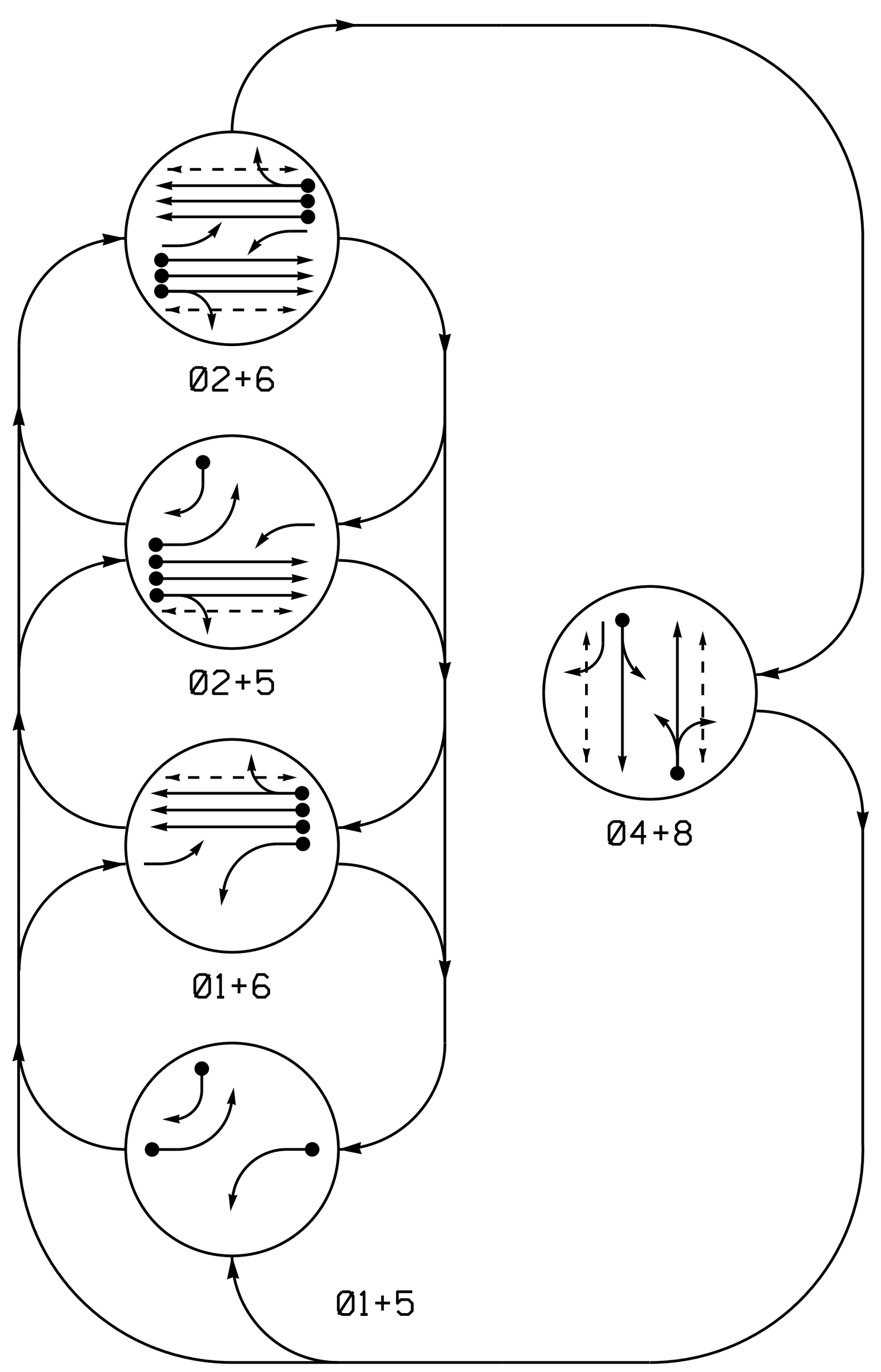
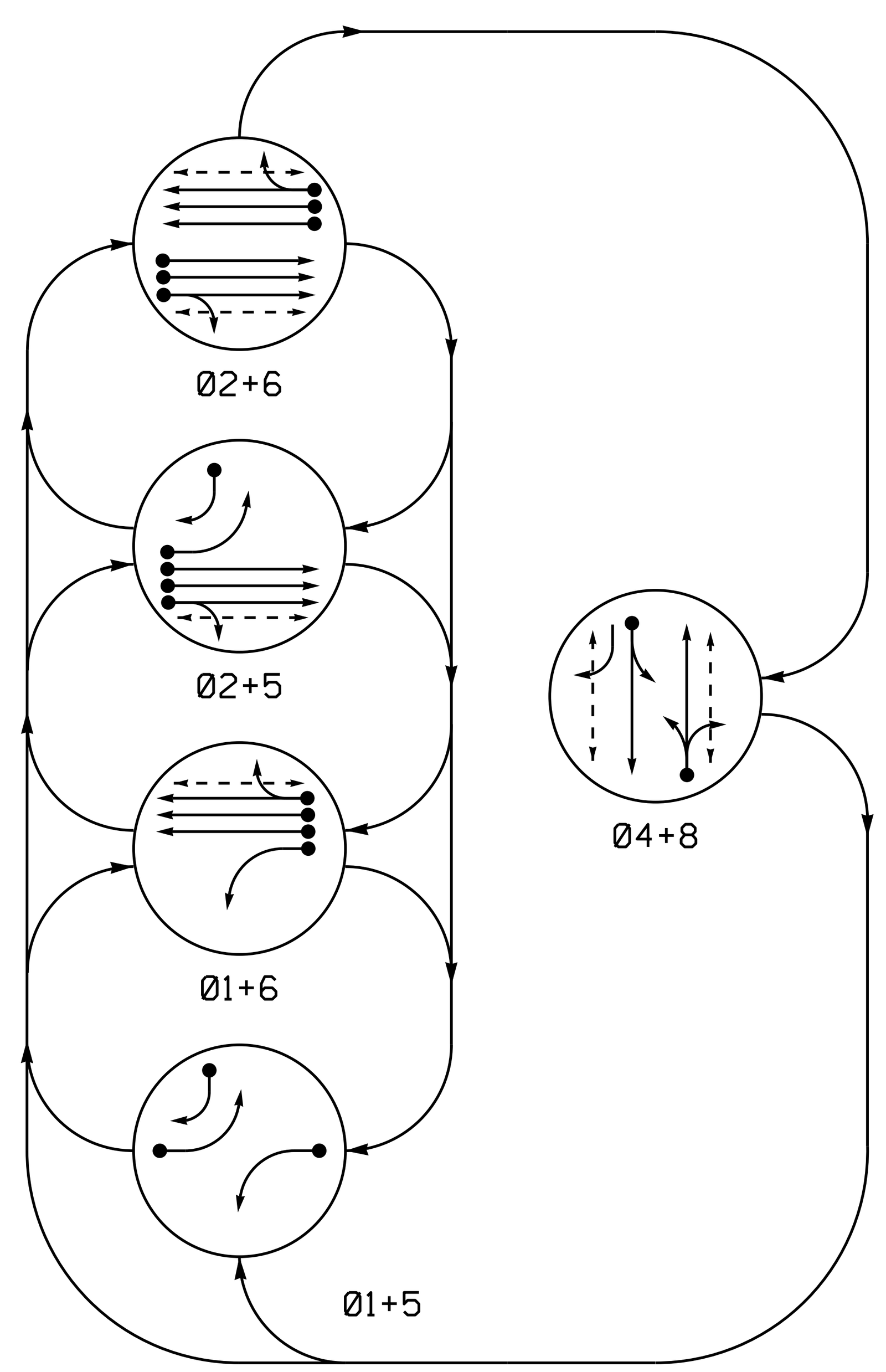
PROJECT REFERENCE NO.	SHEET NO.
W-5705Q	Sig. 1

