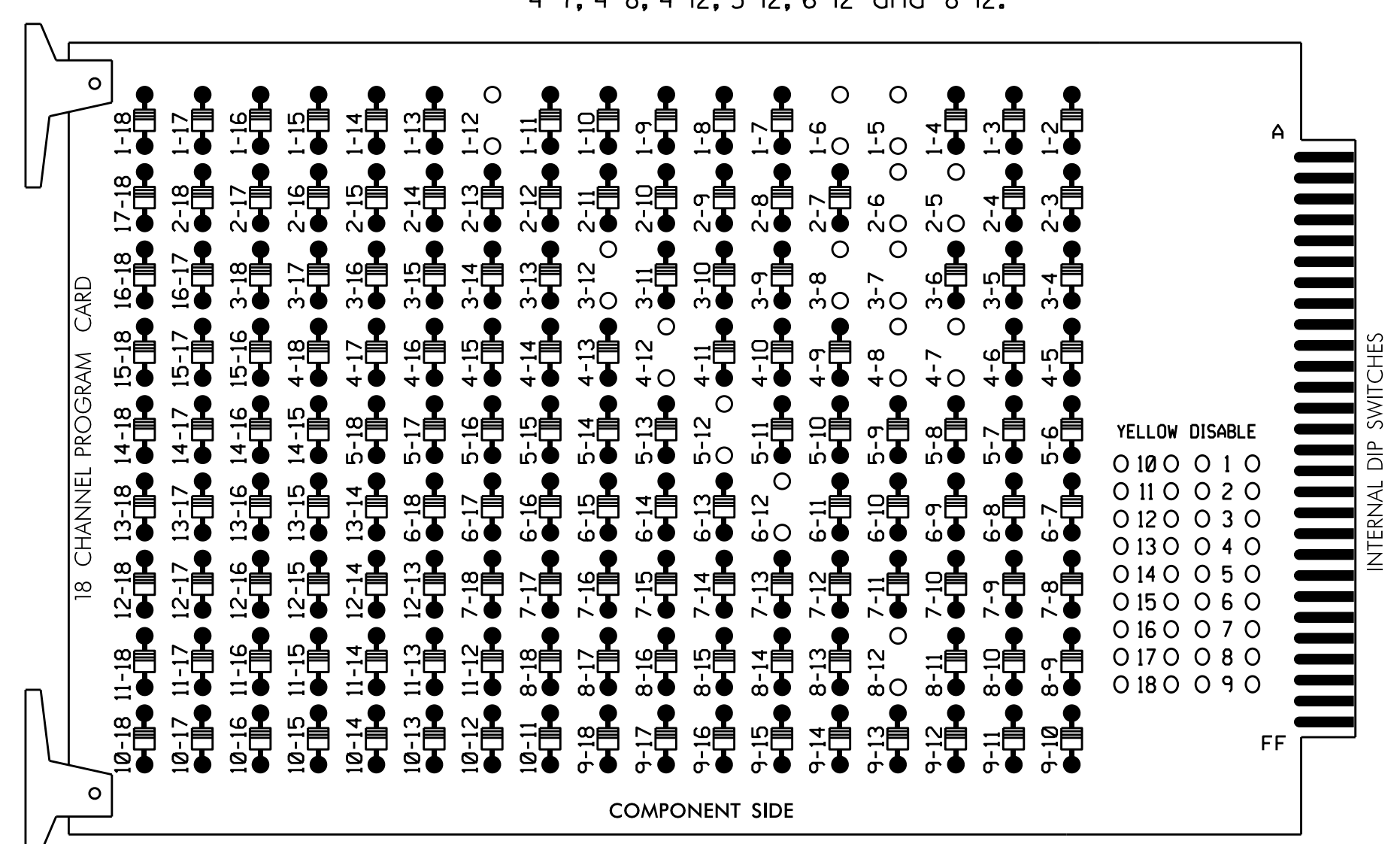


EDI MODEL 2018ECLIP-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-12, 2-5, 2-6, 3-7, 3-8, 3-12, 4-7, 4-8, 4-12, 5-12, 6-12 and 8-12.



REMOVE JUMPERS AS SHOWN

NOTES:

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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 (12-STD; 6-AUX)
 LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8
 S10,S11,AUX S5
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP 'A'.....NOT USED
 OVERLAP 'B'.....NOT USED
 OVERLAP 'C'.....NOT USED
 OVERLAP 'D'.....1+8

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.	11,12	21,22	NU	31	41,42	NU	51	61,62	NU	71	81,82	NU	NU	NU	NU	82	NU	NU
RED		128			101			134			107							*
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW	125				116			131			122							
YELLOW ARROW	126				117			132			123							A102
GREEN ARROW	127				118			133			124							A103

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)

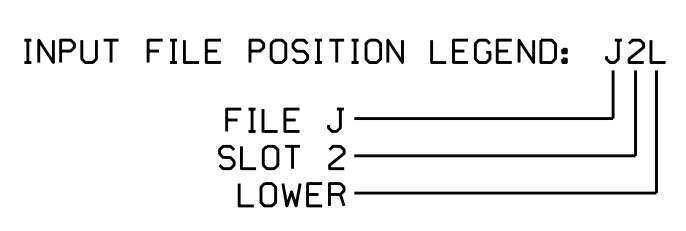
FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 1	∅ 2	S	∅ 3	∅ 4	SYS. DET. S5	S	SYS. DET. S1	S	S	S	S	FS
L	NOT USED	∅ 1	∅ 2	NOT USED	∅ 4	∅ 4	SYS. DET. S6	Y	SYS. DET. S2	Y	Y	Y	Y	DC ISOLATOR
U	∅ 5	∅ 6	S	S	∅ 7	∅ 8	SYS. DET. S7	S	SYS. DET. S3	S	S	S	S	ST
L	NOT USED	∅ 6	Y	Y	NOT USED	NOT USED	SYS. DET. S8	Y	SYS. DET. S4	Y	Y	Y	Y	DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S FS = FLASH SENSE ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	11U	56	18	1	1	Y	Y			3
1B	TB2-5,6	12U	39	1	2	1	Y	Y			
1C	TB2-7,8	12L	43	5	12	1	Y	Y			
2A,2B	TB2-9,10	13U	63	25	32	2	Y	Y		1.6	
2C,2D	TB2-11,12	13L	76	38	42	2	Y	Y			
3A	TB4-5,6	15U	58	20	3	3	Y	Y			3
4A	TB4-9,10	16U	41	3	4	4	Y	Y			
4B	TB4-11,12	16L	45	7	14	4	Y	Y			10
5A	TB3-1,2	11U	55	17	5	5	Y	Y			3
6A,6B	TB3-5,6	12U	40	2	6	6	Y	Y		1.6	
6C,6D	TB3-7,8	12L	44	6	16	6	Y	Y			
7A	TB5-5,6	15U	57	19	7	7	Y	Y			3
8A	TB5-9,10	16U	42	4	8	8	Y	Y			
* S1	TB6-9,10	19U	60	22	11	SYS					
* S2	TB6-11,12	19L	62	24	13	SYS					
* S3	TB7-9,10	19U	59	21	15	SYS					
* S4	TB7-11,12	19L	61	23	17	SYS					
* S5	TB6-1,2	17U	65	27	34	SYS					
* S6	TB6-3,4	17L	78	40	44	SYS					
* S7	TB7-1,2	17U	66	28	38	SYS					
* S8	TB7-3,4	17L	79	41	48	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).
 PRESS '+' THREE TIMES

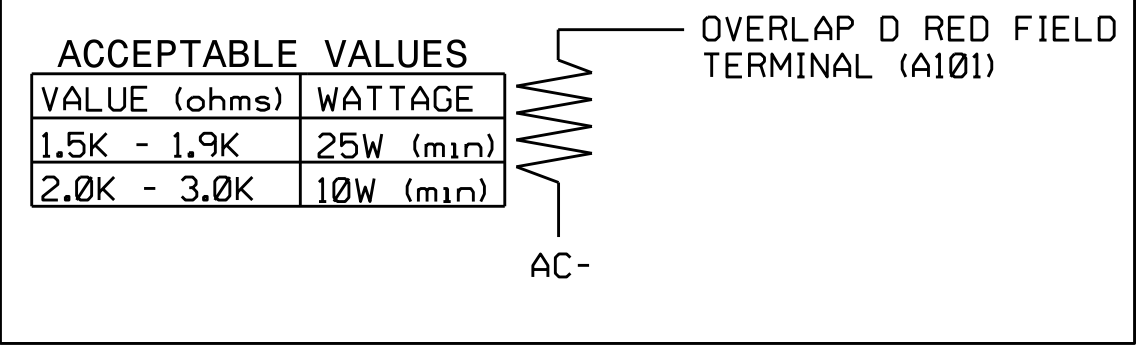
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PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE:           12345678910111213141516
VEH OVL PARENTS: X           X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR:  _ RED _ YELLOW _ GREEN
FLASH COLORS:   _ RED _ YELLOW _ GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0=255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0754
 DESIGNED: April 2014
 SEALED: 4/2/15
 REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL



I:\apps\2014_08\27_Sigmod\work\hous\sigmod\working\FolderHighPoint\0705a_sm\ele_xxx.dgn
 sigmod\work\hous\sigmod\working\FolderHighPoint\0705a_sm\ele_xxx.dgn
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Electrical Detail

Prepared In the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

Electrical and Programming Details For: NC 68 (Eastchester Drive) at N. Centennial Street

Division 7 Guilford County High Point

PLAN DATE: June 2014 REVIEWED BY: T. Joyce

PREPARED BY: B. SIMMONS REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: George C. Brown 4/10/2015

SIG. INVENTORY NO. 07-0754

3 Phase
Fully Actuated
(High Point Signal System)

PHASING DIAGRAM

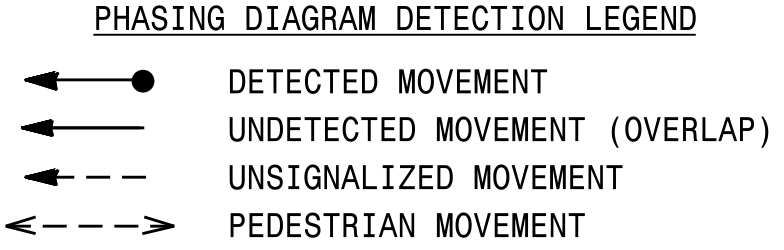
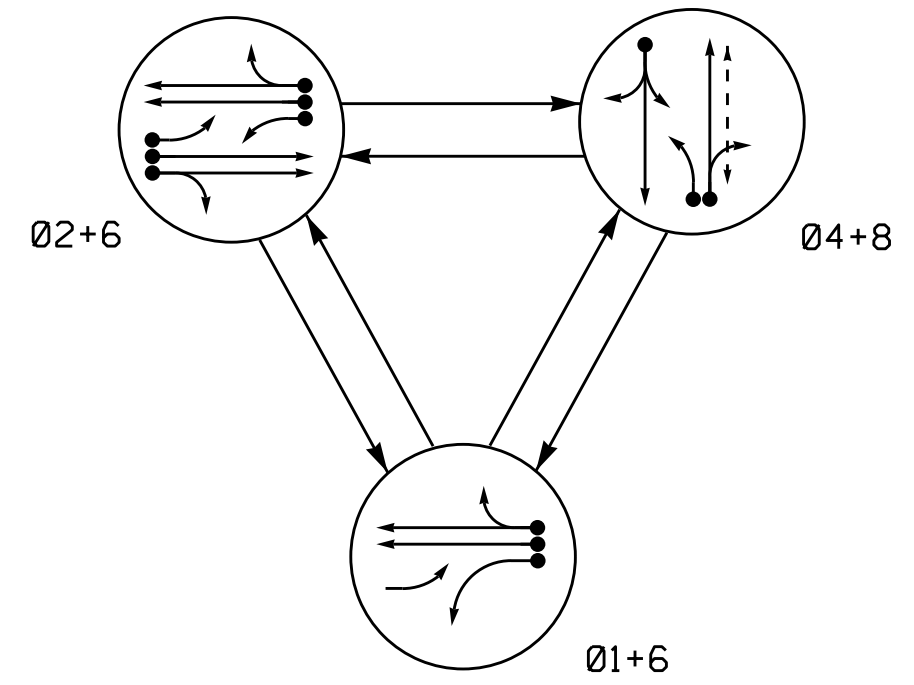


TABLE OF OPERATION

SIGNAL FACE	PHASE			
	01+6	02+6	04+8	F
11	←	←	←	←
21	←	←	←	←
22, 23	R	G	R	Y
41, 42	R	R	G	R
62, 63	G	G	R	Y
81, 82	R	R	G	R
P81, P82	DW	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SCHOOL FLASHER
TABLE OF OPERATION

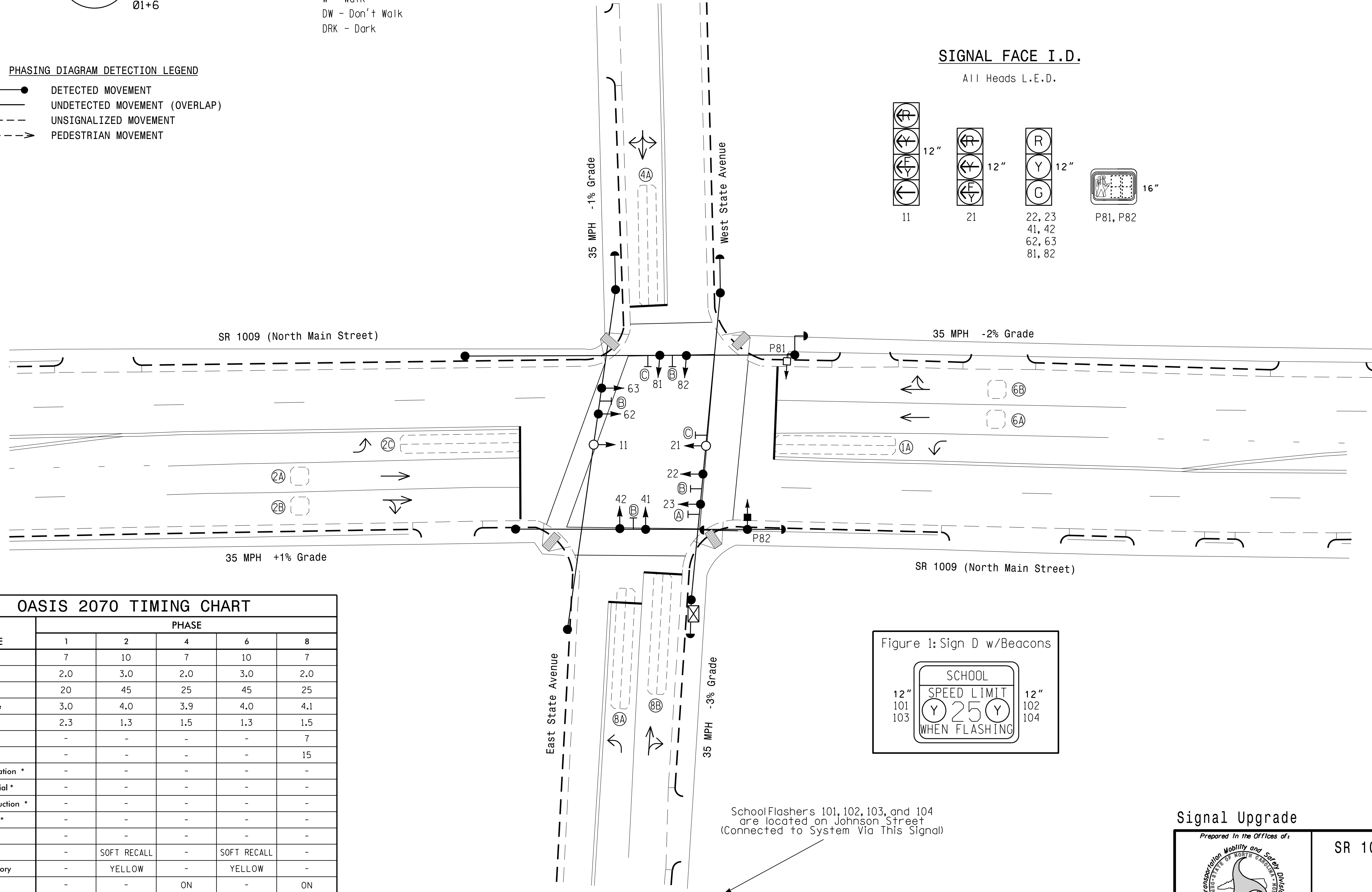
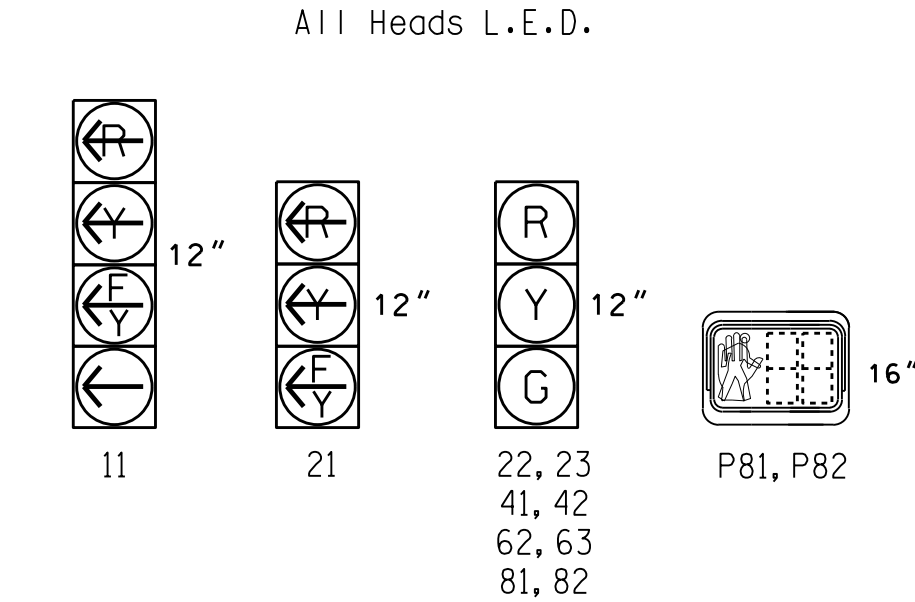
SIGNAL FACE	INTERVAL	
	1	2
101, 103	ON	OFF
102, 104	OFF	ON

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	Y
2A, 2B	6X6	70	3	-	2	Y	Y	-	-	-	-	Y
2C	6X40	0	2-4-2	-	2	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	Y
6A, 6B	6X6	70	3	-	6	Y	Y	-	-	-	-	Y
8A	6X40	+5	2-4-2	-	8	Y	Y	-	-	5	-	Y
8B	6X40	0	2-4-2	-								

- NOTES**
- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
 - Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
 - Phase 1 may be lagged.
 - Set all detector units to presence mode.
 - In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
 - 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.
 - Existing Left Arrow "ONLY" signs (R3-5L) may be removed at the direction of the Traffic Engineer.
 - Remove existing "Left Turn Yield on Green" ball signs (R10-12).
 - Pavement markings are existing.
 - The Division Traffic Engineer will determine the hours of use for the school warning beacons.
 - Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

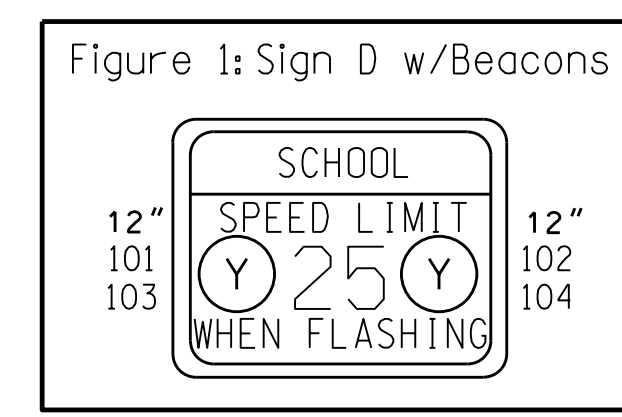
SIGNAL FACE I.D.



OASIS 2070 TIMING CHART

FEATURE	PHASE				
	1	2	4	6	8
Min Green 1 *	7	10	7	10	7
Extension 1 *	2.0	3.0	2.0	3.0	2.0
Max Green 1 *	20	45	25	45	25
Yellow Clearance	3.0	4.0	3.9	4.0	4.1
Red Clearance	2.3	1.3	1.5	1.3	1.5
Walk 1 *	-	-	-	-	7
Don't Walk 1	-	-	-	-	15
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode **	-	SOFT RECALL	-	SOFT RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** May be changed to Min Recall by time of Day at discretion of City Traffic Engineer.



SchoolFlashers 101, 102, 103, and 104 are located on Johnson Street (Connected to System Via This Signal)

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
□ Controller & Cabinet	□ N/A
□ Junction Box	□ N/A
⊥ 2-in Underground Conduit	⊥ N/A
N/A Right of Way	⊥ N/A
N/A Directional Arrow	⊥ N/A
N/A Curb Ramp	⊥ N/A
⊙ "NO TURN ON RED" Sign (R10-11)	⊙ A
⊙ Street Name Sign (D3-1)	⊙ B
⊙ Left Arrow "ONLY" Sign (R3-5L)	⊙ C
⊙ "SCHOOL SPEED LIMIT 25 WHEN FLASHING" Sign (S5-1) w/ Beacons	⊙ D

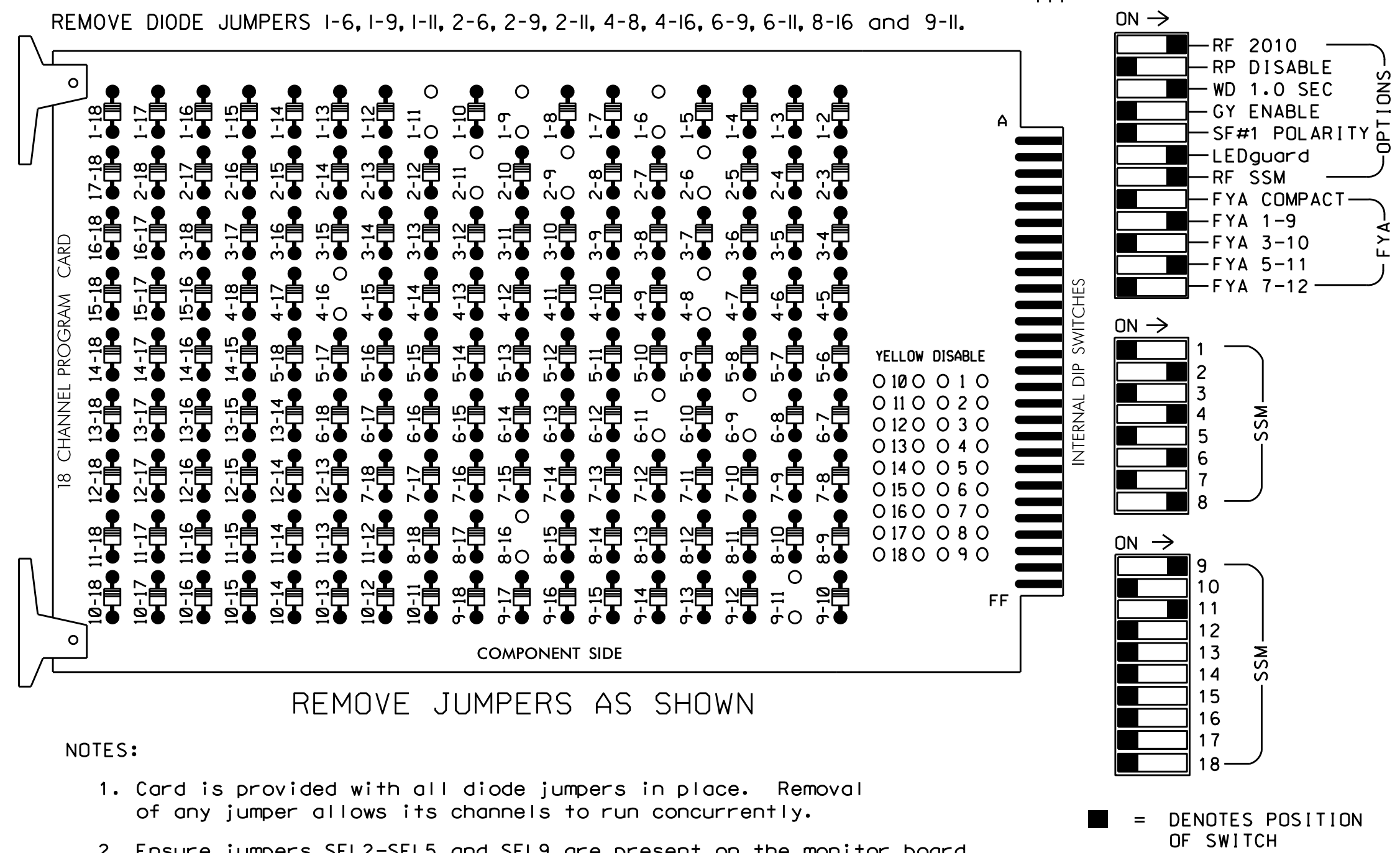
Signal Upgrade

	SR 1009 (North Main Street) at State Avenue	SEAL
	Division 7 Guilford County High Point PLAN DATE: August 2014 REVIEWED BY: PREPARED BY: Jeff Spence REVIEWED BY:	SEAL 026486 ENGINEER ROBERT J. ZIEHL 3/11/2015 DATE SIG. INVENTORY NO. 07-0755

I:\MSR-2015-17324-SIGNAL\SSU\15_SigDesign\Signal Plans\High Point\Signal Plans\07-0755-07-0755-Sig.dsn_20150311.dgn
 RZT:beno

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phase 8 for 'STARTUP PED CALL'.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S5,*S6,S8,S11,*S12,
 AUX S1,AUX S4
 PHASES USED.....1,2,4,6,8,8 PED
 OVERLAP "A".....1+2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....6
 OVERLAP "D".....NOT USED
 *PED Yellow used for School Flashers

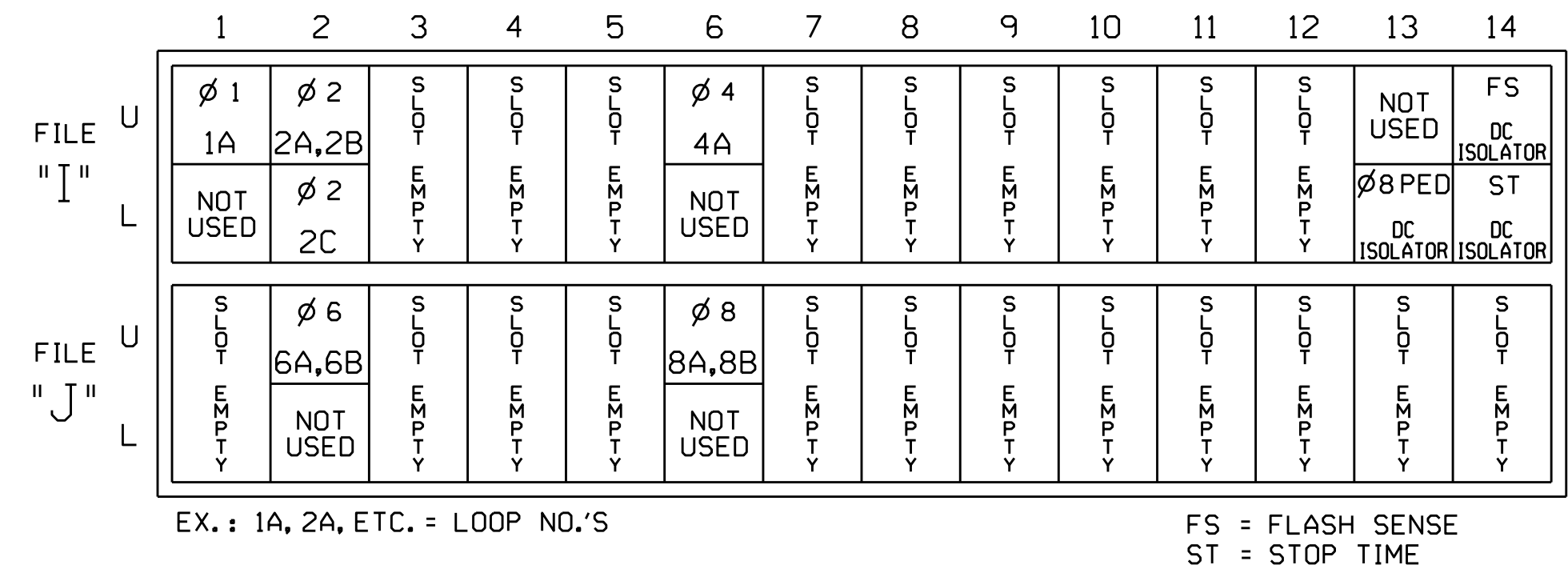
SIGNAL HEAD HOOK-UP CHART

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	FLASH OUTPUT	5	6	6 PED	7	8	8 PED	FLASH OUTPUT	OLA	OLB	SPARE	OLC	OLD	SPARE		
SIGNAL HEAD NO.	11	22,23	NU	NU	41,42	NU	101, 103	NU	62,63	NU	NU	81,82	P81, P82	102, 104	11	NU	NU	21	NU	NU		
RED		128			101				134			107										
YELLOW	*	129			102				135			108										
GREEN		130			103				136			109										
RED ARROW																			A121		A114	
YELLOW ARROW																			A122		A115	
FLASHING YELLOW ARROW																			A123		A116	
GREEN ARROW	127																					
PED YELLOW																						

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 ** S6-Y and S12-Y are used for the School Flasher. See sheet 3 for wiring and programming details.
 ★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

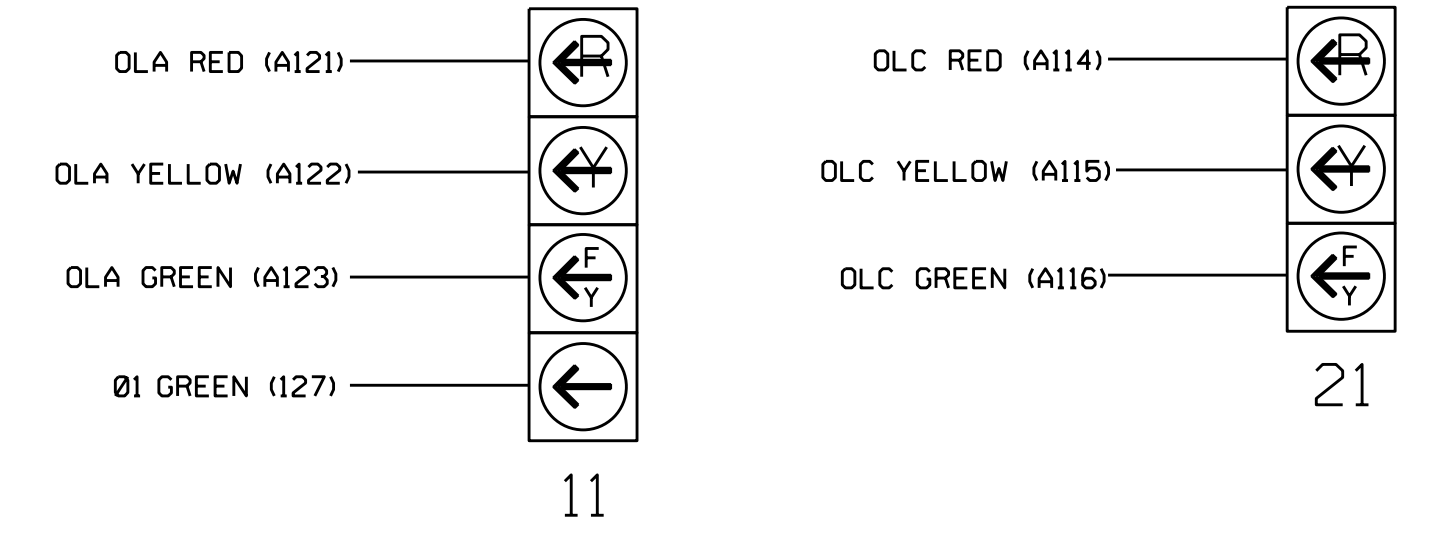
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			15
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
2C	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			10
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A,8B	TB5-9,10	J6U	42	4	8	8	Y	Y			5
PED PUSH BUTTONS											
P81,P82	TB8-8,9	I13L	70	32	PED 8	8 PED					

INPUT FILE POSITION LEGEND: J2L
 FILE J
 SLOT 2
 LOWER

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



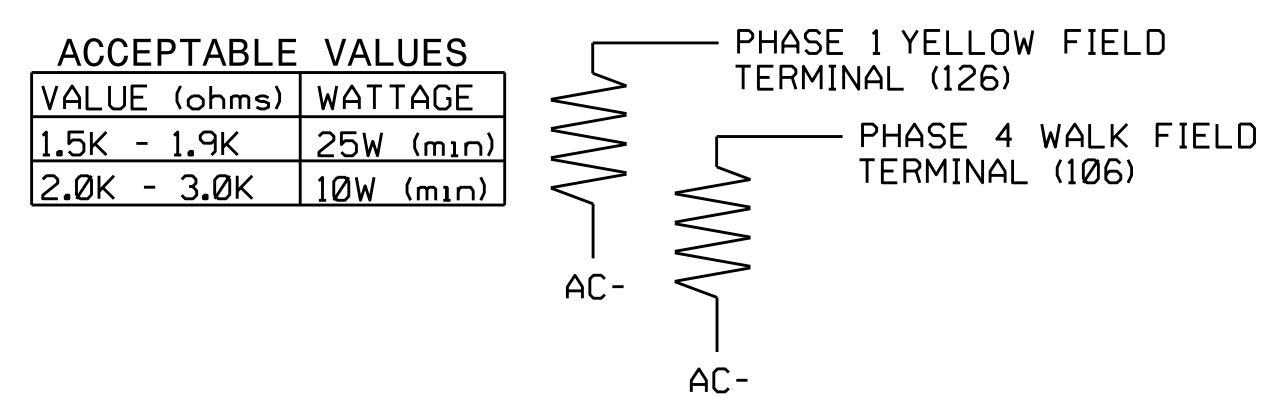
NOTE
 1. The sequence display for signal head 11 requires special logic programming. See sheet 2 for programming instructions.

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.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0755
 DESIGNED: August 2014
 SEALED: 3/11/2015
 REVISED: N/A

Electrical Detail - Sheet 1 of 3

Electrical and Programming Details for: **SR 1009 (North Main Street) at State Avenue**

Division 7 Guilford County High Point

PLAN DATE: November 2014 REVIEWED BY: T. Joyce

PREPARED BY: C. Strickland REVIEWED BY:

SEAL: **George C. Brown** 3/18/2015

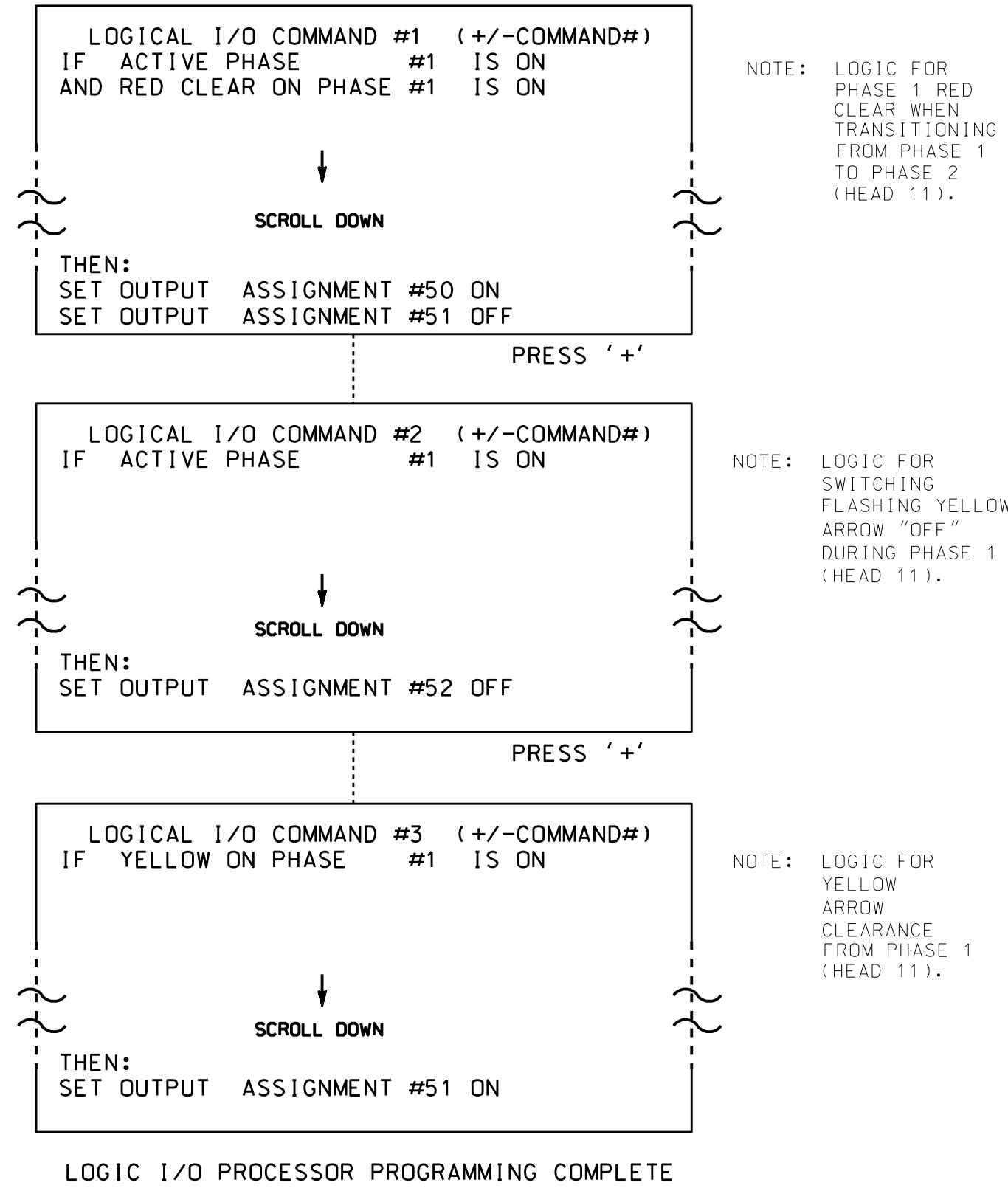
SIG. INVENTORY NO. 07-0755

18-4485-2015_08-18
 S:\IT\GIS\115\Sig\Signal\work\gr\oups\51g_Mon\51r1\c\k\land\07055_sme.le.xxx.dgn
 G:\ST\T\land

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



OUTPUT REFERENCE SCHEDULE

OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:           12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
  
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```

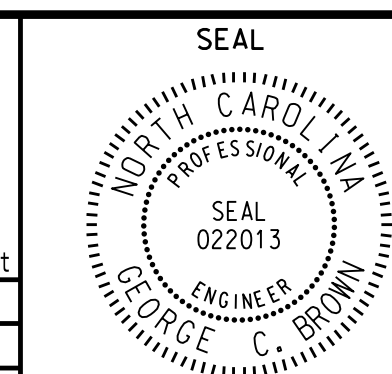
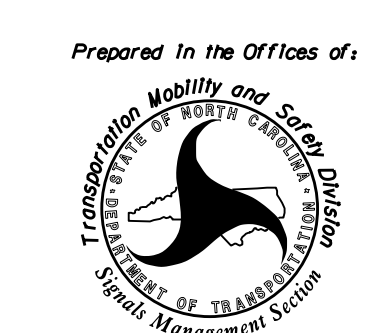
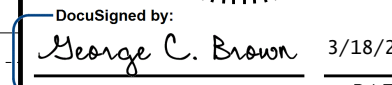
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:           12345678910111213141516
VEH OVL PARENTS: X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
  
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0755
DESIGNED: August 2014
SEALED: 3/11/2015
REVISED: N/A

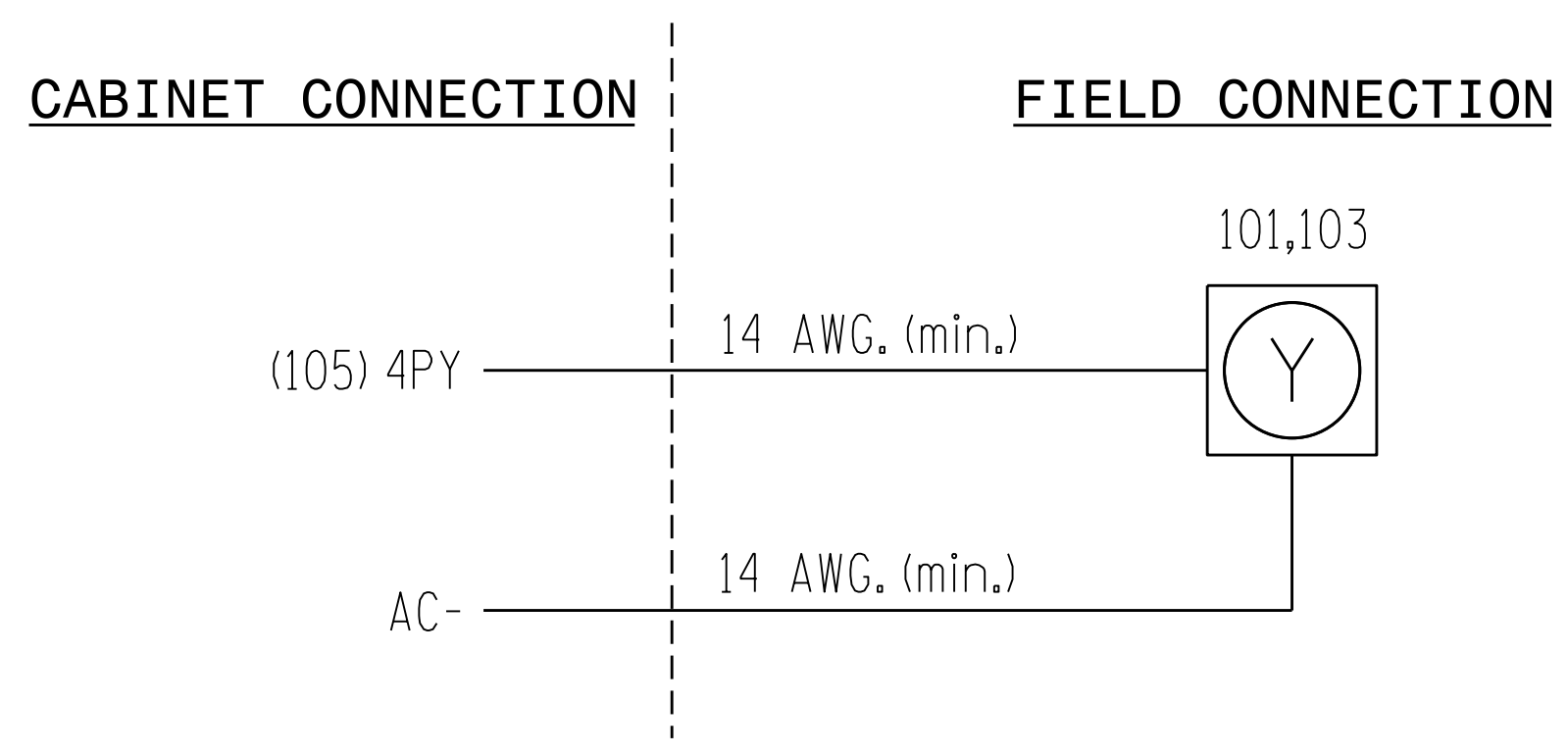
Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1009 (North Main Street) at State Avenue	SEAL 
	Division 7 Guilford County High Point PLAN DATE: November 2014 REVIEWED BY: T. Joyce PREPARED BY: C. Strickland REVIEWED BY:	DocuSigned by:  3/18/2015
REVISIONS INIT. DATE		SIG. INVENTORY NO. 07-0755

I:\JMS-2015_08-19_Sig\TSS\TSS\Sigma\work\sig\Map\Sig\ckland\070755_sme.le.xxx.dgn

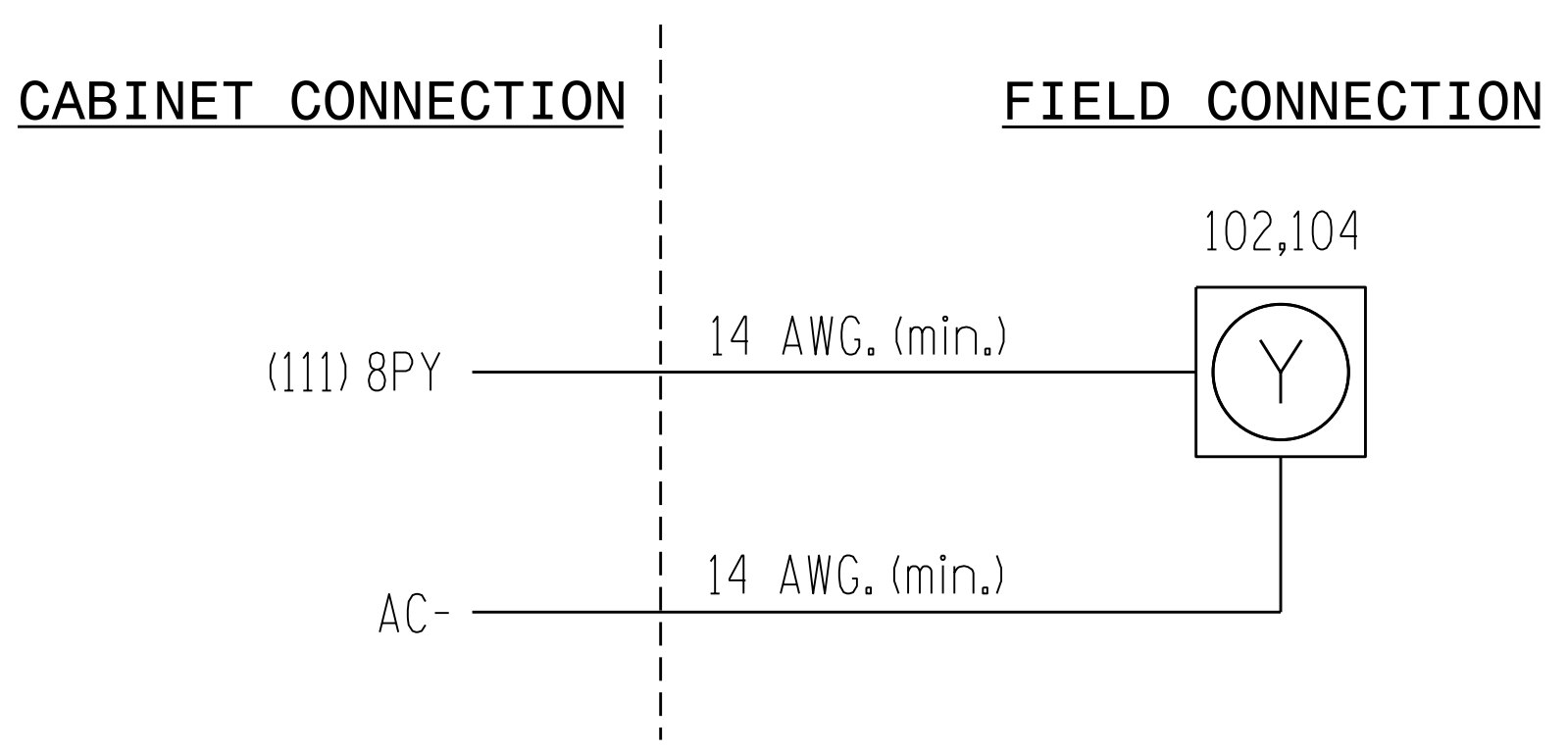
SCHOOL FLASHER (101,103)

(wire flashers as shown below)



SCHOOL FLASHER (102,104)

(wire flashers as shown below)



IMPORTANT

1. Ensure that the white keyed plug located behind rear panel of output file labeled 2PY-4PY-6PY-8PY is disconnected. This will disconnect conflict monitor wires from field signal terminals 105 and 111 shown on flasher wiring detail above.
2. Install loadswitches in output file slots S6 and S12.
3. To activate school zone flasher operation as indicated on the signal plan, program outputs 35 and 36 as shown on this sheet.
4. Operational times and dates are determined by the DTE. See this sheet for the scheduling programming detail.

**EVENT #1 SCHEDULING (AM)
SCHOOL FLASHER PROGRAMMING DETAIL**

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING).

```

SCHEDULED EVENT #1      NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**/**
STOP TIME (HH:MM).....**/**
DOW   ISUN MON TUE WED THR FRI SAT
ENABLED 1  X  X  X  X  X  X
EVENT GROUPS 12345678910111213141516
ASSIGNED

DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE).. OFFSET#...
PLAN PRIORITY: LOW.. MED.. HIGH..
CAHNGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4).....
CHANGE PHASE CONTROL PAGE (1-4)....
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4).....
CHANGE OUTPUT PAGE (1-4).....
SET OUTPUT ON (1-64).....35
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SPLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64).....
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)....
SET LOGIC FLAG ON (1-16).....
SET LOGIC FLAG OFF (1-64).....
OVERRIDE PHASE CONTROL FUNCTIONS?....
    
```

**EVENT #2 SCHEDULING (PM)
SCHOOL FLASHER PROGRAMMING DETAIL**

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING).

```

SCHEDULED EVENT #2      NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**/**
STOP TIME (HH:MM).....**/**
DOW   ISUN MON TUE WED THR FRI SAT
ENABLED 1  X  X  X  X  X  X
EVENT GROUPS 12345678910111213141516
ASSIGNED

DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE).. OFFSET#...
PLAN PRIORITY: LOW.. MED.. HIGH..
CAHNGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4).....
CHANGE PHASE CONTROL PAGE (1-4)....
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4).....
CHANGE OUTPUT PAGE (1-4).....
SET OUTPUT ON (1-64).....35
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SPLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64).....
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)....
SET LOGIC FLAG ON (1-16).....
SET LOGIC FLAG OFF (1-64).....
OVERRIDE PHASE CONTROL FUNCTIONS?....
    
```

* AFTER PROGRAMMING, THIS SPACE WILL READ 'OUTPUT OVERRIDE'.
/ TIMES AND DATES DETERMINED BY THE DTE.

**SCHOOL FLASHER
OUTPUT ASSIGNMENT PROGRAMMING DETAIL**

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE '+' KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 35, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```

PAGE:1 C1 PIN:37 NOT ENABLED
OUTPUT ASSIGNMENT #.....35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SQLID, 1=FLASH).....1
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE IN WHICH IT WILL FLASH.

LEAVE THIS ENTRY AS IS

PRESS '+' KEY FOR OUTPUT ASSIGNMENT 36 (C1 PIN 38)

```

PAGE:1 C1 PIN:38 NOT ENABLED
OUTPUT ASSIGNMENT #.....36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SQLID, 1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE NOT ENABLED "Y" WILL REMAIN UNTIL FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER A "N".

```

PAGE:1 C1:38 NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).....35
    
```

WHEN A "Y" IS ENTERED FOR "OUT OF PHASE FLASHER" THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS ENTER AFTER ENTERING DATA. THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS "OUT OF PHASE FLASHER" AS SHOWN BELOW:

```

PAGE:1 C1 PIN:38 OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.....36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SQLID, 1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

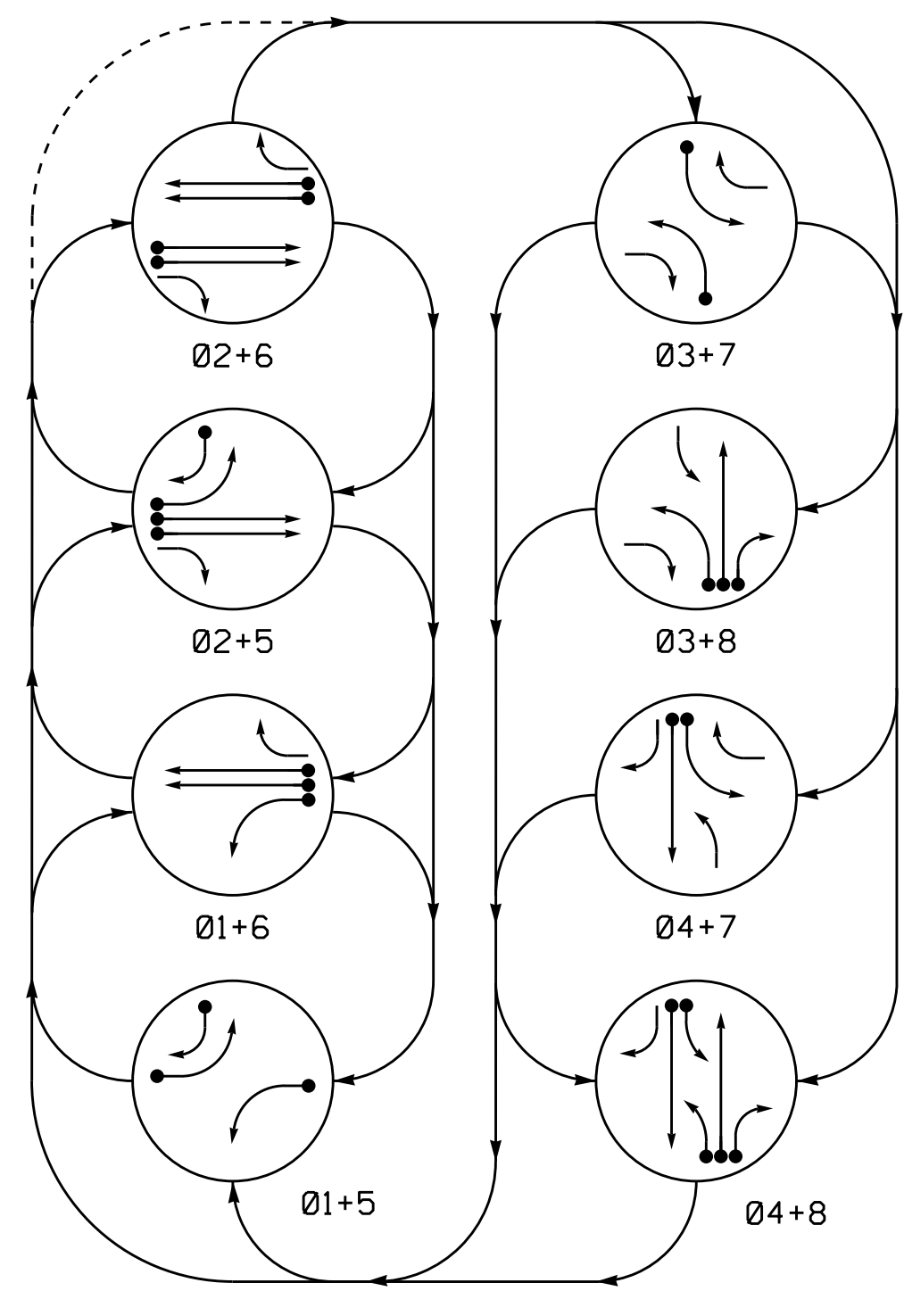
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0755
DESIGNED: August 2014
SEALED: 3/11/2015
REVISED: N/A

Electrical Detail - Sheet 3 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1009 (North Main Street) at State Avenue		SEAL SEAL 022013 GEORGE C. BROWN
	Division 7 PLAN DATE: November 2014 PREPARED BY: C. Strickland	Guilford County High Point REVIEWED BY: T. Joyce REVIEWED BY:		DocuSigned by: George C. Brown 3/18/2015 DATE

I:\0-AMIS-2014-09-21
 S:\MITS\ASMTS\Sigma\work\grouper\g\Map\strickland\07055_sme_ie_xxx.dgn
 C:\STRICKLAND

PHASING DIAGRAM



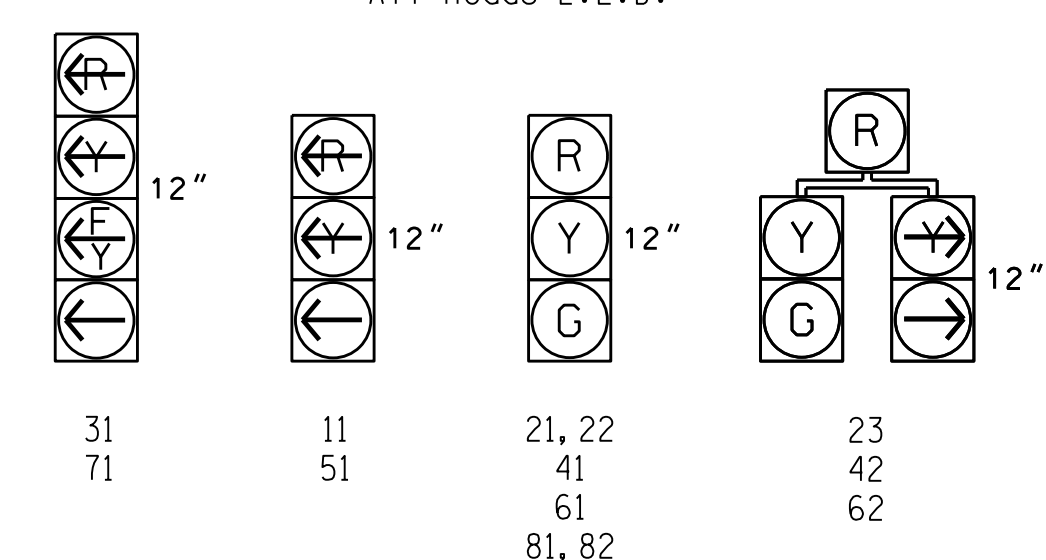
- PHASING DIAGRAM DETECTION LEGEND**
- DETECTED MOVEMENT (arrow with dot)
 - UNDETECTED MOVEMENT (OVERLAP) (arrow with shaded area)
 - UNSIGNALIZED MOVEMENT (dashed arrow)
 - PEDESTRIAN MOVEMENT (arrow with pedestrian symbol)

TABLE OF OPERATION

SIGNAL FACE	PHASE								
	01 +5	02 +6	03 +7	04 +8	01 +5	02 +6	03 +7	04 +8	FL +8
11	←	→	↔	↔	←	→	↔	↔	
21, 22	R	R	G	G	R	R	R	R	Y
23	R	R	G	G	R	R	R	R	Y
31	←	→	↔	↔	←	→	↔	↔	
41	R	R	R	R	R	R	G	G	R
42	R	R	R	R	R	R	G	G	R
51	←	→	↔	↔	←	→	↔	↔	
61	R	G	R	G	R	R	R	R	Y
62	R	G	R	G	R	R	R	R	Y
71	←	→	↔	↔	←	→	↔	↔	
81, 82	R	R	R	R	R	G	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



SCHOOL FLASHER TABLE OF OPERATION

SIGNAL FACE	INTERVAL	
	1	2
101, 103	ON	OFF
102, 104	OFF	ON

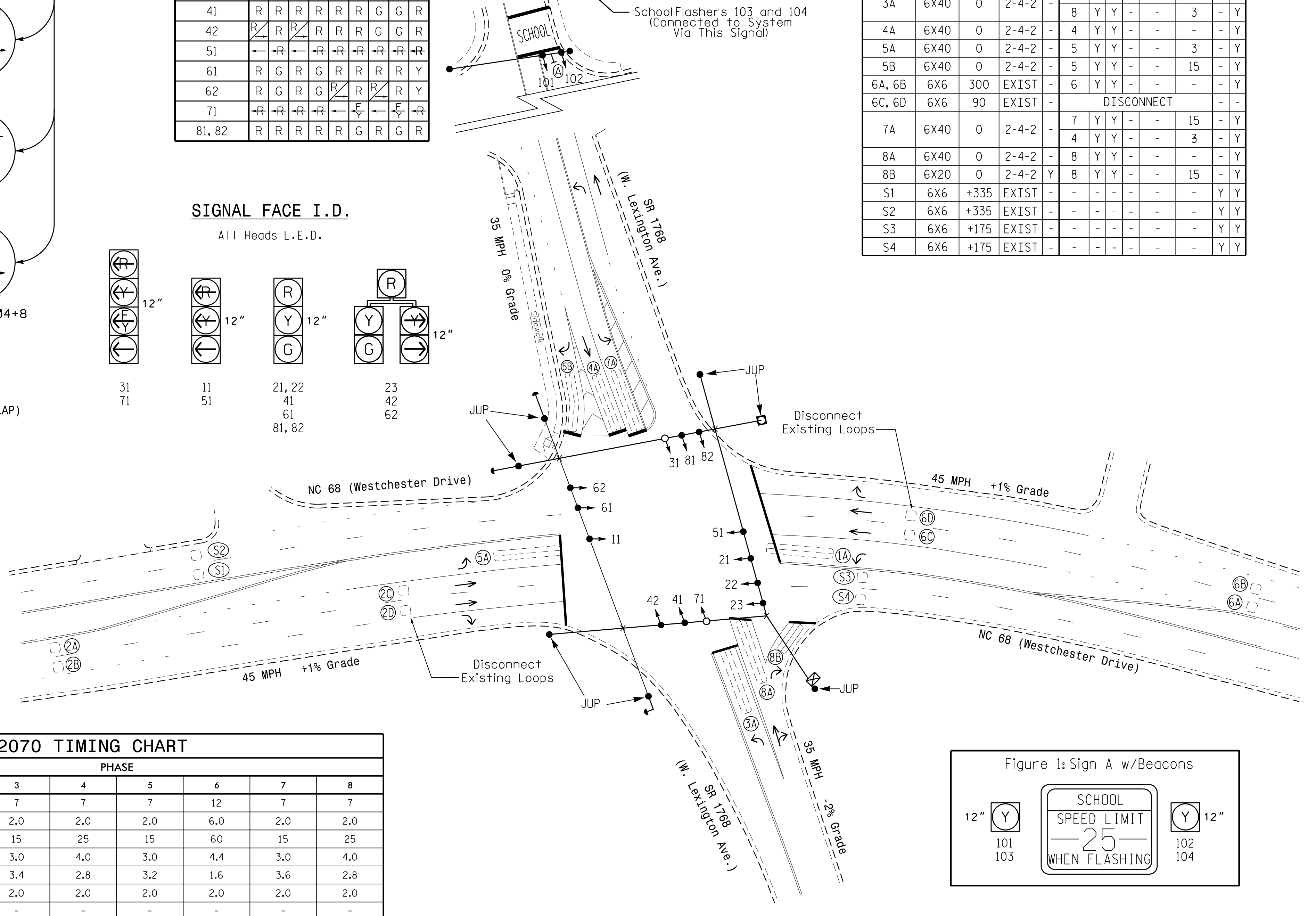
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD	
1A	6X40	+5	2-4-2	-	1	Y	Y	-	-	3	-	Y
2A, 2B	6X6	300	EXIST	-	2	Y	Y	-	-	-	-	Y
2C, 2D	6X6	90	EXIST	-	DISCONNECT						-	-
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	Y
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	3	-	Y
5B	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	Y
6A, 6B	6X6	300	EXIST	-	6	Y	Y	-	-	-	-	Y
6C, 6D	6X6	90	EXIST	-	DISCONNECT						-	-
7A	6X40	0	2-4-2	-	7	Y	Y	-	-	15	-	Y
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	3	-	Y
8B	6X20	0	2-4-2	Y	8	Y	Y	-	-	15	-	Y
S1	6X6	+335	EXIST	-	-	-	-	-	-	-	Y	Y
S2	6X6	+335	EXIST	-	-	-	-	-	-	-	Y	Y
S3	6X6	+175	EXIST	-	-	-	-	-	-	-	Y	Y
S4	6X6	+175	EXIST	-	-	-	-	-	-	-	Y	Y

8 Phase Fully Actuated (High Point Signal System)

NOTES

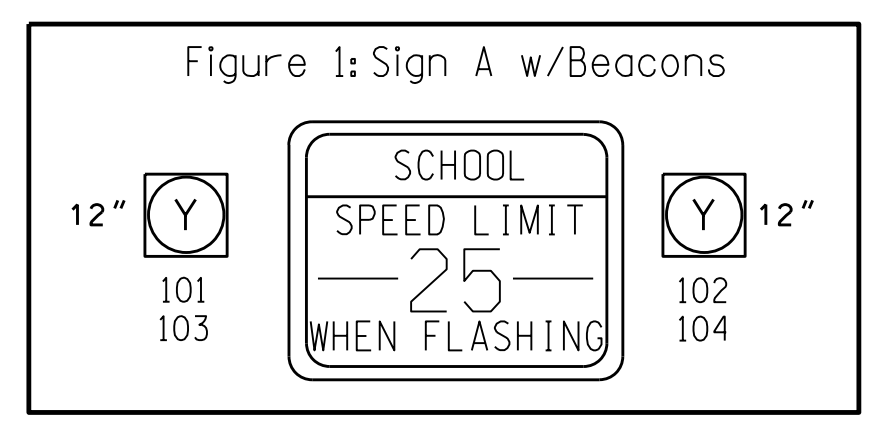
- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Program School Flasher to operate as directed by the Engineer.
- Reposition existing signal heads numbered 41 and 81.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Pavement markings are existing.
- The Division Traffic Engineer will determine the hours of use for the school warning beacons.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	4	5	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	15	60	15	25	15	60	15	25
Yellow Clearance	3.0	4.4	3.0	4.0	3.0	4.4	3.0	4.0
Red Clearance	2.4	2.3	3.4	2.8	3.2	1.6	3.6	2.8
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode **	-	SOFT RECALL	-	-	-	SOFT RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
 ** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



LEGEND

	PROPOSED Traffic Signal Head		EXISTING Traffic Signal Head
	PROPOSED Modified Signal Head Sign	N/A	N/A
	PROPOSED Pedestrian Signal Head With Push Button & Sign		EXISTING Pedestrian Signal Head
	PROPOSED Signal Pole with Guy		EXISTING Signal Pole with Guy
	PROPOSED Signal Pole with Sidewalk Guy		EXISTING Signal Pole with Sidewalk Guy
	PROPOSED Inductive Loop Detector		EXISTING Inductive Loop Detector
	PROPOSED Controller & Cabinet Junction Box		EXISTING Controller & Cabinet Junction Box
	PROPOSED 2-in Underground Conduit		EXISTING 2-in Underground Conduit
	PROPOSED Right of Way		EXISTING Right of Way
	PROPOSED Directional Arrow		EXISTING Directional Arrow
	PROPOSED "SCHOOL SPEED LIMIT 25 WHEN FLASHING" Sign (S5-1) w/ Beacons (See Figure 1)		EXISTING "SCHOOL SPEED LIMIT 25 WHEN FLASHING" Sign (S5-1) w/ Beacons (See Figure 1)

Signal Upgrade

Prepared in the Offices of:

TRANSPORTATION MOBILITY AND SAFETY DIVISION
 DIVISION OF TRANSPORTATION
 SIGNAL DESIGN SECTION

1750 N. Greenfield Pkwy., Garner, NC 27529

Scale: 1" = 40'

NC 68 (Westchester Drive) at SR 1768 (W. Lexington Ave.)

Division 7 Guilford County High Point

PLAN DATE: August 2014 PREPARED BY: Jeff Spence
 PREPARED BY: N. Brinkley REVIEWED BY: [Signature]

REVISIONS: [Table with columns for REVISIONS, INIT., DATE]

SEAL: H. CAROLINA PROFESSIONAL ENGINEER ROBERT J. ZIEGLER
 SEAL 026486

3/18/2015
 DATE

SIG. INVENTORY NO. 07-0756

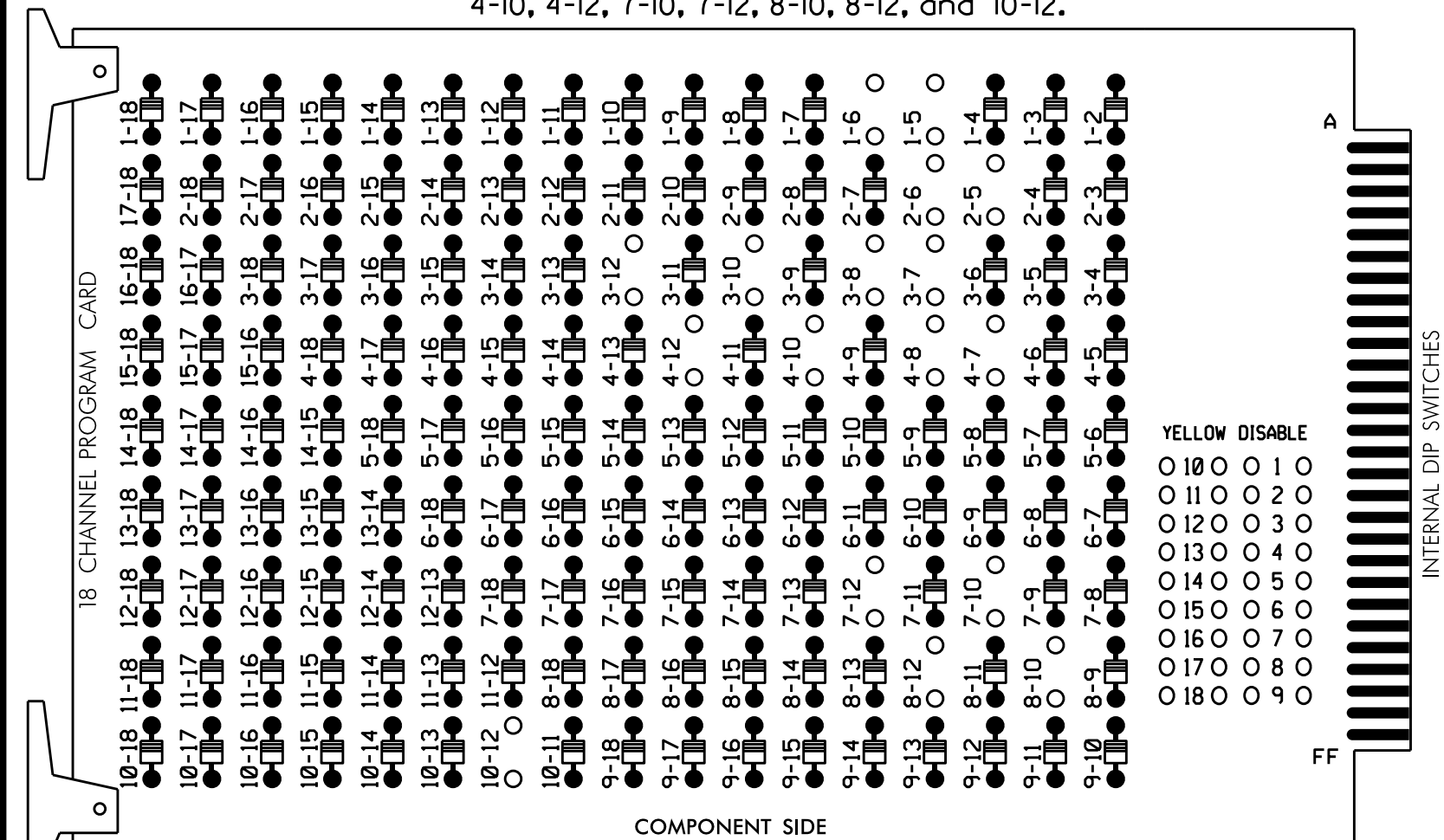
18-MAR-2015 11:15
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EDI MODEL 2018ECLIP-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

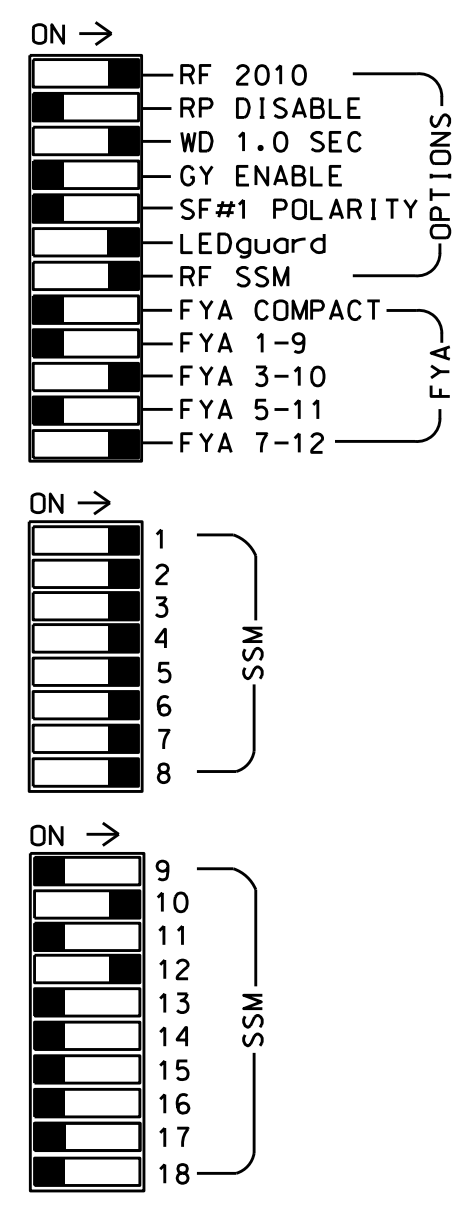
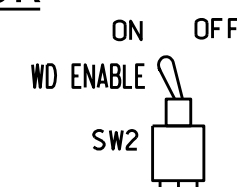
REMOVE DIODE JUMPERS 1-5, 1-6, 2-5, 2-6, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 7-10, 7-12, 8-10, 8-12, and 10-12.



REMOVE JUMPERS AS SHOWN

NOTES:

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



■ = DENOTES POSITION OF SWITCH

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlaps 2 as Wag Overlaps.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S3*,S4,S5,S7,S8,S9*,
 S10,S11,AUX S2,AUX S5
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....NOT USED
 OVERLAP "B".....3+4
 OVERLAP "C".....NOT USED
 OVERLAP "D".....7+8

* S3 AND S9 USED FOR SCHOOL FLASHER

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 SCHOOL FLASHER	3	4	4 PED	5	6	6 PED SCHOOL FLASHER	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE				
SIGNAL HEAD NO.	11	21,22,23	NU	101,103	23	31	41,42	NU	42	51	61,62	NU	102,104	62	71	81,82	NU	31	NU	71	NU	
RED		128		*	101				134		*	107										
YELLOW		129			102				135			108										
GREEN		130			103				136			109										
RED ARROW	125								131							A124					A101	
YELLOW ARROW	126			117				132	132			123				A125					A102	
FLASHING YELLOW ARROW																A126					A103	
GREEN ARROW	127			118	118			133	133			124	124									
PED YELLOW				**	114									**	120							

NU = Not Used

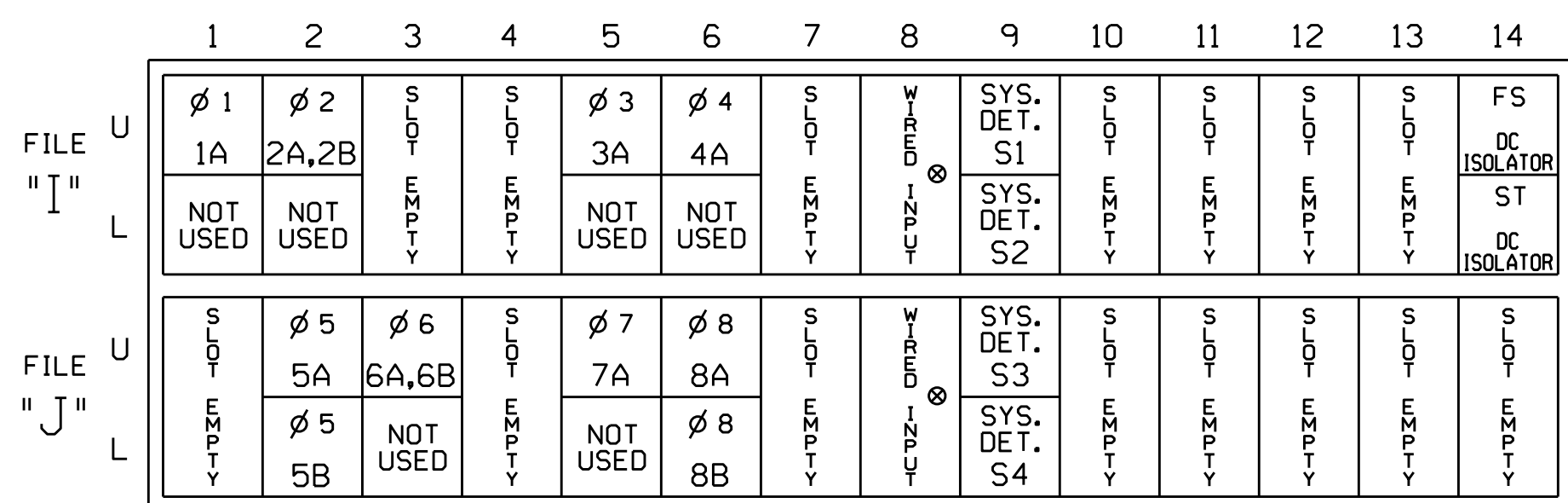
* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

** S3-Y and S9-Y are used for the School Flasher. See sheet 3 for wiring and programming details.

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

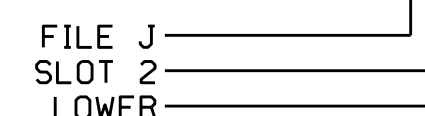
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			3
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
3A ¹	TB4-5,6	I5U	58	20	3	3	Y	Y			15
		J8U	50	12	28	8	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			3
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			15
6A,6B	TB3-9,10	J3U	64	26	36	6	Y	Y			
7A ²	TB5-5,6	J5U	57	19	7	7	Y	Y			15
		I8U	49	11	24	4	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					
* S4	TB7-11,12	J9L	61	23	17	SYS					

¹Add jumper from I5-W to J8-W, on rear of input file.

²Add jumper from J5-W to I8-W, on rear of input file.

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

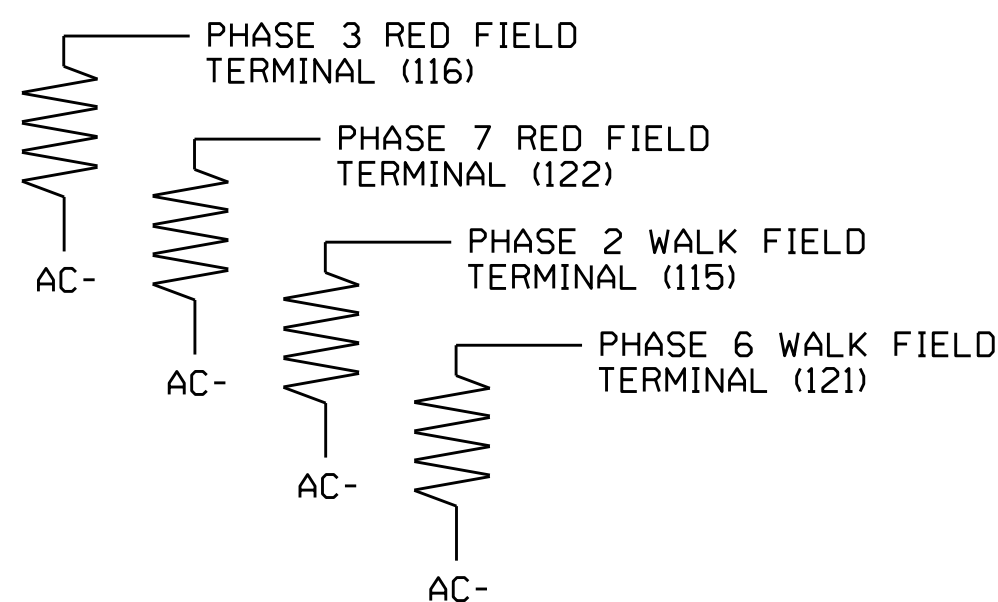
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

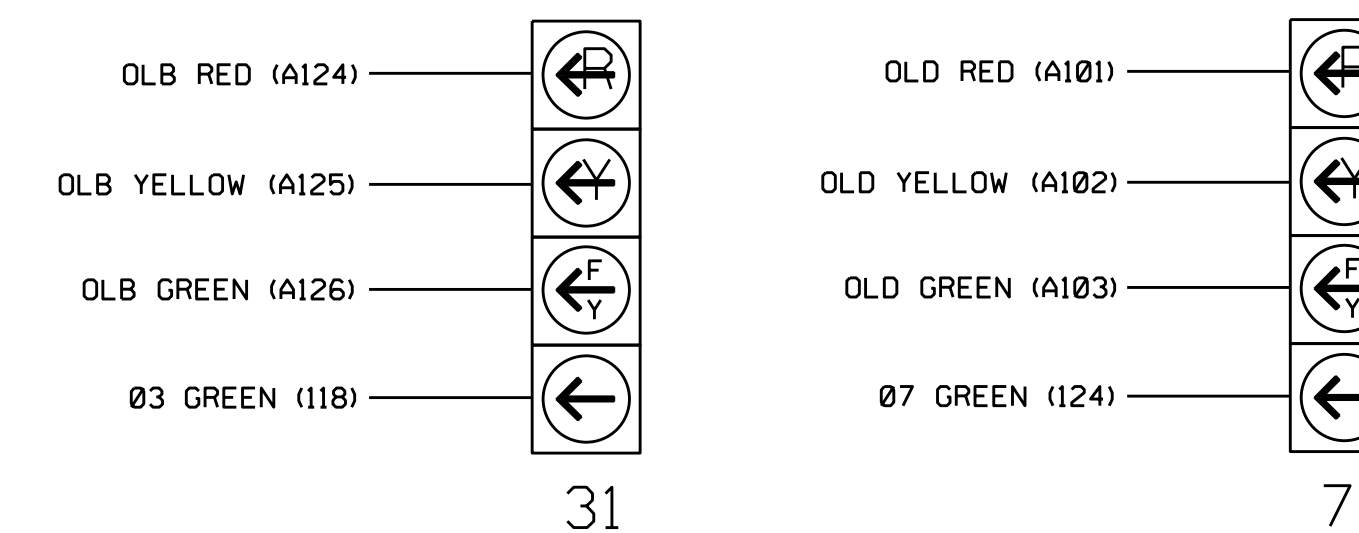
(install resistors as shown below)

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



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 31 and 71 requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0756
 DESIGNED: August 2014
 SEALED: 3/18/2015
 REVISED: N/A

Electrical Detail - Sheet 1 of 3

Electrical and Programming Details for: NC 68 (Westchester Drive) at SR 1768 (W. Lexington Ave.)

Prepared in the Offices of: **Transporatio Mobility and Safety Solutions** (Seal of North Carolina Professional Engineer John T. Rowe, Jr. No. 008453)

Division 7 Guilford County High Point

PLAN DATE: November 2014 REVIEWED BY: *STR*

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS: _____ INIT. DATE

DocuSigned by: **John T. Rowe, Jr.** 3/19/2015

SIG. INVENTORY NO. 07-0756

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
AND RED CLEAR ON PHASE #3 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #47 ON
SET OUTPUT ASSIGNMENT #48 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #49 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #3 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #48 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
AND RED CLEAR ON PHASE #7 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #39 ON
SET OUTPUT ASSIGNMENT #40 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #41 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #7 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #40 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0756
DESIGNED: August 2014
SEALED: 3/18/2015
REVISED: N/A

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+'

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

PRESS '+' TWICE

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

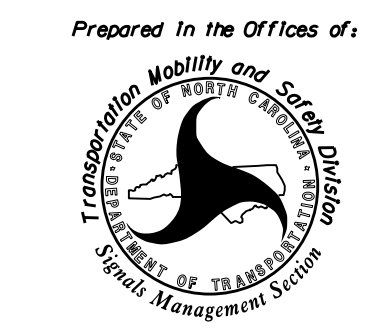
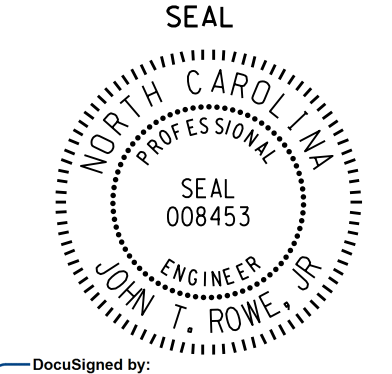
FLASHER CIRCUIT MODIFICATION DETAIL

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.

Electrical Detail - Sheet 2 of 3

<p>ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="text-align: center;">Prepared In the Offices of:</p>  <p style="text-align: center;">750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>NC 68 (Westchester Drive) at SR 1768 (W. Lexington Ave.)</p>	<p>SEAL</p>  <p>SEAL 008453 ENGINEER JOHN T. ROWE, JR.</p>						
<p>Division 7 Guilford County High Point</p> <p>PLAN DATE: November 2014 REVIEWED BY: <i>JTR</i></p> <p>PREPARED BY: S. Armstrong REVIEWED BY:</p>		<p>DocuSigned by: John T. Rowe, Jr. 3/19/2015</p>						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		REVISIONS	INIT.	DATE				<p>SIG. INVENTORY NO. 07-0756</p>
REVISIONS	INIT.	DATE						

SCHOOL FLASHER OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```

PAGE:1 C1 PIN:35 NOT ENABLED
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)...1
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

EDIT THE FIRST THREE PROGRAMMING ROWS TO DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

LEAVE THIS ENTRY AS IS

PRESS '+' KEY FOR OUTPUT ASSIGNMENT 34 (C1 PIN 36)

```

PAGE:1 C1 PIN:36 NOT ENABLED
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```

PAGE:1 C1 PIN:36 NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).....33
    
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.
PRESS THE 'ENT' AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```

PAGE:1 C1 PIN:36 OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PROGRAMMING COMPLETE

EVENT #1 SCHEDULING (AM) SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING).

```

SCHEDULED EVENT #1 NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW 1SUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS 12345678910111213141516
ASSIGNED 1
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE)... OFFSET#...
PLAN PRIORITY: LOW... MED... HIGH...
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)...
CHANGE PHASE CONTROL PAGE (1-4)...
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4)...
CHANGE OUTPUT PAGE (1-4)...
SET OUTPUT ON (1-64).....33
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SPLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64)...
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)...
SET LOGIC FLAG ON (1-16)...
SET LOGIC FLAG OFF (1-64)...
OVERRIDE PHASE CONTROL FUNCTIONS?...
    
```

END OF PROGRAMMING

* AFTER PROGRAMMING, THIS SPACE WILL READ 'OUTPUT OVERRIDE'.
/ TIMES AND DATES DETERMINED BY THE DTE.

EVENT #1 SCHEDULING (PM) SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING), PRESS THE '+' KEY TO ADVANCE TO EVENT 2.

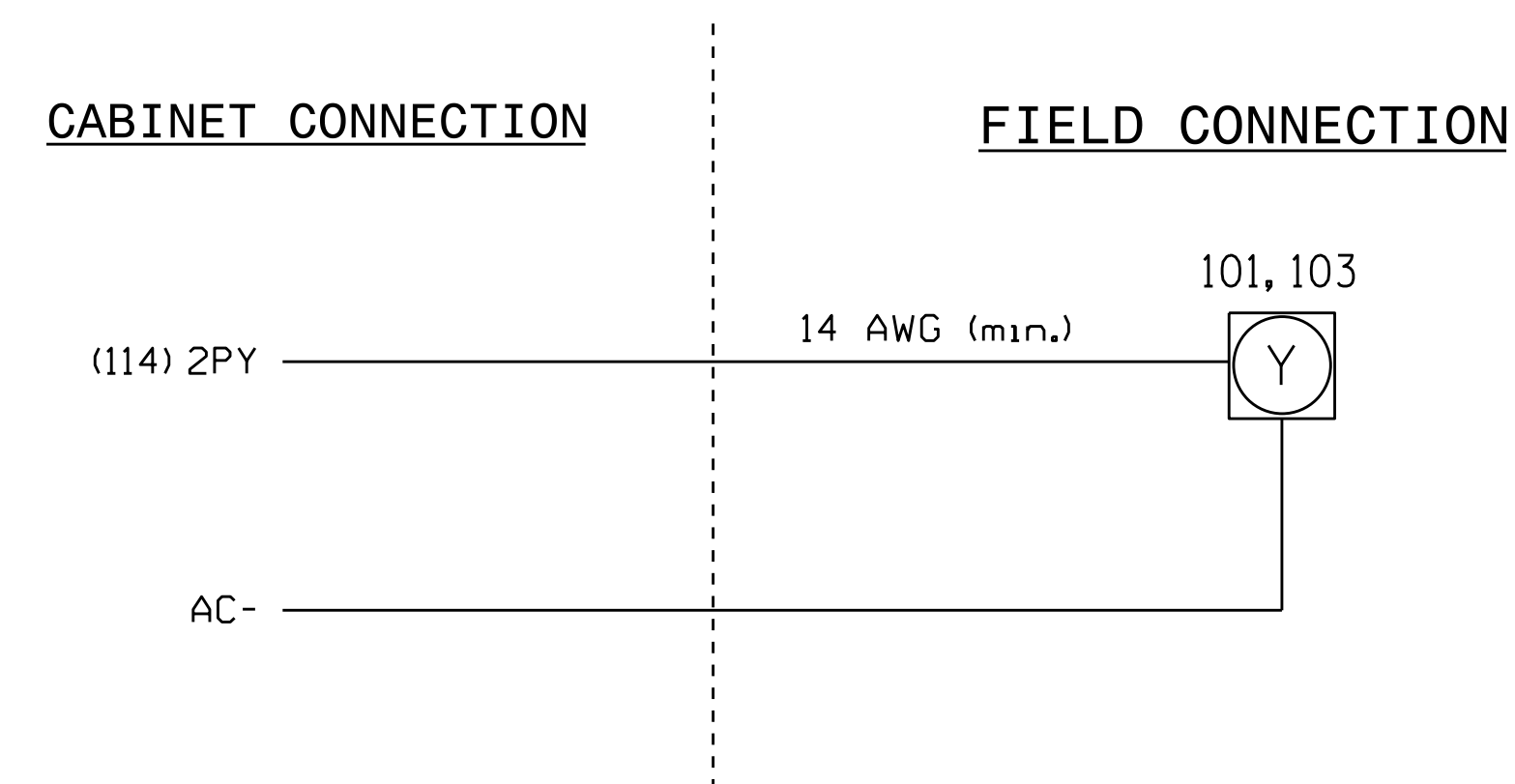
```

SCHEDULED EVENT #2 NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW 1SUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS 12345678910111213141516
ASSIGNED 1
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE)... OFFSET#...
PLAN PRIORITY: LOW... MED... HIGH...
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)...
CHANGE PHASE CONTROL PAGE (1-4)...
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4)...
CHANGE OUTPUT PAGE (1-4)...
SET OUTPUT ON (1-64).....33
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SPLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64)...
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)...
SET LOGIC FLAG ON (1-16)...
SET LOGIC FLAG OFF (1-64)...
OVERRIDE PHASE CONTROL FUNCTIONS?...
    
