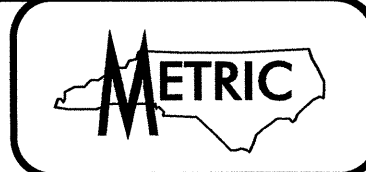
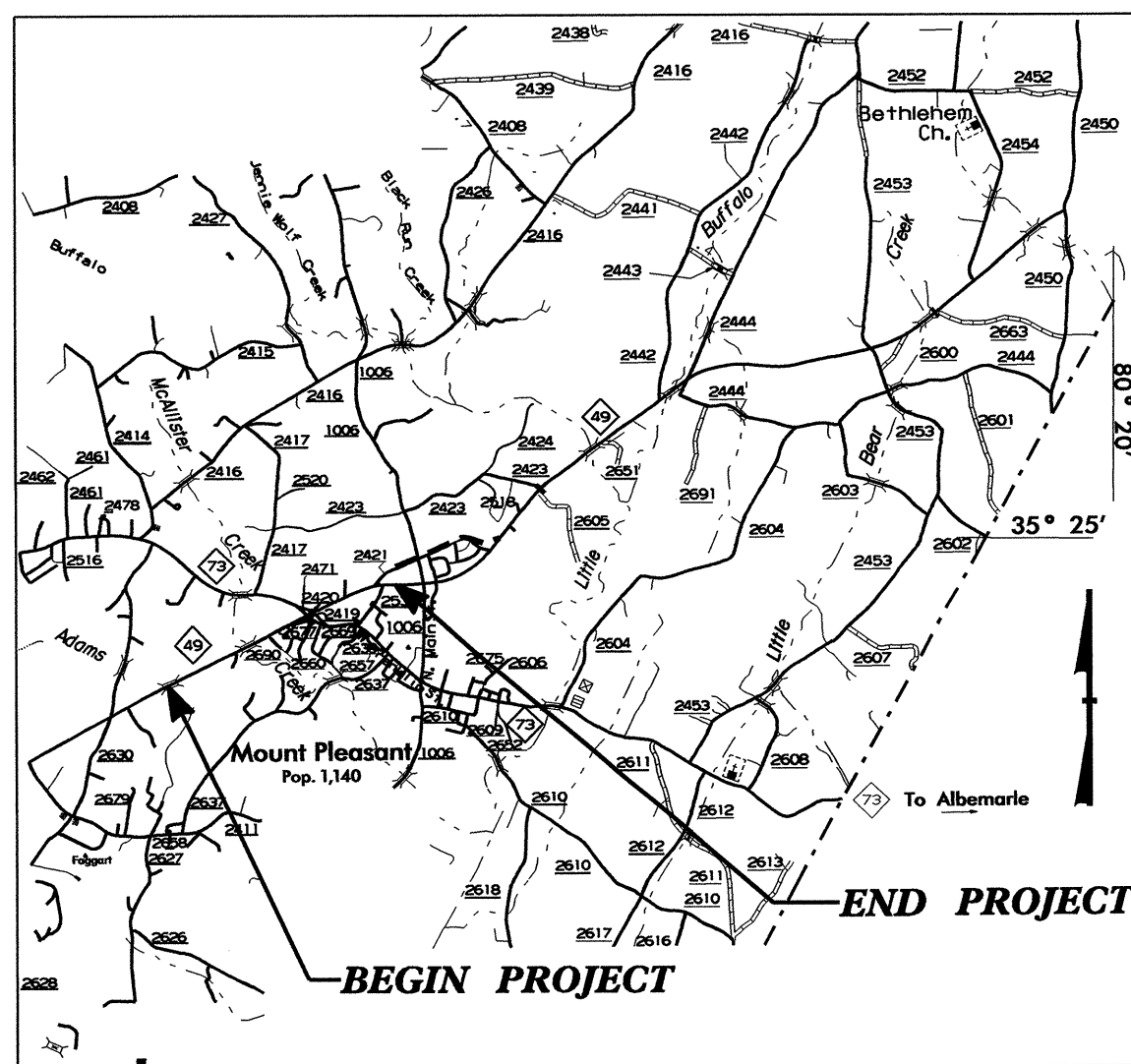


TIP: R-2533CC



Project No.	Sheet No.
R-2533CC	Sig. 1

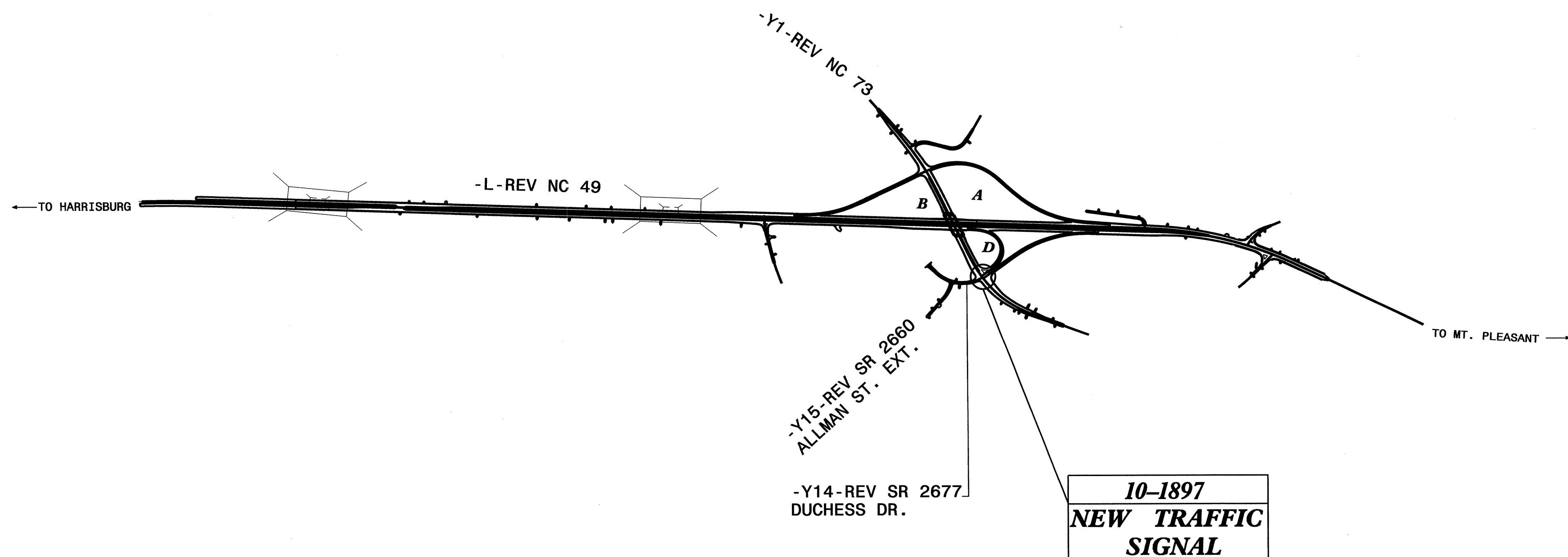


VICINITY MAP OF PROJECT R-2533CC

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CABARRUS COUNTY

LOCATION: NC 49 FROM EAST OF SR 2630 TO EAST OF SR 2421

TYPE OF WORK: TRAFFIC SIGNALS



Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.

Index of Plans

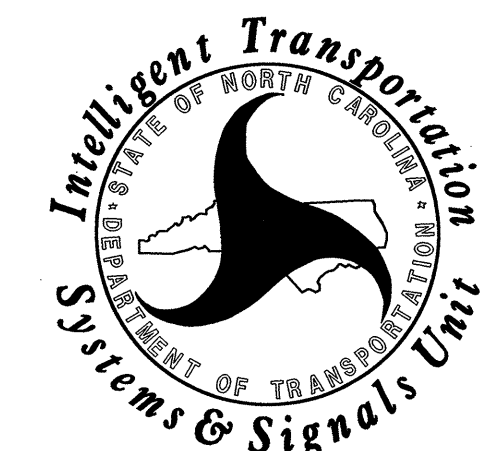
Sheet Number	Signal Inventory Number	Location/Description
Sig. 1	N/A	Title Sheet
Sig. 2-9	10-1896	NC 73 AT NC 49 Ramps D / Allman Street Ext.
Sig. 10-12	N/A	Inductive Detection Loops Details

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

Timothy J. Williams, PE - WESTERN REGION SIGNALS ENGINEER
George C. Brown, PE - SIGNAL EQUIPMENT DESIGN ENGINEER

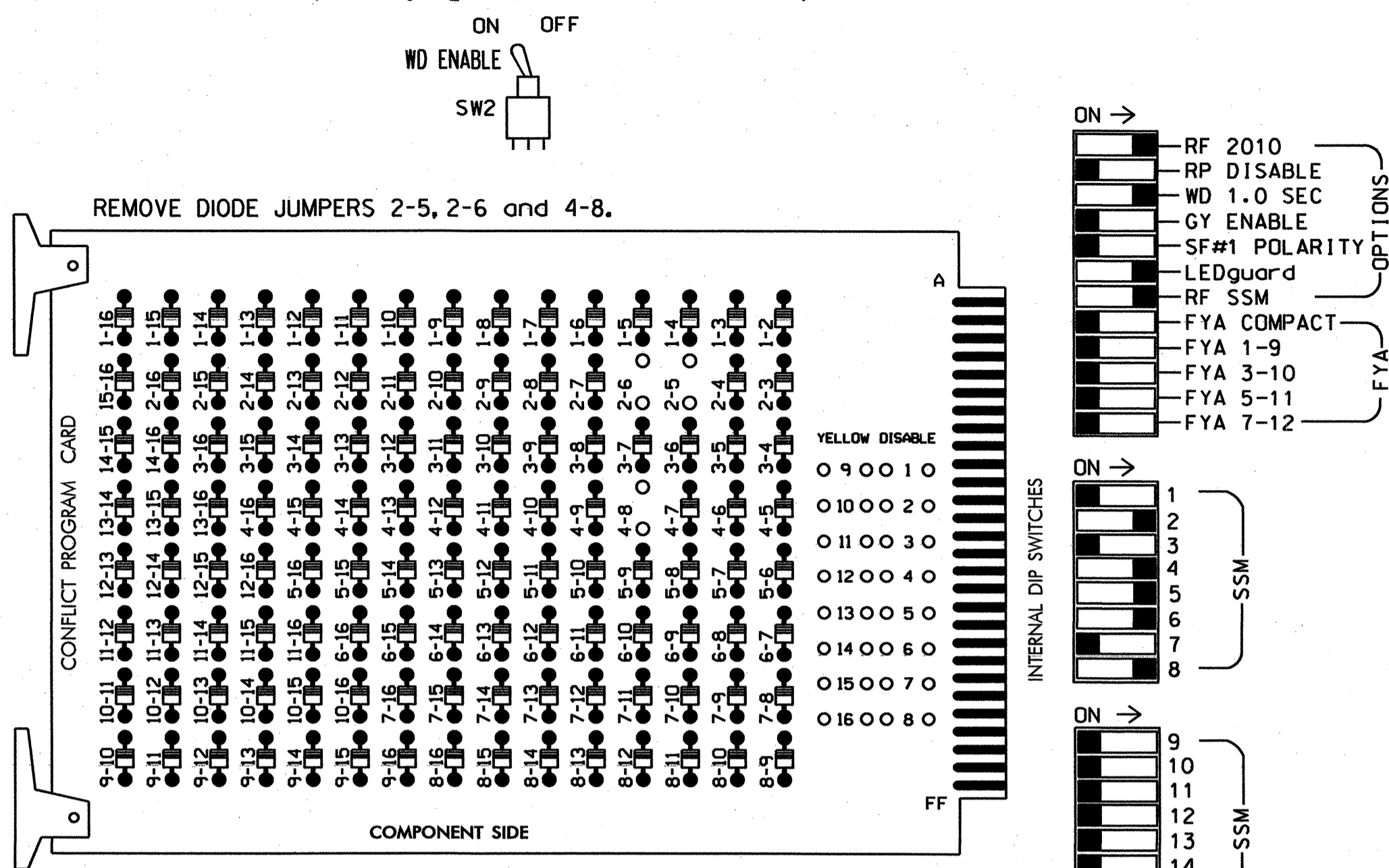
Prepared in the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY DIVISION



750 N. Greenfield Parkway, Garner, NC 27529

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

NOTES

- 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.
- 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 1,3,7,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
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 43	NU	21	62,63	NU	NU	81,82 83	NU	NU	NU	NU	NU	NU	NU
RED		128			101		*	134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW																		
YELLOW ARROW								132										
GREEN ARROW								133										

NU = Not Used

* 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,S4,S5,S6,S8
 PHASES USED.....2,4,5,6,8
 OVERLAP "A".....NOT USED
 OVERLAP "B".....NOT USED
 OVERLAP "C".....NOT USED
 OVERLAP "D".....NOT USED

BACKUP PROTECTION NOTE

(program controller as shown below)

From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Program phase 2 for 'Backup Protect'. Make sure the Red Revert times shown on the Signal Design Plans are programmed in the 'Phase Timing' menu.

