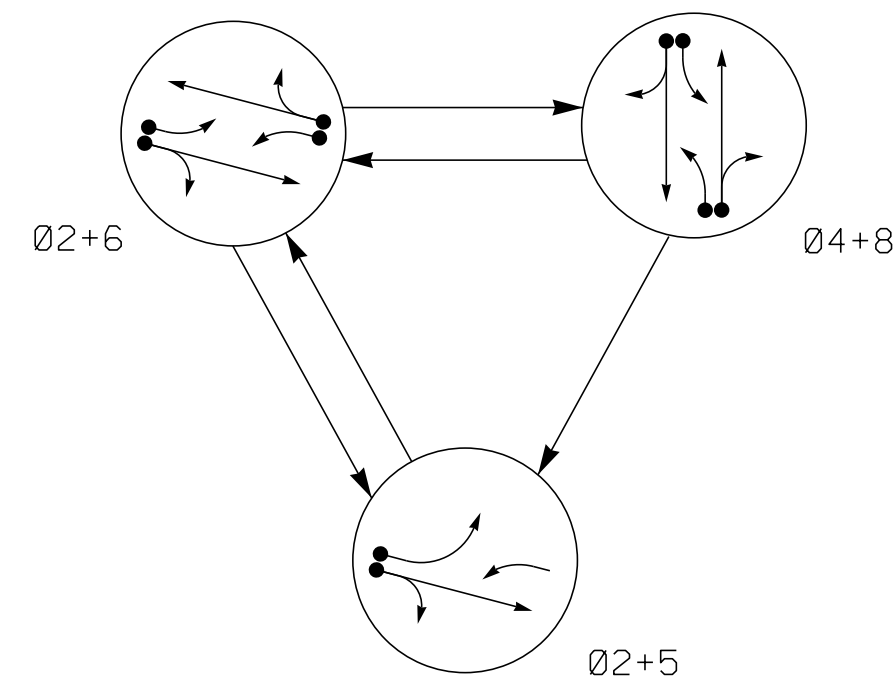


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PHASING DIAGRAM



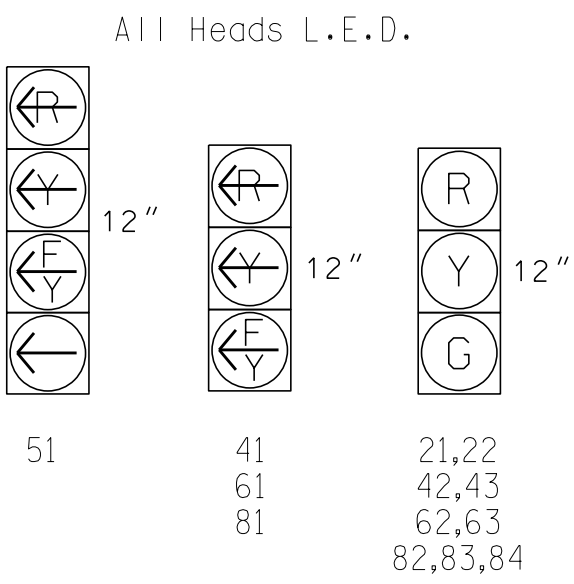
PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04+8	FLASH
21,22	G	G	R	Y
41	R	R	F	R
42,43	R	R	G	R
51	F	F	R	Y
61	F	F	R	Y
62,63	R	G	R	Y
81	R	R	F	R
82,83,84	R	R	G	R

SIGNAL FACE I.D.



MAXTIME DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND INITIAL	CALL	DELAY DURING GREEN		
2A	6X6	420	6	-	2	-	-	X	X	X	-	X
4A	6X6	420	6	-	4	-	3.0	X	-	-	-	X
4B	6X40	+5	2-4-2	-	4	3	-	X	-	X	-	X
4C	6X40	0	2-4-2	-	4	5	-	X	-	X	-	X
4D	6X15	+5	3	-	4	15	-	X	-	X	-	X
5A	6X40	+5	2-4-2	-	2	3	-	X	-	X	X	X
6A	6X6	420	6	-	6	-	-	X	X	X	-	X
6B	6X40	+5	2-4-2	-	6	3	-	X	-	X	X	X
8A	6X6	420	6	-	8	-	3.0	X	-	-	-	X
8B	6X40	+5	2-4-2	-	8	3	-	X	-	X	-	X
8C	6X40	0	2-4-2	-	8	5	-	X	-	X	-	X
8D	6X15	+5	3	-	8	15	-	X	-	X	-	X

3 Phase Fully Actuated Isolated

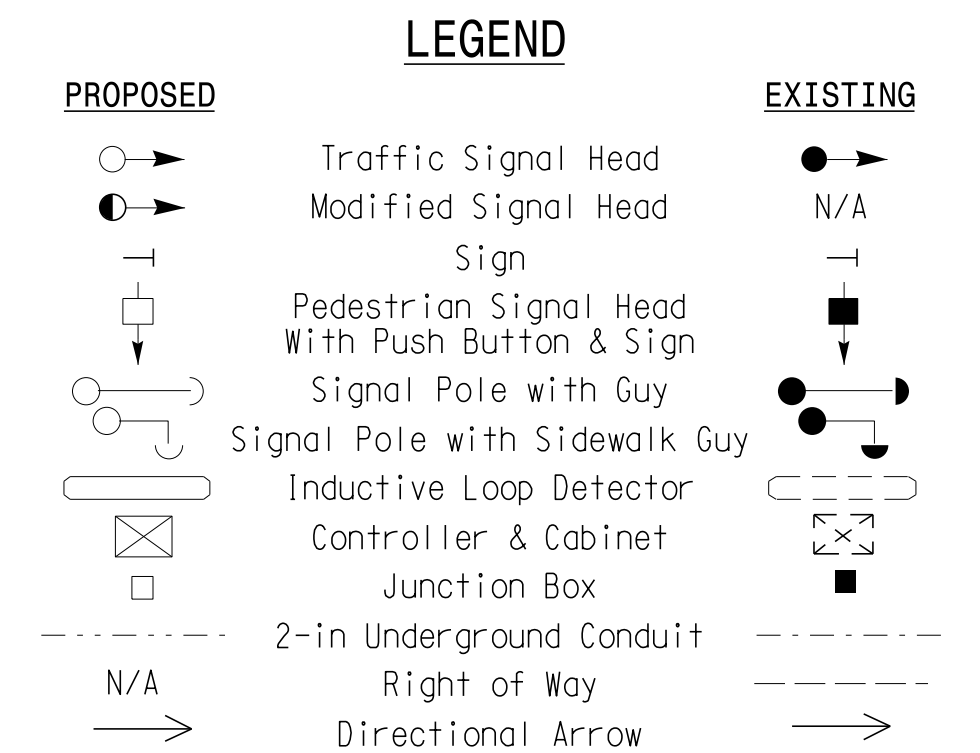
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Reposition existing signal heads numbered # 22, 42, 62, 82.
- Renumber Head 83 to 84.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.

MAXTIME TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Walk *	0	0	0	0	0
Ped Clear *	0	0	0	0	0
Min Green	14	7	7	14	7
Passage *	6.0	2.0	2.0	6.0	2.0
Max I *	90	35	15	90	35
Yellow Change	5.4	5.3	3.0	5.4	5.3
Red Clear	1.2	1.4	2.1	1.2	1.7
Added Initial *	2.5	-	-	2.5	-
Maximum Initial *	46	-	-	46	-
Time Before Reduction *	15	-	-	15	-
Time To Reduce *	40	-	-	40	-
Minimum Gap	3.4	-	-	3.4	-
Advance Walk	-	-	-	-	-
Non Lock Detector	-	X	X	-	X
Vehicle Recall	MIN RECALL	-	-	MIN RECALL	-
Dual Entry	-	X	-	-	X

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



Signal Upgrade - Corr. File No. 04-20-61722

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1700 (Oak Level Road)
at
SR 1603 (South Carriage Road)

