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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

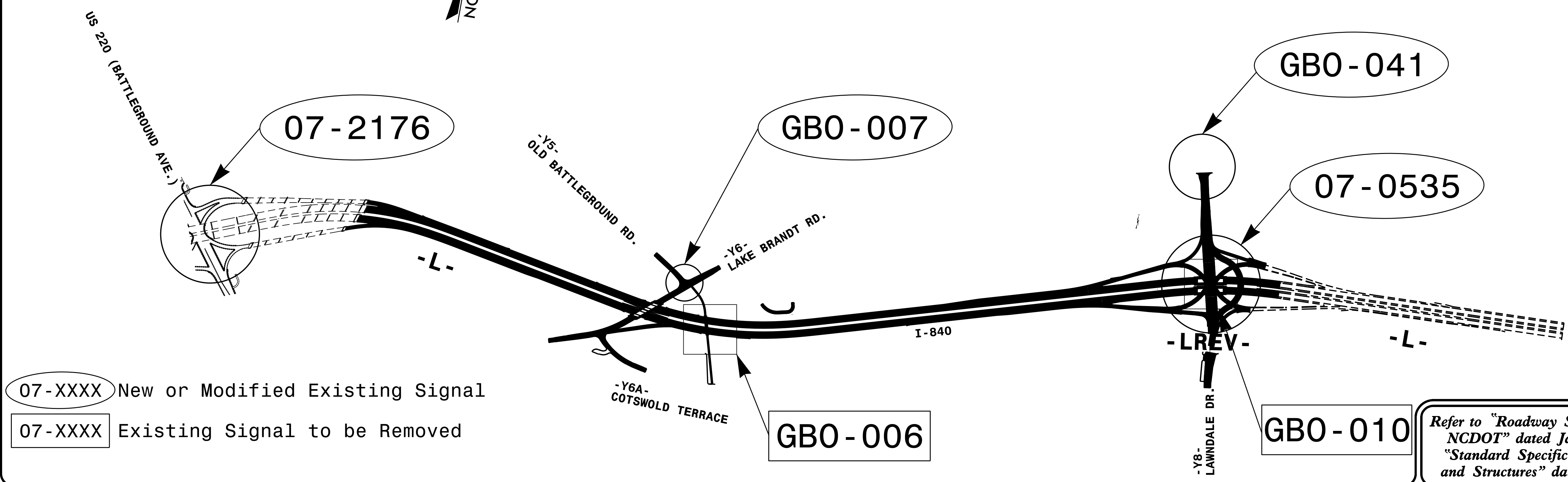
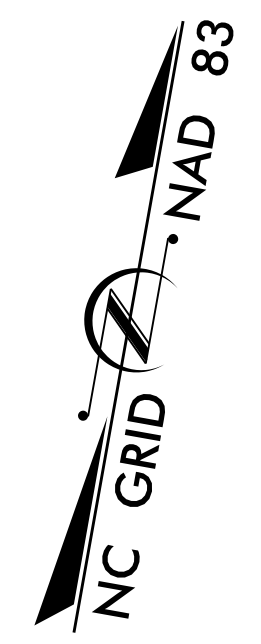
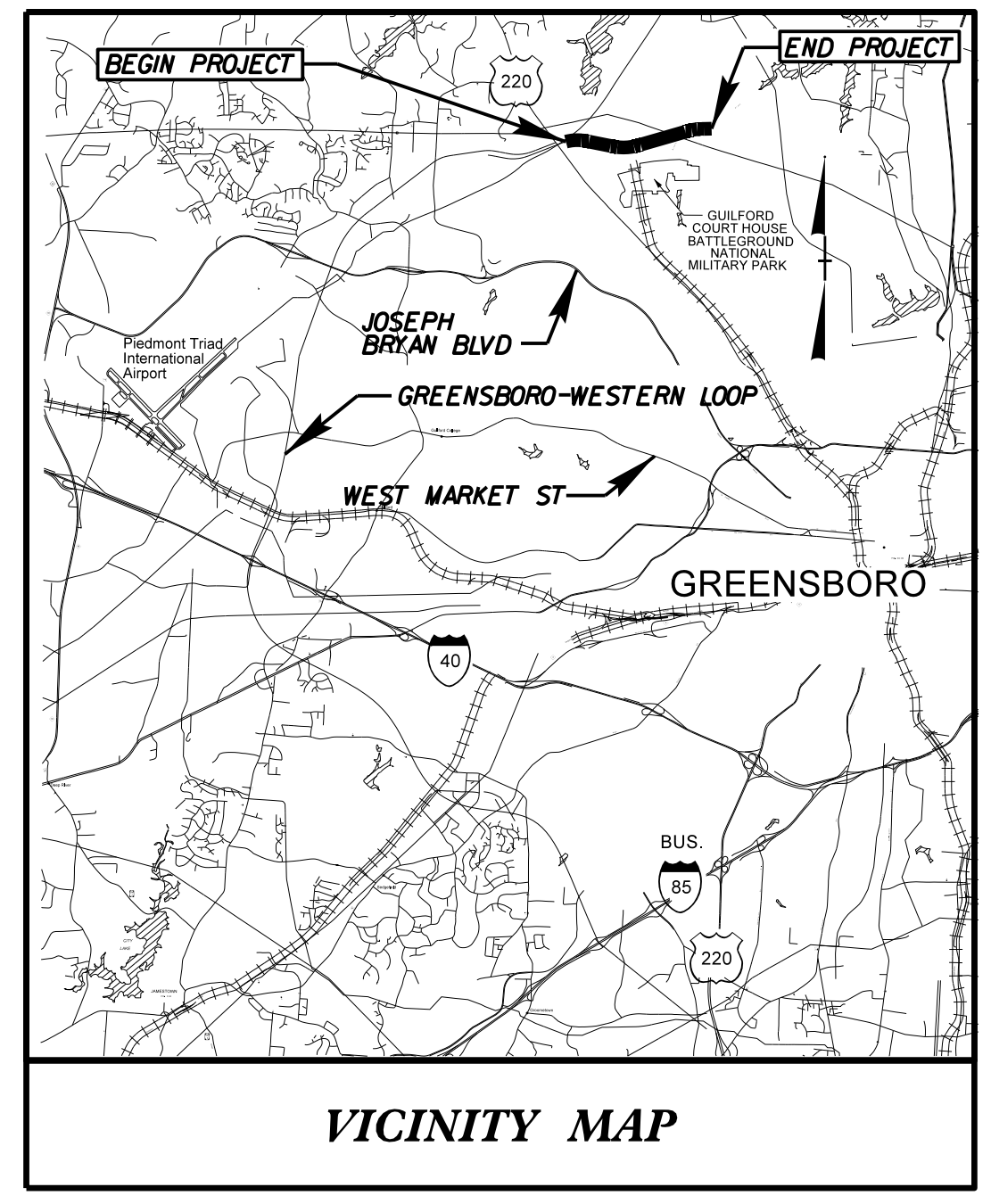
GUILFORD COUNTY

LOCATION: I-840 (GREENSBORO WESTERN LOOP) FROM US 220
(BATTELGROUND AVENUE) TO LAWNDALE DRIVE

TYPE OF WORK: TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS

TIP PROJECT: U-2524D

CONTRACT: C203792



- 07-XXXX New or Modified Existing Signal
- 07-XXXX Existing Signal to be Removed

Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.

Index of Plans		
Sheet #	Reference #	Location/Description
Sig. 1.0		Title Sheet
Sig. 2.0-2.2	07-2176	US 220 (Battleground Ave.) at I-840 Ramps
Sig. 3.0-3.3	GBO-007	Lake Brandt Rd./Cotswold Ave. at Old Battleground Road
Sig. 4.0-5.3	GBO-041	Lawndale Drive at Regent Park Lane
Sig. 6.0-6.2	07-0535	Lawndale Drive at I-840 Ramps
REMOVE	GBO-006	Old Battleground Road at Cotswold Avenue
REMOVE	GBO-010	Lawndale Drive at Cotswold Avenue
M1-M8	-----	Standard Drawings For All Metal Poles
PI-P3	-----	Pedestrian Pushbutton Location Details
SCP 1-12	-----	Signal Communications Plans

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

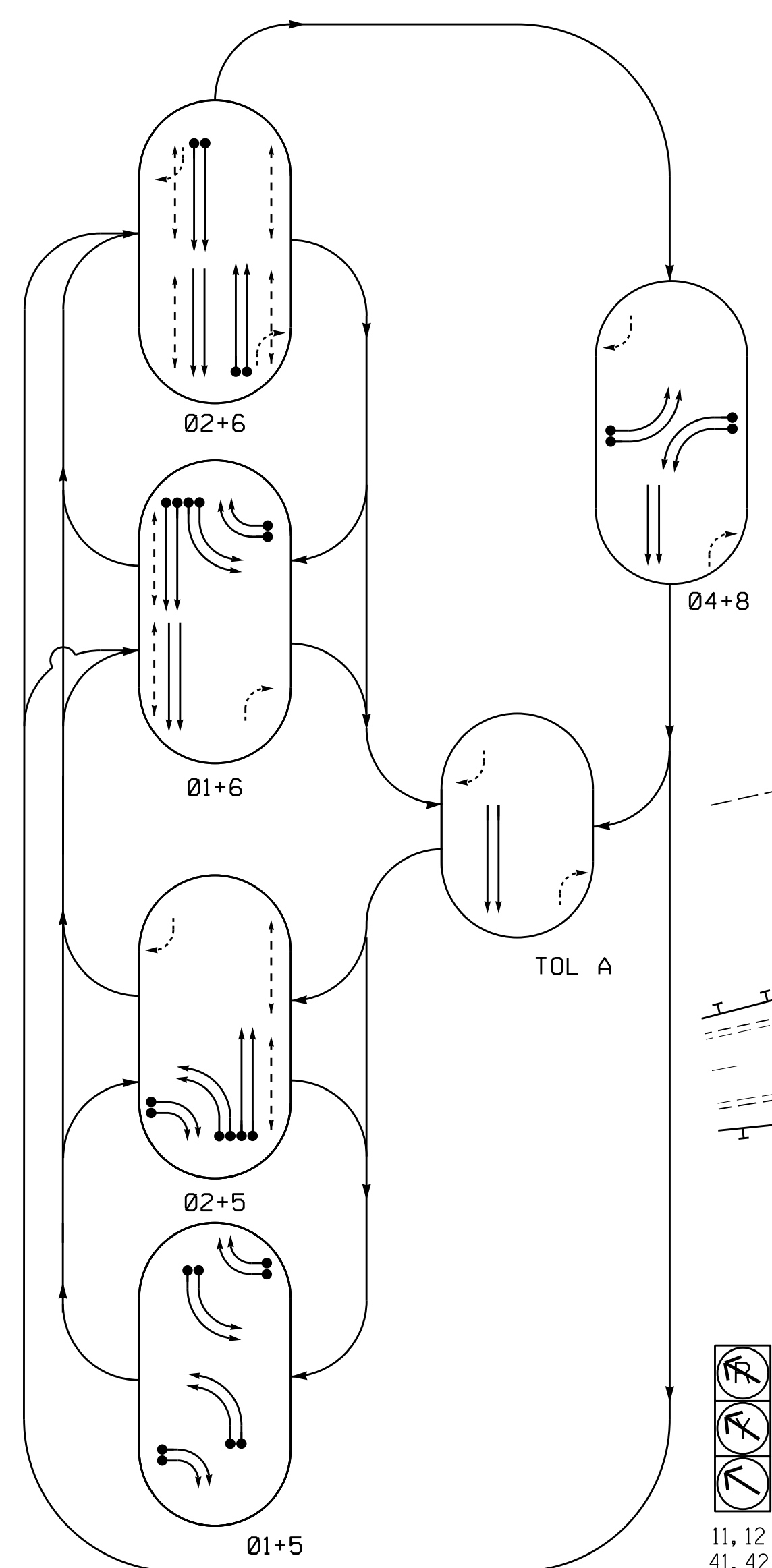
Robert J. Ziemba, PE – Central Region Signals Engineer
Keith M. Mims, PE – Signal Equipment Design Engineer
I. Neil Avery – Signal Communication Project Engineer

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

750 N. Greenfield Parkway, Garner, NC 27529

P:\MAY-2016\1123\Projects\U2524D\TrafFic\Signal\Design\Titlesheet\ProJ\U-2524D.SIG.TSH.DGN

PHASING DIAGRAM

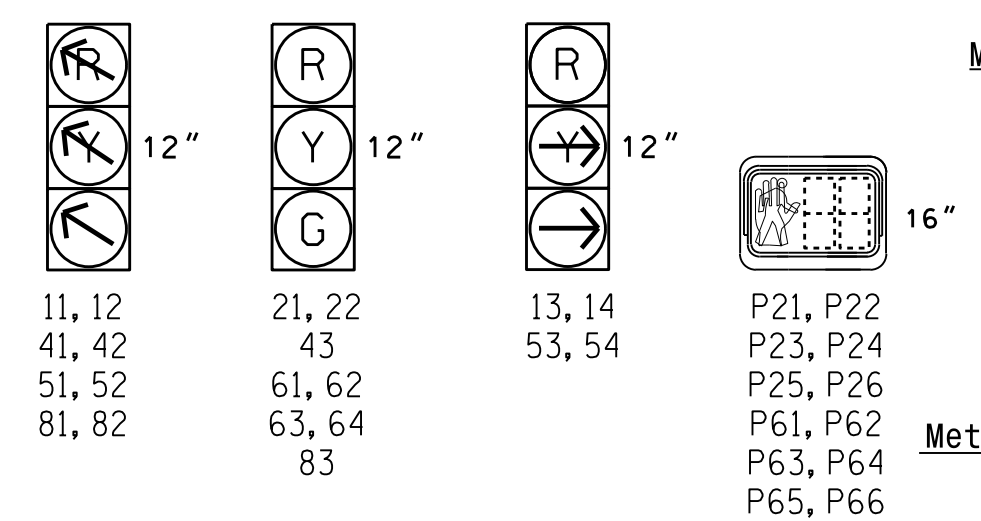


PHASING DIAGRAM DETECTION LEGEND
 -●- DETECTED MOVEMENT
 -○- UNDETECTED MOVEMENT (OVERLAP)
 - - - UNSIGNALIZED MOVEMENT
 - - - PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE						
	01+5	01+6	02+5	02+6	TOL A	04+8	HEAD
11, 12	/	/	/	/	/	/	/
13, 14	/	/	/	/	/	/	/
21, 22	R	R	G	G	R	R	Y
41, 42	/	/	/	/	/	/	/
43	R	R	R	R	G	R	R
51, 52	/	/	/	/	/	/	/
53, 54	/	/	/	/	/	/	/
61, 62	R	G	R	G	R	R	Y
63, 64	R	G	R	G	R	R	Y
81, 82	/	/	/	/	/	/	/
83	R	R	R	R	G	R	R
P21, P22	DW	DW	W	W	DW	DW	DRK
P23, P24	DW	DW	W	W	DW	DW	DRK
P25, P26	DW	DW	W	W	DW	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DRK
P63, P64	DW	W	DW	W	DW	DW	DRK
P65, P66	DW	W	DW	W	DW	DW	DRK

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

SIGNAL FACE I.D.



FEATURE	PHASE						
	1	2	4	5	6	8	TOL A
Min Green *	7	12	7	7	12	7	4
Gap, Extension *	2.0	6.0	2.0	2.0	6.0	2.0	
Maximum Green 1 *	30	90	30	30	90	30	
Maximum Green 2 *	-	-	-	-	-	-	
Yellow Clear	3.2	4.6	3.4	3.2	4.6	3.3	4.4
Red Clear	5.2	4.2	5.6	4.7	3.6	4.4	1.0
Walk *	-	7	-	-	7	-	
Pedestrian Clear	-	10	-	-	9	-	
Added Initial *	-	1.5	-	-	1.5	-	
Maximum 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	-	
Lock Calls	NO	YES	NO	NO	YES	NO	
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.

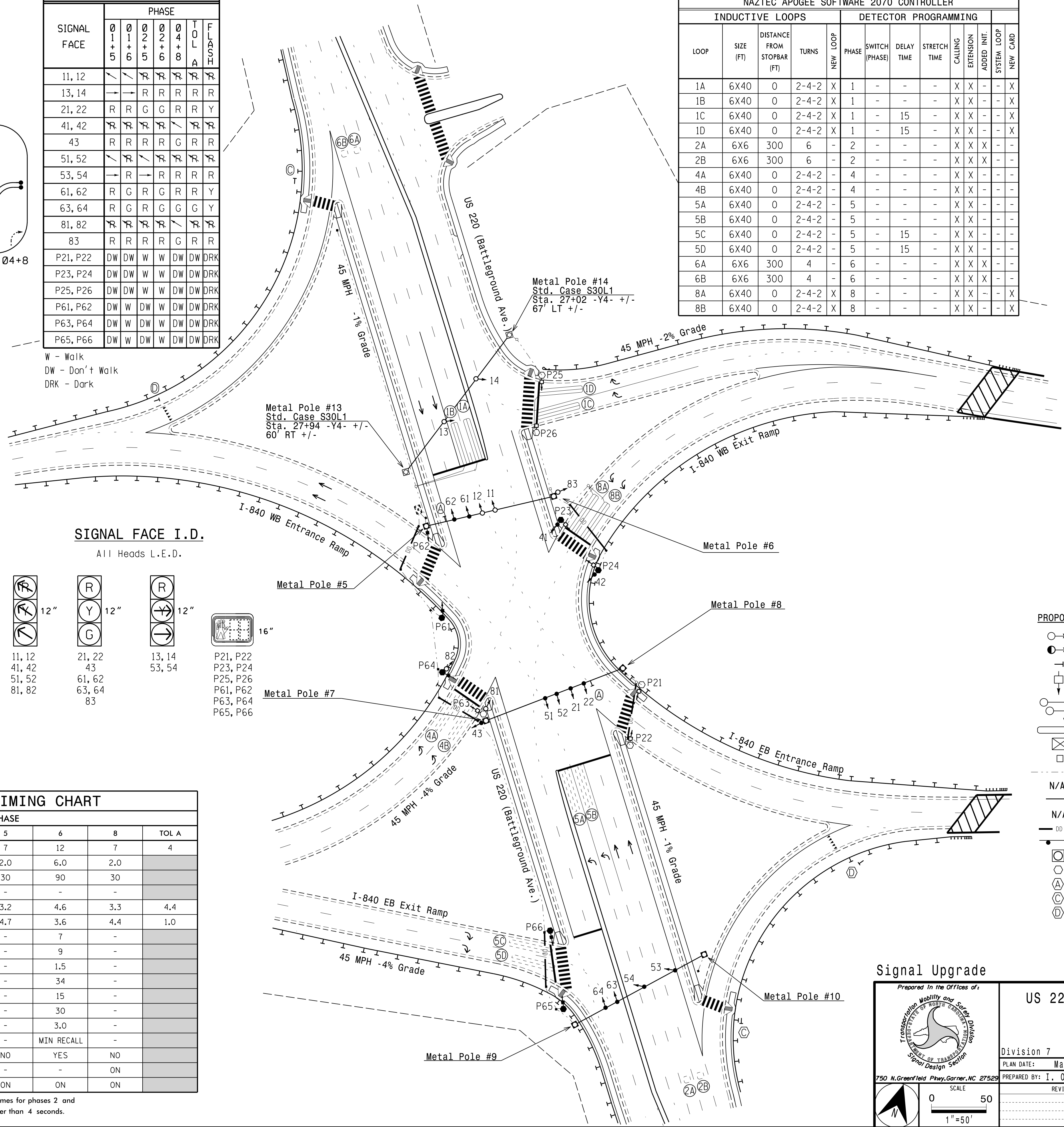
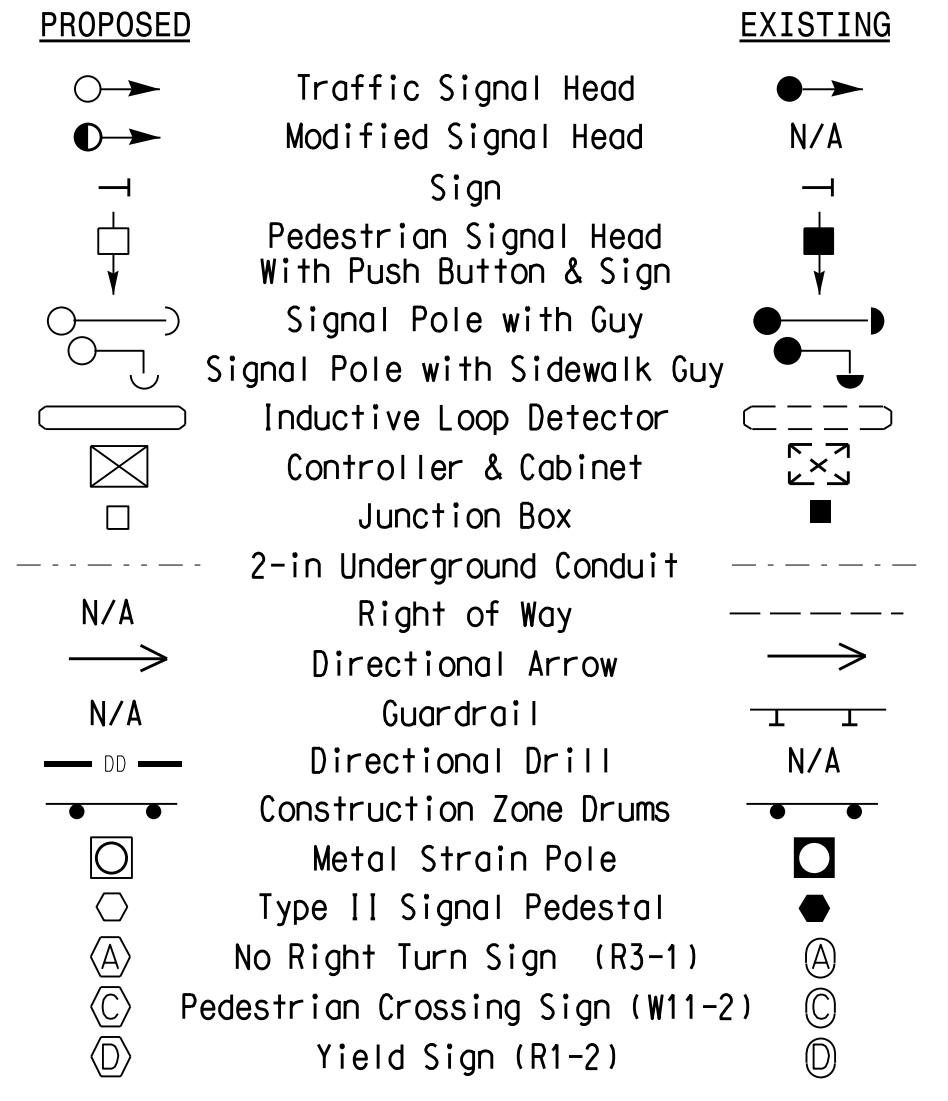
LOOP & DETECTOR UNIT INSTALLATION CHART											
NAZTEC APOGEE SOFTWARE 2070 CONTROLLER											
INDUCTIVE LOOPS						DETECTOR PROGRAMMING					
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	SWITCH (PHASE)	DELAY TIME	STRETCH TIME	CALLING EXTENSION	ADDED INIT.	NEW CARD
1A	6X40	0	2-4-2	X	1	-	-	-	X	X	-
1B	6X40	0	2-4-2	X	1	-	-	-	X	X	-
1C	6X40	0	2-4-2	X	1	-	15	-	X	X	-
1D	6X40	0	2-4-2	X	1	-	15	-	X	X	-
2A	6X6	300	6	-	2	-	-	-	X	X	-
2B	6X6	300	6	-	2	-	-	-	X	X	-
4A	6X40	0	2-4-2	-	4	-	-	-	X	X	-
4B	6X40	0	2-4-2	-	4	-	-	-	X	X	-
5A	6X40	0	2-4-2	-	5	-	-	-	X	X	-
5B	6X40	0	2-4-2	-	5	-	-	-	X	X	-
5C	6X40	0	2-4-2	-	5	-	15	-	X	X	-
5D	6X40	0	2-4-2	-	5	-	15	-	X	X	-
6A	6X6	300	4	-	6	-	-	-	X	X	-
6B	6X6	300	4	-	6	-	-	-	X	X	-
8A	6X40	0	2-4-2	X	8	-	-	-	X	X	-
8B	6X40	0	2-4-2	X	8	-	-	-	X	X	-

5 Phase Fully Actuated (Greensboro Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND



Signal Upgrade

Prepared In the Offices of:
 TRANSPORTATION MOBILITY AND SAFETY SOLUTIONS
 PROFESSIONAL ENGINEER
 NORTH CAROLINA
 SEAL 026486
 ROBERT J. ZIEMBA
 ENGINEER

US 220 (Battleground Ave.) at I-840 Ramps
 Division 7 Guilford County Greensboro
 PLAN DATE: March 2016 REVIEWED BY:
 PREPARED BY: I. O. Umozurike REVIEWED BY:

750 N. Greenfield Pkwy, Garner, NC 27529
 SCALE 0 50
 1"=50'

REVISIONS INIT. DATE
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 SEAL
 4/19/2016
 SIG. INVENTORY NO. 07-2176

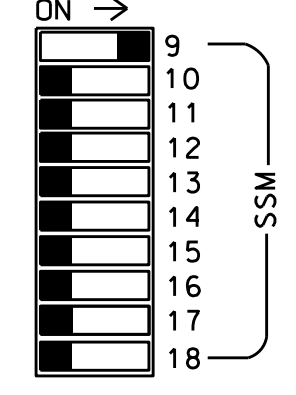
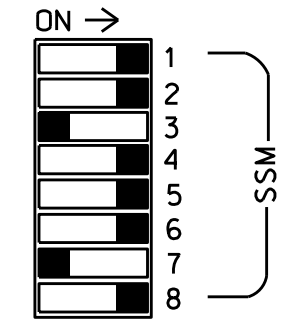
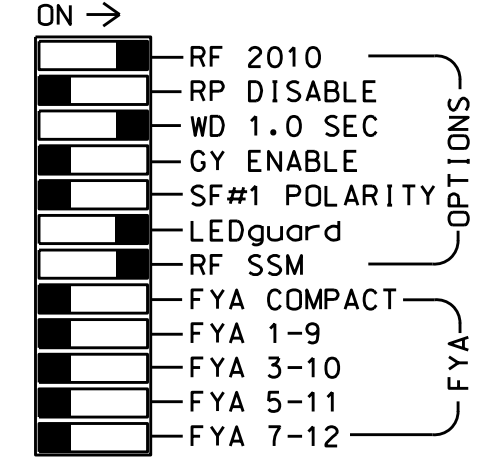
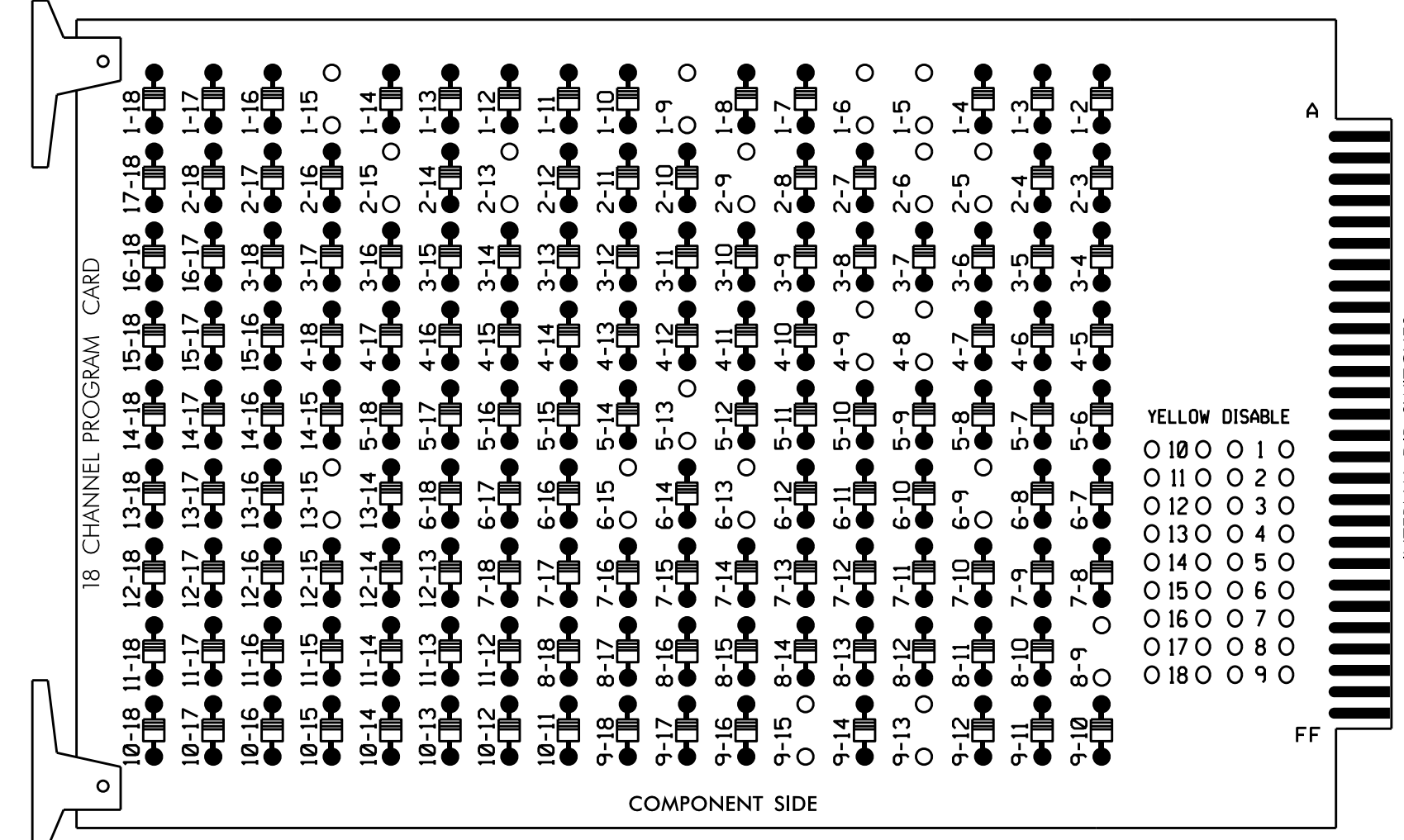
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EDI MODEL 2018EClip-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-15, 2-5, 2-6, 2-9, 2-13, 2-15, 4-8, 4-9, 5-13, 6-9, 6-13, 6-15, 8-9, 9-13, 9-15, and 13-15.



■ = DENOTES POSITION OF SWITCH

REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

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.	11,12	13,14	21,22	P21,P22 P23,P24 P25,P26	NU	41,42	43	NU	51,52	53,54	61,62	P61,P62 P63,P64 P65,P66	NU	81,82	83	NU	63,64	NU
RED	125	128				101			131	134				107		A121		
YELLOW		129				102			135					108		A122		
GREEN		130				103			136					109		A123		
RED ARROW	125					101			131					107				
YELLOW ARROW	126	126				102			132	132				108				
GREEN ARROW	127	127				103			133	133				109				
Hand						113												119
Walking						115												121

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....NAZTEC APOGEE
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. FILE
 LOAD SWITCHES USED.....S1,S2,S3,S5,S7,S8,S9,
 S11,AUX S1
 PHASES USED.....1,2,2PED,4,5,6,6PED,8
 OVERLAP A.....6+8
 OVERLAP B.....NOT USED
 OVERLAP C.....NOT USED
 OVERLAP D.....NOT USED

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

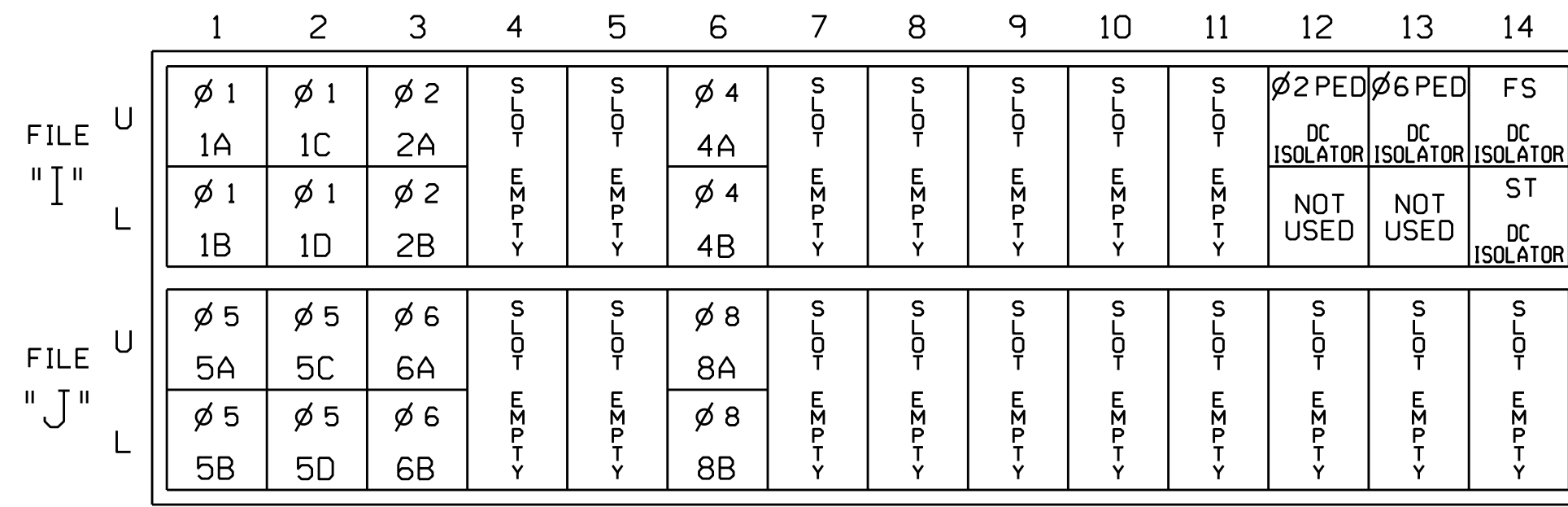
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

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.
- Initialize database in Naztec 2070 local software (Apogee) as FULL-MODE 5. This initialization should be done prior to programming controller.
- Program phases 2 and 6 for Start Up In Walk.
- Program "Start Up Flash" for 0 sec. The conflict monitor will govern start-up flash time.
- Ensure "Local Flash Start" feature is set to "ON".
- Program phases 4 and 8 for Dual Entry.
- The cabinet and controller are part of the City of Greensboro Signal System.

INPUT FILE POSITION LAYOUT

(front view)



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

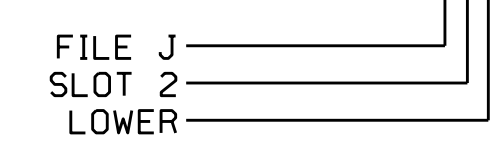
FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	CALL PHASE	SWITCH	DELAY TIME	EXTEND TIME	CALL	EXTEND	ADDED INIT.
1A	TB2-1,2	I1U	56	1	1				X	X	
1B	TB2-3,4	I1L	56	1	1				X	X	
1C	TB2-5,6	I2U	39	2	1		15		X	X	
1D	TB2-7,8	I2L	43	3	1		15		X	X	
2A	TB2-9,10	I3U	63	4	2				X	X	X
2B	TB2-11,12	I3L	76	5	2				X	X	X
4A	TB4-9,10	I6U	41	8	4				X	X	
4B	TB4-11,12	I6L	45	9	4				X	X	
5A	TB3-1,2	J1U	55	15	5				X	X	
5B	TB3-3,4	J1L	55	15	5				X	X	
5C	TB3-5,6	J2U	40	16	5		15		X	X	
5D	TB3-7,8	J2L	44	17	5		15		X	X	
6A	TB3-9,10	J3U	64	18	6				X	X	X
6B	TB3-11,12	J3L	77	19	6				X	X	X
8A	TB5-9,10	J6U	42	22	8				X	X	
8B	TB5-11,12	J6L	46	23	8				X	X	
PED PUSH BUTTONS											
P21,P22,P23 P24,P25,P26	TB8-4,6	I12U	67	PED 2	2 PED						
P61,P62,P63 P64,P65,P66	TB8-7,9	I13U	68	PED 6	6 PED						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2176
 DESIGNED: March 2016
 SEALED: 4/19/2016
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

 Keith M. Minns, Professional Engineer
 750 N. Greenfield Pkwy, Garner, NC 27529

US 220 (Battleground Ave) at I-840 Ramps

Division 7 Guilford County Greensboro

PLAN DATE: April 2016 REVIEWED BY: BAS

PREPARED BY: S. Armstrong REVIEWED BY:

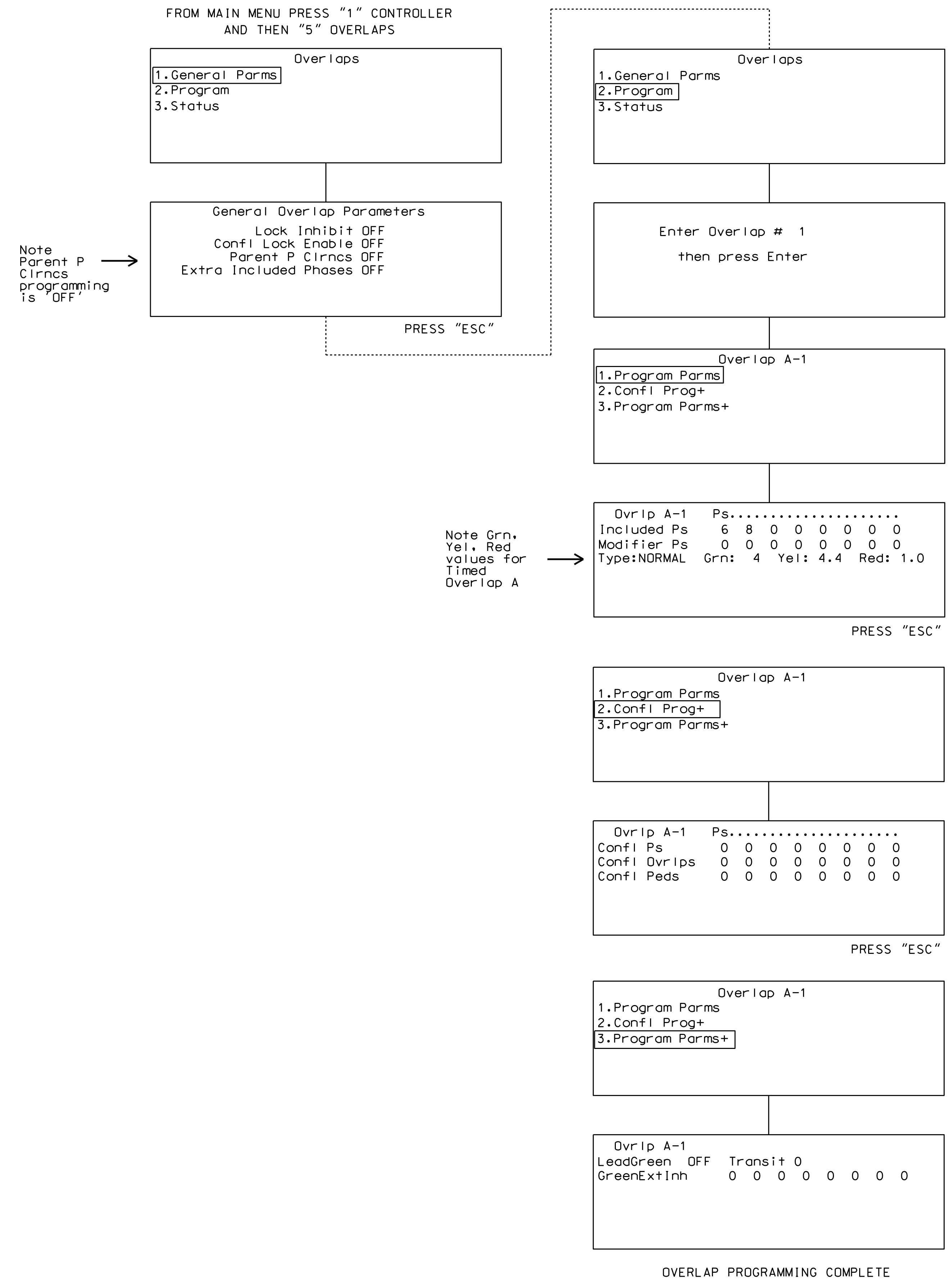
REVISIONS INIT. DATE

DocuSign by: Keith M. Minns 4/25/2016

SIG. INVENTORY NO. 07-2176

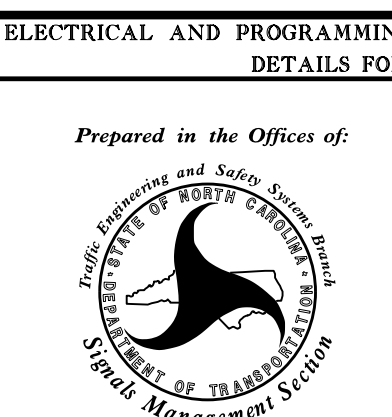
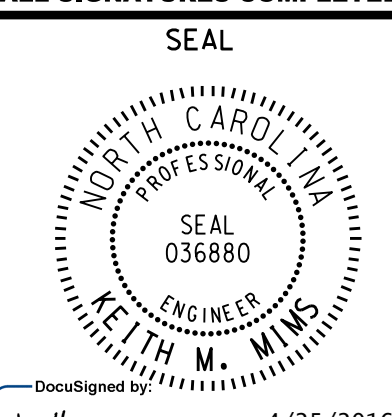
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 armstrong

TIMED OVERLAP PROGRAMMING DETAIL
(program controller as shown below)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-2176
DESIGNED: March 2016
SEALED: 4/19/2016
REVISED: N/A

Electrical Detail - Sheet 2 of 2

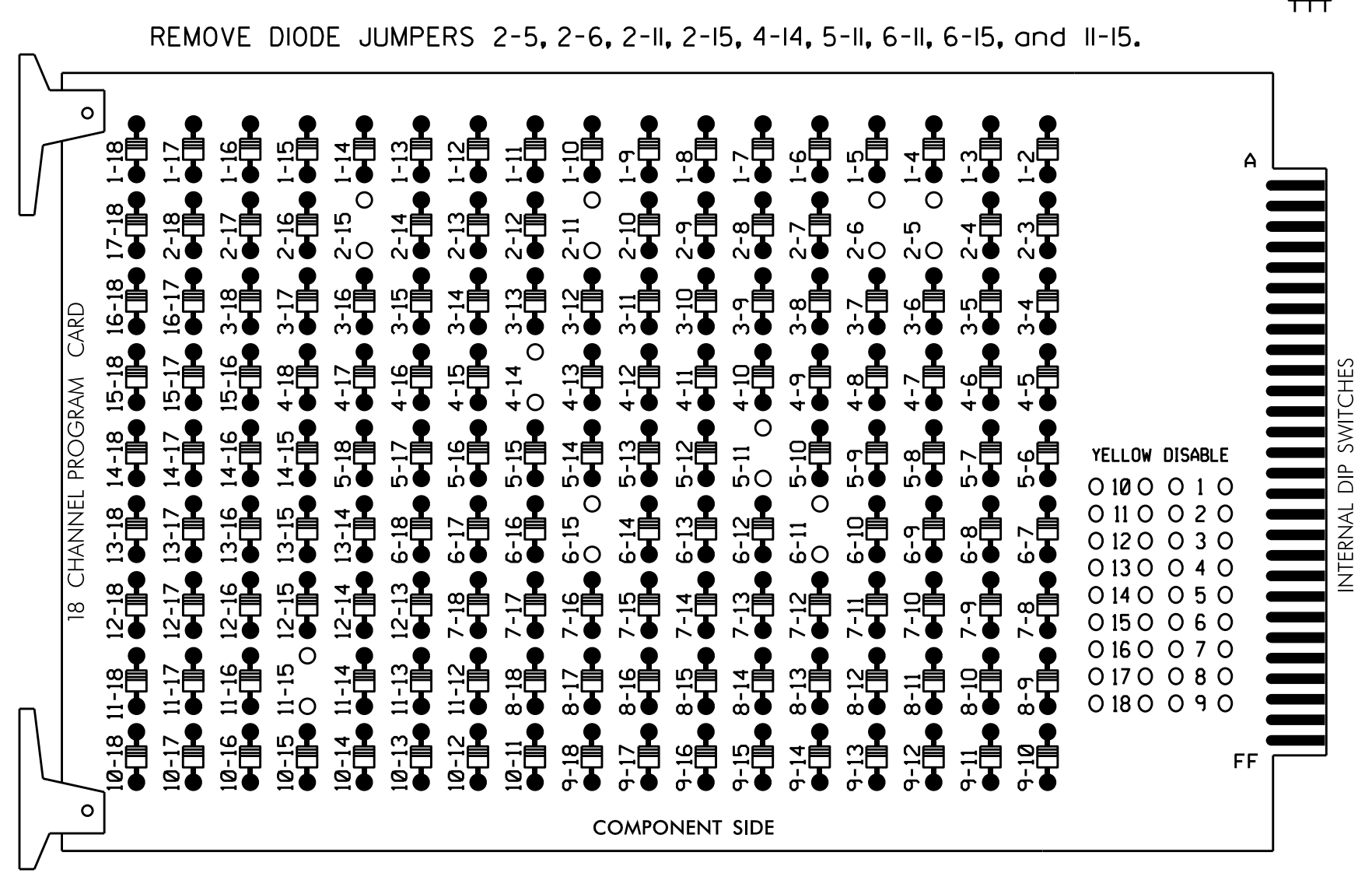
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	Division 7 PLAN DATE: April 2016 PREPARED BY: S. Armstrong	Guilford County REVIEWED BY: BAS REVIEWED BY:	Greensboro
REVISIONS		INIT.	DATE
SIG. INVENTORY NO. 07-2176		ELECTRICAL AND PROGRAMMING DETAILS FOR:	

750 N. Greenfield Pkwy, Garner, NC 27529

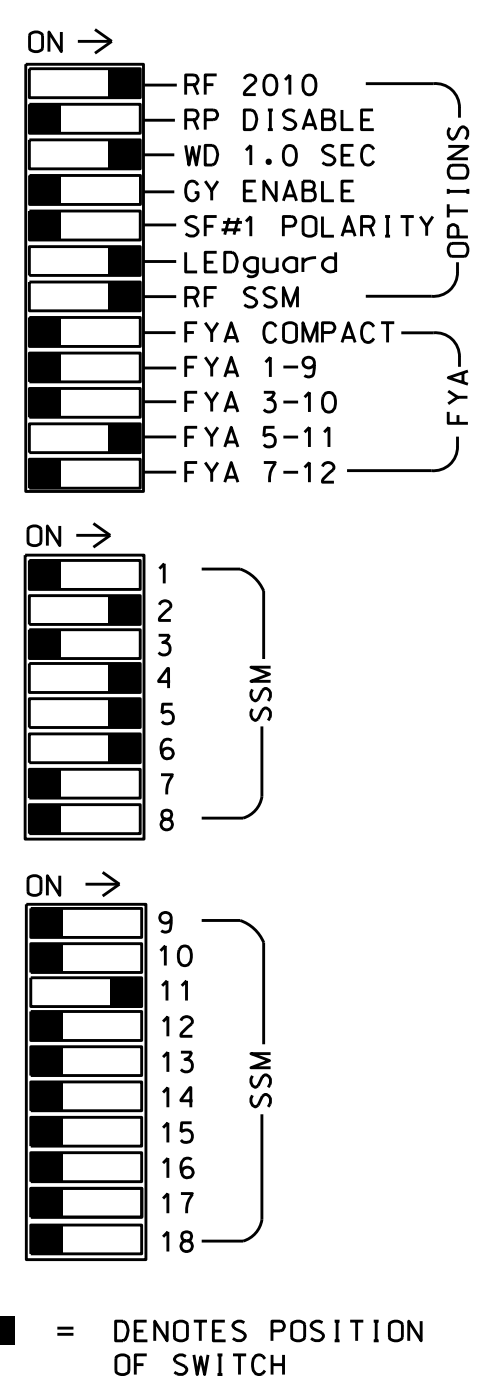
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EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.
 - Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
 - Ensure that Red Enable is active at all times during normal operation.
 - Ensure Conflicte Monitor Ethernet port is connected to a Switch port located within the cabinet.



