

6-AUG-2025 13:31 \\p01ncdot\proj\01\Documents\NCDOT_TSM0\Signal Design Section\Division_05\05-1662\Signal Design\2024-07_HL-00081\TSH_sug_dsn_20250715.dgn

Project: HL-00081

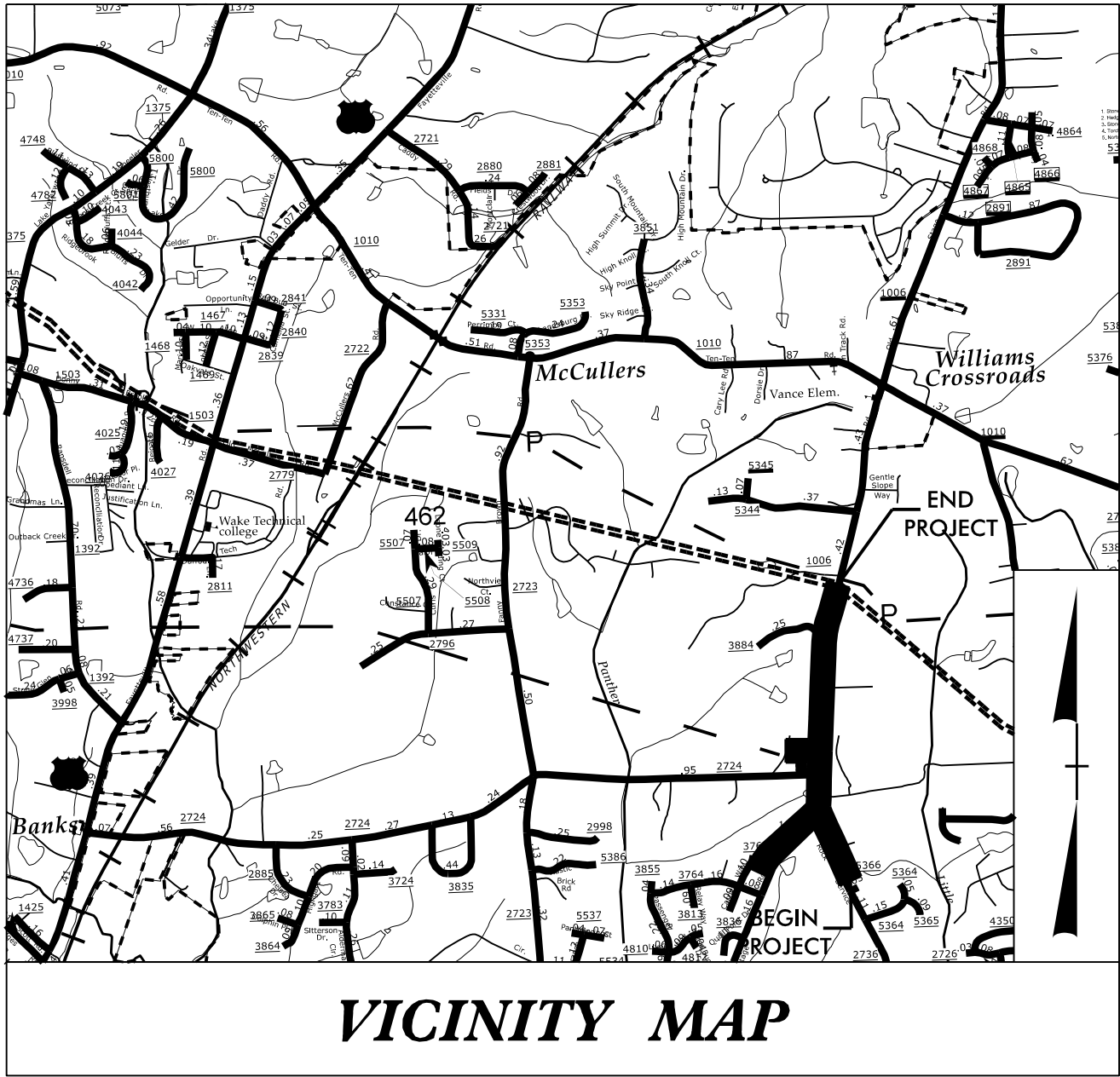
CONTRACT: C205038

Project No.	Sheet No.
HL-00081	Sig. 1.0

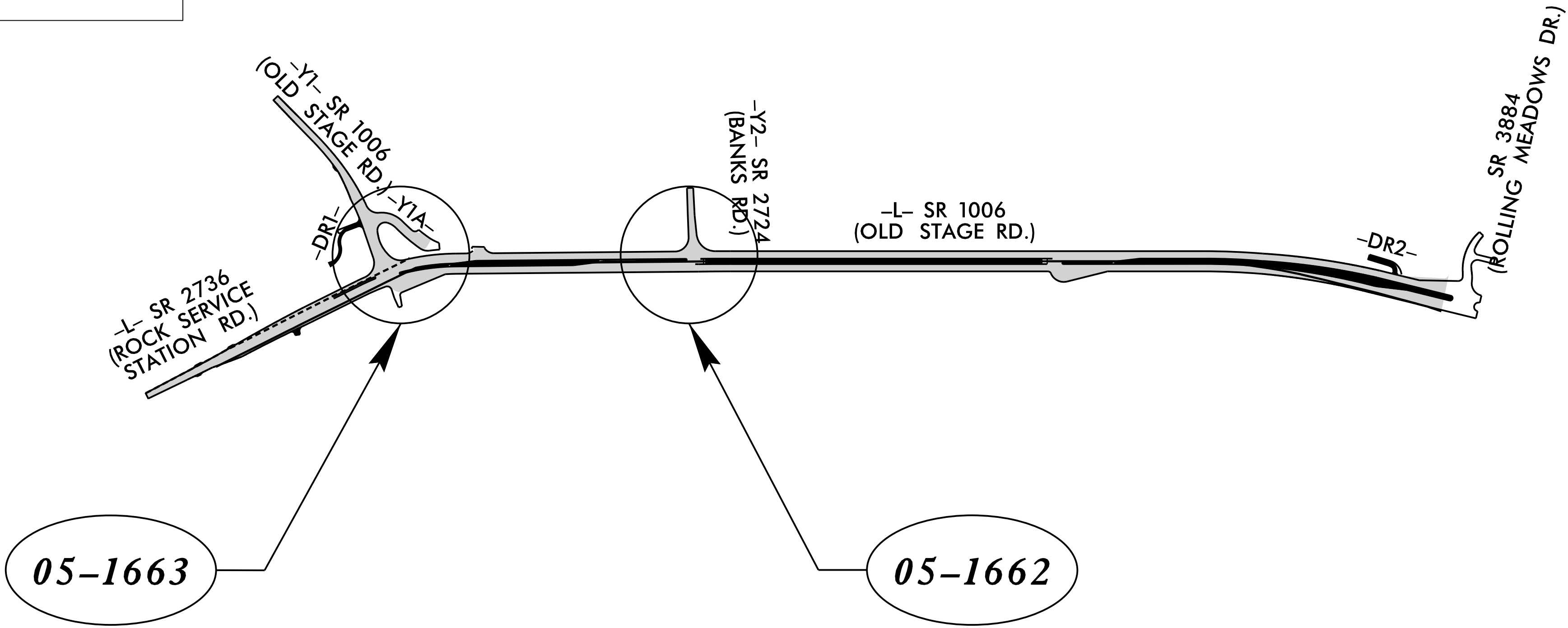
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: SR 1006 (OLD STAGE ROAD) FROM
SR 2736 (ROCK SERVICE STATION ROAD) TO
SR 3884 (ROLLING MEADOWS DRIVE)
TYPE OF WORK: SIGNALS AND SIGNAL COMMUNICATIONS



VICINITY MAP



Refer to "Roadway Standard Drawings
NCDOT" dated January 2024 and
"Standard Specifications for Roads
and Structures" dated January 2024.

Index of Plans
Location/Description

Sheet #	Reference #
Sig. 1.0	N/A
Sig. 2.0 - 4.3	05-1663
Sig. 5.0 - 5.4	05-1662
MIA-M9	-----
SCP 1 - 8	-----

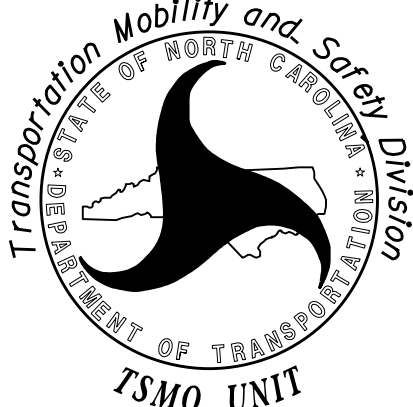
Title Sheet
SR 1006 (Old-Stage Road) at SR 2736 (Rock Service Station Road) And Back Field Road
SR 1006 (Old-Stage Road) at SR 2724 (Banks Road)
Standard Metal Pole Sheets
Signal Communication Plans

TRANSPORTATION SYSTEMS
MANAGEMENT & OPERATIONS UNIT

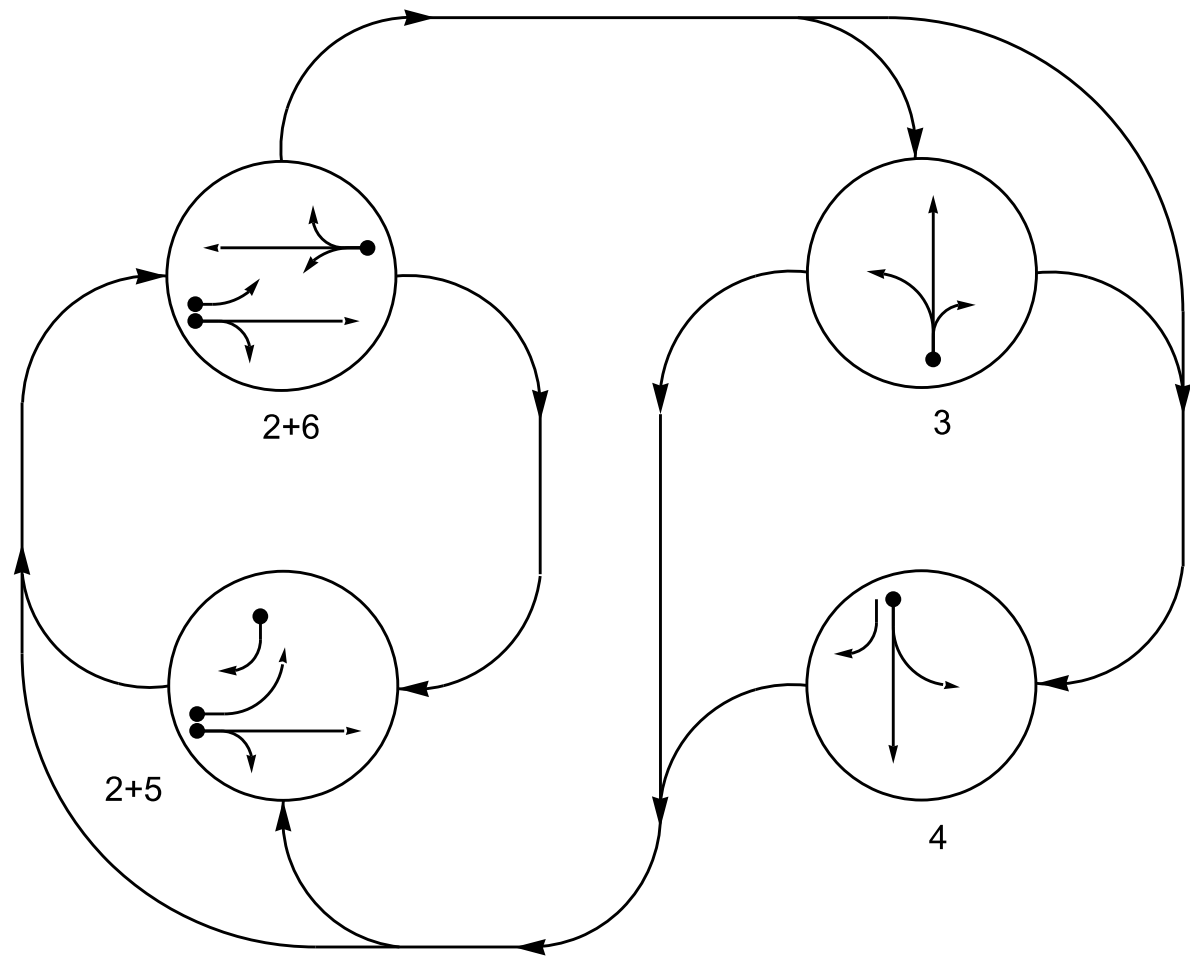
Contacts:

Robert J. Ziemba, PE, CPM - Central Region Signals Engineer
Ryan W. Hough, PE - Signal Equipment Design Engineer
Gregory A. Green - Signal Communication Project Engineer

Prepared In the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY & SAFETY DIVISION

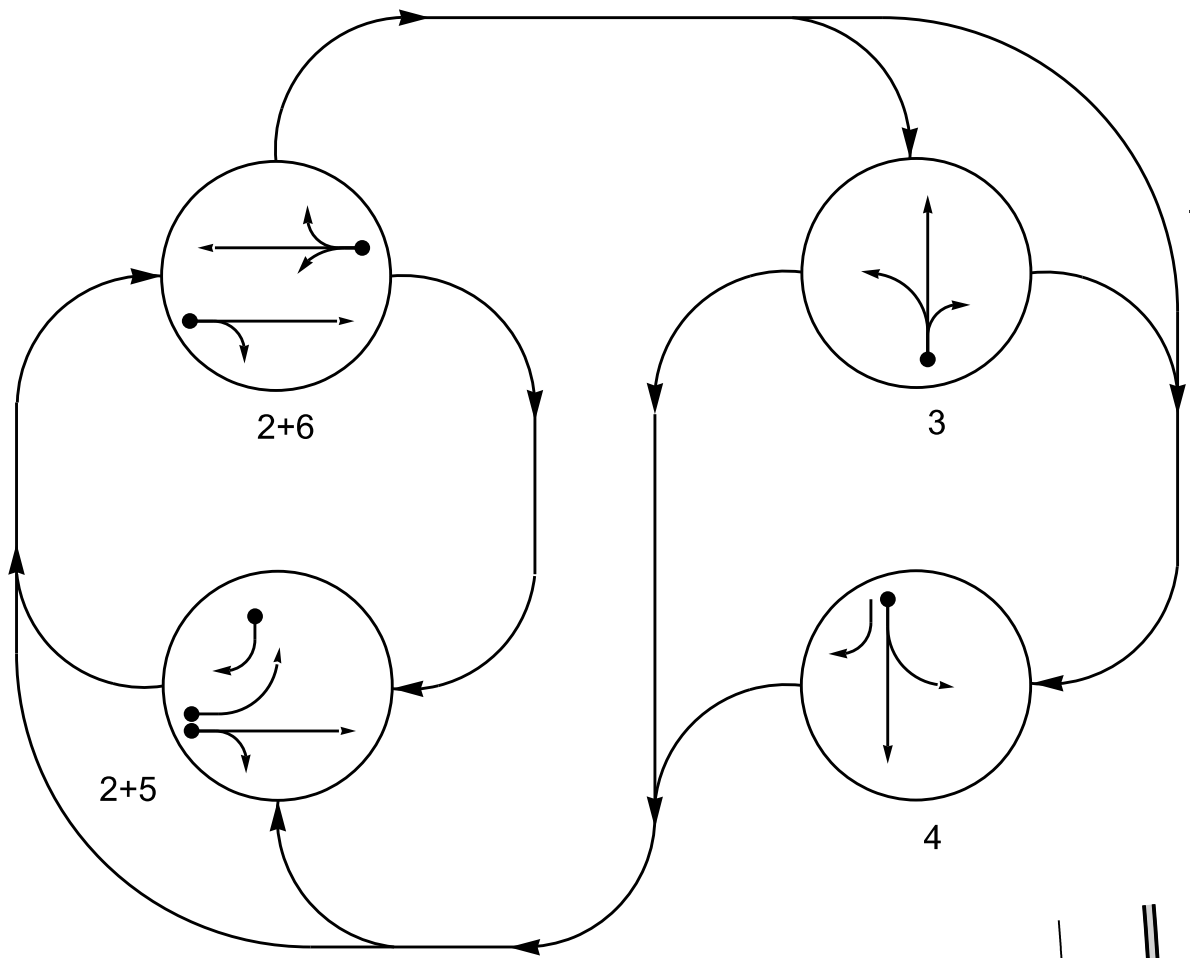


DEFAULT PHASING DIAGRAM



SIGNAL FACE	PHASE				
	2+5	2+6	3	4	Left Turn
21, 22	G	G	R	R	R
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
51	←	←	←	←	←
61, 62	R	G	R	R	R

ALTERNATE PHASING DIAGRAM



SIGNAL FACE	PHASE				
	2+5	2+6	3	4	Left Turn
21, 22	G	G	R	R	R
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
51	←	←	←	←	←
61, 62	R	G	R	R	R

PHASING DIAGRAM DETECTION LEGEND

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

MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING						
ZONE	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN	NEW CARD
2A*	6X6	300	*	*	2	-	-	X	X	X	*
3A*	6X40	0	*	*	3	10.0	-	X	-	X	*
4A*	6X40	0	*	*	4	3.0	-	X	-	X	*
5A*	6X40	0	*	*	5	15.0**	-	X	-	X	*
5B*	6X40	0	*	*	2#	3.0	-	X	-	X	*
6A*	6X6	300	*	*	6	-	-	X	X	X	*

** Disable Delay During Alternate Phasing Operation.
Disable Phase Call for Loop during Alternate Phasing Operation.
* Non Intrusive Detection Zone.

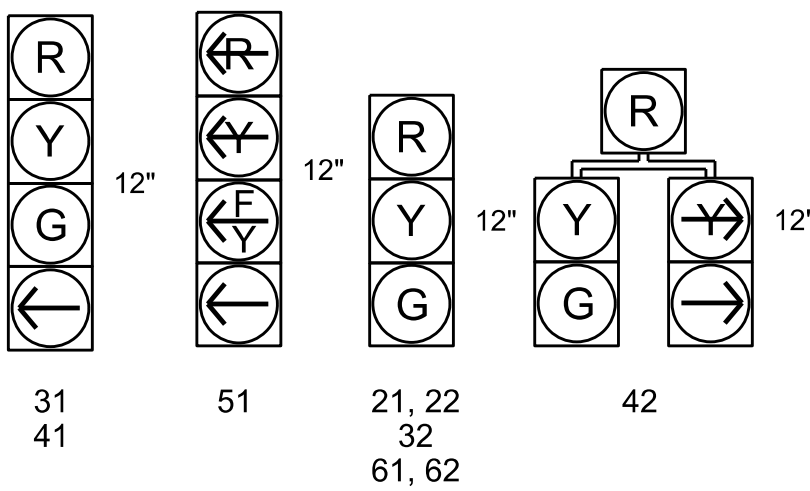
4 Phase
Fully Actuated
(Isolated)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Enable Backup Protect for phase 2 to allow the controller to clear from phase 2+6 to phase 2+5 by progressing through an all red display.
- The order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- This intersection uses video detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.

SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

PROPOSED	EXISTING
Traffic Signal Head	Modified Signal Head
Sign	Sign
Pedestrian Signal Head	Signal Pole with Guy
Signal Pole with Guy	Signal Pole with Sidewalk Guy
Inductive Loop Detector	Controller & Cabinet
Controller & Cabinet	Junction Box
Junction Box	2-in Underground Conduit
2-in Underground Conduit	Right of Way
Directional Arrow	Non-Intrusive Detection Zone
Non-Intrusive Detection Zone	Construction Zone
Construction Zone	Construction Zone Drums
Construction Zone Drums	No U-Turn Sign (R3-4)

FEATURE	PHASE				
	2	3	4	5	6
Walk *	-	-	-	-	-
Ped Clear	-	-	-	-	-
Min Green *	12	7	7	7	12
Passage *	6.0	2.0	2.0	2.0	6.0
Max 1 *	100	15	30	15	100
Yellow Change	4.7	3.0	4.7	3.0	4.7
Red Clear	1.3	2.9	1.7	2.1	1.3
Red Revert	5.0	2.0	2.0	2.0	2.0
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
Advance Walk	-	-	-	-	-
Non Lock Detector	-	X	X	X	-
Vehicle Recall	MIN RECALL	-	-	-	MIN RECALL
Dual Entry	-	-	-	-	-

* These values may be field adjusted. Do not adjust Min Green and Passage times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

New Installation - Temporary. Design 1 (TMP Phase II)

Prepared in the Offices of:
Wake County
Signal Design Section

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1006 (Old Stage Road)
at
SR 2736 (Rock Service Station Road)
and Back Field Road

Division 5
Wake County
Fuquay-Varina

PLAN DATE: May 2025
PREPARED BY: I.O. Umzurike

REVIEWED BY:
INIT. DATE

0 40
1"=40'

SCALE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

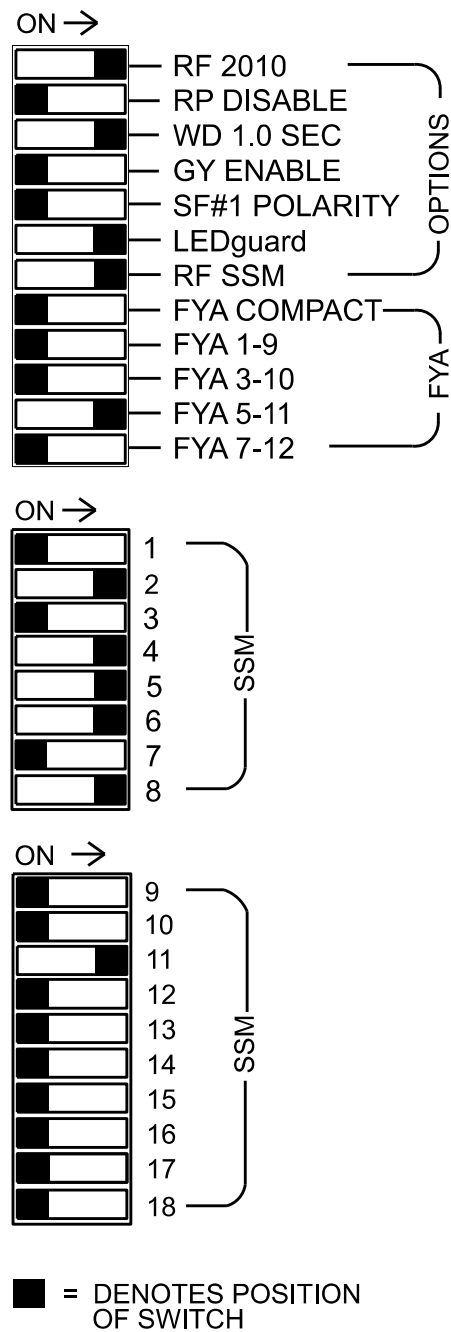
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
ROBERT J. ZIEMBA
026486

07/15/2025
DATE

05-1663T1
SIG. INVENTORY NO.

(remove jumpers and set switches as shown)

ON OFF
WD ENABLE
SW2



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

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

Controller.....	2070LX
Cabinet.....	332 w/ Aux
Software.....	Q-Free MAXTIME
Cabinet Mount.....	Base
Output File Positions.....	18 With Aux. Output File
Load Switches Used.....	S2, S5, S7, S8, S11, AUX S4
Phases Used.....	2, **3, 4, 5, 6
Overlap "1".....	Not Used
Overlap "2".....	Not Used
Overlap "3".....	*
Overlap "4".....	Not Used
Overlap "8".....	*

*See overlap programming detail on sheet 2
 ** Used for timing purposes only

(front view)

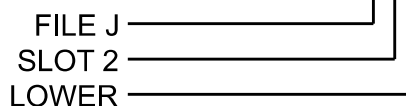


FS = FLASH SENSE
ST = STOP TIME

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
5A	TB3-1,2	J1U	55	17	15*	5	15		X		X	
				-	31*	2	3		X		X	X

★ For the detectors to work as shown on the signal plan see the Detector Programming Detail for Alternate Phasing on Sheet 2 of this plan.

INPUT FILE POSITION LEGEND: J2L



1. For all loops install a video 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.
2. For loop 5A, detector card placement is typical for a NCDOT installation. Detectors associated with these slots are compatible with the Vehicle Detector Programming Detail located on sheet 2 of this electrical detail.

(install resistor as shown)

Phase 5 Red Field
Terminal (131)



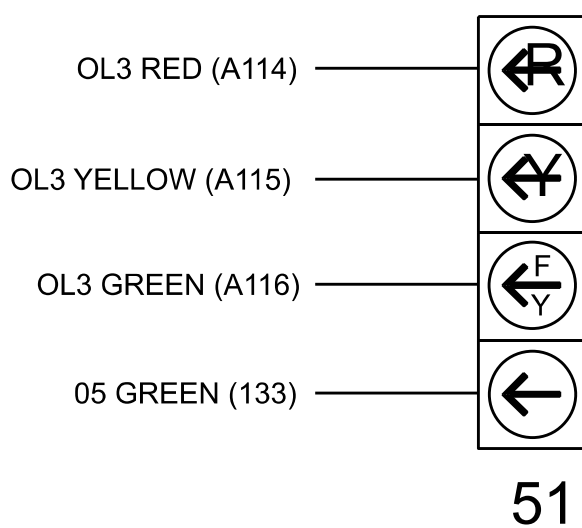
AC-

[illegible]

NU = Not Used
NC = No Connection

* Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

(wire signal head as shown)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1663T1
DESIGNED: May 2025
SEALED: 7/15/2025
REVISED: N/A

Electrical Detail - Sheet 1 of 3

Electrical and Programming
Details For:

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1006 (Old Stage Road)
at
736 (Rock Service Station Road)
and Back Field Road

Division 5 Wake County Fuquay-Varina

PLAN DATE: June 2025	REVIEWED BY:
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PREPARED BY: Zarrar Zafar	REVIEWED BY:
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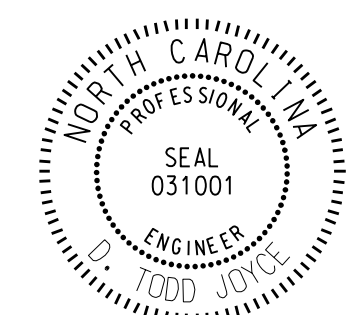
REVISIONS	INIT.	DATE
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DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



DocuSigned by:

D. Todd Joyce 07/18/20

A80CADEFBD4241D DAT

SIG. INVENTORY NO. 05-16631

ALL RED BACKUP PROGRAMMING

Front Panel
Main Menu >Controller >Sequence & Phs Config>Backup Prevention >
Backup Through Red

Web Interface
Home >Controller >Backup Prevention >Backup Calls Phase Plans >
(scroll down) to Backup Through Red

Backup Through All Red

Sequence	Backup Through All Red
1	YES

BACKUP PREVENTION PROGRAMMING

Front Panel
Main Menu >Controller >Sequence & Phs Config >Backup Prevention >
Backup Protection Plan

Web Interface
Home >Controller> Backup Prevention >Backup Protection Plan

Sequence 1

No Backup Phase	1	2	3	4	5	6	7	8
Serve Phase 1	-	-	-	-	-	-	-	-
Serve Phase 2	-	-	-	-	-	-	-	-
Serve Phase 3	-	-	-	-	-	-	-	-
Serve Phase 4	-	-	-	-	-	-	-	-
Serve Phase 5	-	-	-	-	-	-	-	-
Serve Phase 6	-	-	-	X	-	-	-	-
Serve Phase 7	-	-	-	-	-	-	-	-
Serve Phase 8	-	-	-	-	-	-	-	8

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Overlap	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE CONTROL TYPE
AND CONTROL SOURCE →

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home > Controller > Unit

Modify parameters as shown below and save changes.

Start Up Parameters

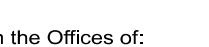
StartUp Clearance Hold
6

Unit Flash Parameters

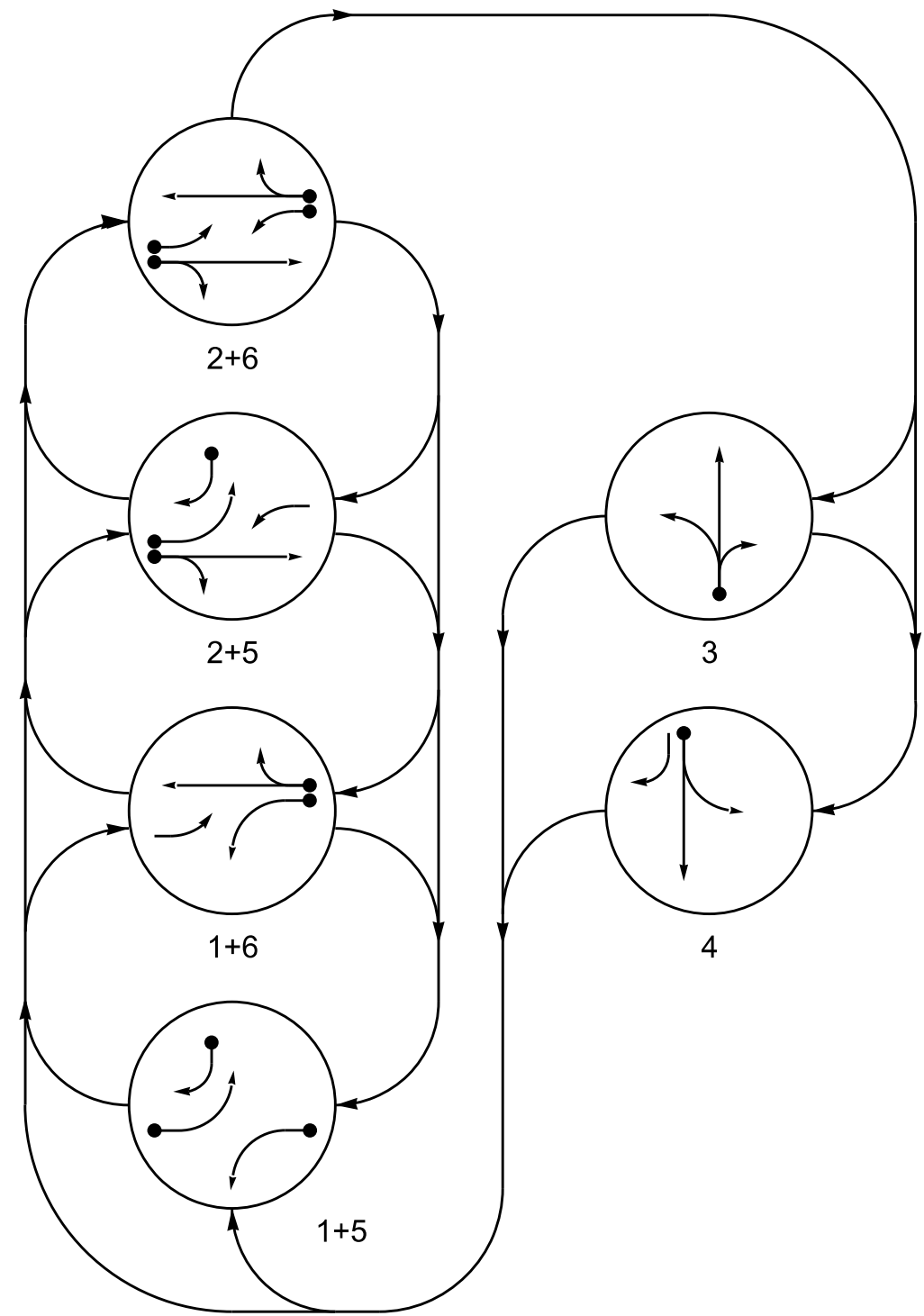
All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1663T1
DESIGNED: May 2025
SEALED: 7/15/2025
REVISED: N/A

Electrical Detail - Sheet 3 of 3

Electrical and Programming Details For:	SR 1006 (Old Stage Road) at SR 2736 (Rock Service Station Road) and Back Field Road	SEAL 
Prepared in the Offices of: 	Division 5 Wake County Fuquay-Varina	
PLAN DATE: June 2025 REVIEWED BY:		SEAL 031001 ENGINEER D. TODD JOYCE
PREPARED BY: Zarrar Zafar REVIEWED BY:		
REVISIONS		INIT. DATE

