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09/08/2025
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\$\$\$\$\$USERNAME\$\$\$\$\$

CONTRACT: DE00445 TIP PROJECT: HS-2405AB

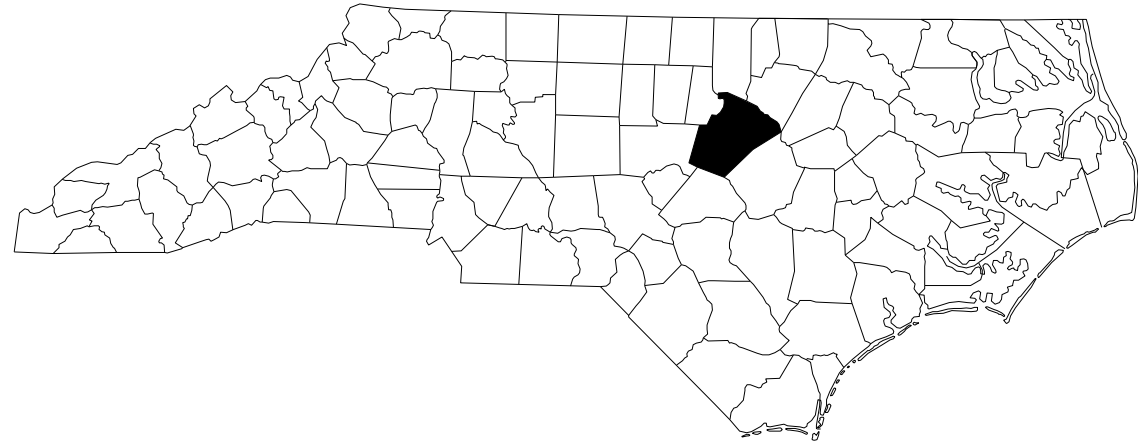
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: SR 2000 (FALLS OF NEUSE RD.) AT N. BEND RD.

TYPE OF WORK: SIGNAL, CROSSWALKS UPGRADE AND PAVEMENT MARKING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2405AB	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50977.1.29		P.E.	
50977.2.29		R / W	
50977.1.29		CONST.	



INDEX OF SHEETS		GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-16-2024 REVISED:		LIST OF STANDARDS	
SHEET NUMBER	SHEET			STANDARD NO.	STANDARD
1	TITLE SHEET AND INDEX	CLEARING:		848.06	CURB RAMPS
SIG. 1	SIGNAL UPGRADE	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.		1101.01	WORK ZONE ADVANCE WARNING SIGNS
SIG. 2 - SIG. 6	ELECTRICAL DETAILS	CURB RAMPS:		1101.02	TEMPORARY LANE CLOSURES
		CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.		1101.11	TRAFFIC CONTROL DESIGN TABLES
		CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD 848.06.		1110.01	STATIONARY WORK ZONE SIGNS
				1110.01	PORTABLE WORK ZONE SIGNS
				1130.01	DRUMS
				1150.01	FLAGGERS
				1180.01	SKINNY DRUMS
				1205.02	PAVEMENT MARKINGS: TWO-LANE AND MULTI-LANE ROADWAYS
				1205.04	PAVEMENT MARKINGS: INTERSECTIONS
				1205.05	PAVEMENT MARKINGS: TURN LANES
				1205.07	PAVEMENT MARKINGS: PEDESTRIAN CROSSWALKS
				1705.01	SIGNAL HEADS: VEHICULAR SIGNAL HEADS
				1705.02	SIGNAL HEADS: MOUNTING
				1705.04	SIGNAL HEADS: PEDESTRIAN PUSHBUTTON PLACEMENT
				1715.01	UNDERGROUND CONDUIT TRENCHING
				1716.01	JUNCTION BOXES
				1725.01	INDUCTIVE DETECTION LOOPS
				1743.01	PEDESTALS - PEDESTRIAN PUSHBUTTON POST (TYPE I)
				1743.02	PEDESTALS: NORMAL DUTY (TYPE II)
				1743.04	PEDESTALS: FOUNDATIONS
				1751.01	CONTROLLERS AND CABINETS: CABINET COMPONENT LAYOUT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2021 = 26,500
V = 50 MPH
FUNC CLASS = MINOR ARTERIAL

PROJECT LENGTH

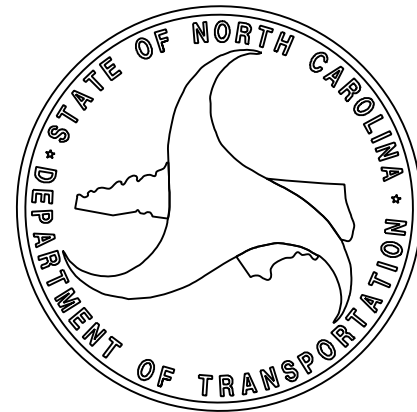
LENGTH ROADWAY PROJECT = 0.16 MILES

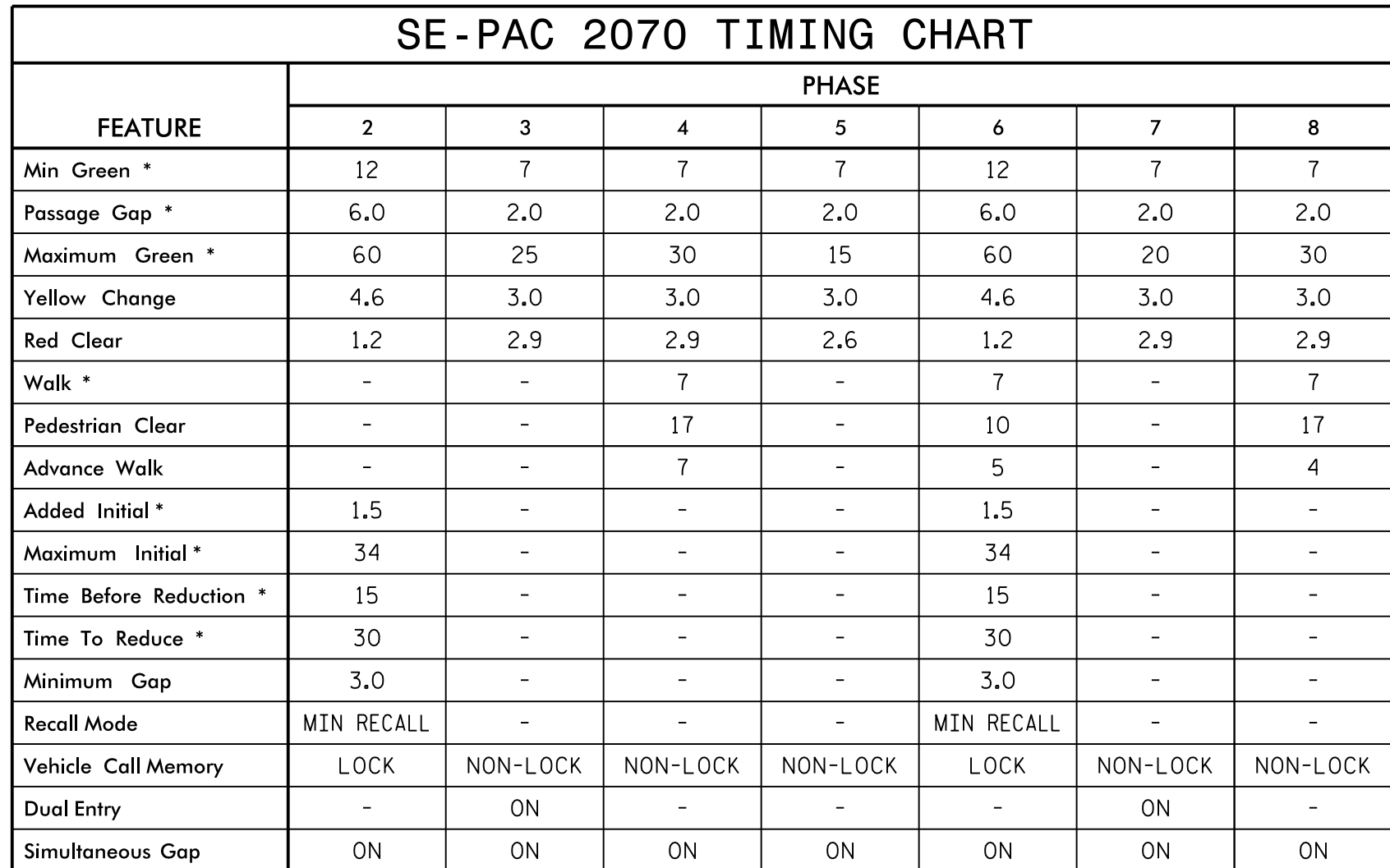
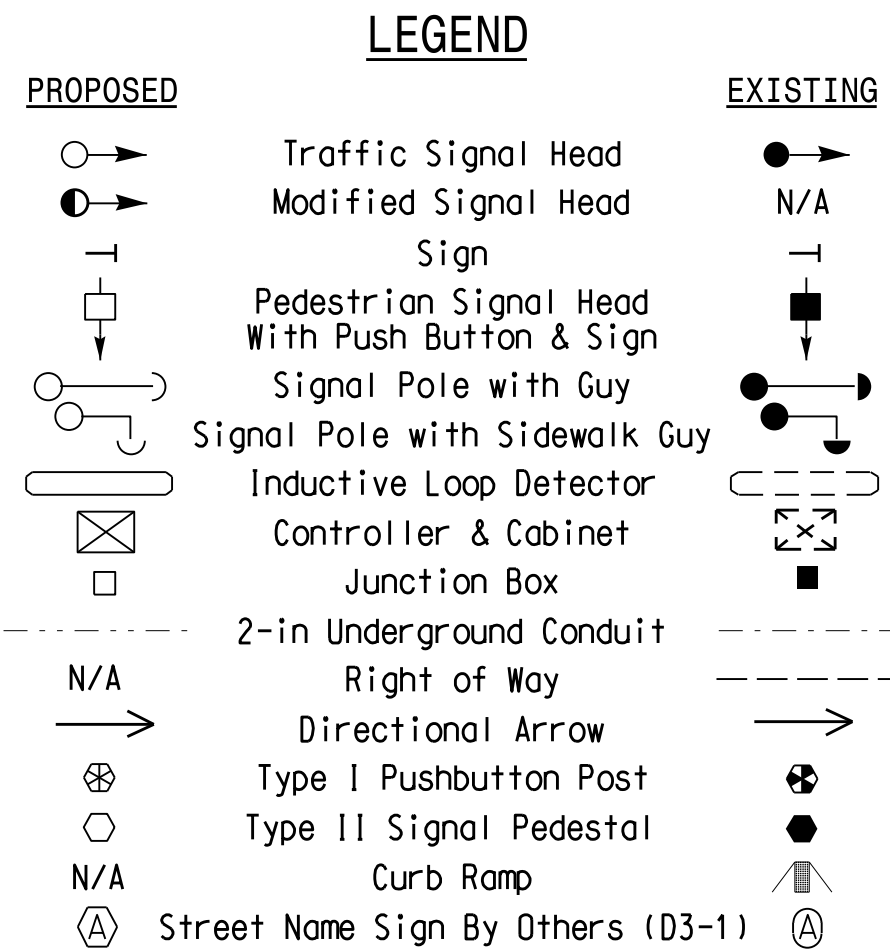
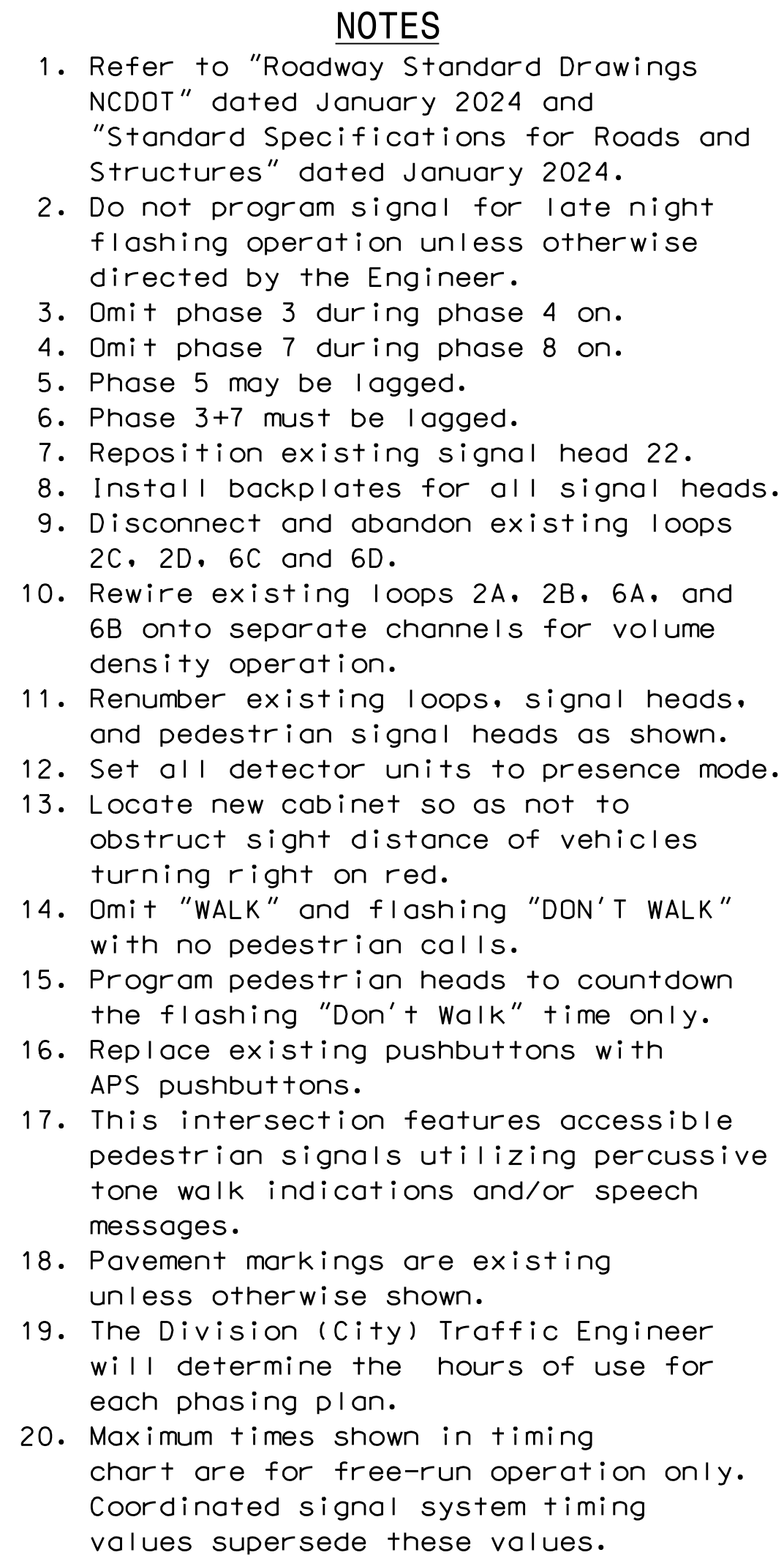


