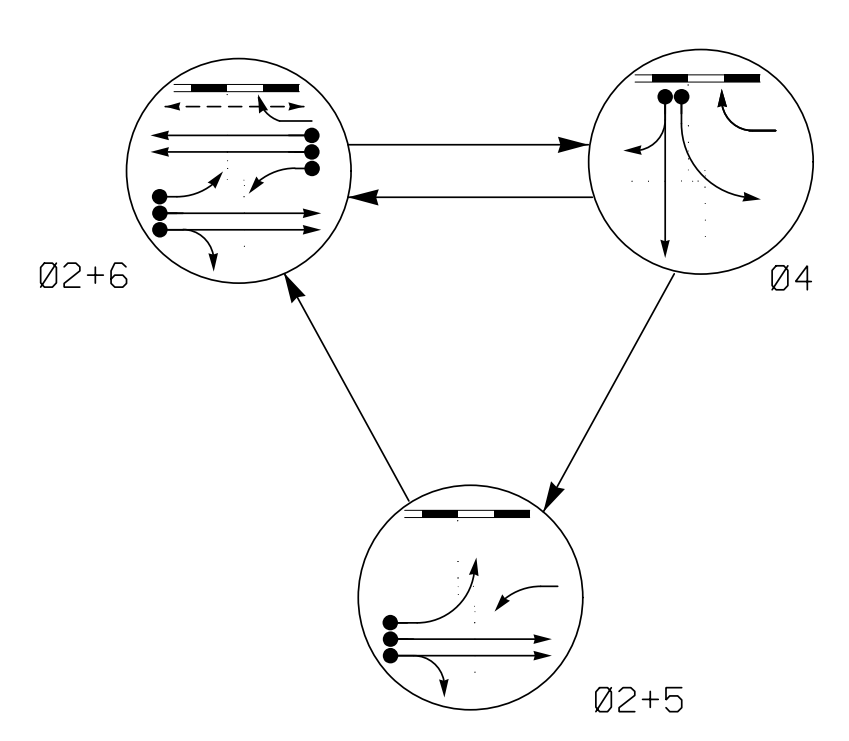
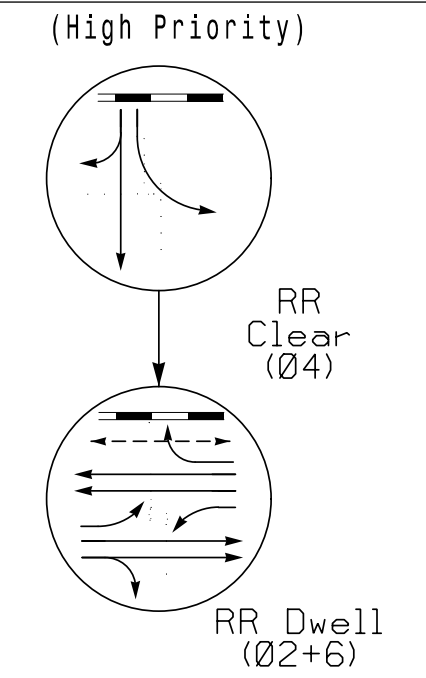


DEFAULT PHASING DIAGRAM



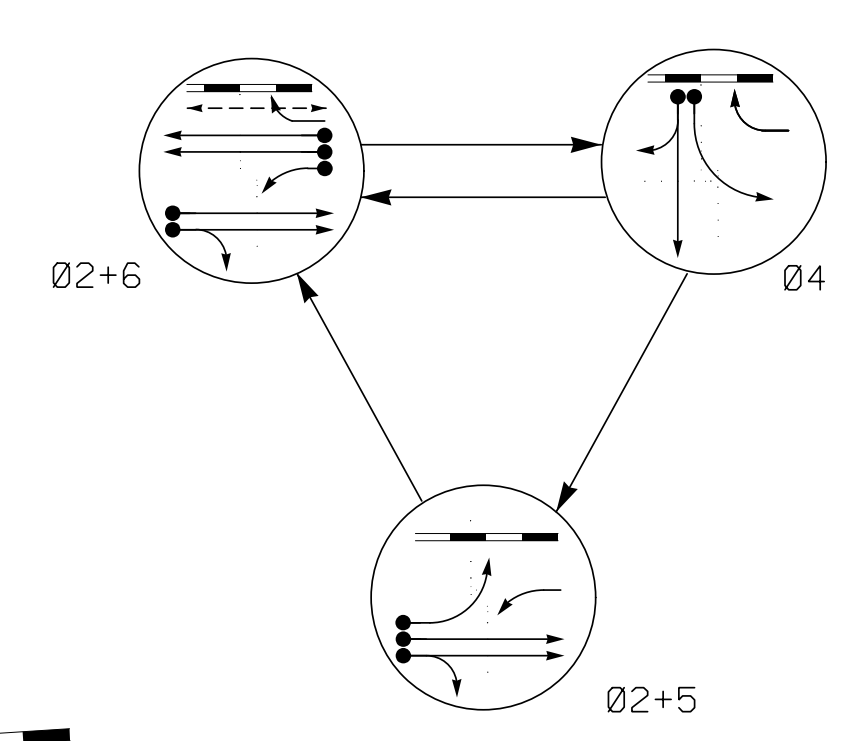
DEFAULT RAIL PREEMPT PHASES (High Priority)



