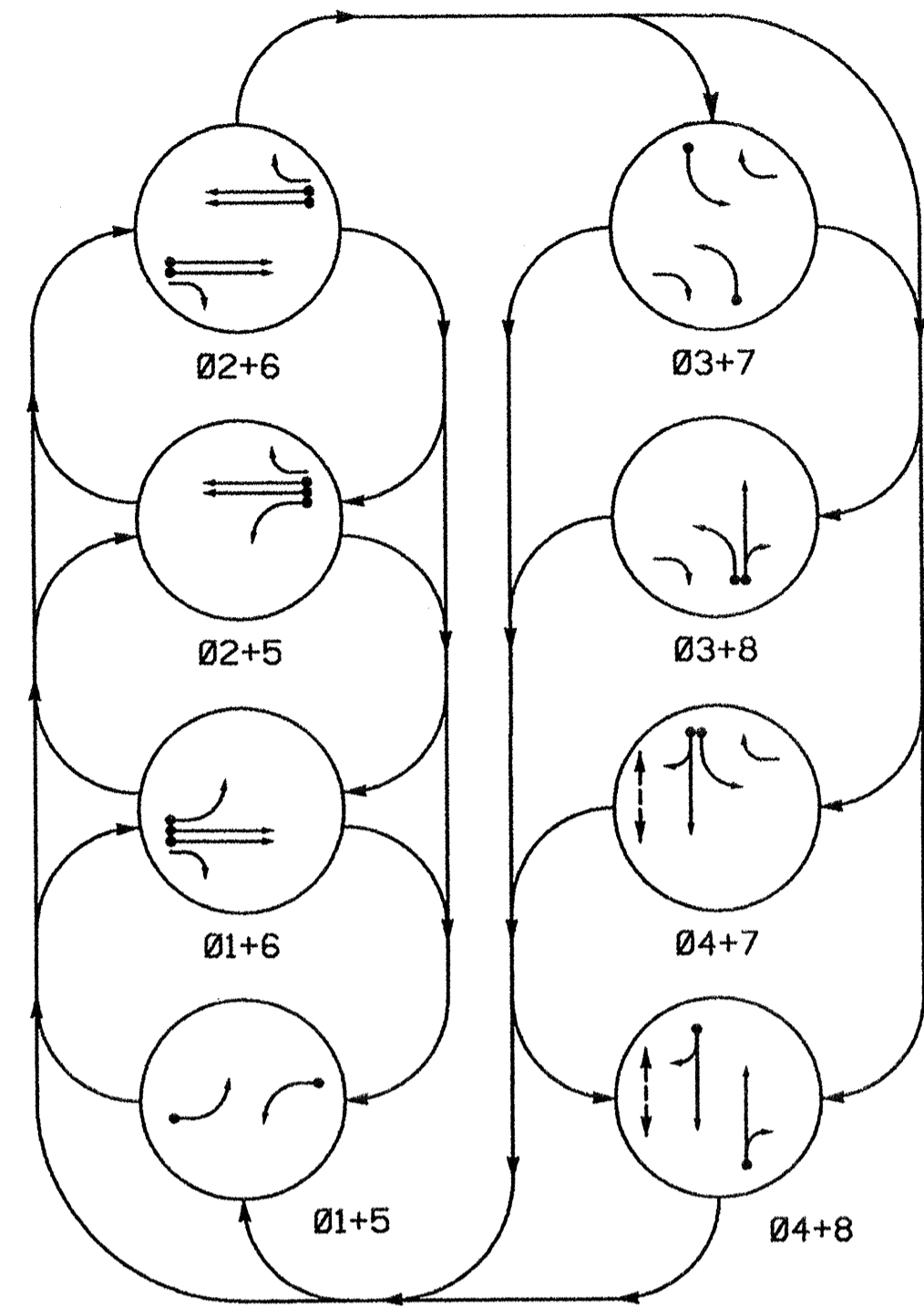


PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

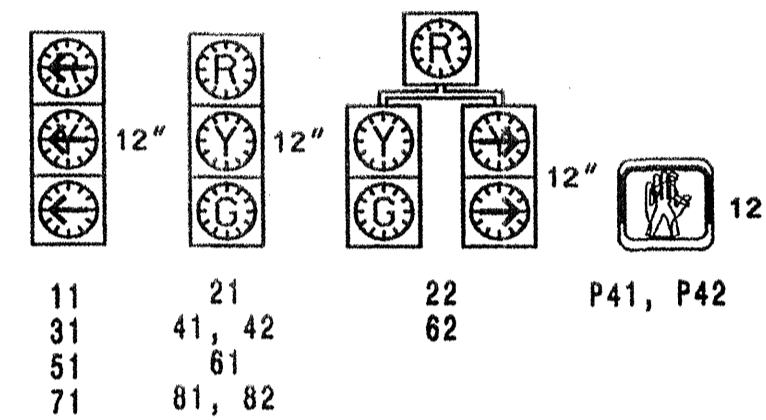
- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- ←---→ UNSIGNALIZED MOVEMENT
- ←-P-→ PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE								FLASH
	01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8	
11	---	---	---	---	---	---	---	---	---
21	R	R	G	G	R	R	R	R	Y
22	R	R	G	G	R	R	R	R	Y
31	---	---	---	---	---	---	---	---	---
41, 42	R	R	R	R	R	R	G	G	R
51	---	---	---	---	---	---	---	---	---
61	R	G	R	G	R	R	R	R	Y
62	R	G	R	G	R	R	R	R	Y
71	---	---	---	---	---	---	---	---	---
81, 82	R	R	R	R	R	G	R	G	R
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DRK

* SEE NOTE #2

SIGNAL FACE I.D.

○ Denotes L.E.D.



LOOP & DETECTOR UNIT INSTALLATION CHART
170 CONTROLLER AND CABINET

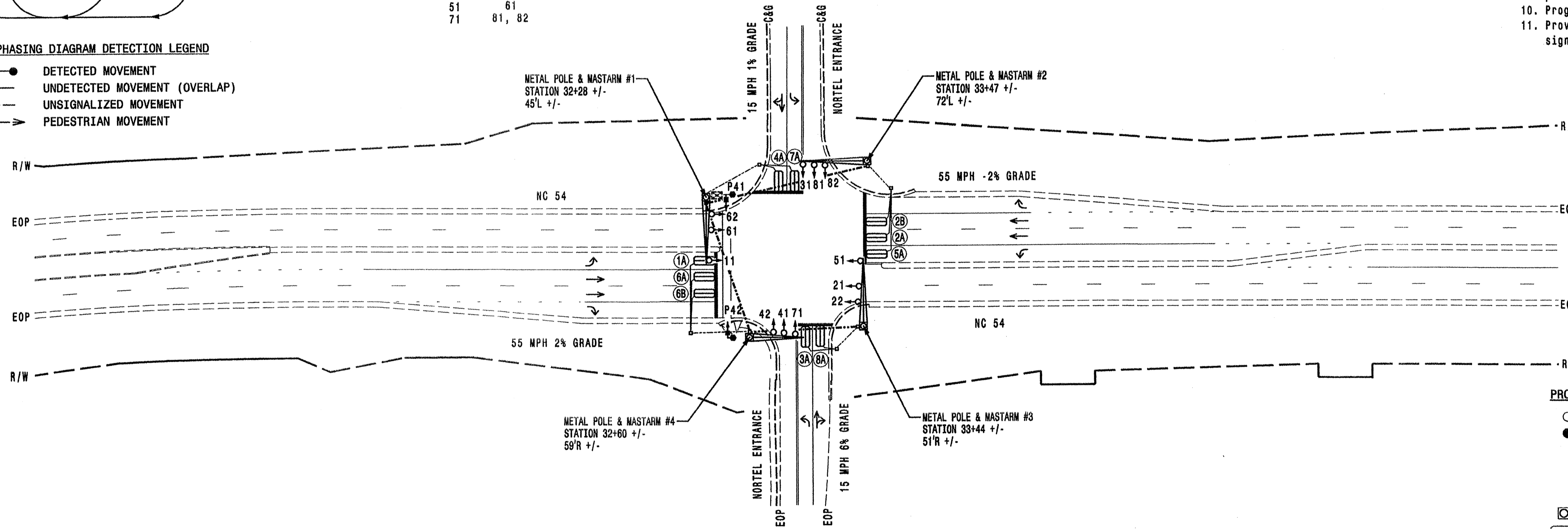
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	NEMA PHASE	TIMING		ATTRIBUTES								STATUS		
							DELAY	CARRY (STRETCH)	FULL TIME	PEDESTRIAN CALL	RESERVED	COUNT	EXTENSION	TYPE 3	CALLING	ALTERNATE	SYSTEM	NEW	EXISTING
1A	6X15	2-4-2	0	X	-	1	3* SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
2A	6X15	2-4-2	0	X	-	2	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
2B	6X15	2-4-2	0	X	-	2	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
3A	6X15	2-4-2	0	X	-	3	3* SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
4A	6X15	2-4-2	0	X	-	4	10* SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
5A	6X15	2-4-2	0	X	-	5	3* SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
6A	6X15	2-4-2	0	X	-	6	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
6B	6X15	2-4-2	0	X	-	6	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
7A	6X15	2-4-2	0	X	-	7	3* SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
8A	6X15	2-4-2	0	X	-	8	10* SEC.	- SEC.	-	-	-	-	X	-	X	-	-	-	X
P41, P42	-	-	-	-	-	X	-	- SEC.	-	-	-	-	X	-	X	-	-	-	X

* PROGRAM DELAY IN CONTROLLER, NOT IN DETECTOR.