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.
- Initialize database in Naztec 2070 local software (Apogee) as FULL-MODE 5. This initialization should be done prior to programming controller.
- Program phase 2 for Start Up In Green, and phase 6 for Start Up In Walk.
- Program "Start Up Flash" for 0 sec. The conflict monitor will govern start-up flash time.
- Ensure "Local Flash Start" feature is set to "ON".
- The cabinet and controller are part of the City of Greensboro Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....NAZTEC APOGEE
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 (12-STD, 6-AUX)
 LOAD SWITCHES USED.....S2,S5,S6,S7,S8,S9,AUX S4
 PHASES USED.....2,4,4PED,5,6,6PED
 OVERLAP A.....NOT USED
 OVERLAP B.....NOT USED
 OVERLAP C.....*
 OVERLAP D.....NOT USED

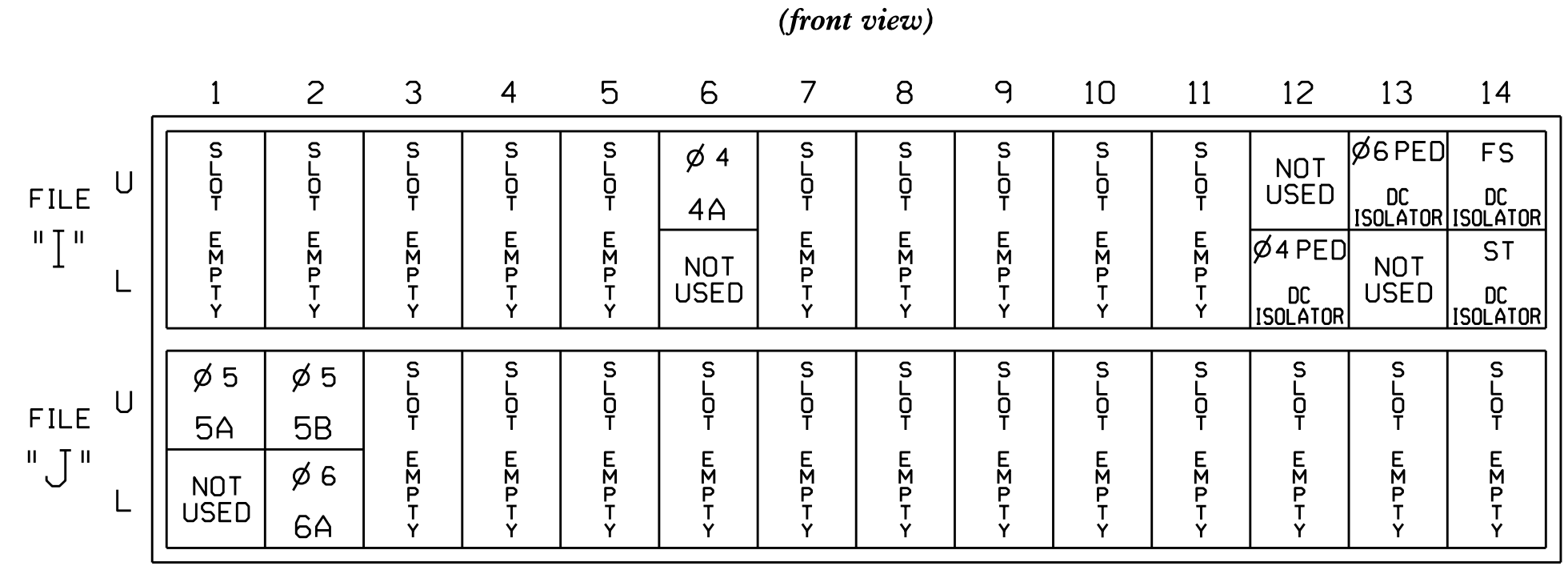
* SEE OVERLAP PROGRAMMING DETAIL SHEET 2

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	DLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	P41,P42 P43,P44	42	51*	61,62	P61, P62	NU	NU	NU	NU	NU	51*	NU	NU
RED		128			101		*		134									
YELLOW		129			102				135									
GREEN		130			103				136									
RED ARROW																		A114
YELLOW ARROW									132									A115
FLASHING YELLOW ARROW																		A116
GREEN ARROW							133	133										
Hand							104						119					
Walker							106						121					

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

INPUT FILE POSITION LAYOUT

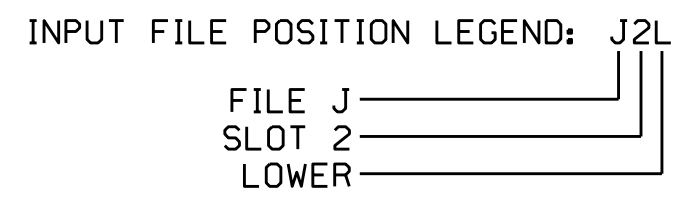


EX. : 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

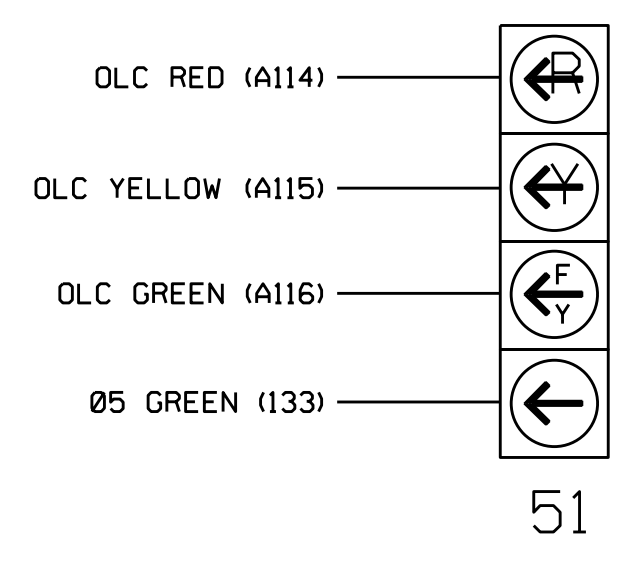
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	CALL PHASE	SWITCH	DELAY TIME	EXTEND TIME	CALL	EXTEND	ADDED INIT.
4A	TB4-9,10	I6U	41	8	4		3		X	X	
5A	TB3-1,2	J1U	55	15	5		15		X	X	
5B	TB3-5,6	J2U	40	16	5		15		X	X	
6A	TB3-7,8	J2L	44	17	6				X	X	X
PED PUSH BUTTONS											
P41,P42 P43,P44	TB8-5,6	I12L	69	PED 4	4 PED						
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED						

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



FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

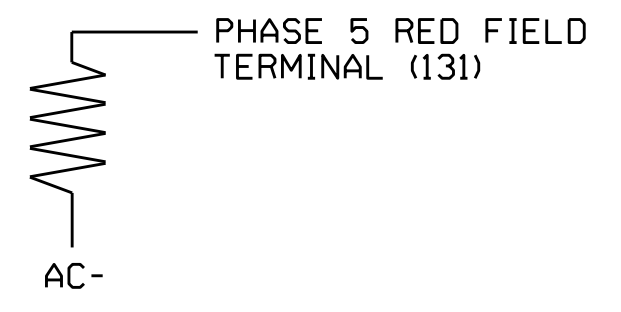
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: GBO-007
 DESIGNED: April 2016
 SEALED: 5/2/2016
 REVISED: N/A

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)



SPECIAL DETECTOR NOTE

For detection zone 2A, install a microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

Electrical and Programming Details for: Lake Brandt Rd/Cotswold Ave at Old Battleground Road

Prepared in the Offices of: **TRANSPORTATION MOBILITY AND SAFETY CONSULTANTS, INC.**

750 N. Greenfield Pkwy, Garner, NC 27529

Division 7 Guilford County Greensboro

PLAN DATE: April 2016 REVIEWED BY: BAS

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS INIT. DATE

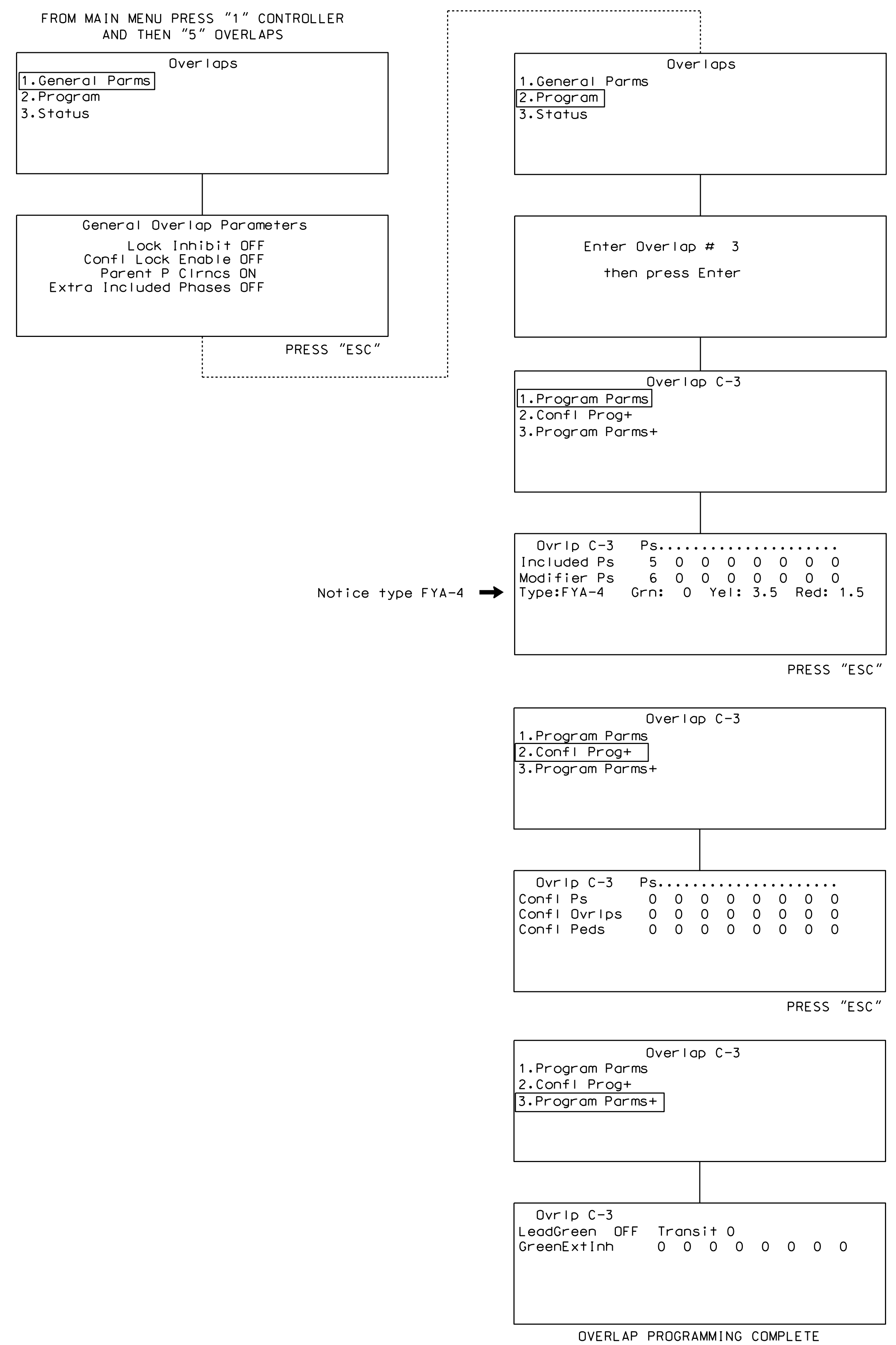
Seal: **KEITH M. MIMS**, Professional Engineer, No. 036880

DocuSigned by: **Keith M. Mims**, 5/3/2016

SIG. INVENTORY NO. GBO-007

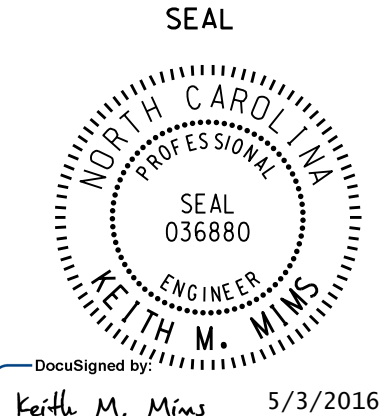
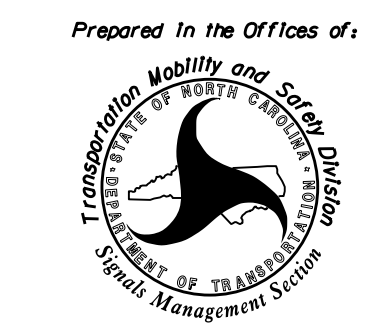
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 S:\MITS\15\Sig\el\work\hgr\gous\51g_MonArmsStrong

OVERLAP PROGRAMMING DETAIL
(program controller as shown below)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: GBO-007
DESIGNED: April 2016
SEALED: 5/2/2016
REVISED: N/A

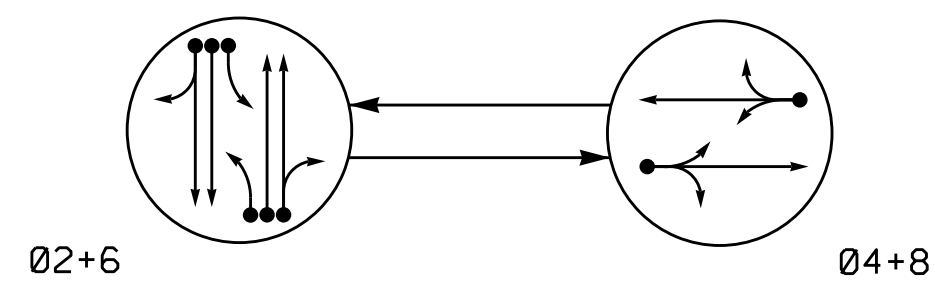
Signal Upgrade - Sheet 2 of 3

	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	ELECTRICAL AND PROGRAMMING DETAILS FOR:	Lake Brandt Rd/Cotswold Ave at Old Battleground Road
Prepared In the Offices of: 	Division 7 Guilford County Greensboro	SEAL KEITH M. MIRAS ENGINEER 036880
PLAN DATE: April 2016 PREPARED BY: S. Armstrong	REVIEWED BY: BAS REVIEWED BY:	DocuSigned by: Keith M. Miras 5/3/2016 2F8078E8CD3445 DATE
REVISIONS _____ INIT. DATE	_____ INIT. DATE	SIG. INVENTORY NO. GBO-007

750 N. Greenfield Pkwy, Garner, NC 27529

02-MAY-2016 16:53
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 sarmstrong

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

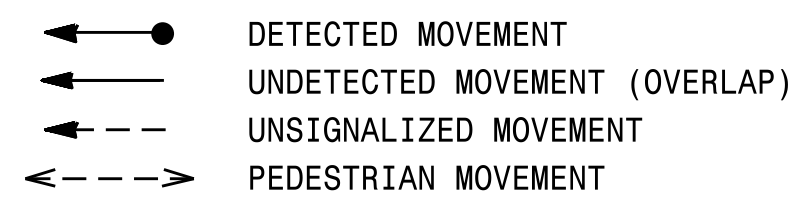


TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLASH
21	F	R	Y
22, 23	G	R	Y
41, 42	R	G	R
61	F	R	Y
62, 63	G	R	Y
81, 82	R	G	R

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

LOOP & DETECTOR UNIT INSTALLATION CHART
 NAZTEC APOGEE SOFTWARE 2070 CONTROLLER

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	SWITCH (PHASE)	DELAY TIME	STRETCH TIME	CALLING	EXTENSION	ADDED INIT.	SYSTEM LOOP
2A, 2B	6X6	70	4	X	2	-	-	-	X	X	-	X
2C	6X40	0	2-4-2	X	2	-	-	-	X	X	-	X
4A	6X60	+5	2-4-2	-	4	-	5	-	X	X	-	X
6A, 6B	6X6	185	EXIST	-	6	-	-	-	X	X	-	X
6C	6X60	+5	2-4-2	-	6	-	-	-	X	X	-	X
8A	6X60	+5	2-4-2	-	8	-	5	-	X	X	-	X

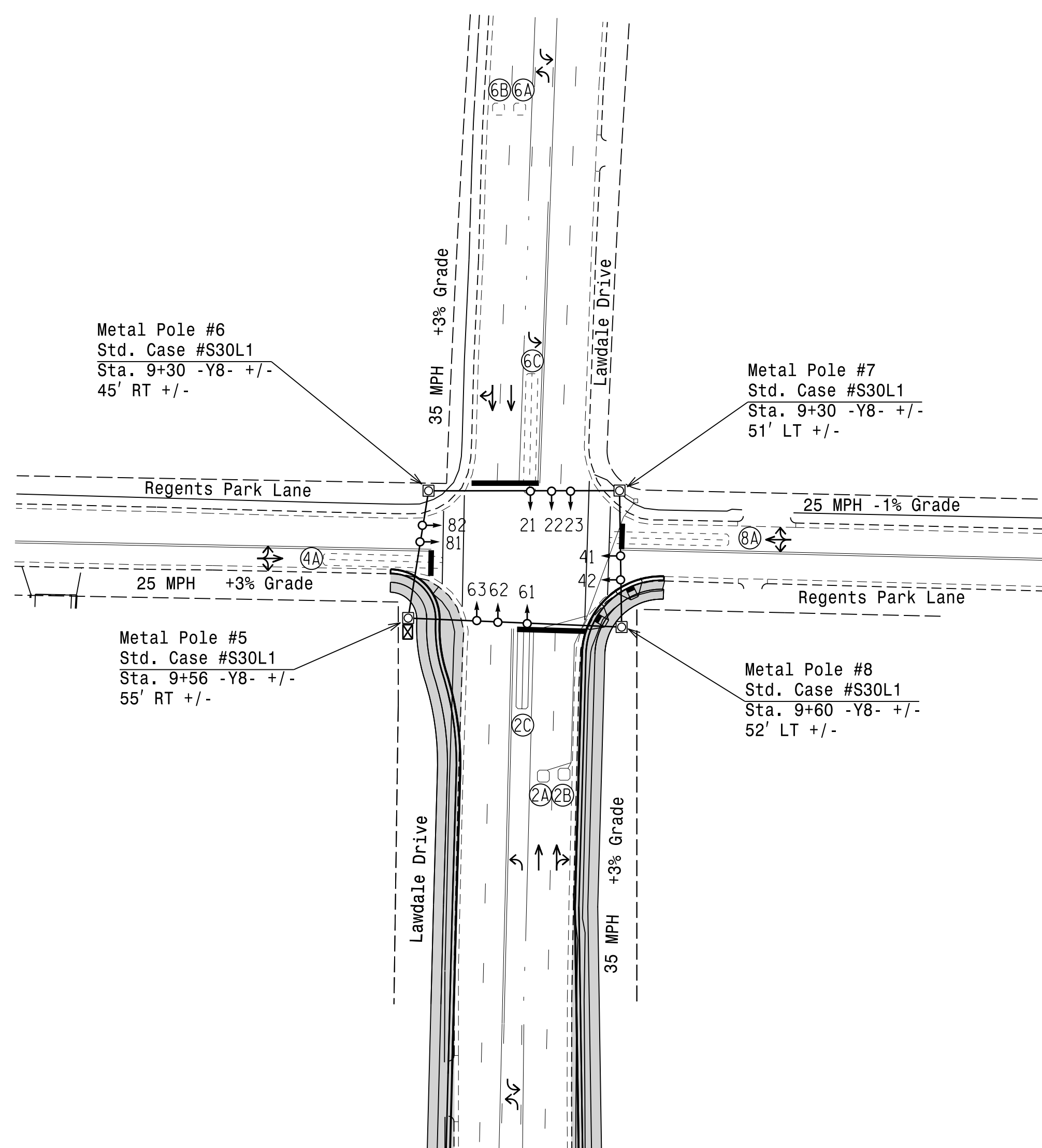
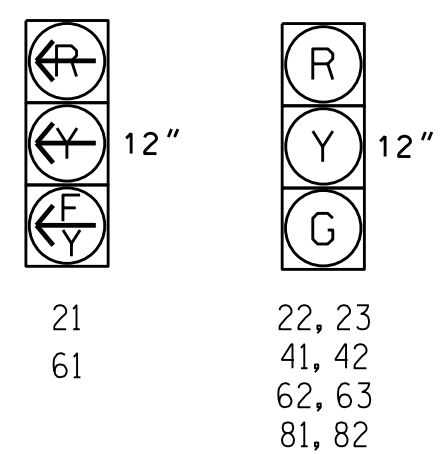
2 Phase Fully Actuated (Greensboro Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Pavement markings are existing unless otherwise shown.
6. 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.

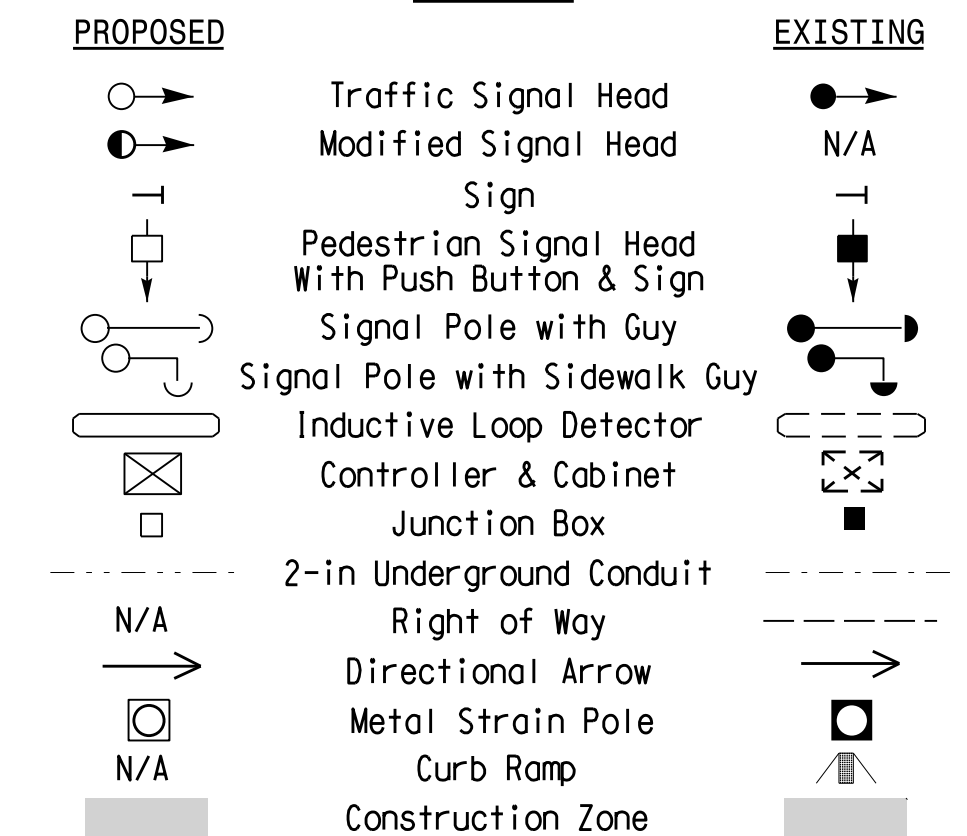


NAZTEC APOGEE 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green *	10	7	10	7
Gap, Extension *	3.0	2.0	4.0	2.0
Maximum Green 1 *	50	25	50	25
Maximum Green 2 *	-	-	-	-
Yellow Clear	4.0	3.1	4.0	3.2
Red Clear	1.2	2.2	1.2	2.7
Walk *	-	-	-	-
Pedestrian Clear	-	-	-	-
Added Initial *	-	-	-	-
Maximum Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Lock Calls	YES	NO	YES	NO
Dual Entry	-	ON	-	ON
Simultaneous Gap	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



Signal Upgrade - Temporary Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

750 N. Greenfield Pkwy, Garner, NC 27529

Lawdale Drive at Regents Park Lane

Division 7 Guilford County Greensboro

PLAN DATE: March 2016 REVIEWED BY:

PREPARED BY: I. O. Umozurike REVIEWED BY:

REVISIONS: _____ INIT. DATE

SCALE: 0 50
1"=50'

SEAL

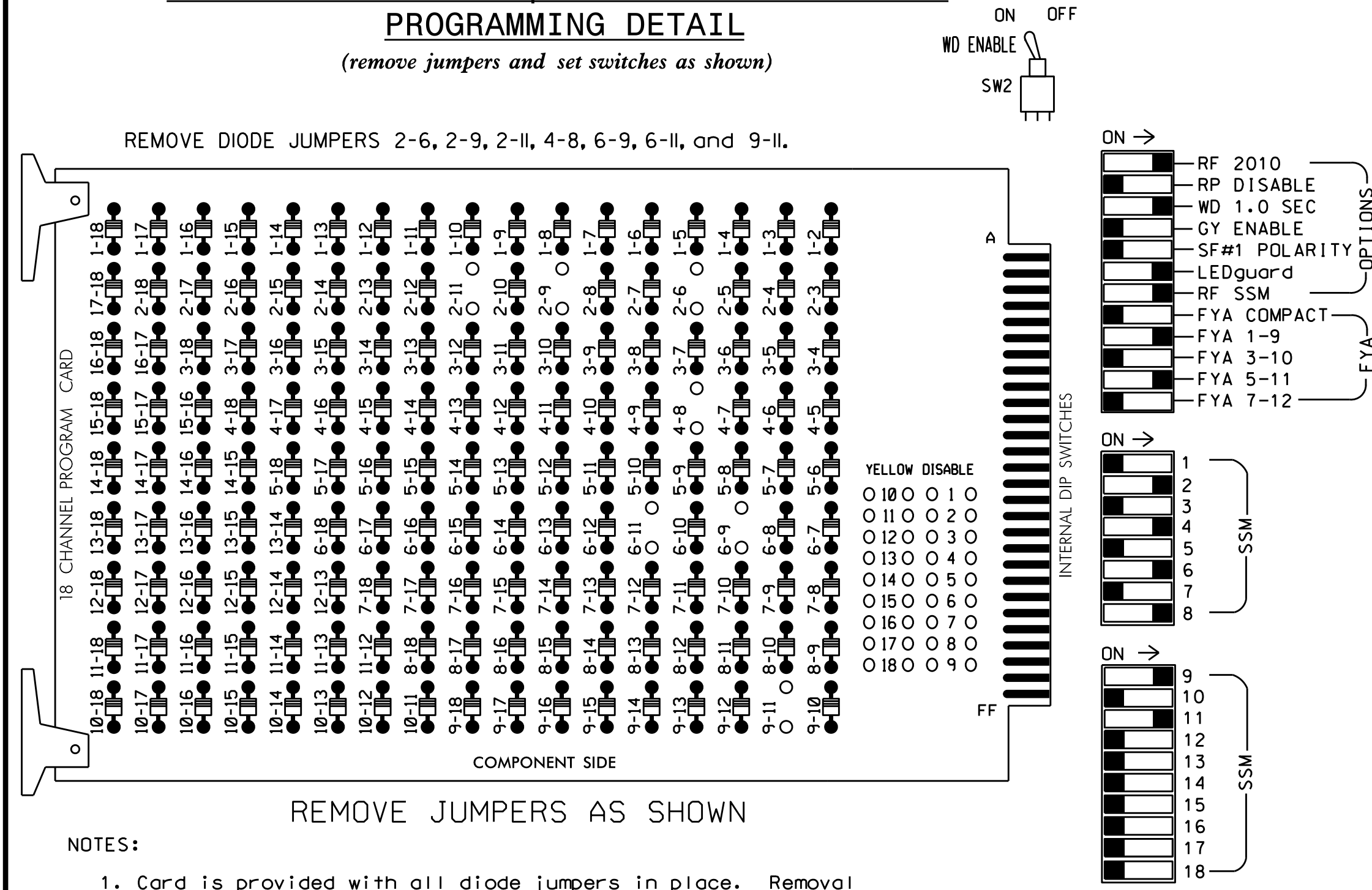
4/19/2016

SIG. INVENTORY NO. GBO-041T

27-Apr-2016 14:40
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 RZ:BERTO

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches 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. Integrate monitor with Ethernet network in cabinet.

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. Initialize database in Naztec 2070 local software (Apogee) as FULL-MODE 5. This initialization should be done prior to programming controller.
3. Program phases 2 and 6 for Start Up In Green.
4. Program "Start Up Flash" for 0 sec. The conflict monitor will govern start-up flash time.
5. Ensure "Local Flash Start" feature is set to "ON".
6. Program phases 4 and 8 for Dual Entry.
7. The cabinet and controller are part of the City of Greensboro Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....NAZTEC APOGEE
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 (12-STD, 6-AUX)
 LOAD SWITCHES USED.....S2,S5,S8,S11,AUX S1,AUX S4
 PHASES USED.....2,4,6,8
 OVERLAP A.....*
 OVERLAP B.....NOT USED
 OVERLAP C.....*
 OVERLAP D.....NOT USED

* SEE OVERLAP PROGRAMMING DETAIL SHEET 2

SIGNAL HEAD HOOK-UP CHART

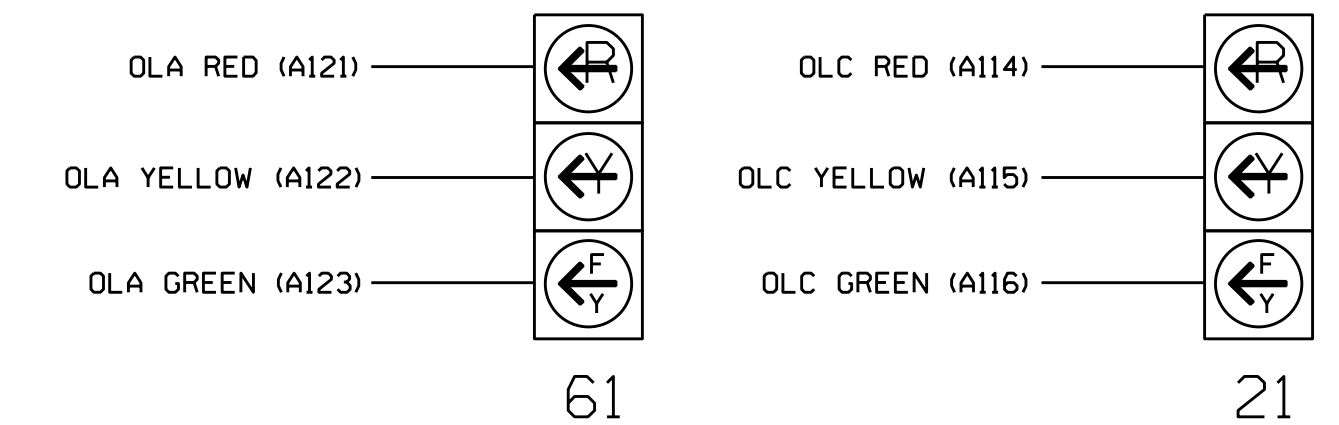
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMJ CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	22,23	NU	NU	41,42	NU	NU	62,63	NU	NU	81,82	NU	61*	NU	NU	21*	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																		

NU = Not Used

* See pictorial of head wiring in detail below.

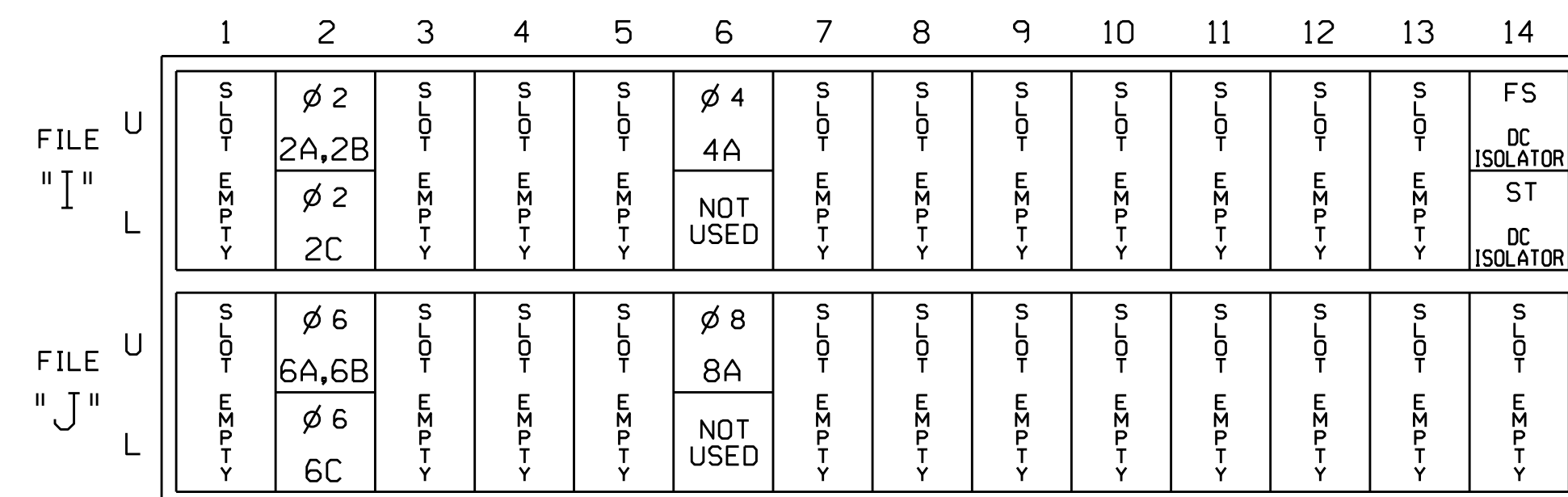
FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)



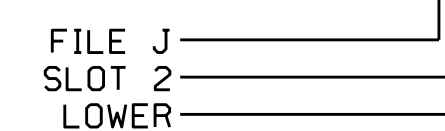
EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	CALL PHASE	SWITCH	DELAY TIME	EXTEND TIME	CALL	EXTEND	ADDED INIT.
2A,2B	TB2-5,6	I2U	39	2	2				X	X	
2C	TB2-7,8	I2L	43	3	2				X	X	
4A	TB4-9,10	I6U	41	8	4		5		X	X	
6A,6B	TB3-5,6	J2U	40	16	6				X	X	
6C	TB3-7,8	J2L	44	17	6				X	X	
8A	TB5-9,10	J6U	42	22	8		5		X	X	

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: GBO-041T
 DESIGNED: March 2016
 SEALED: 4/19/2016
 REVISED: N/A

Electrical Detail - Temporary - Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared in the Offices of: TSS&SS 750 N. Greenfield Pkwy, Garner, NC 27529	Lawndale Drive at Regents Park Lane		SEAL KEITH M. MINUS ENGINEER 4/25/2016
	Division 7 PLAN DATE: April 2016 PREPARED BY: S. Armstrong	Guilford County REVIEWED BY: BAS REVIEWED BY:	
REVISIONS:			DATE:

OVERLAP PROGRAMMING DETAIL
(program controller as shown below)

FROM MAIN MENU PRESS "1" CONTROLLER
AND THEN "5" OVERLAPS

```

Overlap
1.General Parm
2.Program
3.Status
    
```

```

General Overlap Parameters
Lock Inhibit OFF
Confl Lock Enable OFF
Parent P Clrncls ON
Extra Included Phases OFF
    
```

PRESS "ESC"

```

Overlap
1.General Parm
2.Program
3.Status
    
```

Enter Overlap # 1
then press Enter

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp A-1 Ps.....
Included Ps 6 0 0 0 0 0 0 0
Modifier Ps 0 0 0 0 0 0 0 0
Type:NORMAL Grn: 0 Yel: 3.5 Red: 1.5
    
```

PRESS "ESC"

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp A-1 Ps.....
Confl Ps 0 0 0 0 0 0 0 0
Confl OvrIps 0 0 0 0 0 0 0 0
Confl Peds 0 0 0 0 0 0 0 0
    
```

PRESS "ESC"

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp A-1
LeadGreen OFF Transit 0
GreenExtInh 0 0 0 0 0 0 0 0
    
```

PRESS "ESC TWICE"

```

Overlap
1.General Parm
2.Program
3.Status
    
```

Enter Overlap # 3
then press Enter

```

Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp C-3 Ps.....
Included Ps 2 0 0 0 0 0 0 0
Modifier Ps 0 0 0 0 0 0 0 0
Type:NORMAL Grn: 0 Yel: 3.5 Red: 1.5
    
```

PRESS "ESC"

```

Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp C-3 Ps.....
Confl Ps 0 0 0 0 0 0 0 0
Confl OvrIps 0 0 0 0 0 0 0 0
Confl Peds 0 0 0 0 0 0 0 0
    
```

PRESS "ESC"

```

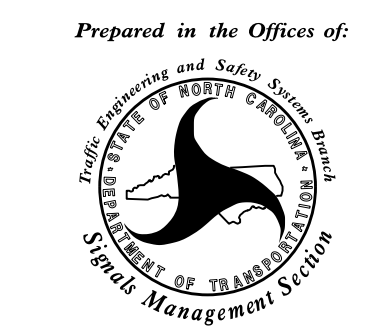
Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp C-3
LeadGreen OFF Transit 0
GreenExtInh 0 0 0 0 0 0 0 0
    
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: GBO-041T
DESIGNED: March 2016
SEALED: 4/19/2016
REVISED: N/A

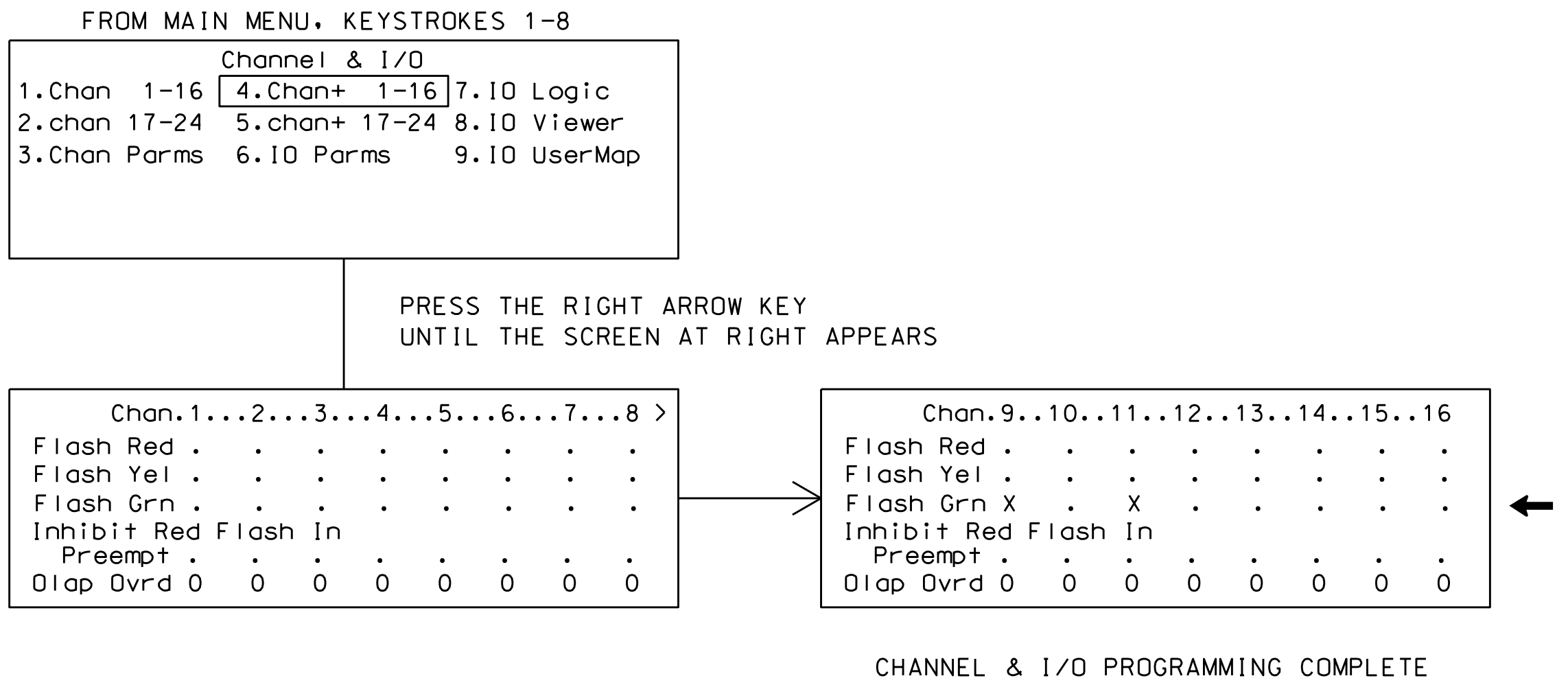
Electrical Detail - Temporary - Sheet 2 of 3		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
ELECTRICAL AND PROGRAMMING DETAILS FOR:		Lawndale Drive at Regents Park Lane	
Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER KEITH M. MIRAS	
Division 7 PLAN DATE: April 2016 PREPARED BY: S. Armstrong	Guilford County Greensboro REVIEWED BY: BAS REVIEWED BY:	REVISIONS INIT. DATE	DATE 4/25/2016 DATE
SIG. INVENTORY NO. GBO-041T		SIG. INVENTORY NO. GBO-041T	

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 sarmstrong

CHANNEL & I/O PROGRAMMING DETAIL FOR FYA OPERATION

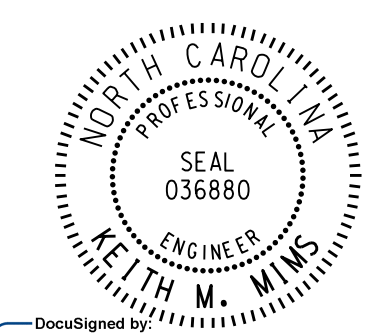


(program controller as shown below)

This programming takes the output that drives
a Flashing Yellow Arrow and makes it flash.

