FAYETTEVILLE PUBLIC WORKS COMMISSION OF FAYETTEVILLE, NORTH CAROLINA

SPECIFICATIONS AND BID DOCUMENTS FOR STRUCTURES FOR THE BLACK AND DECKER 69 TO 15 kV SUBSTATION

ISSUED FOR BIDS

FAYETTEVILLE PUBLIC WORKS COMMISSION OF FAYETTEVILLE, NORTH CAROLINA

SPECIFICATIONS AND BID DOCUMENTS FOR STRUCTURES FOR THE BLACK AND DECKER 69 TO 15 kV SUBSTATION

ISSUED FOR BIDS

Booth & Associates, LLC
Consulting Engineers
5811 Glenwood Avenue
Raleigh, North Carolina 27612
Firm License No. F-0221

FAYETTEVILLE PUBLIC WORKS
COMMISSION FAYETTEVILLE,
NORTH CAROLINA

SPECIFICATIONS AND BID DOCUMENTS
FOR STRUCTURES FOR THE
BLACK AND DECKER 69 to 15 x 25 kV SUBSTATION

TABLE OF CONTENTS

REQUEST FOR PROPOSAL

FORM OF PROPOSAL

TECHNICAL SPECIFICATIONS

APPENDICES

REQUEST FOR PROPOSAL

NOTICE TO PROSPECTIVE BIDDERS

Pursuant to NCGS 143-129, sealed proposals will be received by the Fayetteville Public Works Commission Bids will be opened outside of PWC Operation Complex near the visitor entrance at **2:00 p.m., Local Time, Thursday, October *28*, 2021**, at which time they will be publicly opened and read for the furnishing and delivery of all materials and equipment (except materials and equipment specified to be furnished by the Owner) complete and conforming to the *Technical Specifications* for the structures for the BLACK AND DECKER 69 to 15 x 25 kV Substation, all as set forth in the Bid Schedules. Any Proposal received subsequent to that time will be promptly returned to the Bidder unopened.

The Technical Specifications and Bid Documents may be obtained from PWC Purchasing Department, at https://www.faypwc.com/purchasing and in the Fayetteville Public Works Commission's Procurement Department, 1st floor, PWC Administration Building, 955 Old Wilmington Road, Fayetteville, North Carolina, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Each Proposal shall be accompanied by cash, cashier's check, or certified check drawn on a bank insured by the Federal Deposit Insurance Corporation or Savings Association Insurance Fund. Checks shall be payable to the Fayetteville Public Works Commission, North Carolina, in an amount not less than five percent (5%) of the total bid as a guarantee that a Contract, if awarded, will be accepted. In lieu thereof, a Bid Bond, which conforms to the provisions of G.S.143-129 as amended by Chapter 1104 of the Public Laws of 1951, may be submitted by the Bidder.

Proposals must be completed with indelible ink. No alterations or interlineations will be permitted unless made before submission and initialed and dated. Prior to the submission of the Proposal, the Bidder shall make and shall be deemed to have made a careful examination of the bid documents on file with the Owner and with the Engineer and of all other matters that may affect the cost and the time of the work.

Proposals and all supporting instruments must be submitted on and in the format of the forms furnished in the *Form of Proposal* of these bid documents

Bidders are to mail or deliver their Proposals as follows: Fayetteville Public Works Commission; Attn: Shelby Lesane, Procurement Advisor; 955 Old Wilmington Road; Fayetteville, NC 28301.

PROPOSAL FOR THE STRUCTURES FOR THE
BLACK AND DECKER 69 TO 15 kV SUBSTATION
NOT TO BE OPENED UNTIL 2:00 P.M., LOCAL TIME, Thursday, OCTOBER *28,* 2021

All late Bids shall be returned unopened to the sender. Regardless of the bidder's chosen means of delivery, a bidder assumes responsibility for delivery to the advertised location by the advertised deadline. If the delivery service cannot deliver the bid to the proper location by the deadline, the bid must be rejected as untimely, and shall be returned unopened to the sender.

The right is reserved to reject any or all bids and to waive all formalities concerning bid, or award bid to the lowest responsible Bidder or Bidders taking into consideration quality performance and the time specified in the Proposals for the performance of the Contract.

The Owner reserves the rights to (1) waive minor irregularities or minor errors in any Proposal if it appears to the Owner that such irregularities or errors were made through inadvertence. Any such irregularities or errors so waived must be corrected on the Proposal prior to its acceptance by the Owner; (2) reject any or all Proposals and to hold any or all Proposals for a period of ninety (90) days from the date of opening thereof; (3) accept the bid, in its opinion, that represents the best value for the Owner, regardless of whether such bid is the lowest price; and (4) award Contracts to Bidder(s) for any Schedule(s) individually or collectively from the Bid Schedules.

FAYETTEVILLE PUBLIC WORKS
COMMISSION
FAYETTEVILLE, NORTH CAROLINA

By: Trent Ensley Date: September 24, 2021
Purchasing Manager

1.0 Bidder Qualification

1.1 Bids will be accepted only from Bidders deemed by the Owner or the Engineer to be qualified to provide the materials, equipment, and services described by the *Technical Specifications* or otherwise in the Contract Documents. The experience of Bidders in providing the same or similar materials, equipment, and services will be a major factor in determining qualification. The Bidder shall include information to establish qualifications.

1.2 Prospective Bidders who wish to submit a bid, but are not presently qualified, may receive consideration by submitting a completed Bidder's Qualification Form, which requires product line and user list, to the Engineer at least ten (10) days prior to the specified bid opening date and time. The Bidder's Qualification Form may be obtained from the Engineer.

2.0 Proposals

2.1 To warrant consideration, Proposals must comply with these instructions and the Contract Documents. Strict and adherence to *Technical Specifications* and Drawings is requested to facilitate review and consideration of the proposal.

2.2 Bids not received on Booth & Associates, LLC *Form of Proposal* contained herein will be considered unresponsive. The forms shall be filled out complete; any omissions may cause the entire Proposal to be rejected.

2.3 Proposals must be made on the *Form of Proposal* provided herein and must not be altered, erased, or interlined in any manner. The Bidder shall fill in the *Form of Proposal* as detailed in the Terms and Conditions. The Bidder may retain one (1) copy, but the original, fully executed, must be inserted in or attached to the Bid Documents. Also, one (1) additional copy of all executed forms and supporting information shall be supplied.

2.4 Proposals must be enclosed in a sealed envelope, addressed to the attention of **Shelby Lesane, Fayetteville Public Works Commission, Procurement Advisor.** The outside of the envelope must be marked as required in the *Notice to Prospective Bidders* and the Bidder's name, bid opening date and time and the Bidder's license number shall be shown thereon. All Proposals must be made on the blank forms provided in the Contractor's Proposal.

2.5 The Bidder shall furnish certain information, as required by the Bid Documents regarding the equipment on which he is bidding. Two (2) copies of the information, together with the manufacturer's literature setting forth the guarantees and describing the equipment on which he is bidding shall be included as part of the Proposal. If one manufacturer is bidding through two or more agents or representatives, descriptive literature, guarantees, etc., may be submitted in duplicate in one sealed envelope, which will be considered and treated as though it contained a sealed bid. This envelope shall contain a list of the names of Bidders to whom the information applies. Each sealed Bid Proposal without this information shall state the name of the manufacturer who is furnishing the information. Additional sets of the *Technical Specifications* may be obtained upon a payment of Fifty Dollars ($50) non-refundable deposit by approved Bidders.

Bids may be modified by the Bidder's removal of his original and the submittal of a completely revised bid package in full compliance with the Bid Documents if received prior to the time of opening bids and if included in the public reading of such bids. No oral or telephonic proposals will be considered.

2.6 Proposals shall include a *Form of Exceptions* utilizing forms provided which shall itemize each and every exception from the Bid Documents. The *Form of Exceptions* shall state the section, subsection, and paragraph designations from the part of the *Technical Specifications* to which exception is taken and explain in detail the nature of the exception. A *Form of Exceptions* is included in the *Form of Proposal*. Exceptions will not necessarily eliminate a Bidder from consideration, even if bids without exceptions are received from

others. The treatment of exceptions will be based entirely on the overall best interests of the Owner. Certain exceptions, e.g., failure to provide rigging and unloading at the site, or failure to properly provide field assembly supervision on testing may result in the entire Bid Proposal being rejected.

2.7 Should the Bidder find discrepancies in the documents or fail to understand the meaning of any defined term or any of the Contract Documents, shall immediately notify Shelby Lesane, Procurement Advisor, at (910) 624-6928, or by e-mail to shelby.lesane@faypwc.com, who will send written instructions to all Bidders. Neither the Owner nor the Engineer will be responsible for any oral instructions.

2.8 The Bidder shall be the manufacturer of the equipment, or the Bidder shall submit with the *Form of Proposal* a notarized statement that the Bidder is authorized by the manufacturer to tender the Proposal as submitted and that the manufacturer will guarantee the suitability and adequacy of the equipment proposed, and will be bound by the *Technical Specifications*, as though the manufacturer had submitted the Proposal.

2.9 In the event that the Bidder proposes any change or deviation from the Engineer's Plans and Specifications, such Proposal changes or deviations must be submitted at the time bids are opened. The Owner reserves the right to reject any such proposed changes or deviations. All exceptions must be stated on the *Form of Exception*s. Failure to submit a *Form of Exception*s will imply strict adherence to the Plans and Specifications.

2.10 No Bid Proposal may be withdrawn after the scheduled closing time for the receipt of bids for a period of ninety (90) days pending the contract by the successful Bidder. Should the successful Bidder default and not accept a contract, then the contract may be offered to the next lowest responsible Bidder whose Proposal is evaluated as acceptable

2.11 Prior to submission of the Proposal, the Bidder shall make and shall be deemed to have made a careful examination of the Plans and Specifications on file with the Owner and with the Engineer and all other matters that may affect the cost and the time of completion of the work.

2.12 The Contract, when accepted, shall be deemed to include the Specifications for the equipment, and the Bidder shall not claim any modification thereof resulting from any representative or promise made at any time by an officer, agent, or employee of the Owner or by any other person.

2.13 The Owner reserves the right to accept any schedule, combination of schedules, or any portion of a schedule.

3.0 Bid Security

3.1 Each Proposal shall be accompanied by a cash deposit, cashier's check, or certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation or Savings Association Insurance Fund, or a Bid Bond in an amount not less than five percent (5%) of the Proposal. The Owner will retain said deposit as liquidated damages in the event of failure of the Successful Bidder to execute the Contract within ten (10) days after the award.

3.2 Bid Bond shall be conditioned that the Surety will, upon demand, forthwith make payment to the Obligee upon said Bond if the Bidder fails to accept a contract in accordance with the Bid Bond, and that upon failure to forthwith make payment, the Surety shall pay to the Obligee an amount equal to double the amount of said Bond. Standard Bid Bond form is included in the *Technical Specifications*.

3.3 Only one (1) Bid Bond is required, the amount of which shall be based on the total amount of the bid. The value for the Bid Bond shall be based on the Bid Schedule of maximum total amount.

4.0 Performance Bond/Payment Bond

A Performance Bond/Payment Bond is not required for this project.

5.0 Bulletins and Addenda

Any bulletins or addenda to the *Technical Specifications* issued during the time of bidding are to be considered covered in the Proposal, and in accepting a contract, they will become a part thereof. Receipt of addenda shall be acknowledged by the Bidder on the *Form of Proposal*.

6.0 Shipment and Delivery

6.1 Quoted prices for materials and equipment shall include shipment F.O.B. point of delivery to the substation site and point-of-delivery via open-top truck or open trailer. Owner will be responsible for unloading and installing the structures and equipment **24 weeks** after receipt of order (ARO). **Trusses and columns shall be assembled before shipment to insure correctness and shall be shipped assembled.**

6.2 The location of the station is shown on the vicinity map found in the Appendices.

6.3 A Delivery Schedule is provided as part of the Proposal on which the Bidder shall indicate the delivery schedule for his materials and equipment. Strict adherence to the acceptance of delivery schedule is expected. Special attention should be given to the stipulations for delivery outlined in the General Conditions. Furthermore, the Bidder shall match his scheduled deliveries to the schedule preferred by the Owner if noted in the *Form of Proposal* section.

6.4 Advance shipment of anchor bolts is required. Upon approval of anchor bolts, anchor bolts may be shipped exclusive of the substation deliveries.

6.5 Coordinated shipment shall be made to reduce storage by the Owner and to facilitate the accumulation of component parts. A maximum of four (4) shipments will be permitted for delivery of the entire lot of structures and equipment. One (1) shipment of anchor bolts will be permitted and will not count toward the four (4) shipments. Small, partial shipments at scattered times will not be acceptable.

6.6 In the event that delays occur, the Bidder shall be responsible for all shipping demurrage unless such delays are caused solely by the Owner.

6.7 All components shall be distinctly marked or identified and shall be completely assembled before shipment insofar as is practical. Each bidder shall so state in his Proposal the manner in which trusses and columns will be shipped. Unless otherwise stated as a part of the Bidder's Proposal, all trusses and box columns are to be shipped completely assembled. Box columns and/or box trusses **over 4'-0" x 4'-0"** may be shipped two sides assembled/two sides knocked down.

6.8 Delivery of all items of equipment shall be made at such time as to permit unloading between the hours of 9:00 a.m. and 4:00 p.m., Monday through Thursday, holidays excluded. The Owner will furnish escort to the substation site. Ultimate delivery shall beat the discretion of the Owner.

7.0 Award of Contract

7.1 The award of the Contract will be made to the lowest responsive, responsible Bidder as soon as practicable. The bid shall be awarded to the Bidder who, in the judgment of the Owner, offers the best value to the Owner. Factors to be considered by the Owner are specified in Paragraph 5.3. The Owner reserves the right to reject any and all bids.

7.2 The Owner reserves the right to waive minor irregularities or minor errors in any Proposal if it appears to the Owner that such irregularities or errors were made through inadvertence. In all cases concerning cost, unit price shall be the governing factor if a discrepancy exists between the extension of unit cost, times quantity.

7.3 In determining the lowest responsive, responsible bidder while taking into consideration quality, performance and time specified in a proposal for the performance of the Contract, PWC will consider the following:

Completion date,
Adherence to the Plans and Specifications,
Contractor capabilities, crew experience and past performance,
Conditional quotations (Only firm fixed prices in U.S. dollars),
Any additional factors deemed appropriate by the Owner.

7.4 In the event the Bidder proposes any change or deviation from the Engineer's Plans and Specifications, such proposed changes or deviations must be submitted at the time bids are opened on the *Form of Exception*s included. The Owner reserves the right to reject any proposed changes or deviations. All exceptions must be stated on the *Form of Exception*s. Failure to provide a *Form of Exception*s with the Proposal shall imply strict adherence to all details of the Plans and Specifications.

7.5 The Contract, when awarded, shall be deemed to include the Specifications for the equipment, and the Bidder shall not claim any modification thereof resulting from any representative or promise made at any time by any officer, agent, or employee of the Owner or by any other person.

7.6 In estimating the lowest cost to the Owner as one of the factors in deciding the Award of the contract, the Owner will consider, in addition to the prices quoted in the Proposal, the following:

a. Equipment delivery (days),
b. Adherence to the Plans and *Technical Specifications*,
c. Evaluation of equipment suitability to the system as noted and submitted by the Bidder,
d. The Bidder's intended method of shipment of the materials and equipment, and
e. Firm prices.

8.0 Approval Drawings

Receipt of "Approval Drawings" by the Bidder constitutes authorization for manufacture predicated upon the Drawings and corrections found thereon. After the return of Approval Drawings, release for shipment is to be granted by either the Owner or its Engineer, based upon the Manufacturer's compliance with the following:

8.1 Furnishing of the requested number of copies of the Final Drawings as called for in the *Technical Specifications*.

8.2 Thirty (30) days notification of tentative shipping schedule and forty-eight (48) hours notification prior to delivery.

