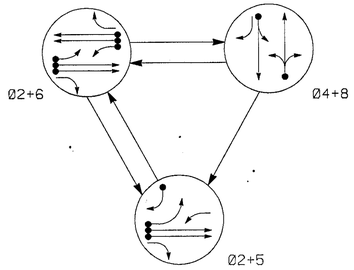
PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig-1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

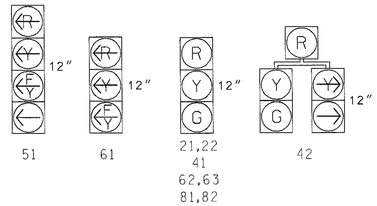
TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	PHASE Ø2+6	PHASE Ø4+8	FLASH
21,22	G	G	R	Y
41	R	R	G	R
42	R/→	R	G	R
51	←	F.Y.	R	Y
61	F.Y.	F.Y.	R	Y
62,63	R	G	R	Y
81,82	R	R	G	R

F.Y. = Flashing Yellow Arrow

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

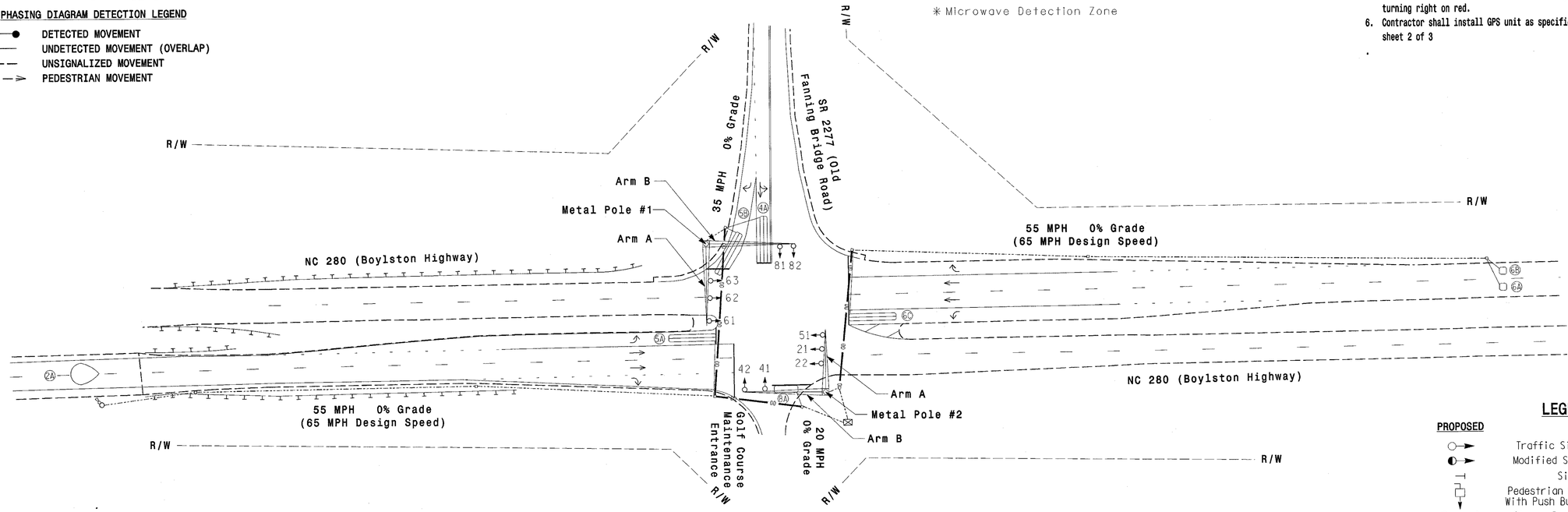
INDUCTIVE LOOPS: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	*	550	*	Y	2	Y	Y	-	-	-	-	*
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
					2	Y	Y	Y	-	3	-	Y
5B	6X20	0	2-4-2	Y	5	Y	Y	-	-	10	-	Y
6A	6X6	550	6	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	550	6	Y	6	Y	Y	-	-	-	-	Y
6C	6X40	0	6	Y	6	Y	Y	Y	-	3	-	Y
8A	6X20	0	4	Y	8	Y	Y	-	-	-	-	Y

* Microwave Detection Zone

3 Phase Fully Actuated Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012, "Standard Specifications for Roads and Structures" dated January 2012, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://www.ncdot.org/doh/preconstruct/traffic/itss/
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Contractor shall install GPS unit as specified in Electrical Detail sheet 2 of 3

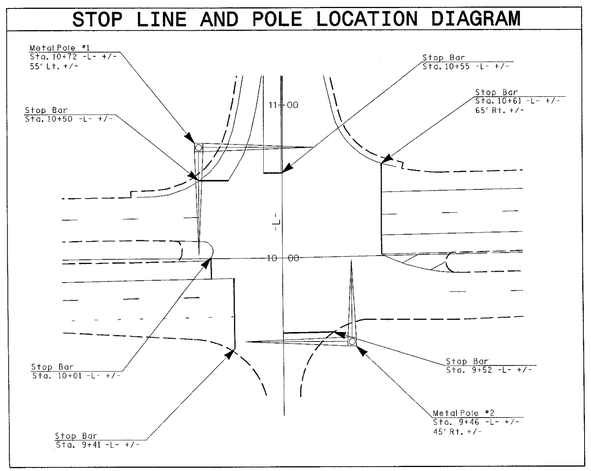


OASIS 2070L TIMING CHART

FEATURE	PHASE 2	4	5	6	8
Min Green 1 *	16	7	7	16	7
Extension 1 *	6.5	2.0	2.0	6.5	2.0
Max Green 1 *	70	35	15	70	35
Yellow Clearance	5.8	3.8	3.0	5.8	3.0
Red Clearance	1.3	2.1	2.8	1.3	3.3
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	2.5	-	-	2.5	-
Max Variable Initial *	59	-	-	59	-
Time Before Reduction *	15	-	-	15	-
Time To Reduce *	45	-	-	45	-
Minimum Gap	3.4	-	-	3.4	-
Recall Mode	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	-	YELLOW	-
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	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.