8 PHASE FULLY ACTUATED (DURHAM SIGNAL SYSTEM)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002, and all applicable sections of the latest version of the Project Special Provisions.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Install backplates for all signal heads.
- Program all timing information into phase banks 1, 2 and 3 unless otherwise noted.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- During coordination, phase 1 or phase 5 may be lagged.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Set all detector units to presence mode.
- Set Phase Bank 3 Maximum Limit to 250 seconds for phases used.
- Program for SCATS traffic adaptive operation.
- Provide separate electrical service for luminaires on signal poles.



LEGEND

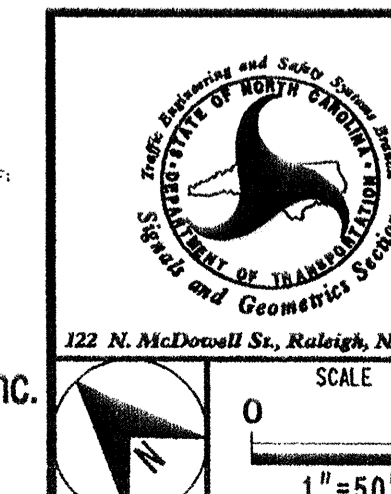
- | PROPOSED | EXISTING |
|--|--------------------------------|
| ○ → Traffic Signal Head | ● → Traffic Signal Head |
| ○ → Modified Signal Head | N/A |
| ○ → Sign | ○ → Sign |
| ○ → Pedestrian Signal Head With Push Button & Sign | ○ → Pedestrian Signal Head |
| ○ → Pedestrian Signal Pedestal | ○ → Pedestrian Signal Pedestal |
| ○ → Metal Pole with Mastarm | ○ → Metal Pole with Mastarm |
| ○ → Inductive Loop Detector | ○ → Inductive Loop Detector |
| ○ → Controller & Cabinet | ○ → Controller & Cabinet |
| ○ → Junction Box | ○ → Junction Box |
| --- Direction Drill Conduit | --- Direction Drill Conduit |
| --- 2-in Underground Conduit | --- 2-in Underground Conduit |
| --- Right of Way with Marker | --- Right of Way with Marker |
| → Directional Arrow | → Directional Arrow |
| → Pavement Marking Arrow | → Pavement Marking Arrow |

TIMING CHART
170 CONTROLLER

PHASE	01	02	03	04	05	06	07	08
MINIMUM INITIAL	7 SEC.	14 SEC.	7 SEC.	7 SEC.	7 SEC.	14 SEC.	7 SEC.	7 SEC.
VEHICLE EXTENSION	1.0 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.	1.0 SEC.
YELLOW CHANGE INT.	4.0 SEC.	5.4 SEC.	4.0 SEC.	4.5 SEC.	4.0 SEC.	5.4 SEC.	4.0 SEC.	4.5 SEC.
RED CLEARANCE	2.5 SEC.	1.5 SEC.	2.5 SEC.	3.0 SEC.	2.5 SEC.	1.5 SEC.	2.5 SEC.	3.0 SEC.
MAXIMUM LIMIT	20 SEC.	90 SEC.	20 SEC.	40 SEC.	20 SEC.	90 SEC.	20 SEC.	40 SEC.
RECALL POSITION	NONE	VEH. RECALL	NONE	NONE	NONE	VEH. RECALL	NONE	NONE
VEHICLE CALL MEMORY	NONE	YELLOW LOCK	NONE	NONE	NONE	YELLOW LOCK	NONE	NONE
DOUBLE ENTRY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK	- SEC.	- SEC.	- SEC.	7 SEC.	- SEC.	- SEC.	- SEC.	- SEC.
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	18 SEC.	- SEC.	- SEC.	- SEC.	- SEC.

SIGNAL UPGRADE - FINAL DESIGN

PLANS PREPARED IN THE OFFICE OF:
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NC 54 AT NORTEL ENTRANCES
DIVISION 5 DURHAM COUNTY DURHAM
PLAN DATE: JUNE 2004 REVIEWED BY:
PREPARED BY: SP PENNINGTON REVIEWED BY: DE MARCEAU
REVISIONS: INIT. DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
DAREN E. MARCEAU
024910
7/1/04
SIG. INVENTORY NO. 05-1081