Division 4 Nash County Near Nashville

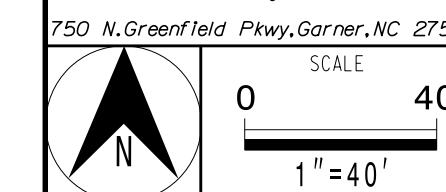
PLAN DATE: June 2023 REVIEWED BY: ZML

PREPARED BY: KGP, Jr. REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

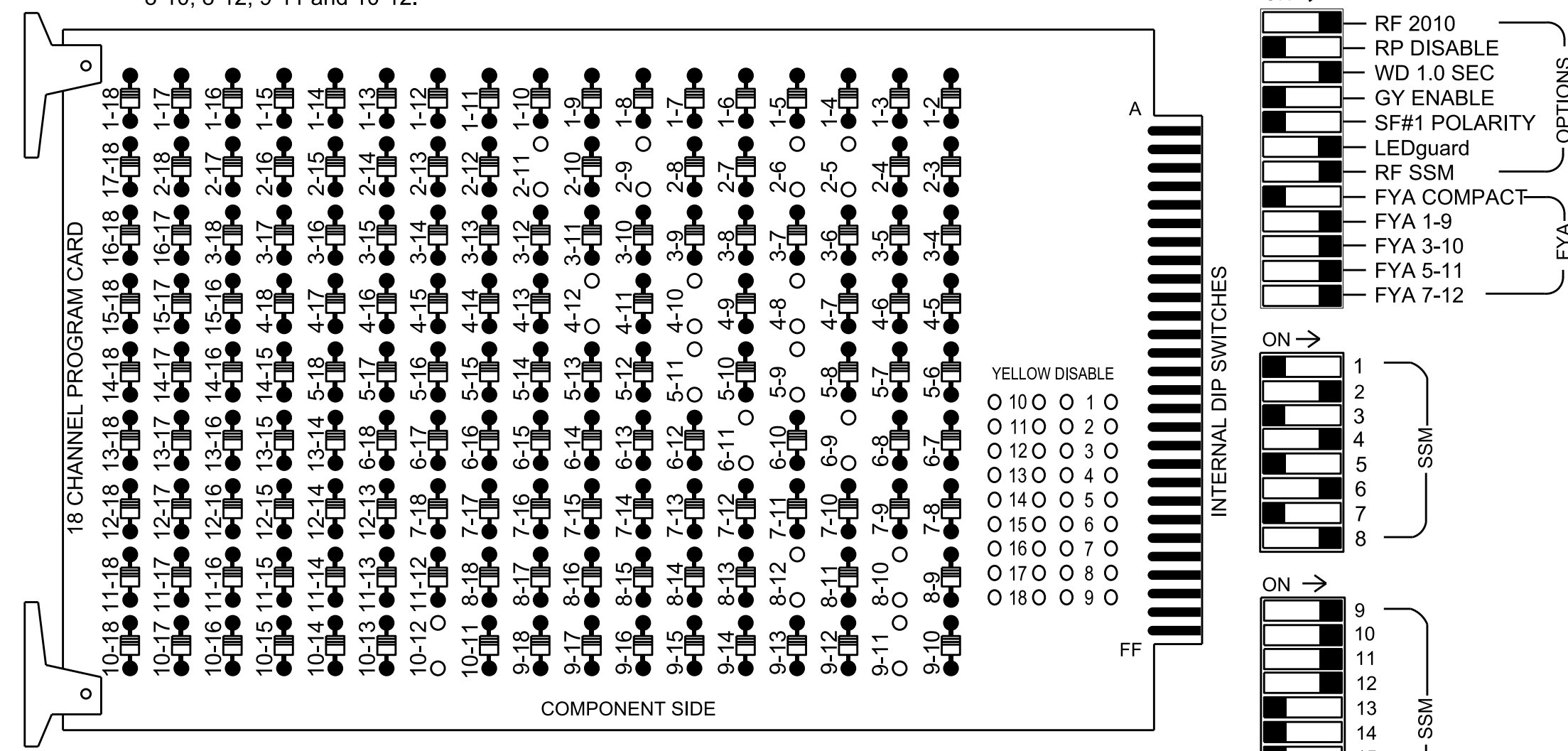
Zachary M. Little
ENGINEER
06/21/2023



18 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

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



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that 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.

■ = 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 plan.
- Program phases 4 and 8 for Dual Entry.
- Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

EQUIPMENT INFORMATION

Controller.....2070LX
 Cabinet.....332 w/ Aux
 Software.....Q-Free MAXTIME
 Cabinet Mount.....18 With Aux. Output File
 Load Switches Used.....S2, S5, S7, S8, S11, AUX S1, AUX S2, AUX S4, AUX S5
 Phases Used.....2, 4, 5, 6, 8
 Overlap "1".....*
 Overlap "2".....*
 Overlap "3".....*
 Overlap "4".....*

*See overlap programming detail on this sheet

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	42,43	NU	51	62,63	NU	NU	82,83,84	NU	61	81	NU	51	41	NU
RED		128			101			134			107							
YELLOW		129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW								133										
Hand icon																		
Person icon																		

NU = Not Used

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

OVERLAP PROGRAMMING

Front Panel
 Main Menu > Controller > Overlap > Overlap Parameters/Overlap Timings

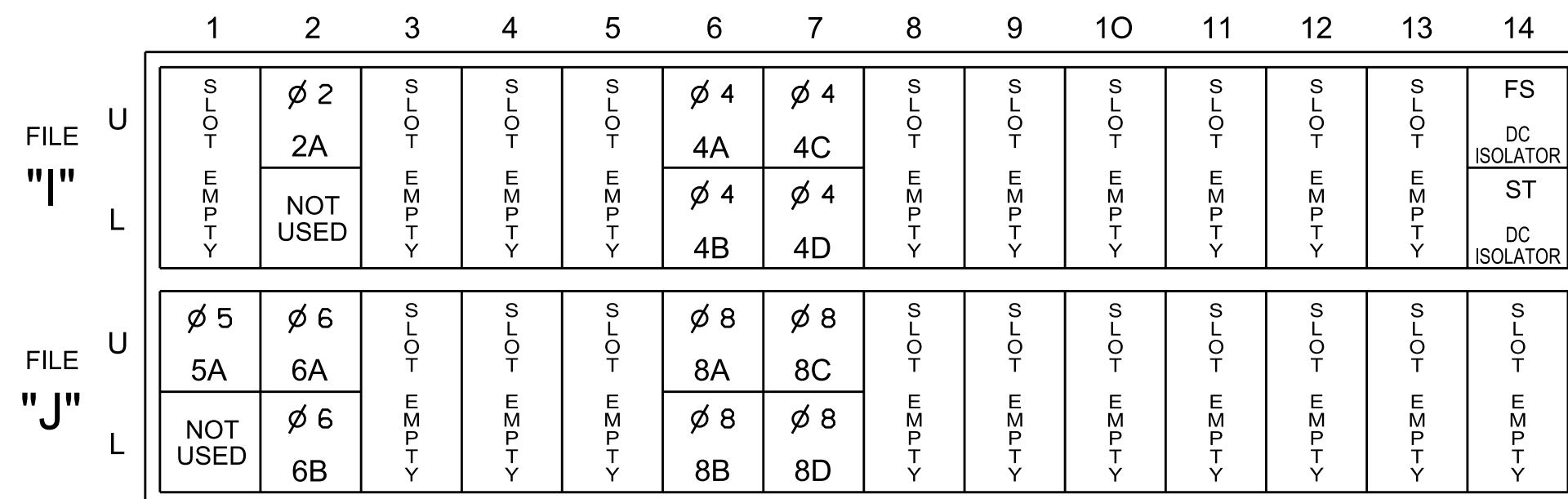
Web Interface
 Home > Controller > Overlap Configuration > Overlaps

Overlap Plan 1

Overlap	1	2	3	4
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section
Included Phases	2	4	6	8
Modifier Phases			5	
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0

INPUT FILE POSITION LAYOUT

(front view)



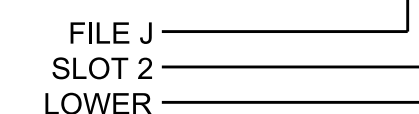
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
2A	TB2-5,6	I2U	39	1	2	2			X	X	X	
4A	TB4-9,10	I6U	41	3	8	4		3.0	X			
4B	TB4-11,12	I6L	45	7	9	4	3		X		X	
4C	TB6-1,2	I7U	65	31	10	4	5		X		X	
4D	TB6-3,4	I7L	78	44	11	4	15		X		X	
5A	TB3-1,2	J1U	55	17	15	5	15		X		X	
6A	TB3-5,6	J2U	40	2	16	6			X	X	X	
6B	TB3-7,8	J2L	44	6	17	6	3		X		X	X
8A	TB5-9,10	J6U	42	4	22	8		3.0	X			
8B	TB5-11,12	J6L	46	8	23	8	3		X		X	
8C	TB7-1,2	J7U	66	32	24	8	5		X		X	
8D	TB7-3,4	J7L	79	45	25	8	15		X		X	

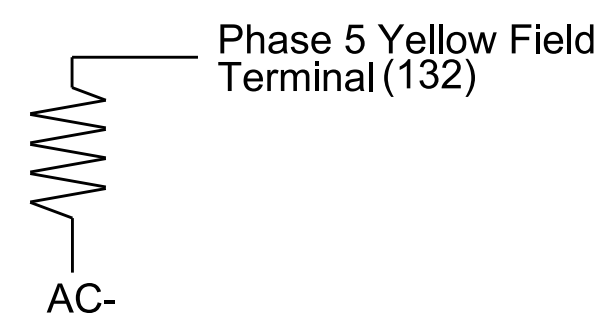
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

