

09-01-2023 12:21 S:\ITS\SSM\15 Signal Structures\Drawings\2024 Metal Pole (10-yr MRI).dgn kdurigon

NCDOT METAL POLE STANDARDS

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

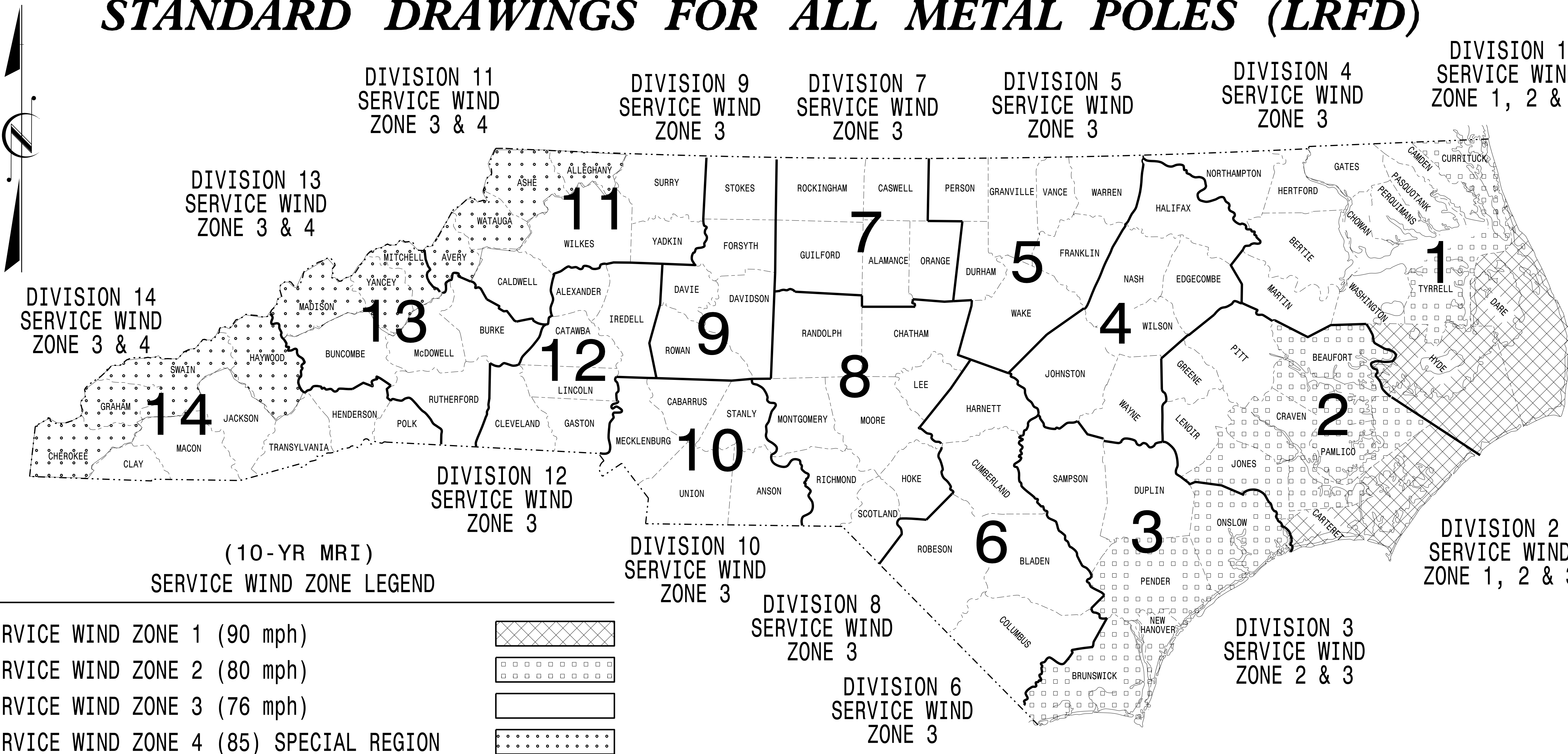
PROJECT I.D.NO.

SHEET NO.

I-5880

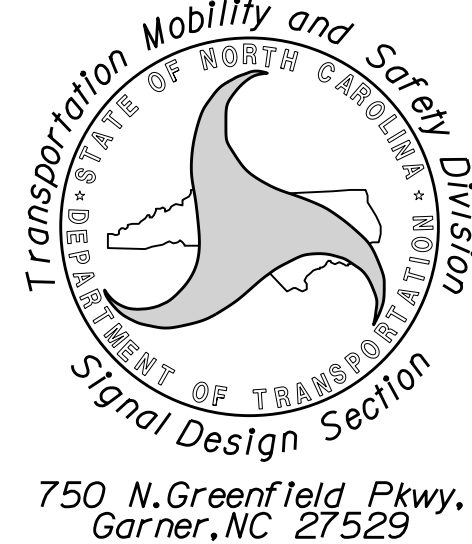
Sig.M1B

STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)



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

Prepared in the Offices of:



750 N. Greenfield Pkwy.
Garner, NC 27529

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

**AASHTO
LRFD**

Standard Specifications for
Highway Signs, Luminaires,
and Traffic Signals

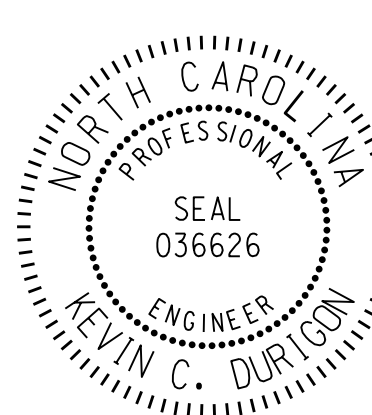
**DRAWING
NUMBER**

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

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K. DURIGON, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER
B. WALKER, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER

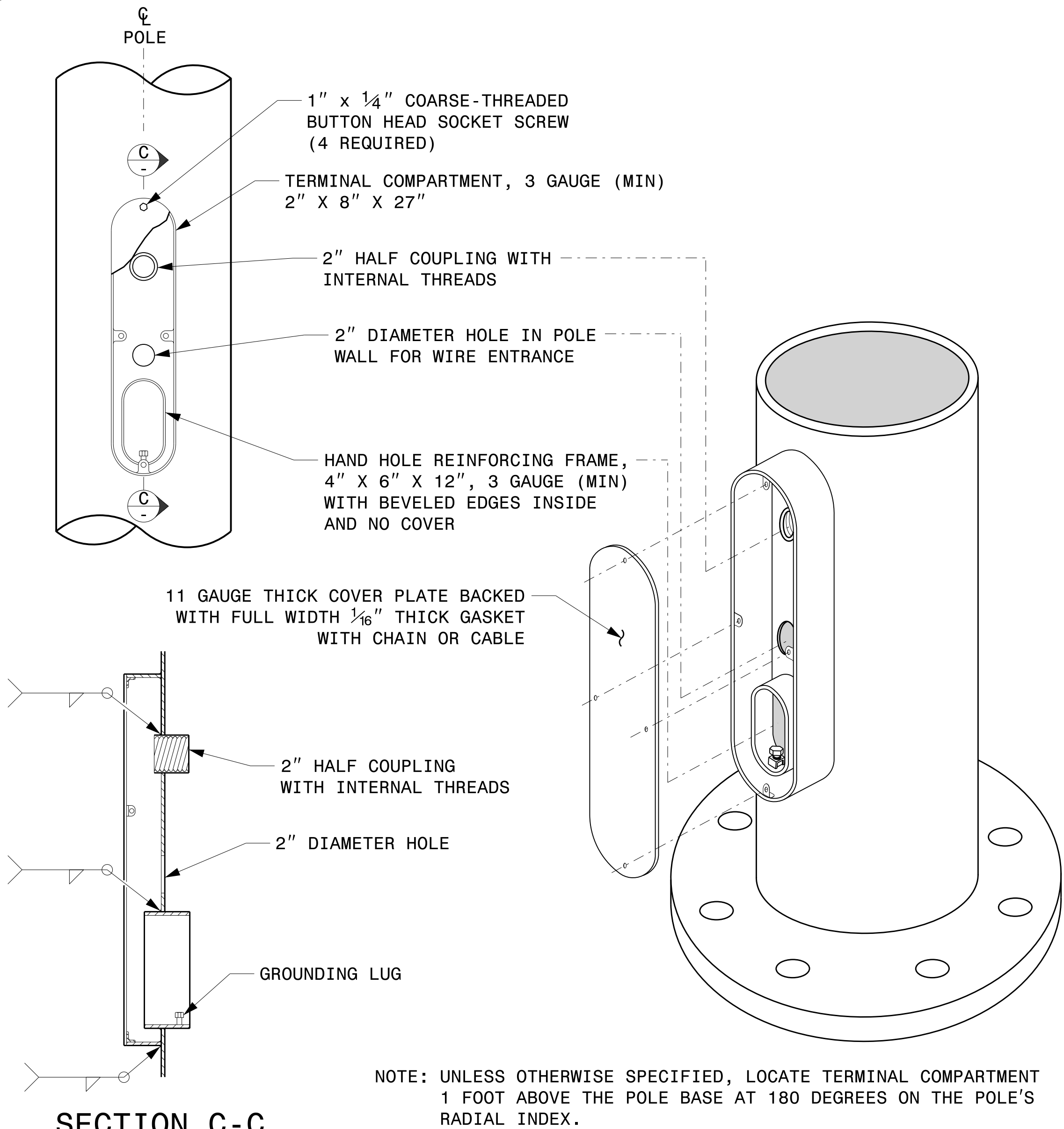
SEAL



DocuSigned by:

Kevin Durigon
SIGNATURE
4B23DC79B3784DA

09/21/2023
DATE



SECTION C-C

TERMINAL COMPARTMENT DETAIL

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)

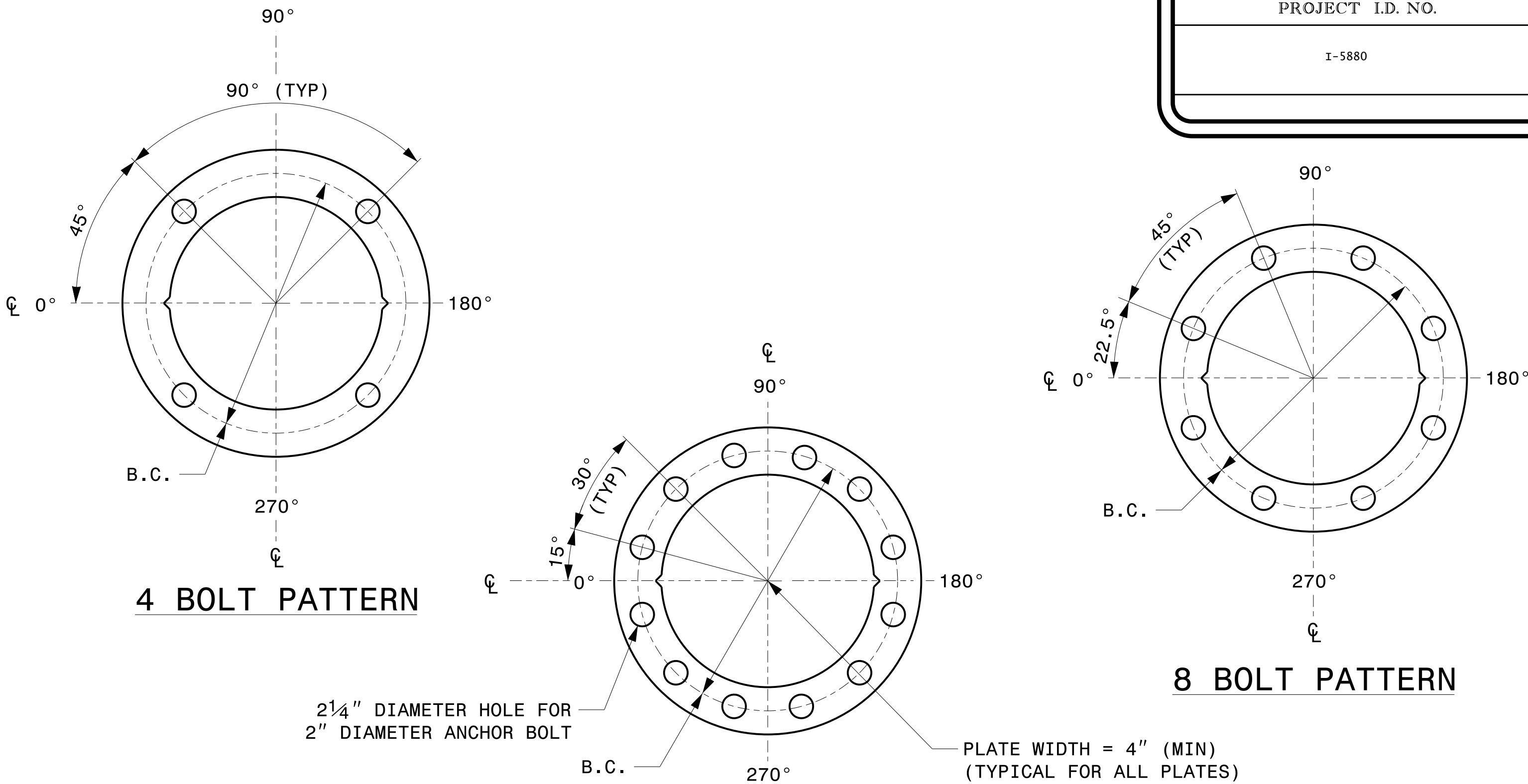
MFG _____	MFG. DATE: MM/YY _____
SECTION D/T/L/Y _____	_____
NCDOT SIG. INV. NO. _____	_____
NCDOT POLE NO. _____	_____

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

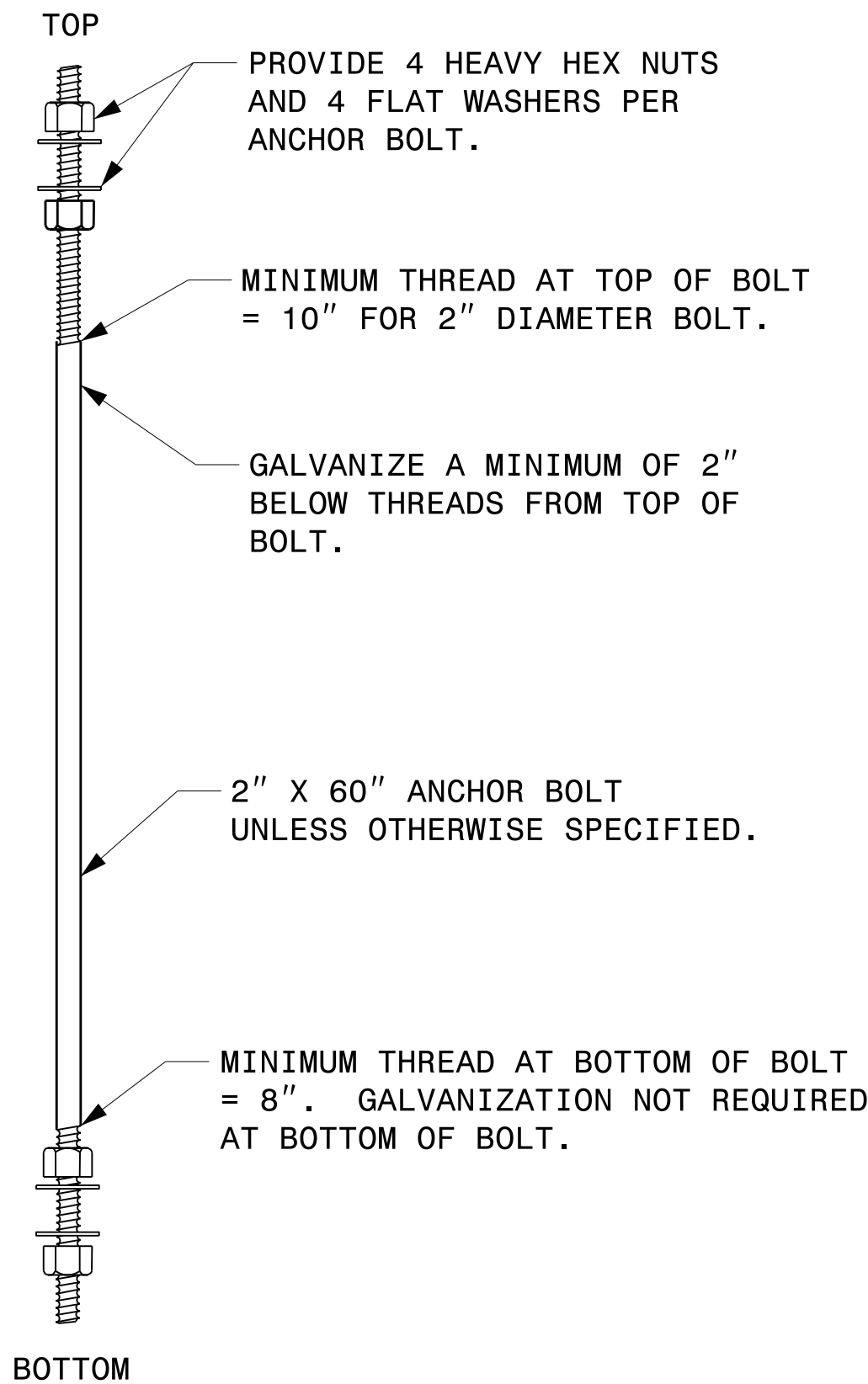
NOTES:

- 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.

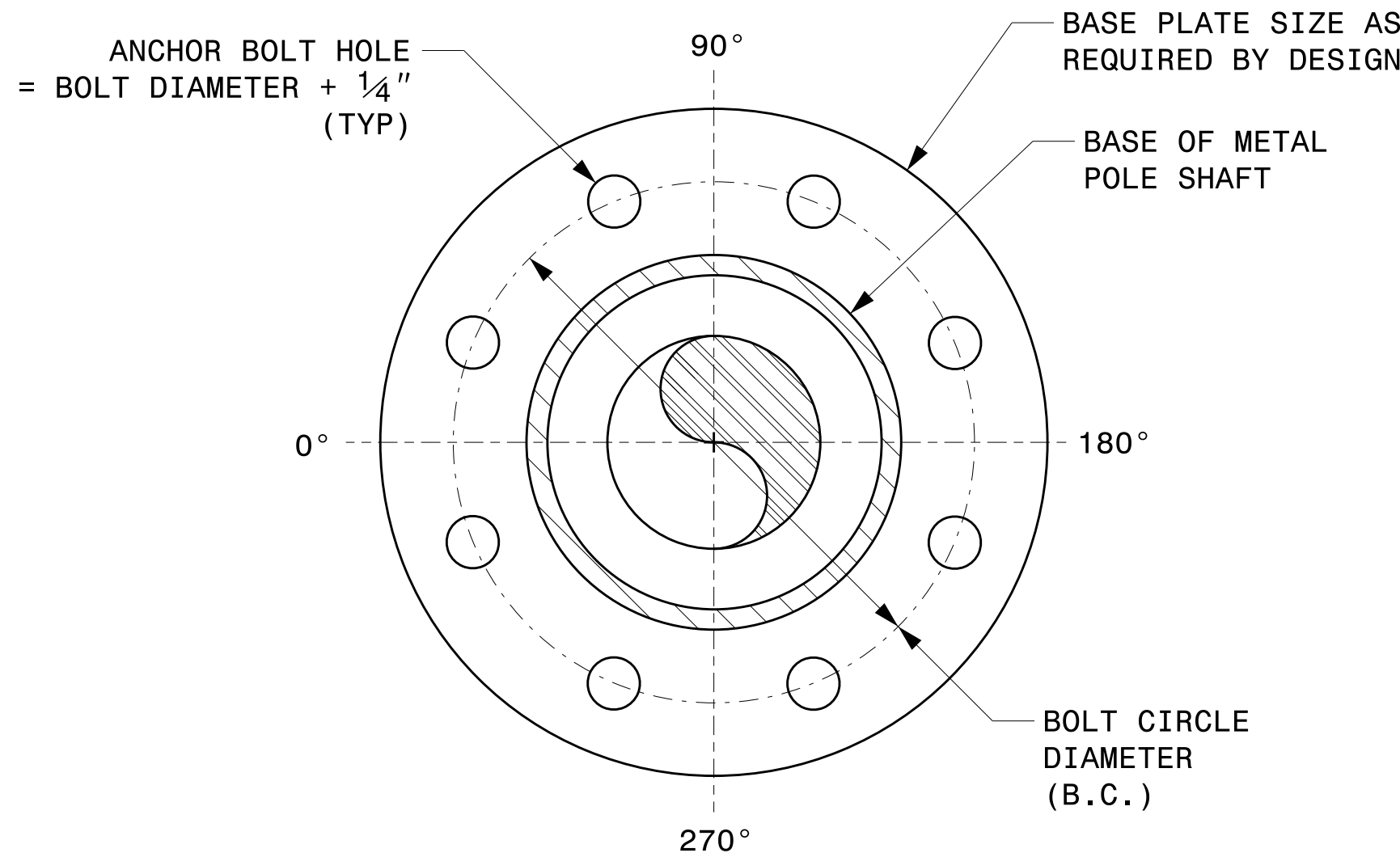
IDENTIFICATION TAG DETAILS



BASE PLATE TEMPLATE AND ANCHOR BOLT LOCK PLATE DETAILS



ANCHOR BOLT DETAIL



NOTE: BASE PLATE MAY BE CIRCULAR, OCTAGONAL, SQUARE OR RECTANGULAR IN SHAPE.