8.3 Coordination of manufacturing and delivery with the Owner's construction schedule.

9.0 Payment

9.1 Payment by the Owner of ninety-five (95) percent of the purchase price shall be made to the Successful Bidder in a lump sum after delivery.

9.2 There shall be a five-percent (5%) retainage on invoices until all equipment, with proper instruction books per Specifications, and certified test reports have been approved and accepted by the Owner and the Engineer. The Owner reserves the right to hold this retainage for a period of up to ninety (90) days without penalty to verify completeness of delivery. A ten-percent (10%) Performance Bond may be provided in lieu of retainage provisions. Deviation from the foregoing payment provisions will be considered less than responsive.

9.3 Invoices shall be submitted in triplicate to the Owner for review and approval. The address for submittal of all invoices is: Fayetteville PWC, 1094 Commission Drive, Fayetteville, North Carolina 28302, Attention: Joel C. Valley.

10 Questions

Questions regarding this bid must be submitted in writing to the attention of Shelby Lesane, Procurement Advisor, by fax to (910) 624-6928, or by email to shelby.lesane@faypwc.com no later than 3:00 pm, October 20, 2021.Bidders are prohibited by contacting any PWC official, employee, or agent other than as listed above. Failure to comply with this provision will result in disqualification of the bidder.

1.0 Drawings and Specifications

The Drawings and Specifications 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, materials, transportation, equipment, and any and all other things necessary to do a complete job, which may include manufactured items and field service assistance. In case of discrepancy or disagreement in the Contract, the order of precedence shall be: Contract, Technical Specifications, 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 or Detail Drawings or both. Clarifications and Drawings shall be consistent with the intent of Bidding Documents and shall become a part thereof.

3.0 Change In Drawings and/or Specifications

The Owner, or the Engineer on behalf of the Owner, may make changes to Drawings and/or Technical Specifications after award of the Contract or while fabrication is in progress. The compensation for such changes shall be agreed upon in writing between the Bidder and the Owner prior to commencement of work involving the change. No payment shall be made to the Bidder for correcting work not in compliance with Technical Specifications.

4.0 Copies of Drawings and Specifications

The Engineer will furnish free of charge to the Bidder one (1) copy of the Drawings and Technical Specifications. Additional sets of these Specifications may be obtained upon request and a non-refundable deposit of Fifty Dollars ($50.00) by approved Bidders.

5.0 Ownership of Drawings and Specifications

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

6.0 Royalties, Licenses, and Patents

It is the intention of the Bidding Documents that the work covered herein will not constitute in any way an infringement on patents. The Bidder shall protect and save harmless the Owner against suit on account of alleged or actual infringement. The Bidder 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.

7.0 Uncorrected Faulty Work

The Bidder shall be notified of faulty or damaged work and shall have the option to respond in a reasonable period of time. Should the correction of faulty or damaged work be considered inadvisable or inexpedient by the Owner or the Engineer, the Owner shall be reimbursed by the Bidder for the same by a deduction in the Contract prices arrived at by a fair estimate of the probable cost of correction, approved by the Engineer.

8.0 Liquidated Damages

The Bidder shall commence manufacture upon award of a contract from the Owner and shall fully complete delivery as per the Delivery Schedule in the *Form of Proposal*. For each day in excess of the proposed dates, the Bidder shall be the Owner the sum of five hundred dollars ($500.00) as liquidated damages (and not as a penalty), reasonably estimated in advance to cover the losses to be incurred by the Owner by reason of failure of said Bidder to complete delivery within the time specified, such time being in the essence of this Contract and material consideration thereof.

9.0 Delays and Extension of Time

9.1 The time to be allowed for delivery is stated in the *Form of Proposal*. The Bidder, upon notice of award of the Contract, shall prepare a delivery schedule based on the allowed time and submit such schedule to the Engineer for approval.

9.2 If Bidder is delayed at any time in the progress of the work by any act of negligence by the Owner or the Engineer, by any separate Bidder employed by the Owner, or by changes ordered in the work, then the time of completion shall be extended for such reasonable time as the Engineer may decide.

9.3 No extension of time for completion will be made for ordinary delays and accidents. Extensions may be granted for delays ordered by the Engineer if the request has been made in writing within forty-eight (48) hours after the order to cease work has been given.

10.0 Assignments

The Bidder shall not assign any portion of this Contract nor subcontract in its entirety except as fully explained in the *Form of Proposal* and accepted by the Owner. No funds or sums of money due or to become due to the Bidder under this Contract may be assigned.

11.0 Guarantee

The Bidder shall guarantee his materials and workmanship against defect due to faulty materials, faulty workmanship, or negligence for a period of one (1) full year from date of energization and/or eighteen (18) months from date of delivery, whichever applies. He shall make good such defective materials or workmanship and any damages resulting therefrom without cost to the Owner. Each class of equipment shall carry a full one (1) year warranty against defects from the date of energization.

12.0 Insurance

The Bidder shall maintain Workmen's Compensation Insurance and Liability Insurance appropriate for the level of exposure involved in the Contract. The Bidder shall furnish certification of the appropriate insurance.

13.0 Equal Employment Opportunity

During the performance of this work, the Bidder agrees as follows:

13.1 The Bidder 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 Bidder 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 Bidder agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of the nondiscrimination clause.

13.2 The Bidder, in all solicitations or advertisements for employees placed by or on behalf of the Bidder, will 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.

13.3 The Bidder will send to each labor union or representative of workers with which he has a collective bargaining agreement or other Contract or understanding, a notice advising the labor union or workers' representative of the Bidder's commitments under the Equal Employment Opportunity Section of this Specification and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

13.4 In the event of the Bidder's noncompliance with the nondiscrimination clauses of this Specification or with any of such rules, regulations, or orders, the Contract may be canceled, terminated, or suspended in whole or in part and the Bidder may be declared ineligible for further Owner contracts.

The Bidder will include the provisions of this section in every Subcontract or Contract unless exempted by rules, regulations, or orders of the Owner, so that such provisions will be bindingupon each Subcontractor.

Bidder: _____

By: _____

Date: _____

15.0 Covid-19

As North Carolina and the nation continues to deal with the COVID 19 pandemic, we must all take necessary steps to ensure the health and safety of employees, coworkers, family, friends, associates and people that we come in contact with on a daily basis. At PWC we implemented measures including requiring our employees to conduct temperature and wellness checks, wear a face covering or mask, whenever possible, maintain proper social distancing (minimum or 6 feet) and take other actions such as washing their hands, using approved sanitizer and wiping down surfaces, especially commonly shared equipment or tools. This applies to employees working in our facilities, working in public or at field sites. For firms who are under contract with PWC or working under Contract, those firms are expected to comply with all OSHA/EPA guidelines, CDC recommendations including any applicable North Carolina Executive Orders regarding the performance of work under COVID 19 conditions. Examples of such guidance can be found at the following:

OSHA COVID-19 Overview

https://www.osha.gov/SLTC/covid-19/

OSHA COVID-19 – Control and Prevention / Construction Work

https://www.osha.gov/SLTC/covid-

19/construction.html#:~:text=Keep%20in%2Dperson%20meetings%20(including,Fill%20hand%20sanitizer%20dispensers%20regularly.

https://www.osha.gov/Publications/OSHA4000.pdf

North Carolina COVID-19 Executive Orders

https://www.nc.gov/covid-19/covid-19-executive-orders

Center for Disease Control

https://www.cdc.gov/coronavirus/2019-ncov/index.html

Implementing Safety Practices for Critical Infrastructure Workers

https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-practices.html

Essential Staff- Do's & Dont's

https://www.cdc.gov/coronavirus/2019-ncov/downloads/Essential-Critical-Workers_Dos-and-Donts.pdf

NC Licensing Board for General Contractors

https://www.nclbgc.org/2020/07/02/board-buzz-summer/

NC Association of General Contractors

https://www.cagc.org/CAGC/SafetyHR/CAGC/Safety/SafelyHomeInitiative.aspx?hkey=e3439388-0c36-4755-91bd-4c8fc6d22a41

NC Department of Health and Human Services

https://covid19.ncdhhs.gov/

Cumberland County Health Department

https://www.co.cumberland.nc.us/departments/public-health-group/public-health

Department of Homeland Security

https://www.ready.gov/pandemic

Cape Fear Valley- What to do if you have COVID symptoms

https://www.youtube.com/watch?time_continue=1&v=tD0D7Apa_vw&feature=emb_logo

FAYPWC COVID Response

https://www.faypwc.com/covid-19-update/

Small Business Administration

https://www.sba.gov/page/coronavirus-covid-19-small-business-guidance-loan-resources

As an additional step to ensure the health and safety of contractor employees and PWC employees, should a contractor's employee test positive for COVID 19 the contractor must immediately inform the PWC project manager/supervisor or their primary point of contact at PWC and the employee should be performing work at PWC facilities or field sites until medically cleared. This is necessary so PWC can inform our employees, conduct or own method of contact tracing for our employees and take any measures necessary such as quarantining PWC employees who may have been in contact with the individual who tested positive.

These actions are necessary to ensure the health and safety of all and to ensure that contract performance can be achieved under the conditions of this pandemic.

Contractor must provide a plan with their proposal that describes their plan for working under COVID-19 conditions. The plan should address the Contractors approach to protect their employees, PWC employees, along with any other Contractor's working on PWC's locations. This

may include the Contractor's approach towards employee use of PPE, such as face masks, sanitizing commonly shared tools or equipment, practicing social distancing as work conditions permit, and working within close proximity of others. The plan may also address any other actions that the Contractor will be taking, such as conducting daily temperature checks, conducting symptom checks and trackers, and any other actions the Contractor deems appropriate to protect the health and safety of their employees, PWC employees, and any other Contractor's working on PWC's locations.

DEFINITIONS

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

Commission or Owner or PWC	Fayetteville Public Works Commission Fayetteville, North Carolina
General Manager	Elaina Ball, or her designee.
Manager of Substations and Support Services	Joel Valley, or his designee.
Procurement Manager	Trent Ensley, or his designee.
Consulting Engineer	Booth & Associates, LLC
Observer	An authorized representative of the Owner assigned to make any or all necessary observations of work performed and equipment and/or apparatus furnished by the Bidder
Materialman, Bidder or Contractor or Successful Bidder	Any individual, firm, or corporation submitting a Proposal for the work contemplated, acting directly or through a duly authorized representative; or 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 Bidder to perform part of the latter's Contract
Surety	The body, corporate or individual, approved by the Owner, which is bound with and for the Bidder who is primarily liable, and which engages to be responsible for his acceptable performance of the work for which he has contracted
Form of Proposal, Proposal	The approved, prepared form on which the Bidder is to submit or has submitted his Proposal for the work contemplated
Bid Security	To all bids there shall be attached cash, cashier's check, or certified check from the Bidder upon a bank or trust company insured by the Federal Deposit Insurance Corporation or the Savings Associates Insurance Fund, or in lieu thereof, a Bid Bond
Plans, Drawings	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 or Agreement	The agreement covering the furnishing of equipment and/or apparatus and the performance of the work. The Contract shall include the "Instructions to Bidders", "General Conditions", "Form of Proposal", "Plans", "Technical Specifications", Acknowledgments, and all other Contract Documents.
Performance Bond (Not Required)	The approved form of security to be approved by the Owner furnished by the Bidder and his Surety as a guarantee of good faith on the part of the Bidder to accept the work in accordance with the terms of the Specifications and Contract
Payment Bond (Not Required)	The approved form of security to be approved by the Owner furnished by the Bidder and his Surety as a guarantee for payment of all Subcontractors on the part of the Bidder in acceptance of the work in accordance with the terms of the Specifications and Contract
Work	The performance of the project covered by the Specifications or the furnishing of labor, machinery, equipment, tools, or any other article or item being purchased by the Owner
Emergency	A temporary unforeseen occurrence or combination of circumstances which endangers life and property and calls for immediate action or remedy

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.

State of North Carolina
Cumberland County

AGREEMENT

THIS AGREEMENT ("Agreement") is made by and between the City of Fayetteville(the "City"), by and through the Fayetteville Public Works Commission ("FPWC"), a North Carolina public authority, and _____ ("Contractor"), a _____(*specify type of legal entity, state of formation, and if not formed in NC, confirm NC registration to do business*) (each of each of PWC and Contractor is a "Party" and both are collectively the "Parties") as of the date of execution last written below (the "Effective Date"). The Parties agree as follows:

1. The Construction Project. Contractor shall furnish and bear solely the entire cost of all labor and materials necessary for the construction and/or renovation of the Project (defined hereinbelow) as specified in the Contract Documents (defined hereinbelow) and complete all Work on the Project in a workmanlike manner in strict accordance with the Contract Documents, schedule delivery of the new materials, furnish and bear solely the entire cost of all supervision, contract administration, equipment, tools, and other means necessary to complete the Project, perform every obligation imposed by the Contract Documents, and be solely responsible for the clean-up and disposal of all materials and debris relating to or arising from the construction and renovation, subject to any exceptions that are specifically set forth in the Contract Documents. Contractor is solely responsible for all construction means, methods, techniques, sequences, procedures, safety precautions or programs, supervising, coordinating, and performing all the Work necessary to complete the Project; provided, however, PWC shall have the right, without incurring any liability to the Contractor, to suspend Contractor's performance when a PWC employee, in his or her opinion, observes a safety violation involving a threat to life or imminent danger of bodily injury, and the suspension shall remain in effect until Contractor remedies the safety violation.

2. Terms. Capitalized terms used in this Agreement have the meaning specified below:

"Business Day" means each calendar day that is not a Saturday, Sunday, holiday observed by the federal government for its employees, or holiday observed by the State of North Carolina for its employees.

"Completion of the Project" means: (i) the Project is completed in accordance with this Agreement, except for punch list items; (ii) PWC has received any required temporary or final certificate of occupancy from the governmental agency with jurisdiction over the Project; and (iii) the registered architects or engineers (the "Designer(s)") who designed portions or components of the Project have issued certificates of Completion of the Project as to those portions or components.

"Contract Documents" means the following documents that were either made available to Contractor by PWC during the bid solicitation process (including Drawings) or executed by the Parties or both, which are all incorporated by reference herein:

a. This Agreement
b. Invitation to Bid
c. Instructions to Bidders
d. Bid Proposal Checklist
e. Bid Proposal Form
f. Bid Proposal Supplemental – Contractor Qualification Form
g. Performance and Delivery
h. Bid Form submitted by Contractor and accepted by PWC
i. Notice of Award

j. Acceptance of Award
k. Construction Contract
l. Performance Bond
m. Payment Bond
n. Certificates of Insurance
o. Power of Attorney
p. Definitions and Terminology
q. General Conditions
r. Special Conditions
s. Measurement and Payment
t. Submittals
u. Special Provisions – Performance and Delivery
v. Quality Control
w. Project Closeout
x. Appendices
y. Technical Specifications
z. Drawings
aa. Structure Contract

The following documents may be delivered or issued on or after the Effective Date of the Agreement and may not be attached to this Agreement, but are considered Contract Documents when executed by the Parties:

m. Notice to Proceed and Acceptance of Notice
n. Work Change Directive(s)
o. Change Order(s)
p. Field Order(s)

There are no Contract Documents other than those identified in this Agreement. The Contract Documents may only be amended, modified, or supplemented as provided in this Agreement in a writing signed by the Parties.

