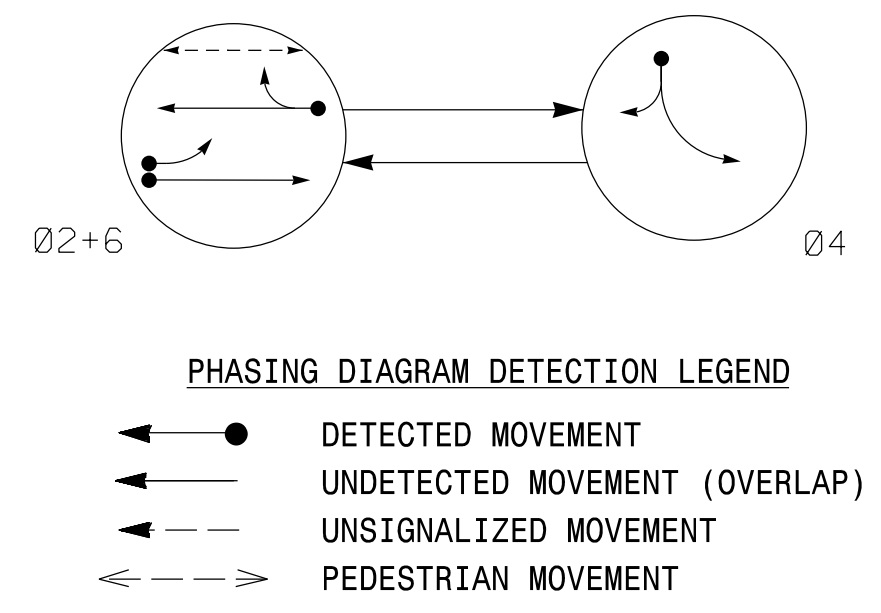
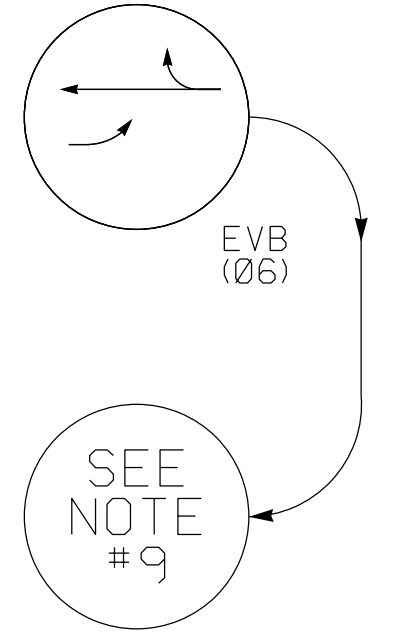


