CONTRACT

FOR

CONVERT 4160V LINE TO UNDERGROUND

PORT of WILMINGTON

NCSPA Contract No. C-1799
SCO ID# 24-27857-01A

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SECTION A

Advertisement for Bids

Sealed proposals will be received by Robert Kohler of the North Carolina State Ports Authority in Room 100A of the North Carolina Maritime Building, 2202 Burnett Blvd., Wilmington, NC, 28401, Phone No. (910) 746-6412, up to 10:30 am, Wednesday, September 24, 2025, and immediately thereafter publicly opened and read for the furnishing of labor, material and equipment entering into the **Convert 4160V Line to Underground**, North Carolina State Ports Authority, Port of Wilmington, NCSPA Contract No. C-1799, SCO ID # 24-27857-01A.

Bids will be received for Single prime construction contract. All proposals shall be lump sum. Bidders should clearly indicate on the outside of the bid envelope

1. Bid Proposal for Convert 4160V Line to Underground
2. NC General Contractor's License Number
3. Bid listed as "Single Prime Bid".

The project includes furnishing materials identified in the contract documents, and all labor and equipment to perform all the work associated with the Convert 4160V Line to Underground, located on the North Carolina State Ports Authority property at the Port of Wilmington.

Electronic (PDF) copies of the complete plans and specifications for this project may be obtained via email from North Carolina State Ports Authority at no cost. Send request to: Robert Kohler – Robert.Kohler@ncports.com

Bidders should visit the site in order to acquaint themselves with site conditions and job requirements.

The owner reserves the unqualified right to reject any and all proposals and to waive informalities.

Owner:
North Carolina State Ports Authority
Robert Kohler
2202 Burnett Boulevard, Wilmington, North Carolina 28401
Phone (910) 746-6412

Designer:
Cheatham & Associates, PA
Project Manager: Mark Ciarrocca, PE
3412 Enterprise Drive, Wilmington, North Carolina 28405
Phone (910) 452-4210

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Notice to Bidders

Sealed proposals will be received by Robert T. Kohler of the North Carolina State Ports Authority in Room 100A of the North Carolina Maritime Building, 2202 Burnett Blvd., Wilmington, NC, 28401, Phone No. (910) 746-6412, up to 10:30 am, Wednesday, September 24, 2025, and immediately thereafter publicly opened and read for the furnishing of labor, material and equipment entering into the **Convert 4160V Line to Underground**, North Carolina State Ports Authority, Port of Wilmington, NCSPA Contract No. C-1799, SCO ID # 24-27857-01A.

Bids will be received for Single prime construction contract. All proposals shall be lump sum. Bidders should clearly indicate on the outside of the bid envelope "**Bid Proposal for: Convert 4160V Line to Underground, Port of Wilmington**", their NC General Contractor's License Number, and that the bid is for "Single Prime Bid".

Bidders should visit the site in order to acquaint themselves with site conditions and job requirements.

In accordance with General Statute GS 133-3, Specifications may list one or more preferred brands as an alternate to the base bid in limited circumstances. Specifications containing a preferred brand alternate under this section must identify the performance standards that support the preference. Performance standards for the preference must be approved in advance by the Owner in an open meeting. Any alternate approved by the Owner shall be approved only where: (1) the preferred alternate will provide cost savings, maintain or improve the functioning of any process or system affected by the preferred item or items, or both, and (2) a justification identifying these criteria is made available in writing to the public.

Justification of any approvals will be made available to the public in writing no later than seven (7) days prior to bid date. The meeting will also address project specific questions, issues and bidding procedures.

Complete plans, specifications, and contract documents will be open for inspection in the office of the North Carolina State Ports Authority, Engineering Department, 2202 Burnett Boulevard, Wilmington, North Carolina 28401, (910) 746-6412.

Electronic (PDF) copies of the complete plans and specifications for this project may be obtained via email at no cost (send request to: Robert.Kohler@ncports.com).

NOTE: The bidder shall include with the bid proposal the form Identification of Minority Business Participation identifying the minority business participation it will use on the project and shall include either Affidavit A or Affidavit B as applicable. Forms and instructions are included within the Proposal Form in the bid documents. Failure to complete these forms is grounds for rejection of the bid. (GS143-128.2c Effective 1/1/2002.)

All contractors are hereby notified that they must have proper license as required under the state laws governing their respective trades.

General contractors are notified that Chapter 87, Article 1, General Statutes of North Carolina, will be observed in receiving and awarding general contracts. General contractors submitting bids on this project must have license classification for "U (Unclassified)" or "Specialty PU". All subcontractors are hereby notified that they must have proper license as required under the state laws governing their respective trades.

> **NOTE**: Under GS 87-1, a contractor that superintends or manages construction of any building, highway, public utility, grading, structure or improvement shall be deemed a "general contractor" and shall be so licensed. Therefore a single prime project that involves other trades will require the single prime contractor to hold a proper General Contractors license.

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company, insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof a bidder may offer a bid bond of five percent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute the contract in accordance with the bid bond. Said deposit shall be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten days after the award or to give satisfactory surety as required by law.

A performance bond and a payment bond will be required for one hundred percent (100%) of the contract price.

Payment will be made based on ninety-five percent (95%) of monthly estimates and final payment made upon completion and acceptance of work.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of **90-calendar days**.

The Owner reserves the right to reject any or all bids and to waive informalities.

Owner:
North Carolina State Ports Authority
Robert Kohler
2202 Burnett Boulevard, Wilmington, North Carolina 28401
Phone (910) 746-6412

Designer:
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GENERAL CONDITIONS OF THE CONTRACT

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STANDARD FORM FOR CONSTRUCTION PROJECTS

STATE CONSTRUCTION OFFICE

NORTH CAROLINA

DEPARTMENT OF ADMINISTRATION

Form OC-15

This document is intended for use on State capital construction projects and shall not be used on any project that is not reviewed and approved by the State Construction Office. Extensive modification to the General Conditions by means of "Supplementary General Conditions" is strongly discouraged. State agencies and institutions may include special requirements in "Division 1 – General Requirements" of the specifications, where they do not conflict with the General Conditions.

Twenty Fourth Edition January 2013
Revision 1 - May 2024: Article 23. b

INSTRUCTIONS TO BIDDERS

For a proposal to be considered it must be in accordance with the following instructions:

1. PROPOSALS

Proposals must be made in strict accordance with the Form of Proposal provided therefor, and all blank spaces for bids, alternates, and unit prices applicable to bidder's work shall be properly filled in. When requested alternates are not bid, the proposer shall so indicate by the words "No Bid". Any blanks shall also be interpreted as "No Bid".The bidder agrees that bid on Form of Proposal detached from specifications will be considered and will have the same force and effect as if attached thereto. Photocopied or faxed proposals will not be considered. Numbers shall be stated both in writing and in figures for the base bids and alternates. If figures and writing differ, the written number will supersede the figures.

Any modifications to the Form of Proposal (including alternates and/or unit prices) will disqualify the bid and may cause the bid to be rejected.

The bidder shall fill in the Form of Proposal as follows:

1. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

2. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.

3. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.

4. If the proposal is made by a joint venture, it shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable.

5. All signatures shall be properly witnessed.

6. If the contractor's license of a bidder is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the proposal. The title "Licensee" shall appear under his/her signature.

Proposals should be addressed as indicated in the Advertisement for Bids and be delivered, enclosed in an opaque sealed envelope, marked "Proposal" and bearing the title of the work, name of the bidder, and the contractor's license number of the bidder. Bidders should clearly mark on the outside of the bid envelope which contract(s) they are bidding.

Bidder shall identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts or an affidavit indicating work under contract will be self-performed, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f). Failure to comply with these requirements is grounds for rejection of the bid.

For projects bid in the single-prime alternative, the names and license numbers of major subcontractors shall be listed on the proposal form.
It shall be the specific responsibility of the bidder to deliver his bid to the proper official at the selected place and prior to the announced time for the opening of bids. Later delivery of a bid for any reason, including delivery by any delivery service, shall disqualify the bid.
Unit prices quoted in the proposal shall include overhead and profit and shall be the full compensation for the contractor's cost involved in the work. See General Conditions, Article 19c-1.

2. EXAMINATION OF CONDITIONS

It is understood and mutually agreed that by submitting a bid the bidder acknowledges that he has carefully examined all documents pertaining to the work, the location, accessibility and general character of the site of the work and all existing buildings and structures within and adjacent to the site, and has satisfied himself as to the nature of the work, the condition of existing buildings and structures, the conformation of the ground, the character, quality and quantity of the material to be encountered, the character of the equipment, machinery, plant and any other facilities needed preliminary to and during prosecution of the work, the general and local conditions, the construction hazards, and all other matters, including, but not limited to, the labor situation which can in any way affect the work under the contract, and including all safety measures required by the Occupational Safety and Health Act of 1970 and all rules and regulations issued pursuant thereto. It is further mutually agreed that by submitting a proposal the bidder acknowledges that he has satisfied himself as to the feasibility and meaning of the plans, drawings, specifications and other contract documents for the construction of the work and that he accepts all the terms, conditions and stipulations contained therein; and that he is prepared to work in cooperation with other contractors performing work on the site.

Reference is made to contract documents for the identification of those surveys and investigation reports of subsurface or latent physical conditions at the site or otherwise affecting performance of the work which have been relied upon by the designer in preparing the documents. The owner will make copies of all such surveys and reports available to the bidder upon request.

Each bidder may, at his own expense, make such additional surveys and investigations as he may deem necessary to determine his bid price for the performance of the work. Any on-site investigation shall be done at the convenience of the owner. Any reasonable request for access to the site will be honored by the owner.

3. BULLETINS AND ADDENDA

Any addenda to specifications issued during the time of bidding are to be considered covered in the proposal and in closing a contract they will become a part thereof. It shall be the bidder's responsibility to ascertain prior to bid time the addenda issued and to see that his bid includes any changes thereby required.

Should the bidder find discrepancies in, or omission from, the drawings or documents or should he be in doubt as to their meaning, he shall at once notify the designer who will send written instructions in the form of addenda to all bidders. Notification should be no later than seven (7) days prior to the date set for receipt of bids. Neither the owner nor the designer will be responsible for any oral instructions.

All addenda should be acknowledged by the bidder(s) on the Form of Proposal. However, even if not acknowledged, by submitting a bid, the bidder has certified that he has reviewed all issued addenda and has included all costs associated within his bid.

4. BID SECURITY

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation, or a bid bond in an amount equal to not less than five percent (5%) of the proposal, said deposit to be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten (10) days after the award or to give satisfactory surety as required by law (G.S. 143-129).

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 execute the contract. The owner may retain bid securities of any bidder(s) who may have a reasonable chance of award of contract for the full duration of time stated in the Notice to Bidders. Other bid securities may be released sooner, at the discretion of the owner. All bid securities (cash or certified checks) shall be returned to the bidders promptly after award of contracts, and no later then seven (7) days after expiration of the holding period stated in the Notice to Bidders. Standard Form of Bid Bond is included in these specifications and shall be used.

5. RECEIPT OF BIDS

Bids shall be received in strict accordance with requirements of the General Statutes of North Carolina. Bid security shall be required as prescribed by statute. Prior to the closing of the bid, the bidder will be permitted to change or withdraw his bid. Guidelines for opening of public construction bids are available from the State Construction Office.

6. OPENING OF BIDS

Upon opening, all bids shall be read aloud. Once bidding is closed, there shall not be any withdrawal of bids by any bidder and no bids may be returned by the designer to any bidder. After the opening of bids, no bid may be withdrawn, except under the provisions of General Statute 143-129.1, for a period of thirty days unless otherwise specified. Should the successful bidder default and fail to execute a contract, the contract may be awarded to the next lowest and responsible bidder. The owner reserves the unqualified right to reject any and all bids. Reasons for rejection may include, but shall not be limited to, the following:

a. If the Form of Proposal furnished to the bidder is not used or is altered.

b. If the bidder fails to insert a price for all bid items, alternate and unit prices requested.

c. If the bidder adds any provisions reserving the right to accept or reject any award.

d. If there are unauthorized additions or conditional bids, or irregularities of any kind which tend to make the proposal incomplete, indefinite or ambiguous as to its meaning.

e. If the bidder fails to complete the proposal form where information is requested so the bid may be properly evaluated by the owner.

f. If the unit prices contained in the bid schedule are unacceptable to the owner and the State Construction Office.

g. If the bidder fails to comply with other instructions stated herein.

7. BID EVALUATION

The award of the contract will be made to the lowest responsible bidder as soon as practical. The owner may award on the basis of the base bid and any alternates the owner chooses.

Before awarding a contract, the owner may require the apparent low bidder to qualify himself to be a responsible bidder by furnishing any or all of the following data:

a. The latest financial statement showing assets and liabilities of the company or other information satisfactory to the owner.

b. A listing of completed projects of similar size.

c. Permanent name and address of place of business.

d. The number of regular employees of the organization and length of time the organization has been in business under present name.

e. The name and home office address of the surety proposed and the name and address of the responsible local claim agent.

f. The names of members of the firms who hold appropriate trade licenses, together with license numbers.

g. If prequalified, contractor info will be reviewed and evaluated comparatively to submitted prequalification package.

Failure or refusal to furnish any of the above information, if requested, shall constitute a basis for disqualification of any bidder.

In determining the lowest responsible, responsive bidder, the owner shall take into consideration the bidder's compliance with the requirements of G.S. 143-128.2(c), the past performance of the bidder on construction contracts for the State with particular concern given to completion times, quality of work, cooperation with other contractors, and cooperation with the designer and owner. Failure of the low bidder to furnish affidavit and/or documentation as required by G.S. 143-128.2(c) shall constitute a basis for disqualification of the bid.

Should the owner adjudge that the apparent low bidder is not the lowest responsible, responsive bidder by virtue of the above information, said apparent low bidder will be so notified and his bid security shall be returned to him.

8. PERFORMANCE BOND

The successful bidder, upon award of contract, shall furnish a performance bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

9. PAYMENT BOND

The successful bidder, upon award of contract, shall furnish a payment bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

10. PAYMENTS

Payments to the successful bidders (contractors) will be made on the basis of monthly estimates. See Article 31, General Conditions.

11. PRE-BID CONFERENCE

Prior to the date set for receiving bids, the Designer may arrange and conduct a Pre-Bid Conference for all prospective bidders. The purpose of this conference is to review project requirements and to respond to questions from prospective bidders and their subcontractors or material suppliers related to the intent of bid documents. Attendance by prospective bidders shall be as required by the “Notice to Bidders”.

12. SUBSTITUTIONS

In accordance with the provisions of G.S. 133-3, material, product, or equipment substitutions proposed by the bidders to those specified herein can only be considered during the bidding phase until ten (10) days prior to the receipt of bids when submitted to the Designer with sufficient data to confirm material, product, or equipment equality. Proposed substitutions submitted after this time will be considered only as potential change order.

Submittals for proposed substitutions shall include the following information:

a. Name, address, and telephone number of manufacturer and supplier as appropriate.

b. Trade name, model or catalog designation.

c. Product data including performance and test data, reference standards, and technical descriptions of material, product, or equipment. Include color samples and samples of available finishes as appropriate.

d. Detailed comparison with specified products including performance capabilities, warranties, and test results.

e. Other pertinent data including data requested by the Designer to confirm product equality.

If a proposed material, product, or equipment substitution is deemed equal by the Designer to those specified, all bidders of record will be notified by Addendum.

GENERAL CONDITIONS OF THE CONTRACT

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ARTICLE 1 - DEFINITIONS

a. The **contract documents** consist of the Notice to Bidders; Instructions to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the drawing and specifications, including all bulletins, addenda or other modifications of the drawings and specifications incorporated into the documents prior to their execution; the proposal; the contract; the performance bond; the payment bond; insurance certificates; the approval of the attorney general; and the certificate of the Office of State Budget and Management. All of these items together form the contract.

b. The **owner** is the State of North Carolina through the agency named in the contract.

c. The **designer(s)** are those referred to within this contract, or their authorized representatives. The Designer(s), as referred to herein, shall mean architect and/or engineer. They will be referred to hereinafter as if each were of the singular number, masculine gender.

d. The **contractor**, as referred to hereinafter, shall be deemed to be either of the several contracting parties called the "Party of the First Part" in either of the several contracts in connection with the total project. Where, in special instances hereinafter, a particular contractor is intended, an adjective precedes the word "contractor," as "general," "heating," etc. For the purposes of a single prime contract, the term Contractor shall be deemed to be the single contracting entity identified as the "Party of the First Part" in the single Construction Contract. Any references or adjectives that name or infer multiple prime contractors shall be interpreted to mean the single prime Contractor.

e. A **subcontractor**, as the term is used herein, shall be understood to be one who has entered into a direct contract with a contractor, and includes one who furnishes materials worked to a special design in accordance with plans and specifications covered by the contract, but does not include one who only sells or furnishes materials not requiring work so described or detailed.

f. **Written notice** shall be defined as notice in writing delivered in person to the contractor, or to a partner of the firm in the case of a partnership, or to a member of the contracting organization, or to an officer of the organization in the case of a corporation, or sent to the last known business address of the contracting organization by registered mail.

g. **Work**, as used herein as a noun, is intended to include materials, labor, and workmanship of the appropriate contractor.

h. The **project** is the total construction work to be performed under the contract documents by the several contractors.

i. **Project Expediter,** as used herein, is an entity stated in the contract documents, designated to effectively facilitate scheduling and coordination of work activities. See Article 14(f) for responsibilities of a Project Expediter. **For the purposes of a single prime contract, the single prime contractor shall be designated as the Project Expediter.**

j. **Change order**, as used herein, shall mean a written order to the contractor subsequent to the signing of the contract authorizing a change in the contract. The change order shall be signed by the contractor, designer and the owner, and approved by the State Construction Office, in that order (Article 19).

k. **Field Order,** as used herein, shall mean a written approval for the contractor to proceed with the work requested by owner prior to issuance of a formal Change Order. The field order shall be signed by the contractor, designer, owner, and State Construction Office.

l. **Time of completion**, as stated in the contract documents, is to be interpreted as consecutive calendar days measured from the date established in the written Notice to Proceed, or such other date as may be established herein (Article 23).

m. **Liquidated damages,** as stated in the contract documents [, is an amount reasonably estimated in advance to cover the consequential damages associated with the Owner's economic loss in not being able to use the Project for its intended purposes at the end of the contract's completion date as amended by change order, if any, by reason of failure of the contractor(s) to complete the work within the time specified. Liquidated damages does not include the Owner's extended contract administration costs (including but not limited to additional fees for architectural and engineering services, testing services, inspection services, commissioning services, etc.), such other damages directly resulting from delays caused solely by the contractor, or consequential damages that the Owner identified in the bid documents that may be impacted by any delay caused soley by the Contractor (e.g., if a multi-phased project-subsequent phases, delays in start other projects that are dependent on the completion of this Project, extension of leases and/or maintenance agreements for other facilities).

n. **Surety**, as used herein, shall mean the bonding company or corporate body which is bound with and for the contractor, and which engages to be responsible for the contractor and his acceptable performance of the work.

o. **Routine written communications between the Designer and the Contractor** are any communication other than a "request for information" provided in letter, memo, or transmittal format, sent by mail, courier, electronic mail, or facsimile. Such communications can not be identified as "request for information".

p. **Clarification or Request for information (RFI)** is a request from the Contractor seeking an interpretation or clarification by the Designer relative to the contract documents. The RFI, which shall be labeled (RFI), shall clearly and concisely set forth the issue or item requiring clarification or interpretation and why the response is needed. The RFI must set forth the Contractor's interpretation or understanding of the contract documents requirements in question, along with reasons for such an understanding.

q. **Approval** means written or imprinted acknowledgement that materials, equipment or methods of construction are acceptable for use in the work.

r. **Inspection** shall mean examination or observation of work completed or in progress to determine its compliance with contract documents.

s. **"Equal to" or "approved equal"** shall mean materials, products, equipment, assemblies, or installation methods considered equal by the bidder in all characteristics (physical, functional, and aesthetic) to those specified in the contract documents. Acceptance of equal is subject to approval of Designer and owner.

t. **"Substitution" or "substitute"** shall mean materials, products, equipment, assemblies, or installation methods deviating in at least one characteristic (physical, functional, or aesthetic) from those specified, but which in the opinion of the bidder would improve competition and/or enhance the finished installation. Acceptance of substitution is subject to the approval of the Designer and owner.

u. **Provide** shall mean furnish and install complete in place, new, clean, operational, and ready for use.

v. **Indicated and shown** shall mean provide as detailed, or called for, and reasonably implied in the contract documents.

w. **Special inspector** is one who inspects materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with the approved construction documents and referenced standards.

x. **Commissioning** is a quality assurance process that verifies and documents that building components and systems operate in accordance to the owner's project requirements and the project design documents.

y. **Designer Final Inspection** is the inspection performed by the design team to determine the completeness of the project in accordance with approved plans and specifications. This inspection occurs prior to SCO final inspection.

z. **SCO Final Inspection** is the inspection performed by the State Construction Office to determine the completeness of the project in accordance with NC Building Codes and approved plans and specifications.

aa. **Beneficial Occupancy** is requested by the owner and is occupancy or partial occupancy of the building after all life safety items have been completed as determined by the State Construction Office. Life safety items include but not limited to fire alarm, sprinkler, egress and exit lighting, fire rated walls, egress paths and security.

bb. Final Acceptance is the date in which the State Construction Office accepts the construction as totally complete. This includes the SCO Final Inspection and certification by the designer that all punch lists are completed.

ARTICLE 2 - INTENT AND EXECUTION OF DOCUMENTS

a. The drawings and specifications are complementary, one to the other, and 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 intent of the drawings and specifications is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a bid for a complete job. In case of discrepancy or disagreement in the contract documents, the order of precedence shall be: Form of Contract, specifications, large-scale detail drawings, small-scale drawings.

b. The wording of the specifications shall be interpreted in accordance with common usage of the language except that words having a commonly used technical or trade meaning shall be so interpreted in preference to other meanings.

c. The contractor shall execute each copy of the proposal, contract, performance bond and payment bond as follows:

1. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

2. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.

3. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.

4. If the documents are made by a joint venture, they shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable to each particular member.

5. All signatures shall be properly witnessed.

6. If the contractor's license is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the contract. The title "Licensee" shall appear under his/her signature.

7. The bonds shall be executed by an attorney-in-fact. There shall be attached to each copy of the bond a certified copy of power of attorney properly executed and dated.

8. Each copy of the bonds shall be countersigned by an authorized individual agent of the bonding company licensed to do business in North Carolina. The title "Licensed Resident Agent" shall appear after the signature.

9. The seal of the bonding company shall be impressed on each signature page of the bonds.

10. The contractor's signature on the performance bond and the payment bond shall correspond with that on the contract. The date of performance and payment bond shall not be prior to the date of the contract.

ARTICLE 3 - CLARIFICATIONS AND DETAIL DRAWINGS

a. In such cases where the nature of the work requires clarification by the designer, such clarification shall be furnished by the designer with reasonable promptness by means of written instructions or detail drawings, or both. Clarifications and drawings shall be consistent with the intent of contract documents, and shall become a part thereof.

b. The contractor(s) and the designer shall prepare, if deemed necessary, a schedule fixing dates upon which foreseeable clarifications will be required. The schedule will be subject to addition or change in accordance with progress of the work. The designer shall furnish drawings or clarifications in accordance with that schedule. The contractor shall not proceed with the work without such detail drawings and/or written clarifications.

ARTICLE 4 - COPIES OF DRAWINGS AND SPECIFICATIONS

The designer or Owner shall furnish free of charge to the contractors electronic copies of plans and specifications. If requested by the contractor, paper copies of plans and specifications shall be furnished free of charge as follows:

a. General contractor - Up to twelve (12) sets of general contractor drawings and specifications, up to six (6) sets of which shall include drawings and specifications of all other contracts, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

b. Each other contractor - Up to six (6) sets of the appropriate drawings and specifications, up to three (3) sets of which shall include drawings and specifications of all other contracts, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

c. Additional sets shall be furnished at cost, including mailing, to the contractor upon request by the contractor. This cost shall be stated in the bidding documents.

d. For the purposes of a single-prime contract, the contractor shall receive up to 30 sets of drawings and specifications, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work- in-place that is at variance with the contract documents.

ARTICLE 5 - SHOP DRAWINGS, SUBMITTALS, SAMPLES, DATA

a. Within 15 consecutive calendar days after the notice to proceed, each prime contractor shall submit a schedule for submission of all shop drawings, product data, samples, and similar submittals through the Project Expediter to the Designer. This schedule shall indicate the items, relevant specification sections, other related submittal, data, and the date when these items will be furnished to the designer.

b. The Contractor(s) shall review, approve and submit to the Designer all Shop Drawings, Coordination Drawings, Product Data, Samples, Color Charts, and similar submittal data required or reasonably implied by the Contract Documents. Required Submittals shall bear the Contractor’s stamp of approval, any exceptions to the Contract Documents shall be noted on the submittals, and copies of all submittals shall be of sufficient quantity for the Designer to retain up to three (3) copies of each submittal for his own use plus additional copies as may be required by the Contractor. Submittals shall be presented to the Designer in accordance with the schedule submitted in paragraph (a). so as to cause no delay in the activities of the Owner or of separate Contractors.

c. The Designer shall review required submittals promptly, noting desired corrections if any, and retaining three (3) copies (1 for the Designer, 1 for the owner and 1 for SCO) for his use. The remaining copies of each submittal shall be returned to the Contractor not later than twenty (20) days from the date of receipt by the Designer, for the Contractor’s use or for corrections and resubmittal as noted by the Designer. When resubmittals are required, the submittal procedure shall be the same as for the original submittal***s.***

d. Approval of shop drawings/submittals by the Designer shall not be construed as relieving the Contractor from responsibility for compliance with the design or terms of the contract documents nor from responsibility of errors of any sort in the shop drawings, unless such lack of compliance or errors first have been called in writing to the attention of the Designer by the Contractor.

ARTICLE 6 - WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

a. The contractor shall maintain, in readable condition at his job office, one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the designer, his authorized representative, owner or State Construction Office.

b. The contractor shall maintain at the job office, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on project drawings by the contractor and submitted to the designer upon project completion and no later than 30 days after final acceptance of the project.

c. The contractor shall maintain at the job office a record of all required tests that have been performed, clearly indicating the scope of work inspected and the date of approval or rejection.

ARTICLE 7 - OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

All drawings and specifications are instruments of service and remain the property of the owner. The use of these instruments on work other than this contract without permission of the owner is prohibited. All copies of drawings and specifications other than contract copies shall be returned to the owner upon request after completion of the work.

ARTICLE 8 - MATERIALS, EQUIPMENT, EMPLOYEES

a. The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

b. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.

c. Upon notice, the contractor shall furnish evidence as to quality of materials.

d. Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Request for substitution of materials, items, or equipment shall be submitted to the designer for approval or disapproval; such approval or disapproval shall be made by the designer prior to the opening of bids. Alternate materials may be requested after the award if it can clearly be demonstrated that it is an added benefit to the owner and the designer and owner approves.

e. The designer is the judge of equality for proposed substitution of products, materials or equipment.

g. If at any time during the construction and completion of the work covered by these contract documents, the language, conduct, or attire of any workman of the various crafts be adjudged a nuisance to the owner or designer, or if any workman be considered detrimental to the work, the contractor shall order such parties removed immediately from grounds.

ARTICLE 9 - ROYALTIES, LICENSES AND PATENTS

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

ARTICLE 10 - PERMITS, INSPECTIONS, FEES, REGULATIONS

a. The contractor shall give all notices and comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work under this contract. If the contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. See Instructions to Bidders, Paragraph 3, Bulletins and Addenda. Any necessary changes required after contract award shall be made by change order in accordance with Article 19. If the contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the designer, he shall bear all cost arising therefrom. Additional requirements implemented after bidding will be subject to equitable negotiations.

b. All work under this contract shall conform to the North Carolina State Building Code and other State, local and national codes as are applicable. The cost of all required inspections and permits shall be the responsibility of the contractor and included within the bid proposal. All water taps, meter barrels, vaults and impact fees shall be paid by the contractor unless otherwise noted.

d. Projects constructed by the State of North Carolina or by any agency or institution of the State are not subject to inspection by any county or municipal authorities and are not subject to county or municipal building codes. The contractor shall, however, cooperate with the county or municipal authorities by obtaining building permits. Permits shall be obtained at no cost.

e. Projects involving local funding (community colleges) are subject also to county and municipal building codes and inspection by local authorities. The contractor shall pay the cost of these permits and inspections.

ARTICLE 11 - PROTECTION OF WORK, PROPERTY AND THE PUBLIC

a. The contractors shall be jointly responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. They shall be responsible for any damage to the owner's property, or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. They shall be responsible for and pay for any damages caused to the owner. All contractors shall have access to the project at all times.

b. The contractor shall provide cover and protect all portions of the structure when the work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other materials necessary to protect all the work on the building, whether set by him, or any of the subcontractors. Any work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the owner.

c. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the designer and owner.

d. The contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around same. He shall barricade all walks, roads, etc., as directed by the designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.

e. The contractor shall provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. *Accident Prevention Manual in Construction*, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout the progress of the work.

f. The contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, *Federal Register*), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.

g. The contractor shall designate a responsible person of his organization as safety officer/inspector to inspect the project site for unsafe health and safety hazards, to report these hazards to the contractor for correction, and whose duties also include accident prevention on the project, and to provide other safety and health measures on the project site as required by the terms and conditions of the contract. The name of the safety inspector shall be made known to the designer and owner at the time of the preconstruction conference and in all cases prior to any work starting on the project.

h. In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the contractor is hereby authorized to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage. Any compensation claimed by the contractor on account of such action shall be determined as provided for under Article 19(b).

i. Any and all costs associated with correcting damage caused to adjacent properties of the construction site or staging area shall be borne by the contractor. These costs shall include but not be limited to flooding, mud, sand, stone, debris, and discharging of waste products.

ARTICLE 12 - SEDIMENTATION POLLUTION CONTROL ACT OF 1973

a. Any land-disturbing activity performed by the contractor(s) in connection with the project shall comply with all erosion control measures set forth in the contract documents and any additional measures which may be required in order to ensure that the project is in full compliance with the Sedimentation Pollution Control Act of 1973, as implemented by Title 15, North Carolina Administrative Code, Chapter 4, Sedimentation Control, Subchapters 4A, 4B and 4C, as amended (15 N.C.A.C. 4A, 4B and 4C).

b. Upon receipt of notice that a land-disturbing activity is in violation of said act, the contractor(s) shall be responsible for ensuring that all steps or actions necessary to bring the project in compliance with said act are promptly taken.

c. The contractor(s) shall be responsible for defending any legal actions instituted pursuant to N.C.G.S. 113A-64 against any party or persons described in this article.

d. To the fullest extent permitted by law, the contractor(s) shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, civil penalties, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance of work or failure of performance of work, provided that any such claim, damage, civil penalty, loss or expense is attributable to a violation of the Sedimentation Pollution Control Act. Such obligation shall not be construed to negate, abridge or otherwise reduced any other right or obligation of indemnity which would otherwise exist as to any party or persons described in this article.

ARTICLE 13 - INSPECTION OF THE WORK

a. It is a condition of this contract that the work shall be subject to inspection during normal working hours and during any time work is in preparation and progress by the designer, designated official representatives of the owner, State Construction Office and those persons required by state law to test special work for official approval. The contractor shall therefore provide safe access to the work at all times for such inspections.

b. All instructions to the contractor will be made only by or through the designer or his designated project representative. Observations made by official representatives of the owner shall be conveyed to the designer for review and coordination prior to issuance to the contractor.

c. All work shall be inspected by designer, special inspector and/or State Construction Office prior to being covered by the contractor. Contractor shall give a minimum two weeks notice unless otherwise agreed to by all parties. If inspection fails, after the first reinspection all costs associated with additional reinspections shall be borne by the contractor.

d. Where special inspection or testing is required by virtue of any state laws, instructions of the designer, specifications or codes, the contractor shall give adequate notice to the designer of the time set for such inspection or test, if the inspection or test will be conducted by a party other than the designer. Such special tests or inspections will be made in the presence of the designer, or his authorized representative, and it shall be the contractor's responsibility to serve ample notice of such tests.

e. All laboratory tests shall be paid by the owner unless provided otherwise in the contract documents except the general contractor shall pay for laboratory tests to establish design mix for concrete, and for additional tests to prove compliance with contract documents where materials have tested deficient except when the testing laboratory did not follow the appropriate ASTM testing procedures.

f. Should any work be covered up or concealed prior to inspection and approval by the designer, special inspector, and/or State Construction Office such work shall be uncovered or exposed for inspection, if so requested by the designer in writing. Inspection of the work will be made upon notice from the contractor. All cost involved in uncovering, repairing, replacing, recovering and restoring to design condition, the work that has been covered or concealed will be paid by the contractor involved.

