

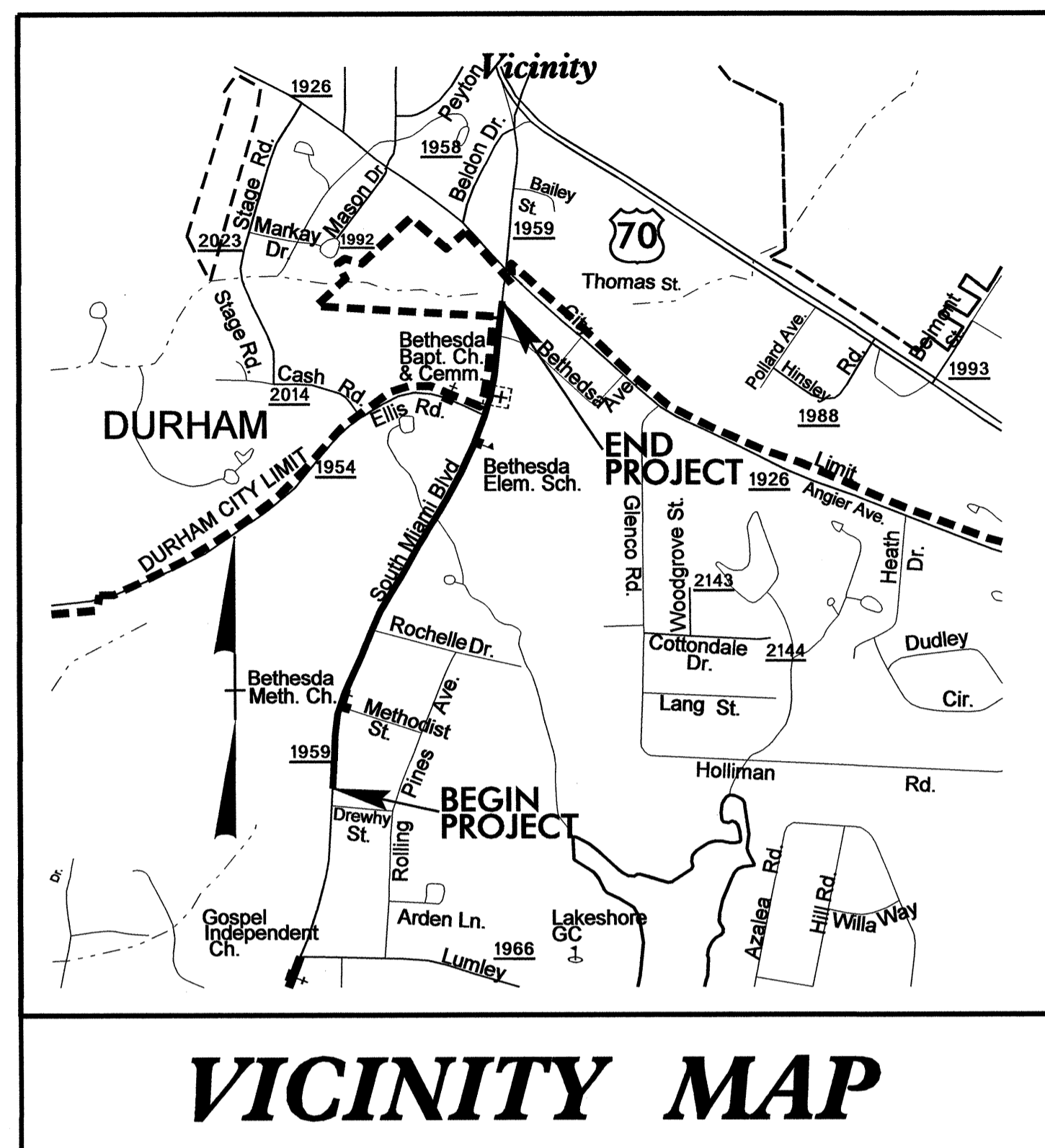
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DURHAM COUNTY

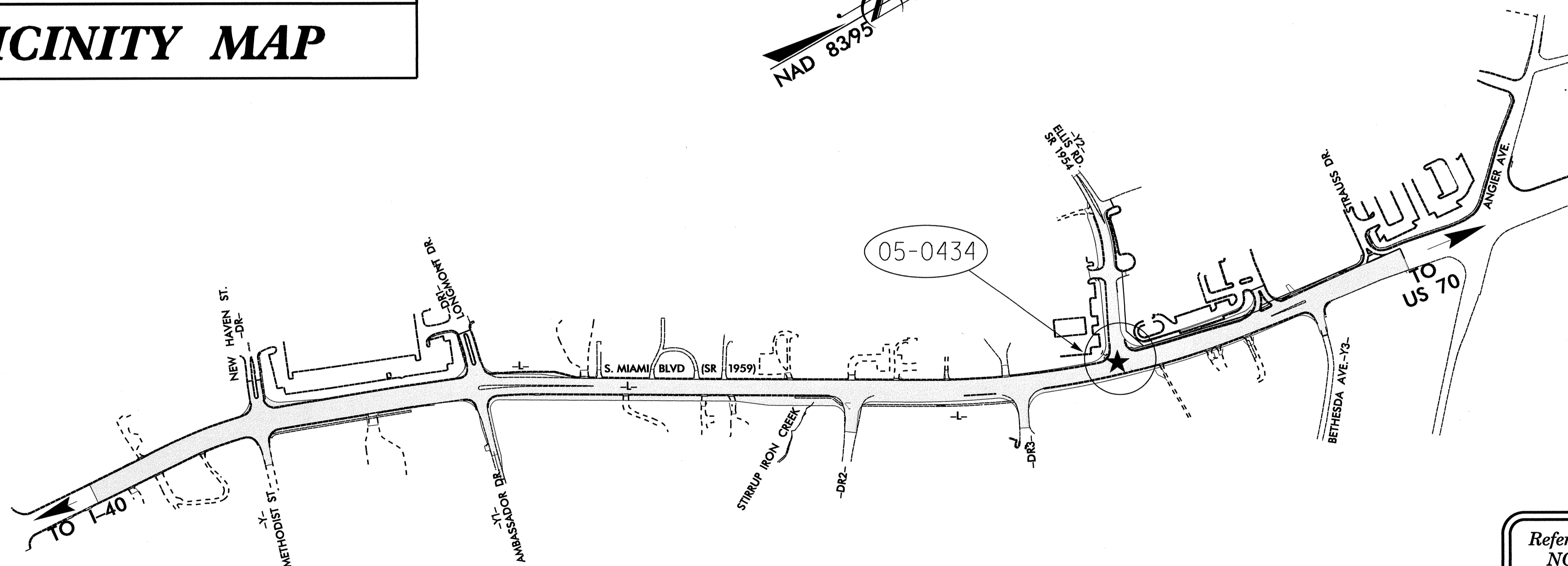
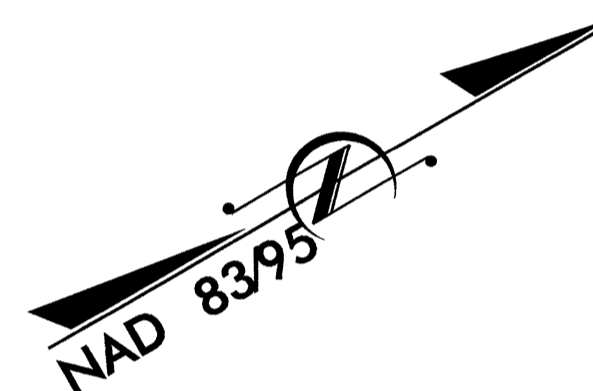
LOCATION: SR 1959 (SOUTH MIAMI BLVD.) FROM SOUTH OF SR 2112 (METHODIST ST.) TO NORTH OF SR 1960 (BETHESDA AVE.)

TYPE OF WORK: TRAFFIC SIGNALS AND COMMUNICATIONS CABLE

Project: U-4011



VICINITY MAP



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

WBS: 40221.1.1

Sheet #	Reference #
Sig. 1	
Sig. 2-8	05-0434
Sig. 9-14	N/A
Sig. 15-17	N/A
Sig. 18-22	N/A

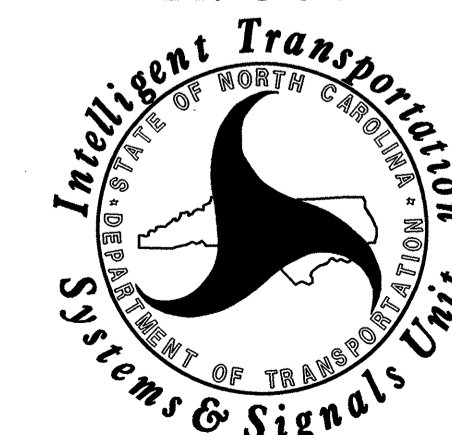
Index of Plans	Location/Description
Title Sheet	
SR 1959 (S. Miami Blvd.) at SR 1954 (Ellis Rd.)	
Standard Drawings for Metal Poles	
Inductive Detection Loop Details	
Signal Communication Cable Plans	

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

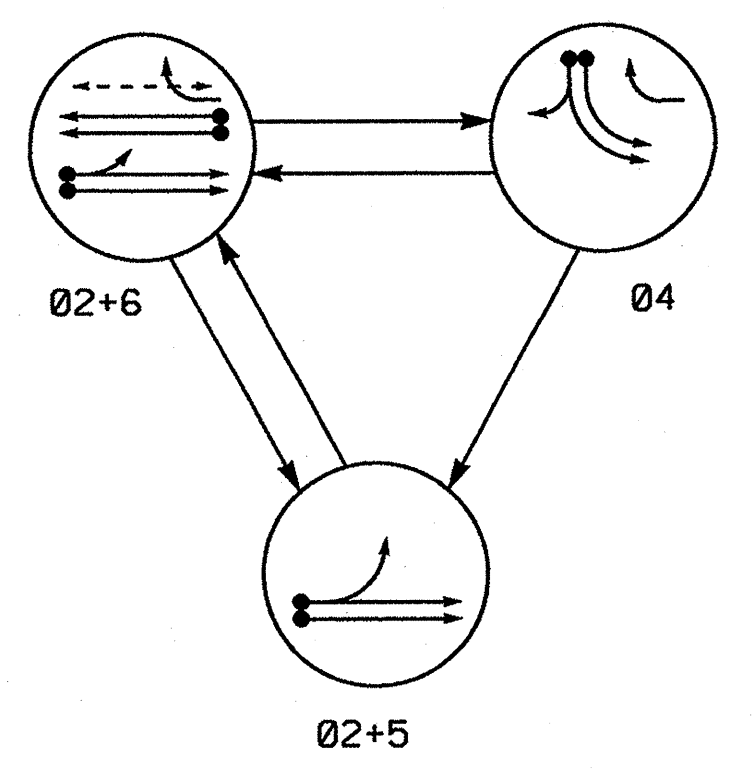
Contacts:

Robert J. Ziembra, PE - Central Region Signals Project Engineer
John T. Rowe, Jr, PE - Signal Equipment Design Engineer
I. Neil Avery - Signal Communications Project Engineer

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



PHASING DIAGRAM



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

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02+5	04	05	06
21	G	R	Y	
22	G	R	Y	
41, 42	R	R	G	R
61	R	G	R	Y
62	R	G	R	Y
P61, P62	DW	DW	W	DRK

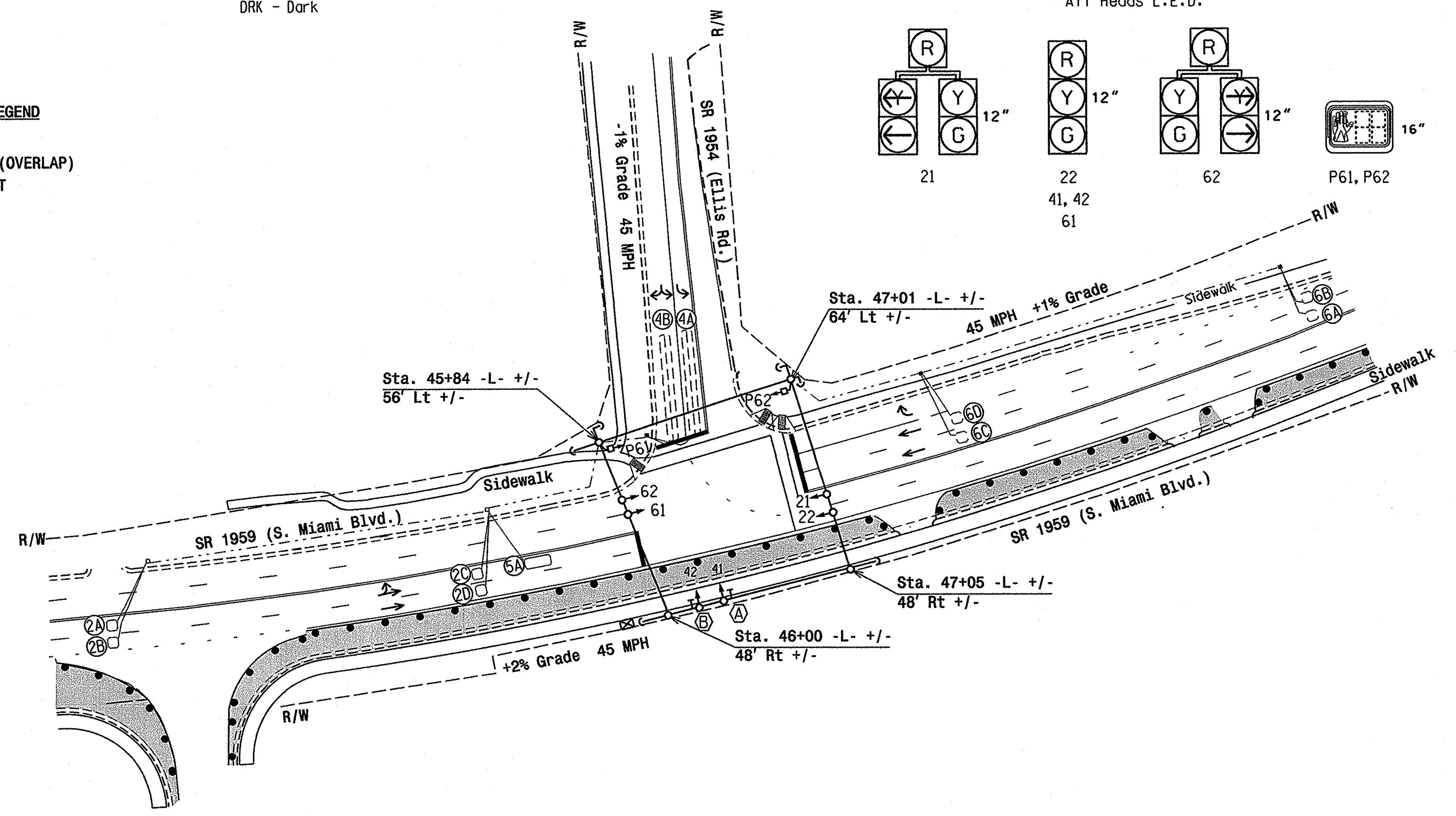
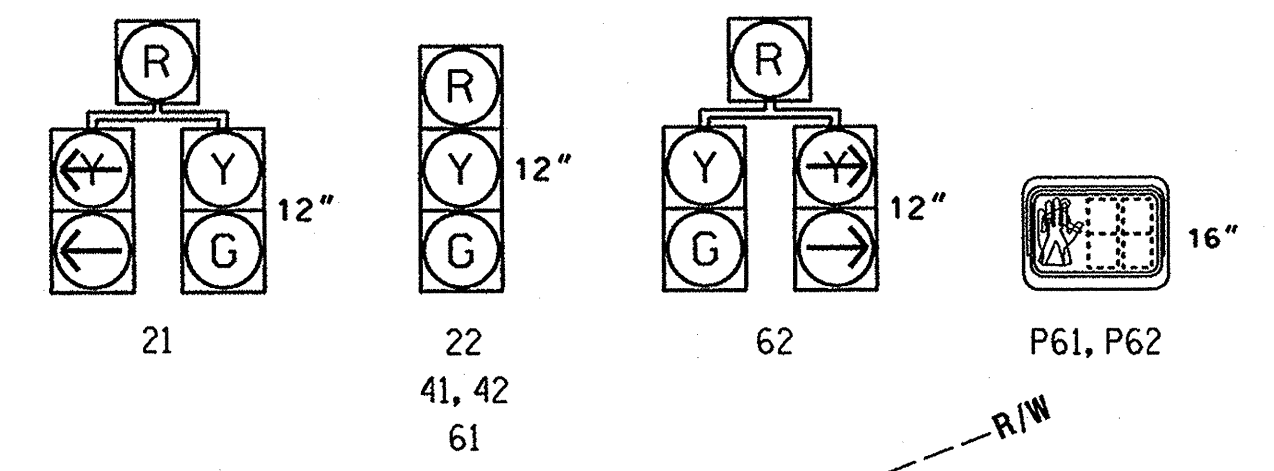
W - Walk
 DW - Don't Walk
 DRK - Dark

170 LOOP & DETECTOR UNIT INSTALLATION CHART

LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW EXISTING	DETECTOR PROGRAMMING													
					NEMA PHASE	TIMING		ATTRIBUTES								STATUS		
						DELAY	CARRY (STRETCH)	1	2	3	4	5	6	7	8	NEW	EXISTING	
2A, 2B	6X6	4	300	X	-	2	- SEC.	- SEC.	-	-	-	-	X	-	X	-	X	-
2C, 2D	6X6	4	90	X	-	2	- SEC.	- SEC.	-	-	-	-	X	-	X	-	X	-
4A	6X60	2-4-2	0	-	X	4	3 SEC.	- SEC.	-	-	-	-	X	-	X	-	X	-
4B	6X60	2-4-2	0	-	X	4	5 SEC.	- SEC.	-	-	-	-	X	-	X	-	X	-
5A	6X15	3	50	X	-	5	10 SEC.	- SEC.	-	-	-	-	X	-	X	-	X	-
6A, 6B	6X6	4	300	-	X	6	- SEC.	- SEC.	-	-	-	-	X	-	X	-	X	-
6C, 6D	6X6	4	90	-	X	6	- SEC.	- SEC.	-	-	-	-	X	-	X	-	X	-
P61, P62	N/A	N/A	N/A	X	-	6	- SEC.	- SEC.	-	X	-	-	-	-	-	-	-	-

SIGNAL FACE I.D.

All Heads L.E.D.

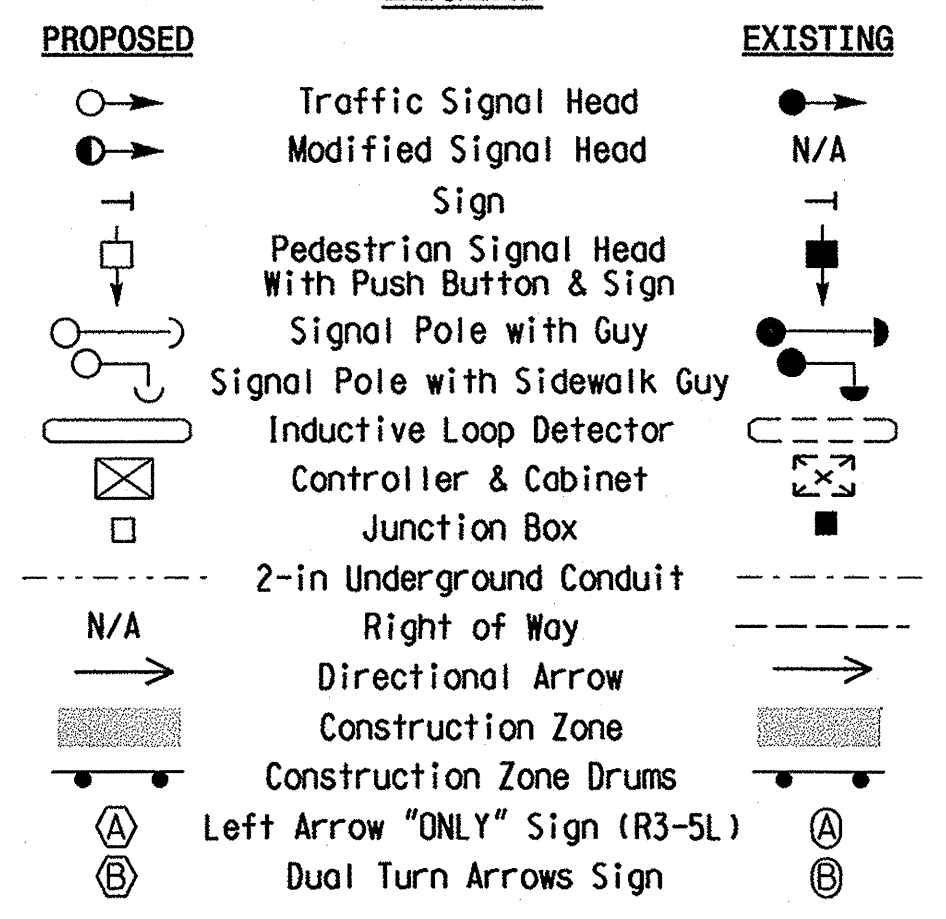


3 Phase Fully Actuated (Durham Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
- Set phase bank 3 maximum limit to 250 seconds for phases used.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND



TIMING CHART 170 CONTROLLER

PHASE	02	04	05	06
MINIMUM INITIAL *	12 SEC.	7 SEC.	7 SEC.	12 SEC.
VEHICLE EXTENSION *	2.0 SEC.	1.0 SEC.	2.0 SEC.	2.0 SEC.
YELLOW CHANGE INT.	4.3 SEC.	3.0 SEC.	3.0 SEC.	4.4 SEC.
RED CLEARANCE	1.4 SEC.	2.9 SEC.	2.4 SEC.	1.3 SEC.
MAXIMUM LIMIT *	45 SEC.	25 SEC.	20 SEC.	45 SEC.
RECALL POSITION	VEH. RECALL	NONE	NONE	VEH. RECALL
VEHICLE CALL MEMORY	YELLOW LOCK	NONLOCK	NONLOCK	YELLOW LOCK
DOUBLE ENTRY	OFF	OFF	OFF	OFF
WALK *	- SEC.	- SEC.	- SEC.	7 SEC.
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	16 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*	2.0 SEC.	1.0 SEC.	2.0 SEC.	2.0 SEC.
REDUCE 0.1 SEC EVERY *	- SEC.	- SEC.	- SEC.	- SEC.
MINIMUM GAP	2.0 SEC.	1.0 SEC.	2.0 SEC.	2.0 SEC.

* 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.

Signal Upgrade Temporary Design 1 (Construction Phase I)

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1959 (S. Miami Blvd.) at SR 1954 (Ellis Road)

Division 5 Durham County Durham

PLAN DATE: March 2010 REVIEWED BY: R. Hough

PREPARED BY: Monif Bazzarie REVIEWED BY:

SEAL

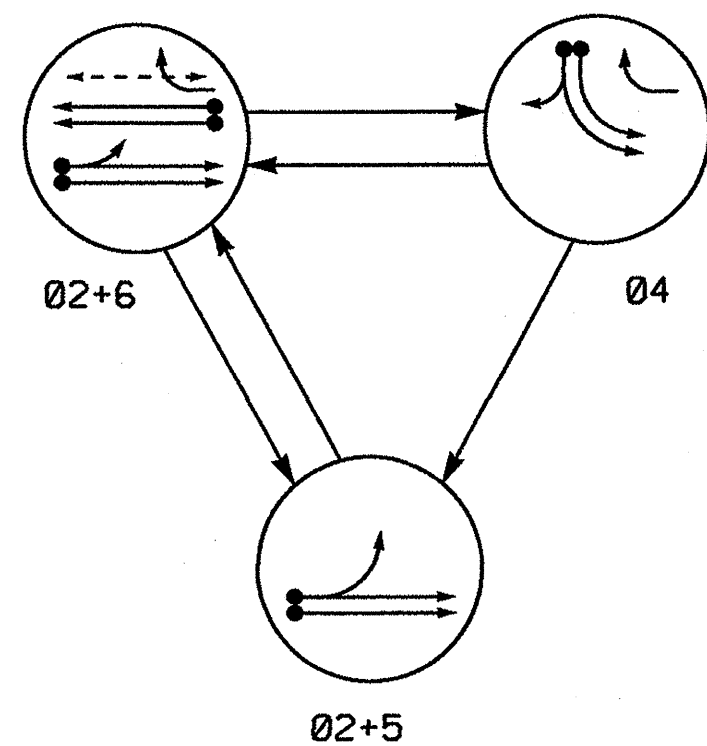
ROBERT J. ZIEMBA
ENGINEER
026486

5/10/10

SCALE: 0 50
1"=50'

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PHASING DIAGRAM



SIGNAL FACE	PHASE			
	02+5	02+6	04	F.L.E.O.D.
21	G	R	Y	
22	G	R	Y	
41, 42	R	R	G	R
61	R	G	R	Y
62	R	G	R	Y
P61, P62	DW	W	DW	DRK

