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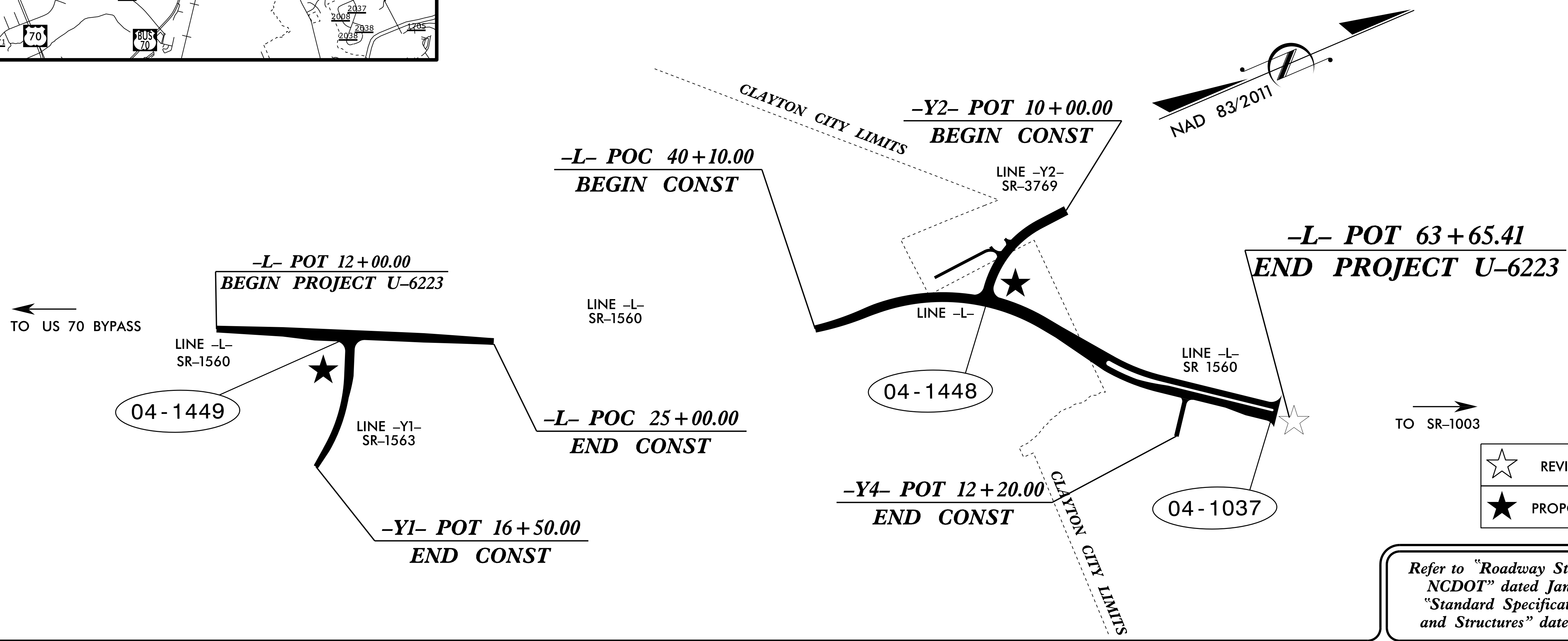
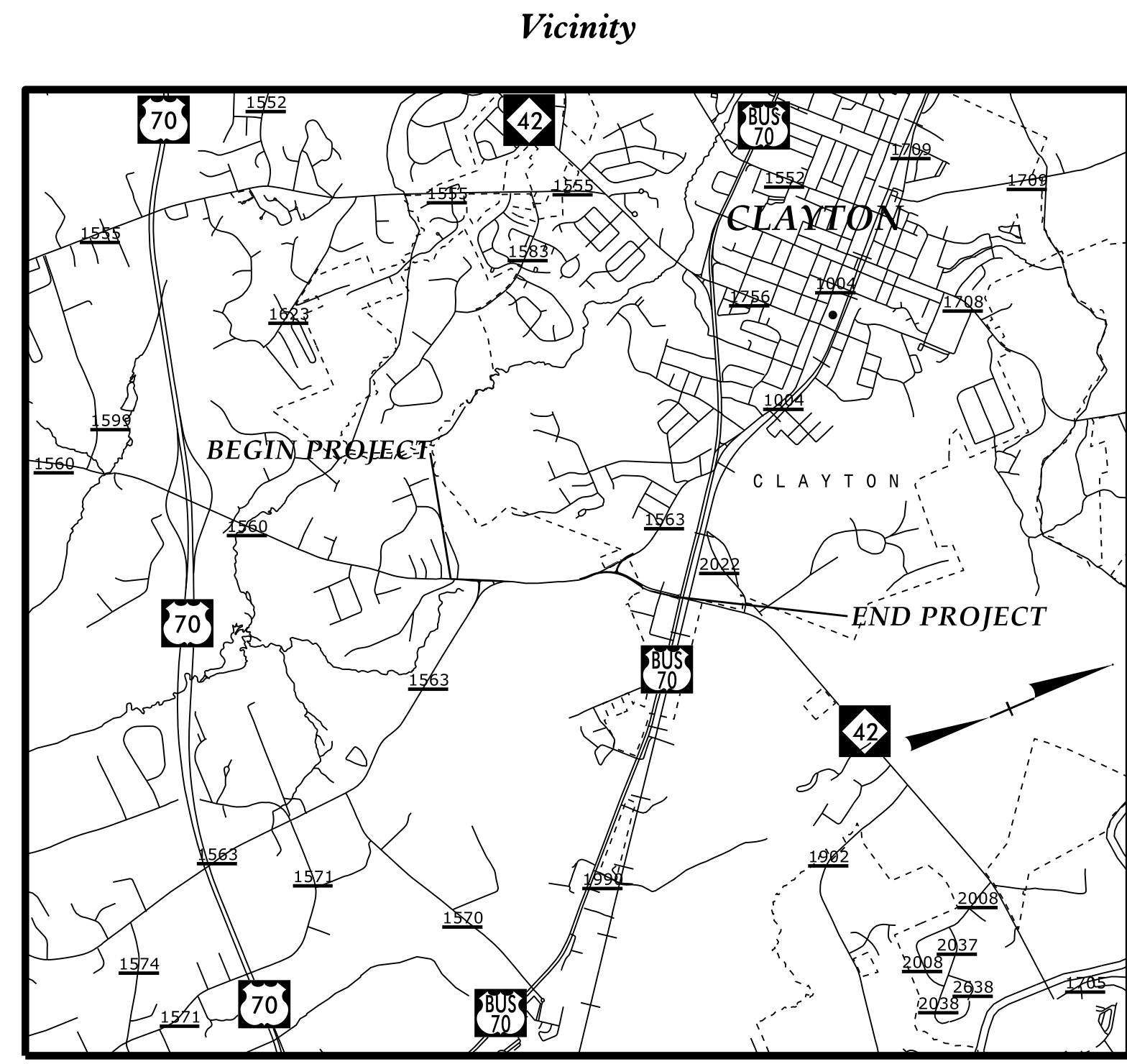
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# JOHNSTON COUNTY

**LOCATION: NEW LOCATION FROM SR-1560 (RANCH ROAD)  
TO THE US-70 BUS & NC-42 INTERSECTION**

**TYPE OF WORK: TRAFFIC SIGNAL & COMMUNICATION CABLE  
AND CONDUIT ROUTING PLANS**

**Project: U-6223**



☆ REVISED SIGNAL  
★ PROPOSED SIGNAL

Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.

**CONTRACT:**

Sheet #	Reference #	Index of Plans Location/Description
Sig. 1.0	-----	Title Sheet
Sig. 2.0 - 2.2	04-1449	SR 1560 (-L-) at SR 1563 (-Y1-) / Future Road By Others
Sig. 3.0 - 3.1	04-1448	SR 1560 (-L-) at SR 3769 (-Y2-)
Sig. 4.0 - 4.2	04-1037	US 70 Business - NC 42 / US 70 Business at NC 42 / SR 1560 (-L-)
Sig. 5.0		Standard Plate Sheet(s)
SCP-1		Construction Notes
SCP-2 - SCP-5		Communication Cable and Conduit Routing Plans
SCP-6 - SCP-8		Splice Detail

**TRANSPORTATION SYSTEMS  
MANAGEMENT & OPERATIONS**

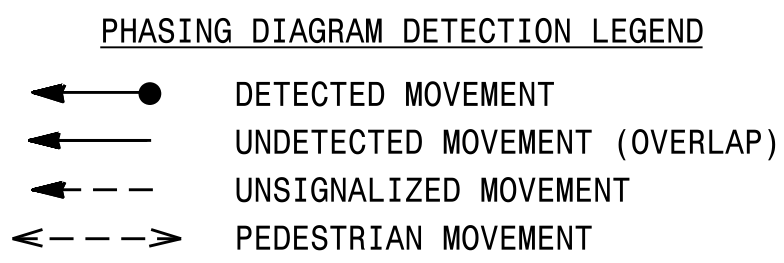
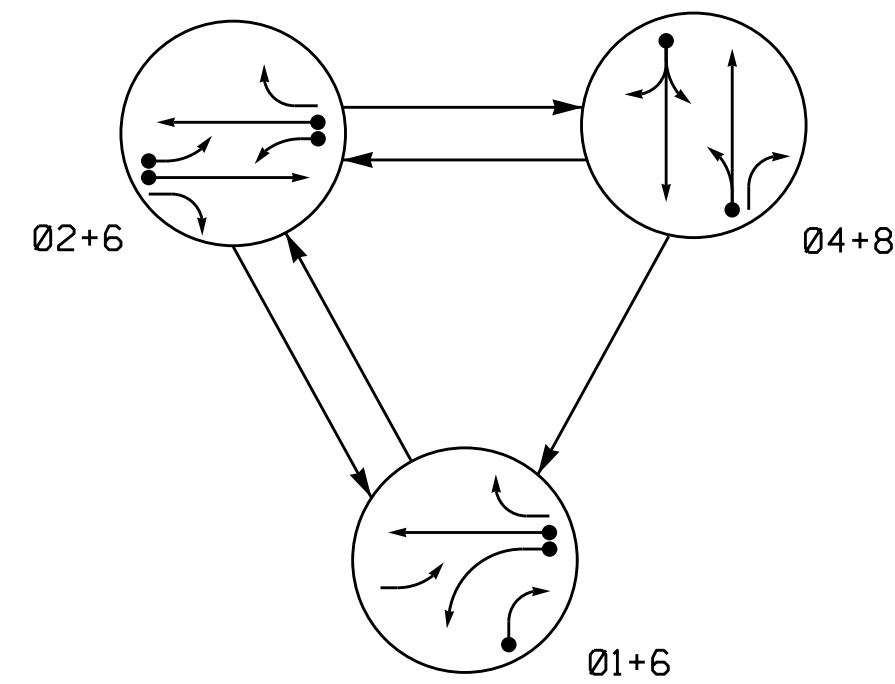
Contacts:  
 Zachary M. Little, PE - Eastern Region Signals Engineer  
 Ryan W. Hough, PE - Signal Equipment Design Engineer  
 Matthew T. Carlisle, PE - ITS & Signals Management Engineer

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

ISMO UNIT

D:\APR 2012\1157\157\157\SIGNALS\Signal Design Section\Eastern Region\Div-04\U-6223\SIGNALS - Zack Look here\Titlesheet\U-6223.sig.tsh\_2012mmdd.dgn

PHASING DIAGRAM



SIGNAL FACE I.D.

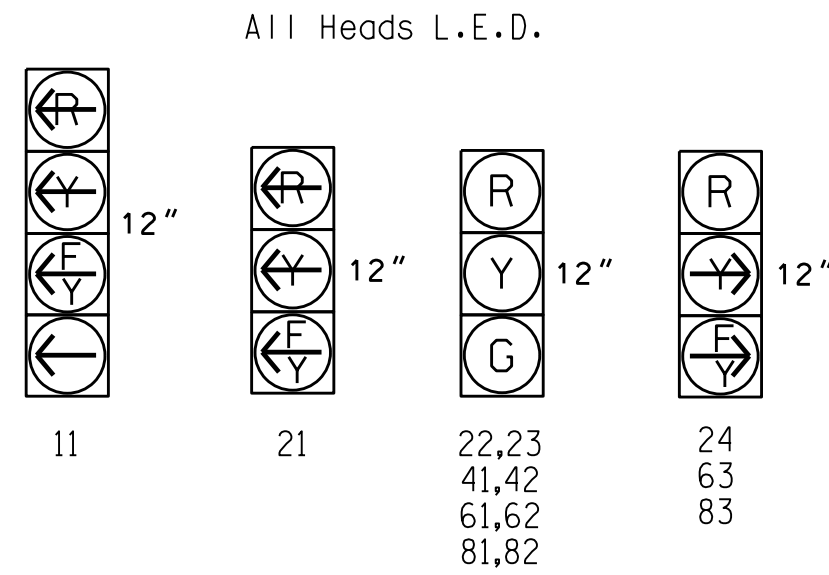


TABLE OF OPERATION

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

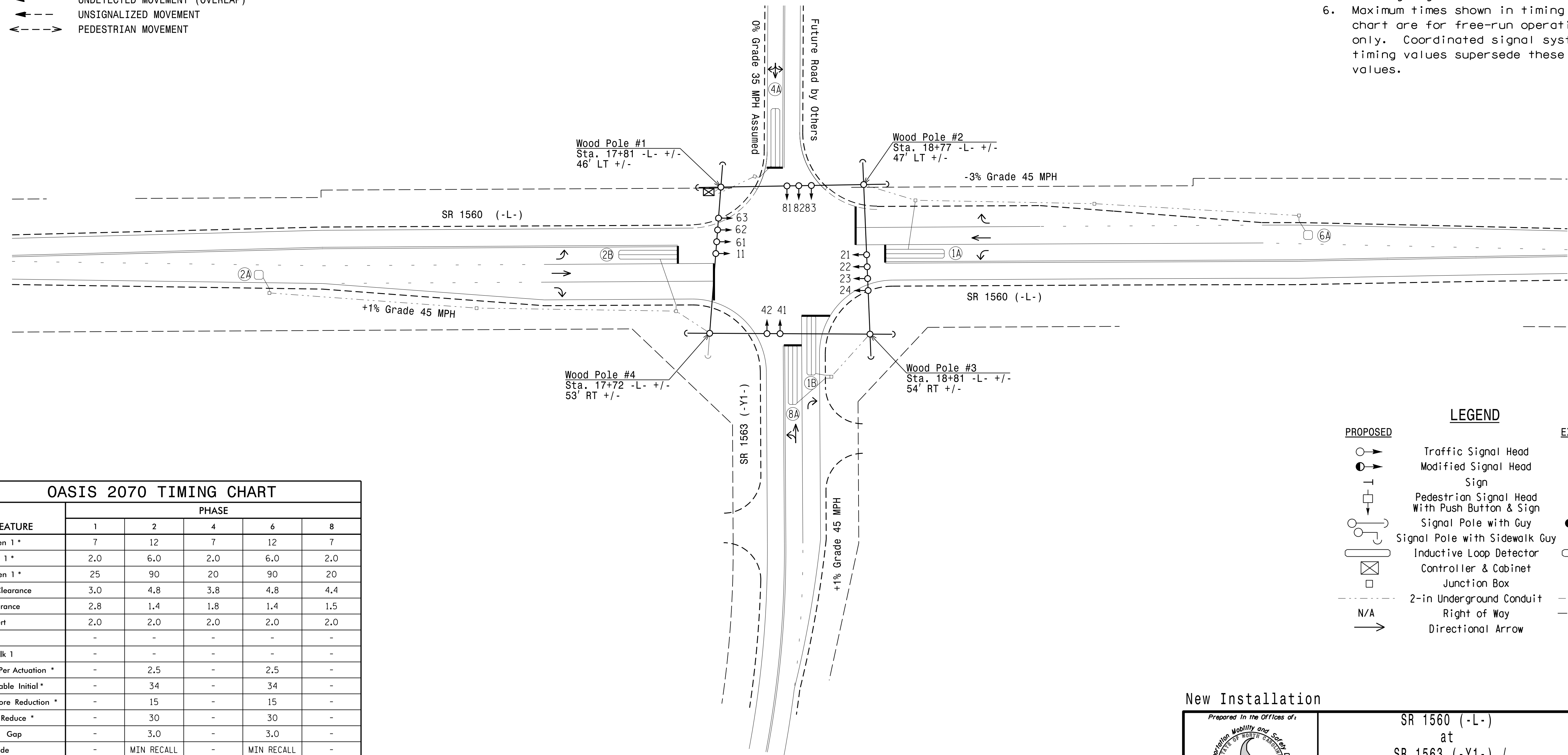
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY			
1A	6X40	0	2-4-2	Y	1	Y	Y	-	15	-	Y
1B	6X40	0	2-4-2	Y	1	Y	Y	-	15	-	Y
2A	6X6	300	6	Y	2	Y	Y	-	-	-	Y
2B	6X40	0	2-4-2	Y	2	Y	Y	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	3	-	Y
6A	6X6	300	6	Y	6	Y	Y	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	3	-	Y

3 Phase Fully Actuated  
US 70 Bus.-NC 42 (Clayton)  
D04-01\_Clayton

NOTES

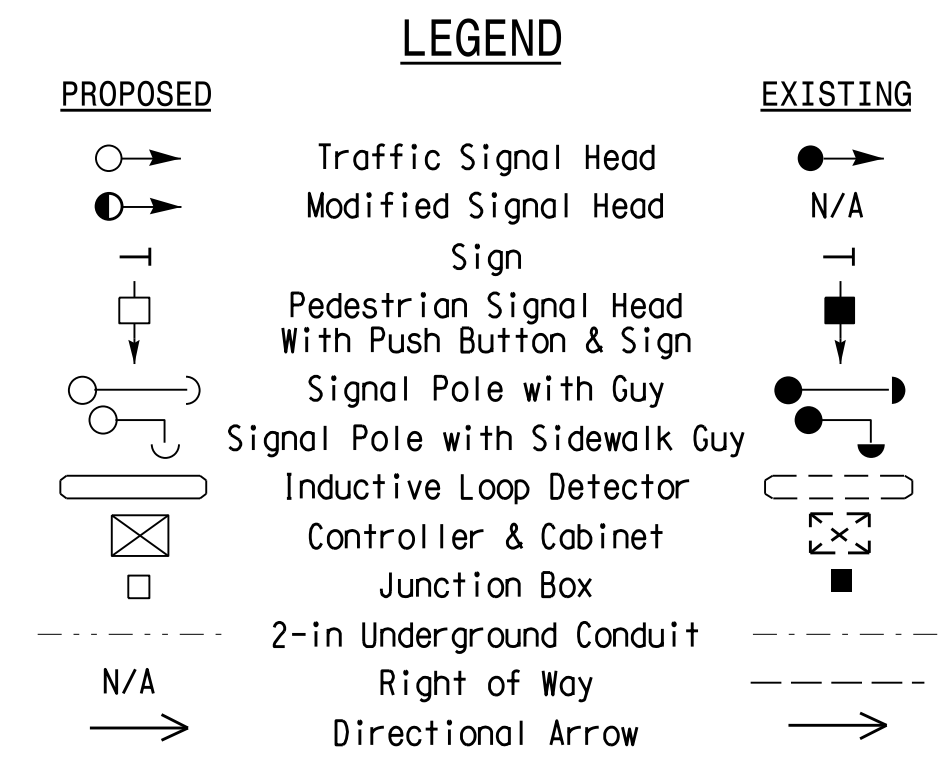
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



OASIS 2070 TIMING CHART

FEATURE	PHASE				
	1	2	4	6	8
Min Green 1 *	7	12	7	12	7
Extension 1 *	2.0	6.0	2.0	6.0	2.0
Max Green 1 *	25	90	20	90	20
Yellow Clearance	3.0	4.8	3.8	4.8	4.4
Red Clearance	2.8	1.4	1.8	1.4	1.5
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	2.5	-	2.5	-
Max Variable Initial *	-	34	-	34	-
Time Before Reduction *	-	15	-	15	-
Time To Reduce *	-	30	-	30	-
Minimum Gap	-	3.0	-	3.0	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON	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.