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" L	S T	∅ 2 2A NOT USED	S T	S T	S T	∅ 4 4A 4B	S T	S T	S T	S T	S T	S T	S T	FS DC ISOLATOR ST DC ISOLATOR
FILE "J" L	∅ 5 5A NOT USED	∅ 6 6A 6B	S T	S T	S T	∅ 8 8A NOT USED	S T	S T	S T	S T	S T	S T	S T	S T

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

⊗ Wired Input - Do not populate slot with detector card

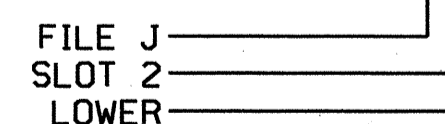
FS = FLASH SENSE
ST = STOP TIME

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
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
5A ¹	TB3-1,2	J1U	55	17	5	5	Y	Y	Y		10
		I4U	47	9	22	2	Y	Y	Y	2.0	5
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y	Y	2.0	5
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10

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

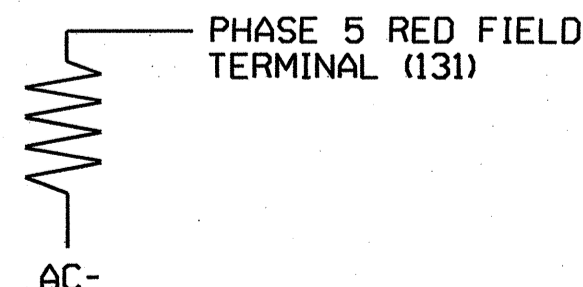
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

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

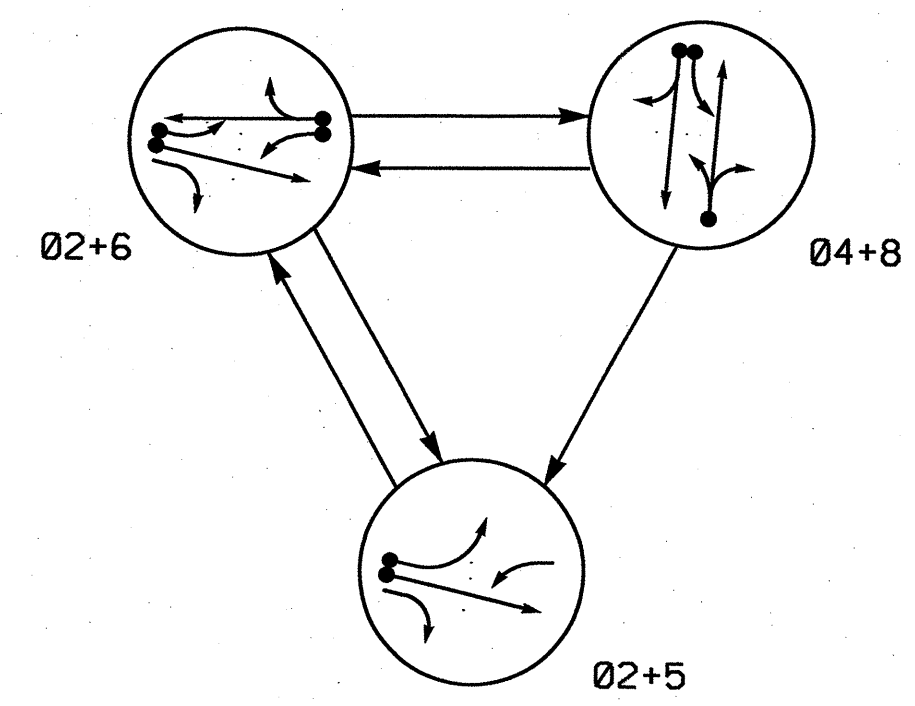


THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-1897T1
 DESIGNED: October 2010
 SEALED: 11/18/10
 REVISED: N/A

New Installation - Temporary Signal 1 (TCP Phase III)

	Electrical and Programming Details For: NC 73 (Franklin Street) at NC 49 Ramp "D" / SR 2677 (Duchess Drive) Cabarrus County, Wt. Pleasant	
	Division 10 PLAN DATE: November 2010 PREPARED BY: S. Armstrong	REVIEWED BY: T. J. J. REVIEWED BY:
	REVISIONS INIT. DATE	SIGNATURE DATE
	750 N. Greenfield Pkwy, Garner, NC 27529	

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND
 ● DETECTED MOVEMENT
 ○ UNDETECTED MOVEMENT (OVERLAP)
 - UNSIGNALIZED MOVEMENT
 - PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04+8	FLASH
21,22	G	R	Y	
41,42,43	R	R	G	R
51		F	R	Y
61		F	R	Y
62,63	R	G	R	Y
81,82,83	R	R	G	R

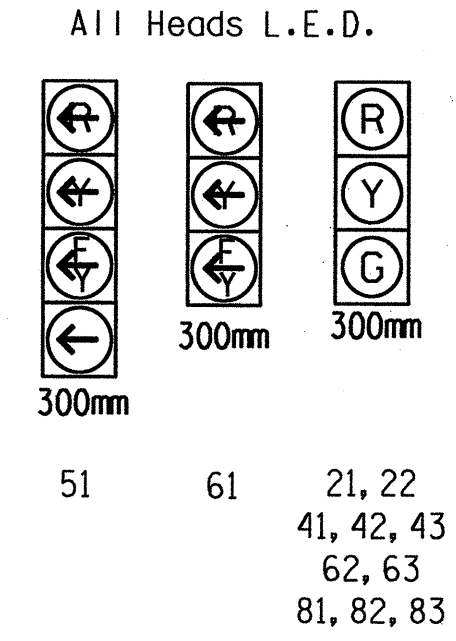
F = Flashing Yellow Arrow

STANDARD SIGNAL FACE CLEARANCES FOR FLASHING LEFT TURN SIGNAL

FROM	TO			
	1	2	1	2
1				
2				
1				
2				

F = Flashing Yellow Arrow

SIGNAL FACE I.D.



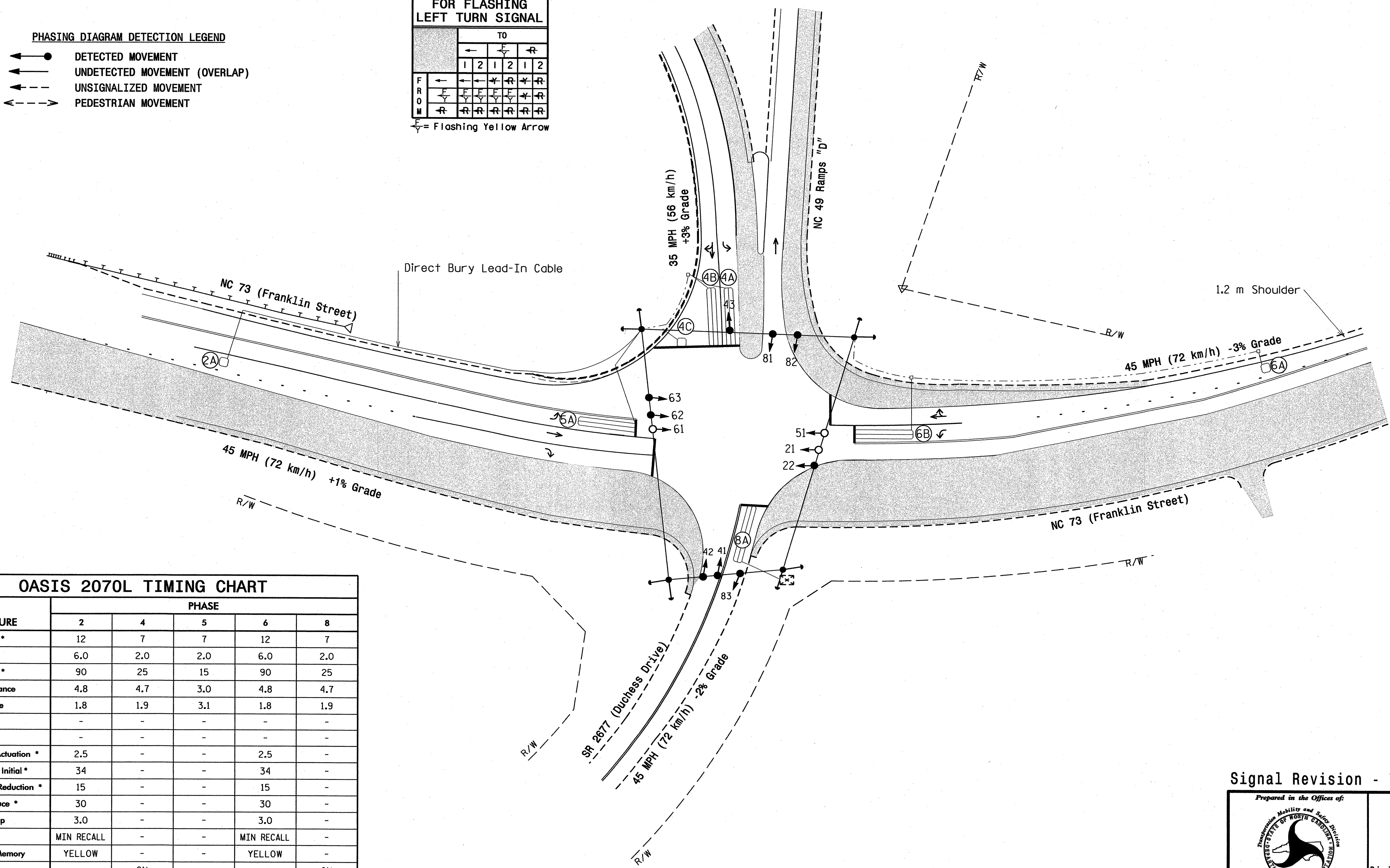
OASIS 2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (M)	TURNS	DISTANCE FROM STOPBAR (M)	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	1.8x1.8	5	90	Y	2	Y	Y	-	-	-	-	-
4A	1.8x1.2	2-4-2	0	Y	4	Y	Y	-	-	-	-	-
4B	1.8x1.2	2-4-2	0	Y	4	Y	Y	-	-	10	-	-
4C	1.8x1.8	3	0	Y	4	Y	Y	-	-	15	-	Y
5A	1.8x1.2	2-4-2	0	Y	5	Y	Y	-	-	15	-	-
6A	1.8x1.8	6	90	Y	6	Y	Y	-	-	-	-	-
6B	1.8x1.2	2-4-4	0	Y	6	Y	Y	-	-	3	-	-
8A	1.8x1.2	2-4-2	0	Y	8	Y	Y	-	-	10	-	-

3 Phase Fully Actuated Isolated

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. Disable backup protect for phase 2.
4. Phase 5 may be lagged.
5. Reposition existing signal heads numbered 62 and 63.
6. Set all detector units to presence mode.