"Fault" means a breach of contract by Contractor, negligent, reckless, or intentional act(s) or omission(s) constituting a tort under applicable statutes or common law by one or more Responsible Persons, or violation(s) of applicable statute(s) or regulation(s) by a Responsible Person.

"Project" means _____ _____ (insert general description), as more specifically set forth in the Contract Documents.

"Responsible Person" means the Contractor and each of its employees, agents, representatives, subcontractors, or other persons and entities for which Contractor may be liable or responsible as a result of any statutory, tort, or contractual duty.

The terms used in this Agreement shall have the meaning as stated herein and in the Definitions and Terminology. In the event of a conflict between the terms of this Agreement and any other component(s) of the Contract Documents, the terms of this Agreement shall govern.

3. Contract Price. PWC shall pay Contractor for completion of the Project in accordance with the Contract Documents the amount identified in the accepted Bid Form of Contractor, being in the total amount of $_____(the "Price"). Contractor understands and acknowledges that the Price is derived from a specific appropriation of funds provided for the Project. Contractor agrees and acknowledges the Price is equal to the

aggregate cost of all Work to be done on the Project, including all labor, materials, equipment, apparatus, and supplies, set in accordance with the amount specified on the Bid Form submitted by Contractor and accepted by PWC.

4. Contract Times. The Parties shall perform their obligations under this Agreement in compliance with all scheduling deadlines set forth in the Contract Documents. The Contractor shall commence the Work to be performed under this Agreement on a date to be specified in accordance with the Notice to Proceed issued by PWC. Contractor shall achieve Completion of the Project no later than _____, plus any extensions thereof allowed in accordance with the General Conditions (the "Completion Date").

5. Payment. PWC shall pay Contractor in installment payments plus a final payment, as set forth in the Contract Documents. For each applicable installment payment, Contractor shall submit an application for payment in accordance with the Contract Documents. Applications for payment will be processed by PWC as provided in the Contract Documents. Such installment payments shall reflect the actual cost of the Work, not to exceed in total the Price, and the allocable portion of the total Price for said installment. PWC shall make payment to the Contractor, less any applicable retainage set forth in the Contract Documents; provided, however, that PWC may withhold all or a portion of a payment on account of (1) incomplete work, (2) defective or nonconforming work, (3) claims filed or a reasonable basis to believe that such claims will be filed imminently, (4) failure of the Contractor to make payments properly for labor, services, materials, equipment or subcontracts, (5) damages caused to PWC or another party by one or more Responsible Persons, or (6) failure to comply with the terms and conditions of this Agreement. In the final payment, PWC shall pay the balance of the Price, including all retained amounts, less any Liquidated Damages and other applicable damage and claim amounts, to Contractor within forty-five (45) days of Completion of the Project; provided, however, that PWC may withhold a reasonable sum from the final payment to ensure correction of any final items or condition on the Project.

6. Contractor's Representations and Warranties. In order to induce PWC to enter into this Agreement, Contractor makes the following representations and warranties to PWC:

a. Contractor is duly licensed in the State of North Carolina to complete all Work necessary for the Project, is duly organized, validly existing and in good standing and has all requisite powers, rights, and authority to execute, enter into, and perform this Agreement in accordance with the terms and conditions of this Agreement, and this Agreement constitutes a legal, valid, and binding obligation of Contractor enforceable against it in accordance with its terms.

b. Contractor has read the Contract Documents, and acknowledges and understands all data, materials, specifications, and requirements identified in the Contract Documents.

c. Contractor has visited the site for the Project, conducted a thorough, visual examination of the site and adjacent areas, and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance in completing the Project.

d. Contractor is familiar with and is satisfied as to all laws and regulations that may affect cost, progress, and performance to complete the Project.

e. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the site and all drawings of physical conditions relating to existing surface or subsurface structures at the site that have been identified in the Detail Specifications and any accompanying reports and drawings, and (2) reports and drawings relating to hazardous environmental conditions, if any, at or adjacent to the site that have been identified in the Contract Documents and any accompanying reports and drawings.

f. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, if any, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

g. Based on the information and observations referred to in subsection e. of this Section, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price commencing on the commencement date and in accordance with the other terms and conditions of the Contract.

h. Contractor is aware of the general nature of work to be performed by PWC and others at the Site that relates to the Work as indicated in the Contract Documents.

i. Contractor has given PWC's Designer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by the Designer is acceptable to Contractor.

j. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

k. Contractor's entry into this Agreement constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

l. Contractor has no business or personal relationship with any PWC Commissioner, officer, director, manager, or supervisor, and Contractor covenants to disclose immediately to PWC any such relationship that develops during the performance of Work on the Project.

7. Contractor's Payment Obligations. Contractor shall pay all of its obligations arising out of or in connection with the Project in a timely manner to all persons supplying materials in the prosecution of the Work and to all laborers and others employed thereon.

8. Performance and Payment Bonds. Contractor shall obtain and deliver to PWC a performance bond in the amount of one hundred percent (100%) of the construction contract amount, conditioned upon the faithful performance of the Project Work in accordance with the Contract Documents, which bond shall be solely for the protection of PWC. Contractor shall obtain and deliver to PWC a payment bond in the amount of one hundred percent (100%) of the Price, conditioned upon the prompt payment for all labor or materials for which the Contractor or one or more of its subcontractors is liable, which payment bond shall be solely for the protection of the persons furnishing materials or performing labor for which the Contractor is liable. The performance bond and the payment bond shall be executed by one or more surety companies legally authorized to do business in the State of North Carolina, shall become effective upon the awarding of the construction contract by PWC to Contractor, and shall at all times comply with the requirements set forth in Article 3 of North Carolina General Statutes Chapter 44A. In the event PWC deems the surety or sureties upon any bond necessary for this Agreement and the completion of the Project, or if for any reason, such bond ceases to be adequate to cover the performance and/or payment of the Work, Contractor shall, at its expense, within five (5) days after the receipt of notice from PWC, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to PWC. In such event no further payment to Contractor shall be deemed to be due under this Agreement until new or additional security for the performance and payment of the Project shall be furnished in

manner and form satisfactory to PWC. Contractor understands and acknowledges that PWC, as a public authority, and the City, as a municipal corporation, are not subject to the provisions of Articles 1 and 2 of Chapter 44A of the General Statutes, in accordance with G.S. 44A-34 and applicable law.

9. Contractor's Damage Repair Obligations. Contractor shall be responsible for all damages to the property of the City and of PWC that may result from the normal procedure of a Responsible Person's actions in the prosecution of the Work or that may be caused by or result from the negligence of a Responsible Person during the progress of or connected with the prosecution of the Work, whether within the limits of the Work or elsewhere. Contractor shall promptly restore all such property so damaged to a condition as good as it was immediately prior to Contractor initiating the Work on the Project.

10. Defective Work. The Project shall be subject to observation and approval by PWC, Designer, and representatives of governmental agencies with jurisdiction over the Project. PWC and Designer shall be entitled to enter at all reasonable times the premises subject to construction or renovation to inspect the Work performed by or on behalf of Contractor, provided that such entry and inspection does not materially interfere with the progress of construction. Contractor shall correct promptly, at no cost to PWC, all Work reasonably rejected by PWC or by its representatives. Should Contractor fail to correct rejected Work, PWC may, acting in its sole discretion, correct such Work, and the Contractor shall pay PWC's actual costs of correction.

11. As-Built Drawings. Contractor shall maintain during the progress of the Project as-built drawings indicating the current status of the Project as actually performed. Upon Completion of the Project, Contractor shall prepare a final version of such as-built drawings and submit them to PWC for approval.

12. Assignment. This Agreement shall be binding upon and inure to the benefit of the Parties, their legal representatives, successors, and assigns. Contractor may not assign, transfer, convey, or encumber, whether voluntarily or by operation of law, this Agreement or any obligations, rights under, or interests in this Agreement to a third party without the prior written consent of PWC; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

13. Indemnity. Contractor shall indemnify, defend, and hold harmless PWC and its Commissioners, officers, employees, agents, and representatives and the City and its elected officials, managers, employees, agents, and representatives (collectively "Indemnitees") from and against all claims, actions, liabilities, damages, losses, costs, and expenses (including, without limitation, injury to or death of any persons and damage to property, economic and consequential damages and attorneys' fees) asserted by one or more third parties against one or more of the Indemnitees if the Fault of one or more Responsible Persons is a proximate cause of the loss, damage, or expense indemnified. Contractor's obligation to indemnify, defend, and hold harmless the Indemnitees shall survive the termination of this Agreement.

14. Insurance. Contractor shall maintain during the completion of the Project and for at least three (3) years thereafter the insurance coverage set forth in the Contract Documents, which insurance shall be placed with insurance companies authorized to do business in the State of North Carolina and rated A minus VII or better by the current edition of Best's Key Rating Guide or otherwise approved in writing by PWC. Prior to initiating any work on the Project, Contractor shall deliver certificates of insurance confirming each such coverage required by the Contract Documents, and Contractor shall direct its insurers to provide to PWC annually certificates confirming each such coverage during the coverage period. PWC shall be named as an additional insured in the comprehensive automobile and commercial liability insurance policies. Commercial general liability coverage shall be written on an "occurrence" basis. Contractor shall not reduce or allow the required insurance coverages to lapse without PWC's prior written approval. All policies for insurance must be endorsed to contain a provision giving PWC a thirty (30) calendar day prior written notice by certified mail of any cancellation of that policy or material reduction in coverage. Should a notice of cancellation be issued for non-payment of premiums or any part thereof, or should Contractor fail to provide and maintain certificates as set forth herein, PWC shall have the right, but shall not the obligation, to pay such premium to the insurance company or to obtain such coverage and to deduct such payment

from any sums that may be due or become due to Contractor, or to seek reimbursement for said payments from Contractor. Any such sums paid by PWC shall be due and payable immediately by Contractor upon notice from PWC. The insurance provisions of this Agreement shall not be construed as a limitation on Contractor's responsibilities and liabilities pursuant to the terms and conditions of this Agreement. Contractor's obligation to maintain insurance for three (3) years after completion of the Project shall survive the termination of this Agreement.

15. Waiver. No failure on the part of any party to exercise, and no delay in exercising, any right, power, or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right hereunder preclude any other or further cumulative and not exclusive of any remedies provided by law.

16. Law. THIS AGREEMENT SHALL BE GOVERNED BY AND INTERPRETED AND ENFORCED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NORTH CAROLINA WITHOUT GIVING EFFECT TO THE CHOICE OF LAW PROVISIONS THEREOF. Contractor shall at all times comply with all applicable Federal, state, and local laws and building codes in the performance of its obligations under the Contract Documents.

17. Dispute Resolution. In the event of any dispute, controversy, or claim of any kind or nature arising under or in connection with this Agreement (a "Dispute") and involving any two or more of PWC, Designer, Contractor or any tier subcontractor of Contractor, the party initiating the Dispute shall serve written notice of a Dispute on the other party(ies) to the dispute, and those parties shall endeavor to settle the dispute first through direct, informal discussions between the parties' selected representatives. Any such representative(s) shall have binding authority to settle the Dispute. In the event the parties do not settle the Dispute within ten (10) days from the date of written notice of the Dispute, any party to the Dispute may, by written notice to the other party(ies), engage a mediator certified under the laws of the State of North Carolina to mediate the Dispute within thirty (30) days of such notice. The parties to the Dispute shall attend mediation in good faith. In the event mediation is unsuccessful, any party to the dispute may initiate arbitration proceedings. Any controversy or claim arising out of or relating to the Contract Documents, or the breach thereof, shall be settled by binding arbitration administered by the American Arbitration Association under its Construction Industry Arbitration Rules, and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. All of the foregoing dispute resolution procedures shall be held in Cumberland County, North Carolina. The costs of the mediator and arbitrator in a dispute resolution process shall be divided equally among the parties to the process; provided, however, PWC shall bear at least one-third of the cost if PWC is a party to the dispute resolution and the remainder of the cost shall be divided equally among the other parties participating in the dispute resolution. PWC shall in its contractual arrangements with Designer and Contractor shall in its contracts with subcontractors and they in their contracts with lower-tier subcontractors authorize and direct such parties to participate in the dispute resolution procedures set forth in this Section. Unless otherwise directed in writing by PWC, Contractor shall continue the Project and maintain compliance with the scheduling deadlines set forth in the Contract Documents during any dispute resolution proceedings. If Contractor continues to perform, PWC shall make payments due for the continued performance in accordance with this Agreement. The provisions of this Section shall not modify any applicable statutes of limitation or repose.

18. Execution; Entire Agreement; Modification; Severability. This Agreement may be executed in counterparts with the same effect as if the signatures to each counterpart were upon a single instrument, and all such counterparts together shall be deemed an original of this Agreement. For purposes of this Agreement, a facsimile copy or scanned copy or photocopy of a party's signature shall be sufficient to bind such party. This Agreement shall be subject to execution by electronic means in accordance with Article 40 of Chapter 66 of the North Carolina General Statutes. The Contract Documents shall be conclusively considered to contain and express all the terms and conditions agreed upon by the Parties, notwithstanding any prior or contemporaneous written communication, promise, understanding or agreement. No oral communication, promise, understanding, or agreement before, contemporaneous with or after the execution of this Agreement shall affect or modify any of the terms and conditions and obligations of the Contract Documents. The Contract Documents shall be amended, modified or supplemented only by a subsequent writing signed by both Parties. Should any provision of this Agreement or any of the Contract Documents at any time be in conflict with any law, statute, rule, regulation, order or ruling and thus be unenforceable, or be unenforceable for any other reason, then the remaining provisions of this Agreement shall

remain in full force and effect and the court or arbitrator shall give the offending provision the fullest meaning and effect permitted by law. The titles of the Sections throughout this Agreement are for convenience only and the words contained therein shall in no way be held to explain, modify, amplify or aid in the interpretation, construction or meaning of the provisions of this instrument.

19. Notices. Any notice which either Party is required or desires to give the other hereunder shall be deemed sufficiently given if, in writing, it is delivered personally, or sent by certified U.S. mail, return-receipt requested, postage prepaid, to the addresses listed herein below, or such other address as either Party shall give to the other Party by written notice in accordance herewith. Any notice given herein by personal delivery shall be deemed delivered when received. Any properly addressed notice given herein by certified mail shall be deemed delivered on third Business Day after the same is deposited in an official United States Post Office, postage prepaid, or if sooner upon the date when the return receipt therefore is signed, or refusal to accept the mailing by the addressee is noted thereon by the postal authorities.

To PWC:
Fayetteville Public Works Commission
Attn: Elaina L. Ball, CEO/General Manager
PO Box 1089
Fayetteville, NC 28302

To Contractor:
[INSERT MAILING ADDRESS]

20. Compliance. Contractor hereby acknowledges that "E-Verify" is the federal E-Verify program operated by the US Department of Homeland Security and other federal agencies which is used to verify the work authorization of newly hired employees pursuant to federal law and in accordance with Article 2, Chapter 64 of the North Carolina General Statutes. Contractor further acknowledges that all employers, as defined by Article 2, Chapter 64 of the North Carolina General Statutes, must use E-Verify and after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with N.C.G.S. §64-26(a). Contractor hereby pledges, attests and warrants through execution of this Agreement that Contractor complies with the requirements of Article 2, Chapter 64 of the North Carolina General Statutes and further pledges, attests and warrants that all subcontractors currently employed by or subsequently hired by Contractor shall comply with all E-Verify requirements. Failure to comply with the above requirements shall be considered a breach of this Agreement. Contractor hereby further acknowledges that the execution and delivery of this Agreement constitutes Contractor's certification to PWC and to the North Carolina State Treasurer that, as of the date of the Effective Date of this Agreement, Contractor is not listed on (a) the Final Divestment List created and maintained by the North Carolina Department of State Treasurer pursuant to the Iran Divestment Act of 2015, Chapter 147, Article 6E of the General Statutes of North Carolina (the "Iran Divestment Act"); or (b) the list of companies that the North Carolina State Treasurer determines to be engaged in a boycott of Israel in accordance with Article 6G of Chapter 147 of the General Statutes of North Carolina. Contractor represents and warrants to Commission that Contractor, and all persons and entities owning (directly or indirectly) an ownership interest in it: (i) are not, and will not become, a person or entity with whom a party is restricted from doing business with under regulations of the Office of Foreign Asset Control ("OFAC") of the Department of the Treasury (including, but not limited to, those named on OFAC's Specially Designated and Blocked Persons list) or under any statute, executive order (including, but not limited to, the September 24, 2001, Executive Order 13224 Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism), or other governmental action; and (ii) are not knowingly engaged in, and will not knowingly engage in, any dealings or transactions or be otherwise associated with such persons or entities described in clause (i) above. Contractor also shall at all times during the term of this Agreement comply with Executive Order 11246, including but not limited to the Equal Opportunity Clause requirements set forth in 41 C.F.R. § 60-1.4. Contractor shall abide by the requirements of 41 CFR 60–300.5(a) and 60–741.5(a) prohibiting discrimination against qualified individuals on the basis of protected veteran status or disability and

requiring affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans and individuals with disabilities.