**PHASING DIAGRAM**



**EV Preempt Phases**



**TABLE OF OPERATION**

SIGNAL FACE	PHASE			
	02+6	04	EV B	FLASH
21	G	R	Y	Y
22,23	G	R	R	Y
41,42	G	R	R	R
61,62	G	R	G	Y
P61,P62	W	DW	DW	DRK

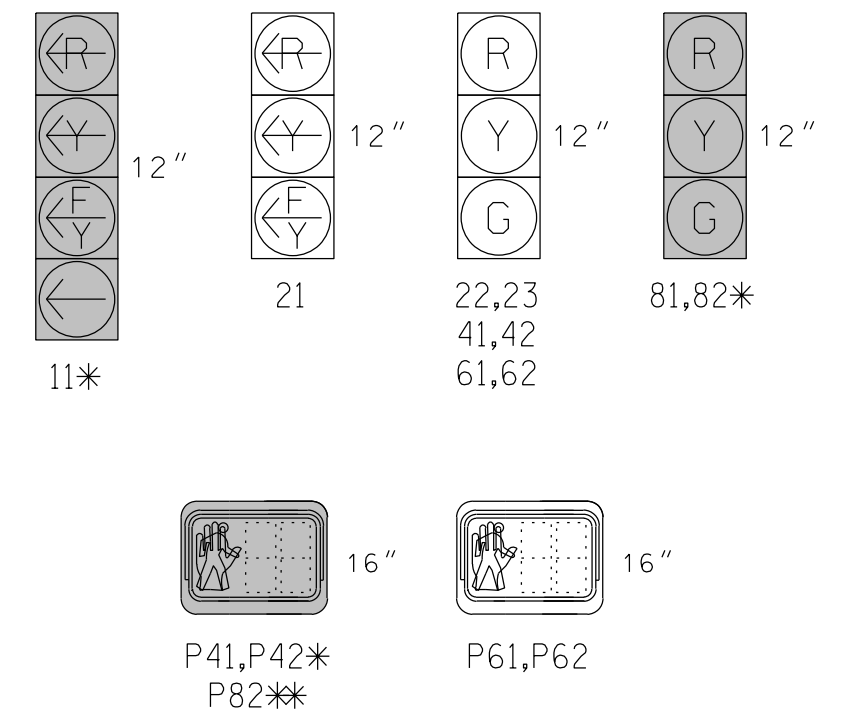
**2033 SOFTWARE w/ 2070 CONTROLLER LOOP & DETECTOR UNIT INSTALLATION CHART**

LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW EXISTING	NEMA PHASE	DETECTOR PROGRAMMING												
						TIMING		ATTRIBUTES								STATUS		
						DELAY	CARRY (STRETCH)	1	2	3	4	5	6	7	8	NEW	EXISTING	
2A	6x6	*	70	*	2	- SEC.	- SEC.	-	-	-	-	X	X	-	-	-	*	
2B	6x40	*	0	*	2	- SEC.	- SEC.	-	-	-	-	X	X	-	-	-	*	
4A	6x40	*	0	*	4	10 SEC.	- SEC.	-	-	-	-	X	X	-	-	-	*	
6A	6x6	*	70	*	6	- SEC.	- SEC.	-	-	-	-	X	X	-	-	-	*	
PEDESTRIAN DETECTION																		
P61,P62	N/A	N/A	N/A	-	X	6	- SEC.	- SEC.	-	X	-	-	-	-	-	-	-	X

\* Video Detection Zone

**SIGNAL FACE I.D.**

All Heads L.E.D.  
\* See Note 11  
\*\* See Note 12



**2033 EV PREEMPTION**

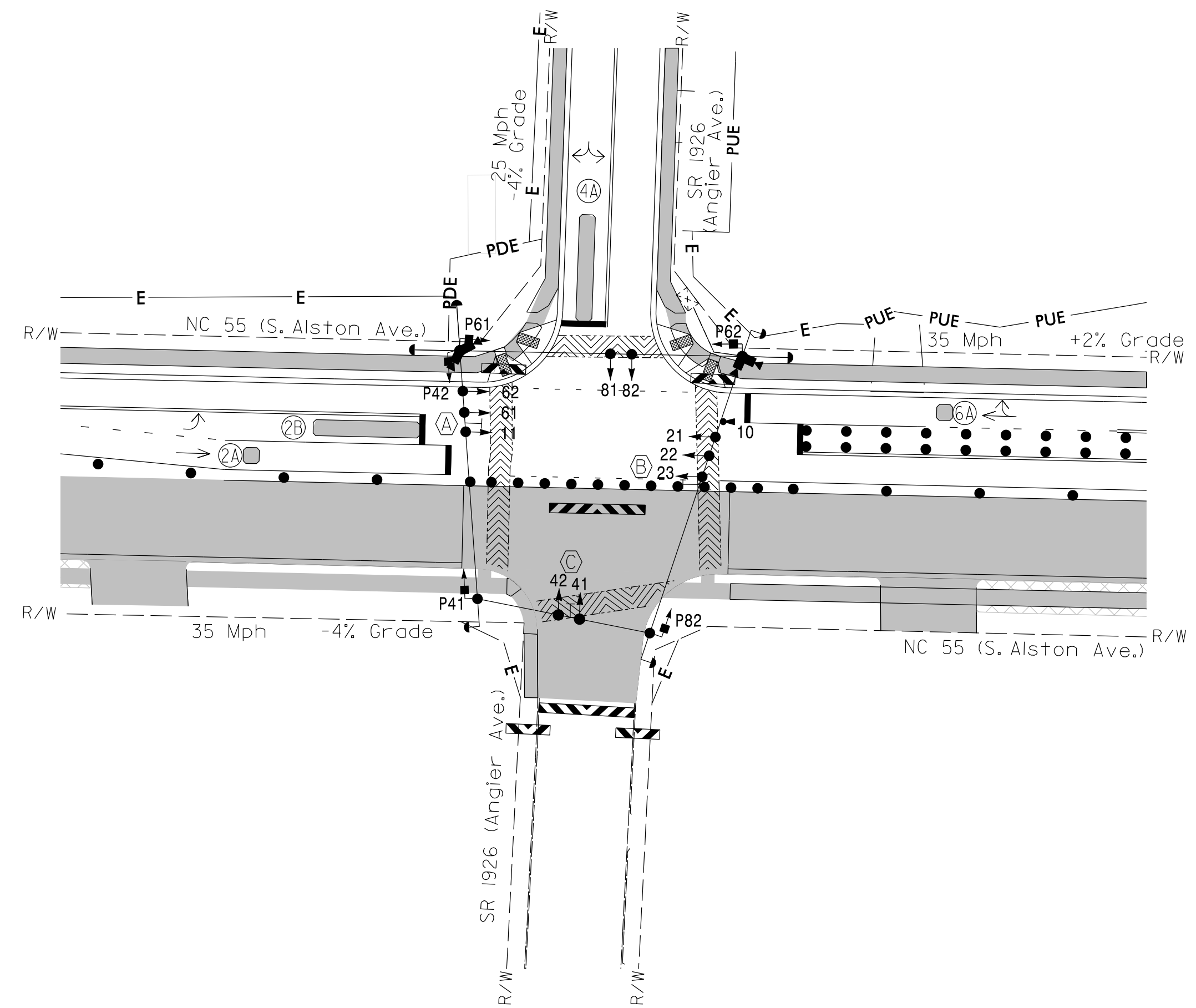
FUNCTION	EV B (SECONDS)
DELAY BEFORE PREEMPT	0
MIN. PED. CLEAR BEFORE PREEMPT	*
MIN. GREEN BEFORE PREEMPT	1
CLEARANCE TIME	2
PREEMPT EXTEND**	2.0