STOP LINE AND POLE LOCATION DIAGRAM



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
FINAL DRAWING Date: 3/27/13
(Zachary M. Little)
Traffic Engineering Branch

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	→
▬ DD ▬	Directional Drill	N/A
	Metal Pole with Mastarm	
	Out of Pavement Detection Zone	
	Out of Pavement Detector	

New Installation

Prepared in the offices of:
RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-0410 Fax.
www.rameykemp.com

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

NC 280 (Boylston Highway) at SR 2277 (Old Fanning Bridge Road)/Golf Maintenance Entrance

Division 14 Henderson County Fletcher

PLAN DATE: March 2013 REVIEWED BY: WJ Hamilton
PREPARED BY: NE Burns RKA PROJECT NO.: 12103 (040)

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

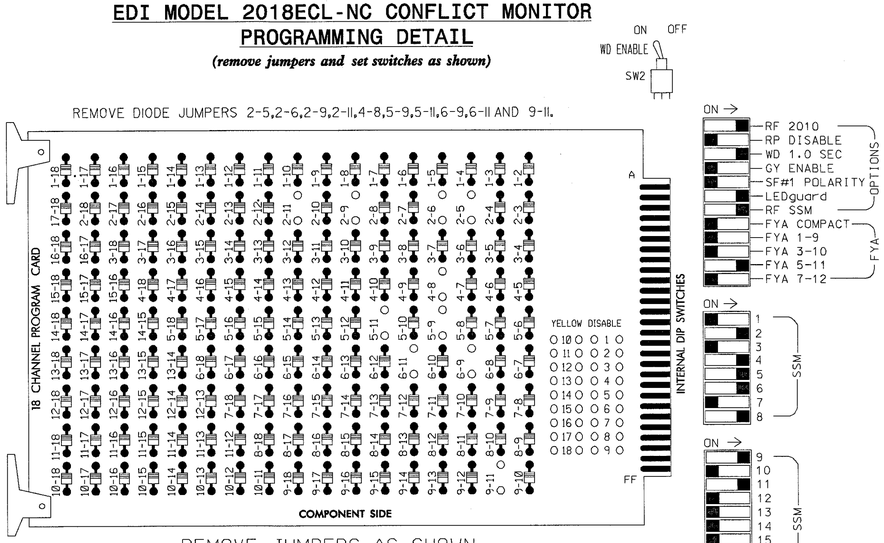
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON
SIGNATURE 3/18/13 DATE

SIG. INVENTORY NO. 14-1271

PROJECT REFERENCE NO.	SHEET NO.
-	Sig-2

EDI MODEL 2018ECL-NC 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 Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash and overlap 1 as Wag Overlaps.
7. If an approved equivalent of the TC-26B Microwave Detector is used, disregard microwave detector wiring detail below. Install according to manufacturer's instructions. Sensor shall be wired such that input interface to the controller is achieved through isolation circuitry.

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	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	51 ★	42	62,63	NU	NU	81,82	NU	61 ★	NU	NU	51 ★	NU	NU
RED		128			101		✳		134			107							
YELLOW		129			102				135			108							
GREEN		130			103				136			109							
RED ARROW														A121			A114		
YELLOW ARROW								132						A122			A115		
FLASHING YELLOW ARROW														A123			A116		
GREEN ARROW							133	133											
✋																			
🚶																			

NU = Not Used

★ Denotes see pictorial of head wiring in detail below.

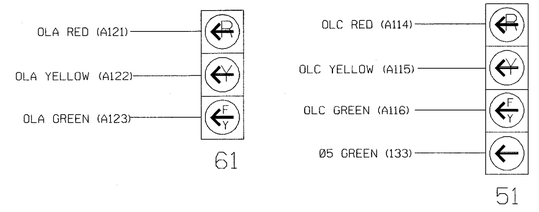
✳ Denotes install load resistor. See load resistor installation detail this sheet.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S5,S7,S8,S11,AUXS1,AUXS4
PHASES USED.....2,4,5,6,8
OVERLAP "A".....2
OVERLAP "B".....NOT USED
OVERLAP "C".....5+6
OVERLAP "D".....NOT USED

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for the 4-Section signal head requires special logic programming. See sheet 2 of 3 for programming instructions.

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	Ø2 2A DC ISOLATOR	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
FILE "I" L		NOT USED				Ø5 5B								ST DC ISOLATOR
FILE "J" U	Ø5 5A	Ø6 6A	Ø6 6C	SLOT EMPTY	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
FILE "J" L	NOT USED	Ø6 6B	NOT USED			NOT USED								

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

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

Note: Install a model 242 DC isolator in slot I2 for use with microwave detector. See the Microwave Detector Wiring Detail on sheet 3.

! IMPORTANT: For proper operation of the TC26B microwave detector, remove surge protection from TB2-5 and TB2-6, and from TB2-7 and TB2-8.

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
2A ★	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
5A[1]	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y	Y		3
5B	TB4-11,12	I6L	45	7	14	5	Y	Y			10
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
6C	TB3-9,10	J3U	64	26	36	6	Y	Y	Y		3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			

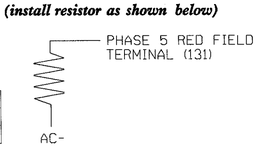
★ Microwave Detector, see 'TC26B Microwave Detector Wiring Detail' sheet 3.

[1] Add jumper from J1-W to I4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)



ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
FINAL DRAWING Date: 3/27/13
Zachary M. Little
Traffic Engineering Branch

Prepared in the offices of:
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Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com, NC License No. C-0910

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1271
DESIGNED: Mar 2013
SEALED: 03-18-2013
REVISED:

New Installation

Electrical Detail
Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 280 (Boylston Highway) at SR 2277 (Old Fanning Bridge Road)/Golf Maintenance Entrance
Division 14 Henderson County Fletcher

PLAN DATE: March 2013 REVIEWED BY: WJ Hamilton
PREPARED BY: NE Burns RKA PROJ. NO: 12103 (040)

REVISIONS	INIT.	DATE

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON
SIGNATURE 3/18/13 DATE

SIG. INVENTORY NO. 14-1271

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

(program controller 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 AND 3.

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

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
AND RED CLEAR ON PHASE #5 IS ON

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

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #42 ON
SET OUTPUT ASSIGNMENT #43 OFF

PRESS '+'

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON

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

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #44 OFF

PRESS '+'

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #5 IS ON

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

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #43 ON

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          ¦1234567891011121314151 6
VEH OVL PARENTS:¦ X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
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
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