OASIS 2070L TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green 1*	12	7	7	12	7
Extension 1*	6.0	2.0	2.0	6.0	2.0
Max Green 1*	90	25	15	90	25
Yellow Clearance	4.8	4.7	3.0	4.8	4.7
Red Clearance	1.8	1.9	3.1	1.8	1.9
Walk 1*	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation*	2.5	-	-	2.5	-
Max Variable Initial*	34	-	-	34	-
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

* 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	● Traffic Signal Head
○ Modified Signal Head	N/A
○ Sign	N/A
○ Pedestrian Signal Head With Push Button & Sign	○ Pedestrian Signal Head
○ Signal Pole with Guy	○ Signal Pole with Guy
○ Signal Pole with Sidewalk Guy	○ Signal Pole with Sidewalk Guy
○ Inductive Loop Detector	○ Inductive Loop Detector
○ Controller & Cabinet	○ Controller & Cabinet
○ Junction Box	○ Junction Box
○ 2-in Underground Conduit	○ 2-in Underground Conduit
○ Right of Way with Marker	○ Right of Way with Marker
○ Directional Arrow	○ Directional Arrow
○ CONSTRUCTION ZONE	○ CONSTRUCTION ZONE

Signal Revision - Temporary Signal 2 (TCP Phase IV)

Prepared in the Offices of:
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 STATE OF TRANSPORTATION
 Signal Design Section

750 N. Greenfield Parkway, Garner, NC 27529

NC 73 (Franklin Street) at NC 49 Ramp "D" / SR 2677 (Duchess Drive)

Division 10 Cabarrus County Mt. Pleasant

PLAN DATE: October, 2010 REVIEWED BY: [Signature]

PREPARED BY: M. Mahbooba REVIEWED BY: [Signature]

SCALE: 1:500

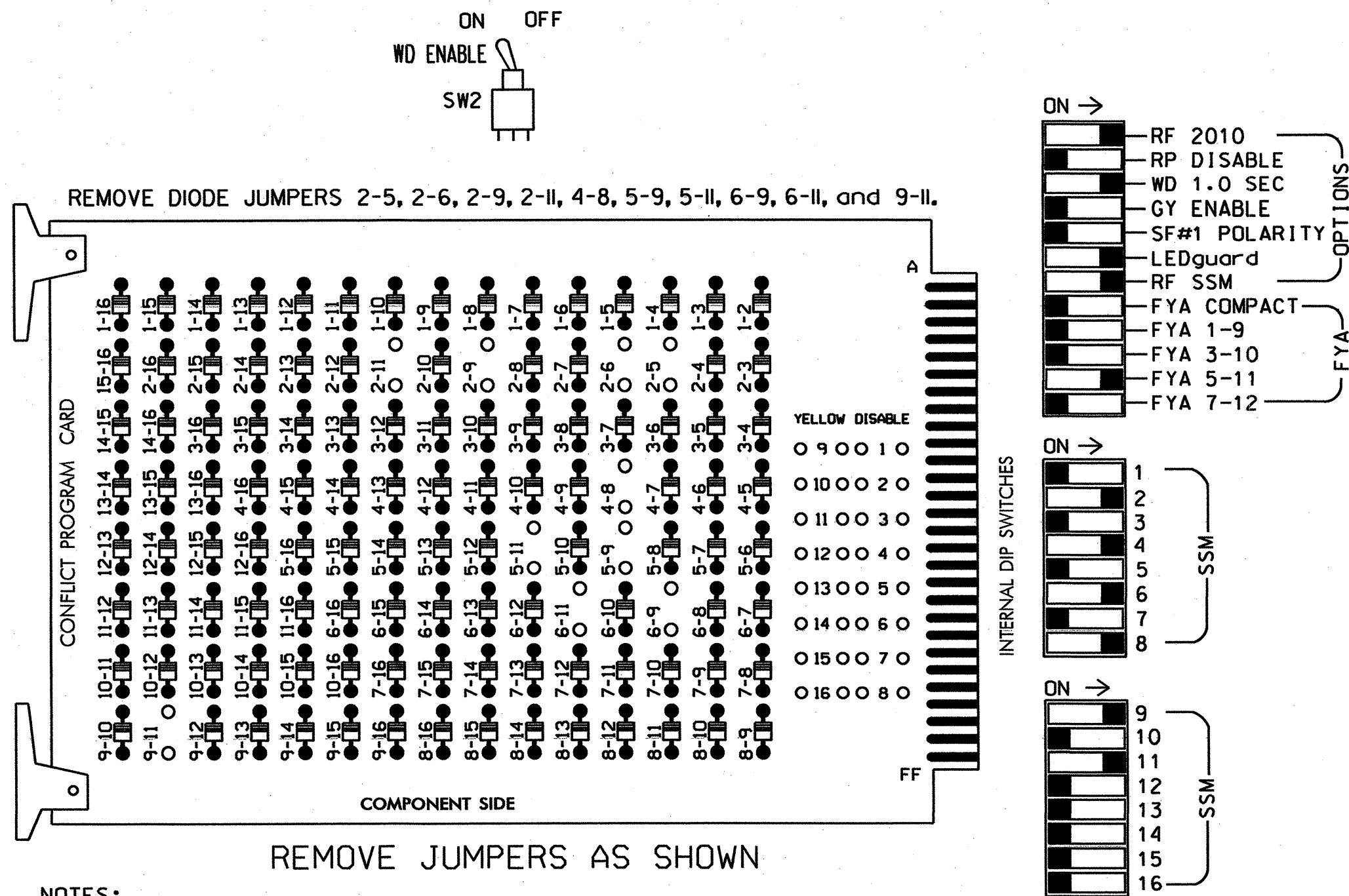
SEAL: [Professional Engineer Seal]

SIG. INVENTORY NO. 10-1897 T2

17-Nov-2010 14:37
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EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.

NOTES

- 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.
- 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 1,3,5,7,10,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
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 43	NU	51*	62,63	NU	NU	81,82 83	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														A122				A115
FLASHING YELLOW ARROW														A123				A116
GREEN ARROW								133										

NU = Not Used

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

★ See pictorial of head wiring in detail below.

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,S4,S5,S6,S8,S9,S12
 PHASES USED.....2,4,5,6,8
 OVERLAP "A".....2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....5+6
 OVERLAP "D".....NOT USED

BACKUP PROTECTION NOTE

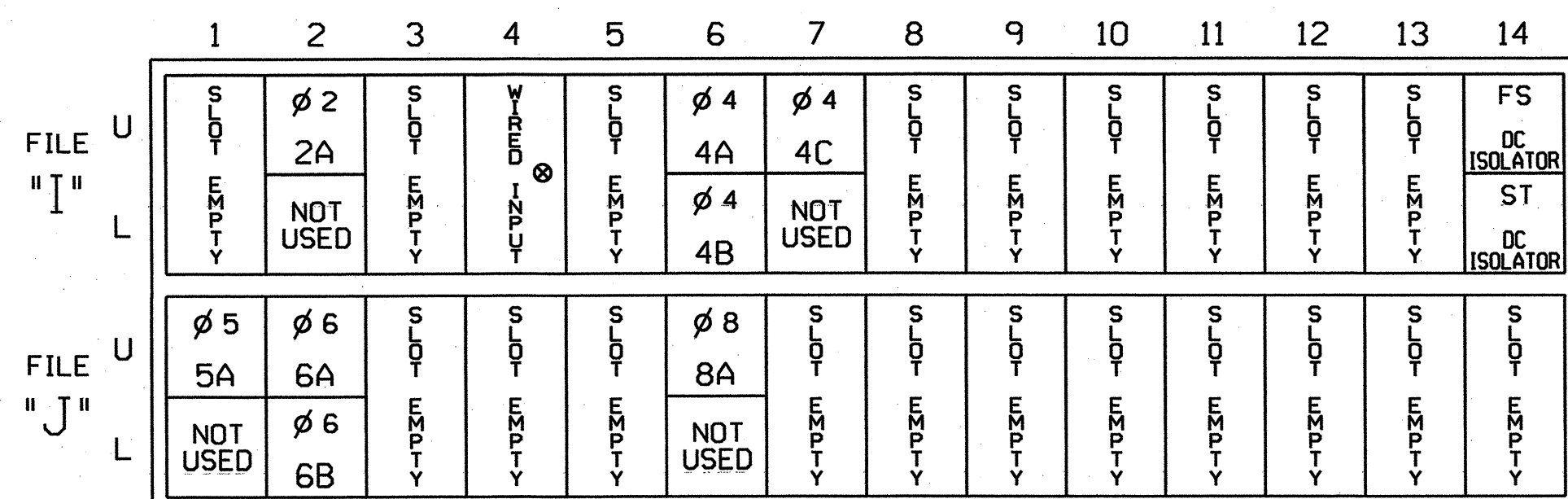
(program controller as shown below)

From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Program phase 2 for 'Backup Protect'. Make sure the Red Revert times shown on the Signal Design Plans are programmed in the 'Phase Timing' menu.

IMPORTANT! Delete this programming if it exists in the controller.

INPUT FILE POSITION LAYOUT

(front view)



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

⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

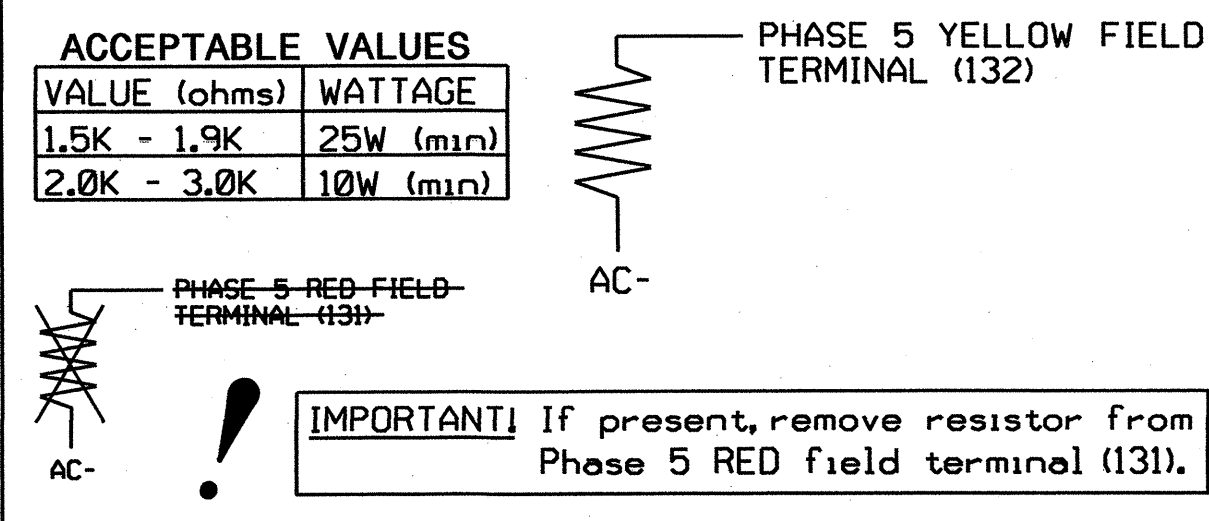
INPUT FILE CONNECTION & PROGRAMMING CHART