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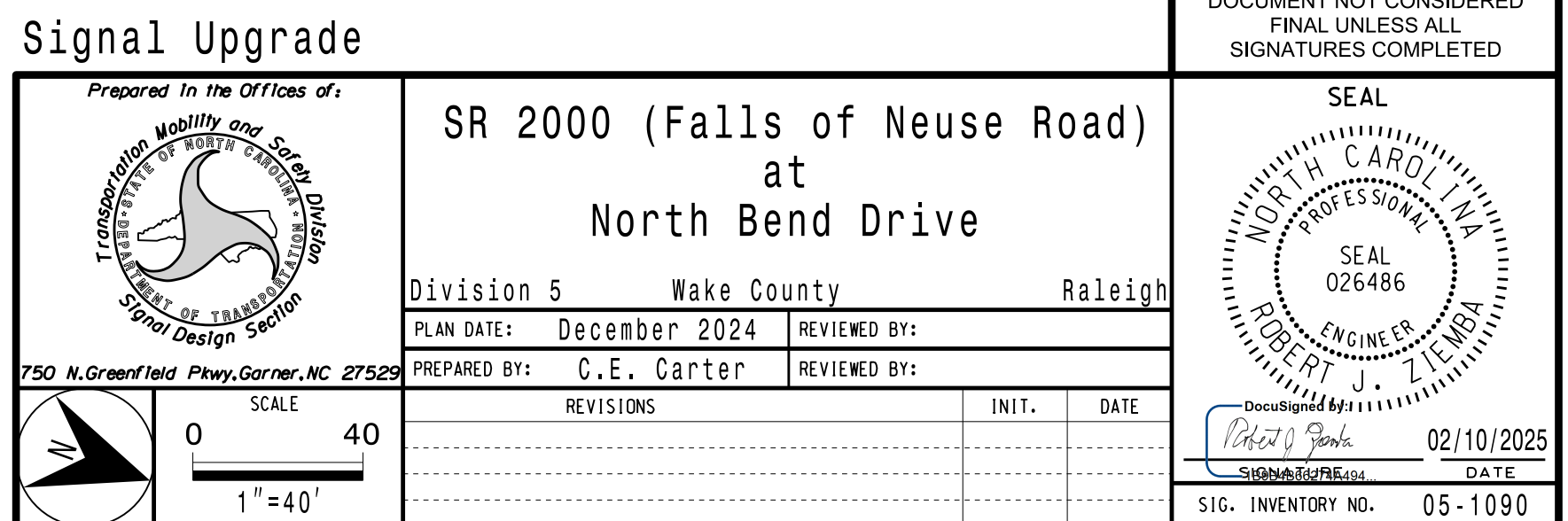
Prepared In The Offices of:

For the North Carolina Department of Transportation	
2018 STANDARD SPECIFICATIONS	FREESE AND NICHOLS CONTACT
RIGHT OF WAY DATE:	EDITH G. PETERS, PE PROJECT ENGINEER
SEPT 4, 2025	
LETTING DATE:	NCDOT CONTACT:
OCT 28, 2026	MONTEL SPARROW, EI





* 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.

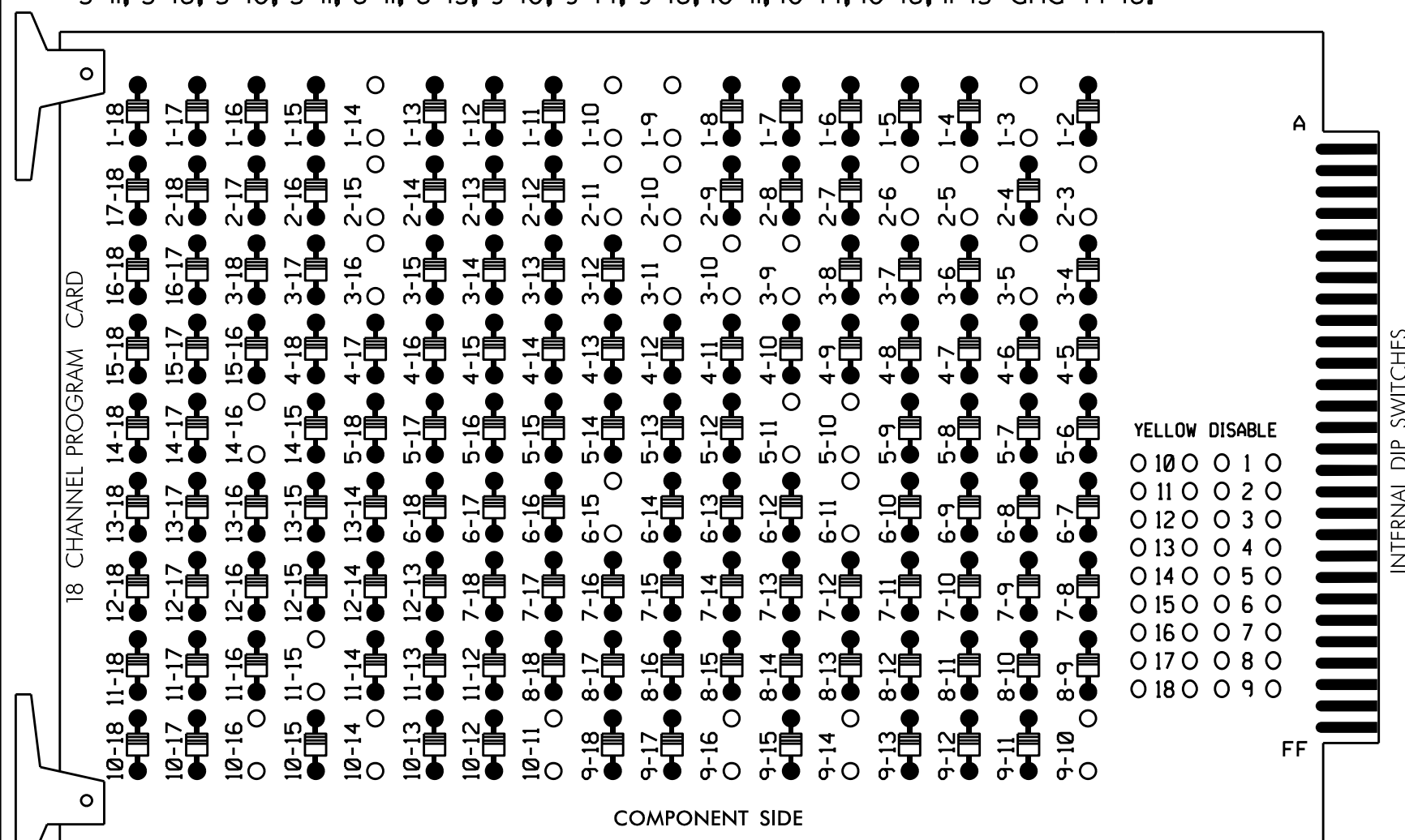


10-EEB-2025, 15:28
D:\77\modot-pw\benr\ey.com\modot-pw\01\Documents\NCDOT TSMO/Signal Design Section\01\vision_05\05-1090\Signal Management\051090_sm_eie_20250210.dgn
sgk:lrp:ctr:ck

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

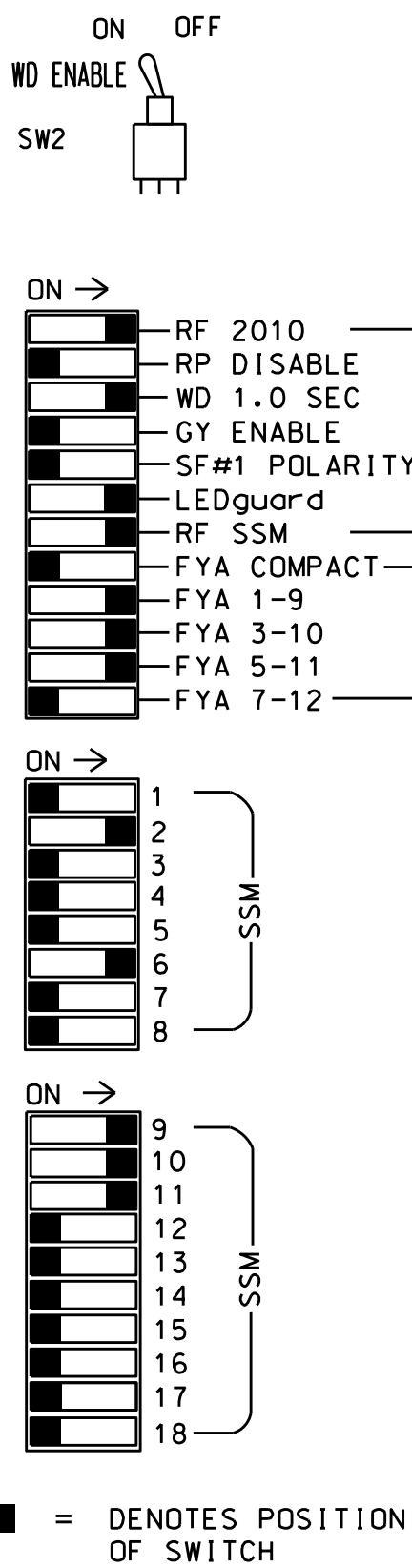
REMOVE DIODE JUMPERS 1-3, 1-9, 1-10, 1-14, 2-3, 2-5, 2-6, 2-10, 2-11, 2-15, 3-5, 3-9, 3-10, 3-11, 3-16, 5-10, 5-11, 6-11, 6-15, 9-10, 9-14, 9-16, 10-11, 10-14, 10-16, 11-15 and 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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



■ = 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 controller to start up in phases 2 and 6 Green/Don't Walk.
- Enable simultaneous gap-out feature for all phases.
- Program phases 2 and 6 for volume density operation.
- Program phases 3 and 7 for dual entry.
- The cabinet and controller are part of the Raleigh Signal System.