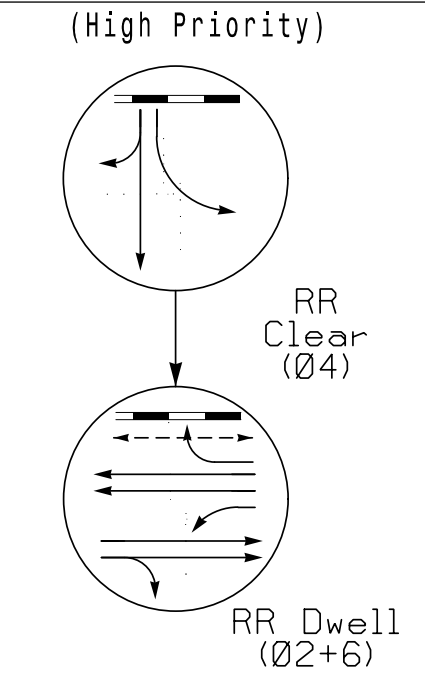
DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE						
	02+5	02+6	04	C	D	F	LASH
21, 22	G	G	R	R	G	Y	
41, 42	R	R	G	G	R	R	
51	←	←	←	←	←	←	←
61	←	←	←	←	←	←	←
62	R	G	R	R	G	Y	
63	R	G	R	R	G	Y	
P61, P62	DW	W	DW	DW	W	DRK	

ALTERNATE PHASING DIAGRAM



ALTERNATE RAIL PREEMPT PHASES (High Priority)



ALTERNATE PHASING TABLE OF OPERATION

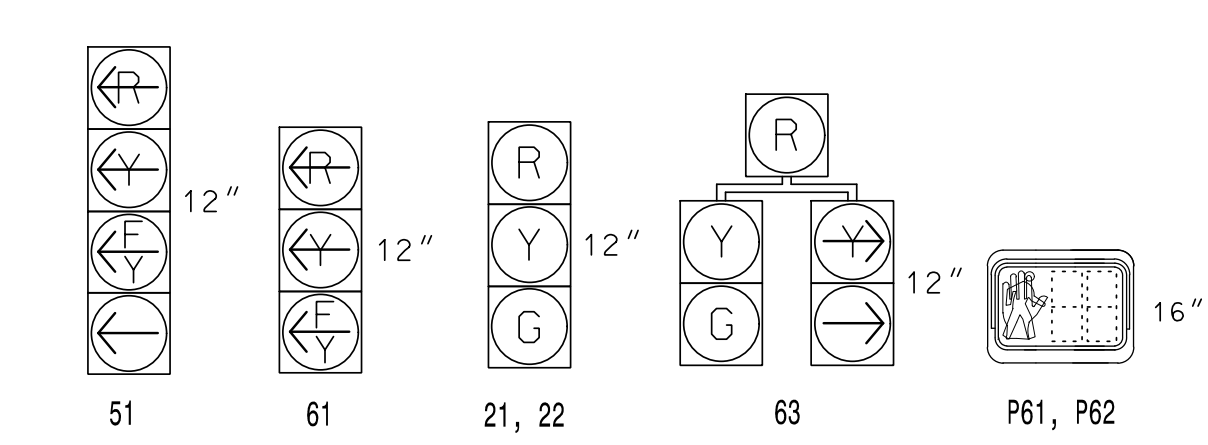
SIGNAL FACE	PHASE						
	02+5	02+6	04	C	D	F	LASH
21, 22	G	G	R	R	G	Y	
41, 42	R	R	G	G	R	R	
51	←	←	←	←	←	←	←
61	←	←	←	←	←	←	←
62	R	G	R	R	G	Y	
63	R	G	R	R	G	Y	
P61, P62	DW	W	DW	DW	W	DRK	

PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

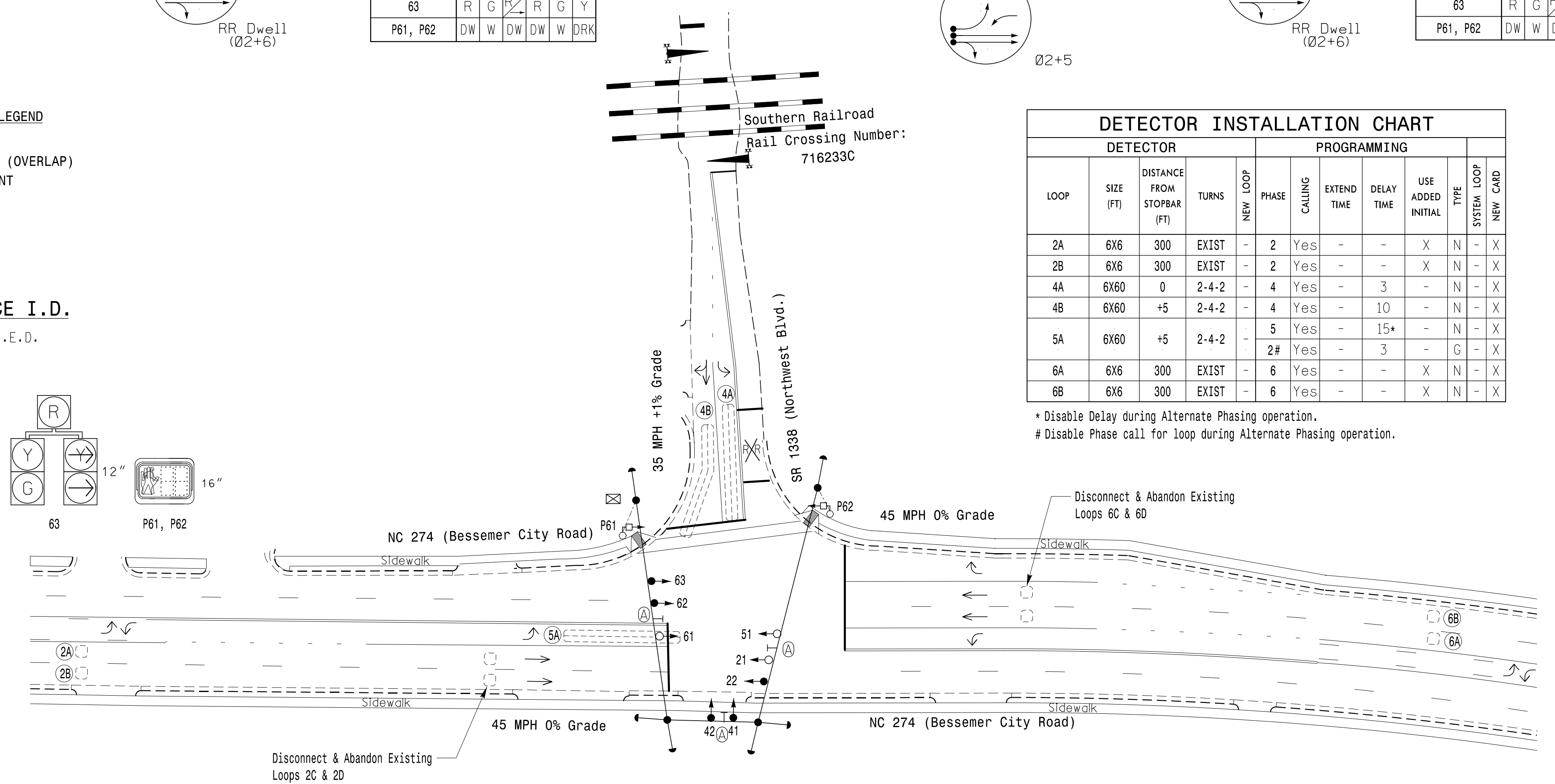
All Heads L.E.D.



DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	PROGRAMMING						
						CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	LOOP SYSTEM	NEW CARD
2A	6X6	300	EXIST	-	2	Yes	-	-	X	N	-	X
2B	6X6	300	EXIST	-	2	Yes	-	-	X	N	-	X
4A	6X60	0	2-4-2	-	4	Yes	-	3	-	N	-	X
4B	6X60	+5	2-4-2	-	4	Yes	-	10	-	N	-	X
5A	6X60	+5	2-4-2	-	5	Yes	-	15*	-	N	-	X
6A	6X6	300	EXIST	-	6	Yes	-	-	X	N	-	X
6B	6X6	300	EXIST	-	6	Yes	-	-	X	N	-	X

* Disable Delay during Alternate Phasing operation.
Disable Phase call for loop during Alternate Phasing operation.



TIMING CHART

FEATURE	PHASE			
	2	4	5	6
Min Green *	12	7	7	12
Walk *	-	-	-	7
Ped Clear	-	-	-	20
Veh. Extension *	6.0	2.0	1.0	6.0
Max 1 *	100	30	20	100
Yellow	4.5	3.0	3.0	4.5
Red Clear	1.7	2.8	2.4	1.7
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	1.5	-	-	1.5
Max Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	40	-	-	40
Minimum Gap	3.0	-	-	3.0
Locking Detector	X	-	-	X
Recall Position	MIN RECALL	-	-	MIN RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

RR PREEMPT

FUNCTION	PRE 1
Exit Phase(s)	4
Preempt Override	ON
Delay Time	0
Ped Clear Trough Yellow	Y
Terminate Phases	N
Track Clear Reserve	Y
Entrance Walk	1
Entrance Ped Clear	5
Entrance Min Green	1
Entrance Yellow Change	4.5
Entrance Red Clear	2.8
Track Clear Min Green	30
Track Clear Yellow Change	3.0
Track Clear Red Clear	2.8
Min Dwell Time	7
Exit Yellow Change	25.5*
Exit Red Clear	25.5*

* Time defaults to time used for phase during normal operation

THIS SIGNAL WAS DESIGNED FOR ADVANCE PREEMPTION

3 Phase Fully Actuated w/ Railroad Preemption and Alternate Phasing Operation Gastonia Signal System

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- This location contains railroad preemption phasing. Do not program for late night flashing operation.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signal Design Manual and submit a Plan of Record to the Signal Design Section.
- 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.
- Pavement markings are existing.
- The City Engineer or their representative will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- Disconnect and abandon existing loops 2C, 2D, 6C and 6D.
- Install new cabinet on the existing cabinet foundation.
- All new cabinets and base extenders shall be black in color. See Project Special Provisions for details.
- All proposed pedestrian signal heads shall be black in color. See Project Special Provisions for details.
- All proposed pedestrian pedestals and pushbutton posts shall be black in color. See Project Special Provisions for details.
- Reconnect lead-in cable to separate loops 2A, 2B and 6A, 6B as shown.
- City system data:
Controller Asset #0155.

LEGEND

- | | |
|--|-----------------|
| PROPOSED | EXISTING |
| ○ Traffic Signal Head | ● N/A |
| ● Modified Signal Head | ○ N/A |
| □ Sign | □ N/A |
| □ Pedestrian Signal Head With Push Button & Sign | □ N/A |
| □ Type II Signal Pedestal | □ N/A |
| □ Signal Pole with Guy | □ N/A |
| □ Signal Pole with Sidewalk Guy | □ N/A |
| □ Inductive Loop Detector | □ N/A |
| □ Controller & Cabinet | □ N/A |
| □ Junction Box | □ N/A |
| --- 2-in Underground Conduit | --- N/A |
| N/A Right of Way | — N/A |
| N/A Directional Arrow | → N/A |
| N/A Railroad Gate and Flasher | — N/A |
| N/A Railroad Tracks | — N/A |
| △ Street Name Sign (D3-1) | △ N/A |

Signal Upgrade

Prepared For: **Kimley-Horn**

750 N. Greenfield Pkwy, Garner, NC 27529

PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn
NC License #0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

NC 274 (Bessemmer City Road) at SR 1338 (Northwest Blvd.)

Division 12 Gaston County Gastonia

PLAN DATE: May 2021 REVIEWED BY: SL Phillips

PREPARED BY: SP Pennington REVIEWED BY: KP Baumann

REVISIONS: _____ INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Seal of Professional Engineer: **KEVIN P. BAUMANN**, No. 044434

Signature: _____ DATE: 3/11/2022

SIG. INVENTORY NO. 12-0155

3/9/2022 11:13:52 AM Dantellie.Cur1 ***K:\mley-horn.com\SE-RAL\RAL-TIP\DK-TIS\001036569 Gastonia Signal System\Signal\54 - Signal Design\120155-2021.dgn