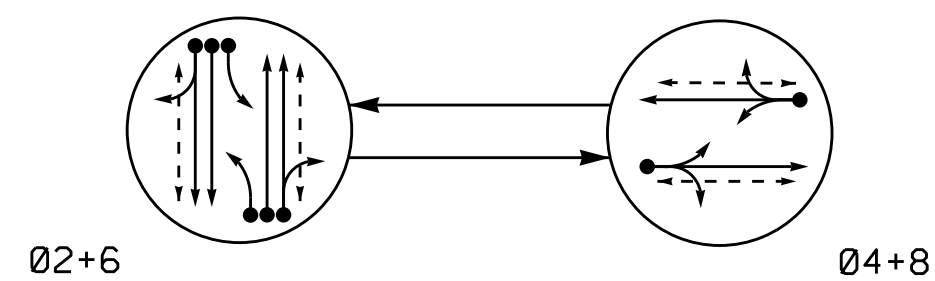


THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: GBO-041T
DESIGNED: March 2016
SEALED: 4/19/2016
REVISED: N/A

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 sarmstrong

Electrical Detail - Temporary - Sheet 3 of 3		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
ELECTRICAL AND PROGRAMMING DETAILS FOR:	Lawndale Drive at Regents Park Lane	SEAL 
Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	Division 7 Guilford County Greensboro PLAN DATE: April 2016 REVIEWED BY: BAS PREPARED BY: S. Armstrong REVIEWED BY:	DocuSigned by:  4/25/2016 DATE
REVISIONS INIT. DATE		SIG. INVENTORY NO. GBO-041T

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

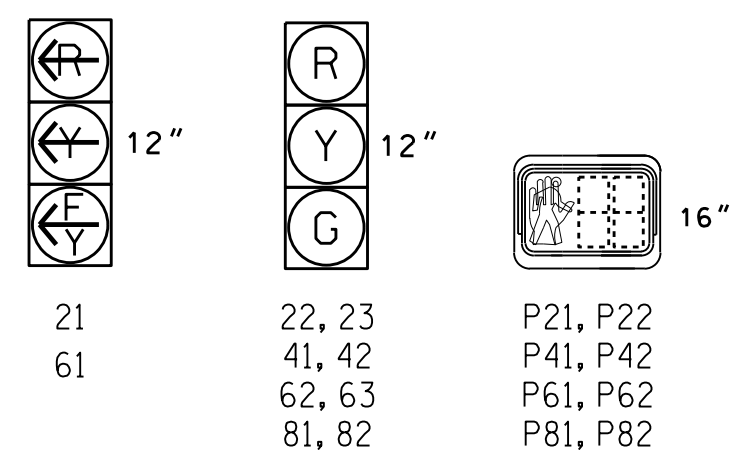


TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLASH
21	F	R	Y
22, 23	G	R	Y
41, 42	R	G	R
61	F	R	Y
62, 63	G	R	Y
81, 82	R	G	R
P21, P22	W	DW	DRK
P41, P42	DW	W	DRK
P61, P62	W	DW	DRK
P81, P82	DW	W	DRK

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

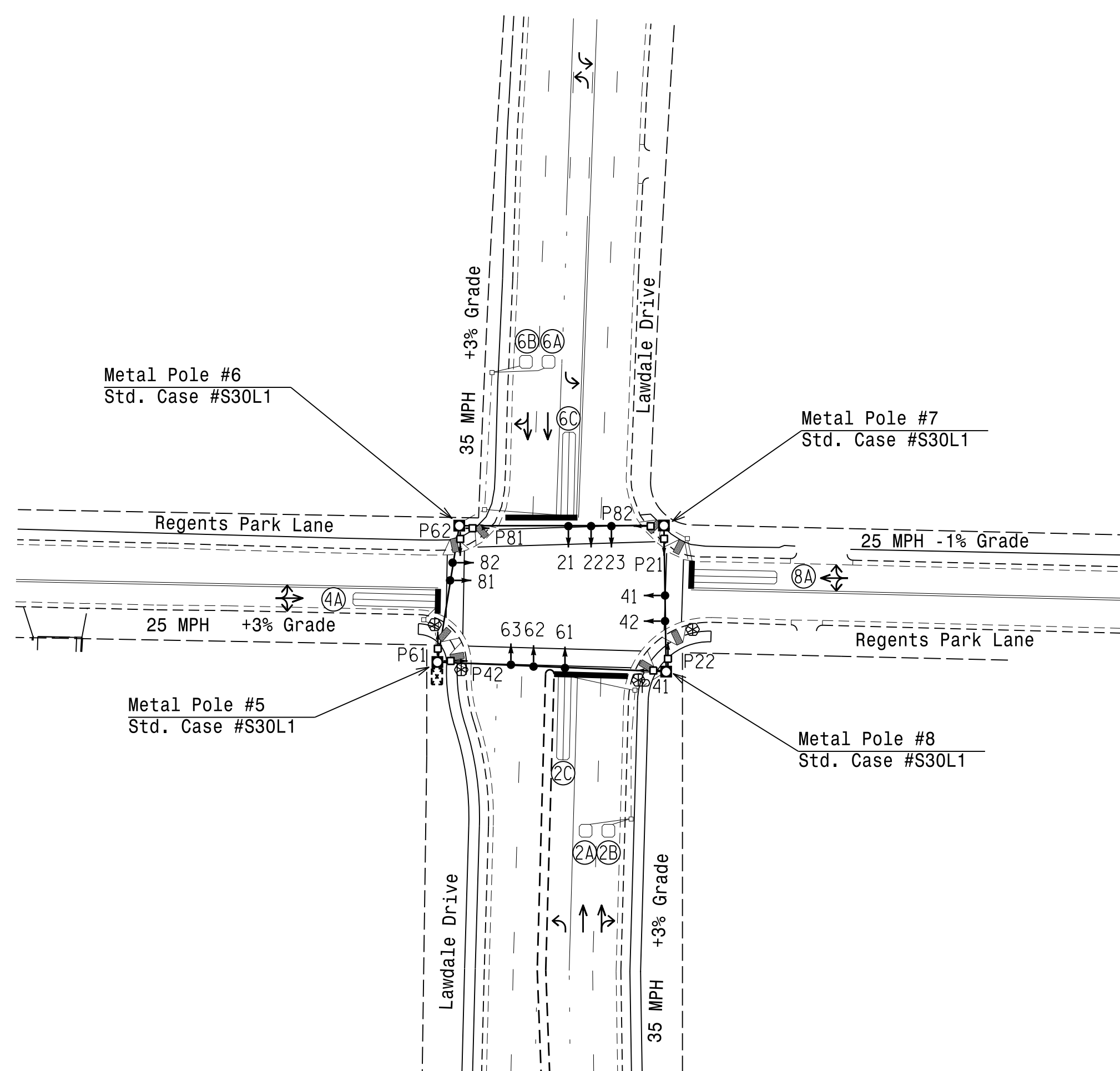
LOOP & DETECTOR UNIT INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	SWITCH (PHASE)	DELAY TIME	STRETCH TIME	CALLING	EXTENSION	ADDED INIT.	SYSTEM LOOP
2A, 2B	6X6	70	4	X	2	-	-	-	X	X	-	-
2C	6X40	0	2-4-2	X	2	-	-	-	X	X	-	-
4A	6X40	0	2-4-2	X	4	-	5	-	X	X	-	-
6A, 6B	6X6	70	4	X	6	-	-	-	X	X	-	-
6C	6X40	0	2-4-2	X	6	-	-	-	X	X	-	-
8A	6X40	0	2-4-2	X	8	-	5	-	X	X	-	-

2 Phase Fully Actuated (Greensboro Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



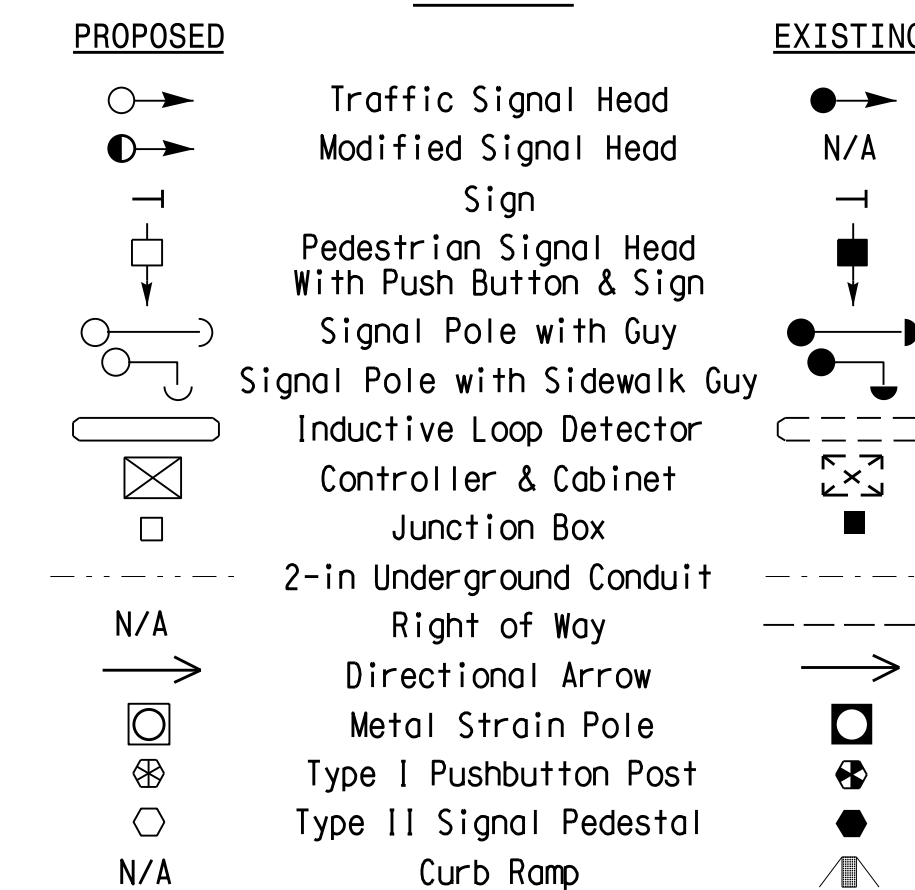
NAZTEC APOGEE 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green *	10	7	10	7
Gap, Extension *	3.0	2.0	3.0	2.0
Maximum Green 1 *	50	25	50	25
Maximum Green 2 *	-	-	-	-
Yellow Clear	4.0	3.1	4.0	3.2
Red Clear	1.7	3.0	1.7	3.0
Walk *	7	7	7	7
Pedestrian Clear	7	21	8	20
Added Initial *	-	-	-	-
Maximum Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Lock Calls	YES	NO	YES	NO
Dual Entry	-	ON	-	ON
Simultaneous Gap	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.

27-Apr-2016 14:31 P:\IT\Projects\2524D\Drawings\Signal\Signal\041_041.dwg U:\a.dsn 20160419.dgn

LEGEND



Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	<p>Lawdale Drive at Regent's Park Lane</p>		
	<p>Division 7 Guilford County Greensboro</p>		
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>PLAN DATE: March 2016</p>	<p>REVIEWED BY:</p>	<p>DATE: 4/19/2016</p>
<p>SCALE: 1"=50'</p>	<p>PREPARED BY: I. O. Umzurike</p>	<p>REVIEWED BY:</p>	<p>SIG. INVENTORY NO. GBO-041</p>

OVERLAP PROGRAMMING DETAIL
(program controller as shown below)

FROM MAIN MENU PRESS "1" CONTROLLER
AND THEN "5" OVERLAPS

```

Overlap
1.General Parm
2.Program
3.Status
    
```

```

General Overlap Parameters
Lock Inhibit OFF
Confl Lock Enable OFF
Parent P Clrncs ON
Extra Included Phases OFF
    
```

PRESS "ESC"

```

Overlap
1.General Parm
2.Program
3.Status
    
```

Enter Overlap # 1
then press Enter

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp A-1 Ps.....
Included Ps 6 0 0 0 0 0 0 0
Modifier Ps 0 0 0 0 0 0 0 0
Type:NORMAL Grn: 0 Yel: 3.5 Red: 1.5
    
```

PRESS "ESC"

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp A-1 Ps.....
Confl Ps 0 0 0 0 0 0 0 0
Confl OvrIps 0 0 0 0 0 0 0 0
Confl Peds 0 0 0 0 0 0 0 0
    
```

PRESS "ESC"

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp A-1
LeadGreen OFF Transit 0
GreenExtInh 0 0 0 0 0 0 0 0
    
```

PRESS "ESC TWICE"

```

Overlap
1.General Parm
2.Program
3.Status
    
```

Enter Overlap # 3
then press Enter

```

Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp C-3 Ps.....
Included Ps 2 0 0 0 0 0 0 0
Modifier Ps 0 0 0 0 0 0 0 0
Type:NORMAL Grn: 0 Yel: 3.5 Red: 1.5
    
```

PRESS "ESC"

```

Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp C-3 Ps.....
Confl Ps 0 0 0 0 0 0 0 0
Confl OvrIps 0 0 0 0 0 0 0 0
Confl Peds 0 0 0 0 0 0 0 0
    
```

PRESS "ESC"

```

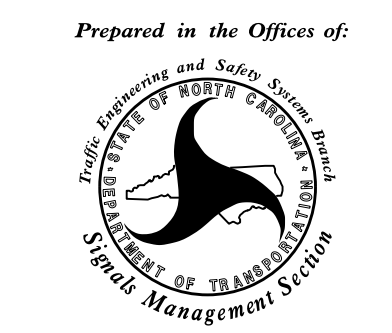
Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

OvrIp C-3
LeadGreen OFF Transit 0
GreenExtInh 0 0 0 0 0 0 0 0
    
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: GBO-041
DESIGNED: March 2016
SEALED: 4/19/2016
REVISED: N/A

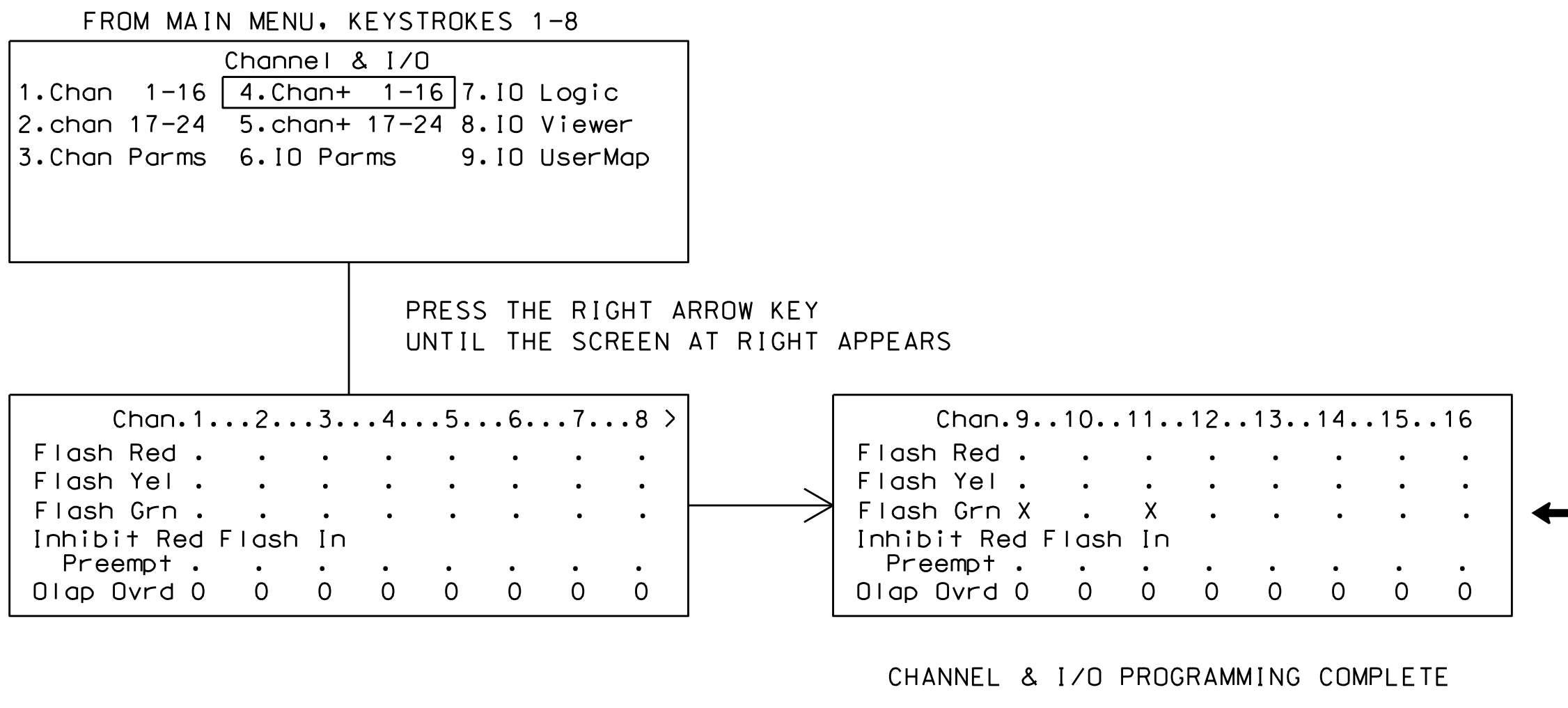
Electrical Detail - Final - Sheet 2 of 3		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
ELECTRICAL AND PROGRAMMING DETAILS FOR:		Lawndale Drive at Regents Park Lane	
Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER KEITH M. MIRAS 036880	
Division 7 PLAN DATE: April 2016 PREPARED BY: S. Armstrong	Guilford County Greensboro REVIEWED BY: BAS REVIEWED BY:	REVISIONS INIT. DATE	DATE 4/25/2016 DATE
SIG. INVENTORY NO. GBO-041		DATE	

05-APR-2016 13:57
 C:\IT\SS\15\Sigal\work\hgr\pous\Sig_Mon\armstrong\GBO-041_sm.ele_xxx.dgn
 armstrong

CHANNEL & I/O PROGRAMMING DETAIL FOR FYA OPERATION

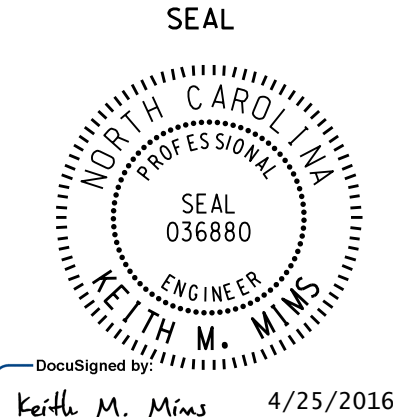

(program controller as shown below)

This programming takes the output that drives
a Flashing Yellow Arrow and makes it flash.



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: GBO-041
DESIGNED: March 2016
SEALED: 4/19/2016
REVISED: N/A

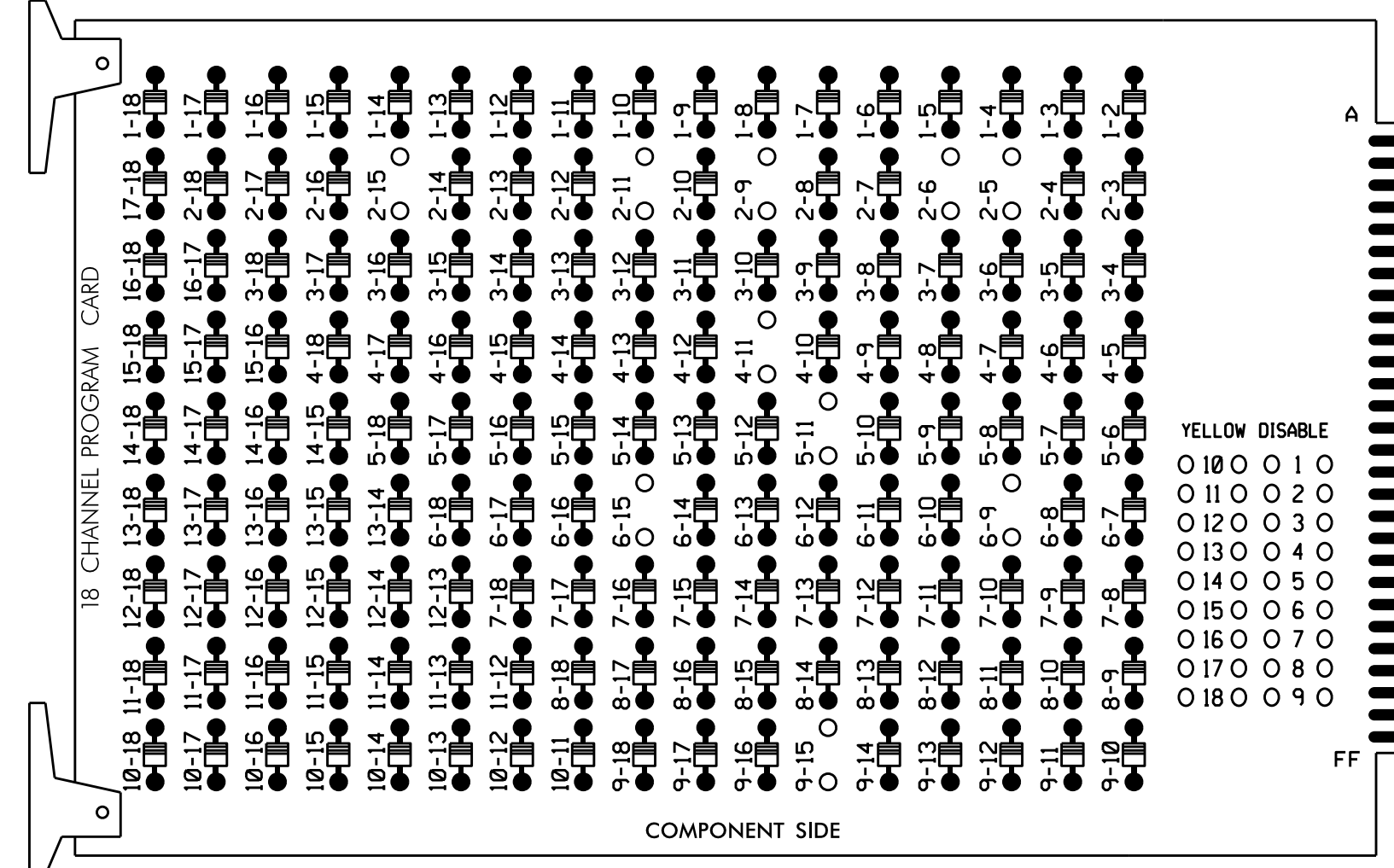
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 S:\IT\SS\IT\Signal\work\gpus\sig\Main\armstron\GBO-041-sm.ele-xxr.dgn
 armstron

Electrical Detail - Final - Sheet 3 of 3		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
ELECTRICAL AND PROGRAMMING DETAILS FOR:	Lawndale Drive at Regents Park Lane	SEAL 
Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	Division 7 Guilford County Greensboro PLAN DATE: April 2016 REVIEWED BY: BAS PREPARED BY: S. Armstrong REVIEWED BY:	DocuSigned by: Keith M. Mins 4/25/2016 2F8078E8EC03445 DATE
REVISIONS INIT. DATE		SIG. INVENTORY NO. GBO-041

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-5, 2-6, 2-9, 2-11, 2-15, 4-11, 5-11, 6-9, 6-15, and 9-15.



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. Integrate monitor with Ethernet network in cabinet.

■ = 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. Initialize database in Naztec 2070 local software (Apogee) as FULL-MODE 5. This initialization should be done prior to programming controller.
3. Program phase 2 for Start Up In Green and phase 6 for Start Up In Walk.
4. Program "Start Up Flash" for 0 sec. The conflict monitor will govern start-up flash time.
5. Ensure "Local Flash Start" feature is set to "ON".
6. The cabinet and controller are part of the City of Greensboro Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....NAZTEC APOGEE
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. FILE
 LOAD SWITCHES USED.....S2,S5,S7,S8,S9,AUX S1,AUX S4
 PHASES USED.....2,4,5,6,6PED
 OVERLAP A.....6
 OVERLAP B.....NOT USED
 OVERLAP C.....4+5
 OVERLAP D.....NOT USED

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	43	NU	51,52	61,62	P61,P62 P63,P64 P65,P66	NU	NU	NU	63,64	NU	NU	54,54	NU	
RED		128			101			134										A114	
YELLOW		129			102			135											
GREEN		130			103			136											
RED ARROW					101			131						A121					
YELLOW ARROW					102			132						A122				A115	
GREEN ARROW					103			133						A123				A116	
Hand												119							
Walking												121							

NU = Not Used

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.

INPUT FILE POSITION LAYOUT

(front view)

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

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

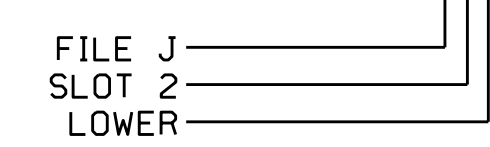
FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	CALL PHASE	SWITCH	DELAY TIME	EXTEND TIME	CALL	EXTEND	ADDED INIT.
2A	TB2-5,6	I2U	39	2	2				X	X	X
2B	TB2-7,8	I2L	43	3	2				X	X	X
4A	TB4-9,10	I6U	41	8	4				X	X	
4B	TB4-11,12	I6L	45	9	4				X	X	
5A	TB3-1,2	J1U	55	15	5				X	X	
5B	TB3-3,4	J1L	55	15	5				X	X	
5C	TB3-5,6	J2U	40	16	5		15		X	X	
5D	TB3-7,8	J2L	44	17	5		15		X	X	
6A	TB3-9,10	J3U	64	18	6				X	X	X
6B	TB3-11,12	J3L	77	19	6				X	X	X
PED PUSH BUTTONS											
P61,P62,P63 P64,P65,P66	TB8-7,9	I13U	68	PED 6	6 PED						

NOTE:
 INSTALL DC ISOLATOR IN INPUT FILE SLOT 113.

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0535
 DESIGNED: March 2016
 SEALED: 4/19/2016
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
 PUBLIC UTILITIES AND SAFETY SERVICE DIVISION
 CITY OF GREENSBORO
 Signal Management System

Lawndale Drive at I-840 Ramps

Division 7 Guilford County Greensboro

PLAN DATE: April 2016 REVIEWED BY: BAS

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: Keith M. Minis 4/25/2016

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER KEITH M. MINIS SEAL 036880

SIG. INVENTORY NO. 07-0535

25-Apr-2016 11:10
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 S:\IT\SSM\15_Signal\work\hgc\oua\51g_MarkArmstrong\070535_sml_elec_xxx.dgn

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS "1" CONTROLLER AND THEN "5" OVERLAPS

```

Overlaps
1.General Parm
2.Program
3.Status
    
```

```

General Overlap Parameters
Lock Inhibit OFF
Confl Lock Enable OFF
Parent P Ctrncs OFF
Extra Included Phases OFF
    
```

PRESS "ESC"

```

Overlaps
1.General Parm
2.Program
3.Status
    
```

Enter Overlap # 1
then press Enter

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

Ovr lp A-1 Ps.....
Included Ps 6 0 0 0 0 0 0 0
Modifier Ps 0 0 0 0 0 0 0 0
Type:NORMAL Grn: 4 Yel: 4.3 Red: 1.0
    
```

Note Grn, Yel, Red values for Timed Overlap A

PRESS "ESC"

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

Ovr lp A-1 Ps.....
Confl Ps 0 0 0 0 0 0 0 0
Confl Ovr Ips 0 0 0 0 0 0 0 0
Confl Peds 0 0 0 0 0 0 0 0
    
```

PRESS "ESC"

```

Overlap A-1
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

Ovr lp A-1
LeadGreen OFF Transit 0
GreenExtInh 0 0 0 0 0 0 0 0
    
```

PRESS "ESC" TWICE

```

Overlaps
1.General Parm
2.Program
3.Status
    
```

Enter Overlap # 3
then press Enter

```

Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

Ovr lp C-3 Ps.....
Included Ps 4 5 0 0 0 0 0 0
Modifier Ps 0 0 0 0 0 0 0 0
Type:NORMAL Grn: 0 Yel: 3.3 Red: 1.0
    
```

Note Yel, Red values for Overlap C

PRESS "ESC"

```

Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

Ovr lp C-3 Ps.....
Confl Ps 0 0 0 0 0 0 0 0
Confl Ovr Ips 0 0 0 0 0 0 0 0
Confl Peds 0 0 0 0 0 0 0 0
    
```