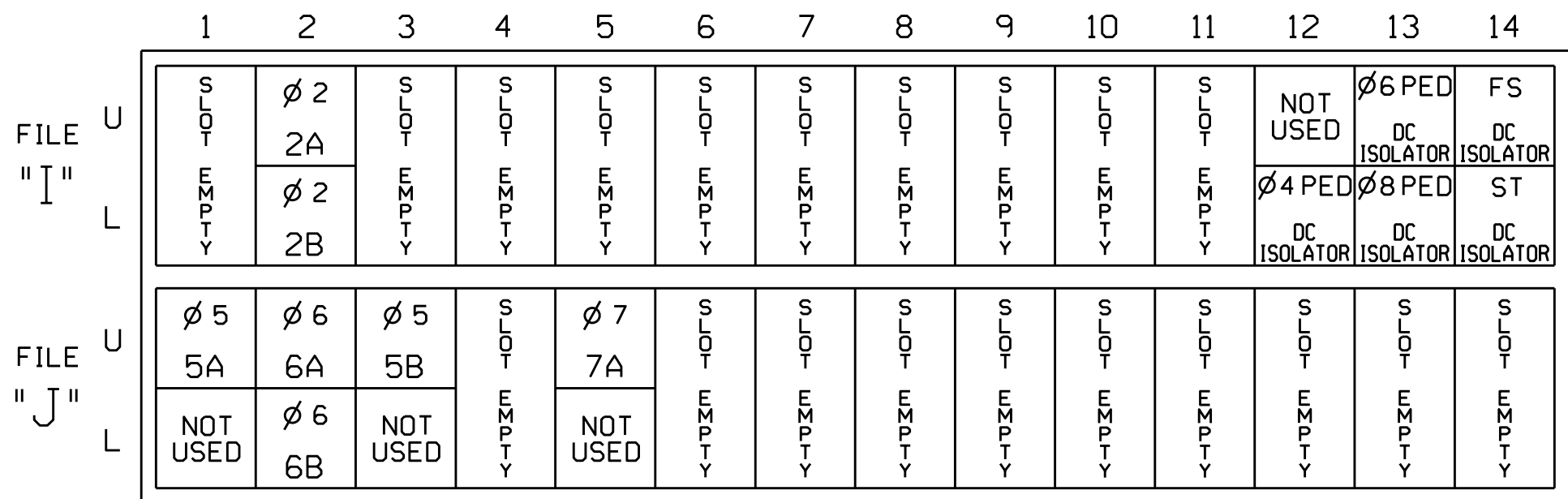
EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....SE-PAC2070 ver 5.5 or later
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S6,S7,S8,S9,S12,AUX S1,
AUX S2,AUX S4
PHASES USED.....2,3,**4,4PED,5,6,6PED,7,**8,8PED
OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
OVERLAP "G".....*
OVERLAP "H".....*

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

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.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
2A	TB2-5,6	I2U	39	3	2		
2B	TB2-7,8	I2L	43	4	2		
5A	TB3-1,2	J1U	55	19	5	5	
6A	TB3-5,6	J2U	40	21	6		
6B	TB3-7,8	J2L	44	22	6		
5B	TB3-9,10	J3U	64	23	5	15	
7A	TB5-5,6	J5U	57	29	7	3	
PED PUSH BUTTONS							
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED		
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED		
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED		

NOTE:

INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

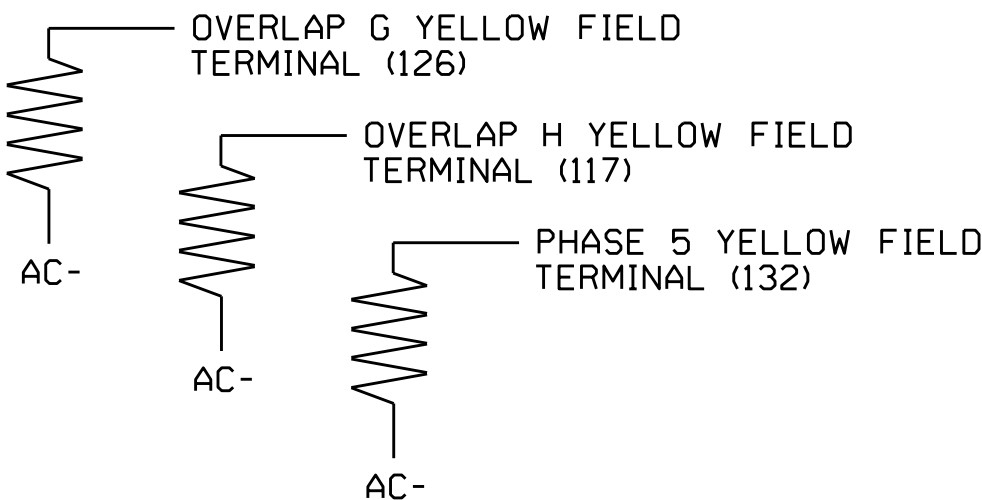
INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

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: 05-1090
DESIGNED: December 2024
SEALED: 02/10/2025
REVISED: N/A

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	OLG	2	2 PED	OLH	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	81★	21,22,23	NU	82,83	NC	P41, P42	51★	61,62	P61, P62	NU	NC	P81, P82	81★	82,83	NU	51★	NU	NU
RED		128						134						A124				
YELLOW	*	129		*			*	135										
GREEN		130						136										
RED ARROW													A121			A114		
YELLOW ARROW													A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133											
HAND						104			119		110							
WALK						106			121		112							

NU = Not Used

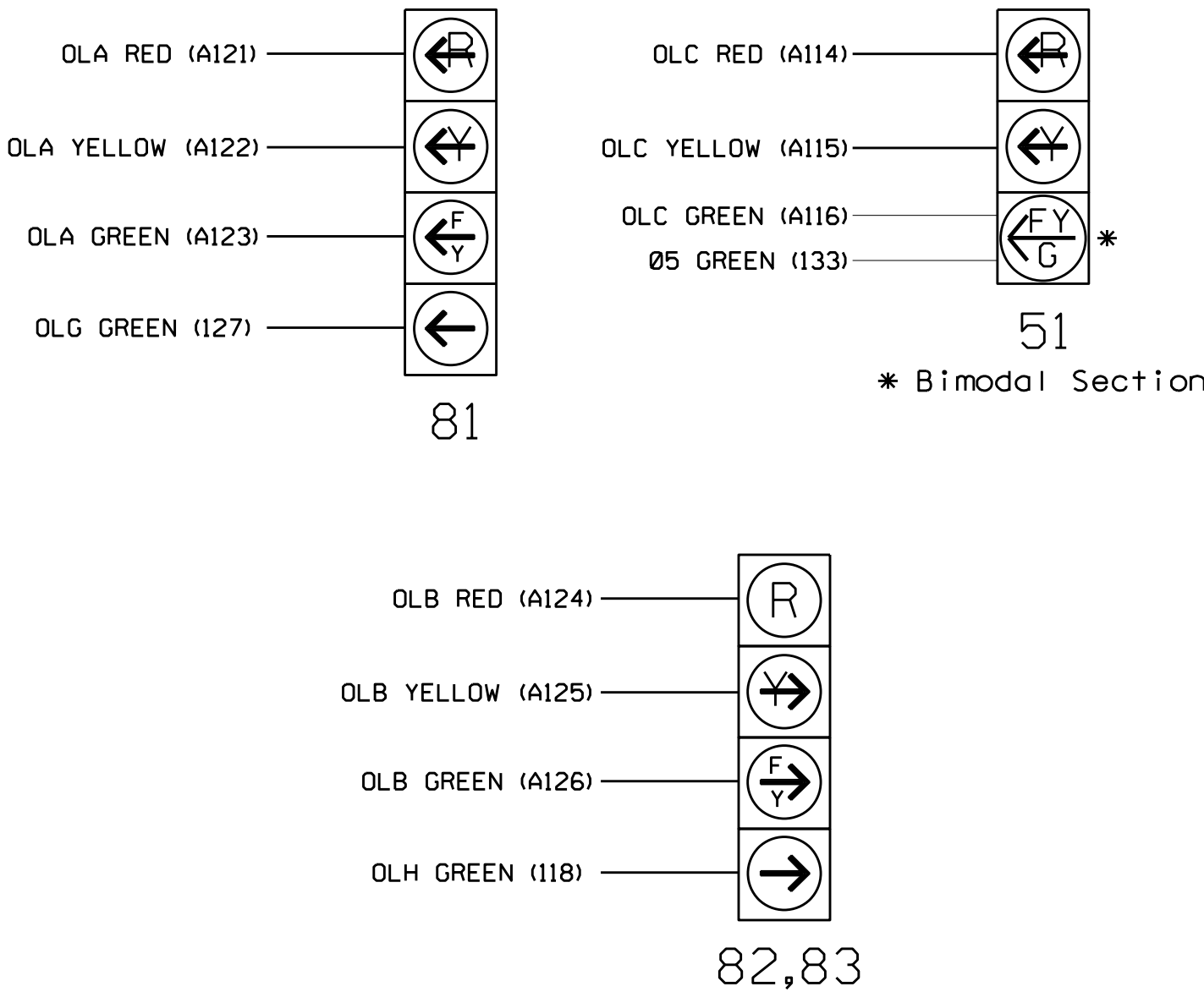
NC = Not Connected

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

★ See pictorial of head wiring in detail this sheet.

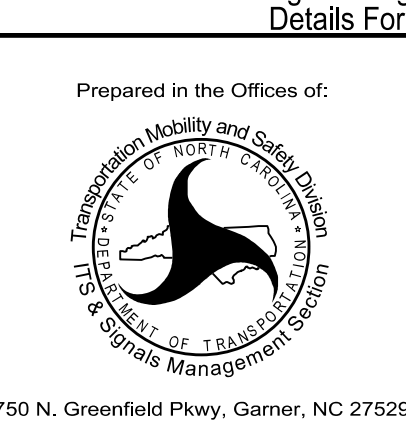
FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



Electrical Detail - Sheet 1 of 5

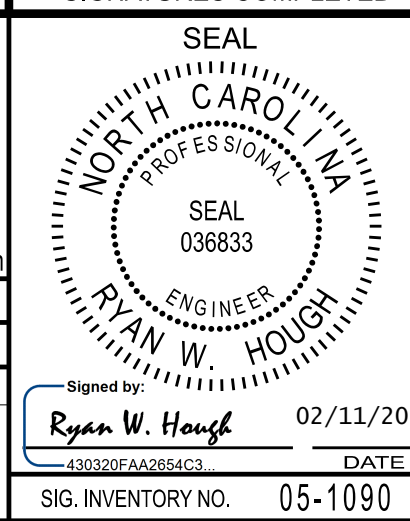
Electrical and Programming Details For:



SR 2000 (Falls Neuse Road)
at
North Bend Drive

Division 5	Wake County	Raleigh
PLAN DATE: January 2025	REVIEWED BY:	
PREPARED BY: Sarah Kirkpatrick	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



SIG. INVENTORY NO. 05-1090

10-EEB-2025, 15:29
D:_77\roadot-pw\bernt ley, com\ncdot-pw\01\vision_05\05-1090\Signal s Management\051090_sm_ele_20250210.dgn
sgk:ir:pc:tr:ck

OVERLAP PROGRAMMING DETAIL

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 MIN PERM: 1
PHASES..12345678 90123456
PROT PHASES: 00000000 00000000 DELAY/10
PERM PHASES: 00000001 00000000 FYA: 0
-PED PHASES: 00000000 00000000 -PED: 30
OVERLAPS..ABCDEFGH IJKLMNOP
PROT OVERLAPS: x0000010 00000000
PERM OVERLAPS: x0000000 00000000

← NOTICE

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 MIN PERM: 1
PHASES..12345678 90123456
PROT PHASES: 00000000 00000000 DELAY/10
PERM PHASES: 00010000 00000000 FYA: 0
-PED PHASES: 00000000 00000000 -PED: 30
OVERLAPS..ABCDEFGH IJKLMNOP
PROT OVERLAPS: 0x000001 00000000
PERM OVERLAPS: 0x000000 00000000

← NOTICE

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 MIN PERM: 1
PHASES..12345678 90123456
PROT PHASES: 00001000 00000000 DELAY/10
PERM PHASES: 00000100 00000000 FYA: 0
-PED PHASES: 00000000 00000000 -PED: 30
OVERLAPS..ABCDEFGH IJKLMNOP
PROT OVERLAPS: 00x00000 00000000
PERM OVERLAPS: 00x00000 00000000

← NOTICE

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: 00000010 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

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: 00101000 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

ADVANCE WALK PED PROGRAMMING DETAIL

(program controller as shown below)

1. From Main Menu select **3 - PHASE DATA**

2. From PHASE DATA Submenu select **3 - PEDESTRIAN DATA**

3. From DETECTOR DATA Submenu select **3 - PED OFFSET +**

PHASE.....1...2...3...4...5...6...7...8
WOFF/10 0 0 0 70 0 50 0 40
MODE* 0 0 0 0 0 0 0 0

CODES:* 0=ADVANCE 1=DELAY

Advance Walk PED programming 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 0 6 1 1 1 6 1 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

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

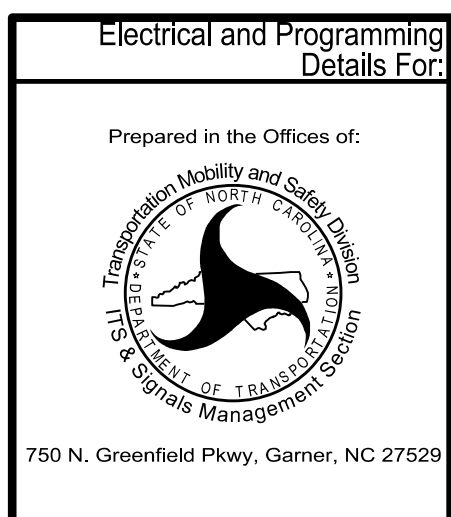
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

