

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

ISSUED FOR BID

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JUNE 1, 2026

BOOTH & ASSOCIATES, LLC

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

ISSUED FOR BID



6/2/2026

**Booth & Associates, LLC
Consulting Engineers
2300 Rexwoods Drive, Suite 300
Raleigh, North Carolina 27607
Firm License No.: F-0221**

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**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

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LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DIRVE EXTENSION
13.2kV DISTRIBUTION LINE**

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EXHIBITS:

- Exhibit No. 1 – Vicinity Map
- Exhibit No. 2 – Bid and Construction Schedule
- Exhibit No. 3 – Construction Change Order
- Exhibit No. 4 – Assembly Unit Drawings
 - Overhead Distribution
- Exhibit No. 5 – Plan Drawing (1-6 of 6)

NOTICE TO PROSPECTIVE BIDDERS

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

NOTICE TO PROSPECTIVE BIDDERS

Sealed Proposals will be received by Booth & Associates, LLC, 2300 Rexwoods Drive, Suite 300, Raleigh, North Carolina until 2:00 p.m., Local Time, Wednesday, June 24, 2026, at which time they will be publicly opened and read for the furnishing of labor for the completion of the following:

**Town of Smithfield
Smithfield, North Carolina
Specifications and Bid Documents
Labor Contract
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

Proposals shall bear the name of the bidder and be marked:

**Town of Smithfield
Smithfield, North Carolina
Specifications and Bid Documents
Labor Contract
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE
Not to be opened until 2:00 p.m., Local Time
Wednesday, June 24, 2026**

Bidders are to mail the proposal as follows:

**Booth & Associates, LLC
2300 Rexwoods Drive, Suite 300
Raleigh, North Carolina 27607
Attention: Mr. Mark Tracey, PE
Manager – Distribution Engineering**

Electronic bids will not be accepted.

Mandatory Pre-Bid Meeting – Thursday, June 11, 2026:

**Town of Smithfield
230 Hospital Road
Smithfield, North Carolina**

Cash, cashier's check, or certified check on a bank insured by the Federal Deposit Insurance Corporation, National Credit Union Administration or Savings Association Insurance Fund made payable to the Town of Smithfield, North Carolina, in the amount of five percent (5%) of the total bid must accompany all Proposals in order to guarantee compliance with provisions of the Proposal. In lieu thereof, a Bid Bond which conforms to the provisions of GS 143-129, as amended by Chapter 1104 of the Public Laws, may be submitted by the Bidder.

Contractors must be properly licensed under Chapter 87, General Statutes of North Carolina (G.S. 87-15).

The right is reserved to reject any or all bids, in whole or in part, as may in the judgment of the Town of Smithfield be serving its best interest and to waive irregularities and informalities in any bid submitted. The Town of Smithfield reserves the right to retain bids for a period of sixty (60) days from the receipt of such bids. Any bid received subsequent to the bid opening will be returned to the Bidder unopened.

Complete Plans, Specifications, and Contract Documents will be available for inspection at the following locations between the hours of 8:00 a.m. and 5:00 p.m.:

**Town of Smithfield
230 Hospital Rd
Smithfield, North Carolina
Attention: Ms. Kimberly Pickett, Interim Town Manager**

**Booth & Associates, LLC
Consulting Engineers
2300 Rexwoods Drive, Suite 300
Raleigh, North Carolina
Attention: Mark Tracey, PE**

Plans, Specifications, and Contract Documents may be obtained from the Consulting Engineers by those qualified. Business hours are from 8:00 a.m. to 5:00 p.m., excluding weekends, and holidays.

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

By: Kimberly Pickett
Interim Town Manager

Date: June 1, 2026

DEFINITIONS

DEFINITIONS

Whenever in these “Instructions to Bidders,” “Contractor’s Proposal,” “Technical Specifications,” “Contract,” “Bond,” etc., the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

| | |
|--------------------------------------|--|
| “Town” | Town of Smithfield Smithfield, North Carolina |
| “Town Manager” | Kimberly Pickett or her authorized assistant. |
| “Public Utilities Director” | Ted Credle or his authorized assistant. |
| “Mayor” | Andy Moore |
| “Engineer” | Booth & Associates, LLC Raleigh, North Carolina |
| “Construction Representative” | The authorized representative of the Town, assigned to make any or all necessary observations of work performed, equipment and/or apparatus furnished by the Contractor. |
| “Bidder” | Any individual, firm, or corporation submitting a Proposal for the work contemplated, acting directly or through a duly-authorized representative. |
| “Contractor” | Party of the second part of the Contract, acting directly or through a duly-authorized representative. |
| “Subcontractor” | An individual, firm, or corporation who contracts with the Contractor to perform part of or all of the latter’s Contract. |
| “Surety” | The body, corporate or individual, approved by the Town which is bound with and for the Contractor, who is primarily liable, and which engages to be responsible for his acceptable performance of the work for which he has contracted. |
| “Contractor’s Proposal” | The approved prepared form on which the Bidder is to or has submitted his Proposal for the work contemplated. |
| “Bid Deposit” | To all bids there shall be attached cash, cashier’s check, or a certified check of the Bidder, drawn upon a bank authorized to do business in North Carolina, or in lieu thereof, a Bid Bond, by a Surety licensed in North Carolina. |

| | |
|-----------------------------------|--|
| “Plans” | All Drawings or reproductions of Drawings pertaining to the construction under the Contract. |
| “Technical Specifications” | The directions, provisions, and requirements contained herein, pertaining to the method and manner of performing the work, or to the quantities and qualities of materials to be furnished under the Contract. |
| “Contract” | The agreement covering the furnishing of equipment and/or apparatus and the performance of the work. The Contract shall include the “Contractor’s Proposal,” “Plans,” “Technical Specifications,” “Performance Bond,” “Payment Bond,” and “Acknowledgements.” |
| “Performance Bond” | The approved form of security, to be approved by the Town, furnished by the Contractor and his Surety as a guarantee of good faith on the part of the Contractor to execute the work in accordance with the terms of the Specifications and Contract. |
| “Payment Bond” | The approved form of security, to be approved by the Town, furnished by the Contractor and his Surety as a guarantee of good faith on the part of the Contractor to promptly pay all persons supplying labor, materials, and/or equipment in accordance with the terms of the Specifications and Contract. |
| “Work” | The performance of the project covered by the Specifications for the furnishing of labor, machinery, equipment, tools, or any other item being purchased by the Town. |
| “Emergency” | A temporary unforeseen occurrence or combination of circumstances which endangers life and property and calls for immediate action or remedy. |
| “Work at Site of Project” | Work to be performed, including work normally done on the location of the project. |

The subheadings in these Specifications are intended for convenience or reference only and shall not be considered as having any bearing on the interpretations thereof.

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

1.0 PROPOSALS

- 1.1 Only those Proposals prepared in accordance with these instructions will be considered.
- 1.2 Proposals must be made on the Contractor's Proposal provided herein and must not be altered, erased, or interlined in any manner. The Contractor shall fill in the Contractor's Proposal as detailed in the instructions attached thereto. The Bidder may retain copies, but the fully executed originals must be inserted or attached to the Specification Documents.
- 1.3 Proposals shall be delivered as indicated in the Notice to Prospective Bidders. They are to be enclosed in a sealed envelope bearing the name of the Bidder and the Bidder's license number (if required), marked as follows:

**Town of Smithfield
Smithfield, North Carolina
Specifications and Bid Documents
Labor Contract
Circuit G4 Kellie Drive Extension – 13.2kV Distribution Line
Not to be opened until 2:00 p.m., Local Time
Wednesday, June 24, 2026**

- 1.4 Bids may be modified by submitting a sealed addendum which is signed by the Bidder clearly referencing the original quotation, if received and attached to the original quotation prior to the time of opening bids and if included in the public reading of such bids. No telegram, telephonic, electronic mail or facsimile Proposals will be considered.
- 1.5 Should the Bidder find discrepancies in or omissions from the Drawings or Documents, or should he be in doubt as to their meaning, he shall at once notify the Engineer who will send written instructions to all Bidders. Neither the Town nor the Engineer will be responsible for any oral instructions. If Plans and Specifications are found to disagree after the Contract is awarded, the Engineer shall be the judge as to which was intended. The Successful Bidder is hereby made responsible for the furnishing of the necessary labor and equipment reasonably inferred or evidently necessary for the proper execution and completion of the work. Materials required for the work will be furnished by the Contractor.
- 1.6 Any and all labor, materials, and equipment necessary for additional work involved in the correction of apparent errors or inconsistencies and in executing the true intent and meaning of the Drawings and Specifications as interpreted by the Engineer shall be provided at the Contractor's expense and under no condition will any such labor, materials, and equipment be allowed as an extra.

2.0 BID SECURITY

- 2.1 Each Proposal shall be accompanied by a cash deposit, cashier's check, or a certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation or the Savings Association Insurance Fund, or a Bid Bond, from a bonding company licensed in North Carolina in an amount equal to not less than five percent (5%) of the Proposal, said deposit to be retained by the Town as liquidated damages in event of failure of the Successful Bidder to execute the Contract within ten (10) days after the award or to give satisfactory Surety as required by law.
- 2.2 The Bid Bond shall be conditioned so that the Surety will upon demand forthwith make payment to the Obligee upon said Bond if the Bidder fails to execute the Contract in accordance with the Bid Bond, and upon failure to forthwith make payment, the Surety shall pay to the Obligee an amount equal to double the amount of said Bond. A standard form of Bid Bond is included in these Specifications.
- 2.3 Only one (1) Bid Surety is required, the amount of which shall be based on the total amount of the bid.

3.0 BULLETINS AND ADDENDA

Any bulletins or addenda to Specifications issued during the time of bidding are to be considered covered in the Contractor's Proposal and in closing a Contract they will become a part thereof. Receipt of addenda shall be acknowledged by the Bidder on the Contractor's Proposal Form.

4.0 BIDDERS' QUALIFICATIONS

In estimating the least cost to the Town as one of the factors in deciding the award of the Contract, the Town will consider, in addition to the bid price, the experience and responsibility of the Bidder. Each Bidder shall file with the Engineer the Bidders' qualifications on forms supplied by the Engineer at least seven (7) days in advance of the scheduled bid opening. This will not be a requirement for those Contractors that have bid other jobs with the Engineer in the recent past or who have data on file with the Engineer.

5.0 AWARD OF CONTRACT

The Award of the Contract will be made at a Town Council meeting to be held on Wednesday, July 14, 2026. In addition to lowest bid price, adherence to construction schedule will be a major factor in award of Contract. The Town reserves the right to reject any or all bids.

The Town reserves the right to waive minor irregularities or minor errors in any Contractor's Proposal if it appears to the Town that such irregularities or errors were made through inadvertence. Any such irregularities or errors so waived must be corrected on the Contractor's Proposal prior to acceptance by the Town.

6.0 PERFORMANCE BOND/PAYMENT BOND

- 6.1 The Successful Bidder will be required to furnish a Performance Bond and a Payment Bond in an amount at least equal to one hundred percent (100%) each of the Contract price as security for the faithful performance of this Contract and as security for the payment of all persons performing labor and/or furnishing any materials and equipment in connection with this Contract.
- 6.2 Performance Bonds and Payment Bonds shall be with a Surety company authorized and licensed to do business in the State of North Carolina and shall be for the full Contract sum.
- 6.3 In all Performance and Payment Bonds, there shall be a provision that no suit, action, or proceeding by reason of default shall be brought on this Bond after a period of twelve (12) months. The face value of the Bond shall be one hundred percent (100%) of the Contract price for a period of twelve (12) months following final acceptance of the project.

7.0 EXAMINATION OF CONDITIONS

The submission of a bid will assume that the Contractor has fully examined the site and Plans and Specifications, and obtained such data at the site as may be required to fit new construction to the existing structures in accordance with the scheme as indicated on the Plans and Specifications of the Engineer. Neither errors in the Engineer's Drawings nor the omission of details by him shall relieve the Contractor from his responsibility of completing his Contract at his specified price or prices.

8.0 BID AND CONSTRUCTION SCHEDULE

A Bid and Construction Schedule is included as a part of this Contract. (See Exhibit No. 2).

9.0 STARTING TIME

The attention of all Bidders is specifically called to the fact that work under this Contract must be started no later than Monday, October 5, 2026, or as otherwise agreed to by the Town.

10.0 COMPLETION

The time of completion for the project shall be as specified in the Contractor's Proposal. The Bidder will insert in the space provided in the Contractor's Proposal, the time which he proposes to complete the work. All construction must be completed before Friday, January 15, 2027, or as otherwise agreed to by the Town.

11.0 PAYMENTS

Monthly invoices shall be forwarded to the Town in triplicate with one (1) copy to the Engineer no later than the fifth (5th) day of the month following in order to receive

consideration. All invoices will be reviewed and approved by the Engineer. Payment will be based on the number of actual units completed, verified by field inventory. After each invoice has been reconciled by the Engineer, the Engineer will make recommendation to the Town for payment.

Payments shall be made on a basis of ninety-five percent (95%) of the monthly work completed. For Contracts less than \$100,000, no retainage will be made. The Contract payment shall be due and payable within thirty (30) days after the Contractor's invoice has been certified for payment by the Engineer, the balance to be paid upon completion and acceptance of the project. Total monthly payments shall not exceed ninety-five percent (95%) of work completely performed.

When the project is fifty (50%) percent complete, the Town with written consent of the Surety, shall not retain any further retainage from periodic payments due the Contractor if the Contractor continues to perform satisfactorily and any nonconforming work identified in writing prior to that time by the Engineer, or Town has been corrected by the Contractor and accepted by the Engineer or Town. If the Town determines the Contractor's performance is unsatisfactory, the Town may reinstate retainage for each subsequent periodic payment application up to the maximum amount of five (5%) percent.

Final payment shall be made to the Contractor within forty-five (45) days after all work has been completed in accordance with each and every provision of the Specifications and accompanying Drawings, and to the Town's or Engineer's satisfaction. Acceptance of the completed job shall be made by the Town or their representative, and the Engineer.

Nothing in this section shall prevent the Town from withholding payment to the Contractor in addition to the amounts authorized by this section for unsatisfactory job progress, defective construction not remedied, disputed work, or third-party claims filed against the Town or reasonable evidence that a third-party claim will be filed.

12.0 BIDS TO BE RETAINED

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) days pending the execution of a Contract by the Successful Bidder. Should the Successful Bidder default and not execute a Contract, then the Contract would be offered to the next lowest acceptable Bidder.

13.0 CONTRACTOR'S LICENSE

In accordance with the State of North Carolina Chapter 87, General Statutes 87-15, Contractors performing work of this caliber in the State must be licensed to do so. A current copy of the Contractor's State of North Carolina Board for General Contractors License must be submitted with this Proposal and attached to page CL-1. Additionally, a valid license must be maintained during the course of the work.

STATEMENT OF WORK

STATEMENT OF WORK

1.0 DESCRIPTION OF WORK

- 1.1 The work to be done consists of furnishing all labor and equipment, and materials for the construction of the project:

This work includes new construction, removals, transfers, rearrangements and/or replacement of existing facilities, complete in strict accordance with the Specifications and Drawings subject to the terms and conditions of the Contract. Omissions of particular reference to any such items necessary for complete installation and proper operation thereof shall not relieve the Contractor of responsibility of furnishing same.

- 1.2 **The Town shall furnish all material that is required to complete the project.** This shall also include all crossarms, and miscellaneous hardware. Any and all labor, materials, and equipment necessary for additional work involved in the correction of apparent errors or inconsistencies and in executing the true intent and meaning of the Drawings and Specifications as interpreted by the Engineer shall be provided at the Contractor's expense and under no condition will any such labor, materials, and equipment be allowed as an extra.
- 1.3 The Contractor is responsible for providing a lay down yard to store all material and equipment for this project.
- 1.4 The site of the work is in and about the Town of Smithfield, North Carolina.
- 1.5 Prices submitted by the Contractor should be based on performing the majority of the work under energized conditions. The Contractor will be required to work over, under and around energized 115 kV transmission and 15 kV operation/25 insulation distribution lines owned and operated by the Town of Smithfield. The aforementioned description briefly describes the work required and is intended to indicate the scope of work only. For a more detailed description of the work, refer to the Specifications, Construction Drawings and Plan Drawings. The existing distribution must remain energized unless outages are required for safety reasons and the Contractor is so notified.
- 1.6 The Town reserves the right to reduce or add to the amount of work in the Contract by up to twenty-five percent (25%).

2.0 PRINCIPAL FEATURES OF WORK

- 2.1 A Vicinity Map has been included for the geographic location of the work area for this project.
- 2.2 The principle features of work contained in this project is briefly described as follows. The description is intended as a brief outline of the project. For a complete

description of the project, the Contractor should refer to the Plans and Specifications. All quantities are approximate.

PRINCIPAL FEATURES OF WORK

- Installation of approximately sixty-three (63) new poles
- Installation of ±33,209 feet of 336 kcmil ACSR, 97 feet of 4/0 ACSR, and 260 feet of #4 ACSR of primary overhead conductors
- Installation of ± 227 feet #4 AL Triplex of secondary overhead conductors
- Installation of ± 40 feet of 1/0 AL URD of secondary underground cable
- Installation of deadends, guys and anchors and miscellaneous hardware
- Removal of approximately sixty-six (66) poles
- Removal of ±375 feet of 336 ACSR, 125 feet of 4/0 ACSR, and 324 feet of #4 ACSR of primary overhead conductors.
- Removal of ± 343 feet of #4AL Triplex, and 238 feet of #6AL Duplex of secondary conductors
- Removal of ± 87 feet of 1/0 AL URD of secondary underground cable
- Removal of deadend, guys and anchors and miscellaneous hardware

GENERAL CONDITIONS

GENERAL CONDITIONS

1.0 DRAWINGS, SPECIFICATIONS, AND STAKING SHEETS

The Drawings, Specifications, and Plan Sheets are complementary, one to the other. That which is shown on the Drawings or called for in the Specifications shall be as binding as if it were both called for and shown. The intention of the Drawings and Specifications is to include all labor, material, transportation, equipment, and any and all other items necessary to perform a complete job. In case of discrepancy or disagreement in the Contract Documents, the order of precedence shall be: Form of Contract, Specifications, Large Scale Detail Drawings, and Small Scale Drawings.

2.0 CLARIFICATIONS AND DETAIL DRAWINGS

In such cases where the nature of the work requires clarification by the Engineer, such clarification shall be furnished by the Engineer with reasonable promptness by means of written instructions, Detail Drawings, or both. Clarifications and Drawings shall be consistent with the intent of Contract Documents and shall become a part thereof.

3.0 COPIES OF DRAWINGS AND SPECIFICATIONS

The Engineer will furnish, free of charge to the Contractor, three (3) working copies of Plans, Specifications, and Staking Sheets.

4.0 WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

Contractor shall maintain, in readable condition at his office, one (1) complete set of as-built working Drawings and Specifications for his work. Such Drawings and Specifications shall be available for use by the Engineer or Town. During the course of construction, the Contractor will work diligently to keep the Town abreast of electric system conditions, so as not to interfere with normal or emergency operations.

5.0 OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

All Drawings and Specifications are instruments of service and remain the property of the Engineer whose name appears thereon. The use of these instruments on work other than this Contract without permission is prohibited. All copies of Drawings and Specifications other than Contract copies shall be returned to the Engineer upon request after completion of work.

6.0 SAMPLES OF WORKMANSHIP

The Contractor shall furnish, where and when directed or specified, samples of workmanship for approval by the Engineer. The work shall be consistent with approved samples.

7.0 MATERIALS, EQUIPMENT, AND EMPLOYEES

- 7.1 The Contractor shall, unless otherwise specified, supply and pay for all labor, equipment, transportation, tools, apparatus, lights, power, heat, sanitary facilities, water, and incidentals necessary for the entire proper and substantial completion of his work and shall install, maintain, and remove all equipment of the construction, other utensils, or items, and be responsible for the safe, proper, and lawful construction, maintenance, and use of same, and shall construct, in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the Plans, stated in the Specifications, or reasonably implied therefrom, all in accordance with the Contract Documents. **All necessary materials are to be furnished by the Town as outlined in the Statement of Work, page 12, paragraph 1.2.**
- 7.2 The Contractor shall not use any “removed” materials in the completion of this project unless indicated as a transfer unit or otherwise designated for reuse on the Plan Sheets, or as directed by the Town’s representative. Materials damaged or lost during construction of the work due to carelessness of the Contractor’s personnel, shall be replaced in kind by the Contractor at no cost to the Town.
- 7.3 If at any time during the construction and completion of the work covered by these Specifications, the conduct of any workman of the various crafts is adjudged ungentlemanly and a nuisance to the Town or the Engineer, or if any workman is considered incompetent or detrimental to the work, the Contractor shall order such parties to be immediately removed from the grounds.
- 7.4 Any superintendent or foreman of the Contractor who ignores or refuses to follow written instructions of the Engineer or his representative at the site shall be immediately removed and replaced.
- 7.5 The Contractor shall insure that at all times he has sufficient crew compliments, both in terms of numbers and experience of personnel to perform work tasks safely, both for workers and the general public. Any instance noted to the contrary of this requirement may result in the complete shutdown of work on the project.

8.0 ROYALTIES, LICENSES AND PATENTS

It is the intention of the Contract documents that the work covered herein will not constitute in any way an infringement on any patent whatsoever unless the fact of such patent is clearly evidenced herein. The Contractor shall protect and save harmless the Town against suit on account of alleged or actual infringement. The Contractor shall pay all royalties and/or license fees required on account of patented articles or processes whether or not the patent rights are evidenced hereinafter.

9.0 INDEMNIFICATION

- 9.1 To the fullest extent permitted by laws and regulations, the Contractor shall indemnify and hold harmless the Town, Engineer, Engineer's Consultants and the officers, directors, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work, provided that any such claim, cost, loss or damage is: (i) attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and (ii) is caused in whole or in part by any negligent act or omission of Contractor, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of a person or entity indemnified hereunder or whether liability is imposed upon such indemnified party by laws and regulations regardless of the negligence of any such person or entity.
- 9.2 In any and all claims against the Town or Engineer or any of their respective consultants, agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 9.1 shall not be limited in any way by any limitations on the amount or type of damages, compensation or benefits payable by or for Contractor or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.
- 9.3 The indemnification obligations of the Contractor under paragraph 9.1 shall not extend to the liability of Engineer and Engineer's Consultants, officers, directors, employees, or agents caused by the professional negligence, errors, or omissions of any of them.

10.0 SURVEYS

Unless otherwise specified, the Town, through their Engineer, will furnish all surveys and locations for locating the principal component parts of the work. Stakes missing at the time of construction will be replaced within a reasonable amount of time after notification by the Contractor.

11.0 PROTECTION OF WORK, PROPERTY, AND THE PUBLIC

- 11.1 The Contractor shall provide and maintain all necessary watchmen, barricades, warning lights and warning signs, and take all necessary precautions for the protection of the public. He shall continuously maintain adequate protection of all work from damage and shall take all reasonable precautions to protect the Town

property from injury or loss arising in connection with this Contract. He shall make good any damage, injury, or loss to his work and to the property of the Town resulting from lack of reasonable protective precautions. He shall adequately protect adjacent private and public property as provided by law and the Contract documents.

Machinery, equipment, and other hazards shall be guarded in accordance with the safety provisions of the Occupational Safety and Health Act and the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, to the extent that such provisions are not in the contravention of applicable law. The Contractor shall designate a responsible member of his organization at the job site whose duty shall be the prevention of accidents. The name and position of the person so designated shall be reported to the Engineer by the Contractor. Prior to the acceptance of any Proposal, the Contractor must complete and sign the Statement of Compliance with the Occupational Safety and Health Act on page OSHA-1.

- 11.2 The Contractor shall take all necessary precautions for the safety of employees at the job site and shall comply with all applicable provisions of federal, state, and municipal safety laws to prevent accidents or injury to persons on, about, or adjacent to the premises where the work is being performed.
- 11.3 In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the Contractor is hereby authorized to act at his own discretion without further authorization from anyone to prevent such threatened injury or damage.

12.0 CHANGES IN THE WORK

- 12.1 The Town, without invalidating the Contract, may order work or make changes by altering, adding to, or deducting from the work, the Contract price being adjusted accordingly. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change. Additional work will be billed at the same unit prices for a period not to exceed one (1) year from the date of the Contract.
- 12.2 The Engineer shall have authority to make changes in the work, not involving extra cost and not inconsistent with the purpose of the work but otherwise, except in an emergency endangering life or property or public health, no extra work or change shall be made unless in pursuance of a written order from the Town, signed or countersigned by the Engineer, or a written order from the Engineer stating that the Town has authorized the extra work or change. No claim for an addition to the Contract sum shall be valid unless so ordered.
- 12.3 The value of any such extra work or change shall be determined by the unit prices named in the Contract for a period not to exceed one (1) year from the date of the Contract. If the unit prices do not apply to this extra work, then the value of the extra work or change shall be determined in one of the following ways:

- 12.3.1 By estimate, by the Contractor, and by acceptance by the Town in a lump sum.
- 12.3.2 By unit prices agreed upon.
- 12.3.3 If neither of the above methods is agreed upon, the Contractor, provided he receives an order as above, shall proceed with the work for which he shall be paid the net cost of labor, material, and equipment rental to perform said work, plus fifteen percent (+15%) of such cost. If equipment rental at nominal rates is included, the “plus fifteen percent (+15%)” shall not apply to such equipment rental.

13.0 CLAIMS FOR EXTRA COST

- 13.1 Should the Contractor consider that as a result of any instructions given in any form by the Engineer, he is entitled to extra cost above that stated in the Contract, he shall give written notice thereof to the Engineer without delay and shall not proceed with the work affected until further advised except in emergency involving the safety of life or property. No claim for extra compensation will be considered unless the claim is so made.
- 13.2 The Contractor shall not act on instructions received by him from persons other than the Engineer or the Town’s representative, and any claims for extra compensation on account of such instructions will not be honored. The Engineer will not be responsible for misunderstanding of verbal instructions which have not been confirmed in writing, and in no case shall instructions be interpreted as permitting a departure from the Contract documents unless such instruction is confirmed in writing and supported by a properly-authorized change order, whether or not cost is affected.

14.0 UNCORRECTED FAULTY WORK

Should the correction of faulty or damaged work be considered inadvisable or inexpedient by the Town or the Engineer, the Town shall be reimbursed by the Contractor for same by a deduction in the Contract prices arrived at by a fair estimate of the probable cost of correction, approved by the Engineer.

15.0 DELAYS AND EXTENSION OF TIME

- 15.1 The time to be allowed for construction is stated in the Instructions to Bidders, paragraphs 8, 9, and 10. The Contractor, upon notice of award of Contract, shall prepare a construction schedule based on the allowed time and submit such schedule to the Engineer for approval. A pre-construction conference has been scheduled for Wednesday, September 23, 2026, for all parties concerned.
- 15.2 If the Contractor is delayed at any time during the progress of the work by any act of negligence by the Town or the Engineer, or by any separate Contractor employed by

the Town or by changes ordered in the work, then the time of completion shall be extended for such reasonable time as the Engineer may decide.

- 15.3 No extension of time for completion will be made for ordinary delays and accidents. Time for completion shall be extended for delays due to bad weather days or other special cases with the written consent of the Town and/or Engineer. Such requests for extension must be made, in writing, by the Contractor within ten (10) days of the event.

16.0 CORRECTION OF WORK BEFORE FINAL PAYMENT

- 16.1 Any work, materials, or other parts of work which have been condemned or declared not in accordance with the Contract by the Engineer shall be removed from the work site by the Contractor and shall be immediately replaced by new work in accordance with the Contract at no additional cost to the Town. Work on property of others or the Town damaged or destroyed by virtue of such faulty work shall be made good at the expense of the Contractor whose work is faulty.
- 16.2 Correction of condemned work described above shall be commenced within twenty-four (24) hours after receipt of notice from the Engineer and shall be pursued to completion.
- 16.3 Final Payment will not be made until certificates of the Engineer have been duly issued.
- 16.4 Should the Contractor fail to proceed reasonably with the above-mentioned corrections, then the Town may, after three (3) days following notice to the Contractor from the Engineer, proceed with corrections, paying costs of same from amounts due or to become due to the Contractor. Condemned work so removed shall be the property of the Contractor and shall be removed from the site of the work by him within ten (10) days after notice to remove it, or, thereafter may be disposed of by the Town without compensation to the Contractor.
- 16.5 Should cost of correction exceed amounts due or to become due the Contractor, then the Contractor and/or his Surety shall be liable for and shall pay to the Town the amount of said excess.

17.0 CORRECTION OF WORK AFTER FINAL PAYMENT

Neither the final certificate, final payment, acceptance of the premises by the Town, nor any provision of the Contract, nor any other act or instrument of the Town or Engineer shall relieve the Contractor from responsibility for negligence, faulty materials or workmanship, or failure to comply with the Drawings and Specifications. He shall correct or make good any defects due thereto and repair any damage resulting therefrom which may appear during the period of the guarantee following final acceptance of the work by the Town. The Town will report any defects as they may appear to the Engineer who will give the instructions for a time limit for completion of corrections to the Contractor.

18.0 THE TOWN'S RIGHT TO PERFORM WORK

If during the progress of the work or during the period of guarantee, the Contractor fails to execute the work properly or to perform any provision of the Contract, the Town, after five (5) days' written notice to the Contractor from the Engineer or the Town, may perform or have performed that portion of the work and may deduct the cost thereof from any amounts due or to become due the Contractor, such action and cost of same having been first approved by the Engineer. Should the cost of such action of the Town exceed the amount due or to become due the Contractor, then the Contractor or his Surety, or both, shall be liable for and shall pay to the Town the amount of said excess.

19.0 CONTRACTOR'S AFFIDAVIT

The final payment of retained amount due the Contractor on account of the Contract shall not become due until the Contractor has furnished to the Town through the Engineer an affidavit signed, sworn, and notarized to the effect that all payments for materials (except materials paid for by the Town), services, or any other reason in connection with his Contract have been satisfied and that no claims or liens exist against the Contractor in connection with this Contract. In the event that the Contractor cannot obtain similar affidavits from Subcontractors to protect the Contractor and the Town from possible liens or claims against the Subcontractor, the Contractor shall state in his affidavit that no claims or liens exist against any Subcontractor to the best of his (the Contractor's) knowledge, and if any appear afterwards, the Contractor shall save the Town harmless on account thereof.

20.0 ASSIGNMENTS

The Contractor shall not assign any portion of this Contract nor subcontract it in its entirety. Except as may be required under terms of the Performance and Payment Bonds, no funds or sums of money due or to become due the Contractor under this Contract may be assigned.

21.0 ENGINEER'S STATUS

21.1 The Engineer has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. He shall also have authority to reject all work and materials which do not conform to the Contract, to direct the application of forces to any portion of the work as in his judgment is required, to order the forces increased or diminished, and to decide questions which arise in the execution of the work.

21.2 The Engineer is the interpreter of the conditions of the Contract and the judge of its performance, and he shall use his powers under the Contract to enforce its faithful performance.

22.0 ENGINEER'S DECISIONS

The Engineer shall, within a reasonable time after their presentation to him, make decisions on all claims of the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract documents. All such decisions by the Engineer shall be final.

23.0 CLEANING UP

The Contractor shall at all times keep the site of the work free from accumulations of waste material or rubbish caused by his employees or work, and at the completion of the work he shall remove all rubbish from and about the site of the work and all his tools and surplus materials and shall leave the work in a clean and satisfactory condition. In case of dispute, the Town may remove the rubbish and charge the cost to the Contractor.

24.0 RIGHT-OF-WAY

The Town will obtain all easements and/or right-of-way required for the project. The Contractor shall be responsible for clearing all trees and brush as per Plans and Specifications.

25.0 ACCIDENTS

The Contractor shall provide at the site such equipment and medical facilities as are necessary to supply first-aid service to anyone who may be injured in connection with the work. The Contractor will provide a written report to the Town of all accidents within twenty-four (24) hours of the event.

26.0 GUARANTEE

The Contractor shall guarantee his workmanship against defect due to installation of faulty materials or faulty workmanship or negligence for a period of twelve (12) months following final acceptance of the work. He shall make good such defective materials or workmanship and any damage resulting therefrom without cost to the Town.

27.0 EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

27.1 The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, political affiliation or belief, age, or physical handicap. The Contractor will take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or physical handicap. Such action shall include, but not be limited to the following; employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of the nondiscrimination clause.

27.2 The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or physical handicap.

- 27.3 The Contractor will send to each labor union or representative of workers with which he has a collective notice to be provided, advising the labor union or workers' representative of the Contractor's commitments under the Equal Employment Opportunity Section of this Contract, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 27.4 In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Town contracts.
- 27.5 The Contractor will include the provisions of this section in every Contract or Subcontract unless exempted by rules, regulations, or orders of the Town of Smithfield, North Carolina so that such provisions will be binding upon each Contractor or Subcontractor.

SPECIAL CONDITIONS

SPECIAL CONDITIONS

1.0 CONTRACTOR'S INSURANCE

- 1.1 The Contractor shall take out and maintain during the life of this Contract Workmen's Compensation, Public Liability and Property Damage Insurance, and Insurance for Motor Vehicles.
- 1.2 Workmen's Compensation Insurance shall include all of the Contractor's employees employed at the site of the project under his Contract. In case any class of employees engaged in hazardous work under this Contract at the site of the project is not protected under the Workmen's Compensation Statute, the Contractor shall provide adequate coverage for the protection of his employees not otherwise protected.
- 1.3 Public Liability and Property Damage Insurance shall be in such amounts as to adequately protect the Town and the Contractor from claims for damages for personal injury, including accidental death, as well as from claims for property damages which may arise from operations under this Contract whether such operations be by himself or by anyone directly or indirectly employed by him. The amount of such insurance shall be not less than the following:

Public Liability Insurance for bodily injury or death
\$1,000,000.00 for one (1) person and \$1,000,000.00
for each accident.

Property Damage Insurance – \$1,000,000.00
for each accident and \$1,000,000.00 aggregate for
accidents during the policy period.
- 1.4 Motor Vehicle Liability Insurance shall be for not less than the following amounts:

Bodily injury or death – \$1,000,000.00 for one (1)
person and \$1,000,000.00 for each accident.
Property damage is \$1,000,000.00 for each
accident.
- 1.5 Certification of all policies shall be furnished by the Contractor and shall be attached to the respective pages of the Contract Agreement.
- 1.6 The Town shall have the right at any time to require public liability insurance and property damage liability insurance greater than these minimums. The Town is to receive notice of cancellation by the Bidder's insurance carrier at least thirty (30) days prior to cancellation or change.
- 1.7 The Contractor shall have the Town of Smithfield named as Co-Insured on the above-mentioned insurance policies during the entire term of this Contract.

2.0 PERFORMANCE BOND/PAYMENT BOND

- 2.1 The Successful Bidder will be required to furnish a Performance Bond and a Payment Bond in an amount at least equal to one hundred percent (100%) each of the Contract prices as security for the faithful performance of this Contract and security for the payment of all persons performing labor and/or furnishing any materials and equipment in connection with this Contract.
- 2.2 Performance Bonds and Payment Bonds shall be with a surety company authorized and licensed to do business in the State of North Carolina and shall be for an amount at least equal to the full Contract sum.
- 2.3 In all Performance and Payment Bonds, the provisions that no suit, action, or proceeding by reason of default shall be brought on this Bond after a period of twelve (12) months. The face value of the Bond shall be at least one hundred percent (100%) of the Contract price for a period of twelve (12) months following final acceptance of the project.

3.0 LIQUIDATED DAMAGES

Attention is directed to time allowed for the completion of the work in the Contract Agreement included herewith. Damages for delay shall be at the rate of Five Hundred Dollars (\$500.00) per calendar day for failure of the Contractor to complete the work within the Construction and Bid Schedule.

4.0 TIME FOR COMPLETION

The starting date for work under this Contract shall be the following:

- Monday, October 5, 2026

The Contractor shall have indicated in his Proposal the number of calendar days he will require to perform the work. Time for completion shall be extended for delays due to bad weather days, or other special cases with the written consent of the Town and/or Engineer. All construction for the schedules under this Contract must be completed on or before the following date;

- Friday, January 15, 2027

5.0 SEQUENCE OF CONSTRUCTION

- A Bid and Construction Schedule is included in this Contract (see Exhibit No. 2).
- The sequence of construction shall be further discussed at the Pre-Construction Conference.

6.0 WORK ON, OVER, AND UNDER ENERGIZED LINES

The majority of the work must be constructed under energized conditions. The Contractor will be required to work over, under, and around 115 kV transmission and 15 kV and 25 kV distribution operated by the Town of Smithfield. Portions of the existing distribution must remain energized unless outages are required for safety reasons and the Contractor is so notified. Insulation materials and tools in sufficient quantities and ratings shall be utilized for proper protection of personnel and property.

DANGER

All lines are to be considered energized, unless clearly grounded in accordance with the Contractor's work rules.

7.0 PERIODS OF DE-ENERGIZATION OF LINES

7.1 General

With two (2) weeks' prior notice, the Contractor will request in writing from the Town (with copies to the Engineer), the times he requests that the line be de-energized for his work. All switching procedures shall be coordinated with the Town and open and closed points properly tagged.

7.2 Distribution Outages

The Contractor shall so schedule his work and crews such that he can complete the work intended during the outage period. Under no circumstances will the Contractor be permitted to leave the distribution line in such condition that it cannot be energized during non-working hours. The Contractor is hereby notified that he is to provide crews sufficient in quantity to limit any outage time to a maximum of three (3) hours, possibly on weekends or off-peak hours, as directed by and at the complete discretion of the Town. Any duration longer than this maximum will only be permitted with the express permission of the Town.

Prior to and during construction, circuit feeds should be verified with the Town and field checked by the Contractor.

8.0 REMOVAL ASSEMBLY UNITS

8.1 Removal assembly units cover the furnishing of all labor required for the removal of existing assembly units of construction from existing lines, disassembling into material items, and all labor and transportation for the delivery of the items to the Town's warehouse or to be disposed of directly by the Contractor as directed.

8.2 The removal assembly units shall include any necessary handling, resagging, and retying of conductors in those cases where an existing assembly unit will be removed and replaced by a new assembly unit and where any existing conductors are to be retained. Removal will also include any holding or handling of main line or tap conductors at tap line, angles, and deadends where such are involved and the

reinstalling of such conductors, including resagging and reconnecting.

- 8.3 The removal assembly unit prices shall include, in accordance with paragraph 8.2 above, all labor required to reinstall any conductors temporarily detached. The Contractor shall reinstall, at his own expense, any other items removed by him for his own convenience.
- 8.4 Conductor removal units shall include the coiling or reeling of the conductor removed in a workmanlike manner.
- 8.5 Transformer removal units shall include complete removal, including any arresters, cutouts, and crossarms, and readying the unit for reinstallation in its new location under new unit or transporting the transformer to the Town's warehouse if it is not to be reused. On removal of single-phase units, conventional transformers are assumed equal to CSP units in unit application.
- 8.6 Secondary and service unit removals shall include handling and resagging of conductors when units are reinstalled under the new unit assembly. No separate pay item is used for handling of service or secondary conductor unless new wire is to be installed.
- 8.7 All materials removed as part of the work and not specified to be reused will remain the property of the Town.
- 8.8 Removal of underground cable shall include pulling cable out of conduit to a distance of at least ten feet (10'-0") to allow clearance for new cable and grounding (by means of a bonding jumper and ground rod assembly), of both ends of direct buried cable that will be abandoned. If the cable to be removed is within three feet (3'-0") of new cable being installed, it shall be completely excavated and removed. Other provisions for conductor units shall apply.

9.0 ALTERATIONS TO EXISTING STRUCTURES OR TRANSFER OF EXISTING UNITS

- 9.1 Alterations to existing units or transfer of existing units includes the furnishing of all labor and material required for the removal of portions of existing assembly units of construction from existing lines, relocating portions of the assembly units on the structure, or installing new material in the unit as indicated on the Assembly Drawings.
- 9.2 Alterations to existing assembly units or transfer of existing units shall include any necessary handling, resagging, and retying of conductors in those cases where portions of an existing assembly unit will be removed and replaced by a new material unit and where the existing conductors are to be retained. It will also include any holding or handling of main line or tap conductors at tap lines, angles, and deadends where such is involved and the reinstalling of such conductors, including resagging and reconnecting.

- 9.3 Alterations to existing assembly unit prices or transfer unit prices shall include, in accordance with paragraph 9.2 above, all labor and material required to install any conductors temporarily detached. The Contractor shall reinstall, at his own expense, any other items removed by him and for his own convenience.

10.0 SALVAGE AND UTILIZATION OF EXISTING MATERIALS AND EQUIPMENT

- 10.1 All materials and equipment designated for salvage, removed by the Contractor in the performance of the work under this Contract, shall be carefully dismantled and delivered to the Town's warehouses as stated below.
- 10.2 The Contractor shall not reuse any salvaged materials in this project unless approved by the Town.
- 10.3 Items of materials and equipment removed by the Contractor and designated for salvage shall remain the property of the Town. All other items shall be disposed of by the Contractor as directed.

11.0 NEW ASSEMBLY UNITS

- 11.1 The Proposal is on a unit basis and the various construction units that are included in the Proposal and upon which quotations are required, as defined by symbols and descriptions and Assembly Unit Drawings, are set forth in the Specifications.
- 11.2 Pole assembly unit consists of one pole in place including necessary excavation of whatever material encountered. It does not include pole top assembly unit or other parts attached to the pole.
- 11.3 Pole top assembly units consist of the hardware, crossarms and their appurtenances required to support the conductors. It does not include the pole. The pole top assembly unit also includes the handling, retying and resagging (if necessary) of any existing conductors which are to be retained.
- 11.4 Guy Assembly Unit consists of the hardware and guy wire. An overhead guy assembly consists of an overhead guy; poles and down guys are existing.
- 11.5 Anchor Assembly Unit consists of the anchor with rod, twin eye and guy grip, complete ready for attaching the guy wire.
- 11.6 Conductor Assembly Unit consists of 1,000 feet, i.e. (Mft), of a single conductor as indicated in the Proposal and includes all tie wires, jumpers, leads, and sleeves for splicing, connectors, etc. The length of conductor shall be determined by taking the sum of all straight horizontal span distances from center to center of the poles carrying the conductors. The conductor sizes listed are the manufacturer's designation.
- 11.7 Pole Grounds shall consist of down lead, connectors, driven rod grounds as specified on the Drawings and Plan Sheets. All installed poles will have a butt plate or driven

rod type of ground assembly installed on them.

12.0 TRAFFIC CONTROL DURING CONSTRUCTION

12.1 General

It shall be the responsibility of the Contractor to maintain safe and unobstructed control of traffic along all state roads, highways, and all other streets within the project area. The Contractor shall obtain sufficient and suitable traffic cones, barriers, warning signs, and other devices necessary to maintain a safe work environment for crews and the general public. Traffic control must be provided for in accordance with the Manual of Uniform Traffic Control Devices (MUTCD), the North Carolina Department of Transportation (N.C.D.O.T.) Supplement to the MUTCD, all local ordinances, and as approved by local and state authorities.

- 12.2 All lane reductions or closings must be approved by local authorities and/or the N.C.D.O.T. District Engineer's office.
- 12.3 The Contractor will be responsible for all necessary devices required, including lighted directional signing, as required by the MUTCD, local and State authorities.
- 12.4 The Contractor shall notify N.C.D.O.T. District Engineer's office at least one (1) week ahead of anticipated work in the area. The Contractor will review, with all respective parties, his plan for traffic control, commencement of construction date, duration of construction time, and details of construction and receive approval prior to any work beginning.

13.0 SWITCHING

- 13.1 The Contractor will coordinate all switching activities with the Town. The Town will be responsible for determining switching procedure, open and close points, etc. All open points will be properly tagged.
- 13.2 Prior to and during construction, circuit feeds and phasing should be verified with the Town and field checked by the Contractor.

14.0 EXCAVATIONS

Prior to digging any trenches, pole holes, anchor holes, etc., the Contractor must assure himself there are no other utility facilities in the proposed excavation areas. This can be done by calling the Town of Smithfield for electric, water and sewer locations, and by calling NC 811 or 1-800-632-4949 for the location of all other utilities. It is the Contractor's responsibility to ascertain the location of any other utilities and the Contractor is responsible for any damage done to said utilities.

15.0 PHASE ROTATION AND PHASING:

The Contractor will be totally responsible for checking and assuring all phase rotation and phasing is correct when the project is completed for the Town of Smithfield, North Carolina. The Contractor shall coordinate phasing through the Town of Smithfield.

16.0 DRAWINGS

The Contract shall include the following:

| <u>Description</u> | <u>Title</u> | <u>Identification Number</u> |
|------------------------|---|------------------------------|
| Work Area Location | Vicinity Map | VM-1 |
| Assembly Unit Drawings | Overhead and Underground Distribution Assembly Units | As Numbered |
| Plan Drawing | Circuit G4 Kellie Drive Extension 13.2kV Distribution Line Plan Drawing | 1 -6 of 6 |

MATERIAL SPECIFICATIONS

***OVERHEAD DISTRIBUTION
MATERIAL SPECIFICATIONS***

OVERHEAD DISTRIBUTION **MATERIAL SPECIFICATIONS**

1.0 GENERAL

- 1.1 All materials shall be new except items specified for reuse.
- 1.2 All materials shall be supplied by the Town.
- 1.3 All materials issued to or returned by the Contractor must be acknowledged by a material receipt.
- 1.4 Transformers removed must be delivered to the Owner's transformer handling facility.
- 1.5 Materials removed and salvaged must be returned to the Owner's warehouse and a receipt will be issued to the Contractor for materials returned.
- 1.6 The Contractor will be charged for all materials removed which are neither reused nor returned to the Owner's warehouse. Current stock item prices will be used to determine the removed material charge.
- 1.7 A brief description of the materials is furnished hereinafter for the Contractor's information.
- 1.8 Reference to ASTM, NEMA, AWS, SSPC, or ACI Standard implies reference to the latest revision or to its replacement if it has been discontinued.

