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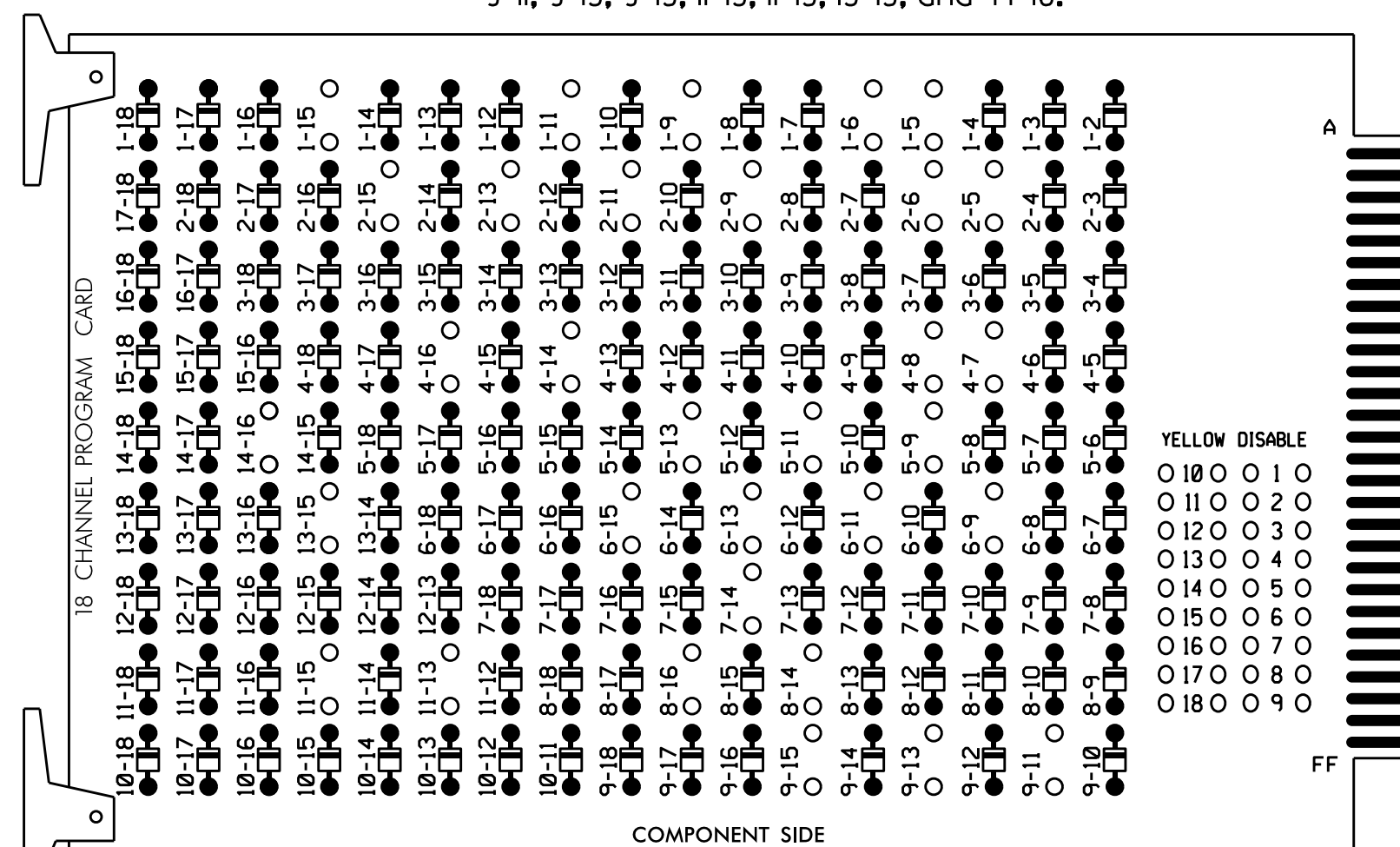
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EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

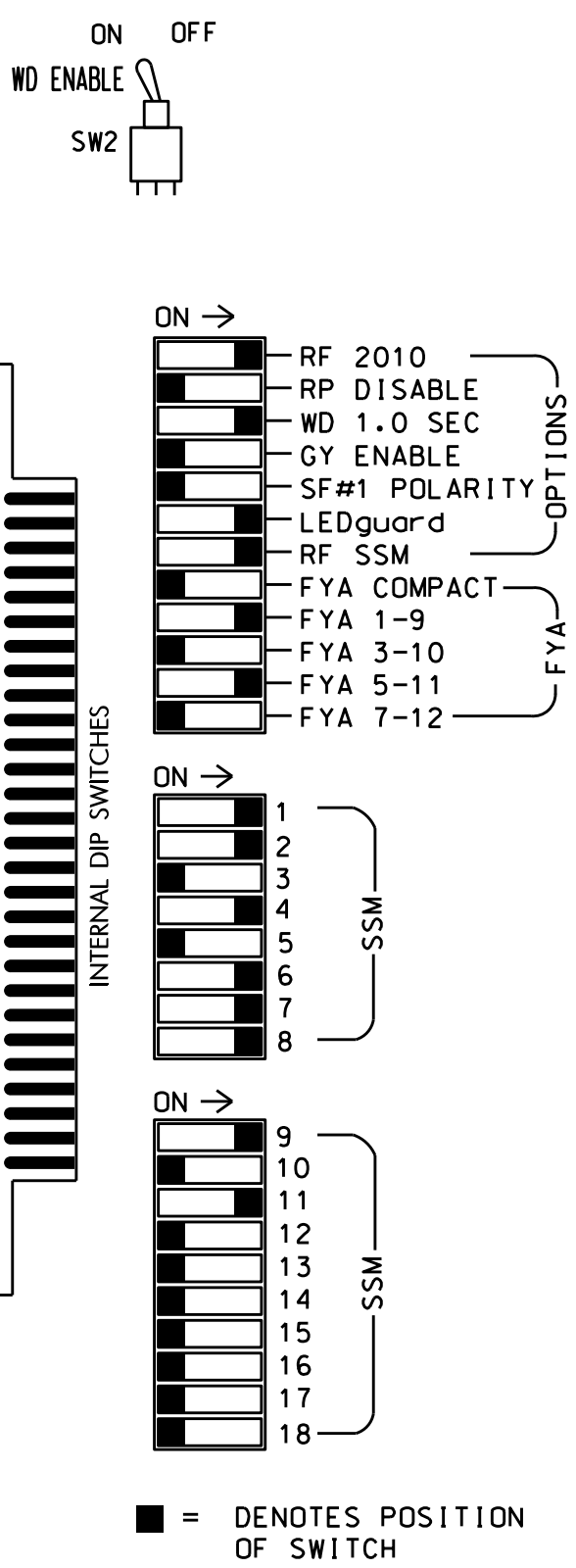
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 4-7, 4-8, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-14, 8-14, 8-16, 9-11, 9-13, 9-15, 11-13, 11-15, 13-15, and 14-16.



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.
- 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 controller to start up in phases 2 and 6 green.
- Enable simultaneous gap-out feature, on controller unit, for all phases.
- Program phases 4 and 8, on controller unit, for dual entry.
- Program phases 2 and 6, on controller unit, for volume density operation.
- The cabinet and controller are part of the Raleigh Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....SE-PAC2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S3,S5,S6,S7,S8,S9,S10, S11,S12,AUX S1,AUX S4
 PHASES USED.....1,2,2PED,4,4PED,5,6,6PED,7*,8,8PED
 OVERLAP A.....**
 OVERLAP B.....NOT USED
 OVERLAP C.....**
 OVERLAP D.....NOT USED
 * PHASE USED DURING PREEMPT ONLY
 ** SEE SHEET 2 FOR OVERLAP PROGRAMMING

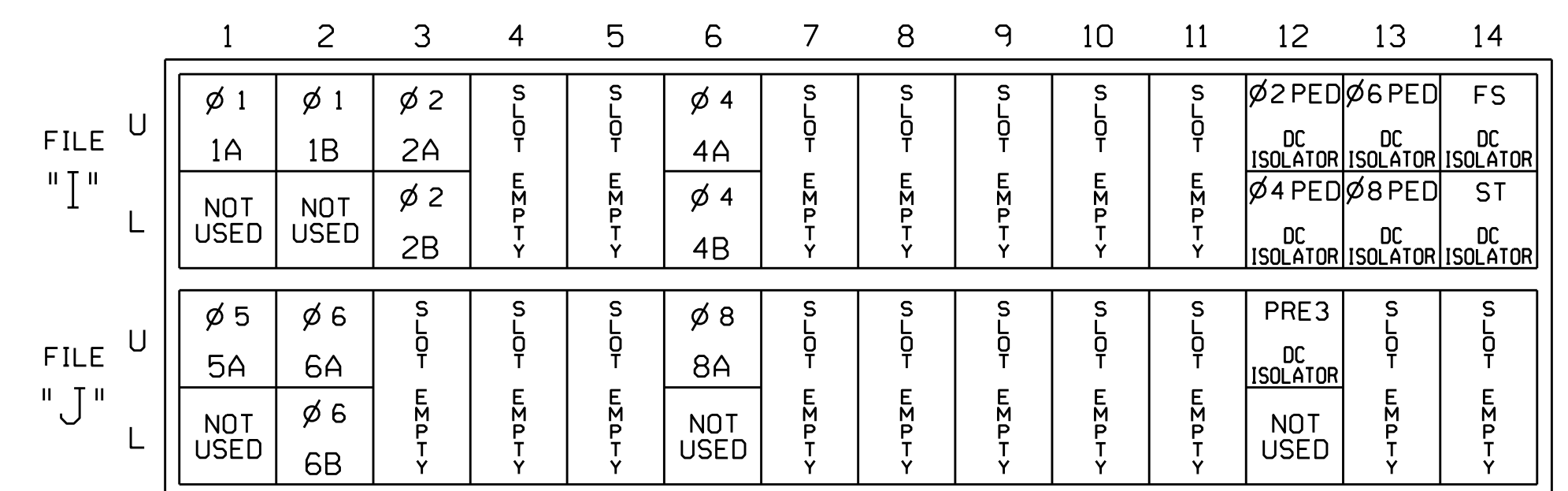
SIGNAL HEAD HOOK-UP CHART

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	PRE3	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	82	21,22 P21, P22	NU	41,42 P41, P42	PILLOT LAMP	51	61,62 P61, P62	41	81,82 P81, P82	11	NU	NU	51	NU	NU	NU	NU	
RED	*	128			101			134	*	107									
YELLOW		129			102		*	135		108									
GREEN		130			103			136		109									
RED ARROW													A121			A114			
YELLOW ARROW	126										123		A122			A115			
FLASHING YELLOW ARROW													A123			A116			
GREEN ARROW	127	127						133		124									
PED YELLOW							105												
							115		106			121				112			

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 * See pictorial of head wiring in detail this sheet.
 Note: Load Switch S6-Y drives a relay that generates a preempt confirmation signal from the cabinet to the fire station during preemption. See sheets 4 and 5 for wiring and programming details.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
 ST = STOP TIME
 PRE3 = FIRESTATION PREEMPT