```

END OF PROGRAMMING

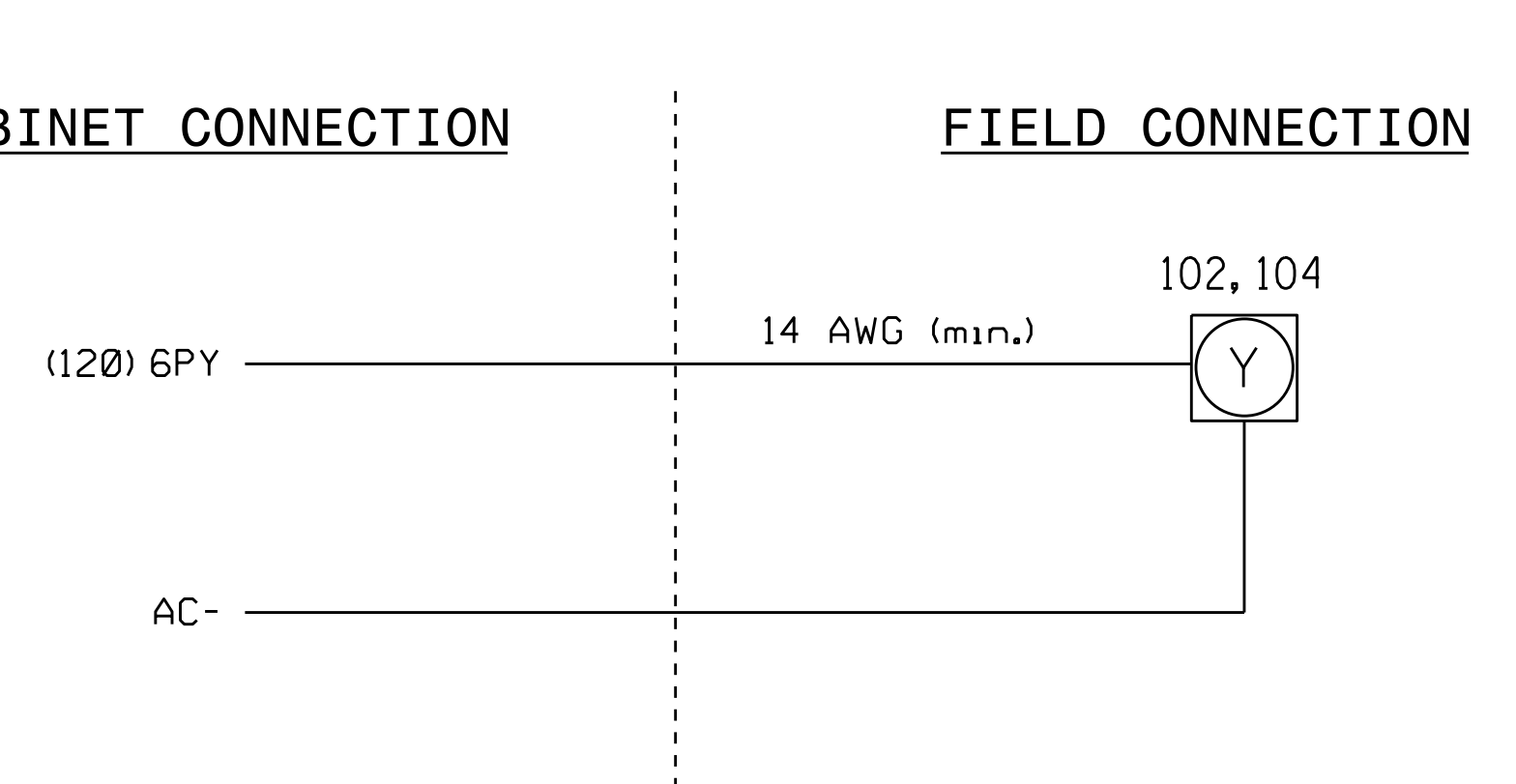
SCHOOL FLASHER (101,103)

(wire flashers as shown below)



SCHOOL FLASHER (102,104)

(wire flashers as shown below)



IMPORTANT

1. Ensure that the white keyed plug located behind rear panel of output file labeled 2PY-4PY-6PY-8PY is disconnected. This will disconnect conflict monitor wires from field signal terminals 114 and 120 shown on flasher wiring detail on this sheet.
2. Install loadswitches in output file slots S3 and S9.
3. To activate school zone flasher operation as indicated on the signal plan, program outputs 33 and 34 as shown on this sheet.
4. Operational times and dates are determined by the DTE. See this sheet for the scheduling programming detail.

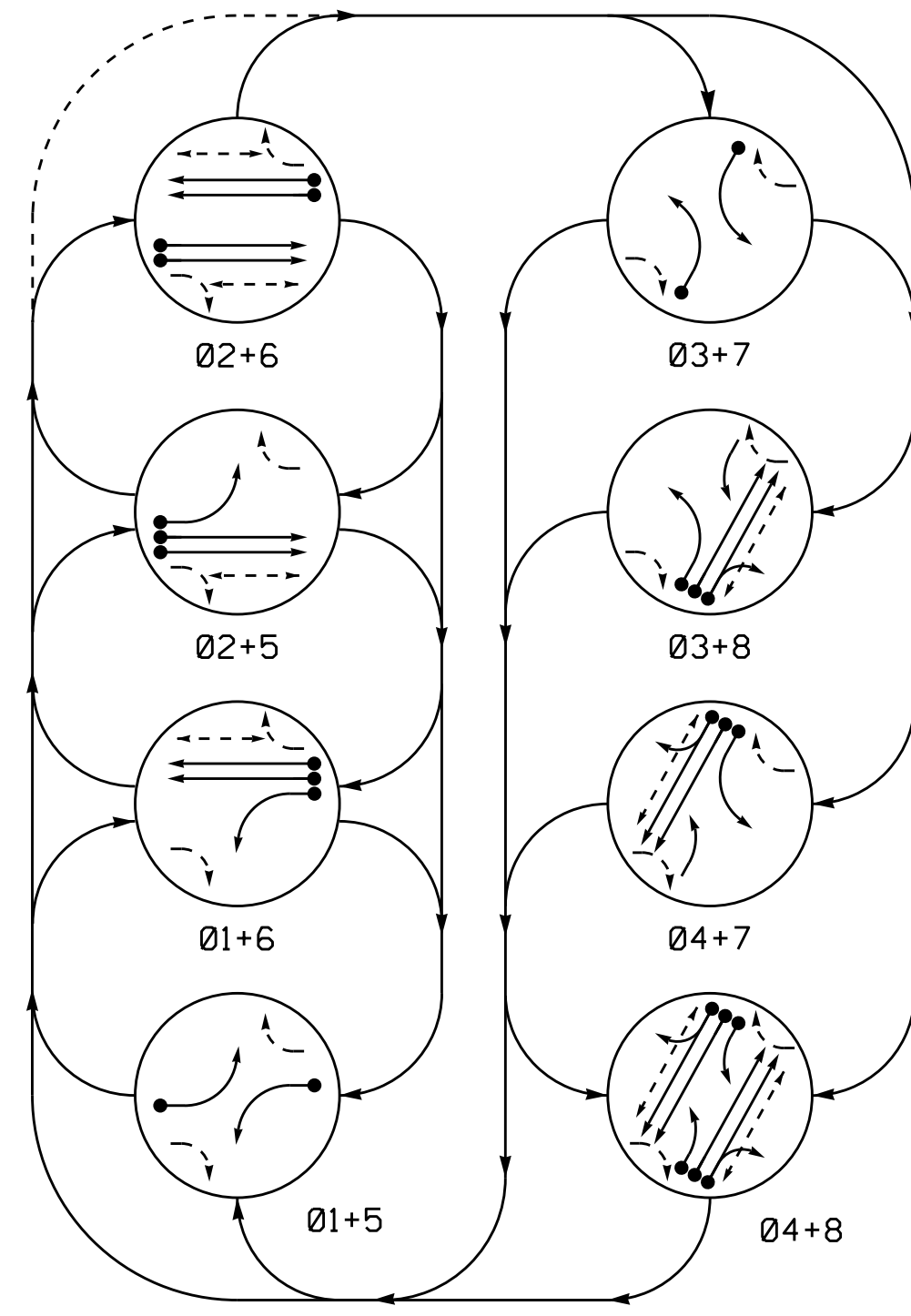
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0756
DESIGNED: August 2014
SEALED: 3/18/2015
REVISED: N/A

Electrical Detail - Sheet 3 of 3

Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	DETAILS FOR: NC 68 (Westchester Drive) at SR 1768 (W. Lexington Ave.)		SEAL JOHN T. ROWE, JR. PROFESSIONAL ENGINEER STATE OF NORTH CAROLINA LICENSE NO. 008453
	Division 7 PLAN DATE: November 2014 PREPARED BY: S. Armstrong	Guilford County REVIEWED BY: JTR DATE: 3/19/2015	

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 3/19/2015 10:51:15 AM
 S:\MIT\SAS\115\SIGNAL\work\hgr\output\sig\Map\hgr\strong\070756_sml.ele.xxx.dgn
 3/19/2015 10:51:15 AM

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

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

W - Walk
DW - Don't Walk
DRK - Dark

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART													
INDUCTIVE LOOPS				DETECTOR PROGRAMMING									
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD	
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	-	-	Y	
2A, 2B	6X6	70	EXIST	-	2	Y	Y	-	-	-	-	Y	
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	Y	
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	Y	
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	Y	
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	3	-	Y	
6A, 6B	6X6	70	EXIST	-	6	Y	Y	-	-	-	-	Y	
7A	6X40	0	2-4-2	-	7	Y	Y	-	-	15	-	Y	
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	3	-	Y	
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-	Y	
S1	6X6	+210	EXIST	-	-	-	-	-	-	-	-	Y	
S2	6X6	+210	EXIST	-	-	-	-	-	-	-	-	Y	

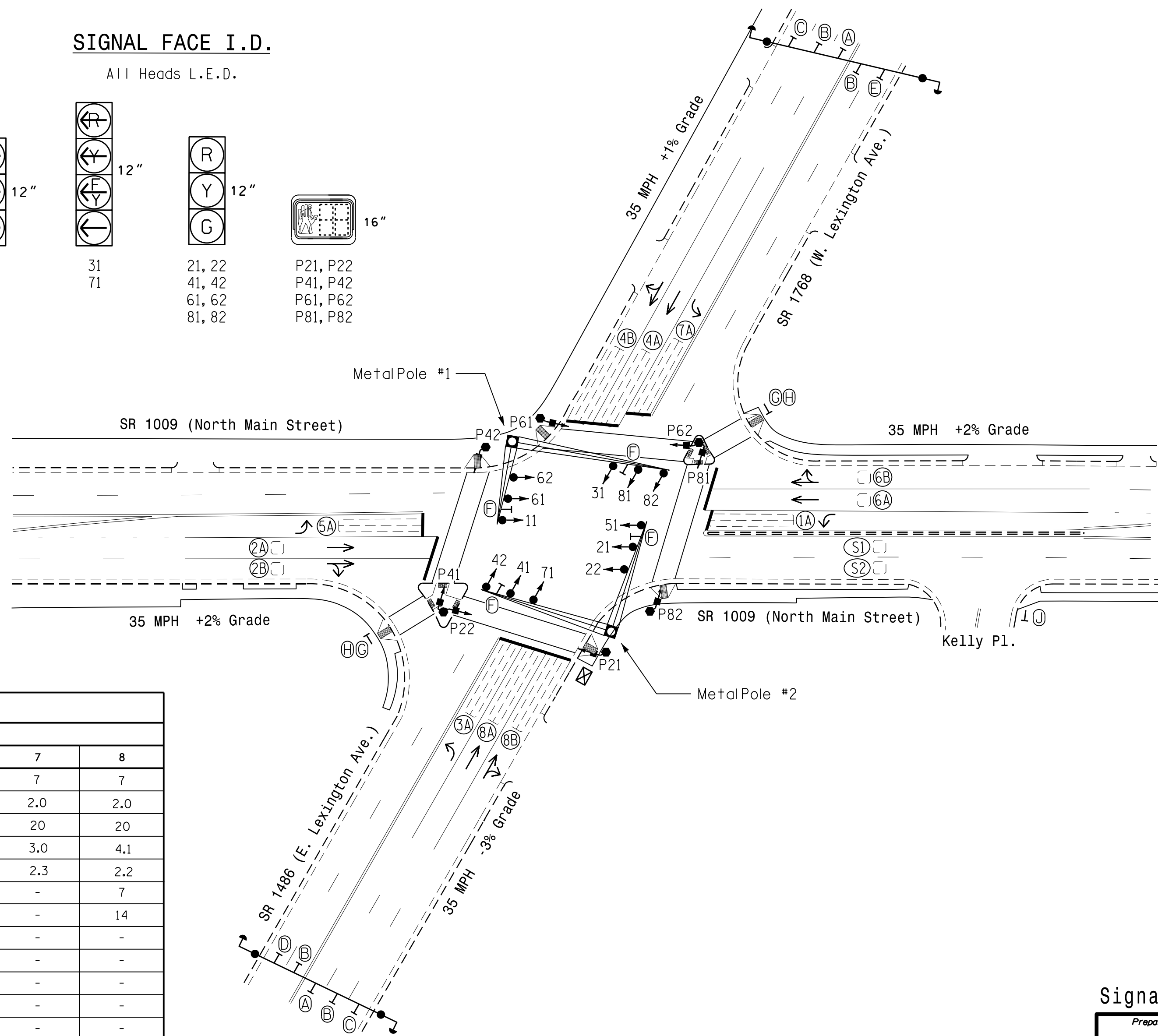
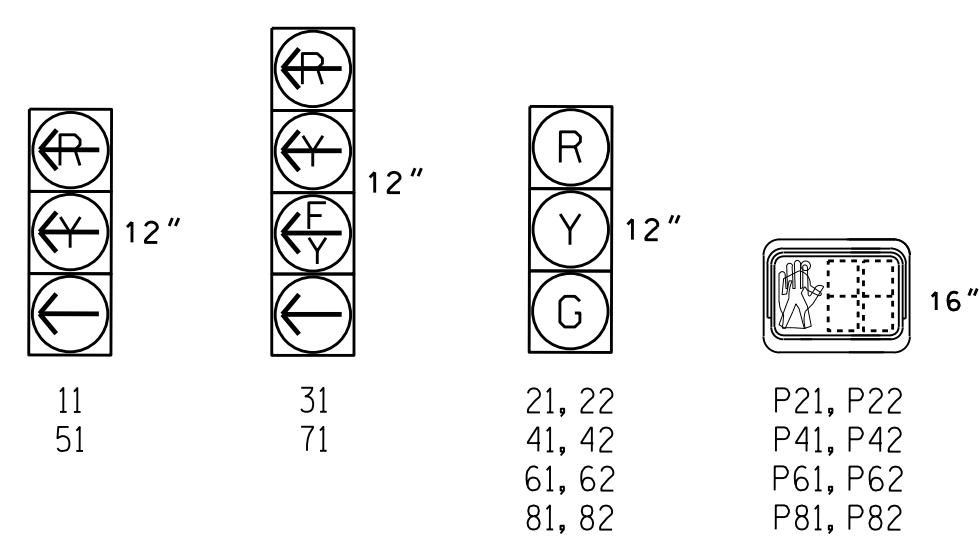
8 Phase Fully Actuated (High Point Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Existing lane control signs may be removed at direction of the Engineer.
9. Pavement markings are existing.
10. 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.



FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1 *	15	45	15	20	15	45	20	20
Yellow Clearance	3.0	3.7	3.0	4.1	3.0	3.7	3.0	4.1
Red Clearance	3.4	2.2	2.4	2.2	3.4	2.2	2.3	2.2
Walk 1 *	-	7	-	7	-	7	-	7
Don't Walk 1	-	15	-	13	-	16	-	14
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode **	-	SOFT RECALL	-	-	-	SOFT RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

LEGEND

- | PROPOSED | EXISTING |
|--|---|
| ○ → Traffic Signal Head | ● → N/A |
| ○ → Modified Signal Head | ○ → N/A |
| ⊥ Sign | ⊥ Sign |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Sign |
| ○ → Signal Pole with Guy | ○ → Signal Pole with Guy |
| ○ → Signal Pole with Sidewalk Guy | ○ → Signal Pole with Sidewalk Guy |
| ⊠ Inductive Loop Detector | ⊠ Inductive Loop Detector |
| ⊠ Controller & Cabinet | ⊠ Controller & Cabinet |
| ⊠ Junction Box | ⊠ Junction Box |
| --- 2-in Underground Conduit | --- 2-in Underground Conduit |
| N/A Right of Way | N/A Right of Way |
| → Directional Arrow | → Directional Arrow |
| N/A Curb Ramp | N/A Curb Ramp |
| Ⓐ Left Arrow "ONLY" Sign (R3-5L) | Ⓐ Left Arrow "ONLY" Sign (R3-5L) |
| Ⓑ Through Arrow "ONLY" Sign (R3-5A) | Ⓑ Through Arrow "ONLY" Sign (R3-5A) |
| Ⓒ Combined Through and Right Arrow Sign (R3-6R) | Ⓒ Combined Through and Right Arrow Sign (R3-6R) |
| Ⓓ Right Arrow "ONLY" Sign (R3-5R) | Ⓓ Right Arrow "ONLY" Sign (R3-5R) |
| Ⓔ MERGE | Ⓔ MERGE |
| Ⓔ Street Name Sign (D3-1) | Ⓔ Street Name Sign (D3-1) |
| Ⓕ Pedestrian Crossing Sign (W11-2) | Ⓕ Pedestrian Crossing Sign (W11-2) |
| Ⓖ "YIELD" Sign (R1-2) | Ⓖ "YIELD" Sign (R1-2) |
| Ⓗ "STOP" Sign (R1-1) | Ⓗ "STOP" Sign (R1-1) |

Signal Upgrade

SR 1009 (North Main Street) at SR 1768/1486 (Lexington Ave.)

Division 7 Guilford County High Point

PLAN DATE: April 2015 REVIEWED BY: R.N. Zinser

PREPARED BY: R.N. Zinser REVIEWED BY:

REVISIONS: _____ INIT. DATE

SCALE: 0 40 1"=40'

SEAL

4/28/2015

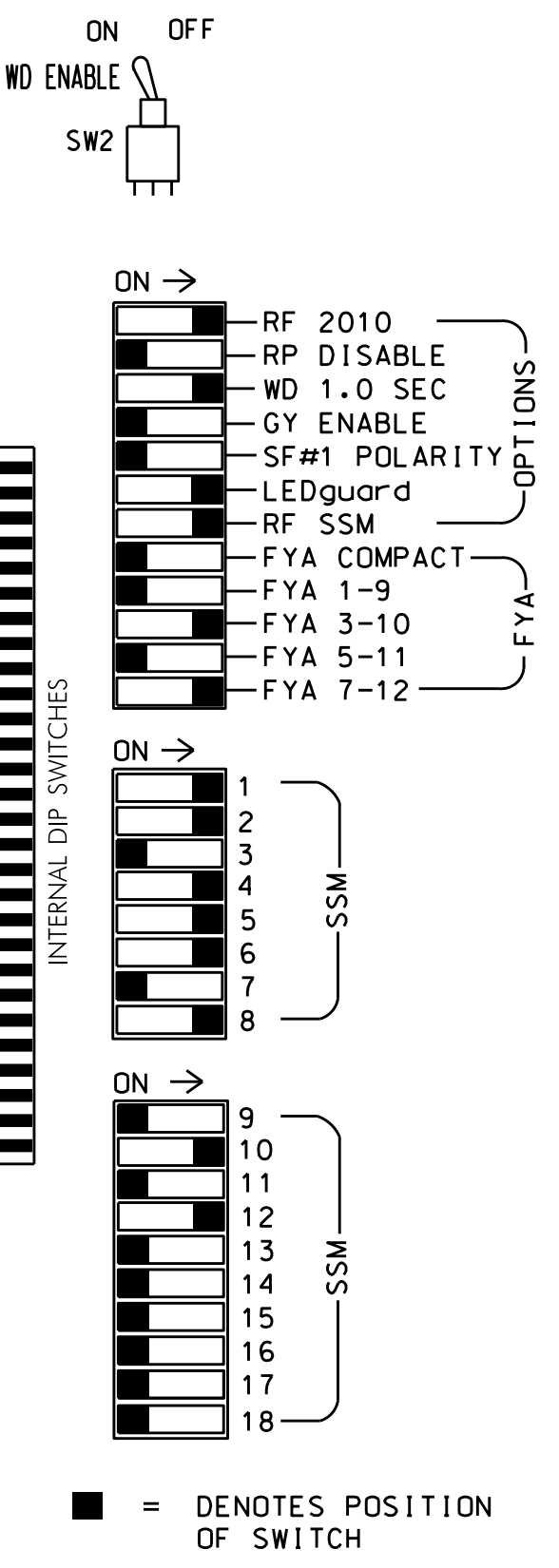
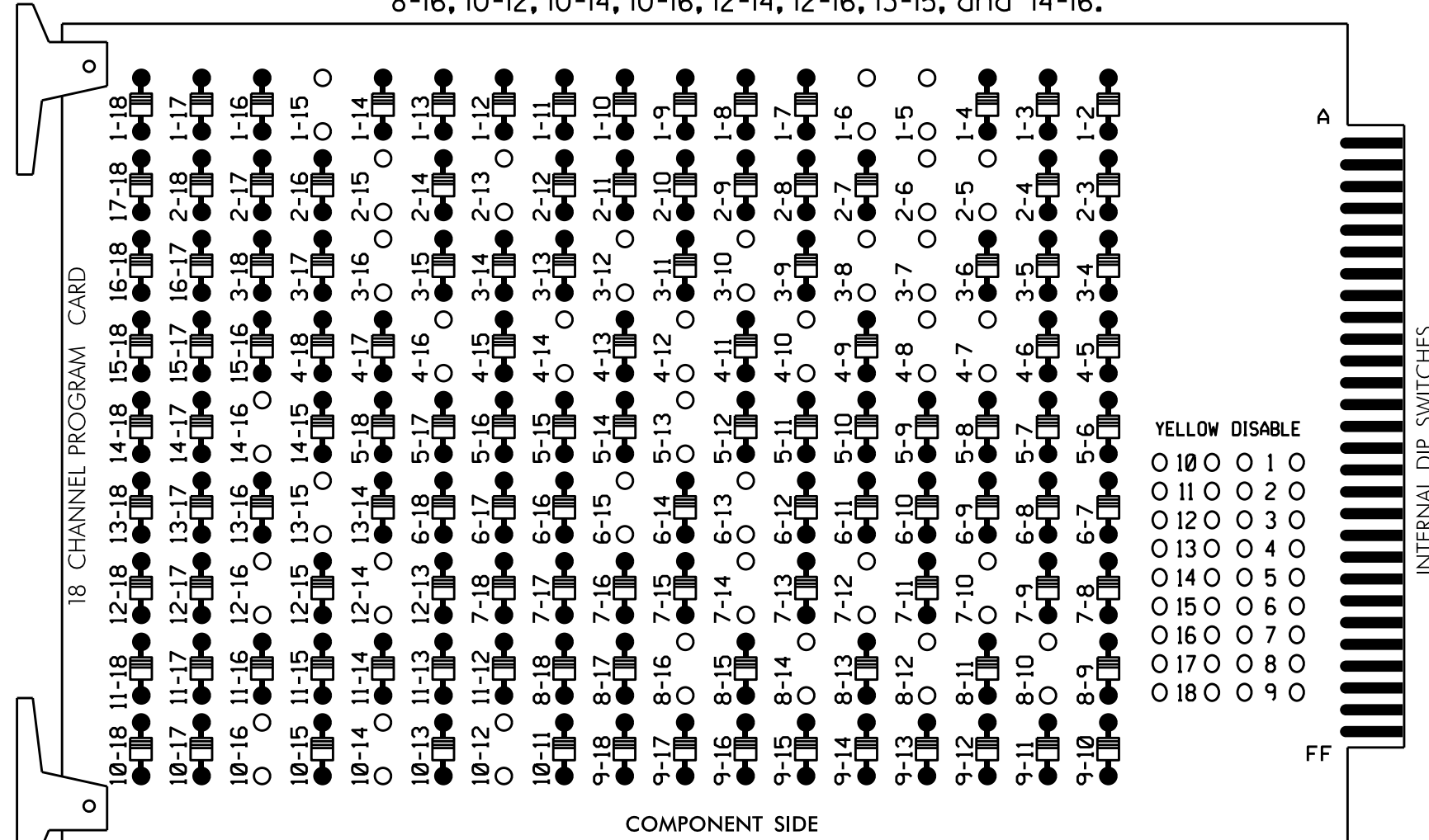
SIG. INVENTORY NO. 07-0757

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-15, 2-5, 2-6, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-14, 4-16, 5-13, 6-13, 6-15, 7-10, 7-12, 7-14, 8-10, 8-12, 8-14, 8-16, 10-12, 10-14, 10-16, 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.

NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- 2. Program phases 4 and 8 for Dual Entry.
- 3. Enable Simultaneous Gap-Out for all phases.
- 4. Program phases 2 and 6 for Start Up In Green.
- 5. Program phases 2, 4, 6, and 8 for "STARTUP PED CALL".
- 6. Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
- 7. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 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,S12,AUX S2,AUX S5
 PHASES USED.....1,2,2PED,3,4,4PED,5,6,6PED,7,8,8PED
 OVERLAP "A".....NOT USED
 OVERLAP "B".....3+4
 OVERLAP "C".....NOT USED
 OVERLAP "D".....7+8

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	31	41,42	P41, P42	51	61,62	P61, P62	71	81,82	P81, P82	NU	31	NU	NU	71	NU
RED		128			101			134			107							
YELLOW		129		*	102			135		*	108							
GREEN		130			103			136			109							
RED ARROW	125						131						A124				A101	
YELLOW ARROW	126						132						A125				A102	
FLASHING YELLOW ARROW													A126				A103	
GREEN ARROW	127						133			124								
Hand symbol			113			104			119			110						
Walking person symbol			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.

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	∅ 1	∅ 2	∅ 3	∅ 4	∅ 5	∅ 6	∅ 7	∅ 8	SYS. DET. S1	SYS. DET. S2	∅ 2 PED	∅ 6 PED	FS	
	1A	2A,2B	3A	4A	5A	6A,6B	7A	8A			DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	
FILE "J"	∅ 1	∅ 2	∅ 3	∅ 4	∅ 5	∅ 6	∅ 7	∅ 8	SYS. DET. S1	SYS. DET. S2	∅ 4 PED	∅ 8 PED	ST	
	1A	2A,2B	3A	4A	5A	6A,6B	7A	8A			DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	

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

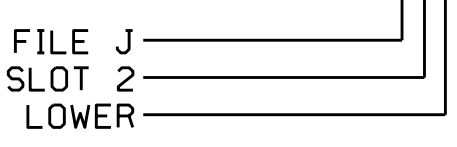
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
3A ¹	TB4-5,6	I5U	58	20	3	3	Y	Y			15
	-	J8U	50	12	28	8	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			3
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
7A ²	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11	24	4	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			10
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2	PED				
P41,P42	TB8-5,6	I12L	69	31	PED 4	4	PED				
P61,P62	TB8-7,9	I13U	68	30	PED 6	6	PED				
P81,P82	TB8-8,9	I13L	70	32	PED 8	8	PED				

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

¹Add jumper from I5-W to J8-W, on rear of input file.
²Add jumper from J5-W to I8-W, on rear of input file.

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

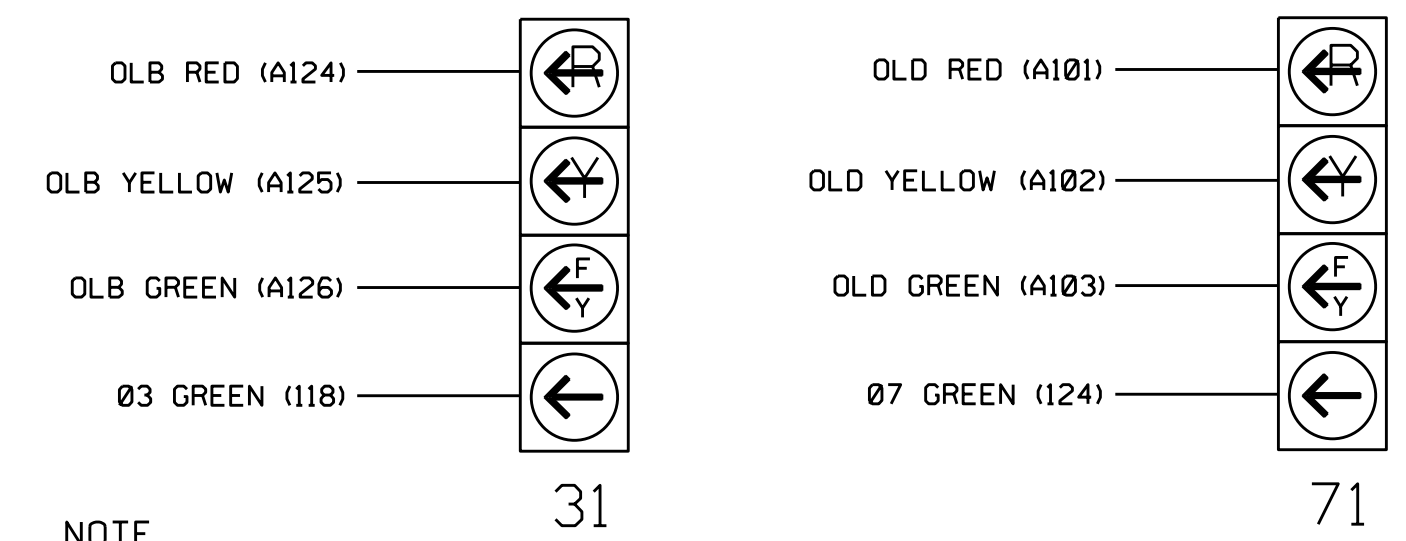
INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0757
 DESIGNED: April 2015
 SEALED: 4/28/2015
 REVISED: N/A

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



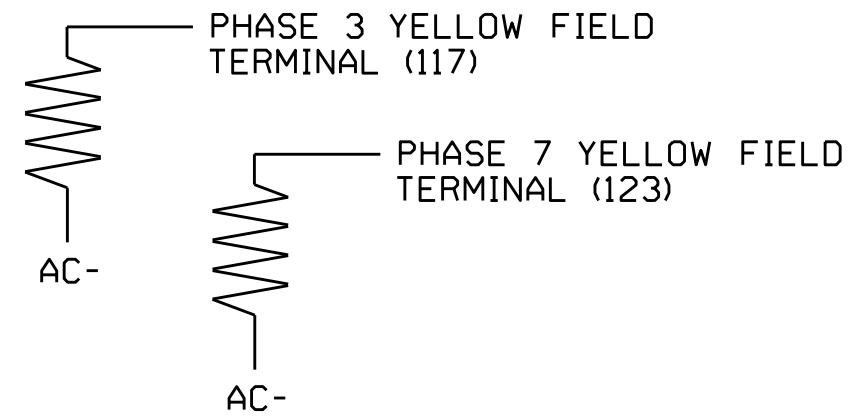
NOTE

The sequence display for signal heads 31 and 71 requires special logic programming. See sheet 2 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



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 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: SR 1009 (North Main Street) at SR 1768/1486 (Lexington Ave)

Prepared In the Offices of: *Transylvania Mobility and Safety Solutions*

Division 7 Guilford County, NC High Point

PLAN DATE: April 2015 REVIEWED BY: JTS

PREPARED BY: S. Armstrong REVIEWED BY:

DocuSigned by: John T. Rowe, Jr. 4/29/2015

SIG. INVENTORY NO. 07-0757

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
AND RED CLEAR ON PHASE #3 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #47 ON
SET OUTPUT ASSIGNMENT #48 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #49 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #3 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #48 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
AND RED CLEAR ON PHASE #7 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #39 ON
SET OUTPUT ASSIGNMENT #40 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #41 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #7 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #40 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0757
DESIGNED: April 2015
SEALED: 4/28/2015
REVISED: N/A

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+' ONCE

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

PRESS '+' TWICE

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

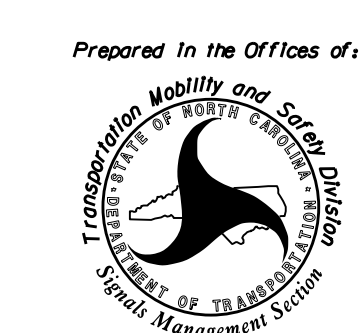
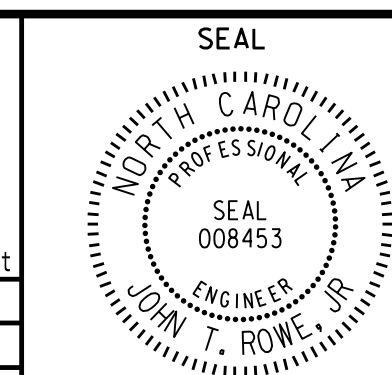
FLASHER CIRCUIT MODIFICATION DETAIL

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.

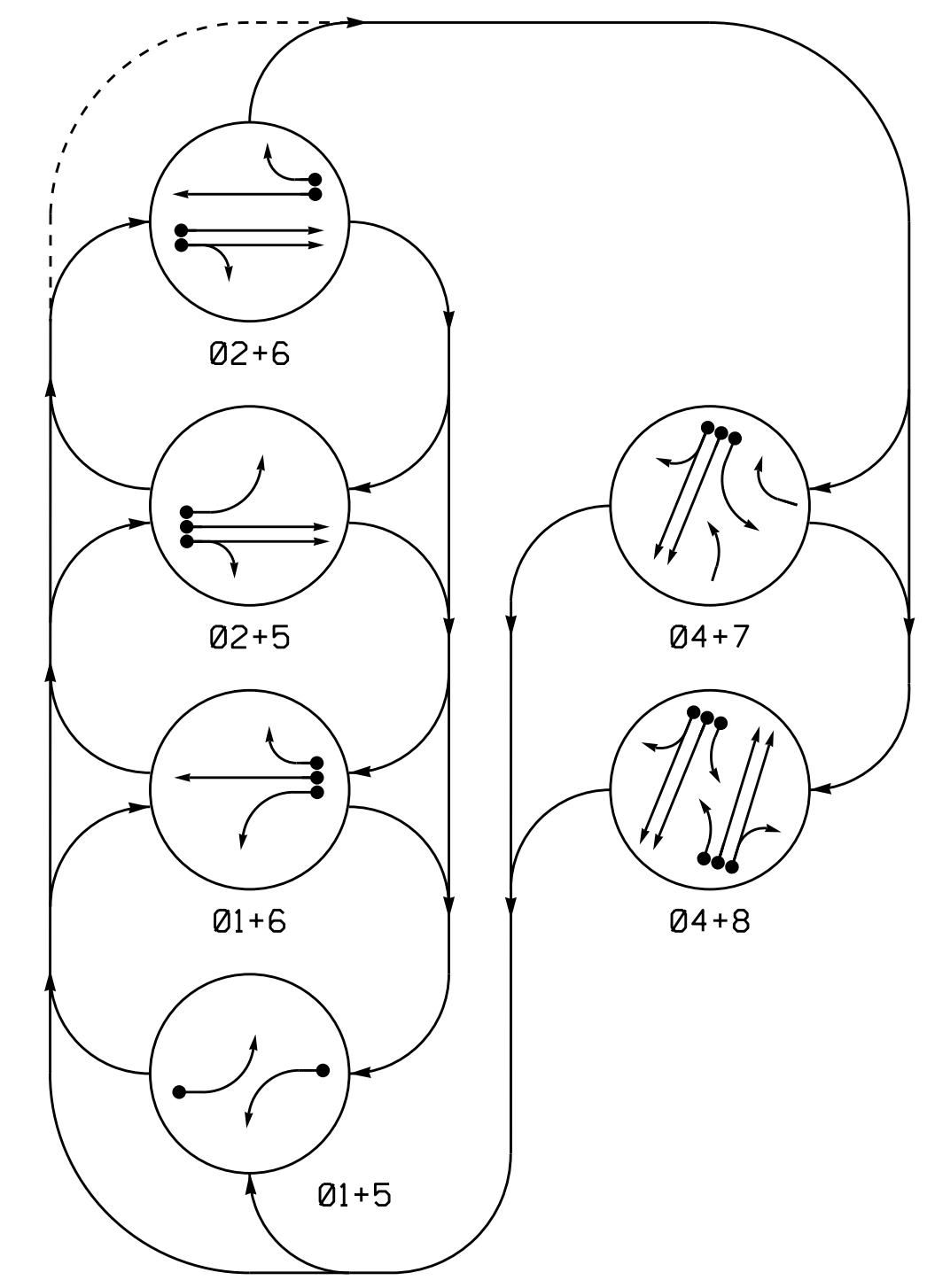
Electrical Detail - Sheet 2 of 2

<p>Prepared In the Offices of:</p>  <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SR 1009 (North Main Street) at SR 1768/1486 (Lexington Ave)</p>	<p>SEAL</p> 					
<p>Division 7 Guilford County High Point</p> <p>PLAN DATE: April 2015 REVIEWED BY: <i>JTS</i></p> <p>PREPARED BY: S. Armstrong REVIEWED BY:</p>		<p>DocuSigned by: John T. Rowe, Jr. 4/29/2015</p> <p>SIG. INVENTORY NO. 07-0757</p>					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			REVISIONS	INIT.	DATE		
REVISIONS	INIT.	DATE					

09-Apr-2015 11:54 C:\MTS\1\1515\Sig\1515\Sig\1515\Work\hgr\0045\Sig\Map\hgr\str\070757_sml.ele.xxx.dgn sarmstrong

6 Phase Fully Actuated (High Point Signal System)

PHASING DIAGRAM



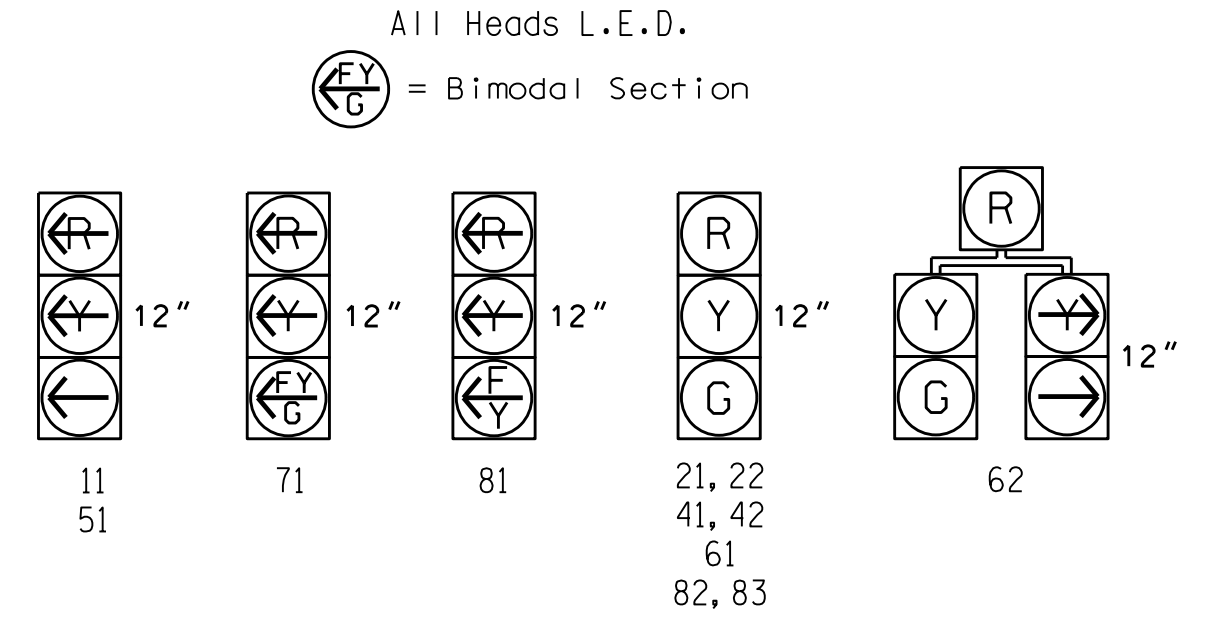
PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE							
	01+5	01+6	02+5	02+6	04+7	04+8	FL	HL
11	---	---	---	---	---	---	---	---
21, 22	R	R	G	G	R	R	Y	
41, 42	R	R	R	R	G	G	R	
51	---	---	---	---	---	---	---	---
61	R	G	R	G	R	R	Y	
62	R	G	R	G	R	R	Y	
71	R	R	R	R	---	---	---	---
81	R	R	R	R	---	---	---	---
82, 83	R	R	R	R	R	G	R	

SIGNAL FACE I.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING							
				PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD	
1A	6X40	0	2-4-2	-	1	Y	Y	-	3	-	Y
2A, 2B	6X6	70	EXIST	-	2	Y	Y	-	-	-	Y
4A, 4B	6X40	+5	2-4-2	-	4	Y	Y	-	-	5	Y
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	3	Y
6A, 6B	6X6	70	EXIST	-	6	Y	Y	-	-	-	Y
7A	6X40	+5	2-4-2	-	7	Y	Y	-	-	15	Y
8A	6X40	+5	2-4-2	-	8	Y	Y	-	-	3	Y
8B, 8C	6X40	+5	2-4-2	-	8	Y	Y	-	-	5	Y
S1	6X6	+160	EXIST	-	-	-	-	-	-	-	Y
S2	6X6	+160	EXIST	-	-	-	-	-	-	-	Y
S3	6X6	+325	EXIST	-	-	-	-	-	-	-	Y
S4	6X6	+325	EXIST	-	-	-	-	-	-	-	Y
S5	6X6	+190	EXIST	-	-	-	-	-	-	-	Y
S6	6X6	+190	EXIST	-	-	-	-	-	-	-	Y

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 7 may be lagged.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Remove existing "Left Turn Signal" signs (R10-10L).
- Existing Left Arrow "ONLY" signs (R3-5L) may be removed at the direction of the Engineer.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

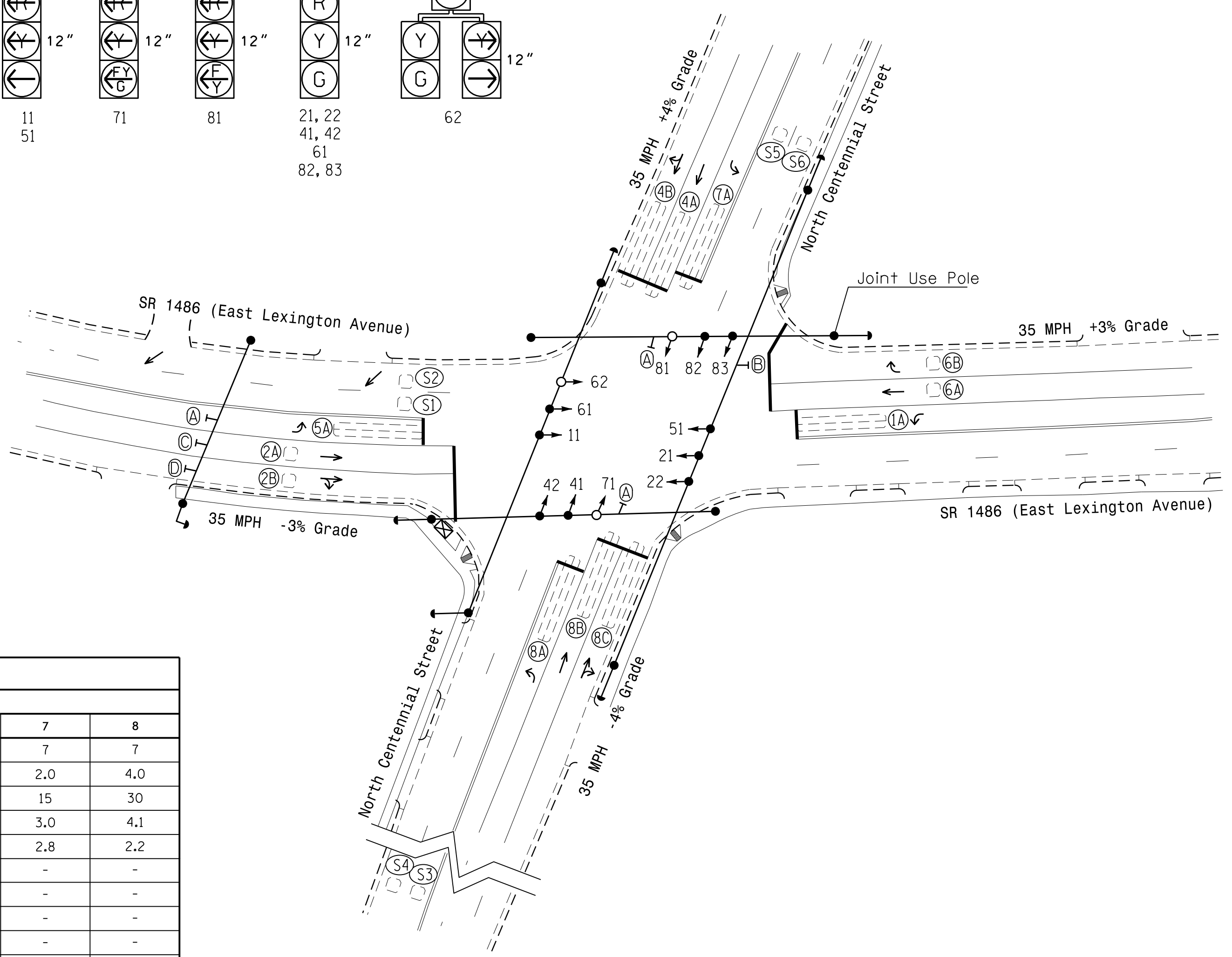
LEGEND

PROPOSED	EXISTING
	N/A
N/A	
N/A	

OASIS 2070 TIMING CHART

FEATURE	PHASE							
	1	2	4	5	6	7	8	
Min Green 1*	7	10	7	7	10	7	7	
Extension 1*	2.0	4.0	4.0	2.0	4.0	2.0	4.0	
Max Green 1*	15	30	30	15	30	15	30	
Yellow Clearance	3.0	4.1	4.1	3.0	3.7	3.0	4.1	
Red Clearance	3.3	2.1	2.2	3.6	2.0	2.8	2.2	
Walk 1*	-	-	-	-	-	-	-	
Don't Walk 1	-	-	-	-	-	-	-	
Seconds Per Actuation*	-	-	-	-	-	-	-	
Max Variable Initial*	-	-	-	-	-	-	-	
Time Before Reduction*	-	-	-	-	-	-	-	
Time To Reduce*	-	-	-	-	-	-	-	
Minimum Gap	-	-	-	-	-	-	-	
Recall Mode**	-	SOFT RECALL	-	-	SOFT RECALL	-	-	
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	
Dual Entry	-	-	ON	-	-	-	ON	
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
 ** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



Signal Upgrade

SR 1486 (E. Lexington Avenue) at North Centennial Street

Division 7 Guilford County High Point

PLAN DATE: October 2014 REVIEWED BY: Jeff Spence

PREPARED BY: Jeff Spence REVIEWED BY: [Signature]

SCALE: 1" = 40'

SEAL

ROBERT J. ZIEMBA

PROFESSIONAL ENGINEER

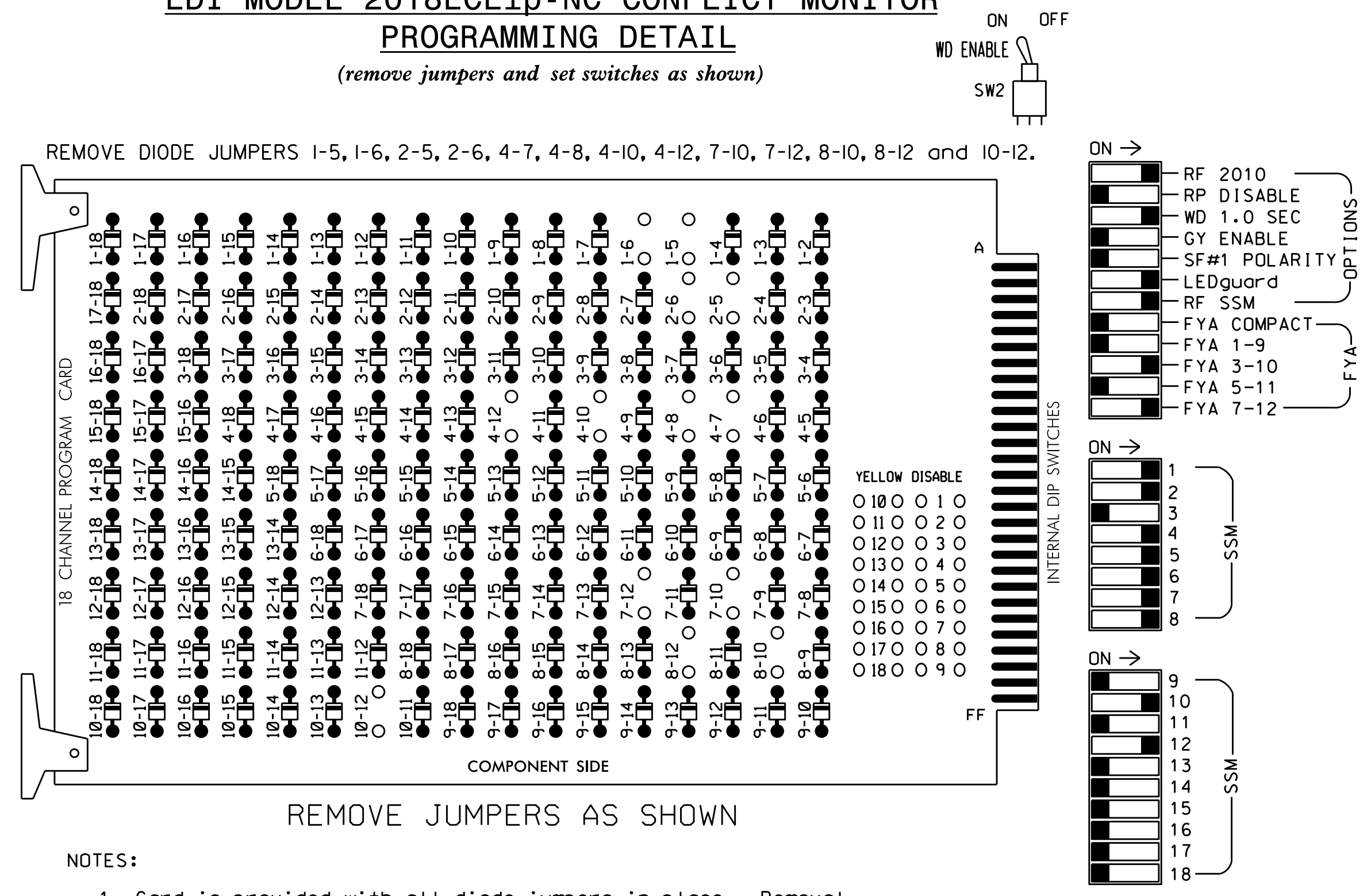
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3/31/2015

SIG. INVENTORY NO. 07-0758

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 RZ:terbo

EDI MODEL 2018EClip-NC CONFLICT MONITOR
PROGRAMMING DETAIL
 (remove jumpers and set switches as shown)



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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans
- Program phases 4 and 8 for Dual Entry
- Enable Simultaneous Gap-Out for all phases
- Program phases 2 and 6 for Start Up In Green
- Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
- The cabinet and controller are part of the High Point Signal System

EQUIPMENT INFORMATION

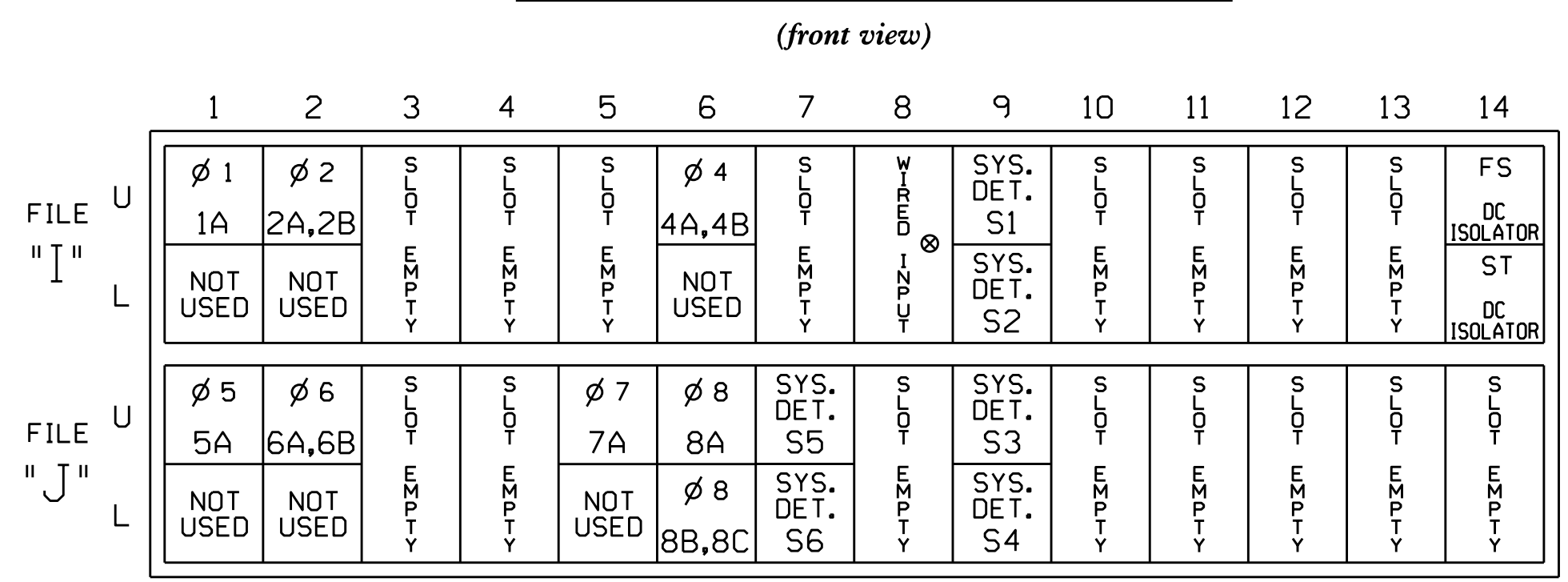
CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 (12-STD; 6-AUX)
 LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S10,S11
 AUX S2,AUX S5
 PHASES USED.....1,2,4,5,6,7,8
 OVERLAP "A".....NOT USED
 OVERLAP "B".....4
 OVERLAP "C".....NOT USED
 OVERLAP "D".....7+8

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	NU	NU	41,42	NU	51	61,62	NU	71*	62	82,83	NU	NU	81*	NU	71*	NU
RED		128			101			134		*		107						
YELLOW		129			102			135				108						
GREEN		130			103			136				109						
RED ARROW	125							131							A124			A101
YELLOW ARROW	126							132				123			A125			A102
FLASHING YELLOW ARROW															A126			A103
GREEN ARROW	127							133			124	124						

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

INPUT FILE POSITION LAYOUT
 (front view)

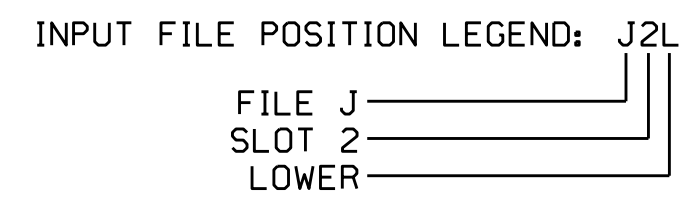


EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 * Wired Input - Do not populate slot with detector card

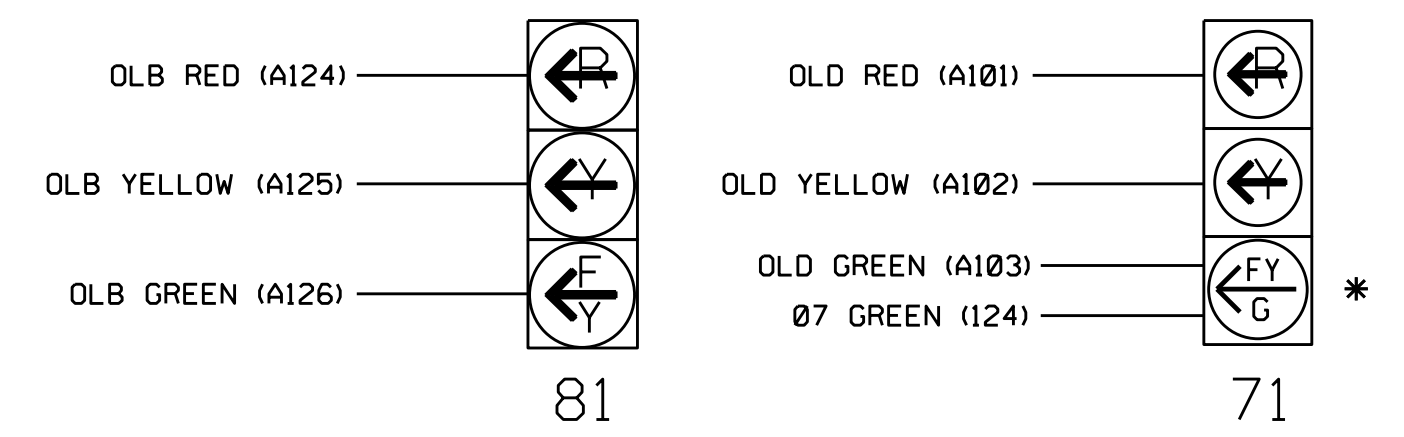
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			3
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A,4B	TB4-9,10	I6U	41	3	4	4	Y	Y			5
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			3
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
7A ¹	TB5-5,6	J5U	57	19	7	7	Y	Y			15
		I8U	49	11	24	4	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8B,8C	TB5-11,12	J6L	46	8	18	8	Y	Y			5
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					
* S4	TB7-11,12	J9L	61	23	17	SYS					
* S5	TB7-1,2	J7U	66	28	38	SYS					
* S6	TB7-3,4	J7L	79	41	48	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.
¹Add jumper from J5-W to I8-W, on rear of input file.

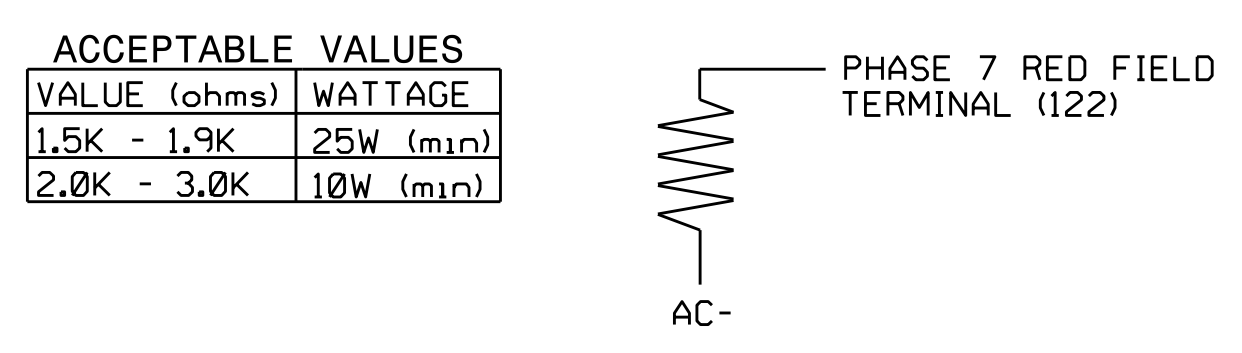


FYA SIGNAL WIRING DETAIL
 (wire signal heads as shown)



NOTE
 1. The sequence display for signal head 71 requires special logic programming. See sheet 2 of 2 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL
 (install resistors as shown below)



ACCEPTABLE VALUES

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

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 07-0758
 DESIGNED: October 2014
 SEALED: 3/31/15
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

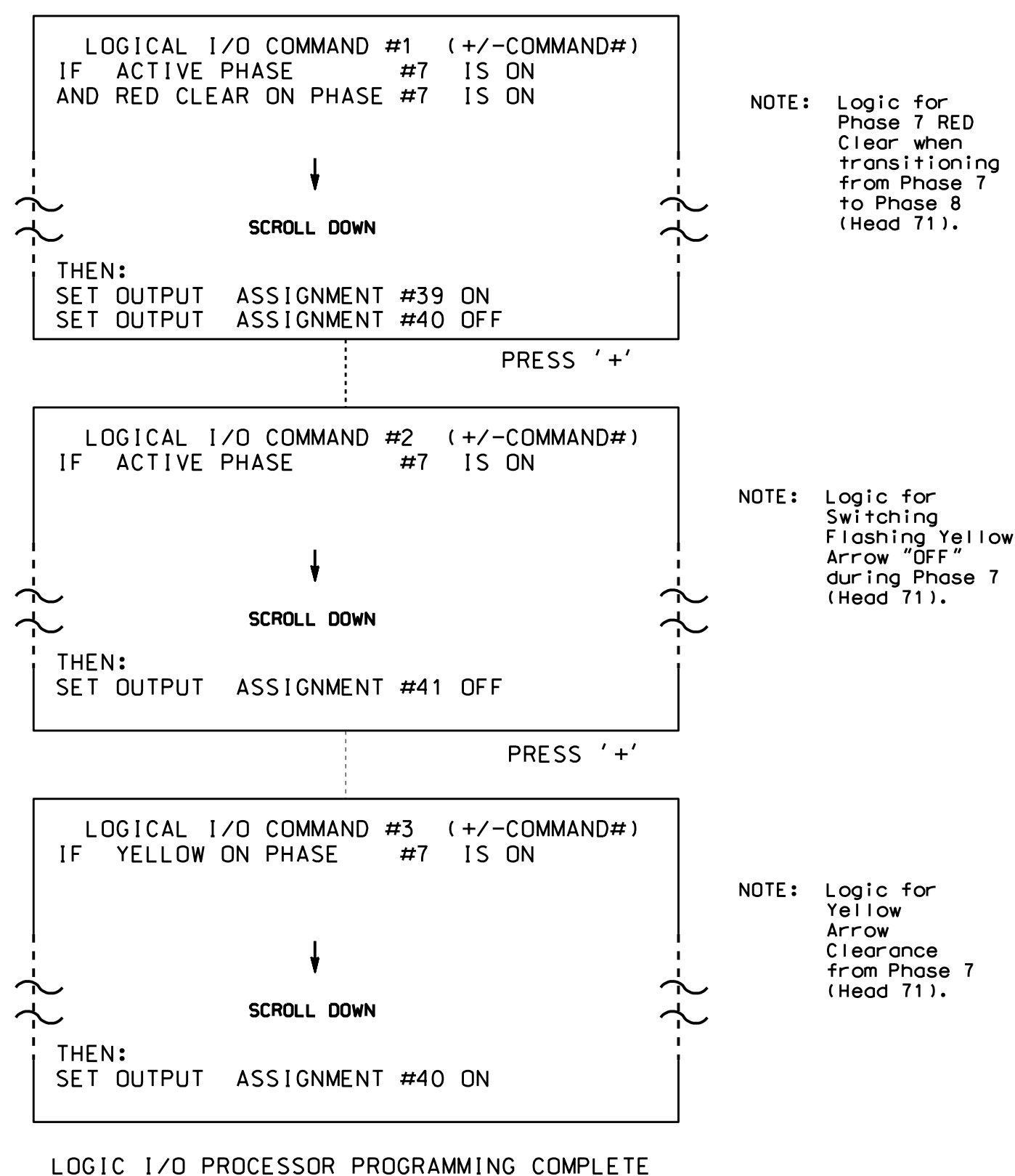
ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1486 (E. Lexington Avenue) at North Centennial Street Division 7 Guilford County High Point PLAN DATE: December 2014 REVIEWED BY: T. Joyce PREPARED BY: B. SIMMONS REVIEWED BY: REVISIONS INIT. DATE DocuSigned by: George C. Brown 4/10/2015 SEAL PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN SIGNED: 3/31/15 DATE SIG. INVENTORY NO. 07-0758
--	--

I:\0-APP-2014-13-27-SIGNAL\Signal\work\hous\sig\Map\5\mms\working\FolderHigh Point\070758_sml_elec_xxx.dgn
 S:\IT\ASU\T.S. Signal\work\hous\sig\Map\5\mms\working\FolderHigh Point\070758_sml_elec_xxx.dgn
 bis\simmons

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA SIGNAL SEQUENCE

(program controller as shown below)

- From Main Menu press '2' (PHASE CONTROL), then '1' (PHASE CONTROL FUNCTIONS). Scroll to the bottom of the menu and Enable ACT Logic Commands 1, 2 and 3.
- From Main Menu press '6' (OUTPUTS), then '3' (LOGICAL I/O PROCESSOR).

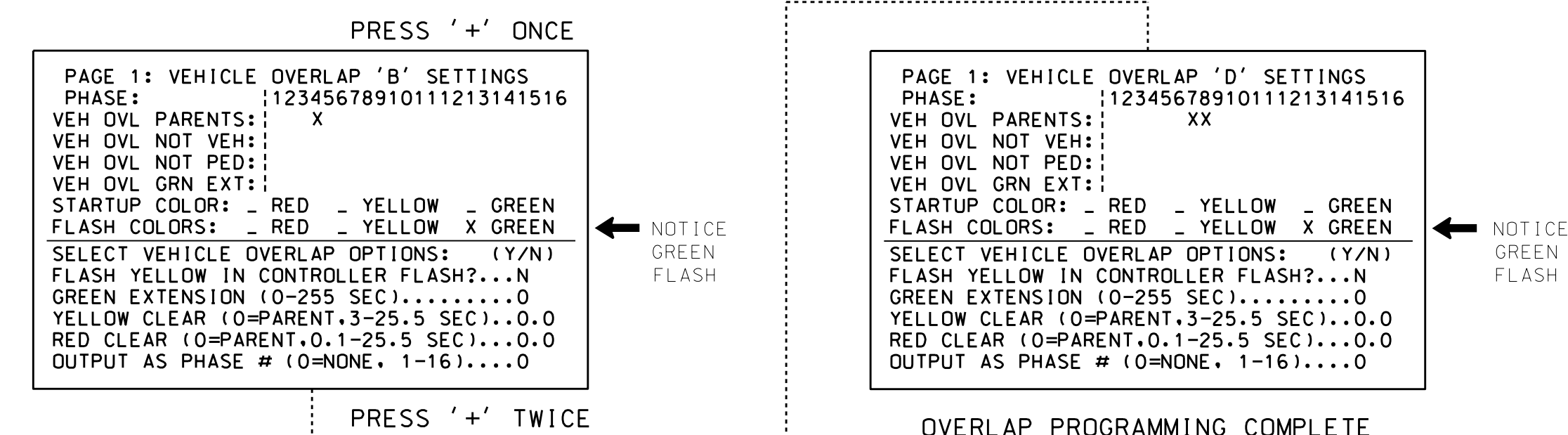


OUTPUT REFERENCE SCHEDULE	
OUTPUT 39	= Overlap D Red
OUTPUT 40	= Overlap D Yellow
OUTPUT 41	= Overlap D Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).



FLASHER CIRCUIT MODIFICATION DETAIL

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

- ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 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: 07-0758
DESIGNED: October 2014
SEALED: 3/31/15
REVISED: N/A

Electrical Detail - Sheet 2 of 2

	ELECTRICAL AND PROGRAMMING DETAILS FOR: SR 1486 (E. Lexington Avenue) at North Centennial Street	
	Division 8 Guilford County High Point PLAN DATE: December 2014 REVIEWED BY: T. Joyce PREPARED BY: B. SIMMONS REVIEWED BY:	

PHASING DIAGRAM

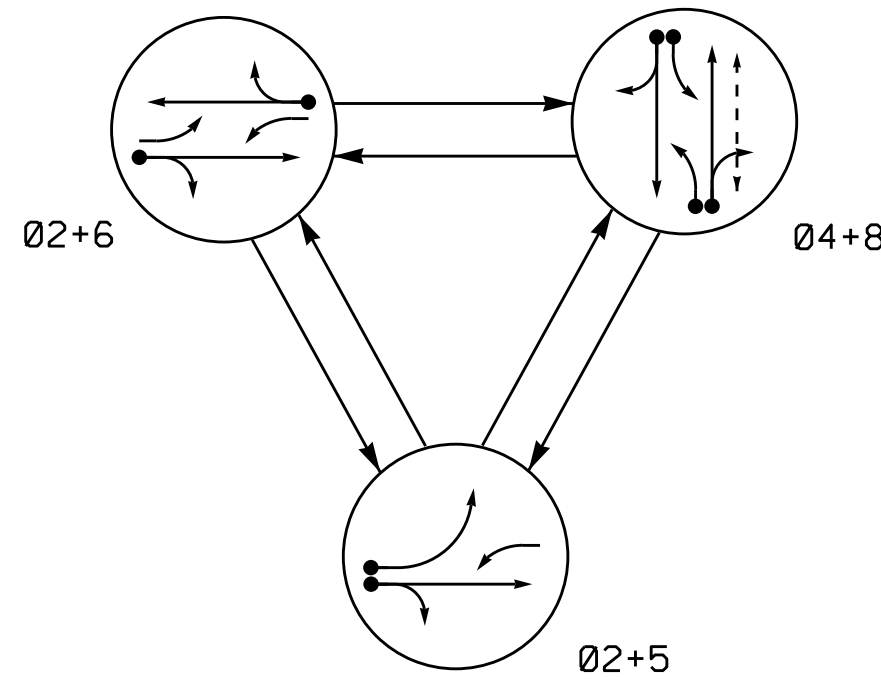


TABLE OF OPERATION

SIGNAL FACE	PHASE			
	Ø 2+5	Ø 2+6	Ø 4+8	FLASH
21, 22	G	G	R	Y
41, 42	R	R	G	R
51	-	F	R	Y
61, 62	R	G	R	Y
63	F	F	R	Y
81, 82	R	R	G	R
P81, P82	DW	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SCHOOL FLASHER TABLE OF OPERATION

SIGNAL FACE	INTERVAL	
	1	2
101, 103	ON	OFF
102, 104	OFF	ON

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

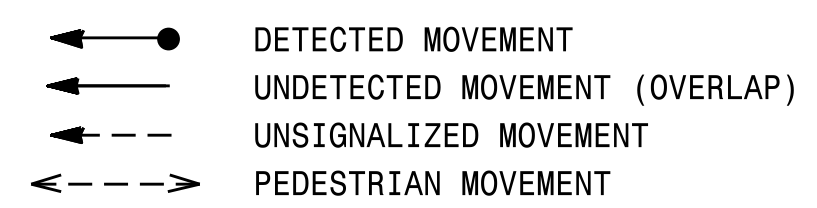
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY			
2A	6X6	63	EXIST	-	2	Y	Y	-	-	-	Y
4A, 4B	6X60	+10	2-4-2	-	4	Y	Y	-	-	5	Y
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	15	Y
6A	6X6	71	EXIST	-	6	Y	Y	-	-	-	Y
8A, 8B	6X60	+5	2-4-2	-	8	Y	Y	-	-	5	Y

3 Phase Fully Actuated (High Point Signal System)

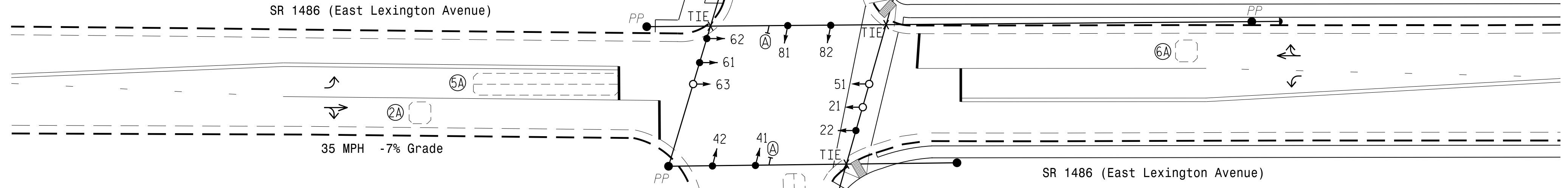
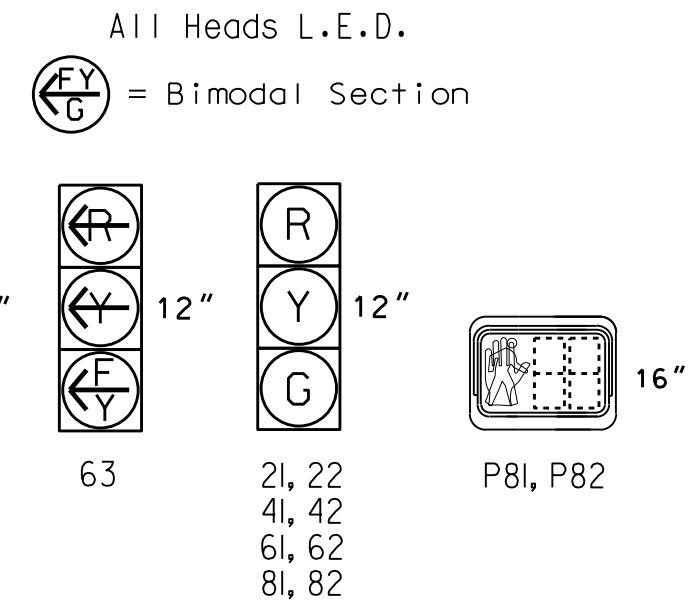
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Reposition existing signal heads numbered 22, 61 and 62.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. The Division Traffic Engineer will determine the hours of use for the school warning beacons.
11. Existing Left Arrow "ONLY" signs (R3-5L) may be removed at the direction of the Engineer.
12. Pavement markings are existing.
13. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.

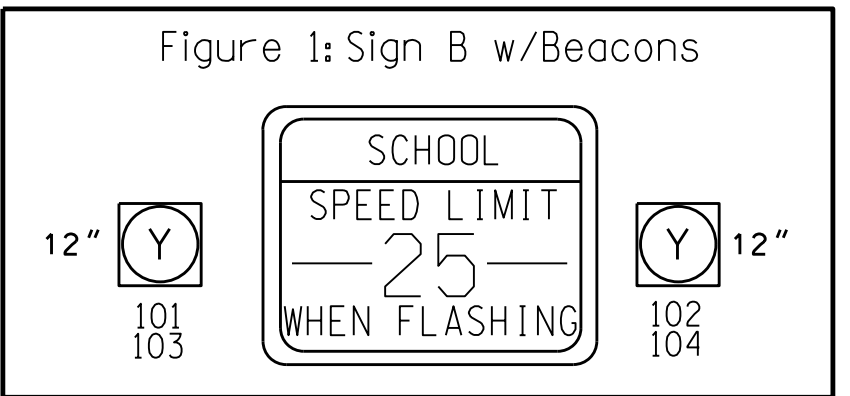


School Flashers 103 and 104 (Connected to System Via This Signal)

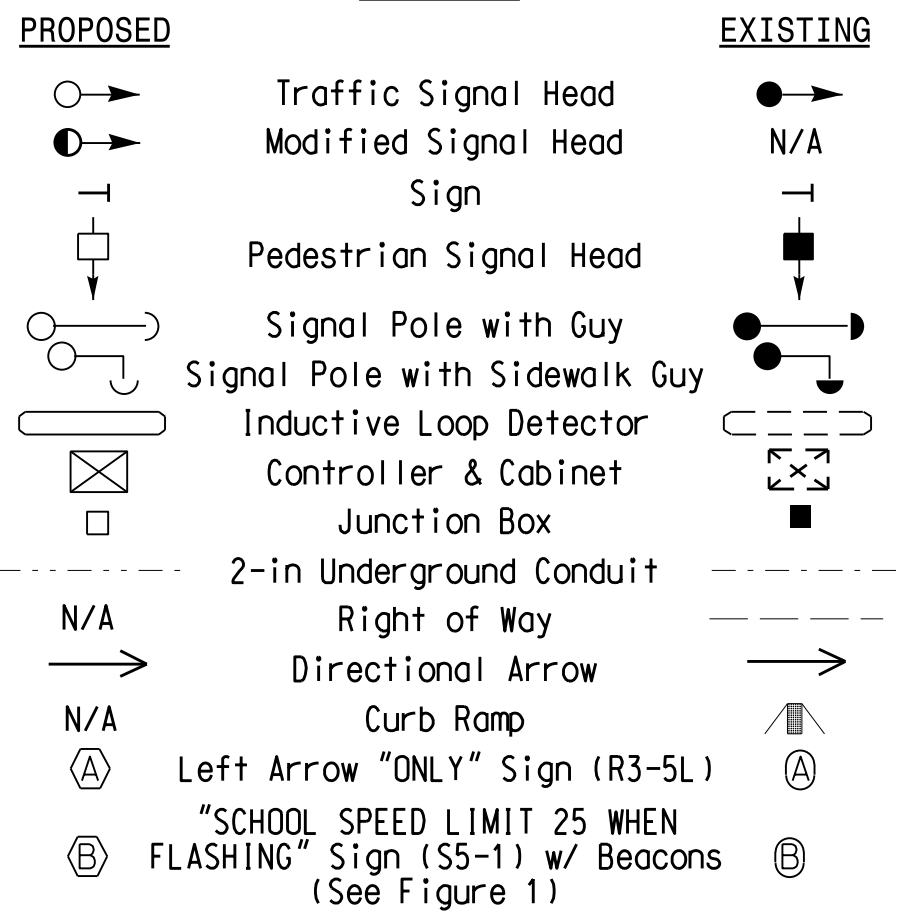
OASIS 2070 TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green 1 *	10	7	7	10	7
Extension 1 *	3.0	1.0	2.0	3.0	1.0
Max Green 1 *	45	30	20	45	30
Yellow Clearance	4.4	4.3	3.2	4.4	3.7
Red Clearance	1.6	1.1	2.1	1.6	1.1
Walk 1 *	-	-	-	-	7
Don't Walk 1	-	-	-	-	9
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode **	SOFT RECALL	-	-	SOFT RECALL	-
Vehicle Call Memory	YELLOW	-	-	YELLOW	-
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



LEGEND



Signal Upgrade

Prepared In the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

SR 1486 (E. Lexington Avenue) at McGuinn Drive

Division 7 Guilford County High Point
 PLAN DATE: August 2014 PREPARED BY: Jeff Spence
 PREPARED BY: K.G. Peedin, Jr. REVIEWED BY:

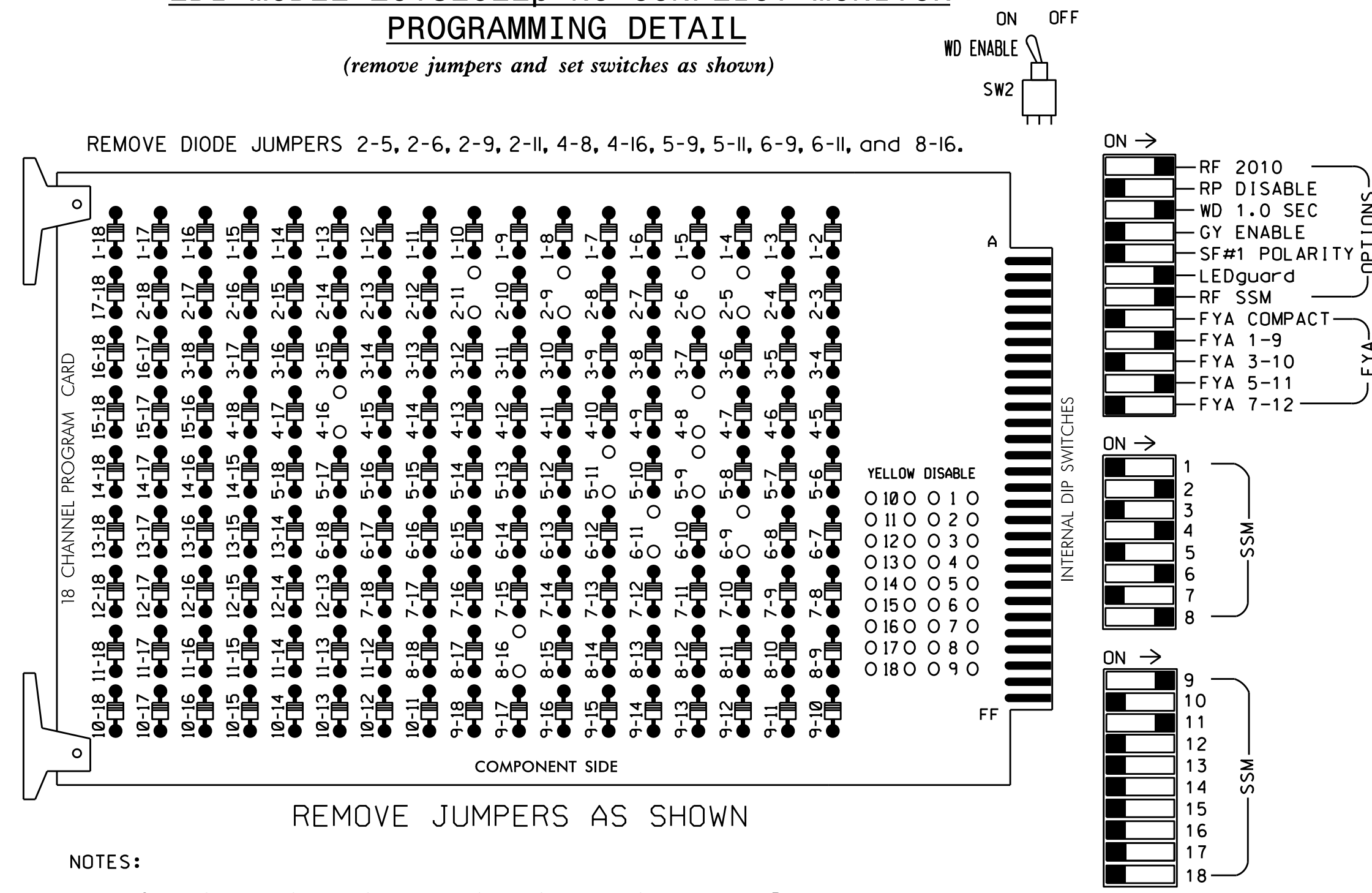
SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 ROBERT J. ZEMBA
 026486
 3/6/2015
 DATE

REVISIONS: _____ INIT. DATE _____
 SCALE: 1"=20'
 SIG. INVENTORY NO. 07-0759

06-1486-2014-16108 S:\MIS\GIS\ITS_Signal\Signal Design\Section\Central_Regional\iv_74c-5558_High_Point\Signal_Plans\Ø7-0759\Ø70759_s1a.dsn_20150306.dgn PZ:terbo

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phase 8 for 'STARTUP PED CALL'.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S3*,S5,S7,S8,S9*,S11,S12,
 AUX S1,AUX S4
 PHASES USED.....2,4,5,6,8,8PED
 OVERLAP "A".....2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....5+6
 OVERLAP "D".....NOT USED
 * S3 AND S9 USED FOR SCHOOL FLASHER

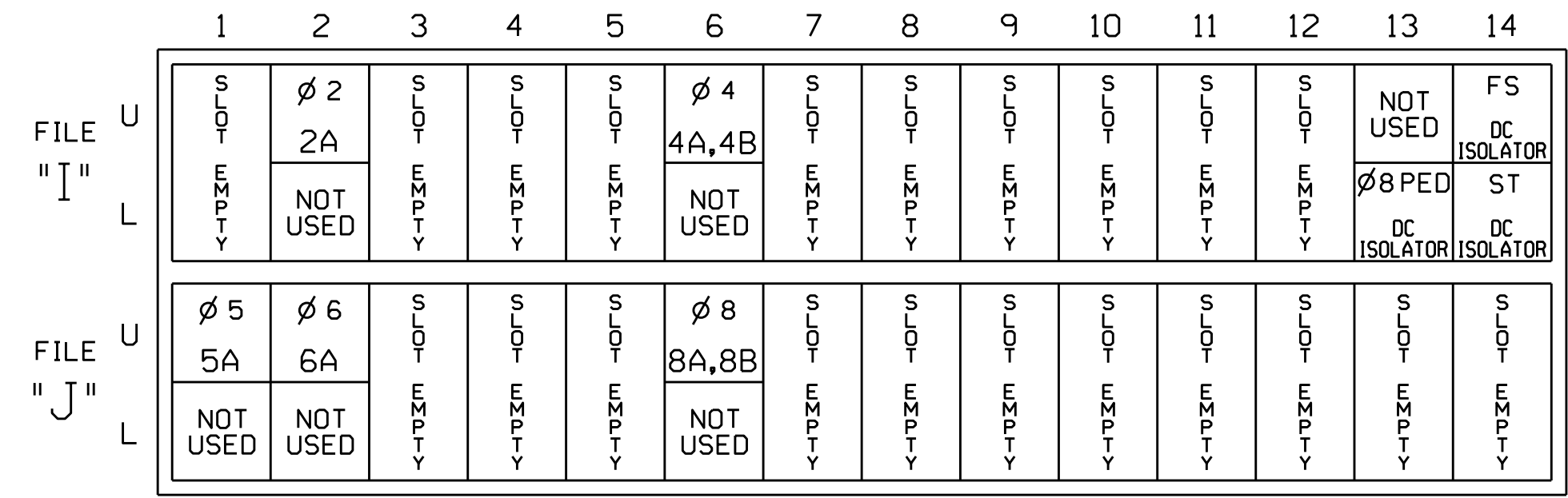
SIGNAL HEAD HOOK-UP CHART

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 FLASHER OUTPUT	3	4	4 PED	5	6	6 PED FLASHER OUTPUT	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE		
SIGNAL HEAD NO.	NU	21,22	NU	101, 103	NU	41,42	NU	51	61,62	NU	102, 104	NU	81,82	P81, P82	63	NU	51	NU		
RED		128			101				134				107							
YELLOW		129			102		*		135				108							
GREEN		130			103				136				109							
RED ARROW																		A121	A114	
YELLOW ARROW																			A122	A115
FLASHING YELLOW ARROW																			A123	A116
GREEN ARROW								133												
PED YELLOW						**	114			**	120									
						*			*				112							

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 * See pictorial of head wiring in detail below.
 ** S3-Y and S9-Y are used for the School Flasher. See sheet 3 for wiring and programming details.

INPUT FILE POSITION LAYOUT

(front view)

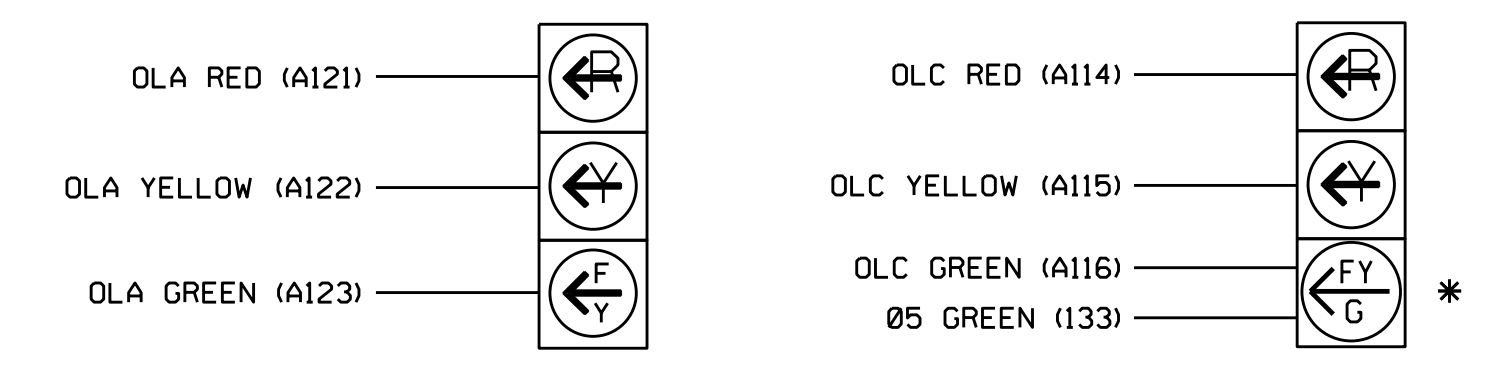


COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



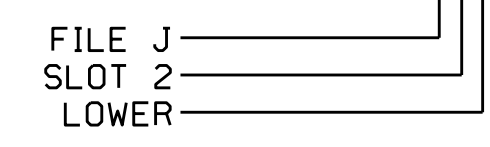
NOTE: The sequence display for signal head 51 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A,4B	TB4-9,10	I6U	41	3	4	4	Y	Y			5
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A,8B	TB5-9,10	J6U	42	4	8	8	Y	Y			5
PED PUSH BUTTONS											
P81,P82	TB8-8,9	I13L	70	32	PED 8	8 PED					

NOTE: INSTALL DC ISOLATOR IN INPUT FILE SLOT 113.

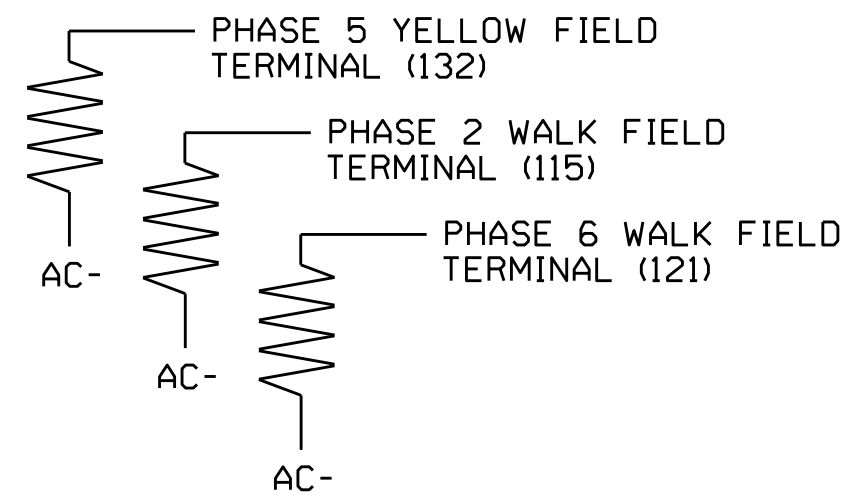
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0759
 DESIGNED: August 2014
 SEALED: 3/6/2015
 REVISED: N/A

Electrical Detail - Sheet 1 of 3

Electrical and Programming Details For: SR 1486 (E. Lexington Avenue) at McGuinn Drive

Prepared In the Offices of: TRANSPORTATION MOBILITY AND SAFETY CONSULTANTS, INC. Signal Management Solutions

Division 7 Guilford County High Point

PLAN DATE: December 2014 REVIEWED BY: [Signature]

PREPARED BY: S. Armstrong REVIEWED BY: [Signature]

REVISIONS INIT. DATE

DocuSigned by: John T. Rowe, Jr. 3/11/2015

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE, JR.

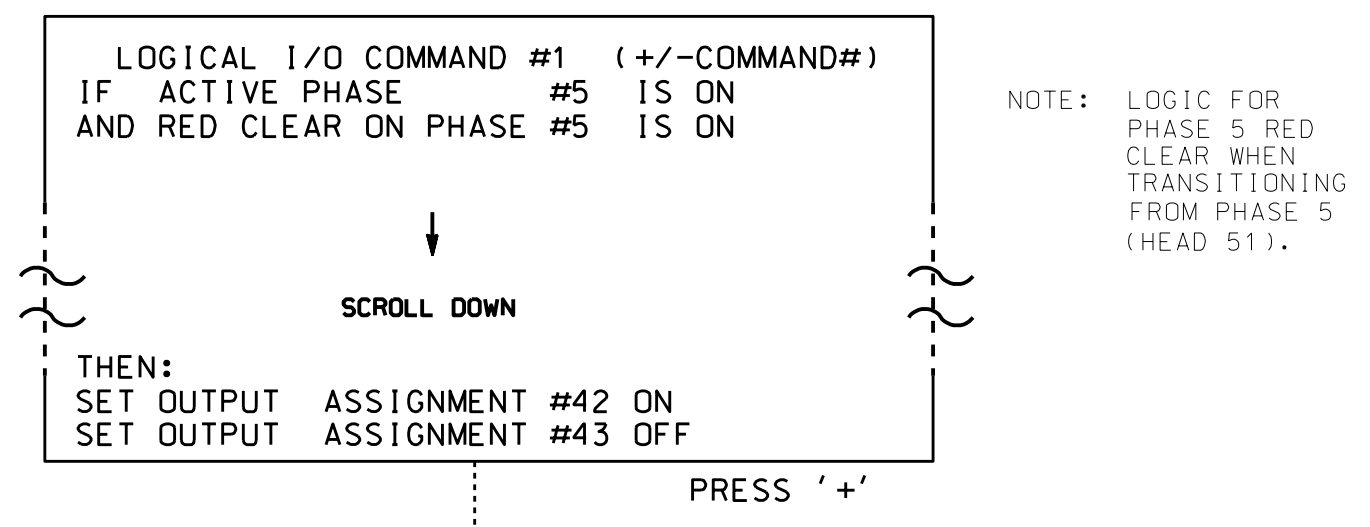
SIG. INVENTORY NO. 07-0759

10-0486-2015 11-10 S:\MITS\Signal\work\hgr\oups\sig\mon\armstrong\070759_sml.ele.xxx.dgn sararmstrong

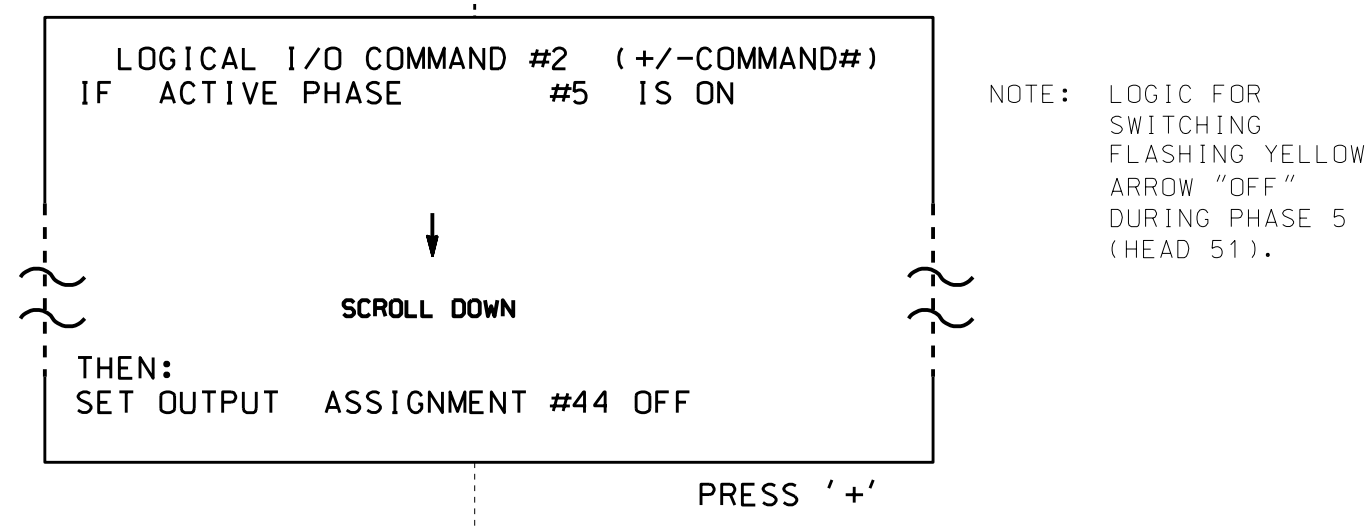
LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

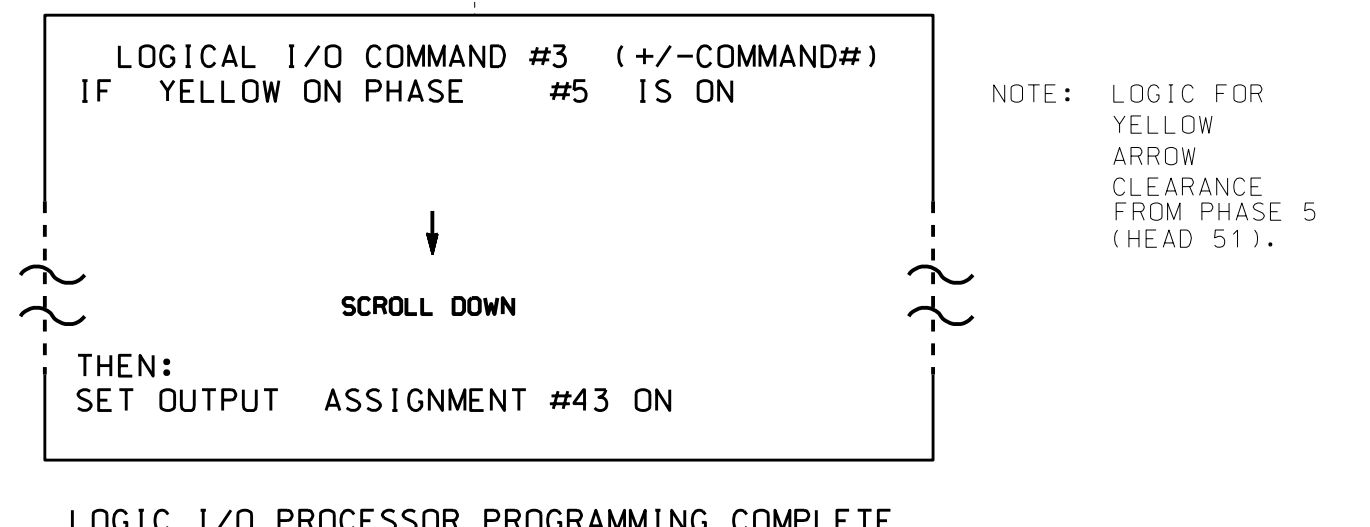
1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 (HEAD 51).



NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).



NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE
OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS: X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS:  - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```

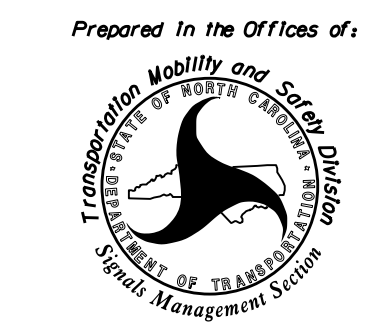
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS:  - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0759
DESIGNED: August 2014
SEALED: 3/6/2015
REVISED: N/A

Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1486 (E. Lexington Avenue) at McGuinn Drive	SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE, JR.
Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	Division 7 Guilford County ds High Point PLAN DATE: December 2014 REVIEWED BY: <i>JTR</i> PREPARED BY: S. Armstrong REVIEWED BY:	DocuSigned by: <i>John T. Rowe, Jr.</i> 3/11/2015 DATE
REVISIONS INIT. DATE		SIG. INVENTORY NO. 07-0759

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 S:\MITS\15\Sig\15\work\hgr\oups\51g_MonArmsTrng070759_sm.ele.xxx.dgn
 sarmstrong

SCHOOL FLASHER
OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```

PAGE:1  C1 PIN:35  NOT ENABLED.....33
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)...1
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

EDIT THE FIRST THREE PROGRAMMING ROWS TO DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

LEAVE THIS ENTRY AS IS

PRESS '+' KEY FOR OUTPUT ASSIGNMENT 34 (C1 PIN 36)

```

PAGE:1  C1 PIN:36  NOT ENABLED.....34
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```

PAGE:1  C1 PIN:36  NOT ENABLED.....33
SELECT OUTPUT ASSIGNMENT (1-64)...33
    
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' AFTER AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```

PAGE:1  C1 PIN:36  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PROGRAMMING COMPLETE

EVENT #1 SCHEDULING (AM)
SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING).

```

SCHEDULED EVENT #1  NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW  ISUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS  |12345678910111213141516
ASSIGNED      |
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE).. OFFSET#..
PLAN PRIORITY: LOW.. MED.. HIGH..
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)...
CHANGE PHASE CONTROL PAGE (1-4)...
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4)...
CHANGE OUTPUT PAGE (1-4)...
SET OUTPUT ON (1-64)...33
SET OUTPUT OFF (1-64)...
SET INPUT ON (1-64)...
SET INPUT OFF (1-64)...
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64)...
ENABLE DETECTOR DIAGNOSTICS (1-64)..
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)...
SET LOGIC FLAG ON (1-16)...
SET LOGIC FLAG OFF (1-64)...
OVERRIDE PHASE CONTROL FUNCTIONS?.....
    
```

END OF PROGRAMMING

* AFTER PROGRAMMING, THIS SPACE WILL READ 'OUTPUT OVERRIDE'.
/ TIMES AND DATES DETERMINED BY THE DTE.