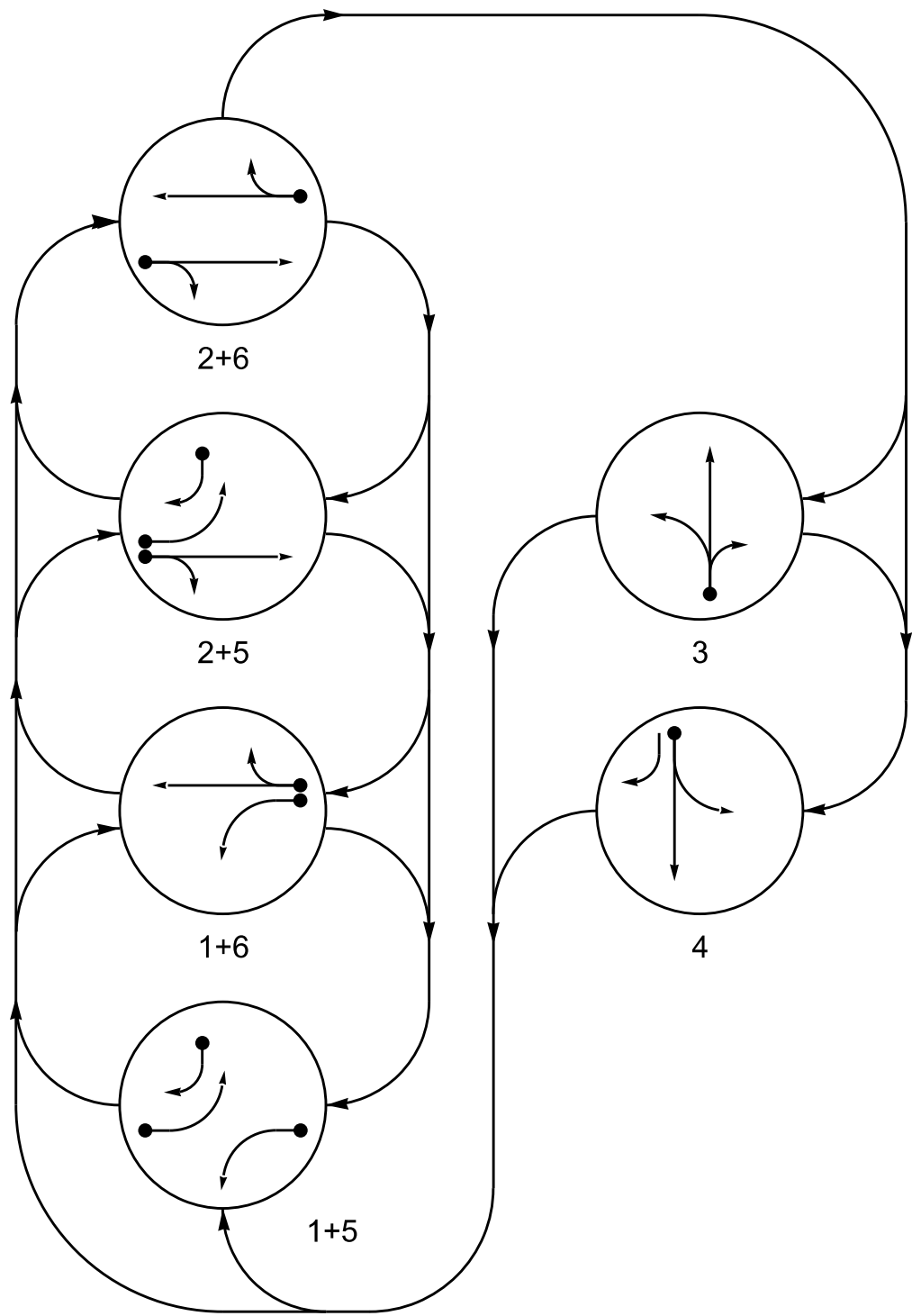
DEFAULT PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

ALTERNATE PHASING DIAGRAM



DEFAULT PHASING
TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	4
11	←	←	↘	↘	→	→
21, 22	R	R	G	G	R	R
31	R	R	R	G	R	R
32	R	R	R	R	G	R
41	R	R	R	R	R	G
42	R	R	R	R	R	G
51	←	←	↘	↘	→	→
61, 62	R	G	R	G	R	R

ALTERNATE PHASING
TABLE OF OPERATION

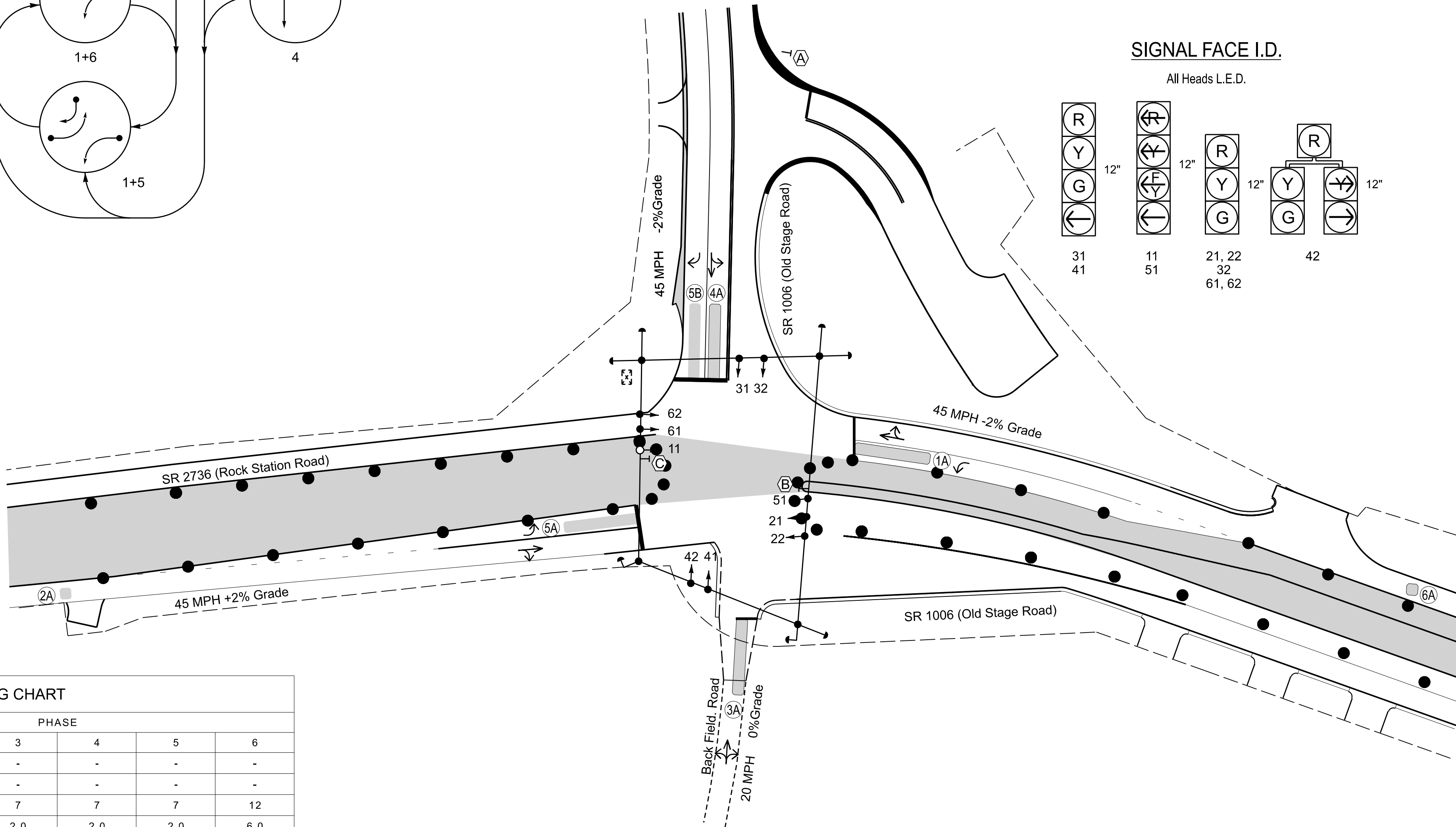
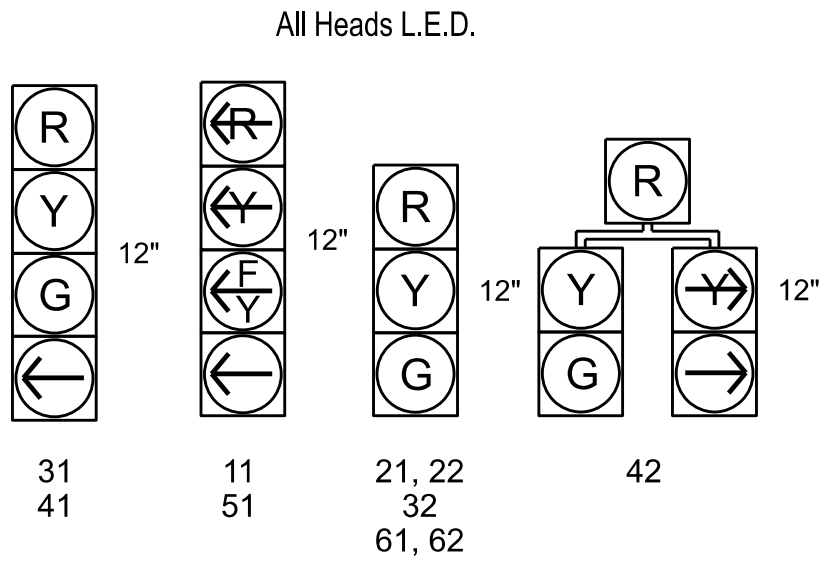
SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	4
11	←	←	→	→	→	→
21, 22	R	R	G	G	R	R
31	R	R	R	G	R	R
32	R	R	R	R	G	R
41	R	R	R	R	G	R
42	R	R	R	R	G	R
51	←	←	→	→	→	→
61, 62	R	G	R	G	R	R

MAXTIME DETECTOR INSTALLATION CHART

DETECTOR				PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN	NEW CARD
1A*	6X40	0	*	*	1	15.0**	-	X	-	X	*
					6#	3.0	-	X	-	X	*
2A*	6X6	300	*	*	2	-	-	X	X	X	*
3A*	6X40	0	*	*	3	3.0	-	X	-	X	*
4A*	6X40	0	*	*	4	3.0	-	X	-	X	*
5A*	6X40	0	*	*	5	15.0**	-	X	-	X	*
					2#	3.0	-	X	-	X	*
5B*	6X40	0	*	*	5	15.0	-	X	-	X	*
6A*	6X6	300	*	*	6	-	-	X	X	X	*

** Disable Delay During Alternate Phasing Operation.
Disable Phase Call for Loop during Alternate Phasing Operation.
* Non Intrusive Detection Zone.

SIGNAL FACE I.D.



MAXTIME TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Walk *	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-
Min Green *	7	12	7	7	7	12
Passage *	2.0	6.0	2.0	2.0	2.0	6.0
Max 1 *	20	100	15	30	15	100
Yellow Change	3.0	4.7	3.0	4.7	3.0	4.7
Red Clear	2.6	1.6	3.4	1.7	2.6	1.6
Red Revert	2.0	5.0	2.0	2.0	2.0	2.0
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
Advance Walk	-	-	-	-	-	-
Non Lock Detector	X	-	X	X	X	-
Vehicle Recall	-	MIN RECALL	-	-	-	MIN RECALL
Dual Entry	-	-	-	-	-	-

* These values may be field adjusted. Do not adjust Min Green and Passage times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

6 Phase
Fully Actuated
(Isolated)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Reposition existing signal heads numbered 21, 22, 51, 61 and 62.
- Set all detector units to presence mode.
- Pavement markings are existing unless otherwise shown/noted.
- This intersection uses video detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.

LEGEND

PROPOSED	EXISTING
Traffic Signal Head	Modified Signal Head
Sign	Signal Pole with Guy
Pedestrian Signal Head	Signal Pole with Sidewalk Guy
Inductive Loop Detector	Controller & Cabinet
Junction Box	2-in Underground Conduit
Right of Way	Directional Arrow
Non-Intrusive Detection Zone	Construction Zone
Construction Zone Drums	"STOP" Sign (R1-1)
"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Combined U-Turn and Left Arrow Sign (R3-6a)

Signal Upgrade - Temporary, Design 2 (TMP Phase III)

Prepared in the Offices of:
Transportation Mobility and Safety Division
SIGNAL DESIGN SECTION
750 N. Greenfield Pkwy, Garner, NC 27529

SR 1006 (Old Stage Road)
at
SR 2736 (Rock Service Station Road)
and Back Field Road
Division 5
Wake County
Fuquay-Varina
PLAN DATE: May 2025
PREPARED BY: I.O. Umozurike
REVIEWED BY:
REVISIONS
INIT. DATE

0 40
1"=40'

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
ROBERT J. ZIMBA
026486
07/15/2025
SIG. INVENTORY NO. 05-166372

MAXTIME OVERLAP PROGRAMMING DETAIL
FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3	8
Type	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	2	6	3
Modifier Phases	1	5	-
Modifier Overlaps	-	-	-
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

MAXTIME OVERLAP PROGRAMMING DETAIL
FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	3	8
Type	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	-	-	3
Modifier Phases	1	5	-
Modifier Overlaps	-	-	-
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

← NOTICE INCLUDED PHASE

MAXTIME DETECTOR PROGRAMMING DETAIL
FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

Detector	Call Phase	Delay
1	1	0
29	0	-

5A

Detector	Call Phase	Delay
15	5	0
31	0	-

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2.
A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1663T2
DESIGNED: May 2025
SEALED: 7/15/2025
REVISED: N/A

MAXTIME ALTERNATE PHASING PATTERN
PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

Electrical Detail - Sheet 2 of 3

Electrical and Programming Details For:

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1006 (Old Stage Road)
at
SR 2736 (Rock Service Station Road)
and Back Field Road

Division 5Wake CountyFuquay-Varina

PLAN DATE: June 2025REVIEWED BY:

PREPARED BY: Zarrar ZafarREVIEWED BY:

REVISIONS

INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001
ENGINEER
TODD JOYCE

DocuSigned by:
D. Todd Joyce07/24/2025
490C4DE0B043420DATE
SIG. INVENTORY NO. 05-1663T2

MAXTIME STARTUP AND SOFTWARE FLASH
PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters	Unit Flash Parameters
StartUp Clearance Hold	All Red Flash Exit Time
6	6

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Overlap	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE CONTROL TYPE
AND CONTROL SOURCE



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1663T2
DESIGNED: May 2025
SEALED: 7/15/2025
REVISED: N/A

Electrical and Programming
Details For:

Prepared in the Offices of:



Wake County
Seal of Wake County, North Carolina
750 N. Greenfield Pkwy, Garner, NC 27529

SR 1006 (Old Stage Road)
at
SR 2736 (Rock Service Station Road)
and Back Field Road

Division 5

Wake County

Fuquay-Varina

PLAN DATE: June 2025

REVIEWED BY:

PREPARED BY: Zarrar Zafar

REVIEWED BY:

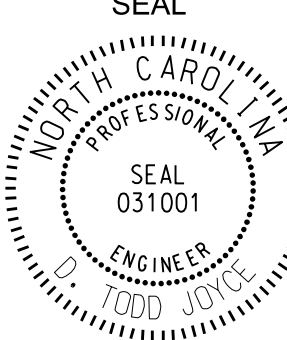
REVISIONS

INIT.

DATE

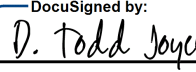
DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

SEAL



SEAL
031001
ENGINEER
TODD JOYCE

DocuSigned by:

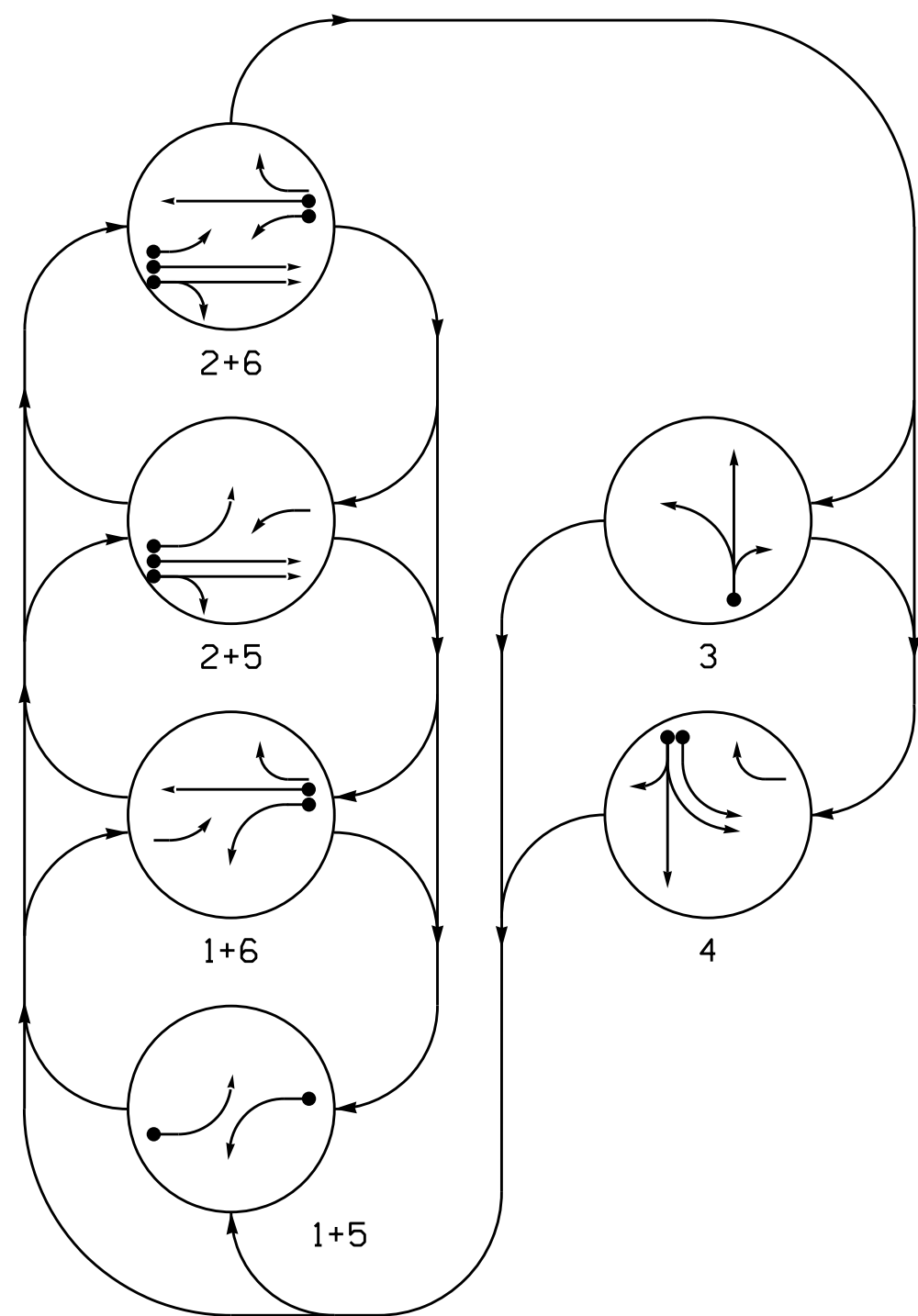


07/24/2025

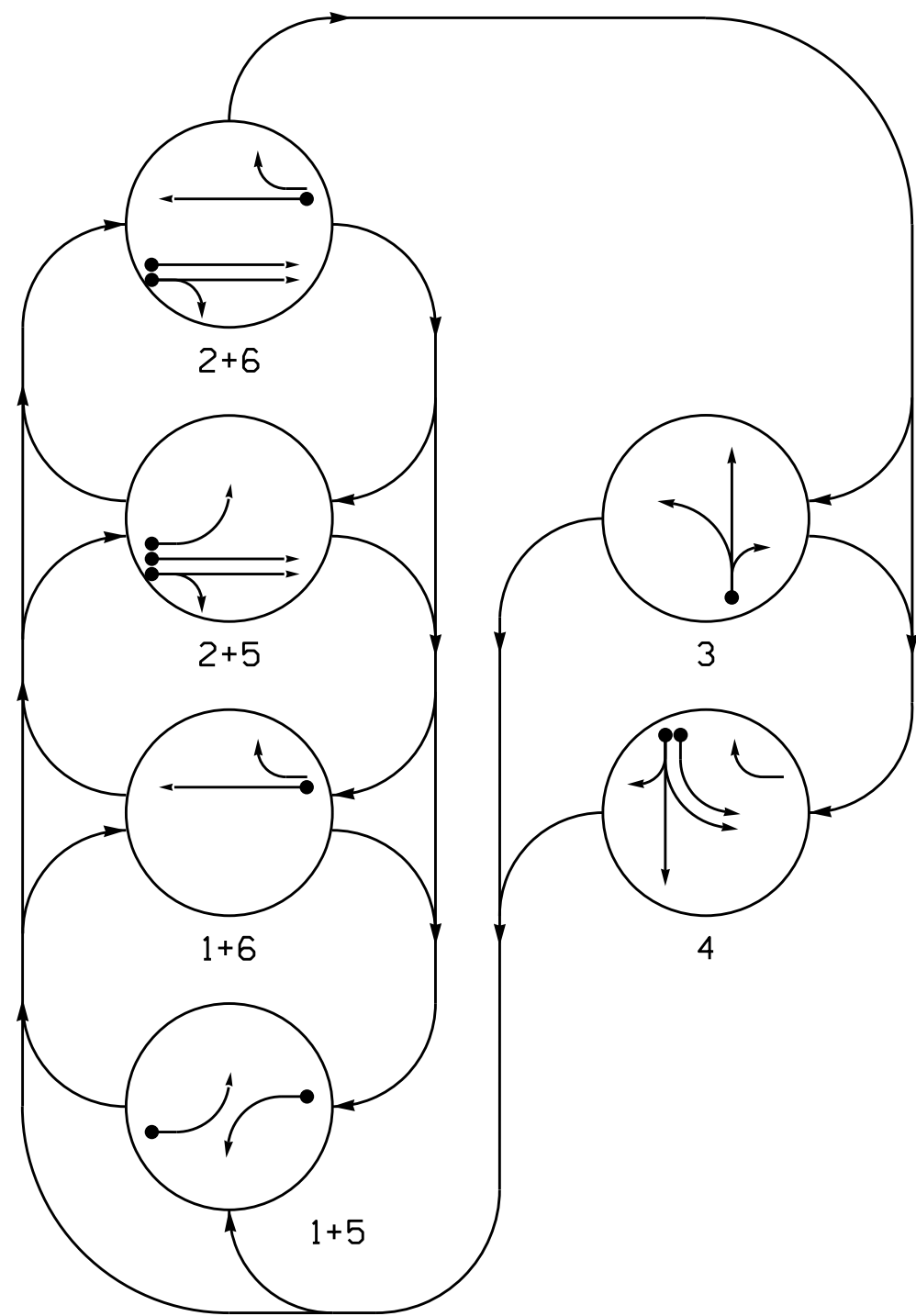
DATE

SIG. INVENTORY NO. 05-1663T2

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE						
	1	2	3	4	5	6	7
11							
21, 22	R	R	G	G	R	R	R
31	R	R	R	R	R	G	R
32	R	R	R	R	R	R	R
41	R	R	R	R	R	R	R
42	R	R	R	R	G	R	R
43	R	R	R	R	G	R	R
51							
61, 62	R	G	R	G	R	R	R
63	R	R	R	R	R	R	R

ALTERNATE PHASING TABLE OF OPERATION

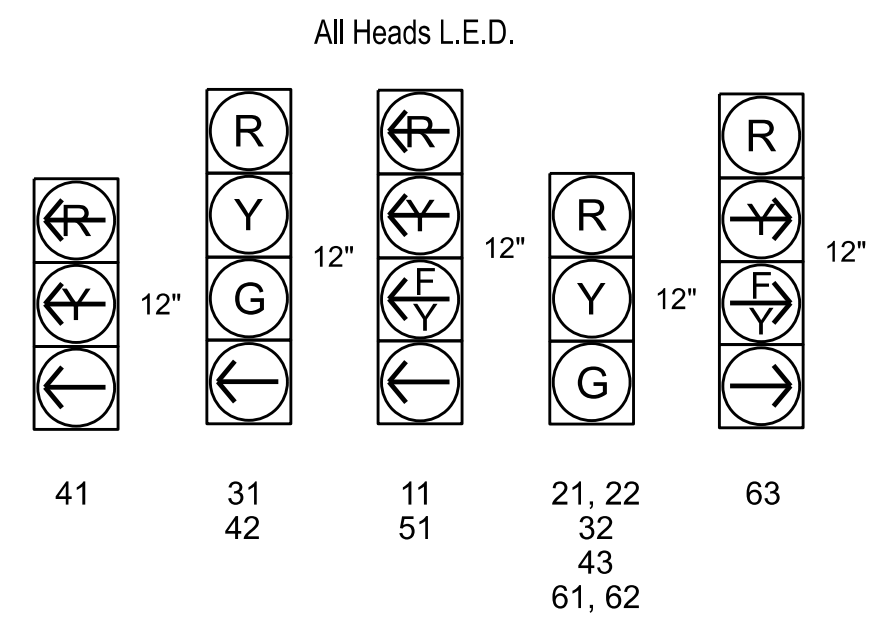
SIGNAL FACE	PHASE						
	1	2	3	4	5	6	7
11							
21, 22	R	R	G	G	R	R	R
31	R	R	R	R	R	G	R
32	R	R	R	R	R	R	R
41	R	R	R	R	R	R	R
42	R	R	R	R	G	R	R
43	R	R	R	R	G	R	R
51							
61, 62	R	G	R	G	R	R	R
63	R	R	R	R	R	R	R

MAXTIME DETECTOR INSTALLATION CHART

DETECTOR				PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURN	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN
1A	6X40	0	2-4-2	X	1	15.0**	-	X	-	X
2A	6X6	300	4	X	2	-	-	X	X	X
2B	6X6	300	4	X	2	-	-	X	X	X
3A	6X20	+8	2-4-2	X	3	5.0	-	X	-	X
4A	6X40	0	2-4-2	X	4	3.0	-	X	-	X
4B	6X40	0	2-4-2	X	4	5.0	-	X	-	X
5A	6X40	0	2-4-2	X	5	15.0**	-	X	-	X
6A	6X6	300	5	X	6	-	-	X	X	X

** Disable Delay During Alternate Phasing Operation.
Disable Phase Call for Loop during Alternate Phasing Operation.

SIGNAL FACE I.D.



6 Phase
Fully Actuated
SR 1006 (Old Stage Road) @ 540
Signal System #: D05-17_Fuquay-Varina

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- Pavement markings are existing unless otherwise shown/noted.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

PROPOSED	EXISTING
Traffic Signal Head	N/A
Modified Signal Head	N/A
Sign	N/A
Pedestrian Signal Head	N/A
Signal Pole with Guy	N/A
Signal Pole with Sidewalk Guy	N/A
Inductive Loop Detector	N/A
Controller & Cabinet	N/A
Junction Box	N/A
2-in Underground Conduit	N/A
Right of Way	N/A
Directional Arrow	N/A
Metal Strain Pole	N/A
Guardrail	N/A
"STOP" Sign (R1-1)	N/A
Right Arrow "ONLY" Sign (R3-5R)	N/A
Combined U-Turn and Left Arrow Sign (R3-6a)	N/A
No U-Turn Sign (R3-4)	N/A

MAXTIME TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Walk *	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-
Min Green *	7	12	7	7	7	12
Passage *	2.0	6.0	3.0	2.0	2.0	6.0
Max 1 *	20	100	15	30	15	100
Yellow Change	3.0	4.7	3.2	4.7	3.0	4.7
Red Clear	2.8	1.3	3.3	1.7	1.8	1.3
Red Revert	2.0	5.0	2.0	2.0	2.0	2.0
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
Advance Walk	-	-	-	-	-	-
Non Lock Detector	X	-	X	X	X	-
Vehicle Recall	-	MIN RECALL	-	-	-	MIN RECALL
Dual Entry	-	-	-	-	-	-

* These values may be field adjusted. Do not adjust Min Green and Passage times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade - Final Design

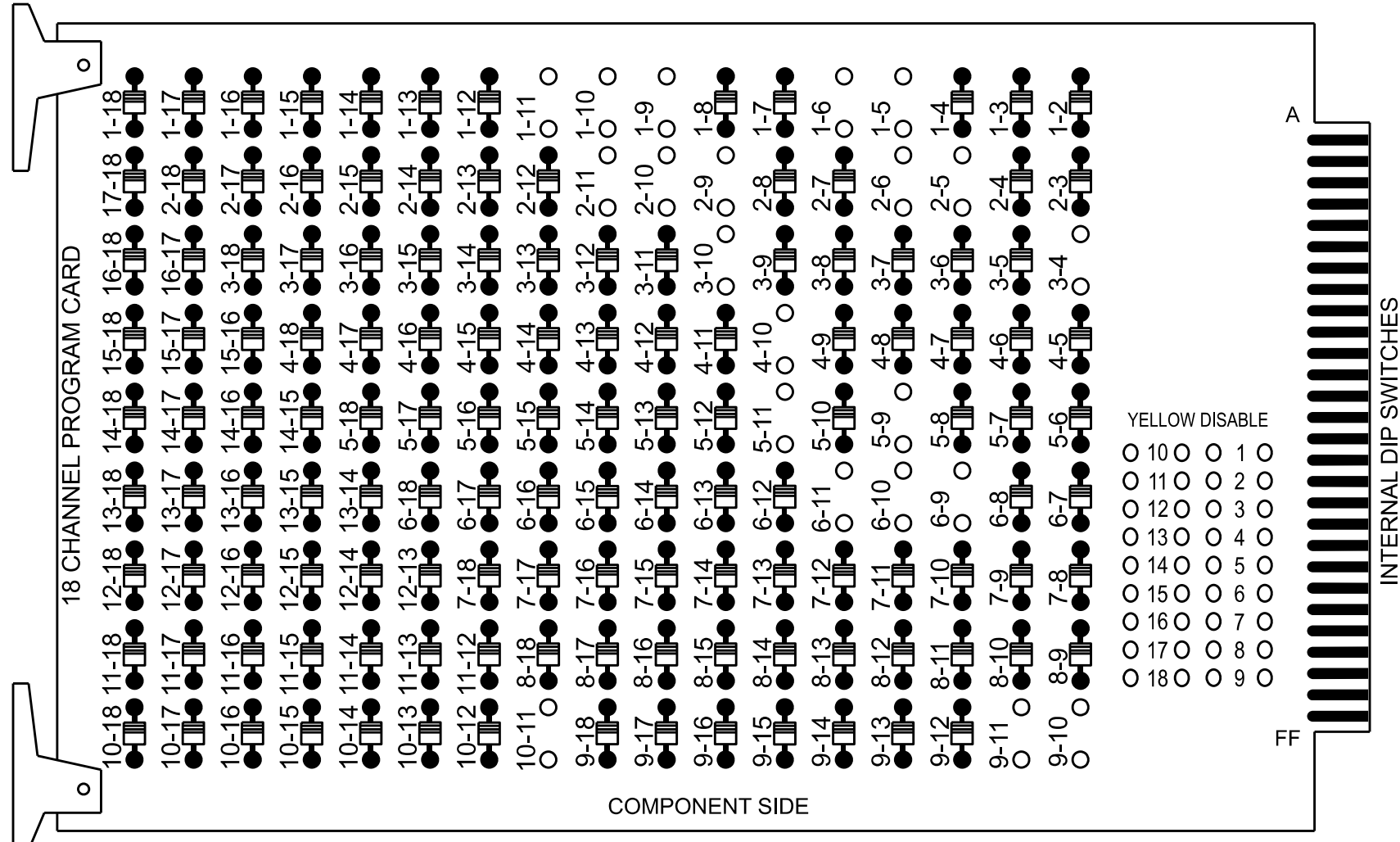
Prepared in the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1006 (Old Stage Road) at SR 2736 (Rock Service Station Road) and Back Field Road Fuquay-Varina Division 5 Wake County PLAN DATE: May 2025 PREPARED BY: I.O. Umozurike REVIEWED BY: REVISIONS INIT. DATE	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER ROBERT J. ZEMBA 026486 07/15/2025 SIG. INVENTORY NO. 05-1663
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ZZZfor

18 CHANNEL CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

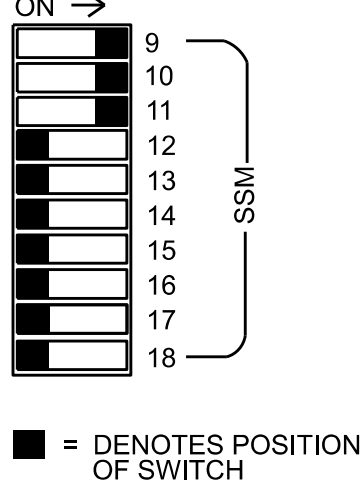
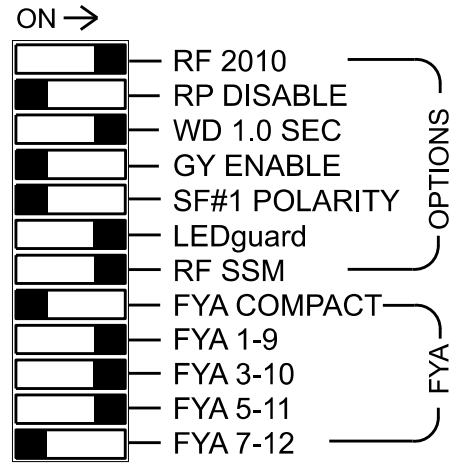
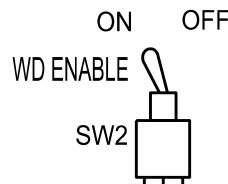
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-10, 1-11, 2-5, 2-6, 2-9, 2-10, 2-11, 3-4, 3-10, 4-10, 5-9, 5-11, 6-9, 6-10, 6-11, 9-10, 9-11 and 10-11.