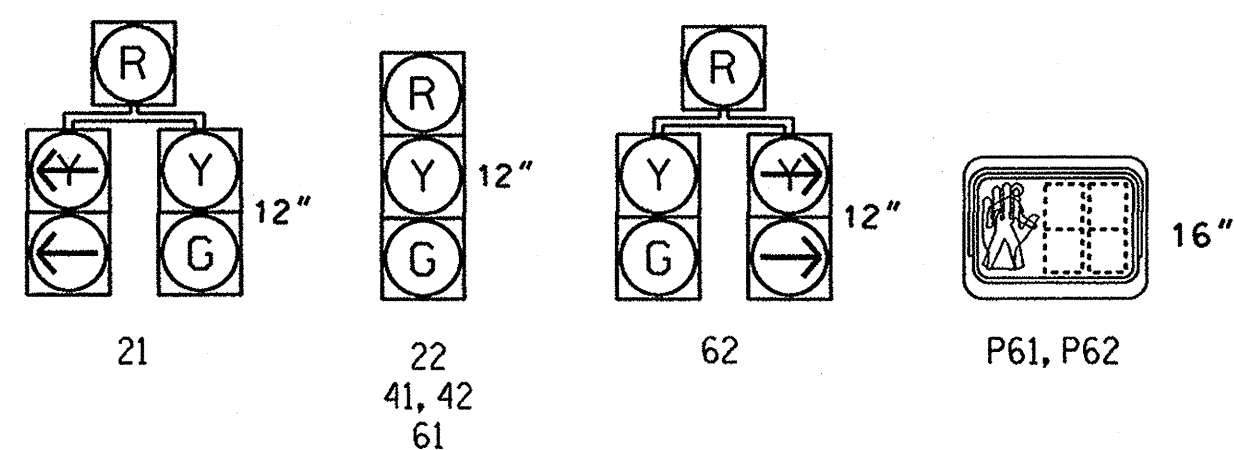
W - Walk
DW - Don't Walk
DRK - Dark

PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

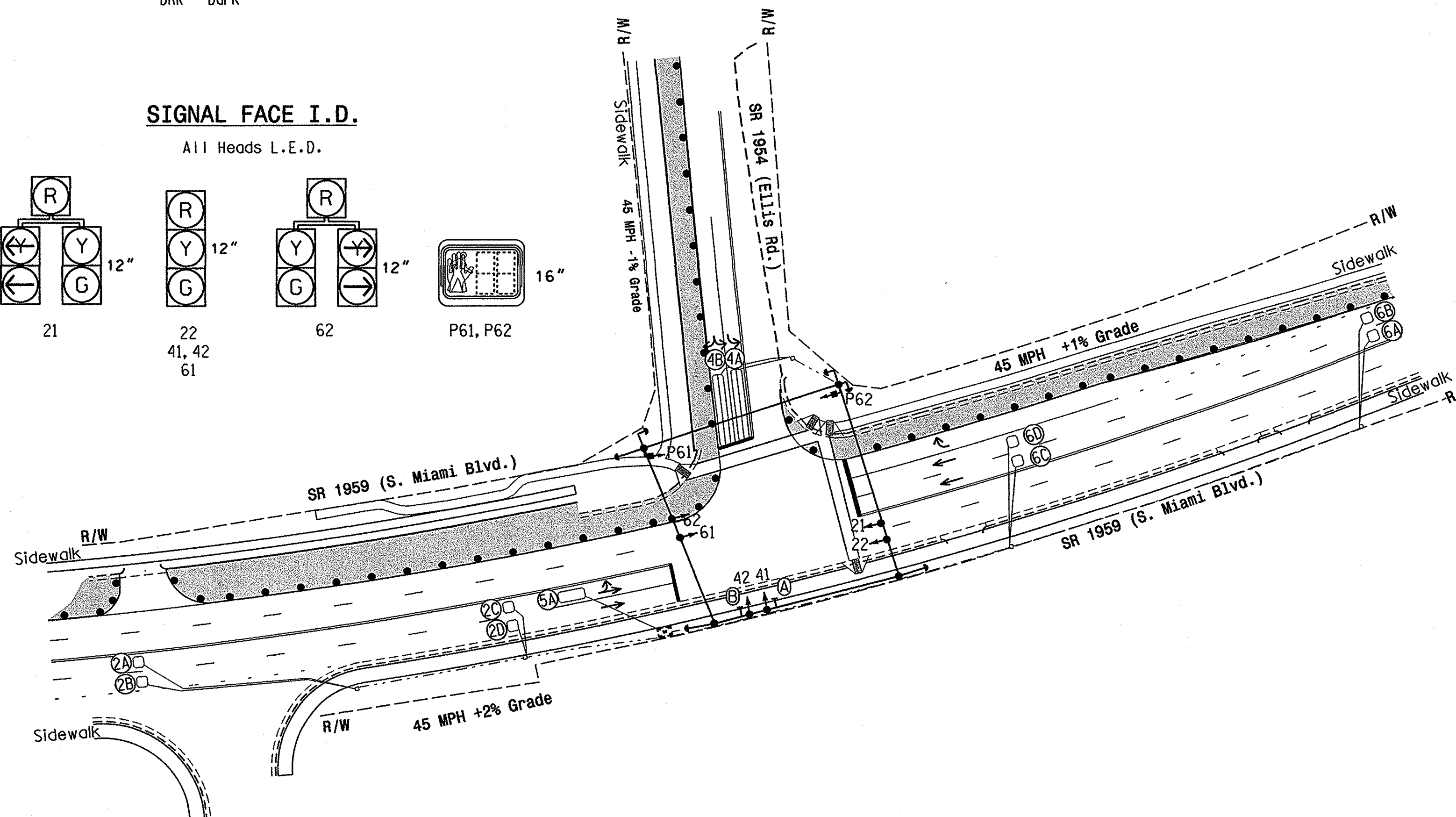


170 LOOP & DETECTOR UNIT INSTALLATION CHART																				
INDUCTIVE LOOPS					DETECTOR PROGRAMMING															
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW EXISTING	NEMA PHASE	TIMING		ATTRIBUTES												
						DELAY	CARRY (STRETCH)	1	2	3	4	5	6	7	8	9	10	STATUS		
2A, 2B	6X6	4	300	X	-	2	- SEC.	- SEC.	-	-	-	-	-	-	-	-	-	-	-	X
2C, 2D	6X6	3	90	X	-	2	- SEC.	- SEC.	-	-	-	-	-	-	-	-	-	-	-	X
4A	6X40	2-4-2	0	X	-	4	3 SEC.	- SEC.	-	-	-	-	-	-	-	-	-	-	-	X
4B	6X40	2-4-2	0	X	-	4	5 SEC.	- SEC.	-	-	-	-	-	-	-	-	-	-	-	X
5A	6X15	3	50	X	-	5	10 SEC.	- SEC.	-	-	-	-	-	-	-	-	-	-	-	X
6A, 6B	6X6	5	300	X	-	6	- SEC.	- SEC.	-	-	-	-	-	-	-	-	-	-	-	X
6C, 6D	6X6	3	90	X	-	6	- SEC.	- SEC.	-	-	-	-	-	-	-	-	-	-	-	X
P61, P62	N/A	N/A	N/A	-	X	6	- SEC.	- SEC.	-	X	-	-	-	-	-	-	-	-	-	X

3 Phase Fully Actuated (Durham Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Reposition existing signal heads numbered 21, 22, 61, and 62.
- Set all detector units to presence mode.
- Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
- Set phase bank 3 maximum limit to 250 seconds for phases used.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



TIMING CHART 170 CONTROLLER				
PHASE	02	04	05	06
MINIMUM INITIAL *	12 SEC.	7 SEC.	7 SEC.	12 SEC.
VEHICLE EXTENSION *	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.
YELLOW CHANGE INT.	4.3 SEC.	3.0 SEC.	3.0 SEC.	4.4 SEC.
RED CLEARANCE	1.6 SEC.	3.1 SEC.	2.9 SEC.	1.1 SEC.
MAXIMUM LIMIT *	45 SEC.	25 SEC.	20 SEC.	45 SEC.
RECALL POSITION	VEH. RECALL	NONE	NONE	VEH. RECALL
VEHICLE CALL MEMORY	YELLOW LOCK	NONLOCK	NONLOCK	YELLOW LOCK
DOUBLE ENTRY	OFF	OFF	OFF	OFF
WALK *	- SEC.	- SEC.	- SEC.	7 SEC.
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	17 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*	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.
REDUCE 0.1 SEC EVERY *	- SEC.	- SEC.	- SEC.	- SEC.
MINIMUM GAP	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.

* 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.

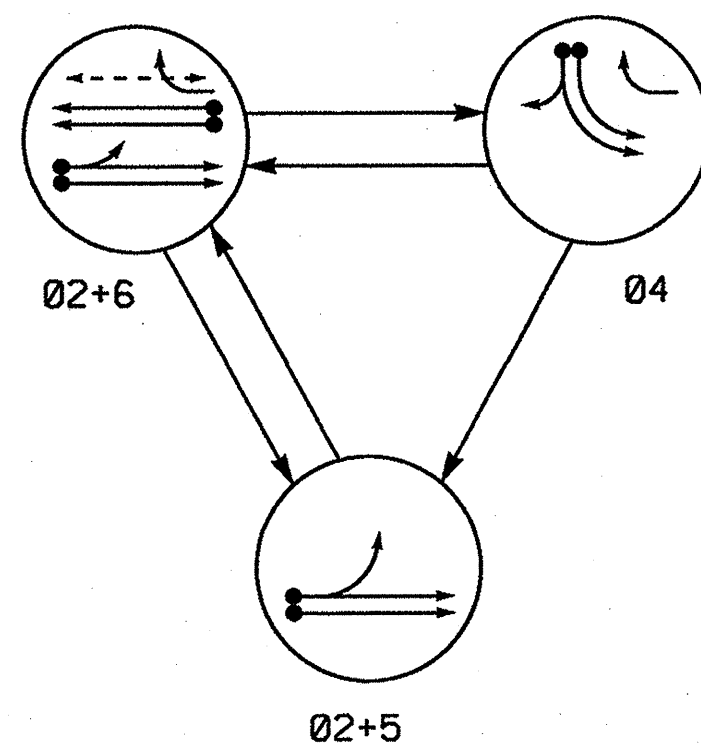
LEGEND

- | PROPOSED | EXISTING |
|--|--|
| ○ → Traffic Signal Head | ● → Traffic Signal Head |
| ○ → Modified Signal Head | N/A |
| ⊥ Sign | ⊥ Sign |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Pedestrian Signal Head With Push Button & Sign |
| ⊥ 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 | — Right of Way |
| → Directional Arrow | → Directional Arrow |
| Construction Zone | Construction Zone |
| Construction Zone Drums | Construction Zone Drums |
| ⊙ Left Arrow "ONLY" Sign (R3-5L) | ⊙ Left Arrow "ONLY" Sign (R3-5L) |
| ⊙ Dual Turn Arrows Sign | ⊙ Dual Turn Arrows Sign |

Signal Upgrade Temporary Design 2 (Construction Phase II-A)

	SR 1959 (S. Miami Blvd.) at SR 1954 (Ellis Road)	
	Division 5 Durham County Durham PLAN DATE: March 2010 REVIEWED BY: R. Hough PREPARED BY: Monif Bazzarie REVIEWED BY:	SCALE: 1"=50' REVISIONS: INIT. DATE
750 N. Greenfield Pkwy, Garner, NC 27529		DATE: 5/19/10 SIG. INVENTORY NO. 05-0434T2

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE	PHASE			
	Ø2+5	Ø2+6	Ø4	F
21	G	R	Y	
22	G	R	Y	
41, 42	R	R	G	R
61	R	G	R	Y
62	R	G	R	Y
P61, P62	DW	W	DW	DRK

W - Walk
DW - Don't Walk
DRK - Dark

170 LOOP & DETECTOR UNIT INSTALLATION CHART

LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	NEMA PHASE	DETECTOR PROGRAMMING										STATUS		
							TIMING		ATTRIBUTES								NEW	EXISTING	
							DELAY	CARRY (STRETCH)	1	2	3	4	5	6	7	8			
2A, 2B	6X6	4	300	-	X	2	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X
2C, 2D	6X6	3	90	-	X	2	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X
4A	6X40	2-4-2	0	-	X	4	3 SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X
4B	6X40	2-4-2	0	-	X	4	5 SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X
5A	6X15	3	50	-	X	5	10 SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X
6A, 6B	6X6	5	300	-	X	6	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X
6C, 6D	6X6	3	90	-	X	6	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X
P61, P62	N/A	N/A	N/A	-	X	6	- SEC.	- SEC.	-	-	-	-	-	X	-	X	-	-	X

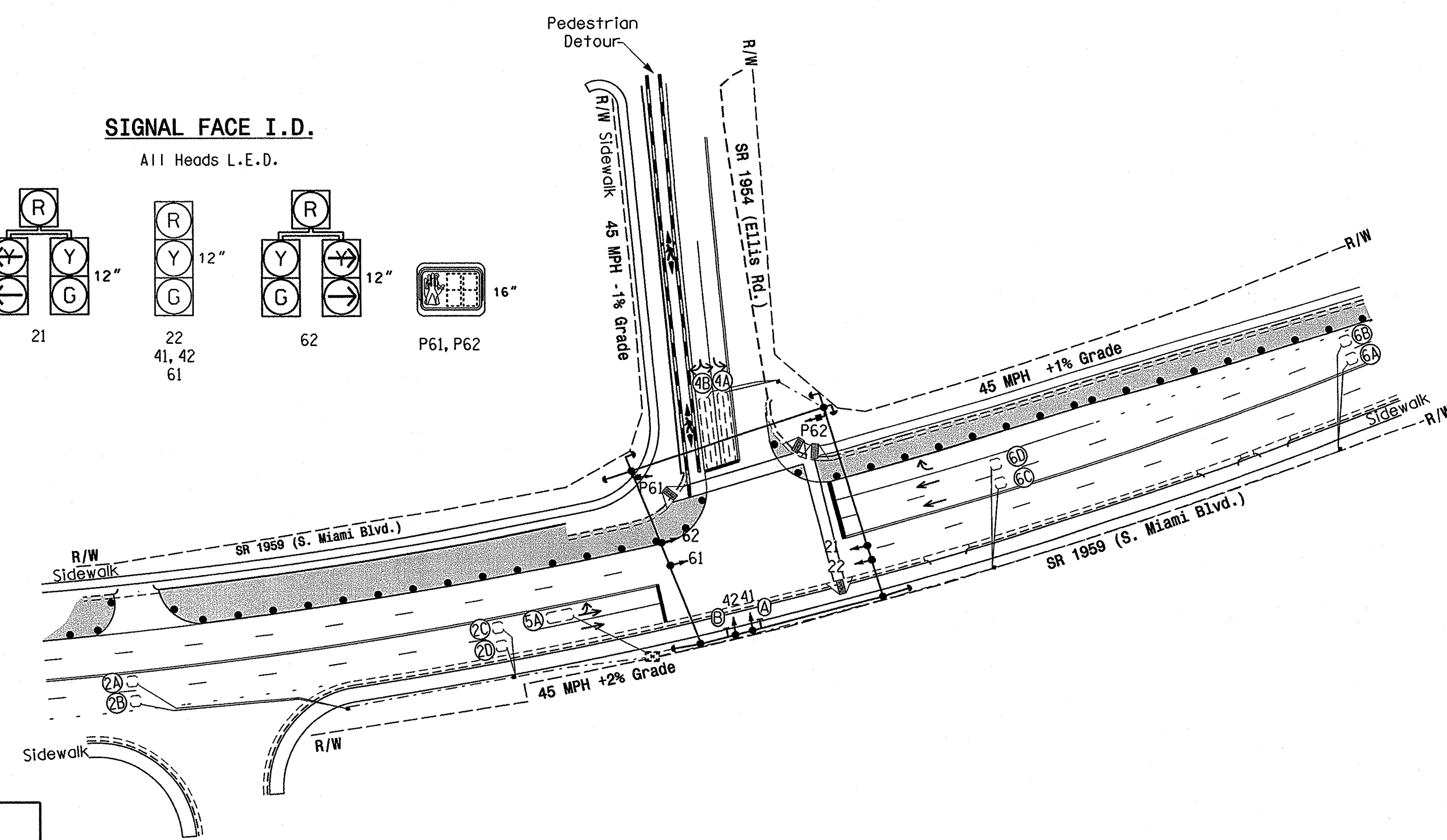
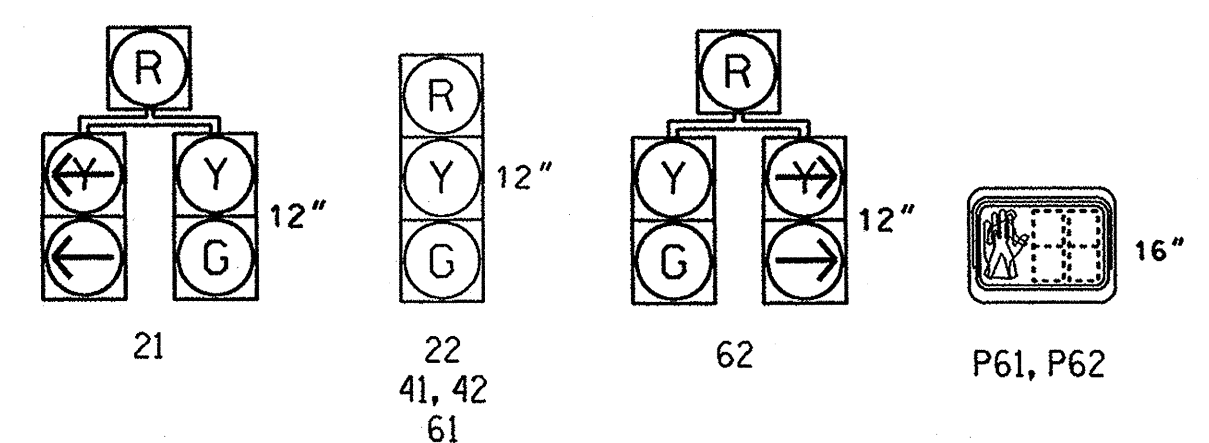
3 Phase Fully Actuated (Durham Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
- Set phase bank 3 maximum limit to 250 seconds for phases used.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

SIGNAL FACE I.D.

All Heads L.E.D.



TIMING CHART

PHASE	Ø2	Ø4	Ø5	Ø6
MINIMUM INITIAL *	12 SEC.	7 SEC.	7 SEC.	12 SEC.
VEHICLE EXTENSION *	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.
YELLOW CHANGE INT.	4.3 SEC.	3.0 SEC.	3.0 SEC.	4.4 SEC.
RED CLEARANCE	1.6 SEC.	3.1 SEC.	2.9 SEC.	1.1 SEC.
MAXIMUM LIMIT *	45 SEC.	25 SEC.	20 SEC.	45 SEC.
RECALL POSITION	VEH. RECALL	NONE	NONE	VEH. RECALL
VEHICLE CALL MEMORY	YELLOW LOCK	NONLOCK	NONLOCK	YELLOW LOCK
DOUBLE ENTRY	OFF	OFF	OFF	OFF
WALK *	- SEC.	- SEC.	- SEC.	7 SEC.
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	9 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*	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.
REDUCE 0.1 SEC EVERY *	- SEC.	- SEC.	- SEC.	- SEC.
MINIMUM GAP	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.

* 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 | ●→ N/A |
| ●→ Modified Signal Head | ○→ N/A |
| ⊥ Sign | ⊥ N/A |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ N/A |
| ⊥ Signal Pole with Guy | ⊥ N/A |
| ⊥ Signal Pole with Sidewalk Guy | ⊥ N/A |
| ⊠ Inductive Loop Detector | ⊠ N/A |
| ⊠ Controller & Cabinet | ⊠ N/A |
| ⊠ Junction Box | ⊠ N/A |
| ⊠ 2-in Underground Conduit | ⊠ N/A |
| N/A Right of Way | N/A N/A |
| → Directional Arrow | → N/A |
| ▨ Construction Zone | ▨ N/A |
| ▨ Construction Zone Drums | ▨ N/A |
| Ⓐ Left Arrow "ONLY" Sign (R3-5L) | Ⓐ N/A |
| Ⓑ Dual Turn Arrows Sign | Ⓑ N/A |

Signal Upgrade Temporary Design 3 Construction Phase II-B)

**SR 1959 (S. Miami Blvd.)
at
SR 1954 (Ellis Road)**

Division 5 Durham County Durham

PLAN DATE: March 2010 REVIEWED BY: R. Hough

PREPARED BY: Monif Bazzarie REVIEWED BY:

SCALE: 1"=50'

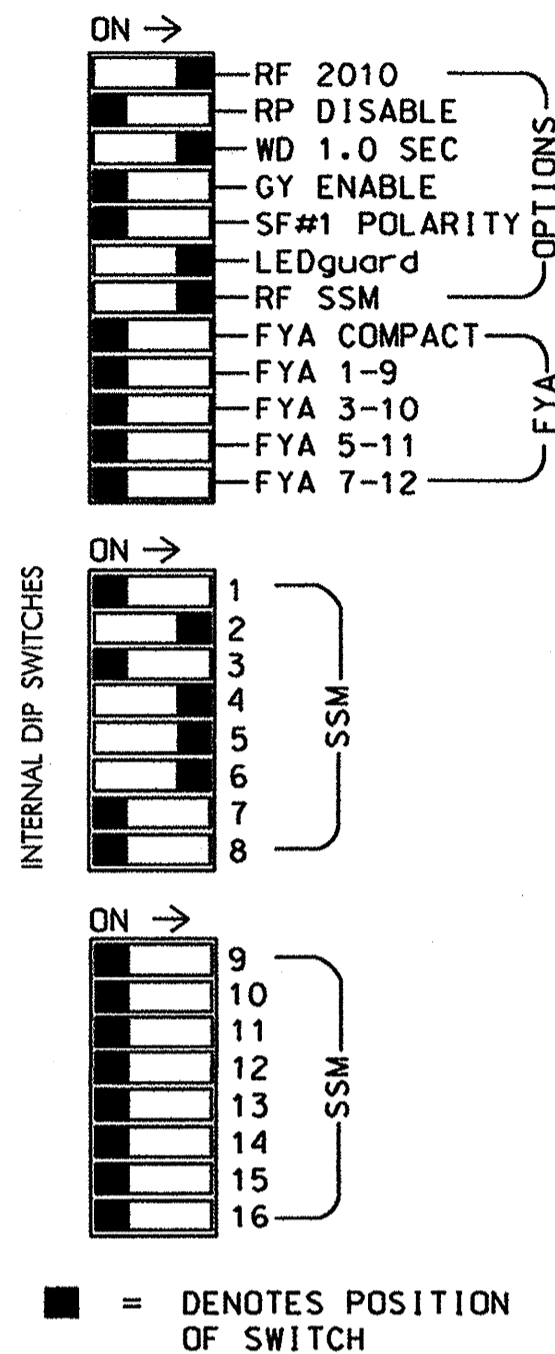
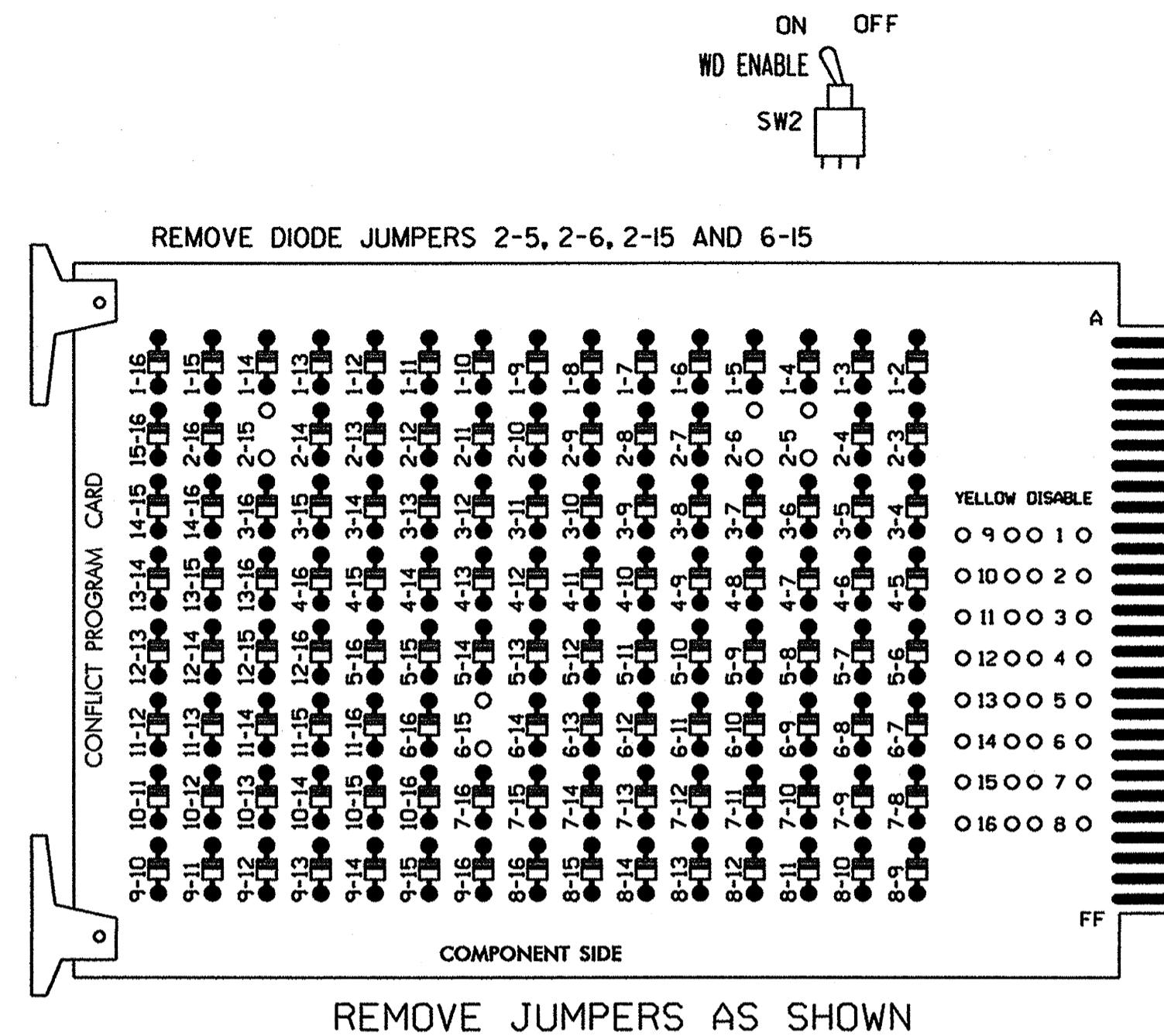
DATE: 5/10/10

SIG. INVENTORY NO. 05-043473

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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)

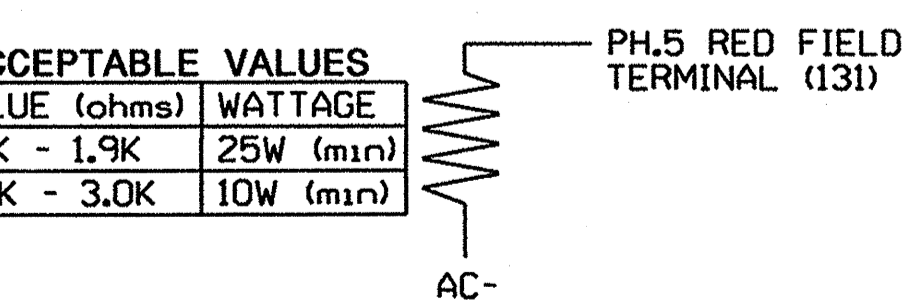
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	S 2A,2B	S 2C,2D	S	S	S	S 4A	S	S	S	S	S	S	S 6PED	FS
FILE "J"	S 5A	S 6A,6B	S	S	S	S 4B	S	S	S	S	S	S	S NOT USED	ST

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

FS = FLASH SENSE
ST = STOP TIME

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 THIS RESISTOR IS TO LOAD THE CHANNEL RED MONITOR INPUT IN ORDER FOR THE SIGNAL SEQUENCE MONITOR TO USE THE FULL SIGNAL SEQUENCE MONITORING CAPABILITY ON THIS CHANNEL, WHICH DOES NOT USE THE RED DISPLAY IN THE FIELD.

NOTES

- TO PREVENT "FLASH-CONFLICT" PROBLEMS, INSERT RED FLASH PROGRAM BLOCKS FOR ALL UNUSED VEHICLE LOAD SWITCHES IN THE OUTPUT FILE. 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 1,3,7,8,9,10,11,12,13,14,15 & 16 TO LOAD SWITCH AC+ PER THE CABINET MANUFACTURER'S INSTRUCTIONS.
- PROGRAM CONTROLLER TO START UP IN PHASES 2 AND 6 GREEN.
- SET POWER-UP FLASH TIME TO 10 SECONDS AND IMPLEMENT WITHIN THE CONTROLLER PROGRAMMING.
- ENABLE SIMULTANEOUS GAP-OUT FEATURE FOR ALL PHASES.
- PROGRAM ALL TIMING INFORMATION INTO PHASE BANKS 1,2 & 3.
- SET PHASE BANK 3 MAXIMUM LIMIT TO 250 SEC. FOR PHASES USED.
- SET ALL DETECTOR CARD CHANNELS TO 'PRESENCE' MODE.
- THIS SIGNAL IS A PART OF THE DURHAM CITY SIGNAL SYSTEM.

EQUIPMENT INFORMATION

CONTROLLER.....CONTRACTOR SUPPLIED TYPE 170E
CABINETCONTRACTOR SUPPLIED MODEL 332A
SOFTWAREBI TRANS 233NC2
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S4,S5,S6,S6P
PHASES USED.....2,4,5,6,6PED
OVERLAPS USED.....NONE

PEDESTRIAN PHASE PROGRAMMING

PROGRAM PEDESTRIAN 6P OUTPUT AT KEYPAD INPUT E/I25+F+6=ø 6

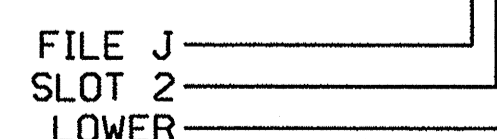
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	DETECTOR NO.	PIN NO.	ATTRIBUTES	NEMA PHASE
2A,2B	TB2-5,6	I2U	1	39	5 7	2
2C,2D	TB2-7,8	I2L	2	43	5 7	2
4A	TB4-9,10	I6U	3	41	5 7	4
4B	TB4-11,12	I6L	4	45	5 7	4
5A	TB3-1,2	J1U	5	55	5 7	5
*			6			
*			7			
6A,6B	TB3-5,6	J2U	8	40	5 7	6
6C,6D	TB3-7,8	J2L	9	44	5 7	6
PEDESTRIAN						
*			10			
P61,P62	TB8-7,9	I13U	11	68	2	6PED

NOTE: PROGRAM DETECTOR DELAY AND CARRYOVER TIMES AS SPECIFIED ON SIGNAL DESIGN PLANS.

* RESERVED FOR FUTURE PROGRAMMING

INPUT FILE POSITION LEGEND: J2L



DETECTOR ATTRIBUTES LEGEND:

- 1-FULL TIME DELAY
- 2-PED CALL
- 3-RESERVED
- 4-COUNTING
- 5-EXTENSION
- 6-TYPE 3
- 7-CALLING
- 8-ALTERNATE

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.	NU	21,22	NU	NU	41,42	62	NU	21	61,62	P61, P62	NU	NU
RED		128			101		*		134			
YELLOW		129			102				135			
GREEN		130			103				136			
RED ARROW												
YELLOW ARROW					102			132				
GREEN ARROW					103			133				
Hand icon										119		
Person icon										121		

NU = Not Used

**

* DENOTES INSTALL LOAD RESISTOR. SEE LOAD RESISTOR INSTALLATION DETAIL THIS SHEET.