IN WITNESS WHEREOF, the Parties have executed this Agreement by their duly authorized representatives.

The City of Fayetteville, by and through the Fayetteville Public Works Commission

By:_____
Elaina L. Ball, CEO/General Manager

Date: _____

[CONTRACTOR FULL LEGAL NAME]

By: _____

_____, _____
(Printed Name) (Title)

Date: _____

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act (N.C. Gen. Stat. § 159-1 et seq.).

By:_____
Rhonda Haskins, Chief Financial Officer

Approved as to form:

_____
James P. West, Chief Legal Officer

FURTHER AGREEMENTS

Materialman shall, upon completion of all work awarded under this Contract, furnish to Owner invoices or copies of invoices for all materials and equipment purchased for said work and such invoices shall state the amount of sales tax paid for said materials and equipment, and Materialman shall also furnish the Owner an affidavit certifying the total costs of materials and equipment purchased for all work performed under the Contract and the total amount of sales tax paid for said materials and equipment.

(Imprint corporate seal
below this line)

_____

By _____ (SEAL)

ATTEST: Title _____

_____
Secretary

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, NORTH CAROLINA

By _____

ATTEST:

_____
Secretary

CONTRACT INSTRUCTIONS

INSTRUCTIONS FOR PROPER SIGNING

If Materialman is an individual, sign on first line only, and designate trade name below first line, thus:

John Jones (SEAL)
Trading as Jones Paving Company

If Materialman is a partnership, sign partnership name on first line; have at least one general (not limited) partner sign on second line, and put his designation as partner on third line, thus:

JONES PAVING COMPANY (SEAL)

By John Jones (SEAL)

Title General Partner

If Materialman is a corporation, sign corporate name on first line (exactly) as such appears on the corporate seal, have the President or a Vice President sign on second line, put his title on third line, have the Secretary or Assistant Secretary sign on the left "Attest" line (adding the word "Assistant" before the word "Secretary" if the Assistant Secretary is signing), and imprint corporate seal above the word "Attest", thus:

JONES PAVING COMPANY, INC. (SEAL)

By John Jones (SEAL)

Title President

ATTEST:

Thomas Jones
Assistant Secretary

POWER OF ATTORNEY

NOTICE OF AWARD

TO: _____
_____
_____

STRUCTURES FOR THE BLACK AND DECKER 69 to 15 kV SUBSTATION

The OWNER has considered the BID submitted by you for the above described work in response to its Advertisement for Bids dated _____ and Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of $_____.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Performance Bond, Payment Bond, and Certificates of Insurance within ten (10) calendar days from the date of this NOTICE to you.

If you fail to execute said Agreement and to furnish said Bonds within ten (10) days from the date of this Notice, said Owner will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 2021.

OWNER: FAYETTEVILLE PUBLIC WORKS COMMISSION OF FAYETTEVILLE

BY: _____
Trent Ensley
Purchasing Manager

ACCEPTANCE OF AWARD

STRUCTURES FOR THE BLACK AND DECKER 69 to 15 kV SUBSTATION

Receipt of the preceding NOTICE OF AWARD is hereby acknowledged this the day

of _____, 2021.

CONTRACTOR

By: _____

Title: _____

NOTICE TO PROCEED

TO:_____ **DATE:**_____

STRUCTURES FOR THE BLACK AND DECKER 69 to 15 kV SUBSTATION

You are hereby notified to commence work in accordance with the Contract dated _____ _____, 2021, on or before_____, 2021, and you are to complete the WORK within_____consecutive calendar days thereafter. The date of completion of all work is therefore_____, 2021.

OWNER: FAYETTEVILLEPUBLIC WORKS COMMISSION OF FAYETTEVILLE

BY:_____
Trent Ensley
Purchasing Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED

is hereby acknowledged this the_____day

of_____, 2021.

CONTRACTOR

BY:_____

TITLE:_____

FORM OF PROPOSAL

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, NORTH CAROLINA

STRUCTURES AND EQUIPMENT FOR BLACK AND DECKER 69 TO 15 kV SUBSTATION

FORM OF PROPOSAL

Respectfully submitted this_____day of_____, 2021.

_____
Name

By: _____
(signature)

_____
Title

Name and Address of Contractor:

_____

_____

_____

Phone Number:

Email:

TERMS AND CONDITIONS

1. The undersigned (hereinafter called the "Bidder") hereby proposes to sell and deliver to the Commission upon the terms and conditions herein stated, the materials, equipment, and services (hereinafter called the "Material") specified in the Bid Schedule(s) attached hereto, and by this reference made a part hereof, for the Materials for the Commission, and:

   a. These bid documents include *Notice to Prospective Bidders*, *Instructions to Bidders*, *General Conditions*, and *Technical Specifications*.

   b. Manufacturer's specifications, both as set forth herein and in Manufacturer's literature (two [2] sets) attached hereto, or furnished separately as provided for in the *Instructions to Bidders*;

   c. Legal negotiations, with successful bidder only, after bids are opened, for budgetary compliance.

2. The prices as quoted herein:

   a. Are firm unless otherwise stated.

   b. Are FOB to the location(s), as outlined in the *Instructions to Bidders*.

   c. Do include the cost of delivery to the site at the Bidder's Risk, assuming unloading by Others.

   d. Have state sales tax shown as a separate item, if applicable.

3. The Material prices set forth herein do not include any sums which are or may be payable by the Bidder on account of State Sales Tax upon the sale, purchase or use of the material. If any such tax is applicable to the sale, purchase or use of the material hereunder, the amount thereof shall be added to the purchase priceand paid by the Commission after the Bidder has ascertained the actual sales tax to be included in the contractprice.

4. Invoice shall list the appropriate state sales tax as a separate item

5. The Bidder further declares that he has examined the site of the work and informed himself fully regarding all conditions pertaining to the location where the Material is to be delivered; that he has examined the *Technical Specifications* for the work and Bid Documents relative thereto; has read all special provisions furnished prior to the opening of the bids; and that he has satisfied himself relative to the work to be performed.

6. The Bidder proposes and agrees if the following Bid Schedule(s) in this Proposal is accepted, to contract with the Commission, in the form of a contract specified, to furnish all necessary equipment and materials, except materials and equipment specified to be furnished by the Commission, complete in accordance with the Bid Documents, to the full and entire satisfaction of the Commission, with a definite understanding that no money will be allowed for extra work except as set forth in the *General Conditions*, and as filed on Change Order Forms.

7. The Commission may accept any schedule or portion thereof.

8. A *Form of Exceptions* to the *Technical Specifications*, prepared in accordance with the *Instructions to Bidders*, is attached hereto. The Bidder shall document any exceptions with deviation from the bid documents and specifications in the *Form of Proposal*. Otherwise, the complete compliance is assumed.

9. Proposals shall include a complete bill of materials, identifying each item by catalog number, manufacturer, ratings, characteristics, types, sizes, etc., of all materials and equipment required for a complete and coordinated substation. A simple statement that all necessary materials and equipment will be provided is not acceptable.

10. The Bidder warrants the accuracy of all statements contained in the Bidders Qualifications, if any shall be submitted, and agrees that the Commission shall rely upon such accuracy as a condition of the Contract in the event that this Proposal is accepted.

11. Title to the materials shall pass to the Commission upon delivery to the location(s) specified in the I*nstructions to Bidders*.

12. The Bidder warrants that the Materials will conform to the performance data and guarantees which are attached hereto and by this reference made a part thereof.

13. By the submission of this bid, the Bidder certifies that:

    a. The bid has been arrived at by the Bidder independently and has been submitted without collusion with any other Bidder of materials, supplies, or equipment of the type described in the *Notice to Prospective Bidders* or the *Technical* Specifications, and

    b. The contents of the bid have not been communicated by the Bidder, nor, to its best knowledge and belief, by any of its employees or agents, to any person not an employee or agent of the Bidder or its Surety on any Bond furnished herewith, and will not be communicated to any person prior to the officialopening of the bid.

14. The Bidder further agrees that in case of failure on his part to accept said contract within ten (10) consecutive calendar days after written notice has been given of the award of the contract, the Bid Security accompanying this bid, and the monies payable thereon, shall be paid into the funds of the Commission account set aside for this project, as liquidated damages for such failure; otherwise the check or cash accompanying the *Form of Proposal* shall be returned to the Bidder.

15. If, in submitting this Proposal, the Bidder has made any change in the *Form of Proposal*, the Bidder understands that the Commission may evaluate the effect of such change as they see fit or they may exclude the Proposal from consideration in determining the issue of purchase order.

BID SCHEDULES

BID SCHEDULE NO. 1 – Base Bid – Steel Structures

Description	Quantity	Unit Price
Furnish and Deliver Complete the Structures and Equipment for the **Black and Decker Substation as** per the Plans and Specifications for a Station Utilizing Steel Structures	1 Lot	$
Delivery Charge		$
Sales Tax (if applicable)		$
BASE BID:		$

The approximate weight of steel structures to be furnished will be:_____pounds.

Bidders will be evaluated based on per unit steel price. Final invoicing to be adjusted based on actual steel weight.

Note: These weights include all substation structures including structural members and anchor bolts. They do not include switch mounting bases, switch operator grounding plates, or miscellaneous parts of electrical equipment. Steel weight is after galvanizing. Proportions of the total price for this schedule must be itemized below:

BID SCHEDULE NO. 1 - Proportionate Prices (Base Bid)

Structural Steel with anchor bolts	$
Bus, Connectors, Insulators, Fuses, and all other miscellaneous equipment	$
Grounding System – Connectors	$

ALL BID SCHEDULES - Delivery Schedule

The prices of the materials and equipment set forth herein shall include the cost of delivery at the Bidder's risk as per the following quoted time table. The time for delivery shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without fault of the Bidder, including acts of God, fires, floods, strikes, and delays in transportation.

Delivery of all items of equipment to the Commission's designated delivery point shall be made to permit unloading between the hours of 9:00 a.m. and 3:00 p.m., Monday through Thursday, holidays excluded.

Item	Delivery Schedule (Days)*
Steel Structures	
Anchor Bolts	
Equipment in BOM	24 weeks after receipt of order (ARO)

* After the receipt of the written order from the Commission in consecutive calendar days and per Instructions to Bidder Section 6.0.

Field Engineering Services (Optional)

Rate for optional field service engineering for any unit included in Schedule 1, including expenses:

RATE PER DAY: $_____

ONE ROUND TRIP: $_____

EQUAL OPPORTUNITY EMPLOYMENT AFFIDAVIT

General Conditions, 13.0 Equal Opportunity Employment

The Contractor will include the provisions of the Equal Opportunity Employment section (General Conditions) in every Subcontract unless exempted by rules, regulations, or orders of the Owner so that such provisions will be binding upon each Subcontractor.

Bidder: _____

By: _____

Date: _____

FORM OF EXCEPTIONS

Instructions to Bidders, 7.0 Award of Contract

BIDDER:	
OWNER:	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, NORTH CAROLINA
PROJECT DESCRIPTION	STRUCTURES AND EQUIPMENT FOR BLACK AND DECKER 69 TO 15 kV SUBSTATION

INSTRUCTIONS: The following is a list of exceptions to the Bidding Documents and/or Technical Specifications pertaining to the furnishing of the subject materials. Bidders shall identify each exception by Specification page and paragraph number on this form. The omission of exception implies complete compliance with Plansand Specifications.

BID DOCUMENT/ SPECIFICATION PAGE NO. AND PARAGRAPH	**EXCEPTION/VARIATION**

NORTH CAROLINA BID BOND

Instructions to Bidders, 3.0 Bid Security

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 Fayetteville Public Works Commission of, Fayetteville, North Carolina, as Obligee, in the penal sum of _____ _____DOLLARS ($_____) (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_____, 2021.

WHEREAS, the said Principal is herewith submitting Proposal for

STRUCTURES AND EQUIPMENT FOR BLACK AND DECKER
69 TO 15 kV SUBSTATION

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 within ten (10) 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 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)

INSERT

ADDENDA / CLARIFICATIONS / BULLETINS

Instructions to Bidders, 5.0 Bulletins and Addenda

TECHNICAL SPECIFICATIONS

PUBLIC WORKS COMMISSION
FAYETTEVILLE, NORTH CAROLINA

STRUCTURES AND EQUIPMENT FOR
BLACK AND DECKER SUBSTATION

TECHNICAL SPECIFICATIONS

1.0 Scope

Public Works Commission of Fayetteville, North Carolina, is procuring materials for the installation of the BLACK AND DECKER Substation. These Technical Specifications describe the structural materials, equipment, and the associated components for the installation of these facilities.

The Bidder's work shall include furnishing all equipment and materials so represented by the Bill of Materials, the accompanying Drawings, these Technical Specifications, and as set forth in the Bid Schedule. The Owner reserves the right to select any combination of alternate schedules as may be allowed. The Owner also reserves the right to reject any or all bids.

The Bill of Materials supplied with these Specifications represents the type of materials to be supplied. The Bidder has the responsibility of furnishing the quantity, all mounting hardware, and miscellaneous other materials necessary for a complete and functional substation, except for items designated to be furnished by Owner.

2.0 General Conditions

These Specifications describe the type, size, and characteristics of the various materials and equipment required to be furnished. The Drawings indicate general arrangement, equipment location, and spacing.

Strict adherence to these general Specifications and Drawings is requested to facilitate checking and consideration of the Proposal.

Proposals shall include the following:

2.1. Catalog numbers, manufacturer, ratings, characteristics, types, sizes, etc., of all materials and equipment included. A simple statement that all necessary materials and equipment will be provided is not satisfactory. A List of Materials is included at the end of these Specifications for providing this information.

2.2. Proposal for the substation shall include all materials and equipment required for a complete and coordinated substation. The Successful Bidder shall submit along with his quotation a complete list of materials to be furnished for the substation.

2.3. Prices shall include the cost of delivery to Fayetteville, North Carolina.

2.4. Coordinated shipment shall be made to reduce storage by Contractor and to facilitate the accumulation of component parts. Small piecemeal shipments will not be accepted. The number of shipments shall not exceed five (5) unless approved by the Owner. Direct-manufacturer, factory-drop shipments shall not be accepted.

2.5. All components in the steel package shall be distinctly marked or identified and shall be completely assembled before shipment, insofar as is practical. Each Bidder shall so state in his Proposal the manner in which trusses and columns will be shipped.