PRESS "ESC"

```

Overlap C-3
1.Program Parm
2.Confl Prog+
3.Program Parm+
    
```

```

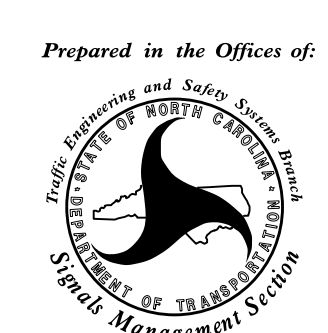
Ovr lp C-3
LeadGreen OFF Transit 0
GreenExtInh 0 0 0 0 0 0 0 0
    
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0535
DESIGNED: March 2016
SEALED: 4/19/2016
REVISED: N/A

Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

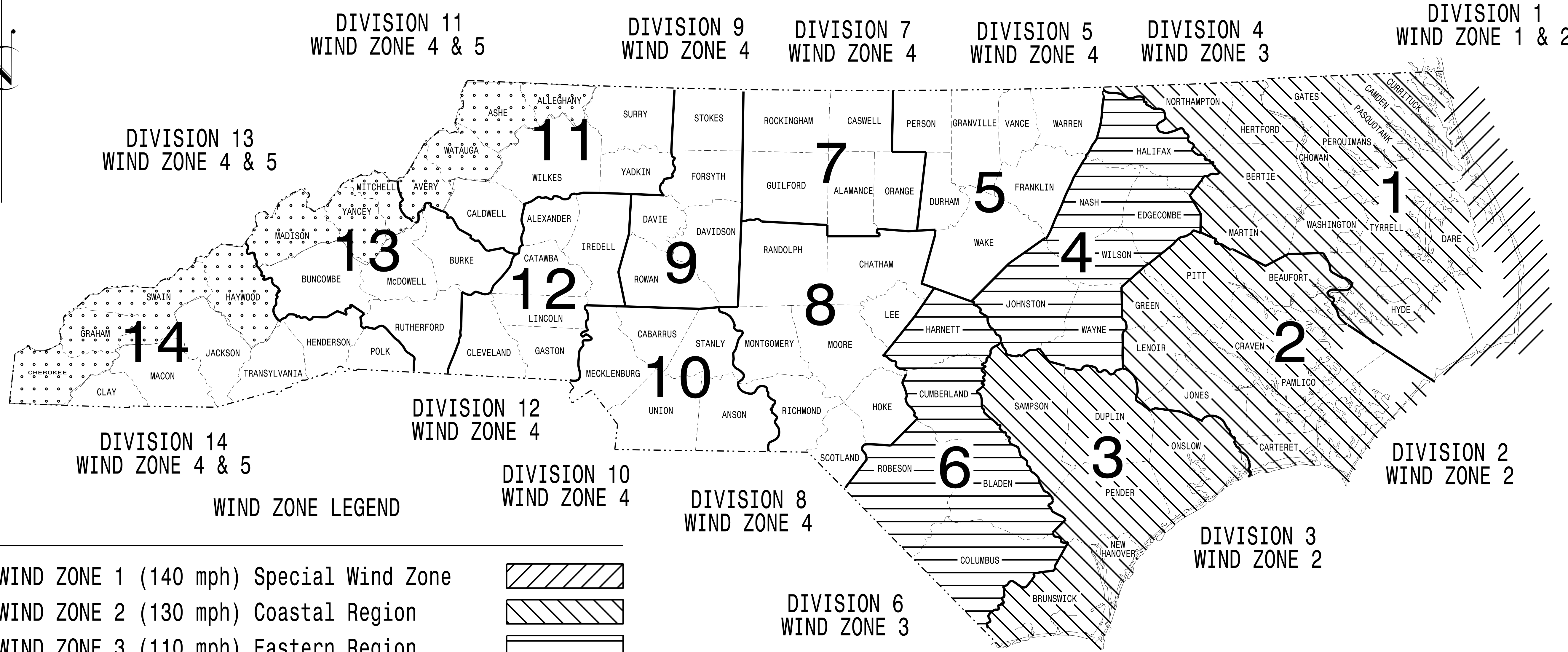
ELECTRICAL AND PROGRAMMING DETAILS FOR:	Lawndale Drive at I-840 Ramps	SEAL NORTH CAROLINA PROFESSIONAL ENGINEER KEITH M. MINS
Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	Division 7 Guilford County Greensboro PLAN DATE: April 2016 REVIEWED BY: BAS PREPARED BY: S. Armstrong REVIEWED BY:	DocuSigned by: Keith M. Mins 4/25/2016 DATE
REVISIONS	INIT. DATE	SIG. INVENTORY NO. 07-0535

05-APR-2016 11:51
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 sarmstrong

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT I.D. NO.	SHEET NO.
U-2524D	Sig.M1

STANDARD DRAWINGS FOR ALL 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	

<https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

Prepared In the Offices of:

750 N. Greenfield Pkwy.
Garner, NC 27529

Designed in conformance
with the latest
2015 Interim to the
6th Edition 2013
AASHTO
Standard Specifications for
Structural Supports for
Highway Signs, Luminaires,
and Traffic Signals

DRAWING NUMBER	DESCRIPTION
Sig. M 1	Statewide Wind Zone Map
Sig. M 2	Typical Fabrication Details-All Metal Poles
Sig. M 3	Typical Fabrication Details-Strain Poles
Sig. M 4	Typical Fabrication Details-Mast Arm Poles
Sig. M 5	Typical Fabrication Details-Mast Arm Connection
Sig. M 6	Typical Fabrication Details-Strain Pole Attachments
Sig. M 7	Construction Details-Foundations
Sig. M 8	Standard Strain Pole Foundation-All Soil Conditions

NC DOT 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

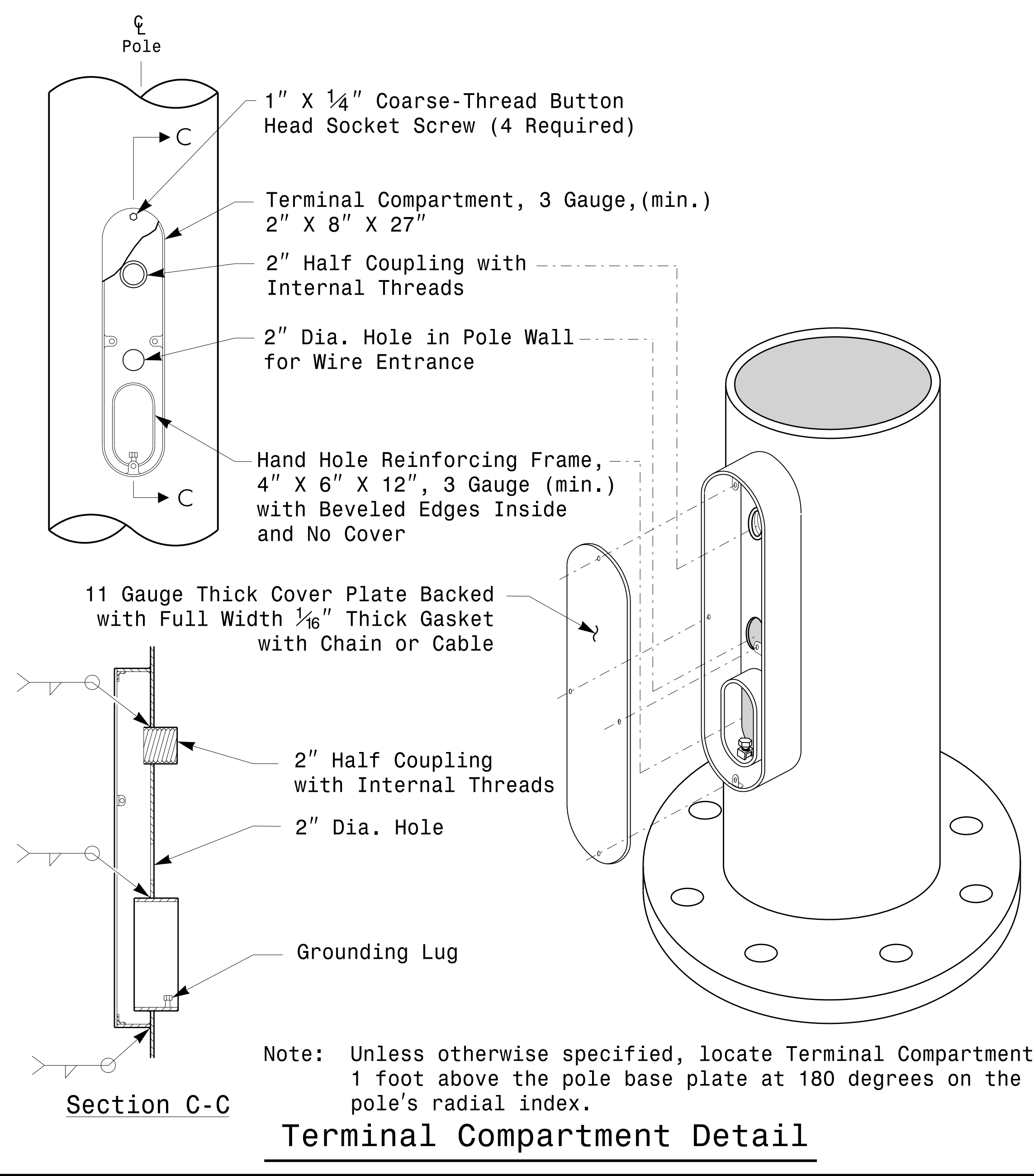
D. C. SARKAR, P.E. - ITS AND SIGNALS SENIOR STRUCTURAL ENGINEER

C. F. ANDREWS - ITS AND SIGNALS JOURNEY STRUCTURAL ENGINEER

SEAL

DocuSigned by:
Debesh C. Sarkar

2/17/2016
DATE

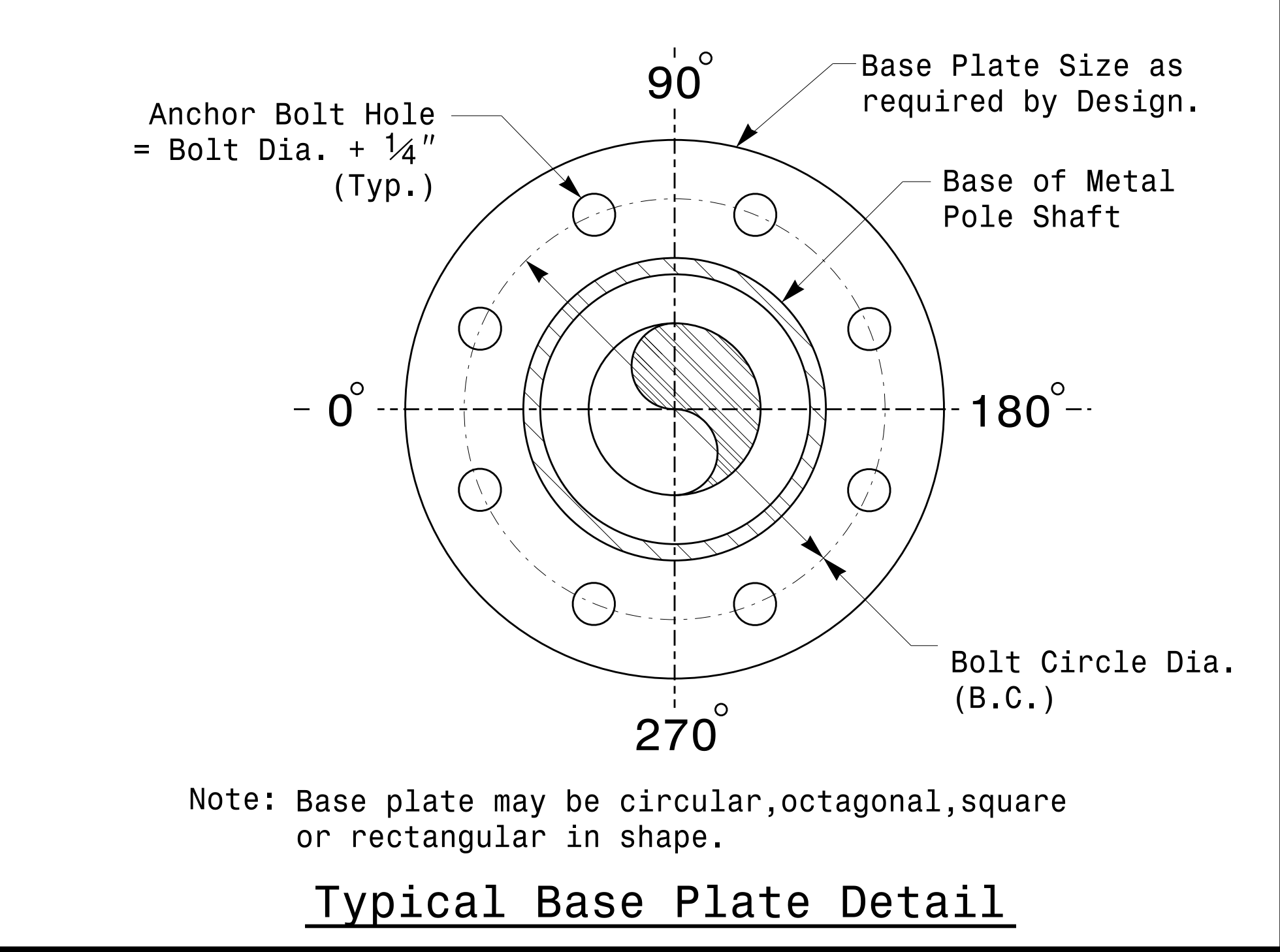
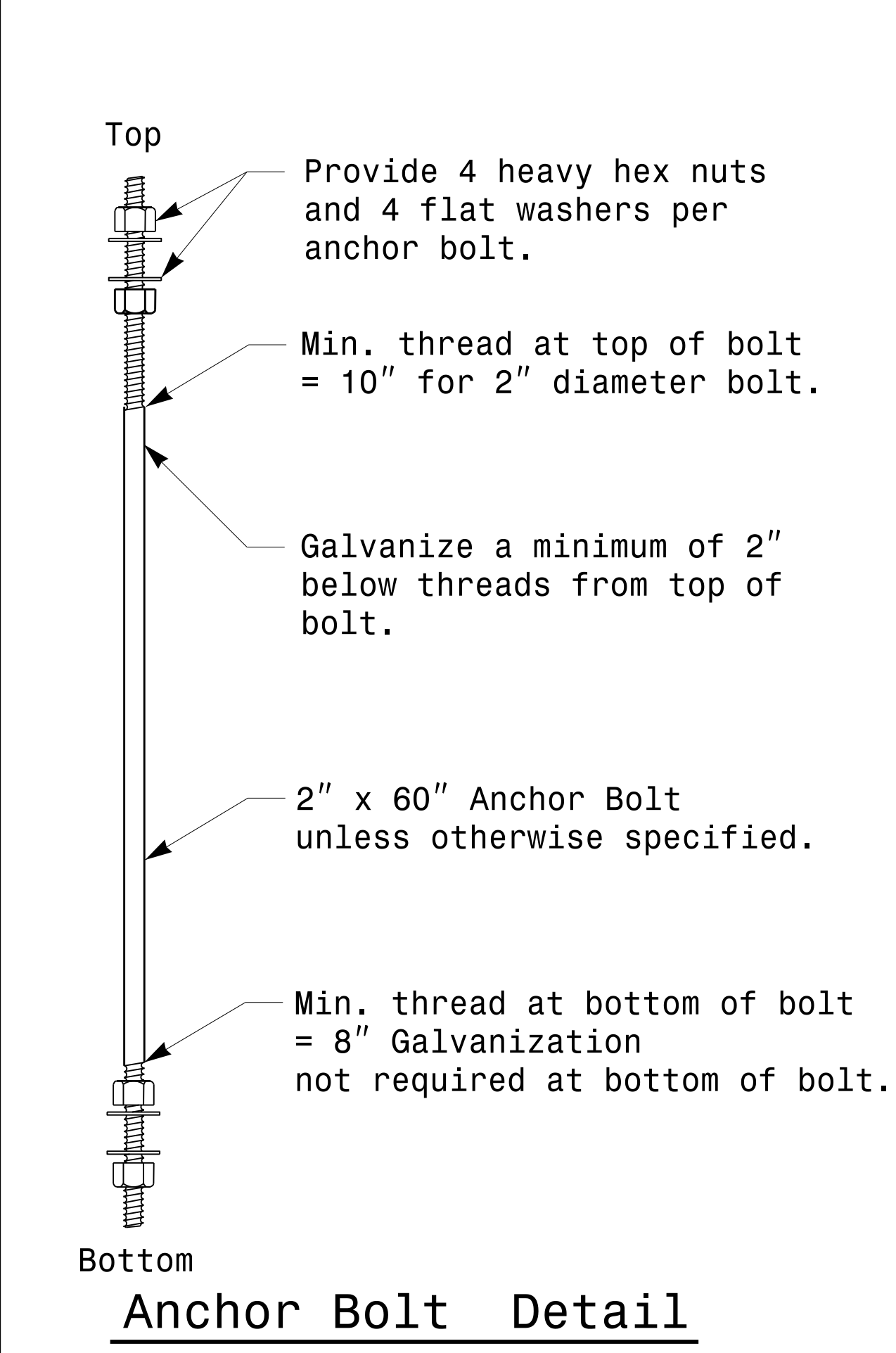
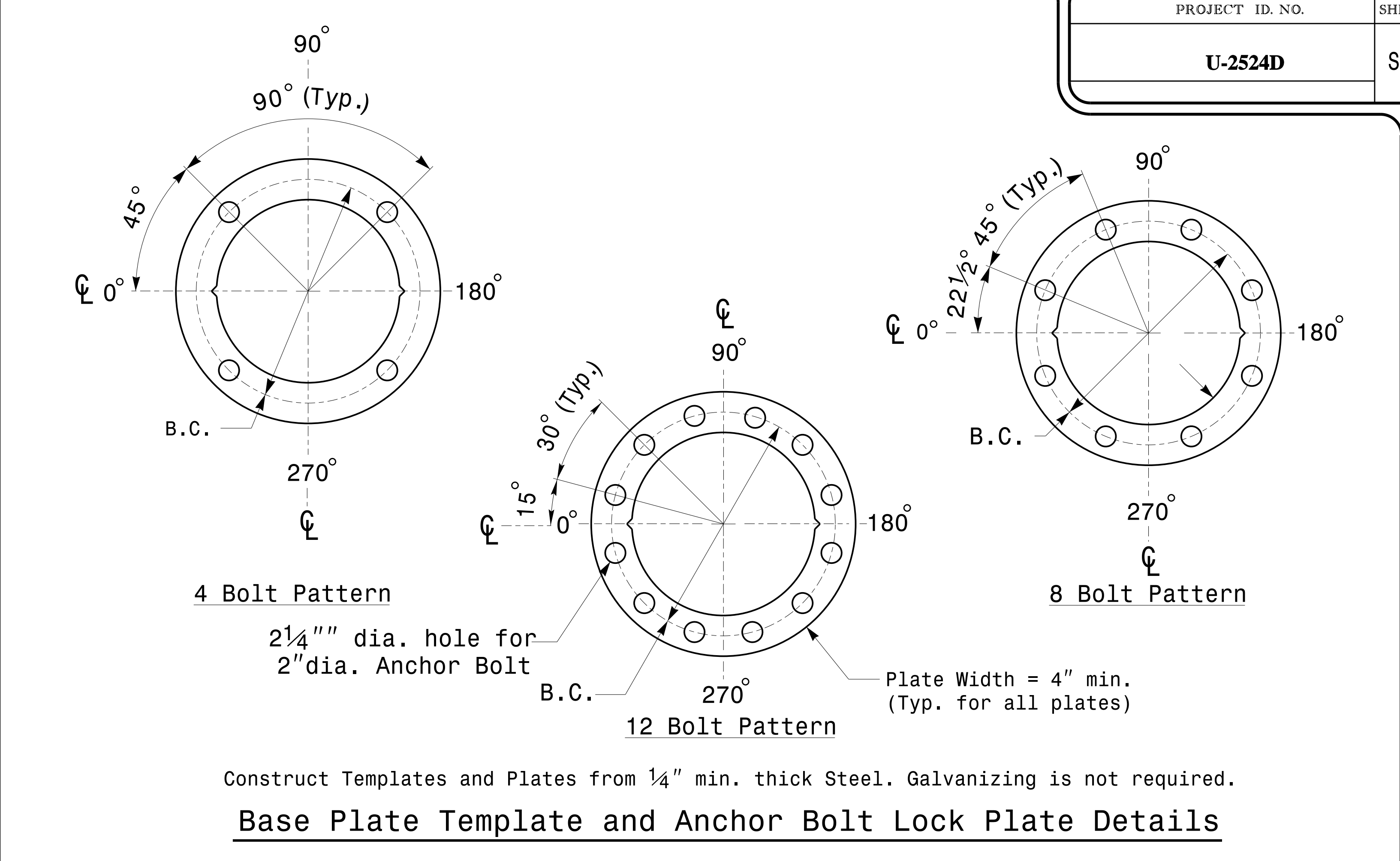


MFG _____	MFG. DATE: MM/YY _____
SHAFT D/T/L/Y _____	_____
ARM-A D/T/L/Y _____	_____
ARM-B D/T/L/Y _____	_____
A.B. DIA./B.C./L/Y _____	_____
NCDOT SIG. INV. NO. _____	_____
NCDOT POLE NO. _____	_____

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

- 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 Signal Inv. Number and pole I.D. number
 - 5) See drawing M3 and M4 for mounting positions of I.D. tags.

Identification Tag Details



Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

Typical Fabrication Details For All Metal Poles	
PLAN DATE: FEBRUARY 2016	DESIGNED BY: C.F. ANDREWS
PREPARED BY: N. BITTING	REVIEWED BY: D.C. SARKAR
REVISIONS	INITIALS DATE

SEAL

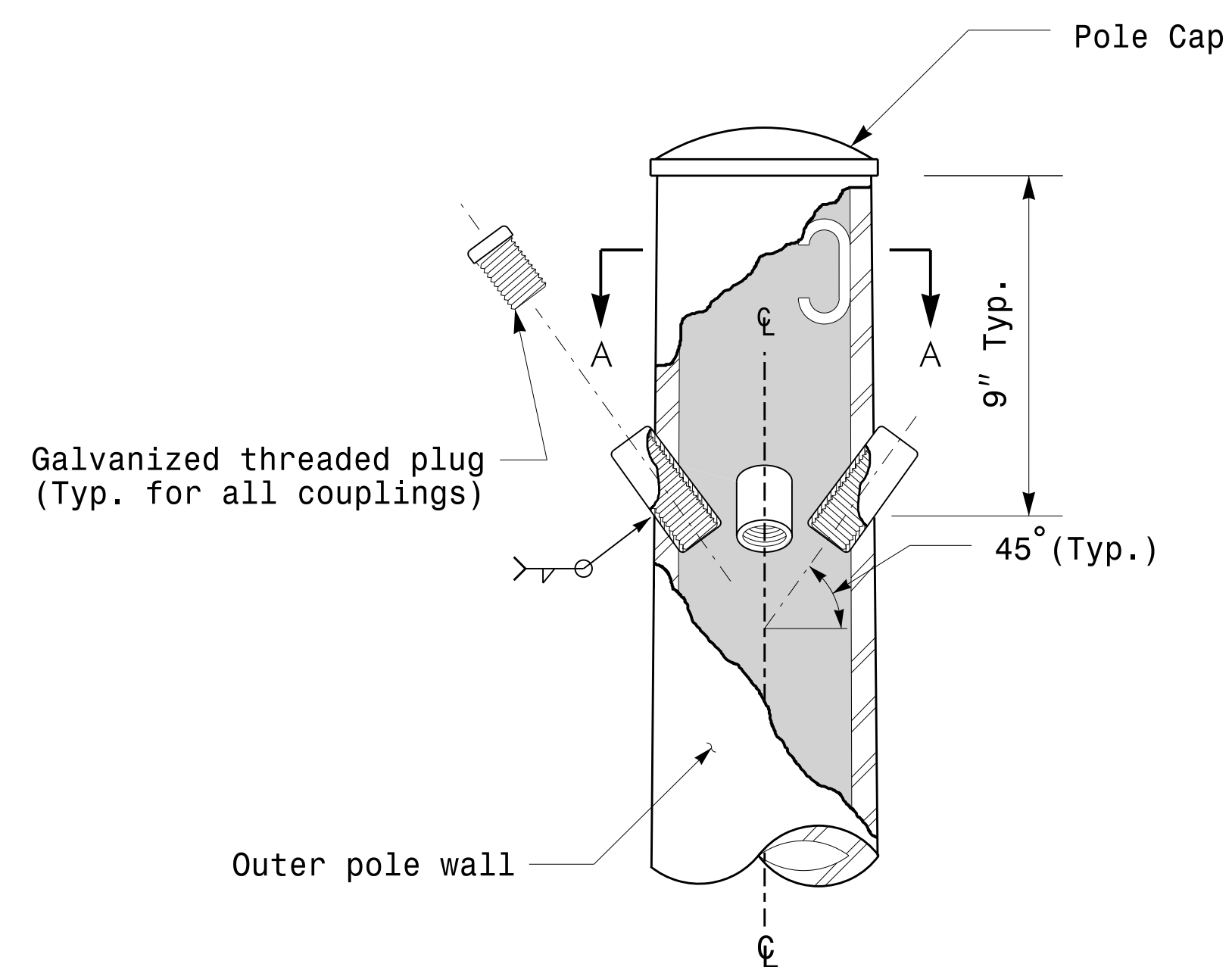
DocuSigned by: *Debesh C. Sarkar*

44E8E32E147E4C4...

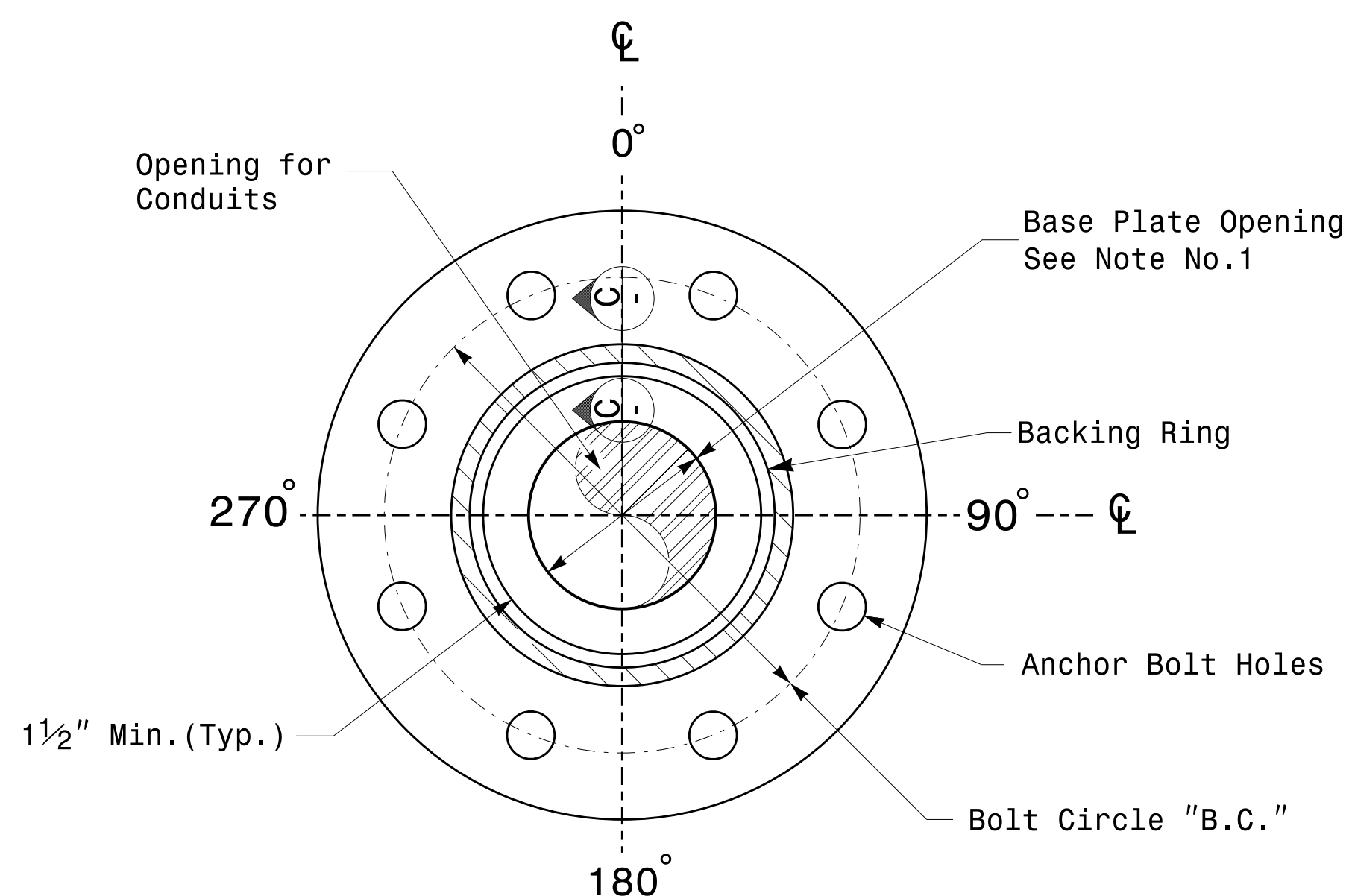
2/17/2016 DATE

17-FEB-2016 16:02:31 TSC04115 Signal Design Section Eastern Region 20160204 Sig.M2 Std. Fabrication Detail-All Poles.dgn

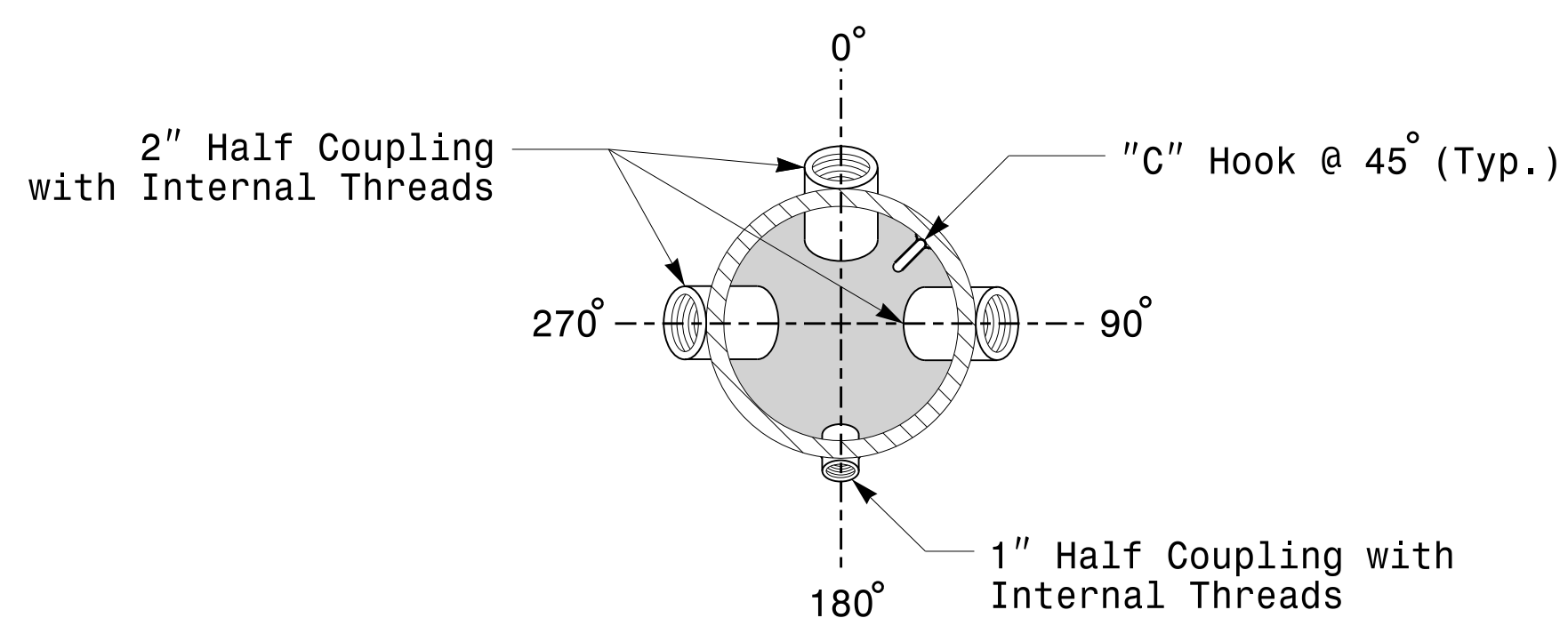
Note:
 1. Opening in pole base plate shall be equal to pole base inside diameter minus 3 1/2" but shall not be less than 8 1/2".



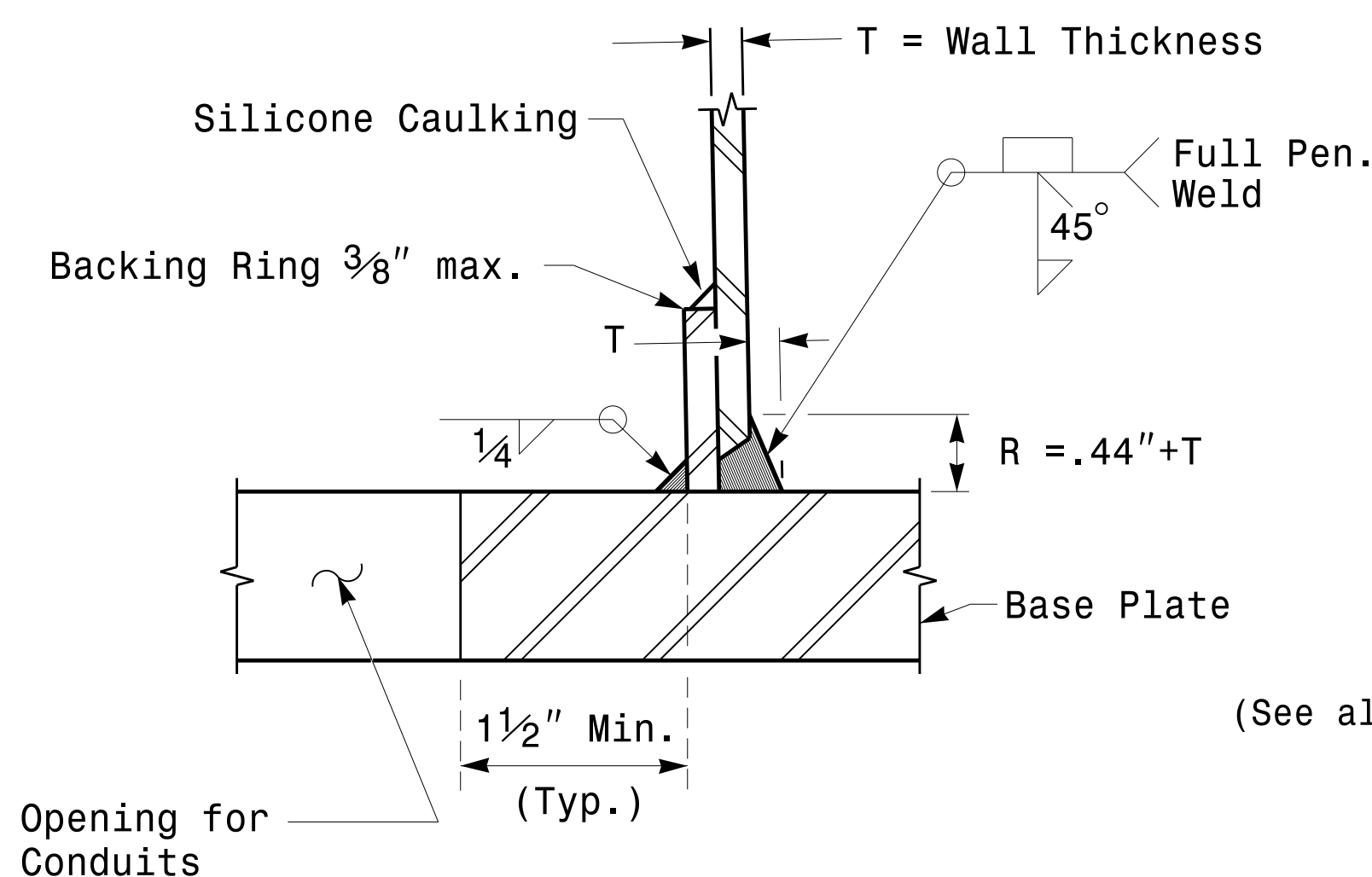
Cable Entrances at Top of Pole



Section B-B
 Pole Base Plate Details
 (8 and 12 Bolt Pattern)

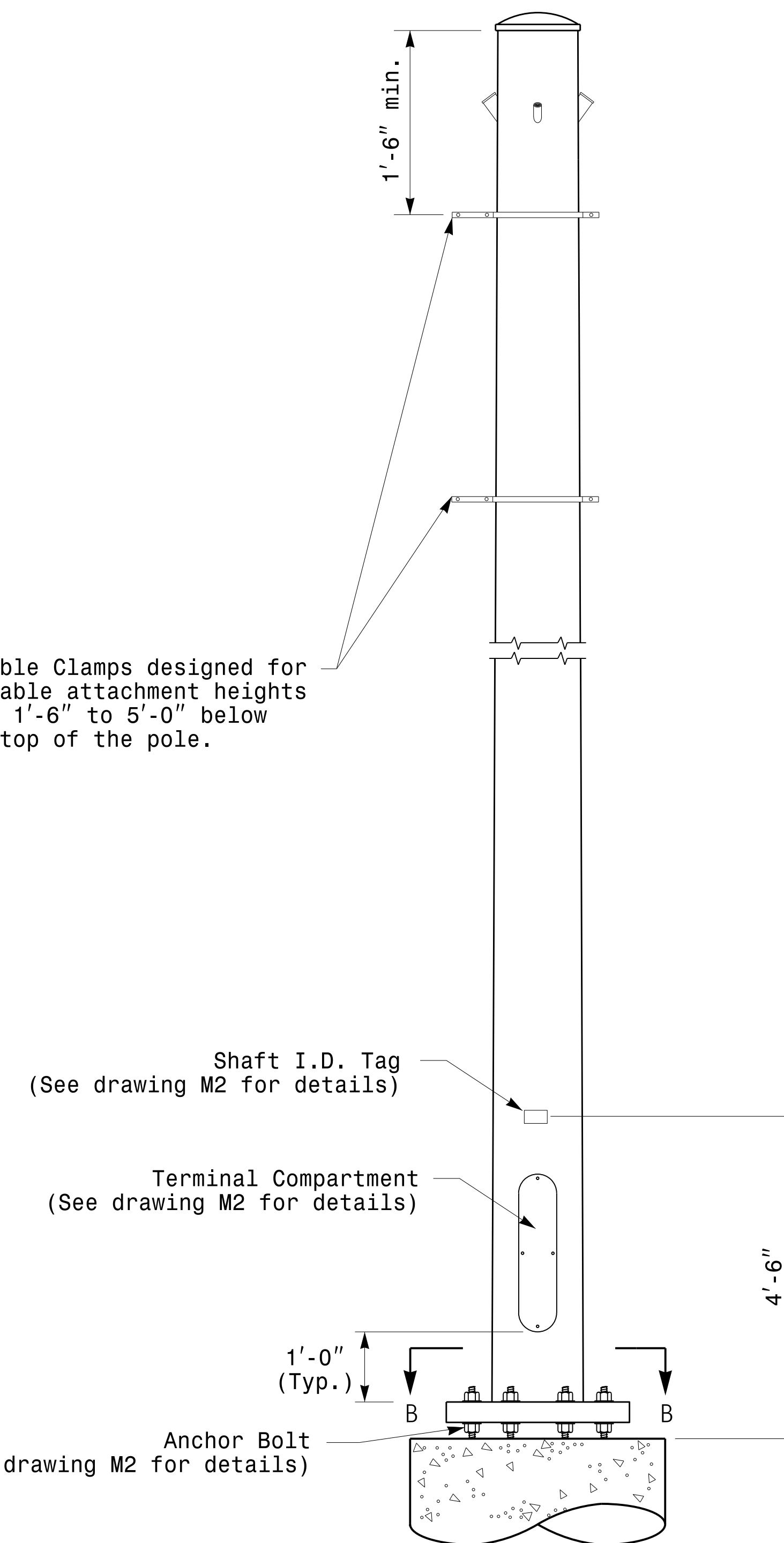


Section A-A
 Radial Orientation for Factory Installed
 Accessories at Top of Pole



Section C-C
 (Pole Attachment to Base Plate)
 Full-Penetration
 Groove Weld Detail

2 Cable Clamps designed for variable attachment heights from 1'-6" to 5'-0" below the top of the pole.

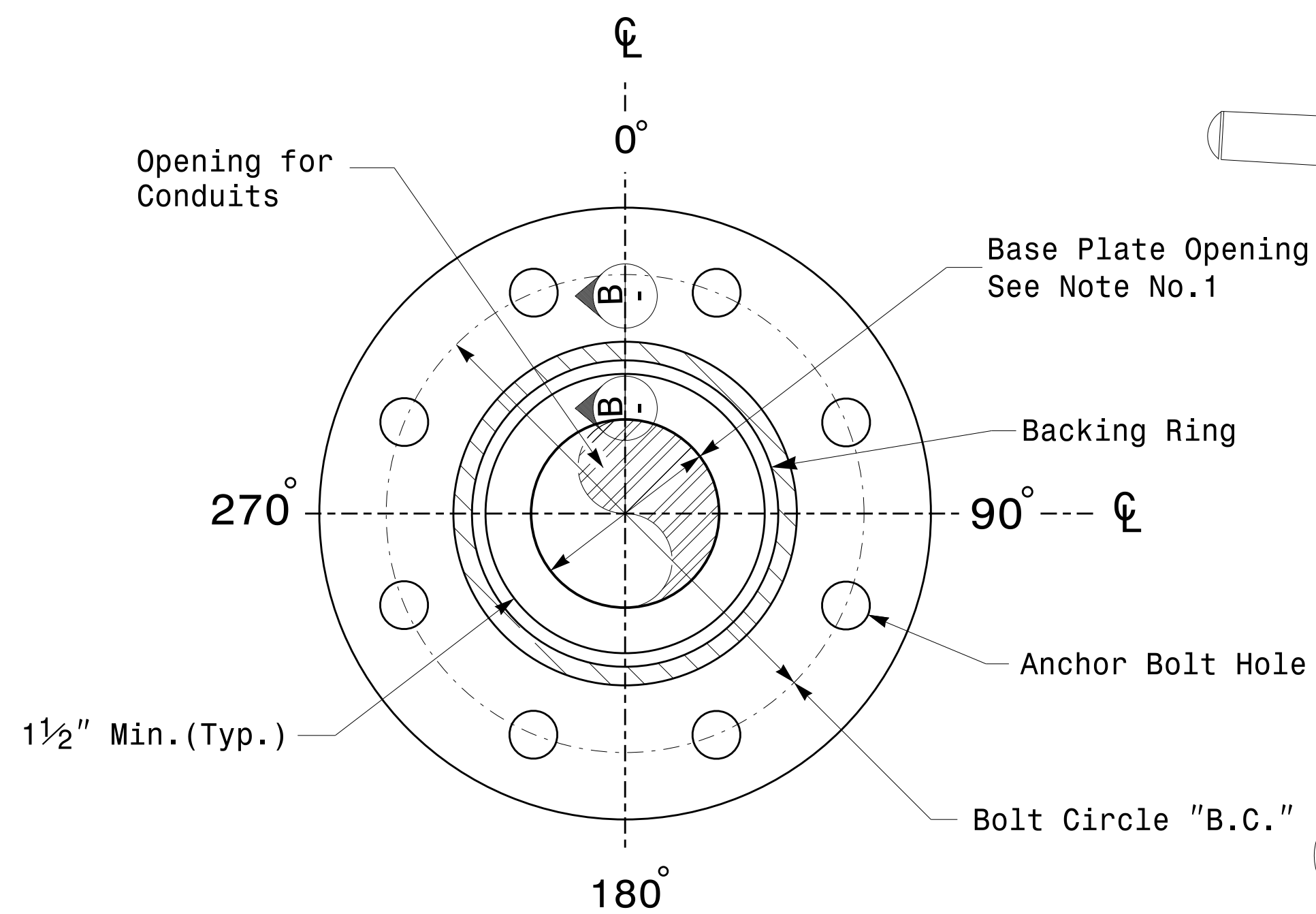


Monotube Strain Pole

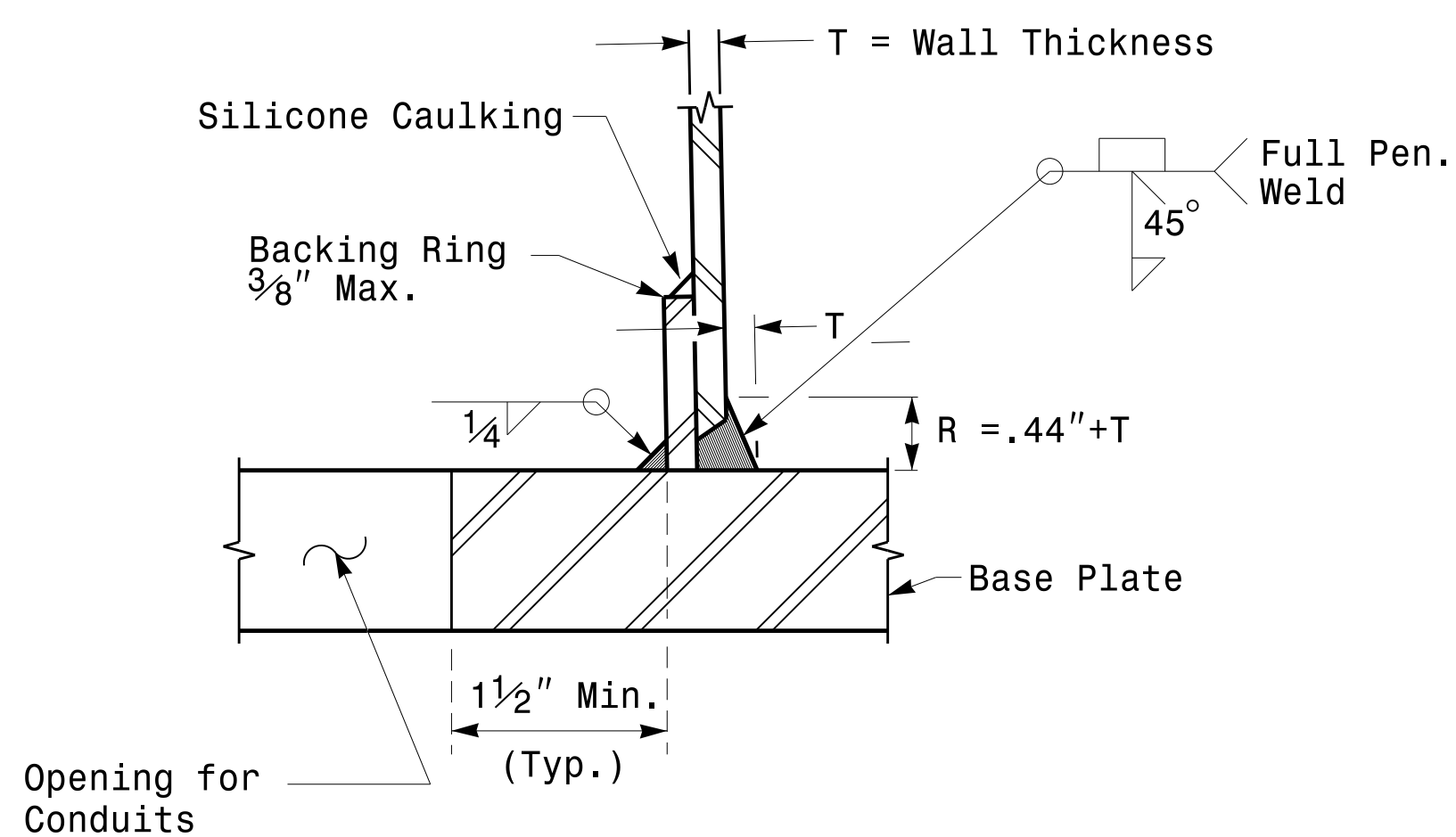
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	Typical Fabrication Details For Strain Poles		SEAL DocuSigned by Debesh C. Sarkar SIGNATURE 44E8E32E147E4C4...
	PLAN DATE: FEBRUARY 2016 PREPARED BY: N. BITTING	DESIGNED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR	
SCALE: 0 NONE	DATE: 2/17/2016		DATE:

Fabrication Details – Strain Poles

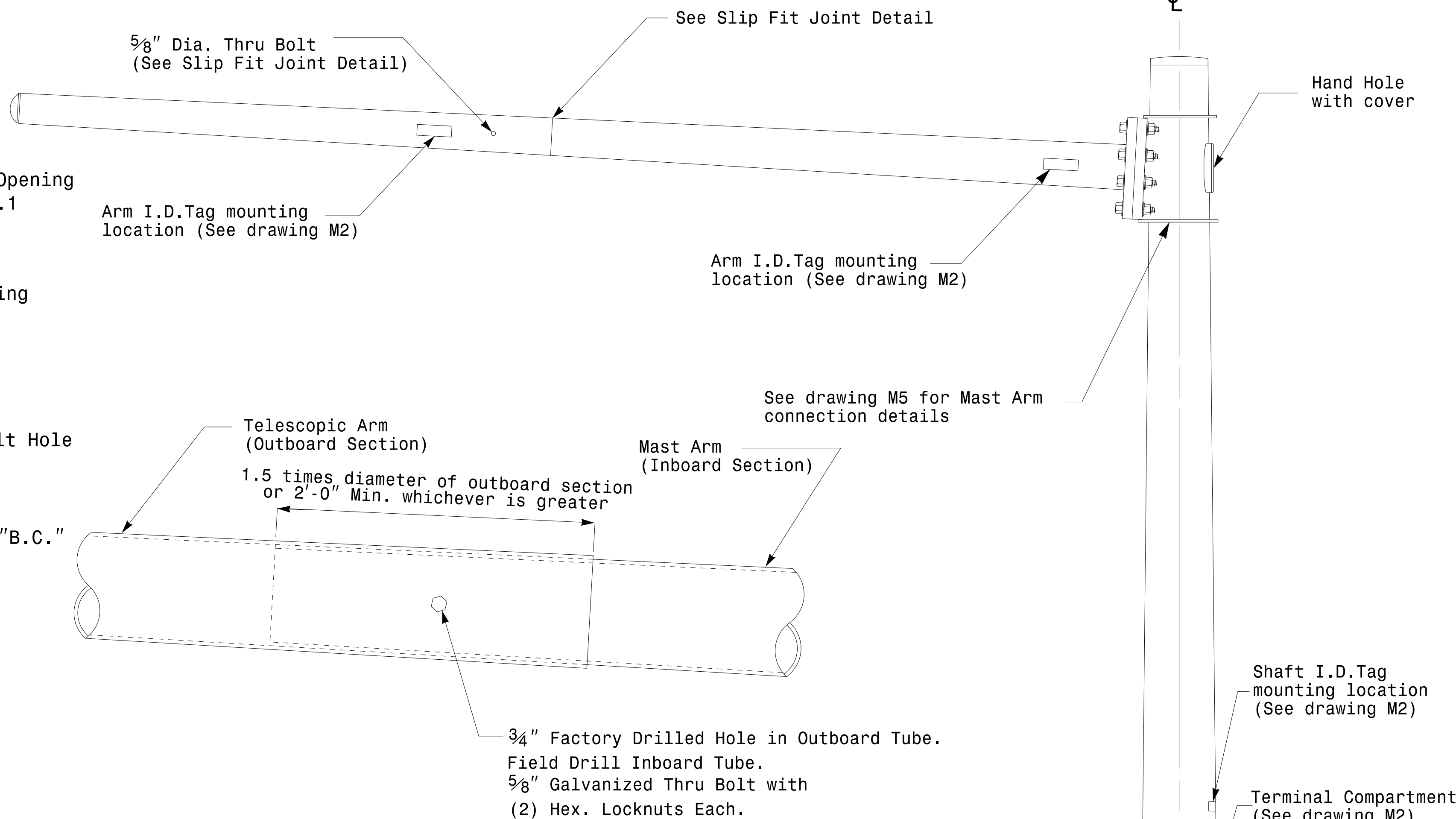
Note:
1. Opening in pole base plate shall be equal to pole base inside diameter minus 3 1/2" but shall not be less than 8 1/2".



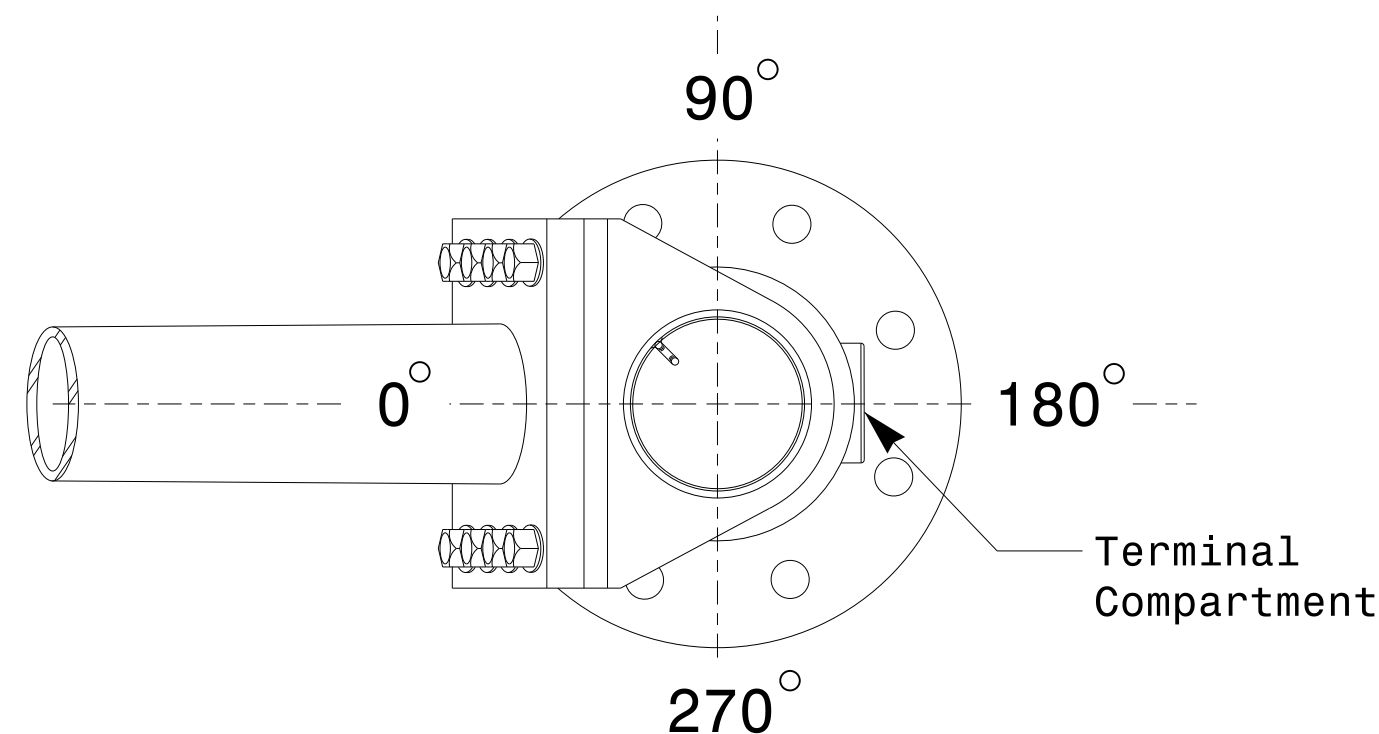
Section A-A
Pole Base Plate Details



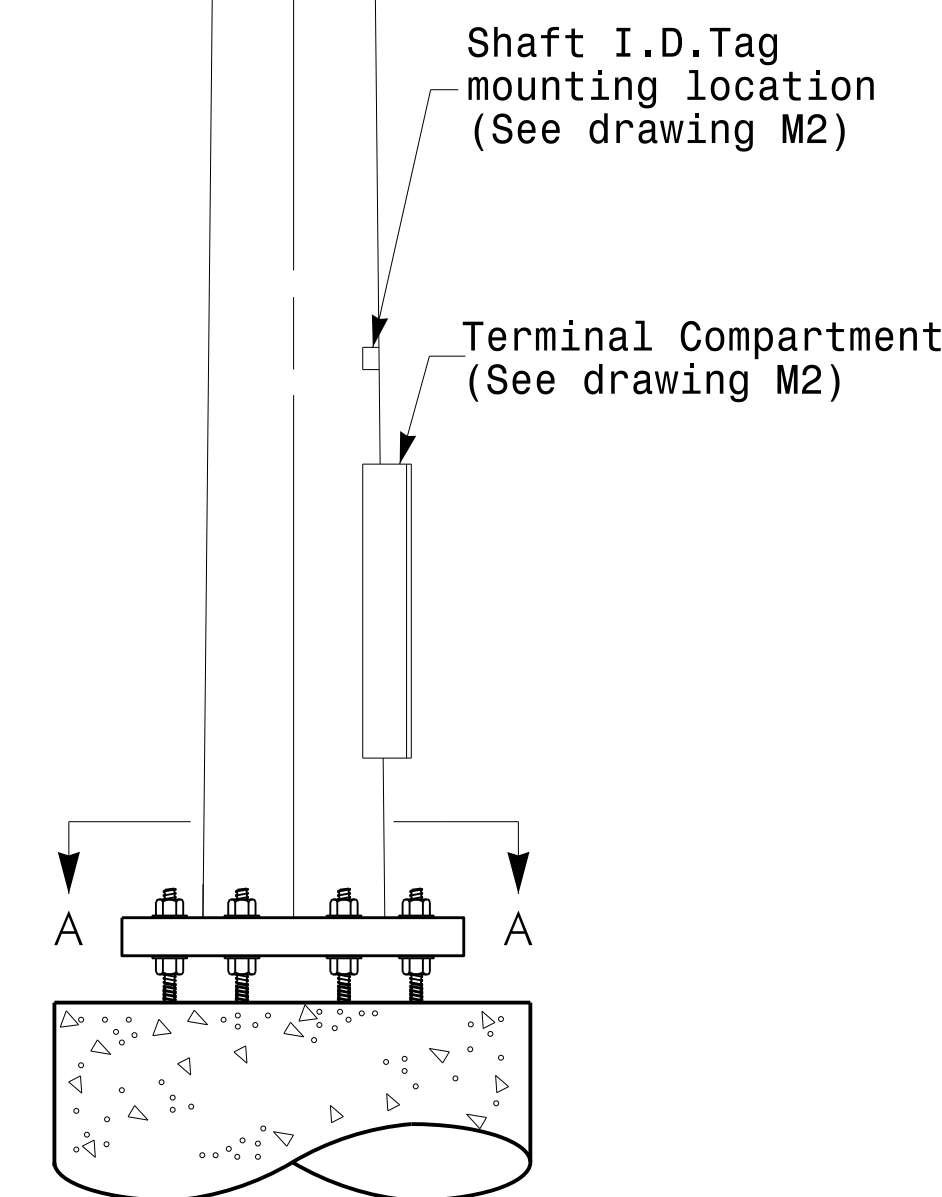
Section B-B
(Pole Attachment to Base Plate)
Full-Penetration Groove Weld Detail



Slip Fit Joint Detail for Mast Arm



Mast Arm Radial Orientation



Mast Arm Pole

<p>Prepared in the Offices of:</p> <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>Typical Fabrication Details For Mast Arm Poles</p>		<p>SEAL</p> <p>DocuSigned by <i>Dinesh C. Sarkar</i></p>
	<p>PLAN DATE: FEBRUARY 2016</p>	<p>DESIGNED BY: K.C. DURIGON</p>	
<p>SCALE: 0 NA NONE</p>	<p>PREPARED BY: N. BITTING</p>	<p>REVIEWED BY: D.C. SARKAR</p>	<p>DATE: 2/17/2016</p>

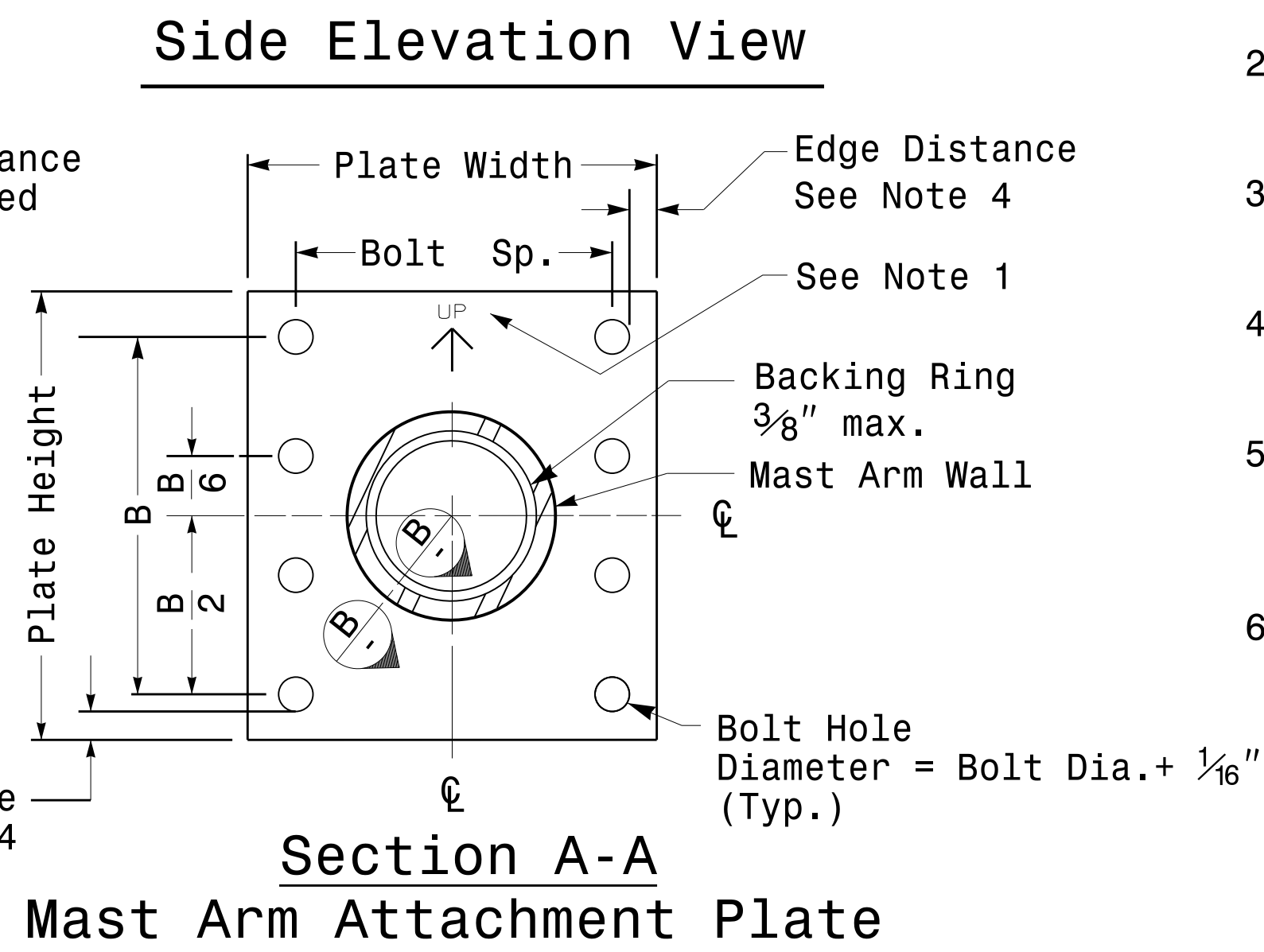
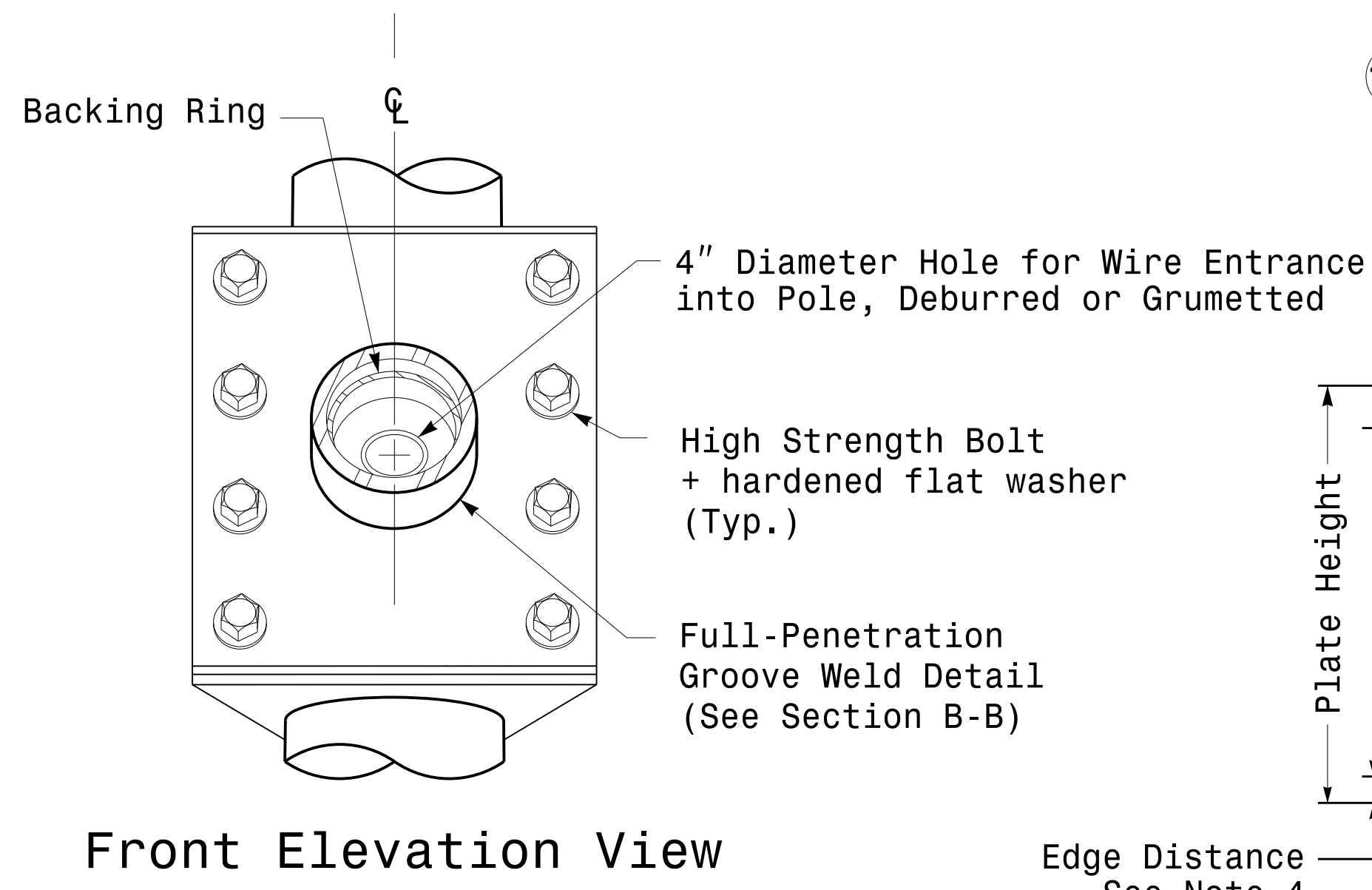
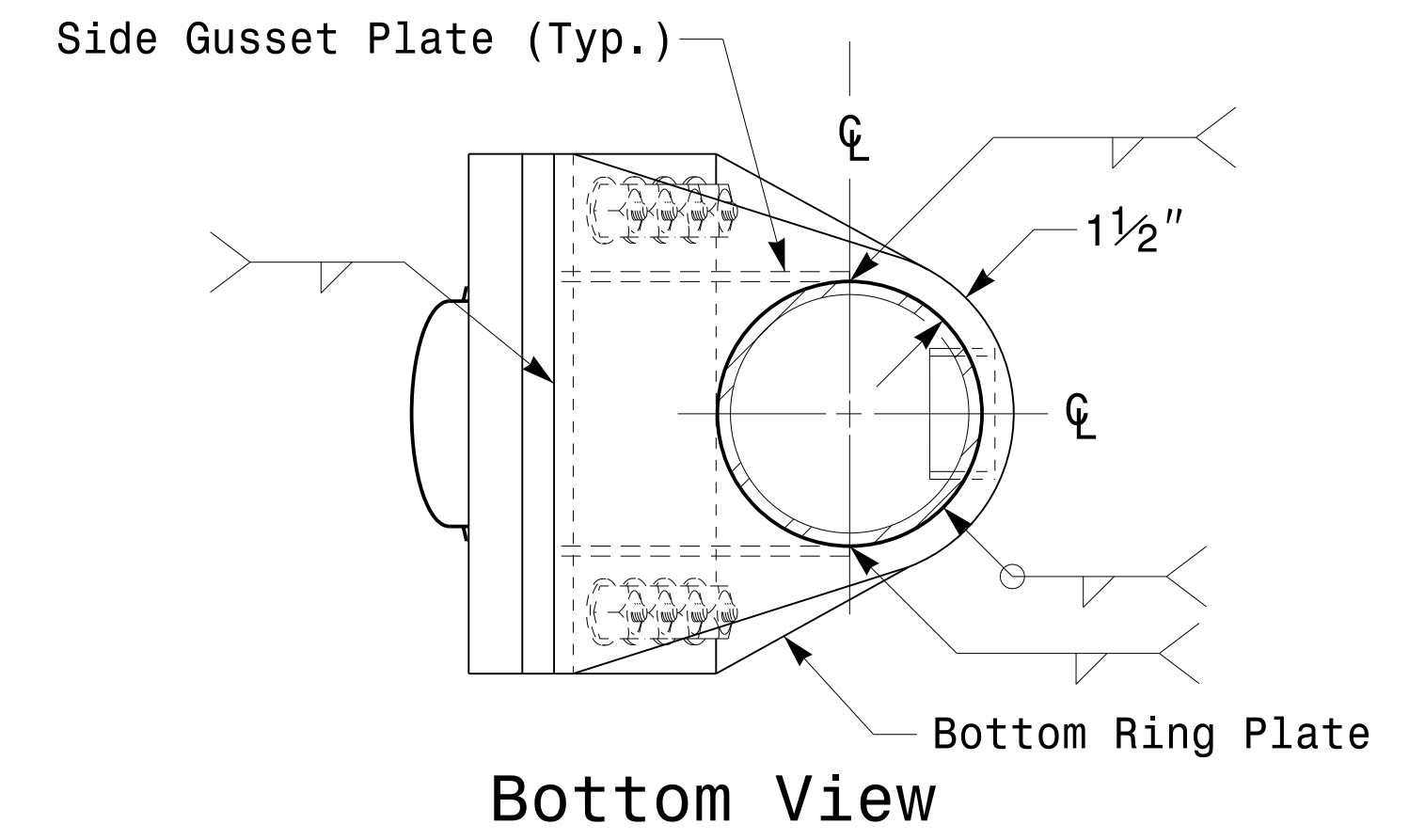
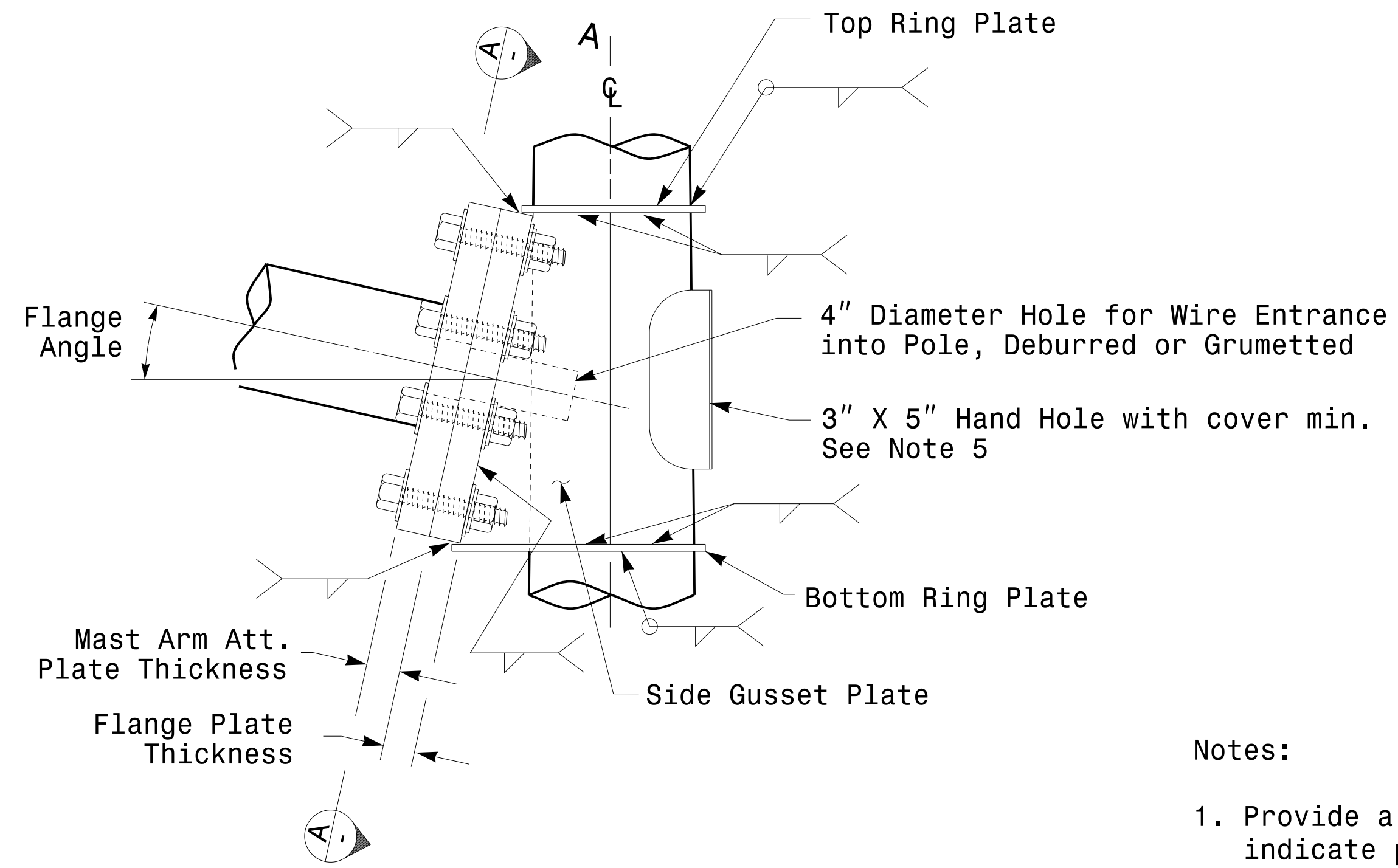
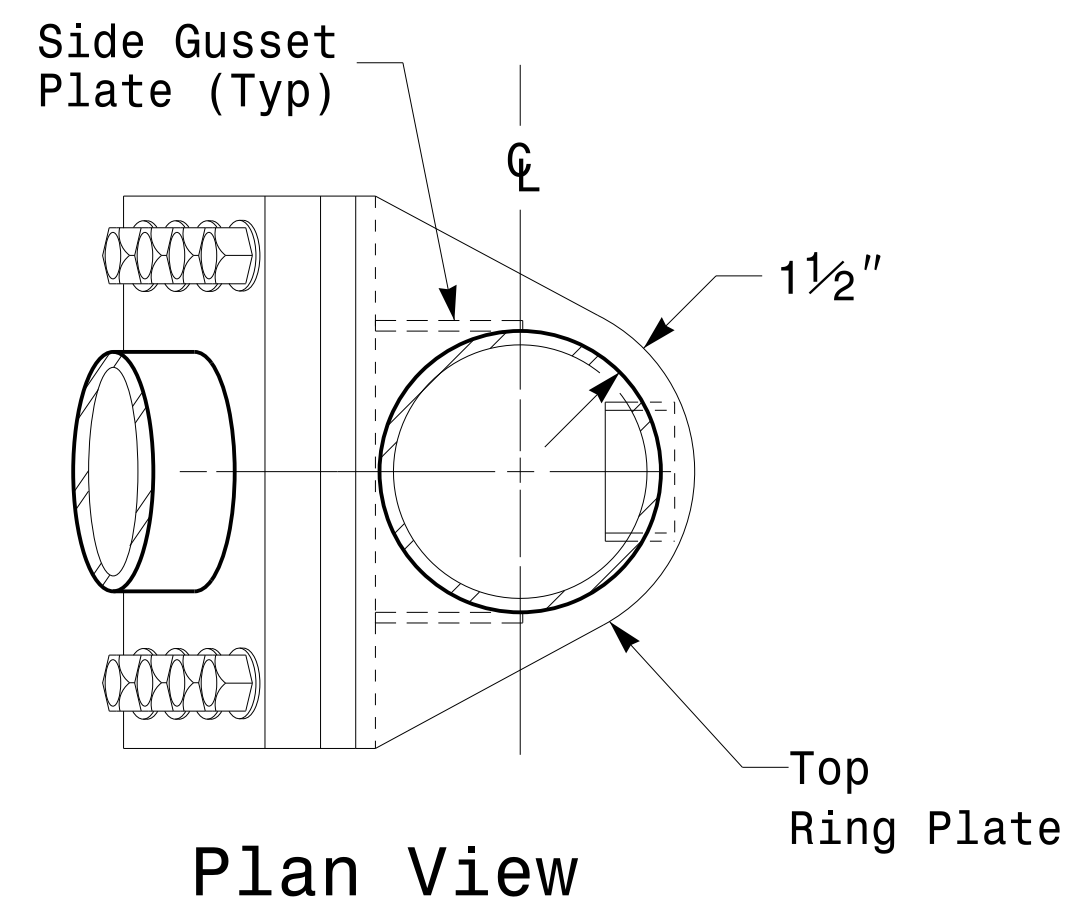
17-FEB-2016 16:05
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 Design Section\Eastern Region\Sheet\2016\2014_Sig.M4_Std_Fabrication_Details\Mast_Arm_Poles.dgn
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Fabrication Details - Mast Arm Poles

Welded Ring Stiffened Mast Arm Connection

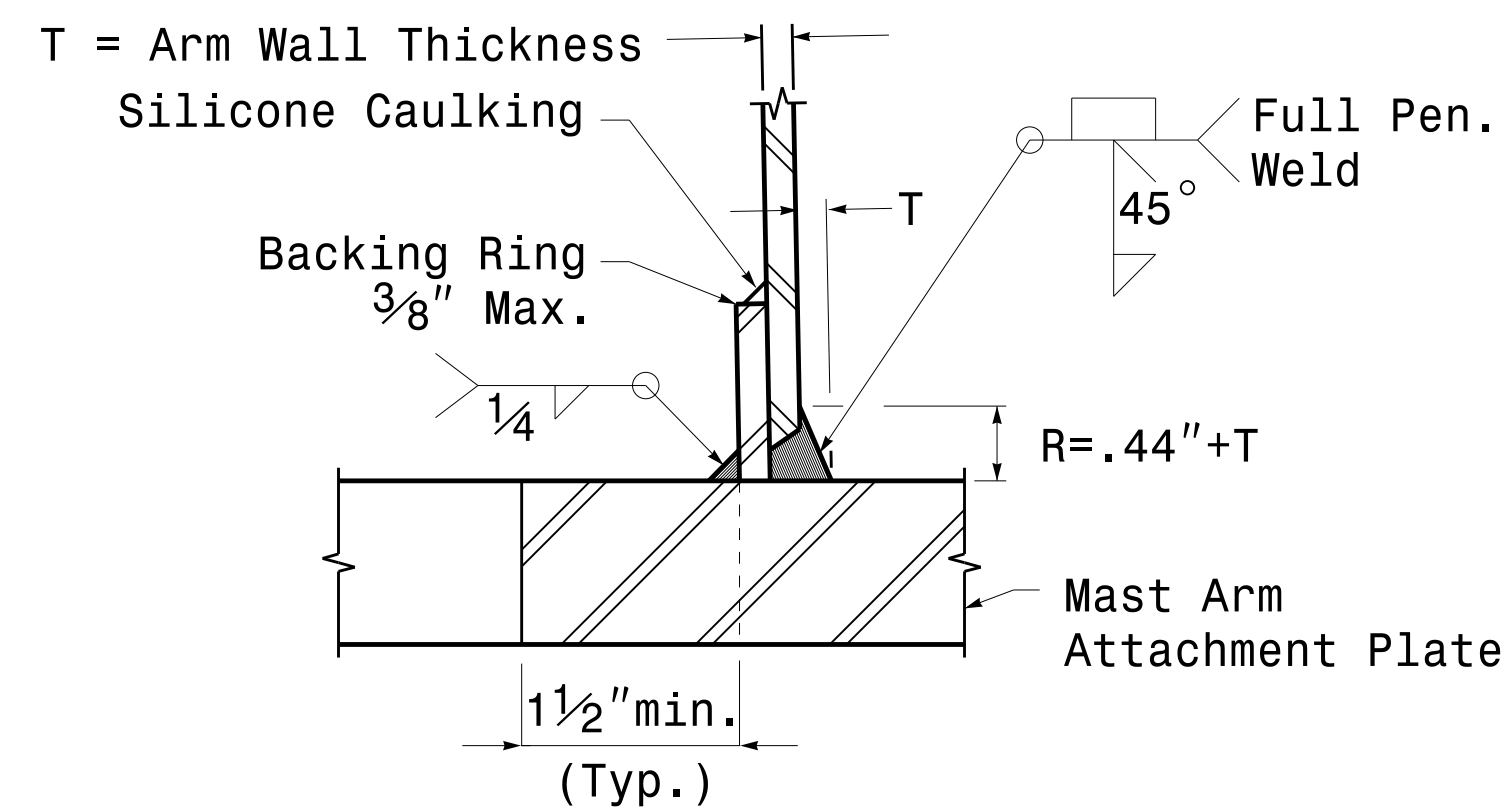
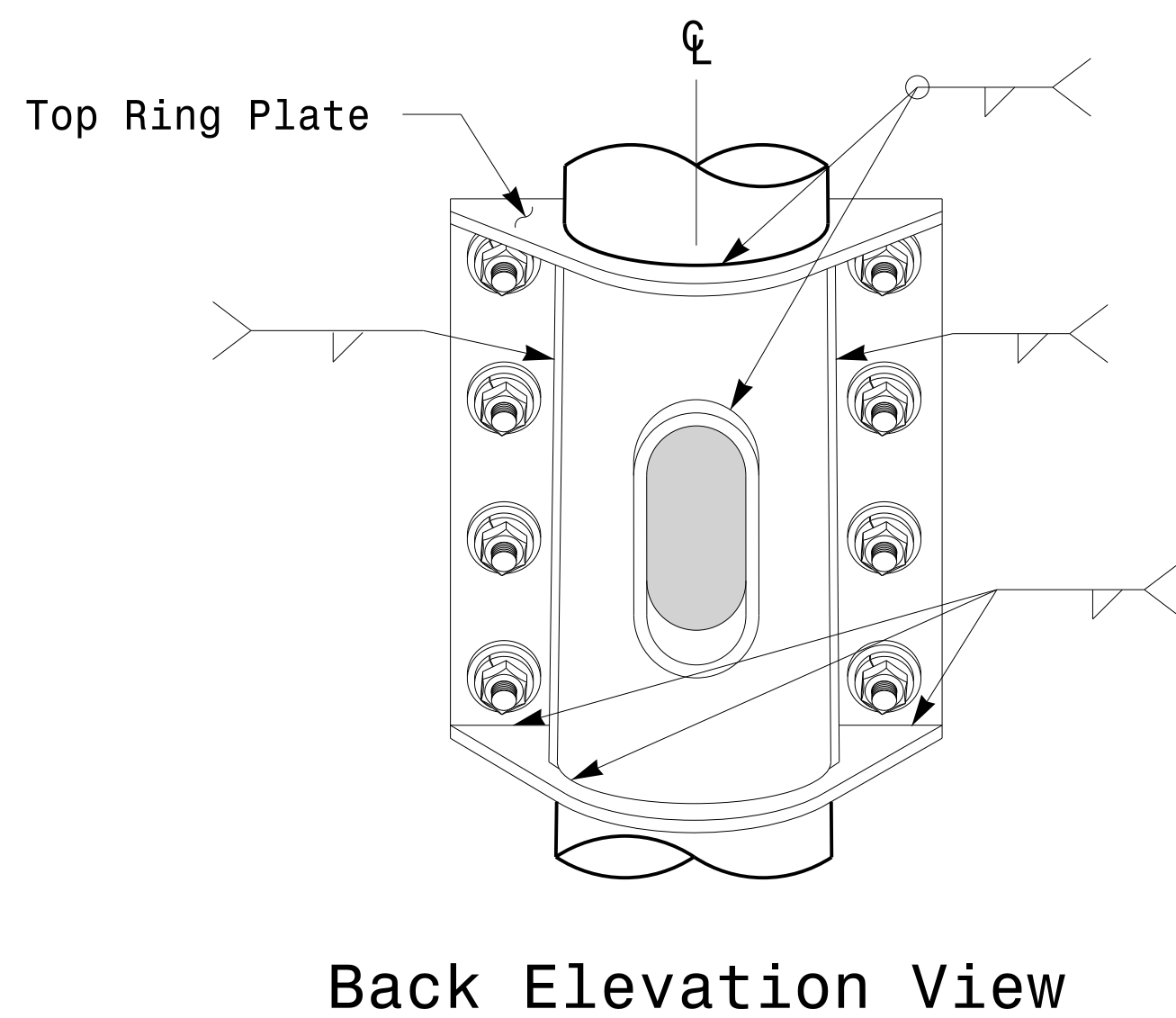
PROJECT ID. NO. SHEET NO.

U-2524D Sig.M5



Notes:

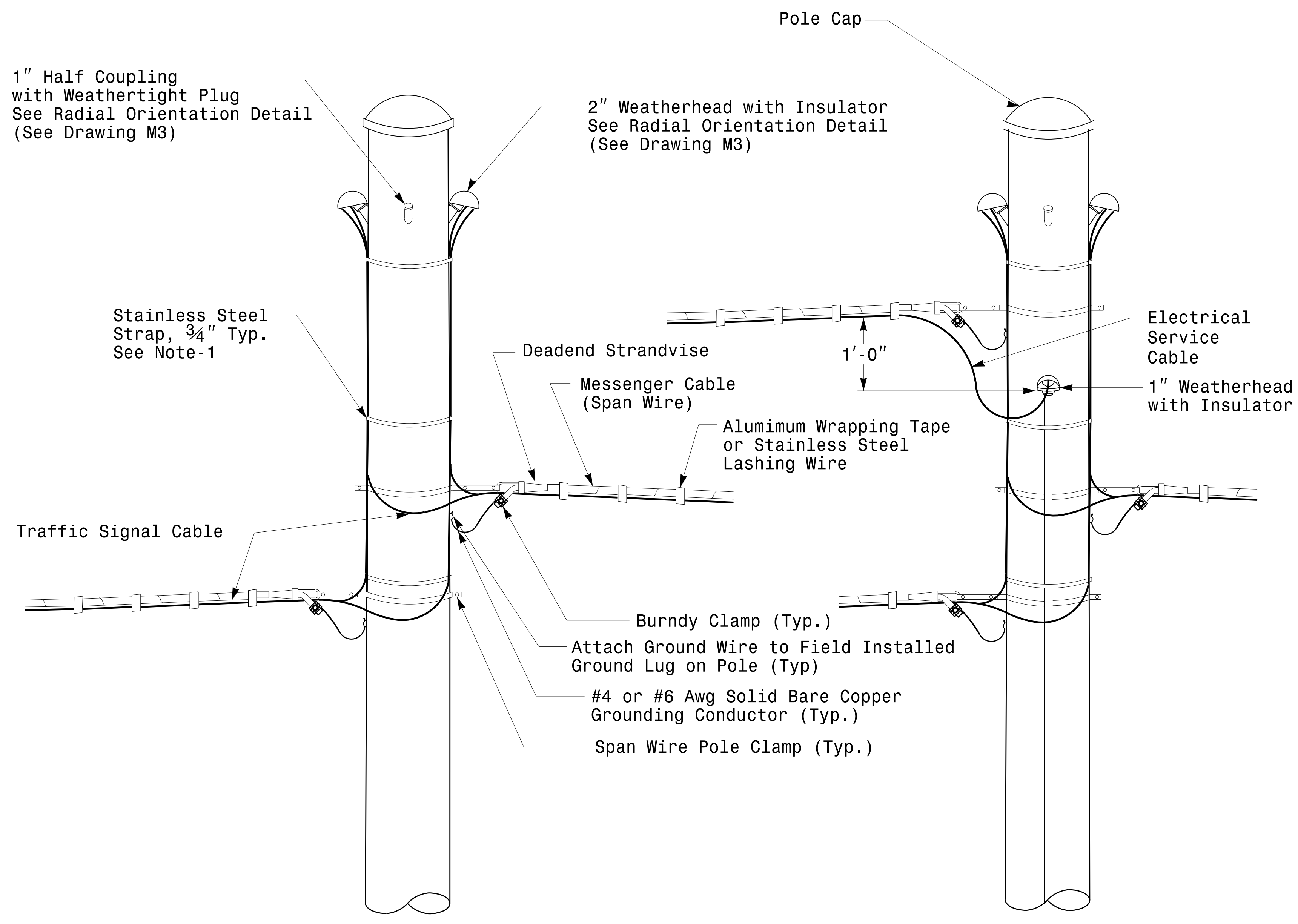
1. Provide a permanent means of identification above the mast arm to indicate proper attachment orientation of the mast arm.
2. Designer will determine the size of all structural components, plates, fasteners, and welds shown unless they are already specified.
3. Fabricator is responsible for providing appropriate holes at drainage points to drain galvanizing materials.
4. For minimum edge distance follow AISC Table J3.4 and J3.5. For nominal bolt hole size use Table J3.3.
5. Provide upper handhole as necessary when shaft extensions are required for luminaire arms or camera. For poles without luminaires/camera, wiring can be done through the top of pole.
6. Allowable range of flange tilt angle will vary from 0° to as required.



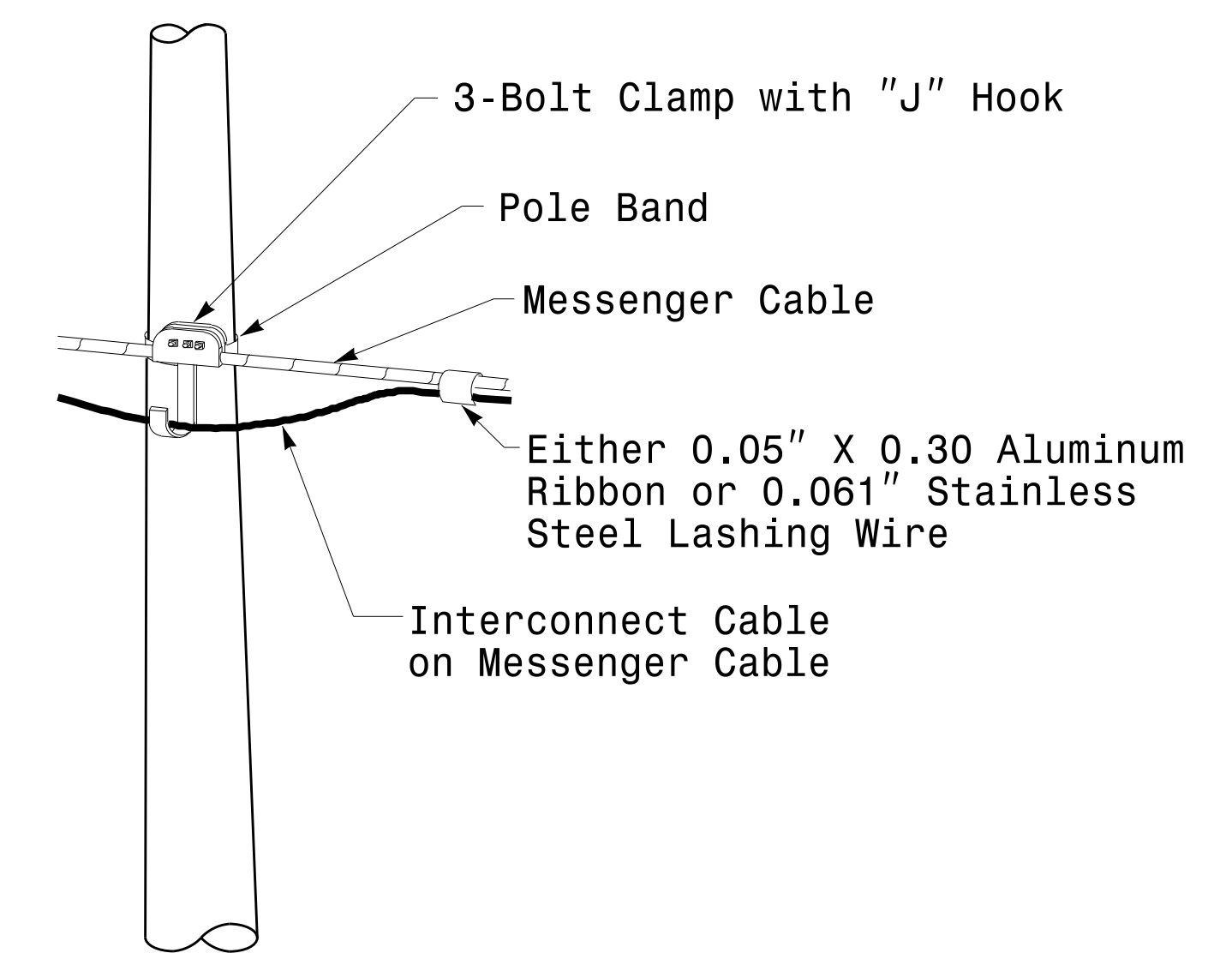
	Typical Fabrication Details For Mast Arm Connection To Pole	
	PLAN DATE: FEBRUARY 2016 PREPARED BY: N. BITTING	DESIGNED BY: C.F. ANDREWS REVIEWED BY: D.C. SARKAR
SCALE: 0 = NA NONE	REVISIONS: _____ INIT.: _____ DATE: _____	DocuSigned by: DATE: 2/17/2016 44E8E32E147E4C4...