\* See Timing Chart for Min Ped Clearance  
\*\* Program Timing on Optical Detector Unit

**TIMING CHART**  
2033 SOFTWARE w/2070 CONTROLLER

PHASE	02	04	06	0L3
MINIMUM INITIAL *	10 SEC.	7 SEC.	10 SEC.	0 SEC.
VEHICLE EXTENSION *	3.0 SEC.	2.0 SEC.	3.0 SEC.	
YELLOW CHANGE INT.	4.1 SEC.	3.0 SEC.	4.1 SEC.	4.1 SEC.
RED CLEARANCE	1.7 SEC.	1.9 SEC.	1.7 SEC.	1.7 SEC.
MAXIMUM LIMIT *	50 SEC.	35 SEC.	50 SEC.	
RECALL POSITION	VEH. RECALL	NONE	VEH. RECALL	
VEHICLE CALL MEMORY	YELLOW LOCK	NONE	YELLOW LOCK	
DOUBLE ENTRY	OFF	OFF	OFF	
WALK *	- SEC.	- SEC.	4 SEC.	
FLASHING DON'T WALK	- SEC.	- SEC.	8 SEC.	
MIN PED CLEARANCE	- SEC.	- SEC.	4 SEC.	
TYPE 3 LIMIT	- SEC.	- SEC.	- SEC.	
ALTERNATE EXTENSION	- SEC.	- SEC.	- SEC.	
ADD PER VEHICLE *	- SEC.	- SEC.	- SEC.	
MAXIMUM INITIAL *	- SEC.	- SEC.	- SEC.	
MAXIMUM GAP*	3.0 SEC.	2.0 SEC.	3.0 SEC.	
REDUCE 0.1 SEC EVERY *	- SEC.	- SEC.	- SEC.	
MINIMUM GAP	3.0 SEC.	2.0 SEC.	3.0 SEC.	

\* 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.

