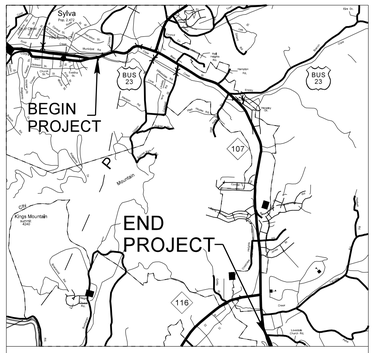
TIP PROJECT: R-5600



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JACKSON COUNTY

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-1.0

APPROVED: Signed by: Brittany Groome 1E09534CE1594464... DATE: 8/26/2025

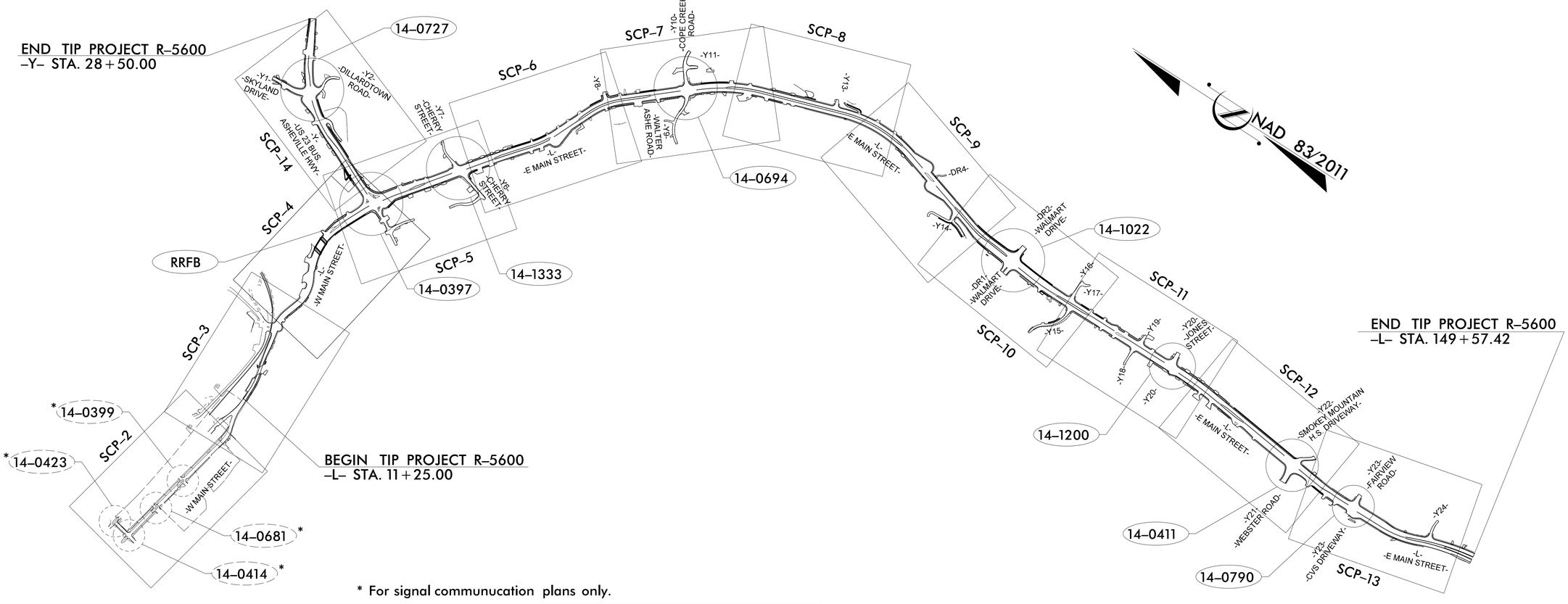
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCATION: ***SYLVA – N.C. 107 FROM WEST OF U.S. 23 BUSINESS (ASHEVILLE HIGHWAY) TO SOUTH OF N.C. 116 (WEBSTER ROAD) AND U.S. 23 BUS. FROM SKYLAND DRIVE TO WEST OF MUNICIPAL DRIVE***

TYPE OF WORK: ***TRAFFIC SIGNALS AND COMMUNICATION DESIGN***



* For signal communucation plans only.

PLANS PREPARED BY:

Brittany N. Groome, P.E. – Project Engineer

Darren J. White, IMSA – Project Engineer

INDEX OF PLANS

Sheet Number	SIN	Location/ Description
Sig. 1.0	–	Title Sheet
Sig. 2.0	–	RRFB Installation Detail
Sig. 3.0–9.4	14–0397	US 23 Business/NC 107 (Main Street) at US 23 Business (Asheville Highway)/SR 1355 (Sunrise Park)
Sig. 10.0–13.4	14–1333	NC 107 (E Main Street) at SR 1354 (Cherry Street)/SR 1718 (E Hall Heights)
Sig. 14.0–18.4	14–0694	NC 107 (E Main Street) at SR 1352 (Walter Ashe Road)/SR 1449 (Cope Creek Road)
Sig. 19.0–24.5	14–1022	NC 107 (E Main Street) at Walmart Driveway /Commercial Driveway
Sig. 25.0–30.4	14–1200	NC 107 (E Main Street) at SR 1723 (Jones Street)/Bryson Farm Supply Driveway
Sig. 31.0–37.5	14–0411	NC 107 (E Main Street) at NC 116 (Webster Road)/Smokey Mountain H.S. Driveway
Sig. 38.0–42.4	14–0790	NC 107 at SR 1724 (Fairview Road)/CVS Driveway
Sig. 43.0–47.4	14–0727	US 23 Business (Asheville Highway) at SR 1432 (Skyland Drive)/SR 1438 (Dillard Town Road)
Sig. M1–M8	–	Standard Metal Pole Drawings
SCP1–SCP23	–	System Communication Plans

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.

LEGEND

XX–XXXX *TRAFFIC SIGNAL*

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS UNIT

Contacts:

R. Nicholas N Zinser, P.E. – Western Region Signals Engineer

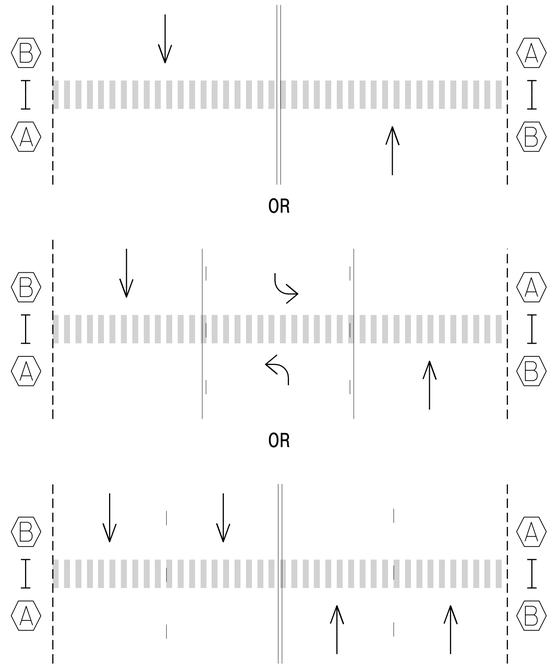
D. Todd Joyce, P.E. – Signal Equipment Design Review Engineer

Gregory A. Green – Signal Communications Project Engineer

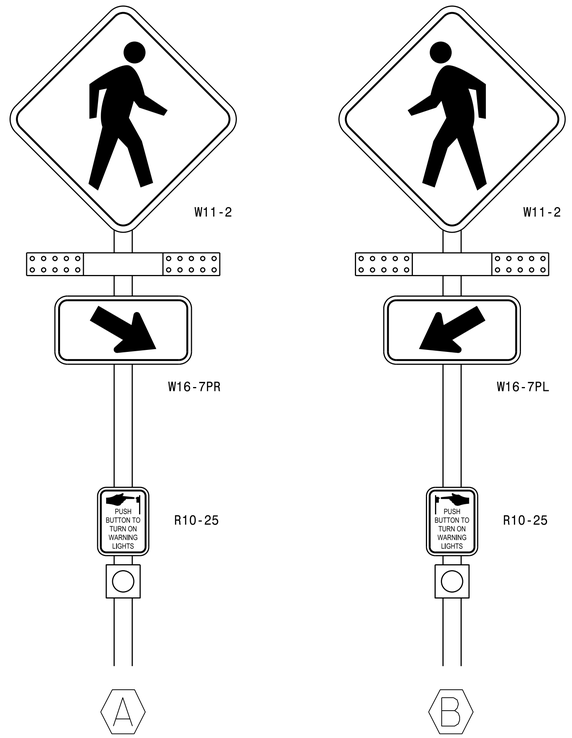
Heidi Berggren, E.I. – Signal Communications Project Design Engineer

PROJECT REFERENCE NO.	SHEET NO.

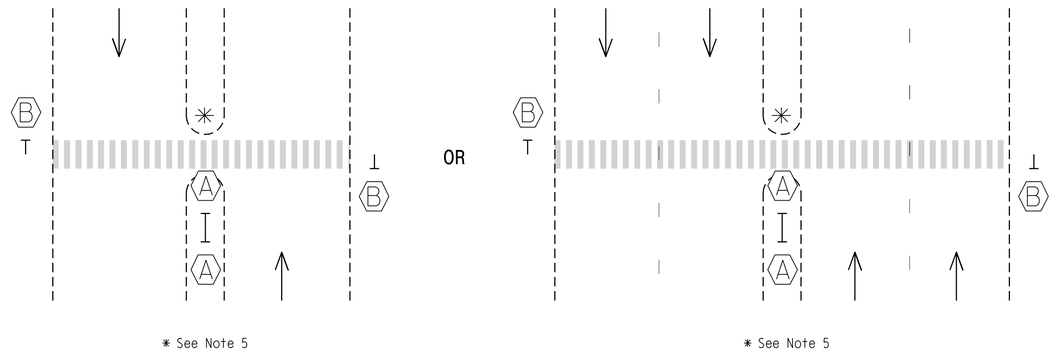
Two to Four Lanes, Undivided



RRFB Sign Detail



Two or Multi-Lanes, Divided



✳ See Note 5

✳ See Note 5

Notes

1. Design the RRFB in accordance with the 2023 MUTCD, 11th Edition, Chapter 4L: Rectangular Rapid-Flashing Beacons. The RRFB unit associated with a post-mounted sign and plaque should be located between the pedestrian crossing warning (W11-2) sign and the supplemental downward diagonal arrow plaque (W16-7p).
2. If needed, a supplemental RRFB with an "AHEAD" (W16-9P) or distance (W16-2P) plaque may be installed on the approach in advance of the crosswalk. The addtional RRFB shall be a supplemental to and not a replacement for the RRFB at the actual crosswalk.
3. When practical, the RRFB and mounting post on the right side of the road shall be mounted on the approach side of the crosswalk closest to approaching traffic.
4. When practical, the RRFB and mounting post on the left side of the road may be mounted on the back of the post for the opposing approach.
5. A RRFB on the left side of the roadway or in the median may be individually mounted on the approach side of the crosswalk closest to approaching traffic, or, when practical, may be mounted back to back on the same post and mounted on either side of the crosswalk in the median.
6. Locate push button sign (R10-25) and push button to face crosswalk, even if it is mounted on the back side of the sign.
7. All RRFB units associated with a given crosswalk (including those with an advance crossing sign) shall, when actuated, simultaneously commence operation of their rapid-flashing indications and shall cease operation simultaneously.
8. For quantitative purposes, a single sided, post mounted RRFB is one assembly unit. A double sided RRFB mounted on the same post is counted as two (2) assemblies.
9. For additional information, see Version 24 of the Transportation Systems Management and Operations (TSMO) Unit Project Special Provisions (PSP).

Timing of RRFBs

When actuated, the two yellow indications in each RRFB unit shall flash in a rapidly flashing sequence.

The RRFB shall flashing sequence shall provide enough time for pedestrians to cross from curb to curb. It is recommened to be a minimum of 7 seconds plus the crossing distance (D) divided by 3.5 feet/per sec., rounded up to the next whole second:

$$\text{Flash Time (sec.)} = 7 + D/3.5$$

Per Section 4L.03 of the 2023 MUTCD, RRFBs shall provide 75 flashing sequences per minute. During each 800 millisecond flashing sequence, the left and right RRFB indications shall operate using the following sequence:

- The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- Both RRFB indications shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- Both RRFB indications shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 250 milliseconds.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Standard Drawing for Rectangular Rapid Flashing Beacon

Prepared in the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •
TSMO Unit

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by: Robert J Ziemba
SIGNATURE

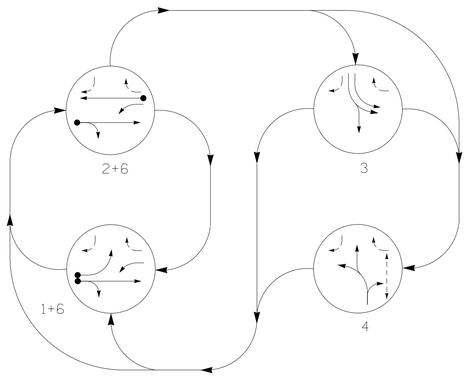
05/30/2024
DATE

30-MAY-2024 16:59
S:\Traffic\Signals\Signal Design Section\Central Region\Rob's Files\RRFB Stds\rrfb Updated 5-24.dgn
rziemba

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-3.0

4 Phase
Fully Actuated
(Timed Based Coordination)

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

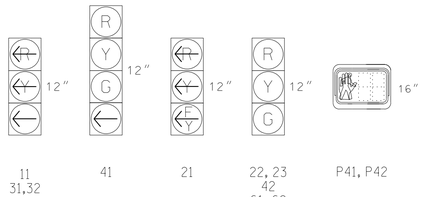
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+6	PHASE 2+6	PHASE 3	PHASE 4	FLASH
11	←R	←R	←R	←R	←R
21	←Y	←Y	←R	←R	←R
22,23	R	G	R	R	R
31,32	←R	←R	←	←R	←R
41	R	R	R	G	R
42	R	R	R	G	R
61,62	G	G	R	R	R
P41,P42	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

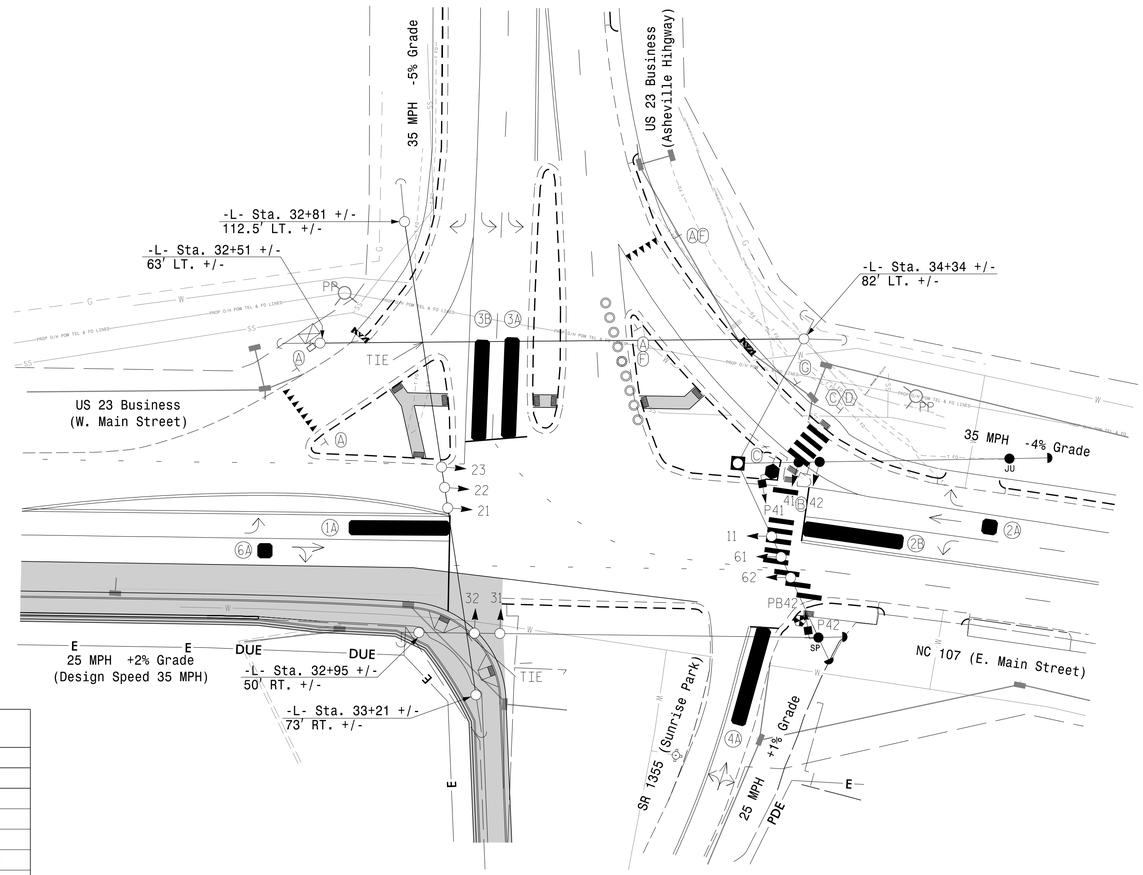
All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	-	-	X	-	X	-	*
2A	*	70	*	X	2	-	-	X	-	X	-	*
2B	*	0	*	X	2	-	-	X	-	X	-	*
3A	*	0	*	X	3	-	-	X	-	X	-	*
3B	*	0	*	X	3	-	-	X	-	X	-	*
4A	*	0	*	X	4	5.0	-	X	-	X	-	*
6A	*	70	*	X	6	-	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone



MAXTIME TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 6
Walk *	–	–	–	14	–
Ped Clear	–	–	–	13	–
Min Green *	7	10	7	7	10
Passage *	2.0	3.0	2.0	2.0	3.0
Max 1 *	30	70	50	30	85
Yellow Change	3.0	4.1	4.2	3.1	4.1
Red Clear	1.9	3.4	2.8	3.8	3.4
Added Initial *	–	–	–	–	–
Maximum Initial *	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–
Time To Reduce *	–	–	–	–	–
Minimum Gap	–	–	–	–	–
Advance Walk	–	–	–	7	–
Non Lock Detector	X	–	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	MIN RECALL
Dual Entry	–	–	–	–	–

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

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Remove existing Yield "HERE TO" Pedestrians Sign (R1-5)
10. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
11. 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	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Curb Ramp	
	Truncated Dome	
	Non-Intrusive Detection Zone	
	Construction Zone	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Tubular Markers	
N/A	Work Zone Traffic Barricade	
N/A	Construction Easement	E
N/A	Perm. Drainage/Utility Easement	DUE
N/A	Perm. Drainage Easement	PDE
N/A	Drainage Removal	
N/A	Gas Line	8" GAS
N/A	U/G Sanitary Sewer	SS
N/A	U/G Water Line	W
	Prop. Drainage Pipe	
N/A	O/H Pwr. & Util. Lines	
N/A	Telephone Fiber	
N/A	Utility Pole	
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ
Ⓑ	"NO TURN ON RED" Sign (R10-11a)	Ⓑ
Ⓒ	Pedestrian Crossing Sign (W11-2)	Ⓒ
Ⓓ	Left Downward Diagonal Arrow Plaque (W16-7pL)	Ⓓ
Ⓕ	"NO MERGE AREA" Plaque (W4-5P)	Ⓕ
Ⓖ	Yield Ahead Sign (W3-2)	Ⓖ

Signal Upgrade
Temporary Design 1 - TMP Ph1, S1

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Plans Prepared By:

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Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SCALE 0 30 1"=30'

US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Highway)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: DJ White REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

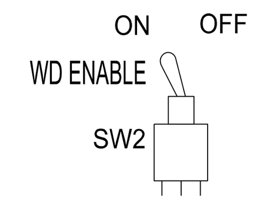
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME

Signed by: Brittany Groome 8/26/2025
1E0934DE1094454...
DATE

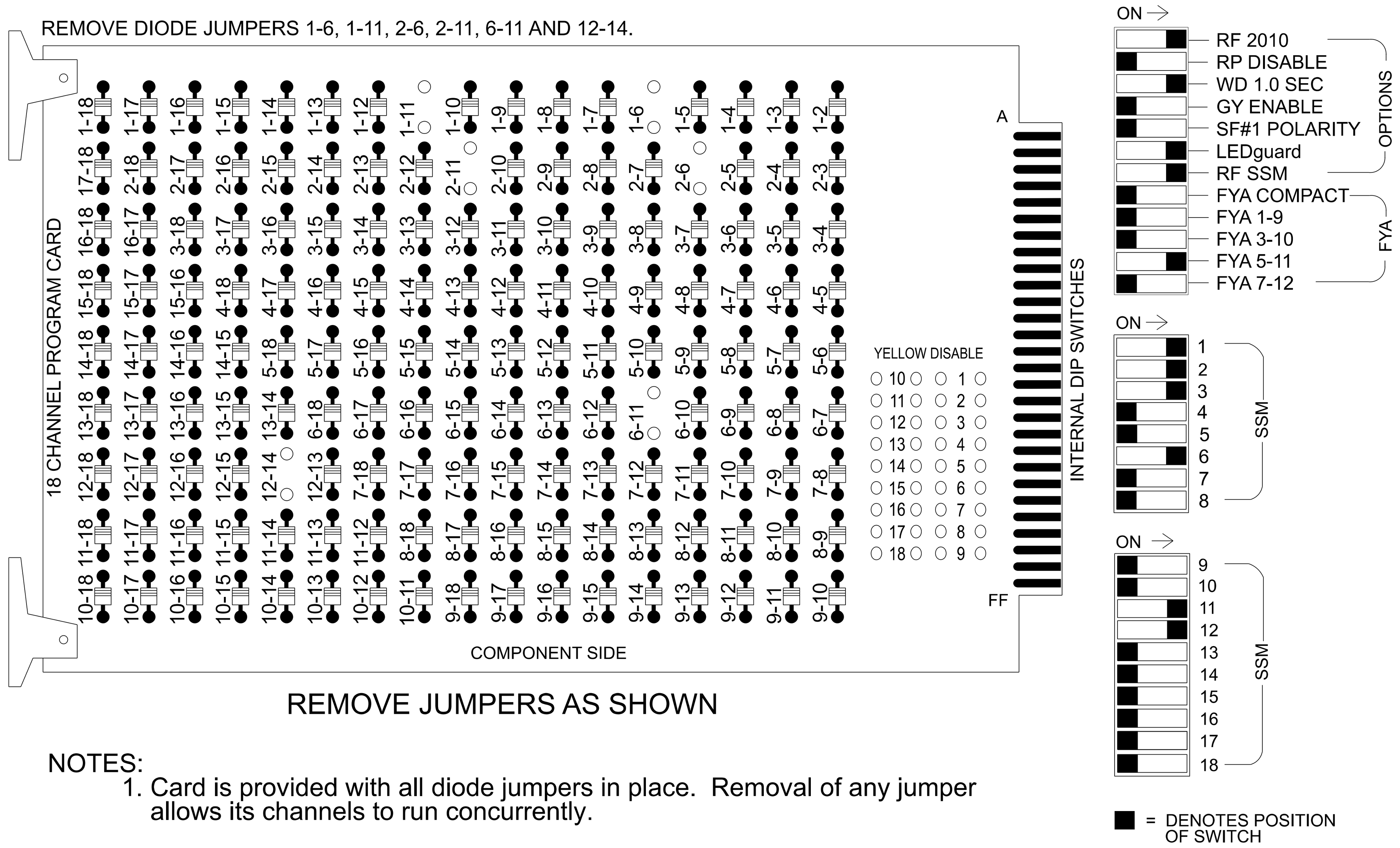
SIG. INVENTORY NO. I4-0397TI

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-6, 1-11, 2-6, 2-11, 6-11 AND 12-14.



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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller..2070LX
Cabinet...332 w/ Aux
Software...Q-Free MAXTIME
Cabinet Mount.....................................Base
Output File Positions...........................18 With Aux. Output File
Load Switches Used............................S1, S2, S4, S6, S8, AUXS4
Phases Used..1, 2, 3, 4, 4PED, 6
Overlap "1"...NOT USED
Overlap "2"...NOT USED
Overlap "3"...*
Overlap "4"...*
Overlap "7"...*

*See overlap programming detail on sheet 2.

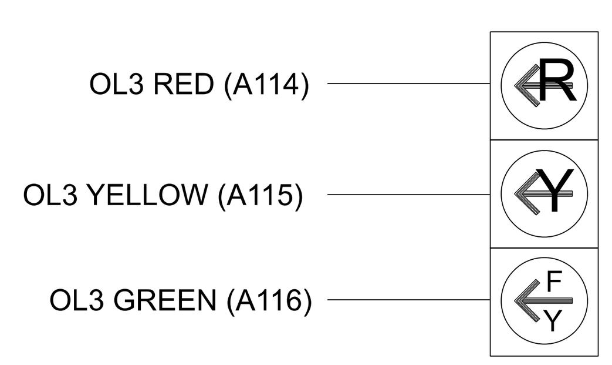
SIGNAL HEAD HOOK-UP CHART

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	OL7	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4		SPARE
SIGNAL HEAD NO.	11	22,23	NU	31,32	NC	P41, P42	NU	61,62	NU	NU	NU	NU	NU	NU	NU	21	41	42	NU
RED		128						134									A101	A101	
YELLOW		129						135									A102	A102	
GREEN		130						136									A103	A103	
RED ARROW	125			116												A114			
YELLOW ARROW	126			117												A115			
FLASHING YELLOW ARROW																A116			
GREEN ARROW	127			118														A103	
(Don't Walk hand)						104													
(Walk person)						106													

NU = Not Used NC = Not Connected
* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



21

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	1O	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED	SLOT EMPTY	FS DC ISOLATOR
"I"	L												Ø 4 PED DC ISOLATOR		ST DC ISOLATOR
"J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L														

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.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

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 2
Temporary Design 1 - TMP Ph1, S1

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Plans Prepared By:

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8210 UNIVERSITY EXECUTIVE PARK DR.
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CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical and Programming Details For:

US 23 Bus./NC 107 (E Main Street)
at
US 23 Bus. (Asheville Highway) / SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS INIT. DATE

Transportation Mobility and Safety Division — ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025

SIG. INVENTORY NO. 14-0397T1

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Overlap	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE FLASH RED

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	3	4	7
Type	FYA 4 - Section	Normal	Normal
Included Phases	6	4	1
Modifier Phases	-	-	-
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 1 - TMP Ph1, S1

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Electrical and Programming Details For:

US 23 Bus./NC 107 (E Main Street)
at
US 23 Bus. (Asheville Highway) / SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Espostio
PREPARED BY: DJ White REVIEWED BY: BN Groome

REVISIONS INIT. DATE

Transportation Mobility and Safety Division — ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

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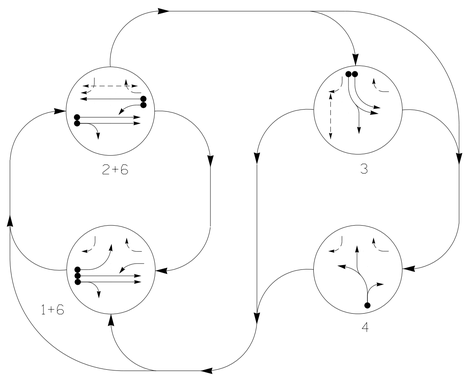
Signed by: Brittany Groome 8/26/2025

SIG. INVENTORY NO. 14-0397T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-4.0

4 Phase
Fully Actuated
(Time Based Coordination)

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

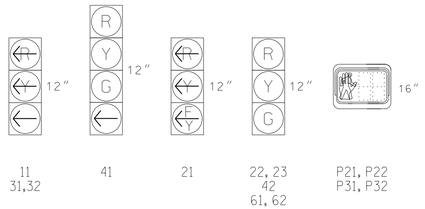
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+6	PHASE 2+6	PHASE 3	PHASE 4	FLASH
11	←R	←R	←R	←R	←R
21	←Y	←Y	←R	←R	←R
22,23	R	G	R	R	R
31,32	←R	←R	←	←R	←R
41	R	R	R	G←	R
42	R	R	R	G	R
61,62	G	G	R	R	R
P21,P22	DW	W	DW	DW	DRK
P31,P32	DW	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



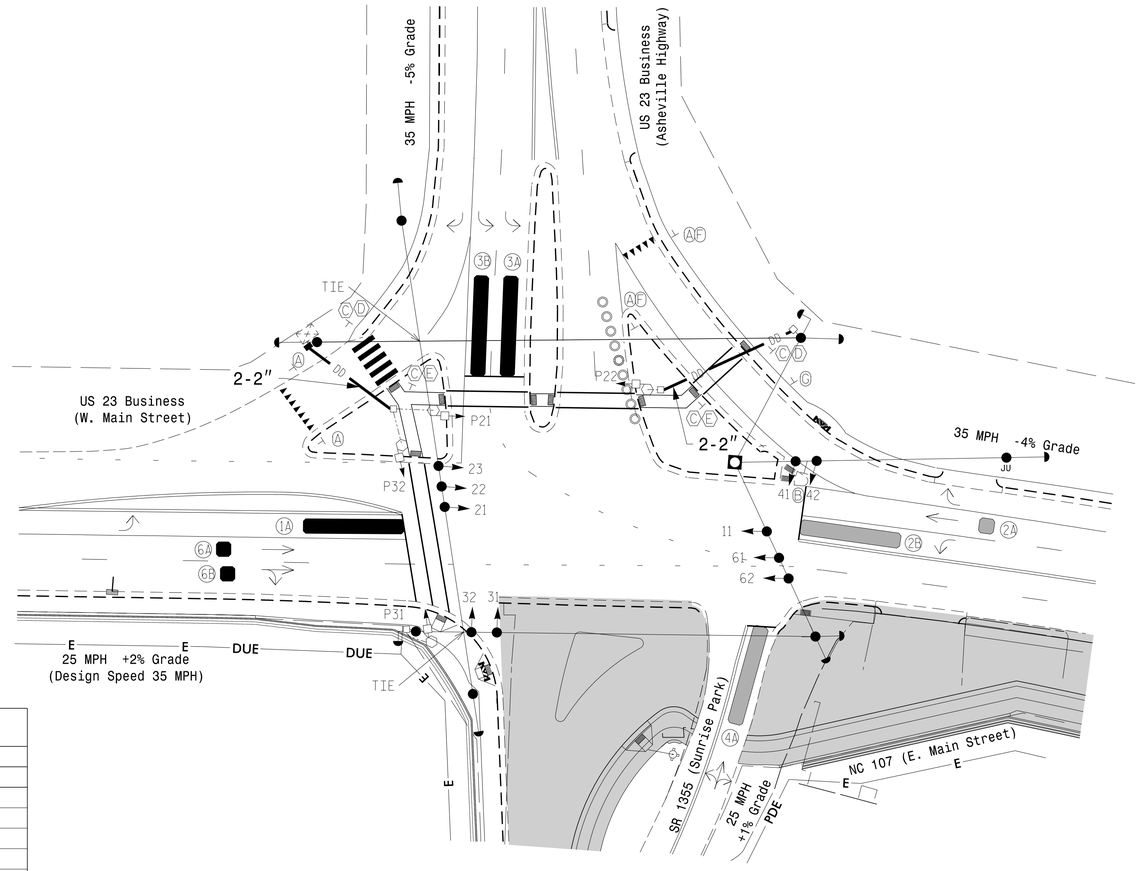
MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	-	-	X	-	X	-	*
2A	*	70	*	-	2	-	-	X	-	X	-	*
2B	*	0	*	-	2	-	-	X	-	X	-	*
3A	*	0	*	X	3	-	-	X	-	X	-	*
3B	*	0	*	X	3	-	-	X	-	X	-	*
4A	*	0	*	-	4	5.0	-	X	-	X	-	*
6A	*	70	*	X	6	-	-	X	-	X	-	*
6B	*	70	*	X	6	-	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
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. Remove existing Yield Ahead Sign.
9. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



MAXTIME TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 6
Walk *	–	13	14	–	–
Ped Clear	–	18	15	–	–
Min Green *	7	10	7	7	10
Passage *	2.0	3.0	2.0	2.0	3.0
Max 1 *	25	70	50	20	85
Yellow Change	3.0	4.1	4.2	3.1	4.1
Red Clear	2.9	3.7	3.3	4.0	3.7
Added Initial *	–	–	–	–	–
Maximum Initial *	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–
Time To Reduce *	–	–	–	–	–
Minimum Gap	–	–	–	–	–
Advance Walk	–	6	7	–	–
Non Lock Detector	X	–	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	MIN RECALL
Dual Entry	–	–	–	–	–

* These values may be field adjusted. Do not adjust Min Green and Passage 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	●→
◐→	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	■
▭	Oversized Junction Box	■
N/A	2-in Underground Conduit	N/A
N/A	Right of Way	N/A
→	Directional Arrow	→
	Curb Ramp	
N/A	Truncated Domes	N/A
DD	Directional Drill	DD
▬	Non-Intrusive Detection Zone	▬
▬	Construction Zone	N/A
⊛	Type I Pushbutton Post	⊛
⬡	Type II Signal Pedestal	⬢
N/A	Tubular Markers	○○○○○
N/A	Work Zone Traffic Barricade	
N/A	Construction Easement	E
N/A	Perm. Drainage/Utility Easement	DUE
N/A	Perm. Drainage Easement	PDE
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ
Ⓑ	"NO TURN ON RED" Sign (R10-11a)	Ⓑ
Ⓒ	Pedestrian Crossing Sign (W11-2)	Ⓒ
Ⓓ	Left Downward Diagonal Arrow Plaque (W16-7pL)	Ⓓ
Ⓔ	Right Downward Diagonal Arrow Plaque (W16-7pR)	Ⓔ
Ⓕ	"NO MERGE AREA" Plaque (W4-5P)	Ⓕ
Ⓖ	Yield Ahead Sign (W3-2)	Ⓖ

Signal Upgrade
Temporary Design 2 - TMP Ph1, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Highway)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: DJ White REVIEWED BY: BN Groome

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

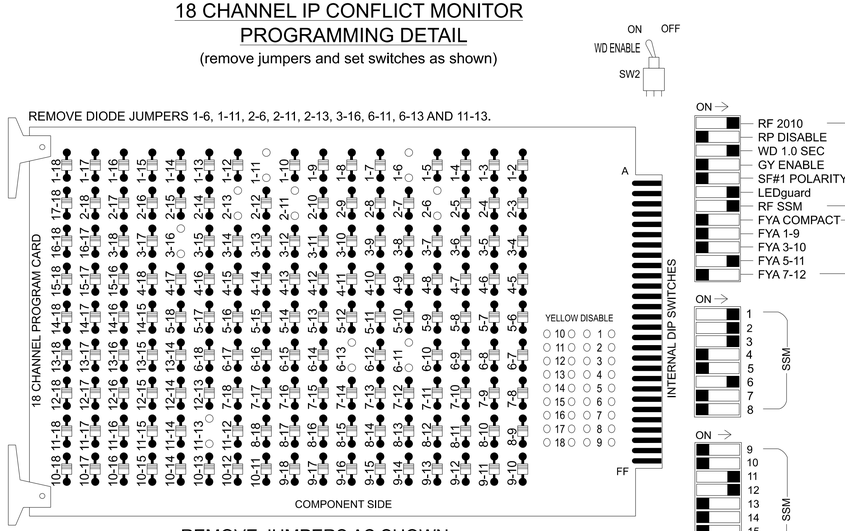
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 1E0934DE1094454... 8/26/2025
DATE

SIG. INVENTORY NO. I4-0397T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-4.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332 w/ Aux
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....18 With Aux. Output File
Load Switches Used.....S1, S2, S3, S4,S8, S12, AUXS4, AUXS5
Phases Used.....1, 2, 2PED, 3, 3PED, 4, 6
Overlap "1".....NOT USED
Overlap "2".....NOT USED
Overlap "3".....*
Overlap "4".....*
Overlap "7".....*

*See overlap programming detail on sheet 2.