ARTICLE 14 - CONSTRUCTION SUPERVISION AND SCHEDULE

a. Throughout the progress of the work, each contractor shall keep at the job site**,** a competent superintendent and supervisory staff satisfactory to the designer and the owner. The superintendent and supervisory staff shall not be changed without the consent of the designer and owner unless said superintendent ceases to be employed by the contractor or ceases to be competent as determined by the contractor, designer or owner. The superintendent and other staff designated by the contractor in writing shall have authority to act on behalf of the contractor, and instructions, directions or notices given to him shall be as binding as if given to the contractor. However, directions, instructions, and notices shall be confirmed in writing.

b. The contractor shall examine and study the drawings and specifications and fully understand the project design, and shall provide constant and efficient supervision to the work. Should he discover any discrepancies of any sort in the drawings or specifications, he shall report them to the designer without delay. He will not be held responsible for discrepancies in the drawings and/or specifications, but shall be held responsible to report them should they become known to him.

c. All contractors shall be required to cooperate and consult with each other during the construction of this project. Prior to installation of work, all contractors shall jointly prepare coordination drawings, showing locations of various ductworks, piping, motors, pumps, and other mechanical or electrical equipment, in relation to the structure, walls and ceilings. These drawings shall be submitted to the designer through the Project Expediter for information only**.** Each contractor shall lay out and execute his work to cause the least delay to other contractors. Each contractor shall be financially responsible for any damage to other contractor's work and for undue delay caused to other contractors on the project.

d. The contractor is required to attend job site progress conferences as called by the designer. The contractor shall be represented at these job progress conferences by both home office and project personnel. These representatives shall have authority to act on behalf of the contractor. These meetings shall be open to subcontractors, material suppliers and any others who can contribute toward maintaining required job progress. It shall be the principal purpose of these meetings, or conferences, to effect coordination, cooperation and assistance in every practical way toward the end of maintaining progress of the project on schedule and to complete the project within the specified contract time. Each contractor shall be prepared to assess progress of the work as required in his particular contract and to recommend remedial measures for correction of progress as may be appropriate. The designer or his authorized representative shall be the coordinator of the conferences and shall preside as chairman. The contractor shall turn over a copy of his daily reports to the Designer and Owner at the job site progress conference. Owner will determine daily report format.

e. The contractor(s) shall, employ an engineer or a land surveyor licensed in the State of North Carolina to lay out the work and to establish a bench mark in a location where same will not be disturbed and where direct instruments sights may be taken.

f. The designer shall designate a Project Expediter on projects involving two or more prime contracts. The Project Expediter shall be designated in the Supplementary General Conditions. The Project Expediter shall have at a minimum the following responsibilities**.**

1. Prepare the project construction schedule and shall allow all prime contractors (multi-prime contract) and subcontractors (single-prime contract) performing general, plumbing, HVAC, and electrical work equal input into the preparation of the initial construction schedule.

2. Maintain a project progress schedule for all contractors.

3. Give adequate notice to all contractors to ensure efficient continuity of all phases of the work.

4. Notify the designer of any changes in the project schedule.

5. Recommend to the owner whether payment to a contractor shall be approved**.**

g. It shall be the responsibility of the Project Expediter to cooperate with and obtain from several prime contractors and subcontractors on the job, their respective work activities and integrate these activities into a project construction schedule in form of a detailed bar chart or Critical Path Method (CPM), schedule. Each prime contractor shall provide work activities within fourteen (14) days of request by the Project Expediter. A "work activity", for scheduling purposes, shall be any component or contractual requirement of the project requiring at least one (1) day, but not more than fourteen (14) days, to complete or fulfill**.** The project construction schedule shall graphically show all salient features of the work required to construct the project from start to finish and within the allotted time established in the contract. The time (in days) between the contractor's early completion and contractual completion dates is part of the project total float time; and shall be used as such, unless amended by a change order**.** On a multi-prime project, each prime contractor shall review the proposed construction schedule and approve same in writing**.** The Project Expediter shall submit the proposed construction schedule to the designer for comments. The complete Project construction schedule shall be of the type set forth in the Supplementary General Condition or subparagraph (1) or (2) below, as appropriate:

1. For a project with total contracts of $500,000 or less, a bar chart schedule will satisfy the above requirement. The schedule shall indicate the estimated starting and completion dates for each major element of the work.

2. For a project with total contracts over $500,000, a Critical Path Method (CPM) schedule shall be utilized to control the planning and scheduling of the Work. The CPM schedule shall be the responsibility of the Project Expediter and shall be paid for by the Project Expediter.

Bar Chart Schedule: Where a bar chart schedule is required, it shall be time-scaled in weekly increments, shall indicate the estimated starting and completion dates for each major element of the work by trade and by area, level, or zone, and shall schedule dates for all salient features, including but not limited to the placing of orders for materials, submission of shop drawings and other Submittals for approval, approval of shop drawings by designers, the manufacture and delivery of material, the testing and the installation of materials, supplies and equipment, and all Work activities to be performed by the Contractor. The Contractor shall allow sufficient time in his schedule for all commissioning, required inspections and completion of final punchlist(s). Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

CPM Schedule: Where a CPM schedule is required, it shall be in time-scaled precedence format using the Project Expediter's logic and time estimates. The CPM schedule shall be drawn or plotted with activities grouped or zoned by Work area or subcontract as opposed to a random (or scattered) format. The CPM schedule shall be time-scaled on a weekly basis and shall be drawn or plotted at a level of detail and logic which will schedule all salient features of the work to be performed by the Contractor. The Contractor shall allow sufficient time in his schedule for all commissioning, required inspections and completion of final punchlist(s).. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

The CPM schedule will identify and describe each activity, state the duration of each activity, the calendar dates for the early and late start and the early and late finish of each activity, and clearly highlight all activities on the critical path. "Total float" and "free float" shall be indicated for all activities. Float time shall not be considered for the exclusive use or benefit of either the Owner or the Contractor, but must be allocated in the best interest of completing the Work within the Contract time. Extensions to the Contract time, when granted by Change Order, will be granted only when equitable time adjustment exceeds the Total Float in the activity or path of activities affected by the change. On contracts with a price over $2,500,000, the CPM schedule shall also show what part of the Contract Price is attributable to each activity on the schedule, the sum of which for all activities shall equal the total Contract Price.

Early Completion of Project: The Contractor may attempt to complete the project prior to the Contract Completion Date. However, such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the Owner under this Contract, nor shall it change the Time for Completion or the Contract Completion Date. The Contractor shall not be required to pay liquidated damages to the Owner because of its failure to complete by its planned earlier date. Likewise, the Owner shall not pay the Contractor any additional compensation for early completion nor will the Owner owe the Contractor any compensation should the Owner, its officers, employees, or agents cause the Contractor not to complete earlier than the date required by the Contract Documents.

h. The proposed project construction schedule shall be presented to the designer no later than fifteen (15) days after written notice to proceed. No application for payment will be processed until this schedule is accepted by the designer and owner.

i. The approved project construction schedule shall be distributed to all contractors and displayed at the job site by the Project Expediter.

j. The several contractors shall be responsible for their work activities and shall notify the Project Expediter of any necessary changes or adjustments to their work. The Project Expediter shall maintain the project construction schedule, making biweekly adjustments, updates, corrections, etc., that are necessary to finish the project within the Contract time, keeping all contractors and the designer fully informed. Copy of a bar chart schedule annotated to show the current progress shall be submitted by the Contractor(s) to the designer, along with monthly request for payment. For project requiring CPM schedule, the Contractor shall submit a biweekly report of the status of all activities. The bar chart schedule or status report shall show the actual Work completed to date in comparison with the original Work scheduled for all activities. If any activities of the work of several contractors are behind schedule, the contractor must indicate in writing, what measures will be taken to bring each such activity back on schedule and to ensure that the Contract Completion Date is not exceeded. A plan of action and recovery schedule shall be developed and submitted to the designer by the Project Expediter, when (1) the contractor's report indicates delays, that are in the opinion of the designer or the owner, of sufficient magnitude that the contractor's ability to complete the work by the scheduled completion is brought into question; (2) the updated construction schedule is thirty (30) days behind the planned or baseline schedule and no legitimate time extensions, as determined by the Designer, are in process; and (3) the contractor desires to make changes in the logic (sequencing of work) or the planned duration of future activities of the CPM schedule which, in the opinion of the designer or the owner, are of a major nature. The plan of action, when required shall be submitted to the Owner for review within two (2) business days of the Contractor receiving the Owner's written demand. The recovery schedule, when required, shall be submitted to the Owner within five (5) calendar days of the Contractor's receiving the Owner's written demand. Failure to provide an updated construction schedule or a recovery schedule may be grounds for rejection of payment applications or withholding of funds as set forth in Article 33.

k. The Project Expediter shall notify each contractor of such events or time frames that are critical to the progress of the job. Such notice shall be timely and reasonable. Should the progress be delayed due to the work of any of the several contractors, it shall be the duty of the Project Expediter to immediately notify the contractor(s) responsible for such delay, the designer, the State Construction Office and other prime contractors. The designer shall determine the contractor(s) who caused the delays and notify the bonding company of the responsible contractor(s) of the delays; and shall make a recommendation to the owner regarding further action.

l. Designation as Project Expediter entails an additional project control responsibility and does not alter in any way the responsibility of the contractor so designated, nor the responsibility of the other contractors involved in the project. The project expeditor’s Superintendent(s) shall be in attendance at the Project site at all times when work is in progress unless conditions are beyond the control of the Contractor or until termination of the Contract in accordance with the Contract Documents. It is understood that such Superintendent shall be acceptable to the Owner and Designer and shall be the one who will be continued in that capacity for the duration of the project unless he ceases to be on the Contractor’s payroll or the Owner otherwise agrees. The Superintendent shall not be employed on any other project for or by the Contractor or by any other entity during the course of the Work. If the Superintendent is employed by the Contractor on another project without the Owner’s approval, then the Owner may deduct from the Contractor’s monthly general condition costs and amount representing the Superintendent’s cost and shall deduct that amount for each month thereafter until the Contractor has the Superintendent back on the Owner’s Project full-time.

ARTICLE 15 - SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS

a. Effective from January 1, 2002, Chapter 143, Article 8, was amended, to allow public contracts to be delivered by the following delivery methods: single-prime, dual (single- prime and separate-prime), construction manager at risk, and alternative contracting method as approved by the State Building Commission. The owner reserves the right to prepare separate specifications, receive separate bids, and award separate contracts for such other major items of work as may be in the best interest of the State. For the purposes of a single prime contract, refer to Article 1 – Definitions.

b. All contractors shall cooperate with each other in the execution of their work, and shall plan their work in such manner as to avoid conflicting schedules or delay of the work. See Article 14, Construction Supervision.

c. If any part of contractor's work depends upon the work of another contractor, defects which may affect that work shall be reported to the designer in order that prompt inspection may be made and the defects corrected. Commencement of work by a contractor where such condition exists will constitute acceptance of the other contractor's work as being satisfactory in all respects to receive the work commenced, except as to defects which may later develop. The designer shall be the judge as to the quality of work and shall settle all disputes on the matter between contractors.

d. Any mechanical or electrical work such as sleeves, inserts, chases, openings, penetrations, etc., which is located in the work of the general contractor shall be built in by the general contractor. The respective mechanical and electrical contractors shall set all sleeves, inserts and other devices that are to be incorporated into the structure in cooperation and under the supervision of the general contractor. The responsibility for the exact location of such items shall be that of the mechanical and/or electrical contractor.

e. The designer and the owner shall have access to the work whenever it is in preparation and progress and during normal working hours. The contractor shall provide facilities for such access so the designer may perform his functions under the contract documents.

f. Should a contractor cause damage to the work or property of another contractor, he shall be directly responsible, and upon notice, shall promptly settle the claim or otherwise resolve the dispute.

ARTICLE 16 - SUBCONTRACTS AND SUBCONTRACTORS

a. Within thirty (30) days after award of the contract, the contractor shall submit to the designer, owner and to the State Construction Office a list giving the names and addresses of subcontractors and equipment and material suppliers he proposes to use, together with the scope of their respective parts of the work. Should any subcontractor be disapproved by the designer or owner, the designer or owner shall submit his reasons for disapproval in writing to the State Construction Office for its consideration with a copy to the contractor. If the State Construction Office concurs with the designer's or owner’s recommendation, the contractor shall submit a substitute for approval. The designer and owner shall act promptly in the approval of subcontractors, and when approval of the list is given, no changes of subcontractors will be permitted except for cause or reason considered justifiable by the designer or owner.

b. The designer will furnish to any subcontractor, upon request, evidence regarding amounts of money paid to the contractor on account of the subcontractor's work.

c. The contractor is and remains fully responsible for his own acts or omissions as well as those of any subcontractor or of any employee of either. The contractor agrees that no contractual relationship exists between the subcontractor and the owner in regard to the contract, and that the subcontractor acts on this work as an agent or employee of the contractor.

d. The owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

ARTICLE 17 - CONTRACTOR AND SUBCONTRACTOR RELATIONSHIPS

The contractor agrees that the terms of these contract documents shall apply equally to each subcontractor as to the contractor, and the contractor agrees to take such action as may be necessary to bind each subcontractor to these terms. The contractor further agrees to conform to the Code of Ethical Conduct as adopted by the Associated General Contractors of America, Inc., with respect to contractor-subcontractor relationships, and that payments to subcontractors shall be made in accordance with the provisions of G.S. 143-134.1 titled Interest on final payments due to prime contractors: payments to subcontractors.

a. On all public construction contracts which are let by a board or governing body of the state government or any political subdivision thereof, except contracts let by the Department of Transportation pursuant to G.S. 136-28.1, the balance due prime contractors shall be paid in full within 45 days after respective prime contracts of the project have been accepted by the owner, certified by the architect, engineer or designer to be completed in accordance with terms of the plans and specifications, or occupied by the owner and used for the purpose for which the project was constructed, whichever occurs first. Provided, however, that whenever the architect or consulting engineer in charge of the project determines that delay in completion of the project in accordance with terms of the plans and specifications is the fault of the contractor, the project may be occupied and used for the purposes for which it was constructed without payment of any interest on amounts withheld past the 45 day limit. No payment shall be delayed because of the failure of another prime contractor on such project to complete his contract. Should final payment to any prime contractor beyond the date such contracts have been certified to be completed by the designer or architect, accepted by the owner, or occupied by the owner and used for the purposes for which the project was constructed, be delayed by more than 45 days, said prime contractor shall be paid interest, beginning on the 46th day, at the rate of one percent (1%) per month or fraction thereof unless a lower rate is agreed upon on such unpaid balance as may be due. In addition to the above final payment provisions, periodic payments due a prime contractor during construction shall be paid in accordance with the payment provisions of the contract documents or said prime contractor shall be paid interest on any such unpaid amount at the rate stipulated above for delayed final payments. Such interest shall begin on the date the payment is due and continue until the date on which payment is made. Such due date may be established by the terms of the contract. Funds for payment of such interest on state- owned projects shall be obtained from the current budget of the owning department, institution or agency. Where a conditional acceptance of a contract exists, and where the owner is retaining a reasonable sum pending correction of such conditions, interest on such reasonable sum shall not apply.

b. Within seven days of receipt by the prime contractor of each periodic or final payment, the prime contractor shall pay the subcontractor based on work completed or service provided under the subcontract. Should any periodic or final payment to the subcontractor be delayed by more than seven days after receipt of periodic or final payment by the prime contractor, the prime contractor shall pay the subcontractor interest, beginning on the eighth day, at the rate of one percent (1%) per month or fraction thereof on such unpaid balance as may be due.

c. The percentage of retainage on payments made by the prime contractor to the subcontractor shall not exceed the percentage of retainage on payments made by the owner to the prime contractor. Any percentage of retainage on payments made by the prime contractor to the subcontractor that exceeds the percentage of retainage on payments made by the owner to the prime contractor shall be subject to interest to be paid by the prime contractor to the subcontractor at the rate of one percent (1%) per month or fraction thereof.

d. Nothing in this section shall prevent the prime contractor at the time of application and certification to the owner from withholding application and certification to the owner for payment to the subcontractor for unsatisfactory job progress; defective construction not remedied; disputed work;

third-party claims filed or reasonable evidence that claim will be filed; failure of subcontractor to make timely payments for labor, equipment and materials; damage to prime contractor or another subcontractor; reasonable evidence that subcontract cannot be completed for the unpaid balance of the subcontract sum; or a reasonable amount for retainage not to exceed the initial percentage retained by owner.

ARTICLE 18 - DESIGNER'S STATUS

a. The designer shall provide general administration of the performance of construction contracts, including liaison and necessary inspection of the work to ensure compliance with plans and specifications. He is the agent of the owner only for the purpose of constructing this work and to the extent stipulated in the contract documents. He has authority to direct work to be performed, to stop work, to order work removed, or to order corrections of faulty work, where any such action by the designer may be necessary to assure successful completion of the work.

b. The designer is the impartial interpreter of the contract documents, and, as such, he shall exercise his powers under the contract to enforce faithful performance by both the owner and the contractor, taking sides with neither.

c. Should the designer cease to be employed on the work for any reason whatsoever, then the owner shall employ a competent replacement who shall assume the status of the former designer.

d. The designer and his consultants will make inspections of the project. He will inspect the progress, the quality and the quantity of the work.

e. The designer and the owner shall have access to the work whenever it is in preparation and progress during normal working hours. The contractor shall provide facilities for such access so the designer and owner may perform their functions under the contract documents.

f. Based on the designer's inspections and evaluations of the project, the designer shall issue interpretations, directives and decisions as may be necessary to administer the project. His decisions relating to artistic effect and technical matters shall be final, provided such decisions are within the limitations of the contract.

ARTICLE 19 - CHANGES IN THE WORK

a. The owner may have changes made in the work covered by the contract. These changes will not invalidate and will not relieve or release the contractor from any guarantee given by him pertinent to the contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the surety or sureties of said bond. All extra work shall be executed under conditions of the original contract.

b. Except in an emergency endangering life or property, no change shall be made by the contractor except upon receipt of approved change order or written field order from the designer, countersigned by the owner and the state construction office authorizing such change. No claim for adjustments of the contract price shall be valid unless this procedure is followed.

A field order, transmitted by fax, electronically, or hand delivered, may be used where the change involved impacts the critical path of the work. A formal change order shall be issued as expeditiously as possible.

In the event of emergency endangering life or property, the contractor may be directed to proceed on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the designer or owner, a correct account of costs together with all proper invoices, payrolls and supporting data. Upon completion of the work the change order will be prepared as outlined under either Method "c(1)" or Method "c(2)" or both.

c. In determining the values of changes, either additive or deductive, contractors are restricted to the use of the following methods:

1. Where the extra work involved is covered by unit prices quoted in the proposal, or subsequently agreed to by the Contractor, Designer, Owner and State Construction Office the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved, except is such cases where a quantity exceeds the estimated quantity allowance in the contract by one hundred percent (100%) or more. In such cases, either party may elect to proceed under subparagraph c2 herein. If neither party elects to proceed under c2, then unit prices shall apply.

2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the change order, and the change order shall stipulate the corresponding lump sum adjustment to the contract price.

d. Under Paragraph “b” and Methods "c(2)" above, the allowances for overhead and profit combined shall be as follows: all contractors (the single contracting entity (prime), his subcontractors(1st tier subs), or their sub-subcontractors (2nd tier subs, 3rd tier subs, etc)) shall be allowed a maximum of 10% on work they each self-perform; the prime contractor shall be allowed a maximum of 5% on contracted work of his 1st tier sub; 1st tier, 2nd tier, 3rd tier, etc contractors shall be allowed a maximum of 2.5% on the contracted workof their subs. ; Under Method "c(1)", no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under Method "c(2)" and Paragraph (b) above, the contractor shall include no less than five percent (5%) profit, but no allowances for overhead.

e. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein shall be limited to the following:

1. The actual costs of materials and supplies incorporated or consumed as part of the work;

2. The actual costs of labor expended on the project site; labor expended in coordination, change order negotiation, record document maintenance, shop drawing revision or other tasks necessary to the administration of the project are considered overhead whether they take place in an office or on the project site.

3. The actual costs of labor burden, limited to the costs of social security (FICA) and Medicare/Medicaid taxes; unemployment insurance costs; health/dental/vision insurance premiums; paid employee leave for holidays, vacation, sick leave, and/or petty leave, not to exceed a total of 30 days per year; retirement contributions; worker’s compensation insurance premiums; and the costs of general liability insurance when premiums

are computed based on payroll amounts; the total of which shall not exceed thirty percent (30%) of the actual costs of labor;

4. The actual costs of rental for tools, excluding hand tools; equipment; machinery; and temporary facilities required for the work;

5. The actual costs of premiums for bonds, insurance, permit fees, and sales or use taxes related to the work.

Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the owner.

f. Should concealed conditions be encountered in the performance of the work belowgrade, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the contract documents, the contract sum and time for completion may be equitably adjusted by change order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods. All change orders shall be supported by a unit cost breakdown showing method of arriving at net cost as defined above.

g. In all change orders, the procedure will be for the designer to request proposals for the change order work in writing. The contractor will provide such proposal and supporting data in suitable format. The designer shall verify correctness. Delay in the processing of the change order due to lack of proper submittal by the contractor of all required supporting data shall not constitute grounds for a time extension or basis of a claim. Within fourteen (14) days after receipt of the contractor's accepted proposal including all supporting documentation required by the designer**,** the designer shall prepare the change order and forward to the contractor for his signature or otherwise respond, in writing, to the contractor's proposal. Within seven (7) days after receipt of the change order executed by the contractor, the designer shall, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. The owner shall execute the change order and forward to the State Construction Office for final approval**,** within seven (7) days of receipt. The State Construction Office shall act on the change order within seven (7) days. In case of emergency or extenuating circumstances, approval of changes may be obtained verbally by telephone or field orders approved by all parties, then shall be substantiated in writing as outlined under normal procedure.

h. At the time of signing a change order, the contractor shall be required to certify as follows:

"I certify that my bonding company will be notified forthwith that my contract has been changed by the amount of this change order, and that a copy of the approved change order will be mailed upon receipt by me to my surety."

i. A change order, when issued, shall be full compensation, or credit, for the work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the project as a result of the change in the work.

j. If, during the progress of the work, the owner requests a change order and the contractor's terms are unacceptable, the owner**,** with the approval of the State Construction Office, may require the contractor to perform such work on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the Designer or owner, a correct account of cost together with all proper invoices, payrolls and supporting data. Upon completion of the work a change order will be prepared with allowances for overhead and profit per paragraph d. above and "net cost" and "cost" per paragraph e. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or to have performed that portion of the work requested in the change order.

ARTICLE 20 - CLAIMS FOR EXTRA COST

a. Should the contractor consider that as a result of instructions given by the designer, he is entitled to extra cost above that stated in the contract, he shall give written notice thereof to the designer within seven (7) days without delay. The written notice shall clearly state that a claim for extra cost is being made and shall provide a detailed justification for the extra cost. The contractor shall not proceed with the work affected until further advised, except in emergency involving the safety of life or property, which condition is covered in Article 19(b) and Article 11(h). No claims for extra compensation shall be considered unless the claim is so made. The designer shall render a written decision within seven (7) days of receipt of claim.

b. The contractor shall not act on instructions received by him from persons other than the designer, and any claims for extra compensation or extension of time on account of such instruction will not be honored. The designer shall not be responsible for misunderstandings claimed by the contractor of verbal instructions which have not been confirmed in writing, and in no case shall instructions be interpreted as permitting a departure from the contract documents unless such instruction is confirmed in writing and supported by a properly authorized change order.

c. Should a claim for extra compensation that complies with the requirements of (a) above by the contractor and is denied by the designer or owner, and cannot be resolved by a representative of the State Construction Office, the contractor may request a mediation in connection with GS 143-128(f1) in the dispute resolution rules adopted by the State Building Commission (1 N.C.A.C. 30H .0101 through .1001). If the contractor is unable to resolve its claim as a result of mediation, the contractor may pursue the claim in accordance with the provisions of G.S. 143-135.3, or G.S. 143-135.6 where Community Colleges are the owner, and the following:

1. A contractor who has not completed a contract with a board for construction or repair work and who has not received the amount he claims is due under the contract may submit a verified written claim to the director of the State Construction Office of the Department of Administration for the amount the contractor claims is due. The director may deny, allow or compromise the claim, in whole or in part. A claim under this subsection is not a contested case under Chapter 150B of the General Statutes.

2. (a) A contractor who has completed a contract with a board for construction or repair work and who has not received the amount he claims is due under the contract may submit a verified written claim to the director of the State Construction Office of the Department of Administration for the amount the contractor claims is due. The claim shall be submitted within sixty (60) days after the contractor receives a final statement of the board's disposition of his claim and shall state the factual basis for the claim.

   (b) The director shall investigate a submitted claim within ninety (90) days of receiving the claim, or within any longer time period upon which the director and the contractor agree. The contractor may appear before the director, either in person or through counsel, to present facts and arguments in support of his claim. The director may allow, deny or compromise the claim, in whole or in part. The director shall give the contractor a written statement of the director's decision on the contractor's claim.

   (c) A contractor who is dissatisfied with the director's decision on a claim submitted under this subsection may commence a contested case on the claim under Chapter 150B of the

General Statutes. The contested case shall be commenced within sixty (60) days of receiving the director's written statement of the decision.

(d) As to any portion of a claim that is denied by the director, the contractor may, in lieu of the procedures set forth in the preceding subsection of this section, within six (6) months of receipt of the director's final decision, institute a civil action for the sum he claims to be entitled to under the contract by filing a verified complaint and the issuance of a summons in the Superior Court of Wake County or in the superior court of any county where the work under the contract was performed. The procedure shall be the same as in all civil actions except that all issues shall be tried by the judge, without a jury.

ARTICLE 21 - MINOR CHANGES IN THE WORK

The designer will have the authority to order minor changes in the work not involving an adjustment in the contract sum or time for completion, and not inconsistent with the intent of the contract documents. Such changes shall be effected by written order, copied to the State Construction Office, and shall be binding on the owner and the contractor.

ARTICLE 22 - UNCORRECTED FAULTY WORK

Should the correction of faulty or damaged work be considered inadvisable or inexpedient by the owner and the designer, the owner shall be reimbursed by the contractor. A change order will be issued to reflect a reduction in the contract sum.

ARTICLE 23 - TIME OF COMPLETION, DELAYS, EXTENSION OF TIME

a. The time of completion is stated in the Supplementary General Conditions and in the Form of Construction Contract. The Project Expediter, upon notice of award of contract, shall prepare a construction schedule to complete the project within the time of completion as required by Article 14.

b. The contractors shall commence work to be performed under this agreement on a date to be specified in a written Notice to Proceed from the designer and shall fully complete all work hereunder within the time of completion stated. Time is of the essence and the contractor acknowledges the Owner will likely suffer financial damage for failure to complete the work within the time of completion. For each day in excess of the above number of days, the contractor(s) shall pay the owner the sum stated as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the owner by reason of failure of said contractor(s) to complete the work within the time specified, such time being in the essence of this contract and a material consideration thereof. Should the work be delayed by both the owner and contractor, liquidated damages shall be apportioned to reflect the delays of each party. In the case of concurrent delays, contractor caused delays shall be accounted for before owner and designer caused delays.

c. In the event of multiple prime contractors, the designer shall be the judge as to the division of responsibility between the contractor(s), based on the construction schedule, weekly reports and job records, and shall apportion the amount of liquidated damages to be paid by each of them, according to delay caused by any or all of them.

d. If the contractor is delayed at any time in the progress of his work solely by any act or negligence of the owner, the designer, or by any employee of either; by any separate contractor employed by the owner; by changes ordered in the work; by labor disputes at the project site; by abnormal weather conditions not reasonably anticipated for the locality where the work is performed; by unavoidable casualties; by any causes beyond the contractor's control; or by any other causes which the designer and owner determine may justify the delay, then the contract time may be extended by change order only for the time which the designer and owner may determine is reasonable.

Time extensions will not be granted for rain, wind, snow or other natural phenomena of normal intensity for the locality where work is performed. For purpose of determining extent of delay attributable to unusual weather phenomena, a determination shall be made by comparing the weather for the contract period involved with the average of the preceding five (5) year climatic range during the same time interval based on the National Oceanic and Atmospheric Administration National Weather Service statistics for the locality where work is performed and on daily weather logs kept on the job site by the contractor reflecting the effect of the weather on progress of the work and initialed by the designer's representative. No weather delays shall be considered after the building is dried in unless work claimed to be delayed is on the critical path of the baseline schedule or approved updated schedule. Time extensions for weather delays, acts of God, labor disputes, fire, delays in transportation, unavoidable casualties or other delays which are beyond the control of the Owner do not entitle the Contractor to compensable damages for delays. Any contractor claim for compensable damages for delays is limited to delays caused solely by the owner or its agents. Contractor caused delays shall be accounted for before owner or designer caused delays in the case of concurrent delays.

e. Request for extension of time shall be made in writing to the designer, copies to the owner and SCO, within twenty (20) days following cause of delay. In case of continuing cause for delay, the Contractor shall notify the Designer to the designer, copies to the owner and SCO, of the delay within 20 days of the beginning of the delay and only one claim is necessary.

f. The contractor shall notify his surety in writing of extension of time granted.

g. No claim for time extension shall be allowed on account of failure of the designer to furnish drawings or instructions until twenty (20) days after demand for such drawings and/or instructions. See Article 5c. Demand must be in written form clearly stating the potential for delay unless the drawings or instructions are provided. Any delay granted will begin after the twenty (20) day demand period is concluded.

ARTICLE 24 - PARTIAL UTILIZATION/BENEFICIAL OCCUPANCY

a. The owner may desire to occupy or utilize all or a portion of the project prior to the completion of the project.

b. Should the owner request a utilization of a building or portion thereof, the designer shall perform a designer final inspection of area after being notified by the contractor that the area is ready for such. After the contractor has completed designer final inspection punch list and the designer has verified, then the designer shall schedule a beneficial occupancy inspection at a time and date acceptable to the owner, contractor(s) and State Construction Office. If beneficial occupancy is granted by the State Construction Office, in such areas the following will be established:

   1. The beginning of guarantees and warranties period for the equipment necessary to support. in the area.

   2. The owner assumes all responsibiliites for utility costs for entire building.

   2. Contractor will obtain consent of surety.

3. Contractor will obtain endorsement from insurance company permitting beneficial occupancy.

c. The owner shall have the right to exclude the contractor from any part of the project which the designer has so certified to be substantially complete, but the owner will allow the contractor reasonable access to complete or correct work to bring it into compliance with the contract.

d. Occupancy by the owner under this article will in no way relieve the contractor from his contractual requirement to complete the project within the specified time. The contractor will not be relieved of liquidated damages because of beneficial occupancy. The designer may prorate liquidated damages based on the percentage of project occupied.