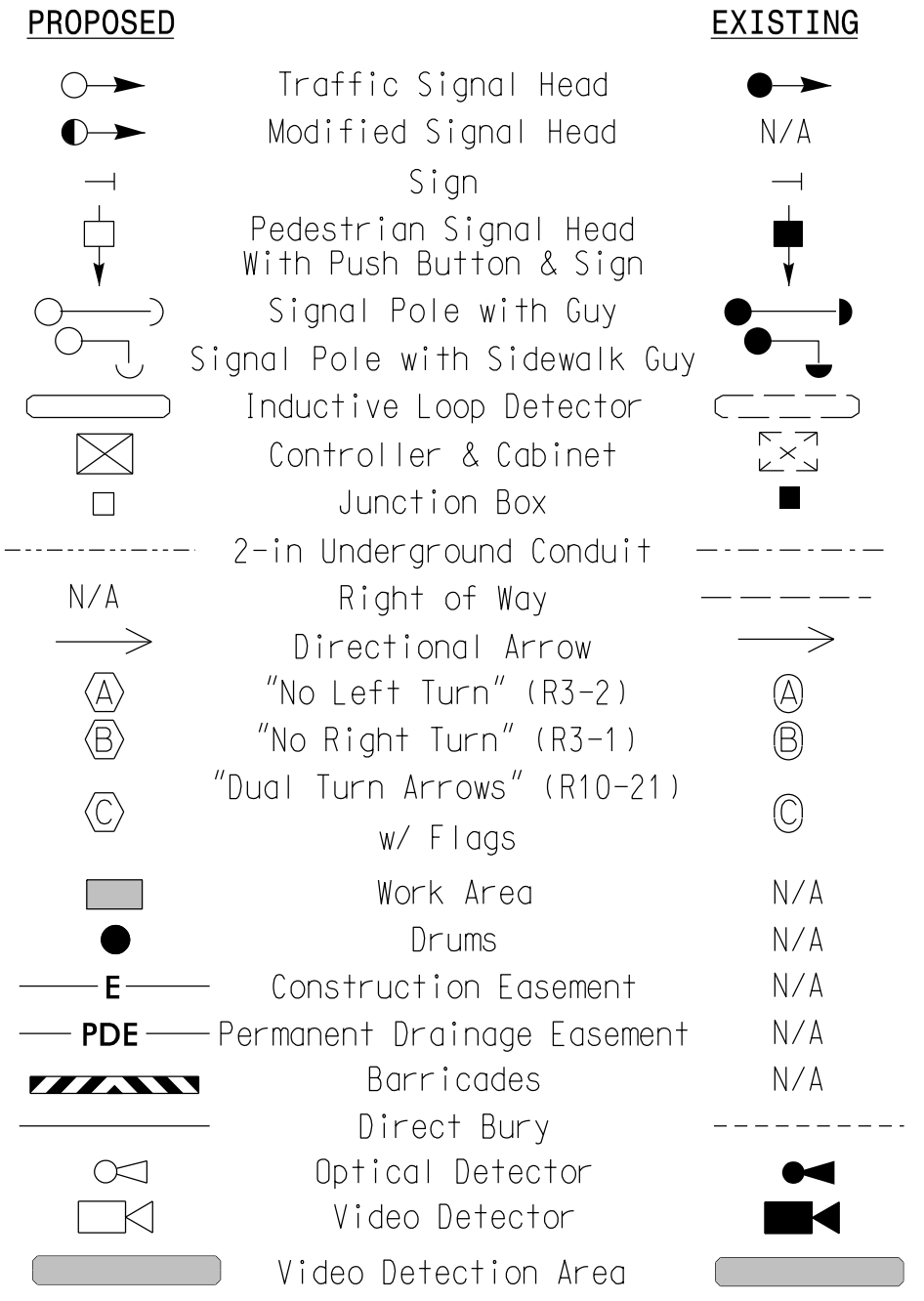


**2 Phase Fully Actuated W/ EV Preemption (Durham Signal System)**

**NOTES**

- Refer to "Road Standard Drawings NCDOT" dated January 2012, "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.
- Program all timing information into phase banks 1,2, and 3 unless otherwise noted.
- Set phase bank 3 maximum limit to 250 seconds for phases used.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Upon completion of Emergency Vehicle Preemption, controller returns to normal operation.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Disconnect and bag signal head #11, #81, #82 and pedestrian signal heads #P41 and #P42 during this phase of construction.
- Pedestrian signal head #P82 shall remain bagged and disconnected during this phase of construction.
- Contractor shall adjust video detection zones as required.

**LEGEND**



**Signal Upgrade - Temporary Design 4 (TMP Phase II, Steps 7-12)**

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Fax: 919-789-9591  
License #: C-2197

**NC 55 (South Alston Avenue) at SR 1926 (Angier Avenue)**

Division 5 Durham County Durham

PLAN DATE: September 2014 REVIEWED BY: J Hochanadel

PREPARED BY: C Lawson REVIEWED BY:

SEAL

DocuSigned by:  
4/02/15  
50781D28F8C488  
SIG. INVENTORY NO. 05-1026T4

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