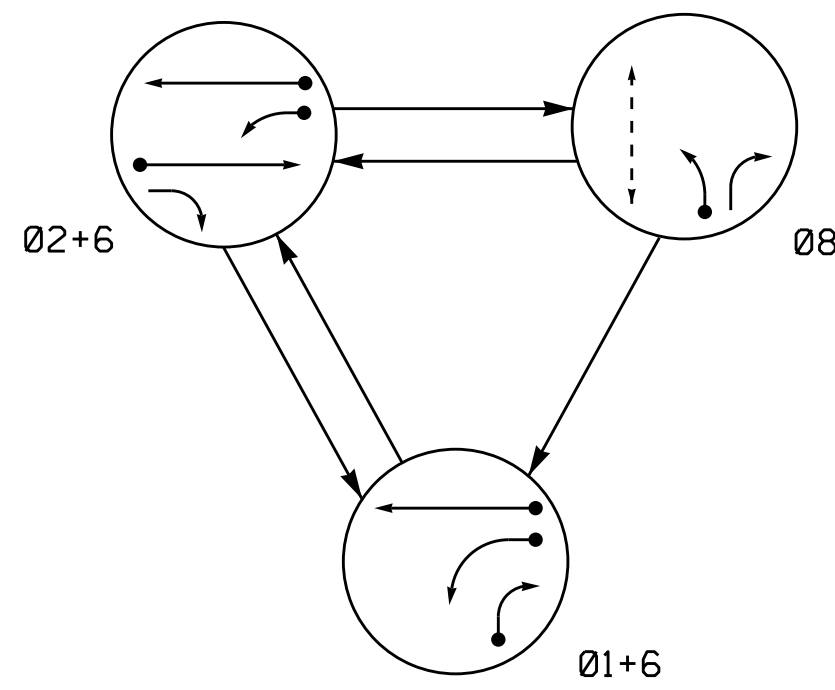


PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

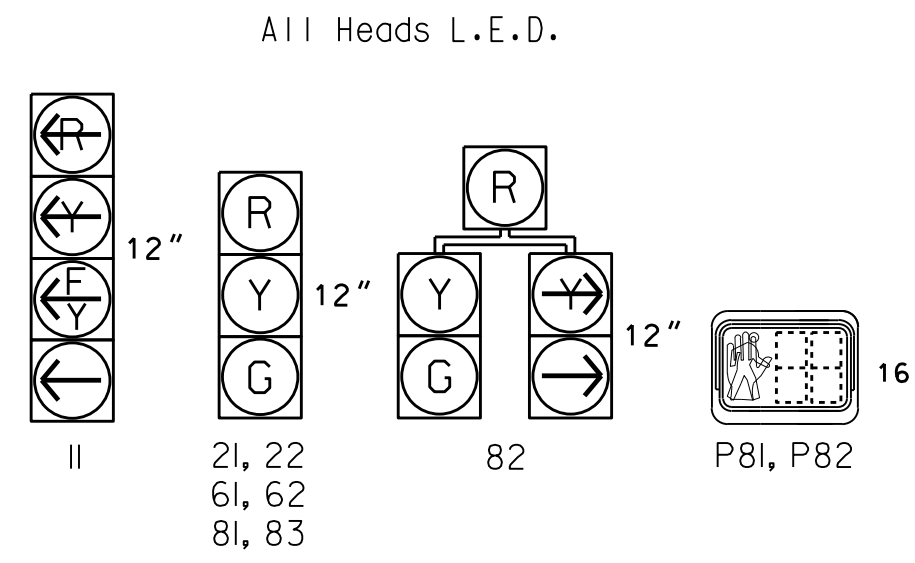
- ◄● DETECTED MOVEMENT
- ◄◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄--- UNSIGNALIZED MOVEMENT
- ◄--- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	Ø1+6	Ø2+6	Ø8	Ø1+6
II	←	→	←	→
21, 22	R	G	R	Y
61, 62	G	G	R	Y
81, 83	R	R	G	R
82	↔	R	G	R
P81, P82	DW	DW	W	DRK

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

SIGNAL FACE I.D.



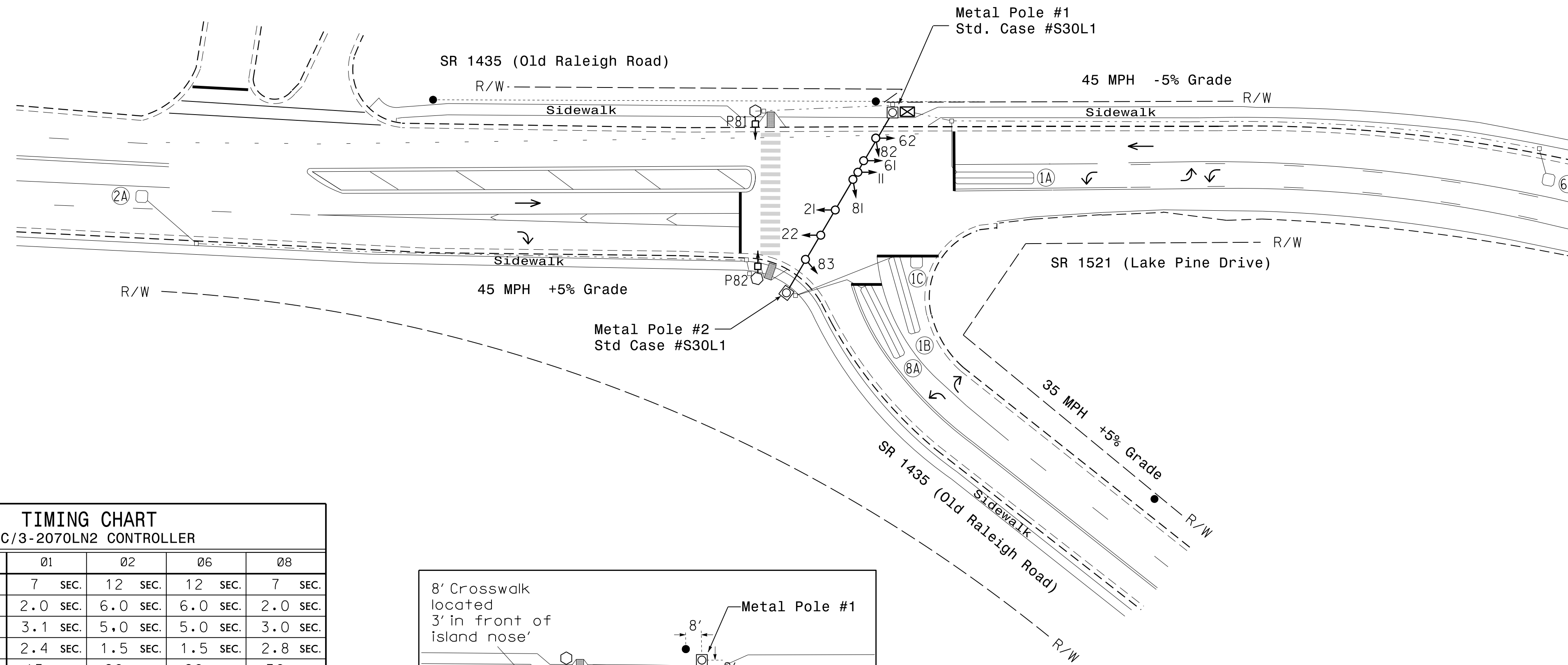
LOOP & DETECTOR INSTALLATION CHART  
ASC/3-2070LN2 CONTROLLER w/ TS-2 CABINET

LOOP NO.	SIZE (ft)	DIST. FROM STOPBAR (ft)	TURNS	NEW EXISTING	NEMA PHASE		TIMING		DET. TYPE	
					NEW	EXISTING	FEATURE	TIME		
IA	6X40	0	2-4-2	X	-	1 X	-	DELAY	15	S
IB	6X40	0	2-4-2	X	-	6 X	-	DELAY	3	G
IC	6X6	0	4	X	-	1 X	-	DELAY	20	S
2A	6X6	300	5	X	-	2 X	-	-	-	N
6A	6X6	300	5	X	-	6 X	-	-	-	N
8A	6X40	0	2-4-2	X	-	8 X	-	DELAY	3	S

3 Phase Fully Actuated (Cary Signal System)

NOTES

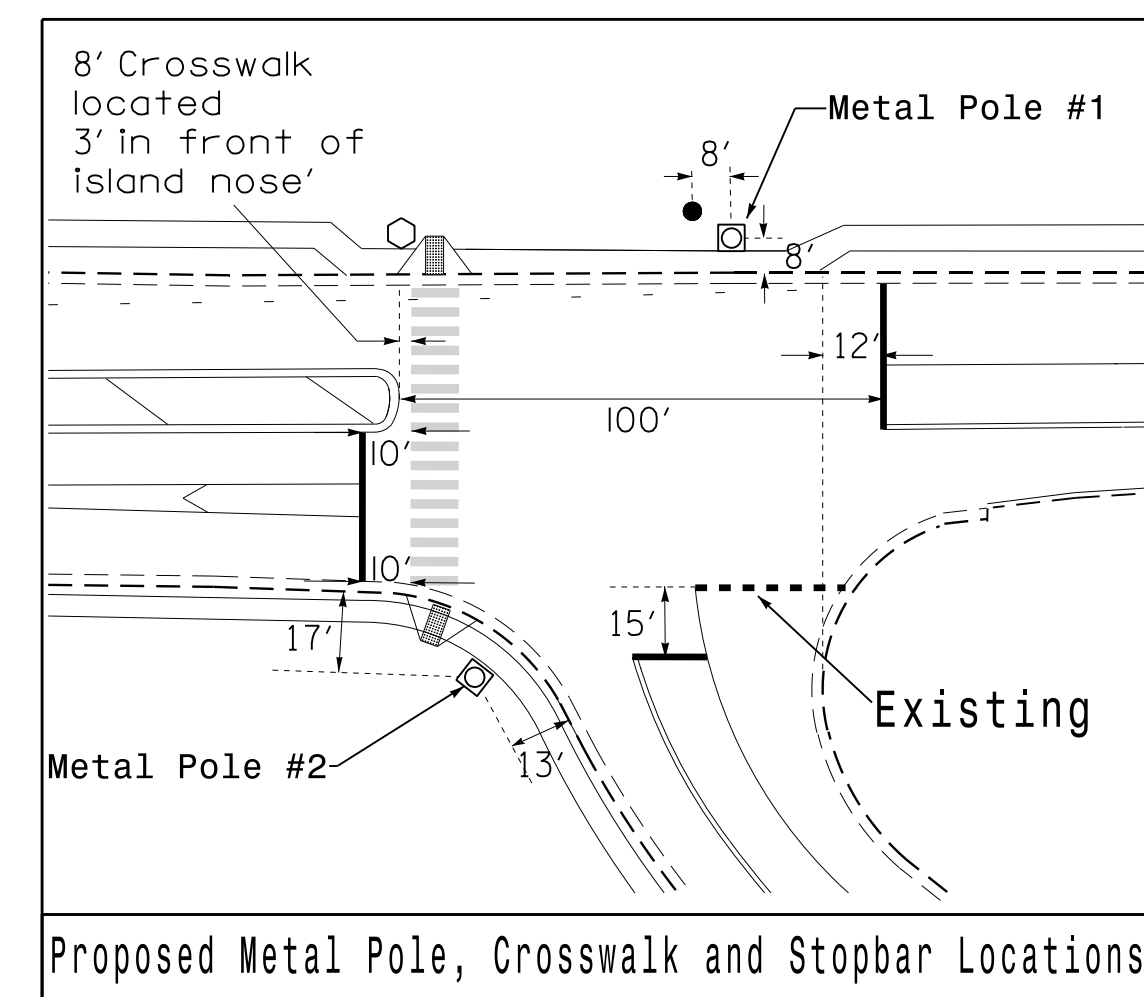
- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