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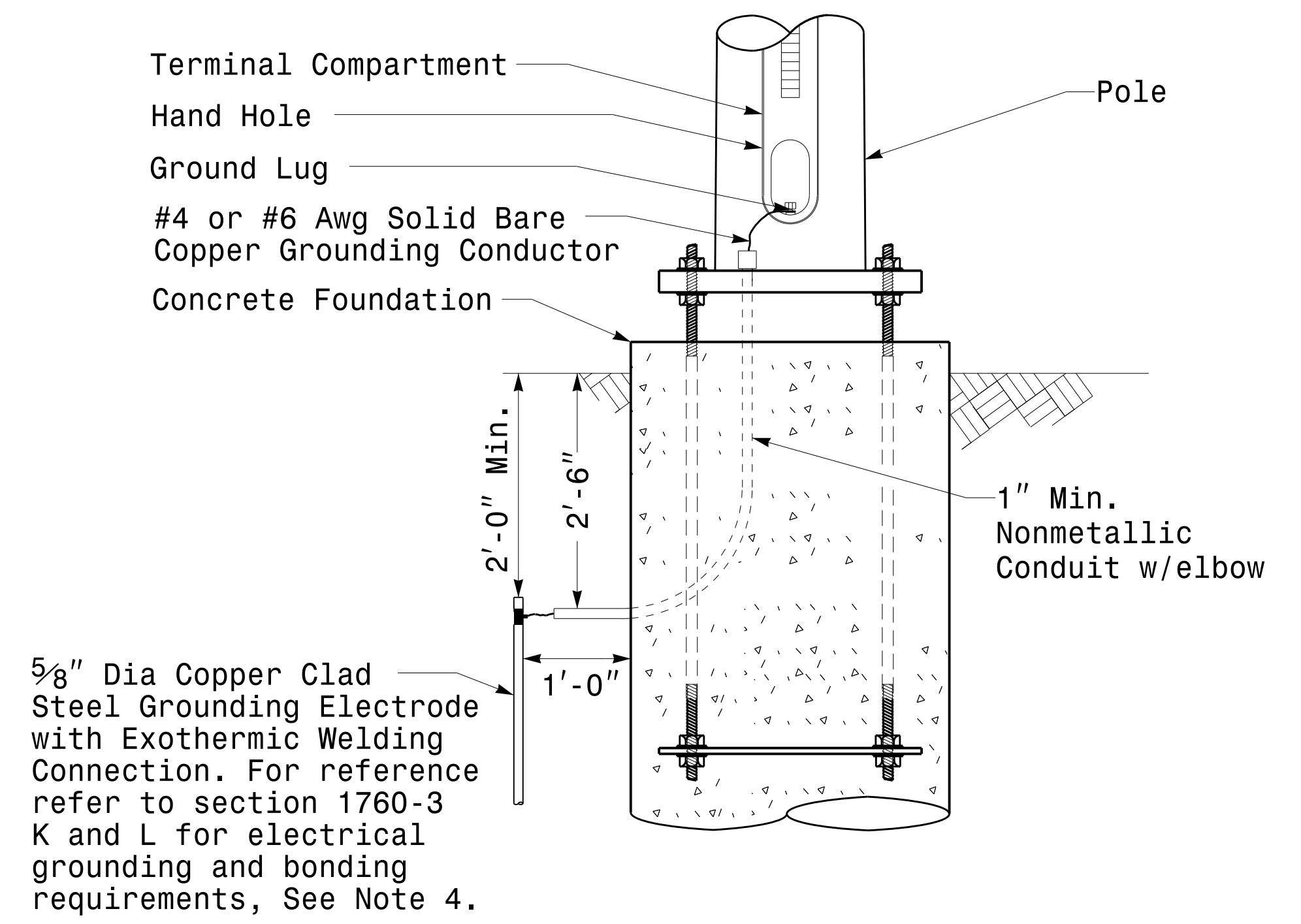
Fabrication Details – Mast Arm Connection



Strain Pole Attachments



Attachment of Cable to Intermediate Metal Pole



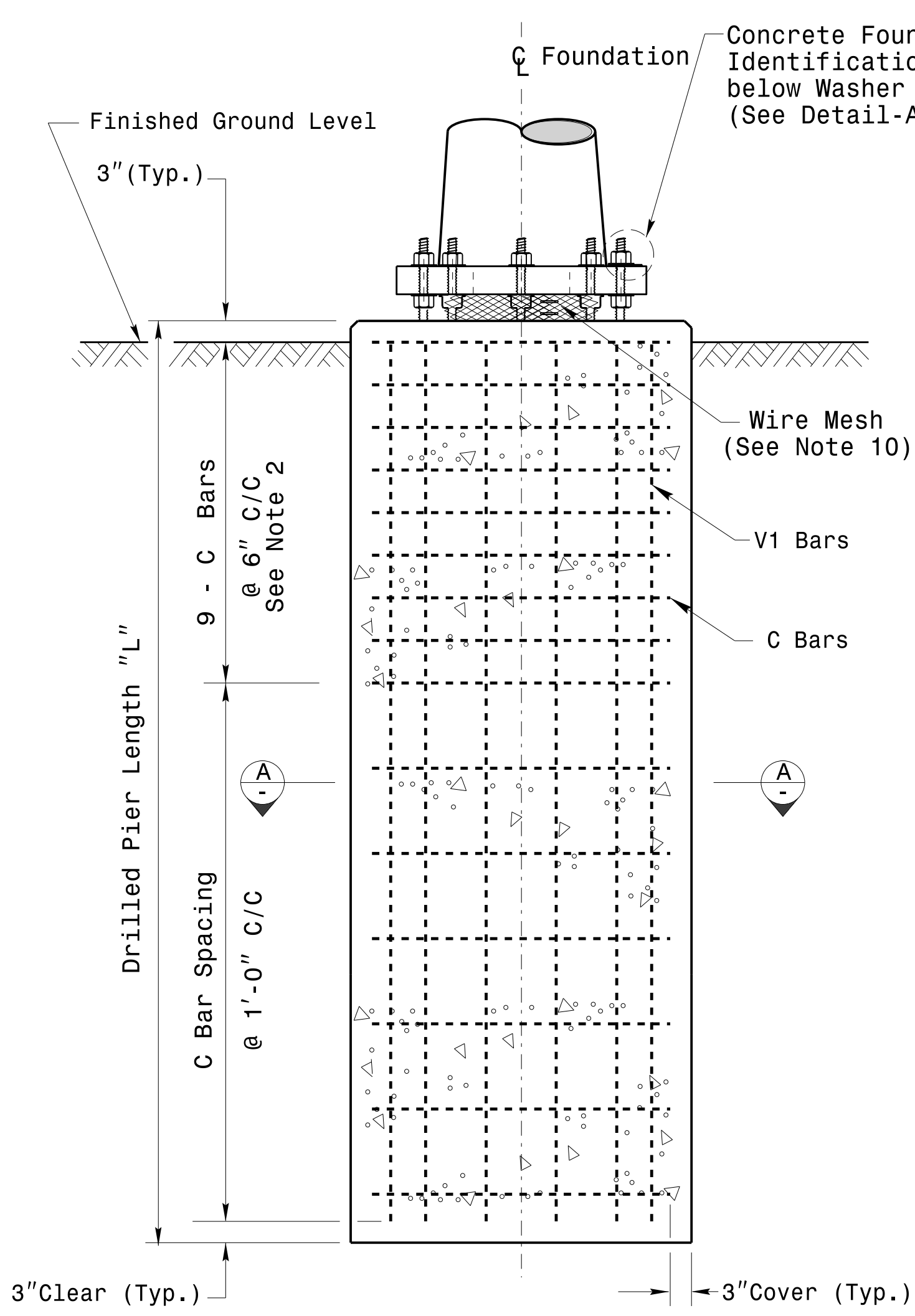
Metal Pole Grounding Detail For Strain Pole and Mast Arm

NOTE:

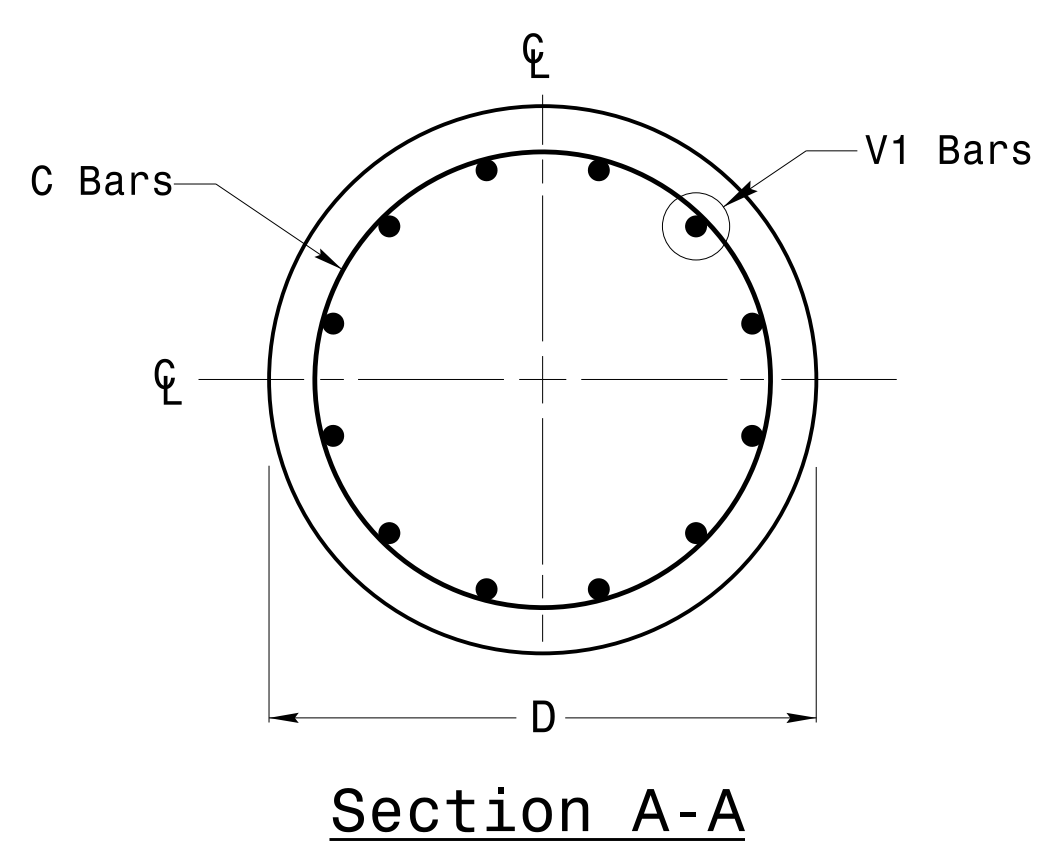
1. Strap all signal cables to the side of the pole with 3/4" stainless steel straps when the distance between the spanwire attachment clamp and the weatherheads exceeds 3'-0".
2. Provide minimum two spanwire pole clamps per pole.
3. It is prohibited to attach two span wires at one pole clamp.
4. For general requirements refer to NCDOT Standard Specifications for Roadway and Structures, January 2012.

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D:\C:\Users\jgall\OneDrive\Documents\Signal Design Section

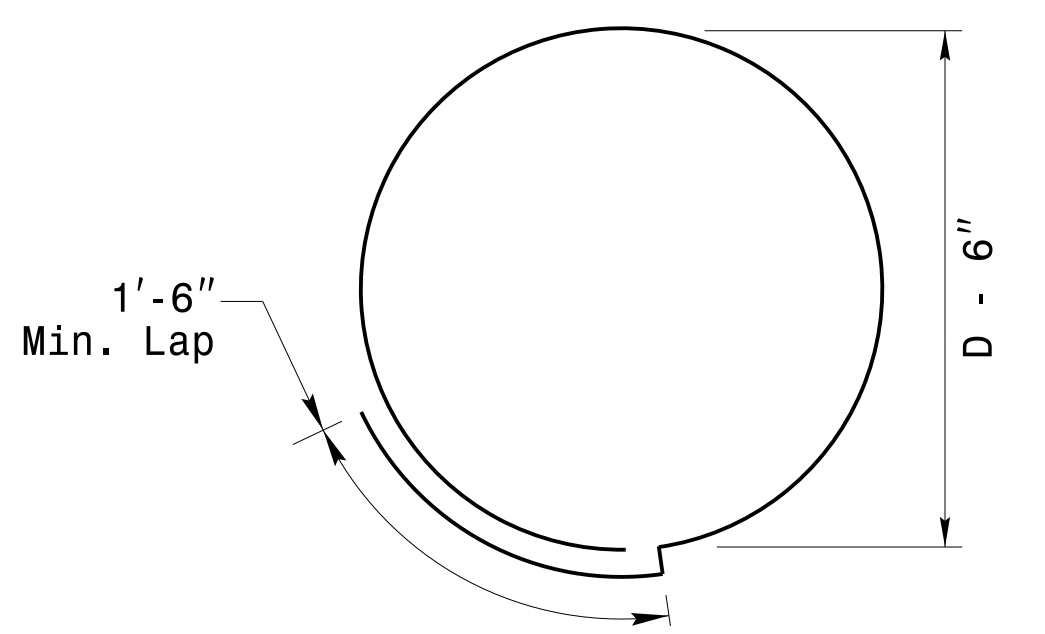
	<p>Typical Fabrication Details For Strain Pole Attachments</p>		
	<p>PLAN DATE: FEBRUARY 2016</p>	<p>DESIGNED BY: C.F. ANDREWS</p>	
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SCALE: NA</p>	<p>REVISIONS</p>	<p>INIT. DATE</p>
<p>DATE: NONE</p>	<p>DATE: 2/17/2016</p>	<p>DATE: NONE</p>	<p>DATE: NONE</p>



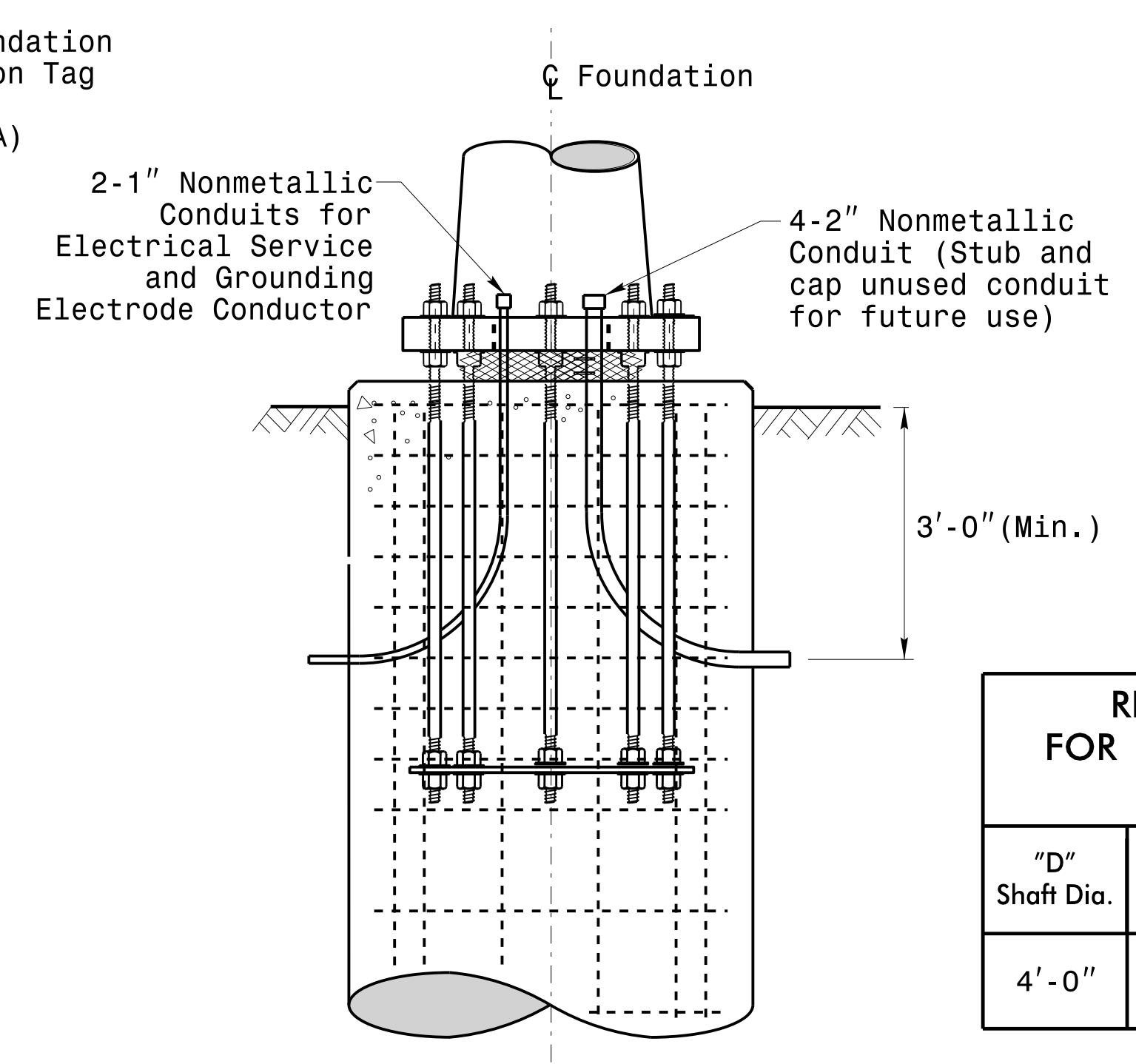
Concrete Shaft Elevation



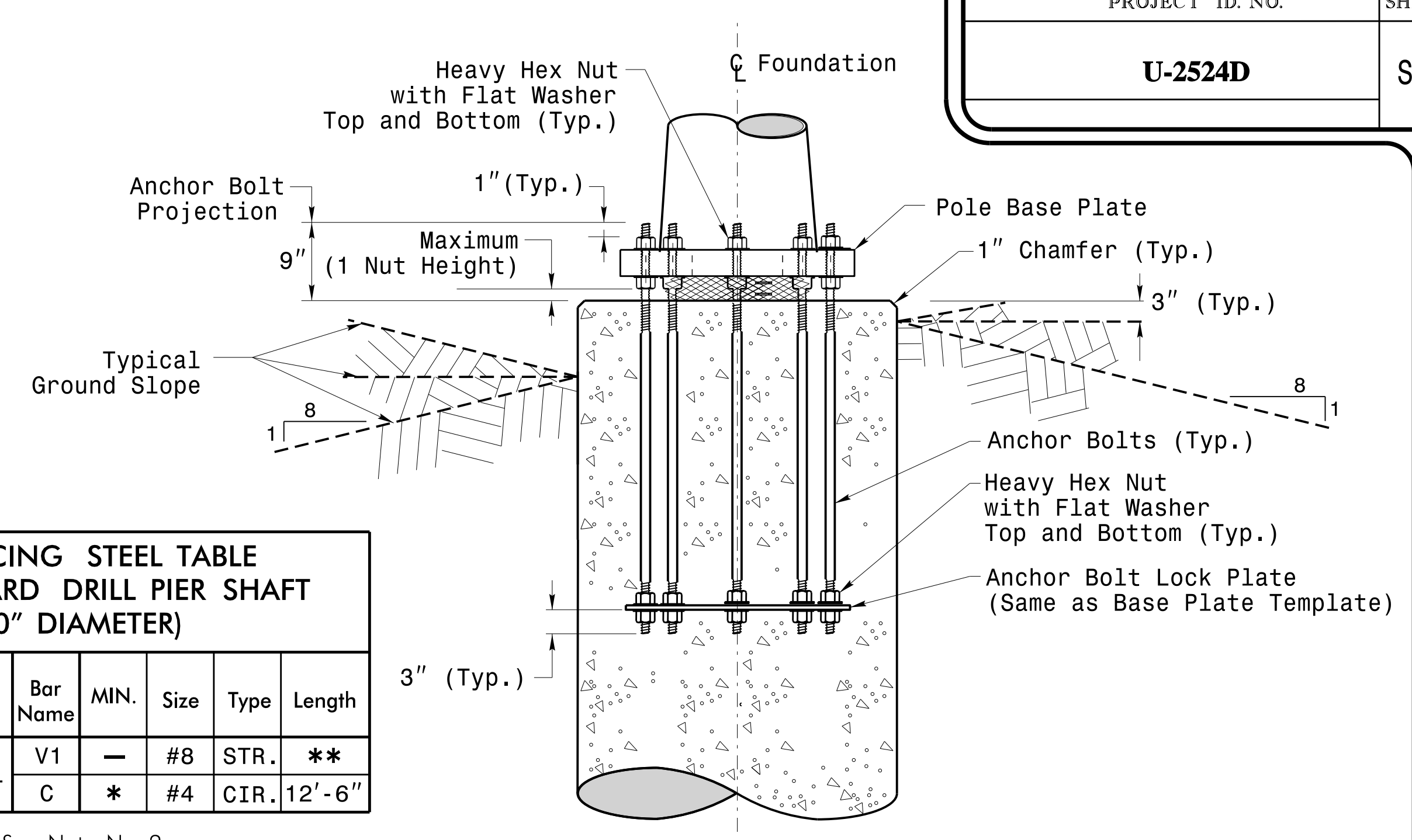
Section A-A



Typical "C" Bar Detail



Typical Foundation Conduit Details



Typical Foundation Anchor Bolt Details

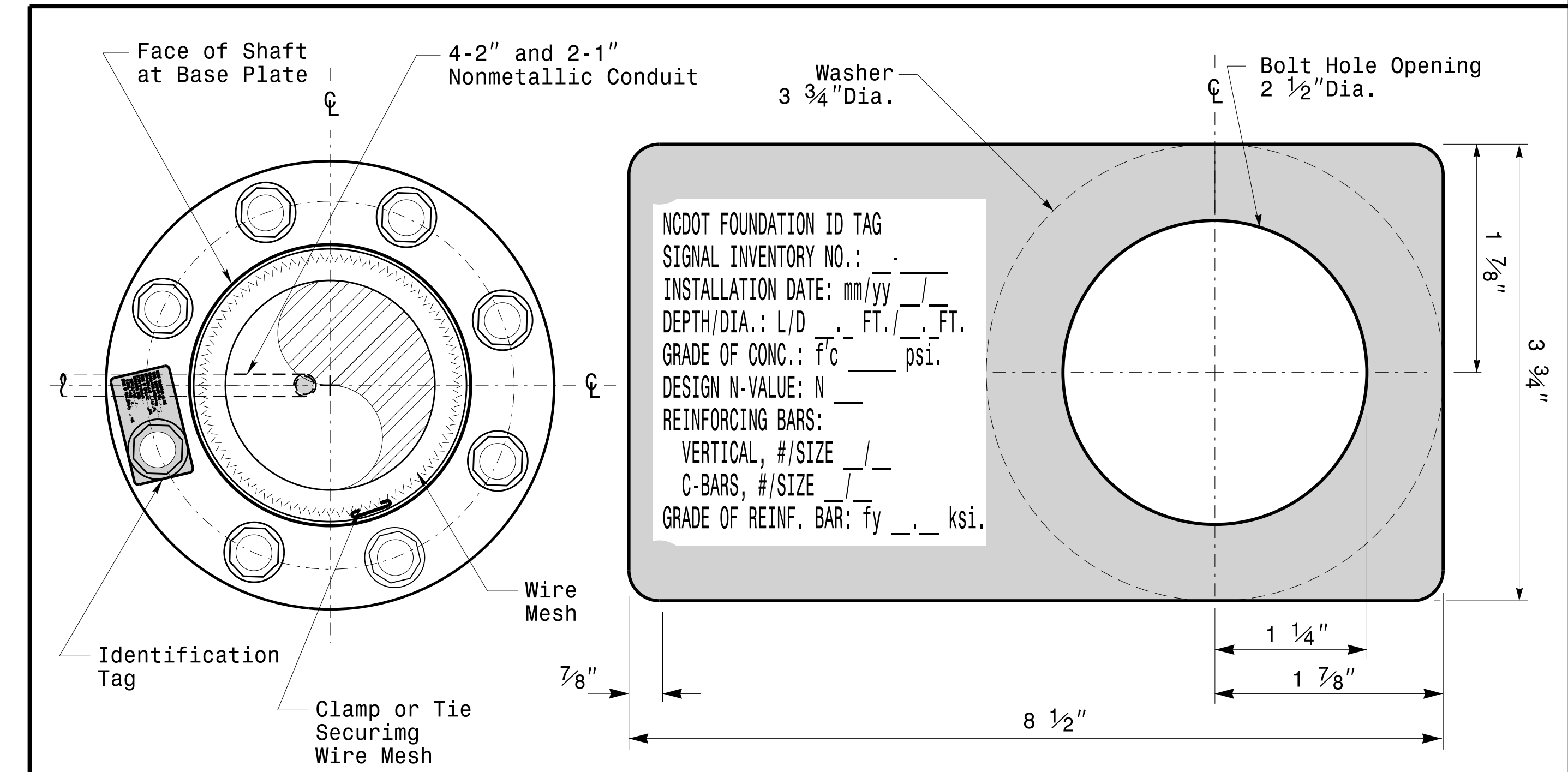
(Reinforcing Cage Not Shown for Clarity)

"D" Shaft Dia.	Conc. Volume (cu. yds.)	Bar Name	MIN.	Size	Type	Length
4'-0"	.465 x L	V1	-	#8	STR.	**
		C	*	#4	CIR.	12'-6"

* See Note No. 2
** See Note No. 3

General Notes:

- If actual subsurface conditions differ significantly from boring data contact the Engineer before excavating or placing concrete.
- 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.
- For standard foundations, see sheet Sig. M8 for details. Vertical reinforcing bars (V1) may be horizontally adjusted by +/-3" to facilitate the installation of electrical conduit entering into the cage.
- Provide 2" to 5" foundation projection above ground level depending on the ground slope.
- Unless otherwise shown, foundation designs are based on non-sloping level ground surfaces with slope ratios of 8:1 (H:V) or flatter. If actual ground line slopes are steeper contact the Engineer before excavating or placing concrete.
- Construct foundations in accordance with NCDOT Standard Provisions SP09 R005- Foundations and Anchor Rod Assemblies for Metal Poles. All applicable 2012 NCDOT Standard Specifications are referenced in this provision. Refer to the NCDOT Resources/Specifications page located on the Connect NCDOT website.
<https://connect.ncdot.gov/resources/Specifications and Special Provisions.aspx>
- Use air entrained AA concrete mix with a compression strength of f'c=4500 psi.(min.) after 28 days.
- Use ASTM A615 grade 60 deformed bars for all reinforcing steel. Maintain at least 3" cover on all reinforcement.
- Locate the Identification Tag on the top of the base plate, directly above the conduit's entry point.
- Provide two layers of galvanized welded 23 gauge (0.25) 6" wide 4 mesh wire around pipes under the base plate and secure it with ties if necessary.
- Preferred location for the I.D. Tag is as shown in Detail-A; directly above the conduit entering the foundation.



Concrete Foundation Identification Tag Details

D = Diameter
L = Length/Depth
mm = Month
yy = Year

Detail-A

	<p>Construction Details For Foundations</p>		
	<p>PLAN DATE: FEBRUARY 2016</p>	<p>DESIGNED BY: C.B. COGDILL</p>	
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>PREPARED BY: N. BITTING</p>	<p>REVIEWED BY: D.C. SARKAR</p>	<p>DocuSigned by: <i>Debesu C. Sarkar</i></p>
<p>SCALE: NONE</p>	<p>REV. NO. 1</p>	<p>COMMENTS: Revised Foundation Top Details</p>	<p>INIT. N.B. DATE: 5/11/2015</p>
			<p>2/17/2016</p>

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Construction Details - Foundations

SOIL CONDITION

PROJECT ID. NO.	SHEET NO.
U-2524D	Sig.M8

		STANDARD STRAIN POLES					STANDARD FOUNDATIONS 48" Diameter Drilled Pier Length (L) - Feet							Reinforcement				
		Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Reactions at the Pole Base			Clay				Sand			Longitudinal		Stirrups	
					Axial (kip)	Shear (kip)	Moment (ft-kip)	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	Bar Size (#)	Quantity (ea.)	Bar Size (#)	Spacing (in.)
WIND ZONE 1	LIGHT	S26L3	26	25	2	11	270	19	13	10	8	17	14.5	12.5	8	12	4	12
		S30L3	30	25	2	11	300	19.5	13.5	10	8	17.5	15	13	8	14	4	12
		S35L3	35	25	3	11	320	20	13.5	10.5	8	17.5	15	13	8	14	4	12
	HEAVY	S30H3	30	29	3	16	450	24.5	16	12	9	21	17.5	15	8	16	4	6
		S35H3	35	29	4	16	515	26	17	12.5	9.5	22	18.5	16	8	16	4	6
WIND ZONE 2	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6
WIND ZONE 3	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6
WIND ZONE 4	LIGHT	S26L1	26	22	2	8	190	16	11.5	8.5	8	15	12.5	11	8	12	4	12
		S30L1	30	22	2	8	205	16.5	11.5	9	8	15	13	11.5	8	12	4	12
		S35L1	35	22	3	8	230	17	12	9	8	15.5	13.5	11.5	8	12	4	12
	HEAVY	S30H1	30	25	3	12	320	20.5	13.5	10.5	8	18	15	13.5	8	16	4	6
		S35H1	35	25	4	12	350	21	14	10.5	8.5	18.5	15.5	13.5	8	16	4	6
WIND ZONE 5	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
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		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6

General Notes:

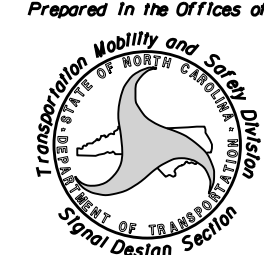
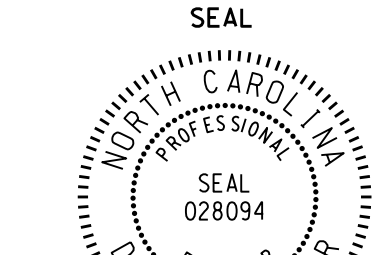
1. Values shown in the "Reactions at the Pole Base" column represent the minimum acceptable capacity allowed for design using a design CSR of 1.00.
2. Use chairs and spacers to maintain proper clearance.
3. For foundation, always use air-entrain concrete mix.

Foundation Selection:

1. Perform a standard penetration test at each proposed foundation site to determine "N" value.
2. Select the appropriate wind zone from M 1 drawing.
3. Select the soil type (Clay or Sand) that best describes the soil characteristics.
4. Get the appropriate standard pole case number from the plans or from the Engineer.
5. Select the appropriate column under "Standard Foundations" based on soil type and "N" value. Select the appropriate row based on the pole load case.
6. The foundation depth is the value shown in the "Standard Foundations" category where the column and the row intersect.
7. Use Construction Procedures and Design Methods prescribed by FHWA-NHI-10-016 for Reference Drilled Shafts.

Standard Strain Pole Foundation-All Soil Condition

48" Dia. Foundations Concrete Volume (cubic yards) = (0.465) x Drilled Pier Length