2.0 POLES - WOOD

- 2.1 All poles shall meet the requirements of ANSI Standard "Specifications and Dimensions for Wood Poles 05.1," the latest revision thereof.
- 2.2 Poles shall be framed as indicated on the Drawings. All field drilled holes shall be treated with a two percent (2%) solution of copper naphthenate or other EPA approved preservative before framing.
- 2.3 New poles shall be Southern Yellow Pine and shall meet the requirements set forth in ANSI Specification and Dimension for Wood Poles 05.1. Treatment shall be the latest AWPAs Standard C4 for the Preservative Treatment of Poles By Waterbourne Process. The preservative shall be chromated copper arsenate solution, CCA, conforming to AWPAs Specifications P5 or the latest revisions thereof.

3.0 CROSSARMS

Crossarms will be wood or fiberglass. Wood crossarms shall be treated select structural Douglas Fir, as described in WCLIB No. 16, latest editions. Treatment shall meet requirements of AWWA Standard P8 and P9, latest edition. Preservatives shall be five percent (5%) solution pentachlorophenol by weight in petroleum carrier. Crossarms shall be roofed and drilled.

4.0 HARDWARE

Hardware shall be hot-dip galvanized.

- 4.1 Pole-top and crossarm pins shall conform to ANSI Standard C135.17 and C135.22.
- 4.2 Bolts and nuts for overhead construction shall conform to ANSI Standard C135.1. Machine, carriage, and double-arming bolts-ANSI Standard C135.1.
Eye bolts-ANSI Standard C135.4.
Lag screws-ANSI Standard C135.3.
- 4.3 Steel parts shall conform to ASTM Specifications A36.
- 4.4 Malleable iron shall conform to ASTM Specifications A47.
- 4.5 Galvanizing shall conform to ASTM Specifications A153.

5.0 GUY WIRE

Guy wire shall be three-eighths inch (3/8") extra high strength steel, rated 15,400 pounds ultimate strength.

6.0 ANCHORS

Anchors for guying shall be:

- 6.1 Power installed, screw type, single helix eight inch (8"), ten inch (10"), and twelve inch (12") as required with round shaft, with a twin eye, rated 11,000, 13,000, and 16,000 pounds.
- 6.2 Power installed, screw type, double helix eight inch (8") and 10 inch (10") as required with one and a half inch (1-1/2") square shaft, with a twin eye, rated 27,000 pounds.

7.0 INSULATORS

7.1 Pin Insulators

Pin insulators shall conform to ANSI, NEMA, and AIEE Standards for insulators. All pin and suspension insulators shall be supplied by the Town.

| <u>Insulator Type</u> | <u>Flashover</u> | | <u>Leakage</u> | <u>Cantilever Load</u> |
|-----------------------|------------------|------------|----------------|------------------------|
| | <u>Dry</u> | <u>Wet</u> | | |
| 25 kV Pin Insulator | 80 kV | 45 kV | 12" | 3,000 lbs. |

7.2 Suspension Insulators

Distribution suspension insulators shall be 25 kV porcelain and supplied by the Town.

| <u>Insulator Type</u> | <u>Flashover</u> | | <u>Leakage</u> | <u>SML & Fittings</u> |
|----------------------------|------------------|------------|----------------|---------------------------|
| | <u>Dry</u> | <u>Wet</u> | | |
| 25 kV Porcelain Suspension | 60 kV | 30 kV | 6 ¾" | 10,000 lbs. Clevis/Eye |

7.3 Fiberglass Guy Strain Insulators

Fiberglass insulators shall be supplied by the Town and have the following characteristics.

| <u>Insulator Type</u> | <u>Flashover</u> | | <u>Leakage</u> | <u>ANSI Class</u> |
|-----------------------|------------------|------------|----------------|-------------------------------------|
| | <u>Dry</u> | <u>Wet</u> | | |
| Fiberglass Insulator | 30 kV | 15 kV | 1.875" | 36" 21,000 lbs. Roller/Clevis |

7.4 Spool Insulators

Spool insulators shall be supplied by the Town.

| <u>Insulator Type</u> | <u>Flashover</u> | | <u>Leakage</u> | <u>ANSI Class</u> |
|-----------------------|------------------|------------|----------------|-------------------|
| | <u>Dry</u> | <u>Wet</u> | | |
| Spool, 3" | 25 kV | 15 kV | 1.25" | 53-2 |

8.0 DEADENDS

Deadends shall be MacLean Power Systems HDSO-70 or equal for 4/0 ACSR Penguin and 336.4 kcmil ACSR-Merlin conductors. Deadends shall be MacLean Power Systems HDSO-47 or equal for # 2 AWG ACSR-Sparrow and 1/0 AWG ACSR-Raven.

Guy strand vise deadends of suitable size and ratings may be used on guys.

Guy attachments for distribution guys shall be pole eye plates, medium duty, MacLean Power Systems P157X or equal and supplied by the Town.

9.0 SPLICES, CONNECTORS

Automatic splices will be permitted for conductors up to 336.4 ACSR. All connectors shall be parallel groove or sleeve-type aluminum compression. Split-bolts are **not** allowed on aluminum. Transformer stirrups for 336.4 kcmil ACSR conductors may be bolted type.

10.0 TIES

Ties for all aluminum conductors # 2 AWG ACSR and larger shall be Preformed Ties. Ties on 6A/8A Copperweld Conductors shall be No. 8 copper S.D. tie wire.

11.0 CONDUCTORS

Distribution conductors shall be:

11.1 1/0 AWG, ACSR (Raven)

11.2 4/0 AWG, ACSR (Penguin)

11.3 336.4 kcmil, ACSR (Merlin)

11.4 #4 AWG, ACSR (Robin)

11.5 Pole grounds shall be No. 4 AWG or larger solid soft drawn copper on all distribution wood poles except those with special equipment (e.g., reclosers, regulators, capacitors, etc.) where they shall be No. 2 stranded AWG copper.

12.0 LIGHTNING ARRESTERS

Lightning arresters for all applications other than transformer mounting shall be Aluma-Form ARP Type Polymer or equal.

| <u>Nominal Line Voltage</u> | <u>Arrester Rating</u> |
|-----------------------------|---|
| 22.9/13.2 kV M.C.O.V. Type | 15.3/18 kV Heavy Duty Distribution |
| 22.9/13.2 kV M.C.O.V. Type | 15.3/18 kV Heavy Duty Distribution (Station Class) |

Arresters shall be polymer, equipped with brackets for pole or crossarm mounting and shall be equipped with a ground lead disconnecter feature in the event of internal arrester failure.

13.0 CUTOUPS

Cutouts shall be 25 kV, 200 Amp, Hubbell CP710243 Style, or equal.

14.0 GANG-OPERATED AIR BREAK SWITCH

Gang-operated air break switches shall be 25kV pipe operated, three-pole side-break integer style, with cyoxy insulators and steel base S&C, ED-701R4 or equal.

INSTALLATION SPECIFICATIONS

***OVERHEAD DISTRIBUTION
INSTALLATION SPECIFICATIONS***

OVERHEAD DISTRIBUTION INSTALLATION SPECIFICATIONS

1.0 GENERAL

- 1.1 The new construction, rearrangements, relocations, modifications, and removals shall be complete in accordance with the Plans, Specifications and Assembly Drawings. All work shall be done in a thorough and workmanlike manner.
- 1.2 The latest edition of the National Electrical Safety Code shall be followed. All construction shall conform to that required for a medium loading district. Deviations from the Plans, Specifications, and Construction Drawings will not be permitted except upon written permission from the Engineer.

2.0 REMOVALS

- 2.1 Removals shall consist of removing each and every item designated on the Drawings, the disassembling of structures into material items, and the transportation of the items from the site of the work to the storage area designed by the Owner.
- 2.2 Conductor removal shall include the coiling or reeling of the conductor removed in a workmanlike manner.
- 2.3 Anchor assemblies shall be removed by removing the anchor rod only. If the anchor rod cannot be unscrewed, the rod must be cut or bent down so as to be a minimum of eighteen inches (18") below the ground line. Screw-type anchors shall be completely removed.
- 2.4 The removal shall include any necessary handling, resagging, and retying of conductors in those cases where an existing assembly unit will be removed and replaced by a new assembly unit and where any existing conductor is to be retained. Removal will also include any holding or handling of main line or tap conductors at tap lines, angles, and deadends where such is involved and the reinstalling of such conductor, including resagging and reconnection. It shall also include reinstalling any conductors temporarily detached.
- 2.5 The Contractor shall reinstall, at his own expense, any other items removed by him for his own convenience.
- 2.6 All materials removed as part of the work and not specified to be reused will remain the property of the Owner.

3.0 TRANSFERRING

- 3.1 Transferring shall consist of disconnecting existing material and reinstalling this material in a different location on the same structure or a new structure, provided the new structure is adjacent to the existing structure.

- 3.2 All unused holes in wood poles shall be plugged using treated wood dowel pins. For holes where the hole has been enlarged, the hole will be pressure treated with a two-percent (2%) solution of copper naphthenate or other EPA approved preservative compound using a pressure gun prior to plugging.
- 3.3 The transfer shall include any necessary handling, resagging, and retying of all conductors in those cases where an existing assembly unit will be removed and replaced by a new assembly unit and where any existing conductor is to be retained. Transfer will also include any holding or handling of all conductors at tap lines, angles, and deadends where such is involved and the reinstalling of such conductor, including resagging and reconnection. It shall also include reinstalling any conductors temporarily detached.
- 3.4 The Contractor shall reinstall, at his own expense, any other items removed by him for his own convenience.

4.0 POLES – WOOD

- 4.1 The Contractor shall not install a pole that, in his opinion, or the opinion of the Owner or Engineer, has been damaged or is otherwise unsafe. The Contractor shall promptly report any damaged or questionable pole or other component to the Owner and Engineer and confirm the report in writing.

4.2 Handling of Poles

- 4.2.1 The Contractor will be responsible for any damage to the poles and arms resulting from his handling, transporting, or storing procedures.
- 4.2.2 Treated poles shall not be dragged along the ground. Pole tongs, cant hooks, and other pointed tools capable of producing indentations more than one inch (1") in depth shall not be used in handling the poles. No tools shall be applied to the ground line section of any pole.

4.3 Pole Selection

In distributing poles, extra heavy, choice, close-grained poles shall be reserved for angles, crossings, and deadends.

4.4 Pole Setting

For single-pole wood structures, the minimum setting depths shall be as follows unless noted otherwise:

| <u>Pole Length</u> (Feet) | <u>Setting Depth</u> (Feet) |
|------------------------------|--------------------------------|
| 30 | 5.0 |
| 35 | 5.5 |
| 40 | 6.0 |
| 45 | 6.5 |
| 50 | 7.0 |
| 55 | 7.5 |
| 60 | 8.0 |
| 65 | 8.5 |
| 70 | 9.0 |
| 75 | 9.5 |
| 80 | 10.0 |
| 85 | 10.5 |
| 90 | 11.0 |
| 95 | 11.5 |

Additional embedment may be required for some construction units (See Plan & Profile or Staking Sheets).

- 4.5 On sloping ground, the depth of the hole shall always be measured from the low side of the hole.
- 4.6 Holes shall be approximately eight inches (8") larger than the butt diameter of the pole and shall be at least as large at the bottom as at the top.
- 4.7 Poles shall be set so that alternate crossarm gains face in opposite directions, except at terminals and deadends where the gains of the last two (2) poles shall be on the side facing the terminal or deadend. On unusually long spans, the poles shall be set so that the crossarm comes on the side of the pole away from the long span.
- 4.8 All poles shall be set plumb and in alignment except at line angle points. At line angles where suspension construction is used, poles shall be offset on the bisector of the angle so that conductors will hang directly over the point of intersection in line with the tangent in both directions. All poles shall be plumb after conductors are strung. Where poles are set along the edge of cuts or embankments, or where the soil is liable to be washed out, special precautions shall be taken to insure durable foundations and the setting depth shall be measured from the lower side of the hole. While backfilling, in no case shall the earth be thrown in to a greater depth than six inches (6") without being tamped hard before the next layer is thrown in. The surplus earth shall be placed around the pole in a conical shape and packed tightly in order that water will drain away from the pole.
- 4.9 Where new gains or holes are required in new CCA treated poles, the gains shall be painted with two percent (2%) solution of Copper Napthenate or other EPA approved

preservative compound and holes pressure-treated with the same compound using a pressure gun.

- 4.10 Under no circumstances shall the butt or tops of any pole be cut, unless as specified by the Engineer.
- 4.11 All unused holes in poles shall be plugged prior to erection using treated wood dowel pins. For holes in used poles where the hole has been enlarged, the hole will be pressure-treated with an appropriate preservative compound using a pressure gun prior to plugging.

5.0 ROCK ENCOUNTERED DURING EXCAVATIONS

The Contractor shall be responsible for the removal and disposition of solid rock when encountered in holes for wood poles and tubular steel poles. Solid rock shall be defined as solid, naturally-occurring mineral formations that cannot be effectively removed by conventional trenchers, backhoes, or pressure augers on line trucks. Loose rock or limestone in intermittent layers that result in “difficult digging” shall not be defined as solid rock excavations. “Solid rock” shall require the use of air hammers, blasting or other specialized equipment as approved by the Owner or Engineer.

An adder (M-1 (Rockhole)) will be quoted by the Bidder in the Proposal Section to establish a labor cost for rock excavations, including disposition on a per-cubic-yard basis. Quantities will be agreed upon jointly by the Contractor and the Owner (or Engineer) as the excavations occur. Over excavation to remove rock will not be counted in the quantity of rock excavations. The volume of rock excavation adder will be computed based on the normal pole hole diameter and depth, as if no rock were encountered. Rock adders will not apply to man-made surface treatments, such as asphalt, concrete or gravel.

6.0 CROSSARMS

Crossarms shall be bolted to poles by means of through bolts or threaded rods for large diameter poles while utilizing square washers at both ends. Through bolts and threaded rods shall be of the proper length to extend at least one-half inch (1/2") and not more than two inches (2") beyond the nut after installation is complete. Poles shall be gained so that crossarms are in a vertical position after being installed.

7.0 GUYS AND ANCHORS

- 7.1 Guys shall be attachment type utilizing preformed guy grips. Guys shall be installed in locations specified by the Engineer. Points of attachment to poles shall be as shown on Construction Drawings. Guys shall be installed before conductors or overhead ground wires are strung.
- 7.2 All anchors and rods shall be in line with the strain. All anchors are to be single or multiple helix screw type or expanding rock type and shall be located as staked by the Engineer. Anchor rods shall be so installed that approximately six inches (6") of the rod shall remain out of the ground or extend more than twelve inches (12") out of

the ground in cultivated fields. The setting depth of each anchor in regard to depth, torque, and position shall be inspected by the Owner's representative and his approval given in writing.

- 7.3 All anchors shall be installed using torque control tools. The Hydraulic Torque Indicator which provides continuous readouts shall be used and installed torque values shall be recorded for each anchor. Expanding rock type anchors shall be installed per manufacturer's recommendations.
- 7.4 Anchor locations shall be checked and verified by the Contractor prior to installation to assure that guys do not conflict with phase conductors. This is especially critical when transmission guying passes through distribution phase positions. Where fiberglass guy strain insulators are installed in guys, a minimum of twelve inches (12") must be maintained to all phase conductors.
- 7.5 Where multiple fiberglass guy strain insulators are to be installed, in one (1) guy strand, they shall be connected using a chain link of the appropriate size.

8.0 HARDWARE

Hardware shall be installed as indicated on the Drawings. All bolts shall be installed with nuts and locknuts. Bolts shall be long enough to accommodate the necessary nuts, washers, etc. without projecting more than one and one-half inches (1-1/2") or less than one-half inch (1/2") at the free end. They shall not project more than one-fourth inch (1/4") into an eye nut installed.

9.0 INSULATORS

- 9.1 Care shall be exercised in handling and erecting insulators.
- 9.2 All insulators shall be handled with utmost care during storage, transportation, assembly, and installation. Particular care shall be taken to avoid bending stresses in insulator strings during handling. Insulators shall not be dropped. Assembled insulator units shall be handled in such a manner as to avoid axial compressive or torsional loading. Insulators subjected to these or any other abuses or damage shall be permanently marked and rejected from the job.
- 9.3 All insulators shall be protected from the accumulation of all foreign materials insofar as is possible. Mud, grease, and other foreign materials shall be cleaned from insulators using clean rags. Wire brushes may not be used for the cleaning of any insulator parts. Upon installation, all insulators shall be clean on all surfaces. Workmen shall not climb on insulators at any time.

10.0 GROUNDING ASSEMBLY

10.1 Pole Grounds

- 10.1.1 Driven pole grounds shall be installed as indicated on the Plan Sheets.

10.1.2 Butt plates (M2-12EC) or driven ground rods (M2-1EC) shall be installed on all wood distribution poles as indicated on the Plan Sheets.

10.1.3 Refer to the following drawings for the grounding of wood distribution poles:

Wood
M2-1EC
M2-12EC
M2-15REC

10.2 Guys and overhead ground wires shall be attached to the common ground.

10.3 The distribution neutral shall be attached to the common ground.

10.4 Ground rods shall be driven to their full length into undisturbed earth according to the unit assembly drawings. The top of the ground rod shall be located a minimum of one foot (1'-0") below grade or as indicated otherwise on the Assembly Drawings.

10.5 Ground rods shall be 5/8" x 8'-0" copper or copper clad. Extensions shall be added if necessary to obtain a verifiable ground resistance of twenty-five (25) ohms or less.

10.6 Ground wires for distribution wood poles shall be #4 soft drawn copper.

11.0 CONDUCTORS

11.1 Distribution Conductors

11.1.1 Care shall be exercised to avoid kinking, twisting, or abrading the conductor in any manner. Conductors shall not be trampled on, run over by vehicles, or dragged over sharp rocks. The wire on each reel shall be inspected for cuts, kinks, or other injuries. Injured portions or crooked or imperfect splices in the conductor shall be cut out and the wire respliced.

11.1.2 Conductors shall be pulled over suitable rollers or stringing blocks properly mounted on the pole or crossarm to prevent binding while stringing.

11.1.3 Installation of conductors and accessories shall be done in accordance with manufacturer's recommendations.

11.1.4 With post and pin-type insulators, the conductors shall be tied in the top groove of the insulator on tangent poles and on the side of the insulator away from the strain at angles greater than ten degrees (10°). Post and pin-type insulators shall be tight on the pins and on tangent construction; the top groove must be in line with the conductor after tying in.

11.1.5 There shall not be more than one splice per conductor in any span and no splice shall be located within ten feet (10'-0") of the conductor support.

Splices will not be permitted in road or street crossing spans. Automatic splices are not permitted on primary, neutral, or secondary conductors.

- 11.1.6 Utmost care shall be exercised in installing parallel groove clamps. The contact surface of the conductor shall be clean and bright. A steel brush shall be the principal cleaning medium; contact compound shall be used for all connections to aluminum conductors. Those same precautions for cleaning shall also apply to the conductor before splicing.
- 11.1.7 Conductors shall be sagged in accordance with sag and tension charts or tables furnished by the Engineer. Under no circumstances will a decrease in the specified sag be allowed. Sagging by sighting between targets or dynamometer is recommended.
- 11.1.8 The conductor temperature at the time and place of stringing shall be determined by a certified thermometer inserted in a short section of conductor. The temperature at which the conductor is sagged and the spans in which sags are measured shall be recorded and the information given to the Engineer.

12.0 RIGHT-OF-WAY - GENERAL

- 12.1 Access to right-of-way areas shall be from existing public or private roads or along existing Owner rights-of-way. Where private roads or trails are used, the Contractor shall obtain permission in writing from the property owner for their use with copies to be furnished to the Owner and Engineer.
- 12.2 All right-of-way clearing shall be completed for a section of the line before pole setting may begin. No poles shall be set with right-of-way not completely cleared.
- 12.3 All right-of-way clearing will be by the Contractor.
- 12.4 At the completion of construction and clean-up the Contractor shall re-grade all disturbed right-of-way areas to their preconstruction contours where practicable. All cuts or fills shall maintain a maximum slope of 3:1 in order to ensure as little run off as possible. Any soil erosion and sedimentation devices required to stabilize and/or reduce further erosion shall be installed. All devices installed during construction and no longer required shall be removed. All disturbed or denuded areas shall be covered with topsoil, if required, fertilized, limed, seeded, strawed, and tacked as necessary. Fertilizer, lime, and seed rates and mixes shall be as specified by the local soil conservation service for the time of year applied. All cost for right-of-way clean-up and restoration shall be borne by the Contractor.

12.5 Maintenance Of Existing Rights-of-Way

Existing rights-of-way, both public and private, must be maintained during construction in such a manner so as not to create a hazard. Deep ruts shall be backfilled and graded out. Denuded grass and vegetation areas shall be replanted

with a suitable seed mixture. At the end of the construction, the right-of-way should be left in as good or better condition than it was before construction began. All cost of maintaining existing right-of-way and/or reseeding shall be borne by the Contractor.

12.6 Temporary Service Or Access Roads

12.6.1 If, during the course of construction it should become necessary for the Contractor to construct, modify, widen, grade, or perform any other earth work in order to provide access to or work areas around any facilities covered in this Contract, he shall do so at his own cost.

The Contractor shall be responsible for all permits required for such construction. He shall also be responsible for the installation and maintenance of any soil erosion and sediment control devices required by local, county, or state agencies.

12.6.2 Any service roads required should follow existing trails, logging roads, maintenance roads, etc., as much as possible. New service road routes should take the best advantage of existing terrains. New service or access roads routes shall be reviewed with the Owner or Engineer prior to beginning construction.

12.6.3 All cost associated with the construction, maintenance, removal, and rehabilitation of any area associated with the rights-of-way, access roads, service roads, etc., shall be borne by the Contractor. A separate cost item will not be billed for this work.

**UNDERGROUND DISTRIBUTION
MATERIAL SPECIFICATIONS**

UNDERGROUND DISTRIBUTION **MATERIAL SPECIFICATIONS**

The following is a list of typical underground distribution materials that will be used in this Contract. Quantities shown include excess to allow for scrap, waste, and to allow for spare reserves. Quantities in the Proposal Section of this Contract shall be used to accurately reflect the actual work involved. Payment shall be made on the basis of actual quantities installed based on field inventory by the Engineer.

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

UNDERGROUND MAJOR ITEMS MATERIAL LIST
(Owner-Furnished)

| ITEM NO. | DESCRIPTION | QUANTITY | SUGGESTED MANUFACTURER | CATALOG NO. |
|---------------------|--|-----------------|-----------------------------------|------------------------|
| 1 | Lightning Arresters, 25 kV | | | |
| 2 | Deep Socket Schedule 40 Utility, 90° elbows, 48" radius | | Carlton or equal | |
| 3 | PV-Mold Non-Metallic Pole Riser | | Carlton or equal | 59017N |
| 4 | Primary Cable, 1/0 AWG 1350 H19 alloy aluminum, 25 kV, Ethylene-Propylene Rubber (EPR) Insulation, 260 mil, full capacity bare Copper Concentric Neutral, with 80 mil PVC Outer Jacket over the Concentric Neutral | | Okonite or equal | N/A |
| 5 | Primary Cable Splice Kit for 1/0 AWG, 25 kV URD Cable | | 3M | 163-23-4072 or equal |
| 6 | Outdoor Terminations, 25 kV for 1/0 AWG AL, 25 kV Primary Cable | | 3M | 7652-S-4-2-PE or equal |

**UNDERGROUND DISTRIBUTION
INSTALLATION SPECIFICATIONS**

UNDERGROUND DISTRIBUTION INSTALLATION SPECIFICATIONS

1.0 GENERAL

All construction work shall be done in a thorough and workmanlike manner in accordance with the plan sheets, Plans and Specifications, and the construction drawings.

The latest Edition of the National Electrical Safety Code shall be followed, except where State or local regulations are more stringent. Excavations of all types and the backfilling and compaction thereof are subject to Town regulations.

2.0 STORAGE OF MATERIAL AND EQUIPMENT

All material and equipment to be used in construction shall be stored so as to be protected from theft and deteriorating effects of the elements. If indoor storage cannot be provided, the material and equipment shall be stacked on supports well above the ground line and protected from the elements as appropriate, and with due regard to public safety.

3.0 HANDLING OF CABLE

Cable shall be handled carefully at all times to avoid damage, and shall not be dragged across the ground, fences or sharp projections. Care shall be exercised to avoid excessive bending of the cable. The ends of the cable shall be sealed at all times against moisture with suitable end caps. Where it is necessary to cut the cable, the ends shall be terminated, spliced, or sealed immediately after the cutting operation.

4.0 TRENCHING

All primary trenching depths specified are forty-eight inches (48") minimum as measured from the final grade to the top surface of the primary cable. The routing shall be as shown on the Plans and Specifications, unless conditions encountered are such that changes are necessary to accomplish the work. In such event, the Town shall be notified promptly. If rock or other difficult digging is involved, the Contractor shall determine the nature and extent of the difficulty, and the Town will determine whether rerouting, rock trenching, plowing or other changes are necessary. Loose soil or crumbly rock will be considered as "difficult digging" and not "rock trenching." The six inch (6" trench width specified is minimum and should be increased as necessary to obtain the required depths in loose soils.

Care shall be exercised to minimize the likelihood of water flow since this may cause trench damage and reduction in trench depth. When this occurs, the trench must be cleared to the specified depth before installing the cable.

All trenches shall follow straight lines between staked points as far as possible. Secondary and service trenches shall extend in a straight line from takeoff points

wherever possible. The trenches shall be dug so that the bottom has a smooth grade. Large rocks, stones and gravel in excess of one inch (1") shall be removed from the bottom of the trench. Where this cannot be done, a three inch (3") bed of sand or clean soil shall be placed in the bottom of the trench.

Construction shall be arranged so that trenches will be left open for the shortest practical time to avoid creating a hazard to the public and to minimize the likelihood of trench collapse due to other construction activity, rain, accumulation of water in the trench, etc. Trench tape, as supplied by the Contractor, will be installed in all trenches, located at a depth of one foot (1'- 0") below final grade during the compaction process.

5.0 INSTALLING CABLE IN TRENCHES (DIRECT BURIAL)

The cable shall be placed in the trench as soon after the trenching operation as feasible. Wherever possible, cable shall be payed out from the reel mounted on a moving vehicle or trailer. The reel shall be supported so that it can turn easily without undue strain on the cable. The cable shall be carefully placed in the trench by hand. All cable placements shall be done under constant supervision to be certain that no damage to the cable occurs. The Town shall provide observation at all times during the installation process for all primary cable. The Contractor shall notify the Town prior to proceeding with the cable installation and shall not proceed with primary cable installation unless the Town representative is present.

The cable shall be inspected carefully by the Contractor as it is removed from the reel in laying operations to be certain that it is free from visible defects. The Town shall decide upon corrective action when defects are discovered.

Where more than one cable is to be placed in a trench, care must be taken that any soil falling into the trench during the laying of the first cable does not reduce the clearances of the last cable below that specified. Should this occur, the excess soil must be removed carefully by hand or with equipment that will not damage the installed cables.

Sufficient slack and in no case less than five feet (5'-0") shall be left at all risers, transformer pads, pedestals and terminal points so that movements of cable after backfilling will not cause damaging strain on the cable or terminals. The cable trench shall be mechanically compacted three feet (3'-0") minimum from all riser poles, pads, pedestals and terminal points.

The ends of all secondary cable at pedestals shall be long enough to reach the top of the pedestal enclosure after termination.

6.0 MINIMUM BENDING RADIUS OF CABLE

The minimum bending radius of primary cable is twelve (12) times the overall diameter of the cable. The minimum bending radius of secondary and service cable is six (6) times the overall diameter of the cable. In all cases the minimum radius specified is measured to the surface of the cable on the inside of the bend. No cable bends shall be made within six inches (6") of a cable terminal base.

7.0 CONDUIT

All exposed ends of conduit shall be plugged during construction to prevent the entrance of foreign matter and moisture into the conduit. Burrs or sharp projections which might injure the cable shall be removed. Riser shield or conduit shall extend at least one foot (1'-0") below grade at all riser poles.

8.0 INSTALLATION OF DUCT BANK AND PULL BOXES

8.1 Duct Bank (*NOTE: NONE REQUIRED*)

Duct bank installations shall include the removal of asphalt, sub-base and earth required for the placement of concrete-encased conduits to the depths shown on the Construction Drawings. Asphalt shall be saw-cut with appropriate equipment, typically one foot (1'-0") wider than the trench walls in accordance with the Town and N.C.D.O.T. Specifications.

Conduits shall be installed in the arrays indicated using appropriate PVC solvent cement at all joints. The Contractor shall furnish and install approved PVC conduit spacers at least every ten feet (10'-0"), complete with tie-downs and other supports necessary to insure uniform encasement. Extreme care shall be exercised to insure conduits are not broken or cracked as a result of standing on sections. Concrete (2,000 psi) shall be installed evenly, and shall not be allowed to fall freely more than five feet (5'-0").

All conduits in duct bank installations shall be cleaned upon completion, and shall include the installation of 100-pound nylon pulling lines in all conduits, including spares.

8.2 Pull Boxes (*NOTE: NONE REQUIRED*)

Pull Boxes shall be installed as per the Drawings, based on the Pull Box supplier. The Contractor shall prepare the excavation area by well compaction of the bottom surface area and backfill the entire excavation in one foot (1'-0") layers, guaranteeing adequate compaction.

Duct bank entrances shall be accomplished into Pull Box by removing required sections of material with appropriately sized hole saw for each conduit. Care should be taken so as not to crack or in any way damage the walls and floor of the Pull Box.

9.0 INSTALLATION IN CONDUIT OR DUCT BANK

Where cable must be pulled through conduit or duct bank, the operation shall be performed in such a way that the cable will not be damaged from strain or dragging. The cable shall be lubricated with a suitable cable lubricant prior to pulling into conduit or duct bank.

In placing primary cables, the stress applied while pulling into ducts or during other pulling operations shall not exceed the least of the following:

Where a pulling eye is attached to the conductor, the maximum pulling tension in pounds shall not exceed .008 times the circular mil area for copper and three-fourths (3/4) hard stranded aluminum, or .006 pounds maximum.

- 9.1 Where a basket grip is placed over the cable, the pulling tension shall not exceed the lesser of 1.) that calculated in paragraph 9.1 above or 2.) 1,000 pounds for single cable pull or 2,000 pounds for a three (3) cable pull. The cable under the cable grip and one foot (1'-0") preceding it shall be severed and discarded after the pulling operation.
- 9.2 In no case shall the maximum pulling tension exceed that recommended by the specific cable manufacturer.
- 9.3 At bends the maximum sidewall pressure recommended by the cable manufacturer shall not be exceeded.

10.0 DIRECTIONAL BORING (NOTE: NONE REQUIRED)

The boring specified in this job consisting of installing the required PVC or alternatively, HDPE conduits using the Directional Boring (horizontal directional drilling, HDD) method. This work shall include all services, equipment, materials, and labor for the complete and proper installation, testing, restoration of any effected underground utilities, and environmental protection and restoration.

The requirements of this job necessitate a wide range of procedural precautions necessary to insure that the very basic, essential aspects of a proper bore installation are adequately controlled. Adherence to the Engineer's approval of any aspect of the directional boring operation covered by this work shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under this contract.

11.0 TAGGING OF CABLES AT TERMINATION POINTS

As the cables are laid, they shall be identified and tagged. The identification shall be of a permanent type, such as that done with an embossing type tape writer on plastic or corrosion resistant metal tags. The tag shall be securely attached to the cable. Paper or cloth tags are not acceptable. Primary cables shall be identified by phase as shown on the construction plans.

12.0 SPLICES

Cable splices shall be of the prefabricated type, of the correct voltage rating and shall be made in accordance with the splice manufacturer's instructions. Splices that depend solely on tape for a moisture barrier shall not be used.

Not more than one (1) splice shall be permitted for each 1,000 feet of cable installed unless authorized by the Town. No bends shall be permitted within twelve inches (12") of the ends of the splice. The cable or circuit numbers and the exact location of all splices are noted on the Construction Drawings.

13.0 PRIMARY CABLE TERMINATION

Prefabricated terminations shall be installed in accordance with the manufacturer's instructions at all primary cable terminals. They shall be suitable for the size and type of cable that they are used with and for the environment in which they will operate. Any indication of misfit, such as a loose or exceptionally tight fit, shall be called to the Town's attention. The outer conductive surface of the termination shall be bonded to the system neutral.

14.0 SPECIAL PRECAUTIONS FOR CABLE

A portable covering or shelter shall be available for use when terminations are being prepared and when prefabricated terminations are being switched. The shelter shall be used as necessary to keep rain, snow and wind-blown dust off the insulating surfaces of these devices. Since cleanliness is essential in the preparation and installation of primary cable fittings, care shall be exercised to prevent the transfer of conducting particles from the hands to insulating surfaces. Mating surfaces shall be wiped with a solvent such as denatured alcohol to remove any possible accumulation of dirt, moisture or other conducting materials. A silicone grease should be applied afterwards in accordance with the manufacturer's recommendations. Whenever prefabricated cable devices are opened, the un-energized mating surfaces shall be lubricated with silicone grease before the fittings are reconnected.

15.0 ARC-PROOFING CABLES (NOTE: NONE REQUIRED)

Upon completion of installing cables in duct bank and manholes, cables shall be installed on cable racks and tied down with nylon cable ties. Arc-proofing shall then be installed on all primary cables by half-lapping three inch (3") wide 3-M No. 77 tape over bundled three-phase circuits, three conductors at a time. Arc-proofing tape shall be tied in place with accompanying Bishop arc-proofing string at ends and at every three feet (3'-0") along cable runs.

16.0 SECONDARY AND SERVICE CONNECTIONS

A suitable inhibiting compound shall be used with all secondary and service connections.

All secondary cable connections located in secondary vaults shall be made with pre-insulated secondary connector blocks. Diving bells with open terminals, insulating boots or moisture barriers that depend solely on tape are not acceptable.

All transformer secondary phase terminal connections shall be completely insulated. The secondary phase terminals are threaded studs, the connection shall be made with a pre-insulated secondary transformer connection block.

The secondary connections and insulation shall have accommodations for all future and existing services as shown on the Plans and Specifications.

17.0 SECONDARY SERVICE PEDESTALS (NOTE: NONE REQUIRED)

Where required, pedestals shall be installed over the trench before cables are placed and shall be located as shown on the construction plans. All vaults should be flush with finished grade.

18.0 INSPECTION AND INVENTORY OF BURIED UNITS

Before any backfilling operations are begun, the Contractor, Engineer and Town shall jointly inspect all cable placements, risers, Pull Boxes, and other construction not accessible after backfilling. An inventory of units shall be taken at this time. If corrections are required, a second inspection shall be made after completion of the changes.

19.0 BACKFILLING

The first- six inches (6") of trench backfill shall be free from rock, gravel or other material which might damage the cable jacket. In lieu of cleaning the trench, the Contractor may, at his option, place a three inch (3") bed of clean sand or soil under the cable and four inches (4") of clean soil above the cable. Cleaned soil backfill when used shall contain no solid material larger than one inch (1"). This soil layer shall be carefully compacted so that the cable will not be damaged.

Backfilling shall be compacted in six inch (6") increments by pneumatic tamping in such a manner that voids will be minimized. Backfill will be compacted to a minimum of ninety-five percent (95%) Proctor density for one hundred percent (100%) of the entire trench depth. Proctor density tests will be performed by independent testing companies working for the Town, as directed by Town personnel. Compaction tests will be performed at periodic intervals throughout the entire project. Areas tested that do not meet ninety-five percent (95%) Proctor density will be removed completely and re-compacted successfully at the Contractor's expense. All rock and debris shall be removed from the site, and any damage to the premises repaired immediately. Streets are to be broom-swept daily to minimize dust contamination.

Contractor shall be responsible for re-seeding disturbed lawns and replacing pine straw in any disturbed area. Lawns shall be re-seeded with a turf-type fescue and covered with wheat straw to prevent erosion.

Pieces of scrap cable shall not be buried in the trench as a means of disposal.

20.0 EQUIPMENT PADS (NOTE: NONE REQUIRED)

The site for pads shall be on undisturbed earth adjacent to the trench. The site shall be cleared of all debris and excavated to the specified depth. Gravel, sand or other acceptable self-draining material shall be added to the site and thoroughly compacted. The pad shall be installed at the specified elevation. Either precast concrete or poured-in-place concrete pads shall be used for three-phase transformers. Polymer pads may be used for single-phase transformers. Composite box pads shall be utilized for switch cabinets. All devices shall be securely bolted to the pads as per manufacturer's provisions.

21.0 TRANSFORMERS (NOTE: NONE REQUIRED)

Transformers shall be handled carefully to avoid damage to the finish and shall be positioned in accordance with the Plans and Specifications. Only qualified and experienced personnel shall be allowed to make connections and cable terminations.

22.0 WARNING SIGNS (NOTE: NONE REQUIRED)

Each equipment enclosure shall display a warning sign placed so that it is visible to anyone attempting entry to the enclosure. Warning sign shall comply with ANSI Specification Z35.1, latest revision.

23.0 GROUNDING

All neutral conductors, ground electrodes, and groundable parts of equipment shall be interconnected. All interconnections shall be made as shown on the construction drawings. A galvanized steel ground rod with minimum dimensions of 5/8" x 8'-0" shall be installed at all equipment locations as shown in the construction drawings and at all cable splices and taps.

24.0 CABLE ACCEPTANCE TESTS

- 24.1 Continuity: After installation of the cable and prior to the high potential test specified below, the Contractor, observed by the Engineer, shall perform a simple continuity test on the system. This can easily be accomplished by grounding the conductor at the source and checking for continuity from the end of each tap with an ohmmeter or with a battery and ammeter.

25.0 ROCK ENCOUNTERED TN EXCAVATIONS (NOTE: NONE EXPECTED)

The Contractor shall be responsible for the removal and disposition of solid rock when encountered in direct-buried trenches, excavations for concrete-encased duct bank, manholes and street-light foundations, and holes for distribution poles. Solid rock shall be defined as solid, naturally-occurring mineral formations that cannot be

effectively removed by conventional trenchers, backhoes, or pressure augers on line trucks. Loose rock or limestone in intermittent layers that result in "difficult digging" shall not be defined as solid rock excavations. "Solid rock" shall require the use of air hammers, blasting or other specialized equipment. ***(Note: Blasting must be approved by the Town in accordance with local ordinances.)***

An adder will be quoted by the Bidder in the Proposal Section to establish a labor cost for rock excavations, including disposition to the Town's landfill, on a per-cubic-yard basis. Quantities will be agreed upon jointly by the Contractor and the Town (or Engineer) as the excavations occur. Over excavation to remove rock will not be counted in the quantity of rock excavations. The volume of rock excavation adder will be computed based on the normal trench width and depth, as if no rock were encountered. Rock adders will not apply to man-made surface treatments, such as asphalt, concrete or gravel.

CONTRACTOR'S PROPOSAL

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

CONTRACTOR'S PROPOSAL

TO: The Town of Smithfield
Smithfield, North Carolina

Gentlemen:

The undersigned, as Bidder, hereby declares that the only person or persons interested in this Proposal as Principal or Principals is or are named herein and that no other person than herein mentioned has any interest in this Proposal or in the Contract to be entered into; that this Proposal is made without connection with any other person, company or parties making a bid or Proposal; and that it is in all respects fair and good faith without collusion or fraud.

The Bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the locations where the work is to be done; that he has examined the Specifications for the work and Contract Documents relative thereto and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees, if this Proposal is accepted, to contract with the Town of Smithfield, North Carolina, in the Form of Contract specified to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation, and labor necessary to complete the construction of the Line Changes and New Line Construction in full and complete accordance with the Plans, Specifications and Contract Documents, to the full and entire satisfaction of the Town of Smithfield with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and Contract Documents. The Unit Price Schedule is for the convenience of the Bidder and the Town of Smithfield. The bids will be let on the basis of the total amount of the base bid for the completed job.

The Bidder understands and agrees that the various Assembly Units on which bids are made in this Proposal are as set out in the "Description of Assembly Units" attached hereto and made a part hereof, that said unit prices bid shall be used only if and when changes in the job arise, in which case unit prices shall be used to set the price of any change order to the Contract whether it be in addition to or deduction from the Contract amount.

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

LABOR CONTRACT

**CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

OVERHEAD DISTRIBUTION REMOVAL ASSEMBLY UNITS

| Unit Number | Number of Units | | | | EXTENDED PRICE |
|---|-----------------|-------|-----------|-------------------|-------------------|
| | | Labor | Materials | Labor & Materials | Labor & Materials |
| <u>Poles</u> | | | | | |
| 30/5 | 2 | \$ | \$ | \$ - | \$ - |
| 35/5 | 1 | \$ | \$ | \$ - | \$ - |
| 40/4 | 43 | \$ | \$ | \$ - | \$ - |
| 45/4 | 13 | \$ | \$ | \$ - | \$ - |
| 50/3 | 3 | \$ | \$ | \$ - | \$ - |
| 55/3 | 4 | \$ | \$ | \$ - | \$ - |
| <u>Poles Top Assemblies</u> | | | | | |
| VA5EC | 2 | \$ | \$ | \$ - | \$ - |
| VA5-1EC | 4 | \$ | \$ | \$ - | \$ - |
| VA5-2EC | 1 | \$ | \$ | \$ - | \$ - |
| VB7SEC | 1 | \$ | \$ | \$ - | \$ - |
| C1HEC | 3 | \$ | \$ | \$ - | \$ - |
| VC1FEC | 40 | \$ | \$ | \$ - | \$ - |
| C1HEC | 33 | \$ | \$ | \$ - | \$ - |
| VC1SEC | 2 | \$ | \$ | \$ - | \$ - |
| C2H-1VEC | 3 | \$ | \$ | \$ - | \$ - |
| VC2SEC | 1 | \$ | \$ | \$ - | \$ - |
| VC3EC | 3 | \$ | \$ | \$ - | \$ - |
| VC7F | 1 | \$ | \$ | \$ - | \$ - |
| VC7SEC | 17 | \$ | \$ | \$ - | \$ - |
| VC8SEC | 4 | \$ | \$ | \$ - | \$ - |
| <u>Conductors (mft)</u> | | | | | |
| 6 AL DX | 0.238 | \$ | \$ | \$ - | \$ - |
| 4 AL TX | 0.343 | \$ | \$ | \$ - | \$ - |
| 1/0 ATP URD | 0.087 | \$ | \$ | \$ - | \$ - |
| 4 ACSR | 0.324 | \$ | \$ | \$ - | \$ - |
| 4/0 ACSR | 0.125 | \$ | \$ | \$ - | \$ - |
| 336 ACSR | 0.375 | \$ | \$ | \$ - | \$ - |
| <u>Guy & Anchor Assemblies</u> | | | | | |
| E1-1EC | 27 | \$ | \$ | \$ - | \$ - |
| E1-1FEC | 42 | \$ | \$ | \$ - | \$ - |
| E2-2EC | 2 | \$ | \$ | \$ - | \$ - |
| E2-2FEC | 6 | \$ | \$ | \$ - | \$ - |
| E3-10EC | 46 | \$ | \$ | \$ - | \$ - |
| F2-8EC | 9 | \$ | \$ | \$ - | \$ - |

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

LABOR CONTRACT

**CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

OVERHEAD DISTRIBUTION INSTALL ASSEMBLY UNITS

| Unit Number | Number of Units | Unit Price | | | EXTENDED PRICE Labor & Materials |
|------------------------------------|-----------------|------------|-----------|-------------------|-------------------------------------|
| | | Labor | Materials | Labor & Materials | |
| Poles | | | | | |
| 30/5 | 3 | \$ | \$ | \$ - | \$ - |
| 40/4 | 1 | \$ | \$ | \$ - | \$ - |
| 45/3 | 1 | \$ | \$ | \$ - | \$ - |
| 50/3 | 54 | \$ | \$ | \$ - | \$ - |
| 55/H1 | 1 | \$ | \$ | \$ - | \$ - |
| 60/H1 | 1 | \$ | \$ | \$ - | \$ - |
| 60/H2 | 1 | \$ | \$ | \$ - | \$ - |
| Pole Top Assemblies | | | | | |
| VA5EC | 2 | \$ | \$ | \$ - | \$ - |
| VA5-2EC | 4 | \$ | \$ | \$ - | \$ - |
| VC1F(N) | 2 | \$ | \$ | \$ - | \$ - |
| VC1-1F | 3 | \$ | \$ | \$ - | \$ - |
| VC1-1F(N) | 1 | \$ | \$ | \$ - | \$ - |
| VC2-1F | 7 | \$ | \$ | \$ - | \$ - |
| VC2-1F(N) | 7 | \$ | \$ | \$ - | \$ - |
| VC7F | 10 | \$ | \$ | \$ - | \$ - |
| VC7F(N) | 11 | \$ | \$ | \$ - | \$ - |
| VC7-2EC | 6 | \$ | \$ | \$ - | \$ - |
| VC7EC | 1 | \$ | \$ | \$ - | \$ - |
| VC8F | 7 | \$ | \$ | \$ - | \$ - |
| VC8F(N) | 3 | \$ | \$ | \$ - | \$ - |
| VDC-1F | 39 | \$ | \$ | \$ - | \$ - |
| Conductors (mft.) | | | | | |
| 4 AL TX | 0.227 | \$ | \$ | \$ - | \$ - |
| 1/0 TX URD | 0.040 | \$ | \$ | \$ - | \$ - |
| 4 ACSR | 0.260 | \$ | \$ | \$ - | \$ - |
| 4/0 ACSR | 0.097 | \$ | \$ | \$ - | \$ - |
| 336 kcmil ACSR | 33.209 | \$ | \$ | \$ - | \$ - |
| Guy & Anchor Assemblies | | | | | |
| E1-1EC | 43 | \$ | \$ | \$ - | \$ - |
| E1-1FEC | 60 | \$ | \$ | \$ - | \$ - |
| E2-2FEC | 15 | \$ | \$ | \$ - | \$ - |
| E2-2EC | 5 | \$ | \$ | \$ - | \$ - |
| E3-10EC | 94 | \$ | \$ | \$ - | \$ - |
| F1-8EC | 3 | \$ | \$ | \$ - | \$ - |
| F1-10EC | 22 | \$ | \$ | \$ - | \$ - |

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

LABOR CONTRACT

**NEW FEEDER-NORTH
ADDITION/CONVERSION-OVERHEAD**

OVERHEAD DISTRIBUTION INSTALL ASSEMBLY UNITS

| Unit Number | Number of Units | Unit Price | | | EXTENDED PRICE |
|---|--------------------|------------|-----------|-------------------|-------------------|
| | | Labor | Materials | Labor & Materials | Labor & Materials |
| <u>Guy & Anchor Assemblies (continued)</u> | | | | | |
| F1-12EC | 6 | \$ | \$ | \$ - | \$ - |
| TA-2H | 31 | \$ | \$ | \$ - | \$ - |
| <u>Transformer Assemblies</u> | | | | | |
| G105EC | 2 | \$ | \$ | \$ - | \$ - |
| <u>Secondary & Service Assemblies</u> | | | | | |
| J1EC | 41 | \$ | \$ | \$ - | \$ - |
| <u>Miscellaneous Assemblies</u> | | | | | |
| M2-1EC | 56 | \$ | \$ | \$ - | \$ - |
| M2-15REC | 4 | \$ | \$ | \$ - | \$ - |
| M5-4EC | 5 | \$ | \$ | \$ - | \$ - |
| M5-5EC | 4 | \$ | \$ | \$ - | \$ - |
| M5-6EC | 18 | \$ | \$ | \$ - | \$ - |
| M5-9EC | 9 | \$ | \$ | \$ - | \$ - |
| M5-20PEC | 5 | \$ | \$ | \$ - | \$ - |
| M5-21EC | 103 | \$ | \$ | \$ - | \$ - |
| M3-15HEC | 4 | \$ | \$ | \$ - | \$ - |
| M42-13 | 5 | \$ | \$ | \$ - | \$ - |
| R1-10 | 100 | \$ | \$ | \$ - | \$ - |
| <u>Underground</u> | | | | | |
| UM5-2 | 9 | \$ | \$ | \$ - | \$ - |
| UJ1.01 | 2 | \$ | \$ | \$ - | \$ - |
| UT1.12.24 | 40 | \$ | \$ | \$ - | \$ - |
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| TOTAL - OVERHEAD DISTRIBUTION INSTALL ASSEMBLY UNITS | | | | | \$ - |



**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

LABOR CONTRACT

**CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

OVERHEAD DISTRIBUTION TRANSFER ASSEMBLY UNITS

| Number | of Units | Labor | Materials | Labor & Materials | Labor & Materials |
|--|-----------------|--------------|------------------|------------------------------|------------------------------|
| <u>Pole Top Assemblies</u> | | | | | |
| UG2-2EC | 2 | \$ | \$ | \$ - | \$ - |
| VS2.32 | 1 | \$ | \$ | \$ - | \$ - |
| <u>Guy & Anchor Assemblies</u> | | | | | |
| | | \$ | \$ | \$ - | \$ - |
| <u>Transformer Assemblies</u> | | | | | |
| G105EC | 15 | \$ | \$ | \$ - | \$ - |
| G312EC | 1 | \$ | \$ | \$ - | \$ - |
| <u>Miscellaneous Assemblies</u> | | | | | |
| M26-5 | 26 | \$ | \$ | \$ - | \$ - |
| M9-6EC | 3 | \$ | \$ | \$ - | \$ - |
| M5-10EC | 1 | \$ | \$ | \$ - | \$ - |
| M9-13EC | 2 | \$ | \$ | \$ - | \$ - |
| M5-21EC | 3 | \$ | \$ | \$ - | \$ - |
| <u>Secondary & Service Assemblies</u> | | | | | |
| J1EC | 3 | \$ | \$ | \$ - | \$ - |
| <u>Underground</u> | | | | | |
| UC2-2EC | 1 | \$ | \$ | \$ - | \$ - |
| UG1-2EC | 1 | \$ | \$ | \$ - | \$ - |
| UG1-3EC | 1 | \$ | \$ | \$ - | \$ - |
| UG2-1EC | 3 | \$ | \$ | \$ - | \$ - |
| UG2-2EC | 7 | \$ | \$ | \$ - | \$ - |
| UG3-2EC | 1 | \$ | \$ | \$ - | \$ - |
| UJ2-4 | 4 | \$ | \$ | \$ - | \$ - |
| UM5 | 12 | \$ | \$ | \$ - | \$ - |
| VM5-20 | 2 | \$ | \$ | \$ - | \$ - |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| TOTAL - OVERHEAD DISTRIBUTION TRANSFER ASSEMBLY UNITS | | | | | \$ - |

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

LABOR CONTRACT

**CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

PROPOSAL SUMMARY

DISTRIBUTION ASSEMBLY UNITS

| | | |
|--|-----------|----------|
| REMOVAL | \$ | - |
| INSTALLS | \$ | - |
| TRANSFERS | \$ | - |
| TOTAL DISTRIBUTION ASSEMBLY UNITS | \$ | - |
| | | |
| | | |

Errors in addition or in extensions of unit prices shown will be corrected prior to evaluation of the total bid. In case of variation between the unit prices and extensions, the unit prices will be considered to be the valid bid price.