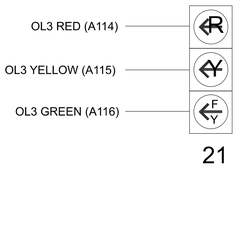
SIGNAL HEAD HOOK-UP CHART

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	OL7	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	3 PED	OL1	OL2	SPARE	OL3	OL4		SPARE
SIGNAL HEAD NO.	11	22,23	P21, P22	31,32	NU	NU	NU	61,62	NU	NU	NU	P31, P32	NU	NU	NU	21	41	42	NU
RED		128						134									A101	A101	
YELLOW		129						135									A102	A102	
GREEN		130						136									A103	A103	
RED ARROW	125			116												A114			
YELLOW ARROW	126			117												A115			
FLASHING YELLOW ARROW																A116			
GREEN ARROW	127			118														A103	
✋			113									110							
🚶			115									112							

NU = Not Used
✶ Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅ 2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
	L												NOT USED	∅ 3 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

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.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P31,P32	TB8-8,9	I13L	70	36	8	PED 3						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 2 - TMP Ph1, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

US 23 Bus./NC 107 (E Main Street)
at
US 23 Bus. (Asheville Highway) / SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME

Signed by: Brittany Groome 1E09340E1094454... 8/26/2025

SIG. INVENTORY NO. 14-0397T2

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

PED 3 PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Detector >Ped Det Plans

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	3				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1

NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16

NOTICE FLASH RED

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	3	4	7
Type	FYA 4 - Section	Normal	Normal
Included Phases	6	4	1
Modifier Phases	-	-	-
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 2 - TMP Ph1, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical and Programming Details For:

US 23 Bus./NC 107 (E Main Street)
at
US 23 Bus. (Asheville Highway) /
SR 1355 (Sunrise Park)

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

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

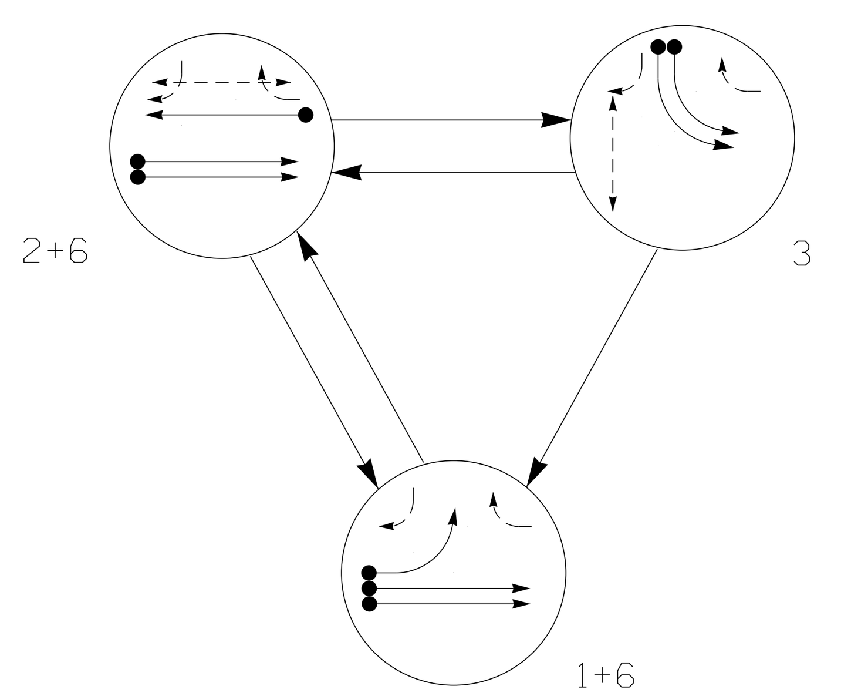
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by:
Brittany Groome 8/26/2025
1E09340E1094484...

SIG. INVENTORY NO. 14-0397T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-5.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

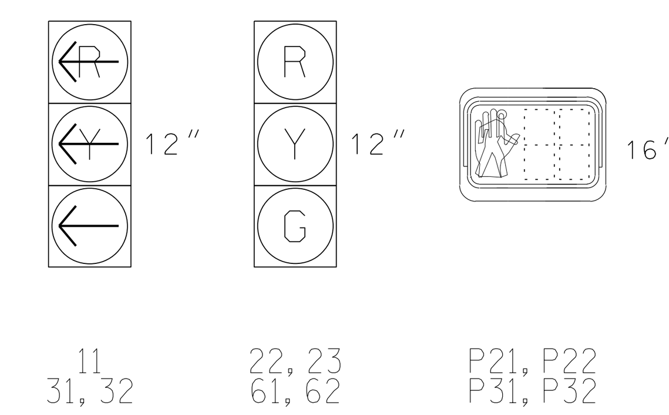
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+6	PHASE 2+6	PHASE 3	PHASE FLASH
11	←	←R	←R	←R
21,22	R	G	R	R
31,32	←R	←R	←	←R
61,62	G	G	R	R
P21,P22	DW	W	DW	DRK
P31,P32	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

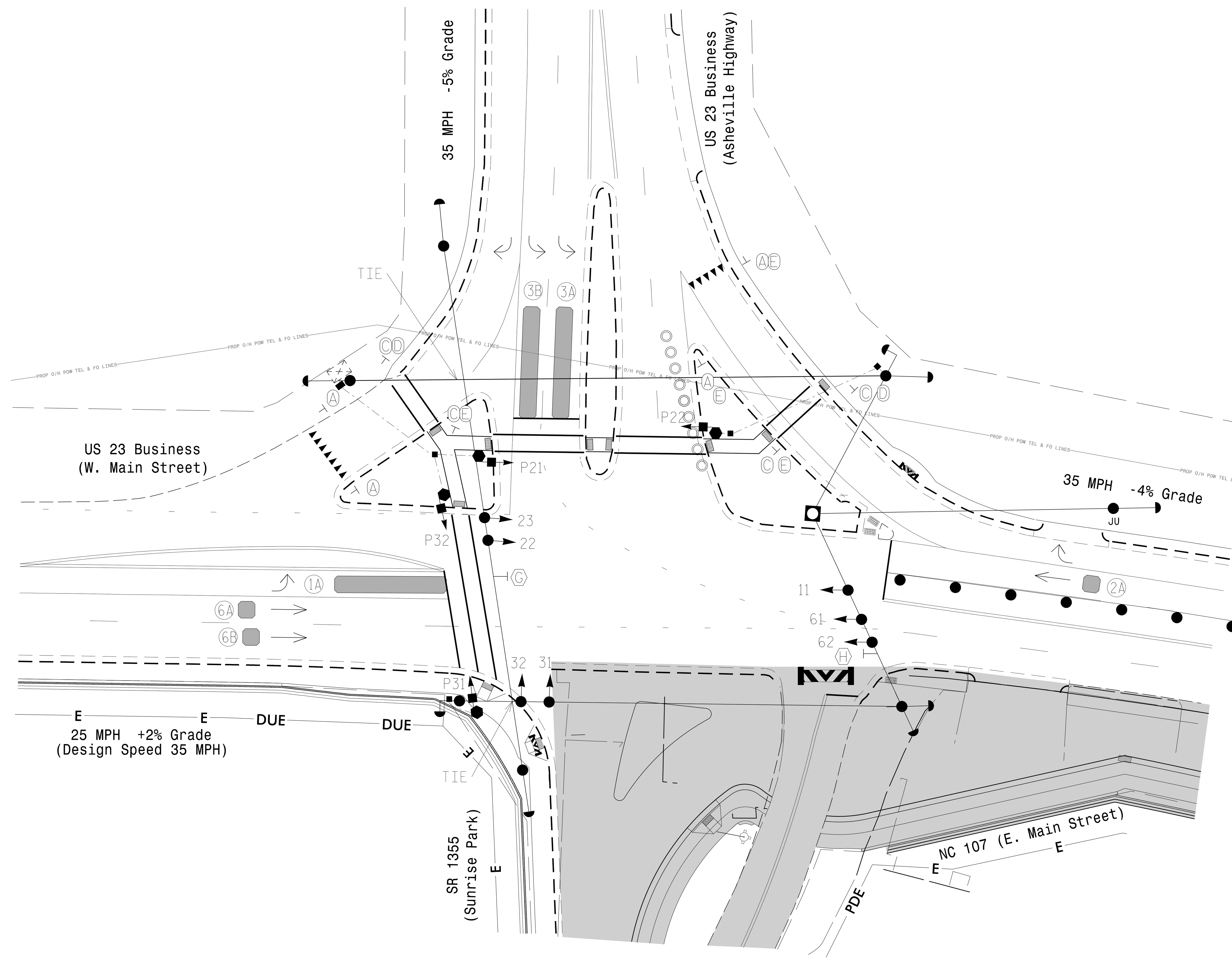
DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	-	1	-	-	X	-	X	-	*
2A	*	70	*	-	2	-	-	X	-	X	-	*
3A	*	0	*	-	3	-	-	X	-	X	-	*
3B	*	0	*	-	3	-	-	X	-	X	-	*
6A	*	70	*	-	6	-	-	X	-	X	-	*
6B	*	70	*	-	6	-	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

3 Phase
Fully Actuated
(Time Based Coordination)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Remove existing 4 secton signal head numbered 32 and replace with new 3 section head.
5. Repostion existing signal head numbered 31.
6. Disconnect and bag existing signal head 33.
7. Set all detector units to presence mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
11. 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	
	Oversized Junction Box	
	2-in Underground Conduit	
DD	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
N/A	Curb Ramp	
N/A	Truncated Dome	
	Non-Intrusive Detection Zone	
	Construction Zone	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Work Zone Drums	
N/A	Tubular Markers	
N/A	Work Zone Traffic Barricade	
N/A	Construction Easement	E
N/A	Perm. Drainage/Utility Easement	DUE
N/A	Perm. Drainage Easement	PDE
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ
Ⓑ	"NO TURN ON RED" Sign (R10-11a)	Ⓑ
Ⓒ	Pedestrian Crossing Sign (W11-2)	Ⓒ
Ⓓ	Left Downward Diagonal Arrow Plaque (W16-7pL)	Ⓓ
Ⓔ	Right Downward Diagonal Arrow Plaque (W16-7R)	Ⓔ
Ⓕ	"NO MERGE AREA" Plaque (W4-5P)	Ⓕ
Ⓖ	No Left Turn Sign (R3-2)	Ⓖ
Ⓗ	No Right Turn (R3-1	Ⓗ

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	6
Walk *	–	13	14	–
Ped Clear	–	18	16	–
Min Green *	7	10	7	10
Passage *	2.0	3.0	2.0	3.0
Max 1 *	25	70	50	85
Yellow Change	3.0	4.1	3.1	4.1
Red Clear	2.9	3.7	4.4	3.7
Added Initial *	–	–	–	–
Maximum Initial *	–	–	–	–
Time Before Reduction *	–	–	–	–
Time To Reduce *	–	–	–	–
Minimum Gap	–	–	–	–
Advance Walk	–	–	–	–
Non Lock Detector	X	6	7	–
Vehicle Recall	–	MIN RECALL	–	MIN RECALL
Dual Entry	–	–	–	–

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

Signal Upgrade
Temporary Design 3 - TMP Ph1, S4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Highway)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS | INIT. | DATE

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

Plans Prepared By:
DRMP
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8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SCALE 0 30
1"=30'

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
DATE

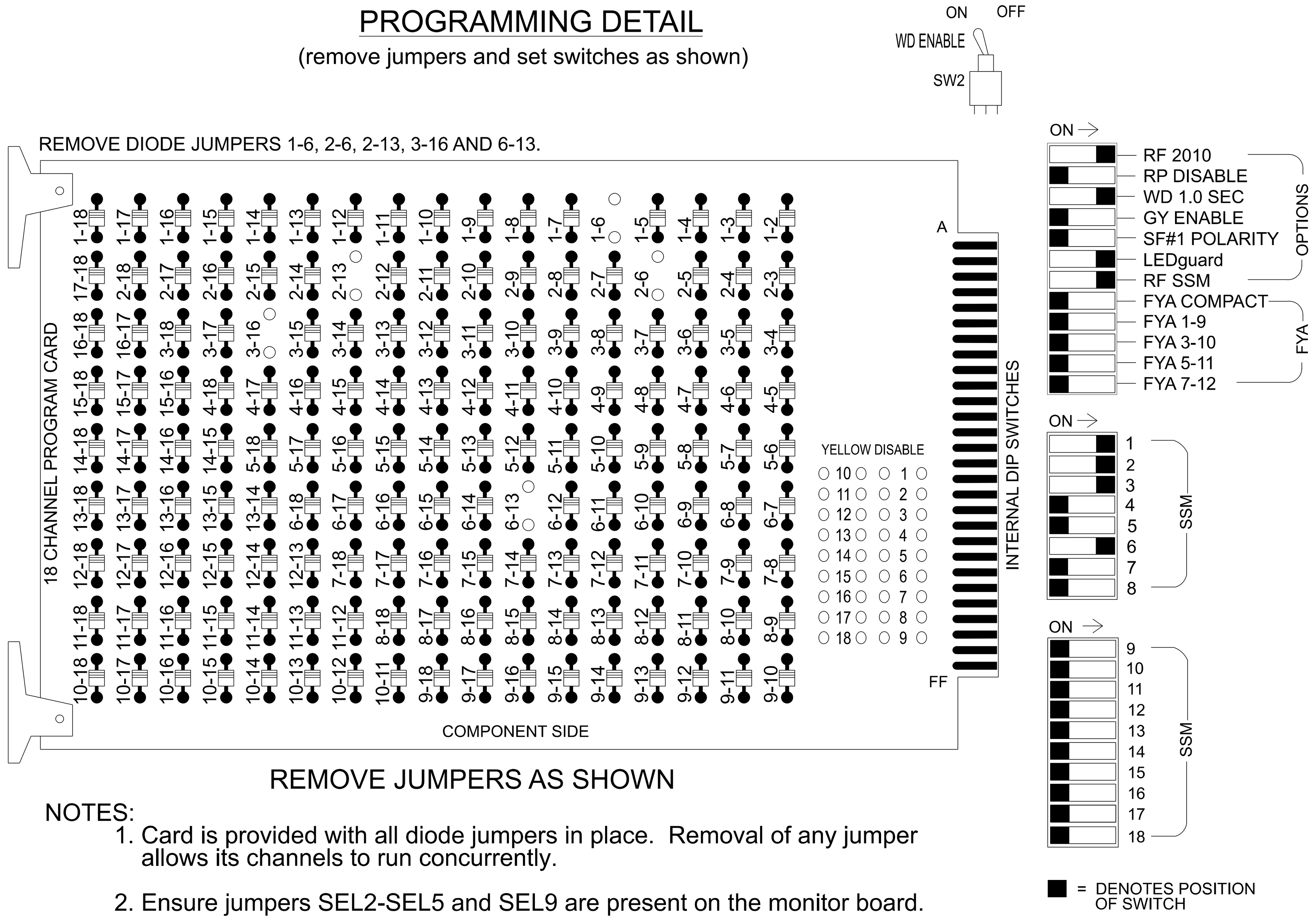
SIG. INVENTORY NO. 14-0397T3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-5.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 2-6, 2-13, 3-16 AND 6-13.



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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller..2070LX
Cabinet..332 w/ Aux
Software...Q-Free MAXTIME
Cabinet Mount....................................Base
Output File Positions...........................18 With Aux. Output File
Load Switches Used............................S1, S2, S3, S4, S8, S12
Phases Used.......................................1, 2, 2PED, 3, 3PED, 6
Overlap "1"..NOT USED
Overlap "2"..NOT USED
Overlap "3"..NOT USED
Overlap "4"..NOT USED
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*

*See overlap programming detail on sheet 2.

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	OL7	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	3 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11	22,23	P21, P22	31,32	NU	NU	NU	61,62	NU	NU	NU	P31, P32	NU	NU	NU	NU	NU	NU
RED		128						134										
YELLOW		129						135										
GREEN		130						136										
RED ARROW	125			116														
YELLOW ARROW	126			117														
FLASHING YELLOW ARROW																		
GREEN ARROW	127			118														
(hand symbol)			113									110						
(pedestrian symbol)			115									112						

NU = Not Used, NC = Not Connected
* Denotes install load resistor. See load resistor installation detail this sheet.

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters	Unit Flash Parameters
StartUp Clearance Hold	All Red Flash Exit Time
6	6

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
	L												NOT USED	Ø 3 PED DC ISOLATOR	ST DC ISOLATOR
"J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

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.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P31,P32	TB8-8,9	I13L	70	36	8	PED 3						

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: 14-0397T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

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 2
Temporary Design 3 - TMP Ph1, S4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical and Programming Details For:
US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Highway) / SR 1355 (Sunrise Park)

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

Division 14	Jackson County		Sylva
PLAN DATE: August 2025		REVIEWED BY: ZM Esposito	
PREPARED BY: DJ White		REVIEWED BY: BN Groome	
REVISIONS		INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025

SIG. INVENTORY NO. 14-0397T3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-5.2

PED 3 PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Detector >Ped Det Plans

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1

NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Overlap	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	3				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE FLASH RED

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	7
Type	Normal
Included Phases	1
Modifier Phases	-
Trail Green	0
Trail Yellow	0.0
Trail Red	0.0

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 2 of 2
Temporary Design 3 - TMP Ph1, S4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Highway) /
SR 1355 (Sunrise Park)

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

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

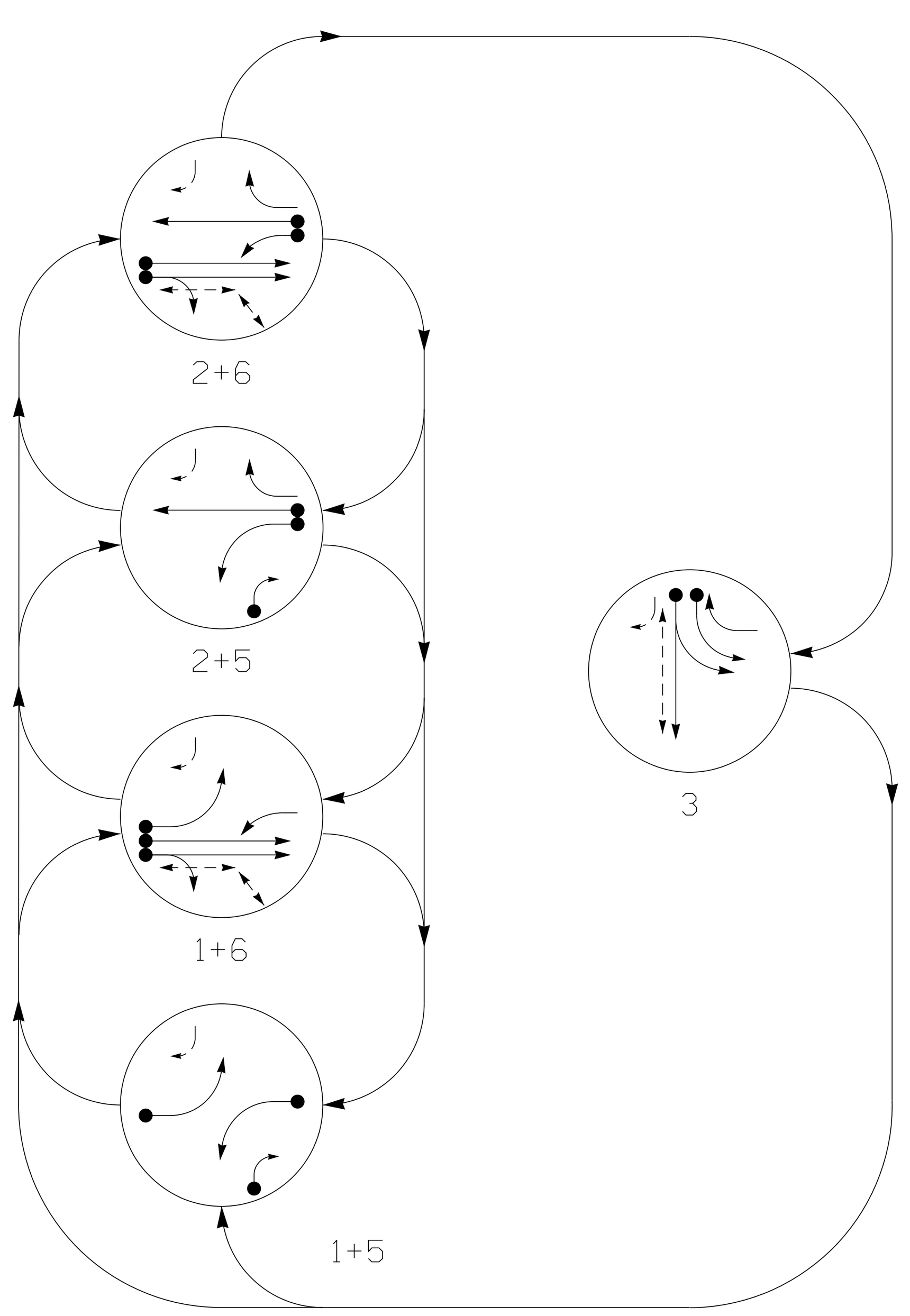
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
1E09340E1094484...

SIG. INVENTORY NO. 14-0397T3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-6.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

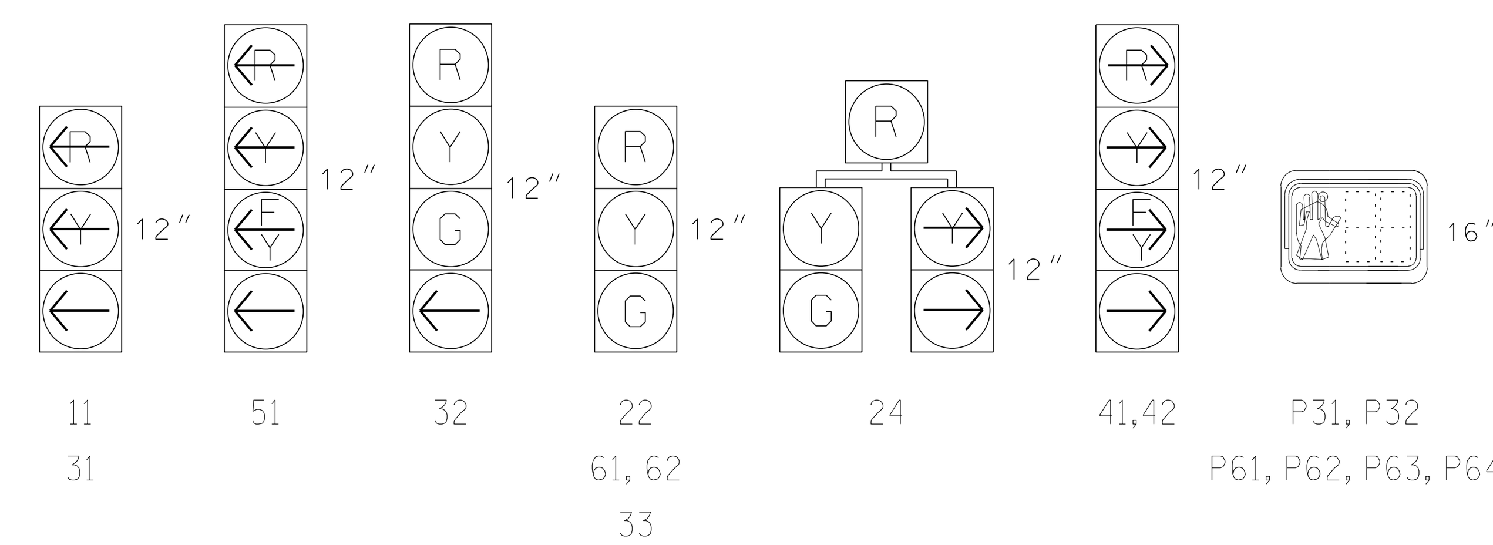
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 3	PHASE FLASH
11	←	←	←R	←R	←R	←R
22	R	R	G	G	R	R
24	R	R	G	G	R / →	R
31	←R	←R	←R	←R	←	←R
32	R	R	R	R	G / ←	R
33	R	R	R	R	G	R
41, 42	F/Y →	R→	F/Y →	R→	R→	R→
51	←	← F/Y	←	← F/Y	←R	←R
61, 62	R	G	R	G	R	R
P31, P32	DW	DW	DW	DW	W	DRK
P61, P62 P63, P64	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	-	-	X	-	X	-	*
2A	*	70	*	X	2	-	-	X	-	X	-	*
3A	*	0	*	-	3	3.0	-	X	-	X	-	*
3B	*	0	*	-	3	-	-	X	-	X	-	*
4A**	*	0	*	X	5	5.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
6A	*	70	*	X	6	-	-	X	-	X	-	*
6B	*	70	*	X	6	-	-	X	-	X	-	*

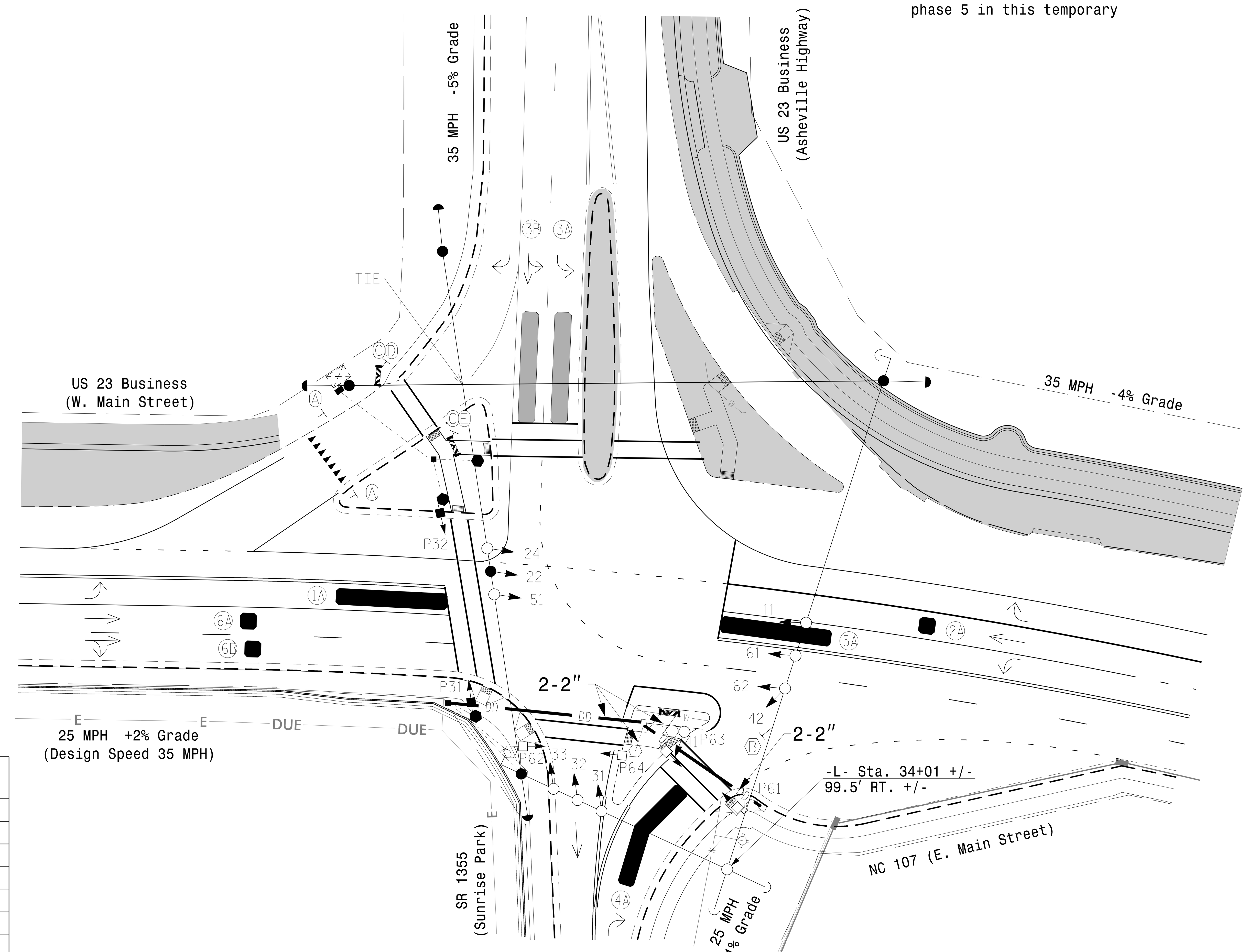
* Multi-Zone Microwave Detection Zone

* * Maintain loop name for consistency, note loop calls phase 5 in this temporary

5 Phase
Fully Actuated
(Time Based Coordination)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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. Bag and disconnect signal head 23. Disconnect the green arrow in signal heads 41 and 42.
5. Reposition existing signal head numbered 22.
6. Bag and disconnect pedestrian head and pushbutton P21.
7. Unbag and reconnect existng signal head numbered 33.
8. Set all detector units to presence mode.
9. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
10. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
11. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
12. 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	
	Oversized Junction Box	
	2-in Underground Conduit	
DD	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
N/A	Curb Ramp	
N/A	Truncated Dome	
	Non-Intrusive Detection Zone	
	Construction Zone	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Work Zone Traffic Barricade	
N/A	Construction Easement	E
N/A	Perm. Drainage/Utility Easement	DUE
N/A	Perm. Drainage Easement	PDE
N/A	U/G Water Line	
	Prop. Drainage Pipe	
A	"YIELD" Sign (R1-2)	A
B	"NO TURN ON RED" Sign (R10-11a)	B
C	Pedestrian Crossing Sign (W11-2)	C
D	Left Downward Diagonal Arrow Plaque (W16-7pL)	D
E	Right Downward Diagonal Arrow Plaque (W16-7pL)	E