New Installation

Prepared in the Offices of:  
TRANSPORTATION MOBILITY AND SAFETY DIVISION  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
SIGNAL DESIGN SECTION

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 0 40 1"=40'

SR 1560 (-L-) at SR 1563 (-Y1-) / Future Road by Others

Division 4 Johnston County Clayton

PLAN DATE: January 2022 REVIEWED BY: ZML

PREPARED BY: KGP, Jr. REVIEWED BY:

REVISIONS: INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: ZACHARY M. LITTLE, ENGINEER, 030530

DATE: 03/29/2022

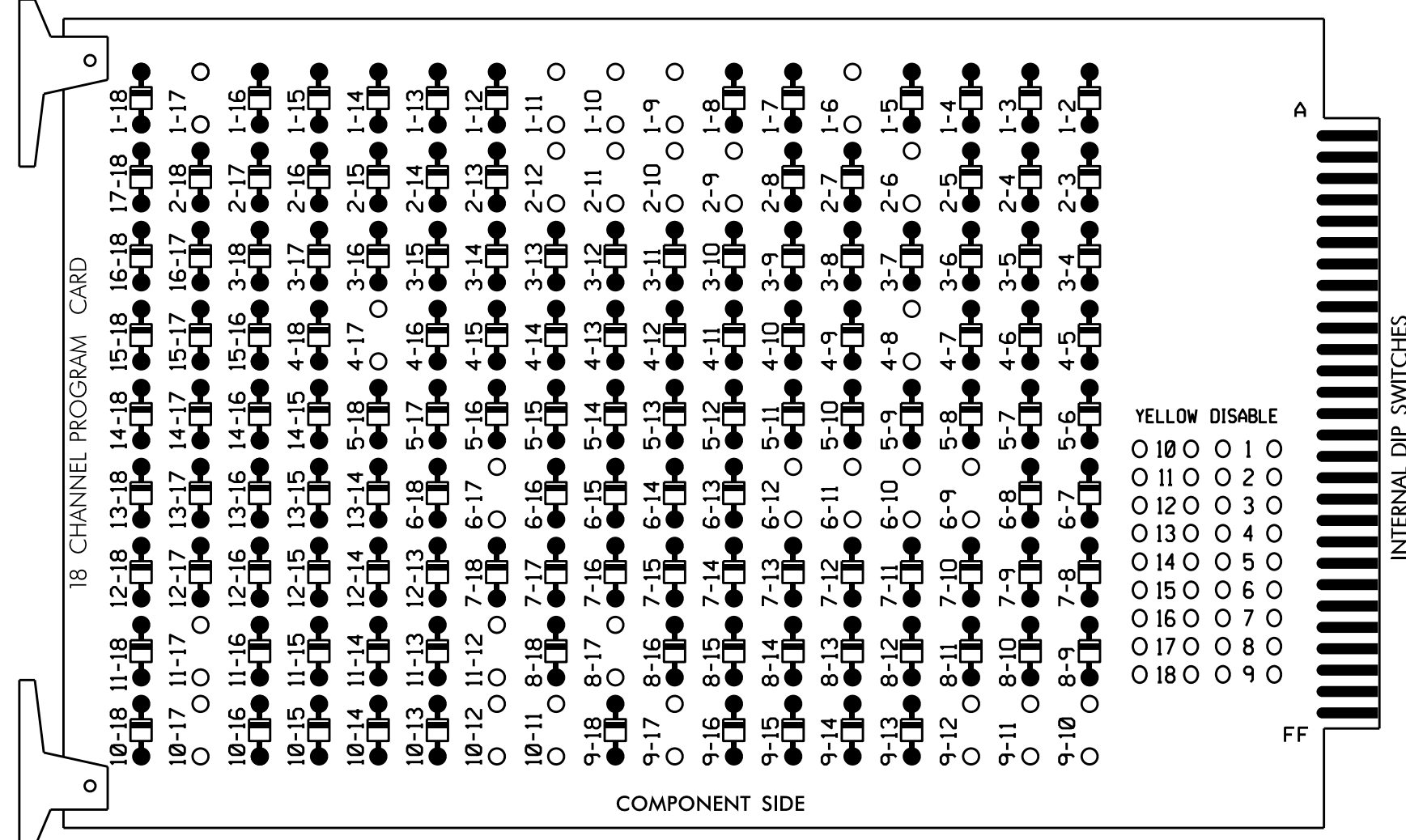
SIG. INVENTORY NO. 04-1449

28-MAR-2022 1:41:00 S:\IT\GIS\KMT\S\SIGNAL\Signal\Sect1on\Eastern Reg\on\04-1449\U-6223\K51\cp01.s - Zack look here\04-1449\041449.s\g\_den\_2022.mxd.dgn kgsheedrn

EDI MODEL 2018ECL-NC CONFLICT MONITOR

PROGRAMMING DETAIL

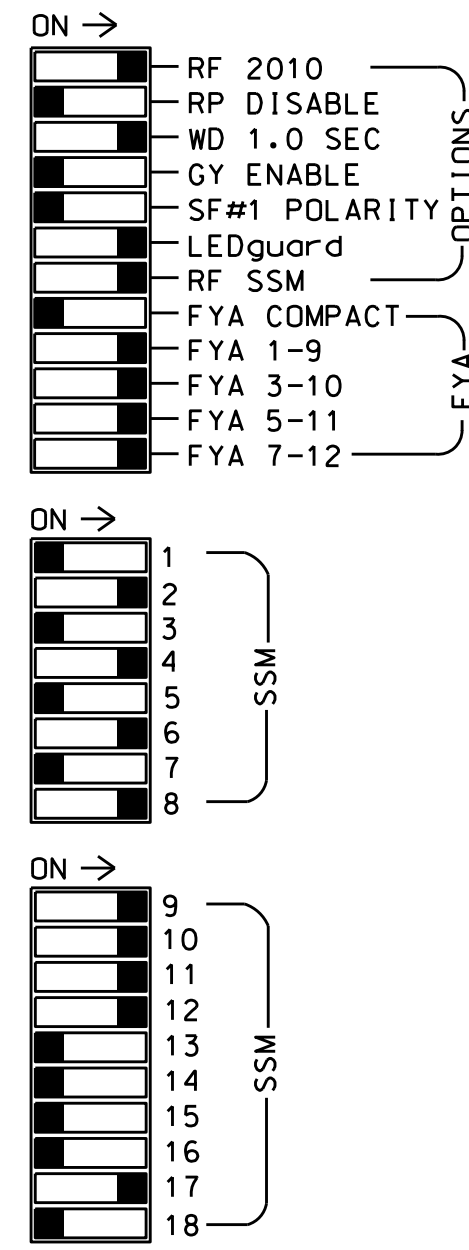
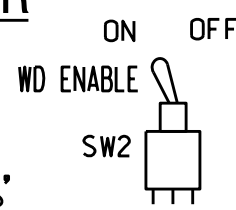
(remove jumpers and set switches as shown)  
 REMOVE DIODE JUMPERS 1-6, 1-9, 1-10, 1-11, 1-17, 2-6, 2-9, 2-10, 2-11, 2-12, 4-8, 4-17, 6-9, 6-10, 6-11, 6-12, 6-17, 8-17, 9-10, 9-11, 9-12, 9-17, 10-11, 10-12, 10-17, 11-12 and 11-17.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.



■ = DENOTES POSITION OF SWITCH

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all Phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Startup In Green.
- Program phases 2 and 6 for Yellow Flash, and overlaps 1, 2 and 5 as Wag Overlaps.
- 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 70 Bus.-NC 42 (Clayton) D04-01\_Clayton System.

EQUIPMENT INFORMATION

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

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	OLE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	22,23	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU	11	63	83	21	24	NU
RED	128			101			134			107				A124	A111		A101	
YELLOW	*	129		102			135			108								
GREEN		130		103			136			109								
RED ARROW														A121			A114	
YELLOW ARROW														A122	A125	A112	A115	A102
FLASHING YELLOW ARROW														A123	A126	A113	A116	A103
GREEN ARROW	127																	

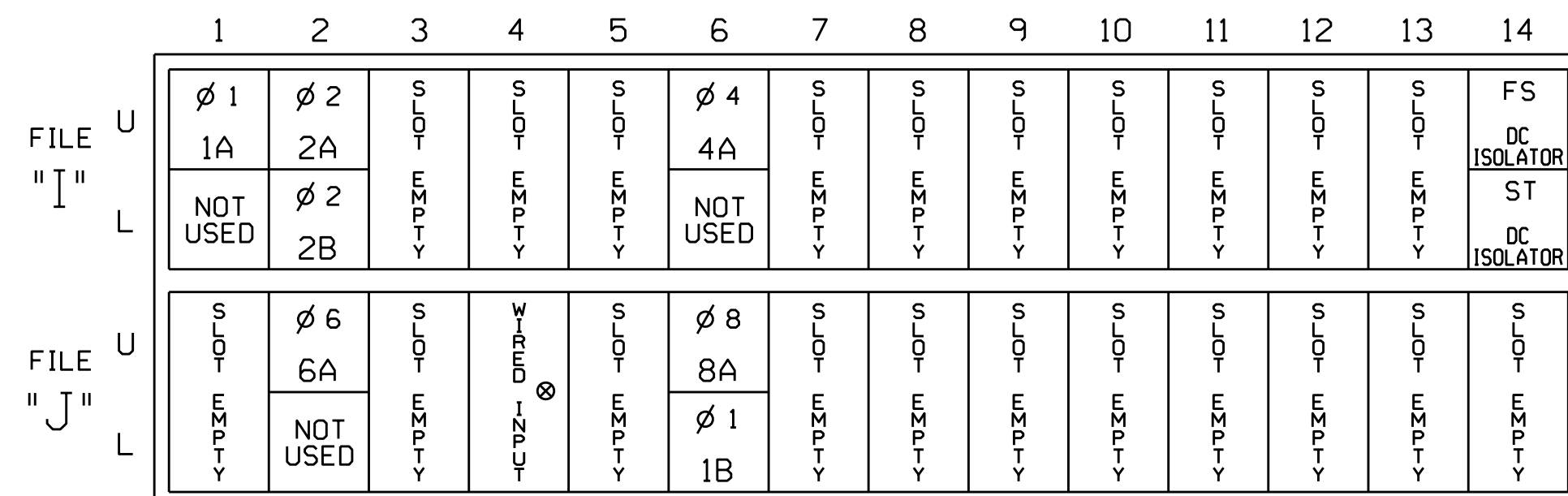
NU = Not Used

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

\* See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE  
 ST = STOP TIME

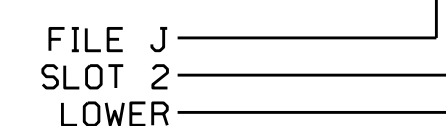
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A <sup>1</sup>	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
1B	TB5-11,12	J6L	46	8	18	1	Y	Y			15
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	Y		3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3

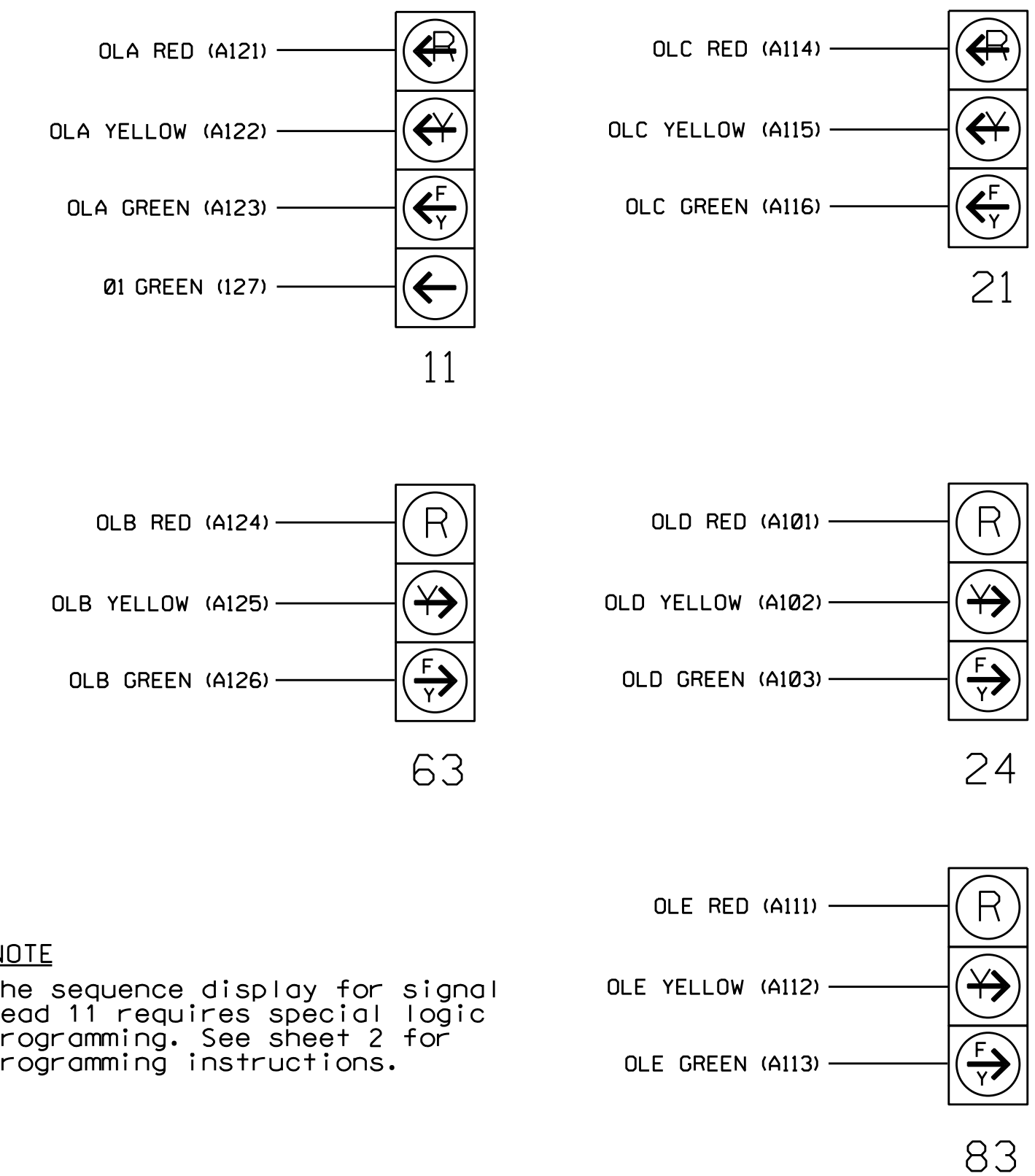
<sup>1</sup>Add jumper from I1-W to J4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



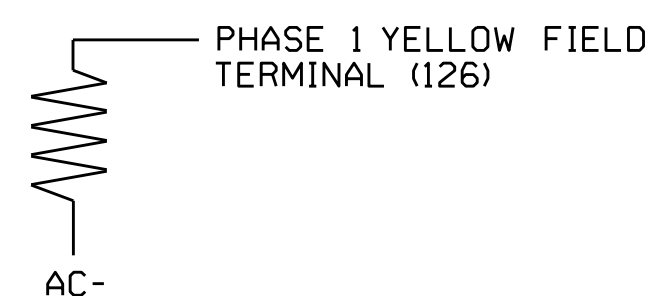
NOTE

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

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1449  
 DESIGNED: January 2022  
 SEALED: 3/29/2022  
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

Prepared In the Offices of:  
 G.L. Transportation, Mobility and Safety Division  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 Signal Management Section  
 750 N. Greenfield Pkwy, Garner, NC 27529