EVENT #1 SCHEDULING (PM)
SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING), PRESS THE '+' KEY TO ADVANCE TO EVENT 2.

```

SCHEDULED EVENT #2  NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW  ISUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS  |12345678910111213141516
ASSIGNED      |
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE).. OFFSET#..
PLAN PRIORITY: LOW.. MED.. HIGH..
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)...
CHANGE PHASE CONTROL PAGE (1-4)...
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4)...
CHANGE OUTPUT PAGE (1-4)...
SET OUTPUT ON (1-64)...33
SET OUTPUT OFF (1-64)...
SET INPUT ON (1-64)...
SET INPUT OFF (1-64)...
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64)...
ENABLE DETECTOR DIAGNOSTICS (1-64)..
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)...
SET LOGIC FLAG ON (1-16)...
SET LOGIC FLAG OFF (1-64)...
OVERRIDE PHASE CONTROL FUNCTIONS?.....
    
```

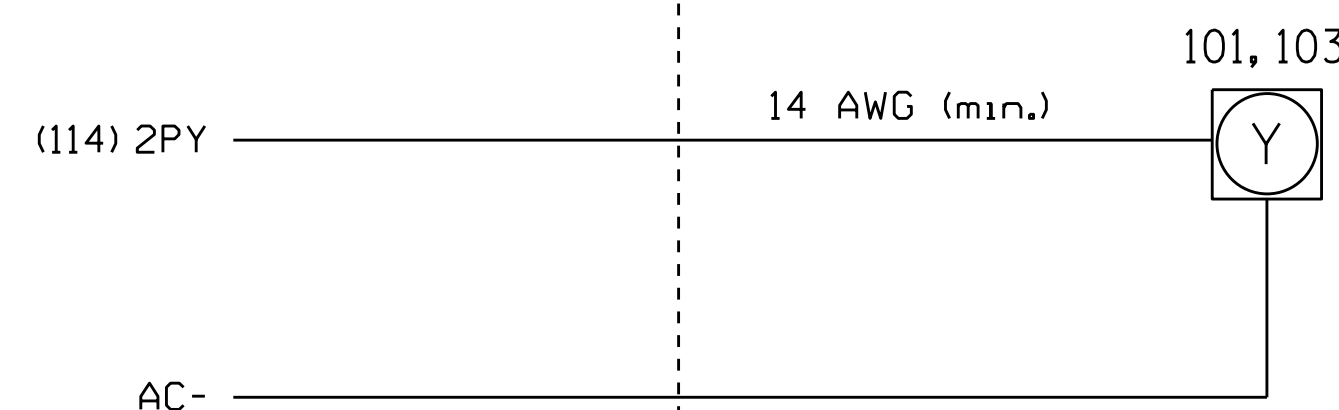
END OF PROGRAMMING

SCHOOL FLASHER (101,103)

(wire flashers as shown below)

CABINET CONNECTION

FIELD CONNECTION

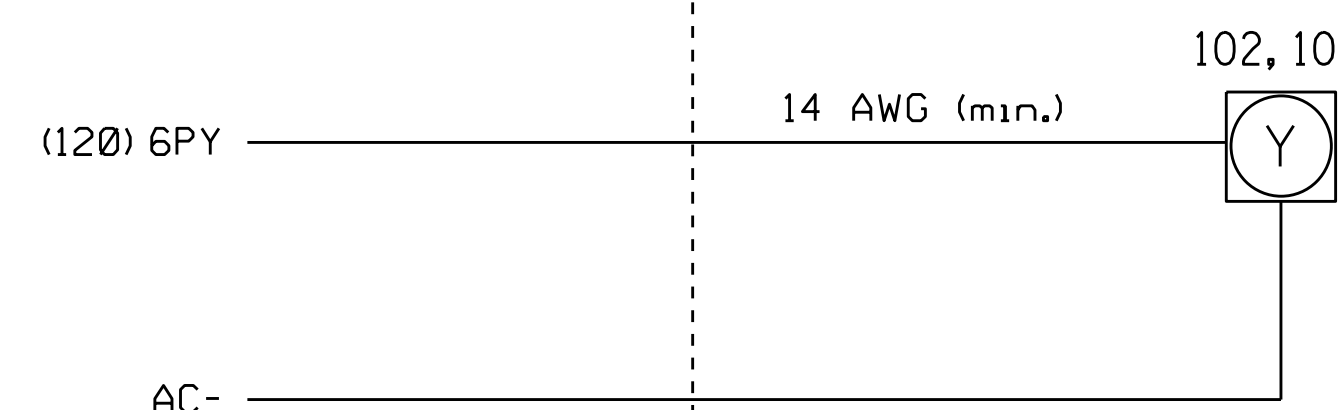


SCHOOL FLASHER (102,104)

(wire flashers as shown below)

CABINET CONNECTION

FIELD CONNECTION



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0759
DESIGNED: August 2014
SEALED: 3/6/2015
REVISED: N/A

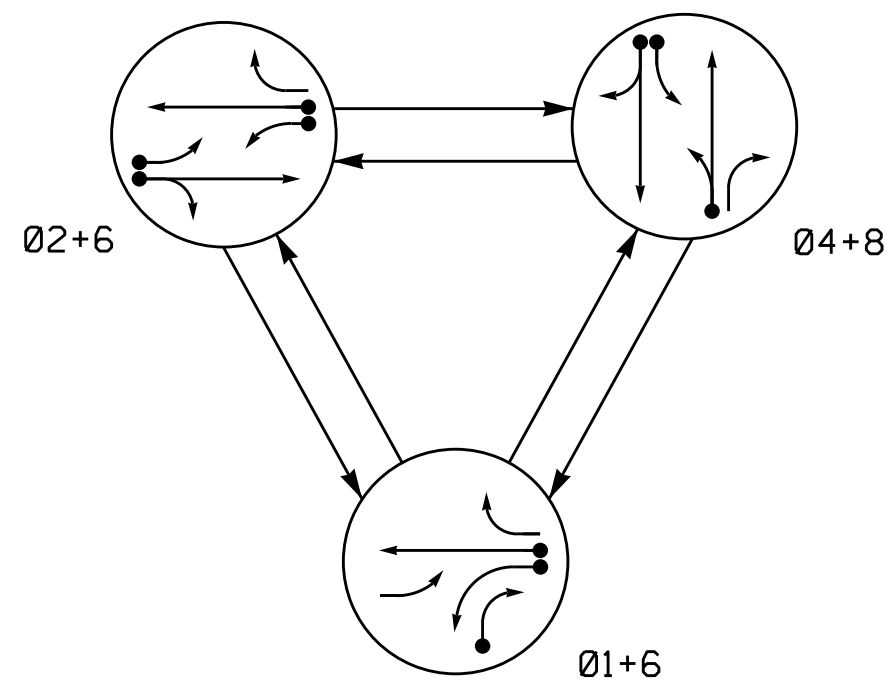
IMPORTANT

1. Ensure that the white keyed plug located behind rear panel of output file labeled 2PY-4PY-6PY-8PY is disconnected. This will disconnect conflict monitor wires from field signal terminals 114 and 120 shown on flasher wiring detail on this sheet.
2. Install loadswitches in output file slots S3 and S9.
3. To activate school zone flasher operation as indicated on the signal plan, program outputs 33 and 34 as shown on this sheet.
4. Operational times and dates are determined by the DTE. See this sheet for the scheduling programming detail.

Electrical Detail - Sheet 3 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1486 (E. Lexington Avenue) at McGuinn Drive	SEAL
Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	Division 7 Guilford County ds High Point PLAN DATE: December 2014 REVIEWED BY: <i>JTR</i> PREPARED BY: S. Armstrong REVIEWED BY: _____	DocuSigned by: <i>John T. Rowe, Jr.</i> 3/11/2015 641D00C145EE4F5 DATE SIG. INVENTORY NO. 07-0759

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

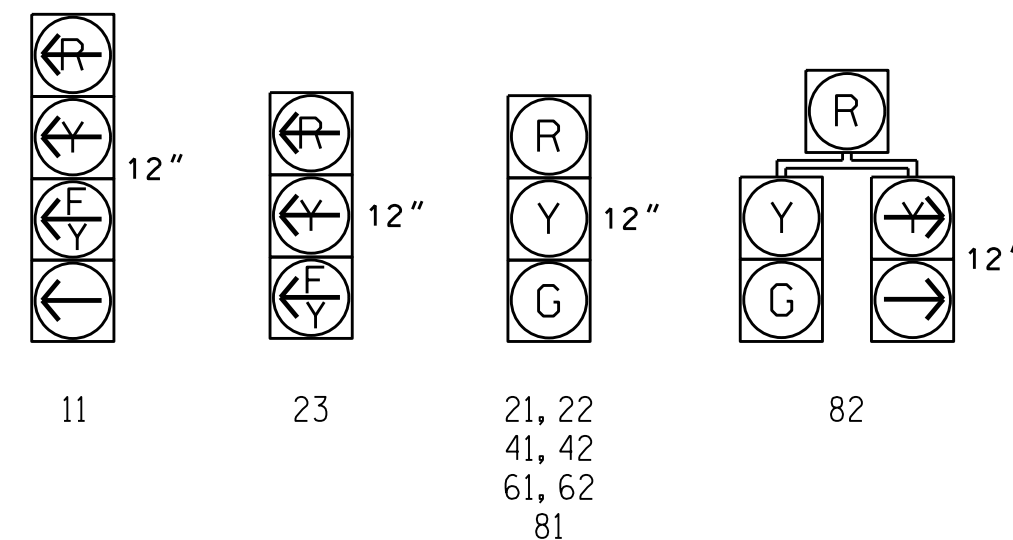
- ←● DETECTED MOVEMENT
- ← UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ←--- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	Ø 1 + 6	Ø 2 + 6	Ø 4 + 8	F L E O B
11	←	←	←	←
21, 22	←	←	←	←
23	←	←	←	←
41, 42	←	←	←	←
61, 62	←	←	←	←
81	←	←	←	←
82	←	←	←	←

SIGNAL FACE I.D.

All Heads L.E.D.



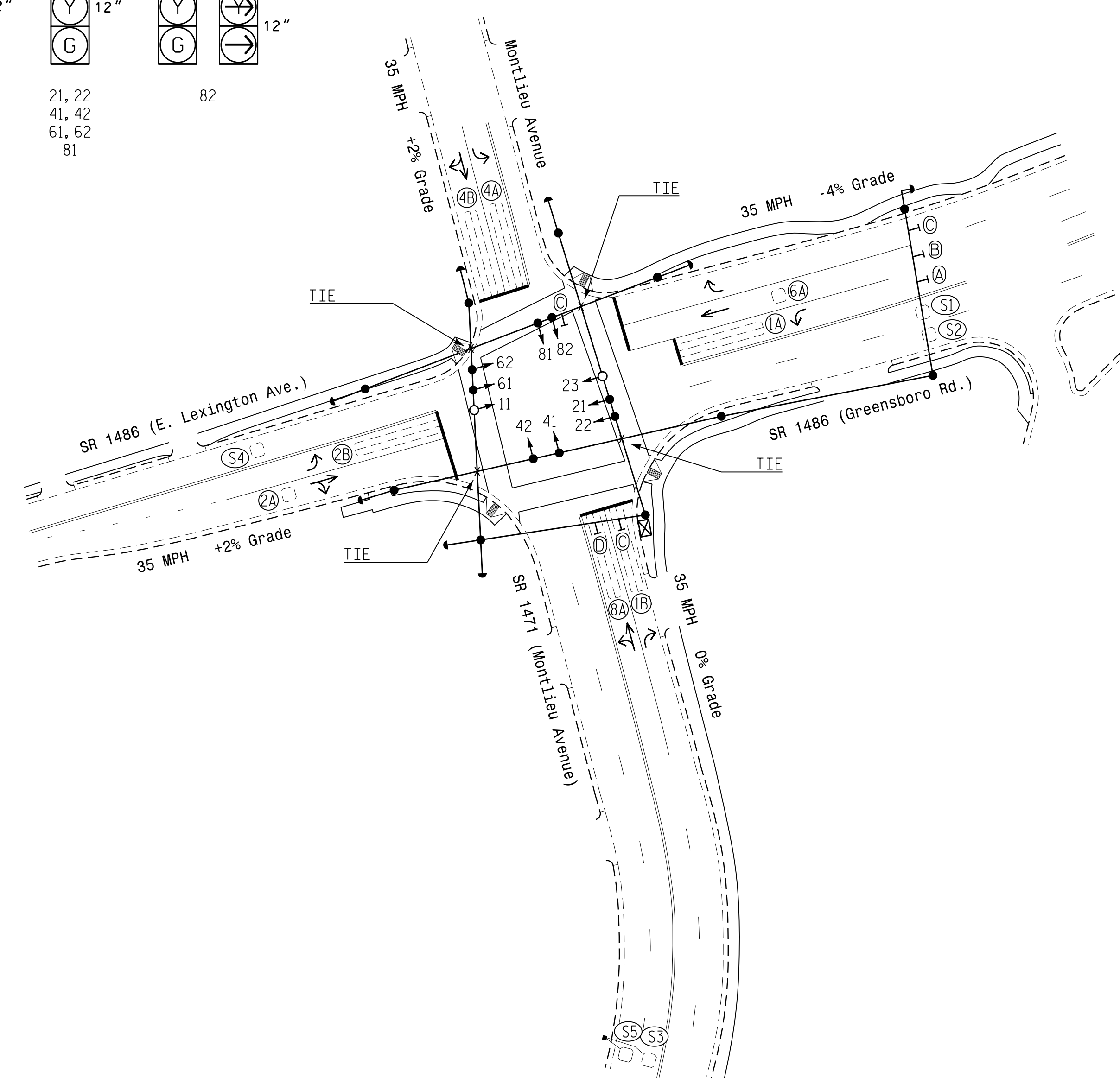
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY			
1A	6X40	0	2-4-2	-	1	Y	Y	-	15	-	Y
1B	6X40	0	2-4-2	-	6	Y	Y	-	-	-	Y
2A	6X6	70	EXIST	-	2	Y	Y	-	-	-	Y
2B	6X40	0	2-4-2	-	2	Y	Y	-	-	-	Y
4A, 4B	6X40	0	2-4-2	-	4	Y	Y	-	-	5	Y
6A	6X6	70	EXIST	-	6	Y	Y	-	-	-	Y
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	3	Y
S1	6X6	+220	EXIST	-	-	-	-	-	-	-	Y
S2	6X6	+220	EXIST	-	-	-	-	-	-	-	Y
S3	6X6	+345	EXIST	-	-	-	-	-	-	-	Y
S4	6X6	+170	EXIST	-	-	-	-	-	-	-	Y
S5	6X6	+345	5	Y	-	-	-	-	-	-	Y

3 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Reposition existing signal heads numbered 21 and 22.
- Rewire existing loop 8B as 1B.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE				
	1	2	4	6	8
Min Green 1 *	7	10	7	10	7
Extension 1 *	2.0	3.0	2.0	3.0	2.0
Max Green 1 *	15	45	20	45	20
Yellow Clearance	3.0	4.1	3.7	4.1	3.8
Red Clearance	2.8	1.7	1.8	1.7	1.8
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode **	-	SOFT RECALL	-	SOFT RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
 ** May be changed to Min Recall by Time of Day at Discretion of City Traffic Engineer.

LEGEND

- | | | | |
|--|--|--|----------|
| | Traffic Signal Head | | EXISTING |
| | 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 |
| | Controller & Cabinet | | N/A |
| | Junction Box | | N/A |
| | 2-in Underground Conduit | | N/A |
| | Right of Way | | N/A |
| | Directional Arrow | | N/A |
| | Wheelchair Ramp | | N/A |
| | Left Arrow "ONLY" Sign (R3-5L) | | N/A |
| | Through Arrow "ONLY" Sign (R3-5a) | | N/A |
| | Right Arrow "ONLY" Sign (R3-5R) | | N/A |
| | Combined Through and Left Arrow Sign (R3-6L) | | N/A |

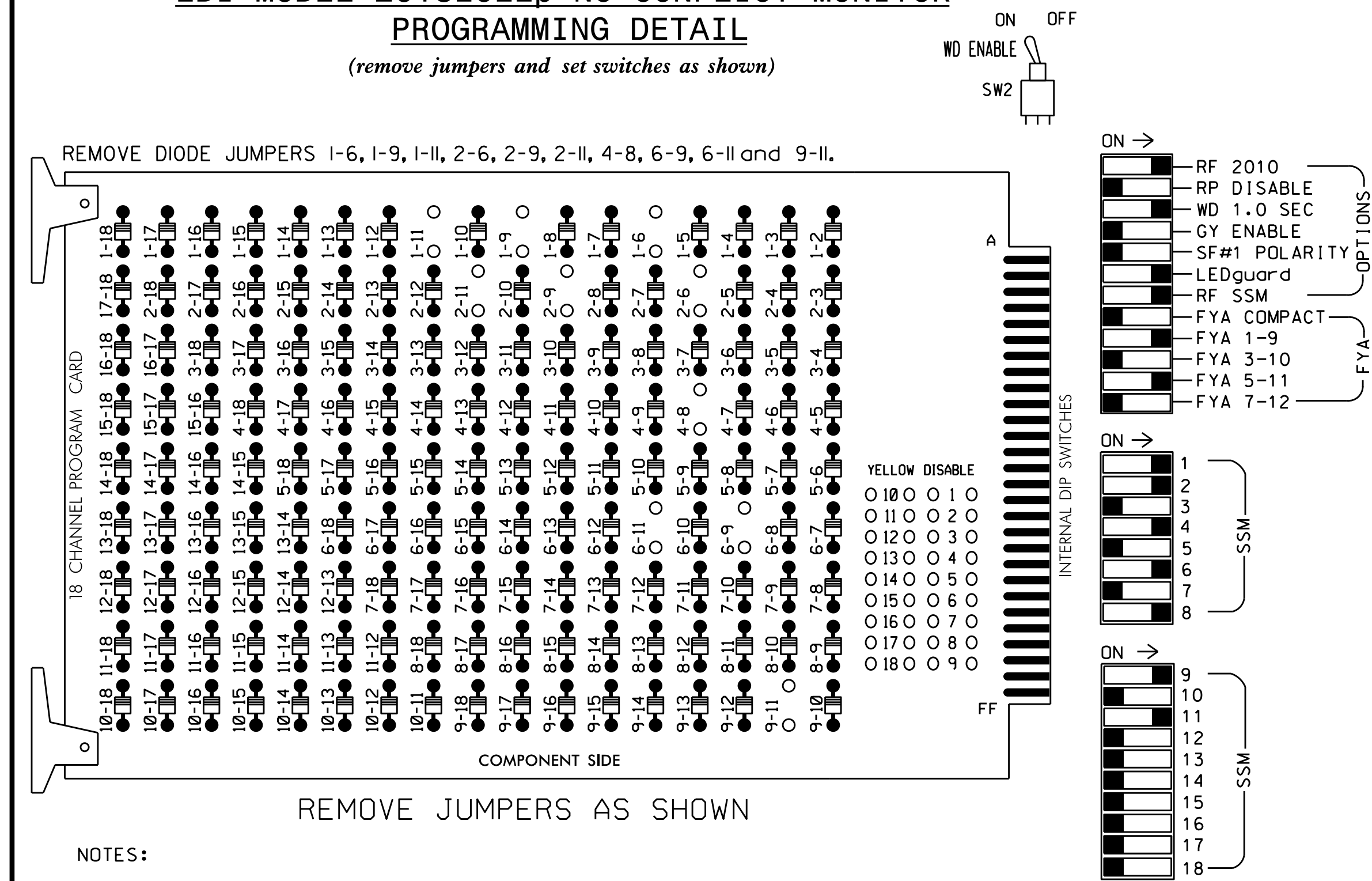
Signal Upgrade

	SR 1486 (Greensboro Rd./ E. Lexington Ave.) at SR 1471 (Montlieu Ave.)		SEAL
	Division 7 PLAN DATE: May 2014 PREPARED BY: R.N. Zinser	Guilford County High Point REVIEWED BY: REVISIONS: INIT. DATE	

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 rz1:erbo

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
6. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S5,S8,S11,AUX S1,AUX S4.
 PHASES USED.....1,2,4,6,8.
 OVERLAP "A".....1+2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....6
 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	82	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU	11	NU	NU	23	NU
RED	*	128				101			134			107						
YELLOW		129				102			135			108						
GREEN		130				103			136			109						
RED ARROW													A121				A114	
YELLOW ARROW		126											A122				A115	
FLASHING YELLOW ARROW													A123				A116	
GREEN ARROW	127	127																

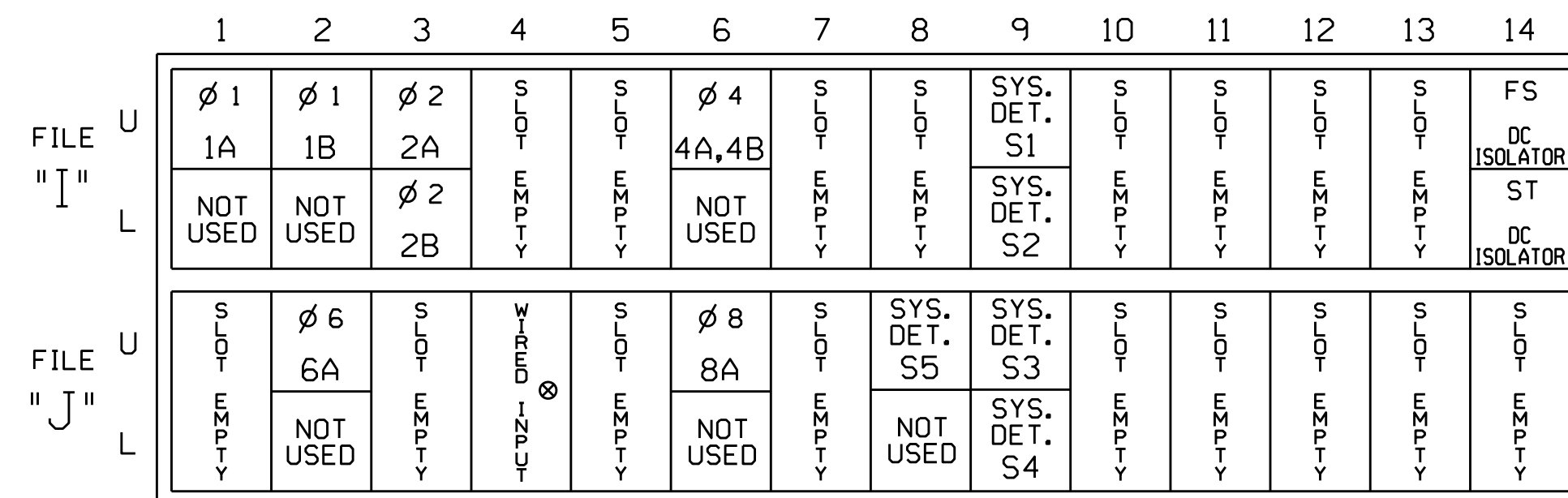
NU = Not Used

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

* See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
 ST = STOP TIME

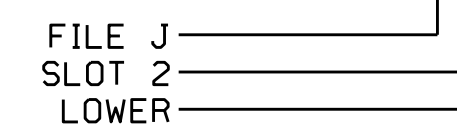
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A ¹	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y			
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			15
	2A	TB2-9,10	I3U	63	25	32	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
	4A,4B	TB4-9,10	I6U	41	3	4	Y	Y			5
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
	8A	TB5-9,10	J6U	42	4	8	Y	Y			3
* S5	TB7-5,6	J8U	50	12	28	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					
* S4	TB7-11,12	J9L	61	23	17	SYS					

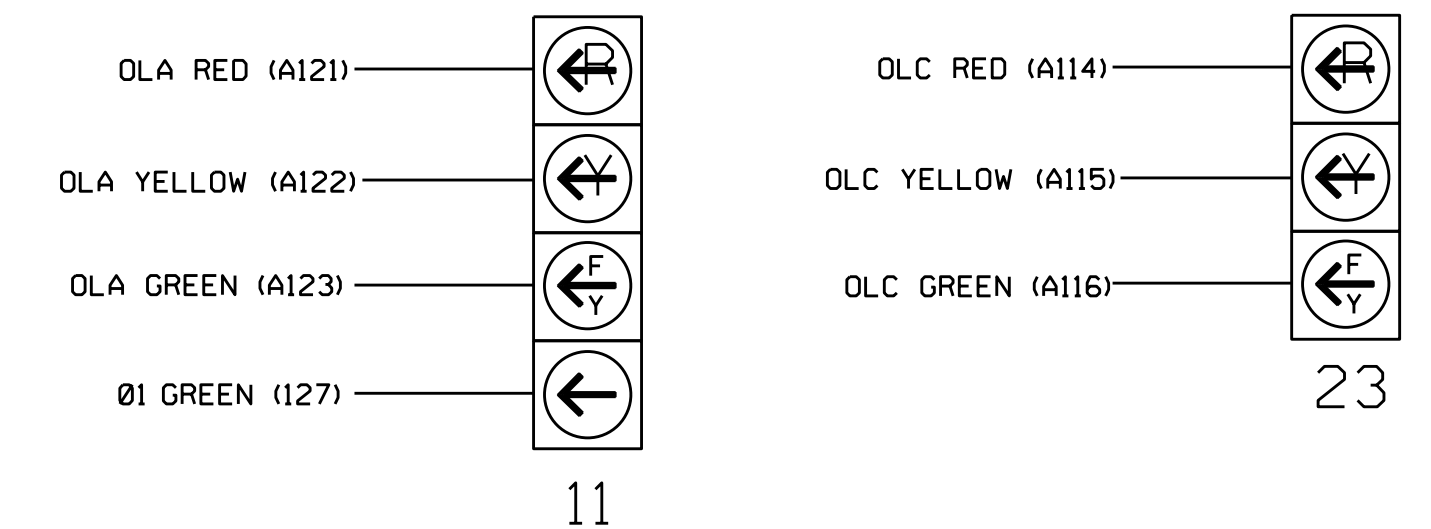
¹Add jumper from I1-W to J4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

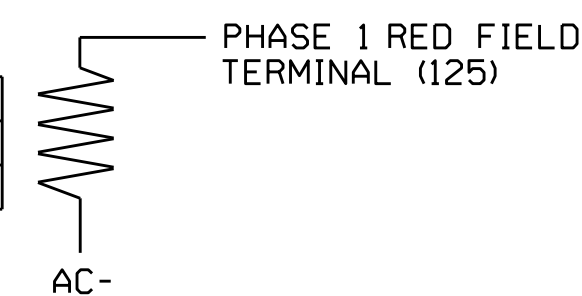
1. The sequence display for this signal requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0760
 DESIGNED: May 2014
 SEALED: 4-24-15
 REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



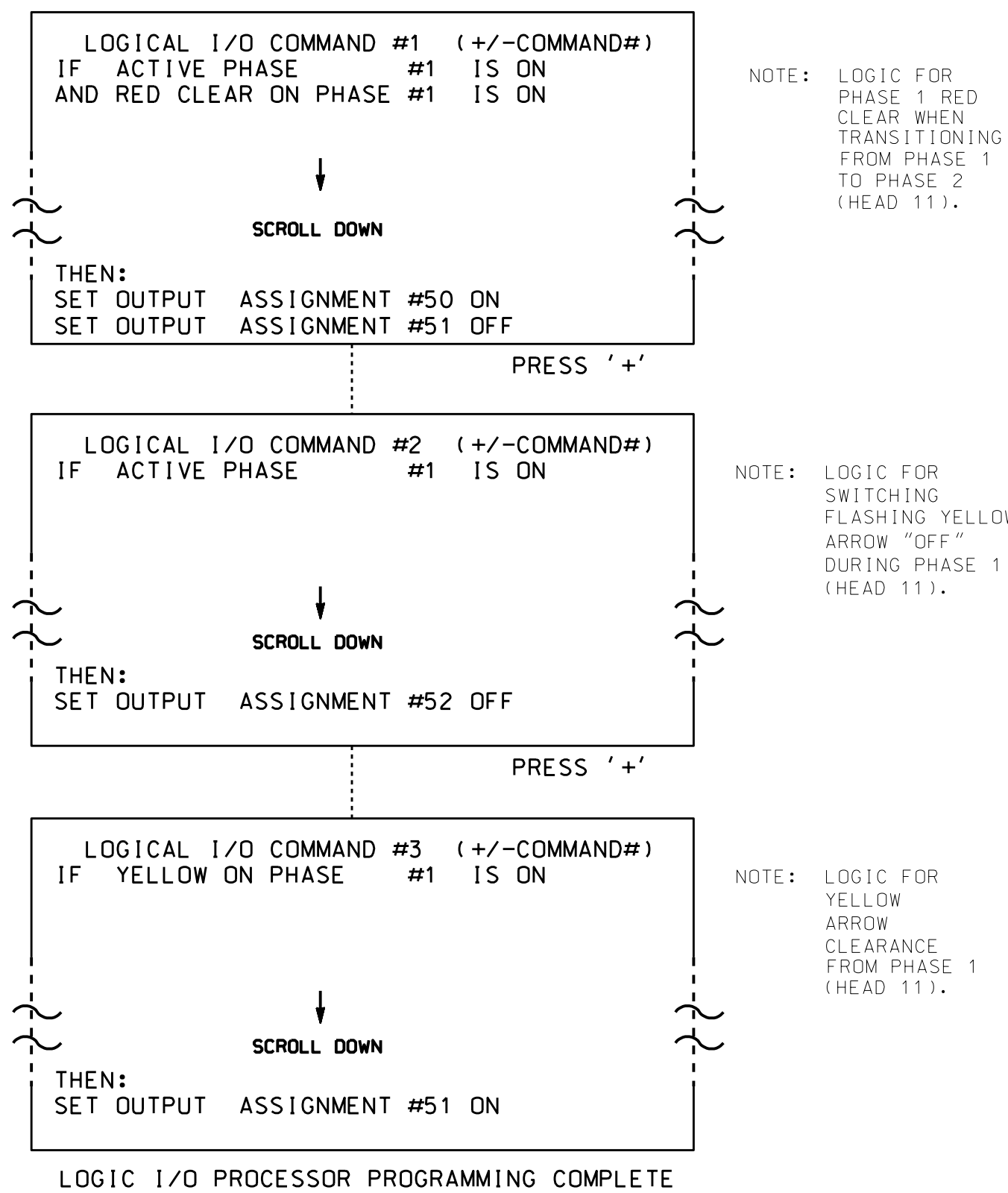
ELECTRICAL DETAIL SHEET 1 OF 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1486 (Greensboro Rd./ E. Lexington Ave.) at SR 1471 (Montlieu Ave.)		SEAL JOHN T. ROWE, JR. ENGINEER
	Division 7 Guilford County High Point	PLAN DATE: August 2014 PREPARED BY: James Peterson		REVIEWED BY: JTR REVIEWED BY:
REVISIONS		INIT. DATE	DocuSigned by: John T. Rowe, Jr. 5/5/2015 DATE
SIG. INVENTORY NO. 07-0760		DATE	

**LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE**

(program controller as shown below)

- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2 AND 3.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



OUTPUT REFERENCE SCHEDULE

OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

PRESS '+' TWICE

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

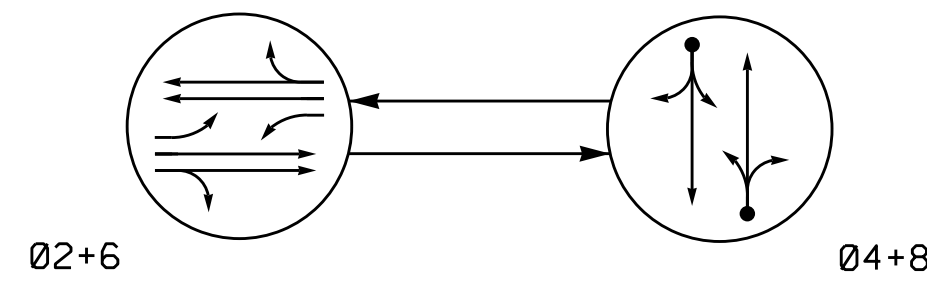
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0760
DESIGNED: May 2014
SEALED: 4-24-15
REVISED: N/A

ELECTRICAL DETAIL SHEET 2 OF 2

<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>Prepared In the Offices of:</p> <p>James Peterson</p>	<p>SR 1486 (Greensboro Rd./ E. Lexington Ave.) at SR 1471 (Montlieu Ave.)</p>	<p>SEAL JOHN T. ROWE, JR. ENGINEER SEAL 008453</p>
	<p>Division 7 Guilford County High Point</p> <p>PLAN DATE: August 2014 REVIEWED BY: JTR</p> <p>PREPARED BY: James Peterson REVIEWED BY:</p>	<p>REVISIONS</p> <p>INIT. DATE</p>	<p>DocuSigned by: John T. Rowe, Jr. 5/5/2015</p>

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 JPeterson

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

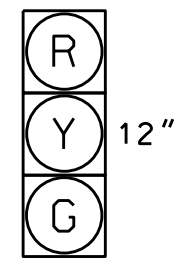
- ● DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	Ø 2+6	Ø 4+8	FLIGHT
21, 22, 23	G	R	Y
41, 42	R	G	R
61, 62, 63	G	R	Y
81, 82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22, 23
41, 42
61, 62, 63
81, 82

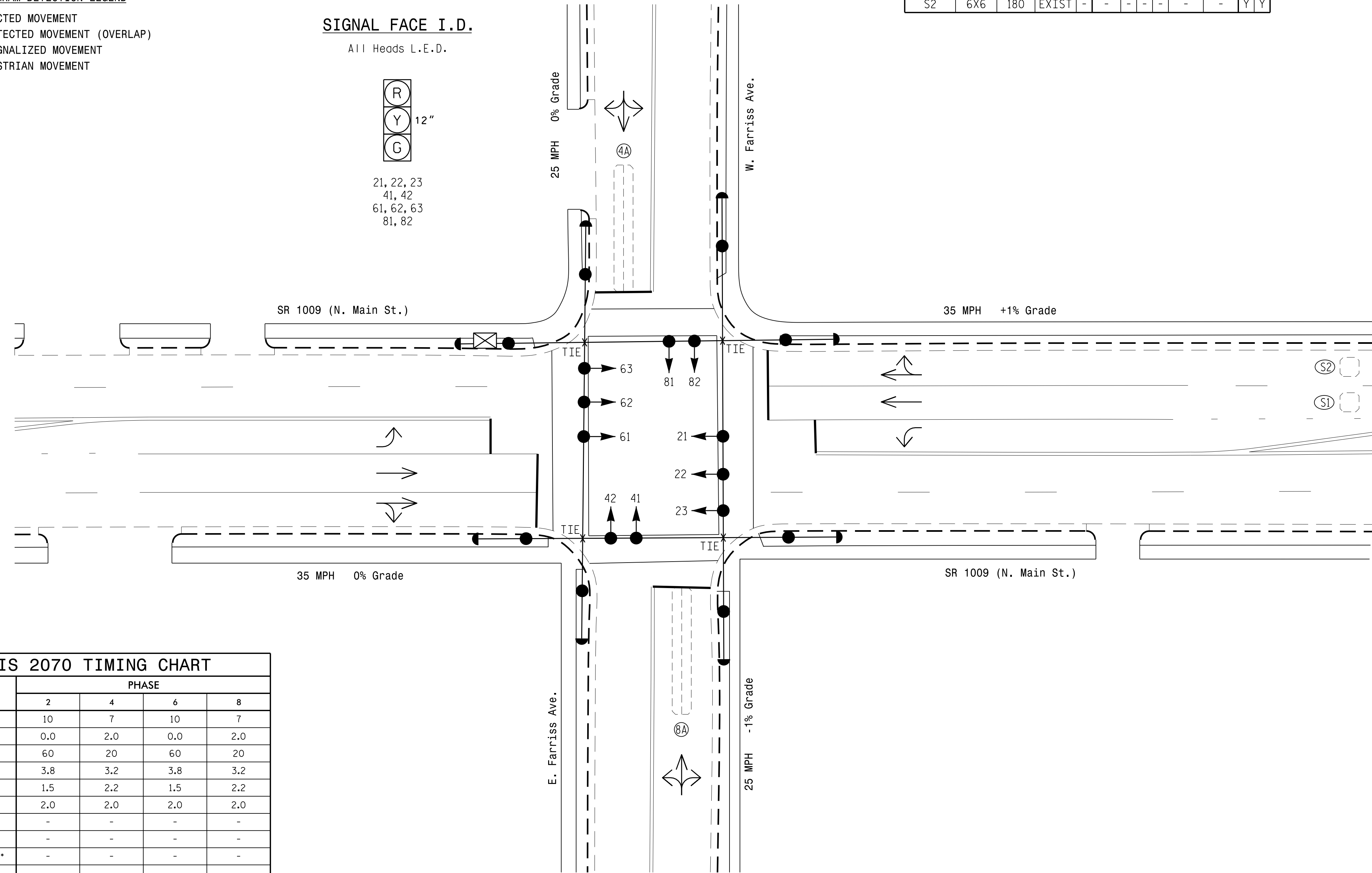
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	INDUCTIVE LOOPS				DETECTOR PROGRAMMING					SYSTEM LOOP	NEW CARD	
	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME			DELAY TIME
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	Y
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-	Y
S1	6X6	180	EXIST	-	-	-	-	-	-	-	Y	Y
S2	6X6	180	EXIST	-	-	-	-	-	-	-	Y	Y

2 Phase
Semi-Actuated
(High Point Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Pavement markings are existing.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	10	7	10	7
Extension 1 *	0.0	2.0	0.0	2.0
Max Green 1 *	60	20	60	20
Yellow Clearance	3.8	3.2	3.8	3.2
Red Clearance	1.5	2.2	1.5	2.2
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MAX RECALL	-	MAX RECALL	-
Vehicle Call Memory	-	-	-	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND

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

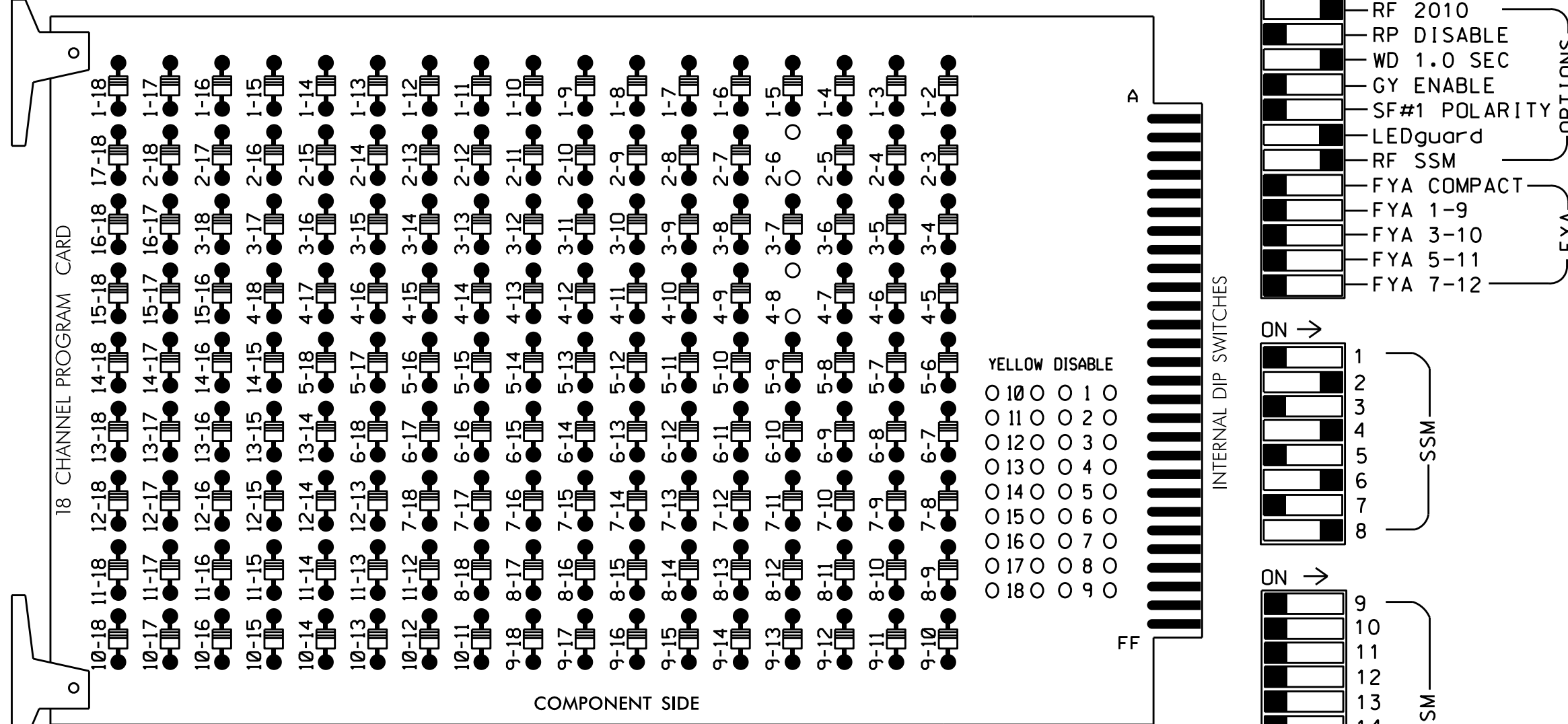
Signal Upgrade

	<p>SR 1009 (N. Main St.) at Farriss Ave.</p>		<p>SEAL</p>
	<p>Division 7 Guilford County High Point</p>		
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>PLAN DATE: May 2014</p>	<p>REVIEWED BY:</p>	<p>4/21/2015</p>
<p>SCALE: 1"=20'</p>	<p>PREPARED BY: R.N. Zinser</p>	<p>REVIEWED BY:</p>	<p>DATE</p>
<p>REVISIONS</p>	<p>INIT.</p>	<p>DATE</p>	<p>SIG. INVENTORY NO. 07-0761</p>

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

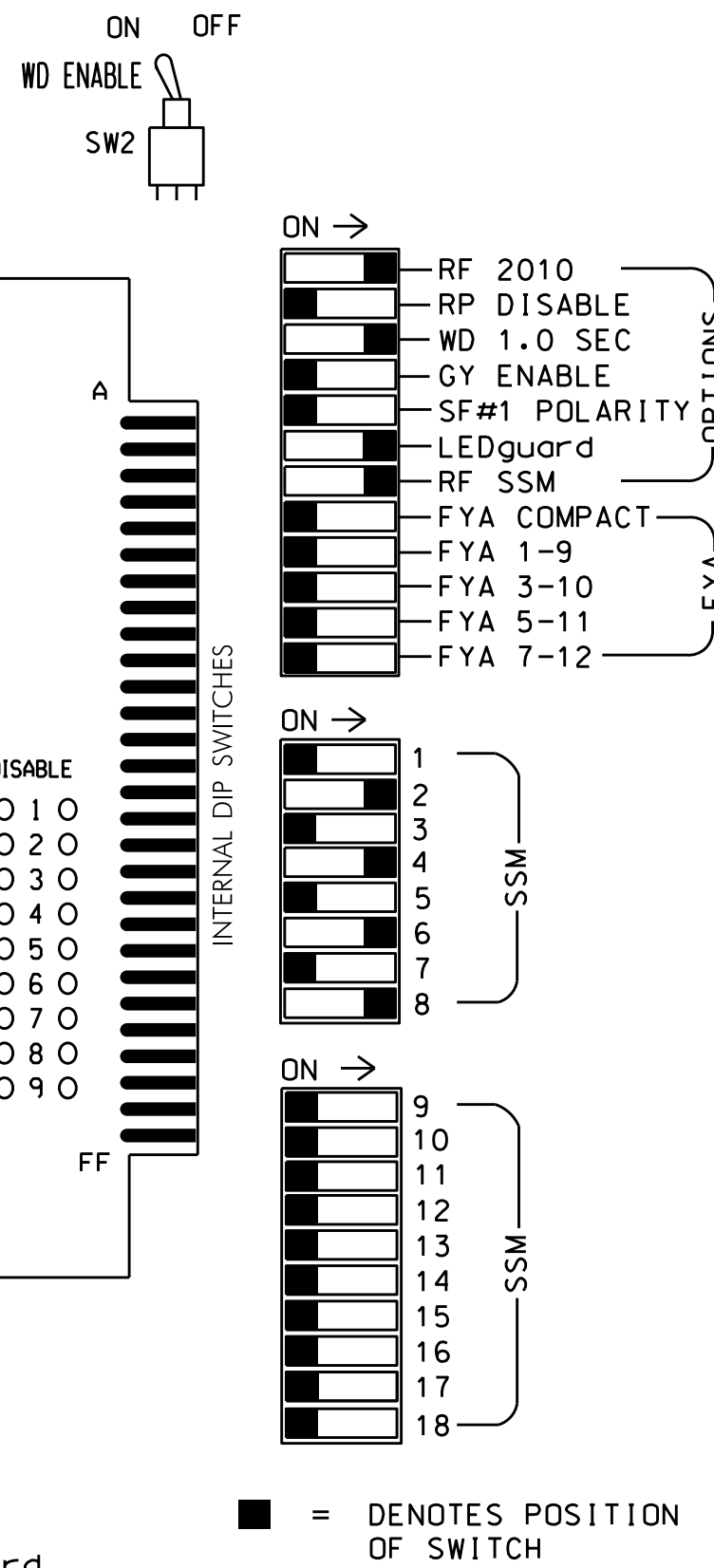
REMOVE DIODE JUMPERS 2-6 and 4-8.



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 unused 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.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.
- The cabinet and controller are part of the High Point Signal System.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21, 22, 23	NU	NU	41, 42	NU	NU	61, 62, 63	NU	NU	81, 82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

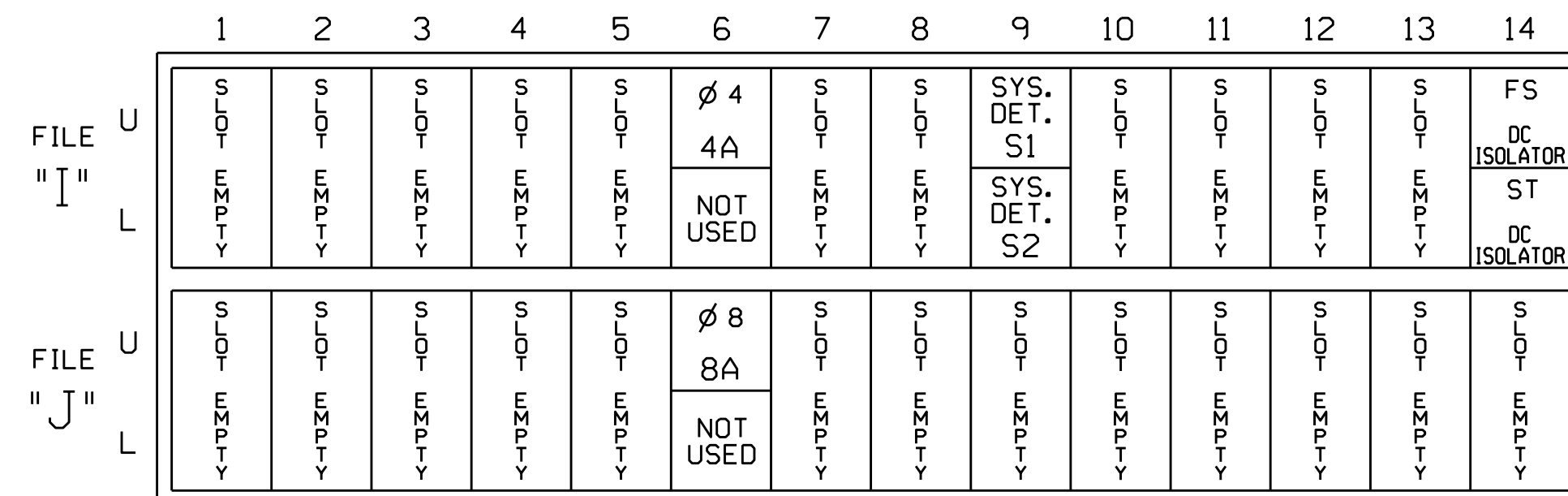
NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S5,S8,S11
 PHASES USED.....2,4,6,8
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)



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

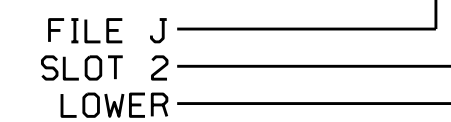
FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			10
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0761
 DESIGNED: May 2014
 SEALED: 4/21/2015
 REVISED: N/A

Electrical Detail

Electrical and Programming Details For: SR 1009 (N. Main St.) at Farriss Ave.

Division 7 Guilford County High Point

PLAN DATE: September 2014 REVIEWED BY: T. Joyce

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS INIT. DATE

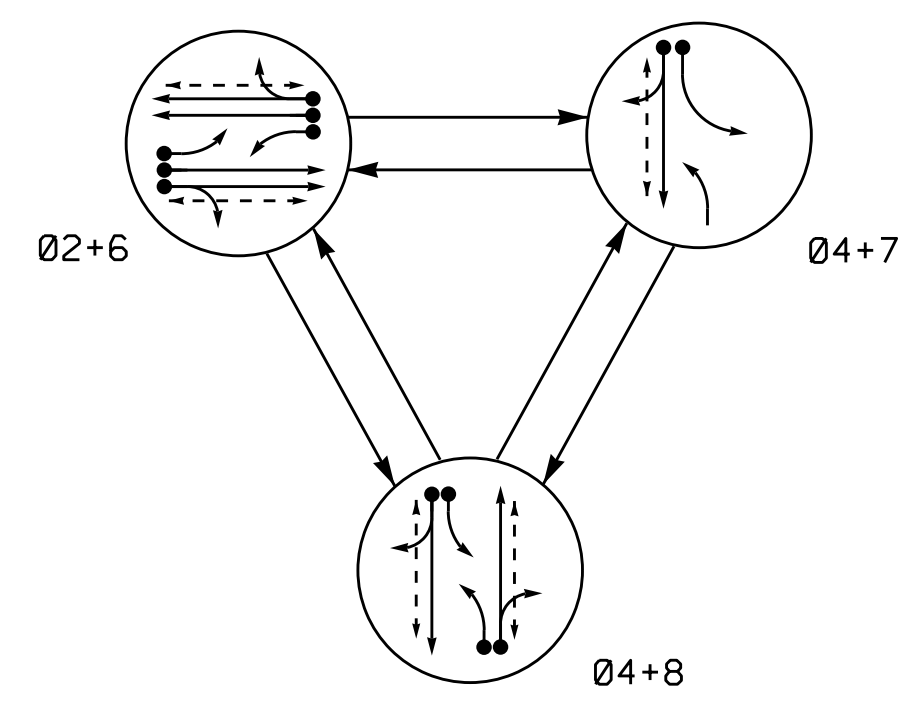
Seal: GEORGE C. BROWN, PROFESSIONAL ENGINEER, STATE OF NORTH CAROLINA, SEAL 022013

DocuSigned by: George C. Brown 4/29/2015

750 N. Greenfield Pkwy, Garner, NC 27529

SIG. INVENTORY NO. 07-0761

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+6	04+7	04+8	LOCAL
21	F	R	R	Y
22, 23	G	R	R	Y
41, 42	R	G	G	R
61	F	R	R	Y
62, 63	G	R	R	Y
71	R	F	F	R
81	R	F	F	R
82, 83	R	G	G	R
P21, P22	W	DW	DW	DRK
P41, P42	DW	W	W	DRK
P61, P62	W	DW	DW	DRK
P81, P82	DW	DW	W	DRK

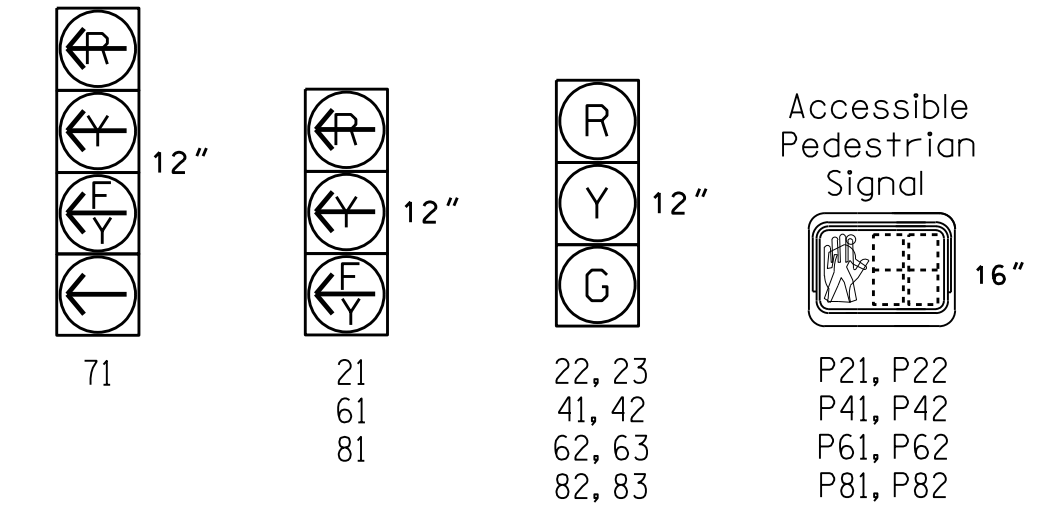
W - Walk
DW - Don't Walk
DRK - Dark

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	4	-	2	Y	Y	-	-	-	-	Y
2B	6X6	70	4	-	2	Y	Y	-	-	-	-	Y
2C	6X40	0	2-4-2	-	2	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	Y
6A	6X6	70	3	-	6	Y	Y	-	-	-	-	Y
6B	6X6	70	3	-	6	Y	Y	-	-	-	-	Y
6C	6X40	0	2-4-2	-	6	Y	Y	-	-	-	-	Y
7A	6X40	0	2-4-2	-	7	Y	Y	-	-	15	-	Y
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	3	-	Y
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-	Y
S1	6X6	+230	EXIST	-	-	-	-	-	-	-	-	Y
S2	6X6	+230	EXIST	-	-	-	-	-	-	-	-	Y

SIGNAL FACE I.D.

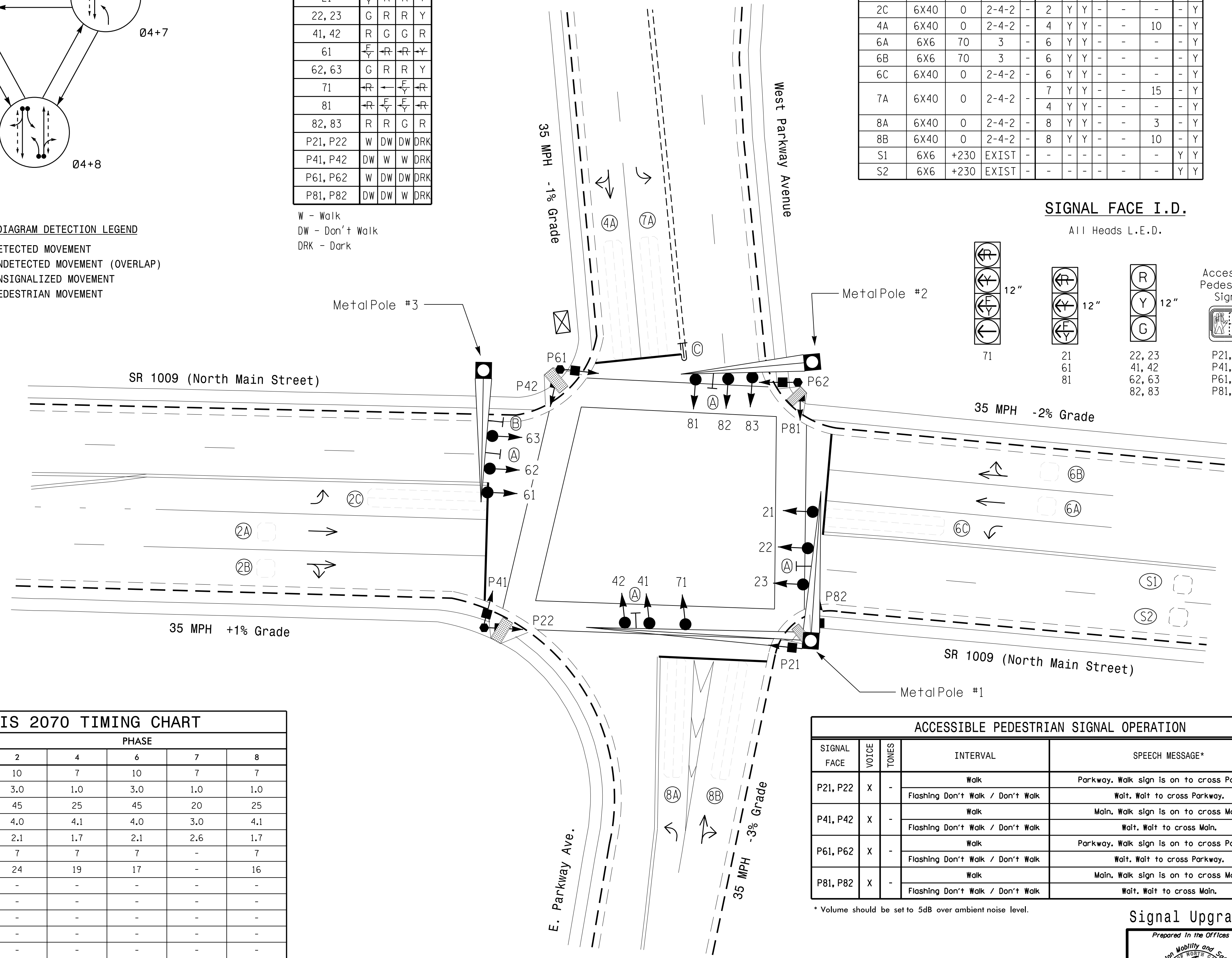
All Heads L.E.D.



3 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 7 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.
- Omni "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE				
	2	4	6	7	8
Min Green 1 *	10	7	10	7	7
Extension 1 *	3.0	1.0	3.0	1.0	1.0
Max Green 1 *	45	25	45	20	25
Yellow Clearance	4.0	4.1	4.0	3.0	4.1
Red Clearance	2.1	1.7	2.1	2.6	1.7
Walk 1 *	7	7	7	-	7
Don't Walk 1	24	19	17	-	16
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode **	SOFT RECALL	-	SOFT RECALL	-	-
Vehicle Call Memory	YELLOW	-	YELLOW	-	-
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

ACCESSIBLE PEDESTRIAN SIGNAL OPERATION

SIGNAL FACE	VOICE	TONES	INTERVAL	SPEECH MESSAGE*
P21, P22	X	-	Walk	Parkway. Walk sign is on to cross Parkway.
			Flashing Don't Walk / Don't Walk	Wait. Wait to cross Parkway.
P41, P42	X	-	Walk	Main. Walk sign is on to cross Main.
			Flashing Don't Walk / Don't Walk	Wait. Wait to cross Main.
P61, P62	X	-	Walk	Parkway. Walk sign is on to cross Parkway.
			Flashing Don't Walk / Don't Walk	Wait. Wait to cross Parkway.
P81, P82	X	-	Walk	Main. Walk sign is on to cross Main.
			Flashing Don't Walk / Don't Walk	Wait. Wait to cross Main.

* Volume should be set to 5dB over ambient noise level.

LEGEND

- | | | | |
|--|--|--|--|
| | PROPOSED Traffic Signal Head | | EXISTING Traffic Signal Head |
| | PROPOSED Modified Signal Head | | EXISTING Modified Signal Head |
| | PROPOSED Pedestrian Signal Head | | EXISTING Pedestrian Signal Head |
| | PROPOSED Signal Pole with Sidewalk Guy | | EXISTING Signal Pole |
| | PROPOSED Inductive Loop Detector | | EXISTING Inductive Loop |
| | PROPOSED Controller & Cabinet | | EXISTING Controller & Cabinet |
| | PROPOSED Junction Box | | EXISTING Junction Box |
| | PROPOSED 2-in Underground Conduit | | EXISTING 2-in Underground Conduit |
| | PROPOSED Right of Way | | EXISTING Right of Way |
| | PROPOSED Directional Arrow | | EXISTING Directional Arrow |
| | PROPOSED Metal Pole with Mastarm | | EXISTING Metal Pole with Mastarm |
| | PROPOSED Type II Signal Pedestal | | EXISTING Type II Signal Pedestal |
| | PROPOSED Street Name Sign (D3-1) | | EXISTING Street Name Sign (D3-1) |
| | PROPOSED "TURNING TRAFFIC MUST YIELD TO PEDESTRIANS" Sign (R10-15) | | EXISTING "TURNING TRAFFIC MUST YIELD TO PEDESTRIANS" Sign (R10-15) |
| | PROPOSED No U-Turn Sign (R3-4) | | EXISTING No U-Turn Sign (R3-4) |

Signal Upgrade

SR 1009 (North Main Street) at Parkway Avenue

Division 7 Guilford County High Point

PLAN DATE: September 2014 REVIEWED BY: Jeff Spence

PREPARED BY: Jeff Spence REVIEWED BY: [Signature]

SCALE: 1" = 20'

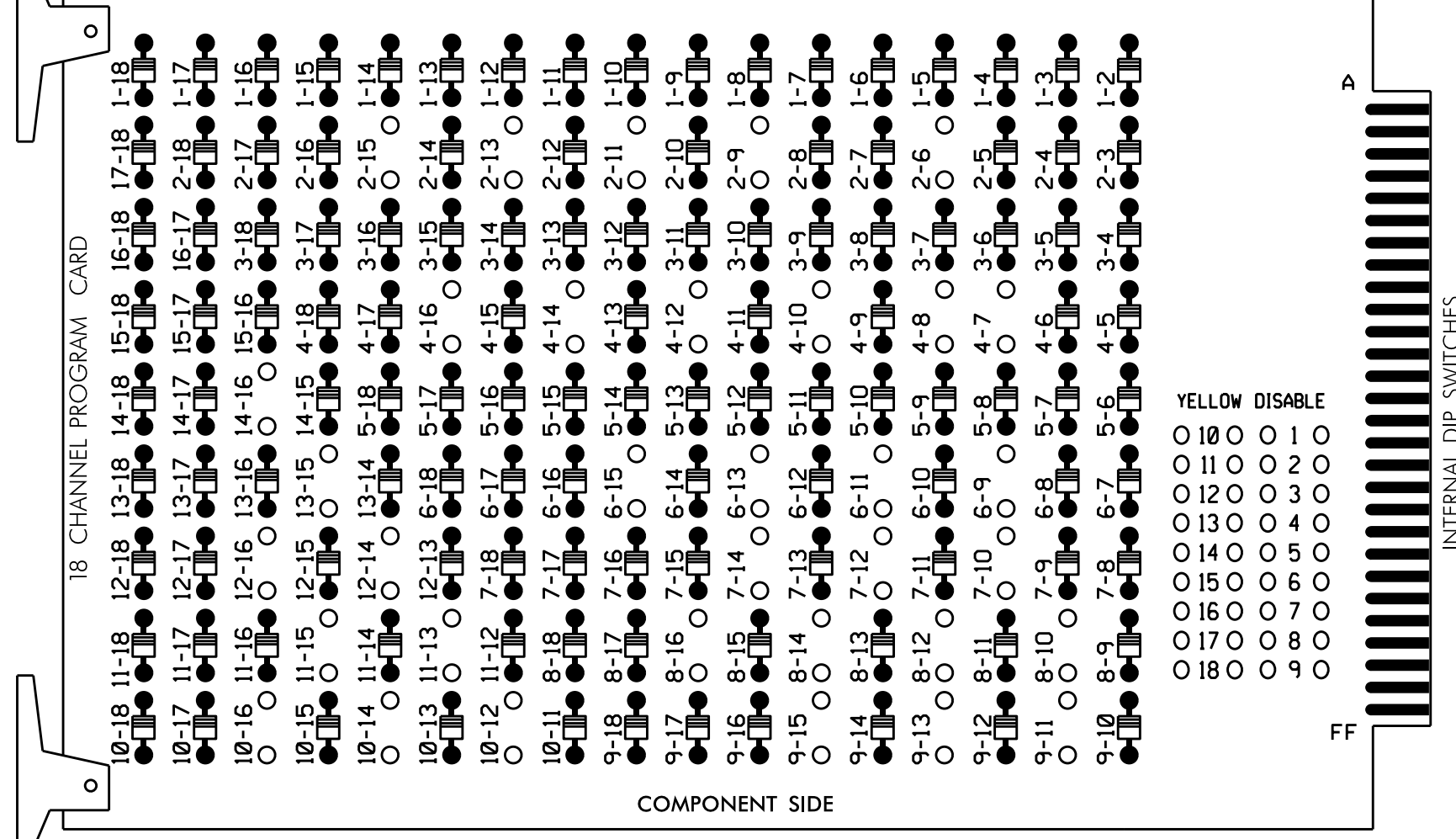
SEAL

4/24/2015

SIG. INVENTORY NO. 07-0762

EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL
(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 2-13, 2-15, 4-7, 4-8, 4-10, 4-12, 4-14, 4-16, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 7-14, 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.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2, 4, 6 and 8 for 'STARTUP PED CALL'.
6. Program phases 2 and 6 for Yellow Flash and overlaps 1 and 2 as Wag Overlaps.
7. The cabinet and controller are part of the High Pint Signal System.

EQUIPMENT INFORMATION

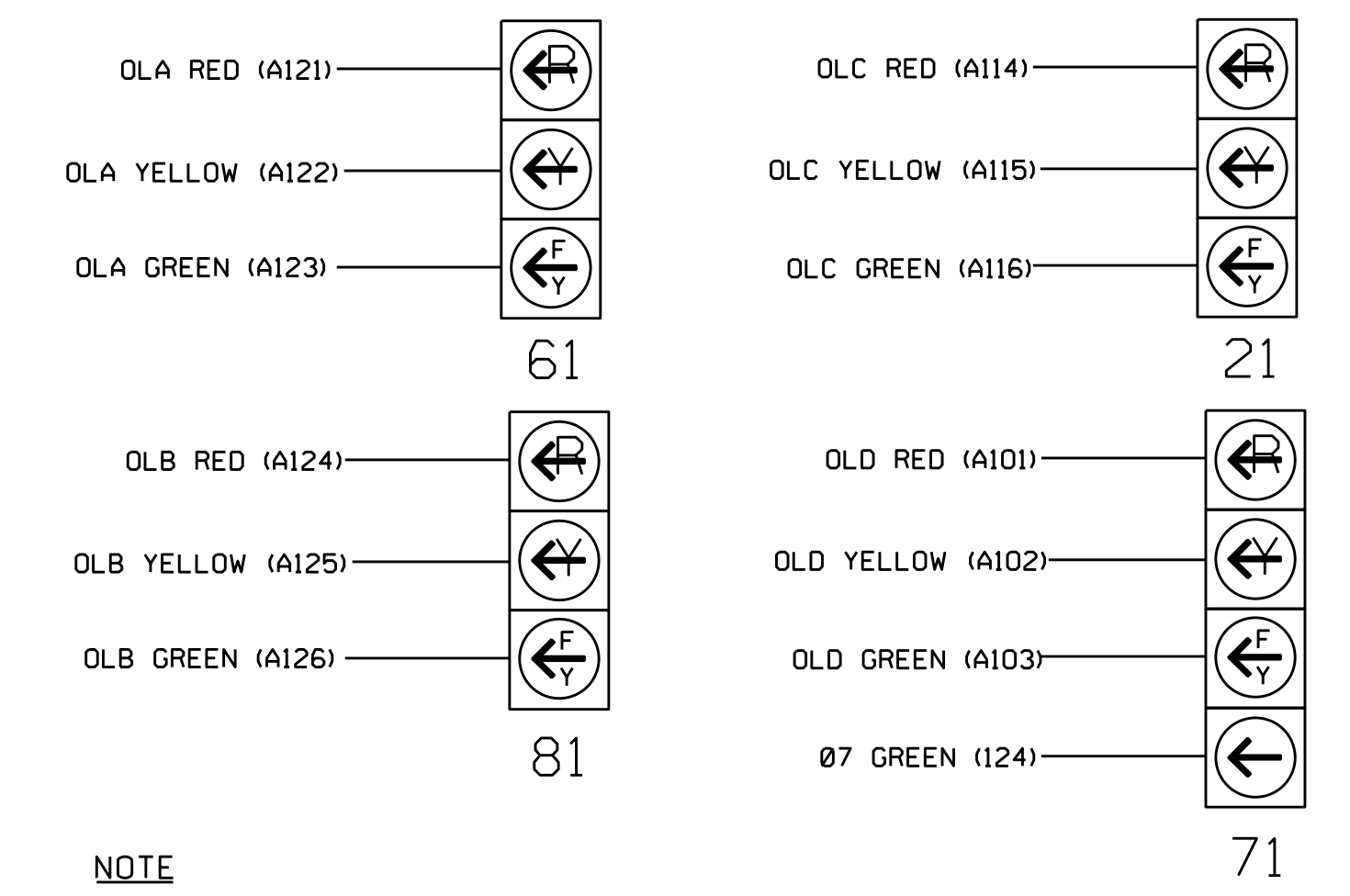
CONTROLLER.....2070L
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S3,S5,S6,S8,S9,S10,S11,S12,
 AUX S1,AUX S2,AUX S4,AUX S5.
 PHASES USED.....2,4,6,7,8,2 PED,4 PED,6 PED,8 PED.
 OVERLAP "A".....2
 OVERLAP "B".....4
 OVERLAP "C".....6
 OVERLAP "D".....7+8

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.	NU	22,23	P21, P22	NU	41,42	P41, P42	NU	62,63	P61, P62	71*	82,83	P81, P82	61*	81*	NU	21*	71*	NU
RED		128			101			134			107							
YELLOW		129			102			135		*	108							
GREEN		130			103			136			109							
RED ARROW														A121	A124		A114	A101
YELLOW ARROW														A122	A125		A115	A102
FLASHING YELLOW ARROW														A123	A126		A116	A103
GREEN ARROW										124								
Hand icon				113		104		119			110							
Walking person icon				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.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL
(wire signal heads as shown)



INPUT FILE POSITION LAYOUT
(from view)

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

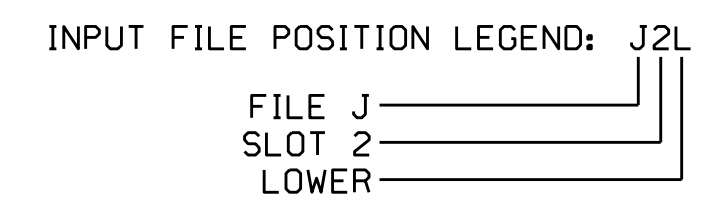
EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 ⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
2C	TB2-9,10	I3U	63	25	32	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			10
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
6C	TB3-9,10	J3U	64	26	36	6	Y	Y			
7A ¹	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11	24	4	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			10
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29		PED 2		2 PED			
P41,P42	TB8-5,6	I12L	69	31		PED 4		4 PED			
P61,P62	TB8-7,9	I13U	68	30		PED 6		6 PED			
P81,P82	TB8-8,9	I13L	70	32		PED 8		8 PED			

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

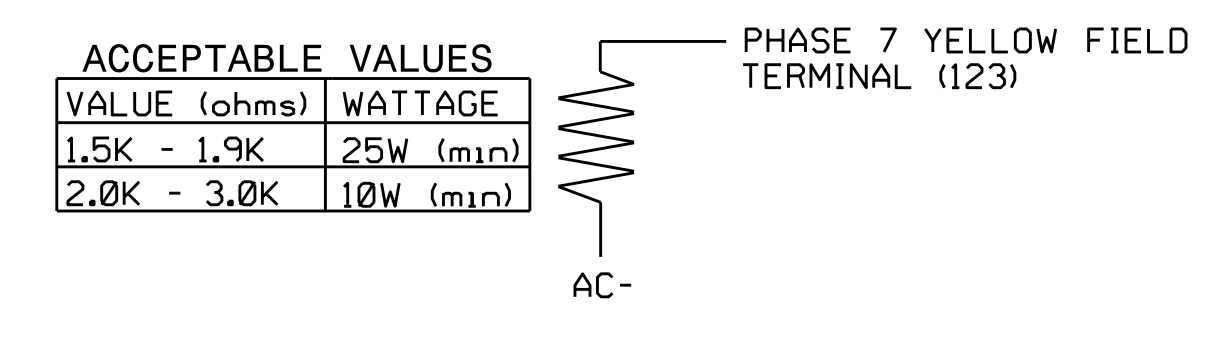
¹Add jumper from J5-W to I8-W, on rear of input file.
 * System detector only. Remove the vehicle phase assigned to this detector in the default programming.



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.

LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown below)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0762
 DESIGNED: September 2014
 SEALED: 4-24-15
 REVISED: N/A

ELECTRICAL DETAIL SHEET 1 OF 2

Electrical and Programming Details For: SR 1009 (North Main Street) at Parkway Avenue

Division 7 Guilford County High Point

PLAN DATE: October 2014 REVIEWED BY: JTR

PREPARED BY: James Peterson REVIEWED BY:

REVISIONS INIT. DATE

Seal: JOHN T. ROWE, INC. ENGINEER

DocuSigned by: John T. Rowe, Jr. 5/5/2015

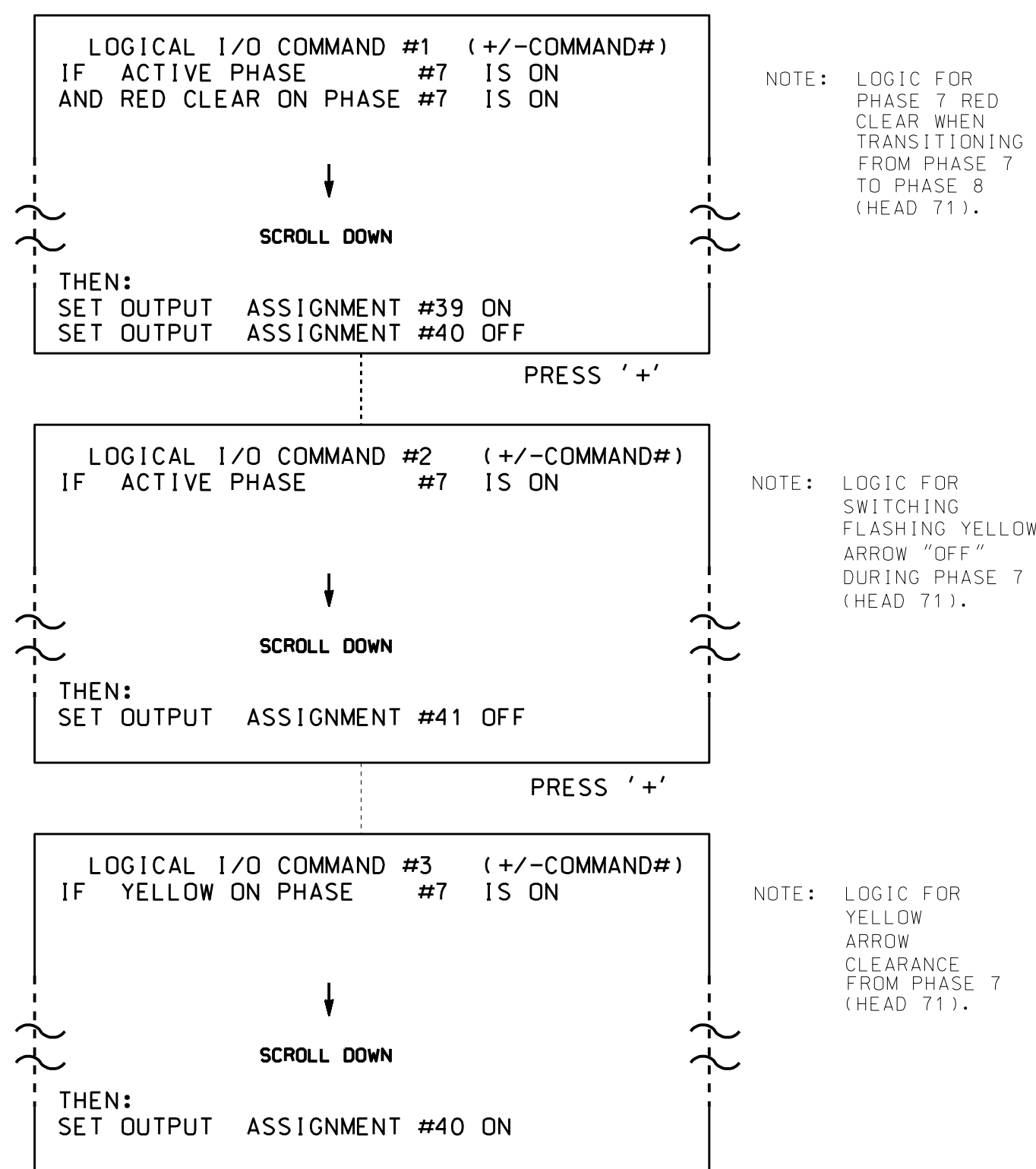
SIG. INVENTORY NO. 07-0762

05-MAY-2015 07:07
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 J.peterson

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS), SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, and 3.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



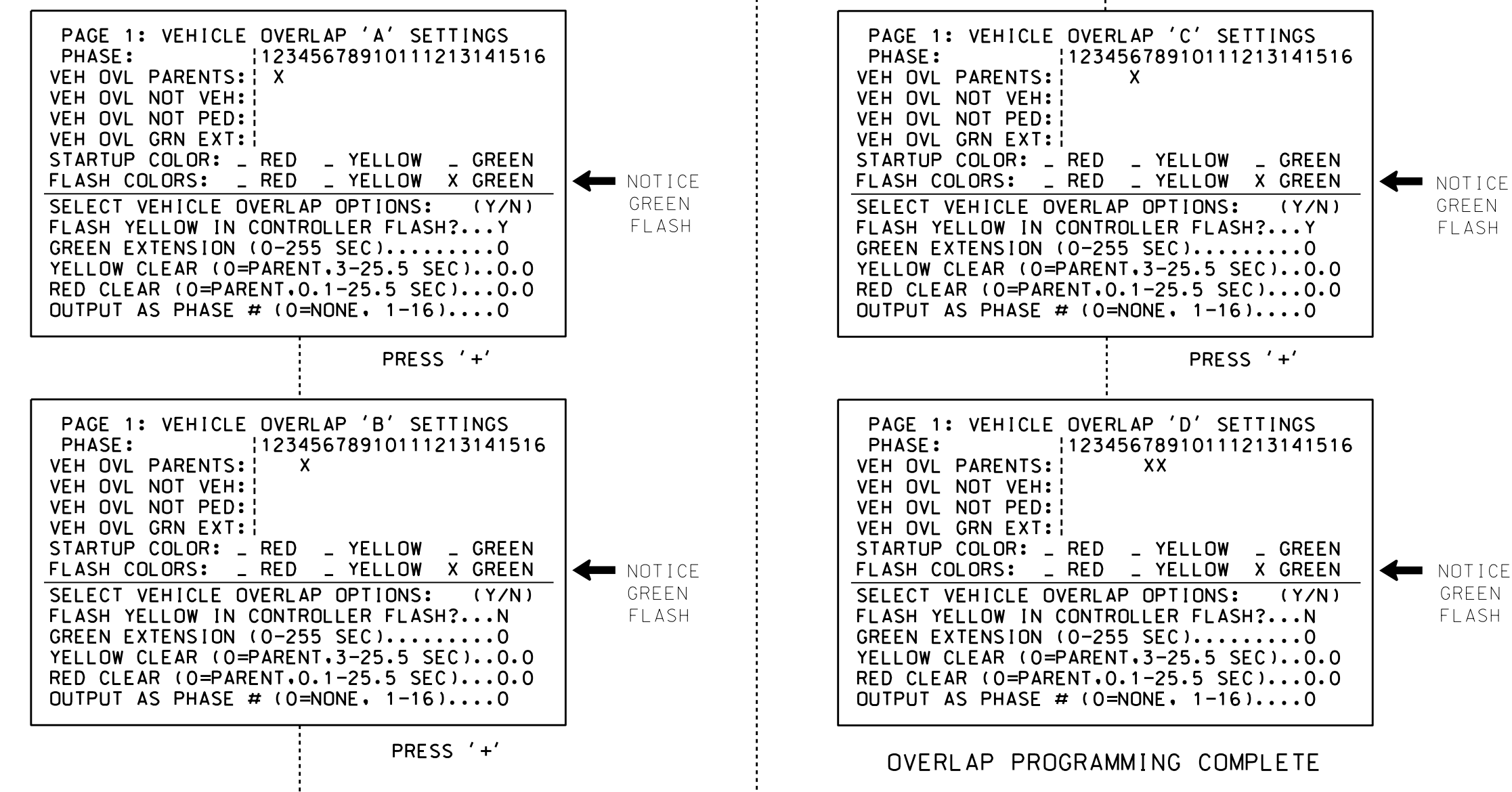
LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE	
OUTPUT 39	= Overlap D Red
OUTPUT 40	= Overlap D Yellow
OUTPUT 41	= Overlap D Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).



FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

ACCESSIBLE PEDESTRIAN SIGNAL (APS) INSTALLATION NOTES

- Install push buttons and APS equipment per manufacturer's instructions.
- Provide a dedicated cable to each push button per manufacturer's instructions.
- If APS equipment is mounted in cabinet, use filtered power (i.e., Controller Receptacle) to power APS equipment. Do not use Equipment Receptacle, which is a GFCI outlet.
- Never attempt to operate a standard contact closure push button with the APS system unless cabinet is re-wired for standard button operation or unless explicitly allowed by the manufacturer.
- Place manufacturer's instructions in cabinet with cabinet prints, signal plans, and electrical details.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0762
DESIGNED: September 2014
SEALED: 4-24-15
REVISED: N/A

ELECTRICAL DETAIL SHEET 2 OF 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1009 (North Main Street) at Parkway Avenue		SEAL JOHN T. ROWE, JR. ENGINEER
	Division 7 PLAN DATE: October 2014 PREPARED BY: James Peterson	GUILFORD COUNTY High Point REVIEWED BY: JTR REVIEWED BY:		DocuSigned by: John T. Rowe, Jr. 5/5/2015 DATE SIG. INVENTORY NO. 07-0762

PHASING DIAGRAM

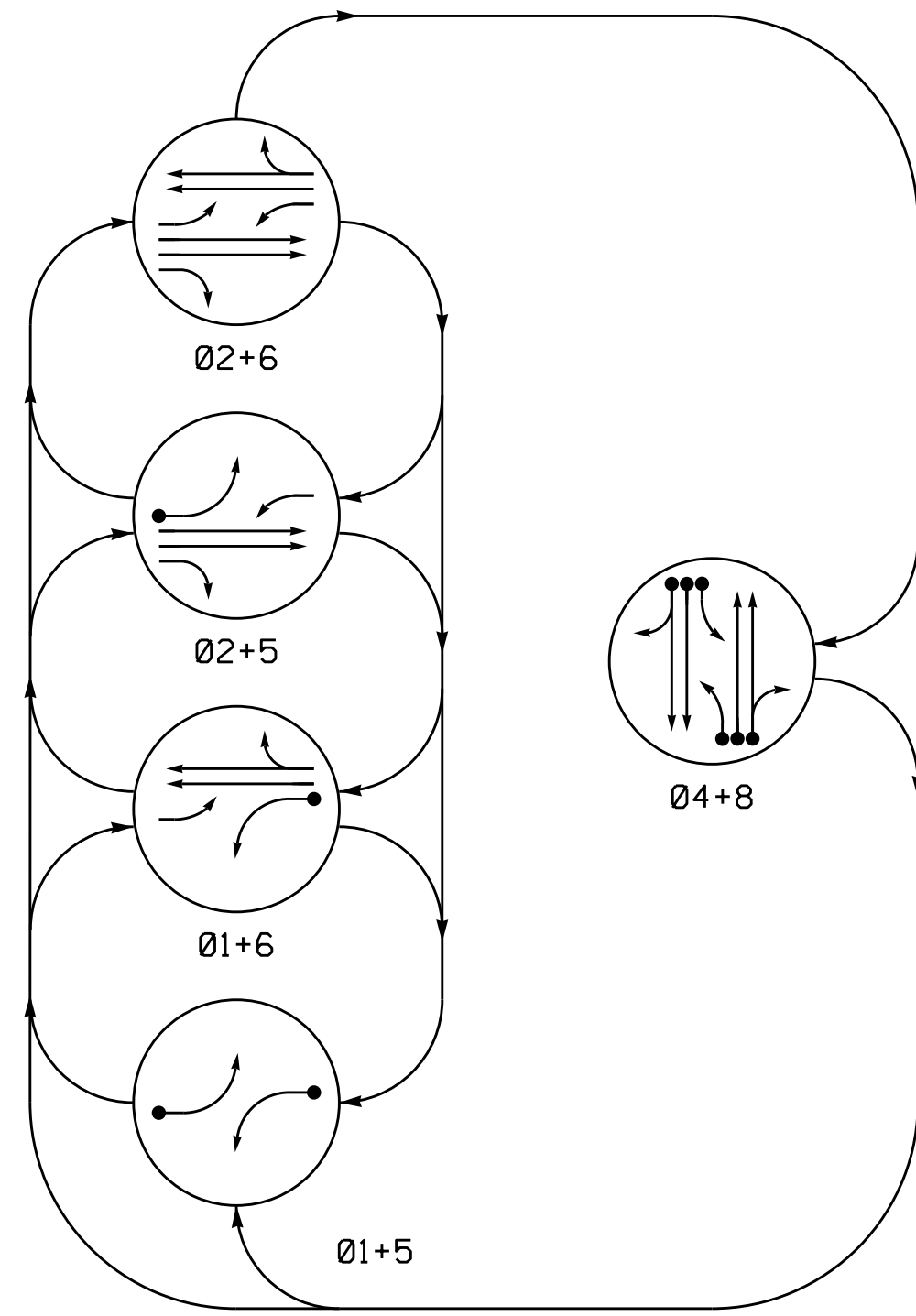


TABLE OF OPERATION

SIGNAL FACE	PHASE					
	01+5	01+6	02+5	02+6	04+8	04+8
11	←	←	←	←	←	←
22, 23, 24	R	R	G	G	R	Y
41, 42, 43	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	Y
81, 82, 83	R	R	R	R	G	R

PHASING DIAGRAM DETECTION LEGEND

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

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				LOOP SYSTEM	NEW CARD			
					PHASE	CALLING	EXTENSION	FULL TIME DELAY			STRETCH TIME	DELAY TIME	
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	Y	
4A, 8A	6X40	+5/0	2-4-2	-	4/8	Y	Y	-	-	3	-	Y	
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	Y	
4C	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	Y	
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y	
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	-	-	Y	
8C	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-	Y	
S1	6X6	+180	EXIST	-	-	-	-	-	-	-	-	Y	Y
S2	6X6	+180	EXIST	-	-	-	-	-	-	-	-	Y	Y

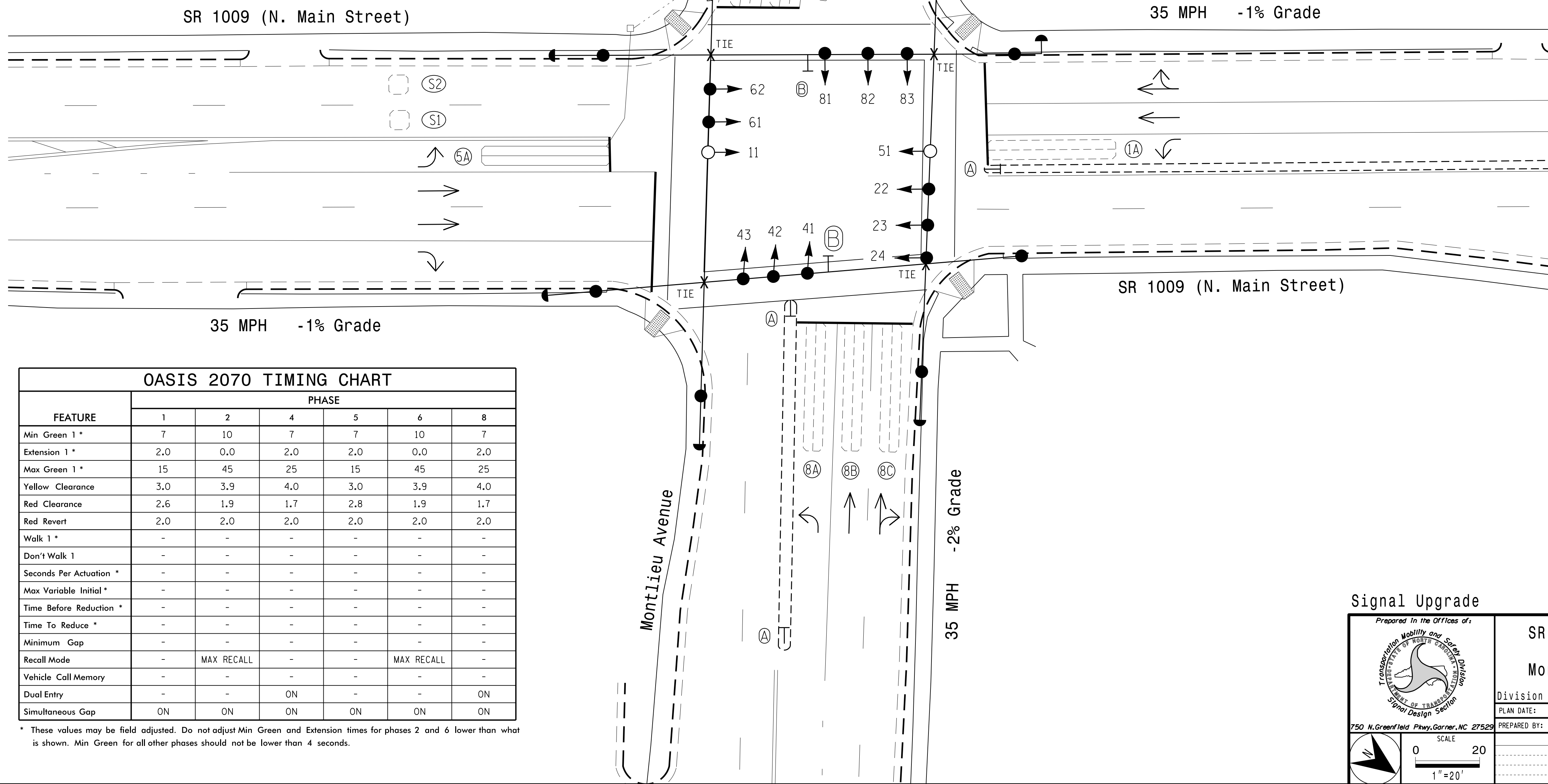
SIGNAL FACE I.D.

- All Heads L.E.D.
- ⊕ = Bimodal Section
- ⊕ 12" (Signal Face 11, 51)
- ⊕ 12" (Signal Face 22, 23, 24, 41, 42, 43, 61, 62, 81, 82, 83)

5 Phase Semi-Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- 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.
- Existing lane control signs may be removed at the direction of the Engineer.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE					
	1	2	4	5	6	8
Min Green 1 *	7	10	7	7	10	7
Extension 1 *	2.0	0.0	2.0	2.0	0.0	2.0
Max Green 1 *	15	45	25	15	45	25
Yellow Clearance	3.0	3.9	4.0	3.0	3.9	4.0
Red Clearance	2.6	1.9	1.7	2.8	1.9	1.7
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MAX RECALL	-	-	MAX RECALL	-
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

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

LEGEND

- | PROPOSED | EXISTING |
|--|---|
| ○ → Traffic Signal Head | ● → Traffic Signal Head |
| ○ → Modified Signal Head | N/A |
| ⊕ → Pedestrian Signal Head With Push Button & Sign | N/A |
| ⊕ → Signal Pole with Guy | ⊕ → Signal Pole with Guy |
| ⊕ → Signal Pole with Sidewalk Guy | ⊕ → Signal Pole with Sidewalk Guy |
| ⊕ → Inductive Loop Detector | ⊕ → Inductive Loop Detector |
| ⊕ → Controller & Cabinet | ⊕ → Controller & Cabinet |
| ⊕ → Junction Box | ⊕ → Junction Box |
| --- 2-in Underground Conduit | --- 2-in Underground Conduit |
| N/A → Right of Way | N/A → Right of Way |
| N/A → Directional Arrow | N/A → Directional Arrow |
| N/A → Curb Ramp | N/A → Curb Ramp |
| ⊕ → No U-Turn Sign (R3-4) | ⊕ → No U-Turn Sign (R3-4) |
| ⊕ → Left Arrow "ONLY" Sign (R3-5L) | ⊕ → Left Arrow "ONLY" Sign (R3-5L) |
| ⊕ → Through Arrow "ONLY" Sign (R3-5A) | ⊕ → Through Arrow "ONLY" Sign (R3-5A) |
| ⊕ → Combined Through and Right Arrow Sign (R3-6R) | ⊕ → Combined Through and Right Arrow Sign (R3-6R) |

Signal Upgrade

SR 1009 (N. Main Street) at Montlieu Ave./Sunset Dr.

Division 7 Guilford County High Point

PLAN DATE: August 2014 PREPARED BY: R.N. Zinser

PREPARED BY: Jeff Spence REVIEWED BY:

SEAL

ROBERT J. ZINSER

ENGINEER

026486

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE 0 20 1"=20'

REVISIONS: _____ DATE: _____

INIT: _____ DATE: _____

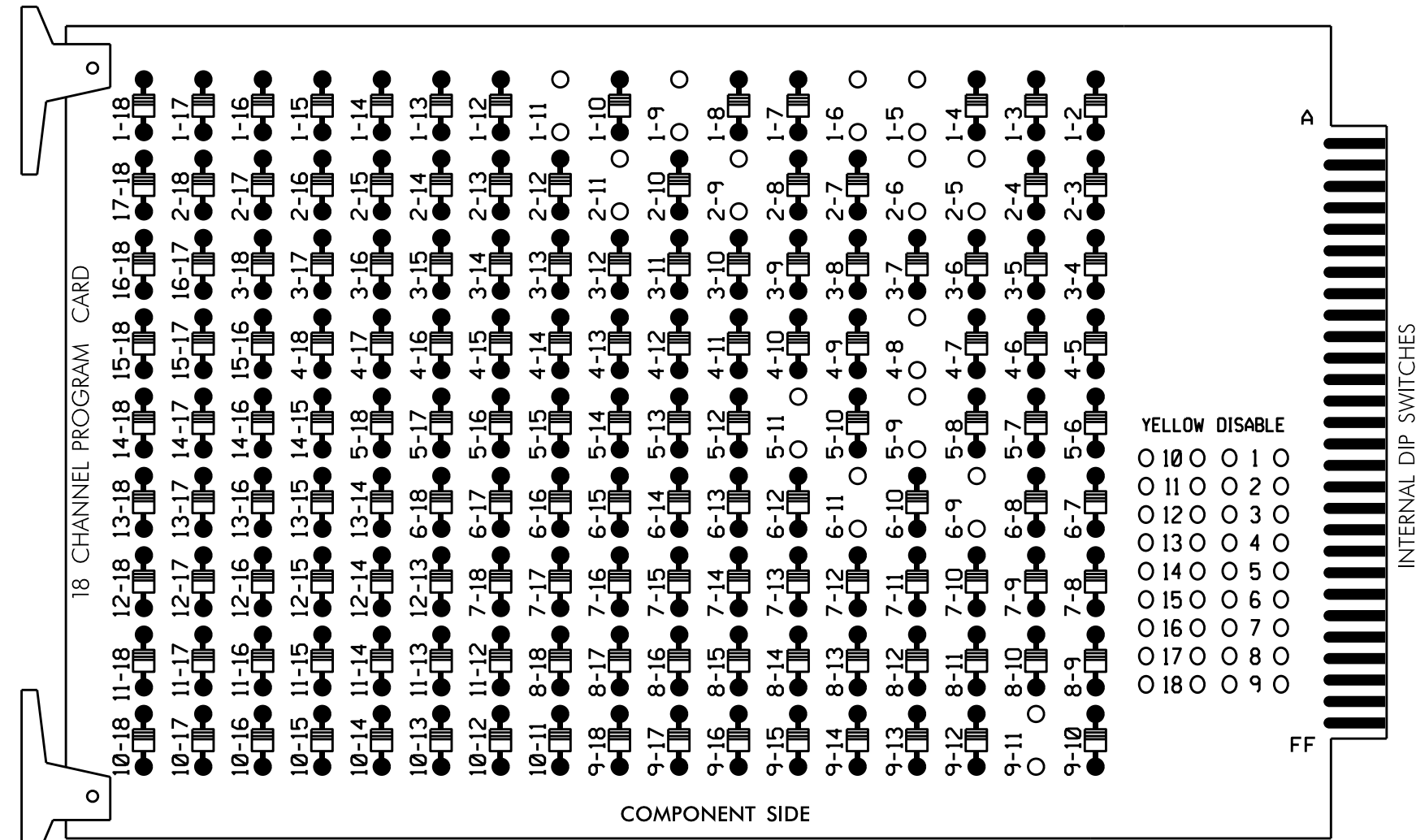
SIG. INVENTORY NO. 07-0763

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 RZ:terbo

EDI MODEL 2018ECLIP-NC 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, 4-8, 5-9, 5-11, 6-9, 6-11 and 9-11.



REMOVE JUMPERS AS SHOWN

NOTES:

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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S11,AUX S1,AUX S4
 PHASES USED.....1,2,4,5,6,8
 OVERLAP "A".....1+2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....5+6
 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	22, 23, 24	NU	NU	41, 42, 43	NU	51	61, 62	NU	NU	81, 82, 83	NU	11	NU	NU	51	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127							133										

NU = Not Used

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

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1 1A	S	S	S	S	∅ 4/8 4A, 8A	∅ 4 4C	S	SYS. DET. S1	S	S	S	S	FS DC ISOLATOR
L	NOT USED					∅ 4 4B	NOT USED		SYS. DET. S2					ST DC ISOLATOR
U	∅ 5 5A	S	S	S	S	∅ 8 8B	S	S	S	S	S	S	S	S
L	NOT USED					∅ 8 8C								

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

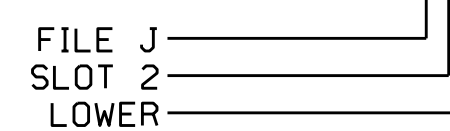
FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			15
4A, 8A	TB4-9,10	I6U	41	3	4	4/8	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			10
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			15
8B	TB5-9,10	J6U	42	4	8	8	Y	Y			
8C	TB5-11,12	J6L	46	8	18	8	Y	Y			10
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					

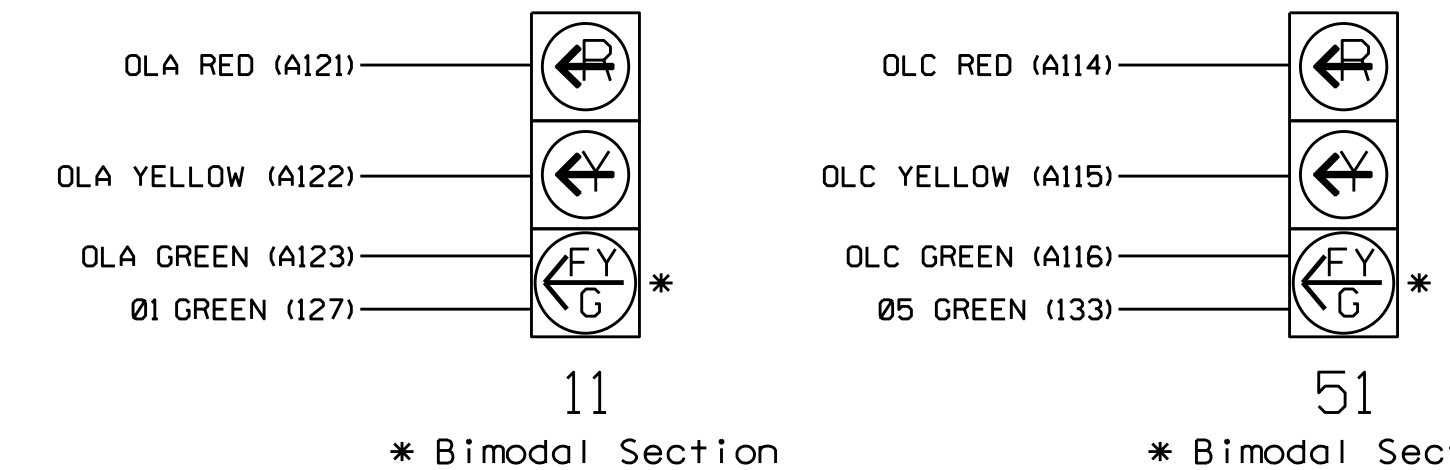
* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

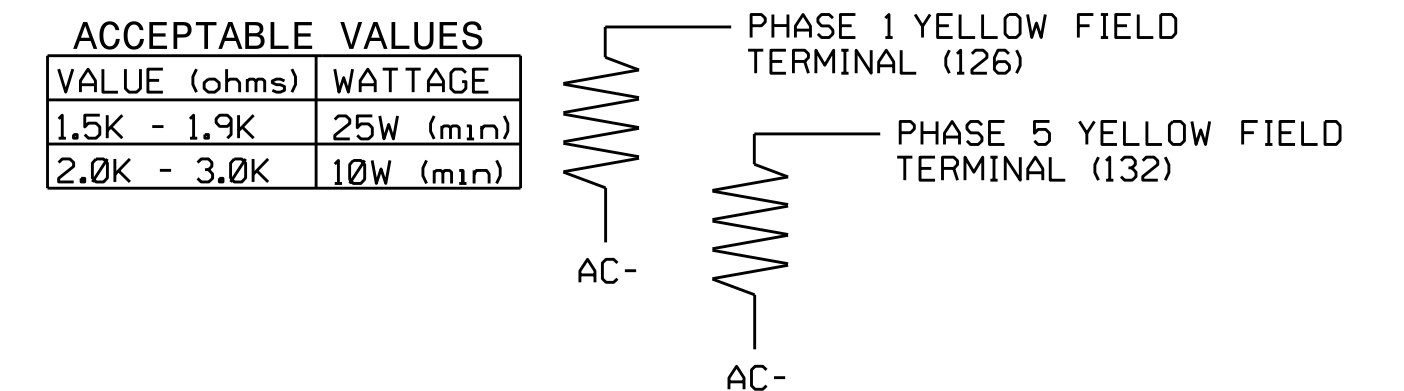


NOTE

1. The sequence display for these signals require special logic programming. See sheet 2 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1009 (N. Main Street) at Montlieu Ave./Sunset Dr.		SEAL SEAL GEORGE C. BROWN ENGINEER 4/29/2015
	Division 7 PLAN DATE: January 2015 PREPARED BY: C. Strickland	Guilford County High Point REVIEWED BY: T. Joyce REVIEWED BY:	
	REVISIONS INIT. DATE	DATE	

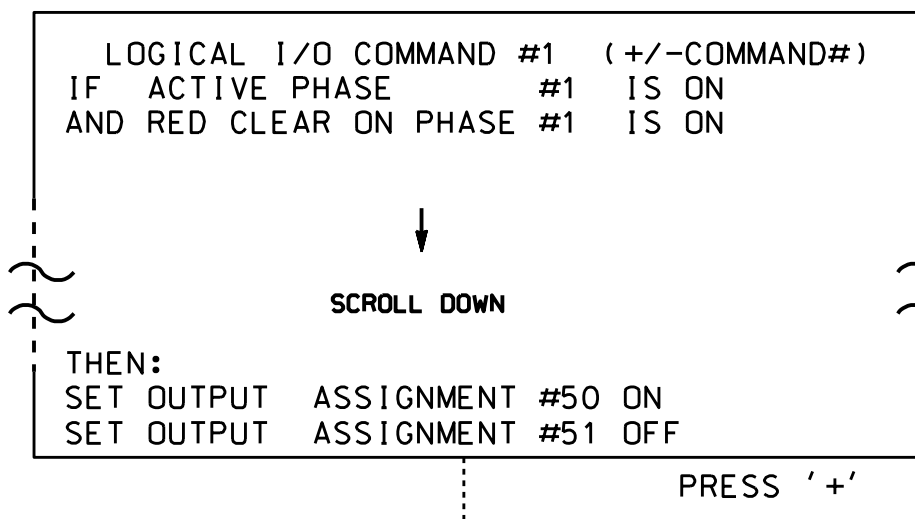
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0763
 DESIGNED: August 2014
 SEALED: 4/23/2015
 REVISED: N/A

20-488-2015_08.dgn
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 C:\STRICKLAND

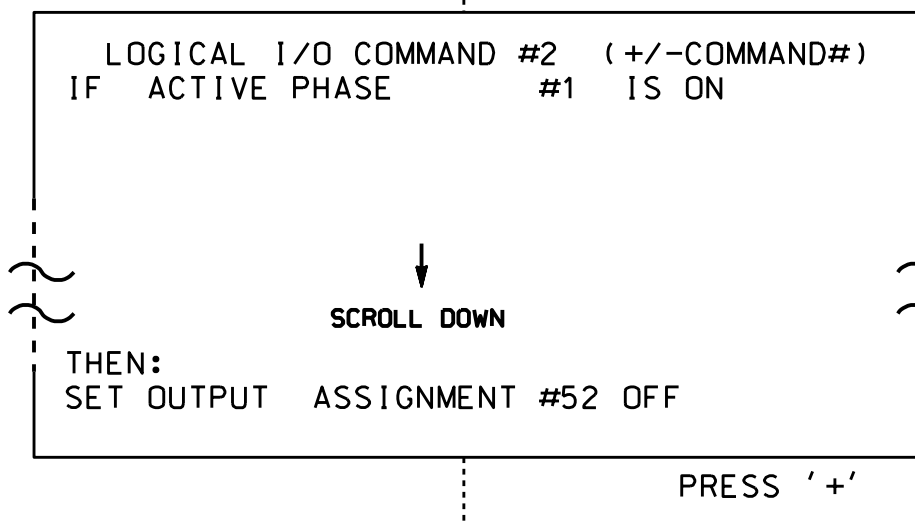
**LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE**

(program controller as shown below)

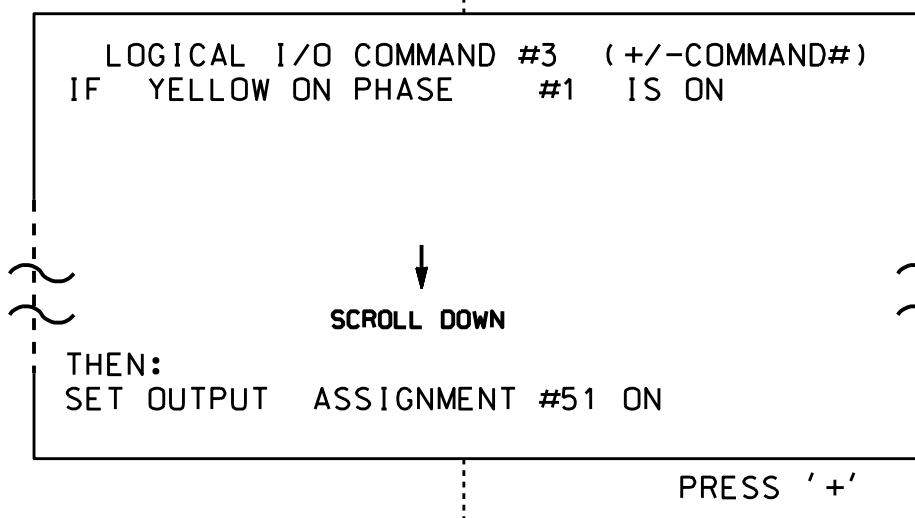
- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



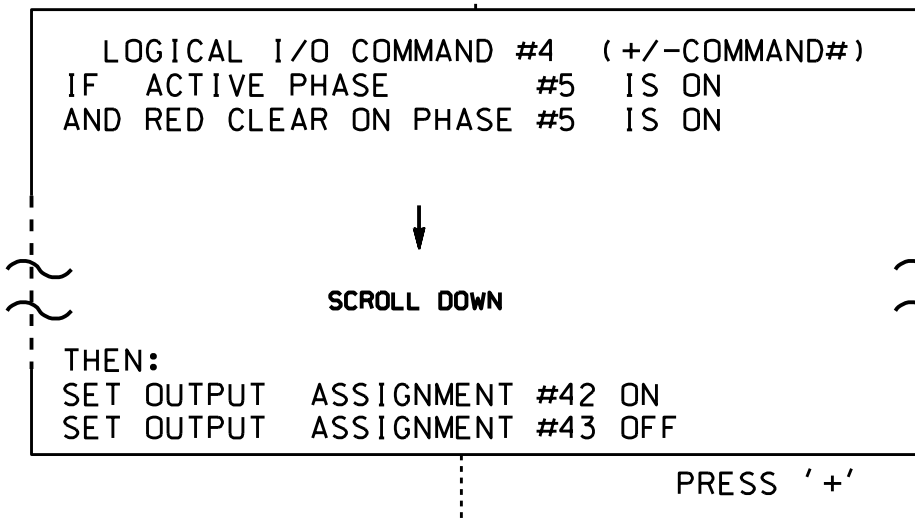
NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).



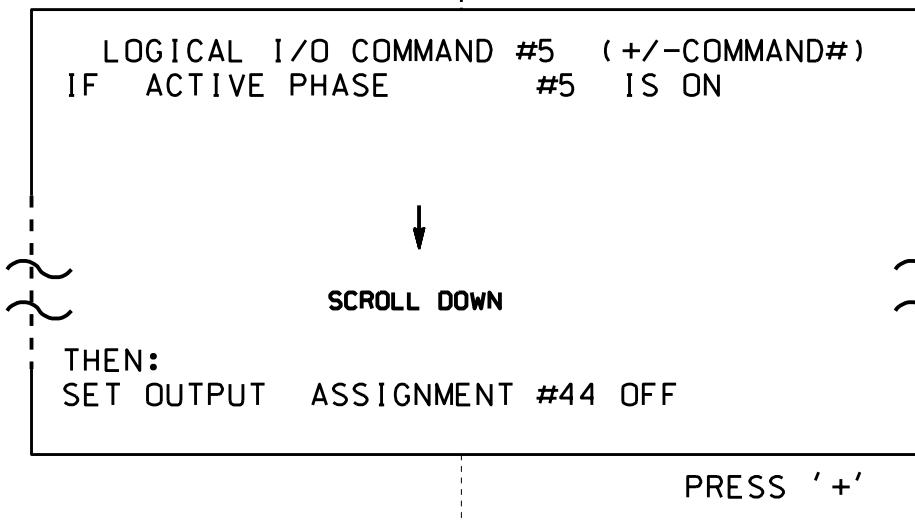
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).



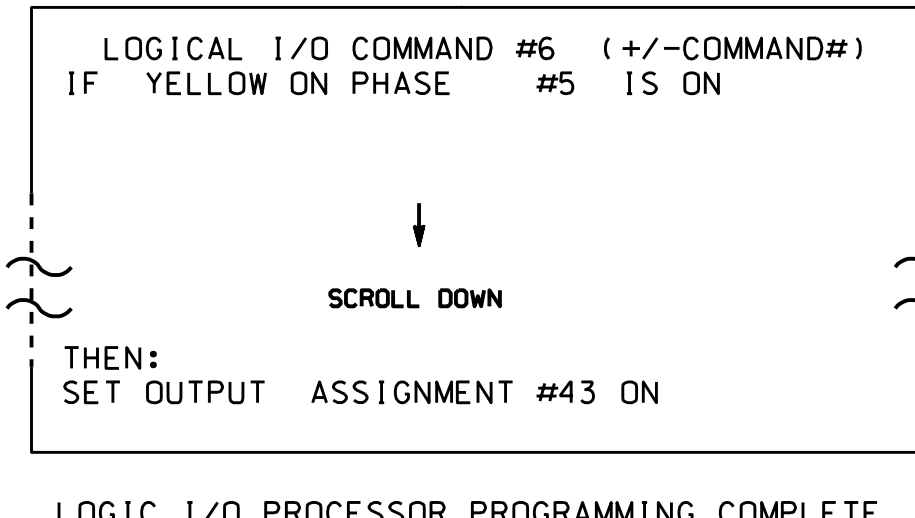
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).



NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).



NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).



NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

- OUTPUT 42 = Overlap C Red
- OUTPUT 43 = Overlap C Yellow
- OUTPUT 44 = Overlap C Green
- OUTPUT 50 = Overlap A Red
- OUTPUT 51 = Overlap A Yellow
- OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

PRESS '+' TWICE


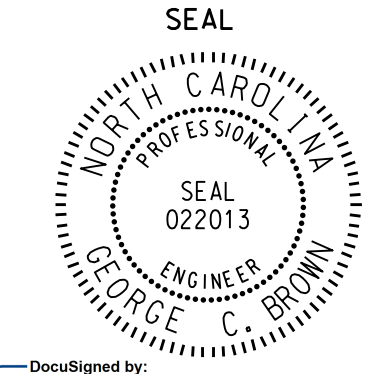
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: : XX
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

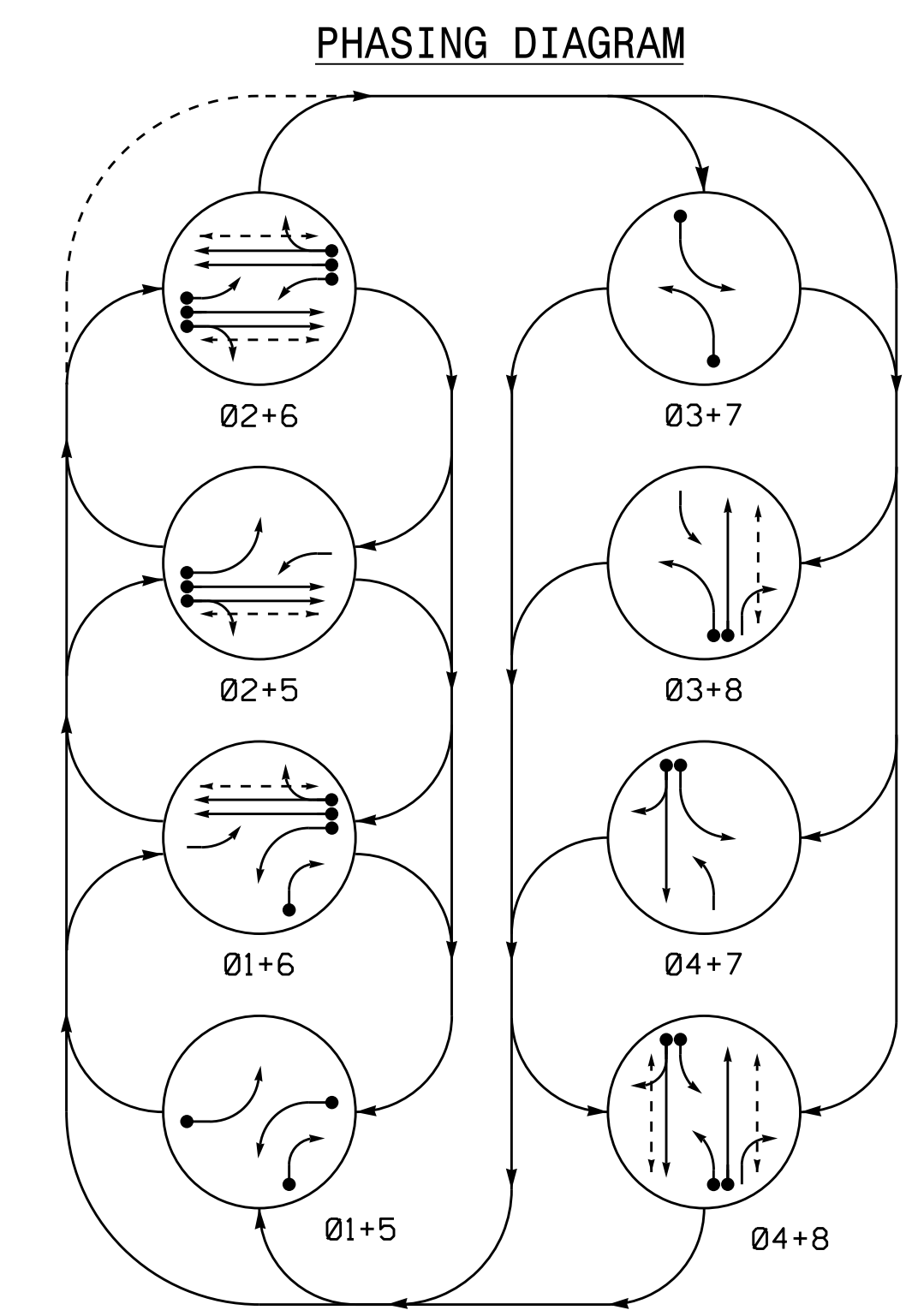
OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0763
DESIGNED: August 2014
SEALED: 4/23/2015
REVISED: N/A

Electrical Detail - Sheet 2 of 2

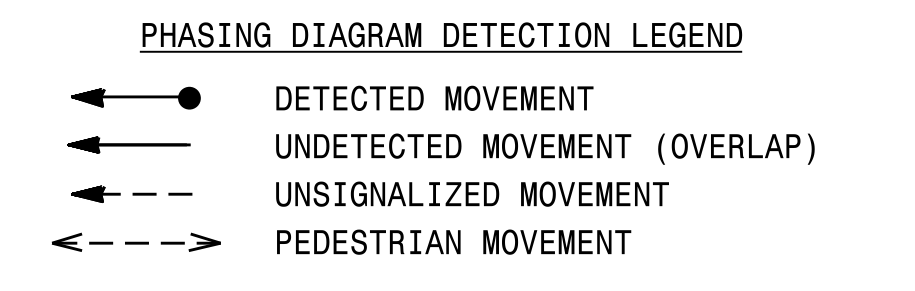
	ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1009 (N. Main Street) at Montlieu Ave./Sunset Dr.	SEAL 
	Prepared In the Offices of: T. Strickland 750 N. Greenfield Pkwy, Garner, NC 27529	Division 7 Guilford County High Point PLAN DATE: January 2015 REVIEWED BY: T. Joyce PREPARED BY: C. Strickland REVIEWED BY:	REVISIONS INIT. DATE

20-1000-2015-08-02
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SIGNAL FACE	PHASE							
	01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8
11	-	-	F	F	R	R	R	Y
21, 22	R	R	G	G	R	R	R	Y
31	R	R	R	R	-	F	F	R
41, 42	R	R	R	R	R	R	G	R
51	-	F	-	-	R	R	R	Y
61, 62	R	G	R	G	R	R	R	Y
71	R	R	R	R	-	F	F	R
81	R	R	R	R	R	G	G	R
82	R	R	R	R	R	G	G	R
P21, P22	DW	DW	W	W	DW	DW	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	W	DW	W	DRK

W - Walk
 DW - Don't Walk
 DRK - Dark



SIGNAL FACE	INTERVAL	
	1	2
101, 103	ON	OFF
102, 104	OFF	ON

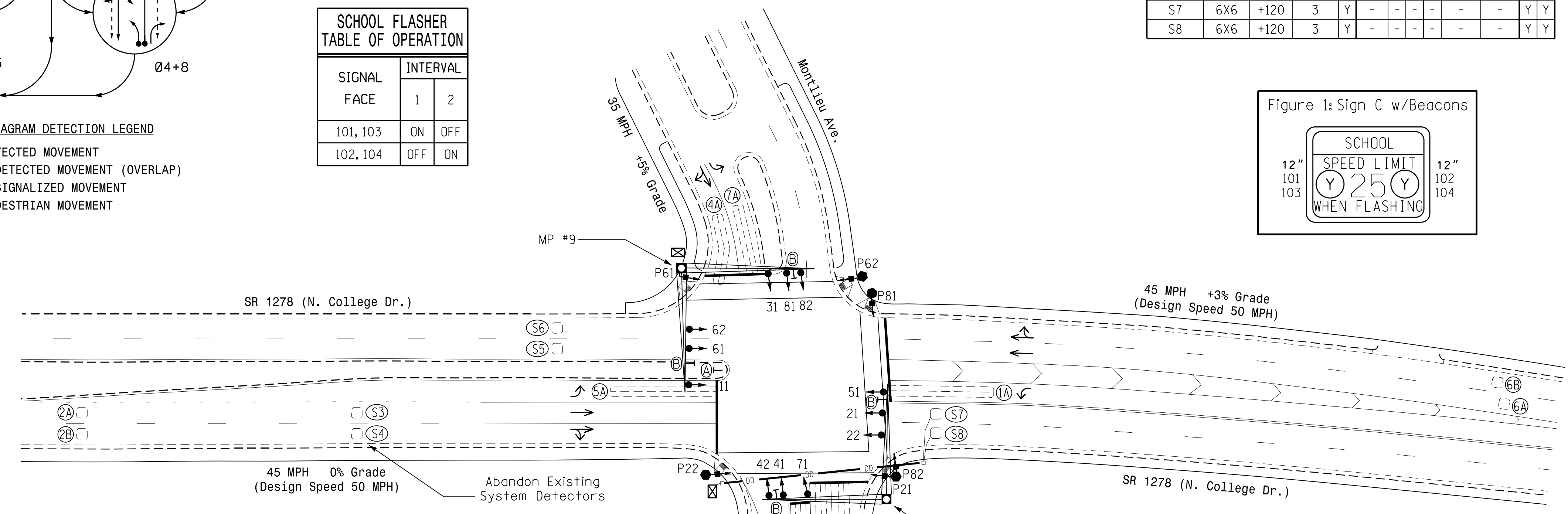
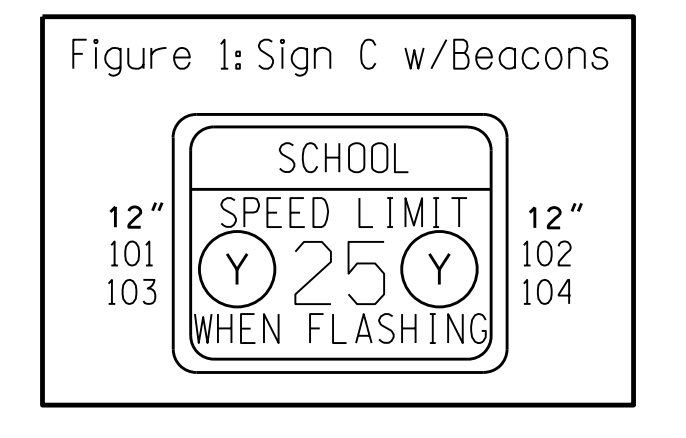
SIGNAL FACE	VOICE	TONES	ACCESSIBLE PEDESTRIAN SIGNAL OPERATION	
			INTERVAL	SPEECH MESSAGE
P21	X	-	Walk	Montlieu. Walk sign is on to cross Montlieu.
			Flashing Don't Walk / Don't Walk	Wait. Wait to cross Montlieu.
P22	-	X	Walk	(Rapid Ticks)
			Flashing Don't Walk / Don't Walk	-
P61	-	X	Walk	(Rapid Ticks)
			Flashing Don't Walk / Don't Walk	-
P62	-	X	Walk	(Rapid Ticks)
			Flashing Don't Walk / Don't Walk	-
P81	-	X	Walk	(Rapid Ticks)
			Flashing Don't Walk / Don't Walk	-
P82	X	-	Walk	North College. Walk sign is on to cross North College.
			Flashing Don't Walk / Don't Walk	Wait. Wait to cross North College.

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING						
					PHASE	CALLING	EXTENSION FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	+5	2-4-2	-	1	Y	Y	-	15	-	Y
1B	6X60	0	2-4-2	-	1	Y	Y	-	3	-	Y
2A, 2B	6X6	355	EXIST	-	2	Y	Y	-	-	-	Y
3A	6X60	0	2-4-2	-	3	Y	Y	-	15	-	Y
4A	6X40	+5	2-4-2	-	4	Y	Y	-	10	-	Y
5A	6X60	0	2-4-2	-	5	Y	Y	-	15	-	Y
6A, 6B	6X6	355	EXIST	-	6	Y	Y	-	-	-	Y
7A	6X40	0	2-4-2	-	7	Y	Y	-	15	-	Y
8A	6X60	0	2-4-2	-	8	Y	Y	-	-	-	Y
S1	6X6	EXIST	EXIST	-	-	-	-	-	-	-	Y
S3	6X6	200	EXIST	-	-	-	-	-	-	-	Y
S4	6X6	200	EXIST	-	-	-	-	-	-	-	Y
S5	6X6	EXIST	EXIST	-	-	-	-	-	-	-	Y
S6	6X6	EXIST	EXIST	-	-	-	-	-	-	-	Y
S7	6X6	+120	3	Y	-	-	-	-	-	-	Y
S8	6X6	+120	3	Y	-	-	-	-	-	-	Y

8 Phase Fully Actuated (High Point Signal System)

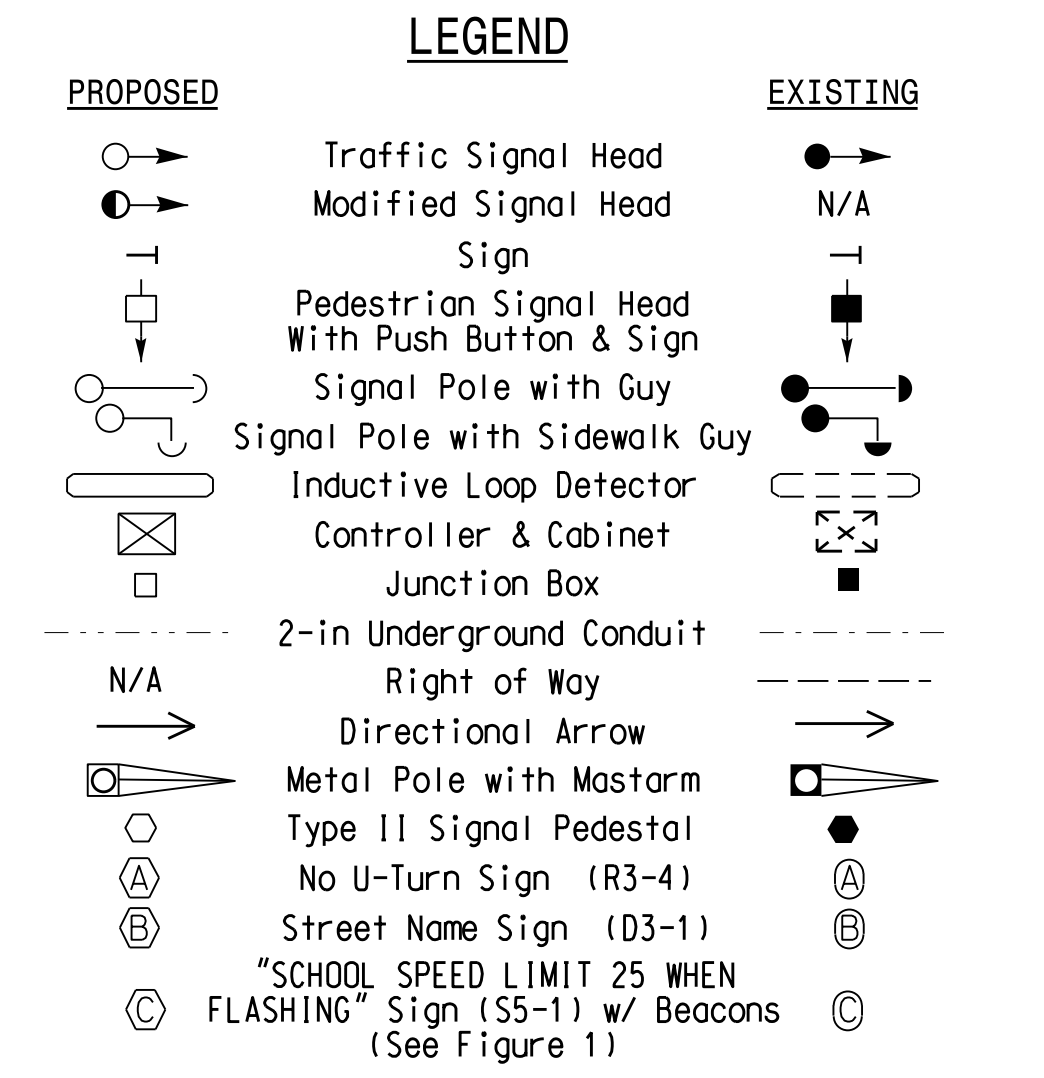
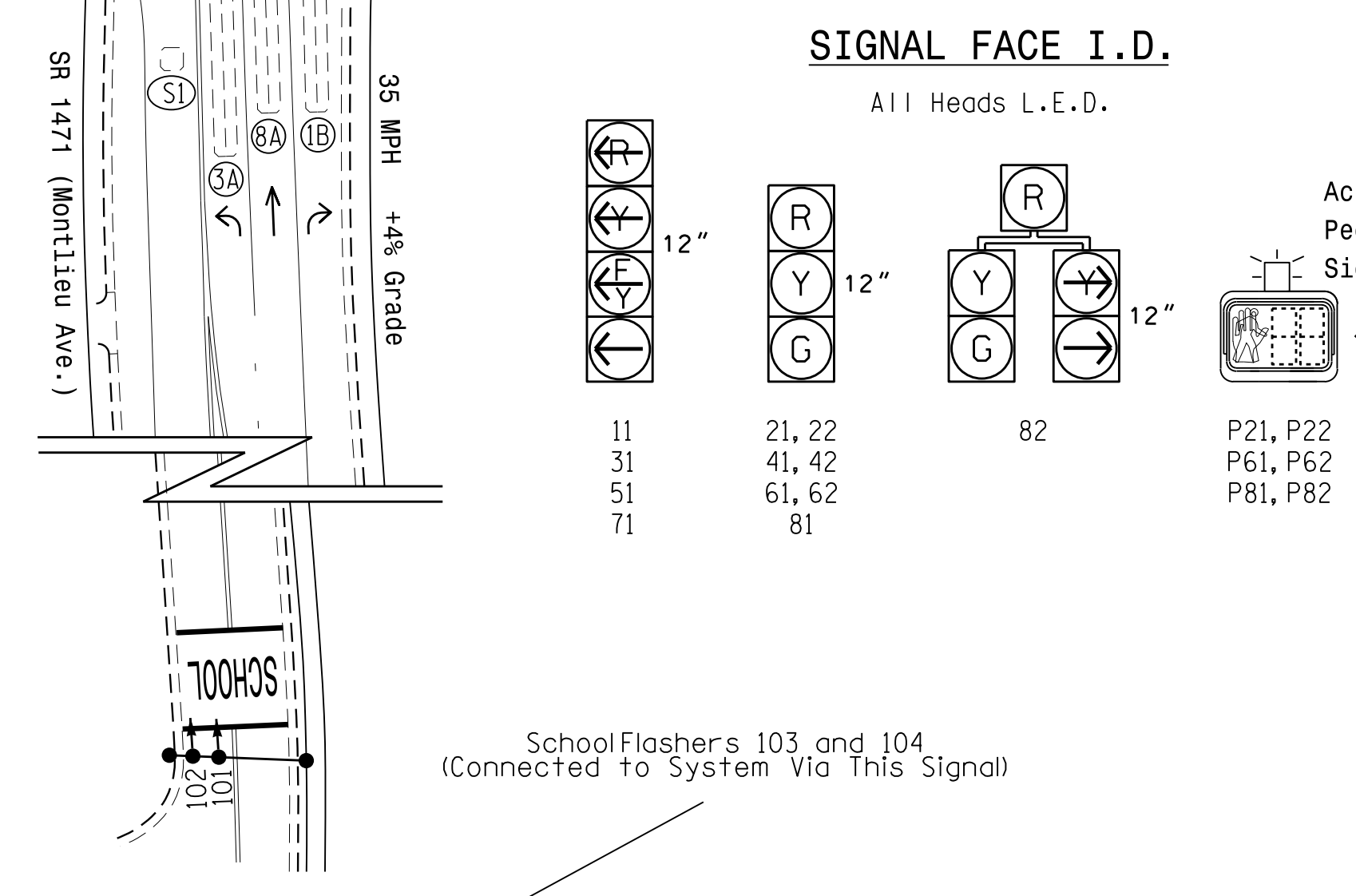
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Abandon existing system detectors S3 and S4.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- 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.
- Pavement markings are existing.
- The Division Traffic Engineer will determine the hours of use for the school warning beacons.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



FEATURE	OASIS 2070 TIMING CHART							
	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1*	7	12	7	7	7	12	7	7
Extension 1*	1.0	6.0	1.0	1.0	1.0	6.0	1.0	1.0
Max Green 1*	15	90	15	25	15	90	15	25
Yellow Clearance	3.0	4.8	3.0	3.6	3.0	4.8	3.0	3.6
Red Clearance	2.4	1.3	3.2	2.7	2.6	1.3	3.3	2.7
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1*	-	7	-	-	-	7	-	7
Don't Walk 1	-	21	-	-	-	19	-	21
Seconds Per Actuation*	-	1.5	-	-	-	1.5	-	-
Max Variable Initial*	-	40	-	-	-	40	-	-
Time Before Reduction*	-	15	-	-	-	15	-	-
Time To Reduce*	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode**	-	SOFT RECALL	-	-	-	SOFT RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
 ** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



Signal Upgrade

Prepared In the Offices of:
 TRANSPORTATION MOBILITY AND SAFETY DIVISION
 DIVISION OF TRANSPORTATION SIGNAL DESIGN SECTION
 750 N. Greenfield Pkwy, Garner, NC 27529

SR 1278 (N. College Dr.) at SR 1471 (Montlieu Ave.)

Division 7 Guilford County High Point

PLAN DATE: December 2014 REVIEWED BY:

PREPARED BY: R.N. Zinser REVIEWED BY:

REVISIONS: INIT. DATE

SCALE: 0 40
 1"=40'

SEAL
 ROBERT J. ZIEGLER
 ENGINEER
 026486
 3/6/2015
 SIG. INVENTORY NO. 07-0766

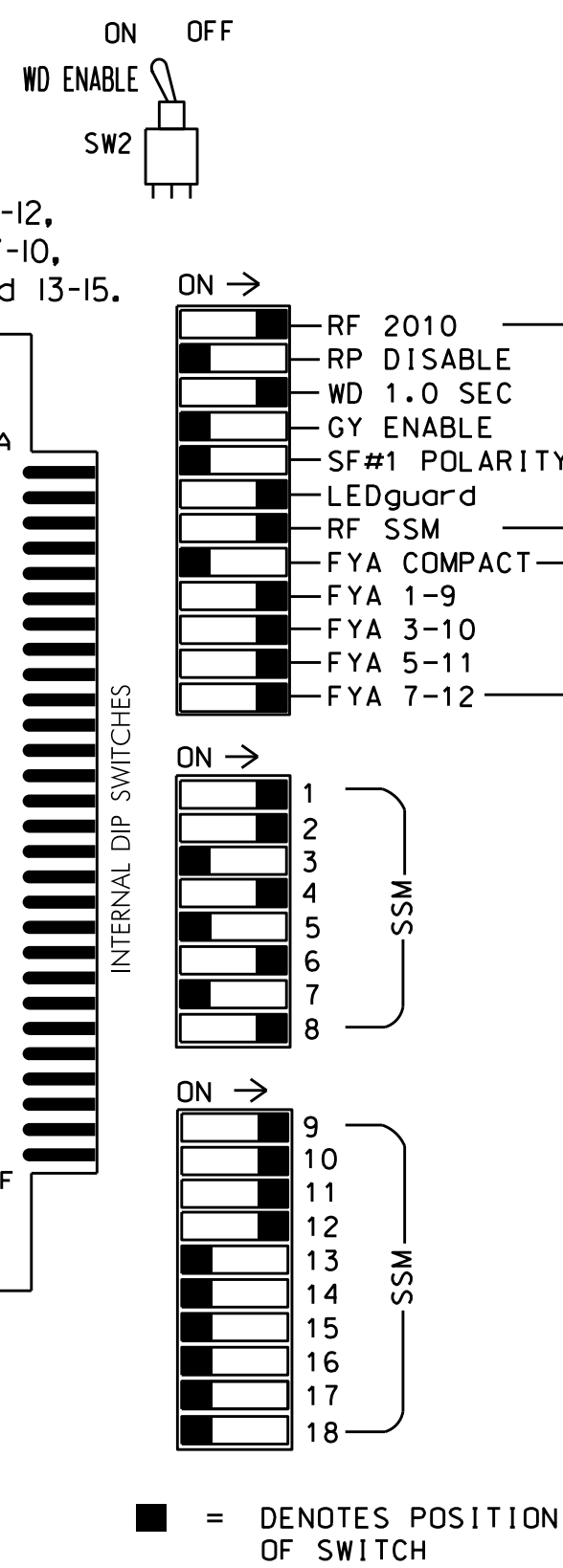
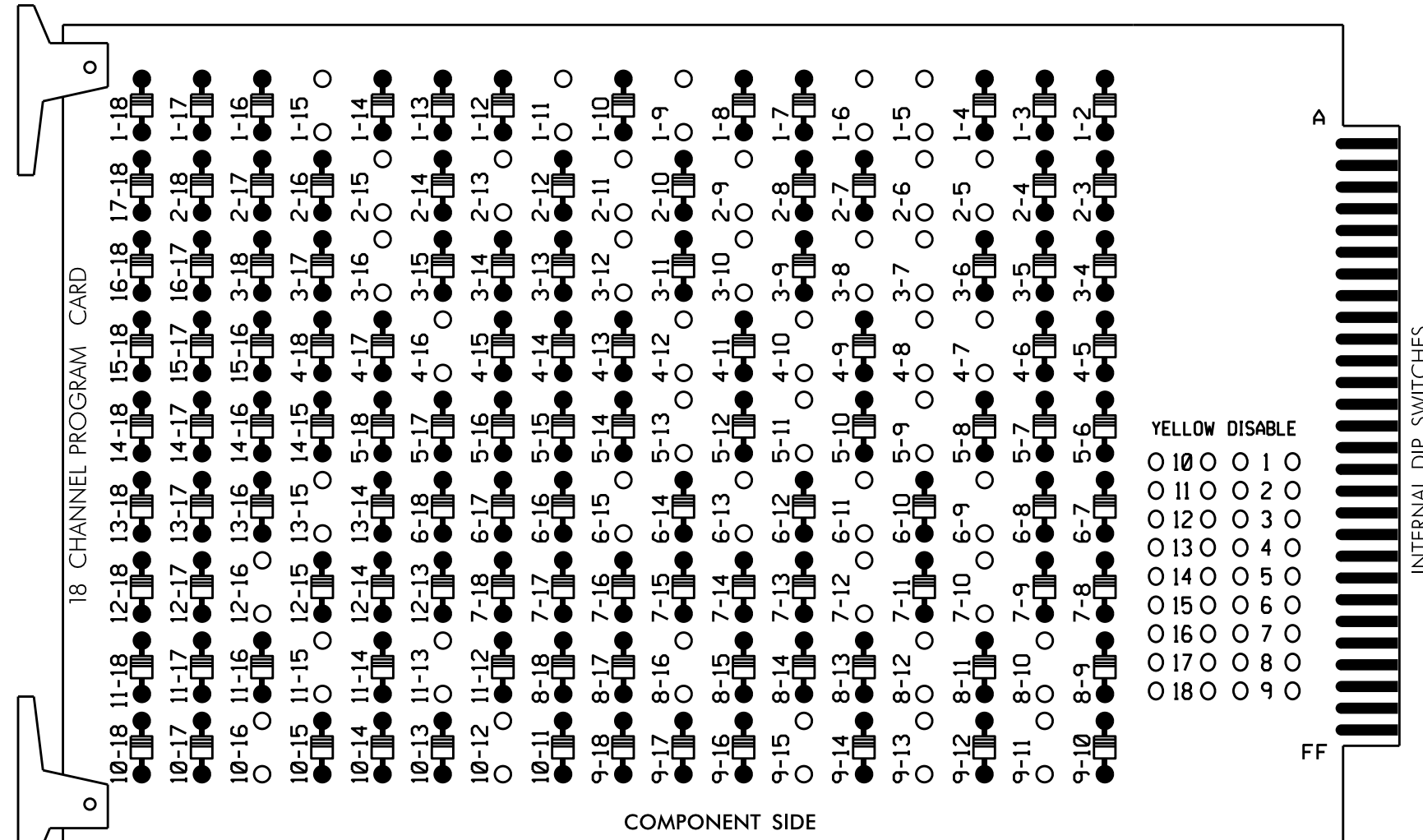
05-MAR-2015 15:16
 S:\MITSU\Signal Design\Section\Central\Region04\iv_74c-5558_High_Point\Signal Plans\Signal Plans\07-0766_Sig.dsn_20150306.dgn
 PZT:enb

EDI MODEL 2018EClip-NC 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, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 8-10, 8-12, 8-16, 9-11, 9-13, 9-15, 10-12, 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.

■ = DENOTES POSITION OF SWITCH

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2, 6, and 8 for 'STARTUP PED CALL'.
- Program phases 2 and 6 for Yellow Flash and overlaps 1 and 2 as Wag Overlaps.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS..18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED....S1,S2,S3*,S4,S5,S7,S8,S9*,S10,S11,
 S12,AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,2PED,3,4,5,6,6PED,7,8,8PED
 OVERLAP "A".....1+2
 OVERLAP "B".....3+4
 OVERLAP "C".....5+6
 OVERLAP "D".....7+8

* S3 AND S9 USED FOR PEDS AND SCHOOL FLASHERS

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	FLASHER OUTPUT	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE		
SIGNAL HEAD NO.	11	82	21,22	P21, P22	101, 103	31	41,42	NU	51	61,62	P61, P62	102, 104	71	81,82	P81, P82	11	31	NU	51	71	NU
RED		*	128			101			134					107							
YELLOW			129		*	102		*	135			*		108							
GREEN			130			103			136					109							
RED ARROW																					
YELLOW ARROW		126																			
FLASHING YELLOW ARROW																					
GREEN ARROW	127	127				118			133				124								
PED YELLOW																					

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 ★ See pictorial of head wiring in detail below.
 ** S3-Y and S9-Y are used for the School Flashers. See sheet 3 for wiring and programming details.

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 1	∅ 3	∅ 4										
L	1A	1B	3A	4A	SYS. DET. S1	SYS. DET. S5								
U	∅ 5	∅ 6	∅ 7	∅ 8										
L	5A	6A,6B	7A	8A	SYS. DET. S7	SYS. DET. S8								

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

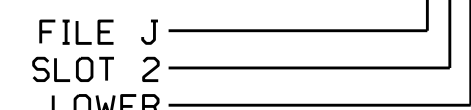
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A ¹	TB2-1,2	I1U	56	18	1	1	Y	Y			15
1B	TB2-5,6	J4U	48	10	26	6	Y	Y	Y		3
2A,2B	TB2-7,8	I2L	43	5	12	2	Y	Y			15
3A ²	TB4-5,6	I5U	58	20	3	3	Y	Y			15
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			10
5A ³	TB3-1,2	J1U	55	17	5	5	Y	Y			15
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y	Y		3
7A ⁴	TB5-5,6	J5U	57	19	7	7	Y	Y			15
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S5	TB6-11,12	I9L	62	24	13	SYS					
* S6	TB5-11,12	J6L	46	8	18	SYS					
* S7	TB7-9,10	J9U	59	21	15	SYS					
* S8	TB7-11,12	J9L	61	23	17	SYS					
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2	PED				
P61,P62	TB8-7,9	I13U	68	30	PED 6	6	PED				
P81,P82	TB8-8,9	I13L	70	32	PED 8	8	PED				

NOTE:

INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

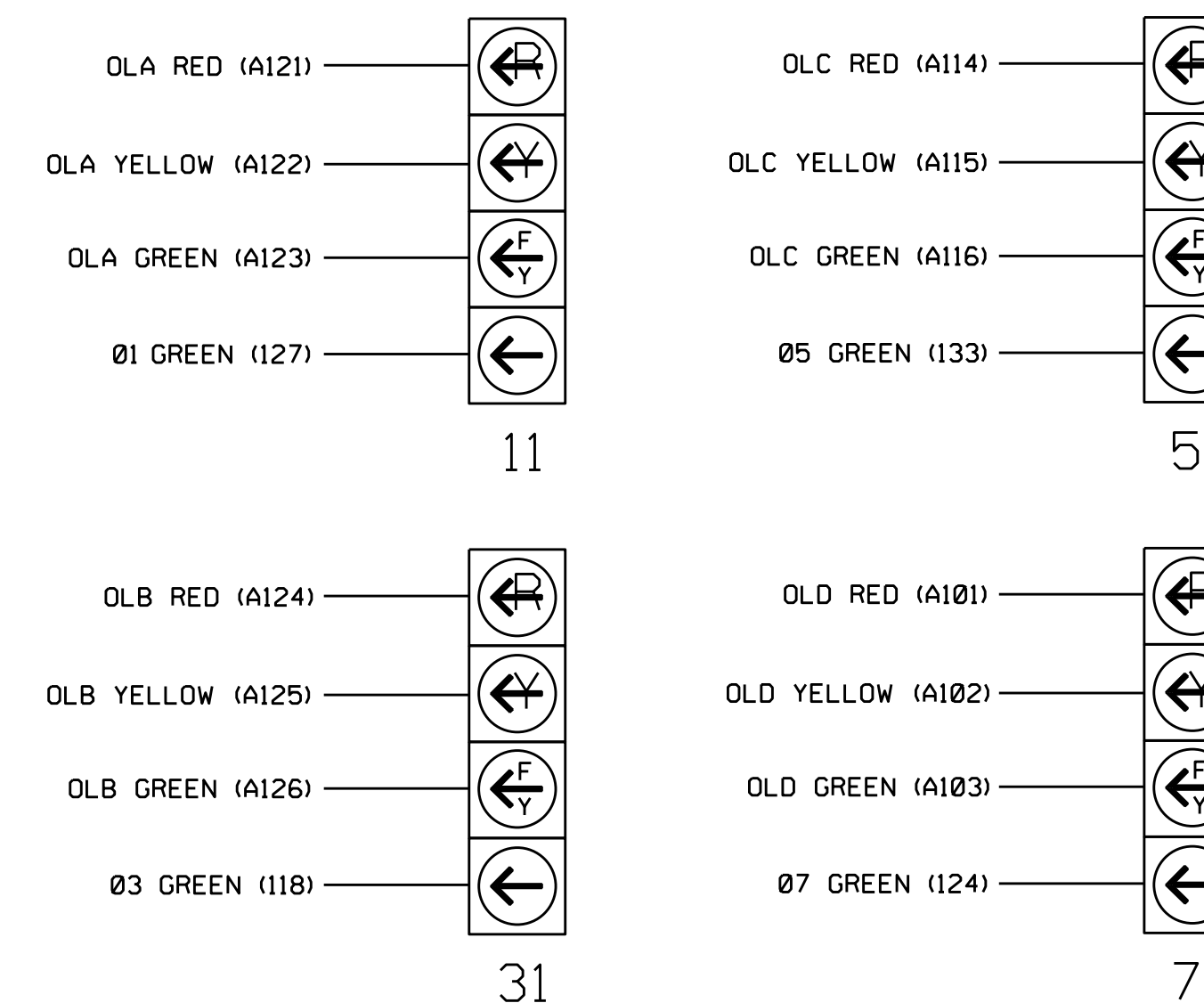
- Add jumper from I1-W to J4-W, on rear of input file.
 - Add jumper from I5-W to J8-W, on rear of input file.
 - Add jumper from J1-W to I4-W, on rear of input file.
 - Add jumper from J5-W to I8-W, on rear of input file.
- * System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

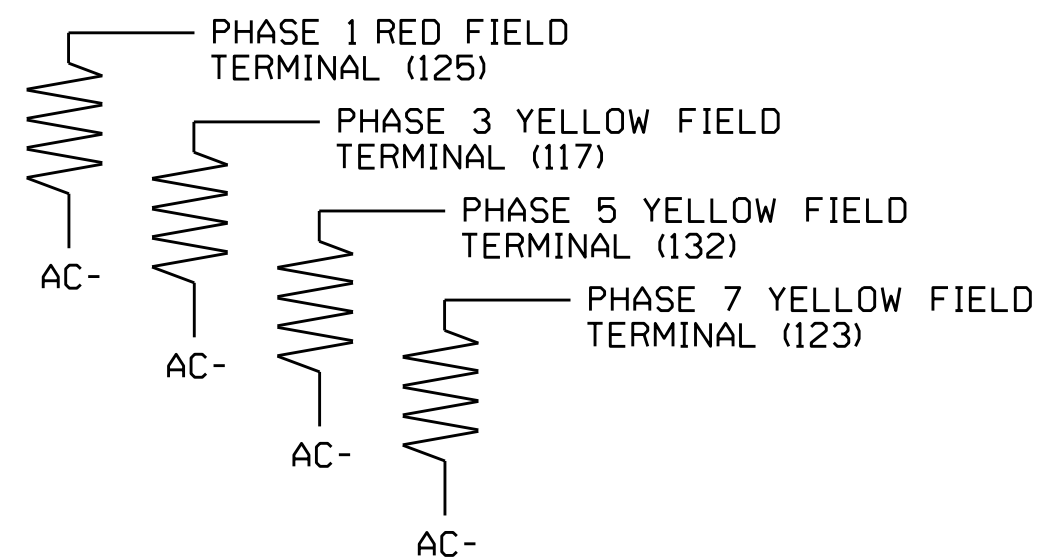
The sequence display for signal heads 11, 31, 51, and 71 requires special logic programming. See sheet 2 for programming instructions.

Electrical Detail - Sheet 1 of 4

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0766
 DESIGNED: December 2014
 SEALED: 3/6/2015
 REVISED: N/A

Electrical and Programming Details for: SR 1278 (N. College Dr.) at SR 1471 (Montlieu Ave.)

Prepared In the Offices of: *Transportation Mobility and Safety Solutions*

Division 7 Guilford County High Point

PLAN DATE: December 2014 REVIEWED BY: [Signature]

PREPARED BY: S. Armstrong REVIEWED BY: [Signature]

750 N. Greenfield Pkwy, Garner, NC 27529

John T. Rowe, Jr., 3/11/2015

SIG. INVENTORY NO. 07-0766

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS), SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, AND 12.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
AND RED CLEAR ON PHASE #1 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #50 ON
SET OUTPUT ASSIGNMENT #51 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

```

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #52 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

```

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #1 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #51 ON
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

```

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
AND RED CLEAR ON PHASE #5 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #42 ON
SET OUTPUT ASSIGNMENT #43 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

```

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #44 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

```

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #5 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #43 ON
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

```

LOGICAL I/O COMMAND #7 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
AND RED CLEAR ON PHASE #3 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #47 ON
SET OUTPUT ASSIGNMENT #48 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

```

LOGICAL I/O COMMAND #8 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #49 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

```

LOGICAL I/O COMMAND #9 (+/-COMMAND#)
IF YELLOW ON PHASE #3 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #48 ON
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

```

LOGICAL I/O COMMAND #10 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
AND RED CLEAR ON PHASE #7 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #39 ON
SET OUTPUT ASSIGNMENT #40 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

```

LOGICAL I/O COMMAND #11 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #41 OFF
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

```

LOGICAL I/O COMMAND #12 (+/-COMMAND#)
IF YELLOW ON PHASE #7 IS ON
    ↓
    SCROLL DOWN
    ↓
THEN:
SET OUTPUT ASSIGNMENT #40 ON
    ↓
    PRESS '+'
    
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0=255 SEC)...0.0
YELLOW CLEAR (0=PARENT.3-25.5 SEC)...0.0
RED CLEAR (0=PARENT.0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    ↓
    PRESS '+'
    
```

NOTICE GREEN FLASH

```

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0=255 SEC)...0.0
YELLOW CLEAR (0=PARENT.3-25.5 SEC)...0.0
RED CLEAR (0=PARENT.0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    ↓
    PRESS '+'
    
```

NOTICE GREEN FLASH

```

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0=255 SEC)...0.0
YELLOW CLEAR (0=PARENT.3-25.5 SEC)...0.0
RED CLEAR (0=PARENT.0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    ↓
    PRESS '+'
    
```

NOTICE GREEN FLASH

```

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0=255 SEC)...0.0
YELLOW CLEAR (0=PARENT.3-25.5 SEC)...0.0
RED CLEAR (0=PARENT.0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    ↓
    PRESS '+'
    
```

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

FLASHER CIRCUIT MODIFICATION DETAIL

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

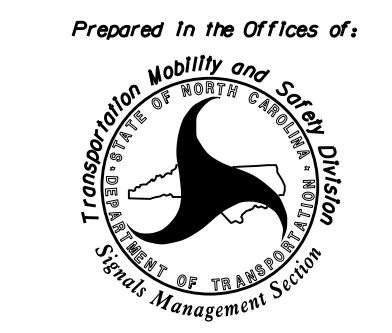
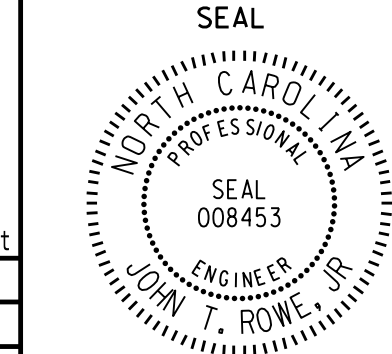
1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

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

OUTPUT REFERENCE SCHEDULE	
USE TO INTERPRET LOGIC PROCESSOR	
OUTPUT 39	= Overlap D Red
OUTPUT 40	= Overlap D Yellow
OUTPUT 41	= Overlap D Green
OUTPUT 42	= Overlap C Red
OUTPUT 43	= Overlap C Yellow
OUTPUT 44	= Overlap C Green
OUTPUT 47	= Overlap B Red
OUTPUT 48	= Overlap B Yellow
OUTPUT 49	= Overlap B Green
OUTPUT 50	= Overlap A Red
OUTPUT 51	= Overlap A Yellow
OUTPUT 52	= Overlap A Green

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0766
DESIGNED: December 2014
SEALED: 3/6/2015
REVISED: N/A

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 1278 (N. College Dr.) at SR 1471 (Montlieu Ave.)	SEAL  JOHN T. ROWE, JR. ENGINEER SEAL 008453
	Division 7 Guilford County High Point PLAN DATE: December 2014 REVIEWED BY: JTR PREPARED BY: S. Armstrong REVIEWED BY:	REVISIONS INIT. DATE

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 sarmstrng

SCHOOL FLASHER OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```

PAGE:1 C1 PIN:35 NOT ENABLED.....33
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....50
MODE (0=SOLID,1=FLASH).....1
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

EDIT THE FIRST THREE PROGRAMMING ROWS TO DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

LEAVE THIS ENTRY AS IS

PRESS '+' KEY FOR OUTPUT ASSIGNMENT 34 (C1 PIN 36)

```

PAGE:1 C1 PIN:36 NOT ENABLED.....34
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```

PAGE:1 C1 PIN:36 NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).....33
    
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.
PRESS THE 'ENT' AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```

PAGE:1 C1 PIN:36 OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ).....0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%).....0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PROGRAMMING COMPLETE

EVENT #1 SCHEDULING (AM) SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING),

```

SCHEDULED EVENT #1 NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW ISUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS 12345678910111213141516
ASSIGNED 1
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE)..... OFFSET#...
PLAN PRIORITY: LOW... MED... HIGH...
CHANGE PHASE SEQUENCE PAGE (1-12)....
CHANGE PHASE TIMING PAGE (1-4).....
CHANGE PHASE CONTROL PAGE (1-4).....
CHANGE OVERLAP CONTROL PAGE (1-4)....
CHANGE INPUT PAGE (1-4).....
CHANGE OUTPUT PAGE (1-4).....
SET OUTPUT ON (1-64).....33
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64).....
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)....
ENABLE DET STOP BAR MODE (1-64)....
SET LOGIC FLAG ON (1-16).....
SET LOGIC FLAG OFF (1-64).....
OVERRIDE PHASE CONTROL FUNCTIONS?....
    
```

END OF PROGRAMMING

* AFTER PROGRAMMING, THIS SPACE WILL READ 'OUTPUT OVERRIDE'.
/ TIMES AND DATES DETERMINED BY THE DTE.

EVENT #1 SCHEDULING (PM) SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING), PRESS THE '+' KEY TO ADVANCE TO EVENT 2.

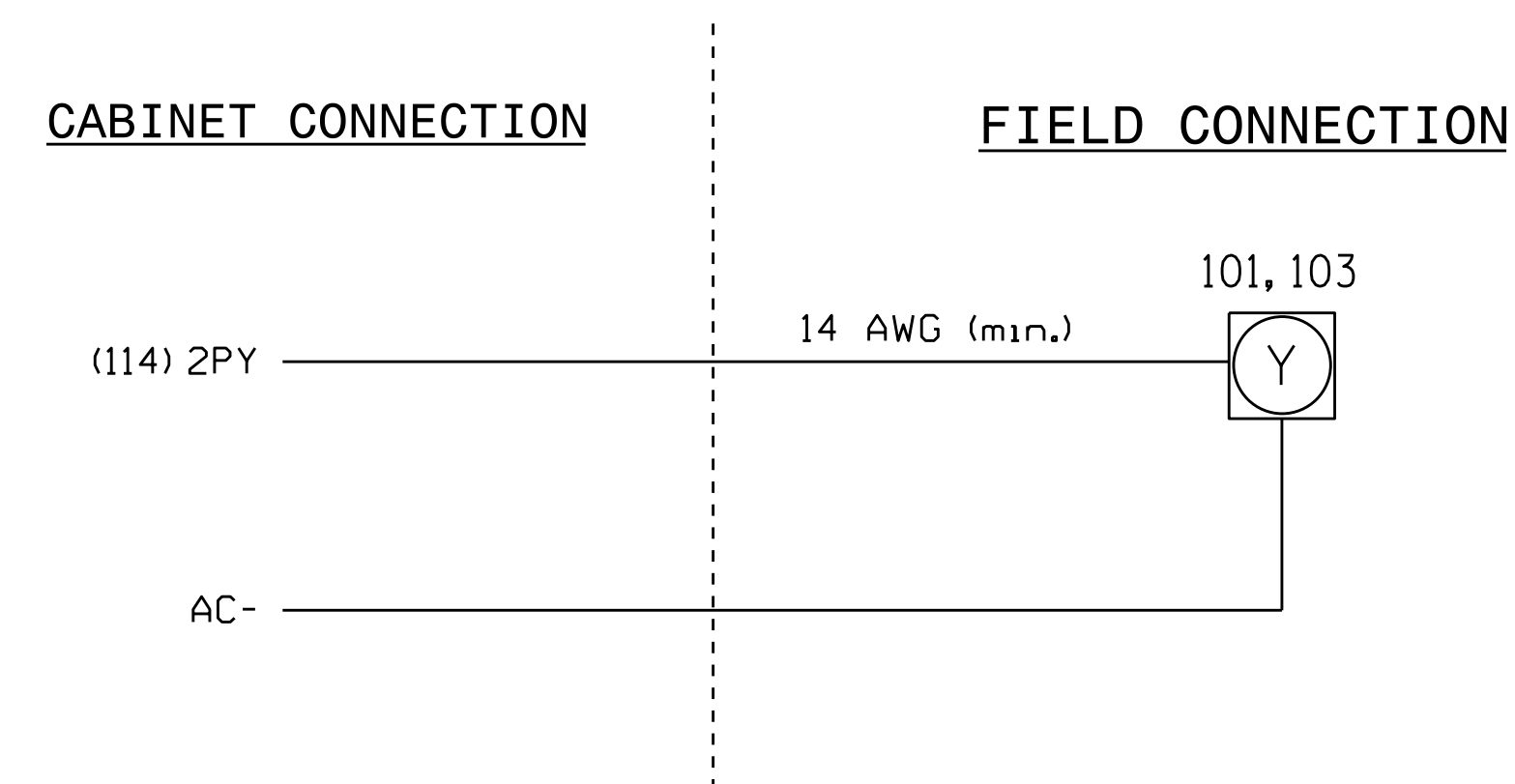
```

SCHEDULED EVENT #2 NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW ISUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS 12345678910111213141516
ASSIGNED 1
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE)..... OFFSET#...
PLAN PRIORITY: LOW... MED... HIGH...
CHANGE PHASE SEQUENCE PAGE (1-12)....
CHANGE PHASE TIMING PAGE (1-4).....
CHANGE PHASE CONTROL PAGE (1-4).....
CHANGE OVERLAP CONTROL PAGE (1-4)....
CHANGE INPUT PAGE (1-4).....
CHANGE OUTPUT PAGE (1-4).....
SET OUTPUT ON (1-64).....33
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64).....
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)....
ENABLE DET STOP BAR MODE (1-64)....
SET LOGIC FLAG ON (1-16).....
SET LOGIC FLAG OFF (1-64).....
OVERRIDE PHASE CONTROL FUNCTIONS?....
    