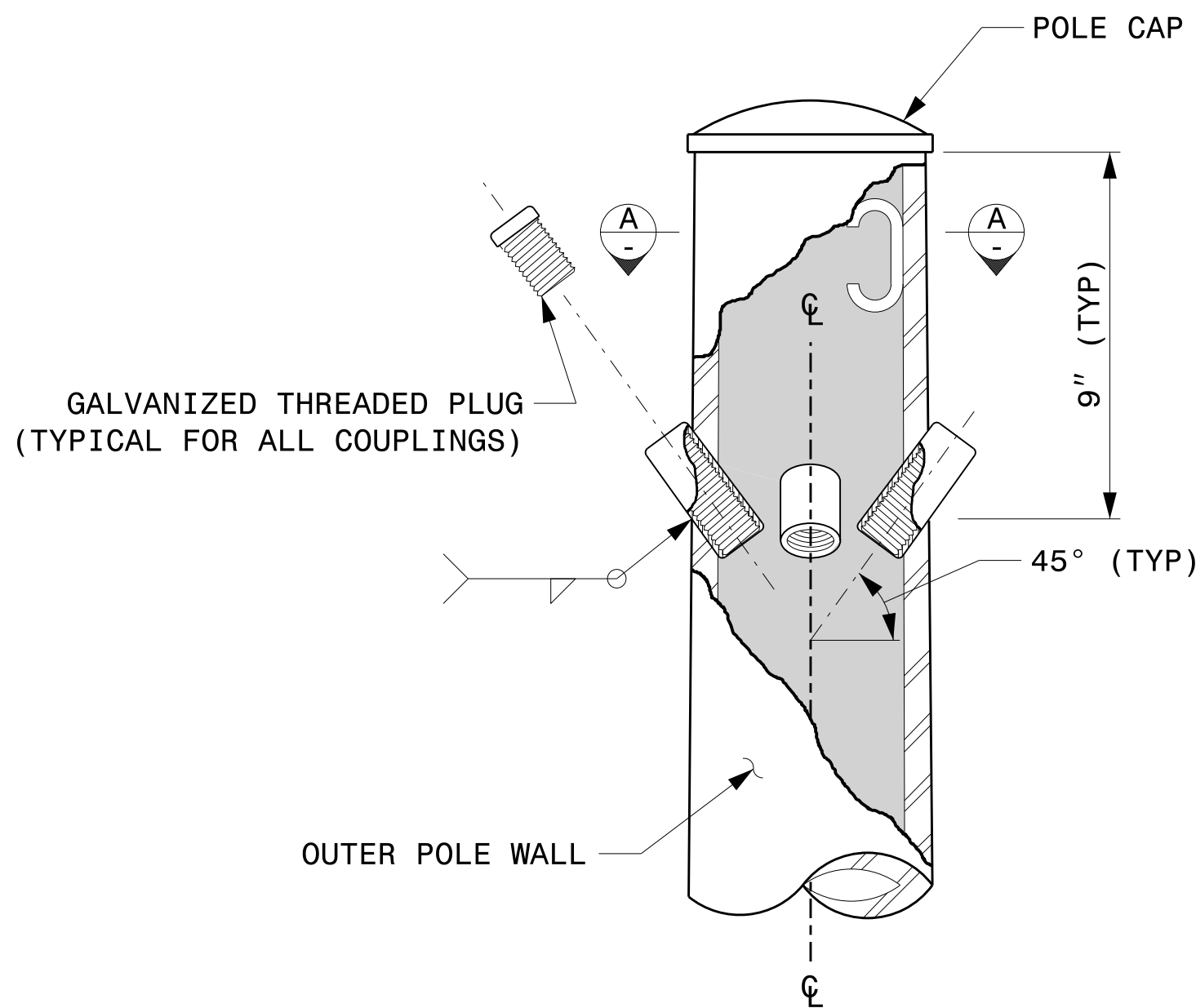
TYPICAL BASE PLATE DETAIL

Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	Typical Fabrication Details For All Metal Poles		SEAL 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	

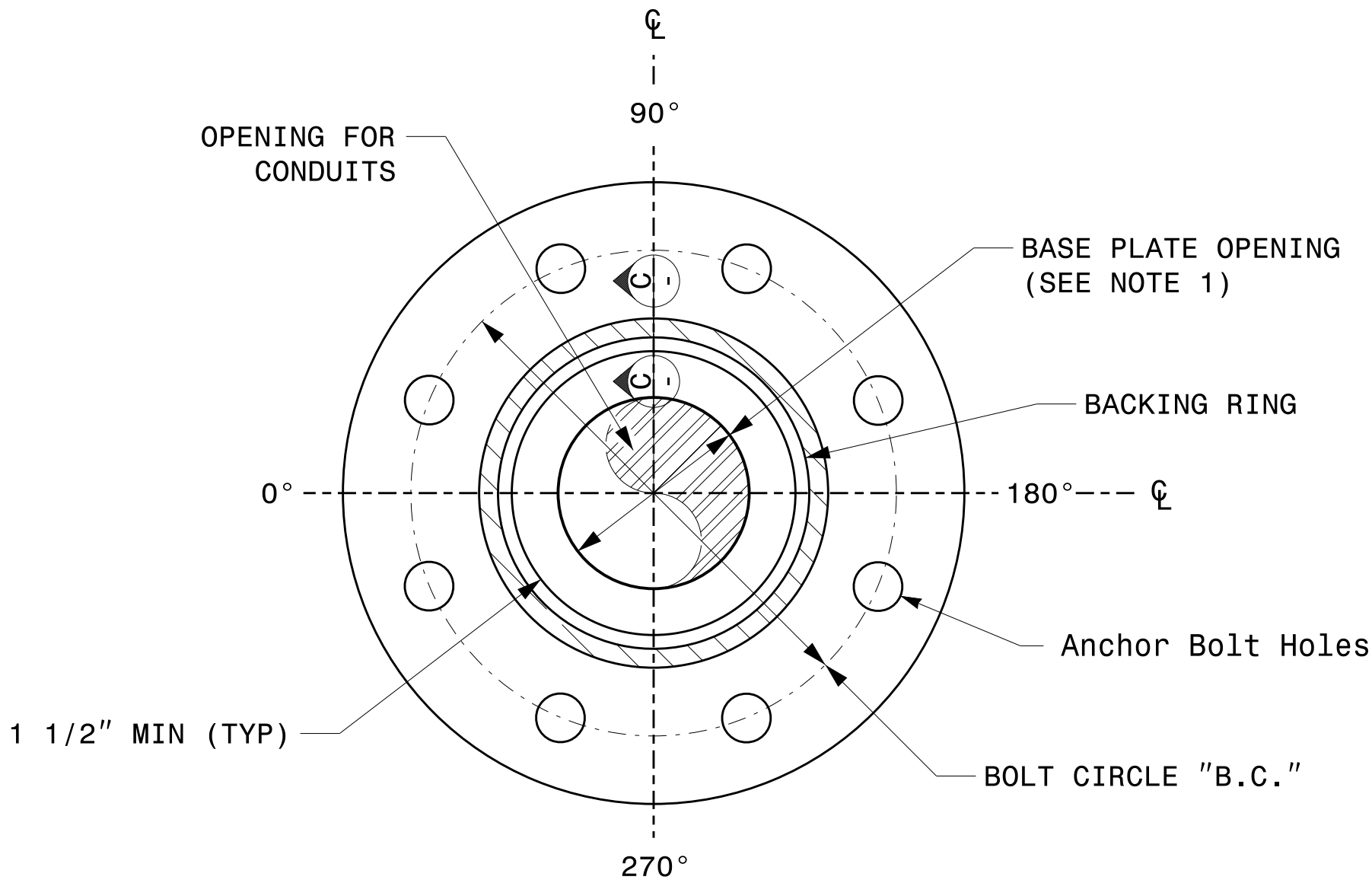
09/21/2023
DATE

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 $8\frac{1}{2}$ ".

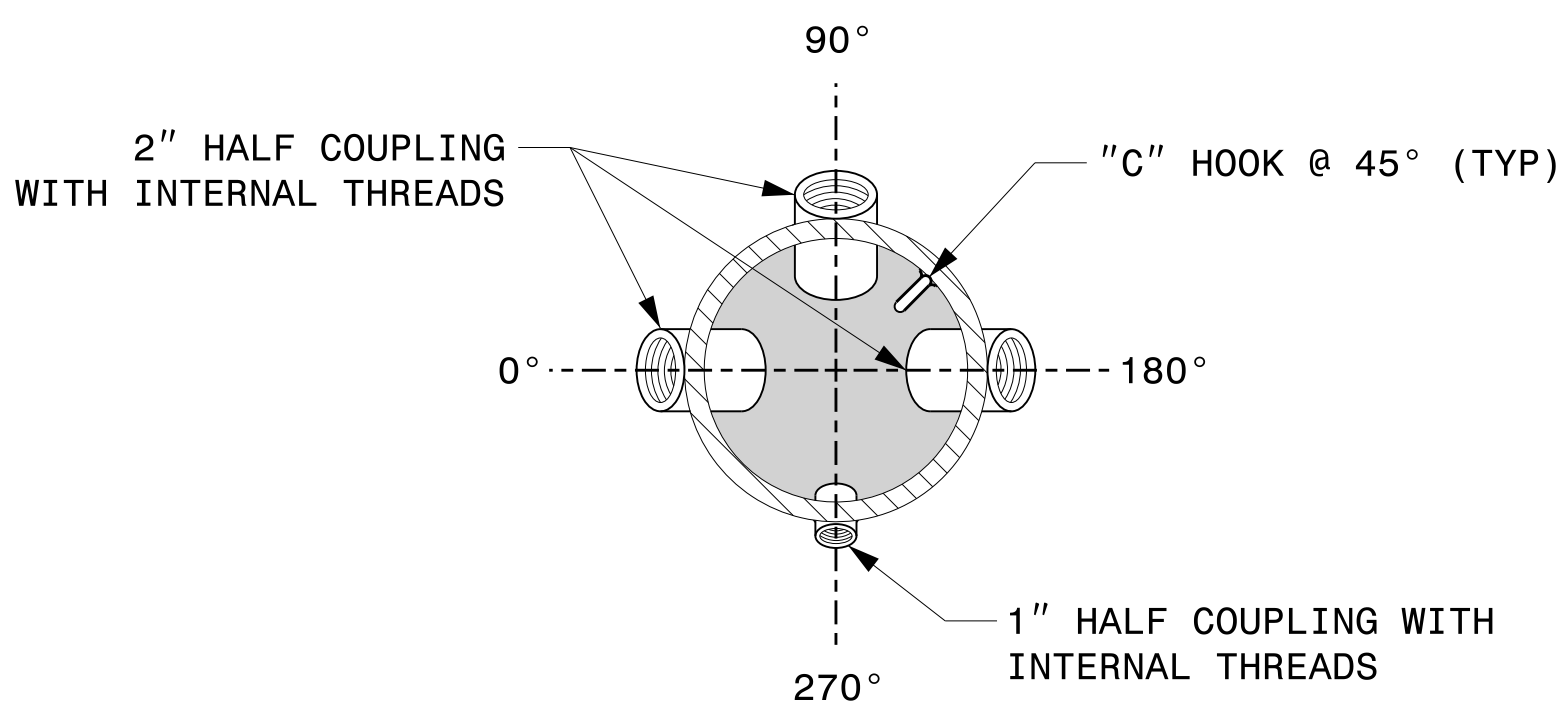


CABLE ENTRANCES AT TOP OF POLE



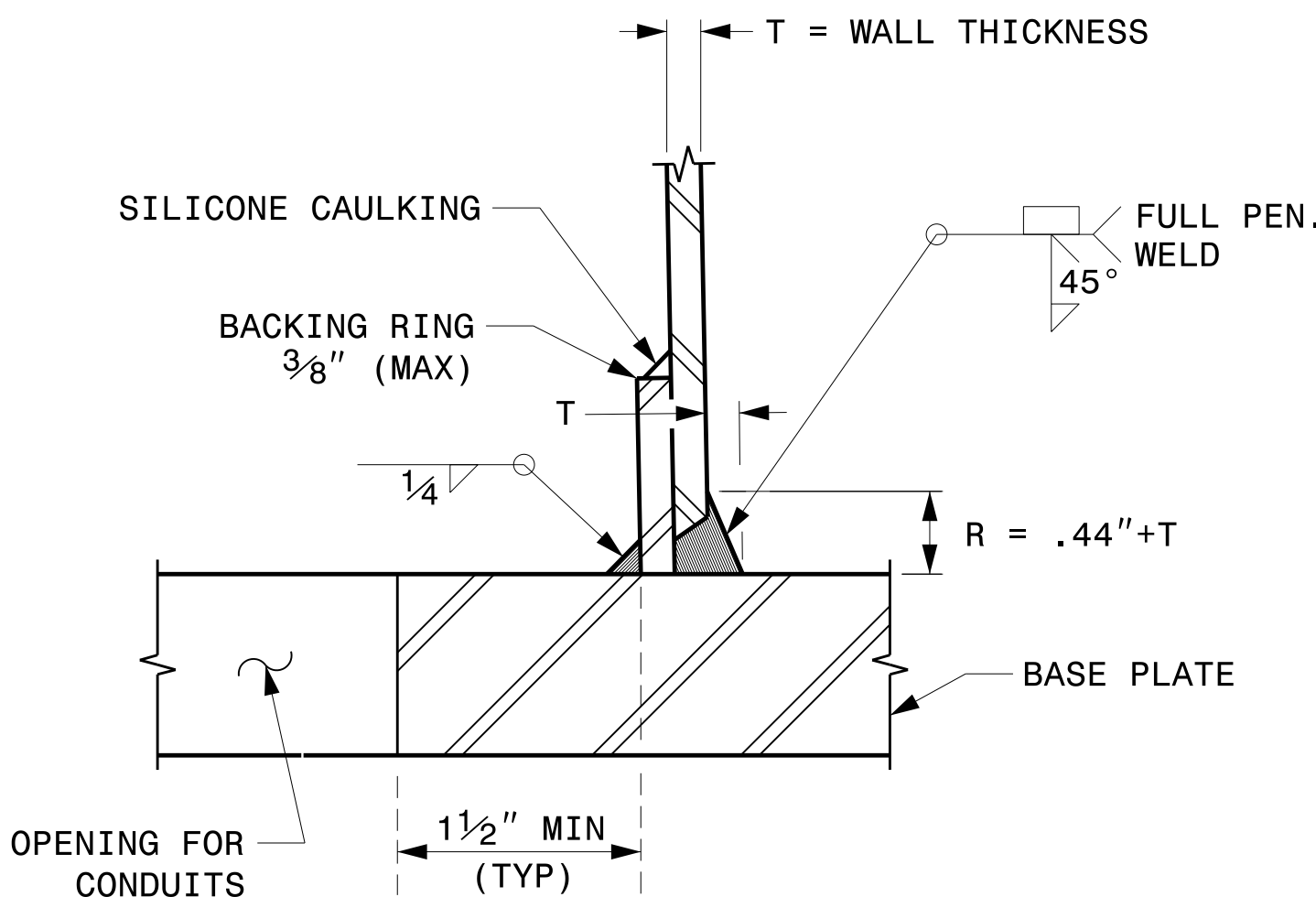
SECTION B-B

POLE BASE PLATE DETAILS
(8 AND 12 BOLT PATTERN)



SECTION A-A

RADIAL ORIENTATION OF FACTORY INSTALLED
ACCESSORIES AT TOP OF POLE

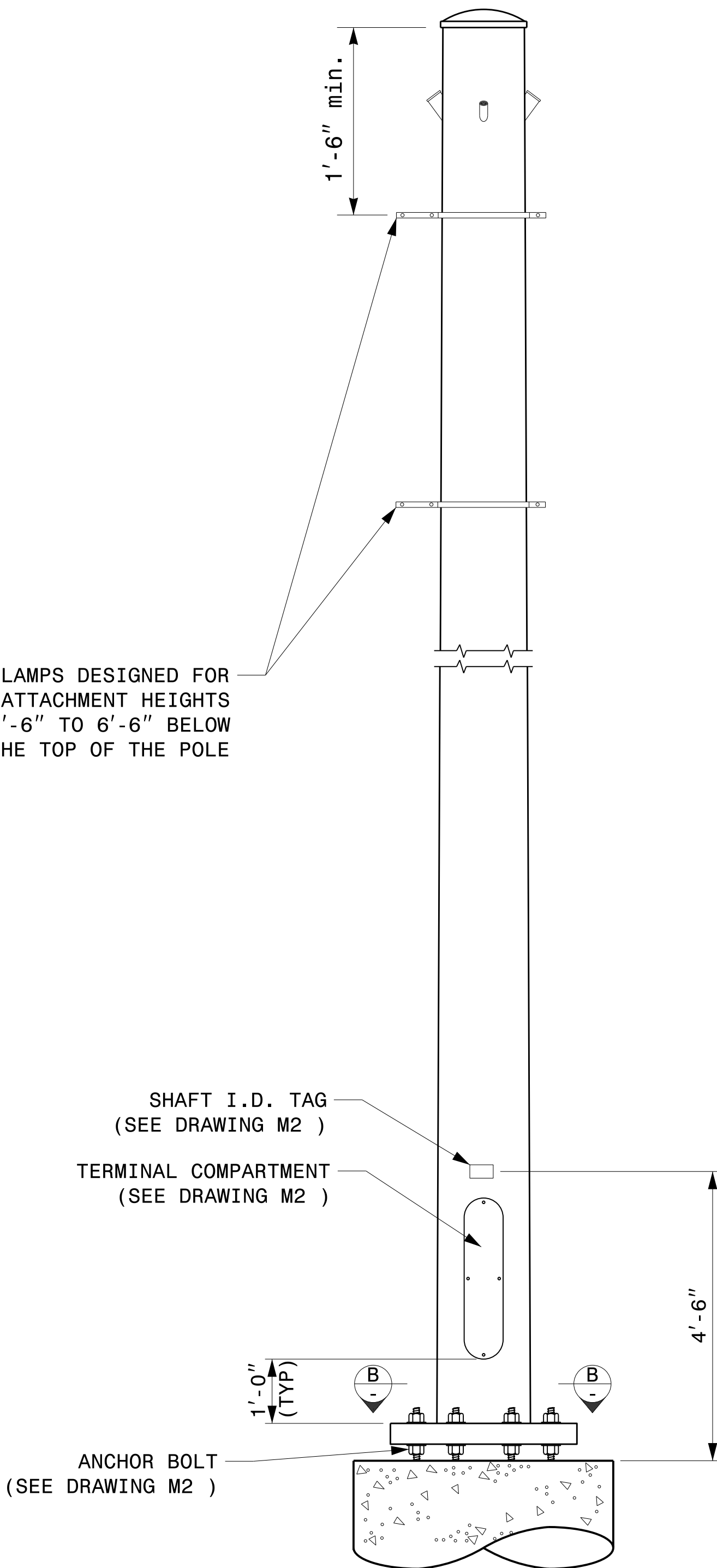


SECTION C-C

(POLE ATTACHMENT TO BASE PLATE)

FULL-PENETRATION
GROOVE WELD DETAIL

2 CABLE CLAMPS DESIGNED FOR
VARIABLE ATTACHMENT HEIGHTS
FROM 1'-6" TO 6'-6" BELOW
THE TOP OF THE POLE

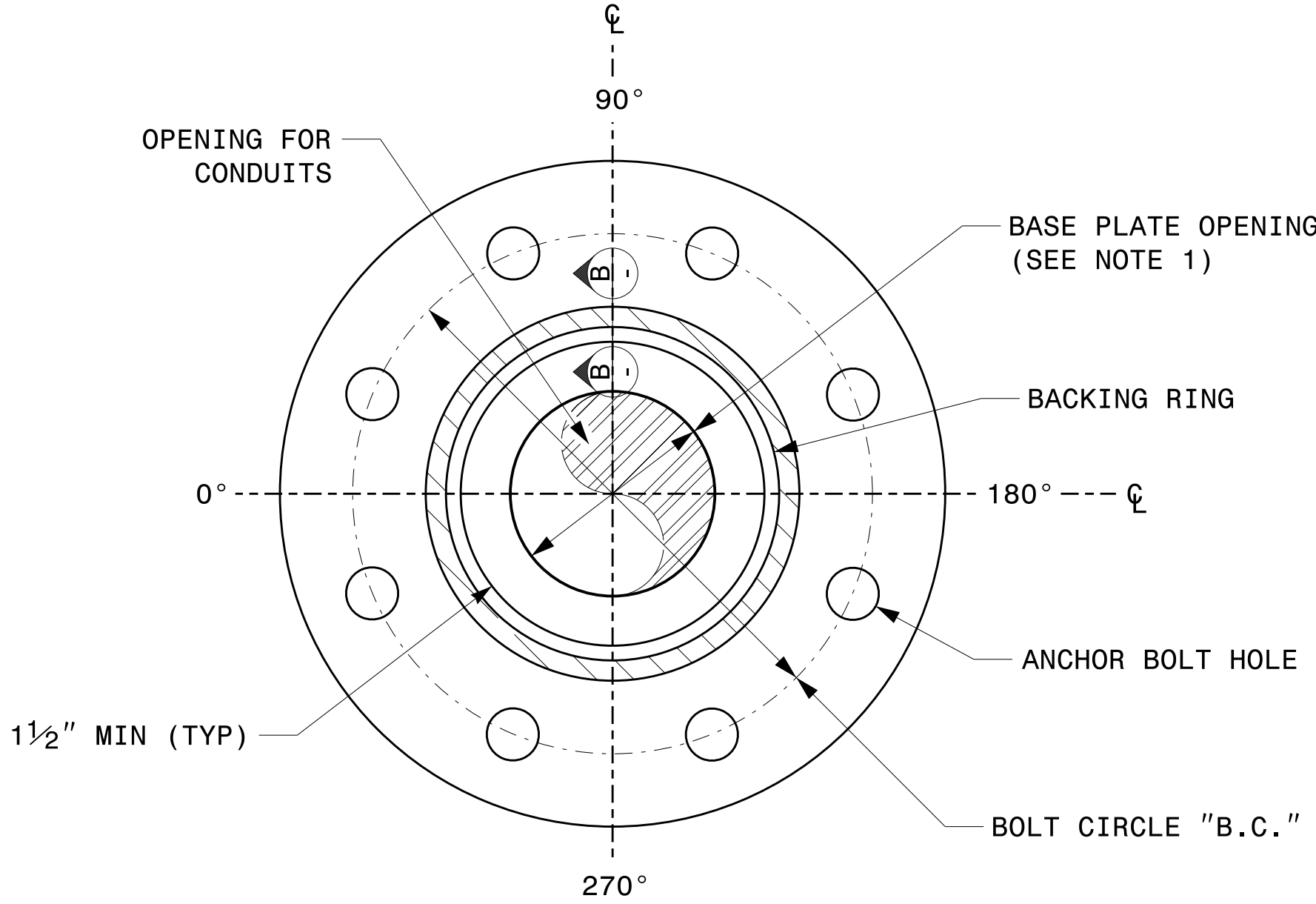


MONOTUBE STRAIN POLE

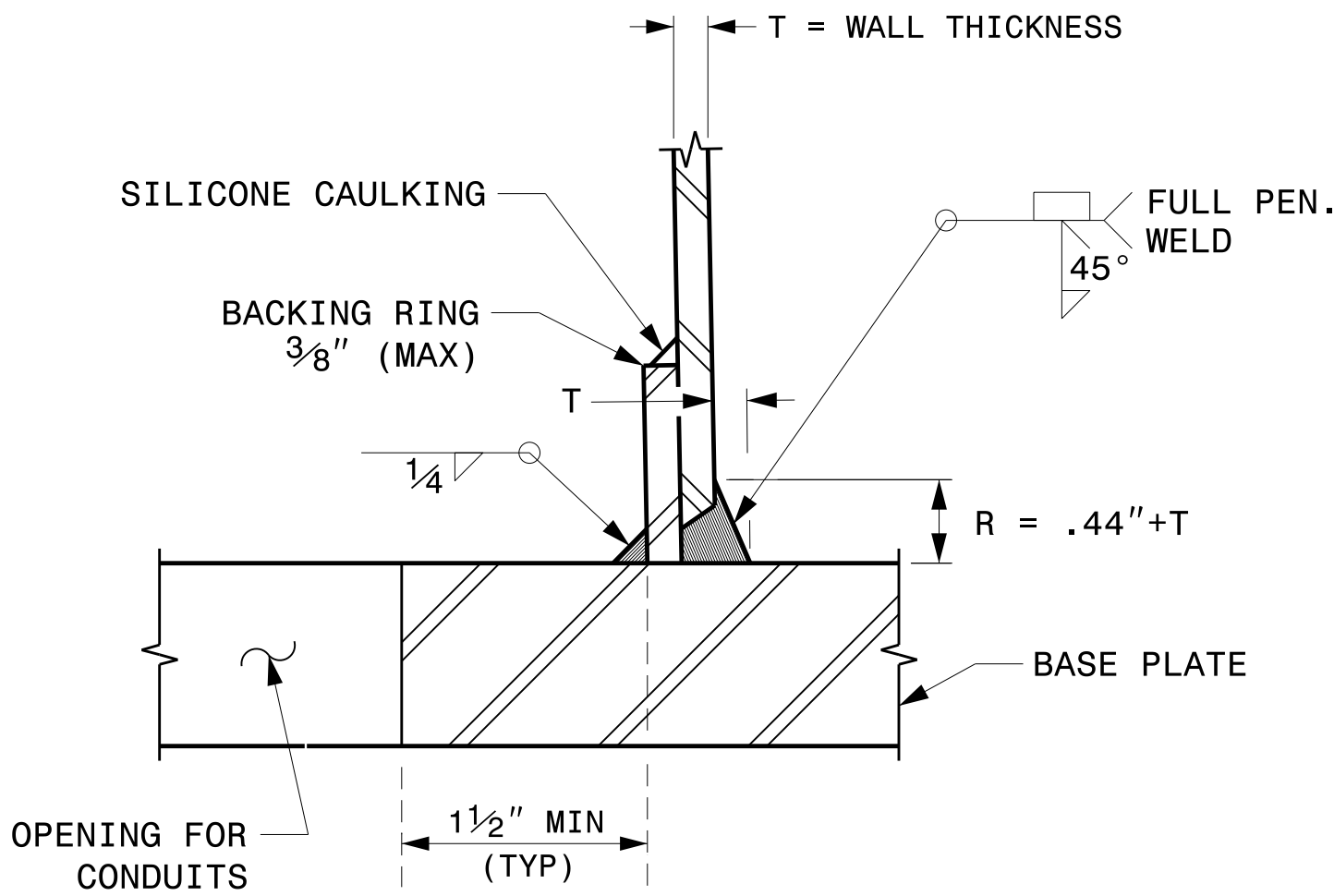
	Typical Fabrication Details For Strain Poles		
	PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR	DESIGNED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR	