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
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			15
5A ¹	TB3-1,2	J1U	55	17	5	5	Y	Y			15
		I4U	47	9	22	2	Y	Y	Y		3
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y	Y		3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10

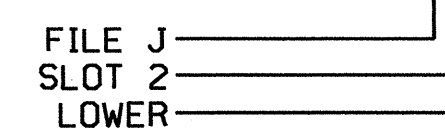
¹Make sure jumper is installed between J1-W and I4-W on rear of input file.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

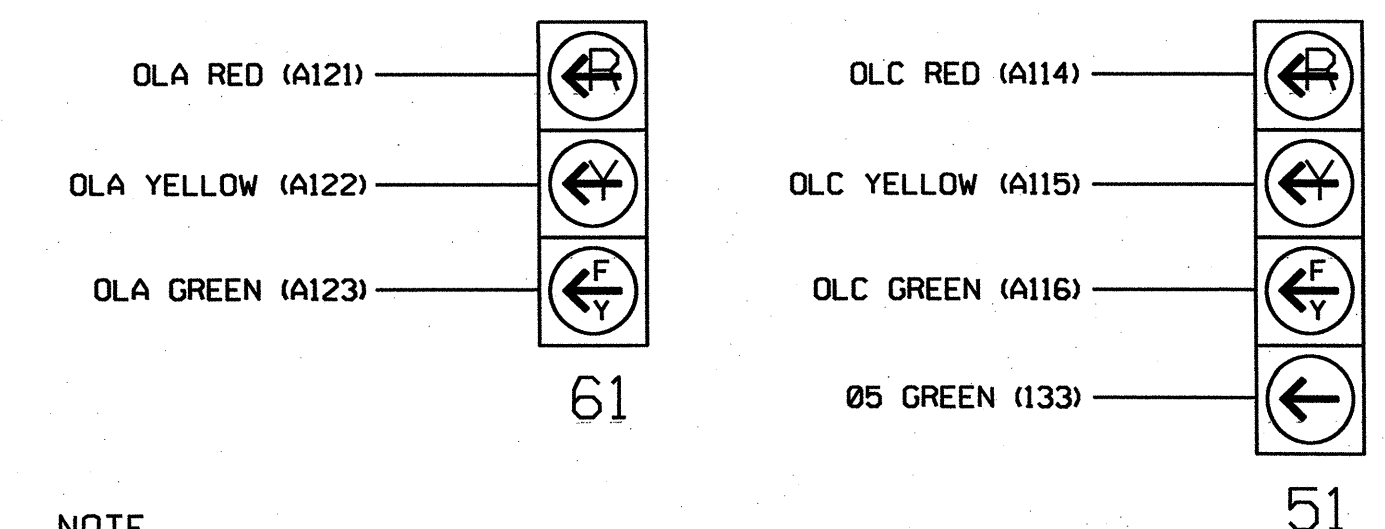


INPUT FILE POSITION LEGEND: J2L



3 & 4 SECTION FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal head 51 requires special logic programming. See sheet 2 of 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-189772
 DESIGNED: October 2010
 SEALED: 11/18/10
 REVISED: N/A

Signal Revision - Temporary Signal 2 (TCP Phase IV) - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 73 (Franklin Street)
 at
 NC 49 Ramp "D"/
 SR 2677 (Duchess Drive)

Division 10 Cabarrus County Mt. Pleasant

PREPARED BY: S. Armstrong REVIEWED BY: T. J. J. J.

REVISIONS: _____ INIT. DATE

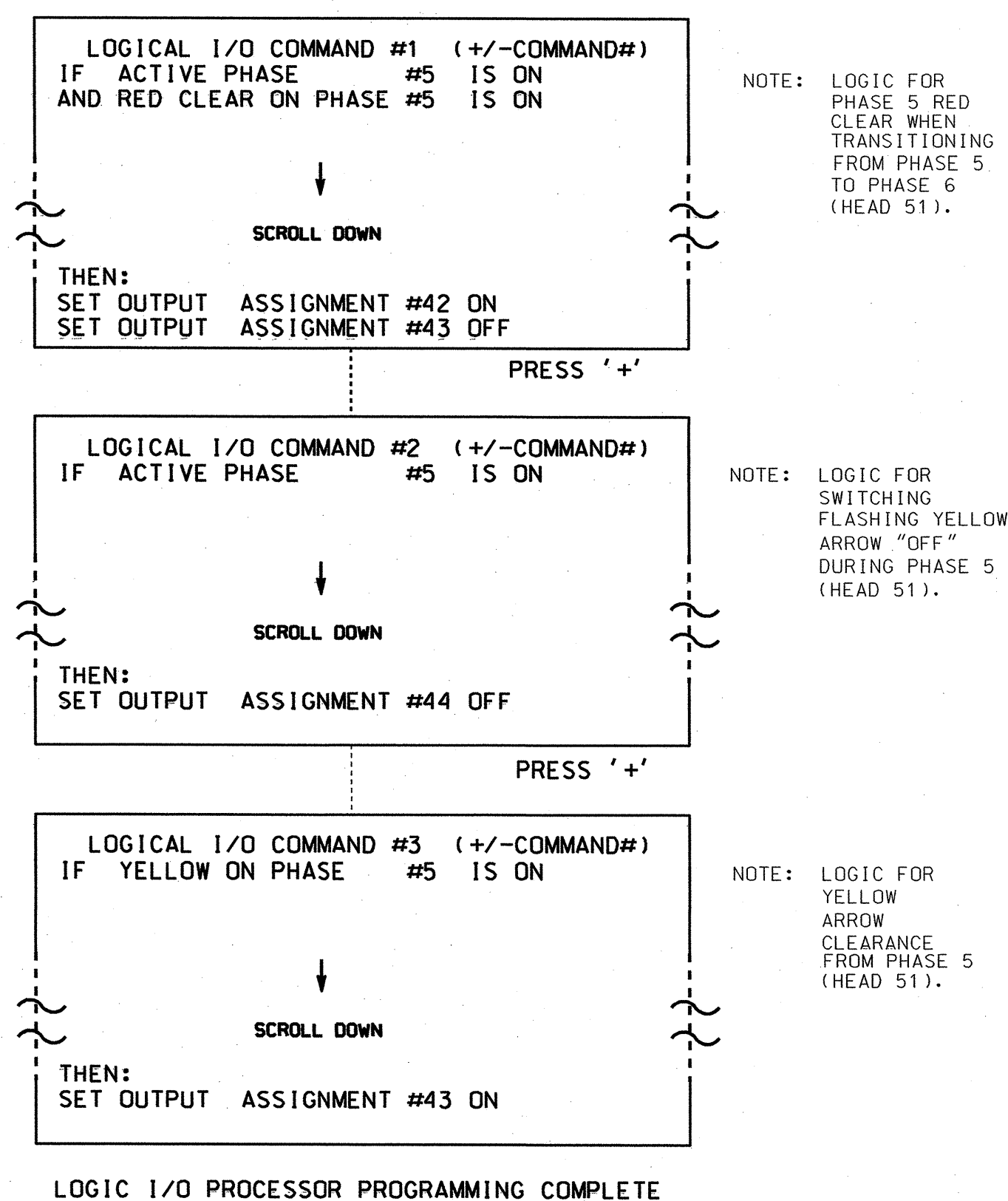
750 N. Greenfield Pkwy, Garner, NC 27529

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 022013
 GEORGE C. BRUNN
 SIGNATURE DATE 11/22/10
 Sig. INVENTORY NO. 10-189772

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

(program controller as shown below)

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



OUTPUT REFERENCE SCHEDULE

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: 12345678910111213141516
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 ← NOTICE GREEN FLASH
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

PRESS '+' TWICE

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 12345678910111213141516
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 ← NOTICE GREEN FLASH
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

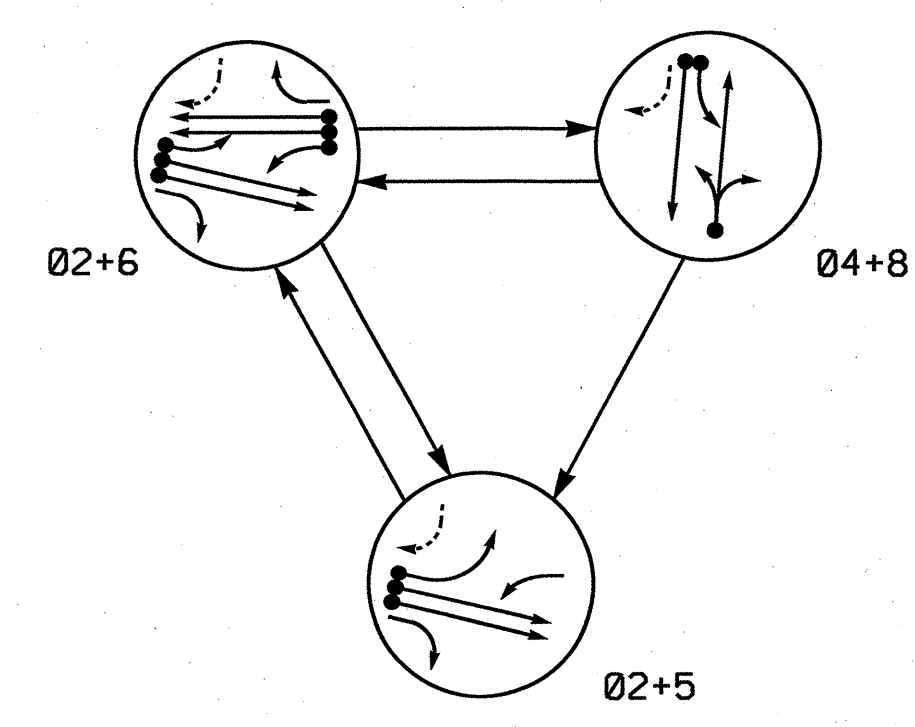
OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-1897T2
DESIGNED: October 2010
SEALED: 11/18/10
REVISED: N/A

Signal Revision - Temporary Signal 2 (TCP Phase IV) - Sheet 2 of 2

	NC 73 (Franklin Street) at NC 49 Ramp "D" / SR 2677 (Duchess Drive)		SEAL
	Division 10 Cabarrus County Mt. Pleasant	PREPARED BY: S. Armstrong REVIEWED BY: T. J. J.	
PLAN DATE: November 2010 PREPARED BY: S. Armstrong	REVIEWED BY: T. J. J.	REVISIONS INIT. DATE	SIGNATURE: <i>George C. Brown</i> 11/22/10 DATE
ELECTRICAL AND PROGRAMMING DETAILS FOR:			SIG. INVENTORY NO. 10-1897T2

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND
 ● DETECTED MOVEMENT
 ○ UNDETECTED MOVEMENT (OVERLAP)
 - - - UNSIGNALIZED MOVEMENT
 - - - PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	02+6	04+8	FLASH
21,22	G	G	R	Y
41,42,43	R	R	G	R
51	-	F	F	F
61	F	F	F	F
62,63	R	G	R	Y
81,82,83	R	R	G	R

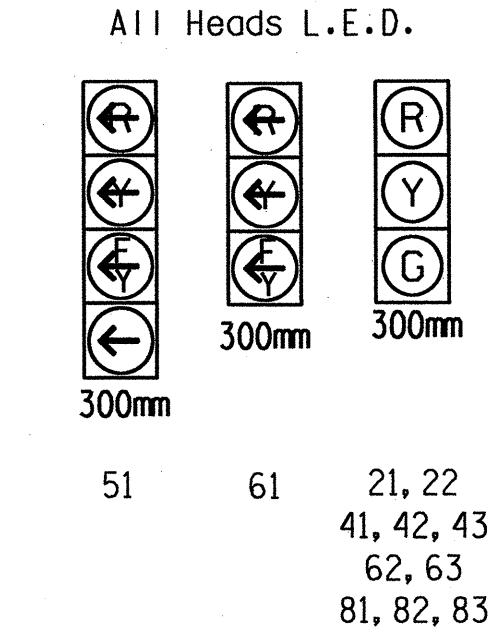
F = Flashing Yellow Arrow

STANDARD SIGNAL FACE CLEARANCES FOR FLASHING LEFT TURN SIGNAL

FROM	TO			
	1	2	1	2
F	-	-	-	-
R	-	-	-	-
G	-	-	-	-

F = Flashing Yellow Arrow

SIGNAL FACE I.D.