** SEE 'COUNTDOWN PEDESTRIAN SIGNAL OPERATION' NOTE BELOW.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

COUNTDOWN PED SIGNALS ARE REQUIRED TO DISPLAY TIMING ONLY DURING PED CLEARANCE INTERVAL. CONSULT PED SIGNAL MODULE USER'S MANUAL FOR INSTRUCTIONS ON SELECTING THIS FEATURE.

THIS ELECTRICAL DETAIL IS FOR THE
TEMPORARY SIGNAL DESIGN: 05-0434T1
DESIGNED: MARCH 2010 05-0434T2
SEALED: 5/10/10 05-0434T3
REVISED: N/A 05-0434T4

NOTE:
INSTALL DC ISOLATOR
IN INPUT FILE SLOT
113.

- Temporary Design 1 (Construction Phase I)
- Temporary Design 2 (Construction Phase II-A)
- Temporary Design 3 (Construction Phase II-B)
- Temporary Design 4 (Construction Phase II-C)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1959 (S. Miami Blvd.) at SR 1954 (Ellis Road)

Division 05 Durham County Durham

PLAN DATE: May 2010 REVIEWED BY: YMA

PREPARED BY: F.E. RUSS REVIEWED BY:

REVISIONS INIT. DATE

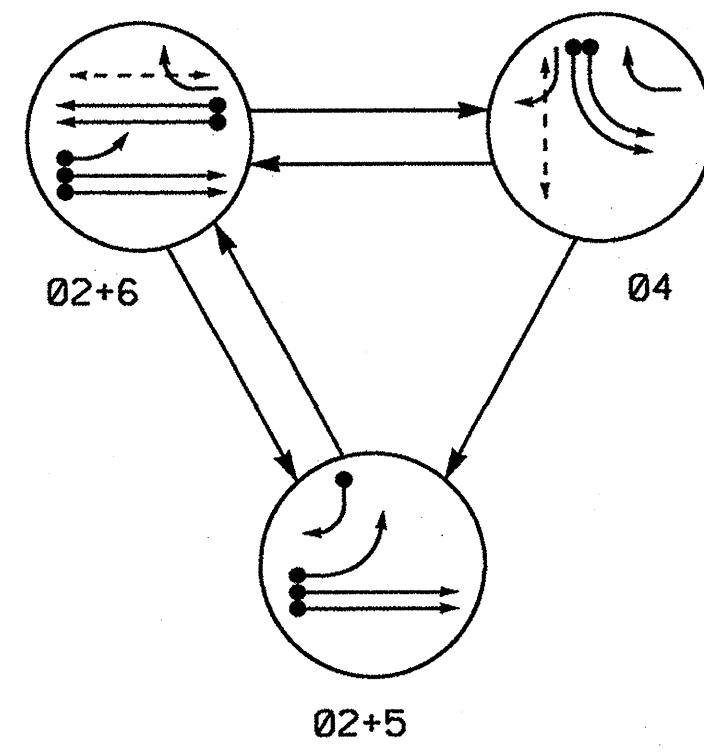
750 N. Greenfield Pkwy, Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 008453
JOHN T. ROWE, INC.

Signature: John T. Rowe
Date: 5-12-10

INV. NO. 05-0434T1, T2, T3, T4

PHASING DIAGRAM



SIGNAL FACE	PHASE			
	02+5	02+6	04	FLOOD
21	G	R	Y	
22	G	G	R	Y
41	R	R	G	R
42	R	G	R	G
61	R	G	R	Y
62	R	G	R	Y
P41, P42	DW	DW	W	DRK
P61, P62	DW	W	DW	DRK

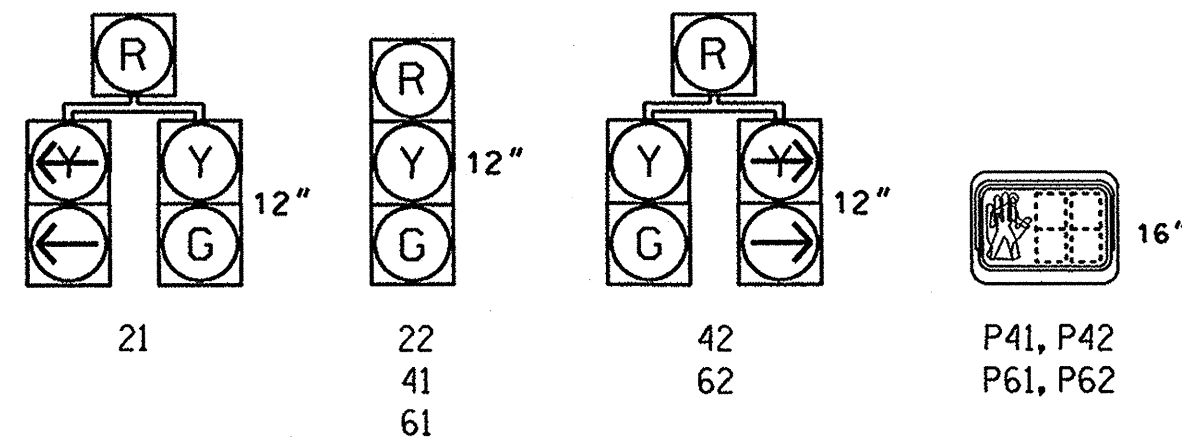
W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.

PHASING DIAGRAM DETECTION LEGEND

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

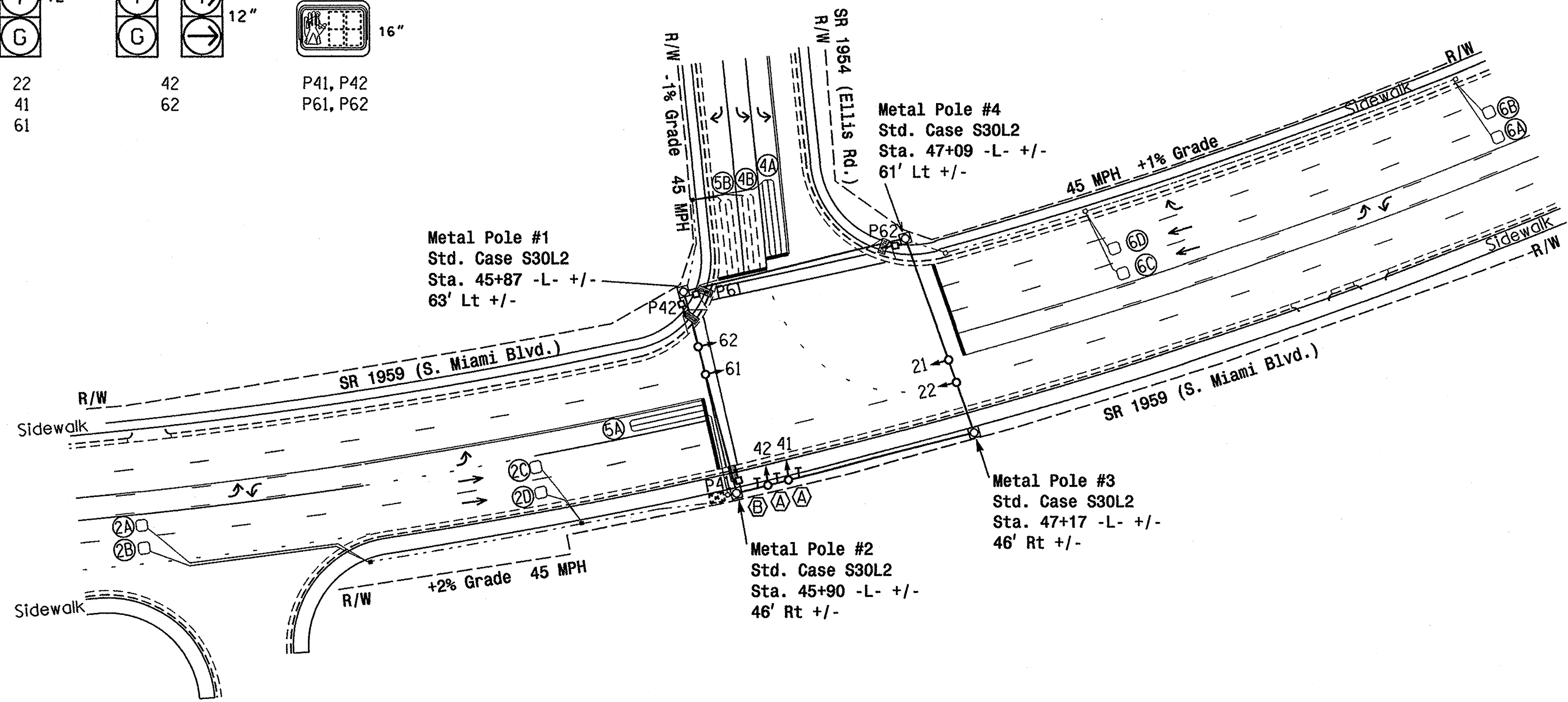


170 LOOP & DETECTOR UNIT INSTALLATION CHART																	
INDUCTIVE LOOPS					DETECTOR PROGRAMMING												
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW EXISTING	NEMA PHASE	TIMING		ATTRIBUTES									
						DELAY	CARRY (STRETCH)	1	2	3	4	5	6	7	8	STATUS	
								PEDESTRIAN	RESERVED	COUNT	EXTENSION	TYPE 3	CALLING	ALTERNATE	SYSTEM	NEW	EXISTING
2A, 2B	6X6	5	300	X	-	2	- SEC.	- SEC.			X	X					X
2C, 2D	6X6	4	90	X	-	2	- SEC.	- SEC.			X	X					X
4A	6X40	2-4-2	0	X	-	4	3 SEC.	- SEC.			X	X					X
4B	6X40	2-4-2	0	X	-	4	- SEC.	- SEC.			X	X					X
5A	6X40	2-4-2	0	X	-	5	15 SEC.	- SEC.			X	X					X
5B	6X40	2-4-2	0	X	-	5	15 SEC.	- SEC.			X	X					X
6A, 6B	6X6	5	300	X	-	6	- SEC.	- SEC.			X	X					X
6C, 6D	6X6	4	90	X	-	6	- SEC.	- SEC.			X	X					X
P41, P42	-	-	-	X	-	4	- SEC.	- SEC.	X								X
P61, P62	-	-	-	X	-	6	- SEC.	- SEC.	X								X

3 Phase Fully Actuated (Durham Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
- Set phase bank 3 maximum limit to 250 seconds for phases used.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



TIMING CHART 170 CONTROLLER				
PHASE	02	04	05	06
MINIMUM INITIAL *	12 SEC.	7 SEC.	7 SEC.	12 SEC.
VEHICLE EXTENSION *	2.0 SEC.	1.0 SEC.	1.0 SEC.	2.0 SEC.
YELLOW CHANGE INT.	4.3 SEC.	3.0 SEC.	3.0 SEC.	4.4 SEC.
RED CLEARANCE	1.6 SEC.	3.2 SEC.	2.9 SEC.	2.0 SEC.
MAXIMUM LIMIT *	45 SEC.	25 SEC.	20 SEC.	45 SEC.
RECALL POSITION	VEH. RECALL	NONE	NONE	VEH. RECALL
VEHICLE CALL MEMORY	YELLOW LOCK	NONLOCK	NONLOCK	YELLOW LOCK
DOUBLE ENTRY	OFF	OFF	OFF	OFF
WALK *	- SEC.	7 SEC.	- SEC.	7 SEC.
FLASHING DON'T WALK	- SEC.	21 SEC.	- SEC.	22 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*	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.
REDUCE 0.1 SEC EVERY *	- SEC.	- SEC.	- SEC.	- SEC.
MINIMUM GAP	2.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.

* 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.

PROPOSED		EXISTING	
○→	Traffic Signal Head	●→	N/A
●→	Modified Signal Head	-	
↓	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	N/A	
→	Directional Arrow	→	
⊗	Metal Strain Pole	⊗	
⊗	Left Arrow "ONLY" Sign (R3-5L)	⊗	
⊗	Right Arrow "ONLY" Sign (R3-5R)	⊗	

Signal Upgrade - Final Design

SR 1959 (S. Miami Blvd.)
at
SR 1954 (Ellis Road)

Division 5 Durham County Durham
PLAN DATE: March 2010 REVIEWED BY: R. Hough
PREPARED BY: Monif Bazzarie REVIEWED BY:

SEAL

026486

ROBERT J. ZIEMBA

5/10/10

SIGNATURE DATE

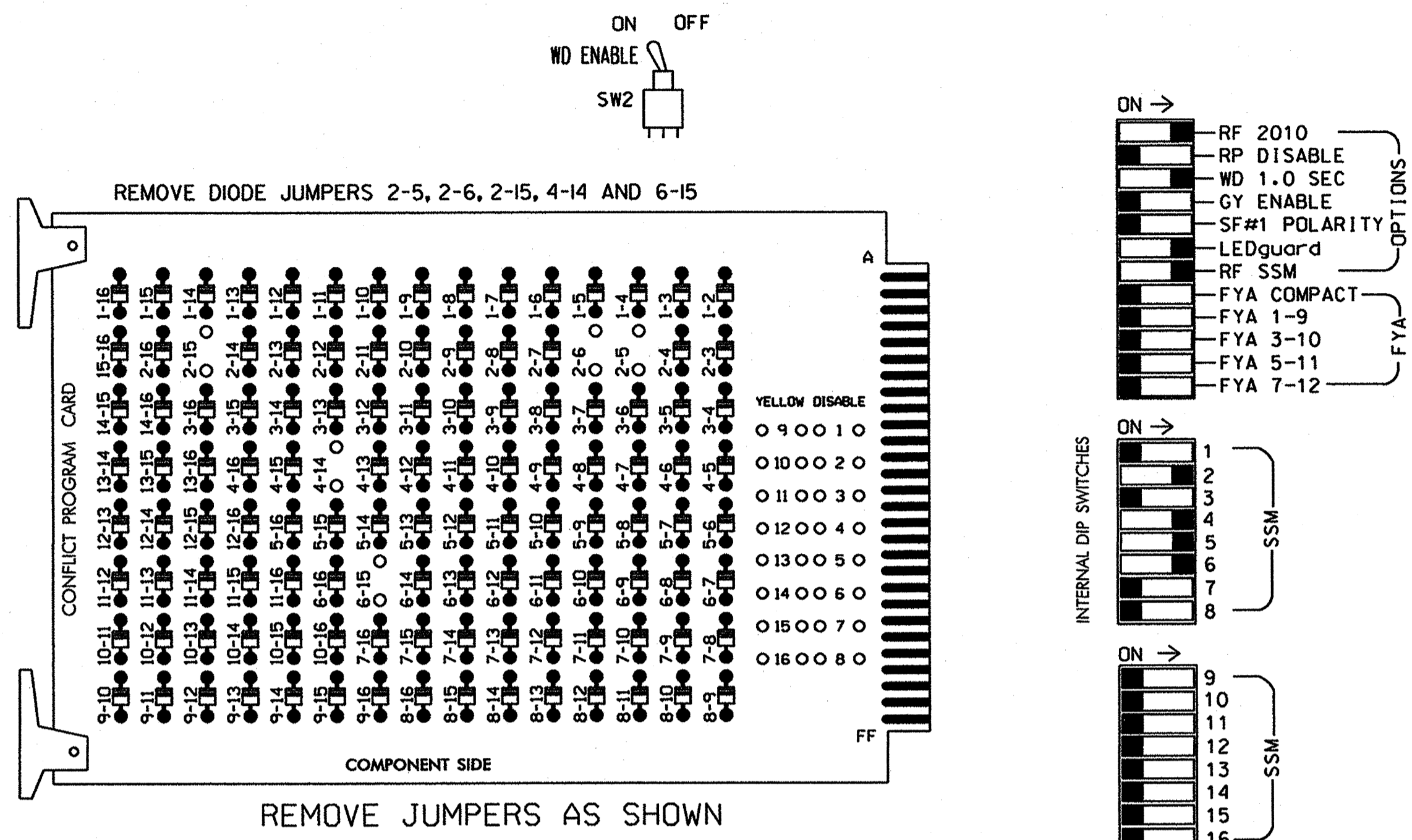
SIG. INVENTORY NO. 05-0434

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 0 50
1" = 50'

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. 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, 7,8,9,10,11,12,13,14,15 & 16 TO LOAD SWITCH AC+ PER THE CABINET MANUFACTURER'S INSTRUCTIONS.
- PROGRAM CONTROLLER TO START UP IN PHASES 2 AND 6 GREEN.
- SET POWER-UP FLASH TIME TO 10 SECONDS AND IMPLEMENT WITHIN THE CONTROLLER PROGRAMMING.
- ENABLE SIMULTANEOUS GAP-OUT FEATURE FOR ALL PHASES.
- PROGRAM ALL TIMING INFORMATION INTO PHASE BANKS 1,2 & 3.
- SET PHASE BANK 3 MAXIMUM LIMIT TO 250 SEC. FOR PHASES USED.
- SET ALL DETECTOR CARD CHANNELS TO 'PRESENCE' MODE.
- THIS SIGNAL IS A PART OF THE DURHAM CITY SIGNAL SYSTEM.

EQUIPMENT INFORMATION

CONTROLLER.....CONTRACTOR SUPPLIED TYPE 170E
 CABINETCONTRACTOR SUPPLIED MODEL 332A
 SOFTWAREBI TRANS 233NC2
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S4,S4P,S5,S6,S6P
 PHASES USED.....2,4,5,6,4PED,6PED
 OVERLAPS USED.....NONE

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.	NU	21,22	NU	NU	41,42	62	P41, P42	21,42	61,62	P61, P62	NU	NU
RED		128			101		*	134				
YELLOW		129			102			135				
GREEN		130			103			136				
RED ARROW												
YELLOW ARROW					102			132				
GREEN ARROW					103			133				
Hand icon							104			119		
Walking person icon							106			121		

NU = Not Used ** **

* DENOTES INSTALL LOAD RESISTOR. SEE LOAD RESISTOR INSTALLATION DETAIL THIS SHEET.
 ** SEE 'COUNTDOWN PEDESTRIAN SIGNAL OPERATION' NOTE BELOW.

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	∅ 2	∅ 2	∅ 2	∅ 2	∅ 2	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4
	2A,2B	2C,2D				4A	4B							
FILE "J"	∅ 5,2	∅ 6	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5
	5A	6A,6B	5B											
	NOT USED	∅ 6	NOT USED											
		6C,6D												

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

FS = FLASH SENSE
 ST = STOP TIME

PEDESTRIAN PHASE PROGRAMMING

PROGRAM PEDESTRIAN 4P OUTPUT AT KEYPAD INPUT E/I25+F+7=∅ 4
 PROGRAM PEDESTRIAN 6P OUTPUT AT KEYPAD INPUT E/I25+F+6=∅ 6

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	DETECTOR NO.	PIN NO.	ATTRIBUTES	NEMA PHASE
2A,2B	TB2-5,6	I2U	1	39	5 7 2	
2C,2D	TB2-7,8	I2L	2	43	5 7 2	
4A	TB4-9,10	I6U	3	41	5 7 4	
4B	TB4-11,12	I6L	4	45	5 7 4	
5A	TB3-1,2	J1U	5	55	5 7 5	
5B	TB3-9,10	J3U	7	64	5 7 5	
6A,6B	TB3-5,6	J2U	8	40	5 7 6	
6C,6D	TB3-7,8	J2L	9	44	5 7 6	
PED PUSH BUTTONS						
P41, P42	TB8-5,6	I12L	10	69	2	4PED
P61, P62	TB8-7,9	I13U	11	68	2	6PED

NOTE: PROGRAM DETECTOR DELAY AND CARRYOVER TIMES AS SPECIFIED ON SIGNAL DESIGN PLANS.

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

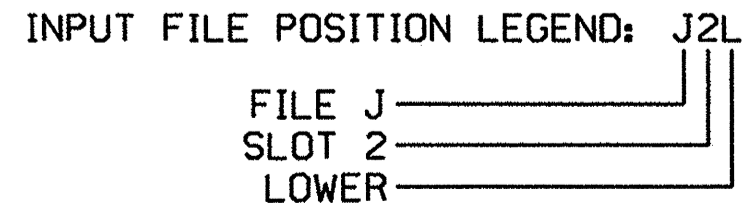
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

COUNTDOWN PED SIGNALS ARE REQUIRED TO DISPLAY TIMING ONLY DURING PED CLEARANCE INTERVAL. CONSULT PED SIGNAL MODULE USER'S MANUAL FOR INSTRUCTIONS ON SELECTING THIS FEATURE.

LOAD RESISTOR INSTALLATION DETAIL

ACCEPTABLE VALUES	PH.5 RED FIELD TERMINAL (131)
VALUE (ohms)	
1.5K - 1.9K	
2.0K - 3.0K	
WATTAGE	
25W (min)	
10W (min)	

NOTE: THE PURPOSE OF THIS RESISTOR IS TO LOAD THE CHANNEL RED MONITOR INPUT IN ORDER FOR THE SIGNAL SEQUENCE MONITOR TO USE THE FULL SIGNAL SEQUENCE MONITORING CAPABILITY ON THIS CHANNEL, WHICH DOES NOT USE THE RED DISPLAY IN THE FIELD.



- DETECTOR ATTRIBUTES LEGEND:
- 1-FULL TIME DELAY
 - 2-PED CALL
 - 3-RESERVED
 - 4-COUNTING
 - 5-EXTENSION
 - 6-TYPE 3
 - 7-CALLING
 - 8-ALTERNATE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0434
 DESIGNED: MARCH 2010
 SEALED: 5/10/10
 REVISED: N/A

Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of:

SR 1959 (S. Miami Blvd.) at SR 1954 (Ellis Road)

Division 05 Durham County Durham

PLAN DATE: May 2010 REVIEWED BY: *[Signature]*

PREPARED BY: F.E. RUSS REVIEWED BY: *[Signature]*

REVISIONS: _____ INIT. DATE

5-12-10

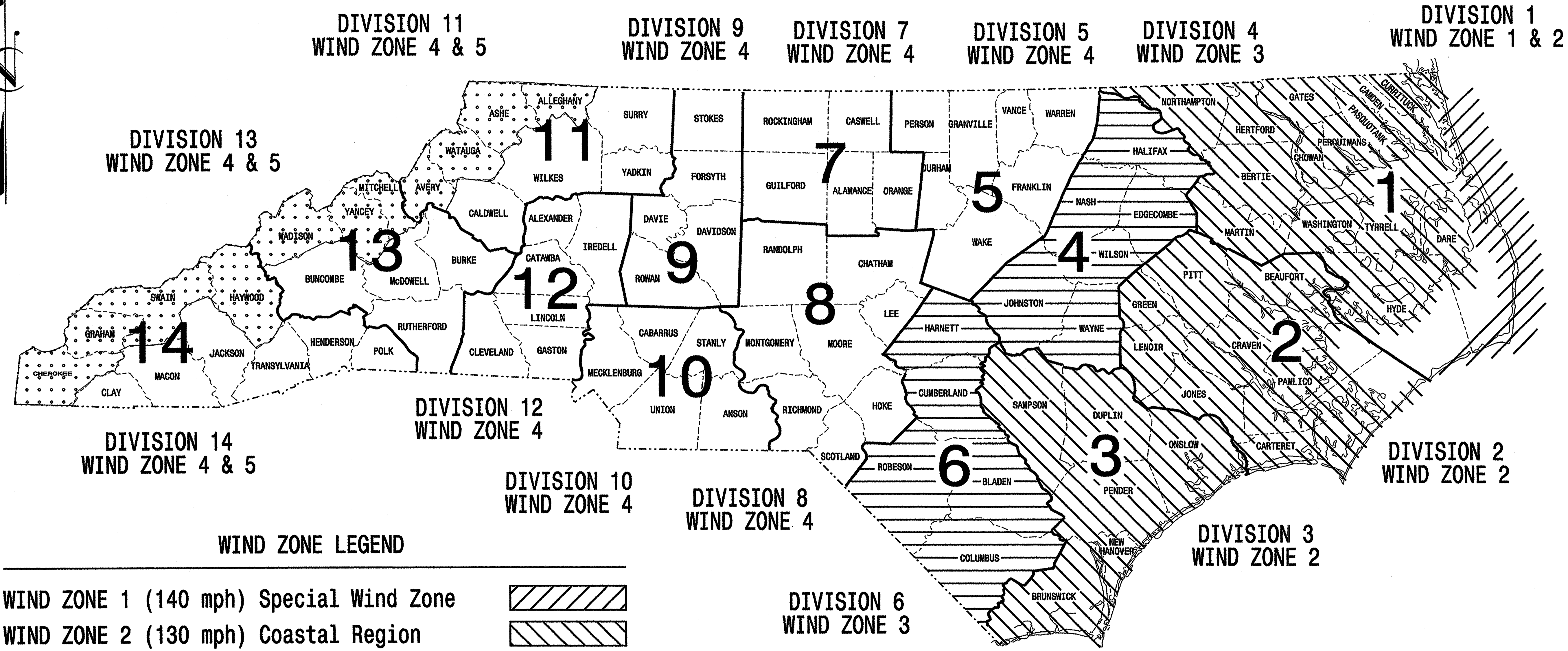
SIG. INVENTORY NO. 05-0434

11-MAY-2010 10:26 S:\ITS\Sig\1959\1959.dgn

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE	PROJECT NO.	SHEET NO.
N.C.	U-4011	Sig. 9
F.A. PROJ. NO.	M 1	
PROJECT ID. NO.		

