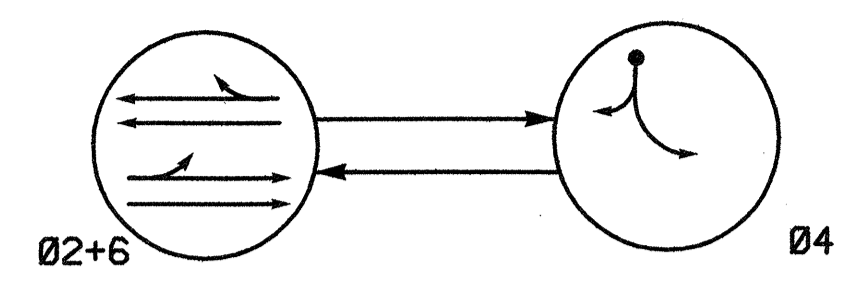


**PHASING DIAGRAM**



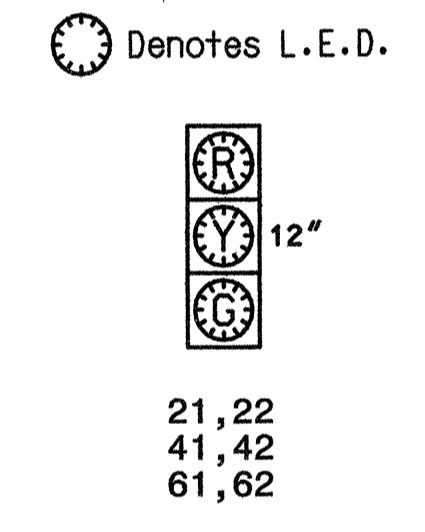
**PHASING DIAGRAM DETECTION LEGEND**

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

**TABLE OF OPERATION**

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

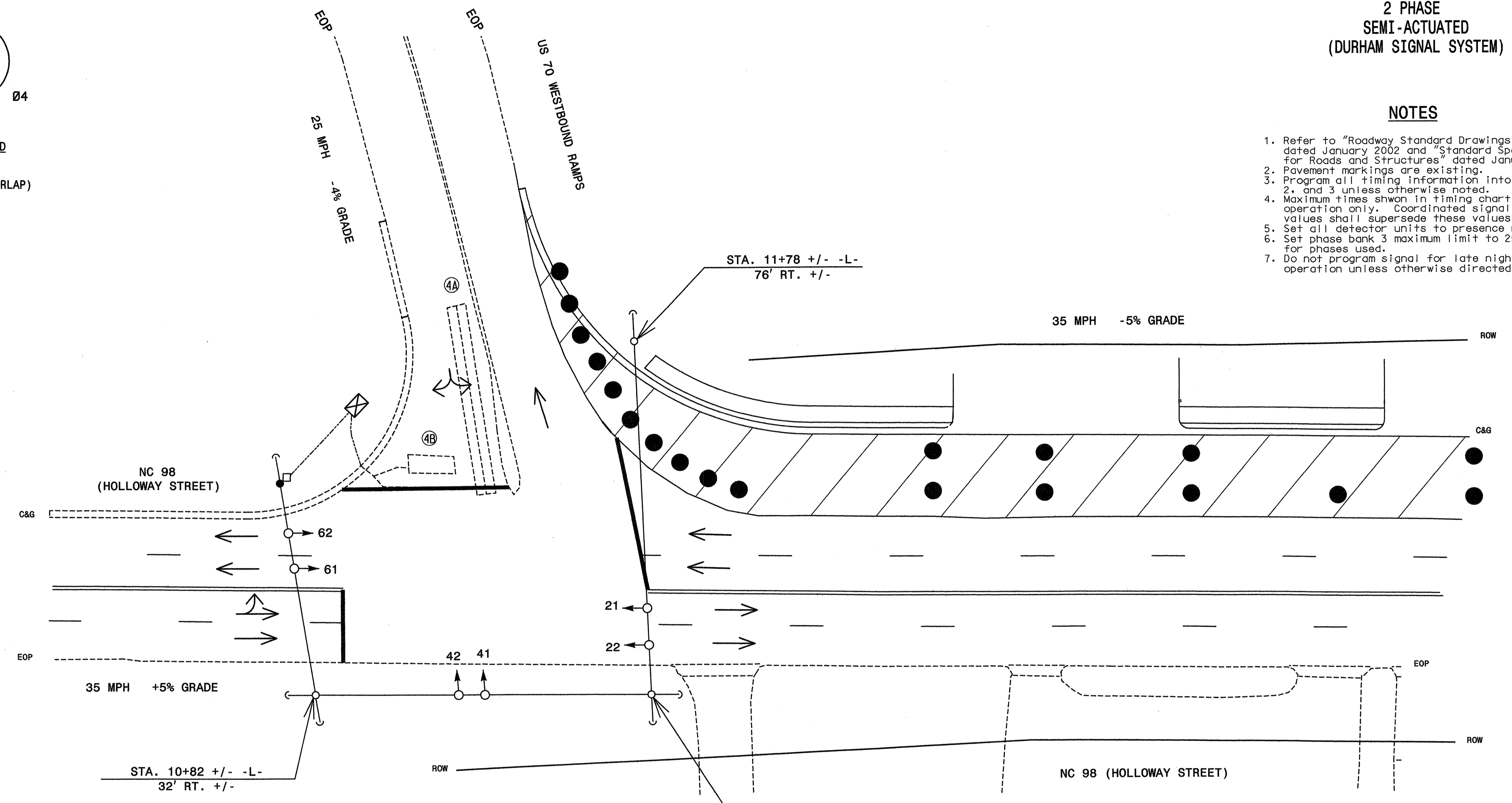
**SIGNAL FACE I.D.**



**2 PHASE SEMI-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. Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
4. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
5. Set all detector units to presence mode.
6. Set phase bank 3 maximum limit to 250 seconds for phases used.
7. Do not program signal for late night flashing operation unless otherwise directed by the engineer.



**TIMING CHART**  
170 CONTROLLER

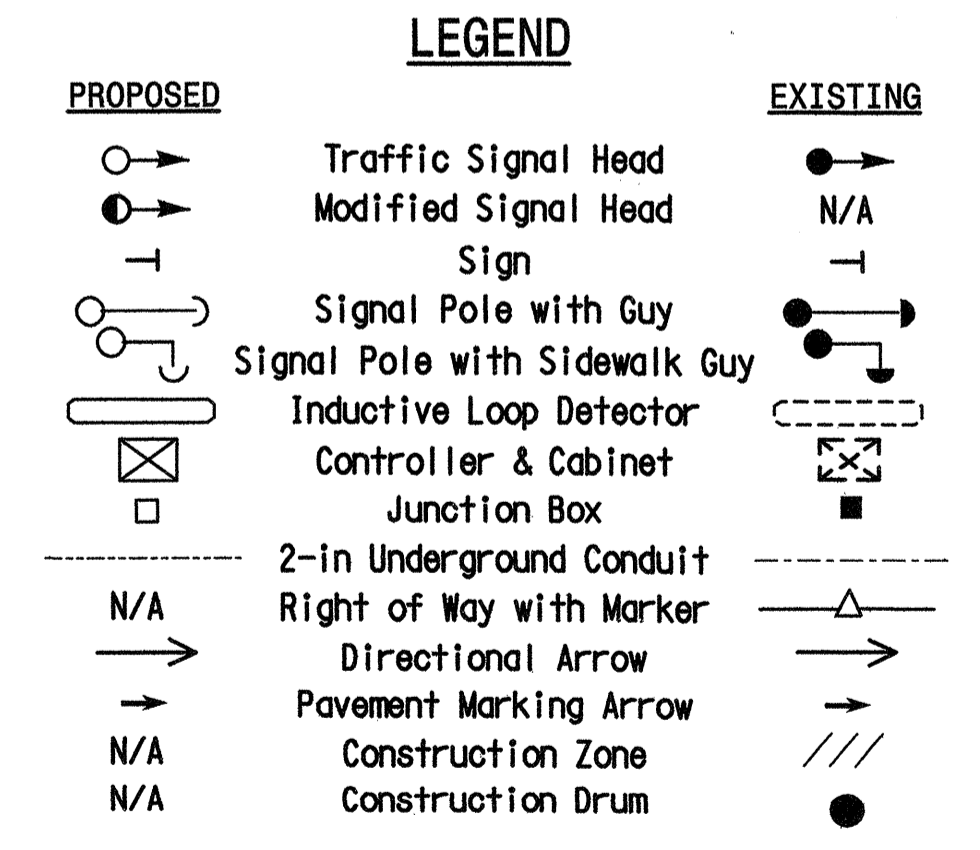
| PHASE                | Ø2          | Ø4       | Ø6          |
|----------------------|-------------|----------|-------------|
| MINIMUM INITIAL      | 45 SEC.     | 7 SEC.   | 45 SEC.     |
