Project: P–5720

Contract: C204204

Project No.	Sheet No.
P–5720	Sig. 1.0

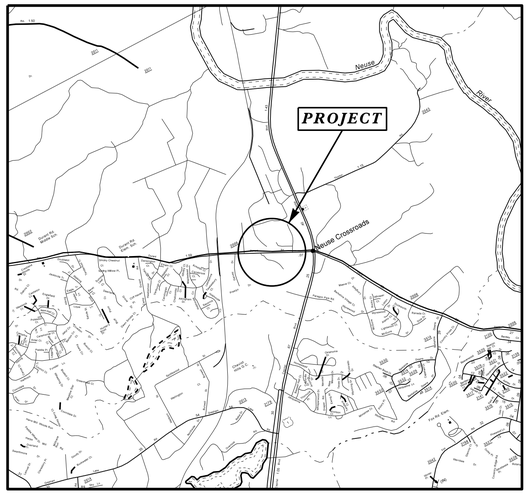
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

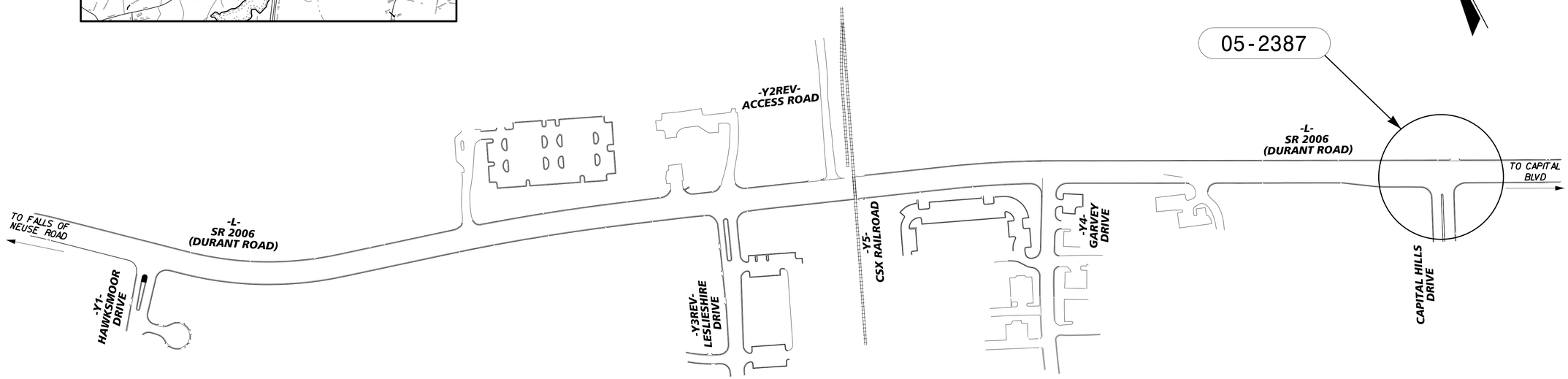
WAKE COUNTY

LOCATION: SR 2006 (DURANT ROAD) AT CAPITAL HILLS DRIVE

TYPE OF WORK: TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS

Vicinity





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

Index of Plans

Sheet #	Reference #	Location/Description
Sig. 1.0	--------	Title Sheet
Sig. 2.0–4.3	05–2387	SR 2006 (Durant Road) at Capital Hills Drive

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS UNIT

Contacts:

Robert J. Ziemba, PE – Central Region Signals Engineer
Ryan W. Hough, PE – Signal Equipment Design Engineer

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

Transportation Mobility and Safety Division
TSMO UNIT

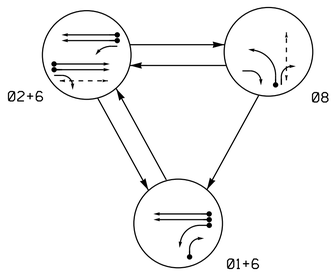
750 N. Greenfield Parkway, Garner, NC 27529

12/05/2023 11:34
K:\TSB\SOI\TS Signals\Signal Design Section\Central Region\Div 5\P-5720 Durant Rd\P-5720_sig_tsh.dgn
rziemba

PROJECT REFERENCE NO.	SHEET NO.
P-5720	SIG. 2.0

3 Phase
Fully Actuated
(Raleigh Signal System)

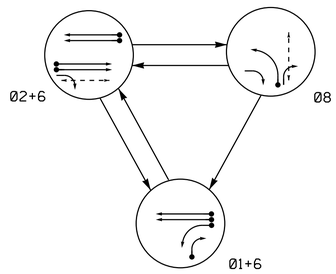
DEFAULT PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 08	FLASH
11	←	F Y	R	Y
21, 22	R	G	R	Y
23	R	F Y	→	Y
61, 62	G	G	R	Y
81, 83	R	R	←	R
82	→	R	F Y	R
P21, P22	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

ALTERNATE PHASING DIAGRAM

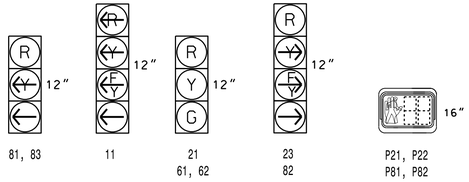


ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 08	FLASH
11	←	R	R	Y
21, 22	R	G	R	Y
23	R	F Y	→	Y
61, 62	G	G	R	Y
81, 83	R	R	←	R
82	→	R	F Y	R
P21, P22	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.

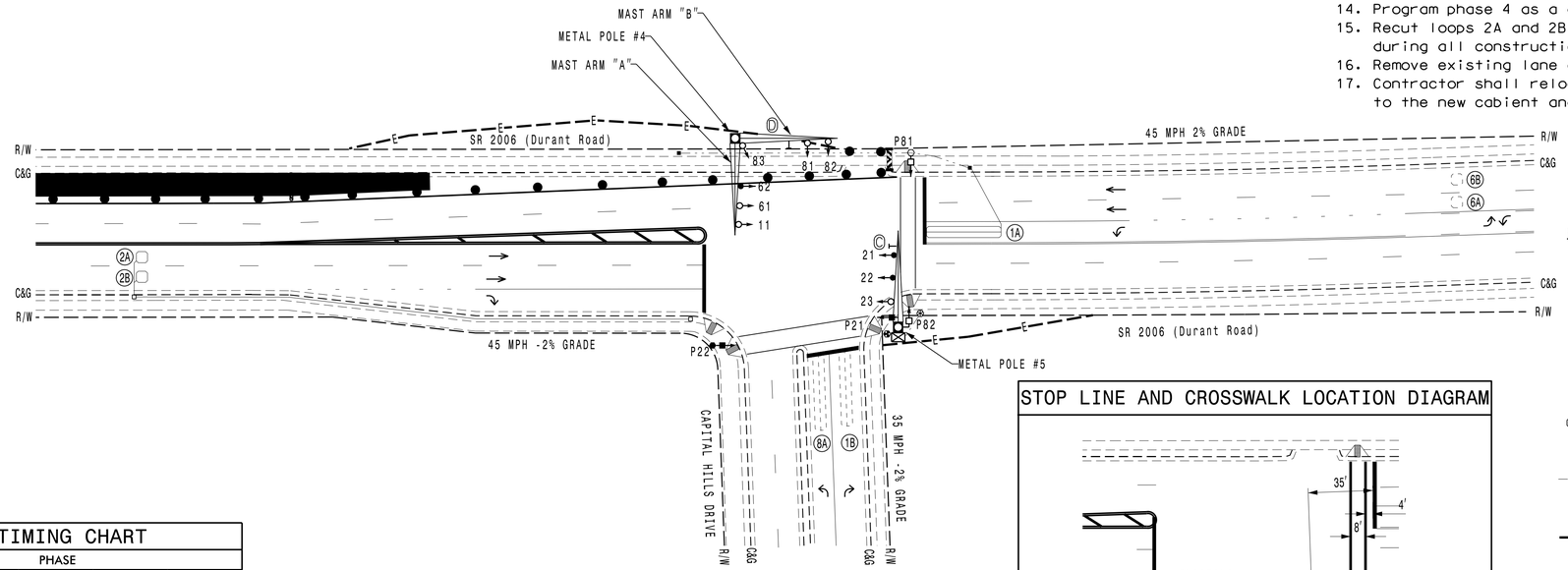


NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024, "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Reposition existing signal head number 62.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signal 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 no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. Pavement markings are existing, unless otherwise shown.
11. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
13. Install new cabinet on the existing cabinet foundation.
14. Program phase 4 as a dummy phase for Ring 1.
15. Recut loops 2A and 2B as needed to maintain detection during all construction phases.
16. Remove existing lane control (R3-5L and R3-5R) signs.
17. Contractor shall relocate the existing interconnect center to the new cabient and replace the existing drop cable.

PHASING DIAGRAM DETECTION LEGEND

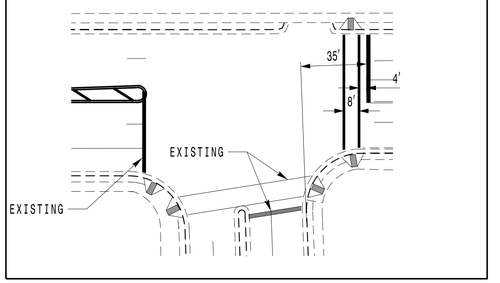
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▭	Pedestrian Signal Head With Push Button & Sign	■
○	Metal Pole with Mastarm	○
N/A	Curb Ramp	
⊛	Type I Pushbutton Post	●
⬡	Type II Signal Pedestal	⬢
▭	Inductive Loop Detector	- - -
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- · - · -	2-in Underground Conduit	- · - · -
N/A	Right of Way	— — —
→	Directional Arrow	→
DD	Directional Drill	N/A
N/A	Existing Easement	-E-
●—	Construction Zone Drums	●—
▒	Construction Zone	▒
Ⓒ	No U-Turn Sign (R3-4)	Ⓒ
Ⓓ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓓ

STOP LINE AND CROSSWALK LOCATION DIAGRAM



SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green *	7	12	7	12	7
Passage Gap *	2.0	6.0	2.0	6.0	2.0
Maximum Green *	25	80	25	80	25
Yellow Change	3.0	4.7	3.0	4.7	3.0
Red Clear	3.2	1.9	2.9	1.9	2.9
Walk *	-	7	-	-	7
Pedestrian Clear	-	14	-	-	15
Added Initial *	-	1.5	-	1.5	-
Maximum Initial *	-	34	-	32	-
Time Before Reduction *	-	15	-	15	-
Time To Reduce *	-	45	-	45	-
Minimum Gap	-	3.0	-	2.7	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	NON-LOCK	LOCK	-	LOCK	NON-LOCK
Dual Entry	-	-	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.