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

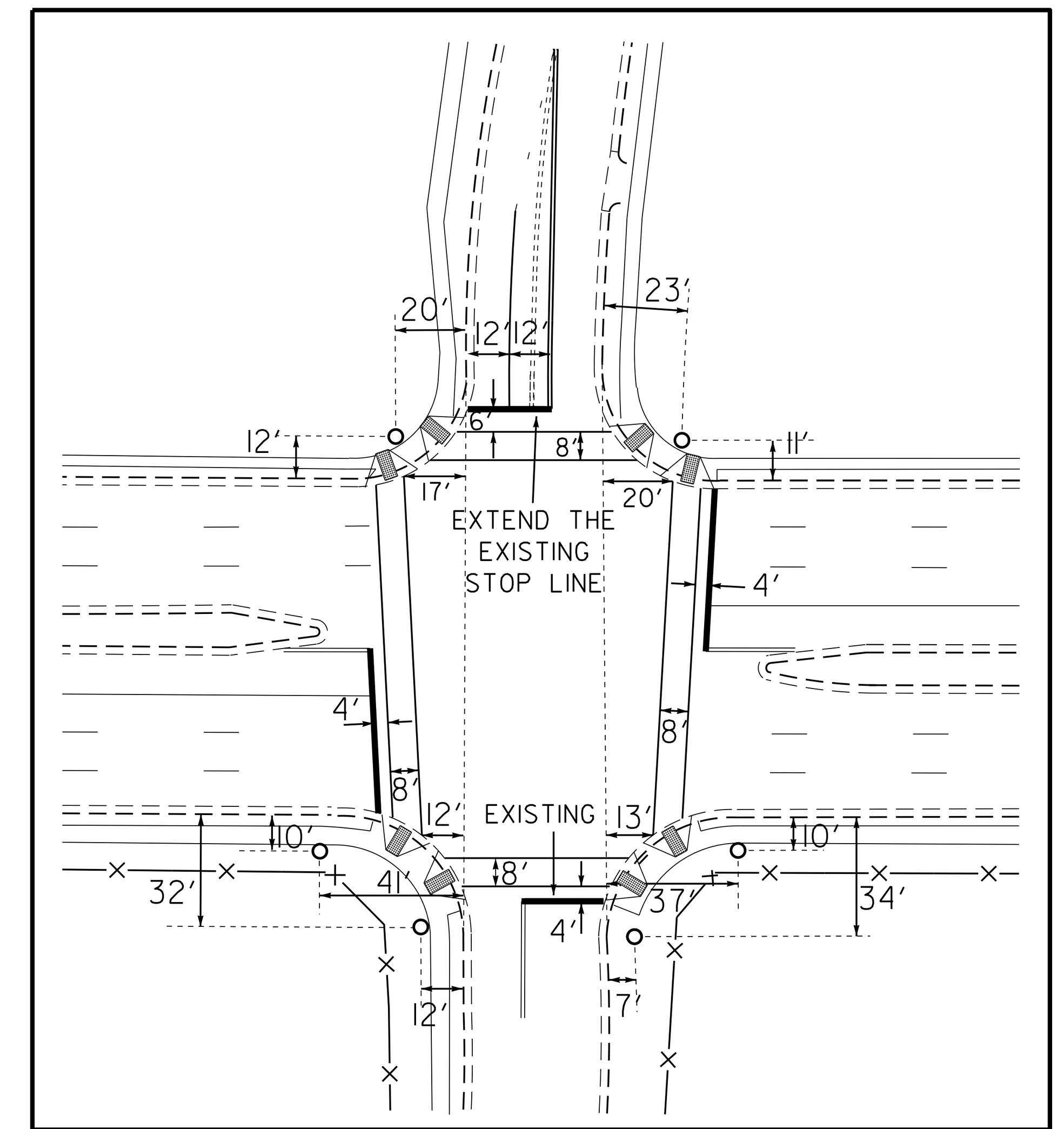
DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	←F/Y	←F/Y	←R	←Y
21, 22, 23	R	R	G	G	R	Y
41	R	R	R	R	G	R
42	R/→	R	R/→	R	G	R
51	←	←F/Y	←	←F/Y	←R	←Y
61, 62, 63	R	G	R	G	R	Y
81, 82	R	R	R	R	G	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
P81, P82	DW	DW	DW	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	←R	←R	←R	←Y
21, 22, 23	R	R	G	G	R	Y
41	R	R	R	R	G	R
42	R/→	R	R/→	R	G	R
51	←	←R	←	←R	←R	←Y
61, 62, 63	R	G	R	G	R	Y
81, 82	R	R	R	R	G	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
P81, P82	DW	DW	DW	DW	W	DRK

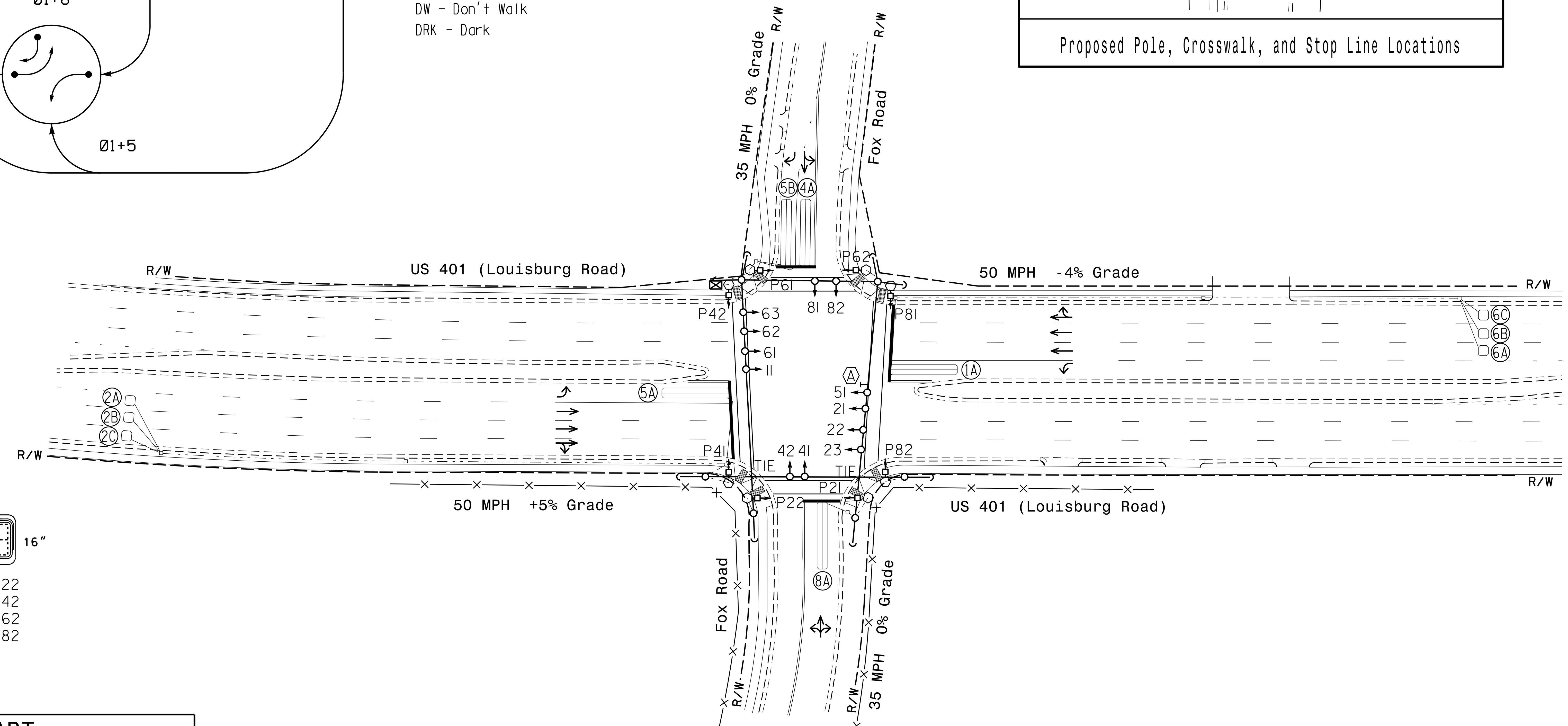


Proposed Pole, Crosswalk, and Stop Line Locations

5 Phase
Fully Actuated
(Raleigh Signal System)

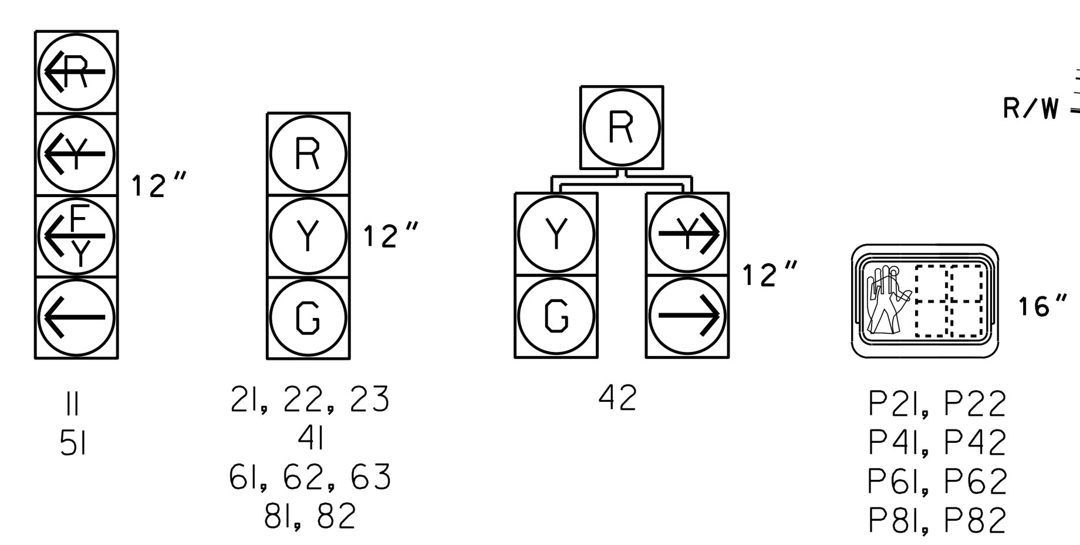
NOTES

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. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pavement markings are existing unless otherwise shown.
9. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Fence	
N/A	Curb Ramp	
	Type II Signal Pedestal	
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ

SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green *	7	14	7	7	14	7
Passage Gap *	2.0	6.0	2.0	2.0	6.0	2.0
Maximum Green *	15	90	30	15	90	30
Yellow Change	3.0	5.2	3.8	0.0	5.2	3.8
Red Clear	3.1	1.5	2.6	0.0	1.5	2.5
Walk *	-	7	4	-	7	4
Pedestrian Clear	-	9	25	-	10	24
Added Initial *	-	1.0	-	-	1.0	-
Maximum Initial *	-	40	-	-	40	-
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	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	LOCK	NON-LOCK
Dual Entry	-	-	ON	-	-	ON
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.