TIMING CHART  
ASC/3-2070LN2 CONTROLLER

PHASE	Ø1	Ø2	Ø6	Ø8
MINIMUM GREEN *	7 SEC.	12 SEC.	12 SEC.	7 SEC.
VEHICLE EXT. *	2.0 SEC.	6.0 SEC.	6.0 SEC.	2.0 SEC.
YELLOW CHANGE INT.	3.1 SEC.	5.0 SEC.	5.0 SEC.	3.0 SEC.
RED CLEARANCE	2.4 SEC.	1.5 SEC.	1.5 SEC.	2.8 SEC.
MAX. I *	15 SEC.	90 SEC.	90 SEC.	30 SEC.
RECALL POSITION	NONE	MIN. RECALL	MIN. RECALL	NONE
LOCK DET.	OFF	ON	ON	OFF
WALK *	- SEC.	- SEC.	- SEC.	7 SEC.
PED. CLEAR	- SEC.	- SEC.	- SEC.	16 SEC.
VOLUME DENSITY	OFF	ON	ON	OFF
ACTUATION B4 ADD *	- VEH.	0 VEH.	0 VEH.	- VEH.
SEC. PER ACTUATION *	- SEC.	2.5 SEC.	2.5 SEC.	- SEC.
MAX. INITIAL *	- SEC.	34 SEC.	34 SEC.	- SEC.
TIME B4 REDUCTION *	- SEC.	15 SEC.	15 SEC.	- SEC.
TIME TO REDUCE *	- SEC.	30 SEC.	30 SEC.	- SEC.
MINIMUM GAP	- SEC.	3.0 SEC.	3.0 SEC.	- SEC.
DUAL ENTRY	OFF	OFF	OFF	OFF
SIMULTANEOUS GAP	ON	ON	ON	ON

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



LEGEND

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

New Installation

Prepared In the Offices of:  
  
 TRANSPORTATION MOBILITY AND SAFETY SOLUTIONS, INC.  
 ENGINEERS OF TRANSPORTATION SIGNAL DESIGN SECTION  
 750 N. Greenfield Pkwy, Garner, NC 27529  
 SCALE 1"=40'

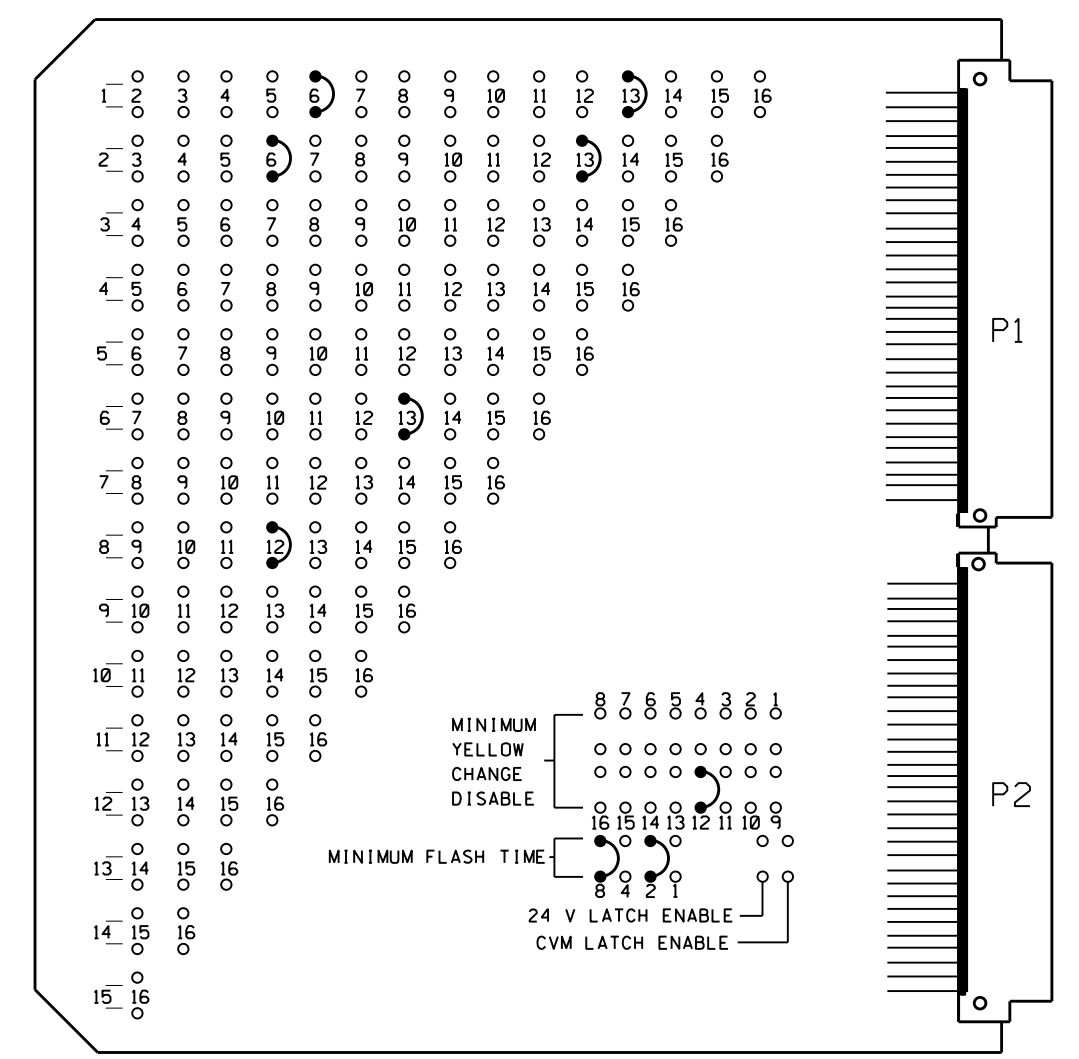
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SR 1435 (Old Raleigh Road) at SR 1521 (Lake Pine Drive)  
 Division 5 Wake County Apex  
 PLAN DATE: December 2015 REVIEWED BY:  
 PREPARED BY: C.E. Carter REVIEWED BY:  
 REVISIONS INIT. DATE  
 SEAL  
  
 Ryan W. Hough 1/19/2016  
 SIG. INVENTORY NO. 05-1798

10-11-2016 14:32  
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**EDI MODEL MMU2-16LEip  
MALFUNCTION MANAGEMENT UNIT  
PROGRAMMING DETAIL**

(program card and tables as shown)



MMU PROGRAMMING CARD

FIELD CHECK ENABLE	
CHANNEL NUMBER	ENABLE/DISABLE
1	ENABLE
2	ENABLE
3	DISABLE
4	DISABLE
5	DISABLE
6	ENABLE
7	DISABLE
8	ENABLE
9	DISABLE
10	DISABLE
11	DISABLE
12	ENABLE
13	ENABLE
14	DISABLE
15	DISABLE
16	DISABLE

UNIT OPTIONS	
OPTION	SETTING
RECURRENT PULSE	ON
WALK DISABLE	OFF
LOG CVM FAULTS	ON
EXTERN WATCHDOG	OFF
24V-2=12VDC	OFF
PGM CARD MEMORY	ON
LEDguard	ON
FORCE TYPE 16	OFF
TYPE12-SDLC	OFF
VM 3x/Day Latch	ON

FLASHING YELLOW ARROW	
CONFIG MODE	B
ENABLE CHANNEL PAIR, FYA	
CH 1-13	ON
CH 3-14	OFF
CH 5-15	OFF
CH 7-16	OFF
RED/YEL INPUT ENABLE	
CH 1	ON
CH 3	OFF
CH 5	OFF
CH 7	OFF
FLASH RATE FAULT	
FYA TRAP DETECT	ON

MMU PROGRAMMING NOTE  
ENSURE YELLOW CHANGE PLUS RED CLEARANCE MONITORING IS ENABLED FOR ALL CHANNELS.

**NOTES**

- To prevent "flash-conflict" problems, wire all unused load switches to flash red. Verify that signal heads flash in accordance with the signal plans.
- To prevent red failures on unused monitor channels, tie unused load switch red outputs 3,4,5,7,9,10,11,14,15 and 16 to load switch AC+ by inserting a jumper plug in the unused load switch socket from pin 1 (LS AC+) to pin 3 (RED out). Make sure all flash transfer relays are in place.
- Program controller to start up in phase 2 Green and 6 Green.
- Set power-up flash time to 10 seconds and implement on the Malfunction Management Unit. Set controller power-up flash time to 0 seconds.
- Enable simultaneous gap-out feature for all phases.
- Program detectors in accordance with the manufacturer's instructions to accomplish the detection schemes shown on the signal design plans.
- Program detector call delay and extension timing on the controller, unless otherwise specified.
- Set all detector card unit channels to "presence" mode.
- Program phases 2 and 6 for volume density operation.
- The cabinet and controller are a part of the Cary Signal System.

**SIGNAL HEAD HOOK-UP CHART**

PHASE	1	2	3	4	5	6	7	8	2 PED	4 PED	6 PED	8 PED	OLA	OLB	OLC	OLD	
SIGNAL HEAD NO.	11*	82	21,22	NU	NU	NU	61,62	NU	81,82 83	NU	NU	NU	P81, P82	11*	NU	NU	NU
RED	*	2R				6R		8R									
YELLOW		2Y				6Y		8Y									
GREEN		2G				6G		8G									
RED ARROW													13R				
YELLOW ARROW	1Y												13Y				
FLASHING YELLOW ARROW													13G				
GREEN ARROW	1G	1G															12G
													12R				
													12G				

NU = Not Used  
\* Denotes install load resistor. See Load Resistor Installation Detail on sheet 2.  
\* See pictorial of head wiring detail this sheet.

**DETECTOR RACK SET-UP DETAIL**

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

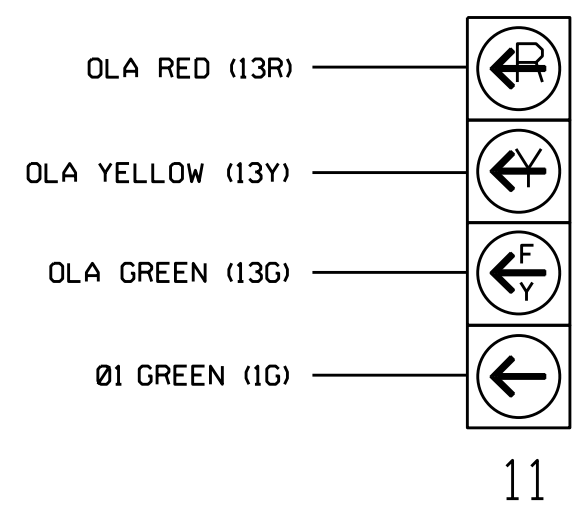
RACK #1	BIU	CH1	CH1	CH1	CH1	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT
		L3	L1	L7	L5						
		∅ 1	∅ 1	∅ 8	**						
		CH2	CH2	CH2	CH2	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY
		L4	L2	L8	L6						
		∅ 1	∅ 6	NOT USED	∅ 6						
			*		**						
RACK #2	BIU	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

**EQUIPMENT INFORMATION**

CONTROLLER.....2070LN2  
CABINET .....TS-2  
SOFTWARE .....ECONOLITE ASC/3-2070  
CABINET MOUNT.....BASE  
LOADBAY POSITIONS.....16  
LOAD SWITCHES USED.....1,2,6,8,12,13  
PHASES USED.....1,2,6,8,8 PED  
OLA.....\*  
OLB.....NOT USED  
OLC.....NOT USED  
OLD.....NOT USED  
\* See overlap programming detail on sheet 2

**FYA SIGNAL WIRING DETAIL**

(wire signal head as shown)



**NOTE**

BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

**LOAD SWITCH ASSIGNMENT DETAIL**

(program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION
1	∅ 1
2	∅ 2
3	∅ 3
4	∅ 4
5	∅ 5
6	∅ 6
7	∅ 7
8	∅ 8
9	∅ 2 PED
10	∅ 4 PED
11	∅ 6 PED
12	∅ 8 PED
13	OLA
14	OLB
15	OLC
16	OLD

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
1A	L1A,L1B L2A,L2B
1B	L3A,L3B
1C	L4A,L4B
2A	L5A,L5B
6A	L6A,L6B
8A	L7A,L7B
NU	L8A,L8B
NU	L9A,L9B
NU	L10A,L10B
NU	L11A,L11B
NU	L12A,L12B
NU	L13A,L13B
NU	L14A,L14B
NU	L15A,L15B
NU	L16A,L16B