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

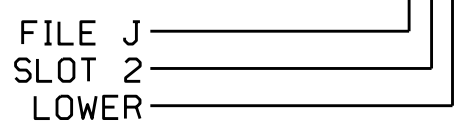
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
1A	TB2-1,2	I1U	56	1	1	5	
1B	TB2-5,6	I2U	39	3	1	15	
2A	TB2-9,10	I3U	63	5	2		
2B	TB2-11,12	I3L	76	6	2		
4A	TB4-9,10	I6U	41	11	4		
4B	TB4-11,12	I6L	45	12	4	15	
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		
8A	TB5-9,10	J6U	42	31	8		
PED PUSH BUTTONS							
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED		
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		

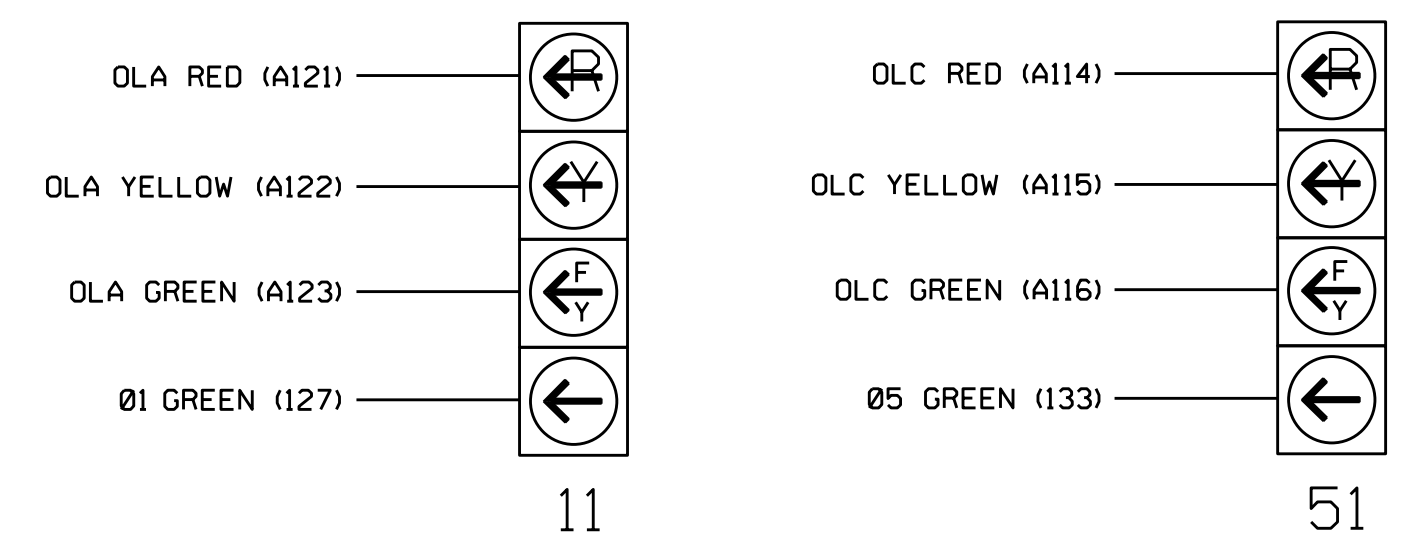
NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

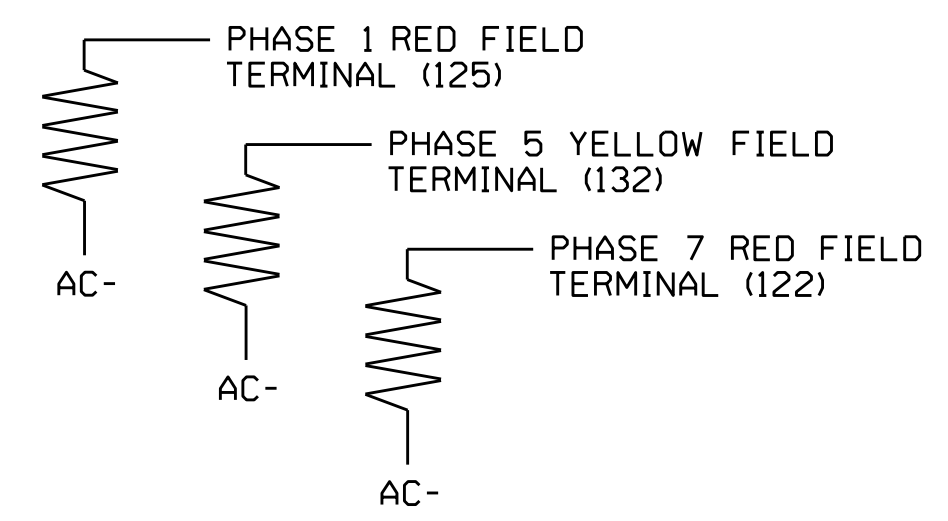


NOTE: See sheet 2 for Protected & Permitted Phases programming.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1931
 DESIGNED: April 2018
 SEALED: 5/15/2018
 REVISED: N/A

Electrical Detail - Sheet 1 of 5

SR 3109 (Brier Creek Parkway) at Alm Street and Fossil Creek Court

Division 5 Wake County Raleigh

PLAN DATE: May 2018 REVIEWED BY:

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: RYAN W. HOUGH, PROFESSIONAL ENGINEER, 036833

DocuSigned by: Ryan W. Hough 5/29/2018

SIG. INVENTORY NO. 05-1931

21-4454-2018 13-18 S:\MITS\11\S\S\Signal\work\hough\051931_sml.e.xxx.dgn somstrong

PROTECTED AND PERMISSIVE PHASES FOR FLASHING YELLOW ARROW

(program controller as shown below)

FROM MAIN MENU PRESS 4 (UNIT DATA)

SE-PAC 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	

SE-PAC OVLP.A...B...C...D...E...F...G...H.									
TR GRN	0	0	0	0	0	0	0	0	
YEL/10	40	40	40	40	40	40	40	40	
RED/10	20	20	20	20	20	20	20	20	
-G/Y	1	0	5	0	0	0	0	0	
+GRN	2	0	6	0	0	0	0	0	
(-) #-PH G/Y KILLS OVLP= (+) #-PH G STRT									
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU									

NOTE: THIS PROGRAMMING IS REQUIRED FOR SIGNAL HEADS 11 AND 51 SO THAT THE SOLID GREEN ARROWS TURN ON EXCLUSIVELY DURING PROTECTED GREEN PHASES 1 AND 5, AND THE FLASHING YELLOW ARROWS TURN ON EXCLUSIVELY DURING PERMITTED GREEN PHASES 2 & 6.

PROTECTED PHASES →
PERMISSIVE PHASES →

PPLT DEFINITION PROGRAMMING COMPLETE
PRESS 'F' TO RETURN TO UNIT DATA

FLASHING YELLOW ARROW PROTECTED/PERMISSIVE SEQUENCE FOR OVERLAPS A & C

(program controller as shown below)

FROM MAIN MENU PRESS 4 (UNIT DATA)

SE-PAC 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	

DO NOT enter any OVL PHASES! →

SE-PAC OVERLAP - A	(0-NO/1-YES)
OVL PHASES:	00000000 0000000
PHS/CHN:	123456789 0123456789 01234
OVL CHN(S):	000000000 000100000 00000
A-UP B-DN D-DspChn E-EDIT F-PRIOR MENU	

DO NOT enter any OVL PHASES! →

SE-PAC OVERLAP - C	(0-NO/1-YES)
OVL PHASES:	000000000 0000000
PHS/CHN:	123456789 0123456789 01234
OVL CHN(S):	000000000 000001000 00000
A-UP B-DN D-DspChn E-EDIT F-PRIOR MENU	

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

INIT & N.A. RESP PROGRAMMING DETAIL

(program controller as shown below)

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

SE-PAC PHASE DATA	PRESS # DESIRED
1-VEHICLE TIMES	6-N.LOCK & MISC
2-DENSITY TIMES	7-SPEC. SEQUENCE
3-PEDEST. TIMES	8-SPEC. DETECTOR
4-INIT & N.A. RESP	9-PHASE COPY
5-V & P RECALLS	0-MISC PED OPTIONS
F-PRIOR MENU	

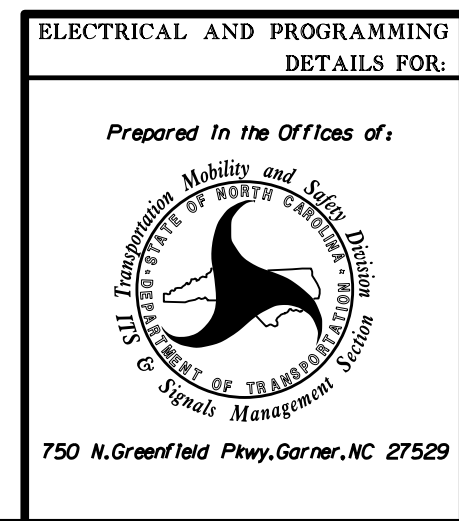
Phase 3 NOT used! →

PHASE.....	1	2	3	4	5	6	7	8	9
INITIAL	1	4	0	1	1	4	1	1	0
NA RESP	0	1	0	2	0	1	0	2	0
CODES.....	0	1	2	3	4	5			
INITIAL	NONE	INACT	RED	YEL	GRN	DRK			
NA RESP	NONE	NA1	NA2	BOTH	---	---			
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU									

INIT & N.A. RESP programming complete.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1931
DESIGNED: April 2018
SEALED: 5/15/2018
REVISED: N/A

Electrical Detail - Sheet 2 of 5



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 3109 (Brier Creek Parkway) at Alm Street and Fossil Creek Court	
Prepared In the Offices of:	Division 5 Wake County Raleigh		
PLAN DATE: May 2018	REVIEWED BY:	INIT.	DATE
PREPARED BY: S. Armstrong	REVIEWED BY:		
REVISIONS			
DocuSign by: Ryan W. Hough		5/29/2018	
SIC. INVENTORY NO. 05-1931			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TOD EVENT SCHEDULING PROGRAMMING DETAIL TO CALL ALTERNATE PHASING OPERATION DURING COORDINATION

(program controller as shown below)

* DENOTES TO BE DETERMINED BY THE DIVISION TRAFFIC ENGINEER.

NOTES

1. Phase Functions can be called by Time of Day (TOD) in Traffic Events, but not during coordination.
 2. Special Functions can be called by Time of Day using Aux Events, and can run in conjunction with Coordination.
 3. Special Functions can be used to call a Phase Function. In doing this a Phase function can run while a Coordination pattern is running.
4. If Alternate Phasing is used during FREE-RUN, Phase Function 1 must be turned on with a Traffic Event.

AUX EVENT PROGRAMMING TO CALL SPECIAL FUNCTION DURING COORDINATION

(program controller as shown below)

Step 3 - An Auxiliary event will be used to call the Special Function. This is done in Time Base Data under Aux Event. Add Auxiliary events as needed remembering to use one event to turn the Special Function on and one event to turn the Special Function off. If these are to be used in conjunction with the Traffic Events during Coordination then the On/Off times should be identical.

FROM MAIN MENU PRESS 6 (TIME BASE DATA)

PHASE FUNCTION MAPPING PROGRAMMING DETAIL

(program controller as shown below)

Step 1 - Assign OMIT OVERLAPS "A" & "C" to Phase Function 1.