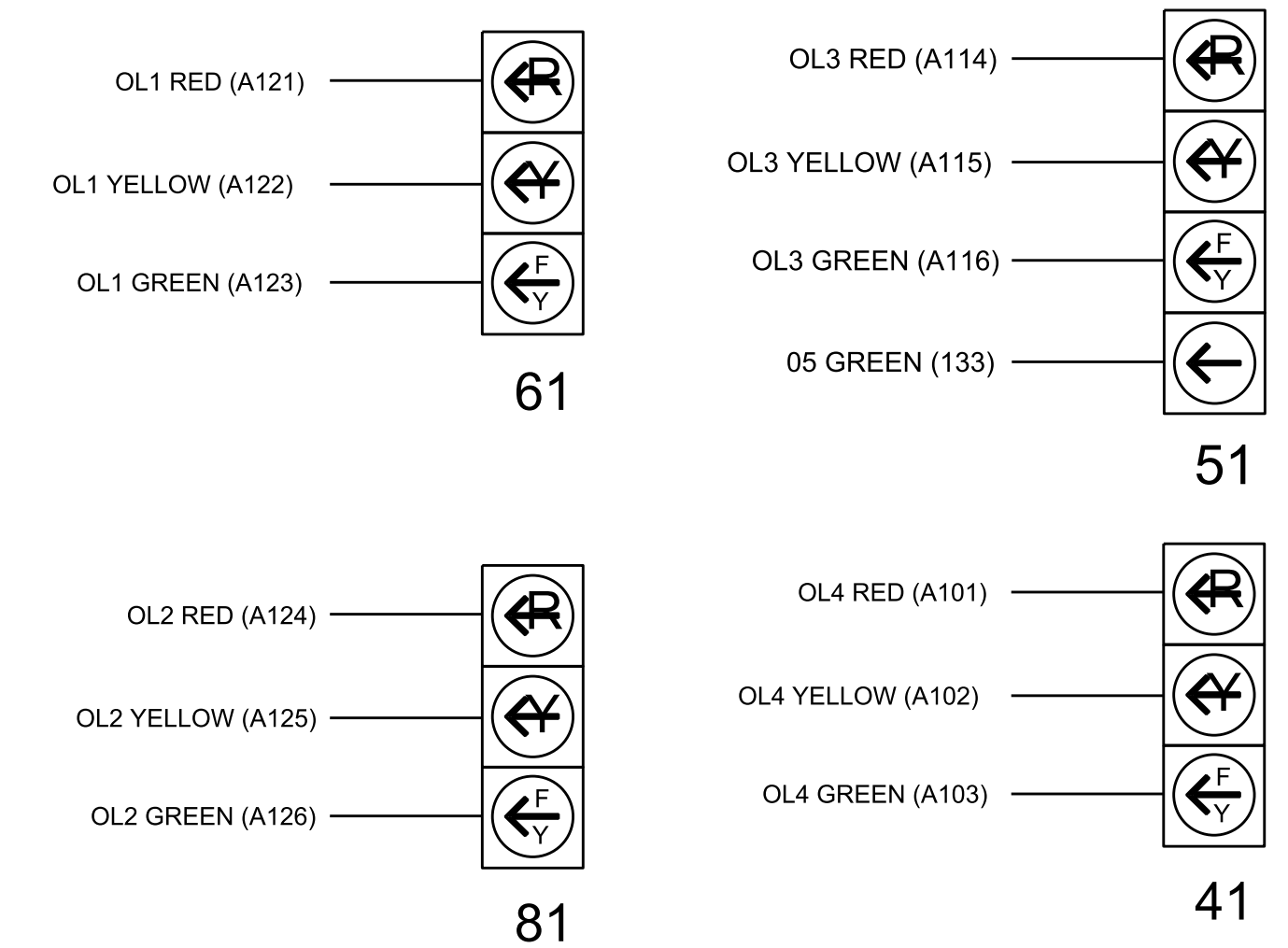
(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 04-1323
 DESIGNED: June 2022
 SEALED: 6/21/2023
 REVISED:

Electrical Detail

Electrical and Programming Details For:

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1700 (Oak Level Road)
 at
 SR 1603 (South Carriage Road)

Division 4		Nash County		Near Nashville	
PLAN DATE:	June 2023	REVIEWED BY:	RWH		
PREPARED BY:	ZML	REVIEWED BY:			
REVISIONS		INIT.		DATE	

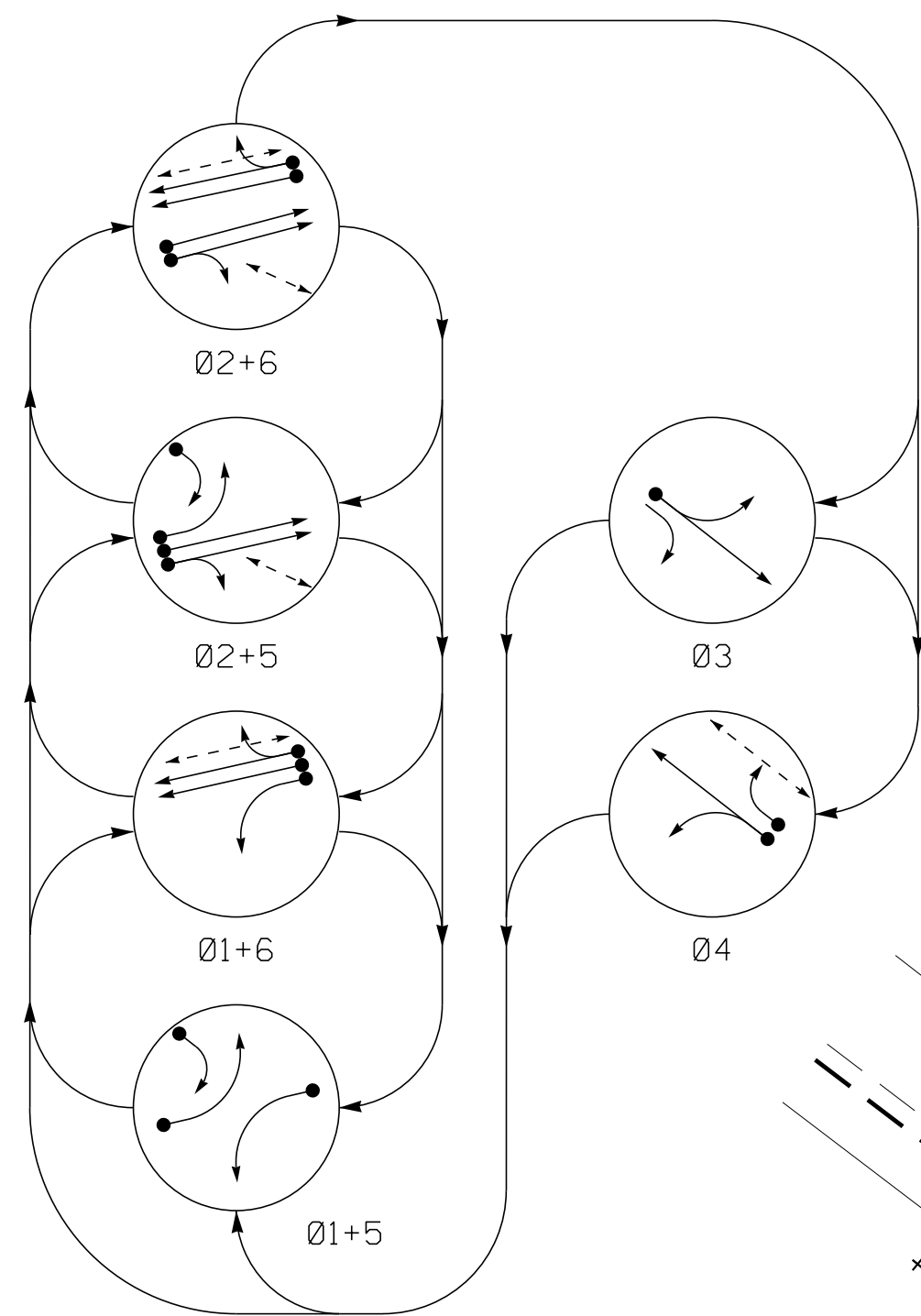
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