LOOP & DETECTOR UNIT INSTALLATION CHART

SE-PAC 2070 CONTROLLER WITH 170 CABINET

INDUCTIVE LOOPS						DETECTOR PROGRAMMING																
							TIMING		OPERATION MODE											STATUS	
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	ASSIGNED PHASE	DELAY	EXTEND (STRETCH)	0 VEHICLE	1 PEDESTRIAN	2 I CALL	3 STOP A	4 STOP B	5 PROTPER LEFT	6 PROTPER THROUGH	7 AND	SWITCH	SYSTEM LOOPS	NEW	EXISTING
1A	6X40	2-4-2	0	X	-	1	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
1B	6X40	2-4-2	0	-	X	1	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
2A	6X6	6	300	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
2B	6X6	6	300	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6A	6X6	EXIST	280	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6B	6X6	EXIST	280	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
8A	6X40	2-4-2	0	-	X	8	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-

Signal Upgrade - Temporary Design 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 Wake County Raleigh

PLAN DATE:	May 2022	REVIEWED BY:	
PREPARED BY:	J.A. Lohr	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

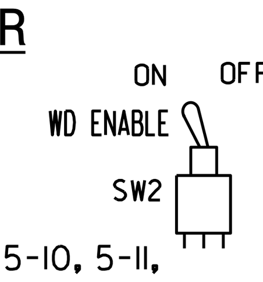
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA
DocuSigned by: Robert J. Ziemba
SIGNATURE
05/26/2022
DATE

SIG. INVENTORY NO. 05-2387T1

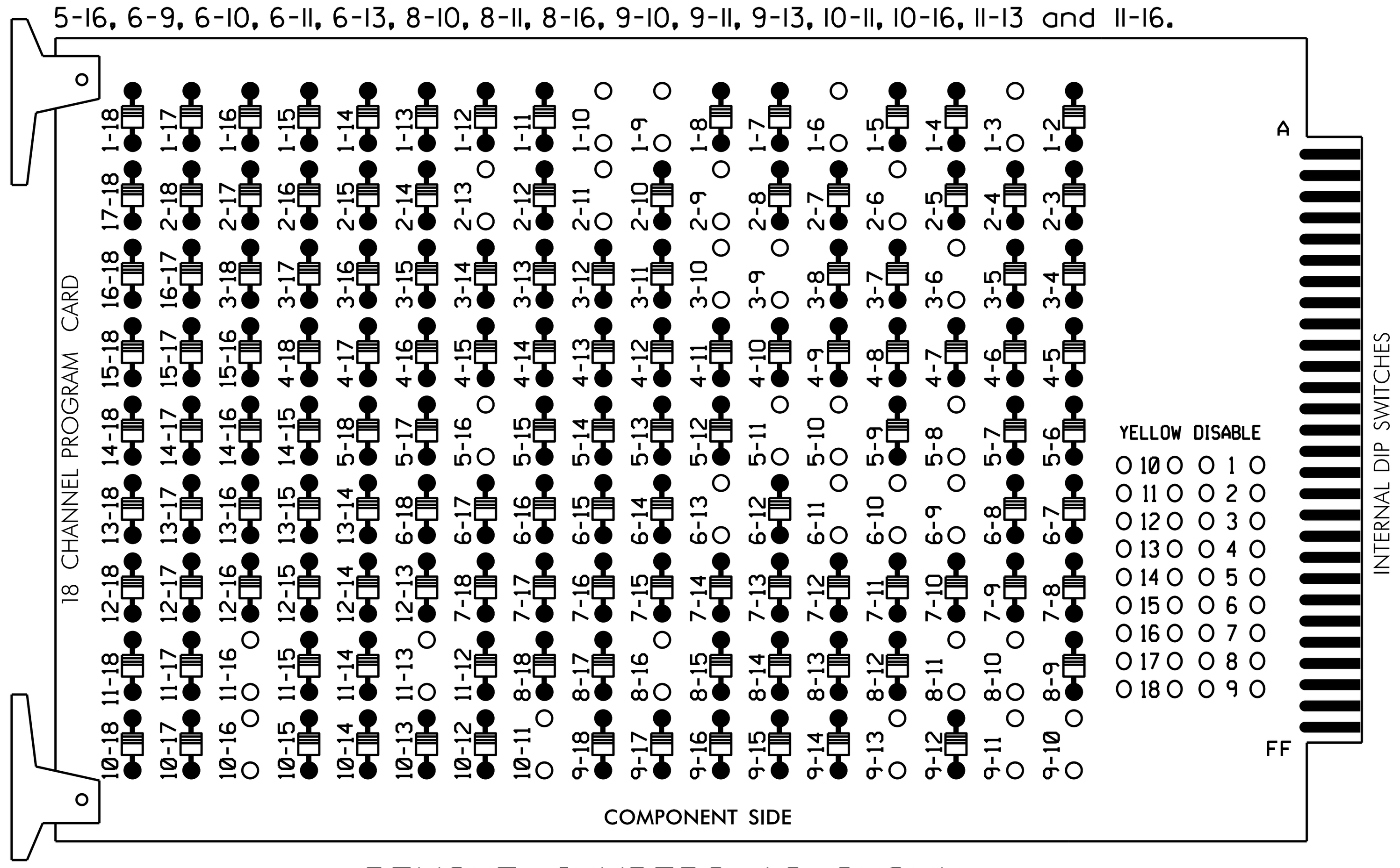
20-SEP-2023 06:26
S:*ITSSIGNALS\Signal Design Section\Central Region\Div 5\P-5720 Durant Rd\05238TT1_sig_dsn_20220926.dgn
jalohr

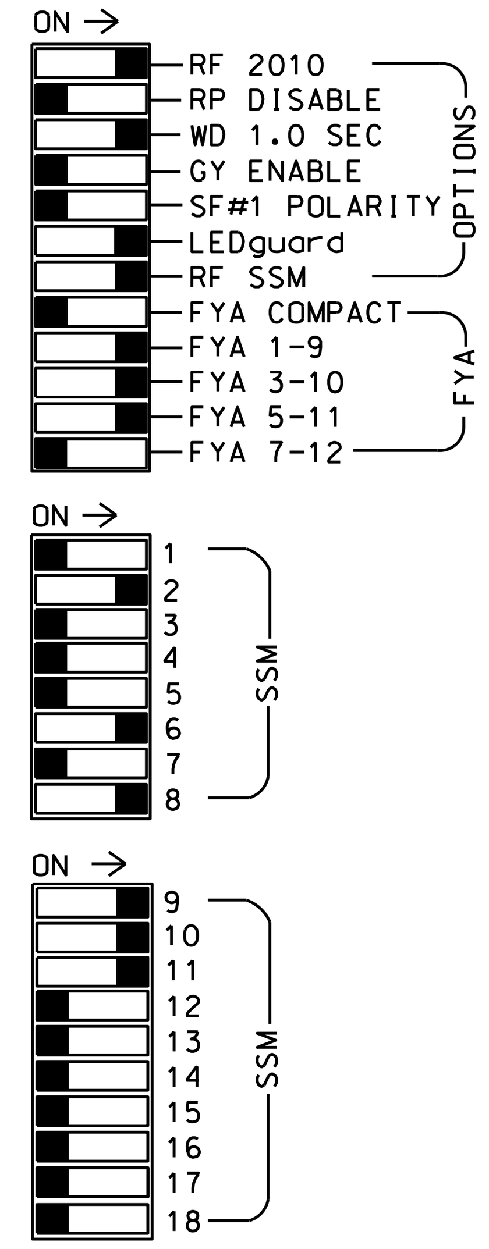
EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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





REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phases 2 and 6 green.
3. Enable simultaneous gap-out feature for all phases.
4. Program phase 4 for dual entry.
5. Program phases 2 and 6 for volume density operation.
6. The cabinet and controller are part of the Raleigh Signal System.

EQUIPMENT INFORMATION

CONTROLLER.............2070LX
CABINET................332 W/ AUX
SOFTWARE...............SE-PAC2070
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S3,S4,S7,S8,S11,S12,AUX S1
AUX S2,AUX S4
PHASES USED............1,2,2 PED,**4,6,8,8 PED
OVERLAP "A".............*
OVERLAP "B".............*
OVERLAP "C".............*
OVERLAP "D".............NOT USED
OVERLAP "G".............*
OVERLAP "H".............*

*See sheet 2 for Overlap Programmming.

**Phase used for timing purposes only.

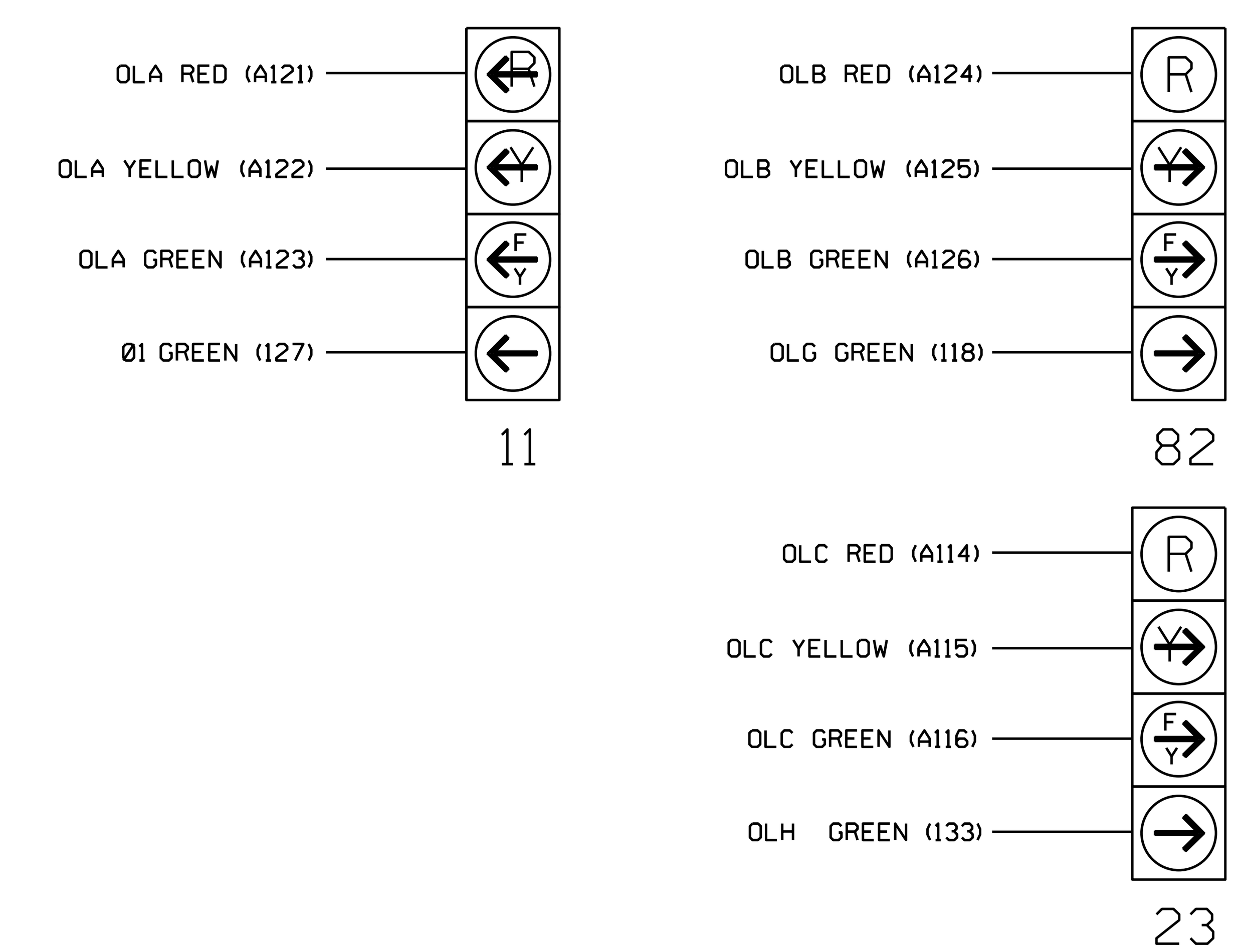
SIGNAL HEAD HOOK-UP CHART

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	2 PED	OLG	4	4 PED	OLH	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	P21, P22	82★	NC	NU	23★	61,62	NU	NU	81,83	P81, P82	11★	82★	NU	23★	NU	NU
RED		128						134			107			A124		A114		
YELLOW	*	129		*			*	135										
GREEN		130						136										
RED ARROW													A121					
YELLOW ARROW											108		A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133				109							
✋			113									110						
🚶			115									112						