NOTE:

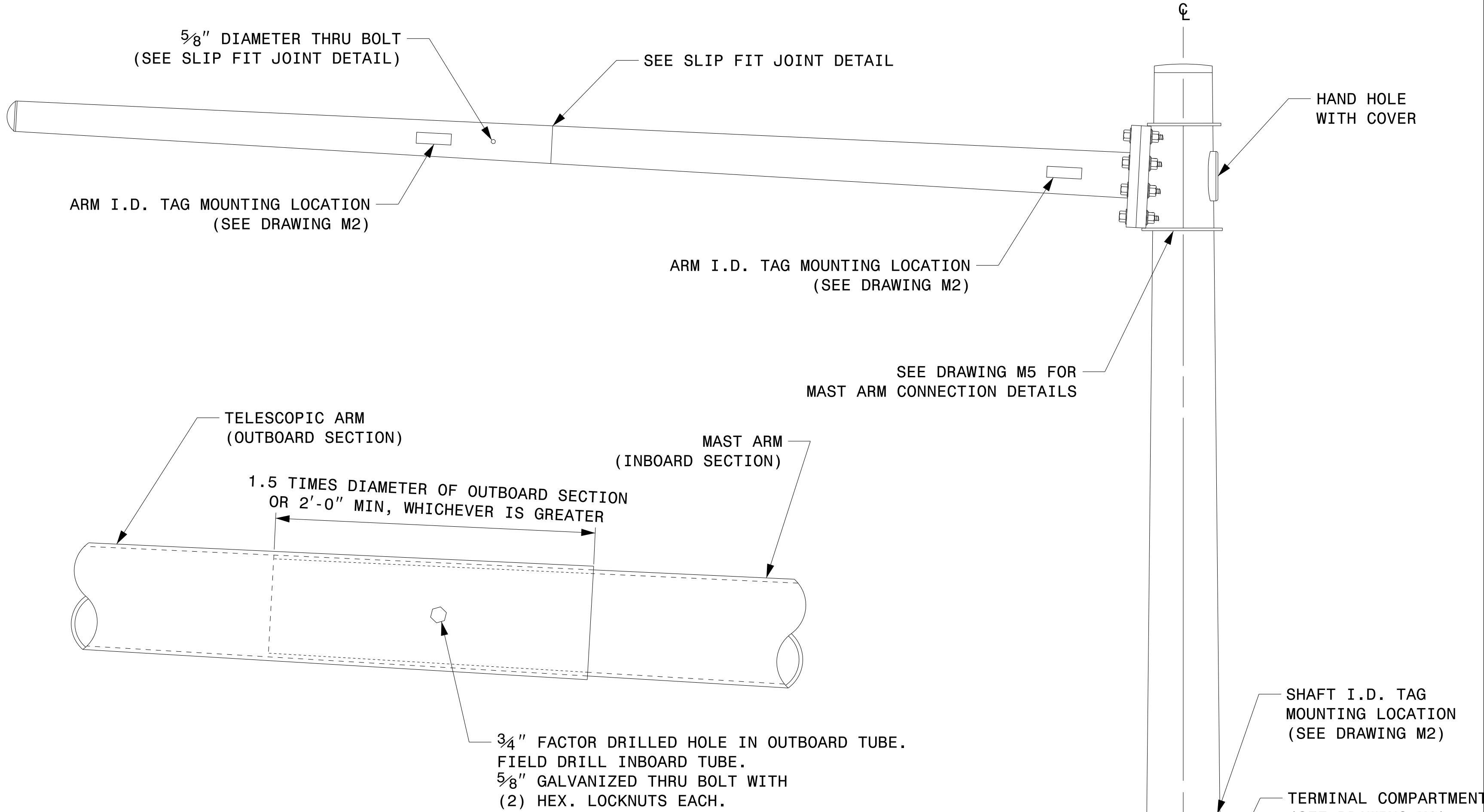
1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3 1/2" BUT SHALL NOT BE LESS THAN 8 1/2".



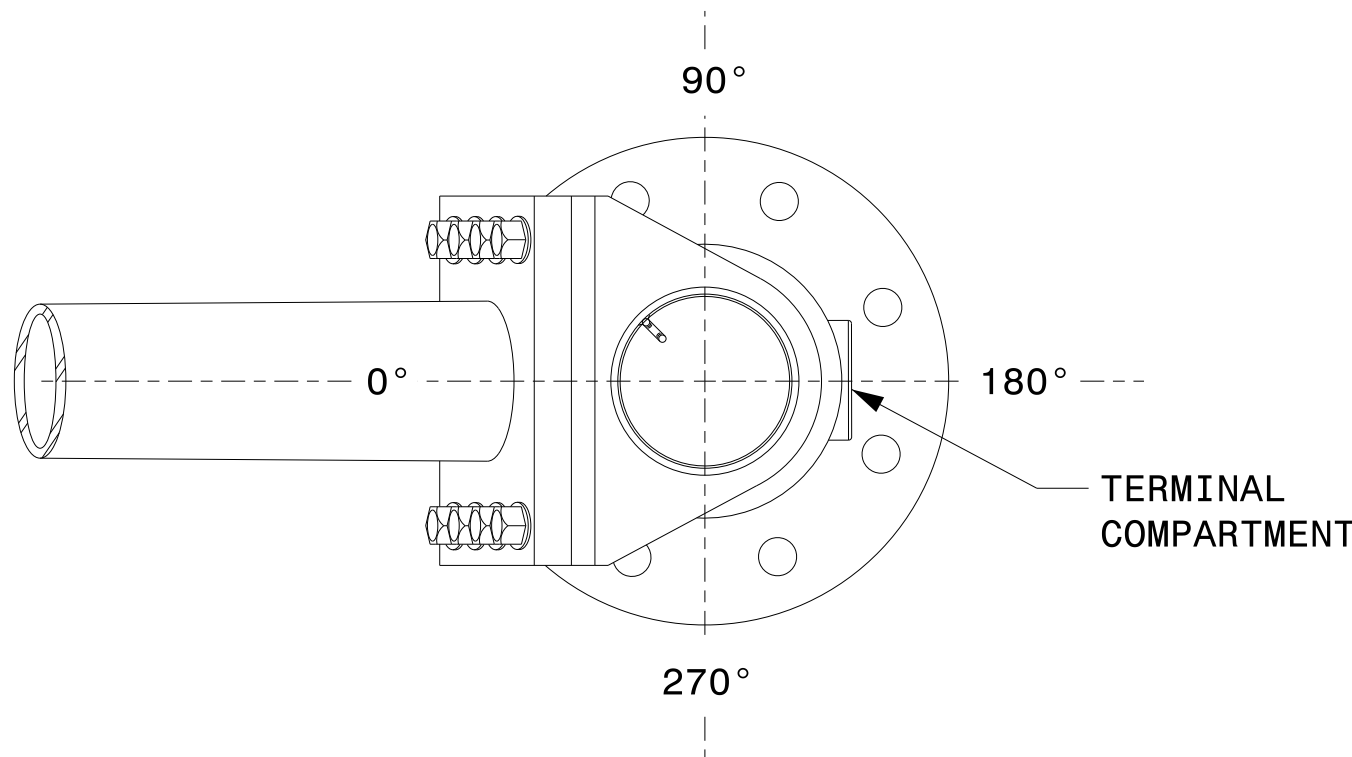
SECTION A-A
POLE BASE PLATE DETAILS



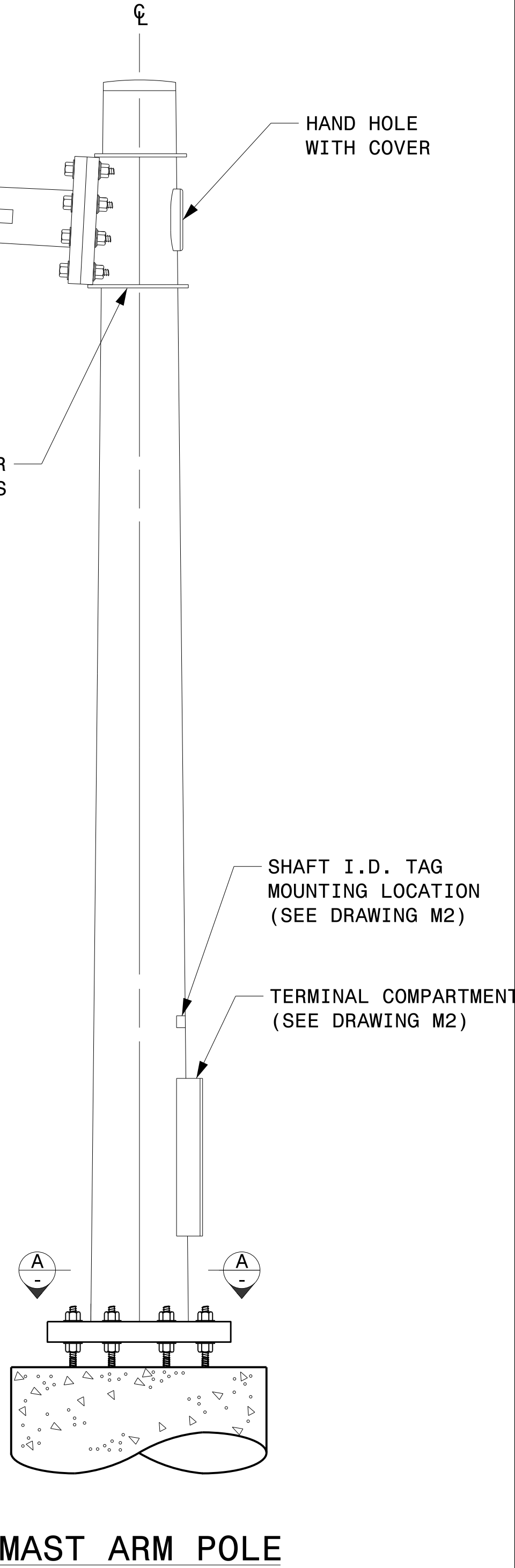
SECTION B-B
(POLE ATTACHMENT TO BASE PLATE)
FULL-PENETRATION
GROOVE WELD DETAIL



SLIP FIT JOINT DETAIL FOR MAST ARM



MAST ARM RADIAL ORIENTATION

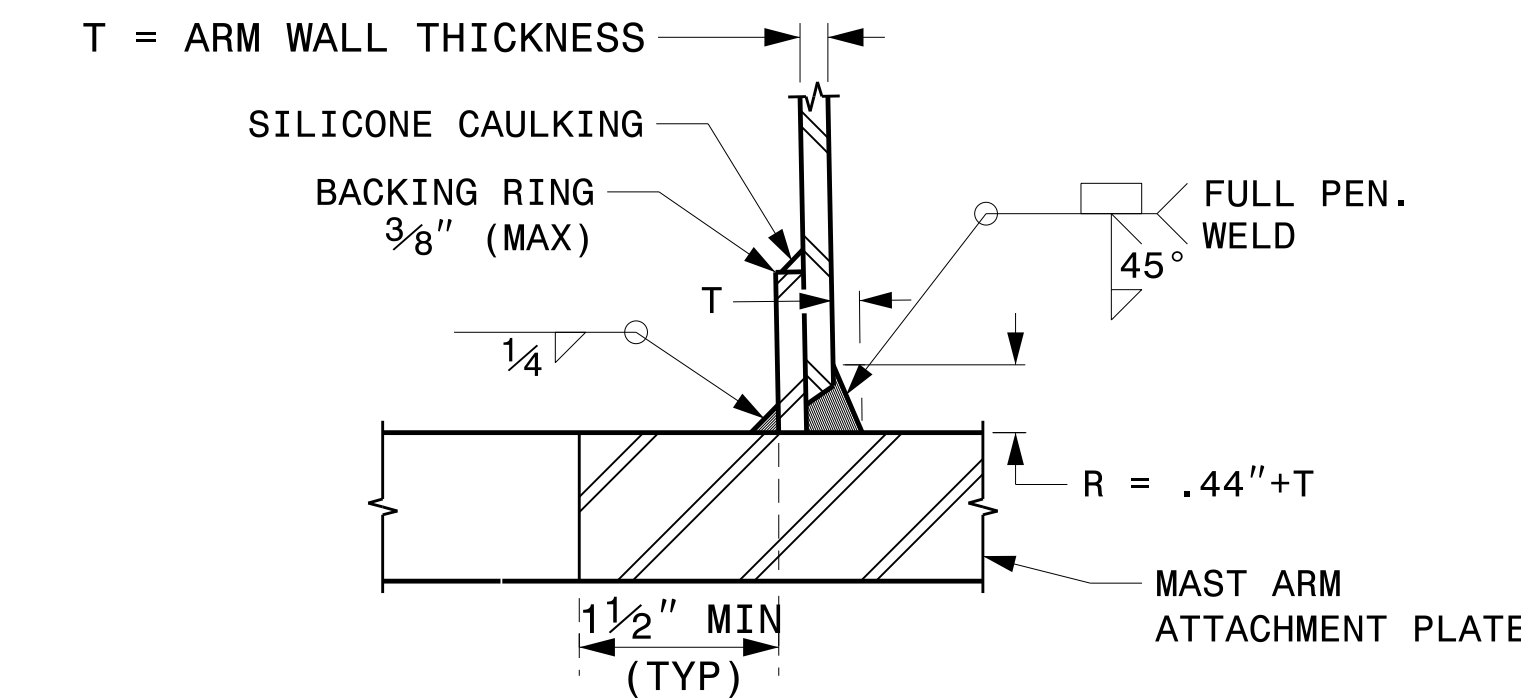


MAST ARM POLE

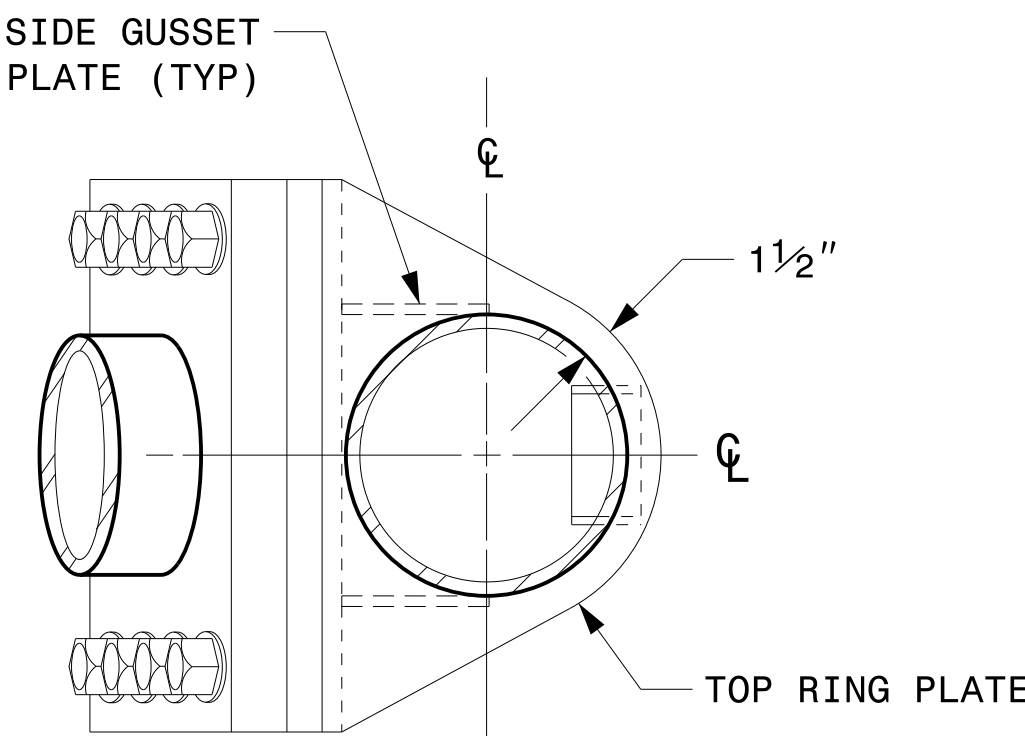
	Typical Fabrication Details For Mast Arm Poles		
	PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR	DESIGNED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR	

WELDED RING STIFFENED MAST ARM CONNECTION

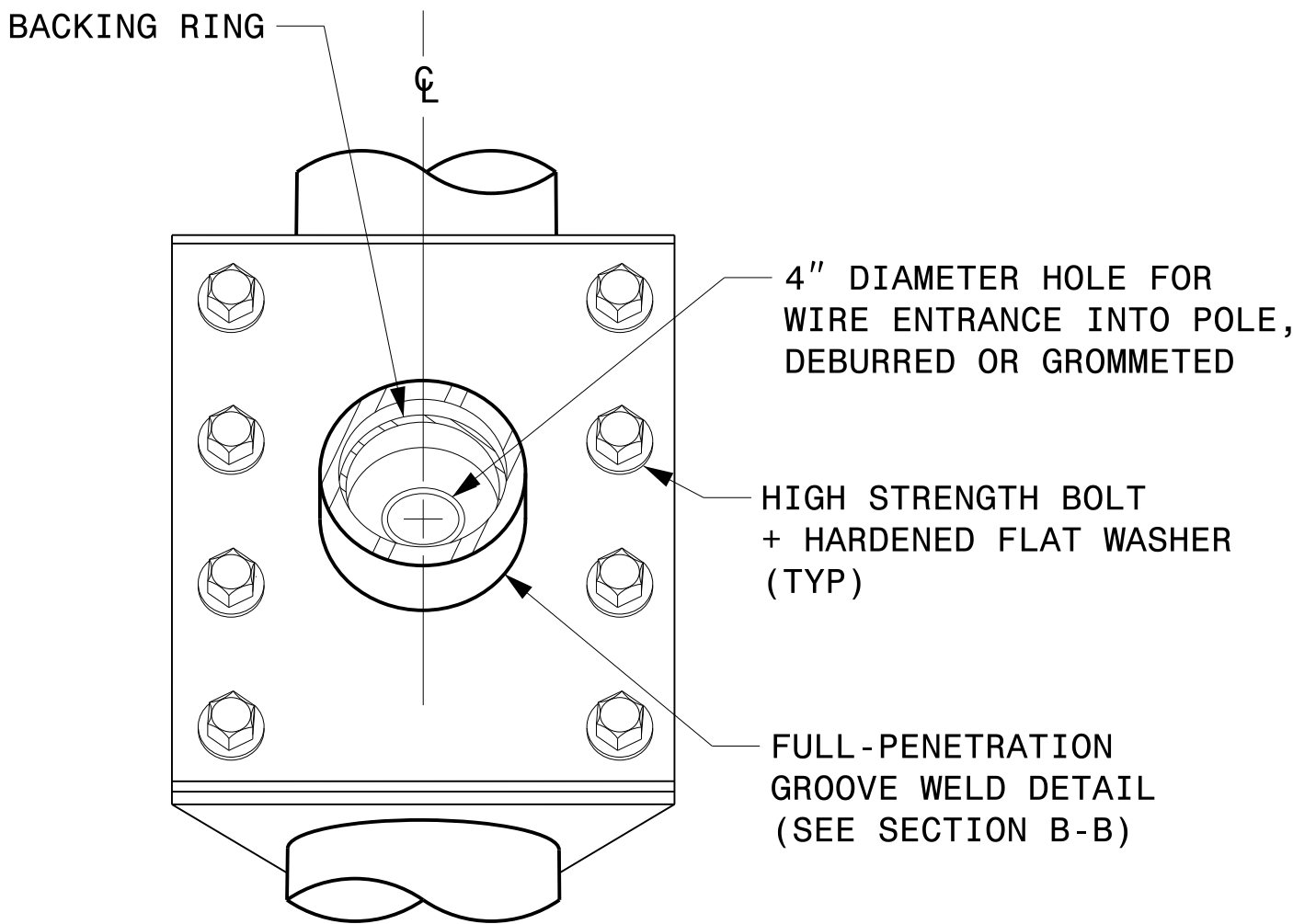
PROJECT I.D. NO.	SHEET NO.
I-5880	Sig.M5



