

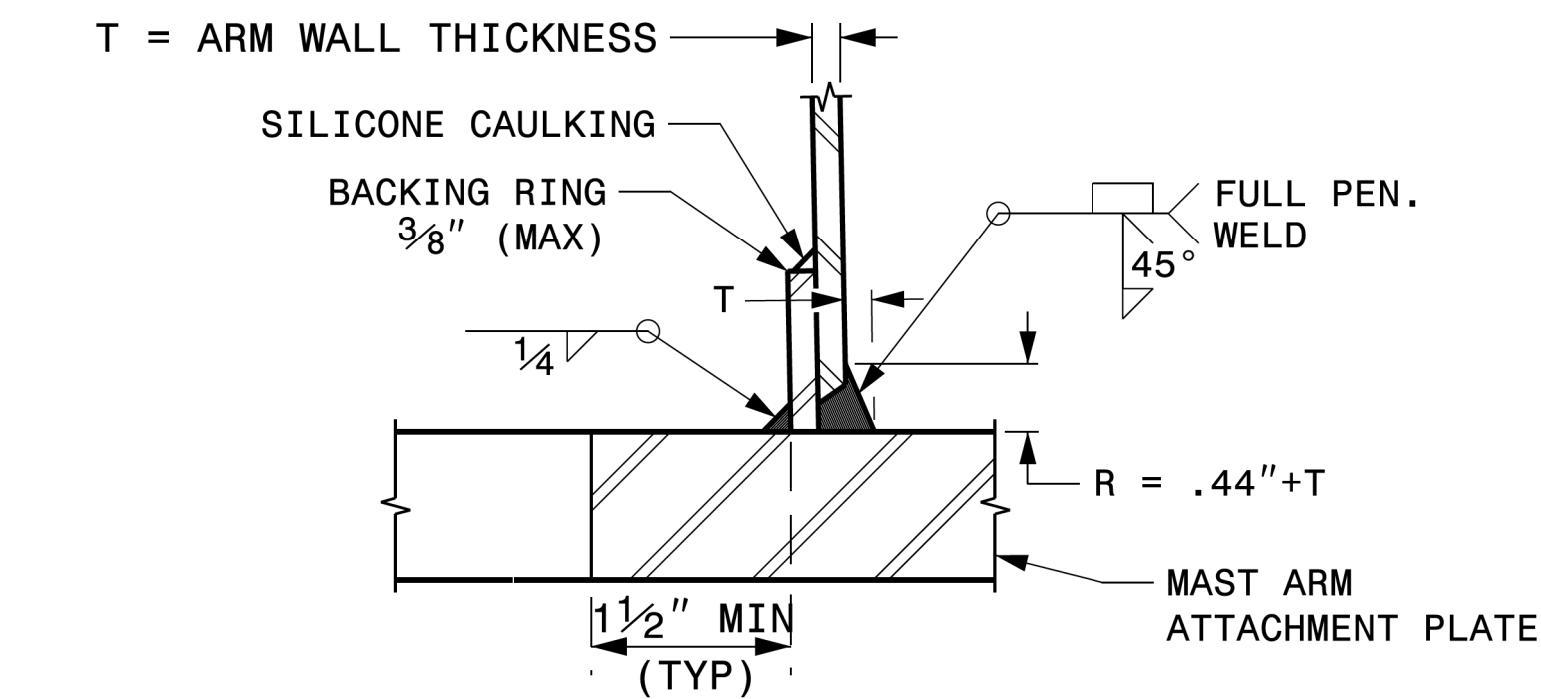
WELDED RING STIFFENED MAST ARM CONNECTION

PROJECT I.D. NO.

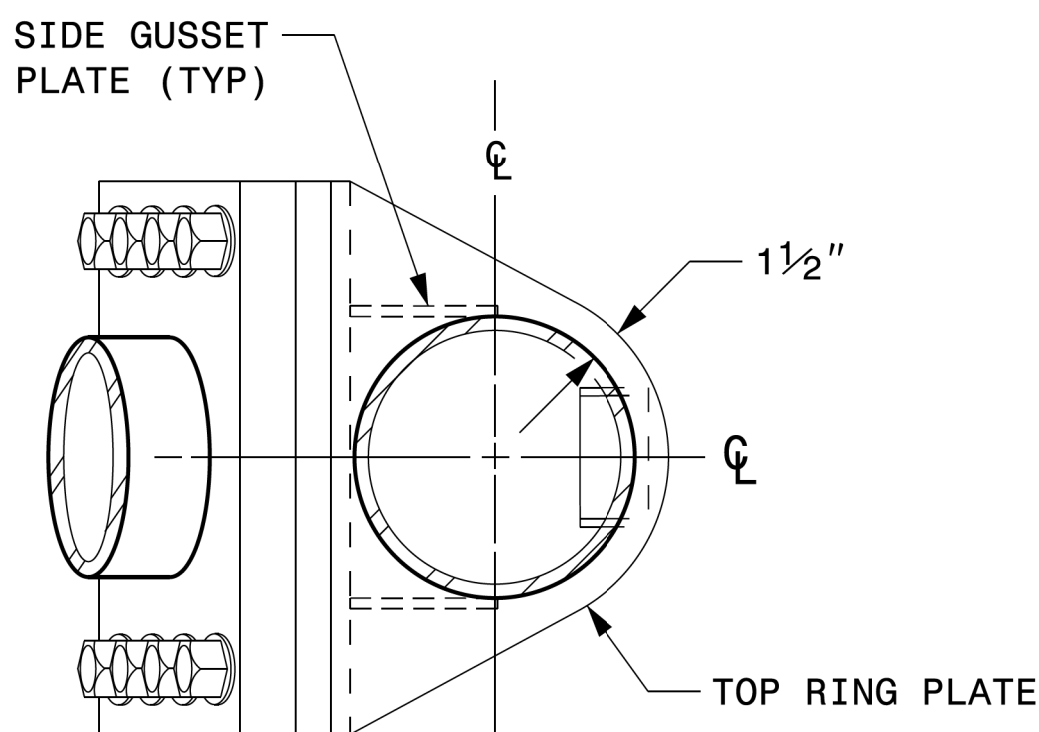
SHEET NO.

P - 5707

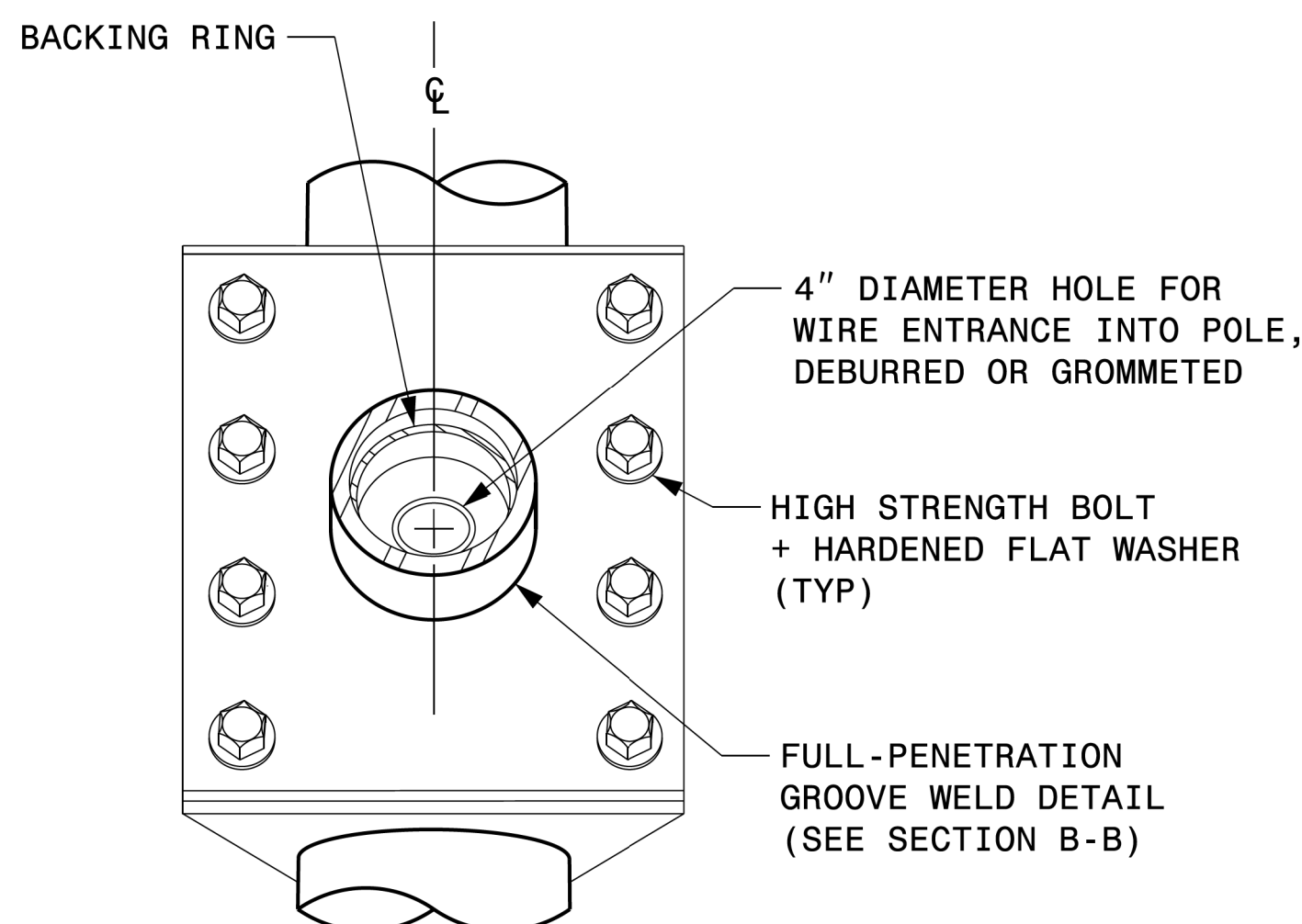
Sig.M5



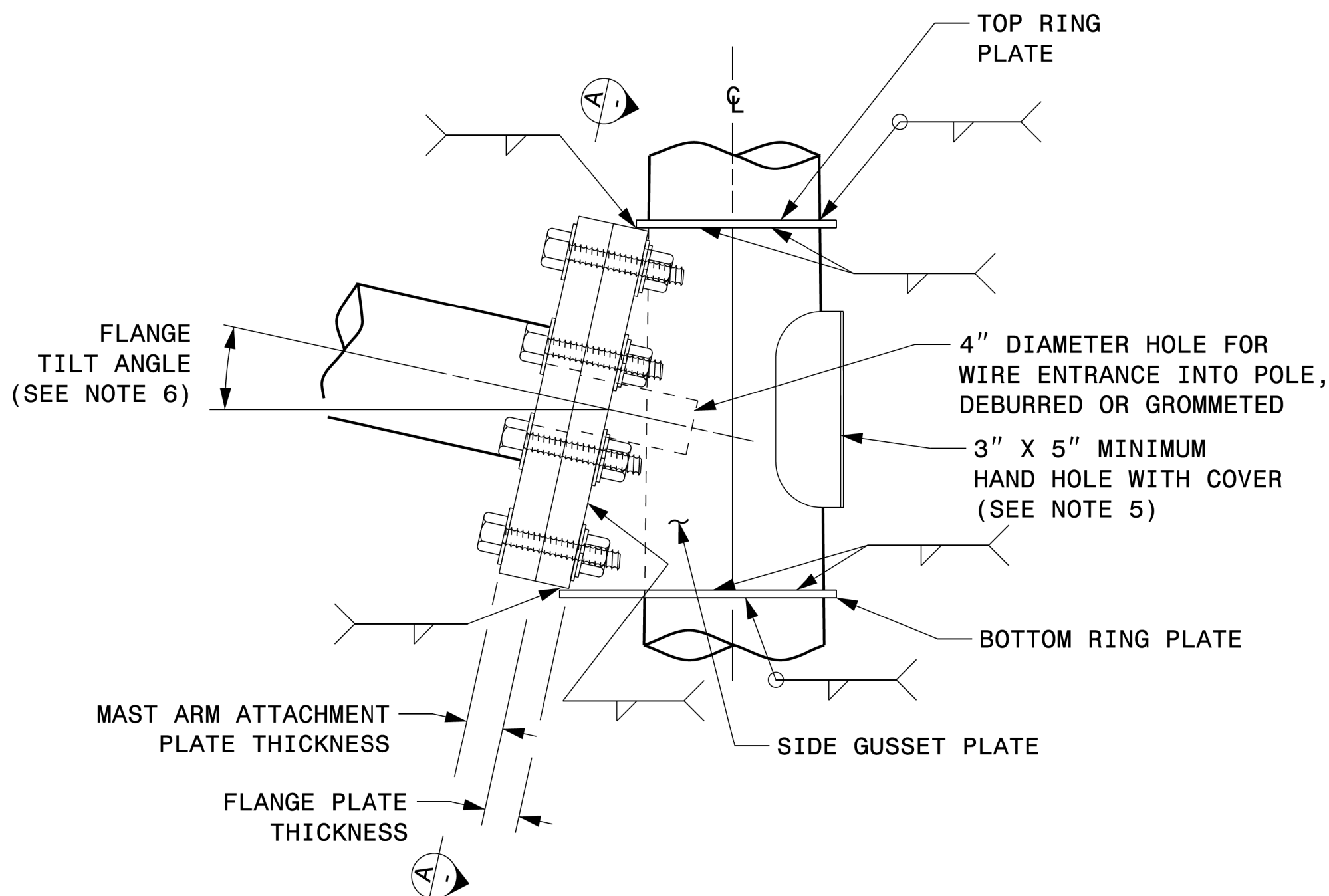
SECTION B-B  
FULL-PENETRATION GROOVE WELD DETAIL