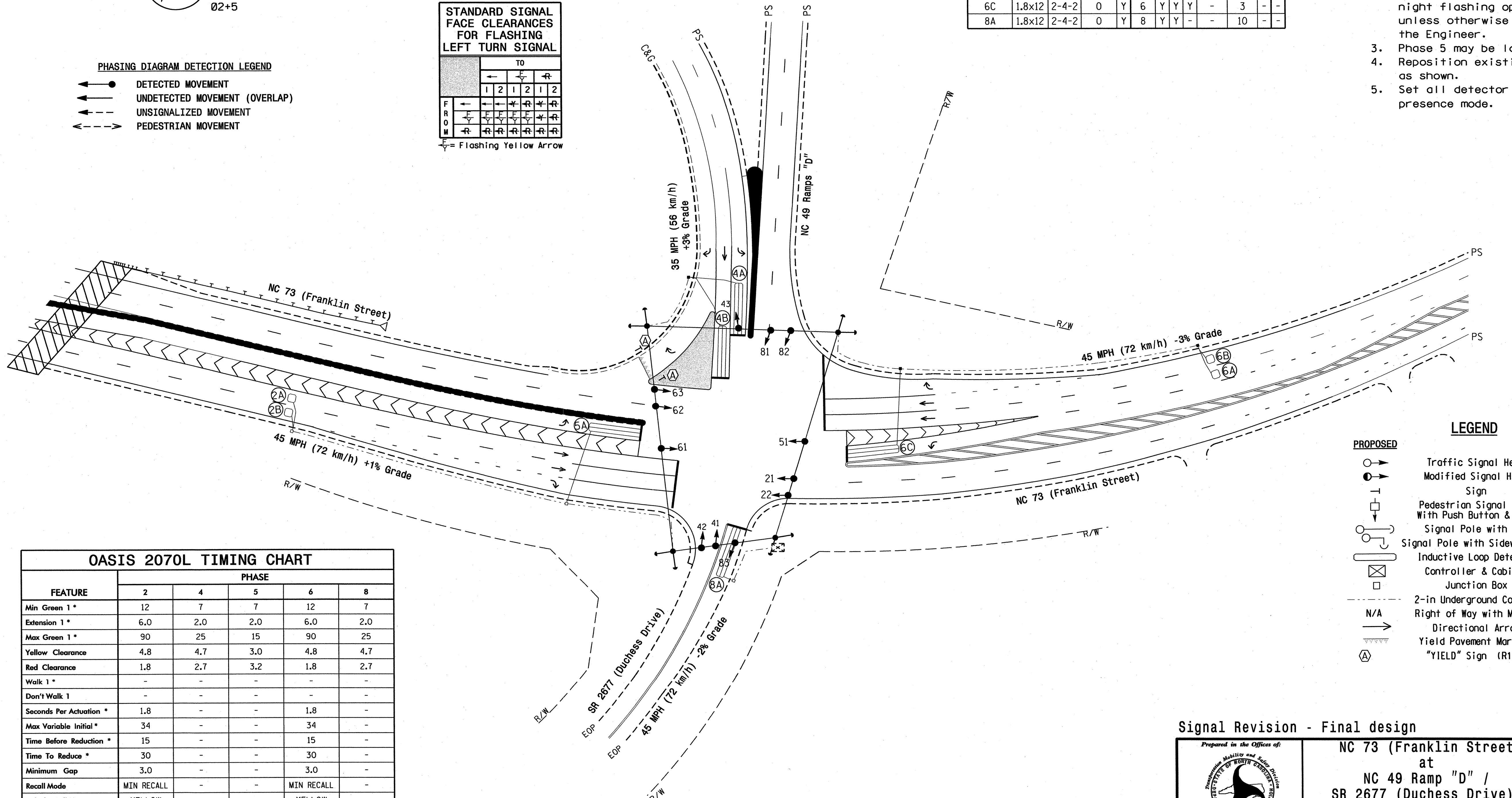
OASIS 2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (M)	TURNS	DISTANCE FROM STOPBAR (M)	NEW LOOP	DETECTOR PROGRAMMING						
					PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	1.8x1.8	5	90	Y	2	Y	Y	-	-	-	-
2B	1.8x1.8	5	90	Y	2	Y	Y	-	-	-	-
4A	1.8x12	2-4-2	0	Y	4	Y	Y	-	-	-	-
4B	1.8x12	2-4-2	0	Y	4	Y	Y	-	-	-	-
5A	1.8x12	2-4-2	0	Y	5	Y	Y	-	-	-	-
6A	1.8x1.8	6	90	Y	6	Y	Y	-	-	-	-
6B	1.8x1.8	6	90	Y	6	Y	Y	-	-	-	Y
6C	1.8x12	2-4-2	0	Y	6	Y	Y	-	-	3	-
8A	1.8x12	2-4-2	0	Y	8	Y	Y	-	-	10	-

3 Phase Fully Actuated Isolated

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. Phase 5 may be lagged.
4. Reposition existing signal heads as shown.
5. Set all detector units to presence mode.



OASIS 2070L TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green 1*	12	7	7	12	7
Extension 1*	6.0	2.0	2.0	6.0	2.0
Max Green 1*	90	25	15	90	25
Yellow Clearance	4.8	4.7	3.0	4.8	4.7
Red Clearance	1.8	2.7	3.2	1.8	2.7
Walk 1*	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation*	1.8	-	-	1.8	-
Max Variable Initial*	34	-	-	34	-
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

* 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	● → Traffic Signal Head
○ → Modified Signal Head	N/A
○ → Pedestrian Signal Head With Push Button & Sign	N/A
○ → Signal Pole with Guy	○ → Signal Pole with Guy
○ → Signal Pole with Sidewalk Guy	○ → Signal Pole with Sidewalk Guy
□ → Inductive Loop Detector	□ → Inductive Loop Detector
□ → Controller & Cabinet	□ → Controller & Cabinet
□ → Junction Box	□ → Junction Box
- - - → 2-in Underground Conduit	- - - → 2-in Underground Conduit
N/A → Right of Way with Marker	△ → Right of Way with Marker
→ → Directional Arrow	→ → Directional Arrow
→ → Yield Pavement Marking	N/A
△ → "YIELD" Sign (R1-2)	△ → "YIELD" Sign (R1-2)

Signal Revision - Final design

Prepared in the Offices of:
 Metropolitan Planning and Signal Design
 NORTH CAROLINA PROFESSIONAL ENGINEERS
 SEAL 24393
 THOMAS J. WILLIAMS

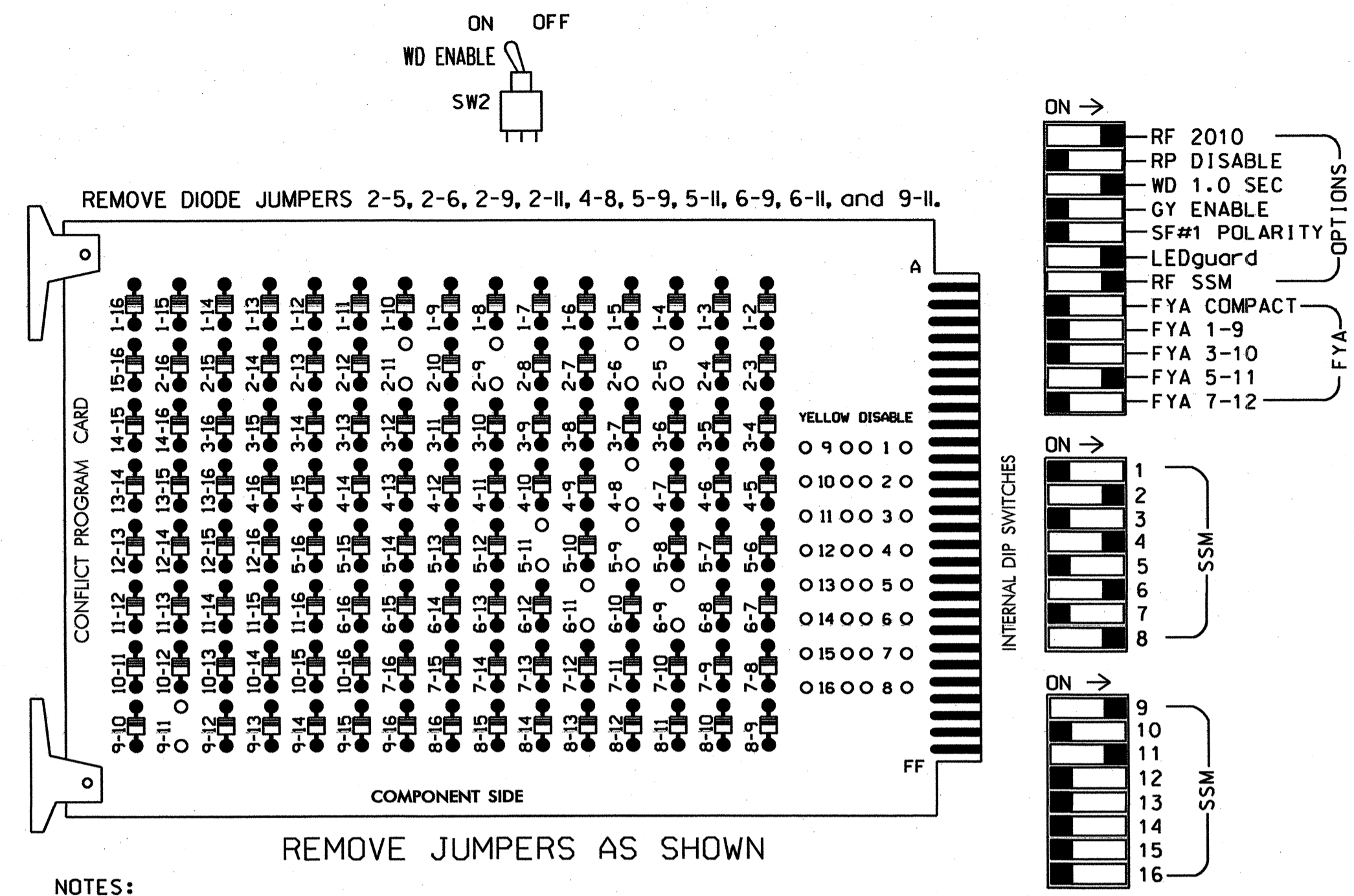
NC 73 (Franklin Street) at NC 49 Ramp "D" / SR 2677 (Duchess Drive)
 Division 10 Cabarrus County Mt. Pleasant
 PLAN DATE: October, 2010
 PREPARED BY: M. Mahbooba
 REVIEWED BY: [Signature]