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.
6. An APS push button station that is designed to work without the need for interfacing with a pedestrian signal head shall be installed for applications where a push button is installed in a median without a pedestrian signal head.
7. A push button with a single tactile arrow that points in both directions of travel shall be installed if the median separates two parallel crosswalks.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1090
DESIGNED: December 2024
SEALED: 02/10/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 5



SR 2000 (Falls Neuse Road)
at
North Bend Drive

Division 5	Wake County	Raleigh
PLAN DATE: January 2025	REVIEWED BY:	
PREPARED BY: Sarah Kirkpatrick	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036833 RYAN W. HOUGH	
Signed by: Ryan W. Hough	02/11/202
43020FAA2804C3	DATE
SIG. INVENTORY NO.	05-1090

REMOTE FLASH
PROGRAMMING DETAIL

(program controller as shown below)

1. From Main Menu select 4 - UNIT DATA
2. From UNIT DATA Submenu select 2 - REMOTE FLASH
3. From FLASH Submenu select 1 - FLASH SETTINGS

FLASH SETTINGSTEST-A AS FLASH: 0

LDSW: 123456789 0123456789 0123456789 012
FLSH: 110100110 0001101000 0000000000 000
ALT: 010000100 0000001100 0000000000 000

0-DARK 1-RED 2-YELLOW 3-STEADY YELLOW
A-UP B-DN C-LT D-RT F-PRIOR MENU

PRESS 'F' TO RETURN TO FLASH

4. From REMOTE FLASH Submenu select 2 - ENTRY/EXIT PHASES

FLASH ENTRY/EXIT PHASES

PHASES: 12345678 90123456
ENTRY: 01000100 00000000
EXIT: 01000100 00000000

0-DARK 1-RED 2-YELLOW 3-STEADY YELLOW
A-UP B-DN C-LT D-RT F-PRIOR MENU

REMOTE FLASH PROGRAMMING COMPLETE

ALL RED FLASH STARTUP
PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 4 (UNIT DATA)

UNIT DATA
1-STARTUP & MISC. 6-SEQUENCES
2-REMOTE FLASH 7-PORT 1/ITS DATA
3-OVERLAP DATA 8-I/O MISC
4-PEER-TO-PEER 9-OUTPUT MAPPING
5-RING STRUCTURE B-BANK SELECTION
C-COPY BANK

'+' DENOTES BANKABLE UNIT DATA [1]

EPAC STARTUP & MISC
STARTUP TIME.: 6 (SEC) STATE: 2 (0-FL
RED REV/10...: 40 (TSEC) 1-RED
AUTO PED CLR.: 0 (0-NO 1-YES) 2-RAF)
STOP T RESET.: 0 (0-NO 1-YES)
SEQUENCE.....: 1 (1-19)
SPECIAL SEQ : 0 (SEE HELP)
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

STARTUP PROGRAMMING COMPLETE
PRESS 'F' TO RETURN TO UNIT DATA

LOAD SWITCH MAPPING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 4 (UNIT DATA)

UNIT DATA
1-STARTUP & MISC. 6-SEQUENCES
2-REMOTE FLASH 7-PORT 1/ITS DATA
3-OVERLAP DATA 8-I/O MISC
4-PEER-TO-PEER 9-OUTPUT MAPPING
5-RING STRUCTURE B-BANK SELECTION
C-COPY BANK

'+' DENOTES BANKABLE UNIT DATA [1]

SELECT 9 - OUTPUT MAPPING

OUTPUT MAPPINGEDIT MODE: LDSW
E-TOGGLE MODE

LDSW ..1.. ..2.. ..3.. ..4.. ..5.. ..6..
RED [OLG] PH2 PD2 [OLH] PH4 PD4
YEL - - - - -
GRN - - - - -
FIO 1 2 3 4 5 6
PREV/NEXT TO CYCLE D-DISPLAY COMPAT

USE ENTER AND NEXT KEYS TO
MAP 'LDSW 1' AS 'OLG' &
'LDSW 4' AS 'OLH'

LOAD SWITCH MAPPING COMPLETE

BACK-UP PROTECTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu, press '3' (Phase Data)

PHASE MENUPRESS # DESIRED

1-VEHICLE DATA 6- SPEC. SEQUENCE+
2-DENSITY TIMES+ 7-DETECTOR DATA
3-PEDESTRIAN DATA 8-PHASE & BANK COPY
4-INIT & NA RESP+ 9-SELECT PHASE BANK
5-N.LOCK & MISC+

[1]

PHASE.....1...2...3...4...5...6...7...8
OMIT 0 0 4 0 0 0 8 0
-YEL 0 0 0 0 0 0 0 0
OCAL 0 0 0 0 0 0 0 0

OMIT:## PHS ON OMITS THIS PHASE
-YEL:## PHS YEL OMITS THIS PHS YEL
OCAL: WHEN OMIT, DETS CALL## PHS

A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

Special Sequence programming complete.

Electrical Detail - Sheet 3 of 5

Electrical and Programming
Details For: SR 2000 (Falls Neuse Road)
at
North Bend Drive

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

Division 5Wake CountyRaleigh
PLAN DATE: January 2025REVIEWED BY:
PREPARED BY: Sarah KirkpatrickREVIEWED BY:
REVISIONSINIT. DATE
SIGNED BY: Ryan W. Hough02/11/2025
DATE
SIG. INVENTORY NO. 05-1090

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
036833
RYAN W. HOUGH

SE-PAG2070 CONTROLLER RING CONFIGURATION DETAIL

(program controller as shown below)

NOTE:

BEFORE PROGRAMMING CONTROLLER, BE SURE TO LOAD DEFAULT PARAMETERS.

FROM MAIN MENU PRESS 4 (UNIT DATA)

UNIT DATA
1-STARTUP & MISC. 6-SEQUENCES
2-REMOTE FLASH 7-PORT 1/ITS DATA
3-OVERLAP DATA 8-I/O MISC
4-PEER-TO-PEER 9-OUTPUT MAPPING
5-RING STRUCTURE B-BANK SELECTION
 C-COPY BANK
'+' DENOTES BANKABLE UNIT DATA [1]

RING STRUCTURES PHASE - 1
RING: 1 NEXT PHASE: 2
PHASES: 12345678 90123456
CAPATIBLE: x0001100 00000000
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 2
RING: 1 NEXT PHASE: 4
PHASES: 12345678 90123456
CAPATIBLE: 0x001100 00000000
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 3
RING: 1 NEXT PHASE: 1
PHASES: 12345678 90123456
CAPATIBLE: 00x00011 00000000
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 4
RING: 1 NEXT PHASE: 3
PHASES: 12345678 90123456
CAPATIBLE: 000x0011 00000000
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 5
RING: 2 NEXT PHASE: 6
PHASES: 12345678 90123456
CAPATIBLE: 1100x000 00000000
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 6
RING: 2 NEXT PHASE: 8
PHASES: 12345678 90123456
CAPATIBLE: 11000x00 00000000
UP/DOWN TO SCROLL E-EDIT

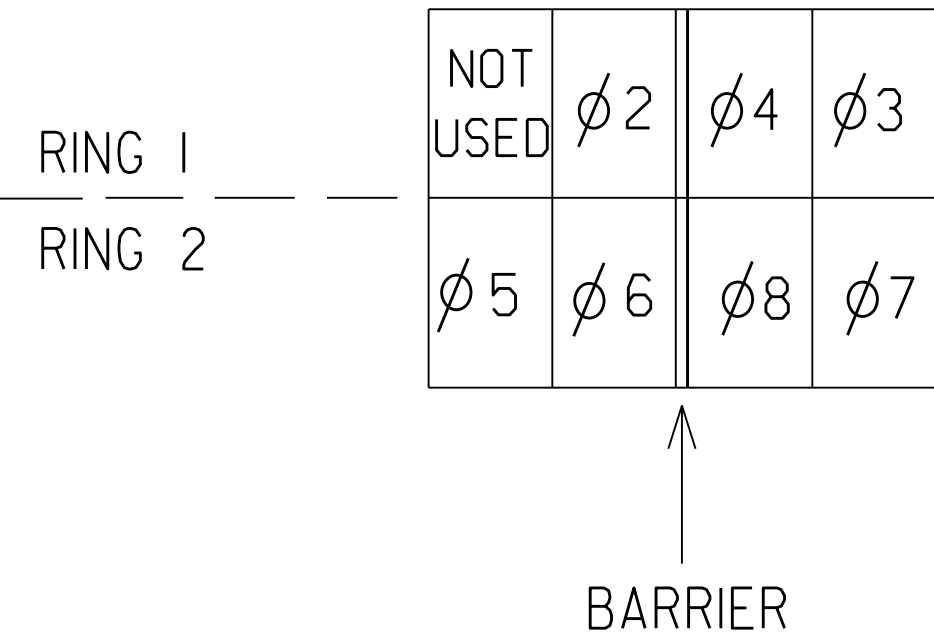
RING STRUCTURES PHASE - 7
RING: 2 NEXT PHASE: 5
PHASES: 12345678 90123456
CAPATIBLE: 001100x0 00000000
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 8
RING: 2 NEXT PHASE: 7
PHASES: 12345678 90123456
CAPATIBLE: 0011000x 00000000
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURE PROGRAMMING COMPLETE

RING STRUCTURE PICTORIAL

(PHASES 3 & 7 LAGGED)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1090
DESIGNED: December 2024
SEALED: 02/10/2025
REVISED: N/A

Electrical Detail - Sheet 4 of 5

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 2000 (Falls Neuse Road)
at
North Bend Drive

Division 5 Wake County Raleigh

PLAN DATE: January 2025 REVIEWED BY:

PREPARED BY: Sarah Kirkpatrick REVIEWED BY:

REVISIONS INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
RYAN W. HOUGH
036833

Signed by:  02/11/2025
DATE
400301EAA2854C3
SIG. INVENTORY NO. 05-1090

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 C 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 000000000 0000000
146 OVERLAP B OMIT 000000000 0000000
147 OVERLAP C OMIT 100000000 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 C 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).

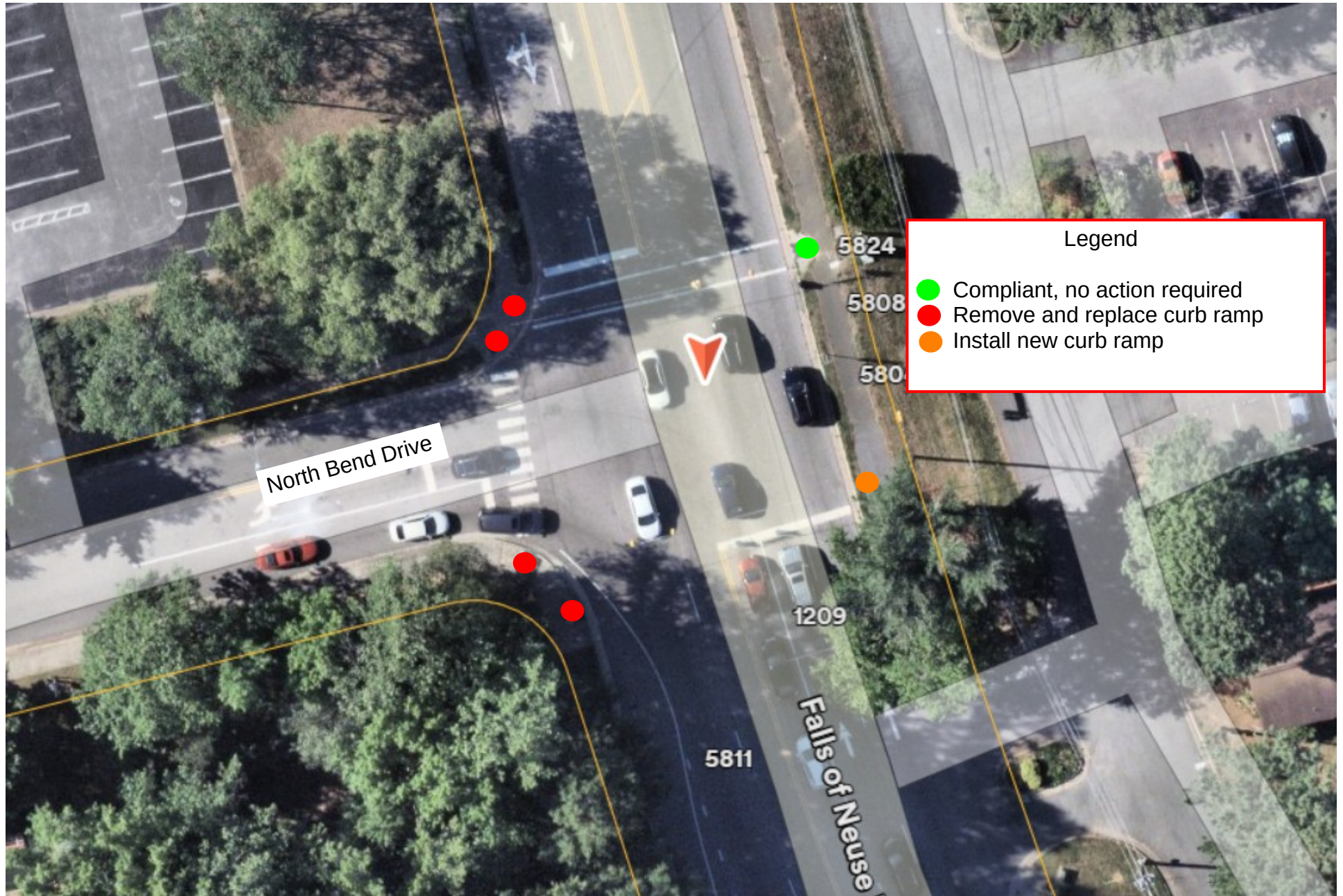
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1090
DESIGNED: December 2024
SEALED: 02/10/2025
REVISED: N/A