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING (SEC)	
		FEATURE	TIME
1	∅ 1	DELAY	15
2*	∅ 6	DELAY	3
3	∅ 1	DELAY	20
4	∅ 1	DELAY	20
5**	∅ 2		
6**	∅ 6		
7	∅ 8	DELAY	3
8			
9			
10			
11			
12			
13			
14			
15			
16			

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
NU	L17A,L17B
NU	L18A,L18B
NU	L19A,L19B
NU	L20A,L20B
NU	L21A,L21B
NU	L22A,L22B
NU	L23A,L23B
NU	L24A,L24B
NU	L25A,L25B
NU	L26A,L26B
NU	L27A,L27B
NU	L28A,L28B
NU	L29A,L29B
NU	L30A,L30B
NU	L31A,L31B
NU	L32A,L32B

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING (SEC)	
		FEATURE	TIME
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1798  
DESIGNED: December 2015  
SEALED: 1/19/2016  
REVISED: N/A

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	DETAILS FOR: SR 1435 (Old Raleigh Road) at SR 1521 (Lake Pine Drive)	SEAL  KEITH M. MIMS ENGINEER 036880
	Division 5 Wake County Apex PLAN DATE: January 2016 REVIEWED BY: T. Joyce PREPARED BY: S. Armstrong REVIEWED BY:	REVISIONS: INIT. DATE _____ _____ _____

2/4/2016-2016 08:54  
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## ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select **2. CONTROLLER**
- From CONTROLLER Submenu select **2. VEHICLE OVERLAPS**

### OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```

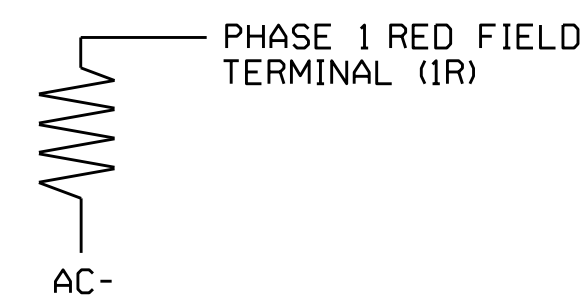
TMG VEH OVLP...[A] TYPE: ....[PPLT FYA]
PROTECTED PHASE (LEFT TURN)..... 1
PERMISSIVE PHASE (OPPOSING THRU)... 2
FLASHING ARROW OUTPUT.....CH13 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 0
    