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



■ = DENOTES POSITION OF SWITCH

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the SR 1006 (Old Stage Road) @ 540 CLS Signal System #: D05-17_Fuquay-Varina.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332 w/ Aux
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....18 With Aux. Output File
Load Switches Used.....S1, S2, S4, S5, S7, S8, S11, AUX S1, AUX S2, AUX S4
Phases Used.....1, 2, 3, 4, 5, 6
Overlap "1".....*
Overlap "2".....*
Overlap "3".....*
Overlap "4".....Not Used
Overlap "7".....*
Overlap "8".....*

*See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT

(front view)

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

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

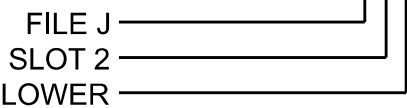
FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1A	TB2-1,2	I1U	56	18	1*	1	15		X		X	
				-	29*	6	3		X		X	X
2A	TB2-5,6	I2U	39	1	2	2			X	X	X	
2B	TB2-7,8	I2L	43	5	3	2			X	X	X	
3A	TB4-5,6	I6U	58	20	7	3	5		X		X	
4A	TB4-9,10	I6U	41	3	8	4	3		X		X	
4B	TB4-11,12	I6L	45	7	9	4	5		X		X	
5A	TB3-1,2	J1U	55	17	15*	5	15		X		X	
				-	31*	2	3		X		X	X
6A	TB3-5,6	J2U	40	2	16	6			X	X	X	

* For the detectors to work as shown on the signal plan see the Detector Programming Detail for Alternate Phasing on Sheet 2 of this plan.

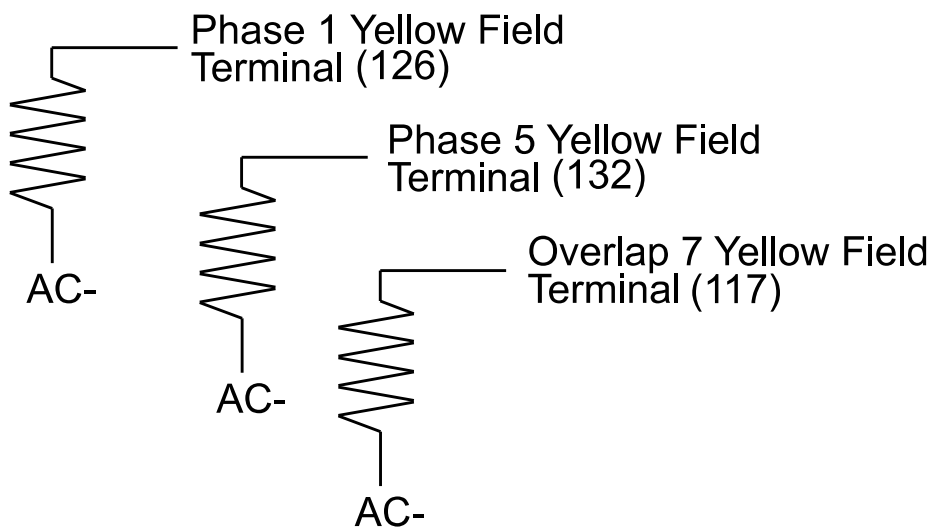
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1663
DESIGNED: May 2025
SEALED: 7/15/2025
REVISED: N/A

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	OL7	4		4 PED	5	6	6 PED	7	OL8		8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE	
SIGNAL HEAD NO.	11★	21,22	NU	63★	41	42	43	NU	51★	61,62	NU	NU	31	32	NU	11★	63★	NU	51★	NU	NU
RED		128				101	101			134			107	107			A124				
YELLOW	★	129		★		102	102		★	135			108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101											A121			A114		
YELLOW ARROW					102											A122	A125		A115		
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	103	103			133			109									
																					
																					

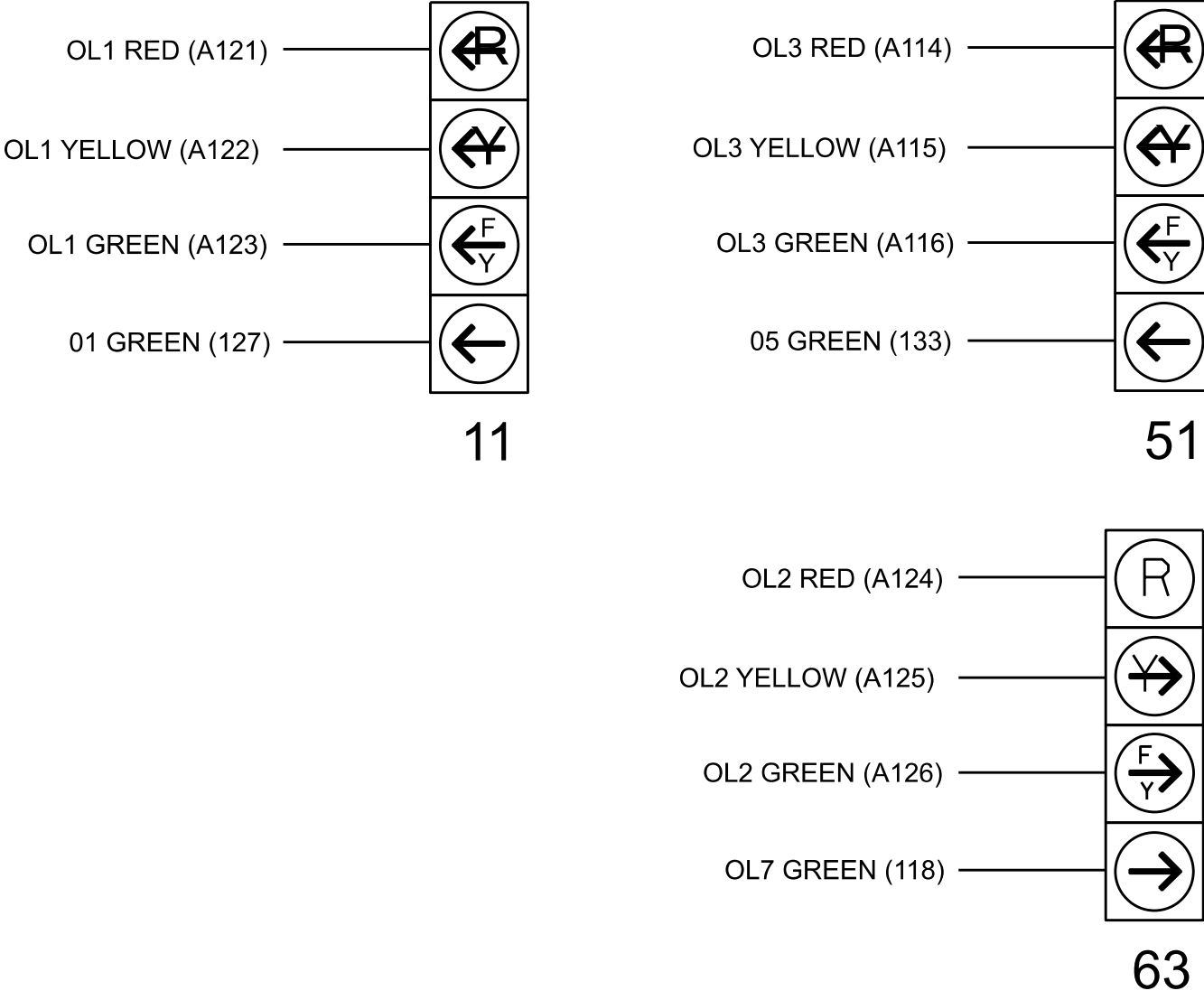
NU = Not Used

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

* See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



Electrical Detail - Sheet 1 of 3

Electrical and Programming Details For:		SR 1006 (Old Stage Road) at SR 2736 (Rock Service Station Road) and Back Field Road		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Offices of:		Division 5		Wake County	
PLAN DATE: June 2025		REVIEWED BY:		Fuquay-Varina	
PREPARED BY: Zarrar Zafar		REVIEWED BY:			
REVISIONS		INIT.		DATE	
750 N. Greenfield Pkwy, Garner, NC 27529					
Seal of the State of North Carolina		Seal of the State of North Carolina		Seal of the State of North Carolina	
DocuSigned by: D. Todd Joye		07/23/2025		DATE	
SIG. INVENTORY NO.		05-1663			

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7	8
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	2	6	6	4	3
Modifier Phases	1	4	5	-	-
Modifier Overlaps	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

Detector	Call Phase	Delay
1	1	0
29	0	0

1A

Detector	Call Phase	Delay
15	5	0
31	0	0

5A

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	3	7	8
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	-	6	-	4	3
Modifier Phases	1	4	5	-	-
Modifier Overlaps	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0

← NOTICE INCLUDED PHASE

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1663
DESIGNED: May 2025
SEALED: 7/15/2025
REVISED: N/A

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2.
A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO <u>RUN DEFAULT PHASING</u>	1	1
ACTIVE PLAN REQUIRED TO <u>RUN ALTERNATE PHASING</u>	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Overlap	7		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Overlap	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE: Control Type and Control Source

NOTE: Control Type and Control Source

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1663
DESIGNED: May 2025
SEALED: 7/15/2025
REVISED: N/A

Electrical Detail - Sheet 3 of 3

Electrical and Programming Details For:

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1006 (Old Stage Road)
at
SR 2736 (Rock Service Station Road)
and Back Field Road

Division 5Wake CountyFuquay-Varina

PLAN DATE: June 2025REVIEWED BY:

PREPARED BY: Zarrar ZafarREVIEWED BY:

REVISIONS

INIT. DATE

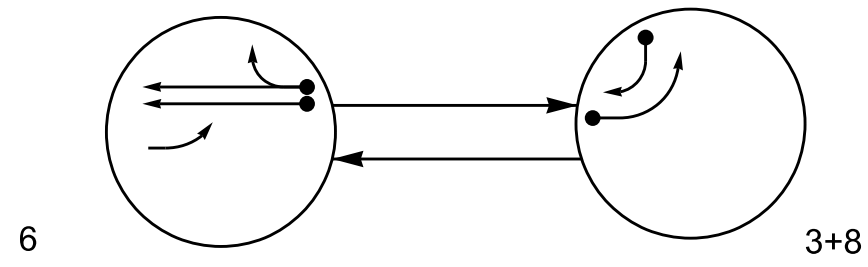
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NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 031001
TODD JOYCE

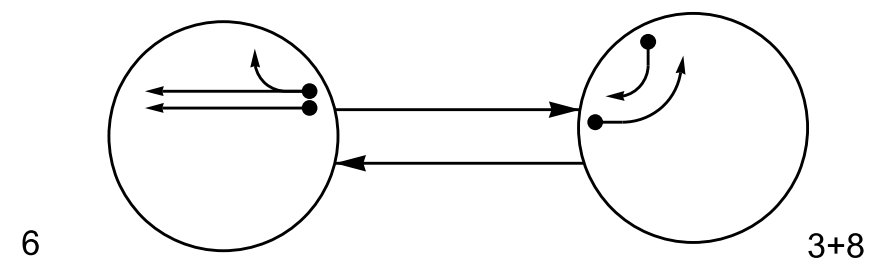
DocuSigned by:
D. Todd Joyce07/23/2025

SIG. INVENTORY NO. 05-1663

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE		
	6	3 + 8	FLASH
31, 32			
61		R	R
62	G	R	R
81, 82	R		R

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE		
	6	3 + 8	F A S H
31, 32			
61		R	R
62	G	R	R
81, 82	R		R

MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DURING GREEN	NEW CARD
3A	6X40	0	2-4-2	X	3	15.0*	-	X	-	X	-
6A	6X6	300	5	X	6	-	-	X	X	X	-
6B	6X6	300	5	X	6	-	-	X	X	X	-
8A	6X40	0	2-4-2	X	8	15.0	-	X	-	X	-

* Disable Delay During Alternate Phasing Operation.

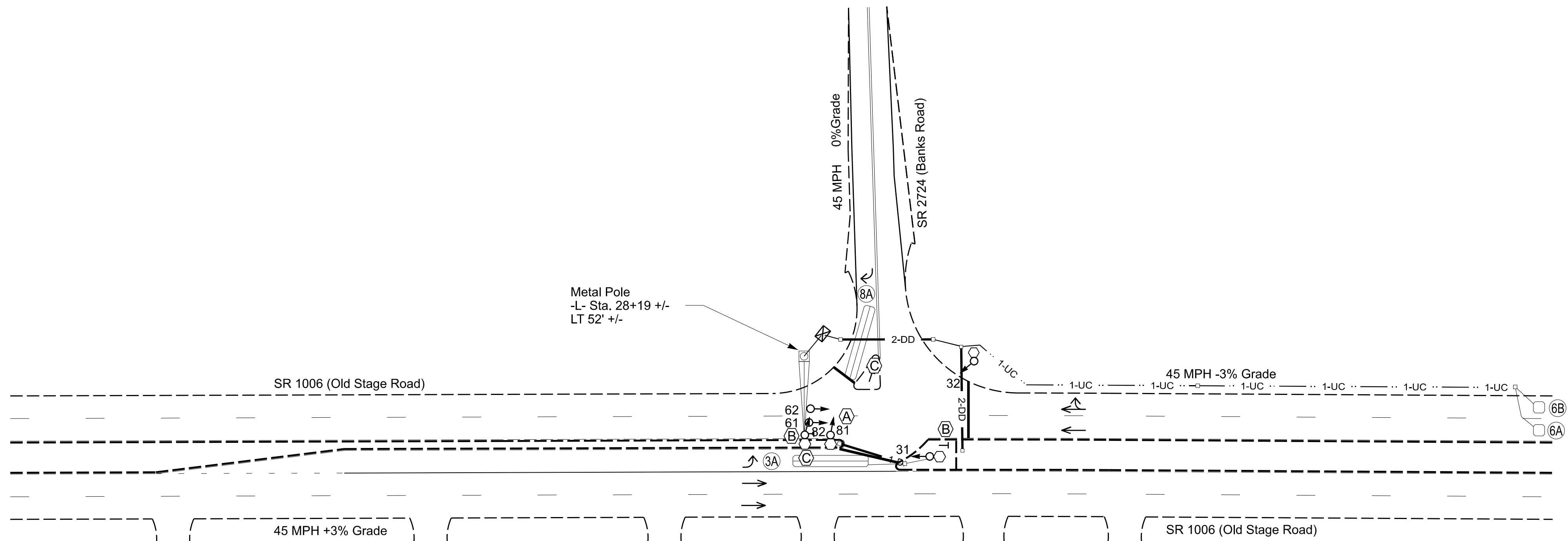
2 Phase

Fully Actuated

SR 1006 (Old Stage Road) @ 540
Signal System #: D05-17_Fuquay-Varina

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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. The Division Traffic Engineer will determine the hours of use for each phasing plan.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



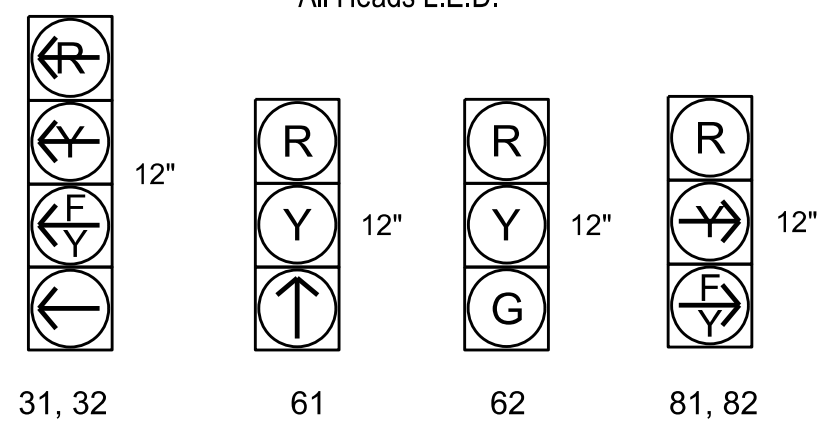
MAXTIME TIMING CHART

MAXTIME TIMING CHART			
FEATURE	PHASE		
	3	6	8
Walk *	-	-	-
Ped Clear	-	-	-
Min Green *	7	12	7
Passage *	2.0	6.0	2.0
Max 1 *	15	100	15
Yellow Change	3.0	4.8	3.0
Red Clear	1.8	1.2	1.8
Added Initial *	-	1.5	-
Maximum Initial *	-	34	-
Time Before Reduction *	-	15	-
Time To Reduce *	-	30	-
Minimum Gap	-	3.0	-
Advance Walk	-	7	-
Non Lock Detector	-	-	-
Vehicle Recall	-	MIN RECALL	-
Dual Entry	X	-	X

* These values may be field adjusted. Do not adjust Min Green and Passage times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

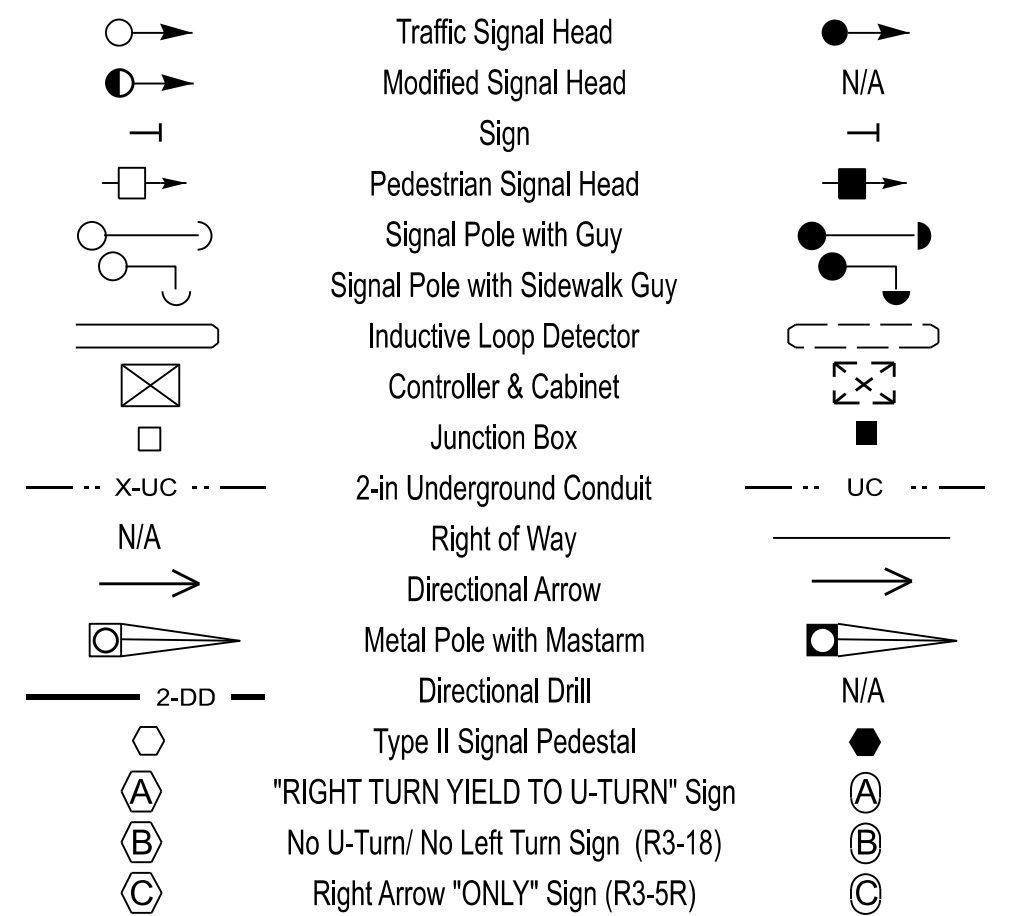
SIGNAL FACE I.D.

All Heads L.E.D.

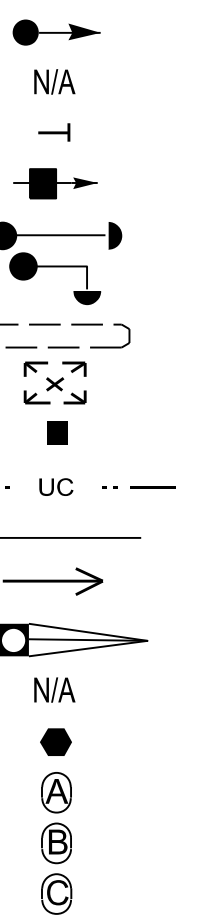


LEGEND

PROPOSED



EXISTING

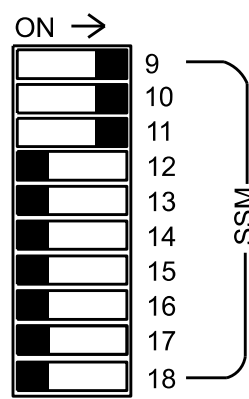
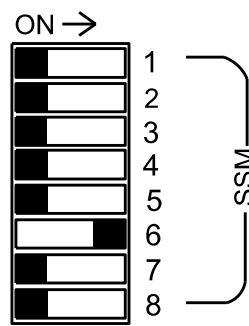
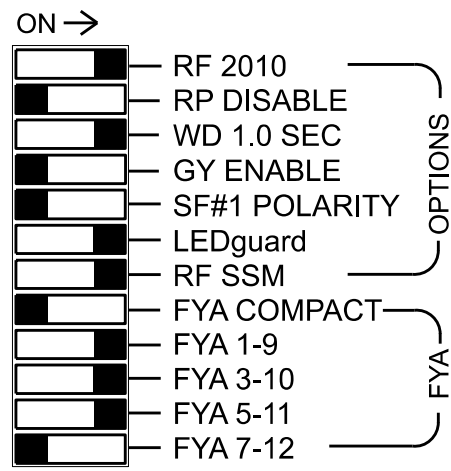
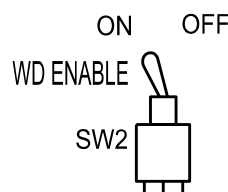


New Installation

Prepared in the Offices of: 	SR 1006 (Old Stage Road) at SR 2724 (Banks Road)	SEAL 	
Division 5 Wake County Fuquay-Varina			
PLAN DATE: May 2025		REVIEWED BY:	
PREPARED BY: I.O. Umozurike		REVIEWED BY:	
REVISIONS			
		INIT.	DATE
SCALE  1" = 40'			
			
750 N. Greenfield Pkwy. Garner, NC 27529			
Document signed by:  110406062744456			08/28/2025 DATE
SIG. INVENTORY NO. 05-16662			

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-3, 1-9, 1-10, 1-11, 3-9, 3-10, 3-11, 6-9, 6-10, 9-10, 9-11 and 10-11.



■ = DENOTES POSITION OF SWITCH

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.

2. Program phases 3 and 8 for Dual Entry.

3. Program controller to start up in phase 2 Phase Not On and phase 6 Green No Walk.

4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

5. The cabinet and controller are part of the SR 1006 (Old Stage Road) @ 540 CLS Signal System #: D05-17 Fuquay-Varina .

Controller.....	2070LX
Cabinet.....	332 w/ Aux
Software.....	Q-Free MAXTIME
Cabinet Mount.....	Base
Output File Positions.....	18 With Aux. Output File
Load Switches Used.....	S1, S4, S8, AUX S1, AUX S2, AUX S4
Phases Used.....	3, 6, 8**
Overlap "1".....	*
Overlap "2".....	*
Overlap "3".....	*
Overlap "4".....	Not Used
Overlap "7".....	*

*See overlap programming detail on sheet 2

****Phase used for timing purposes**

[illegible]

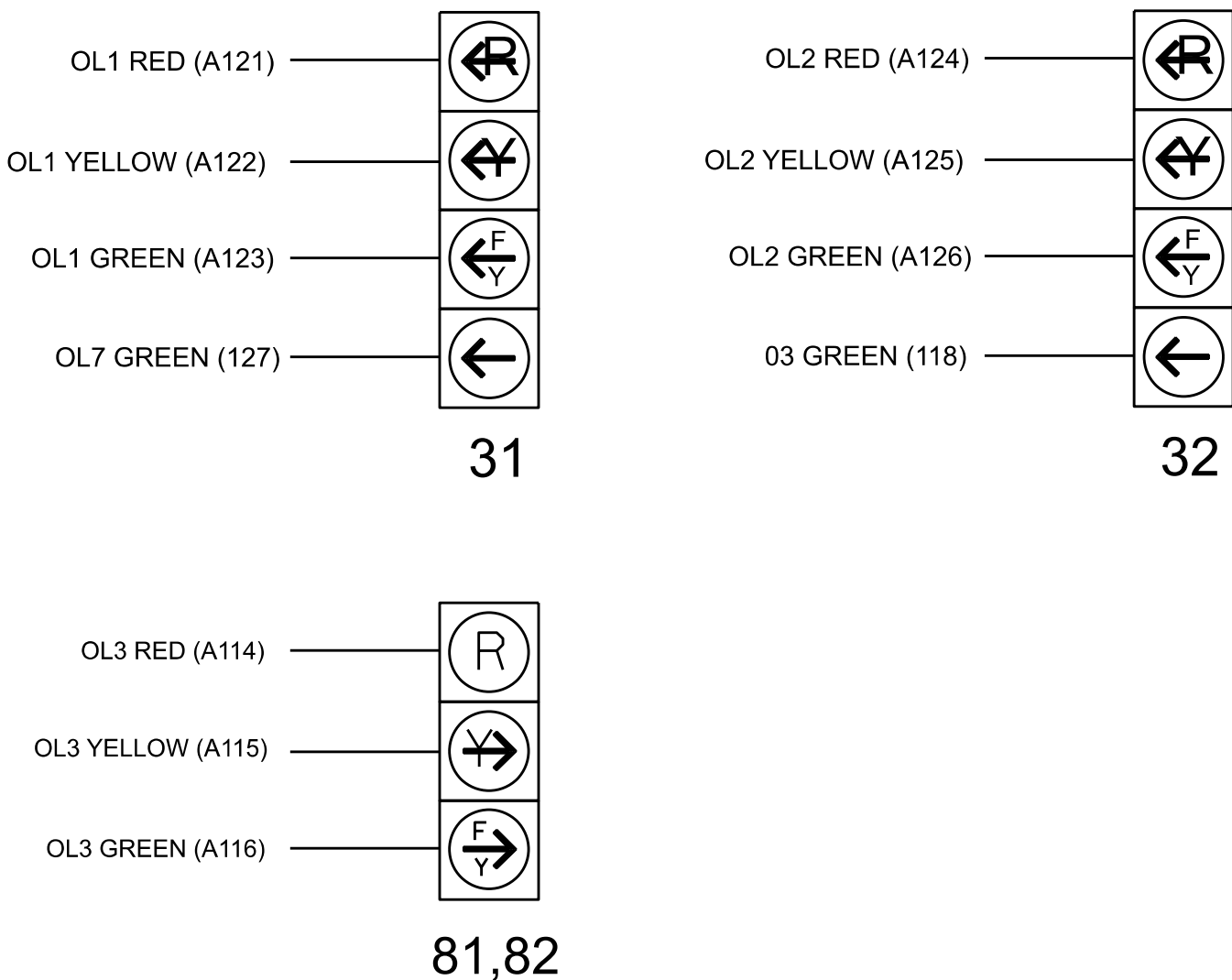
NU = Not Used

NC = No Connection

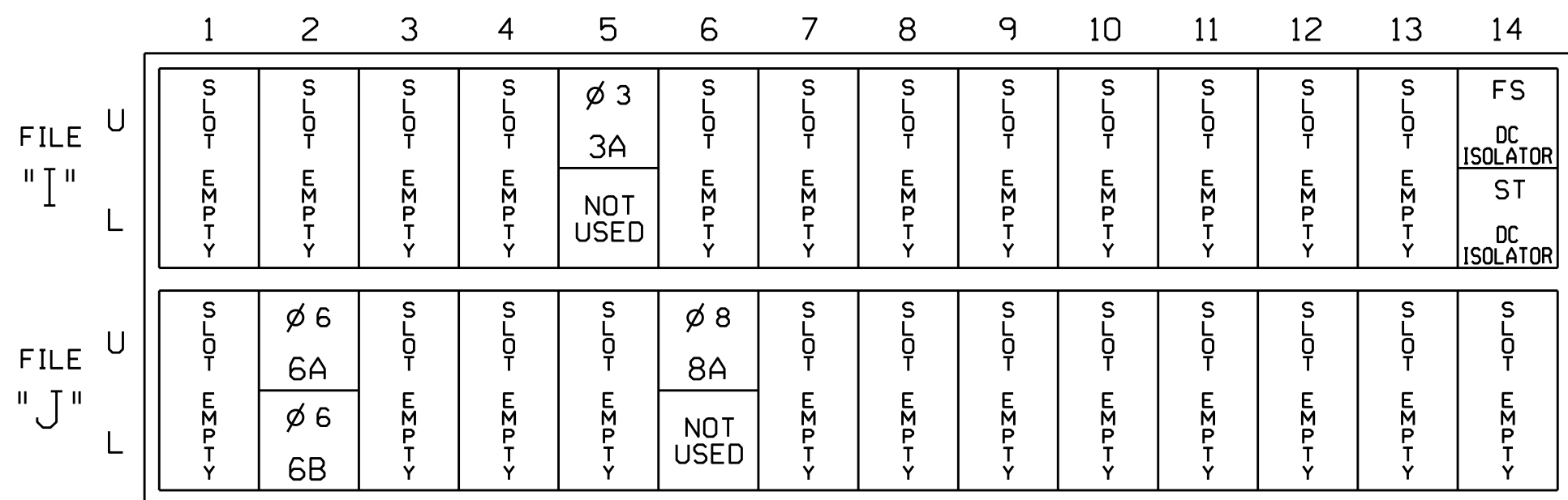
* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

(wire signal heads as shown)



(front view)



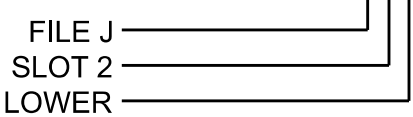
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
3A	TB4-5,6	I5U	58	20	7 ★	3	15		X		X	
6A	TB3-5,6	J2U	40	2	16	6			X	X	X	
6B	TB3-7,8	J2L	44	6	17	6			X	X	X	
8A	TB5-9,10	J6U	42	4	22	8	15		X		X	

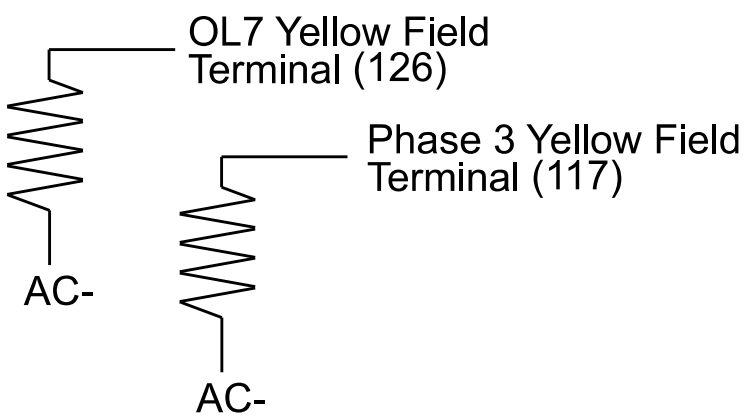
★ For the detectors to work as shown on the signal design plan, see the Detector Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	6	6	8	3
Modifier Phases	3	3	-	-
Modifier Overlaps	-	-	-	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	3	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	-	-	8	3
Modifier Phases	3	3	-	-
Modifier Overlaps	-	-	-	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0

← NOTICE INCLUDED PHASE

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOP 3A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Detector	Call Phase	Delay
7	3	0

3A

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

<u>PHASING</u>	<u>OVERLAP PLAN</u>	<u>VEH DET PLAN</u>
ACTIVE PLAN REQUIRED TO <u>RUN DEFAULT PHASING</u>	1	1
ACTIVE PLAN REQUIRED TO <u>RUN ALTERNATE PHASING</u>	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 31 and 32 to run protected turns only.

VEH DET PLAN 2: Reduces delay time for phase 3 all on loop 3A to 0 seconds.