The Bidder proposes and agrees to complete the work under this Proposal within _____ () calendar days. Bidder shall fill in the number of days. (*See **NOTE***).

The undersigned further agrees that in case of failure on his part to execute the Contract and furnish the Performance and Payment Bonds within ten (10) consecutive calendar days after written notice has been given of the award of the Contract, the check, cash, or Bid Bond accompanying this bid, and the monies payable thereon shall be paid into the funds of the Town of Smithfield, North Carolina account set aside for this project as liquidated damages for such failure; otherwise the check, cash, or Bid Bond accompanying the Proposal shall be returned to the Undersigned.

****NOTE****

Contractor would commence construction by _____, _____, 2026 and would complete _____ () calendar days. Construction must be completed before _____, _____, 2026. (See Exhibit No. 2, Bid and Construction Schedule.)

Respectfully submitted this _____ day of _____, 2026

Name of Firm

By _____

Title

Address of Bidder:

License No.: _____

BID BOND

NORTH CAROLINA BID BOND
(See Attached)

KNOW ALL MEN BY THESE PRESENT, THAT WE _____
_____ as Principal,
and _____ as Surety,
who is duly licensed to act as Surety in North Carolina, are held and firmly bound unto the Town of
Smithfield, North Carolina, as Obligee, in the penal sum of _____
DOLLARS (\$_____) (five percent (5%) Bid Bond), lawful money of the United States
of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs,
executors, administrators, successors and assigns, jointly and severally, firmly by these present.

SIGNED, Sealed and dated this _____ day of _____, 2026.

WHEREAS, the said Principal is herewith submitting proposal for

**SPECIFICATIONS AND BID DOCUMENTS
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

and the Principal desires to file this Bid Bond in lieu of making the cash deposit as required by GS
143-129 amended in Chapter 1104 of the Public Laws of 1951;

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such that if
the Principal shall be awarded the Contract for which the bid is submitted and shall execute the
Contract to give Bond for the faithful performance thereof within ten days after the award of same to
the Principal, then this obligation shall be null and void; but if the Principal fails to so execute such
Contract and give Performance Bond as required by GS 143-129, as amended by Chapter 1104 of
the Public Laws of 1951, the Surety shall, upon demand, forthwith pay to the Obligee the amount set
forth in the first paragraph hereof, and upon failure to forthwith make such payment, the Surety shall
pay the Obligee an amount equal to double the amount of this Bid Bond as set forth in the first
paragraph herein. Power of Attorney from the Surety to its Attorney-in-Fact is attached hereto.

Principal

By _____ (Seal)

Corporate Surety

By _____ (Seal)

Attorney-in-Fact

SPACE FOR ATTACHING BID BOND



POWER OF ATTORNEY

POWER OF ATTORNEY

SPACE FOR ATTACHING POWER OF ATTORNEY

CONTRACTOR'S LICENSE

CONTRACTOR'S LICENSE

SPACE FOR ATTACHING CONTRACTOR'S LICENSE

**STATEMENT OF COMPLIANCE
WITH THE
OCCUPATIONAL SAFETY & HEALTH ACT**

**STATEMENT OF COMPLIANCE WITH THE
OCCUPATIONAL SAFETY AND HEALTH ACT**

The _____ proposes to
(Name of Contractor)

perform work for the Town of Smithfield, North Carolina and hereby certifies to the following:

1. The _____ has knowledge
(Name of Contractor)

of the Occupational Safety and Health Act with additions, revisions and/or modifications, as well as any State and Local regulations or requirements.
2. Our employees and equipment will comply with the Act and/or additions, revisions and/or modifications and any present or future State and Local Regulations or requirements.
3. Our company will be responsible for any infraction of the Occupational Safety and Health Act requirements, additions, revisions and/or modifications and any State and Local regulations or requirements.

Company (SEAL)

ATTEST:

Secretary or Witness

By _____

Title _____
*(President, Vice President,
Partner, or Owner)*

Date _____

AWARD OF CONTRACT

AWARD OF CONTRACT

**COPY OF MINUTES FOR THE TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

LABOR CONTRACT

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

At a _____ meeting of the Town Council of the Town of Smithfield, North Carolina, duly held on the _____ day of _____, 2026 in the Town Hall, pursuant to due and lawful notice to all Town Council Members, _____ presiding and Council Members present _____, Council Member(s) absent _____.

OBJECT OF THE MEETING: The acceptance of Proposals and the award of the Contract on all those parts of the work bid in the Contractor’s Proposal, incorporated in “PLANS AND SPECIFICATIONS,” “INSTRUCTIONS TO BIDDERS,” “CONTRACTOR’S PROPOSAL,” etc., “LABOR CONTRACT FOR CIRCUIT G4 KELLIE DRIVE EXTENSION – 13.2kV DISTRIBUTION LINE.”

The bids on the aforementioned work were received, unsealed, and read in open meeting, and all of same were tabulated, computed, and canvassed; thereupon, after consideration of the several bids by the Council in consultation with the Engineer, it was determined that the acceptance of the Proposal and Bid of _____ would be to the best interest of the Town of Smithfield, North Carolina, and consequent upon which the award of the following bid contracts was proposed by _____ and seconded by _____.

WHEREAS, all of the bids duly and regularly made on the parts of the work, specifically referred to in the Contractor’s Proposal, above referred to, were duly opened, read, tabulated, and canvassed, and

WHEREAS, after due consideration, it was determined that the acceptance of the Proposal and Bid of _____ would best serve the interest of the Town of Smithfield, North Carolina.

NOW, THEREFORE, be it resolved that the Town Council does hereby award the Contract for all of said parts of said work to the said _____ for the rates and prices set out in said Proposal, said award being subject to all conditions and stipulations set out in the *Notice to Prospective Bidders, Instructions to Bidders, Plans and Specifications, Contractor's Proposal*, and *Contract* above-mentioned and the Town Manager is hereby authorized and directed to execute said Contract on behalf of the Town of Smithfield, North Carolina.

The foregoing bid contract was adopted by the Town Council,

_____ Council Members voting Aye, and *(Mayor does not vote)*

_____ Council Members voting No.

Kimberly Pickett, Interim Town Manager

ATTEST: A TRUE COPY:

Town Clerk

CONTRACT

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

**CONTRACT
FOR**

**ELECTRIC DISTRIBUTION LINE
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

**This instrument has been preaudited in the manner required by the Local Government
Budget and Fiscal Control Act.**

(Signature of Finance Officer)

CONTRACT

THIS CONTRACT, made this _____ day of _____, 2026

Hereinafter called Contractor, and the Town of Smithfield, North Carolina.

WITNESSETH

THAT WHEREAS, a Contract for:

**LABOR CONTRACT
FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

has recently been awarded to Contractor by the Town of Smithfield, at and for a sum equal to the aggregate cost of the work to be done and labor, (except materials to be furnished by the Town of Smithfield), equipment apparatus, and supplies furnished at the prices and rates respectively named therefore, in the Proposal attached hereto;

AND WHEREAS, it was provided in said award that a formal Contract would be executed by and between Contractor and the Town of Smithfield, evidencing the terms of said award, and that Contractor would commence the work to be performed under this agreement on a date to be specified in a written order of the Town of Smithfield, and would fully complete all work thereunder within _____ () calendar days.

NOW, THEREFORE, Contractor doth hereby covenant and agree with the Town of Smithfield that it will well and faithfully perform and execute such work and furnish such labor, materials (except materials to be furnished by the Town of Smithfield), equipment, apparatus, and supplies, in accordance with each and every one of the conditions, covenants, stipulations, terms, and provisions contained in said Specifications and in accordance with the Plans, at and for a sum equal to the aggregate cost of the work done and labor, materials, equipment, apparatus and supplies furnished at the prices and rates respectively named therefore in the Proposal attached hereto, and will well and faithfully comply with and perform each and every obligation imposed upon it by said Plans and Specifications and the terms of said award.

Contractor shall promptly make payments to all laborers and others employed thereon.

Contractor shall be responsible for all damages to the property of the Town of Smithfield that may be consequent upon the normal procedure of its work or that may be caused by or result from the negligence of Contractor, its employees, or agents, during the progress of, or connected with the prosecution of the work, whether within the limits of the work or elsewhere. Contractor must restore all property so injured to a condition as good as it was when Contractor entered upon the work.

Contractor shall furthermore be responsible for and required to make good at its expense any and all damages of whatever nature to persons and property, arising during the period of the Contract, caused by carelessness, neglect, or want of due precaution on the part of Contractor, its agents, employees, or workmen. Contractor shall also indemnify and save harmless the Town of Smithfield and the officers and agents thereof from all claims, suits, and proceedings of every name and description which may be brought against the Town of Smithfield or the officers and agents thereof, for, or on account of, any injuries or damages to persons or property received or sustained by any person or persons, firm or corporation, or by or in consequence of any materials used in said work or by or on account of any improper material or workmanship in its construction or by or on account of any accident, or of any other act or omission of Contractor, its agents, employees, servants, or workmen.

It is agreed and understood that the Advertisement for Bids, the Definitions, Instructions to Bidders, Statement of Work, the General Conditions, Special Conditions, Material Specifications, Installation Specifications, the accepted Proposal, and the enumerated addenda and Drawings are part and parcels of this Contract, to the same extent as if incorporated herein in full.

It is further mutually agreed that if, at any time after the execution of this agreement and the surety bond hereto attached for its faithful performance, the Town of Smithfield shall deem the surety or sureties upon such bond to be unsatisfactory, or if, for any reason, such bond ceases to be adequate to cover the performance of the Work, Contractor shall at its expense, within five (5) days after the receipt of notice from the Town of Smithfield so to do, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the Town of Smithfield. In such event no further payment to the Contractor shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Town of Smithfield.

And the Town of Smithfield doth hereby covenant and agree with Contractor that it will pay to Contractor, when due and payable under the terms of said Specifications and said award, the above-mentioned sum, and that it will well and faithfully comply with and perform each and every obligation imposed upon it by said Specifications and the terms of said award.

Whenever used herein, the singular shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders as the context may require.

IN TESTIMONY WHEREOF, Contractor and the Town of Smithfield have duly signed and sealed this Contract.

FURTHER AGREEMENTS

Contractor shall, upon completion of all work awarded under this Contract, furnish to the Town invoices or copies of invoices for all materials and equipment purchased for said work and such invoices shall state the amount of North Carolina Sales Tax paid for said materials and equipment, and Contractor shall also furnish the Town an affidavit certifying the total costs of materials and equipment purchased for all work performed under the Contract and the total amount of North Carolina Sales Tax paid for said materials and equipment.

(Imprint corporate seal
below this line)

_____ (SEAL)
Name of Company

By _____ (SEAL)

ATTEST:

Title _____

Secretary

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

By _____
Kimberly Pickett, Interim Town Manager

ATTEST:

(Imprint Town seal below this line)

Town Clerk

**PERFORMANCE BOND
AND
PAYMENT BOND**

PERFORMANCE BOND

Date of Execution: _____

Name of Principal: _____
(Contractor)

Name of Surety: _____

Name of Contracting
Body: TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

Amount of Bond: _____

Project: LABOR CONTRACT FOR CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE

KNOW ALL THESE MEN BY THESE PRESENTS, That We, the Principal and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions there of that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in five (5) counterparts.

Witness:

(Proprietorship or Partnership)

ATTEST:

By: _____

Title: _____
(Corporate Secretary or Assistant Secretary, Only)

Witness:

Countersigned:

_____ *N.C. Licensed Resident Agent*

_____ *(Name and Address – Surety Agent)*

_____ *Surety Company Name and N.C. Regional or Branch Office Address*

CONTRACTOR:

(Trade or Corporate Name)

By: _____

Title: _____
(Owner, Partner, or Corporate President or Vice President, Only)

(CORPORATE SEAL)

SURETY COMPANY:

By: _____

Title: _____
(Attorney-in-Fact)

(SURETY SEAL)

***SPACE FOR ATTACHING POWER OF ATTORNEY
(Performance Bond)***

PAYMENT BOND

Date of Execution: _____

Name of Principal:
(Contractor) _____

Name of Surety: _____

Name of Contracting
Body: TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

Amount of Bond: _____

Project: LABOR CONTRACT FOR CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE

KNOW ALL MEN BY THESE PRESENTS, That We, the Principal and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons supplying labor or material in the prosecution of the work provided for in said Contract, and any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in five (5) counterparts.

Witness:

(Proprietorship or Partnership)

ATTEST:

By: _____

Title: _____
(Corporate Secretary or Assistant Secretary, Only)

Witness:

Countersigned:

N.C. Licensed Resident Agent

(Name and Address – Surety Agent)

Surety Company Name and N.C. Regional or Branch Office Address

CONTRACTOR:

(Trade or Corporate Name)

By: _____

Title: _____
(Owner, Partner, or Corporate President or Vice President, Only)

(CORPORATE SEAL)

SURETY COMPANY:

By: _____

Title: _____
(Attorney-in-Fact)

(SURETY SEAL)

***SPACE FOR ATTACHING POWER OF ATTORNEY
(Payment Bond)***

CERTIFICATES

CERTIFICATE OF ATTORNEY
FOR THE
TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

This is to certify I have examined the attached Contract Documents, and after such examination, I am of the opinion that such documents conform to the laws of the State of North Carolina, the execution of the Contract is in due and proper form, the representatives of the Town have full power and authority to execute such Construction Contract on behalf of the Town and the foregoing agreements constitute valid and binding obligations on such parties.

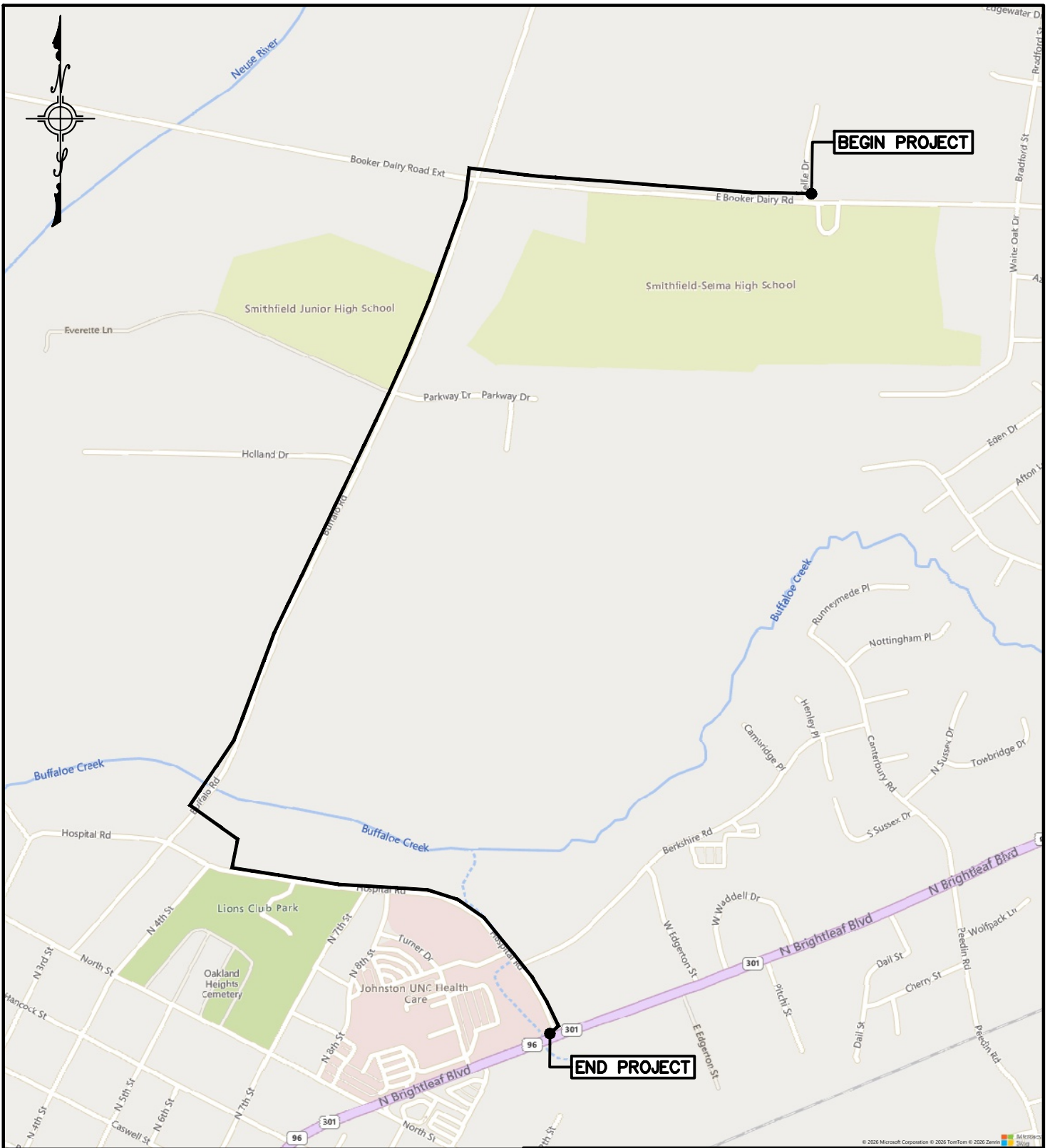
*Attorney for the Town of Smithfield
Smithfield, North Carolina*

This the _____ day of _____, 20_____

SPACE FOR ATTACHING INSURANCE CERTIFICATES

EXHIBIT NO. 1

VICINITY MAP



SITE LOCATION

KELLIE DRIVE EXTENSION
SMITHFIELD, NORTH CAROLINA

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA
KELLIE DRIVE EXTENSION
VICINITY MAP



Booth & Associates
2300 Reewoods Drive Suite 300, Raleigh NC 27607
NC F.0221

| | | | |
|---------------------|------------------|----------|----------|
| DWN. AAI | DATE: 06/01/2026 | DWG. NO. | |
| CKD. MDT | APPD. MDT | | |
| SCALE: 1"=1000' | FILE: 1462736VM | VM-1 | |
| JOB NO. P0892736 | DATE | | REVISION |
| © 05/2026 | | | |

EXHIBIT NO. 2

BID AND CONSTRUCTION SCHEDULE

**TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS
LABOR CONTRACT**

**FOR
CIRCUIT G4 KELLIE DRIVE EXTENSION
13.2kV DISTRIBUTION LINE**

BID AND CONSTRUCTION SCHEDULE

| <u>DATE</u> | <u>ITEM</u> |
|-------------------------------|--|
| Monday, June 1, 2026 | Contract to Bidders |
| Thursday, June 11, 2026 | <u>Mandatory</u> Pre-Bid Meeting 10:00 a.m. @ Town of Smithfield |
| Wednesday, June 24, 2026 | Bid Opening 2:00 p.m. @ Booth & Associates |
| Wednesday, July 1, 2026 | Recommendation to Town |
| Wednesday, July 14, 2026 | Council Award of Contract |
| Wednesday, September 23, 2026 | Pre-Construction Conference |
| Monday, October 5, 2026 | Start of Construction |
| Friday, January 15, 2027 | Completion of Construction |

EXHIBIT NO. 3
CONSTRUCTION CHANGE ORDER

CONSTRUCTION CHANGE ORDER

OWNER: Town of Smithfield

LOCATION: Smithfield, North Carolina

| | | |
|--|--------------------------------------|--------------------------|
| Contractor: | Plan & Profile Sheet No.: | Date: |
| Project: CIRCUIT G4 KELLIE DRIVE EXTENSION – 13.2kV DISTRIBUTION LINE | Pole No.: | Change Order No.: |

Change:

Location:

Reason for Change:

Change Authorized By:

Name: _____ **Date:** _____
Town of Smithfield

Name: _____ **Date:** _____
Contractor

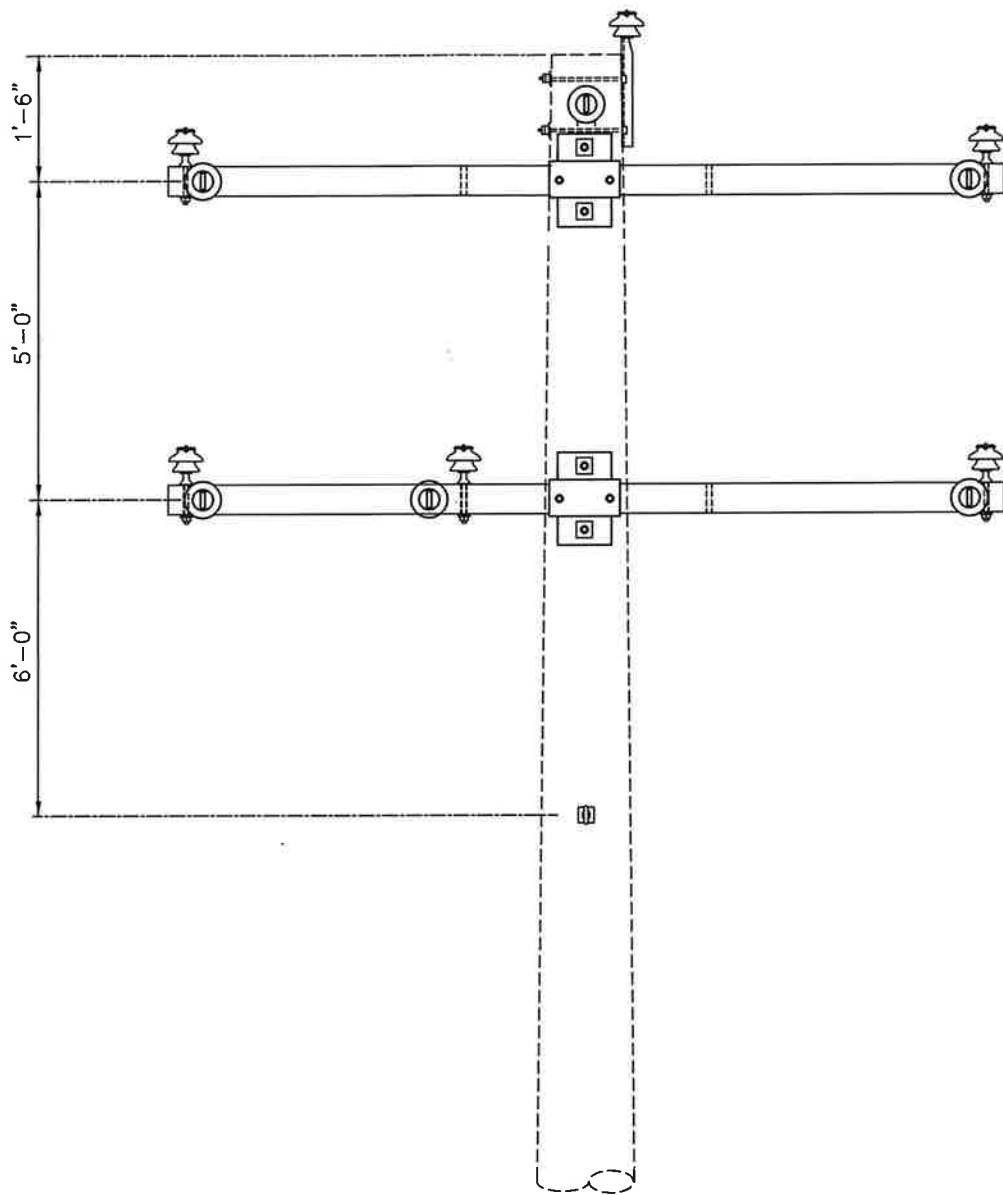
Name: _____ **Date:** _____
Booth & Associates, LLC

Itemized Cost of Above Order

EXHIBIT NO. 4

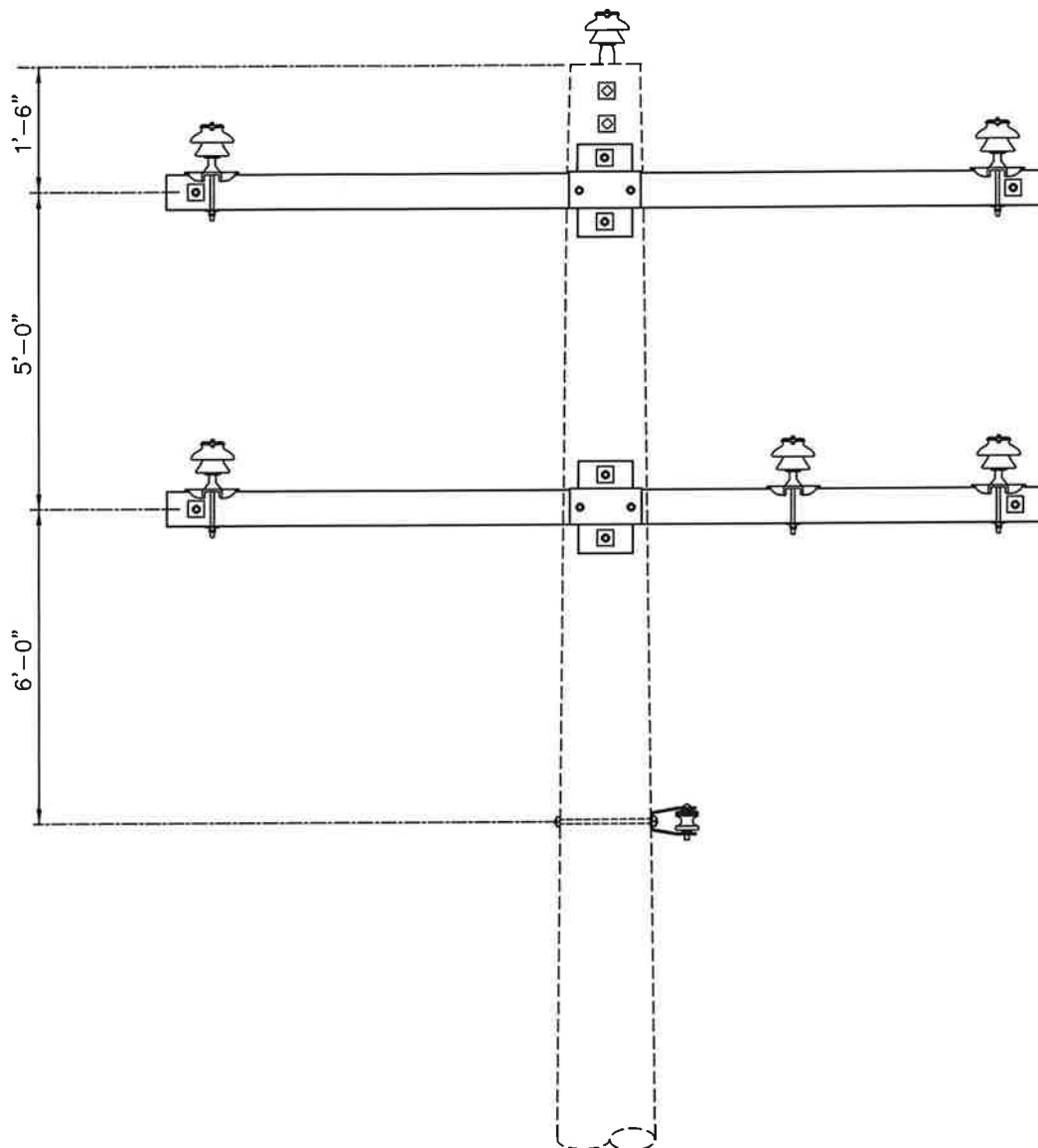
ASSEMBLY UNIT DRAWINGS

**OVERHEAD DISTRIBUTION
ASSEMBLY UNITS**



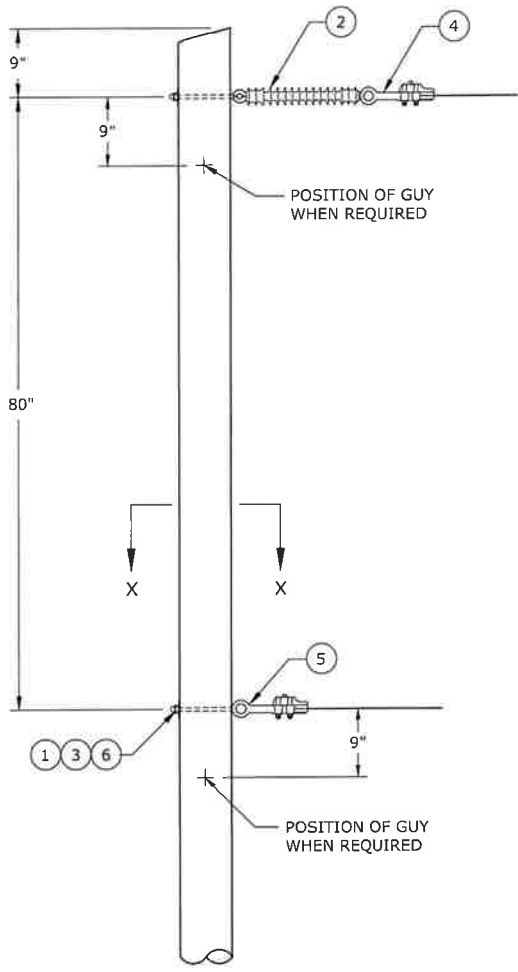
DUAL CIRCUIT DISTRIBUTION
 TYPICAL DEADEND CONDUCTOR SEPARATION

| | | | |
|--|----------|-------|----------------------------|
| TOWN OF SMITHFIELD SMITHFIELD, NORTH CAROLINA | | | |
| 24.9/14.4 kV PRIMARY 3-PHASE SINGLE CIRCUIT SINGLE PRIMARY SUPPORT (FIBERGLASS CROSSARMS) | | | |
| Booth & Associates, LLC <small>5811 Glenwood Avenue Raleigh, NC 27613 CONSULTING ENGINEERS</small> | | | |
| DSN. | AG | DWN. | BLP |
| CKD. | RJC | APPD. | BCF |
| SCALE: | NTS | DATE: | 07/01/18 |
| DATE | REVISION | | SP-2 © 07/18 |
| | | | |
| | | | |

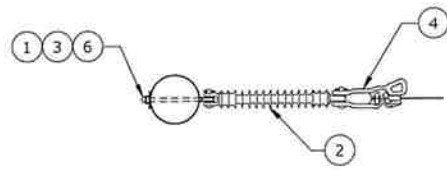


DUAL CIRCUIT DISTRIBUTION
TYPICAL TANGENT CONDUCTOR SEPARATION

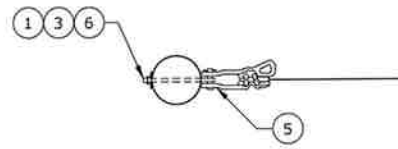
| | | | |
|--|----------|-------|-------------|
| TOWN OF SMITHFIELD SMITHFIELD, NORTH CAROLINA | | | |
| 24.9/14.4 kV PRIMARY 3-PHASE SINGLE CIRCUIT SINGLE PRIMARY SUPPORT (FIBERGLASS CROSSARMS) | | | |
| Booth & Associates, LLC <small>5811 Glenwood Avenue Raleigh, NC 27612 CONSULTING ENGINEERS</small> | | | |
| DSN. | AG | DWN. | BLP |
| CKD. | RJC | APPD. | BCF |
| SCALE: | NTS | DATE: | 07/01/18 |
| DATE | REVISION | | |
| | | | |
| | | | |
| | | | DWG. NO. |
| | | | SP-1 |
| | | | © 07/18 |



FRONT VIEW



PLAN VIEW



SECTION X-X

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------------|
| 1 | 10-44-09 | 2 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 08-04-03 | 1 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 3 | 12-05-XX | 2 | BOLT, OVAL EYE |
| 4 | 10-16-XX | 1 | CLAMP |
| 5 | 10-16-XX | 1 | CLAMP |
| 6 | 10-44-33 | 2 | WASHER, LOCK, 5/8" |

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OF TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

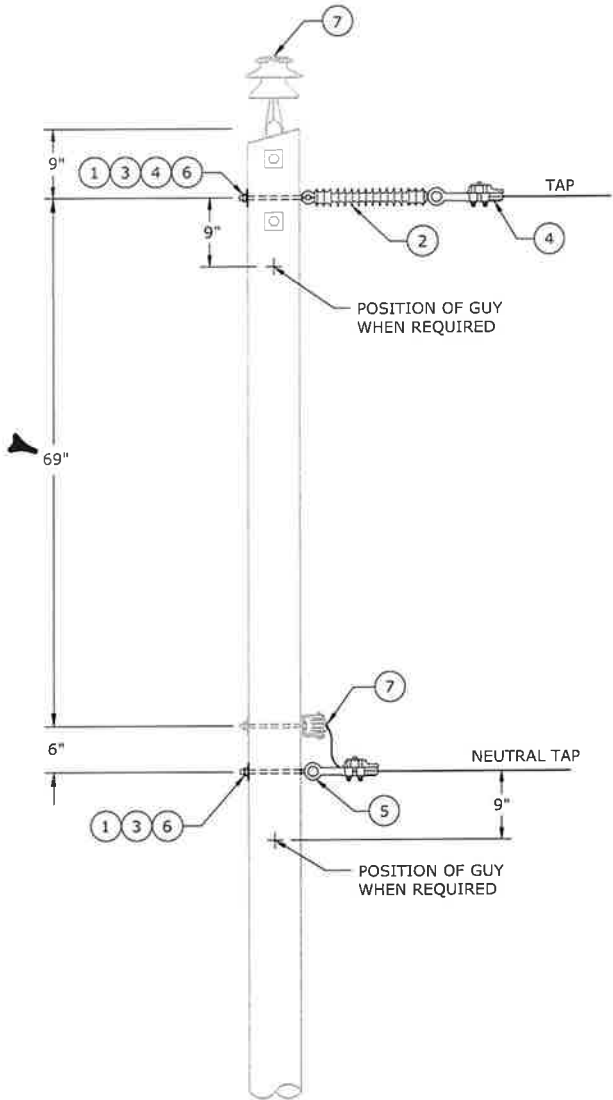
| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 8/29/13 | CADD GRAPHICS | OST |
| 1 | 1/2/08 | CADD GRAPHICS | OST |
| 0 | 1/31/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

PRIMARY, SINGLE-PHASE
DEADEND STRUCTURE, 25KV

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE
1/2"=1'-0"

DWG.
VA5EC



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------------|
| 1 | 10-44-09 | 2 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 08-04-03 | 1 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 3 | 12-05-XX | 2 | BOLT, OVAL EYE |
| 4 | 10-16-XX | 1 | CLAMP |
| 5 | 10-16-XX | 1 | CLAMP |
| 6 | 10-44-33 | 2 | WASHER, LOCK, 5/8" |
| 7 | 13-01-XX | - | CONNECTOR |

NOTES:

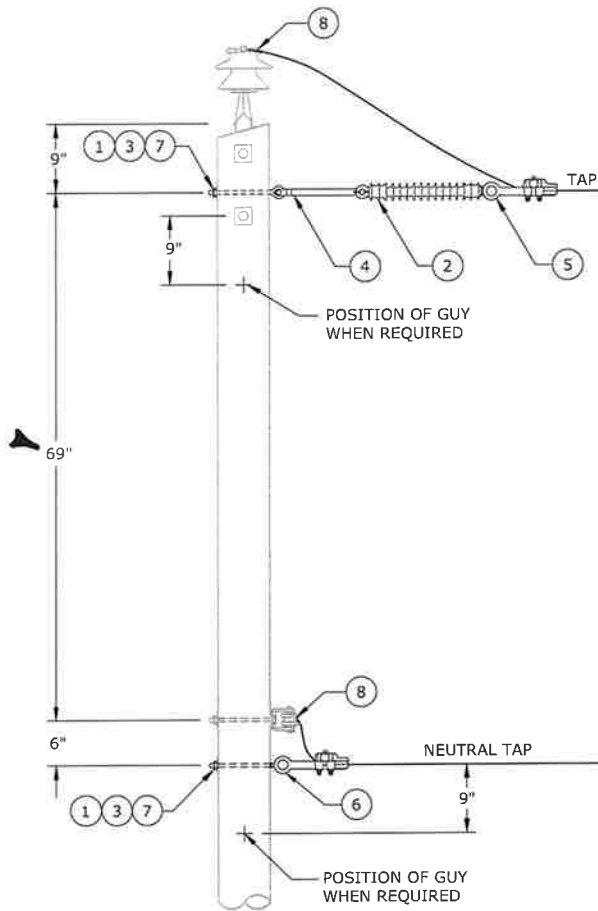
1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 8/29/13 | CADD GRAPHICS | OST |
| 1 | 1/2/08 | CADD GRAPHICS | OST |
| 0 | 8/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**PRIMARY, SINGLE-PHASE
TAP, 25KV**

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|-----------------|
| SCALE 1/2"=1'-0" | DWG. VA5-1EC |
|---------------------|-----------------|



FRONT VIEW

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------------|
| 1 | 10-44-09 | 2 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 08-04-03 | 1 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 3 | 12-05-XX | 2 | BOLT, OVAL EYE |
| 4 | 10-28-01 | 1 | LINK, EXTENSION DEADEND |
| 5 | 10-16-XX | 1 | CLAMP |
| 6 | 10-16-XX | 1 | CLAMP |
| 7 | 10-44-33 | 2 | WASHER, LOCK, 5/8" |
| 8 | 13-01-XX | - | CONNECTOR |

NOTES:

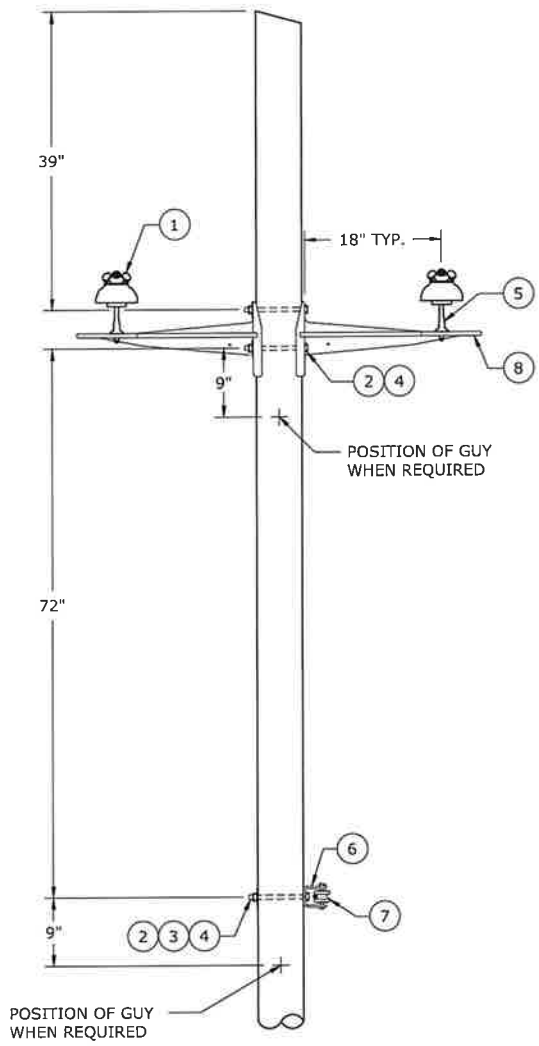
1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 8/29/13 | EADD GRAPHICS | OST |
| 1 | 1/2/08 | EADD GRAPHICS | OST |
| 0 | 1/31/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

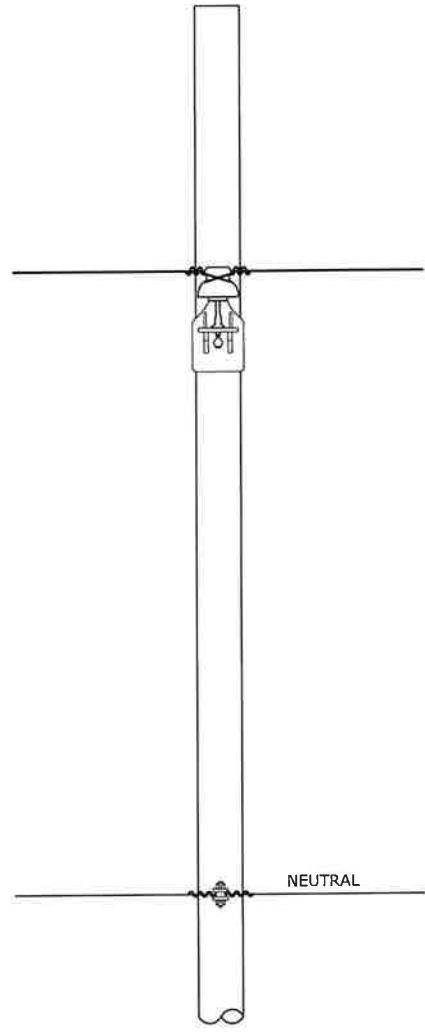
PRIMARY, SINGLE-PHASE
TAP, OFFSET, 25KV

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|-----------------|
| SCALE 1/2"=1'-0" | DWG. VA5-2EC |
|---------------------|-----------------|



FRONT VIEW



SIDE VIEW

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 08-13-04 | 2 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 12-06-XX | 3 | BOLT, MACHINE |
| 3 | 10-44-09 | 1 | WASHER, SQUARE FLAT, 2 1/4" |
| 4 | 10-44-33 | 3 | WASHER, LOCK, 5/8" |
| 5 | 10-29-05 | 2 | PIN, CROSSARM, 1-1/2", SHORT SHANK |
| 6 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 7 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |
| 8 | 10-07-31 | 2 | BRACKET, STEEL, 18" |

NOTES:

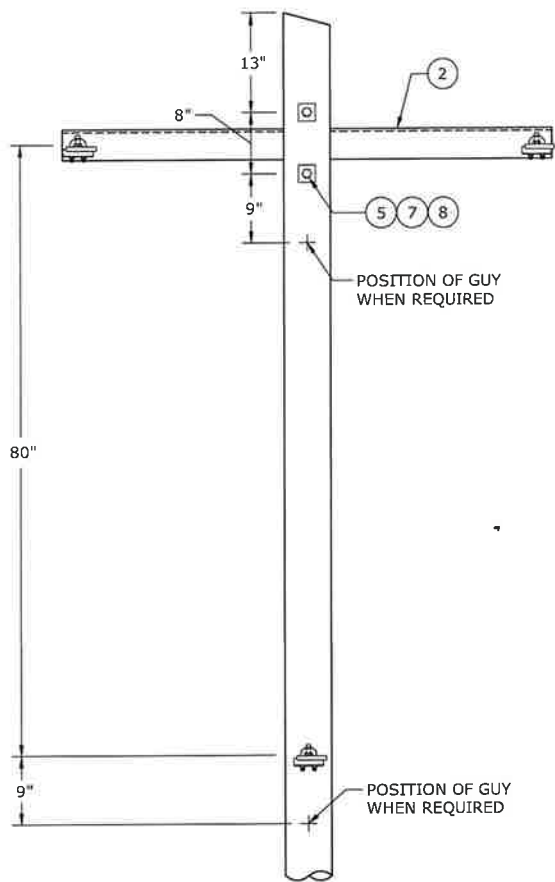
1. GROUNDS ARE TO STOP AT NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | 7/15/13 | CADD GRAPHICS | OST |
| 1 | 1/2/08 | CADD GRAPHICS | OST |
| 0 | 11/10/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

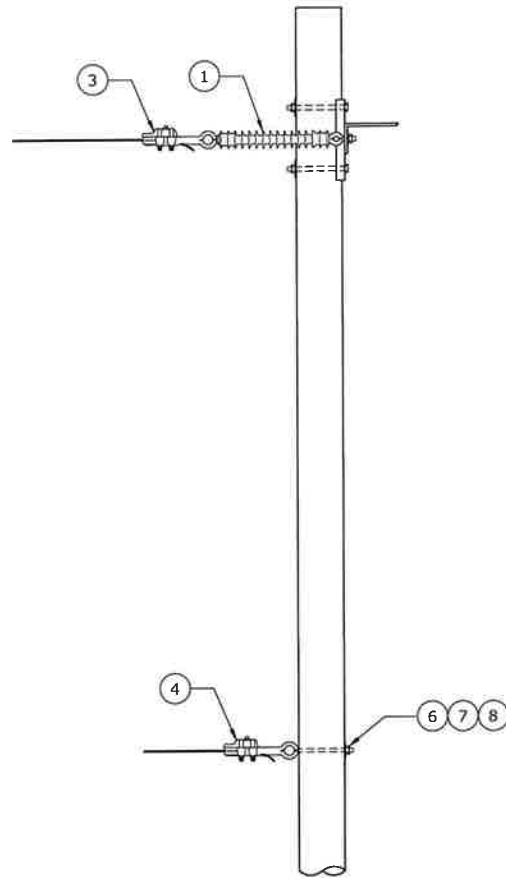
NARROW PROFILE CONSTRUCTION
BRACKET TYPE, TWO-PHASE, 15KV

ELECTRICITIES

SCALE 1/2"=1'-0" DWG. B1HEC



FRONT VIEW



SIDE VIEW

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------------|
| 1 | 08-04-03 | 3 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 2 | 10-06-02 | 1 | BRACE, CROSS, WOOD 60 X 30 |
| 3 | 10-16-XX | 2 | CLAMP |
| 4 | 10-16-XX | 1 | CLAMP |
| 5 | 12-06-XX | 2 | BOLT, MACHINE |
| 6 | 12-05-XX | 3 | BOLT, OVAL EYE |
| 7 | 10-44-09 | 5 | WASHER, SQUARE FLAT, 2 1/4" |
| 8 | 10-44-33 | 5 | WASHER, LOCK, 5/8" |

NOTES:

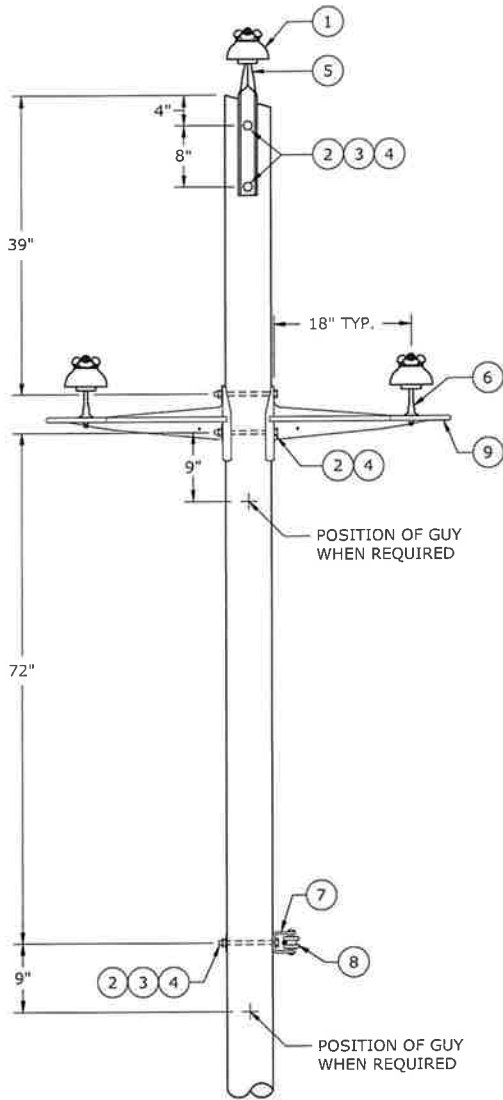
1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 8/29/13 | CADD GRAPHICS | OST |
| 1 | 1/2/08 | CADD GRAPHICS | OST |
| 0 | 3/31/06 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

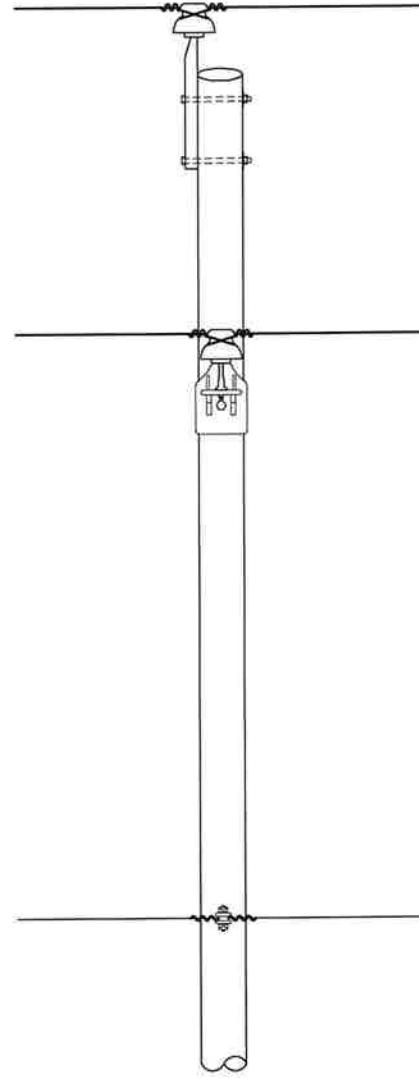
STEEL ARM TWO-PHASE DEADEND, 25KV

ELECTRICITIES
of NORTH CAROLINA, INC.

SCALE 1/2"=1'-0" DWG. VB7SEC



FRONT VIEW



SIDE VIEW

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 08-13-04 | 3 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 12-06-XX | 5 | BOLT, MACHINE |
| 3 | 10-44-09 | 3 | WASHER, SQUARE FLAT, 2 1/4" |
| 4 | 10-44-33 | 5 | WASHER, LOCK, 5/8" |
| 5 | 10-29-45 | 1 | PIN, POLE TOP, 20" X 1" |
| 6 | 10-29-05 | 2 | PIN, CROSSARM, 1-1/2", SHORT SHANK |
| 7 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 8 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |
| 9 | 10-07-31 | 2 | BRACKET, STEEL, 18" |

NOTES:

1. GROUNDS ARE TO STOP AT NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

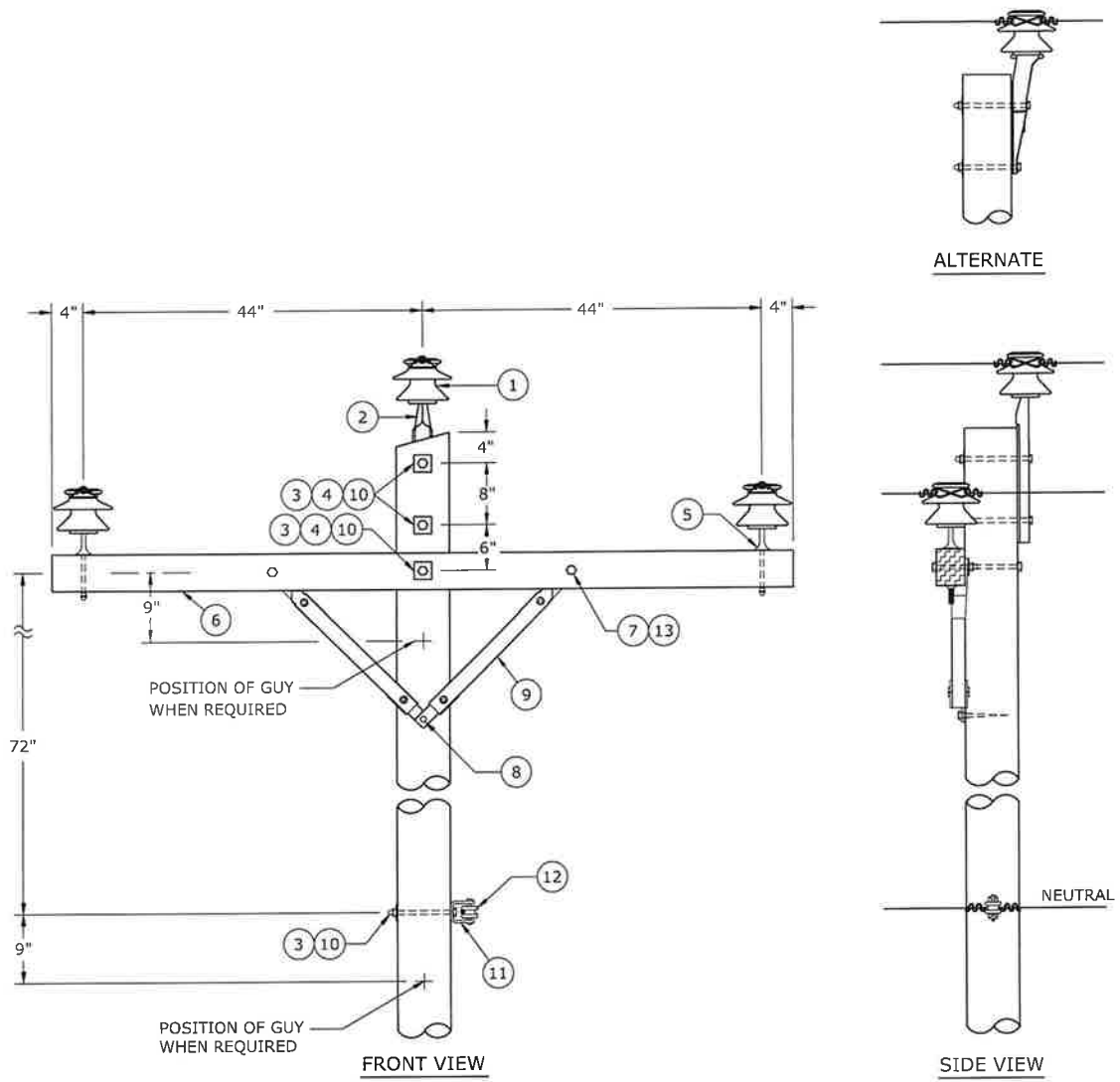
| | | | |
|---------|----------|---------------|-----|
| 3 | 7/15/13 | CADD GRAPHICS | OST |
| 2 | 1/2/08 | CADD GRAPHICS | OST |
| 1 | 11/10/05 | CADD GRAPHICS | OST |
| 0 | 1/28/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

NARROW PROFILE CONSTRUCTION
BRACKET TYPE, THREE-PHASE, 15KV

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE
1/2"=1'-0"

DWG.
C1HEC



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 08-13-04 | 3 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 10-29-45 | 1 | PIN, POLE TOP, 20" X 1" |
| 3 | 12-06-XX | 4 | BOLT, MACHINE |
| 4 | 10-44-09 | 5 | WASHER, SQUARE FLAT, 2 1/4" |
| 5 | 10-29-05 | 2 | PIN, CROSSARM, 1-1/2", SHORT SHANK |
| 6 | 04-04-01 | 1 | CROSSARM, SYP, 8 FOOT, WOOD |
| 7 | 12-08-28 | 2 | BOLT, CARRIAGE, GALV, 3/8" X 4-1/2", W/NUT |
| 8 | 10-33-21 | 1 | SCREW, LAG, 1/2" X 4" |
| 9 | 10-06-01 | 2 | BRACE, CROSSARM, WOOD 38 X 18 |
| 10 | 10-44-33 | 4 | WASHER, LOCK, 5/8" |
| 11 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 12 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |
| 13 | 10-44-31 | 2 | WASHER, LOCK, 3/8" |

NOTES:

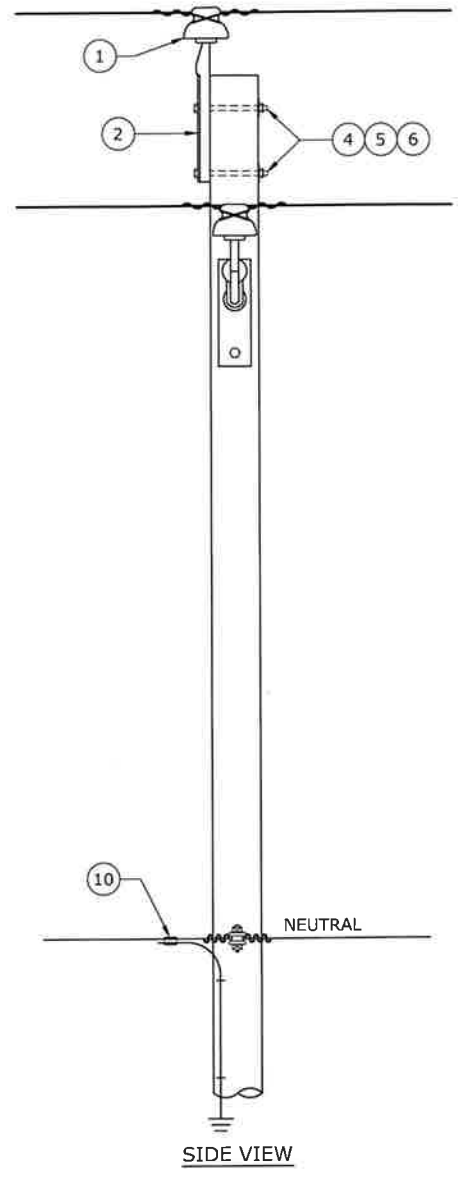
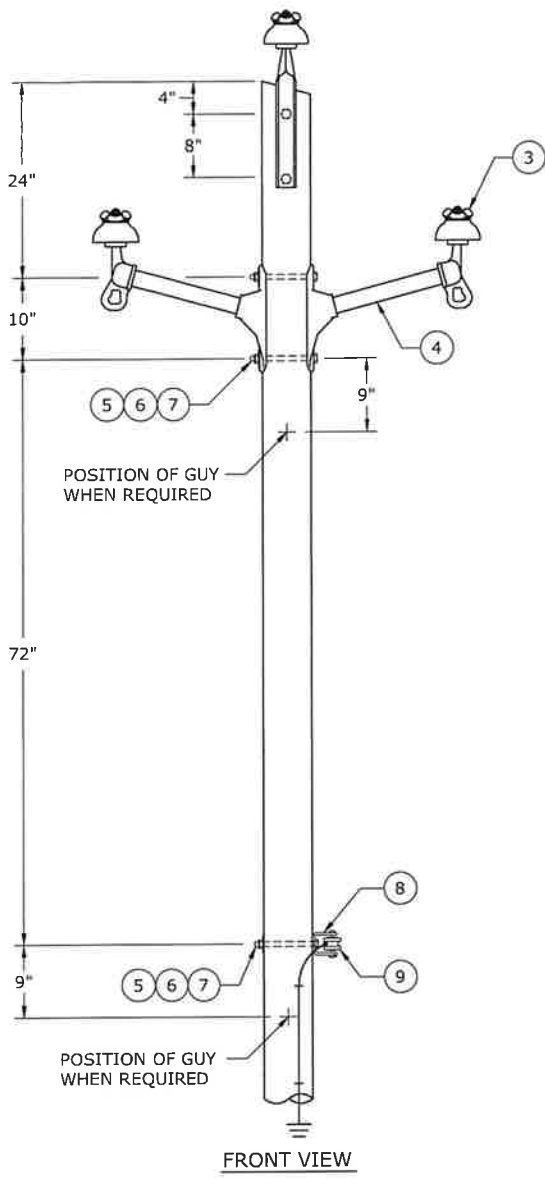
1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 7/15/13 | CADD GRAPHICS | OST |
| 1 | 12/8/05 | CADD GRAPHICS | OST |
| 0 | 2/1/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**CROSSARM CONSTRUCTION THREE-PHASE
SINGLE LINE ARM, 25KV**

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|---------------|
| SCALE 1/2"=1'-0" | DWG. VC1EC |
|---------------------|---------------|



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 08-13-04 | 1 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 10-29-45 | 1 | PIN, POLE TOP, 20" X 1" |
| 3 | 10-29-05 | 2 | PIN, CROSSARM, 1-1/2", SHORT SHANK |
| 4 | 10-07-12 | 2 | BRACKET, FIBERGLASS, 18" |
| 5 | 12-06-XX | 5 | BOLT, MACHINE |
| 6 | 10-44-09 | 5 | WASHER, SQUARE FLAT, 2 1/4" |
| 7 | 10-44-33 | 5 | WASHER, LOCK, 5/8" |
| 8 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 9 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |
| 10 | 13-01-XX | - | CONNECTOR |

NOTES:

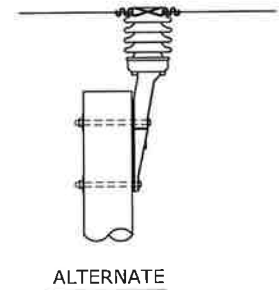
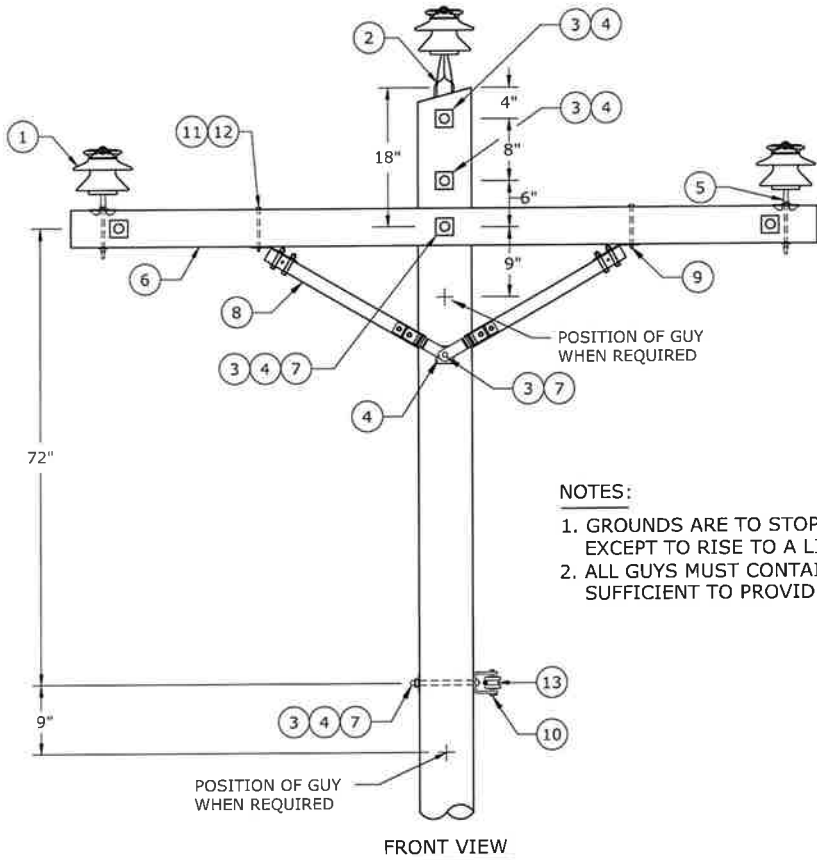
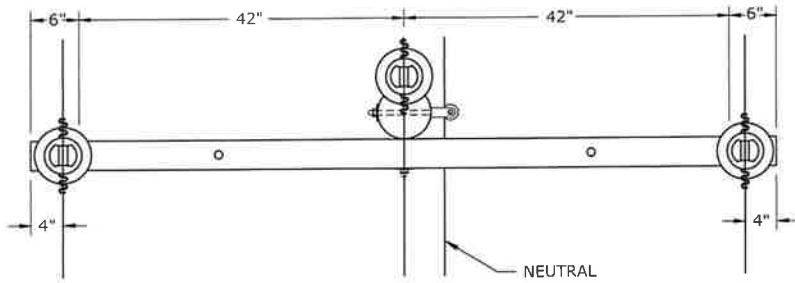
1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 7/15/13 | CADD GRAPHICS | OST |
| 1 | 1/2/08 | CADD GRAPHICS | OST |
| 0 | 2/10/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**FIBERGLASS ARM,
NARROW PROFILE CONSTRUCTION, 25KV**

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|----------------|
| SCALE 1/2"=1'-0" | DWG. VC1FEC |
|---------------------|----------------|



NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

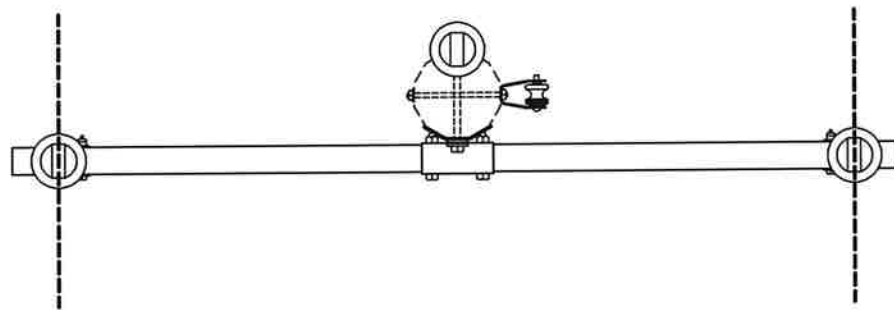
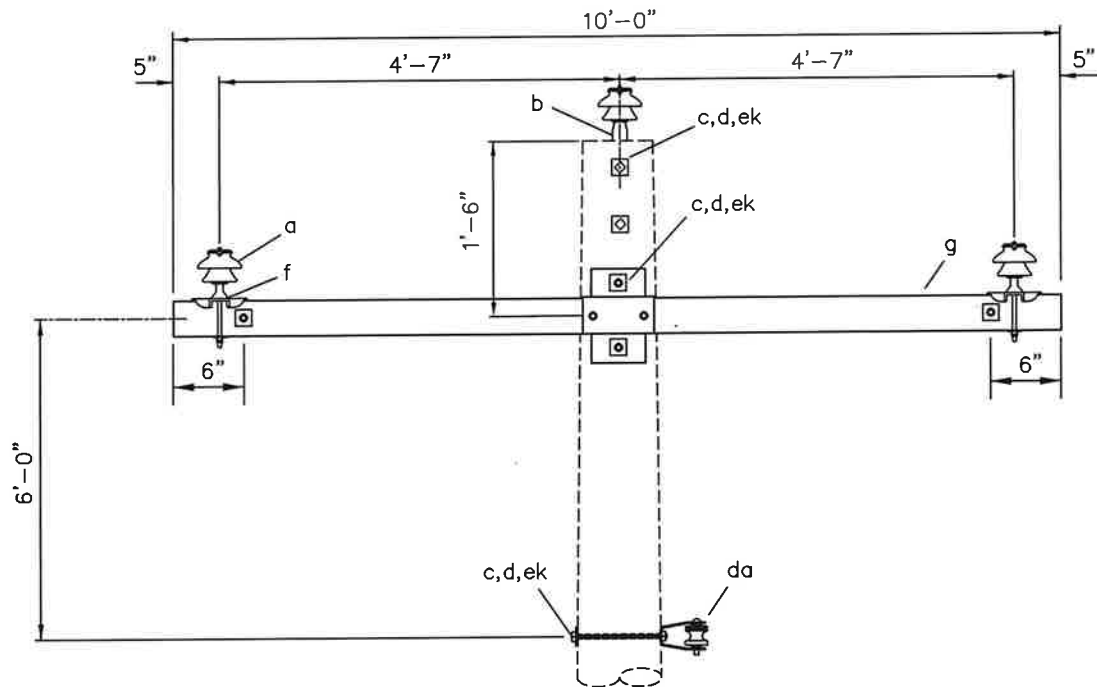
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|---|
| 1 | 08-13-04 | 3 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 10-29-45 | 1 | PIN, POLE TOP, 20" X 1" |
| 3 | 12-06-XX | 5 | BOLT, MACHINE |
| 4 | 10-44-09 | 6 | WASHER, SQUARE FLAT, 2 1/4" |
| 5 | 10-29-12 | 2 | PIN, CROSSARM, STEEL CLAMP TYPE |
| 6 | 04-04-01 | 1 | CROSSARM, SYP, 8 FOOT, WOOD |
| 7 | 10-44-33 | 5 | WASHER, LOCK, 5/8" |
| 8 | 10-06-02 | 2 | BRACE, CROSS, WOOD 60 X 30 |
| 9 | 10-44-36 | 2 | WASHER, SPLIT RING, LOCK, 1/2" |
| 10 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 11 | 12-06-95 | 2 | BOLT, MACHINE, 1/2" X 6" W/NUT |
| 12 | 10-44-52 | 2 | WASHER, FLAT, ROUND, 1-3/8" WITH 9/16" HOLE |
| 13 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |

| | | | |
|---------|----------|---------------|-----|
| 3 | 7/15/13 | CADD GRAPHICS | OST |
| 2 | 1/2/08 | CADD GRAPHICS | OST |
| 1 | 11/10/05 | CADD GRAPHICS | OST |
| 0 | 2/1/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**CROSSARM CONSTRUCTION, THREE-PHASE
LARGE CONDUCTOR, SINGLE ARM, 25KV**

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|----------------|
| SCALE 1/2"=1'-0" | DWG. VC1SEC |
|---------------------|----------------|



PLAN

NOTES:

1) (N) DENOTES ASSEMBLY WITHOUT NEUTRAL.

MATERIAL LIST

| ITEM QTY. | DESCRIPTION | CATALOG No. |
|-----------|---|-------------|
| a 3 | INSULATOR, PIN TYPE, 25kV | |
| b 1 | PIN, POLE TOP, 20" | |
| c 7 | BOLT, MACHINE, 5/8" x REQUIRED LENGTH | |
| d 13 | WASHER, SQUARE, 2 1/4" x 2 1/4" x 1/4" w/ 11/16" HOLE | |
| f 2 | PIN, CROSSARM, CLAMP TYPE, 1-3/8" THREAD | |
| g 1 | CROSSARM, FIBERGLASS, 3 5/8" x 4 5/8" x 10'-0" WITH CENTER MOUNT - HEAVY DUTY | |
| da 1 | BRACKET, INSULATED, SPOOL | |
| ek 7 | LOCKNUTS, 5/8" | |

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

24.9/14.4 kV PRIMARY 3-PHASE
SINGLE CIRCUIT
SINGLE PRIMARY SUPPORT (FIBERGLASS CROSSARM)

Booth & Associates, LLC

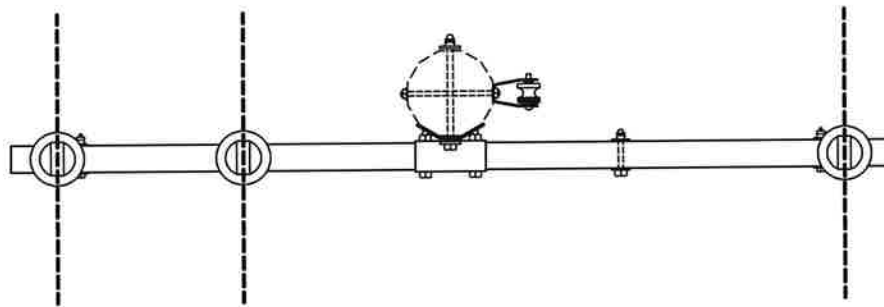
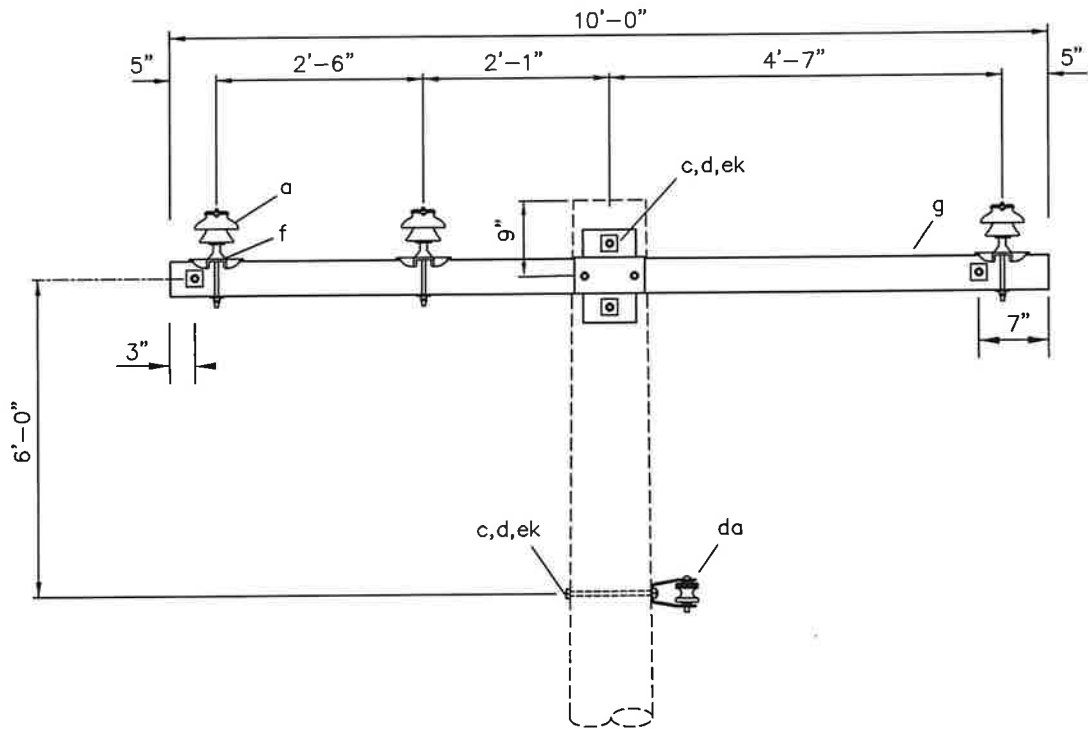
2811 Glenwood Avenue | Raleigh, NC 27612 CONSULTING ENGINEERS

| | | | |
|--------|----------|-------|----------|
| DSN. | BJB | DWN. | BJB |
| CKD. | RJC | APPD. | BCF |
| SCALE: | NTS | DATE: | 07/01/18 |
| DATE | REVISION | | |

DWG. NO.

VC1F(N)

© 07/18



PLAN

NOTES:

1) (N) DENOTES ASSEMBLY WITHOUT NEUTRAL.

MATERIAL LIST

| ITEM | QTY. | DESCRIPTION | CATALOG No. |
|------|------|---|-------------|
| a | 3 | INSULATOR, PIN TYPE, 25kV | |
| c | 5 | BOLT, MACHINE, 5/8" x REQUIRED LENGTH | |
| d | 9 | WASHER, SQUARE, 2 1/4" x 2 1/4" x 1/4" w/ 11/16" HOLE | |
| f | 3 | PIN, CROSSARM, CLAMP TYPE, 1-3/8" THREAD | |
| g | 1 | CROSSARM, FIBERGLASS, 3 5/8" x 4 5/8" x 10'-0" WITH CENTER MOUNT - HEAVY DUTY | |
| da | 1 | BRACKET, INSULATED, SPOOL | |
| ek | 5 | LOCKNUTS, 5/8" | |

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

24.9/14.4 kV PRIMARY 3-PHASE
SINGLE CIRCUIT
SINGLE PRIMARY SUPPORT (FIBERGLASS CROSSARMS)

Booth & Associates, LLC

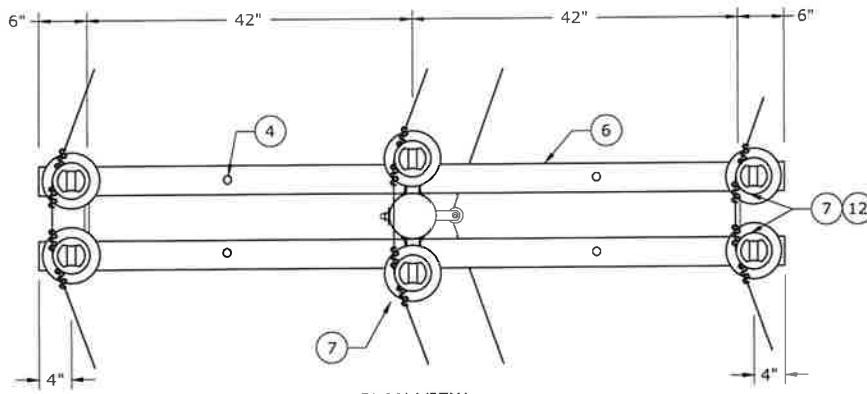
3811 Glenwood Avenue | Raleigh, NC 27613 | CONSULTING ENGINEERS

| | | | |
|--------|-----|----------|----------|
| DSN. | AG | DWN. | BLP |
| CKD. | RJC | APPD. | BCF |
| SCALE: | NTS | DATE: | 07/01/18 |
| DATE | | REVISION | |

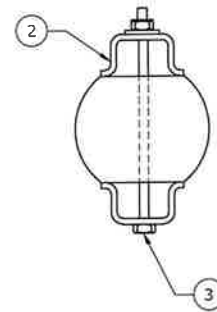
DWG. NO.

VC1-1F(N)

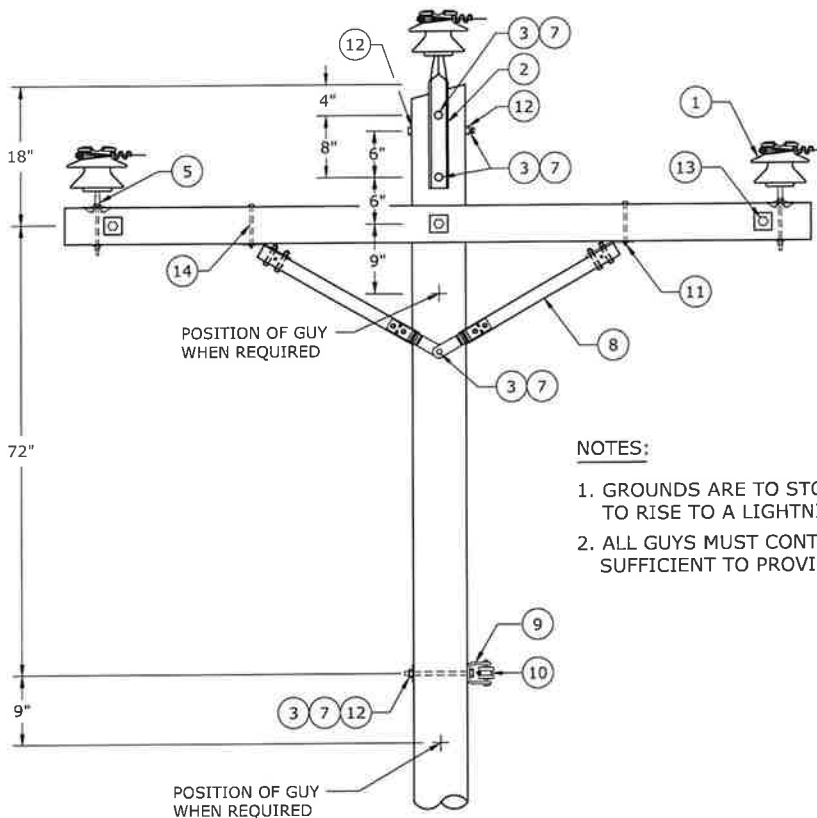
© 07/18



PLAN VIEW



POLE TOP PIN ASSEMBLY



FRONT VIEW

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

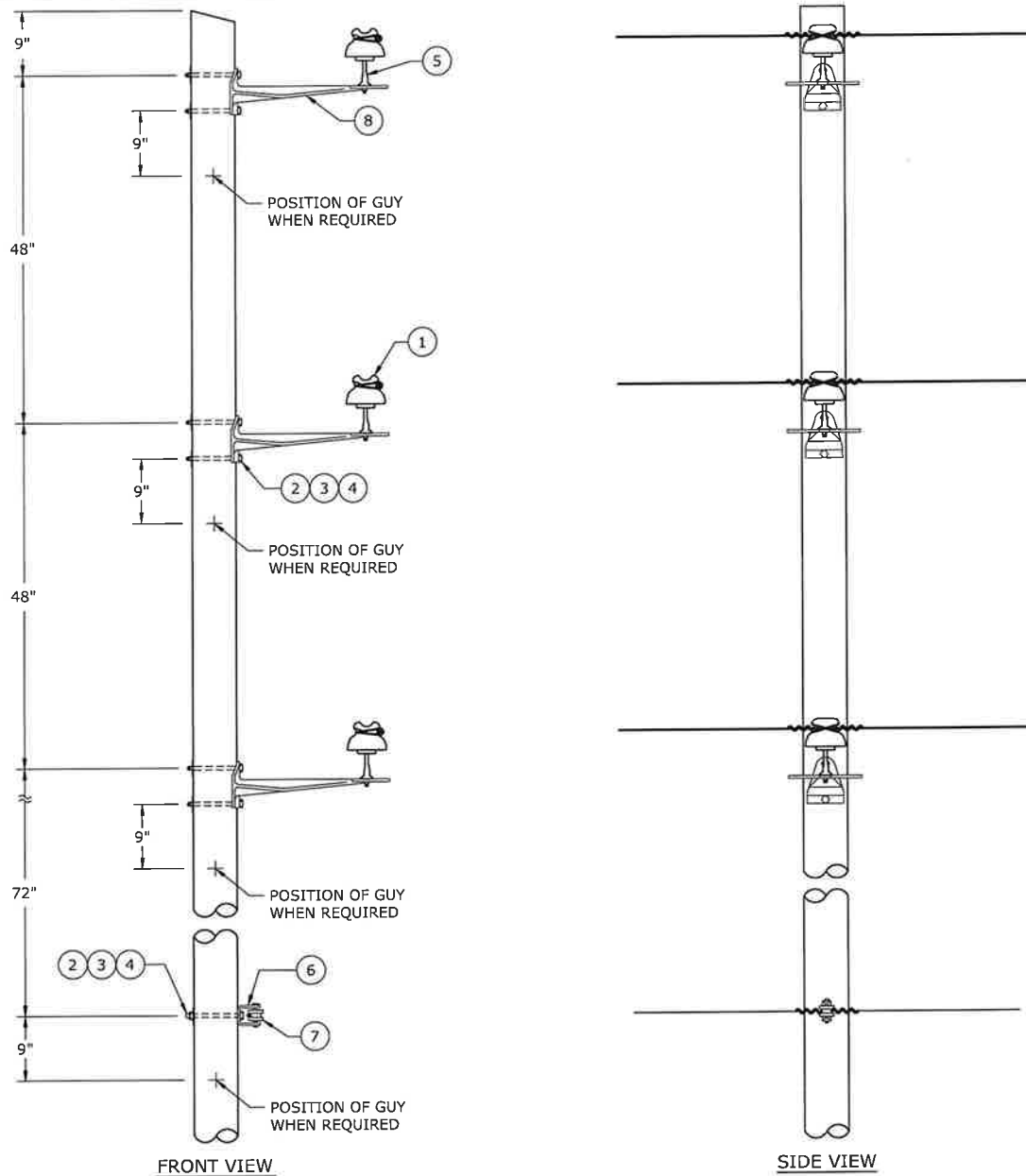
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|---|
| 1 | 08-13-04 | 6 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 10-29-45 | 2 | PIN, POLE TOP, 20" X 1" |
| 3 | 12-06-XX | 5 | BOLT, MACHINE |
| 4 | 10-44-52 | 4 | WASHER, FLAT, ROUND, 1-3/8" WITH 9/16" HOLE |
| 5 | 10-29-12 | 4 | PIN, CROSSARM, STEEL CLAMP TYPE |
| 6 | 04-04-01 | 2 | CROSSARM, SYP, 8 FOOT, WOOD |
| 7 | 10-44-33 | 15 | WASHER, LOCK, 5/8" |
| 8 | 10-06-02 | 4 | BRACE, CROSS, WOOD 60 X 30 |
| 9 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 10 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |
| 11 | 10-44-36 | 4 | WASHER, SPLIT RING, LOCK, 1/2" |
| 12 | 10-44-09 | 13 | WASHER, SQUARE FLAT, 2 1/4" |
| 13 | 12-02-XX | 3 | BOLT, DOUBLE ARMING |
| 14 | 12-06-95 | 4 | BOLT, MACHINE, 1/2" X 6" W/NUT |

| | | | |
|---------|----------|---------------|-----|
| 3 | 7/15/13 | CADD GRAPHICS | OST |
| 2 | 1/2/98 | CADD GRAPHICS | OST |
| 1 | 11/10/05 | CADD GRAPHICS | OST |
| 0 | 2/1/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

CROSSARM CONSTRUCTION THREE-PHASE
LARGE CONDUCTOR, DOUBLE ARM, 25KV

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE: 1/2"=1'-0"
DWG. VC2SEC



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 08-13-04 | 3 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 12-06-XX | 7 | BOLT, MACHINE |
| 7 | 10-44-09 | 7 | WASHER, SQUARE FLAT, 2 1/4" |
| 4 | 10-44-33 | 7 | WASHER, LOCK, 5/8" |
| 5 | 10-29-05 | 3 | PIN, CROSSARM, 1-1/2", SHORT SHANK |
| 6 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 7 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |
| 8 | 10-07-31 | 3 | BRACKET, STEEL, 18" |

NOTES:

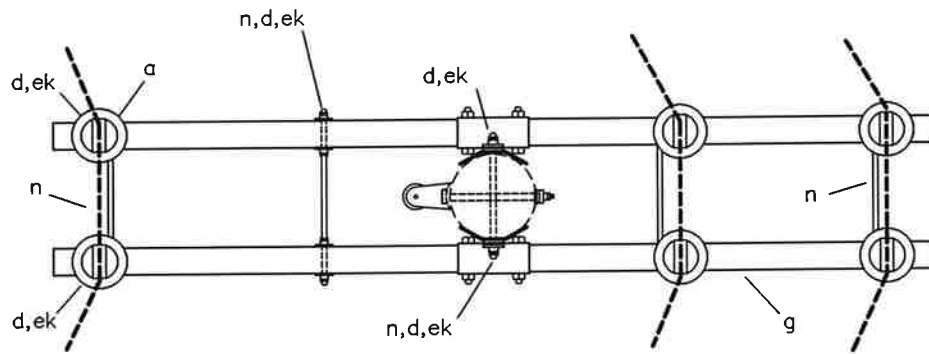
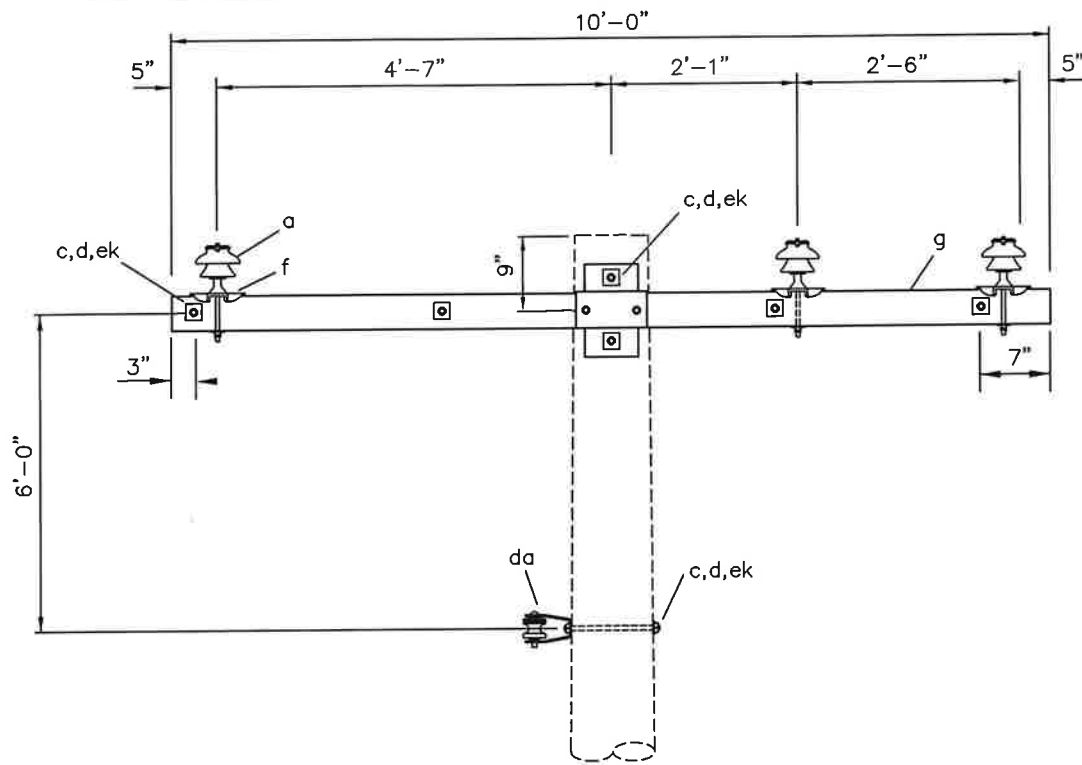
1. GROUNDS ARE TO STOP AT NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 7/15/13 | CADD GRAPHICS | DST |
| 0 | 12/17/07 | CADD GRAPHICS | DST |
| REVISED | BY | APPR. | |

**NARROW PROFILE CONSTRUCTION
BRACKET TYPE, THREE-PHASE, SINGLE PIN
VERTICAL CONSTRUCTION, 15KV**

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE: 1/2"=1'-0" DWG. C2H-1VEC



PLAN

NOTES:

- 1) (N) DENOTES ASSEMBLY WITHOUT NEUTRAL.