```

END PROGRAMMING

## LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown)

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



## PEDESTRIAN PUSH BUTTON WIRING DETAIL

(wire push buttons as shown)

CONTROLLER CABINET

AC-  
PHASE 8 PED  
ISOLATOR INPUT

PHASE 8 PED BUTTONS  
(ON POLE)

## 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.

## ECONOLITE ASC/3-2070 SPECIAL MMU PROGRAMMING

(program controller as shown)

- From Main Menu select **1. CONFIGURATION**
- From CONFIGURATION Submenu select **4. PORT 1 (SDLC)**
- From PORT 1 (SDLC) Submenu select **2. MMU PROGRAM**

### CAUTION!

Set intersection to Flash before attempting to enter or change any MMU programming data. This programming and that of the MMU programming card must match exactly. If they do not, the intersection will be placed into Flash.

MMU PROGRAM [	MANUAL]
CH	6 5 4 3 2 1 0 9 8 7 6 5 4 3 2
1	. . . X . . . . . X . . . .
2	. . . X . . . . . X . . . .
3	. . . . . . . . . . . . . . .
4	. . . . . . . . . . . . . . .
5	. . . . . . . . . . . . . . .
6	. . . X . . . . . . . . . .
7	. . . . . . . . . . . . . . .
8	. . . . X . . . . . . . . . .
9	. . . . . . . . . . . . . . .
10	. . . . . . . . . . . . . . .
11	. . . . . . . . . . . . . . .
12	. . . . . . . . . . . . . . .
13	. . . . . . . . . . . . . . .
14	. . . . . . . . . . . . . . .
15	. . . . . . . . . . . . . . .

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1798  
DESIGNED: December 2015  
SEALED: 1/19/2016  
REVISED: N/A

Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:  Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 1435 (Old Raleigh Road) at SR 1521 (Lake Pine Drive)	SEAL  KEITH M. MIMS ENGINEER
	Division 5 Wake County Apex PLAN DATE: January 2016 REVIEWED BY: T. Joyce PREPARED BY: S. Armstrong REVIEWED BY:	REVISIONS INIT. DATE

03-1-16-2016 06:50  
 S:\ITS\ASIS\ITS\_Signal\work\hgr\oups\Sig\_Mon\harmstrong\051798\_sm.ele.xxx.dgn  
 harmstrong

- 1 INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL REA, PE - 38, (FIGURE 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 3 INSTALL REA, PE - 39, (UNDERGROUND) SHIELDED, TWISTED PAIR COMMUNICATIONS 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 TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 27 INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 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

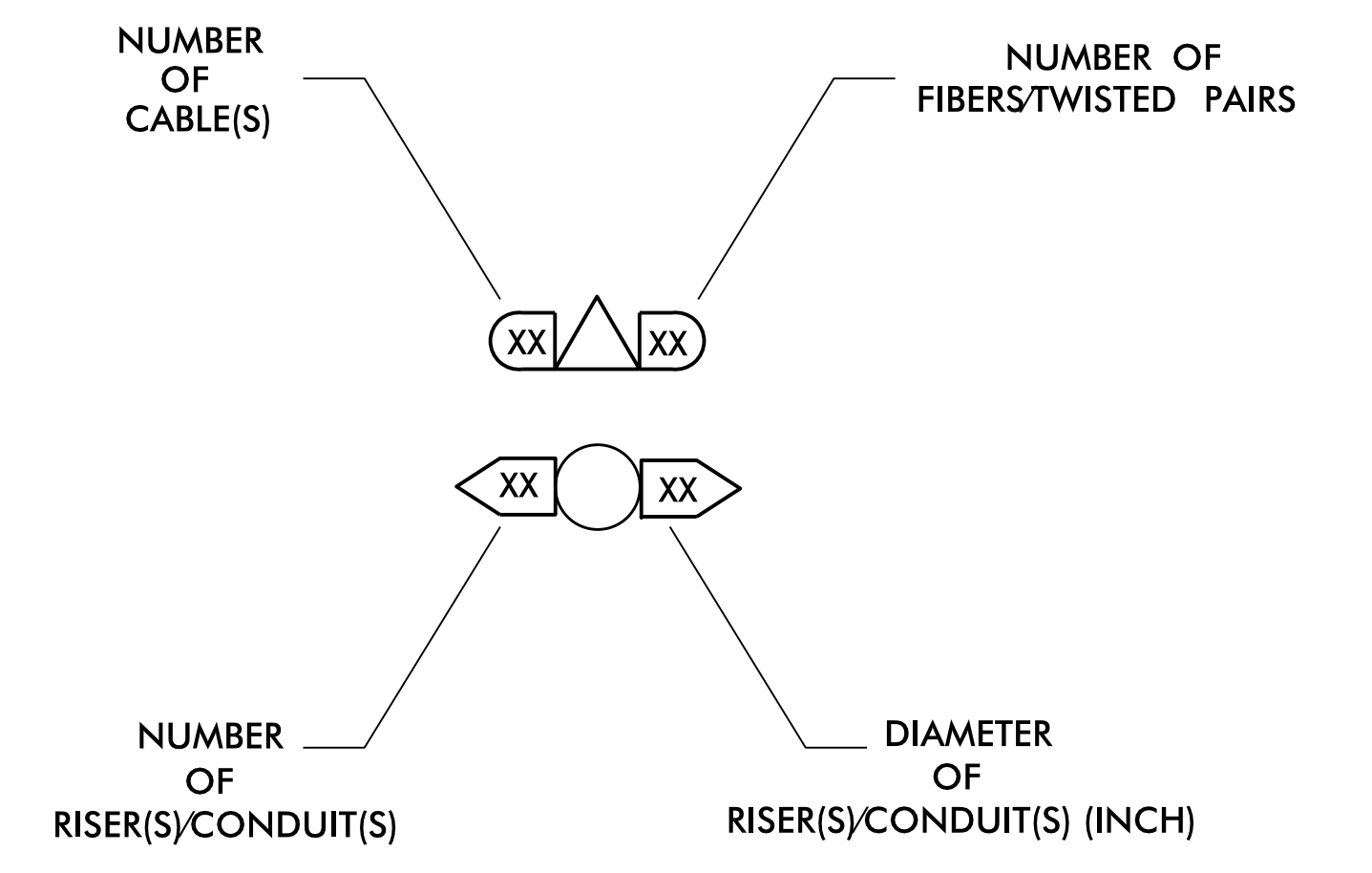
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL 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