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

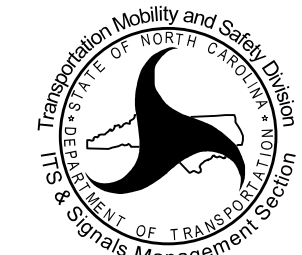
Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

Electrical Detail - Sheet 2 of 3

Electrical and Programming
Details For:

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1006 (Old Stage Road)
at
SR 2724 (Banks Road)

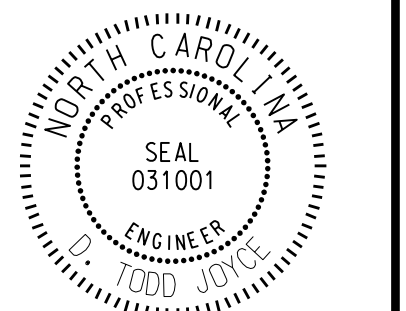
Division 5 Wake County Fuquay-Varina

PLAN DATE:	August 2025	REVIEWED BY:	
PREPARED BY:	Zarrar Zafar	REVIEWED BY:	

[illegible]

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REAL



DocuSigned by:
D. Todd Joyce 08/29/2025

SIG. INVENTORY NO.	05-1662
--------------------	---------

MAXTIME STARTUP AND SOFTWARE FLASH
PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters	Unit Flash Parameters
StartUp Clearance Hold	All Red Flash Exit Time
6	6

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

NOTE: Control Type
and Control Source

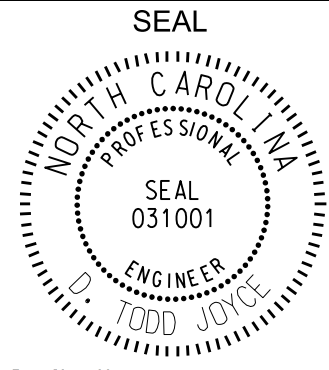
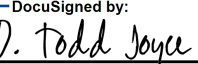


Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Overlap	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

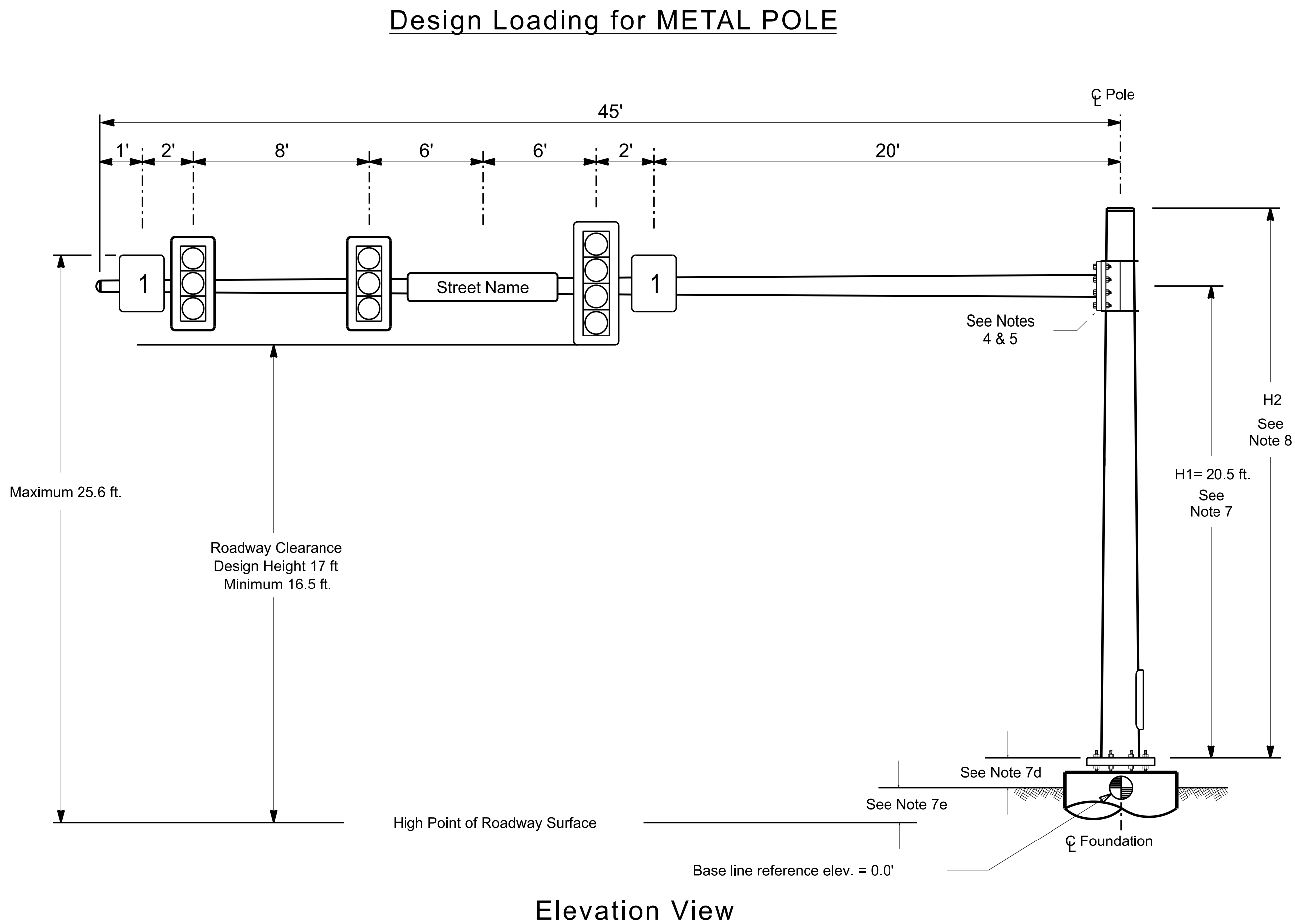
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1662
DESIGNED: May 2025
SEALED: 8/28/2025
REVISED: N/A

Electrical Detail - Sheet 3 of 3

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

Electrical and Programming Details For: Prepared in the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 1006 (Old Stage Road) at SR 2724 (Banks Road)		SEAL  DocuSigned by:  08/29/2025 SIG. INVENTORY NO. 05-1662	
	Division 5	Wake County		Fuquay-Varina
	PLAN DATE: August 2025	REVIEWED BY:		
	PREPARED BY: Zarrar Zafar	REVIEWED BY:		
	REVISIONS	INIT.		DATE

24 JUL 2025 16:21
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burmazzike

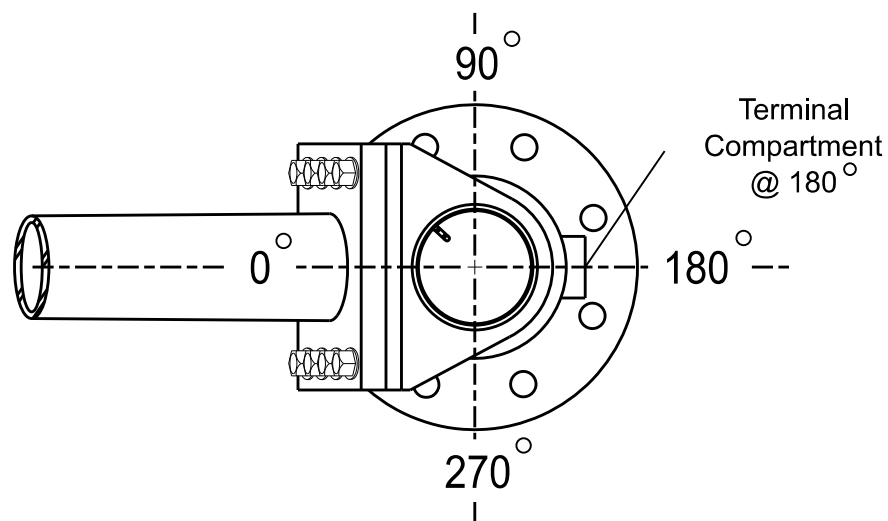


SPECIAL NOTE

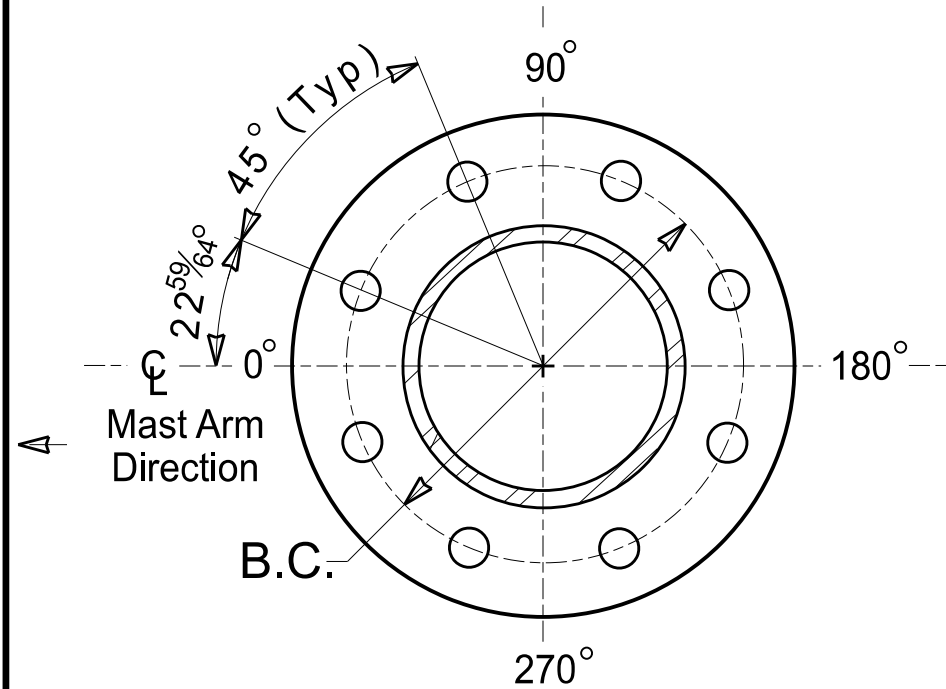
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole
Baseline reference point at C Foundation @ ground level	0.0 ft.
Elevation difference at High point of roadway surface	+1.5 ft.
Elevation difference at Edge of travelway or face of curb	N/A

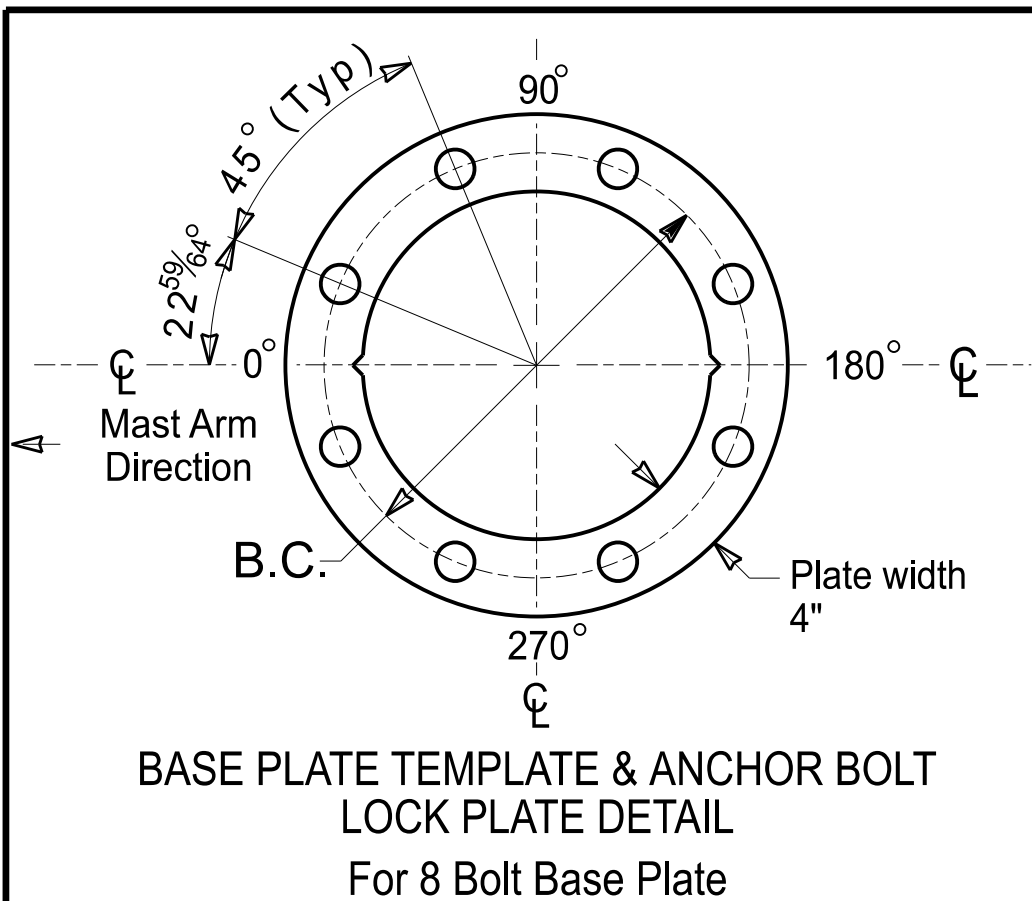


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL For 8 Bolt Base Plate

METAL POLE

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	Sig.5.4

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	SIGN RIGID MOUNTED	5.0 S.F.	24.0" W X 30.0" L	11 LBS
	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

- Design the traffic signal structure and foundation in accordance with:
 - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
 - The 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
 - The 2018 NCDOT Roadway Standard Drawings.
 - The traffic signal project plans and special provisions.
 - The NCDOT "Metal Pole Standards" located at the following NCDOT website: <https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

DESIGN REQUIREMENTS

- Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- Design all signal supports using stress ratios that do not exceed 0.9.
- A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate connection points.
- Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- The mast arm attachment height (H1) shown is based on the following design assumptions:
 - Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
 - Signal heads are rigidly mounted and vertically centered on the mast arm.
 - The roadway clearance height for design is as shown in the elevation views.
 - The top of the pole base plate is 0.75 feet above the ground elevation.
 - Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
 - Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
- The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
- The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 4 (120 mph)

 750 N. Greenfield Pkwy, Garner, NC 27529	Prepared in the Offices of:		SR 1006 (Old Stage Road) at SR 2724 (Banks Road)		 07/28/2025	
	Division 5		Wake County	Fuquay-Varina		
	PLAN DATE:	June 2025	REVIEWED BY:			
	PREPARED BY:	I.O. Umozutike	REVIEWED BY:			
SCALE		N/A		INIT.		DATE
0		N/A				
N/A						
SIG. INVENTORY NO.		05-1662				

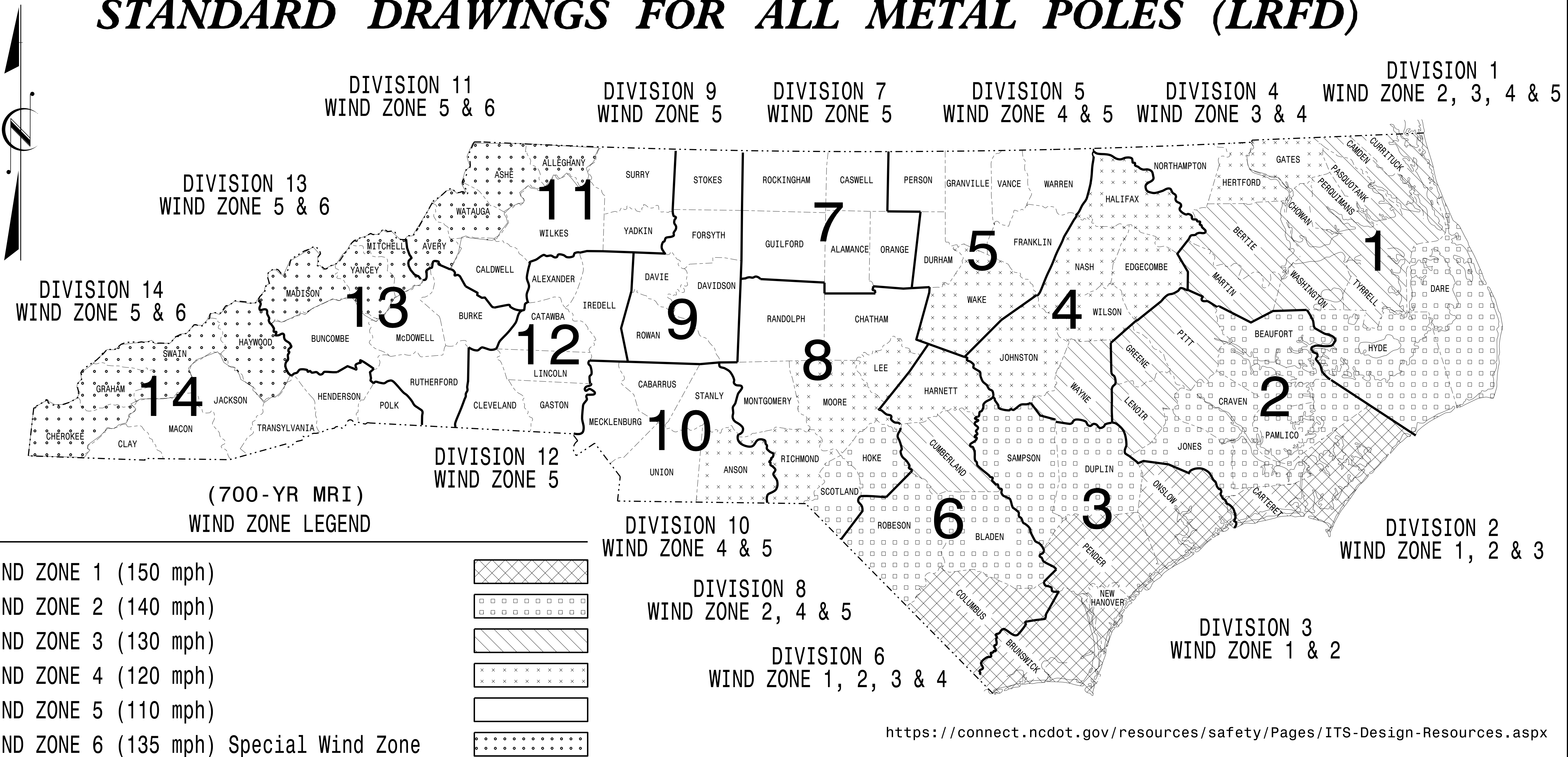
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NCDOT METAL POLE STANDARDS

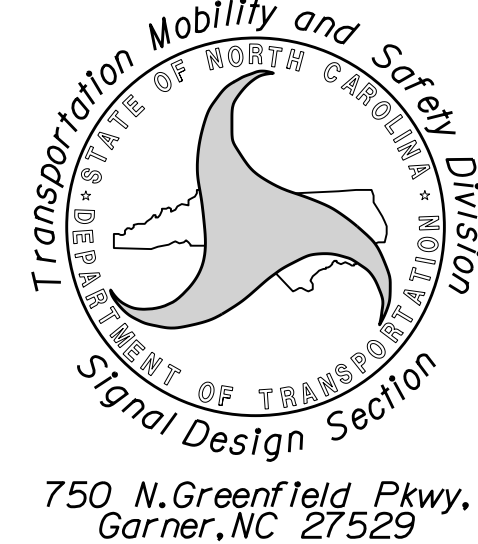
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT I.D. NO.	SHEET NO.
HL-00081	Sig.M1A

STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)



Prepared in the Offices of:



Designed in conformance
with the latest
2020 Interim to the
1st Edition 2015

**AASHTO
LRFD**

Standard Specifications for
Highway Signs, Luminaires,
and Traffic Signals

DRAWING NUMBER

DRAWING NUMBER	DESCRIPTION
Sig. M 1A	Statewide Wind Zone Map (700-yr MRI)
Sig. M 1B	Statewide Wind Zone Map (10-yr MRI)
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
Sig. M 9	Typical Fabrication Details-CCTV Camera Poles

INDEX OF PLANS DESCRIPTION

MOBILITY AND SAFETY DIVISION - TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS UNIT

D.Y. ISHAK - STATE SIGNALS ENGINEER
K. DURIGON, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER
B. WALKER, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER

SEAL



DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3764DA

09/21/2023
DATE

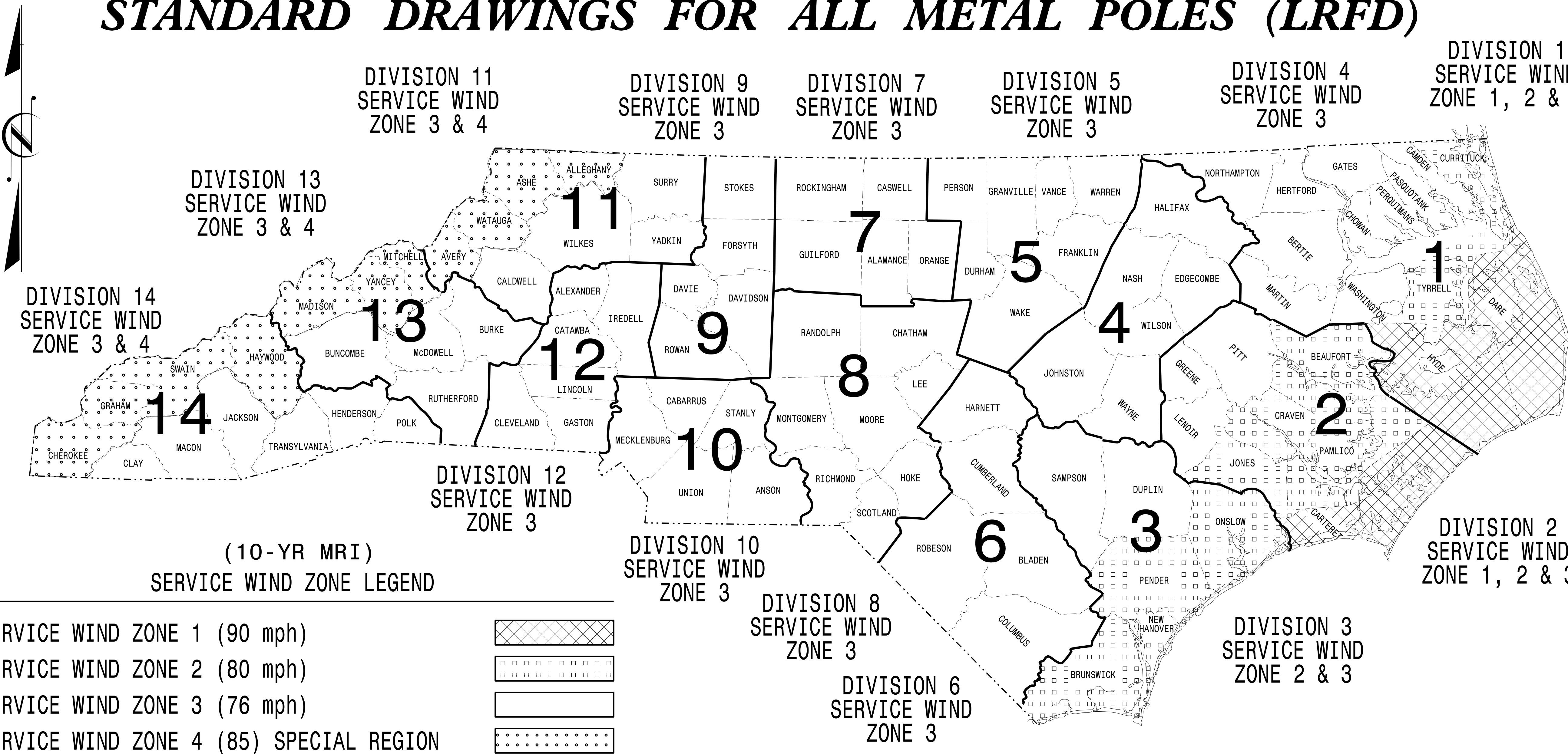
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NCDOT METAL POLE STANDARDS

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

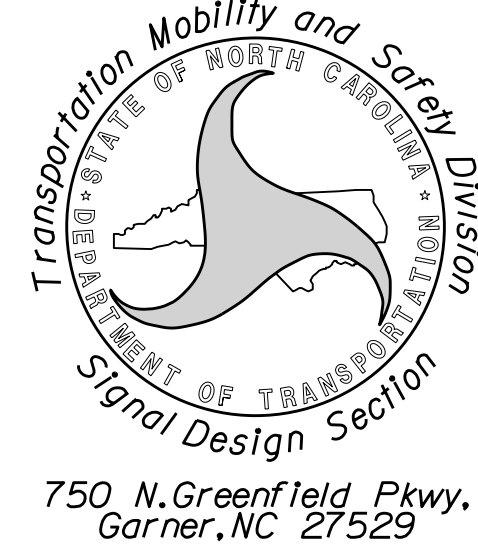
PROJECT I.D.NO.	SHEET NO.
HL-00081	Sig.M1B

STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)



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

Prepared in the Offices of:



Designed in conformance
with the latest
2020 Interim to the
1st Edition 2015

**AASHTO
LRFD**

Standard Specifications for
Highway Signs, Luminaires,
and Traffic Signals

DRAWING NUMBER

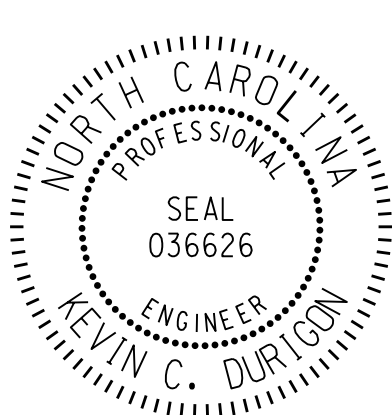
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Sig. M 1A	Statewide Wind Zone Map (700-yr MRI)
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INDEX OF PLANS DESCRIPTION

NCDOT CONTACTS: MOBILITY AND SAFETY DIVISION - TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS UNIT

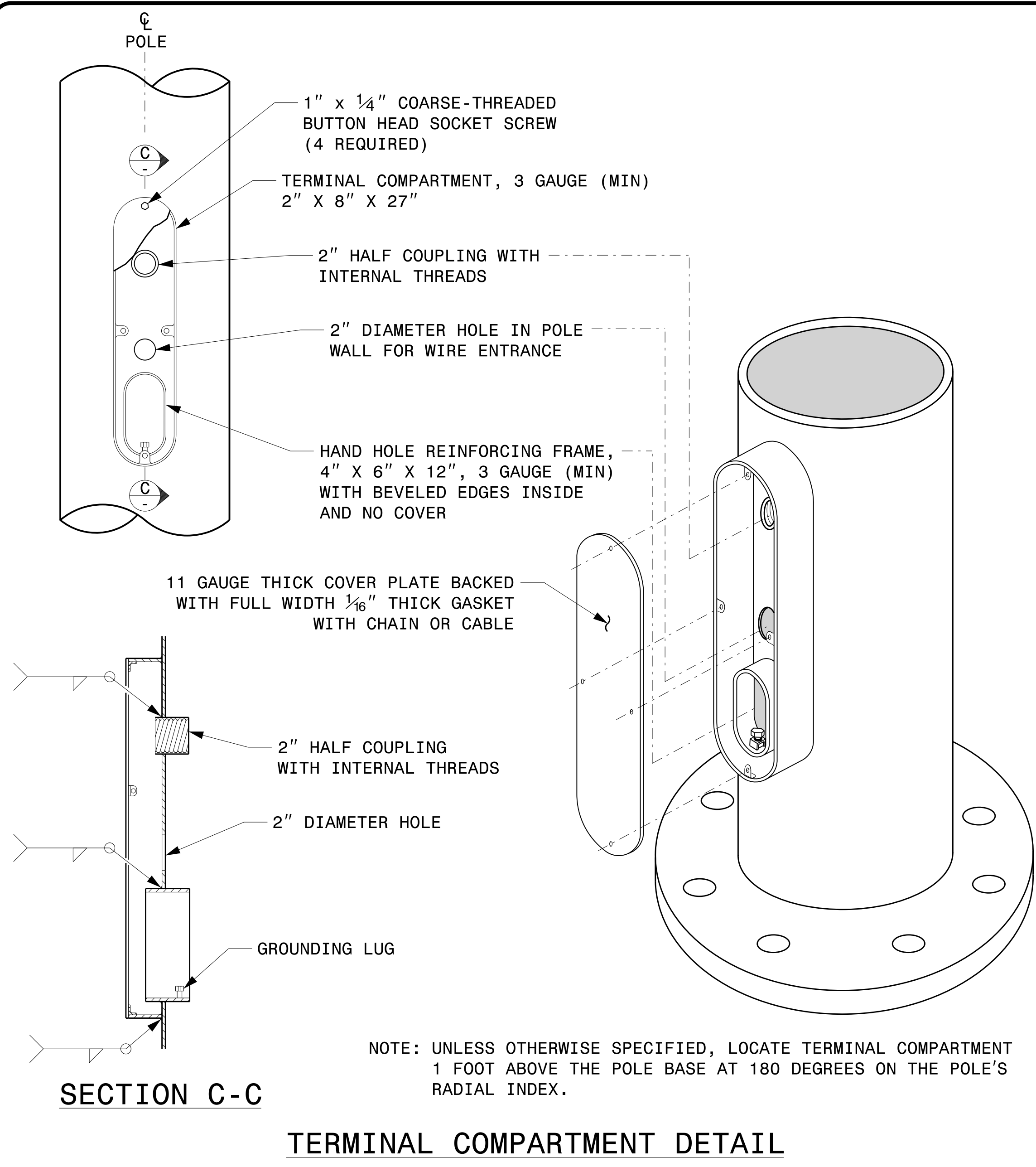
D.Y. ISHAK - STATE SIGNALS ENGINEER
K. DURIGON, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER
B. WALKER, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER

SEAL



DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3784DA

09/21/2023
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 POLE SHAFT)