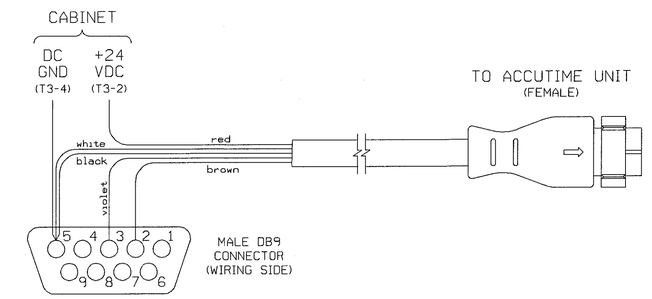
```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          ¦1234567891011121314151 6
VEH OVL PARENTS:¦    XX
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
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
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

CONNECTOR WIRING DETAIL FOR ACCUTIME GPS ANTENNA WITH SERIAL INTERFACE

(make connections as shown)



SIGNAL DESCRIPTION	12 CONDUCTOR CABLE COLOR	ACCUTIME CØNNECTOR	DB9 TO CØNTROLLER	CABINET CØNNECTION
DC POWER	RED	PIN 1		T3-2
PORT B: RECEIVE	VIOLET	PIN 2	PIN 3	
PORT B: TRANSMIT	BROWN	PIN 4	PIN 2	
PORT A: RECEIVE	WHITE	PIN 6	PIN 5	
DC GROUND	BLACK	PIN 9	PIN 5	T3-4

Note: All other wires in the Accutime cable are unused and should be tied off.

Configure the Com Port used by the Accutime unit in the Oasis software using the settings below:

* 9600 Baud
* 8 Data Bits
* 1 Stop Bit
* Odd Parity
* Trimble TSIP GPS Protocol

Be sure to enable the "GET TIME FROM GPS" option under D-1 (Set Clock) menu.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1271
DESIGNED: Mar 2013
SEALED: 03-18-2013
REVISED:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FINAL DRAWING Date: 3/27/13
Zachary M. Little
Traffic Engineering Branch

New Installation

Electrical Detail
Sheet 2 of 3

Prepared in the offices of:

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
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ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 280 (Boylston Highway) at SR 2277 (Old Fanning Bridge Road)/Golf Maintenance Entrance
Division 14 Henderson County Fletcher

PLAN DATE: March 2013	REVIEWED BY: WJ Hamilton
PREPARED BY: NE Burns	RKA PROJ. NO: 12103 (040)

REVISIONS	INIT.	DATE

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

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J HAMILTON

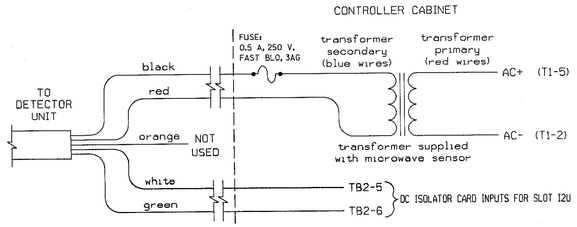
SIGNATURE 3/18/13 DATE

SIG. INVENTORY NO. 14-1271

PROJECT REFERENCE NO.	SHEET NO.
-	Sig-4

TC26B MICROWAVE DETECTOR WIRING DETAIL

(wire as shown)



TC26B WIRE LIST

COLOR	FUNCTION
black	12V to 24V AC/DC (no polarity)
red	12V to 24V AC/DC (no polarity)
orange	Output Relay Normally Open
white	Output Relay Normally Closed
green	Output Relay Common

NOTES:

1. Sensor is a Microwave Sensors, Inc. Model TC-26B microwave motion detector mounted on pole as indicated on the Signal Design Plans.
2. Microwave wiring shown above will cause a permanent call unless the Input Assignment Programming and Logical I/O Processor Programming details are entered as shown on this sheet. These programming details will cause a call to be placed upon opening the Normally Closed contact on TC26B.
3. DC Isolator's LED will be ON when no call is present and will be OFF when a call is present.
4. Important: For proper operation of the microwave detector, remove surge protection from TB2-5, TB2-6, TB2-7, and TB2-8 and insert 242 DC Isolator in slot 12.

INPUT ASSIGNMENT PROGRAMMING DETAIL FOR MICROWAVE DETECTOR INPUT

(program controller as shown below)

FROM MAIN MENU PRESS '5' (INPUTS), THEN '+' UNTIL INPUT 1 (PIN 39) IS REACHED. MODIFY DEFAULT CONDITIONS AS INDICATED BY ARROWS.

```
PAGE: 1 C1 PIN:39  NOT ENABLED
INPUT ASSIGNMENT #.................1
DEBOUNCE TIME (0-25.5 SEC).....0.5
DELAY TIME (0-25.5 SEC).....0.0
HOLD-OVER TIME (0-25.5 SEC).....0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N).....Y
VEHICLE DETECTOR (1-64).....
PEDESTRIAN DETECTOR (1-16).....
ALTERNATE PED DETECTOR (1-16).....
PREEMPT (1-10).....
INVERTED PREEMPT (1-10).....
STOP TIME (Y/N).....
FLASH SENSE (Y/N).....
DOOR OPEN (Y/N).....
MANUAL CONTROL ENABLE (Y/N).....
MANUAL CONTROL ADVANCE (Y/N).....
SPECIAL FUNCTION ALARM (1-8).....
TOD HOUR SYCHRONIZATION (0-23).....
FORCE OFF RING (1-4).....
HOLD PHASES (1-16).....
PLAN (65=FLSH,66=FREE)..  OFFSET#..
CHANGE PHASE SEQUENCE PAGE (1-12)....
CHANGE PHASE TIMING PAGE (1-4).....
CHANGE PHASE CONTROL PAGE (1-4).....
CHANGE OVERLAP CONTROL PAGE (1-4)....
CHANGE INPUT PAGE (1-4).....
CHANGE OUTPUT PAGE (1-4).....
OVERRIDE PHASE CONTROL FUNCTION (Y)..
```

← ENTER 'YES' for Not Enabled

```
PAGE: 1 C1 PIN:0  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................64
DEBOUNCE TIME (0-25.5 SEC).....0.5
DELAY TIME (0-25.5 SEC).....0.0
HOLD-OVER TIME (0-25.5 SEC).....0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N).....
VEHICLE DETECTOR (1-64).....2
PEDESTRIAN DETECTOR (1-16).....
ALTERNATE PED DETECTOR (1-16).....
PREEMPT (1-10).....
INVERTED PREEMPT (1-10).....
STOP TIME (Y/N).....
FLASH SENSE (Y/N).....
DOOR OPEN (Y/N).....
MANUAL CONTROL ENABLE (Y/N).....
MANUAL CONTROL ADVANCE (Y/N).....
SPECIAL FUNCTION ALARM (1-8).....
TOD HOUR SYCHRONIZATION (0-23).....
FORCE OFF RING (1-4).....
HOLD PHASES (1-16).....
PLAN (65=FLSH,66=FREE)..65 OFFSET#..
CHANGE PHASE SEQUENCE PAGE (1-12)....
CHANGE PHASE TIMING PAGE (1-4).....
CHANGE PHASE CONTROL PAGE (1-4).....
CHANGE OVERLAP CONTROL PAGE (1-4)....
CHANGE INPUT PAGE (1-4).....
CHANGE OUTPUT PAGE (1-4).....
OVERRIDE PHASE CONTROL FUNCTION (Y)..
```

← ENTER '2' for Vehicle Detector

PRESS '-' until Input Assignment #64 is reached

PROGRAMMING COMPLETE

NOTE:

This remapping removes the default detector from the microwave's physical input and reassigns it to unused INPUT 64. The Logical I/O Processor Programming Detail on sheet 3 will invert the disabled input and control INPUT 64 and the reassigned detector.

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO TO INVERT INPUT FROM MICROWAVE DETECTOR

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

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  INPUT   ASSIGNMENT #1 IS ON

SCROLL DOWN

THEN:
SET INPUT   ASSIGNMENT #64 OFF
```

NOTE: TC-26B CONTACTS ARE CLOSED, SO NO CALL IS 'DETECTED'.