Electrical Detail - Sheet 5 of 5

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FINAL UNLESS ALL
SIGNATURES COMPLETED

Electrical and Programming Details For: Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 2000 (Falls Neuse Road) at North Bend Drive		SEAL NORTH CAROLINA SEAL 036833 ENGINEER RYAN W. HOUGH Signed by: <i>Ryan W. Hough</i> 02/11/2025 430320FAA0854C3 DATE SIG. INVENTORY NO. 05-1090	
	Division 5	Wake County		Raleigh
	PLAN DATE: January 2025	REVIEWED BY:		
	PREPARED BY: Sarah Kirkpatrick	REVIEWED BY:		
	REVISIONS	INIT.		DATE

HS-2405AC - SR 2000 (Falls of Neuse Road) at N Bend Drive



\$\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$USERNAME\$\$\$\$\$

09/08/2025

CONTRACT: DE00445 TIP PROJECT: HS-2405AC

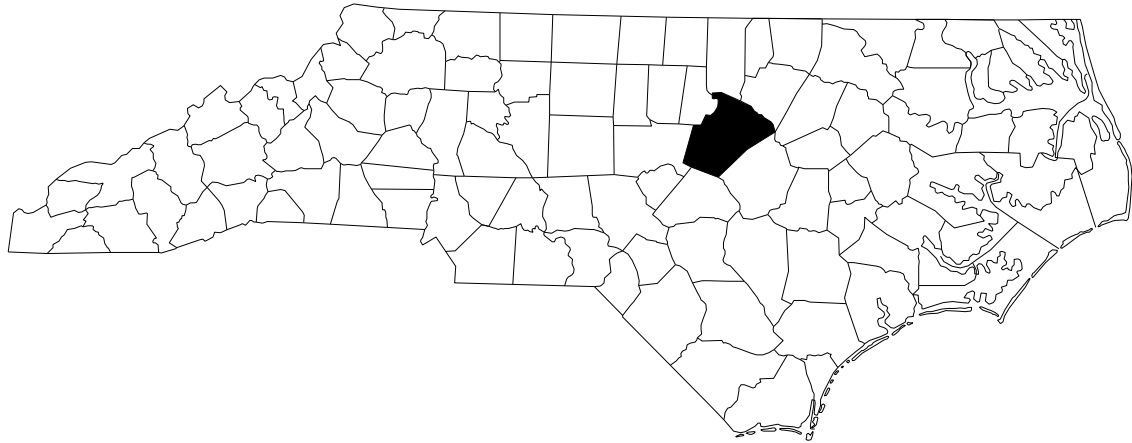
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: SR 2000 (FALLS OF NEUSE RD.) AT NEWTON RD.

TYPE OF WORK: PAVING, SIGNALS, CROSSWALKS UPGRADE
AND PAVEMENT MARKING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2405AC	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50977.1.29		P.E.	
50977.2.29		R / W	
50977.3.29		CONST.	



INDEX OF SHEETS		LIST OF STANDARDS	
SHEET NUMBER	SHEET	STANDARD NO.	STANDARD
1	TITLE SHEET AND INDEX	846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
SIG. 1	SIGNAL UPGRADE	848.01	CONCRETE SIDEWALK
SIG. 2 - SIG. 4	ELECTRICAL DETAILS	848.06	CURB RAMPS
		1101.01	WORK ZONE ADVANCE WARNING SIGNS
		1101.02	TEMPORARY LANE CLOSURES
		1101.11	TRAFFIC CONTROL DESIGN TABLES
		1110.01	STATIONARY WORK ZONE SIGNS
		1110.01	PORTABLE WORK ZONE SIGNS
		1130.01	DRUMS
		1150.01	FLAGGERS
		1180.01	SKINNY DRUMS
		1205.02	PAVEMENT MARKINGS: TWO-LANE AND MULTI-LANE ROADWAYS
		1205.04	PAVEMENT MARKINGS: INTERSECTIONS
		1205.05	PAVEMENT MARKINGS: TURN LANES
		1205.07	PAVEMENT MARKINGS: PEDESTRIAN CROSSWALKS
		1705.01	SIGNAL HEADS: VEHICULAR SIGNAL HEADS
		1705.02	SIGNAL HEADS: MOUNTING
		1705.04	SIGNAL HEADS: PEDESTRIAN PUSHBUTTON PLACEMENT
		1715.01	UNDERGROUND CONDUIT TRENCHING
		1716.01	JUNCTION BOXES
		1725.01	INDUCTIVE DETECTION LOOPS
		1743.01	PEDESTALS - PEDESTRIAN PUSHBUTTON POST (TYPE I)
		1743.02	PEDESTALS: NORMAL DUTY (TYPE II)
		1743.04	PEDESTALS: FOUNDATIONS
		1751.01	CONTROLLERS AND CABINETS: CABINET COMPONENT LAYOUT

GENERAL NOTES: 2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

CLEARING:
CLEARING ON THIS PROJECT SHALL BE
PERFORMED TO THE LIMITS ESTABLISHED BY
METHOD III.

CURB RAMPS:
CURB RAMPS ARE SHOWN ON THE PLANS AT
APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS IN ACCORDANCE
WITH STD 848.06.

GRAPHIC SCALES



DESIGN DATA

ADT 2021 = 32,500
V = 50 MPH
FUNC CLASS =
MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY PROJECT = 0.17 MILES

Prepared In The Offices of:



for the North Carolina Department of Transportation

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

SEPT 4, 2025

LETTING DATE:

OCT 28, 2026

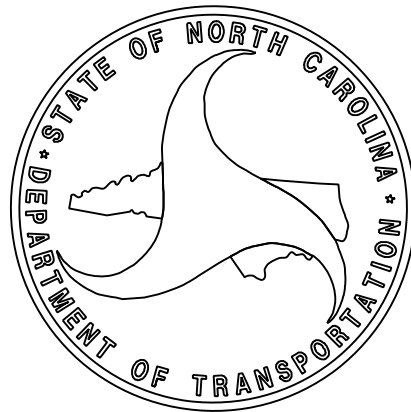
FREESE AND NICHOLS CONTACT

EDITH G. PETERS, PE
PROJECT ENGINEER

NCDOT CONTACT:

MONTEL SPARROW, EI

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UNLESS ALL SIGNATURES COMPLETED



6 Phase Fully Actuated (Raleigh Signal System)

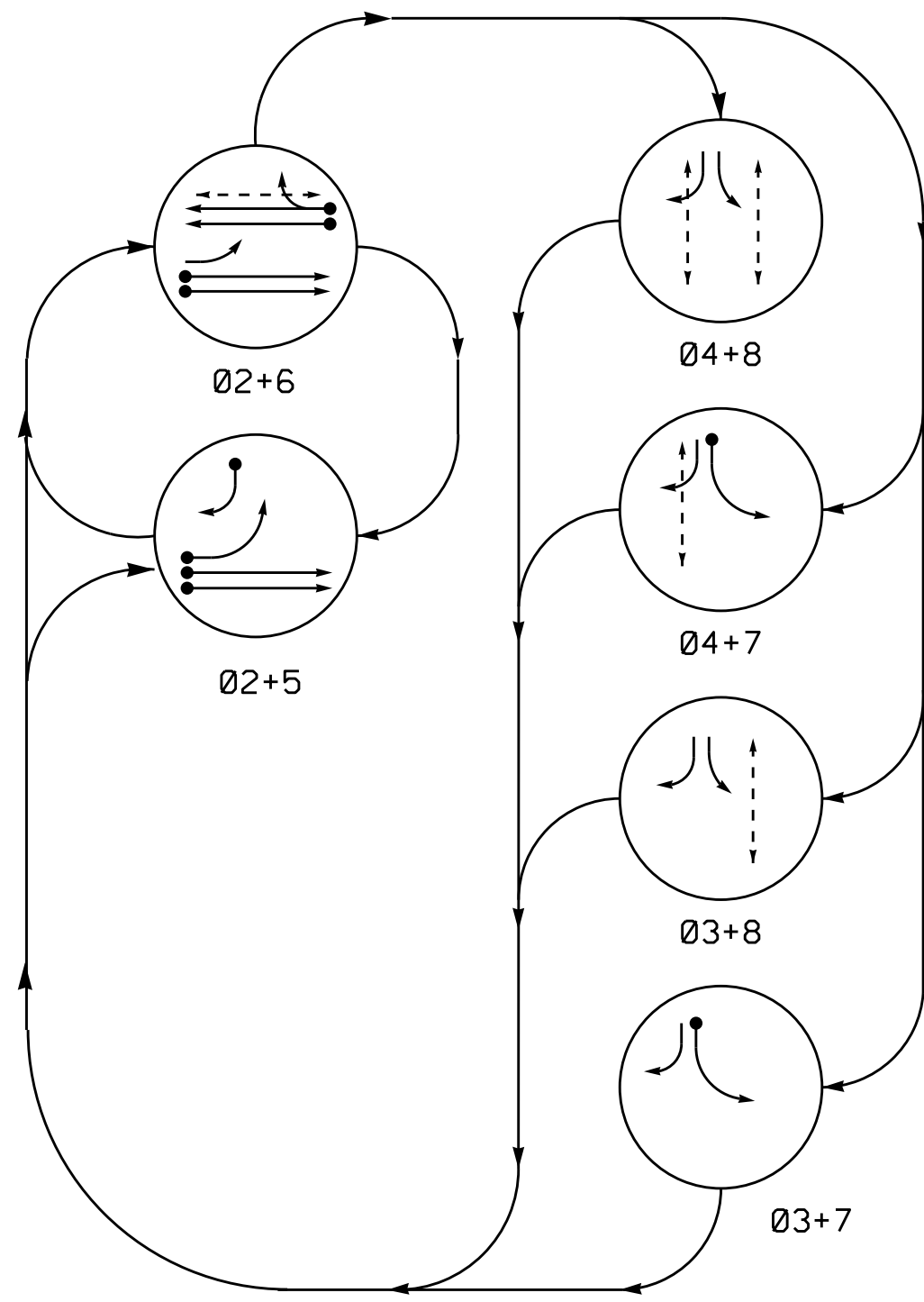
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Omit phase 3 during phase 4 on.
4. Omit phase 7 during phase 8 on.
5. Phase 5 may be lagged.
6. Phase 3+7 must be lagged.
7. Reposition existing signal head 22.
8. Install backplates for all signal heads.
9. Disconnect and abandon existing loops 2C, 2D, 6C and 6D.
10. Rewire existing loops 2A, 2B, 6A, and 6B onto separate channels for volume density operation.
11. Renumber existing loops, signal heads, and pedestrian signal heads as shown.
12. Set all detector units to presence mode.
13. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
14. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
15. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
16. Replace existing pushbuttons with APS pushbuttons.
17. This intersection features accessible pedestrian signals utilizing percussive tone walk indications and/or speech messages.
18. Pavement markings are existing unless otherwise shown.
19. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
20. 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