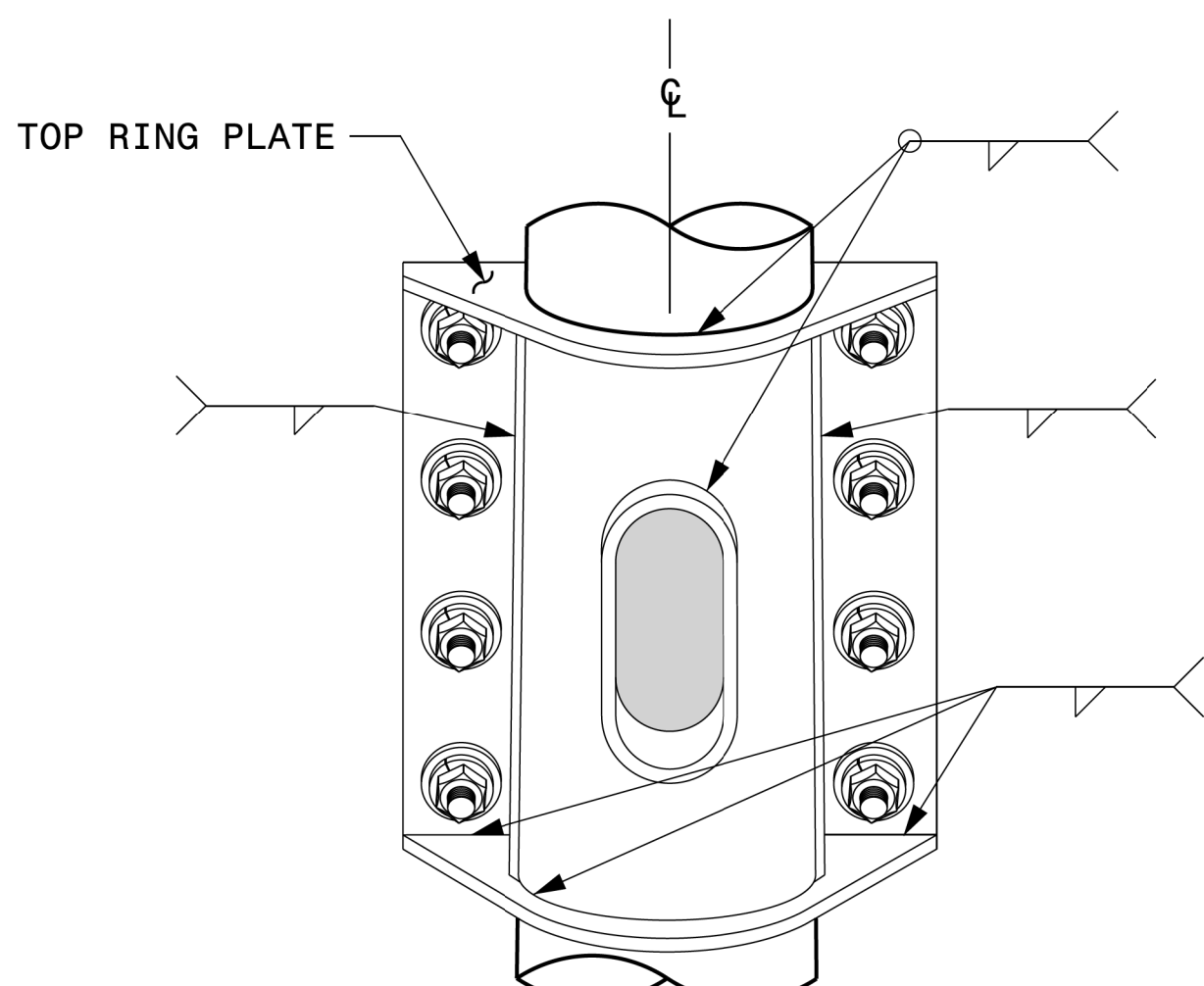
PLAN VIEW



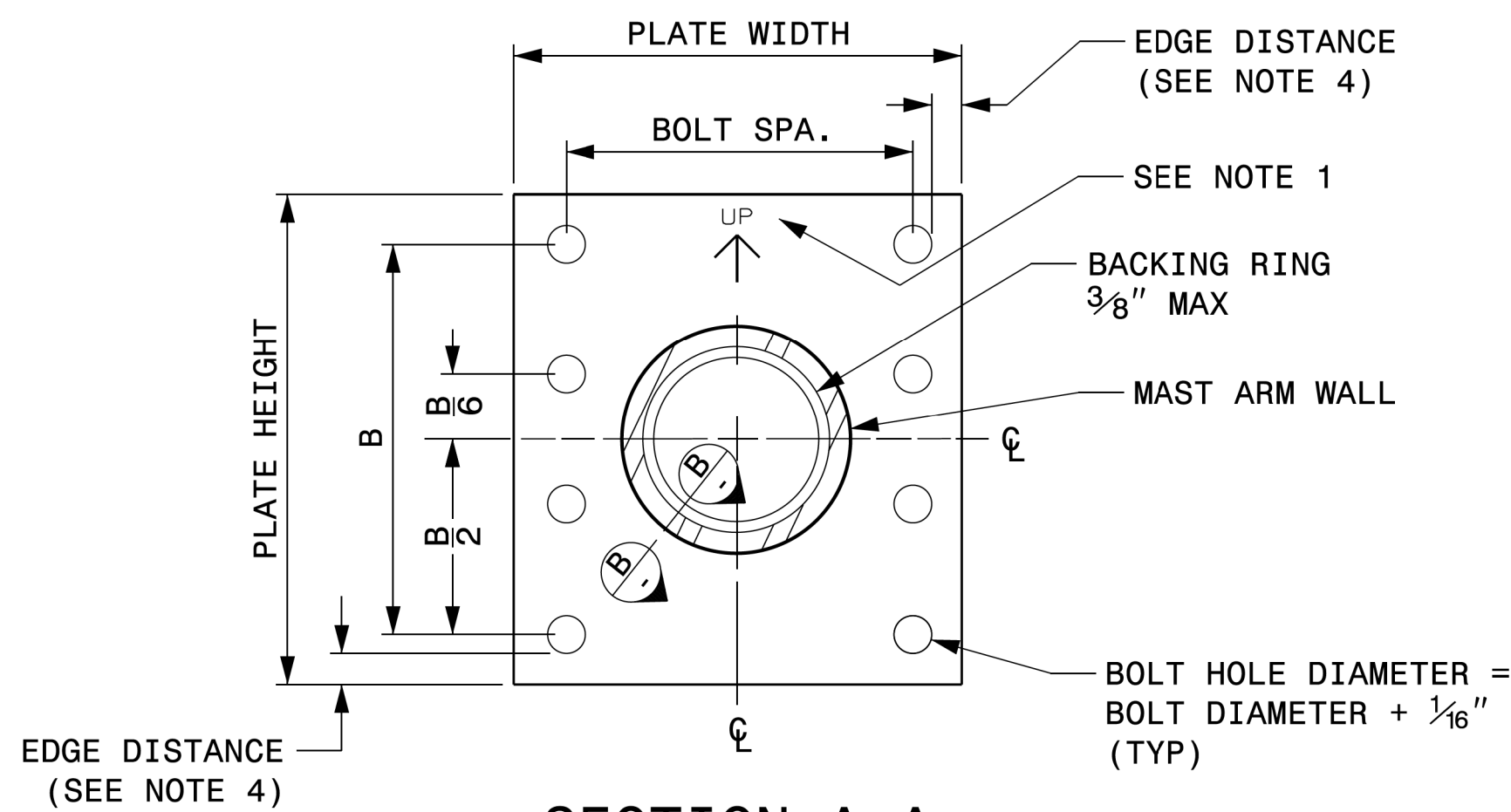
FRONT ELEVATION VIEW



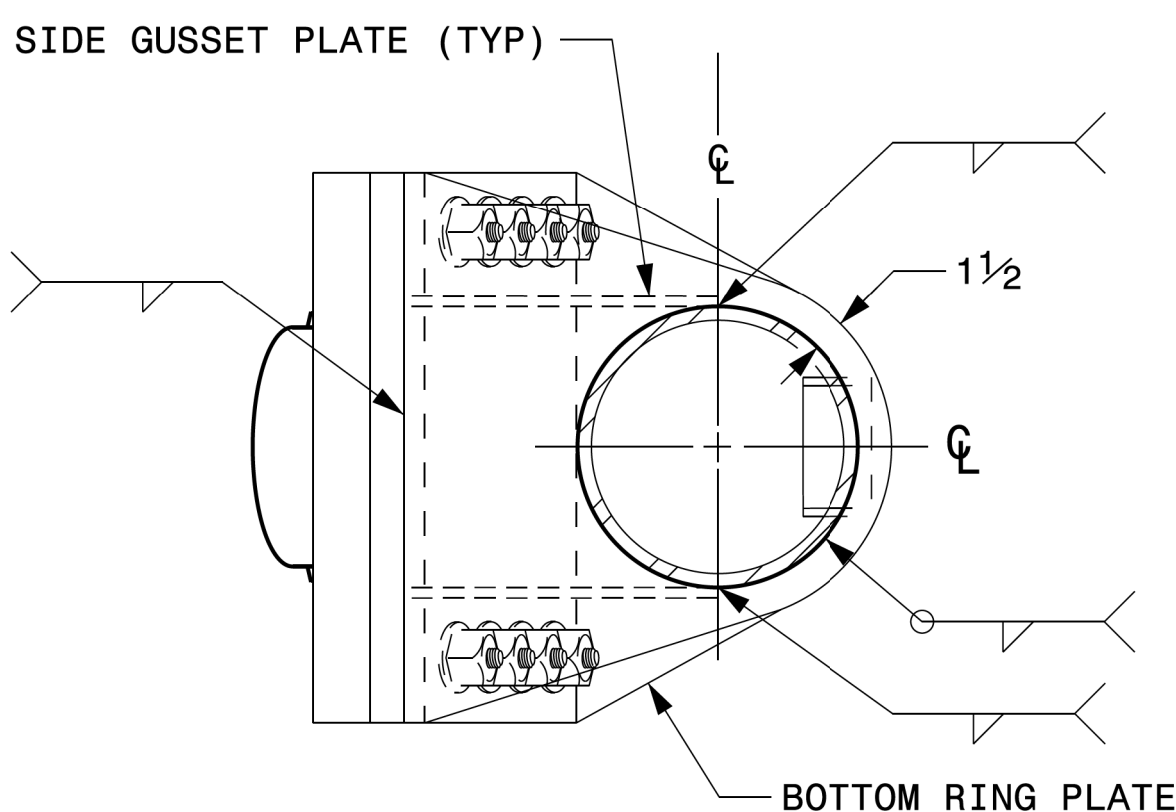
SIDE ELEVATION VIEW



BACK ELEVATION VIEW



SECTION A-A  
MAST ARM ATTACHMENT PLATE



BOTTOM VIEW

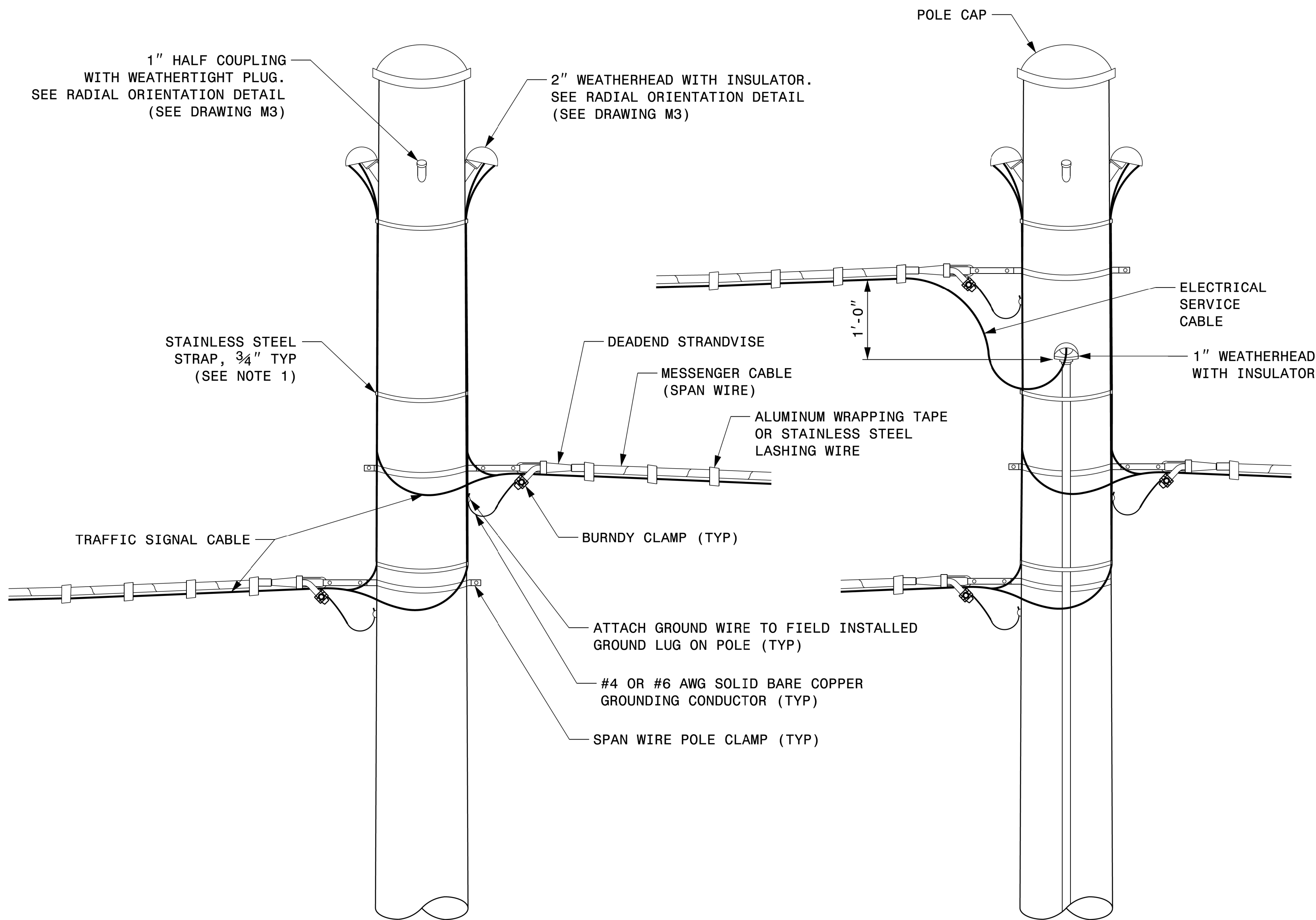
NOTES:

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.