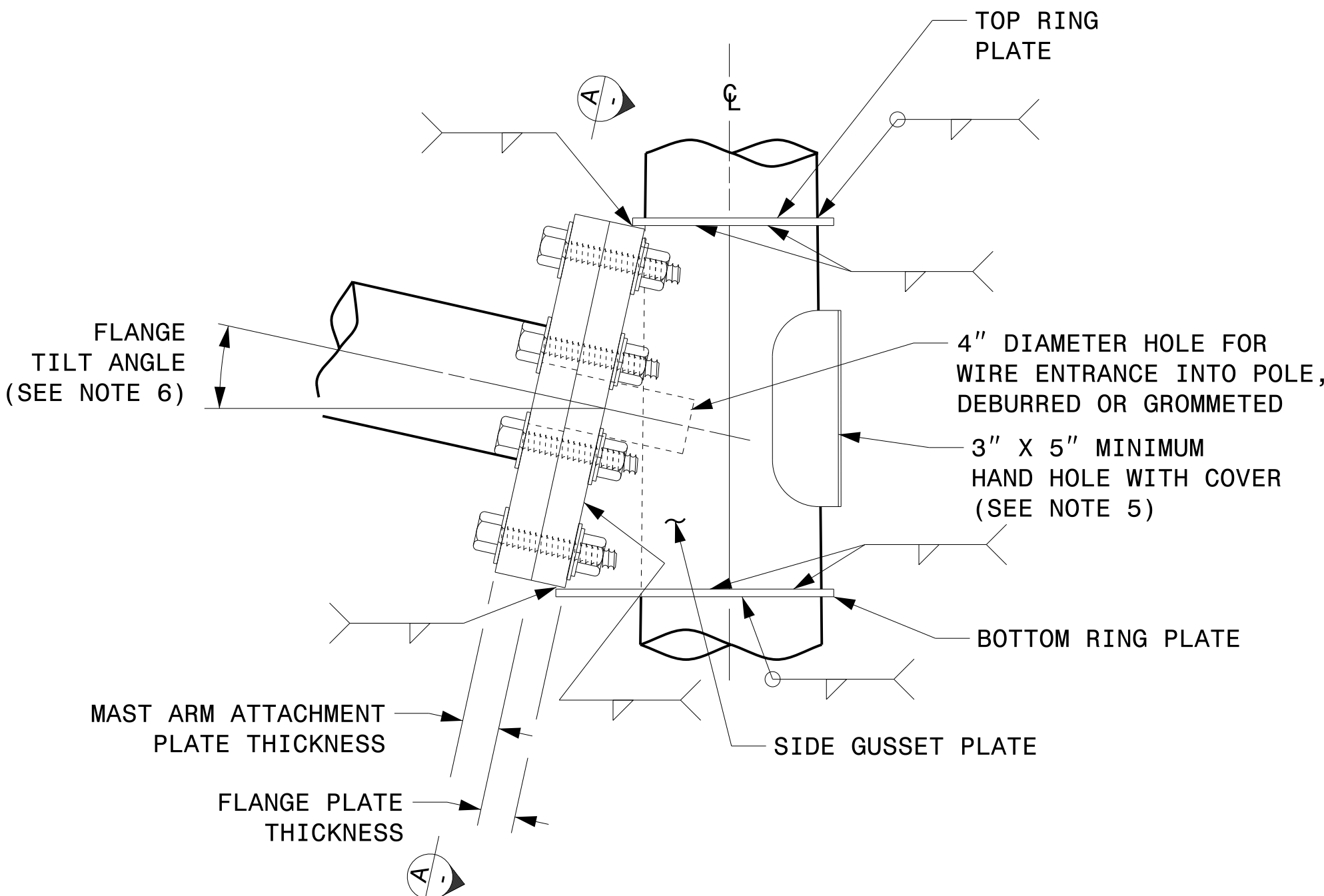
SECTION B-B
FULL-PENETRATION GROOVE WELD DETAIL



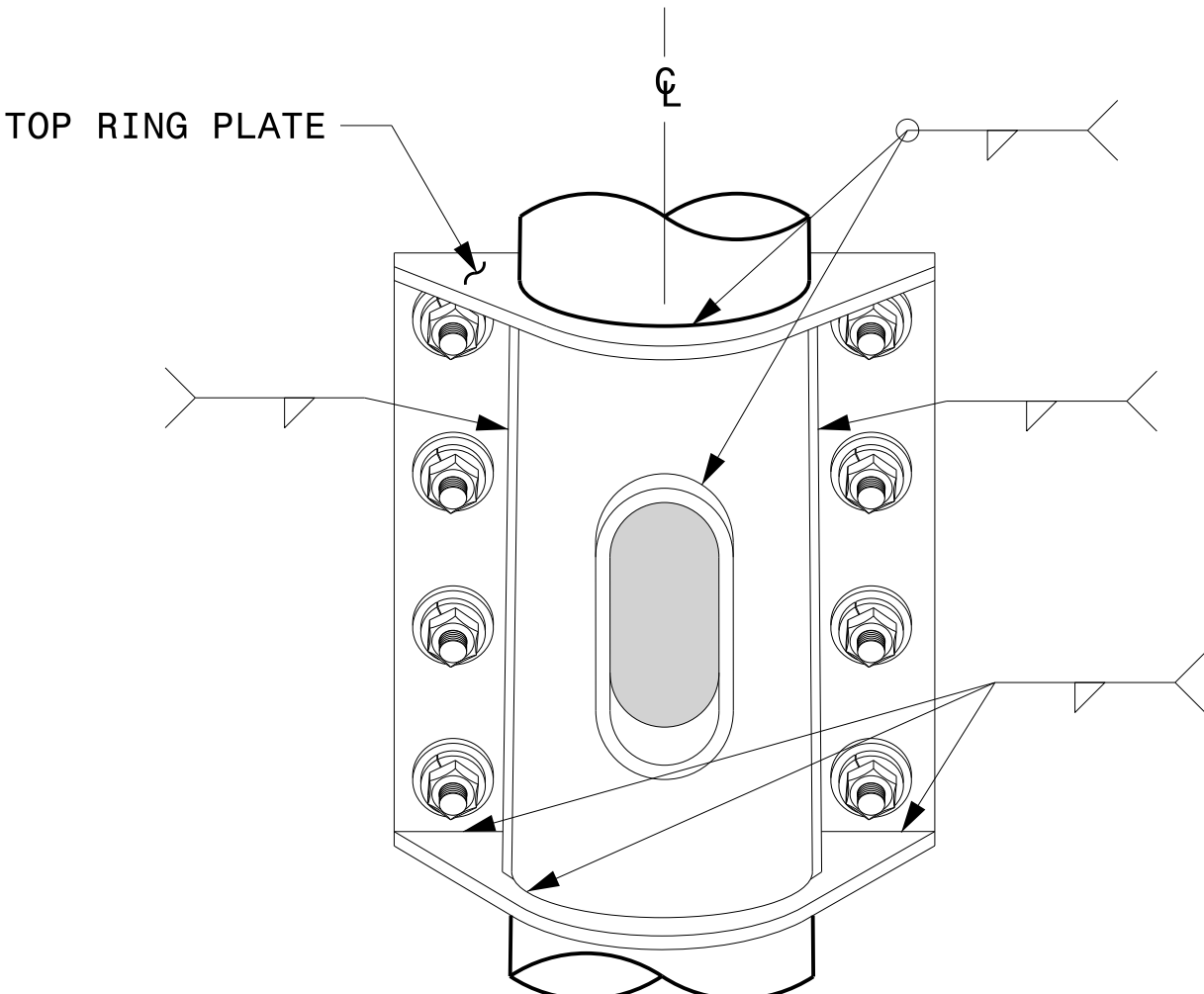
PLAN VIEW



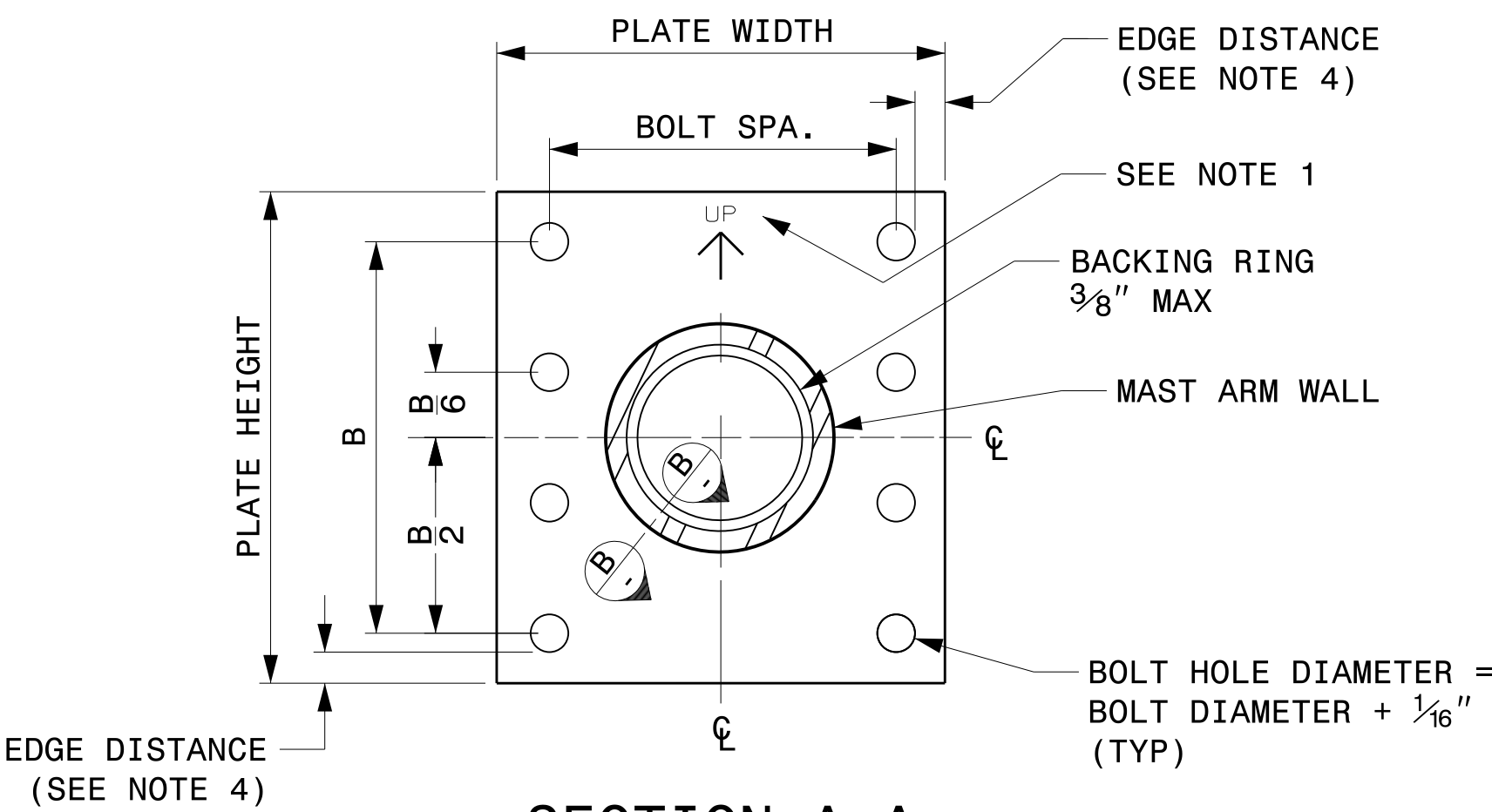
FRONT ELEVATION VIEW



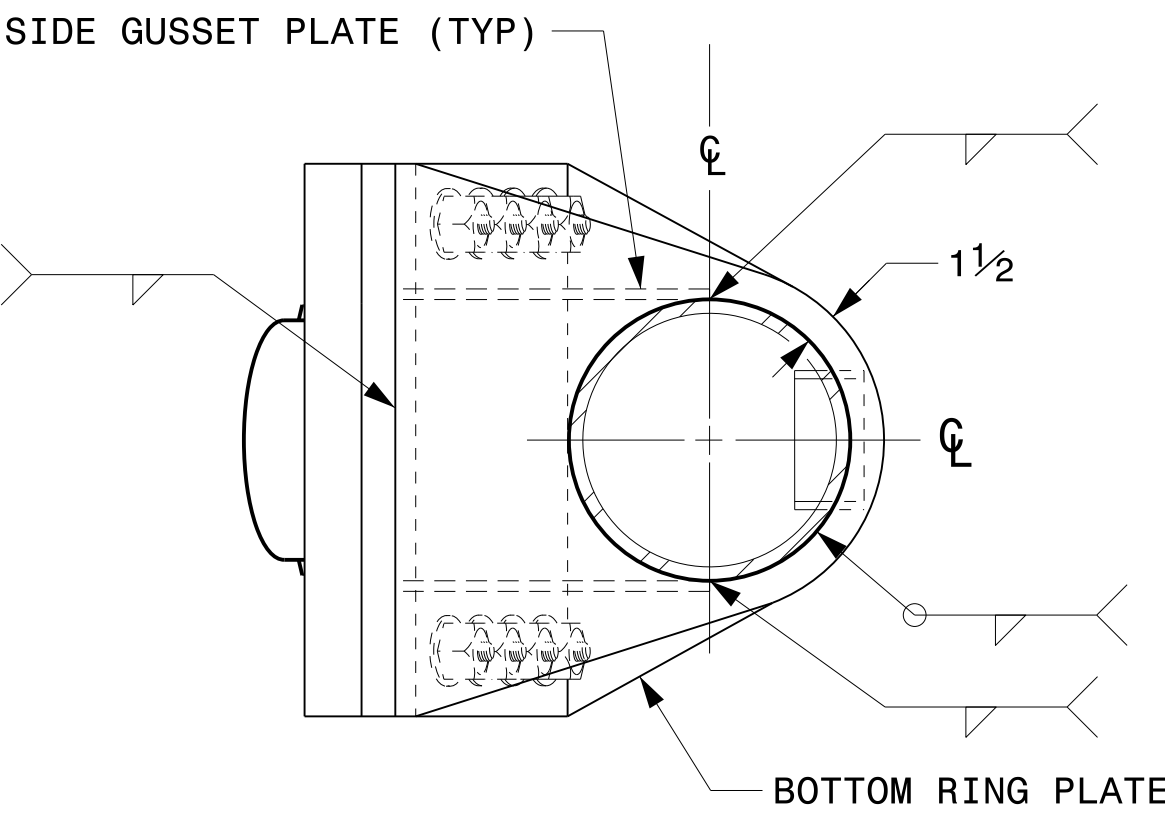
SIDE ELEVATION VIEW



BACK ELEVATION VIEW



SECTION A-A
MAST ARM ATTACHMENT PLATE



BOTTOM VIEW

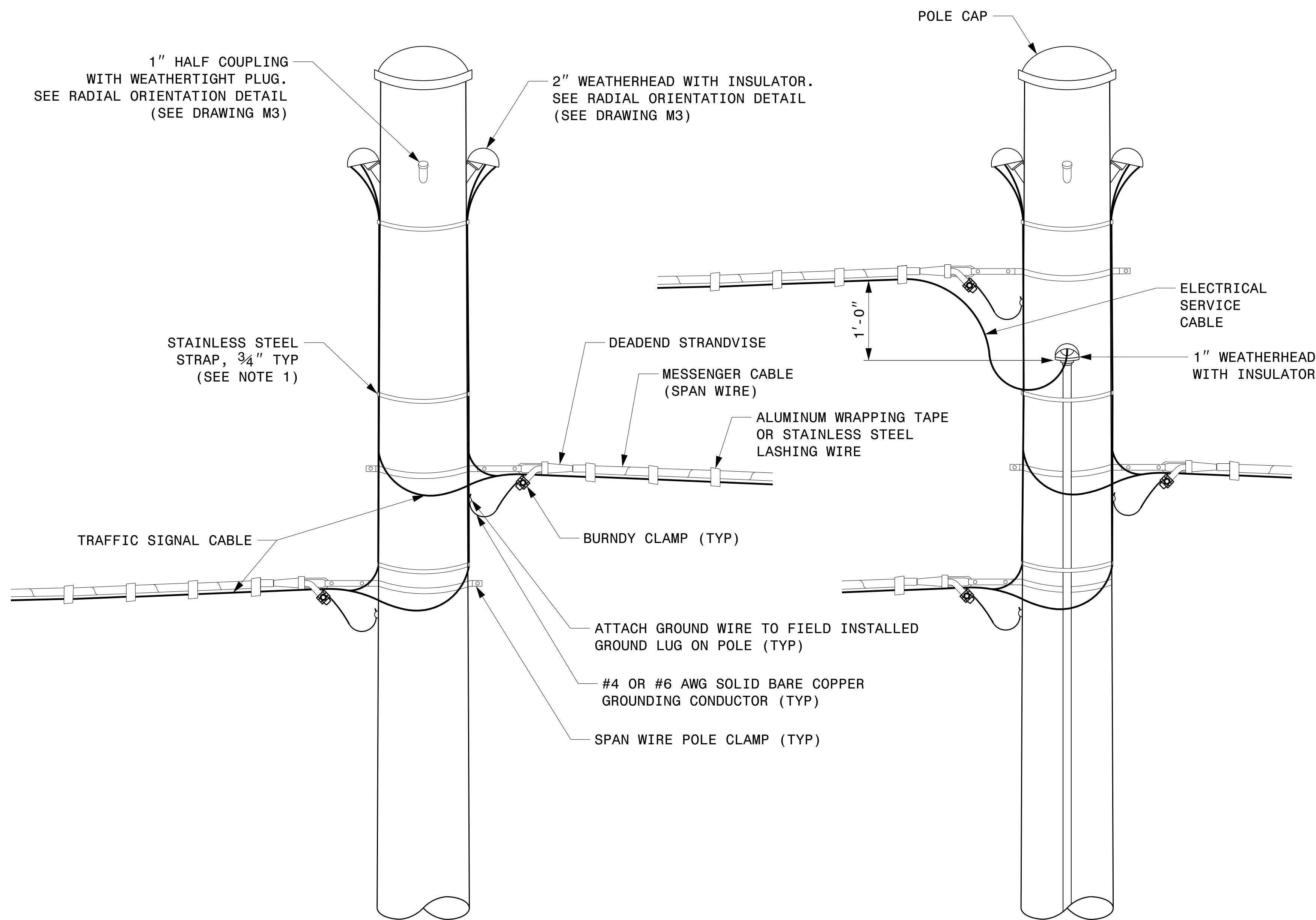
NOTES:

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.

	Typical Fabrication Details For Mast Arm Connection To Pole		
	PLAN DATE: SEPTEMBER 2023	DESIGNED BY: C.F. ANDREWS	
750 N. Greenfield Pkwy, Garner, NC 27529	PREPARED BY: K.C. DURIGON	REVIEWED BY: D.C. SARKAR	
SCALE 0 NA NONE	REVISIONS	INIT.	DATE
DocuSigned by: 			09/21/2023 DATE

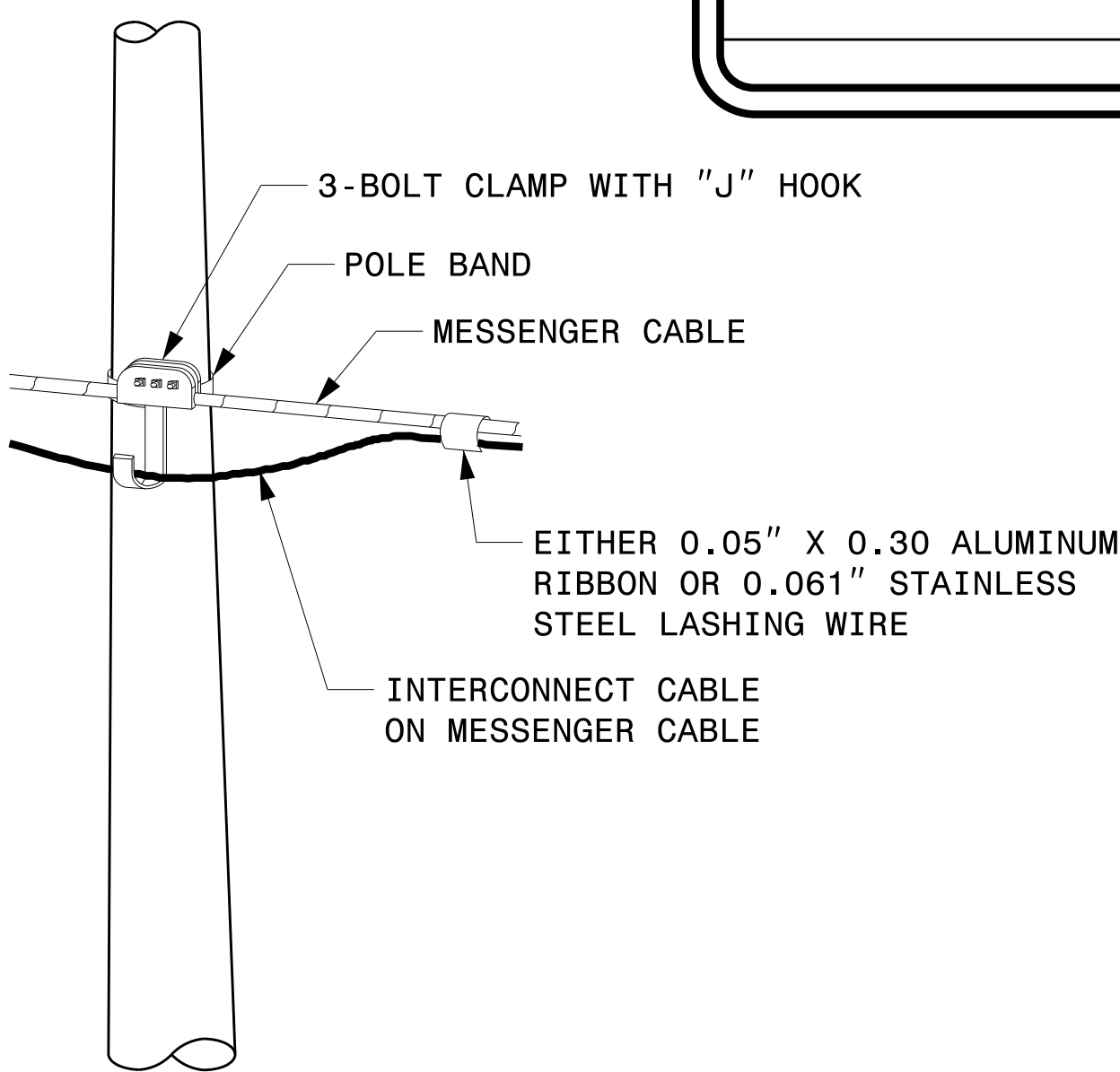
09-001-2023 19-38
S:\1\SSM\115 Signal\Signal Design Section\Structures\Drawings\2024 Metal Pole Std Drawings for LRF\02024 Sig.M5 Stru. Connection Fabrication Details-Mast Arm Poles.dgn
Kedur.fgn