DocuSigned By:
 Ryan W. Hough
 06/22/2023

SIG. INVENTORY NO. 04-1323

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

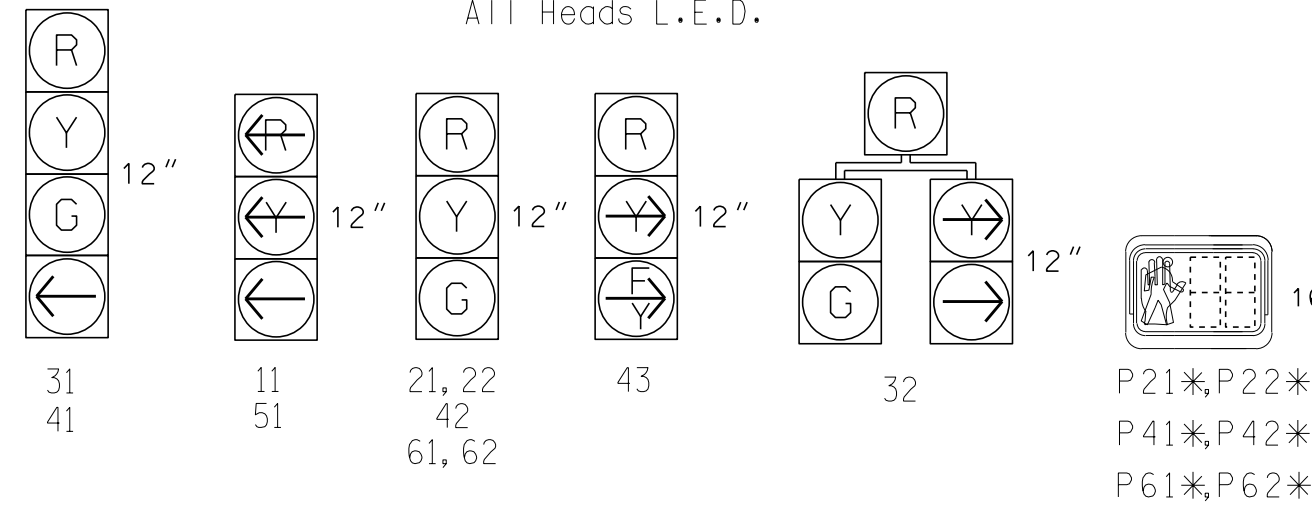
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	01+5	01+6	02+5	02+6	03	04
11	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
31	R	R	R	R	G	R
32	R	R	R	R	G	R
41	R	R	R	R	G	R
42	R	R	R	R	G	R
43	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
P21, P22	DW	DW	W	W	DW	DRK
P41, P42	DW	DW	DW	DW	W	DRK
P61, P62	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



* Accessible Pedestrian Signals

ACCESSIBLE PEDESTRIAN SIGNAL OPERATION

SIGNAL FACE	VOICE	TONES	INTERVAL	SPEECH MESSAGE
P21	-	X	Walk	(Percussive Tone)
X	-	-	Flashing Don't Walk / Don't Walk	Wait. Wait to cross.
P22	-	X	Walk	(Percussive Tone)
X	-	-	Flashing Don't Walk / Don't Walk	Wait. Wait to cross.
P41	-	X	Walk	(Percussive Tone)
X	-	-	Flashing Don't Walk / Don't Walk	Wait. Wait to cross Bright Leaf.
P42	-	X	Walk	(Percussive Tone)
X	-	-	Flashing Don't Walk / Don't Walk	Wait. Wait to cross Bright Leaf.
P61	-	X	Walk	(Percussive Tone)
X	-	-	Flashing Don't Walk / Don't Walk	Wait. Wait to cross North.
P62	-	X	Walk	(Percussive Tone)
X	-	-	Flashing Don't Walk / Don't Walk	Wait. Wait to cross North.

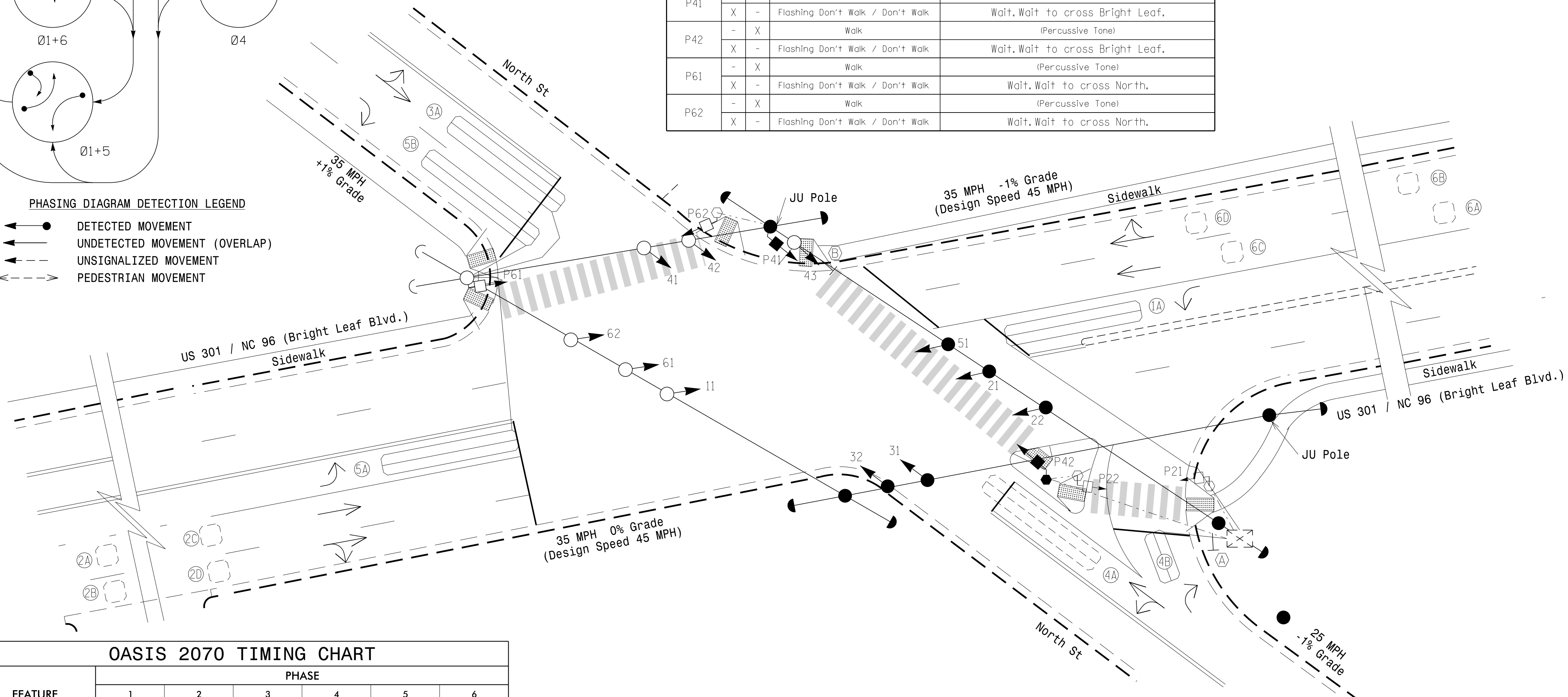
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	STRETCH TIME		
1A	6x40	0	2-4-2	Y	1	Y	Y	-	-	-
2A, 2B	6x6	330	EXIST	-	2	Y	Y	-	2.1	-
2C, 2D	6x6	90	EXIST	-	2	Y	Y	-	-	-
3A	6x40	+5	2-4-2	Y	3	Y	Y	-	-	3
4A	6x40	+5	2-4-2	-	4	Y	Y	-	-	3
4B	6x15	0	2-4-2	Y	4	Y	Y	-	-	-
5A	6x40	0	2-4-2	Y	5	Y	Y	-	-	-
5B	6x40	+5	2-4-2	Y	5	Y	Y	-	-	15
6A, 6B	6x6	330	EXIST	-	6	Y	Y	-	2.1	-
6C, 6D	6x6	90	EXIST	-	6	Y	Y	-	-	-

6 Phase Fully Actuated
US 301 - NC 96 (Bright Leaf Blvd)
D04-10_Smithfield

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- This intersection features accessible pedestrian signals utilizing percussive tone walk indications and/or speech messages.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset #: 0215.