NC = No Connection
NU = Not Used
* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø1 1B	Ø2 2A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
	L	NOT USED	NOT USED	Ø2 2B									NOT USED	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø6 6B				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.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
1A	TB2-1,2	I1U	56	1	1	5	
1B	TB2-5,6	I2U	39	3	1	15	
2A	TB2-9,10	I3U	63	5	2		
2B	TB2-11,12	I3L	76	6	2		
6A	TB3-5,6	J2U	40	21	6		
6B	TB3-7,8	J2L	44	22	6		
8A	TB5-9,10	J6U	42	31	8		
PED PUSH BUTTONS							
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED		
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED		

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

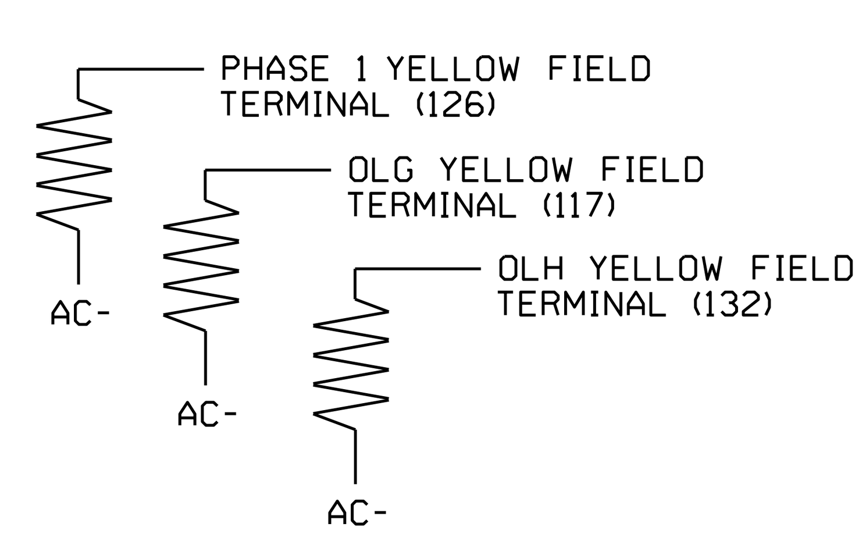
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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)



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: 05-2387T1
DESIGNED: May 2022
SEALED: 5-26-22
REVISED: N/A

Electrical Detail - Sheet 1 of 3 - Temp 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of:
ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 | Wake County | Raleigh

PLAN DATE: May 2022 | REVIEWED BY:
PREPARED BY: James Peterson | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036833 RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 06/01/2022
DATE

SIG. INVENTORY NO. 05-2387T1

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jtpeterson

PROJECT REFERENCE NO.	SHEET NO.
P-5720	Sig. 2.2

FLASHING YELLOW ARROW OVERLAP AND PROTECTED/PERMISSIVE SEQUENCE PROGRAMMING FOR OVERLAP A, B, C, G and H.

1. From Main Menu select [4 - UNIT DATA]
2. From UNIT DATA Submenu select [3 - OVERLAP DATA]

Use Up/Dn/Left/Right keys to position cursor on the desired Overlap. Use the NEXT key to select the overlap type. Press the ENT key and then program as per the Overlap screen(s) shown.

```
OVERLAP DATA

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

 PREV/NEXT TO CYCLE
```

OVERLAP A

Use Up/Dn/Left/Right keys to position cursor on Overlap 'A', use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - A          DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 01000000 00000000
  PROT PHASES: 10000000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: x0000000 00000000
PROT OVERLAPS: x0000000 00000000
```

← NOTICE DELAY/10 = 0

Press ESC

OVERLAP B

Use Up/Dn/Left/Right keys to position cursor on Overlap 'B', use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - B          DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 00010000 00000000
  PROT PHASES: 10000000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: 0x000000 0000000
PROT OVERLAPS: 0x000000 00000000
```

← NOTICE DELAY/10 = 0

Press ESC

OVERLAP C

Use Up/Dn/Left/Right keys to position cursor on Overlap 'C, use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - C         DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 01000000 00000000
  PROT PHASES: 00010000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: 00x00000 00000000
PROT OVERLAPS: 00x00000 00000000
```

← NOTICE DELAY/10 = 0

Press ESC

OVERLAP G

Use Up/Dn/Left/Right keys to position cursor on Overlap 'G', use the NEXT key to select 'STD', then press ENT

```
OVERLAP - G        12345678 90123456
           PARENTS: 10000000 00000000
       +GRN PHASES: 00000000 00000000
       -G/Y PHASES: 00000000 00000000
       -PED PHASES: 00000000 00000000
 TRAIL GREEN STANDARD:   0  YEL/10:  40
 TRAIL GREEN  PREEMPT:   0  RED/10:  20
```

Press ESC

OVERLAP H

Use Up/Dn/Left/Right keys to position cursor on Overlap 'H, use the NEXT key to select 'STD', then press ENT

```
OVERLAP - H        12345678 90123456
           PARENTS: 00010000 00000000
       +GRN PHASES: 00000000 00000000
       -G/Y PHASES: 00000000 00000000
       -PED PHASES: 00000000 00000000
 TRAIL GREEN STANDARD:   0  YEL/10:  40
 TRAIL GREEN  PREEMPT:   0  RED/10:  20
```

END OVERLAP PROGRAMMING

LOAD SWITCH MAPPING DETAIL

1. From Main Menu select [4 - UNIT DATA]
2. From UNIT DATA Submenu select [9 - OUTPUT MAPPING]

USE ENTER AND NEXT KEYS TO MAP 'LDSW 4' AS 'OLG' AND 'LDSW' AS 'OLH'

```
OUTPUT MAPPING              EDIT MODE: LDSW
                              E-TOGGLE MODE
LDSW ..1.. ..2.. ..3.. ..4.. ..5.. ..6.. ..7..
RED  PH1   PH2   PD2   [OLG] PH4   PD4   [OLH]
YEL   -     -     -     -     -     -     -
GRN   -     -     -     -     -     -     -
FIO   1     2     3     4     5     6     7
PREV/NEXT TO CYCLE        D-DISPLAY COMPAT
```

LOAD SWITCH MAPPING COMPLETE

INIT & N.A. RESP PROGRAMMING DETAIL

1. From Main Menu select [3 - PHASE DATA]
2. From PHASE DATA Submenu select [4 - INIT & N.A RESP]

```
PHASE......1...2...3...4...5...6...7...8
 INITIAL   1   4   0   1   0   4   0   1
 NA RESP   0   1   0   2   0   1   0   2

CODES.....0....1....2....3....4....5...6
 INITL  NONE  INACT  RED  YEL  GRN  DRK G/DW
 NA RSP NONE  NA1   NA2  1&2  ---  --- ---
                                        ***
```

INIT & N.A. RESP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2387T1
DESIGNED: May 2022
SEALED: 5-26-22
REVISED: N/A

Electrical Detail - Sheet 2 of 3 - Temp 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 | Wake County | Raleigh

PLAN DATE: May 2022	REVIEWED BY:
PREPARED BY: James Peterson	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 430320EAA2654C3

06/01/2022
DATE

SIG. INVENTORY NO. 05-2387T1

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jtpeterson

PROGRAMMING DETAILS TO RUN ALTERNATE PHASING

To run the Alternate Phasing, schedule a Day Plan that calls an Action that is programmed to enable Phase Function 1.

Actions can be programmed to run free run or call a coordination pattern.

PHASE FUNCTION MAPPING PROGRAMMING DETAIL

Step 1 - Assign OMIT OVERLAP A to Phase Function 1.

1. From Main Menu select [6 - TIME BASE DATA]
2. From TIME BASE DATA Submenu select [9 - PHS FUNC MAPPING]

Use Up/Dn Keys to position cursor on NUM 1

```
TIME BASE PHS FUNC MAPING
                 PHS FUNC SEL(0-OFF/1-ON)
NUM..P-FUNCT NAME.....123456789 0123456
  1  PHS-01 MAX # 2   000000000 0000000
  2  PHS-02 MAX # 2   000000000 0000000
  3  PHS-03 MAX # 2   000000000 0000000
  4  PHS-04 MAX # 2   000000000 0000000
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU
```

BEFORE PROCEEDING, SCROLL THRU ENTIRE RANGE OF FUNCTIONS TO ENSURE ALL P-FUNCT 1 NUM x VALUES ARE SET TO '0' (OFF)

Use Up/Dn/Left/Right keys to position cursor on NUM 145 and program P-FUNCT 1 as shown.

```
TIME BASE PHS FUNC MAPING
                 PHS FUNC SEL(0-OFF/1-ON)
NUM..P-FUNCT NAME.....123456789 0123456
145  OVERLAP A OMIT   100000000 0000000
146  OVERLAP B OMIT   000000000 0000000
147  OVERLAP C OMIT   000000000 0000000
148  OVERLAP D OMIT   000000000 0000000
UP/DOWN TO SCROLL               E-EDIT
```

← SET P-FUNCT 1 VALUE TO '1' (ON) AS SHOWN FOR OVERLAP A OMIT

PHASE FUNCTION PROGRAMMING COMPLETE

TIME BASE ACTIONS PROGRAMMING

Step 2 - Set up an Action to run Phase Function 1.

1. From Main Menu select [6 - TIME BASE DATA]
2. From TIME BASE DATA Submenu select [5 - ACTIONS]