Fabrication Details – Mast Arm Connection

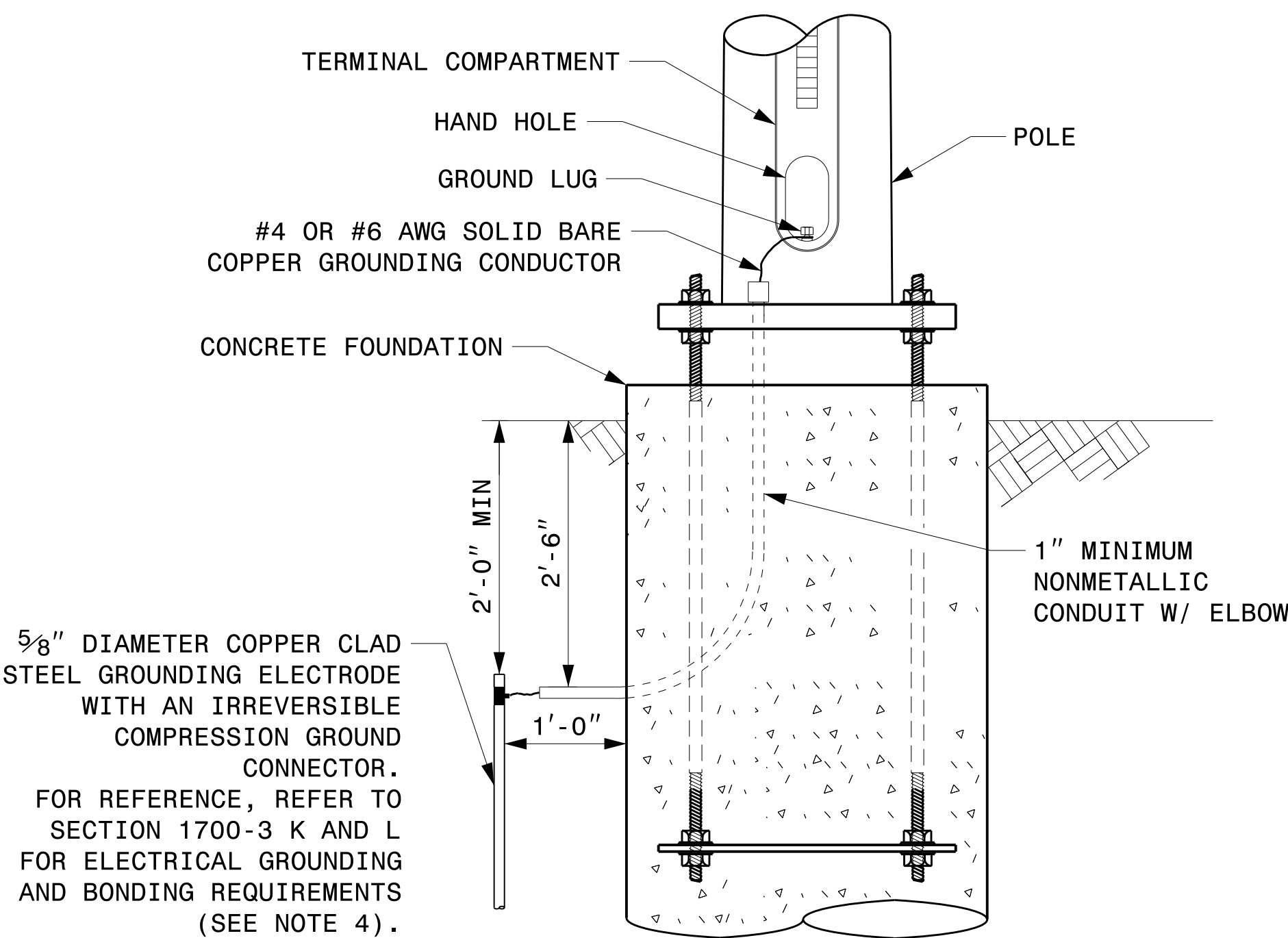


STRAIN POLE ATTACHMENTS

- NOTES:
- 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".
 - PROVIDE MINIMUM TWO SPAN WIRE POLE CLAMPS PER POLE.
 - IT IS PROHIBITED TO ATTACH TWO SPAN WIRES AT ONE POLE CLAMP.
 - 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

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 0 NA NONE

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:

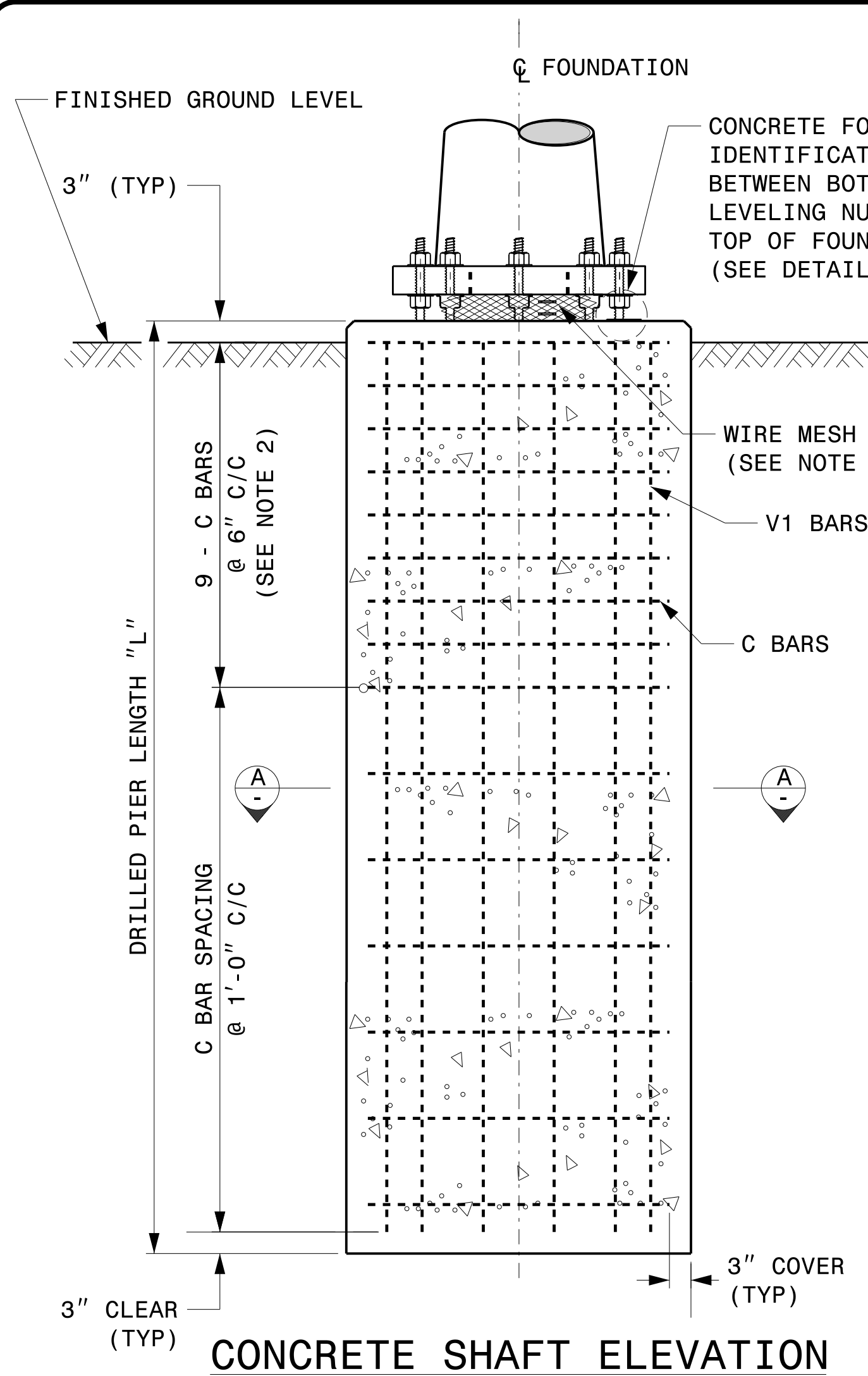
4B23DC79B3784DA...

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036626 KEVIN C. DURIGON

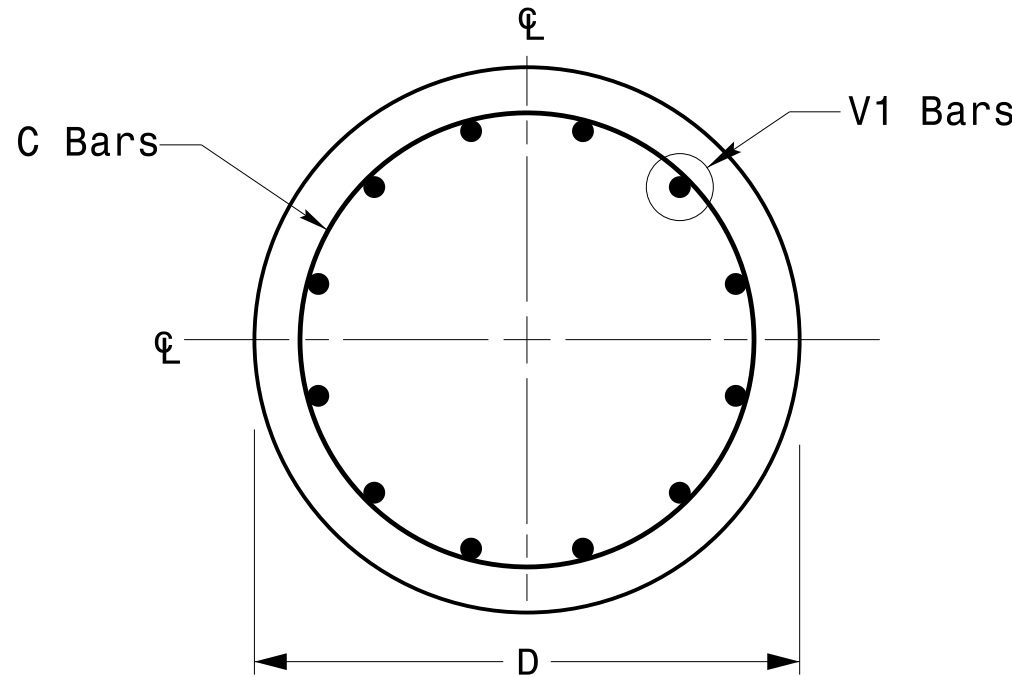
09/21/2023 DATE

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Kedurigon

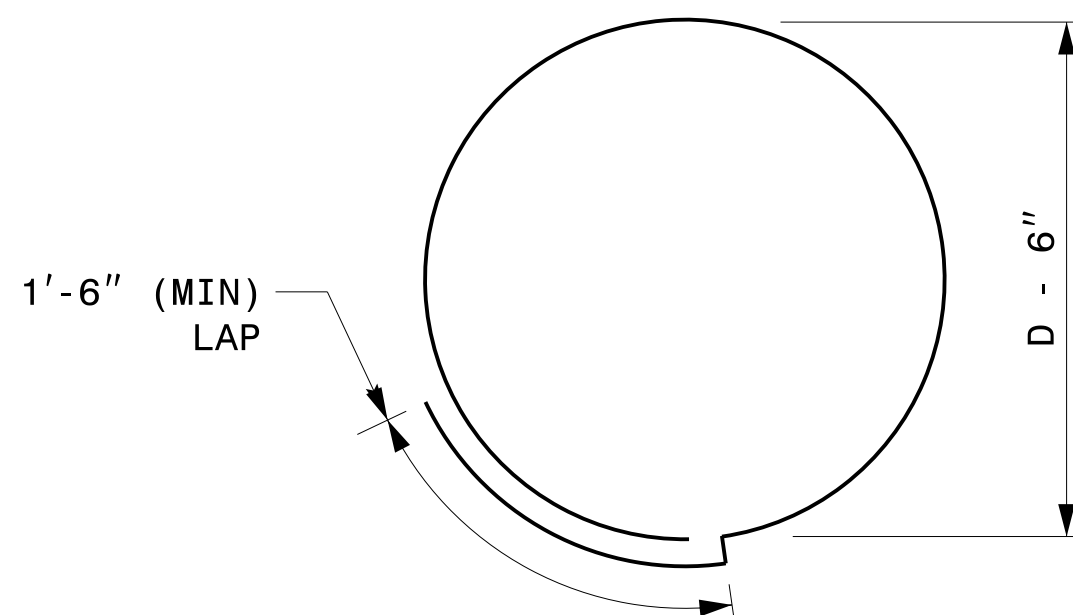
Fabrication Details – Strain Pole Attachments



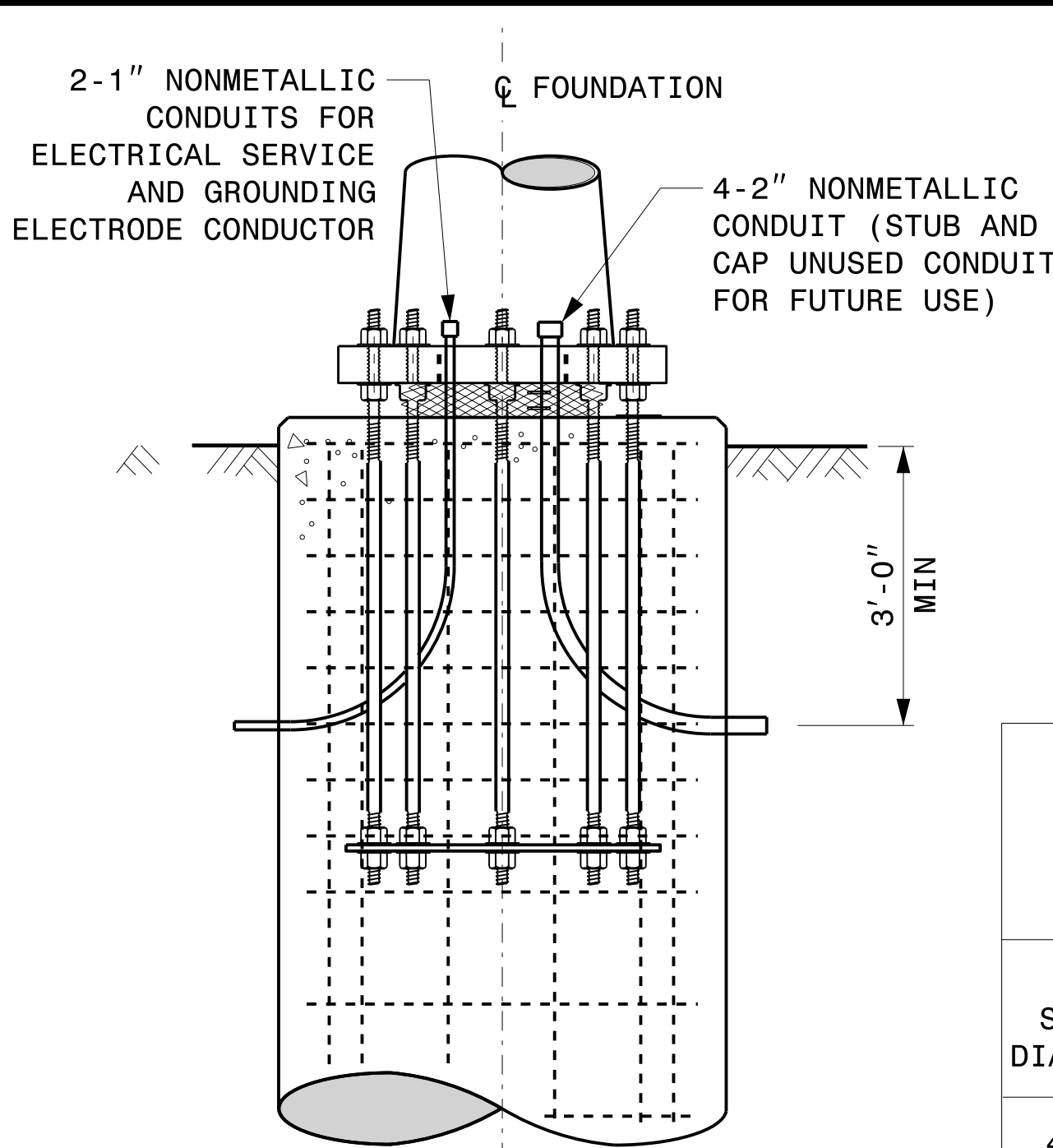
CONCRETE SHAFT ELEVATION



SECTION A-A



TYPICAL "C" BAR DETAIL



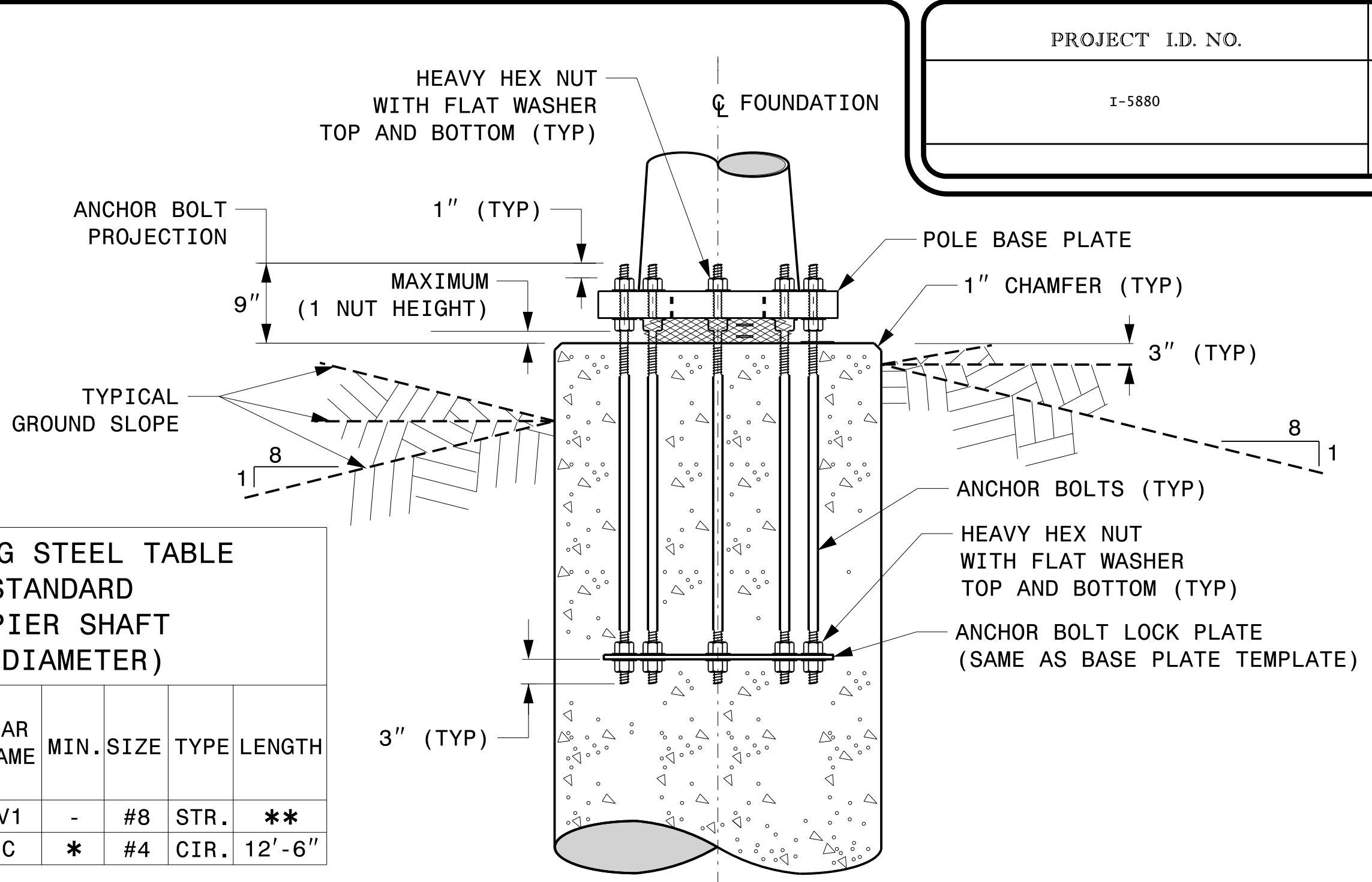
TYPICAL FOUNDATION CONDUIT DETAILS

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.