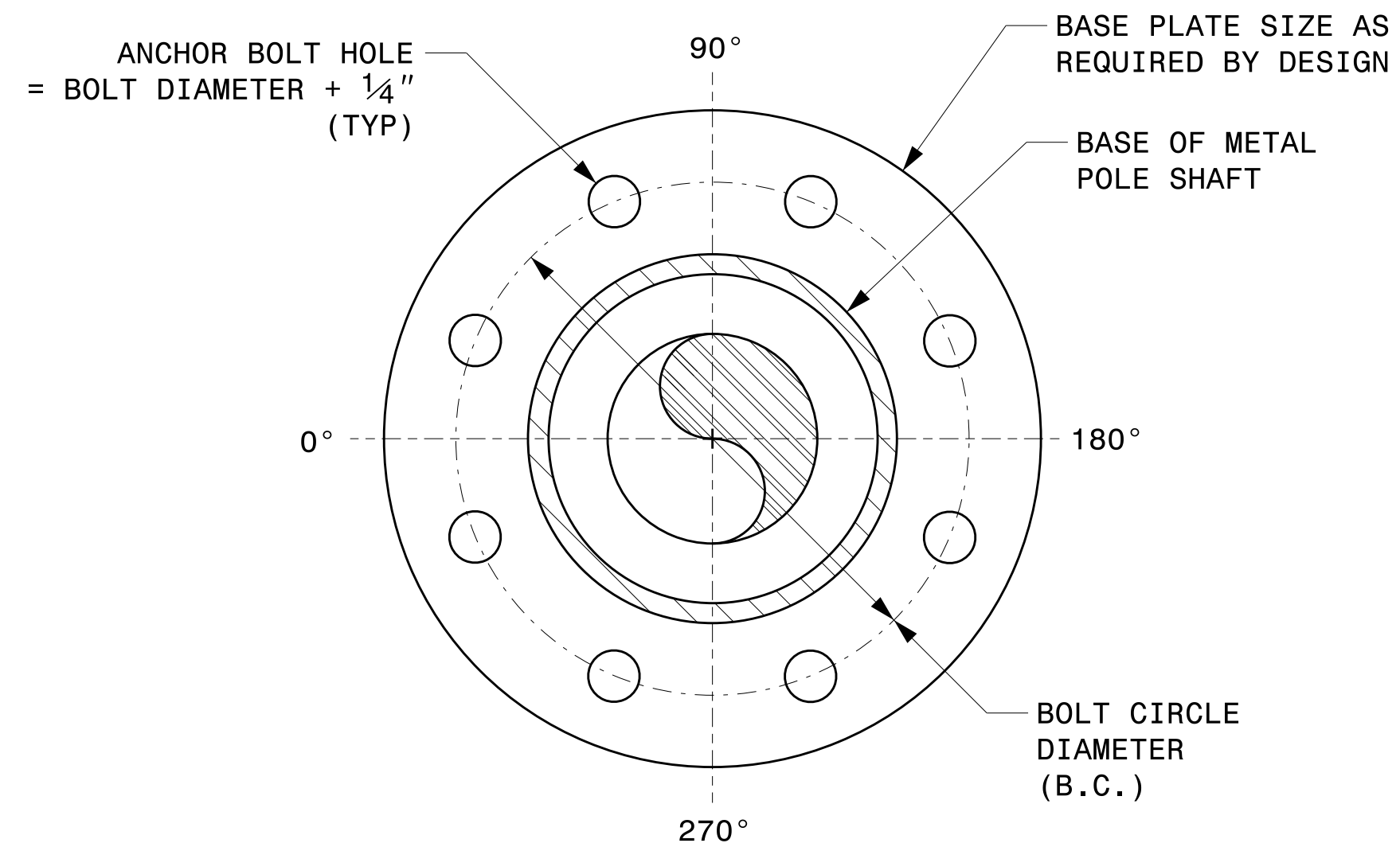
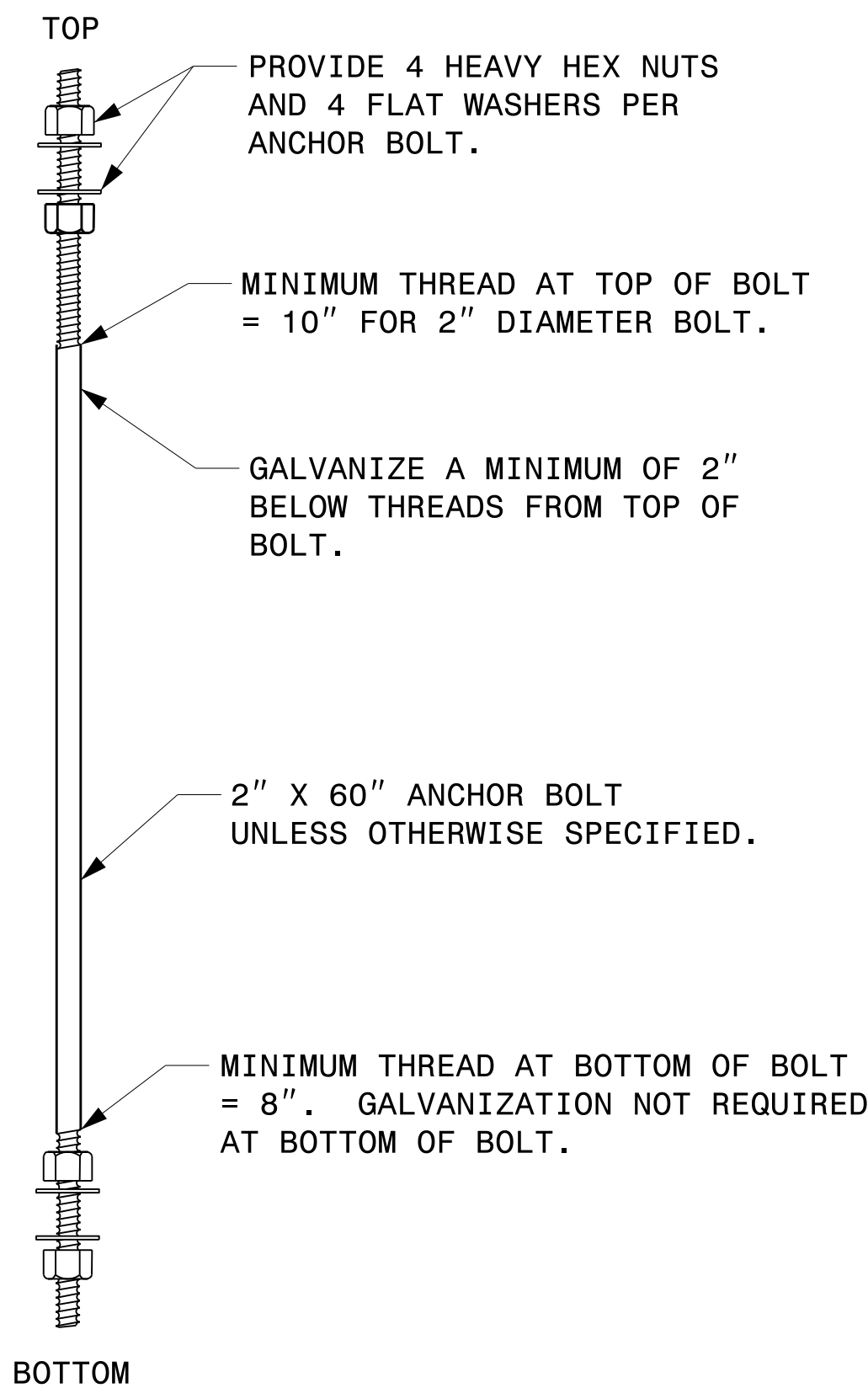
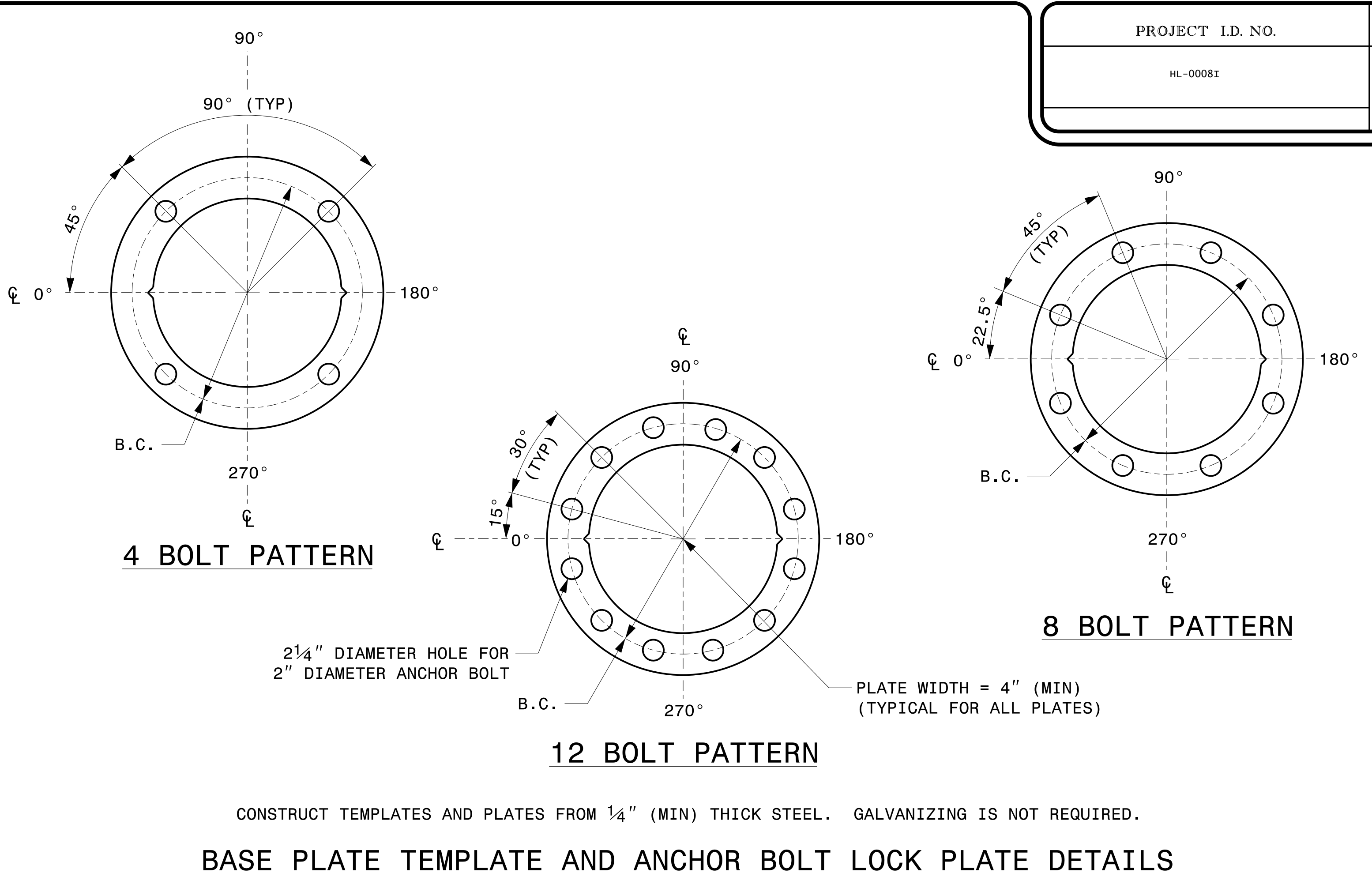
NOTES:

- D = DIAMETER, T = THICKNESS, L = LENGTH, Y = YIELD STRENGTH
- A.B. = ANCHOR BOLT
- B.C. = BOLT CIRCLE OF ANCHOR BOLTS
- IF STANDARD DESIGN, INCLUDE CASE NUMBER IN ADDITION TO
POLE NUMBER ON "NCDOT POLE NO." LINE.
- SIGNAL INV. NUMBER AND POLE I.D. NUMBER.
SEE DRAWING M3 AND M4 FOR MOUNTING POSITIONS OF I.D. TAGS.

IDENTIFICATION TAG DETAILS

MFG _____ MFG. DATE: MM/YY
SECTION D/T/L/Y _____
NCDOT SIG. INV. NO. _____
NCDOT POLE NO. _____

ARM I.D. TAG
(PROVIDE ON EACH SECTION OF
A MULTI-SECTION MAST ARM)



 750 N. Greenfield Pkwy, Garner, NC 27529	Typical Fabrication Details For All Metal Poles		 SEAL 036626 ENGINEER KEVIN C. DURIGON
	PLAN DATE: SEPTEMBER 2023 DESIGNED BY: C.F. ANDREWS PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR	REVISIONS INIT. DATE	

DocuSigned by:
Kevin Durigon
4B23DC79B3784DA

09/21/2023
DATE

1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS $3\frac{1}{2}$ " BUT SHALL NOT BE LESS THAN $8\frac{1}{2}$ ".

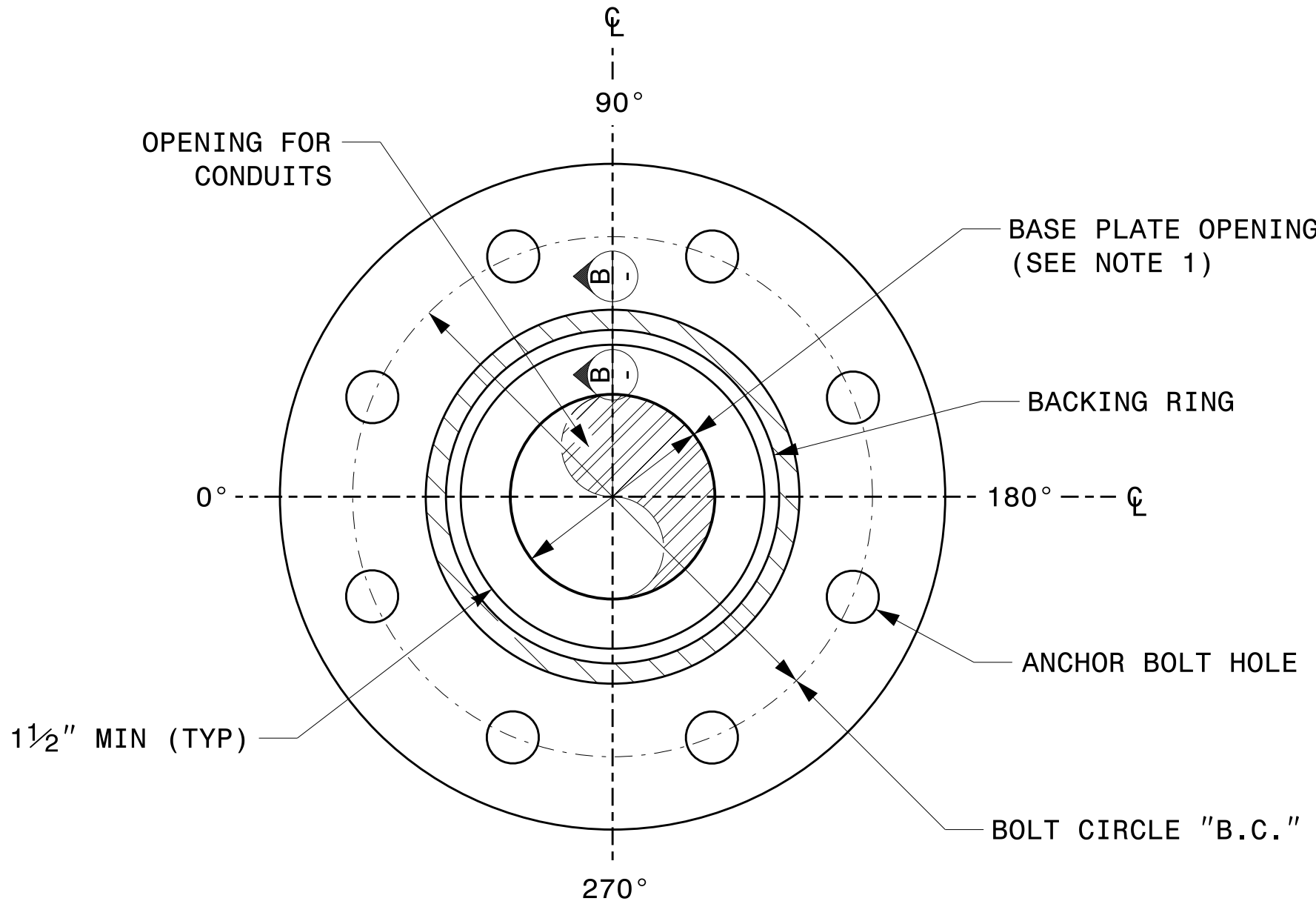


SECTION C-C
(POLE ATTACHMENT TO BASE PLATE)
FULL - PENETRATION
GROOVE WELD DETAIL

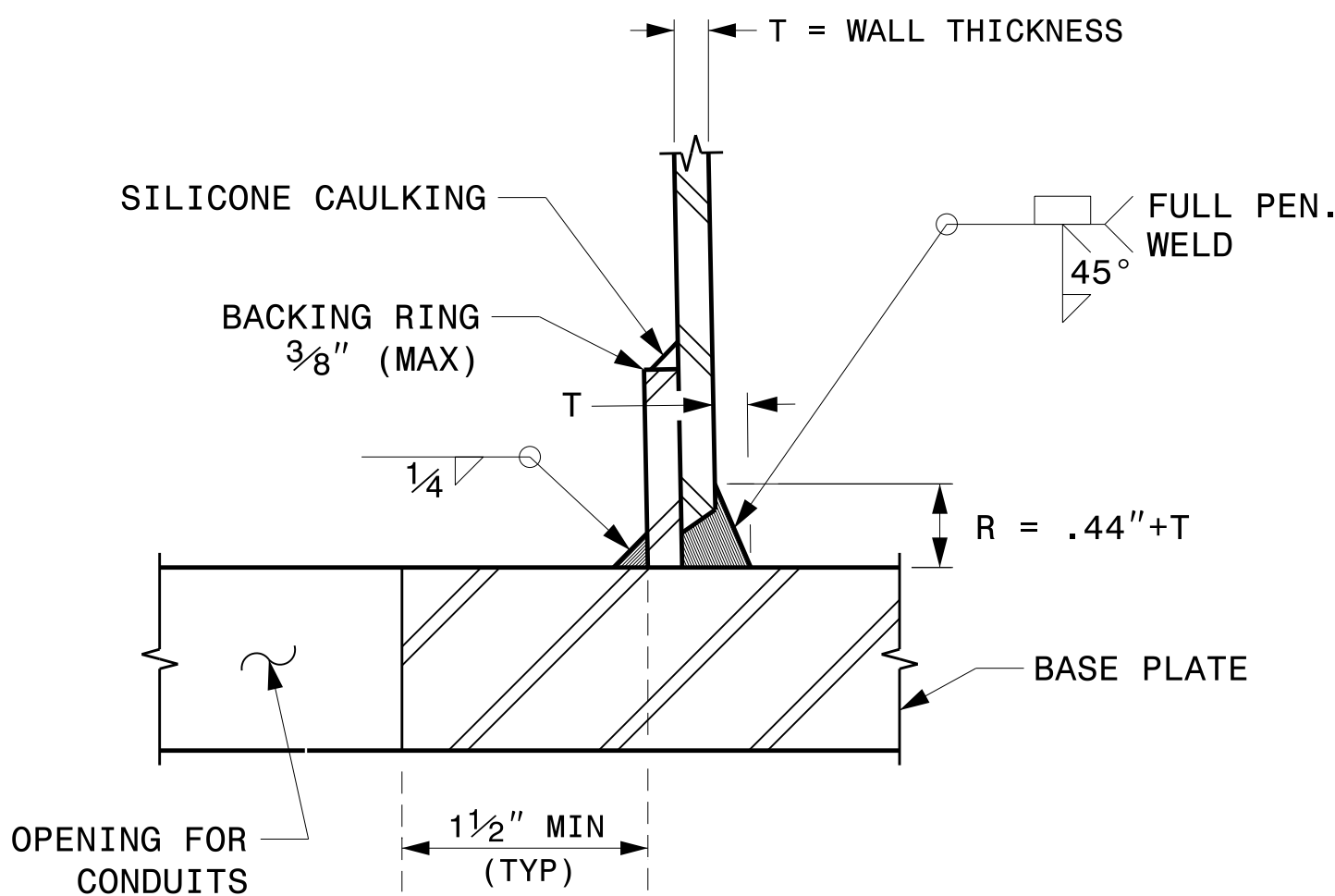


NOTE:

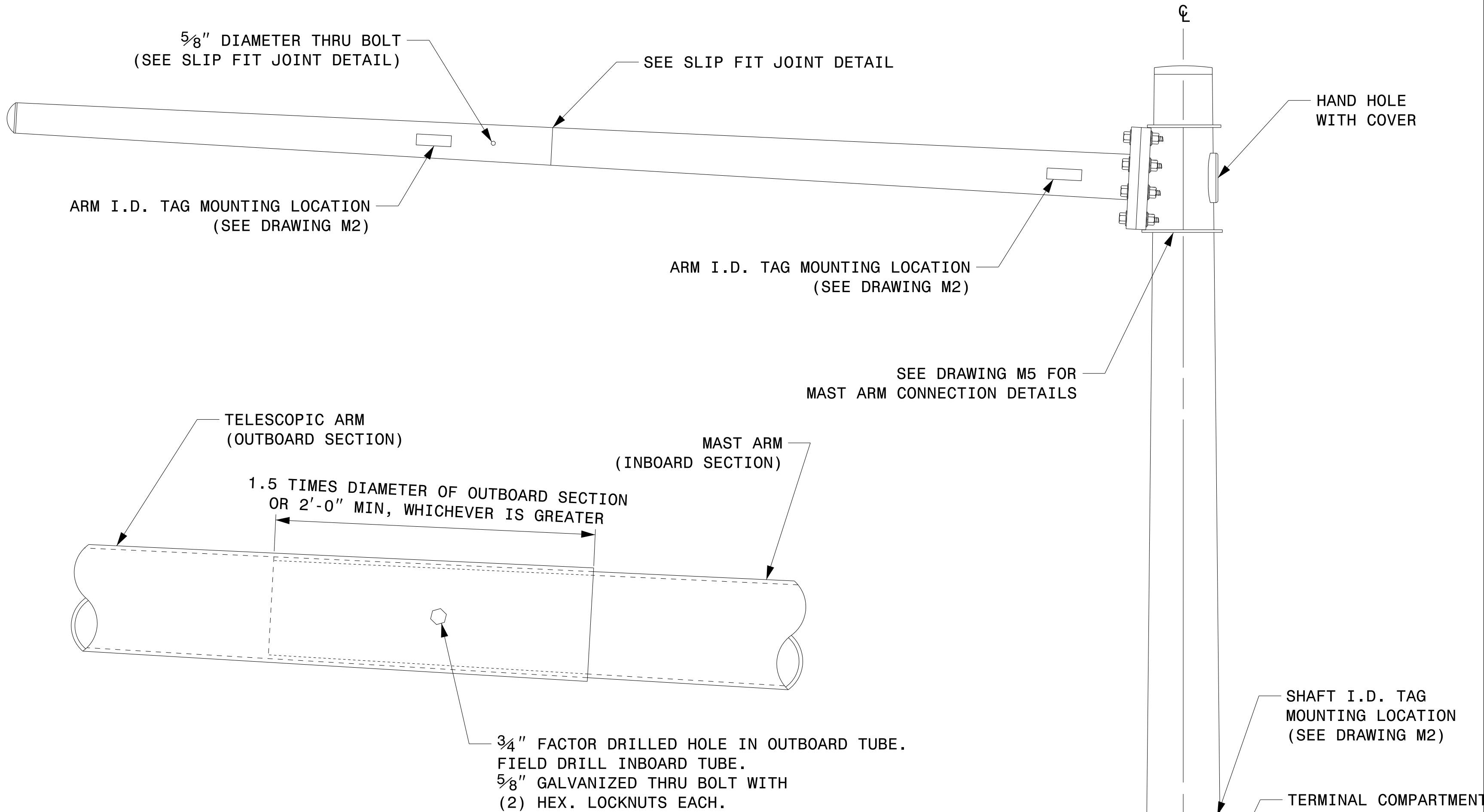
1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS $3\frac{1}{2}$ " BUT SHALL NOT BE LESS THAN $8\frac{1}{2}$ ".



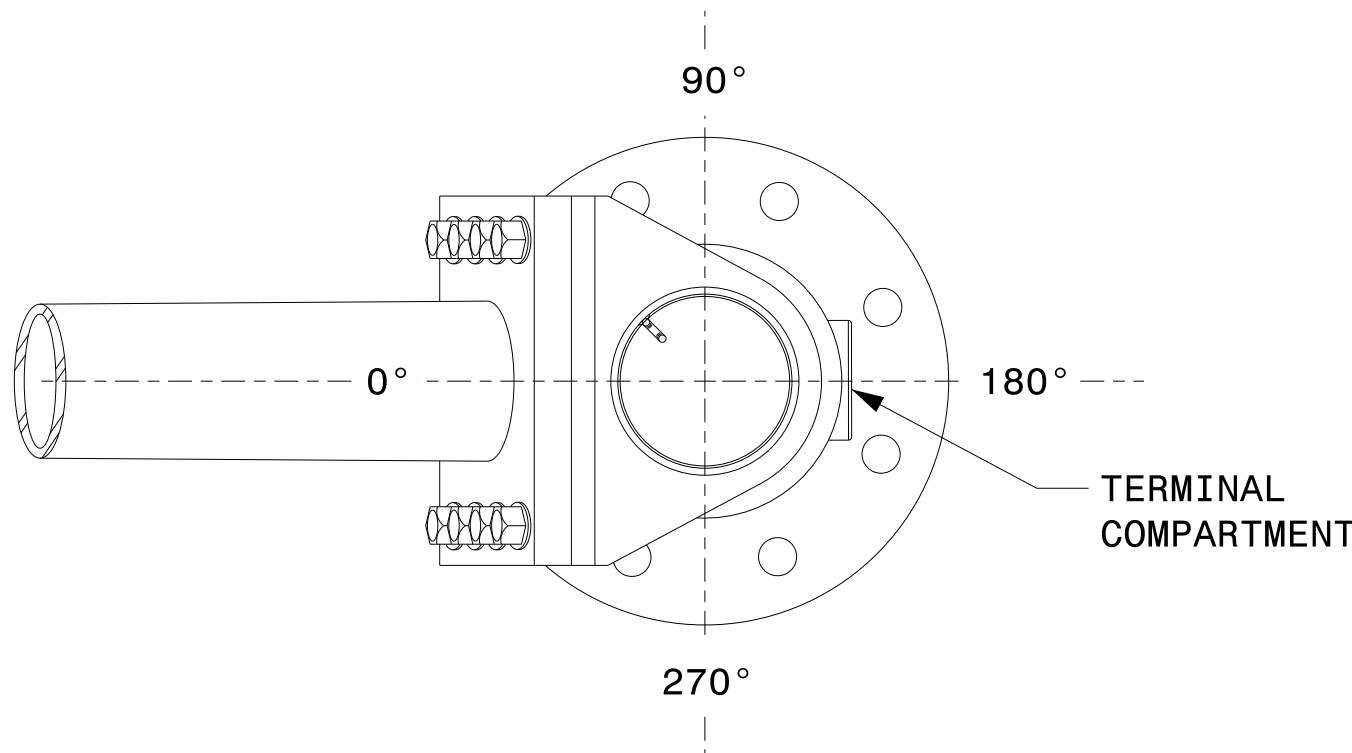
SECTION A-A
POLE BASE PLATE DETAILS



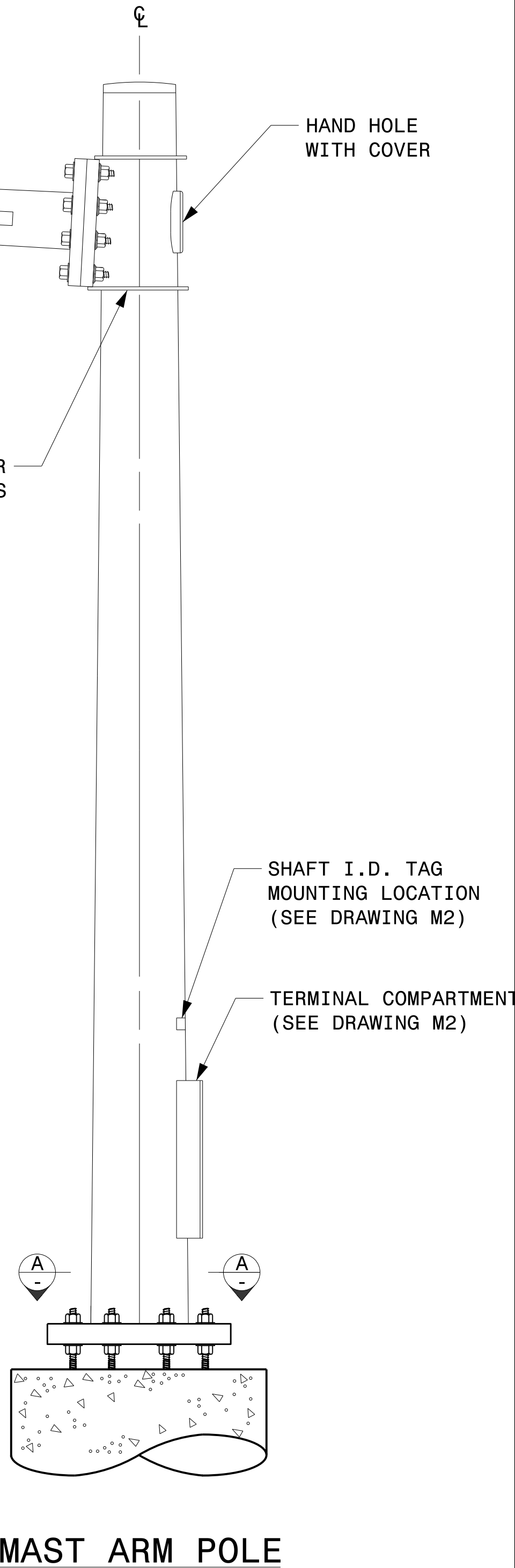
SECTION B-B
(POLE ATTACHMENT TO BASE PLATE)
FULL-PENETRATION
GROOVE WELD DETAIL



SLIP FIT JOINT DETAIL FOR MAST ARM



MAST ARM RADIAL ORIENTATION



MAST ARM POLE

Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	Typical Fabrication Details For Mast Arm Poles		SEAL DocuSigned by: <i>Kevin Durigon</i> 1B23DC70R378ADA										
	PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR <table><tr><th>REVISIONS</th><th>INIT.</th><th>DATE</th></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>	REVISIONS		INIT.	DATE								
REVISIONS	INIT.	DATE											

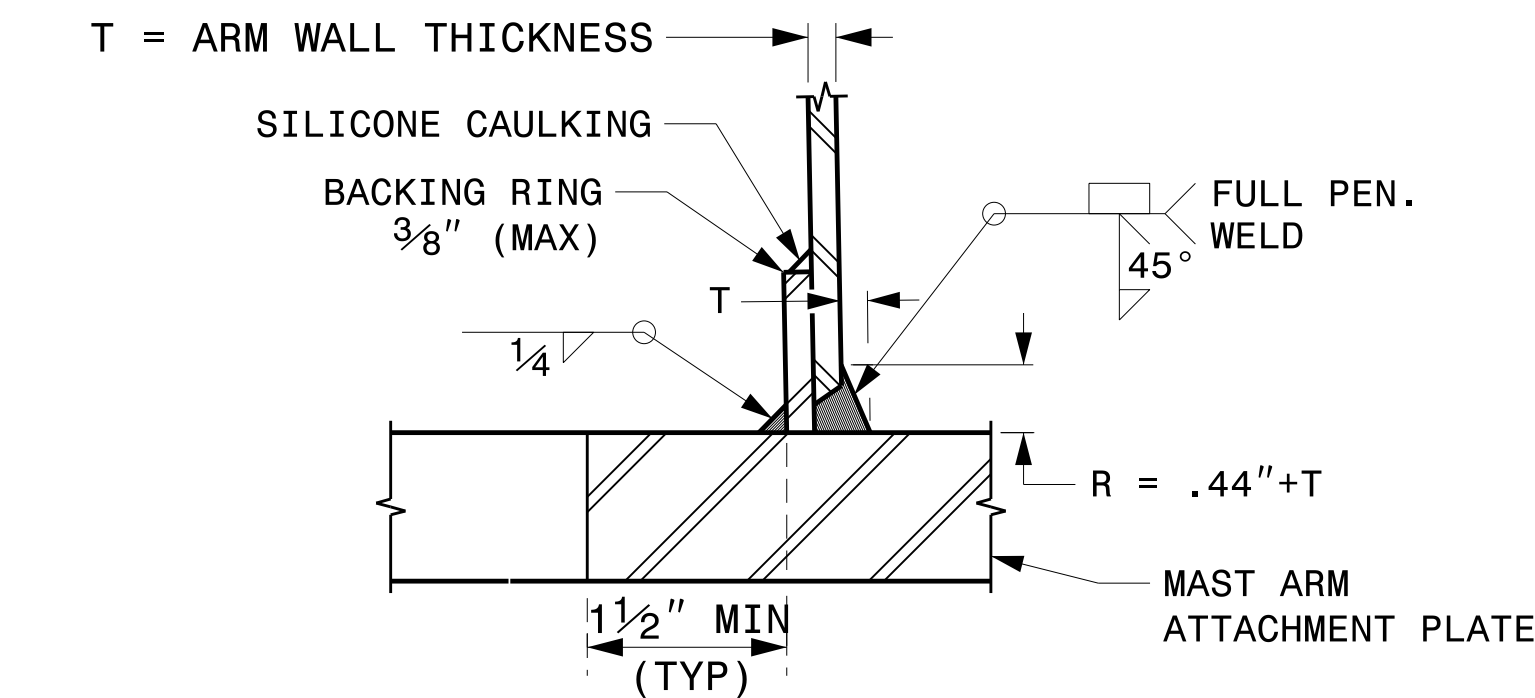
WELDED RING STIFFENED MAST ARM CONNECTION

PROJECT I.D. NO.

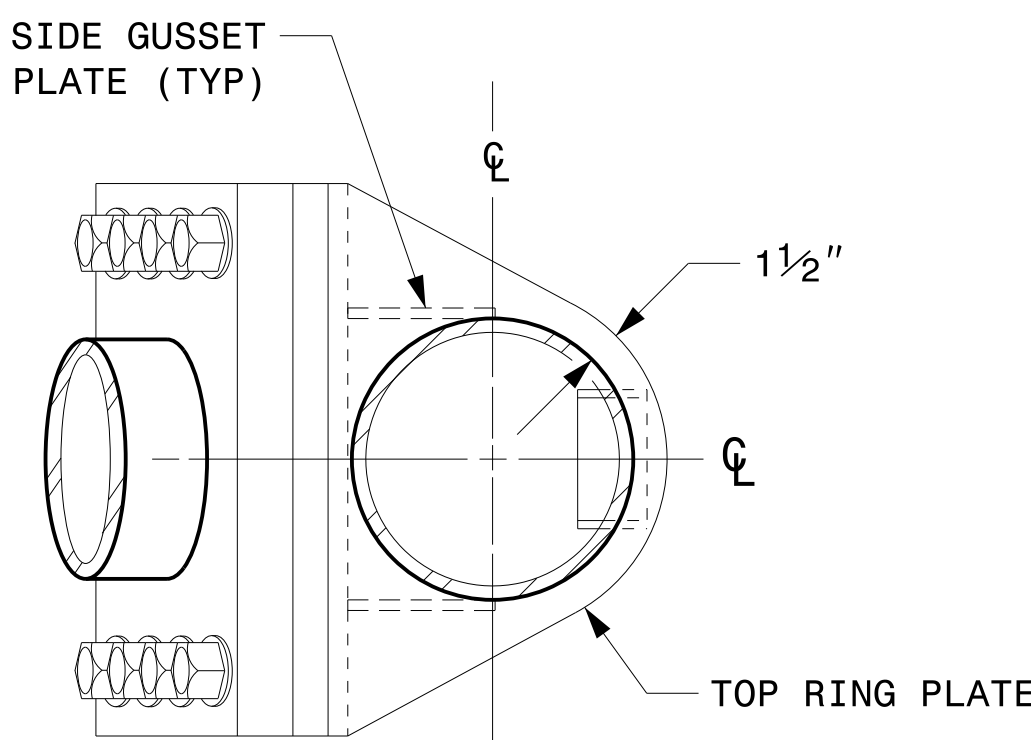
SHEET NO.