```

END OF PROGRAMMING

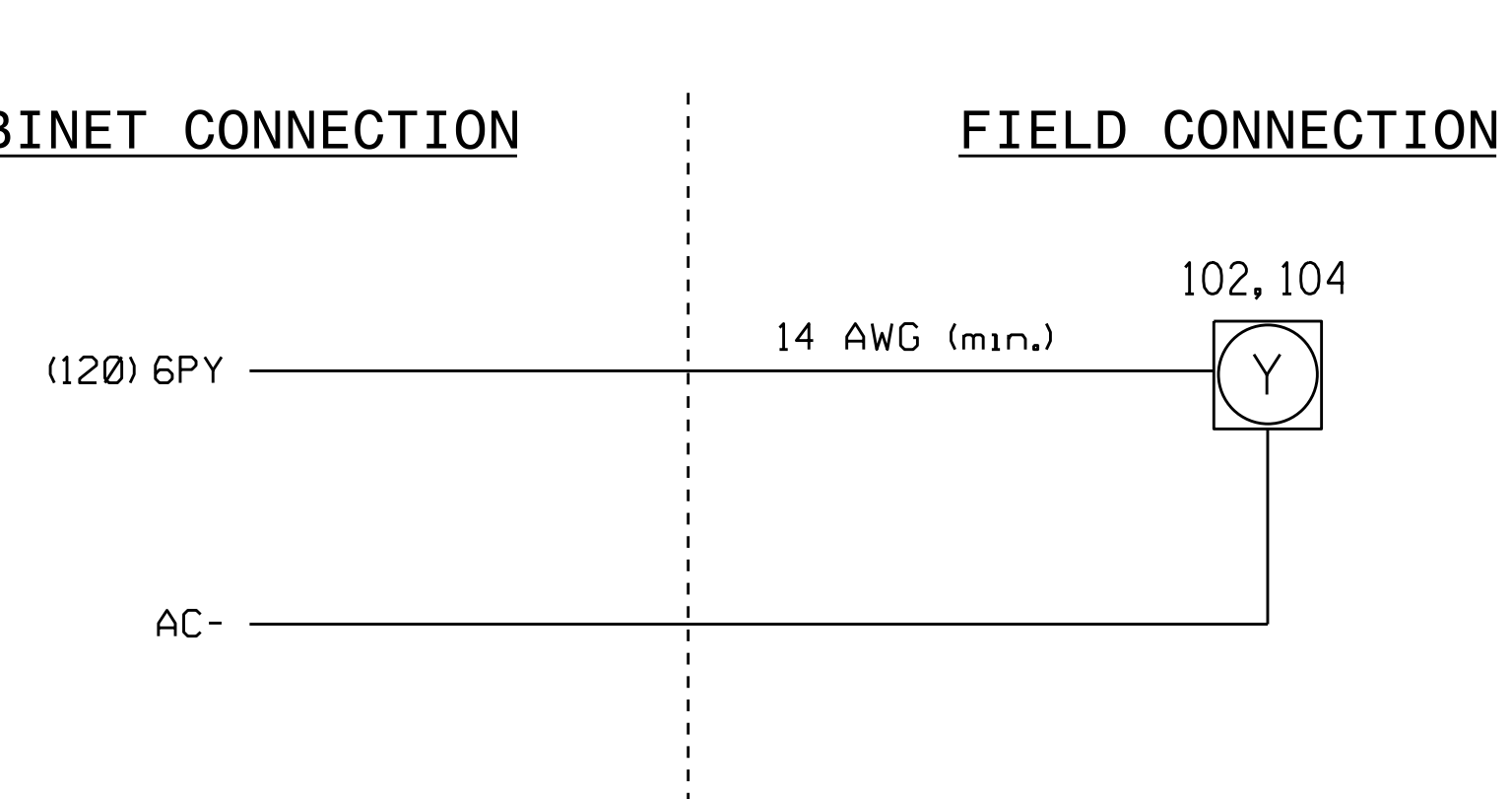
SCHOOL FLASHER (101,103)

(wire flashers as shown below)



SCHOOL FLASHER (102,104)

(wire flashers as shown below)



IMPORTANT

1. Ensure that the white keyed plug located behind rear panel of output file labeled 2PY-4PY-6PY-8PY is disconnected. This will disconnect conflict monitor wires from field signal terminals 114 and 120 shown on flasher wiring detail on this sheet.
2. Install loadswitches in output file slots S3 and S9.
3. To activate school zone flasher operation as indicated on the signal plan, program outputs 33 and 34 as shown on this sheet.
4. Operational times and dates are determined by the DTE. See this sheet for the scheduling programming detail.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0766
DESIGNED: December 2014
SEALED: 3/6/2015
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1278 (N. College Dr.) at SR 1471 (Montlieu Ave.)		SEAL JOHN T. ROWE, JR. ENGINEER
	Division 7 PLAN DATE: December 2014 PREPARED BY: S. Armstrong	Guilford County REVIEWED BY: JTR DATE: 3/11/2015		SIG. INVENTORY NO. 07-0766

I:\04185-2014-10-18
 S:\MITS\115\Sig\el\work\hgr\oups\51g_Mon\trms\trng\070766_sml.e\c_xxx.dgn
 sarmstrong

ACCESSIBLE PEDESTRIAN SIGNAL (APS)
INSTALLATION NOTES

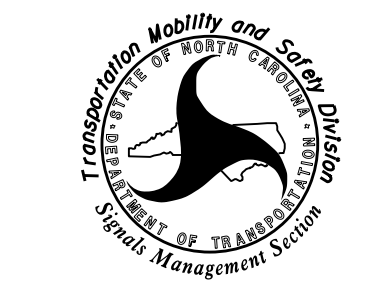
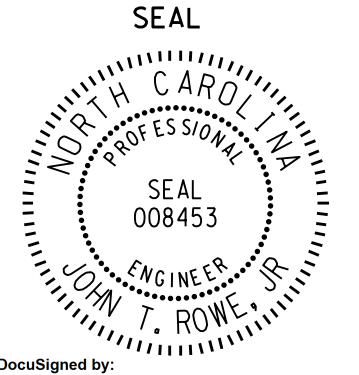
1. Install push buttons and APS equipment per manufacturer's instructions.
2. Provide a dedicated cable to each push button per manufacturer's instructions.
3. If APS equipment is mounted in cabinet, use filtered power (i.e., Controller Receptacle) to power APS equipment. Do not use Equipment Receptacle, which is a GFCI outlet.
4. Never attempt to operate a standard contact closure push button with the APS system unless cabinet is re-wired for standard button operation or unless explicitly allowed by the manufacturer.
5. Place manufacturer's instructions in cabinet with cabinet prints, signal plans, and electrical details.

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.

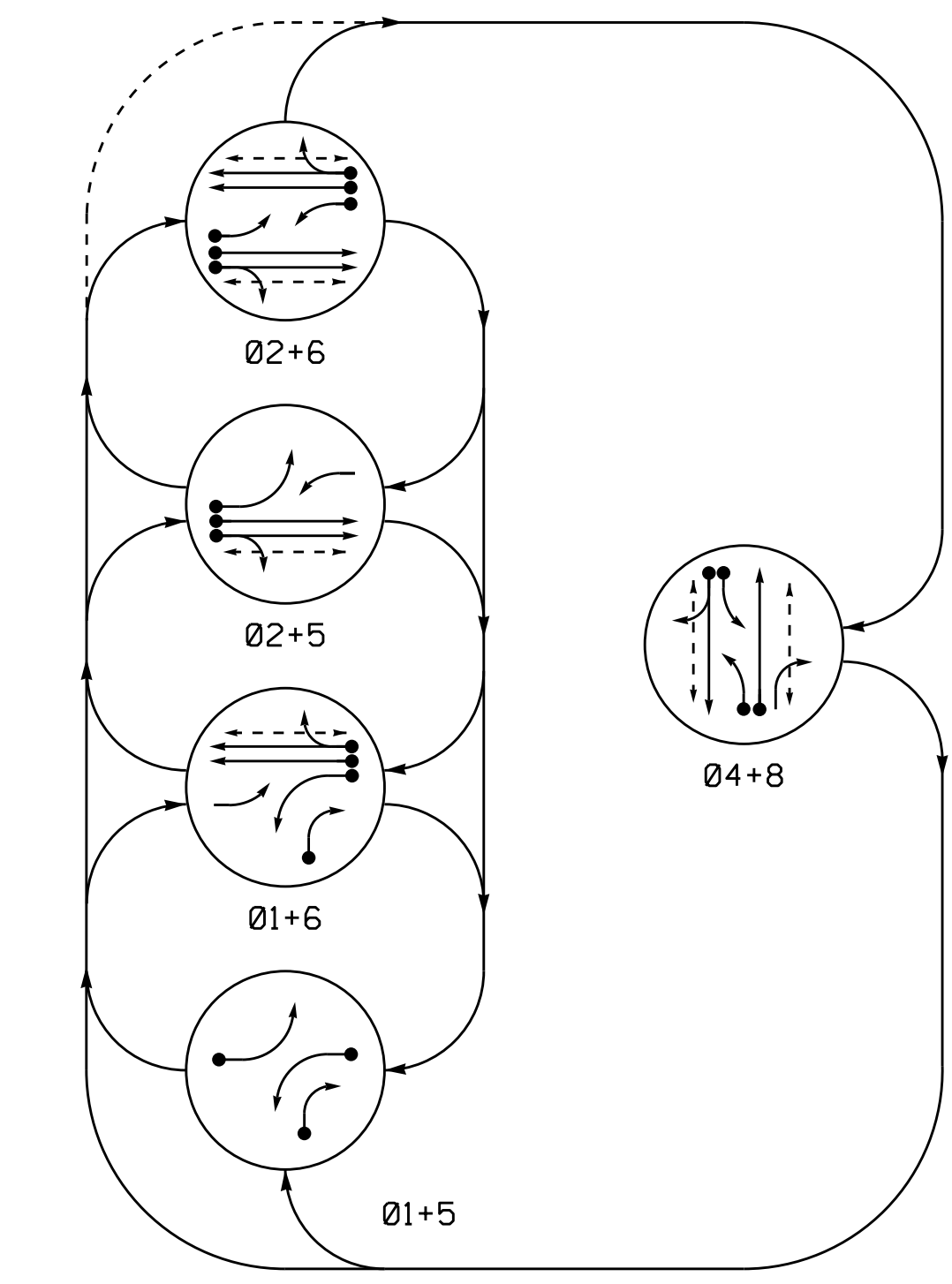
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0766
DESIGNED: December 2014
SEALED: 3/6/2015
REVISED: N/A

Electrical Detail - Sheet 4 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 1278 (N. College Dr.) at SR 1471 (Montlieu Ave.)	SEAL  SEAL 008453 JOHN T. ROWE, JR. ENGINEER
	Division 7 Guilford County ds High Point PLAN DATE: December 2014 REVIEWED BY: <i>JTR</i> PREPARED BY: S. Armstrong REVIEWED BY:	DocuSigned by: <i>John T. Rowe, Jr.</i> 3/11/2015 641080C145EE4F5 DATE

I:\04185-2015-10-19
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 sarms\strong

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

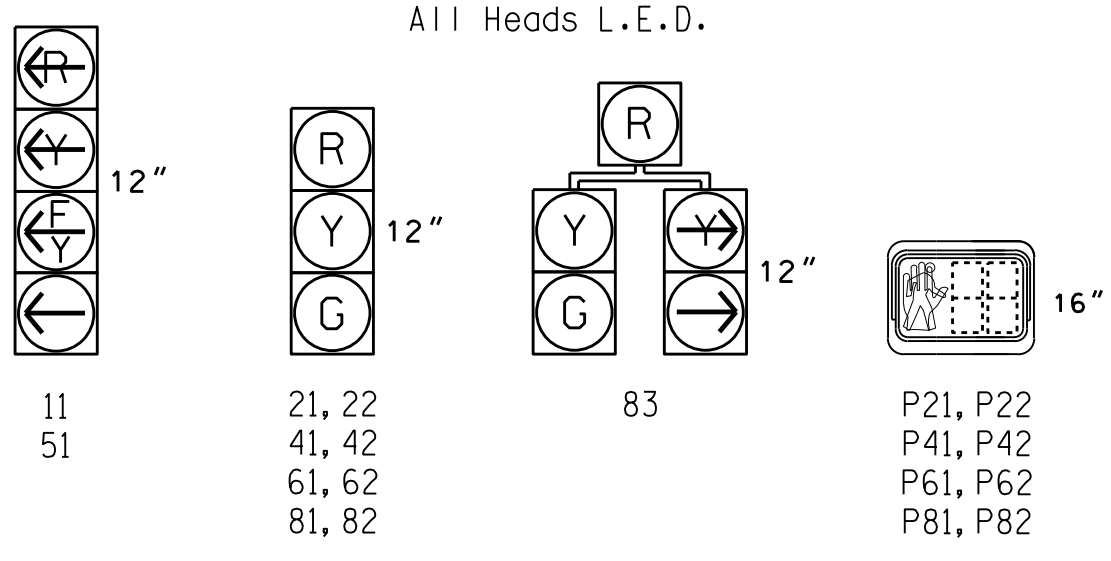
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE				
	01+5	02+5	02+6	04+8	F L
11	---	---	---	---	---
21, 22	R	R	G	G	R
41, 42	R	R	R	R	G
51	---	---	---	---	---
61, 62	R	G	R	G	R
81, 82	R	R	R	R	G
83	R	R	R	R	G
P21, P22	DW	DW	W	W	DRK
P41, P42	DW	DW	DW	W	DRK
P61, P62	DW	W	DW	W	DRK
P81, P82	DW	DW	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.



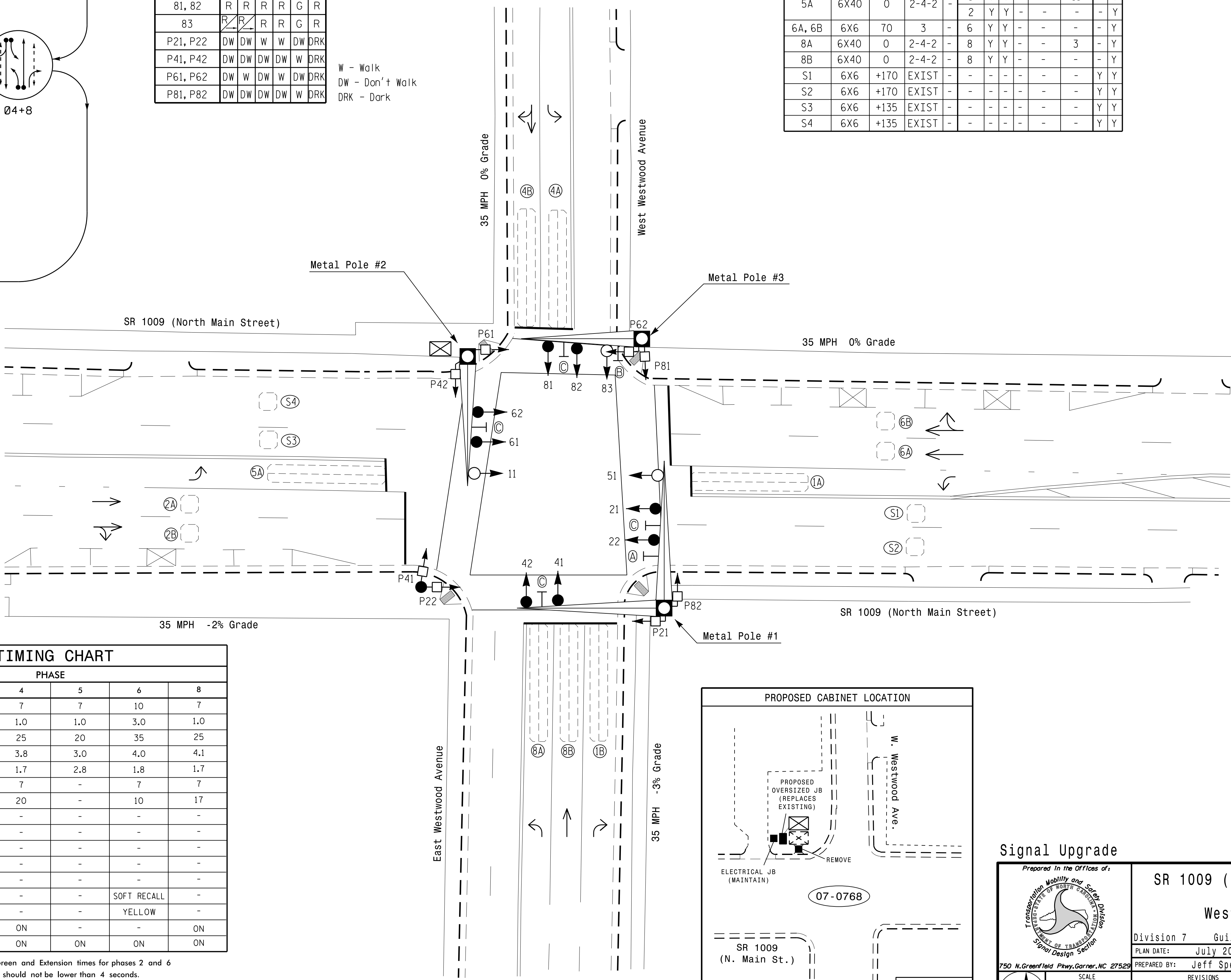
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	FULL TIME DELAY				
1A	6X40	0	2-4-2	-	1	Y	Y	-	15	-	Y	-
1B	6X40	0	2-4-2	-	1	Y	Y	-	15	-	Y	-
2A, 2B	6X6	70	3	-	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	3	-	Y	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	10	-	Y	-
5A	6X40	0	2-4-2	-	5	Y	Y	-	15	-	Y	-
6A, 6B	6X6	70	3	-	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	-	8	Y	Y	-	3	-	Y	-
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	-	-	-
S1	6X6	+170	EXIST	-	-	-	-	-	-	-	Y	Y
S2	6X6	+170	EXIST	-	-	-	-	-	-	-	Y	Y
S3	6X6	+135	EXIST	-	-	-	-	-	-	-	Y	Y
S4	6X6	+135	EXIST	-	-	-	-	-	-	-	Y	Y

5 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- 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.
- Existing Right Arrow "ONLY" sign (R3-5R) may be removed at the direction of the Engineer.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

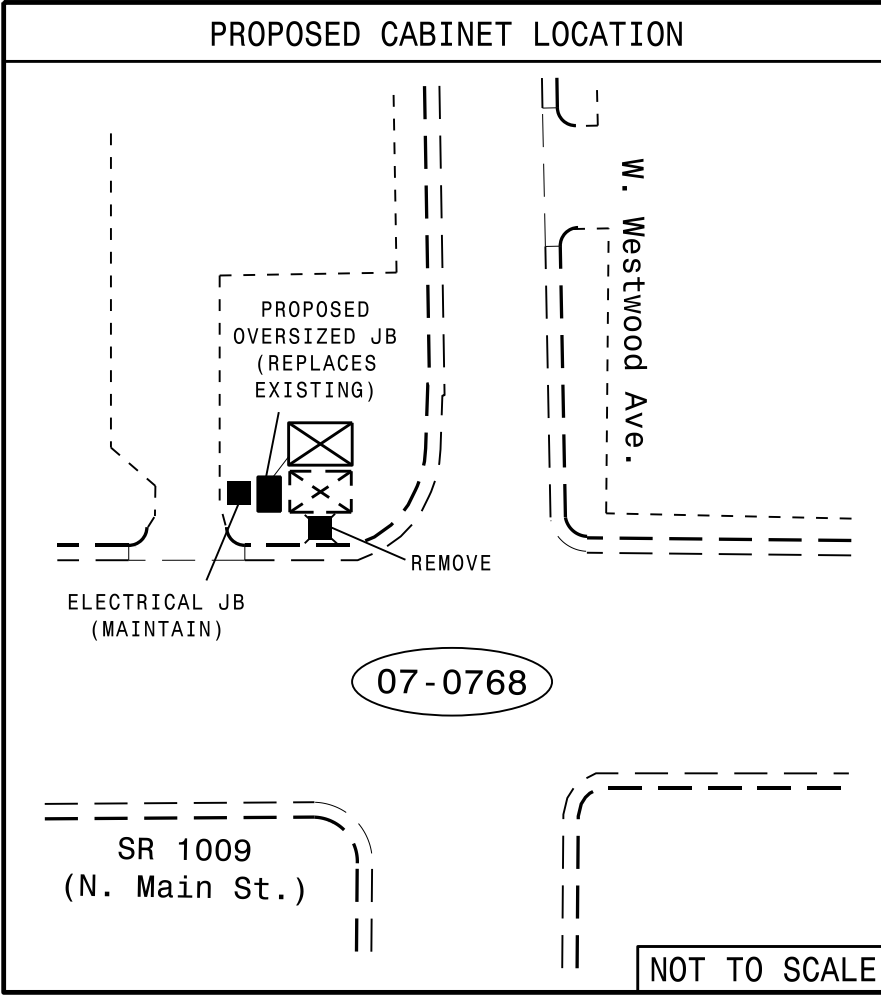
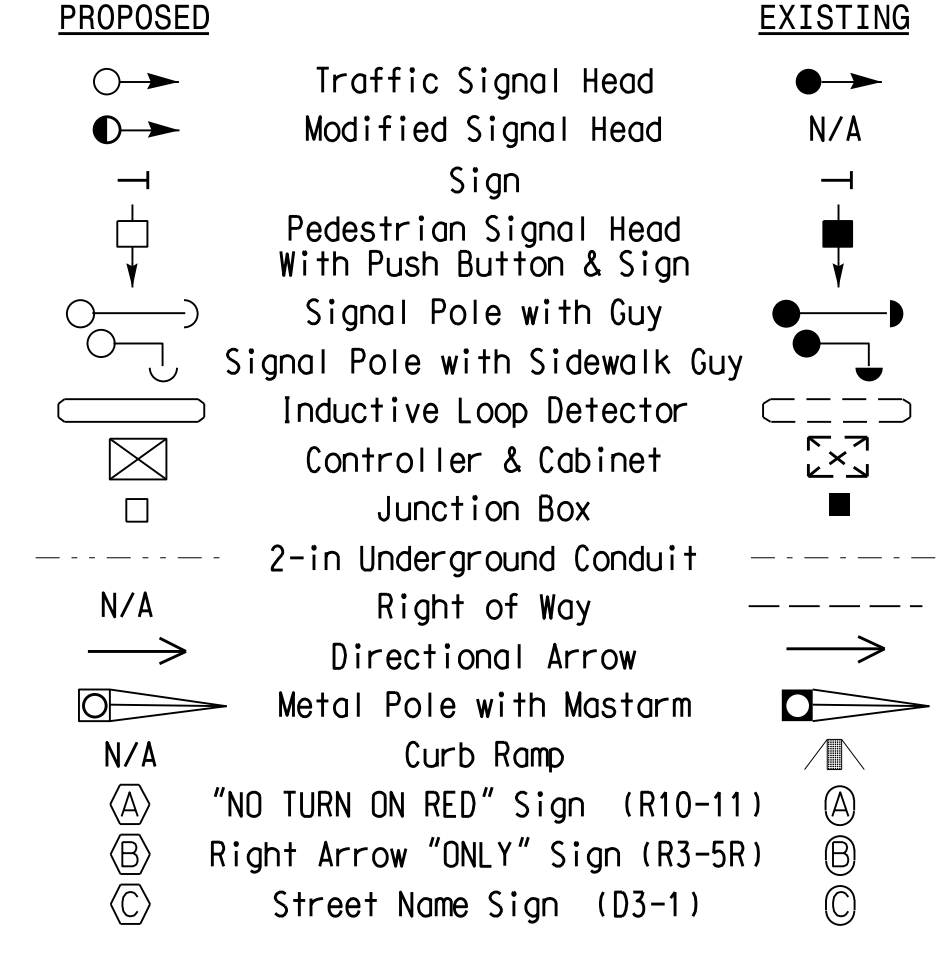


OASIS 2070 TIMING CHART

FEATURE	PHASE					
	1	2	4	5	6	8
Min Green 1*	7	10	7	7	10	7
Extension 1*	1.0	3.0	1.0	1.0	3.0	1.0
Max Green 1*	20	35	25	20	35	25
Yellow Clearance	3.0	4.0	3.8	3.0	4.0	4.1
Red Clearance	2.4	1.8	1.7	2.8	1.8	1.7
Walk 1*	-	7	7	-	7	7
Don't Walk 1	-	13	20	-	10	17
Seconds Per Actuation*	-	-	-	-	-	-
Max Variable Initial*	-	-	-	-	-	-
Time Before Reduction*	-	-	-	-	-	-
Time To Reduce*	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode**	-	SOFT RECALL	-	-	SOFT RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

LEGEND



Signal Upgrade

Prepared in the Offices of:

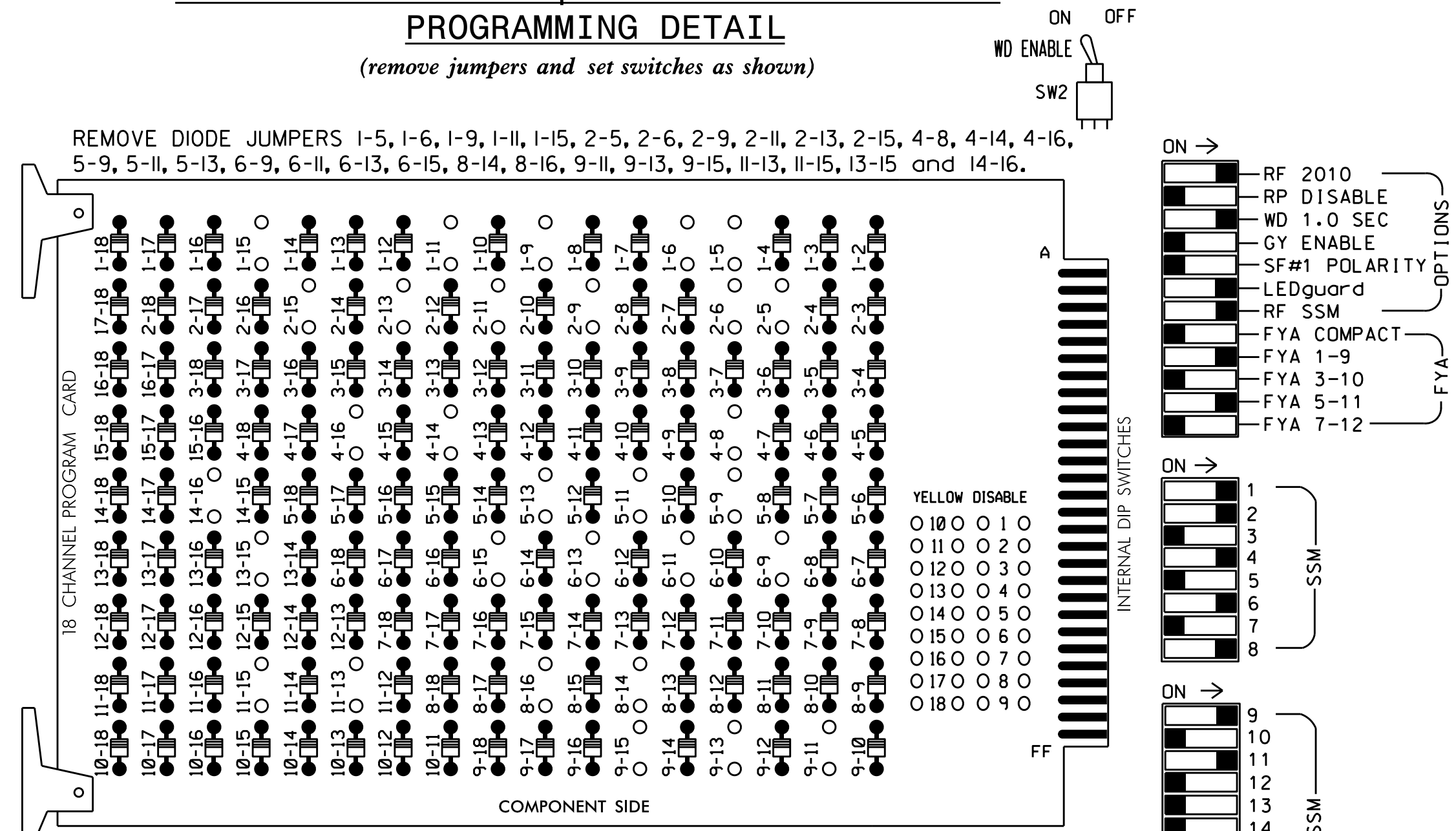
SR 1009 (North Main Street) at Westwood Avenue
 Division 7 Guilford County High Point
 PLAN DATE: July 2014 PREPARED BY: R.N. Zinser
 PREPARED BY: Jeff Spence REVIEWED BY:
 SCALE: 1"=20'
 DATE: 4/21/2015
 SIG. INVENTORY NO. 07-0768

21-Apr-2015 15:40
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 PZ:tergo

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2, 4, 6 and 8 for 'STARTUP PED CALL'.
6. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
7. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 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 S4.
 PHASES USED.....1,2,4,5,6,8,2 PED,4 PED,6 PED,8 PED
 OVERLAP "A".....1+2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....5+6
 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	83	21,22	P21, P22	NU	41,42	P41, P42	51	61,62	661, P62	NU	81,82 83	P81, P82	11	NU	51	NU	NU		
RED	*		128			101			134			107								
YELLOW			129			102	*		135			108								
GREEN			130			103			136			109								
RED ARROW																		A121	A114	
YELLOW ARROW			126																A122	A115
FLASHING YELLOW ARROW																			A123	A116
GREEN ARROW	127	127							133											
Hand						113			104			119								110
Walking						115			106			121								112

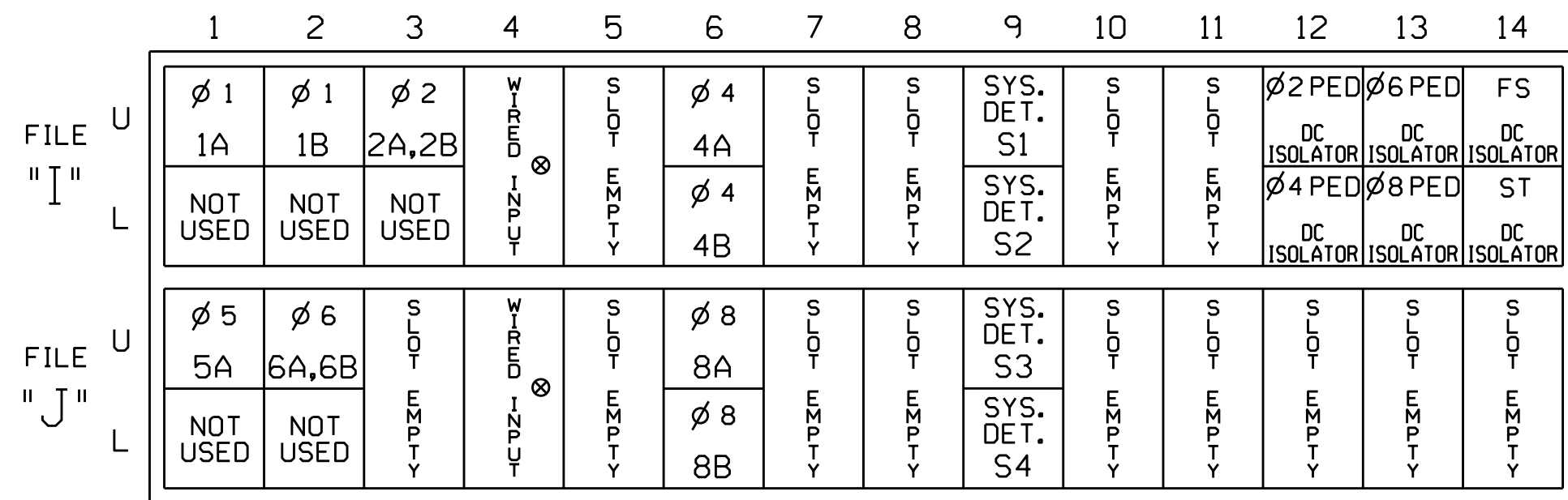
NU = Not Used

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

* See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
 ST = STOP TIME

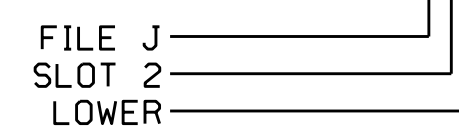
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A ¹	TB2-1,2	I1U	56	18	1	1	Y	Y			15
		J4U	48	10	26	6	Y	Y			
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			15
2A,2B	TB2-9,10	I3U	63	25	32	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
5A ²	TB3-1,2	J1U	55	17	5	5	Y	Y			15
		I4U	47	9	22	2	Y	Y			
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			
* S3	TB7-9,10	J9U	59	21	15	SYS					
* S4	TB7-11,12	J9L	61	23	17	SYS					
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					
P81,P82	TB8-8,9	I13L	70	32	PED 8	8 PED					

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

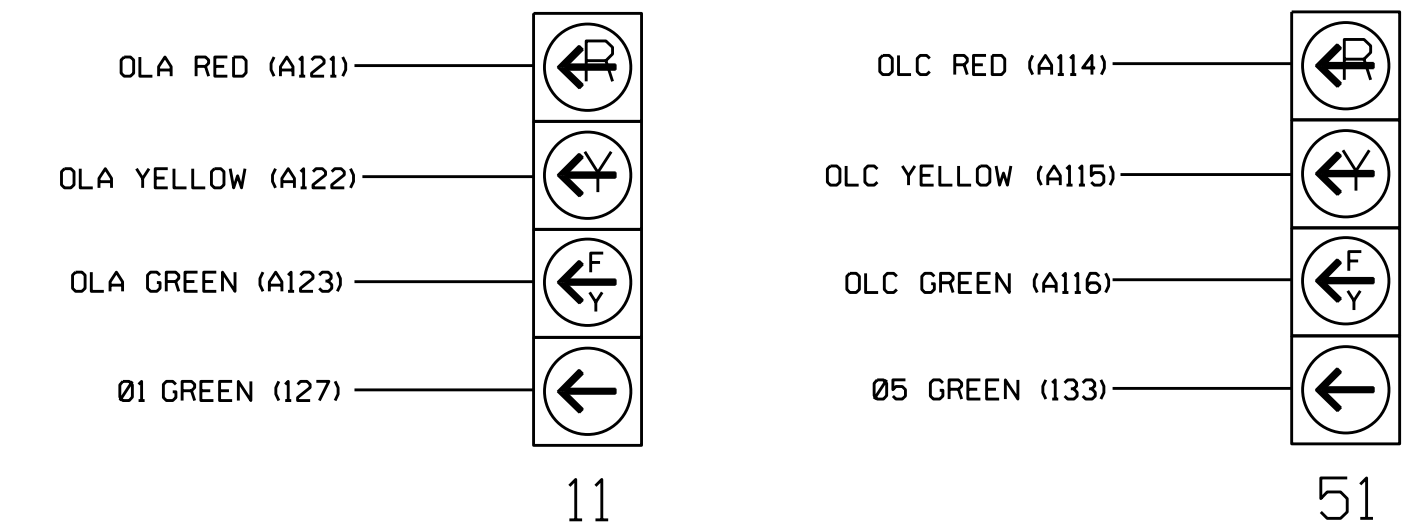
- 1 Add jumper from I1-W to J4-W, on rear of input file.
 - 2 Add jumper from J1-W to I4-W, on rear of input file.
- * System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for this signal requires special logic programming. See sheet 2 for programming instructions.

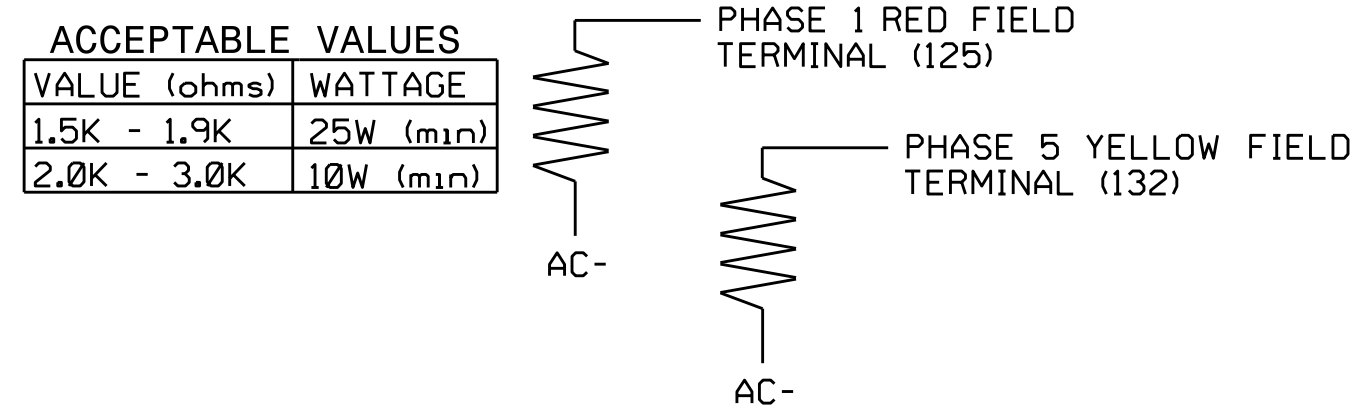
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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: 07-0768
 DESIGNED: July 2014
 SEALED: 4-21-15
 REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



ELECTRICAL DETAIL SHEET 1 OF 2

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1009 (North Main Street) at Westwood Avenue

Division 7 Guilford County, NC High Point

PLAN DATE: October 2014 REVIEWED BY: JTR

PREPARED BY: James Peterson REVIEWED BY:

REVISIONS INIT. DATE

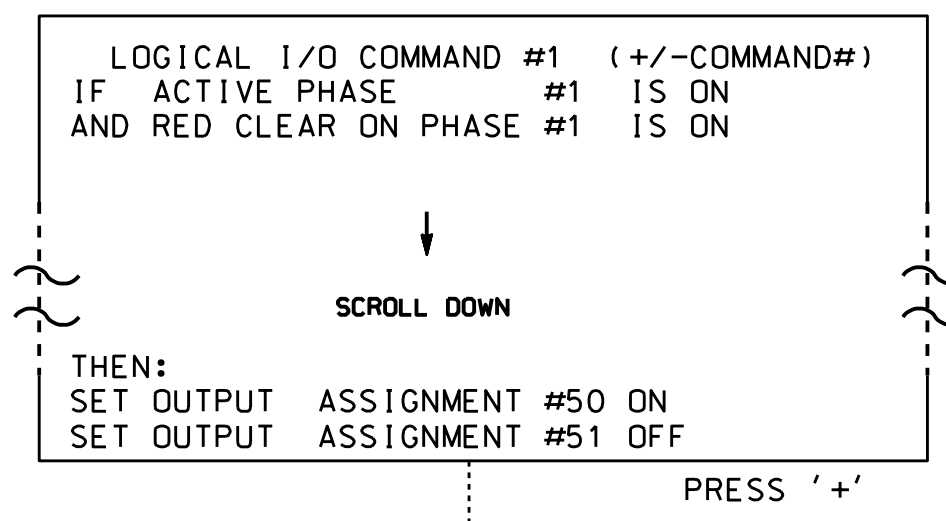
DocuSigned by: John T. Rowe, Jr. 4/22/2015

SIG. INVENTORY NO. 07-0768

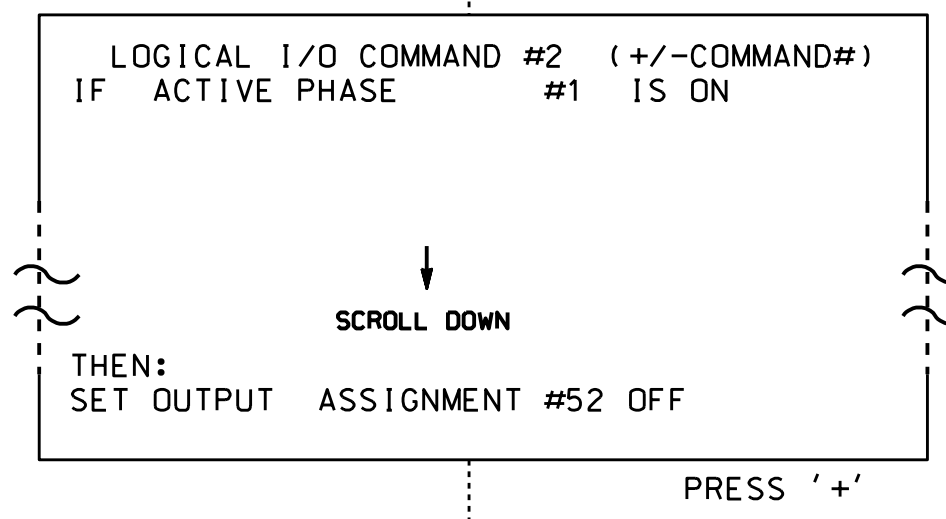
LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

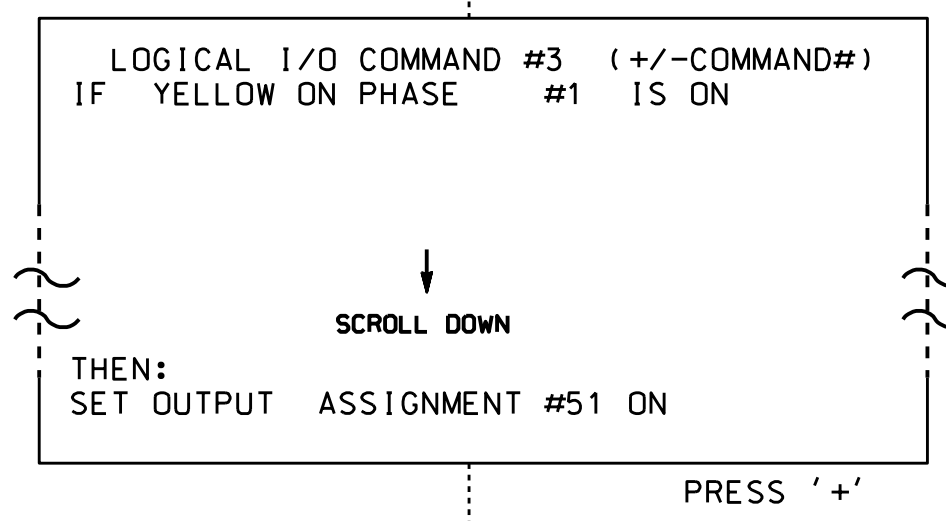
1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



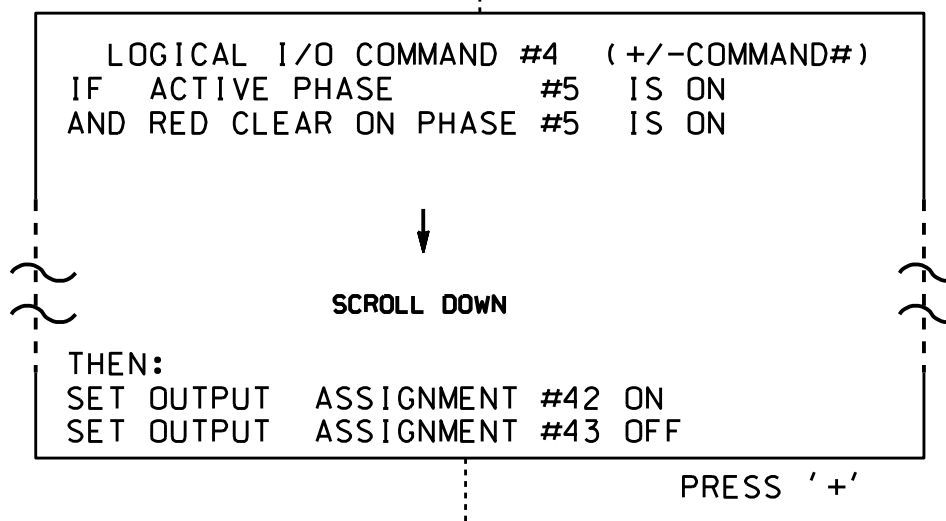
NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).



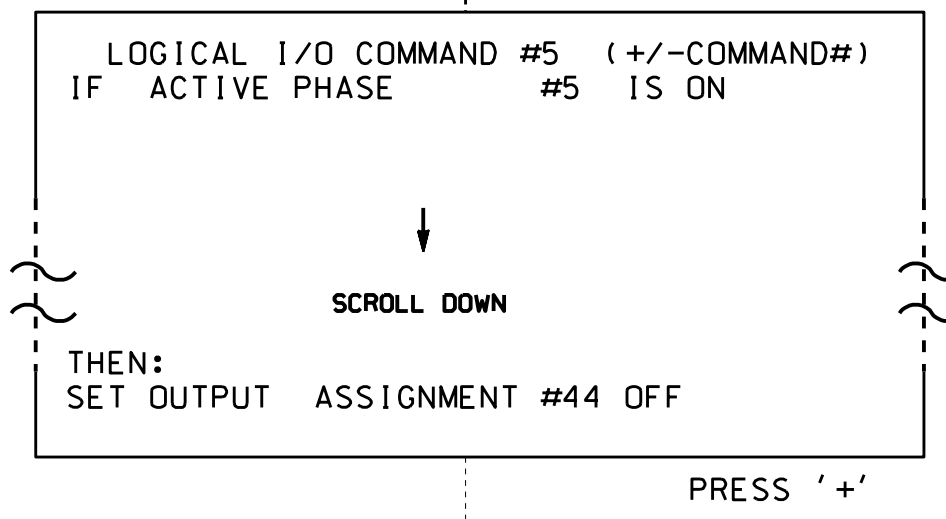
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).



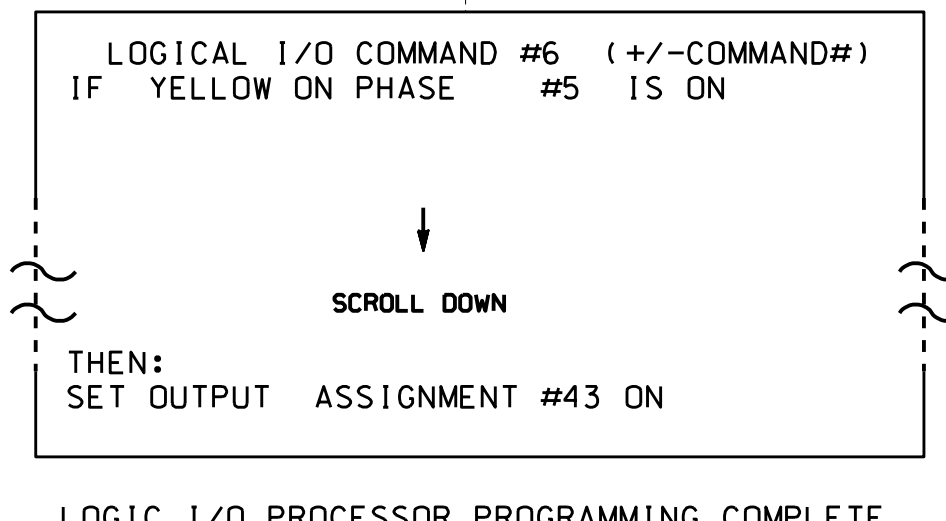
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).



NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).



NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).



NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

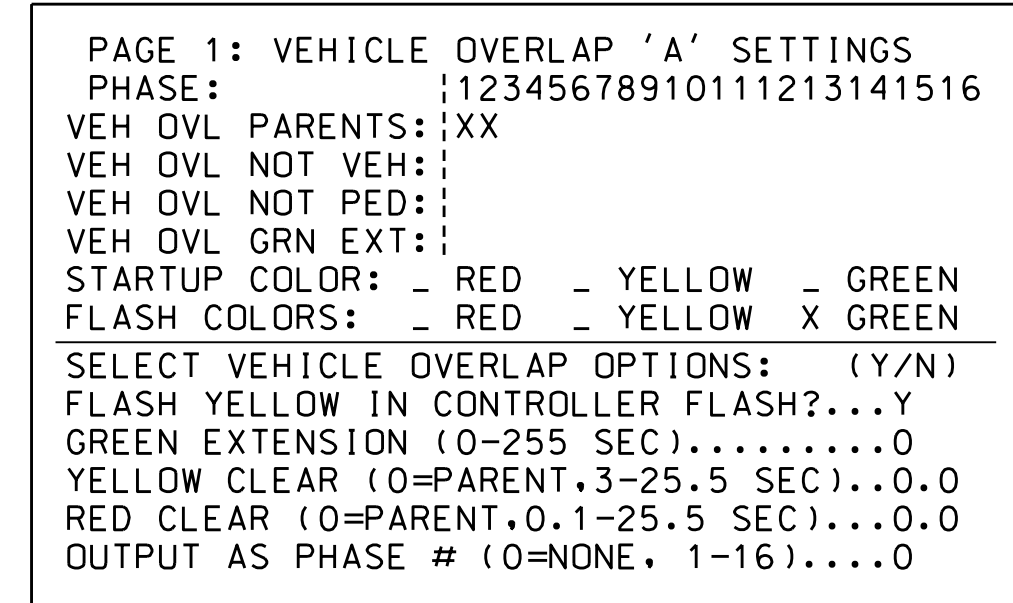
LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE
OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL

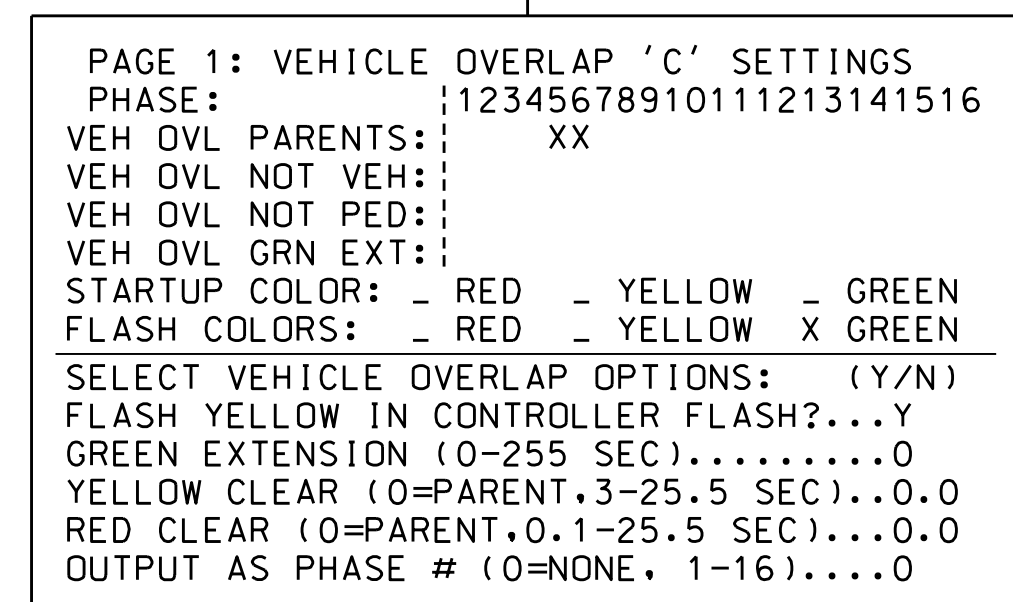
(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).



← NOTICE GREEN FLASH

PRESS '+' TWICE



← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

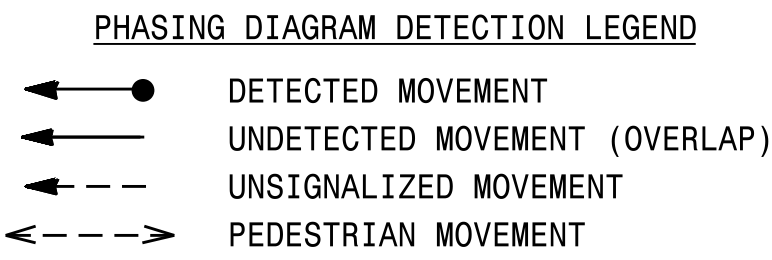
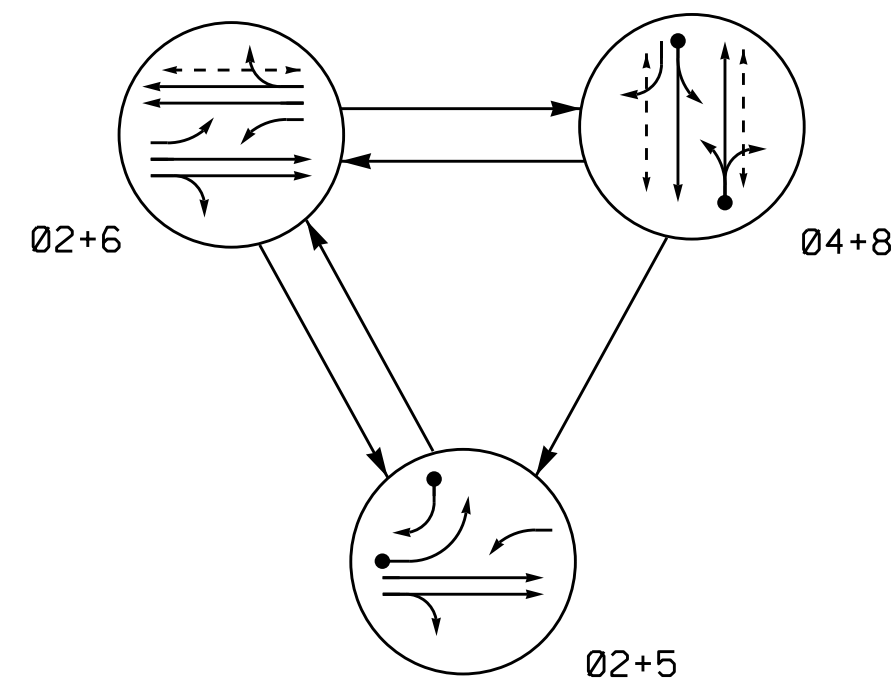
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0768
DESIGNED: July 2014
SEALED: 4-21-15
REVISED: N/A

ELECTRICAL DETAIL SHEET 2 OF 2

<p style="font-size: small;">ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="font-size: x-small;">Prepared In the Offices of:</p> <p style="font-size: x-small;">750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SR 1009 (North Main Street) at Westwood Avenue</p> <p style="font-size: x-small;">Division 7 Guilford County ds High Point</p> <p>PLAN DATE: October 2014 REVIEWED BY: <i>JTR</i></p> <p>PREPARED BY: James Peterson REVIEWED BY:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="font-size: x-small;">REVISIONS</th> <th style="font-size: x-small;">INIT.</th> <th style="font-size: x-small;">DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE				<p>SEAL</p> <p style="font-size: x-small;">SEAL 008453 ENGINEER JOHN T. ROWE, JR.</p> <p style="font-size: x-small;">DocuSigned by: <i>John T. Rowe, Jr.</i> 4/22/2015 DATE</p> <p style="font-size: x-small;">SIG. INVENTORY NO. 07-0768</p>
REVISIONS	INIT.	DATE						

C:\Users\jpeterson\Documents\Signal\work\output\sig\Main\ Peterson\070768_sml.ele...xxx.dgn
T.peterson

PHASING DIAGRAM



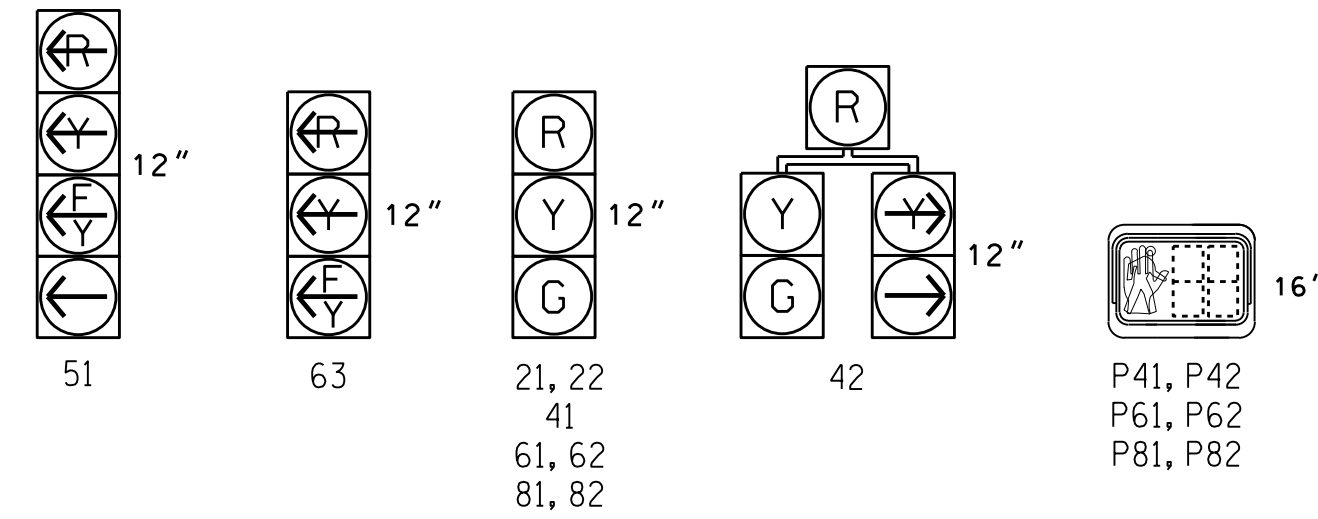
SIGNAL FACE	PHASE			
	02+5	02+6	04+8	F
21, 22	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
51	---	---	---	---
61, 62	R	G	R	Y
63	---	---	---	---
81, 82	R	R	G	R
P41, P42	DW	DW	W	DRK
P61, P62	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS				DETECTOR PROGRAMMING								
LOOPZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-	Y
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	Y
5B	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	Y
* 8A	N/A	0	N/A	-	8	Y	Y	-	-	5	-	Y
S1	6X6	+190	EXIST	-	-	-	-	-	-	-	-	Y
S2	6X6	+190	EXIST	-	-	-	-	-	-	-	-	Y

* Microwave Detection Zone

SIGNAL FACE I.D.

All Heads L.E.D.

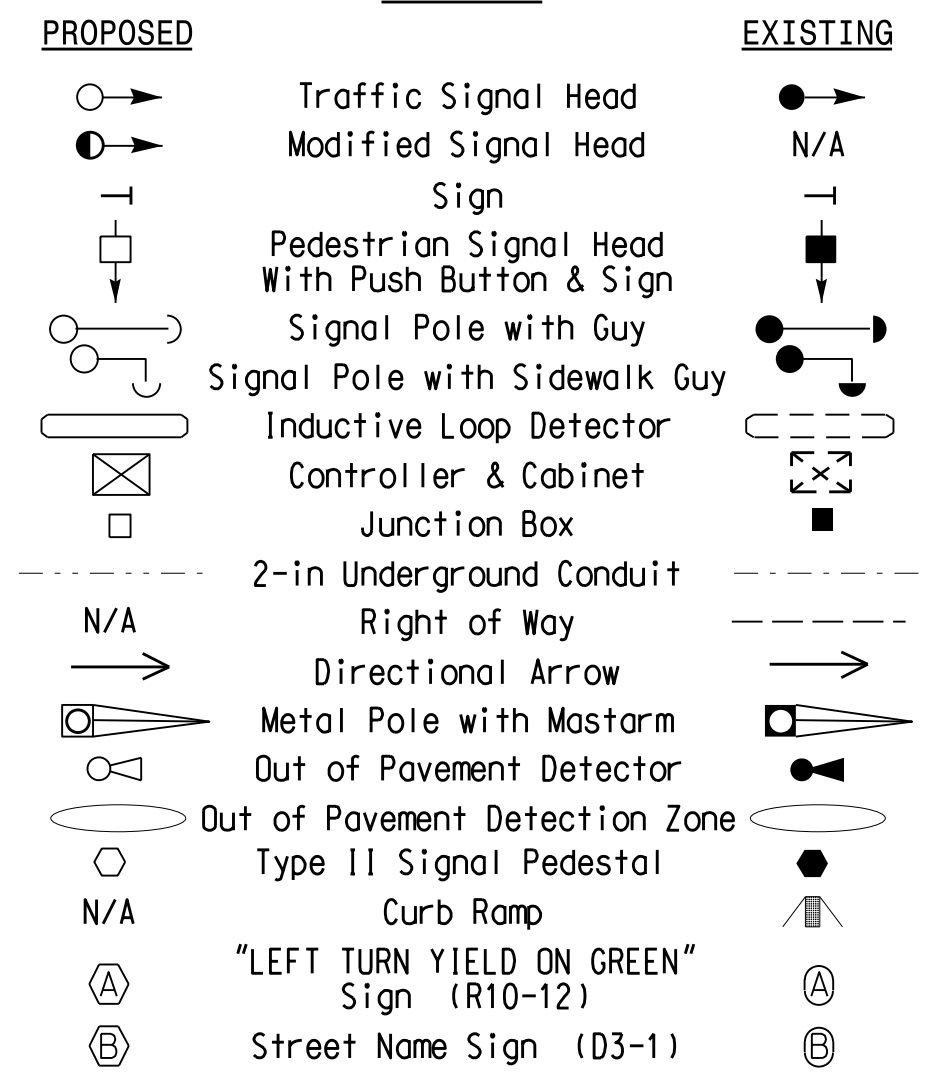


3 Phase Semi-Actuated (High Point Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Reposition existing signal head numbered 22.
5. Set all detector units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls for phase 4 and phase 8.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Existing "Left Turn Yield on Green" ball sign (R10-12) may be removed at the direction of the Engineer.
10. Pavement markings are existing unless otherwise shown.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND



FEATURE	PHASE				
	2	4	5	6	8
Min Green 1 *	10	7	7	10	7
Extension 1 *	0.0	2.0	2.0	0.0	2.0
Max Green 1 *	35	25	20	35	25
Yellow Clearance	3.9	3.7	3.0	3.9	3.4
Red Clearance	1.5	2.1	2.3	1.5	2.6
Walk 1 *	-	7	-	7	7
Don't Walk 1	-	19	-	10	20
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode	MAX RECALL	-	-	MAX/PED RECALL	-
Vehicle Call Memory	-	-	-	-	-
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

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

Signal Upgrade

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1009 (North Main Street) at Church Avenue

Division 7 Guilford County High Point

PLAN DATE: July 2014 REVIEWED BY:

PREPARED BY: R.N. Zinser REVIEWED BY:

REVISIONS: INIT. DATE

SCALE: 1"=20'

SEAL

Robert J. Zierba, Engineer

4/23/2015

SIG. INVENTORY NO. 07-0769

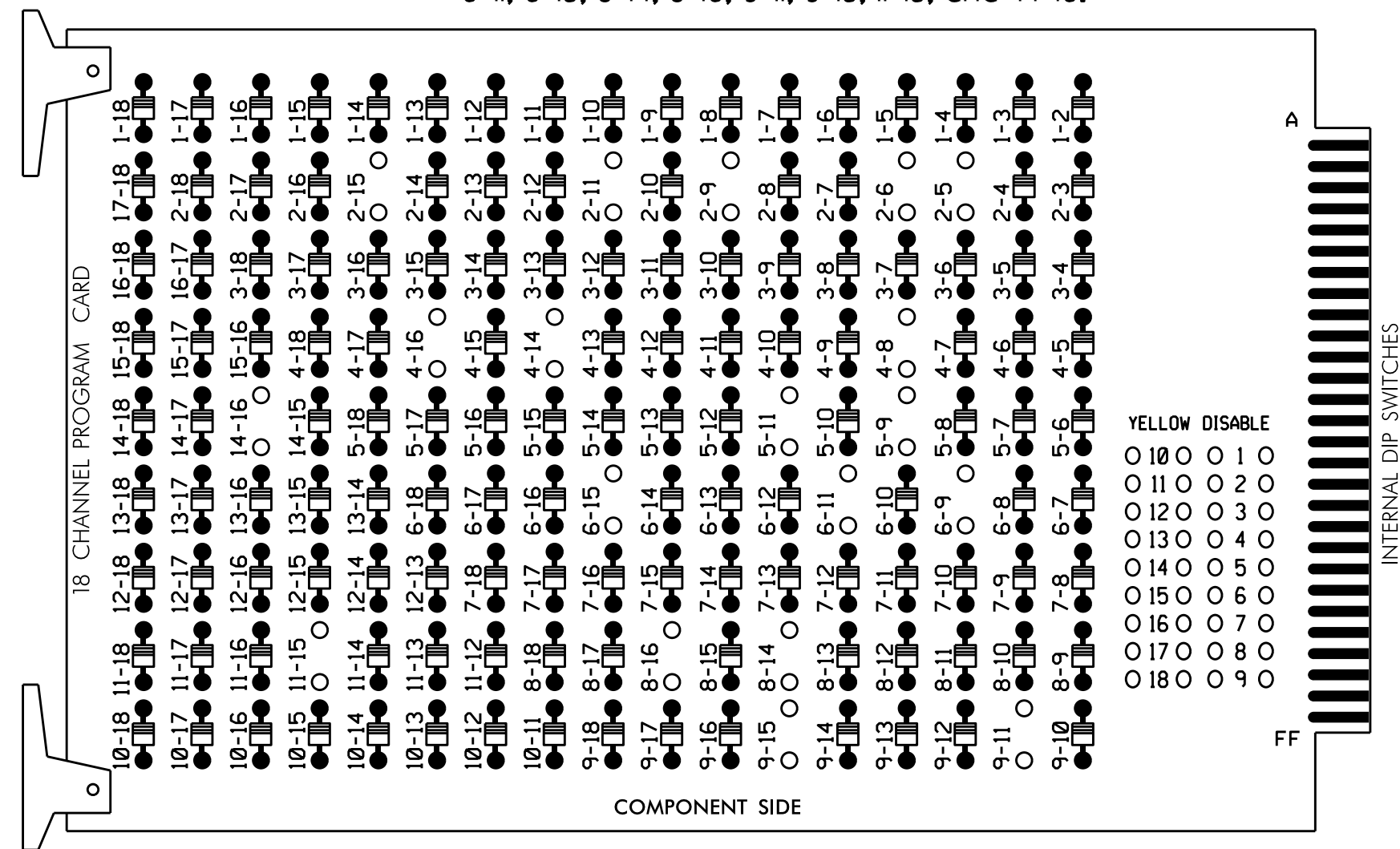
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EDI MODEL 2018ECLIP-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

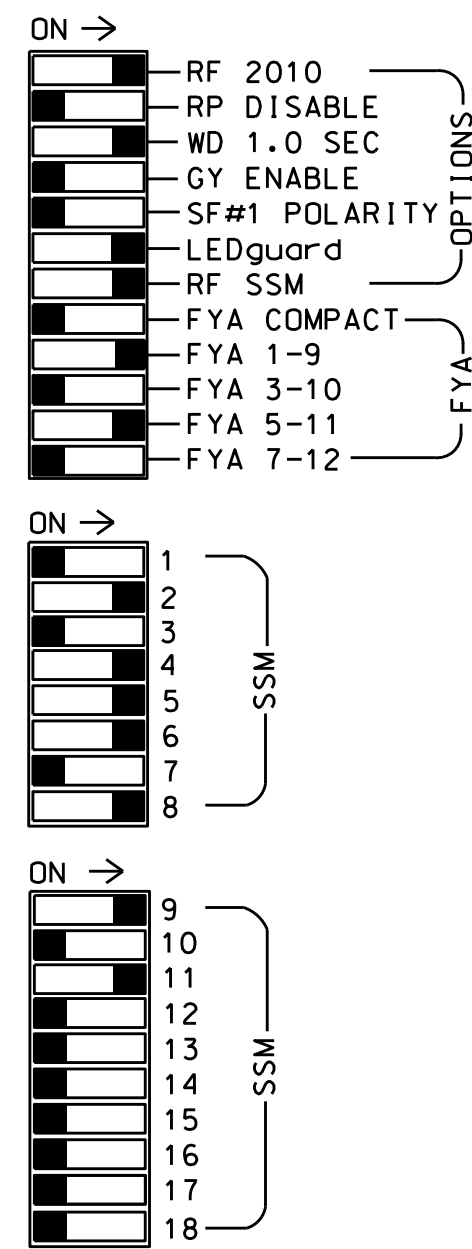
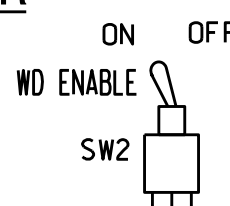
REMOVE DIODE JUMPERS 2-5, 2-6, 2-9, 2-11, 2-15, 4-8, 4-14, 4-16, 5-9, 5-11, 6-9, 6-11, 6-15, 8-14, 8-16, 9-11, 9-15, 11-15, and 14-16.



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.



■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 4, 6 and 8 for 'STARTUP PED CALL'.
6. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
7. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE LOAD SWITCHES USED.....S2,S5,S6,S7,S8,S9,S11,S12, AUX S1,AUX S4
 PHASES USED.....2,4,4PED,5,6,6PED,8,8PED
 OVERLAP "A".....2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....5+6
 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.	NU	21,22	NU	NU	41,42	P41, P42	42	51	61,62	P61, P62	NU	81,82	P81, P82	63	NU	51	NU	NU
RED		128			101		*		134			107						
YELLOW		129			102				135			108						
GREEN		130			103				136			109						
RED ARROW														A121				A114
YELLOW ARROW							132							A122				A115
FLASHING YELLOW ARROW														A123				A116
GREEN ARROW							133	133										
Hand							104					119						110
Person							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.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

INPUT FILE POSITION LAYOUT

(front view)

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

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

FS = FLASH SENSE
 ST = STOP TIME

NOTE: Zone 8A uses microwave detection. See Special Detector Note this sheet.

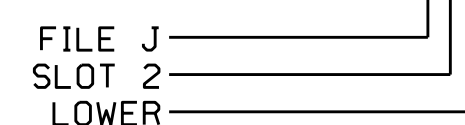
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			15
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			15
ZONE 8A	-	J6U	42	4	8	8	Y	Y			5
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
PED PUSH BUTTONS											
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P81,P82	TB8-8,9	I13L	70	32	PED 8	8 PED					

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

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

INPUT FILE POSITION LEGEND: J2L

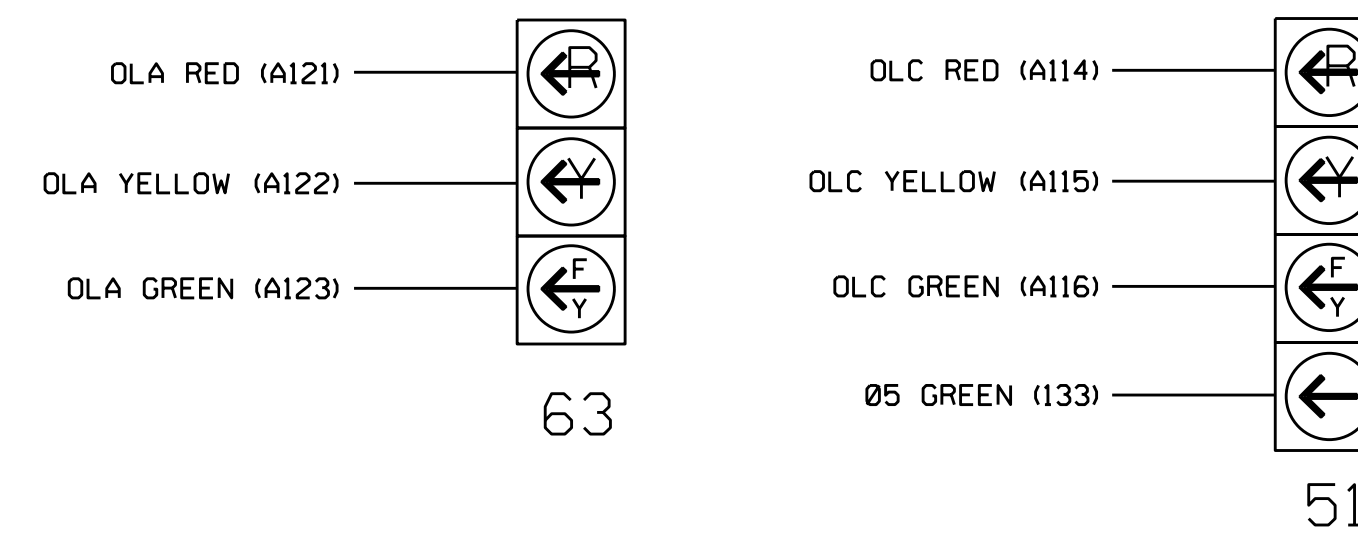


SPECIAL DETECTOR NOTE

For detection zone 8A, install a microwave 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.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

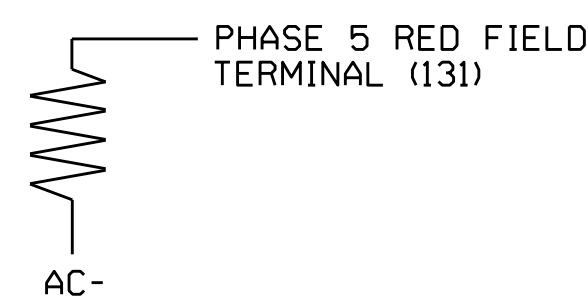
The sequence display for signal head 51 requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0769
 DESIGNED: July 2014
 SEALED: 4/21/2015
 REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

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



Electrical Detail - Sheet 1 of 2

Electrical and Programming Details for: SR 1009 (North Main Street) at Church Avenue

Prepared in the Offices of: TRANSPORTATION MOBILITY AND SAFETY CONSULTANTS, INC. (TRANSMOBILITY)

Division 7 Guilford County High Point

PLAN DATE: September 2014 REVIEWED BY: [Signature]

PREPARED BY: S. Armstrong REVIEWED BY: [Signature]

REVISIONS: [Table]

INIT. DATE

DocuSigned by: John T. Rowe, Jr. 4/22/2015

750 N. Greenfield Pkwy, Garner, NC 27529

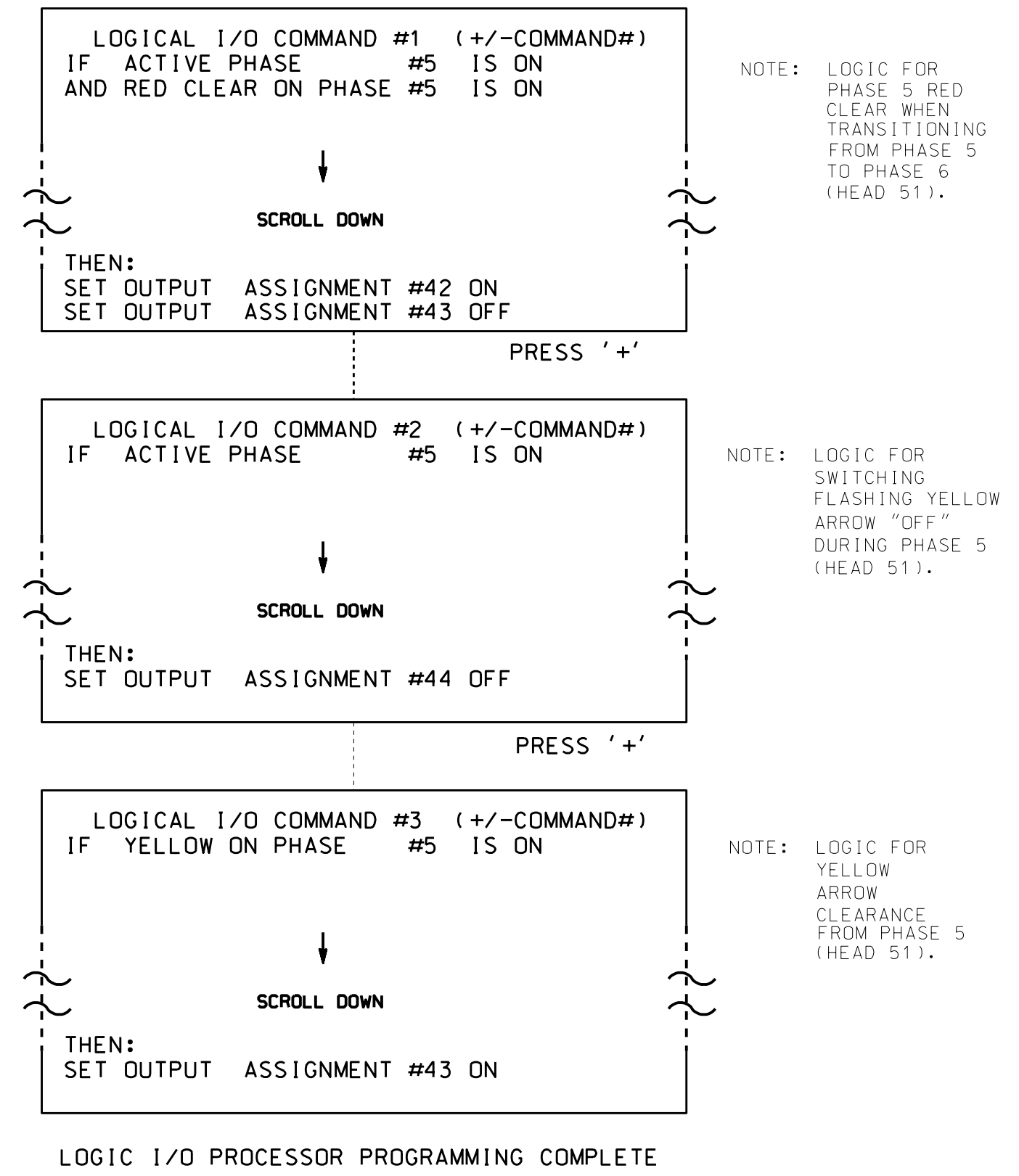
SEAL: JOHN T. ROWE, JR. ENGINEER

SIG. INVENTORY NO. 07-0769

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



OUTPUT REFERENCE SCHEDULE
OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS: X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS:  _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
  
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```

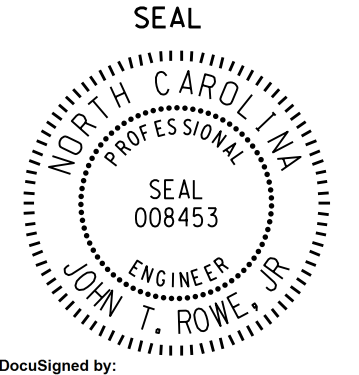

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS:  _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
  
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

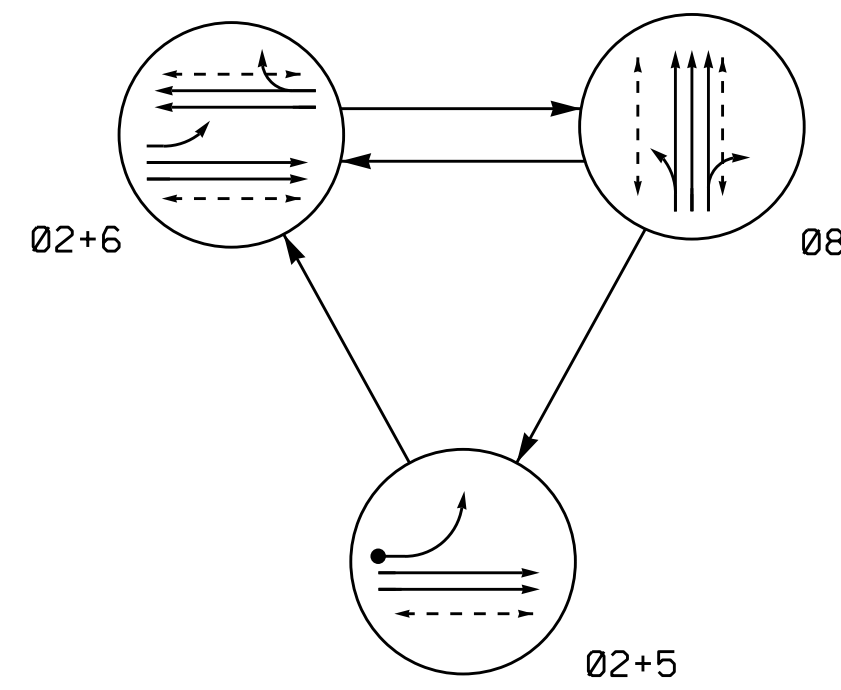
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0769 DESIGNED: July 2014 SEALED: 4/21/2015 REVISED: N/A

Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:	SR 1009 (North Main Street) at Church Avenue	SEAL 
	Division 7 Guilford County DE High Point	DocuSigned by: John T. Rowe, Jr. 4/22/2015 <small>DATE</small>
Prepared In the Offices of:	PLAN DATE: September 2014 REVIEWED BY: <i>JTR</i>	
750 N. Greenfield Pkwy, Garner, NC 27529	PREPARED BY: S. Armstrong REVIEWED BY:	SIG. INVENTORY NO. 07-0769

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PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

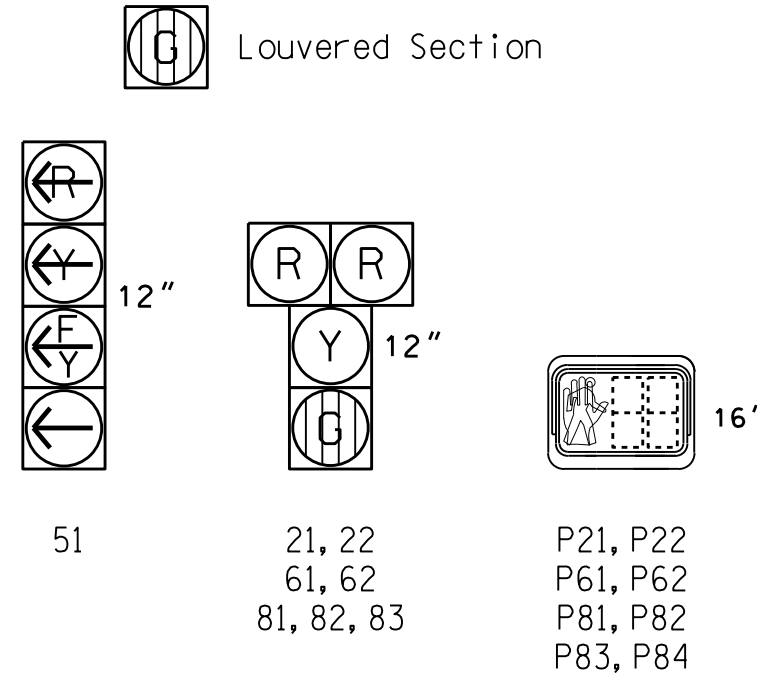
- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- ←---→ UNSIGNALIZED MOVEMENT
- ←- - -> PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE			
	02+6	02+5	08	FLASH
21, 22	G	G	R	Y
51	-	F	R	Y
61, 62	R	G	R	Y
81, 82, 83	R	R	G	R
P21, P22	W	W	DW	DRK
P61, P62	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK
P83, P84	DW	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.

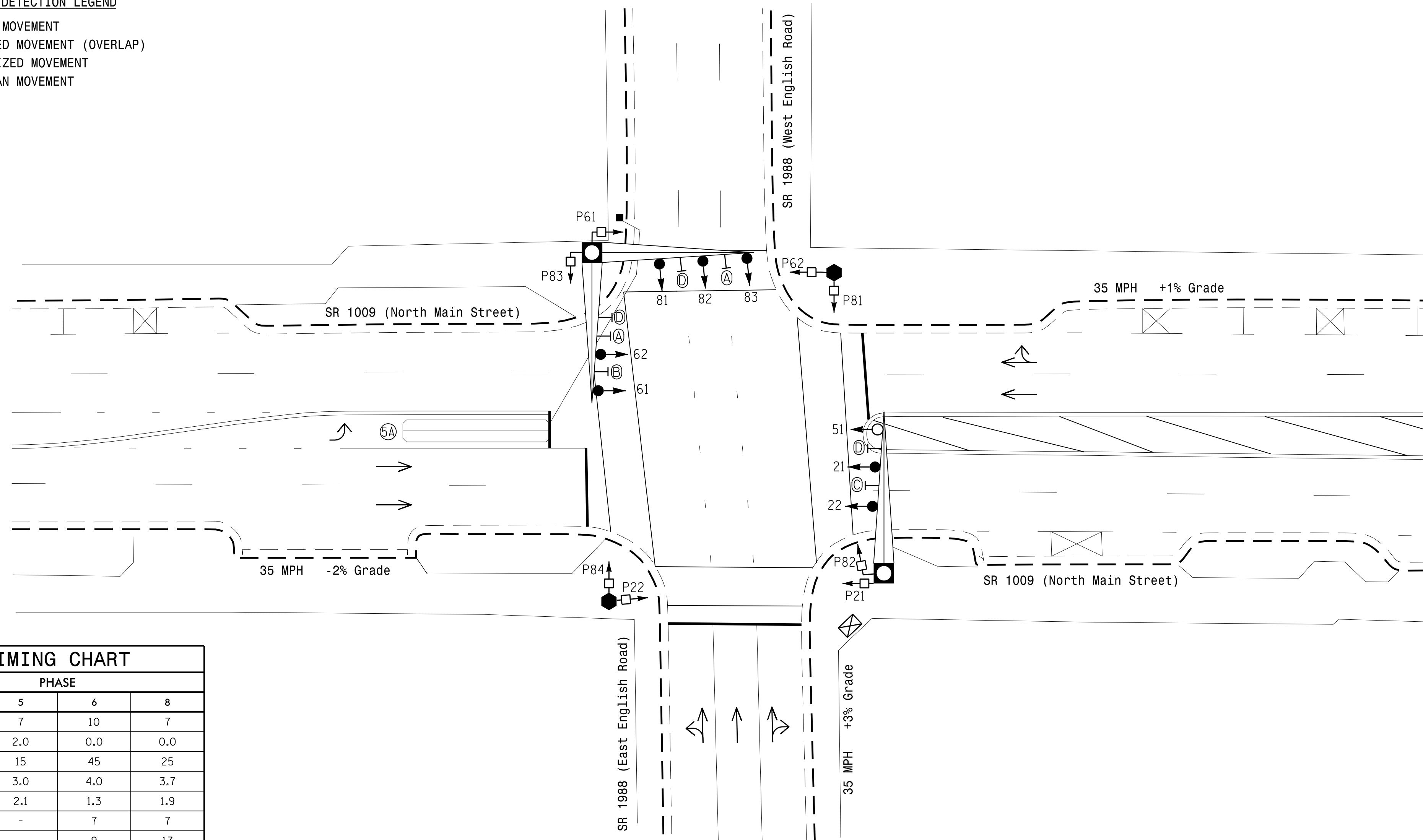


OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	LOOP SYSTEM	NEW CARD
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y

3 Phase Semi-Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Renumber existing signal phases and heads as shown.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Run new lead-in cable using existing conduit system.



FEATURE	PHASE			
	2	5	6	8
Min Green 1 *	10	7	10	7
Extension 1 *	0.0	2.0	0.0	0.0
Max Green 1 *	45	15	45	25
Yellow Clearance	4.0	3.0	4.0	3.7
Red Clearance	1.3	2.1	1.3	1.9
Walk 1 *	7	-	7	7
Don't Walk 1	9	-	9	17
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MAX/PED RECALL	-	MAX/PED RECALL	MAX/PED RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND

- | | | | |
|--|---|--|---|
| | PROPOSED Traffic Signal Head | | EXISTING Traffic Signal Head |
| | PROPOSED Modified Signal Head | | EXISTING N/A |
| | PROPOSED Pedestrian Signal Head | | EXISTING N/A |
| | PROPOSED Signal Pole with Guy | | EXISTING Signal Pole with Guy |
| | PROPOSED Inductive Loop Detector | | EXISTING Inductive Loop Detector |
| | PROPOSED Controller & Cabinet | | EXISTING Controller & Cabinet |
| | PROPOSED Junction Box | | EXISTING Junction Box |
| | PROPOSED 2-in Underground Conduit | | EXISTING 2-in Underground Conduit |
| | PROPOSED Right of Way | | EXISTING Right of Way |
| | PROPOSED Directional Arrow | | EXISTING Directional Arrow |
| | PROPOSED Metal Pole with Mastarm | | EXISTING Metal Pole with Mastarm |
| | PROPOSED Type II Signal Pedestal | | EXISTING Type II Signal Pedestal |
| | PROPOSED "NO TURN ON RED" Sign (R10-11) | | EXISTING "NO TURN ON RED" Sign (R10-11) |
| | PROPOSED Right "ONE WAY" Arrow Sign (R6-1R) | | EXISTING Right "ONE WAY" Arrow Sign (R6-1R) |
| | PROPOSED Left "ONE WAY" Arrow Sign (R6-1L) | | EXISTING Left "ONE WAY" Arrow Sign (R6-1L) |
| | PROPOSED Street Name Sign (D3-1) | | EXISTING Street Name Sign (D3-1) |

Signal Upgrade

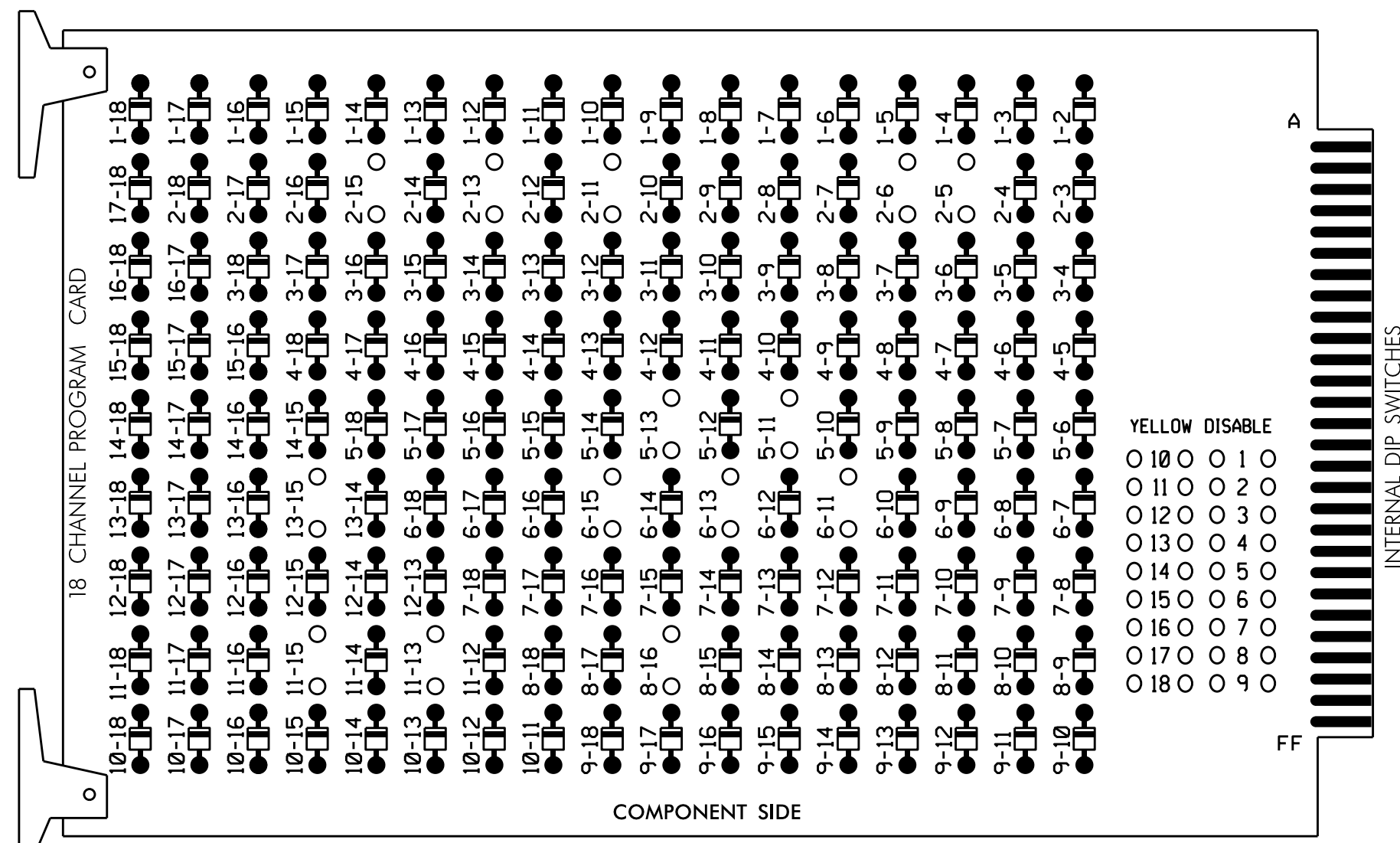
	SR 1009 (North Main Street) at SR 1988 (English Road)		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER ROBERT J. ZIEBEL 026486
	Division 7 Guilford County High Point	PREPARED BY: Jeff Spence R.N. Zinser REVIEWED BY:	
PLAN DATE: July 2014 PREPARED BY: R.N. Zinser REVIEWED BY:	REVISIONS	INIT. DATE	DATE: 4/27/2015 SIG. INVENTORY NO. 07-0770

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EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-5, 2-6, 2-11, 2-13, 2-15, 5-11, 5-13, 6-11, 6-13, 6-15, 8-16, 11-13, 11-15 and 13-15.



REMOVE JUMPERS AS SHOWN

NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2, 6 and 8 for 'STARTUP PED CALL'.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S3,S7,S8,S9,S11,S12,AUX S4
 PHASES USED.....2,2 PED,5,6,6 PED,8,8 PED
 OVERLAP "A".....NOT USED
 OVERLAP "B".....NOT USED
 OVERLAP "C".....5+6
 OVERLAP "D".....NOT USED

SIGNAL HEAD HOOK-UP CHART

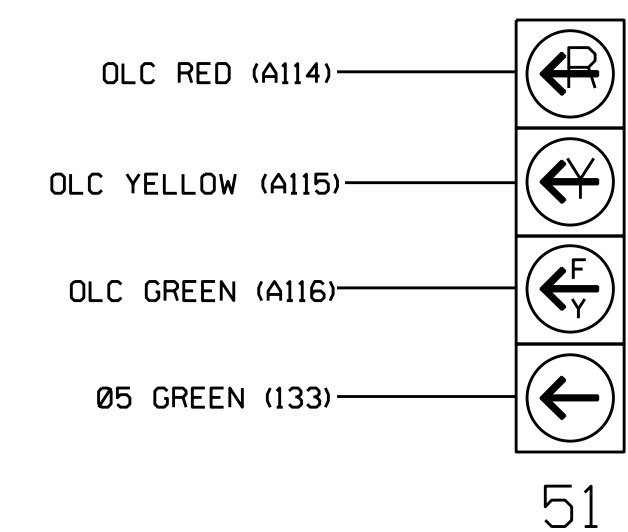
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6	
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18	
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE	
SIGNAL HEAD NO.	NU	21,22	P21, P22	NU	NU	NU	51	61,62	P61, P62	NU	81,82, 83	P81,P82 P83,P84	NU	NU	NU	51	NU	NU	
RED		128							134		107								
YELLOW		129					*	135			108								
GREEN		130							136		109								
RED ARROW																		A114	
YELLOW ARROW																			A115
FLASHING YELLOW ARROW																			A116
GREEN ARROW								133											
Hand			113						119		110								
Walking			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.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL



NOTE

1. The sequence display for this signal requires special logic programming. See sheet 2 of 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
L	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
U	Ø 5	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
L	5A	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
U	NOT USED	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
L	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS

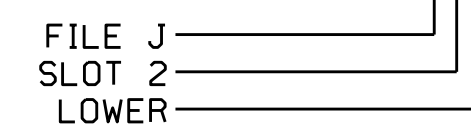
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
5A	T83-1,2	J1U	55	17	5	5	Y	Y			15

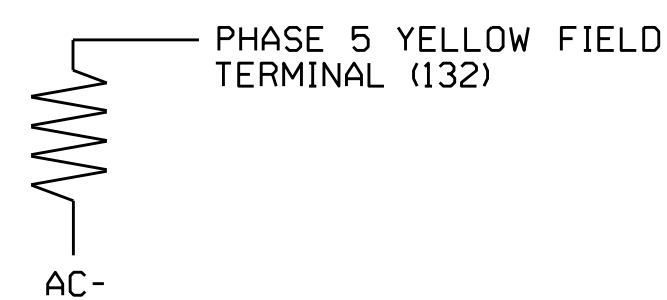
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



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.

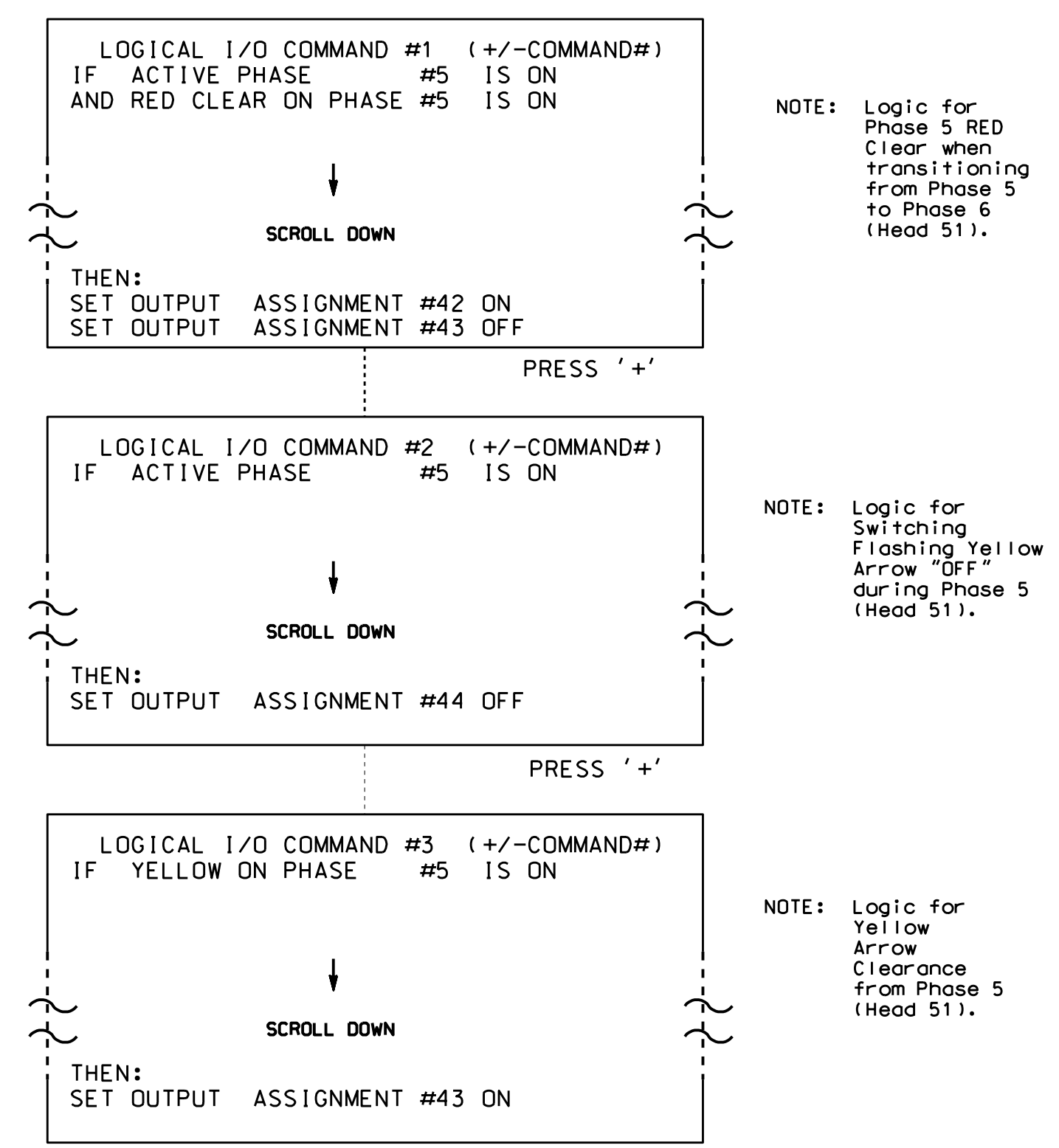
Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1009 (N. Main Street) at SR 1988 (English Rd.)	SEAL
	Division 7 Guilford County High Point PLAN DATE: September 2014 REVIEWED BY: T. Joyce PREPARED BY: B. SIMMONS REVIEWED BY:	REVISIONS INIT. DATE	DocuSigned by: George C. Brown 5/1/2015 F12061ED08E8434 DATE

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. From Main Menu press '2' (PHASE CONTROL), then '1' (PHASE CONTROL FUNCTIONS). Scroll to the bottom of the menu and Enable ACT Logic Commands 1, 2 and 3.
2. From Main Menu press '6' (OUTPUTS), then '3' (LOGICAL I/O PROCESSOR).



NOTE: Logic for Phase 5 RED Clear when transitioning from Phase 5 to Phase 6 (Head 51).

NOTE: Logic for Switching Flashing Yellow Arrow "OFF" during Phase 5 (Head 51).

NOTE: Logic for Yellow Arrow Clearance from Phase 5 (Head 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE
OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).
PRESS '+' TWICE

```

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS:  XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:  (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

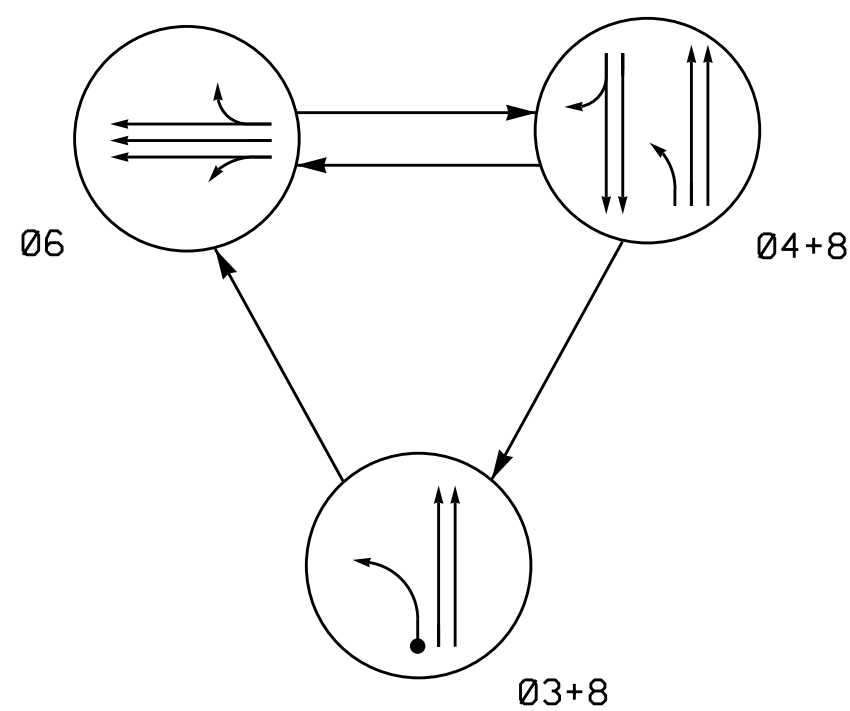
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0770
DESIGNED: July 2014
SEALED: 4/27/15
REVISED: N/A

Electrical Detail - Sheet 2 of 2

	ELECTRICAL AND PROGRAMMING DETAILS FOR: SR 1009 (N. Main Street) at SR 1988 (English Rd.)	SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN
	Division 7 Guilford County High Point PLAN DATE: September 2014 REVIEWED BY: T. Joyce PREPARED BY: B. SIMMONS REVIEWED BY:	DocuSigned by: 5/1/2015 F12061ED08E8434 DATE
REVISIONS INIT. DATE	SIG. INVENTORY NO. 07-0770	

C:\MSW_2015_11\51
 S:\MITSU\TIS\Sig\Man\5\simmons\working\Folder\High Point\07070L_sml.ele_xxx.dgn
 bis\simmons

PHASING DIAGRAM



SIGNAL FACE	PHASE			
	Ø6	Ø4+8	Ø3+8	F.L.
31	R	E	Y	R
41, 42	R	G	R	R
61, 62, 63	G	R	R	Y
81, 82	R	G	G	R

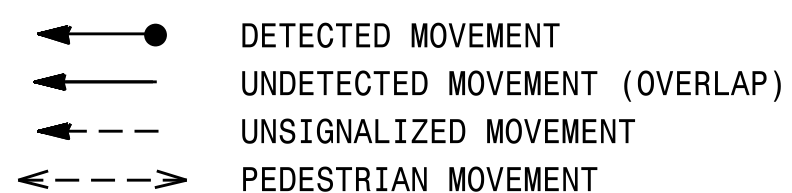
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING			
				NEW LOOP	PHASE	CALLING	EXTENSION
3A	6X40	0	2-4-2	-	3	Y	Y
S1	6X6	EXIST	EXIST	-	-	-	-
S2	6X6	EXIST	EXIST	-	-	-	-
S3	6X6	EXIST	EXIST	-	-	-	-

3 Phase Semi-Actuated (High Point Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 3 may be led.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Pavement markings are existing.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

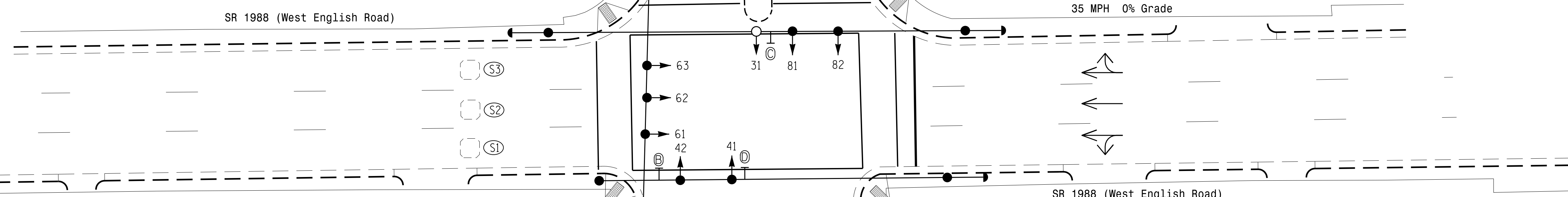
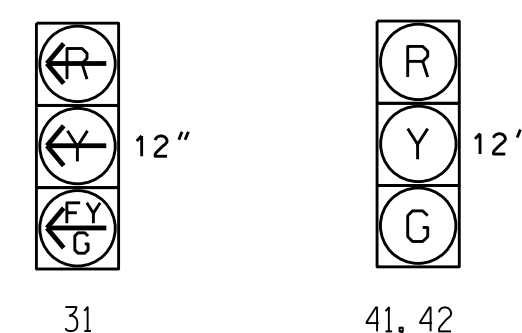
PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.