MATERIAL LIST

| ITEM | QTY. | DESCRIPTION | CATALOG No. |
|------|------|---|-------------|
| a | 6 | INSULATOR, PIN TYPE, 25kV | |
| c | 1 | BOLT, MACHINE, 5/8" x REQUIRED LENGTH | |
| d | 25 | WASHER, SQUARE, 2 1/4" x 2 1/4" x 1/4" w/ 11/16" HOLE | |
| f | 6 | PIN, CROSSARM, CLAMP TYPE, 1-3/8" THREAD | |
| g | 2 | CROSSARM, FIBERGLASS, 3 5/8" x 4 5/8" x 10'-0" WITH CENTER MOUNT - HEAVY DUTY | |
| n | 6 | BOLT, DOUBLE ARMING, 5/8" x REQUIRED LENGTH | |
| da | 1 | BRACKET, INSULATED, SPOOL | |
| ek | 25 | LOCKNUT, 5/8" | |

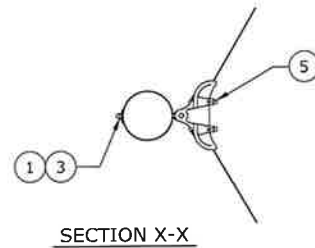
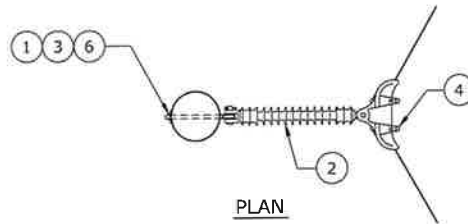
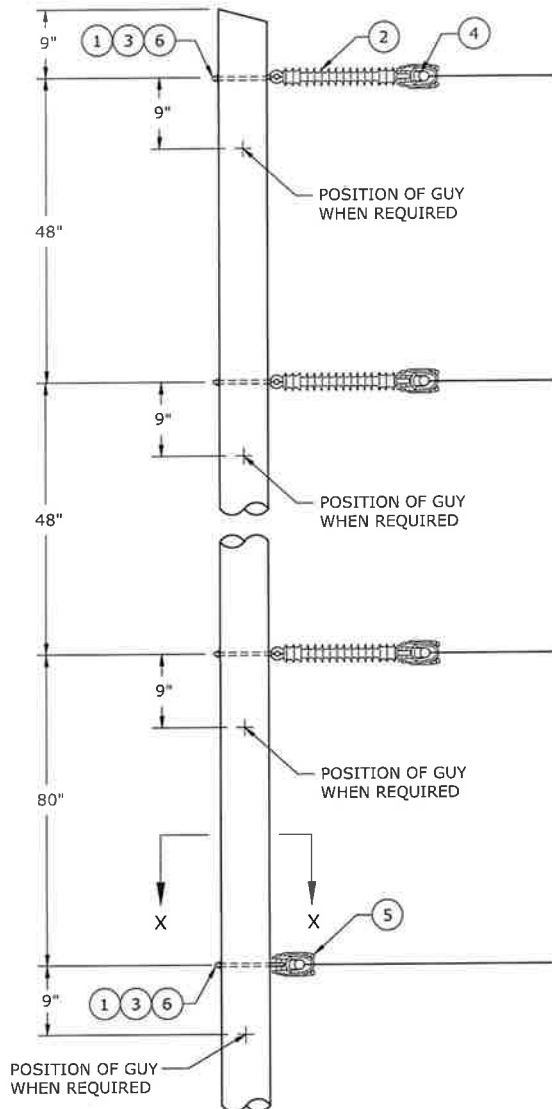
TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

24.9/14.4 kV PRIMARY 3-PHASE
SINGLE CIRCUIT
DOUBLE PRIMARY SUPPORT (FIBERGLASS CROSSARMS)

Booth & Associates, LLC

3611 Glenwood Avenue | Raleigh, NC 27617 | CONSULTING ENGINEERS

| | | |
|------------|----------------|------------------------------|
| DSN. AG | DWN. BLP | DWG. NO. VC2-1F(N) |
| CKD. RJC | APPD. BCF | |
| SCALE: NTS | DATE: 07/01/18 | |
| DATE | REVISION | © 07/18 |



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------------|
| 1 | 10-44-09 | 4 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 08-04-03 | 3 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 3 | 12-05-XX | 4 | BOLT, OVAL EYE |
| 4 | 10-16-XX | 3 | CLAMP |
| 5 | 10-16-XX | 1 | CLAMP |
| 6 | 10-44-33 | 4 | WASHER, LOCK, 5/8" |

NOTES:

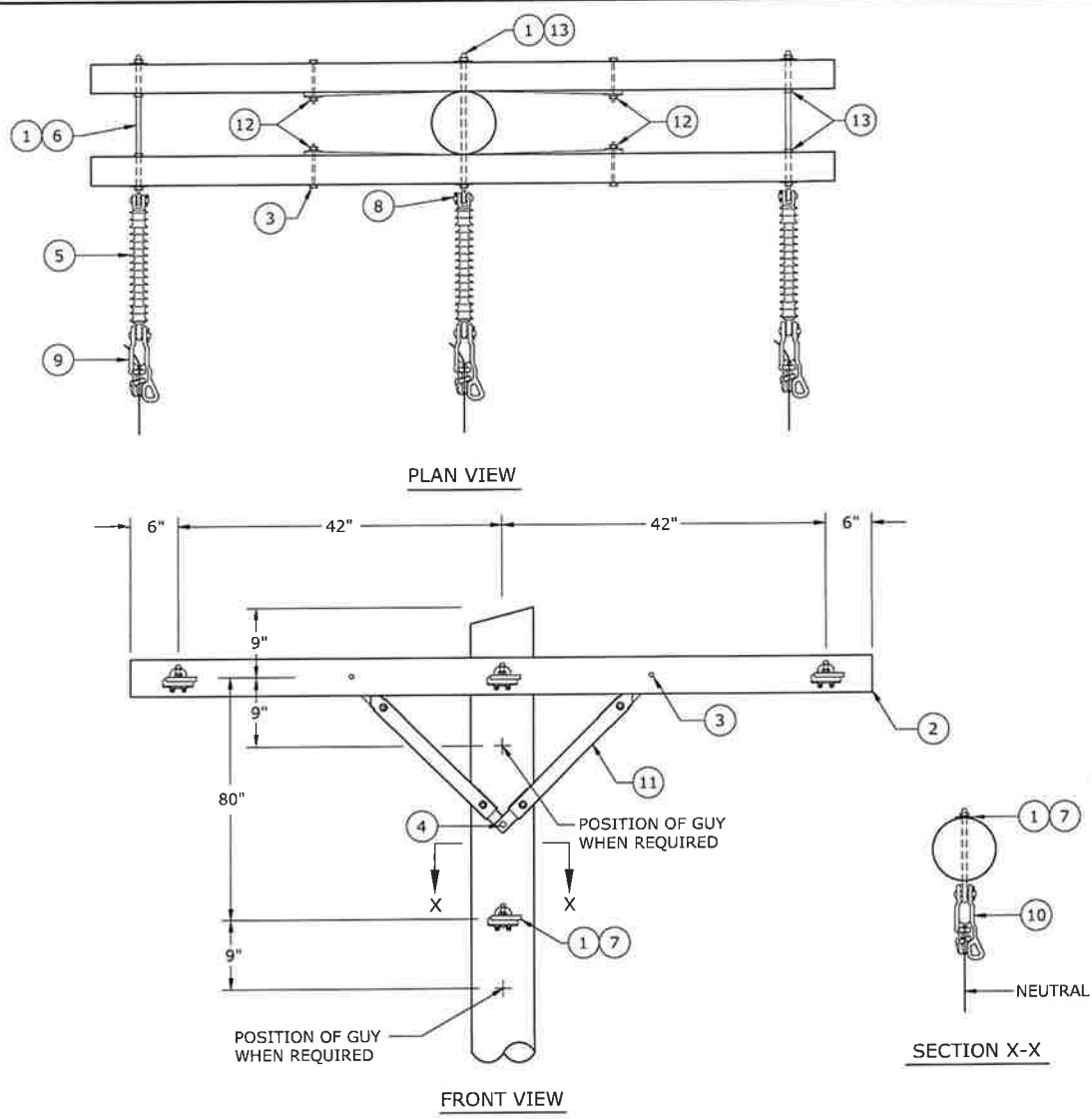
1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTOR OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 7/15/13 | CADD GRAPHICS | OST |
| 1 | 1/23/08 | CADD GRAPHICS | OST |
| 0 | 2/1/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**VERTICAL CONSTRUCTION
THREE-PHASE
SUSPENSION STRUCTURE, 25KV**

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|---------------|
| SCALE 1/2"=1'-0" | DWG. VC3EC |
|---------------------|---------------|

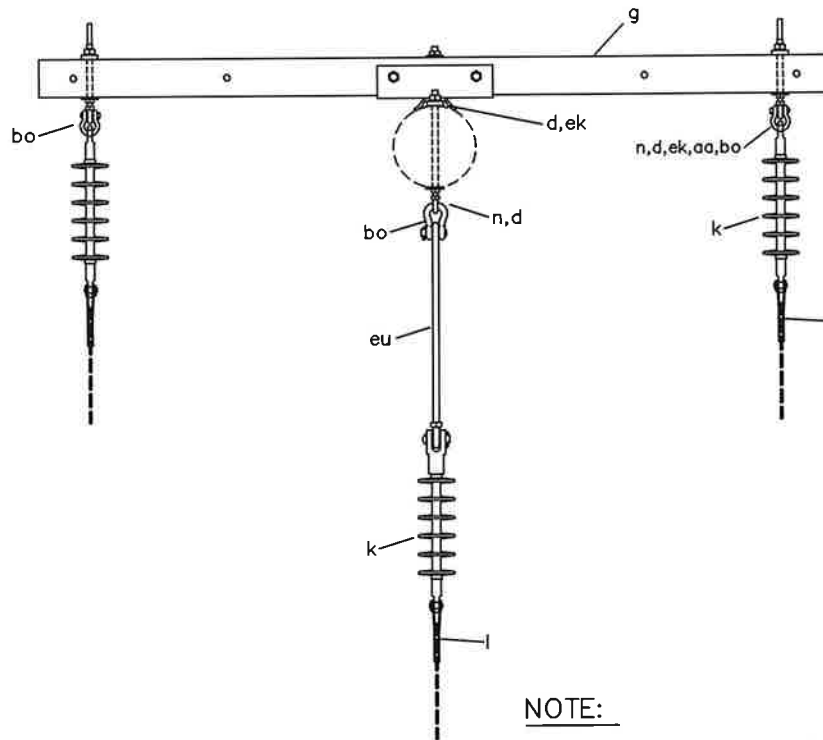
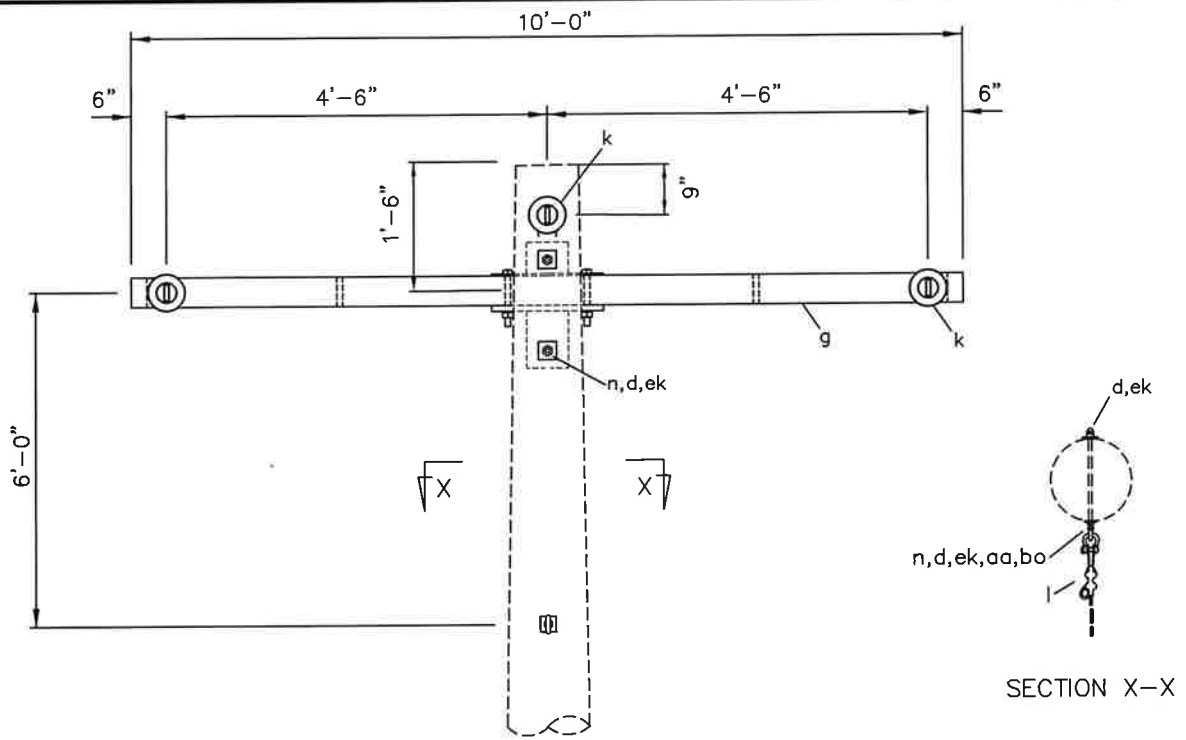


| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 10-44-09 | 11 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 04-04-01 | 2 | CROSSARM, SYP, 8 FOOT, WOOD |
| 3 | 12-08-28 | 4 | BOLT, CARRIAGE, GALV, 3/8" X 4-1/2", W/NUT |
| 4 | 10-33-21 | 2 | SCREW, LAG, 1/2" X 4" |
| 5 | 08-04-03 | 3 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 6 | 12-02-XX | 3 | BOLT, DOUBLE ARMING |
| 7 | 12-05-XX | 1 | BOLT, OVAL EYE |
| 8 | 10-46-66 | 3 | NUT, EYE, GALV., 5/8" |
| 9 | 10-16-XX | 3 | CLAMP |
| 10 | 10-16-XX | 1 | CLAMP |
| 11 | 10-06-01 | 4 | BRACE, CROSSARM, WOOD 38 X 18 |
| 12 | 10-44-31 | 4 | WASHER, LOCK, 3/8" |
| 13 | 10-44-33 | 11 | WASHER, LOCK, 5/8" |

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | | | | | |
|---------|---------|---------------|-----|---|--|---------------------|---------------|
| 3 | | | | CROSSARM CONSTRUCTION, THREE-PHASE DEADEND, 25KV | | SCALE 1/2"=1'-0" | DWG. VC7EC |
| 2 | 5/17/13 | CADD GRAPHICS | OST | | | | |
| 1 | 1/2/08 | CADD GRAPHICS | OST | | | | |
| 0 | 2/1/05 | CADD GRAPHICS | OST | | | | |
| REVISED | BY | APPR. | | | | | |



NOTE:

1) (N) DENOTES ASSEMBLY WITHOUT NEUTRAL.

MATERIAL LIST

| ITEM | QTY. | DESCRIPTION |
|------|------|--|
| d | 12 | Washer, Square, 2 1/4"x2 1/4"x1/4", 11/16" Hole |
| g | 1 | Crossarm, Fiberglass, Deadend, 3 5/8" x 4 5/8" x 10'-0" With Center Mount - Heavy Duty |
| k | 3 | Insulator, Polymer, 25 kV |
| l | 3 | Clamp, Deadend, Primary |
| l | 1 | Clamp, Deadend, Neutral |
| n | 6 | Bolt, Double Arming, 5/8" x Required Length |
| aa | 4 | Nut, Eye, 5/8" |
| bo | 4 | Shackle, Anchor |
| ek | 16 | Locknuts, 5/8" |
| eu | 1 | Extension Link, Insulated, Clevis-Thimble Eye, 24" 5/8" Hole (21,000 lbs.) |

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

24.9/14.4 kV PRIMARY 3-PHASE
SINGLE DEADEND SUPPORT (FIBERGLASS CROSSARM)
ON 10' FIBERGLASS CROSSARM

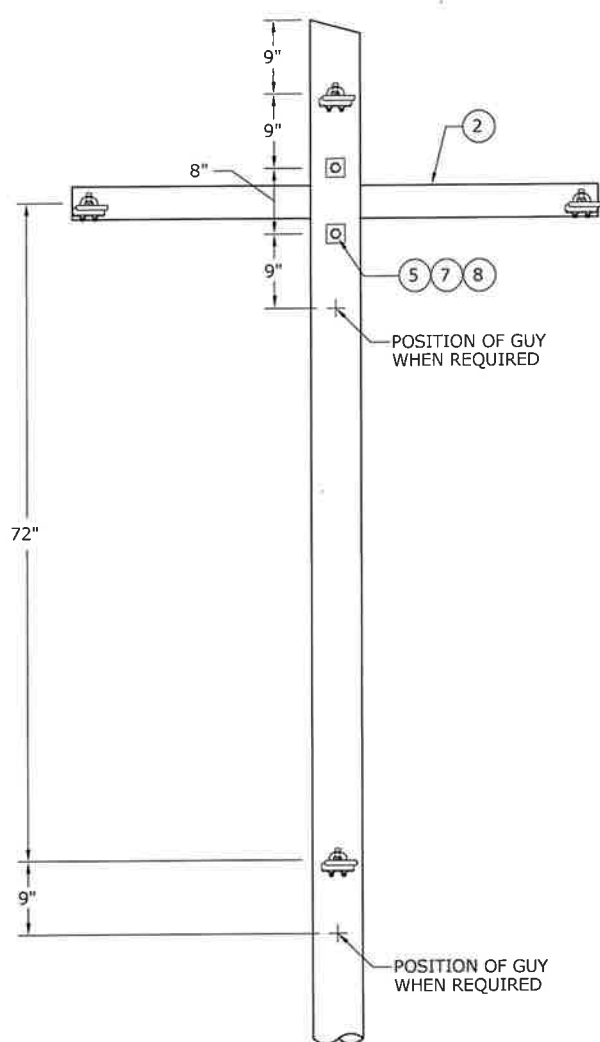
Booth & Associates, LLC
3011 Glenwood Avenue 1 Raleigh, NC 27613 CONSULTING ENGINEERS

| | | | |
|--------|----------|-------|----------|
| DSN. | AG | DWN. | BJB |
| CKD. | RJC | APPD. | BCF |
| SCALE: | NTS | DATE: | 07/01/18 |
| DATE | REVISION | | |
| | | | |

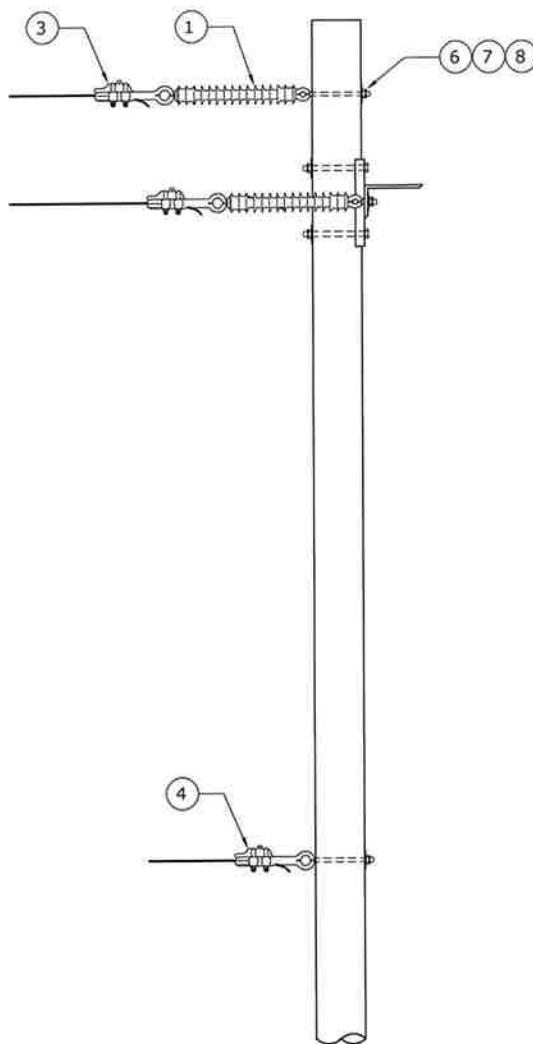
DWG. NO.

VC7F(N)

© 07/18



FRONT VIEW



SIDE VIEW

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------------|
| 1 | 08-04-03 | 4 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 2 | 04-05-02 | 1 | CROSSARM, 60-INCH, STEEL |
| 3 | 10-16-XX | 3 | CLAMP |
| 4 | 10-16-XX | 1 | CLAMP |
| 5 | 12-06-XX | 2 | BOLT, MACHINE |
| 6 | 12-05-XX | 4 | BOLT, OVAL EYE |
| 7 | 10-44-09 | 6 | WASHER, SQUARE FLAT, 2 1/4" |
| 8 | 10-44-33 | 6 | WASHER, LOCK, 5/8" |

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

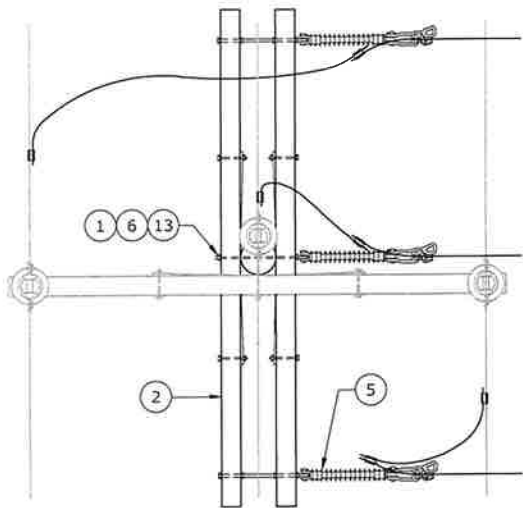
| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 7/15/13 | CADD GRAPHICS | OST |
| 1 | 1/23/08 | CADD GRAPHICS | OST |
| 0 | 2/10/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

STEEL ARM THREE-PHASE DEADEND, 25KV

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE
1/2" = 1'-0"

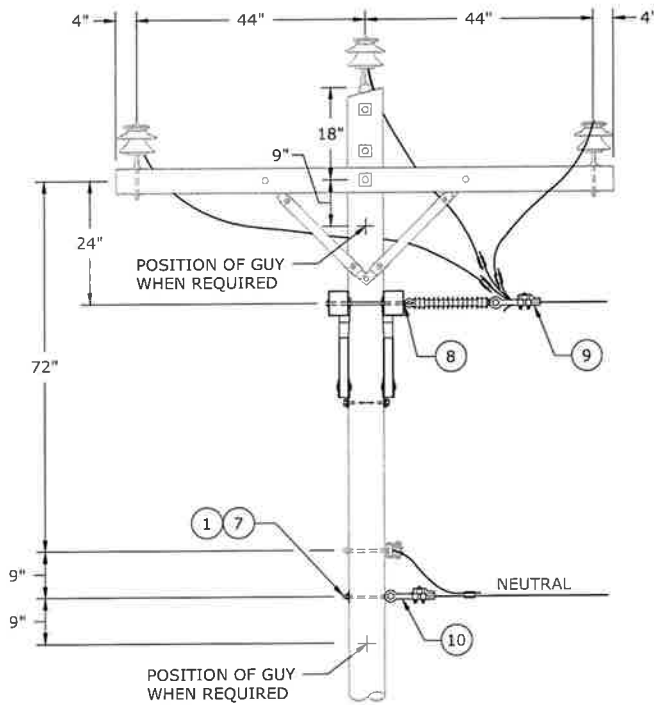
DWG.
VC7SEC



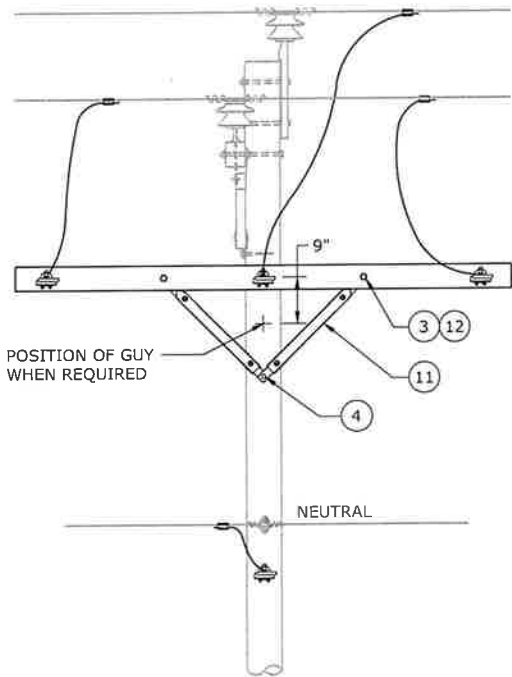
PLAN VIEW

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
3. ADD PIN INSULATOR SUPPORT FOR JUMPER CONDUCTORS AS NEEDED.



FRONT VIEW



SIDE VIEW

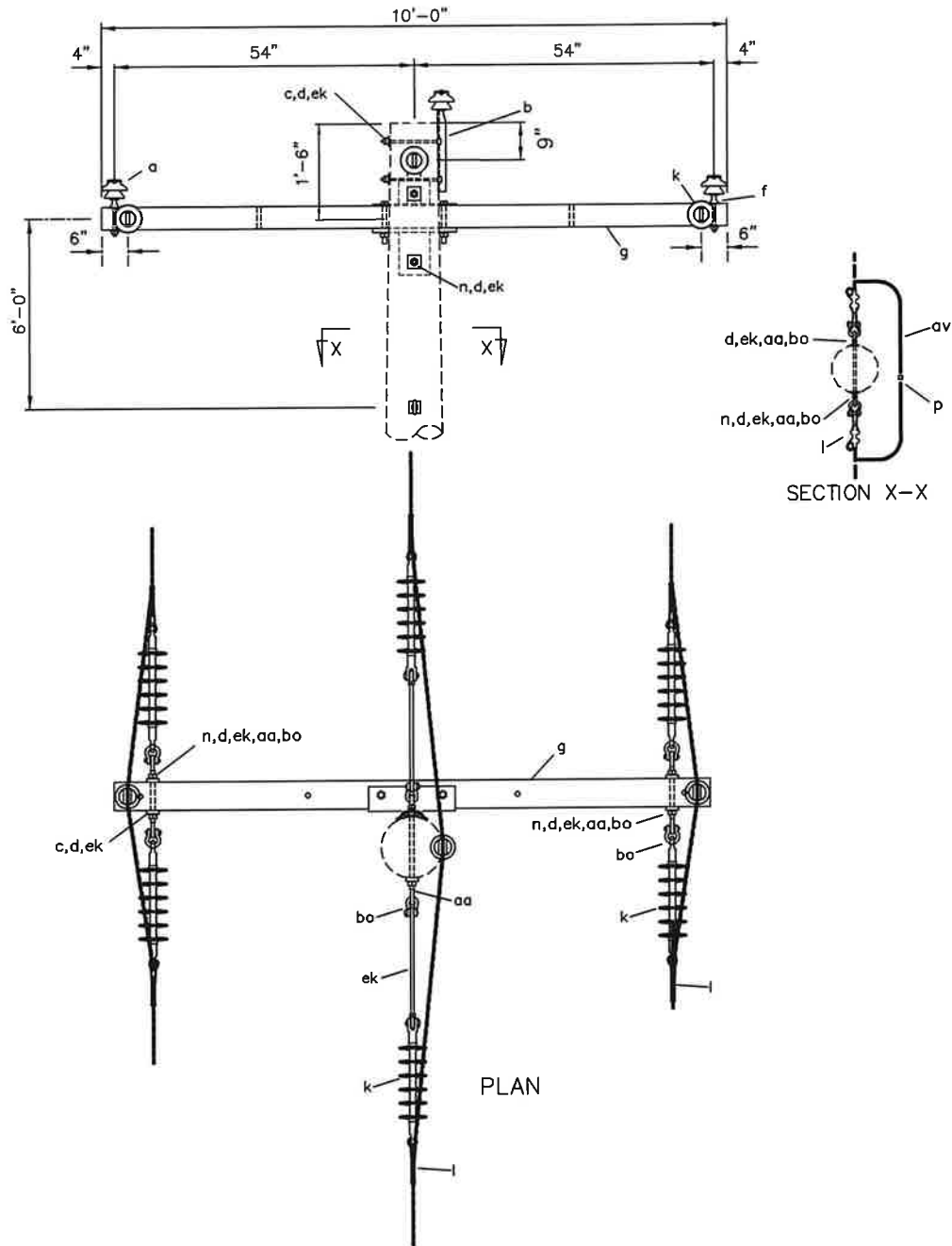
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 10-44-09 | 11 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 04-04-01 | 2 | CROSSARM, SYP, 8 FOOT, WOOD |
| 3 | 12-08-28 | 4 | BOLT, CARRIAGE, GALV, 3/8" X 4-1/2", W/NUT |
| 4 | 10-33-21 | 2 | SCREW, LAG, 1/2" X 4" |
| 5 | 08-04-03 | 2 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 6 | 12-02-XX | 3 | BOLT, DOUBLE ARMING |
| 7 | 12-05-XX | 1 | BOLT, OVAL EYE |
| 8 | 10-46-66 | 3 | NUT, EYE, GALV., 5/8" |
| 9 | 10-16-XX | 3 | CLAMP |
| 10 | 10-16-XX | 1 | CLAMP |
| 11 | 10-06-01 | 4 | BRACE, CROSSARM, WOOD 38 X 18 |
| 12 | 10-44-31 | 4 | WASHER, LOCK, 3/8" |
| 13 | 10-44-33 | 11 | WASHER, LOCK, 5/8" |

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 7/15/13 | CADD GRAPHICS | OST |
| 1 | 1/2/08 | CADD GRAPHICS | OST |
| 0 | 1/18/07 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

CROSSARM CONSTRUCTION THREE-PHASE
TAP ARM, 25KV

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|-----------------|
| SCALE 1/2"=1'-6" | DWG. VC7-2EC |
|---------------------|-----------------|



| ITEM | | QTY. | DESCRIPTION |
|------|----|------|--|
| b | 1 | | Pin, Pole Top, 20" |
| c | 2 | | Bolt, Machine, 5/8" x Required Length |
| d | 14 | | Washer, Square, 2 1/4"x2 1/4"x1/4", 11/16" Hole |
| f | 3 | | Pin, Crossarm, Pin Type |
| g | 1 | | Crossarm, Fiberglass, Deadend, 3 5/8" x 4 5/8" x 10'-0" With Center Mount - Heavy Duty |
| k | 6 | | Insulator, Polymer, 25 kV |
| l | 6 | | Clamp, Deadend, Primary |
| l | 2 | | Clamp, Deadend, Neutral |
| n | 6 | | Bolt, Double Arming, 5/8" x Required Length |
| p | * | | Connectors, As Required |
| aa | 6 | | Nut, Eye, 5/8" |
| av | * | | Jumpers, As Required |
| bo | 8 | | Shackle, Anchor |
| ea | 3 | | Insulator, Pin Type, 25 kV |
| ek | 22 | | Locknuts, 5/8" |
| eu | 2 | | Extension Link, Insulated, Clevis-Thimble Eye, 24" 5/8" Hole (21,000 lbs.) |

NOTE:

1) (N) DENOTES ASSEMBLY WITHOUT NEUTRAL.

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA
24.9/14.4 kV PRIMARY 3-PHASE
SINGLE ARM, DOUBLE DEADEND
ON 10' FIBERGLASS CROSSARM

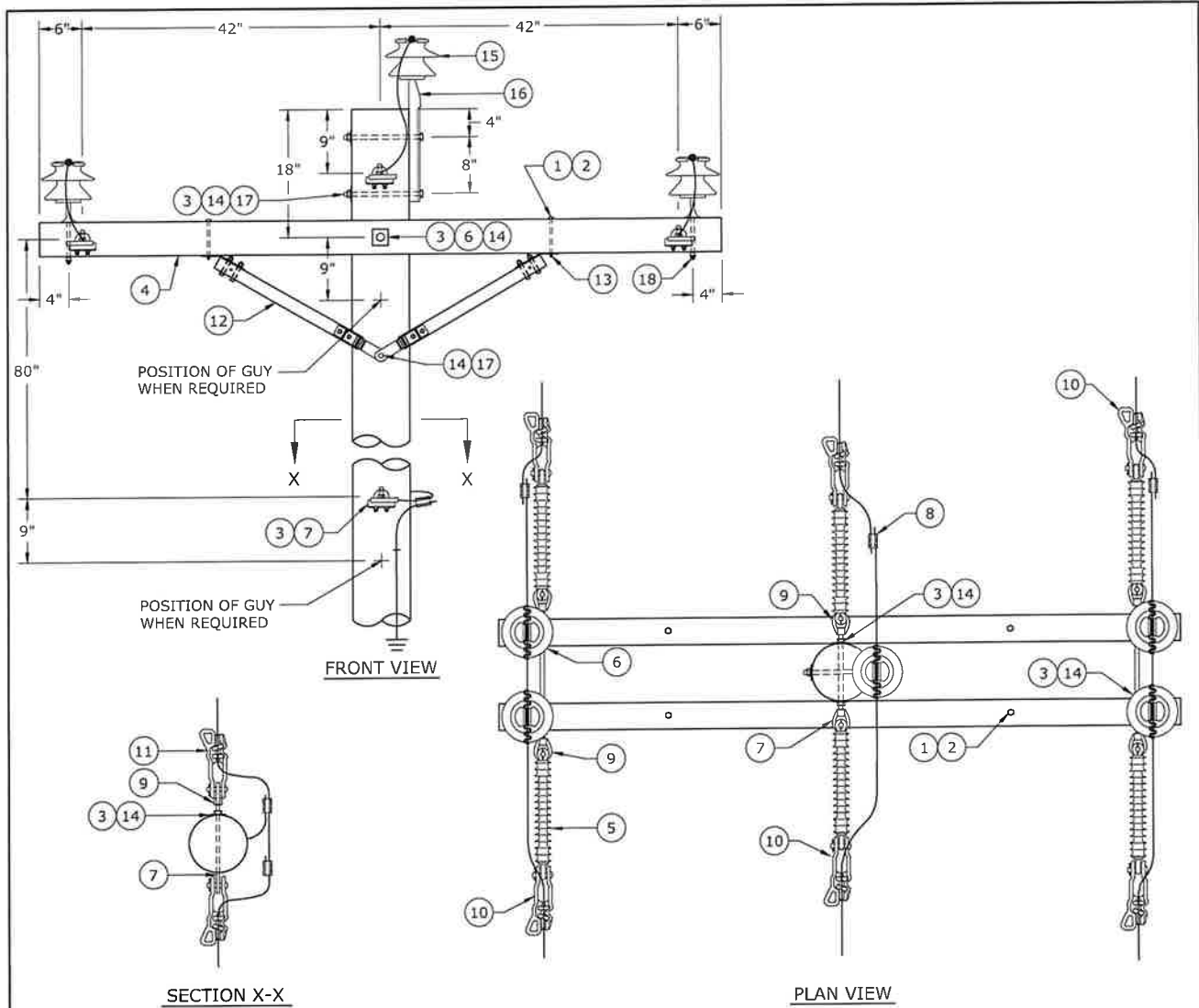
Booth & Associates, LLC
3811 Glenwood Avenue | Raleigh, NC 27612 | CONSULTING ENGINEERS

| | | | |
|--------|----------|-------|----------|
| DWN. | BJB | DATE: | 04/18/16 |
| CKD. | RJC | APPD. | BCF |
| SCALE: | | NTS | |
| DATE | REVISION | DATE | REVISION |
| | | | |

DWG. NO.

VC8F(N)

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| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|---|
| 1 | 12-06-95 | 4 | BOLT, MACHINE, 1/2" X 6" W/NUT |
| 2 | 10-44-52 | 4 | WASHER, FLAT, ROUND, 1-3/8" WITH 9/16" HOLE |
| 3 | 10-44-09 | 16 | WASHER, SQUARE FLAT, 2 1/4" |
| 4 | 04-04-01 | 2 | CROSSARM, SYP, 8 FOOT, WOOD |
| 5 | 08-04-03 | 6 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 6 | 12-05-XX | 3 | BOLT, OVAL EYE |
| 7 | 12-05-XX | 2 | BOLT, OVAL EYE |
| 8 | 13-01-XX | - | CONNECTOR |
| 9 | 10-46-66 | 6 | NUT, EYE, GALV., 5/8" |
| 10 | 10-16-XX | 6 | CLAMP |
| 11 | 10-16-XX | 2 | CLAMP |
| 12 | 10-06-02 | 4 | BRACE, CROSS, WOOD 60 X 30 |
| 13 | 10-44-36 | 4 | WASHER, SPLIT RING, LOCK, 1/2" |
| 14 | 10-44-33 | 15 | WASHER, LOCK, 5/8" |
| 15 | 08-13-04 | 5 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 16 | 10-29-45 | 1 | PIN, POLE TOP, 20" X 1" |
| 17 | 12-06-XX | 3 | BOLT, MACHINE |
| 18 | 10-29-12 | 4 | PIN, CROSSARM, STEEL CLAMP TYPE |

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

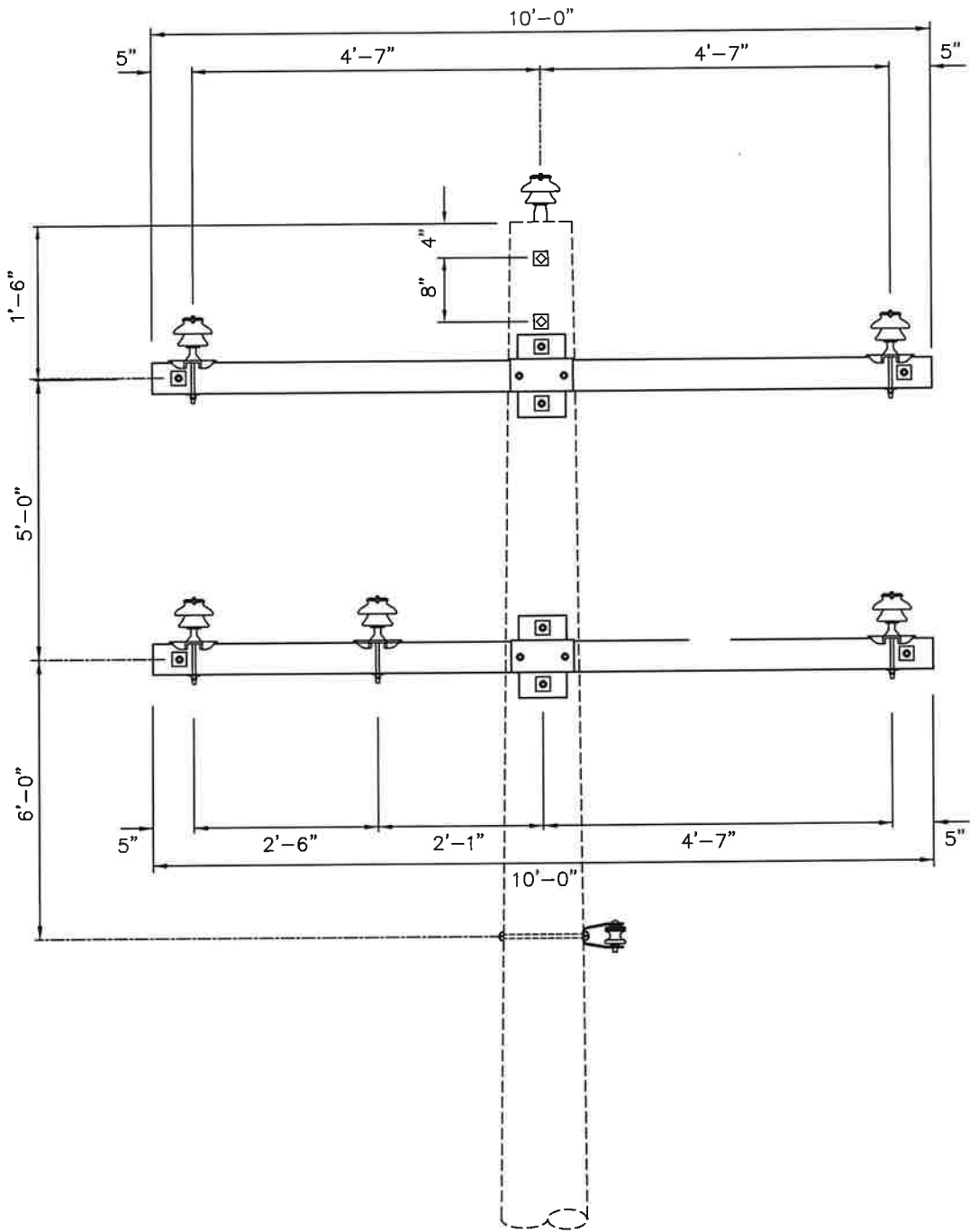
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| 3 | 7/15/13 | CADD GRAPHICS | OST |
| 2 | 1/21/08 | CADD GRAPHICS | OST |
| 1 | 11/10/05 | CADD GRAPHICS | OST |
| 0 | 2/10/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**CROSSARM CONSTRUCTION,
THREE-PHASE, LARGE CONDUCTOR,
DOUBLE DEADEND, 25KV**

**ELECTRICITIES
OF NORTH CAROLINA, INC.**

SCALE
1/2"=1'-0"

DWG.
VC8SEC



MATERIAL LIST

| ITEM | QTY. | DESCRIPTION | CATALOG No. |
|------|------|--|-------------|
| a | 6 | INSULATOR, PIN TYPE, 25kV | |
| c | 4 | BOLT, MACHINE, 5/8" x REQUIRED LENGTH | |
| d | 8 | WASHER, SQUARE, 2 1/4" x 2 1/4" x 1/4" w/ 11/16" HOLE | |
| ek | 4 | LOCKNUTS, 5/8" | |
| f | 6 | PIN, CROSSARM, CLAMP TYPE, 1-3/8" THREAD | |
| g | 2 | CROSSARM, FIBERGLASS, 3 5/8" x 4 5/8" x 8'-0" WITH CENTER MOUNT - HEAVY DUTY | |

TOWN OF SMITHFIELD
SMITHFIELD, NORTH CAROLINA

24.9/14.4 kV PRIMARY 3-PHASE
DOUBLE CIRCUIT
SINGLE PRIMARY SUPPORT (FIBERGLASS CROSSARMS)

Booth & Associates, LLC

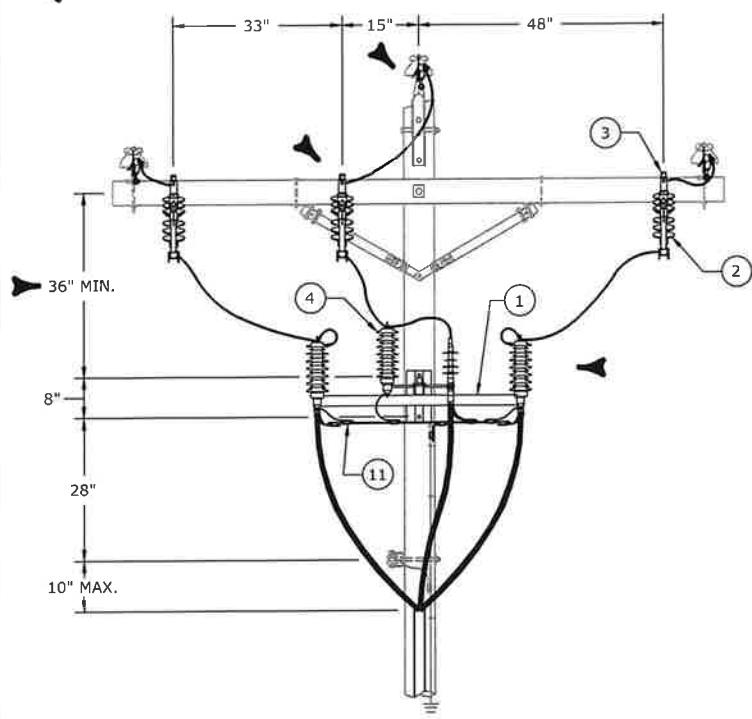
3811 Glenwood Avenue | Raleigh, NC 27612 | CONSULTING ENGINEERS

| | | | |
|--------|----------|-------|----------|
| DSN. | AG | DWN. | BLP |
| CKD. | RJC | APPD. | BCF |
| SCALE: | NTS | DATE: | 07/01/18 |
| DATE | REVISION | | |
| | | | |

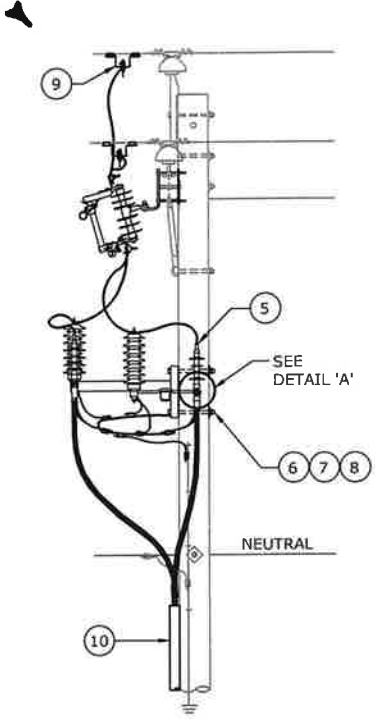
DWG. NO.