SCALE: 1:500

SIG. INVENTORY NO. 10-1897

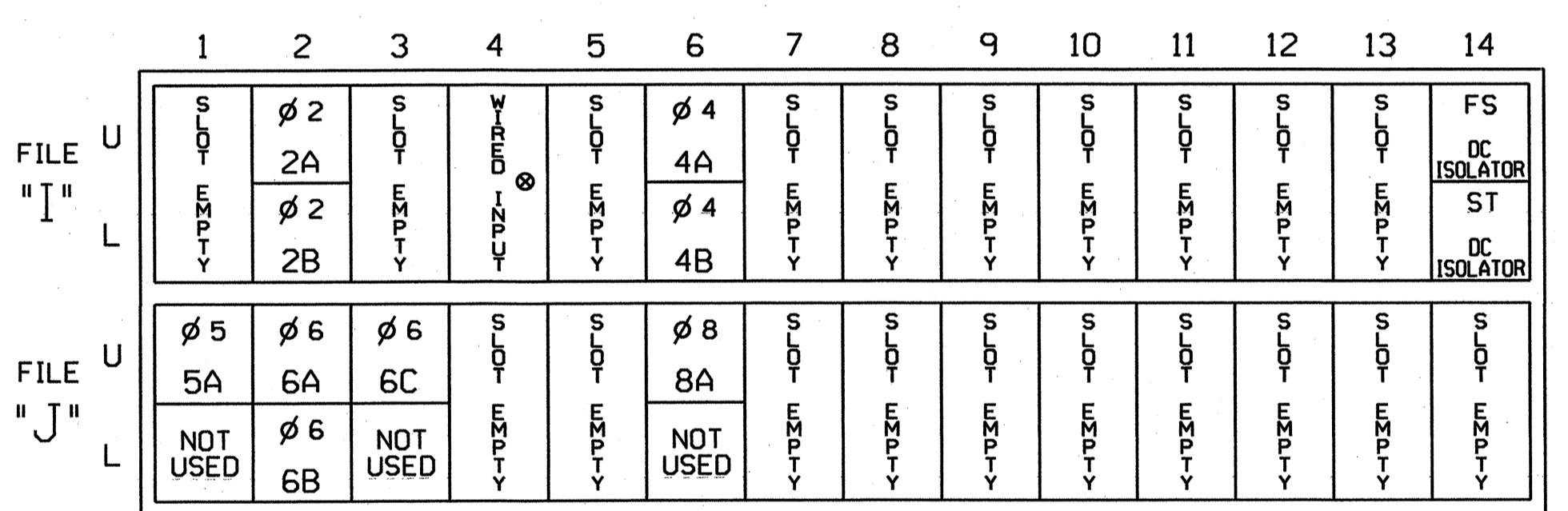
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**EDI MODEL 2010ECL-NC CONFLICT MONITOR
PROGRAMMING DETAIL**
(remove jumpers and set switches as shown)

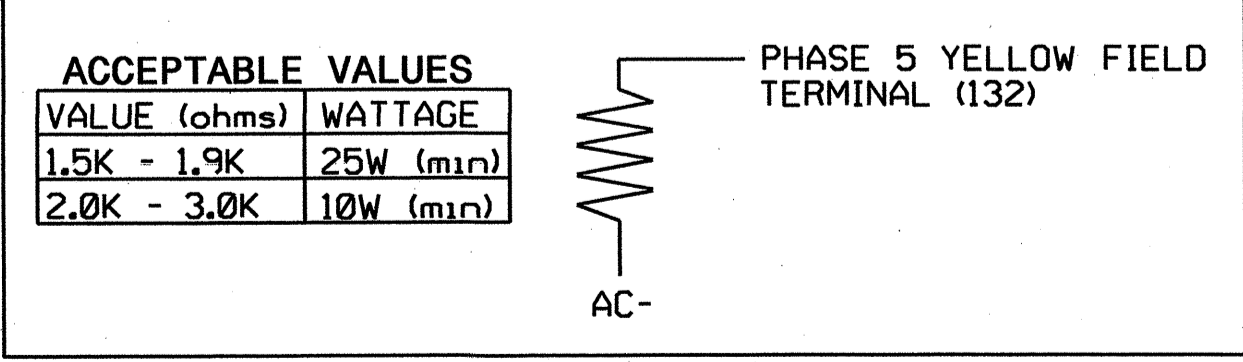


- NOTES:
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - Make sure jumpers SEL2-SEL5 are present on the monitor board.

INPUT FILE POSITION LAYOUT
(front view)



LOAD RESISTOR INSTALLATION DETAIL
(resistor should be installed as shown below)



NOTES

- 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.
- 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 1,3,5,7,10,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

SIGNAL HEAD HOOK-UP CHART

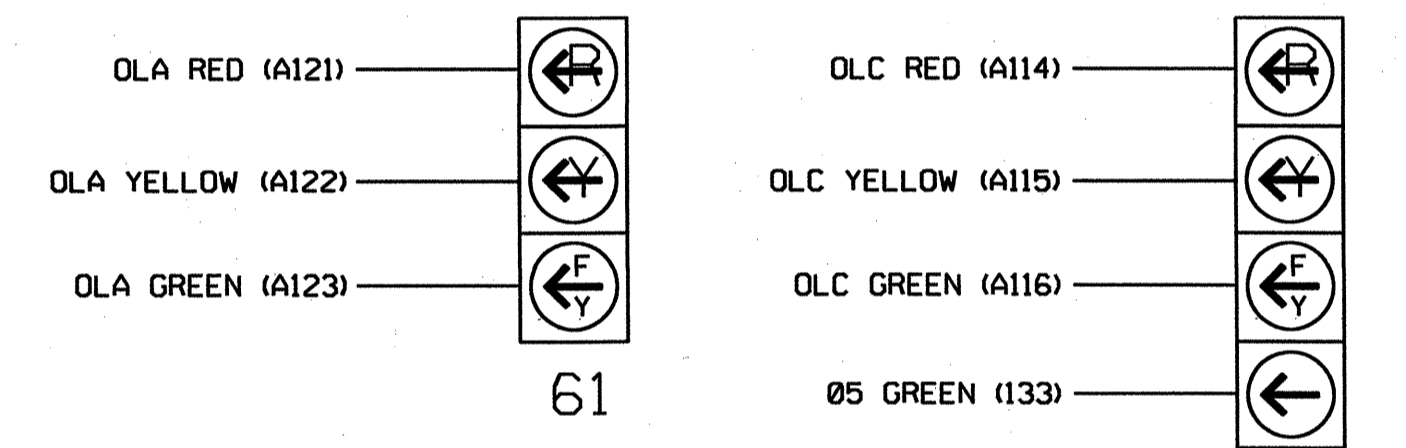
LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42 43	NU	51*	62,63	NU	NU	81,82 83	NU	61*	NU	NU	51*	NU	NU
RED		128			101			134			107							
YELLOW		129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW														A121			A114	
YELLOW ARROW														A122			A115	
FLASHING YELLOW ARROW														A123			A116	
GREEN ARROW								133										

NU = Not Used
* Denotes install load resistor. See load resistor installation detail this sheet.
* See pictorial of head wiring in detail below.

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,S4,S5,S6,S8,S9,S12
PHASES USED.....2,4,5,6,8
OVERLAP "A".....2
OVERLAP "B".....NOT USED
OVERLAP "C".....5+6
OVERLAP "D".....NOT USED

3 & 4 SECTION FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)

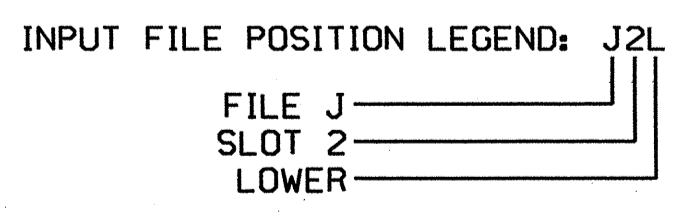


NOTE
The sequence display for signal head 51 requires special logic programming. See sheet 2 of 2 for programming instructions.

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			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	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
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			10

¹Make sure jumper is installed between J1-W and I4-W on rear of input file.



Signal Revision - Final Design - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

NC 73 (Franklin Street)
at
NC 49 Ramp "D"/
SR 2677 (Duchess Drive)

Division 10 Cabarrus County Mt. Pleasant

PLAN DATE: November 2010 REVIEWED BY: T. J. J. J.

PREPARED BY: S. Armstrong

REVISIONS

INIT. DATE

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER

SEAL 022013

ENGINEER GEORGE C. BROWN

Signature: George C. Brown 11/22/10

Sig. INVENTORY NO. 10-1897

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

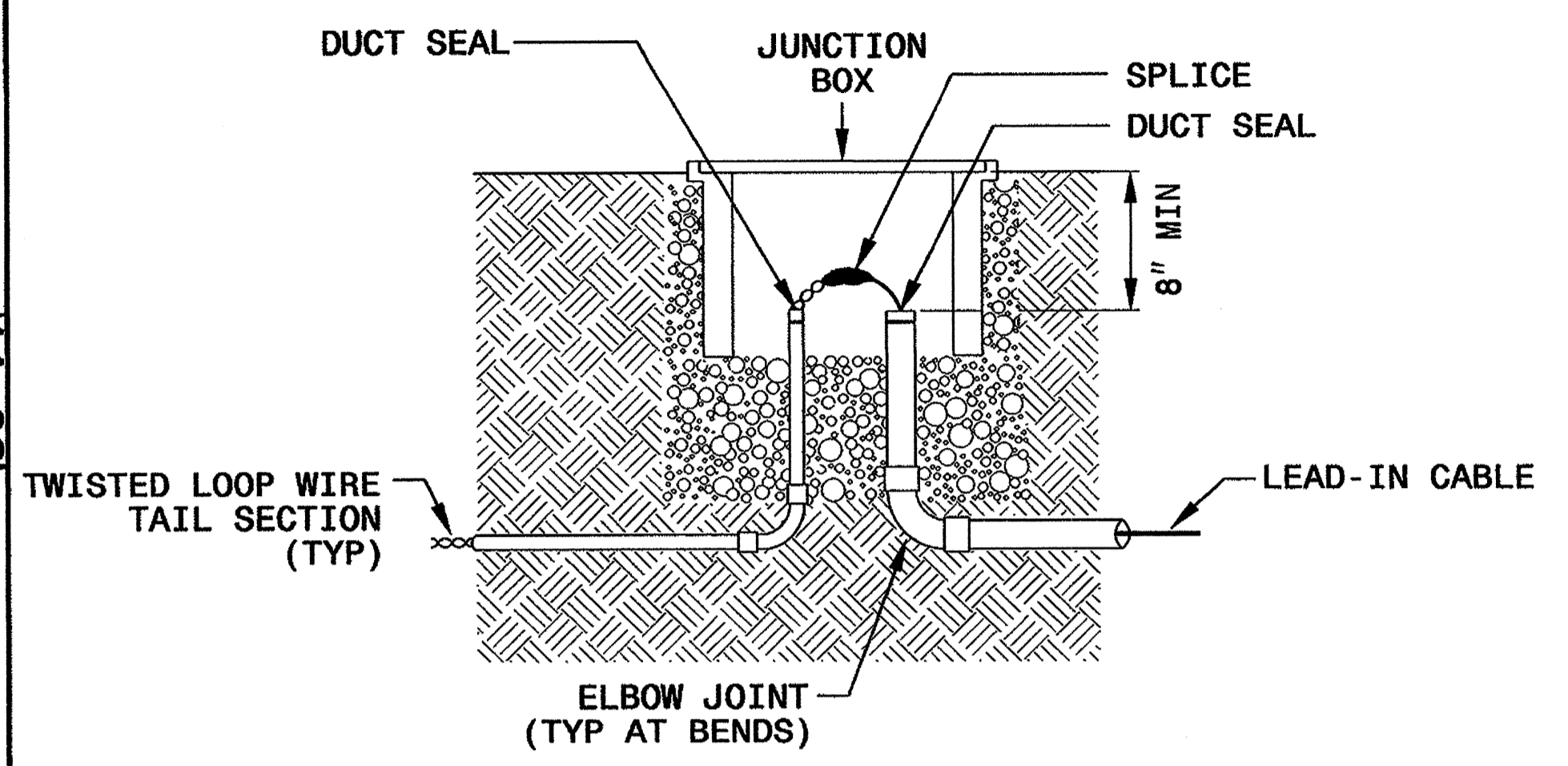
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