 <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>Standard Strain Pole Foundation for All Soil Conditions</p> <p>PLAN DATE: FEBRUARY 2016 DESIGNED BY: C.B. COGDILL PREPARED BY: N. BITTING REVIEWED BY: D.C. SARKAR</p>	<p>SEAL</p>  <p>DocuSigned by <i>Debash C. Sarkar</i></p>	<p>2/17/2016</p> <p>DATE</p>								
<p>SCALE: 0 NA NONE</p>	<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO.</th> <th>DATE</th> <th>INIT.</th> <th>DESCRIPTION</th> </tr> <tr> <td>1</td> <td>7/12/2015</td> <td>N.B.</td> <td>Changed "Foundation Depth" to "Drilled Pier Length" in Conc. Egn.</td> </tr> </table>	NO.	DATE	INIT.	DESCRIPTION	1	7/12/2015	N.B.	Changed "Foundation Depth" to "Drilled Pier Length" in Conc. Egn.		
NO.	DATE	INIT.	DESCRIPTION								
1	7/12/2015	N.B.	Changed "Foundation Depth" to "Drilled Pier Length" in Conc. Egn.								

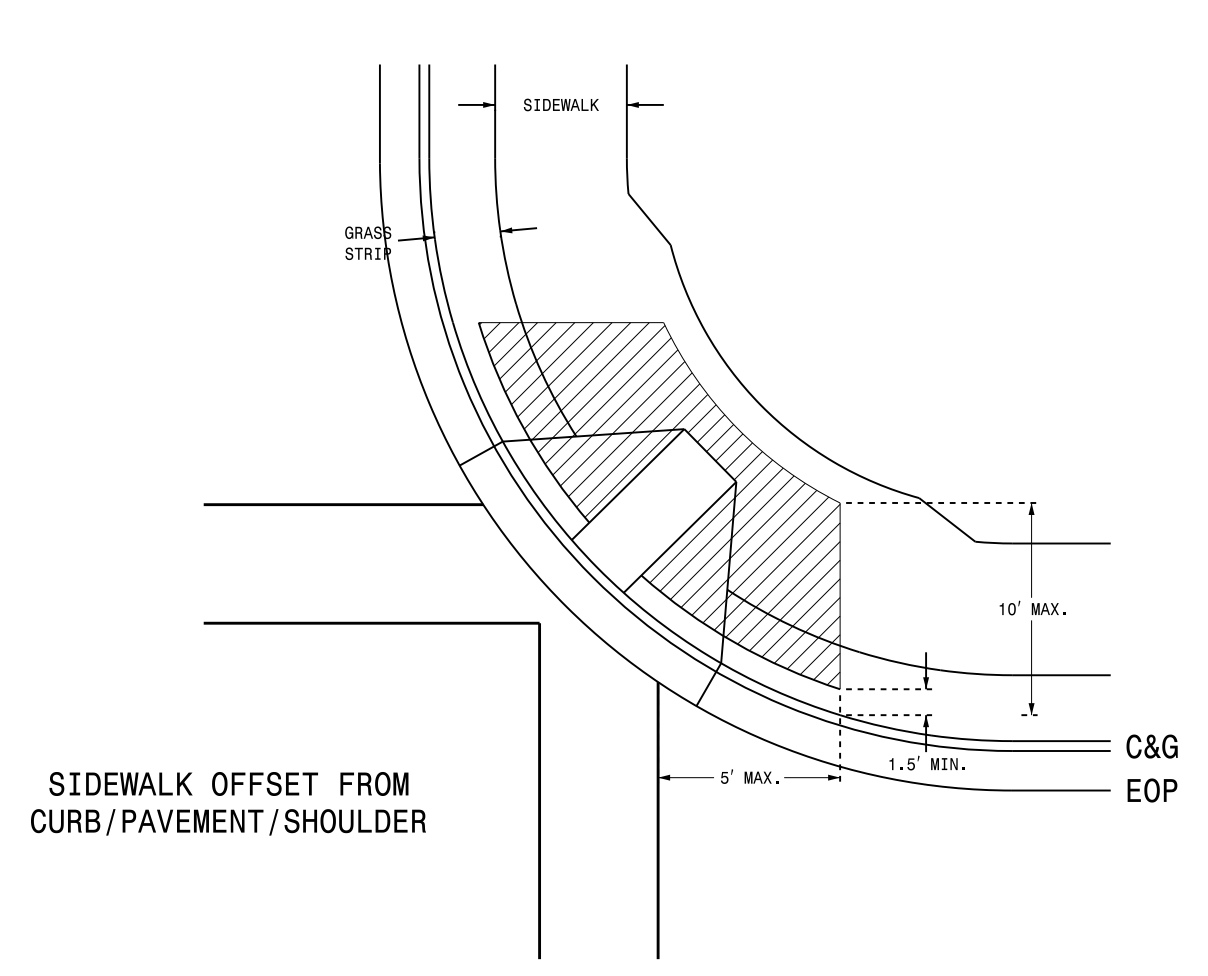
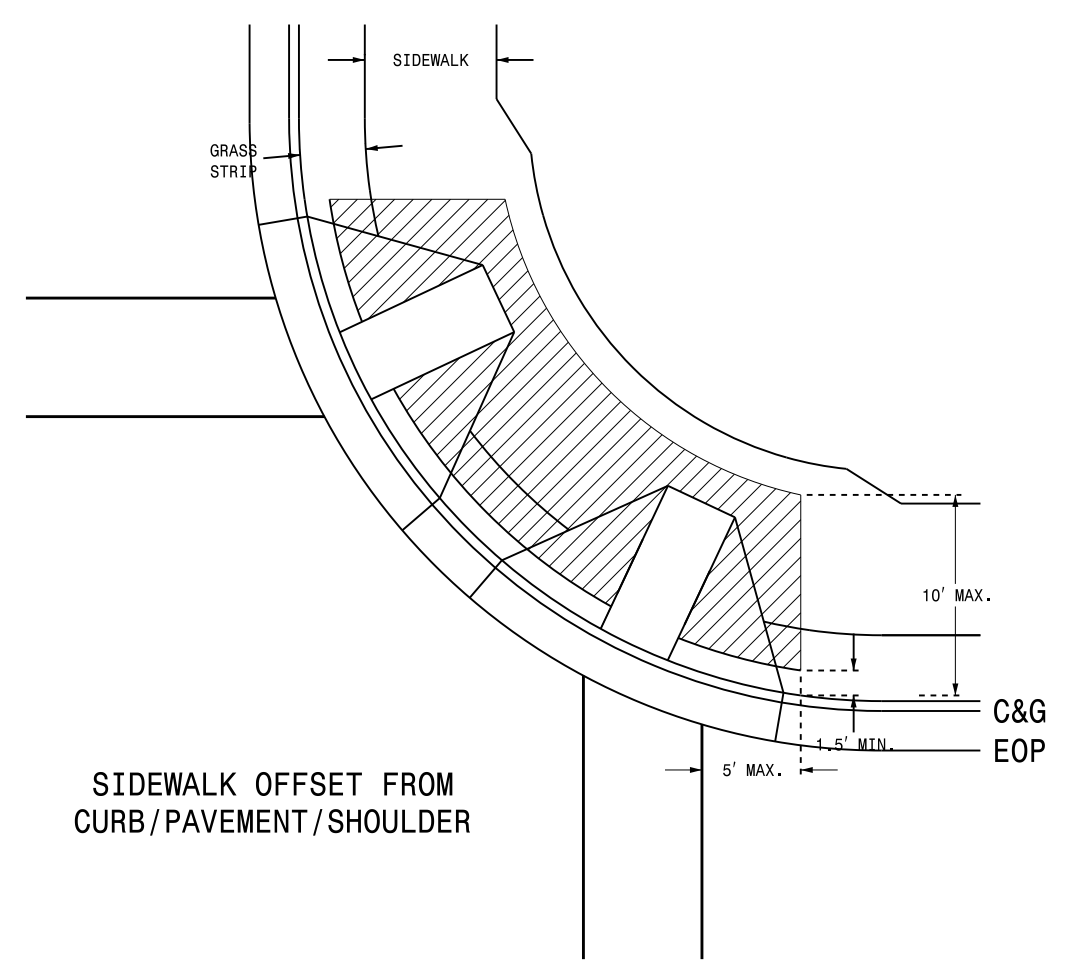
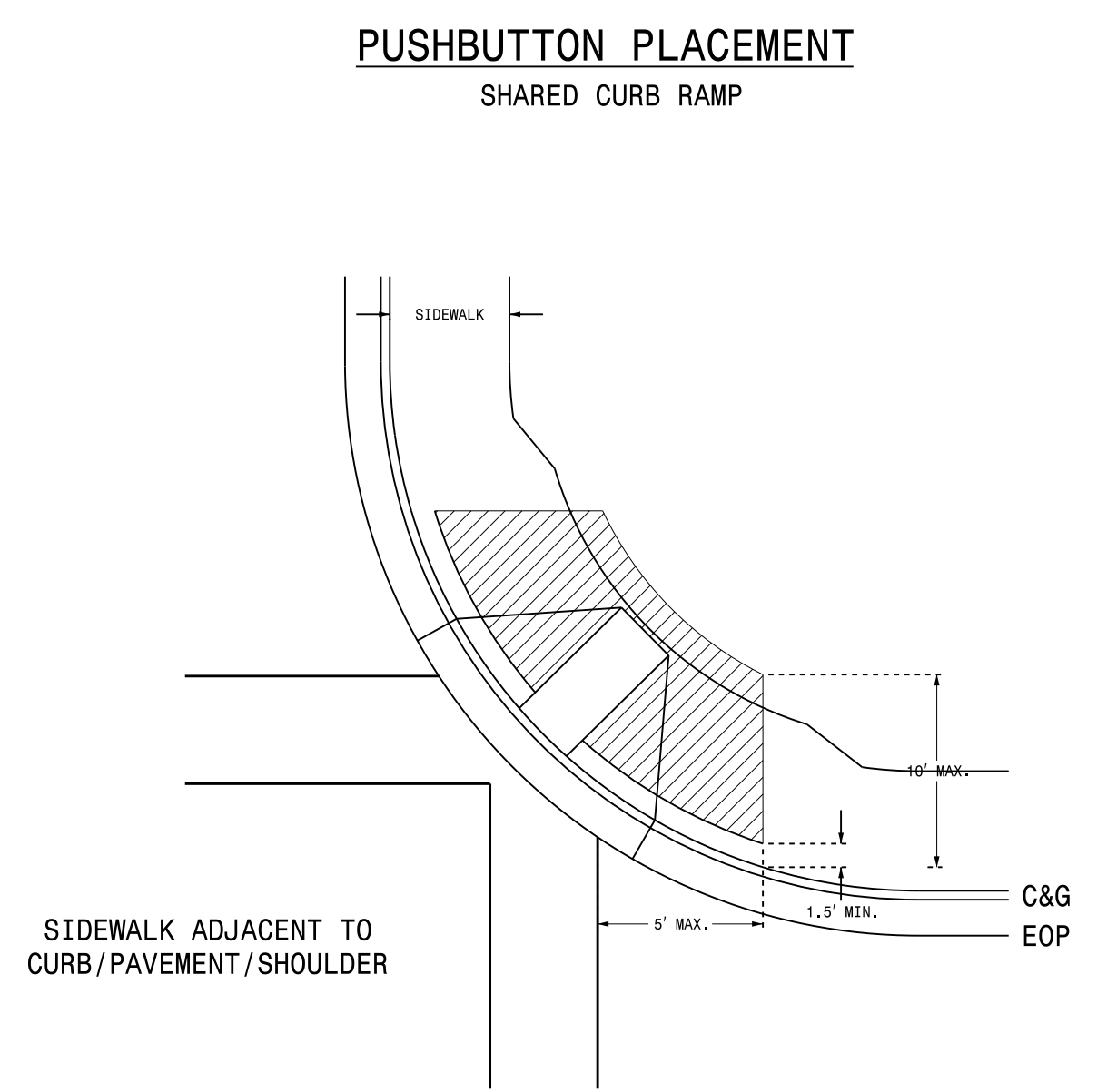
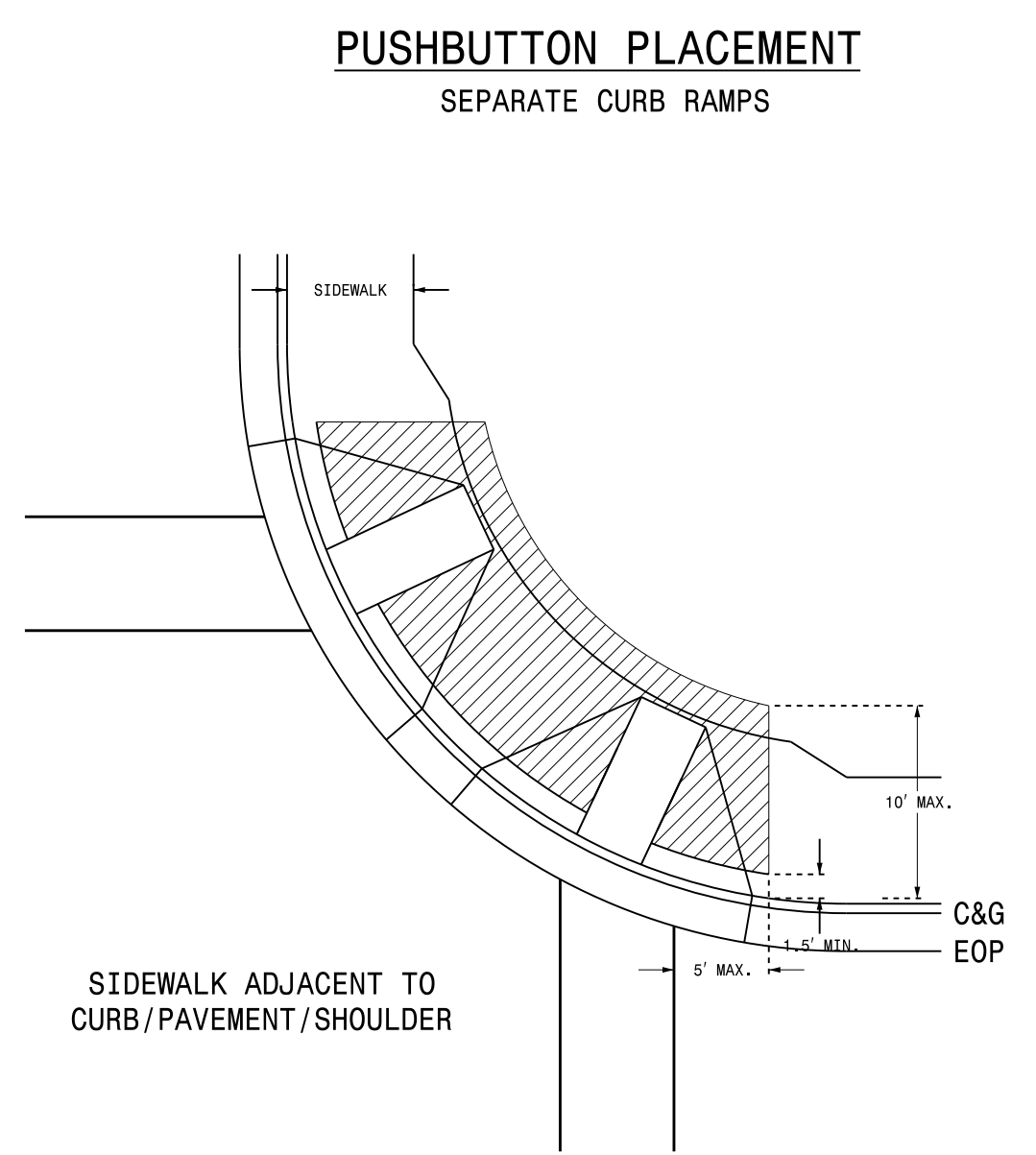
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 1 OF 3
1705D01



- NOTES**
1. Pushbutton pedestals should not be located further than 10 feet from the edge of curb, shoulder, or pavement.
 2. The face of the pushbutton should be parallel to the applicable crosswalk.
 3. Separate pushbuttons used on the same corner should be separated by a distance of at least 10 feet.
 4. Pushbuttons shall be installed adjacent to a level surface with a maximum reach distance of 10 inches.
 5. Maintain 4 feet of clearance around pedestal if located in sidewalk.
 6. Refer to section 1705 of the 2012 NCDOT Roadway Standard Drawings for Pushbutton Assembly details.
 7. Refer to section 1743 of the 2012 NCDOT Roadway Standard Drawings for Pedestal details.
 8. Contact Division Traffic Engineer for pushbutton location approval prior to installation.
 9. Curb ramps are for symbolic use only and may not reflect actual design or field conditions.

PROPOSED	LEGEND
	Signal Pole
	Type I Pushbutton Post
	Type II Signal Pedestal
	Pushbutton & Sign
	Pedestrian Signal Head
	Curb Ramp
	Pushbutton Location Area

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

06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 1 OF 3
1705D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

DocuSigned by:
Robert J. Ziemba
18084828744604

SIGNATURE DATE

6/17/2014

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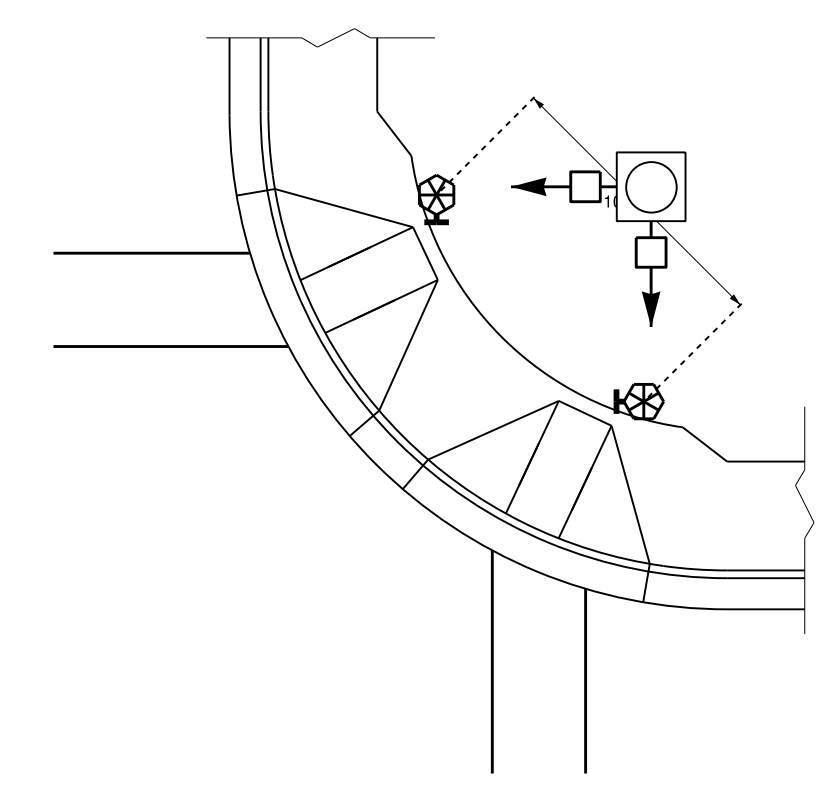
STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

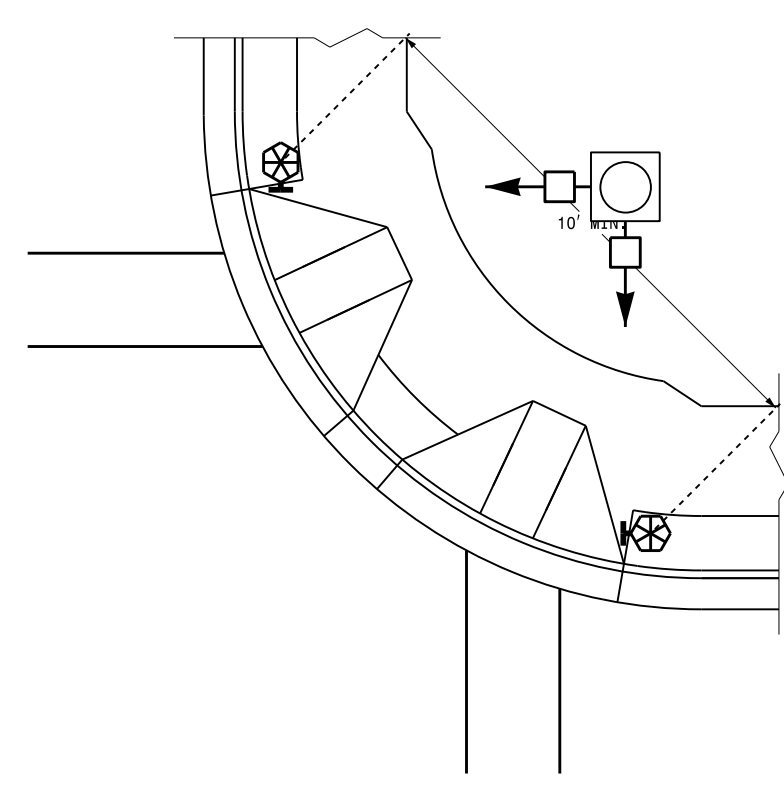
ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 2 OF 3
1705D01

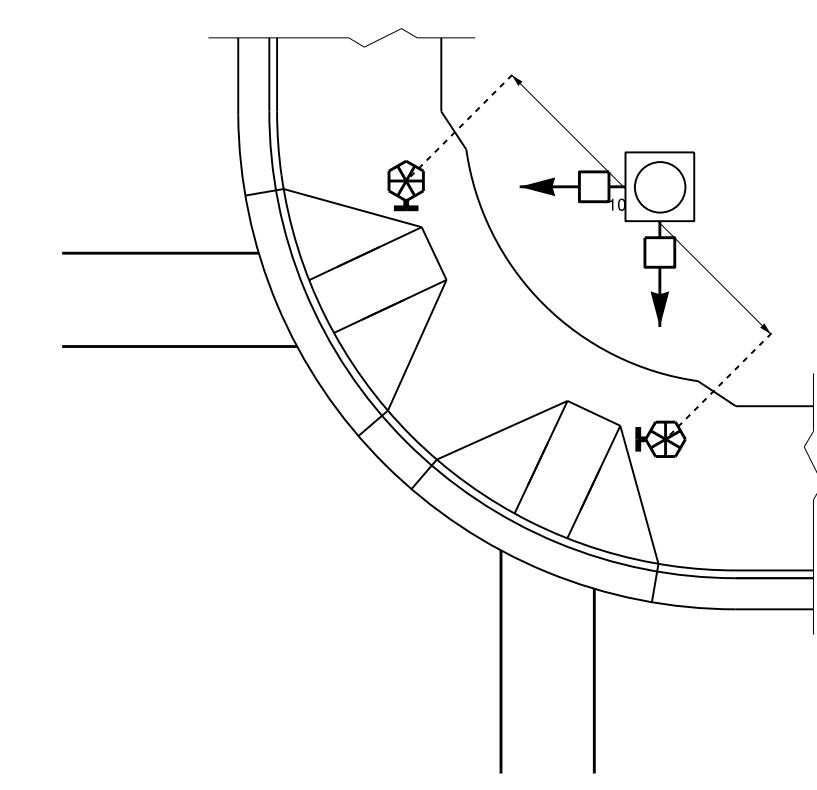
TYPICAL PUSHBUTTON LOCATIONS (CASE I)
SEPARATE CURB RAMPS W/ TYPE I PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'
OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK
OF SIDEWALK EXCEEDS 10' FROM
CURB OR PAVEMENT/SHOULDER



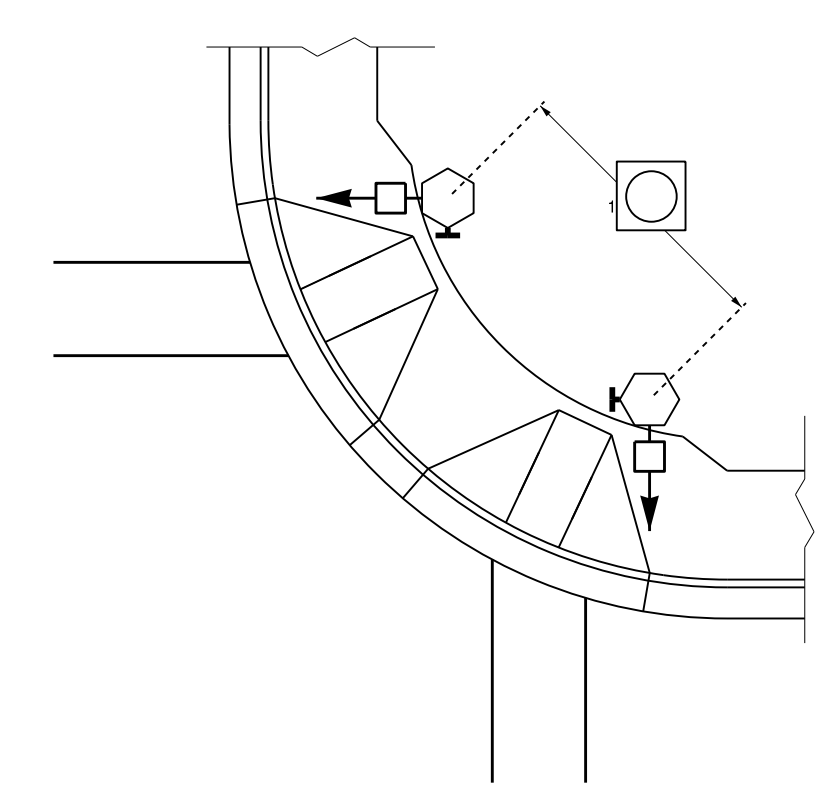
PUSHBUTTON PLACEMENT
IN WIDE SIDEWALK

PROPOSED

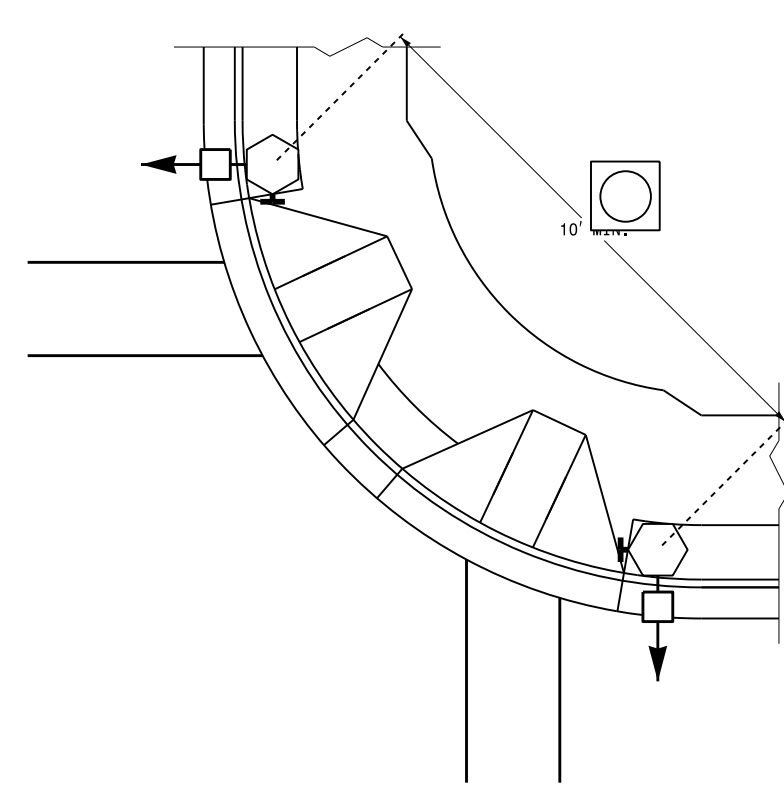
- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

LEGEND

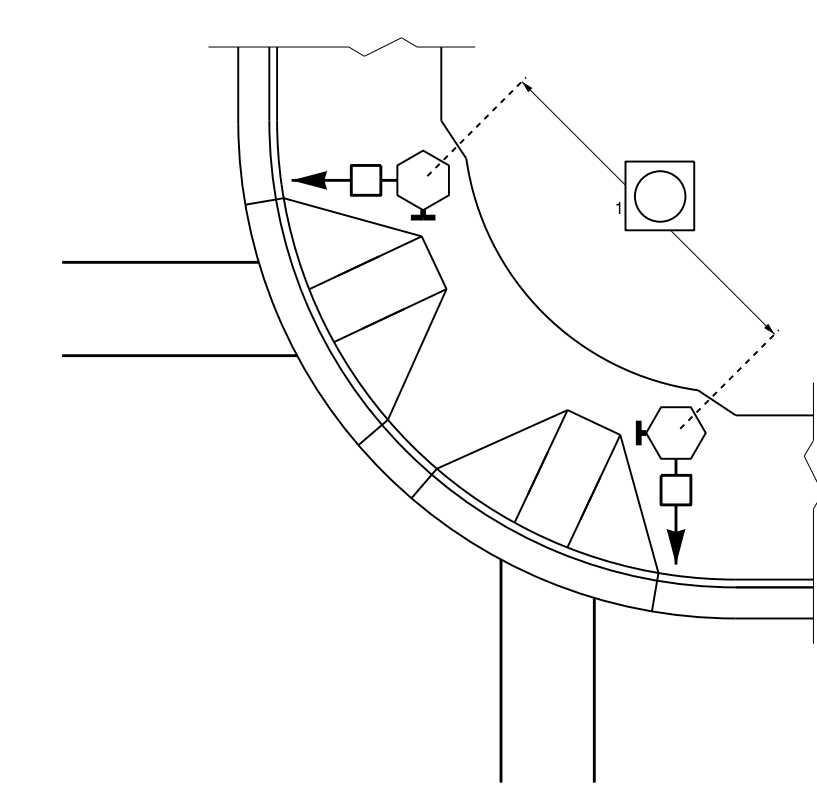
TYPICAL PUSHBUTTON LOCATIONS (CASE II)
SEPARATE CURB RAMPS W/ TYPE II PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'
OF CURB OR PAVEMENT/SHOULDER

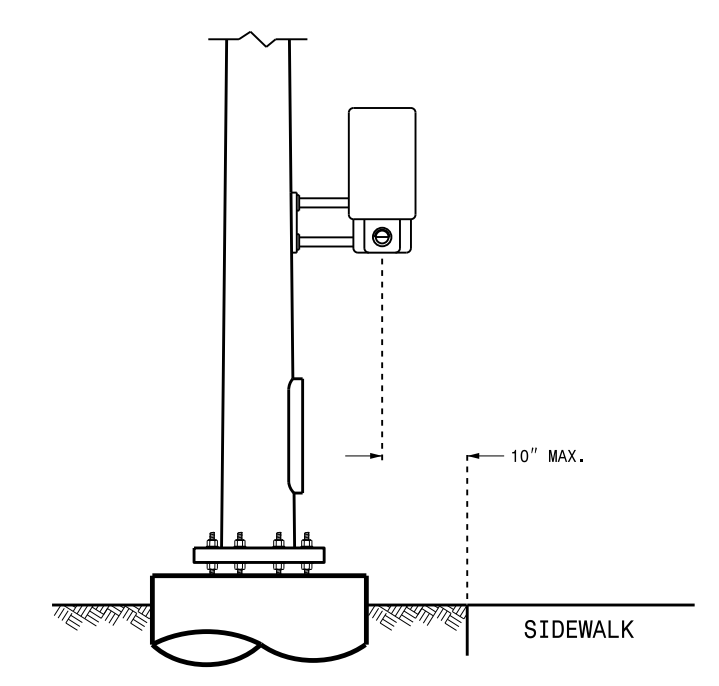


GRASS STRIP PLACEMENT IF BACK
OF SIDEWALK EXCEEDS 10' FROM
CURB OR PAVEMENT/SHOULDER



PUSHBUTTON PLACEMENT
IN WIDE SIDEWALK

OPTIONAL PUSHBUTTON EXTENSION
FACE OF PUSHBUTTON PARALLEL TO
APPLICABLE CROSSWALK



STATE OF NORTH CAROLINA
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06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 2 OF 3
1705D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

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1888488274464

SIGNATURE DATE

6/17/2014

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 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

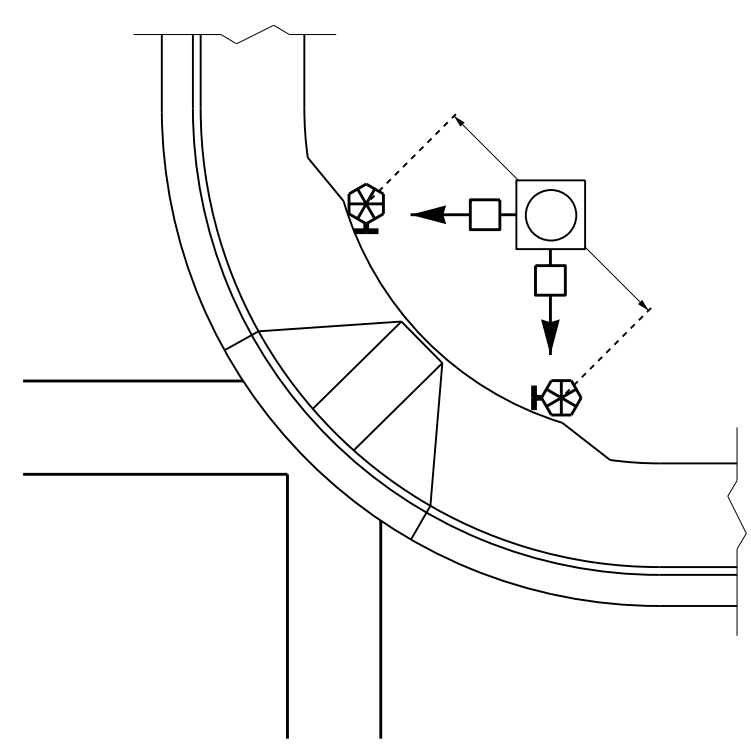
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ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
 PLACEMENT DETAIL

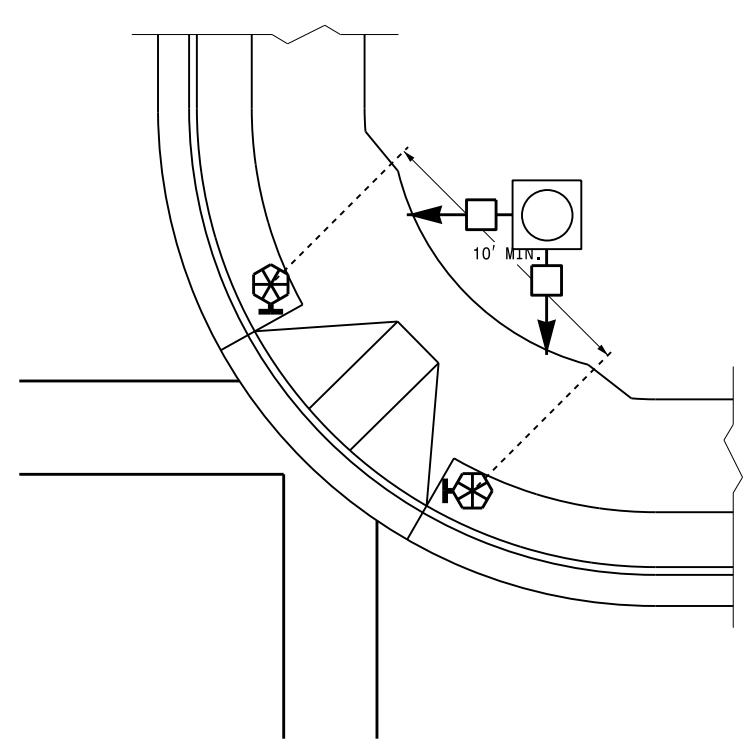
SHEET 3 OF 3
1705D01

TYPICAL PUSHBUTTON LOCATIONS (CASE III)

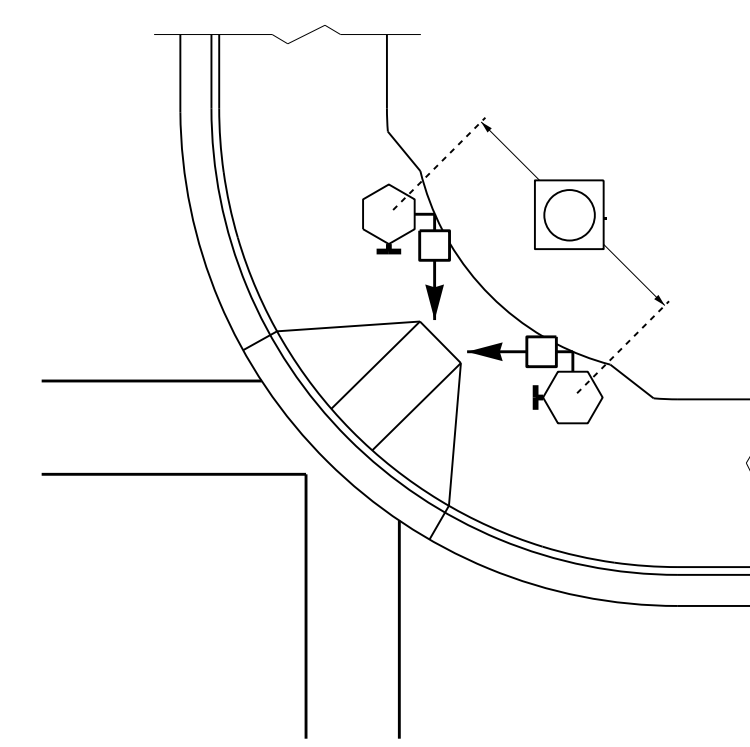
SHARED CURB RAMPS



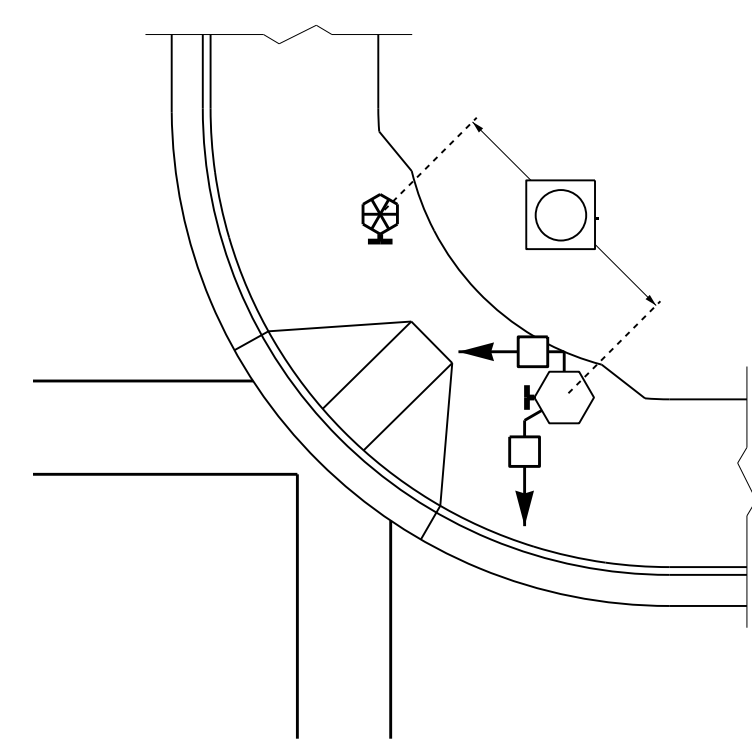
BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER

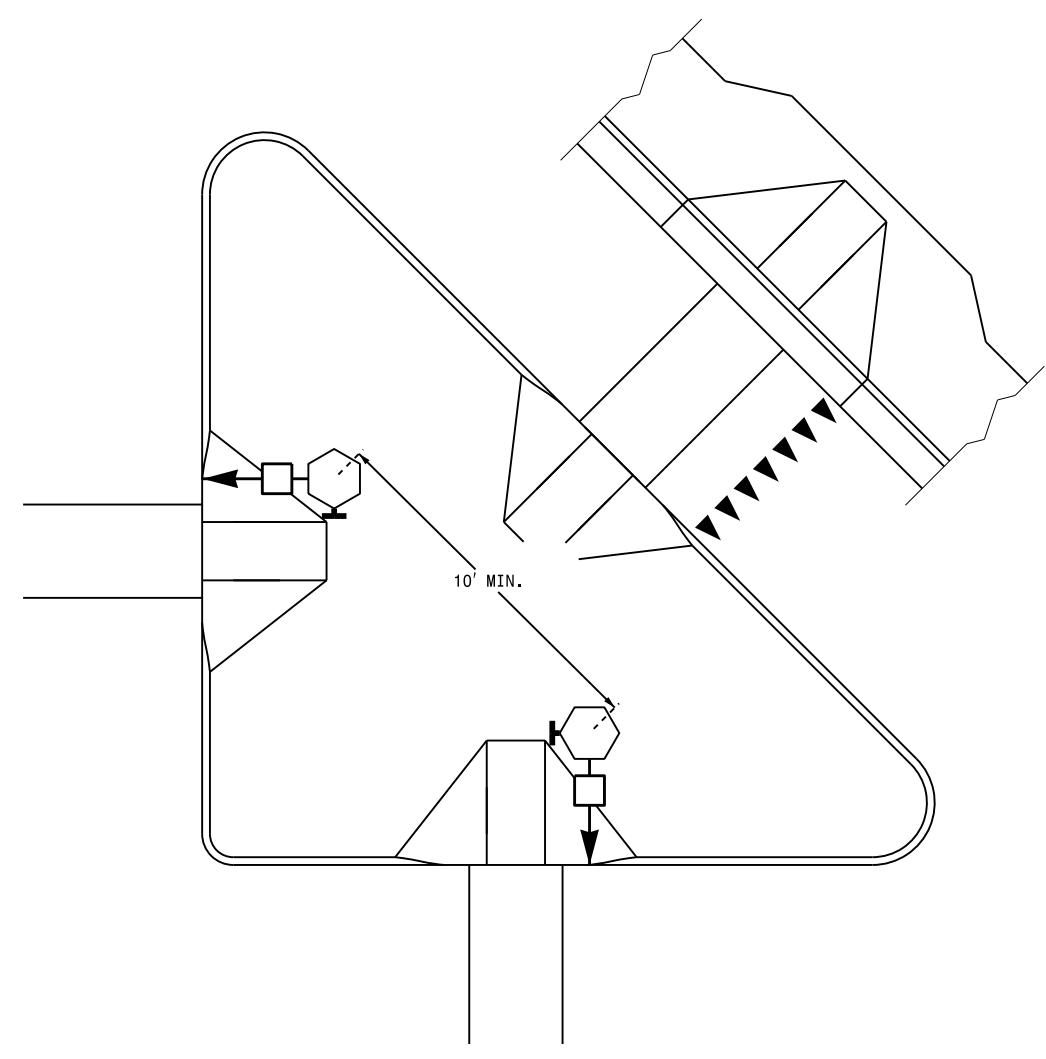


PUSHBUTTON PLACEMENT IN WIDE SIDEWALK (CORRESPONDING PUSHBUTTONS AND SIGNAL HEADS ON DIFFERENT PEDESTALS)

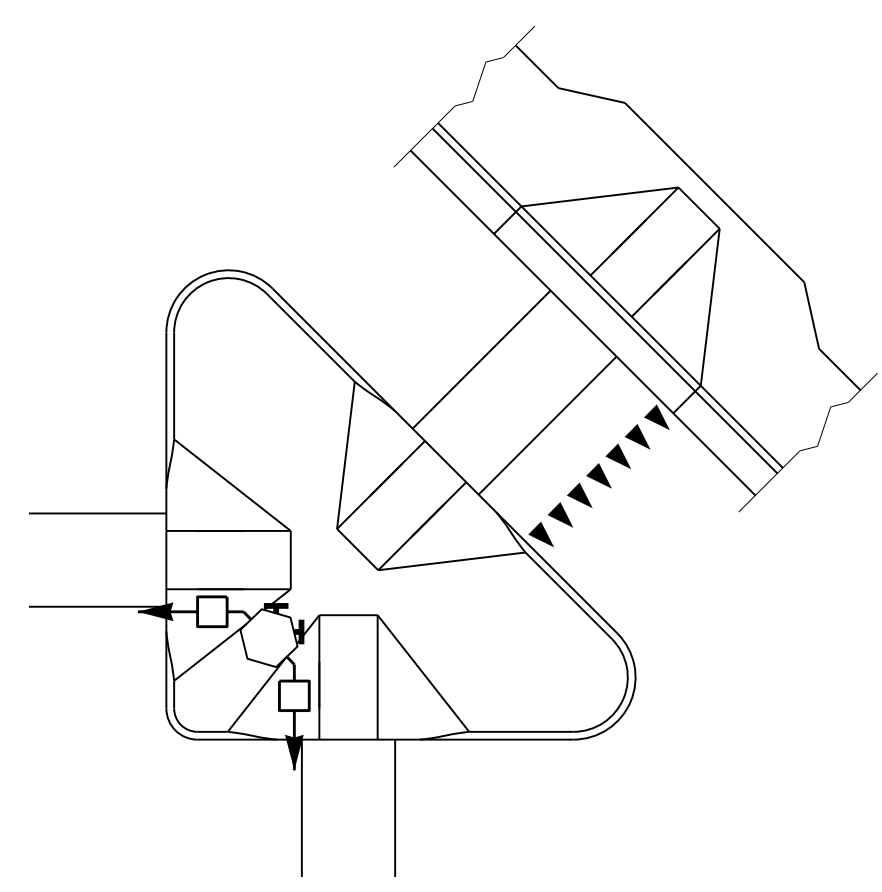


PUSHBUTTON PLACEMENT WITH SHARED TYPE II SIGNAL PEDESTAL AND TYPE I PUSHBUTTON POST

TRAFFIC ISLAND PUSHBUTTON LOCATIONS



PUSHBUTTON PLACEMENT IN LARGE "PORK CHOP ISLAND" WITH SEPARATE PEDESTALS



PUSHBUTTON PLACEMENT IN SMALL "PORK CHOP ISLAND" WITH SHARED PEDESTAL

PUSHBUTTON PLACEMENT IN MEDIAN

TYPE II PEDESTAL (FOR STAGED OR MULTI-PHASE CROSSING)

TYPE I PEDESTAL (FOR COMPLETE CROSSING CURB TO CURB WITH OPTIONAL REFUGE)

PROPOSED	LEGEND
	Signal Pole
	Type I Pushbutton Post
	Type II Signal Pedestal
	Pushbutton & Sign
	Pedestrian Signal Head
	Curb Ramp
	Pushbutton Location Area

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

06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
 PLACEMENT DETAIL

SHEET 3 OF 3
1705D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

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Robert J. Ziemba
18084982744494

SIGNATURE

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DATE

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 rz1emba

- 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
- 28A INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPlice CABLE IN CABINET
- 28B REUSE EXISTING INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPlice NEW 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

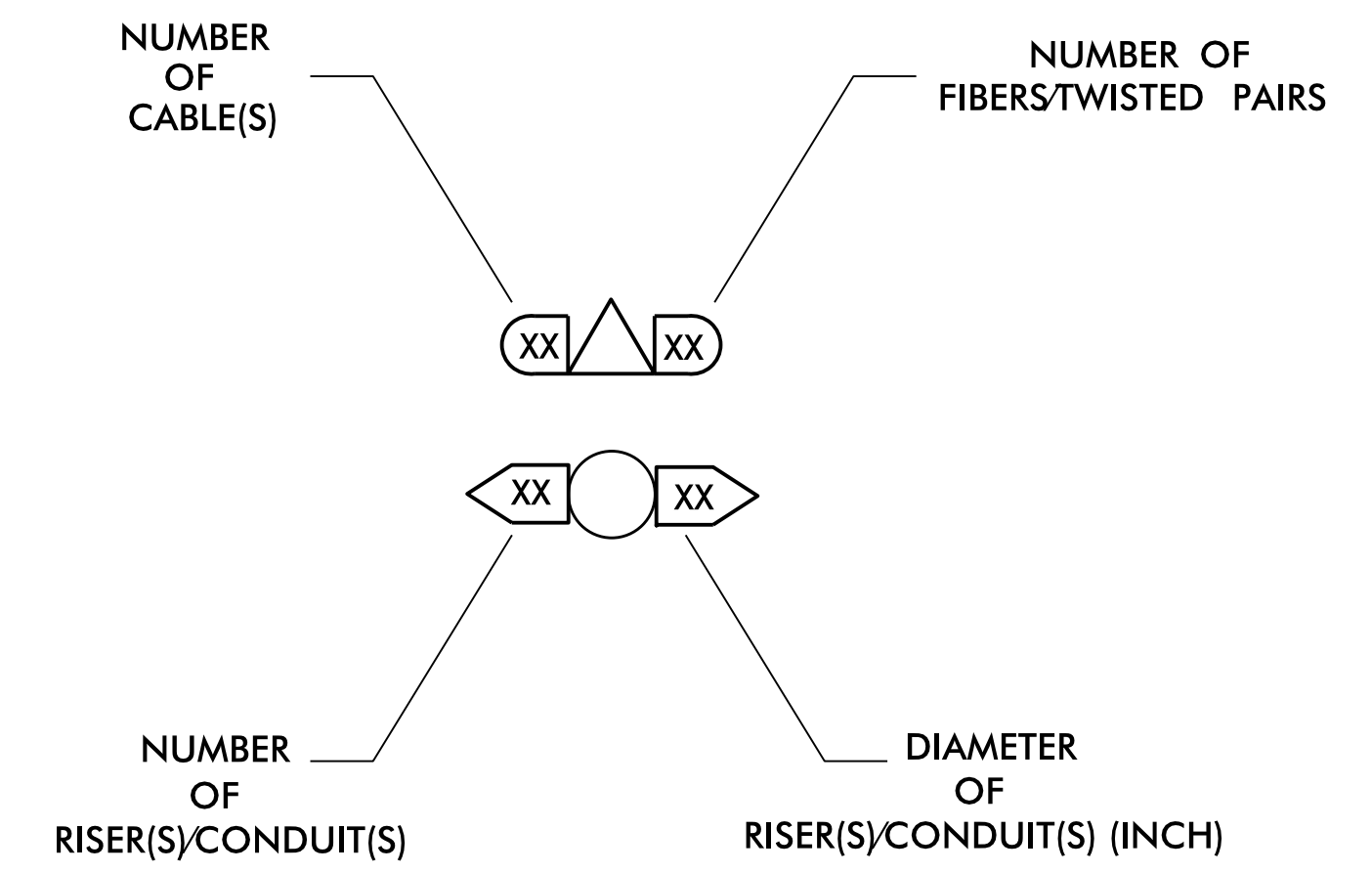
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL 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
- 59 BOND MESSENGER CABLE TO POLE GROUND
- 60 BOND RISER AND MESSENGER CABLE TO POLE GROUND
- 61 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
- 62 DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS

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 SPlice 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 SPlice CABINET
		NEW SPlice CABINET
	SP	SIGNAL POLE
		SIGNAL INVENTORY NUMBER

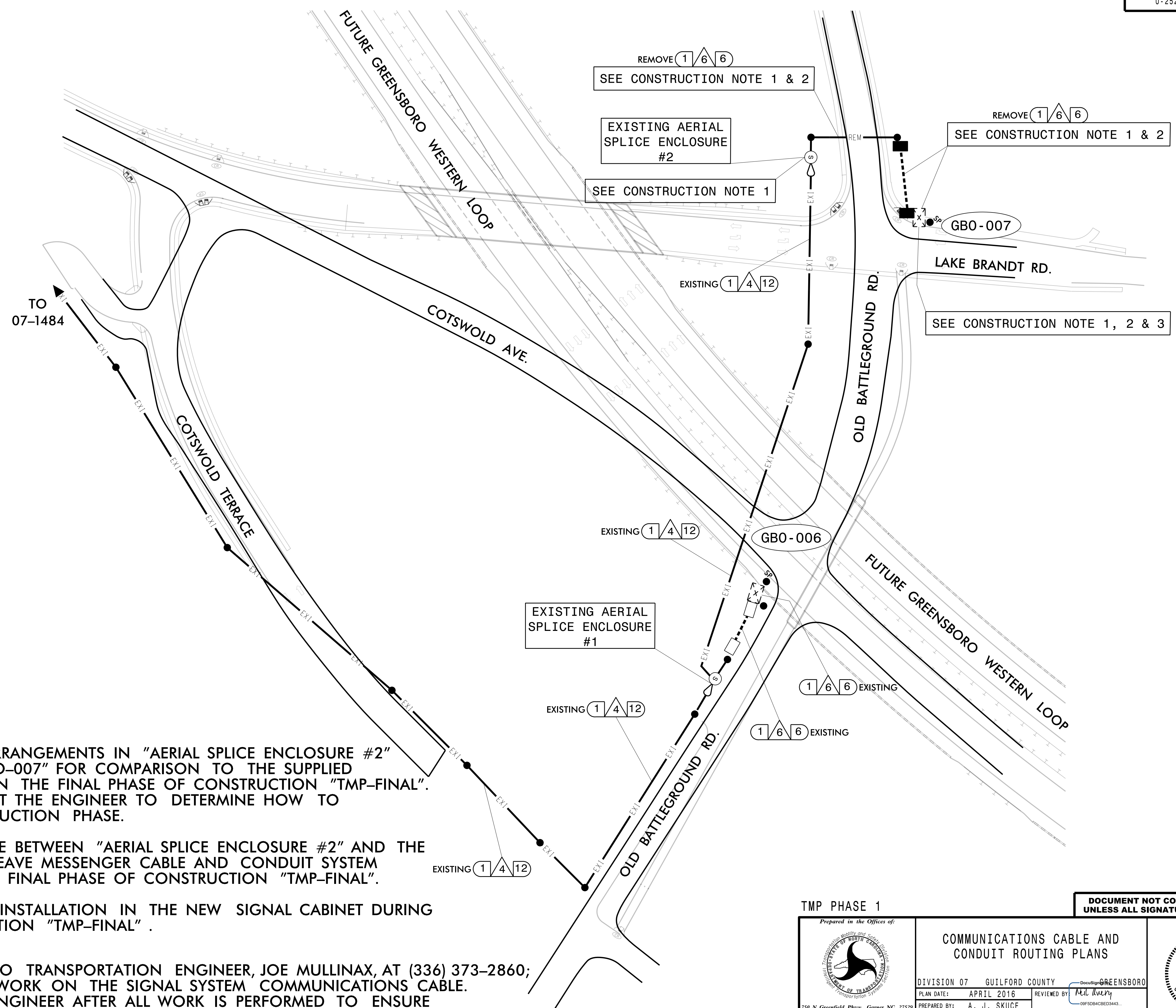
CONSTRUCTION NOTE SYMBOLOGY KEY

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



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	CONSTRUCTION NOTES		SEAL
	DIVISION 07 GUILFORD COUNTY GREENSBORO PLAN DATE: APRIL 2016 REVIEWED BY: <i>Neil Avery</i> PREPARED BY: A. J. SKUCE		
REVISIONS _____ INIT. DATE _____		DocuSigned by: Gregory A. Fuller 4/28/2016 DATE CADD Filename:	



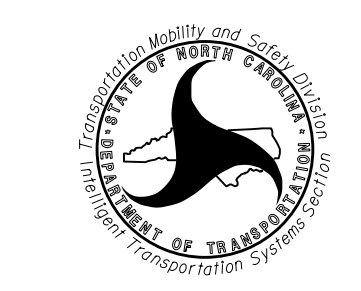

CONSTRUCTION NOTES:

- 1) RECORD THE EXISTING SPLICE ARRANGEMENTS IN "AERIAL SPLICE ENCLOSURE #2" AND THE "SIGNAL CABINET GBO-007" FOR COMPARISON TO THE SUPPLIED SPLICE PLANS FOR FUTURE USE IN THE FINAL PHASE OF CONSTRUCTION "TMP-FINAL". IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED IN THE FINAL CONSTRUCTION PHASE.
- 2) REMOVE THE 6-FIBER DROP CABLE BETWEEN "AERIAL SPLICE ENCLOSURE #2" AND THE "SIGNAL CABINET GBO-007". LEAVE MESSENGER CABLE AND CONDUIT SYSTEM INTACT FOR FUTURE USE IN THE FINAL PHASE OF CONSTRUCTION "TMP-FINAL".
- 3) SAVE ETHERNET SWITCH FOR RE-INSTALLATION IN THE NEW SIGNAL CABINET DURING THE FINAL PHASE OF CONSTRUCTION "TMP-FINAL".

GENERAL NOTES:

- 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT (336) 373-2860; 5 DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

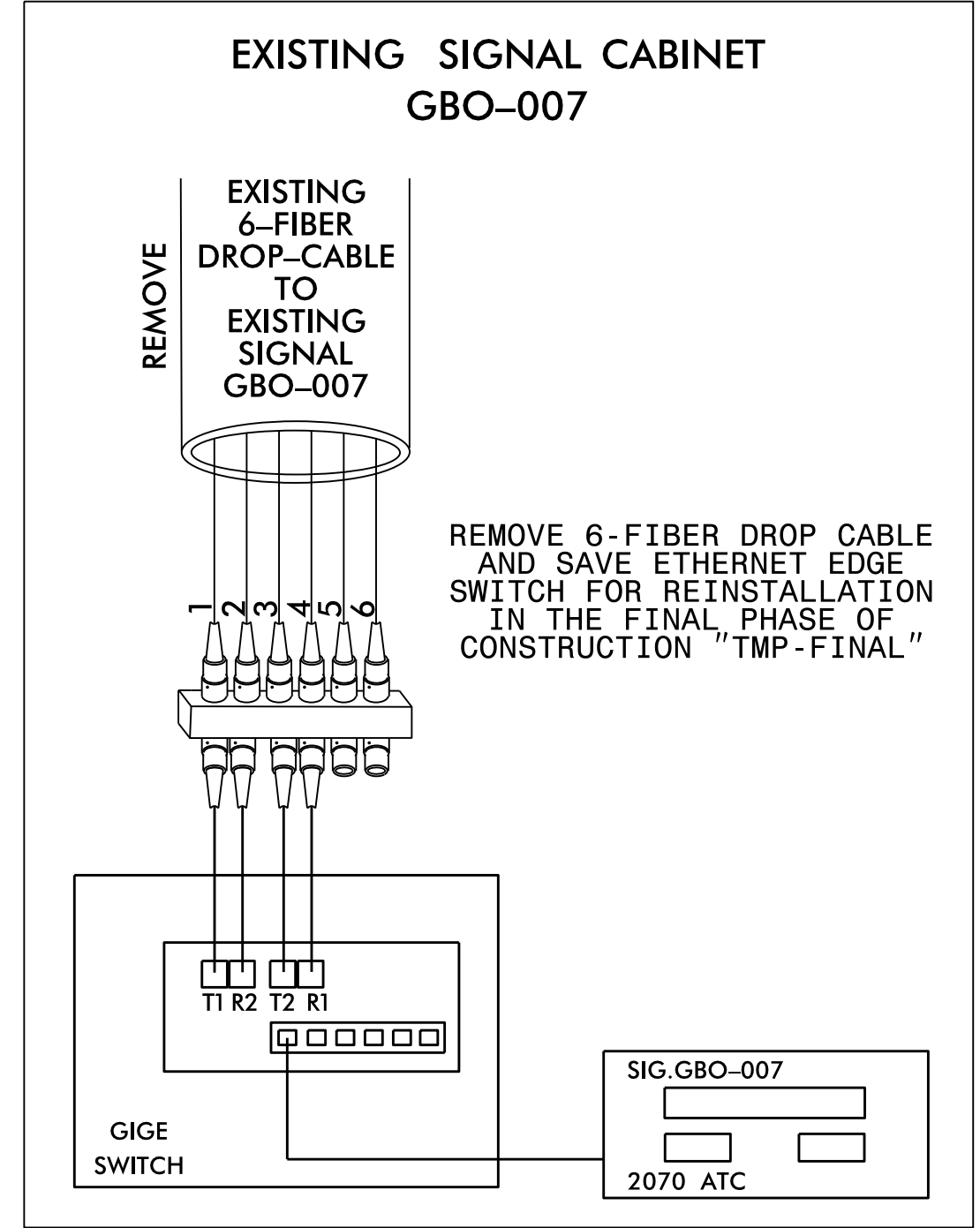
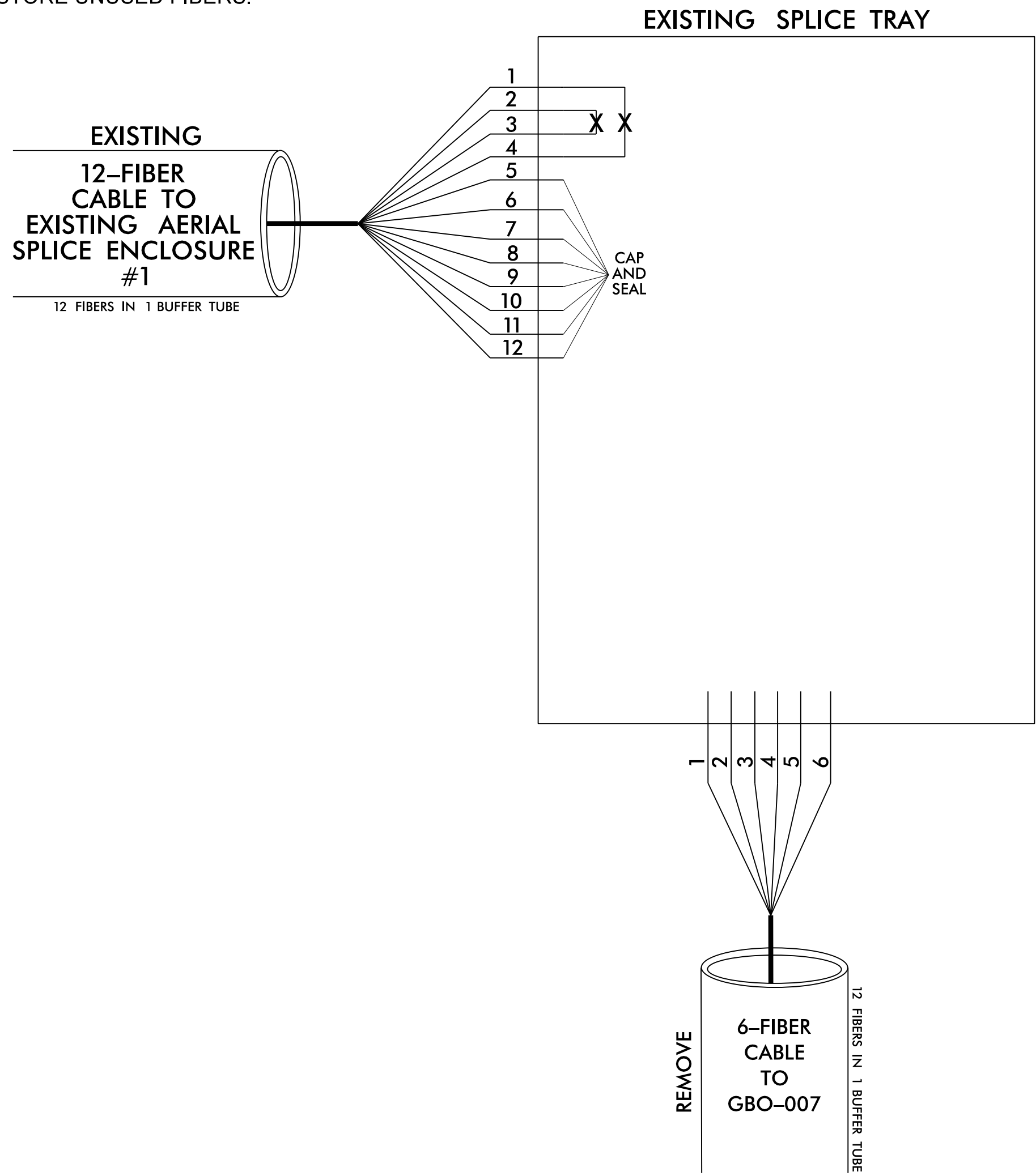
 <small>750 N. Greenfield Pkwy., Garner, NC 27529</small>	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		 <small>SEAL 023919</small>
	PREPARED BY: A. J. SKUCE <small>REVISIONS</small>	REVIEWED BY: <i>Gregory A. Fuller</i> <small>DATE</small>	DATE: 4/28/2016 <small>DATE</small>

SCALE: 1" = 60'

**EXISTING AERIAL
SPLICE ENCLOSURE #2
OLD BATTLEGROUND RD.
AT LAKE BRANDT RD.
SIG. INV. GBO-007**

NOTES:

1. UNLESS OTHERWISE NOTED, CAP AND STORE UNUSED FIBERS.



LEGEND

COLOR CODE TIA/EIA 598-A	X - FUSION SPLICE INDIVIDUAL FIBER
(1) BLUE (7) RED	BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE AS NOTED
(2) ORANGE (8) BLACK	
(3) GREEN (9) YELLOW	
(4) BROWN (10) VIOLET	
(5) SLATE (11) ROSE	
(6) WHITE (12) AQUA	

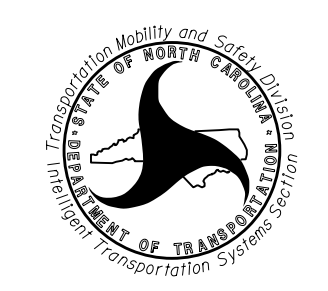
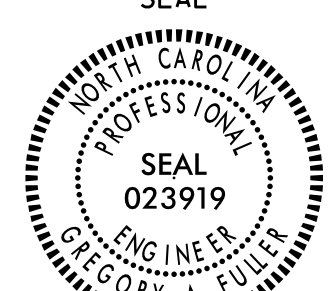
NOTES:

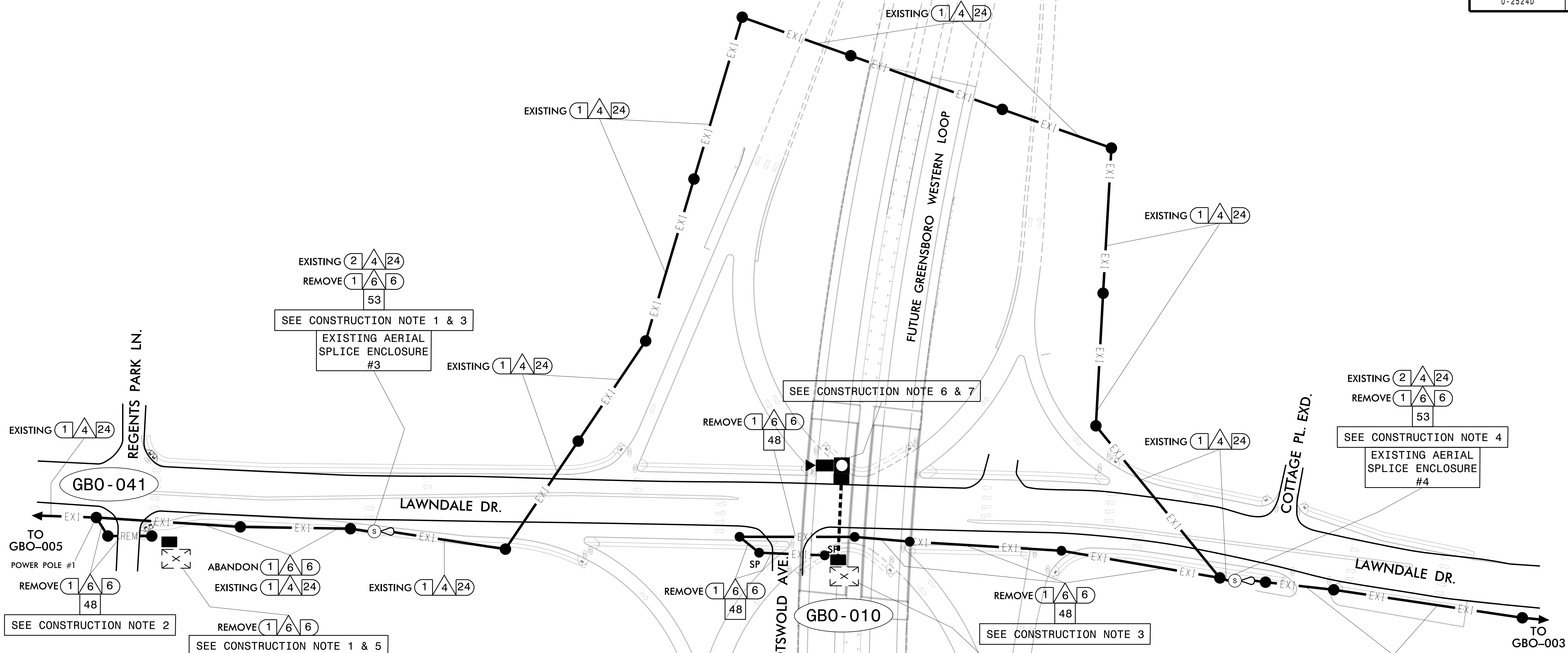
- 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT 336-373-2860 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
- 2) CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE PLANS FOR USE IN TMP FINAL PHASE. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING.
- 3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 - 1) SPLICE LOCATION
 - 2) DATE
 - 3) COMPANY NAME
 - 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP PHASE 1

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

	SPLICE DETAILS		
	DIVISION 07 GUILFORD COUNTY GREENSBORO PLAN DATE: APRIL 2016 REVIEWED BY: <i>Gregory A. Fuller</i> PREPARED BY: A. J. SKUCE		
REVISIONS		INIT. DATE	DocuSign by: <i>Gregory A. Fuller</i> 4/28/2016 7332C45A5E8145F DATE
CADD Filename:			



CONSTRUCTION NOTES:

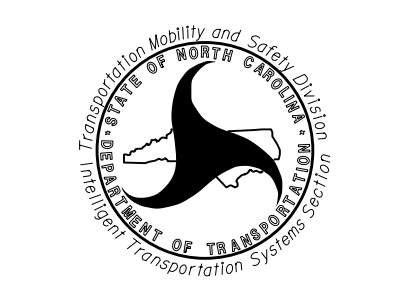

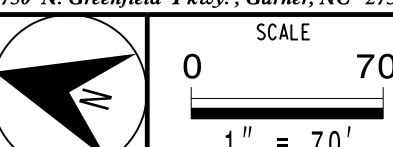
- 1) RECORD THE EXISTING SPLICE ARRANGEMENTS IN "AERIAL SPLICE ENCLOSURE #3" AND THE "SIGNAL CABINET GBO-041" FOR COMPARISON TO THE SUPPLIED SPLICE PLANS FOR FUTURE USE IN THE FINAL PHASE OF CONSTRUCTION "TMP-FINAL". IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED IN THE FINAL CONSTRUCTION PHASE.
- 2) REMOVE 6-FIBER DROP CABLE FROM "SIGNAL CABINET GBO-041" AND BACK PULL TO "POWER POLE #1" AND ABANDON.
- 3) REMOVE 6-FIBER DROP CABLE FROM "EXISTING AERIAL SPLICE ENCLOSURE #3" AND RE-TERMINATE REMAINING FIBER AS SHOWN IN SPLICE PLANS. ABANDON REMAINING FIBER IN PLACE.
- 4) REMOVE 6-FIBER DROP CABLE FROM "EXISTING AERIAL SPLICE ENCLOSURE #4" AND SPLICE REMAINING FIBER AS SHOWN IN THESE PLANS. REMOVE REMAINING FIBER AND MESSENGER CABLE BETWEEN "EXISTING AERIAL SPLICE ENCLOSURE #4" AND "GBO-010".
- 5) SAVE ETHERNET SWITCH FOR RE-INSTALLATION IN THE NEW SIGNAL CABINET DURING THE FINAL PHASE OF CONSTRUCTION "TMP-FINAL".
- 6) REMOVE CCTV CAMERA, CAMERA CONTROL UNIT, CITY NETWORK ACCESS POINT AND METAL POLE. MAKE ARRANGEMENTS WITH THE CITY TRAFFIC ENGINEER JOE MULLINAX (336) 373-2860 FOR DELIVERY OF THE REMOVED CCTV CAMERA EQUIPMENT, CITY NETWORK EQUIPMENT AND METAL POLE TO THE CITY TRANSPORTATION YARD LOCATED AT 401 PATTON AVENUE IN GREENSBORO. IN THE PRESENCE OF THE ENGINEER, ENSURE THE CCTV CAMERA, CAMERA CONTROL UNIT, AND CITY NETWORK ACCESS POINT ARE IN WORKING ORDER PRIOR TO REMOVAL, CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DURING REMOVAL AND TRANSPORTATION TO THE CITY.
- 7) REMOVE FOUNDATION AND BACKFILL VOID LEFT FROM THE REMOVAL OF THE FOUNDATION BACK TO GRADE USING SUITABLE MATERIAL. TAMP BACKFILL MATERIAL IN 12 INCH LIFTS.

GENERAL NOTES:

- 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT (336) 373-2860; 5 DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

TMP PHASE 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

 <small>750 N. Greenfield Pkwy., Garner, NC 27529</small>	<p>COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS</p> <p>DIVISION 07 GUILFORD COUNTY GREENSBORO</p> <p>PLAN DATE: APRIL 2016 REVIEWED BY: <i>Gregory A. Fuller</i></p> <p>PREPARED BY: A. J. SKUCE</p>	 <small>SEAL 023919</small> <small>Gregory A. Fuller</small> <small>4/28/2016</small>									
 <small>SCALE 1" = 70'</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE							<small>CADD Filename:</small>
REVISIONS	INIT.	DATE									

**EXISTING AERIAL
SPLICE ENCLOSURE
#3**

NOTES:

- 1. UNLESS OTHERWISE NOTED, CAP AND STORE UNUSED FIBERS.

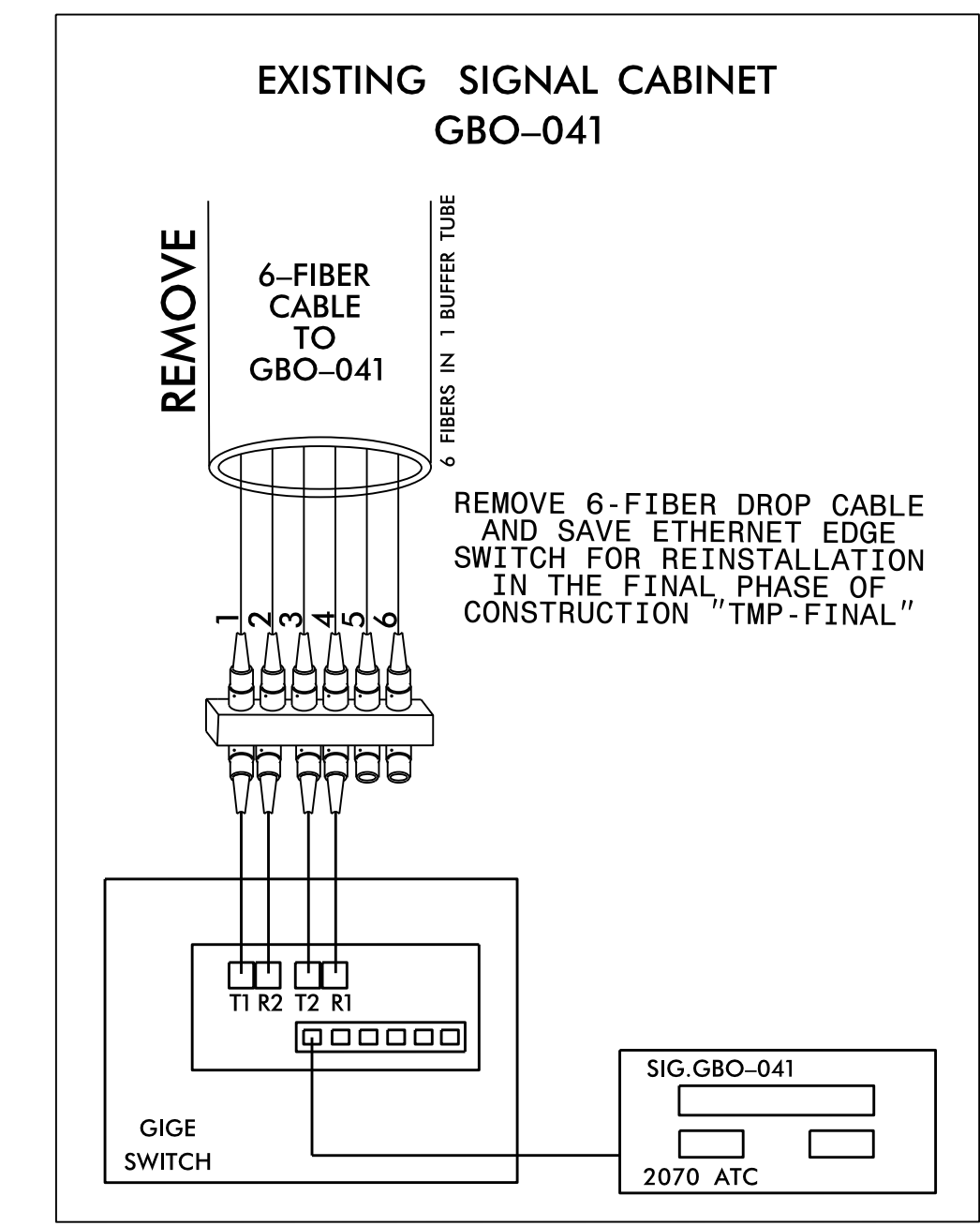
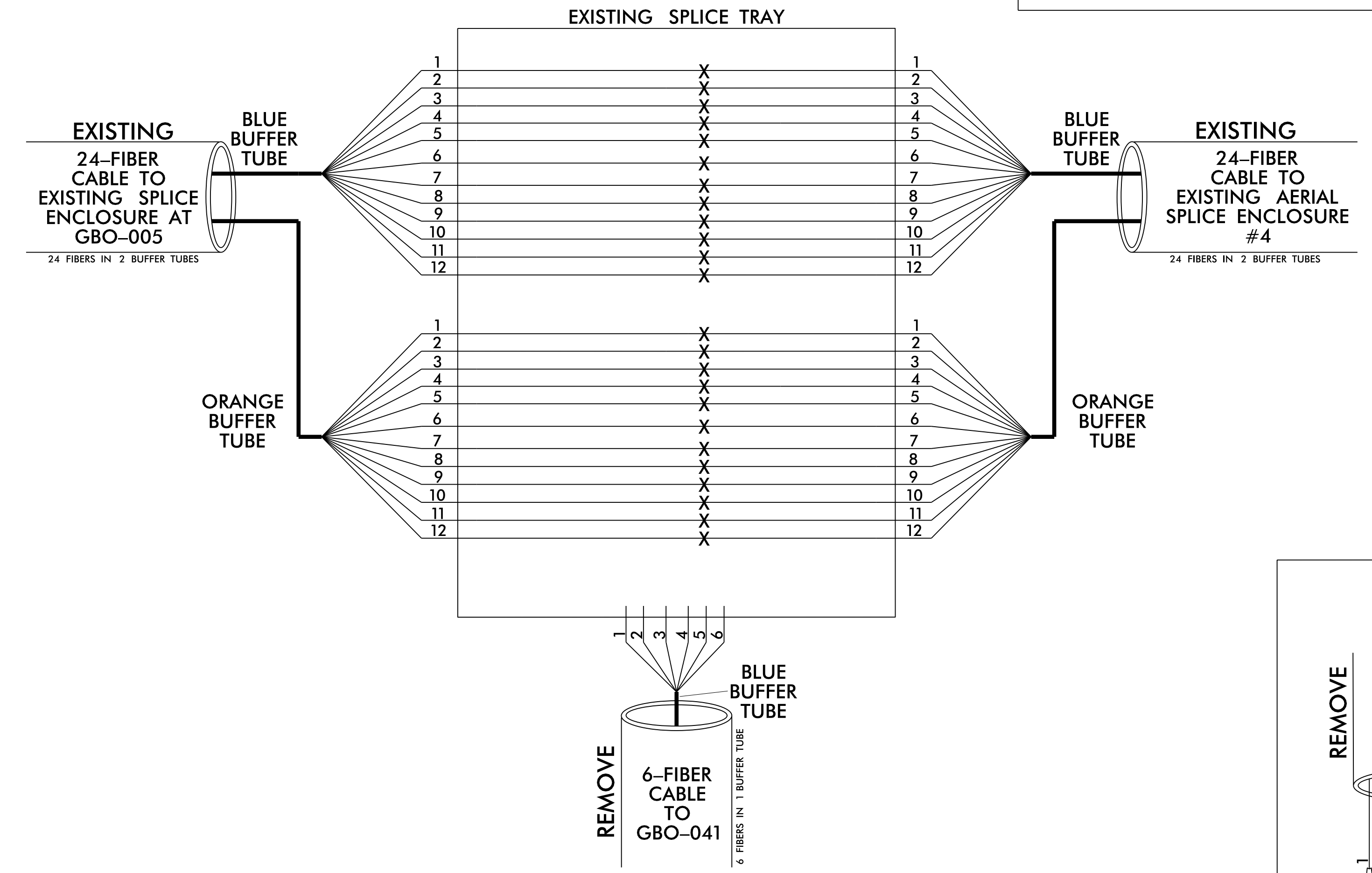
LEGEND

COLOR CODE TIA/EIA 598-A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

X - FUSION SPLICE INDIVIDUAL FIBER

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE AS NOTED



NOTES:

- 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT 336-373-2860 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
- 2) CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE PLANS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING.
- 3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 - 1) SPLICE LOCATION
 - 2) DATE
 - 3) COMPANY NAME
 - 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP PHASE 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	SPLICE DETAILS		
	DIVISION 7 GUILFORD COUNTY GREENSBORO PLAN DATE: APRIL 2016 REVIEWED BY: <i>Neil Avery</i> PREPARED BY: A. J. SKUCE	REVISIONS INIT. DATE	
SCALE: 0 NA NA	DATE: 4/28/2016 DocuSigned by: Gregory A. Fuller		SEAL

**EXISTING AERIAL
SPLICE ENCLOSURE
#4**

NOTES:

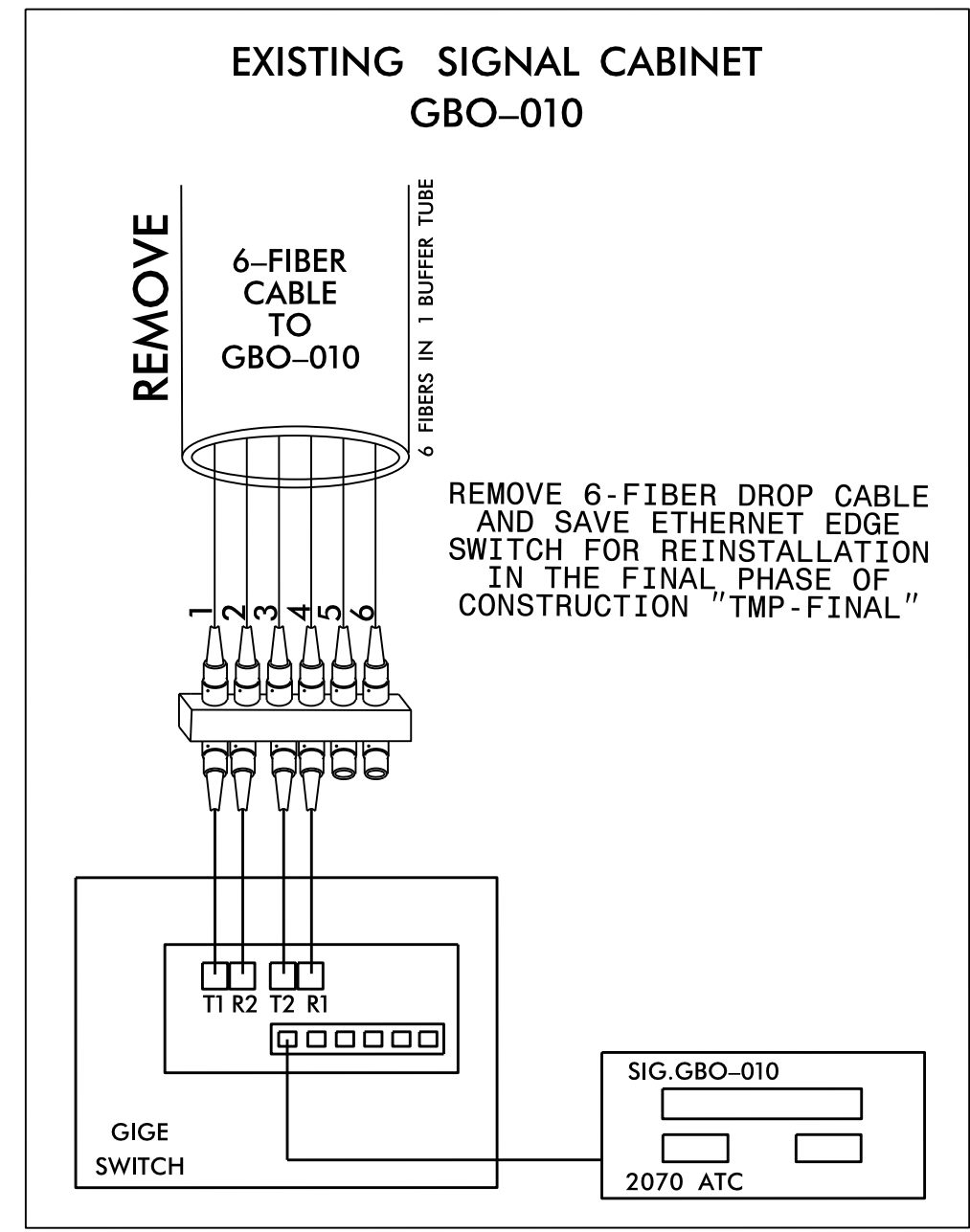
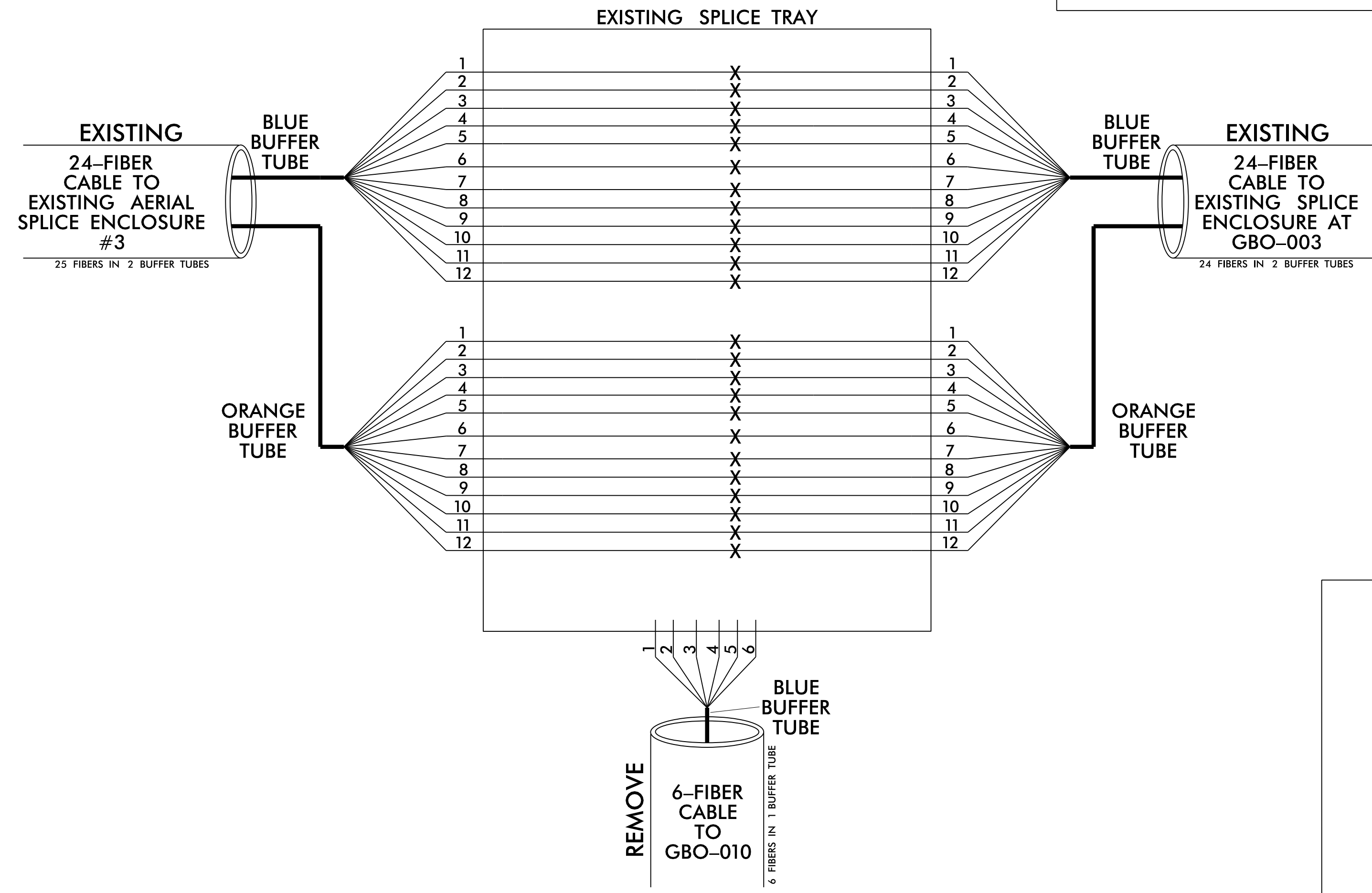
- 1. UNLESS OTHERWISE NOTED, CAP AND STORE UNUSED FIBERS.

LEGEND

COLOR CODE TIA/EIA 598-A

(1) BLUE	(7) RED	X - FUSION SPlice INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	
(3) GREEN	(9) YELLOW	
(4) BROWN	(10) VIOLET	
(5) SLATE	(11) ROSE	
(6) WHITE	(12) AQUA	

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE AS NOTED



NOTES:

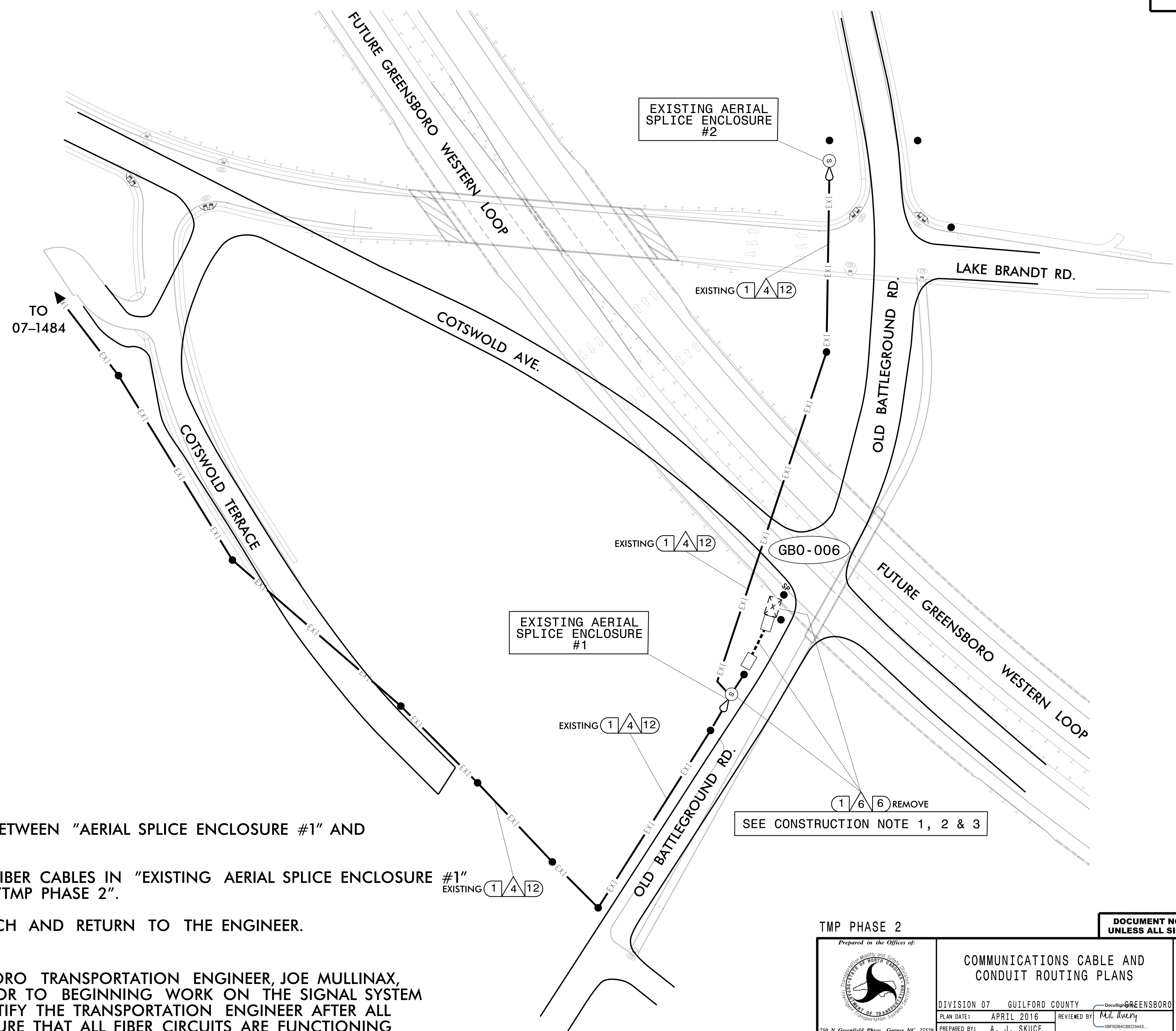
- 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT 336-373-2860 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
- 2) CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE PLANS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING.