STANDARD DRAWINGS FOR METAL POLES



WIND ZONE LEGEND

WIND ZONE 1 (140 mph)	Special Wind Zone	
WIND ZONE 2 (130 mph)	Coastal Region	
WIND ZONE 3 (110 mph)	Eastern Region	
WIND ZONE 4 (90 mph)	Central & Mtn. Region	
WIND ZONE 5 (120 mph)	Special Wind Zone	

<http://www.ncdot.org/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html>

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

Designed in conformance
with the
2002 Interim to the
4th Edition 2001
AASHTO
Standard Specifications for
Structural Supports for
Highway Signs, Luminaires,
and Traffic Signals

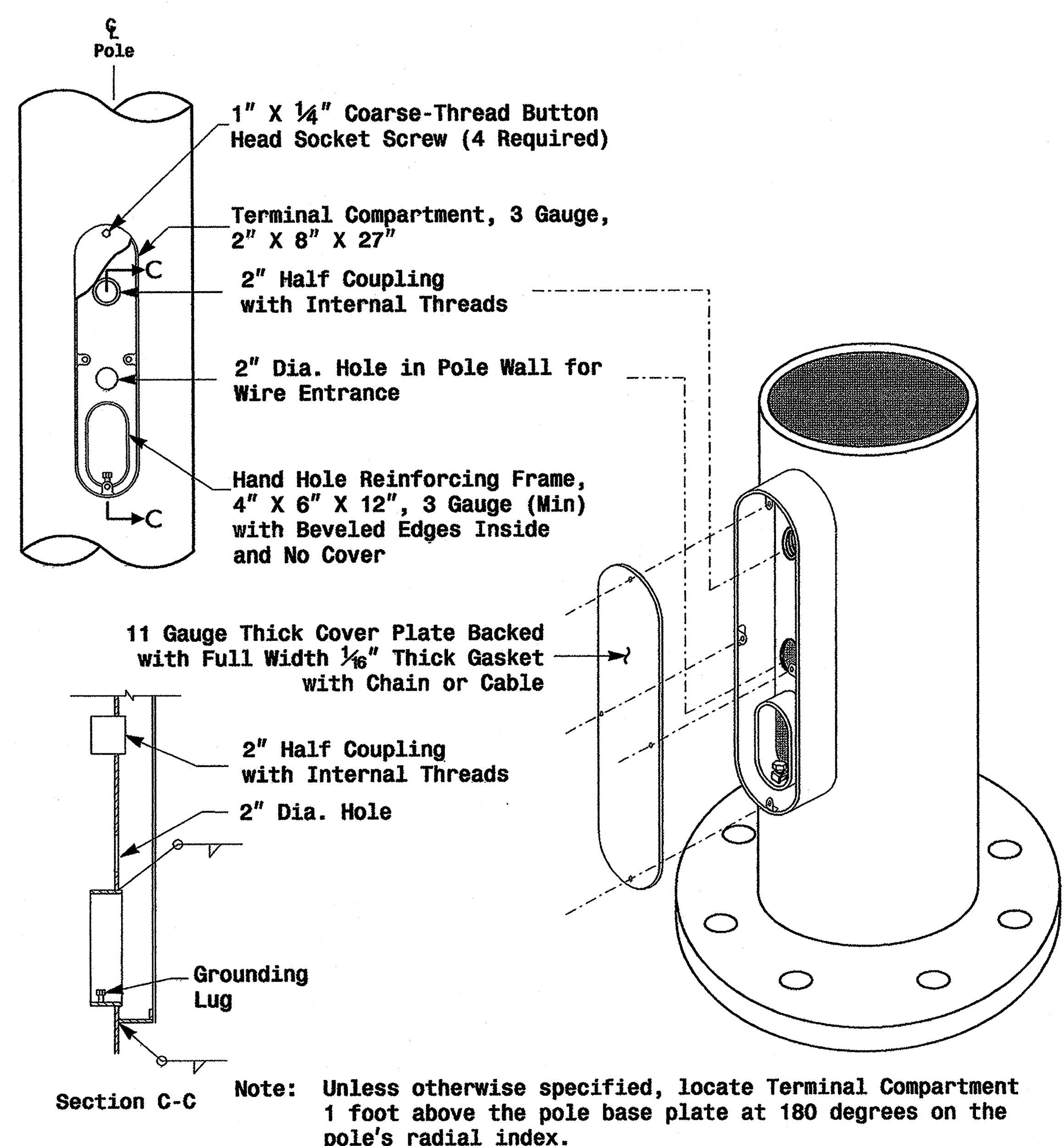
INDEX OF PLANS	
DRAWING NUMBER	DESCRIPTION
M 1	Title Sheet
M 2	Fabrication Details - All Poles
M 3	Fabrication Details - Strain Poles
M 4,5	Fabrication Details - Mast Arm Poles
M 6	Construction Details - Strain Poles
M 7	Construction Details - Foundations
M 8	Standard Strain Poles

NCDOT CONTACTS:
MOBILITY AND SAFETY DIVISION - ITS and SIGNALS UNIT

G. A. Fuller, P.E. - State ITS and Signals Engineer
 G. G. Murr, Jr., P.E. - State Signals Engineer
 D. C. Sarkar, P.E. - ITS and Signals Senior Structural Engineer
 C. F. Andrews, Jr. - ITS and Signals Structural Project Engineer
 M. Aslam - ITS and Signals Structural Project Engineer
 N. Bitting, P.E. - ITS and Signals Structural Project Engineer

SEAL

D. Sarkar 7.21.2009
 SIGNATURE DATE



Terminal Compartment Detail

Shaft I.D. Tag
(Provide on Strain Poles and Mast Arm Poles)

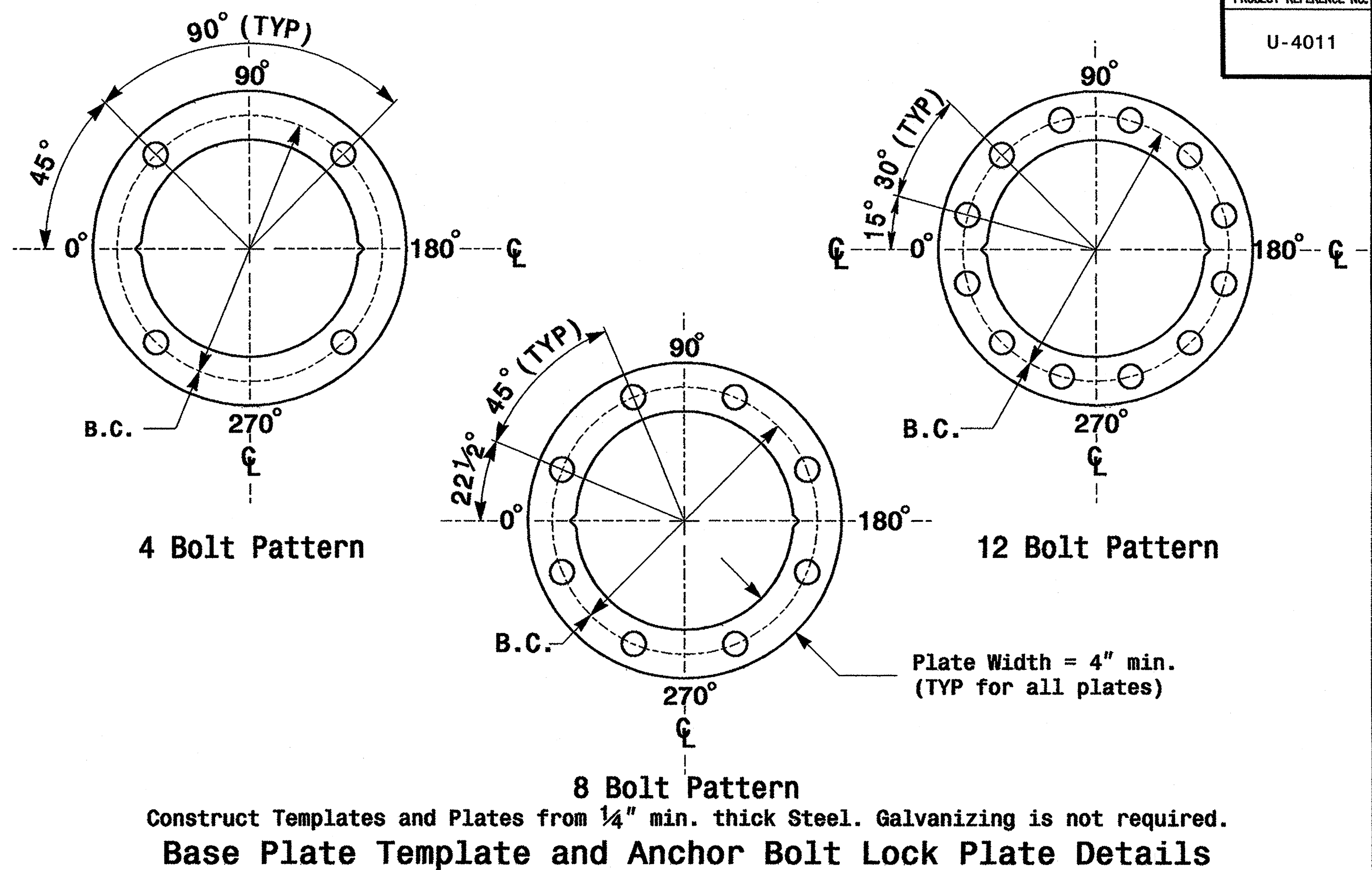
MFG _____ MFG. DATE: MM/YY
 SHAFT D/T/L/Y _____
 ARM-A D/T/L/Y _____
 ARM-B D/T/L/Y _____
 A.B. DIA./B.C./L/Y _____
 NCDOT STANDARD _____

Arm I.D. Tag
(Provide on each section of a multi-section mast arm)

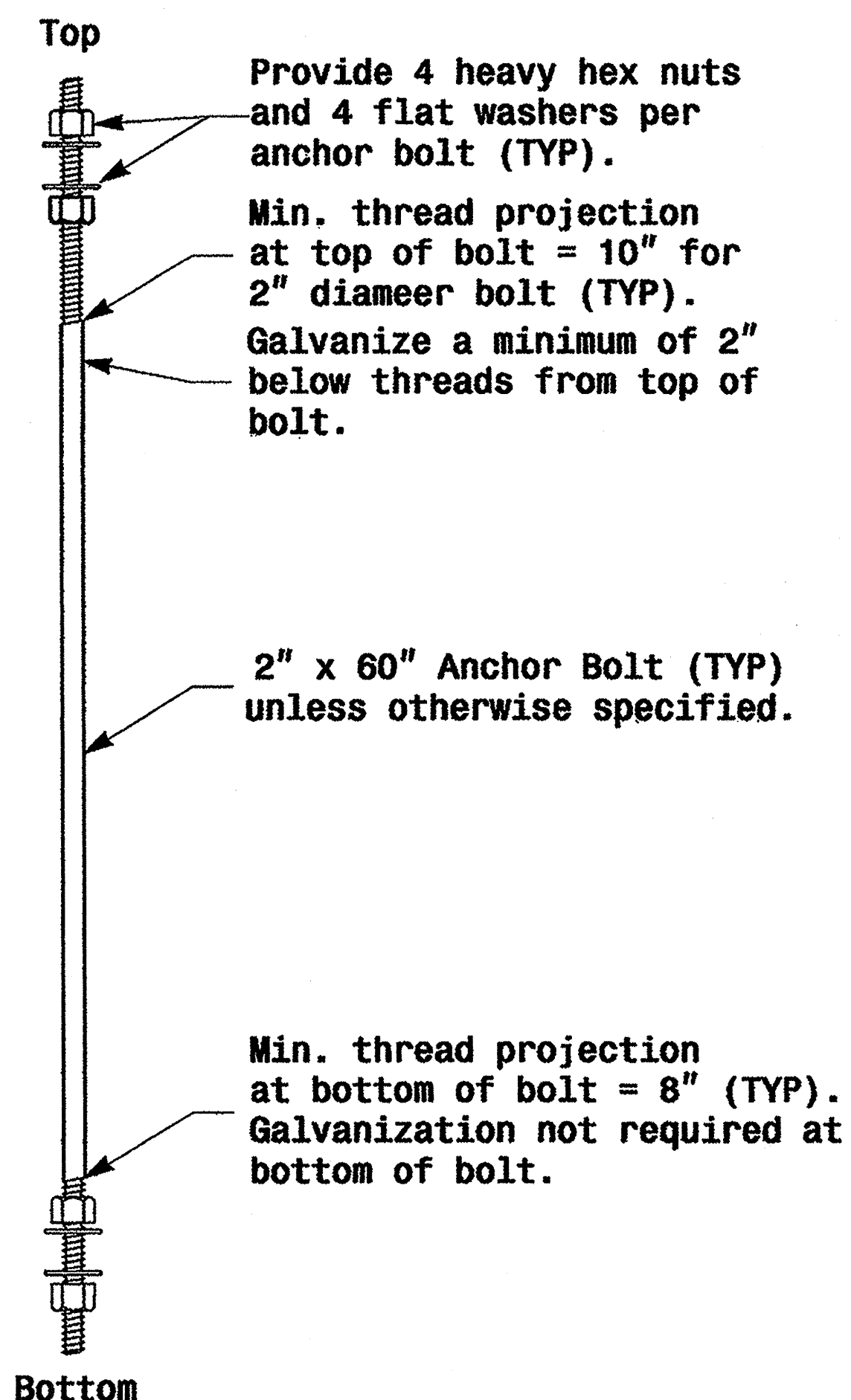
MFG _____ MFG. DATE: MM/YY
 SECTION D/T/L/Y _____
 NCDOT STANDARD _____

- Notes:**
- 1) D= Diameter, T= Thickness, L= Length, Y= Yield Strength
 - 2) A.B. = Anchor Bolt
 - 3) B.C. = Bolt Circle of Anchor Bolts
 - 4) If Custom Design, use "NCDOT STANDARD" line for plan pole I.D.
 - 5) See drawing M4 for mounting positions of I.D. tags.

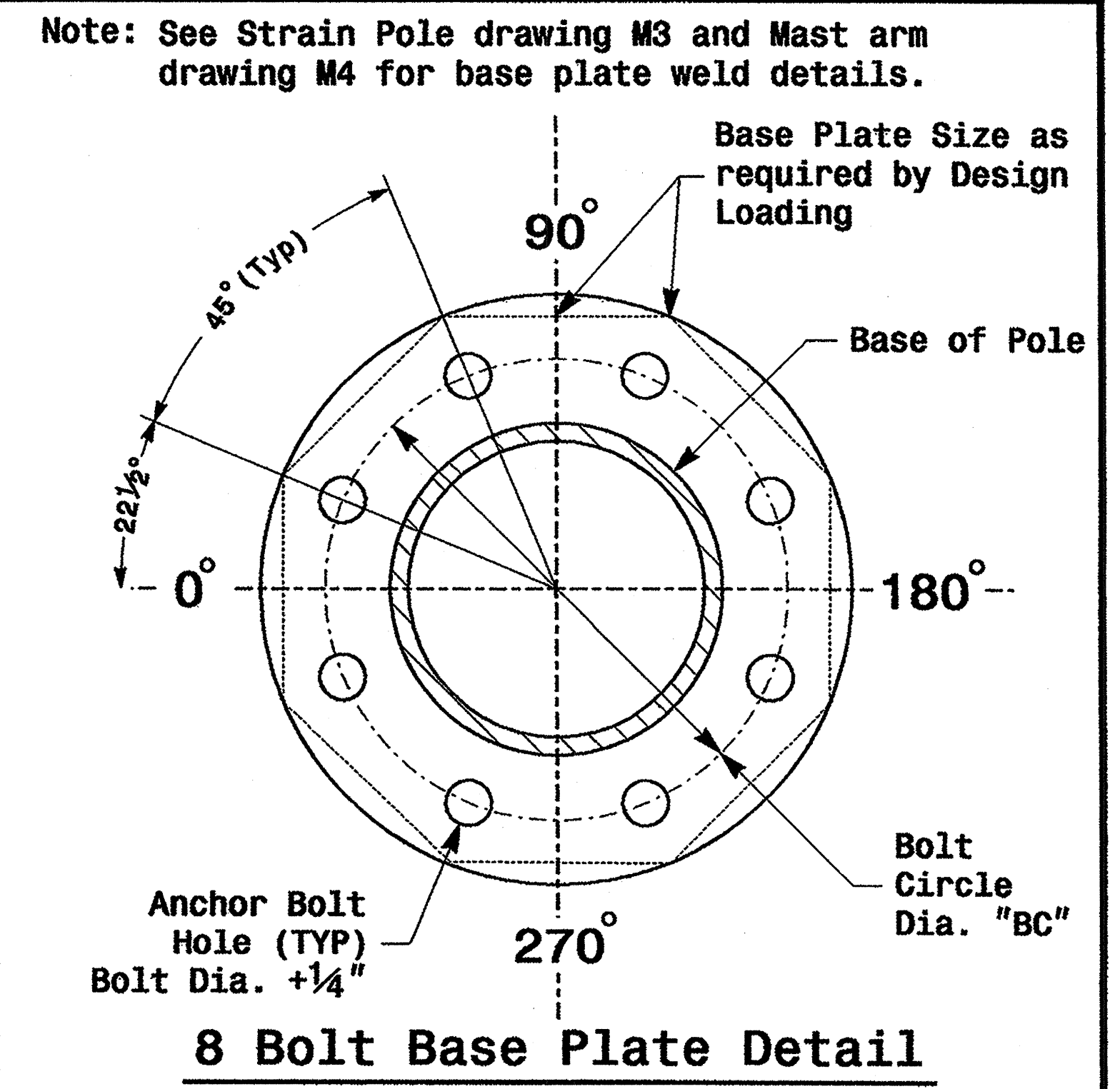
Identification Tag Details




Base Plate Template and Anchor Bolt Lock Plate Details



Anchor Bolt Detail



8 Bolt Base Plate Detail

Prepared in the Office of:

 122 N. McDowell St., Raleigh, NC 27603

Typical Fabrication Details Common To All Metal Poles

PLAN DATE: May 2005 REVIEWED BY: C.F. Andrews
 PREPARED BY: P.L. Alexander REVIEWED BY: A.M. Esposito

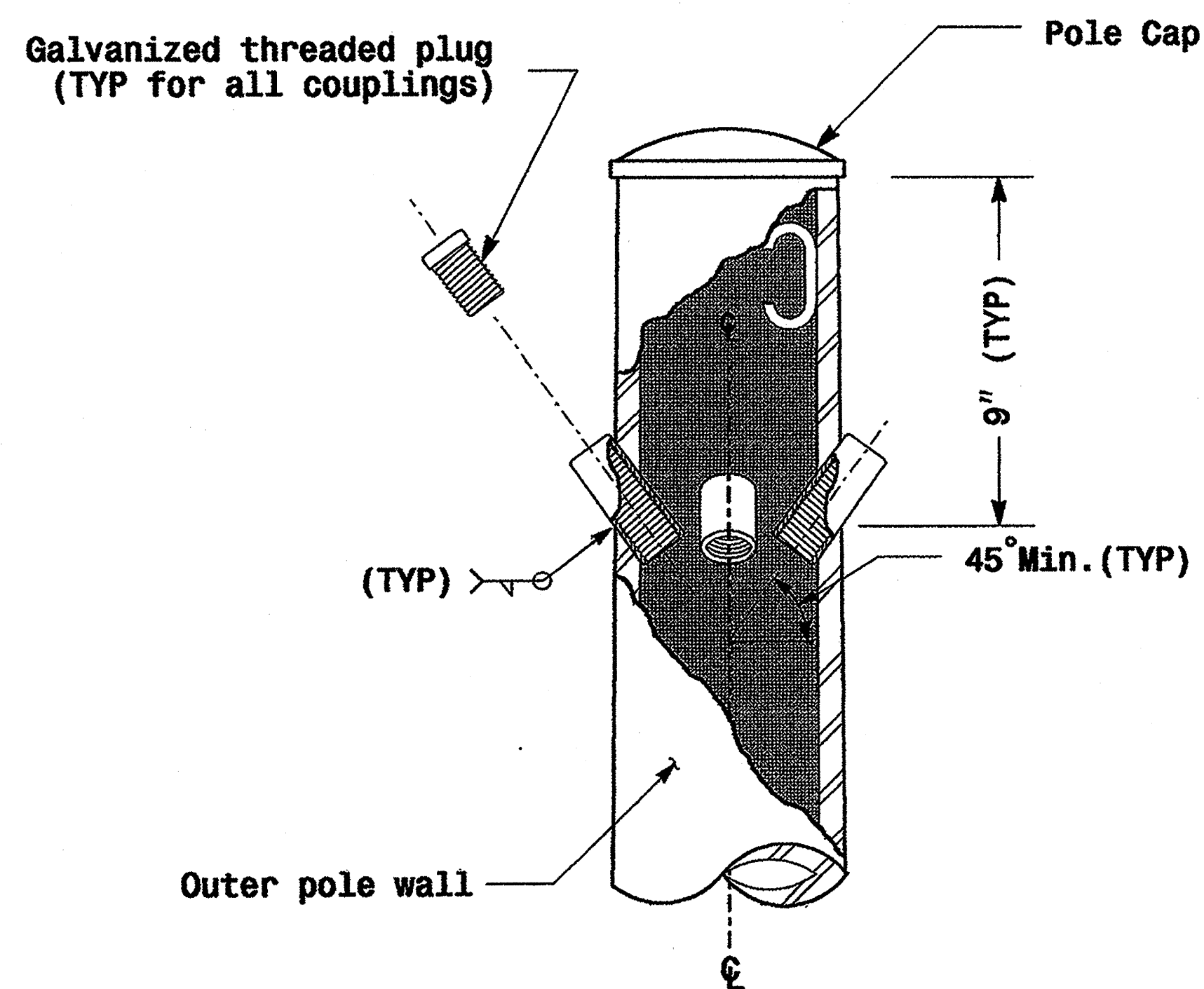
SCALE: 0 NA NONE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028094 ENGINEER DEBISH C. SHANKAR

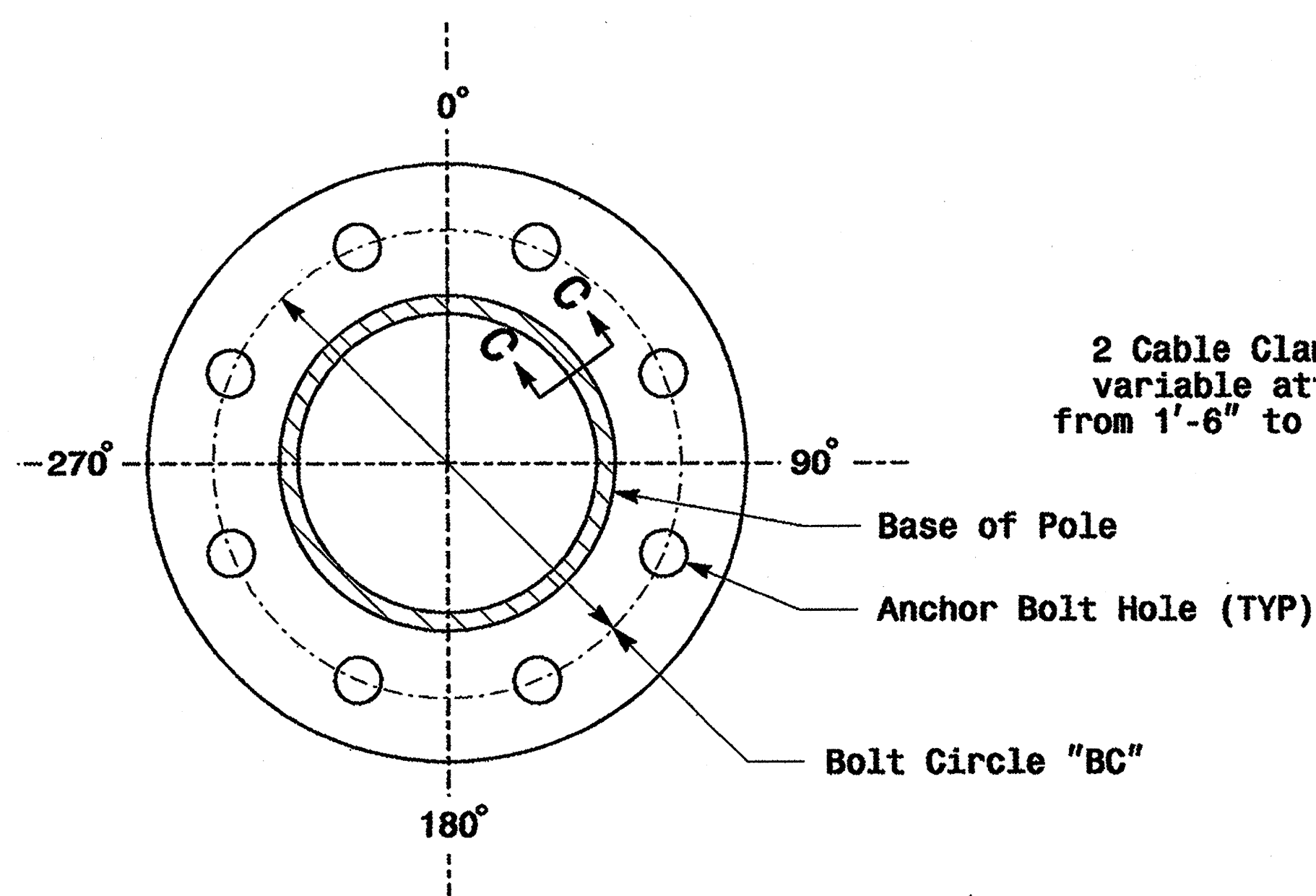
SIGNATURE: D. Sankar 9/2/2005 DATE
 SIG. INVENTORY NO.

Fabrication Details - All Poles

01-SEP-2005 16:22 D:\2004 Metro Pole Standard\2004 m2 thru ms.dgn

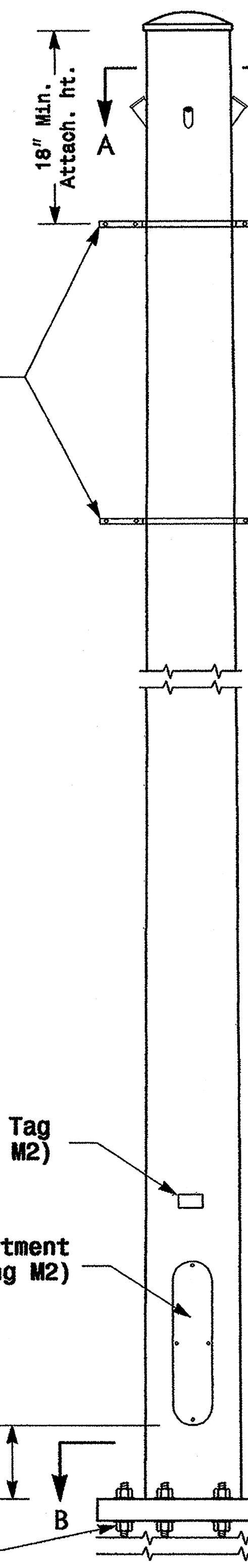


Cable Entrances at Top of Pole

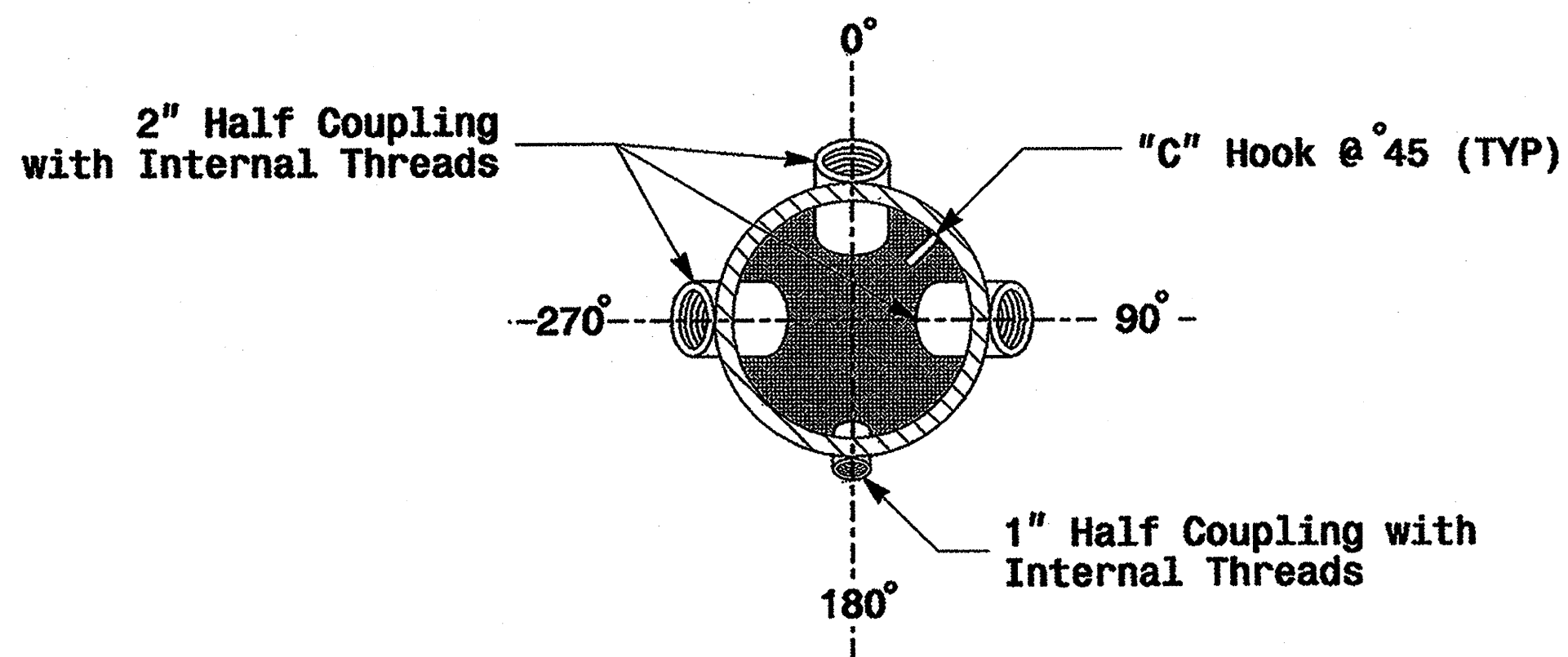


**Section B-B
Pole Base Plate**
(See drawing M2)

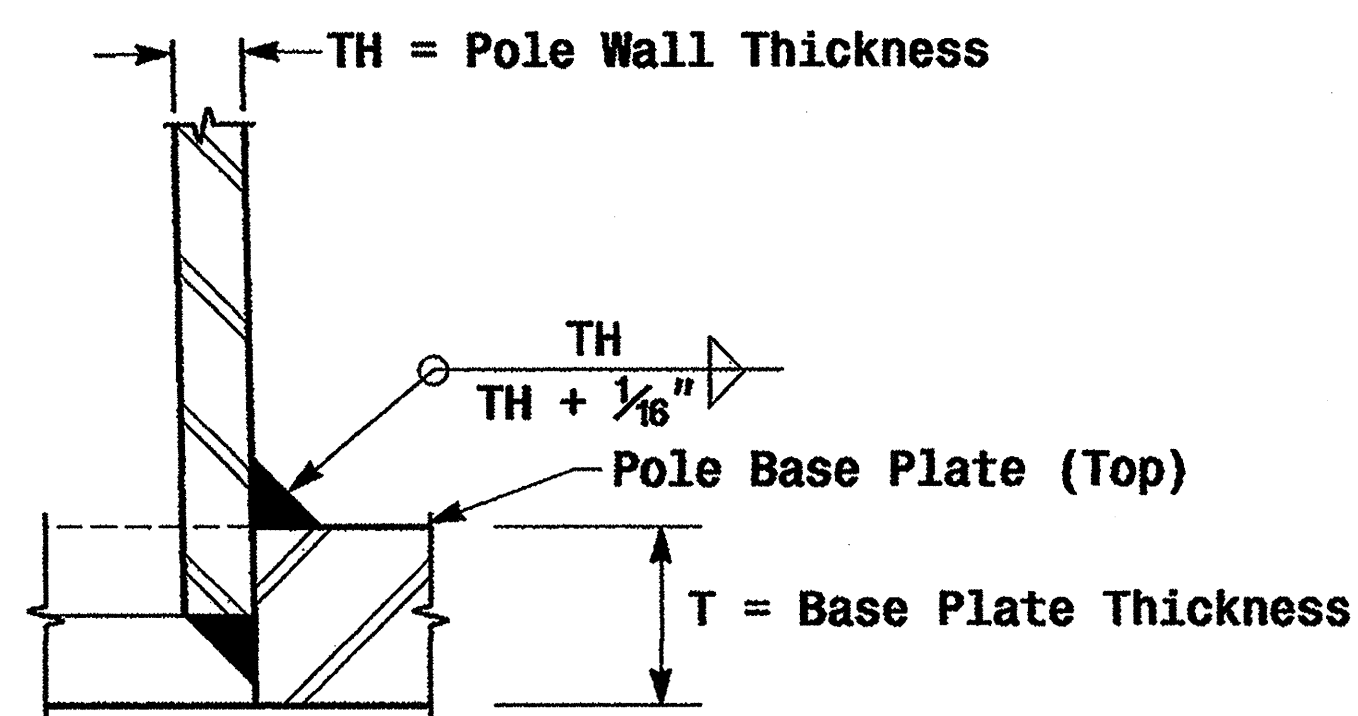
2 Cable Clamps designed for variable attachment heights from 1'-6" to 10' below the top of the pole.