```
TIME BASE ACTION # ***
                   12345678 90123456
  PATN:001     PHS: 10000000 00000000
   0=I'CONN    AUX: 000-----
  1-253=PATN   SPC: 0000000-      0=NO
  254=FREE     DIM: 0-------      1=YES
  255=FLASH    DET: 000-----
UP/DOWN TO SCROLL
```

← NOTICE PHS 1

SPECIAL FUNCTION PROGRAMMING COMPLETE

*** Action #(s) are to be determined by the Division and/or City Traffic Engineer and are scheduled to run in Day Plan(s).

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2387T1
DESIGNED: May 2022
SEALED: 5-26-22
REVISED: N/A

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.

01-JUN-2022 14:48
.*052387_sm_ele_xxx.dgn
jtpeterson

Electrical Detail - Sheet 3 of 3 - Temp 1

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of:
ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 | Wake County | Raleigh

PLAN DATE: May 2022	REVIEWED BY:
PREPARED BY: James Peterson	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

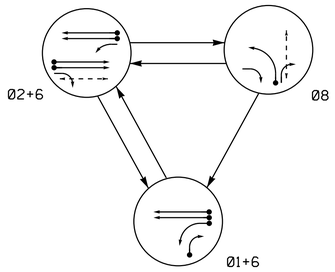
DocuSigned by: Ryan W. Hough 06/01/2022
430320FAA2654C3...
DATE

SIG. INVENTORY NO. 05-2387T1

PROJECT REFERENCE NO.	SHEET NO.
P-5720	SIG. 3.0

3 Phase
Fully Actuated
(Raleigh Signal System)

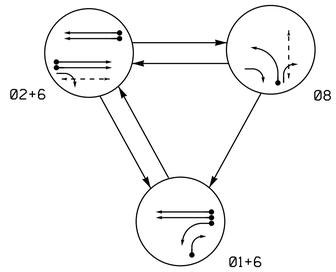
DEFAULT PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 08	FLASH
11	←	F Y	~~R~~	~~Y~~
21, 22	R	G	R	Y
23	R	F Y	→	~~Y~~
61, 62	G	G	R	Y
81, 83	R	R	←	R
82	→	R	F Y	R
P21, P22	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

ALTERNATE PHASING DIAGRAM

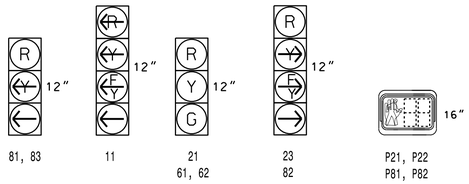


ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 08	FLASH
11	←	~~R~~	~~R~~	~~Y~~
21, 22	R	G	R	Y
23	R	F Y	→	~~Y~~
61, 62	G	G	R	Y
81, 83	R	R	←	R
82	→	R	F Y	R
P21, P22	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.

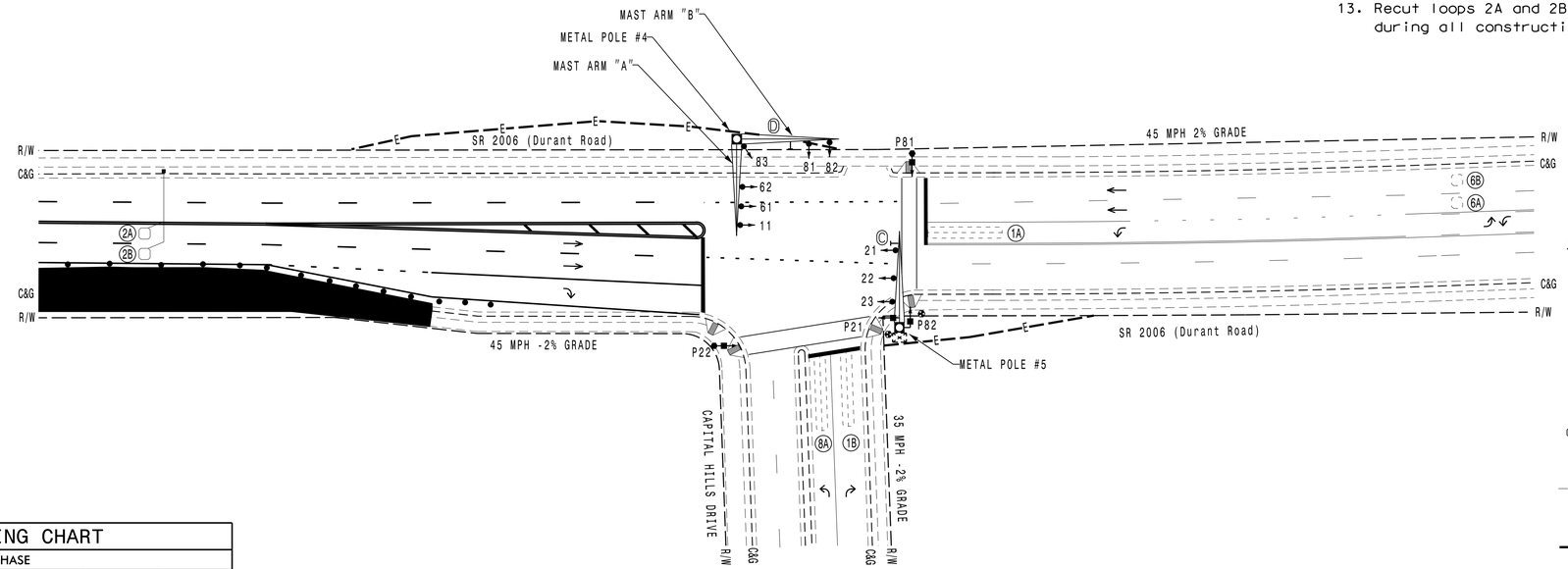


NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024. "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Reposition existing signal heads number 61 and 62.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signal Design Manual and submit a Plan of Record to the Signal Design Section.
7. Omit "WALK" and flashing "DON'T WALK" with no no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Pavement markings are existing, unless otherwise shown.
10. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
12. Program phase 4 as a dummy phase for Ring 1.
13. Recut loops 2A and 2B as needed to maintain detection during all construction phases.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head With Push Button & Sign	■
○	Metal Pole with Mastarm	●
N/A	Curb Ramp	
⊛	Type I Pushbutton Post	⊛
⬡	Type II Signal Pedestal	⬢
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
	2-in Underground Conduit	
N/A	Right of Way	
→	Directional Arrow	→
DD	Directional Drill	N/A
N/A	Existing Easement	-E-
● ●	Construction Zone Drums	● ●
▒	Construction Zone	▒
Ⓒ	No U-Turn Sign (R3-4)	Ⓒ
Ⓓ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓓ

SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green *	7	12	7	12	7
Passage Gap *	2.0	6.0	2.0	6.0	2.0
Maximum Green *	25	80	25	80	25
Yellow Change	3.0	4.7	3.0	4.7	3.0
Red Clear	3.2	1.9	2.9	1.9	2.9
Walk *	-	7	-	-	7
Pedestrian Clear	-	14	-	-	15
Added Initial *	-	1.5	-	1.5	-
Maximum Initial *	-	34	-	32	-
Time Before Reduction *	-	15	-	15	-
Time To Reduce *	-	45	-	45	-
Minimum Gap	-	3.0	-	2.7	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	NON-LOCK	LOCK	-	LOCK	NON-LOCK
Dual Entry	-	-	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.

LOOP & DETECTOR UNIT INSTALLATION CHART

SE-PAC 2070 CONTROLLER WITH 170 CABINET

INDUCTIVE LOOPS						DETECTOR PROGRAMMING															
							TIMING		OPERATION MODE										STATUS	
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	ASSIGNED PHASE	DELAY	EXTEND (STRETCH)	0 VEHICLE	1 PEDESTRIAN	2 1 CALL	3 STOP A	4 STOP B	5 PROTPER LEFT	6 PROTPER THROUGH	7 AND	SWITCH	SYSTEM LOOPS	NEW	EXISTING
1A	6X40	2-4-2	0	-	X	1	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
1B	6X40	2-4-2	0	-	X	1	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2A	6X6	6	300	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2B	6X6	6	300	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6A	6X6	EXIST	280	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6B	6X6	EXIST	280	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