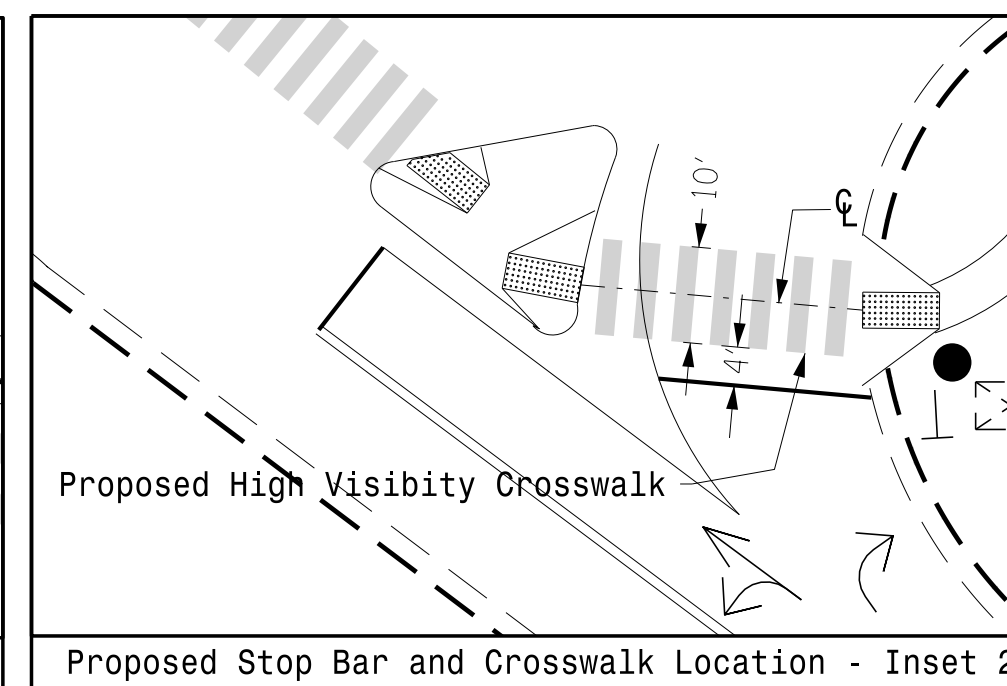
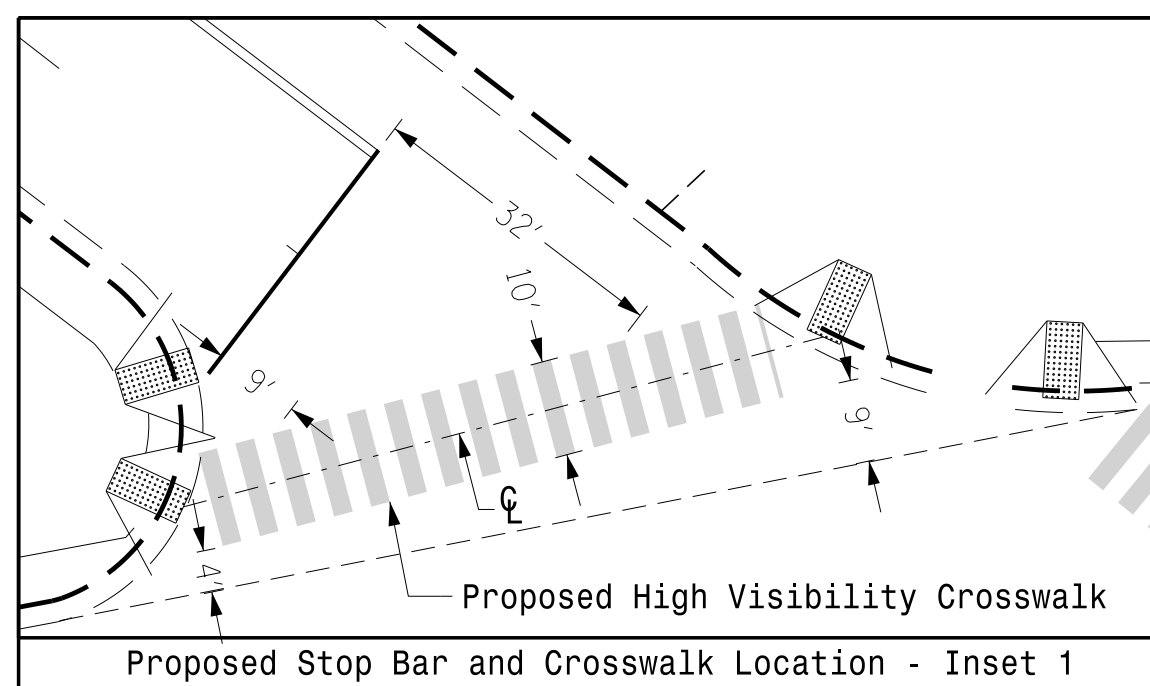
OASIS 2070 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green 1*	7	12	7	7	7	12
Extension 1	2.0	2.0	2.0	2.0	2.0	2.0
Max Green 1*	15	45	20	25	15	45
Yellow Clearance	3.0	4.5	3.8	3.2	3.0	4.6
Red Clearance	1.6	1.9	2.9	3.1	2.6	1.5
Walk 1*	-	7	-	7	-	7
Don't Walk 1	-	5	-	22	-	16
Seconds Per Actuation*	-	-	-	-	-	-
Max Variable Initial*	-	-	-	-	-	-
Time Before Reduction*	-	-	-	-	-	-
Time To Reduce*	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON

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

LEGEND

- | | | | |
|--|--|--|--|
| | PROPOSED Traffic Signal Head | | EXISTING Traffic Signal Head |
| | PROPOSED Modified Signal Head | | EXISTING Modified Signal Head |
| | PROPOSED Pedestrian Signal Head | | EXISTING Pedestrian Signal Head |
| | PROPOSED Signal Pole with Guy | | EXISTING Signal Pole with Guy |
| | PROPOSED Inductive Loop Detector | | EXISTING Inductive Loop Detector |
| | PROPOSED Controller & Cabinet | | EXISTING Controller & Cabinet |
| | PROPOSED Junction Box | | EXISTING Junction Box |
| | PROPOSED 2-in Underground Conduit | | EXISTING 2-in Underground Conduit |
| | PROPOSED Right of Way | | EXISTING Right of Way |
| | PROPOSED Directional Arrow | | EXISTING Directional Arrow |
| | PROPOSED Curb Ramp | | EXISTING Curb Ramp |
| | PROPOSED Type II Signal Pedestal | | EXISTING Type II Signal Pedestal |
| | PROPOSED "STOP HERE ON RED" Sign (R10-6) | | EXISTING "STOP HERE ON RED" Sign (R10-6) |
| | PROPOSED "NO TURN ON RED" Sign (R10-11) | | EXISTING "NO TURN ON RED" Sign (R10-11) |



Signal Upgrade - Corr. File No. 04-22-67011

US 301/NC 96
(Bright Leaf Boulevard)
at
North Street

Division 4 Johnston County Smithfield

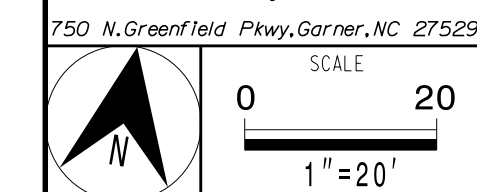
PLAN DATE: September 2022 REVIEWED BY: ZML

PREPARED BY: KGP, Jr. REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Zachary Little
5/31/2023

