



DEFAULT PHASING TABLE OF OPERATION				
SIGNAL FACE	PHASE			
	0 1 + 6	0 2 + 6	0 8	F L T H
11	←		←	R
21,22	R	G	R	R
23	R	→	→	R
61,62	G	G	R	R
81,82		←	←	R
83,84	→	R	→	R

ALTERNATE PHASING TABLE OF OPERATION				
SIGNAL FACE	PHASE			
	0 1 + 6	0 2 + 6	0 8	FL 10 + 12
11	←	→	→	←
21,22	R	G	R	←
23	R	→	→	R
61,62	G	G	R	R
81,82	→	→	←	←
83,84	→	R	→	R

MAXTIME DETECTOR INSTALLATION CHART												
DETECTOR					PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND TIME	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW C/PD
1A★	6X40	0	★	★	1 6##	15.0# -	- -	X X	X X	X X	★ ★	
8A★	6X40	0	★	★	8	3.0	-	X	X	X	★	
8B★	6X40	0	★	★	8	3.0	-	X	X	X	★	
8C★	6X40	0	★	★	8	15.0	-	X	X	X	★	
8D★	6X40	0	★	★	8	15.0	-	X	X	X	★	

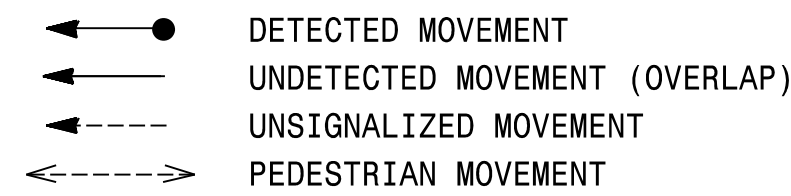
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* Multi-zone Microwave Detection Zone
# Disable Delay During Alternate Phasing Operation.
## Disable Phase Call for Loop(s) During Alternate Phasing Operation.
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3 Phase
Fully Actuated
w/ Alternate Phasing Operation
Signal System #: D11-03_Boone