- 3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 - 1) SPLICE LOCATION
 - 2) DATE
 - 3) COMPANY NAME
 - 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP PHASE 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SPLICE DETAILS</p> <p>DIVISION 7 GUILFORD COUNTY GREENSBORO</p>					
	<p>PLAN DATE: APRIL 2016</p> <p>REVIEWED BY: <i>Neil Avery</i></p> <p>PREPARED BY: A. J. SKUCE</p>	<p>REVISIONS</p> <table border="1"> <tr> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>		INIT.	DATE	
INIT.	DATE					
<p>SCALE: 0 NA</p>	<p>DATE: 4/28/2016</p>		<p>DATE</p>			



CONSTRUCTION NOTES:

- 1) REMOVE 6-FIBER DROP CABLE BETWEEN "AERIAL SPLICE ENCLOSURE #1" AND "SIGNAL CABINET GBO-006".
- 2) RE-TERMINATE REMAINING 12-FIBER CABLES IN "EXISTING AERIAL SPLICE ENCLOSURE #1" AS SHOWN IN SPLICE PLANS "TMP PHASE 2".
- 3) REMOVE ETHERNET EDGE SWITCH AND RETURN TO THE ENGINEER.

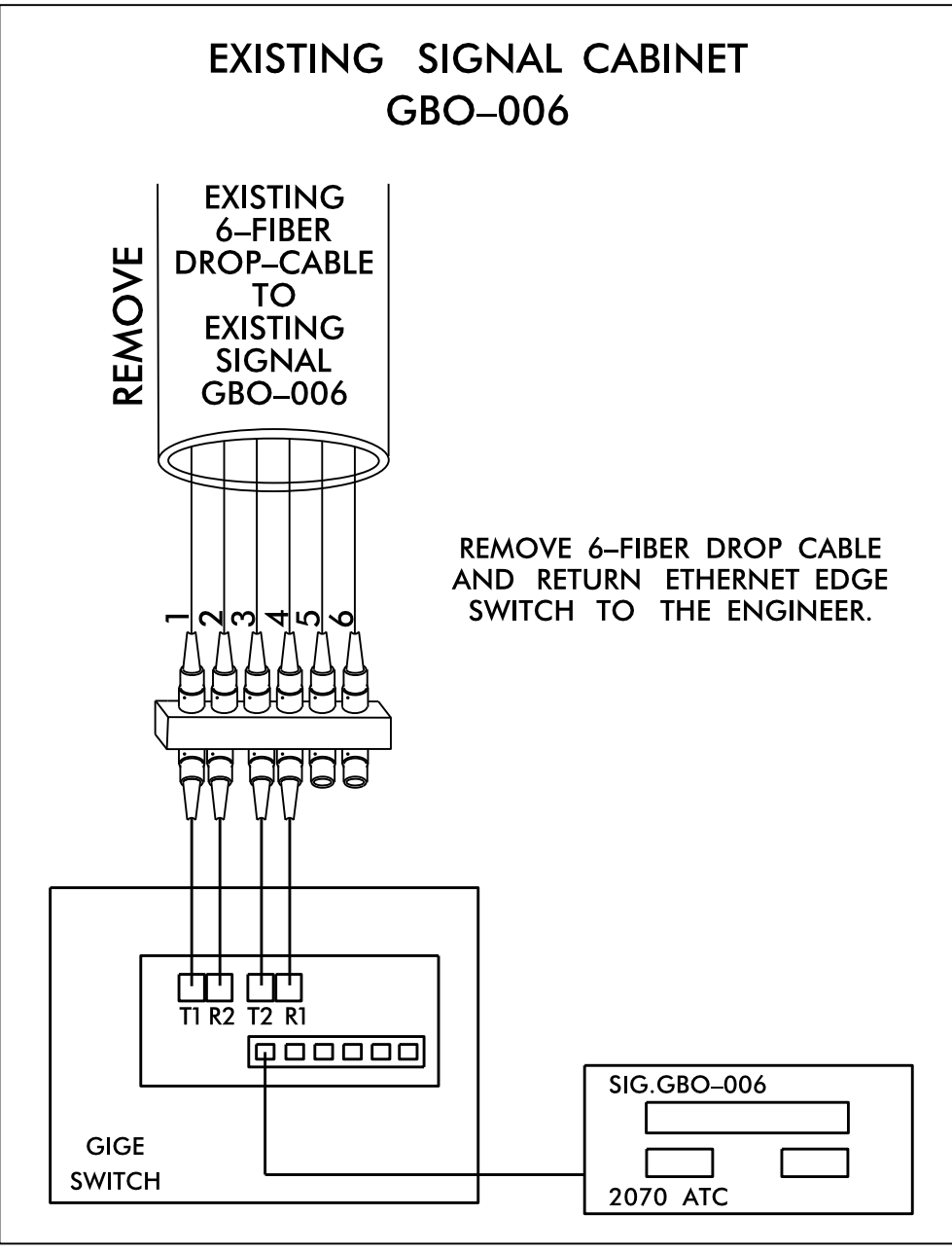
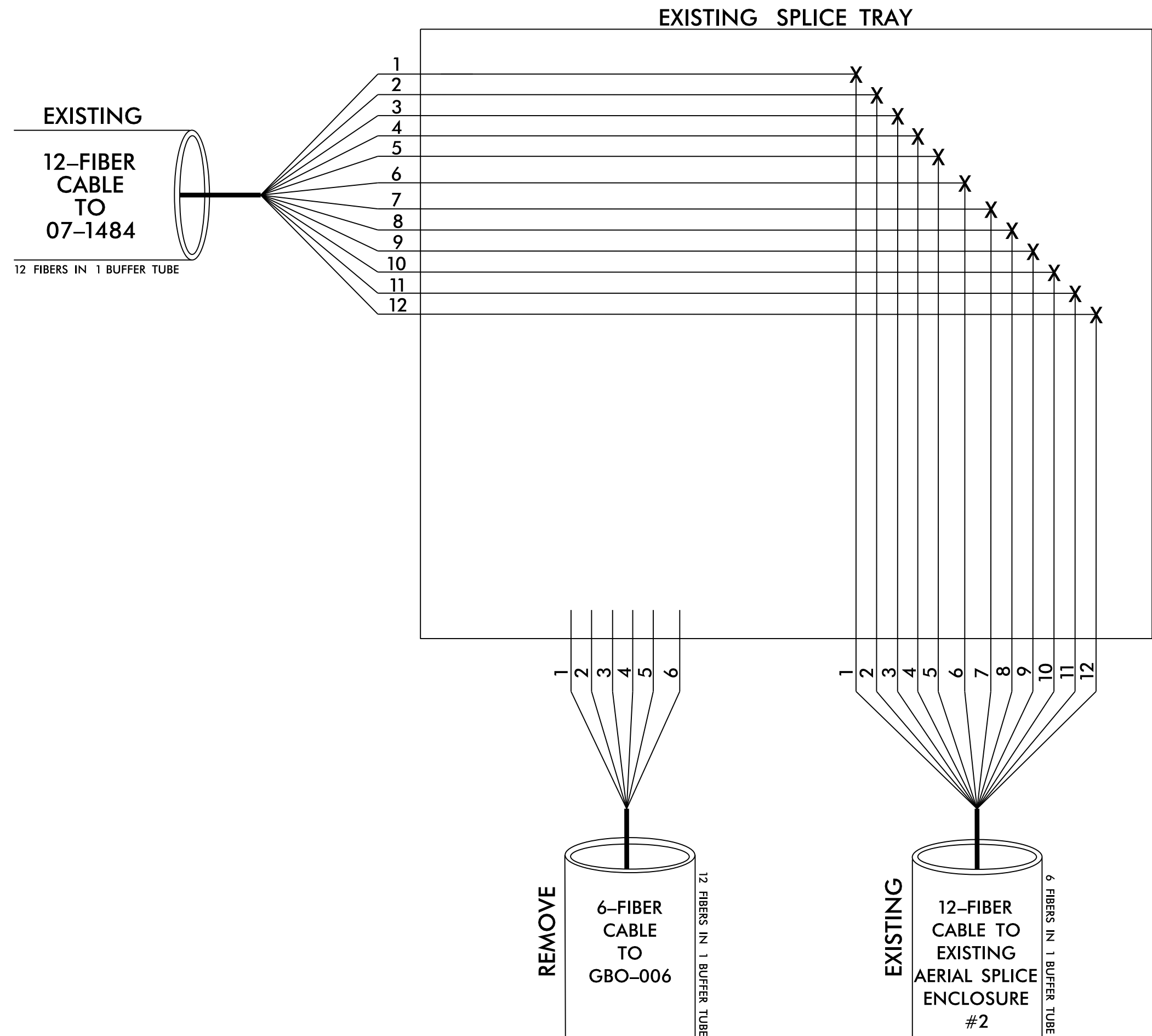
GENERAL NOTES:

- 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT (336) 373-2860; 5 DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

<p>TMP PHASE 2</p> <p>Prepared in the Offices of:</p>		<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS</p>		<p>SEAL NORTH CAROLINA PROFESSIONAL ENGINEER GREGORY A. FULLER 023919</p>	
<p>DIVISION 07 GUILFORD COUNTY</p> <p>PLAN DATE: APRIL 2016</p> <p>PREPARED BY: A. J. SKUCE</p>		<p>REVIEWED BY: <i>Gregory A. Fuller</i></p> <p>DATE: 4/28/2016</p>	
<p>750 N. Greenfield Pkwy., Garner, NC 27529</p> <p>SCALE: 1" = 60'</p>		<p>REVISIONS</p> <p>INIT. DATE</p>	
<p>CADD Filename:</p>		<p>DATE</p>	

**EXISTING AERIAL
SPLICE ENCLOSURE
#1**

NOTES:
1. UNLESS OTHERWISE NOTED, CAP AND STORE UNUSED FIBERS.



- NOTES:
- 1) ETHERNET TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
 - 2) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT 336-373-2860 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
 - 3) CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE PLANS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING.
 - 4) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 - 1) SPLICE LOCATION
 - 2) DATE
 - 3) COMPANY NAME
 - 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

LEGEND

COLOR CODE TIA/EIA 598-A	X - FUSION SPLICE INDIVIDUAL FIBER
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE AS NOTED

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UNLESS ALL SIGNATURES COMPLETED**

TMP PHASE 2

750 N. Greenfield Pkwy, Garner, NC 27529

SPLICE DETAILS

DIVISION 7 GUILFORD COUNTY GREENSBORO

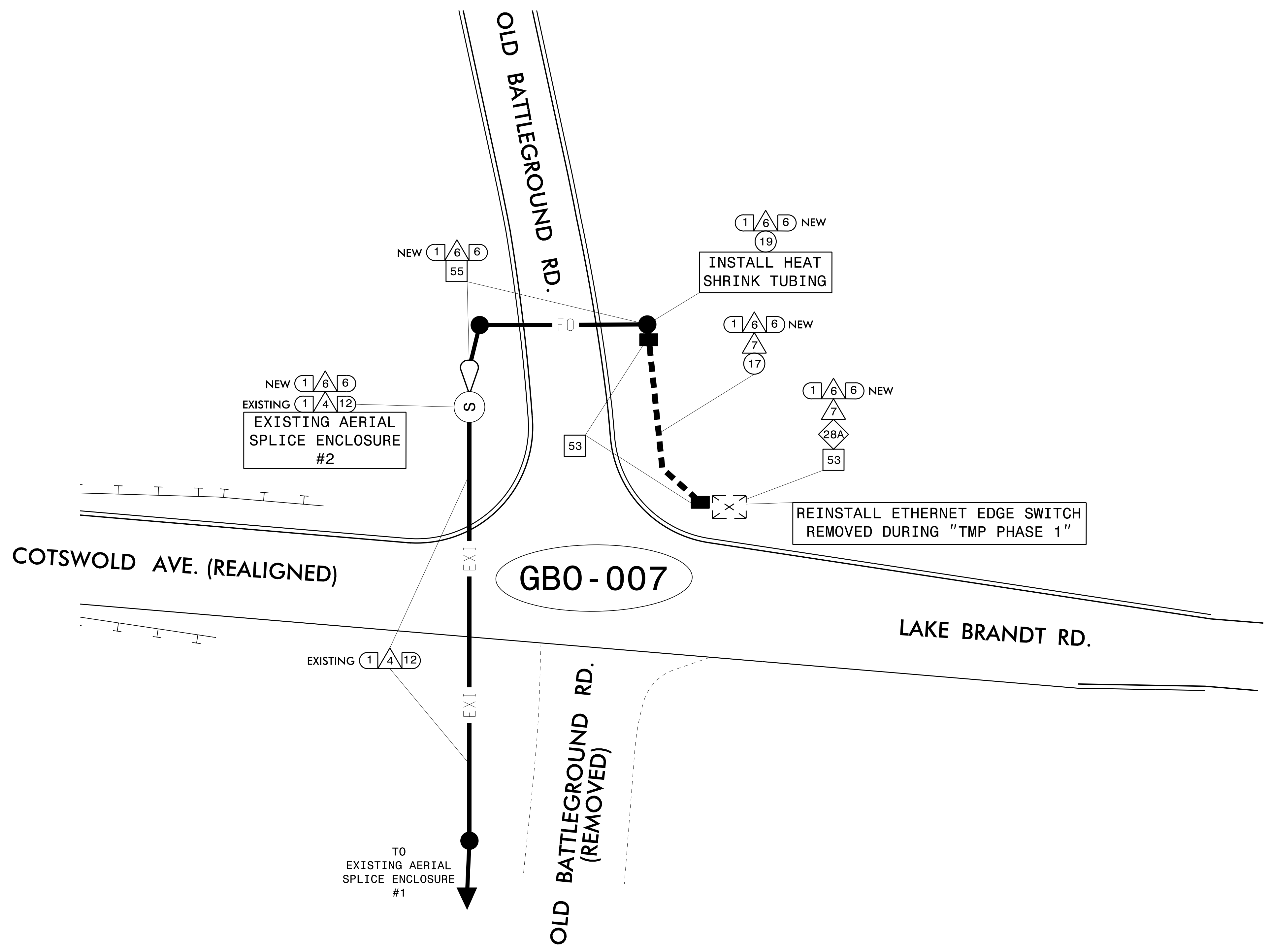
PLAN DATE: APRIL 2016 REVIEWED BY: *Neil Avery*

PREPARED BY: A. J. SKUCE

SEAL

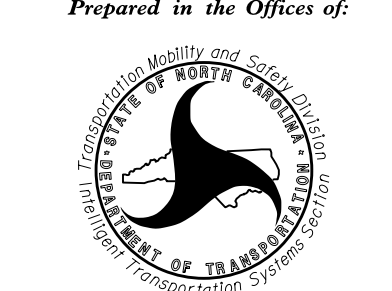
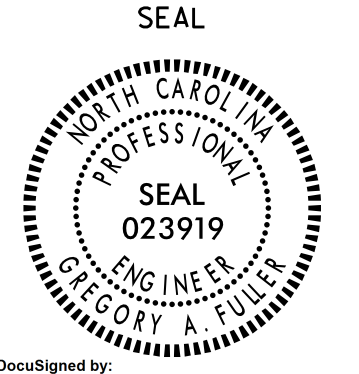
REVISIONS	INIT.	DATE

DocuSigned by:
Gregory A. Fuller 4/28/2016



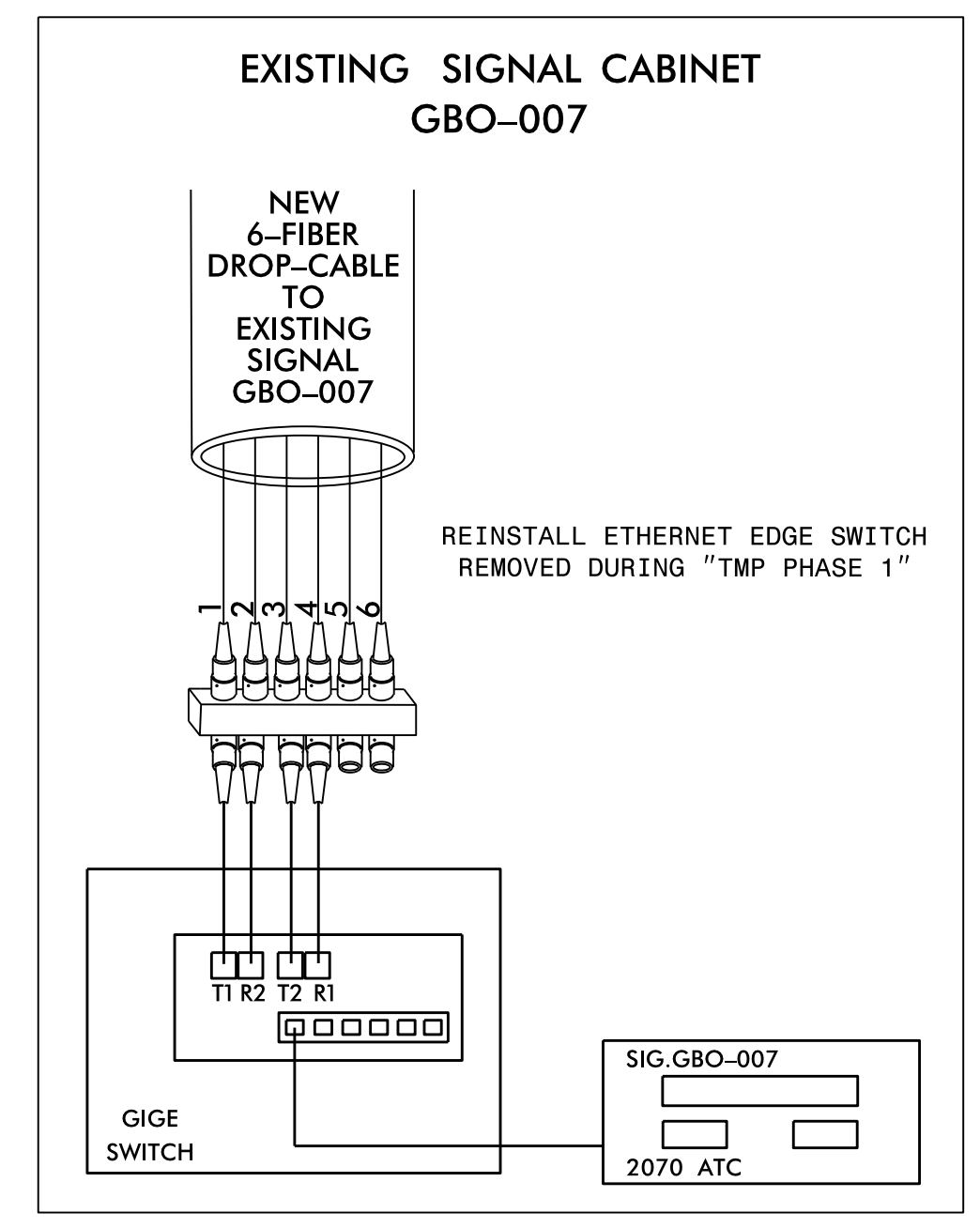
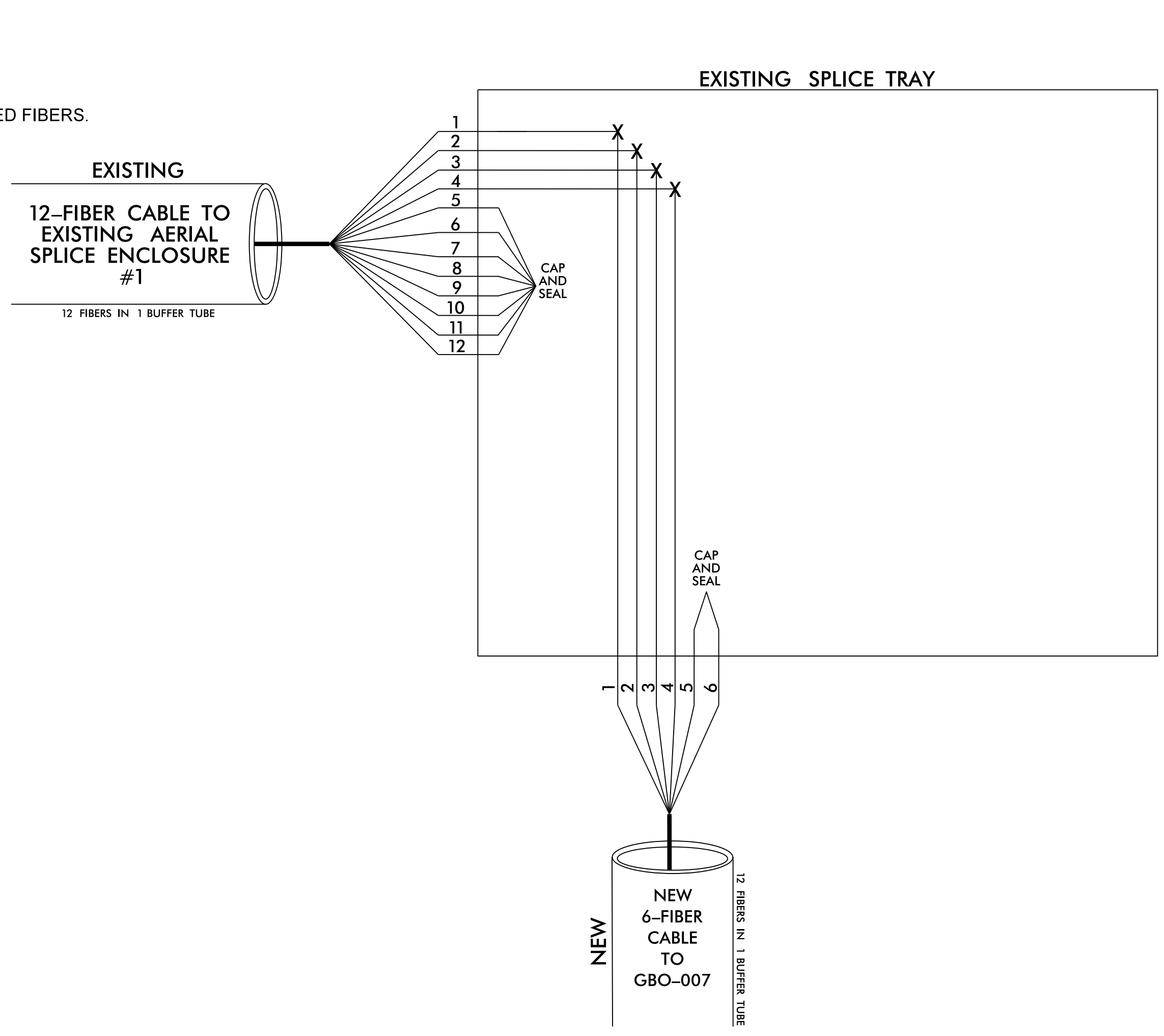
GENERAL NOTES:

- 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT (336) 373-2860; 5 DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

 750 N. Greenfield Pkwy., Garner, NC 27529		COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS DIVISION 07 GUILFORD COUNTY GREENSBORO PLAN DATE: APRIL 2016 REVIEWED BY: <i>Gregory A. Fuller</i> PREPARED BY: A. J. SKUCE REVISIONS: _____ INIT. DATE: _____		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL  SEAL 023919 GREGORY A. FULLER ENGINEER DocuSigned by: <i>Gregory A. Fuller</i> 4/28/2016 7332C45A5E8145F DATE: _____ CADD Filename: _____	
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EXISTING AERIAL SPLICE ENCLOSURE #2
OLD BATTLEGROUND RD.
AT COTSWOLD AVE.
SIG. INV. GBO-007

NOTES:
 1. UNLESS OTHERWISE NOTED, CAP AND STORE UNUSED FIBERS.



NOTES:
 1) NOTIFY THE CITY OF GREENSBORO TRANSPORTATION ENGINEER, JOE MULLINAX, AT 336-373-2860 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEM COMMUNICATIONS CABLE. NOTIFY THE TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
 2) CONTRACTOR TO COMPARE EXISTING SPLICE ARRANGEMENT RECORDED FROM "TMP PHASE 1" TO THE SUPPLIED SPLICE PLANS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING.
 3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
 REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 1) SPLICE LOCATION
 2) DATE
 3) COMPANY NAME
 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING
 PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

LEGEND

COLOR CODE TIA/EIA 598-A		ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.
(1) BLUE	(7) RED	X - FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	BUFFER TUBE SPLICE OR EXPRESS ENTIRE BUFFER TUBE AS NOTED
(3) GREEN	(9) YELLOW	
(4) BROWN	(10) VIOLET	
(5) SLATE	(11) ROSE	
(6) WHITE	(12) AQUA	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TMP FINAL

750 N. Greenfield Pkwy, Garner, NC 27529

SPLICE DETAILS

DIVISION 7 GUILFORD COUNTY GREENSBORO

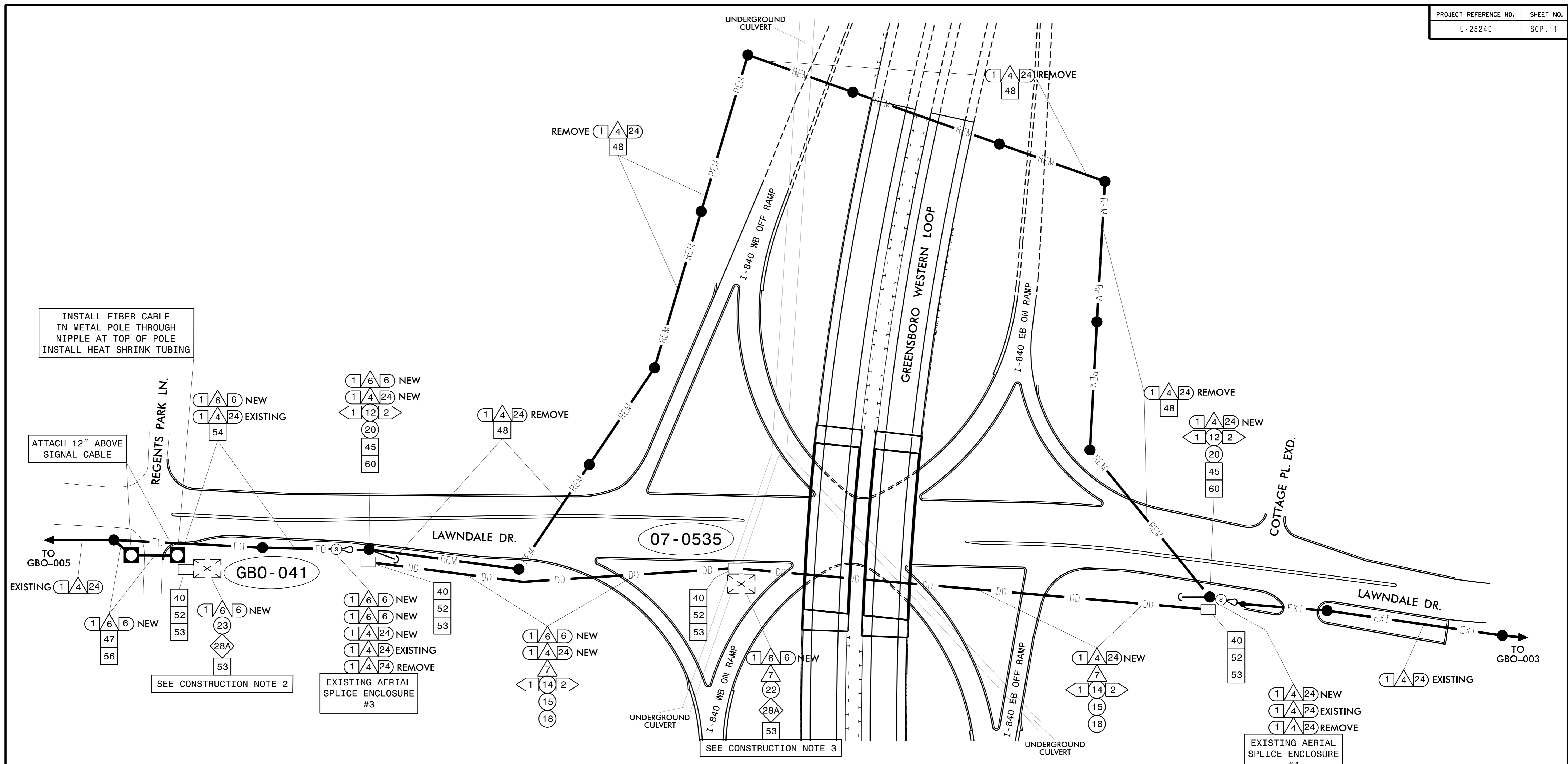
PLAN DATE: MARCH 2016 REVIEWED BY: *Neil Avery*

PREPARED BY: A. J. SKUCE

SEAL

REVISIONS	INIT.	DATE

DocuSigned by:
Gregory A. Fuller 4/28/2016



CONSTRUCTION NOTES:

- 1) INSTALL NEW 6-FIBER DROP CABLES AND NEW 24-FIBER TRUNK CABLE AS SHOWN. REMOVE EXISTING 24-FIBER CABLE AS SHOWN.
- 2) RE-INSTALL ETHERNET SWITCH THAT WAS REMOVED DURING "TMP PHASE 1" FROM "GBO-041".
- 3) RE-INSTALL ETHERNET SWITCH THAT WAS REMOVED DURING "TMP PHASE 1" FROM "GBO-010" IN THE NEW "07-0535" SIGNAL CABINET.

GENERAL NOTES:

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TMP FINAL

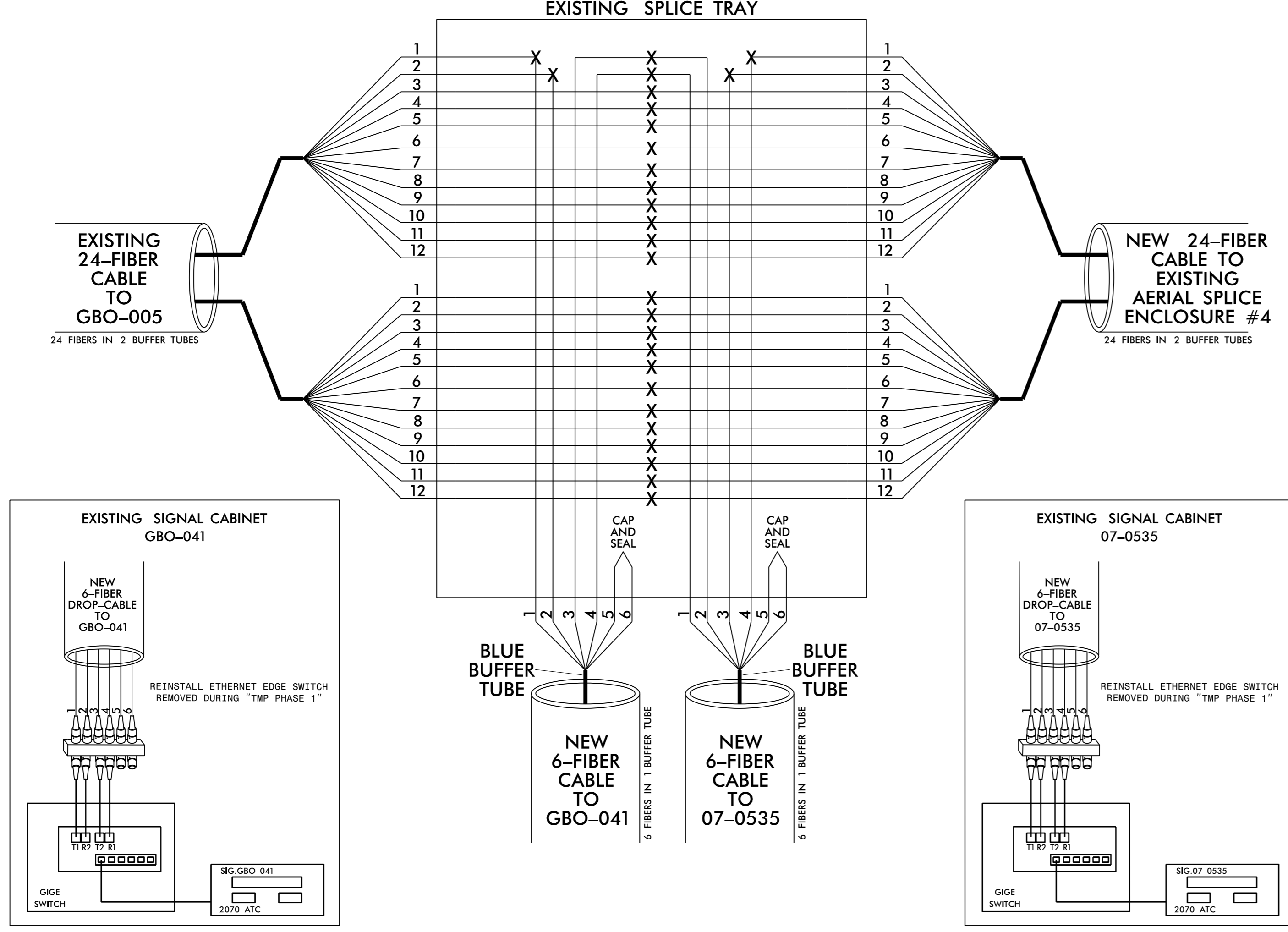
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	DIVISION 07 GUILFORD COUNTY GREENSBORO		
PLAN DATE: APRIL 2016		REVIEWED BY: <i>Gregory A. Fuller</i>	
PREPARED BY: A. J. SKUCE		DATE:	
REVISIONS:		INIT. DATE:	
SCALE: 1" = 70'		DATE:	
750 N. Greenfield Pkwy., Garner, NC 27529		CADD File name:	

EXISTING AERIAL SPLICE ENCLOSURE #3

NOTES:

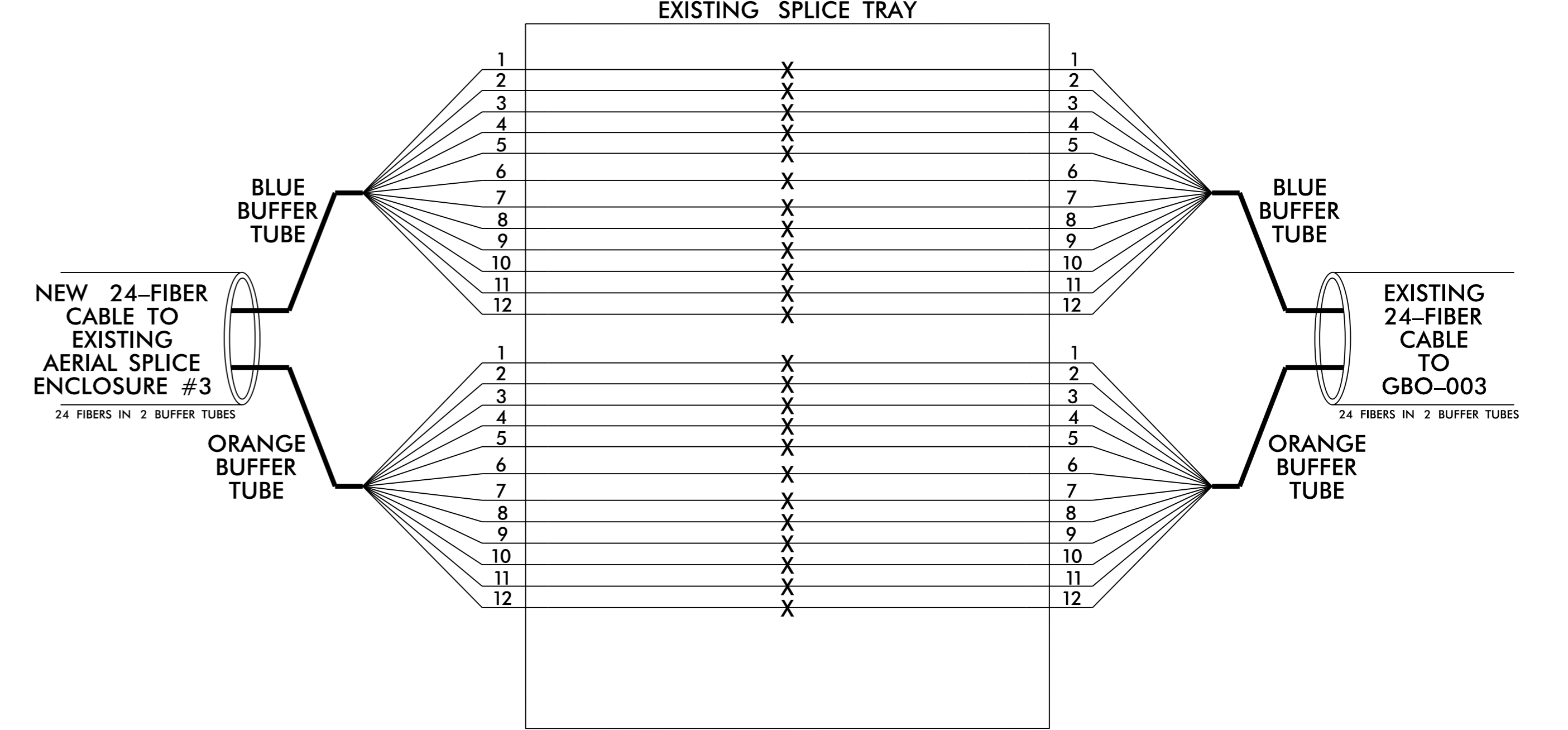
- 1. UNLESS OTHERWISE NOTED, CAP AND STORE UNUSED FIBERS.



EXISTING AERIAL SPLICE ENCLOSURE #4

NOTES:

- 1. UNLESS OTHERWISE NOTED, CAP AND STORE UNUSED FIBERS.



NOTES:

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- 3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 - 1) SPLICE LOCATION
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PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

LEGEND

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(6) WHITE	(12) AQUA	

TMP FINAL

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

	SPLICE DETAILS		
	DIVISION 7 GUILFORD COUNTY GREENSBORO PLAN DATE: APRIL 2016 REVIEWED BY: <i>Neil Avery</i> PREPARED BY: A. J. SKUCE	REVISIONS INIT. DATE	
SCALE: 0 NA NA	DATE: 4/28/2016 Signed by: <i>Gregory A. Fuller</i>		SEAL 023919 GREGORY A. FULLER ENGINEER