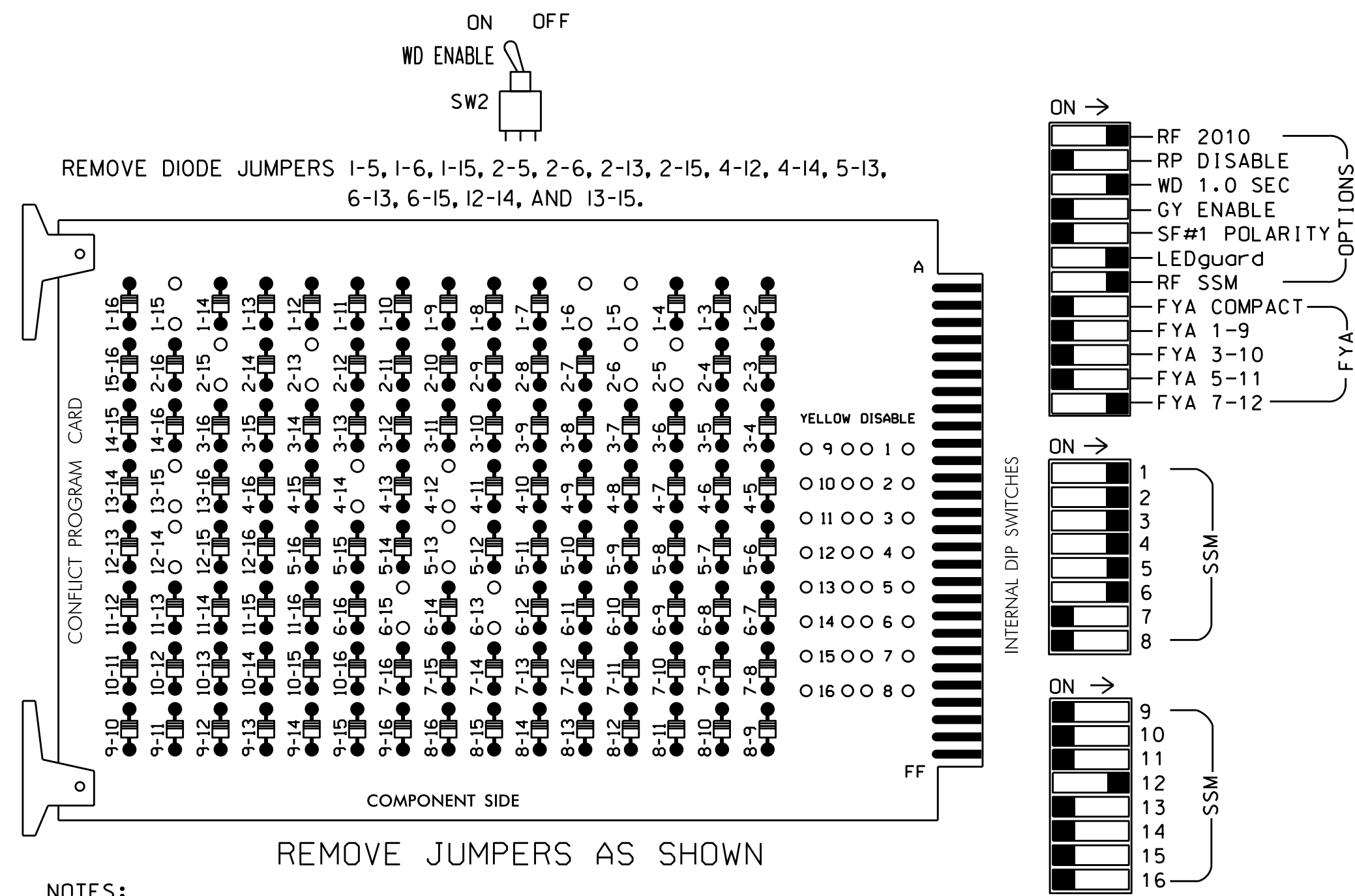
SIG. INVENTORY NO. 04-0215



12-JUL-2023 12:37 S:\IT\GIS\K1T\S\Sig\04-22-67011-04-04-0215\022mod.dgn

16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.

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.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 7,8, 9,10,11,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phase 2, 4, and 6 for 'STARTUP PED CALL'.
- Program phases 2 and 6 for Yellow Flash.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the US 301 - NC 96 (Bright Leaf Blvd) D04-10-Smithfield System.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14	
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE	
SIGNAL HEAD NO.	11	21,22	P21, P22	31	32	41	42	P41, P42	51	32	61,62	P61, P62	NU	NU	NU	NU	NU	43	NU
RED		128		116	116	101	101				134								A101
YELLOW		129		117	117	102	102				135								
GREEN		130		118	118	103	103				136								
RED ARROW	125								131										
YELLOW ARROW	126								132	132									A102
FLASHING YELLOW ARROW																			A103
GREEN ARROW	127			118		103			133	133									
Hand				113					104				119						
Person				115					106				121						

★ See pictorial of head wiring in detail this sheet.

NU = Not Used

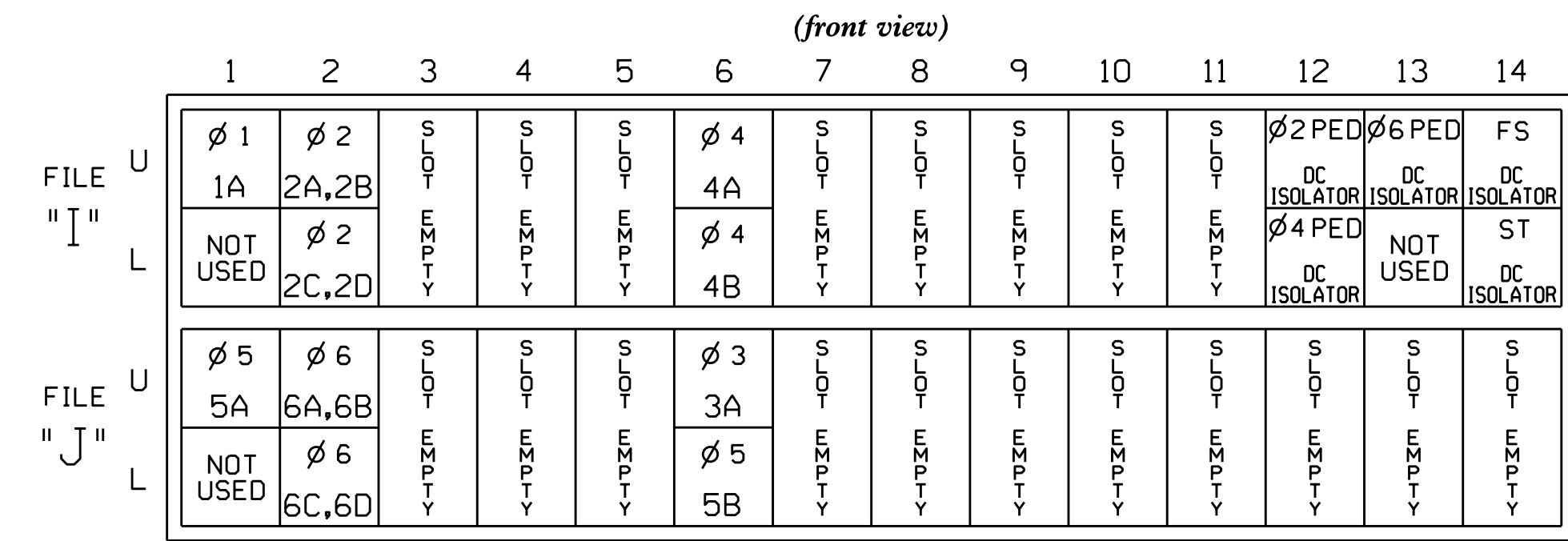
EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET332 W/ AUX
 SOFTWAREECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS..18 (12-STD, 6-AUX)
 LOAD SWITCHES USED.....S1,S2,S2P,S3,S4,S4P,
 S5,S6,S6P,S13
 PHASES USED.....1,2,2 PED,3,4,
 4 PED,5,6,6 PED
 OVERLAP 'A'.....NOT USED
 OVERLAP 'B'.....NOT USED
 OVERLAP 'C'.....NOT USED
 OVERLAP 'D'.....4

ACCESSIBLE PEDESTRIAN SIGNAL (APS) INSTALLATION NOTES

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

INPUT FILE POSITION LAYOUT



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

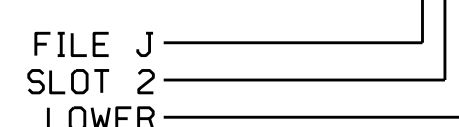
FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y		2.1	
2C,2D	TB2-7,8	I2L	43	5	12	2	Y	Y			
3A	TB5-9,10	J6U	42	4	8	3	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB5-11,12	J6L	46	8	18	5	Y	Y			15
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y		2.1	
6C,6D	TB3-7,8	J2L	44	6	16	6	Y	Y			
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29		PED 2					
P41,P42	TB8-5,6	I12L	69	31		PED 4					
P61,P62	TB8-7,9	I13U	68	30		PED 6					

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

INPUT FILE POSITION LEGEND: J2L



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' THRICE

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

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

FLASHER CIRCUIT MODIFICATION DETAIL

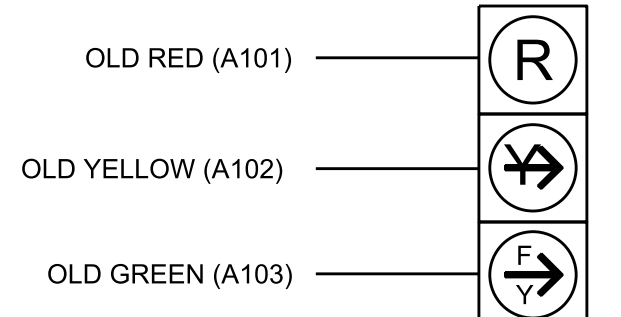
IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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

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

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



43

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0215
 DESIGNED: September 2022
 SEALED: 5/31/2023
 REVISED:

Electrical Detail

Electrical and Programming Details For:
 Prepared in the Offices of:

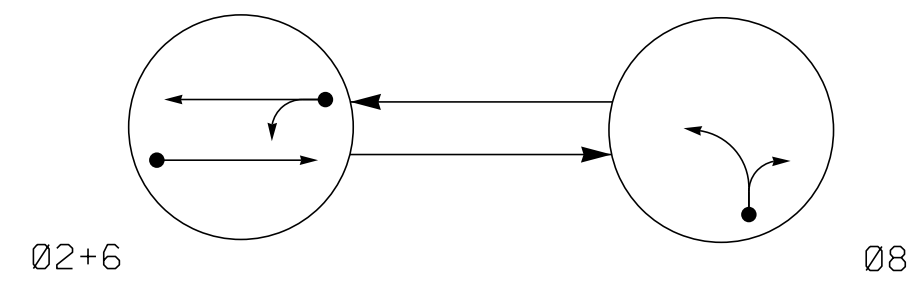
 750 N. Greenfield Pkwy, Garner, NC 27529