MAXTIME TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 3	PHASE 5	PHASE 6
Walk *	–	–	14	–	14
Ped Clear	–	–	15	–	20
Min Green *	7	10	7	7	10
Passage *	2.0	3.0	2.0	2.0	3.0
Max 1 *	25	85	30	25	85
Yellow Change	3.0	4.1	4.2	3.0	4.1
Red Clear	3.1	3.6	3.4	2.4	3.6
Added Initial *	–	–	–	–	–
Maximum Initial *	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–
Time To Reduce *	–	–	–	–	–
Minimum Gap	–	–	–	–	–
Advance Walk	–	–	7	–	7
Non Lock Detector	X	–	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	MIN RECALL
Dual Entry	–	–	–	–	–

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

Signal Upgrade
Temporary Design 4 - TMP Ph2, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

SCALE 0 30' 1"=30'

US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Highway)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

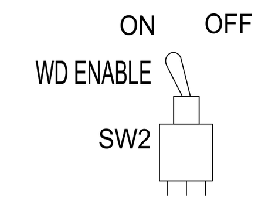
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
DATE

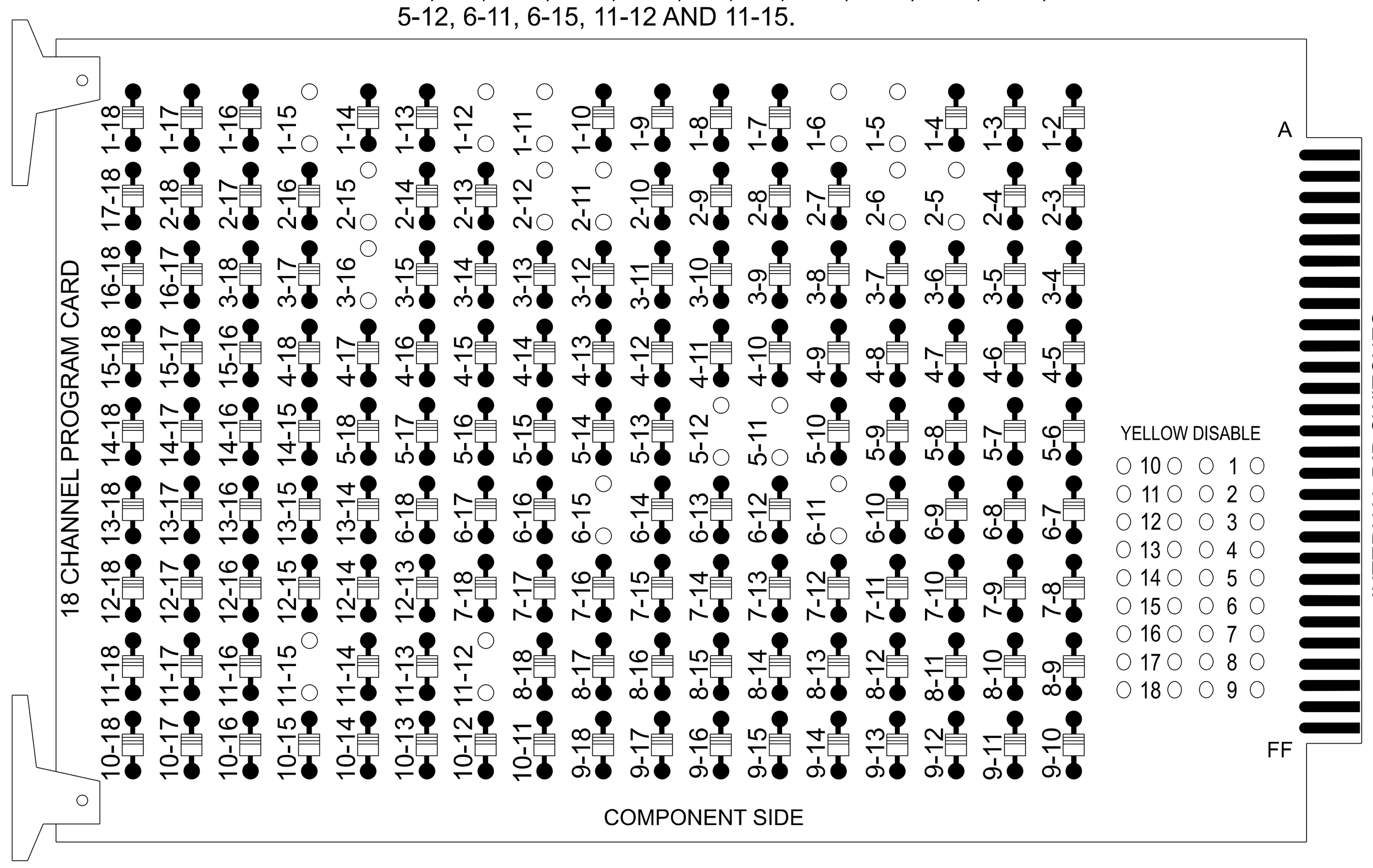
SIG. INVENTORY NO. 14-0397T4

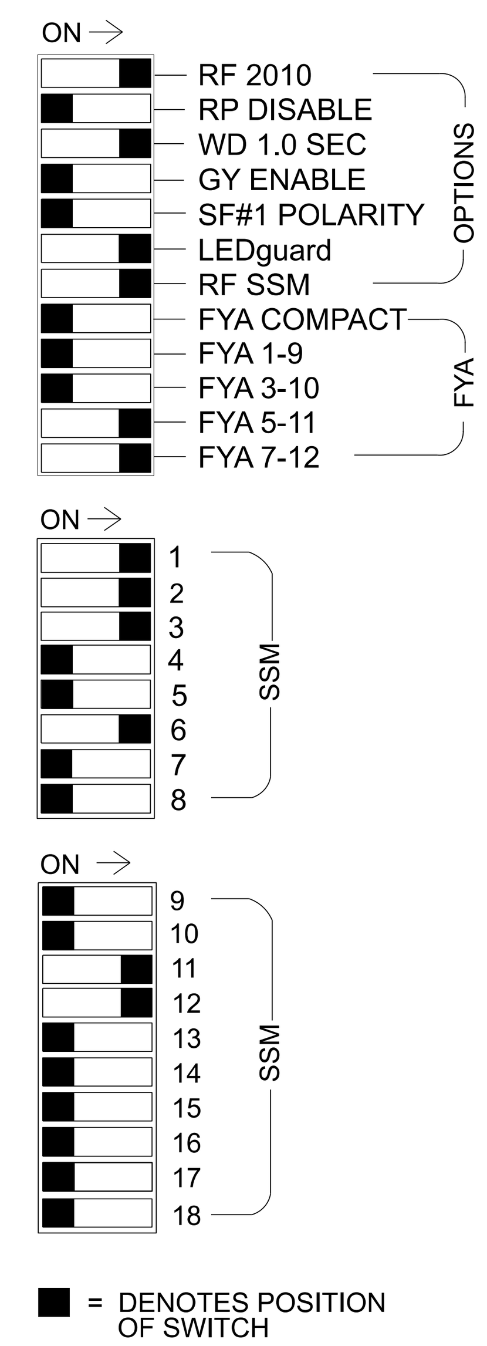
18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 1-11, 1-12, 1-15, 2-5, 2-6, 2-11, 2-12, 2-15, 3-16, 5-11 5-12, 6-11, 6-15, 11-12 AND 11-15.





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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller...2070LX
Cabinet...332 w/ Aux
Software...Q-Free MAXTIME
Cabinet Mount.......................................Base
Output File Positions...........................18 With Aux. Output File
Load Switches Used............................S1, S2, S4, S7, S8, S9, S12, AUX S4, AUX S5
Phases Used..1, 2, 3, 3PED, 5, 6, 6PED
Overlap "1"...NOT USED
Overlap "2"...NOT USED
Overlap "3"...*
Overlap "4"...*
Overlap "5"...NOT USED
Overlap "6"...NOT USED
Overlap "7"...*

*See overlap programming detail on sheet 2.

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	OL7	2	2 PED	3				4	4 PED	5	6	6 PED	7	8	3 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11	22,24	NU	24	31	32	33	NC	NU	51★	61,62	P61,P62, P63,P64	NC	NU	P31, P32	NU	NU	NU	51★	41,42★	NU
RED		128				107	107				134										
YELLOW		129				108	108			*	135										
GREEN		130				109	109				136										
RED ARROW	125				107														A114	A101	
YELLOW ARROW	126			108	108														A115	A102	
FLASHING YELLOW ARROW																			A116	A103	
GREEN ARROW	127			109	109	109				133											
(Don't Walk)												119			110						
(Walk)												121			112						

NU = Not Used, NC = Not Connected
* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L													Ø3 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED													

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

FS = FLASH SENSE
ST = STOP TIME

Note: For Detection Zone 5A the equipment and slots reserved are typical for a NCDOT Installation.

INPUT FILE CONNECTION & PROGRAMMING CHART

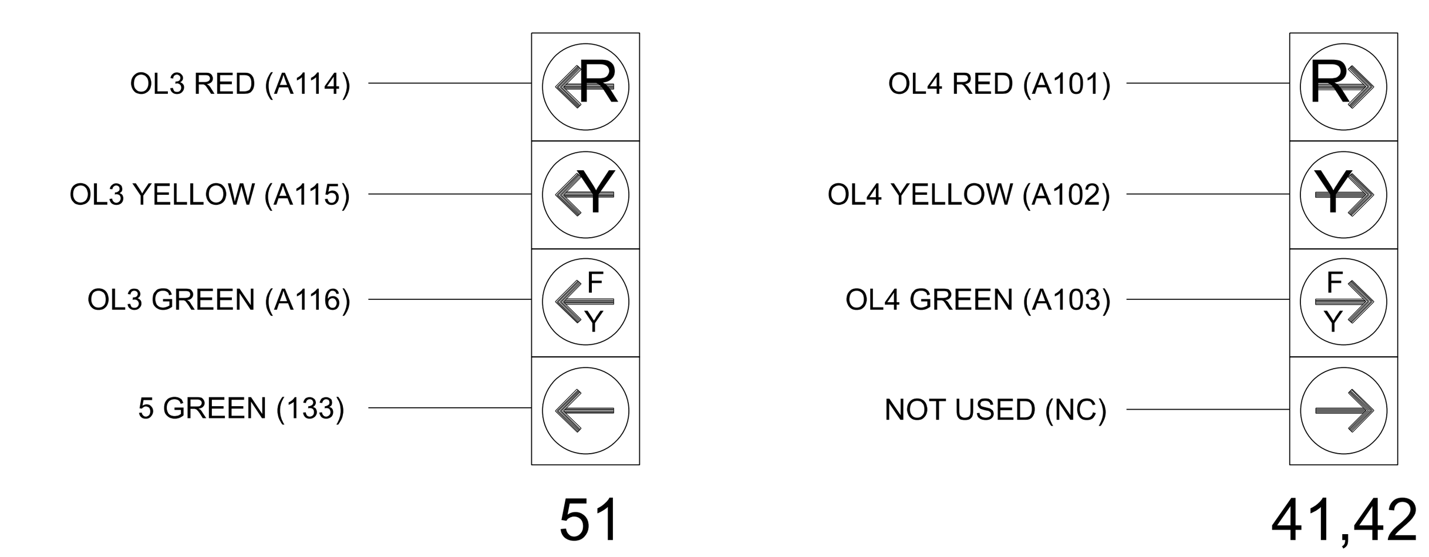
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2	-		X		X	
PED PUSH BUTTONS												
P61,P62 P63,P64	TB8-7,9	I13U	68	34	6	PED 6						
P31,P32	TB8-8,9	I13L	70	36	3	PED 3						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

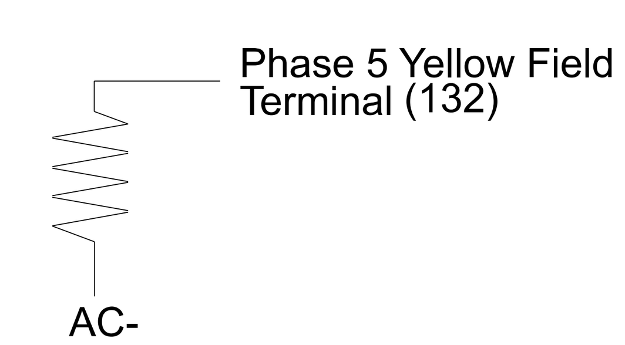


THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T4
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For zone 5A, detector card placement is typical for a NCDOT Installation. Detectors associated with these slots are compatible with the Vehicle Detector Programming Detail located on sheet 2 of this electrical detail.

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 4 - TMP Ph2, S1

Electrical and Programming Details For:

US 23 Bus./NC 107 (E Main Street)
at
US 23 Bus. (Asheville Highway) / SR 1355 (Sunrise Park)

Transportation Mobility and Safety Division — ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

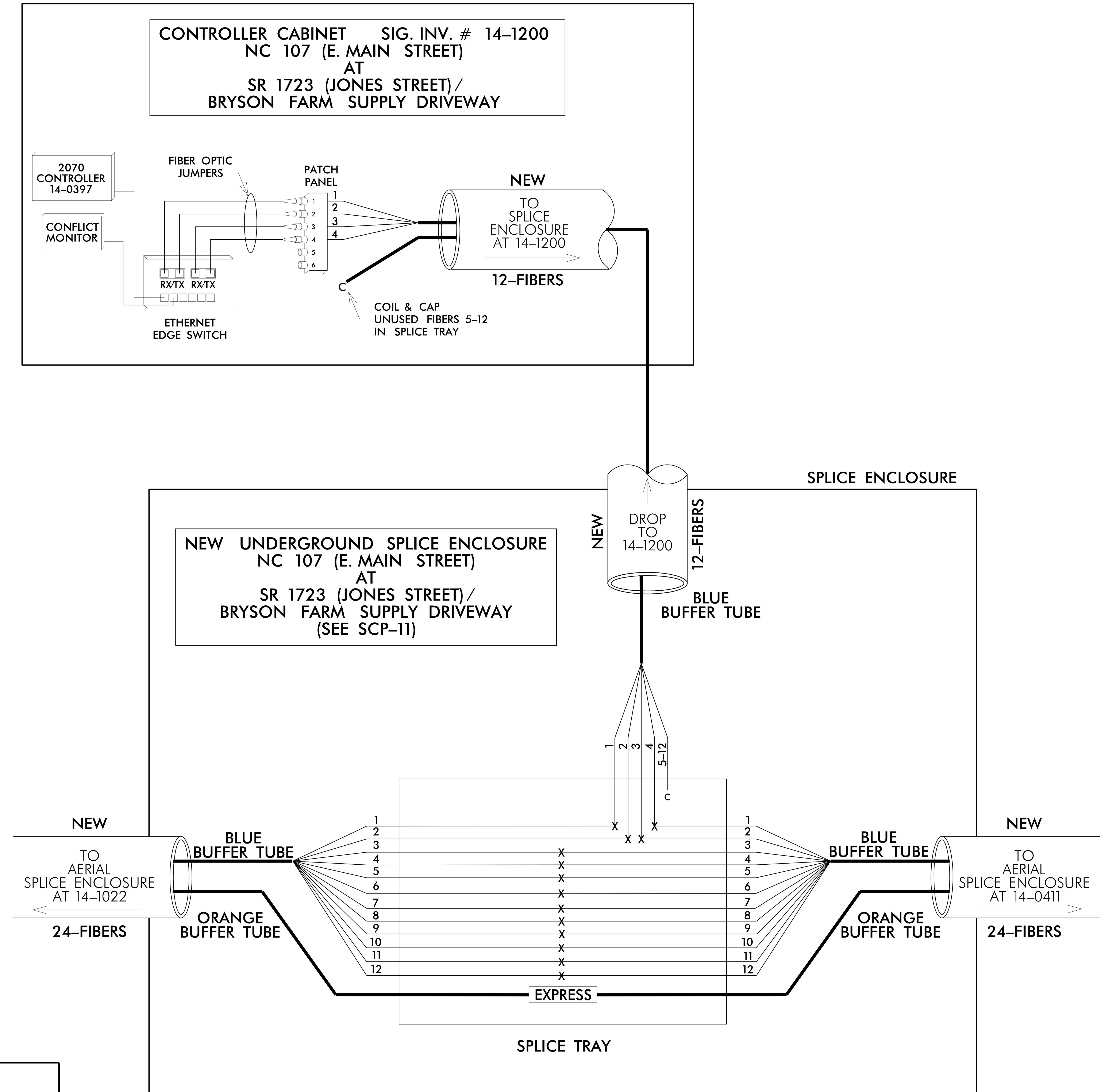
Division 14	Jackson County		Sylva
PLAN DATE: August 2025		REVIEWED BY: ZM Esposito	
PREPARED BY: DJ White		REVIEWED BY: BN Groome	
REVISIONS		INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome
8/26/2025

SIG. INVENTORY NO. 14-0397T4

PROJECT REFERENCE NO.	SHEET NO.
R-5600	SCP-20



NOTES

1. FOURTEEN (14) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 14 DEPUTY TRAFFIC ENGINEER AT (828)331-5253 TO ARRANGE FOR DIVISION 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 DEPUTY TRAFFIC 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. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.

3. 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 SPLICE

4. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.

5. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.

LEGEND

Color Code
TIA/EIA 598-B

BL	(1) Blue	RD	(7) Red
OR	(2) Orange	BK	(8) Black
GR	(3) Green	YL	(9) Yellow
BR	(4) Brown	VI	(10) Violet
SL	(5) Slate	RS	(11) Rose
WH	(6) White	AQ	(12) Aqua

X = Fusion Splice Individual Fiber

C = Cap and Seal

EXPRESS = Express entire buffer tube/fibers through without cutting

BUFFER SPLICE = Splice all fibers in buffer tube color to color

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

D14-14_NC 107
Splice Details

Division 14 Jackson County Sylva

PLAN DATE:	June 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

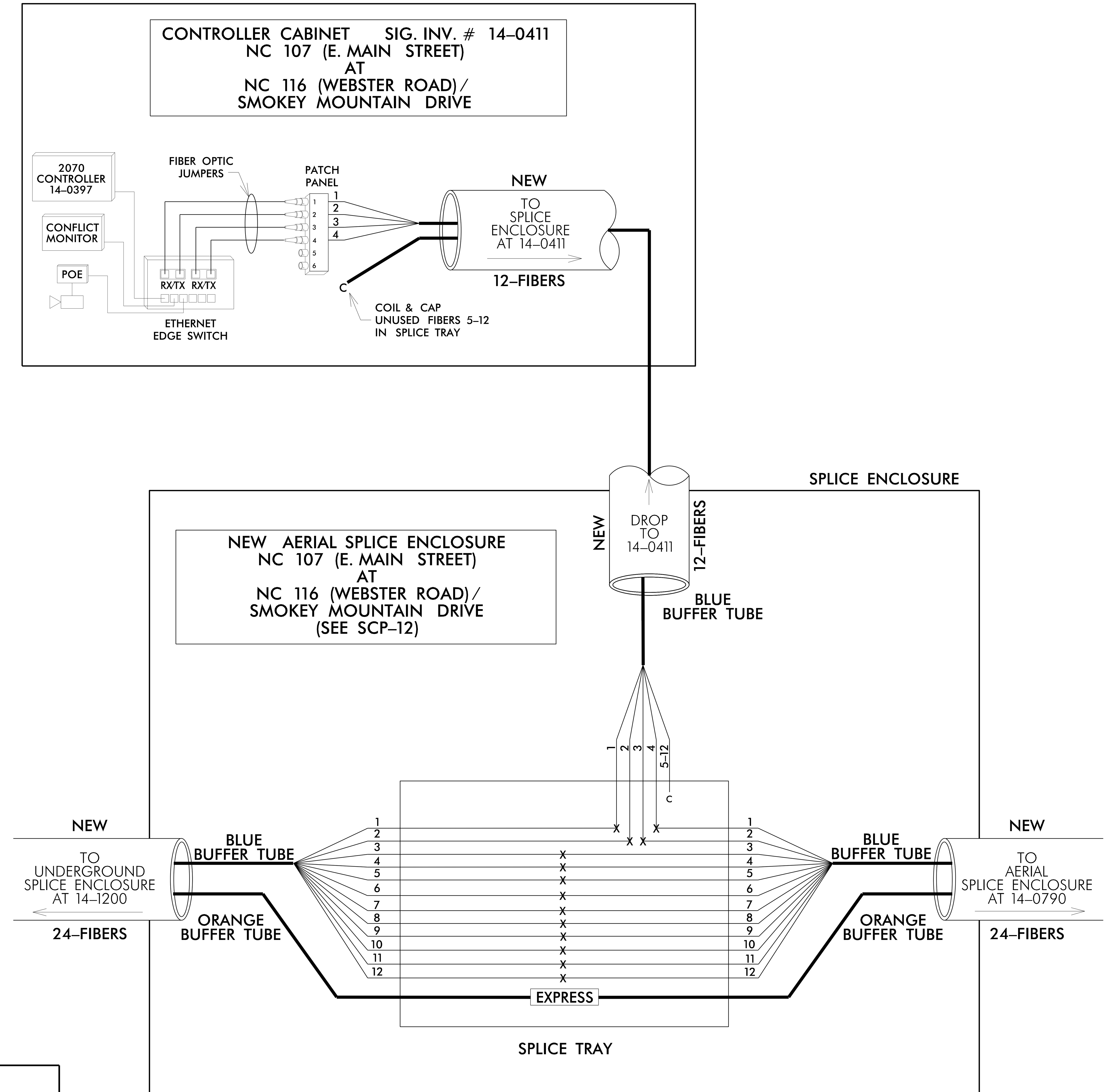
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 1E09340E1094484... 8/26/2025 DATE

PROJECT REFERENCE NO.	SHEET NO.
R-5600	SCP-21



NOTES

1. FOURTEEN (14) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 14 DEPUTY TRAFFIC ENGINEER AT (828)331-5253 TO ARRANGE FOR DIVISION TO PRAGRAM 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 DEPUTY TRAFFIC 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. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
3. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
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LEGEND

Color Code

TIA/EIA	598-B		
BL	(1) Blue	RD	(7) Red
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GR	(3) Green	YL	(9) Yellow
BR	(4) Brown	VI	(10) Violet
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D14-14_NC 107
Splice Details

Division 14 Jackson County Sylva

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PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

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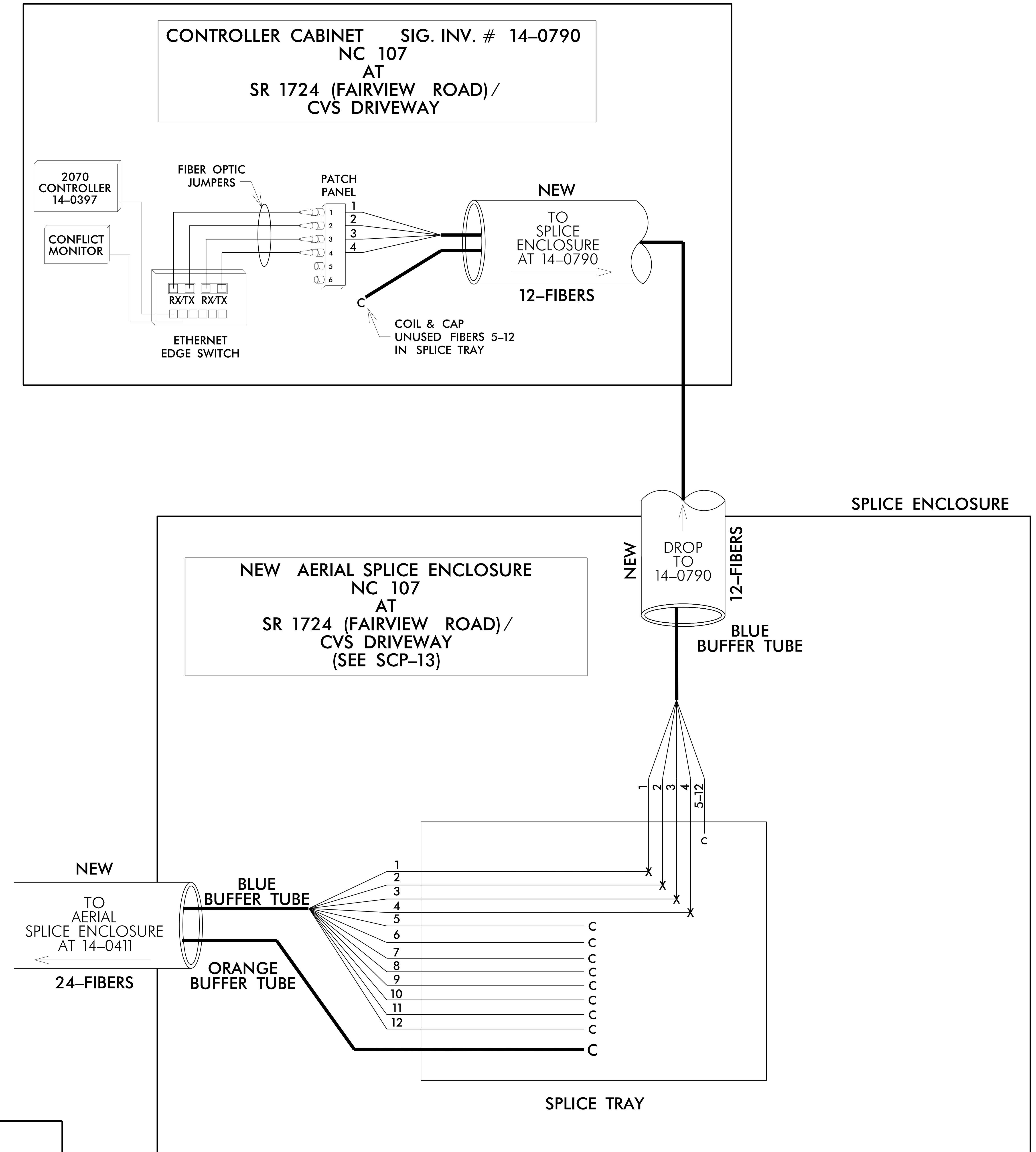
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025

DATE



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Signed by:
Brittany Groome
1E09340E1094484...
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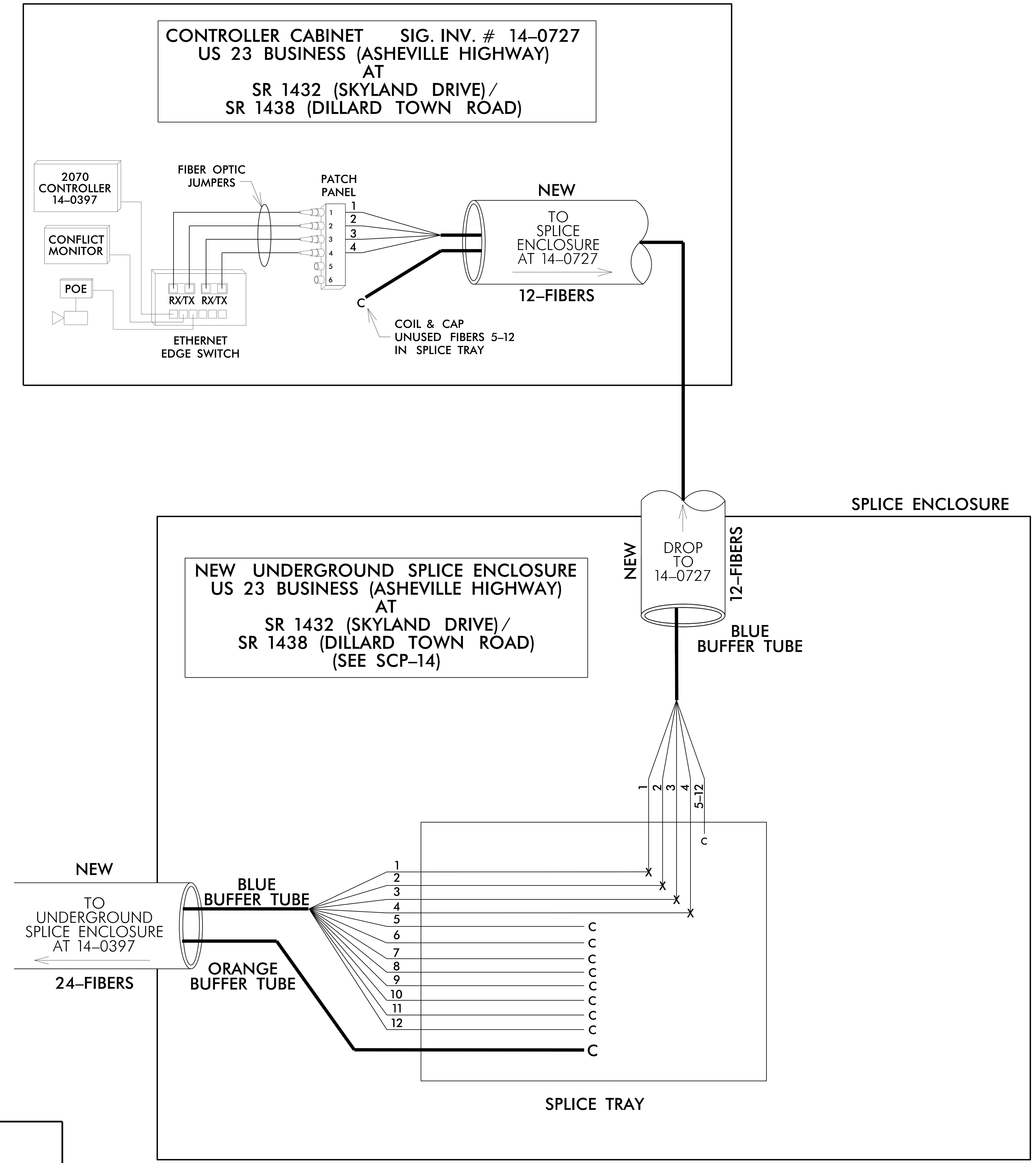
DATE

PROJECT REFERENCE NO.	SHEET NO.
R-5600	SCP-23



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D14-14_NC 107
Splice Details

Division 14 Jackson County Sylva

PLAN DATE:	June 2025	REVIEWED BY:	ZM Esposito
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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 1E09340E1094484... 8/26/2025
DATE

PED 3 PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Detector >Ped Det Plans

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Overlap	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	3				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE PHASE 1 ASSIGNED TO OVERLAP 7

NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16

NOTICE FLASH RED

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-6.2

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	3	4	7
Type	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	6	5	1
Modifier Phases	5	-	-
Modifier Overlaps	-	-	-
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T4
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 2 of 2
Temporary Design 4 - TMP Ph2, S1

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Electrical and Programming Details For:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Traffic Engineering Branch
Signals & Signal Management Section

750 N. Greenfield Pkwy, Garner, NC 27529

US 23 Bus./NC 107 (E Main Street)
at
US 23 Bus. (Asheville Highway) /
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

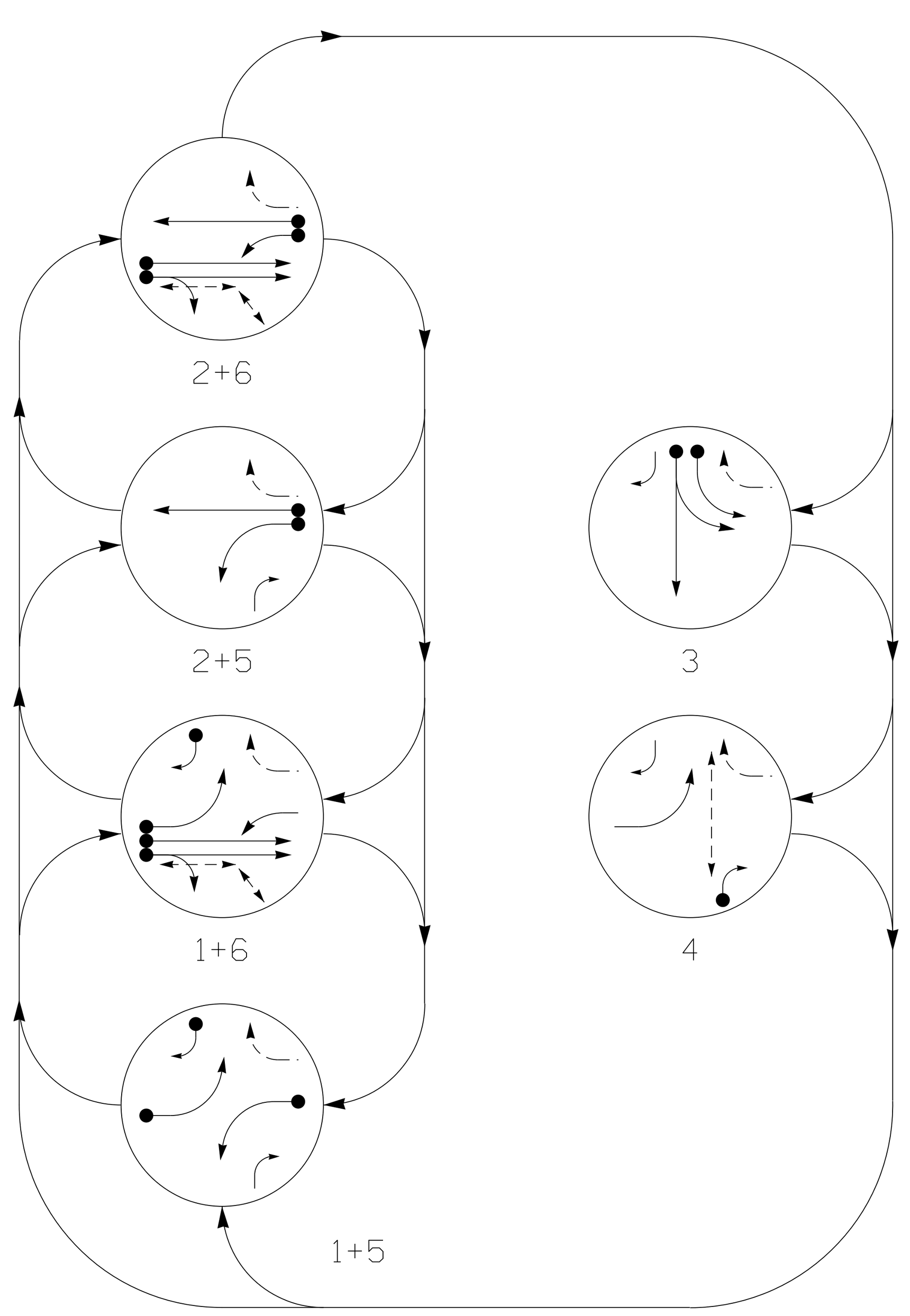
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
1E09340E1094454...