VDC-1F

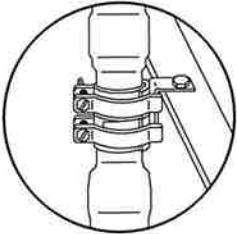
© 07/18



FRONT VIEW



SIDE VIEW



DETAIL 'A'
NOT TO SCALE

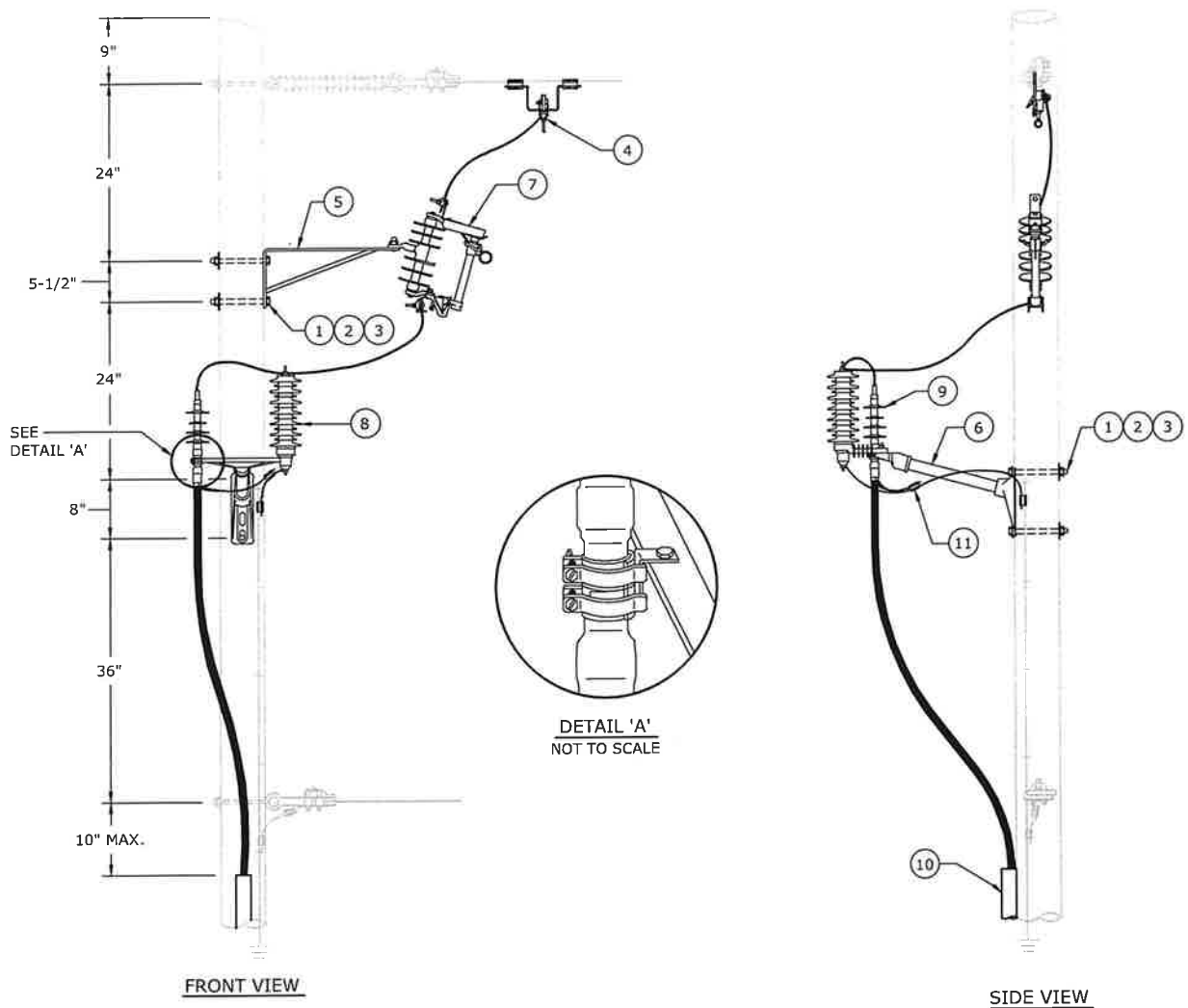
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | - | 1 | BRACKET, THREE-PHASE, STEEL |
| 2 | - | 3 | FUSED CUTOUT |
| 3 | - | 3 | MOUNTING BRACKET, CUTOUT |
| 4 | - | 3 | ARRESTER |
| 5 | - | 3 | TERMINATOR |
| 6 | - | 2 | WASHER, LOCK, 5/8" |
| 7 | - | 2 | BOLT, MACHINE, 5/8" X REQ'D LENGTH |
| 8 | - | 2 | WASHER, 2-1/4" SQUARE WITH 11/16" HOLE |
| 9 | - | 3 | CLAMP, HOTLINE, WITH STIRRUP |
| 10 | - | X | CONDUIT/U-GUARD, AS REQUIRED |
| 11 | - | X | CONNECTORS, AS REQUIRED |

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 7/23/07 | CADD GRAPHICS | OST |
| 0 | 5/2/07 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

THREE-PHASE PRIMARY RISER
10' CROSSARM WITH STEEL BRACKET

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE 1/2"=1'-6" DWG. UG2-2EC



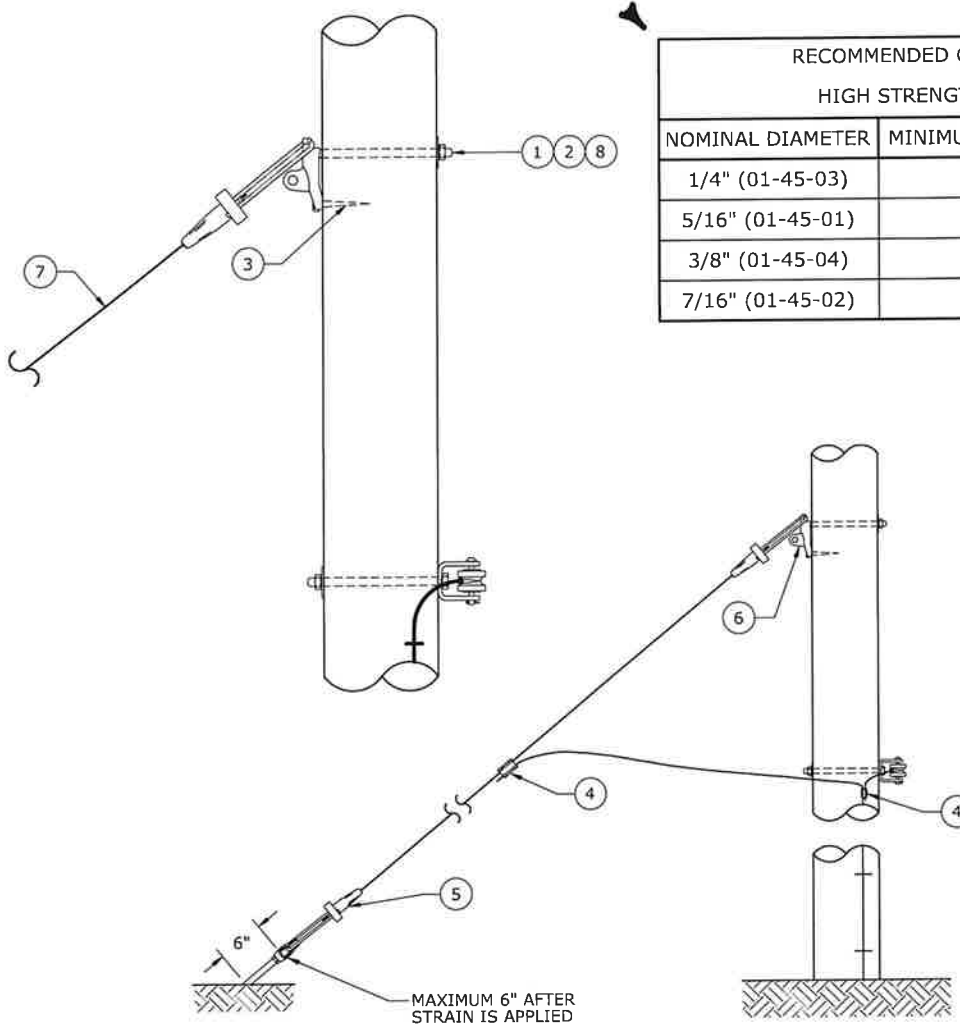
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | - | 4 | BOLT, MACHINE, 5/8" X REQ'D LENGTH |
| 2 | - | 4 | WASHER, LOCK, 5/8" |
| 3 | - | 4 | WASHER, SQUARE, 2-1/4" X 2-1/4" WITH 11/16" HOLE |
| 4 | - | 1 | CLAMP, HOTLINE, WITH STIRRUP |
| 5 | - | 1 | COLA BRACKET |
| 6 | - | 1 | BRACKET, SINGLE-PHASE, FIBERGLASS |
| 7 | - | 1 | FUSED CUTOUT |
| 8 | - | 1 | ARRESTER |
| 9 | - | 1 | TERMINATOR |
| 10 | - | X | CONDUIT/U-GUARD, AS REQUIRED |
| 11 | - | X | CONNECTORS, AS REQUIRED |

| | | | |
|---------|--------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | | | |
| 0 | 5/2/07 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

SINGLE-PHASE RISER
 1/0 PRIMARY CABLE
 FIBERGLASS BRACKET

ELECTRICITIES
 OF NORTH CAROLINA, INC.

SCALE: 1/2"=1'-0"
 DWG. UG1-1EC



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|-------------------------------|
| 1 | 12-06-XX | 1 | BOLT, MACHINE |
| 2 | 10-44-09 | 1 | WASHER, SQUARE FLAT, 2 1/4" |
| 3 | 10-33-21 | 1 | SCREW, LAG, 1/2" X 4" |
| 4 | 13-01-XX | - | CONNECTOR |
| 5 | 10-20-XX | 2 | DEAD-END, GUYSTRAND |
| 6 | 10-08-01 | 1 | ATTACHMENT, GUY WIRE 5200 LBS |
| 7 | 01-45-XX | - | GUYSTRAND, COIL |
| 8 | 10-44-33 | 1 | WASHER, LOCK, 5/8" |

NOTES:

1. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
2. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
3. OTHER ACCEPTED AND EQUIVALENT ITEM 5 MAY BE SUBSTITUTED.
4. GUY ATTACHMENT POINT SHALL BE 9" BELOW CONDUCTOR ATTACHMENT POINT.

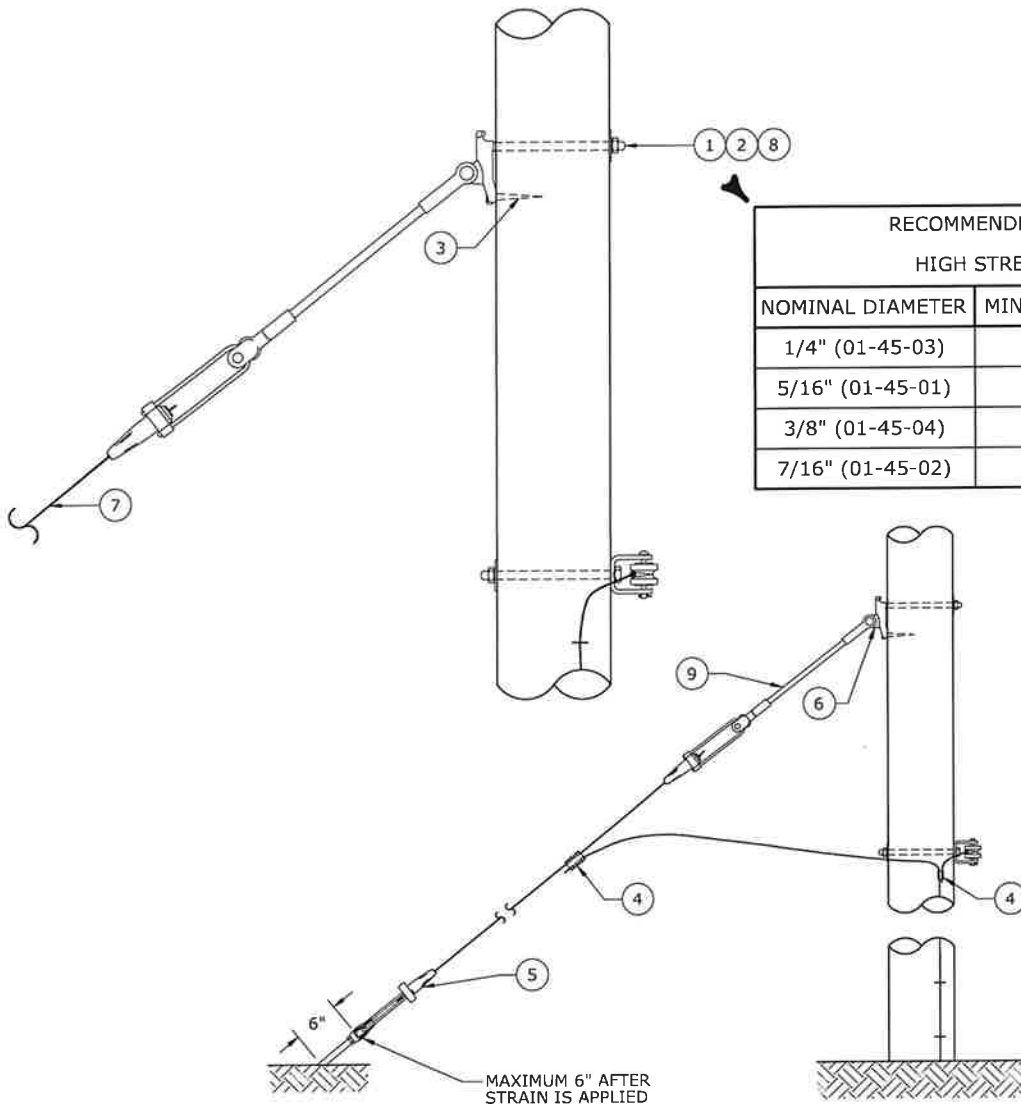
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|---------|----------|---------------|-----|
| 3 | | | |
| 2 | 10/17/13 | EADD GRAPHICS | OST |
| 1 | 12/14/07 | EADD GRAPHICS | OST |
| 0 | 2/25/04 | EADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**SINGLE DOWN GUY
THROUGH BOLT TYPE**

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE
1/2"=1'-0"

DWG.
E1-1EC



| RECOMMENDED GUY STRAND HIGH STRENGTH GRADE | |
|---|---------------------------|
| NOMINAL DIAMETER | MINIMUM BREAKING STRENGTH |
| 1/4" (01-45-03) | 4750 LBS |
| 5/16" (01-45-01) | 6350 LBS |
| 3/8" (01-45-04) | 10,800 LBS |
| 7/16" (01-45-02) | 14,500 LBS |

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 12-06-XX | 1 | BOLT, MACHINE |
| 2 | 10-44-09 | 1 | WASHER, SQUARE FLAT, 2 1/4" |
| 3 | 10-33-21 | 1 | SCREW, LAG, 1/2" X 4" |
| 4 | 13-01-XX | - | CONNECTOR |
| 5 | 10-20-XX | 2 | DEAD-END, GUYSTRAND |
| 6 | 10-08-01 | 1 | ATTACHMENT, GUY WIRE 5200 LBS |
| 7 | 01-45-XX | - | GUYSTRAND, COIL |
| 8 | 10-44-03 | 1 | WASHER, SQUARE FLAT, 5/8" |
| 9 | 08-08-XX | - | INSULATOR, GUY STRAIN, FIBERGLASS (QUANTITY AS REQUIRED) |

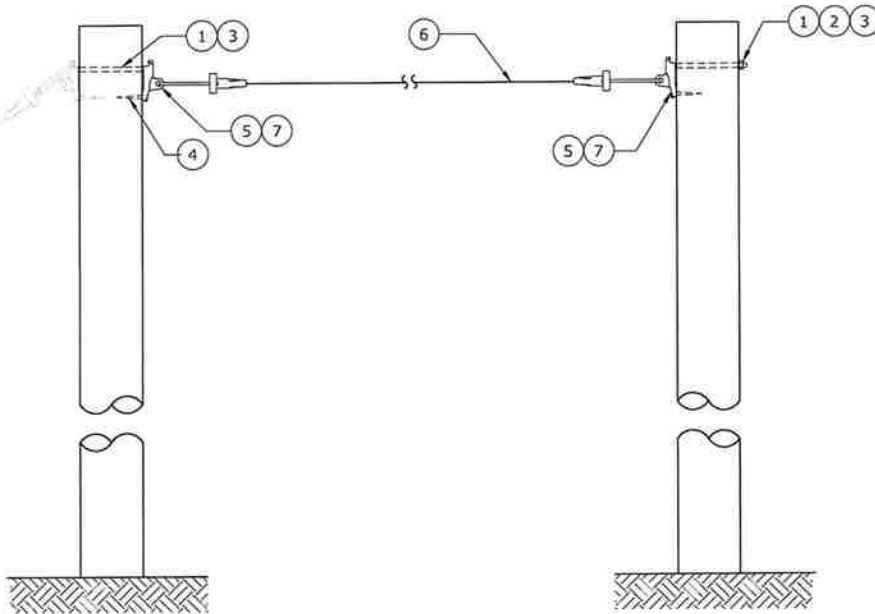
- NOTES:**
1. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
 2. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
 3. OTHER ACCEPTED AND EQUIVALENT ITEM 5 MAY BE SUBSTITUTED.
 4. GUY ATTACHMENT POINT SHALL BE 9" BELOW CONDUCTOR ATTACHMENT POINT.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | 10/18/13 | CADD GRAPHICS | OST |
| 1 | 12/14/07 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

SINGLE INSULATED DOWN GUY

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|---------------------|-----------------|
| SCALE 1/2"=1'-0" | DWG. E1-1FEC |
|---------------------|-----------------|



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|-------------------------------|
| 1 | 12-06-XX | 2 | BOLT, MACHINE |
| 2 | 10-44-09 | 1 | WASHER, SQUARE FLAT, 2 1/4" |
| 3 | 10-44-33 | 4 | WASHER, LOCK, 5/8" |
| 4 | 10-33-21 | 2 | SCREW, LAG, 1/2" X 4" |
| 5 | 10-08-01 | 2 | ATTACHMENT, GUY WIRE 5200 LBS |
| 6 | 01-45-XX | - | GUYSTRAND, COIL |
| 7 | 10-20-XX | 2 | DEAD-END, GUYSTRAND |

NOTES:

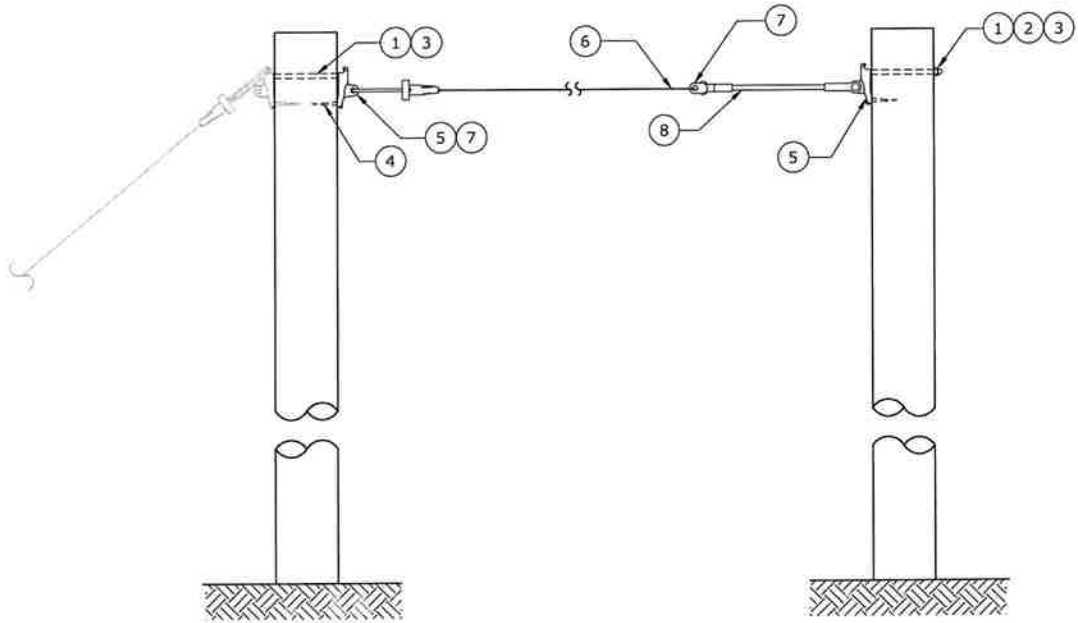
1. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
2. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
3. OTHER ACCEPTED AND EQUIVALENT ITEM 7 MAY BE SUBSTITUTED.
4. GUY ATTACHMENT POINT SHALL BE 9" BELOW CONDUCTOR ATTACHMENT POINT.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | 10/18/13 | CADD GRAPHICS | OST |
| 1 | 12/14/07 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

SPAN GUY

ELECTRICITIES
of NORTH CAROLINA, INC.

| | |
|---------------------|----------------|
| SCALE 1/2"=1'-0" | DWG. E2-2EC |
|---------------------|----------------|



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 12-06-XX | 2 | BOLT, MACHINE |
| 2 | 10-44-09 | 1 | WASHER, SQUARE FLAT, 2 1/4" |
| 3 | 10-44-33 | 4 | WASHER, LOCK, 5/8" |
| 4 | 10-33-21 | 2 | SCREW, LAG, 1/2" X 4" |
| 5 | 10-08-01 | 2 | ATTACHMENT, GUY WIRE 5200 LBS |
| 6 | 01-45-XX | - | GUYSTRAND, COIL |
| 7 | 10-20-XX | 2 | DEAD-END, GUYSTRAND |
| 8 | 08-08-XX | - | INSULATOR, GUY STRAIN, FIBERGLASS (QUANTITY AS REQUIRED) |

NOTES:

1. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
2. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
3. OTHER ACCEPTED AND EQUIVALENT ITEM 7 MAY BE SUBSTITUTED.
4. GUY ATTACHMENT POINT SHALL BE 9" BELOW CONDUCTOR ATTACHMENT POINT.

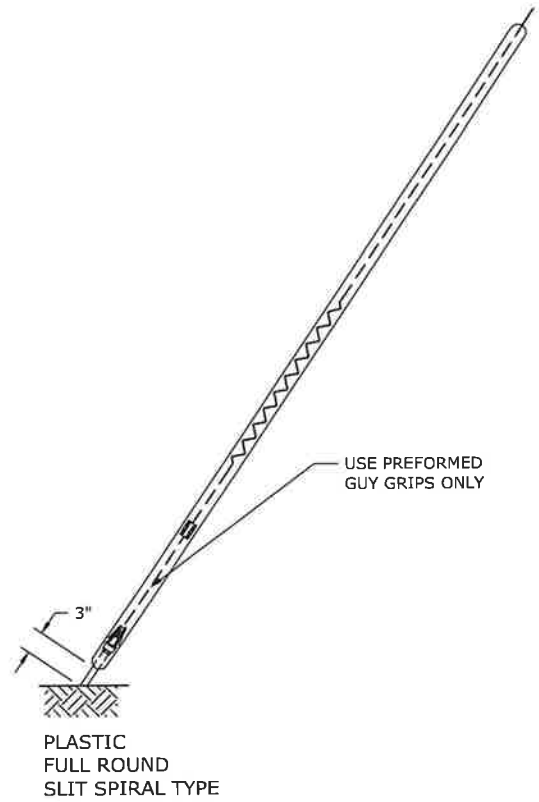
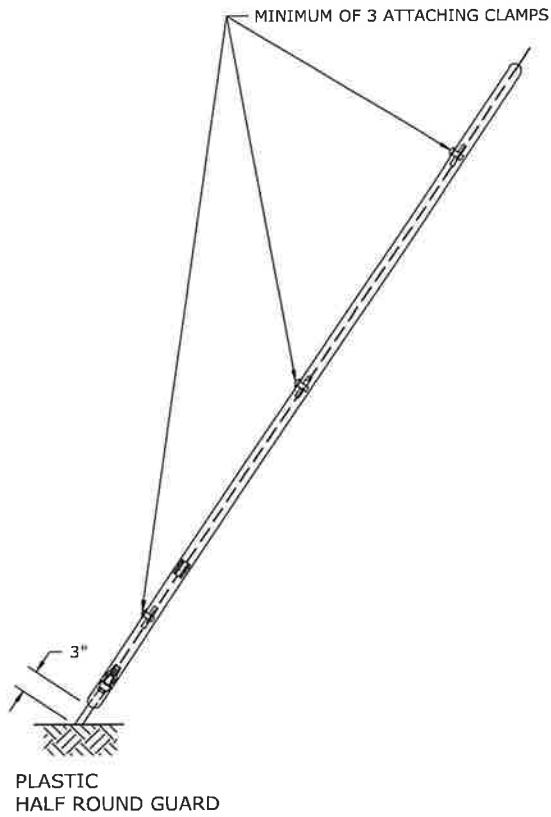
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| 2 | 10/18/13 | CADD GRAPHICS | OST |
| 1 | 12/14/07 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

INSULATED SPAN GUY

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE: 1/2" = 1'-0"

DWG. E2-2FEC



NOTES:

1. GUY GUARDS SHALL BE NO LESS THAN 8 FEET LONG.
2. VISIBILITY OF COLORED PLASTIC GUARDS CAN BE IMPROVED BY THE USE OF COLOR OR COLOR PATTERNS WHICH PROVIDE CONTRAST WITH THE SURROUNDINGS.
3. GUARDS FOR SIDEWALK GUYS SHOULD BE FULL ROUND TYPE OR INSTALLED SO THAT MOUNTING CLAMPS WILL NOT COME IN CONTACT WITH PEDESTRIANS.
4. GUARDS SHALL BE INSTALLED SO THAT ANCHOR ROD EYE IS COVERED.

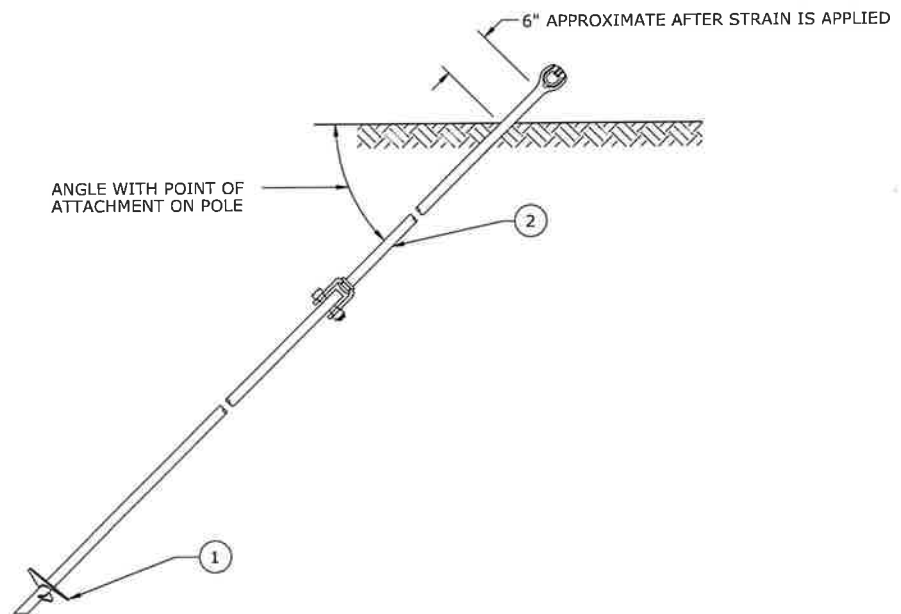
| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | | | |
| 0 | 5/13/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

GUY GUARDS

| | |
|---|-----------------|
| <p>ELECTRICITIES OF NORTH CAROLINA, INC.</p> | |
| SCALE 1/2"=1'-0" | DWG. E3-10EC |

| SOIL CLASSIFICATION DATA | | | | |
|--------------------------|---|--|----------------------------|---------------------------------------|
| CLASS | COMMON SOIL-TYPE DESCRIPTION | GEOLOGICAL SOIL CLASSIFICATION | PROBE VALUES IN.-LBS. (NM) | TYPICAL BLOW COUNT "N" PER ASTM-D1586 |
| 5 | MEDIUM DENSE COARSE SANDS AND SANDY GRAVEL; STIFF TO VERY STIFF SILTS AND CLAYS | SAPROLITES, RESIDUAL SOILS | 300-400 (34-45) | 14-25 |
| 6 | LOOSE TO MEDIUM DENSE FINE TO COARSE SANDS; STIFF CLAYS AND SILTS | DENSE HYDRAULIC FILL; COMPACTED FILL; RESIDUAL SOILS | 200-300 (23-34) | 7-14 |
| 7 | LOOSE FINE SANDS; ALLUVIUM; LOESS; MEDIUM TO STIFF AND VARIED CLAYS; FILL | FLOOD PLAIN SOILS; LAKE CLAYS; ADOBE; GUMBO, FILL | 100-200 (11-23) | 4-8 |

| RECOMMENDED ANCHOR SIZES | | | | |
|--------------------------|------------|------------|------------|------------|
| SIZE "X" | 8" | 10" | 15" | SOIL CLASS |
| HOLDING STRENGTH | 12,000 LBS | 18,000 LBS | 28,000 LBS | 5 |
| HOLDING STRENGTH | 9,000 LBS | 14,000 LBS | 24,000 LBS | 6 |
| HOLDING STRENGTH | 6,000 LBS | 10,000 LBS | 20,000 LBS | 7 |



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|---|
| 1 | 10-09-XX | 1 | SCREW ANCHOR, GUY WIRE |
| 2 | 10-32-71 | - | ROD, EXTENSION, QUANTITY AND LENGTH AS REQUIRED |

NOTES:

1. USE THE NUMBER OF EXTENSION RODS NEEDED TO REACH THE DEPTH WHERE MAXIMUM HOLDING POWER IS OBTAINED.
2. GROUNDING OF THE GUY IS NOT RECOMMENDED TO PREVENT CATHODIC CORROSION OF THE ANCHOR.
3. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

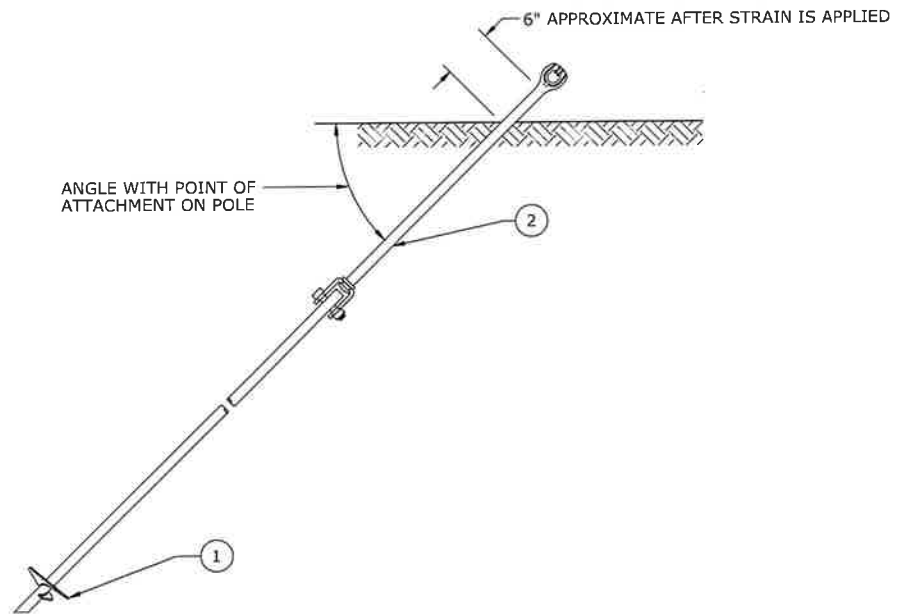
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|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 3/11/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**POWER INSTALLED HELIX
SCREW ANCHOR ASSEMBLY**

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE: 1/2"=1'-0" DWG. F1-XEC

| RECOMMENDED ANCHOR SIZES | | | | |
|--------------------------|------------|------------|------------|------------|
| SIZE "X" | 8" | 10" | 15" | SOIL CLASS |
| HOLDING STRENGTH | 11,000 LBS | 13,000 LBS | 16,000 LBS | 5 |
| HOLDING STRENGTH | 9,000 LBS | 10,000 LBS | 15,000 LBS | 6 |
| HOLDING STRENGTH | 6,000 LBS | 7,000 LBS | 12,000 LBS | 7 |



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|---|
| 1 | 10-09-XX | 1 | SCREW ANCHOR, GUY WIRE |
| 2 | 10-32-71 | 1 | ROD, EXTENSION, QUANTITY AND LENGTH AS REQUIRED |

NOTES:

1. USE THE NUMBER OF EXTENSION RODS NEEDED TO REACH THE DEPTH WHERE MAXIMUM HOLDING POWER IS OBTAINED.
2. GROUNDING OF THE GUY IS NOT RECOMMENDED TO PREVENT CATHODIC CORROSION OF THE ANCHOR.
3. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
4. SEE DWG. F1-XEC FOR SOIL CLASSIFICATION DATA.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 3/11/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

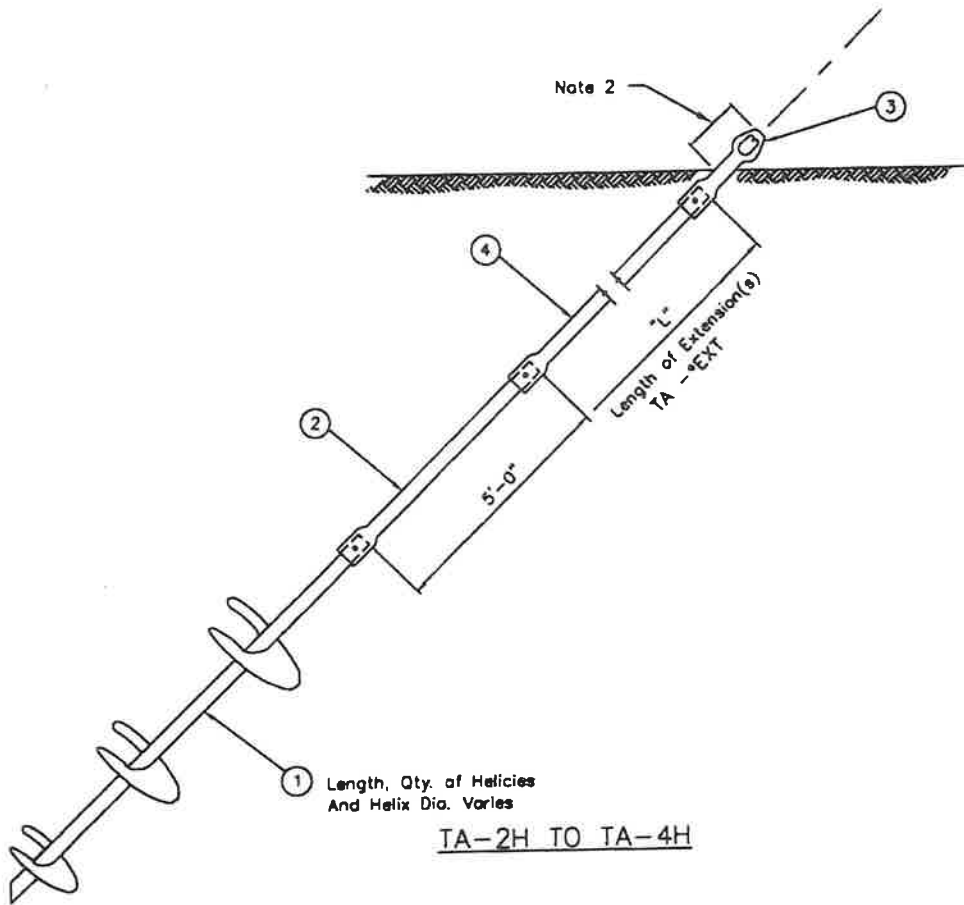
SCREW ANCHOR ASSEMBLY

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE: 1/2" = 1'-0"
DWG. F2-XEC

LIST OF MATERIALS

| DWG. REF. | QTY. | DESCRIPTION | ITEM | DET. | CODE No. |
|-----------|------|-------------------------------------|------|------|----------|
| 1 | 1 | Anchor, Helix Section | z | | |
| * 2 | 1 | Anchor, Ext. Shaft, 5 ft, 1 1/2" sq | z | | |
| 3 | 1 | Adapter, Guy, Twin eye | z | | |
| * 4 | | TA- * EXT | | | |



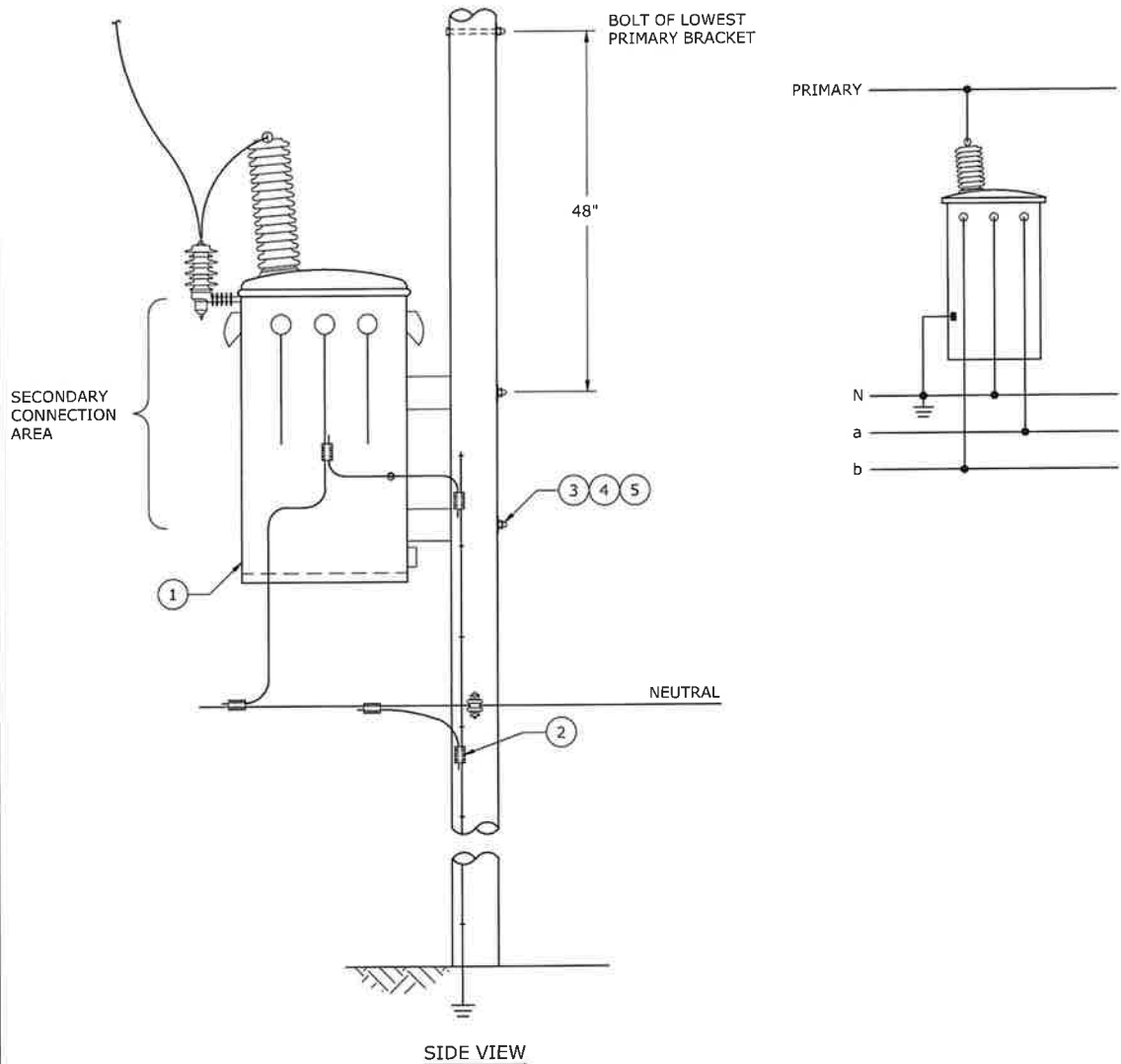
NOTES:

- Appropriate anchor unit and maximum holding power shall be specified on plan and profile drawings.
- Recommended maximum projection after preloading is 8 inches. Projection may be increased to avoid overtightening of the shaft. Final projection shall be approved by the engineer.
- The entire anchor assembly shall be hot dipped galvanized in accordance with ASTM A153.
- Contractor shall install screw anchors in accordance with manufacturer's recommendations.
- Engineer shall consult manufacturer in selection of screw anchor.

- * Anchor rod extension shaft beyond five feet is not a part of the anchor assembly unit. The extension shaft beyond five feet is included in UNIT TA-*EXT where the "*" represents the length of the extension shaft beyond 5 feet. For example, an installation requiring two 10 ft. extension shafts would be indicated by 2(TA-10EXT)
- * Anchors shall be installed in line with the guys.

| UNITS | ANCHOR TYPE |
|---------------------------|--------------|
| *TA-2H | DOUBLE HELIX |
| *TA-3H | TRIPLE HELIX |
| *TA-4H | QUAD HELIX |
| ANCHORS | |
| POWER SCREW ANCHOR | |

| | | | | | |
|-----|--------------------|-------|--|---|-------------|
| 1,* | note 6,7,items 2,4 | 03/98 | | * | TA-2H to 4H |
| NO. | REVISION | DATE | | | |



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|---------------------------------------|
| 1 | 05-01-XX | 1 | TRANSFORMER, REQUIRED SIZE |
| 2 | 13-01-XX | - | CONNECTOR |
| 3 | 12-06-XX | 2 | BOLT, MACHINE |
| 4 | 10-44-09 | 2 | WASHER, SQUARE FLAT, 2 1/4" |
| 5 | 10-44-XX | 2 | WASHER, SQUARE, FLAT |
| 6 | 10-16-33 | 1 | CLAMP (NOT SHOWN) |
| 7 | 10-10-XX | 1 | STIRRUP, SIZE AS REQUIRED (NOT SHOWN) |

- NOTES:**
1. BOND TRANSFORMER NEUTRAL AND TRANSFORMER GROUND TO SYSTEM NEUTRAL AND SYSTEM GROUND.
 2. CSP TRANSFORMERS MAY BE MOUNTED AT 45° TO THE LINE.
 3. PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS.
 4. MAY USE HARDENED SPIN TOP BUSHINGS IN LIEU OF BIRD GUARDS.
 5. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER WHEN APPLICABLE.
 6. SEE DRAWING MG-11EC FOR CONDUCTOR SIZE.
 7. TRANS* DENOTES TRANSFORMER KVA SIZE.
 8. CURRENT LIMITING FUSES AS REQUIRED. SEE DWG. M5-9CLEC.
 9. SEE DWG. M2-1EC FOR TRANSFORMER GROUNDING.

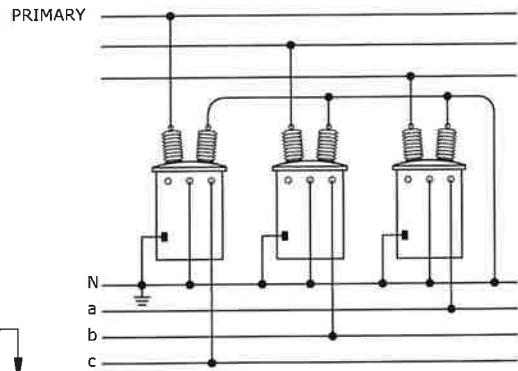
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|---------|----------|---------------|-----|
| 3 | 10/25/13 | CADD GRAPHICS | OST |
| 2 | 3/20/07 | CADD GRAPHICS | OST |
| 1 | 6/15/06 | CADD GRAPHICS | OST |
| 0 | 4/28/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

SINGLE-PHASE CSP TRANSFORMER
240/120 VOLT

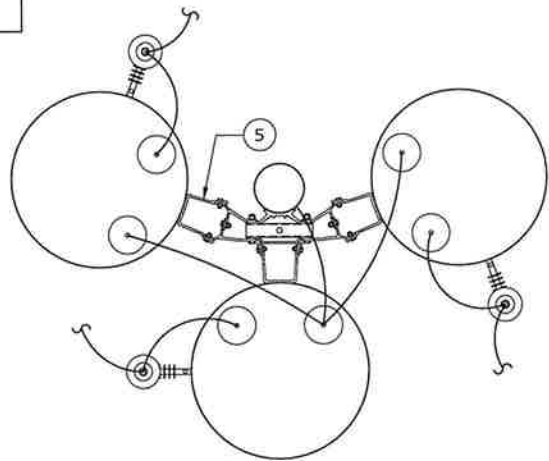
| | |
|------------|--------|
| SCALE | DWG. |
| 1/2"=1'-0" | G105EC |



FRONT VIEW



WARNING
DO NOT USE CSP
TRANSFORMERS IN
THIS CONFIGURATION.