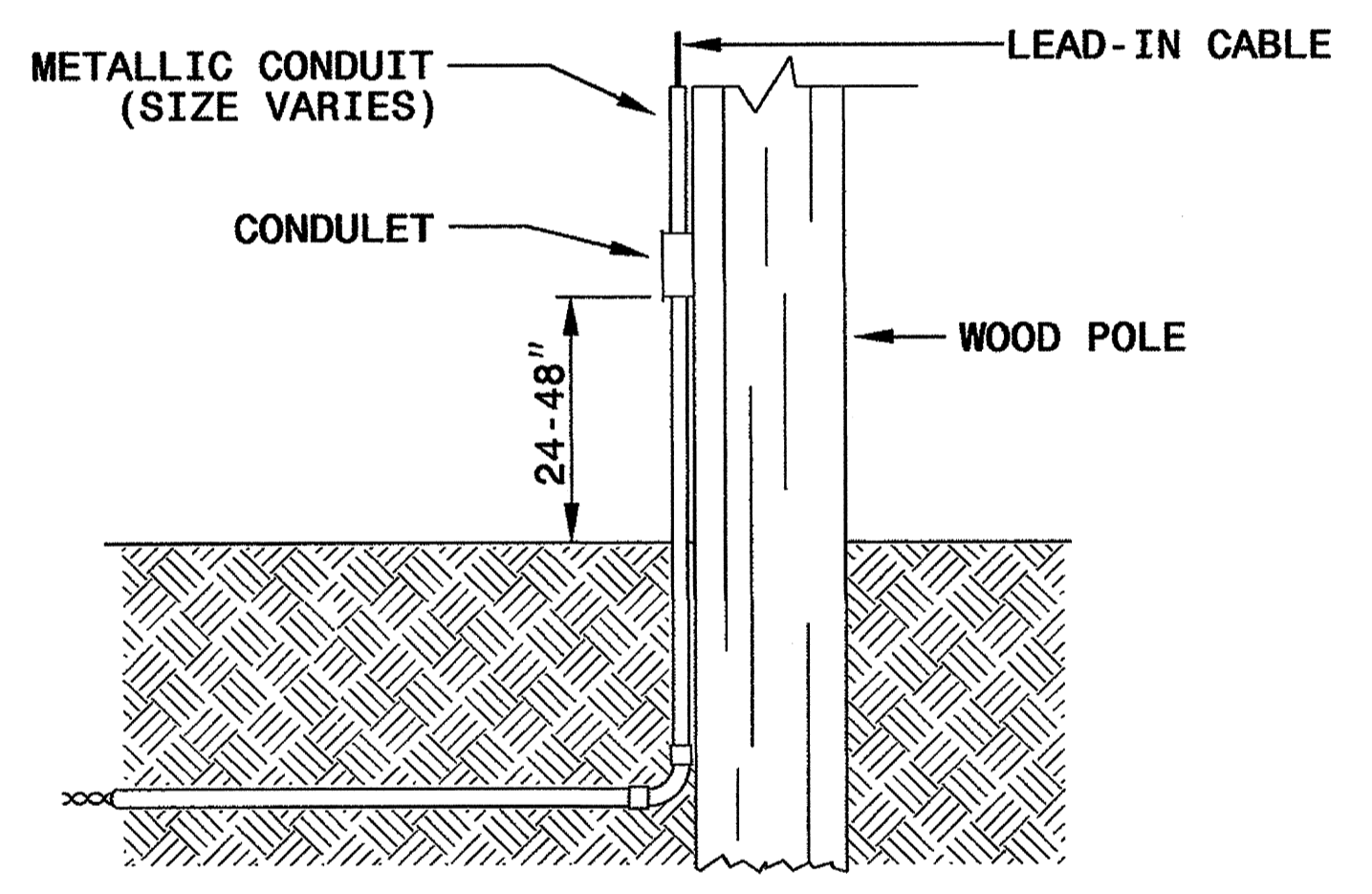
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

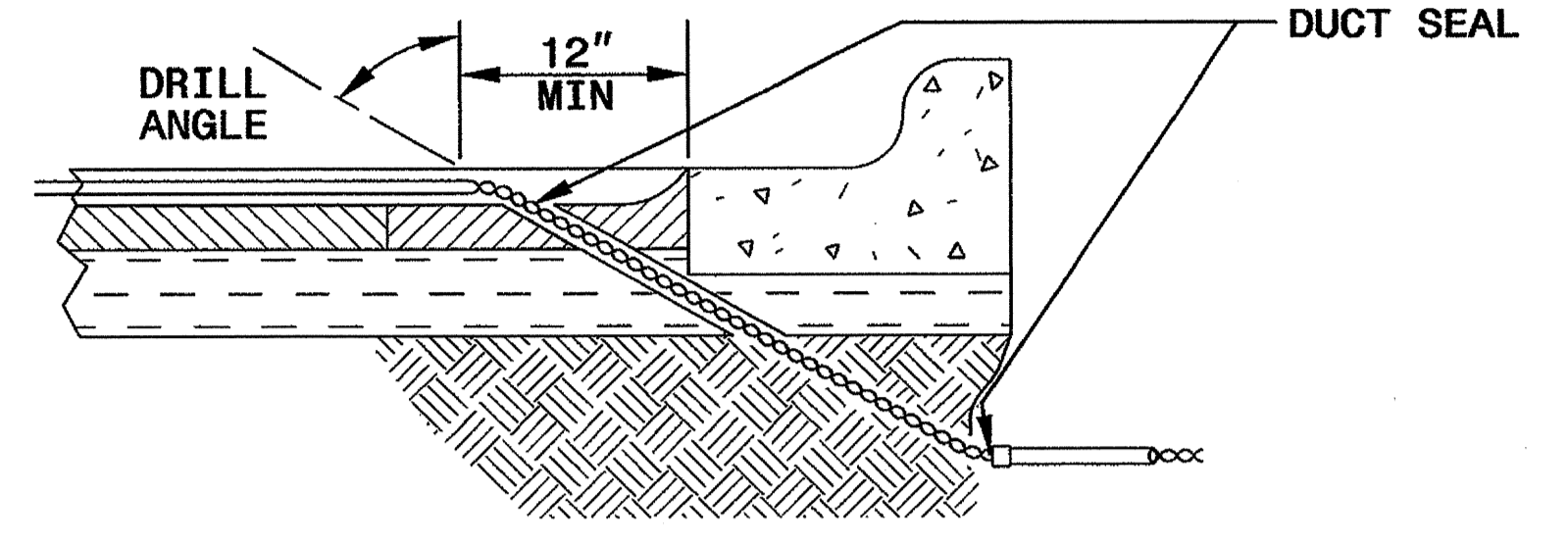


NOTE

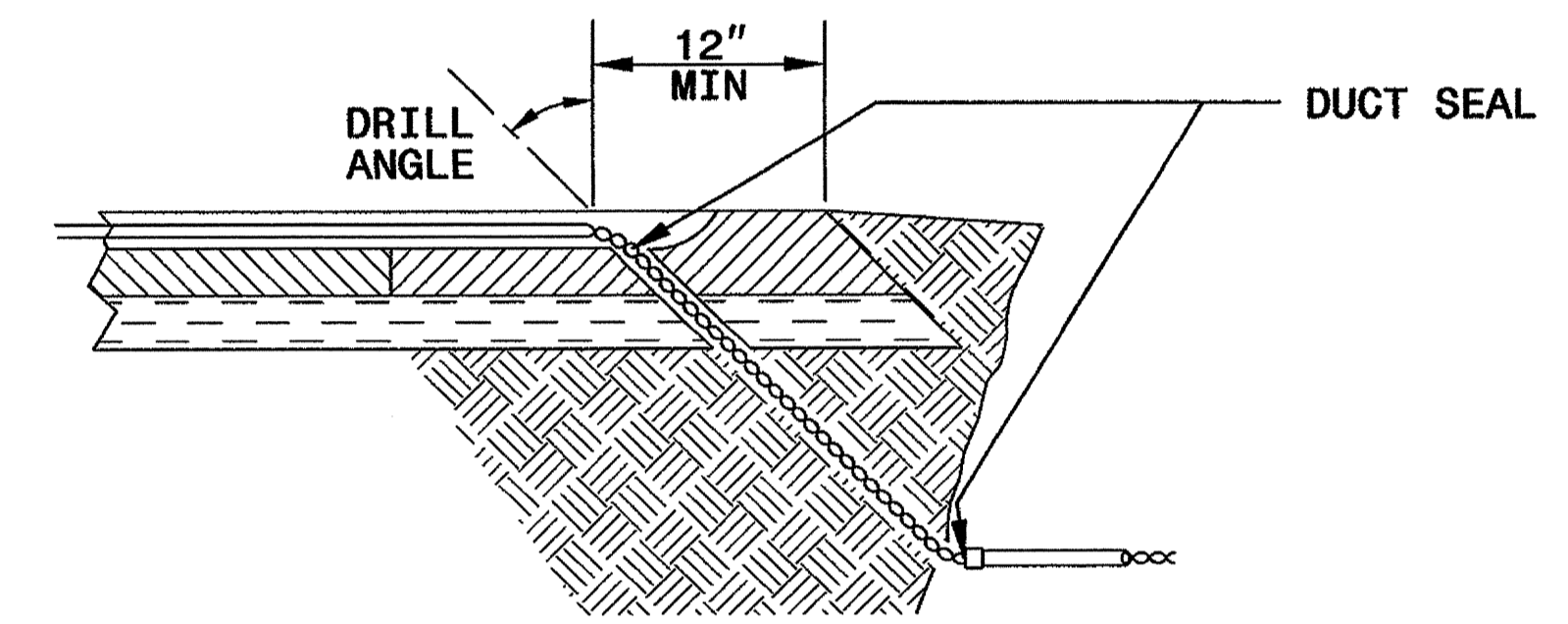
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

- DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
- TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
- BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Milton J. Dean 11/24/08
SIGNATURE DATE

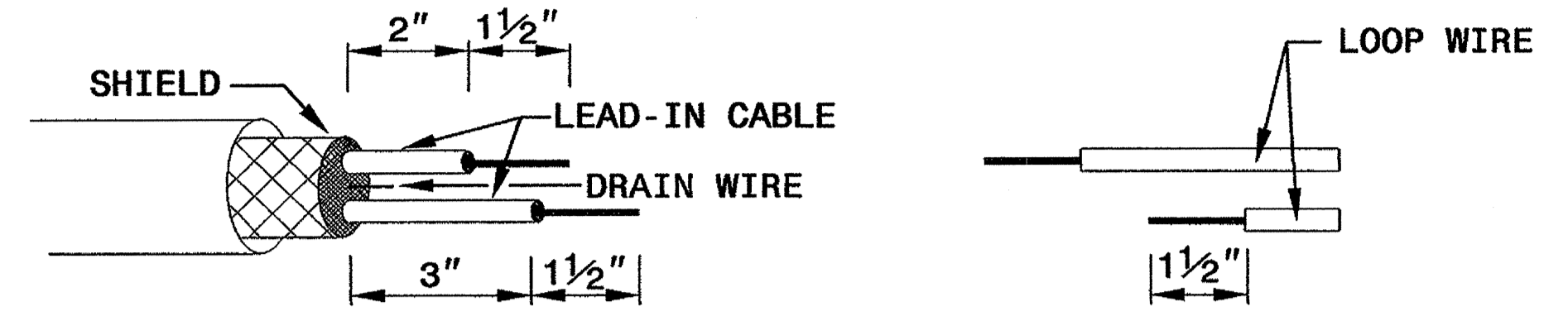
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