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  INPUT   ASSIGNMENT #1 IS OFF

SCROLL DOWN

THEN:
SET INPUT   ASSIGNMENT #64 ON
```

NOTE: TC-26B CONTACTS ARE OPEN, SO A CALL IS 'DETECTED'.

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

REFERENCE SCHEDULE

* INPUT 1 = TC26B Physical Input (Not Enabled)
* INPUT 64 = Dummy TC26B Input (Detector 2)

* Input Remapped (See Sheet 3).

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1271
DESIGNED: Mar 2013
SEALED: 03-18-2013
REVISED:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
FINAL DRAWING Date: 3/27/13
(Zachary M. Little)
Traffic Engineering Branch

Prepared in the offices of:
RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com, NC License No. C-0910

New Installation

Electrical Detail
Sheet 3 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

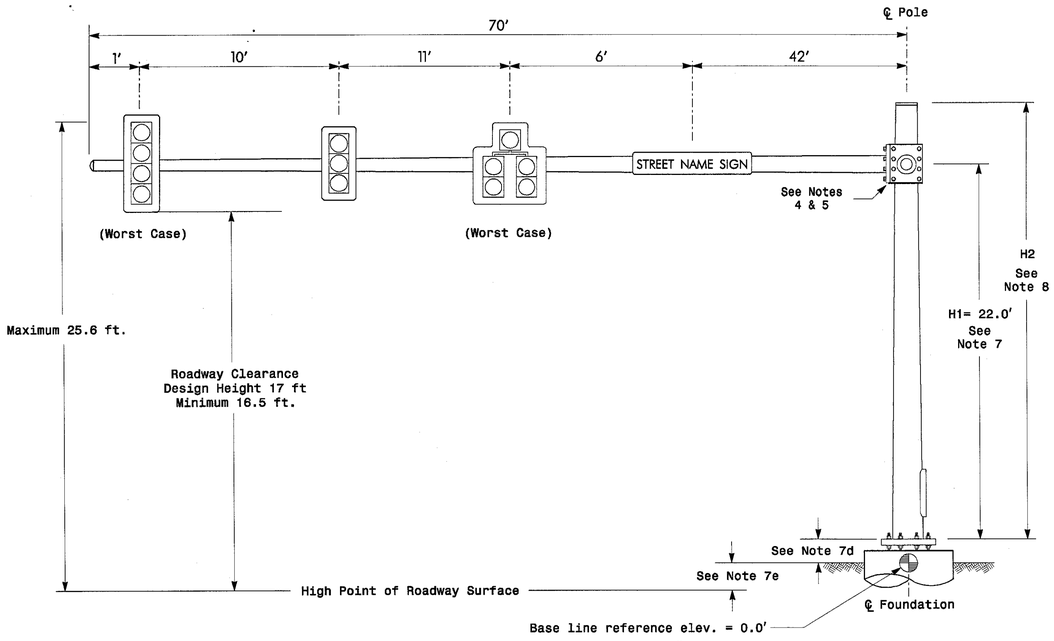
750 N.Greenfield Pkwy,Garner,NC 27529

NC 280 (Boylston Highway) at SR 2277 (Old Fanning Bridge Road)/Golf Maintenance Entrance
Division 14 Henderson County Fletcher

PLAN DATE: March 2013	REVIEWED BY: WJ Hamilton		
PREPARED BY: NE Burns	RKA PROJ. NO: 12103 (040)		
REVISIONS		INIT.	DATE

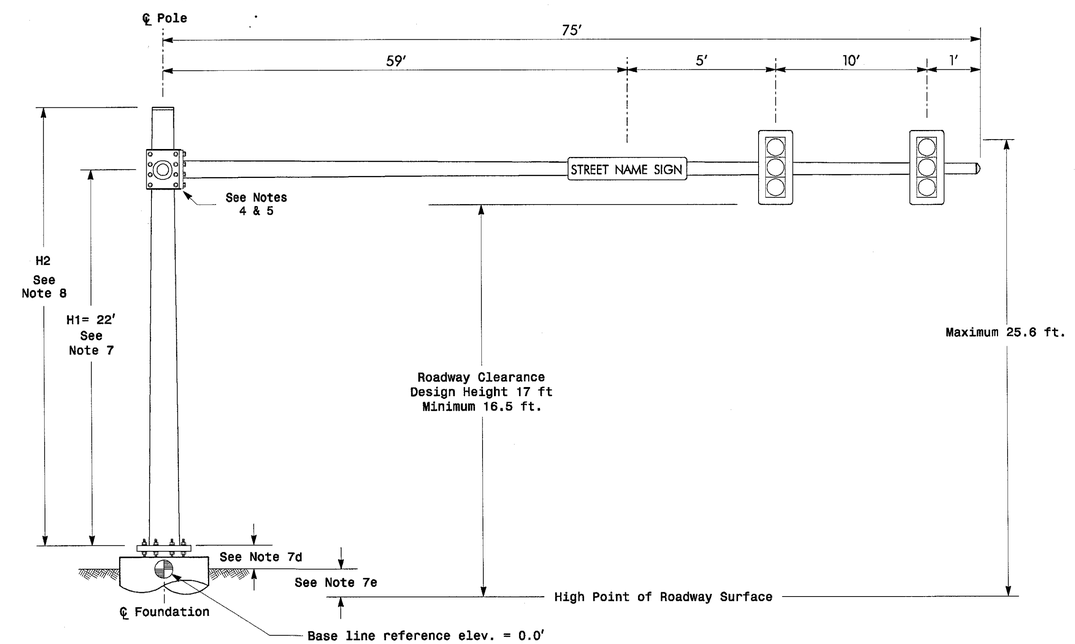
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J HAMILTON
SIGNATURE 3/18/13 DATE
SIG. INVENTORY NO. 14-1271

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



Elevation View @ 270°

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



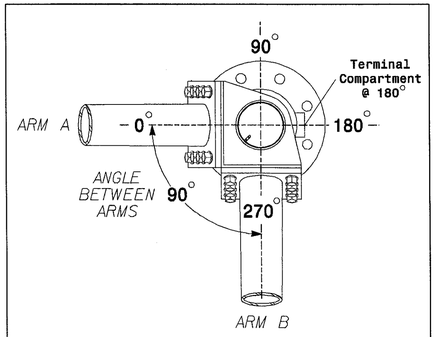
Elevation View @ 0°

SPECIAL NOTE

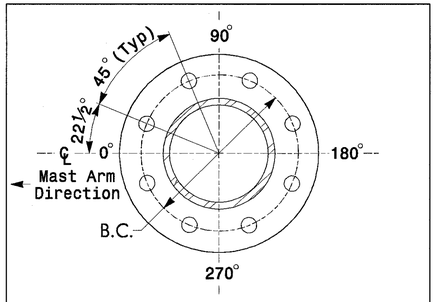
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Arm "A"	Arm "B"
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+ 1.0 ft.	+ 1.2 ft.
Elevation difference at Edge of travelway or face of curb	N/A	N/A

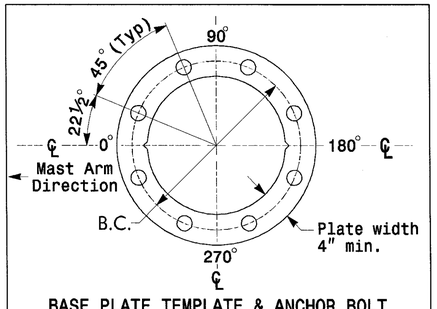


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

METAL POLE No. 1

PROJECT REFERENCE NO.	SHEET NO.
-	Sig-5

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	SIGNAL HEAD 12"–3 SECTION–WITH BACKPLATE–RIGID MOUNTED	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	SIGNAL HEAD 12"–4 SECTION–WITH BACKPLATE–RIGID MOUNTED	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	SIGNAL HEAD 12"–5 SECTION–WITH BACKPLATE–RIGID MOUNTED	16.3 S.F.	42.0" W X 56.0" L	103 LBS
STREET NAME SIGN	STREET NAME SIGN RIGID MOUNTED	12.0 S.F.	18.0" W X 96.0" L	27 LBS

NOTES

Design Reference Material

1. Design the traffic signal structure and foundation in accordance with:
   - The 4th Edition 2001 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures". The latest addenda to these specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: http://www.ncdot.org/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html