US 301/NC 96
 (Bright Leaf Boulevard)
 at
 North Street
 Division 4 Johnston County Smithfield
 PLAN DATE: May 2023 REVIEWED BY: DTJ
 PREPARED BY: D.J. Craddock REVIEWED BY:
 REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 031001
 ENGINEER
 TODD JOYCE
 06/01/2023
 DATE
 SIGNED BY: D. Todd Joyce
 SIGNED BY: DATE
 SIG. INVENTORY NO. 04-0215

04-July-2023 15:58 S:\TAS\KTS\Sig\04-0215...493306-1-17\040215_sme.ele.20230601.dgn

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

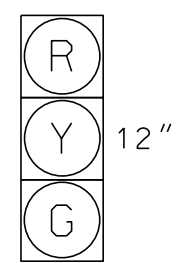
- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- ←- - -→ UNSIGNALIZED MOVEMENT
- ←- - -> PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	Ø 2+6	Ø 8	FLASH
21,22	G	R	Y
61,62	G	R	Y
81,82,83	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



21,22
61,62
81,82,83

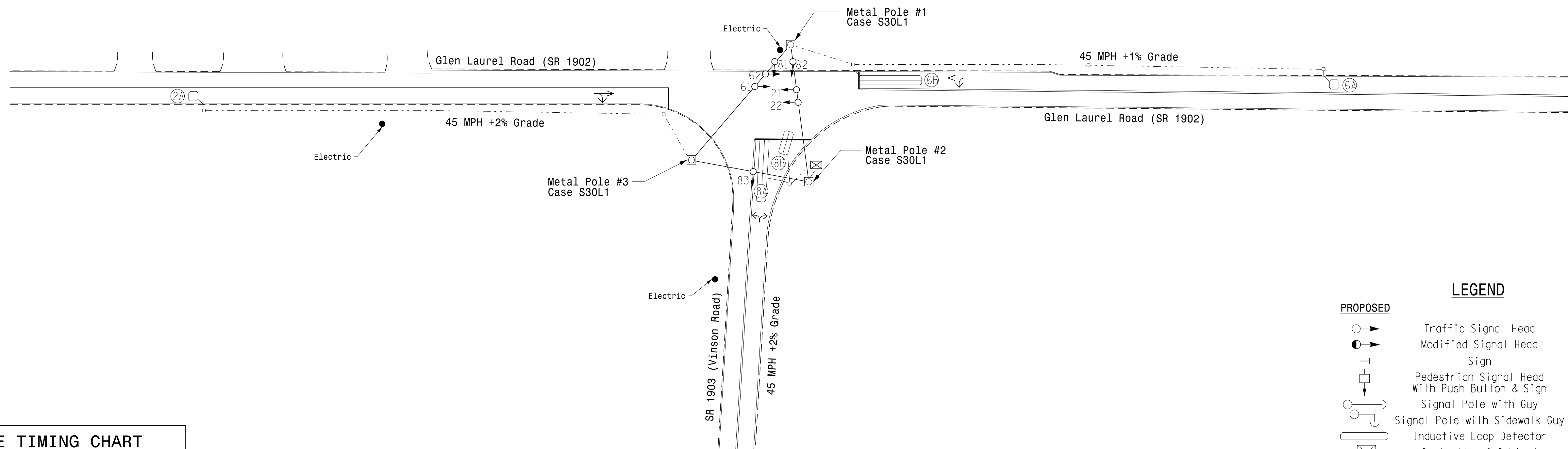
MAXTIME DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2A	6X6	300	5	X	2	-	-	X	X	X	-	X
6A	6X6	300	5	X	6	-	-	X	X	X	-	X
6B	6X40	0	2-4-2	X	6	5	2.0	X	-	X	X	X
8A	6X40	0	2-4-2	X	8	3	-	X	-	X	-	X
8B	6X15	+5	2-4-2	X	8	5	-	X	-	X	-	X

2 Phase Fully Actuated Isolated

NOTES

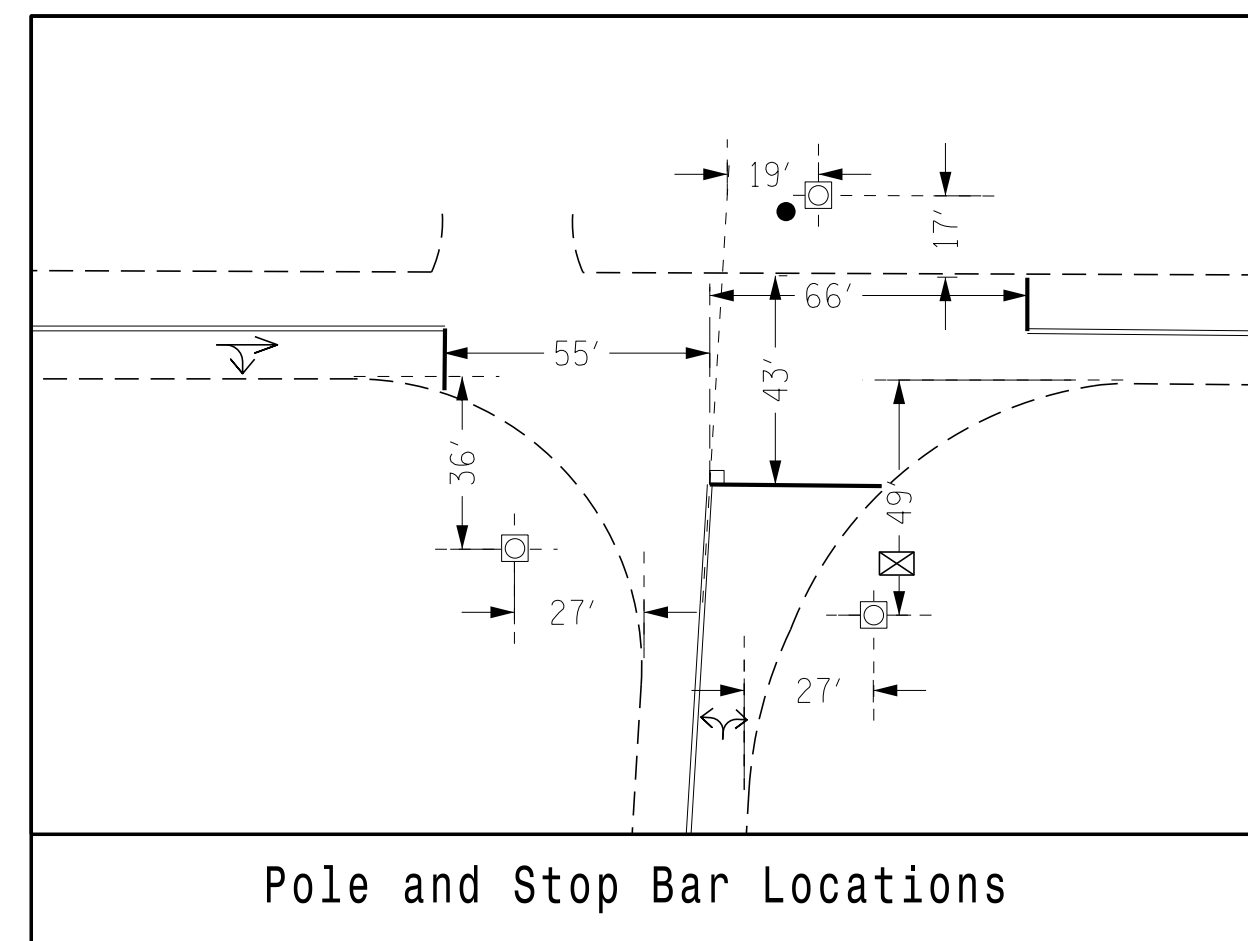
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.



MAXTIME TIMING CHART

FEATURE	PHASE		
	2	6	8
Walk *	-	-	-
Ped Clear *	-	-	-
Min Green	12	12	7
Passage *	6.0	6.0	2.0
Max I *	90	90	30
Yellow Change	4.3	4.4	3.0
Red Clear	1.2	1.2	1.4
Added Initial *	2.5	-	-
Maximum Initial *	34	-	-
Time Before Reduction *	15	15	-
Time To Reduce *	30	30	-
Minimum Gap	3.0	3.0	-
Advance Walk	-	-	-
Non Lock Detector	-	-	X
Vehicle Recall	MIN RECALL	MIN RECALL	-
Dual Entry	-	-	-

* 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.