21-SEP-2023 08:01 S:\TS&S\1\TS Signal&Signal Design Section\Structures\Drawings\2024 Metal Pole Std Drawings for LRP\2024 Sig.M5 Std. Connection Fabrication Details-Mast Arm Poles.dgn Kedar-1000

Fabrication Details – Mast Arm Connection

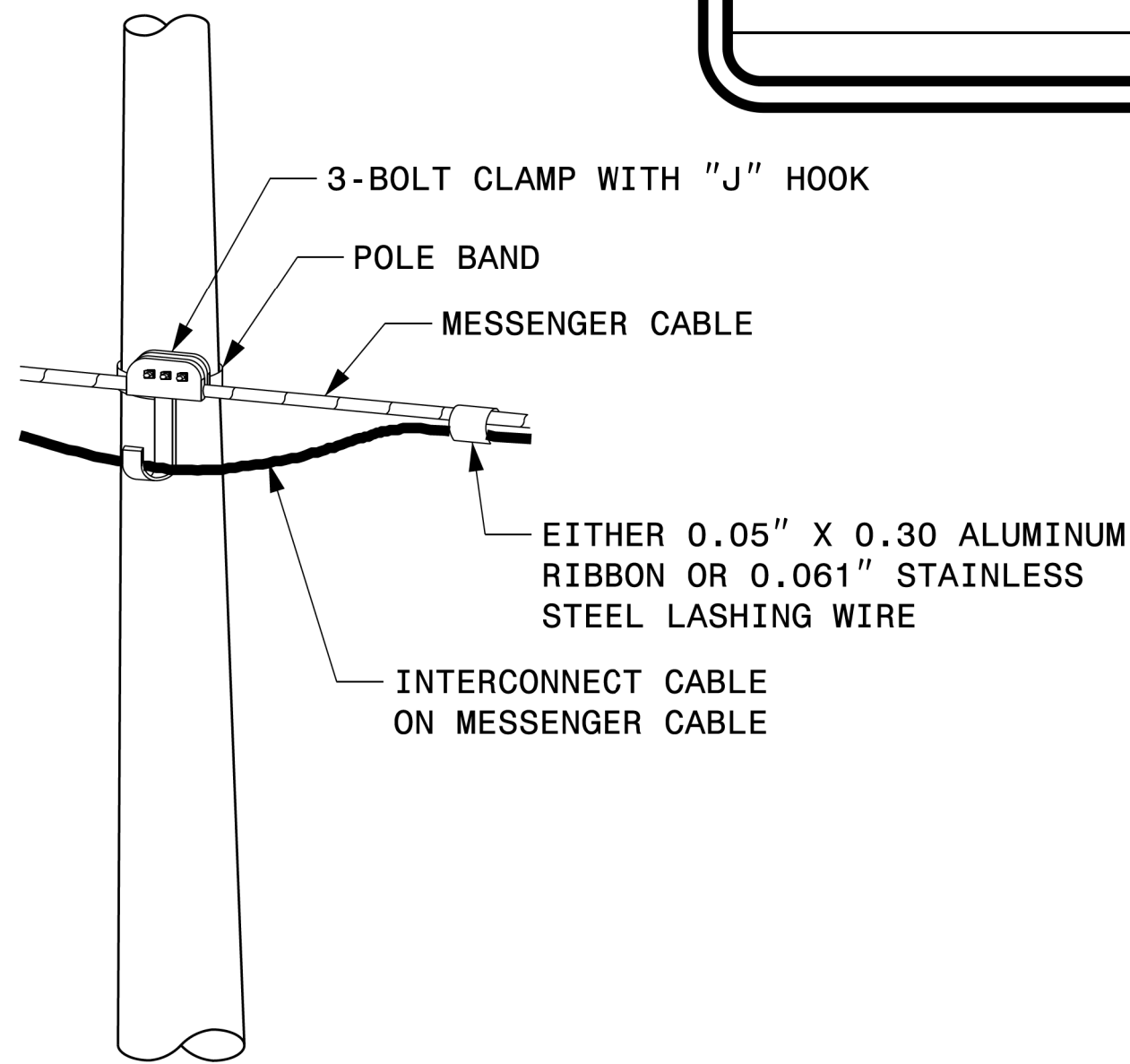
|                    |                                                                   |                           |                   |
|--------------------|-------------------------------------------------------------------|---------------------------|-------------------|
|                    | Typical Fabrication Details<br>For<br>Mast Arm Connection To Pole |                           |                   |
|                    | PLAN DATE: SEPTEMBER 2023                                         | DESIGNED BY: C.F. ANDREWS |                   |
|                    | PREPARED BY: K.C. DURIGON                                         | REVIEWED BY: D.C. SARKAR  |                   |
|                    | REVISIONS                                                         | INIT. DATE                |                   |
| 0 SCALE NA<br>NONE |                                                                   |                           |                   |
| DocuSigned by:<br> |                                                                   |                           | 9/21/2023<br>DATE |