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 stress ratios that do not exceed 0.9.
4. The camber design for mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. 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 arm connection points.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads attached to the mast arm are rigid mounted and vertically centered on the arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is .75 feet above the ground elevation.
   e. Refer to the Elevation Data chart for elevation differences between the proposed foundation ground level and the high point on the roadway.
8. The pole manufacturer will determine the total height (H2) of the pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus ½ of the total height of the mast arm attachment assembly plus 1 foot.
9. 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 Structural Engineer for assistance at (919) 773-2800.
10. The contractor is responsible for verifying that the mast arm lengths shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.
12. All signal poles, mast arms, and pedestrian pedestals shall be designed and manufactured to be similar in appearance to the traffic signal equipment currently installed at the intersection of Long Shoals Road and Hendersonville Road in Asheville, North Carolina, and as specified by the Division 14 Engineer. Signal poles and mast arms shall be painted black.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
FINAL DRAWING Date: 3/27/13
(Zachary M. Little)
Traffic Engineering Branch

NCDOT Wind Zone 4 (90 mph)

Prepared in the offices of:
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Prepared for:
NC Department of Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

NC 280 (Boylston Highway) at SR 2277 (Old Fanning Bridge Road)/Golf Maintenance Entrance

Division 14 Henderson County Fletcher

PLAN DATE:	March 2013	REVIEWED BY:	WJ Hamilton
PREPARED BY:	NE Burns	RKA PROJ. NO:	12103 (040)

SCALE: 0 N/A N/A

REVISIONS	INIT.	DATE

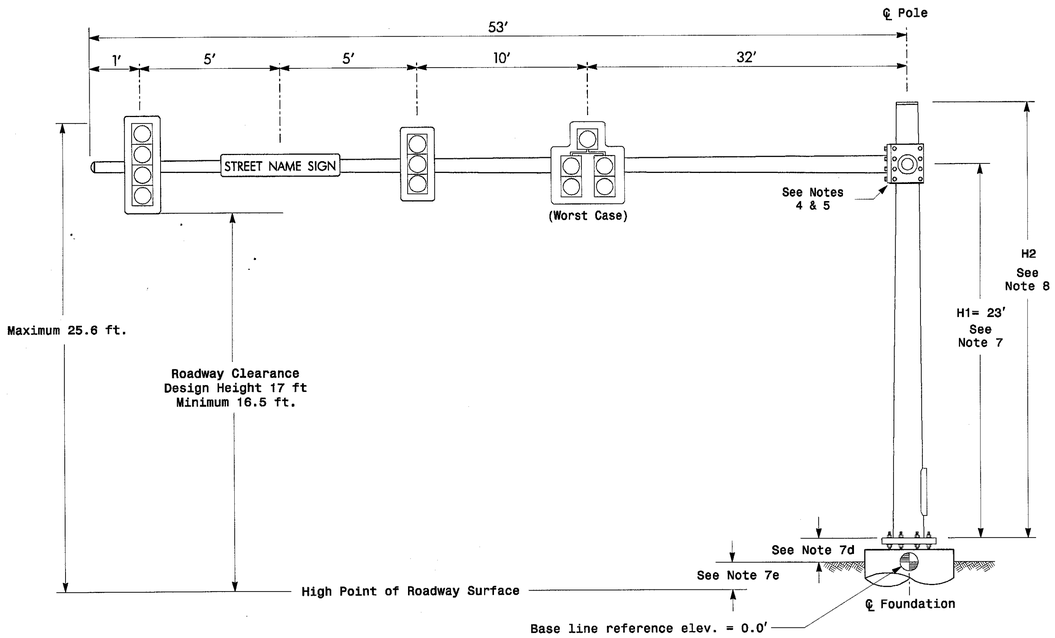
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON
SIGNATURE 3/18/13 DATE

SIG. INVENTORY NO. 14-1271

METAL POLE No. 2

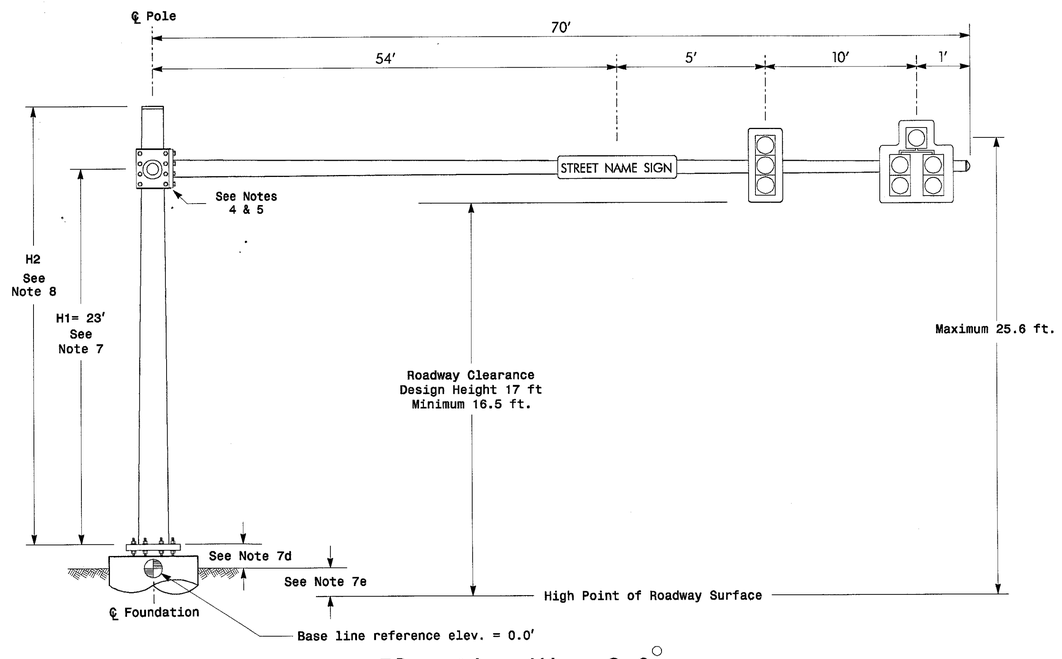
PROJECT REFERENCE NO.	SHEET NO.
-	Sig-6

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°

SPECIAL NOTE

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Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Arm "A"	Arm "B"
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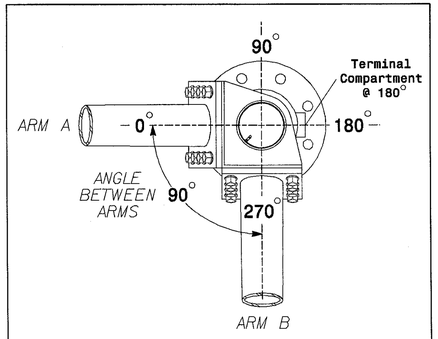
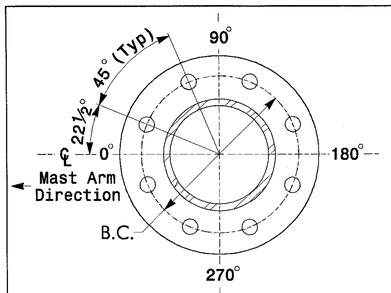
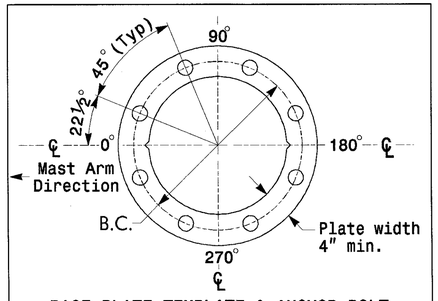


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