| VEHICLE EXTENSION    | - SEC.      | 1.0 SEC. | - SEC.      |
| YELLOW CHANGE INT.   | 4.0 SEC.    | 4.0 SEC. | 4.0 SEC.    |
| RED CLEARANCE        | 2.0 SEC.    | 1.5 SEC. | 2.0 SEC.    |
| MAXIMUM LIMIT        | 45 SEC.     | 25 SEC.  | 45 SEC.     |
| RECALL POSITION      | MAX. RECALL | NONE     | MAX. RECALL |
| VEHICLE CALL MEMORY  | NONE        | NONE     | NONE        |
| DOUBLE ENTRY         | OFF         | OFF      | OFF         |
| WALK                 | - SEC.      | - SEC.   | - SEC.      |
| FLASHING DON'T WALK  | - SEC.      | - SEC.   | - SEC.      |
| TYPE 3 LIMIT         | - SEC.      | - SEC.   | - SEC.      |
| ALTERNATE EXTENSION  | - SEC.      | - SEC.   | - SEC.      |
| ADD PER VEHICLE      | - SEC.      | - SEC.   | - SEC.      |
| MAXIMUM INITIAL      | - SEC.      | - SEC.   | - SEC.      |
| MAXIMUM GAP          | - SEC.      | 1.0 SEC. | - SEC.      |
| REDUCE 0.1 SEC EVERY | - SEC.      | - SEC.   | - SEC.      |
| MINIMUM GAP          | - SEC.      | 1.0 SEC. | - SEC.      |