SIG. INVENTORY NO. 14-0397T4

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

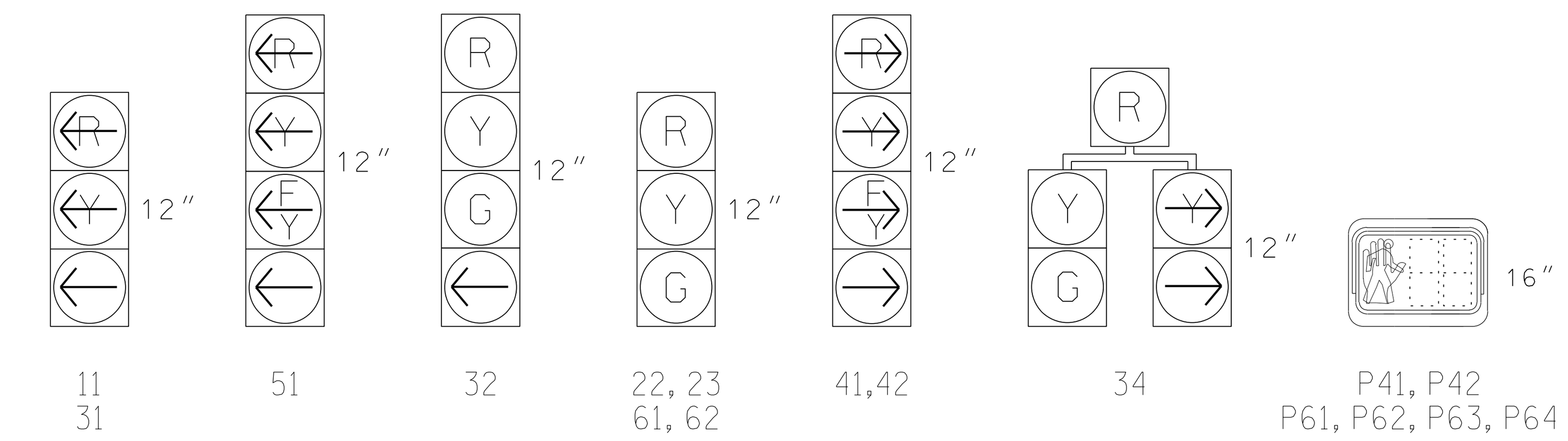
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 3	PHASE 4	FLASH
11	←	←	←R	←R	←R	←	←R
22, 23	R	R	G	G	R	R	R
31	←R	←R	←R	←R	←	←R	←R
32	R	R	R	R	G ←	R	R
34	R / →	R / →	R	R	G	R / →	R
41, 42	F/Y →	R→	F/Y →	R→	R→	→	R→
51	←	F/Y ←	←	F/Y ←	←R	←R	←R
61, 62	R	G	R	G	R	R	R
P41, P42	DW	DW	DW	DW	DW	W	DRK
P61, P62 P63, P64	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

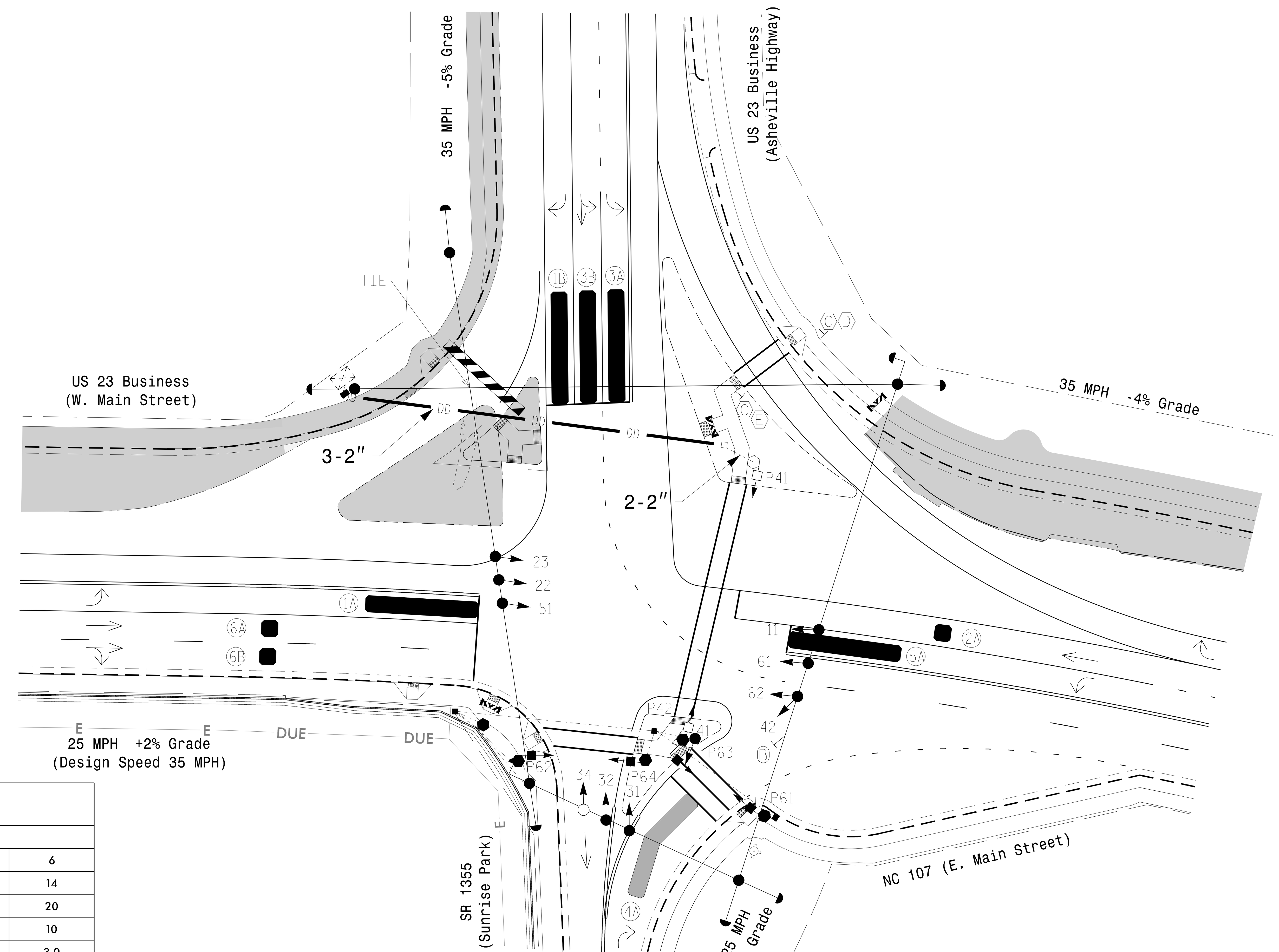
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
DETECTOR					PROGRAMMING							
1A	*	0	*	X	1	-	-	X	-	X	-	*
1B	*	0	*	X	1	15.0	-	X	-	X	-	*
2A	*	70	*	X	2	-	-	X	-	X	-	*
3A	*	0	*	X	3	3.0	-	X	-	X	-	*
3B	*	0	*	X	3	-	-	X	-	X	-	*
4A	*	0	*	-	4	5.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
6A	*	70	*	X	6	-	-	X	-	X	-	*
6B	*	70	*	X	6	-	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

6 Phase
Fully Actuated
(Time Based Coordination)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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. The order of phase 3 and 4 may be reversed.
5. Reposition existing signal heads numbered 22, 31 and 32.
6. Bag and disconnect pedestrian head and pushbutton P31.
7. Unbag and reconnect signal head 23. Repostion as necessary.
8. Set all detector units to presence mode.
9. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
10. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
11. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
12. 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	
	Oversized Junction Box	
	2-in Underground Conduit	
DD	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
N/A	Curb Ramp	
N/A	Truncated Domes	
	Non-Intrusive Detection Zone	
	Construction Zone	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Work Zone Traffic Barricade	
N/A	Construction Easement	E
N/A	Perm. Drainage/Utility Easement	DUE
B	"NO TURN ON RED" Sign (R10-11a)	B
C	Pedestrian Crossing Sign (W11-2)	C
D	Left Downward Diagonal Arrow Plaque (W16-7pL)	D
E	Right Downward Diagonal Arrow Plaque (W16-7pR)	E

MAXTIME TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6
Walk *	–	–	–	13	–	14
Ped Clear	–	–	–	11	–	20
Min Green *	7	10	7	7	7	10
Passage *	2.0	3.0	2.0	2.0	2.0	3.0
Max 1 *	25	85	20	25	25	85
Yellow Change	3.0	4.1	4.2	3.0	3.0	4.1
Red Clear	2.1	2.2	2.3	1.9	3.3	2.2
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	–	–	6	–	7
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

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

Signal Upgrade
Temporary Design 5 - TMP Ph2, S2

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

US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Hwy)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SCALE 0 30′ 1″=30′

N

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

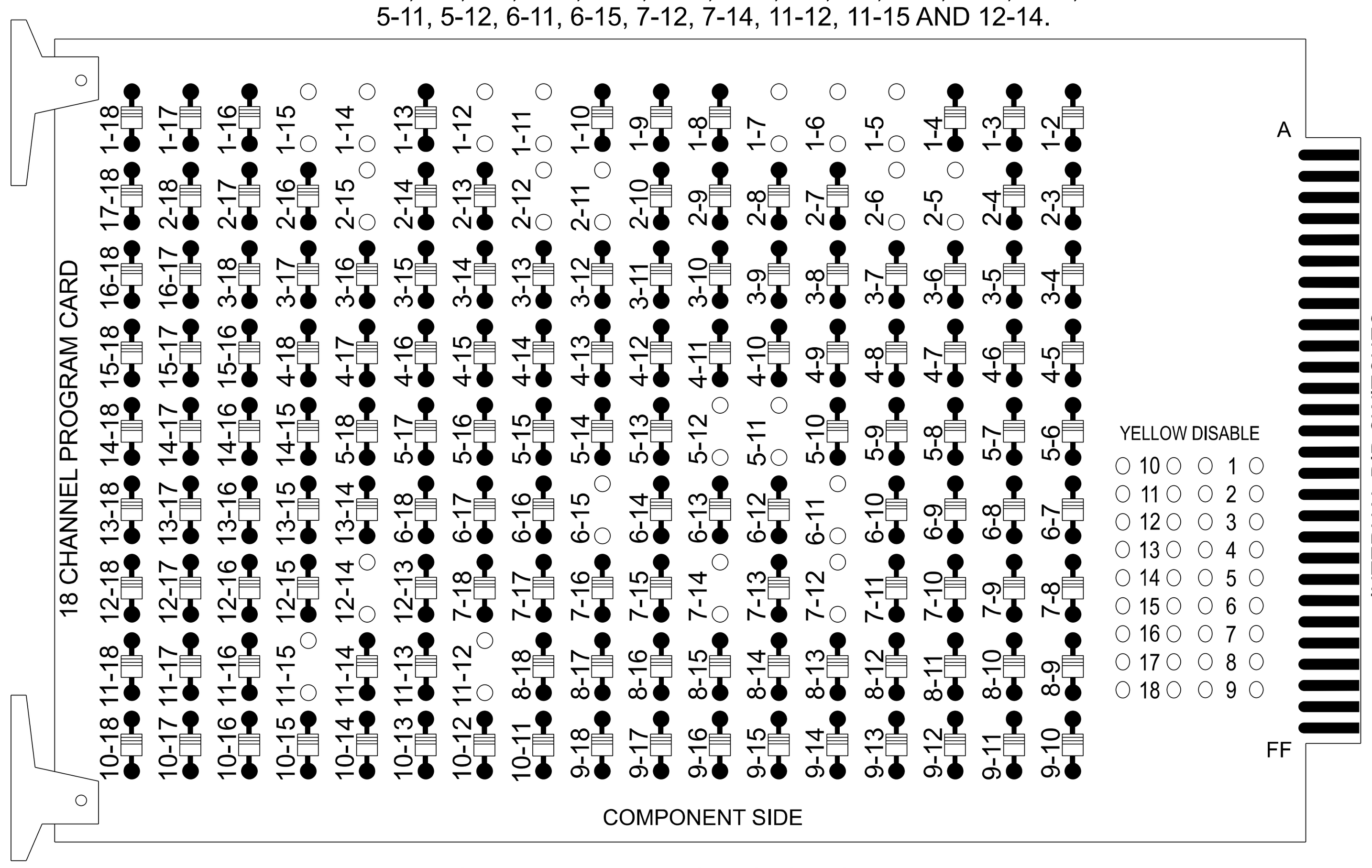
Signed by: Brittany Groome 1E09340E1094484... 8/26/2025 DATE

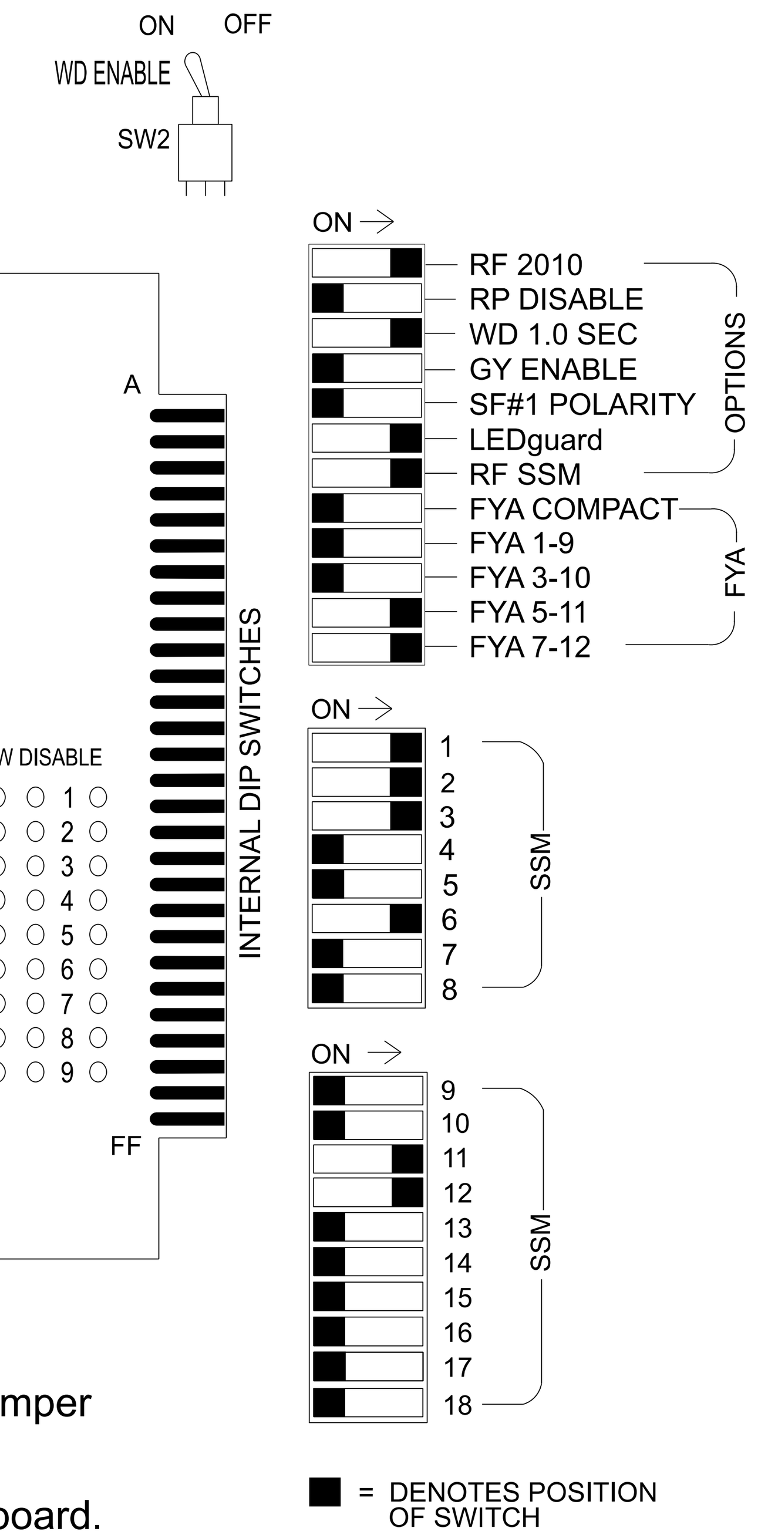
SIG. INVENTORY NO. 14-0397T5

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-7, 1-11, 1-12, 1-14, 1-15, 2-5, 2-6, 2-11, 2-12, 2-15, 5-11, 5-12, 6-11, 6-15, 7-12, 7-14, 11-12, 11-15 AND 12-14.





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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller..2070LX
Cabinet..332 w/ Aux
Software..Q-Free MAXTIME
Cabinet Mount..Base
Output File Positions..............................18 With Aux. Output File
Load Switches Used..............................S1, S2, S4, S6, S7, S8, S9, S10, AUX S4, AUX S5
Phases Used..1, 2, 3, 4, 4PED, 5, 6, 6PED
Overlap "1"..NOT USED
Overlap "2"..NOT USED
Overlap "3"..*
Overlap "4"..*
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*
Overlap "8"..*

*See overlap programming detail on sheet 2.

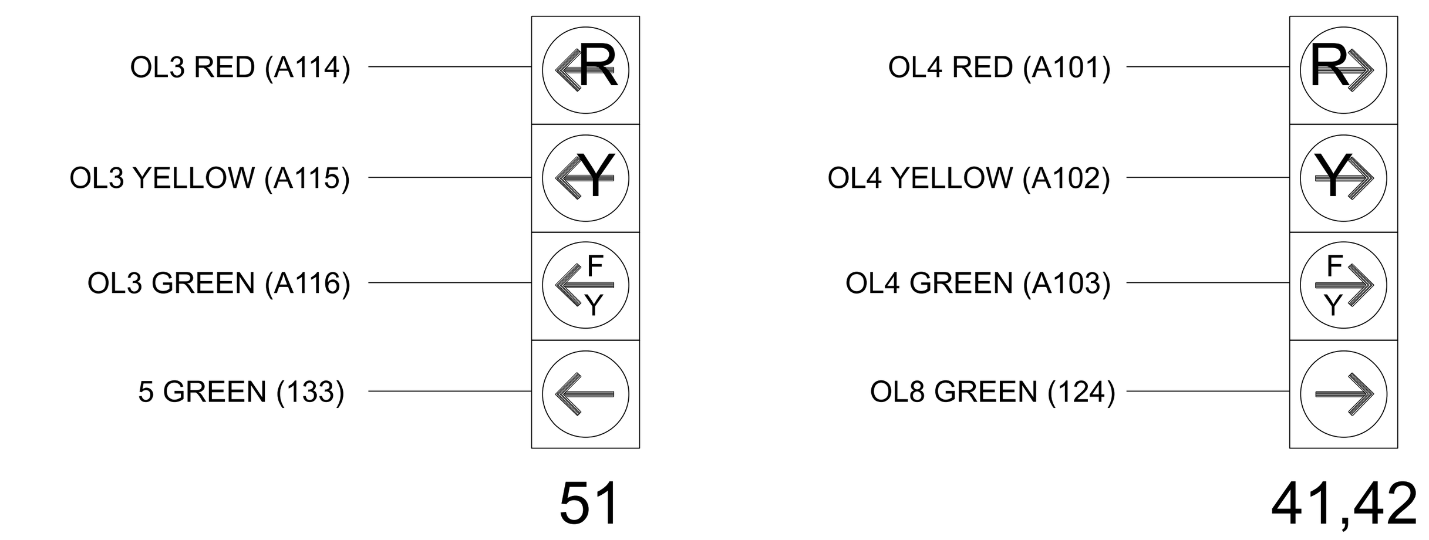
SIGNAL HEAD HOOK-UP CHART

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	OL7		2	2 PED	3			4	4 PED	5	6	6 PED	OL8	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11	34	22,23	NU	31	32	34	NC	P41, P42	51★	61,62	P61,P62 P63,P64	41,42★	NU	NU	NU	NU	NU	51★	41,42★	NU
RED			128			116	116				134										
YELLOW			129			117	117			*	135		*								
GREEN			130			118	118				136										
RED ARROW	125				116														A114	A101	
YELLOW ARROW	126	126			117														A115	A102	
FLASHING YELLOW ARROW																			A116	A103	
GREEN ARROW	127	127			118	118				133			124								
(Don't Walk hand)									104			119									
(Walk person)									106			121									

NU = Not Used
* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED	∅6 PED DC ISOLATOR	FS DC ISOLATOR
"I"	L												∅4 PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
"J"	U	∅5 5A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L	NOT USED													

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

FS = FLASH SENSE
ST = STOP TIME

Note: For Detection Zone 5A the equipment and slots reserved are typical for a NCDOT Installation.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2	-		X		X	
PED PUSH BUTTONS												
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62 P63,P64	TB8-7,9	I13U	68	34	6	PED 6						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

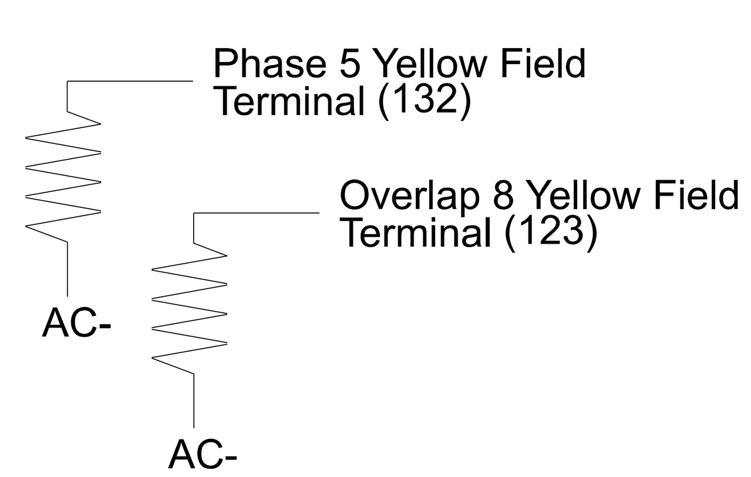
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T5
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For zone 5A, detector card placement is typical for a NCDOT Installation. Detectors associated with these slots are compatible with the Vehicle Detector Programming Detail located on sheet 2 of this electrical detail.

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 5 - TMP Ph2, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

US 23 Bus./NC 107 (E. Main Street)
at
US 23 Bus. (Asheville Hwy)/
SR 1355 (Sunrise Park)

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

Division 14 | Jackson County | Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025
1E09340E1094484...

SIG. INVENTORY NO. 14-0397T5

25-AUG-2025 12:32 ... R-5600 ... 14-0397T5 ... ktones AT CHA-KJONES

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Overlap	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Overlap	8		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	3				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE PHASE 1 ASSIGNED TO OVERLAP 7 (→ Channel 1)

NOTICE PHASE 7 ASSIGNED TO OVERLAP 8 (→ Channel 7)

NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16 (→ Channel 16)

NOTICE FLASH RED (↑ Flash Red column)

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	3	4	7	8
Type	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	6	5	1,4	4
Modifier Phases	5	4	-	-
Modifier Overlaps	-	-	-	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T5
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 5 - TMP Ph2, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
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Electrical and Programming Details For:

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

US 23 Bus./NC 107 (E. Main Street)
at
US 23 Bus. (Asheville Hwy)/
SR 1355 (Sunrise Park)

Division 14 | Jackson County | Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

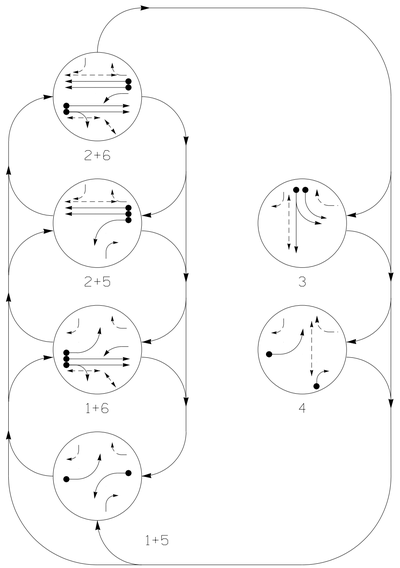
Signed by:
Brittany Groome
1E09340E1094484...
8/26/2025

SIG. INVENTORY NO. 14-0397T5

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-8.0

6 Phase Fully Actuated (Time Based Coordination)

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

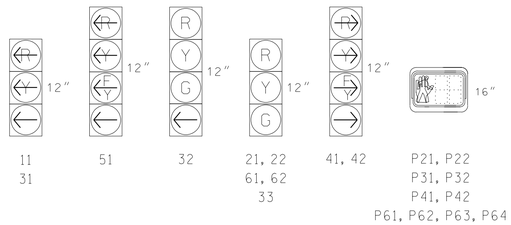
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3	4	FLASH
11	←●	←—	~~R~~	~~R~~	~~R~~	←—	~~R~~
21, 22	R	R	G	G	R	R	R
31	~~R~~	~~R~~	~~R~~	~~R~~	←—	~~R~~	~~R~~
32	R	R	R	R	G	R	R
33	R	R	R	R	G	R	R
41, 42	~~F~~	~~R~~	~~F~~	~~R~~	~~R~~	→—	~~R~~
51	←—	~~F~~	←—	~~F~~	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	R
P21, P22	DW	DW	W	W	DW	DW	DRK
P31, P32	DW	DW	DW	DW	W	DW	DRK
P41, P42	DW	DW	DW	DW	DW	W	DRK
P61, P62 P63, P64	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



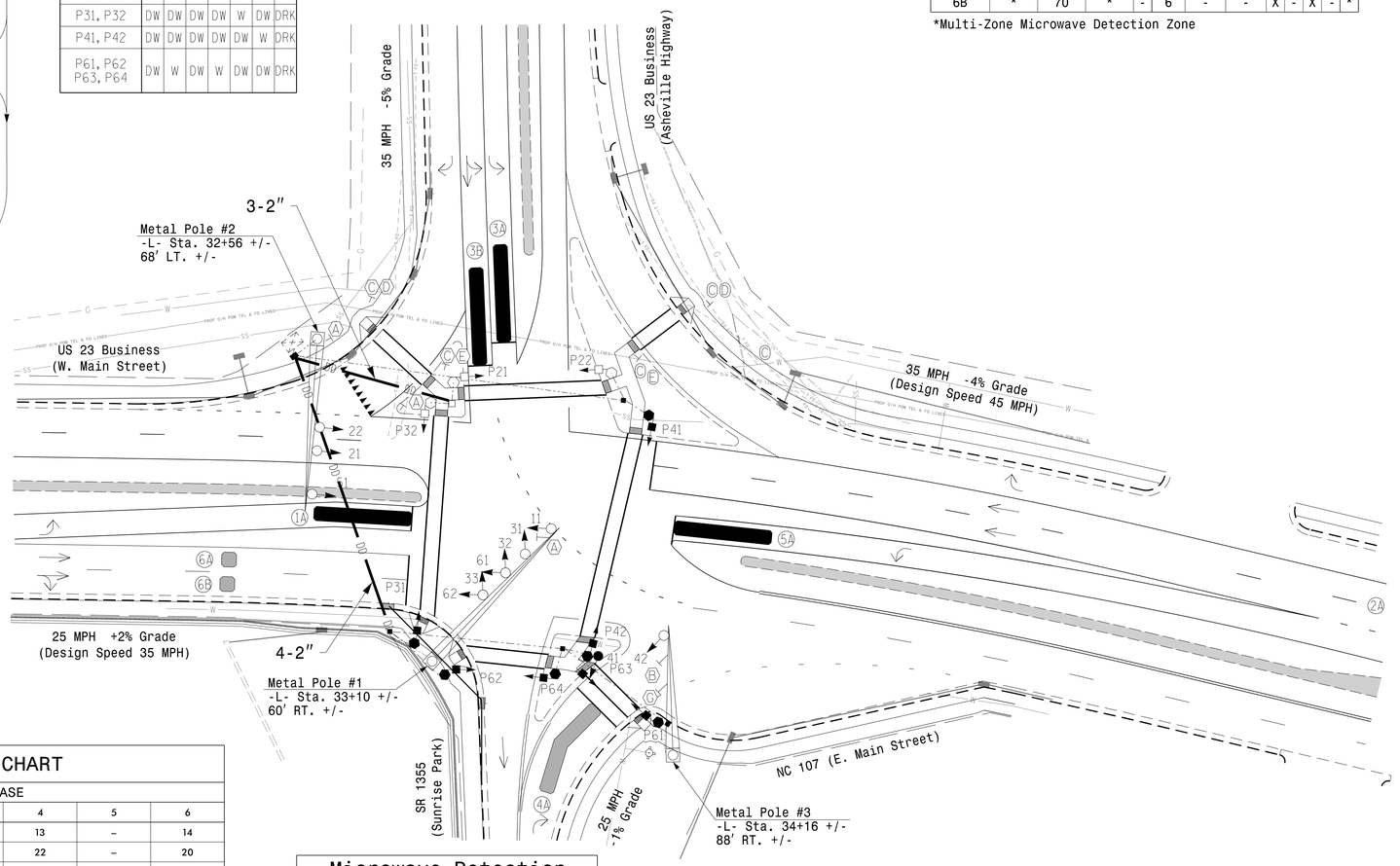
MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	-	-	X	-	X	-	*
3A	*	0	*	X	3	3.0	-	X	-	X	-	*
3B	*	0	*	X	3	-	-	X	-	X	-	*
4A	*	0	*	-	4	5.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
6A	*	70	*	-	6	-	-	X	-	X	-	*
6B	*	70	*	-	6	-	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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. The order of phase 3 and 4 may be reversed.
5. Unbag and reconnect pedestrian head and pushbutton P31.
6. Set all detector units to presence mode.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
10. 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	·-·-·-·
DD	Directional Drill	DD
N/A	Right of Way	— — —
→	Directional Arrow	→
○	Metal Pole with Mastarm	○
N/A	Curb Ramp	◢◣
N/A	Truncated Domes	▪
▬	Non-Intrusive Detection Zone	▬
▭	Construction Zone	N/A
⊛	Type I Pushbutton Post	⊛
⬡	Type II Signal Pedestal	⬢
N/A	Work Zone Traffic Barricade	
N/A	Gas Line	8" GAS
N/A	U/G Sanitary Sewer	SS
N/A	U/G Water Line	W
	Prop. Drainage Pipe	
N/A	O/H Pwr. & Utl. Lines	
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ
Ⓑ	"NO TURN ON RED" Sign (R10-11a)	Ⓑ
Ⓒ	Pedestrian Crossing Sign (W11-2)	Ⓒ
Ⓓ	Left Downward Diagonal Arrow Plaque (W16-7pL)	Ⓓ
Ⓔ	Right Downward Diagonal Arrow Plaque (W16-7pR)	Ⓔ
Ⓕ	No U Turn (R3-4) With "TRUCKS" Plaque	Ⓕ
Ⓖ	"RIGHT TURN ON RED MUST YIELD TO U-TURN" Sign (R10-30)	Ⓖ

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Walk *	–	14	12	13	–	14
Ped Clear	–	12	20	22	–	20
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	3.0
Max 1 *	25	85	20	35	25	85
Yellow Change	3.0	4.9	4.2	3.0	3.0	4.9
Red Clear	2.8	2.1	2.3	1.9	2.9	2.1
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	5	6	–	7
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

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

Microwave Detection

	2A	
FUNCTION	Sensor 1	
Channel	1	
Phase	2	
Direction of Travel	WB	
Type	Priority	
Level	2	QUEUE
Detection Zone (ft)	<750	–
Range (ft)	600–100	150–100
Enable Speed	Y	Y
Speed Range (mph)	35–100	1–35
Enable Estimated Time of Arrival	Y	N
Estimated Time of Arrival (sec)	2.5–6.5	–

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Signal Upgrade
Temporary Design 6 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 23 Bus./NC 107 (Main Street) at US 23 Bus. (Asheville Highway)/ SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: DJ White REVIEWED BY: BN Groome

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

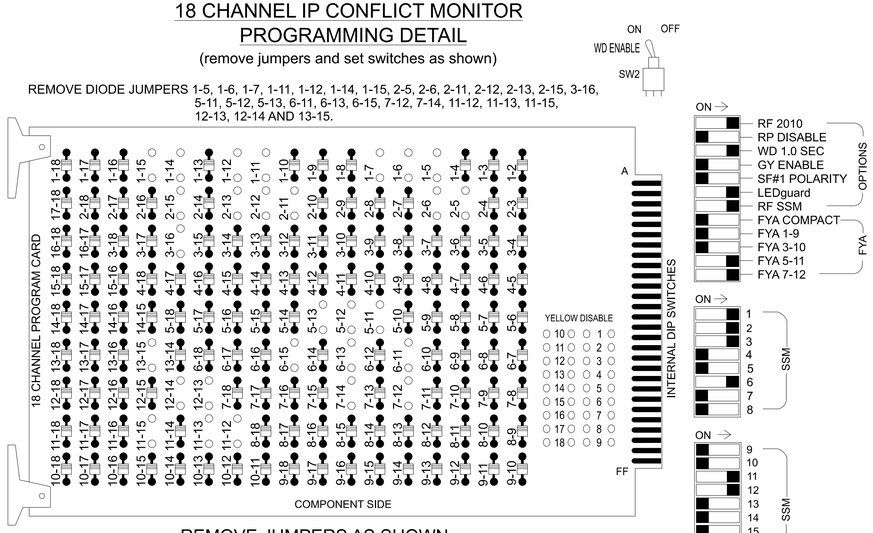
Signed by: Brittany Groome 8/26/2025
1E09340E1094454...
DATE

SIG. INVENTORY NO. I4-0397T6

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-7, 1-11, 1-12, 1-14, 1-15, 2-5, 2-6, 2-11, 2-12, 2-13, 2-15, 3-16, 5-11, 5-12, 5-13, 6-11, 6-13, 6-15, 7-12, 7-14, 11-12, 11-13, 11-15, 12-13, 12-14 AND 13-15.



