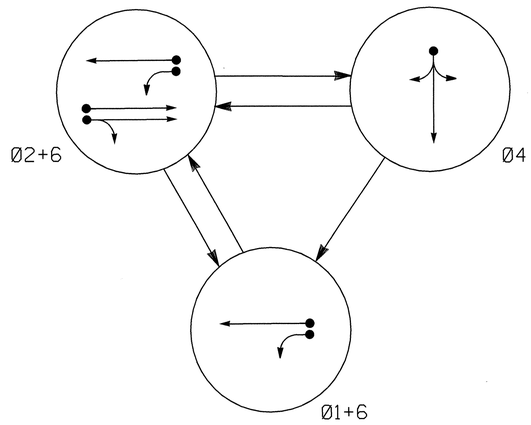
PROJECT REFERENCE NO.	SHEET NO.
B-3451	SIG.11

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

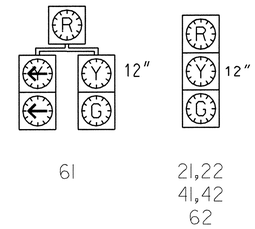
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø4	FLASH
21,22	R	G	R	Y
41,42	R	R	G	R
61	G	G	R	Y
62	G	G	R	Y

SIGNAL FACE I.D.

Denotes L.E.D.