FROM MAIN MENU PRESS 6 (TIME BASE DATA)

EPAC TIME BASE DATA	PRESS # DESIRED
1-VIEW CURRENT	6-EQUATE/TRANSFER
2-SET TIME/DATE	7-CLEAR MEMORY
3-TRAFFIC EVENTS	8-DIMMING
4-AUX EVENTS	9-PHS FUNC MAPPING
5-TOY EVENTS	0-SPC FUNC MAPPING
F-PRIOR MENU	

EPAC TIME BASE PHS FUNC MAPPING		PHS FUNC SEL(0-OFF/1-ON)	
NUM.	P-FUNCT NAME	123456789	0123456
1	PHS-01 MAX # 2	00000000	0000000
2	PHS-02 MAX # 2	01000000	0000000
3	PHS-03 MAX # 2	00100000	0000000
4	PHS-04 MAX # 2	00010000	0000000
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU			

HIT "A" KEY UNTIL POSITIONED ON NUM 145

EPAC TIME BASE PHS FUNC MAPPING		PHS FUNC SEL(0-OFF/1-ON)	
NUM.	P-FUNCT NAME	123456789	0123456
145	OVERLAP A OMIT	10000000	0000000
146	OVERLAP B OMIT	00000000	0000000
147	OVERLAP C OMIT	10000000	0000000
148	OVERLAP D OMIT	00000000	0000000
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU			

PHASE FUNCTION PROGRAMMING COMPLETE
PRESS 'F' TO RETURN TO TIME BASE DATA

SPECIAL FUNCTION MAPPING PROGRAMMING DETAIL

(program controller as shown below)

Step 2 - Assign Special Function 1 to call Phase Function 1.

FROM MAIN MENU PRESS 6 (TIME BASE DATA)

EPAC TIME BASE DATA	PRESS # DESIRED
1-VIEW CURRENT	6-EQUATE/TRANSFER
2-SET TIME/DATE	7-CLEAR MEMORY
3-TRAFFIC EVENTS	8-DIMMING
4-AUX EVENTS	9-PHS FUNC MAPPING
5-TOY EVENTS	0-SPC FUNC MAPPING
F-PRIOR MENU	

EPAC TIME BASE SPC FUNC MAPPING		SPC FUNC	
S-FUNCTION NAME	12345678	SPC 1-8 AS PHS FUNC	1-8
SPC 1-8 AS PHS FUNC	10000000	SPC 1-8 AS PHS FUNC	9-16
SPEC FUNCTION 1	10000000	CODES.....0-OFF.....1-ON.....	
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU			

SPECIAL FUNCTION PROGRAMMING COMPLETE
PRESS 'F' TO RETURN TO TIME BASE DATA

EPAC TIME BASE DATA	PRESS # DESIRED
1-VIEW CURRENT	6-EQUATE/TRANSFER
2-SET TIME/DATE	7-CLEAR MEMORY
3-TRAFFIC EVENTS	8-DIMMING
4-AUX EVENTS	9-PHS FUNC MAPPING
5-TOY EVENTS	0-SPC FUNC MAPPING
F-PRIOR MENU	

EPAC TIME BASE - AUXILIARY EVENTS						
DD	HH	MM	A123	D123	DIM	S12345678
*	*	*	000	000	0	10000000
*	*	*	000	000	0	00000000
*	*	*	000	000	0	00000000
CODES.....0-OFF.....1-ON.....						
OVERWRITE ">" W/ 1-ADD 2-DELETE 3-EDIT						
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU						

AUX EVENT PROGRAMMING COMPLETE
PRESS 'F' TO RETURN TO TIME BASE DATA

! AUX EVENT MUST BE SCHEDULED TO RUN CONCURRENT WITH A TRAFFIC EVENT SCHEDULED COORDINATION PATTERN.

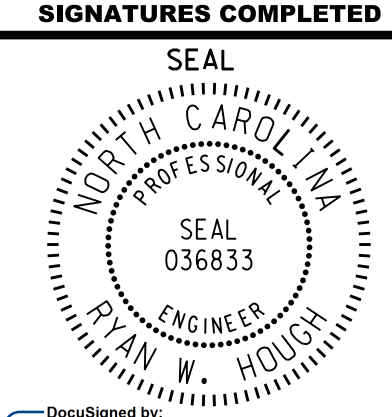
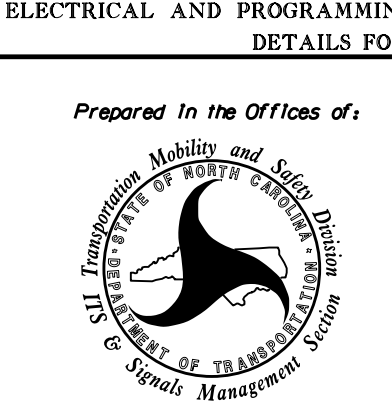
Special Function (SF)
← SF 1 "ON"
← SF 1 "OFF"

← REMOVE PHASE FUNCTION NUM 1 DEFAULT VALUE

← PHASE FUNCTION 1 WILL BE CALLED WHEN SPECIAL FUNCTION 1 IS SELECTED

← SET SWITCH 1 "ON" AS SHOWN FOR OVERLAP A OMIT
← FOR OVERLAP C OMIT

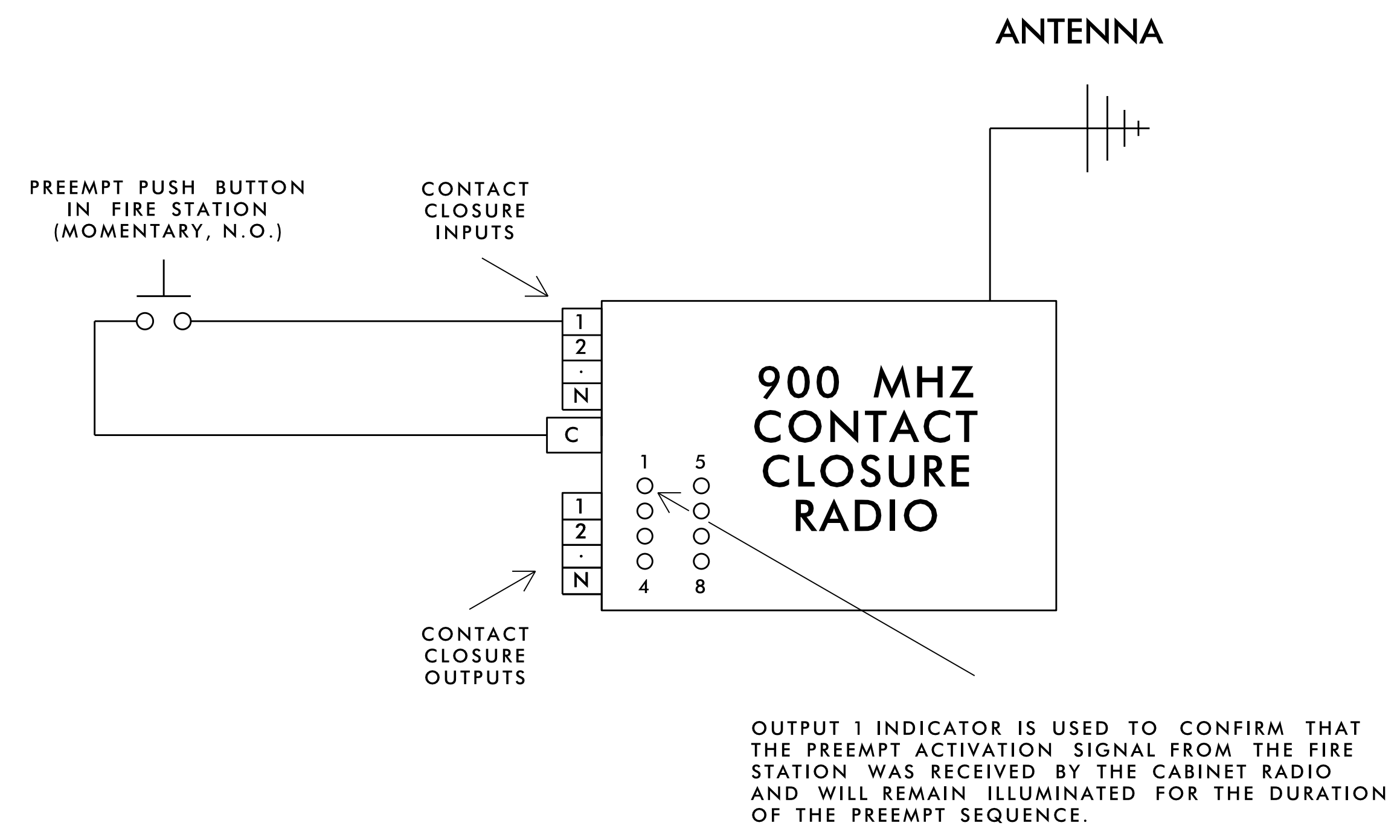
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1931
DESIGNED: April 2018
SEALED: 5/15/2018
REVISED: N/A

Electrical Detail - Sheet 3 of 5		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	<p>SR 3109 (Brier Creek Parkway) at Alm Street and Fossil Creek Court</p> <p>Division 5 Wake County Raleigh</p> <p>PLAN DATE: May 2018 REVIEWED BY:</p> <p>PREPARED BY: S. Armstrong REVIEWED BY:</p>	SEAL	
	<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>DocuSigned by: Ryan W. Hough 5/29/2018</p>	<p>SIG. INVENTORY NO. 05-1931</p>

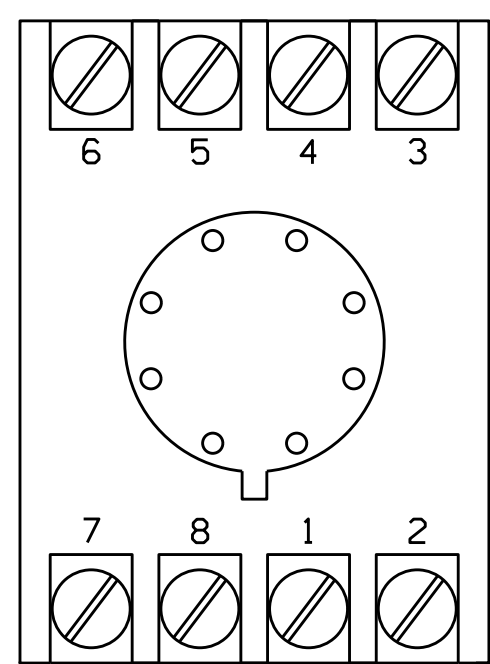
C:\MSW-2018-13-50
 C:\MITS\04\15\Sig\01\work\hough\051931_sml.e xxx.dgn
 somstrong

Relay K1 is de-energized under normal operation and is used to activate Input 1 to send a confirmation signal back to the fire station unit during EVP3.