All Heads L.E.D.

Ø = Bimodal Section



FEATURE	PHASE			
	3	4	6	8
Min Green 1 *	7	7	10	7
Extension 1 *	2.0	0.0	0.0	0.0
Max Green 1 *	30	30	45	30
Yellow Clearance	3.0	4.1	3.8	4.1
Red Clearance	2.1	1.3	1.8	1.3
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	-	MAX RECALL	MAX RECALL	MAX RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND

PROPOSED	EXISTING		
[Symbol: Circle with dot]	Traffic Signal Head	[Symbol: Circle with dot]	Traffic Signal Head
[Symbol: Circle with dot and arrow]	Modified Signal Head	[Symbol: Circle with dot]	N/A
[Symbol: Circle with vertical line]	Sign	[Symbol: Circle with vertical line]	N/A
[Symbol: Circle with vertical line and arrow]	Pedestrian Signal Head With Push Button & Sign	[Symbol: Circle with vertical line and arrow]	N/A
[Symbol: Circle with vertical line and dot]	Signal Pole with Guy	[Symbol: Circle with vertical line and dot]	N/A
[Symbol: Circle with vertical line and square]	Signal Pole with Sidewalk Guy	[Symbol: Circle with vertical line and square]	N/A
[Symbol: Rectangle with 'X']	Inductive Loop Detector	[Symbol: Rectangle with 'X']	N/A
[Symbol: Square with 'X']	Controller & Cabinet	[Symbol: Square with 'X']	N/A
[Symbol: Square]	Junction Box	[Symbol: Square]	N/A
[Symbol: Dashed line]	2-in Underground Conduit	[Symbol: Dashed line]	N/A
[Symbol: Dashed line]	Right of Way	[Symbol: Dashed line]	N/A
[Symbol: Arrow]	Directional Arrow	[Symbol: Arrow]	N/A
[Symbol: Arrow]	Curb Ramp	[Symbol: Arrow]	N/A
[Symbol: Triangle]	No U-Turn Sign (R3-4)	[Symbol: Triangle]	A
[Symbol: Circle]	"NO TURN ON RED" Sign (R10-11)	[Symbol: Circle]	B
[Symbol: Circle]	Left "ONE WAY" Arrow Sign (R6-1L)	[Symbol: Circle]	C
[Symbol: Circle]	Right "ONE WAY" Arrow Sign (R6-1R)	[Symbol: Circle]	D

Signal Upgrade

Prepared in the Offices of:

SR 1988 (West English Road) at North Elm Street

Division 7 Guilford County High Point

PLAN DATE: August 2014 PREPARED BY: Jeff Spence
 PREPARED BY: N. Brinkley REVIEWED BY:

SEAL

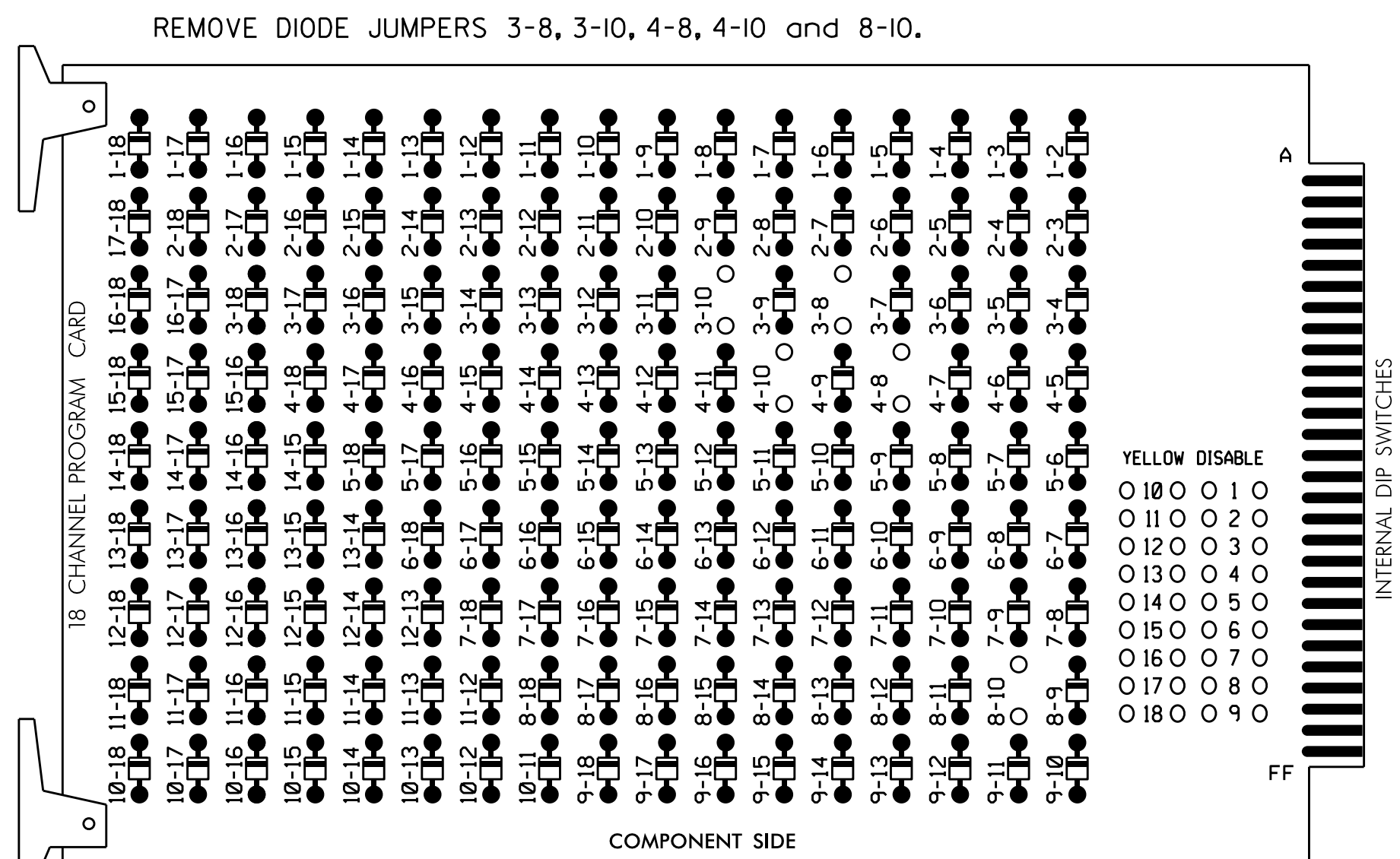
750 N. Greenfield Pkwy, Garner, NC 27529

SCALE 0 20
1"=20'

SIG. INVENTORY NO. 07-0771

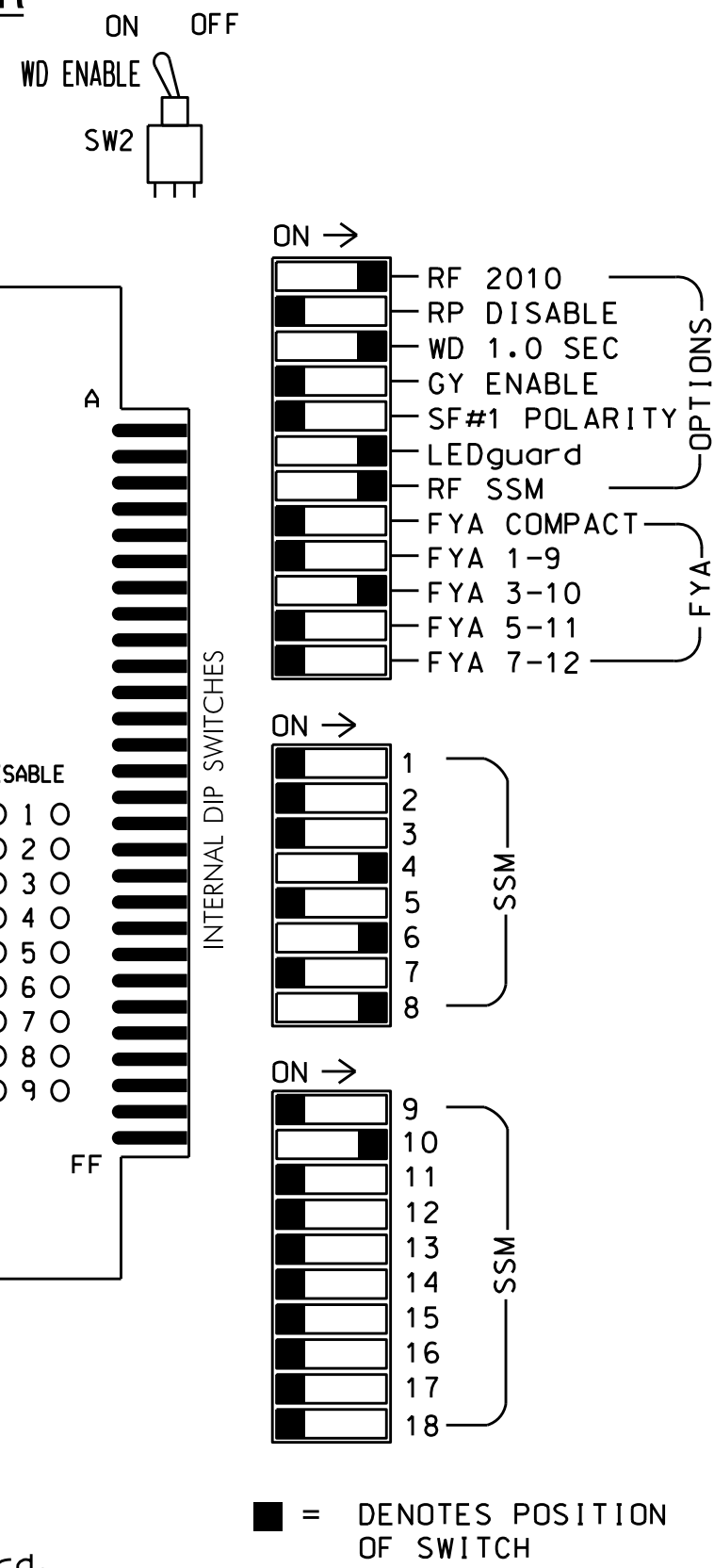
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Start Up In Green.
4. Program phase 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
5. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S4,S5,S8,S11,AUX S2
 PHASES USED.....3,4,6,8
 OVERLAP "A".....NOT USED
 OVERLAP "B".....3+4
 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	*DLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	NU	NU	31	41,42	NU	NU	61,62,63	NU	NU	81,82	NU	NU	31	NU	NU	NU	NU
RED					101			134			107							
YELLOW				*	102			135			108							
GREEN					103			136			109							
RED ARROW																		A124
YELLOW ARROW																		A125
FLASHING YELLOW ARROW																		A126
GREEN ARROW																		118

NU = Not Used

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

** FLASH NOTE: To ensure head 31 flashes concurrently with heads 81 and 82 remove the wire from O1-5 on the rear of the Output File and terminate it on O1-7.

* See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

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

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

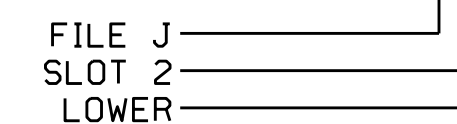
FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			15
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					

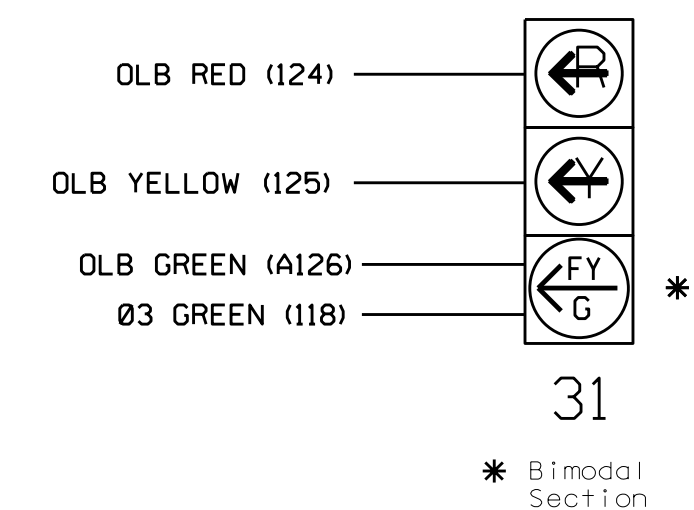
* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for these signals require special logic programming. See sheet 2 for programming instructions.

PHASE SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

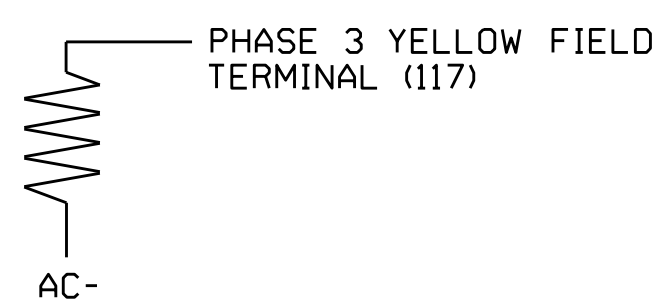
FROM OASIS LOCAL CONTROLLER MAIN MENU
 SELECT: 4 PHASE SEQUENCE

PHASE SEQUENCE: PAGE 1	NEXT: PAGES)	RNG:LEAD	BARRIER 1	X-LAG:LEAD	BARRIER 2	X-LAG:LEAD	BARRIER 3	X-LAG
1	0	0	0	0	4	3	0	0
0	0	6	0	0	8	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

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



Electrical Detail - Sheet 1 of 2

Electrical and Programming Details for: SR 1998 (West English Road) at North Elm Street

Division 7 Guilford County High Point

PLAN DATE: December 2014 REVIEWED BY: T. Joyce

PREPARED BY: B. SIMMONS REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: George C. Brown 3/17/2015

750 N. Greenfield Pkwy, Garner, NC 27529

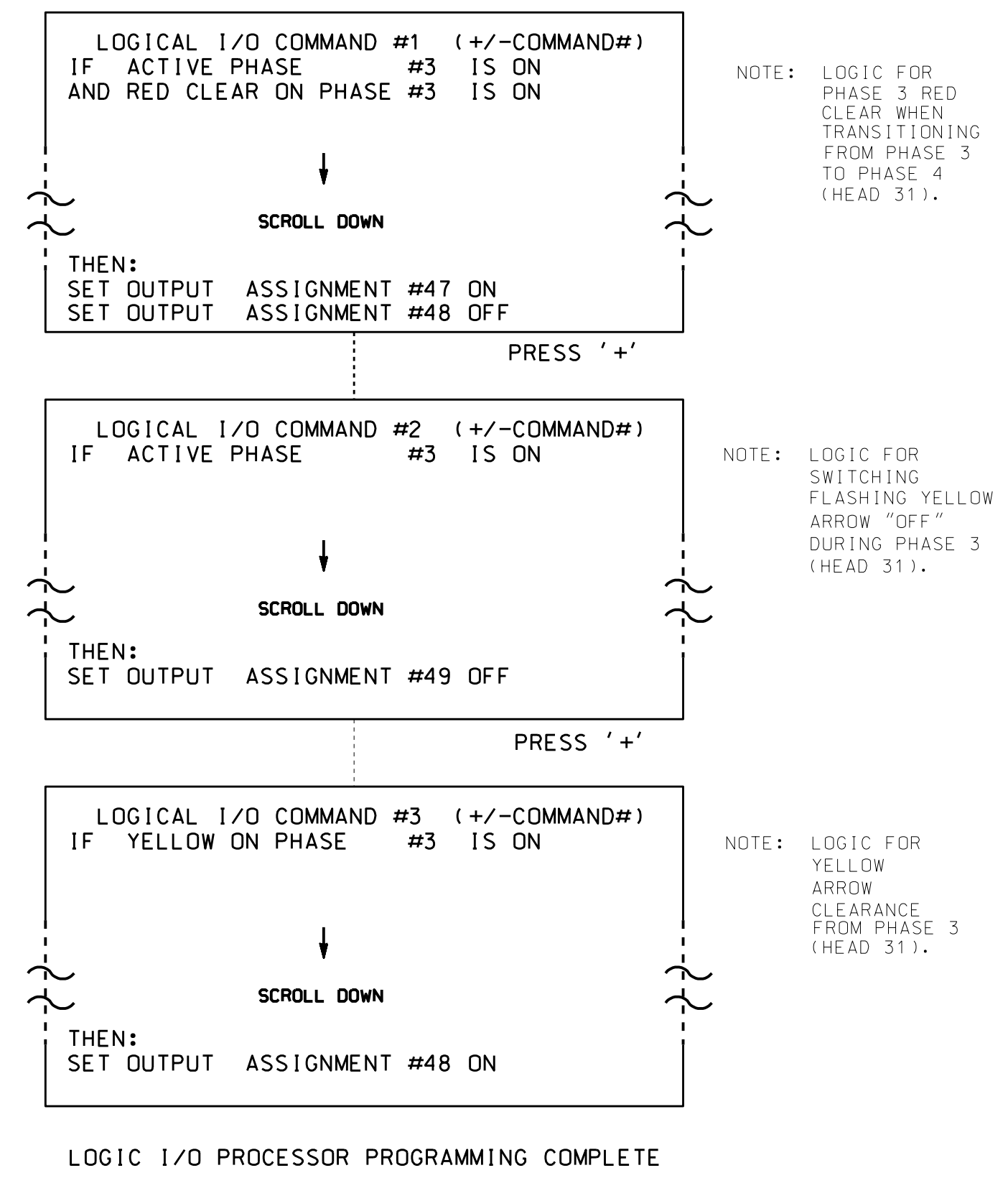
SEAL: PROFESSIONAL ENGINEER GEORGE C. BROWN

SIG. INVENTORY NO. 07-0771

**LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE**

(program controller as shown below)

- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS), SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE	
OUTPUT 47 =	Overlap B Red
OUTPUT 48 =	Overlap B Yellow
OUTPUT 49 =	Overlap B Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).
PRESS '+' ONCE

```

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
  
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

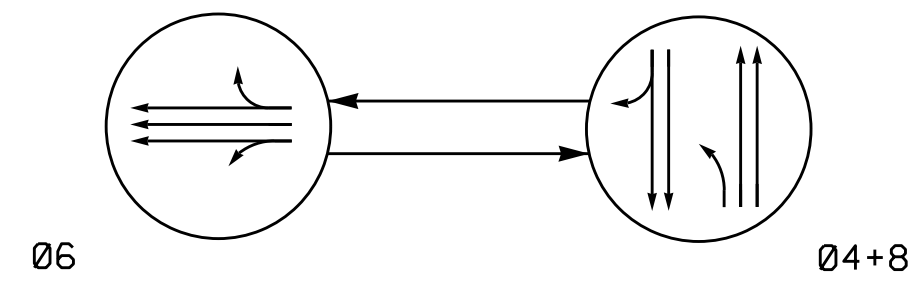
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0771
DESIGNED: August 2014
SEALED: 3/11/15
REVISED: N/A

Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1998 (West English Road) at North Elm Street		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN
	Division 7 PLAN DATE: December 2014 PREPARED BY: B. SIMMONS	Guilford County High Point REVIEWED BY: T. Joyce REVIEWED BY:	REVISIONS INIT. DATE	DocuSigned by: 3/17/2015 F12061ED08E8434 DATE SIG. INVENTORY NO. 07-0771

I:\MSB-2014-12\21
 S:\MITSUBISHI\SIGNAL\working\groups\Sig_Mark\5\simmons\working Folder\High Point\070771_sml.ele...xxx.dgn
 bis\simmons

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

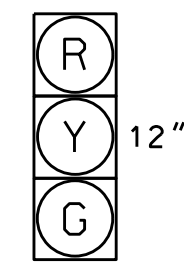
- DETECTED MOVEMENT
- ◄ UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ⋯ PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	06	04+8	F L R
41, 42	R	G	R
61, 62, 63	G	R	Y
81, 82, 83	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.

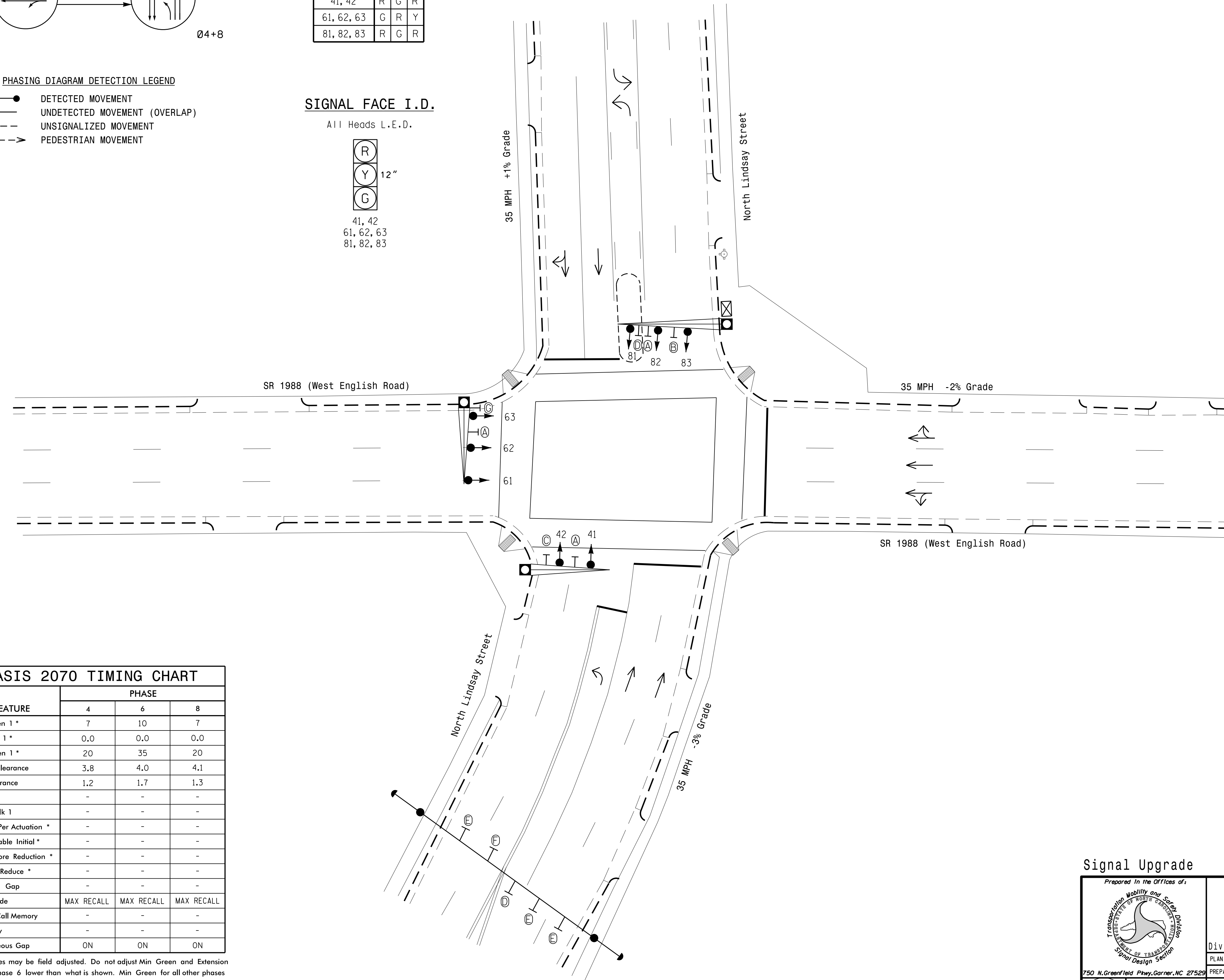


41, 42
61, 62, 63
81, 82, 83

2 Phase
Pre-Timed
(High Point Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
4. Existing lane control signs may be removed at the direction of the Engineer.
5. Pavement markings are existing.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

- | PROPOSED | EXISTING |
|--|--|
| ○ → Traffic Signal Head | ● → N/A |
| ● → Modified Signal Head | □ → N/A |
| □ → Pedestrian Signal Head With Push Button & Sign | ● → Signal Pole with Guy |
| □ → Signal Pole with Guy | ● → Signal Pole with Sidewalk Guy |
| □ → Inductive Loop Detector | □ → Controller & Cabinet |
| □ → Junction Box | □ → 2-in Underground Conduit |
| N/A → Right of Way | → → Directional Arrow |
| ○ → Metal Pole with Mastarm | ○ → Curb Ramp |
| (A) → Street Name Sign (D3-1) | (A) → Left "ONE WAY" Arrow Sign (R6-1L) |
| (B) → Left "ONE WAY" Arrow Sign (R6-1L) | (B) → Right "ONE WAY" Arrow Sign (R6-1R) |
| (C) → Right "ONE WAY" Arrow Sign (R6-1R) | (C) → Left Arrow "ONLY" Sign (R3-5L) |
| (D) → Left Arrow "ONLY" Sign (R3-5L) | (D) → Through Arrow "ONLY" Sign (R3-5A) |
| (E) → Through Arrow "ONLY" Sign (R3-5A) | (E) → Combined Through and Left Arrow Sign (R3-6L) |
| (F) → Combined Through and Left Arrow Sign (R3-6L) | (F) → "TURNING TRAFFIC MUST YIELD TO PEDESTRIANS" Sign w/Orange Panels |
| (G) → "TURNING TRAFFIC MUST YIELD TO PEDESTRIANS" Sign w/Orange Panels | (G) → N/A |

FEATURE	PHASE		
	4	6	8
Min Green 1 *	7	10	7
Extension 1 *	0.0	0.0	0.0
Max Green 1 *	20	35	20
Yellow Clearance	3.8	4.0	4.1
Red Clearance	1.2	1.7	1.3
Walk 1 *	-	-	-
Don't Walk 1	-	-	-
Seconds Per Actuation *	-	-	-
Max Variable Initial *	-	-	-
Time Before Reduction *	-	-	-
Time To Reduce *	-	-	-
Minimum Gap	-	-	-
Recall Mode	MAX RECALL	MAX RECALL	MAX RECALL
Vehicle Call Memory	-	-	-
Dual Entry	-	-	-
Simultaneous Gap	ON	ON	ON

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

Signal Upgrade

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1988 (West English Road)
at
North Lindsay Street

Division 7 Guilford County High Point

PLAN DATE: September 2014 REVIEWED BY:

PREPARED BY: Jeff Spence REVIEWED BY:

REVISIONS: INIT. DATE

SCALE: 1"=20'

SEAL

ROBERT J. ZIEMBA
ENGINEER

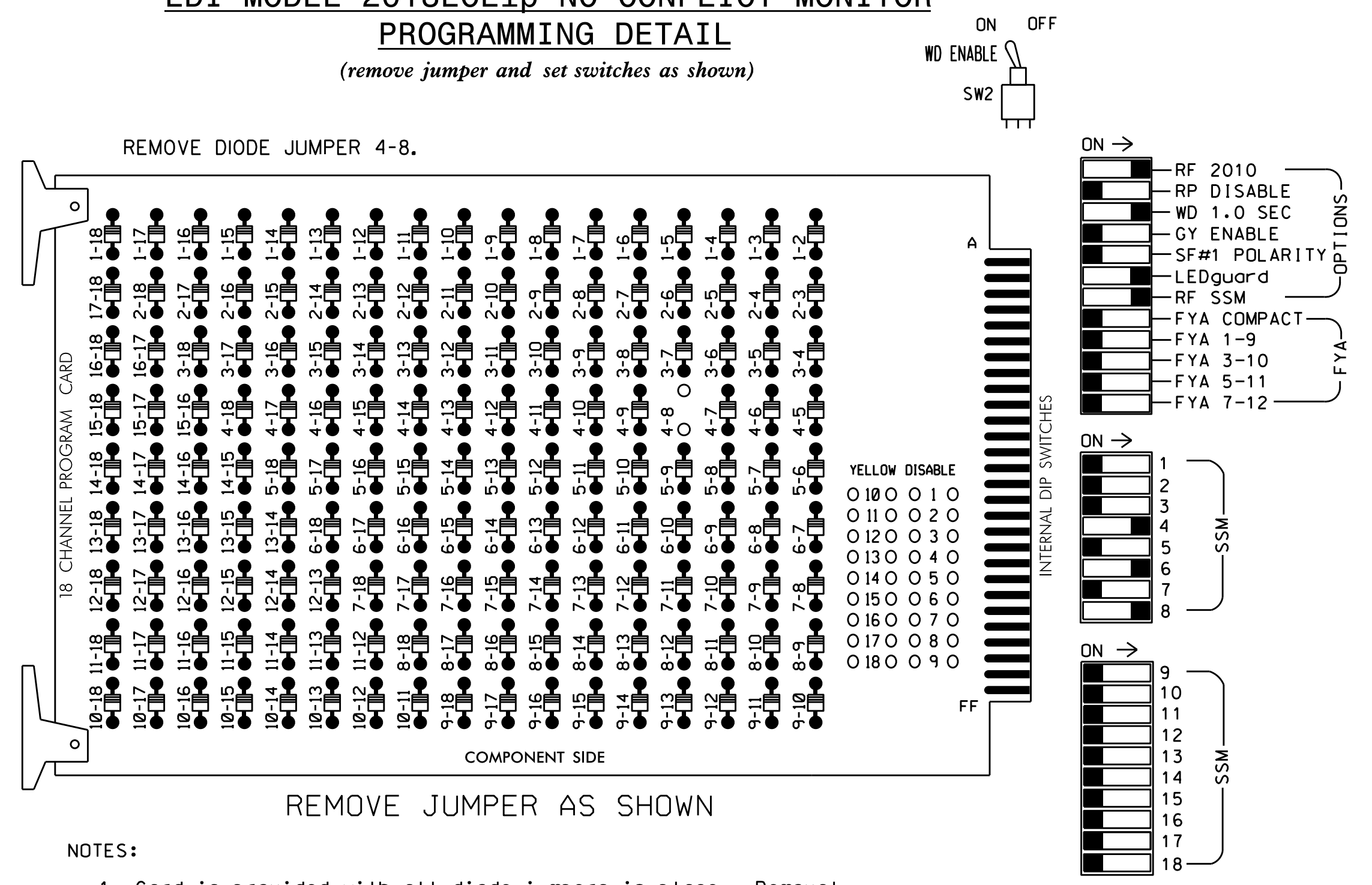
3/18/2015
DATE

SIG. INVENTORY NO. 07-0772

18-MAR-2015 12:24
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumper and set switches as shown)



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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Start Up In Green.
4. Program phase 6 for Yellow Flash.
5. The cabinet and controller are part of the High Point Signal System.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	NU	NU	NU	41,42	NU	NU	61, 62,63	NU	NU	81, 82,83	NU
RED					101			134			107	
YELLOW					102			135			108	
GREEN					103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

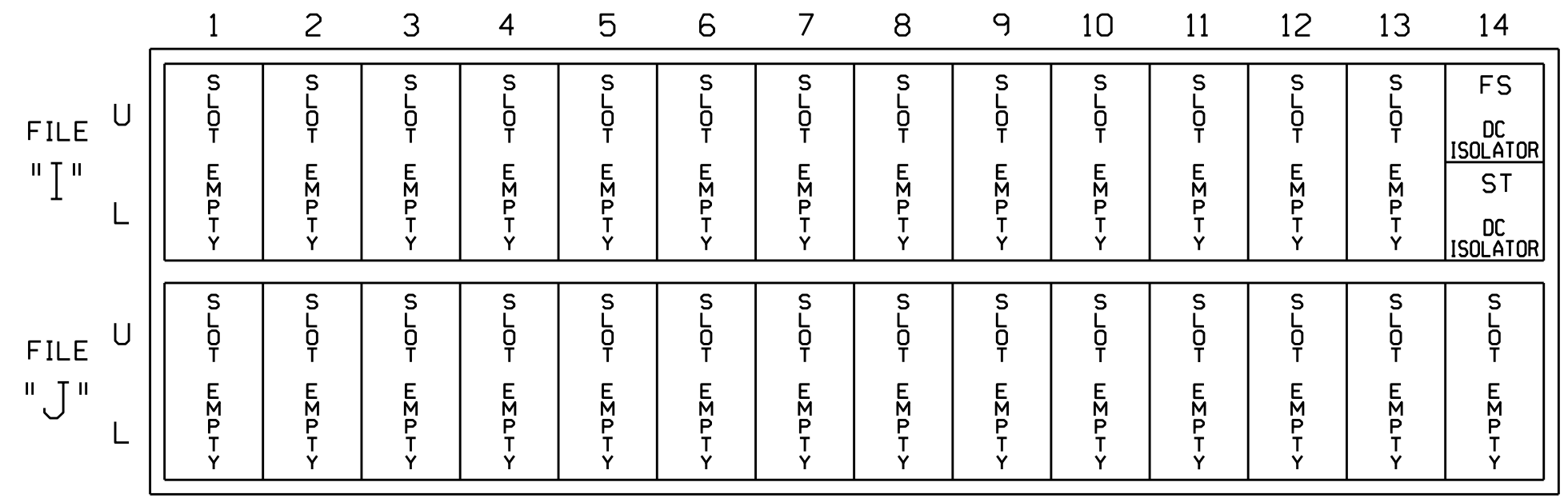
NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S5,S8,S11
 PHASES USED.....4,6,8
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)



EX. : 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0772
 DESIGNED: September 2014
 SEALED: 3/18/15
 REVISED: N/A

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR: **SR 1988 (West English Road) at North Lindsay Street**

Prepared In the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

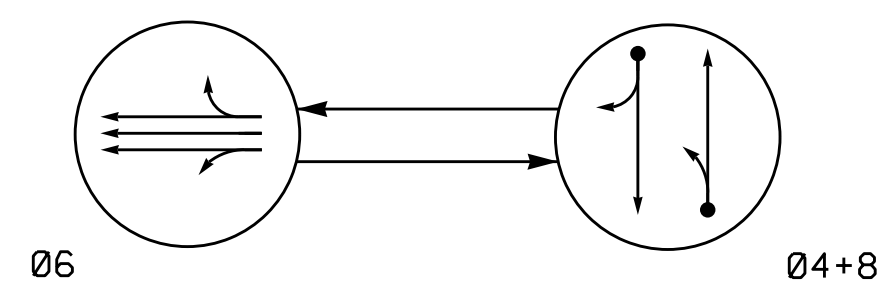
Division 7 Guilford County High Point
 PLAN DATE: December 2014 REVIEWED BY: T. Joyce
 PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS: _____ INIT. DATE: _____

DocuSigned by: **George C. Brown** 3/20/2015
 SEAL 022013 ENGINEER GEORGE C. BROWN
 SIG. INVENTORY NO. 07-0772

C:\Users\mstrickland\Documents\2014\1988\1988-0772\1988-0772-sm.ele.xxx.dgn
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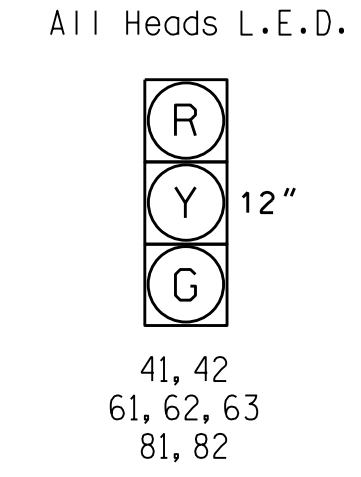
PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND
 ←● DETECTED MOVEMENT
 ← UNDETECTED MOVEMENT (OVERLAP)
 - - - UNSIGNALIZED MOVEMENT
 ← - - - PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE		
	06	04+8	FLASH
41, 42	R	G	R
61, 62, 63	G	R	Y
81, 82	R	G	R

SIGNAL FACE I.D.

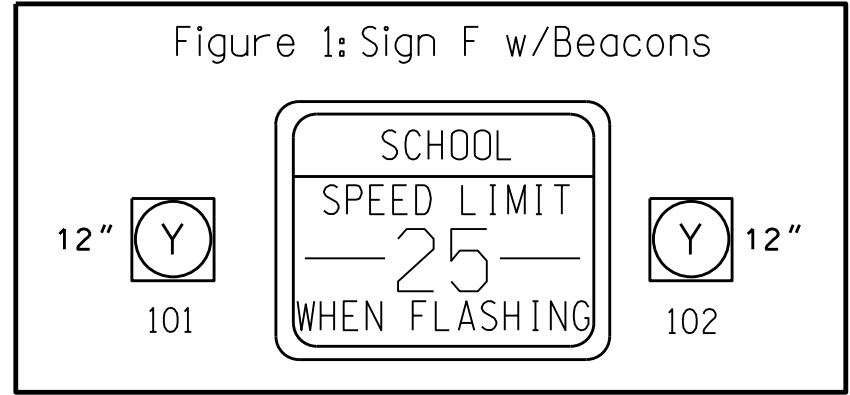


SCHOOL FLASHER TABLE OF OPERATION

SIGNAL FACE	INTERVAL	
	1	2
101	ON	OFF
102	OFF	ON

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

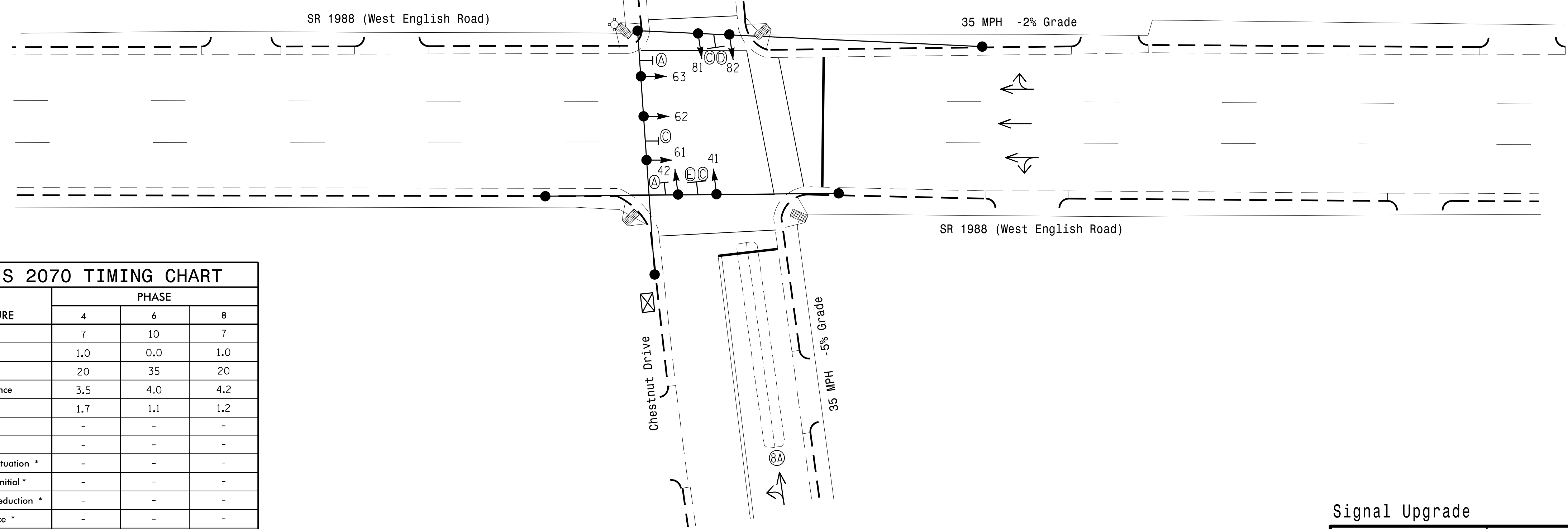
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	-	-	Y
8A	6X60	0	2-4-2	-	8	Y	Y	-	-	3	-	Y



2 Phase Semi-Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- The Division Traffic Engineer will determine the hours of use for the school warning beacons.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE		
	4	6	8
Min Green 1 *	7	10	7
Extension 1 *	1.0	0.0	1.0
Max Green 1 *	20	35	20
Yellow Clearance	3.5	4.0	4.2
Red Clearance	1.7	1.1	1.2
Walk 1 *	-	-	-
Don't Walk 1	-	-	-
Seconds Per Actuation *	-	-	-
Max Variable Initial *	-	-	-
Time Before Reduction *	-	-	-
Time To Reduce *	-	-	-
Minimum Gap	-	-	-
Recall Mode	-	MAX RECALL	-
Vehicle Call Memory	-	YELLOW	-
Dual Entry	ON	-	ON
Simultaneous Gap	ON	ON	-

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

LEGEND

PROPOSED	EXISTING
○ → Traffic Signal Head	● → N/A
● → Modified Signal Head	— Sign
⊥ Pedestrian Signal Head	⊥ Sign With Push Button & Sign
○ ⊥ Signal Pole with Guy	● ⊥ Signal Pole with Sidewalk Guy
⊥ ⊥ Inductive Loop Detector	⊥ ⊥ Controller & Cabinet
⊥ ⊥ Junction Box	⊥ ⊥ Junction Box
⊥ ⊥ 2-in Underground Conduit	⊥ ⊥ Right of Way
→ Directional Arrow	→ Directional Arrow
N/A Curb Ramp	⊥ Curb Ramp
(A) "NO TURN ON RED" Sign (R10-11)	(A) "NO TURN ON RED" Sign (R10-11)
(B) "STOP HERE ON RED" Sign (R10-6)	(B) "STOP HERE ON RED" Sign (R10-6)
(C) Street Name Sign (D3-1)	(C) Street Name Sign (D3-1)
(D) Left "ONE WAY" Arrow Sign (R6-1L)	(D) Left "ONE WAY" Arrow Sign (R6-1L)
(E) Right "ONE WAY" Arrow Sign (R6-1R)	(E) Right "ONE WAY" Arrow Sign (R6-1R)
(F) "SCHOOL SPEED LIMIT 25 WHEN FLASHING" Sign (S5-1) w/ Beacons (See Figure 1)	(F) "SCHOOL SPEED LIMIT 25 WHEN FLASHING" Sign (S5-1) w/ Beacons (See Figure 1)

Signal Upgrade

Prepared in the Offices of:
 TRANSPORTATION MOBILITY AND SAFETY DIVISION
 DIVISION OF TRANSPORTATION
 SIGNAL DESIGN SECTION
 750 N. Greenfield Pkwy, Garner, NC 27529

SR 1988 (West English Road) at Chestnut Drive

Division 7 Guilford County High Point

PLAN DATE: September 2014 REVIEWED BY: Jeff Spence

PREPARED BY: Jeff Spence REVIEWED BY: [Signature]

REVISIONS: [Table with columns for REVISIONS, INIT., DATE]

SCALE: 1"=20'

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER ROBERT J. ZIEMBA 026486

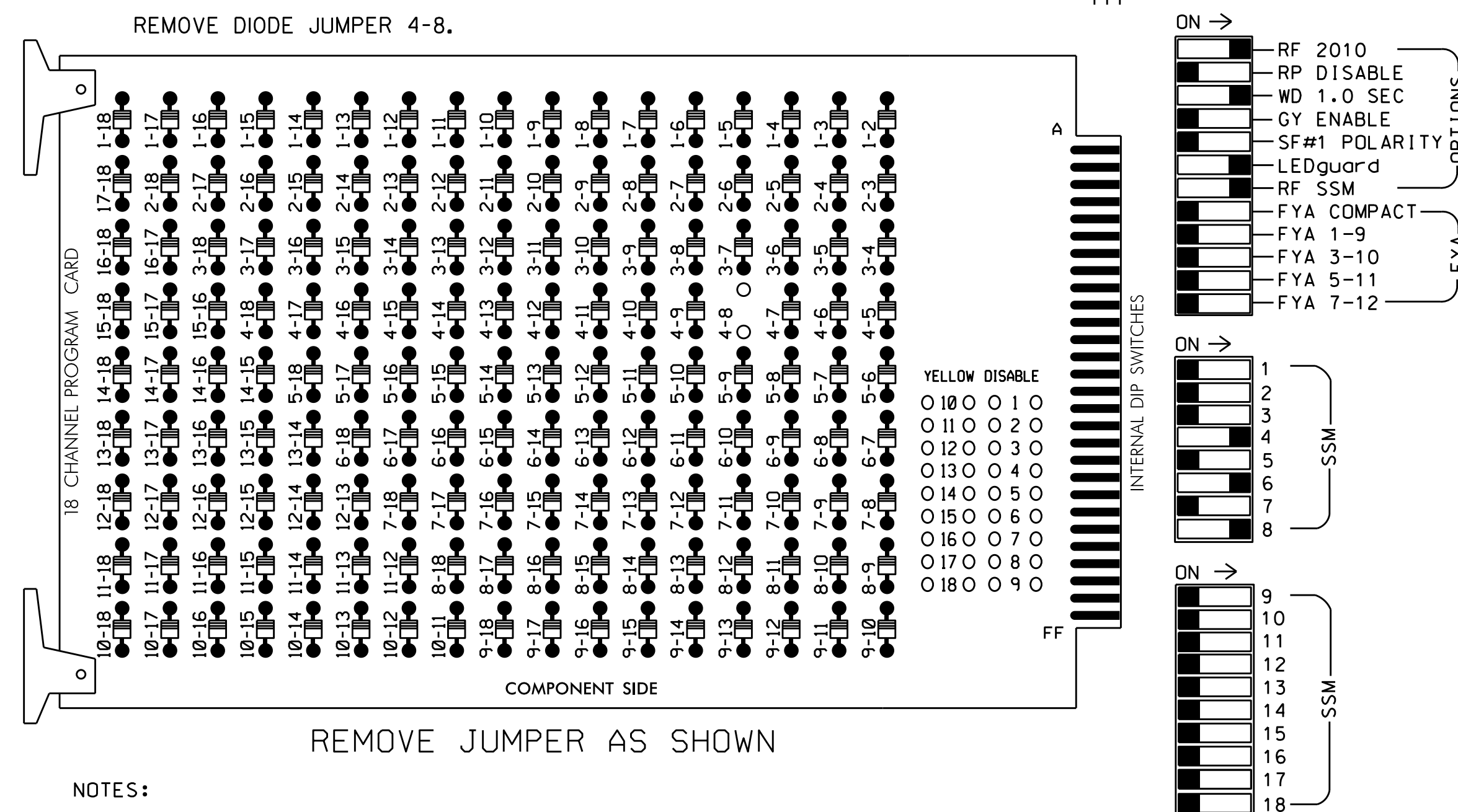
DATE: 3/18/2015

SIG. INVENTORY NO. 07-0773

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

(remove jumper and set switches 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.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S3*,S5,S8,S9*,S11
 PHASES USED.....4,6,8
 OVERLAPS.....NONE
 * S3 AND S9 ARE USED FOR SCHOOL FLASHER

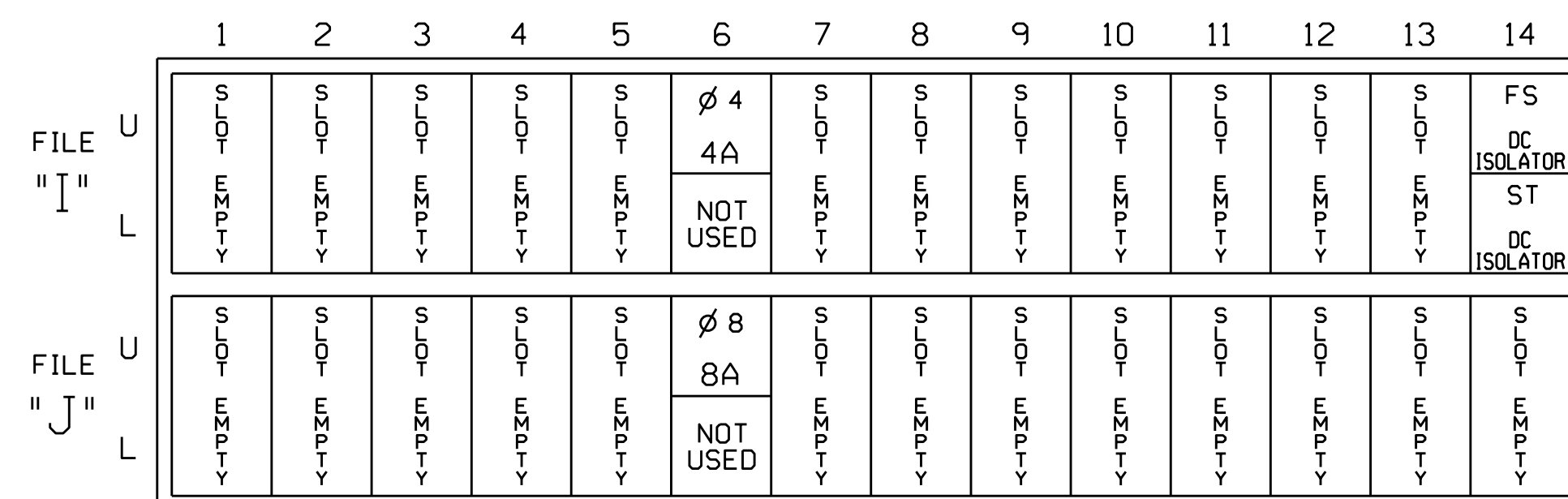
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED SCHOOL FLASHER	3	4	4 PED	5	6	6 PED SCHOOL FLASHER	7	8	8 PED
SIGNAL HEAD NO.	NU	NU	NU 101	NU	41,42	NU	NU	61,62 63	NU 102	NU	81,82	NU
RED					101			134			107	
YELLOW					102			135			108	
GREEN					103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
PEY YELLOW			** 114						** 120			
			*						*			

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail on this sheet.
 ** S3-Y and S9-Y are used for the School Flasher. See sheet 2 for wiring and programming details.

INPUT FILE POSITION LAYOUT

(front view)



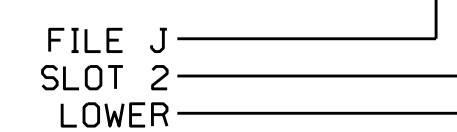
EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3

INPUT FILE POSITION LEGEND: J2L

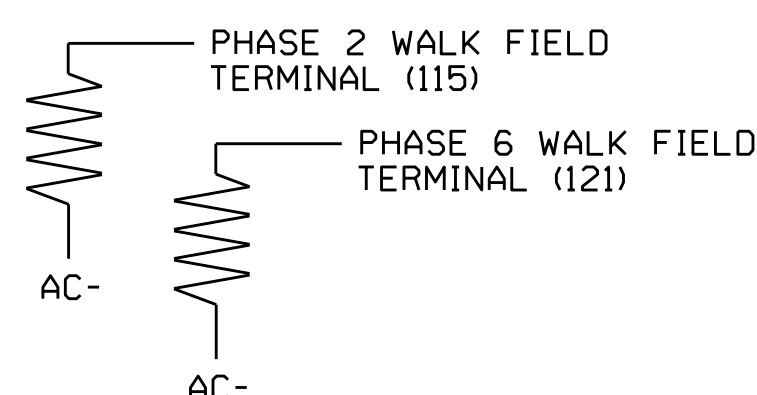


THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0773
 DESIGNED: September 2014
 SEALED: 3/18/2015
 REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



Electrical Detail - Sheet 1 of 2

Electrical and Programming Details for: **SR 1988 (West English Road) at Chestnut Drive**

Prepared In the Offices of: **Transporatio Mobility and Safety Solutions**

Division 7 Guilford County High Point

PLAN DATE: December 2014 REVIEWED BY: *[Signature]*

PREPARED BY: S. Armstrong REVIEWED BY: *[Signature]*

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL: **JOHN T. ROWE, JR.** ENGINEER SEAL 008453

DocuSigned by: **John T. Rowe, Jr.** 3/19/2015

SIG. INVENTORY NO. 07-0773

19-MAR-2015 09:58 S:\MITS\15\SIGNAL\work\hgr\cupus\sig_mon\armstrong\070773_sm.elec.xxx.dgn sarmstrong

SCHOOL FLASHER OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```

PAGE:1 C1 PIN:35 NOT ENABLED
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)...1
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

EDIT THE FIRST THREE PROGRAMMING ROWS TO DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

LEAVE THIS ENTRY AS IS

PRESS '+' KEY FOR OUTPUT ASSIGNMENT 34 (C1 PIN 36)

```

PAGE:1 C1 PIN:36 NOT ENABLED
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```

PAGE:1 C1 PIN:36 NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).....33
    
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.
PRESS THE 'ENT' AFTER AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```

PAGE:1 C1 PIN:36 OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PROGRAMMING COMPLETE

EVENT #1 SCHEDULING (AM) SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING).

```

SCHEDULED EVENT #1 NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW TSUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS 12345678910111213141516
ASSIGNED 1
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE)... OFFSET#...
PLAN PRIORITY: LOW... MED... HIGH...
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)...
CHANGE PHASE CONTROL PAGE (1-4)...
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4)...
CHANGE OUTPUT PAGE (1-4)...
SET OUTPUT ON (1-64).....33
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SPLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64)...
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)...
SET LOGIC FLAG ON (1-16)...
SET LOGIC FLAG OFF (1-64)...
OVERRIDE PHASE CONTROL FUNCTIONS?...
    
```

END OF PROGRAMMING

* AFTER PROGRAMMING, THIS SPACE WILL READ 'OUTPUT OVERRIDE'.
/ TIMES AND DATES DETERMINED BY THE DTE.

EVENT #1 SCHEDULING (PM) SCHOOL FLASHER PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'B' (SCHEDULING), PRESS THE '+' KEY TO ADVANCE TO EVENT 2.

```

SCHEDULED EVENT #2 NOT ASSIGNED*
START DATE (MM/DD).....**/**
END DATE (MM/DD).....**/**
START TIME (HH:MM).....**:**
STOP TIME (HH:MM).....**:**
DOW TSUN MON TUE WED THR FRI SAT
ENABLED 1 X X X X X
EVENT GROUPS 12345678910111213141516
ASSIGNED 1
DELETE EVENT WHEN COMPLETED?.....N
CONTINUOUS EVENT?.....N
INVERT EVENT?.....N
SELECT 1 EVENT TYPE:
EVENT GROUP (1-16).....
PLAN (65=FLSH,66=FREE)... OFFSET#...
PLAN PRIORITY: LOW... MED... HIGH...
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)...
CHANGE PHASE CONTROL PAGE (1-4)...
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4)...
CHANGE OUTPUT PAGE (1-4)...
SET OUTPUT ON (1-64).....33
SET OUTPUT OFF (1-64).....
SET INPUT ON (1-64).....
SET INPUT OFF (1-64).....
ENABLE FAILURES LOG?.....
ENABLE EVENTS LOG?.....
ENABLE DATA ENTRIES LOG?.....
ENABLE COORDINATION PLANS LOG?.....
ENABLE SPECIAL FUNCTIONS LOG?.....
ENABLE SPLIT MONITOR LOG?.....
ENABLE DETECTOR DATA LOG?.....
ENABLE DETECTOR (1-64)...
ENABLE DETECTOR DIAGNOSTICS (1-64)...
ENABLE DET STRETCH / DELAY (1-64)...
ENABLE DET STOP BAR MODE (1-64)...
SET LOGIC FLAG ON (1-16)...
SET LOGIC FLAG OFF (1-64)...
OVERRIDE PHASE CONTROL FUNCTIONS?...
    
```

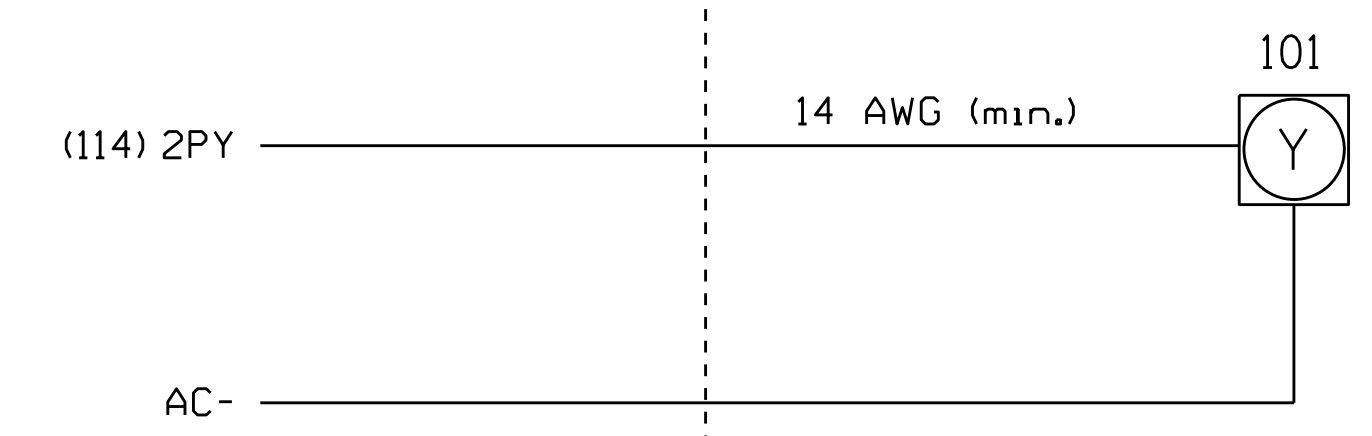
END OF PROGRAMMING

SCHOOL FLASHER (101)

(wire flasher as shown below)

CABINET CONNECTION

FIELD CONNECTION

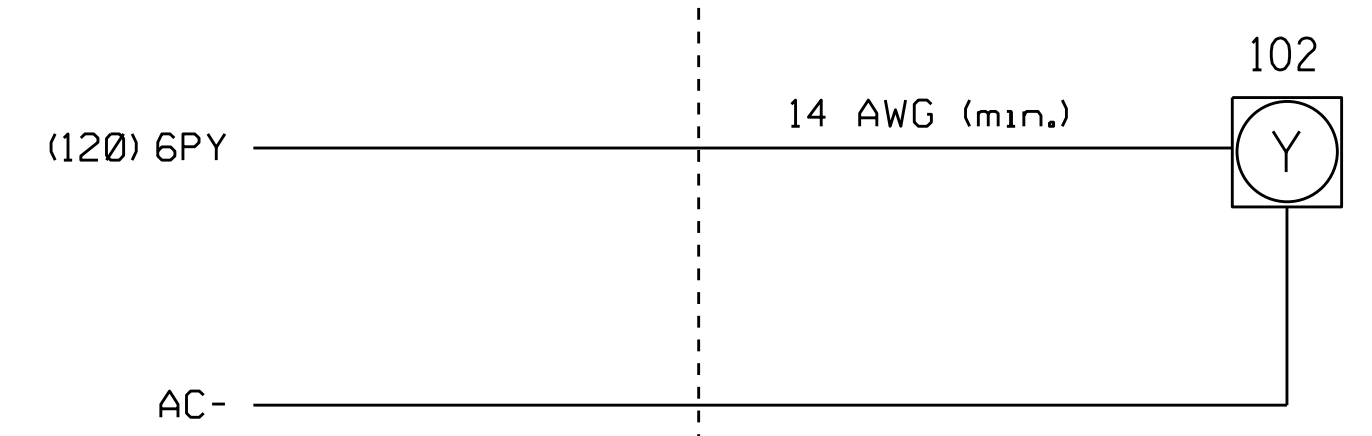


SCHOOL FLASHER (102)

(wire flasher as shown below)

CABINET CONNECTION

FIELD CONNECTION

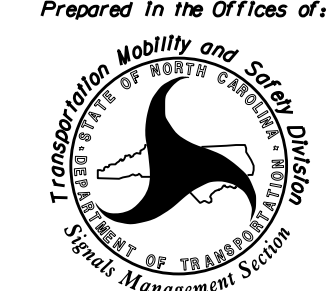
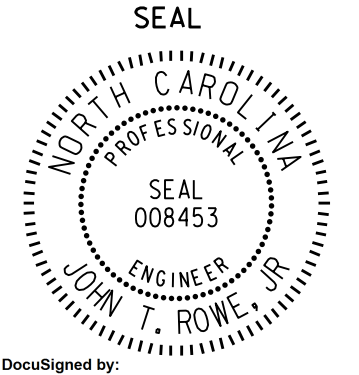


IMPORTANT

1. Ensure that the white keyed plug located behind rear panel of output file labeled 2PY-4PY-6PY-8PY is disconnected. This will disconnect conflict monitor wires from field signal terminals 114 and 120 shown on flasher wiring detail on this sheet.
2. Install loadswitches in output file slots S3 and S9.
3. To activate school zone flasher operation as indicated on the signal plan, program outputs 33 and 34 as shown on this sheet.
4. Operational times and dates are determined by the DTE. See this sheet for the scheduling programming detail.

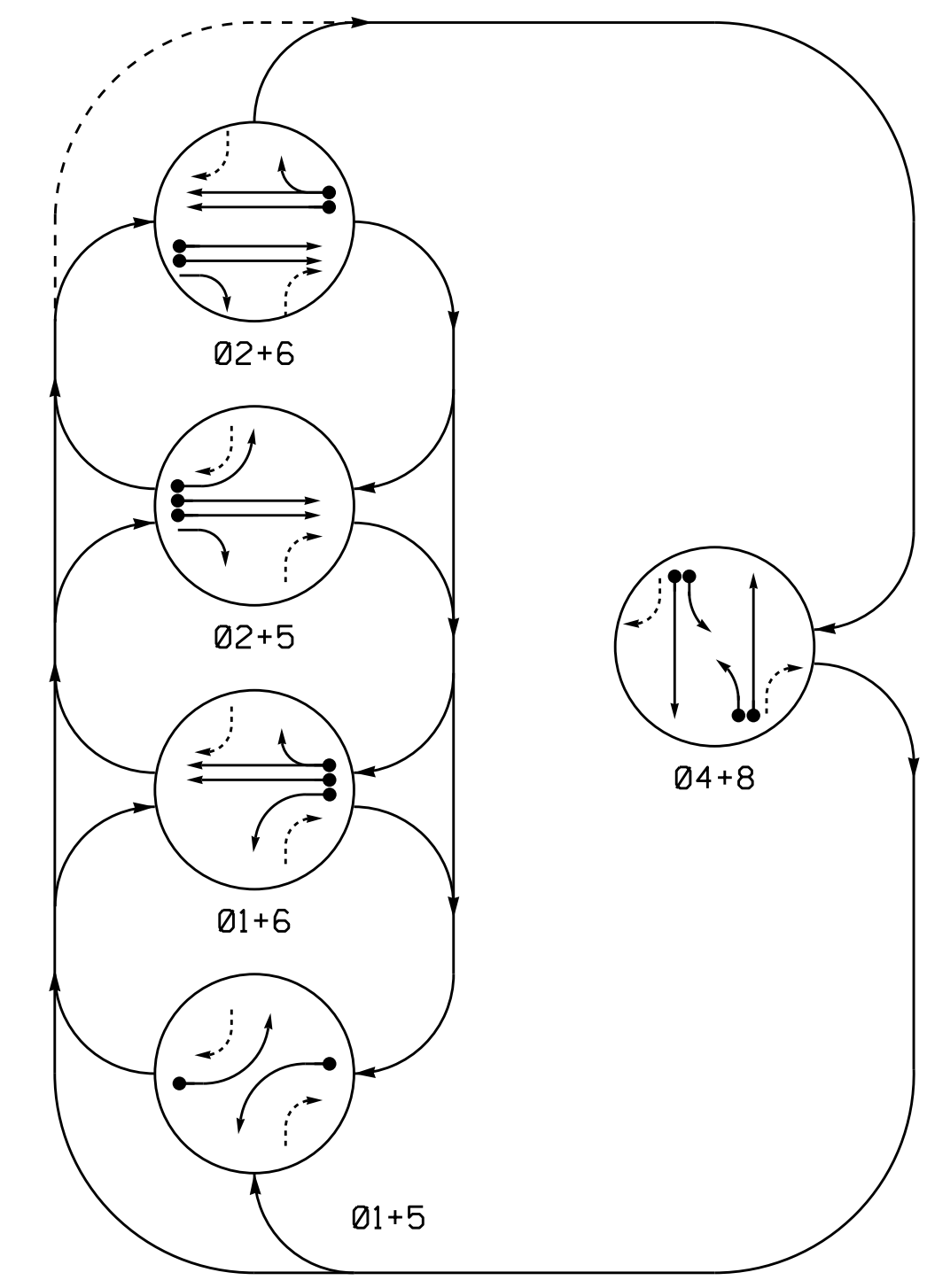
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0773
DESIGNED: September 2014
SEALED: 3/18/2015
REVISED: N/A

Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 1988 (West English Road) at Chestnut Drive		SEAL  JOHN T. ROWE, JR. ENGINEER 008453
	Division 7 PLAN DATE: December 2014 PREPARED BY: S. Armstrong	Guilford County REVIEWED BY: JTR DATE:	

10-0456-2014 09-58
 S:\MITS\15\SIGNAL\work\hgr\output\sig\Map\Mstr\strong070713_sml.ele.xxx.dgn
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 S:\MITS\15\SIGNAL\work\hgr\output\sig\Map\Mstr\strong070713_sml.ele.xxx.dgn

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND
 ● ← DETECTED MOVEMENT
 ○ ← UNDETECTED MOVEMENT (OVERLAP)
 - - - ← UNSIGNALIZED MOVEMENT
 - - - ← PEDESTRIAN MOVEMENT

EV PREEMPT PHASE

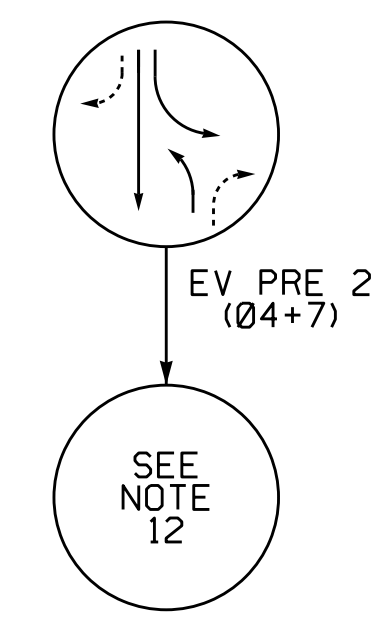
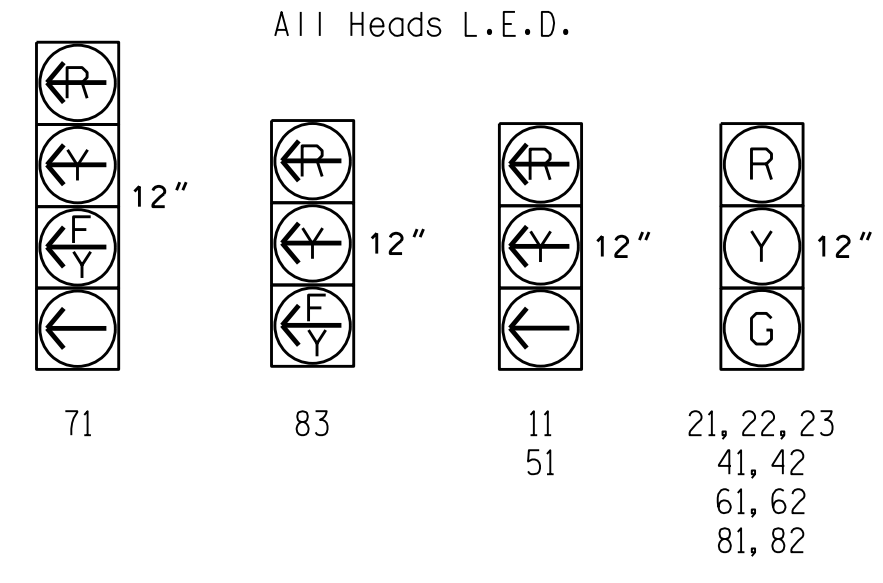


TABLE OF OPERATION

SIGNAL FACE	PHASE							
	01+5	01+6	02+5	02+6	04+8	PRE 2	PEDESTRIAN	PEDESTRIAN
11	-	-	-	-	-	-	-	-
21, 22, 23	R	R	G	G	R	R	Y	-
41, 42	R	R	R	R	G	G	R	-
51	-	-	-	-	-	-	-	-
61, 62	R	G	R	G	R	R	Y	-
71	-	-	-	-	-	-	-	-
81, 82	R	R	R	R	G	R	R	-
83	-	-	-	-	-	-	-	-

SIGNAL FACE I.D.



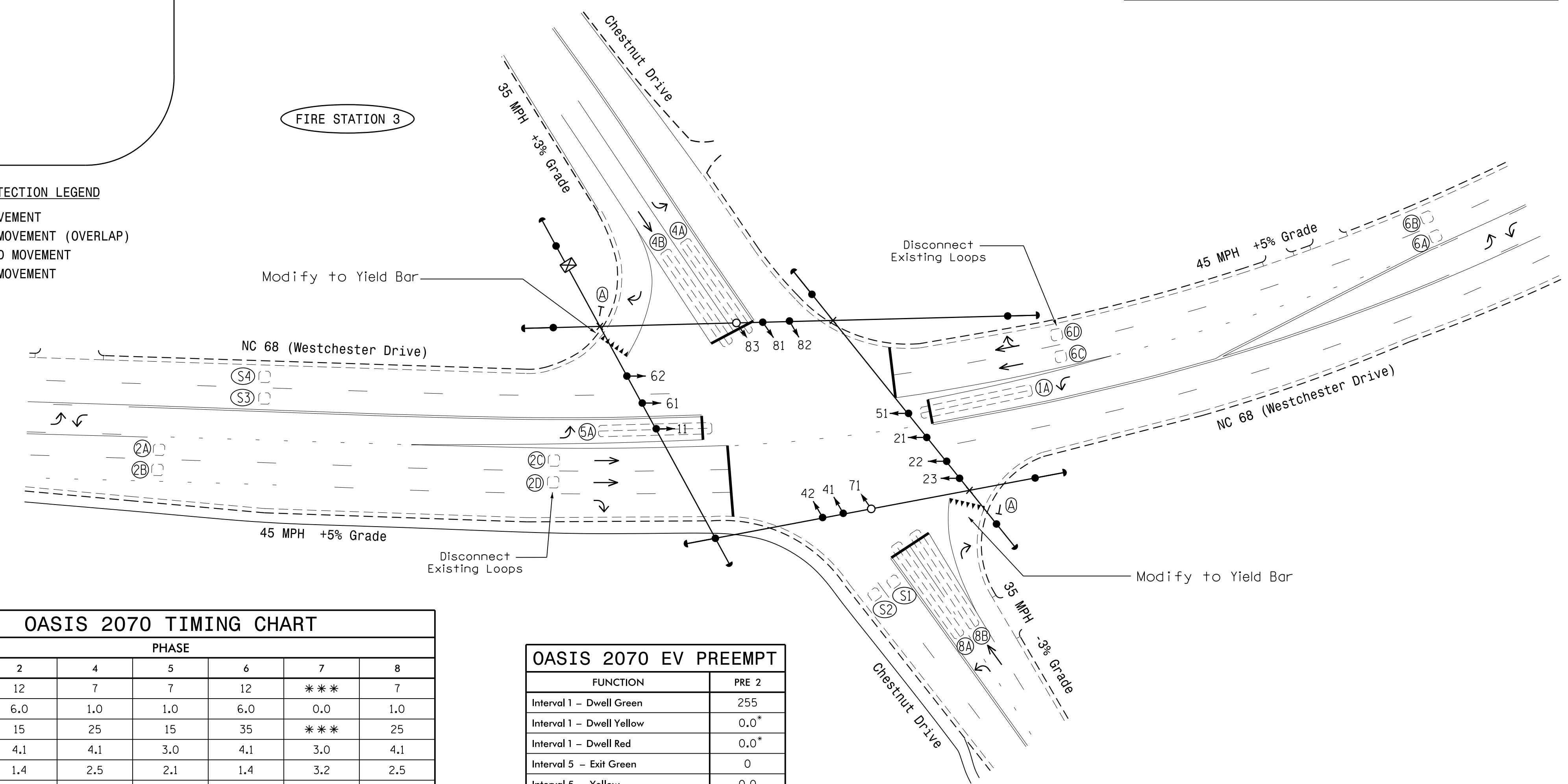
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD		
					PHASE	CALLING	EXTENSION	FULL TIME DELAY			STRETCH TIME	DELAY TIME
1A	6X60	+5	2-4-2	-	1	Y	Y	-	-	3	-	Y
2A, 2B	6X6	330	EXIST	-	2	Y	Y	-	-	-	-	Y
2C, 2D	6X6	90	EXIST	-	DISCONNECT				-	-	-	-
4A	6X60	+5	2-4-2	-	4	Y	Y	-	-	3	-	Y
4B	6X60	+5	2-4-2	-	4	Y	Y	-	-	-	-	Y
5A	6X60	+5	2-4-2	-	5	Y	Y	-	-	3	-	Y
6A, 6B	6X6	330	EXIST	-	6	Y	Y	-	-	-	-	Y
6C, 6D	6X6	90	EXIST	-	DISCONNECT				-	-	-	-
8A	6X60	+5	2-4-2	-	8	Y	Y	-	-	3	-	Y
8B	6X60	+5	2-4-2	-	8	Y	Y	-	-	-	-	Y
S1	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y
S2	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y
S3	6X6	+330	EXIST	-	-	-	-	-	-	-	-	Y
S4	6X6	+330	EXIST	-	-	-	-	-	-	-	-	Y

5 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Disconnect existing loops 2C, 2D, 6C, and 6D.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Remove existing Left Arrow "ONLY" signs (R3-5L).
- Pavement markings are existing unless otherwise shown.
- Locate emergency vehicle preemption switch in Fire Station 3.
- The Division Traffic Engineer will determine the Delay before Preempt and Preempt Dwell Min Green time for the emergency vehicle preemption timing.
- Upon completion of Emergency Vehicle Preemption, controller returns to normal operation based on vehicle demand.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE							
	1	2	4	5	6	7	8	
Min Green 1 *	7	12	7	7	12	***	7	
Extension 1 *	1.0	6.0	1.0	1.0	6.0	0.0	1.0	
Max Green 1 *	15	15	25	15	35	***	25	
Yellow Clearance	3.0	4.1	4.1	3.0	4.1	3.0	4.1	
Red Clearance	2.4	1.4	2.5	2.1	1.4	3.2	2.5	
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Walk 1 *	-	-	-	-	-	-	-	
Don't Walk 1	-	-	-	-	-	-	-	
Seconds Per Actuation *	-	1.5	-	-	1.5	-	-	
Max Variable Initial *	-	37	-	-	37	-	-	
Time Before Reduction *	-	15	-	-	15	-	-	
Time To Reduce *	-	30	-	-	30	-	-	
Minimum Gap	-	3.0	-	-	3.0	-	-	
Recall Mode**	-	SOFT RECALL	-	-	SOFT RECALL	-	-	
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	
Dual Entry	-	-	ON	-	-	-	ON	
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	

OASIS 2070 EV PREEMPT

FUNCTION	PRE 2
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	0
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	**
Min Green Before Pre	1
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	**
Enable Backup Protection	N

* Time defaults to time used for phase during normal operation.
 ** See Note 11.

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
□ → Controller & Cabinet	□ → N/A
□ → Junction Box	□ → N/A
- - - → 2-in Underground Conduit	- - - → N/A
- - - → Right of Way	- - - → N/A
→ → Directional Arrow	→ → N/A
(A) → "YIELD" Sign (R1-2)	(A) → N/A

* 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.
 *** See Note 11.