**LOOP & DETECTOR UNIT INSTALLATION CHART**  
170 CONTROLLER AND CABINET

| INDUCTIVE LOOPS |           |          |                         |              | DETECTOR PROGRAMMING |         |                 |            |   |   |   |   |   |   |   |        |     |          |   |
|-----------------|-----------|----------|-------------------------|--------------|----------------------|---------|-----------------|------------|---|---|---|---|---|---|---|--------|-----|----------|---|
| LOOP NO.        | SIZE (ft) | TURNS    | DIST. FROM STOPBAR (ft) | NEW EXISTING | NEMA PHASE           | TIMING  |                 | ATTRIBUTES |   |   |   |   |   |   |   | STATUS |     |          |   |
|                 |           |          |                         |              |                      | DELAY   | CARRY (STRETCH) | 1          | 2 | 3 | 4 | 5 | 6 | 7 | 8 | SYSTEM | NEW | EXISTING |   |
| 4A              | 6X60      | EXISTING | +5                      | X            | 4                    | 5 SEC.  | SEC.            |            |   |   |   |   |   |   |   |        |     | X        |   |
| 4B              | 6X14      | EXISTING | 0                       | X            | 4                    | 15 SEC. | SEC.            |            |   |   |   |   | X | X |   |        |     |          | X |

**PLAN QUANTITIES**

| Pay Item        | Feet |
|-----------------|------|
| Signal Cable    | 1025 |
| Messenger Cable | 280  |
| Lead-in Cable   | 0    |



PLAN PREPARED IN THE OFFICE OF:  
*Kubilins*  
TRANSPORTATION GROUP, INC.  
201 PRODUCTION DR.  
2ND FLOOR  
YORKTOWN, VA 23693  
PH: (757) 594-1419 FAX: (757) 594-9010

**TEMPORARY DESIGN 1 - CONSTRUCTION PHASES I & II**

Prepared in the Office of:  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
Signal and Geometric Section

122 N. McDowell St., Raleigh, NC 27603

SCALE: 1"=20'

NC 98 (HOLLOWAY STREET) AT US 70 WESTBOUND RAMP

DIVISION 5 DURHAM CO. DURHAM

PLAN DATE: JANUARY 2004 REVIEWED BY: MAK

PREPARED BY: CED REVIEWED BY:

REVISIONS: \_\_\_\_\_ INIT. DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER ANN KUBILINS

SIG. INVENTORY NO. 05-1717 T1