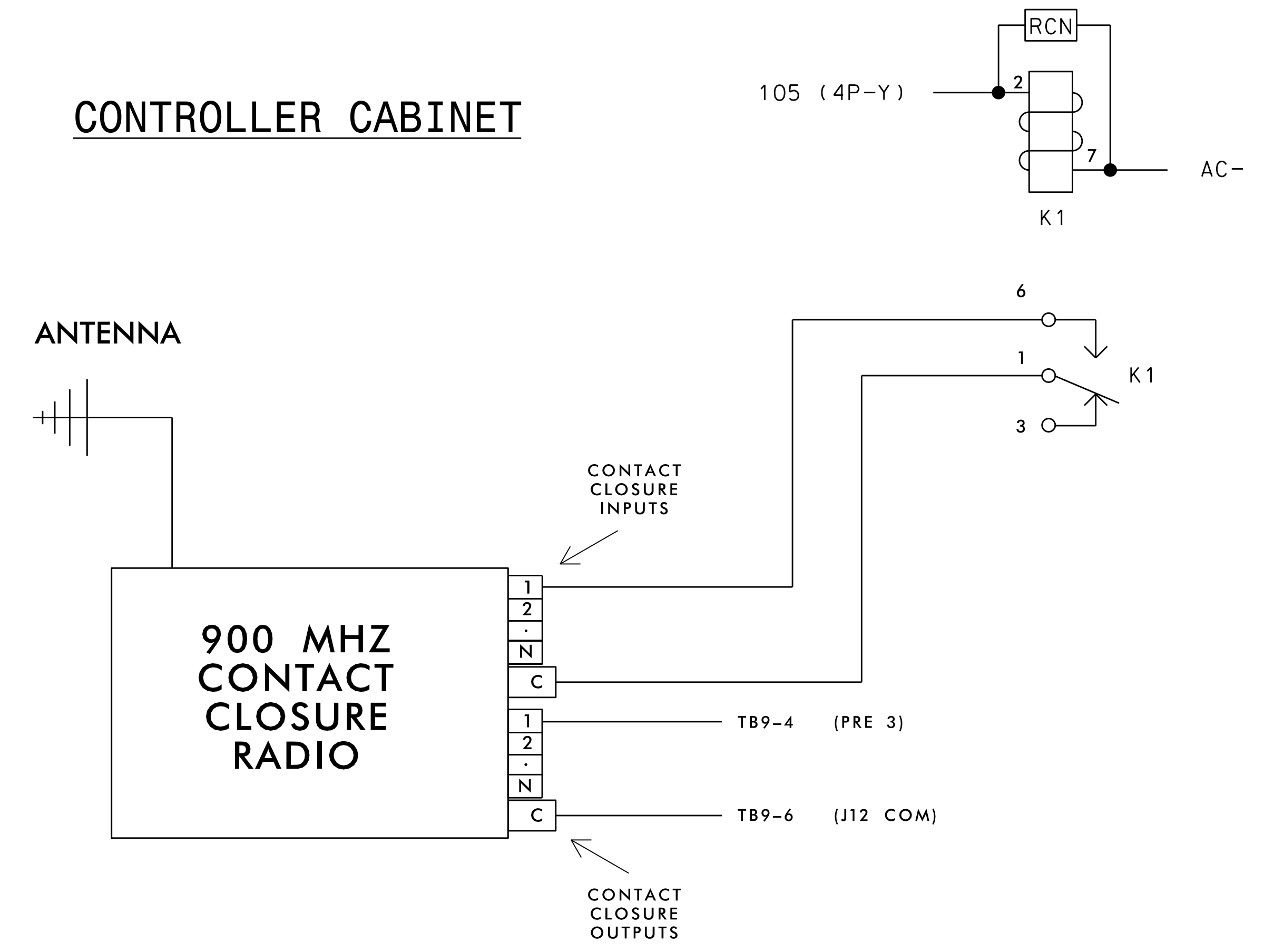
FIRE STATION



RELAY OCTAL BASE TERMINAL LOCATIONS



CONTROLLER CABINET



NOTES:

1. Relay K1 is an enclosed SPDT general purpose relay with a 120 VAC coil, 10A contacts, and octal style plug (DOT NO. 625028600).
2. The RC Network is valued at 0.1 microfarad, 100 ohm (DOT NO. 106018075).
3. Make sure load switch S6 is installed.
4. Install DC Isolator in Input File slot J12. See Input File Position Layout on sheet 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1931
 DESIGNED: April 2018
 SEALED: 5/15/2018
 REVISED: N/A

Electrical Detail - Sheet 4 of 5

	SR 3109 (Brier Creek Parkway) at Alm Street and Fossil Creek Court	
	Division 5	Wake County Raleigh
PLANNED BY: S. Armstrong	DESIGNED BY: S. Armstrong	REVIEWED BY: Ryan W. Hough
DATE: May 2018	DATE: May 2018	DATE: 5/29/2018
REVISIONS	INIT.	DATE

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 RYAN W. HOUGH
 SEAL 036833
 DATE 5/29/2018
 SIG. INVENTORY NO. 05-1931

24-MAY-2018 13:50
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 S:\MITSUBISHI\SIGNAL\work\hough\051931_sml.elec.xxx.dgn
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EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

SELECT **7** FROM MAIN MENU

SE-PAC PREEMPT DATA	PRESS # DESIRED
1- ALL PREEMPTS	5- PREEMPT 4
2- PREEMPT 1	6- PREEMPT 5
3- PREEMPT 2	7- PREEMPT 6
4- PREEMPT 3	8- LOAD DEFAULT

SE-PAC ALL PREEMPTS DATA
RING TIMES.....1.....2.....3.....4
MIN GRN/WLK 1 1 0 0
PRIORITY...FL...1/2..2/3..3/4..4/5..5/6.
STATUS 1 1 1 1 1 1
CODES.....0-NO...1-YES.....
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

select F - return to Preempt Data menu

- PREEMPT 3 -

SE-PAC PREEMPT DATA	PRESS # DESIRED
1- ALL PREEMPTS	5- PREEMPT 4
2- PREEMPT 1	6- PREEMPT 5
3- PREEMPT 2	7- PREEMPT 6
4- PREEMPT 3	8- LOAD DEFAULT

SE-PAC PREEMPT 3	PRESS # DESIRED
1- MISCELLANEOUS	4- PEDEST. STATUS
2- INTERVAL TIMES	5- OVERLAP STATUS
3- VEHICLE STATUS	6- LOW PRIORITY
F-PRIOR MENU	

SE-PAC PREEMPT 3 MISC DATA (0-NO & 1-YES)
TEST.: 0 N-LOCK: 0 LINK PE#: 0
DELAY: 000 EXTEND: 000 DURATION: 000
MXCALL: 120 LOCK OUT: 000
PHASE....1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6
EXIT 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0
CALLS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

select F - return to Preempt 3 menu

SE-PAC PREEMPT 3	PRESS # DESIRED
1- MISCELLANEOUS	4- PEDEST. STATUS
2- INTERVAL TIMES	5- OVERLAP STATUS
3- VEHICLE STATUS	6- LOW PRIORITY
F-PRIOR MENU	

SE-PAC PREEMPT 3 INTERVAL TIMES
SEL PED CLR: 17 TRK YEL/10 : 00
SEL YEL/10 : 00 TRK RED/10 : 00
SEL RED/10 : 00 DWELL GREEN: 07
TRACK GREEN: 01* RET PED CLR: 00
TRK PED CLR: 00 RET YEL/10 : 30
RET RED/10 : 39
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

Notice TRACK GREEN time for PREEMPT 3 →

select F - return to Preempt 3 menu

SE-PAC PREEMPT 3	PRESS # DESIRED
1- MISCELLANEOUS	4- PEDEST. STATUS
2- INTERVAL TIMES	5- OVERLAP STATUS
3- VEHICLE STATUS	6- LOW PRIORITY
F-PRIOR MENU	

SE-PAC PREEMPT 3 VEHICLE STATUS
PHASE....1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6
TRK GRN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
DWELL 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0
(0-RED.1-GRN.2-FLR.3-FLY.4-DARK.5-FLG)
CYCLE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
(0-NO..1-ACT..2-MN REC..3-MX REC)
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

end of programming ★

★ *Options 4, 5, and 6 are not used.
Be sure values are set at default=0.*

* A TRACK GREEN time of 1 sec. will ensure that signal heads 41 and 42 will clear to all red when transitioning from 4+8 to EVP 3.

OUTPUT MODE 4 PROGRAMMING DETAIL

This programming will allow the phase 4 ped yellow output to turn on during EVP3. That output is used to send a confirmation signal from this cabinet to the fire station during preemption. See sheet 4 for wiring details.

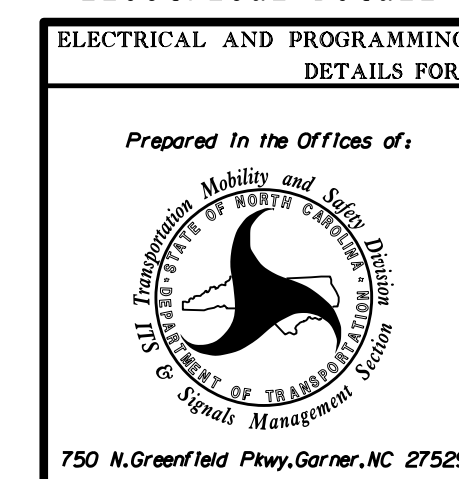
- 1) FROM MAIN MENU SELECT **4-UNIT DATA**
- 2) SELECT **B-I/O MISC**

SE-PAC I/O MISC
RING I/O RING....1...2...3...4
INPUT RESPONSE 1 2 0 0
OUTPUT SELECT 1 2 0 0
I/O MODES....INPUT..OUTPUT..BIT
'ABC' CONN : 0 4 0
'D' CONN : 0 0 -
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU

Output Mode 4 Programming Completed

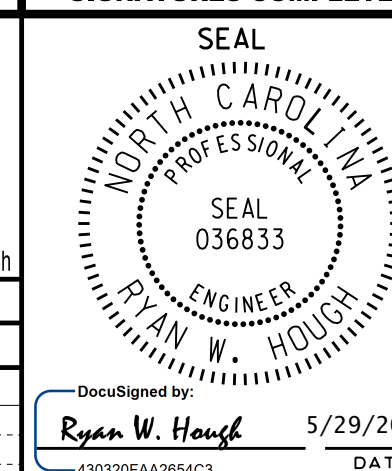
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1931
DESIGNED: April 2018
SEALED: 5/15/2018
REVISED: N/A

Electrical Detail - Sheet 5 of 5



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 3109 (Brier Creek Parkway) at Alm Street and Fossil Creek Court	
Division 5	Wake County	Raleigh	
PLAN DATE: May 2018	REVIEWED BY:		
PREPARED BY: S. Armstrong	REVIEWED BY:		
REVISIONS	INIT.	DATE	
DocuSigned by: Ryan W. Hough		5/29/2018	
SIC. INVENTORY NO.		05-1931	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



- 1 INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL COAX CABLE
- 3 INSTALL ETHERNET CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO 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 MODIFY EXISTING INTERCONNECT CENTER /SPICE ENCLOSURE
- 27 INSTALL NEW FIBER OPTIC TRANSCEIVER
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPICE CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPICE ENCLOSURE
- 30 INSTALL AERIAL SPICE ENCLOSURE
- 31 INSTALL POLE MOUNTED SPICE CABINET
- 32 INSTALL BASE MOUNTED SPICE CABINET
- 33 REMOVE EXISTING SPICE 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 36" 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 TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52A INSTALL DELINEATOR MARKER
- 52B INSTALL JUNCTION BOX MARKER
- 53 STORE 20 FEET OF 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 ETHERNET EDGE SWITCH
- 60 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS
- 61 BOND RISER AND MESSENGER CABLE TO POLE GROUND
- 62 BOND RISER TO POLE GROUND
- 63 BOND MESSENGER CABLE TO POLE GROUND
- 64 INSTALL HEAT SHRINK TUBING RETROFIT KIT
- 65 INSTALL MOLDABLE DUCT SEAL
- 66 SLACK SPAN