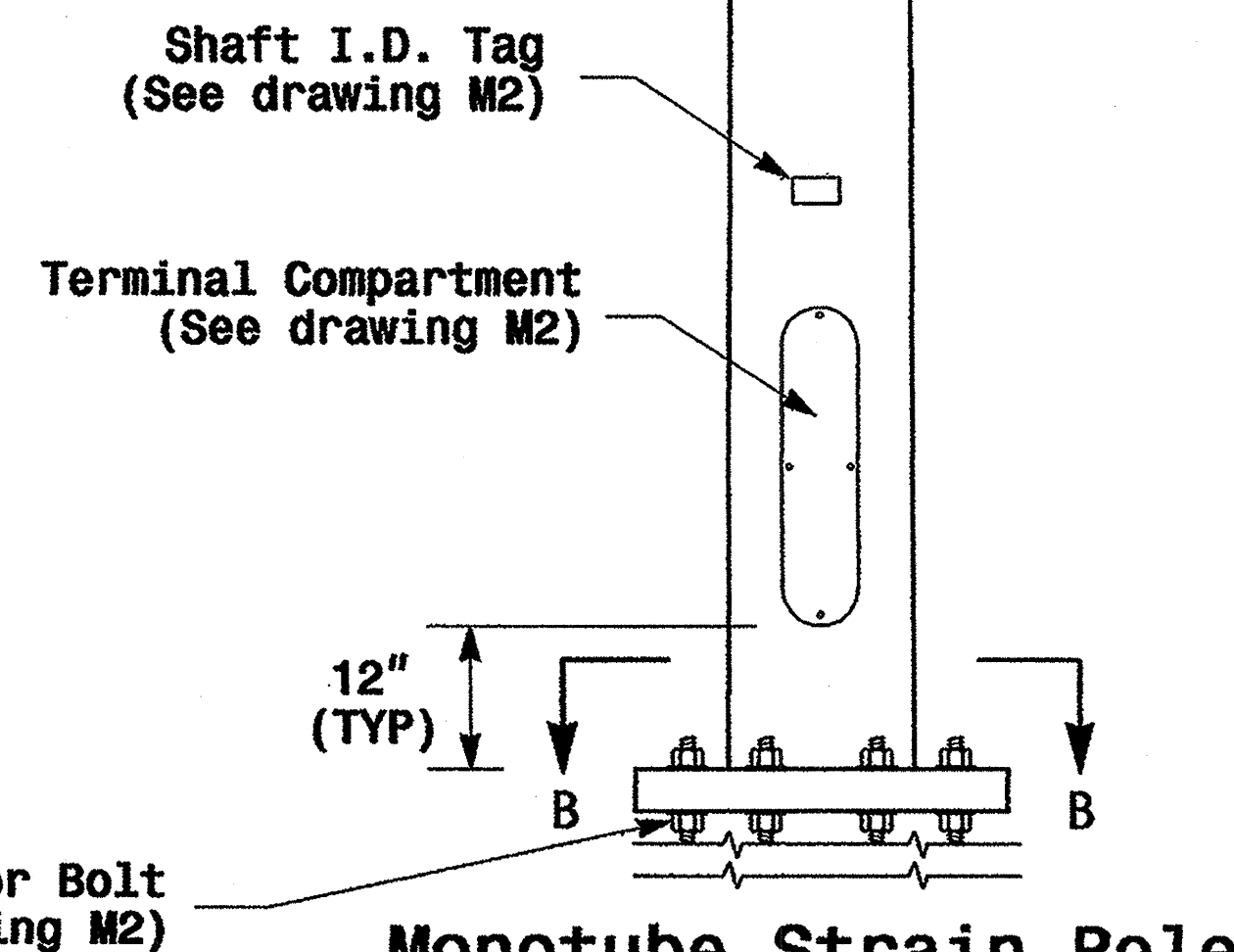
**Monotube Strain Pole
(.14"/Foot Taper)**



Radial Orientation for Factory Installed Accessories at Top of Pole



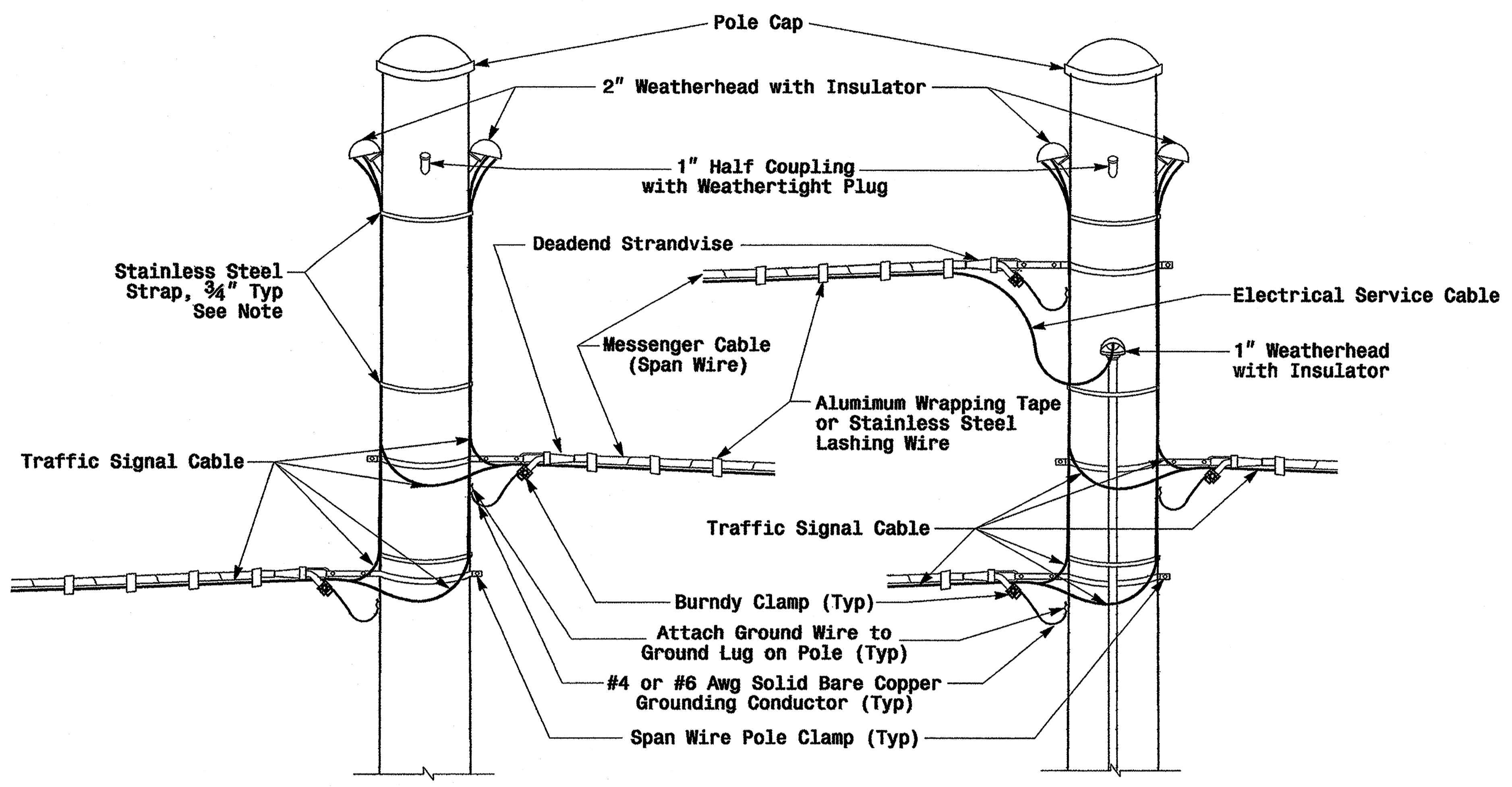
Socket Connection Weld Detail



Anchor Bolt (See drawing M2)

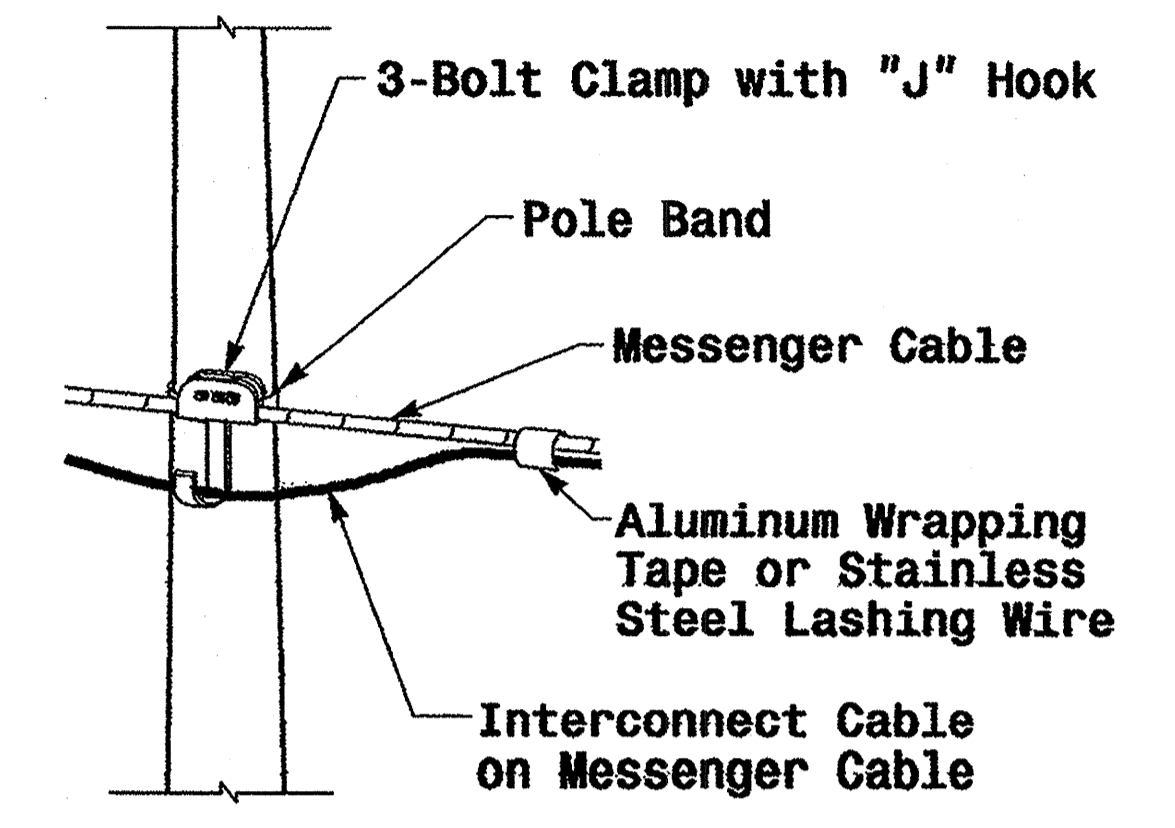
01-SEP-2005 14:07 v:\pach\185-un\1\new\kop\couple#2004.m2.dgn pa.alexander

	Typical Fabrication Details For Strain Poles		
	PLAN DATE: May 2005 PREPARED BY: P.L. Alexander	REVIEWED BY: C.F. Andrews REVIEWED BY: A.W. Esposito	
SCALE: NA NONE	REVISIONS:	INIT. DATE:	SIGNATURE: <i>P. L. Alexander</i> 9.2.2005 DATE:
			SIG. INVENTORY NO.

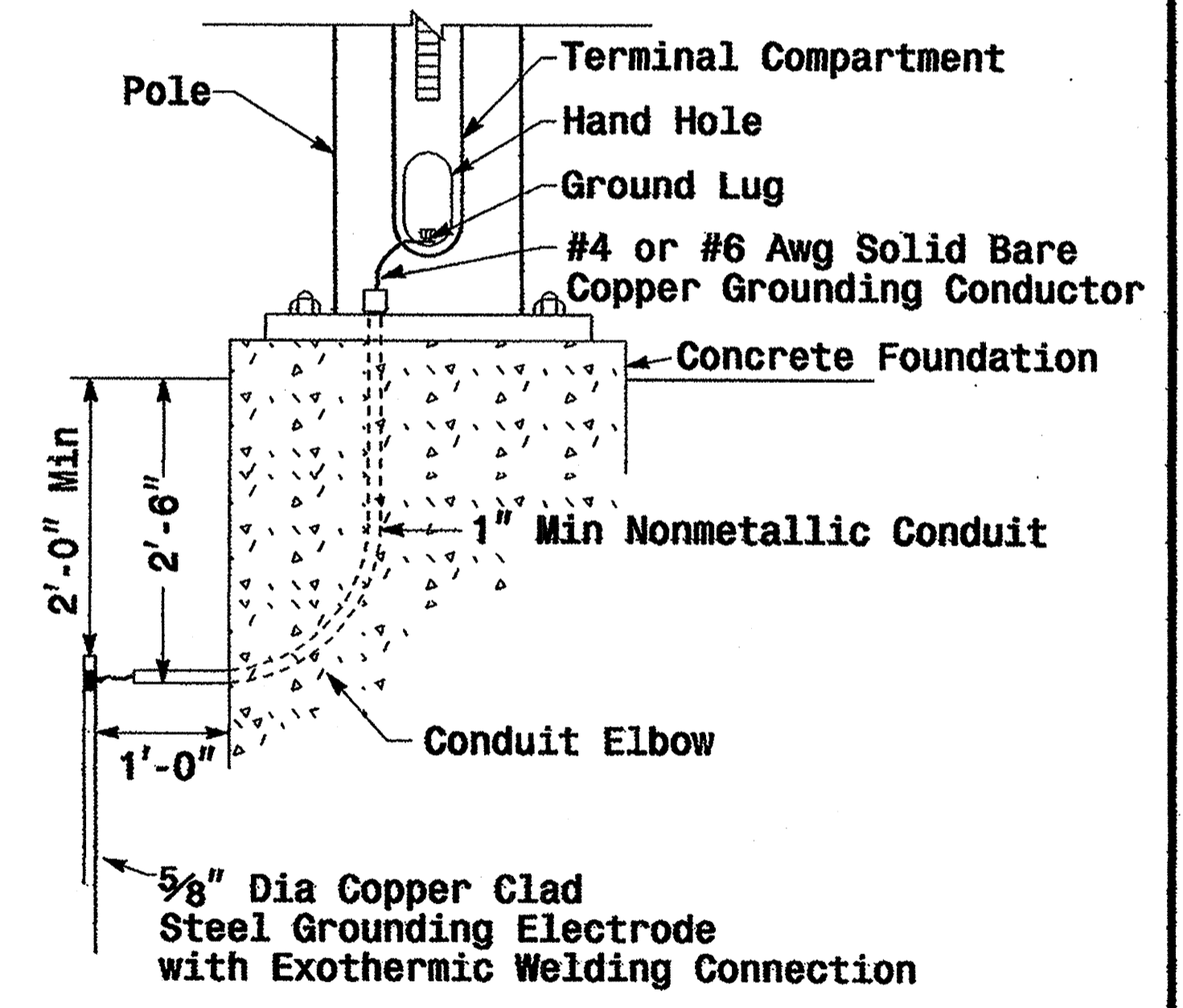


Note: Strap all signal cables to the side of the pole with 3/4" stainless steel straps when the distance between the spanwire attachment clamp and the weatherheads exceeds 36"

Strain Pole Attachments



Attachment of Cable to Intermediate Metal Pole

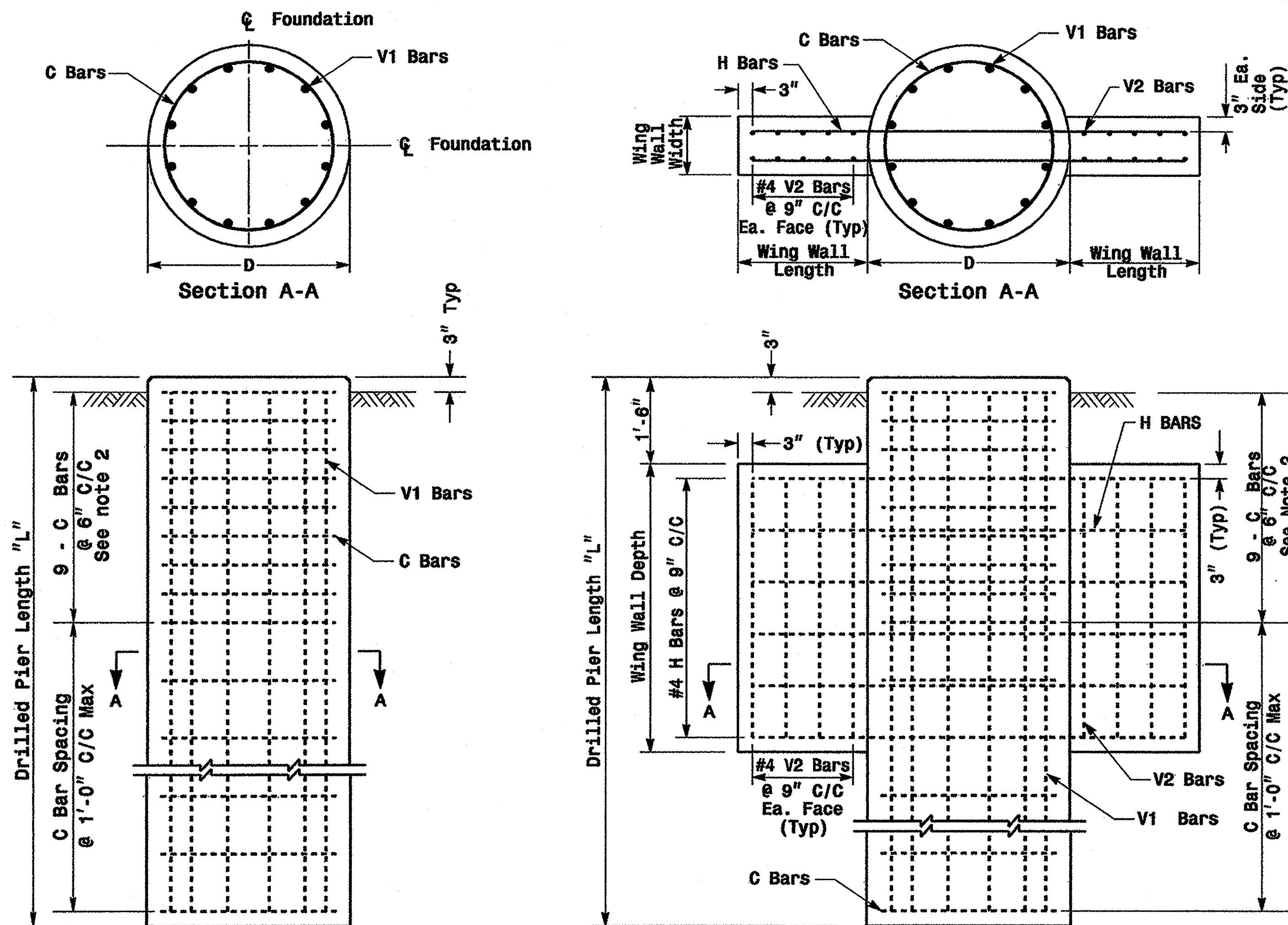


Metal Pole Grounding Detail

01-SEP-2005 16:13
v:\poc\lsc-w\lsc-w\workgroups\2004 metal pole strndr-ds\2004_m6.dgn
pollexander

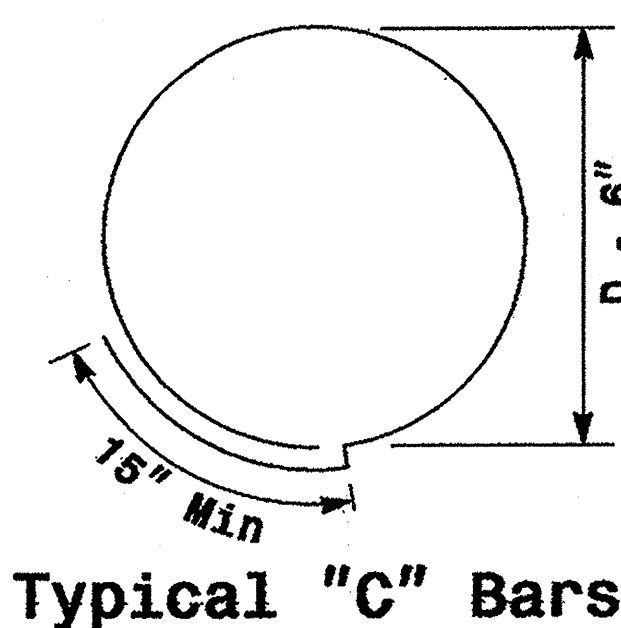
	<p>Construction Details Strain Poles</p>		<p>SEAL</p>
	<p>PLAN DATE: May 2005 REVIEWED BY: P.L. ALEXANDER</p>	<p>PREPARED BY: C.F. ANDREWS REVIEWED BY: D.C. SARKAR</p>	
<p>SCALE: NONE</p>	<p>SIG. INVENTORY NO.</p>		

Reinforcing Steel Bars



REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (42" & 48" DIAMETER)						
Shaft Dia (in.)	Conc. Volume (cu. yds.)	Bar Name	No.	Size	Type	Length
42"	.356 x L	V1	9	#8	STR.	**
		C	*	#4	CIR.	10'-9"
48"	.465 x L	V1	12	#8	STR.	**
		C	*	#4	CIR.	12'-6"

* See Note No. 1
** See Note No. 3



REINFORCING STEEL TABLE FOR STANDARD 42" and 48" DRILL PIER SHAFT WITH TYPE 1 AND TYPE 2 WING WALLS						
Wing Wall Type	Drill Pier Shaft Dia. (in.)	Reinforcing Steel				
		Bar Name	No.	Size	Type	Length
TYPE 1	42"	V1	9	#8	STR.	**
		V2	12	#4	STR.	2'-6"
		H	8	#4	STR.	6'-0"
		C	*	#4	CIR.	10'-9"
TYPE 2	42"	V1	9	#8	STR.	**
		V2	16	#4	STR.	4'-6"
		H	12	#4	STR.	9'-0"
		C	*	#4	CIR.	10'-9"
TYPE 2	48"	V1	12	#8	STR.	**
		V2	16	#4	STR.	4'-6"
		H	12	#4	STR.	9'-6"
		C	*	#4	CIR.	12'-6"

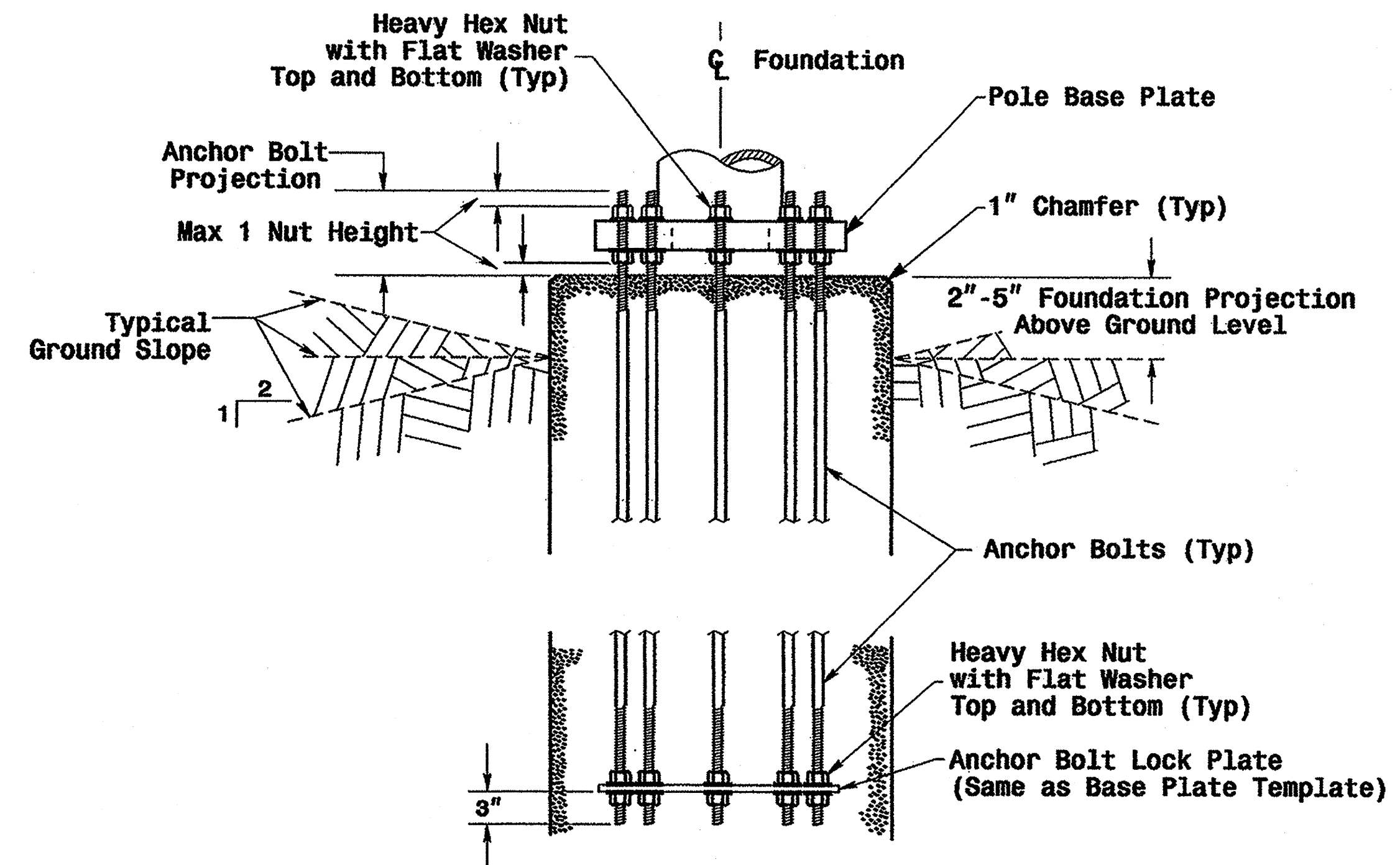
* See Note No. 1
** See Note No. 3

WING WALL DETAILS				
Wing Wall Type	Wing Wall Length (Ft.)	Wing Wall Width (Ft.)	Wing Wall Depth (Ft.)	Concrete Volume (Cu. Yds.)
TYPE 1	1'-6"	1'-0"	3'-0"	.4
TYPE 2	3'-0"	1'-0"	5'-0"	1.2