ARTICLE 25 - FINAL INSPECTION, ACCEPTANCE, AND PROJECT CLOSEOUT

a. Upon notification from the contractor(s) that the project is complete and ready for inspection, the designer shall make a Designer final inspection to verify that the project is complete and ready for SCO final inspection. Prior to SCO final inspection, the contractor(s) shall complete all items requiring corrective measures noted at the Designer final inspection. The designer shall schedule a SCO final inspection at a time and date acceptable to the owner, contractor(s) and State Construction Office.

b. At the SCO final inspection, the designer and his consultants shall, if job conditions warrant, record a list of items that are found to be incomplete or not in accordance with the contract documents. At the conclusion of the SCO final inspection, the designer and State Construction Office representative shall make one of the following determinations:

1. That the project is completed and accepted.

2. That the project will be accepted subject to the correction of the list of discrepancies (punch list). All punch list items must be completed within thirty (30) days of SCO final inspection or the owner may invoke Article 28, Owner's Right to Do Work.

4. That the project is not complete and another date for a SCO final inspection will be established.

c. Within fourteen (14) days of final acceptance per Paragraph b1 or within fourteen (14) days after completion of punch list per Paragraph b2 above, the designer shall certify the work and issue applicable certificate(s) of compliance.

d. Any discrepancies listed or discovered after the date of SCO final inspection and acceptance under Paragraphs b1 or b2 above shall be handled in accordance with Article 42, Guarantee.

f. The final acceptance date will establish the following:

1. The beginning of guarantees and warranties period.

2. The date on which the contractor's insurance coverage for public liability, property damage and builder's risk may be terminated.

3. That no liquidated damages (if applicable) shall be assessed after this date.

4. The termination date of utility cost to the contractor.

g. **Prior to issuance of final acceptance date, the contractor shall have his authorized representatives visit the project and give full instructions to the designated personnel**

regarding operating, maintenance, care, and adjustment of all equipment and special construction elements. In addition, the contractor shall provide to the owner a complete instructional video (media format acceptable to the owner) on the operation, maintenance, care and adjustment of all equipment and special construction elements.

ARTICLE 26 - CORRECTION OF WORK BEFORE FINAL PAYMENT

a. Any work, materials, fabricated items or other parts of the work which have been condemned or declared not in accordance with the contract by the designer shall be promptly removed from the work site by the contractor, and shall be immediately replaced by new work in accordance with the contract at no additional cost to the owner. Work or property of other contractors or the owner, damaged or destroyed by virtue of such faulty work, shall be made good at the expense of the contractor whose work is faulty.

b. Correction of condemned work described above shall commence within twenty-four (24) hours after receipt of notice from the designer, and shall make satisfactory progress, as determined by the designer, until completed.

c. Should the contractor fail to proceed with the required corrections, then the owner may complete the work in accordance with the provisions of Article 28.

ARTICLE 27 - CORRECTION OF WORK AFTER FINAL PAYMENT

See Article 35, Performance Bond and Payment Bond, and Article 42, Guarantee**.** Neither the final certificate, final payment, occupancy of the premises by the owner, nor any provision of the contract, nor any other act or instrument of the owner, nor the designer, shall relieve the contractor from responsibility for negligence, or faulty material or workmanship, or failure to comply with the drawings and specifications. Contractor shall correct or make good any defects due thereto and repair any damage resulting there from, which may appear during the guarantee period following final acceptance of the work except as stated otherwise under Article 42, Guarantee. The owner will report any defects as they may appear to the contractor and establish a time limit for completion of corrections by the contractor. The owner will be the judge as to the responsibility for correction of defects.

ARTICLE 28 - OWNER'S RIGHT TO DO WORK

If, during the progress of the work or during the period of guarantee, the contractor fails to prosecute the work properly or to perform any provision of the contract, the owner, after seven (7) days' written notice sent by certified mail, return receipt requested, to the contractor from the designer, may perform or have performed that portion of the work. The cost of the work may be deducted from any amounts due or to become due to the contractor, such action and cost of same having been first approved by the designer. Should the cost of such action of the owner exceed the amount due or to become due the contractor, then the contractor or his surety, or both, shall be liable for and shall pay to the owner the amount of said excess.

ARTICLE 29 - ANNULMENT OF CONTRACT

If the contractor fails to begin the work under the contract within the time specified, or the progress of the work is not maintained on schedule, or the work is not completed within the time above specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said work, or shall perform the work unsuitably or shall discontinue the prosecution of the work, or if the contractor shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the work in an acceptable manner, the owner may give notice in writing, sent by certified mail, return receipt requested, to the contractor and his surety of such delay, neglect or default, specifying the same, and if the contractor within a period of seven (7) days after such notice shall not proceed in accordance therewith, then the owner shall, declare this contract in default, and, thereupon, the surety shall promptly take over the work and complete the performance of this contract in the manner and within the time frame specified. In the event the surety shall fail to take over the work to be done under this contract within seven (7) days after being so notified and notify the owner in writing, sent by certified mail, return receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the owner shall have full power and authority, without violating the contract, to take the prosecution of the work out of the hands of said contractor, to appropriate or use any or all contract materials and equipment on the grounds as may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said contract according to the terms and provisions thereof or use such other methods as in his opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the owner, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due said contractor and surety. In case the expense so incurred by the owner shall be less than the sum which would have been payable under the contract, if it had been completed by said contractor, then the said contractor and surety shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the contract, then the contractor and the surety shall be liable and shall pay to the owner the amount of said excess.

ARTICLE 30 - CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT

a. Should the work be stopped by order of a court having jurisdiction, or by order of any other public authority for a period of three months, due to cause beyond the fault or control of the contractor, or if the owner should fail or refuse to make payment on account of a certificate issued by the designer within forty-five (45) days after receipt of same, then the contractor, after fifteen (15) days' written notice sent by certified mail, return receipt requested, to the owner and the designer, may suspend operations on the work or terminate the contract.

b. The owner shall be liable to the contractor for the cost of all materials delivered and work performed on this contract plus 10 percent overhead and profit and shall make such payment. The designer shall be the judge as to the correctness of such payment.

ARTICLE 31 - REQUEST FOR PAYMENT

a. Not later than the fifth day of the month, the contractor shall submit to the designer a request for payment for work done during the previous month. The request shall be in the form agreed upon between the contractor and the designer, but shall show substantially the value of work done and materials delivered to the site during the period since the last payment, and shall sum up the financial status of the contract with the following information:

   1. Total of contract including change orders.

   2. Value of work completed to date.

   3. Less five percent (5%) retainage, provided however, that after fifty percent (50%) of the contractor’s work has been satisfactorily completed on schedule, with approval of the owner and the State Construction Office and written consent of the surety, further requirements for retainage will be waived only so long as work continues to be completed satisfactorily and on schedule.

4. Less previous payments.

5. Current amount due.

b. The contractor, upon request of the designer, shall substantiate the request with invoices of vouchers or payrolls or other evidence.

c. Prior to submitting the first request, the contractor shall prepare for the designer a schedule showing a breakdown of the contract price into values of the various parts of the work, so arranged as to facilitate payments to subcontractors in accordance with Article 17, Contractor and Subcontractor Relationships. The contractor(s) shall list the value of each subcontractor and supplier, identifying each minority business subcontractor and supplier as listed in Affidavit C, if applicable.

d. When payment is made on account of stored materials and equipment, such materials must be stored on the owner's property, and the requests for payments shall be accompanied by invoices or bills of sale or other evidence to establish the owner's title to such materials and equipment. Such payments will be made only for materials that have been customized or fabricated specifically for this project. Raw materials or commodity products including but not limited to piping, conduit, CMU, metal studs and gypsum board may not be submitted. Responsibility for such stored materials and equipment shall remain with the contractor regardless of ownership title. Such stored materials and equipment shall not be removed from the owner's property. Should the space for storage on-site be limited, the contractor, at his option, shall be permitted to store such materials and/or equipment in a suitable space off-site. Should the contractor desire to include any such materials or equipment in his application for payment, they must be stored in the name of the owner in an independent, licensed, bonded warehouse approved by the designer, owner and the State Construction Office and located as close to the site as possible. The warehouse selected must be approved by the contractor's bonding and insurance companies; the material to be paid for shall be assigned to the owner and shall be inspected by the designer. Upon approval by the designer, owner and SCO of the storage facilities and materials and equipment, payment therefore will be certified. Responsibility for such stored materials and equipment shall remain with the contractor. Such stored materials and equipment shall not be moved except for transportation to the project site. Under certain conditions, the designer may approve storage of materials at the point of manufacture, which conditions shall be approved by the designer, the owner and the State Construction Office prior to approval for the storage and shall include an agreement by the storing party which unconditionally gives the State absolute right to possession of the materials at anytime. Bond, security and insurance protection shall continue to be the responsibility of the contractor(s).

e. In the event of beneficial occupancy, retainage of funds due the contractor(s) may be reduced with the approval of the State Construction Office to an equitable amount to cover the list of items to be completed or corrected. Retainage may not be reduced to less than two and one-half (2 1/2) times the estimated value of the work to be completed or corrected. Reduction of retainage must be with the consent and approval of the contractor's bonding company.

ARTICLE 32 - CERTIFICATES OF PAYMENT AND FINAL PAYMENT

a. Within five (5) days from receipt of request for payment from the contractor, the designer shall issue and forward to the owner a certificate for payment. This certificate shall indicate the amount requested or as approved by the designer. If the certificate is not approved by the designer, he shall state in writing to the contractor and the owner his reasons for withholding payment.

b. No certificate issued or payment made shall constitute an acceptance of the work or any part thereof. The making and acceptance of final payment shall constitute a waiver of all claims by the owner except:

   1. Claims arising from unsettled liens or claims against the contractor.

   2. Faulty work or materials appearing after final payment.

   3. Failure of the contractor to perform the work in accordance with drawings and specifications, such failure appearing after payment.

   4. As conditioned in the performance bond and payment bond.

c. The making and acceptance of final payment shall constitute a waiver of all claims by the contractor except those claims previously made and remaining unsettled (Article 20(c)).

d. Prior to submitting request for final payment to the designer for approval, the contractor shall fully comply with all requirements specified in the“ project closeout” section of the specifications. These requirements include but not limited to the following:

   1. Submittal of Product and Operating Manuals, Warranties and Bonds, Guarantees, Maintenance Agreements, As-Built Drawings, Certificates of Inspection or Approval from agencies having jurisdiction. (The designer must approve the Manuals prior to delivery to the owner).

   2. Transfer of Required attic stock material and all keys in an organized manner.

   3. Record of Owner’s training.

   4. Resolution of any final inspection discrepancies.

   5. Granting access to Contractor’s records, if Owner’s internal auditors have made a request for such access pursuant to Article 52.

e. The contractor shall forward to the designer, the final application for payment along with the following documents:

   1. List of minority business subcontractors and material suppliers showing breakdown of contract amounts and total actual payments to subs and material suppliers.

   2. Affidavit of Release of Liens.

   3. Affidavit of contractors of payment to material suppliers and subcontractors. (See Article 36).

   4. Consent of Surety to Final Payment.

   5. Certificates of state agencies required by state law.

f. The designer will not authorize final payment until the work under contract has been certified by designer, certificates of compliance issued, and the contractor has complied with the closeout requirements. The designer shall forward the contractor's final application for payment to the owner along with respective certificate(s) of compliance required by law.

ARTICLE 33 - PAYMENTS WITHHELD

a. The designer with the approval of the State Construction Office may withhold payment for the following reasons:

1. Faulty work not corrected.

2. The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.

3. To provide for sufficient contract balance to cover liquidated damages that will be assessed.

b. The secretary of the Department of Administration may authorize the withholding of payment for the following reasons:

1. Claims filed against the contractor or evidence that a claim will be filed.

2. Evidence that subcontractors have not been paid.

c. The Owner may withhold all or a portion of Contractor's general conditions costs set forth in the approved schedule of values, if Contractor has failed to comply with: (1) a request to access its records by Owner's internal auditors pursuant to Article 52; (2) a request for a plan of action and/or recovery schedule under Article 14.j or provide The Owner; (3) a request to provide an electronic copies of Contractor's baseline schedule, updates with all logic used to create the schedules in the original format of the scheduling software; and (4) Contractor's failure to have its Superintendent on the Project full-time; (

d. When grounds for withholding payments have been removed, payment will be released. Delay of payment due the contractor without cause will make owner liable for payment of interest to the contractor in accordance with G.S. 143-134.1. As provided in G.S.143- 134.1(e) the owner shall not be liable for interest on payments withheld by the owner for unsatisfactory job progess, defective construction not remedied, disputed work, or third- party claims filed against the owner or reasonable evidence that a third-party claim will be filed.

ARTICLE 34 - MINIMUM INSURANCE REQUIREMENTS

The work under this contract shall not commence until the contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the owner. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the owner of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. **Worker's Compensation and Employer's Liability**

The contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of $100,000.

b. **Public Liability and Property Damage**

The contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the contractor or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury:	$500,000 per occurrence
Property Damage:	$100,000 per occurrence / $300,000 aggregate

In lieu of limits listed above, a $500,000 combined single limit shall satisfy both conditions.

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the work performed under the contract.

c. **Property Insurance (Builder’s Risk/Installation Floater**)

The contractor shall purchase and maintain property insurance until final acceptance, upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the owner, the contractor, the subcontractors and sub- subcontractors in the work and shall insure against the perils of fire, wind, rain, flood, extended coverage, and vandalism and malicious mischief. If the owner is damaged by failure of the contractor to purchase or maintain such insurance, then the contractor shall bear all reasonable costs properly attributable thereto; the contractor shall effect and maintain similar property insurance on portions of the work stored off the site when request for payment per articles so includes such portions.

d. **Deductible**

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the contractor.

e. **Other Insurance**

The contractor shall obtain such additional insurance as may be required by the owner or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

f. **Proof of Carriage**

The contractor shall furnish the owner with satisfactory proof of carriage of the insurance required before written approval is granted by the owner.

ARTICLE 35 - PERFORMANCE BOND AND PAYMENT BOND

a. Each contractor shall furnish a performance bond and payment bond executed by a surety company authorized to do business in North Carolina. The bonds shall be in the full contract amount. Bonds shall be executed in the form bound with these specifications.

b. All bonds shall be countersigned by an authorized agent of the bonding company who is licensed to do business in North Carolina.

ARTICLE 36 - CONTRACTOR'S AFFIDAVIT

The final payment of retained amount due the contractor on account of the contract shall not become due until the contractor has furnished to the owner through the designer an affidavit signed, sworn and notarized to the effect that all payments for materials, services or subcontracted work in connection with his contract have been satisfied, and that no claims or liens exist against the contractor in connection with this contract. In the event that the contractor cannot obtain similar affidavits from subcontractors to protect the contractor and the owner from possible liens or claims against the subcontractor, the contractor shall state in his affidavit that no claims or liens exist against any subcontractor to the best of his (the contractor's) knowledge, and if any appear afterward, the contractor shall save the owner harmless.

ARTICLE 37 - ASSIGNMENTS

The contractor shall not assign any portion of this contract nor subcontract in its entirety. Except as may be required under terms of the performance bond or payment bond, no funds or sums of money due or become due the contractor under the contract may be assigned.

ARTICLE 38 - USE OF PREMISES

a. The contractor(s) shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the designer and owner and shall not exceed those established limits in his operations.

b. The contractor(s) shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

c. The contractor(s) shall enforce the designer's and owner's instructions regarding signs, advertisements, fires and smoking.

d. No firearms, any type of alcoholic beverages, or drugs (other than those prescribed by a physician) will be permitted at the job site.

ARTICLE 39 - CUTTING, PATCHING AND DIGGING

a. The contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon or reasonably implied by the drawings and specifications for the completed structure, as the designer may direct.

b. Any cost brought about by defective or ill-timed work shall be borne by the party responsible therefor.

c. No contractor shall endanger any work of another contractor by cutting, digging or other means. No contractor shall cut or alter the work of any other contractor without the consent of the designer and the affected contractor(s).

ARTICLE 40 - UTILITIES, STRUCTURES, SIGNS

a. The contractor shall provide necessary and adequate facilities for water, electricity, gas, oil, sewer and other utility services which maybe necessary and required for completion of the project including all utilities required for testing, cleaning, balancing, and sterilization of designated plumbing, mechanical and electrical systems. Any permanent meters installed shall be listed in the contractor’s name until work has a final acceptance. The contractor will be solely responsible for all utility costs prior to final acceptance. Contractor shall contact all affected utility companies prior to bid to determine their requirements to provide temporary and permanent service and include all costs associated with providing those services in their bid. Coordination of the work of the utility companies during construction is the sole responsibility of the contractor.

b. Meters shall be relisted in the owner's name on the day following final acceptance of the Project Expediter's work, and the owner shall pay for services used after that date.

c. The owner shall be reimbursed for all metered utility charges after the meter is relisted in the owner's name and prior to completion and acceptance of the work of **all** contractors. Reimbursement shall be made by the contractor whose work has not been completed and accepted. If the work of two or more contractors has not been completed and accepted, reimbursement to the owner shall be paid by the contractors involved on the basis of assessments by the designer.

d. Prior to the operation of permanent systems, the Project Expediter will provide temporary power, lighting, water, and heat to maintain space temperature above freezing, as required for construction operations.

e. All contractors shall have the permanent building systems in sufficient readiness for furnishing temporary climatic control at the time a building is enclosed and secured. The HVAC systems shall maintain climatic control throughout the enclosed portion of the building sufficient to allow completion of the interior finishes of the building. A building shall be considered enclosed and secured when windows**,** doorways (exterior, mechanical, and electrical equipment rooms), and hardware are installed***;*** and other openings have protection which will provide reasonable climatic control. The appropriate time to start the mechanical systems and climatic condition shall be jointly determined by the contractor(s), the designer and owner. Use of the equipment in this manner shall be subject to the approval of the Designer and owner and shall in no way affect the warranty requirements of the contractor(s).

f. The electrical contractor shall have the building's permanent power wiring distribution system in sufficient readiness to provide power as required by the HVAC contractor for temporary climatic control.

g. The electrical contractor shall have the building's permanent lighting system ready at the time the general contractor begins interior painting and shall provide adequate lighting in those areas where interior painting and finishing is being performed.

h. Each prime contractor shall be responsible for his permanently fixed service facilities and systems in use during progress of the work. The following procedures shall be strictly adhered to:

1. Prior to final acceptance of work by the State Construction Office, each contractor shall remove and replace any parts of the permanent building systems damaged through use during construction.

2. Temporary filters as recommended by the equipment manufacturer in order to keep the equipment and ductwork clean and free of dust and debris shall be installed in each of the heating and air conditioning units and at each return grille during construction. New filters shall be installed in each unit prior to the owner's acceptance of the work.

3. Extra effort shall be maintained to keep the building and the site adjacent to the building clean and under no circumstances shall air systems be operated if finishing and site work operations are creating dust in excess of what would be considered normal if the building were occupied.

4. It shall be understood that any warranty on equipment presented to the owner shall extend from the day of final acceptance by the owner. The cost of warranting the equipment during operation in the finishing stages of construction shall be borne by the contractor whose system is utilized.

5. The electrical contractor shall have all lamps in proper working condition at the time of final project acceptance.

i. The Project Expediter shall provide, if required and where directed, a shed for toilet facilities and shall furnish and install in this shed all water closets required for a complete and adequate sanitary arrangement. These facilities will be available to other contractors on the job and shall be kept in a neat and sanitary condition at all times. Chemical toilets are acceptable.

j. The Project Expediter shall, if required by the Supplementary General Conditions and where directed, erect a temporary field office, complete with lights, telephone, heat and air conditioning. A portion of this office shall be partitioned off, of sufficient size, for the use of a resident inspector, should the designer so direct.

k. On multi-story construction projects, the Project Expediter shall provide temporary elevators, lifts, or other special equipment for the general use of all contractors. The cost for such elevators, lifts or other special equipment and the operation thereof shall be included in the Project Expediter's bid.

l. The Project Expediter will erect one sign on the project if required. The sign shall be of sound construction, and shall be neatly lettered with black letters on white background. The sign shall bear the name of the project, and the names of prime contractors on the project, and the name of the designer and consultants. Directional signs may be erected on the owner's property subject to approval of the owner with respect to size, style and location of such directional signs. Such signs may bear the name of the contractor and a directional symbol. No other signs will be permitted except by permission of the owner.

ARTICLE 41 - CLEANING UP

a. The contractors shall keep the building and surrounding area reasonably free from rubbish at all times, and shall remove debris from the site on a timely basis or when directed to do so by the designer or Project Expediter. The Project Expediter shall provide an on site refuse container(s) for the use of all contractors. Each contractor shall remove their rubbish and debris from the building on a daily basis. The Project Expediter shall broom clean the building as required to minimize dust and dirt accumulation.

b. The Project Expediter shall provide and maintain suitable all-weather access to the building.

c. Before final inspection and acceptance of the building, each contractor shall clean his portion of the work, including glass, hardware, fixtures, masonry, tile and marble (using no acid), clean and wax all floors as specified, and completely prepare the building for use by the owner, with no cleaning required by the owner.

ARTICLE 42 - GUARANTEE

a. The contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve (12) months following the date of final acceptance of the work or beneficial occupancy and shall replace such defective materials or workmanship without cost to the owner.

b. Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective equipment or materials, without cost to the owner, within the manufacturer's warranty period.

c. Additionally, the owner may bring an action for latent defects caused by the negligence of the contractor which is hidden or not readily apparent to the owner at the time of beneficial occupancy or final acceptance, whichever occurred first, in accordance with applicable law.

d. Guarantees for roof, equipment, materials, and supplies shall be stipulated in the specifications sections governing such roof, equipment, materials, or supplies.

ARTICLE 43 - CODES AND STANDARDS

Wherever reference is given to codes, standard specifications or other data published by regulating agencies including, but not limited to, national electrical codes, North Carolina state building codes, federal specifications, ASTM specifications, various institute specifications, etc., it shall be understood that such reference is to the latest edition including addenda published prior to the date of the contract documents.

ARTICLE 44 - INDEMNIFICATION

To the fullest extent permitted by law, the contractor shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance or failure of performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting there from, and (2) is caused in whole or in part by any negligent act or omission of the contractor, the contractor's subcontractor, or the agents of either the contractor or the contractor's subcontractor. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this article.

ARTICLE 45 - TAXES

a. Federal excise taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3442(3)).

b. Federal transportation taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3475(b) as amended).

c. North Carolina sales tax and use tax, as required by law, do apply to materials entering into state work and such costs shall be included in the bid proposal and contract sum.

d. Local option sales and use taxes, as required by law, do apply to materials entering into state work as applicable and such costs shall be included in the bid proposal and contract sum.

e. **Accounting Procedures for Refund of County Sales & Use Tax**

Amount of county sales and use tax paid per contractor's statements:

Contractors performing contracts for state agencies shall give the state agency for whose project the property was purchased a signed statement containing the information listed in G.S. 105-164.14(e).

The Department of Revenue has agreed that in lieu of obtaining copies of sales receipts from contractors, an agency may obtain a certified statement as of April 1, 1991 from the contractor setting forth the date, the type of property and the cost of the property purchased from each vendor, the county in which the vendor made the sale and the amount of local sales and use taxes paid thereon. If the property was purchased out-of- state, the county in which the property was delivered should be listed. The contractor should also be notified that the certified statement may be subject to audit.

In the event the contractors make several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, the counties, and the county sales and use taxes paid thereon.

Name of taxing county: The position of a sale is the retailer's place of business located within a taxing county where the vendor becomes contractually obligated to make the sale. Therefore, it is important that the county tax be reported for the county of sale rather than the county of use.

When property is purchased from out-of-state vendors and the county tax is charged, the county should be identified where delivery is made when reporting the county tax.

Such statement must also include the cost of any tangible personal property withdrawn from the contractor's warehouse stock and the amount of county sales or use tax paid thereon by the contractor.

Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant.
Contractors are not to include any tax paid on supplies, tools and equipment which they use to perform their contracts and should include only those building materials, supplies, fixtures and equipment which actually become a part of or annexed to the building or structure.

ARTICLE 46 - EQUAL OPPORTUNITY CLAUSE

The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations prescribed by the secretary of Labor, are incorporated herein.

ARTICLE 47 - EMPLOYMENT OF INDIVIDUALS WITH DISABILITIES

The contractor(s) agree not to discriminate against any employee or applicant for employment because of physical or mental disabilities in regard to any position for which the employee or applicant is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals with such disabilities without discrimination based upon their physical or mental disability in all employment practices.

ARTICLE 48 - ASBESTOS-CONTAINING MATERIALS (ACM)

The State of North Carolina has attempted to address all asbestos-containing materials that are to be disturbed in the project. However, there may be other asbestos-containing materials in the work areas that are not to be disturbed and do not create an exposure hazard.

Contractors are reminded of the requirements of instructions under Instructions to Bidders and General Conditions of the Contract, titled Examination of Conditions. Statute 130A, Article 19, amended August 3, 1989, established the Asbestos Hazard Management Program that controls asbestos abatement in North Carolina. The latest edition of *Guideline Criteria for Asbestos Abatement* from the State Construction Office is to be incorporated in all asbestos abatement projects for the Capital Improvement Program.

ARTICLE 49 - MINORITY BUSINESS PARTICIPATION

GS 143-128.2 establishes a ten percent (10%) goal for participation by minority businesses in total value of work for each State building project. The document, *Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts* including Affidavits and Appendix E are hereby incorporated into and made a part of this contract.

ARTICLE 50 – CONTRACTOR EVALUATION

The contractor’s overall work performance on the project shall be fairly evaluated in accordance with the State Building Commission policy and procedures, for determining qualifications to bid on future State capital improvement projects. In addition to final evaluation, interim evaluation may be prepared during the progress of project. The document, Contractor Evaluation Procedures, is hereby incorporated and made a part of this contract. The owner may request the contractor’s comments to evaluate the designer.

ARTICLE 51 – GIFTS

Pursuant to N.C. Gen. Stat. § 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, subcontractor, supplier, vendor, etc.), to make gifts or to give favors to any State employee. This prohibition covers those vendors and contractors who: (1) have a contract with a governmental agency; or (2) have performed under such a contract within the past year; or (3) anticipate bidding on such a contract in the future. For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review G.S. Sec. 133-32.

During the construction of the Project, the Contractor is prohibited from making gifts to any of the Owner’s employees, Owner’s project representatives (architect, engineers, construction manager and their employees), employees of the State Construction Office and/or any other State employee that may have any involvement, influence, responsibilities, oversight, management and/or duties that pertain to and/or relate to the contract administration, financial administration and/or disposition of claims arising from and/or relating to the Contract and/or Project.

ARTICLE 52 – AUDITING-ACCESS TO PERSONS AND RECORDS

In accordance with N.C. General Statute 147-64.7, the State Auditor shall have access to Contractor’s officers, employees, agents and/or other persons in control of and/or responsible for the Contractor’s records that relate to this Contracts for purposes of conducting audits under the referenced statute. The Owner’s internal auditors shall also have the right to access and copy the Contractor’s records relating to the Contract and Project during the term of the Contract and within two years following the completion of the Project/close-out of the Contract to verify accounts, accuracy, information, calculations and/or data affecting and/or relating to Contractor’s requests for payment, requests for change orders, change orders, claims for extra work, requests for time extensions and related claims for delay/extended general conditions costs, claims for lost productivity, claims for loss efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, and/or any other type of claim for payment or damages from Owner and/or its project representatives.

ARTICLE 53 – NORTH CAROLINA FALSE CLAIMS ACT

The North Carolina False Claims Act (“NCFCA”), N.C Gen. Stat. § 1-605 through 1-618, applies to this Contract. The Contractor should familiarize itself with the entire NCFCA and should seek the assistance of an attorney if it has any questions regarding the NCFCA and its applicability to any requests, demands and/or claims for payment its submits to the State through the contracting state agency, institution, university or community college.

The purpose of the NCFCA “is to deter persons from knowingly causing or assisting in causing the State to pay claims that are false or fraudulent and to provide remedies in the form of treble damages and civil penalties when money is obtained from the State by reason of a false or fraudulent claim.” (Section 1-605(b).) A contractor’s liability under the NCFCA may arise from, but is not limited to: requests for payment, invoices, billing, claims for extra work, requests for change orders, requests for time extensions, claims for delay damages/extended general conditions costs, claims for loss productivity, claims for loss efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, documentation used to support any of the foregoing requests or claims, and/or any other request for payment from the State through the contracting state agency, institution, university or community college. The parts of the NCFCA that are most likely to be enforced with respect to this type of contract are as follows:

- A “claim” is “[a]ny request or demand, whether under a contract or otherwise, for money or property and whether or not the State has title to the money or property that (i) is presented to an officer, employee, or agent of the State or (ii) is made to a contractor … if the money or property is to be spent or used on the State's behalf or to advance a State program or interest and if the State government: (a) provides or has provided any portion of the money or property that is requested or demanded; or (b) will reimburse such contractor … for any portion of the money or property which is requested or demanded.” (Section 1-606(2).)

- "Knowing" and "knowingly." – Whenever a person, with respect to information, does any of the following: (a) Has actual knowledge of the information; (b) Acts in deliberate ignorance of the truth or falsity of the information; and/or (c) Acts in reckless disregard of the truth or falsity of the information. (Section 1-606(4).) Proof of specific intent to defraud is not required. (Section 1-606(4).)

- "Material" means having a natural tendency to influence, or be capable of influencing, the payment or receipt of money or property. (Section 1-606(4).)
- Liability. – "Any person who commits any of the following acts shall be liable to the State for three times the amount of damages that the State sustains because of the act of that person[:] … (1) Knowingly presents or causes to be presented a false or fraudulent claim for payment or approval. (2) Knowingly makes, uses, or causes to be made or used, a false record or statement material to a false or fraudulent claim. (3) Conspires to commit a violation of subdivision (1), (2) …" (Section 1-607(a)(1), (2).)
- The NCFCA shall be interpreted and construed so as to be consistent with the federal False Claims Act, 31 U.S.C. § 3729, et seq., and any subsequent amendments to that act. (Section 1-616(c).)

Finally, the contracting state agency, institution, university or community college may refer any suspected violation of the NCFCA by the Contractor to the Attorney General's Office for investigation. Under Section 1-608(a), the Attorney General is responsible for investigating any violation of NCFCA, and may bring a civil action against the Contractor under the NCFCA. The Attorney General's investigation and any civil action relating thereto are independent and not subject to any dispute resolution provision set forth in this Contract. (See Section 1-608(a).)

ARTICLE 54 – TERMINATION FOR CONVENIENCE

Owner may at any time and for any reason terminate Contractor's services and work at Owner's convenience. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as are permitted by the prime contract and approved by Owner; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

SUPPLEMENTARY GENERAL CONDITIONS

Article 10 – Permits, Inspections, Fees, Regulations

Article 10.b – Add the following:

Delete costs of inspections and permits from the project.

Article 23 – Time of Completion, Delays, Extension of Time

Article 23.a – Add the following:

The Contractor shall commence work under this contract on a date to be specified in a written order from the Engineer and shall fully complete all work within 190 consecutive calendar days.

Article 23.b – Add the following:

For each day in excess of the above number of days, the general contractor shall pay to the Owner the sum of $500.00 per day as liquidated damages, in lieu of actual damages, reasonably estimated in advance to cover losses to be incurred by the Owner by reason of failure of the Contractor to complete the work within the time specified, such time being in the essence of this contract and a material consideration thereof.

Article 23.e – Substitute as follows:

Request for extension of time shall be made in writing within seven (7) days following cause of delay. In case of continuing cause for delay, the Contractor shall notify the Designer of the delay within 7 days of the beginning of the delay and only one claim is necessary.

END OF SUPPLEMENTARY GENERAL CONDITIONS

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GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of $300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT
It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority- business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
   a. Black, that is, a person having origins in any of the black racial groups in Africa;
   b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
   d. American Indian, that is, a person having origins in any of the original peoples of North America; or
   e. Female

2. Minority Business - means a business:
   a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
   b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. “Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities”. “Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged”.

4. Public Entity - means State and all public subdivisions and local governmental units.

5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.

6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.
7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.
8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.

9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.

10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

   The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:
   a. Identify those areas of work for which there are minority businesses, as requested.
   b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
   c. Assist in the determination of technical assistance needed by minority business contractors.