SECTION A-A

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|----------------------------|
| 1 | 05-01-XX | 1 | TRANSFORMER, REQUIRED SIZE |
| 2 | 05-01-XX | 1 | TRANSFORMER, REQUIRED SIZE |
| 3 | 05-01-XX | 1 | TRANSFORMER, REQUIRED SIZE |
| 4 | 13-01-XX | - | CONNECTOR |
| 5 | 10-07-01 | 1 | BRACKET, CLUSTER MOUNT |

NOTES:

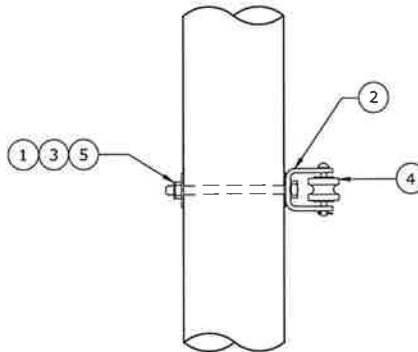
1. BOND TRANSFORMER NEUTRAL TO SYSTEM NEUTRAL AND SYSTEM GROUND.
2. PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS.
3. MAY USE HARDENED SPIN TOP BUSHINGS IN LIEU OF BIRD GUARDS.
4. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER WHEN APPLICABLE.
5. TRANS* DENOTES TRANSFORMER KVA SIZE.
6. SEE DRAWING MG-11EC FOR CONDUCTOR SIZE.
7. SEE DWG. M2-1EC FOR TRANSFORMER GROUNDING.
8. FUSES AS REQUIRED, SEE DWGS. M5-9EC AND M5-9CLEC.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | 10/18/13 | CADD GRAPHICS | OST |
| 1 | 3/20/07 | CADD GRAPHICS | OST |
| 0 | 6/1/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

THREE TRANSFORMER, 208Y/120 VOLT,
 THREE-PHASE, 4 WIRE
 WYE SECONDARY BANK

ELECTRICITIES
 OF NORTH CAROLINA, INC.

| | |
|---------------------|----------------|
| SCALE 1/2"=1'-0" | DWG. G312EC |
|---------------------|----------------|



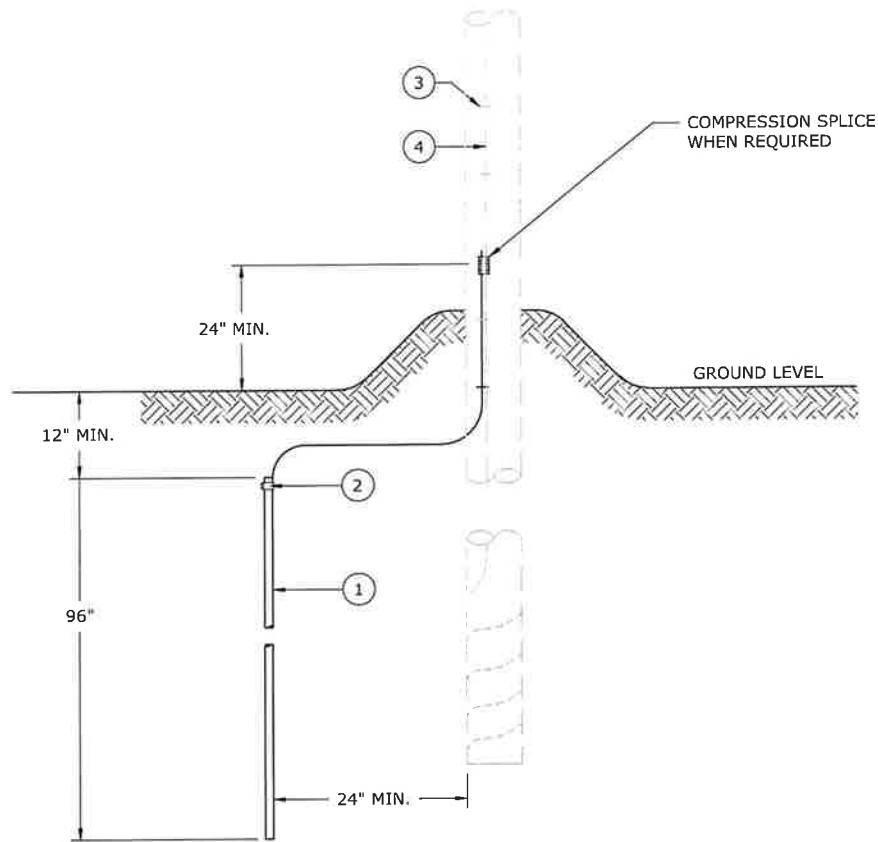
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|-------------------------------------|
| 1 | 10-44-09 | 1 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 10-17-40 | 1 | CLEVIS, INSULATED SECONDARY/DEADEND |
| 3 | 12-06-XX | 1 | BOLT, MACHINE |
| 4 | 08-14-02 | 1 | INSULATOR, SPOOL, CLASS 53-2 |
| 5 | 10-44-33 | 1 | WASHER, LOCK, 5/8" |

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 9/29/13 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

SECONDARY DEADEND

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|-------------------|--------------|
| SCALE 1"=1'-0" | DWG. J1EC |
|-------------------|--------------|



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|---|
| 1 | 10-32-61 | 1 | ROD, GROUND, 5/8" DIA. X 8'-0" |
| 2 | 10-16-40 | 1 | CLAMP, GROUND ROD, #2 X 5/8 BRONZE |
| 3 | 10-38-01 | - | STAPLE, GROUND WIRE, AS REQUIRED |
| 4 | 01-20-13 | - | CONDUCTOR, BARE COPPER, SOLID, SOFT DRAWN, #4 |

NOTES:

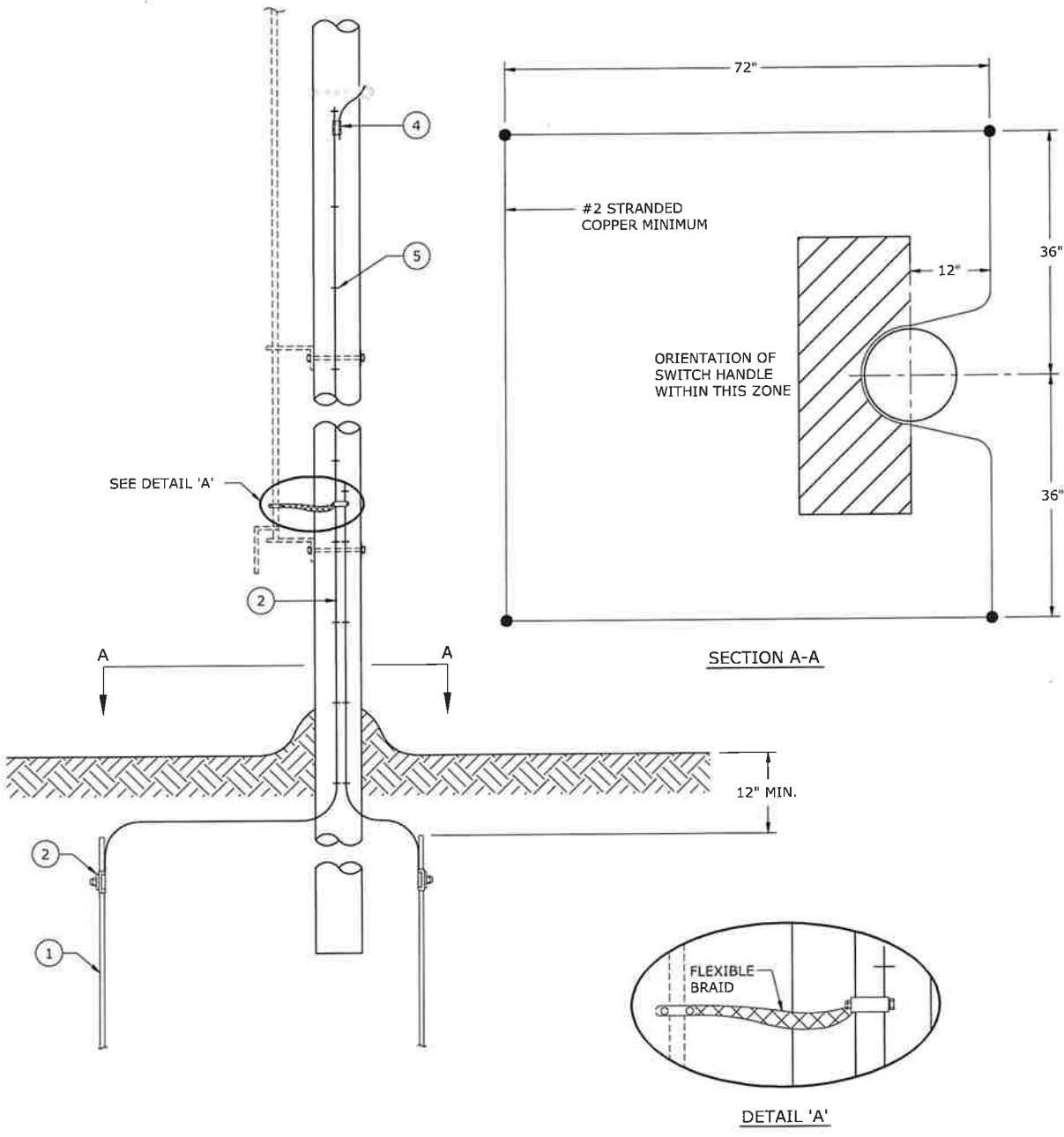
- GROUND WIRE TO BE LOCATED ON SAME SIDE AS NEUTRAL CONDUCTOR AND IN QUADRANT OPPOSITE CLIMBING SPACE OR POLE TOP PIN.
- STAPLES ON GROUND WIRE SHALL BE 2'-0" APART. EXCEPT FOR A DISTANCE OF 8'-0" ABOVE GROUND AND 8'-0" FROM TOP OF POLE, WHERE THEY SHALL BE 6" APART.
- GROUND WIRE TO CLEAR ALL HARDWARE BY 2" MINIMUM, AND SHALL BE STAPLED TO MAINTAIN THIS POSITION.
- GROUND WIRE MOULDING MAY BE INSTALLED AT DISCRETION OF OWNER.
- INSTALL MULTIPLE GROUND RODS (STACKED OR SEPARATED) AS REQUIRED TO ACHIEVE 25 OHM RESISTANCE. MULTIPLE SEPARATED GROUNDS SHALL HAVE A MINIMUM 6 FT. SEPARATION.
- GROUNDS ARE TO STOP AT NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 2/2/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

GROUNDING ASSEMBLY
GROUND ROD TYPE

ELECTRICITIES
OF NORTH CAROLINA, INC.


| | |
|---------------------|----------------|
| SCALE 1/2"=1'-0" | DWG. M2-1EC |
|---------------------|----------------|

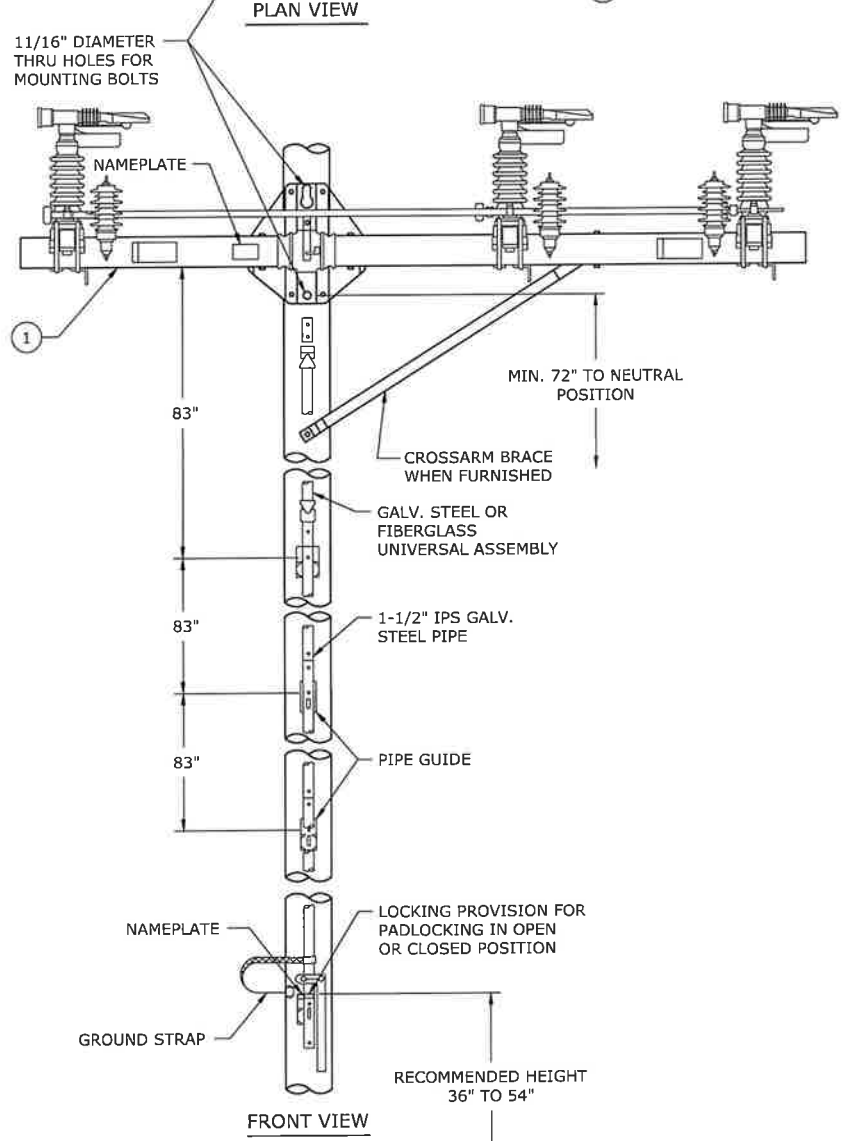
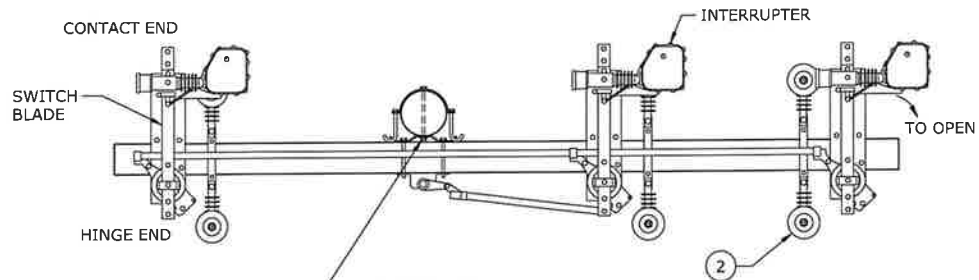


| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 10-32-61 | 4 | ROD, GROUND, 5/8" DIA. X 8'-0" |
| 2 | 10-16-40 | 4 | CLAMP, GROUND ROD, #2 X 5/8 BRONZE |
| 3 | 01-21-11 | - | CONDUCTOR, BARE COPPER, STRANDED, HARD DRAWN, #2 |
| 4 | 13-01-XX | - | CONNECTOR |
| 5 | 10-38-01 | - | STAPLE, GROUND WIRE, AS REQUIRED |

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 2/2/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

GROUNDING ASSEMBLY
GROUND ROD TYPE FOR SECTIONALIZING
AIR BREAK SWITCH


 SCALE 1/2"=1'-0" DWG. M2-15REC



NOTES:

- 1. SEE DWG. M2-15REC FOR GROUNDING DETAILS.
- 2. SEE DWG. C8EC FOR DEADEND ASSEMBLY.

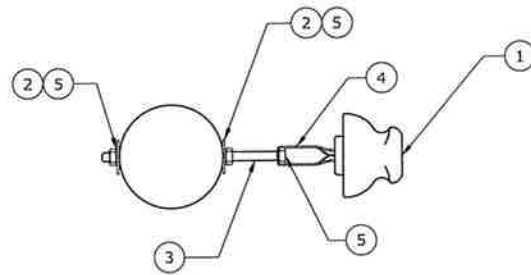
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 09-01-04 | 1 | SWITCH, GOAB, 15 KV, RLB-600, HORIZONTAL |
| 2 | 07-04-XX | 6 | ARRESTER, INTERMEDIATE |

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 5/13/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**15KV GROUP OPERATED AIR BREAK SWITCH -
HORIZONTAL MOUNTING**

ELECTRICITIES
of NORTH CAROLINA, INC.

SCALE 1/2"=1'-0" DWG. M3-15HEC



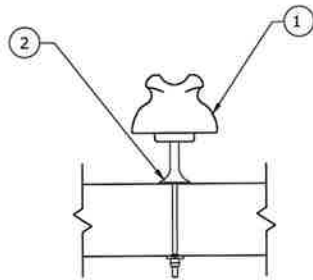
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 08-13-04 | 1 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 10-44-09 | 2 | WASHER, SQUARE FLAT, 2 1/4" |
| 3 | 12-02-XX | 1 | BOLT, DOUBLE ARMING |
| 4 | 08-17-01 | 1 | ADAPTER, INSULATOR |
| 5 | 10-44-33 | 3 | WASHER, LOCK, 5/8" |

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

STAND-OFF INSULATOR

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|-------------------|----------------|
| SCALE 1"=1'-0" | DWG. M5-4EC |
|-------------------|----------------|



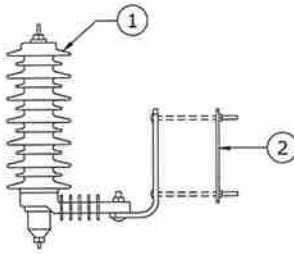
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 08-13-04 | 1 | INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4 |
| 2 | 10-29-05 | 1 | PIN, CROSSARM, 1-1/2", SHORT SHANK |

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | 10/18/13 | CADD GRAPHICS | OST |
| 1 | 6/15/06 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

CROSSARM PIN INSULATOR

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE 1"=1'-0" DWG. M5-5EC



SIDE VIEW

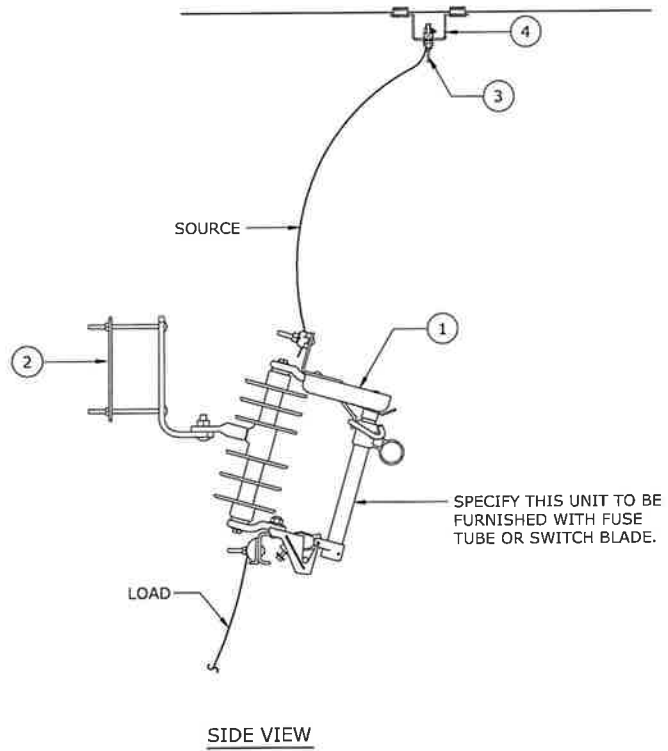
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|-------------------------------------|
| 1 | 07-02-XX | 1 | ARRESTER, DISTRIBUTION CLASS, 18 KV |
| 2 | 03-21-01 | 1 | BRACKET, CUTOUT/ARRESTER, 1 PH |

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | EADD GRAPHICS | OST |
| 0 | 4/28/04 | EADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

LIGHTNING ARRESTER ASSEMBLY

ELECTRICITIES
OF NORTH CAROLINA, INC.

| | |
|-------------------|----------------|
| SCALE 1"=1'-0" | DWG. M5-6EC |
|-------------------|----------------|



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------|
| 1 | 03-25-XX | 1 | SWITCH, FUSED CUTOUT |
| 2 | 03-21-01 | 1 | BRACKET, CUTOUT/ARRESTER, 1 PH |
| 3 | 10-16-33 | 1 | CLAMP |
| 4 | 10-10-XX | 1 | STIRRUP, SIZE AS REQUIRED |

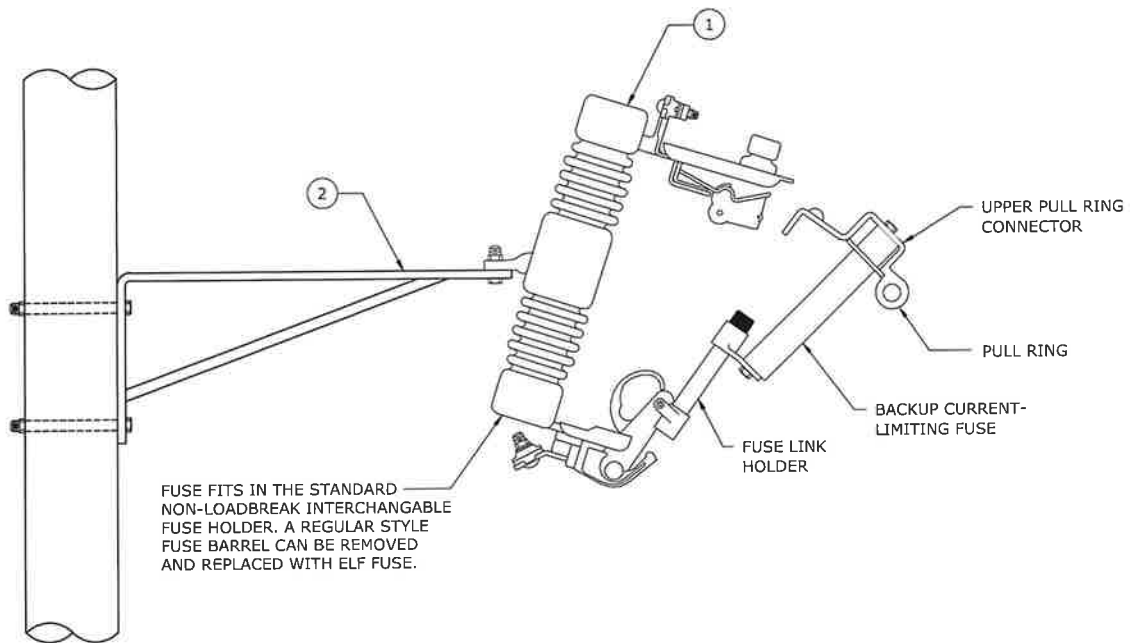
| | | | |
|---------|----------|---------------|---------|
| 3 | | | |
| 2 | | | |
| 1 | 10/25/13 | CADD GRAPHICS | OST |
| 0 | 11/10/04 | CADD GRAPHICS | OTERSON |
| REVISED | BY | APPR. | |

FUSED CUTOUT ASSEMBLY

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE
1"=1'-0"

DWG.
M5-9EC



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|-------------------------------|
| 1 | 03-25-XX | 1 | SWITCH, FUSED CUTOUT |
| 2 | 07-16-01 | 1 | BRACKET, 1PH, CUTOUT/ARRESTER |

NOTES:

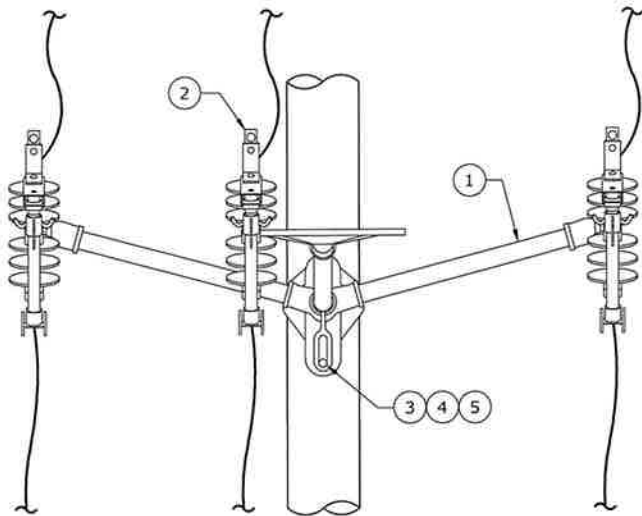
1. THERE ARE A VARIETY OF CURRENT LIMITING FUSES AVAILABLE. EACH MEMBER SHOULD SELECT THE TYPE MOST APPROPRIATE FOR THEIR APPLICATION.

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 5/17/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

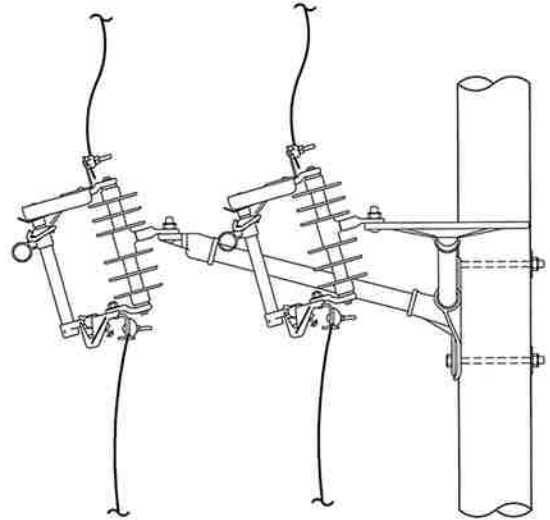
CURRENT LIMITING FUSE

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE: 1/2"=1'-0" DWG. M5-9CLEC



FRONT VIEW



SIDE VIEW

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 03-23-03 | 1 | BRACKET, CUTOFF/ARRESTER, 3 PH, STRAIGHT SUPPORT |
| 2 | 03-25-XX | 3 | SWITCH, FUSED CUTOFF |
| 3 | 12-06-XX | 2 | BOLT, MACHINE |
| 4 | 10-44-33 | 2 | WASHER, LOCK, 5/8" |
| 5 | 10-44-09 | 2 | WASHER, SQUARE FLAT, 2 1/4" |
| 6 | 10-16-33 | 3 | CLAMP (NOT SHOWN) |
| 7 | 10-10-XX | 3 | STIRRUP, SIZE AS REQUIRED (NOT SHOWN) |

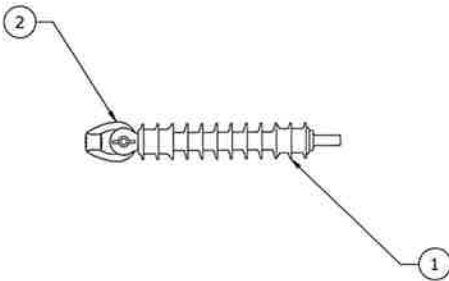
| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/25/13 | CADD GRAPHICS | OST |
| 0 | 9/18/08 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

THREE-PHASE FUSED CUTOFF ASSEMBLY -
FIBERGLASS

ELECTRICITIES
OF NORTH CAROLINA, INC.

SCALE
NO SCALE

DWG.
M5-10EC



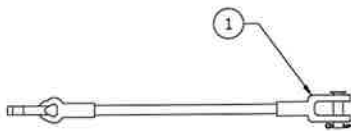
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------------|
| 1 | 08-04-03 | 1 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 2 | 10-46-66 | 1 | NUT, EYE, GALV., 5/8" |

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/19/13 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

POLYMER DEADEND ASSEMBLY

ELECTRICITIES
of NORTH CAROLINA, INC.

| | |
|-------------------|------------------|
| SCALE 1"=1'-0" | DWG. M5-20PEC |
|-------------------|------------------|



| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|-----------------------------------|
| 1 | 08-08-XX | 1 | INSULATOR, GUY STRAIN, FIBERGLASS |

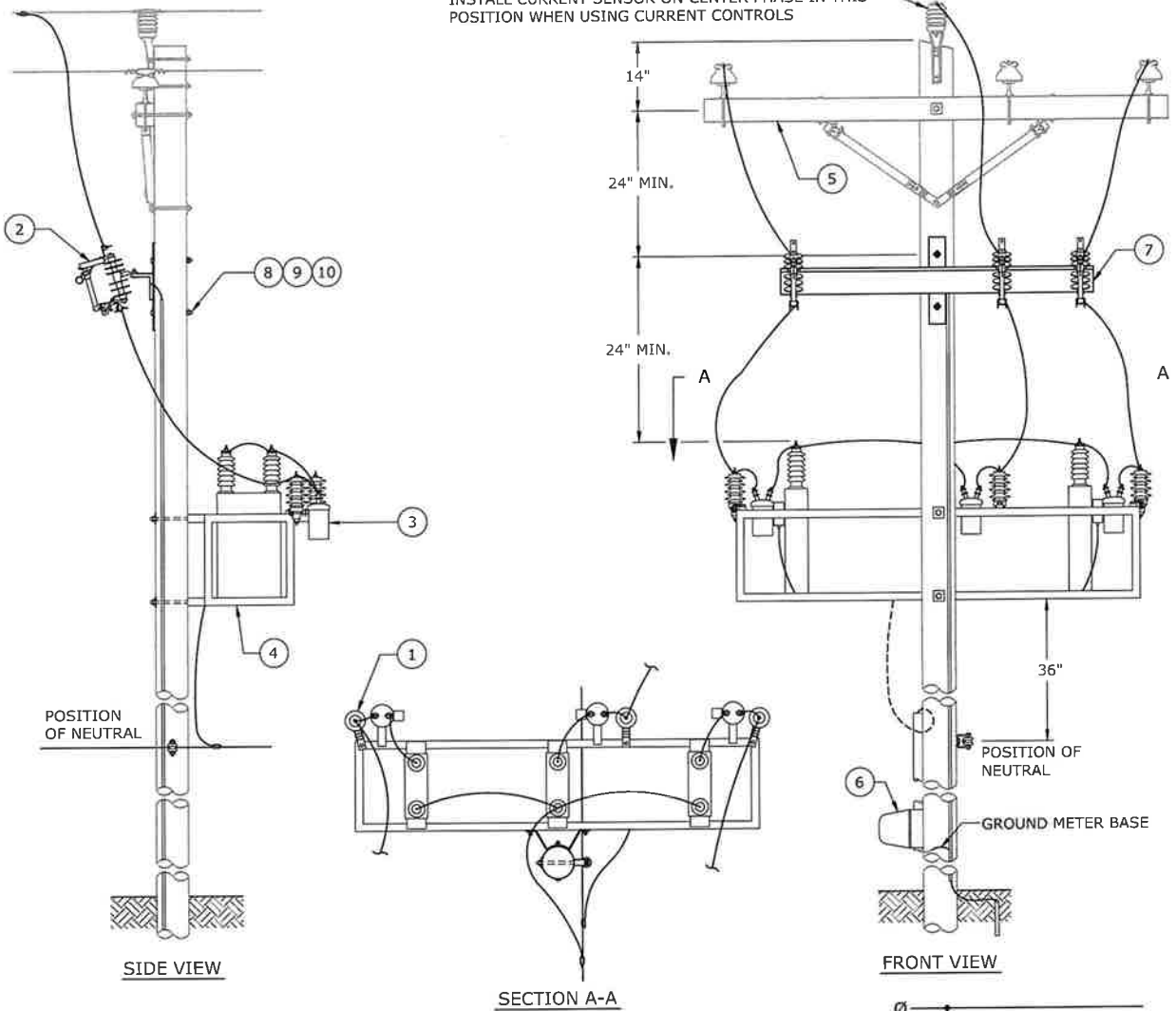
| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | | | |
| 1 | 10/18/13 | CADD GRAPHICS | OST |
| 0 | 2/25/04 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

GUY STRAIN INSULATOR

ELECTRICITIES
of NORTH CAROLINA, INC.

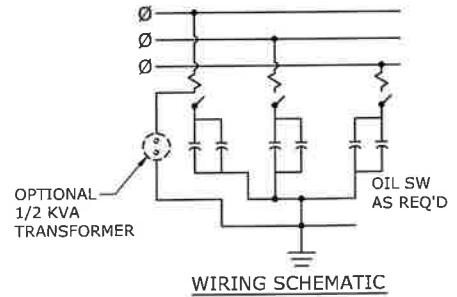
| | |
|-------------------|-----------------|
| SCALE 1"=1'-0" | DWG. M5-21EC |
|-------------------|-----------------|

INSTALL CURRENT SENSOR ON CENTER PHASE IN THIS POSITION WHEN USING CURRENT CONTROLS



NOTES:

1. TIE NEUTRAL BUSHINGS OF ALL CAPACITORS IN SERIES TOGETHER AND TIE TO SYSTEM IN SERIES TOGETHER AND TIE TO SYSTEM POLE GROUND.
2. GROUND CAPACITOR RACK TO POLE GROUND IN AT LEAST TWO PLACES.
3. SPECIFY INSULATING CAPS FOR PRIMARY TERMINAL BUSHINGS.
4. CURRENT LIMITING FUSES AS REQUIRED. SEE DWG. M5-9CLEC.
5. PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS.
6. MAY USE HARDENED SPIN TOP BUSHING IN LIEU OF BIRD GUARDS.
7. ALL GROUND WIRE SHALL BE #4 BARE COPPER.
8. SEE DWG. M5-6EC FOR ARRESTER INFORMATION.
9. SEE DWG. M2-1EC FOR GROUND ROD DETAIL.



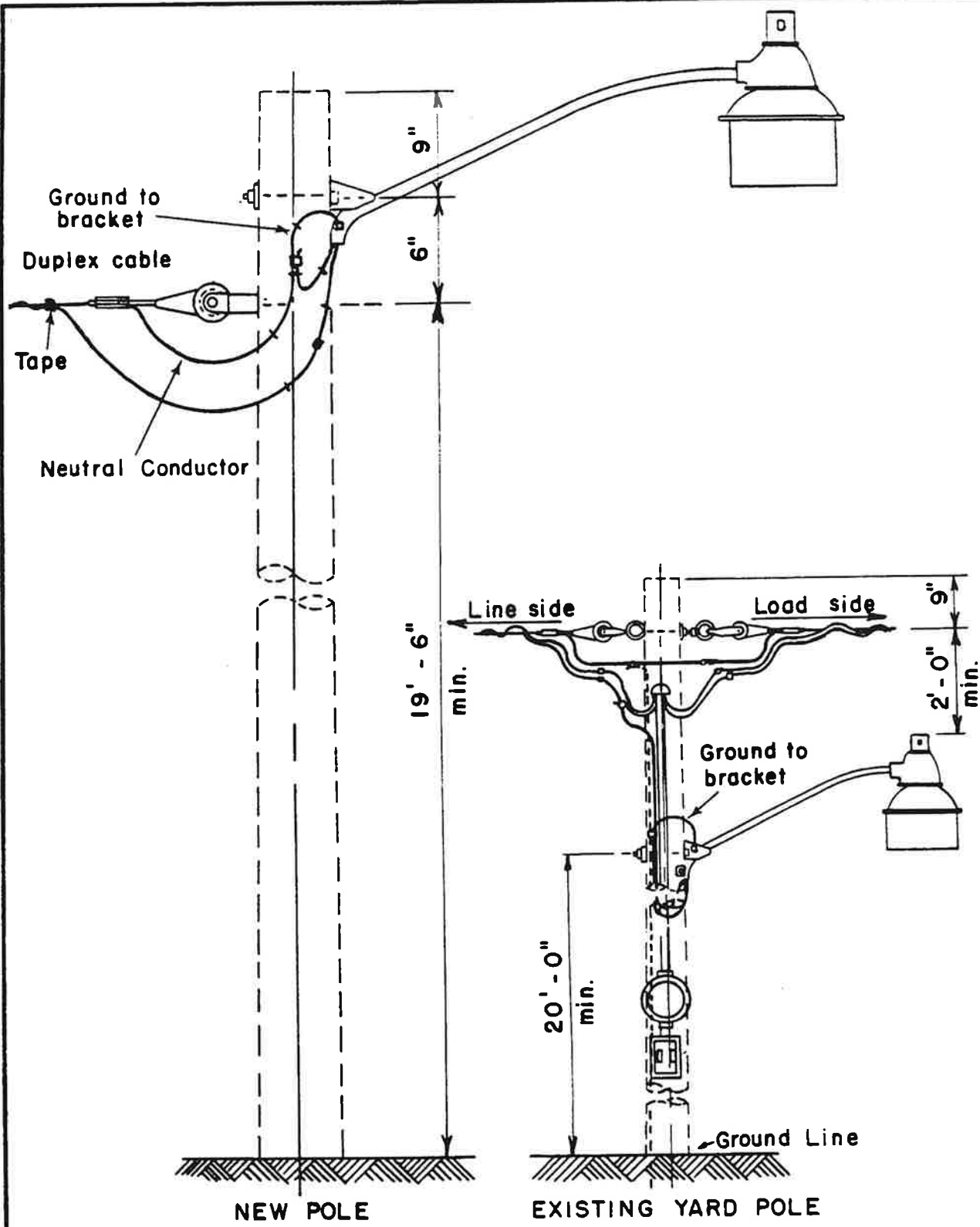
| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--------------------------------|
| 1 | 07-04-XX | 3 | ARRESTER, INTERMEDIATE |
| 2 | 03-25-XX | 3 | SWITCH, FUSED CUTOUT |
| 3 | 09-02-11 | 3 | SWITCH, OIL |
| 4 | 09-03-01 | 1 | ASSEMBLY, CAPACITOR BANK |
| 5 | 04-04-XX | 2 | CROSSARM, SYP, WOOD |
| 6 | 09-04-01 | 1 | CONTROLLER, CAPACITOR BANK |
| 7 | 07-18-XX | 1 | BRACKET, 3 PH, CUTOUT/ARRESTER |
| 8 | 12-06-XX | 2 | BOLT, MACHINE |
| 9 | 10-44-09 | 2 | WASHER, SQUARE FLAT, 2 1/4" |
| 10 | 10-44-33 | 2 | WASHER, LOCK, 5/8" |

| | | | |
|---------|----------|---------------|-----|
| 3 | | | |
| 2 | 10/18/13 | CADD GRAPHICS | OST |
| 1 | 11/10/05 | CADD GRAPHICS | OST |
| 0 | 2/10/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

**CAPACITOR ASSEMBLY
THREE-PHASE
CROSSARM CONSTRUCTION**

ELECTRICITIES
OF NORTH CAROLINA, INC.

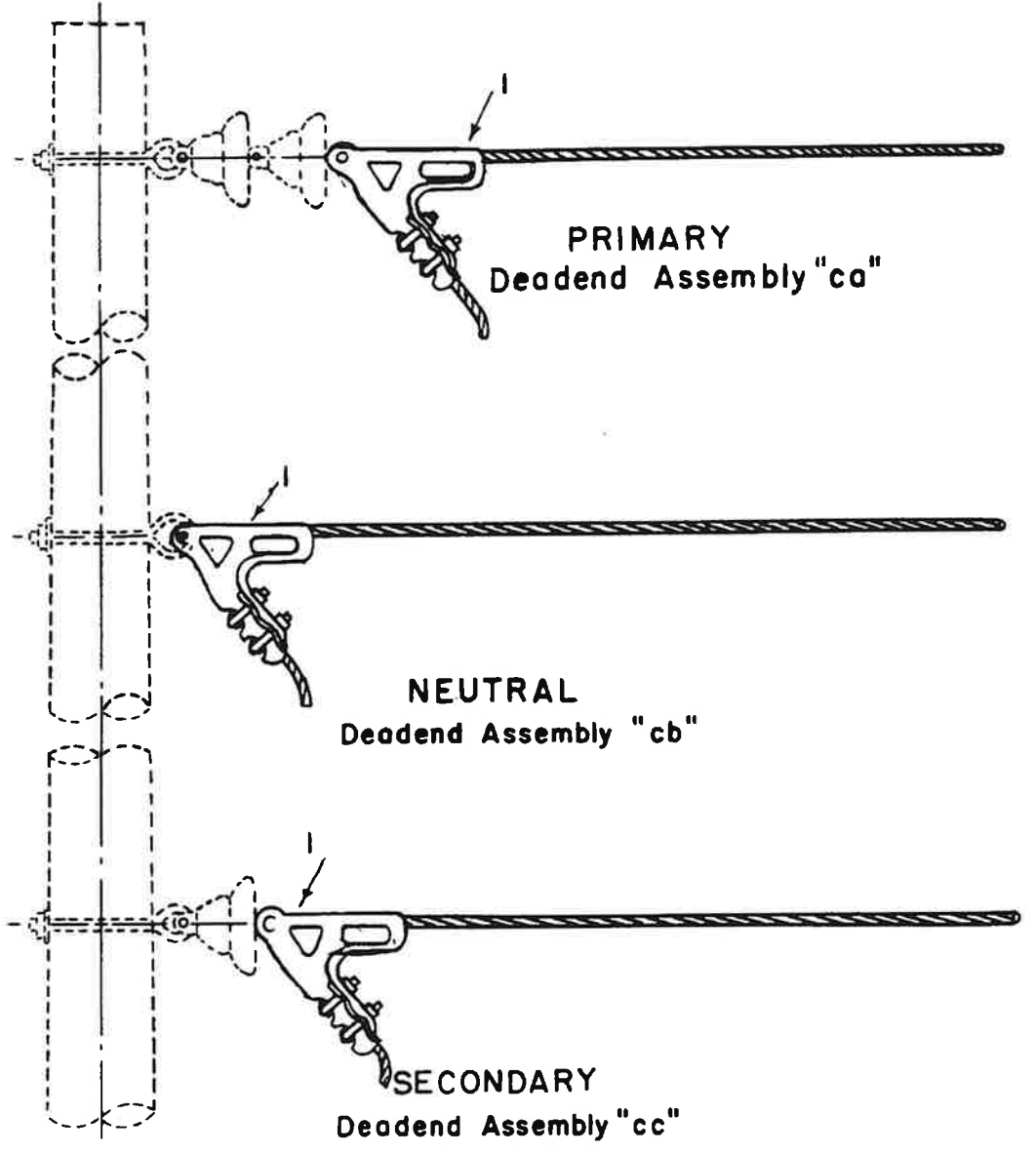
SCALE 1/2"=1'-6" DWG. M9-13EC



SECURITY LIGHT INSTALLATION GUIDE
(UNMETERED)

Apr., 1983

M26-5

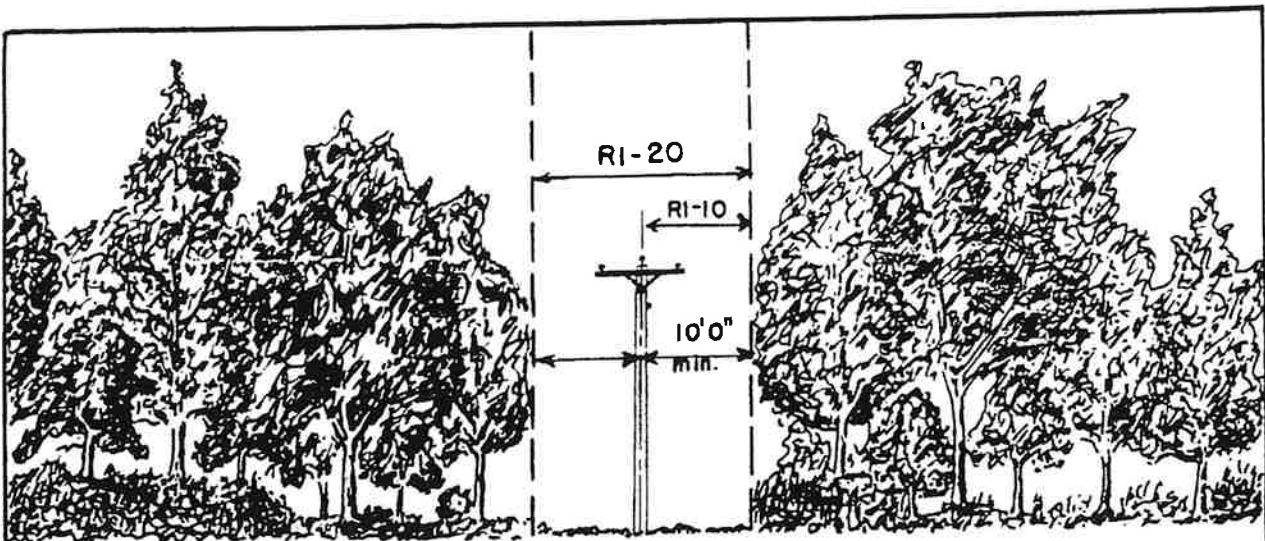


| ITEM | NO. RECD | MATERIAL | ITEM | NO. RECD | MATERIAL |
|------|-------------|----------------|------|-------------|----------|
| 1 | | Clamp, deadend | | | |
| | | | | | |

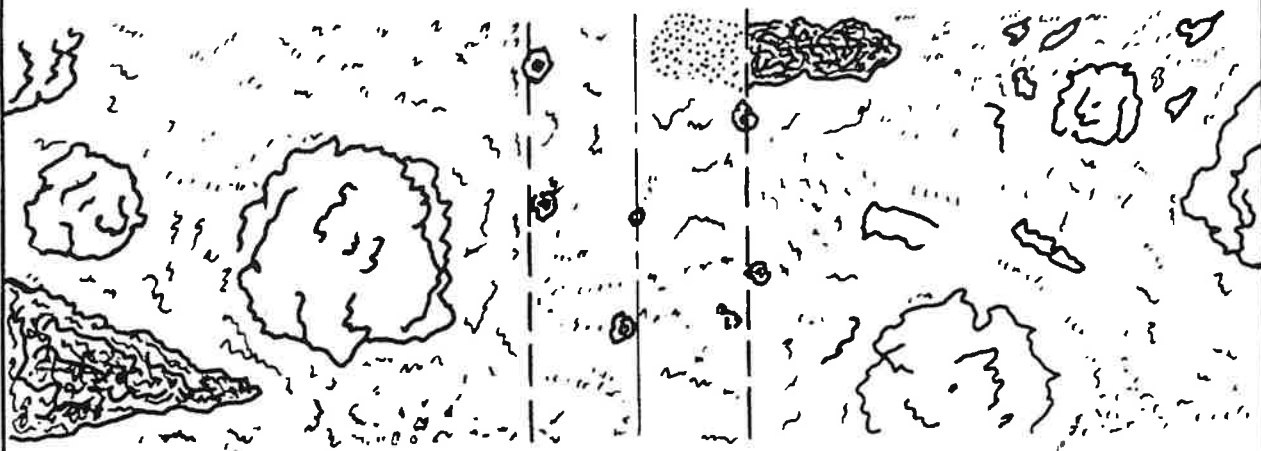
DEADEND ASSEMBLY GUIDE
(LARGE CONDUCTORS)