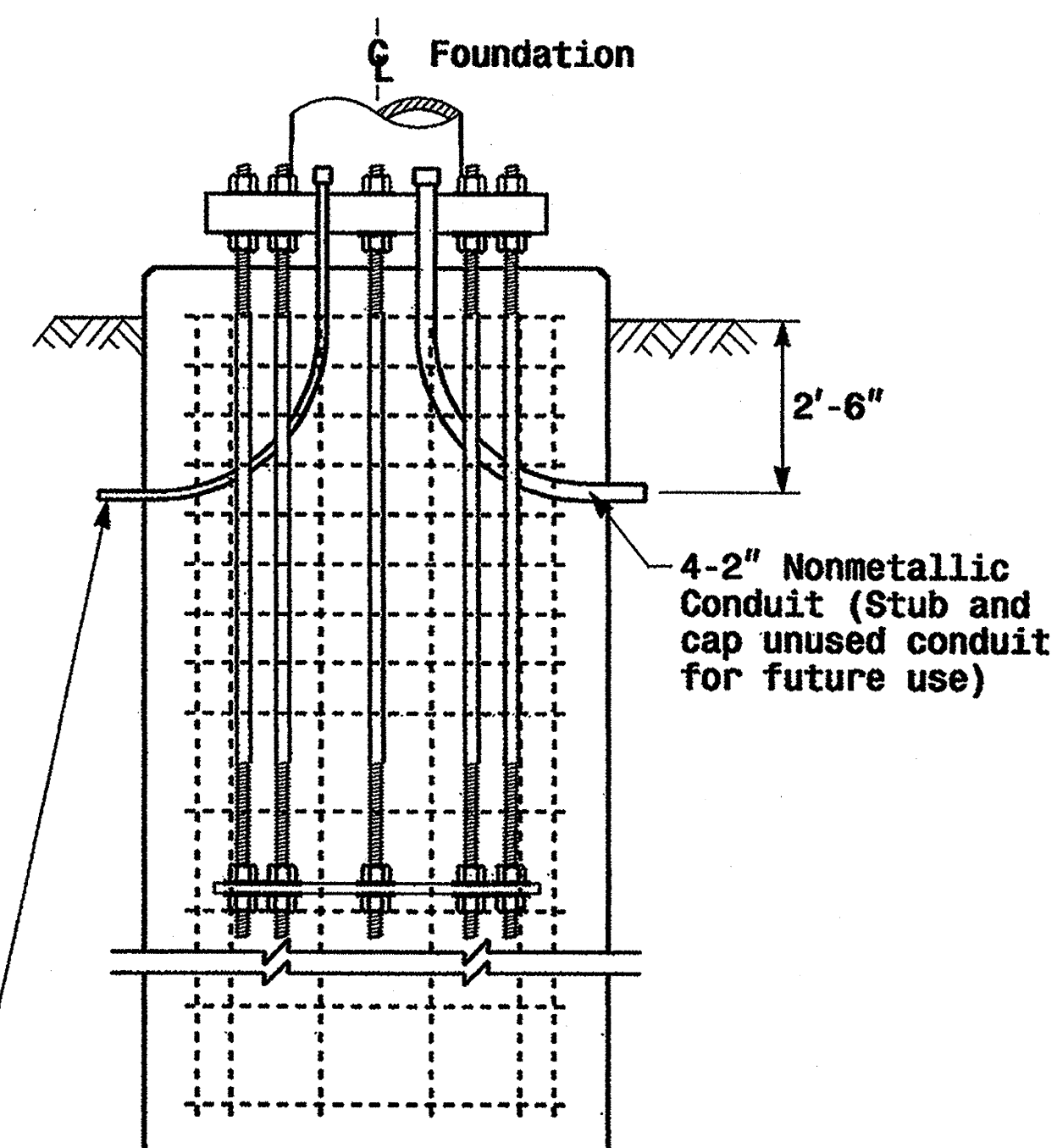
See Note No. 4

Typical Foundation Anchor Bolt Details

(Reinforcing Cage Not Shown for Clarity)



Typical Foundation Conduit Details



Notes

- The number of C-bars is based on foundation depth. For standard foundations, see sheet M 8.
- Circular tie reinforcing rings may be vertically adjusted by +/- 3" at a depth between 2'-0" and 3'-0" to facilitate the installation of electrical conduit entering in the cage.
- The length of V1-bars is based on foundation depth. For standard foundations, see sheet M 8.
- The quantities for steel and concrete shown in the Wing Wall Details Chart reflect the amount of material for 1 pair of wing walls (2 wing walls per drilled pier shaft.)

Construction Details - Foundations

PROJECT REFERENCE NO. U-4011 SHEET NO. Sig.13 M 7

Prepared in the Office of:

Construction Details Foundations

PLAN DATE: May 2005 REVIEWED BY: P.L. ALEXANDER
 PREPARED BY: C.F. ANDREWS REVIEWED BY: A.M. ESPOSITO

SCALE: 0 NA NONE

REVISIONS: _____ INIT. DATE _____

Signature: *A. Sarker* 9.2.2005
 DATE: _____
 SIG. INVENTORY NO. _____

		STANDARD STRAIN POLES				STANDARD FOUNDATIONS 42" Diameter Drilled Pier Length (L) - Feet						
		Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Moment at the Pole Base (ft-kp)	Clay				Sand		
						Medium N-Value 4-8	Stiff N-Value 9-15	Very Stiff N-Value 16-30	Hard N-Value >30	Loose N-Value 4-10	Medium N-Value 11-30	Dense N-Value >30
WIND ZONE 1	LIGHT	S26L3	26	25	280	20.5	14.0	11.5	9.5	18.0	16.0	14.0
		S30L3	30	25	310	21.0	14.5	11.5	9.5	18.5	16.5	14.5
		S35L3	35	25	350	22.5	15.0	12.0	10.0	19.5	17.5	15.5
	HEAVY	S30H3	30	29	450	25.5	16.5	13.0	11.0	21.0	18.5	16.5
		S35H3	35	29	540	26.0	17.0	13.5	11.5	22.0	19.5	17.0
	WIND ZONE 2	LIGHT	S26L2	26	23	250	19.5	13.5	11.0	9.0	18.0	15.5
S30L2			30	23	290	20.0	14.0	11.5	9.5	18.5	16.0	14.0
S35L2			35	23	315	21.0	14.5	11.5	9.5	19.0	16.5	14.5
HEAVY		S30H2	30	29	415	24.5	16.0	13.0	10.5	21.0	18.5	16.0
		S35H2	35	29	485	25.5	16.5	13.5	11.0	21.5	19.0	16.5
WIND ZONE 3		LIGHT	S26L2	26	23	250	18.5	13.0	10.5	9.0	17.5	15.0
	S30L2		30	23	290	19.5	13.5	11.0	9.0	18.0	15.5	14.0
	S35L2		35	23	315	20.0	14.0	11.5	9.5	18.5	16.0	14.5
	HEAVY	S30H2	30	29	415	23.0	15.5	12.5	10.0	20.5	17.5	16.0
		S35H2	35	29	485	24.0	16.0	13.0	10.5	21.0	18.0	16.5
	WIND ZONE 4	LIGHT	S26L1	26	22	195	18.0	13.0	10.5	9.0	16.5	14.5
S30L1			30	22	225	18.5	13.0	10.5	9.0	17.0	15.0	13.5
S35L1			35	22	255	19.0	13.5	11.0	9.0	17.5	15.5	14.0
HEAVY		S30H1	30	25	330	22.0	15.0	12.0	9.5	19.5	17.0	15.0
		S35H1	35	25	385	23.0	15.5	12.5	10.0	20.0	17.5	15.5
WIND ZONE 5		LIGHT	S26L2	26	23	250	19.0	13.5	10.5	9.0	17.5	15.5
	S30L2		30	23	290	20.0	14.0	11.0	9.5	18.0	16.0	14.0
	S35L2		35	23	315	21.0	14.5	11.5	10.0	19.0	16.5	14.5
	HEAVY	S30H2	30	29	415	23.5	15.5	12.5	10.5	21.0	18.0	16.0
		S35H2	35	29	485	25.0	16.5	13.0	11.0	21.5	18.5	16.5

Concrete Volume (cubic yards) = .356 X L

Fabrication Design Notes:

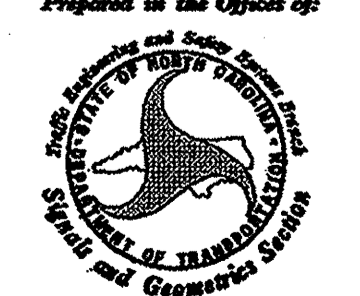

1. Values shown in "Moment at the Pole Base" column represents the minimum acceptable capacity allowable for design using a design CSR of 1.
2. Base plate thickness (T) is 2.0 inches.

Foundation Selection:

1. Perform a standard penetration test at each proposed foundation site to determine "N" value.
2. Select the appropriate wind zone from sheet M 1.
3. Select the soil type (Clay or Sand) that best describes the soil characteristics.
4. Get the appropriate pole case load number from the plans or from the Engineer.
5. Select the appropriate column in the chart based on soil type and "N" value. Select the appropriate row based on the pole load case. The foundation depth is the value where the column and the row intersect.

Standard Strain Poles

02-SEP-2005 12:42 \\nt\work\cupes2004\mstr\pole_standards\004_m8_std_strain_pole.dgn polalexander

	Standard Strain Poles and Standard Foundations		
	PLAN DATE: May 2005	REVIEWED BY: C.F. Andrews	
222 N. McDowell St., Raleigh, NC 27603	PREPARED BY: P.L. Alexander	REVIEWED BY: A.M. Esposito	SIGNATURE: <i>D. Sarkar</i>
SCALE: None	REVISIONS: _____	INIT.: _____	DATE: 9.2.2005

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

11-08

INDUCTIVE DETECTION LOOPS
ENGLISH DETAIL DRAWING FOR

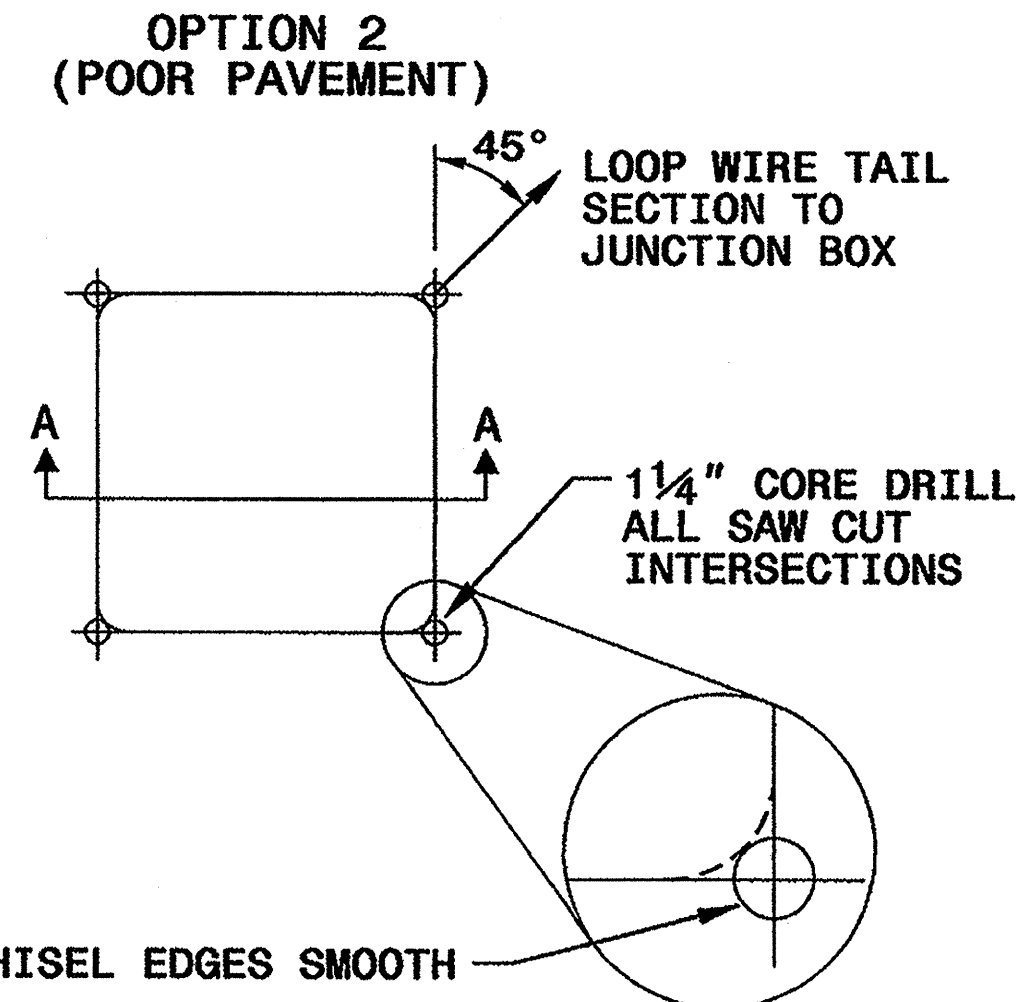
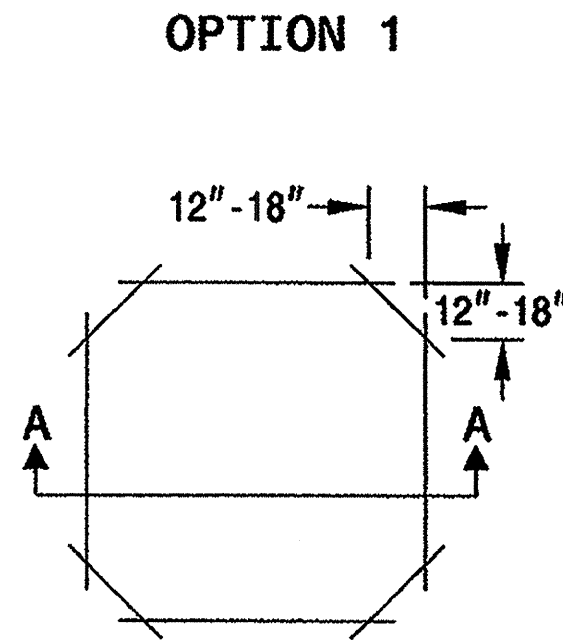
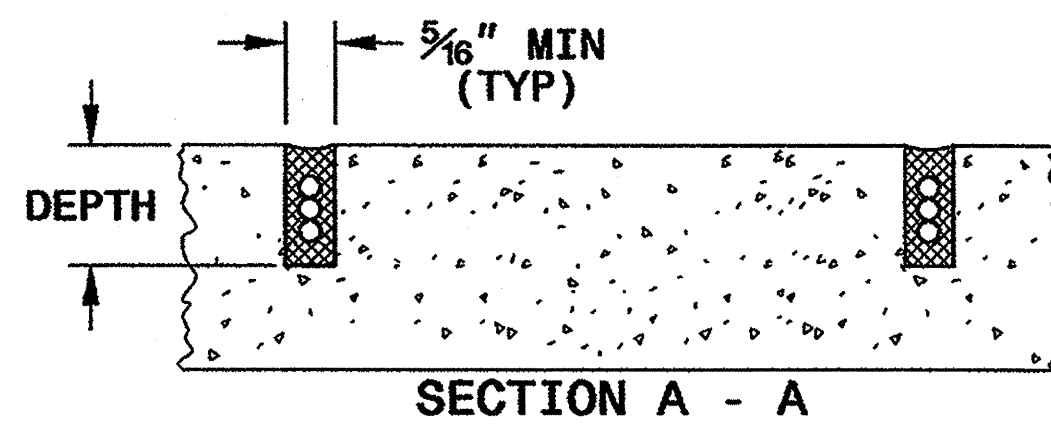
SHEET 1 OF 3
1725D01

CONVENTIONAL 4-SIDED LOOP

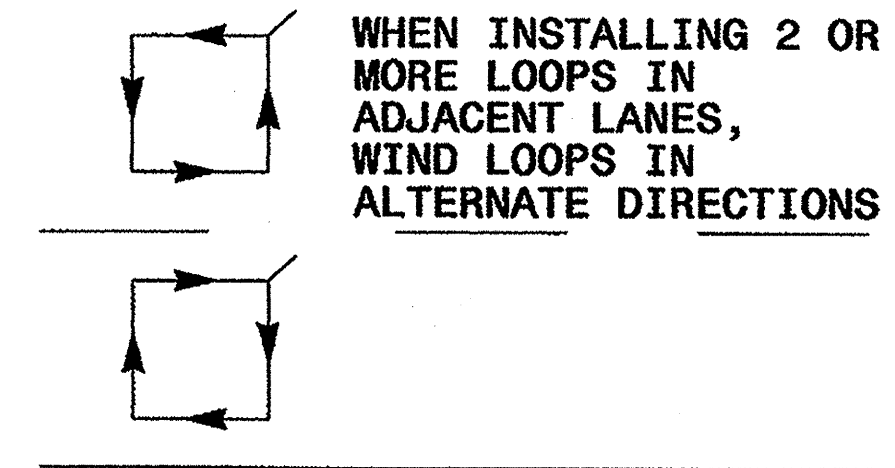
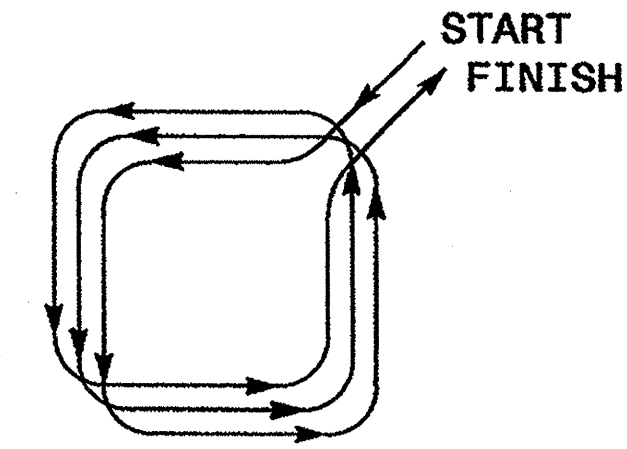
SAW CUT OPTIONS

SAW SLOT DEPTH CHART

DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0

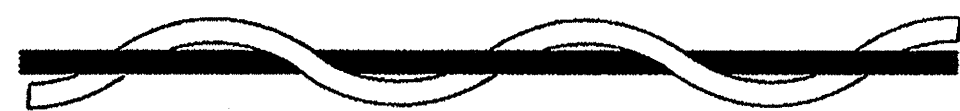


LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE



CORRECT WAY TO TWIST WIRE

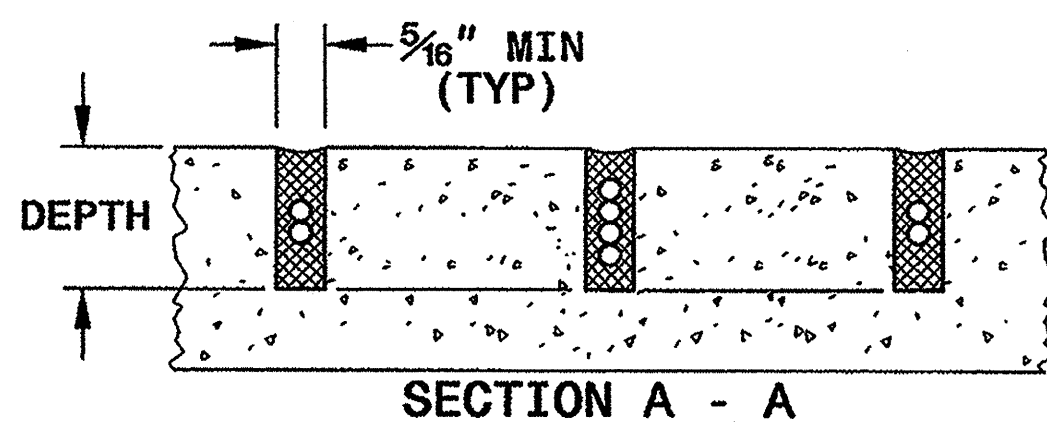
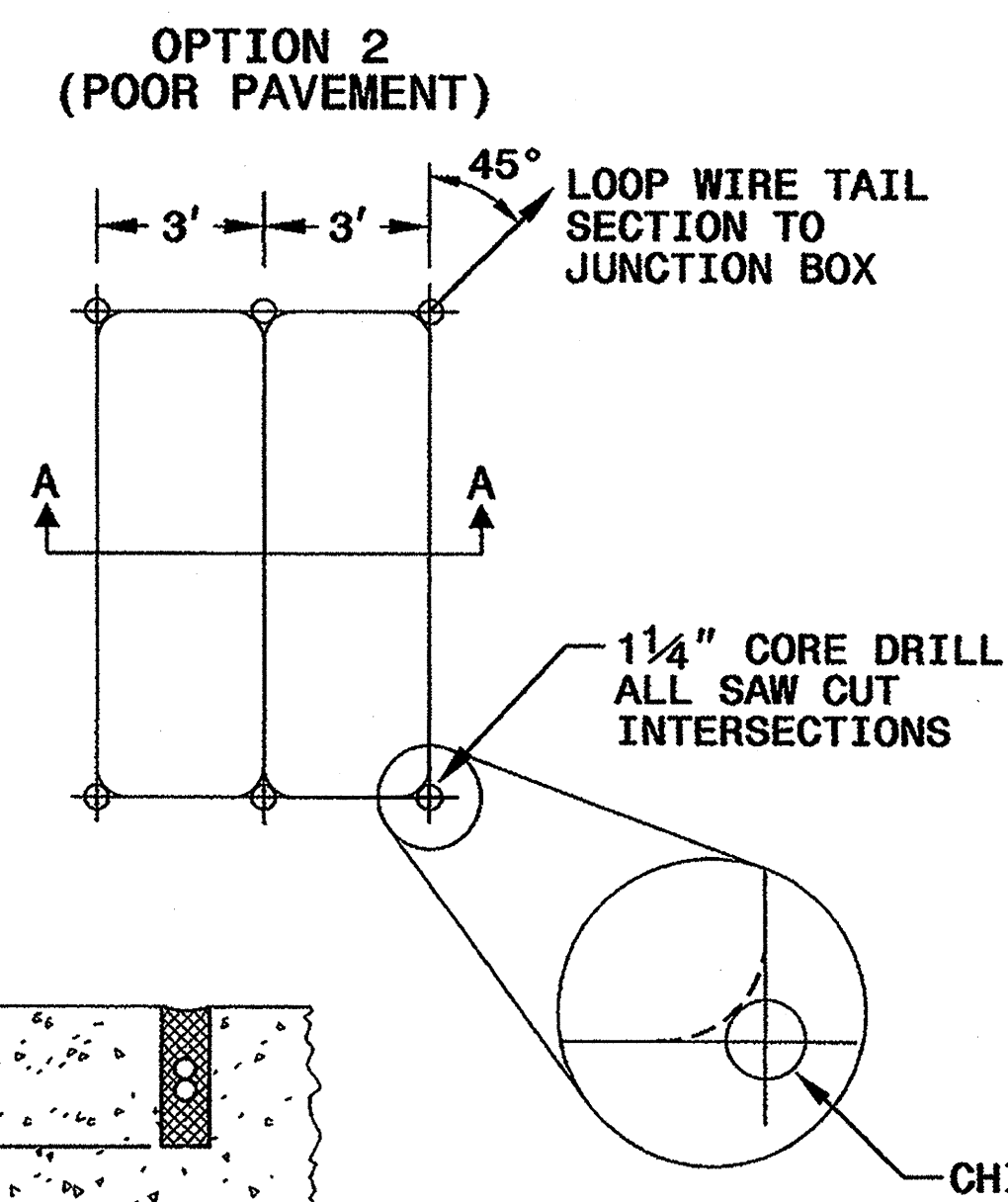
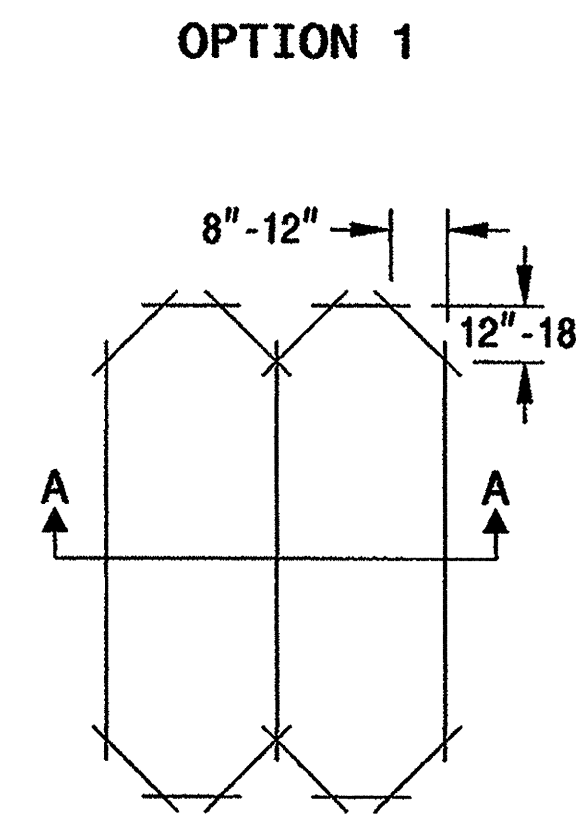


NOTES

1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

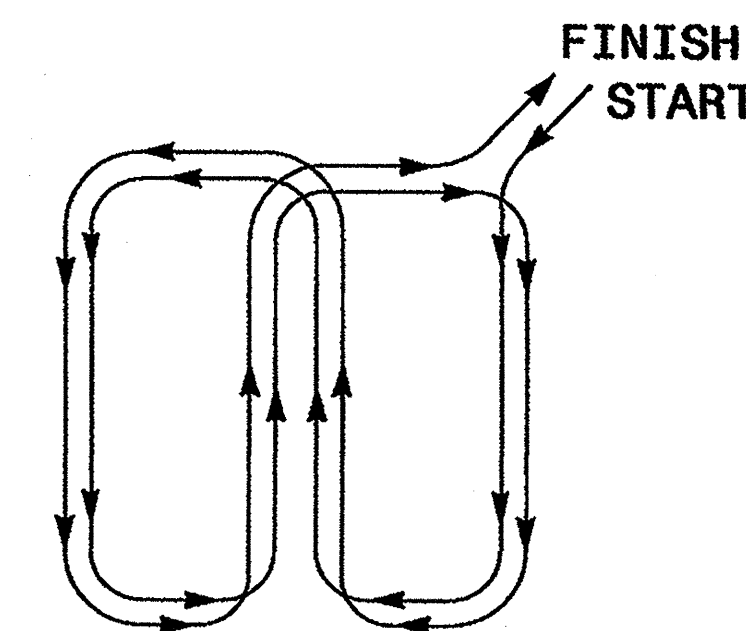
QUADRUPOLE LOOP

SAW CUT OPTIONS



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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INDUCTIVE DETECTION LOOPS
ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