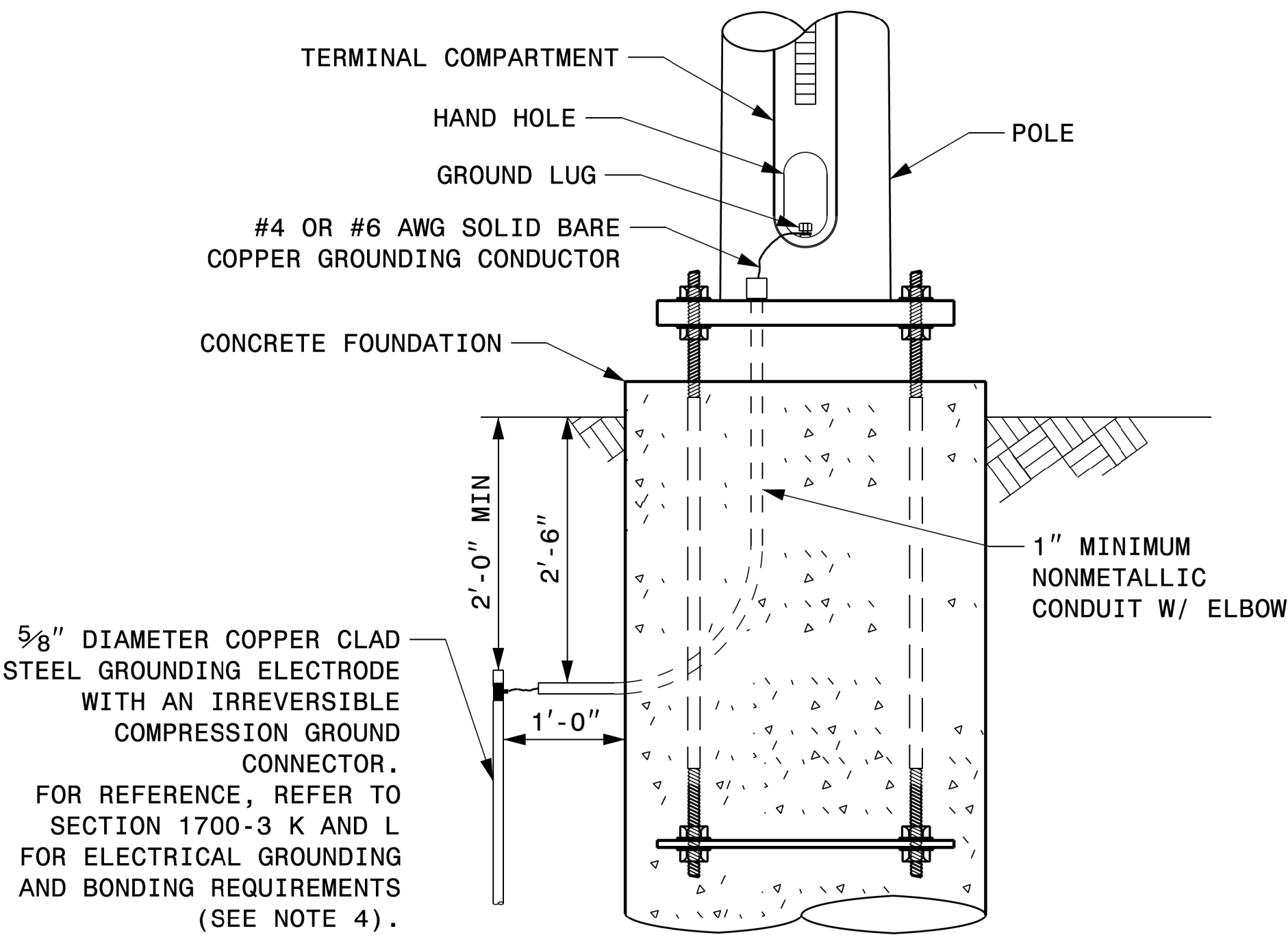
STRAIN POLE ATTACHMENTS

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



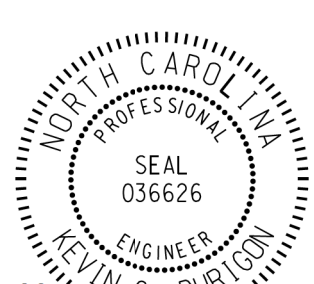
0 SCALE NA  
NONE

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 |
|-----------|-------|------|
|           |       |      |
|           |       |      |
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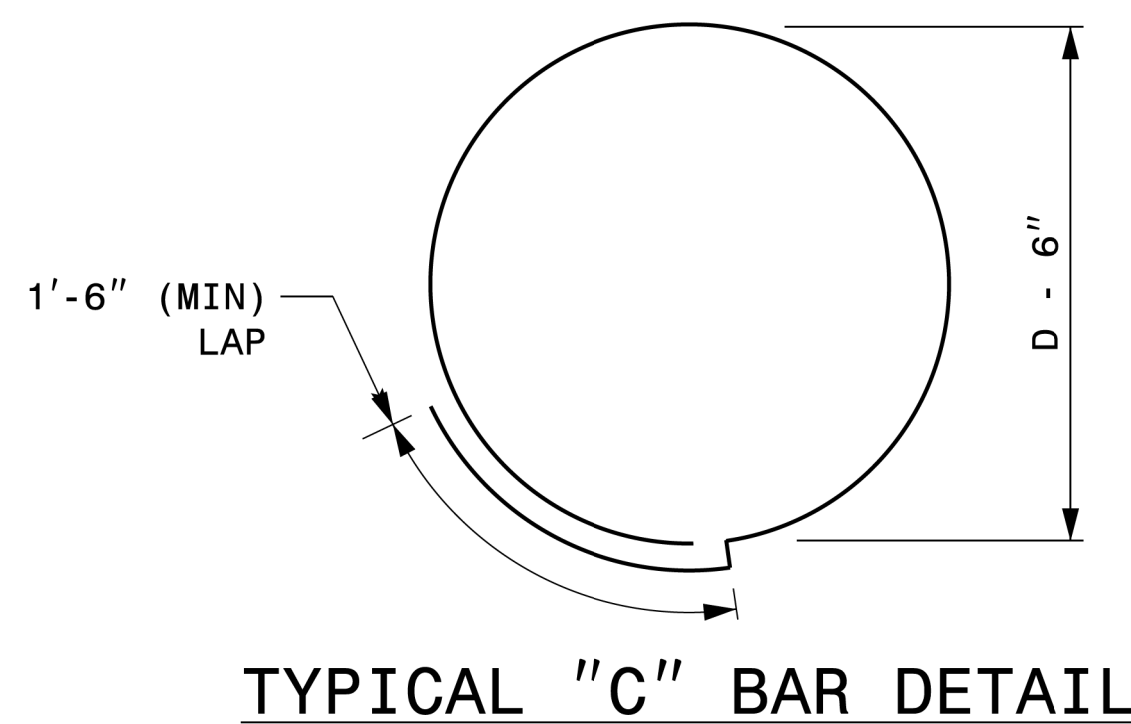
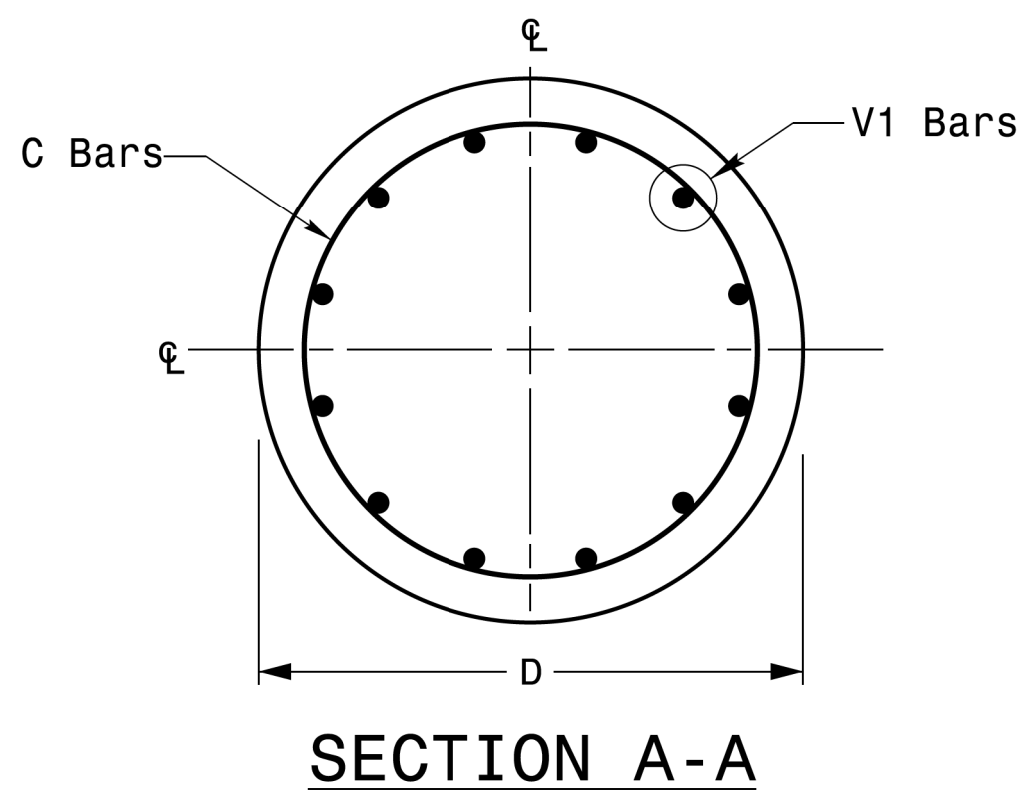
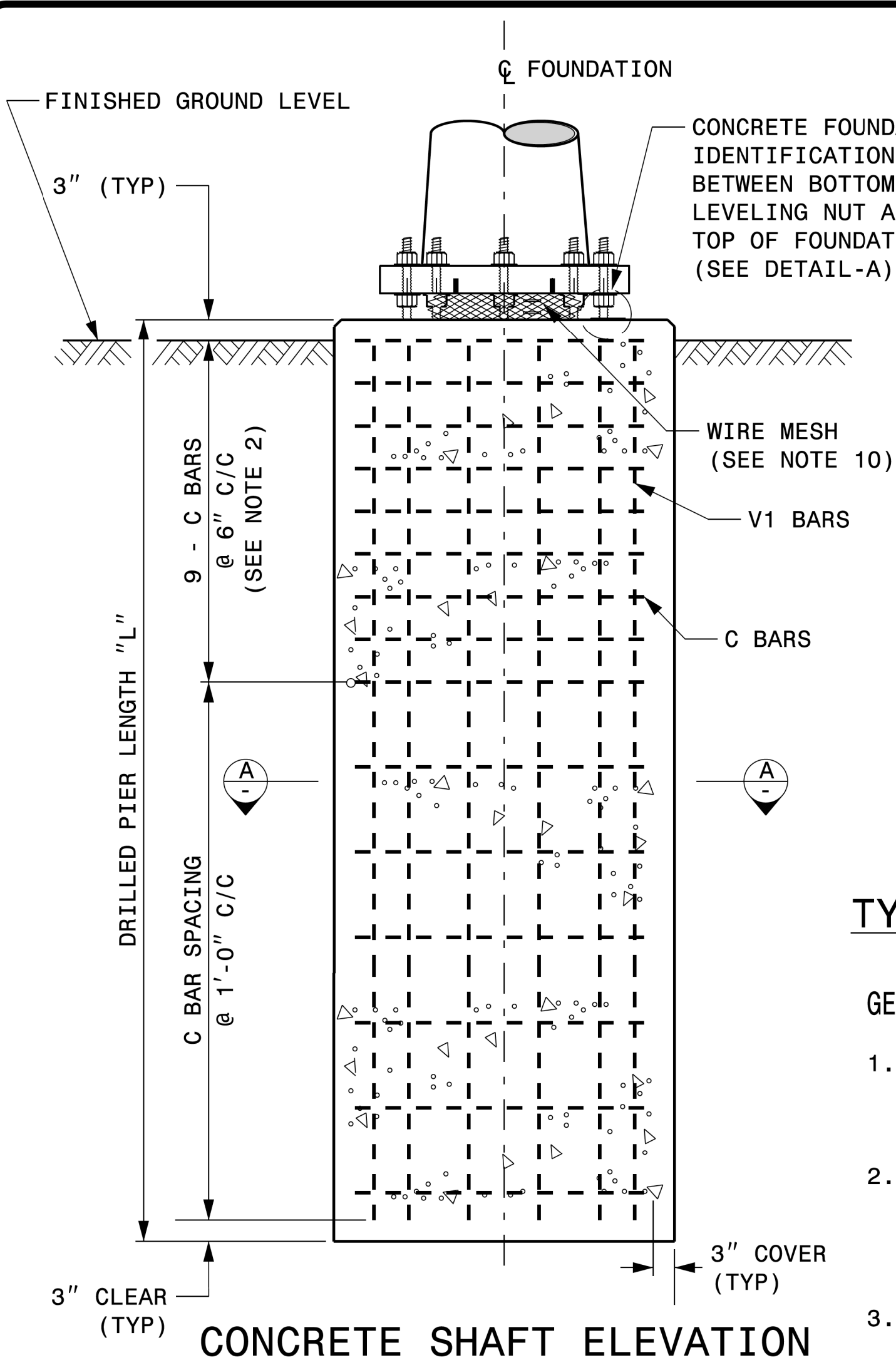
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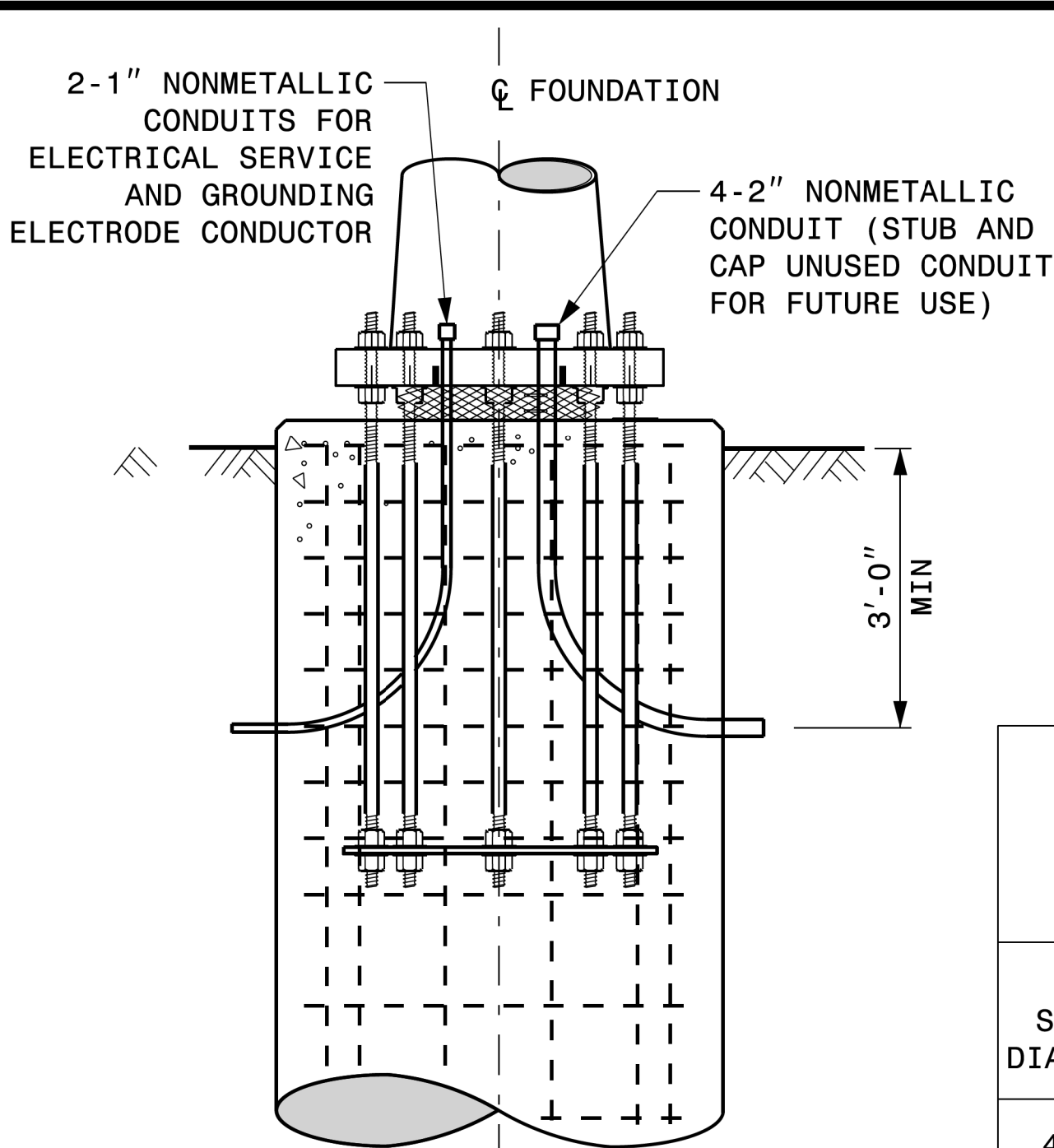
DocuSigned by:

Kevin Durigon  
SIGNATURE

09/21/2023  
DATE



### TYPICAL FOUNDATION CONDUIT DETAILS



#### GENERAL NOTES:

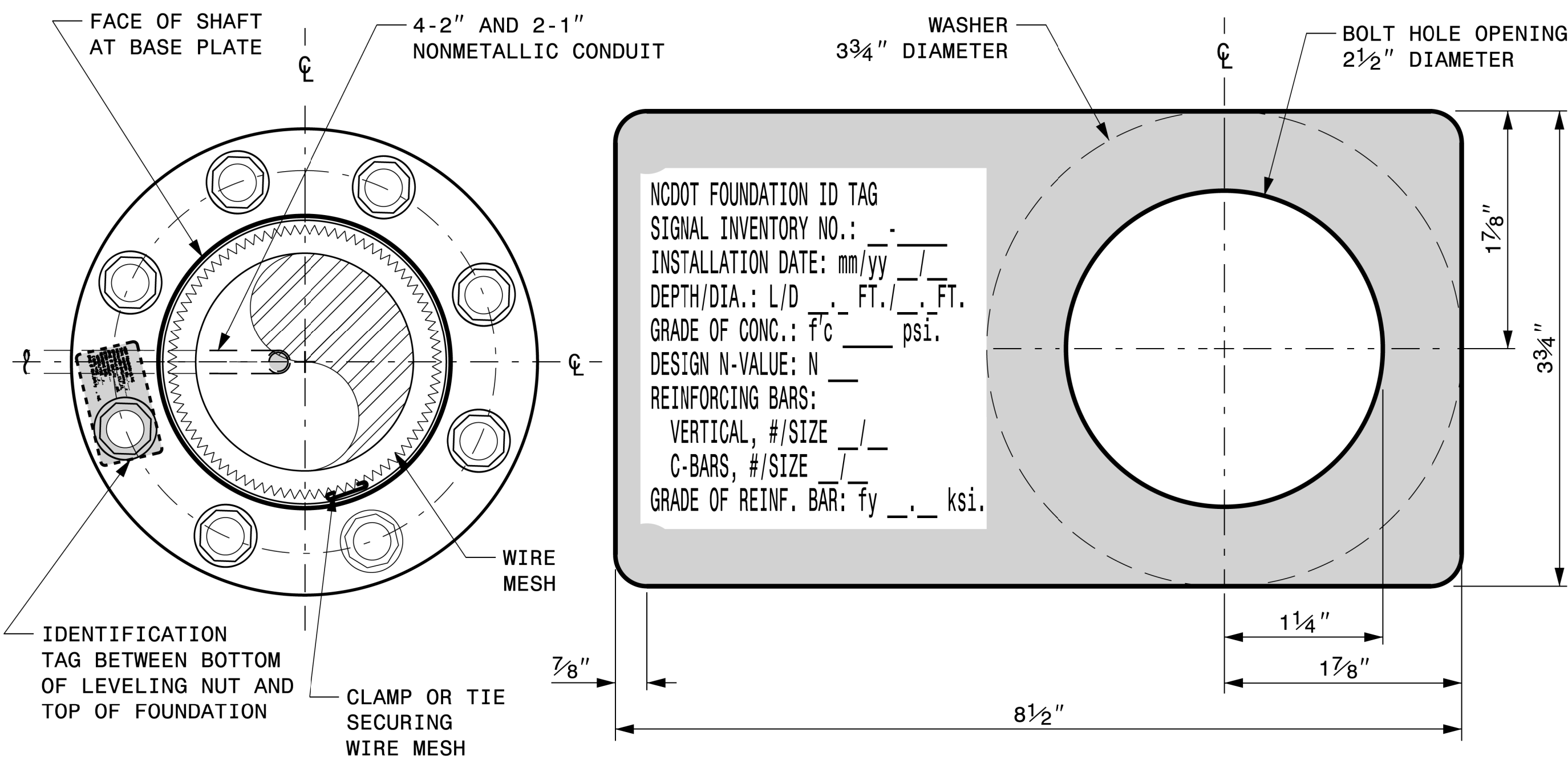
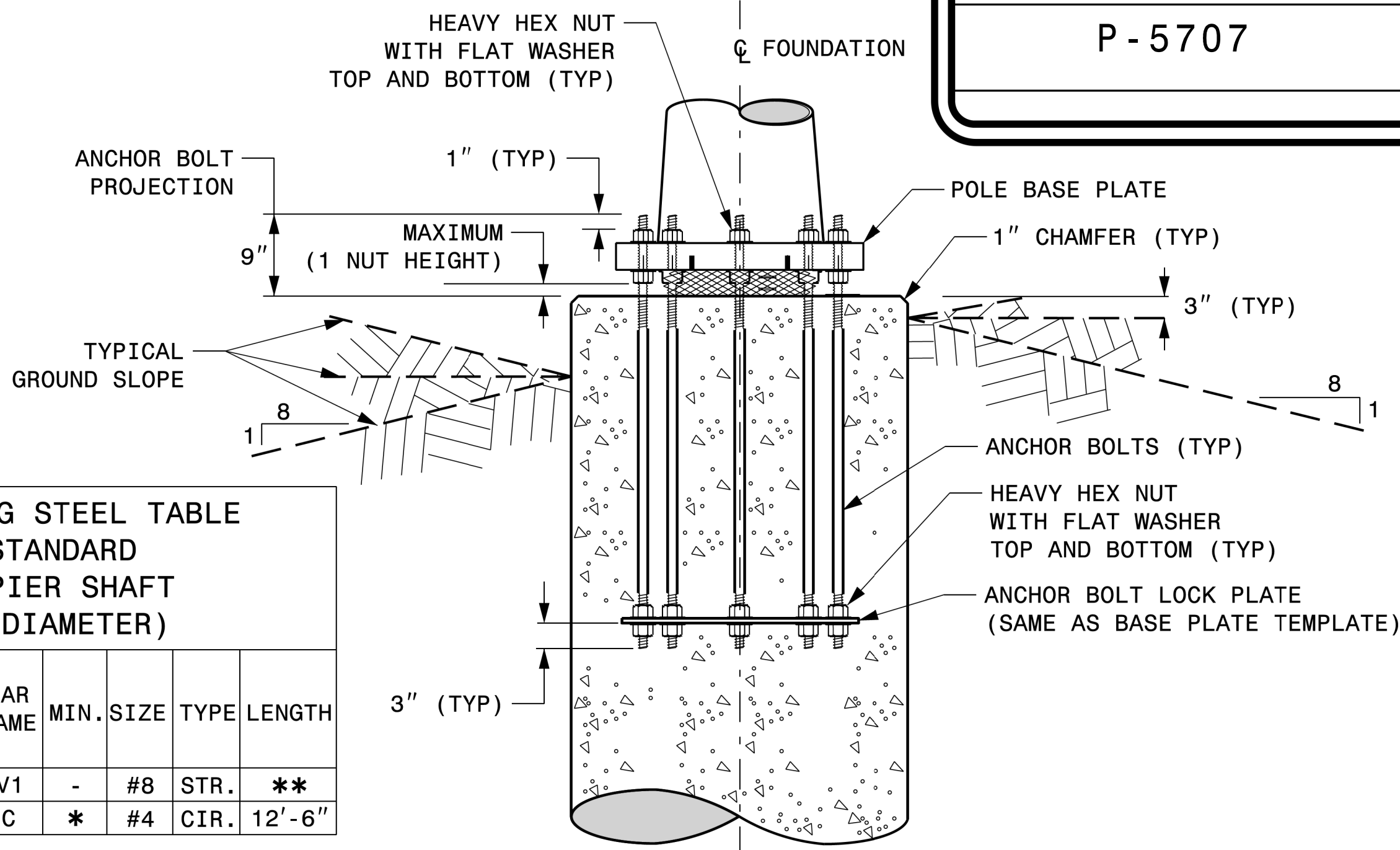
- IF ACTUAL SUBSURFACE CONDITIONS DIFFER SIGNIFICANTLY FROM BORING DATA, CONTACT THE ENGINEER BEFORE EXCAVATING OR PLACING CONCRETE.
- CIRCULAR TIE REINFORCING RINGS MAY BE VERTICALLY ADJUSTED BY +/-3" AT A DEPTH BETWEEN 2'-0" AND 3'-0" TO FACILITATE THE INSTALLATION OF ELECTRICAL CONDUIT ENTERING IN 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)