SE-PAC 2070 LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS						DETECTOR PROGRAMMING															
						ASSIGNED PHASE	TIMING		OPERATION MODE								SWITCH	SYSTEM LOOPS	STATUS	
									0	1	2	3	4	5	6	7				
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING		DELAY	EXTEND (STRETCH)	VEHICLE	PEDESTRIAN	1 CALL	STOP A	STOP B	PROT/PER LEFT	PROT/PER THROUGH	AND			NEW	EXISTING
1A	6X40	2-4-2	0	X	-	1	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
2A	6X6	5	355	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
2B	6X6	5	355	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
2C	6X6	5	355	X	-	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
4A	6X40	2-4-2	0	X	-	4	3 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
5A	6X40	2-4-2	0	X	-	5	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
5B	6X40	2-4-2	0	X	-	5	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6A	6X6	5	355	X	-	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6B	6X6	5	355	X	-	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
6C	6X6	5	355	X	-	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-
8A	6X40	2-4-2	0	X	-	8	10 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X	-

New Installation

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

US 401 (Louisburg Road) at Fox Road [South Intersection]

Division 5 Wake County Raleigh

PLAN DATE: October 2018	REVIEWED BY:
PREPARED BY: C.E. Carter	REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

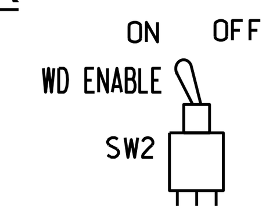
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by:
SIGNATURE 10/12/2018 DATE

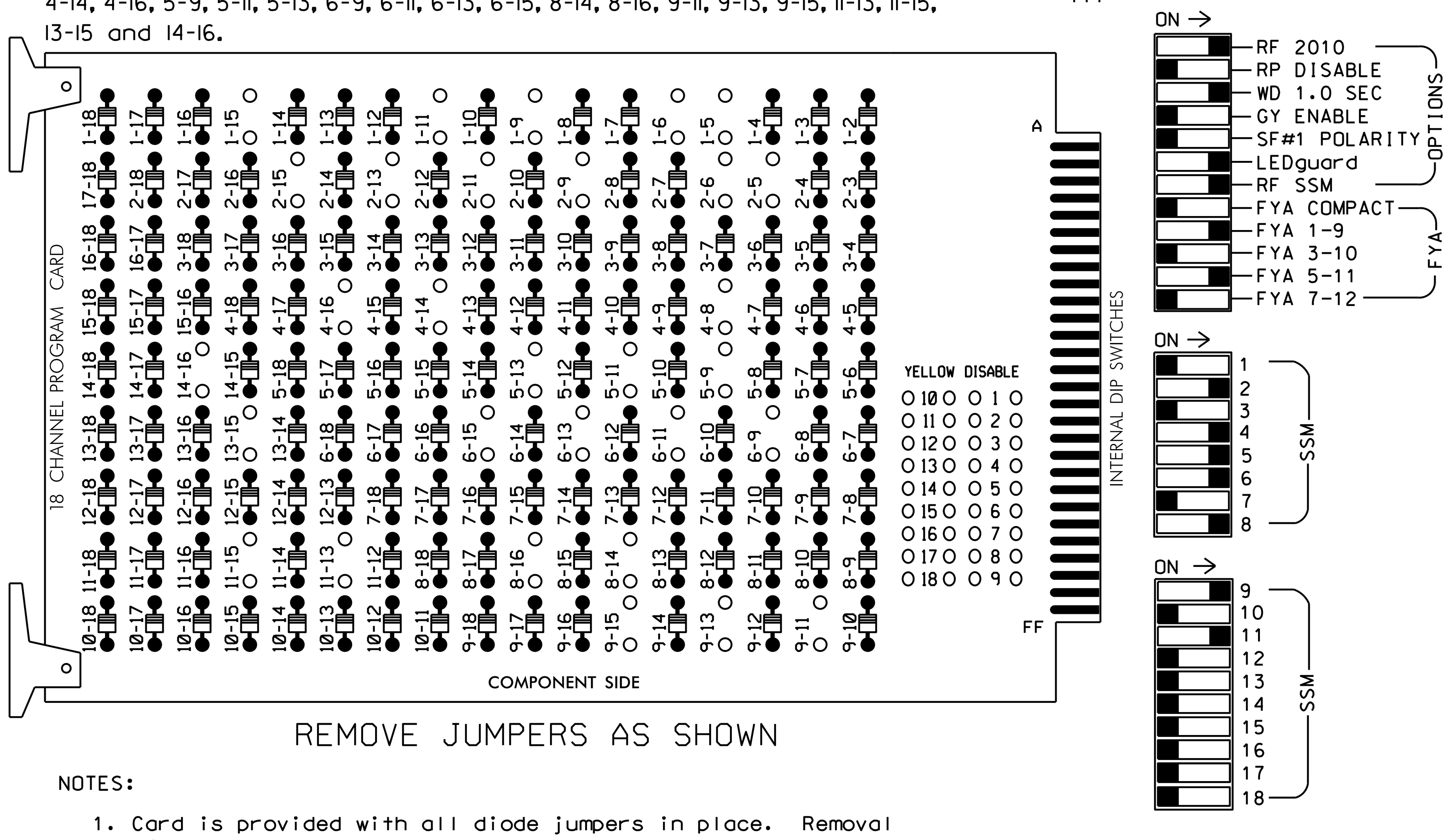
SIG. INVENTORY NO. 05-0791

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, 4-8, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 8-14, 8-16, 9-11, 9-13, 9-15, 11-13, 11-15, 13-15 and 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phases 2 and 6 green.
3. Enable simultaneous gap-out feature, on controller unit, for all phases.
4. Program phases 4 and 8, on controller unit, for dual entry.
5. Program phases 2 and 6, on controller unit, for volume density operation.
6. 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,S11,S12, AUX S1,AUX S4
PHASES USED.............1,2,2 PED,4,4 PED,5,6,6 PED, 8,8 PED
OVERLAP "A".............*
OVERLAP "B".............NOT USED
OVERLAP "C".............*
OVERLAP "D".............NOT USED

* See sheet 2 of 3 for Overlap and Protected & Permissive Phases 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	5		6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22 23	P21, P22	NU	41,42	P41, P42	42	51★	61,62 63	P61, P62	NU	81,82	P81, P82	11★	NU	NU	51★	NU	NU
RED		128			101		✳		134			107							
YELLOW	✳	129			102				135			108							
GREEN		130			103				136			109							
RED ARROW														A121			A114		
YELLOW ARROW							132							A122			A115		
FLASHING YELLOW ARROW														A123			A116		
GREEN ARROW	127						133	133											
(hand)			113			104				119			110						
(walk)			115			106				121			112						

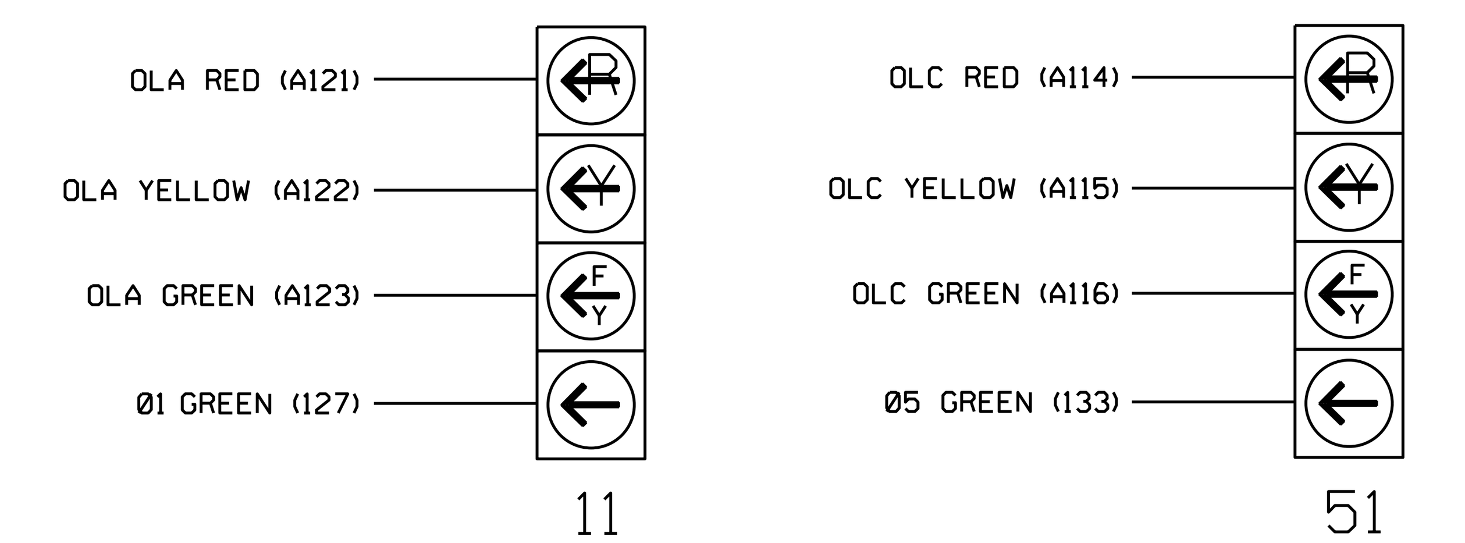
NU = Not Used

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

★ See pictorial of head wiring in detail on this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 11 and 51 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø2 2A	Ø2 2C	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED	Ø2 2B	NOT USED			NOT USED						Ø4 PED DC ISOLATOR	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø5 5B	Ø6 6B	SLOT EMPTY	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø6 6A	Ø6 6C			NOT USED								