NOTES

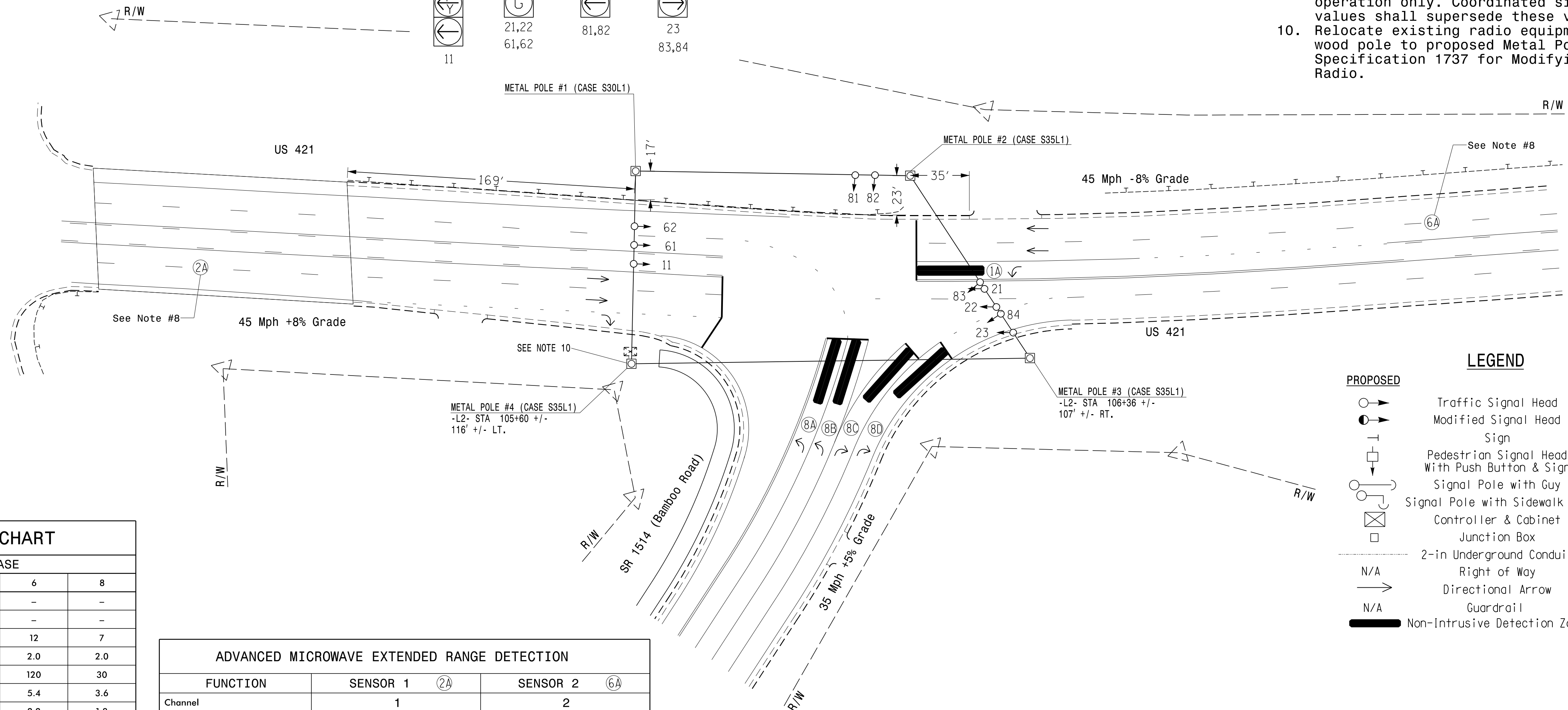
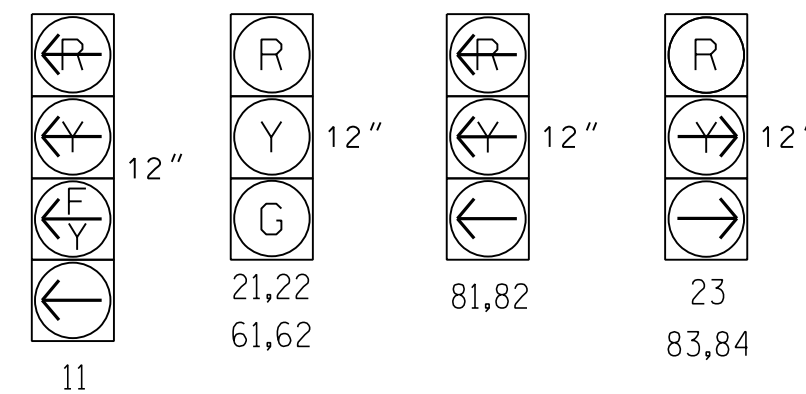
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Set all detector units to presence mode.
5. See PMP for pavement marking details.
6. The Division Traffic Engineer will determine the hours of use for each phasing plan.
7. Move existing radio antenna and wiring from the existing wood pole in the south west quadrant metal pole #4.
8. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
10. Relocate existing radio equipment from the existing wood pole to proposed Metal Pole #4. See Standard Specification 1737 for Modifying Spread Spectrum Radio.

PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME TIMING CHART

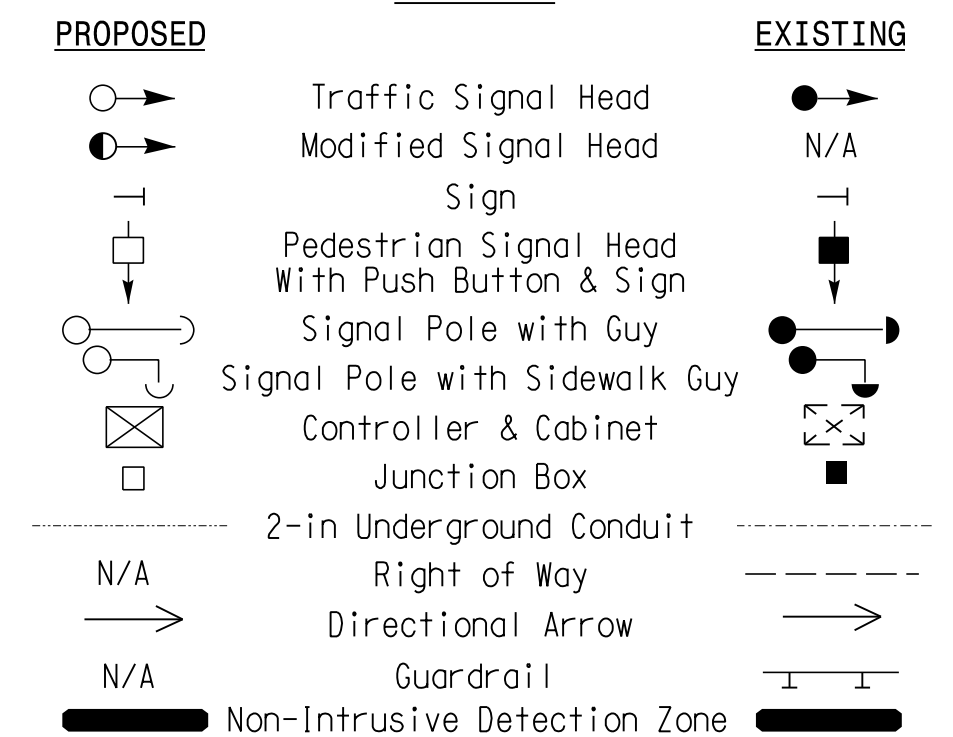
FEATURE	PHASE			
	1	2	6	8
Walk *	–	–	–	–
Ped Clear	–	–	–	–
Min Green *	7	12	12	7
Passage *	2.0	2.0	2.0	2.0
Max 1 *	15	120	120	30
Yellow Change	3.3	5.4	5.4	3.6
Red Clear	2.4	2.2	2.2	1.8
Added Initial *	–	–	–	–
Maximum Initial *	–	–	–	–
Time Before Reduction *	–	–	–	–
Time To Reduce *	–	–	–	–
Minimum Gap	–	–	–	–
Advance Walk	–	–	–	–
Non Lock Detector	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.

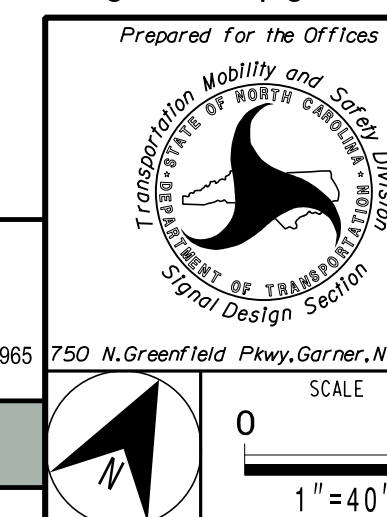
ADVANCED MICROWAVE EXTENDED RANGE DETECTION

FUNCTION	SENSOR 1 (2A)		SENSOR 2 (6A)	
Channel	1		2	
Phase	2		6	
Direction of Travel	EB		WB	
Type	PRIORITY		PRIORITY	
Level	2	QUEUE	2	QUEUE
Discovery Zone (ft)	<750	-	<750	-
Detection ZoneRange (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



Signal Upgrade - Final Design



US 421
at
SR 1514 (Bamboo Road)

Division 11 Watauga County near Boone

PLAN DATE:	April 2026	REVIEWED BY:	DT Sears
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529	PREPARED BY: WP Erickson-Jones	REVIEWED BY: C Silver
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REVISIONS	INIT.	DATE

[illegible]

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REAL