- 48 REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 49 REMOVE EXISTING MESSENGER CABLE
- 50 INSTALL TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 20 FEET OF COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING SIGNAL/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 FIELD ETHERNET SWITCH

**LEGEND**

- NEW FIBER OPTIC COMMUNICATIONS CABLE
- NEW TWISTED PAIR COMMUNICATIONS CABLE
- EXISTING COMMUNICATIONS CABLE
- EXISTING COMMUNICATIONS CABLE TO BE REMOVED
- NEW AERIAL GUY ASSEMBLY
- NEW CONDUIT
- EXISTING CONDUIT
- NEW DIRECTIONAL DRILLED CONDUIT
- NEW BORED AND JACKED CONDUIT
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- AERIAL SPLICE ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV ASSEMBLY
- NEW STANDARD GUY ASSEMBLY
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CONTROLLER AND CABINET
- EXISTING SPLICE CABINET
- NEW SPLICE CABINET
- SIGNAL POLE
- SIGNAL INVENTORY NUMBER

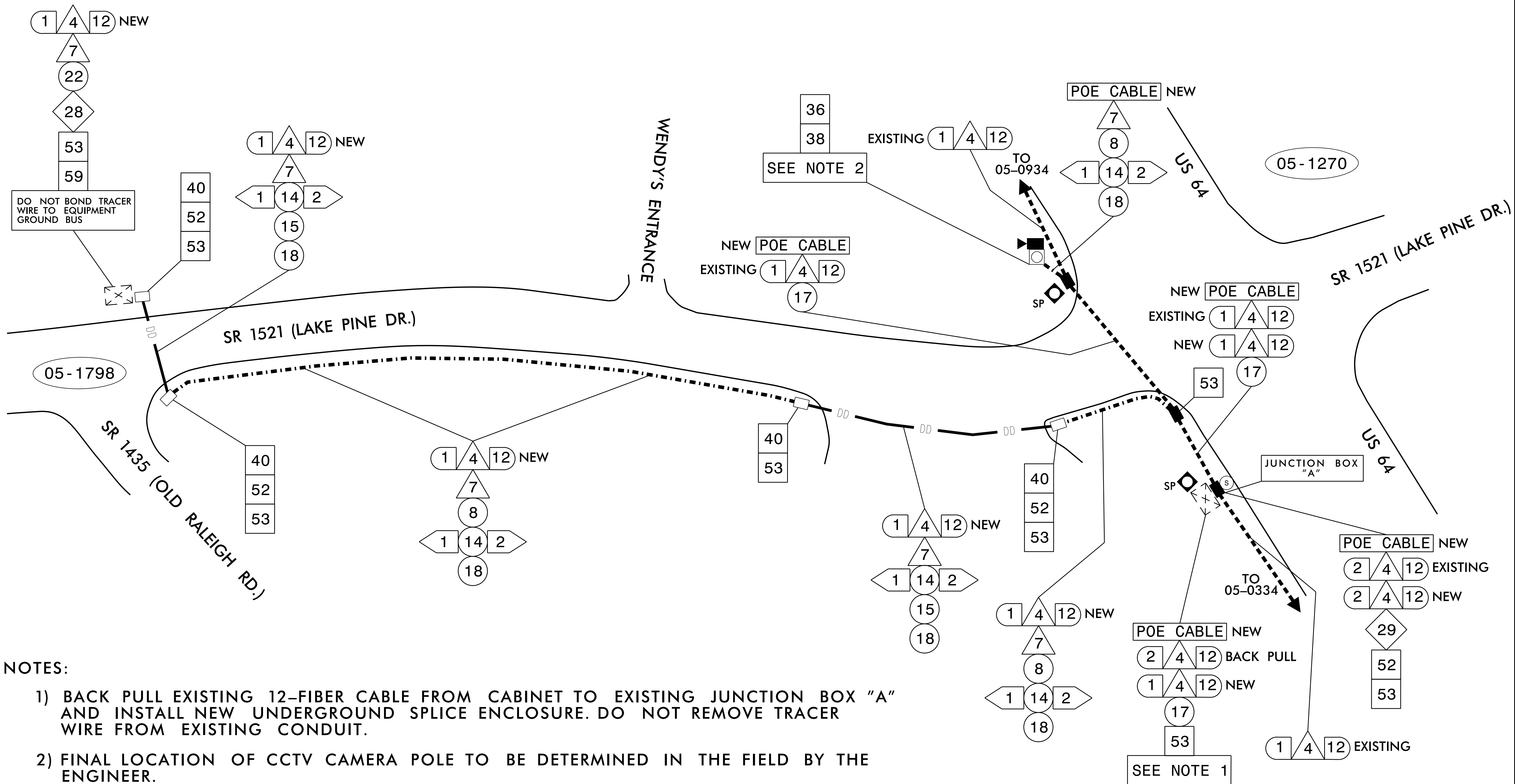
**CONSTRUCTION NOTE SYMBOLOGY KEY**

- 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)



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

	<p>CONSTRUCTION NOTES</p>		
	<p>DIVISION 05 WAKE COUNTY</p> <p>PLAN DATE: JUNE 2016</p> <p>PREPARED BY: A. J. SKUCE</p>	<p>DocuSigned by: CARY</p> <p>REVIEWED BY: <i>Neil Avery</i></p> <p>00950846ED3443...</p>	
<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>		<p>REVISIONS</p> <p>INIT.</p> <p>DATE</p>	<p>CADD Filename:</p>

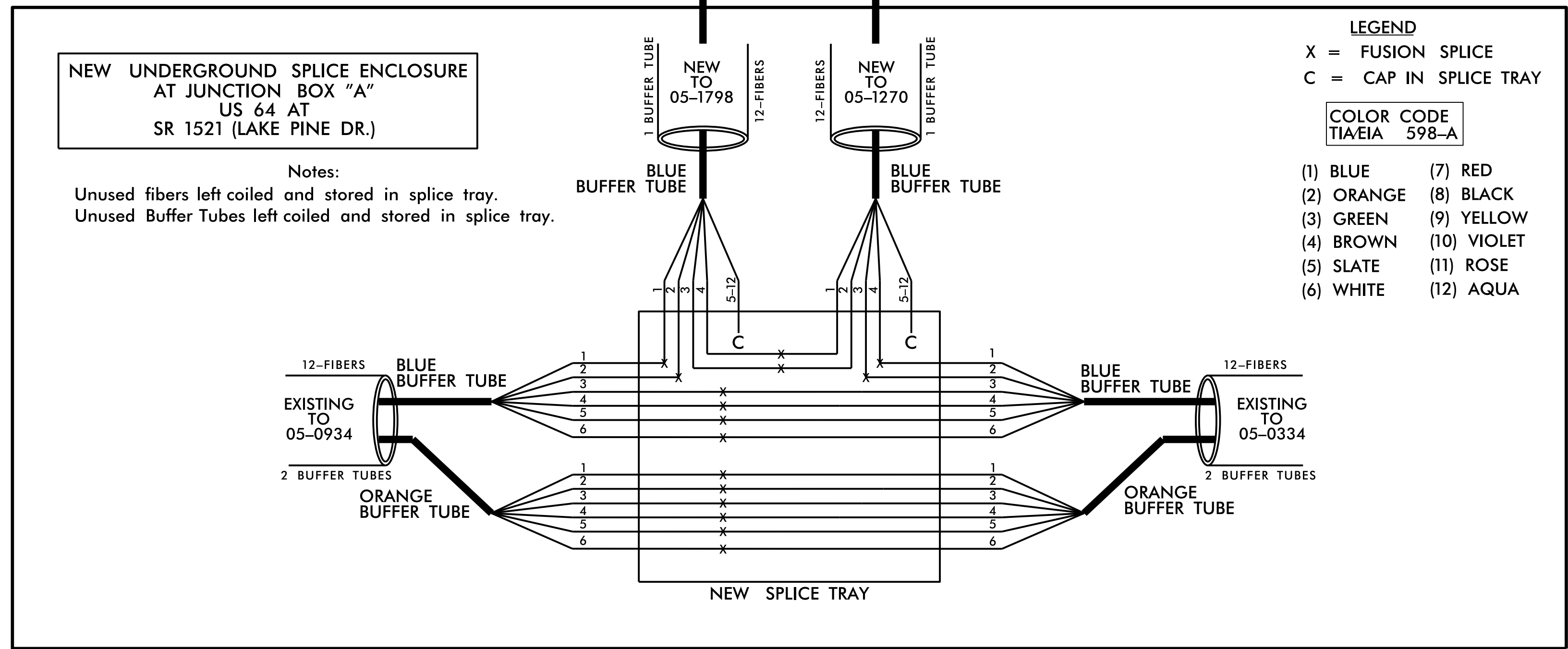
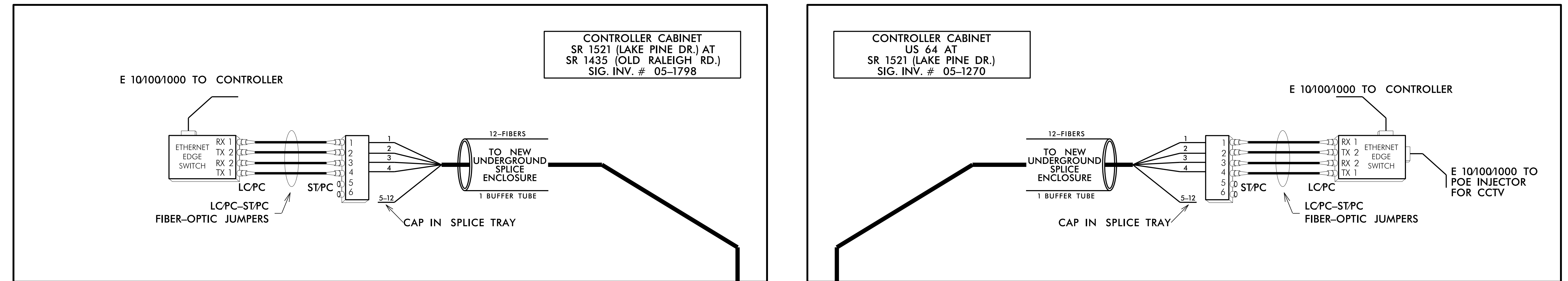


**NOTES:**

- 1) BACK PULL EXISTING 12-FIBER CABLE FROM CABINET TO EXISTING JUNCTION BOX "A" AND INSTALL NEW UNDERGROUND SPLICE ENCLOSURE. DO NOT REMOVE TRACER WIRE FROM EXISTING CONDUIT.
- 2) FINAL LOCATION OF CCTV CAMERA POLE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 3) FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE TOWN OF CARY OPERATIONS COORDINATOR, MIKE BILLINGS, AT 919-337-5692 TO ARRANGE FOR THE TOWN TO PROGRAM THE NEW FIELD ETHERNET SWITCHES AND FIELD ETHERNET TRANSCEIVERS 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 TOWN OPERATIONS COORDINATOR 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**

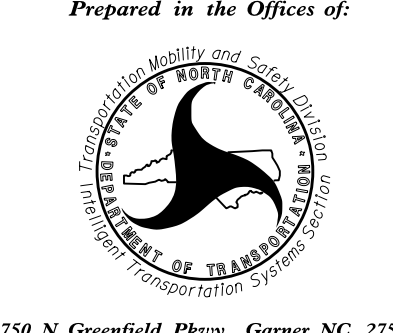

	<b>COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS</b>		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER 023919 GREGORY A. FULLER
	DIVISION 05 WAKE COUNTY PLAN DATE: JUNE 2016 PREPARED BY: A. J. SKUCE		