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

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
1A	TB2-1,2	I1U	56	1	1	5	
2A	TB2-5,6	I2U	39	3	2		
2B	TB2-7,8	I2L	43	4	2		
2C	TB2-9,10	I3U	63	5	2		
4A	TB4-9,10	I6U	41	11	4	3	
5A	TB3-1,2	J1U	55	19	5	5	
5B	TB3-5,6	J2U	40	21	5	15	
6A	TB3-7,8	J2L	44	22	6		
6B	TB3-9,10	J3U	64	23	6		
6C	TB3-11,12	J3L	77	24	6		
8A	TB5-9,10	J6U	42	31	8	10	
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 I12 AND I13.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

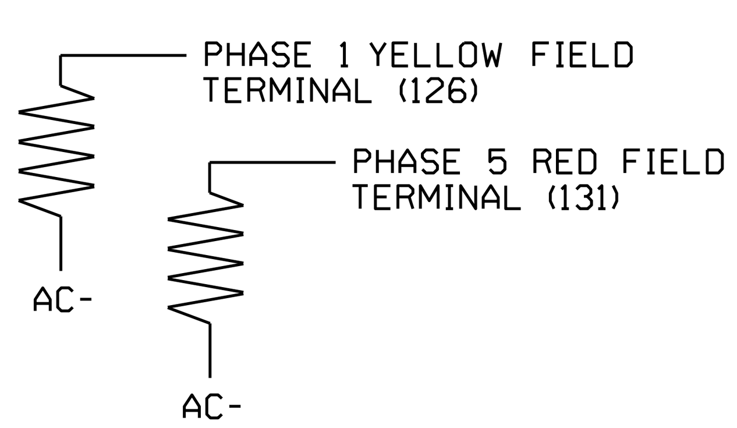
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0791
DESIGNED: October 2018
SEALED: 10-12-18
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

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



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

US 401 (Louisburg Road)
at
Fox Road
(Southern Intersection)

Division 5 Wake County Raleigh

PLAN DATE: October 2018 REVIEWED BY:
PREPARED BY: James Peterson REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough
SIGNATURE DATE 10/18/2018

SIG. INVENTORY NO. 05-0791

FLASHING YELLOW ARROW PROTECTED/PERMITTED SPECIAL SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

SELECT (4) FROM MAIN MENU

```
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:  000000000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0001000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

PRESS 'B' TWICE

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 0000010000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

select F – return to Unit Data menu

```
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   ← PROTECTED PHASES
    +GRN   2   0   6   0   0   0   0   0   ← PERMITTED PHASES
(-) #-PH G/Y KILLS OVLP= (+) #-PH G STRT
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU
```

end of programming

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0791
DESIGNED: October 2018
SEALED: 10-12-18
REVISED: N/A

Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 401 (Louisburg Road) at Fox Road (Southern Intersection)

Division 5 | Wake County | Raleigh

PLAN DATE: October 2018	REVIEWED BY:
PREPARED BY: James Peterson	REVIEWED BY:

REVISIONS	INIT.	DATE

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 10/18/2018
SIGNATURE DATE

SIG. INVENTORY NO. 05-0791

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.

PHASE FUNCTION MAPPING PROGRAMMING DETAIL

(program controller as shown below)

Step 1 - Assign OMIT OVERLAP "A" AND "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   000000000 0000000   <- REMOVE
   2  PHS-02 MAX # 2   010000000 0000000      PHASE
   3  PHS-03 MAX # 2   001000000 0000000      FUNCTION
   4  PHS-04 MAX # 2   000100000 0000000      NUM 1
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU      DEFAULT
                                              VALUE
```

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   100000000 0000000   <- SET SWITCH 1
 146  OVERLAP B OMIT   000000000 0000000      "ON" FOR
 147  OVERLAP C OMIT   100000000 0000000   <- OVERLAPS A & C
 148  OVERLAP D OMIT   000000000 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   10000000   <- PHASE
   SPC 1-8 AS PHS FUNC 9-16   00000000      FUNCTION 1
   SPEC FUNCTION 1            10000000      WILL BE
 CODES.......0-OFF....1-ON...........       CALLED WHEN
A-UP B-DN C-LT D-RT E-ENTER F-PRIOR MENU    SPECIAL
                                            FUNCTION 1
                                            IS SELECTED
```

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

PROGRAM AUX EVENT TO CALL SPECIAL FUNCTION

(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)

```
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          Special
 DD  HH  MM   A123  D123  DIM  S12345678   Function (SF)
  *   *   *    000   000   0    10000000   <- SF 1 "ON"
  *   *   *    000   000   0    00000000   <- SF 1 "OFF"
  *   *   *    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.

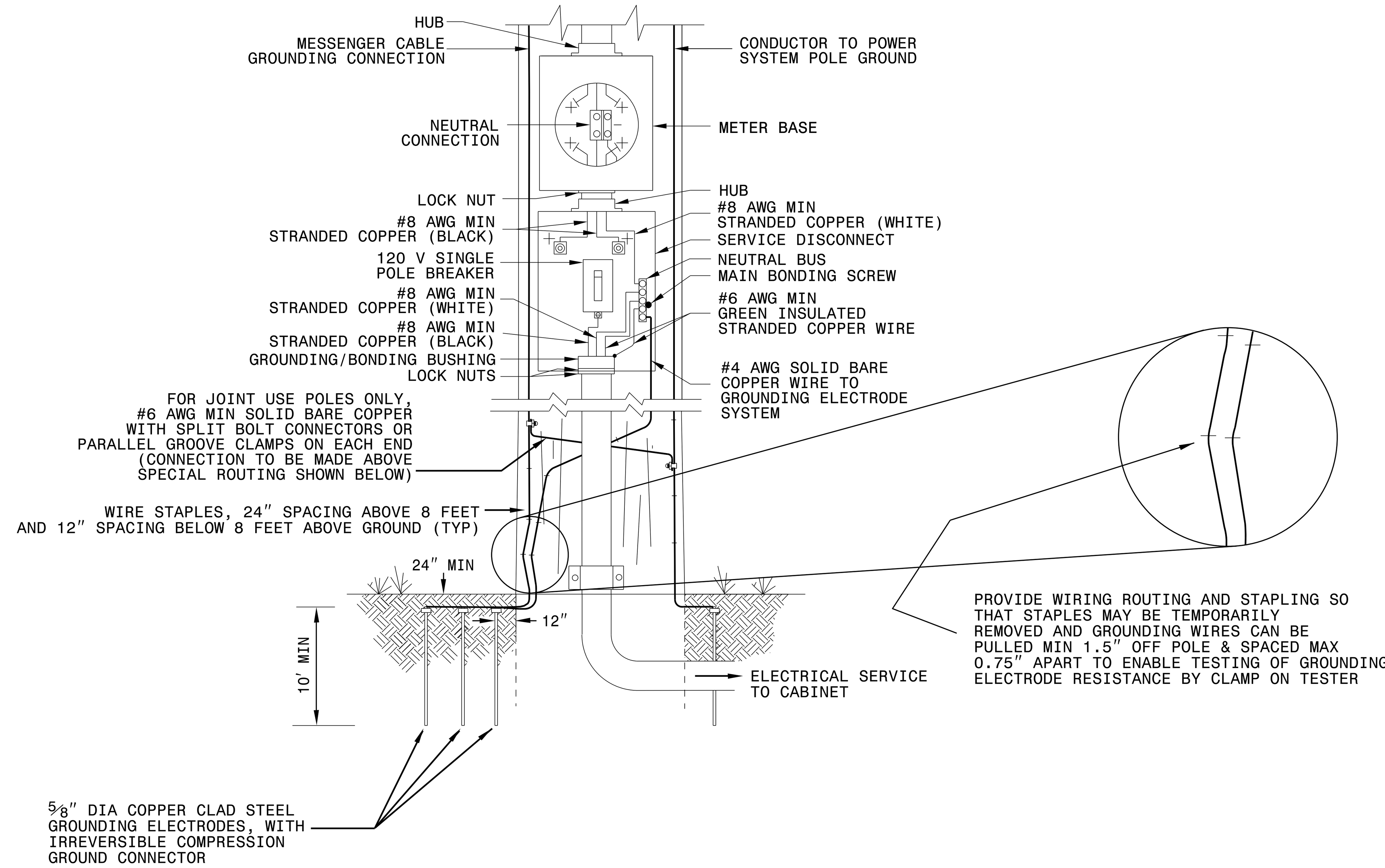
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0791
DESIGNED: October 2018
SEALED: 10-12-18
REVISED: N/A

Electrical Detail - Sheet 3 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 401 (Louisburg Road) at Fox Road (Southern Intersection)	SEAL
Prepared in the Offices of: ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation, 750 N.Greenfield Pkwy,Garner,NC 27529	Division 5 — Wake County — Raleigh	NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH
	PLAN DATE: October 2018 — REVIEWED BY:	DocuSigned by: Ryan W. Hough 430320FAA2654C3... SIGNATURE — DATE 10/18/2018
	PREPARED BY: James Peterson — REVIEWED BY:	SIG. INVENTORY NO. 05-0791
	REVISIONS — INIT. — DATE	