   In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:
   (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
   (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
   (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
   (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
   (5) The HUB Office also oversees the minority business program by:
      a. Monitoring compliance with the program requirements.
      b. Assisting in the implementation of training and technical assistance programs.
      c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
      d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General

Assembly.

2. State Construction Office
The State Construction Office will be responsible for the following:

a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
   (1) Project description and location;
   (2) Locations where bidding documents may be reviewed;
   (3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
   (4) Date, time and location of the bid opening.
   (5) Date, time and location of prebid conference, if scheduled.

b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.

d. Reviewing of minority business requirements at Preconstruction conference.

e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.

f. Provide statistical data and required reports to the HUB Office.

g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

3. Owner
Before awarding a contract, owner shall do the following:

a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
b. Attend the scheduled prebid conference.
c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
   1. A description of the work for which the bid is being solicited.
   2. The date, time, and location where bids are to be submitted.
   3. The name of the individual within the owner's organization who will be available to answer questions about the project.
   4. Where bid documents may be reviewed.
   5. Any special requirements that may exist.
d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.

e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment**.**
i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

4. Designer
Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.
e. During construction phase of the project, review "MBE Documentation for Contract Payment" – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
f. Make documentation showing evidence of implementation of Designer's responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors
Under the single-prime bidding, the separate-prime biding, construction manager at risk and alternative contracting methods, contractor(s) will:

a. Attend the scheduled prebid conference.
b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
(1) A description of the work for which the subbid is being solicited.
(2) The date, time and location where subbids are to be submitted.
(3) The name of the individual within the company who will be available to answer questions about the project.
(4) Where bid documents may be reviewed.

(5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
e. Identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" – (Appendix E), for designer's review.
j. During the construction of a project, at any time**,** if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing**,** of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.
k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities

While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION 4: DISPUTE PROCEDURES

It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

SECTION 5: These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: www.nc-sco.com

SECTION 6: In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: http://www.nc-sco.com

MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

OR

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

OR

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

MINIMUM COMPLIANCE REQUIREMENTS:

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

(1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.

(2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.

(3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.

(4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

(5) Attending any prebid meetings scheduled by the public owner.

(6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

(7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

(8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

(9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

(10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: ____________________

Address & Phone: ____________________

Project Name: ____________________

Pay Application #: ____________________ Period: ____________________

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: ____________________ Approved/Certified By: ____________________

Name

____

Title

____

Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

(Revised on 3/14/2003)

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CONTRACTOR'S STATEMENT OF RESPONSIBILITY

PROJECT: Convert 4160V Line to Underground

LOCATION: Port of Wilmington, 2202 Burnett Boulevard, Wilmington, North Carolina 28401

SCO ID#: 24-27857-01A

BUDGET CODE: -____________________- **ITEM:** -____________- **DATE:** -____________-

OWNER: North Carolina State Ports Authority

DESIGNER: Cheatham & Associates, PA

PRIME CONTRACTOR: -____-

CONTRACTOR RESPONSIBLE: -____-

SYSTEM/COMPONENT: Electrical work

I (we) acknowledge the special requirements outlined in the quality assurance plan. I (we) also acknowledge that control will be exercised to obtain conformance with the construction documents as approved by the Office of State Construction.

The following procedures will be established and strictly followed to maintain control within our organization:

-____-

-____-

-____-

-____-

The following reporting will be submitted to the Special Inspector, Owner and Office of State Construction at the following frequency:

Reporting method: -____-

Frequency: -____-

The following individuals(s) will be responsible for monitoring the procedures as set forth above:
Name: ____

Title: ____

Qualifications: ____________________________________

Signed this _____day of __________.

________________________ ________________________
Name *Title*

SECTION B

North Carolina State Ports Authority

TECHNICAL SPECIFICATIONS

CONVERT 4160V LINE TO UNDERGROUND

SCO ID# 24-27857-01A

TECHNICAL SPECIFICATIONS TABLE OF CONTENTS

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor’s use of site and premises.
4. Specification and drawing conventions.
5. Work sequence.

1.3 PROJECT INFORMATION

A. Project Identification: Convert 4160K Line to Underground at the Port of Wilmington, Contract Number C-1799.

1. Port of Wilmington

B. Owner: North Carolina State Ports Authority

1. Owner's Representative:

Robert Kohler
Engineering and Maintenance Department
2202 Burnett Boulevard, Wilmington, NC 28401
Phone No.: 910-746-6412

C. Base Bid Work:

1. Provide all materials, labor, tools and equipment, and incidentals for the complete and proper installation and completion of this project, as indicated in the contract documents. All work is located on the North Carolina State Ports Authority property at the Port of Wilmington.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Furnish all materials, labor, tools, equipment, services, transportation, and supervision necessary to perform all the work associated with the project.

2. Perform Work of Contract under stipulated sum contract with Owner in accordance with Conditions of Contract.

3. The construction document package will consist of these specifications and all associated drawings. All items in the drawings but not in the specifications or items in the specifications and not in the drawings shall be considered included in the scope of work.

4. Unless stated otherwise within these specifications or contract documents, the Contractor shall make complete submittal of all shop drawings, proposed systems and equipment, including cut-sheets, and technical information, calculations, and other information requested, to the Owner. Submittal of information will be in a timely manner prior to commencement of work on the system represented by the submittal.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

A. Use of Site: Limit use of Project site to work in areas. Do not disturb portions of Project site beyond areas in which the Work is being performed.

1. Limit use of site to allow:
   - Owner occupancy as required.
   - Work by others.
   - Use of site by NCSPA authorized users.
2. Construction operations: The Contractor shall provide lights, barricades, and warning signs as necessary to protect the required construction area. The Contractor shall coordinate, with the NCSPA's representative, the area required for construction purposes. An area for the Contractor's field office if required and/or material storage shall be coordinated with the Owner.
3. Building will be occupied while this construction work is occurring, all egress paths, exits and exit discharge routes must be kept clear and unimpeded at all times.

1.6 COORDINATION WITH OCCUPANTS

A. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the

Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard.

3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 011400 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 COOPERATION AND COORDINATION WITH NCSPA OPERATIONS

A. Portions of the terminal will be in use during this Contract requiring that the Contractor closely coordinate his work with the Owner to minimize interference with the Operations and other contractors performing work on behalf of the NCSPA. The Contractor shall coordinate with the NCSPA to obtain access to the site and provide a minimum agreed advance notice before accessing the work area and requesting any utility outages.

B. The Contractor is responsible for the coordination and protection of his work until acceptance by the Owner.

C. The Contractor shall submit a timeline that shows all work to be performed and the areas of the site that will be affected during each phase of the construction. The Contractor must present this timeline to the Owner for approval prior to the commencement of any work. Any deviations from the approved timeline shall be promptly brought to the attention of the Owner. The Owner will make all efforts to accommodate this timeline but maintaining the smooth operation of the Port will be the highest priority.

1.3 CONSTRUCTION AREA

A. The Contractor shall provide lights, barricades, and warning signs as necessary to protect the required construction area. The Contractor shall coordinate with the NCSPA's representative, the area required for construction purposes. An area for the Contractor's field office and/or material storage shall be coordinated with the Owner.

1.4 SAFETY

A. The Contractor shall assign a safety officer to the Project for its duration. At a minimum, the Safety Officer shall be physical present at the Port of Wilmington for the complete time from the commencement of the work through commissioning, certifications, and placement into the NCSPA operations. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

1.5 HOT WORK

A. Contractor is to coordinate any hot work with NCSPA and obtain a Hot Work Permit as well as follow NCSPA Procedures.

1.6 OTHER CONTRACTS AND OWNER'S OPERATIONS

A. The Owner or other Contractors may have operations underway at or near the site of work under this contract. The Contractor shall fully cooperate with the Owner's work forces or other contractors and shall adapt his scheduling and performance of the work under this Contract to accommodate the other work and shall heed any directions that may be provided by the Owner. The Contractor shall not commit, nor permit, any act that will interfere with the performance of work by other contractors or the Owner.

1.7 FACILITIES SECURITY

A. The Contractor and his personnel will comply with the security regulations of the Owner. The Contractor's employees working on NCSPA property may be required to attend a Port Security Training Class as required by the current Maritime Security Act.

1.8 TRANSPORTATION WORKER IDENTIFICATION CREDENTIAL (TWIC) PROGRAM

A. Controlling access to certain maritime facilities is a critical component of the Department of Homeland Security's (DHS) efforts to enhance port security. A TWIC is a federally-mandated common identification credential for all personnel requiring unescorted access to secure areas of regulated maritime facilities; these regulated facilities include both NCSPA port terminals.

B. The Transportation Security Administration (TSA) issues TWICs. TWIC enrollment centers are located in both Wilmington and Morehead City. A thorough background check is made by TSA prior to issuance of a TWIC. The cost of a TWIC is $125.25 per person or as defined by the Transportation Security Administration. It is valid for 5 years. For additional information or enrollment procedures, please visit https://universal enroll.dhs.gov/.

C. Contractor and Vendors are responsible for compliance by all individuals requiring access to the Ports on behalf of the Contractor/Vendor to perform the contracted work, including but not limited to employees, agents, subcontractors, and suppliers.

D. Contractors/Vendors shall be in compliance with all TWIC requirements prior to initiating contracted work.

E. The Contractor/Vendor is responsible for all costs associated with obtaining a TWIC.

F. Under the current program, an individual with a valid TWIC may escort a total of five other individuals. An individual may be escorted onto site no more than 30 times. Any individual requiring access to sit more than the 30 allotted times is required to obtain a TWIC badge. The escorted individuals must be continuously accompanied in a side-by-side manner by their escort while on NCSPA property. Individuals must attend a class given by the NCSPA Police Department prior to escorting any individual that does not have a valid TWIC. For additional information on TWIC policies see current TWIC Facility Access Requirements.

G. Violations of any TWIC regulation may result in the removal of the individual from NCSPA property. No extension of time for completion of the contract will be allowed if this occurs. Any fines that are charged to the North Carolina State Ports Authority as a result of the actions of the Contractor/Vendor may be subject to reimbursement by the Contractor/Vendor.

1.9 UTILITIES

A. The Contractor will be responsible for furnishing, at his own expense, all necessary potable water and electrical power, including utility connections. Metered connection to Port potable water utilities may be available upon request.

1.10 EXISTING WORK

A. The Contractor shall protect existing work, which is to remain in place, be reused, or remain the property of the North Carolina State Ports Authority. Repair items which are to remain, and which are damaged during performance of the work to their original condition.

1.11 USE OF SITE

A. The Contractor's use of the site may be restricted. Work hours may be limited. Parking permits may be required.

END OF SECTION 011400

SECTION 011401 - FACILITY ACCESS REQUIREMENTS *(Updated 01/23/2023)*

FACILITY COMPLIANCE

The North Carolina State Ports Authority (NCSPA) marine terminals are federally regulated maritime facilities that must adhere to and enforce the Maritime Transportation Security Act (MTSA) regulations. The NCSPA is fully compliant with the provisions of the MTSA and utilizes the federal Transportation Workers Identification Credential (TWIC) as the primary credential to initiate unescorted access.

FACILITY ACCESS POLICY

1. Individuals with a valid TWIC card will be granted access under the following conditions:
    a. They must have a valid TWIC card in their possession,
    b. They must be able to demonstrate a legitimate reason to enter the port,
    c. They must possess a valid photo government issued identification (i.e., driver's license),
    d. They must register in the NCSPA Access Control System by getting their TWIC card enrolled into the NCSPA Access Control System.
2. Individuals with a payment receipt, or an enrollment email confirmation showing that they have applied for their initial or first TWIC card will be allowed escorted access for thirty (30) consecutive calendar days.
3. Individuals with a payment receipt, or an enrollment email confirmation showing that they have applied for a renewal of their TWIC card will be granted escorted access for thirty (30) consecutive calendar days provided the payment receipt, or the enrollment email confirmation is dated before the expiration of the original TWIC card.
4. Individuals that have a payment receipt, or an enrollment email confirmation showing that they have reported their TWIC card lost, stolen or damaged will be granted thirty- seven (37) consecutive calendar days of escorted access provided the individual was previously enrolled in the NCSPA Access Control System.
5. Individuals without a valid TWIC (Non-TWIC Holders) will be granted access under the following conditions:
    a. Individuals without a TWIC who regularly access NCSPA facilities must apply for a TWIC card to gain access to any NCSPA facility. Regular access is defined as an individual that will access the

facility five (5) times in a 6-week period. Regular Access Users include but are not limited to, Port Employees, Port Tenants, Stevedores, Contractors, Longshoremen, Vendors, Truck Drivers, Customers, etc.

b. Individuals without a TWIC will be granted a maximum of five (5) escorted facility visits within a 6-week period.

c. Individuals without a TWIC must apply for their TWIC card before the expiration of their thirtieth (30th) visit.

d. Individuals without a TWIC must produce a payment receipt, or an enrollment email confirmation before the expiration of their fifth (5th) escorted visit. Failure to do so will result in their access to NCSPA restricted or secure areas being denied.

e. Individuals who have applied for their TWIC card and are waiting for its arrival can present their payment receipt, or the enrollment email confirmation to port police and the individual will be granted an additional thirty (30) consecutive calendar days of escorted access. In the event the individuals TWIC card is delayed beyond thirty (30) days, the individual can present a letter from TSA explaining why their card has been delayed to receive an extension.

f. Individuals without a TWIC that are being escorted will be subject to a random security screening as required for the MARSEC Condition in effect.

g. It is the individual without a TWIC and the TWIC escort's responsibility to always make sure that the escorted individual is always with the TWIC escort.

h. Individuals without a TWIC must always stay side by side with their escort. Individuals without a TWIC must never leave their TWIC escort's side.

i. If the NCSPA receives a fine due to an escorts or individual being escorted violation of TWIC Federal Regulations while on a marine terminal, the NCSPA may seek reimbursement from that person after the NCSPA has paid said fine.

j. The Transportation Security Administration (TSA) may fine an individual for the first offense of a TWIC violation. The minimum offense fine for violation of escort procedures is $1190. However, fines for individuals run up to $13,910 per violation. First offense sanctions have been sent to TWIC Escorts at Ports of Wilmington and Port of Morehead in recent history.

k. Individuals who are denied a TWIC by TSA will not be granted access to any NCSPA restricted or secure areas.

l. Individuals who are directly related to the discharge or loading of ocean-going yachts/sailboats/catamarans/commercial vessels to or from a cargo vessel shall comply with the following requirements:

- Give at least 24 hours' notice to North Carolina Ports Police
- Use a certified TWIC escort.
- All proper PPE must be worn (safety vest, hard hat, safety shoes)
- Only minimal number of personnel needed to safely operate the vessel being discharged or loaded will be allowed through the facility (no large family groups, sight-seeing charters or other passengers for hire)
- Personnel must first go to the badging office, submit proper identification, and go through security screening process.
- Upon successful security screening a special day pass will be issued with signature documentation that an escort on the vessel has taken positive control of the person being escorted (unless the escort takes the individual all the way to the pilot ladder on outboard side of the vessel) this will be known as an escort-to-escort hand-off
- Written confirmation 24 hours shall be sent in advance to North Carolina Ports Police Department (e-mail is fine) from the ship's captain or vessel management representative, authorizing additional people are allowed on board the vessel (due to COVID-19 safety protocols)
- Special yacht retrieval day pass will be provided to the gate house (with signature for ship escort representative for escort-to-escort hand-off.

END OF SECTION 011401

SECTION 011402 - NORTH CAROLINA STATE PORTS AUTHORITY SAFETY AND SECURITY REGULATIONS

Be it resolved that pursuant to the authority vested in it by G.S. 136-269(c), the Board of the North Carolina State Ports Authority hereby adopts and records in its proceedings the following regulations governing traffic, parking, and the registration of motor vehicles and other regulations relating to the safety and welfare of persons using any and all properties owned and or controlled by the North Carolina State Ports Authority. From the date of filing of a copy of these regulations in the office of the Attorney General, the posting thereof in appropriate places on the port property and providing the appropriate signs, they shall apply to and be in effect on property owned or leased by the North Carolina State Ports Authority. By the adoption hereof, all other sections of regulations in conflict herewith are repealed.

SECTION 1- DEFINITIONS

Statutory definitions - the definitions of all terms used in these regulations shall be those set forth in G.S. 20-4.01 and other applicable section of the General Statutes of North Carolina insofar as they are provided.

SECTION 2 -APPLICABILITY OF STATE LAWS

The laws of the State of North Carolina regulating the use of public streets and roadways shall apply to all streets, roads, driveways, alleyways, and open areas on the State Ports Terminals as if set forth herein.

SECTION 3 - TRAFFIC CONTROL DEVICES

3.1. - Placement and Maintenance -The North Carolina State Ports Authority shall cause to be placed and maintained traffic control signs, signals and devices when as required under the traffic regulations for all terminals to make effective provisions of said regulations, and may place and maintain such additional traffic control devices as they may deem necessary to regulate traffic under the traffic regulations of the two terminals or under state law, or to guide or warn traffic.

3.2. - Standards and Specifications - All traffic control signs; signals and devices shall conform to the specifications approved by the North Carolina Department of Transportation (NCDOT). All signs and signals required here for a particular purpose not defined by the NCDOT specifications, shall so far as practicable be uniform as to type and location throughout the terminals. All traffic control devices so established and not inconsistent with the provisions of state law or this regulation shall be official traffic control devices.

SECTION 4 - FIREARMS AND WEAPONS PROHIBITED

4.1. - It shall be unlawful for any person to possess, or carry whether openly or concealed, whether authorized as a Concealed Handgun Permit (HCP) person, regardless of the state of issue, any gun, rifle, pistol, dynamite cartridge, ammunition, bomb, grenade, mine, powerful explosive as defined in G.S. 14- 284.1, bowie, knife, dirk, dagger, slingshot, leaded cane, switchblade knife, blackjack, metallic knuckles or any other weapon of like kind on any terminal of the Ports Authority. For the purpose of this Section a self-opening or switch- blade knife is defined as knife containing a blade or blades which open automatically by the release of a spring or a similar contrivance, and the above "weapon of like kind" includes razors and razor blades (except solely for personal shaving) and any sharp or edged instrument except, unaltered nail files and clips and tools used solely for the performance of one's duty or occupation on the terminals. This section shall not apply to the following persons: Officers and enlisted personnel of the armed forces of the United States of America while carrying out their official duties and acting under orders requiring them to carry arms or weapons; civil officers of the United States while carrying out their official duties; officers of the state; or any county; city; or town including duly sworn special policemen in the employment of the Ports Authority, charged with the execution of the laws of the state, while carrying out their official duties. This section does not apply to commercial or military shipments of explosives, ammunition, weapons, or other cargo authorized by the Department of Defense, Customs and Boarder Protection, or the United States Coast Guard.

4.2 - North Carolina State Ports Authority Police and Security Officers shall not hold nor store any of the above listed items for person(s) working, visiting, or conducting business on port property other than for the purpose of a lawful seizure. Any weapon directed by a court order shall be returned to the lawful owner.

4.3 - Person(s) found in violation of this regulation may be charged under applicable North Carolina General Statutes.

SECTION 5 - ALCOHOLIC BEVERAGES PROHIBITED

5.1. - No person(s) shall be allowed to consume or possess any alcoholic beverage, as defined in G.S lSb-101., whether sealed or opened on property
owned or leased by the Ports Authority.

5.2. - This section shall not apply to vehicles or persons delivering alcoholic beverages as part of a vessel's stores. Under this situation the alcoholic beverages shall be sealed and packaged for delivery to the vessel and be listed on a bill of lading or manifest as vessel stores to a specific vessel.

SECTION 6 - SPEED LIMITS AND USE OF HEADLIGHTS

6.1. - The following is a list of speed limits for the Wilmington Terminal.

All Main Streets	20 MPH
Inside all Transit and Storage Buildings	10 MPH
All open Berths	15 MPH

6.2. - The following is a list of speed limits for the Morehead City terminal.

All Streets, Alleyways, Open Areas	20 MPH
Inside all Transit and Storage Buildings	10 MPH
All open Berths	15 MPH

6.3. - At all times, all ports vehicles, privately owned vehicles, and commercial vehicles shall use headlights while operating on port property. Reach stackers, Tyco trucks, power industrial trucks and public safety vehicles are exempt from this requirement.

SECTION 7 - STOPPING, STANDING, DRIVING AND PARKING

Sec. 7.1 - Stopping in Traffic Lanes.

No vehicle shall stop in any street, roadway, alleyway, wharf, dock, pier, except for the purpose of parking as prescribed in this chapter, unless such stop is made necessary by the approach of emergency response vehicles, by approach of a train, by the giving of traffic signals, the passing of some other vehicle or a pedestrian or by some emergency; and in any case *covered* by these exceptions. Such vehicles shall not stop so as to obstruct any fire exit door, warehouse door, footway, pedestrian aisle, and safety zone, street crossing or street intersection.

Sec. 7.2 - Standing in Traffic Lanes.

No person shall place or caused to be placed, a vehicle on any street so as to interrupt or interfere with the passage of public conveyances or other vehicles.

Sec. 7.3 - Driving and Parking in Unauthorized Areas.

Parking shall be in designated parking areas only. No person shall drive, stop, stand, or cause a vehicle to be parked in a travel lane, on the wharf, dock, pier, inside warehouse, loading dock, transit shed, ramp, or all warehouse doors unless authorized by the Ports Police. North Carolina Ports vehicles carrying out official duties are exempt from this provision.

Sec. 7.4 -Towing of Vehicles.

Vehicles parked in violation of the foregoing regulations may be towed away at the owner's expense. This includes vehicles obstructing traffic from flowing in and out of any property owned or under the control of the North Carolina State Ports Authority.

Sec. 7.5 – Any person or persons found in violation of this port regulation shall be subject to a $25.00 fine. Failure to pay this penalty within forty-eight (48) hours of the violation will result in the revocation of driving privileges on all property owned by or under the control of the North Carolina State Ports Authority. Civil penalties shall be paid to the Ports Authority Police Department.

SECTION 8 - CONTROL OF SMOKING

Sec. 8.1. - Smoking (including electronic cigarettes) will be permitted only within designated smoking areas.

Sec. 8.2. - Smoking (including electronic cigarettes) is prohibited in all transit sheds and warehouses on the two terminals.

Sec. 8.3. - Smoking (including electronic cigarettes) is prohibited on all of the berths on the two terminals whether owned, leased, or under the control of the North Carolina State Ports Authority.

SECTION 9 - FISHING ON OR FROM PORTS AUTHORITY PROPERTY PROHIBITED

No person(s) shall be allowed to fish, set traps or cast nets, from any pier, berth or land owned, leased, or under the control of the Ports Authority.

SECTION 10 -ANIMALS RUNNING AT LARGE

Sec. 10.1. - It shall be unlawful for a person owning or having custody of any animal to willfully permit or allow the animal to run at large on any property owned or controlled by the North Carolina State Ports Authority.

Sec. 10.2. - Any person or persons found in violation of this port regulation shall be subject to a $25.00 fine and any applicable court costs.

SECTION 11- PERSONAL PROTECTIVE EQUIPMENT

Sec. 11.1. -ANSI-2 compliant high visibility vest or shirt are required while on any part of the property owned or controlled by the North Carolina State Ports Authority in which operations are being conducted or vehicles are under operation including parking areas, streets or alleyways, inside warehouses or cargo storage areas, or while operating cargo equipment or vehicles. Certain jobs and locations may be exempt if other hazards are created by use of PPE.

Sec. 11.2. - An approved hard-hat or safety helmet is required while within 100 feet of any and all overhead operations to include use of cranes, top-loaders, straddle carriers, forklifts, front-end loaders, overhead conveyors, ship line handling, or any other operations involving cargo stacked or lifted overhead. Forklift and other equipment operators, while seated on equipment which is equipped with an overhead guard are exempt from this requirement so long as they remain seated underneath the guard.

Sec. 11.3. -Any person or persons on any property owned or controlled by the North Carolina State Ports Authority is required to wear safety shoes at all times. Motor carrier operators and contractors not directly employed by the North Carolina State Ports Authority are required to wear closed toe shoes at all times. Flip flops, sandals, clogs, or any other shoes which expose all or part of the feet are prohibited.

Sec. 11.4. - Fall protection is required for all work conducted above 4 feet from the ground. An approved safety harness must be worn and anchored to an appropriate anchor point at all times while working more than 4 feet above ground including work on top of train cars, cargo containers, buildings, or any other above groundwork. Man lifts, scissor lifts, or lift baskets which are equipped with safety railings do not exempt persons from this requirement.

Sec. 11.5. - Additional safety equipment, including life jackets, respirators or other breathing protection, safety glasses or goggles, or any other piece of required personal protective equipment, must be worn in areas in which such a requirement has been clearly posted. Employees working over or near water, where the danger of drowning exists, shall wear a U.S. Coast Guard-approved life jacket or buoyant work vest.

Sec. 11.6. - Designated groups under supervision of North Carolina Ports may be exempt from wearing PPE as long as other safety protocols and risk mitigation measures are followed.

SECTION 12 - MOTOR CARRIER OPERATORS

Sec. 12.1. - All motor carrier operators are required to remain in their vehicle during cargo operations and while in areas designated for cargo operations unless otherwise directed by cargo personnel. Any adjustments to containers or cargo must be completed in the Container Interchange. In shipping and receiving, scale house, or other non-cargo areas motor carrier operators may be exempt from this requirement.

Sec. 12.2. - While waiting for cargo operations to begin, or while waiting for a loading dock or lane to become available, motor carrier operators must remain in their vehicle. Motor carrier operators are prohibited from loitering in any area outside of cargo areas adjacent to their vehicle or designated break rooms.

Sec. 12.3. - Motor carrier operators are prohibited from stopping in travel lanes to complete any preparatory actions such as adjusting axles, securing cargo, completing logbooks, etc. All preparatory actions must be completed in the Container Interchange prior to entering travel lanes.

SECTION 13 - RESTRICTED AREAS

Sec. 13.1. - It shall be unlawful for any unauthorized person to enter any part of property owned or under the control of the North Carolina State Ports Authority when such area is clearly marked restricted. Areas marked with signage or enclosed with traffic cones, police tape, jersey or concrete barriers, temporary fences, or any other barrier intended to prevent entry are considered to be clearly marked restricted.

Sec. 13.2. - It shall be unlawful for any unauthorized person to tamper with, *move* or reposition, damage, or otherwise cause to become ineffective, any sign or barrier used to indicate a restricted area. Barrier devices included under this section include traffic cones, police tape, jersey or concrete barriers, temporary fences, or any other barrier intended to prevent entry into a restricted area.

SECTION 14 - HOT WORK AND FUEL

Sec. 14.1. - A permit shall be required for all "Hot Work" including torch cutting, welding, burning, or any other work which poses an abnormally high fire risk while on any property owned or under the control of the North Carolina State Ports Authority.

Sec. 14.2. - Stored energy must be secured at all times prior to, during, or after "Hot Work." For the purpose of this section, stored energy includes all acetylene, propane, or any other fuel tank used to facilitate high heat work. Such energy must be secured so as to prevent damage from falls or exposure to fi re

Sec. 14.3. - A permit shall be required for all fuel transfers to or from any vessel moored at any property owned or under the control of the North Carolina State Ports Authority.

Sec. 14.4. - It shall be the responsibility of the holder of a permit to transfer fuel to ensure that a reasonable containment area is established prior to beginning fuel operations in order to minimize the risk of fuel spills or fire.

Sec. 14.5. - Permits required under this section must be obtained from the North Carolina State Ports Authority Police Department, and all requirements listed on each permit must be met in order for permits to remain valid.

SECTION 15 - ELECTRONIC COMMUNICATION DEVICES

Sec. 15.1. - It shall be unlawful for the operator of any cargo equipment or vehicle including cranes, forklifts, top loaders, front end loaders, or operators of motor carrier vehicles, to use handheld and hands-free electronic communication devices such as phones, radios, tablets, etc., while they are in control of any vehicle and the vehicle is in motion. Two-way radios used solely to facilitate cargo operations are exempt from this section.

Sec. 15.2. - It shall be unlawful for any person or persons to use handheld and hands-free electronic communication devices such as phones, radios, tablets, etc., during active cargo operations. This includes any spotter, line handler, person actively assisting crane operations, or persons within 25 feet of active cargo operations. Two-way radios used solely to facilitate cargo operations are exempt from this section.

SECTION 16 - USE OF GOLF CARTS AND UTILITY VEHICLES ON PORT PROPERTY

It shall be unlawful for any person or persons to operate golf carts or utility vehicles on port property. Golf carts and utility vehicles used by North Carolina Ports employees under an operational or human resource provision are exempt from this section. Only street legal vehicles that are properly lighted, insured, licensed and registered shall be permitted to operate on port property.

SECTION 17 - GENERAL HOUSEKEEPING

It shall be unlawful for any person to leave garbage, rubbish, dunnage, damaged cargo, damaged equipment, excess materials, abandoned or inoperable vehicles anywhere on port property.

SECTION 18-FINES & PENALTIES

Any person found in violation of any of the above listed regulations may be subject to a $25 fine, revocation of driving privileges on properties owned or under the control of the North Carolina State Ports Authority, and/or revocation of access rights to any or all of the properties owned or under the control of the North Carolina State Ports Authority, or all of the above. Civil penalties for violations may be paid at the North Carolina State Ports Police Department and must be paid within 48 hours of issuance. Failure to pay may result in restricted access to the port.

END OF SECTION 011402

SECTION 012900 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

    a. Application for Payment forms with continuation sheets.
    b. Submittal schedule.
    c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Owner in duplicate within 15 days after date established in Notice to Proceed.

3. Include within each line-item direct proportional amount of Contractor's overhead and profit.

4. Revise schedule to list approved Change Orders, with each Application for Payment

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Owner's project number.
    c. Contractor's name and address.

d. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703 or other approved form.

3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:

   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

      1) Labor.
      2) Materials.
      3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.

5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

   a. Payment for items stored off-site are not allowed unless approved by Owner.

7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

   a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

b. Identify site mobilization, bonds, and insurance.

10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Owner and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Submit Application for Payment to Owner by the 25th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Application for Payment Forms: Use AIA Document G703 as form for Applications for Payment or approved alternative.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.

3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored on-site, but not yet installed. Off-site stored materials will not be accepted unless approved in advance by Owner.

G. Transmittal: Submit two signed and notarized original copies of each Application for Payment to Owner by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule.
4. Products list.
5. Schedule of unit prices.
6. Submittal schedule.
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds.
15. Data needed to acquire Owner's insurance.

I. Application for Payment at Substantial Completion: After Owner issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.

3. Updated final statement, accounting for final changes to the Contract Sum.

4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."

5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."

6. AIA Document G707, "Consent of Surety to Final Payment."

7. Evidence that claims have been settled.

8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.

2. Coordination drawings.

3. Requests for Information (RFIs).

4. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

1.3 DEFINITIONS

A. RFI: Request from Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.

2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including office and cellular telephone numbers and e-mail addresses.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.

2. Preparation of the schedule of values.

3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.

5. Progress meetings.

6. Pre-installation conferences.

7. Project closeout activities.

8. Startup and adjustment of systems.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Owner will return RFIs submitted to Owner by other entities controlled by Contractor with no response.

2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.

2. Project number.

3. Date.

4. Name of Contractor.

5. Name of Designer.

6. RFI number, numbered sequentially.

7. RFI subject.

8. Specification Section number and title and related paragraphs, as appropriate.

9. Drawing number and detail references, as appropriate.

10. Field dimensions and conditions, as appropriate.

11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.

12. Contractor's signature.

13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Owner.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Owners Action: Owner will review each RFI, determine action required, and respond. Allow five working days for Owner's response for each RFI. RFIs received by Owner after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Owner's action may include a request for additional information, in which case Owner’s time for response will date from time of receipt of additional information.

3. Owner's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to contract.

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Owner in writing at the time of the RFI submission or within 5 days of RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Software log with not less than the following:

1. Project name.

2. Name and address of Contractor.

3. RFI number including RFIs that were returned without action or withdrawn.

4. RFI description.

5. Date the RFI was submitted.

6. Date Owner’s response was received.

F. On receipt of Owner’s action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner within five days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site as required.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner within three days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner, but no later than 10 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.