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STREET NAME SIGN	STREET NAME SIGN RIGID MOUNTED	12.0 S.F.	18.0" W X 96.0" L	27 LBS

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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FINAL DRAWING Date: 3/27/13

(Zachary M. Little)
Traffic Engineering Branch

NCDOT Wind Zone 4 (90 mph)

Prepared in the offices of:
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Prepared for:
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 280 (Boylston Highway) at SR 2277 (Old Fanning Bridge Road)/Golf Maintenance Entrance

Division 14 | Henderson County | Fletcher

PLAN DATE: March 2013 | REVIEWED BY: WJ Hamilton
PREPARED BY: NE Burns | RKA PROJ. NO: 12103 (040)

SCALE: 0 N/A N/A

REVISIONS	INIT.	DATE

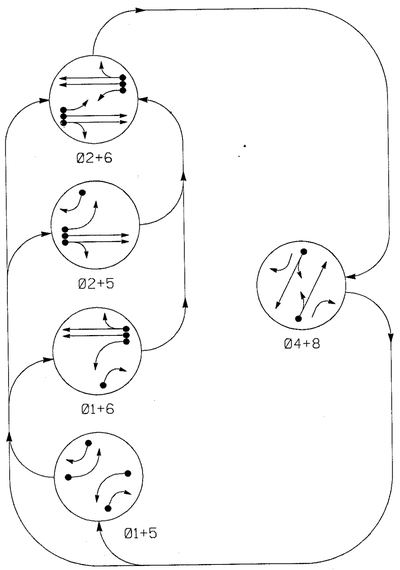
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

SIGNATURE 3/18/13 DATE

SIG. INVENTORY NO. 14-1271

PROJECT REFERENCE NO.	SHEET NO.
41298	SIG.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

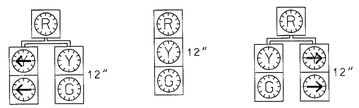
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
21	R	R	G	G	R	Y
22	R	R	G	G	R	Y
41	R	R	R	R	G	R
42	R	R	R	R	G	R
61	R	G	R	G	R	Y
62	R	G	R	G	R	Y
81	R	R	R	R	G	R
82	R	R	R	R	G	R

SIGNAL FACE I.D.

Denotes L.E.D.



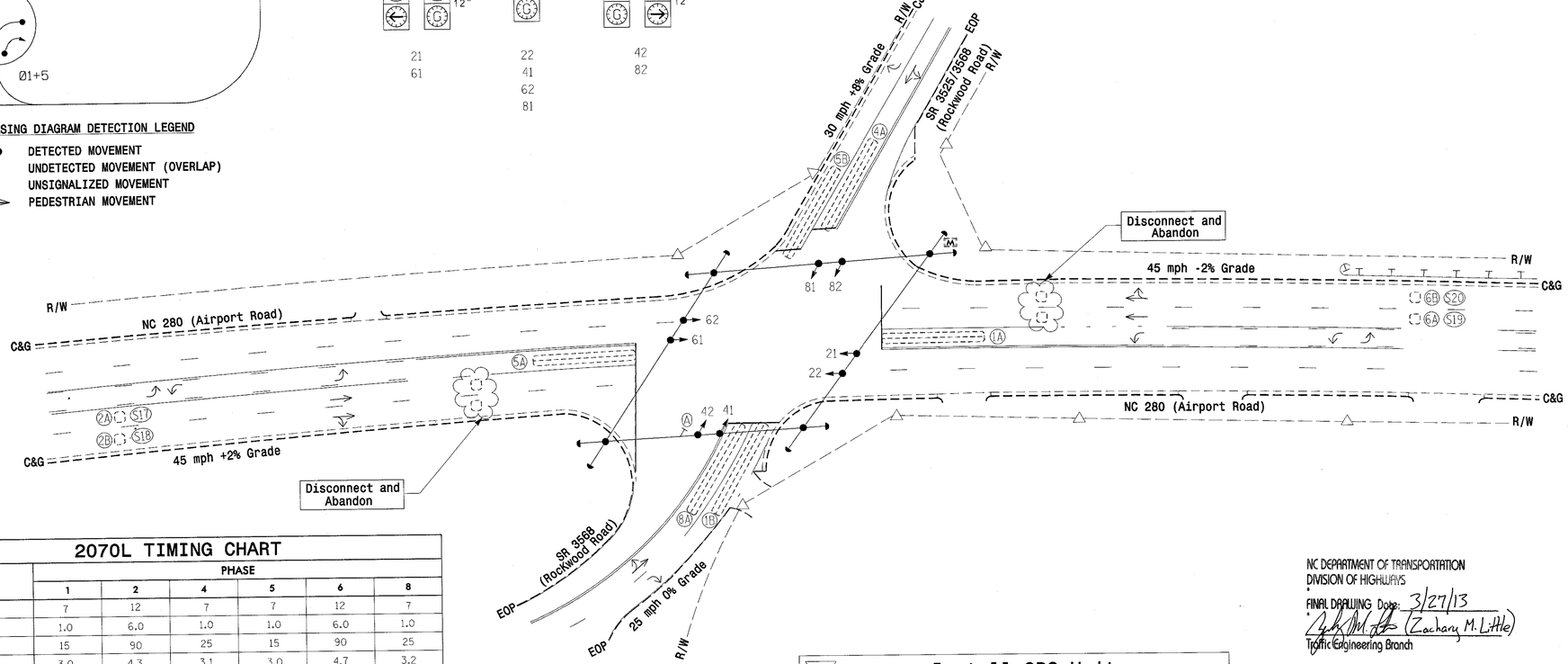
2070L LOOP & DETECTOR INSTALLATION

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	6X60	0	Existing	—	1	Y	Y	—	——	15	—	—
					6	Y	Y	Y	——	3	—	—
1B	6X60	0	Existing	—	1	Y	Y	—	——	15	—	—
2A/S17	6X6	300	Existing	—	2	Y	Y	—	——	——	Y	—
2B/S18	6X6	300	Existing	—	2	Y	Y	—	——	——	Y	—
4A	6X60	0	Existing	—	4	Y	Y	—	——	3	—	—
5A	6X60	0	Existing	—	5	Y	Y	—	——	15	—	—
					2	Y	Y	Y	——	3	—	—
5B	6X60	+5	Existing	—	5	Y	Y	—	——	15	—	—
6A/S19	6X6	310	Existing	—	6	Y	Y	—	——	——	Y	—
6B/S20	6X6	310	Existing	—	6	Y	Y	—	——	——	Y	—
8A	6X60	0	Existing	—	8	Y	Y	—	——	3	—	—

5 Phase
Fully Actuated
(NC 280 Closed Loop Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Omit phase 1 during phase 2 on.
4. Omit phase 5 during phase 6 on.
5. Program controller to clear from phase 2+6 to phase 1 and / or 5 by progressing through phase 4+8 (see Electrical Details).
6. Disconnect and abandon existing loops as shown.
7. Set all detector units to presence mode.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Controller Asset #0820. Master Asset #11306.
10. (1) Contractor shall install GPS unit as specified in Electrical Detail Sheet 2 of 2.



2070L TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	1.0	6.0	1.0	1.0	6.0	1.0
Max Green 1 *	15	90	25	15	90	25
Yellow Clearance	3.0	4.3	3.1	3.0	4.7	3.2
Red Clearance	3.2	2.0	2.9	3.3	1.6	2.5
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	34	-	-	35	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