■ = DENOTES POSITION OF SWITCH

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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332 w/ Aux
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....18 With Aux. Output File
Load Switches Used.....S1, S2, S3, S4, S6, S7, S8, S9, S10, S12, AUX S4, AUX S5
Phases Used.....1, 2, 2PED, 3, 3PED, 4, 4PED, 5, 6, 6PED
Overlap "1".....NOT USED
Overlap "2".....NOT USED
Overlap "3".....*
Overlap "4".....*
Overlap "5".....NOT USED
Overlap "6".....NOT USED
Overlap "7".....*
Overlap "8".....*

*See overlap programming detail on sheet 2.

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-8.1

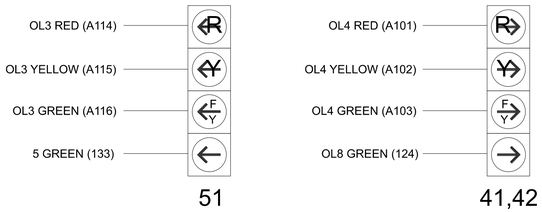
SIGNAL HEAD HOOK-UP CHART

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	OL7	2	2 PED	3			4	4 PED	5	6	6 PED	OL8	8	3 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	31	32	33	NC	P41, P42	51 ★	61,62	P61,P62 P63,P64	41,42 ★	NU	P31, P32	NU	NU	NU	51 ★	41,42 ★	NU
RED		128			116	116				134										
YELLOW		129			117	117			★	135		★								
GREEN		130			118	118				136										
RED ARROW	125			116														A114	A101	
YELLOW ARROW	126			117														A115	A102	
FLASHING YELLOW ARROW																		A116	A103	
GREEN ARROW	127			118	118				133			124								
✋			113					104			119			110						
🚶			115					106			121			112						

NU = Not Used NC = Not Connected
★ Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅ 2 PED DC ISOLATOR	∅ 6 PED DC ISOLATOR	FS DC ISOLATOR
	L												∅ 4 PED DC ISOLATOR	∅ 3 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	∅ 5 5A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED													

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

FS = FLASH SENSE
ST = STOP TIME

Note: For Detection Zone 5A the equipment and slots reserved are typical for a NCDOT Installation.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2	-		X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P31,P32	TB8-8,9	I13L	70	36	3	PED 3						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62 P63,P64	TB8-7,9	I13U	68	34	6	PED 6						

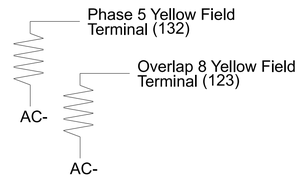
NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For zone 5A, detector card placement is typical for a NCDOT Installation. Detectors associated with these slots are compatible with the Vehicle Detector Programming Detail located on sheet 2 of this electrical detail.

Plans Prepared By:
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THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T6
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 1 of 2
Temporary Design 6 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

Transportation Mobility and Safety Division STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Traffic Engineering Branch Traffic Signals & Signals Management Section

750 N. Greenfield Pkwy, Garner, NC 27529

US 23 Bus./NC 107 (E. Main Street) at US 23 Bus. (Asheville Hwy)/ SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME

Signed by: Brittany Groome 8/26/2025
1E0934DE1094454...

SIG. INVENTORY NO. 14-0397T6

PED 3 PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Detector >Ped Det Plans

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED →

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Overlap	8		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	3				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE PHASE 1 ASSIGNED TO OVERLAP 7 → (channel 1)

NOTICE PHASE 7 ASSIGNED TO OVERLAP 8 → (channel 7)

NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16 → (channel 16)

↑ NOTICE FLASH RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	3	4	7	8
Type	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	6	5	1,4	4
Modifier Phases	5	4	-	-
Modifier Overlaps	-	-	-	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0

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.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397T6
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 6 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
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NC LICENSE NO. F-1524 (704) 549-4260

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

Electrical and Programming Details For:

US 23 Bus./NC 107 (E. Main Street)
at
US 23 Bus. (Asheville Hwy)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

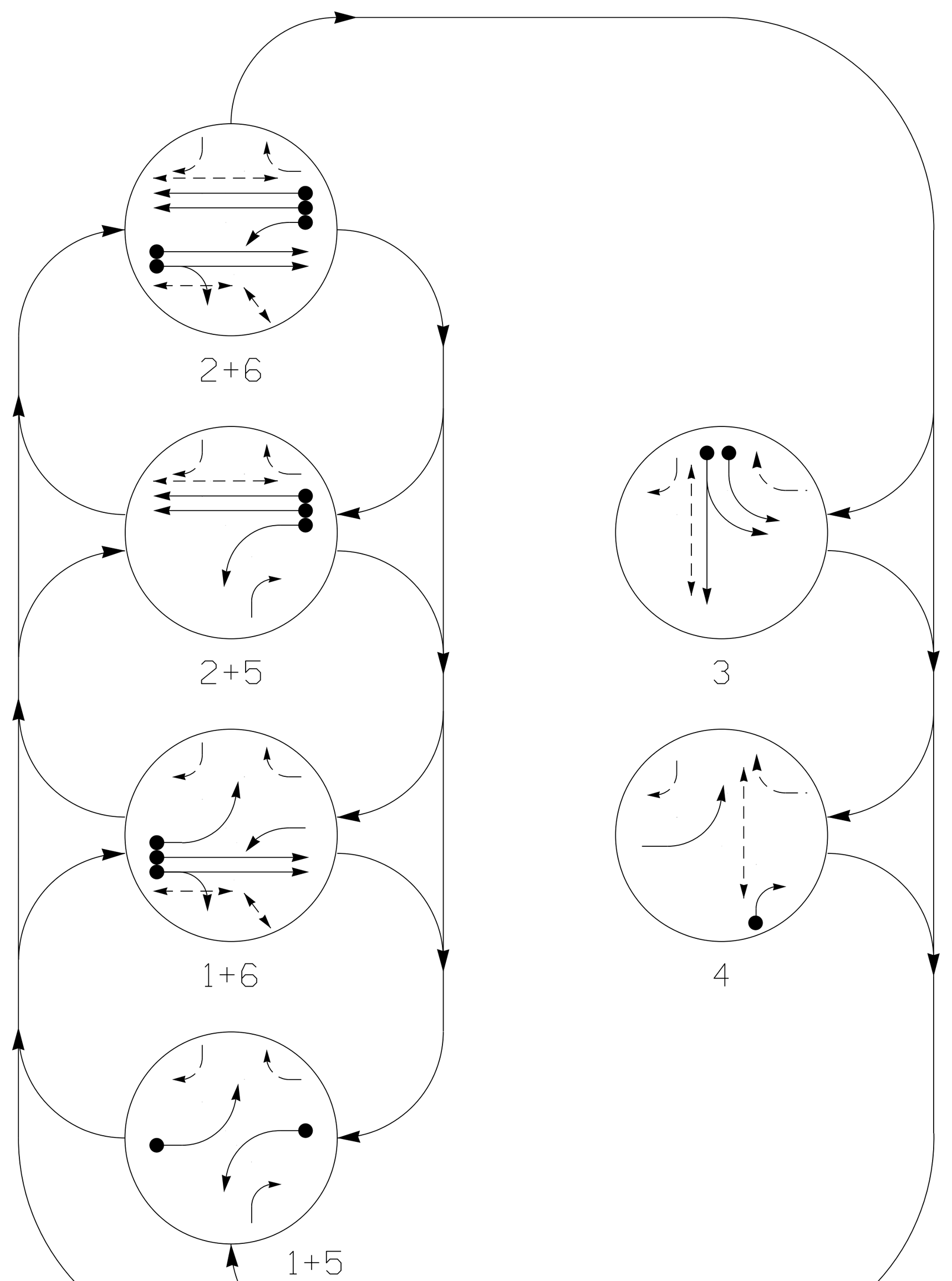
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
1E09340E1094484...

SIG. INVENTORY NO. 14-0397T6

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-9.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

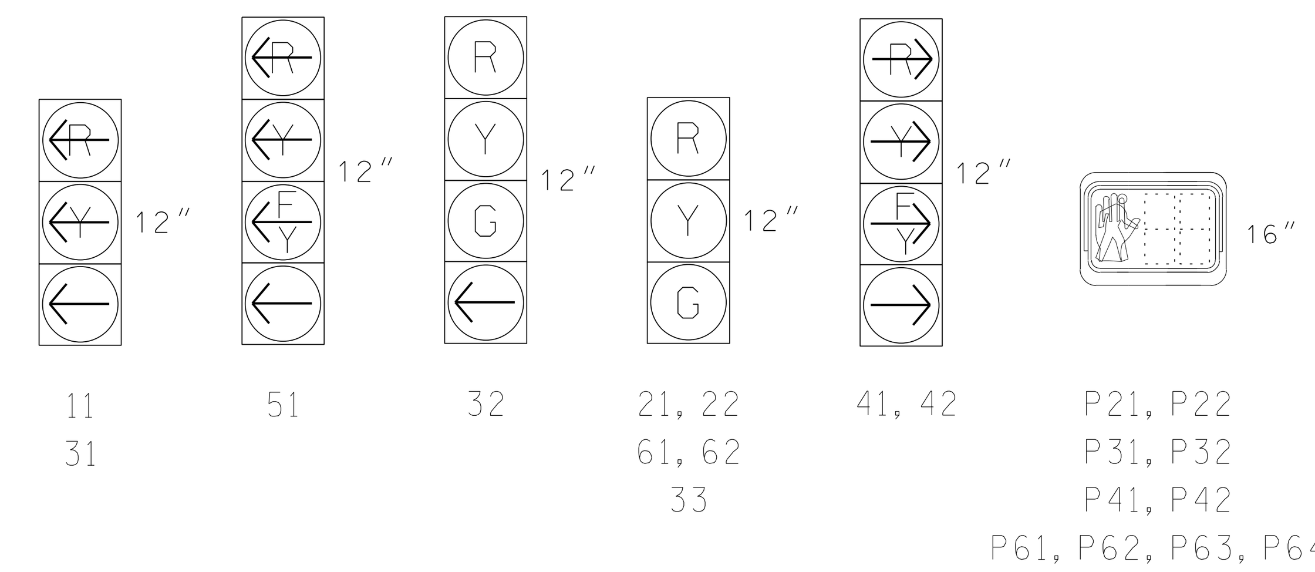
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3	4	FLASH
11	←	←	←R	←R	←R	←	←R
21, 22	R	R	G	G	R	R	R
31	←R	←R	←R	←R	←	←R	←R
32	R	R	R	R	G ←	R	R
33	R	R	R	R	G	R	R
41, 42	F Y →	R→	F Y →	R→	R→	→	R→
51	←	F Y ←	←	F Y ←	←R	←R	←R
61, 62	R	G	R	G	R	R	R
P21, P22	DW	DW	W	W	DW	DW	DRK
P31, P32	DW	DW	DW	DW	W	DW	DRK
P41, P42	DW	DW	DW	DW	DW	W	DRK
P61, P62	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

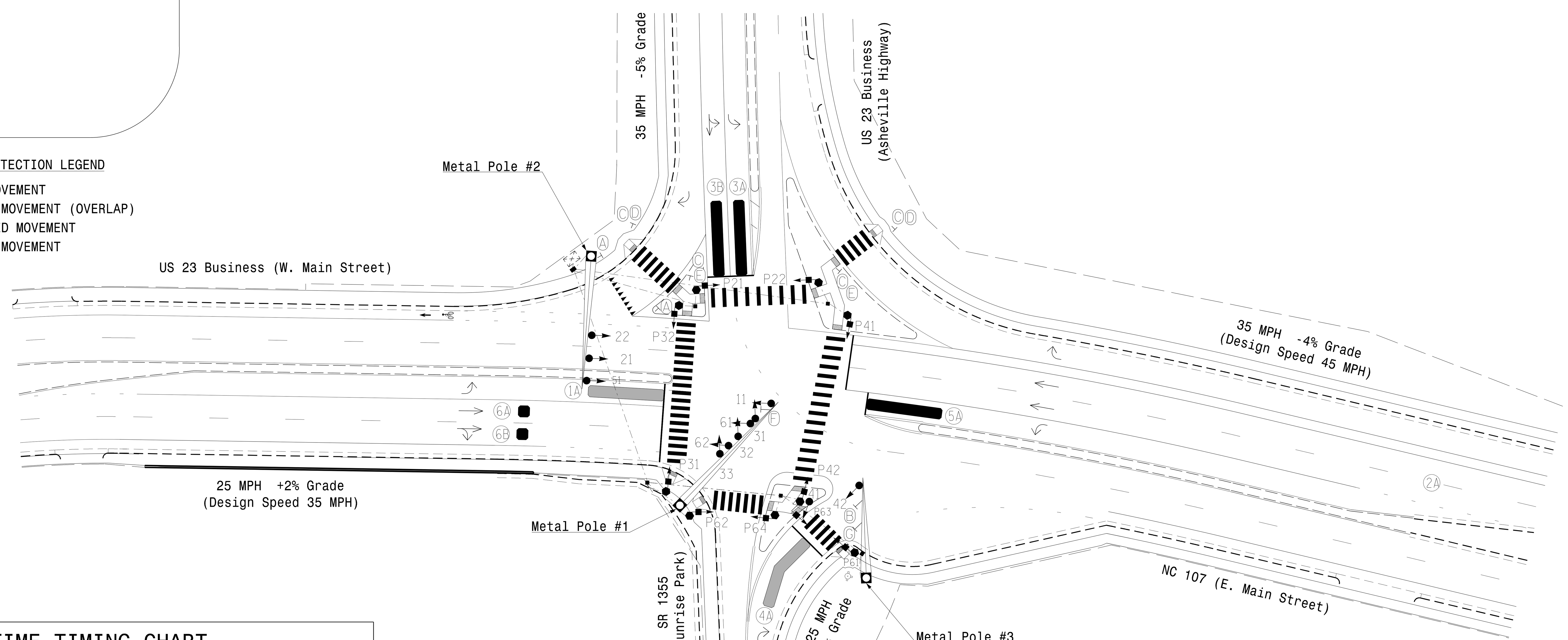
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	-	1	-	-	X	-	X	-	*
3A	*	0	*	X	3	3.0	-	X	-	X	-	*
3B	*	0	*	X	3	-	-	X	-	X	-	*
4A	*	0	*	-	4	-	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
6A	*	70	*	X	6	-	-	X	-	X	-	*
6B	*	70	*	X	6	-	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

6 Phase
Fully Actuated
(NC 107-D14-14)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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. The order of phase 3 and 4 may be reversed.
5. Repositon existing signal heads numbered 61 and 62.
6. Set all detector units to presence mode.
7. Omit "WALK" and flshing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
10. 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	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Metal Pole with Mastarm	
N/A	Curb Ramp	
N/A	Truncated Domes	
	Non-Intrusive Detection Zone	
	Type I Pushbutton Post	
	Type II Signal Pedestal	
8" GAS	Gas Line	N/A
	U/G Sanitary Sewer	N/A
	U/G Water Line	N/A
	Drainage Pipe	
	O/H Pwr. & Utl. Lines	N/A
A	"YIELD" Sign (R1-2)	A
B	"NO TURN ON RED" Sign (R10-11a)	B
C	Pedestrian Crossing Sign (W11-2)	C
D	Left Downward Diagonal Arrow Plaque (W16-7pL)	D
E	Right Downward Diagonal Arrow Plaque (W16-7pR)	E
F	No U Turn Sign (R3-4) With "TRUCKS" Plaque	F
G	"RIGHT TURN ON RED MUST YIELD TO U-TURN" Sign (R10-30)	G

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Walk *	–	14	14	14	–	14
Ped Clear	–	13	20	22	–	20
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	3.0
Max 1 *	25	85	35	40	25	85
Yellow Change	3.0	4.9	4.2	3.0	3.0	4.9
Red Clear	2.6	2.1	2.3	1.9	2.9	2.1
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	7	7	–	7
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

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

Microwave Detection

FUNCTION	2A Sensor 1	
Channel	1	
Phase	2	
Direction of Travel	WB	
Type	Priority	
Level	2	QUEUE
Detection Zone (ft)	<750	–
Range (ft)	600–100	150–100
Enable Speed	Y	Y
Speed Range (mph)	35–100	1–35
Enable Estimated Time of Arrival	Y	N
Estimated Time of Arrival (sec)	2.5–6.5	–

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 23 Bus./NC 107 (Main Street)
at
US 23 Bus. (Asheville Highway)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS INIT. DATE

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SCALE 0 40
1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

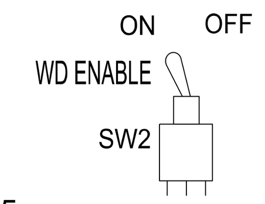
Signed by: Brittany Groome 8/26/2025 DATE

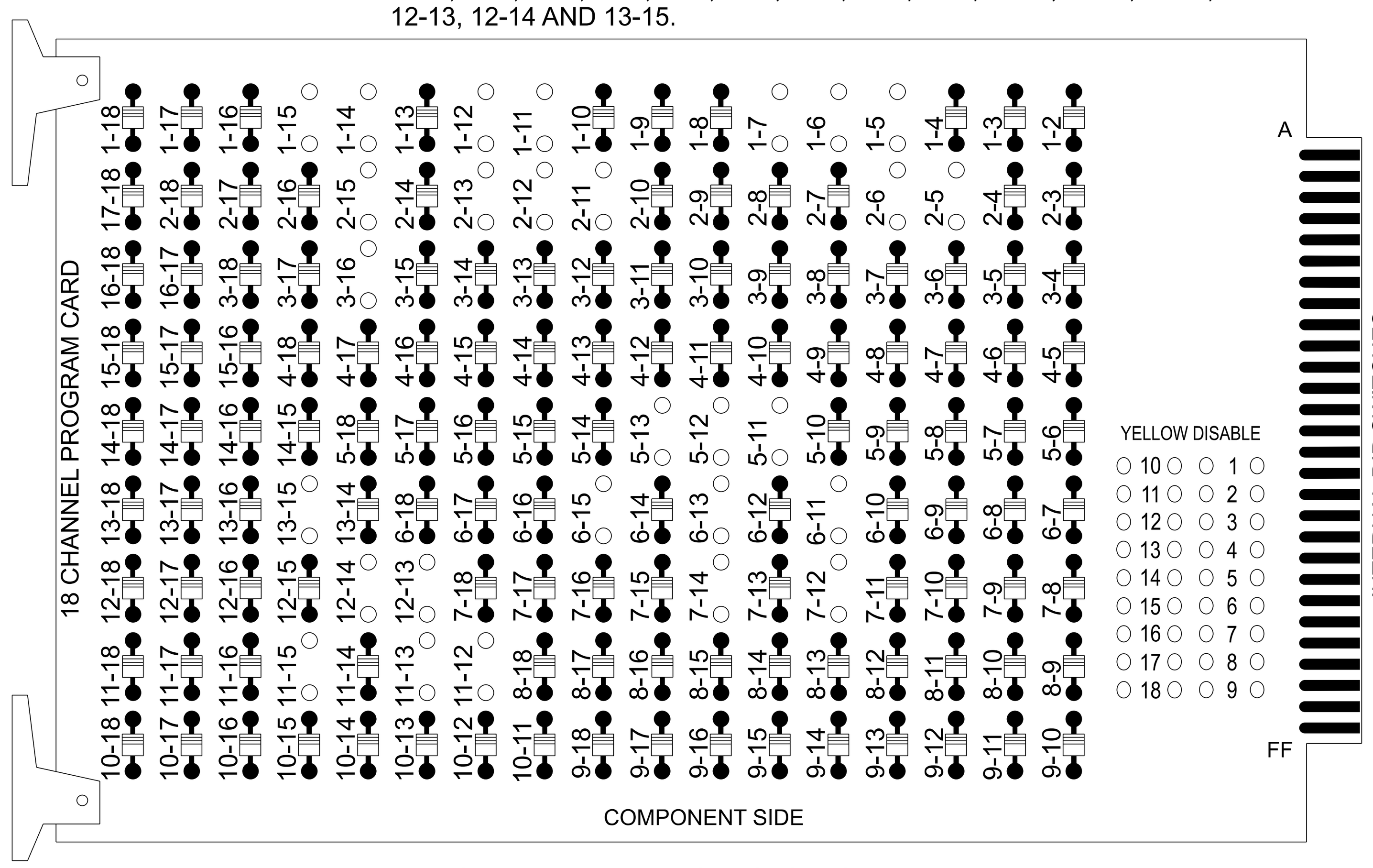
SIG. INVENTORY NO. 14-0397

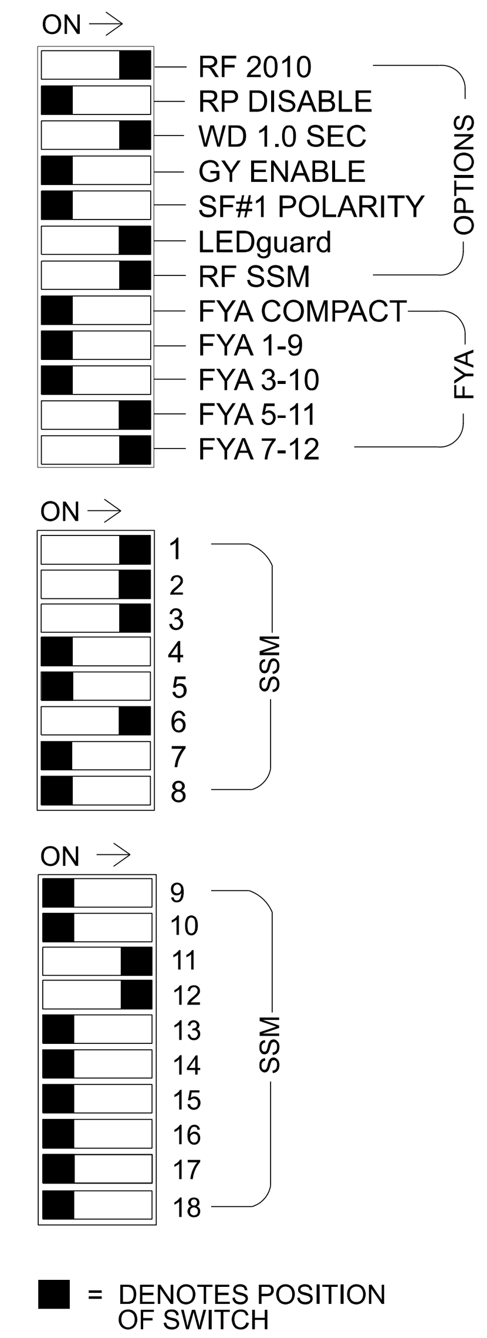
18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-7, 1-11, 1-12, 1-14, 1-15, 2-5, 2-6, 2-11, 2-12, 2-13, 2-15, 3-16, 5-11, 5-12, 5-13, 6-11, 6-13, 6-15, 7-12, 7-14, 11-12, 11-13, 11-15, 12-13, 12-14 AND 13-15.







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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the (NC 107 - D14-14) System.

EQUIPMENT INFORMATION

Controller..2070LX
Cabinet..332 w/ Aux
Software..Q-Free MAXTIME
Cabinet Mount...................................Base
Output File Positions..........................18 With Aux. Output File
Load Switches Used...........................S1, S2, S3, S4, S6, S7, S8, S9, S10, S12, AUX S4, AUX S5
Phases Used......................................1, 2, 2PED, 3, 3PED, 4, 4PED, 5, 6, 6PED
Overlap "1"..NOT USED
Overlap "2"..NOT USED
Overlap "3"..*
Overlap "4"..*
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*
Overlap "8"..*

*See overlap programming detail on sheet 2.

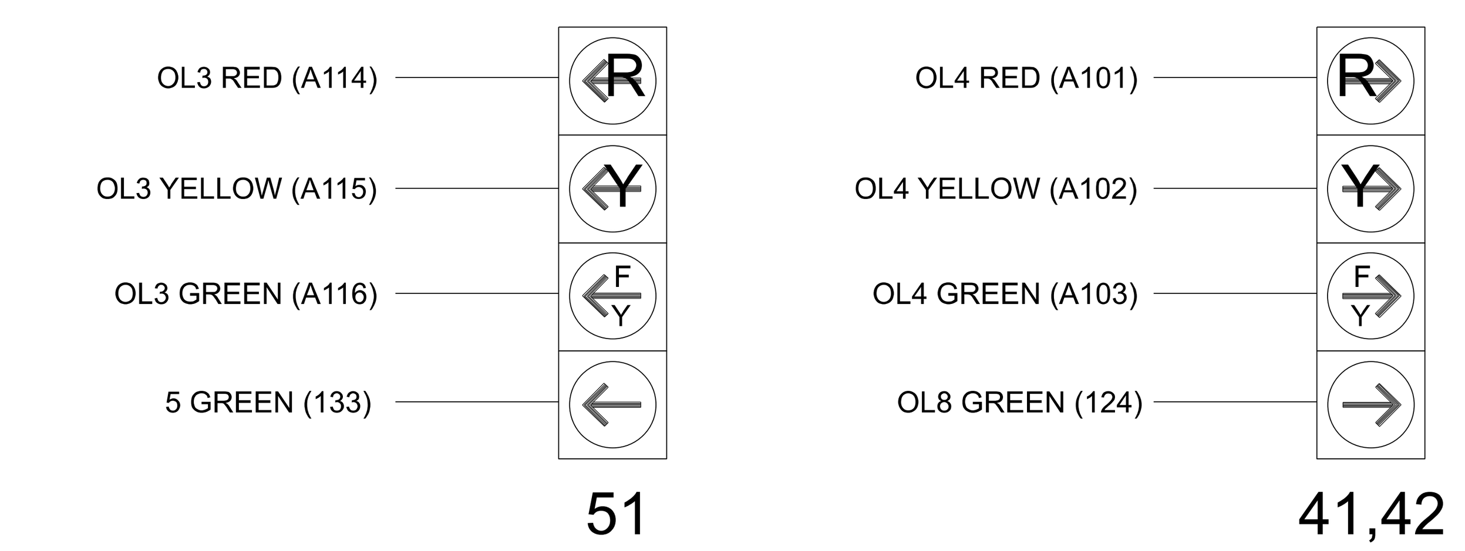
SIGNAL HEAD HOOK-UP CHART

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	OL7	2	2 PED	3			4	4 PED	5	6	6 PED	OL8	8	3 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	31	32	33	NC	P41, P42	51★	61,62	P61,P62 P63,P64	41,42★	NU	P31, P32	NU	NU	NU	51★	41,42★	NU
RED		128			116	116				134										
YELLOW		129			117	117			*	135		*								
GREEN		130			118	118				136										
RED ARROW	125			116														A114	A101	
YELLOW ARROW	126			117														A115	A102	
FLASHING YELLOW ARROW																		A116	A103	
GREEN ARROW	127			118	118				133			124								
✋ (DON'T WALK)			113					104			119			110						
🚶 (WALK)			115					106			121			112						

NU = Not Used NC = Not Connected
★ Denotes install load resistor. See load resistor installation detail this sheet.
* See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	1O	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 2 PED DC ISOLATOR	Ø 6 PED DC ISOLATOR	FS DC ISOLATOR
	L												Ø 4 PED DC ISOLATOR	Ø 3 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED													

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

FS = FLASH SENSE
ST = STOP TIME

Note: For Detection Zone 5A the equipment and slots reserved are typical for a NCDOT Installation.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2	-		X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P31,P32	TB8-8,9	I13L	70	36	3	PED 3						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62 P63,P64	TB8-7,9	I13U	68	34	6	PED 6						

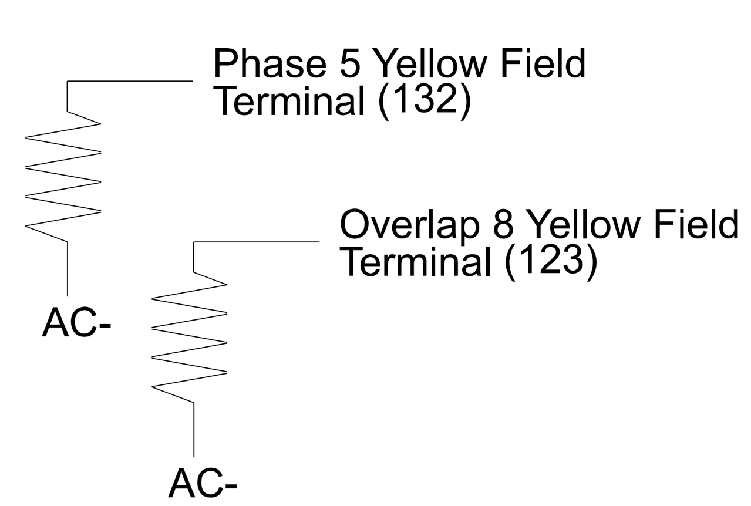
NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For zone 5A, detector card placement is typical for a NCDOT Installation. Detectors associated with these slots are compatible with the Vehicle Detector Programming Detail located on sheet 2 of this electrical detail.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2

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Electrical and Programming Details For:
Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

US 23 Bus./NC 107 (E. Main Street)
at
US 23 Bus. (Asheville Hwy)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva
PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: DJ White REVIEWED BY: BN Groome
REVISIONS INIT. DATE

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NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025
1E09340E1094484...