8A	6X40	2-4-2	0	-	X	8	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X

Signal Upgrade - Temporary Design 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for: Transportation Mobility and Safety Division, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 Wake County Raleigh

PLAN DATE: May 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZEMBA
DocuSigned by: Robert J. Zemba
05/26/2022
SIGNATURE DATE

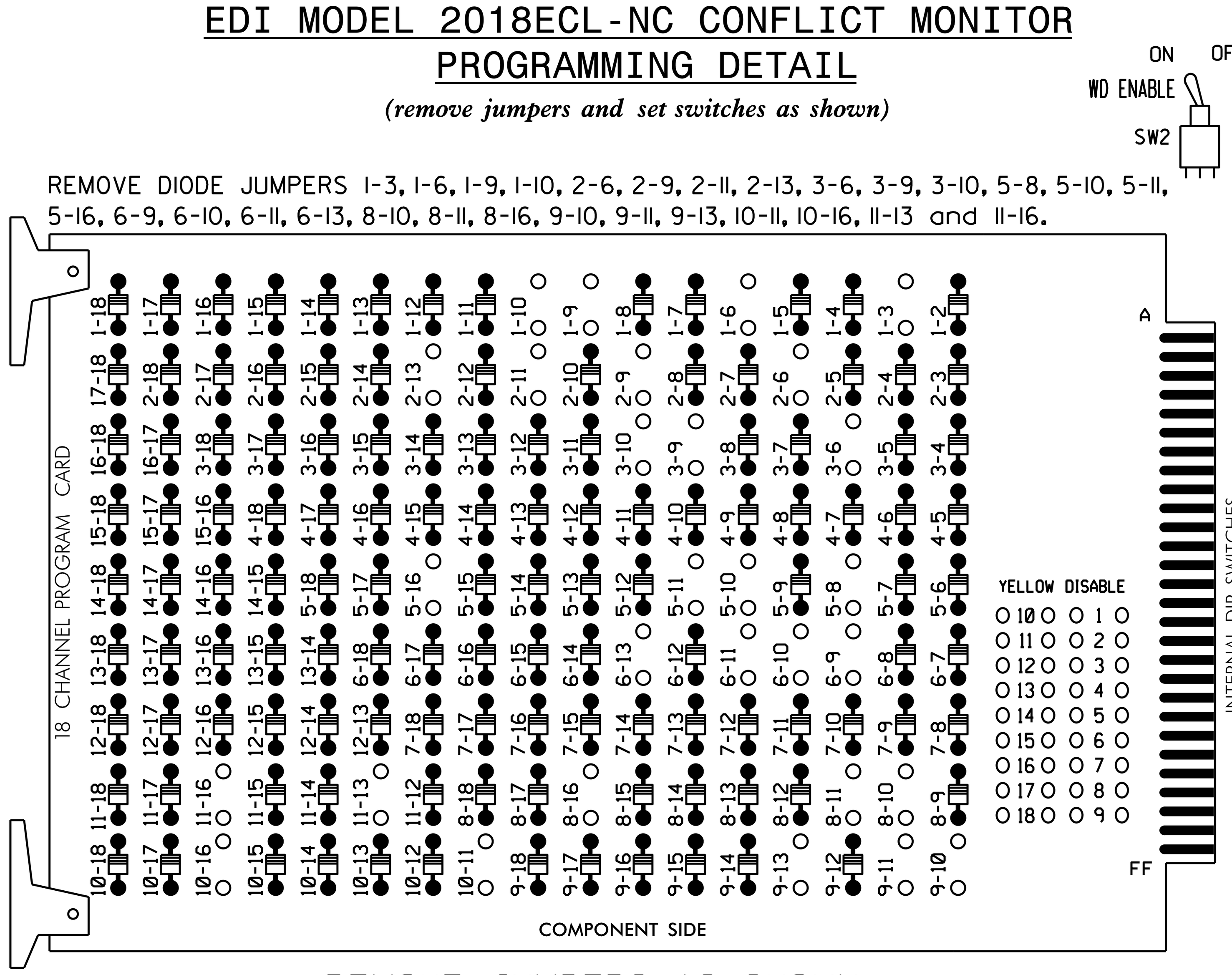
SIG. INVENTORY NO. 05-2387T2

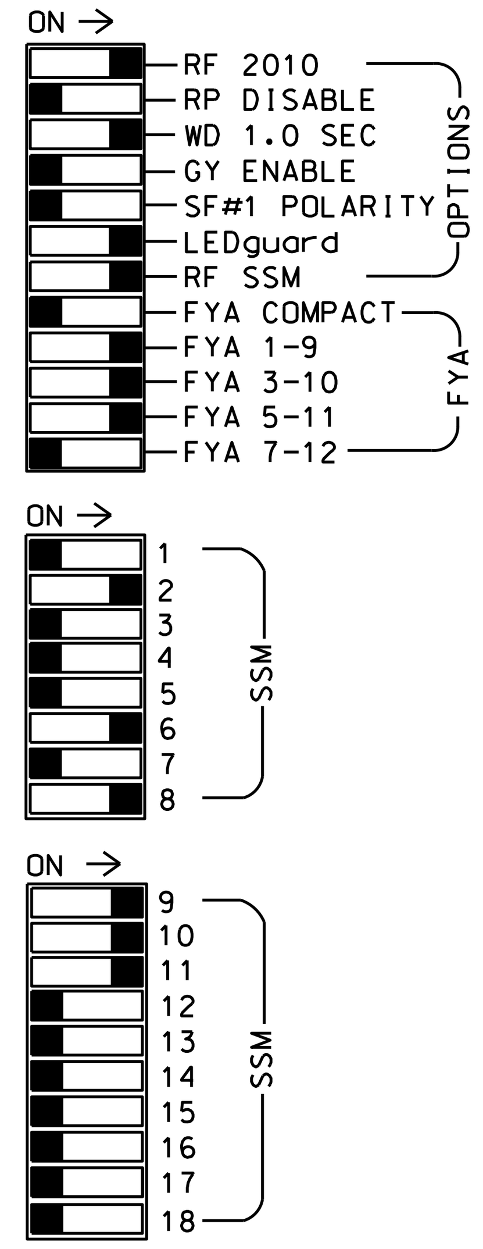
20-SEP-2022 06:31
S:*ITSSIGN\ITS Signals\Signal Design Section\Central Region\Div 5\P-5720 Durant Rd\05238T2_sig_dsn_20220926.dgn
jalohr

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

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





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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phases 2 and 6 green.
3. Enable simultaneous gap-out feature for all phases.
4. Program phase 4 for dual entry.
5. Program phases 2 and 6 for volume density operation.
6. The cabinet and controller are part of the Raleigh Signal System.

EQUIPMENT INFORMATION

CONTROLLER.............2070LX
CABINET................332 W/ AUX
SOFTWARE...............SE-PAC2070
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S3,S4,S7,S8,S11,S12,AUX S1 AUX S2,AUX S4
PHASES USED............1,2,2 PED,**4,6,8,8 PED
OVERLAP "A"............*
OVERLAP "B"............*
OVERLAP "C"............*
OVERLAP "D"............NOT USED
OVERLAP "G"............*
OVERLAP "H"............*

*See sheet 2 for Overlap Programmming.
**Phase used for timing purposes only.

PROJECT REFERENCE NO.	SHEET NO.
P-5720	Sig. 3.1

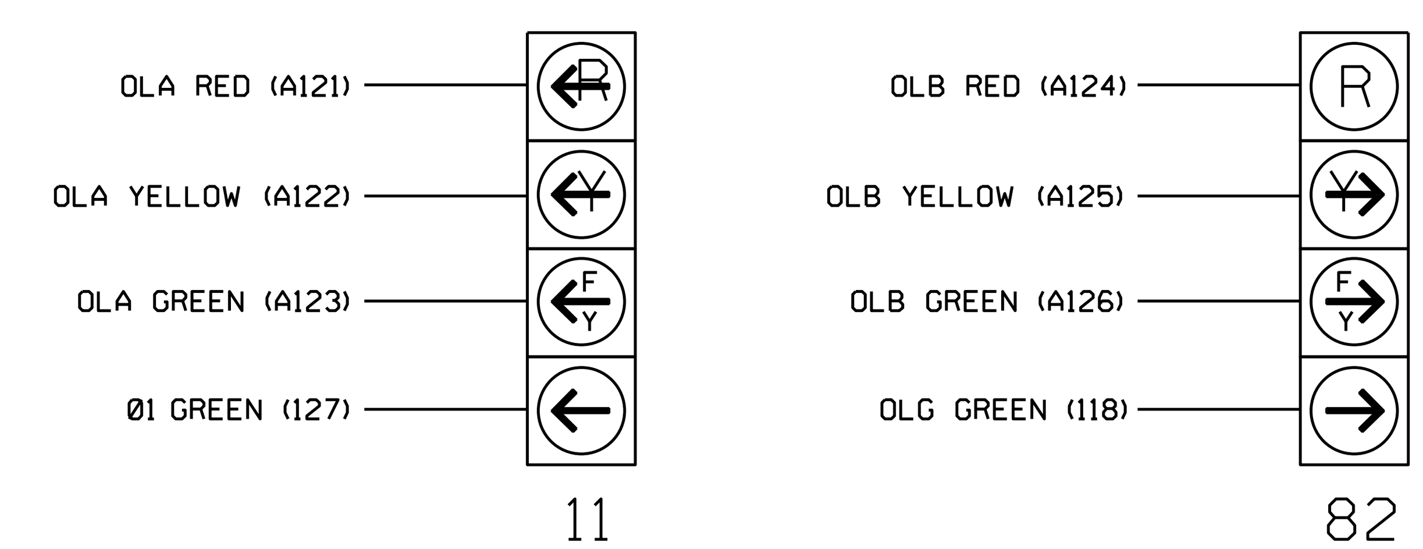
SIGNAL HEAD HOOK-UP CHART

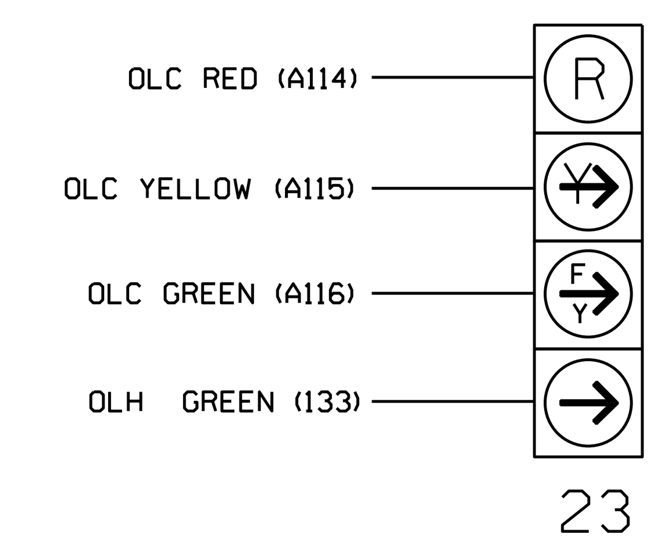
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	OLG	4	4 PED	OLH	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	P21, P22	82★	NC	NU	23★	61,62	NU	NU	81,83	P81, P82	11★	82★	NU	23★	NU	NU
RED		128						134			107			A124		A114		
YELLOW	*	129		*			*	135										
GREEN		130						136										
RED ARROW													A121					
YELLOW ARROW											108		A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133				109							
(Don't Walk hand)			113									110						
(Walk person)			115									112						

NC = No Connection
NU = Not Used
* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)





INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	ø1 1A	ø1 1B	ø2 2A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	ø2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
	L	NOT USED	NOT USED	ø2 2B									NOT USED	ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	ø6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		ø6 6B				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.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
1A	TB2-1,2	I1U	56	1	1	5	
1B	TB2-5,6	I2U	39	3	1	15	
2A	TB2-9,10	I3U	63	5	2		
2B	TB2-11,12	I3L	76	6	2		
6A	TB3-5,6	J2U	40	21	6		
6B	TB3-7,8	J2L	44	22	6		
8A	TB5-9,10	J6U	42	31	8		
PED PUSH BUTTONS							
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED		
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED		

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

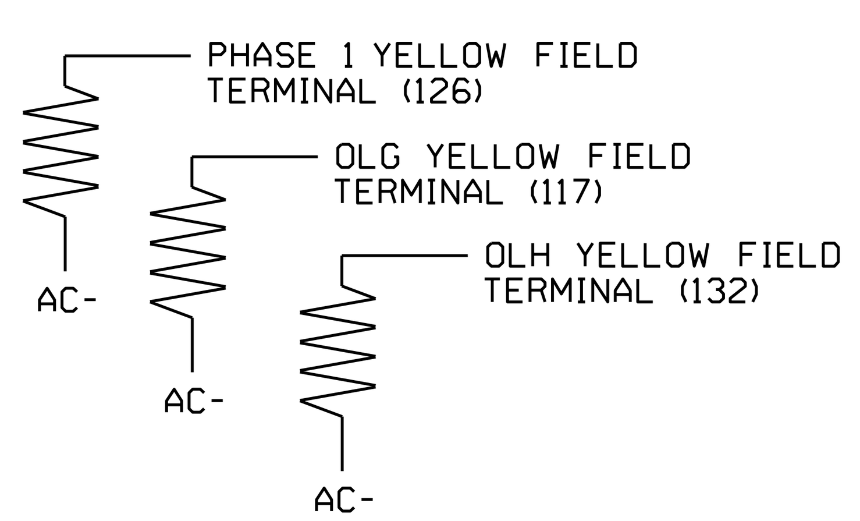
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2387T2
DESIGNED: May 2022
SEALED: 5-26-22
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)



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 3 - Temp 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 Wake County Raleigh
PLAN DATE: May 2022 REVIEWED BY:
PREPARED BY: James Peterson REVIEWED BY:
REVISIONS INIT. DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036833 RYAN W. HOUGH
DocuSigned by: Ryan W. Hough 06/01/2022
DATE
SIG. INVENTORY NO. 05-2387T2

01-JUN-2022 14:50
jlpeterson

PROJECT REFERENCE NO.	SHEET NO.
P-5720	Sig. 3.2

FLASHING YELLOW ARROW OVERLAP AND PROTECTED/PERMISSIVE SEQUENCE PROGRAMMING FOR OVERLAP A, B, C, G and H.

1. From Main Menu select [4 - UNIT DATA]
2. From UNIT DATA Submenu select [3 - OVERLAP DATA]

Use Up/Dn/Left/Right keys to position cursor on the desired Overlap. Use the NEXT key to select the overlap type. Press the ENT key and then program as per the Overlap screen(s) shown.