LEGEND

	NEW FIBER OPTIC COMMUNICATIONS CABLE		NEW CABLE STORAGE RACKS (SNOW SHOES)
	NEW TWISTED PAIR COMMUNICATIONS CABLE		EXISTING CABLE STORAGE RACK (SNOW SHOE)
	EXISTING COMMUNICATIONS CABLE		EXISTING CONTROLLER AND CABINET
	EXISTING COMMUNICATIONS CABLE TO BE REMOVED		NEW CCTV CABINET
	NEW AERIAL GUY ASSEMBLY		EXISTING SPICE CABINET
	NEW CONDUIT		NEW SPICE CABINET
	EXISTING CONDUIT		SP
	NEW DIRECTIONAL DRILLED CONDUIT		SIGNAL POLE
	NEW BORED AND JACKED CONDUIT		FLAT PANEL ANTENNA (SINGLE)
	NEW JUNCTION BOX		YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION
	EXISTING JUNCTION BOX		YAGI ANTENNA (SINGLE)
	NEW WOOD POLE		OMNI ANTENNA
	EXISTING WOOD POLE		
	AERIAL SPICE ENCLOSURE		
	UNDERGROUND SPICE ENCLOSURE		
	NEW METAL POLE		
	EXISTING METAL POLE		
	NEW CCTV ASSEMBLY		
	NEW STANDARD GUY ASSEMBLY		
	NEW SIDEWALK GUY ASSEMBLY		
	SIGNAL INVENTORY NUMBER		

CONSTRUCTION NOTE SYMBOLOGY KEY

- INDICATES NUMBER OF CABLES, LOOPS, ETC.
- INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)

NUMBER OF CABLE(S) NUMBER OF FIBERS/TWISTED PAIRS

NEW/EXISTING CABLE
REMOVE/MODIFY CABLE
CONDUIT/RISER

NUMBER OF RISER(S)/CONDUIT(S) DIAMETER OF RISER(S)/CONDUIT(S) (INCH)

ATTACHMENT POINT:

DISTANCE ABOVE (IN)/ATTACHMENT POINT REFERENCE POINT

REFERENCE POINT DISTANCE BELOW (IN)/ATTACHMENT POINT

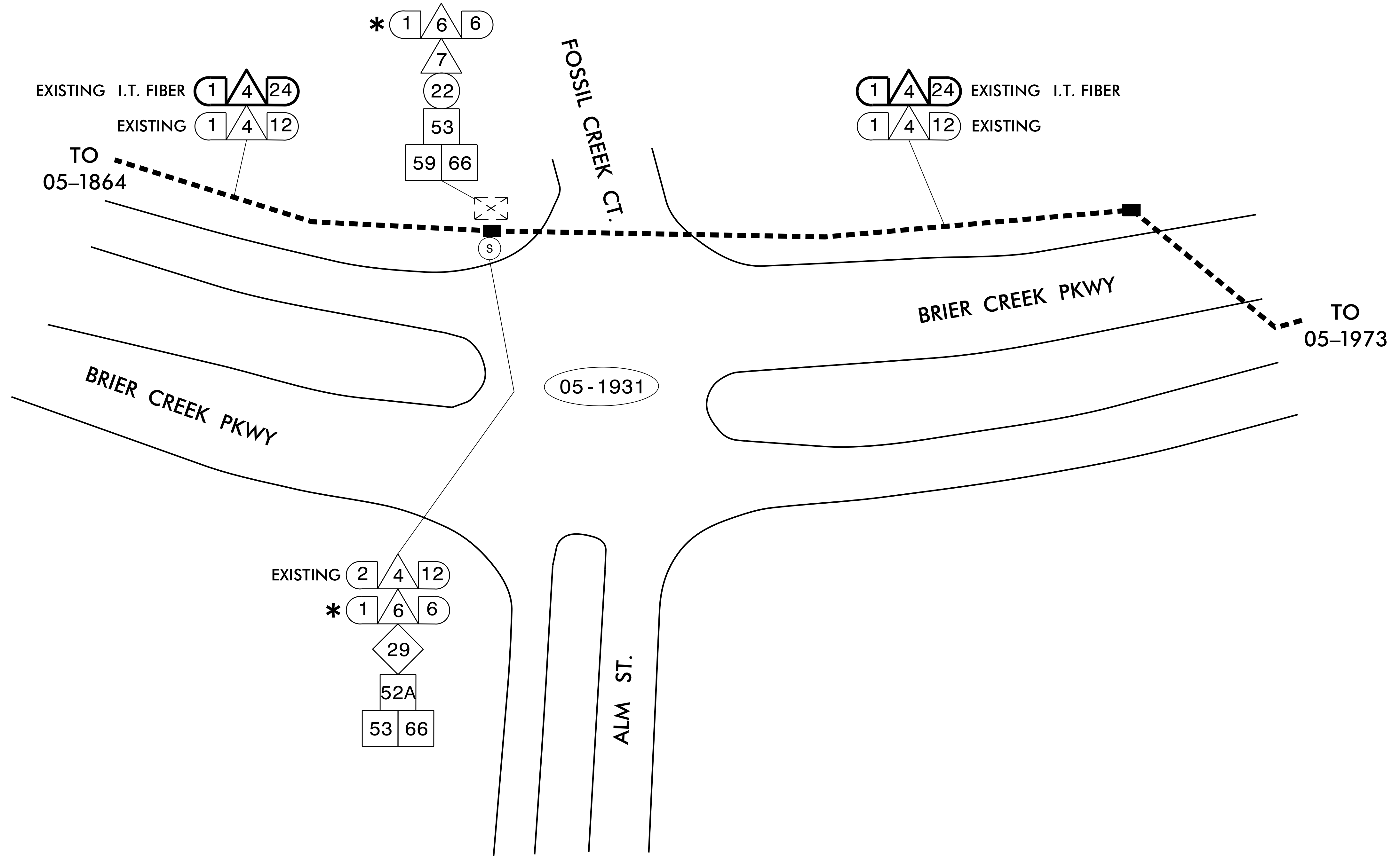
"SS" REFERENCE LOCATION

FS = FRONT SIDE OF POLE
BS = BACK SIDE OF POLE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	CONSTRUCTION NOTES		
	DIVISION 05 WAKE COUNTY PLAN DATE: MAY 2018 PREPARED BY: A. J. SKUCE	REVIEWED BY: <i>Mil Avery</i> DATE: 5/30/2018	
REVISIONS		INIT.	DATE

* = PRETERMINATED 6-FIBER DROP CABLE

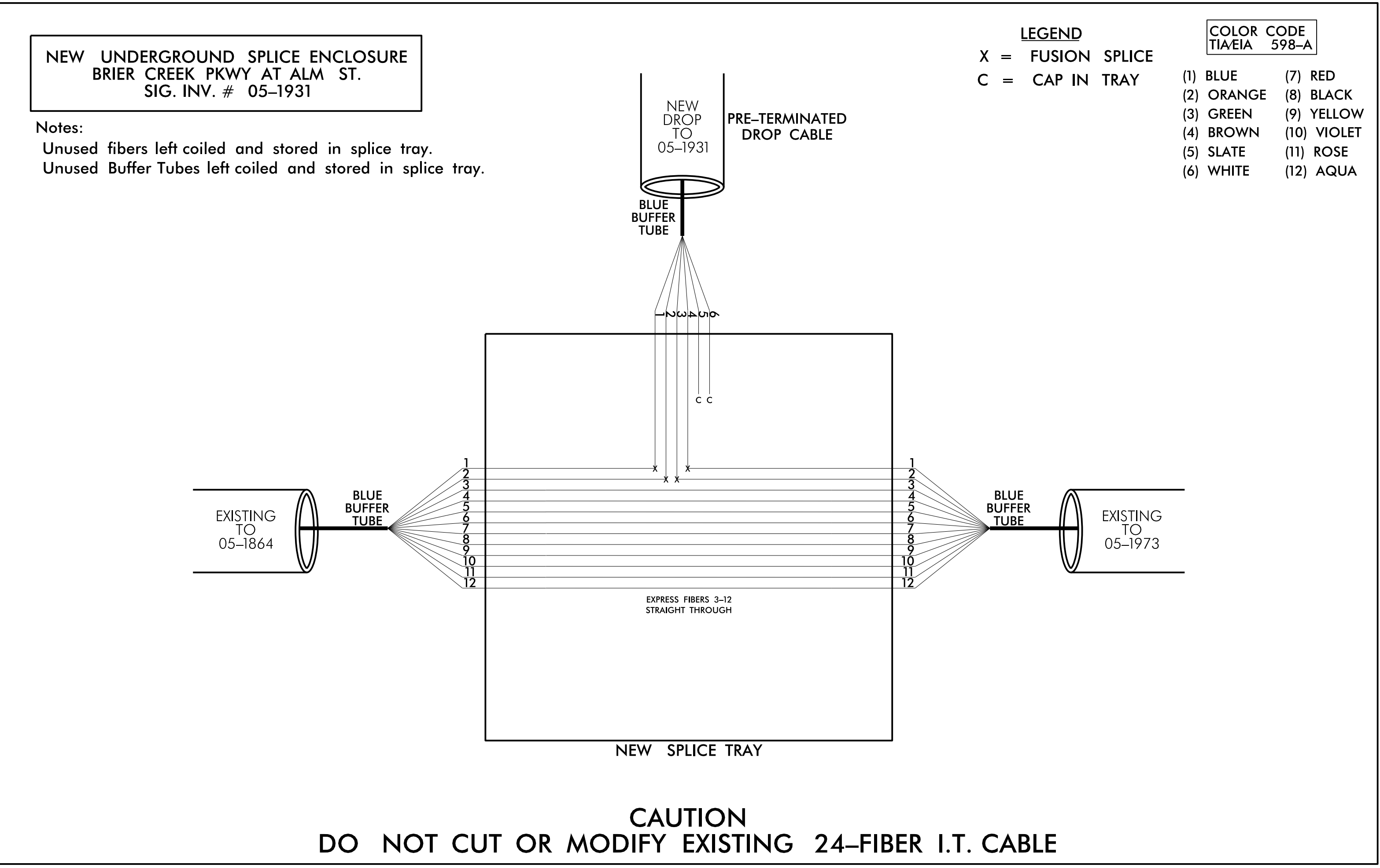
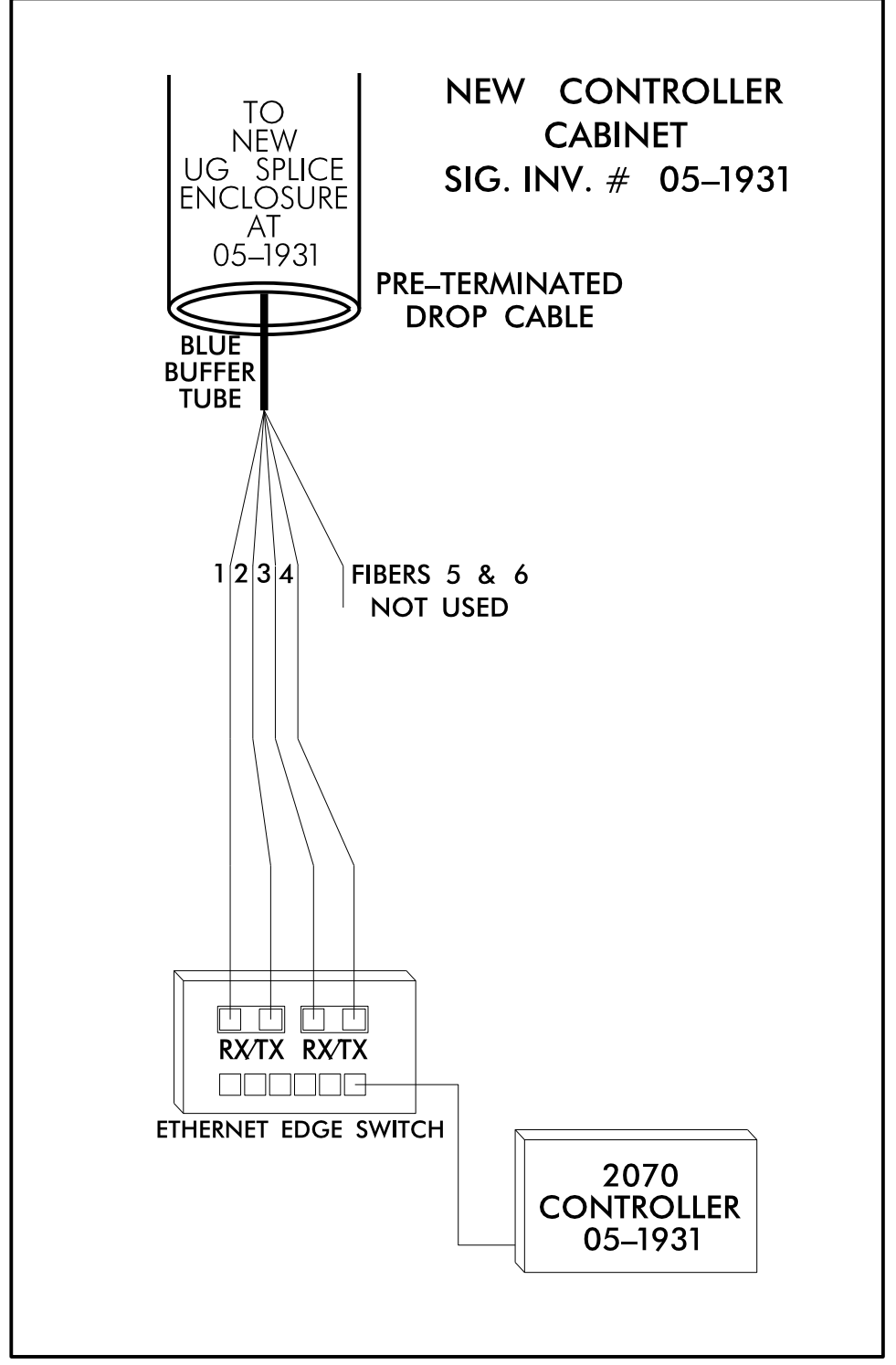