SIG. INVENTORY NO. 14-0397

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-9.2

PED 3 PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Detector >Ped Det Plans

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED →

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

NOTICE PHASE 1 ASSIGNED TO OVERLAP 7 →
NOTICE PHASE 7 ASSIGNED TO OVERLAP 8 →
NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16 →

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Overlap	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Overlap	8		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	3				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

↑ NOTICE FLASH RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	3	4	7	8
Type	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	6	5	1,4	4
Modifier Phases	5	4	-	-
Modifier Overlaps	-	-	-	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0397
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
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NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 2 of 2

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Electrical and Programming Details For:

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

750 N. Greenfield Pkwy, Garner, NC 27529

US 23 Bus./NC 107 (E. Main Street)
at
US 23 Bus. (Asheville Hwy)/
SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

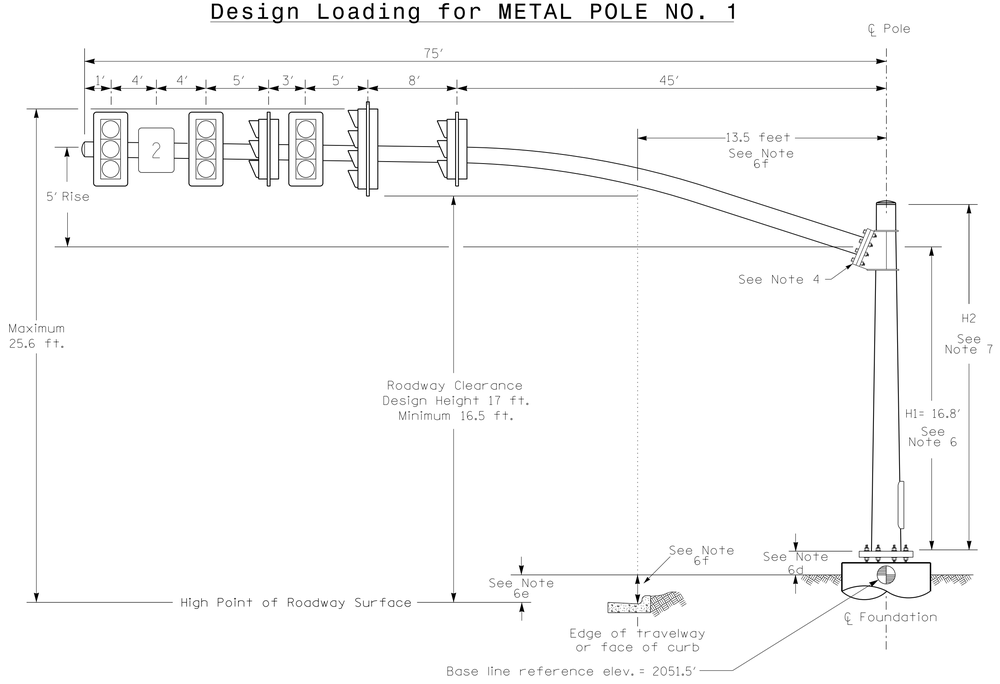
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
052936
ENGINEER
BRITTANY N. GROOME

Signed by:
Brittany Groome 8/26/2025
1E09340E1094454...

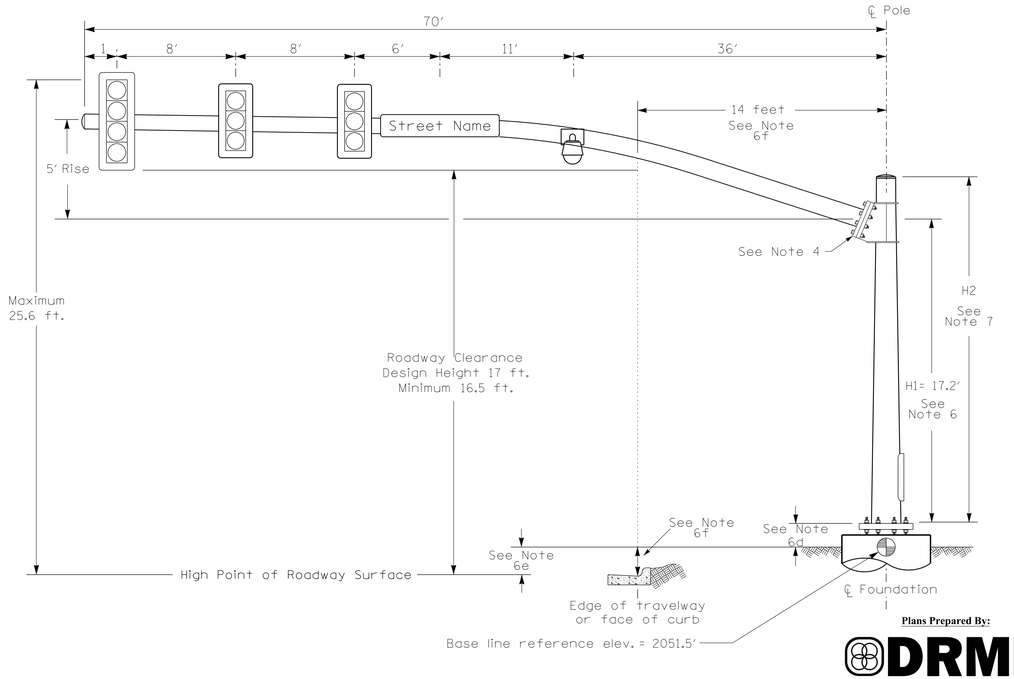
SIG. INVENTORY NO. 14-0397

Design Loading for METAL POLE NO. 1



Elevation View

Design Loading for METAL POLE NO. 2



Elevation View

Plans Prepared By:

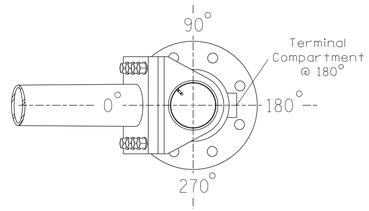
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SPECIAL NOTE

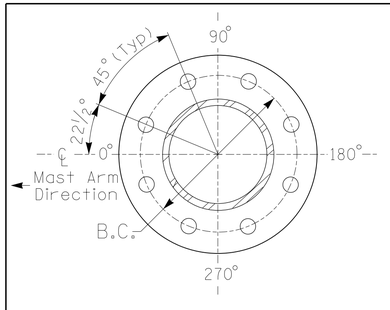
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	Pole 2
Baseline reference point at ℄ Foundation @ ground level	2051.5 ft.	2051.5 ft.
Elevation difference at High point of roadway surface	+2.8 ft.	+3.2 ft.
Elevation difference at Edge of travelway or face of curb	+2.0 ft.	+3.6 ft.

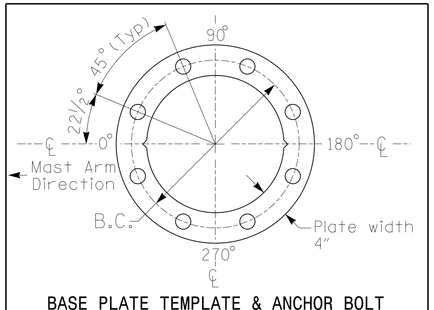


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

METAL POLE No. 1 and 2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-9.3

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
OR	RIGID MOUNTED SIGNAL HEAD 12″-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5″W X 66.0″L	74 LBS
OR	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″W X 52.5″L	60 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0″W X 96.0″L	36 LBS
	CCTV CAMERA ARM-MOUNTED	1.0 S.F.	11.0″W X 11.0″L	30 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2024 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using force ratios that do not exceed 0.9.
4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 23 Bus./NC 107 (Main Street) at US 23 Bus. (Asheville Highway)/ SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE 0 N/A N/A

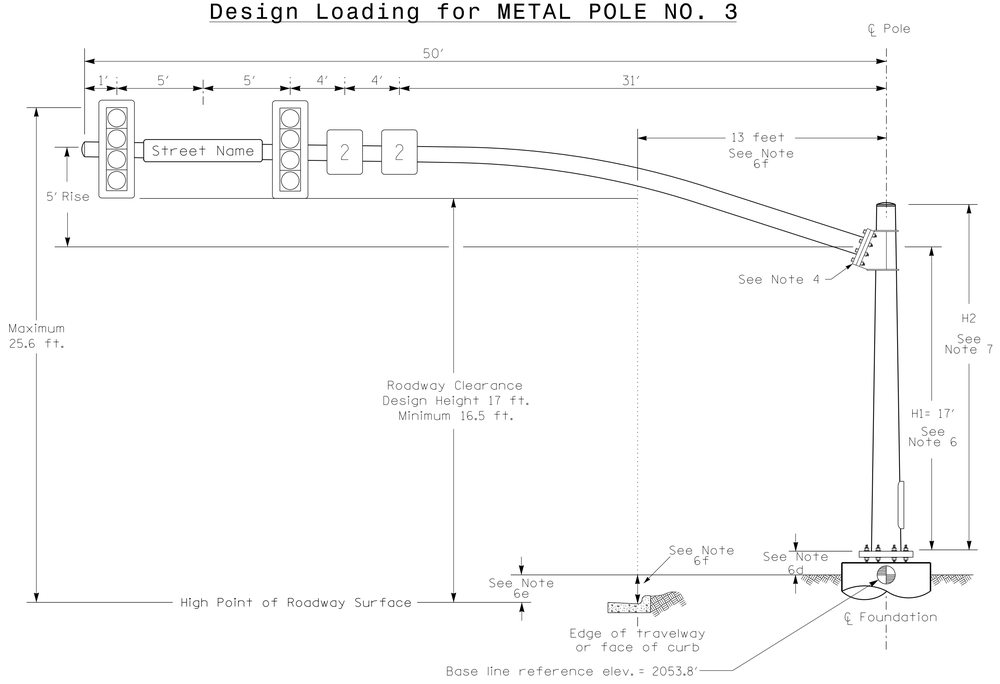
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 1E09340E1094484... 8/26/2025
DATE

SIG. INVENTORY NO. 14-0397

Design Loading for METAL POLE NO. 3



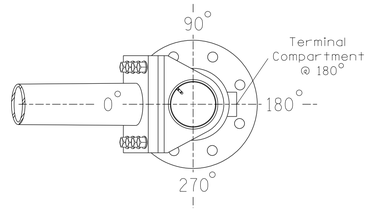
Elevation View

SPECIAL NOTE

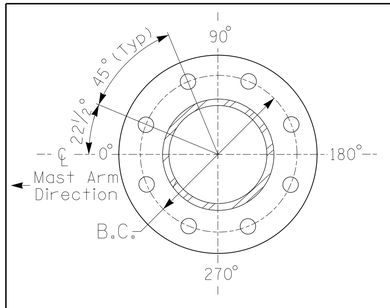
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 3	
Baseline reference point at ℄ Foundation @ ground level ⊕	2053.8 ft.	
Elevation difference at High point of roadway surface	+3.5 ft.	
Elevation difference at Edge of travelway or face of curb	-0.4 ft.	

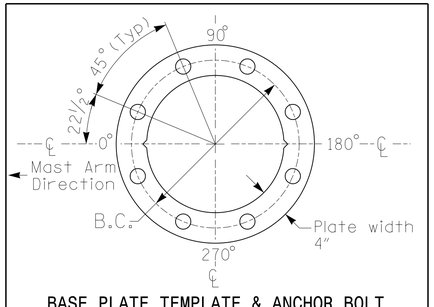


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

METAL POLE No. 3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-9.4

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5"W X 66.0"L	74 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0"W X 36.0"L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0"W X 96.0"L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2024 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using force ratios that do not exceed 0.9.
4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 23 Bus./NC 107 (Main Street) at US 23 Bus. (Asheville Highway)/ SR 1355 (Sunrise Park)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE: 0 N/A — N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
1E0934DE1094454... DATE

SIG. INVENTORY NO. 14-0397

Plans Prepared By:

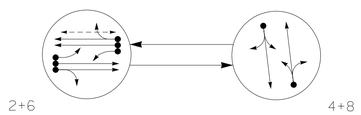
DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

25-AUG-2025 09:25
D:\Projects\2018 Projects\18042 R-5600 - Jackson County NC\TSMO\Signal Design\Metal Poles\140397_sig_MP1A2_2020mmds.dgn
DJWhite AT RAL-DWhite

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-10.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

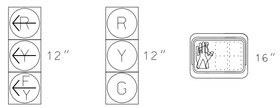
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	PHASE 4+8	PHASE FLASH
21	~~FY~~	~~R~~	~~R~~
22,23	G	R	R
41,42	R	G	R
61	~~FY~~	~~R~~	~~R~~
62,63	G	R	R
81,82	R	G	R
P21, P22	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

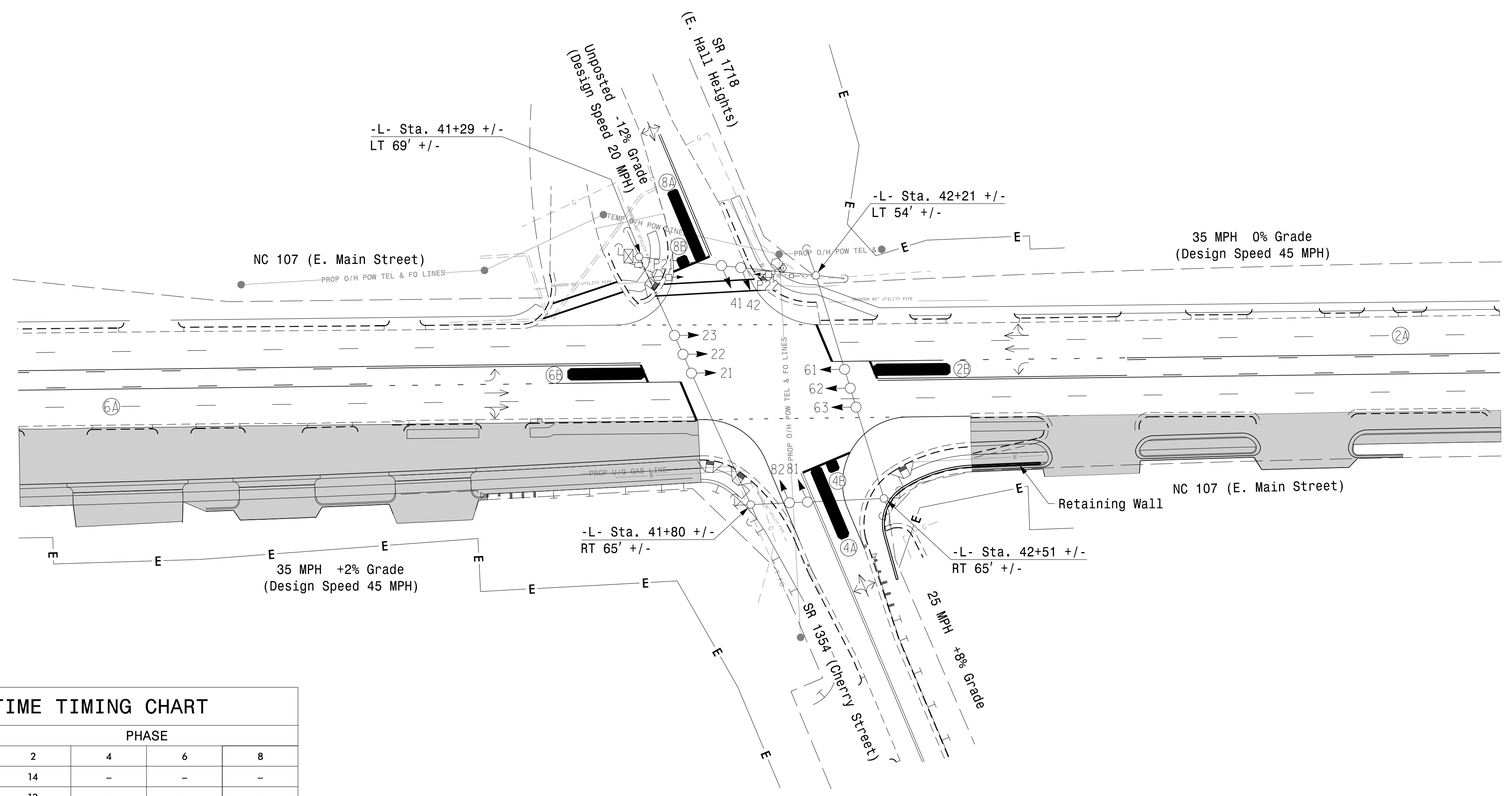
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2B	*	0	*	X	2	3.0	-	X	-	X	-	*
4A	*	0	*	X	4	5.0	-	X	-	X	-	*
4B	*	0	*	X	4	5.0	-	X	-	X	-	*
6B	*	0	*	X	6	3.0	-	X	-	X	-	*
8A	*	0	*	X	8	5.0	-	X	-	X	-	*
8B	*	0	*	X	8	5.0	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

2 Phase
Fully Actuated
(Time Based Coordination)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
6. 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	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Wheelchair Ramp	
	Type II Signal Pedestal	
	Non-Intrusive Detection Zone	
N/A	Guardrail	
	Construction Zone	N/A
E	Temp. Construction Easement	N/A
N/A	Gas Line	G
N/A	U/G Water Line	W
	Drainage Pipe	
N/A	U/G Fiber	FO
N/A	O/H Pwr. & Utl. Lines	PROP O/H POW TEL & FO LINES
N/A	Temporary O/H Power Lines	TEMP O/H POW LINES
N/A	Abandon X" Utility Pipe	ABANDON 60" UTILITY PIPE

MAXTIME TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Walk *	14	–	–	–
Ped Clear	13	–	–	–
Min Green *	12	7	12	7
Passage *	2.0	2.0	2.0	2.0
Max 1 *	60	20	60	20
Yellow Change	4.5	3.5	4.5	3.5
Red Clear	1.6	3.1	1.6	3.1
Added Initial *	–	–	–	–
Maximum Initial *	–	–	–	–
Time Before Reduction *	–	–	–	–
Time To Reduce *	–	–	–	–
Minimum Gap	–	–	–	–
Advance Walk	7	–	–	–
Non Lock Detector	–	X	–	X
Vehicle Recall	MIN RECALL	–	MIN RECALL	–
Dual Entry	–	X	–	X

* 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.

Microwave Detection

	(2A)		(6A)	
FUNCTION	Sensor 1		Sensor 2	
Channel	1		1	
Phase	2		6	
Direction of Travel	WB		EB	
Type	Priority		Priority	
Level	2	QUEUE	2	QUEUE
Detection Zone (ft)	<750	–	<750	–
Range (ft)	600–100	150–100	600–100	150–100
Enable Speed	Y	Y	Y	Y
Speed Range (mph)	35–100	1–35	35–100	1–35
Enable Estimated Time of Arrival	Y	N	Y	N
Estimated Time of Arrival (sec)	2.5–6.5	–	2.5–6.5	–

New Installation
Temporary Design 1 - TMP Ph1, S4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

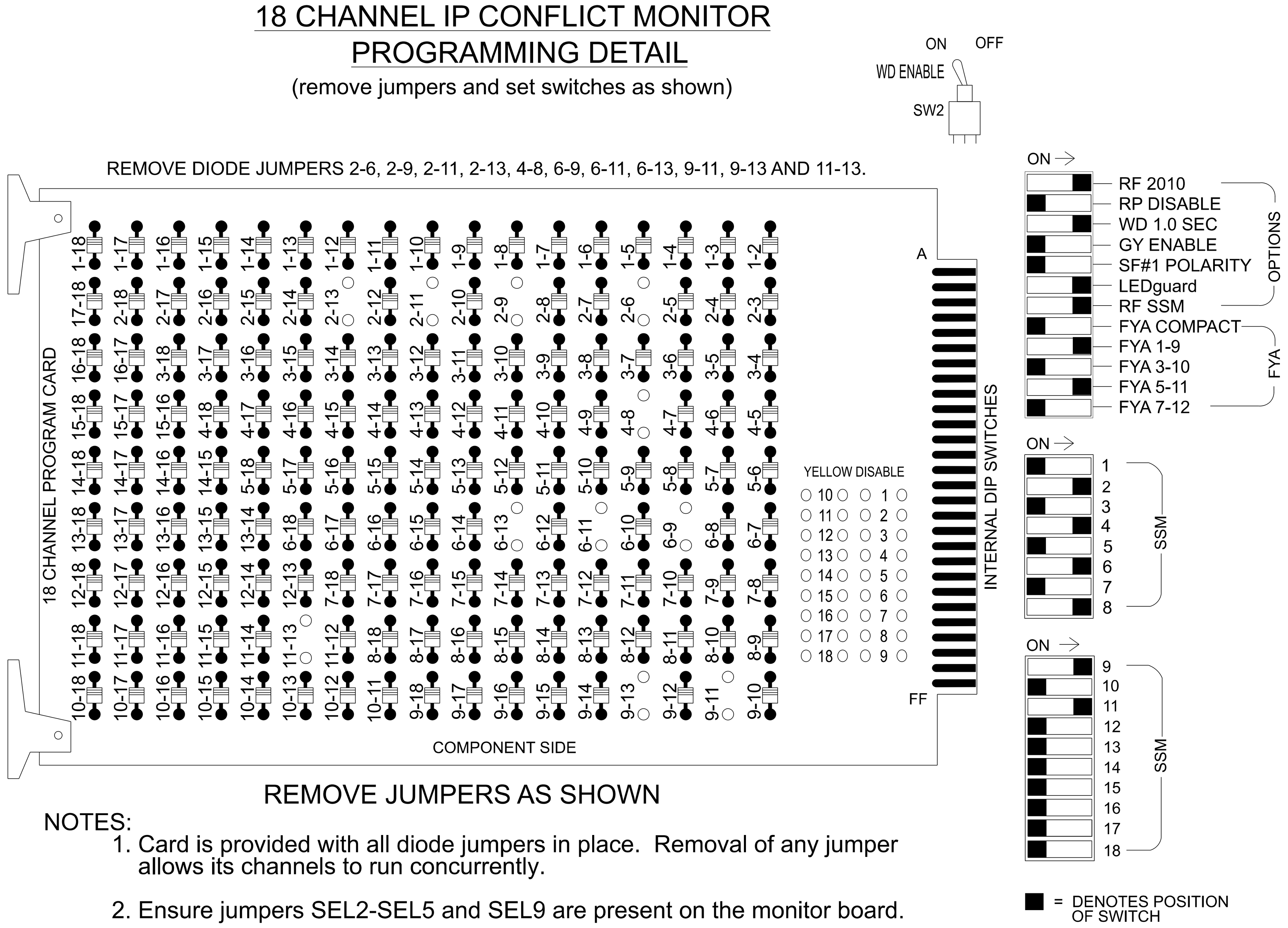
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N. GROOME
Signed by: Brittany Groome 8/26/2025
1E0934DE1094454...
DATE

SIG. INVENTORY NO. 14-13331

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-10.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. The cabinet and controller are part of the NC 107 Time Based System.

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	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	22,23	P21, P22	NU	41,42	NU	NU	62,63	NU	NU	81,82	NU	61★	NU	NU	21★	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW																		
(Don't Walk hand)			113															
(Walk person)			115															

NU = Not Used

★See pictorial of head wiring in detail this sheet.

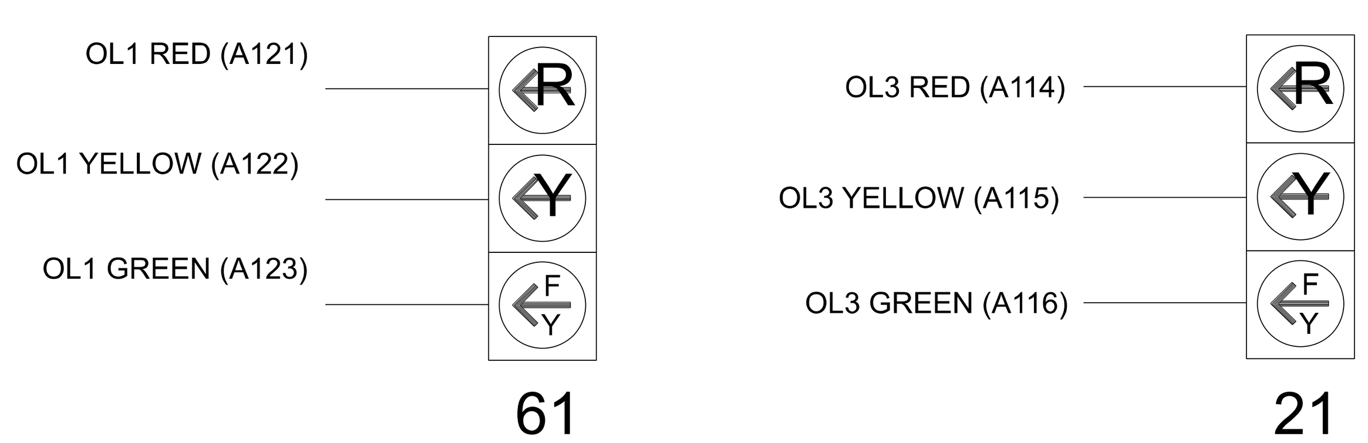
EQUIPMENT INFORMATION

Controller..2070LX
Cabinet...332 w/ Aux
Software...Q-Free MAXTIME
Cabinet Mount....................................Base
Output File Positions..........................18 With Aux. Output File
Load Switches Used............................S2, S3, S5, S8, S11, AUX S1, AUX S4
Phases Used.......................................2, 2PED, 4, 6, 8
Overlap "1"..*
Overlap "2"..NOT USED
Overlap "3"..*
Overlap "4"..NOT USED

*See overlap programming detail on this sheet

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅ 2 PED DC ISOLATOR	SLOT EMPTY	FS DC ISOLATOR
"I"	L												NOT USED		ST DC ISOLATOR
"J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L														

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.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOT I12.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

Install a multizone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	-	-
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1333T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED:

Electrical Detail - Sheet 1 of 2
Temporary Design 1 - TMP Ph1, S4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 | Jackson County | Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DJ White	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME
Signed by: Brittany Groome
8/26/2025
DATE

SIG. INVENTORY NO. 14-1333T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-10.2

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE FLASH RED

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1333T1
DESIGNED: Aug 2025
SEALED: 08/26/2025
REVISED:

Electrical Detail - Sheet 2 of 2
Temporary Design 1 - TMP Ph1, S4

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Electrical and Programming Details For:

NC 107 (E. Main Street)
at
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SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

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

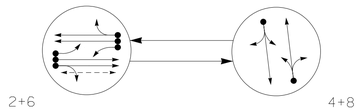
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME

Signed by:
Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1333T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-11.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

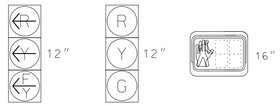
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	PHASE 4+8	PHASE FLASH
21	~~FY~~	~~R~~	~~R~~
22,23	G	R	R
41,42	R	G	R
61	~~FY~~	~~R~~	~~R~~
62,63	G	R	R
81,82	R	G	R
P61, P62	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

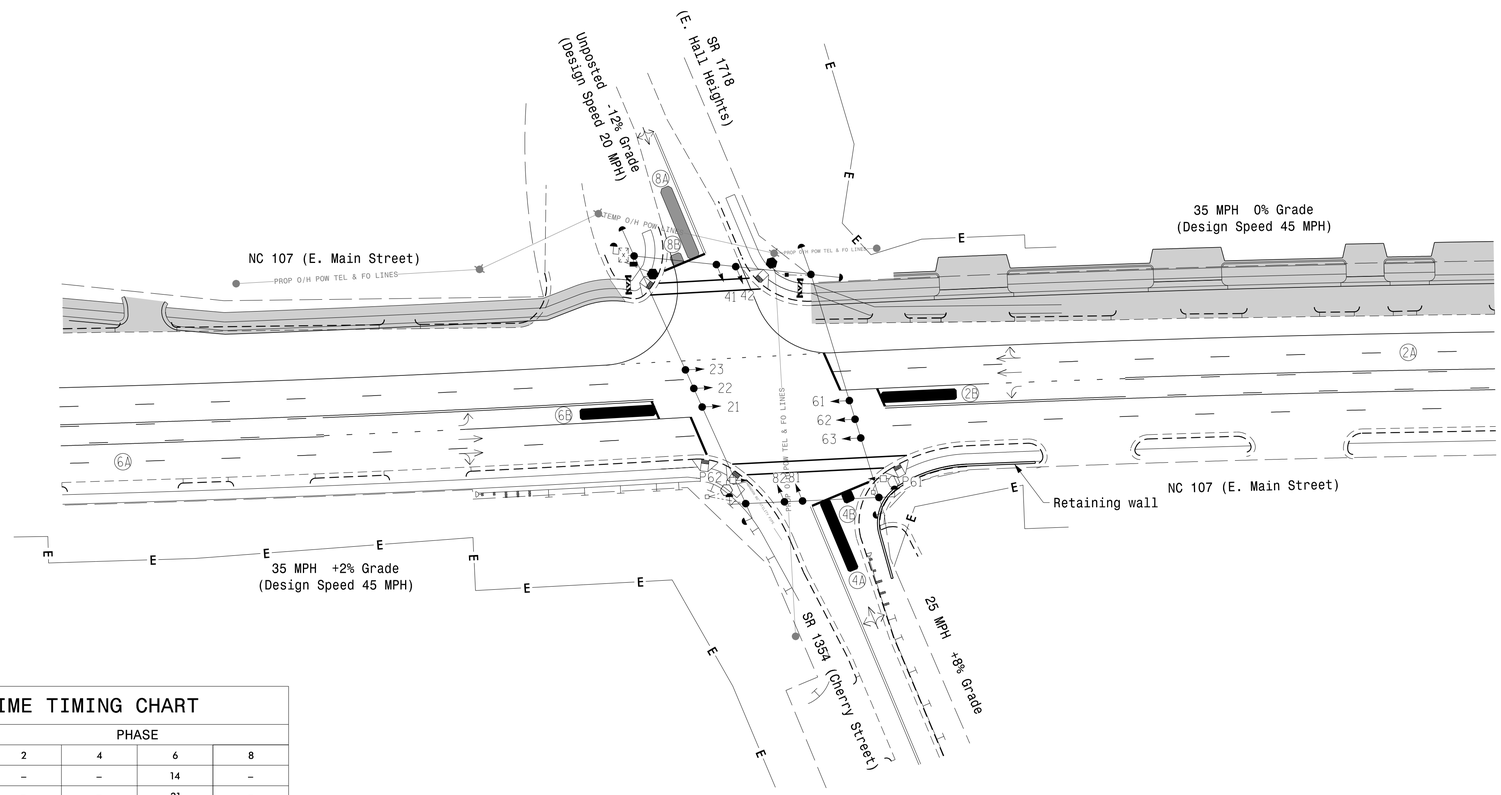
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2B	*	0	*	X	2	3.0	-	X	-	X	-	*
4A	*	0	*	X	4	5.0	-	X	-	X	-	*
4B	*	0	*	X	4	5.0	-	X	-	X	-	*
6B	*	0	*	X	6	3.0	-	X	-	X	-	*
8A	*	0	*	X	8	5.0	-	X	-	X	-	*
8B	*	0	*	X	8	5.0	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

2 Phase
Fully Actuated
(Time Based Coordination)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Reposition existing signal heads numbered 21, 22, 23, 61, 62 and 63.
4. Disconnect and bag existing pedestrian heads and pushbuttons P21 and P22.
5. Set all detector units to presence mode.
6. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



MAXTIME TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Walk *	–	–	14	–
Ped Clear	–	–	21	–
Min Green *	12	7	12	7
Passage *	2.0	2.0	2.0	2.0
Max 1 *	60	20	60	20
Yellow Change	4.5	3.5	4.5	3.5
Red Clear	1.4	3.5	1.4	3.5
Added Initial *	–	–	–	–
Maximum Initial *	–	–	–	–
Time Before Reduction *	–	–	–	–
Time To Reduce *	–	–	–	–
Minimum Gap	–	–	–	–
Advance Walk	–	–	7	–
Non Lock Detector	–	X	–	X
Vehicle Recall	MIN RECALL	–	MIN RECALL	–
Dual Entry	–	X	–	X

* 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.