HL-00081

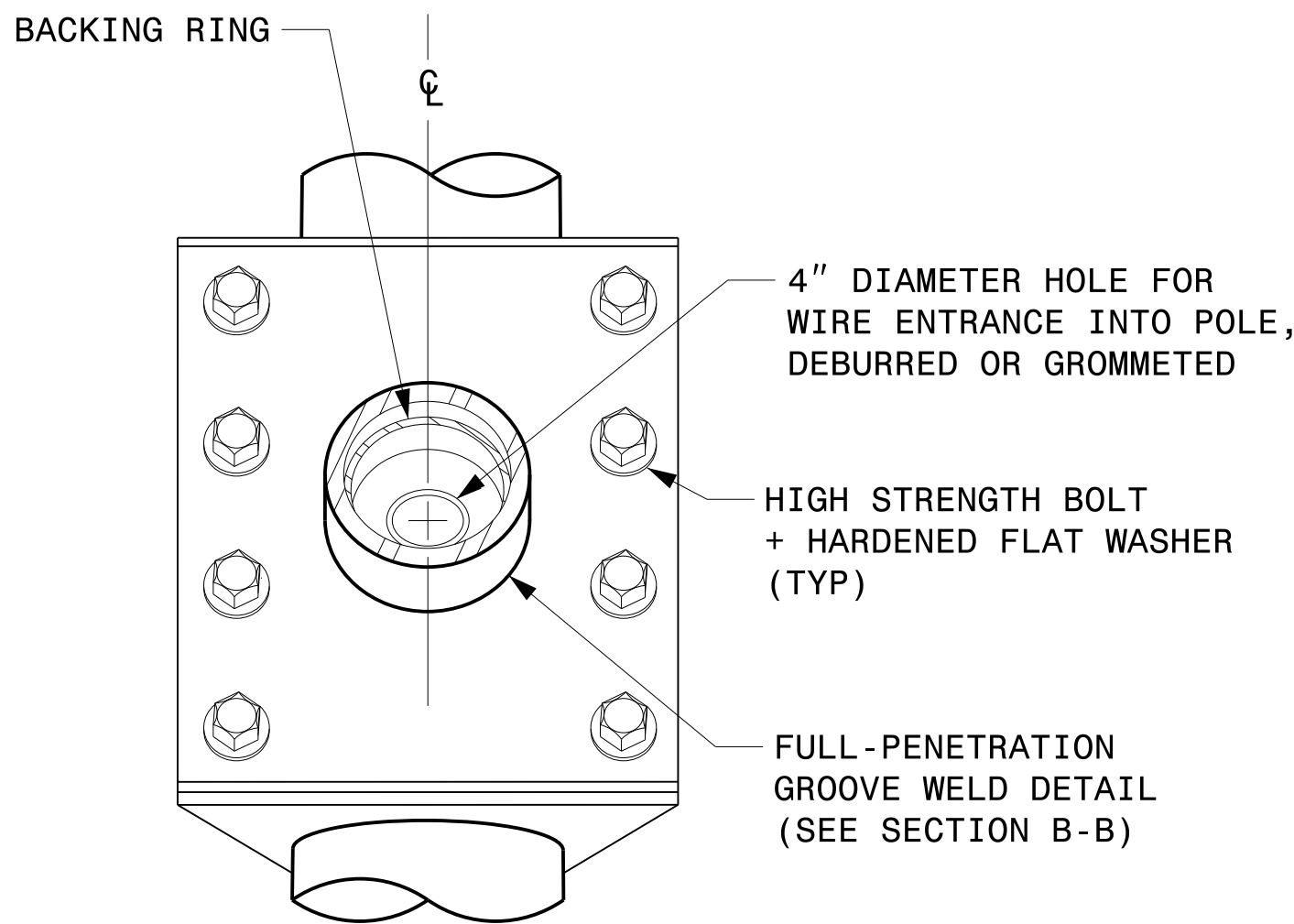
Sig.M5



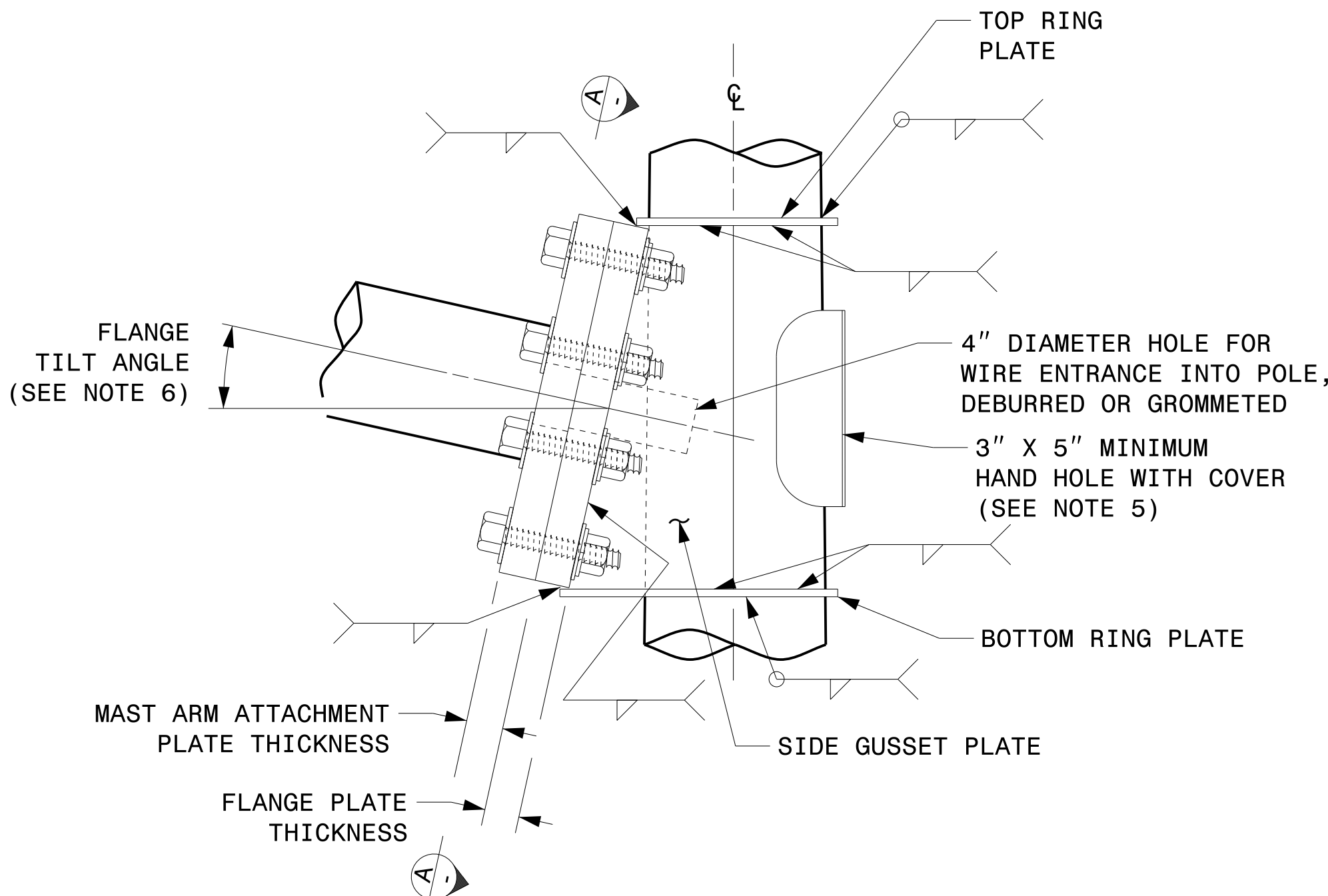
SECTION B-B
FULL-PENETRATION GROOVE WELD DETAIL



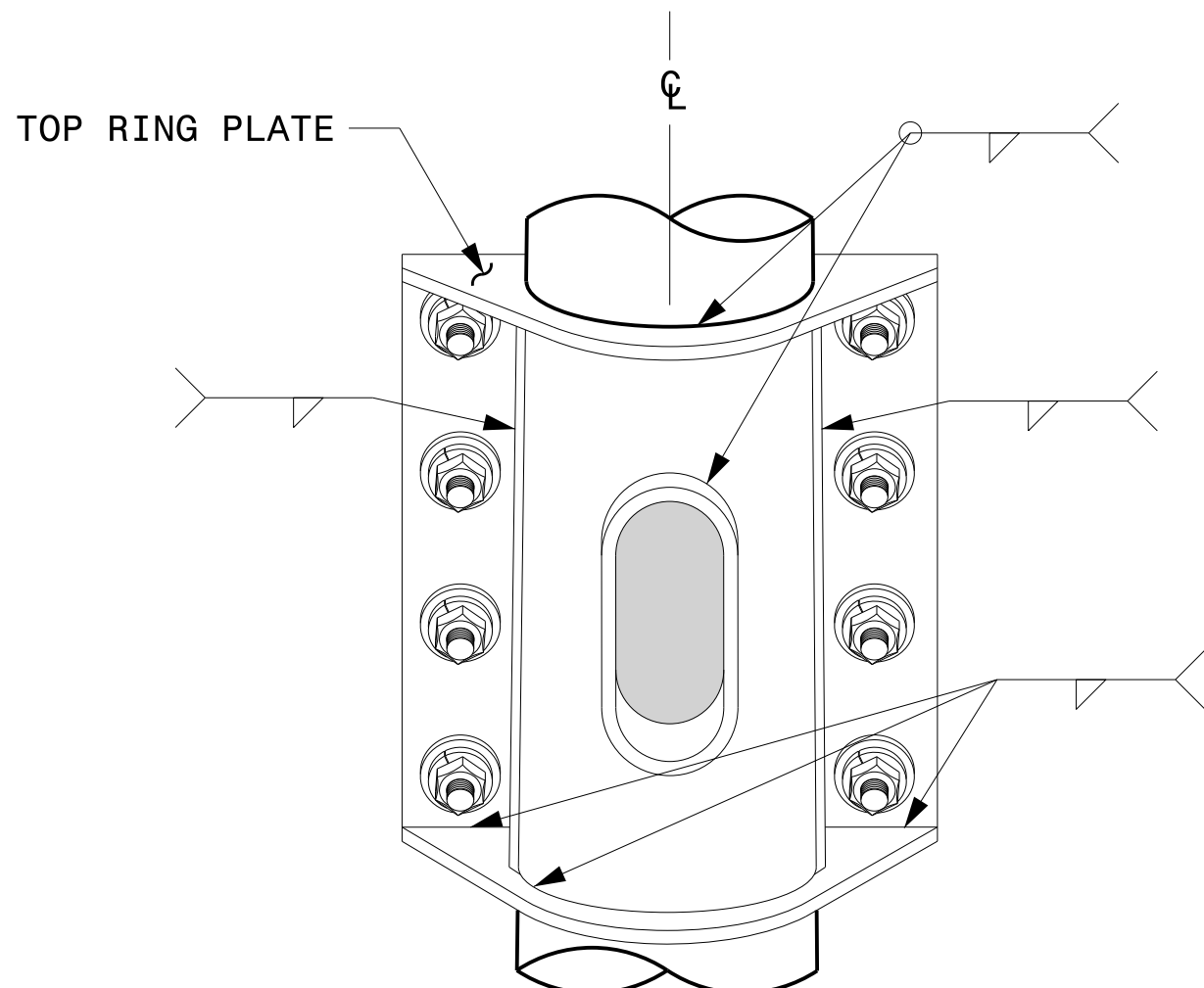
PLAN VIEW



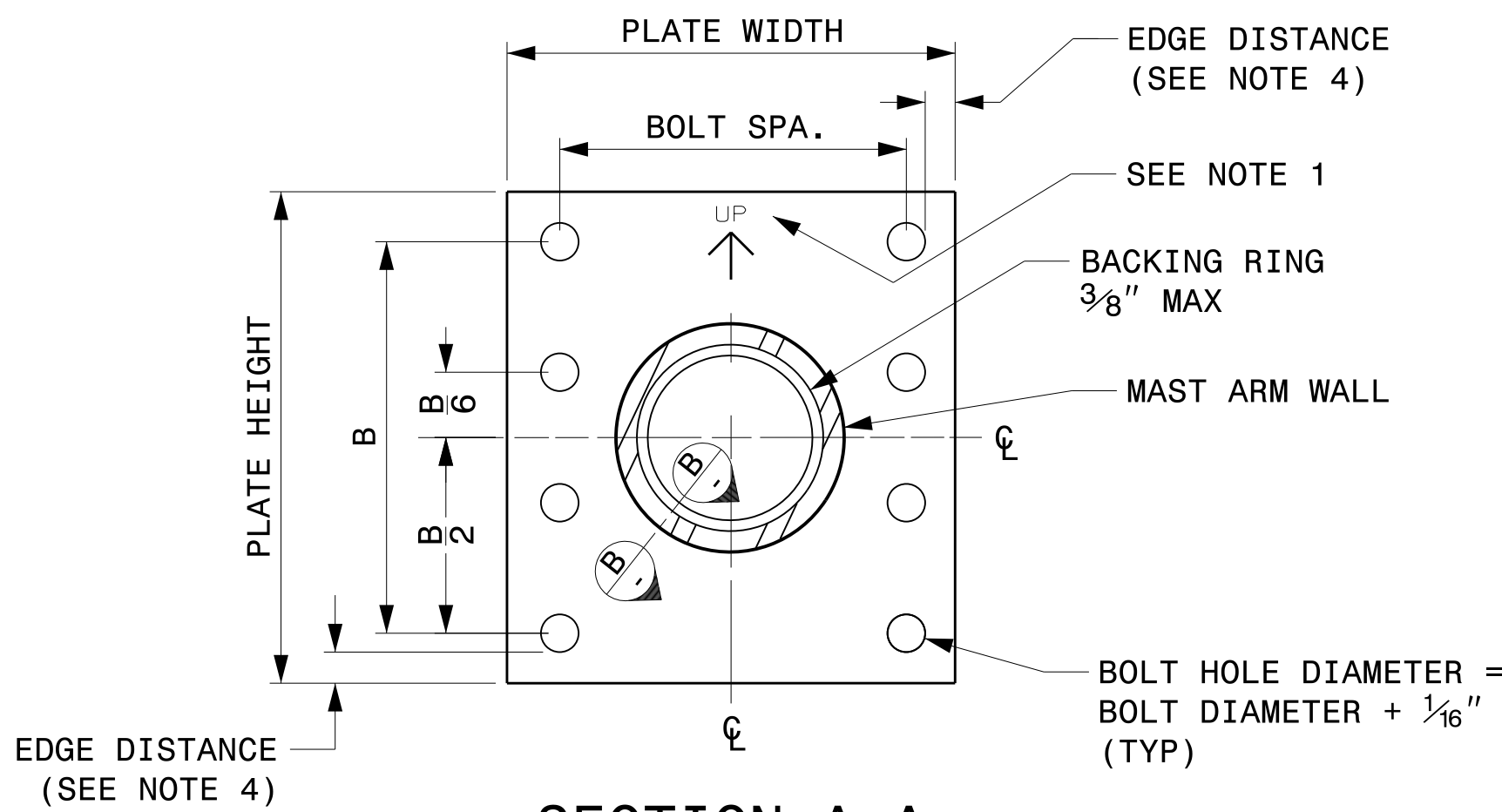
FRONT ELEVATION VIEW



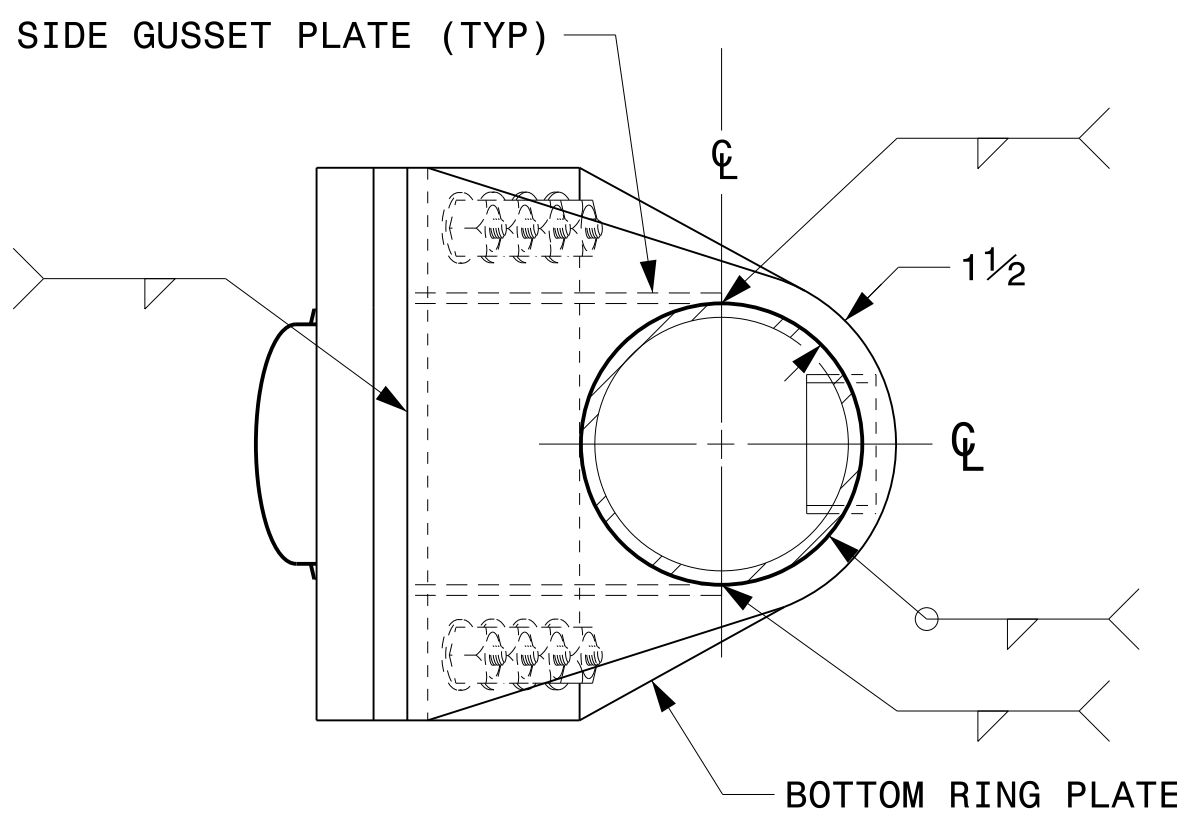
SIDE ELEVATION VIEW



BACK ELEVATION VIEW



SECTION A-A
MAST ARM ATTACHMENT PLATE



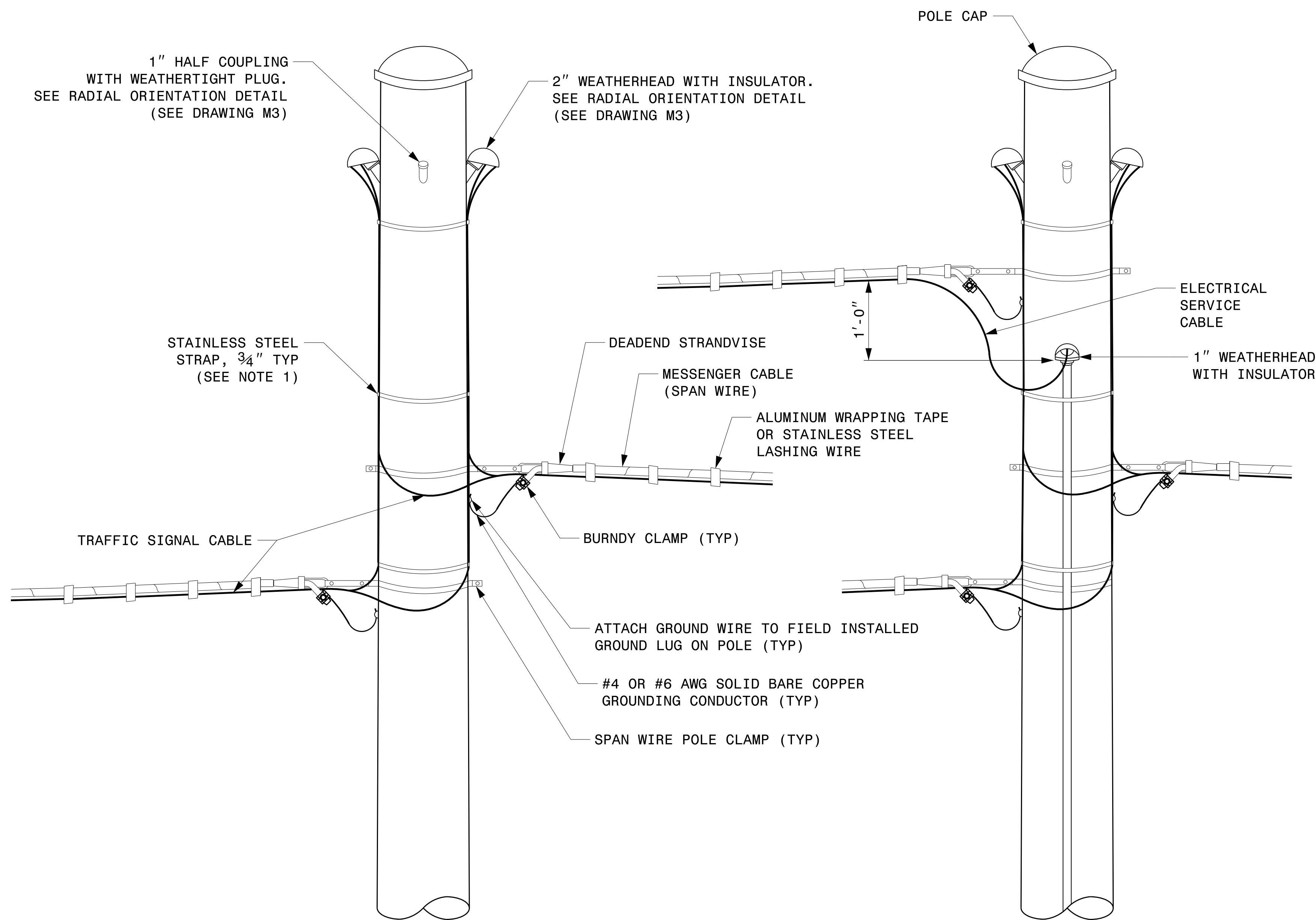
BOTTOM VIEW

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 AND NOMINAL BOLT HOLE SIZE, FOLLOW THE LATEST AISC STEEL CONSTRUCTION MANUAL.
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.

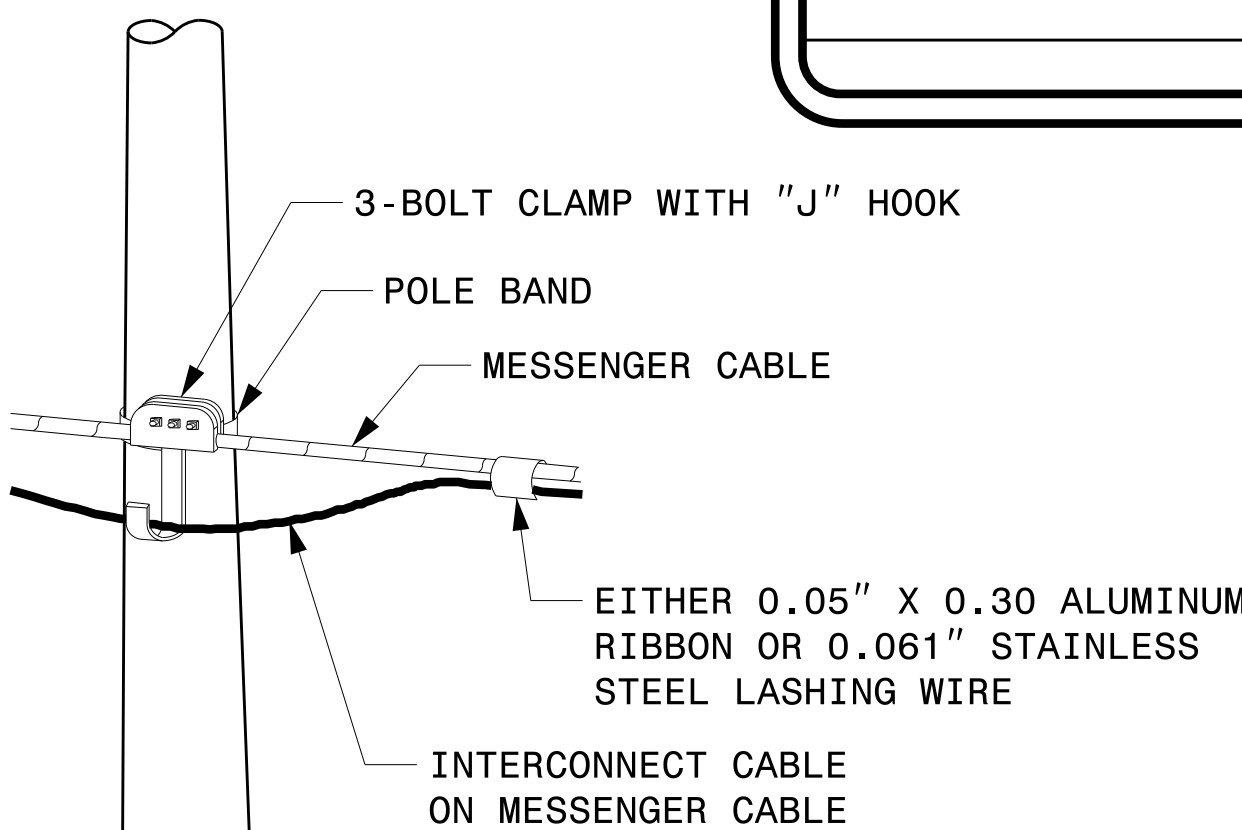
Fabrication Details – Mast Arm Connection

Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529		Typical Fabrication Details For Mast Arm Connection To Pole		SEAL ENGINEER KEVIN C. DURIGON	
PLAN DATE: SEPTEMBER 2023 DESIGNED BY: C.F. ANDREWS		PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR		DocuSigned by: Kevin Durigon 4B23DC79B3784DA...	
SCALE 0 NA NONE		REVISIONS		INIT. DATE	
				09/21/2023 DATE	

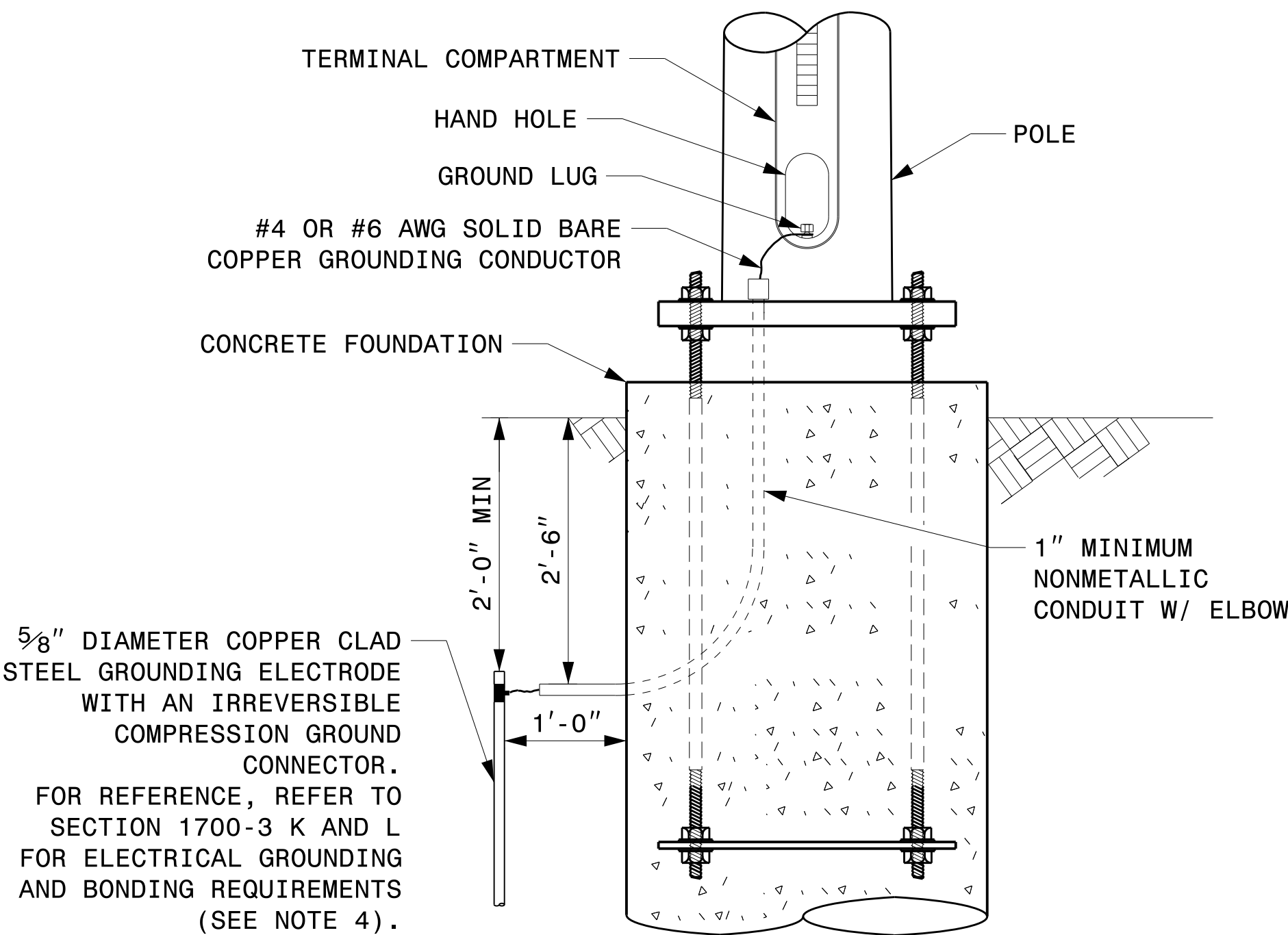


STRAIN POLE ATTACHMENTS

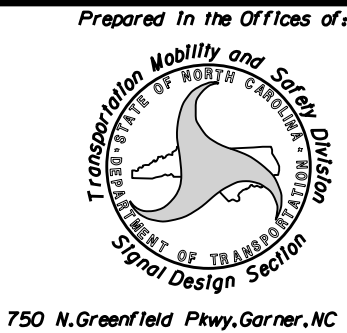
- NOTES:
- 1. STRAP ALL SIGNAL CABLES TO THE SIDE OF THE POLE WITH 3/4" STAINLESS STEEL STRAPS WHEN THE DISTANCE BETWEEN SPAN WIRE ATTACHMENT CLAMP AND WEATHERHEADS EXCEEDS 3'-0".
 - 2. PROVIDE MINIMUM TWO SPAN WIRE POLE CLAMPS PER POLE.
 - 3. IT IS PROHIBITED TO ATTACH TWO SPAN WIRES AT ONE POLE CLAMP.
 - 4. FOR GENERAL REQUIREMENTS, REFER TO NCDOT STANDARD SPECIFICATIONS FOR ROADWAY AND STRUCTURES, JANUARY 2024.