Signal Upgrade

Prepared in the Offices of:
 TRANSPORTATION MOBILITY AND SAFETY DIVISION
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 Signal Design Section
 750 N. Greenfield Pkwy, Garner, NC 27529

NC 68 (Westchester Drive) at Chestnut Drive

Division 7 Guilford County High Point

PLAN DATE: July 2014 PREPARED BY: Jeff Spence
 PREPARED BY: N. Brinkley REVIEWED BY: R.N. Zinser

REVISIONS INIT. DATE

SCALE 0 40
 1"=40'

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 ROBERT J. ZIEGLER
 026486

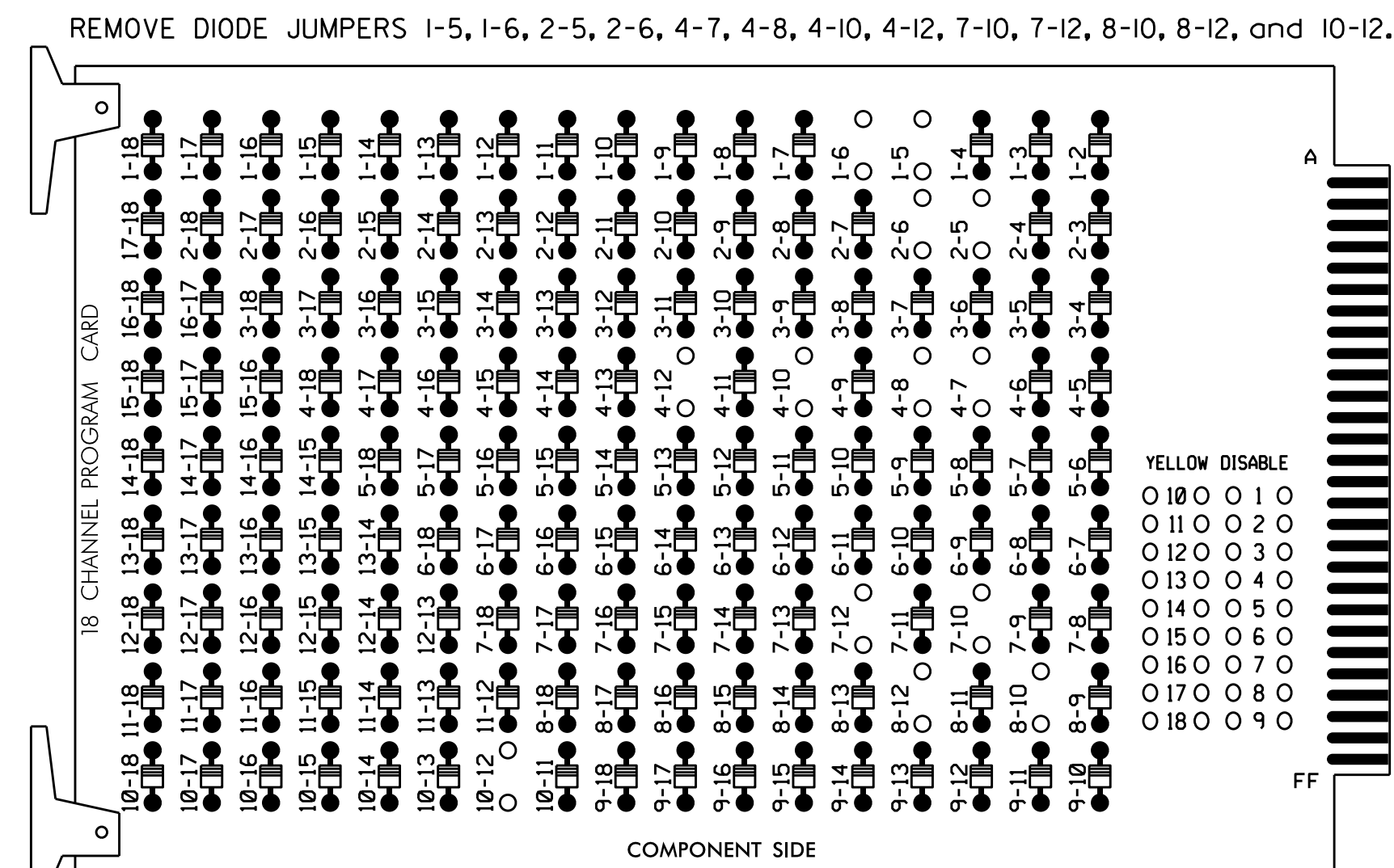
3/27/2015
 DATE

SIG. INVENTORY NO. 07-0774

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EDI MODEL 2018ECLIP-NC CONFLICT MONITOR
PROGRAMMING DETAIL

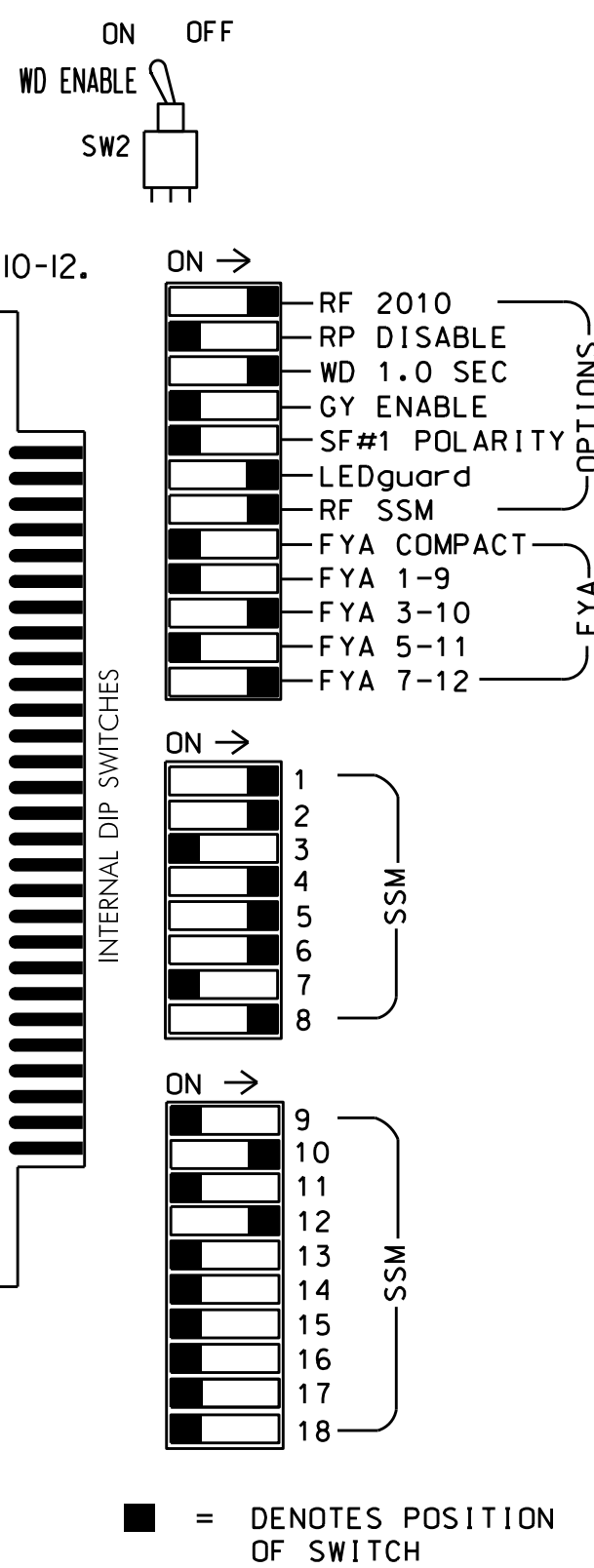
(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

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



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
7. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S3*,S5,S7,S8,S10,S11,
 AUX S2,AUX S5.
 PHASES USED.....1,2,4,5,6,7**,8
 OVERLAP "A".....NOT USED
 OVERLAP "B".....4
 OVERLAP "C".....NOT USED
 OVERLAP "D".....7+8
 * LOADSWITCH USED FOR PILOT LAMP IN FIREHOUSE
 ** PHASE USED DURING PREEMPT ONLY

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	EVP 2	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22 23	NU	FIRE PILOT LAMP	NU	41,42	NU	51	61,62	NU	71	81,82	NU	NU	83	NU	NU	71	NU
RED		128			101				134			107							
YELLOW		129			102				135		*	108							
GREEN		130			103				136			109							
RED ARROW	125								131					A124				A101	
YELLOW ARROW	126								132					A125				A102	
FLASHING YELLOW ARROW														A126				A103	
GREEN ARROW	127								133		124								
PED YELLOW																			

NU = Not Used

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

* See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

FILE	U	1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	∅ 1	∅ 2	∅ 3	∅ 4	∅ 5	∅ 6	∅ 7	∅ 8	∅ 9	∅ 10	∅ 11	∅ 12	∅ 13	∅ 14
	L	1A	2A,2B	3A	4A	5A	6A,6B	7A	8A	9A	10A	11A	12A	13A	14A
"J"	U	∅ 5	∅ 6	∅ 7	∅ 8	∅ 9	∅ 10	∅ 11	∅ 12	∅ 13	∅ 14	∅ 15	∅ 16	∅ 17	∅ 18
	L	5A	6A,6B	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	18A

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

FS = FLASH SENSE
 ST = STOP TIME
 PRE2 = FIRE PREEMPT

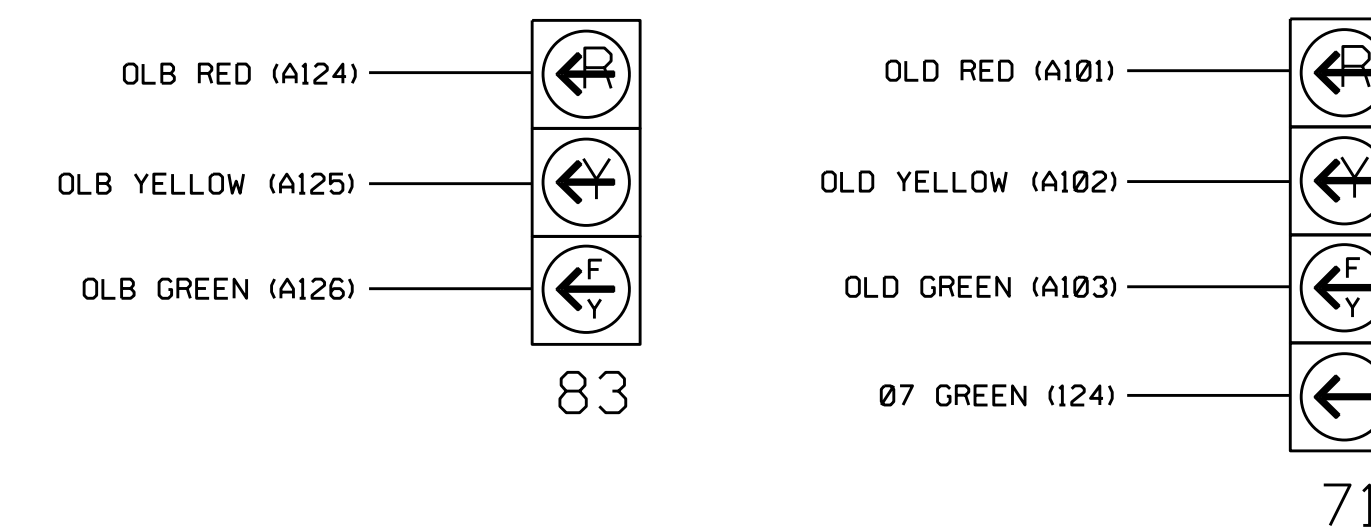
PREEMPT ONLY PHASE OMIT NOTE

(program controller as shown below)

From Main Menu press '2' (Phase Control). Then '1' (Phase Control Functions). Program Phase 7 for 'Omit Phase' and Phases 1, 2, 4, 5, 6, and 8 for 'Startup Calls'. This is to prevent Phase 7 from being served when not in Preempt.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

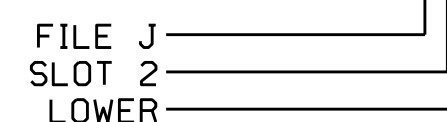
The sequence display for signal head 71 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			3
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			3
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					
* S4	TB7-11,12	J9L	61	23	17	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

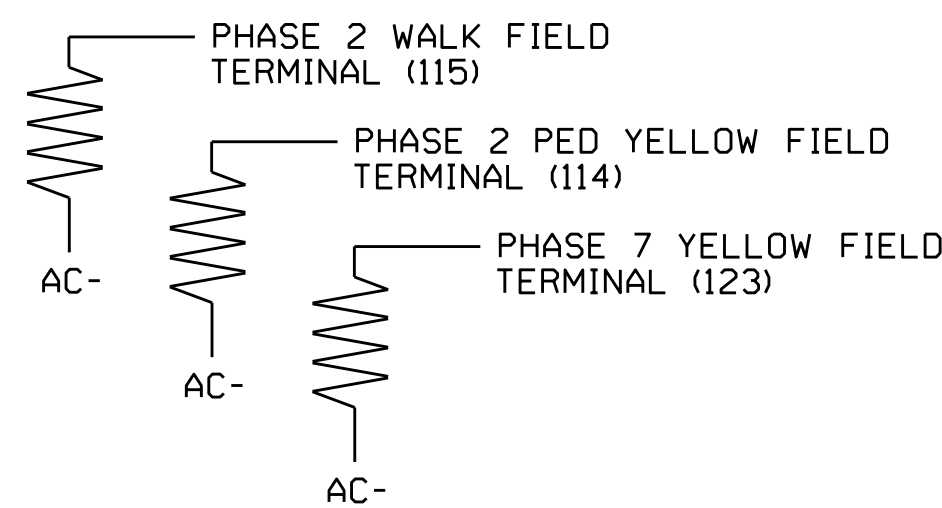
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0774
 DESIGNED: July 2014
 SEALED: 3/27/2015
 REVISED: N/A

Electrical Detail - Sheet 1 of 3

Electrical and Programming Details for: **NC 68 (Westchester Drive) at Chestnut Drive**

Prepared In the Offices of: **TRANSFORMATIONAL MOBILITY AND SAFETY SOLUTIONS**

Division 7 Guilford County High Point

PLAN DATE: November 2014 REVIEWED BY: *[Signature]*

PREPARED BY: S. Armstrong REVIEWED BY: *[Signature]*

REVISIONS: _____ INIT. DATE

DocuSigned by: **John T. Rowe, Jr.** 4/6/2015

750 N. Greenfield Pkwy, Garner, NC 27529

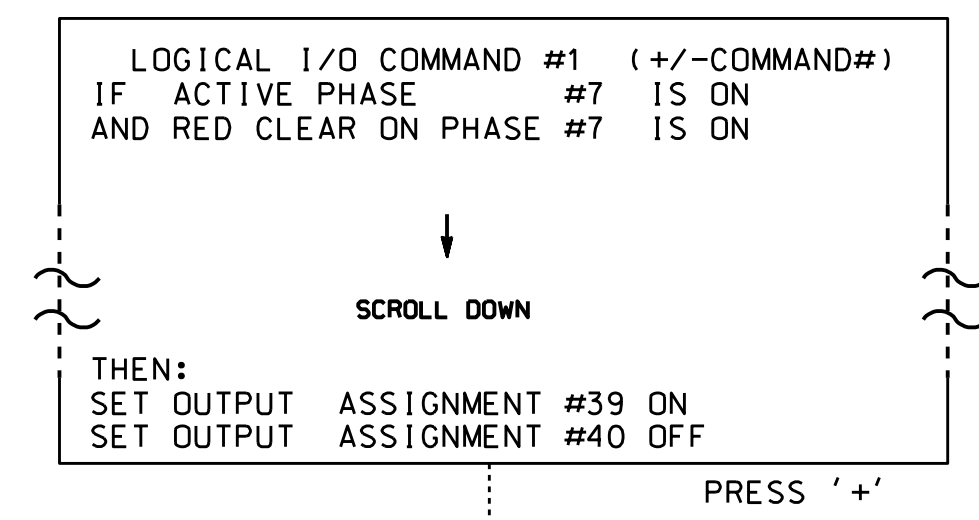
SIG. INVENTORY NO. 07-0774

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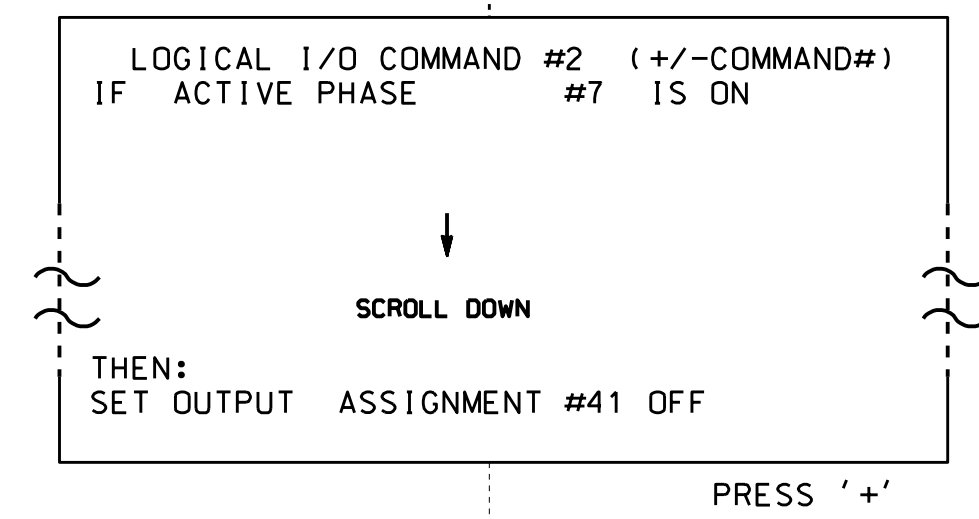
**LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE
AND FOR FIREHOUSE PILOT LAMP CONTROL**

(program controller as shown below)

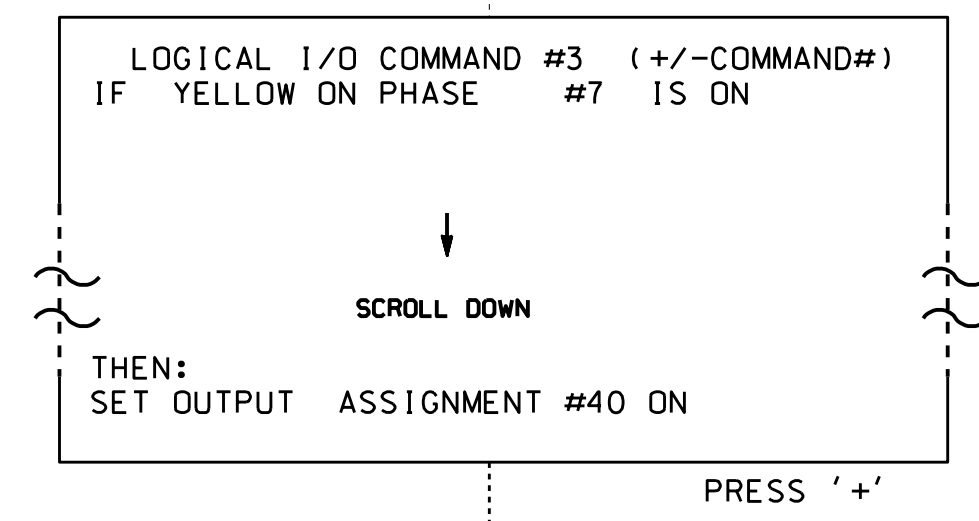
- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS), SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, AND 5.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



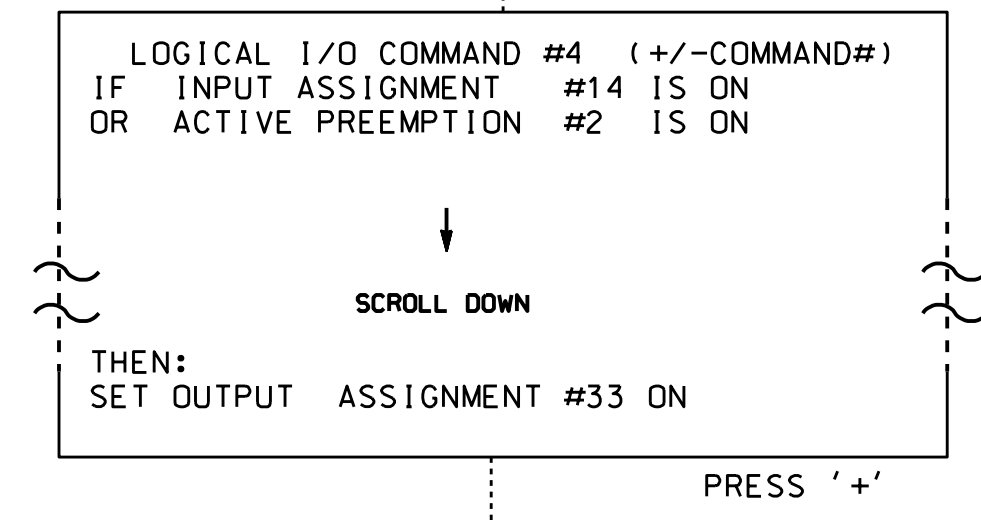
NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).



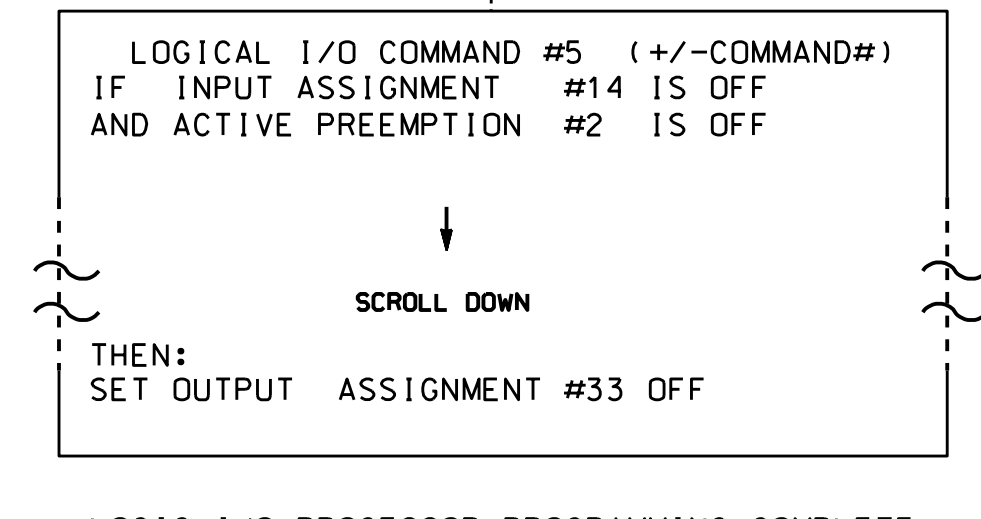
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).



NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).



NOTE: FIREHOUSE PILOT LAMP LOGIC (ON).



NOTE: FIREHOUSE PILOT LAMP LOGIC (OFF).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

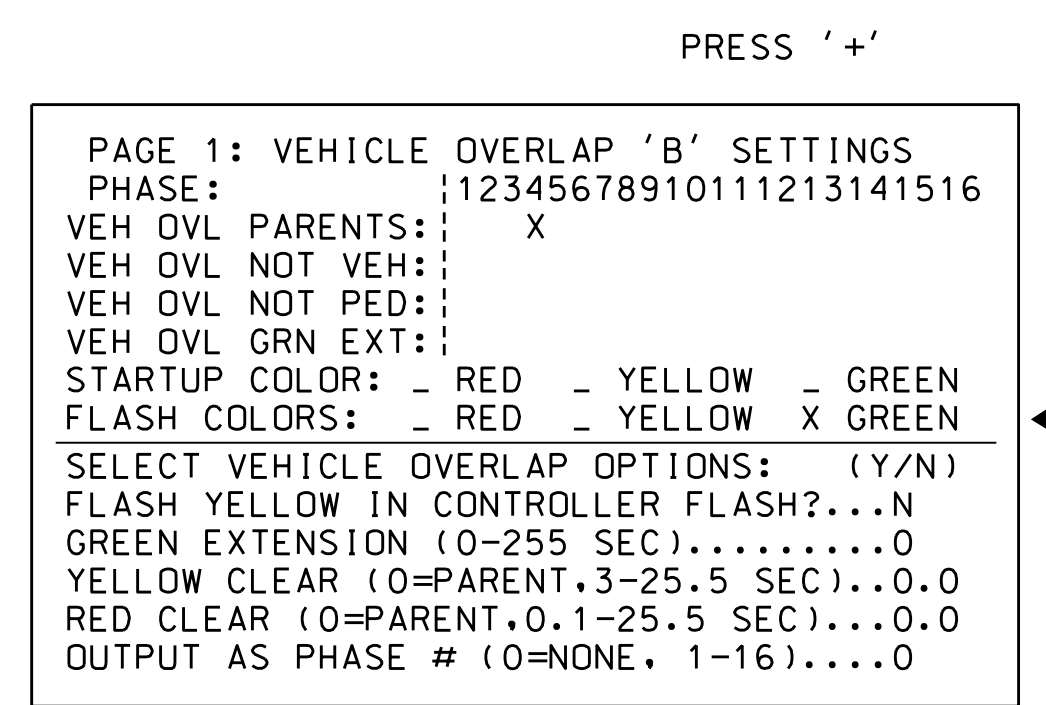
OUTPUT REFERENCE SCHEDULE

INPUT 14 = Preempt 2 Input
OUTPUT 33 = Phase 2 PED Yellow
OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green

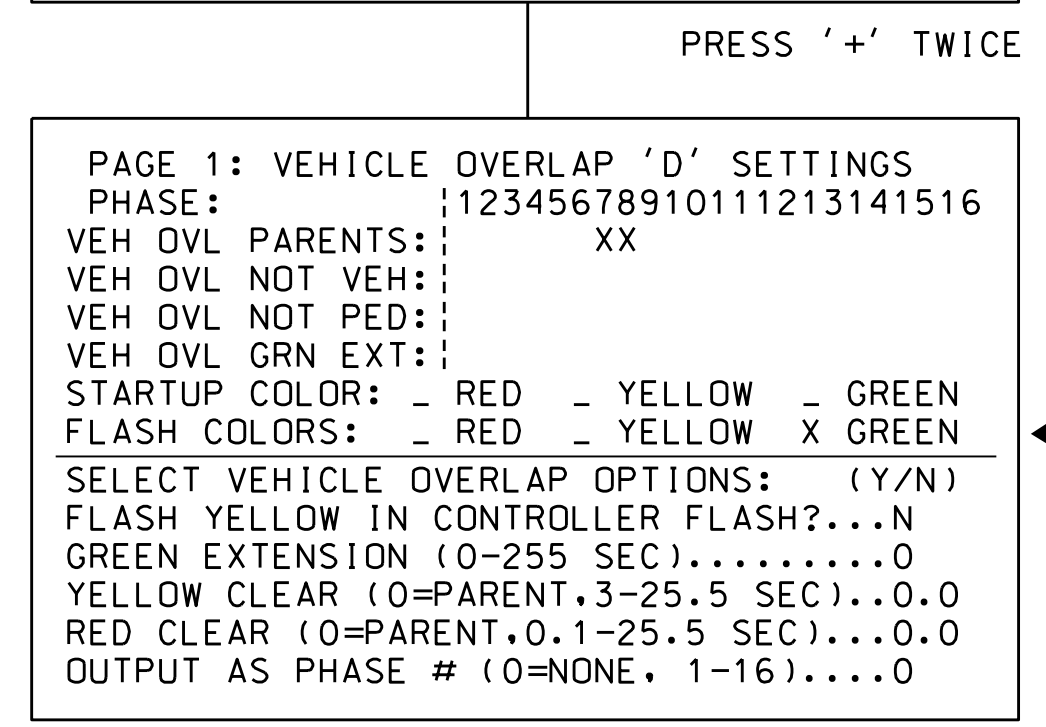
OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).



← NOTICE GREEN FLASH



← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

FLASHER CIRCUIT MODIFICATION DETAIL


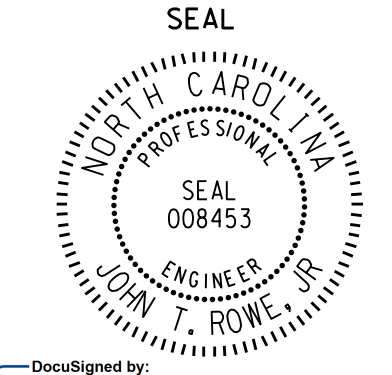
IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- 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: 07-0774
DESIGNED: July 2014
SEALED: 3/27/2015
REVISED: N/A

Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	NC 68 (Westchester Drive) at Chestnut Drive		SEAL  SEAL 008453 ENGINEER JOHN T. ROWE, JR.
	Division 7 Guilford County High Point	PLAN DATE: November 2014 REVIEWED BY: JTR		PREPARED BY: S. Armstrong REVIEWED BY:
REVISIONS		INIT. DATE	DocuSigned by: John T. Rowe, Jr. 4/6/2015 841D80C145EE4F5 DATE
			SIG. INVENTORY NO. 07-0774

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 sarmstrong

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

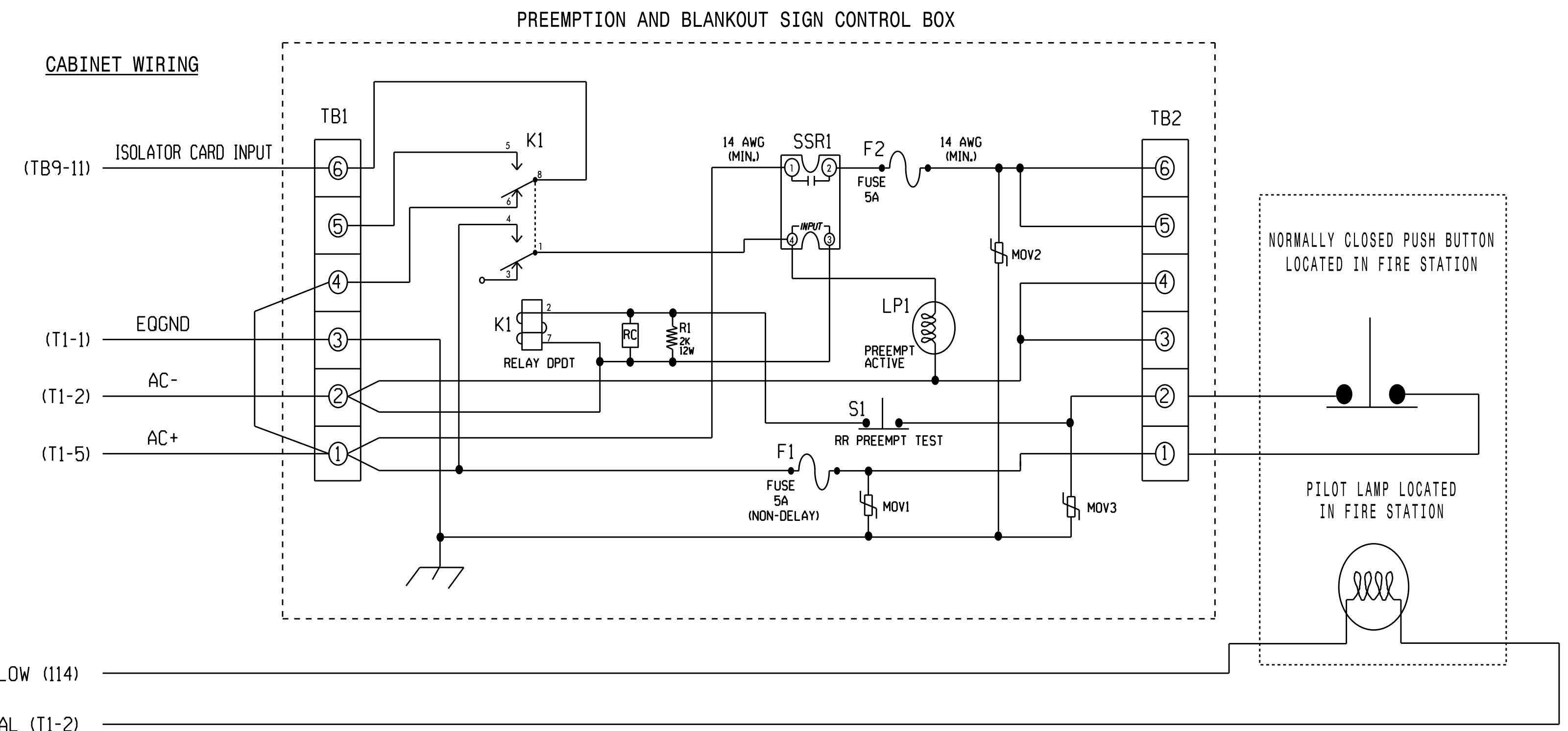
From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #2.

INTERVAL/TIMING	PREEMPTION #2	SETTINGS (NEXT:1-10)	CLEAR/DWELL PHASES
GRN YEL RED	12345678910111213141516		X X
1	255 0.0 0.0		
2	0 0.0 0.0		
3	0 0.0 0.0		
4	0 0.0 0.0		
5	0 0.0 0.0		
EXIT CALLS			
OPTIONS			
PRIORITY (Y/N TO SELECT)	.....MED		
DELAY TIMER (0-255 SEC)*		
MIN GREEN BEFORE PRE (0= DEFAULT)	...1		
PED CLEAR BEFORE PRE (0= DEFAULT)	...0		
YELLOW CLEAR BEFORE PRE (0= DEFAULT)	...0.0		
RED CLEAR BEFORE PRE (0= DEFAULT)	...0.0		
DWELL MIN TIMER (0-255 SEC)*		
DWELL MAX TIMER (0=OFF,1-255MIN)	...0		
DWELL HOLD-OVER TIMER (0-255)	...0		
LATCH CALL?	.....Y		
LINK TO NEXT PREEMPT?	.....N		
ENABLE BACKUP PROTECTION?	.....N		
HOLD CLEAR 1 PHASES DURING DELAY?	...N		
FAST GREEN FLASH DWELL PHASES?	.....N		
PED CLEARANCE THROUGH YELLOW?	.....N		
INHIBIT OVERLAP GREEN EXTENSION?	.....N		
SERVICE DURING SOFTWARE FLASH?	.....N		
REST IN RED DURING DWELL INTERVAL?	..N		
FLASH DWELL INTERVAL?	.....N		
ALLOW PEDS IN DWELL INTERVAL?	.....N		
RE-TIME DWELL INTERVAL?	.....Y		
OVERLAPS:	ABCDEFGHIJKLMNQP		
DWELL INT FLASH YELLOW			
OMIT OVERLAPS:			

* Denotes timing to be determined in field.

EV Preemption Control Box Wiring Detail

(wire as shown below)



PHASE 2 PED YELLOW (I14)
AC NEUTRAL (T1-2)

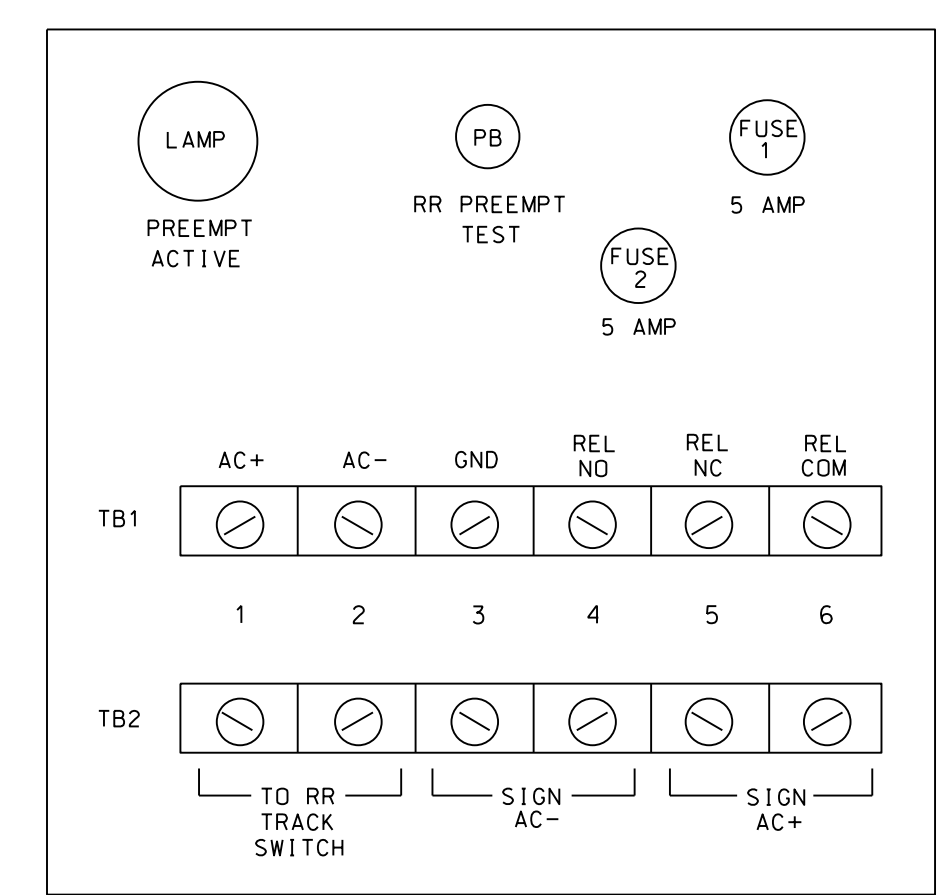
LAMP NOTES

1. Make sure load resistors are in place as shown in the Load Resistor Installation Detail on sheet 1.
2. Install a loadswitch in Output File Slot S3.

NOTES

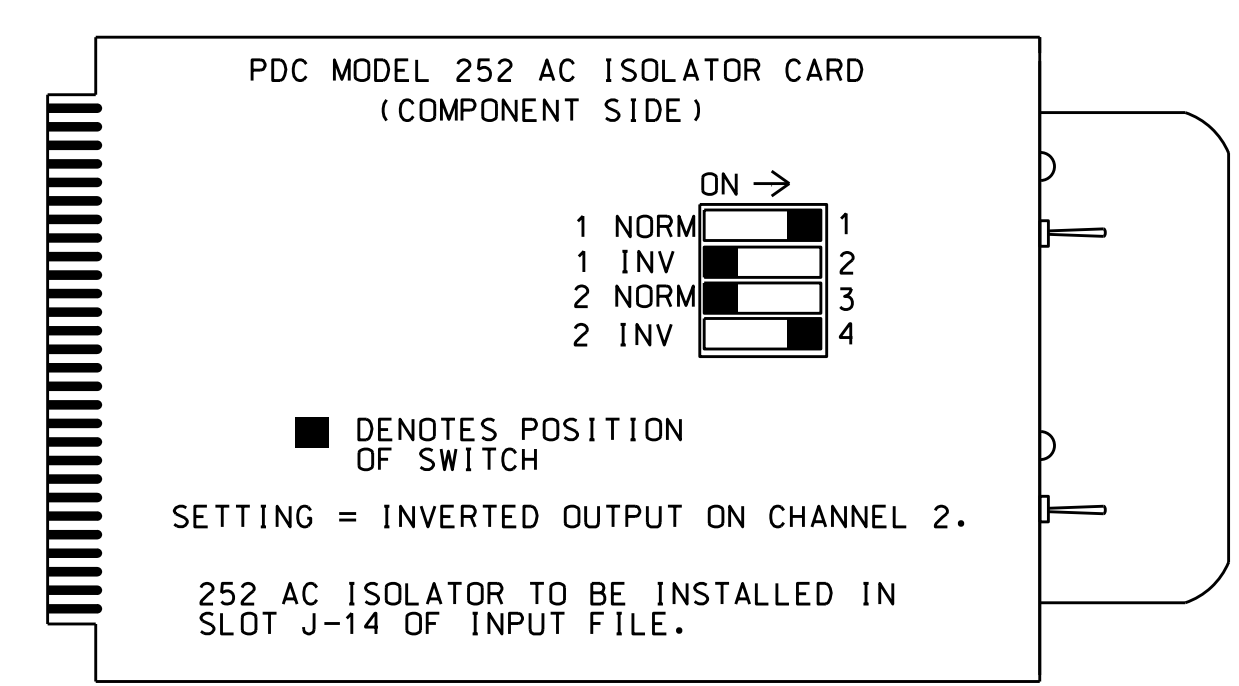
1. Relay K1 is shown in the energized (Preempt not active) normal operation state.
2. Relay K1 is a DPDT with 120VAC coil with an octal base.
3. Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
4. AC Isolator Card shall activate preemption upon removal of AC+ from the input (as shown above). To accomplish this, set invert dip switch on AC Isolator Card.
5. IMPORTANT!! Terminal TB9-12 (on input panel) shall be connected to AC neutral (jumper may have to be added).

FRONT VIEW



PREEMPT 2 AC ISOLATOR (MODEL 252) OUTPUT PROGRAMMING DETAIL

(set DIP switches as shown below)



NOTE: IF ANOTHER MANUFACTURER TYPE OF AC ISOLATOR IS USED, OUTPUT PROGRAMMING IS LIKELY NOT TO EQUATE TO THAT SHOWN ABOVE.

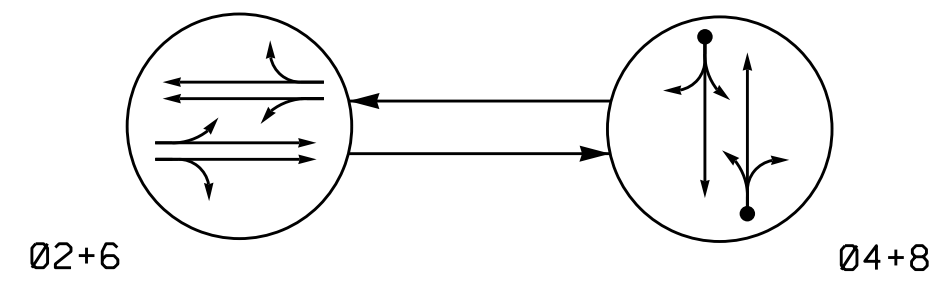
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0774
DESIGNED: July 2014
SEALED: 3/27/2015
REVISED: N/A

Electrical Detail - Sheet 3 of 3

	DETAILS FOR: NC 68 (Westchester Drive) at Chestnut Drive		SEAL JOHN T. ROWE, JR. ENGINEER SEAL 008453
	Prepared In the Offices of: S. ARMSTRONG	REVIEWED BY: JR	
REVISIONS: _____ INIT. DATE _____			Date Signed By: John T. Rowe, Jr. 4/6/2015 DATE: _____ SIG. INVENTORY NO. 07-0774

06-09-2015 07:26 S:\IT\SS\115\Sig\1\sework\hous\sig\Map\strmsfrong\0774_sm.ele.xxx.dgn sarmstrong

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLASH
21, 22	G	R	Y
41, 42	R	G	R
61, 62	G	R	Y
81, 82	R	G	R

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART													
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	NEW LOOP		
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	5	-	Y	
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	5	-	Y	
S1	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y	
S2	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y	
S3	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y	
S4	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y	

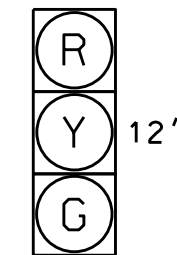
2 Phase
Semi-Actuated
(High Point Signal System)

NOTES

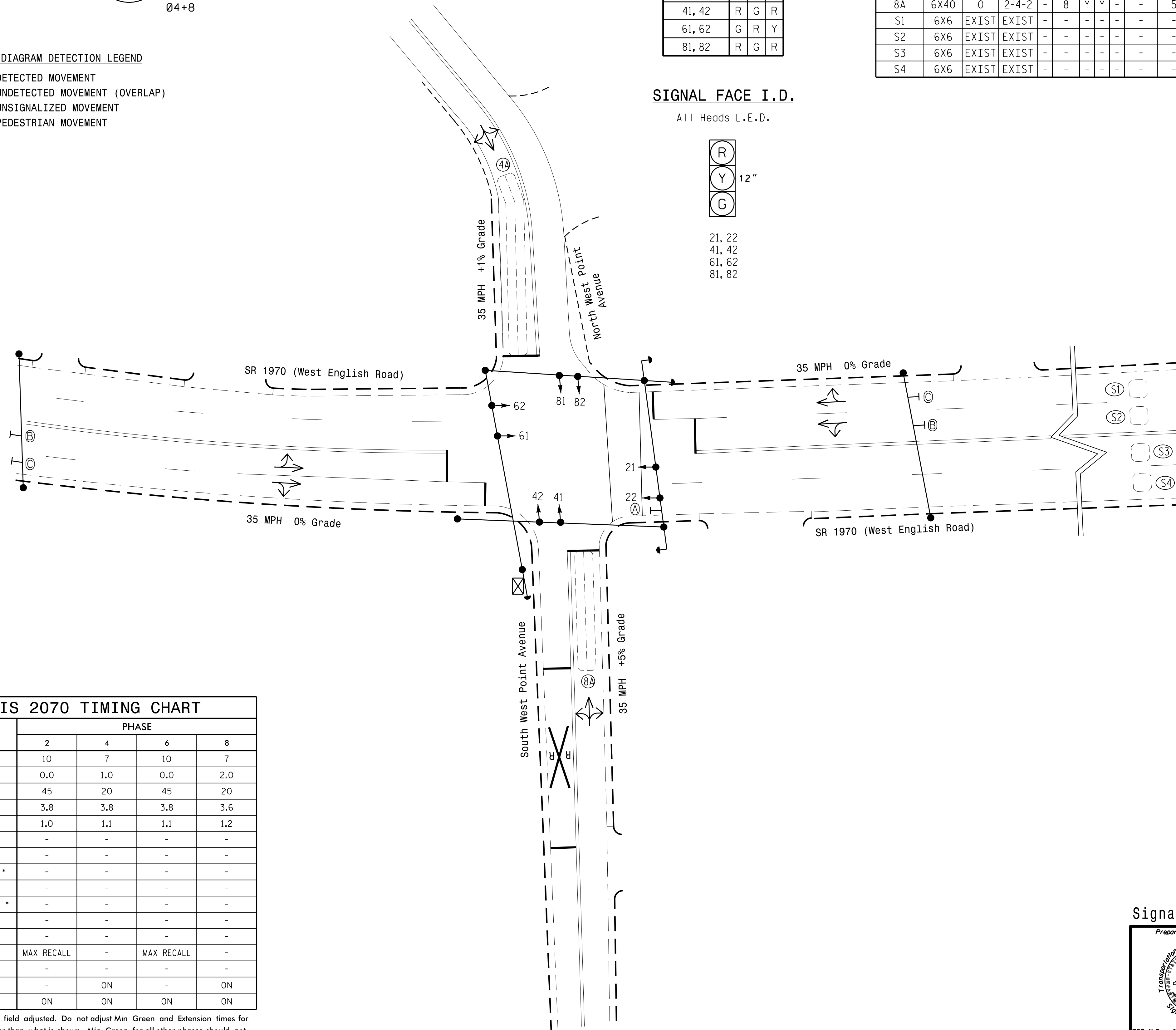
- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Existing lane control signs may be removed at the direction of the Engineer.
- Pavement markings are existing.
- 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.



21, 22
41, 42
61, 62
81, 82



OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	10	7	10	7
Extension 1 *	0.0	1.0	0.0	2.0
Max Green 1 *	45	20	45	20
Yellow Clearance	3.8	3.8	3.8	3.6
Red Clearance	1.0	1.1	1.1	1.2
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MAX RECALL	-	MAX RECALL	-
Vehicle Call Memory	-	-	-	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND

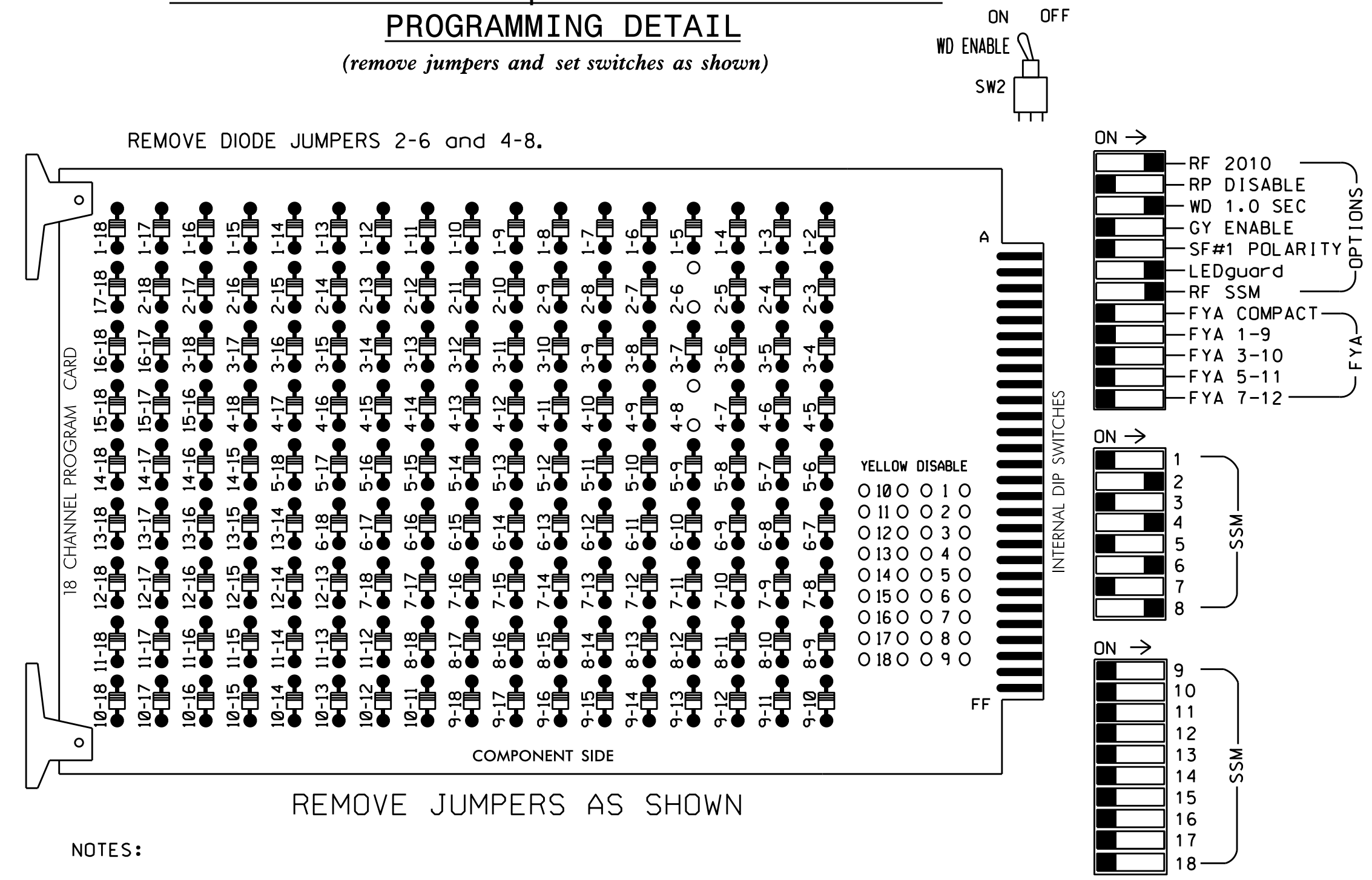
PROPOSED	EXISTING
	N/A

Signal Upgrade

	SR 1970 (W. English Rd.) at West Point Avenue		SEAL ROBERT J. ZIESLER PROFESSIONAL ENGINEER STATE OF NORTH CAROLINA LICENSE NO. 026486	
	Division 7 Guilford County High Point			
	PLAN DATE: September 2014	PREPARED BY: R.N. Zinser		
	PREPARED BY: Jeff Spence	REVIEWED BY:		
SCALE: 0 20 1"=20'		REVISIONS:	INIT. DATE:	
		DATE: 4/21/2015	DATE:	
		SIG. INVENTORY NO. 07-0776		

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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

- NOTES**
1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
 2. Program phases 4 and 8 for Dual Entry.
 3. Enable Simultaneous Gap-Out for all phases.
 4. Program phases 2 and 6 for Start Up In Green.
 5. Program phases 2 and 6 for Yellow Flash.
 6. The cabinet and controller are part of the High Point Signal System.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

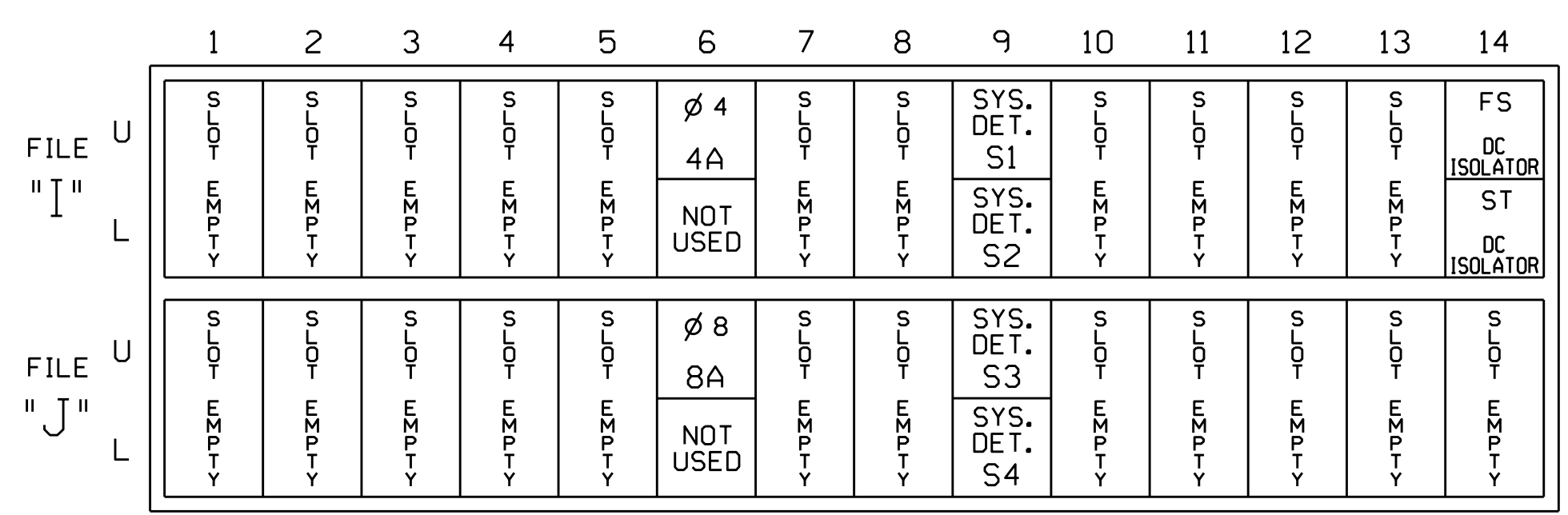
NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S5,S8,S11
 PHASES USED.....2,4,6,8
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)

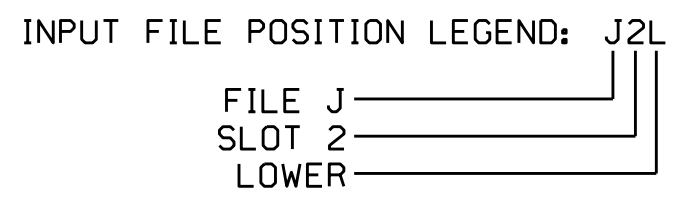


EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			5
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			5
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					
* S4	TB7-11,12	J9L	61	23	17	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0776
 DESIGNED: September 2014
 SEALED: 4/21/2015
 REVISED: N/A

Electrical Detail

Prepared In the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

SR 1970 (W. English Rd.) at West Point Avenue

Division 7 Guilford County High Point

PLAN DATE: November 2014 REVIEWED BY: T. Joyce
 PREPARED BY: C. Strickland REVIEWED BY:

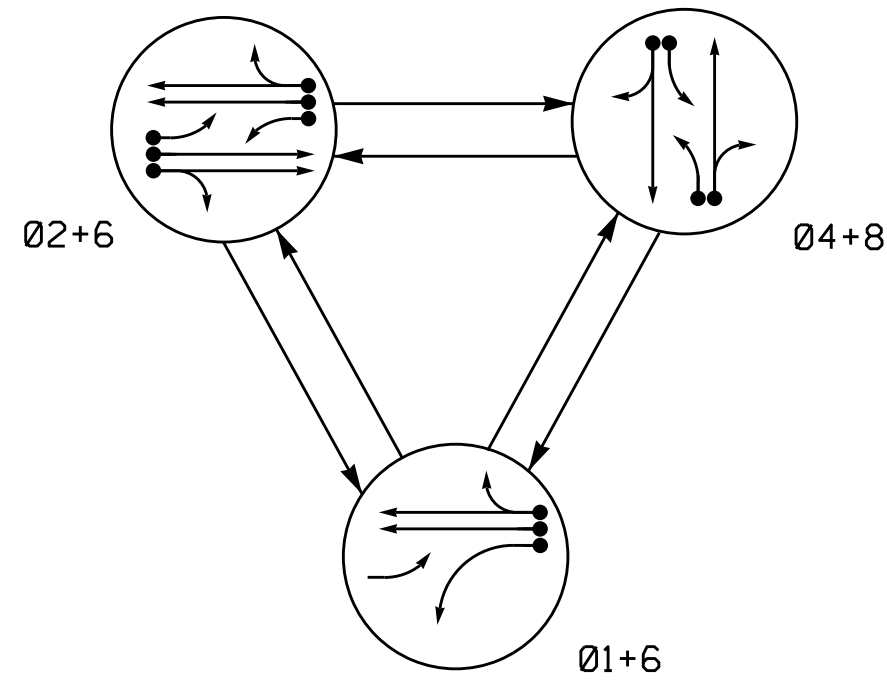
REVISIONS INIT. DATE

DocuSigned by: George C. Brown 4/29/2015
 SEAL PROFESSIONAL ENGINEER GEORGE C. BROWN
 F12601ED08E8434 DATE

SIG. INVENTORY NO. 07-0776

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PHASING DIAGRAM

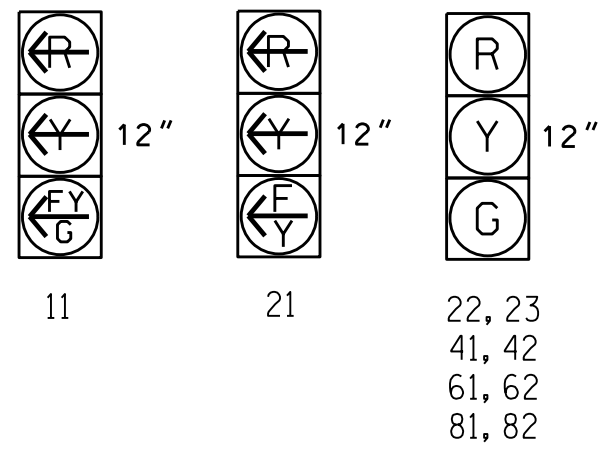


SIGNAL FACE	PHASE			
	01+6	02+6	04+8	01+6
11	Y	Y	R	Y
21	Y	Y	R	Y
22, 23	R	G	R	Y
41, 42	R	R	G	R
61, 62	G	G	R	Y
81, 82	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.

(FY/G) = Bimodal Section



PHASING DIAGRAM DETECTION LEGEND

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

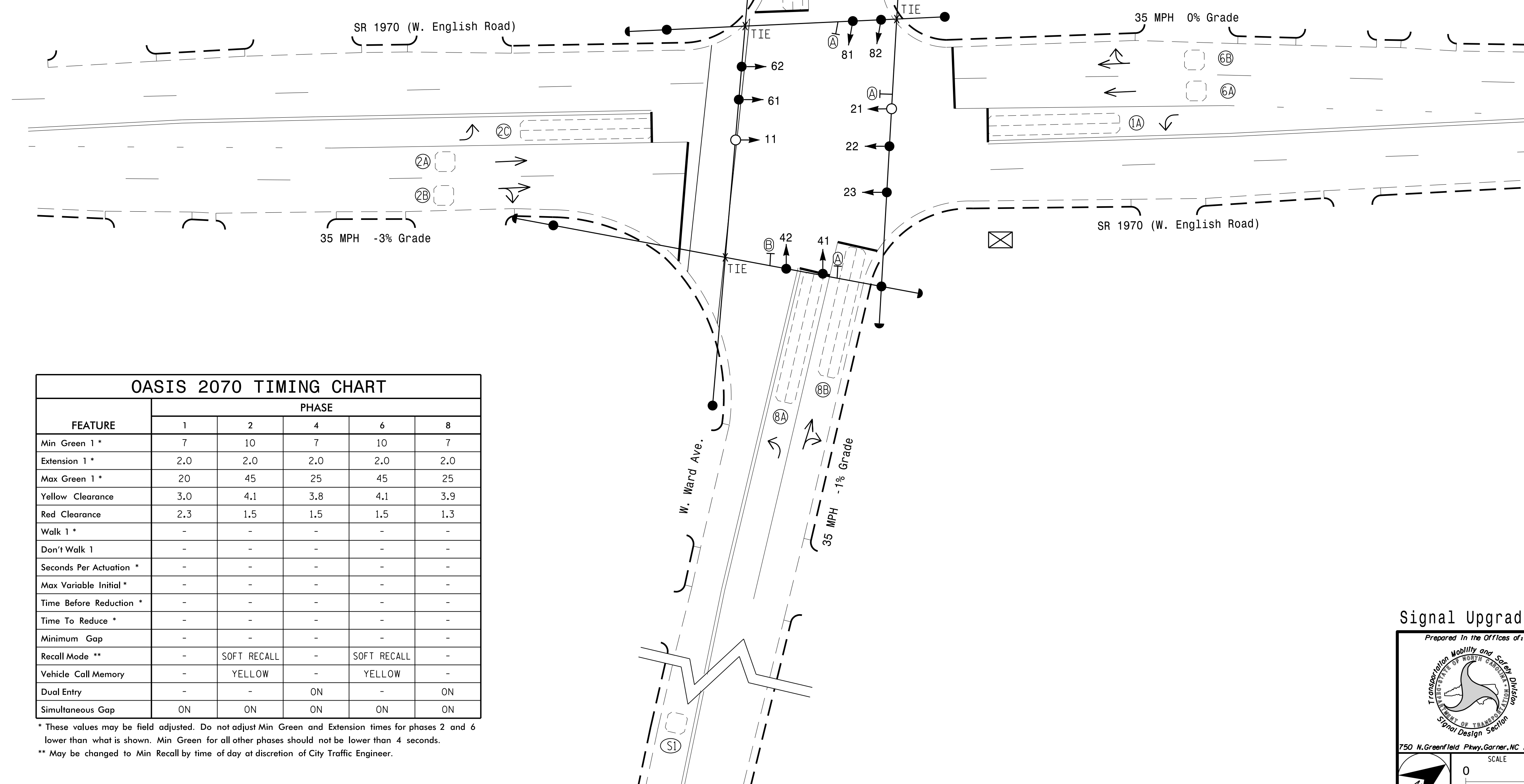
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING					SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME			DELAY TIME
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	Y
					6	Y	Y	-	-	-	-	Y
2A, 2B	6X6	70	EXIST	-	2	Y	Y	-	-	-	-	Y
2C	6X40	0	2-4-2	-	2	Y	Y	-	-	-	-	Y
4A	6X40	+5	2-4-2	-	4	Y	Y	-	-	3	-	Y
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	Y
6A, 6B	6X6	70	EXIST	-	6	Y	Y	-	-	-	-	Y
8A, 8B	6X40	0	2-4-2	-	8	Y	Y	-	-	5	-	Y
S1	6X6	+345	EXIST	-	-	-	-	-	-	-	-	Y

3 Phase Fully Actuated (High Point Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Set all detector units to presence mode.
5. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Existing Left Arrow "ONLY" signs (R3-5L) may be removed at the direction of the Engineer.
8. Pavement markings are existing.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE				
	1	2	4	6	8
Min Green 1 *	7	10	7	10	7
Extension 1 *	2.0	2.0	2.0	2.0	2.0
Max Green 1 *	20	45	25	45	25
Yellow Clearance	3.0	4.1	3.8	4.1	3.9
Red Clearance	2.3	1.5	1.5	1.5	1.3
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode **	-	SOFT RECALL	-	SOFT RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
 ** May be changed to Min Recall by time of day at discretion of City Traffic Engineer.

LEGEND

- | PROPOSED | EXISTING |
|--|--------------------------------------|
| ○ → Traffic Signal Head | ● → N/A |
| ● → Modified Signal Head | ○ → N/A |
| □ → Pedestrian Signal Head With Push Button & Sign | □ → N/A |
| ○ → Signal Pole with Guy | ● → Signal Pole with Sidewalk Guy |
| □ → Inductive Loop Detector | □ → Junction Box |
| □ → Controller & Cabinet | □ → Junction Box |
| □ → 2-in Underground Conduit | □ → Junction Box |
| N/A → Right of Way | --- → Right of Way |
| → → Directional Arrow | → → Directional Arrow |
| (A) → Left Arrow "ONLY" Sign (R3-5L) | (A) → Left Arrow "ONLY" Sign (R3-5L) |
| (B) → "NO TURN ON RED" Sign (R10-11) | (B) → "NO TURN ON RED" Sign (R10-11) |

Signal Upgrade

SR 1970 (W. English Rd.) at Ward Ave.

Division 7 Guilford County High Point

PLAN DATE: August 2014 PREPARED BY: Jeff Spence

PREPARED BY: L.D. Young REVIEWED BY:

SEAL

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE 0 20

1"=20'

REVISIONS	INIT.	DATE

DocuSign by:

4/23/2015

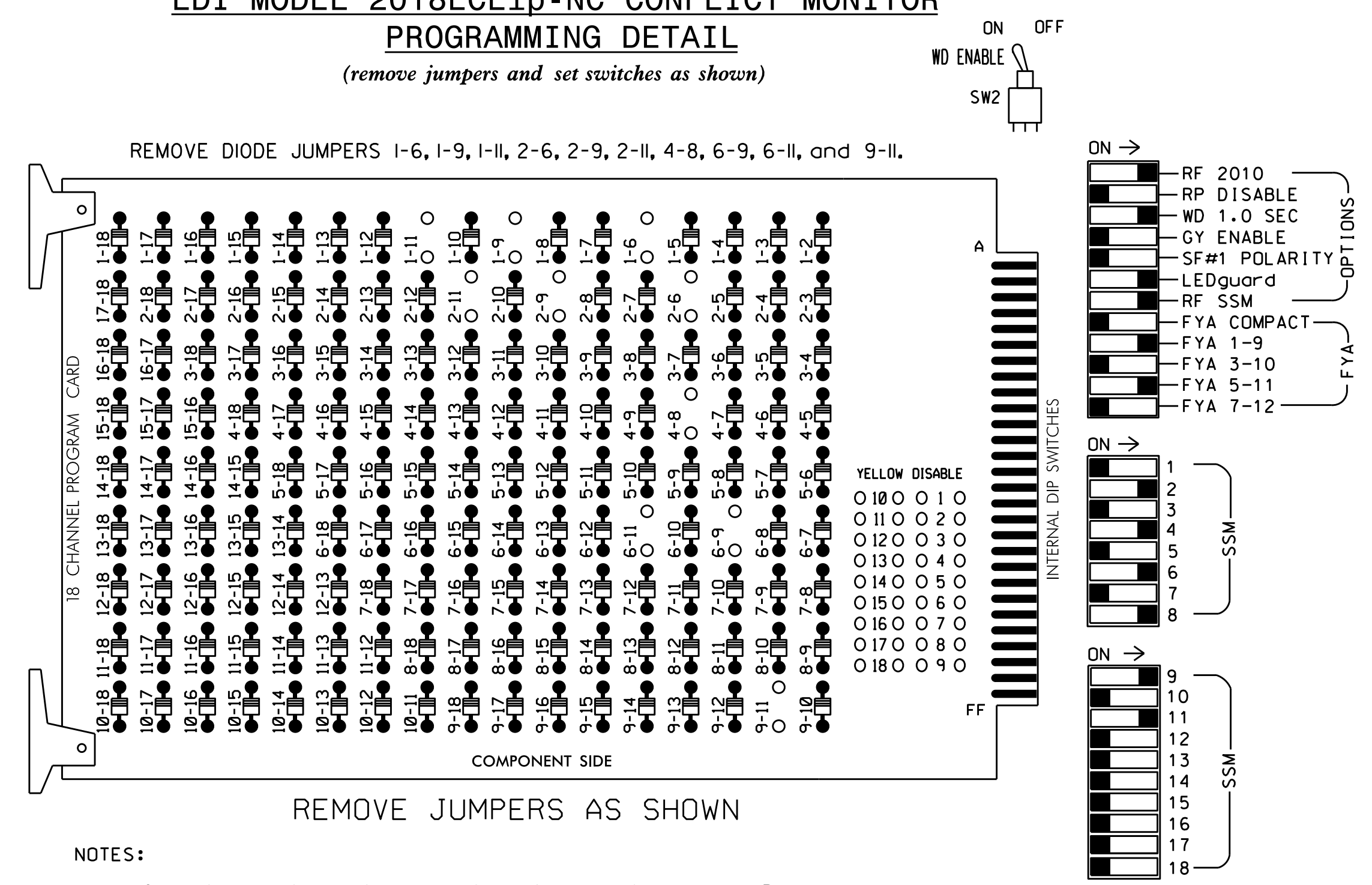
SIG. INVENTORY NO. 07-0777

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EDI MODEL 2018ECLIP-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash, and overlaps 1 as Wag Overlaps.
6. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S5,S8,S11,AUX S1,AUX S4
 PHASES USED.....1,2,4,6,8
 OVERLAP "A".....1+2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....6
 OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
C-5558	Fig. 46.1

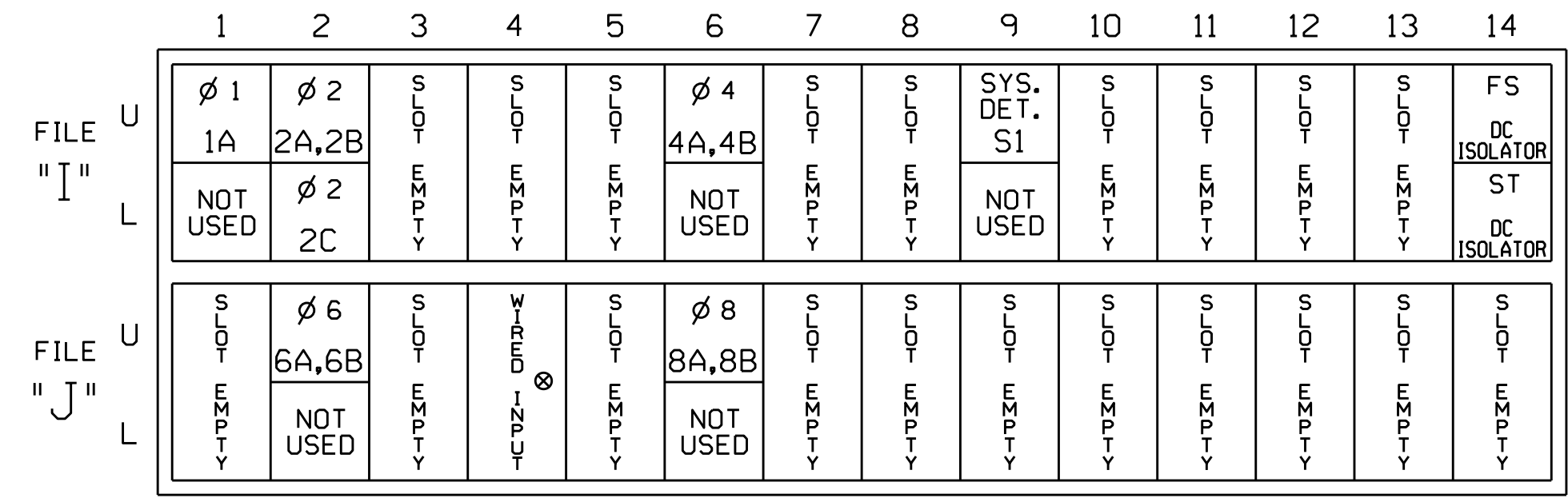
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	22,23	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU	11	NU	NU	21	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102			135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127																	

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

INPUT FILE POSITION LAYOUT

(front view)



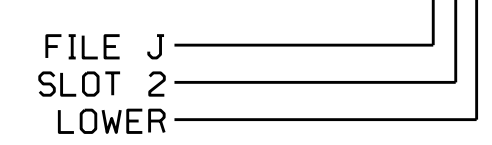
EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 ⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A ¹	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y			
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
2C	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A,4B	TB4-9,10	I6U	41	3	4	4	Y	Y			3
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A,8B	TB5-9,10	J6U	42	4	8	8	Y	Y			5
* S1	TB6-9,10	I9U	60	22	11	SYS					

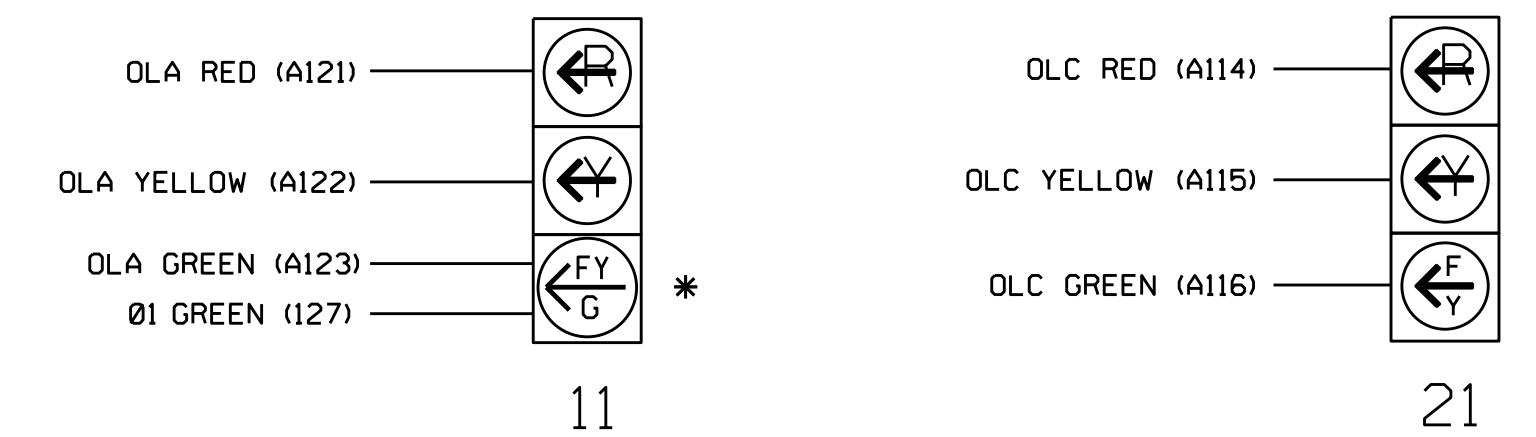
¹Add jumper from I1-W to J4-W, on rear of input file.
 * SYSTEM DETECTOR ONLY. REMOVE THE VEHICLE PHASE ASSIGNED TO THIS DETECTOR IN THE DEFAULT PROGRAMMING.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



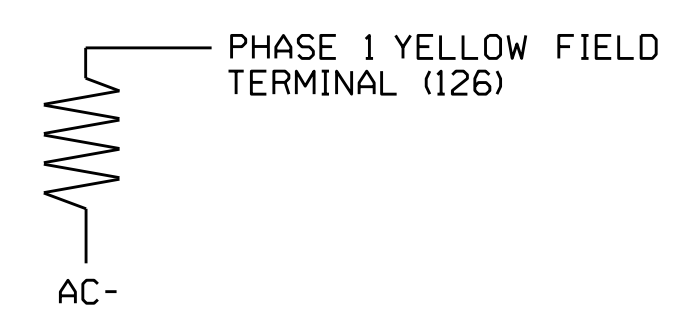
NOTE

The sequence display for signal head 11 requires special logic programming. See sheet 2 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

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



Electrical Detail - Sheet 1 of 2

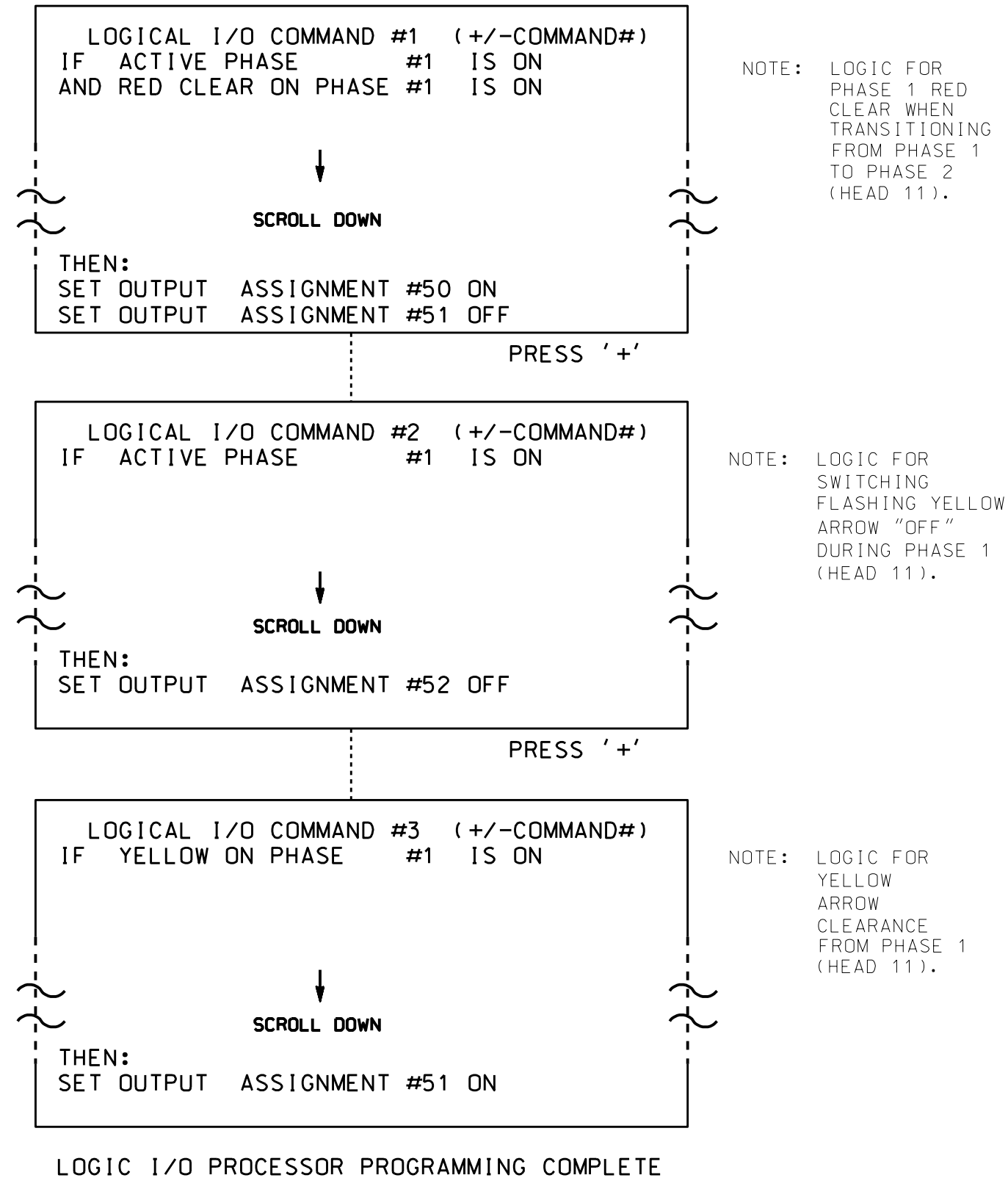
ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared in the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1970 (W. English Rd.) at Ward Ave.		SEAL
	Division 7 PLAN DATE: November 2014 PREPARED BY: S. Armstrong	Guilford County REVIEWED BY: <i>JTR</i> REVIEWED BY:	

27-Apr-2015 09:11
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 SARMSTRONG

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



<u>OUTPUT REFERENCE SCHEDULE</u>
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS

PHASE: 12345678910111213141516

VEH OVL PARENTS: XX

VEH OVL NOT VEH:

VEH OVL NOT PED:

VEH OVL GRN EXT:

STARTUP COLOR: _ RED _ YELLOW _ GREEN

FLASH COLORS: _ RED _ YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)

FLASH YELLOW IN CONTROLLER FLASH?...Y

GREEN EXTENSION (0-255 SEC).....0

YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0

RED CLEAR (0=PARENT,0.1-25.5 SEC)..0.0

OUTPUT AS PHASE # (0=NONE, 1-16)....0

← NOTICE GREEN FLASH

PRESS '+' TWICE

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS

PHASE: 12345678910111213141516

VEH OVL PARENTS: X

VEH OVL NOT VEH:

VEH OVL NOT PED:

VEH OVL GRN EXT:

STARTUP COLOR: _ RED _ YELLOW _ GREEN

FLASH COLORS: _ RED _ YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)

FLASH YELLOW IN CONTROLLER FLASH?...Y

GREEN EXTENSION (0-255 SEC).....0

YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0

RED CLEAR (0=PARENT,0.1-25.5 SEC)..0.0

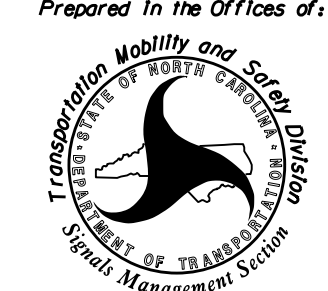
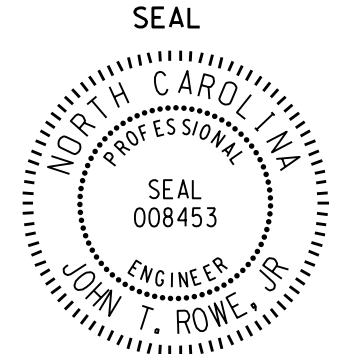
OUTPUT AS PHASE # (0=NONE, 1-16)....0

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

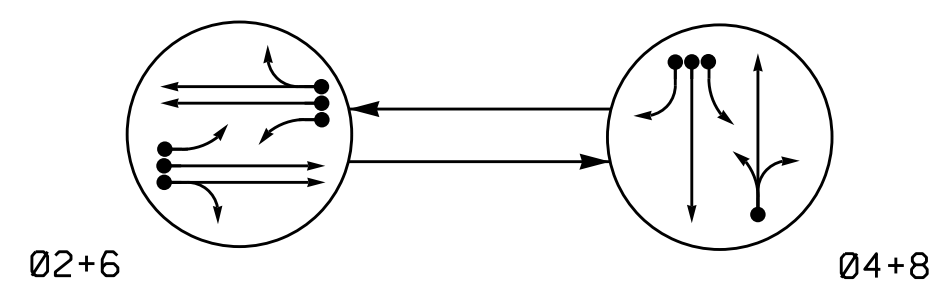
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0777
DESIGNED: August 2014
SEALED: 4/23/2015
REVISED: N/A

Electrical Detail - Sheet 1 of 2

<p>Prepared In the Offices of:</p>  <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SR 1970 (W. English Rd.) at Ward Ave.</p>	<p>SEAL</p> 						
<p>Division 7 Guilford County High Point</p> <p>PLAN DATE: November 2014 REVIEWED BY: <i>JTR</i></p> <p>PREPARED BY: S. Armstrong REVIEWED BY:</p>		<p>DocuSigned by: <i>John T. Rowe, Jr.</i> 4/28/2015</p> <p>841D80C145EE4F5 DATE</p>						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			REVISIONS	INIT.	DATE			
REVISIONS	INIT.	DATE						

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 sarmsrcong

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

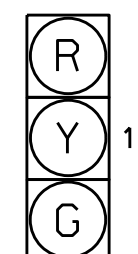
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLIGHT
21, 22, 23	G	R	Y
41, 42	R	G	R
61, 62, 63	G	R	Y
81, 82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



12"
21, 22, 23
41, 42
61, 62, 63
81, 82

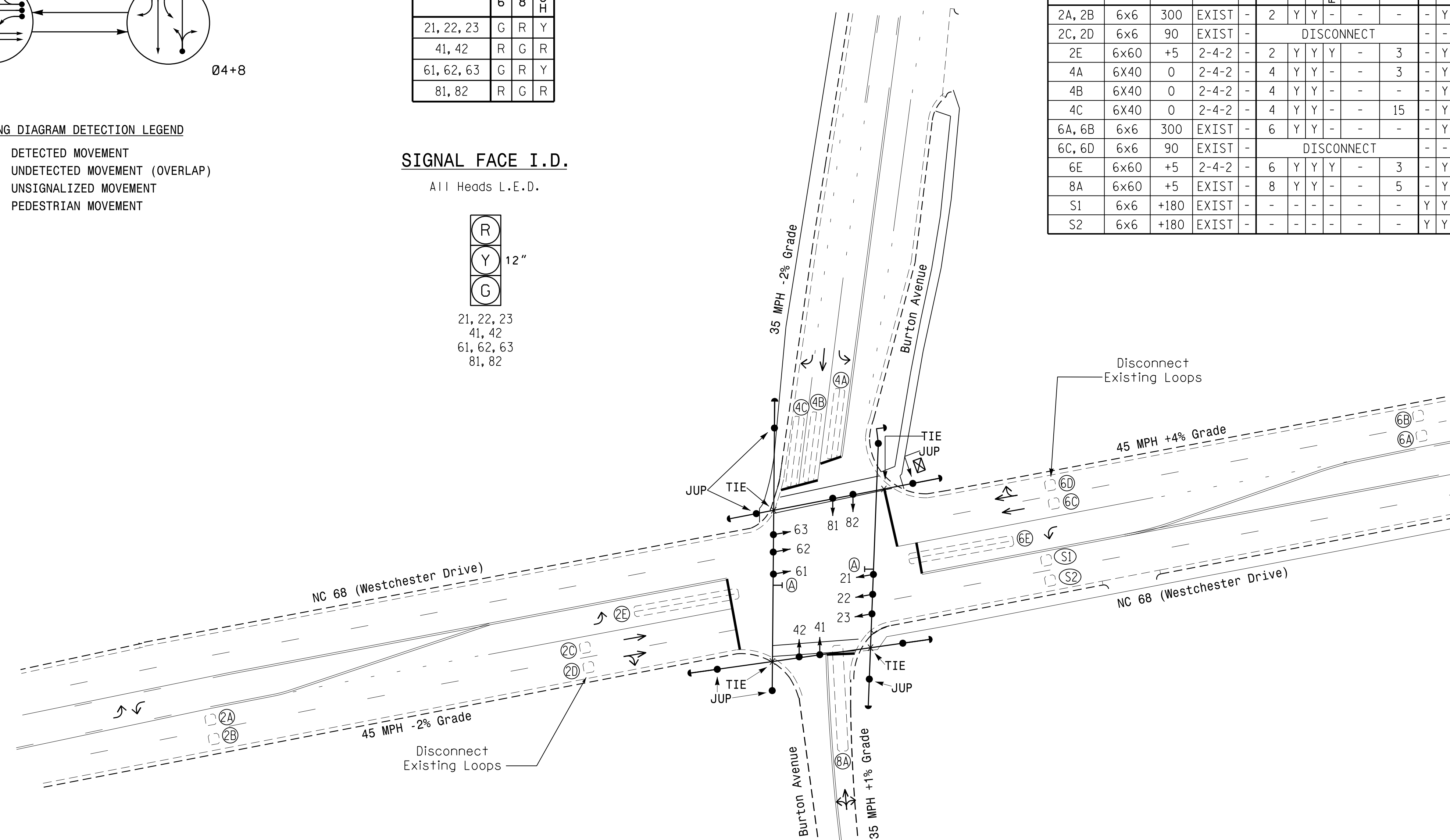
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	INDUCTIVE LOOPS				DETECTOR PROGRAMMING								
	SIZE	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD	
2A, 2B	6x6	300	EXIST	-	2	Y	Y	-	-	-	-	Y	
2C, 2D	6x6	90	EXIST	-	DISCONNECT							-	-
2E	6x60	+5	2-4-2	-	2	Y	Y	Y	-	3	-	Y	
4A	6x40	0	2-4-2	-	4	Y	Y	-	-	3	-	Y	
4B	6x40	0	2-4-2	-	4	Y	Y	-	-	-	-	Y	
4C	6x40	0	2-4-2	-	4	Y	Y	-	-	15	-	Y	
6A, 6B	6x6	300	EXIST	-	6	Y	Y	-	-	-	-	Y	
6C, 6D	6x6	90	EXIST	-	DISCONNECT							-	-
6E	6x60	+5	2-4-2	-	6	Y	Y	Y	-	3	-	Y	
8A	6x60	+5	EXIST	-	8	Y	Y	-	-	5	-	Y	
S1	6x6	+180	EXIST	-	-	-	-	-	-	-	-	Y	
S2	6x6	+180	EXIST	-	-	-	-	-	-	-	-	Y	

2 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Disconnect existing loops 2C, 2D, 6C, and 6D.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- The cabinet should be designed to include an Auxiliary Output file for future use.
- Existing Left Arrow "ONLY" signs (R3-51) may be removed at the direction of the Engineer.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	12	7	12	7
Extension 1 *	6.0	2.0	6.0	1.0
Max Green 1 *	60	20	60	20
Yellow Clearance	4.7	4.0	4.2	3.8
Red Clearance	1.4	1.9	1.6	1.8
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	1.5	-
Max Variable Initial *	34	-	34	-
Time Before Reduction *	15	-	15	-
Time To Reduce *	30	-	30	-
Minimum Gap	3.0	-	3.0	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND

- | PROPOSED | EXISTING |
|----------|----------|
| | |
| | N/A |
| | |
| | |
| | |
| | |
| | |
| | |
| N/A | |
| | |
| | |

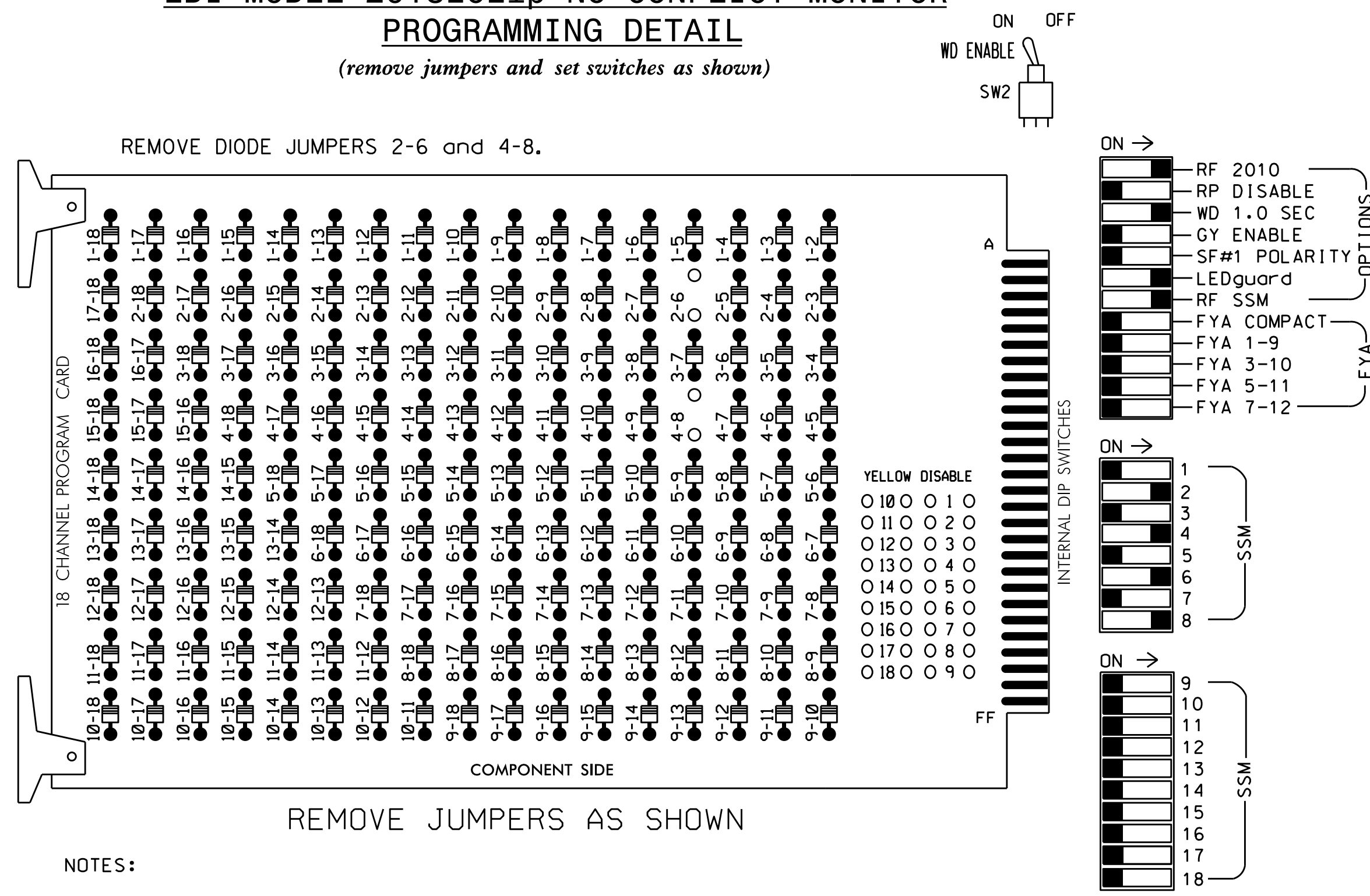
Signal Upgrade

	NC 68 (Westchester Drive) at Burton Avenue	
	Division 7 Guilford County High Point	Division 7 Guilford County High Point
PLAN DATE: July 2014 PREPARED BY: N. Brinkley REVIEWED BY: Jeff Spence	PREPARED BY: N. Brinkley REVIEWED BY: Jeff Spence	SEAL PROFESSIONAL ENGINEER ROBERT J. ZIEMER LICENSE NO. 026486
SCALE: 1" = 40' 0 40	REVISIONS: [] INIT. DATE	DATE: 3/26/2015 SIG. INVENTORY NO. 07-0778

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 2-6 and 4-8.

REMOVE JUMPERS AS SHOWN

NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash.
7. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S5,S8,S11
 PHASES USED.....2,4,6,8
 OVERLAPS.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22 23	NU	NU	41,42	NU	NU	61,62 63	NU	NU	81,82	NU	NU	NU	NU	NU	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW																		
YELLOW ARROW																		
GREEN ARROW																		

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

FILE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 2	∅ 2	∅ 2	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	SYS. DET. S1	SYS. DET. S2	FS	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
L	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED
U	∅ 6	∅ 6	∅ 6	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8
L	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED

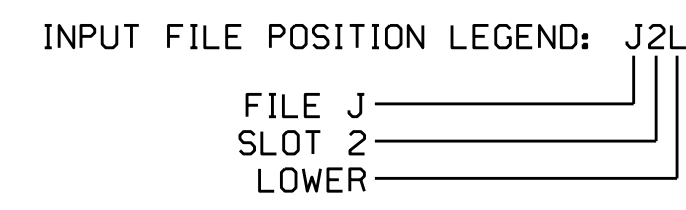
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
2E	TB2-9,10	I3U	63	25	32	2	Y	Y	Y		3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			15
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
6E	TB3-9,10	J3U	64	26	36	6	Y	Y	Y		3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			5

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0778
 DESIGNED: July 2014
 SEALED: 3-26-15
 REVISED: N/A

Electrical Detail

Electrical and Programming Details For:

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

NC 68 (Westchester Drive) at Burton Avenue

Division 7 Guilford County High Point

PLAN DATE: November 2014 REVIEWED BY: JTR

PREPARED BY: James Peterson REVIEWED BY:

REVISIONS INIT. DATE

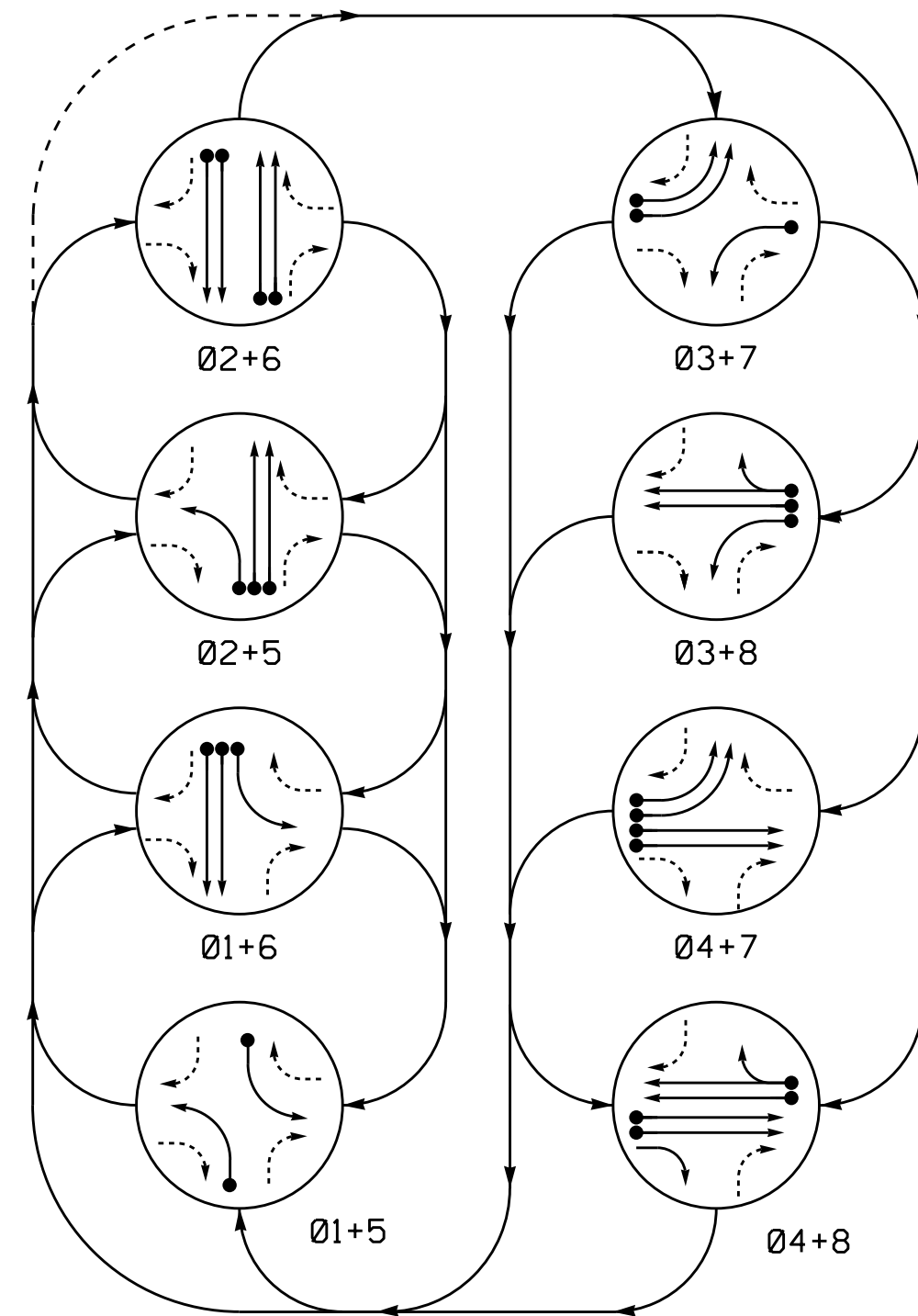
DocuSigned by: John T. Rowe, Jr. 4/2/2015

SIG. INVENTORY NO. 07-0778

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 J Peterson

8 Phase Fully Actuated (High Point Signal System)

PHASING DIAGRAM



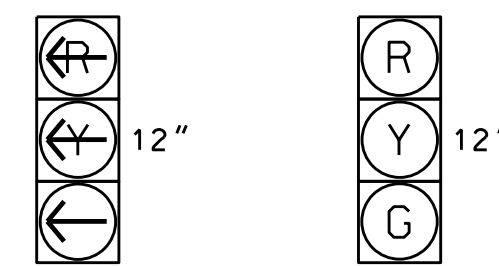
PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE	PHASE							
	01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8
11	---	---	---	---	---	---	---	---
21, 22	R	R	G	G	R	R	R	Y
31	---	---	---	---	---	---	---	---
41, 42	R	R	R	R	R	R	G	G
51	---	---	---	---	---	---	---	---
61, 62	R	G	R	G	R	R	R	Y
71, 72	---	---	---	---	---	---	---	---
81, 82	R	R	R	R	R	G	R	G

SIGNAL FACE I.D.