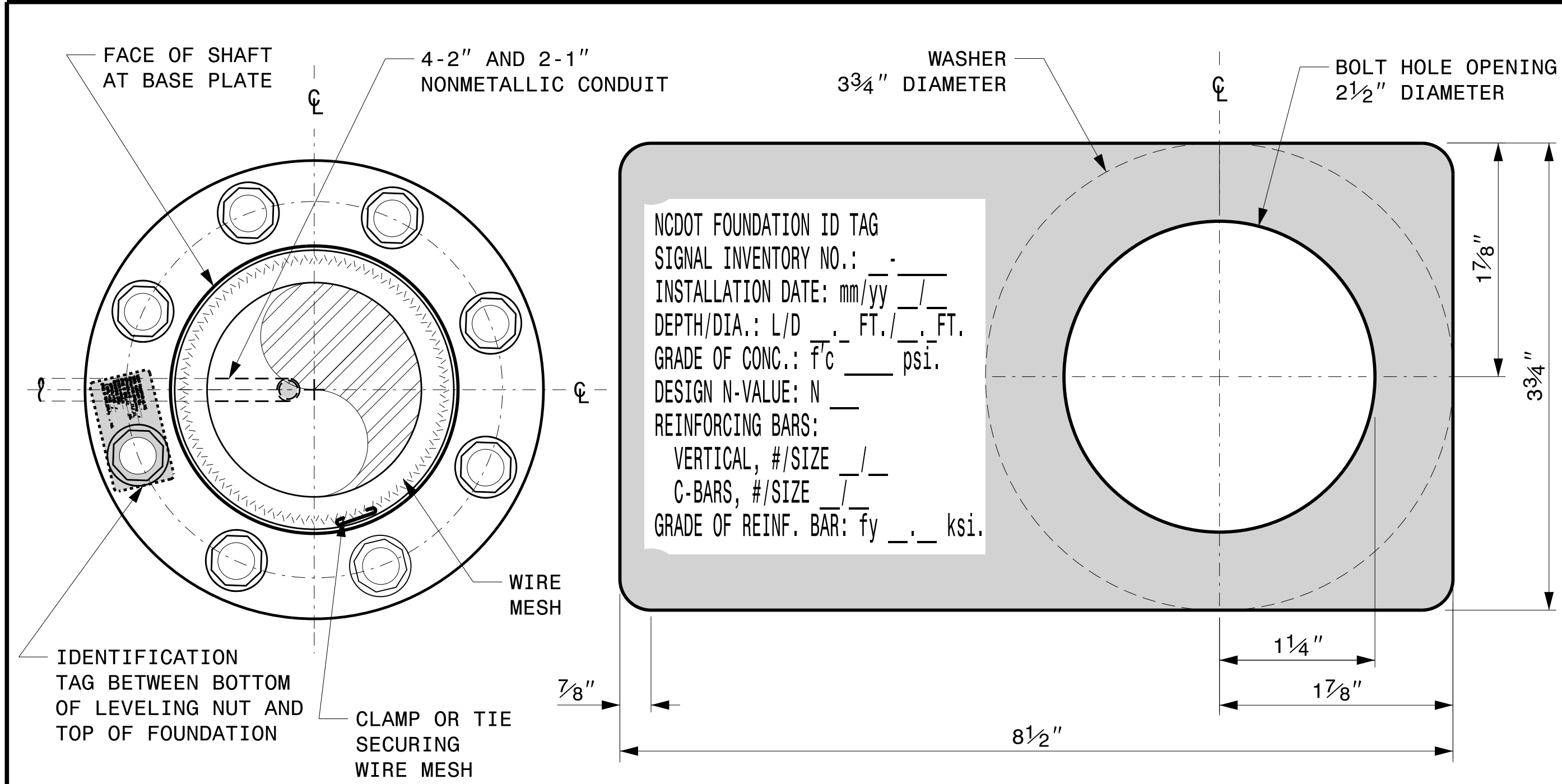
REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4'-0" DIAMETER)						
"D" SHAFT DIAMETER	CONCRETE VOLUME (CU. YDS)	BAR NAME	MIN. SIZE	TYPE	LENGTH	
4'-0"	.465 X L	V1	-	#8 STR.	**	
		C	*	#4 CIR.	12'-6"	

* SEE NOTE 2
** SEE NOTE 3



TYPICAL FOUNDATION ANCHOR BOLT DETAILS

(REINFORCING CAGE NOT SHOWN FOR CLARITY)



CONCRETE FOUNDATION IDENTIFICATION TAG DETAILS

DETAIL-A

Prepared In the Offices of:

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:

4B23DC79B3784DA

09/21/2023
DATE

09/21/2023
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:

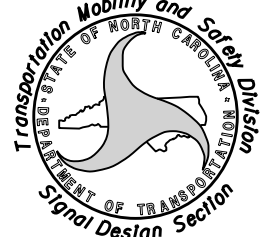
1. VALUES SHOWN IN THE "REACTIONS AT THE POLE BASE" COLUMN REPRESENT THE MINIMUM ACCEPTABLE CAPACITY ALLOWED FOR DESIGN USING A COMBINED FORCE RATIO (CFR) OF 1.00.
2. USE CHAIRS AND SPACERS TO MAINTAIN PROPER CLEARANCE.
3. FOR FOUNDATION, ALWAYS USE AIR-ENTRAINED CONCRETE MIX.

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.

09-001-2023 19x48
S:\1\SSM1\15 Signal\Signal Design Section\Structures\Drawings\2024 Metal Pole Str Drawing for LBF02024 Sig.M8 Str. Strain Pole Found.-Saturated Soil Condition.dgn
Kedur.fgm

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

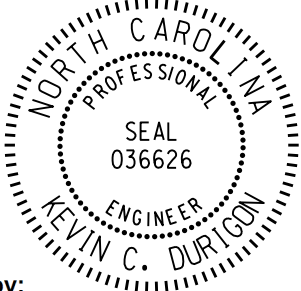
REVIEWED BY: D.C. SARKAR

REVISIONS

INIT.

DATE

SEAL



ENGINEER
KEVIN C. DURIGON

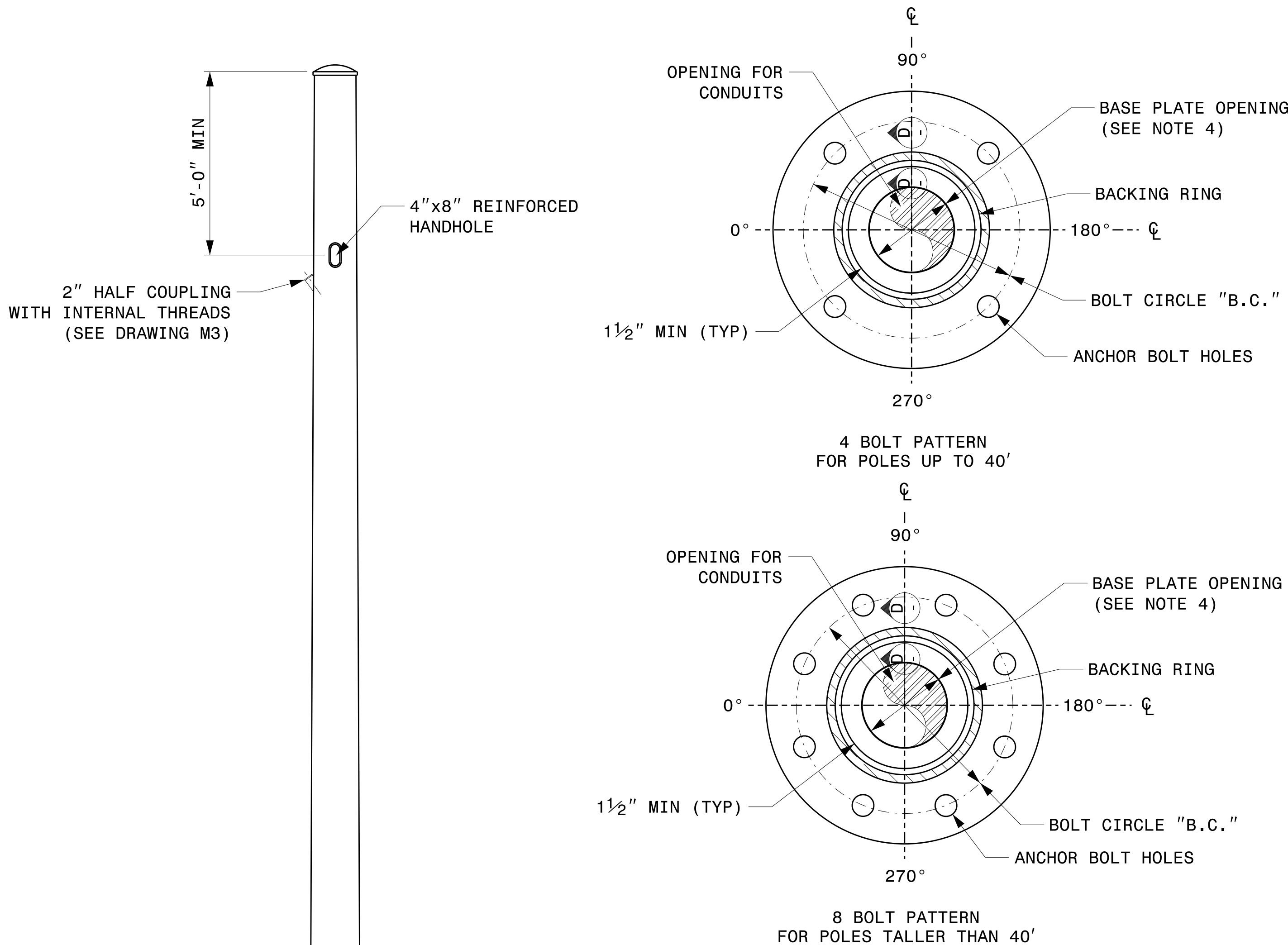
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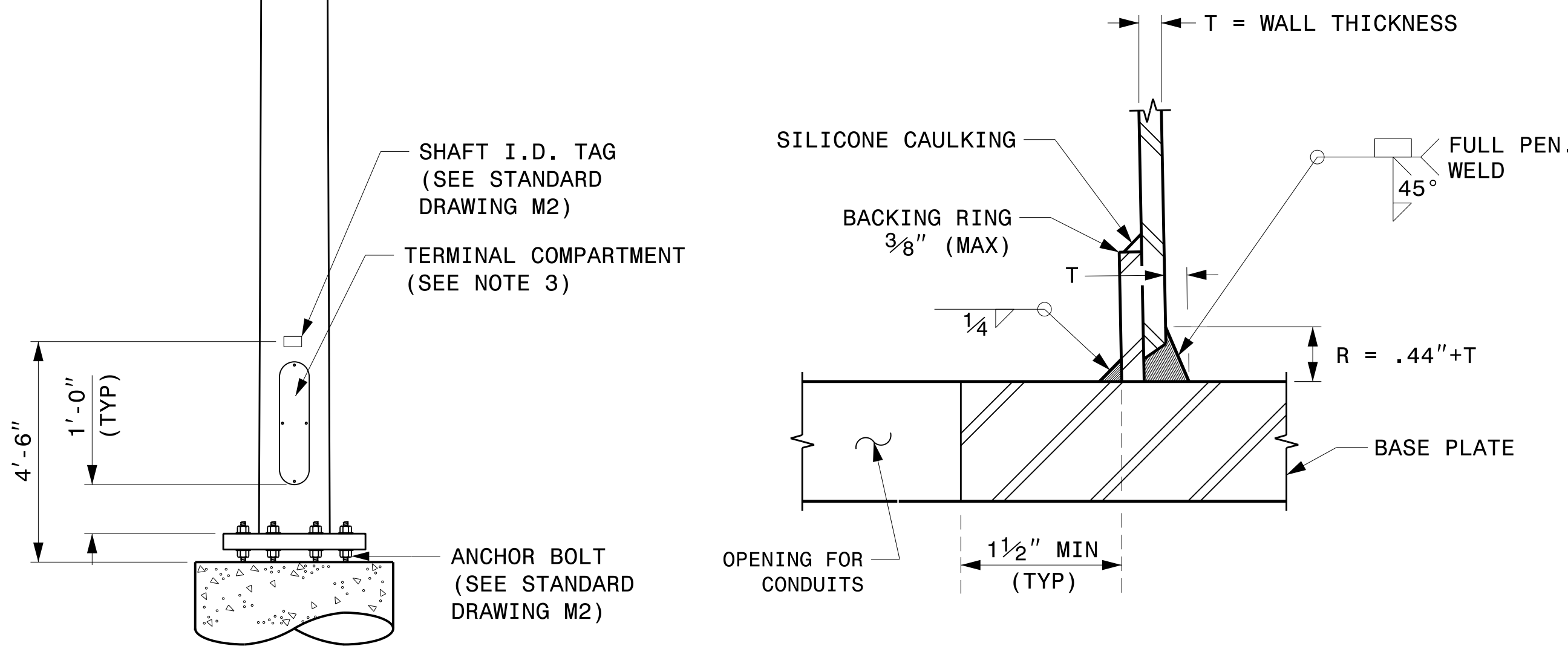
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09/21/2023

DATE

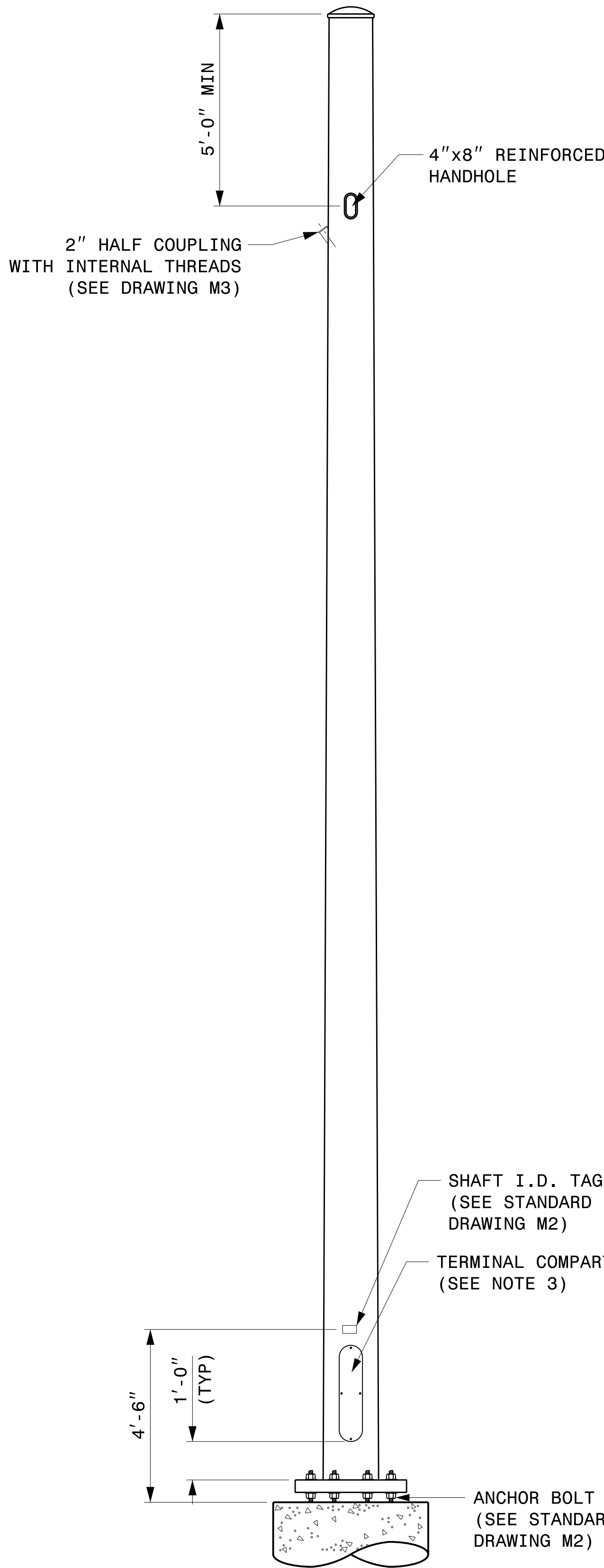


BASE PLATE DETAILS



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

- NOTES:
- THIS DRAWING PROVIDES BASIC DETAILS FOR CCTV POLES. PROJECT REQUIREMENTS MAY REQUIRE SPECIAL FACTORY PREPS THAT ARE NOT SHOWN ON THESE DETAILS.
 - DETAILS FOR INTERNAL CAMERA LOWERING SYSTEMS ARE NOT SHOWN.
 - 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.
 - 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".
 - USE COMPACT SECTION CRITERIA D/T RATIO PER AASHTO LTS-LRFD 1ST EDITION SECTION 5.7.2.



CCTV CAMERA POLE
(NOT TO SCALE)

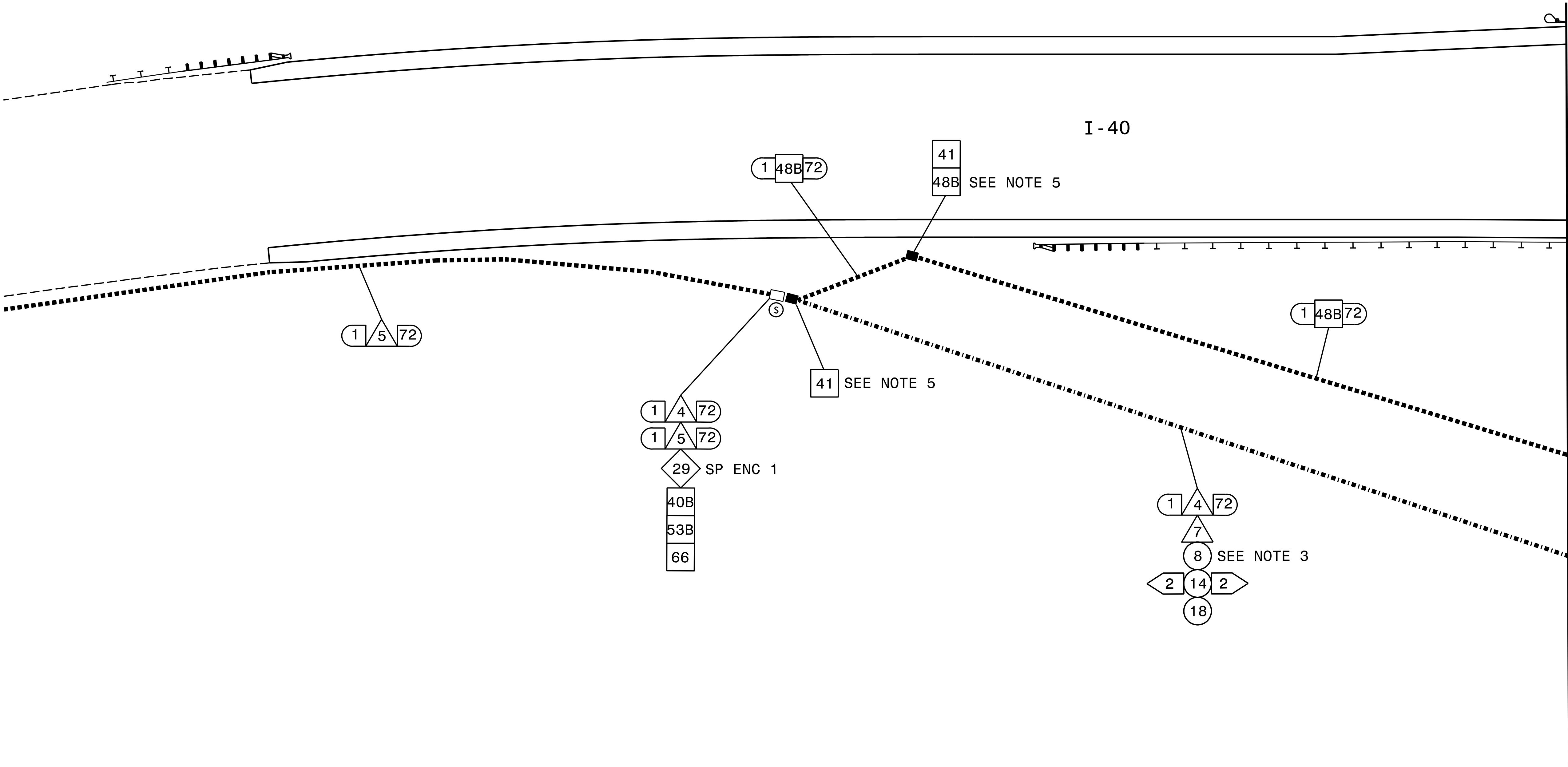
	Typical Fabrication Details For CCTV Poles		
	PLAN DATE: SEPTEMBER 2023	DESIGNED BY: K.C. DURIGON	
	PREPARED BY: K.C. DURIGON	REVIEWED BY: C.F. ANDREWS	
SCALE 0 NA NONE	REVISIONS	INIT.	DATE
DocuSigned by: 		09/21/2023 DATE	

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Raleigh, NC 27609
984.500.5426
www.exultengineering.com

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-2



NOTES:

1. NOTIFY THE NCDOT REGIONAL ITS ENGINEER AT 336-554-9700 AND THE W-S SIGNAL SYSTEM MANAGER AT 336-747-6867 AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND ITS DEVICES ARE BACK UP AND OPERATIONAL. EXISTING FIBER MUST REMAIN IN OPERATION THROUGHOUT INSTALLATION OF PROPOSED FIBER. SPlicing CUT OVER FROM EXISTING TO PROPOSED FIBER MUST OCCUR WITHIN A DAY'S WORK TO ENSURE NO DEVICE IS OFFLINE MORE THAN 24 HOURS. SEE ICT'S.
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5. REMOVE AND DISPOSE OF EXISTING JUNCTION BOXES AND FIBER OPTIC CABLE. CUT CONDUITS AT 30" BELOW GRADE AND ABANDON. FILL VOIDS AFTER REMOVALS WITH APPROVED MATERIALS.