11-08

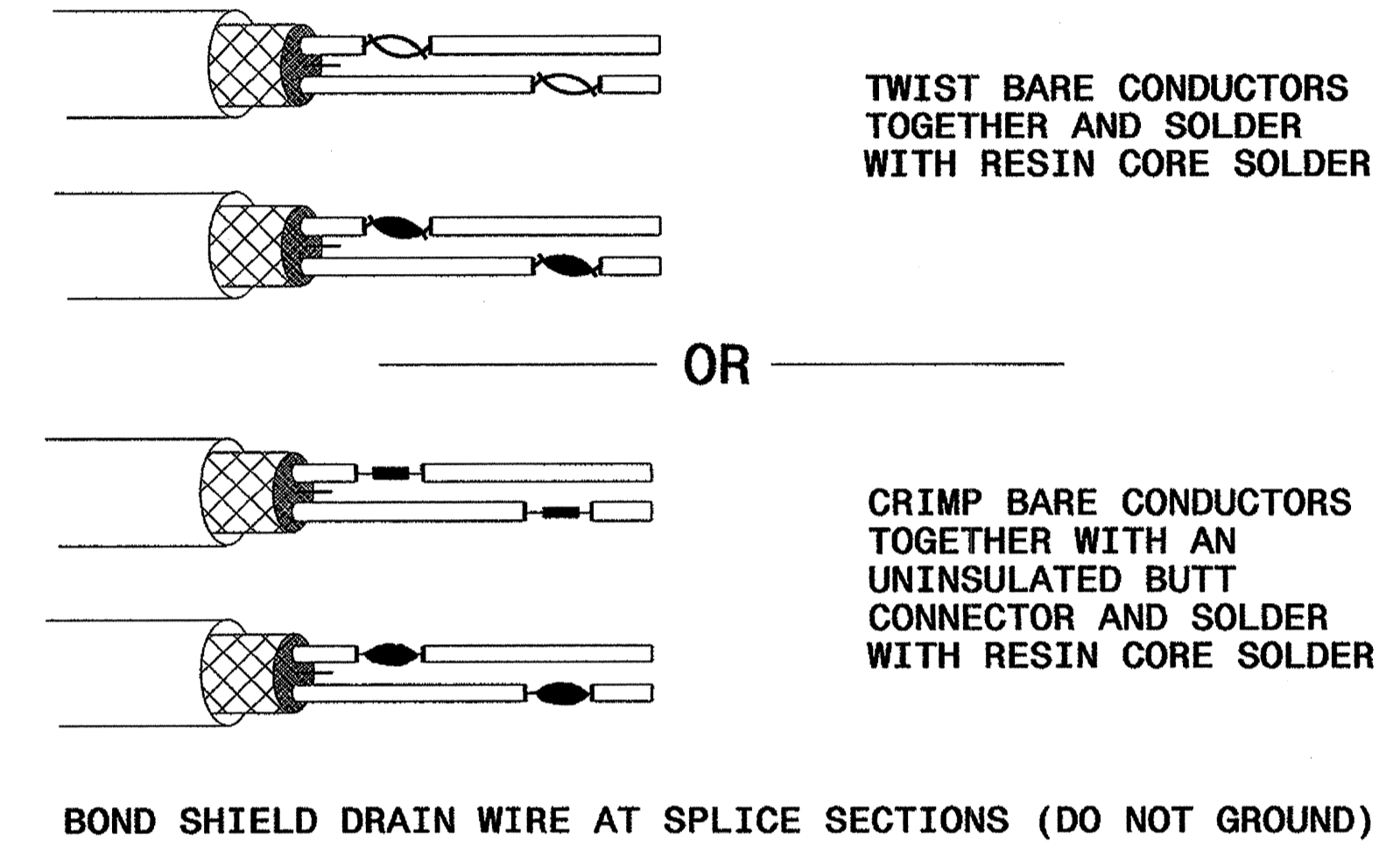
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

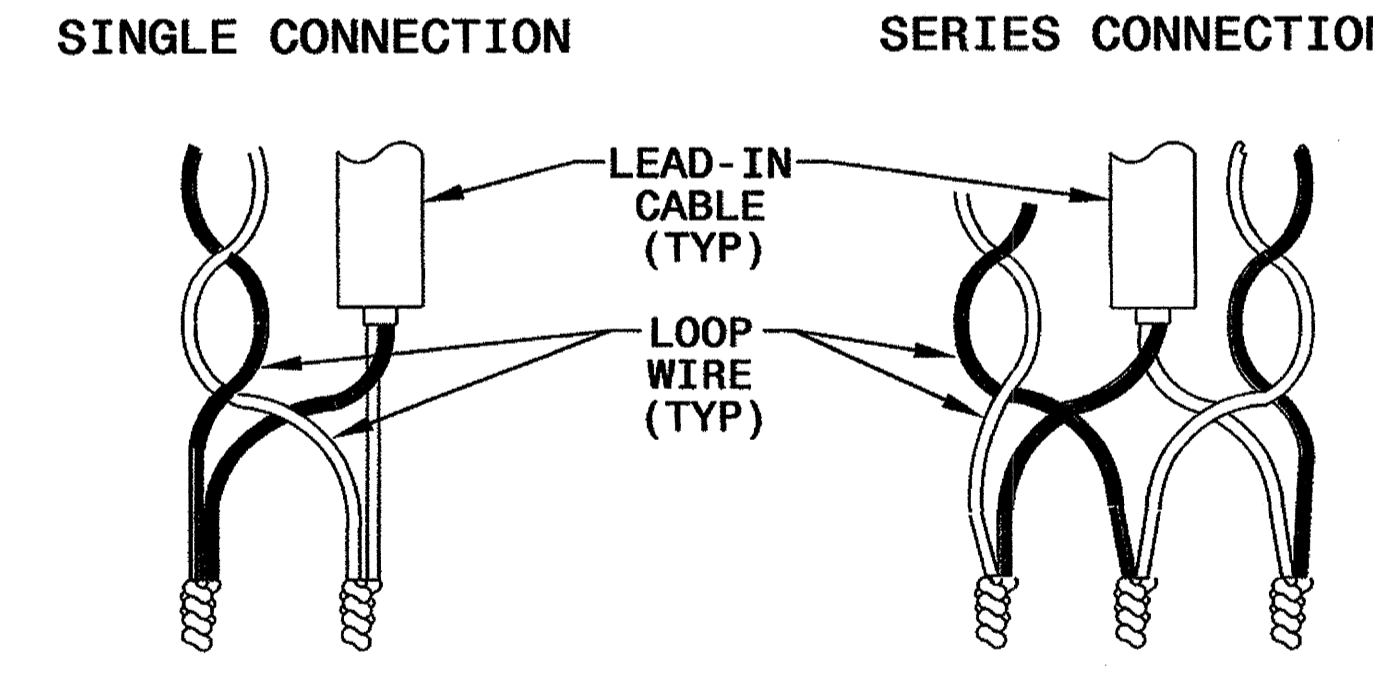
STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE



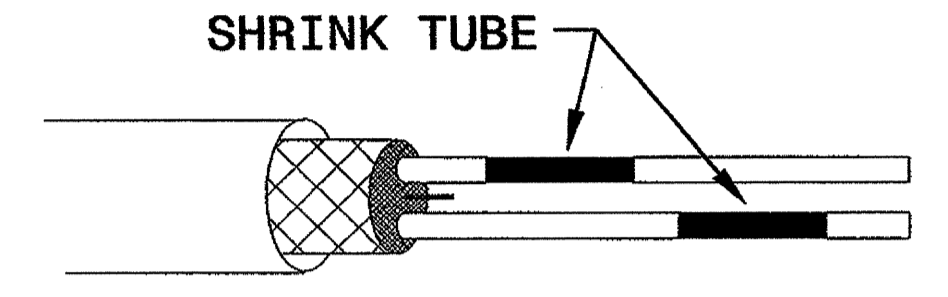
STEP 2. CONNECT AND SOLDER



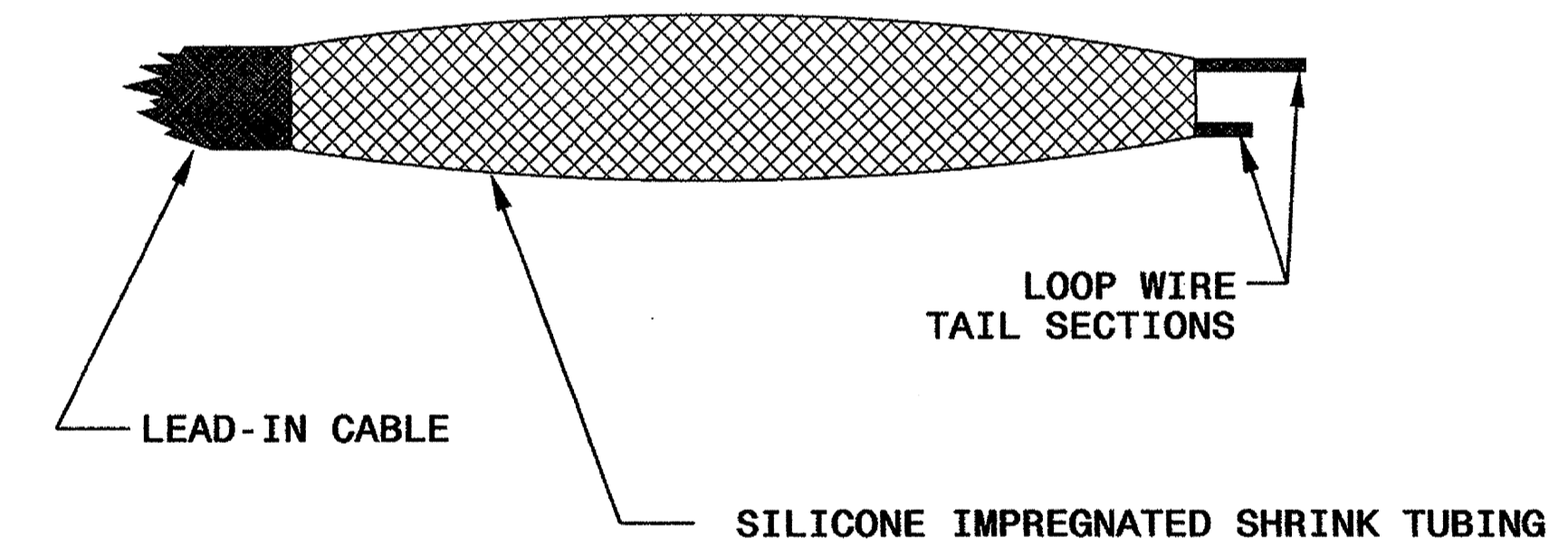
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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DIVISION OF HIGHWAYS
RALEIGH, N.C.

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Milton Dean 11/24/08
SIGNATURE DATE

24-Nov-2008 09:36
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20111716