2. Attendees: Authorized representatives of Owner; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing.
c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Lines of communications.
f. Procedures for processing field decisions and Change Orders.
g. Procedures for RFIs.
h. Procedures for testing and inspecting.
i. Procedures for processing Applications for Payment
j. Distribution of the Contract Documents.
k. Submittal procedures.
l. Preparation of record documents.
m. Use of the premises and existing building.
n. Work restrictions.
o. Working hours.

p. Owner's occupancy requirements.
q. Responsibility for temporary facilities and controls.
r. Procedures for moisture and mold control.
s. Procedures for disruptions and shutdowns.
t. Construction waste management and recycling.
u. Parking availability.
v. Office, work, and storage areas.
w. Equipment deliveries and priorities.
x. First aid.
y. Security.
z. Progress cleaning.

4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Coordination Meetings: Conduct project coordination meetings as required.

1. Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.

11) Progress cleaning.
12) Quality and work standards.
13) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, design data, test reports, certificates, manufacturer’s instructions, manufacturer’s field reports, construction photographs, and other submittals.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Owner’s responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Owner’s responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Owner and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 20 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

a. Scheduled date for first submittal.
b. Specification Section number and title.
c. Submittal category: Action; informational.
d. Name of subcontractor.
e. Description of the Work covered.
f. Scheduled date for Owner's final release or approval.
g. Scheduled date of fabrication.
h. Scheduled dates for purchasing.
i. Scheduled dates for installation.
j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Owner for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner’s receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.

2. Name file with submittal number or other unique identifier, including revision identifier.

a. File name shall use project identifier and Specification Section number followed by a dash and then a sequential number (e.g., C-1702-221414-1.1). Resubmittals shall include the next sequential number after the decimal point (e.g., C-1702- 221414-1.2).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner.

4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner**,** containing the following information:

a. Project name.
b. Date.
c. Name of Construction Manager.
d. Name of Contractor.
e. Name of firm or entity that prepared submittal.
f. Names of subcontractor, manufacturer, and supplier.
g. Category and type of submittal.
h. Submittal purpose and description.
i. Specification Section number and title.

j. Specification paragraph number or drawing designation and generic name for each of multiple items.
k. Drawing number and detail references, as appropriate.
l. Location(s) where product is to be installed, as appropriate.
m. Related physical samples submitted directly.
n. Indication of full or partial submittal.
o. Transmittal number, numbered consecutively.
p. Submittal and transmittal distribution record.
q. Other necessary identification.
r. Remarks.

E. Options: Identify options requiring selection by Owner.

F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block and clearly indicate extent of revision.

3. Resubmit submittals until they are marked with approval notation from Owner’s action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Owner’s action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

B. Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.

2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Owner.

3. Include the following information for processing and recording action taken:

   a. Project name.
   b. Date.
   c. Name of Architect.
   d. Name of Construction Manager.
   e. Name of Contractor.
   f. Name of subcontractor.
   g. Name of supplier.
   h. Name of manufacturer.
   i. Submittal number or other unique identifier, including revision identifier.
      1) Submittal number shall use Specification Section number followed by a dash and then a sequential number (e.g., 221414-1.1). Resubmittals shall include the next sequential number after the decimal point (e.g., 221414- 1.2).
   j. Number and title of appropriate Specification Section.
   k. Drawing number and detail references, as appropriate.
   l. Location(s) where product is to be installed, as appropriate.
   m. Other necessary identification.

4. Copies: Unless additional copies are required for final submittal, and unless Owner observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

   a. Submit one paper copy and one electronic copy of submittal to Owner. Owner will scan and electronically return review comments. If hard copy response is preferred, provide an additional hard copy.

5. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will discard submittals received from sources other than Contractor.

   a. Transmittal Form for Submittals: Provide locations on form for the following information:

      1) Project name.
      2) Date.
      3) Destination (To:).
      4) Source (From:).
      5) Name and address of Architect.
      6) Name of Construction Manager.
      7) Name of Contractor.
      8) Name of firm or entity that prepared submittal.
      9) Names of subcontractor, manufacturer, and supplier.
      10) Category and type of submittal.
      11) Submittal purpose and description.

12) Specification Section number and title.
13) Specification paragraph number or drawing designation and generic name for each of multiple items.
14) Drawing number and detail references, as appropriate.
15) Indication of full or partial submittal.
16) Transmittal number, numbered consecutively.
17) Submittal and transmittal distribution record.
18) Remarks.
19) Signature of transmitter.

6. Action Submittals: Submit one electronic PDF copy and one paper copy of each submittal unless otherwise indicated. Owner will return comments electronically.

7. Informational Submittals: Submit one electronic PDF copy and one paper copy of each submittal unless otherwise indicated. Owner will not return copies.

8. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.

6. Submit Product Data in the following format:

a. PDF electronic file.
b. One paper copies of Product Data unless otherwise indicated. Owner will return comments electronically.

D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

3. Submit Shop Drawings in the following format: a. One opaque (bond) copies of each submittal.

E. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.

c. Sample source.
d. Number and title of applicable Specification Section.
e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality- control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit one sets of Samples.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least one sets of paired units that show approximate limits of variations.

F. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

2. Manufacturer and product name, and model number if applicable.

3. Number and name of room or space.

4. Location within room or space.

5. Submit product schedule in the following format:

    a. PDF electronic file.
    b. One paper copies of product schedule or list unless otherwise indicated.

G. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."

H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

L. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

M. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

N. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

O. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

P. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

Q. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

R. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

S. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 OWNER’S ACTION

A. Action Submittals: Owner will review each submittal, make marks to indicate corrections or revisions required, and return it. Owner will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Owner will review each submittal and will not return it, or will return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Owner.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Owner without action.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.

3. Requirements for Contractor to provide quality-assurance and -control services required by Owner or authorities having jurisdiction are not limited by provisions of this Section.

4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Owner.

C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of ten previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Contractor's quality-control personnel.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements. Each fixture must be UL Listed.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

1.7 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Owner before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on shop drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

H. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

I. Testing Agency Responsibilities: Cooperate with Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Owner and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.

6. Do not perform any duties of Contractor.

7. May not approve or accept any portion of the work.

8. Has no authority to stop the work.

J. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

4. Facilities for storage and field curing of test samples.

5. Delivery of samples to testing agencies.

6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.

K. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

2. Notify Owner and Testing Agency 24 hours prior to expected time for operations requiring services.

L. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.8 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Owner before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.9 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.

2. Notifying Owner and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

3. Submitting a certified written report of each test, inspection, and similar quality-control service to Owner with copy to Contractor and to authorities having jurisdiction.

4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.

6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Owner's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

2. Protect construction exposed by or for quality-control service activities.

3. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

B. Temporary utilities required may include but are not limited to:

Water service and distribution.
Temporary electric power and light.
Telephone service.
Storm and sanitary sewer.

C. Temporary construction and support facilities required may include but are not limited to:

Temporary heat.
Field offices and storage sheds.
Sanitary facilities, including drinking water.
Temporary enclosures.
Temporary Project identification signs and bulletin boards.
Waste disposal services.
Rodent and pest control.
Construction aids and miscellaneous services and facilities.

D. Security and protection facilities required may include but are not limited to:

Temporary fire protection.
Barricades, warning signs, lights.
Environmental protection.

1.3 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

1.4 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:

Building Code requirements.
Health and safety regulations.
Utility company regulations.
Police, Fire Department and Rescue Squad rules.
Environmental protection regulations.

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library, "Temporary Electrical Facilities."

1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.

2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70), latest edition.

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials; if acceptable to the Engineer, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

B. Lumber and Plywood:

1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.

2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.

C. Roofing Materials: Provide UL Class "A" standard weight asphalt shingles complying with ASTM D 3018, or UL Class "C" mineral surfaced roll roofing complying with ASTM D 249 on roofs of job-built temporary offices, shops and sheds.

D. Paint:

1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.

2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.

E. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

F. Water: Provide potable water approved by local health authorities.

2.2 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Engineer, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

H. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

I. First Aid Supplies: Comply with governing regulations.

J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

K. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.

1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.

3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.

4. Use Charges: Cost or use charges for temporary facilities are the responsibility of the Contractor. These cost or charges are not chargeable to the Owner or Engineer, and will not be accepted as a basis of claims for a Change Order.

B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction.

1. Sterilization: Sterilize temporary water piping prior to use.

C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switchgear.

1. Except where overhead service must be used, install electric power service underground.

2. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.

D. Temporary Lighting: Wherever overhead floor or roof deck has been installed, provide temporary lighting with local switching.

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Temporary Telephones: Provide temporary telephone service for all personnel engaged in construction activities, throughout the construction period. Install telephone on a separate line for each temporary office and first aid station. Where an office has more than two occupants, install a telephone for each additional occupant or pair of occupants.

1. At each telephone, post a list of important telephone numbers.

F. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.

2. Connect temporary sewers to the municipal system as directed by the sewer department officials.

3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

G. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

D. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.

E. Field Offices: Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use.

F. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site.

G. Sanitary facilities include temporary toilets. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best service the Project's needs.

1. Provide toilet tissue, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

H. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit- type privies will not be permitted.

I. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.

3. Close openings through floor or roof decks and horizontal surfaces with load- bearing wood-framed construction.

J. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Temporary Fire Protection: Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."

1. Locate fire extinguishers where convenient and effective for their intended purpose.

2. Store combustible materials in containers in fire-safe locations.

3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

C. Security Enclosure and Lockup:

1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

D. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

E. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

F. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.

2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

G. Termination and Removal: Unless the Engineer requires that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.

2. At Substantial Completion, clean any permanent facilities that have been used during the construction period.

END OF SECTION 015000

SECTION 017300 – EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.

2. Field engineering and surveying.

3. Installation of the Work.

4. Cutting and patching.

5. Coordination of Owner-installed products.

6. Progress cleaning.

7. Starting and adjusting.

8. Protection of installed construction.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.

3. Products: List products to be used for patching and firms or entities that will perform patching work.

4. Dates: Indicate when cutting and patching will be performed.

5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Owner for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations. 1. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.

2. List of detrimental conditions, including substrates.

3. List of unacceptable installation tolerances.

4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Owner according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Owner promptly.

B. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Owner.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Owner. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Owner before proceeding.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.

2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties' involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Owner.

2. Allow for adjustment of existing fixture arm brackets.

3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Temporary Support: Provide temporary support of work to be cut.

C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

3. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.

4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

5. Proceed with patching after construction operations requiring cutting are complete.

F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.

G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.

3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number where applicable.

   a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owner’s signature for receipt of submittals.

5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.

2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.

3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

4. Advise Owner of changeover in heat and other utilities.

5. Participate with Owner in conducting inspection and walkthrough with appropriate parties.

6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

7. Complete final cleaning requirements, including touchup painting.

8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."

2. Certified List of Incomplete Items: Submit certified copy of Owner's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use electronic form approved by Owner.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest level to highest level.

2. Organize items applying to each space by major element.

3. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Name of Owner.
d. Name of Contractor.
e. Page number.

4. Submit list of incomplete items in the following format:

a. MS Excel electronic file. Owner will return annotated file.
b. PDF electronic file. Owner will return annotated file.
c. One paper copy.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Owner for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average industrial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

g. Remove debris and surface dust from limited access spaces, including roofs, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Remove labels that are not permanent.
j. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.

2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.

2. Record Specifications.

3. Record Product Data.

4. Miscellaneous record submittals.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of record Drawings as follows:

a. Final Submittal:

1) Submit PDF electronic files of scanned record prints and one paper-copy set of file prints.
2) Owner will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Accurately record information in an acceptable drawing technique.
b. Record data as soon as possible after obtaining it.
c. Record and check the markup before enclosing concealed installations.
d. Cross-reference record prints to corresponding archive photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Changes made by Change Order or Construction Work Change Directive.
d. Changes made following Owner's written orders.
e. Details not on the original Contract Drawings.
f. Field records for variable and concealed conditions.
g. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Owner. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Scanned annotated PDF electronic file with comment function enabled.

2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.

3. Refer instances of uncertainty to Owner for resolution.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Format: Annotated PDF electronic file with comment function enabled.

3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.

4. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Owner.
e. Name of Contractor.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Owner's reference during normal working hours.

END OF SECTION 017839

DIVISION 26
ELECTRICAL SPECIFICATIONS

Electrical Specifications Table of Contents
For
Convert 4160V OH To UG
Port of Wilmington
NCSPA Project # 10657
SCO ID # 24-27857-01A

Construction Documents

TECHNICAL SPECIFICATIONS

Division 26 - Electrical

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SECTION 260000 – ELECTRICAL, BASICS

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 CONTENTS

A. See Electrical Table of Contents.

1.3 GENERAL

A. Applicable requirements of any Instructions to Bidders, General Conditions of the Contract, and/or Supplemental Conditions shall be a part of the Electrical Specifications. The electrical contractor shall examine all contract documents before submitting a proposal.

B. The electrical work shall be performed by an electrical contractor, suitably licensed for the scope of work of this specific project.

C. The electrical contractor shall assume total responsibility for any portion of the work provided by his subcontractors.

1.4 CODES AND STANDARDS

A. Building Codes:

1. National Fire Protection Association No. 70, National Electrical Code (NEC)
2. North Carolina State Building Code, Latest Edition and Revisions (NCSBC)
3. National Electrical Safety Code (NESC)
4. National Bureau of Standards (NBS)
5. Local Codes where applicable

B. Industry Standards:

1. Underwriter's Laboratories, Inc. Standards and approved listings (UL)
2. Electrical Testing Laboratories Standards (ETL)
3. National Electrical Manufacturers Association Standards (NEMA)
4. Insulated Power Cable Engineers Association Standards (IPCEA)
5. American National Standards Institute (ANSI)
6. American Society for Testing Materials Standards (ASTM)
7. Canadian Standards Association (CSA)

1.5 QUALITY ASSURANCE

A. Electrical materials, equipment, devices, fixtures, etc. shall be listed and labeled by a third-party agency that is accredited by the NCBCC (North Carolina Building Code Council) to label electrical & mechanical equipment. Listing and labeling shall comply with NC Department of

Insurance requirements as detailed in NC General Statutes 66-23 through 66-25. This paragraph applies to all electrical specification sections under specification divisions 26, 27, and 28.

1.6 SCOPE OF WORK

A. It is the intent and meaning of the drawings and specifications to call for finished work that has been tested and is ready for operation. The electrical contractor shall take this into consideration and include in his proposal allowance for contingencies that will allow him to provide minor pieces of materials and labor not specifically indicated but required for the job to operate properly. This paragraph is intended to insure that a complete job will be provided without requests for minor extras.

B. It shall be understood that where the words “furnish,” “provide,” and/or “install” are used, it is intended that this CONTRACTOR shall purchase and install completely all material necessary and required for this particular item, system, equipment, etc.

1.7 RECORD DRAWINGS

A. A set of drawings covering the electrical contract will be provided to the electrical contractor to mark in color all changes, modifications, or revisions effected during construction. These field mark-up drawings are to be turned over to the electrical designer.

B. The electrical contractor shall provide final installed photographs of switchboards and panelboards. Photographs shall clearly show equipment designations, manufacturer nameplates, breaker positions, breaker ratings, and directory descriptions.

1.8 APPROVAL OF MATERIALS

A. See project manual contract documents for pre-proposal substitution requirements.

B. Construction phase: The CONTRACTOR shall submit his proposal on the specified materials and equipment, or their equivalent, provided the words "or equal" or "or approved equal" follow the named manufacturers. If the above phrases do not appear, the specified manufacturers shall be furnished without substitution. Equivalent shall be interpreted to mean an item of material or equipment, similar to that named and which is suitable for the same use and capable of performing the same functions as that named, with the Design Team being the judge of equality.

C. Where no specific material or equipment type is mentioned, any first-class product of a reputable manufacturer may be used provided it conforms to the requirements of the specifications.

1.9 SHOP DRAWINGS AND SUBMITTAL DATA PROCEDURES

A. The CONTRACTOR shall submit PDF files of shop drawings, certified prints, literature, and product data sheets to the Design Team for all major items of equipment and materials for review and approval. It is preferred that all electrical submittals for the project shall be submitted at one and the same time.

B. Product data sheets with multiple components, part numbers, etc. shall be clearly marked or highlighted to identify what specific product/model/part number/component is proposed for this project. All instances of the proposed part number components in the product data shall be marked or highlighted throughout product data sheets submitted.

C. The CONTRACTOR shall analyze all shop drawings and submittal data and certify that they meet requirements of Contract Drawings and Specifications, prior to delivery to the Design Team. CONTRACTOR Certification shall be in the form of suitable approval stamp placed on each shop drawing/submittal submitted.

1. If the shop drawings or submittal data deviate from the Contract Documents, the CONTRACTOR shall advise the Design Team of deviations in writing, accompanying the shop drawings and submittal data, including the reason for deviations.

D. If the Design Team deems submittal data is either incomplete or incorrect, a resubmittal will be required. Where a resubmittal is not necessary but confirmation of receipt of review comments is requested, confirmation shall be submitted in writing.

E. At least one set of all final submittal data, shop drawings, certified prints, etc., shall be maintained at the job site and available to representatives of the Design Team.

F. Approval by the Design Team of shop drawings and submittal data is for general conformance with the contract documents and design concept.

1. Such approval does not relieve the CONTRACTOR of responsibility for compliance with the project drawings and specifications.
2. Such approval for any materials, apparatus, devices, and layouts shall not relieve the CONTRACTOR from the responsibility of furnishing same of proper dimensions, size, quantity, quality and all performance characteristics to efficiently complete the requirements and intent of the contract documents.
3. Such approval shall not relieve the CONTRACTOR from responsibility for errors of any sort on the shop drawings.

G. Physical sizes of equipment used in the design layout are those of reputable equipment manufacturers. The CONTRACTOR is responsible for providing equipment that will fit the space available. If the CONTRACTOR elects to use equipment that results in conflicts with space clearance or codes, it shall be the responsibility of the CONTRACTOR to correct at his expense. The CONTRACTOR shall be responsible for providing code clearances. Where equipment is designated for existing space, the CONTRACTOR shall make necessary field measurements to ascertain space requirements, including those for connections; and shall furnish and install such sizes and shapes of equipment that the final installation shall suit the intent and meaning of the drawings and specifications.

H. Catalog Data for OWNER:

1. The CONTRACTOR shall provide compilations of catalog data, bound in suitable loose-leaf binders, for each manufactured item of equipment used in the electrical work. These shall be presented to the Design Team for transmittal to the OWNER before the final inspection is made. Data shall include printed installation, operation, and maintenance instructions for each item, indexed by product with heavy sheet dividers and tabs. All warranties shall be included with each item. Each manufacturer's name, address, and

telephone number shall be clearly indicated. Generally, shop drawings and submittal data alone are not adequate for catalog data.

I. Record Documents for OWNER:

1. Conductor and cable megger test results.
2. Field mark-up as-built drawings.
3. Grounding electrode system test results.
4. Transformer tap settings and output voltages.
5. Warranty documents.
6. Operations and maintenance manuals.

1.10 DRAWINGS AND SPECIFICATIONS

A. The Electrical drawings and specifications are complementary each to the other, and what may be called for by one shall be as binding as if called for by both. The drawings are diagrammatic and indicate generally the location of outlets, devices, equipment wiring, etc and show the general arrangement of raceways, fixtures, and equipment. Drawings shall be followed as closely as actual building construction and the work of other trades will permit; however, all work shall suit the finished surroundings and/or trim.

B. Any omission from either the drawings or the specifications are unintentional, and it shall be the responsibility of the CONTRACTOR to call to the attention of the Design Team any pertinent omissions before submitting a proposal. Complete and working systems are required, whether every small item of material is shown and specified or not.

C. The electrical work shall conform to the requirements shown on all of the drawings. General and Structural drawings shall take precedence over Electrical Drawings. Because of small scale of the electrical drawings, it is not practical to indicate offsets, fittings and accessories that may be required. The CONTRACTOR shall investigate the structural and finish conditions affecting the work and shall arrange his work accordingly, providing such fittings and accessories as may be required to meet such conditions, without additional cost to the OWNER and as directed by the Design Team.

D. Load circuits shall be installed as indicated on the drawings. Circuit number revisions will not be accepted unless approved in writing by the Engineer.

1.11 COORDINATION OF WORK

A. It is understood and agreed that by submitting a proposal, the CONTRACTOR has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the general and local conditions and all other matters which can and may affect the work under this contract. The CONTRACTOR shall be held responsible for visiting the site and thoroughly familiarizing himself with the existing conditions and also any contractual requirements as may be set forth in other divisions of the specifications and in other contract documents. No extras will be considered because of additional work necessitated by obvious job conditions that are not indicated on the drawings.

B. The CONTRACTOR shall compare the electrical drawings and specifications with the drawings and specifications for other trades and shall report any discrepancies between them to the Design Team. If needed, request from the Design Team written instructions for changes necessary in the electrical work. The electrical work shall be installed in cooperation with other trades installing interrelated work. Before installation, the CONTRACTOR shall make proper provisions to avoid interferences in a manner approved by the Design Team. All changes required in the work of the CONTRACTOR caused by his neglect to do so shall be made by him at his expense.

C. Location of electrical raceways, switches, panels, equipment, fixtures, etc., shall be adjusted to accommodate the work to interferences anticipated and encountered. The CONTRACTOR shall determine the exact route and location of each electrical raceway prior to make up and assembly.

D. Right-of-Way: Lines which pitch shall have the right-of-way over those which do not pitch. For example; plumbing and storm drains shall normally have right of way. Lines whose elevations cannot be changed shall have the right of way over lines whose elevations can be changed.

E. Offsets and changes in direction of electrical raceways shall be made as required to clear pitched lines whether or not indicated on the drawings. The CONTRACTOR shall furnish and install elbows, pull boxes, etc., as required to affect these offsets, transitions, and changes in directions. Conflicts between electrical raceways, fixtures, etc., and ductwork which cannot be resolved otherwise, will be resolved by the Design Team.

F. Work at Existing Facilities:

1. Where work may be required to be performed at existing and/or occupied facilities, such work shall be scheduled and arranged to be done at the convenience of the OWNER so as not to interfere with, disrupt, or disturb normal operations at the facilities. The CONTRACTOR shall obtain written approval from the OWNER before proceeding with work at existing facilities and shall work at existing facilities on schedule as agreed upon with the OWNER. This is not to be necessarily construed to mean that the CONTRACTOR is expected to perform work at existing facilities on holidays, weekends, etc., but that the Contractor must schedule work with the OWNER for the OWNER's beneficial and normal usage of the facilities, and that the CONTRACTOR will be required to maintain the schedule as approved by the OWNER.
2. The CONTRACTOR shall, at all times, provide safety barriers, protective devices, screening, dust barriers, etc., as required to maintain the safety and comfort of the building's personnel and/or occupants in or near his work area.
3. The CONTRACTOR shall be responsible for cleanup in connection with his work at existing facilities. At the end of each working day, all debris, boxes, waste, etc. shall be removed from the facilities and properly disposed of. Equipment, materials, etc. may be left inside the facilities, but such must be properly stored, stacked, and located as approved by the OWNER.
4. The CONTRACTOR shall do all cutting, patching, finishing, repairing, painting, etc., necessary for electrical work to be installed at existing facilities. All finishes shall be left to equal finish and condition prior to cutting. No cutting of structural members will be allowed. All cutting of walls, floors, roofs, etc. shall be repaired and/or replaced to a finish equal to that found prior to cutting.

5. The CONTRACTOR shall route conduits and locate equipment as approved by the OWNER and Design Team. Routing and locations shall be firmly established and approved before proceeding with any phase of the work.
6. The CONTRACTOR shall be responsible for any and all damage to the existing facilities, grounds, walkways, paving, etc. caused by the work, the CONTRACTOR and/or his personnel, and/or his equipment in the accomplishment of this work. Such damages shall be repaired and/or replaced by the CONTRACTOR at his expense, to equal finish prior to damage. The Design Team shall be the judge as to equal finishes, etc.
7. Certain power requirements must be met without interruption during certain times on the existing electrical system. It is anticipated that partial power outages will be necessary to accomplish the work covered by these drawings and specifications. The CONTRACTOR shall determine in advance the dates, times and duration of these outages and shall obtain permission from the OWNER to shut down the electric power. Unauthorized power outages will not be tolerated.

G. Equipment and Materials (General):

1. Materials shall be new and shall bear the manufacturer's name, trade name, and listing label in every case where a standard has been established for the particular material. The equipment to be furnished under this specification shall be essentially the standard product of manufacturers regularly engaged in the production of the required type of equipment and shall be the manufacturer's latest approved design.
2. Electrical motors shall meet the minimum efficiency requirements identified in the Code of Federal Regulations 10 CFR Part 431.
3. Delivery and Storage:

   a. Store products to allow for inspection and measurement of quantity or counting of units.
   b. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

      1) Electrical equipment shall be delivered to the site and stored in original containers. Store protected from the elements, but readily accessible for inspection by the Design Team until installed. Equipment shall be tightly covered and protected against dirt, water and chemical or mechanical injury and theft. Corrosion inhibitors shall be installed in all panelboards, switches, starters and control panels immediately upon receipt. Install one inhibitor for every 8 cubic feet of enclosure volume. Replace inhibitors every 90 days and at final inspection in the Design Team's presence. Rusty and/or corroded materials and equipment will be replaced at the direction of the Design Team.
      2) Rusty and/or corroded materials and equipment will be replaced at the direction of the Design Team.

   c. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   d. Protect stored products from damage.

4. Equipment and materials of the same general type shall be of the same make throughout the work to provide uniform appearance, operation and maintenance.

5. At the completion of work; equipment, and materials shall be cleaned and polished thoroughly and turned over to the OWNER in a condition satisfactory to the Design Team. Damage or defects, developing before acceptance of the work shall be corrected at the CONTRACTOR's expense.
6. Manufacturer's directions shall be followed completely in the delivery, storage, protection, and installation of all equipment and materials. The CONTRACTOR shall promptly notify the Design Team, in writing, of any conflicts between requirements of the Contract Documents and the manufacturer's directions and shall obtain the Design Team's written instructions before proceeding with the work. Should the CONTRACTOR perform any work that does not comply with the manufacturer's instructions, recommendations, or requirements; it shall be corrected at his expense as directed by the Design Team.

H. Sleeves, Inserts, Openings, Etc.:

1. Anchor bolts, sleeves, inserts, supports, etc., that may be required for electrical work shall be furnished, located, and installed by the electrical contractor.

I. Cutting and Patching:

1. The electrical contractor shall be responsible for cutting and patching as required for the proper installation of electrical work for this project. Cutting shall be kept to a minimum. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Finishes shall be restored to the satisfaction of the Owner and the Design Team.

J. Locations and Measurements:

1. Equipment is shown and located on the drawings as intended based on the Design Team's understood project scope. All measurements for installation shall be verified on the project. Slight relocations of equipment shall be made by the electrical contractor as required or as directed by the Design Team at no additional cost to the OWNER.

K. Workmanship:

1. Work shall be executed as required by the drawings and specifications, shall be done in a workmanlike manner by skilled mechanics, and shall present a neat, trim, and mechanical appearance when completed. All work shall be performed as required by the progress of the job.

L. Final Inspections and Equipment Demonstrations:

1. For State Construction projects, the State Construction Office is the Authority Having Jurisdiction (AHJ) for the Electrical Inspections on this project. It is the responsibility of the Electrical contractor to notify the State Property Electrical Inspectors in the Construction Administration Section of the State Construction Office, to schedule the required inspections. All scheduling of electrical inspections with the State Construction Office electrical inspector shall be Monday through Friday unless specifically exempted and approved by the State Construction Office. No work shall be covered up until after the inspection has been completed and approved by an authorized SCO inspector. The CONTRACTOR shall provide the Owner two (2) copies of Electrical Inspectors' written reports.

2. The CONTRACTOR shall furnish ladders, required tools, and personnel to open equipment, fixtures, boxes, panels, etc. to enable the Design Team representatives to observe any parts of the installation they may request.
3. The CONTRACTOR shall furnish meters for observation of readings as directed by the Design Team representative. Meters to be furnished include: clamp-on type ammeter, voltmeter, insulation resistance tester (i.e., often called a megger), and clamp-on type ground resistance tester.

M. Operating Instructions:

1. At the completion of the entire installation, the CONTRACTOR shall arrange to operate each component of systems and then systems as a whole. When all the requirements of the plans and specifications have been met, the CONTRACTOR shall then arrange to instruct the OWNER's operating and maintenance personnel in the correct and proper procedures for the operation and maintenance of the systems.

END OF SECTION 260000

SECTION 260500 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Supporting devices for electrical components.
2. Cutting and patching for electrical construction.
3. Touchup painting.
4. Concrete equipment bases.
5. Electrical demolition.

1.3 SUBMITTALS

A. Product Data:

1. Support channels and hardware.
2. For electricity-metering equipment.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORTING DEVICES

A. Metal Items Stainless steel.

B. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32 inch diameter holes at a maximum of 8 inch on center in at least one surface.

C. Slotted Support Systems Fittings and Accessories: Products of the same manufacturer as channels.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

E. Expansion Anchors: Stainless-steel wedge or sleeve type.

F. Toggle Bolts: Stainless-steel springhead type.

2.2 TOUCHUP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.

B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

2.3 CONCRETE BASES

A. Concrete: Unless detailed otherwise; 3000-psi, 28-day compressive strength with welded wire fabric reinforcement.

PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

A. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

B. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

3.2 ELECTRICAL SUPPORTING DEVICE APPLICATION

A. Selection of Supports: Comply with manufacturer's written instructions.

B. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four; minimum of 200-lb (90-kg) design load.

3.3 SUPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components.

B. Install individual and multiple raceway hangers and riser clamps to support raceways.

C. Support individual horizontal raceways with separate pipe hangers or clamps.

D. Spring-steel fasteners specifically designed for supporting single conduits or tubing may be used instead of hangers for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to slotted channel and angle supports.

E. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength.

F. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated. Perform fastening according to the following unless other fastening methods are indicated:

1. Wood: Fasten with wood screws or screw-type nails.
2. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
3. New Concrete: Concrete inserts with machine screws and bolts.
4. Existing Concrete: Expansion bolts.
5. Steel: Spring-tension clamps on steel.
6. Light Steel: Sheet-metal screws.
7. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger, in both directions, than supported unit. Follow supported equipment manufacturer's anchorage recommendations and setting templates for anchor-bolt and tie locations, unless otherwise indicated.

3.5 DEMOLITION

A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.

B. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.

C. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches (50 mm) below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.

D. Remove demolished material from Project site after coordination with the Owner’s representative. Equipment and/or materials that the Owner desires to retain shall be moved to a location designated by the Owner’s representative.

E. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

3.6 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work.

3.7 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up paint.

1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.
3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.8 CLEANING AND PROTECTION

A. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Final Acceptance.

END OF SECTION 260500

SECTION 260513 - MEDIUM-VOLTAGE CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cables.
2. Connectors.
3. Separable insulated connectors.

1.2 SUBMITTALS

A. Product Data: For each type of cable. Include terminations for cables and cable accessories.

B. Warranty.

1. Shop drawings with warranty information from the cable manufacturer, signed with corporate seal stating compliance with all provisions of 1.3.A and B below.

C. Manufacturer's Certified Test Report: From Contractor.

D. Contractor Qualifications: For personnel responsible for cable terminations.

1.3 INFORMATIONAL SUBMITTALS

A. Source quality-control reports. Upon request from the North Carolina State Construction Office, provide:

1. Manufacturer's Quality Assurance Program.
2. Manufacturer's ISO certification.
3. Qualification Test Report for the cable insulation system (conductor shield, insulation, and insulation shield).

B. Manufacturer's Factory Test Report.

1.4 Field quality-control reports.

1.5 WARRANTY

A. Warranty: Manufacturer and Installer agree to replace cable that fails in materials or workmanship within specified warranty period.