All Heads L.E.D.



- 11, 31, 51, 71, 72
- 21, 22, 41, 42, 61, 62, 81, 82

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	LOOP SYSTEM	NEW CARD
1A	6X40	+5	2-4-2	-	1	Y	Y	-	-	-	-	Y
2A	6X6	300	EXIST	-	2	Y	-	-	-	-	-	Y
2B	6X6	300	EXIST	-	2	Y	-	-	-	-	-	Y
2C	6X40	+5	2-4-2	-	2	Y	Y	Y	2.0	5	-	Y
2D	6X40	+5	2-4-2	-	2	Y	Y	Y	2.0	5	-	Y
3A	6X40	+5	2-4-2	-	3	Y	Y	-	-	-	-	Y
4A	6X40	+5	2-4-2	-	4	Y	Y	-	-	-	-	Y
4B	6X40	+5	2-4-2	-	4	Y	Y	-	-	-	-	Y
5A	6X40	+5	2-4-2	-	5	Y	Y	-	-	-	-	Y
6A	6X6	300	EXIST	-	6	Y	Y	-	-	-	-	Y
6B	6X6	300	EXIST	-	6	Y	Y	-	-	-	-	Y
6C, 6D	6X6	90	EXIST	-	DISCONNECT						-	-
7A	6X40	+5	2-4-2	-	7	Y	Y	-	-	-	-	Y
7B	6X40	+5	2-4-2	-	7	Y	Y	-	-	-	-	Y
8A	6X40	+5	2-4-2	-	8	Y	Y	-	-	-	-	Y
8B	6X40	+5	2-4-2	-	8	Y	Y	-	-	-	-	Y
S1	6X6	+230	EXIST	-	-	-	-	-	-	-	-	Y
S2	6X6	+230	EXIST	-	-	-	-	-	-	-	-	Y
S3	6X6	+260	EXIST	-	-	-	-	-	-	-	-	Y
S4	6X6	+260	EXIST	-	-	-	-	-	-	-	-	Y

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Disconnect existing loops 6C and 6D.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Existing lane control signs may be removed at the direction of the Engineer.
- Pavement markings are existing unless otherwise shown.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

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 |
| ○ Controller & Cabinet | ○ N/A |
| ○ Junction Box | ○ N/A |
| ○ 2-in Underground Conduit | ○ N/A |
| ○ Right of Way | ○ N/A |
| ○ Directional Arrow | ○ N/A |
| ○ "YIELD" Sign (R1-2) | ○ N/A |
| ○ Left Arrow "ONLY" Sign (R3-5L) | ○ N/A |
| ○ No U-Turn Sign (R3-4) | ○ N/A |
| ○ Through Arrow "ONLY" Sign (R3-5A) | ○ N/A |
| ○ Right Arrow "ONLY" Sign (R3-5R) | ○ N/A |
| ○ Combined Through and Right Arrow Sign (R3-6R) | ○ N/A |

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	15	60	15	25	15	60	15	25
Yellow Clearance	3.0	4.3	3.3	4.8	3.0	4.6	3.0	4.5
Red Clearance	2.8	1.5	3.2	1.6	2.8	1.6	3.7	2.1
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	1.5	-	-
Max Variable Initial *	-	-	-	-	-	34	-	-
Time Before Reduction *	-	0	-	-	-	15	-	-
Time To Reduce *	-	15	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode**	-	SOFT RECALL	-	-	-	SOFT RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
 ** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

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Signal Upgrade

Prepared In the Offices of:
TRANSPORENT MOBILITY AND SAFETY SOLUTIONS
 A DIVISION OF WESTCHESTER SIGNAL DESIGN SECTION
 750 N. Greenfield Pkwy, Garner, NC 27529

NC 68 (Westchester Drive) and SR 1961 (W. Market Center Dr.) at NC 68/SR 1970 (W. English Rd.)
 at
 Division 7 Guilford County High Point
 PLAN DATE: July 2014 PREPARED BY: Jeff Spence
 PREPARED BY: N. Brinkley REVIEWED BY:

SEAL
 NORTH CAROLINA
 PROFESSIONAL ENGINEER
 ROBERT J. ZILMER
 LICENSE NO. 026486

4/23/2015
 DATE

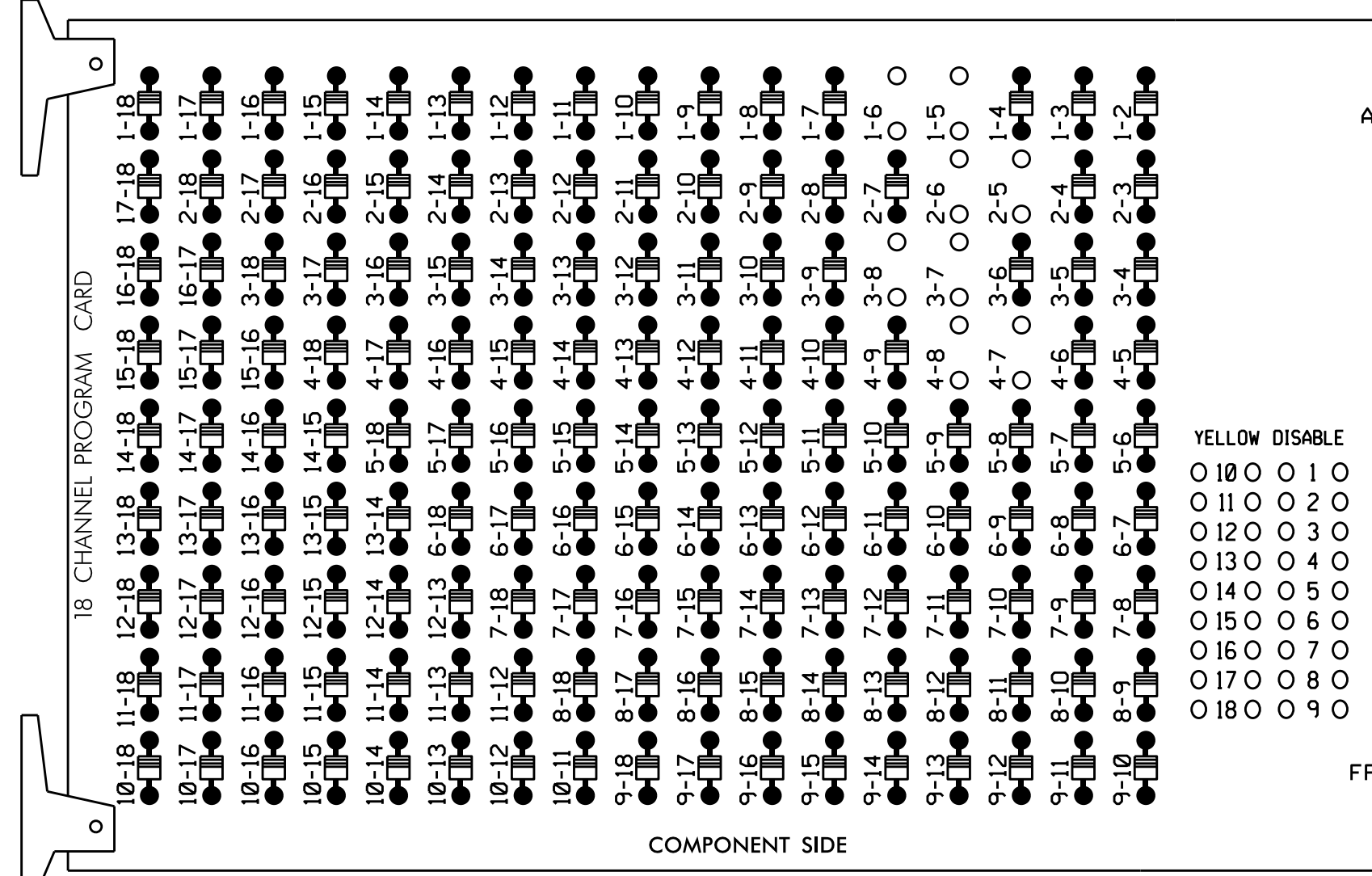
SIG. INVENTORY NO. 07-0779

SCALE 0 40
 1"=40'

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

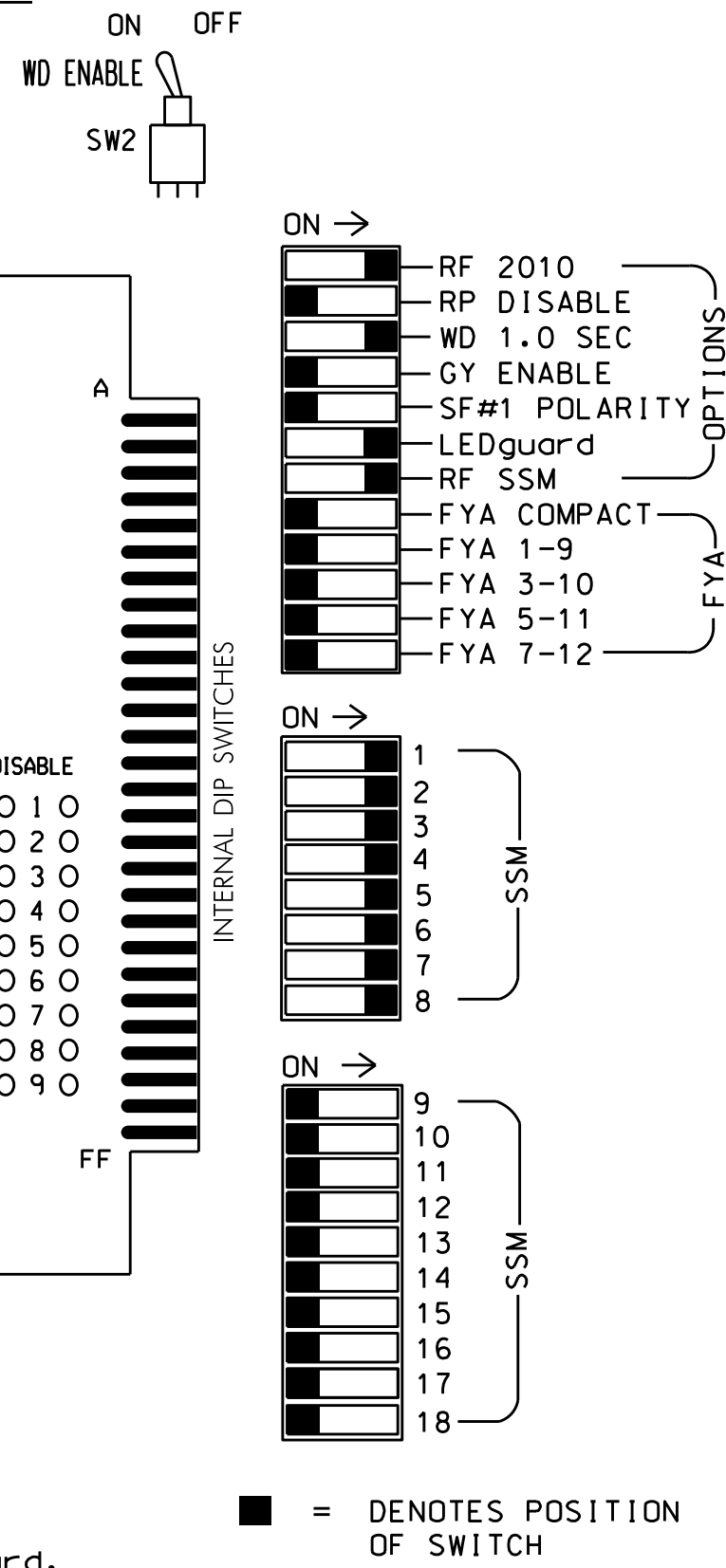
REMOVE DIODE JUMPERS 1-5, 1-6, 2-5, 2-6, 3-7, 3-8, 4-7, and 4-8.



REMOVE JUMPERS AS SHOWN

NOTES:

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



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Variable Initial.
4. Program phases 2 and 6 for Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash.
7. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

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

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31	41,42	NU	51	61,62	NU	71,72	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW	125			116			131				122	
YELLOW ARROW	126			117			132				123	
GREEN ARROW	127			118			133				124	

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

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

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

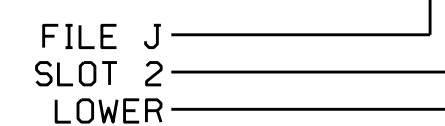
FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	11U	56	18	1	1	Y	Y			
2A	TB2-5,6	12U	39	1	2	2	Y				
2B	TB2-7,8	12L	43	5	12	2	Y				
2C	TB2-9,10	13U	63	25	32	2	Y	Y	Y	2.0	5
2D	TB2-11,12	13L	76	38	42	2	Y	Y	Y	2.0	5
3A	TB4-5,6	15U	58	20	3	3	Y	Y			
4A	TB4-9,10	16U	41	3	4	4	Y	Y			
4B	TB4-11,12	16L	45	7	14	4	Y	Y			
5A	TB3-1,2	11U	55	17	5	5	Y	Y			
6A	TB3-5,6	12U	40	2	6	6	Y	Y			
6B	TB3-7,8	12L	44	6	16	6	Y	Y			
7A	TB5-9,10	16U	42	4	8	7	Y	Y			
7B	TB5-11,12	16L	46	8	18	7	Y	Y			
8A	TB7-1,2	17U	66	28	38	8	Y	Y			
8B	TB7-3,4	17L	79	41	48	8	Y	Y			
* S1	TB6-9,10	19U	60	22	11	SYS					
* S2	TB6-11,12	19L	62	24	13	SYS					
* S3	TB7-9,10	19U	59	21	15	SYS					
* S4	TB7-11,12	19L	61	23	17	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0779
 DESIGNED: July 2014
 SEALED: 4/23/2015
 REVISED: N/A

Electrical Detail

Electrical and Programming Details For: NC 68 (Westchester Drive) and SR 1961 (W. Market Center Dr.) at NC 68/SR 1970 (W. English Rd.)

Prepared In the Offices of: **Transporatio Mobility and Safety Solutions**

Division 7 Guilford County High Point

PLAN DATE: December 2014 REVIEWED BY: *[Signature]*

PREPARED BY: S. Armstrong REVIEWED BY: *[Signature]*

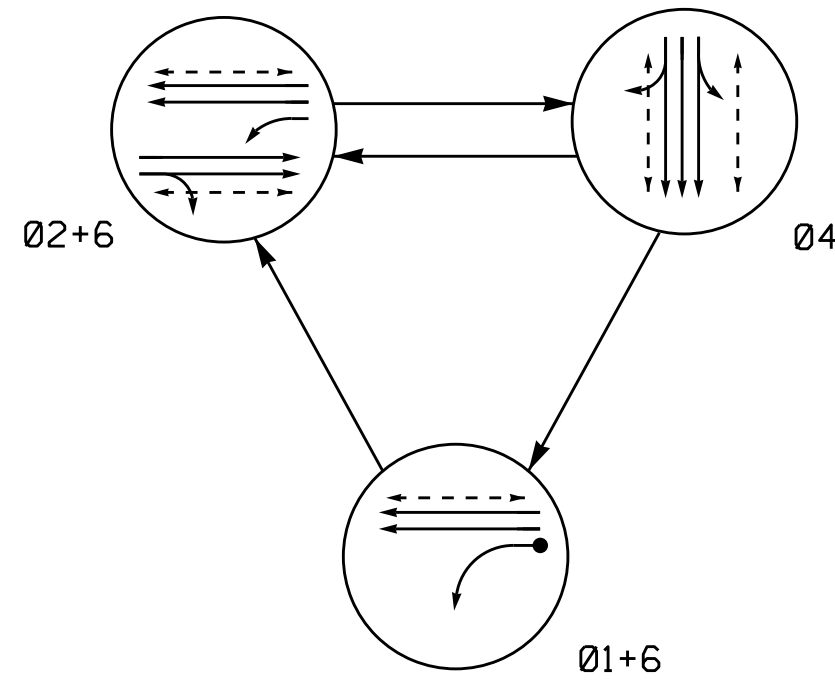
SEAL: JOHN T. ROWE, PE

DocuSigned by: **John T. Rowe, Jr.** 4/28/2015

750 N. Greenfield Pkwy, Garner, NC 27529

SIG. INVENTORY NO. 07-0779

PHASING DIAGRAM



SIGNAL FACE	PHASE			
	01+6	02+6	04	FLASH
11	←	←	←	←
21, 22	R	G	R	Y
41, 42, 43	R	R	G	R
62, 63	G	G	R	Y
P21, P22	DW	W	DW	DRK
P41, P42	DW	DW	W	DRK
P43, P44	DW	DW	W	DRK
P61, P62	W	W	DW	DRK

W - Walk
DW - Don't Walk
DRK - Dark

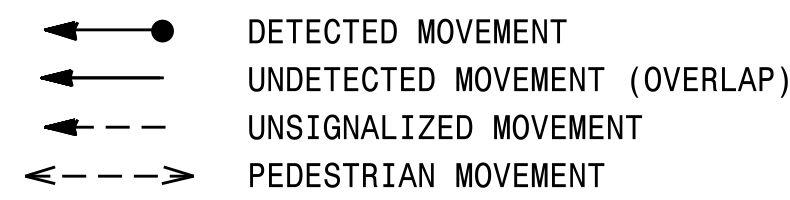
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
LOOP	SIZE (FT)	INDUCTIVE LOOPS			DETECTOR PROGRAMMING							
		DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
S1	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y
S2	6X6	EXIST	EXIST	-	-	-	-	-	-	-	-	Y

3 Phase Semi-Actuated (High Point Signal System)

NOTES

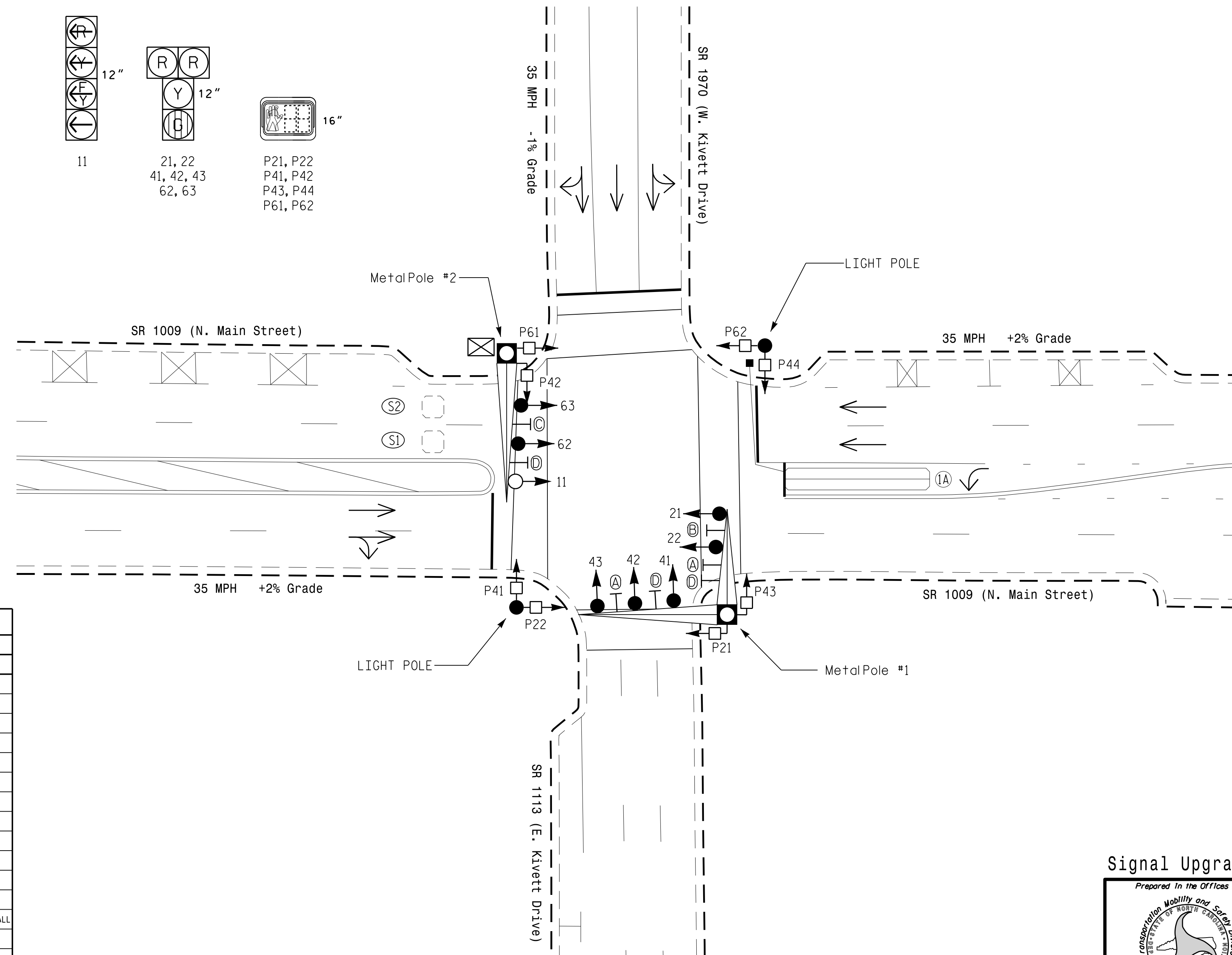
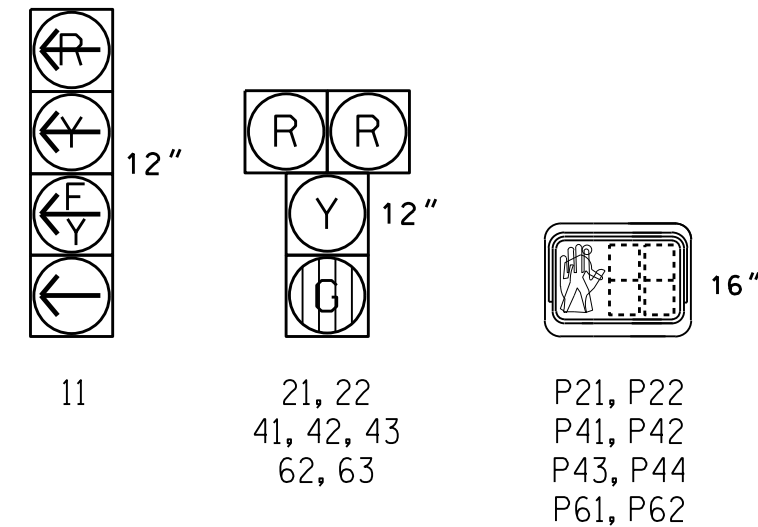
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Renumber existing signal phases and heads as shown.
4. Phase 1 may be lagged.
5. Set all detector units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pavement markings are existing.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.

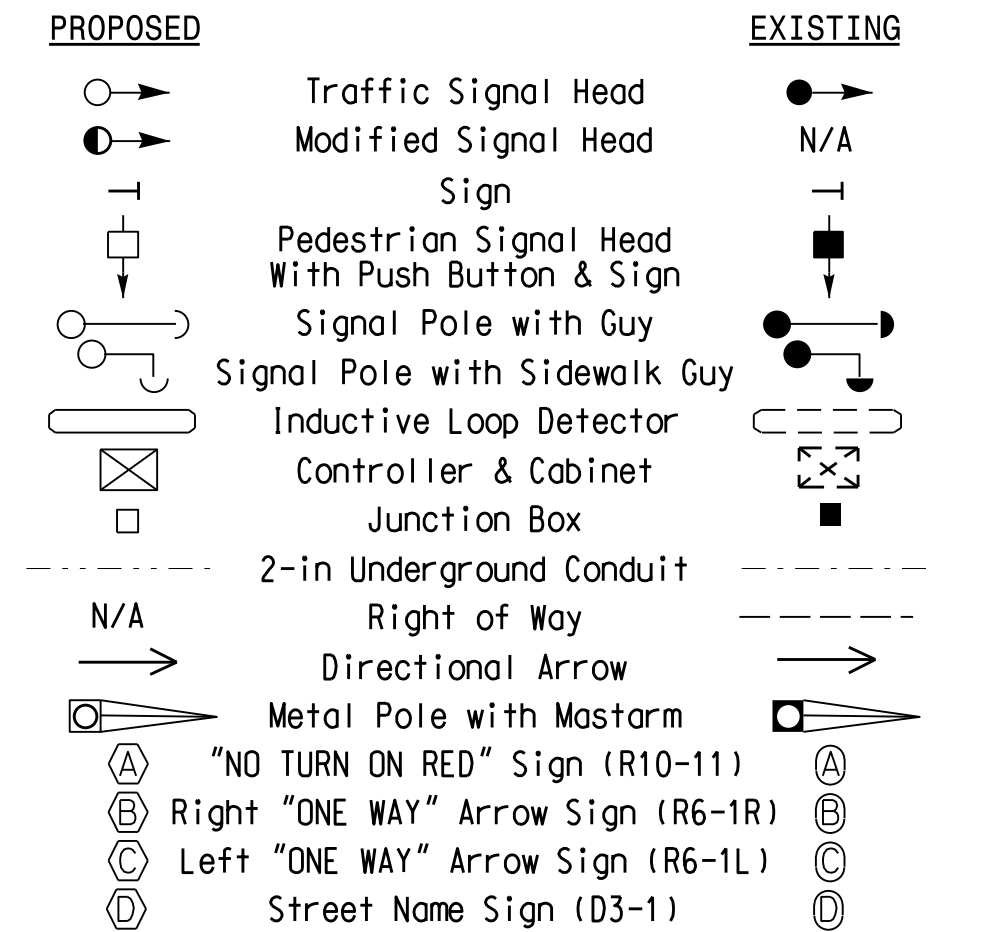
All Heads L.E.D.



FEATURE	PHASE			
	1	2	4	6
Min Green 1 *	7	10	7	10
Extension 1 *	2.0	0.0	0.0	0.0
Max Green 1 *	15	30	20	30
Yellow Clearance	3.0	3.7	3.9	3.7
Red Clearance	2.1	1.4	1.8	1.4
Walk 1 *	-	7	7	7
Don't Walk 1	-	7	14	8
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	-	MAX/PED RECALL	MAX/PED RECALL	MAX/PED RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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

LEGEND



Signal Upgrade

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1009 (N. Main Street) at SR 1970/1113 (Kivett Dr.)

Division 7 Guilford County High Point

PLAN DATE: August 2014 REVIEWED BY:

PREPARED BY: R.N. Zinser REVIEWED BY:

REVISIONS: INIT. DATE

SCALE: 0 20
1"=20'

SEAL

4/27/2015

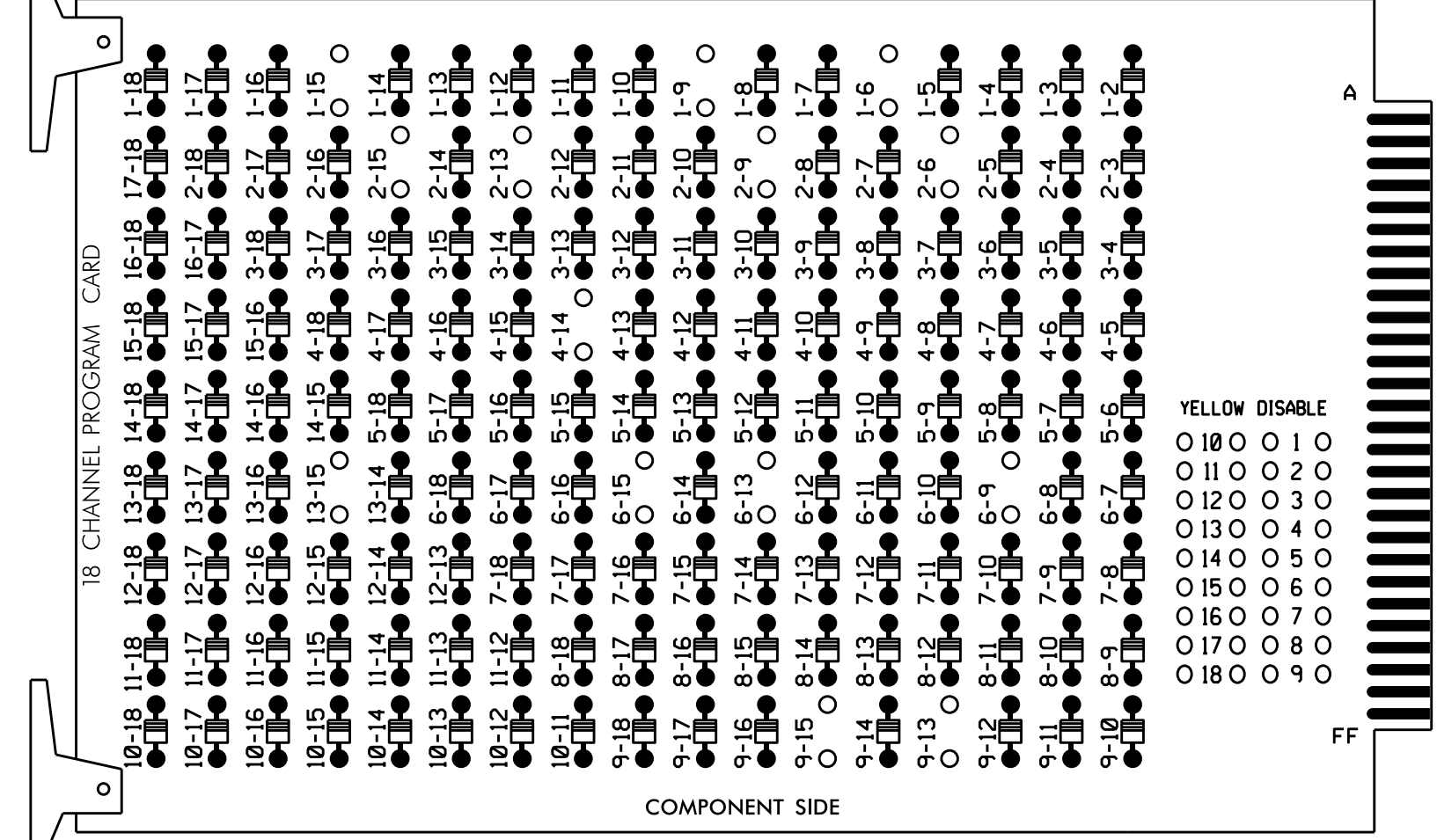
SIG. INVENTORY NO. 07-0780

07-APR-2015 16:54
 S:\MT\S\SU\TIS\Sig\Signal\Central_Regional\Div 7\4-5558_High_Point\Signal_Plans\07-0780_Sig.dsn_20150427.dgn
 rz1:erba

EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

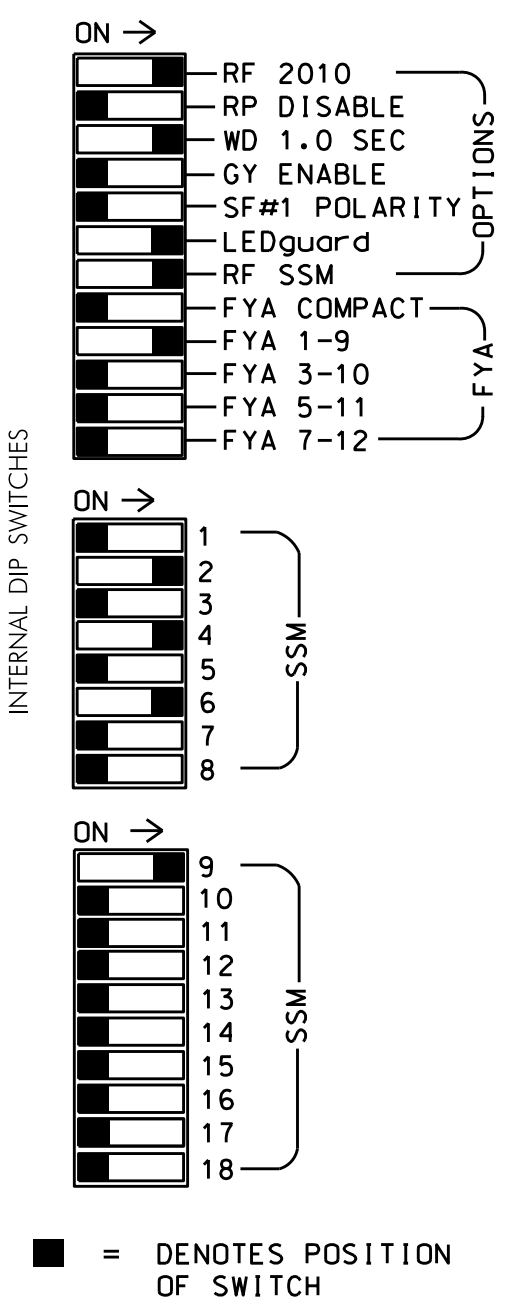
REMOVE DIODE JUMPERS 1-6, 1-9, 1-15, 2-6, 2-9, 2-13, 2-15, 4-14, 6-9, 6-13, 6-15, 9-13, 9-15 and 13-15.



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 unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2, 4 and 6 for 'STARTUP PED CALL'.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S3,S5,S6,S8,S9,AUX S1
 PHASES USED.....1,2,4,6,2 PED,4 PED,6 PED.
 OVERLAP "A".....1+2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....NOT USED
 OVERLAP "D".....NOT USED

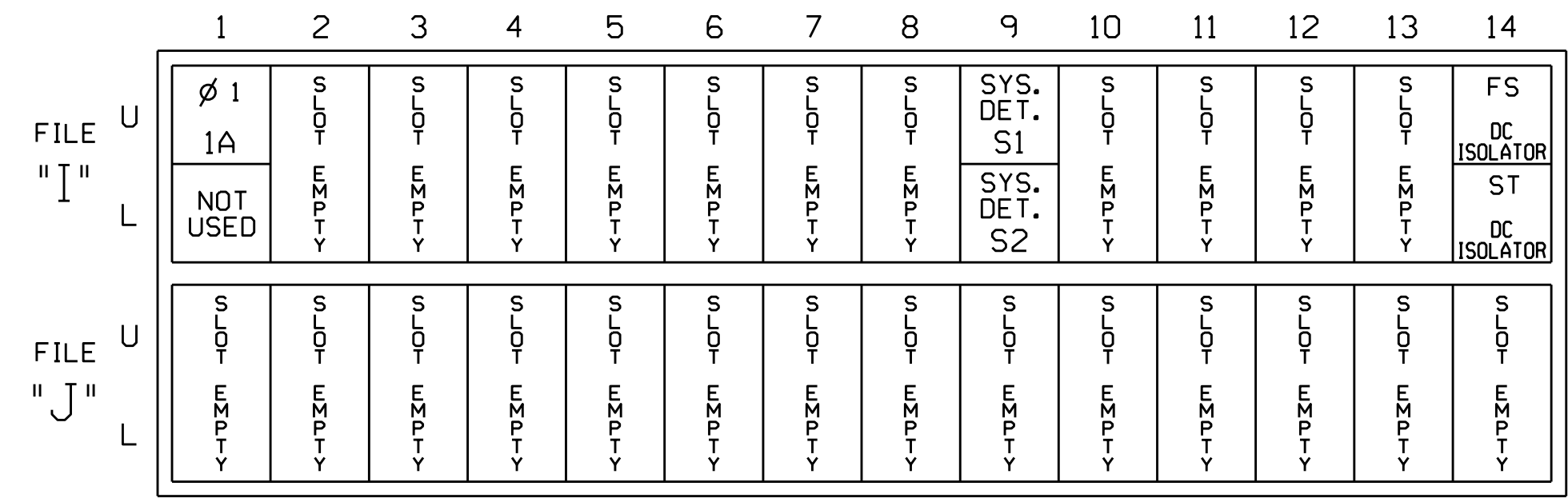
SIGNAL HEAD HOOK-UP CHART

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	21,22	P21, P22	NU	41,42 43	P41,P42 P43,P44	NU	62,63	P61, P62	NU	NU	NU	11	NU	NU	NU	NU	NU
RED		128			101			134										
YELLOW	*	129			102			135										
GREEN		130			103			136										
RED ARROW													A121					
YELLOW ARROW													A122					
FLASHING YELLOW ARROW													A123					
GREEN ARROW	127																	
Hand icon			113			104			119									
Walking person icon			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.

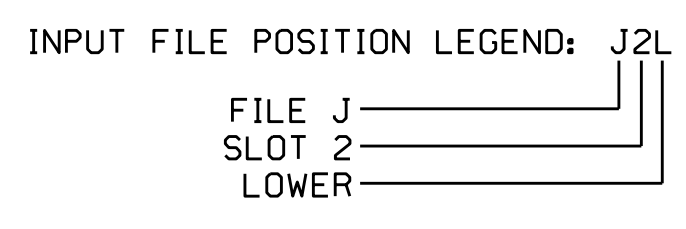
INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
 ST = STOP TIME



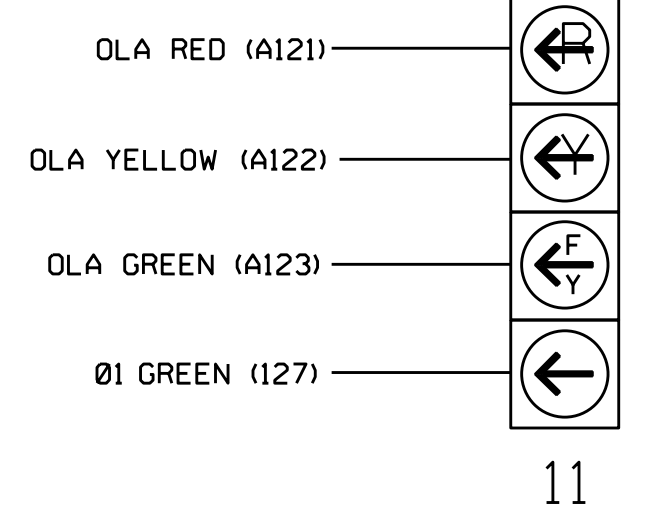
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			15
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					

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

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

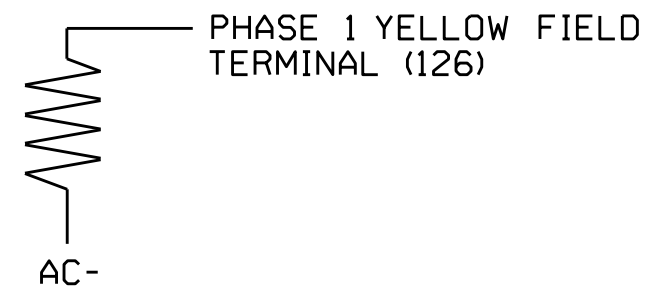
- The sequence display for this signal requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0780
 DESIGNED: August 2014
 SEALED: 4-27-15
 REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



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 1 OF 2

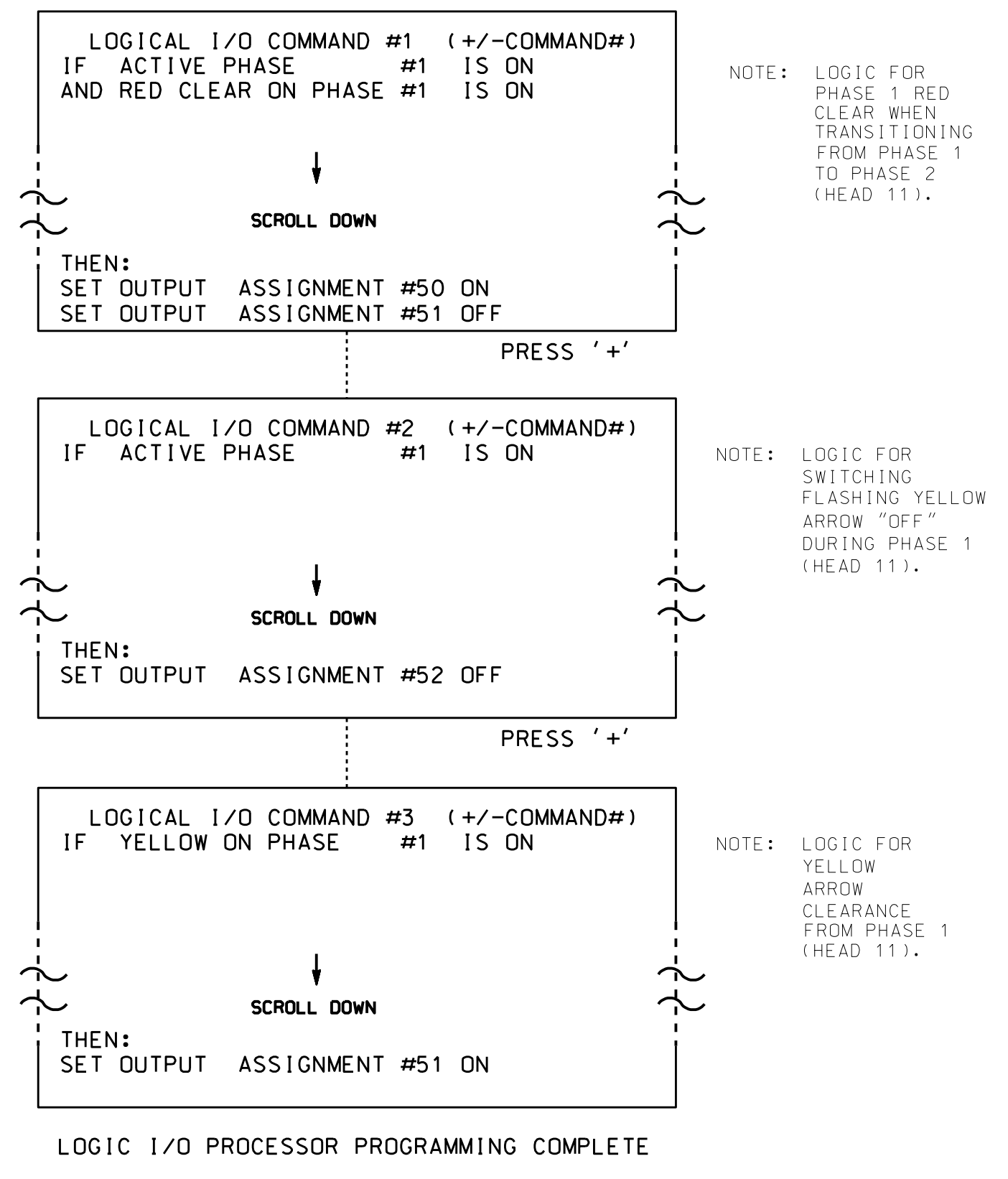
ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared in the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1009 (N. Main Street) and SR 1970/1113 (Kivett Dr.) Division 7 Guilford County High Point		SEAL JOHN T. ROWE, JR. ENGINEER STATE OF NORTH CAROLINA SEAL 008453
	PLAN DATE: January 2015 PREPARED BY: James Peterson	REVIEWED BY: JTR REVIEWED BY:	
REVISIONS		INIT. DATE	SIG. INVENTORY NO. 07-0780

09-08-2015 13:17
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 J.peterson

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2 and 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



OUTPUT REFERENCE SCHEDULE
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

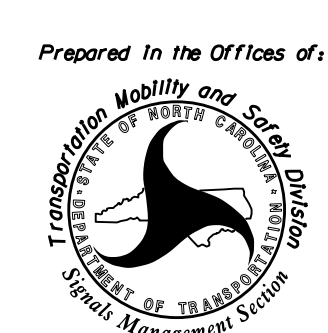
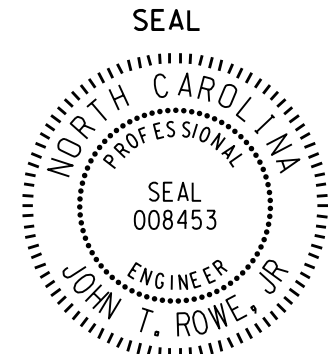
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS	
PHASE:	12345678910111213141516
VEH OVL PARENTS:	XX
VEH OVL NOT VEH:	
VEH OVL NOT PED:	
VEH OVL GRN EXT:	
STARTUP COLOR:	_ RED _ YELLOW _ GREEN
FLASH COLORS:	_ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS:	(Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...	Y
GREEN EXTENSION (0-255 SEC).....	0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..	0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)..	0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....	0

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

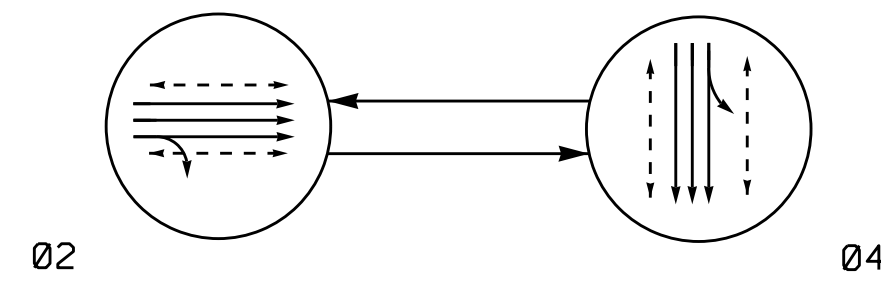
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0780
DESIGNED: August 2014
SEALED: 4-27-15
REVISED: N/A

ELECTRICAL DETAIL SHEET 2 OF 2

<p>Prepared in the Offices of:</p>  <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SR 1009 (N. Main Street) and SR 1970/1113 (Kivett Dr.)</p> <p>Division 7 Guilford County High Point</p> <p>PLAN DATE: January 2015 REVIEWED BY: JTR</p> <p>PREPARED BY: James Peterson REVIEWED BY:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISIONS	INIT.	DATE				<p>SEAL</p>  <p>DocuSigned by: John T. Rowe, Jr. 4/29/2015</p> <p>SIG. INVENTORY NO. 07-0780</p>
REVISIONS	INIT.	DATE						

09-APR-2015 13:18
 C:\IT\55101\T5\Sig\m\work\output\sig\Man\ Peterson\070780_sml.ele...xxx.dgn
 J. Peterson

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

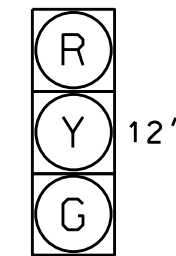
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- - - UNSIGNALIZED MOVEMENT
- ← - - - PEDESTRIAN MOVEMENT

TABLE OF OPERATION

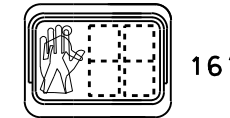
SIGNAL FACE	PHASE		
	02	04	FL
21, 22, 23	G	R	Y
41, 42, 43	R	G	R
P21, P22	W	DW	DRK
P23, P24	W	DW	DRK
P41, P42	DW	W	DRK
P43, P44	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22, 23
41, 42, 43



P21, P22
P23, P24
P41, P42
P43, P44

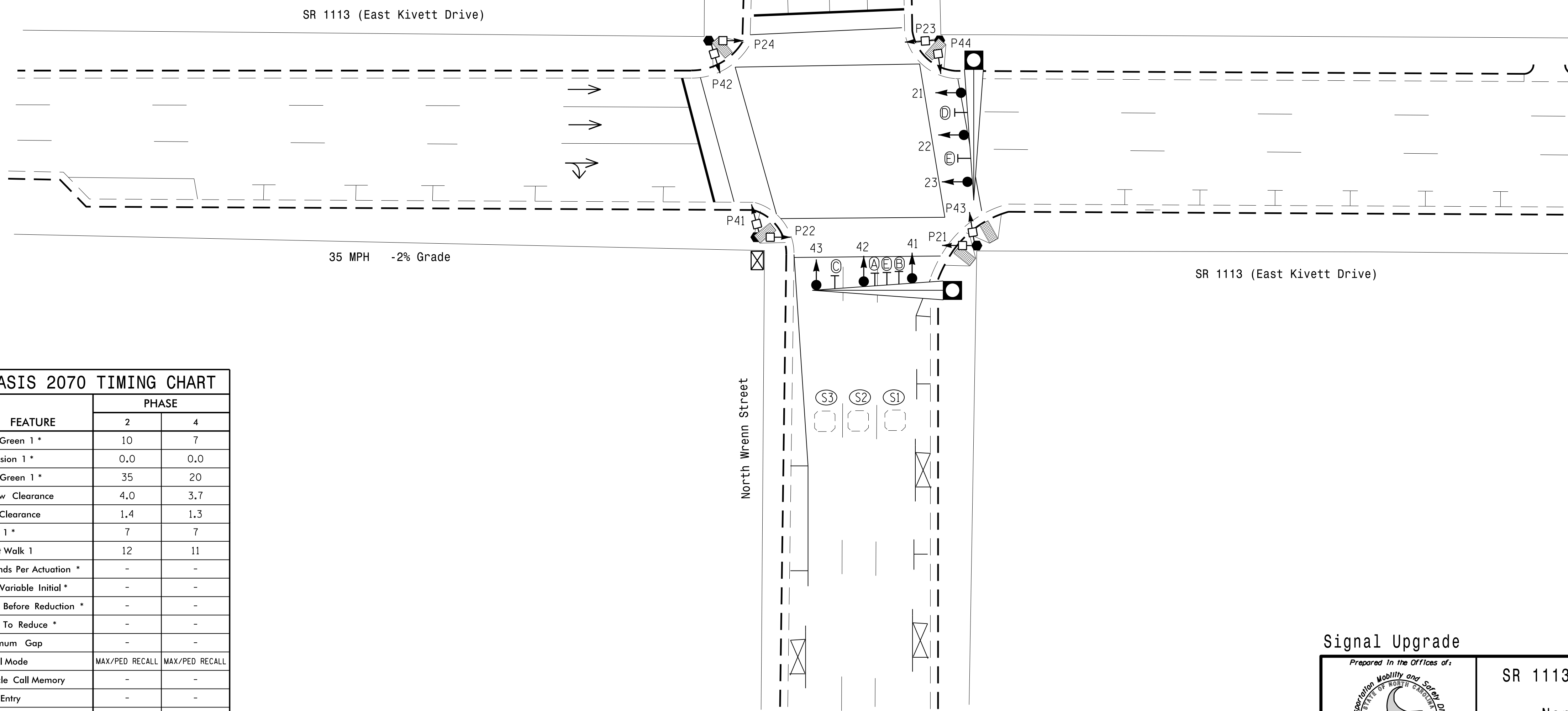
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	INDUCTIVE LOOPS			DETECTOR PROGRAMMING								
	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
S1	6X6	+115	EXIST	-	-	-	-	-	-	-	Y	Y
S2	6X6	+115	EXIST	-	-	-	-	-	-	-	Y	Y
S3	6X6	+115	EXIST	-	-	-	-	-	-	-	Y	Y

2 Phase Pre-Timed (High Point Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
4. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
5. Pavement markings are existing.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE	
	2	4
Min Green 1 *	10	7
Extension 1 *	0.0	0.0
Max Green 1 *	35	20
Yellow Clearance	4.0	3.7
Red Clearance	1.4	1.3
Walk 1 *	7	7
Don't Walk 1	12	11
Seconds Per Actuation *	-	-
Max Variable Initial *	-	-
Time Before Reduction *	-	-
Time To Reduce *	-	-
Minimum Gap	-	-
Recall Mode	MAX/PED RECALL	MAX/PED RECALL
Vehicle Call Memory	-	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

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

LEGEND

- | | |
|--|-----------|
| PROPOSED | EXISTING |
| ○ → Traffic Signal Head | ● → N/A |
| ○ → Modified Signal Head | ○ → N/A |
| ○ → Sign | ○ → N/A |
| ⊥ Pedestrian Signal Head | ⊥ → N/A |
| ○ → Signal Pole with Guy | ○ → N/A |
| ○ → Signal Pole with Sidewalk Guy | ○ → N/A |
| □ Inductive Loop Detector | □ → N/A |
| □ Controller & Cabinet | □ → N/A |
| □ Junction Box | □ → N/A |
| --- 2-in Underground Conduit | --- → N/A |
| N/A Right of Way | --- → N/A |
| → Directional Arrow | → → N/A |
| ⊥ Metal Pole with Mastarm | ⊥ → N/A |
| N/A Curb Ramp | ⊥ → N/A |
| ○ Type II Signal Pedestal | ○ → N/A |
| ⊙ Through Arrow "ONLY" Sign (R3-5A) | ⊙ → N/A |
| ⊙ Combined Through and Left Arrow Sign (R3-6L) | ⊙ → N/A |
| ⊙ Left "ONE WAY" Arrow Sign (R6-1L) | ⊙ → N/A |
| ⊙ Right "ONE WAY" Arrow Sign (R6-1R) | ⊙ → N/A |
| ⊙ Street Name Sign (D3-1) | ⊙ → N/A |

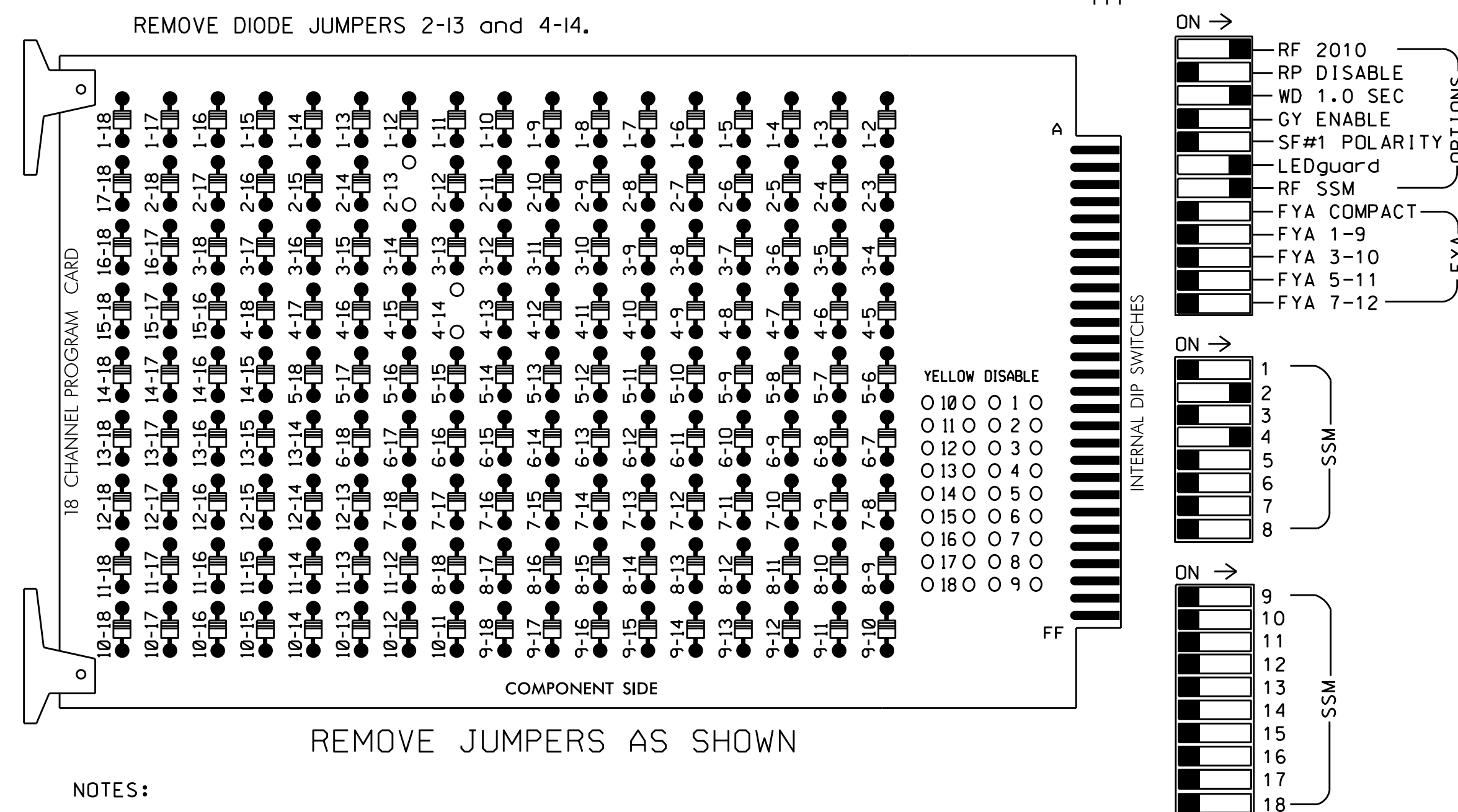
Signal Upgrade

	SR 1113 (East Kivett Drive) at North Wrenn Street		SEAL
	Division 7 Guilford County High Point PLAN DATE: August 2014 PREPARED BY: K.G. Peedin, Jr. REVISIONS: _____ INIT. DATE _____	REVIEWED BY: P.L. Alexander REVIEWED BY: _____ INIT. DATE _____	

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 PZT:erba

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

(remove jumpers and set switches as shown)



NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Enable Simultaneous Gap-Out for all phases.
- Program phase 2 for Start Up In Green.
- Program phases 2 and 4 for 'STARTUP PED CALL'.
- Program phase 2 for Yellow Flash.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S3,S5,S6
 PHASES USED.....2,2PED,4,4PED
 OVERLAPS.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22 23	P21,P22 P23,P24	NU	41,42 43	P41,P42 P43,P44	NU	NU	NU	NU	NU	NU
RED		128			101							
YELLOW		129			102							
GREEN		130			103							
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
Hand icon			113			104						
Person icon			115			106						

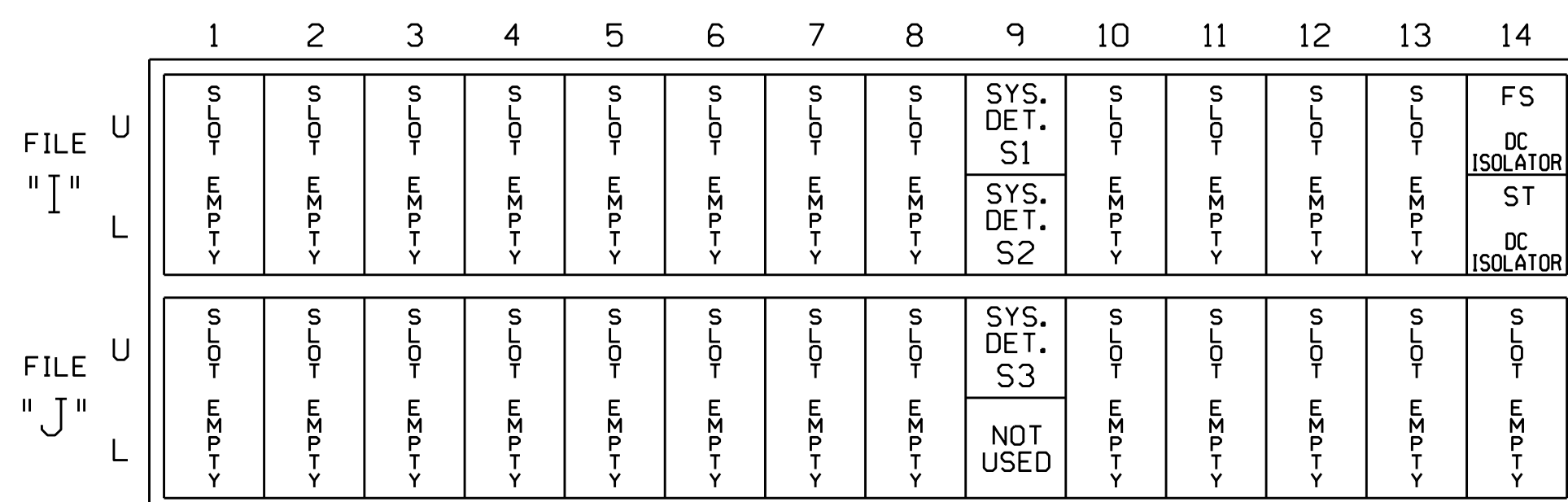
NU = Not Used

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

INPUT FILE POSITION LAYOUT

(front view)

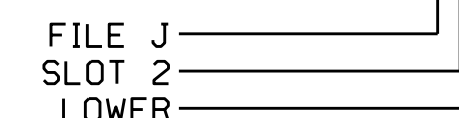


INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0781
 DESIGNED: August 2014
 SEALED: 4/17/2015
 REVISED: N/A

Electrical Detail

Electrical and Programming Details for: **SR 1113 (East Kivett Drive) at North Wrenn Street**

Prepared In the Offices of: **Transporatio Mobility and Safety Solutions**

Division 7 Guilford County High Point

PLAN DATE: December 2014 REVIEWED BY:

PREPARED BY: S. Armstrong REVIEWED BY:

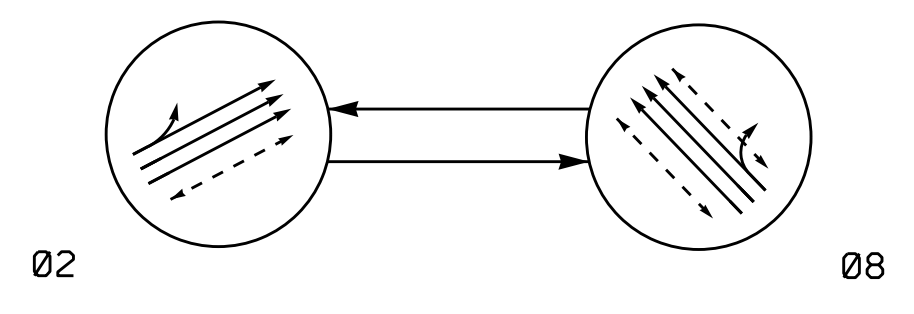
REVISIONS INIT. DATE

Seal: **John T. Rowe, Jr.** PROFESSIONAL ENGINEER SEAL 008453

4/20/2015

SIG. INVENTORY NO. 07-0781

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- ←●→ DETECTED MOVEMENT
- ←—→ UNDETECTED MOVEMENT (OVERLAP)
- ←- - -→ UNSIGNALIZED MOVEMENT
- ←- - -> PEDESTRIAN MOVEMENT

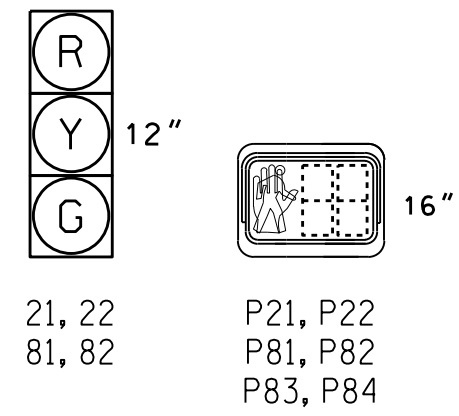
TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02	08	FLASH
21, 22	G	R	Y
81, 82	R	G	R
P21, P22	W	R	DRK
P81, P82	DW	W	DRK
P83, P84	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

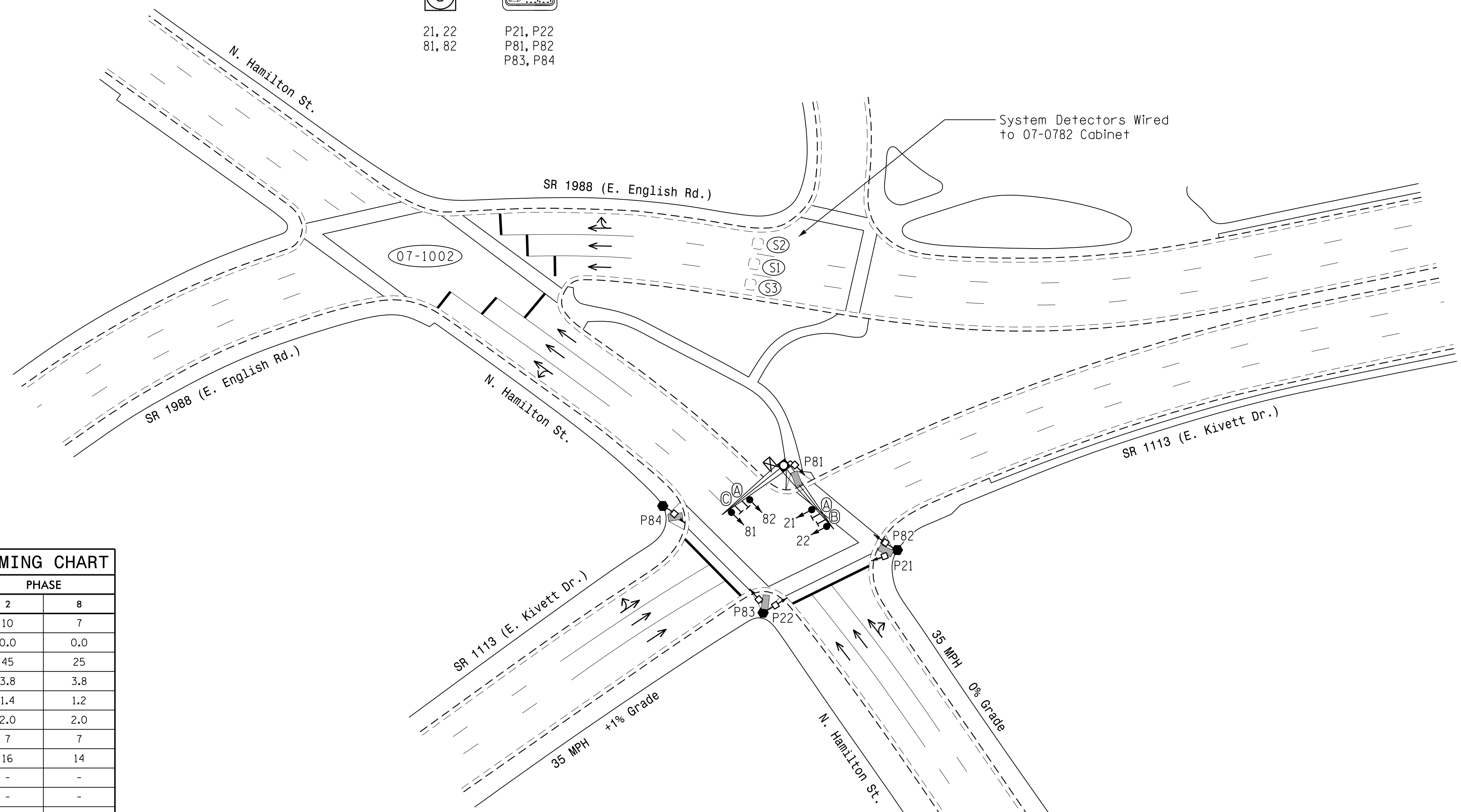
LOOP	SIZE (FT)	INDUCTIVE LOOPS			DETECTOR PROGRAMMING						SYSTEM LOOP	NEW CARD
		DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME		
S1	6X6	*EXIST	EXIST	-	-	-	-	-	-	-	Y	Y
S2	6X6	*EXIST	EXIST	-	-	-	-	-	-	-	Y	Y
S3	6X6	*EXIST	EXIST	-	-	-	-	-	-	-	Y	Y

* LOCATED ON WB E. ENGLISH ROAD

2 Phase
Pre-Timed
(High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE	
	2	8
Min Green 1 *	10	7
Extension 1 *	0.0	0.0
Max Green 1 *	45	25
Yellow Clearance	3.8	3.8
Red Clearance	1.4	1.2
Red Revert	2.0	2.0
Walk 1 *	7	7
Don't Walk 1	16	14
Seconds Per Actuation *	-	-
Max Variable Initial *	-	-
Time Before Reduction *	-	-
Time To Reduce *	-	-
Minimum Gap	-	-
Recall Mode	MAX/PED RECALL	MAX/PED RECALL
Vehicle Call Memory	-	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

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

LEGEND

- | PROPOSED | EXISTING |
|--|---------------------------------|
| ○→ Traffic Signal Head | ●→ N/A |
| ●→ Modified Signal Head | ○→ N/A |
| ⊥ Sign | ⊥ N/A |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ N/A |
| ○ Signal Pole with Guy | ● Signal Pole with Sidewalk Guy |
| ⊠ Inductive Loop Detector | ⊠ N/A |
| ⊠ Controller & Cabinet | ⊠ N/A |
| ⊠ Junction Box | ⊠ N/A |
| --- 2-in Underground Conduit | --- N/A |
| N/A Right of Way | --- N/A |
| → Directional Arrow | → N/A |
| ○ Metal Pole with Mastarm | ○ N/A |
| ○ Type II Signal Pedestal | ○ N/A |
| N/A Curb Ramp | ▲ N/A |
| Ⓐ Street Name Sign (D3-1) | Ⓐ N/A |
| Ⓑ Left "ONE WAY" Arrow Sign (R6-1L) | Ⓑ N/A |
| Ⓒ Right "ONE WAY" Arrow Sign (R6-1R) | Ⓒ N/A |

Signal Upgrade

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1113 (E. Kivett Dr.)
at
N. Hamilton St.

Division 7 Guilford County High Point

PLAN DATE: August 2014 REVIEWED BY:

PREPARED BY: R.N. Zinser REVIEWED BY:

REVISIONS: _____ INIT. DATE

SEAL

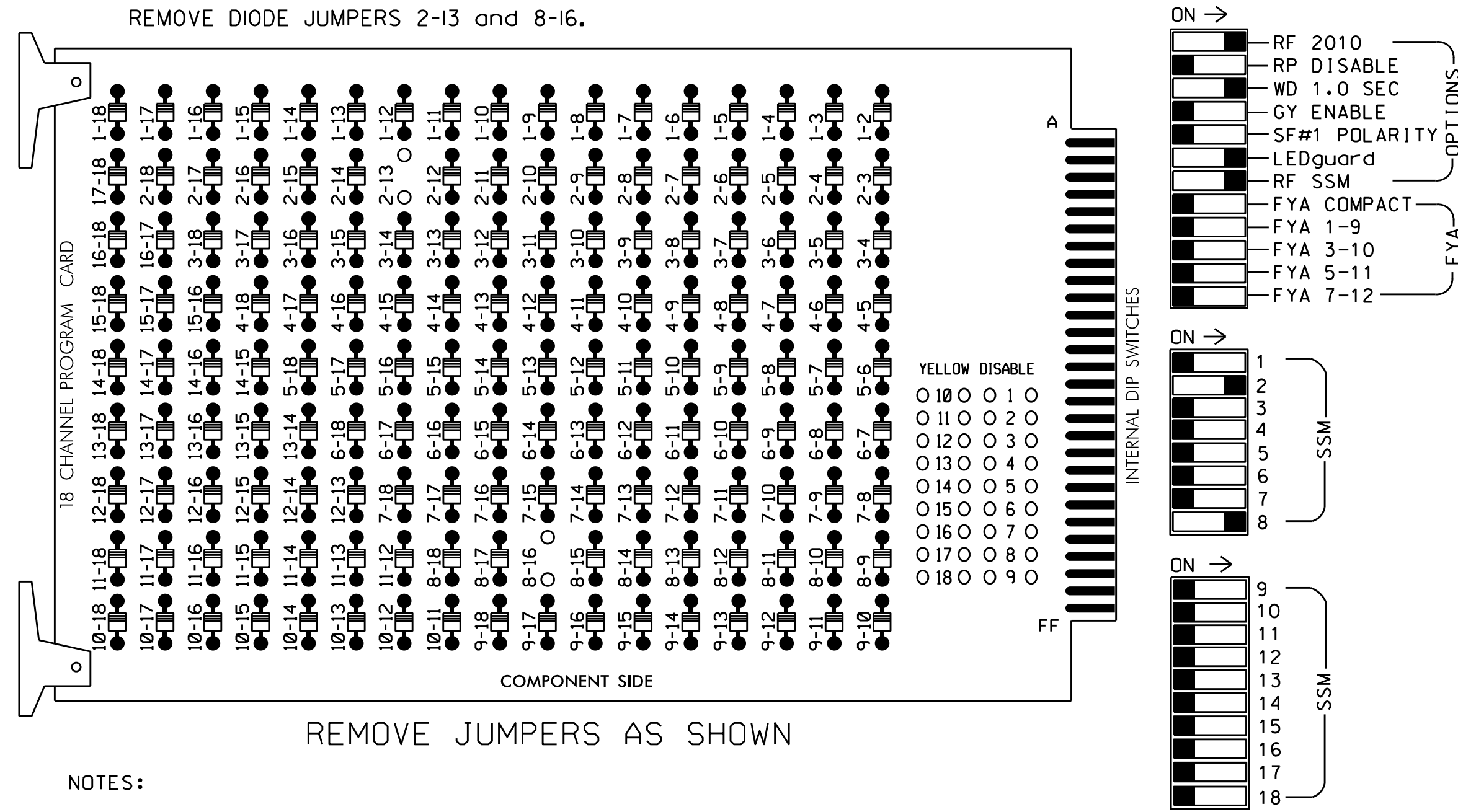
ROBERT J. ZIEMBA
ENGINEER
4/17/2015

SIG. INVENTORY NO. 07-0782

I:\Projects\2014\14-52\Signal Design\Signal Design\Signal Plans\High Point\Signal Plans\07-0782\07-0782-51.dwg, dsn, 2015/04/17.dgn
 S:\IT\SSU\14-52\Signal Design\Signal Design\Signal Plans\High Point\Signal Plans\07-0782\07-0782-51.dwg, dsn, 2015/04/17.dgn
 RZ:terbo

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 8 for 'STARTUP PED CALL'.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S3,S11,S12
 PHASES USED.....2,2 PED,8,8 PED
 OVERLAPS.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	P21, P22	NU	NU	NU	NU	NU	NU	NU	81,82	P81,P82, P83,P84
RED		128									107	
YELLOW		129									108	
GREEN		130									109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
Hand icon			113									110
Person icon			115									112

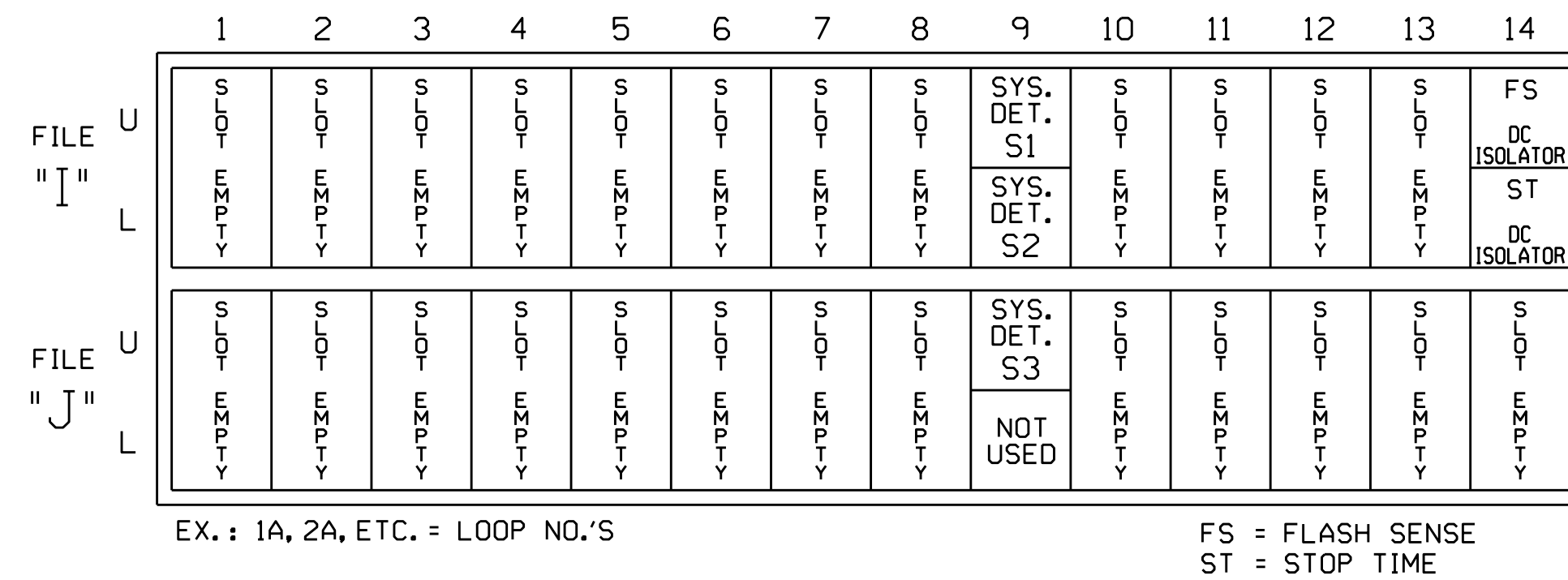
NU = Not Used

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

INPUT FILE POSITION LAYOUT

(front view)

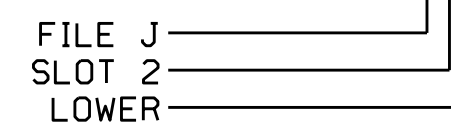


INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L

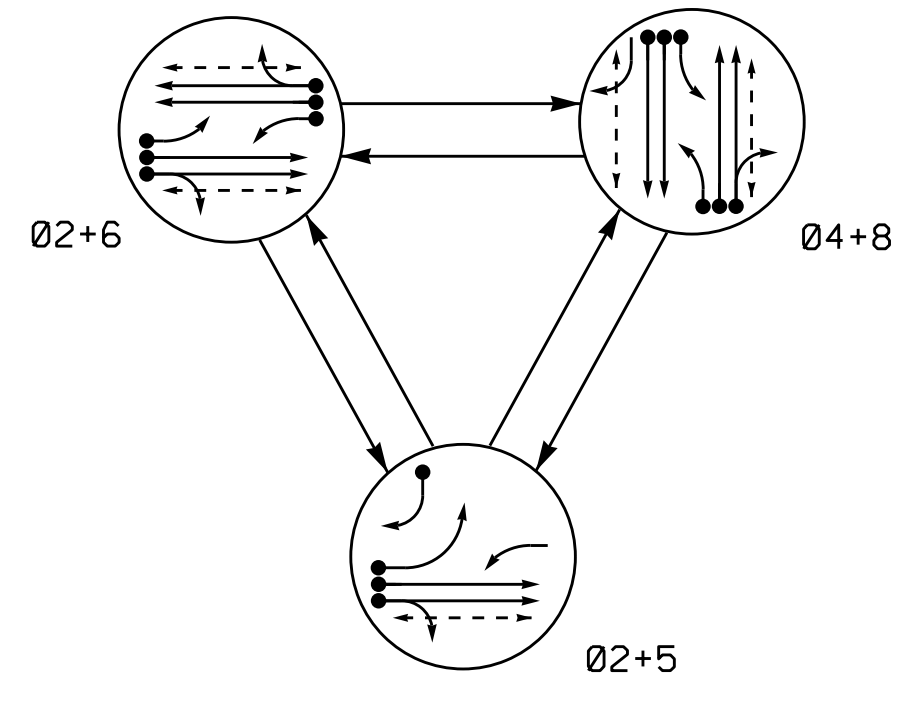


THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0782
 DESIGNED: August 2014
 SEALED: 4/17/2015
 REVISED: N/A

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1113 (E. Kivett Dr.) at N. Hamilton St.		SEAL GEORGE C. BROWN
	Division 7 PLAN DATE: January 2015 PREPARED BY: C. Strickland	Guilford County High Point REVIEWED BY: T. Joyce REVIEWED BY:	

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

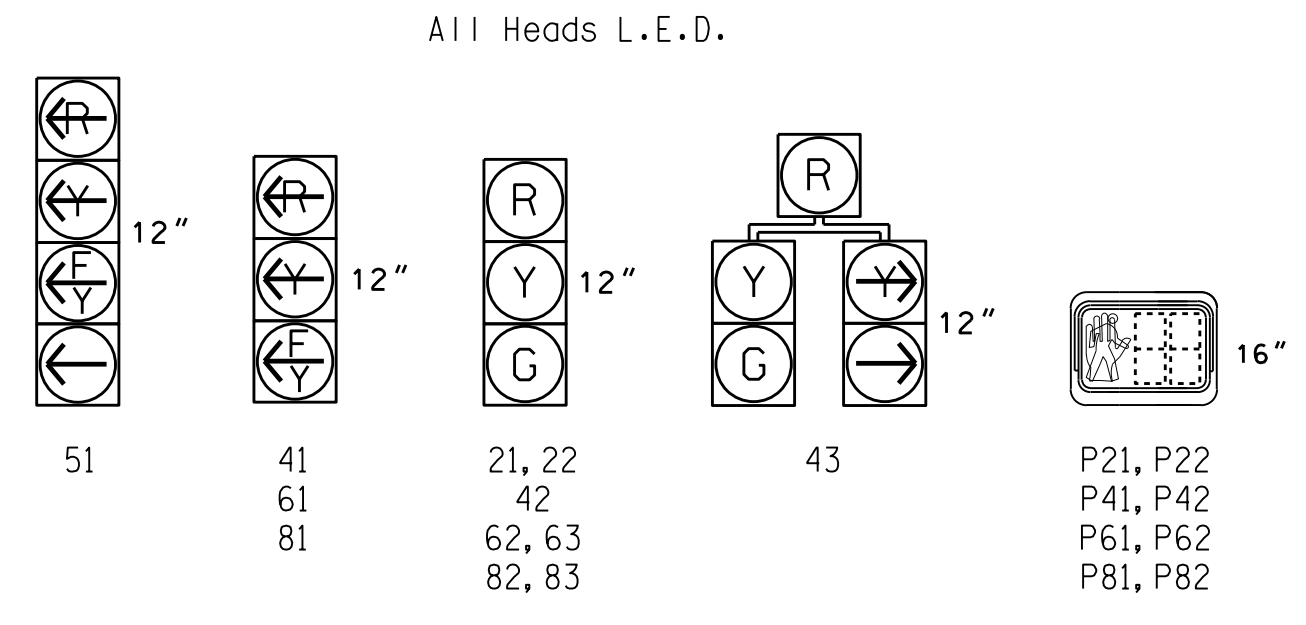
- ◄● DETECTED MOVEMENT
- ◄◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄--- UNSIGNALIZED MOVEMENT
- ◄--- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04+8	FLASH
21, 22	G	G	R	Y
41	R	R	F	R
42	R	R	G	R
43	R	R	G	R
51	F	F	R	Y
61	F	F	R	Y
62, 63	R	G	R	Y
81	R	R	F	R
82, 83	R	R	G	R
P21, P22	W	W	DW	DRK
P41, P42	DW	DW	W	DRK
P61, P62	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY			STRETCH TIME
2A, 2B	6X6	70	EXIST	-	2	Y	Y	-	-	-	Y
4A, 4B	6X6	70	EXIST	-	4	Y	Y	-	-	-	Y
4C	6X40	0	2-4-2	-	4	Y	Y	-	-	3	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	Y
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	Y
6A 6B	6X6	70	EXIST	-	6	Y	Y	-	-	-	Y
6C	6X40	0	2-4-2	-	6	Y	Y	-	-	-	Y
8A, 8B	6X6	70	EXIST	-	8	Y	Y	-	-	-	Y
8C	6X40	0	2-4-2	-	8	Y	Y	-	-	3	Y
S1	6X6	+300	EXIST	-	-	-	-	-	-	-	Y
S2	6X6	+300	EXIST	-	-	-	-	-	-	-	Y
S3	6X6	125	EXIST	-	DISCONNECT & ABANDON			-	-	-	Y
S4	6X6	125	EXIST	-	DISCONNECT & ABANDON			-	-	-	Y
S5	6X6	125	EXIST	-	DISCONNECT & ABANDON			-	-	-	Y
S6	6X6	+200	3	Y	-	-	-	-	-	-	Y
S7	6X6	+200	3	Y	-	-	-	-	-	-	Y

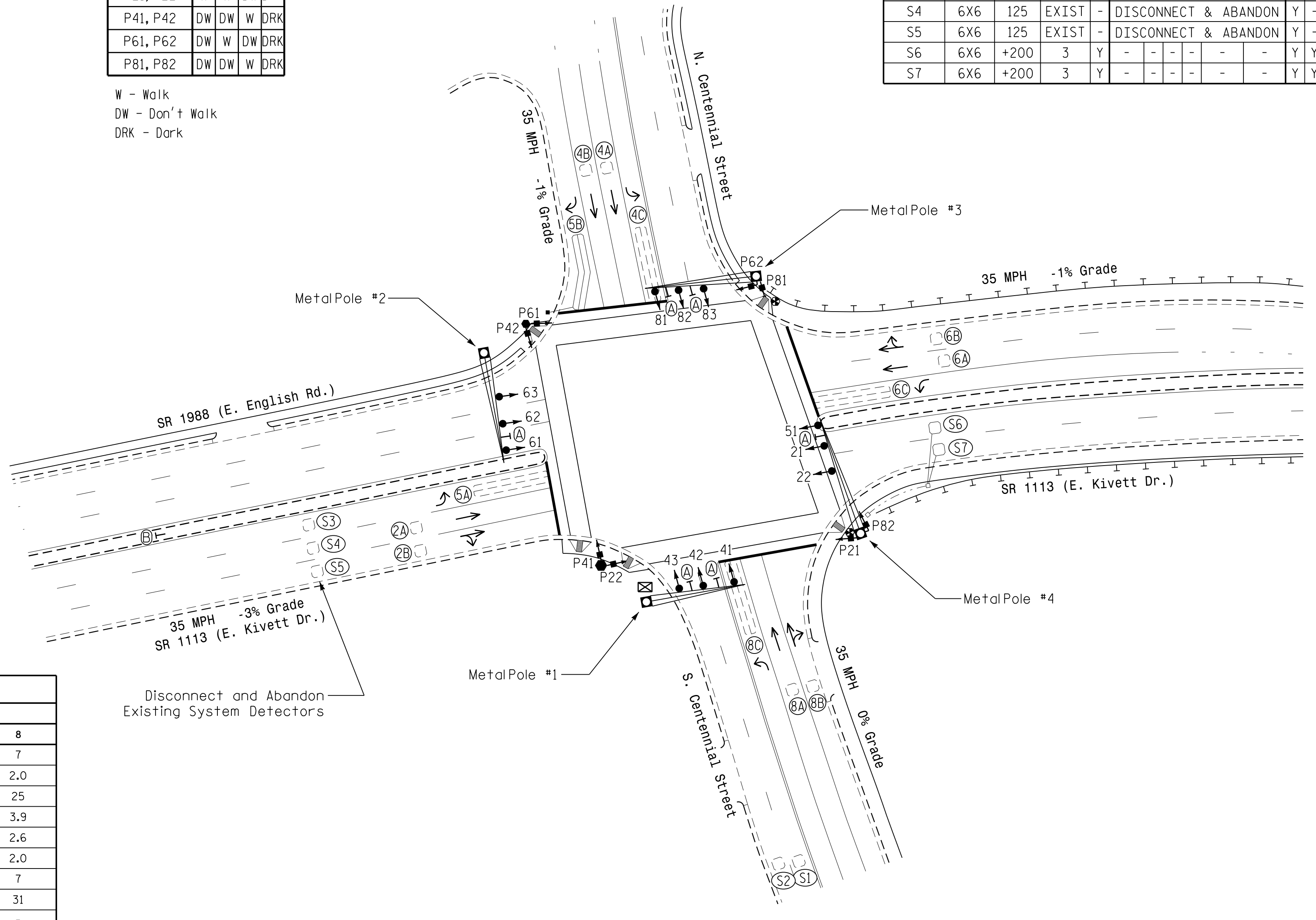
3 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Renumber existing signal phases, heads, and loops as shown.
- Disconnect and abandon existing system detectors S3, S4, and S5.
- 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.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

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



OASIS 2070 TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green 1 *	10	7	7	10	7
Extension 1 *	3.0	2.0	2.0	3.0	2.0
Max Green 1 *	45	25	15	45	25
Yellow Clearance	4.1	3.9	3.0	4.1	3.9
Red Clearance	2.7	2.6	3.3	2.7	2.6
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	7	7	-	7	7
Don't Walk 1	28	29	-	30	31
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode **	SOFT RECALL	-	-	SOFT RECALL	-
Vehicle Call Memory	YELLOW	YELLOW	-	YELLOW	YELLOW
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

Signal Upgrade

SR 1113 (E. Kivett Dr.)
at
Centennial Street

Division 7 Guilford County High Point

PLAN DATE: January 2015 REVIEWED BY:

PREPARED BY: R.N. Zinser REVIEWED BY:

REVISIONS INIT. DATE

SCALE 0 40
1"=40'

4/23/2015

SIG. INVENTORY NO. 07-0783

SEAL

ROBERT J. ZIEMBA
ENGINEER
026486