750 N. Greenfield Pkwy., Garner, NC 27529 SCALE 1" = 40' 		REVISIONS INIT. DATE	DocuSigned by: Gregory A. Fuller 6/8/2016 DATE CADD Filename:



NOTES:

- 1) TRANSCIVER TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
  - 2) 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.
- 3) NOTIFY THE TOWN OF CARY OPERATIONS COORDINATOR, MIKE BILLINGS, AT 919-337-5692 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TOWN TRAFFIC ENGINEERING SUPERVISOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY.
  - 4) WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL
  - 5) CONTACT THE TOWN OF CARY TO ARRANGE FOR THE TOWN TO PROGRAM THE NEW FIELD ETHERNET SWITCHES AND FIELD ETHERNET TRANSCIVERS WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO, THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. PROVIDE A MINIMUM FIVE (5) DAYS WORKING NOTICE TO THE TOWN OF CARY TO ALLOW THE TOWN TO PROGRAM THE NEW DEVICES.

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

 Prepared in the Offices of: 750 N. Greenfield Pkwy., Garner, NC 27529	<b>SPLICE DETAILS</b>		 SEAL GREGORY A. FULLER ENGINEER 023919
	DIVISION 05 WAKE COUNTY PLAN DATE: JUNE 2016 PREPARED BY: A. J. SKUCE		
REVISIONS _____		INIT. DATE _____	DocuSigned by: Gregory A. Fuller 7332C6A5E874EF DATE: 6/8/2016 CADD Filename:

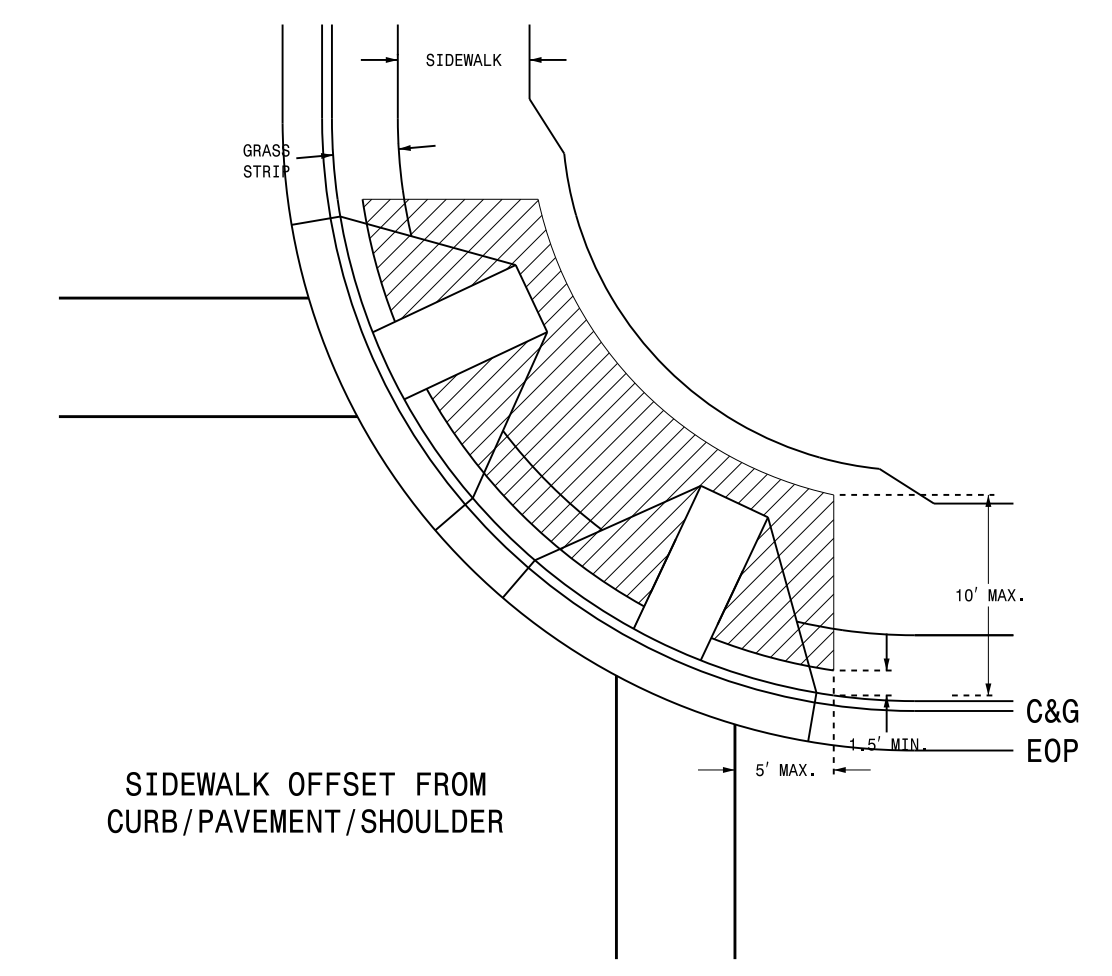
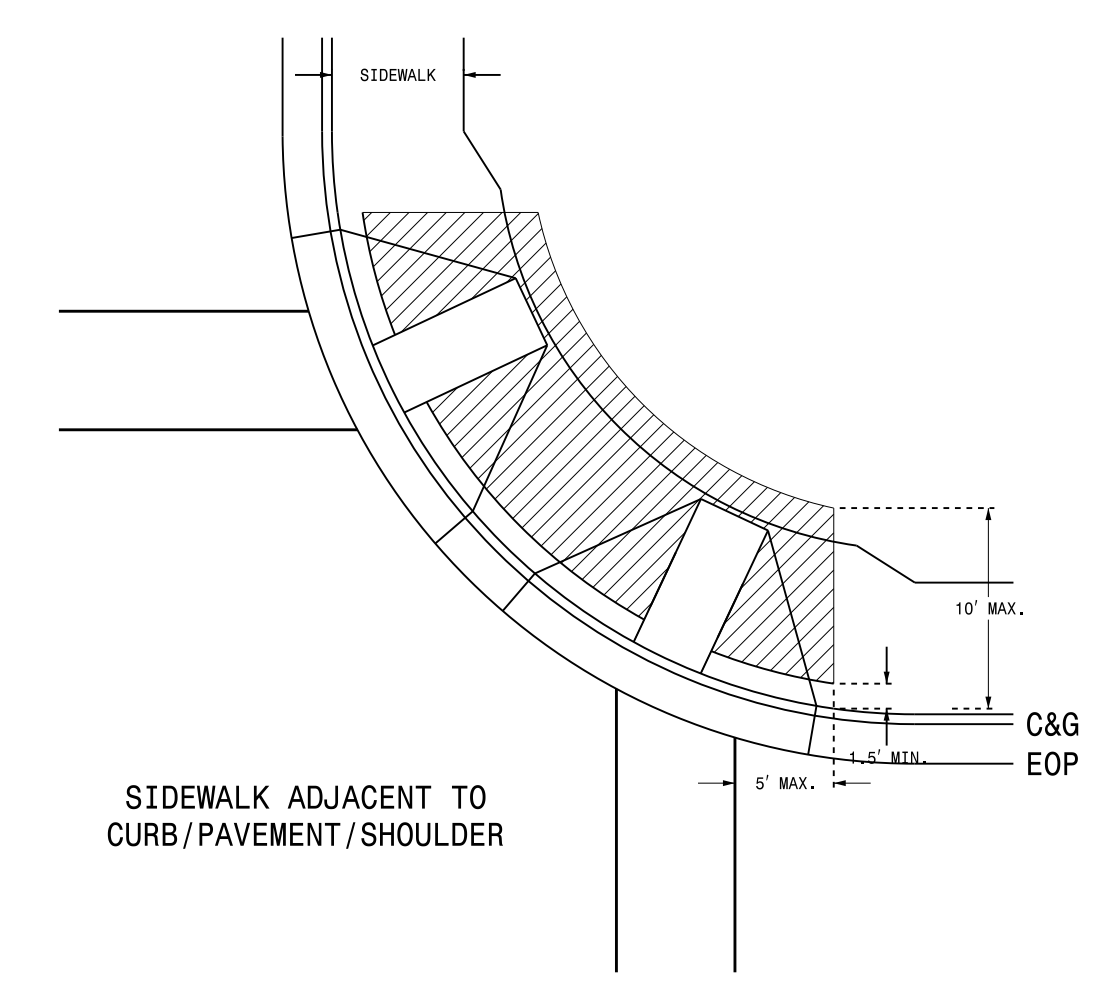
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

06-14

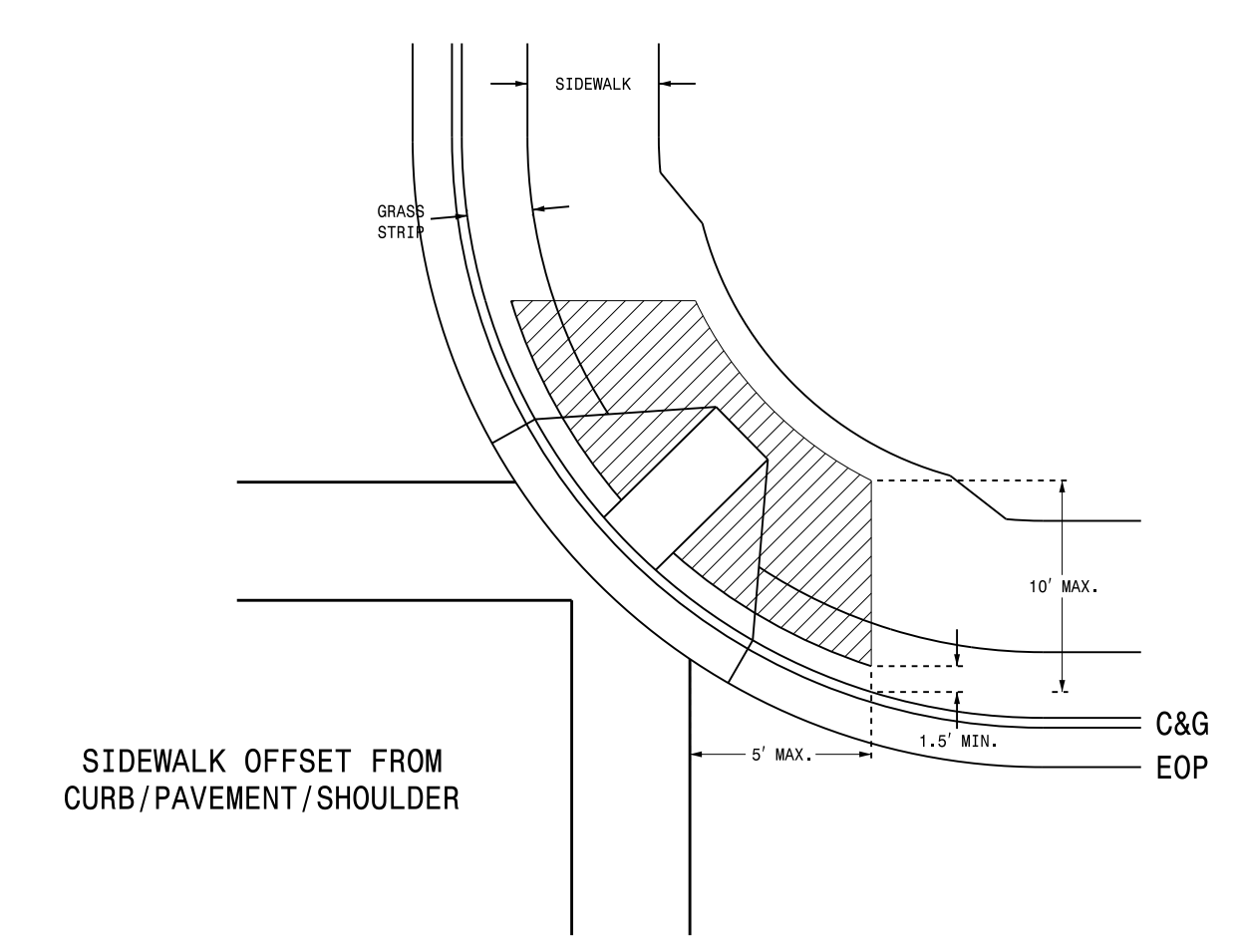
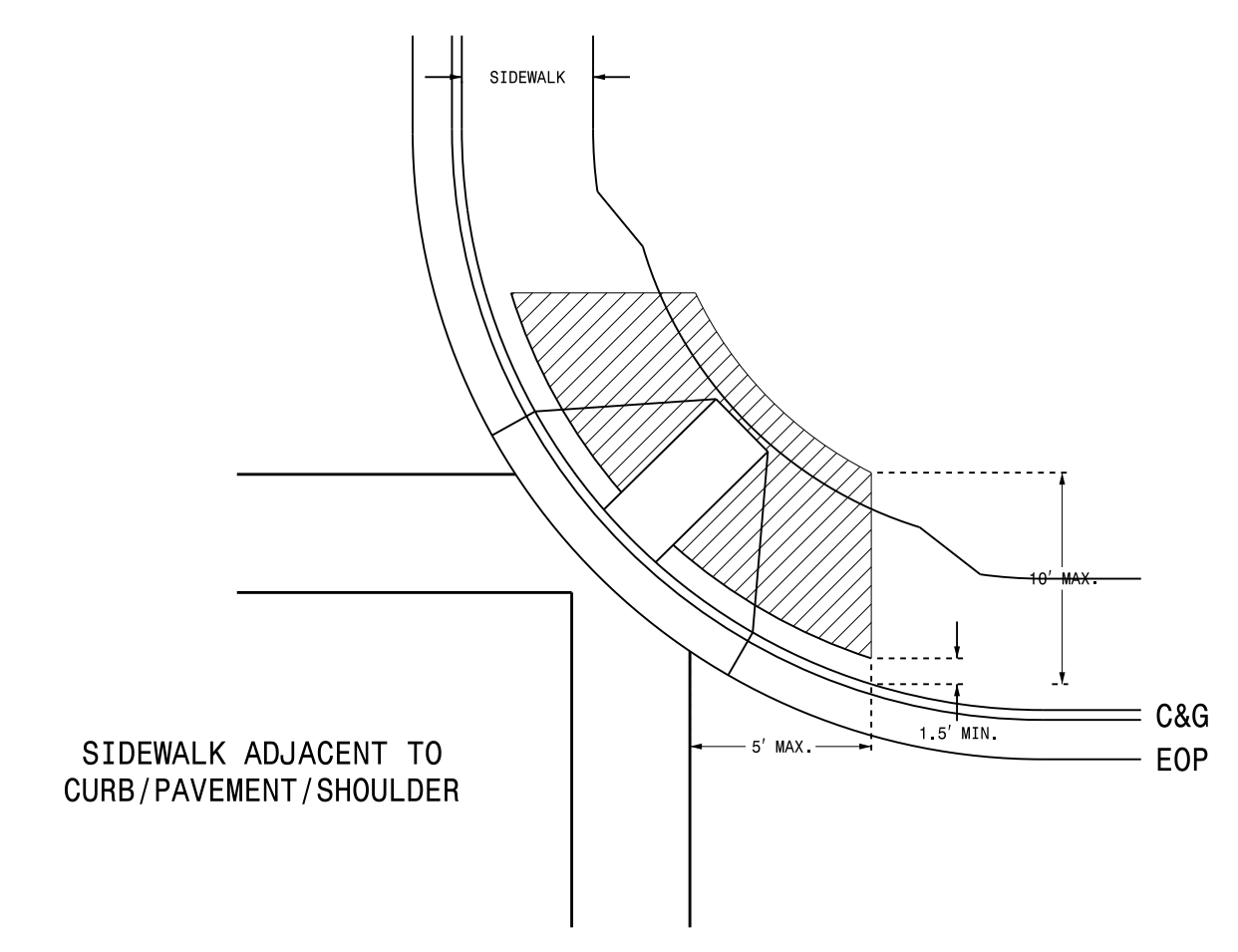
ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 1 OF 3  
**1705D01**

**PUSHBUTTON PLACEMENT**  
SEPARATE CURB RAMPS



**PUSHBUTTON PLACEMENT**  
SHARED CURB RAMP



- NOTES**
1. Pushbutton pedestals should not be located further than 10 feet from the edge of curb, shoulder, or pavement.
  2. The face of the pushbutton should be parallel to the applicable crosswalk.
  3. Separate pushbuttons used on the same corner should be separated by a distance of at least 10 feet.
  4. Pushbuttons shall be installed adjacent to a level surface with a maximum reach distance of 10 inches.
  5. Maintain 4 feet of clearance around pedestal if located in sidewalk.
  6. Refer to section 1705 of the 2012 NCDOT Roadway Standard Drawings for Pushbutton Assembly details.
  7. Refer to section 1743 of the 2012 NCDOT Roadway Standard Drawings for Pedestal details.
  8. Contact Division Traffic Engineer for pushbutton location approval prior to installation.