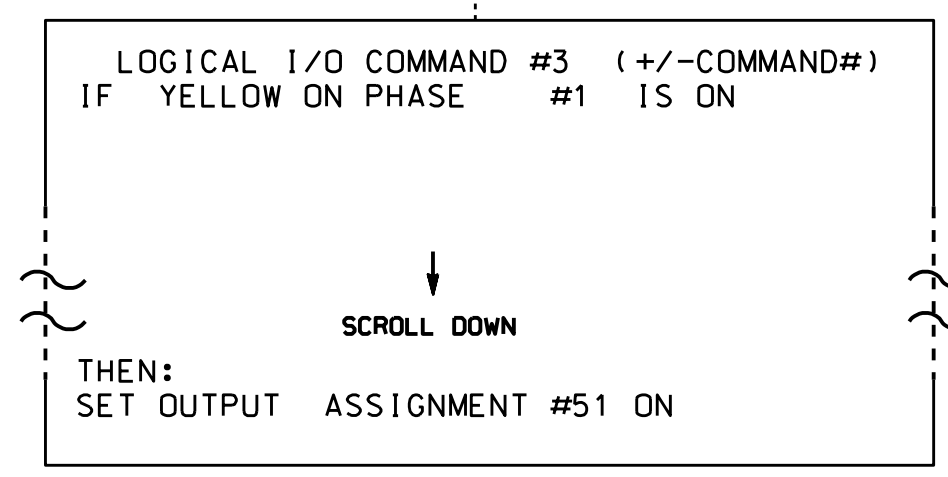
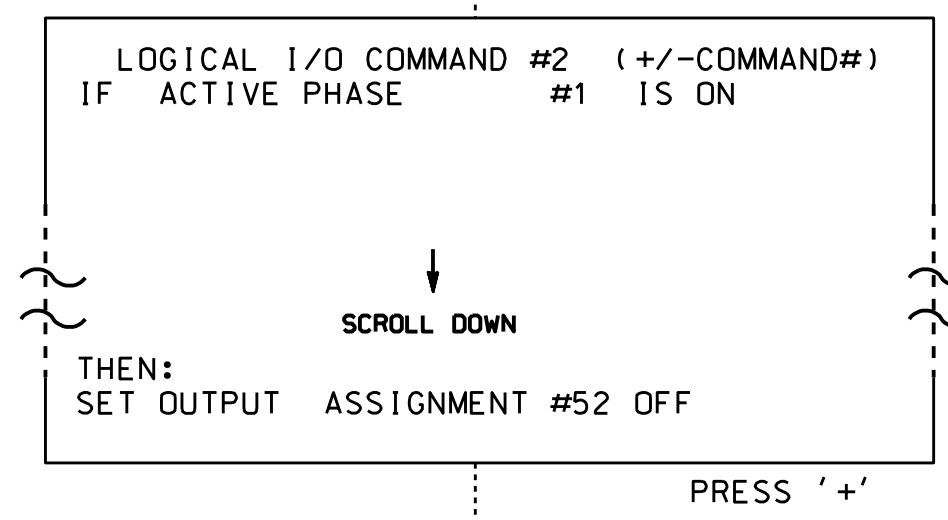
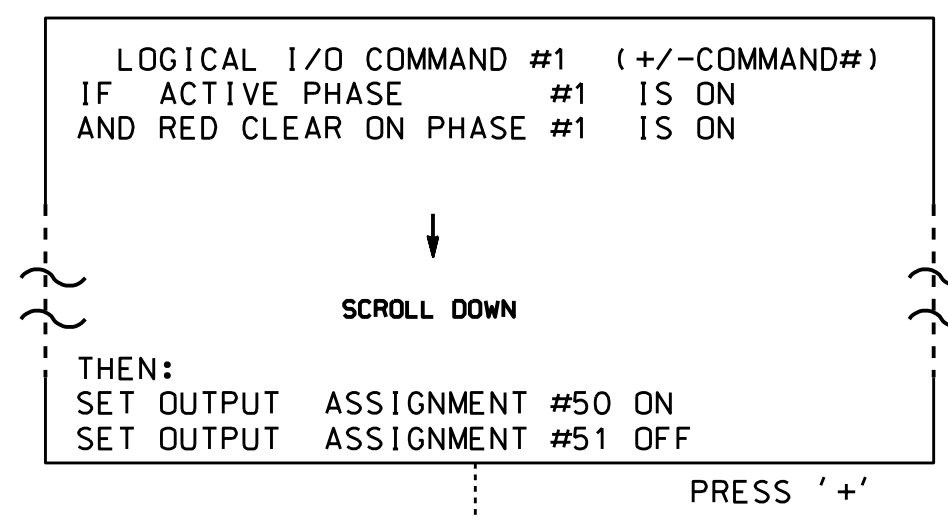
SR 1560 (-L-) at SR 1563 (-Y1-) / Future Road By Others  
 Division 4 Johnston County Clayton  
 PLAN DATE: March 2022 REVIEWED BY:  
 PREPARED BY: Zarrar Zafar REVIEWED BY:  
 REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  
 SEAL  
 PROFESSIONAL ENGINEER  
 SEAL 031001  
 ENGINEER  
 TODD JOYCE  
 DocuSigned by:  
 D. Todd Joyce 03/30/2022  
 SIG. INVENTORY NO. 04-1449

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

(program controller as shown below)

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



LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

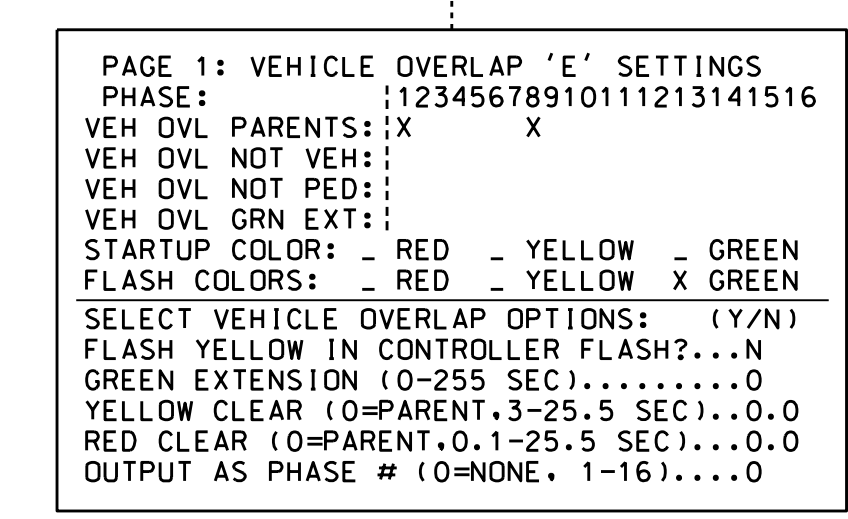
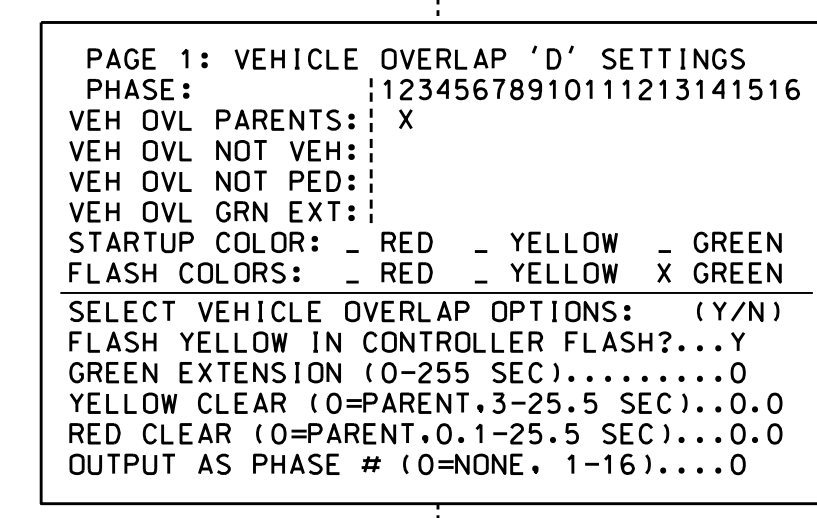
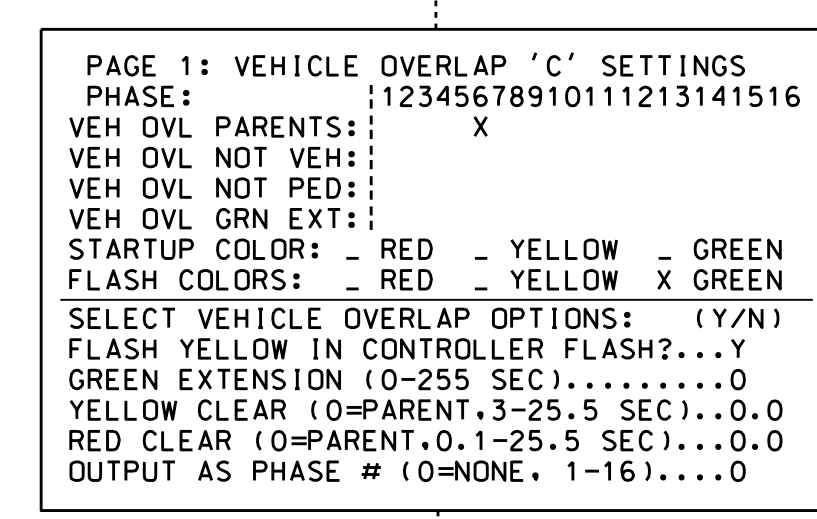
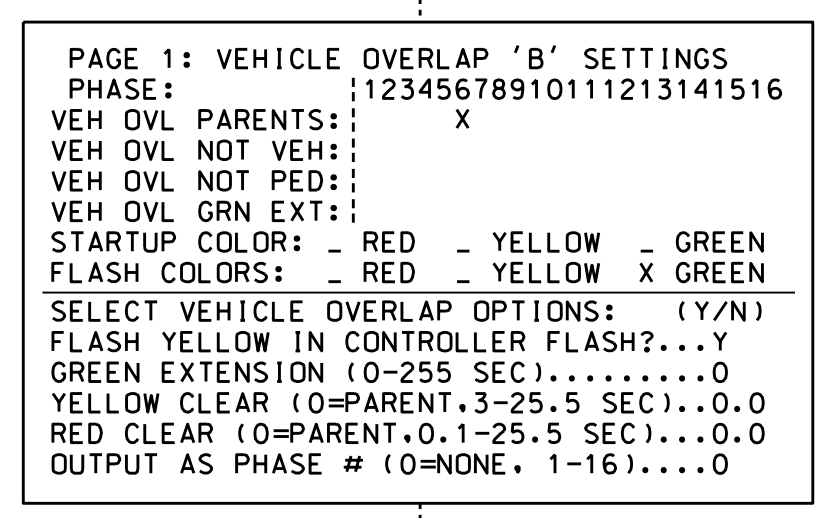
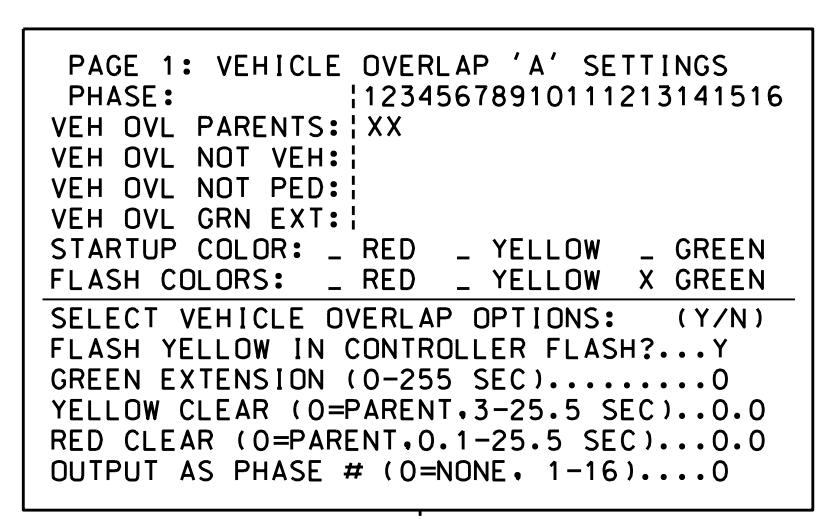
#### OUTPUT REFERENCE SCHEDULE

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

### OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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



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.

3/30/2022 15:43 W:\1449\3-shs-ef-2022\mtds.dgn zzzofg

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1449  
DESIGNED: January 2022  
SEALED: 3/29/2022  
REVISED: N/A

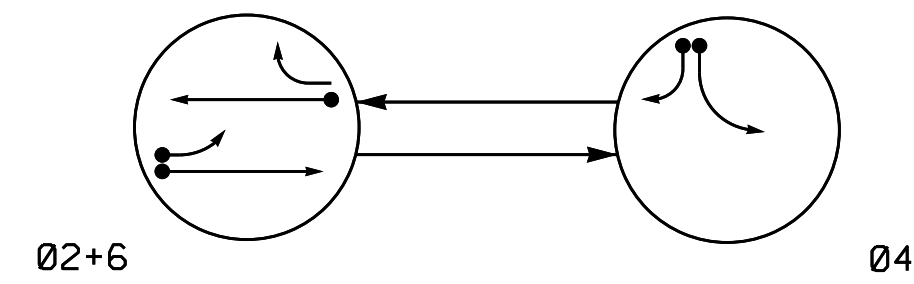
Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1560 (-L-) at SR 1563 (-Y1-) / Future Road By Others		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 TODD JOYCE
Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529		Division 4 Johnston County Clayton PLAN DATE: March 2022 REVIEWED BY: PREPARED BY: Zarrar Zafar REVIEWED BY:		
		REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Discussed by: *T. Todd Joyce* 03/30/2022  
 DATE: \_\_\_\_\_  
 SIG. INVENTORY NO. 04-1449

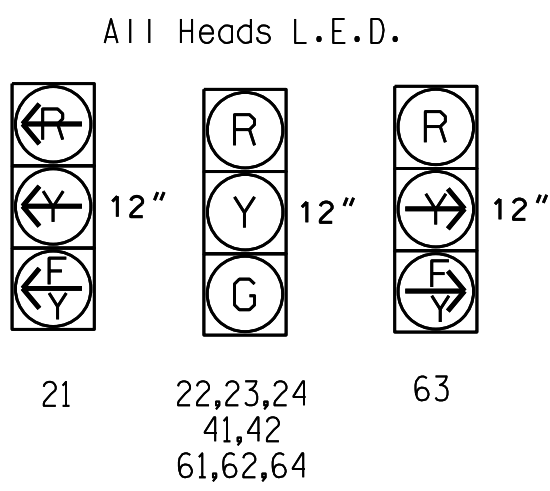
PHASING DIAGRAM



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

SIGNAL FACE	PHASE		
	S	O	F
21	F	R	Y
22,23,24	G	R	Y
41,42	R	G	R
61,62,64	G	R	Y
63	F	R	Y

SIGNAL FACE I.D.

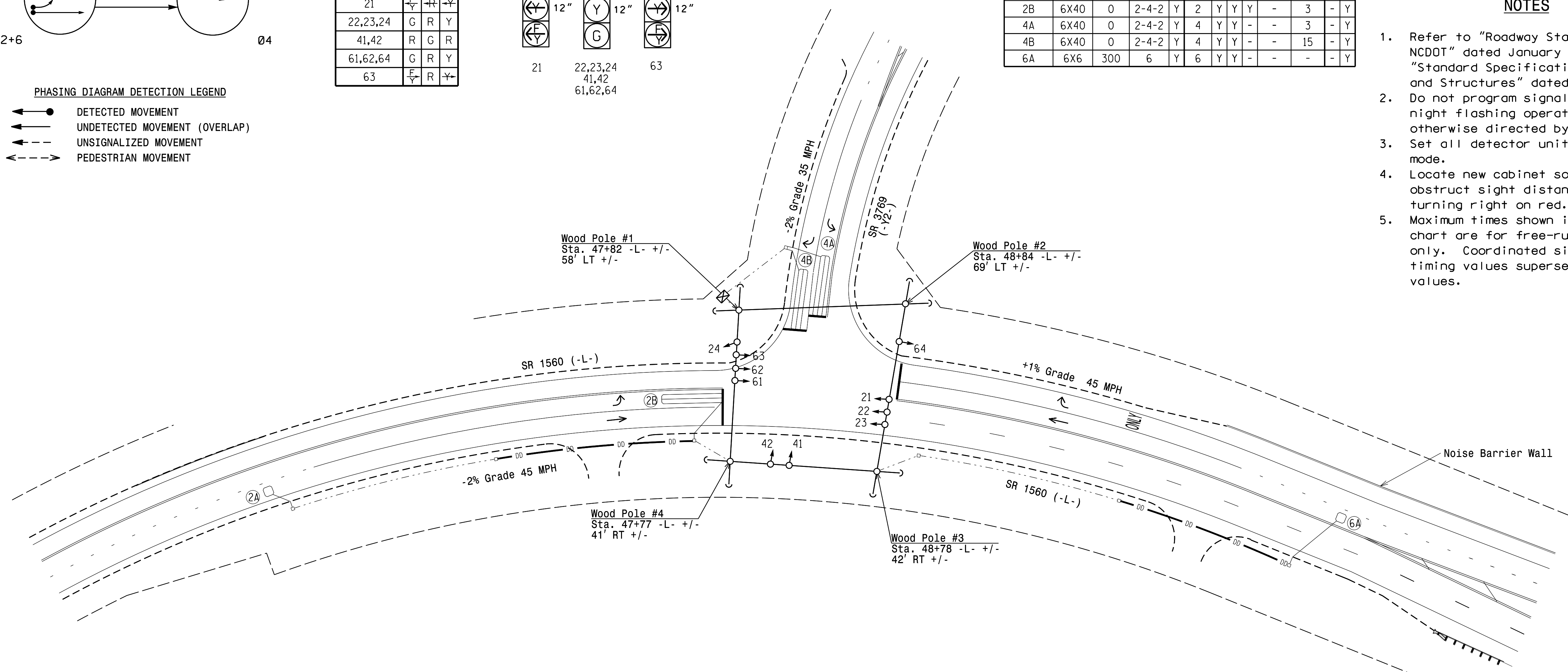


LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X40	0	2-4-2	Y	2	Y	Y	Y	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	Y
6A	6X6	300	6	Y	6	Y	Y	-	-	-	-	Y