2.6. The Bidder shall furnish specification sheets (and installation manuals when required) for all switches, connectors, fittings, insulators, and lightning arresters not explicitly called out in the approved Bill of Materials. These specification sheets shall be provided with the approval drawings.

2.7. Any design work performed by the Bidder shall be sealed by a Professional Engineer registered in the State where the project is located.

3.0 Special Conditions

3.1. Material Shipments

The structures, crates, pallets, boxes, packing lists, etc. shall be maintained and clearly marked to correspond appropriately with the correct project.

3.2. Defective Materials, Equipment, and Workmanship

All materials and equipment furnished hereunder shall be subject to the inspection, tests, and approval of Owner; and the Bidder shall furnish all information required concerning the nature or source of any materials and equipment and provide adequate facilities for testing and inspecting the materials and equipment at the plant of the Bidder.

The materials and equipment furnished hereunder shall become the property of Contractor when delivered at the point to which shipment is to be made; provided, however, that Contractor may reject any such materials and equipment as does not comply with the Specifications for materials and equipment and warranties of the Bidder and manufacturers. Recognition and subsequent rejection of any defective materials and equipment may occur either before or after incorporation of such materials and equipment into the facilities, provided such rejection is made within one (1) year of date of delivery of the materials and equipment. Upon any such rejection, the Bidder shall replace the rejected materials and equipment with materials and equipment complying with the Specifications for materials and equipment and warranties FOB open-top truck or open trailer at suitable destination as determined by Contractor. Contractor shall return the rejected materials FOB open-top truck or open trailer at the same destination. In the event of the failure of the Bidder to so replace rejected materials and equipment, Contractor may make such replacement; and the cost and expense thereof shall be paid by and be recoverable from the Bidder.

3.3. Miscellaneous

The Bidder shall hold harmless and indemnify the Owner, its agents, and employees from any and all claims, suits, and proceedings for infringement of any patent or patents covering materials and equipment purchased hereunder. The Bidder shall defend any suit or proceeding brought against Owner, its agents, or employees based upon a claim that the materials and equipment, or any part thereof, constitute an infringement of any patent; or if the Bidder shall fail to defend such suit or proceeding, Owner may do so and the Bidder shall make reimbursement for the expense of such litigation. If the materials and equipment, or any part thereof, are held to constitute infringement and the use thereof is enjoined, the Bidder shall, at its own expense, either procure for Owner the right to continue to use the materials and equipment, or such part thereof, or shall replace the materials and equipment, or such part thereof, with non-infringing materials and equipment.

4.0 Standards

4.1. All equipment and materials covered by these Specifications shall be in accordance with the applicable provisions of the latest editions of the Standards of the ASTM, ANSI, NEMA, IEEE, OSHA, RUS, and latest revision of the NESC. Where a manufacturer's name and type of equipment is indicated in the Specifications, it is for clarity and the establishment of a standard and is restrictive unless use of an approved equal is specificallymentioned.

The Bidder may offer alternate pricing for equivalent items by other manufacturers. However, all base bids must explicitly comply with the designated materials specified herein. The Owner may elect to purchase alternates, as proposed by the Bidder. The alternate materials are subject to review and approval by the Owner.

The basic system ratings for the substations shall be as follows:

System High-Side Voltage	69,000 volts, three-phase wye, Basic Insulation Level shall be 350 kV, 60 Hertz.
System Low-Side Voltage	25 kV at 150 BIL, 60 Hertz operated at 25 kV
Transformer Capacity	One (1) substation class power transformer rated 67 to 26.18 x 13.09 kV, rated 20/26.7//33.3.0 MVA, ONAN/ ONAF/ ONAF (55°C).
Structural Design	Medium Loading District, plus allowance for 0.50 inches of ice and 90 mph. wind with 150 mph. gusts.
Primary Bus and Secondary Bus	Strength requirements to match weight of equipment, ice, and wind loadings.
Incoming Circuit	2,500 lbs. factored per 69 kV phase conductor design tension, 1,500 lbs. unfactored per static conductor, +/- 15° take-off angle in any direction
Outgoing Circuits	Underground
69 kV Power Circuit Breaker	48 volt dc and 120/240 volt ac single-phase
Transformer	48 volt dc and 120/240 volt ac single-phase
Bus & Feeder Circuit Breakers	48 volt dc and 120/240 volt ac single-phase
Protective Relaying Panels	48 volt dc and 120/240 volt ac single-phase

5.0 Drawings and Documentation

5.1 Conceptual Design
The work shall conform to the Booth & Associates, Inc. Drawings listed in the Appendices, all of which form a part of these Specifications.

5.2 Load Calculations
The Commission's Engineer will prepare calculated loading reactions.

5.3 Design and Fabrication Drawings
The Commission's Engineer will prepare all Shop Drawings and Bill of Materials.

5.4 Bus Cutting Schedule
The Bidder shall provide a bus cutting schedule to demonstrate the bus quantity and be used by the construction contractor.

6.0 Structural Steel

6.1. The substation structures to be included in the Form of Proposal shall conform to the following specifications and are identified on the appropriate substation project drawing.

The Substation Structures are to include:

1) 69 kV, 4-inch diameter IPS aluminum bus and bus supports
2) 69 kV line A-frame terminating structure with 69 kV group-operated disconnect switches
3) Two (2) 69 kV group-operated switch structures
4) 85-foot direct embedded steel static masts, (one (1) required)
5) 25 kV, 6-bay underground feeder distribution structure
6) Two (2) 69 kV H-Frame Structures

6.2. Specifications for the fabrication, erection and shipping of structural steel can be found in the Appendices of this specification.

7.0 Lightning Protection Structures

7.1. Lightning masts shall be one-inch diameter galvanized steel pipe capped at top end, of required length, and shall extend a minimum of ten feet (10') above the structure as shown

on the Drawings. Lightning masts shall be supplied with mounting provisions for attachment to the steel columns of the substation structures. Lightning mast ground clamps shall be included for attachment of 2/0 AWG copper-clad steel leads as defined in **Section 12.0 Connectors**.

7.2. One (1) hot-dip galvanized steel pole shall be provided by the Bidder for primary bus static protection. The static pole shall be two-piece units, and shall be 85'-0" in length (for 10'-0" embedment), furnished complete with 10'-0" static rod designed for top mast mounting, for a total height of eighty-five feet (85') above-grade. The poles shall be equipped with Aeolian vibration suppression, service hand-hole, below-grade cable entrance slot, NEMA 2-hole pads for grounding, and two (2) floodlight brackets, as indicated on the Drawing details. The Bidder shall provide all mounting hardware, conductor, and connectors to complete assembly of the static masts per the Detail Drawings.

8.0 Miscellaneous Structures / Hardware

8.1. A switch grounding platform used for protecting the switch operator in the event of a fault at the switch during manual operation shall be furnished for each group-operated switch. The platform shall be open-grating design with the grounding connector locations on opposite corners for attachment of 2/0 AWG copper as shown on the drawings.

8.2. Miscellaneous fastener hardware shall conform to the industry standards for the purpose for which they are to be used. Bolts, nuts, and washers for structural steel shall be hot-dip galvanized. Hardware shall be of low-alloy, corrosion-resistant steel, ASTM Specification A242.

All quantities of fastener hardware shall be shipped with a **minimum of ten percent (10%) overcount** above the designated quantity necessary for assembly.

9.0 Insulators

All insulators shall be wet-processed porcelain colored sky gray, shall conform to the IEEE Standards for insulators, and shall have the following minimum electrical mechanical characteristics:

9.1. Bus Insulators

Bus insulators for supporting bus and leads shall be standard station post non-stacking or uniform-diameter stack type meeting ANSI-BIL units complete with connectors, bolts, and washers as required:

Voltage Rating	25 kV	69 kV
BIL	150 kV	350 kV
Impulse Flashover-Positive	170 kV	390 kV
Low Frequency Withstand-Wet, 60 cycle	60 kV	145 kV
Leakage Distance, Inches	24	72
Mechanical Strength Tension Pounds	10,000	16,000
Insulators per Stack	1	1
Bolt Circle	3"	3"
Technical Reference Number	TR 208	TR 216

Bus insulators shall be as manufactured by Lapp, Locke, Newell, or approved equal.

10.0 Bus and Leads

The Drawings include a sheet of details to indicate the several methods to be used for connecting and supporting the bus and leads. The conductors shall be provided with the necessary supports and connectors as illustrated by these details. The hardware required for the conductor and overhead ground wire attachments shall be furnished by the Bidder and shall conform to the

following specifications: ANSI C135 for bolts, ASTM A36 for steel, ASTM A47 for malleable iron and ASTM A153 for galvanizing. All hardware supplied shall be hot-dipped galvanized.

Bus and leads shall be as follows:

10.1. Primary rigid bus, 69 kV: 4-inch aluminum tubing, alloy 6063-T6, Schedule 40, with single conductor 336.4 kcmil ACSR internal damping cable.

10.2. Leads to and from 69 kV Breaker: 477 AAC.

10.3. Leads from 69 kV bus to transformer primary: 477 AAC, 19 strand.

10.4. Leads from the 67 to 26.18kV transformer secondary to secondary bus: Dual 954 AAC.

10.5. Secondary rigid bus, 25 kV, main bus - 3-inch and transfer bus - 2-inch: aluminum tubing, alloy 6063-T6, Schedule 40, with single conductor 336.4 kcmil ACSR internal damping cable.

10.6. Leads to and from feeder breakers: Single 954 AAC.

10.7. Surge arrester leads: 69 kV leads on 67 to 26.18 kV transformer mounted units: 477 AAC, via bolt-on tee. 25 kV leads on 67 to 26.18 x 13.09 kV transformer mounted units: 954 kcmil AAC via bolt-on tee to 954 kcmil AAC. 25 kV leads on outgoing distribution circuits: #2 AWG solid tinned copper.

10.8. Ground grid bus: 4/0 AWG S.D. bare copper, 7-strand.

10.9. Equipment and structure ground bonding leads:
   a. Connections extending below grade shall have 2/0 or 4/0 S.D. bare copper, 7-strand.
   b. Connections and runs existing only above grade shall be 2/0 AWG 40% conductivity 7-strand copper clad steel.

10.10. Transformer neutral and tank bonds: Single or parallel 2/0 or 4/0 S.D. bare copper, 7 strand.

10.11. Fence ground leads: #2 AWG copper clad.

11.0 Bus Supports

All substation tubular bus shall be supported by either fixed, slip-fit, or expansion attachment to the station post insulators using aluminum weldment tube to insulator fittings, as indicated on the Drawings. Bus supports shall be radio noise-free, equal to Travis.

12.0 Connectors

Connectors shall be suitable for the purpose they are intended and shall provide a sound electrical and mechanical connection.

The Bidder is responsible for supplying the connectors and hardware for all bus and leads and as defined in **Section 10.0 Bus and Leads**, and shown on the Drawings. A corrosion-inhibiting compound shall be furnished in a sufficient quantity to be applied to all connections. Non-gritted, Anderson Type VS compound shall be used on all bolted connections. Gritted, Anderson Type VSG compound shall be used on all compression connections.

12.1. All connector fittings to the tubular bus shall be aluminum weldment type as manufactured by Travis, unless otherwise shown in the Bill of Material.

12.2. Cable terminal fittings required for the incoming lines, bus leads around switches, equipment, and between switches and rigid bus shall be aluminum bolted or compression type or bolted bronze type with the appropriate 2-hole or 4-hole NEMA spacing pad, as manufactured by Travis, unless otherwise shown on Bill of Material.

12.3. Expansion terminal connectors for tubular bus shall be aluminum weldment type for various locations as shown on the Drawings and as manufactured by Travis, unless otherwise shown on Bill of Material.

12.4. Grounding clamp connectors will be required for supporting or bonding the grounding cable to steel columns, beams, lightning masts, and/or fence/fabric posts. Supporting grounding clamp connectors will be required every four feet (4') minimum for columns and beams to minimize the sag in the cable.

12.5. A copper to aluminum bimetallic transition plate shall be provided for all non-similar connections between terminal connections on all equipment, including transformers, breakers, and switches to bus leads, where it is necessary to make an aluminum to copper connection. The transition plates shall be equal to Travis Type TP.

12.6. All hardware supplied for bolted aluminum-to-aluminum electrical fittings shall be stainless steel, 18-8 alloy.

12.7. All hardware supplied for bolted aluminum-to-copper electrical fittings shall be stainless steel 18-8 alloy.

12.8. All hardware supplied for bolted copper-to-copper electrical fittings shall be stainless steel 18-8 alloy.

12.9. All quantities of fastener hardware shall be shipped with **a minimum ten percent (10%) over count** above the designated quantity necessary for assembly.

12.10. Bidder to verify that all conductor terminal pads shall **match and fit onto switch terminal pads** with regard to pad size, NEMA rating and pad shoulder configurations.

13.0 Group-Operated Disconnect Switches

13.1. Switch Construction

The switches shall meet all applicable ANSI and other industry mechanical and electrical standards, and shall be completely assembled and adjusted at the factory. The switches shall be of the manual-operating type by means of an operator pipe handle, and all parts of the operating mechanism shall be furnished for installing the complete three-phase switch and mechanism on the supporting structure. The switches shall be physically sized to fit properly in the locations shown on the Drawings. Switches shall be suitable for either horizontal or vertical mounting. A galvanized steel double-channel base plate shall be furnished and drilled for the particular installation prior to galvanizing.

The switches shall be of copper or aluminum construction with tin-plated copper contacts for both the center contacts and the hinge contacts.

All switches shall be complete with stainless steel arcing horns, pipe handle operating mechanism for manual operation, outboard bearings guide plate, operating pipe, and flexible grounding braid, an open- and closed-position indicator, and provisions for pad-locking in either the open or closed position. Oilite bearings shall be used for moving parts not provided with greaseless ball-bearing assemblies having stainless steel balls and races. Bearings shall be permanently sealed and require no greasing or other field maintenance. The switches shall be designed such that when they are fully open to ninety degrees (90°), the metal-to-metal spacing to the adjacent phase will not be less than specified for each voltage class. Switch terminals shall be provided with 4-hole NEMA spacing electro tin-plated terminals for copper or aluminum conductor connections as per the Drawings.

The switch insulators shall be ANSI No. 70 sky gray standard or high strength, non-tapered, uniform-diameter stacks, station post with three or five inch (3-inch or 5-inch) diameter bolt circles both top and bottom. The switch shall be two (2) or three (3) insulators per pole, as indicated on the Drawings. The switch insulators shall be free to rotate without affecting the position of the terminal pads.

13.2. Ratings for 69 kV Group-Operated Switches

13.2.1. Vee-type, center-break, group-operated air-break switch located on the A-frame shall be outdoor type, two-insulator, group-operated, air-break disconnect, complete with arcing horns, operating mechanism for pipe operation, outboard bearing, and guide plate. Oilite bearings shall be used for moving parts not

provided with greaseless ball-bearing assemblies having stainless steel balls and races. Terminals shall be tin-plated NEMA four-hole suitable for bronze or aluminum conductor connectors as per the Drawings. High-side switches shall be 69 kV nominal, 350 kV BIL, 1200 Ampere continuous, 61,000 Ampere momentary. Switches shall be completely assembled with TR 216 standard strength post insulators.

13.2.2. Vertical break, group-operated air break switches located on the 69kV bus shall be outdoor type, three (3) insulator, group operated, air-break disconnect, complete with arcing horns, operating mechanism for pipe operation, outboard bearing, and guide plate. Oilite bearings shall be used for moving parts not provided with greaseless ball-bearing assemblies having stainless steel balls and races. Terminals shall be tin-plated NEMA four-hole suitable for bronze or aluminum conductor connectors as per the Drawings. High-side switches shall be 69 kV nominal, 350 kV BIL, 1200 Ampere continuous, 61,000 Ampere momentary. Switches shall be completely assembled with TR 216 standard strength post insulators.