  9. Curb ramps are for symbolic use only and may not reflect actual design or field conditions.

PROPOSED	LEGEND
	Signal Pole
	Type I Pushbutton Post
	Type II Signal Pedestal
	Pushbutton & Sign
	Pedestrian Signal Head
	Curb Ramp
	Pushbutton Location Area

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

06-14

ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 1 OF 3  
**1705D01**

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

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*Robert J. Ziemba*  
18084828744604

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6/17/2014  
DATE

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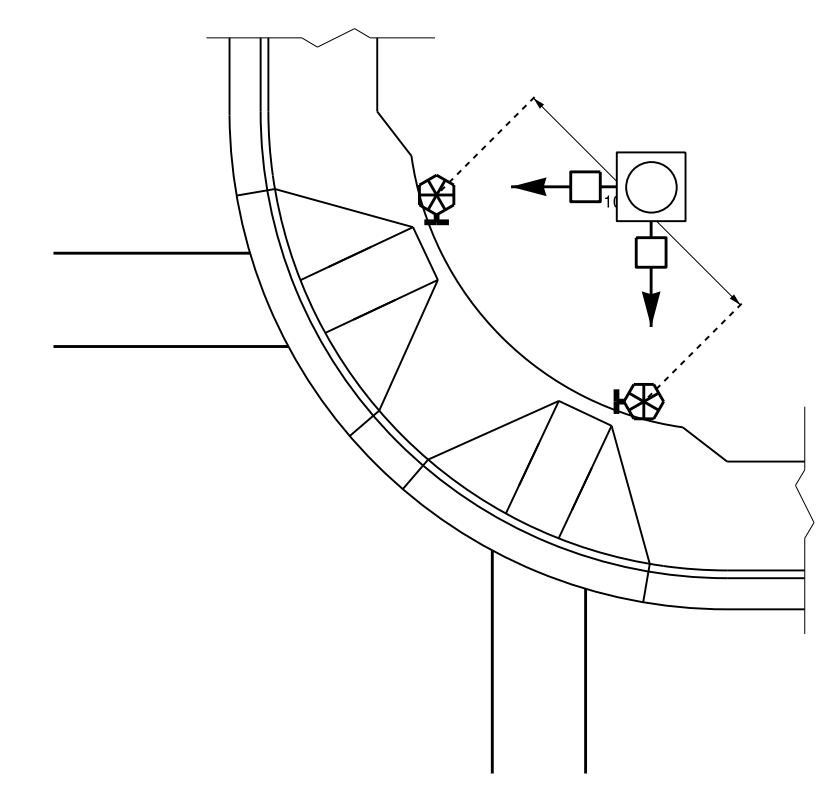
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RALEIGH, N.C.

06-14

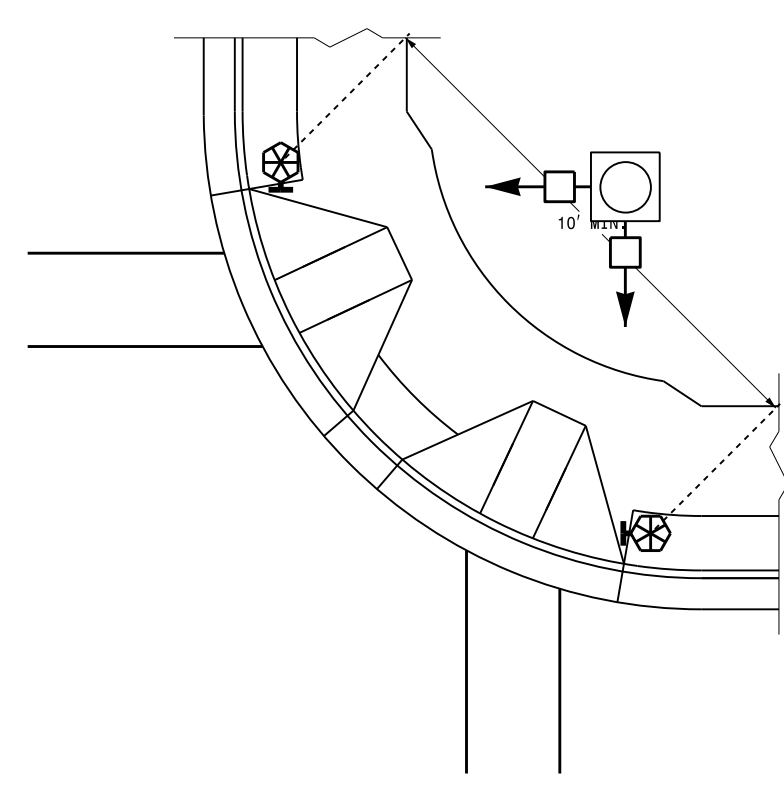
ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 2 OF 3  
**1705D01**

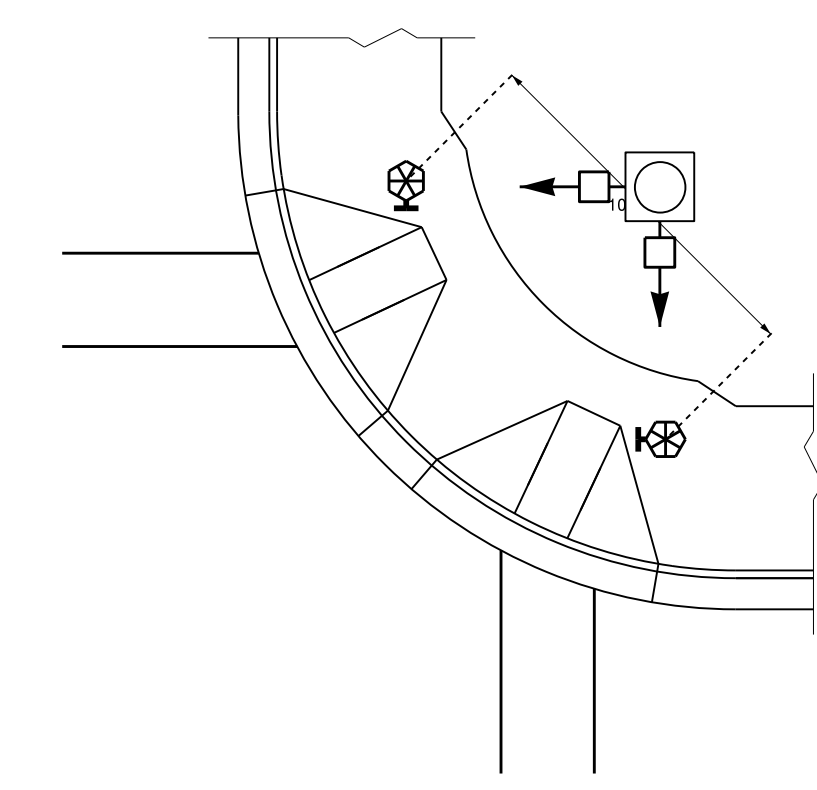
TYPICAL PUSHBUTTON LOCATIONS (CASE I)  
SEPARATE CURB RAMPS W/ TYPE I PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'  
OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK  
OF SIDEWALK EXCEEDS 10' FROM  
CURB OR PAVEMENT/SHOULDER



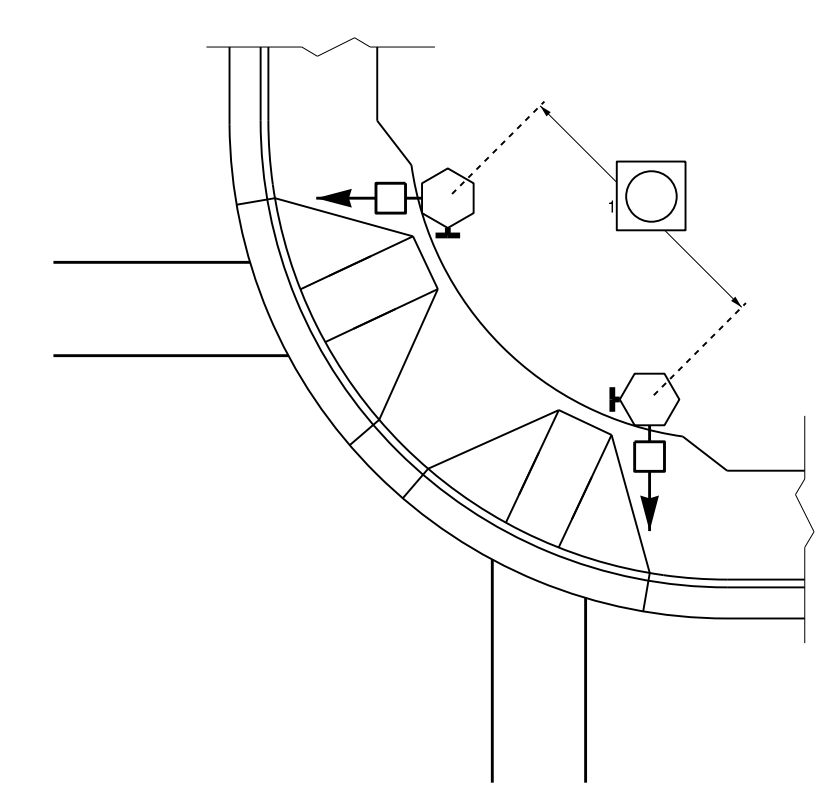
PUSHBUTTON PLACEMENT  
IN WIDE SIDEWALK

**PROPOSED**

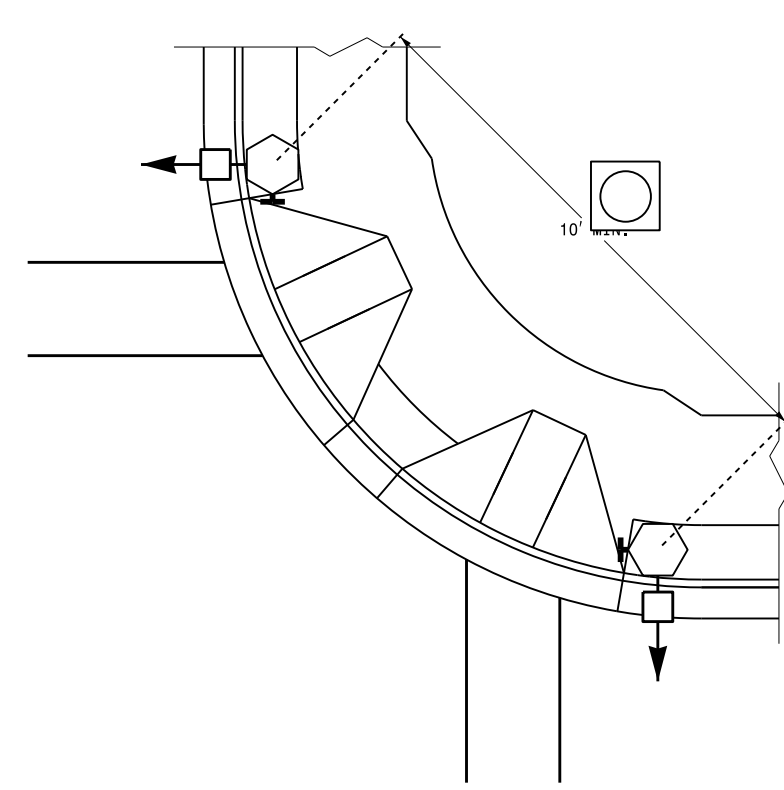
- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

**LEGEND**

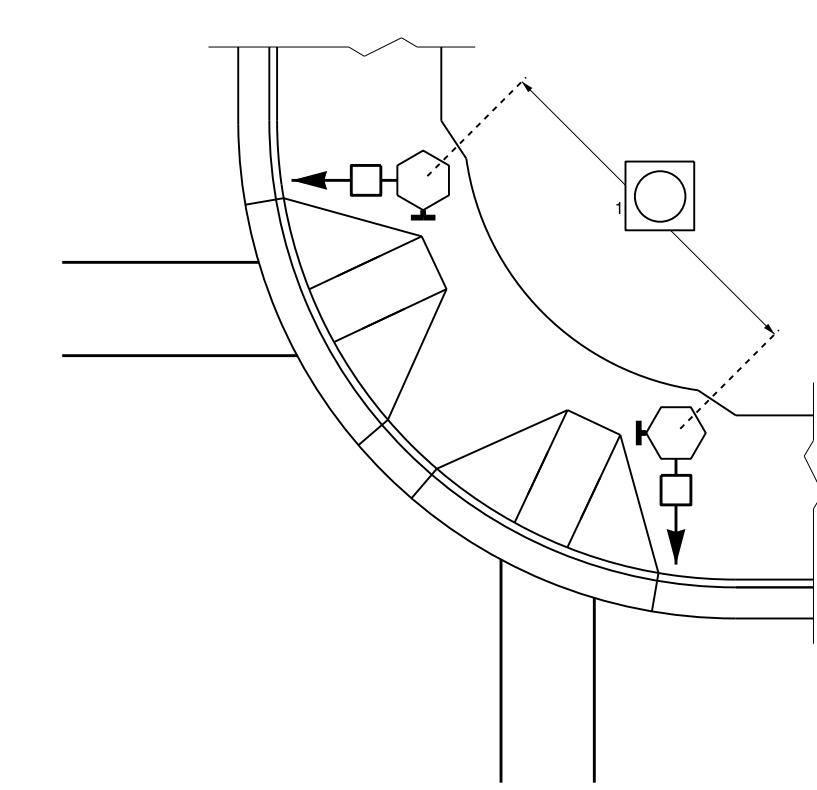
TYPICAL PUSHBUTTON LOCATIONS (CASE II)  
SEPARATE CURB RAMPS W/ TYPE II PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'  
OF CURB OR PAVEMENT/SHOULDER

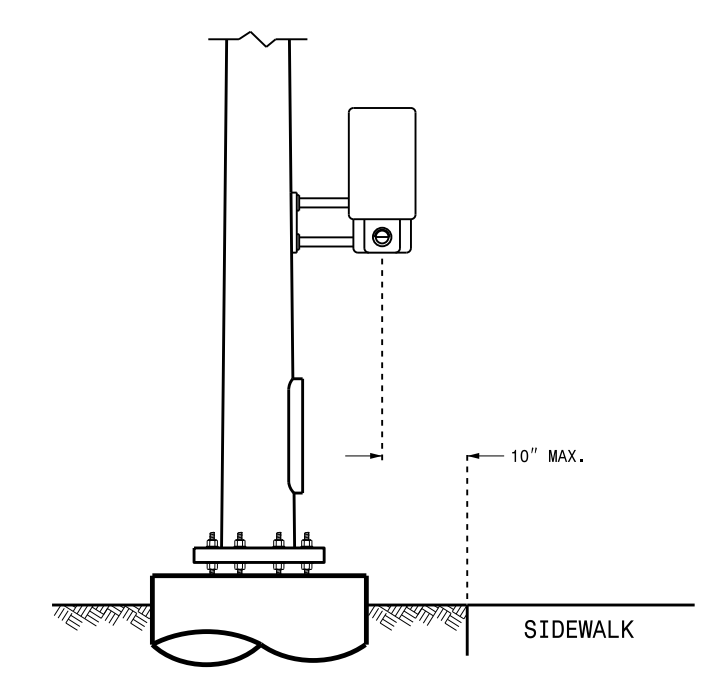


GRASS STRIP PLACEMENT IF BACK  
OF SIDEWALK EXCEEDS 10' FROM  
CURB OR PAVEMENT/SHOULDER



PUSHBUTTON PLACEMENT  
IN WIDE SIDEWALK

OPTIONAL PUSHBUTTON EXTENSION  
FACE OF PUSHBUTTON PARALLEL TO  
APPLICABLE CROSSWALK



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06-14

ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 2 OF 3  
**1705D01**

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

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DATE

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

06-14

ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 3 OF 3  
**1705D01**

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

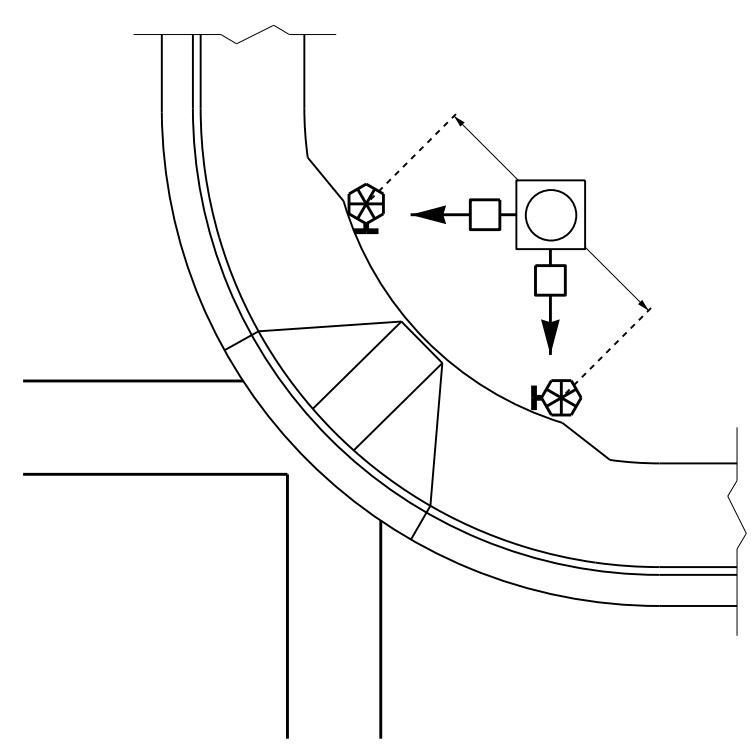
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ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

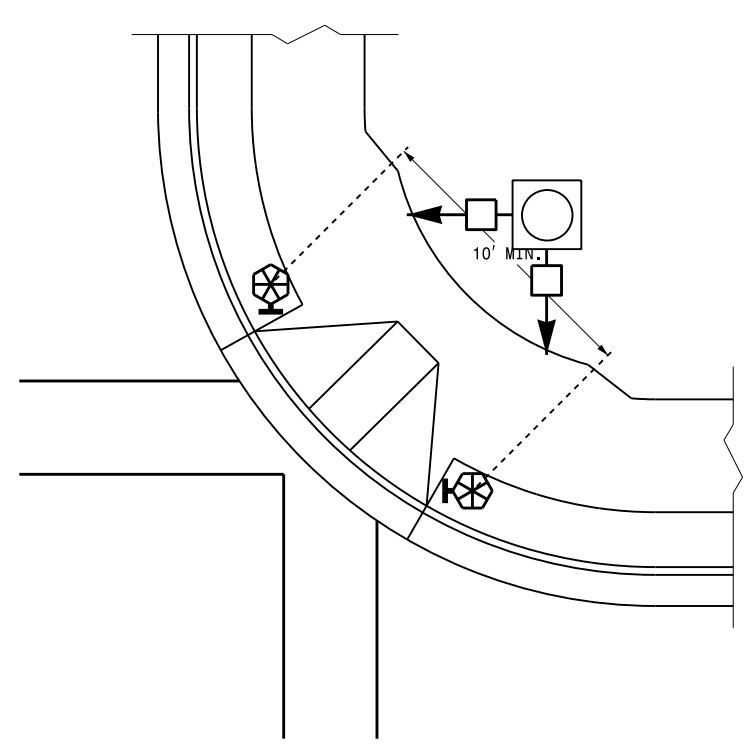
SHEET 3 OF 3  