```
OVERLAP DATA

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

 PREV/NEXT TO CYCLE
```

OVERLAP A

Use Up/Dn/Left/Right keys to position cursor on Overlap 'A', use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - A          DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 01000000 00000000
  PROT PHASES: 10000000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: x0000000 00000000
PROT OVERLAPS: x0000000 00000000
```

NOTICE DELAY/10 = 0

Press ESC

OVERLAP B

Use Up/Dn/Left/Right keys to position cursor on Overlap 'B', use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - B          DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 00010000 00000000
  PROT PHASES: 10000000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: 0x000000 0000000
PROT OVERLAPS: 0x000000 00000000
```

NOTICE DELAY/10 = 0

Press ESC

OVERLAP C

Use Up/Dn/Left/Right keys to position cursor on Overlap 'C, use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - C          DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 01000000 00000000
  PROT PHASES: 00010000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: 00x00000 00000000
PROT OVERLAPS: 00x00000 00000000
```

NOTICE DELAY/10 = 0

Press ESC

OVERLAP G

Use Up/Dn/Left/Right keys to position cursor on Overlap 'G', use the NEXT key to select 'STD', then press ENT

```
OVERLAP - G          12345678 90123456
            PARENTS: 10000000 00000000
       +GRN PHASES: 00000000 00000000
       -G/Y PHASES: 00000000 00000000
       -PED PHASES: 00000000 00000000
 TRAIL GREEN STANDARD:    0  YEL/10:  40
 TRAIL GREEN  PREEMPT:    0  RED/10:  20
```

Press ESC

OVERLAP H

Use Up/Dn/Left/Right keys to position cursor on Overlap 'H, use the NEXT key to select 'STD', then press ENT

```
OVERLAP - H          12345678 90123456
            PARENTS: 00010000 00000000
       +GRN PHASES: 00000000 00000000
       -G/Y PHASES: 00000000 00000000
       -PED PHASES: 00000000 00000000
 TRAIL GREEN STANDARD:    0  YEL/10:  40
 TRAIL GREEN  PREEMPT:    0  RED/10:  20
```

END OVERLAP PROGRAMMING

LOAD SWITCH MAPPING DETAIL

1. From Main Menu select [4 - UNIT DATA]
2. From UNIT DATA Submenu select [9 - OUTPUT MAPPING]

USE ENTER AND NEXT KEYS TO MAP 'LDSW 4' AS 'OLG' AND 'LDSW' AS 'OLH'

```
OUTPUT MAPPING               EDIT MODE: LDSW
                               E-TOGGLE MODE
LDSW ..1.. ..2.. ..3.. ..4.. ..5.. ..6.. ..7..
RED  PH1   PH2   PD2   [OLG]  PH4   PD4  [OLH]
YEL   -     -     -     -     -     -     -
GRN   -     -     -     -     -     -     -
FIO   1     2     3     4     5     6     7
PREV/NEXT TO CYCLE       D-DISPLAY COMPAT
```

LOAD SWITCH MAPPING COMPLETE

INIT & N.A. RESP PROGRAMMING DETAIL

1. From Main Menu select [3 - PHASE DATA]
2. From PHASE DATA Submenu select [4 - INIT & N.A RESP]

```
PHASE......1...2...3...4...5...6...7...8
 INITIAL   1   4   0   1   0   4   0   1
 NA RESP   0   1   0   2   0   1   0   2

CODES.....0....1....2....3....4....5...6
 INITL  NONE INACT RED  YEL  GRN  DRK G/DW
 NA RSP NONE  NA1  NA2  1&2  ---  --- ---
                                       ***
```

INIT & N.A. RESP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2387T2
DESIGNED: May 2022
SEALED: 5-26-22
REVISED: N/A

Electrical Detail - Sheet 2 of 3 - Temp 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division — STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — ITS & Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 | Wake County | Raleigh

PLAN DATE: May 2022	REVIEWED BY:
PREPARED BY: James Peterson	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by:
Ryan W. Hough
430320FAA2654C3...
06/01/2022
DATE

SIG. INVENTORY NO. 05-2387T2

01-JUN-2022 14:51
.*052387_sm_ele_xxx.dgn
jtpeterson

PROGRAMMING DETAILS TO RUN ALTERNATE PHASING

To run the Alternate Phasing, schedule a Day Plan that calls an Action that is programmed to enable Phase Function 1.

Actions can be programmed to run free run or call a coordination pattern.

PHASE FUNCTION MAPPING PROGRAMMING DETAIL

Step 1 - Assign OMIT OVERLAP A to Phase Function 1.

1. From Main Menu select [6 - TIME BASE DATA]
2. From TIME BASE DATA Submenu select [9 - PHS FUNC MAPPING]

Use Up/Dn Keys to position cursor on NUM 1

```
TIME BASE PHS FUNC MAPING
                PHS FUNC SEL(0-OFF/1-ON)
NUM..P-FUNCT NAME.....123456789 0123456
  1  PHS-01 MAX # 2   000000000 0000000
  2  PHS-02 MAX # 2   000000000 0000000
  3  PHS-03 MAX # 2   000000000 0000000
  4  PHS-04 MAX # 2   000000000 0000000
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU
```

BEFORE PROCEEDING, SCROLL THRU ENTIRE RANGE OF FUNCTIONS TO ENSURE ALL P-FUNCT 1 NUM x VALUES ARE SET TO '0' (OFF)

Use Up/Dn/Left/Right keys to position cursor on NUM 145 and program P-FUNCT 1 as shown.

```
TIME BASE PHS FUNC MAPING
                PHS FUNC SEL(0-OFF/1-ON)
NUM..P-FUNCT NAME.....123456789 0123456
145  OVERLAP A OMIT   100000000 0000000
146  OVERLAP B OMIT   000000000 0000000
147  OVERLAP C OMIT   000000000 0000000
148  OVERLAP D OMIT   000000000 0000000
UP/DOWN TO SCROLL                E-EDIT
```

← SET P-FUNCT 1 VALUE TO '1' (ON) AS SHOWN FOR OVERLAP A OMIT

PHASE FUNCTION PROGRAMMING COMPLETE

TIME BASE ACTIONS PROGRAMMING

Step 2 - Set up an Action to run Phase Function 1.

1. From Main Menu select [6 - TIME BASE DATA]
2. From TIME BASE DATA Submenu select [5 - ACTIONS]

```
TIME BASE ACTION # ***
                   12345678 90123456
  PATN:001     PHS: 10000000 00000000
   0=I'CONN    AUX: 000-----
  1-253=PATN   SPC: 0000000-      0=NO
  254=FREE     DIM: 0-------      1=YES
  255=FLASH    DET: 000-----
UP/DOWN TO SCROLL
```

← NOTICE PHS 1

SPECIAL FUNCTION PROGRAMMING COMPLETE

*** Action #(s) are to be determined by the Division and/or City Traffic Engineer and are scheduled to run in Day Plan(s).

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2387T2
DESIGNED: May 2022
SEALED: 5-26-22
REVISED: N/A

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 3 of 3 - Temp 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 2006 (Durant Road) at Capital Hills Drive

Division 5 | Wake County | Raleigh

Prepared in the Offices of: Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE: May 2022	REVIEWED BY:
PREPARED BY: James Peterson	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

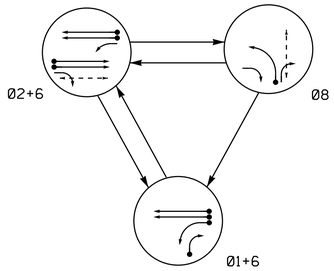
DocuSigned by: Ryan W. Hough 430320EAA2654C3
06/01/2022
DATE

SIG. INVENTORY NO. 05-2387T2

PROJECT REFERENCE NO.	SHEET NO.
P-5720	SIG. 4.0

3 Phase
Fully Actuated
(Raleigh Signal System)

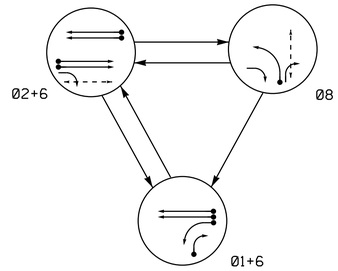
DEFAULT PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø8	FLASH
11	←	F Y	~~R~~	~~Y~~
21, 22	R	G	R	Y
23	R	F Y	~~→~~	~~Y~~
61, 62	G	G	R	Y
81, 83	R	R	←	R
82	→	R	F Y	R
P21, P22	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

ALTERNATE PHASING DIAGRAM

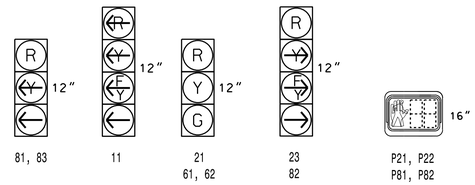


ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø8	FLASH
11	←	~~R~~	~~R~~	~~Y~~
21, 22	R	G	R	Y
23	R	F Y	~~→~~	~~Y~~
61, 62	G	G	R	Y
81, 83	R	R	←	R
82	→	R	F Y	R
P21, P22	DW	W	DW	DRK
P81, P82	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.

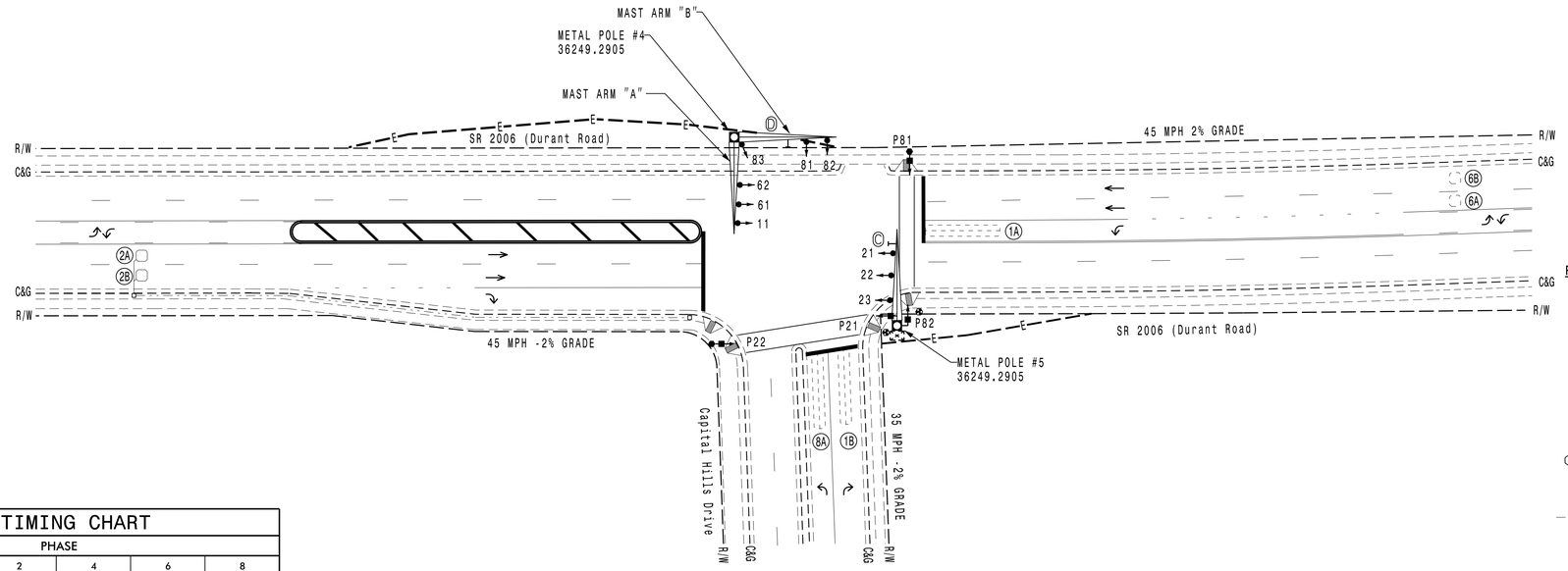


NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024, "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Reposition existing signal head(s) numbered 61 and 62.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signal Design Manual and submit a Plan of Record to the Signal Design Section.
7. Omit "WALK" and flashing "DON'T WALK" with no no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Pavement markings are existing, unless otherwise shown.
10. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
12. Program phase 4 as a dummy phase for Ring 1.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Pole with Mastarm	
N/A	Curb Ramp	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
DD	Directional Drill	N/A
N/A	Existing Easement	
Ⓒ	No U-Turn Sign (R3-4)	Ⓒ
Ⓓ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓓ

SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green *	7	12	7	12	7
Passage Gap *	2.0	6.0	2.0	6.0	2.0
Maximum Green *	25	80	25	80	25
Yellow Change	3.0	4.7	3.0	4.7	3.0
Red Clear	3.2	1.9	2.9	1.9	2.9
Walk *	-	7	-	-	7
Pedestrian Clear	-	14	-	-	15
Added Initial *	-	1.5	-	1.5	-
Maximum Initial *	-	34	-	32	-
Time Before Reduction *	-	15	-	15	-
Time To Reduce *	-	45	-	45	-
Minimum Gap	-	3.0	-	2.7	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	NON-LOCK	LOCK	-	LOCK	NON-LOCK
Dual Entry	-	-	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.