- 1) FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF RALEIGH TRANSPORTATION ENGINEER, JED NEFFENEGGER, AT (919) 996-4039 TO ARRANGE FOR THE CITY TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE CITY TRANSPORTATION 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) PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
- 3) INSTALL NEW SPLICE INCLOSURE IN EXISTING OVERSIZED JUNCTION BOX. DO NOT DISTURB OR MODIFY THE EXISTING 24-FIBER I.T. CABLE.

BOLD CONSTRUCTION NOTES SHOW EXISTING I.T. FIBER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		SEAL
	DIVISION 05 WAKE COUNTY		
Prepared in the Offices of: 	PLAN DATE: MAY 2018 PREPARED BY: A. J. SKUCE	REVIEWED BY: <i>Mil Avery</i> DATE:	DATE: <i>5/30/2018</i>
750 N. Greenfield Pkwy., Garner, NC 27529 	REVISIONS:	INIT.:	DATE:
CADD Filename:			



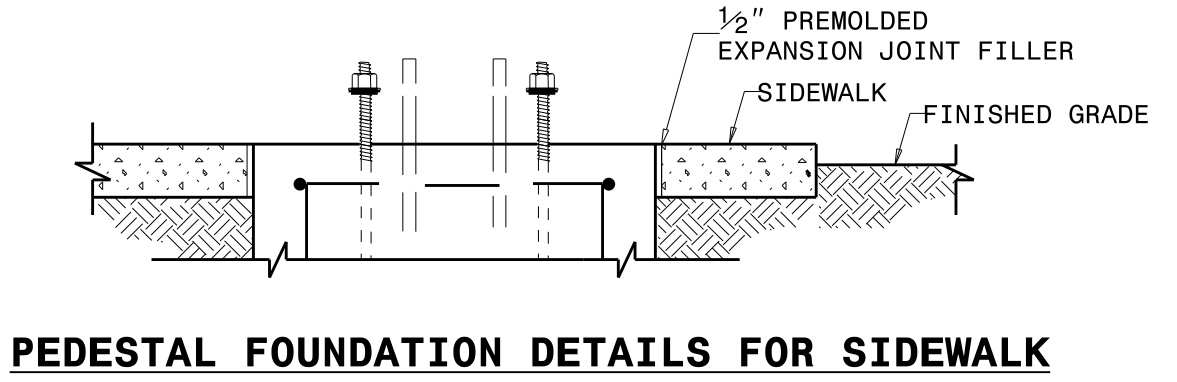
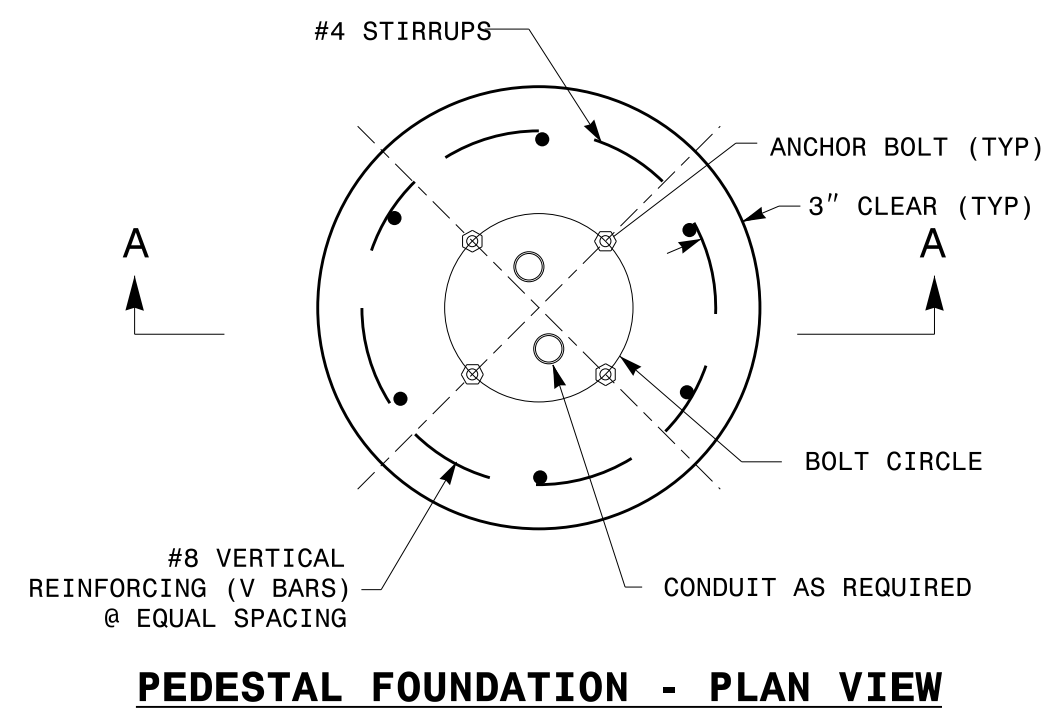
- 1) FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF RALEIGH TRANSPORTATION ENGINEER, JED NEFFENEGGER, AT (919) 996-4039 TO ARRANGE FOR THE CITY TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE CITY TRANSPORTATION 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) PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
- 3) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
- 4) 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.