16-OCT-2018 08:02
S:*ITS&SU*ITS Signals*Workgroups*Sig Man*Peterson*050791_sm_ele_xxx.dgn
jtpeterson

PROJECT NO.	SHEET NO.
W-5705Q	Sig. 5



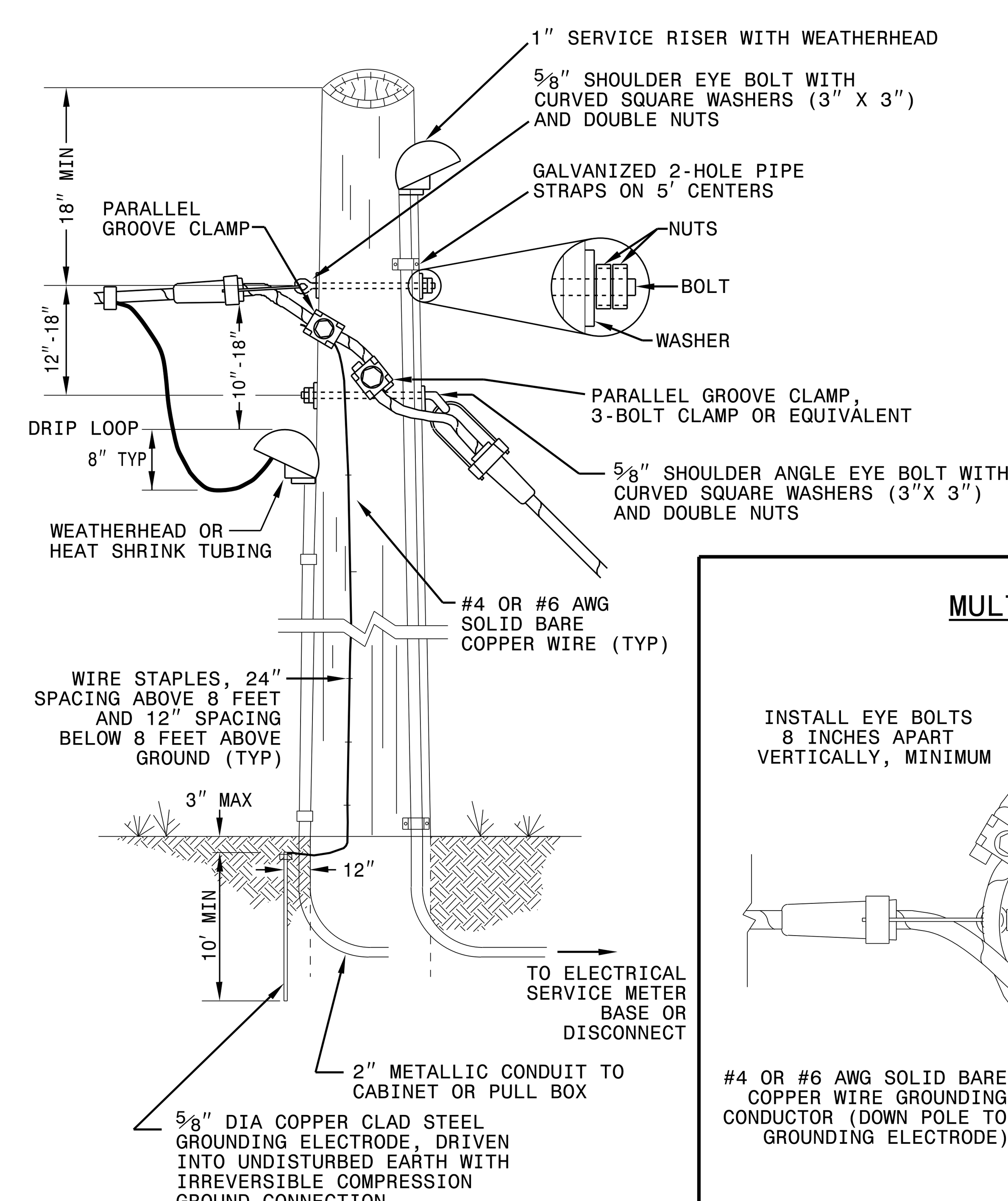
1-18

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

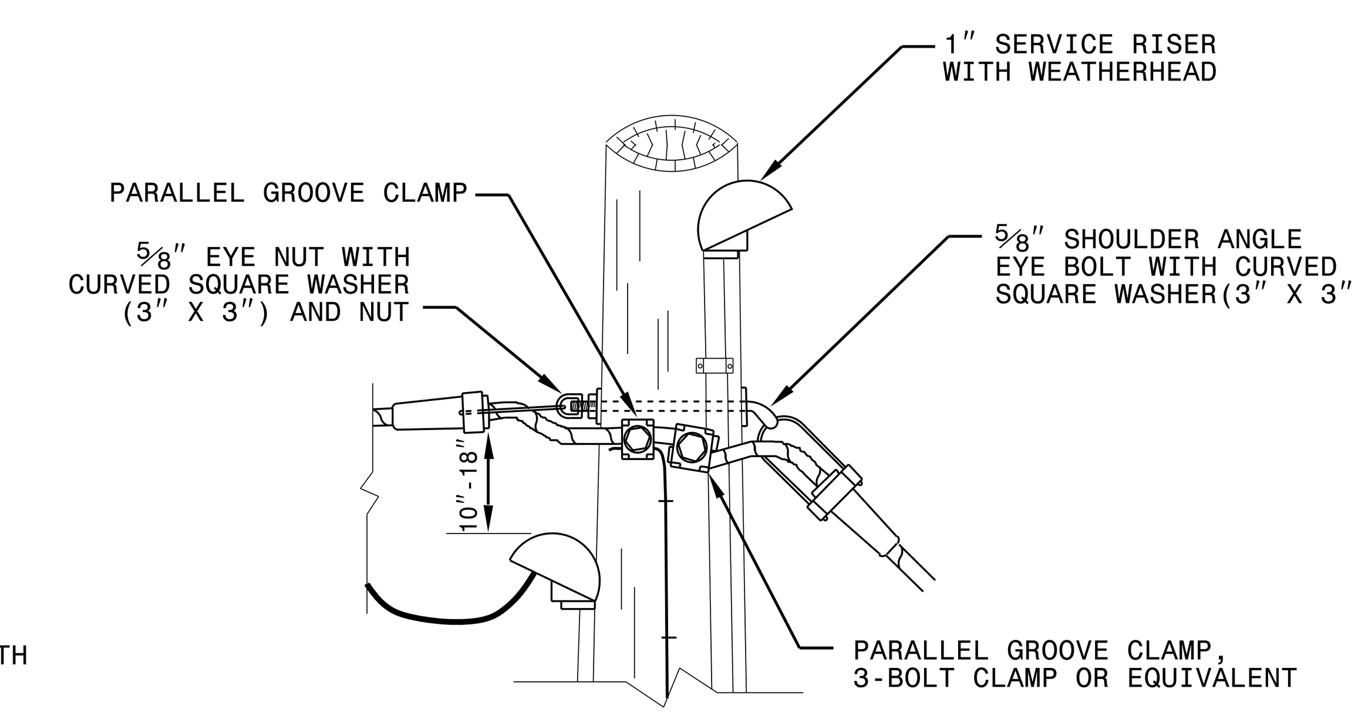
ENGLISH STANDARD DRAWING FOR
ELECTRICAL SERVICE GROUNDING
GROUNDING AND BONDING

SHEET 1 OF 1
1700D01

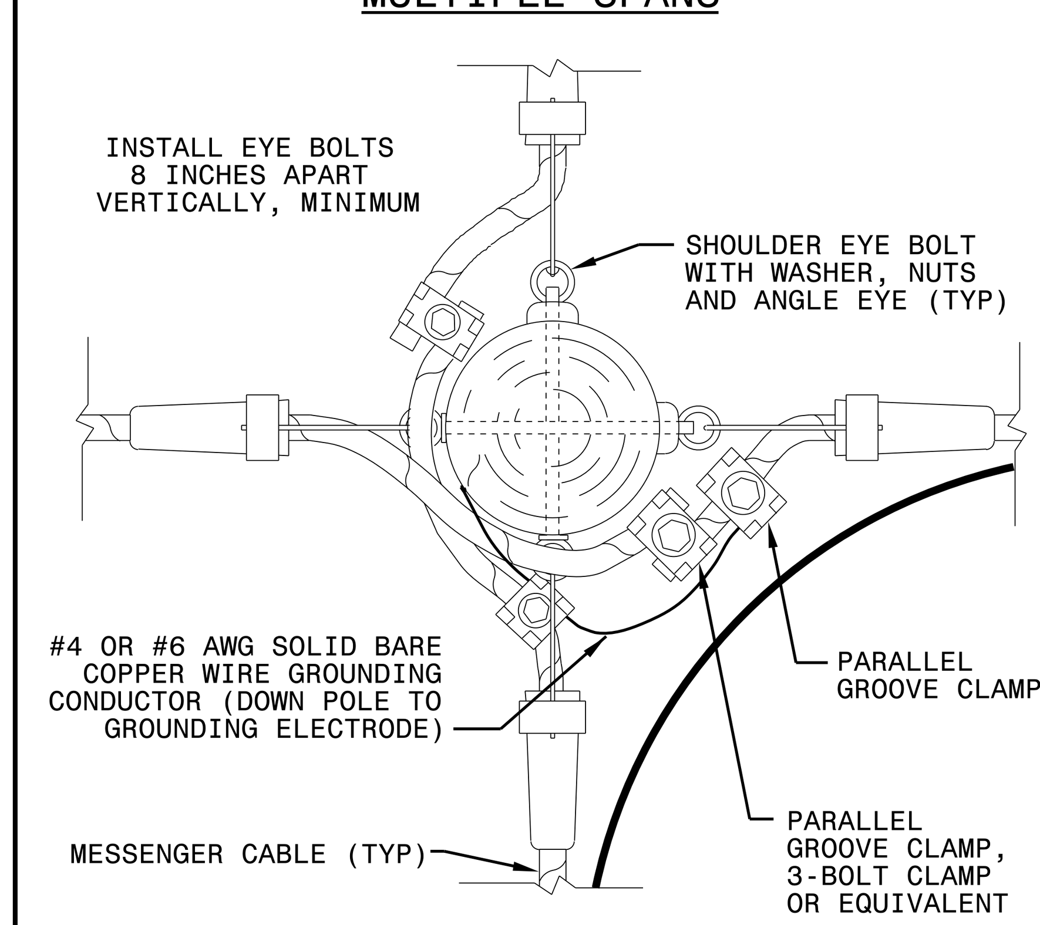
TWO-BOLT METHOD (PREFERRED)