DEFAULT PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

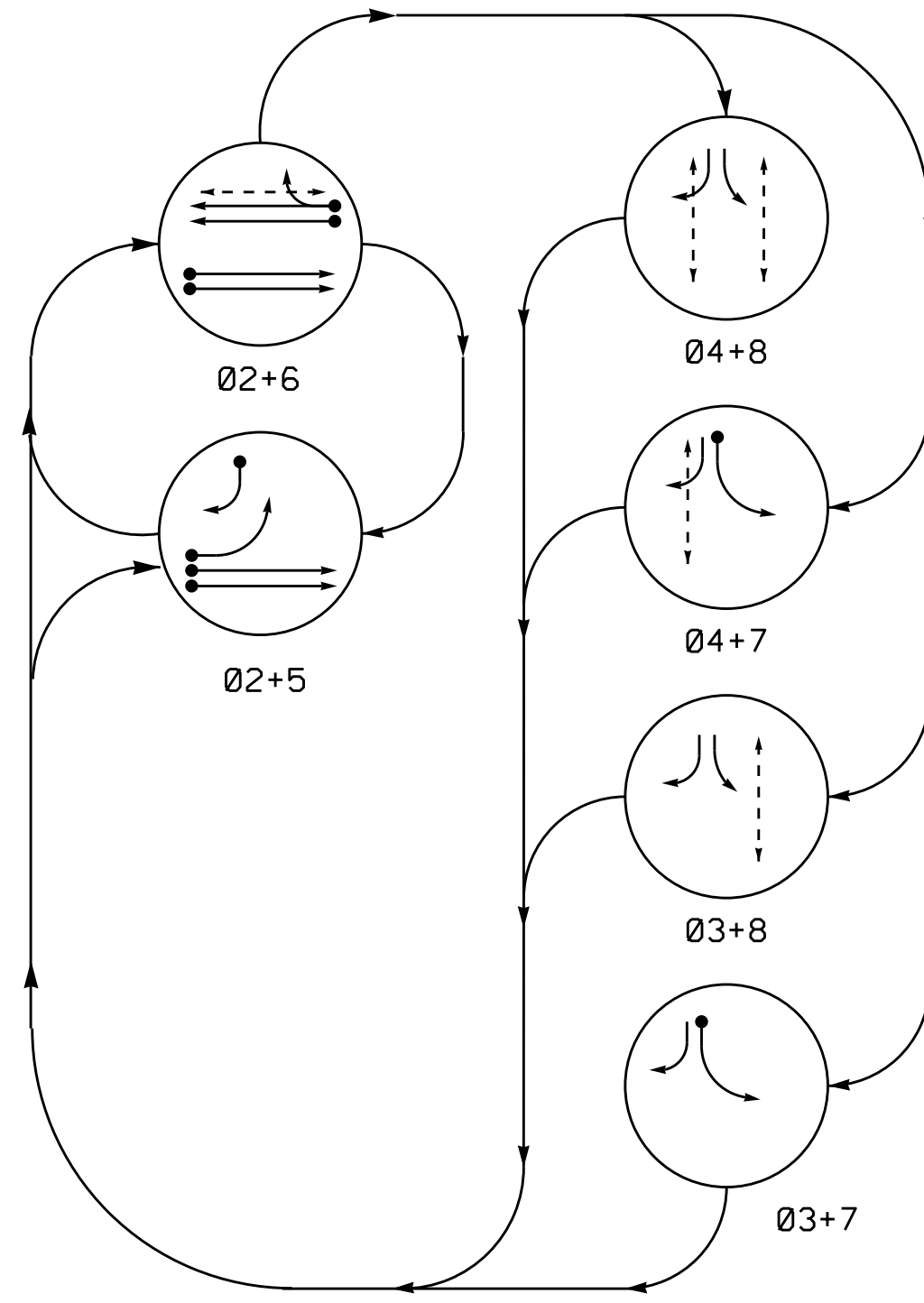
DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE						
	02+5	02+6	04+8	04+7	03+8	03+7	FLASH
2L, 22	G	G	R	R	R	R	R
5L	←	←	←	←	←	←	←
6L, 62	R	G	R	R	R	R	R
8L, 83	R	R	←	←	←	←	R
82	→	R	←	←	←	←	R
P4L, P42	DW	DW	W	W	DW	DW	DRK
P6L, P62	DW	W	DW	DW	DW	DW	DRK
P8L, P82	DW	DW	W	W	DW	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE						
	02+5	02+6	04+8	04+7	03+8	03+7	FLASH
2L, 22	G	G	R	R	R	R	R
5L	←	←	←	←	←	←	←
6L, 62	R	G	R	R	R	R	R
8L, 83	R	R	←	←	←	←	R
82	→	R	←	←	←	←	R
P4L, P42	DW	DW	W	W	DW	DW	DRK
P6L, P62	DW	W	DW	DW	DW	DW	DRK
P8L, P82	DW	DW	W	W	DW	DW	DRK

ALTERNATE PHASING DIAGRAM

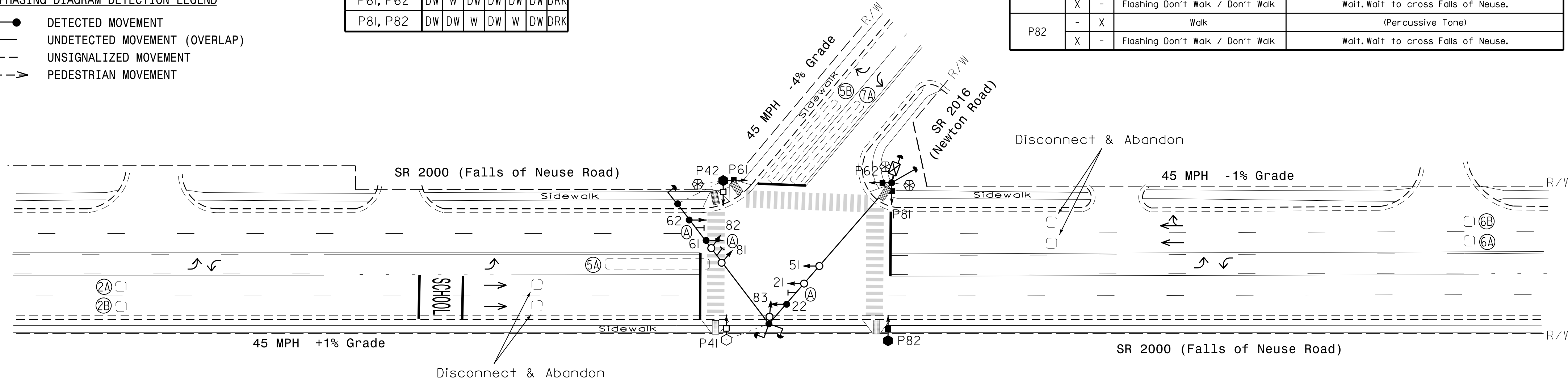


SE-PAC 2070 LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS						ASSIGNED PHASE	DETECTOR PROGRAMMING													STATUS
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING		TIMING		OPERATION MODE							SWITCH	SYSTEM LOOPS			
									VEHICLE	PEDESTRIAN	1 CALL	2 STOP A	3 STOP B	4 STOP C	5 LEFT				6 PROTECTOR	
						DELAY	EXTEND (STRETCH)												NEW	EXISTING
2A	6X6	EXISTING	330	-	X	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
2B	6X6	EXISTING	330	-	X	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
2C, 2D	6X6	EXISTING	90	-	X	DISCONNECT & ABANDON													-	-
5A	6X60	2-4-2	+5	-	X	5	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
5B	6X60	2-4-2	0	-	X	5	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6A	6X6	EXISTING	330	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6B	6X6	EXISTING	330	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6C, 6D	6X6	EXISTING	90	-	X	DISCONNECT & ABANDON													-	-
7A	6X60	2-4-2	0	-	X	7	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-

ACCESSIBLE PEDESTRIAN SIGNAL OPERATION

SIGNAL FACE	VOICE	TONES	INTERVAL	SPEECH MESSAGE
P41	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk / Don't Walk	Wait, Wait to cross Falls of Neuse.
P42	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk / Don't Walk	Wait, Wait to cross Falls of Neuse.
P61	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk / Don't Walk	Wait, Wait to cross Newton.
P62	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk / Don't Walk	Wait, Wait to cross Newton.
P81	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk / Don't Walk	Wait, Wait to cross Falls of Neuse.
P82	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk / Don't Walk	Wait, Wait to cross Falls of Neuse.



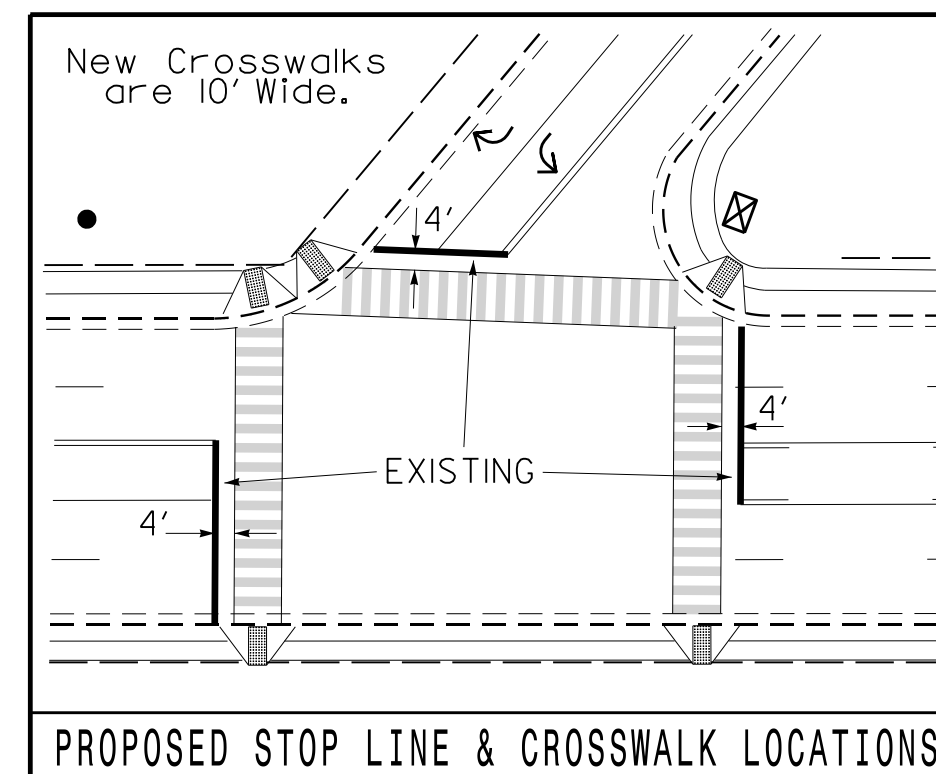
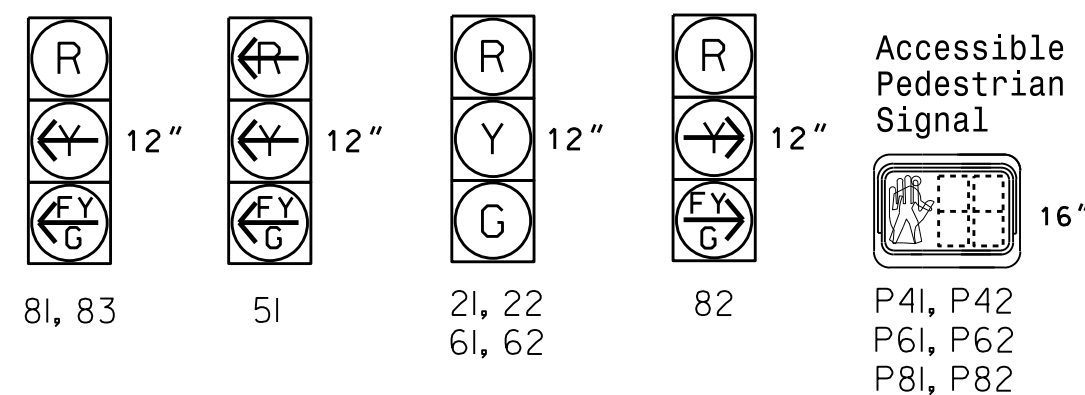
SE-PAC 2070 TIMING CHART

FEATURE	PHASE						
	2	3	4	5	6	7	8
Min Green *	12	7	7	7	12	7	7
Passage Gap *	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Maximum Green *	60	25	30	15	60	20	30
Yellow Change	4.6	3.0	3.0	3.0	4.6	3.0	3.0
Red Clear	1.6	2.6	2.6	2.3	1.6	2.6	2.6
Walk *	-	-	7	-	7	-	7
Pedestrian Clear	-	-	16	-	19	-	17
Advance Walk	-	-	4	-	7	-	4
Added Initial *	1.5	-	-	-	1.5	-	-
Maximum 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	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK	NON-LOCK	NON-LOCK
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.

SIGNAL FACE I.D.