### DETAIL-A

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

### CONCRETE FOUNDATION IDENTIFICATION TAG DETAILS

|                                                                             |                                                                                                                                                                              |                                                                                                 |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Prepared in the Offices of:<br><br>750 N. Greenfield Pkwy, Garner, NC 27529 | Construction Details For Foundations<br>PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON<br>PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR<br>REVISIONS<br>INIT. DATE | SEAL<br>K. C. DURIGON<br>PROFESSIONAL ENGINEER<br>036626<br>Kevin Durigon<br>09/21/2023<br>DATE |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|

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Kedar Durigon

SOIL CONDITION

| STANDARD STRAIN POLES |                   |                     |                            |             |                 | STANDARD FOUNDATIONS<br>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

|                  |           |
|------------------|-----------|
| PROJECT I.D. NO. | SHEET NO. |
| P - 5707         | Sig.M8    |
|                  |           |

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.

Standard Strain Pole Foundation – All Soil Conditions

Prepared in the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE

0 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

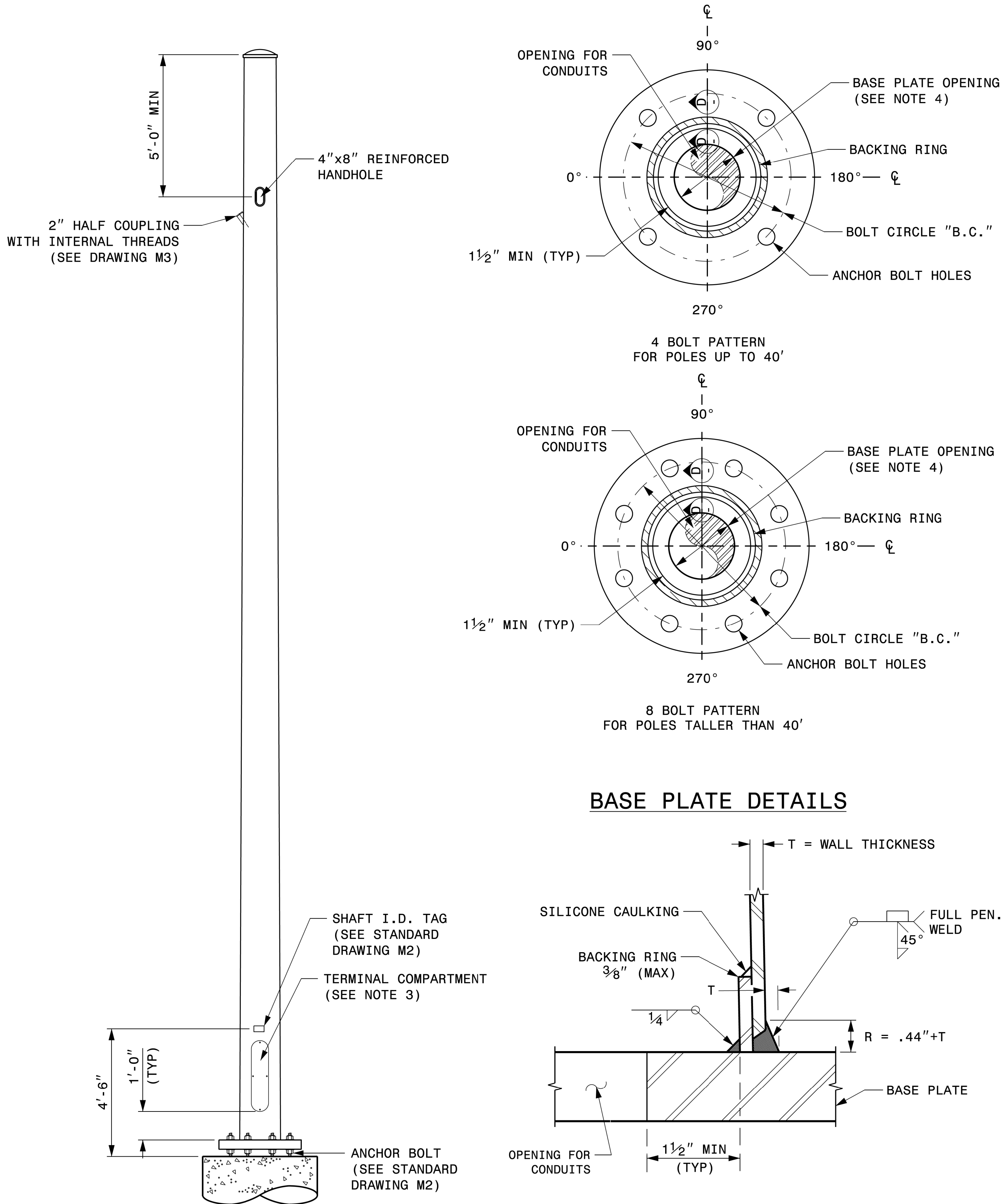
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09/21/2023

DATE

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K. Durigon



**CCTV CAMERA POLE**  
(NOT TO SCALE)

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

- 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.

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

|    |                                                                                                   |
|----|---------------------------------------------------------------------------------------------------|
| 1  | INSTALL COAX CABLE                                                                                |
| 2  | INSTALL ETHERNET CABLE                                                                            |
| 3  | INSTALL 3-WIRE COPPER FEEDER CONDUCTORS                                                           |
| 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<br>(USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE) |
| 23 | INSTALL NEW RISER INTO EXISTING CABINET BASE<br>(USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)   |
| 24 | INSTALL NEW CONDUIT INTO NEW 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<br>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 |
| 52  | INSTALL DELINEATOR MARKER                                            |
| 53A | STORE 20 FEET OF COMMUNICATIONS CABLE                                |
| 53B | STORE 50 FEET OF EACH COMMUNICATIONS CABLE                           |
| 53C | STORE 100 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  | INSTALL NEW POLE MOUNTED CABINET                                     |
| 61  | BOND TRACER WIRE TO EQUIPMENT GROUND BUS                             |
| 62  | DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS                      |
| 63  | BOND RISER AND MESSENGER CABLE TO POLE GROUND                        |
| 64  | BOND RISER TO POLE GROUND                                            |
| 65  | BOND MESSENGER CABLE TO POLE GROUND                                  |
| 66  | INSTALL HEAT SHRINK TUBING RETROFIT KIT                              |
| 67  | INSTALL MOLDABLE DUCT SEAL                                           |
| 68  | SLACK SPAN                                                           |

| <u><b>LEGEND</b></u>                                                                |                                             |
|-------------------------------------------------------------------------------------|---------------------------------------------|
|    | NEW FIBER OPTIC COMMUNICATIONS CABLE        |
|   | EXISTING COMMUNICATIONS CABLE               |
|  | EXISTING COMMUNICATIONS CABLE TO BE REMOVED |
|  | NEW AERIAL GUY ASSEMBLY                     |
|  | NEW CONDUIT                                 |
|  | EXISTING CONDUIT                            |
|  | NEW DIRECTIONAL DRILLED CONDUIT             |

| NEW     |                                              | EXISTING |
|---------|----------------------------------------------|----------|
|         | OVERSIZED JUNCTION BOX                       |          |
|         | WOOD POLE                                    |          |
|         | AERIAL SPLICE ENCLOSURE                      |          |
|         | UNDERGROUND SPLICE ENCLOSURE                 |          |
|         | METAL POLE                                   |          |
|         | CCTV ASSEMBLY                                |          |
|         | STANDARD GUY ASSEMBLY                        |          |
|         | SIDEWALK GUY ASSEMBLY                        |          |
|         | CABLE STORAGE RACKS (SNOW SHOES)             |          |
|         | SIGNAL EQUIPMENT CABINET                     |          |
|         | SPLICE CABINET                               |          |
|         | ELECTRICAL SERVICE                           |          |
|         | FLAT PANEL ANTENNA (SINGLE)                  |          |
|         | YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION |          |
|         | YAGI ANTENNA (SINGLE)                        |          |
|         | OMNI ANTENNA                                 |          |
| SP      | SIGNAL POLE                                  | SP       |
| XX-XXXX | SIGNAL INVENTORY NUMBER                      | XX-XXXX  |

**CONSTRUCTION NOTE SYMBOLS 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)

NUMBER OF CABLE(S)

NUMBER OF FIBER/TWISTED PAIRS

NEW/EXISTING CABLE

REMOVE/MODIFY CABLE

CONDUIT/RISER

NUMBER OF RISER(S)/CONDUIT(S)

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

**ATTACHMENT POINT:**

|  |                                                         |
|--|---------------------------------------------------------|
|  | DISTANCE ABOVE (IN)/ATTACHMENT POINT<br>REFERENCE POINT |
|  | REFERENCE POINT<br>DISTANCE BELOW (IN)/ATTACHMENT POINT |

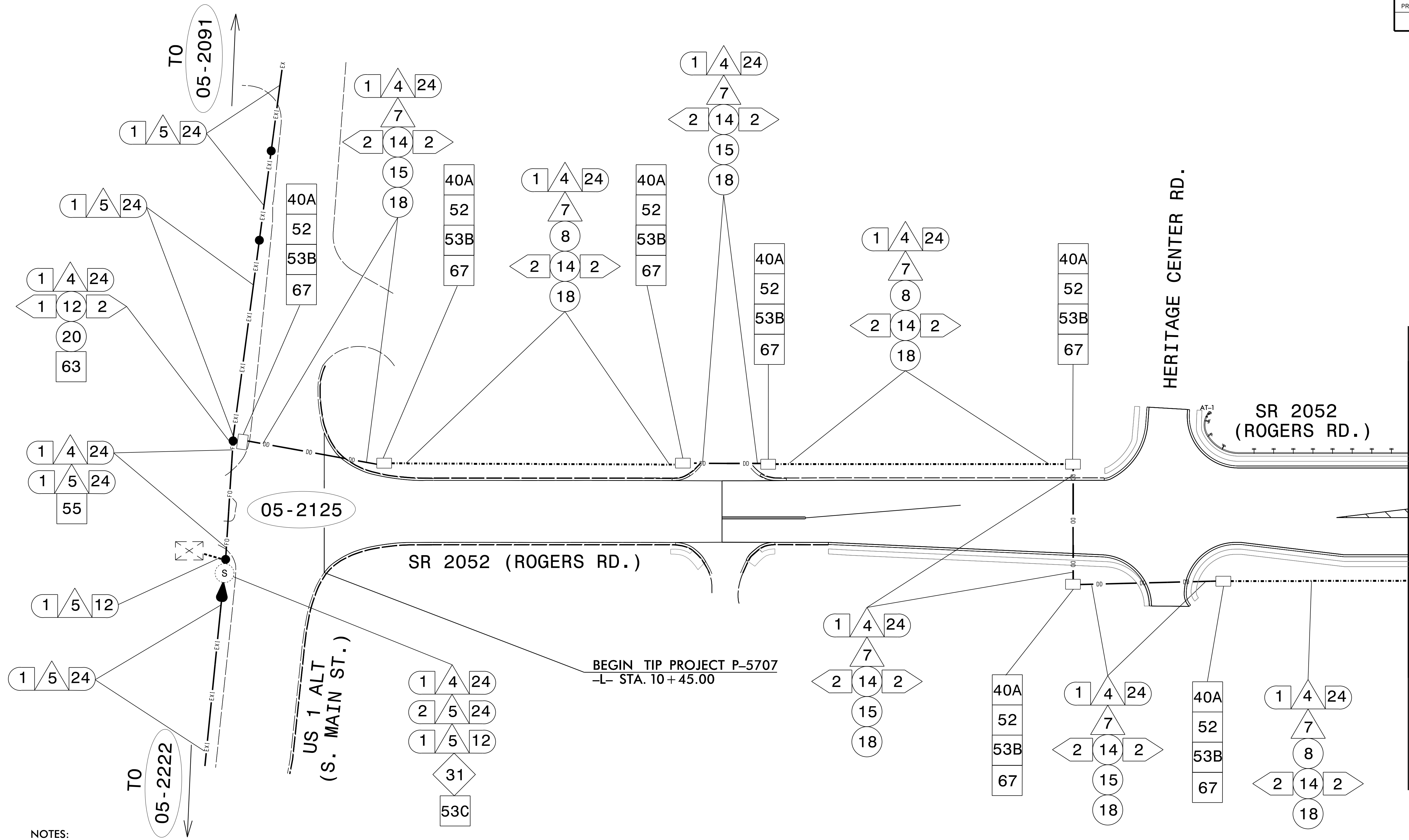
|                                                                                                    |
|----------------------------------------------------------------------------------------------------|
| <p><b>"SS" REFERENCE LOCATION</b></p> <p>FS = FRONT SIDE OF POLE</p> <p>BS = BACK SIDE OF POLE</p> |
|----------------------------------------------------------------------------------------------------|