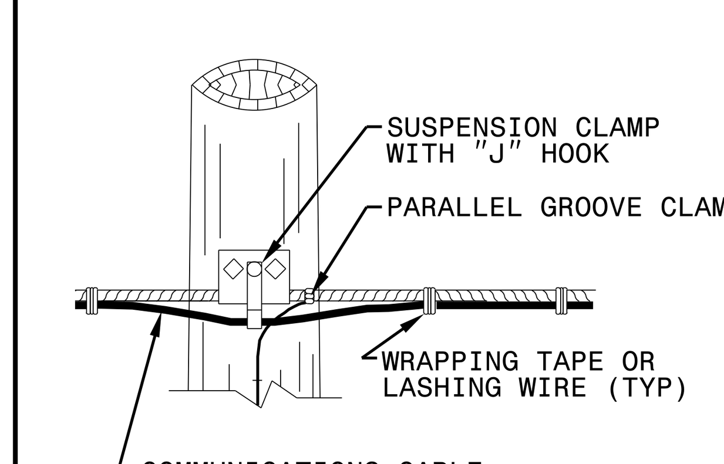
ONE-BOLT METHOD



MULTIPLE SPANS



COMMUNICATIONS CABLE AT INTERMEDIATE POLE



NOTE

FOR CONNECTING MESSENGER TO MESSENGER, USE PARALLEL GROOVE CLAMP, 3-BOLT CLAMP OR EQUIVALENT. FOR CONNECTING COPPER WIRE TO MESSENGER, USE PARALLEL GROOVE CLAMP.

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

Prepared in the Offices of:

Transportation Mobility and Safety Division
ITS & Signals Unit

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032108 ENGINEER MOHD A. ASLAMI

DocuSigned by: Mohd Aslami
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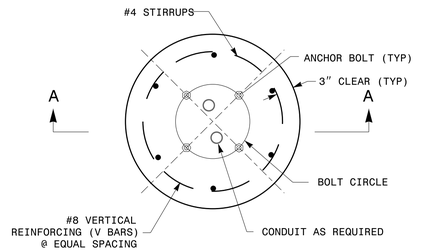
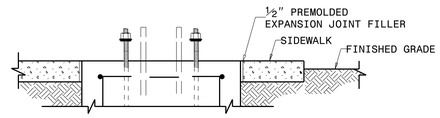
10/11/2017
DATE

PROJECT NO.	SHEET NO.
W-5705Q	Sig. 6



PEDESTAL FOUNDATION - PLAN VIEW

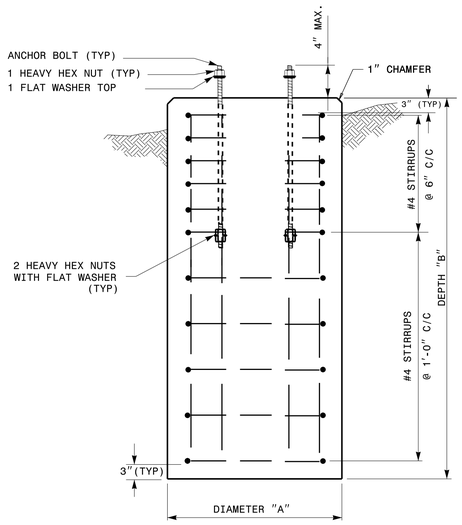


PEDESTAL FOUNDATION DETAILS FOR SIDEWALK

NOTES:

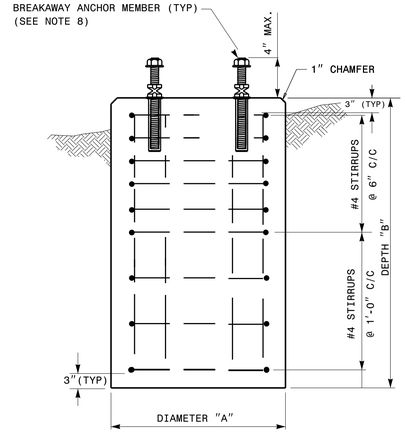
1. CAST FOUNDATION AGAINST UNDISTURBED SOIL WHEREVER CONDITIONS PERMIT. IN UNSTABLE SOIL, CAST-IN-PLACE TUBE FORMS ARE ALLOWED WITH APPROVAL.
2. COMPLY WITH APPLICABLE PROVISIONS OF SECTION 825 FOR CONCRETE CONSTRUCTION.
3. USE CLASS "A" CONCRETE THAT MEETS THE REQUIREMENTS OF SECTION 1000 WITH A COMPRESSION STRENGTH AT 28 DAYS OF F'c= 3000 PSI (MIN.).
4. USE ASTM GRADE 60 DEFORMED BARS FOR ALL REINFORCING STEEL.
5. 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.
6. MAINTAIN AT LEAST 3" COVER ON ALL REINFORCEMENT.
7. ORIENT CONDUIT AS REQUIRED BY THE DESIGN OR AS DICTATED BY FIELD CONDITIONS.
8. USE ADHESIVE ANCHOR FOR THREADED COUPLING INSERT. FOR TYPE I MINIMUM DEPTH NECESSARY IS 0'-4½" AND FOR TYPE II MINIMUM DEPTH NECESSARY IS 0'-6⅝". FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.



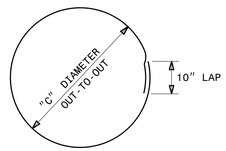
TYPES I, II & III

SECTION A-A

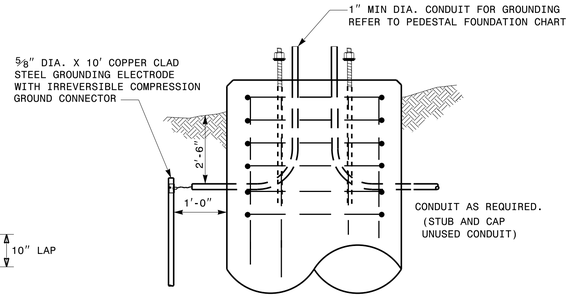


TYPES I & II ONLY

SECTION A-A



CLOSED HOOPS



GROUNDING & CONDUIT DETAIL

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	½	1'-6"	NO
II	NORMAL-DUTY	2'-0"	5'-0"	.58	¾	2'-0"	YES
III	HEAVY-DUTY	2'-6"	7'-0"	1.27	1	4'-0"	YES

REINFORCING STEEL SCHEDULE

TYPE	V-BAR				STIRRUP								TOTAL STEEL WEIGHT LBS
	SIZE #	QTY	LENGTH	WEIGHT LBS	SIZE #	QUANTITY VERTICAL SPACING ON 6" CENTERS	QUANTITY VERTICAL SPACING ON 12" CENTERS	QUANTITY TOTAL	LENGTH	DIAMETER "C" FT	OVERLAP MIN.	WEIGHT LBS	
I	8	6	3'-0"	56	4	0	4	4	5'-7"	1'-6"	0'-10"	15	71
II	8	6	4'-6"	86	4	5	3	8	5'-7"	1'-6"	0'-10"	30	116
III	8	6	6'-6"	122	4	7	4	11	7'-2"	2'-0"	0'-10"	53	175

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

1-18

ENGLISH STANDARD DRAWING FOR

PEDESTALS

FOUNDATIONS

SHEET 1 OF 1

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rwhough

See Plate for Title

Prepared in the Offices of:

Transportation Mobility and Safety Division
ITS & Signals Unit
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Parkway
Garner, NC 27529

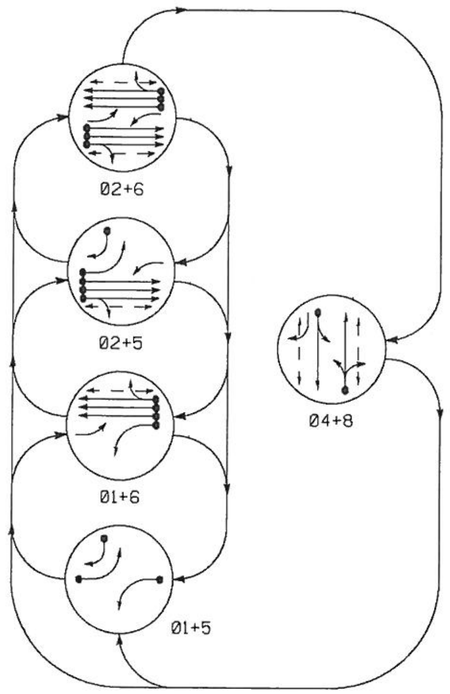
SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
028094
ENGINEER
DEBESH C. SARKAR