1. When the manufacturer and Owner mutually determine a cable is defective, the manufacturer shall furnish replacement cable at no cost to the Owner.
2. Replacement cable shall comply with these specifications.
3. Replacement cable shall be delivered to the project site at no cost to the Owner.
4. The warranty assumes the cable is installed, spliced, terminated, and maintained in accordance with manufacturer's recommendations.

5. Prior to cable termination or splicing, the contractor shall submit the qualifications of personnel directly responsible for completing this work to the engineer. Upon approval by the engineer, the contractor may proceed with this portion of work.

B. Warranty Period: 25 years from date of Final Acceptance.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Comply with IEEE C2 and NFPA 70.

B. Source Limitations:
  1. Obtain cables and accessories from single source from single manufacturer.
  2. Cables supplied must have been manufactured within 12 months of the date of order.

2.2 INSULATED CABLES

A. Manufacturers:
  1. General Cable (Prysmian).
  2. Kerite.
  3. Okonite.
  4. LS Cables.
  5. Or approved equal.

B. Cable Type: Type MV 105 (Class B).
  1. Soft drawn, concentric compact or compressed stranded copper, single conductor, shielded type.
  2. Suitable for installation in air, in conduit, or direct buried.

C. Cable shall operate at a normal continuous conductor temperature of 115degC, and emergency overload conductor temperature of 140degC, and a short circuit conductor temperature of 250degC.
  1. Voltage Rating: 5kV.
  2. Conductor Insulation: Ethylene-propylene rubber.
  3. Insulation Thickness: nominal 115 mils minimum for 133 percent insulation level.

D. Conductor: Copper.

E. Cables shall meet the following standards: UL 1072 (type MV-105), AEIC CS8, ICEA S-93-639, NEMA WC 74, ASTM B-496.

F. Cables shall pass the flame test in accordance with IEEE 1202, CSA FT4, and ICEA T-29-520.

G. Shielding**:** 5 mil metallic, uncoated copper tape helically applied over semiconducting insulation shield, 25% nominal overlap.

1. Conductor shall be shielded by one of the following process:
   a. True Triple Extrusion.
   b. True Triple Tandem Extrusion.
   c. Double extrusion

H. Cable Jacket: Moisture, oil, acid, alkali, and sunlight-resistant PVC compound.

1. Identification printed on the jacket shall include the manufacturer, plant number, cable size, year of manufacture, insulation thickness, insulation type, voltage rating, KV% insulation level and sequential footage number.

2.3 SOLID TERMINATIONS

A. Shielded-Cable Terminations: Comply with the following classes of IEEE 48. Insulation class shall be equivalent to that of cable. Include shield ground strap for shielded cable terminations.

2.4 SEPARABLE INSULATED CONNECTORS

A. Description: Modular system, complying with IEEE 386, with disconnecting, single-pole, cable terminators and with matching, stationary, plug-in, dead-front terminals designed for cable voltage and for sealing against moisture.

B. Terminations at Distribution Points: Modular type, consisting of terminators installed on cables and modular, dead-front, terminal junctions for interconnecting cables.

C. Load-Break Cable Terminators: Elbow-type units with 200 A load make/break and continuous-current rating; coordinated with insulation diameter, conductor size, and material of cable being terminated. Include test point on terminator body that is capacitance coupled.

D. Dead-Front Terminal Junctions: Modular bracket-mounted groups of dead-front stationary terminals that mate and match with above cable terminators. Two-, three-, or four-terminal units as indicated, with fully rated, insulated, watertight conductor connection between terminals and complete with grounding lug, manufacturer's standard accessory stands, stainless steel mounting brackets, and attaching hardware.

1. Protective Cap: Insulating, electrostatic-shielding, water-sealing cap with drain wire.
2. Portable Feed-Through Accessory: Two-terminal, dead-front junction arranged for removable mounting on accessory stand of stationary terminal junction.
3. Grounding Kit: Jumpered elbows, portable feed-through accessory units, protective caps, test rods suitable for concurrently grounding three phases of feeders, and carrying case.
4. Standoff Insulator: Portable, single dead-front terminal for removable mounting on accessory stand of stationary terminal junction. Insulators suitable for fully insulated isolation of energized cable-elbow terminator.

2.5 UNINSULATED CABLES

A. Conductor Type ACSR: Bare, aluminum conductor, steel reinforced, complying with ASTM B232/B232M for overhead power distribution.

2.6 FUSES

A. Fuse for Fuse Cutouts: Enclosed link, complying with ANSI C37.42. Match existing type and amperage rating for replacement fuses.

2.7 HARDWARE AND ACCESSORIES

A. Insulators for Overhead Circuitry: Porcelain, wet process type, complying with the following:
   1. Pin: ANSI C29.5.
   2. Line Post: ANSI C29.7. Include mounting stud of length suitable for each mounting arrangement used.
   3. Suspension: ANSI C29.2.
   4. Guy Strain: ANSI C29.4.
   5. Secondary Spool: ANSI C29.3, Class 53-2.

B. Grounding Materials: Comply with Section 260526 "Grounding and Bonding," using materials listed by RUS for the intended purpose without restriction.

   1. Conductors: 4 AWG, minimum; bare, solid, annealed copper, complying with ASTM B8 unless otherwise indicated.
   2. Ground Conductor Protectors: PVC.

PART 3 - EXECUTION

3.1 MANUFACTURERS FACTORY TESTS

A. High voltage (AC) test.

B. Corona test.

C. Manufacturer’s test reports shall be included in closeout documents provided to the owner.

3.2 HANDLING and STORAGE

A. Cable ends shall be sealed to prevent the entrance of moisture, gases, or vapors into the cable. After cutting of any length, the exposed ends of remaining cable on the reel shall have heat-shrinkable end caps applied to prevent the entrance of water or vapor.

B. Completed reels of cable shall be covered with a suitable material to reduce the impact of weather, rain, or sunlight on the cable. Reels under the covering should have adequate ventilation to prevent the formation of condensation.

C. Each reel shall have an identification tag by the manufacturer securely attached to each flange and shall contain the following information: manufacturer’s name & location, cable trade name, conductors size and voltage rating, identification of insulation and jacket material, date of manufacture, footage, and North Carolina Building Code Council approved third-party label.

D. The manufacturer shall ship all reels in an upright position on the flanges.

E. The manufacturer shall be responsible to indicate to any commercial carrier requirements for shipping the reels of cable.

F. The Contractor shall be responsible for the acceptance inspection of the shipped cable reels. The Contractor shall note and inform the carrier of any visible damage on arrival, any unacceptable orientation, or any unacceptable condition. The Contractor shall immediately inform the Engineer, distributor, and manufacturer of such damage or unacceptable condition.

G. Any movement or lifting of completed reels of cable shall use a bar inserted through the arbor hole in the cable reel and, as appropriate or necessary, use of a spreader bar to avoid damage to the reel flanges. No completed reel of cable shall be lifted by any force on or connection directly to the reel drum.

3.3 INSTALLATION

A. Install cables according to IEEE 576.

B. Receive, install, terminate, and maintain cables in accordance with the manufacturer’s recommendations.

C. Proof conduits prior to conductor installation by passing a wire brush mandrel and then a rubber duct swab through the conduit. Separate the wire brush and the rubber swab by 48 to 72 inch on the pull rope.

D. Pull Conductors: Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

1. Where necessary, use manufacturer-approved pulling compound or lubricant that does not deteriorate conductor or insulation.
2. Use pulling means, including fish tape, cable, rope, and basket-weave cable grips, that do not damage cables and raceways. Do not use rope hitches for pulling attachment to cable.
3. Use pull-in guides, cable feeders, and draw-in protectors as required to protect cables during installation.
4. Do not pull cables with ends unsealed. Seal cable ends with rubber tape.

E. Install "buried-cable" warning tape 12 inches above cables.

F. In junction boxes and cable vaults, train cables around walls by the longest route from entry to exit; support cables at intervals adequate to prevent sag.

G. Install sufficient cable length to remove cable ends under pulling grips. Remove length of conductor damaged during pulling.

H. Install terminations at ends of conductors.

I. Install separable insulated-connector components as follows:

1. Protective Cap: At each terminal junction, with one on each terminal to which no feeder is indicated to be connected.
2. Standoff Insulator: At each terminal junction, with one on each terminal.

J. Ground shields of shielded cable at terminations and separable insulated connectors. Ground metal bodies of terminators, cable and separable insulated-connector fittings, and hardware.

K. Identify cables according to Section 260553 "Electrical Identification" Identify phase of each conductor at each termination, pull point, and junction box. Arrange identification so that it is unnecessary to move the cable or conductor to read the identification.

L. Wood Poles:
1. Make pole holes vertical, uniform in diameter, and large enough to permit effective use of tamping bars all around. Bore or excavate holes with an average diameter at grade less than twice the diameter of the pole at the same grade.
2. Use minimum depths indicated and backfill holes in 6 inch maximum lifts, and thoroughly tamp each layer before starting the next.
3. Place surplus earth around pole in a conical shape, and tamp thoroughly to provide drainage away from pole.
4. Hardware and Accessories:
    a. Install washers against wood and under nuts, including eyenuts and locknuts. Install nuts and locknuts wrench-tight on threaded connections.
    b. Medium-Voltage Line Insulators: Install horizontal line-post insulators for armless construction.

3.4 FIELD QUALITY CONTROL

A. Tests and Inspections:
1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS. Certify compliance with test parameters.
2. Prior to energizing the system, contractor shall perform a very low frequency tangent delta withstand test in accordance with IEEE 400. Copies of this test report shall be sent to the owner, engineer, and available at beneficial or final inspection by the State Construction Office. Include the test report in the Operations and Maintenance Manual for owner’s future reference.
3. After installing medium-voltage cables and before electrical circuitry has been energized, test for compliance with requirements.
4. Perform direct-current High Potential test of each new conductor according to NETA ATS, Ch. 7.3.3. Do not exceed cable manufacturer's recommended maximum test voltage.

B. Medium-voltage cables will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 260513

SECTION 260519 - CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Field Quality-Control Test Reports: From Contractor.

PART 2 - PRODUCTS

2.1 POWER CONDUCTORS AND CABLES

A. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.

B. Conductor Material:

1. Copper complying with NEMA WC70 / ICEA S-95-658 solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.

C. Conductor Insulation Types: Type THHN/THWN-2 complying with NEMA WC70 / ICEA S-95-658.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

1. For conductors #8 & smaller, use wire-nut type twist connectors.
2. For conductors #6 & larger, use pre-insulated solderless connectors with one spare port for future cable connection.

PART 3 - EXECUTION

3.1 CONDUCTOR AND INSULATION APPLICATIONS

A. Feeders: Type THHN/THWN-2, single conductors in raceway.

3.2 INSTALLATION

A. Use manufacturer-approved pulling compound or lubricant where necessary. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

B. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables, conductors, or raceway.

C. Identify and color-code conductors and cables according to Section "Electrical Identification”.

3.3 CONNECTIONS

A. Connect equipment to wiring systems and to ground. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B. Where tightening torque is indicated as a numeric value on equipment or in installation instructions provided by the manufacturer, a calibrated torque tool shall be used to achieve that indicated torque value, unless the equipment manufacturer has provided installation instructions for an alternative method of achieving required torque.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

3.4 FIELD QUALITY CONTROL

A. Testing: Perform the following field quality-control testing:

1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.
2. Inspect for physical damage. Test conductors and cable for continuity and shorts.
3. Insulation Resistance (Megger) testing for building wire and cable:
    a. All current carrying phase conductors and neutrals shall be tested before connections are made, for insulation resistance and accidental grounds. This shall be done with a 500-Volt insulation resistance tester. Insulation resistance testers shall not be electronic type. Insulation resistance testers shall be hand crank or power-driven crank type. Minimum readings between conductors and between conductor and the grounded metal raceway shall be: 25 mega-ohms for #6 wire and smaller; 50 mega-ohms for #4 wire or larger.
    b. The CONTRACTOR shall correct malfunctioning conductors and cables, including replacement if necessary, and retest to demonstrate compliance.
    c. Certify compliance with test parameters.

B. Test Reports: Prepare a written report to record the following:

1. Test procedures used.
2. Test results that comply with requirements.

3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
4. Provide tabulated insulation resistance readings for each panel circuit.

C. Witness Tests:

1. The CONTRACTOR shall furnish an insulation resistance tester and show Design Team representative and/or Owner that the conductors comply with the specified requirements.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Ground rods.
2. Connection / test / inspection wells.

B. Field Test Reports: Submit written test reports to include the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.4 QUALITY ASSURANCE

A. Comply with UL 467.

PART 2 - PRODUCTS

2.1 GROUNDING CONDUCTORS

A. For insulated conductors, comply with Section "Conductors and Cables."

B. Grounding Electrode Conductors: Stranded cable.

C. Bare Copper Conductors: Comply with the following:

1. Solid Conductors: ASTM B 3.
2. Assembly of Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.

2.2 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.

C. Welded Connectors: Exothermic-welded type, in kit form, and selected per manufacturer's written instructions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Sectional type; copper-clad steel, ¾” diameter by 120 inches in length.

B. Connection / Test / Inspection Wells: Provide handholes as specified below:

1. Cylinder, minimum dimensions of 10" diameter x 10" deep, PVC, with cover.
2. Box, minimum dimensions of 12" x 12" x 12" deep with cover, green PVC or polyethylene.

PART 3 - EXECUTION

3.1 APPLICATION

A. In raceways, use insulated equipment grounding conductors.

B. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

C. Underground Grounding Conductors: Use bare, tinned, stranded-copper conductors. Bury a minimum of 24 inches below grade or bury 12 inches above duct bank when installed as part of a duct bank.

3.2 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

B. Install equipment grounding conductors in all feeders and circuits.

3.3 INSTALLATION

A. Ground Rods:

1. Drive ground rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.
2. Interconnect ground rods with grounding electrode conductors. Use exothermic welds for connections to ground rods. Make connections without exposing the ground rod steel.

B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

C. Where grounding electrode conductors are installed in metal conduit, bond metal conduit to conductor at each end with a grounding bushing.

D. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to NFPA 70, Paragraph 250.52(A)(3), using a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG. If using structure concrete foundation, and it is less than 20 feet long, coil excess conductor within the base of the foundation. Bond conductor to reinforcing steel. Extend grounding conductor below grade and connect to building grounding ring or to a grounding electrode external to concrete.

3.4 CONNECTIONS

A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
2. Make connections with clean, bare metal at points of contact.
3. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

3.5 UNDERGROUND DISTRIBUTION SYSTEM GROUNDING

A. Pad-Mounted Transformers and Switches: Install two ground rods and ground ring circling pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Use tinned-copper conductor as indicated or not less than No. 2 AWG for ground ring and for taps to equipment ground connection. Bury ground ring not less than 18 inches below grade and 6 inches from the foundation.

3.6 FIELD QUALITY CONTROL

A. Testing: Perform the following field quality-control testing:

1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.
2. Test completed grounding system at service disconnect enclosure grounding terminal or main ground bar, at ground test wells, and at any other location where a maximum ground-resistance level is specified. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any

means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

a. Perform tests by the fall-of-potential method according to IEEE 81; or
b. Perform tests with a clamp-on ground tester.

3. Maximum grounding electrode system resistance values:

a. Equipment Rated 500 kVA and Less: 10 ohms.
b. Equipment Rated 500 to 1000 kVA: 5 ohms.
c. Equipment Rated More Than 1000 kVA: 3 ohms.
d. Substations and Pad-Mounted Switching Equipment: 5 ohms.
e. Manhole Grounds: 10 ohms.

4. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and take corrective action to reduce ground resistance to comply with specified values. Demonstrate compliance by retesting.
5. Provide drawings locating each ground rod, ground rod assembly, and other grounding electrodes. identify each location by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

END OF SECTION 260526

SECTION 260533 - RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

B. Related Sections include the following:

1. Section "Basic Electrical Materials and Methods" for supports, anchors, and identification products.

1.3 DEFINITIONS

A. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

A. Product Data: For raceways and fittings.

1.5 FIELD CONDITIONS

A. Ground Water: Assume ground-water level is at grade level.

PART 2 - PRODUCTS

2.1 METALLIC CONDUIT

A. Rigid Aluminum Conduit: Produced to ANSI C80.5; listed to UL 6A.

B. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

2.2 NONMETALLIC CONDUIT AND TUBING

A. RNC: Produced to NEMA TC 2; listed to UL 651.

1. Schedule 40 and Schedule 80 PVC.

B. RNC Fittings: Produced to NEMA TC 3; listed to UL 514B; match to conduit or tubing type and material.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors:

1. Exposed: Rigid aluminum conduit.
2. Concealed: Rigid aluminum conduit.
3. Underground:
    a. Where trenched: RNC.
    b. Where bored: RNC Schedule 80.
4. For grounding electrode conductors: RNC Schedule 80.
5. Boxes and Enclosures: NEMA 250, Type 4X aluminum.

B. Do not install aluminum conduits embedded in or in contact with earth or concrete. For direct burial or concrete encasement or penetrations, coat conduit with asphaltum or bituminous type coating.

3.2 INSTALLATION

A. Complete raceway installation before starting conductor installation.

B. Support raceways as specified in Section "Basic Electrical Materials and Methods."

C. Install temporary closures to prevent foreign matter from entering raceways.

D. Protect stub-ups from damage where conduits rise through floor grade. Arrange so curved portions of bends are not visible above the finished slab.

E. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.

F. Join raceways with fittings designed and approved for that purpose and make joints tight.

G. Raceway connectors shall be insulated throat type. If uninsulated throat connectors are installed, use insulating bushings to protect conductors.

H. Underground raceways:

1. Where turning up to cabinets, equipment, etc.; use PVC.
2. Where turning up to poles, where exposed, etc.; transition from horizontal underground PVC to rigid metal for elbows & raceway stub-ups, unless detailed otherwise. The rigid metal transition underground shall include a minimum horizontal section of 24” in length.
3. With the exception of branch circuits, trenched raceways run external to building foundation walls, shall be encased with a minimum of three (3”) inches of concrete on all sides.
4. Encased raceways containing circuits with voltages 600 Volts and less shall have a minimum cover of eighteen (18”) inches.
5. Encased raceways containing circuits with voltages above 600 Volts shall have a minimum cover of thirty (30”) inches.

I. Terminations:

1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
3. Where using boxes with concentric, eccentric, or over-sized knockouts; provide bonding bushings and jumpers. Size bonding jumpers in accordance with NEC Table 250-122, connecting to the box with ground lugs.

J. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Label each end of pull wires with location of opposite end.

3.3 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings and finishes are without damage or deterioration at time of Final Acceptance.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.4 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

3.5 GRADING AND PLANTING

A. Restore surface features at areas disturbed by work of this Section for the installation of underground circuitry. Reestablish original grades, unless otherwise indicated. Restore areas disturbed by trenching, storing of dirt, cable laying, and other activities to their original condition. Maintain restored surfaces. Restore disturbed paving to match existing adjacent paving or as indicated.

END OF SECTION 260533

SECTION 260553 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes electrical identification materials and devices intended to comply with NFPA 70, OSHA standards, and authorities having jurisdiction.

1.3 SUBMITTALS

A. Product Data:

1. For each electrical identification product indicated.
2. For double coated, adhesive tape product indicated.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70 for color-coding.

PART 2 - PRODUCTS

2.1 CABLE LABELS

A. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches.

B. Underground-Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape.

1. Not less than 6 inches wide by 4 mils thick.
2. Compounded for permanent direct-burial service.
3. Embedded continuous metallic strip or core.
4. Printed legend indicating type of underground line.

2.2 NAMEPLATES AND SIGNS

A. Engraved Plastic Nameplates and Signs: Engraving stock, plastic laminate, minimum 1/16” thick for signs up to 20 sq. in. and 1/8” thick for larger sizes.

B. Fasteners for Nameplates and Signs:

1. Two-part epoxy adhesive.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding designations in the Contract Documents or with those required by codes and standards. Use consistent designations throughout Project.

C. Sequence of Work: If identification is applied to surfaces that require finish, install identification after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before applying.

E. Circuit Identification Labels on Boxes: Panel and circuit number.

1. Exterior Boxes:
    a. Engraved plastic label on cover; and
    b. Pressure-sensitive, self-adhesive plastic label inside cover.

F. Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines; install continuous underground-line warning tape located directly above line at 6 to 8 inches below finished grade. Where width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches overall, use a single line marker. Install line marker for underground wiring, both direct-buried cables and cables in raceway.

G. Color-Coding of Phase, Neutral, and Ground Conductors: Use the following colors for service, feeder, and branch-circuit phase conductors:

1.

Configuration	Phase A	Phase B	Phase C	Neutral	Ground
120/240-V, 1 Ph, 3W	Black	Red	N/A	White	Green
120/240-V, 3 Ph, 4W	Black	Orange	Blue	White	Green
120/208-V, 3 Ph, 4W	Black	Red	Blue	White	Green
277/480-V, 3 Ph, 4W	Brown	Orange	Yellow	Gray	Green

2. For conductors #6 AWG and smaller, factory apply color the entire length of conductors.
3. For conductors #4 AWG and larger, field apply colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use 1-inch-wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
4. At each panelboard, a color code legend shall be permanently posted corresponding to the conductors and voltage in that panelboard.

H. Medium and High Voltage Power-Circuit Identification: Metal tags or aluminum, wraparound marker bands for cables, feeders, and power circuits in vaults, pull and junction boxes, manholes, and switchboard rooms.

1. Legend: 1/4-inch- steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
2. Tag Fasteners: Nylon cable ties.
3. Band Fasteners: Integral ears.

I. Equipment Identification Labels: Engraved plastic laminate. Install on each unit of equipment. For exterior and wet location labels, use two-part epoxy adhesive. Apply labels for each unit of the following categories of equipment:

1. Pad mounted switches.
2. Transformers.

Nameplate colors shall be:

1. Blue surface with white core for 208/120-V or 120/240-V equipment.
2. Black surface with white core for 480/277-V equipment.
3. White surface with black core for 4160V equipment.

END OF SECTION 260553

SECTION 261217 - PAD-MOUNTED, LOAD-BREAK JUNCTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pad-mounted, load-break junctions.

1.2 DEFINITIONS

A. Bushing: An insulating structure including a central conductor, or providing a central passage for a conductor, with provision for mounting on a barrier, conducting or otherwise, for the purpose of insulating the conductor from the barrier and conducting current from one side of the barrier to the other.

B. Bushing Elbow: An insulated device used to connect insulated conductors to separable insulated connectors on dead-front, pad-mounted transformers and to provide a fully insulated connection. This is also called an elbow connector.

C. Bushing Insert: That component of a separable insulated connector that is inserted into a bushing well to complete a dead-front, load break or nonload break, separable insulated connector (bushing).

D. Bushing Well: A component of a separable insulated connector, either permanently welded or clamped to an enclosure wall or barrier, having a cavity that receives a replaceable component (bushing insert) to complete the separable insulated connector (bushing).

E. Elbow Connector: See "bushing elbow" above.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Include rated capacities, operating characteristics, and furnished specialties and accessories.

B. Shop Drawings:

1. For pad-mounted, load-break switches.
   a. Include plans and elevations showing major components and features.
      1) Include plan view and cross section of equipment base, showing clearances, required workspace, and locations of penetrations for grounding and conduits.
   b. Include details of equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of field connections.

1.4 CLOSEOUT SUBMITTALS

A. Operations and Maintenance Manual
   1. Manufacturer data as specified in section Electrical, Basics.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Comply with:
   1. IEEE C2, National Electrical Safety Code.
   2. IEEE Std. 386 for Separable Connectors.
   3. IEEE Std. 592 for Exposed Semi-conducting Shields.
   4. ANSI Std. C119.4 for Electrical Connectors.

2.2 PAD-MOUNTED LOAD-BREAK JUNCTIONS

A. Manufacturers:
   1. ABB.
   2. Eaton.
   3. Hammond.
   4. Schneider.
   5. Siemens.
   6. Pre-approved equivalents.

B. Description: Pad-mounted enclosure with load-break junctions to establish a tap point.

C. Compartment Construction:
   1. Single compartment, clamshell style, with provision for padlocking hinged cover and single-point latching.
   2. Fiberglass construction with marine-grade UV stabilized gel coat finish, green.

D. Load-Break Junctions.
   1. Three load-break interfaces per phase. Each interface shall be internally bussed with continuous copper allow.
   2. To connect cables, use separable insulated connectors; coordinated with and complying with requirements of Section 260513 "Medium-Voltage Cables." Bushings shall be one-piece units, with ampere and BIL ratings same as connectors.
   3. Bushing inserts:
      a. Conform to requirements of IEEE 386.
      b. Rated at 200 A, with voltage class matching connectors.
   4. Adjustable stainless steel mounting brackets for mounting at various angles. Provide parking stands near bushing wells. Parking stands must be with insulated standoff bushings for parking of energized load-break elbow connectors on parking stands.

E. Capacities and Characteristics:

1. Continuous Amperage Rating: 200A.
2. Standard Voltage Class: 15 kV.

F. Ground Bar: Copper; sufficient for termination of all cable shield grounds, ground rod grounding electrode conductors, and equipment ground conductors.

2.3 WARNING LABELS AND SIGNS

A. Comply with requirements for labels and signs specified in Section 260553 " Electrical Identification."

1. High-Voltage Warning Label: Provide self-adhesive warning signs on outside of line-side compartment door(s). Sign legend must be "DANGER HIGH VOLTAGE" printed in two lines of nominal 2 inch high letters. Word "DANGER" must be in white letters on red background and words "HIGH VOLTAGE" must be in black letters on white background.
2. Arc Flash Warning Label: Provide self-adhesive warning signs on outside of line-side compartment door(s), warning of potential electrical arc flash hazards and appropriate personal protective equipment required.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine pad-mounted, load-break junctions upon delivery.

1. Upon delivery and prior to unloading, inspect equipment for damage that may have occurred during shipment or storage.
2. Verify that there is no indication of external damage.

B. Examine roughing-in of conduits and grounding systems to verify the following:

1. Wiring entries comply with layout requirements.
2. Entries are within conduit-entry tolerances specified by manufacturer, and no feeders will cross section barriers to reach load or line lugs.

C. Examine concrete bases for suitable conditions for junction installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install load-break junctions on cast-in-place concrete equipment base.

B. Enclosure must be installed level and plumb and must tilt less than 1.5 degrees while energized.

C. Maintain minimum clearances and workspace at equipment in accordance with manufacturer's published instructions and IEEE C2.

3.3 CONNECTIONS

A. Ground equipment in accordance with Section 260526 "Grounding and Bonding."

1. Make joints in grounding conductors and loops by exothermic weld.
2. Terminate grounding and bonding conductors on common equipment grounding terminal in junction enclosure.

B. Terminate medium-voltage cables in load-break junctions in accordance with Section 260513 "Medium-Voltage Cables."

3.4 SIGNS AND LABELS

A. Comply with installation requirements for labels and signs specified in Section 260553 "Electrical Identification."

B. Install warning signs as required to comply with 29 CFR 1910.269.

3.5 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. General Field-Testing Requirements:
   a. Comply with provisions of "Testing and Test Methods" Chapter in NFPA 70B.
   b. Perform visual and mechanical inspections and electrical tests. Certify compliance with test parameters.
   c. Visual and Mechanical Inspection:
      1) Inspect bolted electrical connections for high resistance using one of the following two methods:
         a) Use low-resistance ohmmeter to compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of lowest value.
         b) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS, Table 100.12. Bolt-torque levels must be in accordance with manufacturer's published data. In absence of manufacturer's published data, use NETA ATS, Table 100.12.
         c) ata, use NETA ATS, Table 100.12.

B. Nonconforming Work:

1. Equipment and devices will be considered defective if they do not pass tests and inspections.
2. Remove and replace malfunctioning units and retest.

END OF SECTION 261217

SECTION 261219 - PAD-MOUNTED, LIQUID-FILLED, MEDIUM-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pad-mounted, liquid-filled, medium-voltage distribution transformers,.

1.2 DEFINITIONS

A. Bushing: An insulating structure including a central conductor, or providing a central passage for a conductor, with provision for mounting on a barrier, conducting or otherwise, for the purpose of insulating the conductor from the barrier and conducting current from one side of the barrier to the other.

B. Bushing Elbow: An insulated device used to connect insulated conductors to separable insulated connectors on dead-front, pad-mounted transformers and to provide a fully insulated connection. This is also called an elbow connector.

C. Bushing Insert: That component of a separable insulated connector that is inserted into a bushing well to complete a dead-front, load break or nonload break, separable insulated connector (bushing).

D. Bushing Well: A component of a separable insulated connector, either permanently welded or clamped to an enclosure wall or barrier, having a cavity that receives a replaceable component (bushing insert) to complete the separable insulated connector (bushing).

E. Elbow Connector: See "bushing elbow" above.

1.3 ACTION SUBMITTALS

A. Product Data:
1. Include rated capacities, operating characteristics, and furnished specialties and accessories.

B. Shop Drawings:

1. For pad-mounted, liquid-filled, medium-voltage transformers.
   a. Include plans and elevations showing major components and features.
      1) Include plan view and cross section of equipment base, showing clearances, required workspace, and locations of penetrations for grounding and conduits.
   b. Include details of equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of field connections.
   c. Include nameplate data.

d. Manufacturer's published time-current curves of transformer line-side fuses, with transformer damage curve, inrush curve, and thru fault current indicated.

1.4 CLOSEOUT SUBMITTALS

A. Operations and Maintenance Manual
   1. Manufacturer data as specified in section Electrical, Basics.
   2. Construction Checklist: Provided and completed by manufacturer's representative for commissioning of the equipment installation.
   3. Commissioning documentation required by ANSI/NETA ECS-2015, Standard for Electrical Commissioning Specifications for Electrical Power Equipment and Systems.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Comply with:
   1. IEEE C2, National Electrical Safety Code.
   2. IEEE C57.12.00, Standard General Requirements for Liquid Immersed Distribution, Power, and Regulating Transformers.
   3. IEEE C57.12.10, Standard Requirements for Liquid Immersed Transformers.
   4. IEEE C57.12.28, Switchgear and Transformers, Pad-Mounted Equipment – Enclosure Integrity.
   5. IEEE C57.12.70, Standard for Standard Terminal Markings and Connections for Distribution and Power Transformers.
   6. IEEE C57.12.90, Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers.

2.2 PERFORMANCE REQUIREMENTS

A. Windings Material: Copper.

B. Surge Arresters: Comply with IEEE C62.11, Distribution Class; metal-oxide-varistor type, fully shielded, separable-elbow type, suitable for plugging into inserts provided in line-side section of transformer. Connected in each phase of incoming circuit and ahead of disconnecting device.

C. Winding Connections: Connection of windings and terminal markings must comply with IEEE C57.12.70.

D. Efficiency: Comply with 10 CFR 431, Subpart K.

E. Insulation: Transformer kVA rating must be as follows: Average winding temperature rise above 30 deg C ambient temperature must not exceed 65 deg C hottest-spot temperature rise at rated kVA when tested in accordance with IEEE C57.12.90, using combination of connections and taps that give highest average winding temperature rise.

F. Tank: Sealed. Designed to withstand internal pressure of not less than 7 psi without permanent distortion and 15 psig without rupture. Comply with IEEE C57.12.26.

1. A removable main cover shall be provided over a bolted-on, tamperproof handhold. Handholds shall be provided for access to high voltage isolation links, three-phase switches, neutral connections, etc. The high and low voltage compartments shall be located side by side, separated by a steel barrier. When facing the transformer, the low voltage compartments shall be on the right. Terminal compartments shall be full height, air-filled, with individual doors. The high voltage door fastenings shall not be accessible until the low voltage door has been opened.
2. Transformer tank grounding provisions shall be in accordance with ANSI standards. The grounding provisions shall be capped before painting the unit.

G. Enclosure Integrity: Comply with IEEE C57.12.28 for pad-mounted enclosures that contain energized electrical equipment in excess of 600 V. Utilize tamper resistant hardware.

H. Mounting: Integral skid mounting frame, suitable to allow skidding or rolling of transformer in any direction, and with provision for anchoring frame to pad.