**1705D01**

**TYPICAL PUSHBUTTON LOCATIONS (CASE III)**

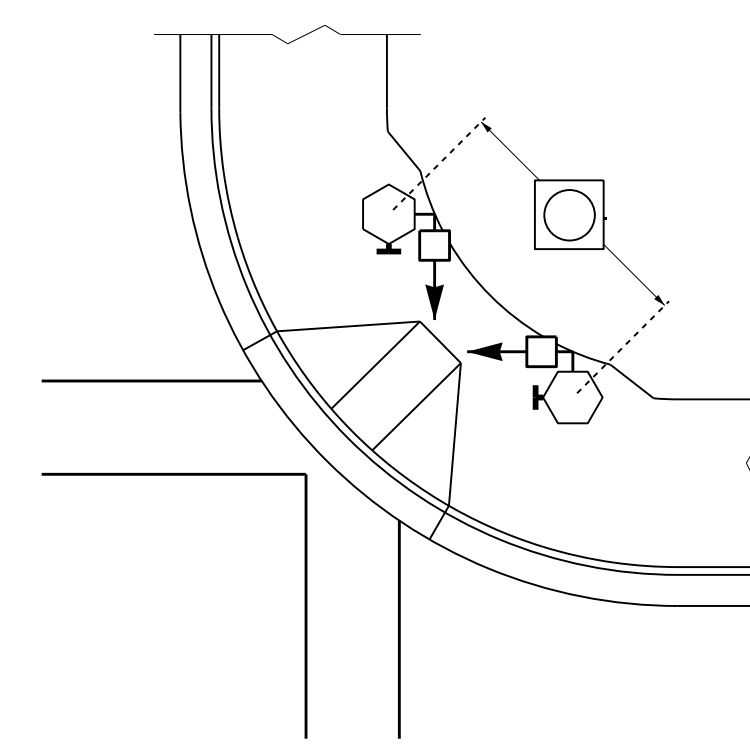
SHARED CURB RAMPS



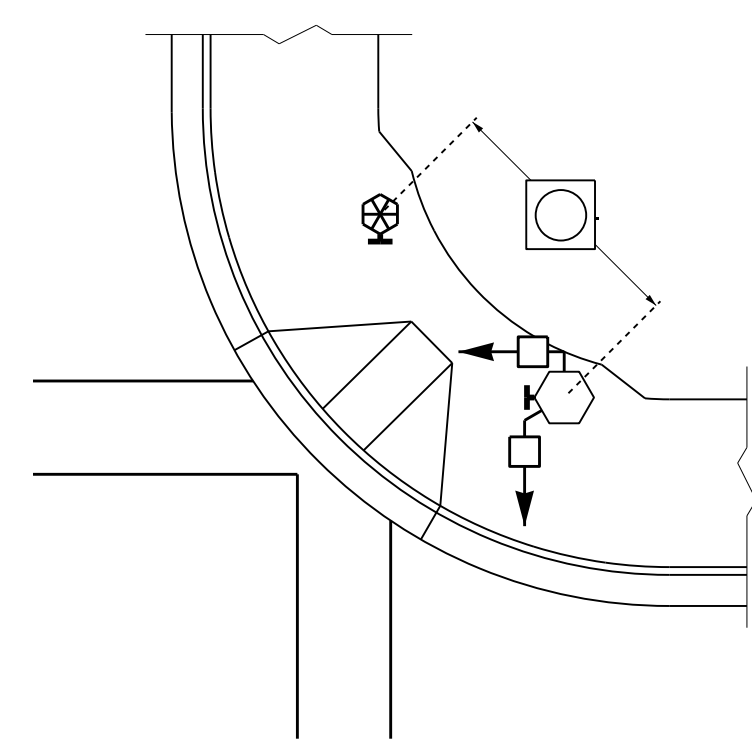
BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER

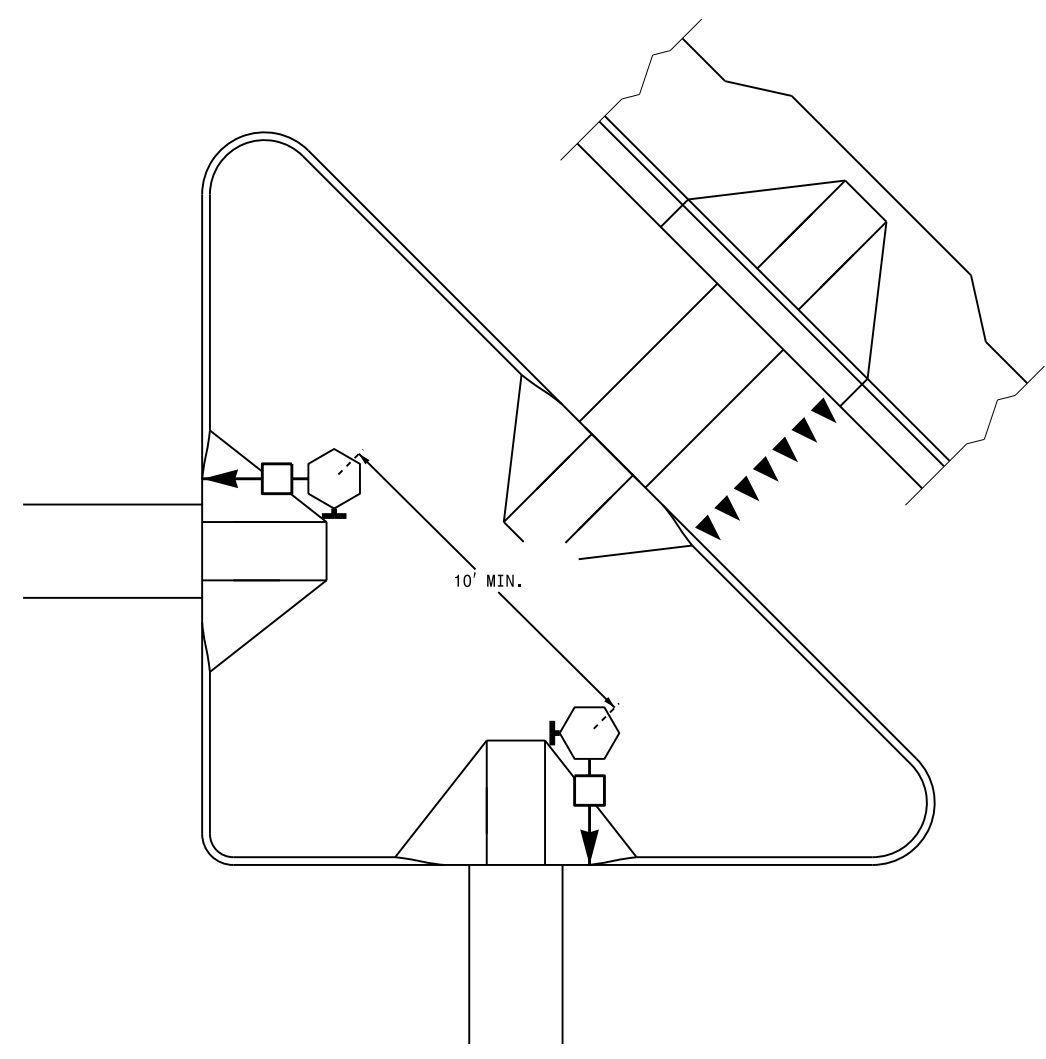


PUSHBUTTON PLACEMENT IN WIDE SIDEWALK (CORRESPONDING PUSHBUTTONS AND SIGNAL HEADS ON DIFFERENT PEDESTALS)

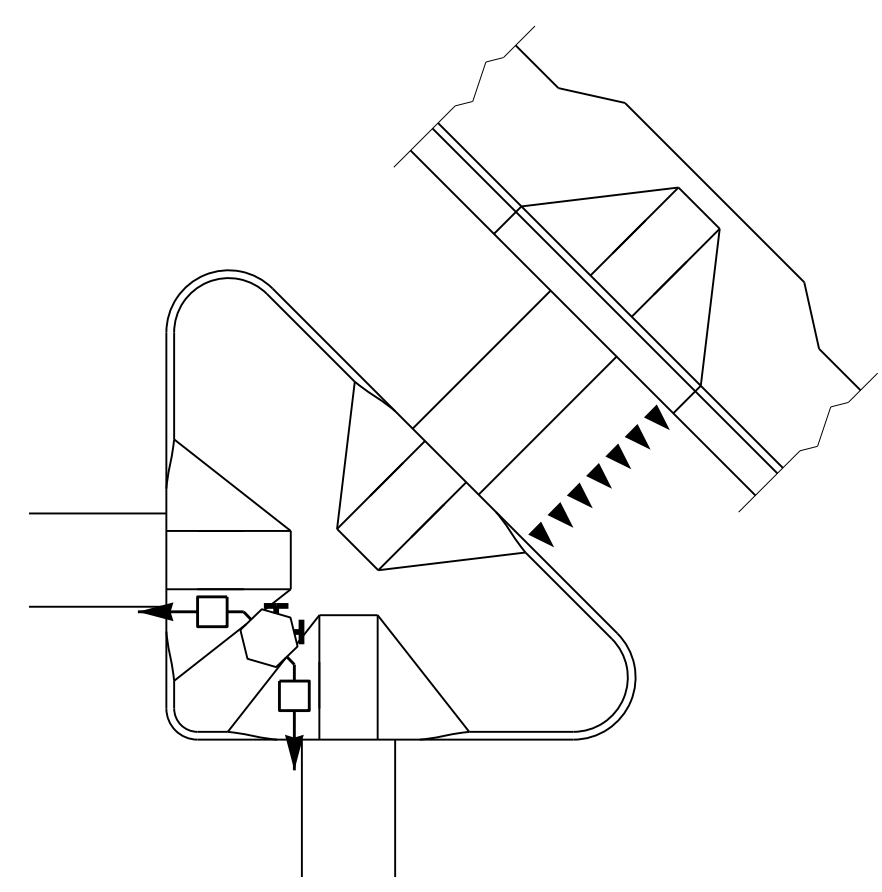


PUSHBUTTON PLACEMENT WITH SHARED TYPE II SIGNAL PEDESTAL AND TYPE I PUSHBUTTON POST

**TRAFFIC ISLAND PUSHBUTTON LOCATIONS**



PUSHBUTTON PLACEMENT IN LARGE "PORK CHOP ISLAND" WITH SEPARATE PEDESTALS



PUSHBUTTON PLACEMENT IN SMALL "PORK CHOP ISLAND" WITH SHARED PEDESTAL

**PUSHBUTTON PLACEMENT IN MEDIAN**

TYPE II PEDESTAL (FOR STAGED OR MULTI-PHASE CROSSING)

TYPE I PEDESTAL (FOR COMPLETE CROSSING CURB TO CURB WITH OPTIONAL REFUGE)

<b>PROPOSED</b>	<b>LEGEND</b>
	Signal Pole
	Type I Pushbutton Post
	Type II Signal Pedestal
	Pushbutton & Sign
	Pedestrian Signal Head
	Curb Ramp
	Pushbutton Location Area

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See Plate for Title

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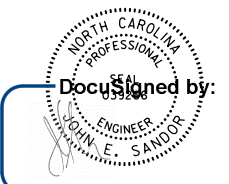
750 N. Greenfield Parkway  
Garner, NC 27529

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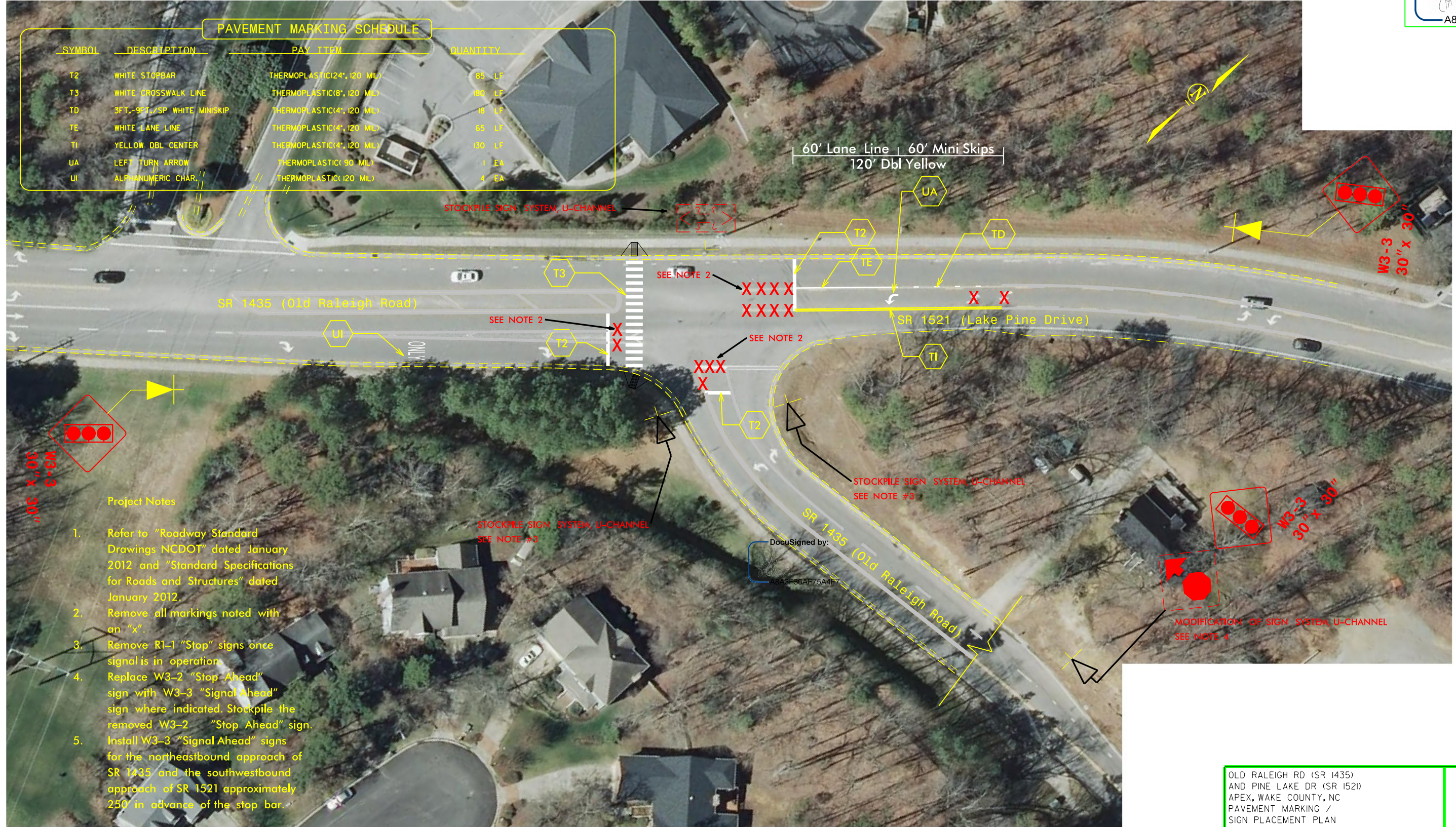
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6/17/2014  
DATE

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PAVEMENT MARKING SCHEDULE			
SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY
T2	WHITE STOPBAR	THERMOPLAS/IC(24", 120 MIL)	85 LF
T3	WHITE CROSSWALK LINE	THERMOPLASTIC(8", 120 MIL)	180 LF
TD	3FT.-9FT./SP WHITE MINISKIP	THERMOPLASTIC(4", 120 MIL)	16 LF
TE	WHITE LANE LINE	THERMOPLASTIC(4", 120 MIL)	65 LF
TI	YELLOW DBL CENTER	THERMOPLASTIC(4", 120 MIL)	130 LF
UA	LEFT TURN ARROW	THERMOPLASTIC( 90 MIL)	1 EA
UI	ALPHANUMERIC CHAR.	THERMOPLASTIC( 120 MIL)	4 EA



**Project Notes**

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Remove all markings noted with an "x".
3. Remove R1-1 "Stop" signs once signal is in operation.
4. Replace W3-2 "Stop Ahead" sign with W3-3 "Signal Ahead" sign where indicated. Stockpile the removed W3-2 "Stop Ahead" sign.
5. Install W3-3 "Signal Ahead" signs for the northeastbound approach of SR 1435 and the southwestbound approach of SR 1521 approximately 250' in advance of the stop bar.

OLD RALEIGH RD (SR 1435) AND PINE LAKE DR (SR 1521) APEX, WAKE COUNTY, NC PAVEMENT MARKING / SIGN PLACEMENT PLAN DIVISION 05 WAKE COUNTY		
REVISIONS	INT.	DATE