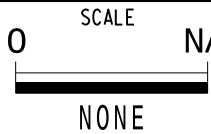
ATTACHMENT OF CABLE TO INTERMEDIATE METAL POLE



METAL POLE GROUNDING DETAIL FOR STRAIN POLE AND MAST ARM



750 N.Greenfield Pkwy,Garner,NC 27529



Typical Fabrication Details
For
Strain Pole Attachments

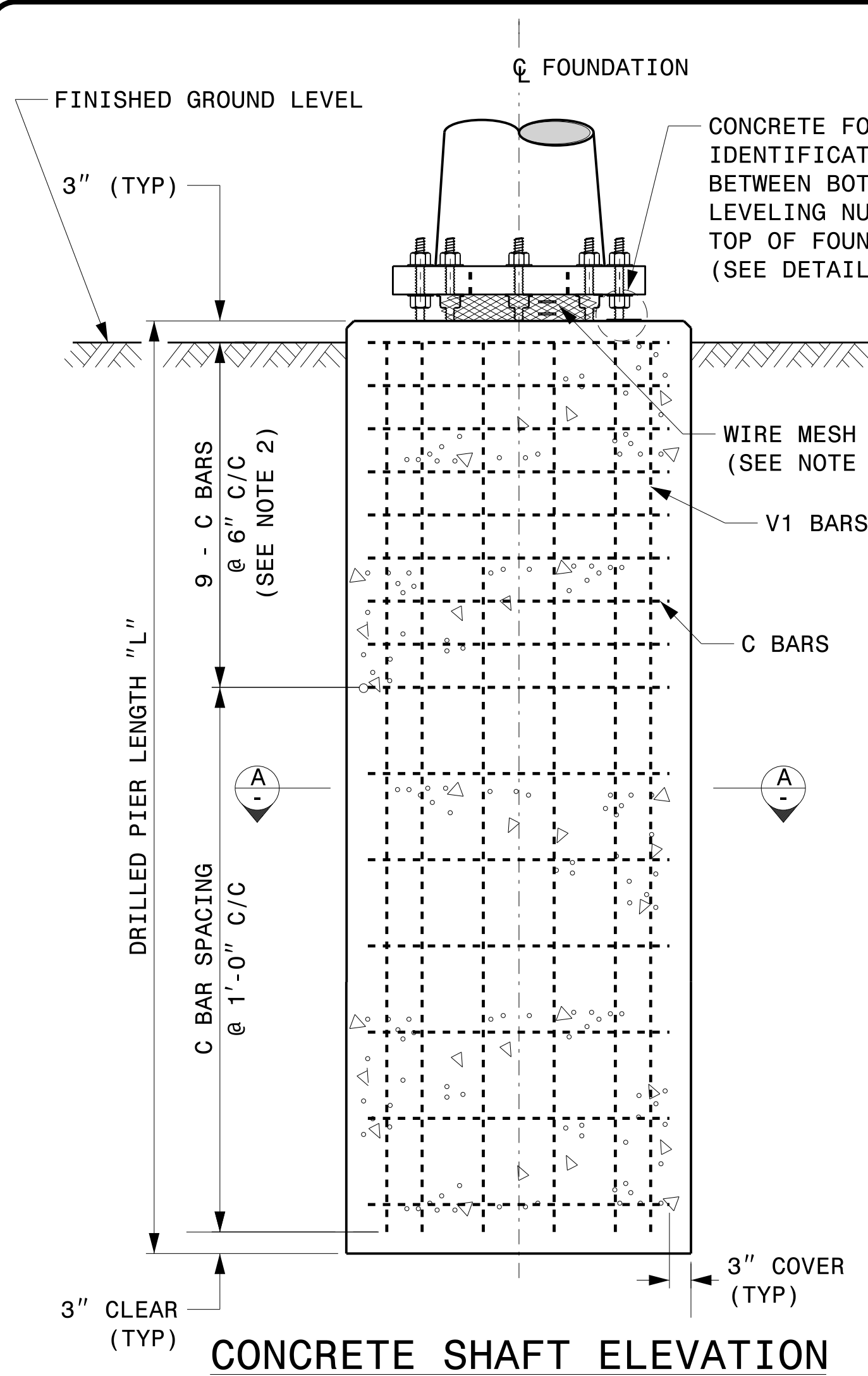
PLAN DATE: SEPTEMBER 2023 DESIGNED BY: C.F. ANDREWS
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

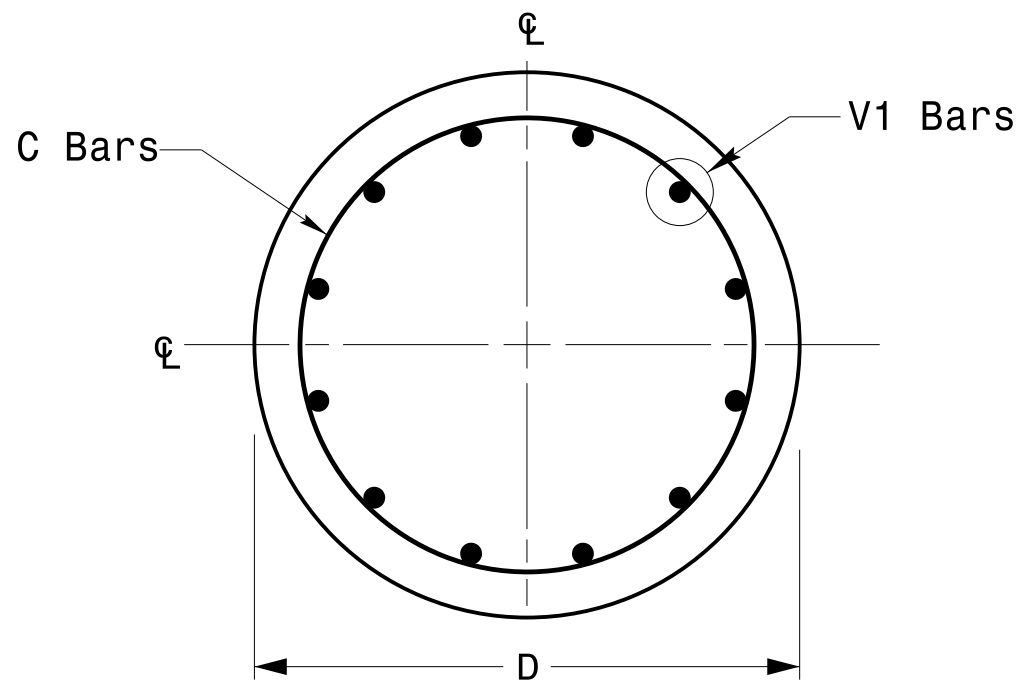
DocuSigned by:
Kevin Durigon
4B23DC79B3784DA...

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL
036626
KEYVIN C. DURIGON

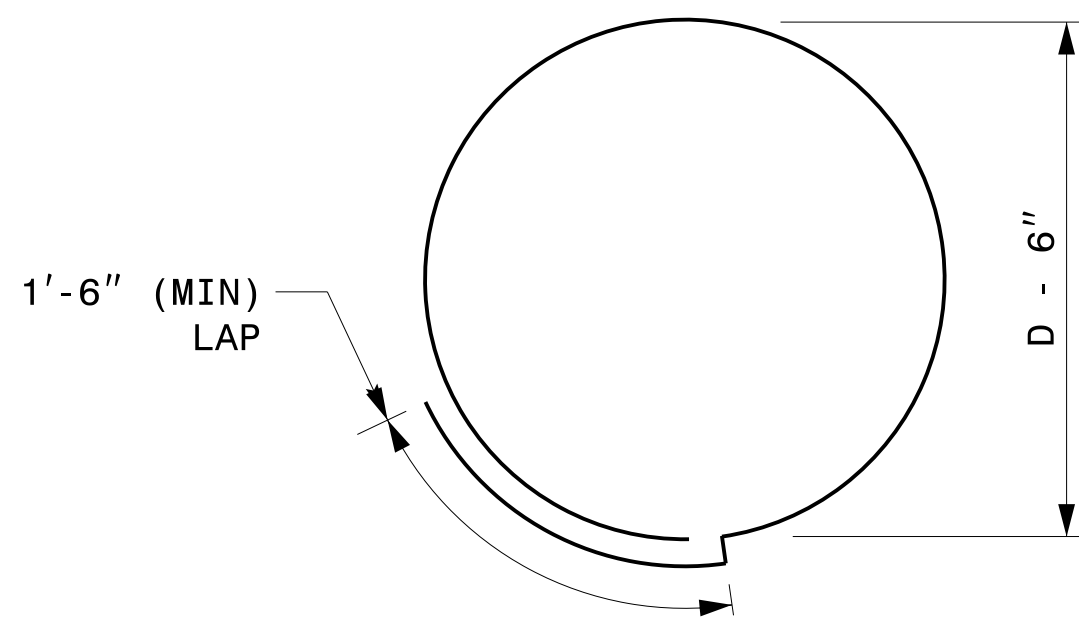
09/21/2023
DATE



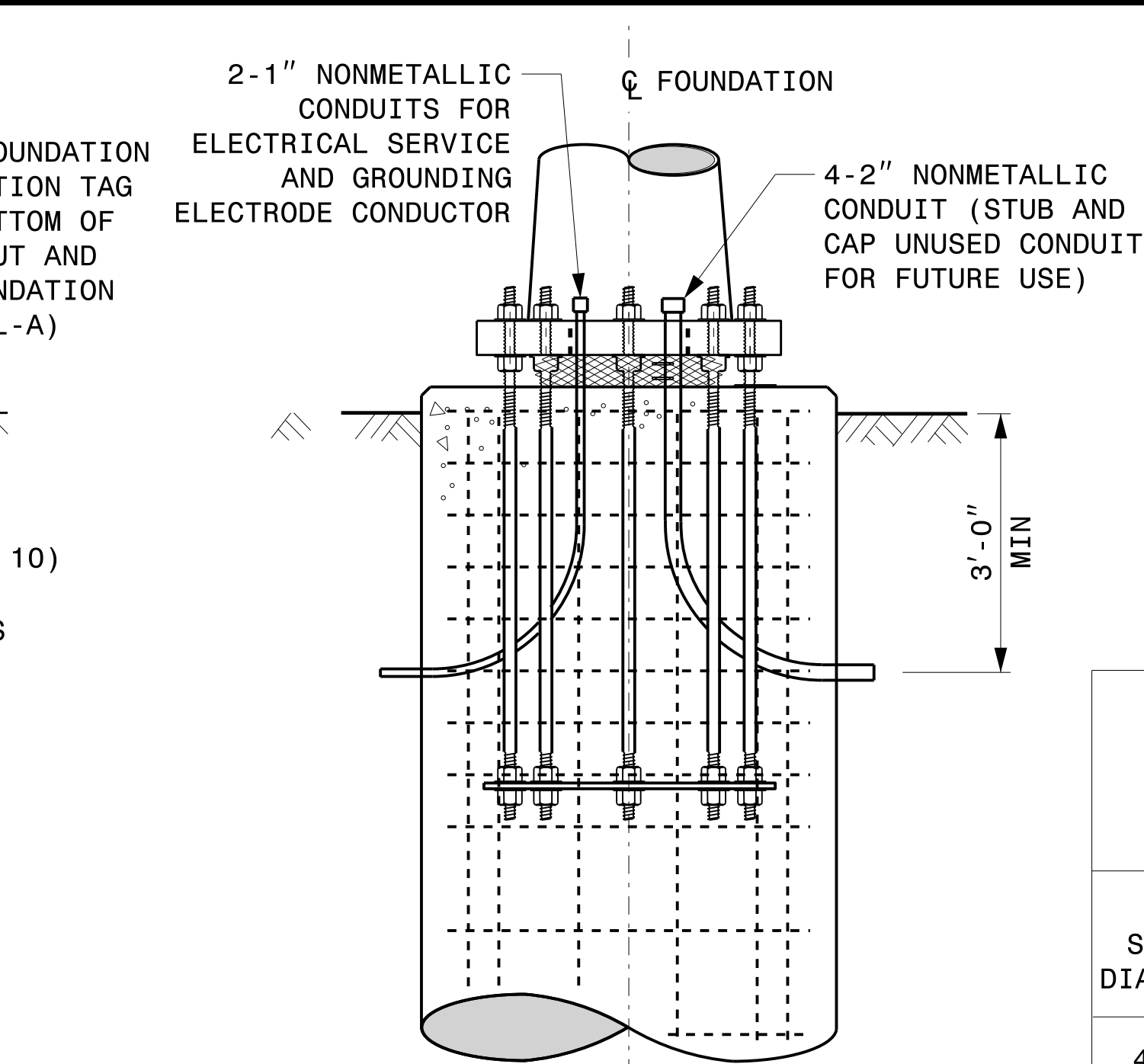
CONCRETE SHAFT ELEVATION



SECTION A-A



TYPICAL "C" BAR DETAIL



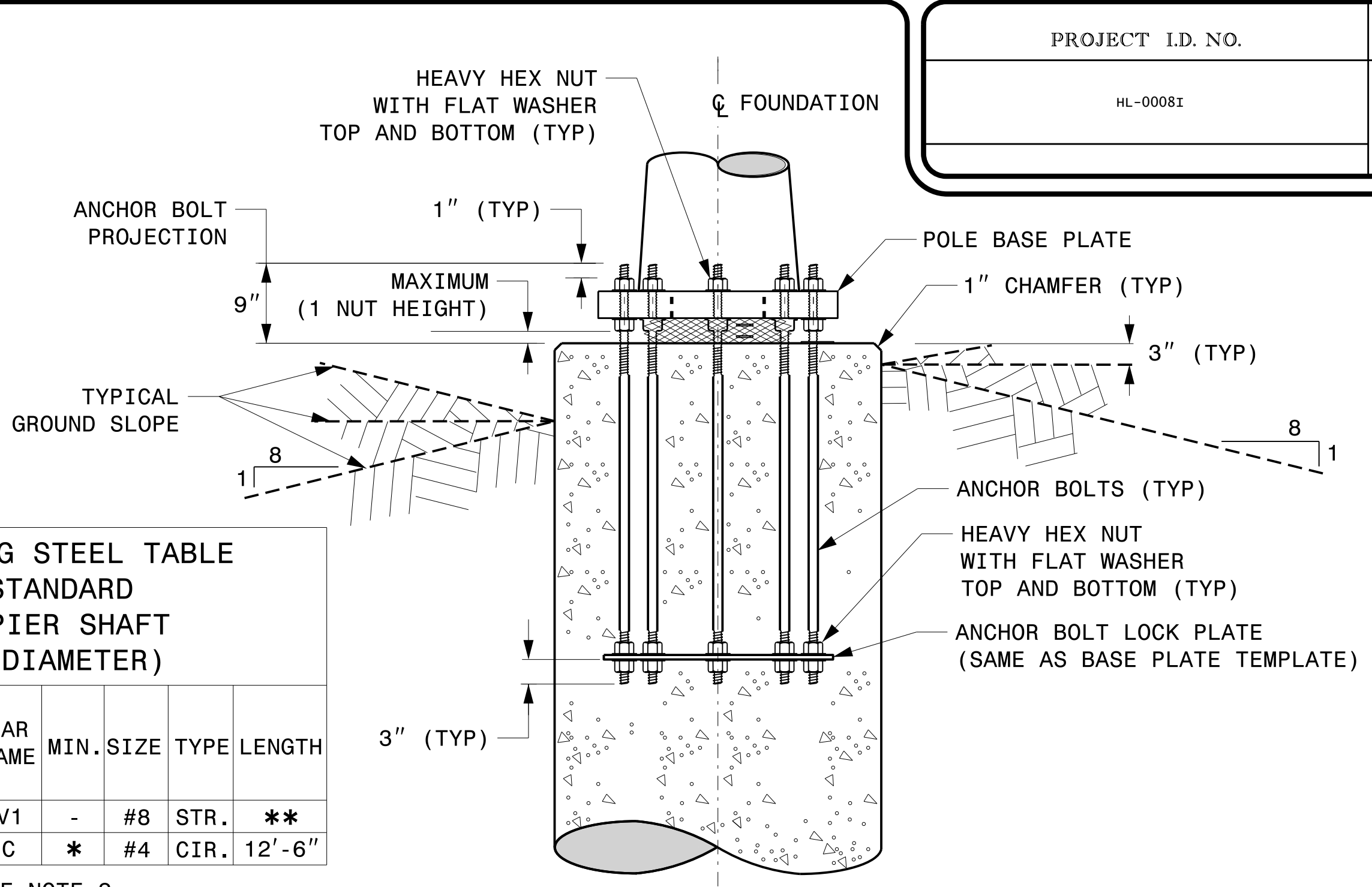
TYPICAL FOUNDATION CONDUIT DETAILS

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 2024 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](https://connect.ncdot.gov/resources/Specifications%20and%20Special%20Provisions.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 IDENTIFICATION TAG ON TOP OF THE FOUNDATION, DIRECTLY ABOVE THE CONDUIT'S ENTRY POINT.
- PROVIDE TWO LAYERS OF 4 MESH GALVANIZED WELDED 23 GAUGE (0.025) 6" WIDE 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.

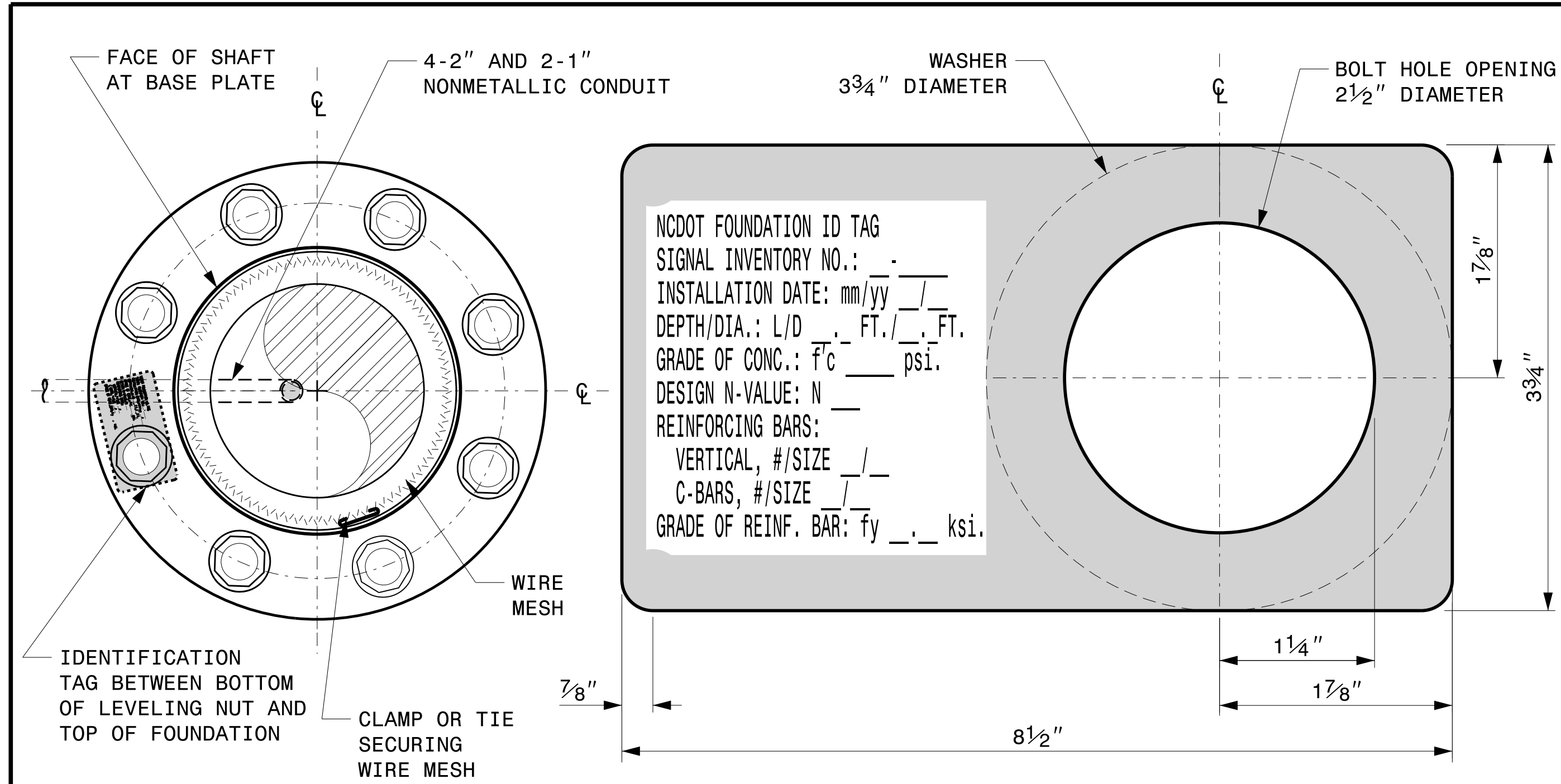
REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4'-0" DIAMETER)						
"D" SHAFT DIAMETER	CONCRETE VOLUME (CU. YDS)	BAR NAME	MIN. SIZE	TYPE	LENGTH	
4'-0"	.465 X L	V1	-	#8 STR.	**	
		C	*	#4 CIR.	12'-6"	

* SEE NOTE 2
** SEE NOTE 3



TYPICAL FOUNDATION ANCHOR BOLT DETAILS

(REINFORCING CAGE NOT SHOWN FOR CLARITY)



CONCRETE FOUNDATION IDENTIFICATION TAG DETAILS

DETAIL-A

D = DIAMETER
L = LENGTH / DEPTH
mm = MONTH
yy = YEAR

Prepared In the Offices of:



TRANSPORTATION MOBILITY AND SAFETY DIVISION
STATE OF NORTH CAROLINA
STANDARD DESIGN SECTION

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 NA
NONE

Construction Details
For
Foundations

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS
INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL 036626
KEYVIN C. DURIGON

DocuSigned by:
Kevin Durigon
4B23DC79B3784DA

09/23/2023
DATE

SOIL CONDITION

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.)
S26L1	26	22	2	9	210	19.5	12.5	9	6.5	15.5	14.5	13	8	12	4	12
S26L2	26	23	2	10	240	19.5	12	9	6.5	15.5	14.5	13	8	12	4	12
S26L3	26	25	2	11	260	20.5	12	10	8	16	15	13	8	12	4	12
S30L1	30	22	2	9	230	19	11	9	7	15.5	14	12.5	8	12	4	12
S30L2	30	23	2	10	270	20	12	10	8	16	14.5	13	8	12	4	12
S30L3	30	25	2	11	290	21	12	10	8	17	15	13.5	8	12	4	12
S30H1	30	25	3	13	355	23	13	11	9	18	16.5	14.5	8	12	4	12
S30H2	30	29	3	15	405	25	14	11	9	19	17.5	15.5	8	14	4	12
S30H3	30	29	3	16	430	26	15	12	9	20	18	16	8	14	4	6
S35L1	35	22	3	8	260	19.5	12	10	8	15.5	14.5	13	8	12	4	12
S35L2	35	23	3	10	300	21	12	10	8	16.5	15	13.5	8	12	4	12
S35L3	35	25	3	10	320	21.5	13	10	8	17	15.5	14	8	12	4	12
S35H1	35	25	3	12	390	23.5	14	11	9	18	17	15	8	14	4	12
S35H2	35	29	4	14	460	26	15	12	9	20	18	16	8	14	4	6
S35H3	35	29	4	16	495	28.5	15	13.5	10	21.5	19	17	8	14	4	6

48" DIAMETER FOUNDATION CONCRETE VOLUME (CUBIC YARDS) = (0.465) x DRILLED PIER LENGTH

GENERAL NOTES:

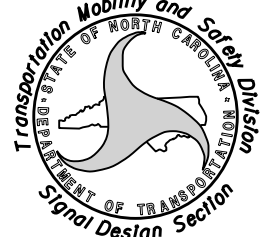
1. VALUES SHOWN IN THE "REACTIONS AT THE POLE BASE" COLUMN REPRESENT THE MINIMUM ACCEPTABLE CAPACITY ALLOWED FOR DESIGN USING A COMBINED FORCE RATIO (CFR) OF 1.00.
2. USE CHAIRS AND SPACERS TO MAINTAIN PROPER CLEARANCE.
3. FOR FOUNDATION, ALWAYS USE AIR-ENTRAINED CONCRETE MIX.

FOUNDATION SELECTION:

1. PERFORM A STANDARD PENETRATION TEST AT EACH PROPOSED FOUNDATION SITE TO DETERMINE "N" VALUE.
2. SELECT THE APPROPRIATE WIND ZONE FROM M1 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 MANUAL FOR DRILLED SHAFTS.

09-01-2024 10:48 S:\ISSUES\Signal Design Section\Structures\Drawings\2024 Merai Pole Str Drawings for LRF02024 Sig.M8 Str. Strain Pole Found.-Saturated Soil Condition.dgn kcdur.fgn

Prepared In the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

0

SCALE

NA

NONE

Standard Strain Pole Foundation for All Soil Conditions

PLAN DATE: SEPTEMBER 2023

DESIGNED BY: K.C. DURIGON

PREPARED BY: K.C. DURIGON

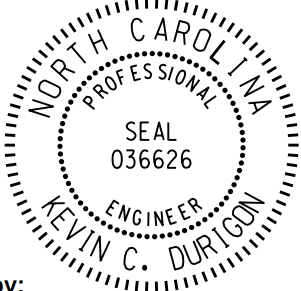
REVIEWED BY: D.C. SARKAR

REVISIONS

INIT.

DATE

SEAL



ENGINEER

KEVIN C. DURIGON

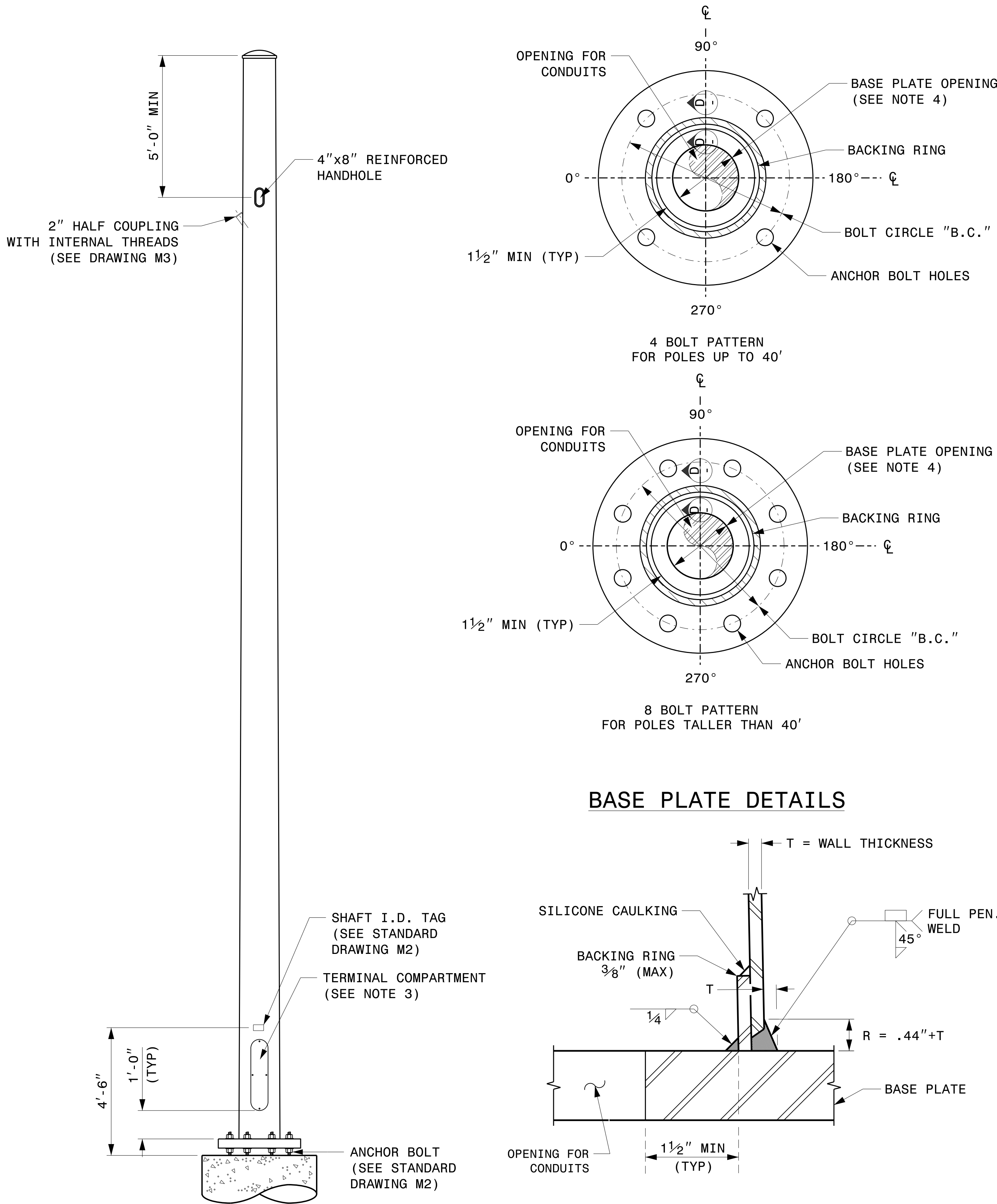
DocuSigned by:



4B23DC79B3784DA

09/21/2023

DATE



- NOTES:
1. THIS DRAWING PROVIDES BASIC DETAILS FOR CCTV POLES. PROJECT REQUIREMENTS MAY REQUIRE SPECIAL FACTORY PREPS THAT ARE NOT SHOWN ON THESE DETAILS.
 2. DETAILS FOR INTERNAL CAMERA LOWERING SYSTEMS ARE NOT SHOWN.
 3. POLE MOUNTED CABINETS MAY REQUIRE MODIFICATIONS TO THE LOWER HANDHOLE OPENING TO MOUNT CABINETS. 4" X 8" REINFORCED HANDHOLES ARE ACCEPTABLE OPTIONS, AND MAY BE PREFERRED.
 4. OPENING IN POLE BASE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3 1/2" BUT SHALL NOT BE LESS THAN 8 1/2".
 5. USE COMPACT SECTION CRITERIA D/T RATIO PER AASHTO LTS-LRFD 1ST EDITION SECTION 5.7.2.