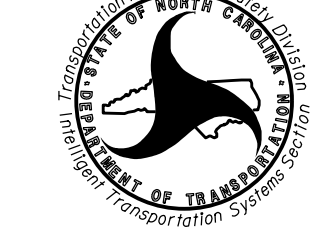


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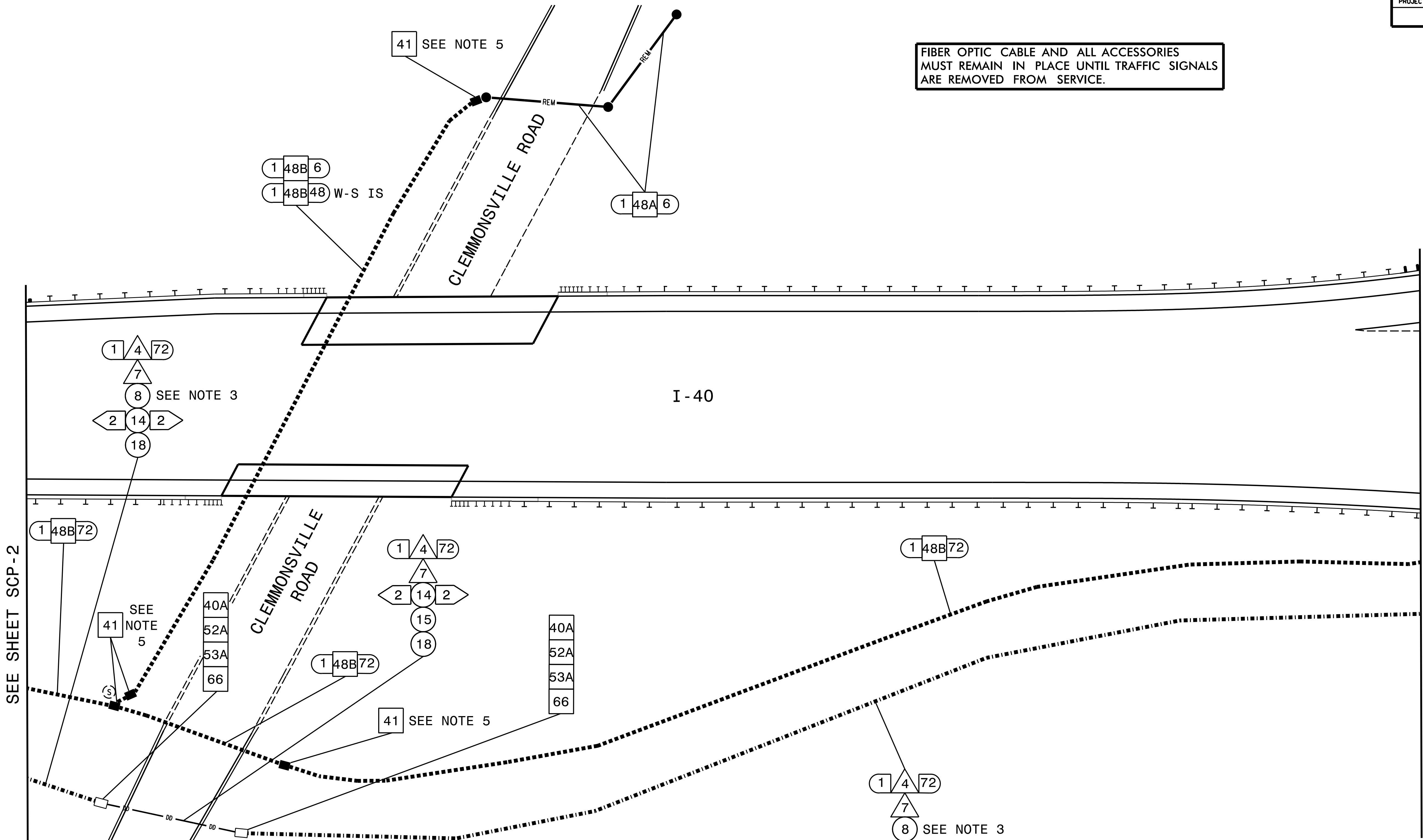
NC License
#C-4445

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Raleigh, NC 27609
984.500.5426
www.exultengineering.com

TMP Phase 3

Prepared for:  250 N. Greenfield Plaza., Garner, NC 27529		Winston-Salem Signal System Communications Cable and Conduit Routing Division 9 Forsyth County Winston-Salem PLAN DATE: May 2025 EXULT PROJ. NO: 15021 PREPARED BY: JA Wendt REVIEWED BY: KV Nicholas		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED																			
		<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										<table><tr><td colspan="2">DocuSigned by:  KELLY V. NICHOLAS ENGINEER SEAL 040023</td></tr><tr><td>SIGNATURE</td><td>DATE</td></tr><tr><td> </td><td>05/06/2025</td></tr></table>		DocuSigned by:  KELLY V. NICHOLAS ENGINEER SEAL 040023		SIGNATURE	DATE		05/06/2025
REVISIONS	INIT.	DATE																					
DocuSigned by:  KELLY V. NICHOLAS ENGINEER SEAL 040023																							
SIGNATURE	DATE																						
	05/06/2025																						

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-3



SEE SHEET SCP-4

SEE SHEET SCP-2

NOTES:

1. NOTIFY THE NCDOT REGIONAL ITS ENGINEER AT 336-554-9700 AND THE W-S SIGNAL SYSTEM MANAGER AT 336-747-6867 AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND ITS DEVICES ARE BACK UP AND OPERATIONAL. EXISTING FIBER MUST REMAIN IN OPERATION THROUGHOUT INSTALLATION OF PROPOSED FIBER. SPLICING CUT OVER FROM EXISTING TO PROPOSED FIBER MUST OCCUR WITHIN A DAY'S WORK TO ENSURE NO DEVICE IS OFFLINE MORE THAN 24 HOURS. SEE ICT'S.
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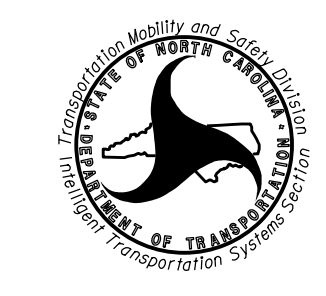


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TMP Phase 2



Prepared for:
Division 9 Forsyth County Winston-Salem

Winston-Salem Signal System
Communications Cable and
Conduit Routing

PLAN DATE: May 2025 EXULT PROJ. NO: 15021

PREPARED BY: JA Wendt REVIEWED BY: KV Nicholas

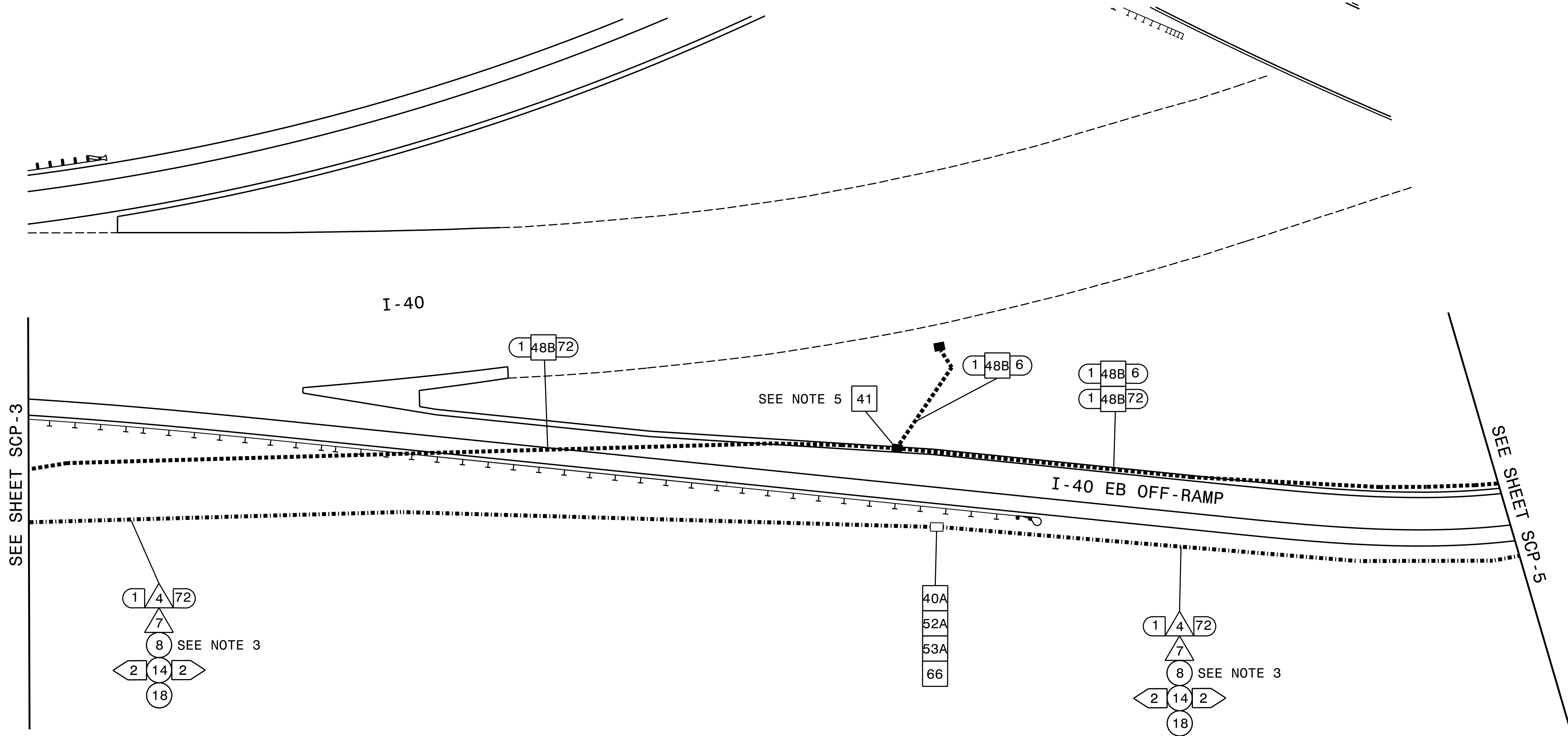
REVISIONS

INIT. DATE

DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
040023
ENGINEER
KELLY V. NICHOLAS

DocuSigned by:
Kelly Nicholas
05/06/2025
SIGNATURE DATE



NOTIFY THE NCDOT REGIONAL ITS ENGINEER AT 336-554-9700 AND THE W-S SIGNAL SYSTEM MANAGER AT 336-747-6867 AFTER ALL WORK IS COMPLETED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND ITS DEVICES ARE BACK UP AND OPERATIONAL. EXISTING FIBER MUST REMAIN IN OPERATION THROUGHOUT INSTALLATION OF PROPOSED FIBER. SPLICING CUT OVER FROM EXISTING TO PROPOSED FIBER MUST OCCUR WITHIN A DAY'S WORK TO ENSURE NO DEVICE IS OFFLINE MORE THAN 24 HOURS. SEE ICT'S.

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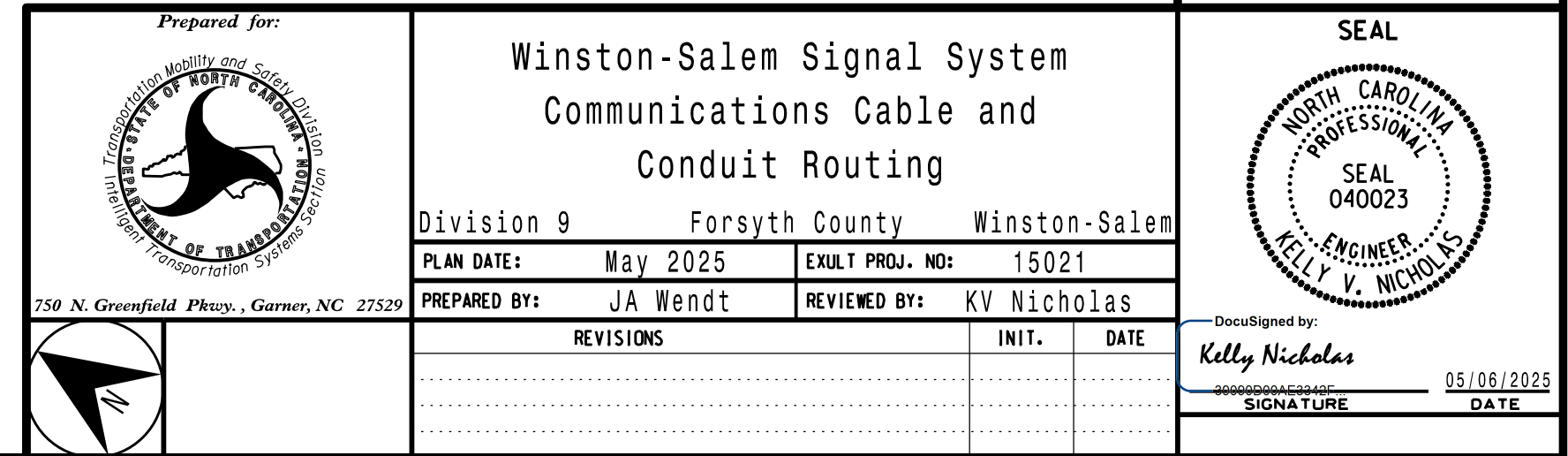


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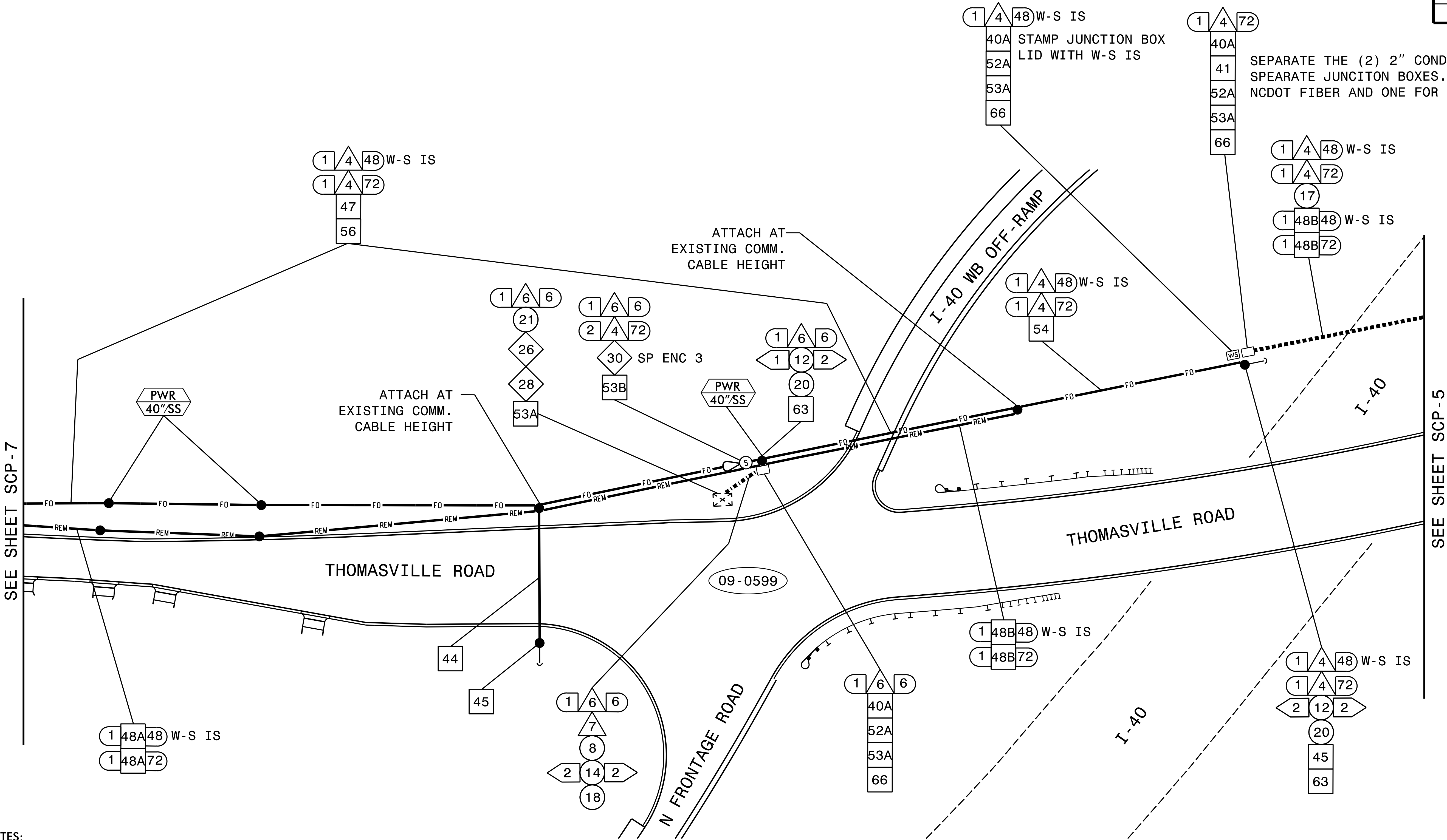
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TMP Phases 1 & 2



PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-6



NOTES:

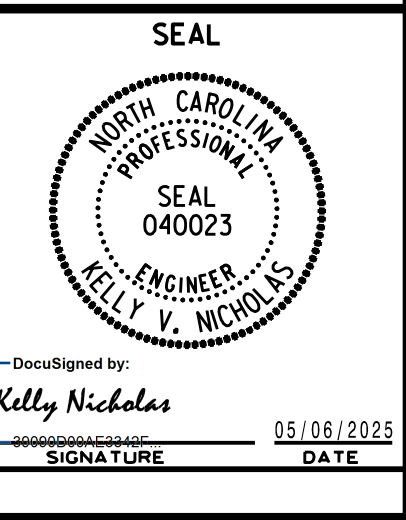
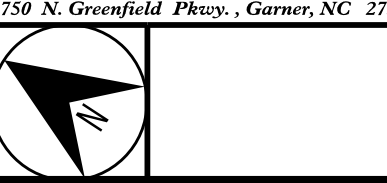
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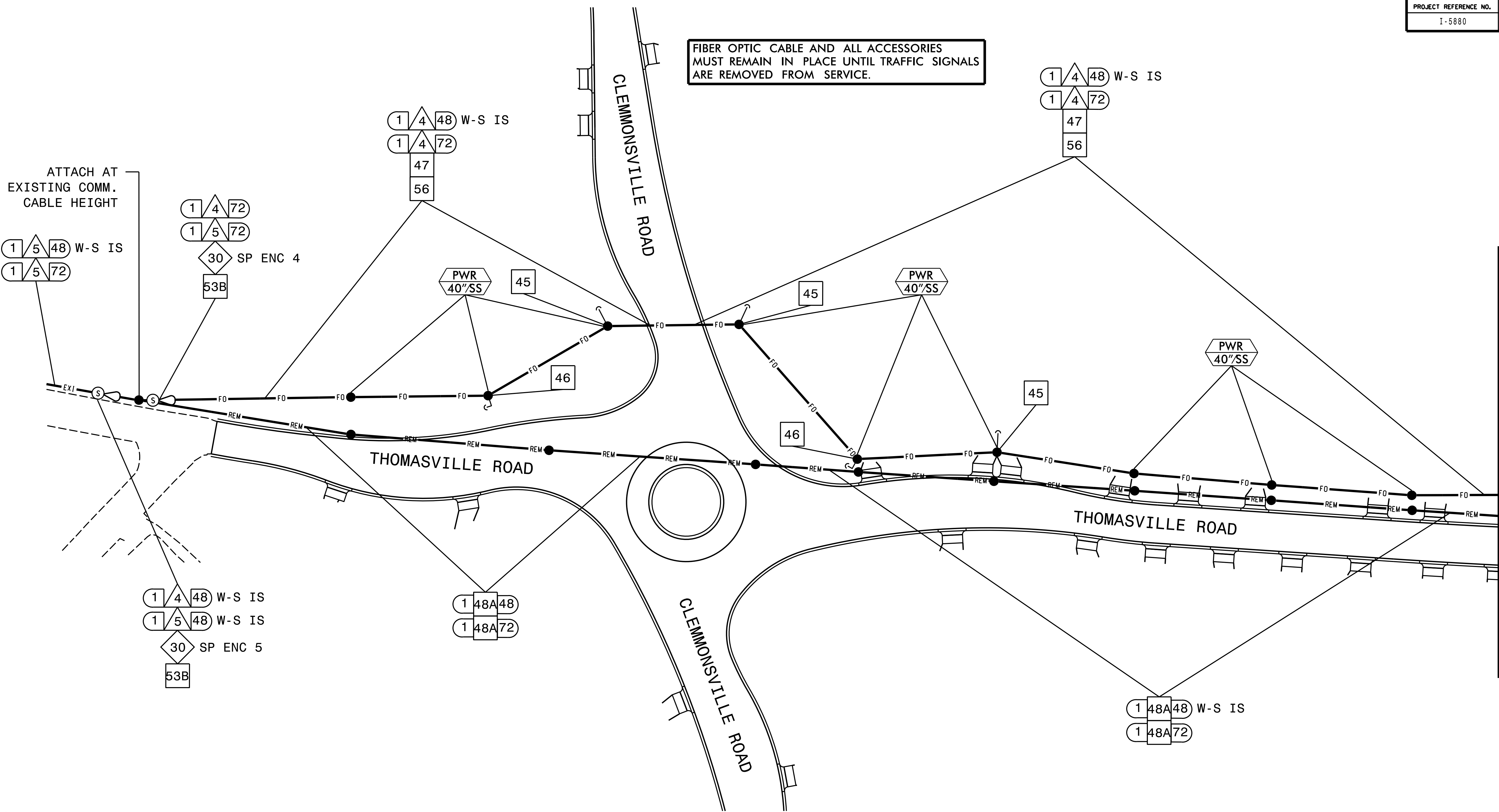
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TMP Phases 1 & 2

	Winston-Salem Signal System Communications Cable and Conduit Routing		
	Division 9 Forsyth County Winston-Salem		
	PLAN DATE: May 2025	EXULT PROJ. NO: 15021	
	PREPARED BY: JA Wendt	REVIEWED BY: KV Nicholas	
	REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-7



SEE SHEET SCP-6

NOTES:

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www.exultengineering.com

TMP Phase 1

 250 N. Greenfield Pkwy., Garner, NC 27529	Prepared for: Winston-Salem Signal System Communications Cable and Conduit Routing		 DocuSigned by: Kelly Nicholas 05/06/2025
	Division 9 Forsyth County Winston-Salem		
	PLAN DATE: May 2025	EXULT PROJ. NO: 15021	
	PREPARED BY: JA Wendt	REVIEWED BY: KV Nicholas	
	REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-8

SPLICE ENCLOSURE 1

I-40 EB AT OLD
THOMASVILLE RD RAMP

COLOR CODE
TIA/EIA 598-C

(1) BLUE

(2) ORANGE

(3) GREEN

(4) BROWN

(5) SLATE

(6) WHITE

(7) RED

(8) BLACK

(9) YELLOW

(10) VIOLET

(11) ROSE

(12) AQUA

LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING SPLICE

C - CAP IN TRAY

EXPRESS

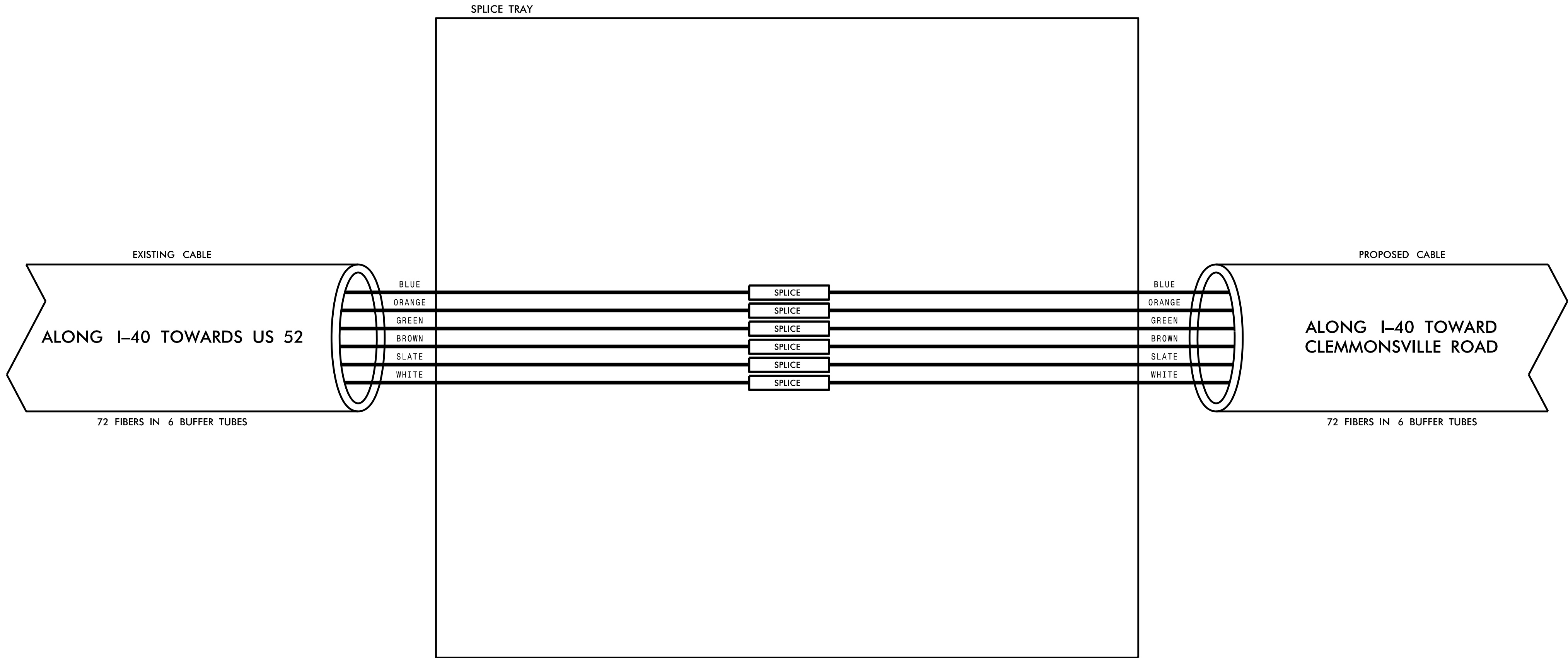
SPLICE

EXPRESS ENTIRE BUFFER TUBE

SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

NOTES:

1. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.