13.3. Ratings for 25 kV Group-Operated Switches

13.3.1. Vee-type center-break disconnect switches located on the 25 kV main secondary bus shall be rated 27 kV, 150 kV BIL, 2000 Amperes continuous, 80,000 Amperes momentary, **completely assembled** with TR-208 standard-strength, post insulators with pipe handle manual operator mechanism.'

13.3.2. Vee-type center-break disconnect switches located on the 25 kV transfer bus shall be rated 27 kV, 150 kV BIL, 1200 Amperes continuous, 61,000 Amperes momentary, completely assembled with TR 208 standard strength post insulators with pipe handle manual operator mechanism.

13.4. Approved Switch Manufacturers and Alternates

All bids for substation structures and equipment shall incorporate only switches as approved and noted herein. The Bidder may offer an alternate quotation for an alternate switch. **However, all base bids must include the type switch so designated below.**

13.4.1. 69 kV, 1200 Ampere group-operated switches per Section 13.3.1:
All Base Bids: Cleaveland-Price C26A018G01 / CB-AV or approved equivalent

13.4.2. 69 kV, 1200 Ampere group-operated switches per Section 13.3.2:
All Base Bids: Cleaveland Price C06A032G22 / V2-CA or approved equivalent

13.4.3. 25 kV, 2000 Ampere vee-type center-break group-operated switches per Section 13.4.1:
All Base Bids: Cleaveland Price C26A39G02 / CB-CV or approved equivalent

13.4.4. 25 kV, 1200 Ampere vee-type center-break group-operated switches per Section 13.4.2:
All Base Bids: Cleaveland Price C26A038G02 / CB-CV or approved equivalent

14.0 Surge Arresters

Surge arresters for the high- and low-voltage sides for the power transformers will be provided by the power transformers manufacturer, as furnished by the Owner.

Surge arresters on the incoming 69 kV A-Frame shall be furnished by the Bidder and shall be surge type, sky gray metal oxide, base-mounted, polymer, Station Class rated as follows:

Nominal Voltage	MCOV Arrester Rating	Location	Class	Type
69 kV	48 kV	69 kV A-Frame	Station	EVP

Surge arresters for the 25 kV circuit exits shall be furnished by the Bidder and shall be surge type, polymer, sky gray, metal oxide, Station Class rated as follows:

Nominal Voltage	MCOV Arrester Rating	Location	Class	Type
13.2/7.2 kV	8.4 kV	15 kV Circuit Exits	Station	EVP

Metal oxide surge arresters are rated in terms of maximum continuous operating voltage (MCOV). However, metal oxide arresters which are given conventional ratings may be furnished if the MCOV equivalent ratings are as specified here.

The 48 kV MCOV station class surge arresters shall be provided with a 4-hole NEMA spacing terminal on the line-side bushing terminals and ground connectors suitable for a maximum 250 kcmil copper (loop configuration) on the arrester base. The distribution structure MCOV station class arresters shall include line and ground connectors for up to #2 stranded tinned copper.

The surge arresters shall comply with ANSI Standard C-62.1.

15.0 Single-Pole Disconnect Switches

The switches shall be outdoor type, meet all applicable ANSI, NEMA and other industry mechanical and electrical standards, and shall be completely assembled and adjusted at the factory. The switches shall be physically sized to fit properly in the locations shown on the Drawings. Switches shall be suitable for either horizontal or vertical mounting, as shown on the Drawings. A galvanized steel channel base plate shall be furnished and drilled for the particular installation prior to galvanizing.

The switches shall be of copper construction with electro tin-plated contacts for both the jaw and the hinge contacts. The switch terminals shall be provided with 2-hole or 4-hole NEMA spacing, electro tin-plated terminals for copper or aluminum conductor connectors as per the Drawings.

Bidder to verify that all conductor terminal pads shall **match and fit onto switch terminal pads** with regard to pad size, NEMA rating and pad shoulder configurations.

The power fuses shall be outdoor type, meet all applicable ANSI, NEMA and other industry mechanical and electrical standards, and shall be completely assembled at the factory. Fuse mounting hardware shall consist of the base, insulators, complete upper and lower contact assemblies, terminal connectors sized for specified cable as shown on the Drawings, and fuse unit end fittings. The mounting shall be suitable for vertical offset or inverted installation.

The 25 kV switch and fuse insulators shall be ANSI No. 70 sky gray, post type, TR-208 standard strength (or TR-227 high-strength, as required), with three or five inch (3-inch or 5-inch) diameter bolt circles both top and bottom. The switches shall be shipped completely assembled on bases with post insulators oriented to accommodate the appropriate mounting location.

15.1. Hookstick Switches

High-side switches shall be 69 kV nominal, 350 kV BIL, 1200 Ampere continuous, 61,000 Ampere momentary. Switches shall be completely assembled with TR 216 standard strength post insulators. Switches shall be Cleaveland-Price model C102A150G17 Type LCO-C or approved equivalent.

Single-pole hookstick disconnect switches shall be provided for isolation of the 25 kV feeder vacuum circuit breakers, and shall be rated 27 kV, 150 kV BIL, 1200 Amperes continuous, 61,000 Amperes momentary. The 27 kV, 1200 Ampere hookstick disconnect switches shall be Cleaveland-Price model C102A230G08 Type LCO-C or approved equivalent.

15.2. Fuses and Fuse Mounting Hardware

Fuses, fuse barrels and fuse mounting hardware shall be provided for isolation of the 25 kV station service transformers and potential transformers. One (1) fuse (and end fittings) of

the proper rating shall be supplied with each mounting, plus additional spares, as specified on the Bill of Materials.

15.2.1. Fuses and mountings to be provided for the station service transformers shall be rated similar to S & C Type SMD-20 power fuse equipped with a current limiting fuse, or approved equal.

15.2.2. Fuses and mountings to be provided for the potential transformers shall be rated similar to S & C Type SMD-20 power fuse equipped with a current limiting fuse, or approved equal.

15.2.3. Current limiting fuses shall be Type "K-Mate" 50,000 A.I.C., rated 12 Amperes, or approved equal.

15.2.4. Insulators for fuse mounting shall be rated for 25 kV, TR-208.

16.0 Hookstick and Container

One (1) station class hookstick shall be provided as follows: one (1) sixteen-foot (16'), fiberglass stick similar or equal to Hastings 541-16. An appropriate length storage container, along with fence mounting kit shall be supplied with each hookstick.

17.0 Instrument Transformers

Potential transformers (PTs) shall be provided by the Bidder for use of metering the medium voltage bus. PTs shall be outdoor type, metering class, single primary, tapped secondary, 60 cycle, dual bushing.

The PTs shall be ABB Type PTT-110-977 or ABB Type VOZ-11, or approved equal.

18.0 Distribution Transformers

The Owner will supply one (1) 120/240 volts distribution transformers to supply ac station service for the substation equipment in the 69 to 15 x 25 kV Substation.

The Bidder shall provide mounting provisions for this transformer on the structure in the location as shown on the Drawings included with these Specifications. The Bidder shall assure the mounting clearance between the transformer's primary insulator and the power fuse mounting base or truss exceeds the minimum clearance requirements of the National Electrical Safety Code. The Bidder shall also assure that National Electrical Safety Code requirements are met for minimum distance to the ground for personal safety.

All transformers utilize an industry standard hanger bracket with two (2) 5/8" (5/8") bolts in-line on eleven and one quarter-inch (11-1/4") spacing.

19.0 Station Grounding

a. The station grounding below grade conductors shall be provided by the Contractor as follows: Ground grid bus: 4/0 AWG bare SD copper, 7-strand, 2/0 AWG bare SD copper, 7-strand for perimeter conductor

b. The fence grounding conductors shall be provided by the bidder as follows: Fence ground leads: #2 AWG bare SD copper clad.

c. Equipment and structure ground bonding leads:
   1) Connections extending below grade shall have 2/0 or 4/0 S.D. bare copper, 7-strand.
   2) Connections and runs existing only above grade shall be 2/0 AWG 40% conductivity 7-strand copper clad steel.

d. The transformer ground bonding leads shall be provided by the Contractor as follows: Dual 4/0 AWG, SD copper, 7-strand.

e. Ground rods shall be provided by the Contractor and shall be Copperweld three-fourths inch (3/4") diameter, ten feet (10'-0") in length, of the sectional type. Ground rod

connections shall be Cadweld type, suitable for 4/0 AWG copper ground bus. Drive heads and couplings shall be furnished with the sectional rods.

f. All connections below grade shall be Cadweld and shall be provided by the Contractor.

g. All fence grounding connectors as shown in the Bill of Materials shall be provided by the Bidder.

20.0 List of Materials – Substation Structures and Equipment

A list of the major items required for the substation is included in the appendices. Items noted as "(N/A)" in the list are to be furnished by Owner.

APPENDICES

1. Booth & Associates, LLC – Drawing List
2. Bill of Materials
3. Steel Specifications
4. Vicinity Map

1 – Booth & Associates, LLC – Drawing List

PUBLIC WORKS COMMISSION
FAYETTEVILLE, NORTH CAROLINA

BLACK AND DECKER SUBSTATION

LIST OF DRAWINGS

The work shall conform to the following Booth and Associates, LLC Drawings, all of which form a part of these Specifications. The Contractor is responsible for contacting the Engineer if any drawings not indicated to be furnished at a later date are missing from their bid package. If the Bidder does not contact the Engineer regarding any drawings, their bid will be considered based on all Drawings and Specifications,as issued for bids.

STRUCTURES AND EQUIPMENT

Sheet No.	Title
GA-1	Plan View
GA-2	Section Views A-A, B-B
GA-3	Section View C-C, D-D
GA-4	Section Views E-E, F-F, G-G, H-H
GA-5	Details

SITE DRAWINGS

Sheet No.	Title
E1	One-Line
G1	Grounding Plan
G2	Grounding Details

STEEL DRAWINGS

Sheet No.	Title
ED1	Overall Erection Diagram
ED2	Overall Erection Diagram
ED3	Partial Erection Diagram
ED4	Overall Erection Diagram
ED5	Erection Diagram URD Stand Sections A-A, B-B
ED6	Erection Diagram Low-side Section C-C
ED7	Erection Diagram Low-side Section D-D
ED8	Erection Diagram Low-side Section E-E
ED9	Erection Diagram Low-side Section F-F
ED10	Erection Diagram Low-side Section G-G
ED11	Erection Diagram A-Frame Section H-H
ED12	Erection Diagram Low Bus Stand / A-Frame Section J-J
ED13	Erection Diagram High Switch Stand Sections L-L, M-M Erection Diagram Low Switch Stand Sections N-N, O-O

STEEL DRAWINGS *continued*

Sheet No.	Title
AB1	Anchor Bolt Plan & Details
AB2	Anchor Bolt Plan & Details
LS01	Low-side Details (Beams)
LS02	Low-side Details (Beams)
LS03	Low-side Details (Beams)
LS04	Low-side Details (Beams)
LS05	Low-side Details (Beams)
LS06	Low-side Details (Columns)
LS07	Low-side Details (Columns)
LS08	Low-side Details (Columns)
LS08.1	Low-side Details (Columns)
LS09	Low-side Details (Columns)
LS10	Low-side Details (Columns)
LS11	Low-side Details (Trusses)
LS12	Low-side Details (Trusses)
LS13	*page intentionally left blank*
LS14	Low-side Details (Trusses)
LS15	Low-side Details (Trusses)
LS16	Low-side Details (Beam)
LS17	Low-side Details
LS18	*page intentionally left blank*
LS19	Low-side Details (Beam)
LS20	*page intentionally left blank*
URD1	URD Stand Details
URD2	URD Stand Details
URD3	URD Stand Details
AF1	A-Frame Steel Detail
AF2	A-Frame Steel Detail
AF3	A-Frame Steel Detail
AF4	A-Frame Steel Detail
AF5	A-Frame Steel Detail
AF6	A-Frame Steel Detail
AF7	A-Frame Steel Detail
AF8	A-Frame Steel Detail
SS1	Low Switch Stand
SS2	Low Switch Stand

STEEL DRAWINGS ***continued***

Sheet No.	Title
SS3	High Switch Stand
SS4	High Switch Stand
SS5	Switch Stand
SS6	Switch Stand
BUS1	Single-Phase Bus Stand
TPB1	Three-Phase Bus Stand
TPB2	Three-Phase Bus Stand
TPB3	Three-Phase Bus Stand
GM1	Grounding Mat Detail
BS1	Bolt Schedule
SM1	Static Mast Detail
SM2	Static Mast Detail
SM3	Static Mast Detail
SM4	Static Mast Detail
SF200	69 kV H-Frame
SF201	69 kV H-Frame Elevations

2 – Bill of Materials

PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE
FAYETTEVILLE, NORTH CAROLINA

STRUCTURES AND EQUIPMENT FOR THE
BLACK AND DECKER 69 TO 25 x 15 KV SUBSTATION

BILL OF MATERIAL
8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
1	Hot-dip galvanized structural steel and pedestals, anchor bolts, mounting bolts, and all necessary bolts and nuts for assembly and erection in the field in accordance with the Drawings for the substation (See separate Bill of Material)	Lot		
2	Lightning Masts, 10 ft., complete with clamp for 2/0 copper clad steel and U bolts for mounting	12 Each		
3	Static Pole - 85 ft. direct-embedded, with 10-foot lightning mast, vibration dampening, light mount	1 Each		
4	Grounding operator platform for air-break	9 Each		
16	Power Transformer, 67 kV to 25 x 15 kV wye, three-phase, 30/40/50 MVA with LTC	1 By Commission	N/A	N/A

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
20	Feeder Circuit Breaker, Outdoor 27 kV, 1,200 Ampere, three-phase	6 By Commission	N/A	N/A
21	Station Service Transformer, 25 kVA, single-phase, 7,200 Volts to 120 / 240 Volts	By Commission	N/A	N/A
25	Potential Transformer, Outdoor 15 kV, 110 kV BIL, voltage rating 7,200 to 120 Volts (60:1 ratio)	3 Each		
81	69 kV Circuit Breaker, 2,000 Amp, 61,000 Ampere momentary, 20,000 Ampere interrupting	By Commission	N/A	N/A
90	Vee-Center Disconnect Switch, 72.5 kV, 350 kV BIL, 1,200 Ampere, 61,000 Ampere momentary, horizontally-mounted, outdoor type, three-pole, group-operated, complete with pipe handle operating mechanism, outboard bearings, guide, arcing horns with four-hole NEMA flat pads to suit location as shown on Drawings	1 Each	USCO Cleaveland Price	AGCH 5V-07212 CB-AV C26A001G01

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
91	Vertical-Break Disconnect Switch, 72.5 kV, 350 kV BIL, 1,200 Ampere, 61,000 Ampere momentary, horizontally-mounted, outdoor type, three-pole, group-operated, complete with pipe handle operating mechanism, outboard bearings, guide, arcing horns with four-hole NEMA flat pads to suit location as shown on Drawings.	2 Each	USCO Cleaveland Price	AVR-07212 V2-CA C06A032G22
92	Hookstick Disconnect Switch, 72.5 kV, 350 kV BIL, 1200 Ampere, 61,000 Ampere momentary, horizontally-mounted, outdoor type with four-hole NEMA flat pads. Terminals to suit location with copper live parts. See Drawings.	6 Each	USCO Cleaveland Price	HH6-07212 LCO-C C102A150G17
100	Outdoor Hookstick Disconnect Switch, 27 kV, 150 kV BIL, single-pole, 1,200 Ampere continuous, 61,000 Ampere momentary, vertically-mounted, with four-hole NEMA flat pads. Terminals to suit location with copper live parts. See Drawings.	36 Each	USCO Cleaveland Price	HH6-02712 LOC-C C102A230G08