2 Phase Fully Actuated  
 US 70 Bus.-NC 42 (Clayton)  
 D04-01\_Clayton

NOTES

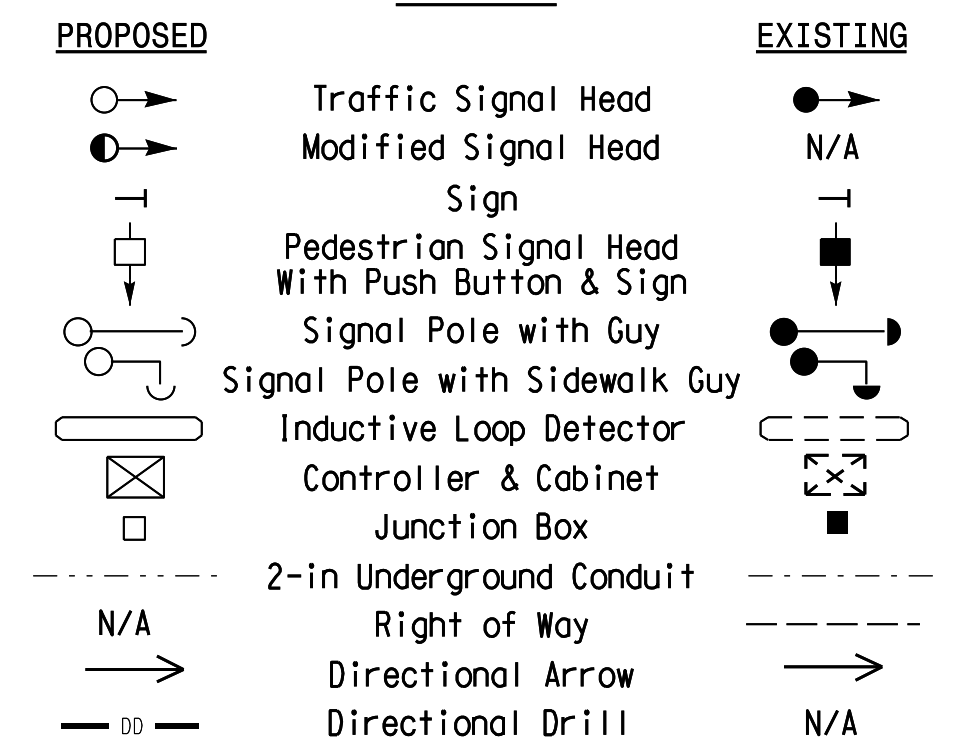
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



FEATURE	PHASE		
	2	4	6
Min Green 1 *	12	7	12
Extension 1 *	6.0	2.0	6.0
Max Green 1 *	90	30	90
Yellow Clearance	4.7	3.0	4.7
Red Clearance	1.3	2.4	1.3
Red Revert	2.0	2.0	2.0
Walk 1 *	-	-	-
Don't Walk 1	-	-	-
Seconds Per Actuation *	2.5	-	2.5
Max Variable Initial *	34	-	34
Time Before Reduction *	15	-	15
Time To Reduce *	30	-	30
Minimum Gap	3.0	-	3.0
Recall Mode	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	YELLOW
Dual Entry	-	-	-
Simultaneous Gap	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



New Installation

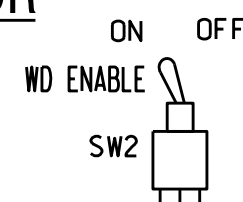
	SR 1560 (-L-) at SR 3769 (-Y2-)		
	Division 4 Johnston County Clayton	PLAN DATE: January 2022 REVIEWED BY: ZML	
PREPARED BY: KGP, Jr.	REVIEWED BY:	DATE:	DATE: 3/25/2022
SCALE: 1" = 40'	REVISIONS:	INIT. DATE:	DATE:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

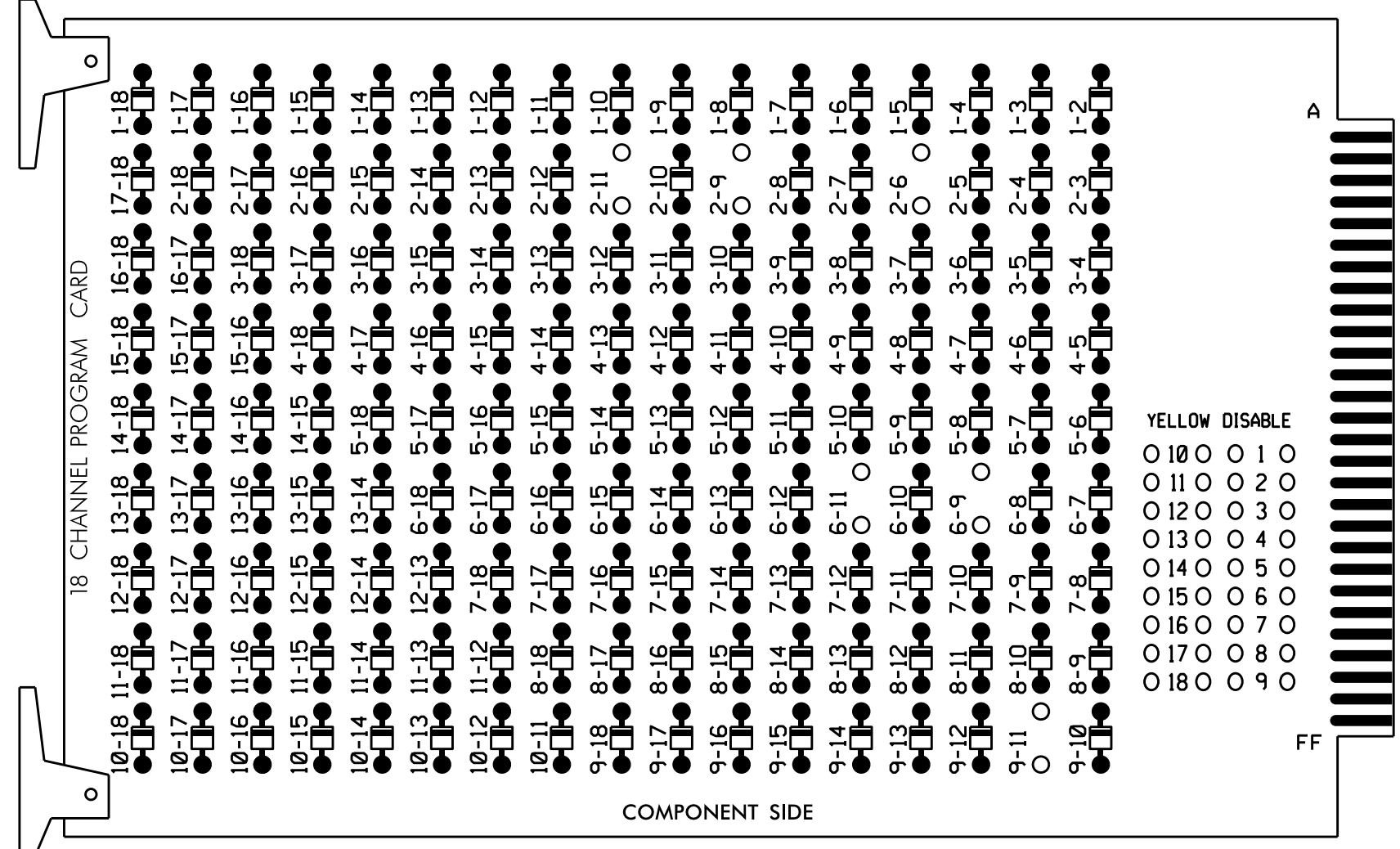
SIG. INVENTORY NO. 04-1448

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



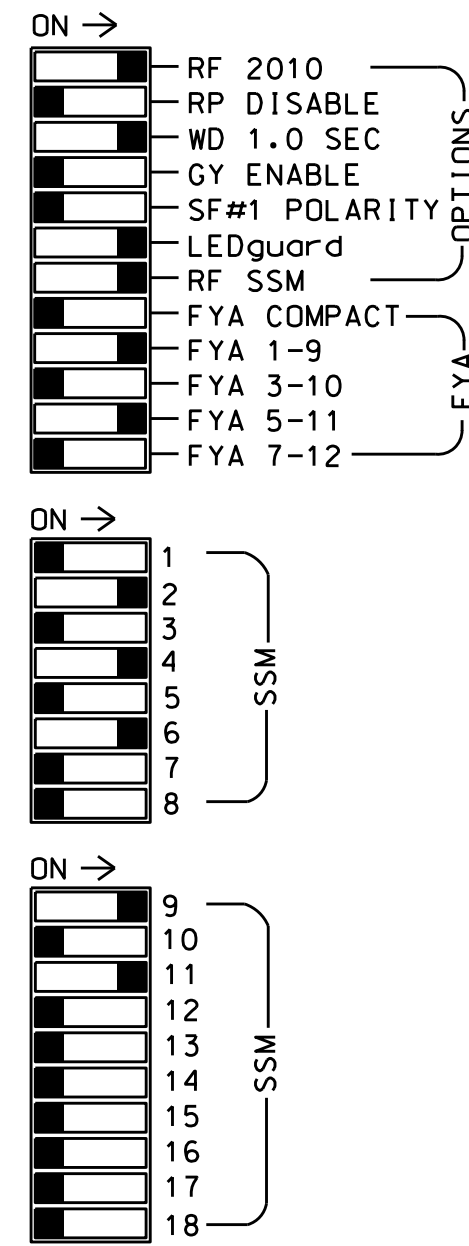
REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 6-9, 6-11 and 9-11.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- 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 Plans.
- Enable Simultaneous Gap-Out for all Phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Startup In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- 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 70 Bus.-NC 42 (Clayton) D04-01\_Clayton System.

EQUIPMENT INFORMATION

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

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	22, 23,24	NU	NU	41,42	NU	NU	61, 62,64	NU	NU	NU	NU	63	NU	NU	21	NU	NU
RED		128			101			134					A121					
YELLOW		129			102			135										
GREEN		130			103			136										
RED ARROW																		A114
YELLOW ARROW													A122					A115
FLASHING YELLOW ARROW													A123					A116
GREEN ARROW																		

NU = Not Used

★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)

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

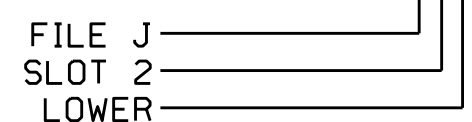
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	Y		3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			

INPUT FILE POSITION LEGEND: J2L



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

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

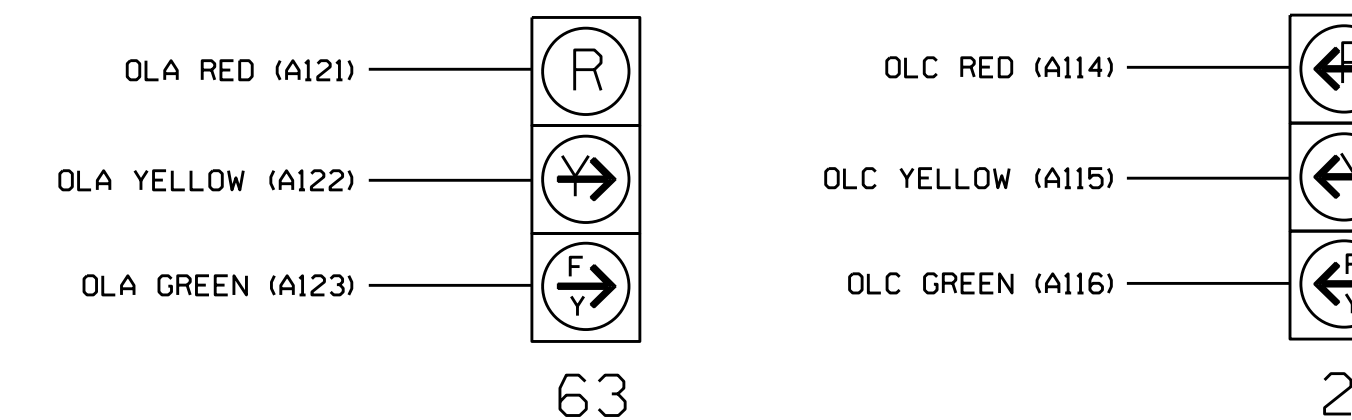
PRESS '+' TWICE

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

OVERLAP PROGRAMMING COMPLETE

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1448  
 DESIGNED: January 2022  
 SEALED: 3/25/2022  
 REVISED: N/A

Electrical Detail

Prepared In the Offices of:  
 G.L. Transportation, Mobility and Signal Division  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 Signal Management Section  
 750 N. Greenfield Pkwy, Garner, NC 27529

SR 1560 (-L-) at Sr 3769 (-Y2-)

Division 4 Johnston County Clayton

PLAN DATE: March 2022 REVIEWED BY:  
 PREPARED BY: Zarrar Zafar REVIEWED BY:

REVISIONS INIT. DATE

Seal: SEAL 031001 ENGINEER TODD JOYCE

DocSigned by: D. Todd Joyce 03/25/2022 DATE

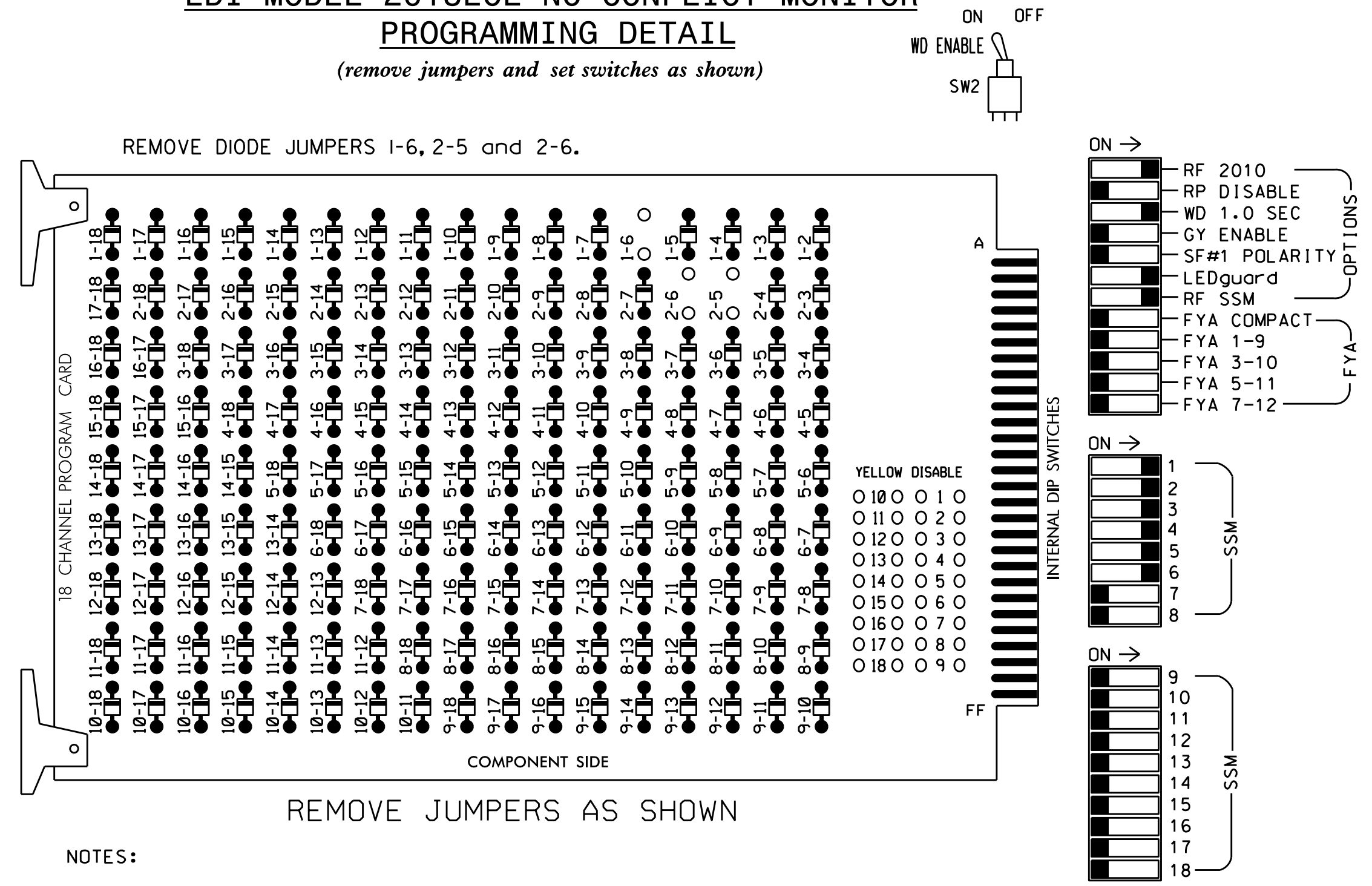
SIG. INVENTORY NO. 04-1448

05-MAR-2022 11:16  
 S:\MIS\501415\SIGNAL\work\hgr\oups\g\man\zafar\plans\041448\041448\_sm.ele\_2022mod.dgn  
 zzzzfor





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



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

**NOTES**

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Enable Simultaneous Gap-Out for all Phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Startup In Green.
- 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 70 Bus. - NC 42 (Clayton) D04-01 Clayton System.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070  
 CABINET.....332  
 SOFTWARE.....ECONOLITE OASIS 3.03.61E  
 OR LATEST APPROVED VERSION  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8  
 PHASES USED.....1,2,3,4,5,6  
 OVERLAP P.....1+2+3+4+5+6

**SIGNAL HEAD HOOK-UP CHART**

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	
CNU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	
SIGNAL HEAD NO.	11	33	21,22	22	31	32,33 34	41	42	43	51,52	61,62	71	81
RED		128		116	116	101	101			134			
YELLOW		129		117	117	102	102			135			
GREEN		130		118	118	103	103			136			
RED ARROW	128					101				131			
YELLOW ARROW	126	126		117		102				132			
GREEN ARROW	127	127		118	118	103	103			133			

NU = Not Used

**INPUT FILE POSITION LAYOUT**  
(front view)

FILE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 1	∅ 2	∅ 2	∅ 3	∅ 3	∅ 4	∅ 4	SYS. DET. S1	S	S	S	S	FS
I	NOT USED		∅ 2	∅ 2	NOT USED	∅ 4	∅ 4	∅ 4	SYS. DET. S2	∅ 4	∅ 4	∅ 4	∅ 4	DC ISOLATOR
L			2B	∅ 2		3C	4B	∅ 4						DC ISOLATOR
U	∅ 5	∅ 5	∅ 6	∅ 6	S	S	S	S	SYS. DET. S3	S	S	S	S	PRE1
J	NOT USED		∅ 6	∅ 6	∅ 6	∅ 6	∅ 6	∅ 6						AC ISOLATOR
L			6B	∅ 6										

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

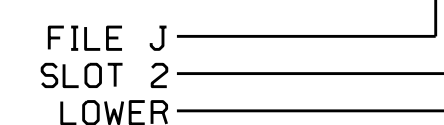
FS = FLASH SENSE  
 ST = STOP TIME  
 PRE1 = RR PREEMPT

**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			
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			15
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			
3B	TB4-9,10	I6U	41	3	4	3	Y	Y			
3C	TB4-11,12	I6L	45	7	14	3	Y	Y			
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	TB3-11,12	J3L	77	39	46	6	Y	Y			
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	SYS					
* S3	TB7-9,10	J9U	59	21	15	SYS					

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

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1037  
 DESIGNED: January 2022  
 SEALED: 03/29/2022  
 REVISED: N/A

**OVERLAP PROGRAMMING DETAIL**  
(program controller as shown below)

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

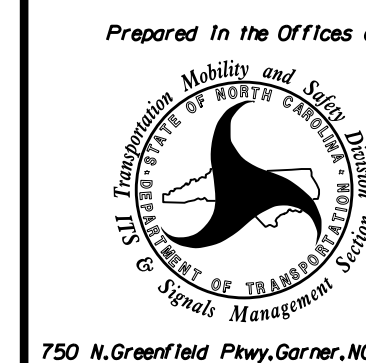
PRESS '-'

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

OVERLAP PROGRAMMING COMPLETE

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:



US 70 Business - NC 42 /  
 US 70 Business  
 at  
 NC 42 / SR 1560 (-L)

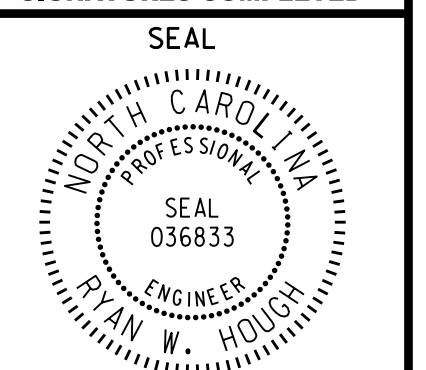
Division 4 Johnston County Clayton

PLAN DATE: March 2022 REVIEWED BY:

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: Ryan W. Hough 04/05/2022

SIG. INVENTORY NO. 04-1037

**RAILROAD PREEMPTION PROGRAMMING DETAIL**

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions).

