036343\work\ins-com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_JSSR S1g and ITS/Task 05_11_Signals/071113_sm_e_2023mmda.dgn
S1F4685 - AT L05491289

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

PHASING	VEH DET PLAN	SF BITS ENABLED
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BIT 5 AND VEH DET PLAN 2 ACTIVATE TO CALL THE
"ALTERNATE PHASING":

SF BIT 5: Modifies overlap parent phase for
head 51 to run protected turns only.

INPUTS PAGE 2: Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 0 seconds.

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 14.3

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																		
PATTERN.....	AUTO			SYS OVERRIDE.... NO														
TIMING PLAN.....	0			SEQUENCE..... 0														
VEH DETECTOR PLAN..	2			DET LOG.....NONE														
FLASH.....	--			RED REST..... NO														
VEH DET DIAG PLN...	0			PED DET DIAG PLN..0														
DIMMING ENABLE..	NO			PRIORITY RETURN. NO														
PED PR RETURN..	NO			QUEUE DELAY..... NO														
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	.	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1113
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A



1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Electrical Detail - Sheet 3 of 4

Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1877 (Joe Drive)

Division 7

Guilford County

High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



Designed by:
Anthony Encarnacion

3/14/2025

SIGNATURE

DATE

SIG. INVENTORY NO.

07-1113