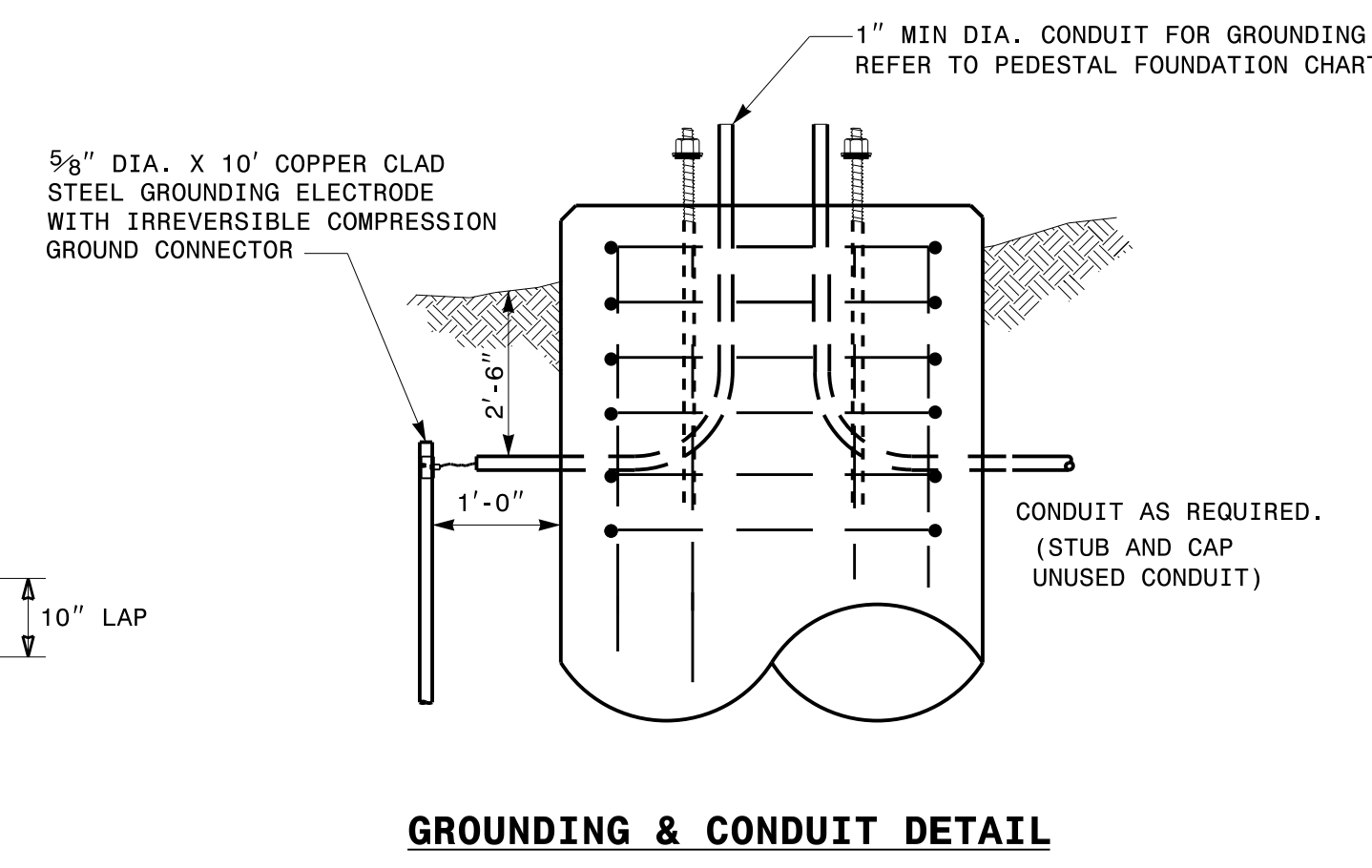
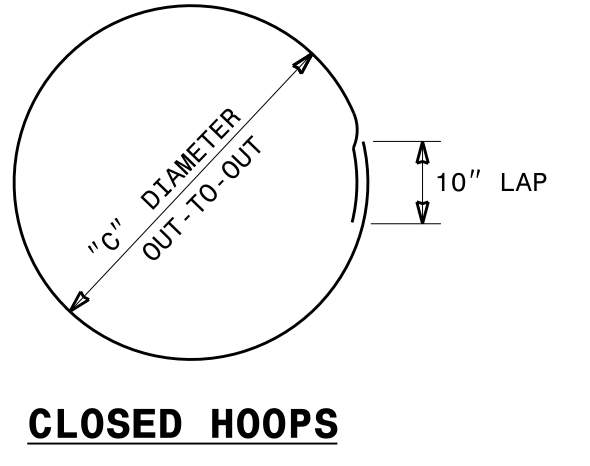
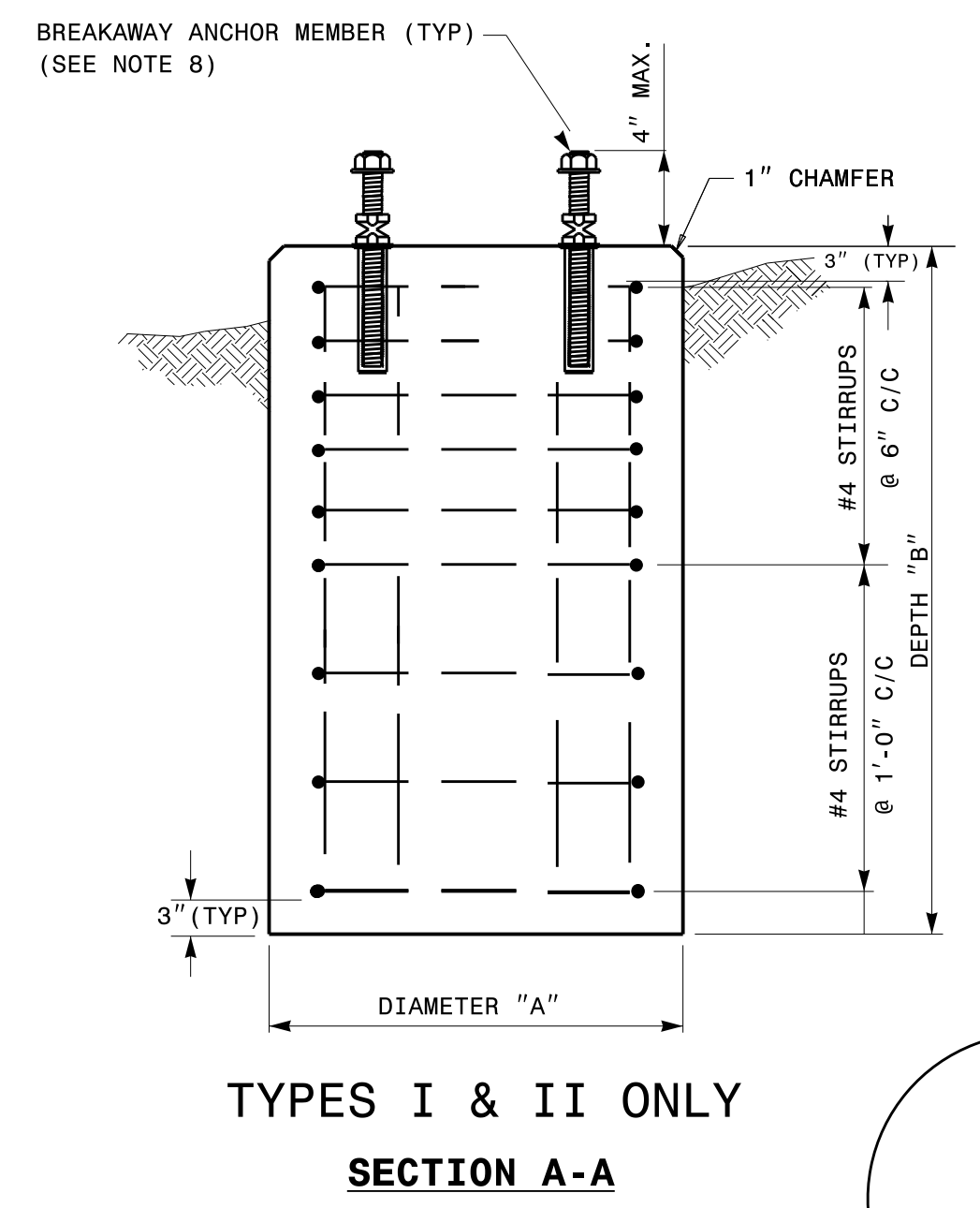
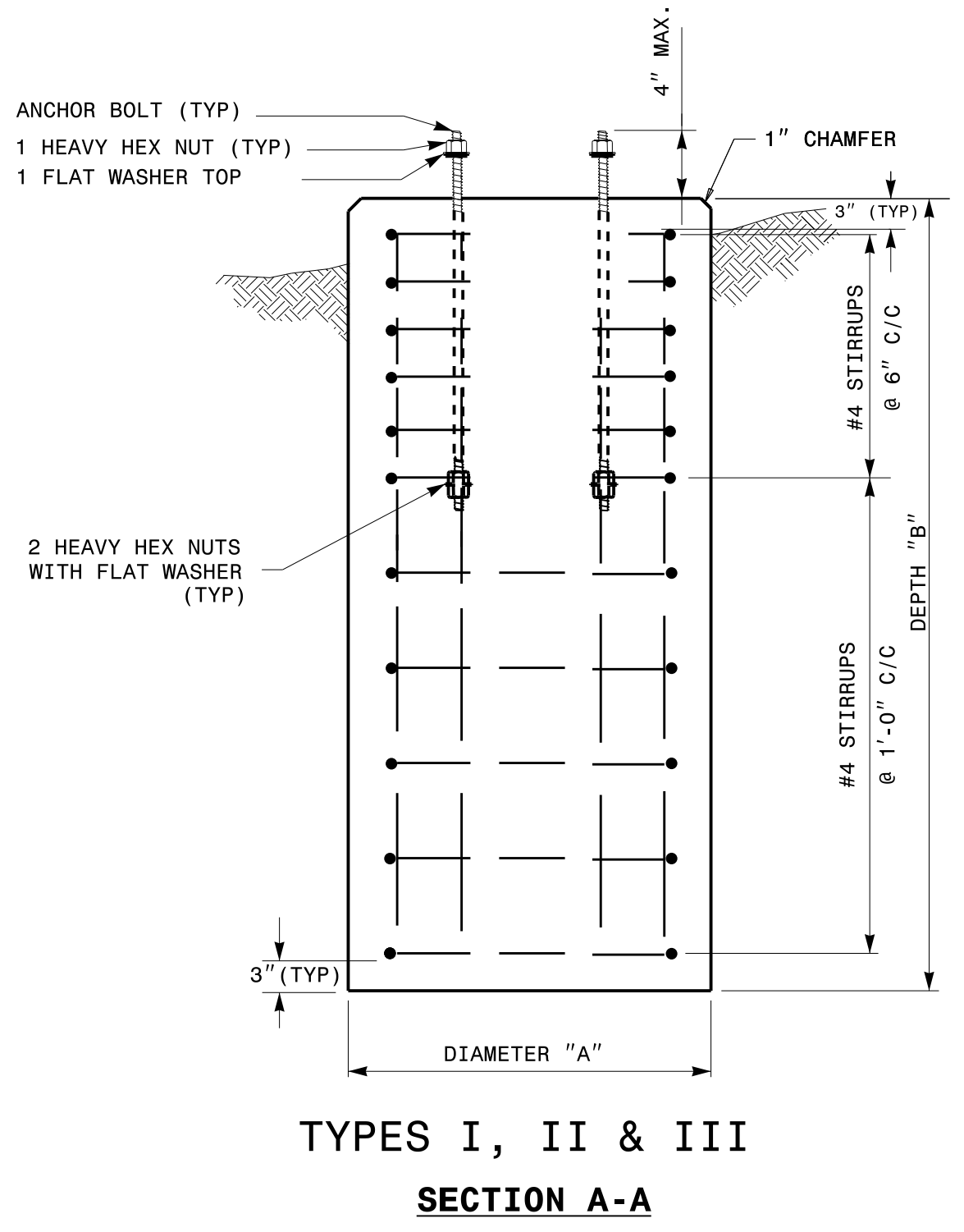
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

	SPLICE DETAIL		
	DIVISION 05 WAKE COUNTY PLAN DATE: MAY 2018 PREPARED BY: A. J. SKUCE REVISIONS: _____		

DATE: 5/30/2018



- NOTES:**
- CAST FOUNDATION AGAINST UNDISTURBED SOIL WHEREVER CONDITIONS PERMIT. IN UNSTABLE SOIL, CAST-IN-PLACE TUBE FORMS ARE ALLOWED WITH APPROVAL.
 - COMPLY WITH APPLICABLE PROVISIONS OF SECTION 825 FOR CONCRETE CONSTRUCTION.
 - USE CLASS "A" CONCRETE THAT MEETS THE REQUIREMENTS OF SECTION 1000 WITH A COMPRESSION STRENGTH AT 28 DAYS OF $F'c = 3000$ PSI (MIN.).
 - USE ASTM GRADE 60 DEFORMED BARS FOR ALL REINFORCING STEEL.
 - GRADE IS ASSUMED TO BE (8H:1V) OR FLATTER. FOUNDATION SIZE AND DEPTHS ARE BASED ON THE FOLLOWING SOIL DESIGN PARAMETERS:
 - A. SANDY TYPE SOIL
 - B. NO GROUND WATER WITHIN 5'-0" OF SURFACE ELEVATION
 - C. WIND SPEED NOT TO EXCEED 140 MPH
 IF ACTUAL CONDITIONS VARY SUBSTANTIALLY FROM THOSE ASSUMED, THE FOUNDATION DEPTH MAY BE ADJUSTED. IN THIS CASE, CONTACT THE ENGINEER.
 - MAINTAIN AT LEAST 3" COVER ON ALL REINFORCEMENT.
 - ORIENT CONDUIT AS REQUIRED BY THE DESIGN OR AS DICTATED BY FIELD CONDITIONS.
 - USE ADHESIVE ANCHOR FOR THREADED COUPLING INSERT. FOR TYPE I MINIMUM DEPTH NECESSARY IS 0'-4 1/2" AND FOR TYPE II MINIMUM DEPTH NECESSARY IS 0'-6 5/8". FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.