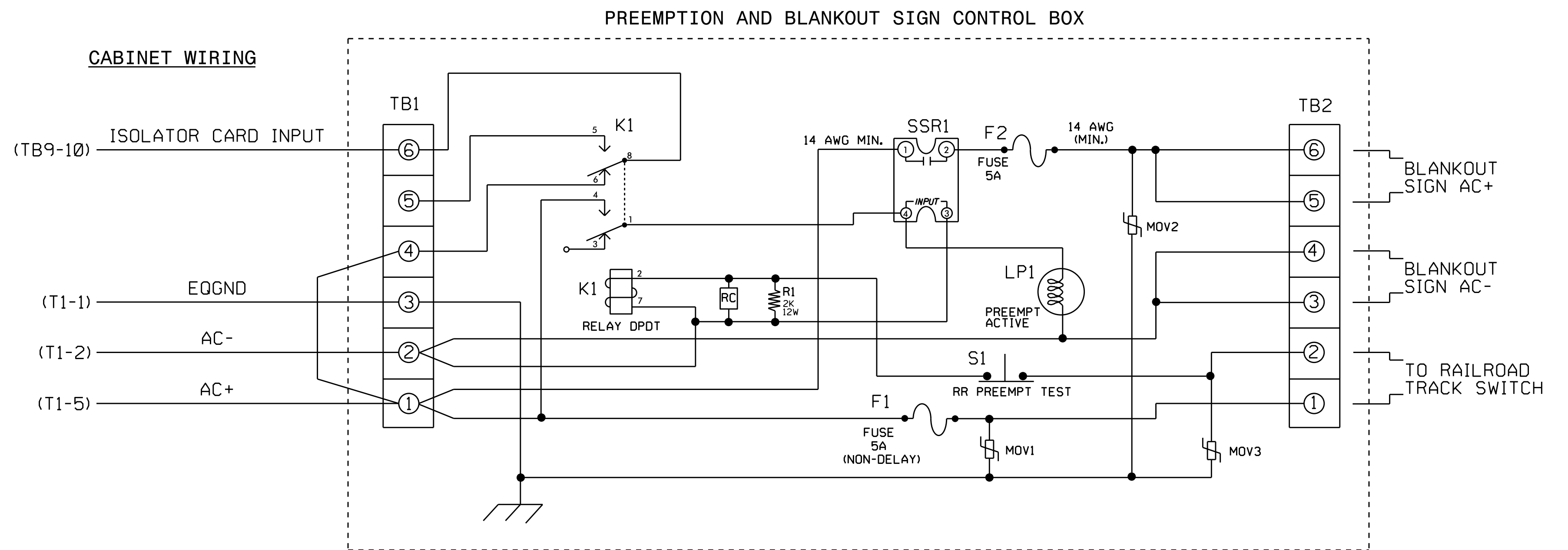
PREEMPTION #1	SETTINGS (NEXT:1-10)	CLEAR/DWELL PHASES										
GRN	YEL	RED	1	2	3	4	5	6	7	8	9	10
1	25	4.5	2.2									X
2	255	0.0	0.0	XX	X							
3	0	0.0	0.0									
4	0	0.0	0.0									
5	1	0.0	0.0									X

EXIT CALLS	OPTIONS
PRIORITY (Y/N TO SELECT) .....	HIGH
DELAY TIMER (0-255 SEC) .....	0
MIN GREEN BEFORE PRE (0= DEFAULT)...	1
PED CLEAR BEFORE PRE (0= DEFAULT)...	0
YELLOW CLEAR BEFORE PRE (0= DEFAULT)...	4.5
RED CLEAR BEFORE PRE (0= DEFAULT)...	3.6
DWELL MIN TIMER (0-255 SEC) .....	7
DWELL MAX TIMER (0=OFF,1-255MIN) .....	0
DWELL HOLD-OVER TIMER (0-255) .....	0
LATCH CALL? .....	N
LINK TO NEXT PREEMPT? .....	N
ENABLE BACKUP PROTECTION? .....	N
HOLD CLEAR 1 PHASES DURING DELAY? .....	N
FAST GREEN FLASH DWELL PHASES? .....	N
PED CLEARANCE THROUGH YELLOW? .....	N
INHIBIT OVERLAP GREEN EXTENSION? .....	N
SERVICE DURING SOFTWARE FLASH? .....	N
REST IN RED DURING DWELL INTERVAL? .....	N
FLASH DWELL INTERVAL? .....	N
ALLOW PEDS IN DWELL INTERVAL? .....	N
RE-TIME DWELL INTERVAL? .....	N
OVERLAPS: .....	ABCDEFGHIJKLMN
DWELL INT FLASH YELLOW .....	
OMIT OVERLAPS: .....	X

**RAILROAD PREEMPTION WIRING DETAIL**

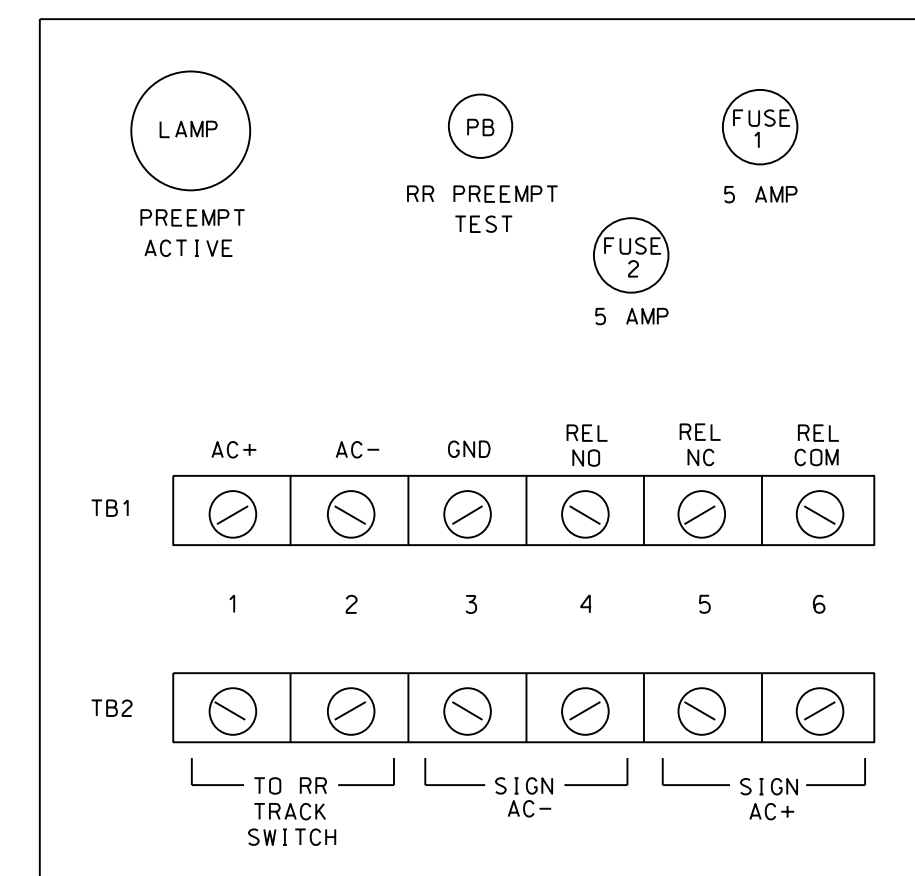
(wire as shown below)



**NOTES**

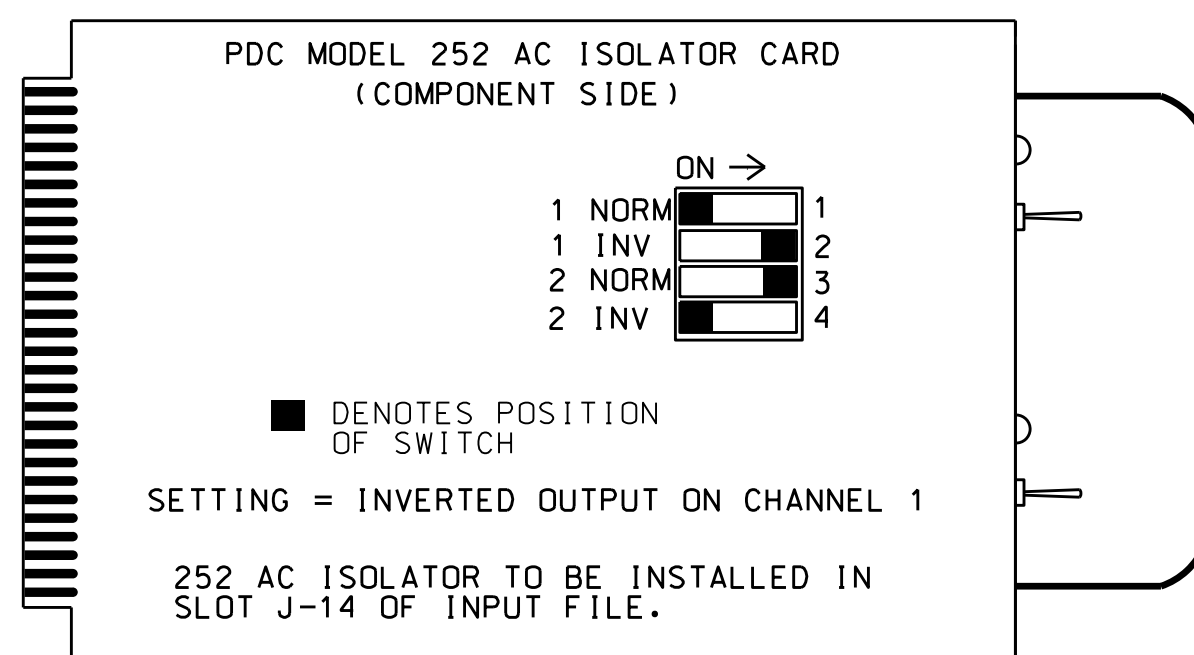
- Relay K1 is shown in the energized (Preempt not active) normal operation state.
- Relay K1 is a DPDT with 120VAC coil with octal base.
- Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
- AC Isolator Card shall activate preemption upon removal of AC+ from the input (as shown above). To accomplish this set invert dip switch on AC Isolator Card.
- IMPORTANT!!** A jumper must be added between input file terminals J14-E and J14-K if not already present. Also, terminal TB9-12 (on input panel) shall be connected to AC neutral (jumper may have to be added).

**FRONT VIEW**



**PREEMPT 1 AC ISOLATOR (MODEL 252) OUTPUT PROGRAMMING DETAIL**

(set DIP switches as shown below)

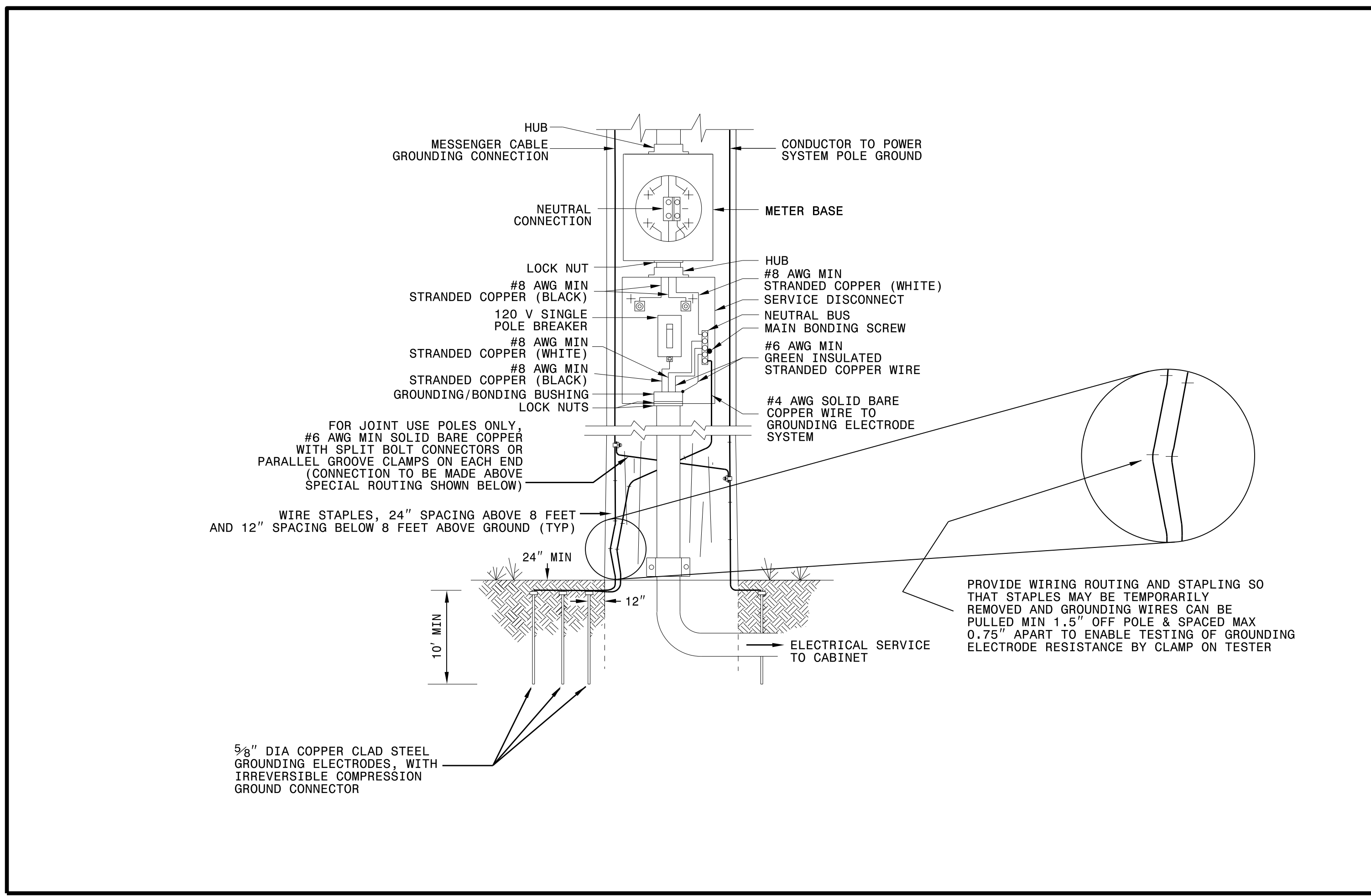


NOTE: IF ANOTHER MANUFACTURER TYPE OF AC ISOLATOR IS USED, OUTPUT PROGRAMMING IS LIKELY NOT TO EQUATE TO THAT SHOWN ABOVE.

Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<p>ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p>Prepared in the Offices of:</p> <p>750 N. Greenfield Pkwy, Corner, NC 27529</p>	<p>US 70 Business - NC 42 / US 70 Business at NC 42 / SR 1560 (-L)</p> <p>Division 4 Johnston County Clayton</p> <p>PLAN DATE: March 2022 REVIEWED BY:</p> <p>PREPARED BY: S. Armstrong REVIEWED BY:</p>	<p>SEAL</p> <p>DocuSigned by: Ryan W. Hough 04/05/2022</p> <p>430320FA2654C3 DATE</p> <p>SIG. INVENTORY NO. 04-1037</p>
	<p>THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1037</p> <p>DESIGNED: January 2022</p> <p>SEALED: 03/29/2022</p> <p>REVISED: N/A</p>	



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

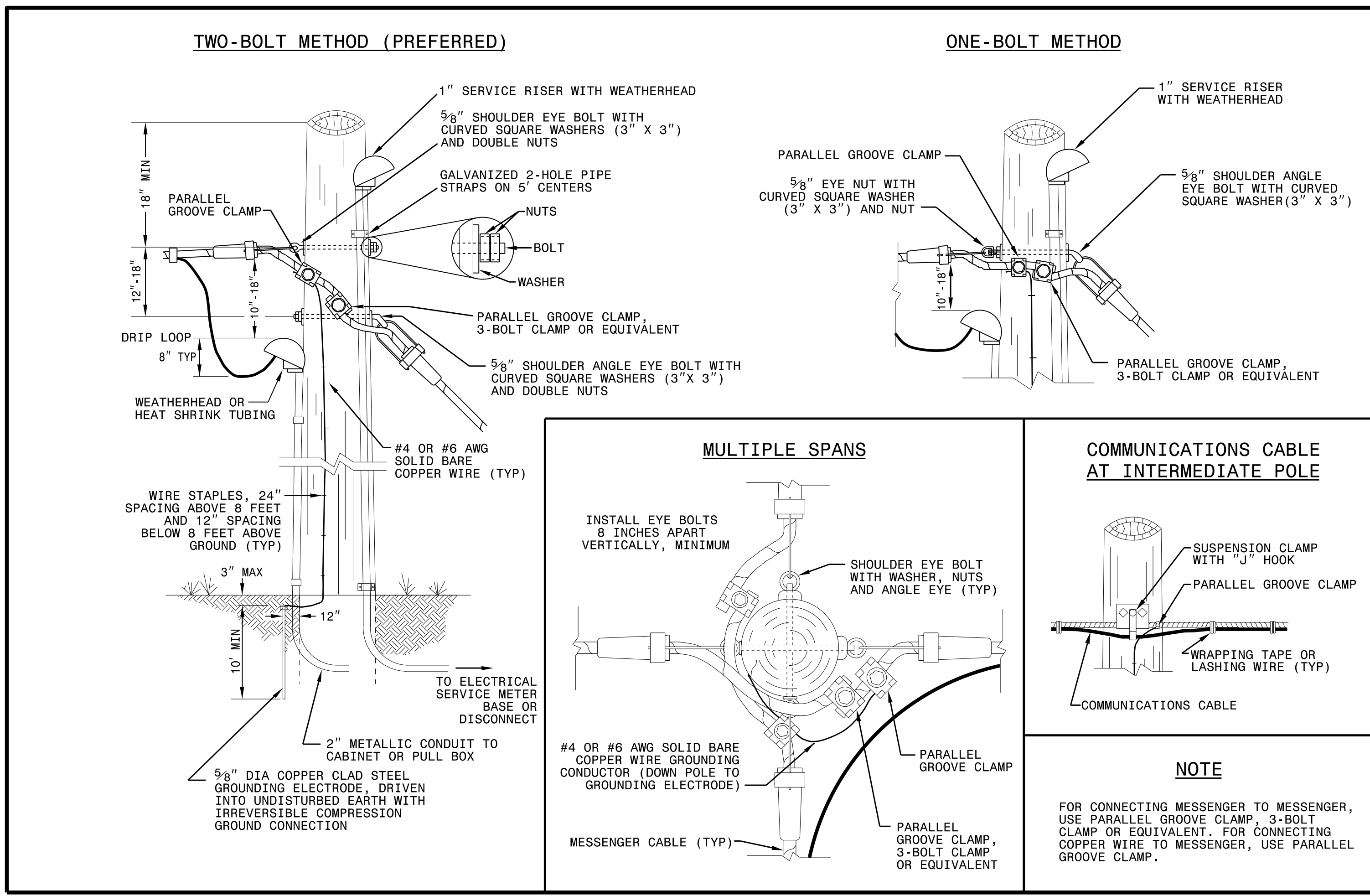
ENGLISH STANDARD DRAWING FOR

**ELECTRICAL SERVICE GROUNDING**

GROUNDING AND BONDING

SHEET 1 OF 1

**1700D01**



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR

**WOOD POLES**

METHODS OF ATTACHMENT AND GROUNDING

SHEET 1 OF 1

**1720D01**

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

See Plate for Title

<p>Prepared in the Offices of:</p> <p>750 N. Greenfield Parkway Garner, NC 27529</p>	<p>SEAL</p> <p>MOHD A. ASLAMI ENGINEER</p> <p>DocuSigned by: Mohd Aslami</p> <p>10/11/2017</p> <p>DATE</p>
--	--

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11-2018\_S14\_DrawingPlate\_Sheets2018\_Plate\_Sheet.dgn  
r:\rough

- 1 INSTALL COAX CABLE
- 2 INSTALL ETHERNET CABLE
- 3 EXISTING ETHERNET (OR COAX) CABLE
- 4 INSTALL SMFO CABLE
- 5 EXISTING SMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 INSTALL NEW ETHERNET EDGE SWITCH
- 27 INSTALL NEW FIBER OPTIC TRANSCEIVER
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPlice CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPlice ENCLOSURE
- 30 INSTALL AERIAL SPlice ENCLOSURE
- 31 MODIFY EXISTING INTERCONNECT CENTER /SPlice ENCLOSURE
- 32 INSTALL POLE MOUNTED SPlice CABINET
- 33 INSTALL BASE MOUNTED SPlice CABINET

- 34 INSTALL CABINET FOUNDATION
- 35 INSTALL CCTV CAMERA POLE MOUNTED CABINET
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40A INSTALL OVERSIZED JUNCTION BOX
- 40B INSTALL SPECIAL OVERSIZED JUNCTION BOX (36" x 24" x 24")
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48A REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 48B REMOVE EXISTING COMMUNICATIONS CABLE
- 49 BACK PULL EXISTING COMMUNICATIONS CABLE
- 50 INSTALL CELL MODEM AND ANTENNA
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52A INSTALL DELINEATOR MARKER
- 52B INSTALL JUNCTION BOX MARKER
- 53A STORE 20 FEET OF COMMUNICATIONS CABLE
- 53B STORE 50 FEET OF EACH COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 INSTALL NEW EQUIPMENT CABINET DISCONNECT
- 60 BOND TRACER WIRE TO EQUIPMENT GROUND BUS  
DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS  
BOND RISER AND MESSENGER CABLE TO POLE GROUND
- 61 BOND RISER TO POLE GROUND
- 62 BOND MESSENGER CABLE TO POLE GROUND
- 63 BOND MESSENGER CABLE TO POLE GROUND
- 64 BOND MESSENGER CABLE TO POLE GROUND
- 65 INSTALL HEAT SHRINK TUBING RETROFIT KIT
- 66 INSTALL MOLDABLE DUCT SEAL
- 67 SLACK SPAN

**LEGEND**

	NEW FIBER OPTIC COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
	NEW AERIAL GUY ASSEMBLY
	NEW CONDUIT
	EXISTING CONDUIT
	NEW DIRECTIONAL DRILLED CONDUIT

NEW		EXISTING
	OVERSIZED JUNCTION BOX	
	WOOD POLE	
	AERIAL SPlice ENCLOSURE	
	UNDERGROUND SPlice ENCLOSURE	
	METAL POLE	
	CCTV ASSEMBLY	
	STANDARD GUY ASSEMBLY	
	SIDEWALK GUY ASSEMBLY	
	CABLE STORAGE RACKS (SNOW SHOES)	
	SIGNAL/EQUIPMENT CABINET	
	SPlice CABINET	
	FLAT PANEL ANTENNA (SINGLE)	
	YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION	
	YAGI ANTENNA (SINGLE)	
	OMNI ANTENNA	
	SIGNAL POLE	
	SIGNAL INVENTORY NUMBER	

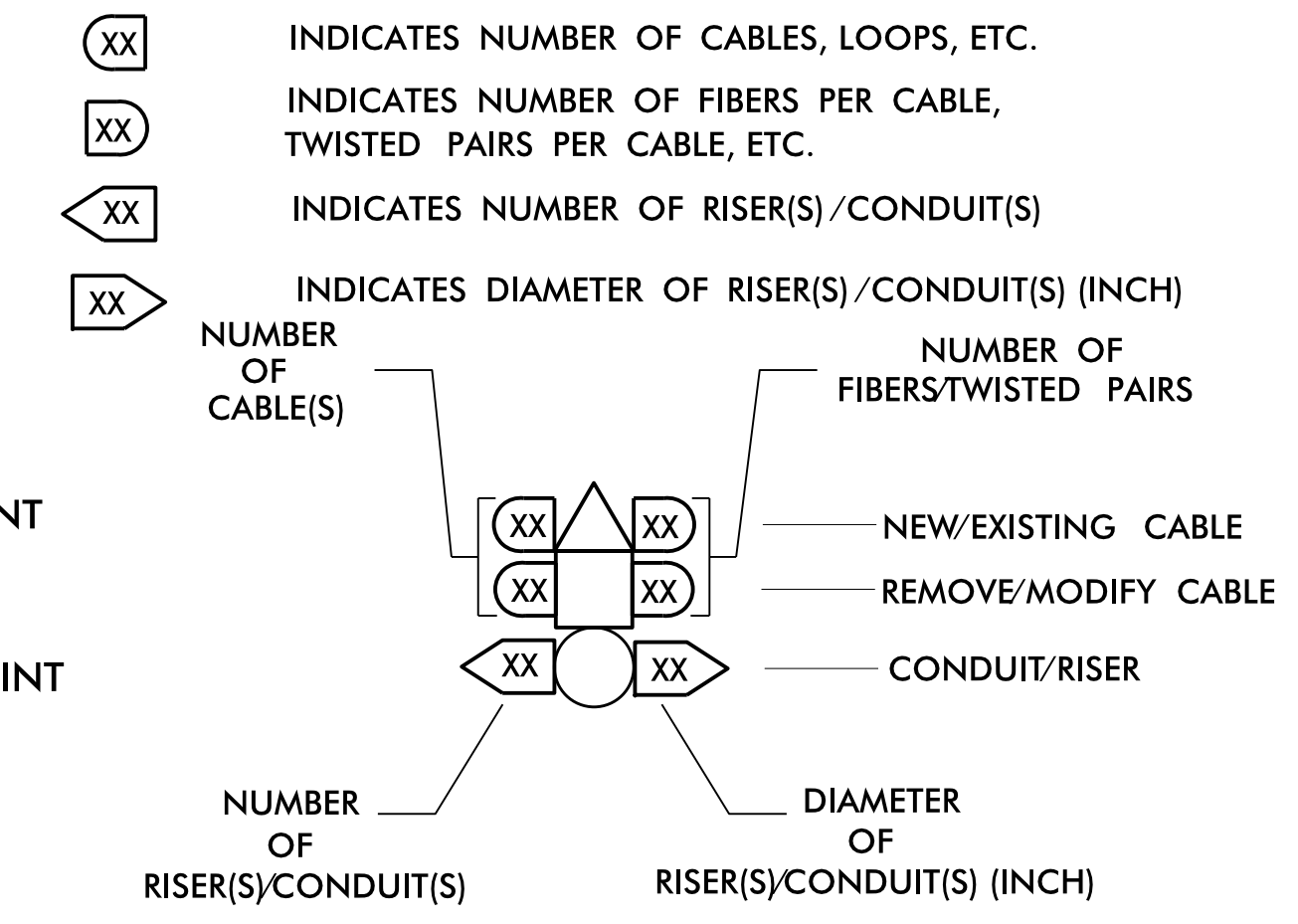
**ATTACHMENT POINT:**

'/> DISTANCE ABOVE (IN)/ATTACHMENT POINT REFERENCE POINT

'/> REFERENCE POINT DISTANCE BELOW (IN)/ATTACHMENT POINT

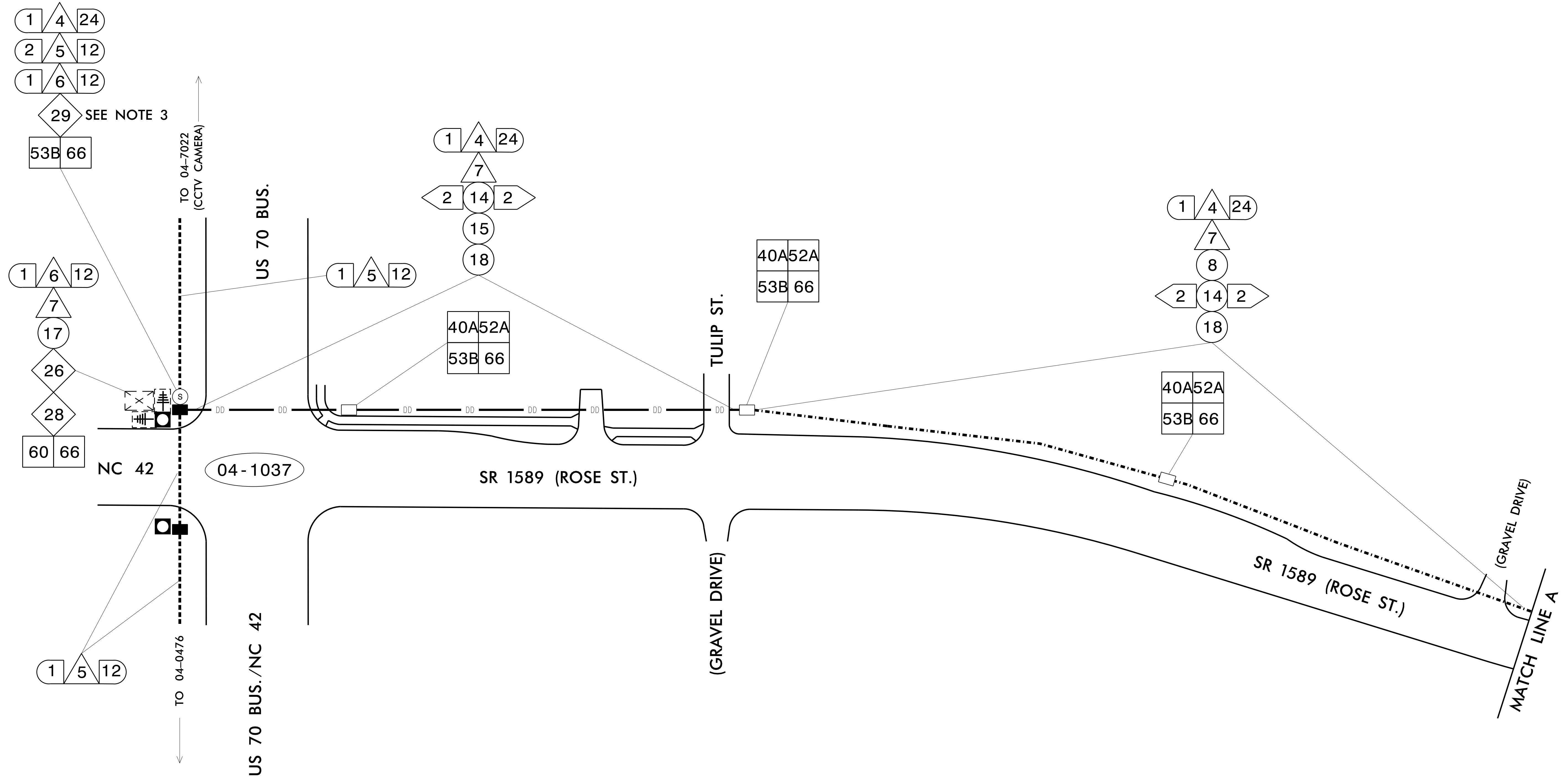
**"SS" REFERENCE LOCATION**  
 FS = FRONT SIDE OF POLE  
 BS = BACK SIDE OF POLE

**CONSTRUCTION NOTE SYMBOLOGY KEY**



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

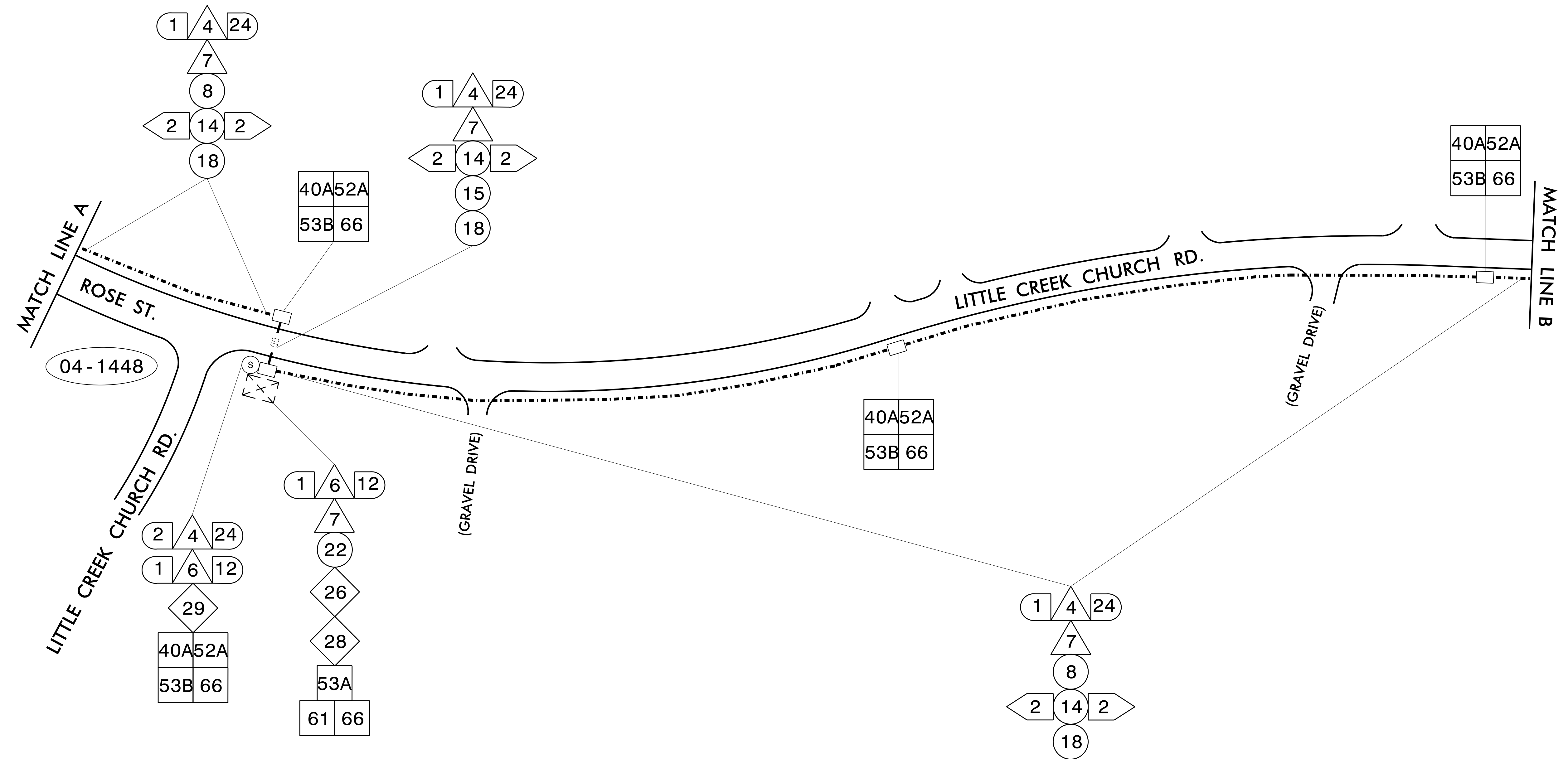
	<b>CONSTRUCTION NOTES</b>		
	DIVISION 4 JOHNSTON CO. CLAYTON PLAN DATE: FEBRUARY 2022 REVIEWED BY: <i>Gryff Grun</i> PREPARED BY: D.J. SONDERFAN		
REVISIONS _____ _____ _____		INIT. DATE _____ _____ _____	SIGNATURE: <i>Matthew T. Carls</i> DATE: 03/01/2022



1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (252) 640-6502 TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
2. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
3. DISCONNECT THE EXISTING FIBERS IN THE CABINET INTERCONNECT CENTER AND RE-ROUTE TO THE NEW SPLICE ENCLOSURE IN EXISTING JUNCTION BOX. SPLICE EXISTING 12-FIBER TRUNK, NEW 12-FIBER DROP CABLE, EXISTING 12-FIBER DROP CABLE AND NEW 24-FIBER TRUNK IN NEW SPLICE ENCLOSURE. REFER TO SCP-6 FOR SPLICE DETAIL.
4. TRANSFER THE EXISTING RADIO AND EQUIPMENT TO THE NEW SIGNAL CABINET AND REESTABLISH COMMUNICATIONS.
5. TRANSFER THE EXISTING CELL MODEM TO THE NEW SIGNAL CABINET AND REESTABLISH COMMUNICATIONS.