DocuSigned by:
Debesh C. Sarkar
44E8E32E147E4C4...
10/11/2017
DATE

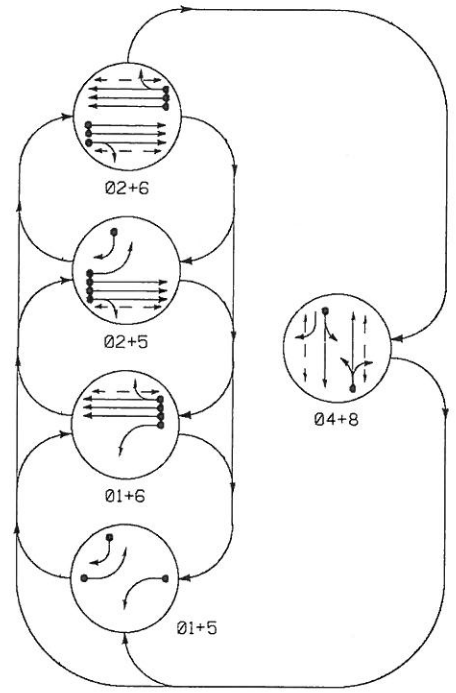
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
W-5705Q	Sig. 7

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM

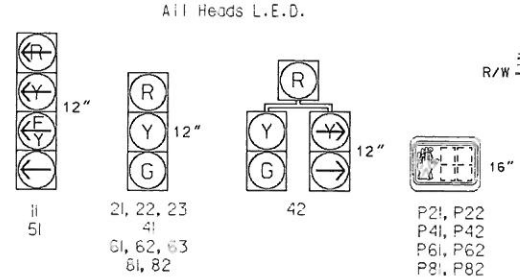


PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	←F/Y	←F/Y	←R	←Y
21, 22, 23	R	R	G	G	R	Y
41	R	R	R	R	G	R
42	R/→	R	R/→	R	G	R
51	←	←F/Y	←	←F/Y	←R	←Y
61, 62, 63	R	G	R	G	R	Y
81, 82	R	R	R	R	G	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
P81, P82	DW	DW	DW	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

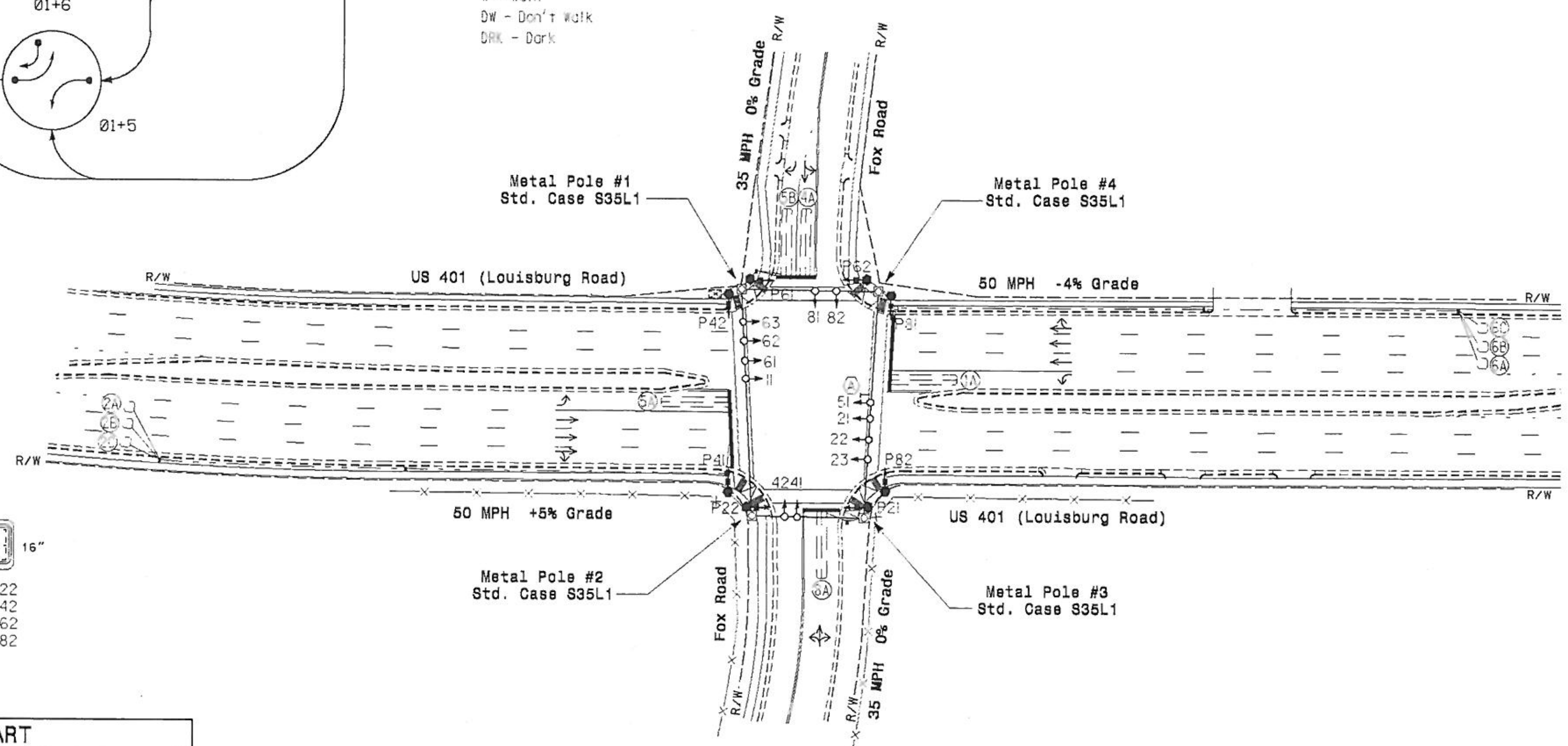
ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	←R	←R	←R	←Y
21, 22, 23	R	R	G	G	R	Y
41	R	R	R	R	G	R
42	R/→	R	R/→	R	G	R
51	←	←R	←	←R	←R	←Y
61, 62, 63	R	G	R	G	R	Y
81, 82	R	R	R	R	G	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
P81, P82	DW	DW	DW	DW	W	DRK

5 Phase
Fully Actuated
(Raleigh Signal System)

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. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. Pavement markings are existing unless otherwise shown.
8. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Metal Strain Pole	
N/A	Fence	
N/A	Curb Ramp	
	Type II Signal Pedestal	
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ

SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green *	7	14	7	7	14	7
Passage Gap *	2.0	6.0	2.0	2.0	6.0	2.0
Maximum Green *	15	90	30	15	90	30
Yellow Change	3.0	5.2	3.8	0.0	5.2	3.8
Red Clear	3.1	1.5	2.6	0.0	1.5	2.5
Walk *	-	7	4	-	7	4
Pedestrian Clear	-	9	25	-	10	24
Added Initial *	-	1.0	-	-	1.0	-
Maximum Initial *	-	40	-	-	40	-
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	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	LOCK	NON-LOCK
Dual Entry	-	-	ON	-	-	ON
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.

SE-PAC 2070 LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS: LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	DETECTOR PROGRAMMING: ASSIGNED PHASE	TIMING: DELAY	EXTEND (STRETCH)	OPERATION MODE: 0 VEHICLE	1 PEDESTRIAN	2 I CALL	3 STOP A	4 STOP B	5 PROT/PER LEFT	6 PROT/PER THROUGH	7 AND	SWITCH	SYSTEM LOOPS	STATUS: NEW	EXISTING
1A	6X40	2-4-2	0	-	X	1	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2A	6X6	5	355	-	X	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2B	6X6	5	355	-	X	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2C	6X6	5	355	-	X	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
4A	6X40	2-4-2	0	-	X	4	3 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
5A	6X40	2-4-2	0	-	X	5	5 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
5B	6X40	2-4-2	0	-	X	5	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6A	6X6	5	355	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6B	6X6	5	355	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6C	6X6	5	355	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
8A	6X40	2-4-2	0	-	X	8	10 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X

Signal Upgrade - Final Design

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

US 401 (Louisburg Road)
at
Fox Road
[South Intersection]

Division 5 | Wake County | Raleigh

PLAN DATE:	March 2019	REVIEWED BY:
PREPARED BY:	C.E. Carter	REVIEWED BY:

SCALE 0 50 1" = 50'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SIGNATURE DATE