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.

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	▭
M	Master Controller & Cabinet	M
□	Junction Box	■
----------	2-in Underground Conduit	----------
N/A	Right of Way with Marker	△
→	Directional Arrow	→
→	Pavement Marking Arrow	→
N/A	Guardrail	I I
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
FINAL DRAWING Date: 3/27/13
(Zachary M. Little)
Traffic Engineering Branch

(1) **Install GPS Unit**

PLAN DATE: March 2013
PREPARED BY: NE Burns
REVIEWED BY: WJ Hamilton

(1) Revisions Only

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Farrington Place, Suite 150
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-872-5418 Fax.
www.rameykemp.com

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

SIGNATURE 3/27/13 DATE

Signal Upgrade

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
DEPARTMENT OF TRANSPORTATION
Signal and Geometrics Section
122 N. McDowell St., Raleigh, NC 27603

NC 280 (Airport Road) At SR 3568 (Rockwood Road)

DIVISION 13 BUNCOMBE COUNTY Fletcher
PLAN DATE: January 2007 REVIEWED BY: I.O.Umozurike
PREPARED BY: Luhr REVIEWED BY:

REVISIONS	INIT.	DATE
(1) Install GPS unit	WJH	3/13

SCALE 0 40 1"=40'

SEAL

Not a certified document. This document originally issued and sealed by Timothy J.Williams,24393 on 2/14/07 This document shall not be considered a certified document.

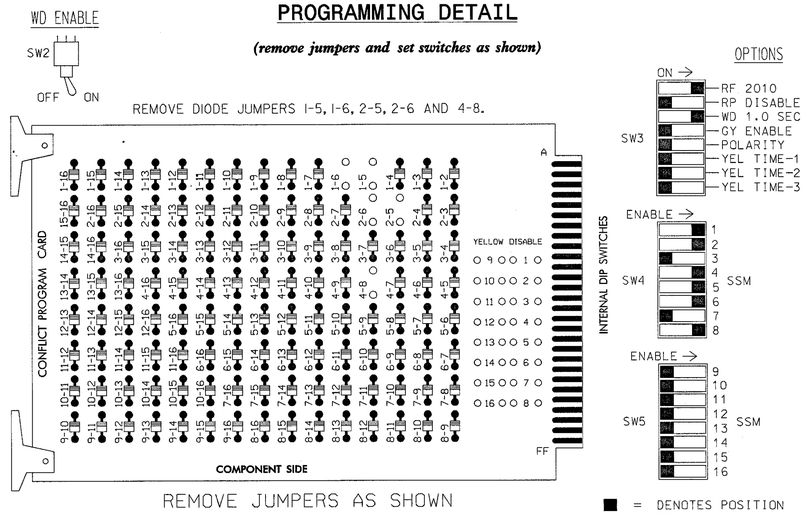
SIGNATURE DATE

SIG. INVENTORY NO. 13-0820

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig. 2

EDI MODEL 2010ECL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused 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. Program phases 2 and 6, on the controller unit, for Start Up In Green.
4. Enable Simultaneous Gap-Out, on the controller unit, for all phases.
5. Program phases 4 and 8, on the controller unit, for Dual Entry.
6. Program phases 2 and 6, on the controller unit, for Variable Initial and Gap Reduction.
7. The cabinet and controller are part of the NC 280 Closed Loop Signal System.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	61,62	21,22	NU	NU	41,42	NU	21,42	61,62	NU	NU	81,82	NU
RED	*	128			101		*	134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW	126						132					
GREEN ARROW	127						133					

NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

EQUIPMENT INFORMATION

CONTROLLER.....EXISTING 2070L
CABINET.....EXISTING 332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S6,S8
PHASES USED.....1,2,4,5,6,8
OVERLAPS.....NONE

DYNAMIC BACK-UP CONTROL PROGRAMMING

(program controller 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 Dynamic/Backup Control Functions 1 and 2.
2. From Phase Control Functions Menu press '2' (Dynamic/Backup Control Functions).