LOOP & DETECTOR UNIT INSTALLATION CHART
SE-PAC 2070 CONTROLLER WITH 170 CABINET

INDUCTIVE LOOPS						DETECTOR PROGRAMMING															
							TIMING		OPERATION MODE 0	1	2	3	4	5	6	7			STATUS	
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	ASSIGNED PHASE	DELAY	EXTEND (STRETCH)	VEHICLE	PEDESTRIAN	1 CALL	STOP A	STOP B	PROTPTER	PROTPTER THROUGH	AND	SWITCH	SYSTEM LOOPS	NEW	EXISTING
1A	6X40	2-4-2	0	-	X	1	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
1B	6X40	2-4-2	0	-	X	1	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2A	6X6	6	300	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2B	6X6	6	300	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6A	6X6	EXIST	280	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6B	6X6	EXIST	280	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
8A	6X40	2-4-2	0	-	X	8	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road) at Capital Hills Drive

Division 5 Wake County Raleigh

PLAN DATE: May 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

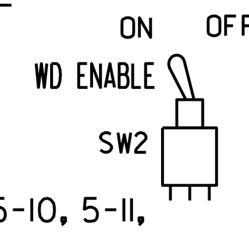
DocuSigned by: Robert J. Ziemba 05/26/2022
SIGNATURE DATE

SIG. INVENTORY NO. 05-2387

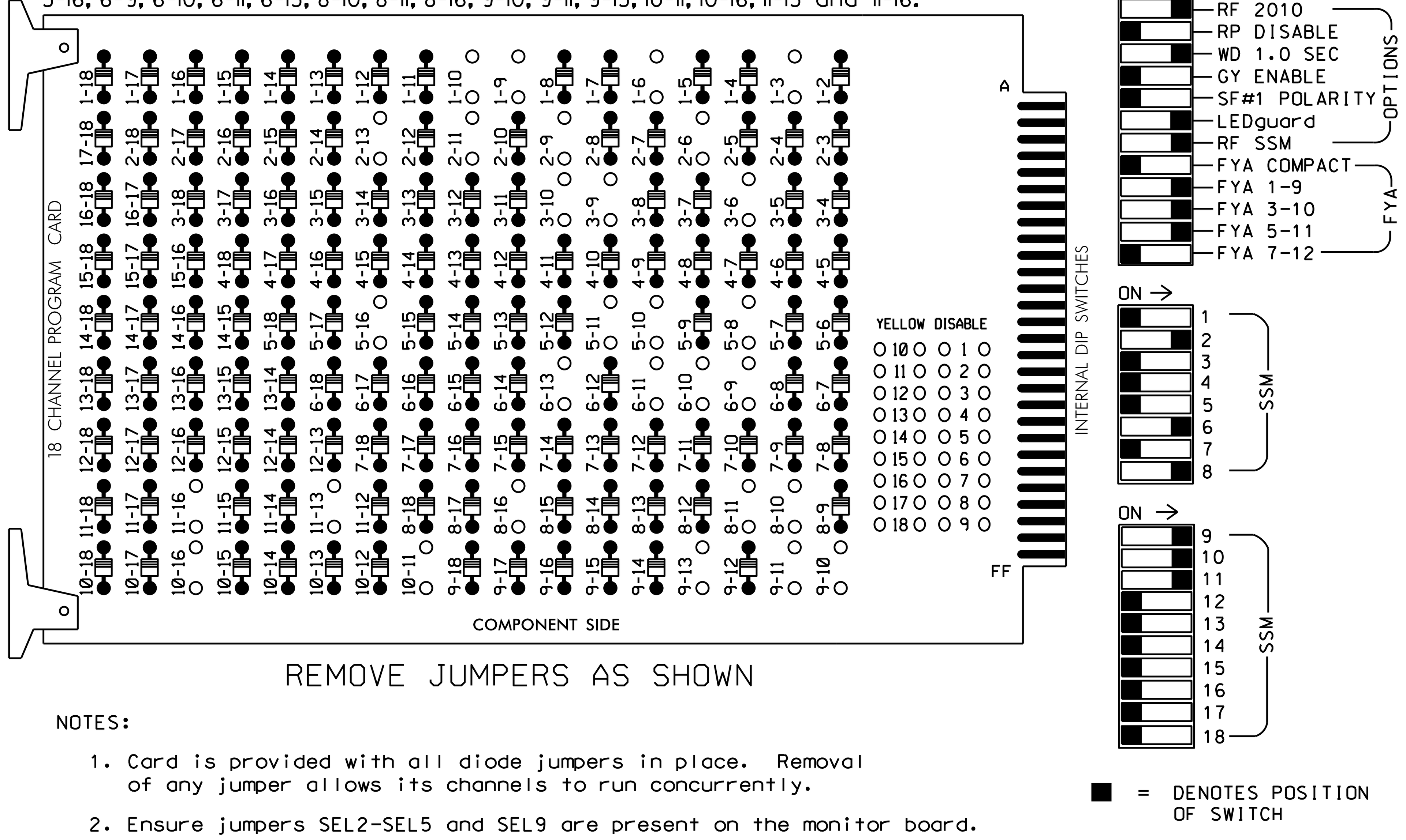
26-SEP-2023 08:34
S:\TISG\417\Signals\Signal Design Section\Central Region\Div 5\WP-5720 Durant Rd\052387_sig_dsn_20220526.dgn
jalohr

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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



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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phases 2 and 6 green.
3. Enable simultaneous gap-out feature for all phases.
4. Program phase 4 for dual entry.
5. Program phases 2 and 6 for volume density operation.
6. The cabinet and controller are part of the Raleigh Signal System.

EQUIPMENT INFORMATION

CONTROLLER.............2070LX
CABINET................332 W/ AUX
SOFTWARE...............SE-PAC2070
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S3,S4,S7,S8,S11,S12,AUX S1 AUX S2,AUX S4
PHASES USED............1,2,2 PED,**4,6,8,8 PED
OVERLAP "A"............*
OVERLAP "B"............*
OVERLAP "C"............*
OVERLAP "D"............NOT USED
OVERLAP "G"............*
OVERLAP "H"............*

*See sheet 2 for Overlap Programmming.

**Phase used for timing purposes only.

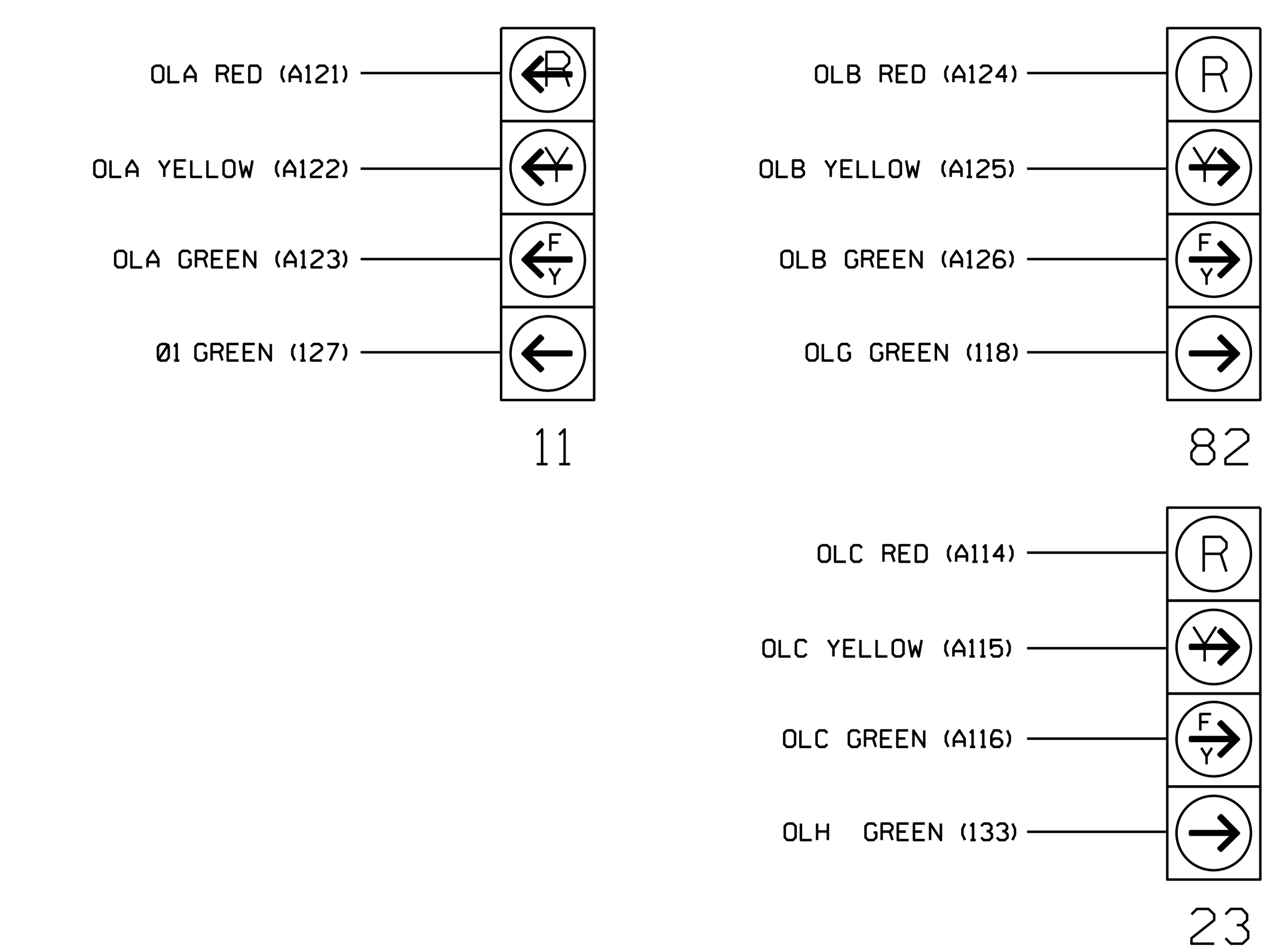
SIGNAL HEAD HOOK-UP CHART

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	2 PED	OLG	4	4 PED	OLH	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	P21, P22	82★	NC	NU	23★	61,62	NU	NU	81,83	P81, P82	11★	82★	NU	23★	NU	NU
RED		128						134			107			A124		A114		
YELLOW	*	129		*			*	135										
GREEN		130						136										
RED ARROW													A121					
YELLOW ARROW											108		A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133				109							
(Don't Walk hand)			113									110						
(Walk person)			115									112						