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER		CATALOG NO./TYPE
102	Vee-Center-Break Disconnect Switch, 27 kV, 150 kV BIL, 2,000 Ampere, 80,000 Ampere momentary, horizontally-mounted, outdoor type, three-pole, group-operated, complete with pipe handle operating mechanism, outboard bearings, guide, arcing horns with NEMA four-hole flat pads to suit the location shown on the Drawings, with copper live parts.	1 Each	USCO Cleaveland Price		AGCH5V-02720 CB-CV C26A039G02
103	Vee-Center-Break Disconnect Switch,27 kV, 150 kV BIL, 1200 Ampere, 61,000 Ampere momentary, horizontally-mounted, outdoor type, three-pole, group-operated, complete with pipe handle operating mechanism, outboard bearings, guide arcing horns with NEMA four-hole flat pads to suit the location shown on the Drawings, with copper live parts.	6 Each	USCO Cleaveland Price		AGCH5V-02712 CB-CV C26A038G02
106	Power Fuse Mounting, 25 kV, 150 kV BIL, 200 Ampere, Type SMD-20	4 Each	S & C		192223R2-G
107	Fuses for Item No. 106, Type SMU-20, 5E, 25 kV, for Station Service Transformer	2 Each	S & C		613005
108	Fuses for Item No. 106, Type SMU-20, 1A, 25 kV, for PTs	6 Each	S & C		703001

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER		CATALOG NO./TYPE
109	Fuses for Item No. 21, 15.5 kV, companion current limiting fuse, 50,000 A.I.C.	2 Each	Cooper		FAH17KV12KBGR1
150	Lightning Arrester, Station Type, 48 kV MCOV, Metal Oxide, for 69 kV	3 By Commission (On Transformer)	N/A		N/A
152	Lightning Arresters, Station Type, 10.2 kV MCOV, Metal Oxide, for 15 kV	3 By Commission (On Transformer)	N/A		N/A
154	Lightning Arresters, Station Class, Type EVP, 48 kV MCOV, metal oxide, for69 kV	3 Each	OHIO BRASS		EVP004800
155	Lightning Arresters, Station Class, Type EVP, 10.2 kV MCOV for 15 kV, Metal Oxide	18 Each	OHIO BRASS		EVP000900
175	954 AAC, 61-strand aluminum, Magnolia	As Required			
176	477 kcmil AAC, 19-strand aluminum, Cosmos	As Required			
178	336.4 kcmil ACSR, 18/1 strand, aluminum, Merlin	As Required			

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
180	4/0 AWG Bare S.D., 7-strand copper	As Required	_____	____
181	2/0 AWG bare S.D., 7-strand copper	As Required	_____	____
182	#2 AWG S.D., tinned copper	As Required	_____	____
183	2/0 AWG, 40% conductivity, 7-strand, copper clad steel	As Required	_____	____
184	#2 AWG S.D., copper-clad	As Required	_____	____
190	Aluminum Tubing, 2-inch ID, Alloy 6063-T6, Schedule 40, 40 ft. sections	As Required	_____	____
191	Aluminum Tubing, 3-inch ID, Alloy 6063-T6, Schedule 40, 40 ft. sections	As Required	_____	____
194	Aluminum Tubing, 4-inch ID, 6063-T6 Schedule 40, 40 ft. sections	As Required	_____	____
210	Station Post Insulator, Stacking Type, 69 kV, 350 kV BIL, 3-inch bolt circle, sky gray, Type TR-216	9 Each	_____	____

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
212	Station Post Insulator, Non-Stacking, 25 kV, 150 kV BIL, 3-inch bolt circle, sky gray, Type TR-208	60 Each		
221	Deadend Assembly, 69 kV, for 477 kcmil, AAC, Polymer Type Insulator, (LAPP 151605-YK, OB 232723-3101) with deadend shoe	By Commission	N/A	N/A
245	Aluminum, Stirrup Clamp, 954 kcmil AAC to tinned copper loop	18 Each	Anderson	ACHLS13
246	Bronze, Hot-line Tap Clamp, 4/0 Main to #2 Tap	18 Each	Anderson	BH4FTP
250	Connector, Terminal, aluminum, bolted, 954 kcmil AAC to 2-hole pad	18 Each	Travis Pattern & Foundry	PDU# 11-125
250A	Connector, Terminal, aluminum, bolted, 954 kcmil AAC to 4-hole pad	36 Each	Travis Pattern & Foundry	PDU# 11-132
250B	Connector, Terminal, aluminum, compression, 954 kcmil AAC to 4-hole pad	54 Each	Travis Pattern & Foundry	PDU# 16-161C
251A	Connector, Terminal, aluminum, bolted, 477 kcmil AAC to 4-hole pad	18 Each	Travis Pattern & Foundry	PDU# 11-126

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
251B	Connector, Terminal, aluminum, compression, 477 kcmil AAC to 4-hole pad	18 Each	Travis Pattern & Foundry	PDU# 16-144C
252	Connector, Tee, aluminum, bolted, 954 kcmil AAC cable main to 90° 4-hole pad	3 Each	Travis Pattern & Foundry	PDU# 11-252-90
254A	Connector, Terminal, aluminum Weldment, two cables to 4-hole flat pad for 954 kcmil AAC	3 Each	Travis Pattern & Foundry	PDU# 18-762
254B	Connector, Terminal, aluminum bolted, two cables to 4-hole flat pad for 954 kcmil AAC	9 Each	Travis Pattern & Foundry	PDU# 11-252
255	Spacer, aluminum cable bolted for dual 954 kcmil AAC	9 Each	Travis Pattern & Foundry	PDU# 110-119-CS-4
256	Connector, terminal, copper, compression, #2 tinned copper to a 2-hole pad	12 Each	Travis Pattern & Foundry	PDU# 16-101B
257	Connector, grounding stud, aluminum, bolted, 954 kcmil AAC to grounding stud	36 Each	Travis Pattern & Foundry	PDU# 17-1302

BILL OF MATERIAL
8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
259	Connector, tee, aluminum, bolted, 477 kcmil ACC cable main to 477 kcmil ACC cable tap	9 Each	Travis Pattern & Foundry	PDU# 12-908
267	Weldment, aluminum tee connector, 3-inch Al tube to 2-hole NEMA pad	4 Each	Travis Pattern & Foundry	PDU# 18-640-WR
269	Weldment, aluminum, coupler for connecting aluminum tubing at 90°, low-side structure – 2-inch bus	6 Each	Travis Pattern & Foundry	PDU# 18-654-90
271	Weldment, aluminum tee connector, 3-inch Al tube to 3-inch Al tube	24 Each	Travis Pattern & Foundry	PDU# 18-175
272	Weldment, Al, tube to tube coupler, 3-inch	3 Each	Travis Pattern & Foundry	PDU# 18-554
273	Weldment, terminal, 3-inch Al tube to 4-hole spade Terminal, 90°	21 Each	Travis Pattern & Foundry	PDU# 18-123-E-90
274	Weldment, terminal, 3-inch Al tube to			

4-hole spade	3 Each	Travis Pattern & Foundry	PDU# 18-123-E

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
277	Weldment, bus support, 3-inch Al tube to 3-inch B.H.C.	21 Each	Travis Pattern & Foundry	PDU# 19-349
278	Aluminum, corona bell for 3-inch AL tube – Drive Fit	6 Each	Travis Pattern & Foundry	PDU# 111-141
280	Weldment, Tee, 4-inch tube to 2-inch tube, 15°	6 Each	Travis Pattern & Foundry	PDU# 18-281-15
281	Weldment, Tee, 4-inch tube to two (2), 2-inch tubes, 15°	3 Each	Travis Pattern & Foundry	PDU# 18-372-15
282	Aluminum, corona bell for 4-inch Al tube – Drive Fit	9 Each	Travis Pattern & Foundry	PDU# 111-145
283	Weldment, 4-inch Al tube to 4-hole spade Terminal	12 Each	Travis Pattern & Foundry	PDU# 18-130-E
285	Weldment, bus support, 4-inch Al tube to 3-inch B.C.	9 Each	Travis Pattern & Foundry	PDU# 19-353

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
286	Weldment, terminal, 2-inch Al tube to 4-hole spade terminal	36 Each	Travis Pattern & Foundry	PDU# 18-117E
286A	Weldment, terminal, 2-inch Al tube to 4-hole spade terminal, 90°	18 Each	Travis Pattern & Foundry	PDU# 18-117-E-90
287	Weldment, aluminum tee connector, 2-inch Al tube to 2-inch Al tube	42 Each	Travis Pattern & Foundry	PDU# 18-160
288	Weldment, aluminum, tube to tube coupler, 2-inch	3 Each	Travis Pattern & Foundry	PDU# 18-538
289	Weldment, corona bell for 2-inch Al tube	30 Each	Travis Pattern & Foundry	PDU# 111-137
290	Weldment, bus support, 2-inch Al tube to 3-inch BC	36 Each	Travis Pattern & Foundry	PDU# 19-345

291	Weldment, tee, 2-inch Al tube to 4-hole pad	18 Each	Travis Pattern & Foundry	PDU# 18-623-WR
292	Weldment, 2-inch Al tube to grounding stu	18 Each		

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
			Travis Pattern & Foundry	PDU# 18-1280-WR
293	Weldment, 3-inch Al tube to grounding stud	3 Each		
			Travis Pattern & Foundry	PDU# 18-1280-WR
294	Weldment, 4-inch Al tube to grounding stud	6 Each		
			Travis Pattern & Foundry	PDU# 18-1280-WR
295	Weldment, tee, 4-inch Al tube to 4-inch Al tube	3 Each		
			Travis Pattern & Foundry	PDU# 18-194
296	Weldment, 90° elbow, 4-inch AL tube to 4-inch AL tube	3 Each		
			Travis Pattern & Foundry	PDU# 18-658-90
297	Weldment, tee, 4-inch Al tube to 4-hole pad	6 Each		
			Travis Pattern & Foundry	PDU# 18-641-WR
298	Weldment, variable angle spherical coupler for aluminum pipe connections	3 Each	SEFCOR	WLBUA-5
299	Materials for each 4-hole electrical connection (typical) - all Stainless Steel SS	As Required		

a. Bolt HH ½-inch x length required with nut	4 Each

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
	b. Flat washer	8 Each		
	c. Spring washer	4 Each		
495	Transition Plate, aluminum to copper, 2-hole	As Required	Travis Pattern & Foundry	PDU# TP2
496	Transition Plate, aluminum to copper, 4-hole	As Required	Travis Pattern & Foundry	PDU# TP3
619	Connector, bronze, terminal, bolted, 2/0-4/0 AWG copper to 2-hole pad	15 Each	Travis Pattern & Foundry	PDU# 11-101
620	Connector, bronze, 4-hole pad for 2/0 Cu ground conductor for grounding of Control House	4 Each	Travis Pattern & Foundry	PDU# 11-105
621	Connector, bronze, terminal, bolted, dual 4/0 copper to 2-hole pad	2 Each	Travis Pattern & Foundry	PDU# 11-230
815	Connector for supporting dual conductor ground wire on and connecting to steel columns and beams, #4 thru 300 kcmil	350 Each	Travis Pattern & Foundry	PDU# 17-164-SB

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
840	Connector, bronze terminal tap lug for attachment of ground grid to operator platforms, #6-250 kcmil copper conductor	21 Each	Anderson	TLS-42
845A	Inhibitor compound, non-gritted, anti-oxygen, conductive, 16 oz-tubes	7 Each	Anderson	VS
845B	Inhibitor compound, gritted, anti-oxygen, conductive, 16 oz-tubes	7 Each	Anderson	VSG
850	Fiberglass hookstick, 16'-0" (Hastings 541-16, or approved equal)	1 Each		
860	4" x 4" x 20' mounted container (for hooksticks)	1 Each		
881	Animal Guards, bus support, feeder dip poles, switches	146 Each	TE Raychem	BISG-G-60/115-02
882	Animal Guards, breaker bushings	42 Each	TE Raychem	BCAC-G-IC-8D/18 (B6)
883	Animal Guards, Vertical bus support, switches	72 Each	TE Raychem	BISG-G-100/400
884	Animal Guards, Transformer Bushings	6 Each	TE Raychem	BCAC-G-IC-10.5D/20
885	Animal Guards, Conductor Cover	100 FT	TE Raychem	MVCC-G-10/.40 (B100)

BILL OF MATERIAL

8/13/2021

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO./TYPE
886	Animal Guards, Conductor Cover	400 FT	TE Raychem	MVCC-G-25/1.0 (B25)
886	Animal Guards, Fusion Tape	4 Std. Packs	TE Raychem	MVFT-G-2-12 (B4)

3 – Steel Specifications

PUBLIC WORKS COMMISSION
FAYETTEVILLE, NORTH CAROLINA

STRUCTURAL AND TUBULAR STEEL SPECIFICATIONS FOR BLACK AND DECKER 69 TO 15 kV SUBSTATION

ISSUED FOR BIDS

PRELIMINARY – DO NOT USE FOR CONSTRUCTION

ISSUED FOR BIDS

August 2, 2021

BOOTH & ASSOCIATES, LLC

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, NORTH CAROLINA

STRUCTURAL AND TUBULAR STEEL SPECIFICATIONS FOR BLACK AND DECKER 69 TO 15 kV SUBSTATION

Booth & Associates, LLC
Consulting Engineers
5811 Glenwood Avenue
Raleigh, North Carolina 27612
Firm License No.: F-0221

REVISION	DESCRIPTION	DATE
A	ISSUED FOR BIDS	08/02/2021

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

1.0 General

1.1 Construction documents including all design drawings and specifications of all disciplines complement each other and shall be read and interpreted collectively.

1.2 Where a conflict or conflicts are found between construction documents, then the conflict shall be brought to the attention of the Engineer, in writing, for resolution.

1.3 The structural steel fabricator shall be responsible for coordination between the requirements of the structural steel design drawings, the electrical general arrangement plans, and the equipment mounting requirements.

1.4 Where equipment mounting locations and/or elevations are shown on the structural steel drawings, then adjustment of such locations or elevations to match the mounting and/or clearances requirements are allowed provided this adjustment does not exceed 6 inches in any one location, and provided such adjustment does not create conflict(s) with structural steel members or connections. Where more adjustment is needed, it shall be referred to the Engineer for resolution and approval before fabrication.

1.5 Where equipment mounting locations and/or elevations are shown on the structural steel drawings, then adjustment of such locations or elevations to match the mounting and/or clearances requirements are allowed provided this adjustment does not exceed 6 inches in any one location, and provided such adjustment does not create conflict(s) with structural steel members or connections. Where more adjustment is needed, it shall be referred to the Engineer for resolution and approval before fabrication.

1.6 This specification covers detailing, furnishing, fabrication, painting/galvanizing and delivery of all structural/miscellaneous steel, tubular steel, and aluminum/steel/fiberglass grating as shown on the drawings.

1.7 All work, including workmanship, pertaining to this specification shall be done in accordance with the reference standard revisions in effect at the time of contract award.

1.7.1 AISC American Institute of Steel Construction (AISC), *Specification for the Design, Fabrication and Erection of Structural Steel for Buildings*, latest edition.

1.7.2 American Society of Civil Engineers (ASCE) Standard, *Design of Steel Transmission Pole Structures*, Manual 48, latest edition.