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

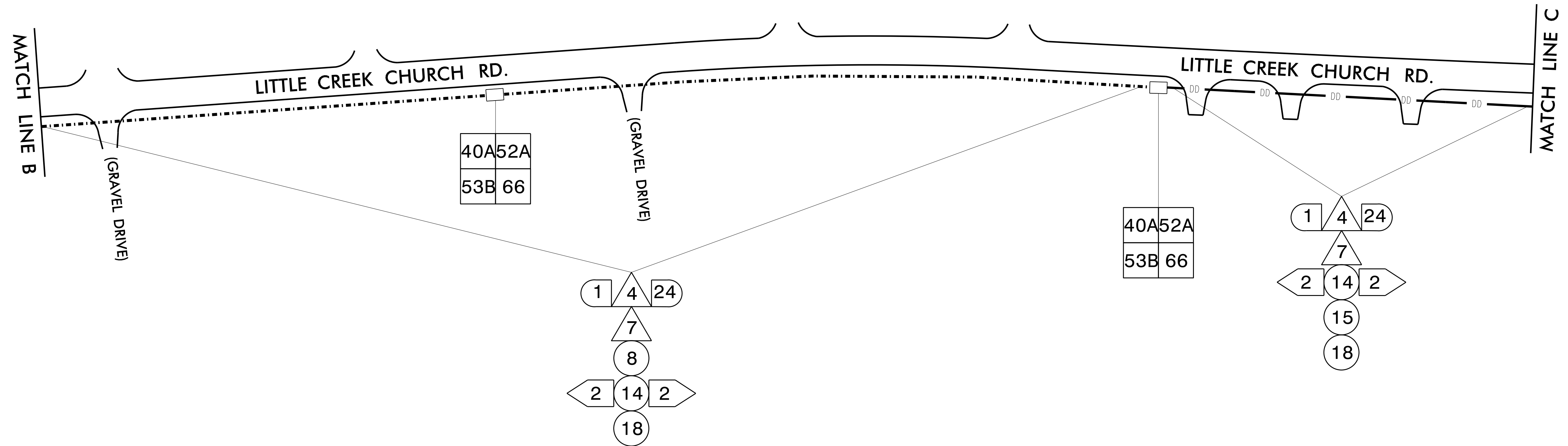
	<b>COMMUNICATION CABLE AND CONDUIT ROUTING PLANS</b>		
	DIVISION 4    JOHNSTON CO.    CLAYTON	PLAN DATE: FEBRUARY 2022    REVIEWED BY: <i>Gregg Green</i>	
250 N. Greenfield Place, Garner, NC 27529	SCALE: 0	REVISIONS:	SIGNATURE: <i>Matthew T. Carlisle</i> DATE: 03/01/2022



1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (252) 640-6502 TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

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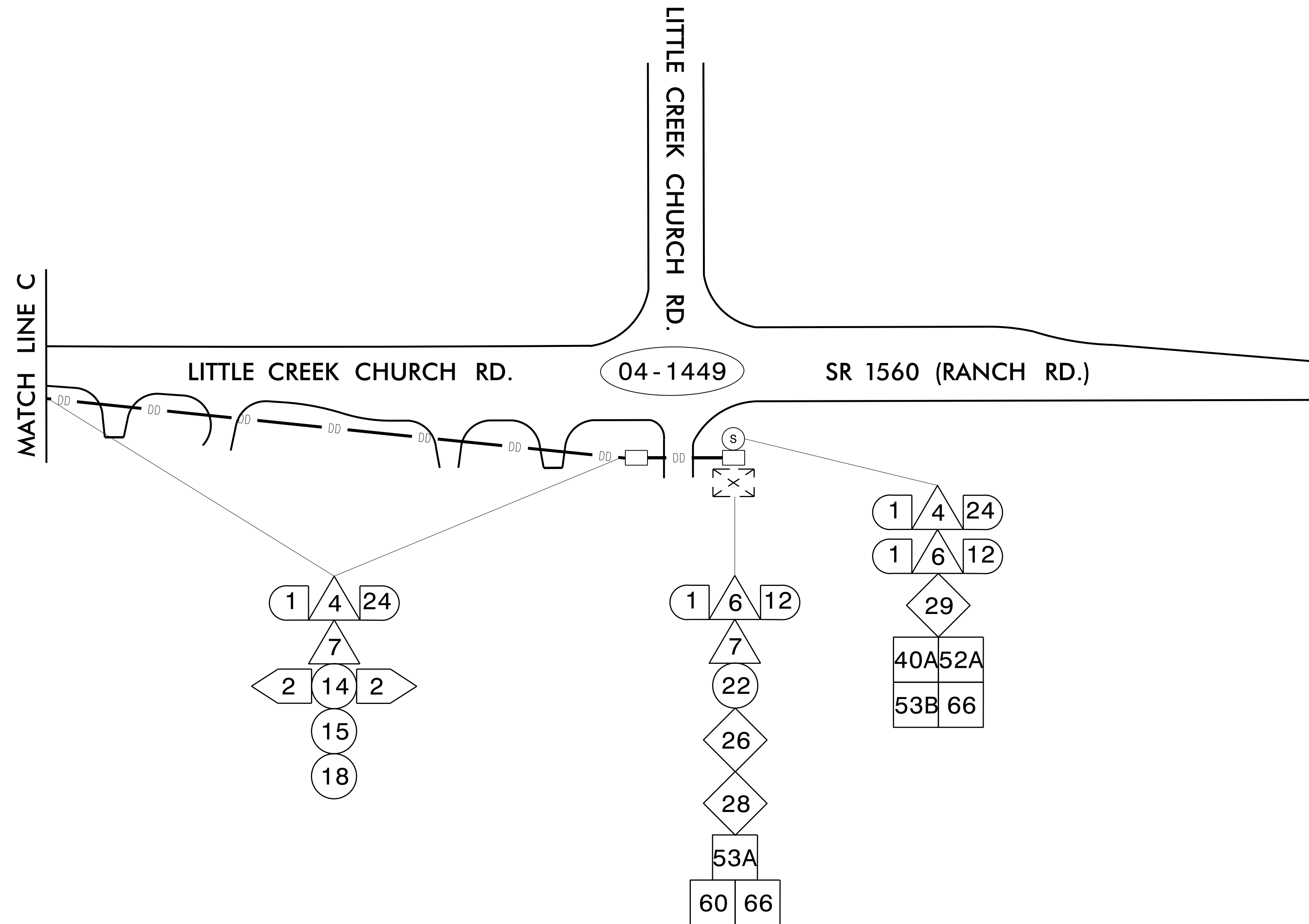
<p>Prepared in the Offices of: The State of North Carolina Department of Transportation 250 N. Greenfield Pkwy., Garner, NC 27529</p>	<b>COMMUNICATION CABLE AND CONDUIT ROUTING PLANS</b>		
	DIVISION 4    JOHNSTON CO.    CLAYTON	PLAN DATE: FEBRUARY 2022    REVIEWED BY: <i>Gryff Gruen</i>	
PREPARED BY: D.J. SONDERFAN	REVISIONS: _____    INIT.: _____    DATE: _____		SIGNATURE: <i>Matthew T. Carls</i> DATE: 03/01/2022



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1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (252) 640-6502 TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

<p>Prepared in the Offices of: STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p>750 N. Greenfield Place, Garner, NC 27529</p>	<b>COMMUNICATION CABLE AND CONDUIT ROUTING PLANS</b>		
	DIVISION 4    JOHNSTON CO.    CLAYTON	PLAN DATE: FEBRUARY 2022    REVIEWED BY: <i>Gregg Brun</i>	
	REVISIONS	INIT.    DATE	SIGNATURE: <i>Matthew T. Carlisle</i> DATE: 03/01/2022



1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (252) 640-6502 TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

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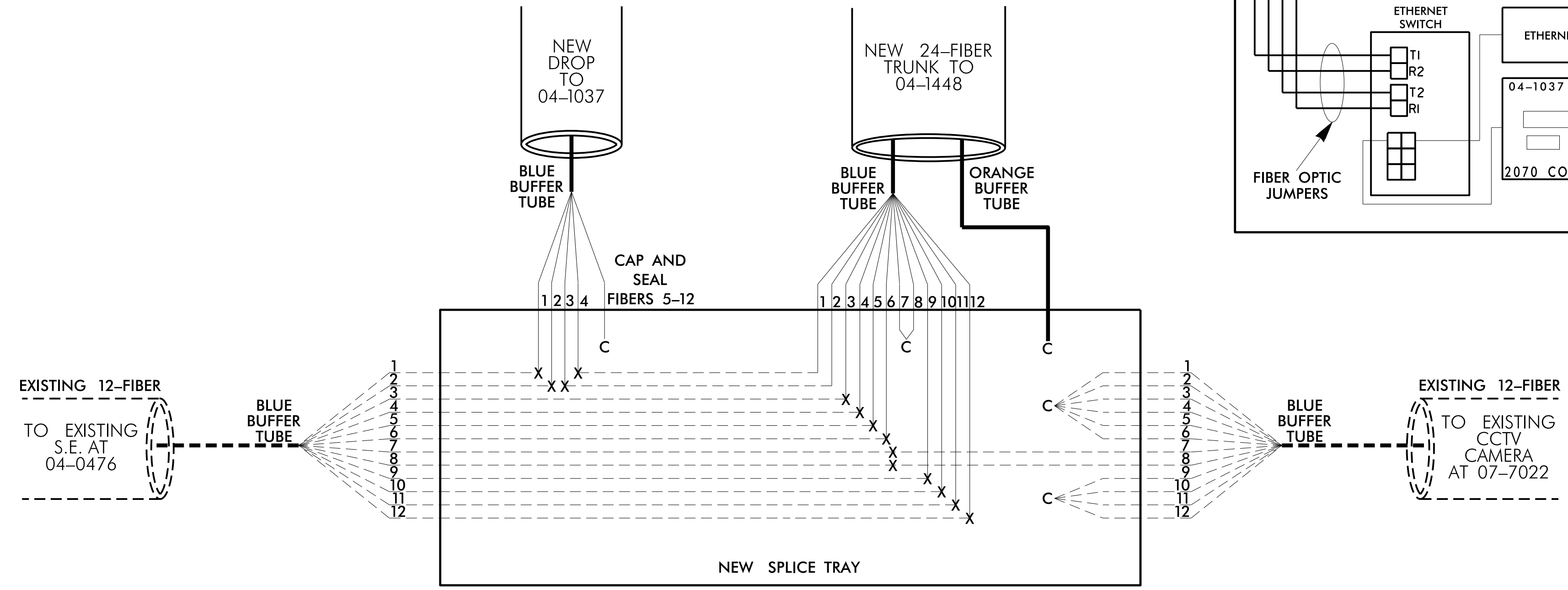
	<b>COMMUNICATION CABLE AND CONDUIT ROUTING PLANS</b>		
	DIVISION 4    JOHNSTON CO.    CLAYTON	PLAN DATE: FEBRUARY 2022    REVIEWED BY: <i>Gregg Brun</i>	
PREPARED BY: D.J. SONDERFAN	REVISIONS	INIT.	DATE
SCALE: 0	SIGNATURE: <i>Matthew T. Carls</i>	DATE: 03/01/2022	



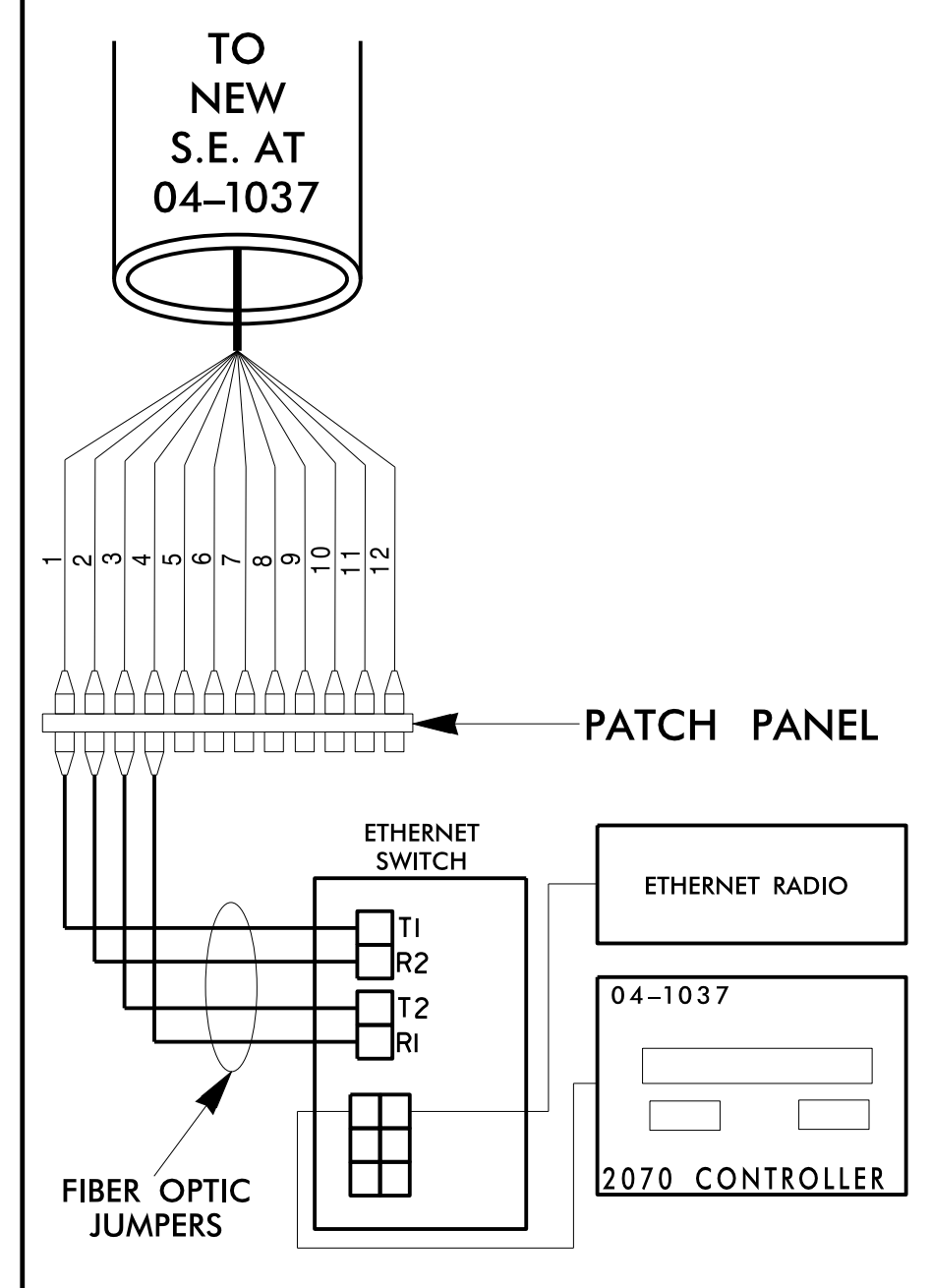
**NEW SPLICE ENCLOSURE**  
 NC 70 BUS. AT NC 42/ROSE ST.  
 SIG. INV. # 04-1037

Notes:  
 Unused fibers left coiled and stored in splice tray.  
 Unused Buffer Tubes left coiled and stored in splice tray.