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-----------------------|---------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Prepared for the Offices of:</p> <div style="text-align: center;">  </div> <p>750 N. Greenfield Physy., Garner, NC 27529</p> | <h2 style="margin: 0;">Construction Notes</h2>                                                                                                                                                                                                                                                                                                                              | <p>SEAL</p> <div style="border: 2px solid black; border-radius: 50%; padding: 10px; margin: 0 auto; width: 150px;"> <p>NORTH CAROLINA<br/>PROFESSIONAL<br/>SEAL<br/>044558<br/>ENGINEER<br/>DAVID T. SEARS</p> </div> |             |             |                       |                     |  |                                                                                                                                                        |              |  |                                                                                                                                                 |
|                                                                                                                                                                                                                      | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">DIVISION 05</td> <td style="width: 33%;">WAKE COUNTY</td> <td style="width: 33%;">WAKE FOREST</td> </tr> <tr> <td>PLAN DATE: MARCH 2025</td> <td>REVIEWED BY: DSEARS</td> <td></td> </tr> <tr> <td>PREPARED BY: WPJONES</td> <td>REVIEWED BY:</td> <td></td> </tr> </table> | DIVISION 05                                                                                                                                                                                                           | WAKE COUNTY | WAKE FOREST | PLAN DATE: MARCH 2025 | REVIEWED BY: DSEARS |  | PREPARED BY: WPJONES                                                                                                                                   | REVIEWED BY: |  | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>DocuSigned by<br/><i>David T. Sears</i></p> </div> <p>3/3/2025</p> |
| DIVISION 05                                                                                                                                                                                                          | WAKE COUNTY                                                                                                                                                                                                                                                                                                                                                                 | WAKE FOREST                                                                                                                                                                                                           |             |             |                       |                     |  |                                                                                                                                                        |              |  |                                                                                                                                                 |
| PLAN DATE: MARCH 2025                                                                                                                                                                                                | REVIEWED BY: DSEARS                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                       |             |             |                       |                     |  |                                                                                                                                                        |              |  |                                                                                                                                                 |
| PREPARED BY: WPJONES                                                                                                                                                                                                 | REVIEWED BY:                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                       |             |             |                       |                     |  |                                                                                                                                                        |              |  |                                                                                                                                                 |
| <p>SCALE</p> <div style="text-align: center;">  </div> <p>N.T.S.</p>                                                            | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">REVISIONS</td> <td style="width: 25%;">INIT.</td> <td style="width: 25%;">DATE</td> </tr> <tr> <td style="height: 40px;"></td> <td></td> <td></td> </tr> </table>                                                                                                           | REVISIONS                                                                                                                                                                                                             | INIT.       | DATE        |                       |                     |  | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>DocuSigned by<br/><i>David T. Sears</i></p> </div> <p>06013CF20B2E41E</p> |              |  |                                                                                                                                                 |
| REVISIONS                                                                                                                                                                                                            | INIT.                                                                                                                                                                                                                                                                                                                                                                       | DATE                                                                                                                                                                                                                  |             |             |                       |                     |  |                                                                                                                                                        |              |  |                                                                                                                                                 |
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NOTES:

- FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM INSTALLATION, CONTACT THE DIVISION 5 TRAFFIC ENGINEER AT (919)536-4000 TO ARRANGE FOR THE DOT 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 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.

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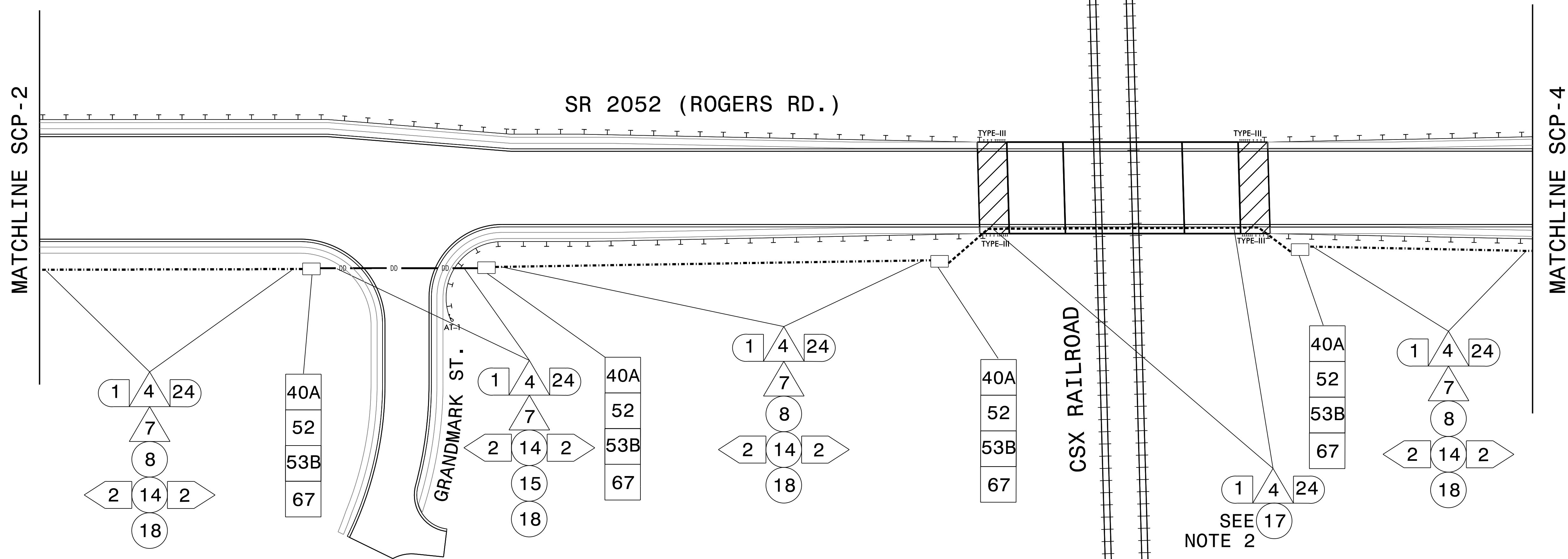
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Wake Forest Signal System  
P-5707  
Signal Communication Plans

|                       |                     |             |
|-----------------------|---------------------|-------------|
| DIVISION 05           | WAKE COUNTY         | WAKE FOREST |
| PLAN DATE: MARCH 2025 | REVIEWED BY: DSEARS |             |
| PREPARED BY: WPJONES  | REVIEWED BY:        |             |
| REVISIONS             | INIT.               | DATE        |
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SIGNATURE  
3/3/2025  
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- BRIDGE MOUNTED CONDUIT SYSTEM WILL EXTEND OUTSIDE OF PAVED SHOULDER AND END IN BURIED JUNCTION BOX. SEE STRUCTURE PLAN FOR DETAILS AND LOCATION.



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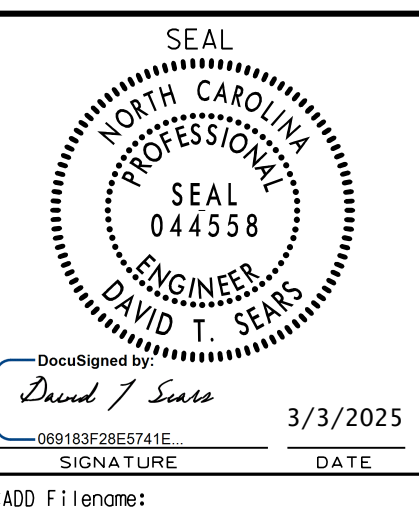
Wake Forest Signal System  
P-5707  
Signal Communication Plans

DIVISION 05 WAKE COUNTY WAKE FOREST  
PLAN DATE: MARCH 2025 REVIEWED BY: DSEARS

PREPARED BY: WPJONES REVIEWED BY:

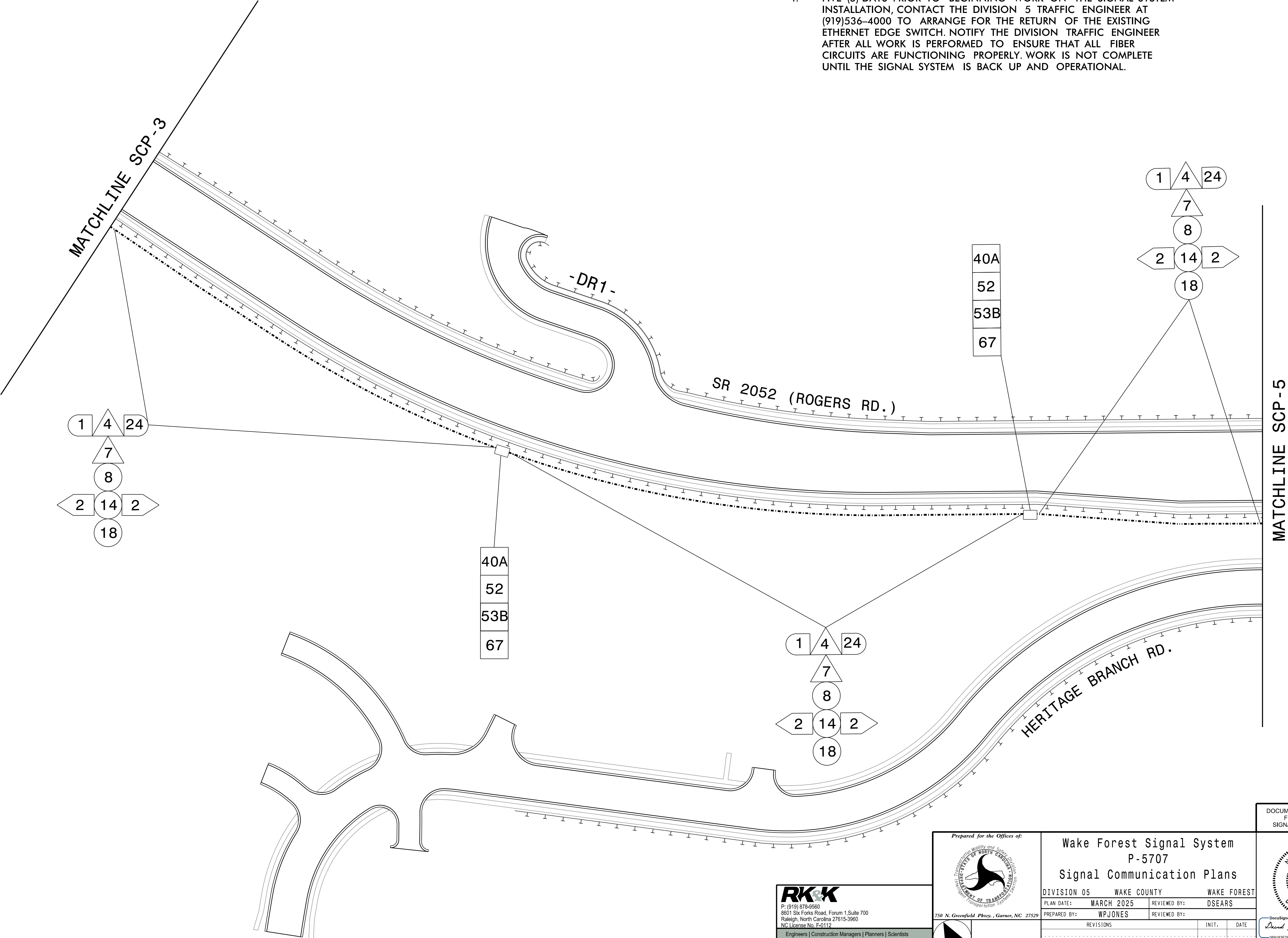
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- NOTES:
- FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM INSTALLATION, CONTACT THE DIVISION 5 TRAFFIC ENGINEER AT (919)536-4000 TO ARRANGE FOR THE RETURN OF THE EXISTING ETHERNET EDGE SWITCH. NOTIFY THE DIVISION TRAFFIC ENGINEER AFTER 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.