I. Insulating Liquids:

1. Less-Flammable Liquids:
   a. Biodegradable and nontoxic dielectric.
   b. UL or FM listed and labeled in accordance with North Carolina Building Code Council for installation requirements per NEC 450.23.
   c. “R-temp”, Biotemp, or FR3 with a fire point of not less than 300 deg C when tested according to ASTM D92.

J. Corrosion Protection:

1. Transformer coating system must be factory applied, complying with requirements of IEEE C57.12.28 in manufacturer's standard color green

2.3 SINGLE-PHASE, PAD-MOUNTED TRANSFORMERS

A. Manufacturers:

1. ABB.
2. Eaton.
3. Hammond.
4. Schneider.
5. Siemens.
6. Pre-approved equivalents.

B. Description: Less-flammable-liquid-filled insulated, two-winding, 60 Hz, 65 deg C rise above 30 deg C average ambient, self-cooled transformer.

1. Comply with IEEE C57.12.25, Standard for Pad-Mounted, Compartmental-Type, Self-Cooled, Single-Phase Distribution Transformers with Separable Insulated High-Voltage Connectors; High Voltage, 34500 GrdY/19920 Volts and Below, Low Voltage, 240/120 Volts; 167 kVA and Smaller – Requirements.

C. Compartment Construction:

1. Single compartment for line- and load-side sections, clamshell style, with provision for padlocking hinged cover and single-point latching.
2. Individual compartments for line- and load-side sections, formed by steel isolating barriers that extend full height and depth of compartments. With hinged, lift-off doors, with stop in open position, three-point latching, and provision for padlocking.

D. Primary Fusing: Designed and rated to provide thermal protection of transformer by sensing overcurrent and high liquid temperature.

1. 150 kV BIL current-limiting fuses, conforming to requirements of IEEE C37.47.
2. Interrupting Rating: 50 000 A(rms sym) at system voltage.
3. Fuse Assembly: Bayonet-type, liquid-immersed, expulsion fuses in series with liquid-immersed, partial-range, current-limiting fuses. Bayonet fuse must sense both high currents and high oil temperatures to provide transformer with thermal protection.
4. Provide bayonet fuse assembly with oil retention valve and external drip shield inside housing to eliminate or minimize oil spills. Valve must close when fuse holder is removed.
5. Provide conspicuously displayed warning adjacent to bayonet fuse(s), cautioning against removing or inserting fuses unless transformer has been de-energized and tank pressure has been released.

E. Line-Side Section: Dead-front design.

1. To connect primary cable, use separable insulated connectors; coordinated with and complying with requirements of Section 260513 "Medium-Voltage Cables." Bushings must be one-piece units, with ampere and BIL ratings same as connectors.
2. Radial feed configuration with one high voltage bushing well and one load-break feed-thru insert per phase shall be provided to permit operating a loop feed dead front transformer from a looped primary cable system.
3. Bushing inserts:
   a. Conform to requirements of IEEE 386.
   b. Rated at 200 A, with voltage class matching connectors. Provide parking stand near bushing wells. Parking stands must be with insulated standoff bushings for parking of energized load-break elbow connectors on parking stands.
   c. Provide insulated protective caps for insulating and sealing out moisture from unused bushing inserts and insulated standoff bushings.
4. Access to liquid-immersed fuses.
5. Dead-front surge arrester(s).
6. Tap-changer operator.
7. Ground pad.

F. Load-Side Section:

1. Bushings with spade terminals drilled for terminating number of conductors indicated on Drawings, and lugs that comply with existing conductor requirements.

G. .Capacities and Characteristics:

1. Power Rating: 37.5 kVA.
2. Voltage Ratings: 4160V - 240/120 V.

3. Taps: Two 2.5 percent, full-capacity taps below rated primary voltage & two 2.5 percent, full capacity taps above rated primary voltage. The tap changer shall be externally hook stick operated and located in the high voltage compartment. The tap changer shall be designed and marked for de-energized operation.
4. Minimum Tested Impedance (Percent) at 85 deg C: 2.1% (37.5 kVA).

H. Transformer Accessories:

1. Drain and filter connection.
2. Filling and top filter press connections.
3. Pressure-vacuum gauge.
4. Dial-type analog thermometer.
5. Magnetic liquid level indicator.
6. Automatically resetting pressure-relief device. Device flow must be as recommended by manufacturer.
7. Lifting, pulling, and jacking provisions.
8. Machine-engraved nameplate made of anodized aluminum or stainless steel.

2.4 WARNING LABELS AND SIGNS

A. Comply with requirements for labels and signs specified in Section 260553 " Electrical Identification."

1. High-Voltage Warning Label: Provide self-adhesive warning signs on outside of line-side compartment door(s). Sign legend must be "DANGER HIGH VOLTAGE" printed in two lines of nominal 2 inch high letters. Word "DANGER" must be in white letters on red background and words "HIGH VOLTAGE" must be in black letters on white background.
2. Arc Flash Warning Label: Provide self-adhesive warning signs on outside of line-side compartment door(s), warning of potential electrical arc flash hazards and appropriate personal protective equipment required.

2.5 SOURCE QUALITY CONTROL

A. Testing: Test and inspect transformer in accordance with IEEE C57.12.90.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine pad-mounted, liquid-filled, medium-voltage transformers upon delivery.

1. Upon delivery of transformers and prior to unloading, inspect equipment for damage that may have occurred during shipment or storage.
2. Verify that tie rods and chains are undamaged and tight, and that blocking and bracing is tight. Verify that there is no evidence of load shifting in transit, and that readings from transportation shock recorders, if equipped, are within manufacturer's recommendations.
3. Verify that there is no indication of external damage and no dents or scratches in doors and sill, tank walls, radiators and fins, or termination provisions.

4. Verify that there is no evidence of insulating-liquid leakage on transformer surfaces, at weld seams, on line- or load-side bushing parts, and at transformer base.
5. Verify that there is positive pressure or vacuum on tank. Check pressure gauge; it is required to read other than zero.
6. Compare transformers and accessories received with bill of materials to verify that shipment is complete. Verify that transformers and accessories conform with manufacturer's quotation and shop drawings. If shipment is incomplete or does not comply with Project requirements, notify manufacturer in writing immediately.
7. Unload transformers carefully, observing packing label warnings and handling instructions.
8. Open termination compartment doors and inspect components for damage or displaced parts, loose or broken connections, cracked or chipped insulators, bent mounting flanges, dirt or foreign material, and water or moisture.

B. Handling:

1. Handle transformers carefully, in accordance with manufacturer recommendations, to avoid damage to enclosure, termination compartments, base, frame, tank, and internal components. Do not subject transformers to impact, jolting, jarring, or rough handling.
2. Protect transformer termination compartments against entrance of dust, rain, and snow.
3. Transport transformers upright, to avoid internal stresses on core and coil mounting assembly and to prevent trapping air in windings. Do not tilt or tip transformers.
4. Verify that transformer weights are within rated capacity of handling equipment.
5. Use only manufacturer-recommended points for lifting, jacking, and pulling. Use lifting lugs when lifting transformers.
6. Use jacks only at corners of tank base plate.
7. Use nylon straps of same length to balance and distribute weight when handling transformers with crane.
8. Use spreaders or lifting beam to obtain vertical lift and to protect transformer from straps bearing against enclosure. Lifting cable pull angles may not be greater than 15 degrees from vertical.
9. Exercise care not to damage tank base structure when handling transformer using skids or rollers. Use skids to distribute stresses over tank base when using rollers under large transformers.

C. Storage:

1. Store transformers in accordance with manufacturer's recommendations.
2. Transformers may be stored outdoors. If possible, store transformers at final installation locations on concrete pads. If dry concrete surfaces are unavailable, use pallets of adequate strength to protect transformers from direct contact with ground. Ensure transformer is level.
3. Ensure that transformer storage location is clean and protected from severe conditions. Protect transformers from dirt, water, contamination, and physical damage. Do not store transformers in presence of corrosive or explosive gases. Protect transformers from weather when stored for more than three months.
4. . Protect transformers from weather when stored for more than three months.
5. Store transformers with compartment doors closed.
6. Regularly inspect transformers while in storage and maintain documentation of storage conditions, noting discrepancies or adverse conditions. Verify that effective pressure seal

is maintained using pressure gauges. Visually check for insulating-liquid leaks and rust spots.

D. Examine roughing-in of conduits and grounding systems to verify the following:

1. Wiring entries comply with layout requirements.
2. Entries are within conduit-entry tolerances specified by manufacturer, and no feeders will cross section barriers to reach load or line lugs.

E. Examine concrete bases for suitable conditions for transformer installation.

F. Pre-Installation Checks:

1. Verify removal of shipping bracing after placement.

G. Verify that ground connections are in place and that requirements in Section 260526 "Grounding and Bonding " have been met. Maximum ground resistance must be 5 Ω at transformer location.

H. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install transformers on cast-in-place concrete equipment base.

B. Transformer must be installed level and plumb and must tilt less than 1.5 degrees while energized.

C. Maintain minimum clearances and workspace at equipment in accordance with manufacturer's published instructions and IEEE C2.

3.3 CONNECTIONS

A. Ground equipment in accordance with Section 260526 "Grounding and Bonding."

1. Make joints in grounding conductors and loops by exothermic weld.
2. Terminate grounding and bonding conductors on common equipment grounding terminal on transformer enclosure.
3. Complete transformer tank grounding and lightning arrester connections prior to making other electrical connections.

B. Terminate medium-voltage cables in incoming section of transformers in accordance with Section 260513 "Medium-Voltage Cables."

3.4 SIGNS AND LABELS

A. Comply with installation requirements for labels and signs specified in Section 260553 "Identification for Electrical Systems."

B. Install warning signs as required to comply with 29 CFR 1910.269.

3.5 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. General Field-Testing Requirements:
   a. Comply with provisions of "Testing and Test Methods" Chapter in NFPA 70B.
   b. Perform visual and mechanical inspections and electrical tests. Certify compliance with test parameters.
   c. After installing transformer but before primary is energized, verify that grounding system at transformer is tested at specified value or less.
   d. After installing transformer and after electrical circuitry has been energized, test for compliance with requirements.
   e. Visual and Mechanical Inspection:
      1) Verify equipment nameplate data complies with Contract Documents.
      2) Inspect bolted electrical connections for high resistance using one of the following two methods:
         a) Use low-resistance ohmmeter to compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of lowest value.
         b) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS, Table 100.12. Bolt-torque levels must be in accordance with manufacturer's published data. In absence of manufacturer's published data, use NETA ATS, Table 100.12.
         c) ata, use NETA ATS, Table 100.12.
2. Medium-Voltage Surge Arrester Field Tests:
   a. Visual and Mechanical Inspection:
      1) Inspect physical and mechanical condition.
      2) Verify arresters are clean.
      3) Verify that ground leads on devices are individually attached to ground bus or ground electrode.
   b. Electrical Test:
      1) Perform insulation-resistance test on arresters, phase terminal-to-ground. Apply voltage in accordance with manufacturer's published data. In absence of manufacturer's published data, comply with NETA ATS, Table 100.1. Replace units that fail to comply with recommended minimum insulation resistance listed in that table.
3. Liquid-Filled Transformer Field Tests:
   a. Visual and Mechanical Inspection:
      1) Test dew point of tank gases if applicable.
      2) Inspect anchorage, alignment, and grounding.
      3) Verify bushings are clean.
      4) Verify that liquid level in tanks is within manufacturer's published tolerances.
      5) Perform specific inspections and mechanical tests recommended by manufacturer.
      6) Verify presence of transformer surge arresters and that their ratings are as specified.
   b. Electrical Tests:

1) Perform insulation-resistance tests winding-to-winding and windings-to-ground. Apply voltage in accordance with manufacturer's published data. In absence of manufacturer's published data, comply with NETA ATS, Table 100.5. Calculate polarization index; value of index may not be less than 1.0.
2) Measure core insulation resistance at 500 V(dc) if core is insulated and core ground strap is removable. Core insulation-resistance values may not be less than 1 MΩ at 500 V(dc).
3) Verify correct secondary voltage, phase-to-phase and phase-to-neutral, after energization and prior to loading.
4) Perform a turns ratio test between windings at all tap positions with the final tap setting to be set at the secondary system rated voltage at full load.

B. Nonconforming Work:

1. Equipment and devices will be considered defective if they do not pass tests and inspections.
2. Remove and replace malfunctioning units and retest.

C. Prepare test and inspection reports. Record as-left set points of adjustable devices.

3.6 COMMISSIONING

A. Schedule commissioning activities, giving 2 weeks advance notice to the Owner and Engineer.

B. Manufacturer representative shall perform the following activities:
1. Confirm that equipment has been installed and is operating according to contract documents, submittals, and manufacturer instructions and requirements.
2. Prepare and submit construction checklists.
3. Prepare and submit commissioning documentation required by ANSI/NETA ECS-2015, Standard for Electrical Commissioning Specifications for Electrical Power Equipment and Systems.

END OF SECTION 261219

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fusible, dead-front, load-break interrupter switchgear.

1.2 DEFINITIONS

A. ASYM: Asymmetrical.

B. SYM: Symmetrical.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

   1. Include rated capacities, operating characteristics, and furnished specialties and accessories.
   2. Time-current characteristic curves for overcurrent protective devices.

B. Shop Drawings: For medium-voltage, metal-enclosed switchgear.

   1. Include dimensioned plans and elevations, showing dimensions, shipping sections, and weights of each assembled section.
   2. Include a plan view and cross section of equipment base showing clearances, manufacturer's recommended work space, and locations of penetrations for grounding and conduits. Show location of anchor bolts].
   3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, and location and size of each field connection.
   4. Include single-line diagram.
   5. Ratings of the assembled switchgear:

      a. Voltage.
      b. Continuous current.
      c. Short-circuit rating.
      d. BIL.

1.4 CLOSEOUT SUBMITTALS

A. Operations and Maintenance Manual
   1. Manufacturer data as specified in section Electrical, Basics.
   2. Construction Checklist: Provided and completed by manufacturer’s representative for commissioning of the equipment installation.
   3. Commissioning documentation required by ANSI/NETA ECS-2015, Standard for Electrical Commissioning Specifications for Electrical Power Equipment and Systems.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Spare Fuses: Three of each type and rating of fuse and fusible device used.
2. Touchup Paint: Three half-pint containers of paint matching enclosure's exterior finish.
3. Primary Switch Contact Lubricant: One container(s).

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Manufactured Unit: Metal-enclosed switchgear, designed for application in solidly grounded neutral system.

B. Switchgear Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70, by a qualified electrical testing laboratory, and marked for intended location and application.

C. Comply with IEEE C37.20.3.

2.2 MANUFACTURERS

A. ABB.
B. Eaton.
C. S&C Electric Company.
D. Schneider.
E. Siemens.

2.3 SWITCHGEAR ENCLOSURE

A. Outdoor Enclosure: Weatherproof, galvanized steel, designed for installation outdoors. Aisleless, full-height doors, with provisions for padlocking, in front of basic weatherproof equipment. Integral structural-steel base frame with factory-applied asphaltic undercoating.

1. Each vertical section must have the following features:

a. Structural design and anchorage adequate to resist loads imposed by 150 mph (wind.
b. Louvers equipped with insect and rodent screens and filters, and arranged to permit air circulation while excluding rodents and exterior dust.
c. Skid Mounted: Mount each shipping group on an integral base frame as a complete weatherproof unit.

B. Enclosure Finish:

1. Outdoor Finish: Factory-applied finish in manufacturer's standard color, including under surfaces treated with corrosion-resistant undercoating.

2.4 FUSIBLE LOAD INTERRUPTER SWITCHGEAR

A. Construction:

1. Dead-front, metal-enclosed, fixed-mount, fusible interrupter switchgear assembly of vertical sections.

a. Front and rear access switchgear.
b. Viewing window to show view of the position of the three poles of the interrupter.
c. Mechanical interlock preventing the door from opening when the switch is closed and requiring the door to be closed before the switch can be closed.
d. Padlocking and tagging the switch in the opened or closed position.
e. Switch position indicator.
f. Front and rear vertical section covers must have full-length hinges. The front cover must be a flanged door with latching hardware. The rear cover may be bolted.

2. Bus: Copper.

a. Ground Bus: Sized to carry the rated short-time withstand current and connected to the metal enclosures of each vertical section.

B. Switches: Load interrupter type, with fuses. Omit fuses where specifically indicated.

1. Switch Operator: Manual
2. Switch Construction:

a. Grounded, metal shield to cover live components and terminals.
b. Supported entirely by interior framework of structure, with copper switchblades and stored-energy operating mechanism.
c. Phase barriers, full length of switchblades and fuses for each pole; readily removable and replaceable; designed to allow visual inspection of switch components when barrier is in place.

3. Fuses:

a. Installed on a single mounting frame, de-energized when the switch is open.
b. Current-Limiting Fuses: Full-range, fast-replaceable, current-limiting type that will operate without explosive noise or expulsion of gas, vapor, or foreign matter from tube.
c. Indicator integral with each fuse to show when it has blown.
d. Spares: Include three fuses in use and three spare fuses in storage clips in each switch.

C. Accessory Set:

1. Tools and miscellaneous items required for interrupter switchgear test, inspection, maintenance, and operation.
2. Fuse-handling tool recommended by switchgear manufacturer.

D. Capacities and Characteristics:

1. Switchgear Assembly:

a. Rated Maximum Voltage and BIL: 4.76 kV, 60 kV
b. Rated Continuous Current:[600 A.

c. Rated Momentary Withstand Current (600 A and 1200 A Continuous Current Ratings): 40 kA ASYM RMS for 10 cycles.
d. Rated Short-Time Withstand Current (600 A and 1200 A Continuous Current Ratings):25 kA SYM RMS for 2 s.

2.5 WARNING LABELS AND SIGNS

A. Warning signs must be baked enamel signs.

B. Equipment Identification Labels: Laminated acrylic or melamine label.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Upon delivery of switchgear and prior to unloading, inspect equipment for damage.

1. Examine tie rods and chains to verify they are undamaged and tight and that blocking and bracing are tight.
2. Verify that there is no evidence of load shifting in transit and that readings from transportation shock recorders, if equipped, are within manufacturer's recommendations.
3. Examine switchgear for external damage, including dents or scratches in doors and sill, and termination provisions.
4. Compare switchgear and accessories received with the bill of materials to verify that the shipment is complete. Verify that switchgear and accessories conform to the manufacturer's quotation and shop drawings. If the shipment is not complete or does not comply with project requirements, notify the manufacturer in writing immediately.
5. Unload switchgear, observing packing label warnings and handling instructions.
6. Open compartment doors and inspect components for damage or displaced parts, loose or broken connections, cracked or chipped insulators, bent mounting flanges, dirt or foreign material, and water or moisture.

B. Handling:

1. Handle switchgear in accordance with manufacturer's recommendations; avoid damage to the enclosure, termination compartments, base, frame, tank, and internal components. Do not subject switchgear to impact, jolting, jarring, or rough handling.
2. Protect switchgear compartments against the entrance of dust, rain, and snow.
3. Transport switchgear upright to avoid internal stresses on equipment mounting assemblies. Do not tilt or tip switchgear.
4. Use spreaders or a lifting beam to obtain a vertical lift and to protect switchgear from straps bearing against the enclosure. Lifting cable pull angles may not be greater than 15 degrees from vertical.
5. Do not damage structure when handling switchgear.

C. Storage:

1. Store switchgear in a location that is clean and protected from weather. Protect switchgear from dirt, water, contamination, and physical damage. Do not store switchgear in the presence of corrosive or explosive gases.

2. Store switchgear with compartment doors closed.
3. Regularly inspect switchgear while in storage and maintain documentation of storage conditions, noting any discrepancies or adverse conditions.

D. Examine roughing-in of conduits and grounding systems to verify the following:

1. Wiring entries comply with layout requirements.
2. Entries are within conduit-entry tolerances specified by manufacturer, and no feeders will have to cross section barriers to reach load or line lugs.

E. Pre-Installation Checks:

1. Verify removal of any shipping bracing after placement.

F. Verify that ground connections are in place and that requirements in Section 260526 "Grounding and Bonding " have been met.

G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF SWITCHGEAR

A. Equipment Mounting:

1. Install switchgear on cast-in-place concrete equipment base(s).

B. Switchgear must be installed level and plumb. Switchgear must tilt less than 1.5 degrees while energized.

C. Maintain minimum clearances and workspace at equipment in accordance with manufacturer's written instructions and NFPA 70.

D. Comply with NECA 430.

3.3 CONNECTIONS

A. Ground equipment in accordance with Section 260526 "Grounding and Bonding ."

B. Grounding Connections at Exterior Locations:

1. Install tinned bare copper cable not smaller than No. 4/0 AWG, for counterpoise buried not less than 30 inch below grade interconnecting the grounding electrodes.
2. Bond surge arrester and neutrals directly to the switchgear enclosure and then to the grounding electrode system with bare copper conductors, sized as shown.
3. Keep lead lengths as short as practicable with no kinks or sharp bends.
4. Make joints in grounding conductors and loops by exothermic weld or compression connector.

C. Terminate all grounding and bonding conductors on a common equipment grounding terminal on the switchgear enclosure. Install supplemental terminal bars, lugs, and bonding jumpers as required to accommodate the number of conductors for termination.

D. Complete switchgear grounding and lightning arrester connections prior to making any other electrical connections.

E. Terminate medium-voltage cables in accordance with Section 260513 "Medium-Voltage Cables."

3.4 SIGNS AND LABELS

A. Comply with the installation requirements for labels and signs specified in Section 260553 " Electrical Identification ."

3.5 FIELD QUALITY CONTROL

A. General Field Testing Requirements:

1. Comply with the provisions of NFPA 70B, "Testing and Test Methods."
2. After installing switchgear and after electrical circuitry has been energized, test for compliance with requirements.
3. Perform each visual and mechanical inspection and electrical test. Certify compliance with test parameters.

B. Medium-Voltage Switchgear Assembly Field Tests:

1. Visual and Mechanical Inspection:

a. Verify that fuse sizes and types correspond to Drawings .
b. Inspect bolted electrical connections using calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS, Table 100.12. Bolt-torque levels must be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS, Table 100.12. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
c. Confirm correct operation and sequencing of electrical and mechanical interlock systems. Attempt closure on locked-open devices. Attempt to open locked-closed devices.
d.
e. Verify appropriate lubrication on moving current-carrying parts and on moving and sliding surfaces.
f. Inspect insulators for evidence of physical damage or contaminated surfaces.
g. Verify correct barrier and shutter installation and operation.
h. Exercise active components.
i. Inspect mechanical indicating devices for correct operation.
j. Verify that filters are in place and vents are clear.

2. Electrical Tests:

a. Inspect bolted electrical connections using a low resistance ohmmeter to compare bolted resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.

b. Perform dc voltage insulation-resistance tests on each bus section, phase to phase and phase to ground, for one minute. If the temperature of the bus is other than plus or minus 20 deg C, adjust the resulting resistance as provided in NETA ATS, Table 100Insulation-resistance values of bus insulation must be in accordance with manufacturer's published data. In the absence of manufacturer's published data, comply with NETA ATS, Table 100.1. Investigate and correct values of insulation resistance less than manufacturer's recommendations or NETA ATS, Table 100.1.

1) Insulation-resistance values of bus insulation must be in accordance with manufacturer's published data. In the absence of manufacturer's published data, comply with NETA ATS, Table 100.1. Investigate and correct values of insulation resistance less than manufacturer's recommendations or NETA ATS, Table 100.1.
2) Do not proceed to the dielectric withstand voltage tests until insulation-resistance levels are raised above minimum values.

c. Perform a dielectric withstand voltage test on each bus section, each phase to ground with phases not under test grounded, in accordance with manufacturer's published data. If manufacturer has no recommendation for this test, it must be conducted in accordance with NETA ATS, Table 100.2. Apply the test voltage for one minute.

1) If no evidence of distress or insulation failure is observed by the end of the total time of voltage application during the dielectric withstand test, the test specimen is considered to have passed the test.

d. Perform insulation-resistance tests on control wiring with respect to ground. Applied potential must be 500 V(dc) for 300 V rated cable and 1000 V(dc) for 600 V rated cable. Test duration must be one minute. For units with solid-state components or control devices that cannot tolerate the applied voltage, follow the manufacturer's recommendation.

1) Minimum insulation-resistance values of control wiring must not be less than two megohms.

e. Perform system function tests in accordance with "System Function Tests" Article.

C. Ground Resistance Test:

1. Visual and Mechanical Inspection:

a. Verify ground system complies with the Contract Documents and NFPA 70 Article 250, "Grounding and Bonding."
b. Inspect physical and mechanical condition. Grounding system electrical and mechanical connections must be free of corrosion.
c. Inspect bolted electrical connections using a calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS, Table 100.12. Bolt-torque levels must be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS, Table 100.12. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
d. e than 50 percent of the lowest value.
e. Inspect anchorage.

2. Electrical Tests:

    a. Perform fall-of-potential or alternative test in accordance with IEEE 81 on the main grounding electrode or system. The resistance between the main grounding electrode and ground must be no more than 5 ohms.
    b. Perform point-to-point tests to determine the resistance between the main grounding system and all major electrical equipment frames, system neutral, and derived neutral points. Investigate point-to-point resistance values that exceed 0.5 ohms. Compare equipment nameplate data with Contract Documents.
    c. Inspect physical and mechanical condition.
    d. Inspect bolted electrical connections for high resistance using a low-resistance ohmmeter to compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.

D. Nonconforming Work:

1. Switchgear will be considered defective if it does not pass tests and inspections.
2. Remove and replace defective units and retest.

E. Prepare test and inspection reports.

3.6 COMMISSIONING

A. Schedule commissioning activities, giving 2 weeks advance notice to the Owner and Engineer.

B. Manufacturer representative shall perform the following activities:

1. Confirm that equipment has been installed and is operating according to contract documents, submittals, and manufacturer instructions and requirements.
2. Prepare and submit construction checklists.
3. Prepare and submit commissioning documentation required by ANSI/NETA ECS-2015, Standard for Electrical Commissioning Specifications for Electrical Power Equipment and Systems.

END OF SECTION 261323

SECTION C

North Carolina State Ports Authority

TECHNICAL DRAWINGS

CONVERT 4160V LINE TO UNDERGROUND

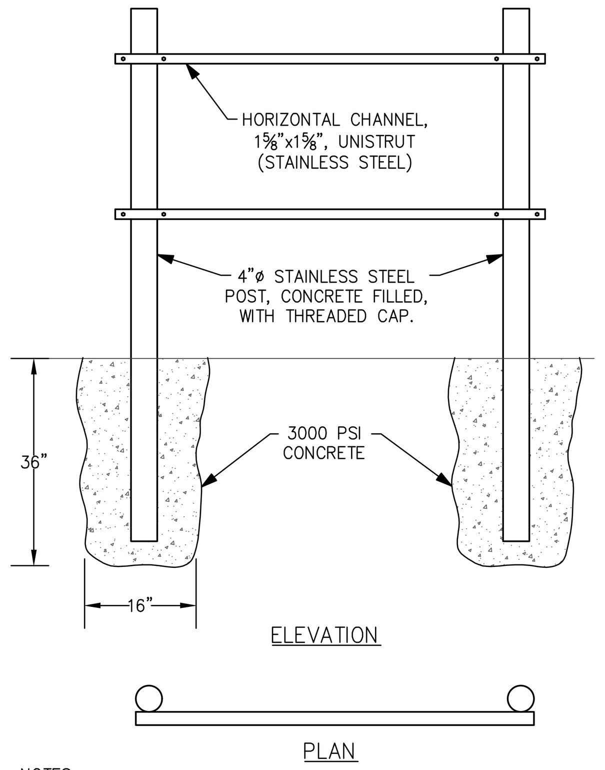
SCO ID# 24-27857-01A

ELECTRICAL NOTES

1. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE VERSION IN EFFECT AT THE TIME THE PROJECT BIDS AND IS SCHEDULED TO BE UNDER CONTRACT.
2. THE NORTH CAROLINA STATE CONSTRUCTION OFFICE IS THE AUTHORITY HAVING JURISDICTION (AHJ) FOR THE ELECTRICAL INSPECTIONS ON THIS PROJECT. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY THE STATE PROPERTY ELECTRICAL INSPECTORS IN THE CONSTRUCTION ADMINISTRATION SECTION OF THE STATE CONSTRUCTION OFFICE, TO SCHEDULE (MONDAY THROUGH FRIDAY) THE REQUIRED INSPECTIONS. NO WORK SHALL BE COVERED UP UNTIL AFTER THE INSPECTION HAS BEEN COMPLETED & APPROVED BY AN SCO INSPECTOR.
3. THE CONTRACTOR AND ANY OF HIS SUBCONTRACTORS SHALL VISIT THE PROJECT SITE TO WITNESS EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE SCOPE OF THE WORK REQUIRED PRIOR TO SUBMITTING PROPOSALS. WORK REQUIRED BY EXISTING JOB CONDITIONS NOT INDICATED ON DRAWINGS SHALL BE INCLUDED IN THE PROPOSALS.
4. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO RESULT IN THE PRODUCTION OF A COMPLETE AND FUNCTIONAL SYSTEM. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT, AND OTHER SERVICES AS NECESSARY TO COMPLETE THE WORK.
5. DISCREPANCIES IN THE DRAWINGS AND SPECIFICATIONS THAT WILL AFFECT THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO SUBMITTING BIDS.
6. COORDINATE DIRECTIONAL BORE PATHWAYS WITH OWNER.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTING UNDERGROUND PATHWAYS.
8. UNLESS NOTED OTHERWISE, ALL MATERIALS AND EQUIPMENT SHALL BE NEW.
9. PROVIDE NATIONAL ELECTRICAL CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT.
10. ELECTRICAL EQUIPMENT SHALL BE MOUNTED A MINIMUM OF 2' ABOVE 9' BASE FLOOD ELEVATION. GRADE ELEVATIONS WHERE EQUIPMENT IS TO BE INSTALLED SHALL BE OBTAINED PRIOR TO INSTALLATION. CERTIFIED ELEVATIONS OF INSTALLED EQUIPMENT SHALL BE PROVIDED AS PART OF THE AS-BUILT DOCUMENTS.
11. UNLESS OTHERWISE NOTED, SCHEDULE 80 PVC OR HDPE RACEWAY MAY BE USED FOR UNDERGROUND CIRCUITRY. EXPOSED RACEWAY FROM SLAB OR GRADE SHALL BE RIGID ALUMINUM.