1.7.3 American Welding Society (AWS), *Structural Welding Code*, AWS D1.1, latest edition.

1.7.4 Steel Structure Painting Council (SSPC), *Surface Preparation Specification*, SSPC-SP6, latest edition.

1.7.5 American Society for Testing and Materials (ASTM), various standards, latest version.

1.7.6 American National Standards Institute (ANSI), *National Electrical Safety Code*, ANSI C2, latest edition.

2.0 **Materials**

2.1 All structural shapes shall be conforming to ASTM A992 except for channels, angles, and plates which shall conform to ASTM A36.

2.2 Structural steel pipe shall conform to ASTM A53, Type E or S, Grade B, unless otherwise shown on the drawings.

2.3 Structural square and rectangular tubing shall conform to ASTM A500, Grade B.

2.4 Steel for tapered columns shall conform to ASTM A572, unless otherwise shown on the drawings.

2.5 Anchor bolts shall conform to F1554 Standard Specification for Anchor Bolts, grade 36, 55, and 105 ksi yield strength as specified on the drawings. Each anchor bolt shall be furnished with washers and nuts. Nuts shall be of equivalent strength to the ASTM A563 Heavy Hexagon specification. Washers shall adhere to ASTM F436 Extra Thick, unless otherwise shown on the drawings.

2.6 Bolts, except for anchor bolts, shall conform to ASTM F3125, A325 Type I. Nuts shall conform to ASTM A563 and shall be of grade and style suitable for use with bolts supplied. Galvanized nuts shall be grade DH. Washers shall conform to ASTM F436, unless otherwise shown on the drawings.

3.0 **Structural Steel Details and Fabrication**

3.1 Fabrication and workmanship shall conform to the AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, unless otherwise specified.

3.2 Welding shall be performed by qualified operators using procedures in accordance with AWS D1.1 and using E70XX electrodes. All surface areas to be welded shall be cleaned completely of rust, scales, oil or grease, and any other foreign matter. Welds which do not exhibit a neat, smooth appearance shall be ground smooth.

3.3 Structures shall be hot-dip galvanized after fabrication, unless otherwise shown on the drawings.

3.4 All structural steel bolts shall be minimum five-eighths inch (5/8") diameter, unless otherwise shown on the drawings.

3.5 The maximum size of bolts to be used in any section, clearances, edge distance, and general structural practice not definitely stated in the Specifications shall be in accordance with the standard of the latest edition of the American Institute of Steel Construction.

3.6 All anchor bolts required for the installation of the structures shall be furnished by the Manufacturer. Anchor bolts shall be hot-dip galvanized, complete with two (2) heavy hex nuts and extra thick flat washers for leveling, unless otherwise shown on the drawings.

3.7 All parts of the structure shall be neatly finished. All members shall be free from kinks, twists, bends, or open joints. All members that are bent or out of line after galvanizing shall be carefully straightened with a straightening roll or straightening machine. The use of sledges in straightening bent material or other methods in which the material or its finish may be mutilated shall not be allowed.

3.8 All nuts shall be readily accessible to a wrench for adjustment. Bolts shall not be flushed but shall project approximately one-fourth inch (1/4-inch) beyond the face of the nuts. Nuts shall fit the shanks so that they may be screwed on with the fingers and at the same time not fit so loosely that the value of the bolts acting with the tension of the head of the nut will be reduced.

3.9 All steel members shall be clearly marked to provide easy identification in the field. **Trusses and box columns up to, and including, four feet by four feet (4'-0" x 4'-0"), shall be assembled before shipment to ensure correctness, and shall be shipped assembled.** If the Manufacturer does not intend to ship the trusses and box columns completely assembled, he shall so state in the quote. Markings on component parts shall indicate the structure to which they apply.

3.10 Sectional members combined to form columns of the required height will not be accepted. Angles for column legs must be continuous to provide the necessary height.

3.11 Continuous punching of steel sections for equipment mounting is not acceptable. Holes shall be provided as needed for erection and equipment installation, but unnecessary holes will not be accepted.

3.12 If any material whatsoever in any state of completion is found defective as to workmanship, details, or materials or is contrary to the design for these specifications, it shall be rejected. This rejection may take place at the rolling mills, fabricating plant, galvanizing plant, or at the site of the structure. Any rejected materials shall be replaced without any expense whatsoever to Owner.

4.0 Tubular Steel Structure Details and Fabrication

4.1 Lifting lugs are optional. The manufacturer shall supply all instructions for handling and erection of poles and arms.

4.2 Each pole shall be permanently marked on the pole shaft seventy-two inches (72″) above ground line and on the bottom of base plate or bearing plate with the following identifying information:

a. Manufacturer's Identification

b. Structure Type

c. Height and Class

d. Structure Number

e. Ultimate Ground Line Moment

f. Owner's Name

g. Date Manufactured

The method of identification shall be approved by the Owner. In addition, there shall be clear indication or marks for handling or sling points, storage rack points, and lifting joints for standing the pole and vibratory pole base.

4.3 All welding shall be in accordance with the American Welding Society Code AWS D1.1, latest edition. Welders shall be qualified in accordance with AWS .1 welding procedures.

4.4 One hundred percent (100%) penetration welds shall be required in, but not limited to, the following areas:

a. circumferential welds (C-welds) joining structural members,

b. longitudinal welds in the female portion of the joint within the slip joint area,

c. welds at the butt joints of back-up strips,

d. base plate to shaft weld,

e. longitudinal welds for a minimum length of three inches (3″) where there are adjacent C-welds, flange welds, base welds and ends of tubes.

4.5 Full penetration or equivalent ninety percent (90%) partial penetration with fillet overlap shall be used for vang-to-plate shaft, and arm box joints.

4.6 Quality and acceptability of every inch of the full penetration welds shall be determined by visual and ultrasonic inspection.

4.7 All other penetration welds shall have sixty percent (60%) minimum penetration. Quality and acceptability of all welds other than full penetration welds shall be determined by visual inspection, supplemented by magnetic particle, ultrasonic or dye penetrant inspection.

4.8 All weld back-up strips shall be continuous the full length of the welds. Care shall be exercised in the design of welded connections to avoid areas of high stress concentration which could be subject to fatigue or brittle fractures.

4.9 Field welding shall not be permitted except with the Engineer's and Owner's approval and with the manufacturer's direction in repairing a pole.

4.10 All parts of the structure shall be neatly finished and free from kinks or twists. All holes, blocks, and clips shall be made with sharp tools and shall be clean-cut without torn or ragged edges.

4.11 Before being laid out or worked in any manner, structural material shall be straight and clean. If straightening is necessary, it shall be done by methods that will not injure the metal.

4.12 Minimum plate thickness for all pole components shall be three-sixteenths inch (3/16″).

4.13 Shearing and cutting shall be performed carefully and all portions of the work shall be finished neatly. Copes and re-entrant cuts shall be filleted before cutting.

4.14 All forming or bending during fabrication shall be done by methods that will prevent embrittlement or loss of strength in the material being worked.

4.15 Holes for connection bolts shall be one-sixteenth inch (1/16″) larger than the nominal diameter of the bolts. Holes in the flange plates for bolted splices shall be one-eighth inch (1/8″) larger than the bolt diameter. Holes in the base plates for anchor bolts shall be three-eighths inch (3/8″) larger than the nominal diameter of the anchor bolts. The details of all connections and splices shall be subject to the approval of the Owner or his representatives.

4.16 Holes in steel plates which are punched must be smooth and cylindrical without excessive tear out or depressions. Any burrs that remain after punching shall be removed by grinding, reaming, etc.

4.17 Holes of any diameter may be drilled in plate of any thickness. Care shall be taken to maintain accuracy when drilling stacks of plates.

4.18 Holes may be made by use of a machine guided oxygen torch. Flame cut edges shall be reasonably smooth and suitable for the stresses transmitted to them.

4.19 The overall length of the assembled structure should not be less than six inches (6″) of the specified length and not more than twelve inches (12″).

5.0 **Finishes**

5.1 Galvanizing

5.1.1 Structures shall be hot-dip galvanized after fabrication, unless otherwise shown on the drawings.

5.1.2 Galvanizing shall conform to ASTM A123. Precautions shall be taken against embrittlement, warpage and distortion in accordance with ASTM A143 and A384.

5.1.3 Fasteners and anchor bolts shall be galvanized in accordance with ASTM F2329.

5.2 Coatings for Embedded Portion of Poles

5.2.1 A sixteen (16) mil (minimum dry film thickness), two (2) component hydrocarbon extended polyurethane coating that is resistant to ultraviolet light shall be applied on the exposed surface of the embedded portion of the pole. The coating shall extend from the butt to five feet (5′-0″) above ground line. Termination of coating at location above ground shall be feathered. Other coatings shall be approved by the Owner prior to their use.

6.0 Field Touch Up of Galvanized Surfaces

6.1 Structural steel shall be touched up with cold galvanizing compound so that all surfaces are completely protected and free of runs and sags.

6.2 All steel requiring touch-up shall be dry and free of all dirt, rust, oil, loose paint and other foreign material. Surfaces shall be prepared in accordance with Steel Structures Painting Council Specifications on Surface Preparation.

6.3 All steel surfaces or finish damaged during the material handling, installation or removal of various equipment shall be thoroughly cleaned, brushed and cold galvanized with inorganic zinc rich paint.

6.4 Approved inorganic zinc products:

6.4.1 Dimetcote 9, manufacturer: PPG Protective Coatings

6.4.2 Carbozinc 11, manufacturer: Carboline Company

6.4.3 Cathacoat 304V, manufacturer: ICI-DEVOE

6.5 All galvanized structural steel shall be repaired in accordance with ASTM A780.

8.0 Shipping Instructions

8.1 Material shall be carefully prepared for shipment so as to prevent damage to components and their protective coatings or loss of components.

8.2 Each shipment shall be accompanied by a checklist of all parts, identifiable by structure type and number. Bolts and miscellaneous hardware will be identified by the list for match up with the respective structure and shall be boxed or bundled. All parts required for any one structure shall be in one (1) shipment, if possible.

8.3 The manufacturer is responsible for repairing or replacing any structures which are delivered to the site with manufacturing errors. Repair and/or replacement costs shall include the structure itself, as well as any associated construction costs.

8.4 All materials shall be shipped to the jobsite by truck.

8.5 One full set of approved shop drawings, Erection Diagrams and Details, shall be shipped to the jobsite with the steel order.

9.0 References

9.1 ASTM International

1. ASTM A36-Standard Specification for Carbon Structural Steel
2. ASTM A53-Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless
3. ASTM A123-Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
4. ASTM A143-Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement
5. ASTM F2329- Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners
6. ASTM A384-Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing Steel Assemblies
7. ASTM A500-Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
8. ASTM A501-Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
9. ASTM A563-Standard Specification for Carbon and Alloy Steel Nuts
10. ASTM A572-Standard Specification for High-Strength Low-Alloy Columbium Vanadium Structural Steel
11. ASTM A780-Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
12. ASTM A992-Standard Specification for Structural Steel Shapes
13. ASTM F3125-Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi and 150 ksi Minimum Tensile Strength
14. ASTM F1554-Standard Specification for Anchor Bolts, Steel, 36, 55 and 105-ksi Yield Strength

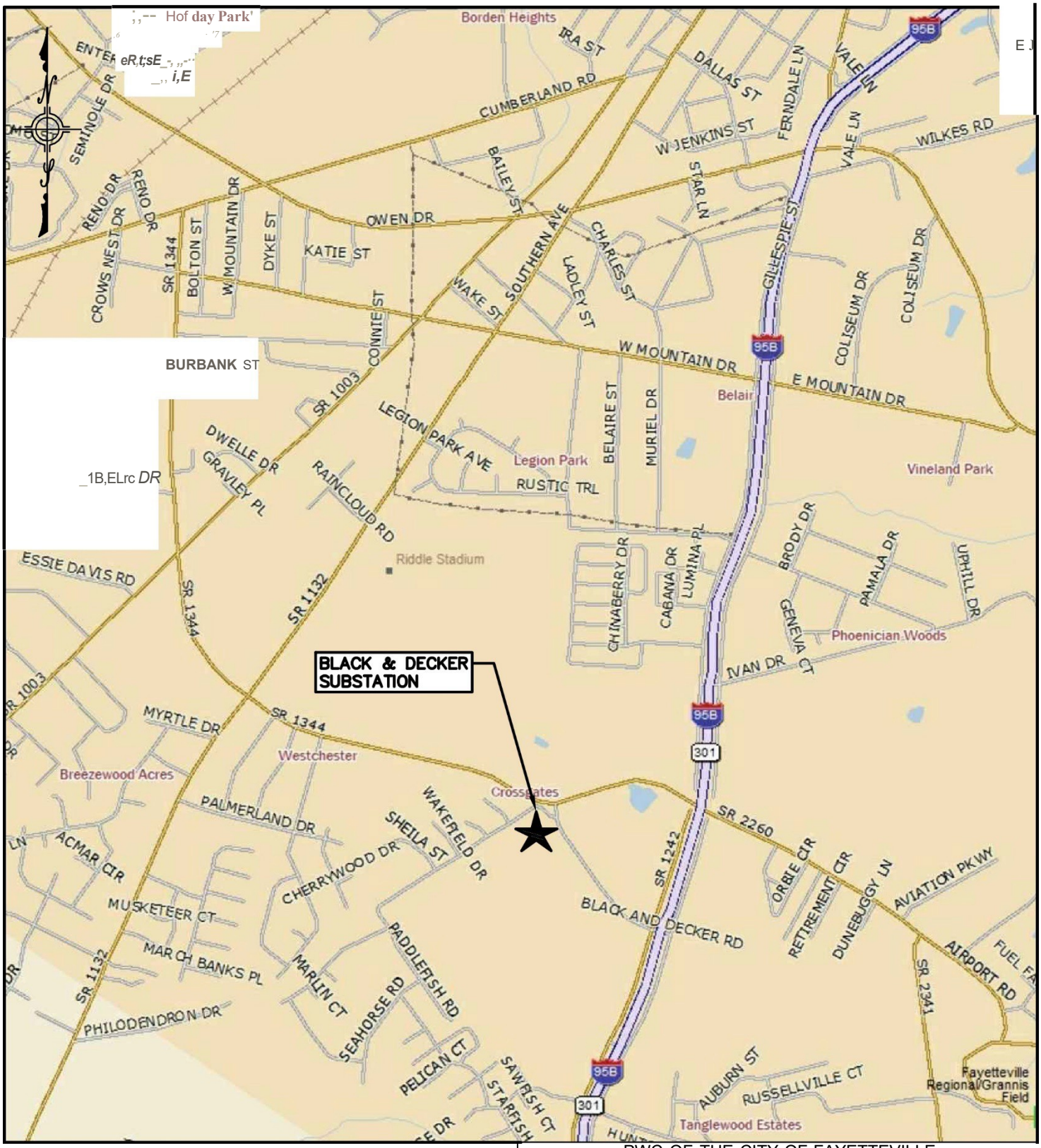
9.2 American Welding Society

1. AWS D1.1-Structural Welding Code-Steel

9.3 American Institute of Steel Construction

1. AISC 360 Specification for Structural Steel Buildings

4 – Vicinity Map



SITE LOCATION

ADDRESS:
2901 PEACOCK STREET
HOPE MILLS, NC 28348

PWC OF THE CITY OF FAYETTEVILLE
FAYEmVILLE, NORTH CAROLINA

BLACK & DECKER
69 TO 15 X 25 kV SUBSTATION
VICINITY MAP

Booth & Associates, LLC
5811 Glenwood Avenue | Raleigh, NC 27612 CONSULTING ENGINEERS NC F-0221

DWN.	AAI	DATE: 01/08/2021	DWG. NO.
CKD.	BDE	APPD. RSY	
SCALE:	1" = 1,500'	FILE: 12502VM	VM-1
JOB NO.	19-9224	DATE / REVISION	
© 01/2021			