SIG. INVENTORY NO. 05-0791

PROJECT REFERENCE NO.	SHEET NO.
W-5705Q	SCP.1

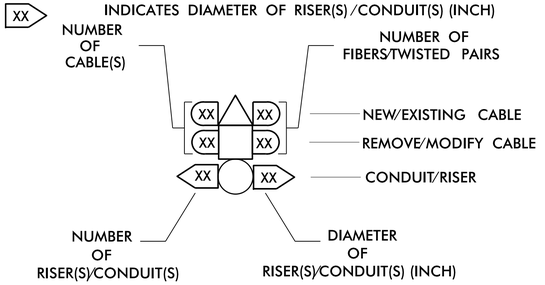
1. INSTALL REA, PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
2. INSTALL COAX CABLE
3. INSTALL ETHERNET CABLE
4. INSTALL SMFO CABLE
5. INSTALL MMFO CABLE
6. INSTALL FIBER OPTIC DROP CABLE
7. INSTALL TRACER WIRE
8. TRENCH
9. INSTALL PVC CONDUIT
10. INSTALL RIGID, GALVANIZED STEEL CONDUIT
11. INSTALL 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 /SPLICE ENCLOSURE
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. INSTALL POLE MOUNTED SPLICE CABINET
32. INSTALL BASE MOUNTED SPLICE CABINET
33. REMOVE EXISTING 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 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
61. DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS
62. BOND RISER AND MESSENGER CABLE TO POLE GROUND
63. BOND RISER 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

- FO — NEW FIBER OPTIC COMMUNICATIONS CABLE
- TWIST PR — NEW TWISTED PAIR COMMUNICATIONS CABLE
- EXI — EXISTING COMMUNICATIONS CABLE
- REM — EXISTING COMMUNICATIONS CABLE TO BE REMOVED
- NEW AERIAL GUY ASSEMBLY
- NEW CONDUIT
- EXISTING CONDUIT
- DD — NEW DIRECTIONAL DRILLED CONDUIT
- B&J — NEW BORED AND JACKED CONDUIT
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- AERIAL SPLICE ENCLOSURE
- UNDERGROUND SPLICE ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV ASSEMBLY
- EXISTING CCTV ASSEMBLY
- NEW STANDARD GUY ASSEMBLY
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CABLE STORAGE RACK (SNOW SHOE)
- EXISTING CONTROLLER AND CABINET
- NEW CCTV CABINET
- EXISTING SPLICE CABINET
- NEW SPLICE CABINET
- SP — SIGNAL POLE
- FLAT PANEL ANTENNA (SINGLE)
- YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION
- YAGI ANTENNA (SINGLE)
- OMNI ANTENNA
- XX–XXXX — SIGNAL INVENTORY NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

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



ATTACHMENT POINT:

- XX"/SS over YYY — DISTANCE ABOVE (IN)/ATTACHMENT POINT REFERENCE POINT
- YYY over XX"/SS — 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

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Intelligent Transportation Systems

750 N. Greenfield Pkwy., Garner, NC 27529

CONSTRUCTION NOTES

DIVISION 05 WAKE COUNTY RALEIGH

PLAN DATE: OCTOBER 2018

PREPARED BY: A. J. SKUCE

REVIEWED BY: Mil Avery — DocuSigned by: 09F5D84C8ED3443...

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032108 ENGINEER MOHD A. ASLAMI

DocuSigned by: Mohd Aslami — 5D9B0BA6DBB6495...

10/12/2018 DATE

PROJECT REFERENCE NO.	SHEET NO.
W-5705Q	SCP.2

∗ – PRE TERMINATED DROP CABLE

1) BOLD CONSTRUCTION NOTES INDICATE EXISTING I.T. CABLE. DO NOT MODIFY EXISTING I.T. CABLE.

2) 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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division · State of North Carolina · Department of Transportation · Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS

DIVISION 05 WAKE COUNTY RALEIGH

PLAN DATE: OCTOBER 2018

PREPARED BY: A. J. SKUCE

REVIEWED BY: DocuSigned by: Neil Avery 09F5DB4CBED3443...

SCALE 0 30′ 1″ = 30′

REVISIONS	INIT.	DATE

SEAL

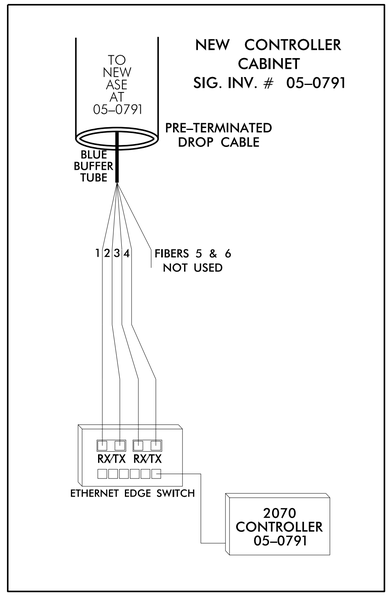
NORTH CAROLINA PROFESSIONAL SEAL 032108 ENGINEER MOHD A. ASLAMI

DocuSigned by: Mohd Aslami 5D9B0BA6DBB6495...

10/12/2018

DATE

PROJECT REFERENCE NO.	SHEET NO.
W-5705Q	SCP.3



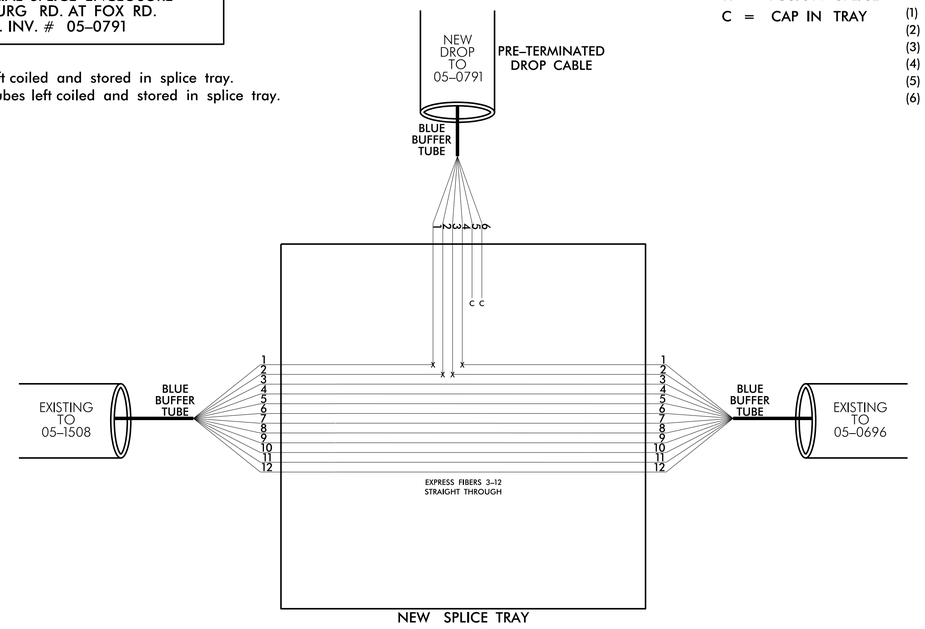
NEW AERIAL SPLICE ENCLOSURE
LOUISBURG RD. AT FOX RD.
SIG. INV. # 05–0791

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

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



CAUTION
DO NOT CUT OR MODIFY EXISTING 24–FIBER I.T. 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) 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

Prepared in the Offices of:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Integrated Mobility and Transportation Systems Section
750 N. Greenfield Pkwy. , Garner, NC 27529

SPLICE DETAILS

DIVISION 05 WAKE COUNTY RALEIGH

PLAN DATE: OCTOBER 2018 REVIEWED BY: DocuSigned by: Mil Avery 09F5D84CBED3443...

PREPARED BY: A. J. SKUCE

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032108 ENGINEER MOHD A. ASLAMI
DocuSigned by: Mohd Aslami 5D9B0BA8D8B6495...
10/12/2018
DATE

PROJECT REFERENCE NO.	SHEET NO.
W-5705O	PMP / SGN

NORTH CAROLINA PROFESSIONAL SEAL 039266 ENGINEER JOHN E. SANDOR

Project Notes

1. Refer to "NCDOT January 2018 Roadway Standard Drawings " and "NCDOT Standard Specifications for Roads and Structures January 2018"
2. Remove all markings noted with an "x".
3. Install W3-3 "Signal Ahead" signs for both intersection approaches on US 401 (Fox Rd). When existing terrain permits, locate these signs at least 250' in advance of the stop bar. Otherwise choose the best location available in the field. The supplemental "Street Name" plaques will be furnished by the City of Raleigh.
4. Remove R1-1 "Stop" signs once signal is in operation.

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY
T2	WHITE STOPBAR	THERMOPLASTIC (24", 120 MIL)	110 LF
T3	WHITE CROSSWALK LINE	THERMOPLASTIC (8", 120 MIL)	620 LF
TD	3FT. - 9FT./SP WHITE MINISKIP	THERMOPLASTIC (4", 120 MIL)	15 LF
TE	WHITE LANE LINE	THERMOPLASTIC (4", 120 MIL)	60 LF
TI	YELLOW DOUBLE CENTER	THERMOPLASTIC (4", 120 MIL)	145 LF
UB	RIGHT TURN ARROW	THERMOPLASTIC (90 MIL)	1 EA
UD	COMBO LEFT/STRAIGHT ARROW	THERMOPLASTIC (90 MIL)	1 EA

US 401 (LOUISBURG RD) AND FOX RD
RALEIGH, WAKE COUNTY, NC

PAVEMENT MARKING / SIGN PLACEMENT PLAN

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE TRAFFIC ENGINEERING

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING

SCALE:	60' = 1"
DATE:	18 MAR 2019
PREPARED BY:	SJL
REVIEWED BY:	JES
REVIEWED BY:	