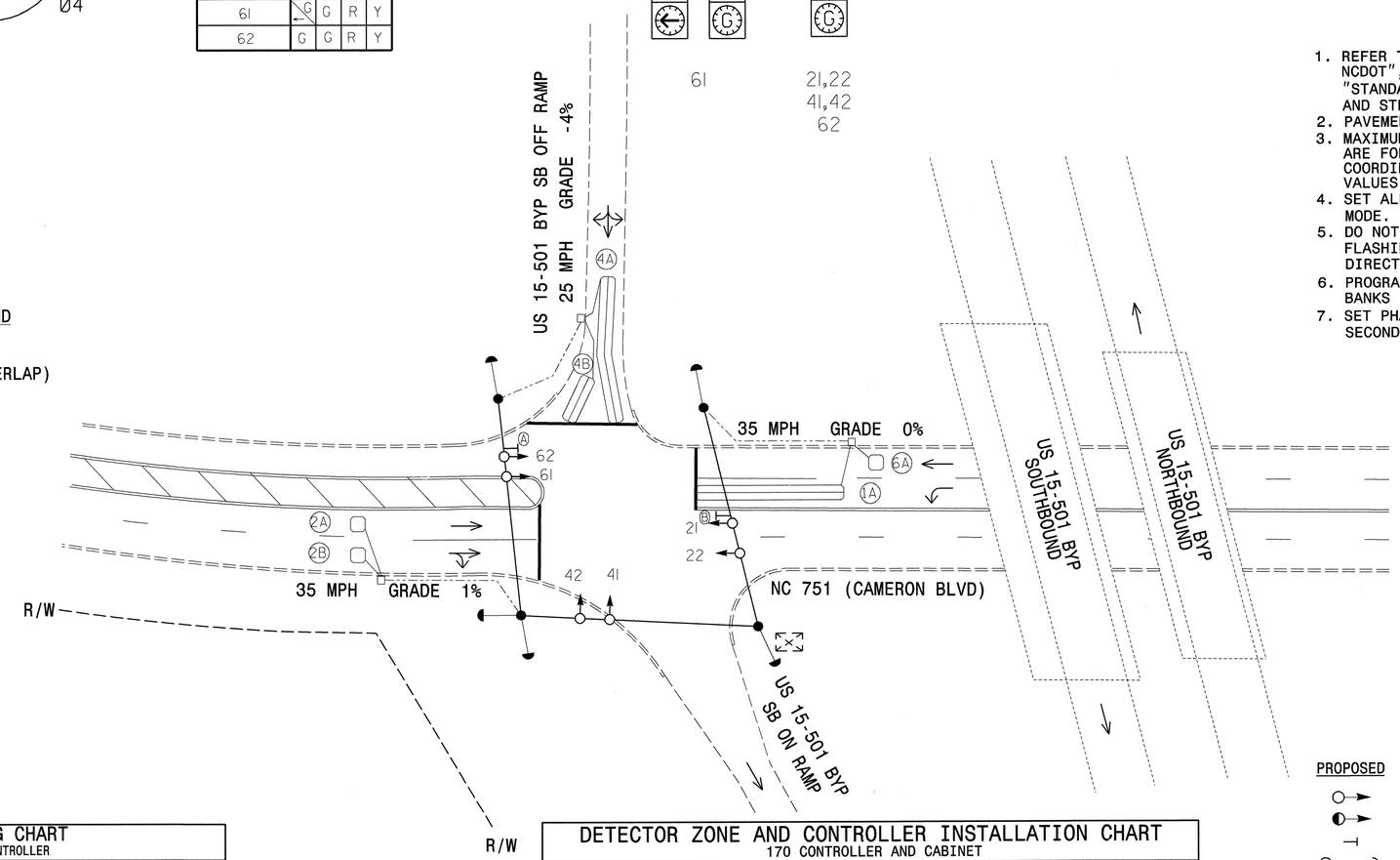
PLAN QUANTITIES

Pay Item	Feet
Signal Cable	450
Messenger Cable	280
Lead-in Cable	235

3 Phase Fully Actuated
(Durham Signal System)

NOTES

1. REFER TO "ROADWAY STANDARD DRAWINGS NCDOT", DATED JANUARY 2002 AND "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2002.
2. PAVEMENT MARKINGS ARE EXISTING.
3. MAXIMUM TIMES SHOWN IN TIMING CHART ARE FOR FREE-RUN OPERATIONS ONLY. COORDINATED SIGNAL SYSTEM TIMING VALUES SHALL SUPERSEDE THESE VALUES.
4. SET ALL DETECTOR UNITS TO PRESENCE MODE.
5. DO NOT PROGRAM SIGNAL FOR LATE NIGHT FLASHING OPERATION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
6. PROGRAM ALL TIMING INFORMATION INTO PHASE BANKS 1, 2, AND 3 UNLESS OTHERWISE NOTED.
7. SET PHASE BANK 3 MAXIMUM LIMIT TO 250 SECONDS FOR PHASES USED.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2" Underground Conduit	
	Directional Arrow	
	No Right Turn Sign (R3-1)	
	No Left Turn Sign (R3-2)	

TIMING CHART
170 CONTROLLER

PHASE	Ø1	Ø2	Ø4	Ø6
MINIMUM INITIAL	7 SEC.	10 SEC.	7 SEC.	10 SEC.
VEHICLE EXTENSION	1.0 SEC.	2.0 SEC.	1.0 SEC.	2.0 SEC.
YELLOW CHANGE INT.	4.0 SEC.	4.0 SEC.	4.0 SEC.	4.0 SEC.
RED CLEARANCE	1.0 SEC.	1.5 SEC.	1.5 SEC.	1.5 SEC.
MAXIMUM LIMIT	15 SEC.	30 SEC.	20 SEC.	30 SEC.
RECALL POSITION	NONE	VEH RECALL	NONE	VEH RECALL
VEHICLE CALL MEMORY	NONE	YELLOW LOCK	NONE	YELLOW LOCK
DOUBLE ENTRY	OFF	OFF	OFF	OFF
WALK	– SEC.	– SEC.	– SEC.	– SEC.
FLASHING DON'T WALK	– SEC.	– SEC.	– SEC.	– SEC.
TYPE 3 LIMIT	– SEC.	– SEC.	– SEC.	– SEC.
ALTERNATE EXTENSION	– SEC.	– SEC.	– SEC.	– SEC.
ADD PER VEHICLE	– SEC.	– SEC.	– SEC.	– SEC.
MAXIMUM INITIAL	– SEC.	– SEC.	– SEC.	– SEC.
MAXIMUM GAP	1.0 SEC.	2.0 SEC.	1.0 SEC.	2.0 SEC.
REDUCE 0.1 SEC EVERY	– SEC.	– SEC.	– SEC.	– SEC.
MINIMUM GAP	1.0 SEC.	2.0 SEC.	1.0 SEC.	2.0 SEC.

DETECTOR ZONE AND CONTROLLER INSTALLATION CHART
170 CONTROLLER AND CABINET

DETECTOR ZONES					CONTROLLER PROGRAMMING													
						TIMING		ATTRIBUTES									STATUS	
ZONE NO.	SIZE (FT)	DIST. FROM STOPBAR (FT)	NEW	EXISTING	NEMA PHASE	DELAY	CARRY (STRETCH)	1 FULL TIME DELAY	2 PEDESTRIAN CALL	3 RESERVED	4 COUNT	5 EXTENSION	6 TYPE 3	7 CALLING	8 ALTERNATE	SYSTEM DETECTION ZONES	NEW	EXISTING
1A	6X60	0	X		Ø6	3 SEC.	— SEC.					X		X			X	
					Ø1	10 SEC.	— SEC.					X		X			X	
2A	6X6	70	X		Ø2	— SEC.	— SEC.					X		X			X	
2B	6X6	70	X		Ø2	— SEC.	— SEC.					X		X			X	
4A	6X60	0	X		Ø4	5 SEC.	— SEC.					X		X			X	
4B	6X20	0	X		Ø4	10 SEC.	— SEC.					X		X			X	
6A	6X6	70	X		Ø6	— SEC.	— SEC.					X		X			X	

TEMPORARY SIGNAL UPGRADE

PLANS PREPARED BY :
RUMMEL KLEPPER & KAHL, LLP
consulting engineers
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RALEIGH, NORTH CAROLINA 27609-3960
FOR
DIVISION OF HIGHWAYS

Prepared for the Offices of:
Traffic Engineering and Safety Systems Branch
Signals and Geometrics Section
122 N. McDowell St., Raleigh, NC 27603

SCALE: Horiz. 0' 15' 30'

US 15-501 BYP SB RAMPS
AT
NC 751 (CAMERON BOULEVARD)

DIVISION 05 DURHAM COUNTY DURHAM NC

PLAN DATE:	08-15-04	REVIEWED BY:	D.W.MORTON
PREPARED BY:	C.B. HOLDEN	RK&K PROJECT NO.	302-079-SIG6

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19798 ENGINEER D.W. MORTON
9-3-04
SIGNATURE DATE
SIG. INVENTORY NO. 05-1093T