```
DYNAMIC/BACKUP CONTROL FUNCTION #01
              OVERLAPS:¦ABCDEFGHIJKLMNOP
IF OVERLAPS ARE ACTIVE ¦
OR       PHASES:¦12345678910111213141516
IF PHASES ARE ON¦ X
OMIT PHASES     ¦X
CALL PHASES     ¦  X
```

PRESS 'NEXT'

```
DYNAMIC/BACKUP CONTROL FUNCTION #02
              OVERLAPS:¦ABCDEFGHIJKLMNOP
IF OVERLAPS ARE ACTIVE ¦
OR       PHASES:¦12345678910111213141516
IF PHASES ARE ON¦     X
OMIT PHASES     ¦    X
CALL PHASES     ¦  X
```

BACKUP PROTECTION PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1B	Ø2/SYS 2A/S17	Ø1 1A	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2/SYS 2B/S18	Ø6 1A			NOT USED								ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø6/SYS 6A/S19	Ø5 5A	Ø5 5B	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	EMPTY	Ø6/SYS 6B/S20	Ø2 5A	NOT USED	EMPTY	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

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 ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-9,10	I3U	63	25	32	1	Y	Y			15
	TB2-11,12	I3L	76	38	42	6	Y	Y	Y		3
1B	TB2-1,2	I1U	56	18	1	1	Y	Y			15
2A/S17	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S18	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
5A[2]	TB3-9,10	J3U	64	26	36	5	Y	Y			15
	TB3-11,12	J3L	77	39	46	2	Y	Y	Y		3
5B	TB5-1,2	J4U	48	10	26	5	Y	Y			15
6A/S19	TB3-5,6	J2U	40	2	6	6/SYS	Y	Y			
6B/S20	TB3-7,8	J2L	44	6	16	6/SYS	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3

[1] Add jumpers from TB2-9 to TB2-11, and from TB2-10 to TB2-12.

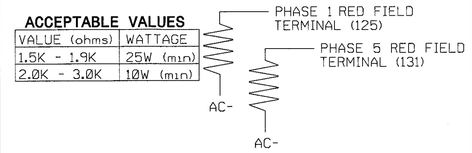
[2] Add jumpers from TB3-9 to TB3-11, and from TB3-10 to TB3-12.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



NOTE: The purpose of these resistors is to load the channel red monitor inputs in order for the Signal Sequence Monitor to use the full signal sequence monitoring capability on channels that do not use the red display in the field.

1 Install GPS Unit
PLAN DATE: March 2013
PREPARED BY: NE Burns
REVIEWED BY: WJ Hamilton
1 Revisions Only

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Farrington Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON
SIGNATURE 3/27/13 DATE

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
FINAL DRAWING Date: 3/27/13
(Zachary M. Little)
Traffic Engineering Branch

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0820
DESIGNED: January 2007
SEALED: 02/14/07
REVISED: 03/27/13

1 Electrical Detail Sheet 1 of 2

Signal Upgrade

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 280 (Airport Road) at SR 3568 (Rockwood Road)

Division 13 Buncombe County Fletcher

PLAN DATE: February 2007 REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS	INIT.	DATE
1 Install GPS unit.	WJH	1/13

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Congestion Management Section
122 N. McDowell St., Raleigh, NC 27603

SEAL

This document originally issued and sealed by George C. Brown, #022013, on 02/26/07. This media shall not be considered a certified document.

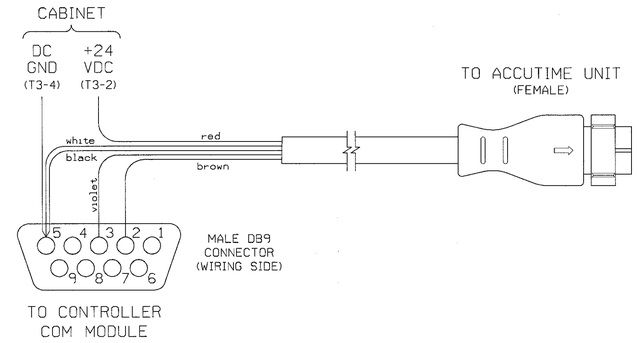
SIGNATURE DATE

SIG. INVENTORY NO. 13-0820

PROJECT REFERENCE NO.	SHEET NO.
-	Sig-3

1 CONNECTOR WIRING DETAIL FOR ACCUTIME GPS ANTENNA WITH SERIAL INTERFACE

(make connections as shown)



SIGNAL DESCRIPTION	12 CONDUCTOR CABLE COLOR	ACCUTIME CONNECTOR	DB9 TO CONTROLLER	CABINET CONNECTION
DC POWER	RED	PIN 1		T3-2
PORT B: RECEIVE	VIOLET	PIN 2	PIN 3	
PORT B: TRANSMIT	BROWN	PIN 4	PIN 2	
PORT A: RECEIVE	WHITE	PIN 6	PIN 5	
DC GROUND	BLACK	PIN 9	PIN 5	T3-4

Note: All other wires in the Accutime cable are unused and should be tied off.

Configure the Com Port used by the Accutime unit in the Oasis software using the settings below:

* 9600 Baud
* 8 Data Bits
* 1 Stop Bit
* Odd Parity
* Trimble TSIP GPS Protocol

Be sure to enable the "GET TIME FROM GPS" option under D-1 (Set Clock) menu.

! **Install GPS Unit**

PLAN DATE: March 2013
PREPARED BY: NE Burns
REVIEWED BY: WJ Hamilton

! Revisions Only

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SIGNATURE 3/27/13 DATE

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FINAL DRAWING, Date: 3/27/13
(Zachary M. Little)
Traffic Engineering Branch

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1 Electrical Detail Sheet 2 of 2

Signal Upgrade

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 280 (Airport Road) at SR 3568 (Rockwood Road)

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Prepared in the Offices of:

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Signals Management Section

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