Microwave Detection

	(2A)		(6A)	
FUNCTION	Sensor 1		Sensor 2	
Channel	1		1	
Phase	2		6	
Direction of Travel	WB		EB	
Type	Priority		Priority	
Level	2	QUEUE	2	QUEUE
Detection Zone (ft)	<750	–	<750	–
Range (ft)	600–100	150–100	600–100	150–100
Enable Speed	Y	Y	Y	Y
Speed Range (mph)	35–100	1–35	35–100	1–35
Enable Estimated Time of Arrival	Y	N	Y	N
Estimated Time of Arrival (sec)	2.5–6.5	–	2.5–6.5	–

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	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
N/A	Wheelchair Ramp	
	Non-Intrusive Detection Zone	
N/A	Guardrail	
	Construction Zone	N/A
E	Temp. Construction Easement	N/A
N/A	Utility Pole	
N/A	Gas Line	G
N/A	U/G Water Line	W
	Drainage Pipe	
N/A	U/G Fiber	T FO
N/A	O/H Pwr. & Util. Lines	PROP O/H POW TEL & FO LINES
N/A	Temporary O/H Power Lines	TEMP O/H POW LINES
N/A	Abandon X" Utility Pipe	ABANDON 60" UTILITY PIPE
N/A	Barricade	

Signal Upgrade
Temporary Design 2 - TMP Ph2, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
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Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: DJ White REVIEWED BY: BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

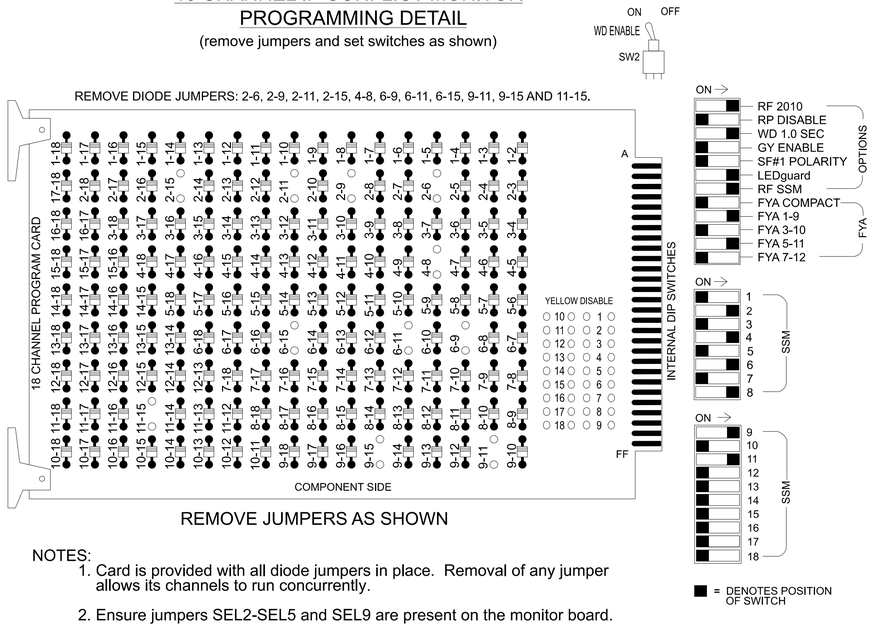
Signed by: Brittany Groome 7E093A0E1D64454...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1333T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-11.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332 w/ Aux
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....18 With Aux. Output File
Load Switches Used.....S2, S5, S8, S9, S11, AUX S1, AUX S4
Phases Used.....2, 4, 6, 6PED, 8
Overlap "1".....*
Overlap "2".....NOT USED
Overlap "3".....*
Overlap "4".....NOT USED

*See overlap programming detail on this sheet.

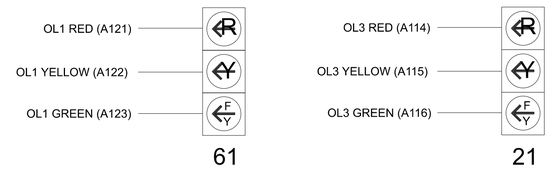
SIGNAL HEAD HOOK-UP CHART

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	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	22,23	NU	NU	41,42	NU	NU	62,63	P61, P62	NU	81,82	NU	61 ★	NU	NU	21 ★	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW																		
✋									113									
🚶									115									

NU = Not Used
★See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	1O	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅ 6 PED DC ISOLATOR	FS DC ISOLATOR
	L													NOT USED	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

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.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOT I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

Install a multizone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	-	-
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

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.

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1333T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED:

Electrical Detail - Sheet 1 of 2
Temporary Design 2 - TMP Ph2, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

NC Department of Transportation Mobility and Safety Division
Traffic Engineering Branch
Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
TE093A0E1D84454... DATE

SIG. INVENTORY NO. 14-1333T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-11.2

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE FLASH RED

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1333T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED:

Electrical Detail - Sheet 2 of 2
Temporary Design 2 - TMP Ph2, S1

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Electrical and Programming Details For:

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

NC 107 (E. Main Street)
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Division 14 | Jackson County | Sylva

PLAN DATE: August 2025 | REVIEWED BY: ZM Esposito
PREPARED BY: DJ White | REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

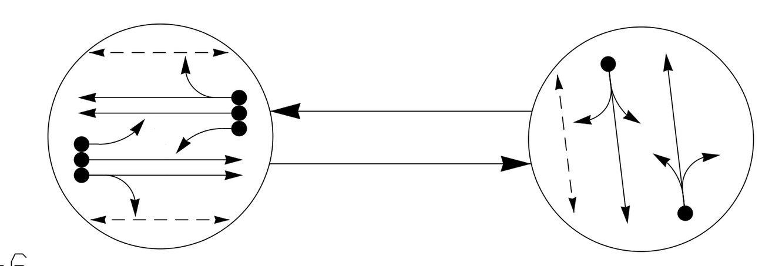
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N. GROOME

Signed by: Brittany Groome
8/26/2025
DATE

SIG. INVENTORY NO. 14-1333T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-12.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

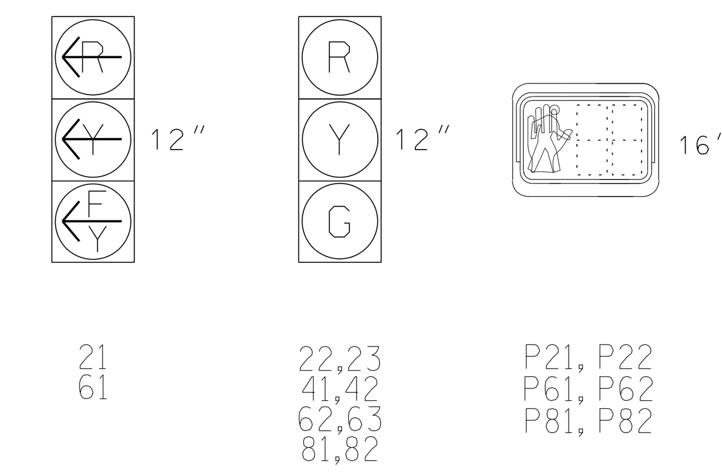
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	PHASE 4+8	PHASE FLASH
21	←F/Y	←R	←R
22,23	G	R	R
41,42	R	G	R
61	←F/Y	←R	←R
62,63	G	R	R
81,82	R	G	R
P21, P22	W	DW	DRK
P41, P42	DW	W	DRK
P61, P62	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

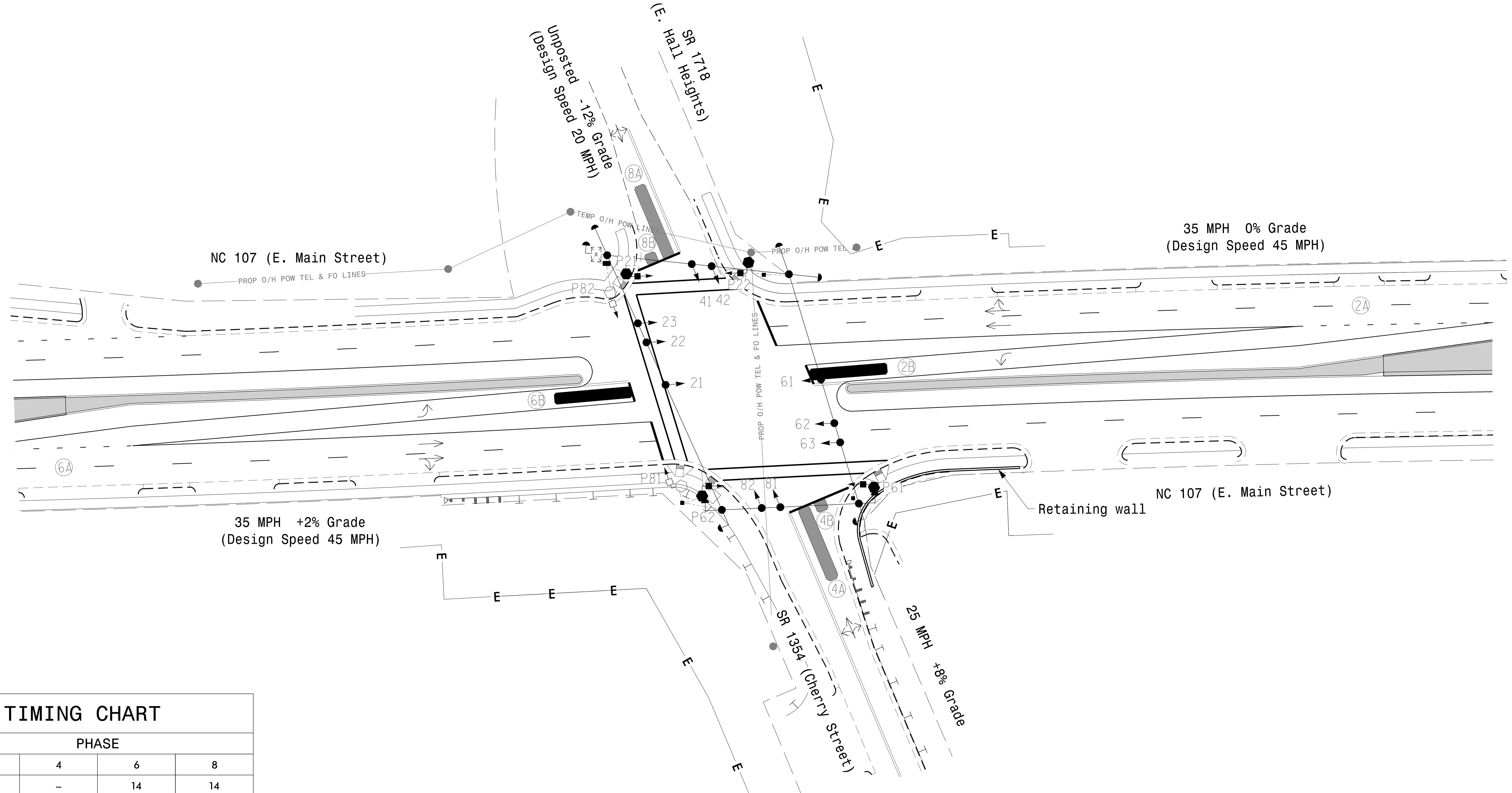
DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2B	*	0	*	X	2	3.0	-	X	-	X	-	*
4A	*	0	*	-	4	5.0	-	X	-	X	-	*
4B	*	0	*	-	4	5.0	-	X	-	X	-	*
6B	*	0	*	X	6	3.0	-	X	-	X	-	*
8A	*	0	*	X	8	5.0	-	X	-	X	-	*
8B	*	0	*	X	8	5.0	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

2 Phase
Fully Actuated
(Time Based Coordination)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Reposition existing signal heads numbered 21, 22, 23 and 61.
4. Unbag and reconnect existing pedestrian heads and pushbuttons P21 and P22.
5. Set all detector units to presence mode.
6. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
7. 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	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Wheelchair Ramp	
	Type II Signal Pedestal	
	Non-Intrusive Detection Zone	
N/A	Guardrail	
	Construction Zone	N/A
E	Temp. Construction Easement	N/A
N/A	Gas Line	
N/A	U/G Water Line	
	Drainage Pipe	
N/A	U/G Fiber	
N/A	O/H Pwr. & Utl. Lines	PROP O/H POW TEL & FO LINES
N/A	Temporary O/H Power Lines	TEMP O/H POW LINES
N/A	Abandon X" Utility Pipe	ABANDON 60" UTILITY PIPE

MAXTIME TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Walk *	14	–	14	14
Ped Clear	13	–	21	24
Min Green *	12	7	12	7
Passage *	2.0	2.0	2.0	2.0
Max 1 *	60	40	60	40
Yellow Change	4.5	3.5	4.5	3.5
Red Clear	1.6	3.5	1.6	3.5
Added Initial *	–	–	–	–
Maximum Initial *	–	–	–	–
Time Before Reduction *	–	–	–	–
Time To Reduce *	–	–	–	–
Minimum Gap	–	–	–	–
Advance Walk	7	–	7	7
Non Lock Detector	–	X	–	X
Vehicle Recall	MIN RECALL	–	MIN RECALL	–
Dual Entry	–	X	–	X

* 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.

Microwave Detection

	2A		6A	
FUNCTION	Sensor 1		Sensor 2	
Channel	1		1	
Phase	2		6	
Direction of Travel	WB		EB	
Type	Priority		Priority	
Level	2	QUEUE	2	QUEUE
Detection Zone (ft)	<750	–	<750	–
Range (ft)	600–100	150–100	600–100	150–100
Enable Speed	Y	Y	Y	Y
Speed Range (mph)	35–100	1–35	35–100	1–35
Enable Estimated Time of Arrival	Y	N	Y	N
Estimated Time of Arrival (sec)	2.5–6.5	–	2.5–6.5	–

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Signal Upgrade
Temporary Design 3 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for 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

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS | INIT. | DATE

SCALE 0 40 1"=40'

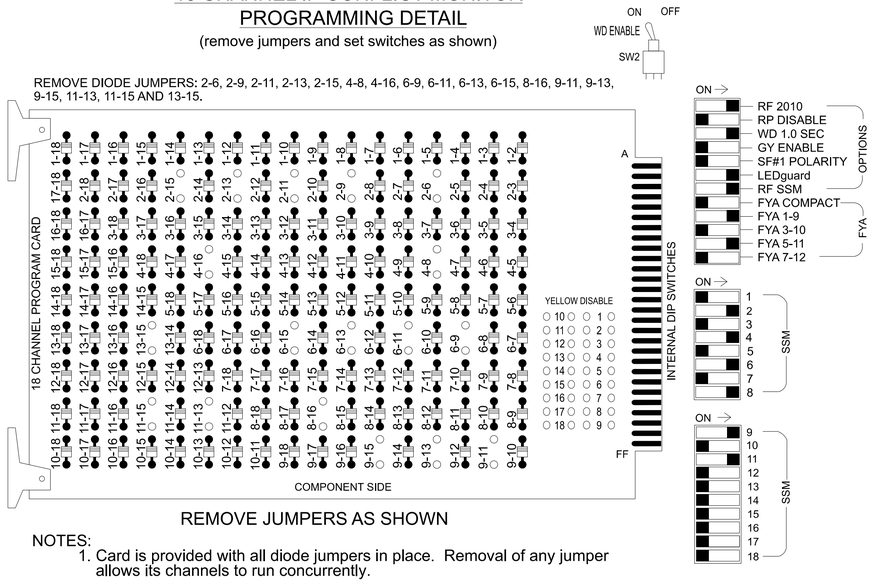
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025 DATE

SIG. INVENTORY NO. 14-1333T3

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. The cabinet and controller are part of the NC 107 Time Based System.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332 w/ Aux
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....18 With Aux. Output File
Load Switches Used.....S2, S3, S5, S8, S9, S11,S12
AUX S1, AUX S4
Phases Used.....2, 2PED, 4, 6, 6PED, 8, 8PED
Overlap "1".....*
Overlap "2".....NOT USED
Overlap "3".....*
Overlap "4".....NOT USED

*See overlap programming detail on sheet 2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-12.1

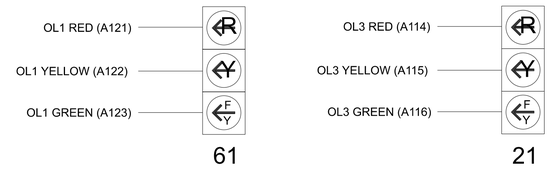
SIGNAL HEAD HOOK-UP CHART

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	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	22,23	P21, P22	NU	41,42	NU	NU	62,63	P61, P62	NU	81,82	P81, P82	61 ★	NU	NU	21 ★	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW																		
✋			113						119			110						
🚶			115						121			112						

NU = Not Used
★See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅ 2 PED DC ISOLATOR	∅ 6 PED DC ISOLATOR	FS DC ISOLATOR
	L												NOT USED	∅ 8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

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.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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.

SPECIAL DETECTOR NOTE

Install a multizone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1333T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED:

Electrical Detail - Sheet 1 of 2
Temporary Design 3 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025
DATE
SIG. INVENTORY NO. 14-1333T3

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Traffic Engineering Branch
Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE FLASH RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	-	-
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1333T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED:

Electrical Detail - Sheet 2 of 2
Temporary Design 3 - TMP Ph3, S1

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Plans Prepared By:
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CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

Electrical and Programming Details For:

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DJ White	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

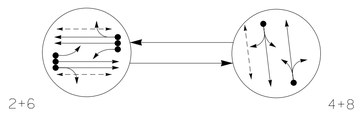
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1333T3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-13.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

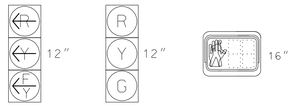
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	PHASE 4+8	FLASH
21	~~FY~~	~~R~~	~~R~~
22,23	G	R	R
41,42	R	G	R
61	~~FY~~	~~R~~	~~R~~
62,63	G	R	R
81,82	R	G	R
P21, P22	W	DW	DRK
P61, P62	W	DW	DRK
P81, P82	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



21
61

22,23
41,42
62,63
81,82

P21, P22
P61, P62
P81, P82

MAXTIME DETECTOR INSTALLATION CHART

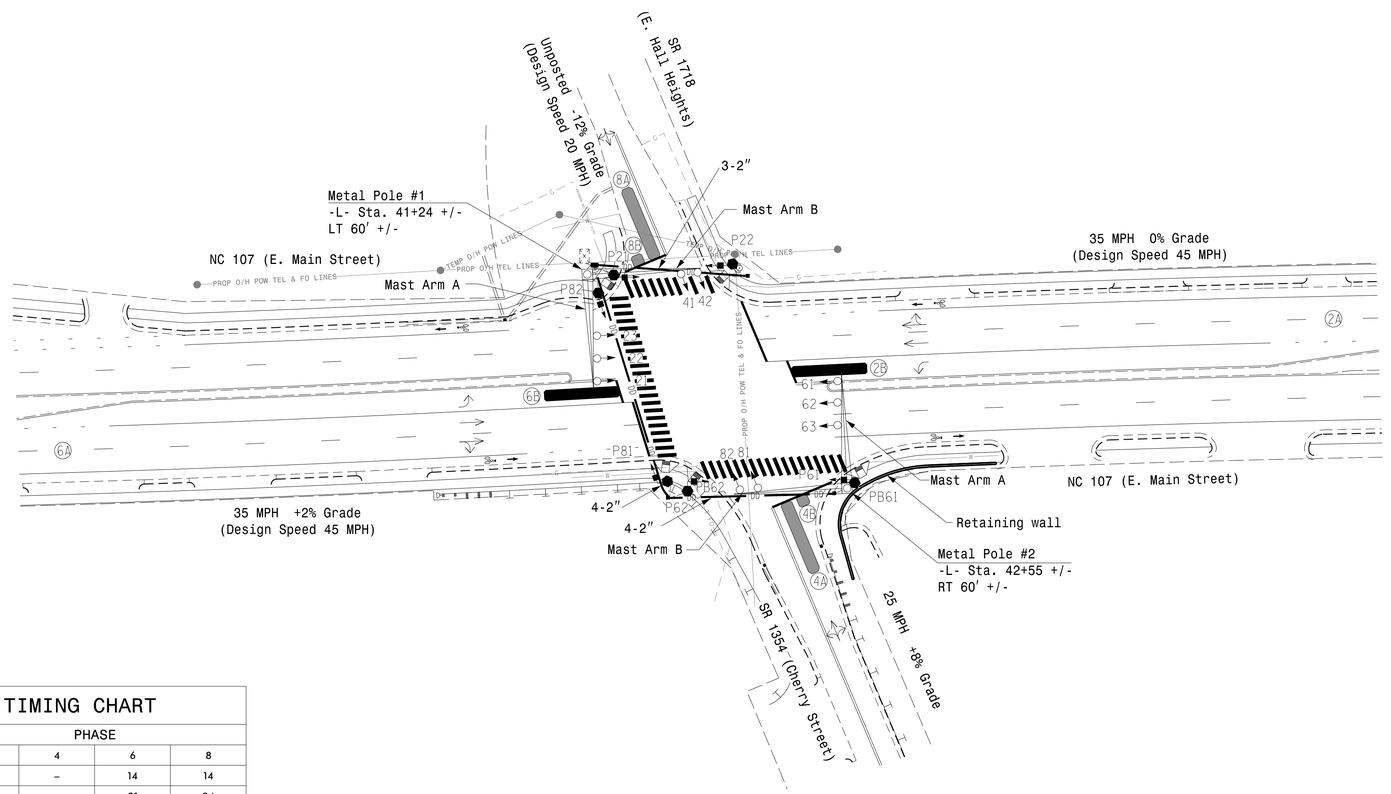
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2B	*	0	*	X	2	3.0	-	X	-	X	-	*
4A	*	0	*	-	4	5.0	-	X	-	X	-	*
4B	*	0	*	-	4	5.0	-	X	-	X	-	*
6B	*	0	*	X	6	3.0	-	X	-	X	-	*
8A	*	0	*	-	8	5.0	-	X	-	X	-	*
8B	*	0	*	-	8	5.0	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

2 Phase
Fully Actuated
(NC 107 D14-14)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
5. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
6. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
7. 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	■
▭	Oversized Junction Box	■
-----	2-in Underground Conduit	-·-·-·-
N/A	Right of Way	———
→	Directional Arrow	→
N/A	Wheelchair Ramp	♿
DD	Directional Drill	N/A
○→	Metal Pole with Mastarm	○→
⊛	Type I Pushbutton Post	⊛
⬡	Type II Signal Pedestal	⬢
▬	Non-Intrusive Detection Zone	▬
N/A	Guardrail	⊥⊥⊥
N/A	Gas Line	——G——
N/A	U/G Water Line	——W——
═══	Drainage Pipe	═══
N/A	U/G Fiber	——T FO——
N/A	O/H Pwr. & Util. Lines	——PROP O/H POW TEL & FO LINES——
N/A	Temporary O/H Power Lines	——TEMP O/H POW LINES——

MAXTIME TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Walk *	14	–	14	14
Ped Clear	13	–	21	24
Min Green *	12	7	12	7
Passage *	2.0	2.0	2.0	2.0
Max 1 *	60	40	60	40
Yellow Change	4.5	3.5	4.5	3.5
Red Clear	1.6	3.5	1.6	3.5
Added Initial *	–	–	–	–
Maximum Initial *	–	–	–	–
Time Before Reduction *	–	–	–	–
Time To Reduce *	–	–	–	–
Minimum Gap	–	–	–	–
Advance Walk	7	–	7	7
Non Lock Detector	–	X	–	X
Vehicle Recall	MIN RECALL	–	MIN RECALL	–
Dual Entry	–	X	–	X

* 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.

Microwave Detection

	(2A)		(6A)	
FUNCTION	Sensor 1		Sensor 2	
Channel	1		1	
Phase	2		6	
Direction of Travel	WB		EB	
Type	Priority		Priority	
Level	2	QUEUE	2	QUEUE
Detection Zone (ft)	<750	–	<750	–
Range (ft)	600–100	150–100	600–100	150–100
Enable Speed	Y	Y	Y	Y
Speed Range (mph)	35–100	1–35	35–100	1–35
Enable Estimated Time of Arrival	Y	N	Y	N
Estimated Time of Arrival (sec)	2.5–6.5	–	2.5–6.5	–

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
TE0934DE1D5484...
DATE

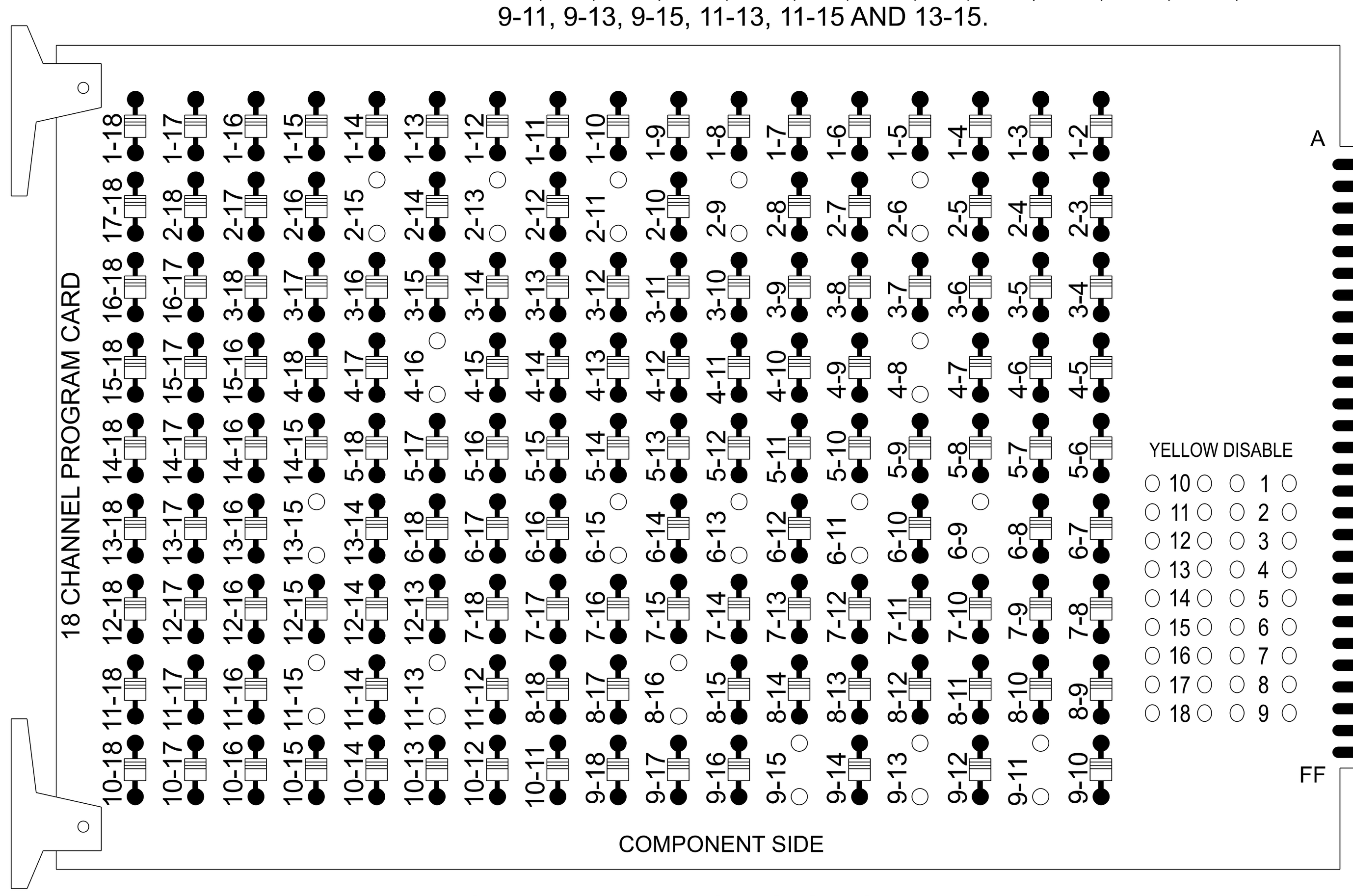
SIG. INVENTORY NO. 14-1333

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-13.1

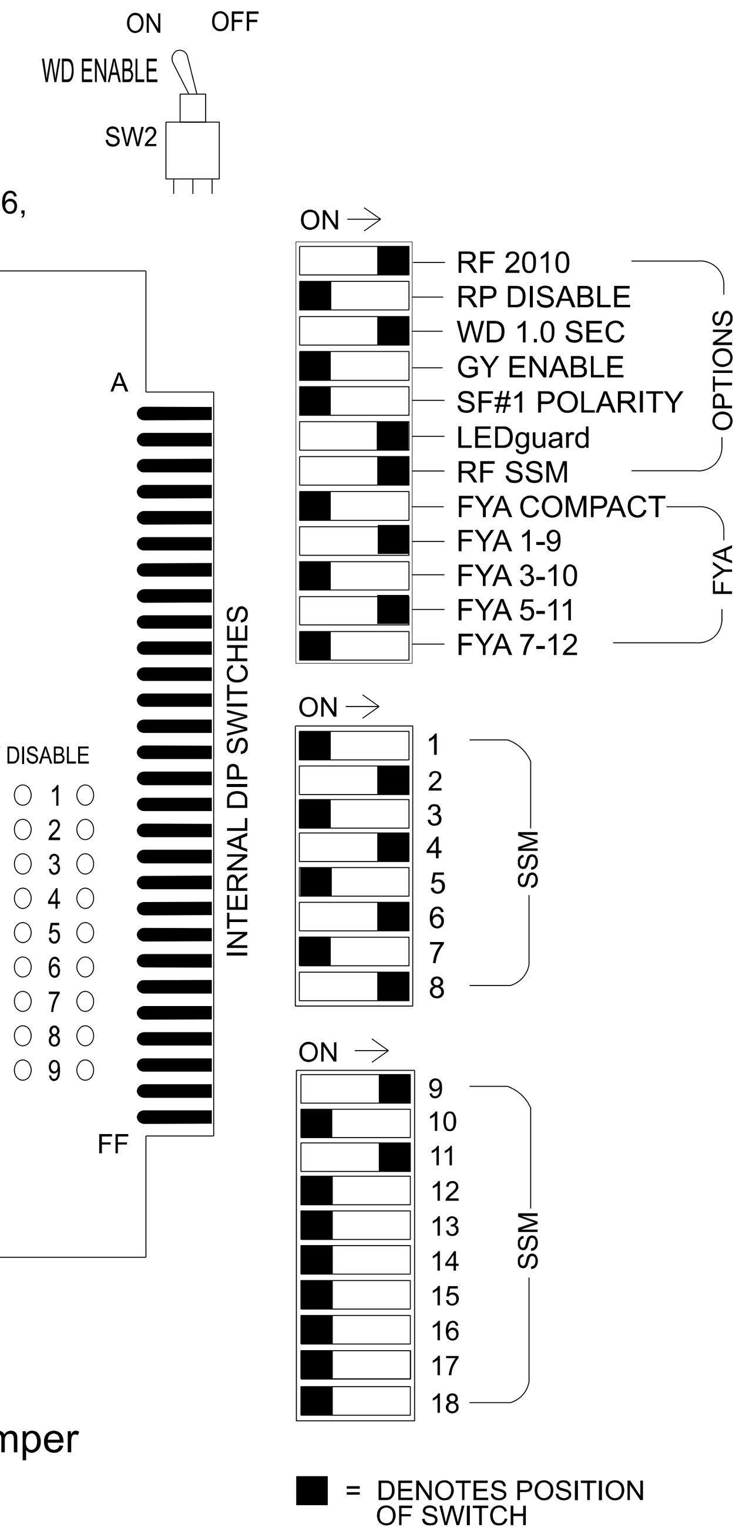
18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 2-13, 2-15, 4-8, 4-16, 6-9, 6-11, 6-13, 6-15, 8-16, 9-11, 9-13, 9-15, 11-13, 11-15 AND 13-15.



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 the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. The cabinet and controller are part of the NC 107 D14-14 System.