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- 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.

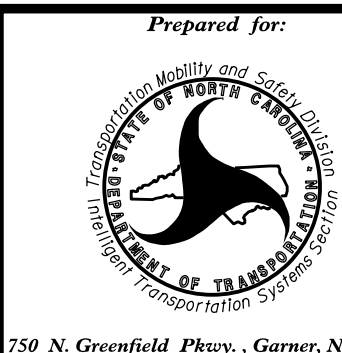
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Winston-Salem Signal System
Splice Details

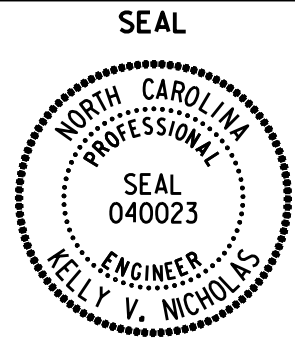
Division 9 Forsyth County Winston-Salem

PLAN DATE: May 2025 EXULT PROJ. NO: 15021

PREPARED BY: JA Wendt REVIEWED BY: KV Nicholas

REVISIONS INIT. DATE

INIT. DATE



DocuSigned by:
Kelly Nicholas
05/06/2025
SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-9

SPLICE ENCLOSURE 2

THOMASVILLE RD AT
I-40 EB RAMP (09-0600)

COLOR CODE
TIA/EIA 598-C

(1) BLUE

(2) ORANGE

(3) GREEN

(4) BROWN

(5) SLATE

(6) WHITE

(7) RED

(8) BLACK

(9) YELLOW

(10) VIOLET

(11) ROSE

(12) AQUA

LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING SPLICE

C - CAP IN TRAY

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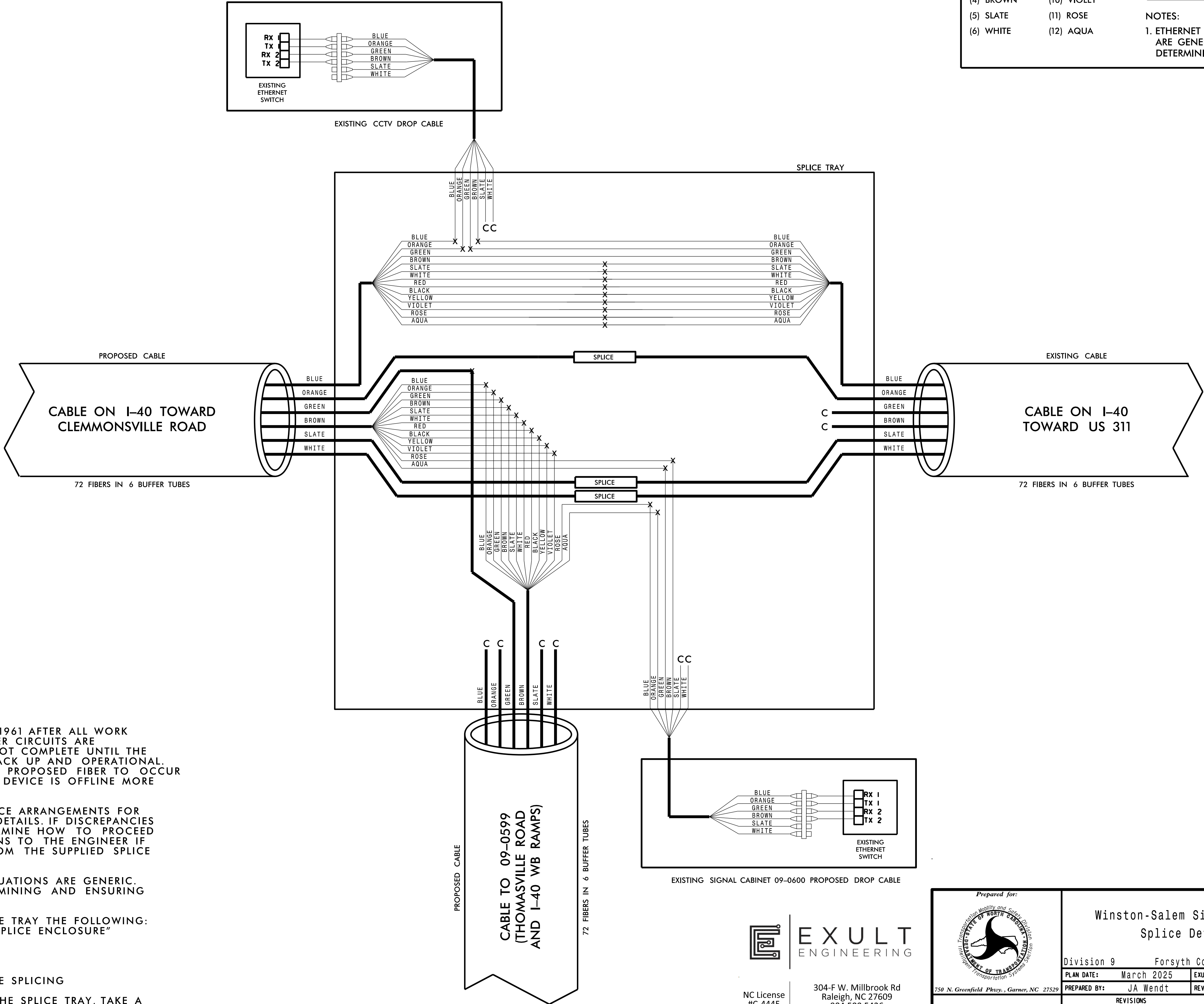
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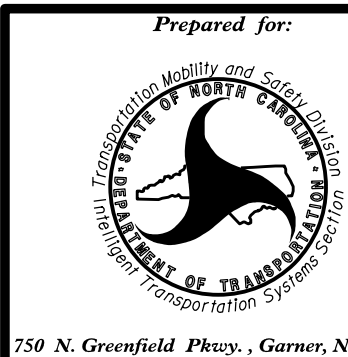
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Winston-Salem Signal System Splice Details			
Division 9		Forsyth County Winston-Salem	
PLAN DATE:	March 2025	EXULT PROJ. NO:	15021
PREPARED BY:	JA Wendt	REVIEWED BY:	KV Nicholas
REVISIONS		INIT.	DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL

NORTH CAROLINA
PROFESSIONAL
SEAL
040023
ENGINEER
KELLY V. NICHOLAS

DocuSigned by:
Kelly Nicholas
05/06/2025
SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-10

SPLICE ENCLOSURE 3

THOMASVILLE RD AT
I-40 WB RAMP (09-0599)

NOTE: WINSTON-SALEM INFORMATION SYSTEMS 48-FIBER CABLE DOES NOT ENTER SPLICE ENCLOSURE.

COLOR CODE
TIA/EIA 598-C

(1) BLUE

(2) ORANGE

(3) GREEN

(4) BROWN

(5) SLATE

(6) WHITE

(7) RED

(8) BLACK

(9) YELLOW

(10) VIOLET

(11) ROSE

(12) AQUA

LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING SPLICE

C - CAP IN TRAY

EXPRESS

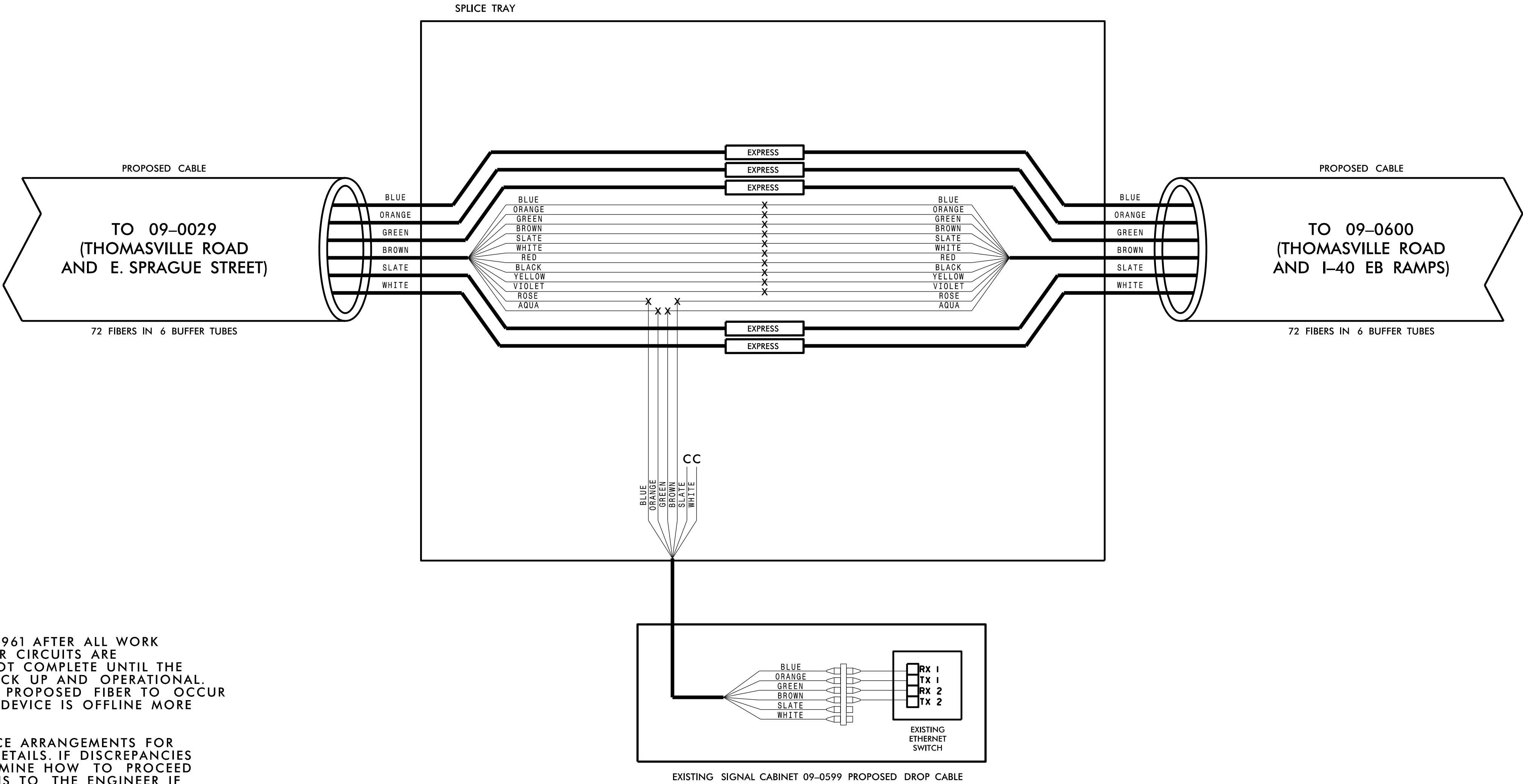
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SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

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- 3) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND 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

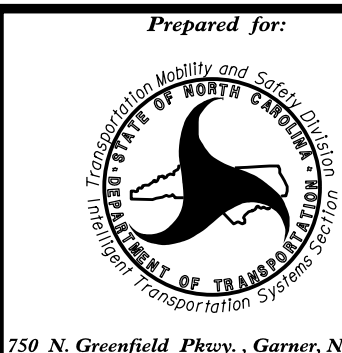
PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTR TEST RESULTS.



EXULT
ENGINEERING

NC License
#C-4445

304-F W. Millbrook Rd
Raleigh, NC 27609
984.500.5426
www.exultengineering.com



Winston-Salem Signal System
Splice Details

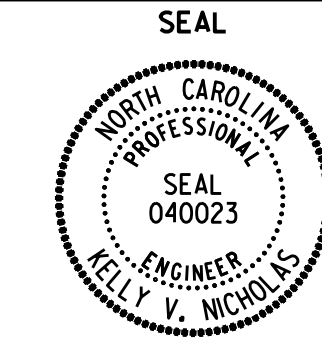
Division 9 Forsyth County Winston-Salem

PLAN DATE: May 2025 EXULT PROJ. NO: 15021

PREPARED BY: JA Wendt REVIEWED BY: KV Nicholas

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



DocuSigned by:
Kelly Nicholas
05/06/2025
SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-11

SPLICE ENCLOSURE 4

THOMASVILLE RD NEAR
GLENCOE ST

NOTE: WINSTON-SALEM INFORMATION SYSTEMS 48-FIBER CABLE DOES NOT ENTER SPLICE ENCLOSURE.

COLOR CODE
TIA/EIA 598-C

(1) BLUE

(2) ORANGE

(3) GREEN

(4) BROWN

(5) SLATE

(6) WHITE

(7) RED

(8) BLACK

(9) YELLOW

(10) VIOLET

(11) ROSE

(12) AQUA

LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING SPLICE

C - CAP IN TRAY

EXPRESS

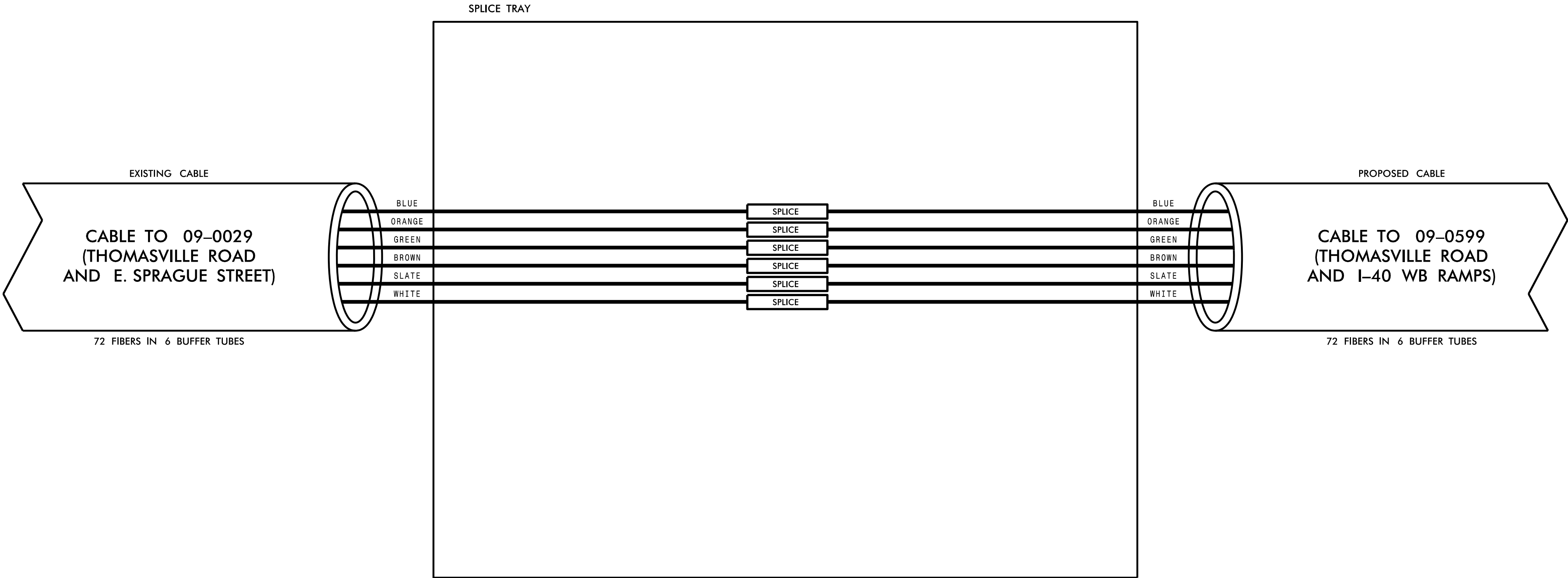
SPLICE

EXPRESS ENTIRE BUFFER TUBE

SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

NOTES:

1. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.



- 1) NOTIFY THE FIBER MANAGER AT 336-399-1961 AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. ALL WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND ITS DEVICES ARE BACK UP AND OPERATIONAL. SPLICING CUT OVER FROM EXISTING TO PROPOSED FIBER TO OCCUR WITHIN A DAY'S WORK TO ENSURE NO DEVICE IS OFFLINE MORE THAN 24 HOURS.
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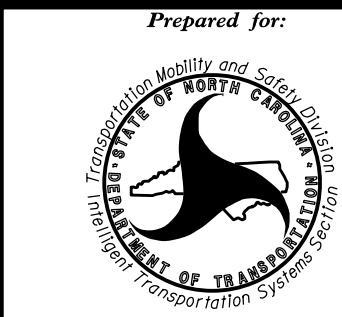
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Winston-Salem Signal System Splice Details			
Division 9		Forsyth County	Winston-Salem
PLAN DATE:	May 2025	EXULT PROJ. NO:	15021
PREPARED BY:	JA Wendt	REVIEWED BY:	KV Nicholas
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL

NORTH CAROLINA
PROFESSIONAL
SEAL
040023

ENGINEER
KELLY V. NICHOLAS

DocuSigned by:

Kelly Nicholas

05/06/2025

SIGNATURE

DATE

PROJECT REFERENCE NO.	SHEET NO.
I-5880	SCP-12

SPLICE ENCLOSURE 5

THOMASVILLE RD NEAR
GLENCOE ST

NOTE: NCDOT 72-FIBER CABLE DOES NOT ENTER SPLICE ENCLOSURE.

COLOR CODE
TIA/EIA 598-C

(1) BLUE

(2) ORANGE

(3) GREEN

(4) BROWN

(5) SLATE

(6) WHITE

(7) RED

(8) BLACK

(9) YELLOW

(10) VIOLET

(11) ROSE

(12) AQUA

LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER

O - EXISTING SPLICE

C - CAP IN TRAY

EXPRESS

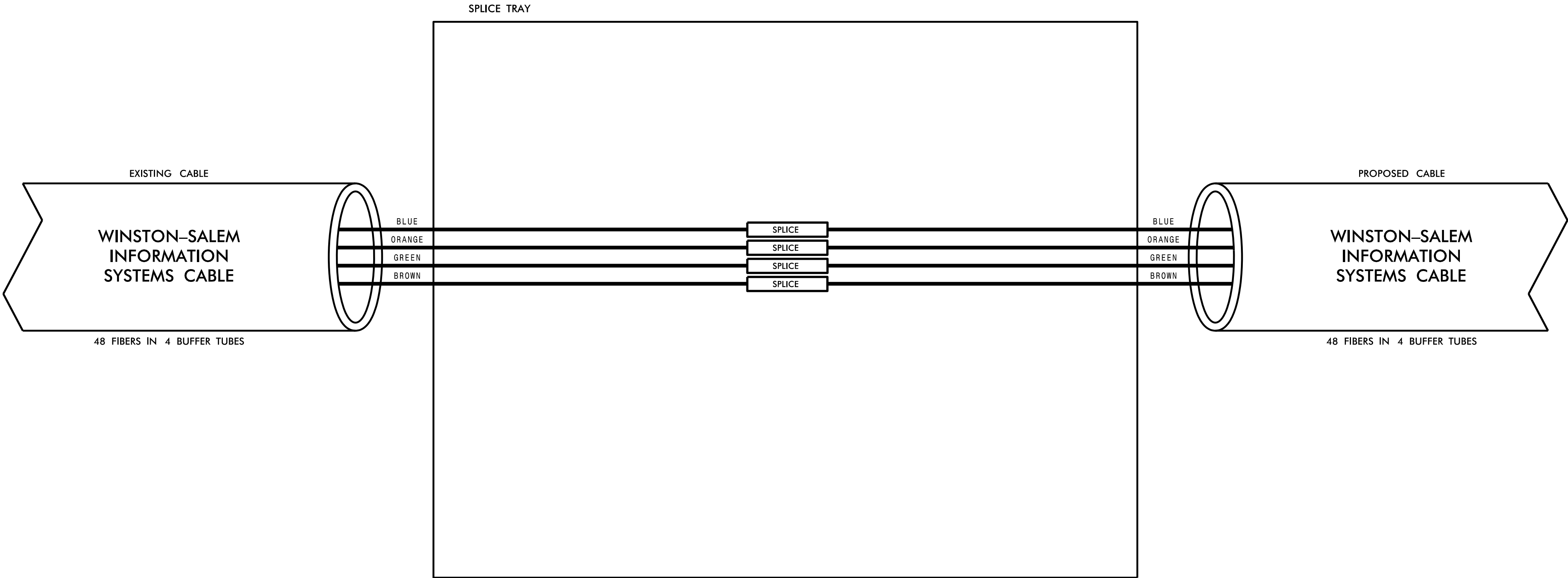
SPLICE

EXPRESS ENTIRE BUFFER TUBE

SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

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Prepared for:

750 N. Greenfield Plaza., Garner, NC 27529

Division 9

Forsyth County

Winston-Salem

Winston-Salem Signal System
Splice Details

PLAN DATE: May 2025

EXULT PROJ. NO: 15021

PREPARED BY: JA Wendt

REVIEWED BY: KV Nicholas

REVISIONS

INIT.

DATE

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SEAL

NORTH CAROLINA
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