Apr., 1983

M42-13



ELEVATION



AFTER CLEARING

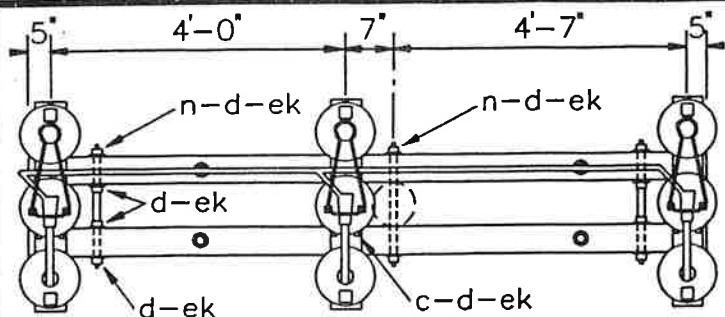


BEFORE CLEARING

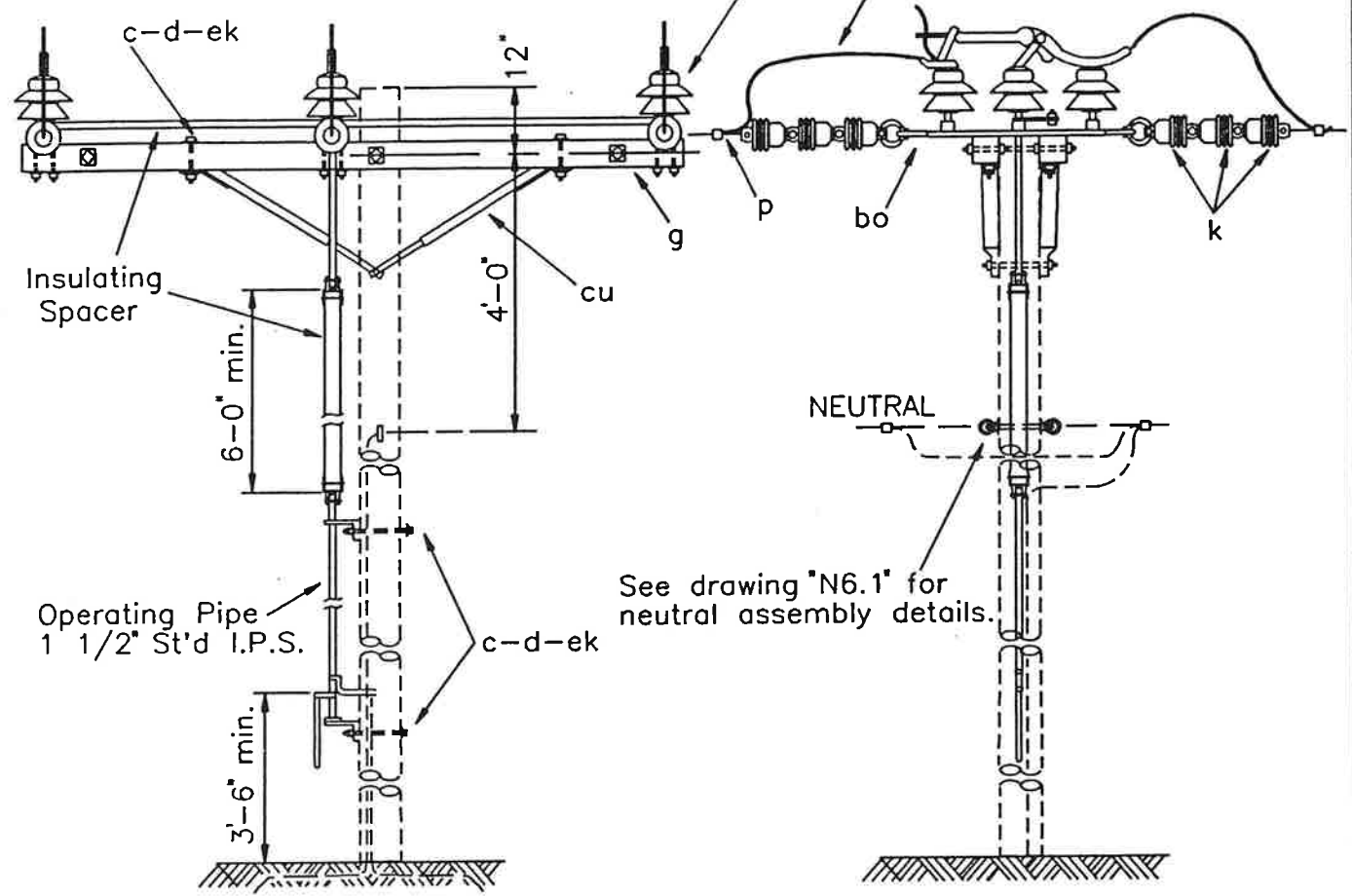
CLEARING RIGHT-OF-WAY GUIDE

Apr., 1983

RI



PLAN VIEW OF SWITCH ARRANGEMENT



NOTE: See Dwg. "H4.1" (Preferred) or "H3.1" for required grounding assembly.

| ITEM | QTY | MATERIAL |
|------|-----|---------------------------------------|
| c | 4 | Bolt, machine, 1/2" x req'd length |
| c | 15 | Bolt, machine, 5/8" x req'd length |
| d | 4 | Washer, round, 1 3/8" |
| d | 27 | Washer, square, 2 1/4" |
| g | 2 | Crossarm, 3 5/8" x 4 5/8" x 10'-0" |
| k | 18 | Insulator, suspension, 4 1/4" |
| n | 4 | Bolt, double arm, 5/8" x req'd length |
| p | | Connectors, as required |

| ITEM | QTY | MATERIAL |
|------|-----|--|
| aa | 2 | Nut, eye, 5/8" |
| av | | Jumpers, as required |
| bo | 6 | Shackle, anchor |
| cg | 1 | Switch, airbreak, group oper. 25 kV, w/ operating mechanism |
| cu | 2 | brace, wood, 60" span |
| ek | 33 | Locknuts |

GROUP-OPERATED AIRBREAK SWITCH (THREE-PHASE)

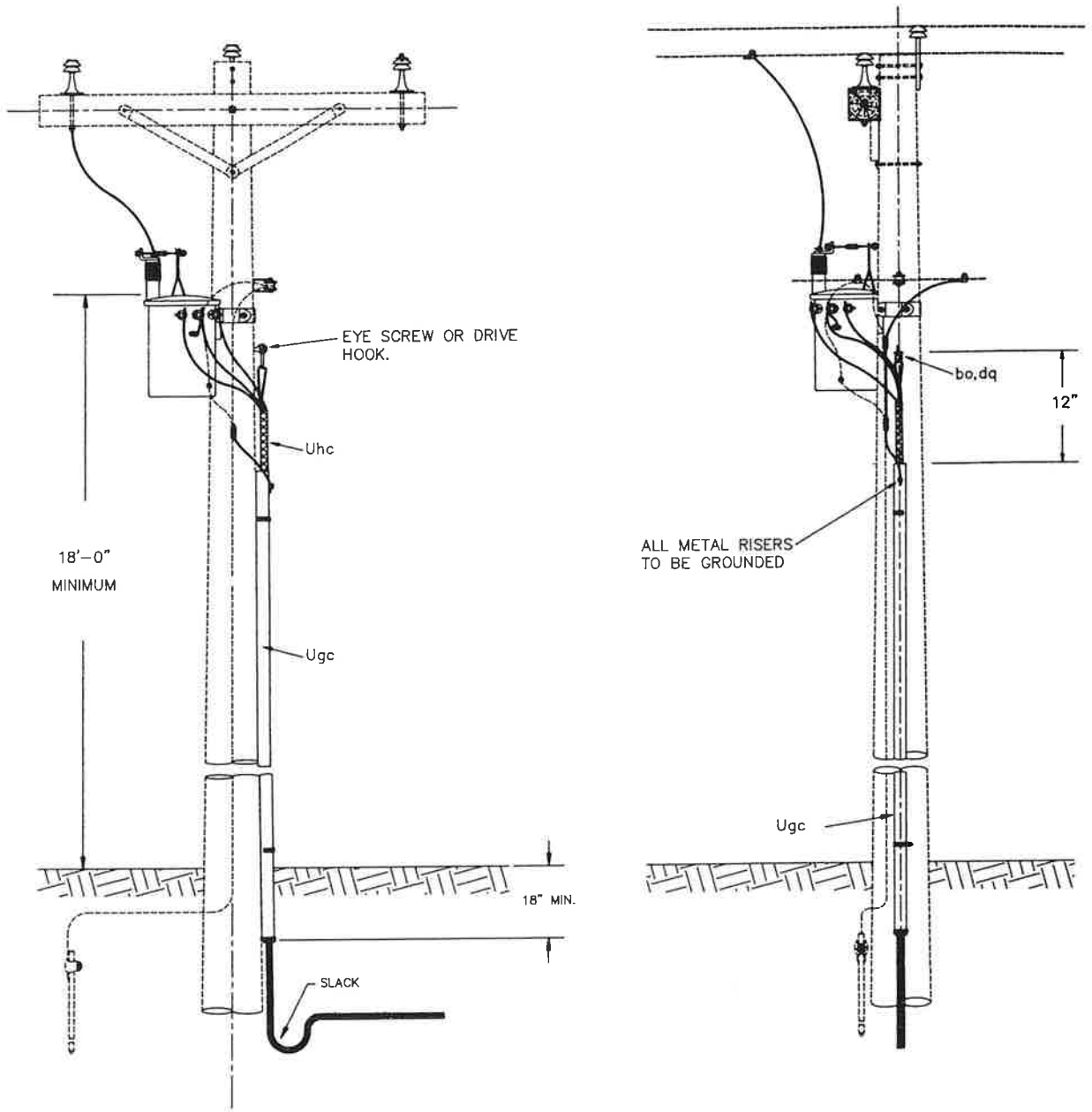
| | | |
|----------|-------------------|--------|
| DEC 1998 | 3 - PHASE PRIMARY | |
| RUS | 24.9/14.4 kV | VS2.32 |



BOOT OR SLEEVE – INSULATED
(600 VOLT)

| ITEM | QTY. | MATERIAL |
|------|------|----------------------------------|
| Ugq | 1 | Boot or sleeve, insulated |
| | 1 | Secondary connector, as required |
| | | |
| | | |
| | | |
| | | |

| | | | |
|--|--|------------------|--------|
| | | SECONDARY SPLICE | |
| | | AUG 2016 | |
| | | RUS | UJ1.01 |



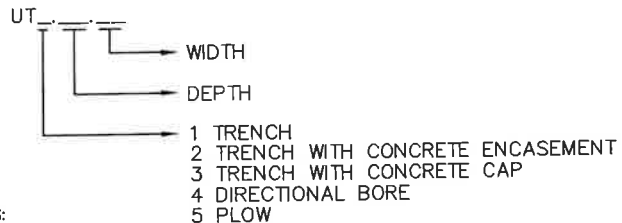
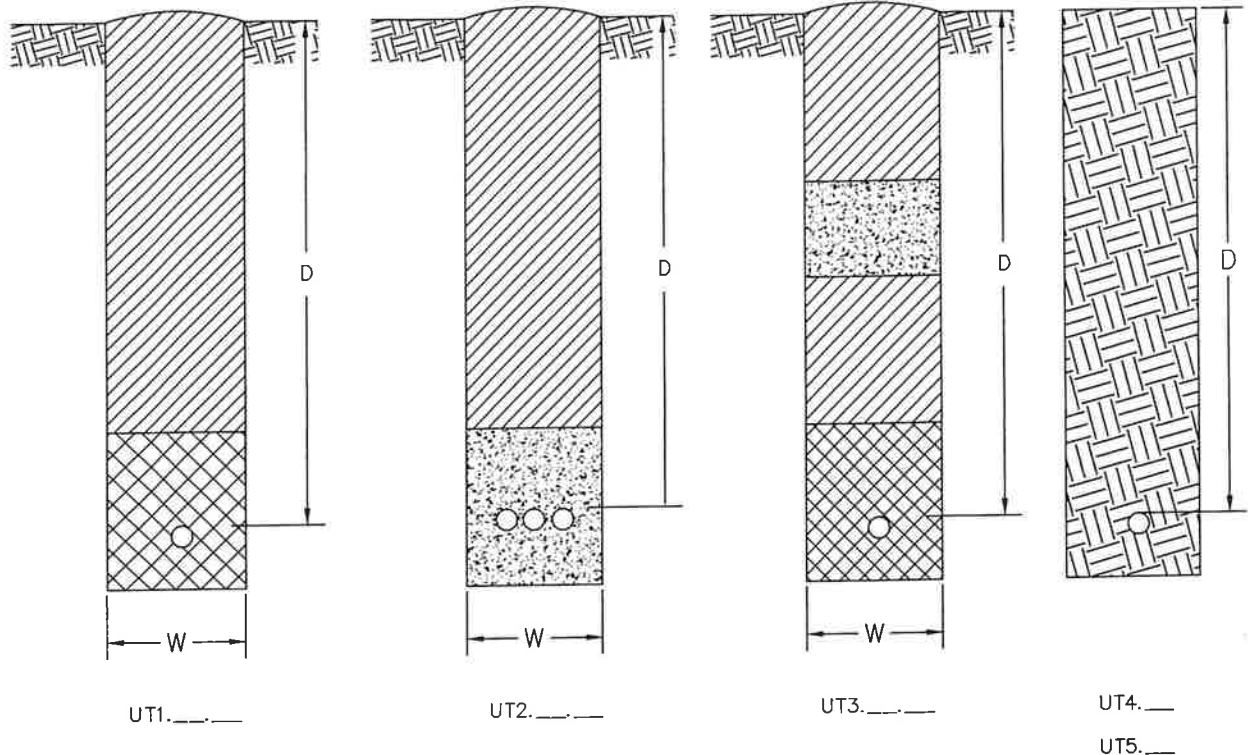
NOTES:

1. NO BENDS PERMITTED WITHIN 6" OF CABLE TERMINAL BASE.
2. ALLOW MINIMUM CABLE SLACK OF 24" AT BOTTOM OF RISER.
3. ALL LIVE PARTS MUST HAVE AN 18 FOOT CLEARANCE ABOVE GROUND AND MUST BE INSTALLED A MINIMUM OF 6 INCHES ABOVE THE NEUTRAL CONDUCTOR.

| ITEM | QTY. | MATERIAL |
|------|------|--|
| bo | | Anchor, shackle. Do not use if drive hook is used. |
| dq | 1 | Eye screw, elliptical or drive hook. |
| Ugc | 1 | Cable riser shield. Length as required. |
| Uhc | 1 | Cable support. |

SECONDARY CABLE TERMINAL POLE

UM5

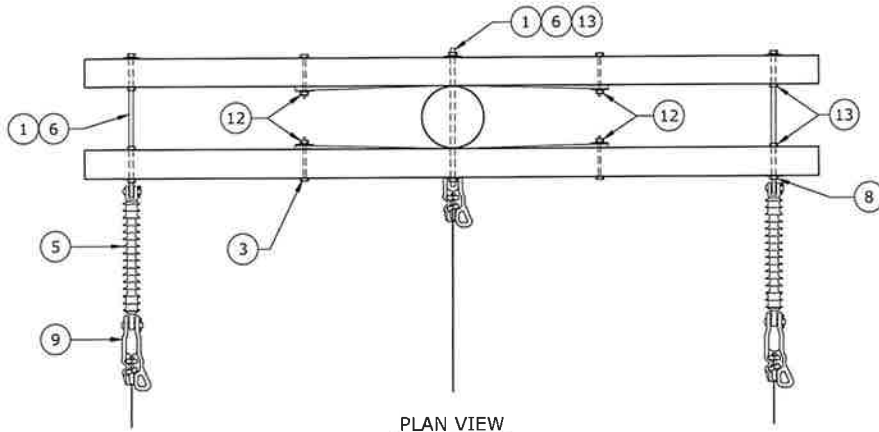


- NOTES:
1. DEPTH AND WIDTH ARE SPECIFIED IN DESCRIPTION OF UNITS.
 2. DEPTHS SPECIFIED ARE TO FINISHED GRADE.
 3. OVER-EXCAVATE TRENCHES AS NECESSARY TO ALLOW FOR (a) BEDDING, (b) LOOSE, SANDY SOILS, (c) WHERE MORE THAN ONE CABLE WILL BE INSTALLED AND LAYING FIRST CABLE MAY CAUSE TRENCH DAMAGE AND REDUCTION IN DEPTH.
 4. BACKFILLING IS PART OF ALL TRENCHING UNITS INCLUDING JOINT-USE TRENCHES UNLESS OTHERWISE SPECIFIED.
 5. MAINTAIN 12 INCHES MINIMUM CLEARANCE IN ANY DIRECTION BETWEEN POWER CABLES AND COMMUNICATION CABLES IN JOINT USE TRENCHES.
 6. ALL DEPTHS AND CLEARANCES SHALL MEET THE NATIONAL ELECTRICAL SAFETY CODE.

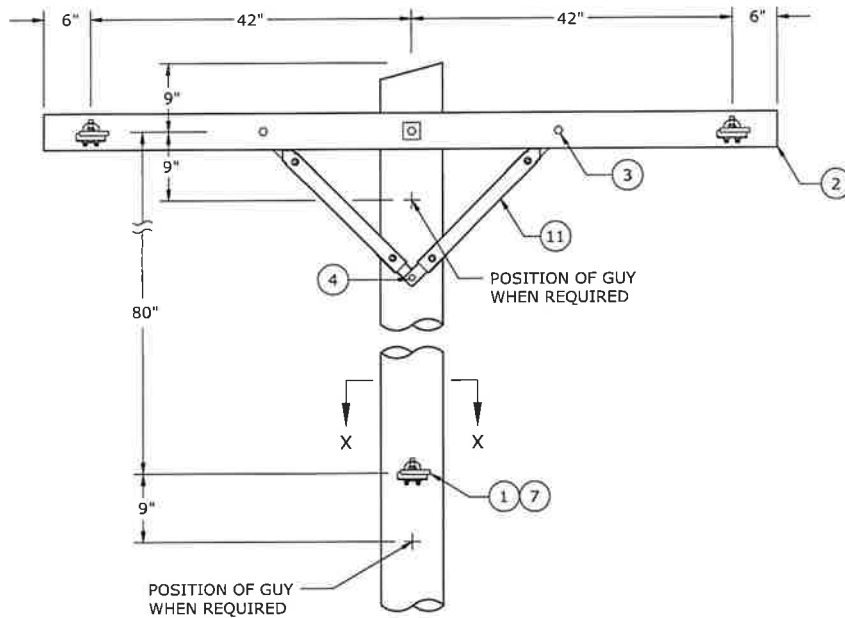
LEGEND

| | |
|--|---|
| | SAND, GRAVEL OR CLEAN SOIL |
| | COMPACTED BACKFILL UNLESS OTHERWISE SPECIFIED |
| | UNDISTURBED EARTH |
| | CONCRETE |

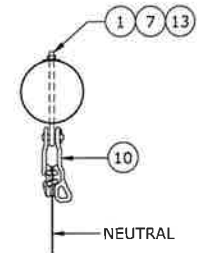
| | | |
|---|--|---------------|
| TRENCHES FOR CONDUIT AND DIRECT BURIAL CABLES | | |
| AUG 2016 | | UT1, UT2 |
| RUS | | UT3, UT4, UT5 |



PLAN VIEW



FRONT VIEW



SECTION X-X

| NO. | INVENTORY NO. | QUANTITY | DESCRIPTION |
|-----|---------------|----------|--|
| 1 | 10-44-09 | 11 | WASHER, SQUARE FLAT, 2 1/4" |
| 2 | 04-04-01 | 2 | CROSSARM, SYP, 8 FOOT, WOOD |
| 3 | 12-08-28 | 4 | BOLT, CARRIAGE, GALV, 3/8" X 4-1/2", W/NUT |
| 4 | 10-33-21 | 2 | SCREW, LAG, 1/2" X 4" |
| 5 | 08-04-03 | 2 | INSULATOR, DEADEND, ONE-PIECE, 25 KV |
| 6 | 12-02-XX | 3 | BOLT, DOUBLE ARMING |
| 7 | 12-05-XX | 1 | BOLT, OVAL EYE |
| 8 | 10-46-66 | 2 | NUT, EYE, GALV., 5/8" |
| 9 | 10-16-XX | 2 | CLAMP |
| 10 | 10-16-XX | 1 | CLAMP |
| 11 | 10-06-01 | 4 | BRACE, CROSSARM, WOOD 38 X 18 |
| 12 | 10-44-31 | 4 | WASHER, LOCK, 3/8" |
| 13 | 10-44-33 | 11 | WASHER, LOCK, 5/8" |

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

| | | | |
|---------|---------|---------------|-----|
| 3 | | | |
| 2 | 8/29/13 | CADD GRAPHICS | OST |
| 1 | 1/2/08 | CADD GRAPHICS | OST |
| 0 | 12/8/05 | CADD GRAPHICS | OST |
| REVISED | BY | APPR. | |

CROSSARM CONSTRUCTION, TWO-PHASE
DEADEND, 25KV

ELECTRICITIES
OF NORTH CAROLINA, INC.

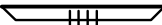



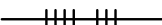








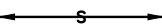














SCALE: 1/2"=1'-0" DWG. VB7EC

EXHIBIT NO. 5

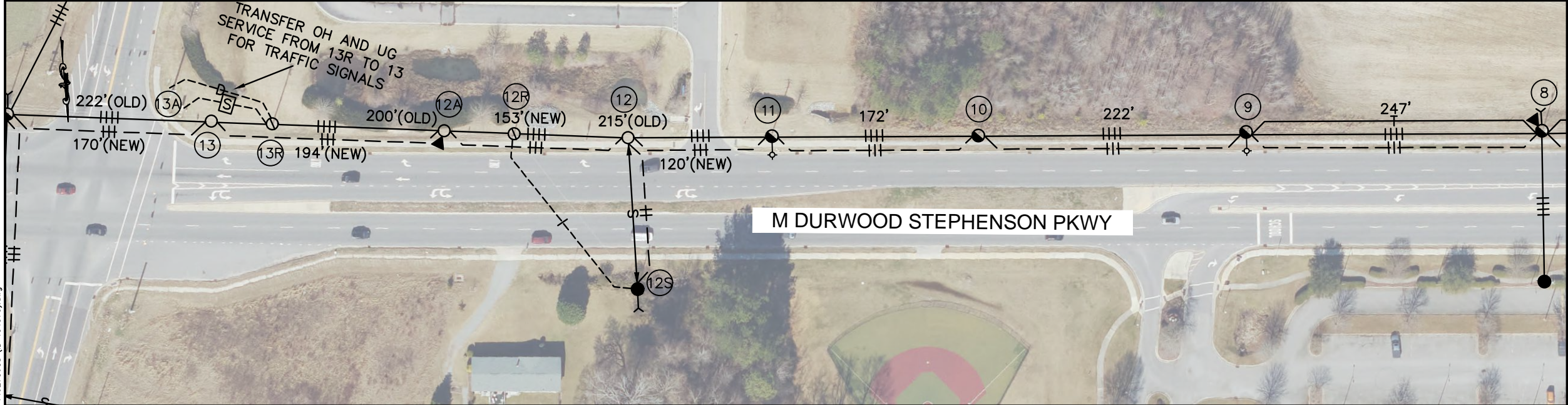
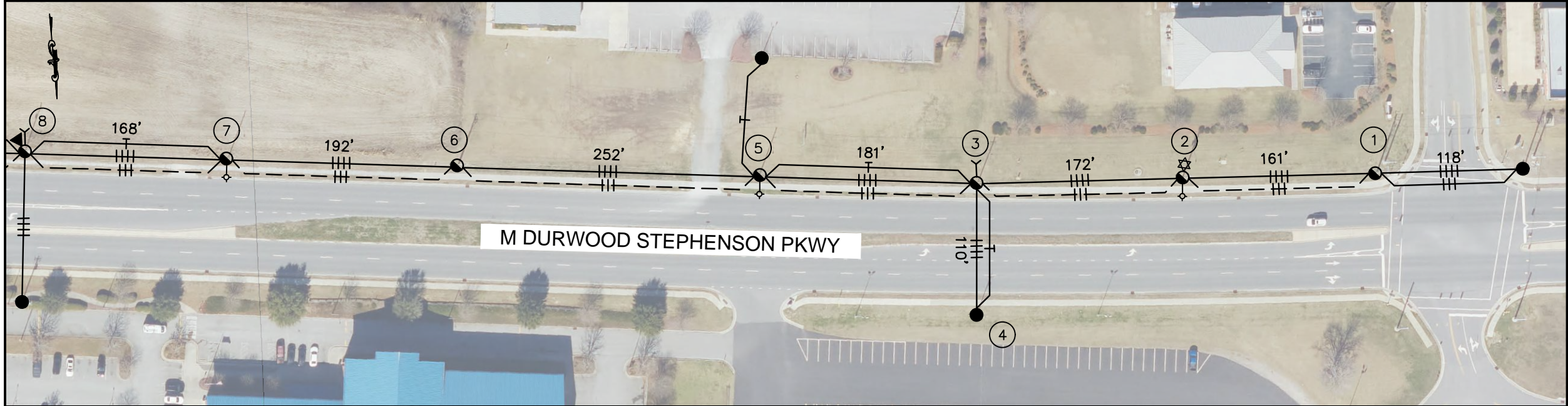
PLAN DRAWING
(1-6 OF 6)

| | | | | | | |
|------------------|----------------------------------|---|--|------------|---------------|--------|
| CLIENT | TOWN OF SMITHFIELD |  <small>2300 Newswoods Drive Suite 300, Raleigh NC 27607 NC F-0227</small> | STAKED BY | NTW | SHEET | 1 OF 6 |
| PROJECT LOCATION | KELLIE DRIVE EXTENSION | | STAKED DATE | 05/08/2026 | REVISION DATE | . |
| DESCRIPTION | 12.5kv OPERATION/25kv INSULATION | STAKING SHEET SKETCH | CATEGORY "E, R, I, W" KEY: E=EXISTING, R=REMOVE, I=INSTALL, W=TRANSFER | | | |

LEGEND

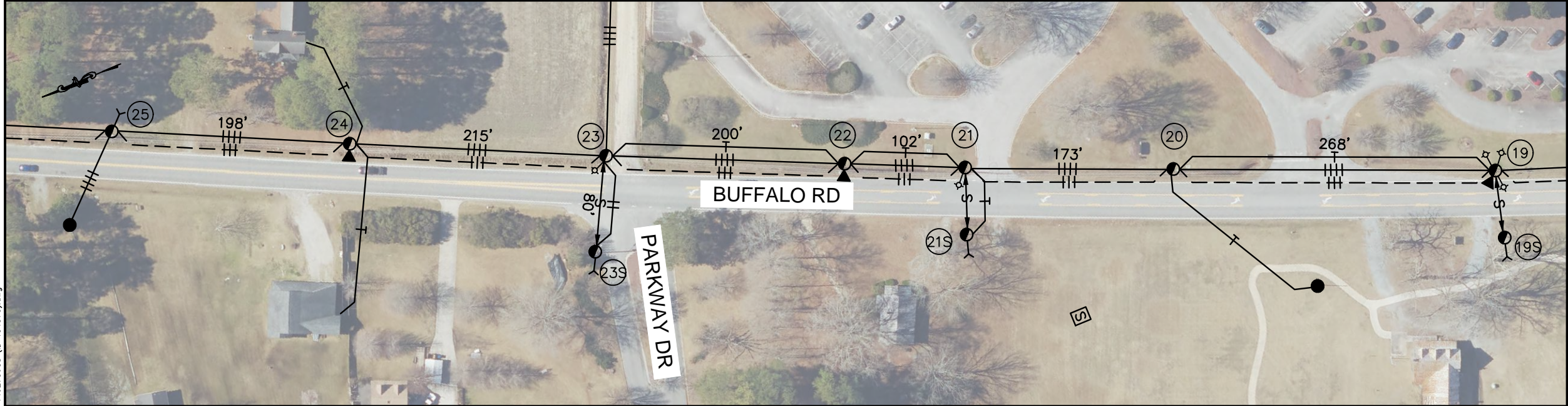
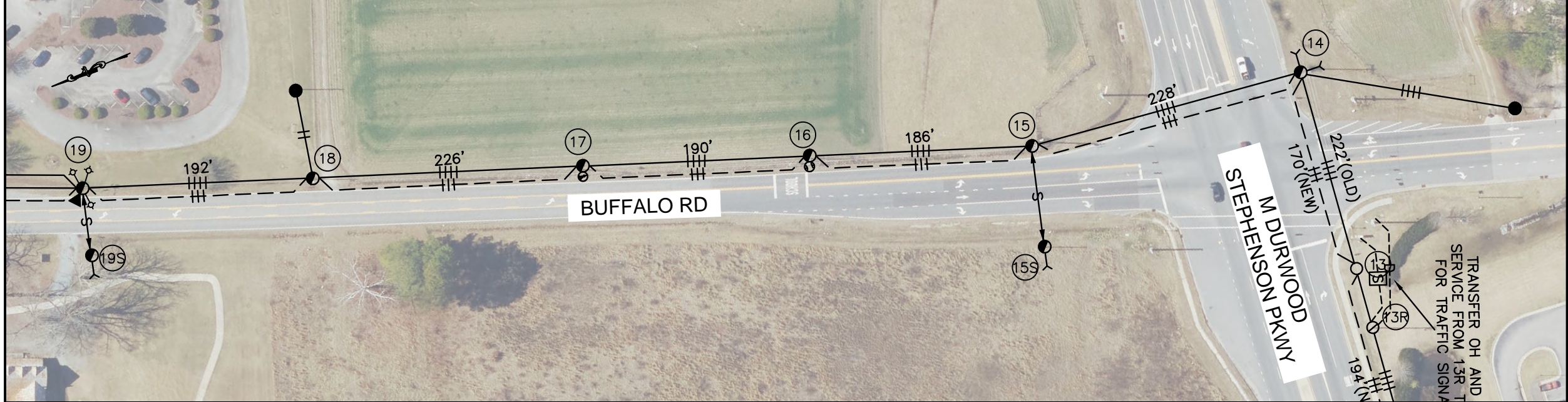
| | | |
|---|--|---|
| <p><u>POLES</u></p> <ul style="list-style-type: none"> ○ PROPOSED POLE ● EXISTING POLE – TO BE RETAINED ⊘ EXISTING POLE – TO BE REMOVED ⊙ EXISTING POLE – TO BE REPLACED ⊕ TOP POLE ⊗ FOREIGN POLE | <p><u>TRANSFORMERS</u></p> <ul style="list-style-type: none"> ◁ PROPOSED TRANSFORMER ◀ EXISTING TRANSFORMER – TO BE RETAINED ◁ EXISTING TRANSFORMER – TO BE REMOVED ◀ EXISTING TRANSFORMER – TO BE REPLACED ⚡ TRANSFORMER BANK ◁ FOREIGN TRANSFORMER | <p><u>UNDERGROUND</u></p> <ul style="list-style-type: none"> ◁ PROPOSED PAD-MOUNT TRANSFORMER ◀ EXISTING PAD-MOUNT TRANSFORMER – TO BE RETAINED ◁ EXISTING PAD-MOUNT TRANSFORMER – TO BE REMOVED ◀ EXISTING PAD-MOUNT TRANSFORMER – TO BE REPLACED JC JUNCTION CABINET P PEDESTAL |
| <p><u>PRIMARY</u></p> <ul style="list-style-type: none"> --- PROPOSED TRANSMISSION LINE — EXISTING TRANSMISSION LINE – TO BE RETAINED - - - EXISTING TRANSMISSION LINE – TO BE REMOVED  TRANSMISSION LINE WITH DISTRIBUTION UNDERBUILD (PHASES AND NEUTRAL INDICATED) - -  - - PROPOSED OVERHEAD DISTRIBUTION (PHASES AND NEUTRAL INDICATED) —  — EXISTING OVERHEAD DISTRIBUTION – TO BE RETAINED (PHASES AND NEUTRAL INDICATED) - -  - - EXISTING OVERHEAD DISTRIBUTION – TO BE REMOVED (PHASES AND NEUTRAL INDICATED) —  — DUAL CIRCUIT OVERHEAD DISTRIBUTION (PHASES AND NEUTRAL INDICATED) - -  - - PROPOSED UNDERGROUND DISTRIBUTION (PHASES AND NEUTRAL INDICATED) —  — EXISTING UNDERGROUND DISTRIBUTION – TO BE RETAINED (PHASES AND NEUTRAL INDICATED) - -  - - EXISTING UNDERGROUND DISTRIBUTION – TO BE REMOVED (PHASES AND NEUTRAL INDICATED) <p><u>SECONDARY / SERVICE</u></p> <ul style="list-style-type: none">  PROPOSED OVERHEAD SECONDARY / SERVICE (*WIRE TYPE INDICATED)  EXISTING OVERHEAD SECONDARY / SERVICE – TO BE RETAINED (*WIRE TYPE INDICATED)  EXISTING OVERHEAD SECONDARY / SERVICE – TO BE REMOVED  PROPOSED UNDERGROUND SECONDARY / SERVICE <p style="text-align: center;">*D, T, Q – DUPLEX, TRIPLEX, QUADRAPLEX</p> | | <p><u>ELECTRIC COMPONENTS</u></p> <ul style="list-style-type: none">  GUY & ANCHOR COMBINATION  SPAN GUY  SINGLE-PHASE RISER  THREE-PHASE RISER  STREET LIGHT  SWITCH – NORMALLY OPEN  SWITCH – NORMALLY CLOSED  FUSE  RECLOSER  CAPACITOR  REGULATOR  SECTIONALIZER  STEP-TRANSFORMER  VAULT  PRIMARY METER  ARRESTER |

| | | | | | | |
|------------------|----------------------------------|--|--|------------|---------------|--------|
| CLIENT | TOWN OF SMITHFIELD |  Booth & Associates <small>2300 Meadows Drive Suite 300, Raleigh NC 27607 NC E-0221</small> | STAKED BY | NTW | SHEET | 2 OF 6 |
| PROJECT LOCATION | KELLIE DRIVE EXTENSION | | STAKED DATE | 05/08/2026 | REVISION DATE | . |
| DESCRIPTION | 12.5kv OPERATION/25kv INSULATION | STAKING SHEET SKETCH | CATEGORY "E, R, I, W" KEY: E=EXISTING, R=REMOVE, I=INSTALL, W=TRANSFER | | | |



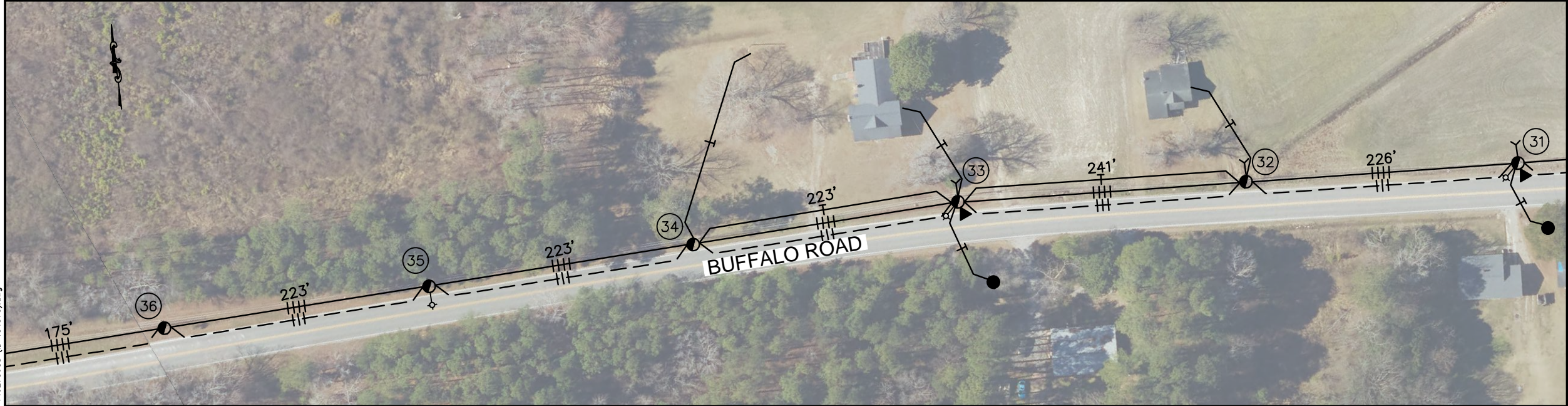
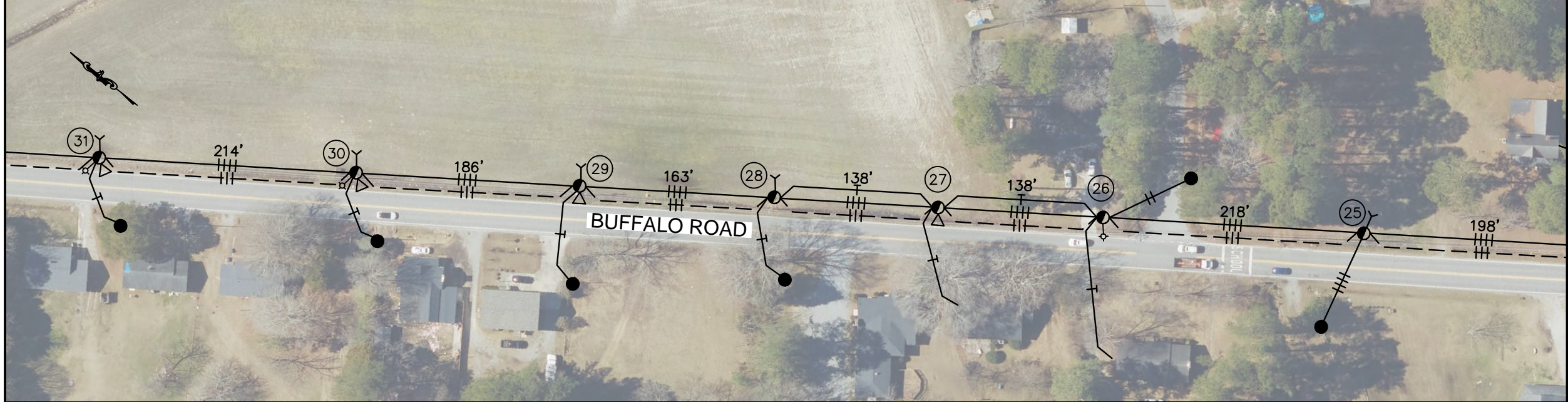
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| CLIENT | TOWN OF SMITHFIELD |  Booth & Associates <small>2300 Newswoods Drive Suite 300, Raleigh NC 27607 NC F-0227</small> | STAKED BY | NTW | SHEET | 3 OF 6 |
| PROJECT LOCATION | KELLIE DRIVE EXTENSION | | STAKED DATE | 05/08/2026 | REVISION DATE | . |
| DESCRIPTION | 12.5kV OPERATION/25kV INSULATION | STAKING SHEET SKETCH | CATEGORY "E, R, I, W" KEY: E=EXISTING, R=REMOVE, I=INSTALL, W=TRANSFER | | | |



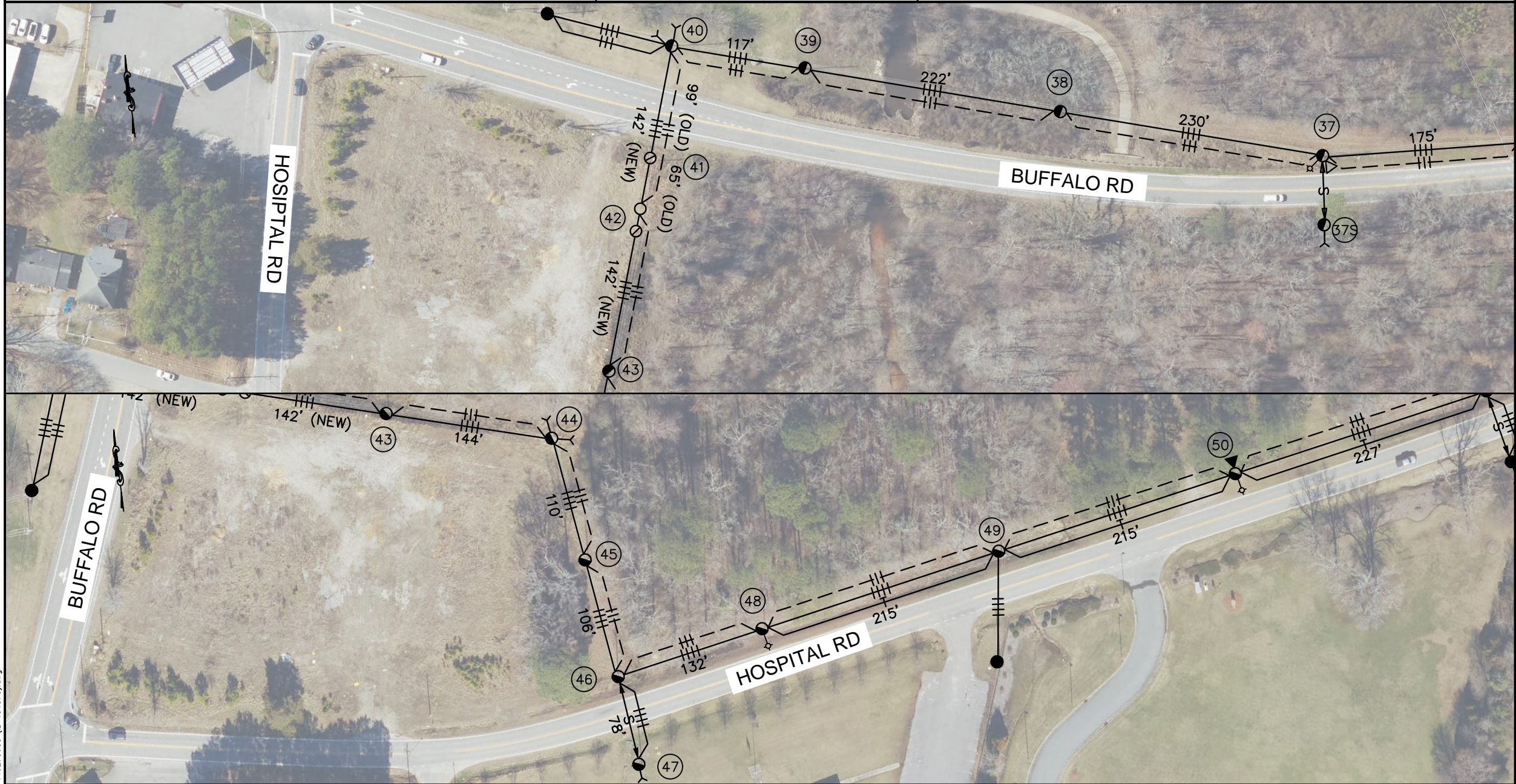
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|------------------|----------------------------------|--|--|------------|---------------|--------|
| CLIENT | TOWN OF SMITHFIELD |  Booth & Associates <small>2300 Newswoods Drive Suite 300, Raleigh NC 27607 NC F-0227</small> | STAKED BY | NTW | SHEET | 4 OF 6 |
| PROJECT LOCATION | KELLIE DRIVE EXTENSION | | STAKED DATE | 05/08/2026 | REVISION DATE | . |
| DESCRIPTION | 12.5kv OPERATION/25kv INSULATION | STAKING SHEET SKETCH | CATEGORY "E, R, I, W" KEY: E=EXISTING, R=REMOVE, I=INSTALL, W=TRANSFER | | | |

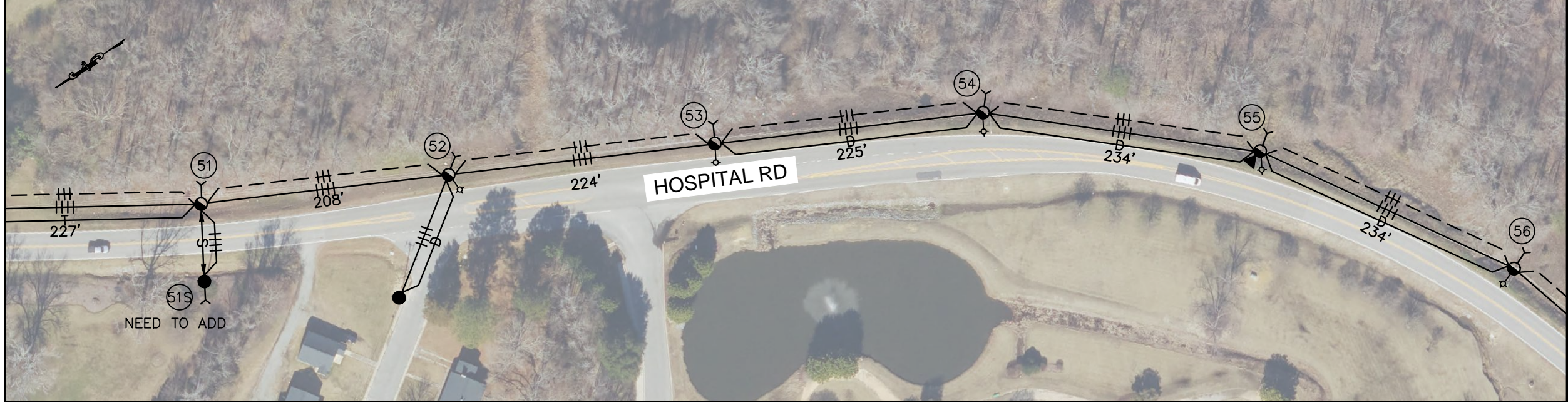


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| | | | | | | |
|------------------|----------------------------------|--|--|------------|---------------|--------|
| CLIENT | TOWN OF SMITHFIELD |  Booth & Associates <small>2300 Newswoods Drive Suite 300, Raleigh NC 27607 NC F-0227</small> | STAKED BY | NTW | SHEET | 5 OF 6 |
| PROJECT LOCATION | KELLIE DRIVE EXTENSION | | STAKED DATE | 05/08/2026 | REVISION DATE | . |
| DESCRIPTION | 12.5kv OPERATION/25kv INSULATION | STAKING SHEET SKETCH | CATEGORY "E, R, I, W" KEY: E=EXISTING, R=REMOVE, I=INSTALL, W=TRANSFER | | | |



| | | | | | | |
|------------------|----------------------------------|--|--|------------|---------------|--------|
| CLIENT | TOWN OF SMITHFIELD |  Booth & Associates <small>2300 Newswoods Drive Suite 300, Raleigh NC 27607 NC F-0227</small> | STAKED BY | NTW | SHEET | 6 OF 6 |
| PROJECT LOCATION | KELLIE DRIVE EXTENSION | | STAKED DATE | 05/08/2026 | REVISION DATE | . |
| DESCRIPTION | 12.5kV OPERATION/25kV INSULATION | STAKING SHEET SKETCH | CATEGORY "E, R, I, W" KEY: E=EXISTING, R=REMOVE, I=INSTALL, W=TRANSFER | | | |



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