SIGNATURE DATE
11/24/08

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

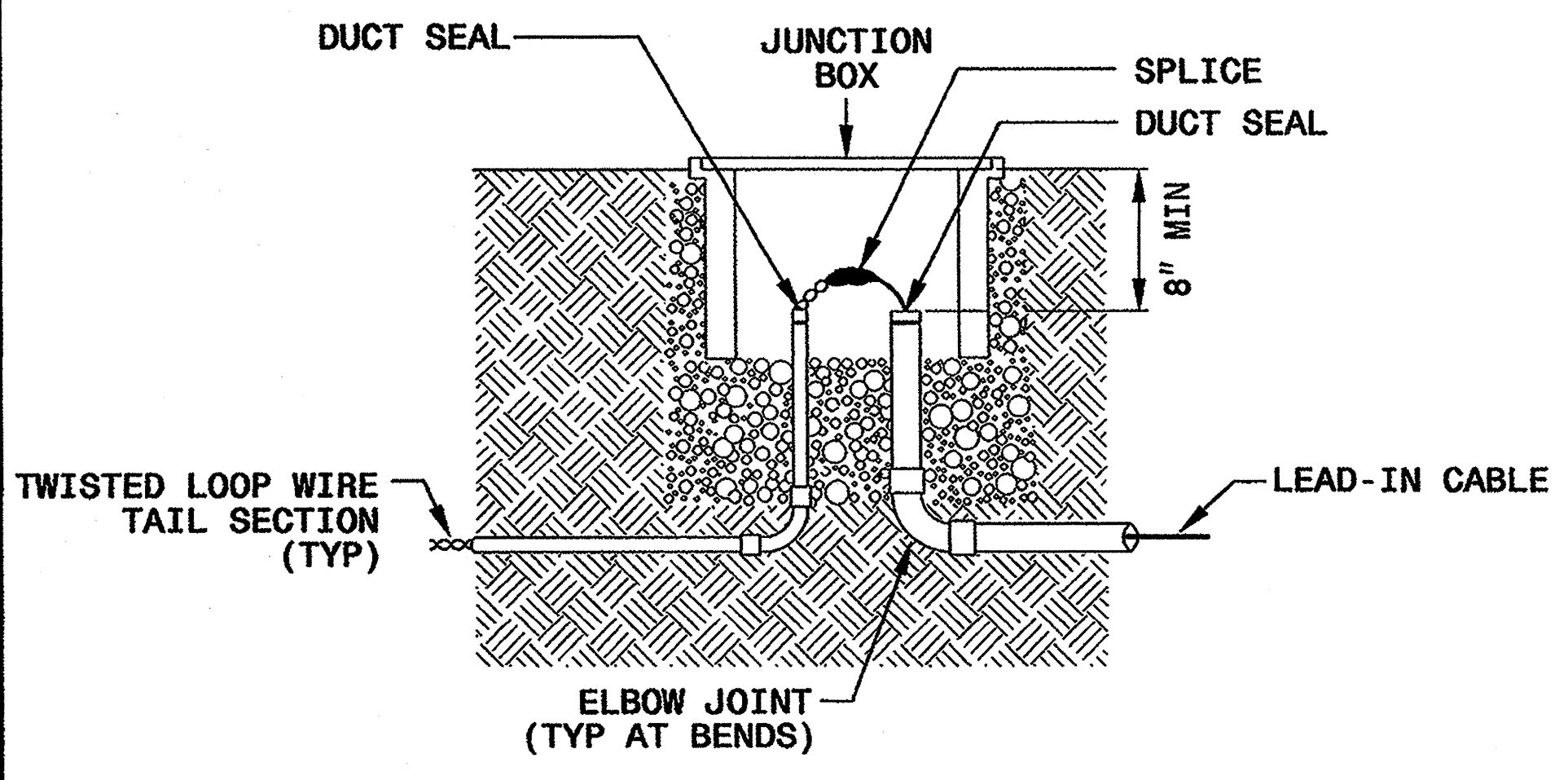
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

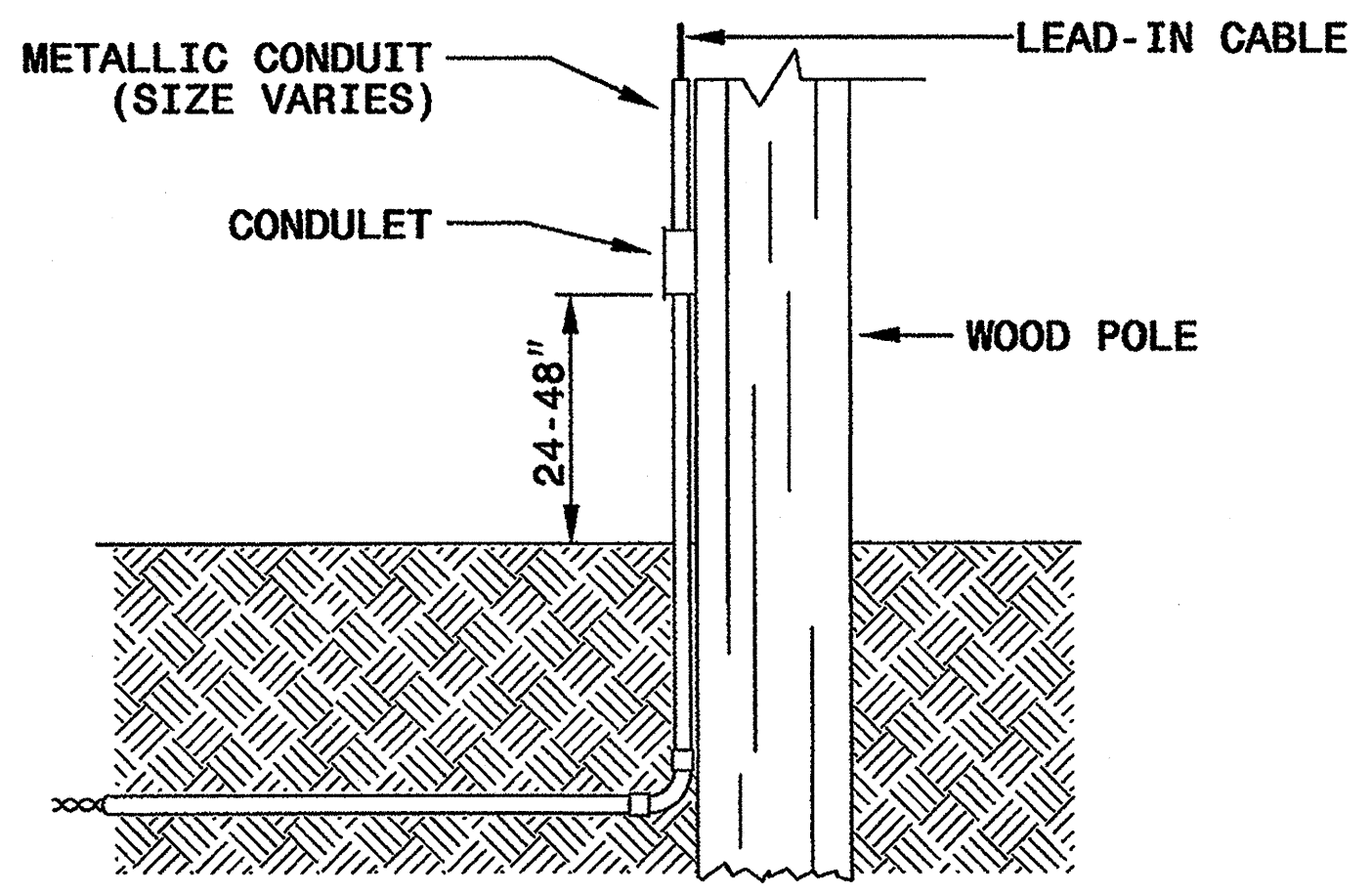
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

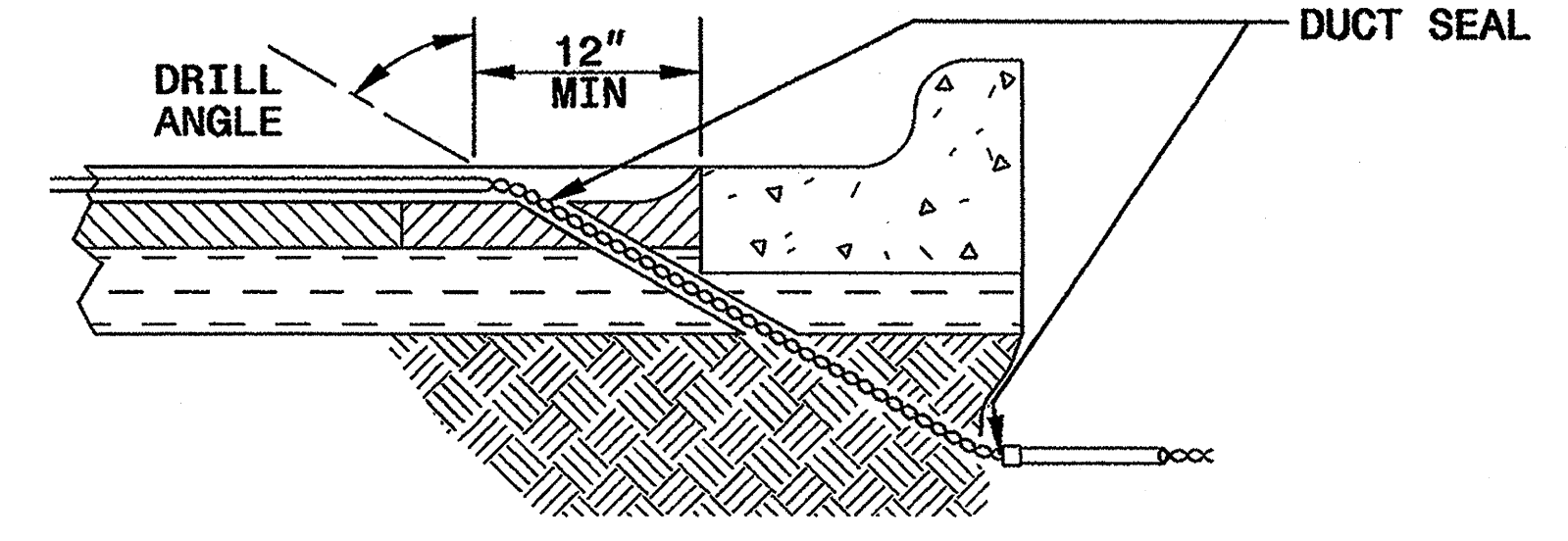


NOTE

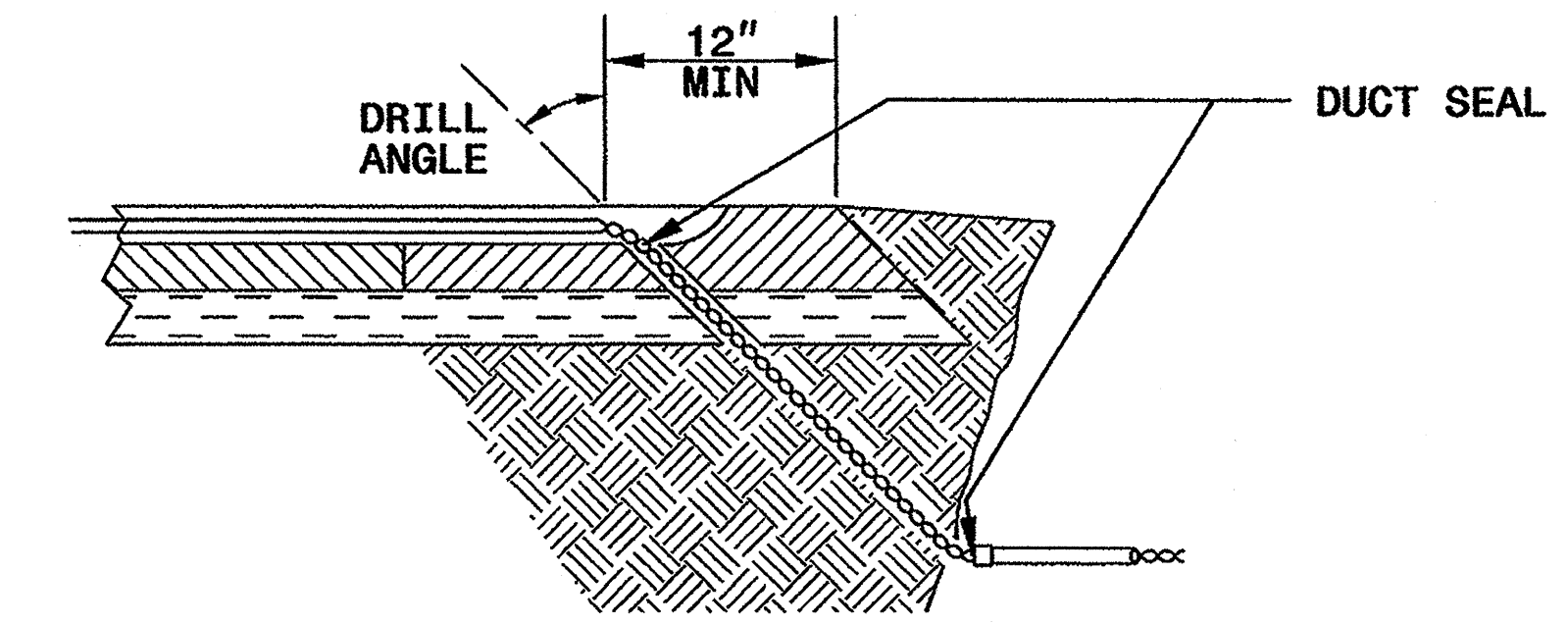
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

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

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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

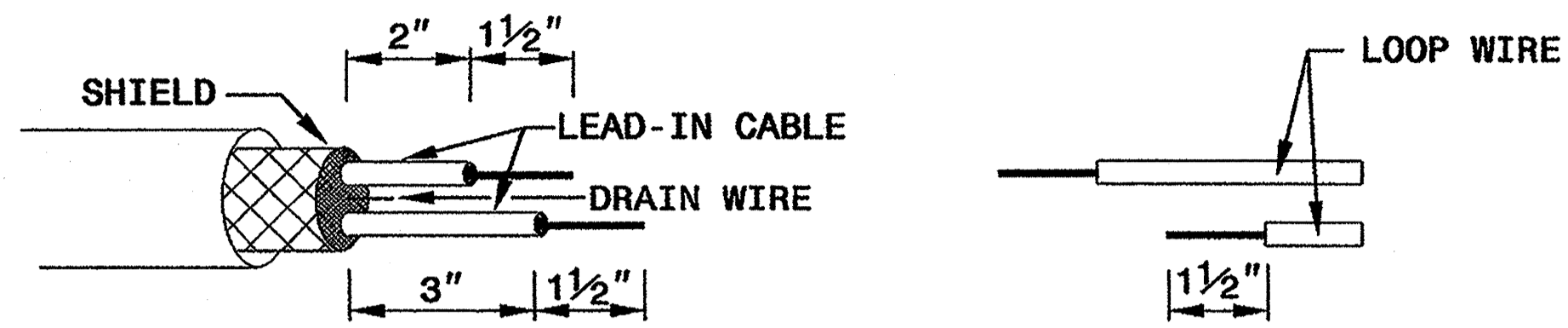
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

11-08

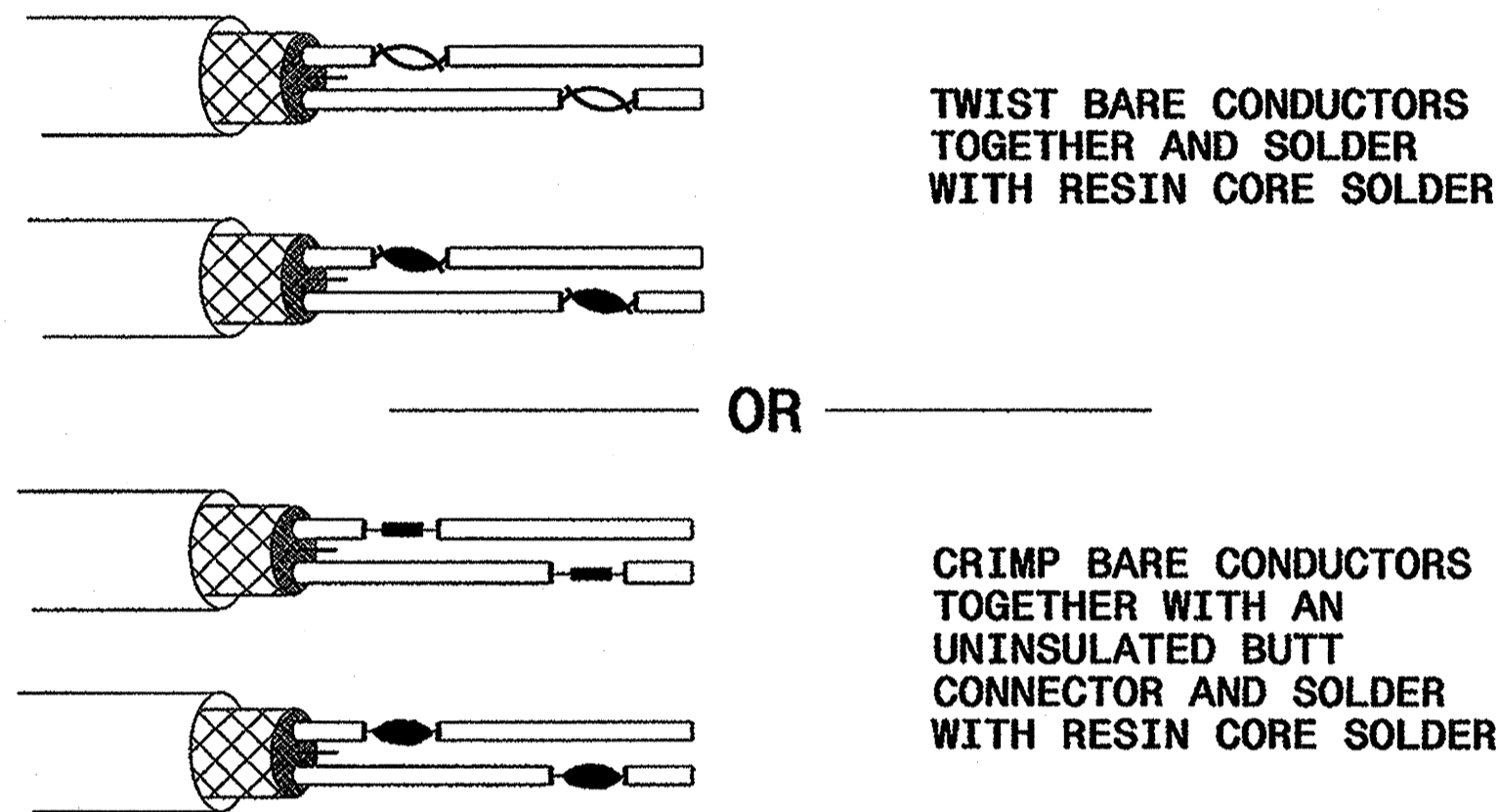
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

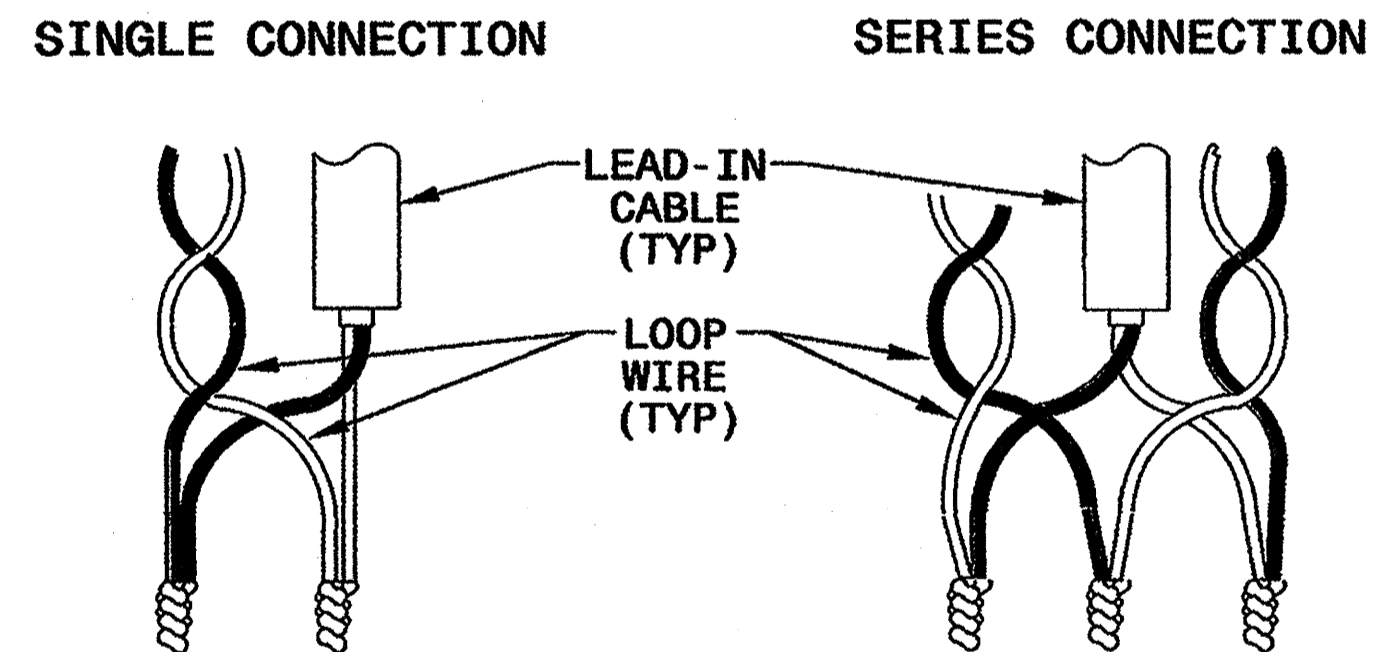


STEP 2. CONNECT AND SOLDER

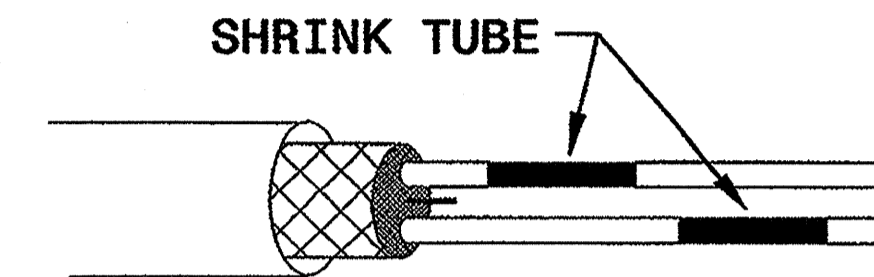


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

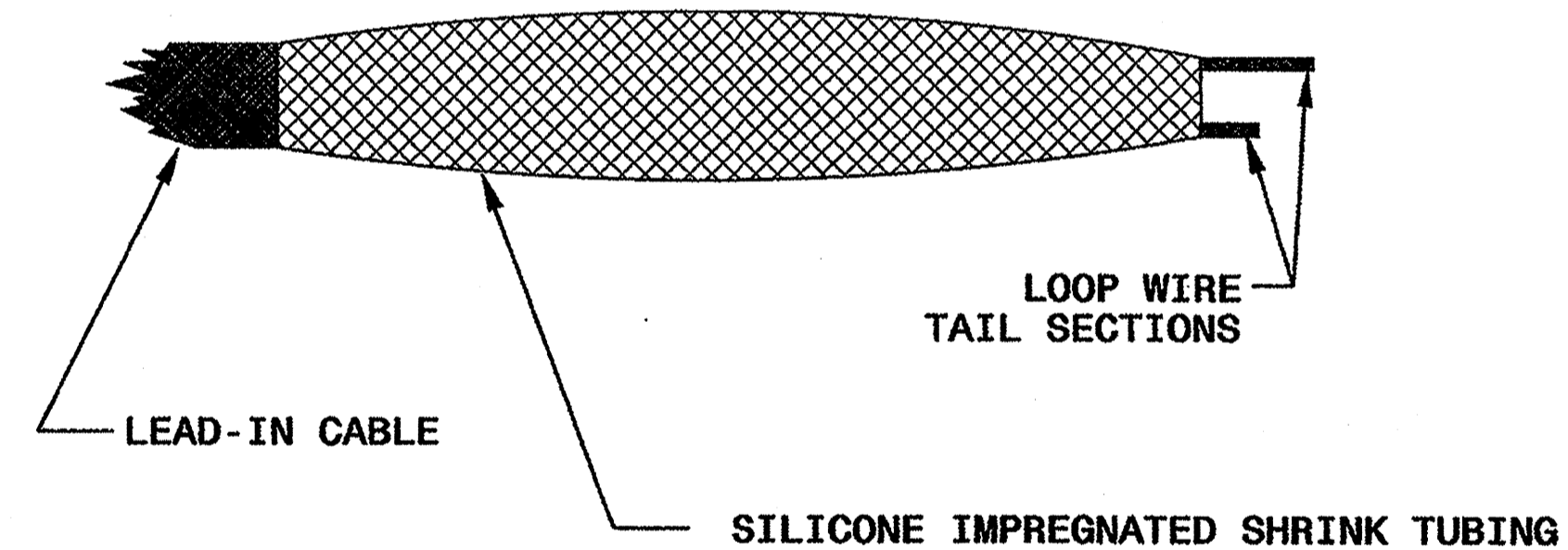
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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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 1/24/08
SIGNATURE DATE

- 1 INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL REA, PE - 38, (FIGURE 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 3 INSTALL REA, PE - 39, (UNDERGROUND) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 27 INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPlice CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPlice ENCLOSURE
- 30 INSTALL AERIAL SPlice ENCLOSURE
- 31 INSTALL POLE MOUNTED SPlice CABINET
- 32 INSTALL BASE MOUNTED SPlice CABINET
- 33 REMOVE EXISTING SPlice CABINET

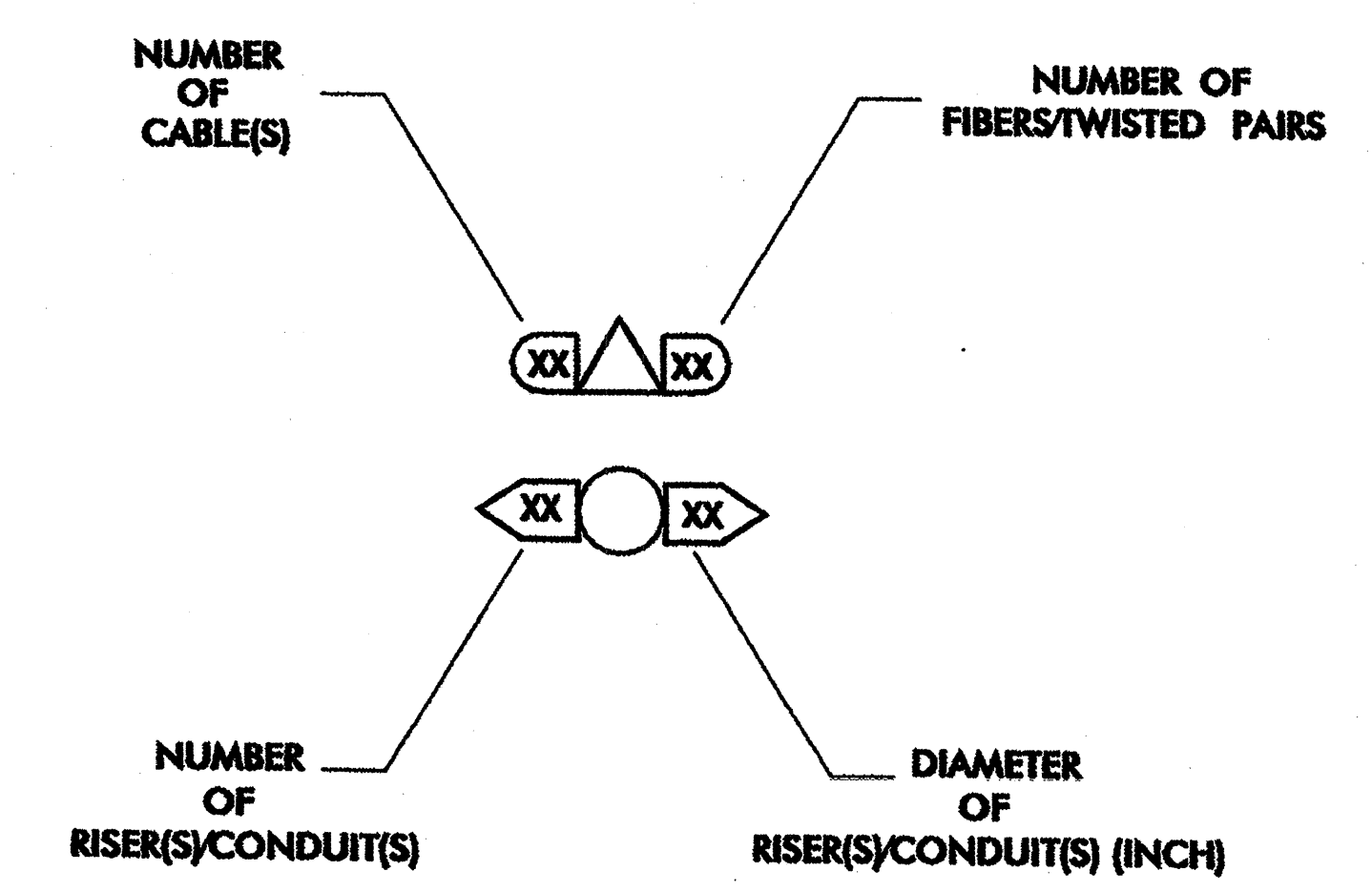
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 49 REMOVE EXISTING MESSENGER CABLE
- 50 INSTALL TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 20 FEET OF COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE

LEGEND

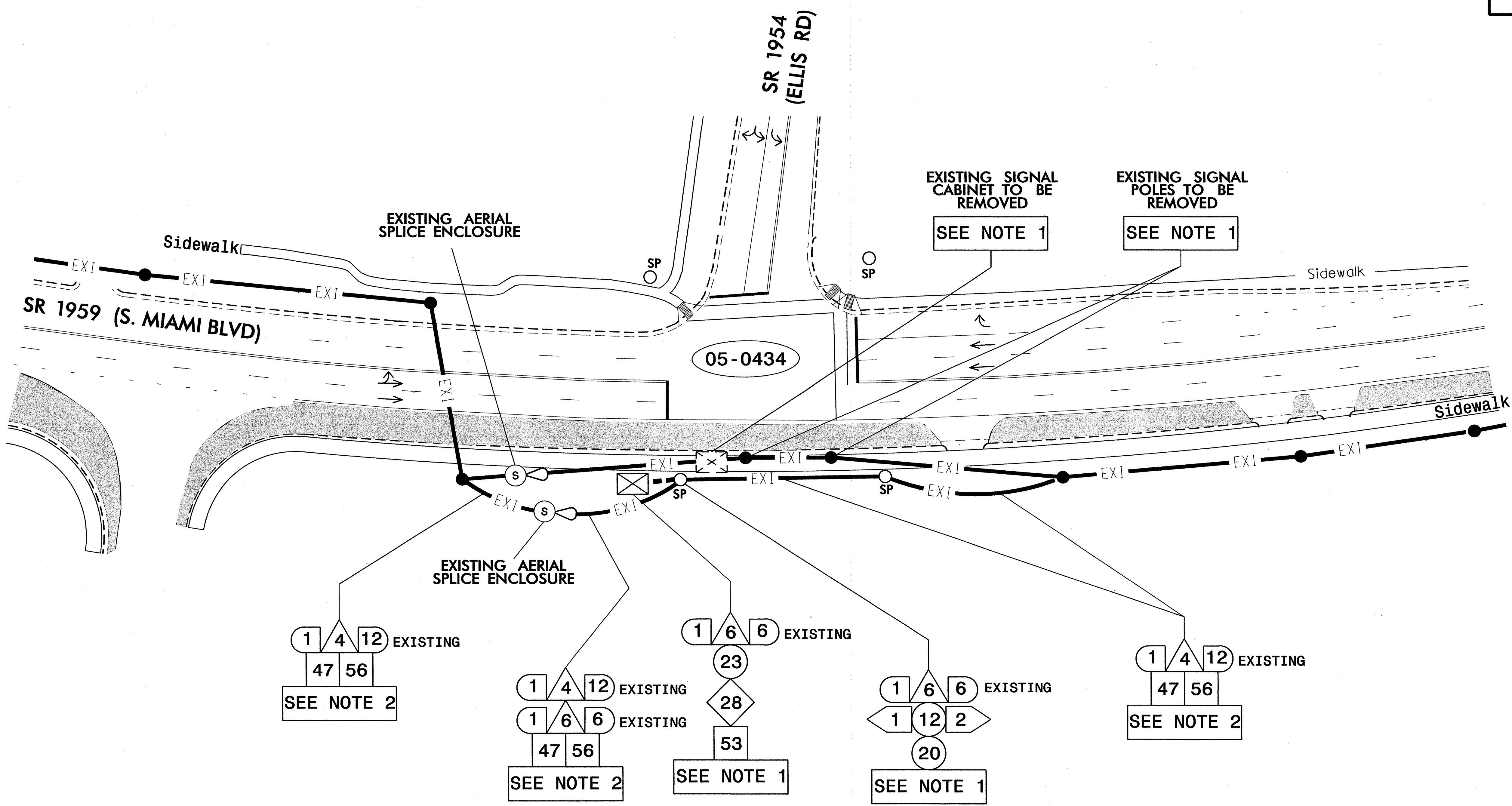
- FO NEW FIBER OPTIC COMMUNICATIONS CABLE
- TWIST PR NEW TWISTED PAIR COMMUNICATIONS CABLE
- EXI EXISTING COMMUNICATIONS CABLE
- REM EXISTING COMMUNICATIONS CABLE TO BE REMOVED
- NEW AERIAL GUY ASSEMBLY
- NEW CONDUIT
- EXISTING CONDUIT
- DD NEW DIRECTIONAL DRILLED CONDUIT
- B&J NEW BORED AND JACKED CONDUIT
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- AERIAL SPICE ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV ASSEMBLY
- NEW STANDARD GUY ASSEMBLY
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CONTROLLER AND CABINET
- EXISTING SPICE CABINET
- NEW SPICE CABINET
- SP SIGNAL POLE
- XX-XXXX SIGNAL INVENTORY NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

- XX INDICATES NUMBER OF CABLES, LOOPS, ETC.
- XX INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- XX INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- XX INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)



	CONSTRUCTION NOTES		
	PLAN DATE: _____ PREPARED BY: _____ SCALE: _____	REVIEWED BY: _____ REVIEWED BY: G. A. FULLER DATE: _____	
222 N. McDowell St., Raleigh, NC 27603			SIGNATURE: _____ DATE: 10/31/02 CADD Filenotes: _____

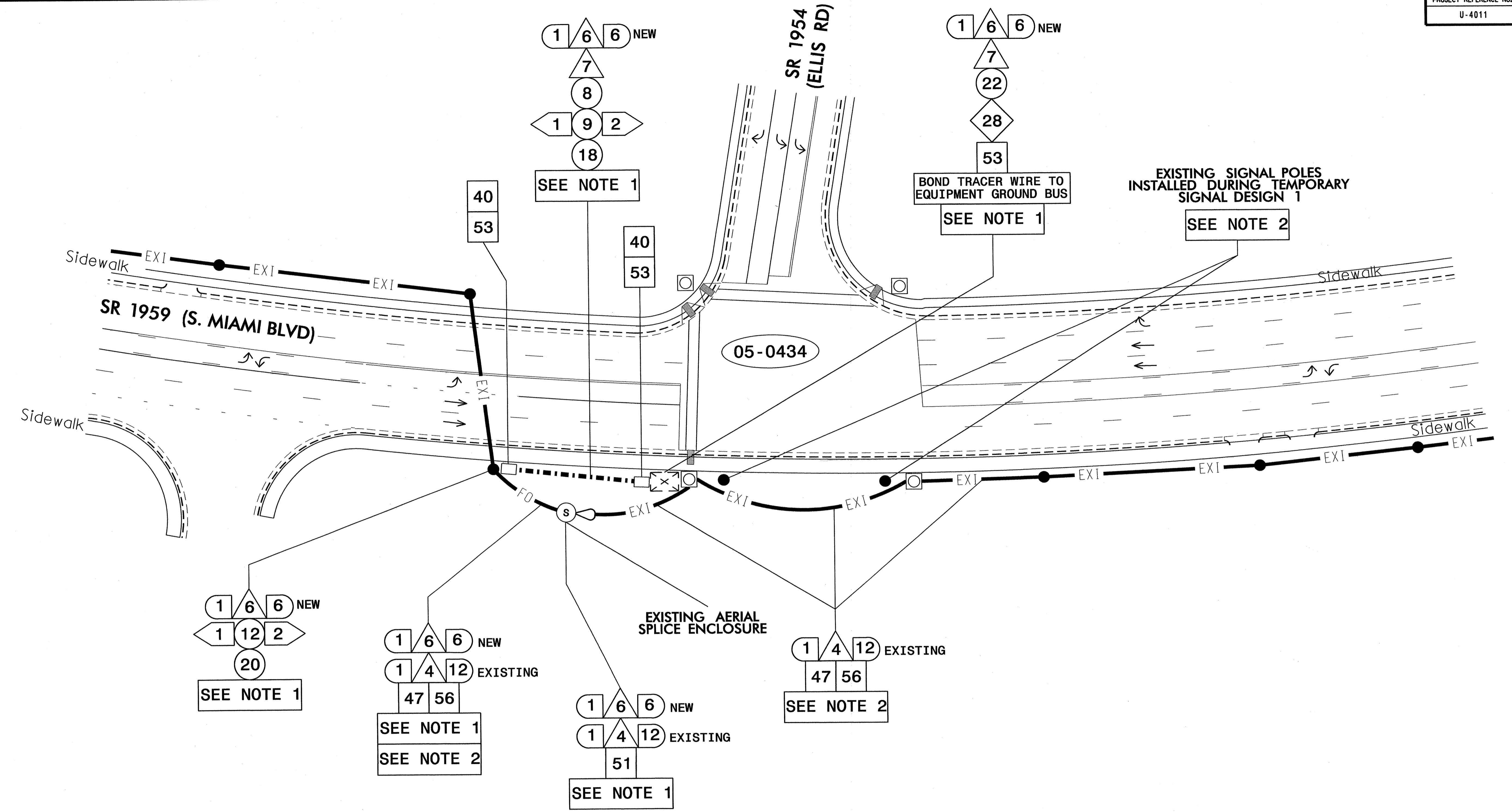


NOTES:

1. REMOVE EXISTING 6 FIBER DROP CABLE FROM EXISTING CABINET AND COIL AT SPLICE ENCLOSURE FOR FUTURE USE. CAP AND SEAL ALL FIBERS USING SILICONE HEAT SHRINK OR AN APPROVED EQUIVALENT TO PREVENT WATER PENETRATION. WHEN NEW SIGNAL CABINET IS INSTALLED, RE-INSTALL EXISTING DROP CABLE TO CABINET AND TERMINATE IN NEW INTERCONNECT CENTER.
2. RELOCATE EXISTING 12 FIBER TRUNK CABLE TO NEW SIGNAL POLES AS SHOWN.
2. CONTRACTOR TO CONTACT LARRY McGLOTHLIN, CITY OF DURHAM TRAFFIC ENGINEER (919-560-4366), PRIOR TO BEGINNING WORK ON SYSTEM SPLICING. PROVIDE 5 DAYS ADVANCE NOTICE PRIOR TO BEGINNING WORK.
3. RECORD AND PROVIDE TO THE ENGINEER DOCUMENTATION OF EXISTING SPLICES IN BOTH THE EXISTING SPLICE ENCLOSURE AND THE EXISTING SIGNAL CABINET (SIN #05-0434) PRIOR TO REMOVAL OF ANY SPLICES.
4. FOR INSTALLATION OF NEW INTERCONNECT CENTER, COMPARE SPLICE CONFIGURATION DATA RECORDED PREVIOUSLY TO THE SPLICE PLANS. IF THERE ARE VARIATIONS, SPLICE BACK ACCORDING TO EXISTING FIELD DATA TAKEN PRIOR TO REMOVAL.

TEMPORARY SIGNAL DESIGN 1 (CONSTRUCTION PHASE 1)

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG SR 1959 (S. MIAMI BLVD)		
	DIVISION 05 DURHAM COUNTY DURHAM PLAN DATE: MAY 2010 REVIEWED BY: I.N. AVERY PREPARED BY: S.C. WARDLE REVIEWED BY: G.A. FULLER	REVISIONS: _____ INIT.: _____ DATE: _____ _____ _____ _____	
SCALE: 0 _____		SIGNATURE: _____ DATE: _____ CADD FILE NAME: _____	



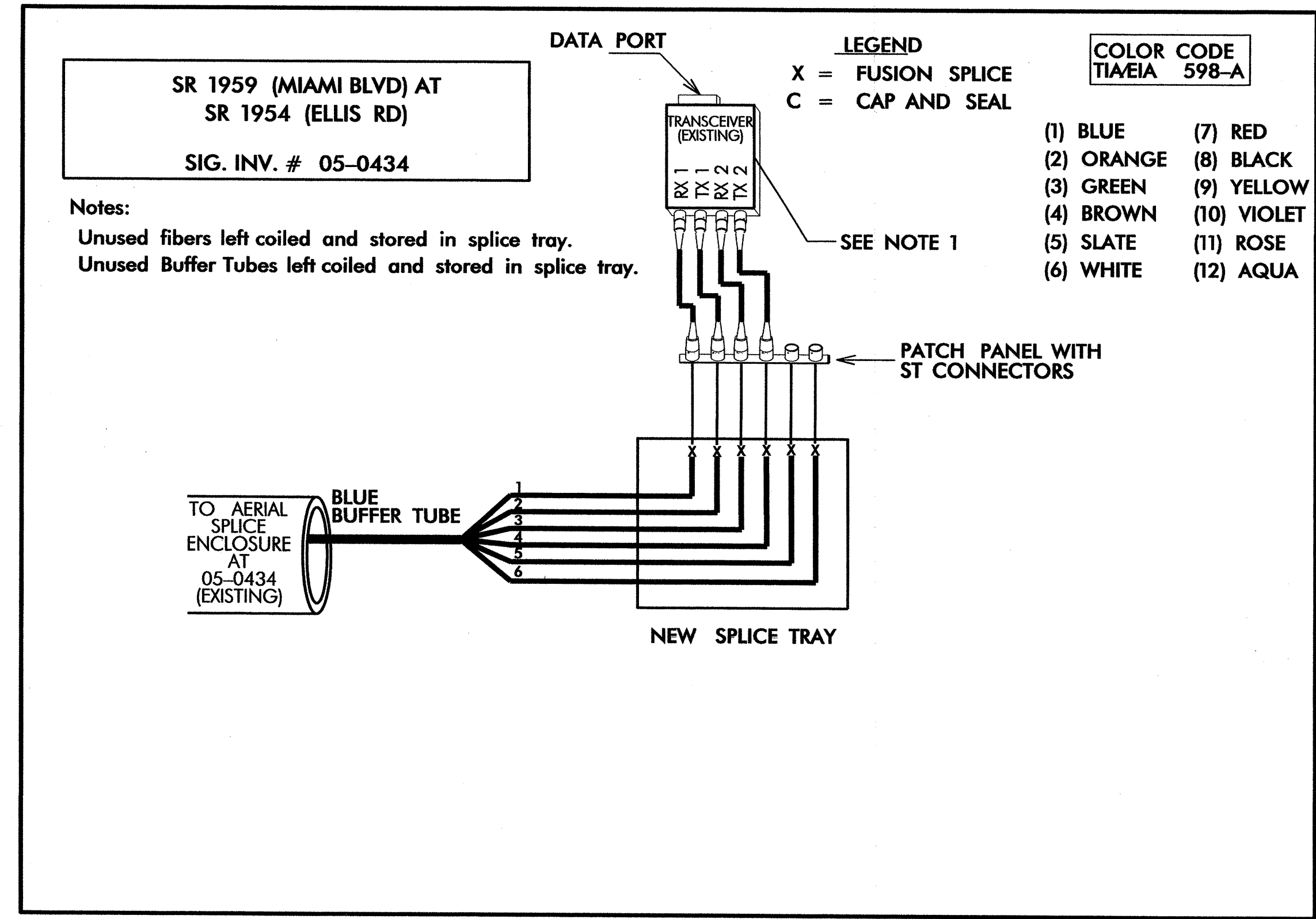
NOTES:

1. REMOVE EXISTING 6 FIBER DROP CABLE FROM SIGNAL CABINET AND DISCARD. INSTALL NEW 6 FIBER DROP CABLE IN EXISTING AERIAL SPLICE ENCLOSURE AND RUN UNDERGROUND INTO CABINET VIA NEW CONDUIT. STORE 100 FEET OF SPARE DROP CABLE ON EXISTING SNOW SHOE. DO NOT ATTACH NEW DROP CABLE TO METAL SIGNAL POLES.
2. RELOCATE EXISTING 12 FIBER TRUNK CABLE FROM EXISTING WOOD SIGNAL POLES TO NEW METAL SIGNAL POLES AS SHOWN.
2. CONTRACTOR TO CONTACT LARRY McGLOTHLIN, CITY OF DURHAM TRAFFIC ENGINEER (919-560-4366), PRIOR TO BEGINNING WORK ON SYSTEM SPlicing. PROVIDE 5 DAYS ADVANCE NOTICE PRIOR TO BEGINNING WORK.
3. RECORD AND PROVIDE TO THE ENGINEER DOCUMENTATION OF EXISTING SPLICES IN BOTH THE EXISTING SPLICE ENCLOSURE AND THE EXISTING SIGNAL CABINET (SIN #05-0434) PRIOR TO REMOVAL OF ANY SPLICES.
4. FOR INSTALLATION OF NEW INTERCONNECT CENTER, COMPARE SPLICE CONFIGURATION DATA RECORDED PREVIOUSLY TO THE SPLICE PLANS. IF THERE ARE VARIATIONS, SPLICE BACK ACCORDING TO EXISTING FIELD DATA TAKEN PRIOR TO REMOVAL.

FINAL SIGNAL DESIGN PHASE

<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>	<p>COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG SR 1959 (S. MIAMI BLVD)</p>		
	<p>DIVISION 05 DURHAM COUNTY DURHAM</p> <p>PLAN DATE: MAY 2010 REVIEWED BY: I. N. AVERY</p> <p>PREPARED BY: S. C. WARDLE REVIEWED BY: G. A. FULLER</p>	<p>REVISIONS</p> <p>INIT. DATE</p>	

FIBER OPTIC CABLE



NOTES:

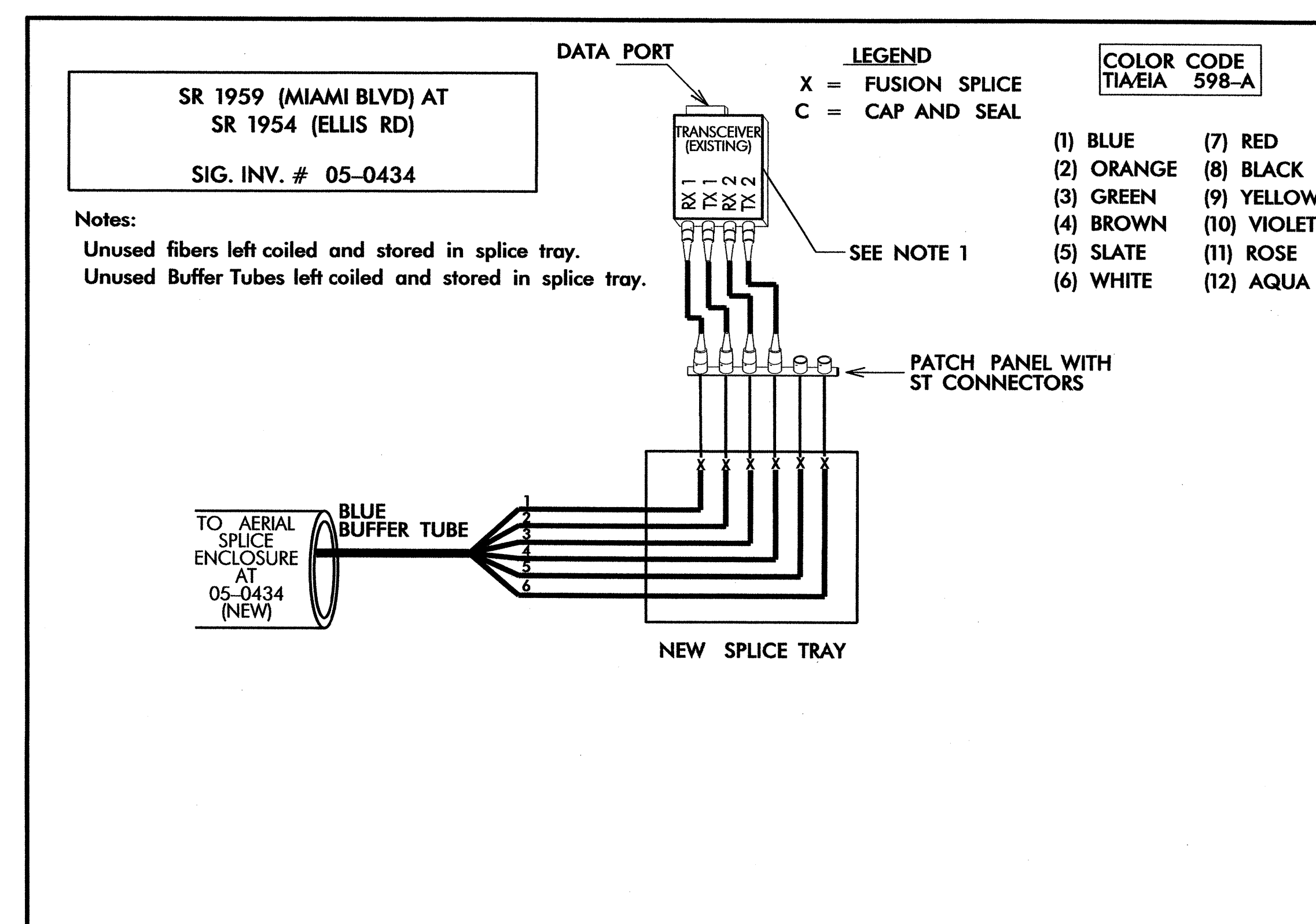
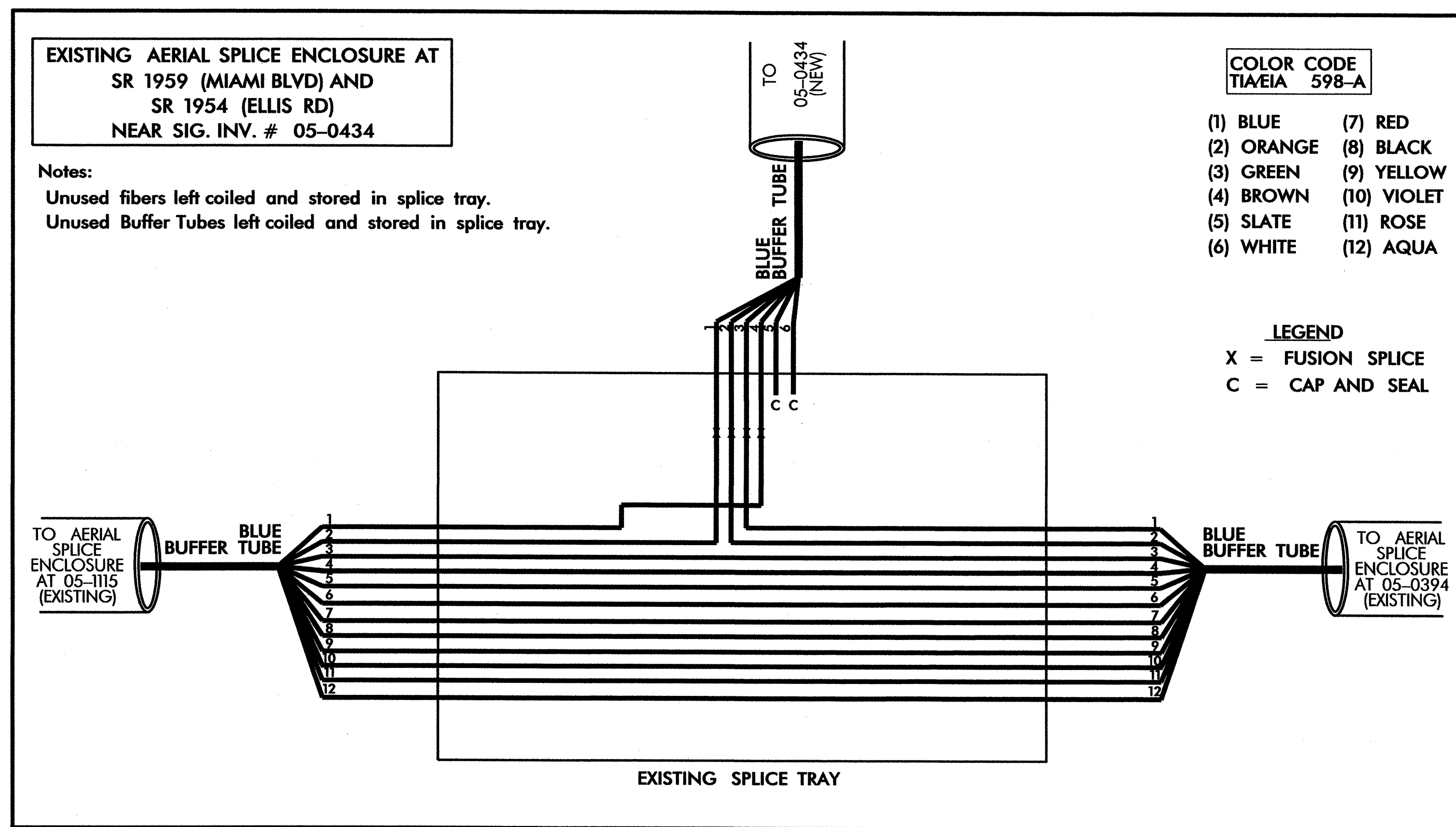
1. RELOCATE EXISTING IFS MODEL D19130 SHR TRANSCEIVER FROM EXISTING SIGNAL CABINET TO NEW CABINET AND INSTALL WITH NEW INTERCONNECT CENTER.
2. CONTRACTOR TO CONTACT LARRY McGLOTHLIN, CITY OF DURHAM TRAFFIC ENGINEER (919-560-4366), PRIOR TO BEGINNING WORK ON SYSTEM SPLICING. PROVIDE 5 DAYS ADVANCE NOTICE PRIOR TO BEGINNING WORK.
3. CONTRACTOR TO RECORD EXISTING SPLICING PRIOR TO REMOVAL OF ANY SPLICES. RESPLICE ACCORDING TO EXISTING SPLICES.

TRANSCIEVER TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS

TEMPORARY SIGNAL DESIGN 1 (CONSTRUCTION PHASE 1)

Prepared in the Offices of: 750 N. Greenfield Place - Garner, NC 27529	SPLICE PLAN		SEAL PROFESSIONAL ENGINEER GREGORY A. FULLER 023919
	DIVISION 05 DURHAM CO. DURHAM		
PLAN DATE: MAY 2010	REVIEWED BY: I.N. AVERY		SIGNATURE: <i>Gregory A. Fuller</i> DATE: 5/26/10
PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER		
SCALE: 0	REVISIONS	INIT.	DATE
CADD File name:			

FIBER OPTIC CABLE



NOTES:

1. REUSE EXISTING IFS MODEL D19130 SHR TRANSCEIVER AND INSTALL WITH NEW INTERCONNECT CENTER.
2. CONTRACTOR TO CONTACT LARRY McGLOTHLIN, CITY OF DURHAM TRAFFIC ENGINEER (919-560-4366), PRIOR TO BEGINNING WORK ON SYSTEM SPLICING. PROVIDE 5 DAYS ADVANCE NOTICE PRIOR TO BEGINNING WORK.
3. CONTRACTOR TO RECORD EXISTING SPLICING PRIOR TO REMOVAL OF ANY SPLICES. RESPLICE ACCORDING TO EXISTING SPLICES.

TRANSCEIVER TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS

FINAL SIGNAL DESIGN PHASE

	SPLICE PLAN		
	DIVISION 05 DURHAM CO. DURHAM		
	PLAN DATE: MAY 2010	REVIEWED BY: I.N. AVERY	
PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER		
SCALE: 0	REVISIONS	INIT.	DATE
		5/28/10 DATE	