- LEGEND**
- X = FUSION SPLICE
  - C = CAP IN TRAY
- EXPRESS** = EXPRESS ALL FIBERS/  
 BUFFER TUBES
- SPLICE** = SPLICE ALL FIBERS/  
 BUFFER TUBES
- COLOR CODE**  
 TIA/EIA 598-A
- |            |             |
|------------|-------------|
| (1) BLUE   | (7) RED     |
| (2) ORANGE | (8) BLACK   |
| (3) GREEN  | (9) YELLOW  |
| (4) BROWN  | (10) VIOLET |
| (5) SLATE  | (11) ROSE   |
| (6) WHITE  | (12) AQUA   |



**CABINET AT INTERSECTION 04-1037**



- FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (252) 640-6502 TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
- CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
- ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
- INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:  
 REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
  - SPLICE LOCATION
  - DATE
  - COMPANY NAME
  - NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

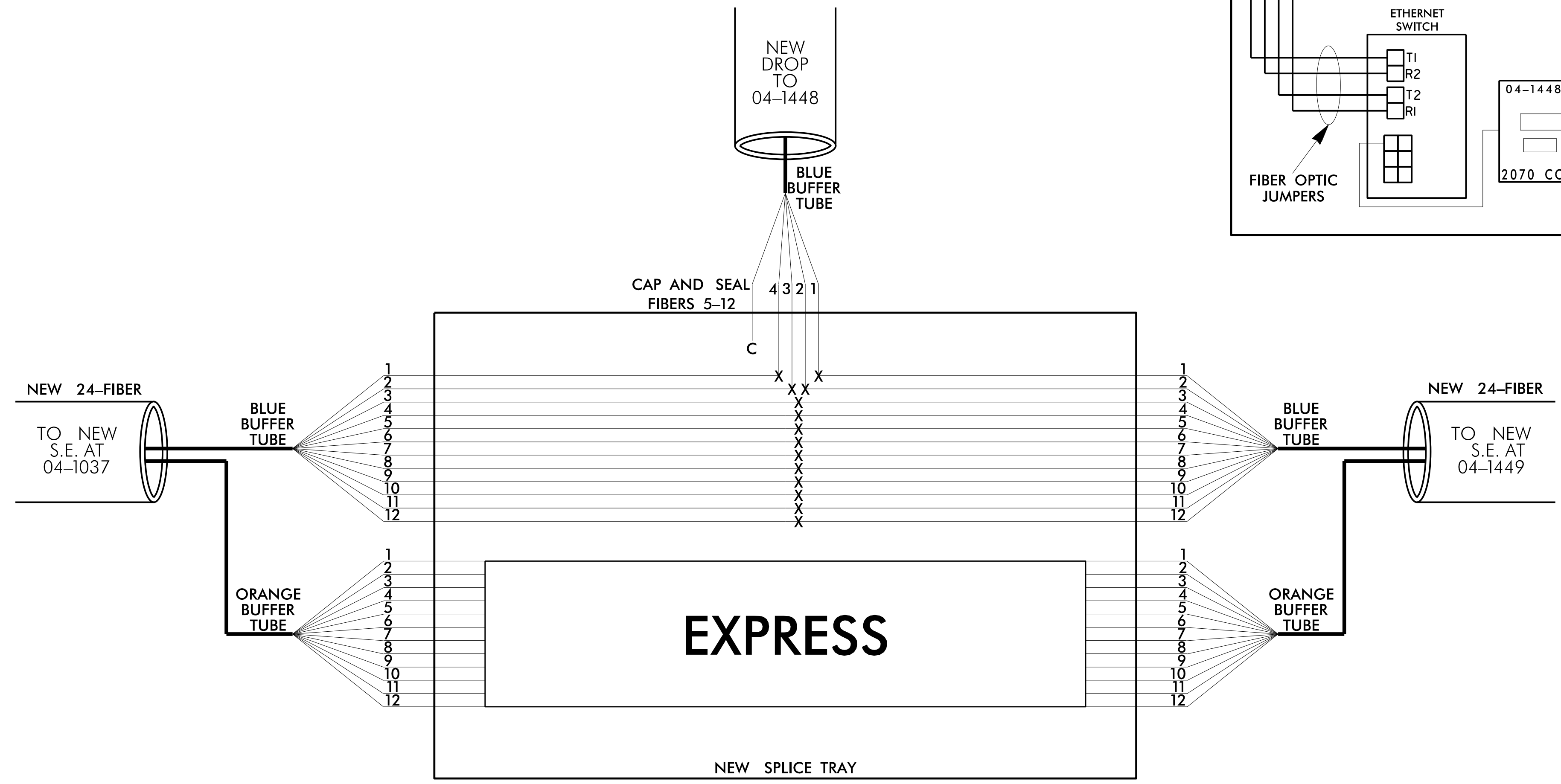
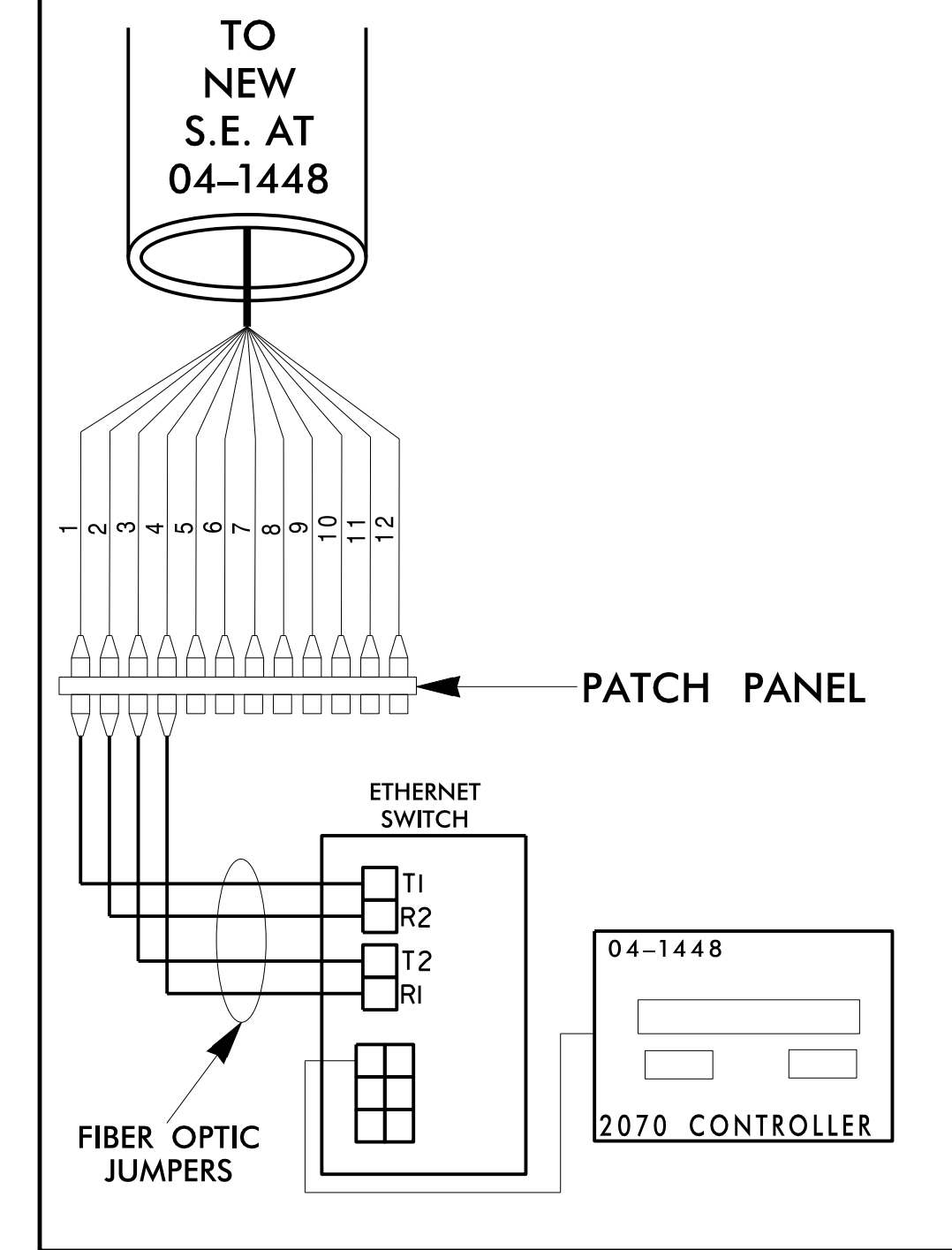
<p>Prepared in the Offices of:          THE STATE OF NORTH CAROLINA          DEPARTMENT OF TRANSPORTATION          250 N. Greenfield Pkwy., Garner, NC 27529</p>	<b>SPLICE DETAIL</b>										
	DIVISION 4 JOHNSTON CO., CLAYTON PLAN DATE: FEBRUARY 2022 REVIEWED BY: <i>Gregg Brun</i> PREPARED BY: D.J. SONDERFAN			SIGNATURE: <i>Matthew T. Carlisle</i> DATE: 03/01/2022							
SCALE 	REVISIONS <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>		NO.	DATE	DESCRIPTION				INIT. DATE <table border="1"> <tr> <td> </td> <td> </td> </tr> </table>		
NO.	DATE	DESCRIPTION									

**NEW SPLICE ENCLOSURE**  
 SR 1589 (ROSE ST.) AT  
 LITTLE CREEK CHURCH RD.  
 SIG. INV. # 04-1448

Notes:  
 Unused fibers left coiled and stored in splice tray.  
 Unused Buffer Tubes left coiled and stored in splice tray.

- LEGEND**
- X = FUSION SPLICE
  - C = CAP IN TRAY
- EXPRESS** = EXPRESS ALL FIBERS/  
 BUFFER TUBES
- SPLICE** = SPLICE ALL FIBERS/  
 BUFFER TUBES
- COLOR CODE**  
 TIA/EIA 598-A
- |            |             |
|------------|-------------|
| (1) BLUE   | (7) RED     |
| (2) ORANGE | (8) BLACK   |
| (3) GREEN  | (9) YELLOW  |
| (4) BROWN  | (10) VIOLET |
| (5) SLATE  | (11) ROSE   |
| (6) WHITE  | (12) AQUA   |



**CABINET AT INTERSECTION 04-1448**



- FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (252) 640-6502 TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
- ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
- INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
  - SPLICE LOCATION
  - DATE
  - COMPANY NAME
  - NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

	<b>SPLICE DETAIL</b>							
	DIVISION 4 JOHNSTON CO. CLAYTON PLAN DATE: FEBRUARY 2022 PREPARED BY: D.J. SONDERFAN	REVIEWED BY: <i>Gary Gruen</i> DATE:						
SCALE 	REVISIONS <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	DESCRIPTION				SIGNATURE: <i>Matthew T. Carlsle</i> DATE: 03/01/2022
NO.	DATE	DESCRIPTION						

NEW SPLICE ENCLOSURE  
 LITTLE CREEK CHURCH RD. AT  
 SR 1560 (RANCH RD.)  
 SIG. INV. # 04-1449

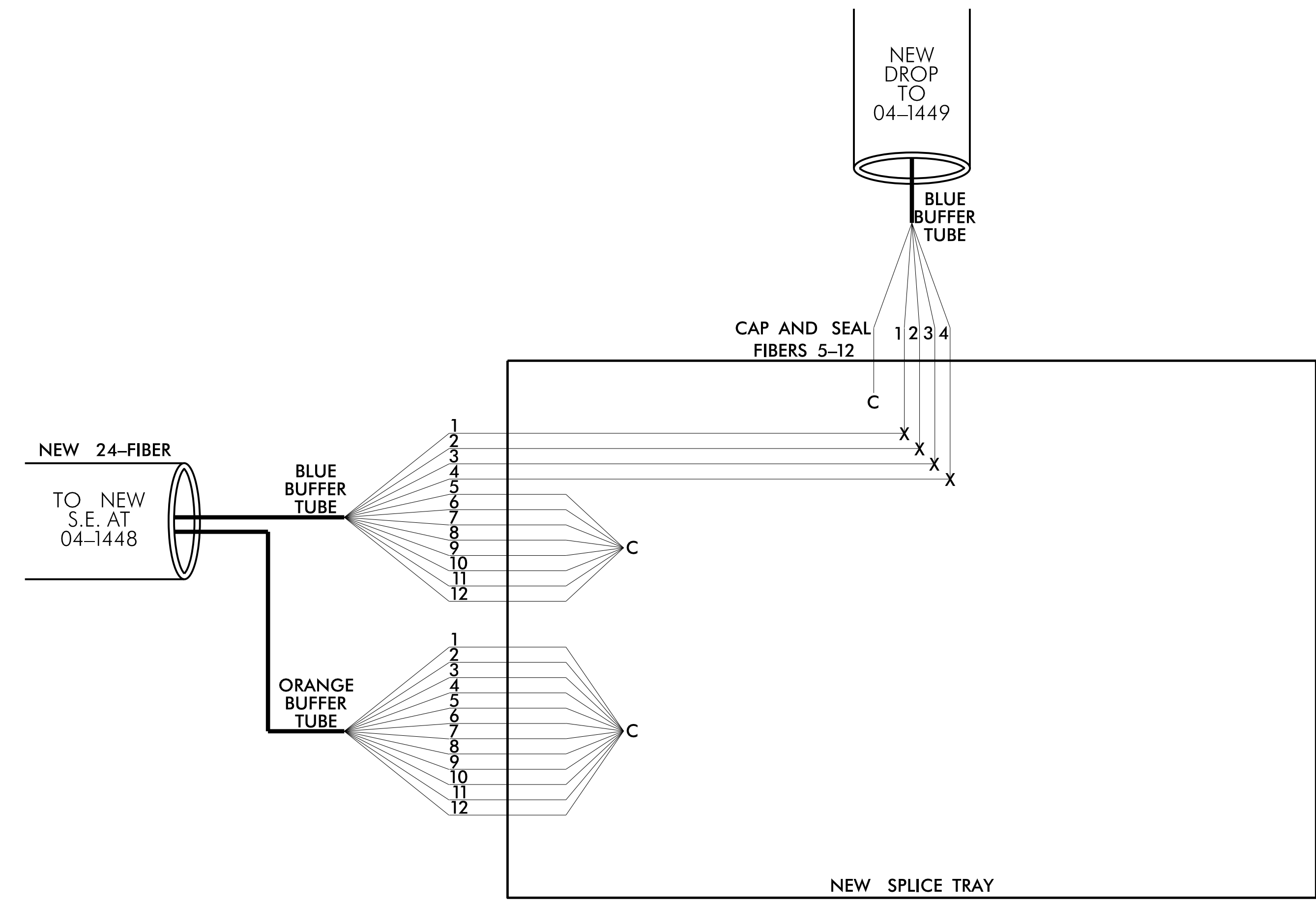
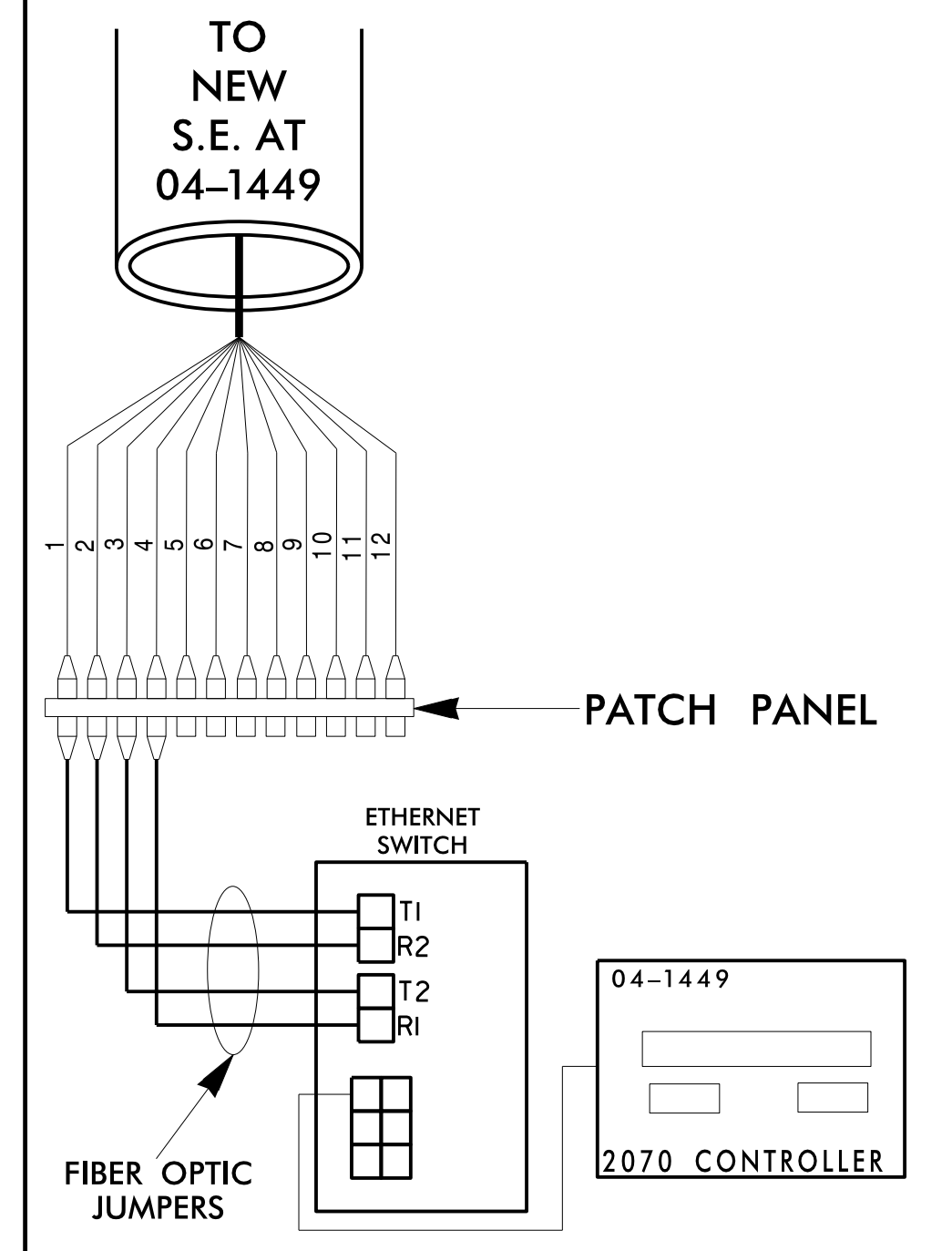
Notes:  
 Unused fibers left coiled and stored in splice tray.  
 Unused Buffer Tubes left coiled and stored in splice tray.

COLOR CODE  
 TIA/EIA 598-A

- (1) BLUE (7) RED
- (2) ORANGE (8) BLACK
- (3) GREEN (9) YELLOW
- (4) BROWN (10) VIOLET
- (5) SLATE (11) ROSE
- (6) WHITE (12) AQUA

LEGEND  
 X = FUSION SPLICE  
 C = CAP IN TRAY

CABINET AT INTERSECTION 04-1449



1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (252) 640-6502 TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

2. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.

3. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"

- 1) SPLICE LOCATION
- 2) DATE
- 3) COMPANY NAME
- 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<p>250 N. Greenfield Pkwy., Garner, NC 27529</p>	<p>SPLICE DETAIL</p>		
	<p>DIVISION 4 JOHNSTON CO. CLAYTON</p> <p>PLAN DATE: FEBRUARY 2022 REVIEWED BY: <i>Gary Gruen</i></p> <p>PREPARED BY: D.J. SONDERFAN</p>	<p>SCALE: 0</p>	
<p>REVISIONS</p>		<p>INIT. DATE</p>	<p>SIGNATURE: <i>Matthew T. Carls</i></p> <p>DATE: 03/01/2022</p>