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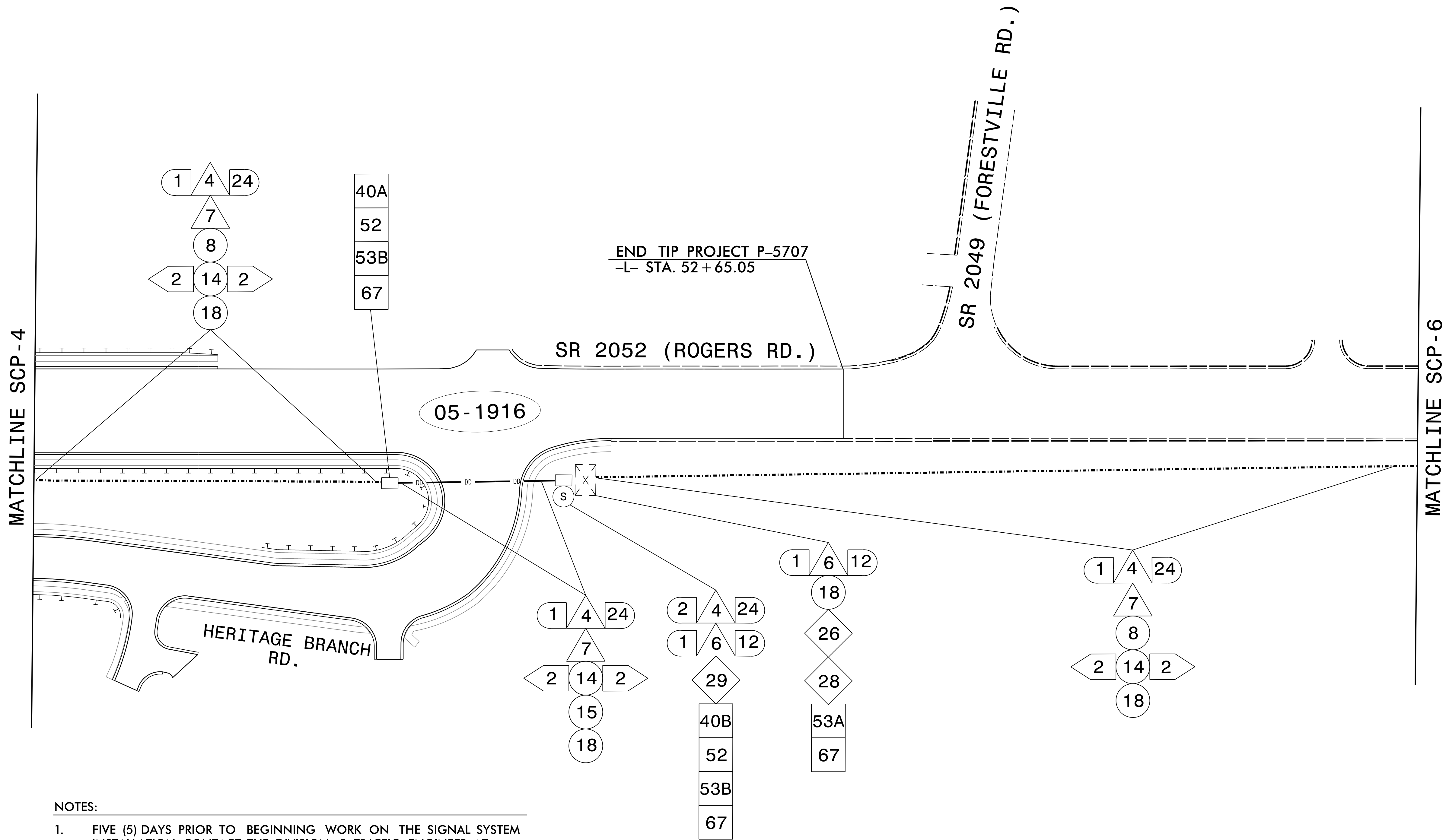
Wake Forest Signal System  
P-5707  
Signal Communication Plans

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| DIVISION 05           | WAKE COUNTY         | WAKE FOREST |
| PLAN DATE: MARCH 2025 | REVIEWED BY: DSEARS |             |
| PREPARED BY: WPJONES  | REVIEWED BY:        |             |
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PROFESSIONAL  
SEAL  
044558  
ENGINEER  
DAVID T. SEARS

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DATE  
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  - REMOVE RADIO, ANTENNA, AND RELATED EQUIPMENT AFTER THE FIBER OPTIC CABLE IS INSTALLED AND OPERATIONAL. RETURN THE EQUIPMENT TO THE DIVISION 5 SIGNAL SHOP AT 1041 PRISON CAMP ROAD, DURHAM, NC.

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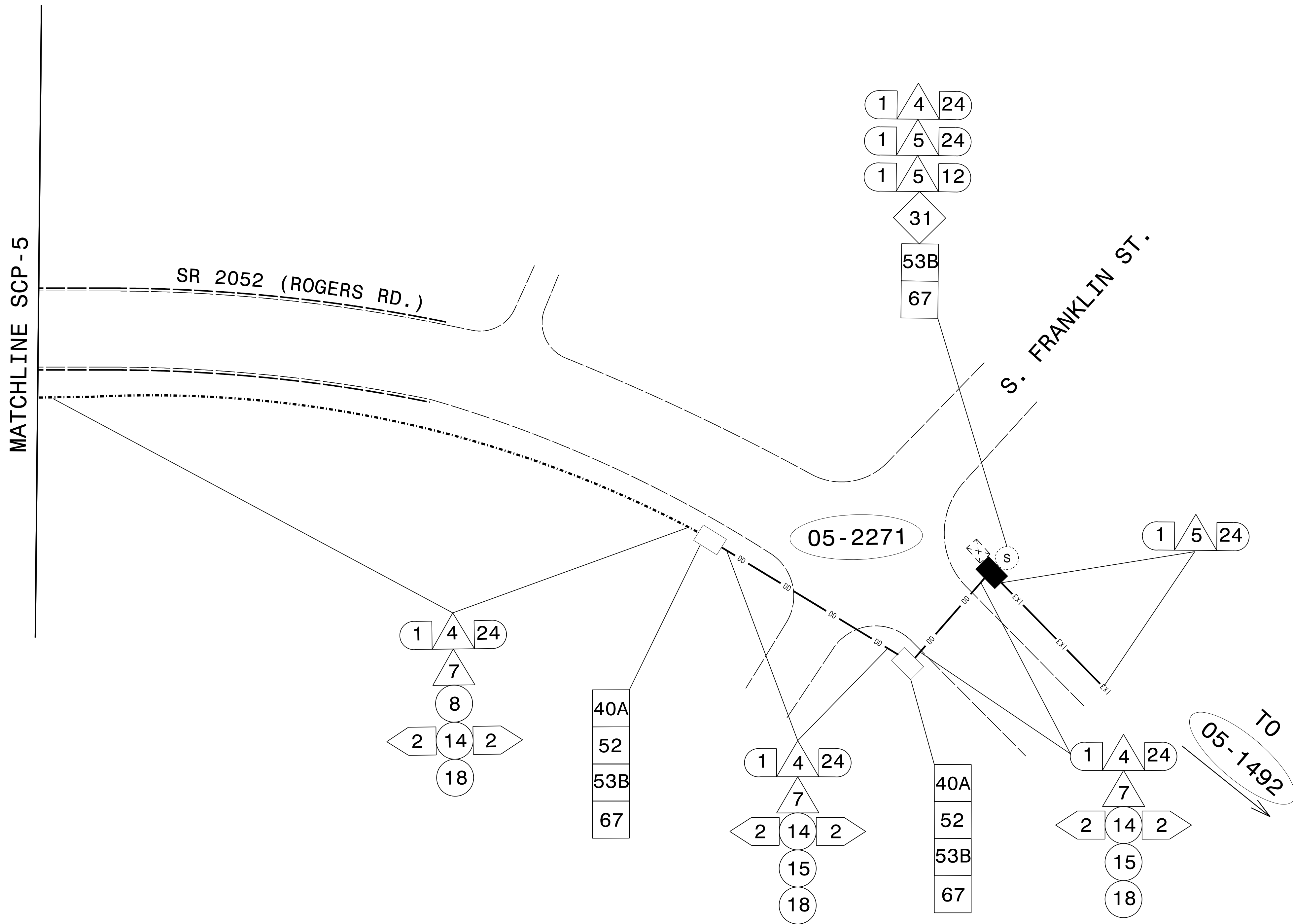
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Wake County Department of Transportation  
750 N. Greenfield Place, Garner, NC 27529

|                                                                   |  |                     |      |
|-------------------------------------------------------------------|--|---------------------|------|
| Wake Forest Signal System<br>P-5707<br>Signal Communication Plans |  |                     |      |
| DIVISION 05 WAKE COUNTY                                           |  | WAKE FOREST         |      |
| PLAN DATE: MARCH 2025                                             |  | REVIEWED BY: DSEARS |      |
| PREPARED BY: WPJONES                                              |  | REVIEWED BY:        |      |
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  - REMOVE RADIO, ANTENNA, AND RELATED EQUIPMENT AFTER THE FIBER OPTIC CABLE IS INSTALLED AND OPERATIONAL. RETURN THE EQUIPMENT TO THE DIVISION 5 SIGNAL SHOP AT 1041 PRISON CAMP ROAD, DURHAM, NC.

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| Wake Forest Signal System<br>P-5707<br>Signal Communication Plans |             |              |        |
|-------------------------------------------------------------------|-------------|--------------|--------|
| DIVISION 05                                                       | WAKE COUNTY | WAKE FOREST  |        |
| PLAN DATE:                                                        | MARCH 2025  | REVIEWED BY: | DSEARS |
| PREPARED BY:                                                      | WPJONES     | REVIEWED BY: |        |
| REVISIONS                                                         |             | INIT.        | DATE   |
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MODIFY SPLICE ENCLOSURE  
FOR SIGNAL #05-2125  
SHEET SCP 2

FIBER OPTIC CABLE

COLOR CODE  
TIA/EIA 598-A

(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

C = CAP AND SEAL

X = FUSION SPLICE INDIVIDUAL FIBER

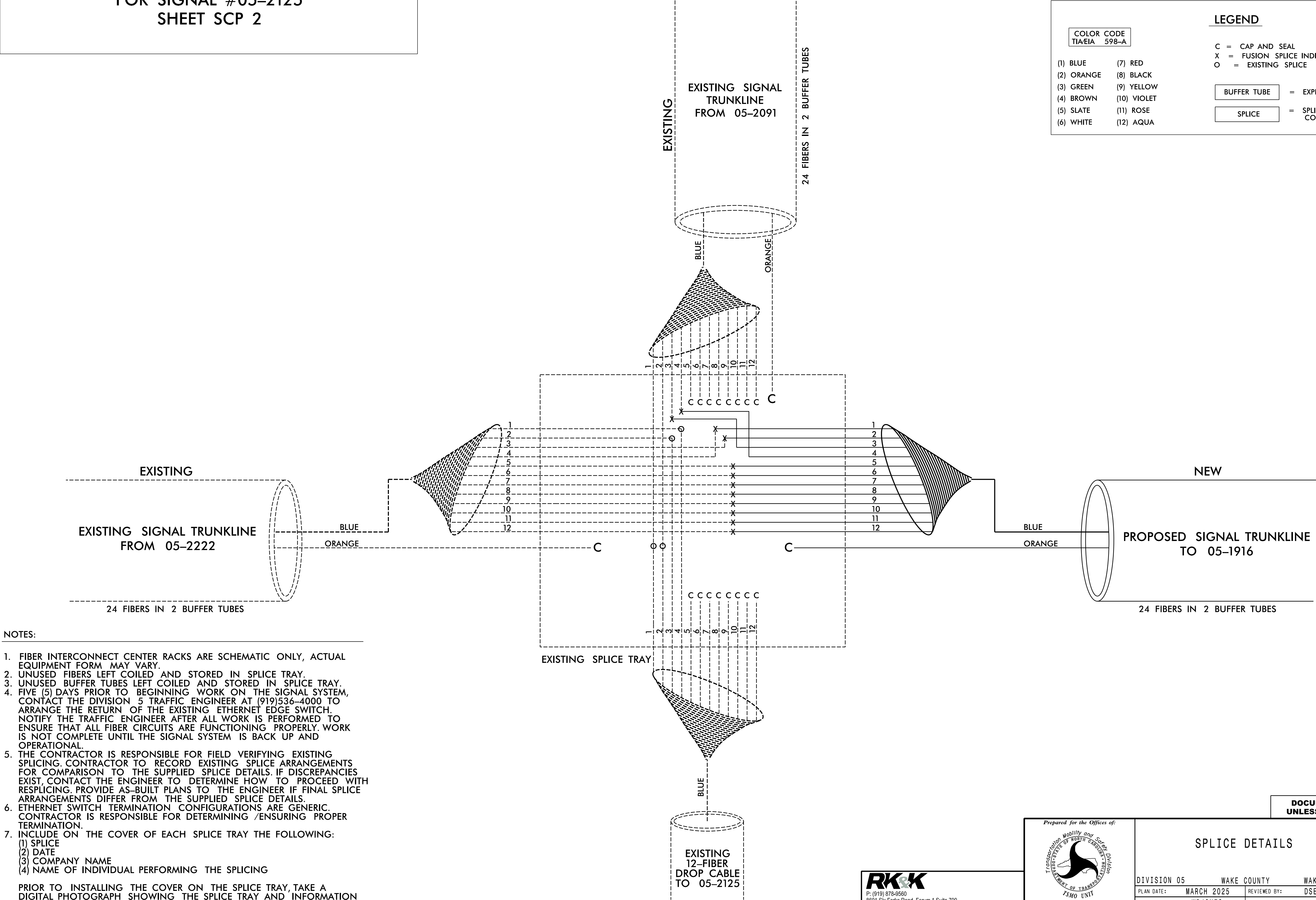
O = EXISTING SPLICE

BUFFER TUBE

= EXPRESS ENTIRE BUFFER TUBE

SPLICE

= SPLICE ENTIRE BUFFER TUBE  
COLOR TO COLOR



- NOTES:
1. FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY, ACTUAL EQUIPMENT FORM MAY VARY.
  2. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
  3. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
  4. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 5 TRAFFIC ENGINEER AT (919)536-4000 TO ARRANGE THE RETURN OF THE EXISTING ETHERNET EDGE SWITCH. 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.
  5. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING SPLICING. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENTS 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 ARRANGEMENTS DIFFER FROM THE SUPPLIED SPLICE DETAILS.
  6. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
  7. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:  
(1) SPLICE  
(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 TO THE ENGINEER.

**RKK**

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TRANSPORTATION

MOBILITY AND SAFETY DIVISION

STATE OF NORTH CAROLINA

7500 UNIT

750 N. Greenfield Pkwy., Garner, NC 27529

SCALE

N/A

**SPLICE DETAILS**

DIVISION 05

WAKE COUNTY

WAKE FOREST

PLAN DATE: MARCH 2025

REVIEWED BY: DSEARS

PREPARED BY: WPJONES

REVIEWED BY:

REVISIONS

INIT.