Pole and Stop Bar Locations

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

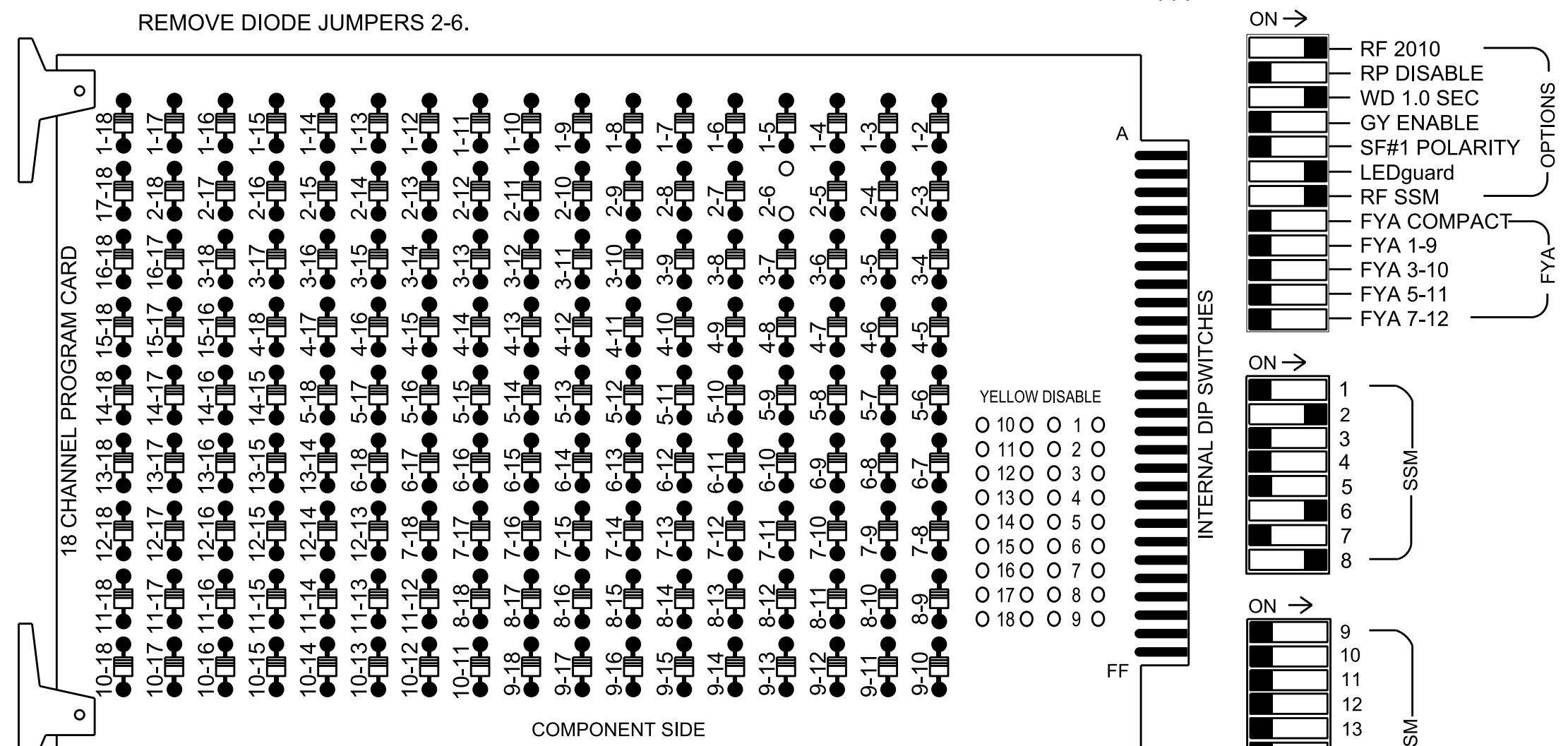
New Installation - Corr. File No. 04-22-67060

	<p>SR 1902 (Glen Laurel Road) at SR 1903 (Vinson Road)</p>		
	<p>Division 4 Johnston County Clayton</p>	<p>PLANNED BY: KGP, Jr. REVIEWED BY: ZML</p>	
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>PLAN DATE: April 2023</p>	<p>REVIEWED BY: ZML</p>	<p>DATE: 06/21/2023</p>
<p>SCALE: 1" = 40'</p>	<p>REVISIONS</p>	<p>INIT. DATE</p>	<p>DATE</p>

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

18 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that the 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 plan.
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

EQUIPMENT INFORMATION

Controller.....2070LX
 Cabinet.....332 w/ Aux
 Software.....Q-Free MAXTIME
 Cabinet Mount.....18 With Aux. Output File
 Load Switches Used.....S2, S8, S11
 Phases Used.....2, 6, 8
 Overlaps.....NONE

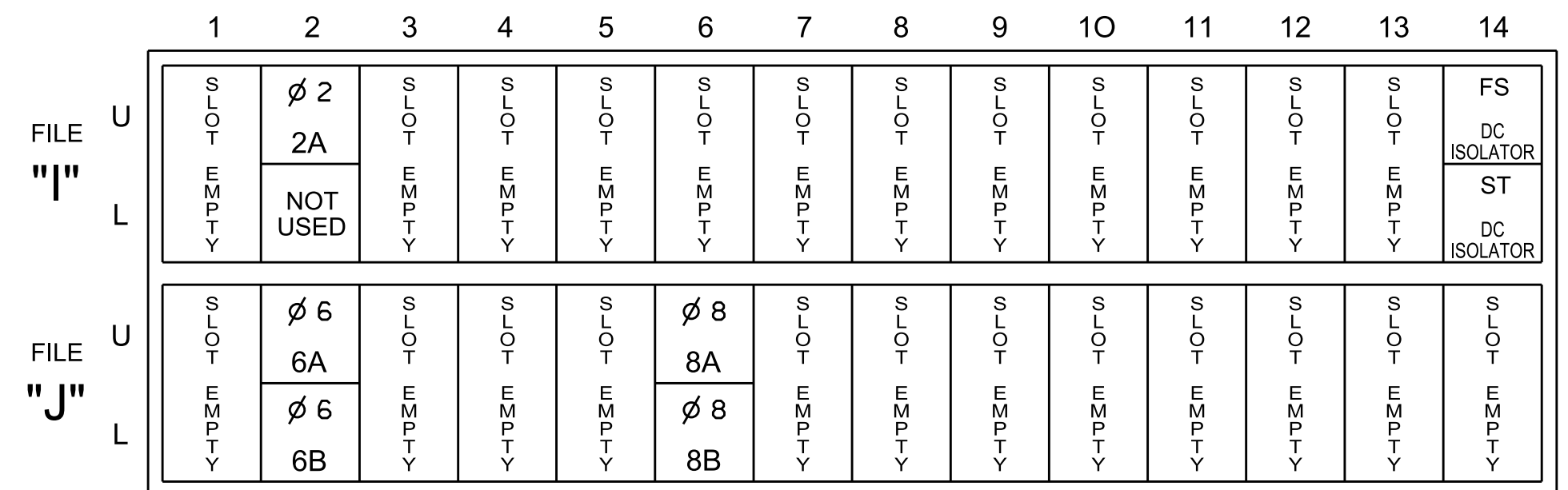
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	NU	61,62	NU	NU	81,82,83	NU	NU	NU	NU	NU	NU	NU
RED		128						134			107							
YELLOW		129						135			108							
GREEN		130						136			109							
RED ARROW																		
YELLOW ARROW																		
FLASHING YELLOW ARROW																		
GREEN ARROW																		
Hand icon																		
Walking person icon																		

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)



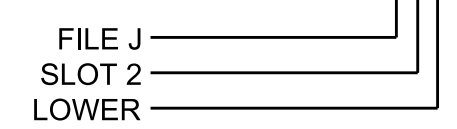
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
2A	TB2-5,6	I2U	39	1	2	2			X	X	X	
6A	TB3-5,6	J2U	40	2	16	6			X	X	X	
6B	TB3-7,8	J2L	44	6	17	6	5	2.0	X		X	X
8A	TB5-9,10	J6U	42	4	22	8	3		X		X	
8B	TB5-11,12	J6L	46	8	23	8	5		X		X	

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1465
 DESIGNED: April 2023
 SEALED: 6/21/2023
 REVISED:

Electrical Detail

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1902 (Glen Laurel Road) at SR 1903 (Vinson Road)

Division 4 Johnston County Clayton

PLAN DATE: June 2023 REVIEWED BY: DTJ

PREPARED BY: D.J. Craddock REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: D. Todd Joyce 06/22/2023

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 ENGINEER TODD JOYCE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIG. INVENTORY NO. 04-1465

22-JUL-2023 07:54 S:\IT\55\15\Sig\18\Monitor\groups\45\g_Mon\Projects From Signal Design\Act1\ve Projects\CR\odock\2_Pending\04-1465_493306_1_20\041465_sm.ele.202306dd.dgn d\craddock1