NC = No Connection
NU = Not Used
* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 1 1B	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
	L	NOT USED	NOT USED	Ø 2 2B									NOT USED	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø 6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø 6 6B				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.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
1A	TB2-1,2	I1U	56	1	1	5	
1B	TB2-5,6	I2U	39	3	1	15	
2A	TB2-9,10	I3U	63	5	2		
2B	TB2-11,12	I3L	76	6	2		
6A	TB3-5,6	J2U	40	21	6		
6B	TB3-7,8	J2L	44	22	6		
8A	TB5-9,10	J6U	42	31	8		
PED PUSH BUTTONS							
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED		
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED		

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

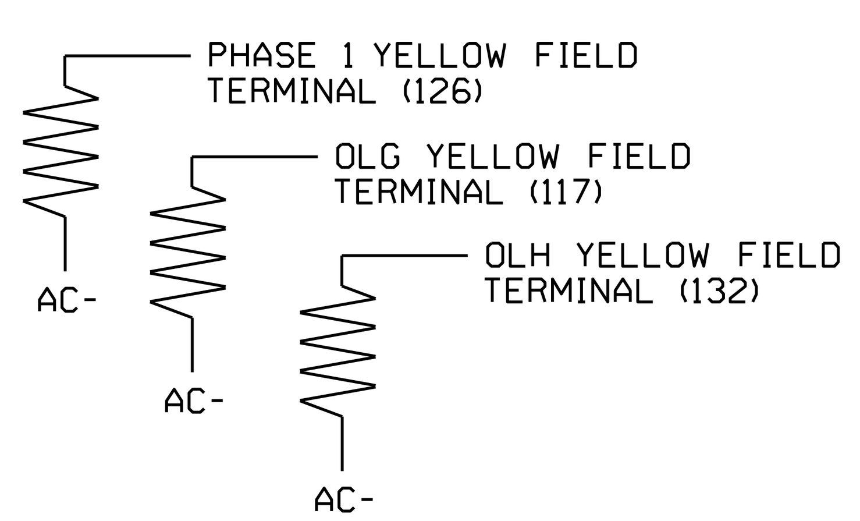
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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)



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: 05-2387
DESIGNED: May 2022
SEALED: 5-26-22
REVISED: N/A

Electrical Detail - Sheet 1 of 3 - Final

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2006 (Durant Road)
at
Capital Hills Drive

Division 5 Wake County Raleigh

PLAN DATE: May 2022	REVIEWED BY:
PREPARED BY: James Peterson	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH
DocuSigned by: Ryan W. Hough 06/01/2022
430320FAA2654C3...
DATE

SIG. INVENTORY NO. 05-2387

FLASHING YELLOW ARROW OVERLAP AND PROTECTED/PERMISSIVE SEQUENCE PROGRAMMING FOR OVERLAP A, B, C, G and H.

1. From Main Menu select [4 - UNIT DATA]
2. From UNIT DATA Submenu select [3 - OVERLAP DATA]

Use Up/Dn/Left/Right keys to position cursor on the desired Overlap. Use the NEXT key to select the overlap type. Press the ENT key and then program as per the Overlap screen(s) shown.

```
OVERLAP DATA

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

 PREV/NEXT TO CYCLE
```

OVERLAP A

Use Up/Dn/Left/Right keys to position cursor on Overlap 'A', use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - A          DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 01000000 00000000
  PROT PHASES: 10000000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: x0000000 00000000
PROT OVERLAPS: x0000000 00000000
```

← NOTICE DELAY/10 = 0

Press ESC

OVERLAP B

Use Up/Dn/Left/Right keys to position cursor on Overlap 'B', use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - B          DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 00010000 00000000
  PROT PHASES: 10000000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: 0x000000 0000000
PROT OVERLAPS: 0x000000 00000000
```

← NOTICE DELAY/10 = 0

Press ESC

OVERLAP C

Use Up/Dn/Left/Right keys to position cursor on Overlap 'C, use the NEXT key to select 'FYA', then press ENT

```
FYA OVERLAP - C         DELAY/10:   0
       PHASES..12345678 90123456
  PERM PHASES: 01000000 00000000
  PROT PHASES: 00010000 00000000
  -PED PHASES: 00000000 00000000
     OVERLAPS..ABCDEFGH IJKLMNOP
PERM OVERLAPS: 00x00000 00000000
PROT OVERLAPS: 00x00000 00000000
```

← NOTICE DELAY/10 = 0

Press ESC

OVERLAP G

Use Up/Dn/Left/Right keys to position cursor on Overlap 'G', use the NEXT key to select 'STD', then press ENT

```
OVERLAP - G        12345678 90123456
         PARENTS: 10000000 00000000
     +GRN PHASES: 00000000 00000000
     -G/Y PHASES: 00000000 00000000
     -PED PHASES: 00000000 00000000
 TRAIL GREEN STANDARD:   0  YEL/10:  40
 TRAIL GREEN  PREEMPT:   0  RED/10:  20
```

Press ESC

OVERLAP H

Use Up/Dn/Left/Right keys to position cursor on Overlap 'H, use the NEXT key to select 'STD', then press ENT

```
OVERLAP - H        12345678 90123456
         PARENTS: 00010000 00000000
     +GRN PHASES: 00000000 00000000
     -G/Y PHASES: 00000000 00000000
     -PED PHASES: 00000000 00000000
 TRAIL GREEN STANDARD:   0  YEL/10:  40
 TRAIL GREEN  PREEMPT:   0  RED/10:  20
```

END OVERLAP PROGRAMMING

LOAD SWITCH MAPPING DETAIL

1. From Main Menu select [4 - UNIT DATA]
2. From UNIT DATA Submenu select [9 - OUTPUT MAPPING]

USE ENTER AND NEXT KEYS TO MAP 'LDSW 4' AS 'OLG' AND 'LDSW' AS 'OLH'

```
OUTPUT MAPPING              EDIT MODE: LDSW
                             E-TOGGLE MODE
LDSW ..1.. ..2.. ..3.. ..4.. ..5.. ..6.. ..7..
RED   PH1   PH2   PD2  [OLG]  PH4   PD4  [OLH]
YEL    -     -     -     -     -     -     -
GRN    -     -     -     -     -     -     -
FIO    1     2     3     4     5     6     7
PREV/NEXT TO CYCLE      D-DISPLAY COMPAT
```

LOAD SWITCH MAPPING COMPLETE

INIT & N.A. RESP PROGRAMMING DETAIL

1. From Main Menu select [3 - PHASE DATA]
2. From PHASE DATA Submenu select [4 - INIT & N.A RESP]

```
PHASE......1...2...3...4...5...6...7...8
 INITIAL   1   4   0   1   0   4   0   1
 NA RESP   0   1   0   2   0   1   0   2

CODES.....0....1....2....3....4....5...6
 INITL  NONE INACT RED  YEL  GRN  DRK G/DW
 NA RSP NONE  NA1  NA2  1&2  ---  --- ---
                                      ***
```

INIT & N.A. RESP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2387
DESIGNED: May 2022
SEALED: 5-26-22
REVISED: N/A

Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 2006 (Durant Road) at Capital Hills Drive

Division 5 | Wake County | Raleigh

PLAN DATE: May 2022 | REVIEWED BY:
PREPARED BY: James Peterson | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of: ITS & Signals Management Section, Transportation Mobility and Safety Division, Department of Transportation, State of North Carolina
750 N.Greenfield Pkwy,Garner,NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 430320FAA2654C3... DATE 06/01/2022

SIG. INVENTORY NO. 05-2387

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PROGRAMMING DETAILS TO RUN ALTERNATE PHASING

To run the Alternate Phasing, schedule a Day Plan that calls an Action that is programmed to enable Phase Function 1.

Actions can be programmed to run free run or call a coordination pattern.

PHASE FUNCTION MAPPING PROGRAMMING DETAIL

Step 1 - Assign OMIT OVERLAP A to Phase Function 1.

1. From Main Menu select [6 - TIME BASE DATA]
2. From TIME BASE DATA Submenu select [9 - PHS FUNC MAPPING]

Use Up/Dn Keys to position cursor on NUM 1

```
TIME BASE PHS FUNC MAPING
                 PHS FUNC SEL(0-OFF/1-ON)
NUM..P-FUNCT NAME.....123456789 0123456
  1  PHS-01 MAX # 2   000000000 0000000
  2  PHS-02 MAX # 2   000000000 0000000
  3  PHS-03 MAX # 2   000000000 0000000
  4  PHS-04 MAX # 2   000000000 0000000
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU
```

BEFORE PROCEEDING, SCROLL THRU ENTIRE RANGE OF FUNCTIONS TO ENSURE ALL P-FUNCT 1 NUM x VALUES ARE SET TO '0' (OFF)

Use Up/Dn/Left/Right keys to position cursor on NUM 145 and program P-FUNCT 1 as shown.

```
TIME BASE PHS FUNC MAPING
                 PHS FUNC SEL(0-OFF/1-ON)
NUM..P-FUNCT NAME.....123456789 0123456
145  OVERLAP A OMIT   100000000 0000000
146  OVERLAP B OMIT   000000000 0000000
147  OVERLAP C OMIT   000000000 0000000
148  OVERLAP D OMIT   000000000 0000000
UP/DOWN TO SCROLL               E-EDIT
```

← SET P-FUNCT 1 VALUE TO '1' (ON) AS SHOWN FOR OVERLAP A OMIT

PHASE FUNCTION PROGRAMMING COMPLETE

TIME BASE ACTIONS PROGRAMMING

Step 2 - Set up an Action to run Phase Function 1.

1. From Main Menu select [6 - TIME BASE DATA]
2. From TIME BASE DATA Submenu select [5 - ACTIONS]

```
TIME BASE ACTION # ***
                    12345678 90123456
 PATN:001      PHS: 10000000 00000000
  0=I'CONN     AUX: 000-----
 1-253=PATN    SPC: 0000000-       0=NO
 254=FREE      DIM: 0-------       1=YES
 255=FLASH     DET: 000-----
UP/DOWN TO SCROLL
```

← NOTICE PHS 1

SPECIAL FUNCTION PROGRAMMING COMPLETE

*** Action #(s) are to be determined by the Division and/or City Traffic Engineer and are scheduled to run in Day Plan(s).

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.

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at
Capital Hills Drive

Division 5 Wake County Raleigh

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