DATE

SEAL

NORTH CAROLINA

PROFESSIONAL

SEAL

044558

ENGINEER

DAVID T. SEARS

DocuSigned by

*David T. Sears*

069183F2B5741E

SIGNATURE

DATE

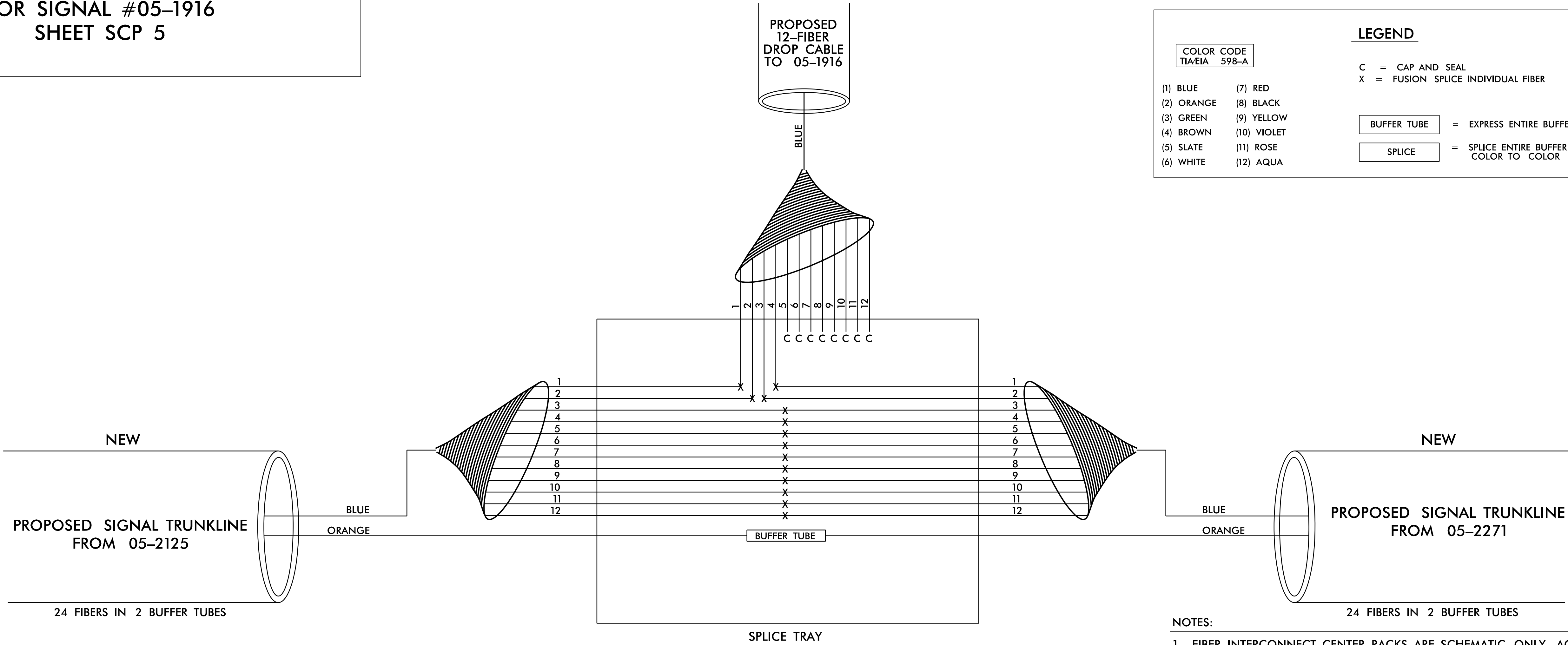
3/3/2025

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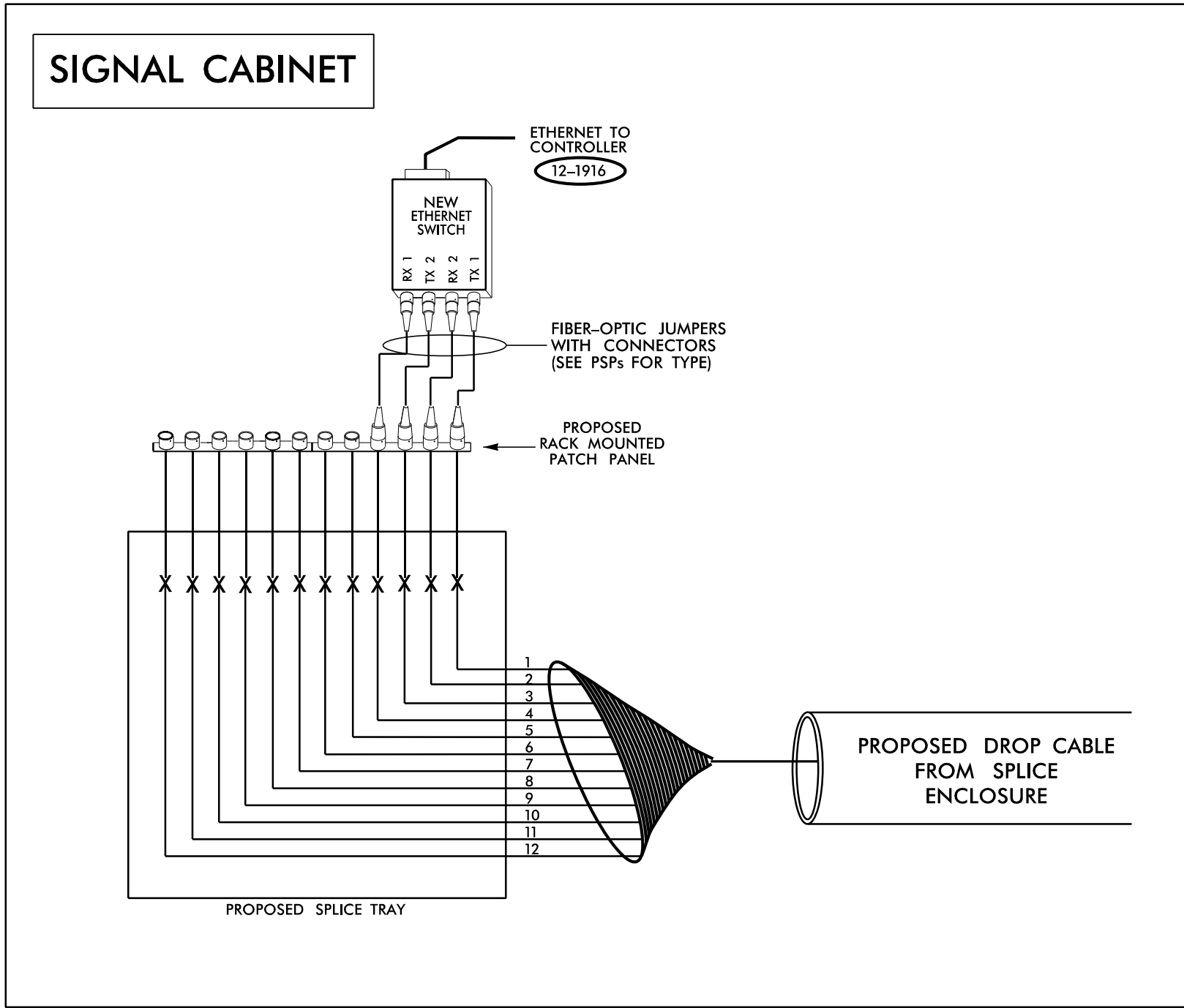
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FIBER OPTIC CABLE

PROPOSED SPLICE ENCLOSURE  
FOR SIGNAL #05-1916  
SHEET SCP 5

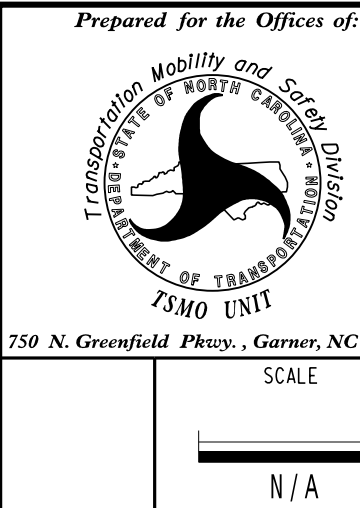


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  7. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:  
(1) SPLICE  
(2) DATE  
(3) COMPANY NAME  
(4) NAME OF INDIVIDUAL PERFORMING THE SPLICING
- PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS TO THE ENGINEER.

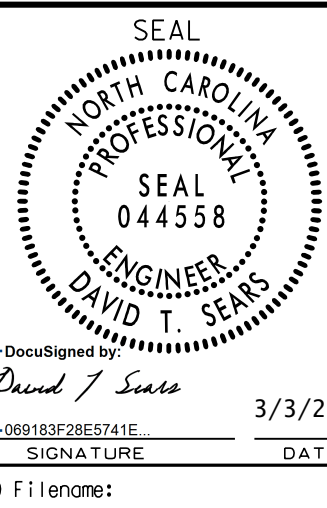


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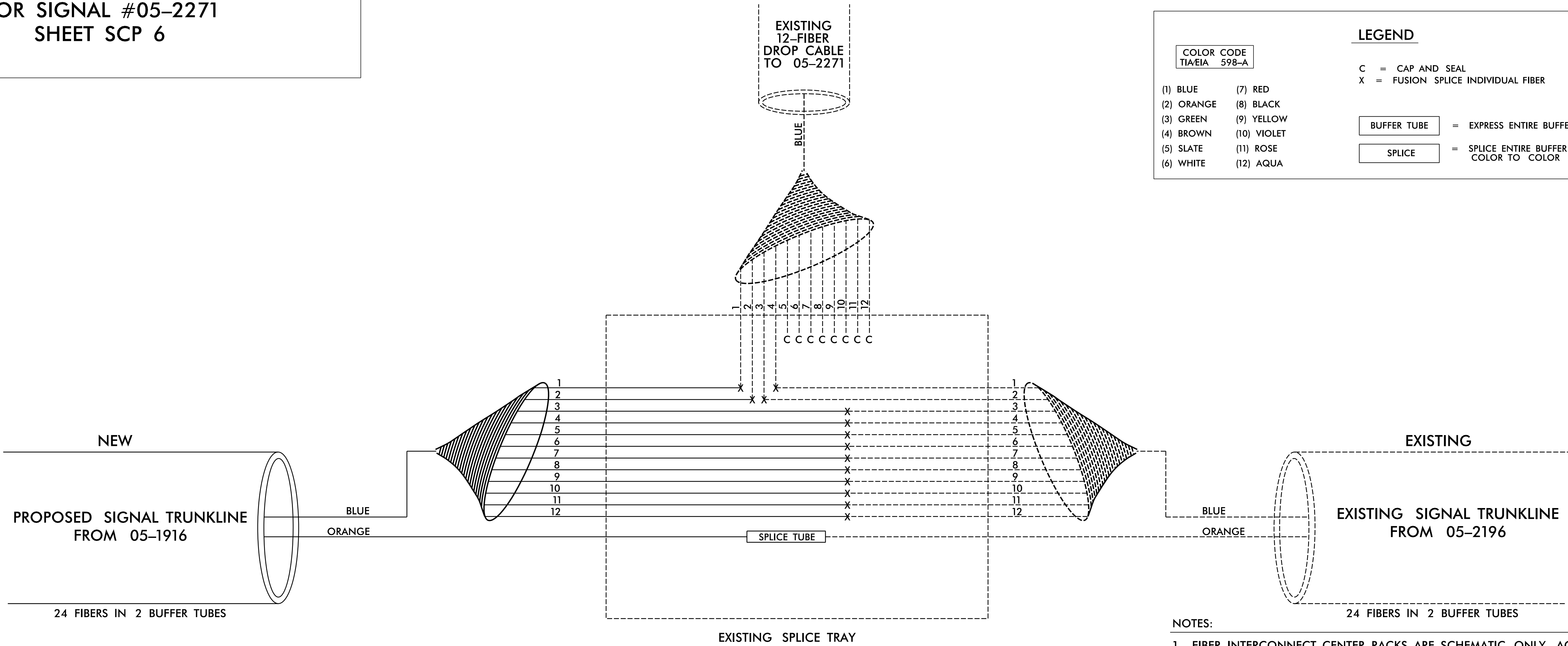


| SPLICE DETAILS        |                     |             |      |
|-----------------------|---------------------|-------------|------|
| DIVISION 05           | WAKE COUNTY         | WAKE FOREST |      |
| PLAN DATE: MARCH 2025 | REVIEWED BY: DSEARS |             |      |
| PREPARED BY: WPJONES  | REVIEWED BY:        |             |      |
| REVISIONS             |                     | INIT.       | DATE |
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|                       |                     |             |      |



# FIBER OPTIC CABLE

MODIFY SPLICE ENCLOSURE  
FOR SIGNAL #05-2271  
SHEET SCP 6



- NOTES:
1. FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY, ACTUAL EQUIPMENT FORM MAY VARY.
  2. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
  3. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
  4. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 5 TRAFFIC ENGINEER AT (919)536-4000 TO ARRANGE FOR NCDOT TO PROGRAM THE NEW FIELD ETHERNET SWITCH 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.
  5. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING SPLICING. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENTS 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 ARRANGEMENTS DIFFER FROM THE SUPPLIED SPLICE DETAILS.
  6. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
  7. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
    - (1) SPLICE
    - (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 TO THE ENGINEER.

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

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------|--------------------------|
| <p style="text-align: center;">Prepared for the Offices of:</p>  <p style="text-align: center;">TRANSPORTATION MOBILITY AND SAFETY DIVISION<br/>DEPARTMENT OF TRANSPORTATION<br/>TSMO UNIT</p> |                          | <h1 style="margin: 0;">SPLICE DETAILS</h1>                                                                                                                                                                                                                                                         |  |  <p style="margin: 0;">SEAL<br/>NORTH CAROLINA<br/>PROFESSIONAL<br/>SEAL<br/>044558<br/>ENGINEER<br/>DAVID T. SEARS</p> |  |                           |                          |
| <p>750 N. Greenfield Pkwy., Garner, NC 27529</p>                                                                                                                                                                                                                                    |                          | <p>DIVISION 05      WAKE COUNTY      WAKE FOREST</p>                                                                                                                                                                                                                                               |  | <p>Drawn/Signed by:<br/><i>David T. Sears</i><br/>060183F28E5741E<br/>SIGNATURE      DATE      3/3/2025</p>                                                                                                  |  |                           |                          |
| <p>SCALE</p> <div style="text-align: center;"> <br/> N/A </div>                                                                                                                                |                          | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">PREPARED BY:      WPJONES</td> <td style="width: 50%;">REVIEWED BY:      DSEARS</td> </tr> <tr> <td style="width: 50%;">REVISIONS</td> <td style="width: 50%;">INIT.      DATE</td> </tr> </table> |  |                                                                                                                                                                                                              |  | PREPARED BY:      WPJONES | REVIEWED BY:      DSEARS |
| PREPARED BY:      WPJONES                                                                                                                                                                                                                                                           | REVIEWED BY:      DSEARS |                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                              |  |                           |                          |
| REVISIONS                                                                                                                                                                                                                                                                           | INIT.      DATE          |                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                              |  |                           |                          |