PEDESTAL FOUNDATION TYPE AND SIZE							
TYPE	PEDESTAL DESCRIPTION	SIZE			ANCHOR BOLT		INSTALL GROUNDING SYSTEM (YES/NO)
		DIAMETER "A" FT	DEPTH "B" FT	CONCRETE VOLUME CY	DIAMETER (MIN.) IN	LENGTH FT-IN	
I	PEDESTRIAN PUSHBUTTON	2'-0"	3'-6"	.41	1/2	1'-6"	NO
II	NORMAL-DUTY	2'-0"	5'-0"	.58	3/4	2'-0"	YES
III	HEAVY-DUTY	2'-6"	7'-0"	1.27	1	4'-0"	YES

REINFORCING STEEL SCHEDULE												
TYPE	V-BAR				STIRRUP							
	SIZE #	QTY	LENGTH	WEIGHT LBS	QUANTITY			LENGTH	DIAMETER "C" FT	OVERLAP MIN.	WEIGHT LBS	TOTAL STEEL WEIGHT LBS
					VERTICAL ON 6" CENTERS	ON 12" CENTERS	TOTAL					
I	8	6	3'-0"	56	4	0	4	5'-7"	1'-6"	0'-10"	15	71
II	8	6	4'-6"	86	4	5	3	5'-7"	1'-6"	0'-10"	30	116
III	8	6	6'-6"	122	4	7	4	7'-2"	2'-0"	0'-10"	53	175

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

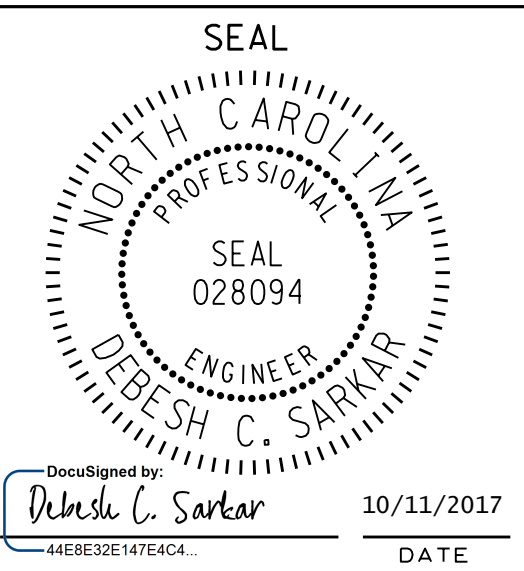
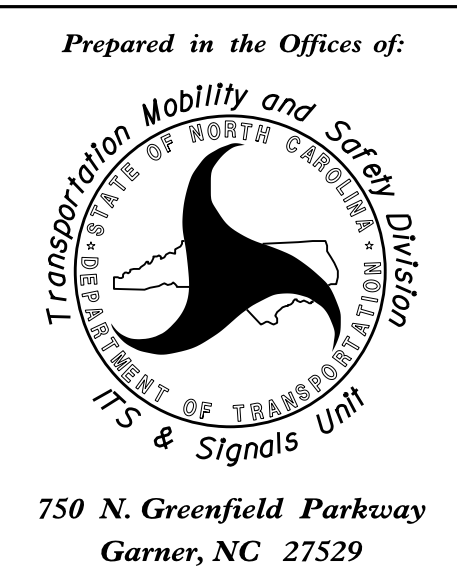
ENGLISH STANDARD DRAWING FOR
PEDESTALS
 FOUNDATIONS

SHEET 1 OF 1
1743D01

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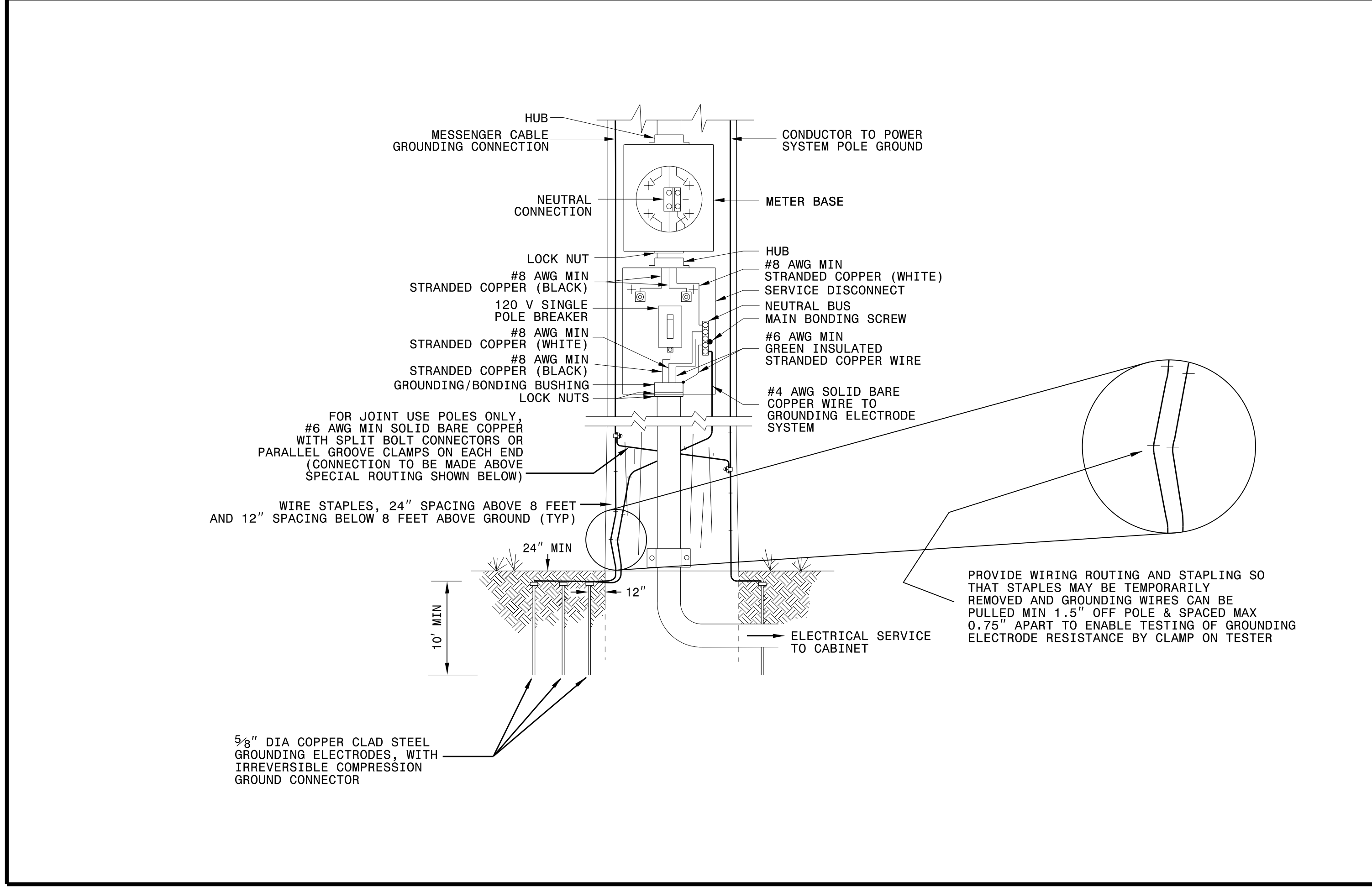
See Plate for Title



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

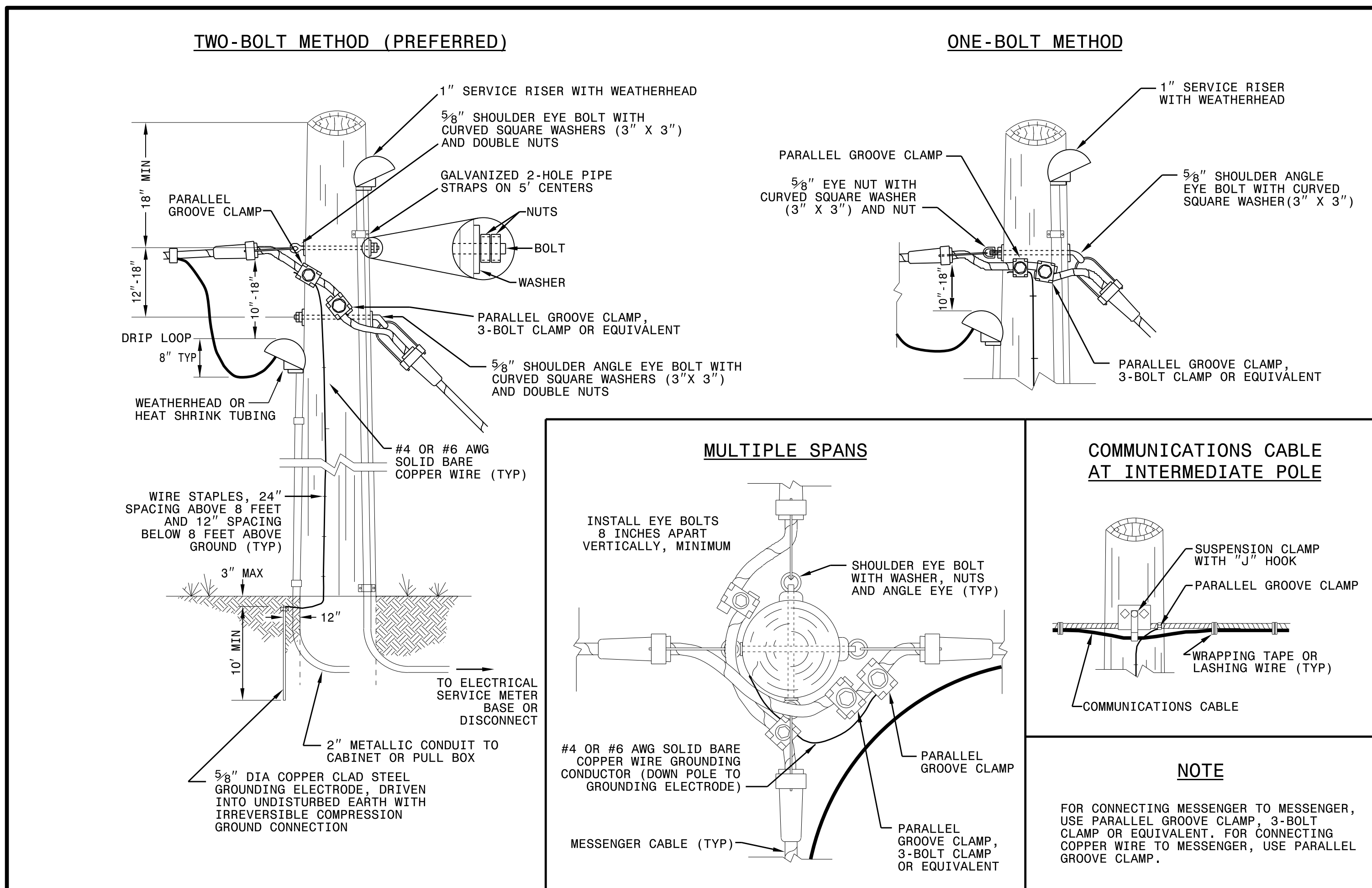
SHEET 1 OF 1
1700D01



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
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See Plate for Title

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

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