CCTV CAMERA POLE
(NOT TO SCALE)

SECTION D-D
(POLE ATTACHMENT TO BASE PLATE)
FULL - PENETRATION
GROOVE WELD DETAIL

Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	Typical Fabrication Details For CCTV Poles	SEAL DocuSigned by: 4B23DC79B3784DA...	
	PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON		
	PREPARED BY: K.C. DURIGON REVIEWED BY: C.F. ANDREWS		
SCALE: 0 = NA	REVISIONS	INIT. DATE	

- 1

INSTALL COAX CABLE
- 2

INSTALL ETHERNET CABLE
- 3

EXISTING ETHERNET (OR COAX) CABLE
- 4

INSTALL SMFO CABLE
- 5

EXISTING SMFO 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

INSTALL NEW ETHERNET EDGE SWITCH
- 27

INSTALL NEW FIBER OPTIC TRANSCEIVER
- 28

INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS
AND FUSION SPLICE CABLE IN CABINET
- 29

INSTALL UNDERGROUND SPLICE ENCLOSURE
- 30

INSTALL AERIAL SPLICE ENCLOSURE
- 31

MODIFY EXISTING INTERCONNECT CENTER / SPLICE ENCLOSURE
- 32

INSTALL POLE MOUNTED SPLICE CABINET
- 33

INSTALL BASE MOUNTED SPLICE CABINET

- 34

INSTALL CABINET FOUNDATION
- 35

INSTALL CCTV CAMERA POLE MOUNTED CABINET
- 36

INSTALL CCTV CAMERA ASSEMBLY
- 37

INSTALL CCTV CAMERA WOOD POLE
- 38

INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39

INSTALL JUNCTION BOX
- 40A

INSTALL OVERSIZED JUNCTION BOX
- 40B

INSTALL SPECIAL OVERSIZED JUNCTION BOX (36" x 24" x 24")
- 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
- 48A

REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 48B

REMOVE EXISTING COMMUNICATIONS CABLE
- 49

BACK PULL EXISTING COMMUNICATIONS CABLE
- 50

INSTALL CELL MODEM AND ANTENNA
- 51

INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE
100 FEET OF CABLE
- 52A

INSTALL DELINEATOR MARKER
- 52B

INSTALL JUNCTION BOX MARKER
- 53A

STORE 20 FEET OF COMMUNICATIONS CABLE
- 53B

STORE 50 FEET OF EACH COMMUNICATIONS CABLE
- 54

LASH CABLE(S) TO EXISTING 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

INSTALL NEW EQUIPMENT CABINET DISCONNECT
- 60

BOND TRACER WIRE TO EQUIPMENT
GROUND BUS
DO NOT BOND TRACER WIRE TO
EQUIPMENT GROUND BUS
BOND RISER AND MESSENGER CABLE
TO POLE GROUND
- 61

DO NOT BOND TRACER WIRE TO
EQUIPMENT GROUND BUS
- 62

BOND RISER AND MESSENGER CABLE
TO POLE GROUND
- 63

BOND RISER TO POLE GROUND
- 64

BOND MESSENGER CABLE TO POLE GROUND
- 65

INSTALL HEAT SHRINK TUBING RETROFIT KIT
- 66

INSTALL MOLDABLE DUCT SEAL
- 67

SLACK SPAN

LEGEND	
	FO
	NEW FIBER OPTIC 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

NEW

- OVERSIZED JUNCTION BOX
- WOOD POLE
- S

AERIAL SPLICE ENCLOSURE
- S

UNDERGROUND SPLICE ENCLOSURE
- METAL POLE
- CCTV ASSEMBLY
- STANDARD GUY ASSEMBLY
- SIDEWALK GUY ASSEMBLY
- CABLE STORAGE RACKS (SNOW SHOES)
- SIGNAL/EQUIPMENT CABINET
- S

SPLICE CABINET
- FLAT PANEL ANTENNA (SINGLE)
- YAGI ANTENNA (DOUBLE) FOR
REPEATER OPERATION
- YAGI ANTENNA (SINGLE)
- OMNI ANTENNA
- SP

SIGNAL POLE
- XX-XXXX

SIGNAL INVENTORY NUMBER

EXISTING

- OVERSIZED JUNCTION BOX
- WOOD POLE
- S

AERIAL SPLICE ENCLOSURE
- S

UNDERGROUND SPLICE ENCLOSURE
- METAL POLE
- CCTV ASSEMBLY
- STANDARD GUY ASSEMBLY
- SIDEWALK GUY ASSEMBLY
- CABLE STORAGE RACKS (SNOW SHOES)
- SIGNAL/EQUIPMENT CABINET
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SPLICE CABINET
- FLAT PANEL ANTENNA (SINGLE)
- YAGI ANTENNA (DOUBLE) FOR
REPEATER OPERATION
- YAGI ANTENNA (SINGLE)
- OMNI ANTENNA
- SP

SIGNAL POLE
- XX-XXXX

SIGNAL INVENTORY NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

- XX

INDICATES NUMBER OF CABLES, LOOPS, ETC.
- XX

INDICATES NUMBER OF FIBERS PER CABLE,
TWISTED PAIRS PER CABLE, ETC.
- XX

INDICATES NUMBER OF RISER(S) / CONDUIT(S)
- XX

INDICATES DIAMETER OF RISER(S) / CONDUIT(S) (INCH)
- XX

NUMBER
OF
CABLE(S)
- XX

NUMBER
OF
FIBERS/TWISTED PAIRS
- XX

NEW/ EXISTING CABLE
- XX

REMOVE/ MODIFY CABLE
- XX

CONDUIT/ RISER
- XX

NUMBER
OF
RISER(S)/CONDUIT(S)
- XX

DIAMETER
OF
RISER(S)/CONDUIT(S) (INCH)

ATTACHMENT POINT:

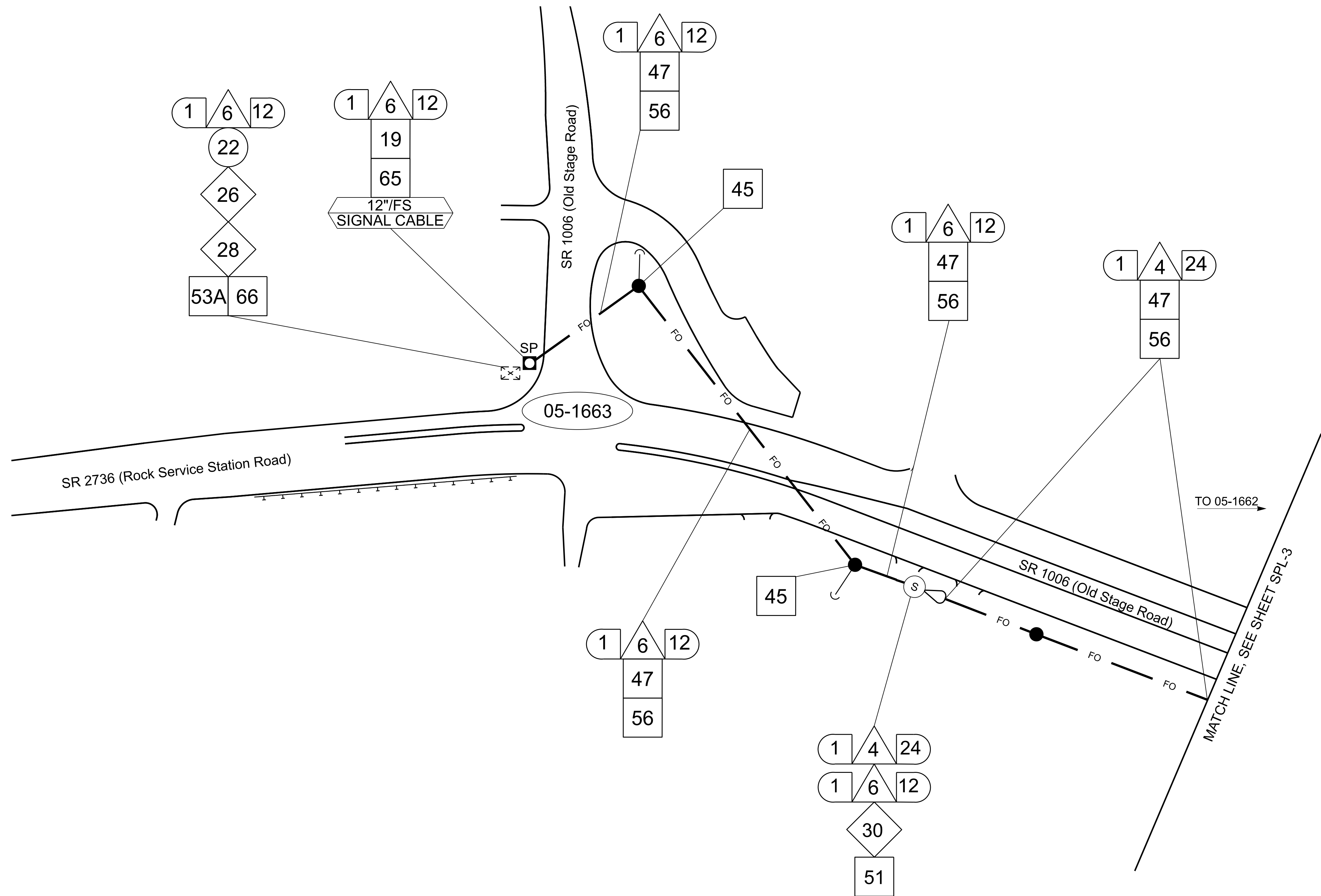
- XX"/SS
YYY

DISTANCE ABOVE (IN)/ATTACHMENT POINT
REFERENCE POINT
- YYY
XX"/SS

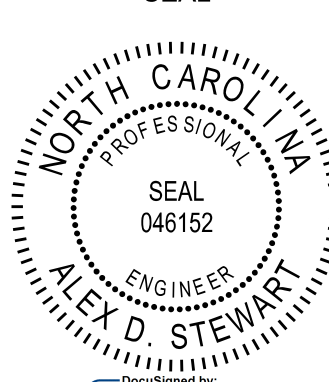
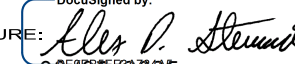
REFERENCE POINT
DISTANCE BELOW (IN)/ATTACHMENT POINT

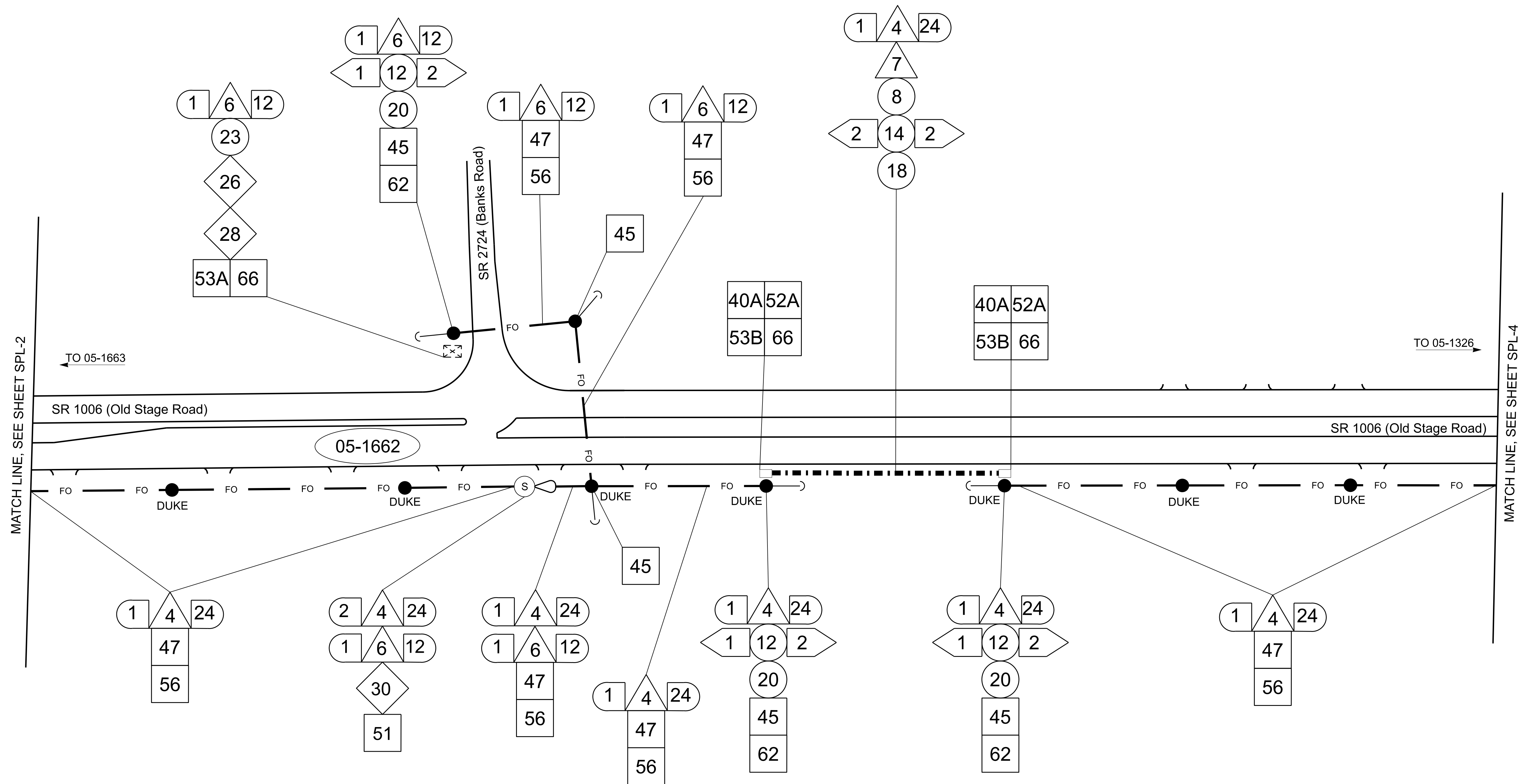
"SS" REFERENCE LOCATION
FS = FRONT SIDE OF POLE
BS = BACK SIDE OF POLE

Prepared in the Offices of:		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TRANSPORTATION MOBILITY AND SAFETY DIVISION DEPARTMENT OF TRANSPORTATION 750 N. Greenfield Pkwy., Garner, NC 27529 WAKE COUNTY	CONSTRUCTION NOTES		SEAL NORTH CAROLINA PROFESSIONAL SEAL 046152 ENGINEER ALEX D. STEWART SIGNATURE: <i>Alex D. Stewart</i> DATE: 08/07/2025
	DIVISION 5	WAKE COUNTY	FUQUAY VARINA
	PLAN DATE: AUGUST 2025	REVIEWED BY: GREGG GREEN	
	PREPARED BY: M. DIAZ		
REVISIONS		INIT.	DATE

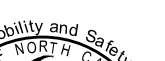
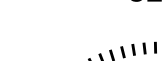


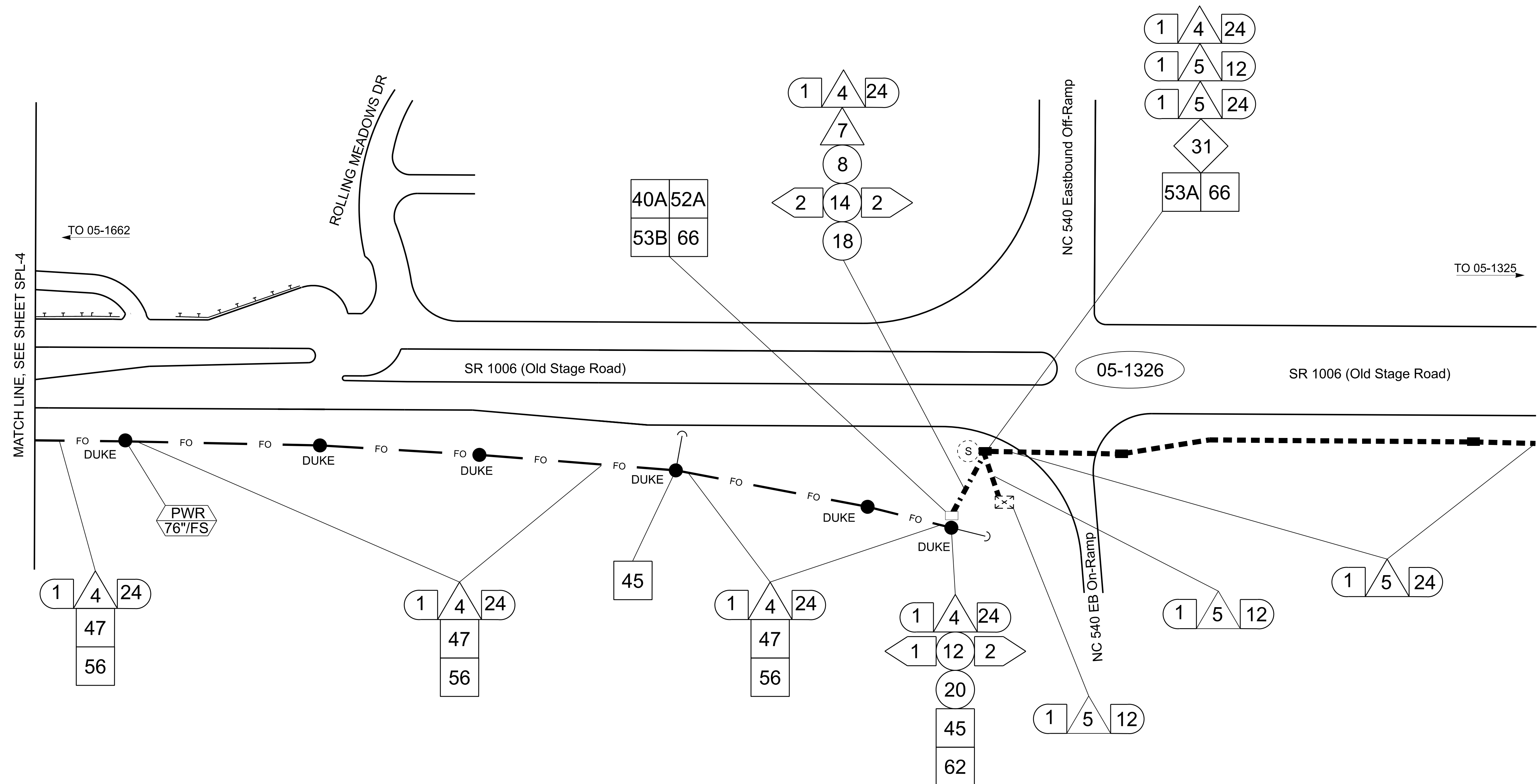
1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 5 TRAFFIC ENGINEER AT (919) 536-4000 TO ARRANGE FOR THE TOWN TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE DIVISION 5 TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNALSYSTEM IS BACK UP AND OPERATIONAL.
2. ALL NCDOT ATTACHMENTS ARE 64" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

Prepared in the Offices of:  750 N. Greenfield Pkwy., Garner, NC 27529  0SCALEN/A	D05-17 Fuquay-Varina COMMUNICATIONS AND CABLE ROUTING PLANS <table><tr><td>DIVISION 5</td><td>WAKE COUNTY</td><td>FUQUAY VARINA</td></tr><tr><td>PLAN DATE: AUGUST 2025</td><td colspan="2">REVIEWED BY: GREGG GREEN</td></tr><tr><td>PREPARED BY: M. DIAZ</td><td colspan="2"></td></tr><tr><td>REVISIONS</td><td>INIT.</td><td>DATE</td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>	DIVISION 5	WAKE COUNTY	FUQUAY VARINA	PLAN DATE: AUGUST 2025	REVIEWED BY: GREGG GREEN		PREPARED BY: M. DIAZ			REVISIONS	INIT.	DATE										DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL  ALEX D. STEWART ENGINEER SIGNATURE:  DATE: 08/07/2025
	DIVISION 5	WAKE COUNTY	FUQUAY VARINA																				
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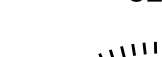


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750 N. Greenfield Pkwy., Garner, NC 27529 	SCALE 0 N/A 	Revisions: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">REVISONS</th> <th style="width: 20%;">INT.</th> <th style="width: 20%;">DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISONS	INT.	DATE																														
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2. ALL NCDOT ATTACHMENTS ARE 64" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

Prepared in the Office of:  750 N. Greenfield Pkwy., Garner, NC 27529	D05-17 Fuquay-Varina COMMUNICATIONS AND CABLE ROUTING PLANS	SEAL  SEAL 046152 ENGINEER ALEX D. STEWART
DIVISION 5 WAKE COUNTY FUQUAY VARINA		
PLAN DATE: AUGUST 2025 REVIEWED BY: GREGG GREEN		
PREPARED BY: M. DIAZ		
SCALE  0 N/A	REVISIONS	INT. DATE
		Drawn by: 
		SIGNATURE: Alex D. Stewart DATE: 08/07/2025

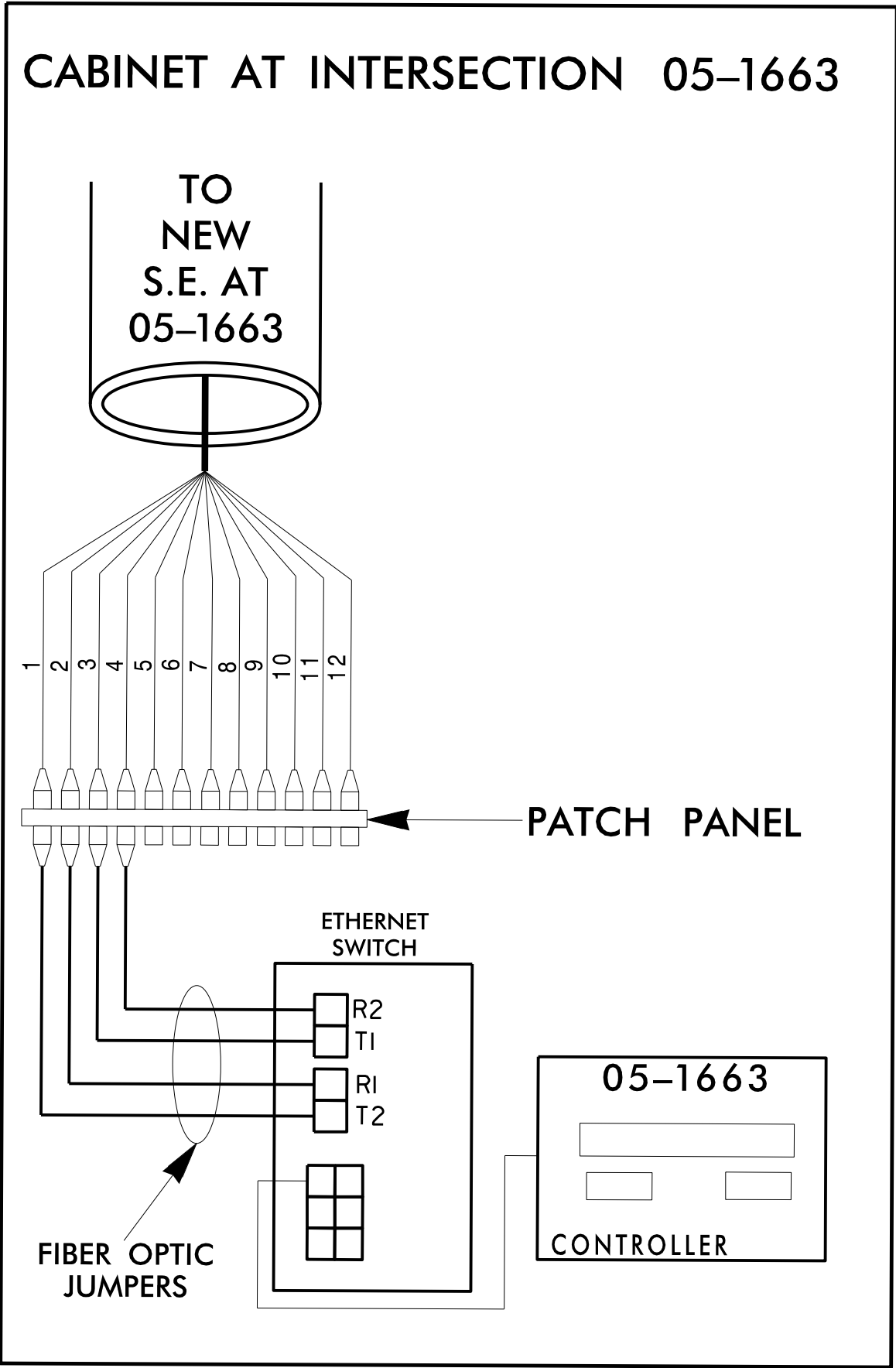
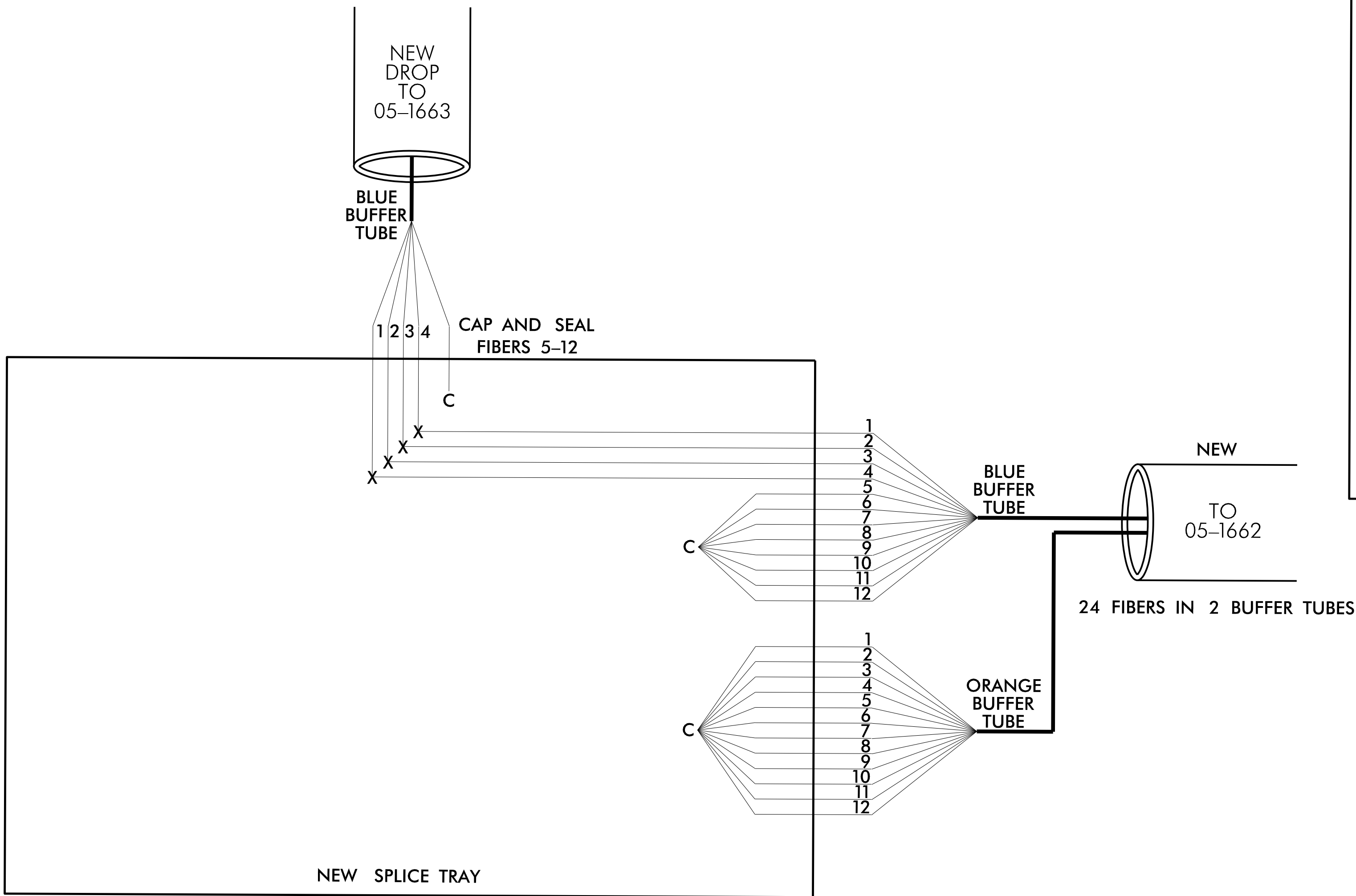
AERIAL SPLICE ENCLOSURE
SR 1006/OLD STAGE RD AT
SR 2736/ROCK SERVICE STATION RD
SIG. INV. # 05-1663

Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

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 |

LEGEND
X = FUSION SPLICE
E = EXISTING SPLICE
C = CAP IN TRAY



1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 5 TRAFFIC ENGINEER AT 919-536-4000 TO ARRANGE FOR THE TOWN TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. 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 DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
3. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
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.

Prepared in the Offices of:		SEAL	
750 N. Greenfield Pkwy., Garner, NC 27529		SIGNATURE: <i>Alex D. Stewart</i> DATE: 08/07/2025	
SPlicing DETAIL D05-17 Fuquay-Varina		DIVISION 5 WAKE COUNTY FUQUAY VARINA	
PLAN DATE: AUGUST 2025		REVIEWED BY: GREGG GREEN	
PREPARED BY: M. DIAZ			
REVISIONS		INIT. DATE	

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

AERIAL SPLICE ENCLOSURE
SR 1006/OLD STAGE RD AT
SR 2724 BANKS RD
SIG. INV. # 05-1662

Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

COLOR CODE
TIA/EIA 598-A

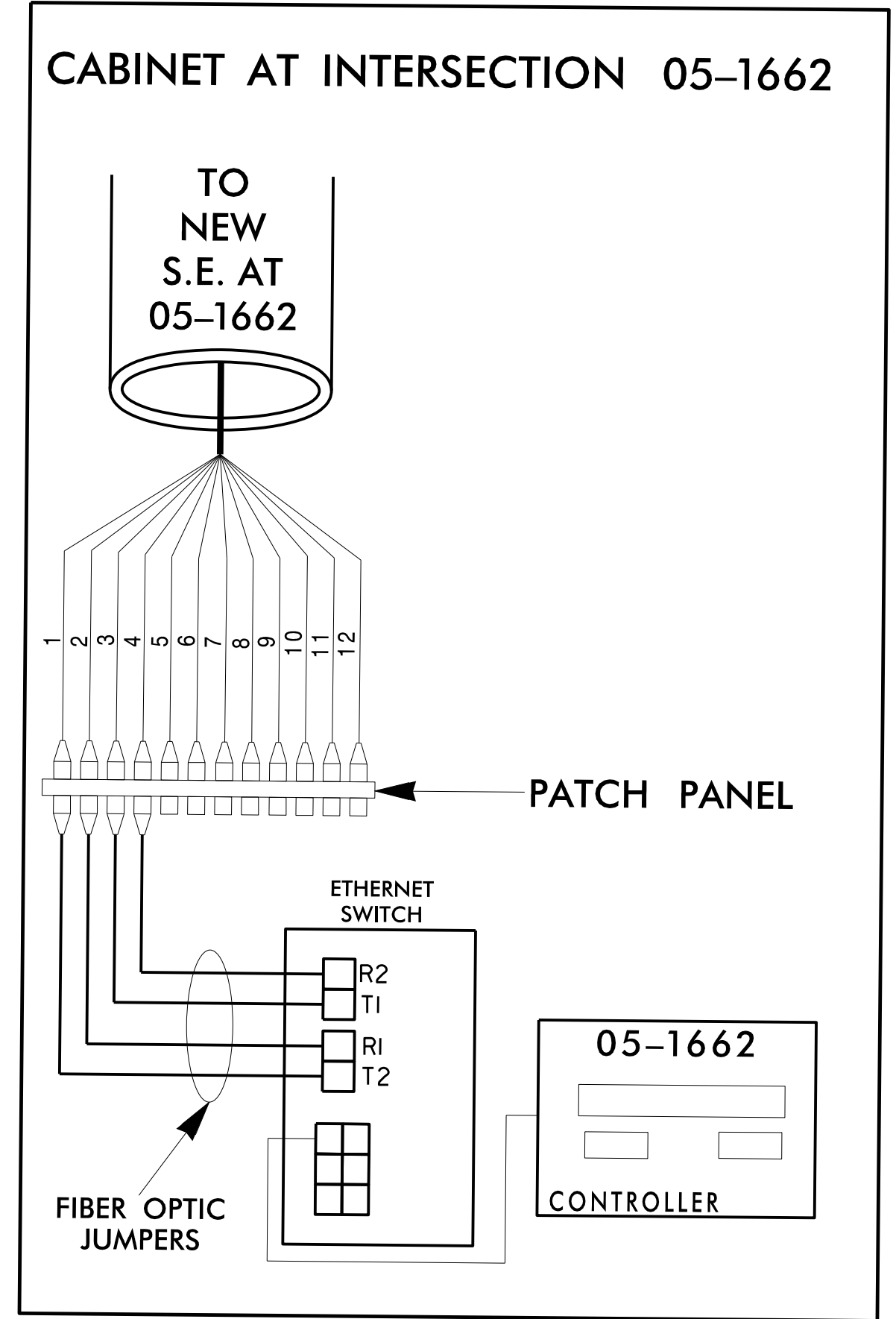
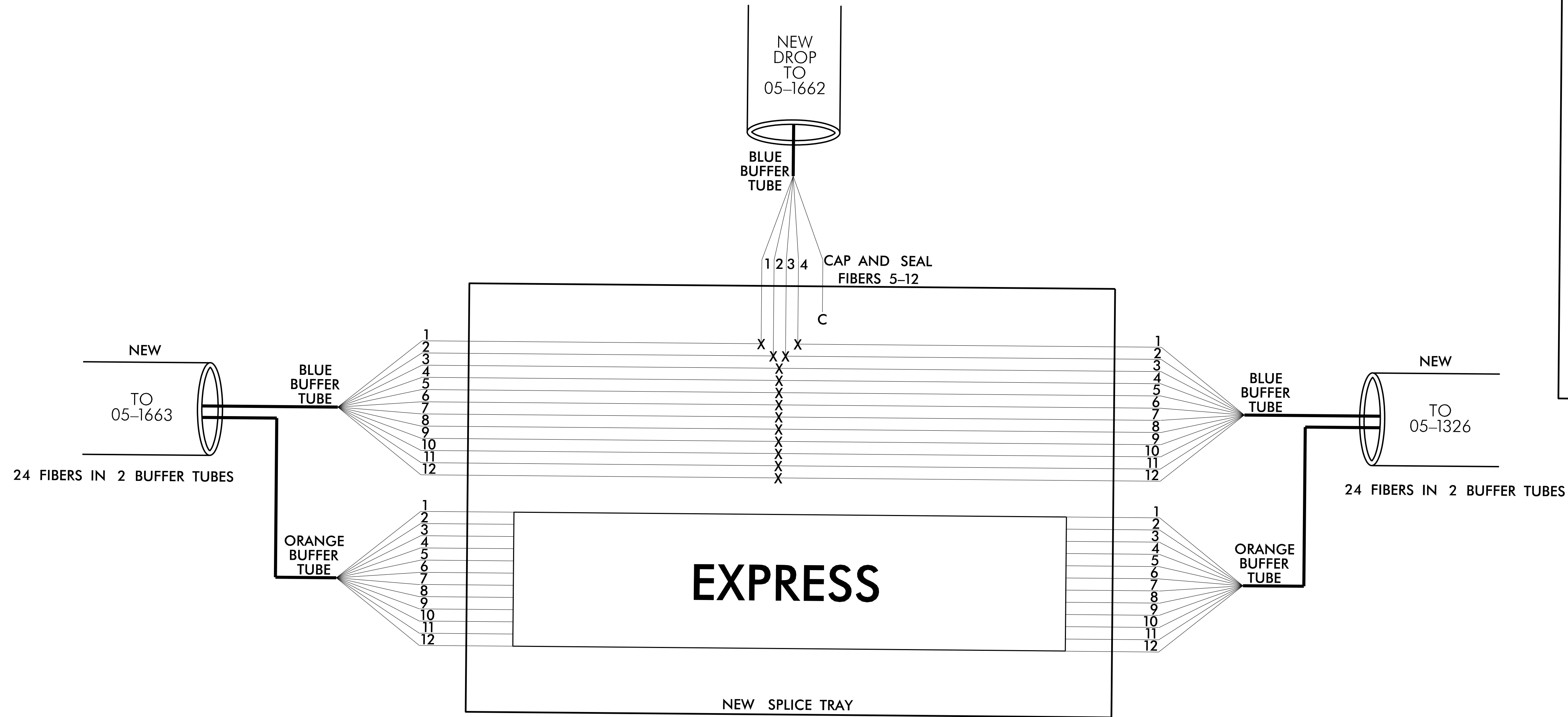
- | | |
|------------|-------------|
| (1) BLUE | (7) RED |
| (2) ORANGE | (8) BLACK |
| (3) GREEN | (9) YELLOW |
| (4) BROWN | (10) VIOLET |
| (5) SLATE | (11) ROSE |
| (6) WHITE | (12) AQUA |

LEGEND

- X = FUSION SPLICE
E = EXISTING SPLICE
C = CAP IN TRAY

EXPRESS = EXPRESS ALL FIBERS/
BUFFER TUBES

SPLICE = SPLICE ALL FIBERS/
BUFFER TUBES



1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 5 TRAFFIC ENGINEER AT 919-536-4000 TO ARRANGE FOR THE TOWN TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. 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 DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
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Prepared in the Offices of:		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
			
750 N. Greenfield Pkwy., Garner, NC 27529		SEAL 046152 ALEX D. STEWART ENGINEER	
SPLICING DETAIL D05-17 Fuquay-Varina		SIGNATURE: <i>Alex D. Stewart</i> DATE: 08/07/2025	
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PLAN DATE: AUGUST 2025 REVIEWED BY: GREGG GREEN			
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