EQUIPMENT INFORMATION

Controller..2070LX
Cabinet..332 w/ Aux
Software...Q-Free MAXTIME
Cabinet Mount.......................................Base
Output File Positions............................18 With Aux. Output File
Load Switches Used.............................S2, S3, S5, S8, S9, S11,S12
AUX S1, AUX S4
Phases Used..2, 2PED, 4, 6, 6PED, 8, 8PED
Overlap "1"..*
Overlap "2"..NOT USED
Overlap "3"..*
Overlap "4"..NOT USED

*See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

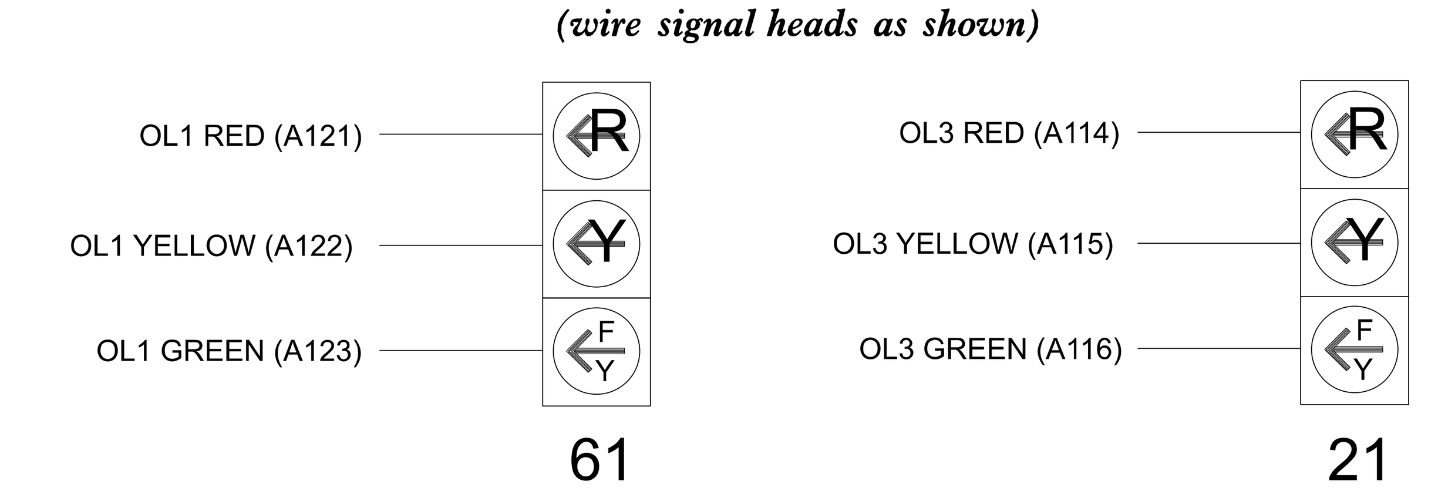
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	22,23	P21, P22	NU	41,42	NU	NU	62,63	P61, P62	NU	81,82	P81, P82	61★	NU	NU	21★	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW																		
(Don't Walk hand)			113						119			110						
(Walk person)			115						121			112						

NU = Not Used

★See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	1O	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅ 2 PED DC ISOLATOR	∅ 6 PED DC ISOLATOR	FS DC ISOLATOR
	L												NOT USED	∅ 8 PED DC ISOLATOR	ST DC ISOLATOR
"J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

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.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

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: 14-1333
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED:

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.

SPECIAL DETECTOR NOTE

Install a multizone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

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DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

NC 107 (E. Main Street)
at
SR 1354 (Cherry Street)/
SR 1718 (E. Hall Heights)

Division 14 Jackson County Sylva

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DJ White	REVIEWED BY: BN Groome

REVISIONS | INIT. | DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME

Signed by: Brittany Groome 8/26/2025
DATE

SIG. INVENTORY NO. 14-1333

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-13.2

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE FLASH RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	-	-
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1333
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED:

Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details For:

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PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
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REVISIONS	INIT.	DATE

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

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

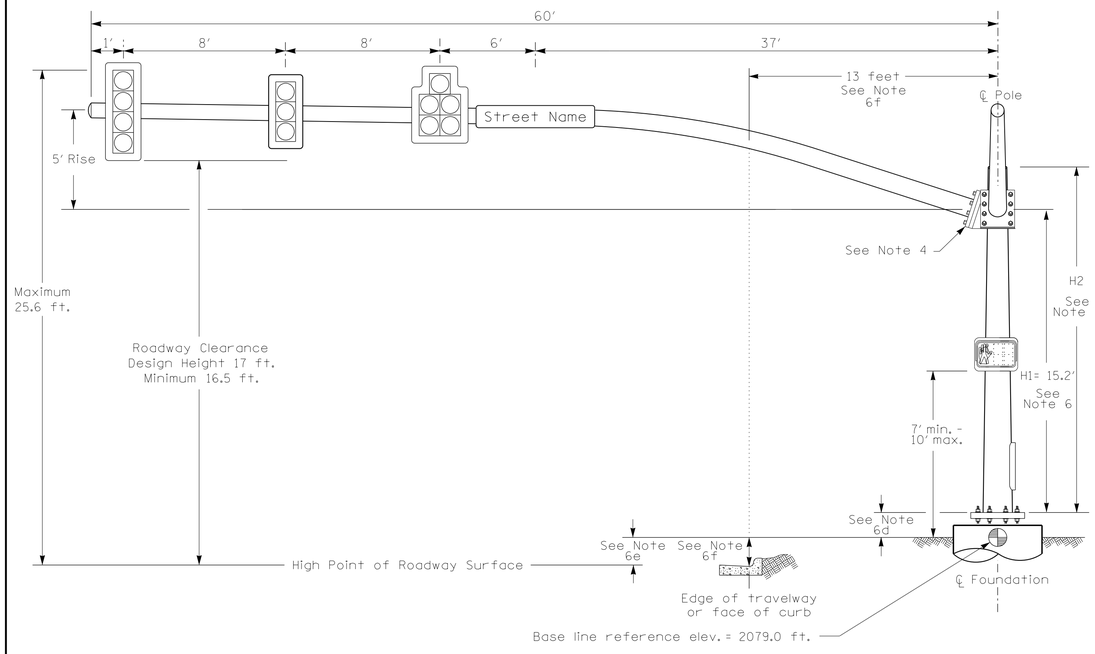
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1333

METAL POLE No. 1

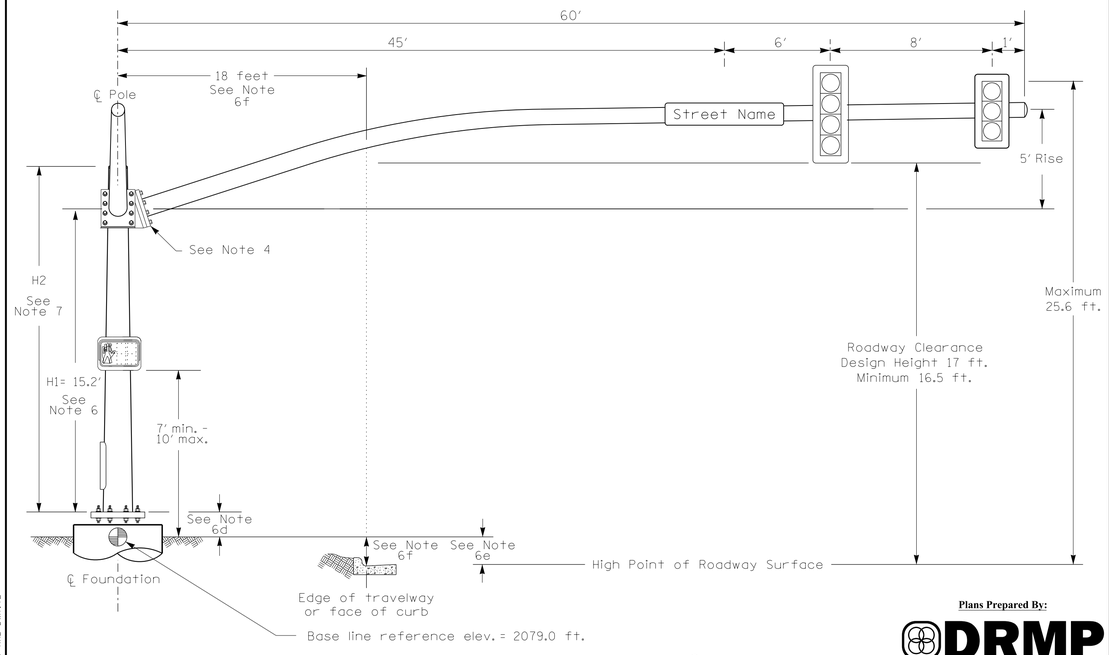
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-13.3

Design Loading for METAL POLE NO. 1, MAST ARM A



Elevation View @ 270°

Design Loading for METAL POLE NO. 1, MAST ARM B



Elevation View @ 0°

Plans Prepared By:

DRMP

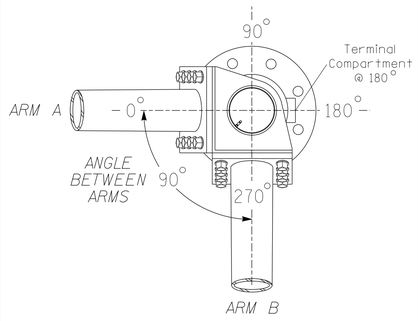
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SPECIAL NOTE

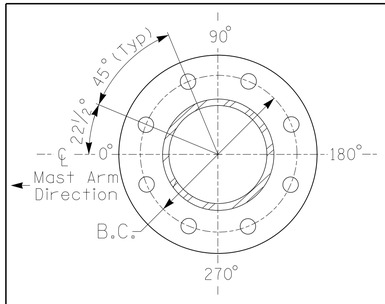
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Arm A	Arm B
Baseline reference point at ℄ Foundation @ ground level	2079.0 ft.	2079.0 ft.
Elevation difference at High point of roadway surface	-0.6 ft.	+1.7 ft.
Elevation difference at Edge of travelway or face of curb	-1.8 ft.	+0.9 ft.

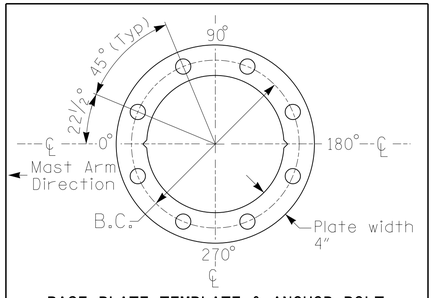


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12″-5 SECTION-WITH BACKPLATE	16.3 S.F.	42.0″ W X 56.0″L	103 LBS
	RIGID MOUNTED SIGNAL HEAD 12″-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5″ W X 66.0″L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″ W X 52.5″L	60 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0″ W X 96.0″L	36 LBS
	PEDESTRIAN SIGNAL HEAD WITH MOUNTING HARDWARE	2.2 S.F.	18.5″ W X 17.0″L	21 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2024 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using force ratios that do not exceed 0.9.
4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate connection points.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

NC 107 (E Main Street)
at
SR 1354 (Cherry Street)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE: 0 N/A N/A

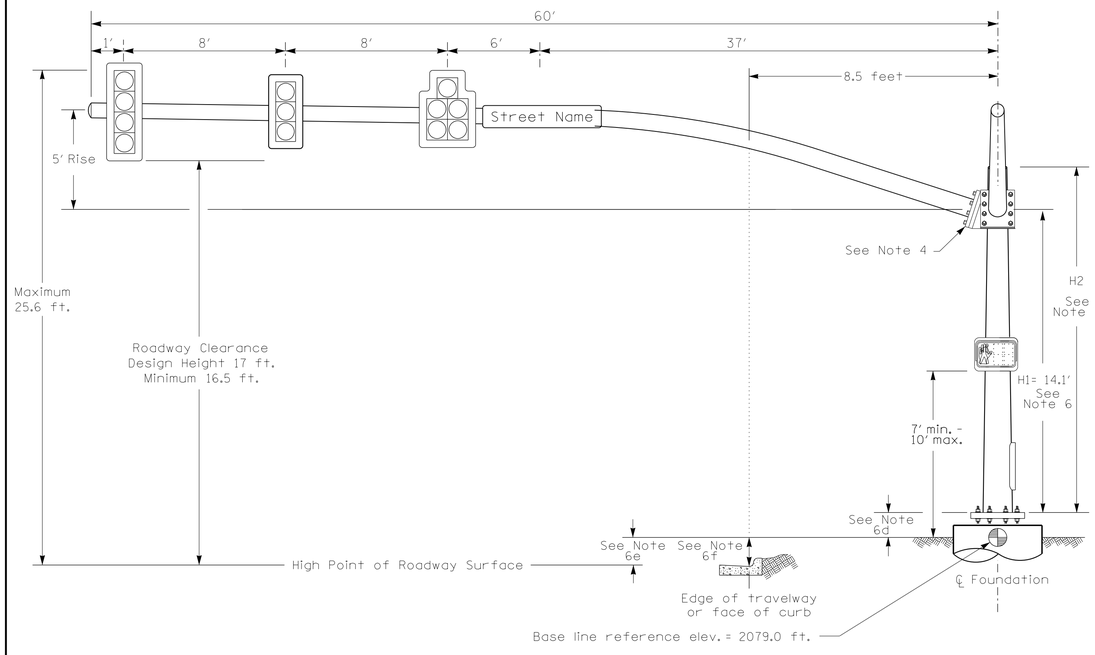
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 1ED09340E1D84484...
8/26/2025
DATE

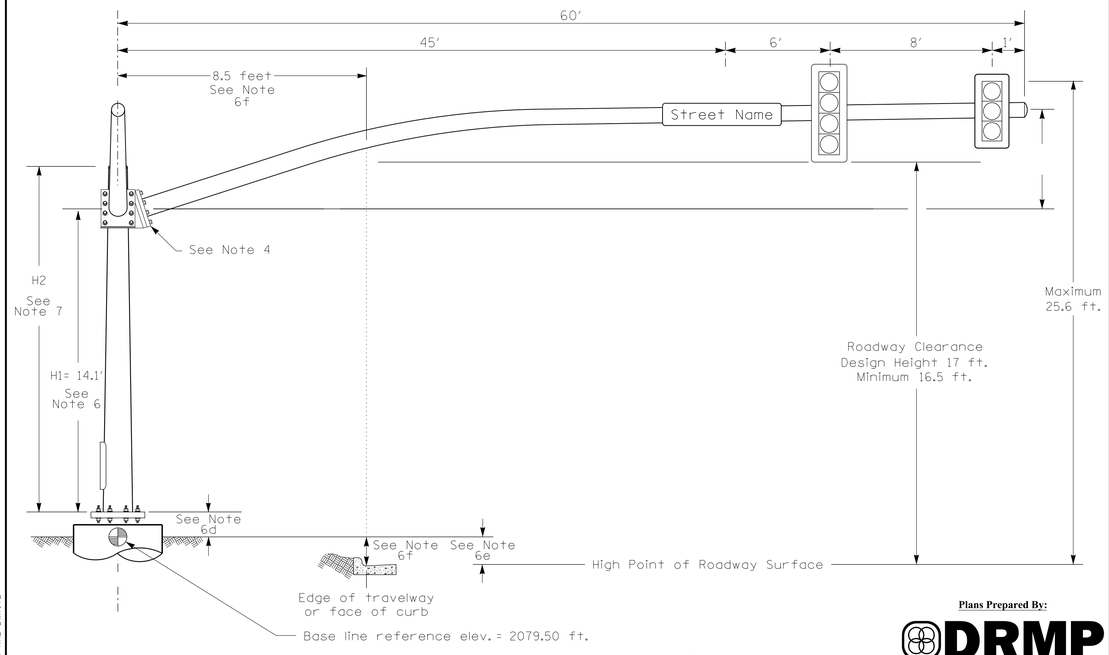
SIG. INVENTORY NO. I4-1333

Design Loading for METAL POLE NO. 2, MAST ARM A



Elevation View @ 270°

Design Loading for METAL POLE NO. 2, MAST ARM B



Elevation View @ 0°

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
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SPECIAL NOTE

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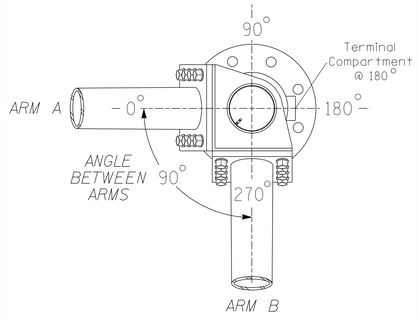
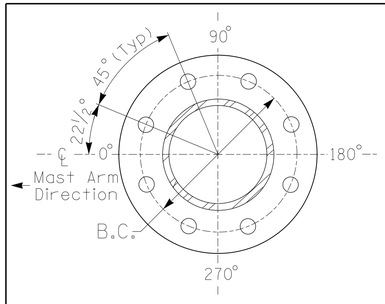
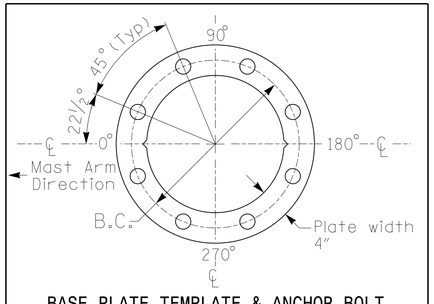


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

METAL POLE No. 2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-13.4

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LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
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NCDOT Wind Zone 5 (110 mph)

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North Carolina Department of Transportation
Signal Design Section
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NC 107 (E Main Street)
at
SR 1354 (Cherry Street)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

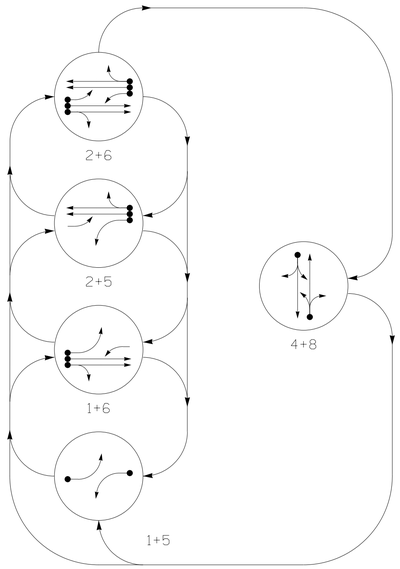
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 1ED09340E1D84484... 8/26/2025
DATE

SIG. INVENTORY NO. 14-1333

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-14.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

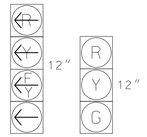
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 4+8	FLASH
11	←̶	←̶	F Y	F Y	R̶	R̶
21, 22	R	R	G	G	R	R
41, 42	R	R	R	R	G	R
51	←̶	F Y	←̶	F Y	R̶	R̶
61, 62	R	G	R	G	R	R
81, 82	R	R	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



11
51

21, 22
41, 42
61, 62
81, 82

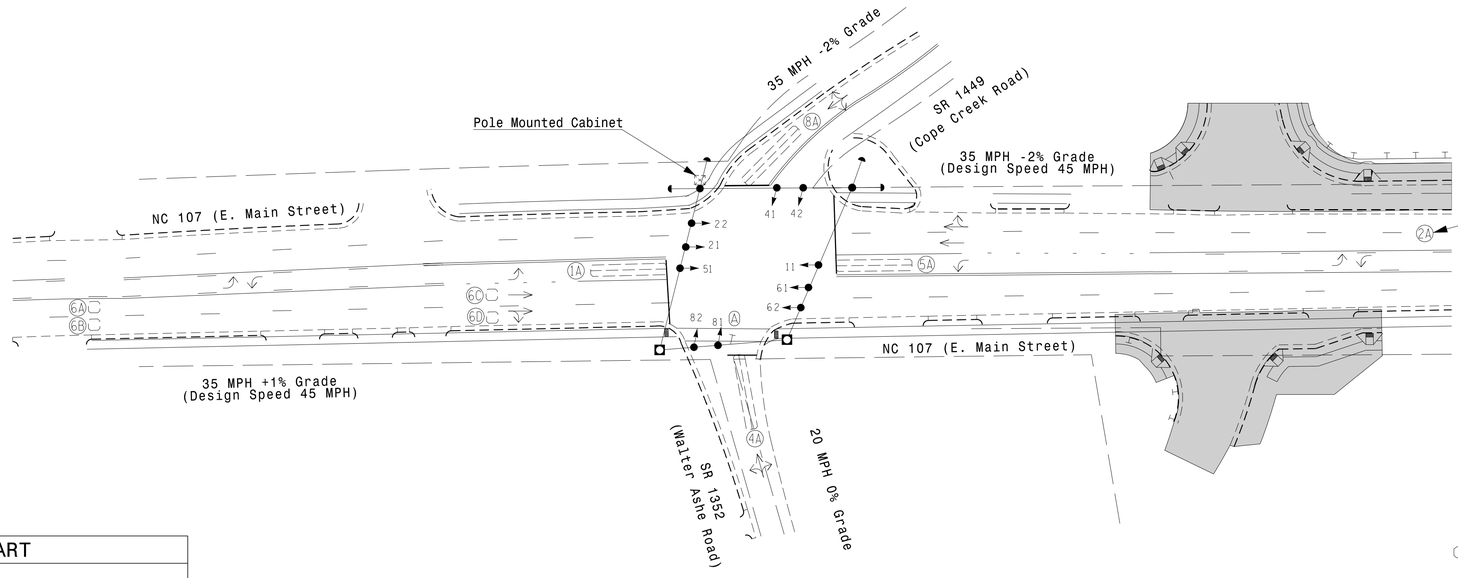
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	5	-	-
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	-	-	-	-	-
6A,6B	6X6	300	EXIST	-	6	Y	Y	-	1.6	-	-	-
6C,6D	6X6	90	EXIST	-	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	5	-	-

5 Phase
Fully Actuated
(Time Based Coordination)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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. Abandon existing loops # 2A, 2B, 2C and 2D.
5. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
6. 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	
	Non-Intrusive Detection Zone	
	Construction Zone	N/A
	Metal Strain Pole	
A	"Left Turn Yield on Green" Sign (R10-12)	A

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	3.0	2.0	2.0	2.0	2.0	2.0
Max Green 1 *	15	62	20	15	60	20
Yellow Clearance	3.0	4.7	4.0	3.0	4.7	4.0
Red Clearance	2.3	1.5	2.8	2.4	1.5	2.8
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	–	–	–	–	–	–
Don't Walk 1	–	–	–	–	–	–
Seconds Per Actuation *	–	–	–	–	–	–
Max Variable Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Recall Mode	–	MIN RECALL	–	–	MIN RECALL	–
Vehicle Call Memory	–	YELLOW	–	–	YELLOW	–
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.

Microwave Detection

	2A	
FUNCTION	Sensor 1	
Channel	1	
Phase	2	
Direction of Travel	WB	
Type	Priority	
Level	2	QUEUE
Detection Zone (ft)	<750	–
Range (ft)	600–100	150–100
Enable Speed	Y	Y
Speed Range (mph)	35–100	1–35
Enable Estimated Time of Arrival	Y	N
Estimated Time of Arrival (sec)	2.5–6.5	–

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Signal Upgrade
Temporary Design 1 - TMP Ph1, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME

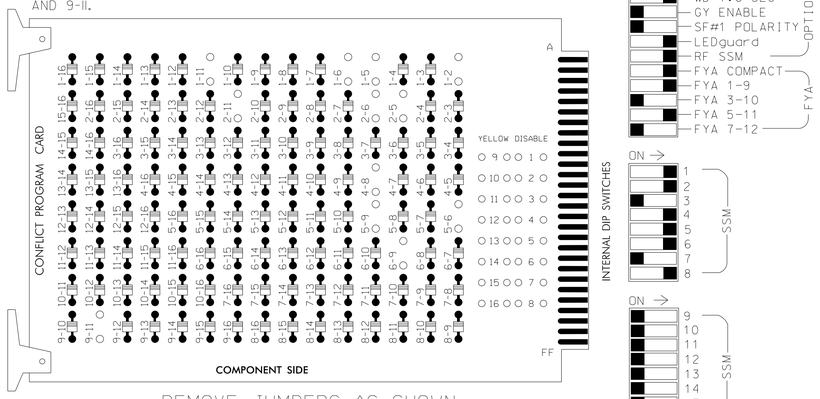
Signed by: Brittany Groome 1ED09340E1D94484... 8/26/2025
DATE

SIG. INVENTORY NO. I4-0694TI

16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(Confirm jumpers and set switches as shown)

CONFIRM DIODE JUMPERS: I-2, I-5, I-6, I-11, 2-5, 2-6, 2-11, 4-8, 5-6, 5-9, 6-9, AND 9-11.



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. Make sure jumpers SEL2-SEL5 are present on the monitor board.
3. Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on this sheet.

■ = DENOTES POSITION OF SWITCH

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	SLOT EMPTY	SLOT EMPTY	ø4 4A	ø5 5A	ø6 6A,6B	SLOT EMPTY	ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
L	⊗ WIRED INPUT			NOT USED	⊗ WIRED INPUT	ø6 6C,6D		NOT USED						ST DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S
⊗ Wired Input - turn off Channel 2.

FS = FLASH SENSE
ST = STOP TIME

REMOVE EXISTING CARD FROM SLOT 2.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
[1] 1A	TB21-1,2	I1U	56	18	1	1	Y	Y			15
	-	I1L	47	9	22	6	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			5
[2] 5A	TB21-9,10	I5U	55	17	5	5	Y	Y			15
	-	I5L	48	10	26	2	Y	Y			
6A,6B	TB21-11,12	I6U	40	2	6	6	Y	Y		1.6	
6C,6D	TB23-11,12	I6L	44	6	16	6	Y	Y			
8A	TB22-1,2	I8U	42	4	8	8	Y	Y			5

[1] Confirm jumper from I1-F to I1-W. on rear of input file.
[2] Confirm jumper from I5-F to I5-W. on rear of input file.

INPUT FILE POSITION LEGEND: I2L
FILE I
SLOT 2
LOWER

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,7,9,10, 11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Verify programming for phases 4 and 8 for Dual Entry.
4. Verify Simultaneous Gap-Out for all phases is enabled.
5. Verify programming for overlap 1 as Wag Overlap.
6. Remove Yellow Flash programming and remove phases 2 and 6 from Start Up in Green.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....McCAIN/CONTROL TECHNOLOGIES (DWG.NO.9500-336-NCDOT)
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S2P,S4,S5,S6,S6P,S8.
PHASES USED.....1,2,4,5,6,8.
OVERLAP "A".....1+2
OVERLAP "B".....NOT USED
OVERLAP "C".....5+6
OVERLAP "D".....NOT USED

PED YELLOW CONFLICT MONITOR WIRING DETAIL

(Verify cabinet wiring changes as shown below)

Maintain existing wiring for FYA COMPACT mode. Wiring should be verified to be as shown below.

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired to the conflict monitor as follows: From 2 PY (field term. 114) to chan. 9 green (monitor pin 13), and from 6 PY (field term. 120) to chan. 10 green (monitor pin R).

Verify the appropriate connections:

STEP 1: Fold down rear panel of output file.

STEP 2: Find unused wiring harness from conflict monitor card edge connector (which should be tied and bundled together).

STEP 3: Find the conductors that correspond to the following conflict monitor card edge pins and verify wires are soldered to the appropriate terminal on the rear of the output file as shown below:

CMU-13 ——— 2PY (term. 114)
CMU-R ——— 6PY (term. 120)

NOTE: Some cabinet manufacturers use a molex plug to accomplish this wiring configuration. If connectors are used, verify that the two connectors are plugged together which are labeled with the pin-out as shown above.

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection for 2A. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

Plans Prepared By:
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PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-14.1

SIGNAL HEAD HOOK-UP CHART

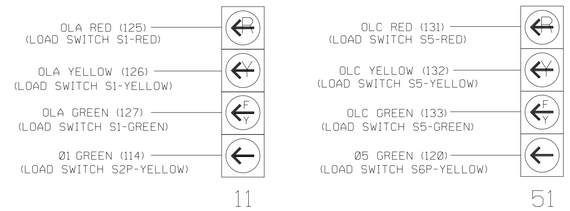
LOAD SWITCH NO.	S1	S2	S2P		S3	S4	S4P	S5	S6	S6P		S7	S8	S8P
CMU CHANNEL NO.	1	2	9	13	3	4	14	5	6	11	15	7	8	16
PHASE	OLA	2	1 GRN	2 PED	3	4	4 PED	OLC	6	5 GRN	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11★	21,22	11★	NU	NU	41,42	NU	51★	61,62	51★	NU	NU	81,82	NU
RED		128				101			134				107	
YELLOW		129				102			135				108	
GREEN		130				103			136				109	
RED ARROW	125							131						
YELLOW ARROW	126							132						
FLASHING YELLOW ARROW	127							133						
GREEN ARROW			114							120				
				✳							✳			

NU = Not Used
✳ Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S2P, S5 and S6P required output remapping. Maintain existing remapping. See sheets 3 and 4 of this electrical detail for additional details.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(Verify signal heads as shown)

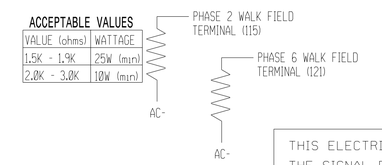


NOTE

1. The sequence display for these signals required special logic and output remapping. Maintain existing logic and output remapping. See sheet 2 for programming details.

LOAD RESISTOR INSTALLATION DETAIL

(Verify resistors as shown below)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0694T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4
Temporary Design 1 - TMP Ph1, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division — North Carolina Department of Transportation — Traffic Engineering Branch — Signals Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) / SR 1449 (Cope Creek Road)
Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZW Esposito
PREPARED BY: F Vazquez	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025
1E0934DE1D564B4...
DATE

SIG. INVENTORY NO. 14-0694T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-14.2

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(Verify controller is programmed as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
AND RED CLEAR ON PHASE #1 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #14 ON
SET OUTPUT ASSIGNMENT #15 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #16 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #1 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #15 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
AND RED CLEAR ON PHASE #5 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #30 ON
SET OUTPUT ASSIGNMENT #31 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #32 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #5 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #31 ON

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

OUTPUT REFERENCE SCHEDULE

OUTPUT 14 = Overlap A Red
OUTPUT 15 = Overlap A Yellow
OUTPUT 16 = Overlap A Green
OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green
OUTPUT 33 = Phase 1 Green
OUTPUT 34 = Phase 5 Green

Note: All outputs shown above have been remapped. See sheets 3 and 4 of this electrical detail.

OVERLAP PROGRAMMING DETAIL

(Verify and update controller to be programmed as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |123456789101111213141516
VEH OVL PARENTS:|XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN   <- NOTICE GREEN FLASH
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N     <- NOTICE NO YELLOW IN CONTROLLER FLASH
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          |123456789101111213141516
VEH OVL PARENTS:|   XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN   <- NOTICE GREEN FLASH
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N     <- NOTICE NO YELLOW IN CONTROLLER FLASH
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

CONTROLLER FLASH PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN PRESS '1' (PHASE CONTROL FUNCTIONS) TO GET TO PHASE CONTROL SET PAGE '1'

```
PHASE CONTROL SET: PAGE 1 (NEXT: PAGES)
PHASE #          | 123456789101111213141516
PERMITED         | XXXXXXXX
FLASH ENTRY      |  X    X
YELLOW FLASH     |
WAG PHASES       | X X   X X
WAG OVERLAPS     | X
MANUAL CONTROL   | XXXXXXXXX
```

Note: Yellow Flash disabled for all phases.

TRANSITION OUT OF RED-RED FLASH SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN PRESS '1' (PHASE CONTROL FUNCTIONS) TO GET TO PHASE CONTROL SET PAGE '1'

```
PHASE CONTROL SET: PAGE 1 (NEXT: PAGES)
PHASE #          | 123456789101111213141516
PERMITED         | XXXXXXXX
PED RED CLEAR    |
STARTUP IN GREEN |
STARTUP IN YEL   |
STARTUP RED CLR  |
FIRST PHASES     |  X    X
```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0694T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Traffic Engineering Branch
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

Electrical Detail - Sheet 2 of 4
Temporary Design 1 - TMP Ph1, S1

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: F Vazquez	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
1E0934DE1D5A4BC... DATE

SIG. INVENTORY NO. 14-0694T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-14.3

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 11

(Verify controller is programmed as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN
'1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1.P=16)...1
SELECT COLOR(0=RED.1=YEL.2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1.P=16)...1
SELECT COLOR(0=RED.1=YEL.2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1.P=16)...1
SELECT COLOR(0=RED.1=YEL.2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

PRESS "+" UNTIL OUTPUT 33
IS REACHED.

STEP 4

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT VEHICLE PHASE (1-16).....1
SELECT COLOR(0=RED.1=YEL.2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID.1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
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DRMP, INC.
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SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 3 of 4
Temporary Design 1 - TMP Ph1, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division
THE STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: F Vazquez	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 1E093406E1094484 8/26/2025 DATE

SIG. INVENTORY NO. 14-0694T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-14.4

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 51

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS). THEN
'1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION. ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" TWICE TO
REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).....5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE'
THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA.
THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT
ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 4 of 4
Temporary Design 1 - TMP Ph1, S1

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ITS & Signal Management Section

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
DATE

SIG. INVENTORY NO. 14-0694T1