All Heads L.E.D.
All Heads have Backplates
FY G = Bimodal Section



Signal Upgrade

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 2000 (Falls of Neuse Road) at Newton Road

Division 5 Wake County Raleigh

PLAN DATE: December 2024 REVIEWED BY:

PREPARED BY: C.E. Carter REVIEWED BY:

REVISIONS

INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

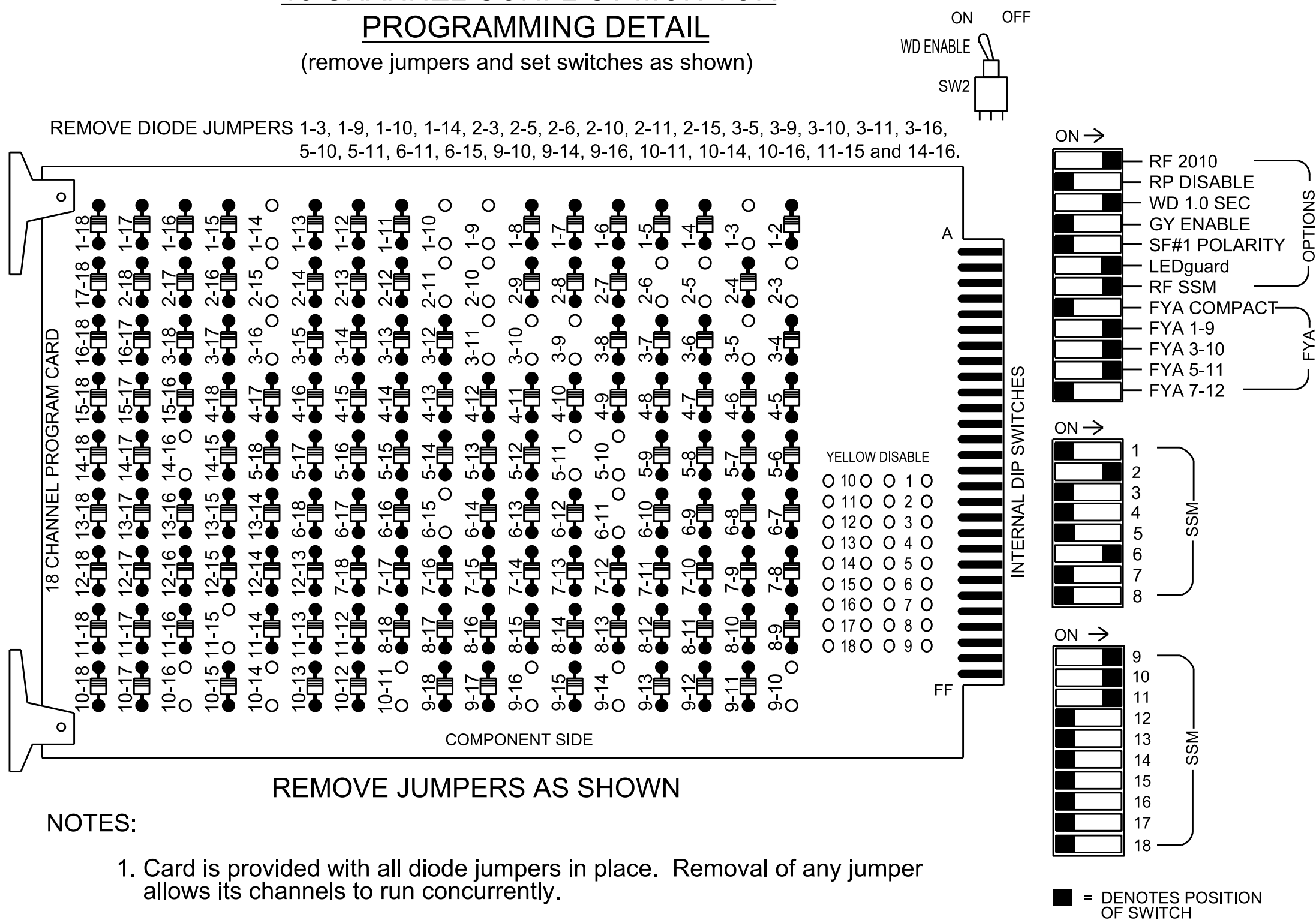
SEAL

02/10/2025

SIG. INVENTORY NO. 05-1084

18 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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 the 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 plan.
- Program controller to start up in phase 2 and 6 Green/Don't Walk.
- Enable simultaneous gap-out feature for all phases.
- Program phases 3 and 7 for dual entry.
- The cabinet and controller are part of the Raleigh Signal System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332 w/ Aux
Software.....SE-PAC2070 Ver. 5 .5 or later
Cabinet Mount.....Base
Output File Positions.....18 With Aux. Output File
Load Switches Used.....S1, S2, S4, S6, S7, S8, S9, S12, AUX S1, AUX S2, AUX S4
PhasesUsed.....2, 3, 2PED, **4, 4PED, 5, 6, 6PED, 7,**8, 8PED
Overlap "A".....*
Overlap "B".....*
Overlap "C".....*
Overlap "D".....NOT USED
Overlap "E".....NOT USED
Overlap "F".....NOT USED
Overlap "G".....*
Overlap "H".....*

*See sheet 2 for overlap and protective & permissive phases programming

**Phase used for timing pruposes only.

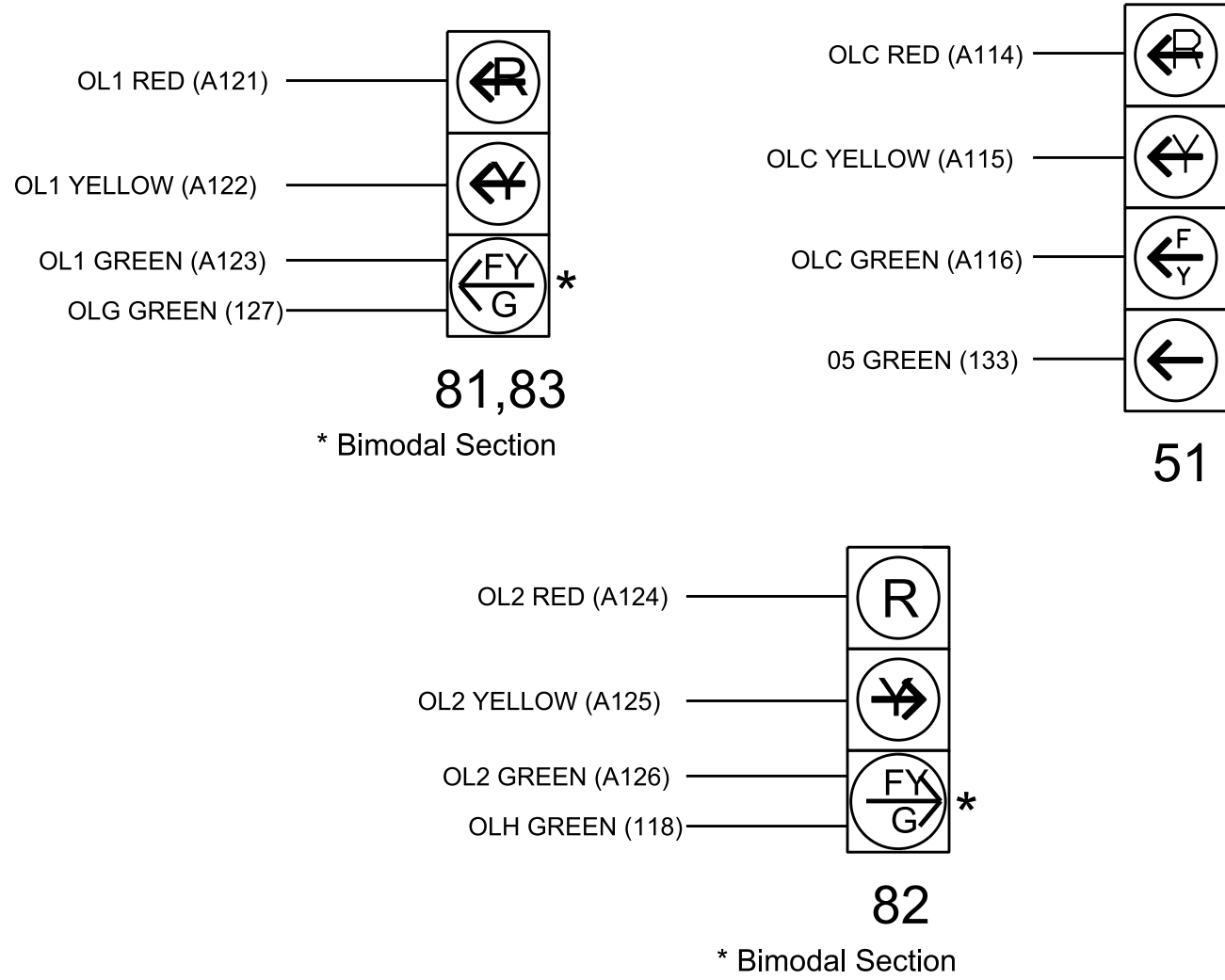
SIGNAL HEAD HOOK-UP CHART

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	OLG	2	2 PED	OLH	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	81,83	21,22	NU	82	NC	P41, P42	51	61,62	P61, P62	NU	NC	P81, P82	81,83	82	NU	51	NU	NU
RED		128						134										
YELLOW	*	129		*			*	135										
GREEN		130						136										
RED ARROW													A121	A124		A114		
YELLOW ARROW													A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133											
Hand						104			119			110						
Walking						106			121			112						

NU = Not Used NC = No Connection

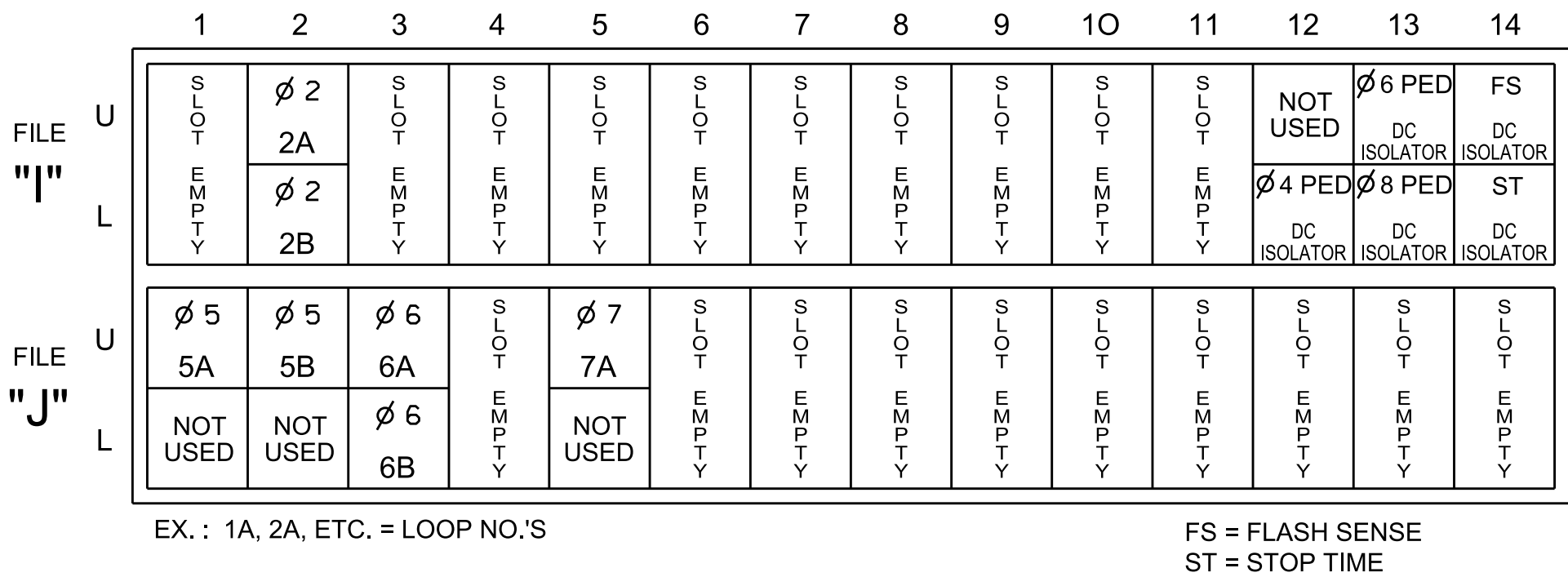
- * Denotes install load resistor. See load resistor installation detail this sheet.
* See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL (wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)



INPUT FILE CONNECTION & PROGRAMMING CHART

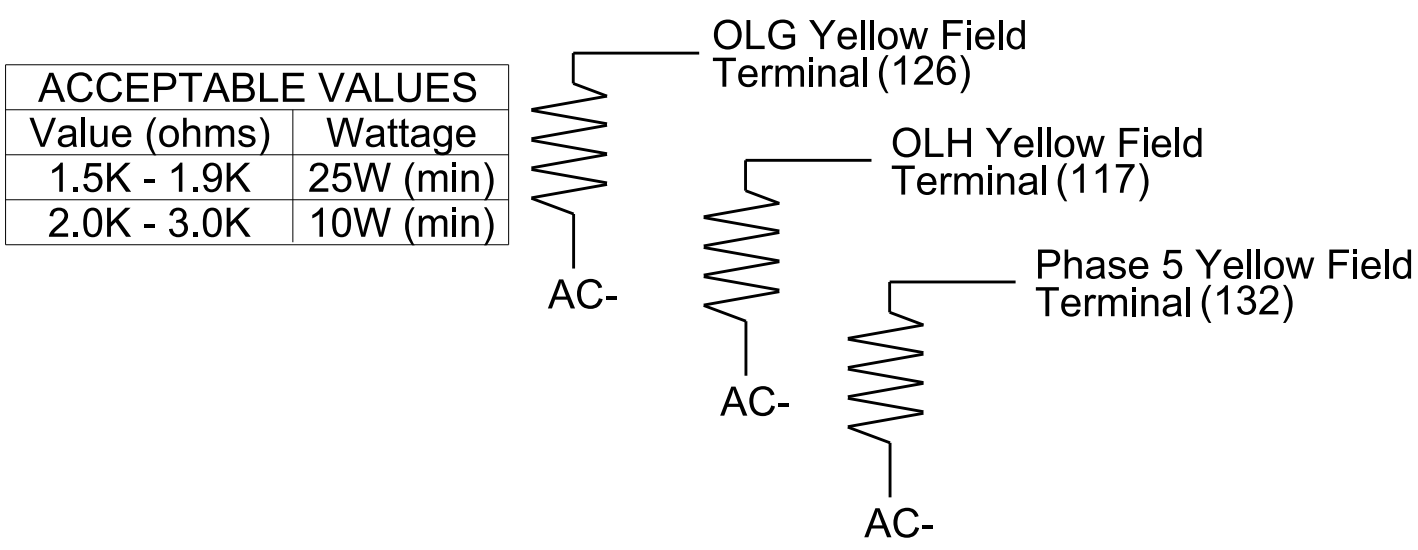
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
2A	TB2-5,6	I2U	39	3	2		
2B	TB2-7,8	I2L	43	4	2		
5A	TB3-1,2	J1U	55	19	5	5	
5B	TB3-5,6	J2U	40	21	5	15	
6A	TB3-9,10	J3U	64	23	6		
6B	TB3-11,12	J3L	77	24	6		
7A	TB5-5,6	J5U	57	29	7		
PED PUSH BUTTONS							
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED		
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED		
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED		

NOTE :

INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
I12 AND I13.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)



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 4

Electrical and Programming Details For: Prepared in the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 2000 (Falls of Neuse Road) at Newton Road Division 5 Wake County Raleigh PLAN DATE: January 2025 PREPARED BY: James Peterson REVIEWED BY: REVISIONS INIT. DATE DATE	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEAL 036833 ENGINEER RYAN W. HOUGH Signed by: Ryan W. Hough 02/12/2025 DATE SIC INVENTORY NO. 05-1084
--	---	---

OVERLAP PROGRAMMING DETAIL

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
PROT PHASES: 00000000 00000000
PERM PHASES: 00000001 00000000
-PED PHASES: 00000000 00000000
OVERLAPS..ABCDEFGH IJKLMNOP
PROT OVERLAPS: x0000010 00000000
PERM 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
PROT PHASES: 00000000 00000000
PERM PHASES: 00010000 00000000
-PED PHASES: 00000000 00000000
OVERLAPS..ABCDEFGH IJKLMNOP
PROT OVERLAPS: 0x000001 00000000
PERM 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
PROT PHASES: 00001000 00000000
PERM PHASES: 00000100 00000000
-PED PHASES: 00000000 00000000
OVERLAPS..ABCDEFGH IJKLMNOP
PROT OVERLAPS: 00x00000 00000000
PERM OVERLAPS: 00x00000 00000000

NOTICE
DELAY/10 = 0

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: 00000010 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

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: 00101000 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

ADVANCE WALK PED PROGRAMMING DETAIL

(program controller as shown below)

1. From Main Menu select 3 - PHASE DATA
2. From PHASE DATA Submenu select 3 - PEDESTRIAN DATA
3. From - PEDESTRIAN DATA Submenu select 3 - PED OFFSET+

PHASE.....1.....2.....3.....4.....5.....6.....7.....8
WOFF/10.....0.....0.....0.....40.....0.....70.....0.....40
MODE.....0.....0.....0.....0.....0.....0.....0.....0

CODES: * 0-ADVANCE 1-DELAY

Advance Walk PED programming complete

ALL RED FLASH STARTUP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 4 (UNIT DATA)

EPAC UNIT DATA PRESS # DESIRED

1- STARTUP & MISC 6- ALT SEQUENCES
2- REMOTE FLASH 7- PORT 1 DATA
3- OVERLAP STANDARD 8- I/O MISC
4- OVERLAP SPECIAL 9- SIG DRV OUT
5- RING STRUCTURE

F- PRIOR MENU

EPAC STARTUP & MISC
STARTUP TIME.: 6 (SEC) STATE: 2 (0-FL
RED REV/10...: 40 (TSEC) 1-RED)
AUTO PED CLR.: 0 (0-NO 1-YES) 2-RAF)
STOP T RESET.: 0 (0-NO 1-YES)
SEQUENCE.....: 1 (1-19)
SPECIAL SEQ : 0 (SEE HELP)
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

STARTUP PROGRAMMING COMPLETE
PRESS 'F' TO RETURN TO UNIT DATA

INIT & N.A. RESP PROGRAMMING DETAIL

(program controller as shown below)

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.....0.....6.....1.....1.....1.....6.....1.....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 RSPNONE NA1 NA2 1&2 --- --- ---

REMOTE FLASH PROGRAMMING DETAIL

(program controller as shown below)

1. From Main Menu select 4 - UNIT DATA
2. From UNIT DATA Submenu select 2 - REMOTE FLASH
3. From FLASH Submenu select 1 - FLASH SETTINGS

FLASH SETTINGS TEST-A AS FLASH: 0

LDSW: 123456789 0123456789 0123456789 012
FLSH: 010000010 0001101000 0000000000 000
ALT: 010000000 0000001000 0000000000 000

0-DARK 1-RED 2-YELLOW 3-STEADY YELLOW
A-UP B-DN C-LT D-RT F-PRIOR MENU

PRESS 'F' TO RETURN TO FLASH

4. From REMOTE FLASH Submenu select 2 - ENTRY/EXIT PHASES

FLASH ENTRY/EXIT PHASES

PHASES: 12345678 90123456
ENTRY: 01000100 00000000
EXIT: 01000100 00000000

0-DARK 1-RED 2-YELLOW 3-STEADY YELLOW
A-UP B-DN C-LT D-RT F-PRIOR MENU

REMOTE FLASH PROGRAMMING COMPLETE

BACK-UP PROTECTION PROGRAMMING DETAIL

1. From Main Menu select 3 - PHASE DATA
2. From PHASE DATA Submenu select 6 - SPEC. SEQUENCE+

PHASE.....1...2...3...4...5...6...7...8
OMIT 0 0 4 0 0 0 8 0
-YEL 0 0 0 0 0 0 0 0
OCAL 0 0 0 0 0 0 0 0

OMIT:## PHS ON OMITS THIS PHASE
-YEL:## PHS YEL OMITS THIS PHS YEL
OCAL: WHEN OMIT, DETS CALL## PHS

Special Sequence programming complete.

Electrical Detail - Sheet 2 of 4

Electrical and Programming Details For:

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 2000 (Falls of Neuse Road)
at
Newton Road

Division 5 Wake County Raleigh

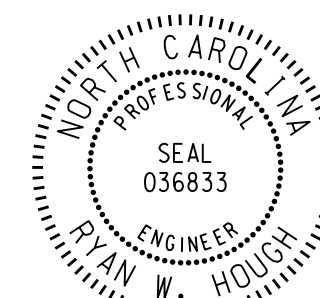
PLAN DATE: January 2025 REVIEWED BY:

PREPARED BY: James Peterson REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



Signed by: Ryan W. Hough 02/12/2025

DATE

SIG. INVENTORY NO. 05-1084

RING STRUCTURE PROGRAMMING DETAIL

1. From Main Menu select 4 - UNIT DATA
2. From UNIT DATA Submenu select 5 - RING STRUCTURE

RING STRUCTURES PHASE - 1

RING: 1 NEXT PHASE: 2
COMPATIBLE: X0001100 00000000
PHASES: 12345678 90123456

UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 2

RING: 1 NEXT PHASE: 4
COMPATIBLE: 0X001100 00000000
PHASES: 12345678 90123456

UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 3

RING: 1 NEXT PHASE: 1
COMPATIBLE: 00X00011 00000000
PHASES: 12345678 90123456

UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 4

RING: 1 NEXT PHASE: 3
COMPATIBLE: 000X0011 00000000
PHASES: 12345678 90123456

UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 5

RING: 2 NEXT PHASE: 6
COMPATIBLE: 1100X000 00000000
PHASES: 12345678 90123456

UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 6

RING: 2 NEXT PHASE: 8
COMPATIBLE: 11000X00 00000000
PHASES: 12345678 90123456

UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 7

RING: 2 NEXT PHASE: 5
COMPATIBLE: 001100X0 00000000
PHASES: 12345678 90123456

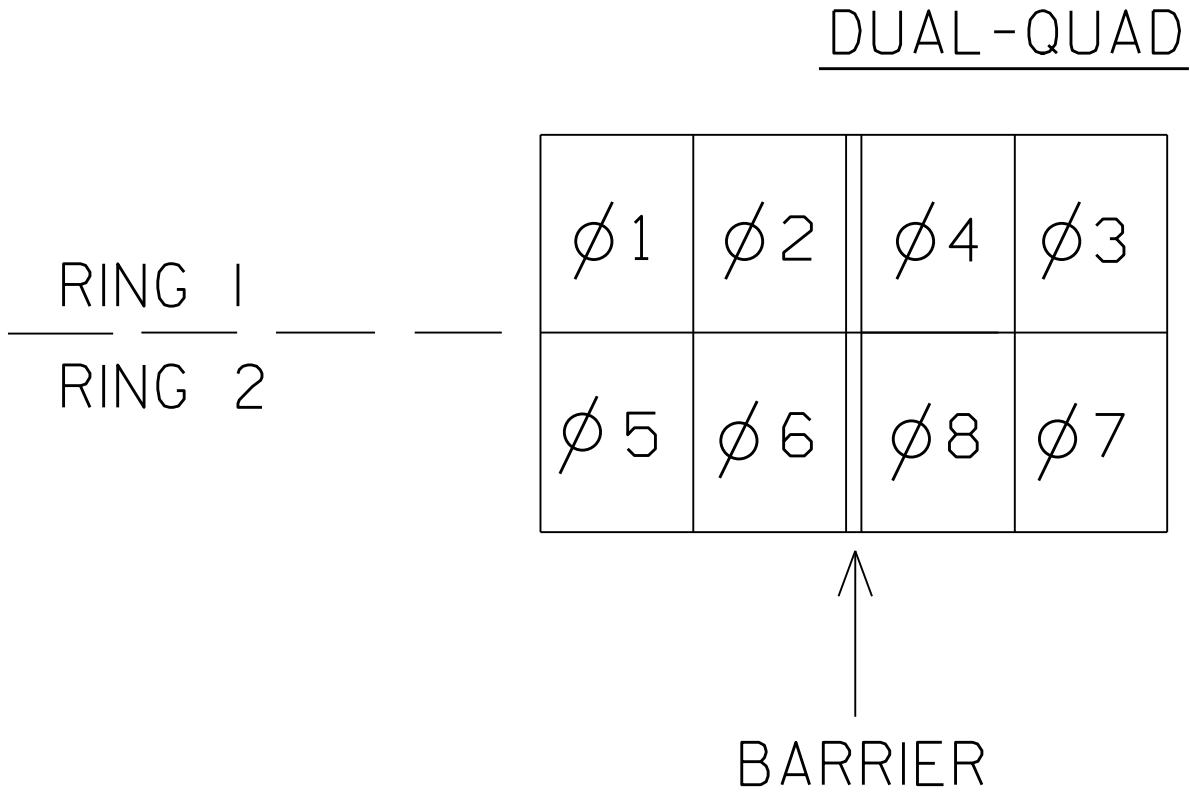
UP/DOWN TO SCROLL E-EDIT

RING STRUCTURES PHASE - 8

RING: 2 NEXT PHASE: 7
COMPATIBLE: 0011000X 00000000
PHASES: 12345678 90123456

UP/DOWN TO SCROLL E-EDIT

END SEQUENCE 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 1' AS 'OLG',
'LDSW 4' AS 'OLH' .

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

LOAD SWITCH MAPPING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1084
DESIGNED: December 2024
SEALED: 2-10-25
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 2000 (Falls of Neuse Road)
at
Newton Road

Division 5Wake CountyRaleigh

PLAN DATE: January 2025REVIEWED BY:

PREPARED BY: James PetersonREVIEWED BY:

REVISIONSINIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL 036833
RYAN W. HOUGH

Signed by: Ryan W. Hough02/12/2025
DATE

SIG. INVENTORY NO. 05-1084

HS-2405AC - SR 2000 (Falls of Neuse Road) at SR 2016 (Newton Road)