ABBREVIATIONS

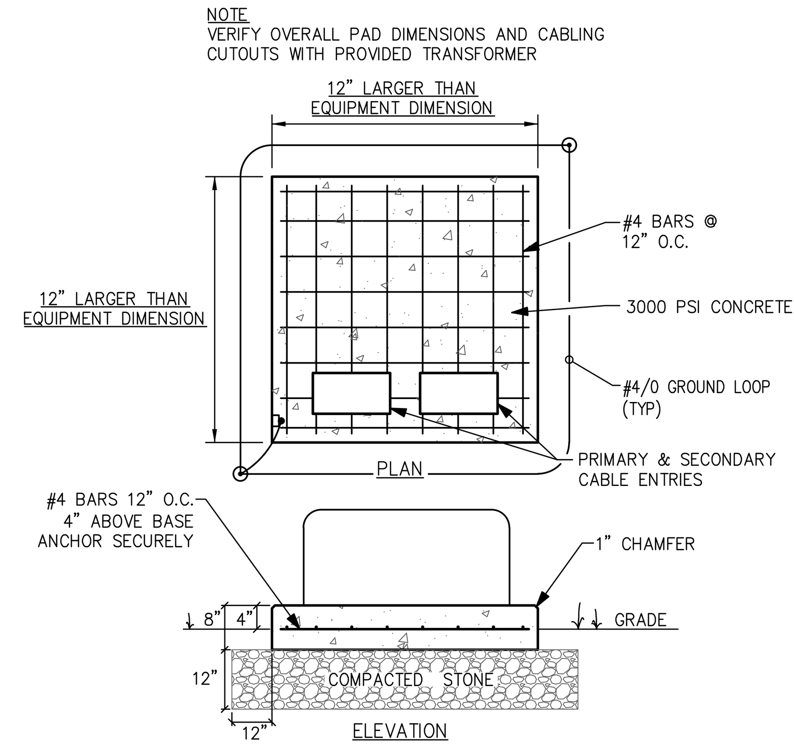
AFG	ABOVE FINISHED GRADE
CR	CARD READER
EXSTG	EXISTING
GEC	GROUNDING ELECTRODE CONDUCTOR
K	KILO (THOUSAND)
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
N/A	NOT APPLICABLE
NCSPA	NORTH CAROLINA STATE PORTS AUTHORITY
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NTS	NOT TO SCALE
P	POLE
PH	PHASE
P/S	POWER SUPPLY
PVC	POLYVINYL CHLORIDE
RECPT	RECEPTACLE
REQ.	REQUIRED
SCH	SCHEDULE
SS	STAINLESS STEEL
SYS	SYSTEM
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
W	WIRE
W/	WITH
WP	WEATHERPROOF
XFMR	TRANSFORMER



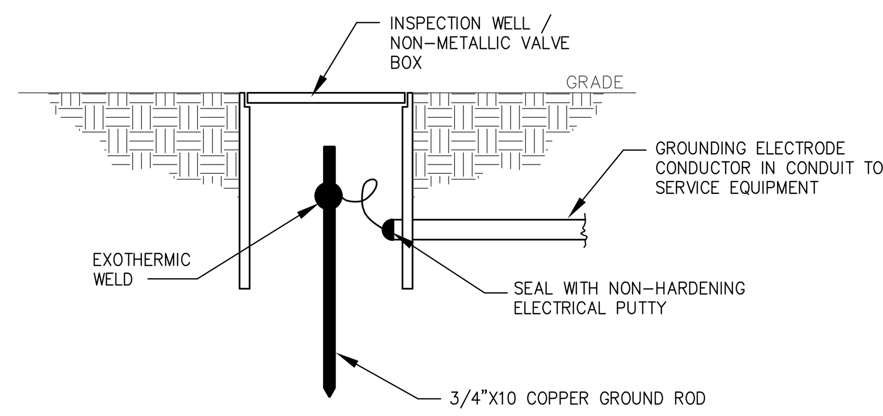
NOTES
1. USE ⅜" STAINLESS STEEL HARDWARE FOR CONNECTING CHANNELS & MOUNTING EQUIPMENT.
2. PROVIDE ADDITIONAL VERTICAL POSTS, CENTERED, IF RACK EXCEEDS 60" WIDE.
3. PROVIDE ADDITIONAL CHANNEL(S) WHERE REQUIRED TO ALIGN WITH EQUIPMENT MOUNTING HOLES.

A (E-001) EQUIPMENT RACK DETAIL
NO SCALE

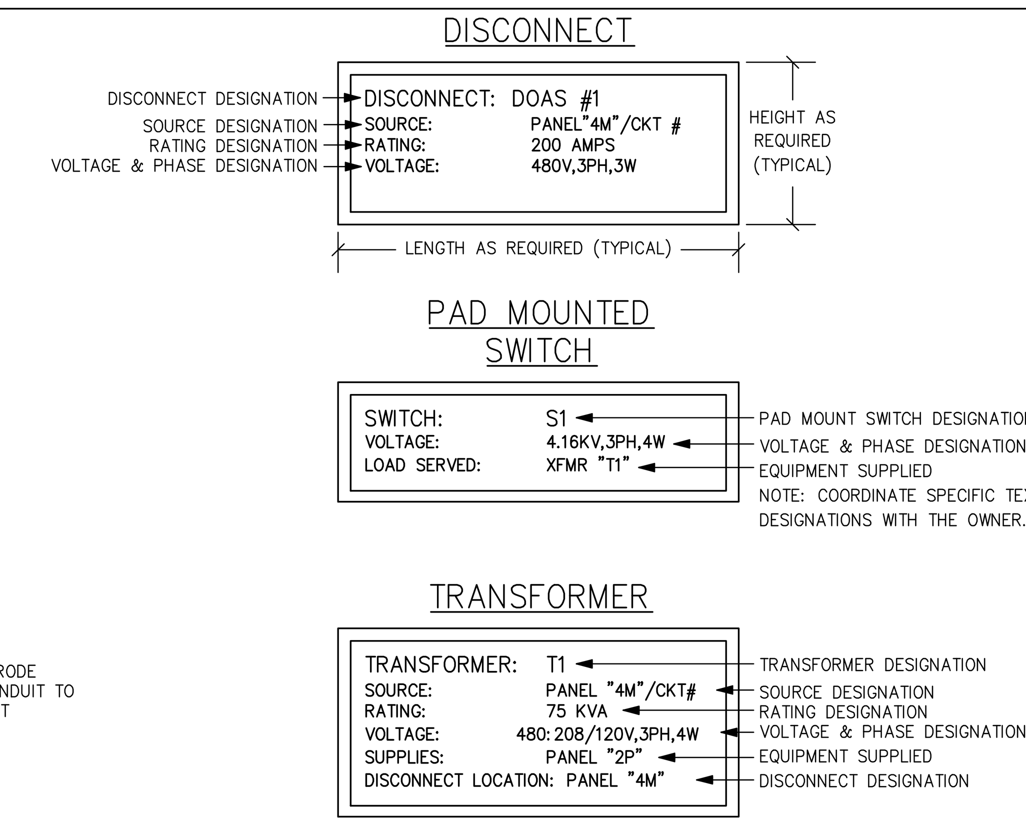
NOTE
VERIFY OVERALL PAD DIMENSIONS AND CABLING CUTOUTS WITH PROVIDED TRANSFORMER



B (E-001) TRANSFORMER PAD DETAIL
NO SCALE



C (E-001) GROUND ROD & INSPECTION WELL
NO SCALE



NOTES:
1. ENGRAVED PLASTIC FOR NAMEPLATE.
2. 3/8" ENGRAVED LETTERS EQUIPMENT NAME DESIGNATION AND 1/4" ENGRAVED LETTERS ON ALL OTHER DESIGNATIONS.

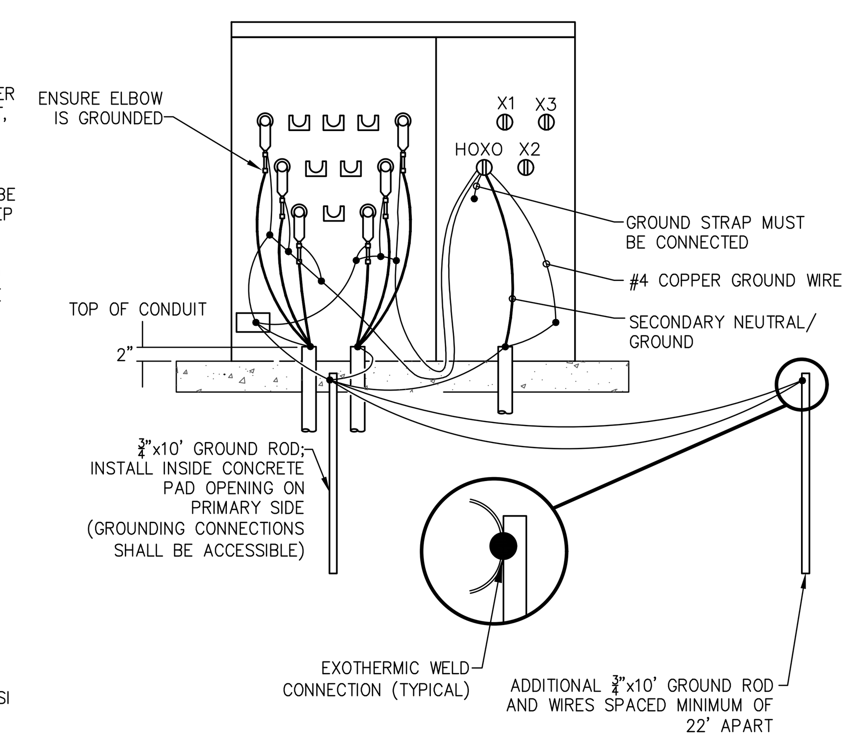
D (E-001) TYPICAL NAMEPLATE DETAILS
NO SCALE

MISC. ELECTRICAL SYMBOL LEGEND

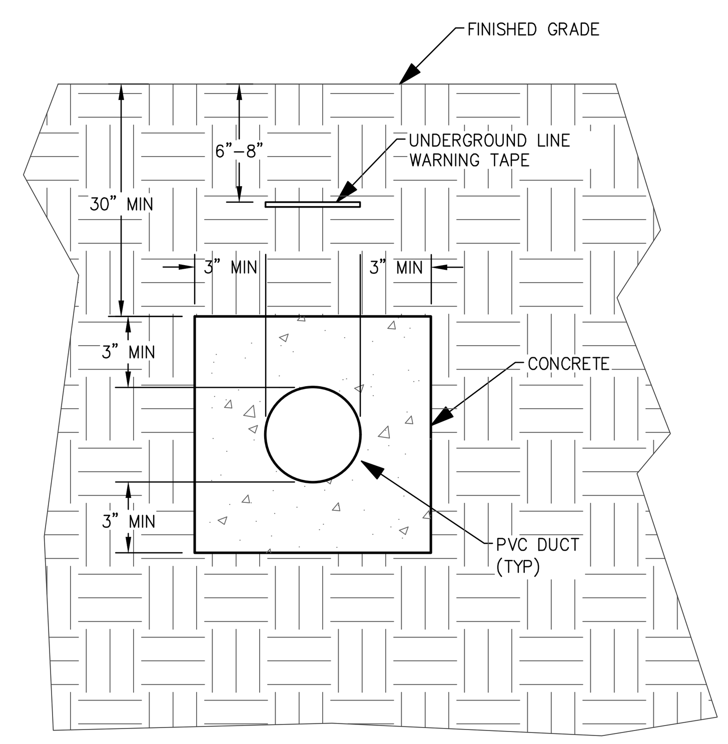
T	TRANSFORMER
	PANELBOARD
	SAFETY SWITCH DISCONNECT, HEAVY-DUTY, FUSED AT NAMEPLATE RATING OF EQUIPMENT SERVED, NEMA 4X STAINLESS STEEL OUTSIDE, AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.
	GROUND ROD, 3/4" X 10' COPPER CLAD. WHERE TWO RODS ARE INDICATED, SPACE A MINIMUM OF 22' APART.
A (E-506)	LETTER INDICATES ELEVATION OR DETAIL; NUMBER INDICATES PLAN OR SECTION SHEET NUMBER WHERE PLAN, SECTION, ELEVATION OR DETAIL IS DRAWN

NOTES

1. THE PRIMARY NEUTRAL CONDUCTOR SHALL BE BONDED CONTINUOUSLY TO THE PRIMARY CONDUIT (IF METALLIC), THE GROUND ROD, THE TRANSFORMER TANK GROUND PAD IN THE PRIMARY COMPARTMENT, AND THE HO/XO NEUTRAL BUSHING. THIS STEP SHALL BE REPEATED IF LOOP FEED TRANSFORMER.
2. THE STRESS CONES AND PRIMARY CABLES SHALL BE GROUNDED TO THE NEUTRAL CONDUCTOR. THIS STEP SHALL BE REPEATED IF LOOP FEED TRANSFORMER.
3. A #4 COPPER GROUND WIRE SHALL BE BONDED TO THE HO/XO BUSHING, TO THE GROUND PAD IN THE SECONDARY COMPARTMENT, TO THE SECONDARY CONDUIT (IF METALLIC), AND TO THE GROUND ROD.
4. A GROUND STRAP SHALL CONNECT THE HO/XO BUSHING TO THE TRANSFORMER TANK.
5. A SUITABLE FLEXIBLE #6 COPPER ARRESTOR LEAD (NOT SHOWN) SHALL BE INSTALLED FROM EACH ARRESTOR DIRECTLY TO THE GROUND ROD.
6. THE PRIMARY & SECONDARY CONDUITS SHALL EXTEND TWO INCHES ABOVE THE CONCRETE PAD.
7. IF THE RESISTANCE OF THE GROUND ROD EXCEEDS 25 OHMS, INSTALL AN ADDITIONAL GROUND ROD A MINIMUM OF 20' AWAY. INTERCONNECT THE TWO USING #4 COPPER GROUND WIRE.
8. COMPLETE INSTALLATION SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE, ANSI C2.

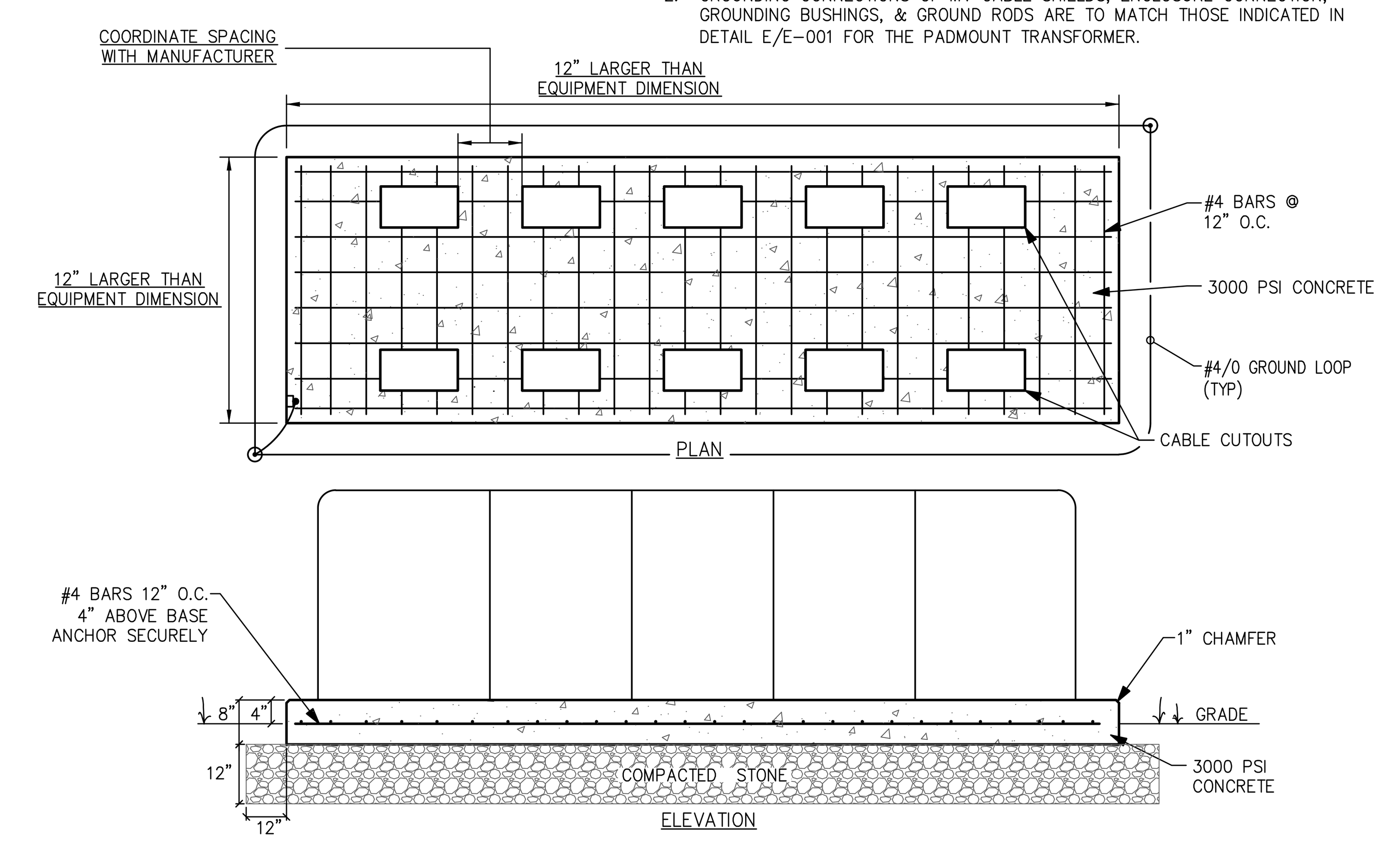


E (E-001) PAD-MOUNT TRANSFORMER GROUNDING
NO SCALE



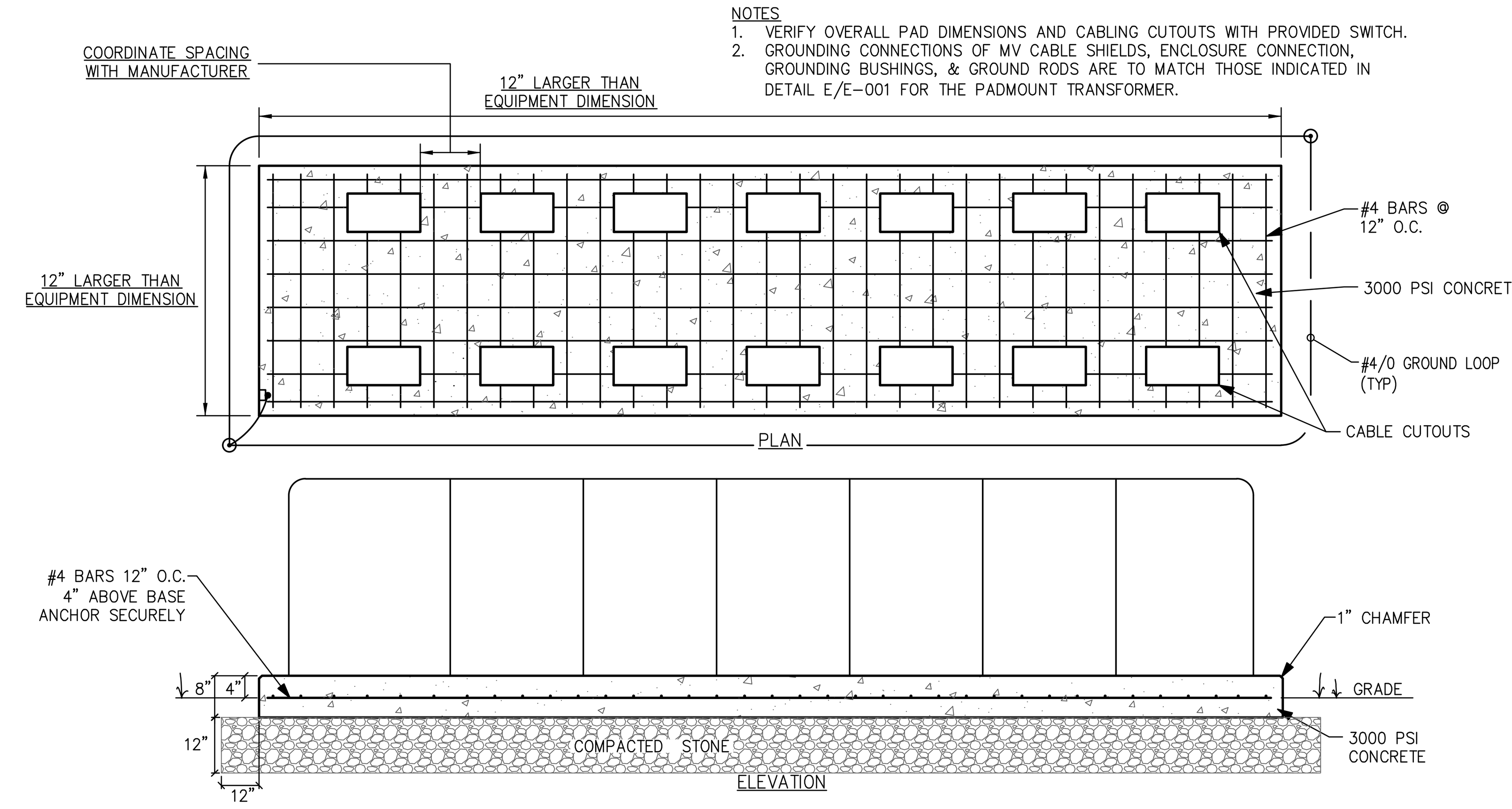
F (E-001) DUCT BANK - CONCRETE ENCASED
NO SCALE

NOTES
1. VERIFY OVERALL PAD DIMENSIONS AND CABLING CUTOUTS WITH PROVIDED SWITCH.
2. GROUNDING CONNECTIONS OF MV CABLE SHIELDS, ENCLOSURE CONNECTION, GROUNDING BUSHINGS, & GROUND RODS ARE TO MATCH THOSE INDICATED IN DETAIL E/E-001 FOR THE PADMOUNT TRANSFORMER.

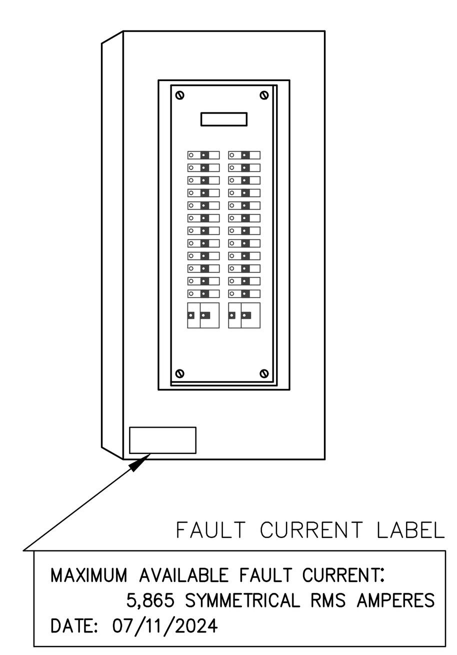


G (E-001) 5-GANG PAD MOUNTED SWITCH PAD DETAIL
NO SCALE

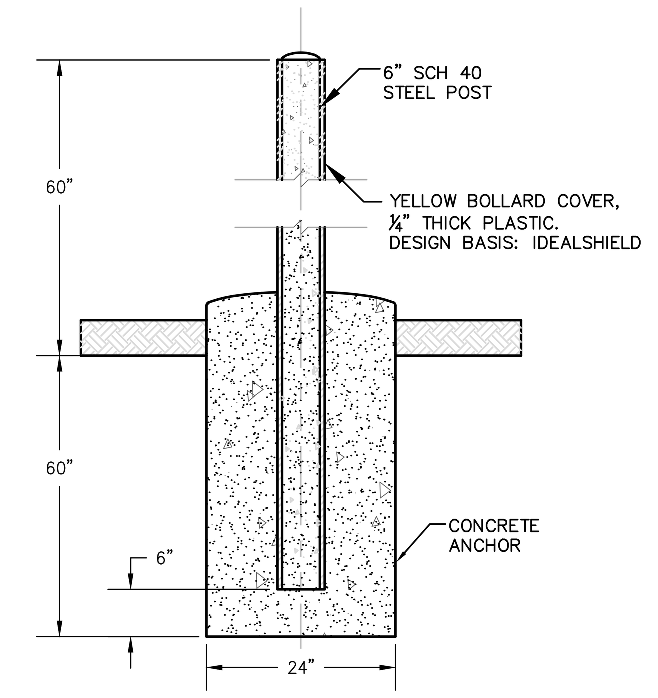
NOTES
1. VERIFY OVERALL PAD DIMENSIONS AND CABLING CUTOUTS WITH PROVIDED SWITCH.
2. GROUNDING CONNECTIONS OF MV CABLE SHIELDS, ENCLOSURE CONNECTION, GROUNDING BUSHINGS, & GROUND RODS ARE TO MATCH THOSE INDICATED IN DETAIL E/E-001 FOR THE PADMOUNT TRANSFORMER.



H (E-001) 7-GANG PAD MOUNTED SWITCH PAD DETAIL
NO SCALE



J (E-001) FAULT CURRENT LABEL
NO SCALE



K (E-001) PIPE BOLLARD DETAIL
NO SCALE

LOAD ESTIMATE & FEEDER SCHEDULE
SWITCH S1-S5

LOAD	SWITCH	KVA	NOTES	
		ESTIMATE		
	S1		MAIN SWITCH	FEEDER - SEE NOTE
HIGH MAST LTG	S2	320	EXSTG 3PH 1000 KVA XFMR	3"C,3#1/0,#4G
	S3	0	SPARE	
	S4	0	SPARE	
	S5	0	SPARE	
TOTAL KVA		320		
AMPS AT 4160V		44		

NOTE: EXSTG FEEDER INFORMATION IS ESTIMATED FROM VISUAL OBSERVATION. CONFIRM EXSTG CONDUIT & CONDUCTOR SIZES FOR REWORK TO NEW PADMOUNT SWITCH.

LOAD ESTIMATE & FEEDER SCHEDULE
SWITCH S6-S12

LOAD	SWITCH	KVA	NOTES	FEEDER - SEE NOTE
		ESTIMATE		
	S6		MAIN SWITCH	
BLDG T7: LTG, DOORS, FANS	S7	99	EXSTG 4160V SWITCH IN BLDG T7	3"C,3#1/0,#4G
BLDG T6: LTG, DOORS, FANS	S8	198	EXSTG 3PH 500 KVA XFMR	3"C,3#1/0,#4G
BERTH T7: HIGH MAST LTG, SHORE POWER	S9	91	EXSTG 3PH 225 KVA XFMR	3"C,3#1/0,#4G
CRANE BERTH: HIGH MAST LTG	S10	96	EXSTG 3PH 300 KVA XFMR	3"C,3#1/0,#4G
	S11	0	SPARE	
	S12	0	SPARE	
TOTAL KVA		484		
AMPS AT 4160V		67		

NOTE: EXSTG FEEDER INFORMATION IS ESTIMATED FROM VISUAL OBSERVATION. CONFIRM EXSTG CONDUIT & CONDUCTOR SIZES FOR REWORK TO NEW PADMOUNT SWITCH.

REVISION	
DATE	DESCRIPTION

CONSTRUCTION DOCUMENTS

SCO ID # 24-27857-01A
NCSPA PROJECT NO. 10657

CONVERT 4160V OH TO UG
PORT OF WILMINGTON
NORTH CAROLINA PORTS, 2202 BURNETT BLVD, WILMINGTON, NORTH CAROLINA, 28401

ELECTRICAL
NOTES, LEGENDS, DETAILS, SCHEDULES

CHEATHAM AND ASSOCIATES, P.A.
CONSULTING ENGINEERS
3412 ENTERPRISE DRIVE
WILMINGTON, NORTH CAROLINA 28405
PH: (910)452-4210 FAX: (910)452-4211
E-MAIL: OFFICE@CHEATHAMPA.COM
NC LICENSE #C-1073

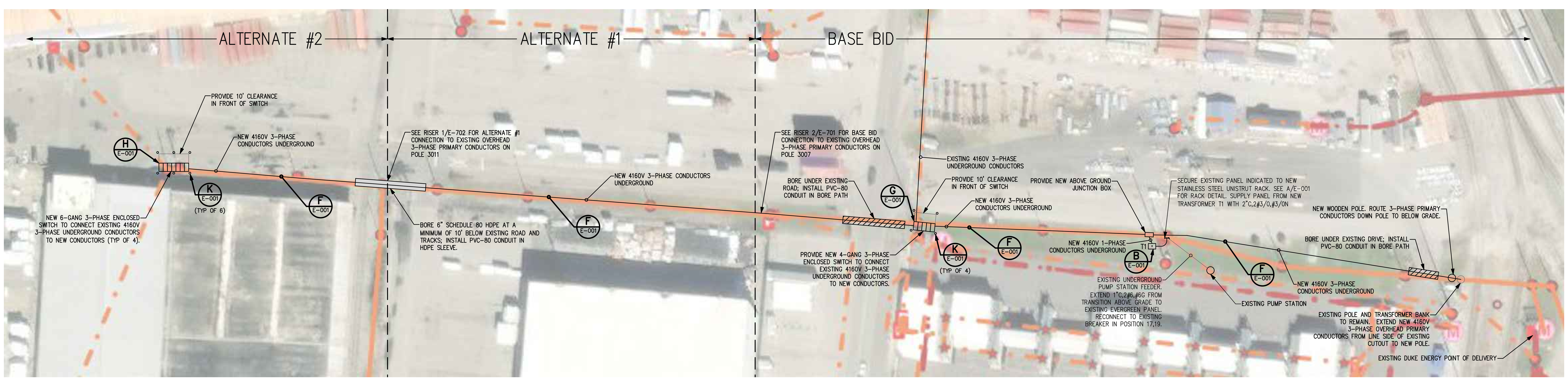
NORTH CAROLINA PROFESSIONAL SEAL 17593 ENGINEER MARK A. CIARROCCA

Digitally signed by Mark A. Ciarrocca
Date: 2025.05.05 14:15:42-04'00'

DESIGNED BY	M.CIARROCCA
DRAWN BY	C.BEVERLY
CHECKED BY	M.CIARROCCA
JOB NUMBER	23045
SHEET	E-001
DATE	APRIL 4, 2024

1 / E-101 ELECTRICAL DEMOLITION PLAN

APPROXIMATE SCALE: 1" = 50'-0"



2 / E-101 ELECTRICAL NEW WORK PLAN

APPROXIMATE SCALE: 1" = 50'-0"

TRUE NORTH

GRAPHIC SCALE: 1"=50'

0 12.5 25 50 100

REVISION	
DATE	DESCRIPTION

CONSTRUCTION DOCUMENTS

SCO ID # 24-27857-01A
NCSPA PROJECT NO. 10657

CONVERT 4160V OH TO UG

PORT OF WILMINGTON

NORTH CAROLINA PORTS, 2202 BURNETT BLVD, WILMINGTON, NORTH CAROLINA, 28401

ELECTRICAL PLANS

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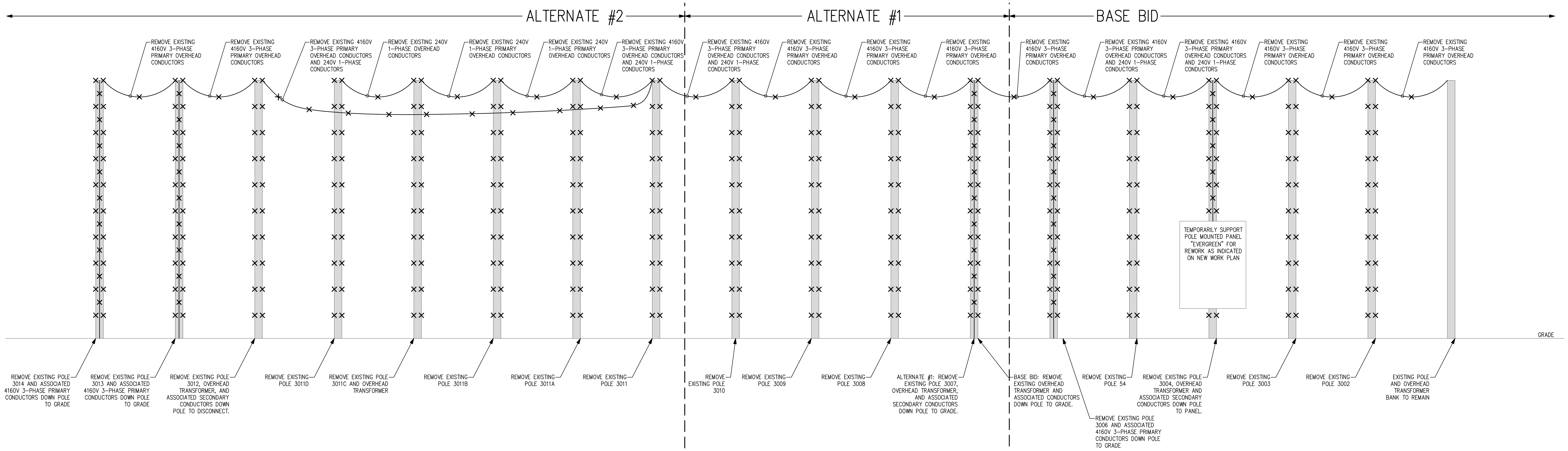
DESIGNED BY	M.CIARROCCA
DRAWN BY	C.BEVERLY
CHECKED BY	M.CIARROCCA
JOB NUMBER	23045
SHEET	E-101
DATE	APRIL 4, 2024

REVISION	
DATE	DESCRIPTION

CONSTRUCTION DOCUMENTS

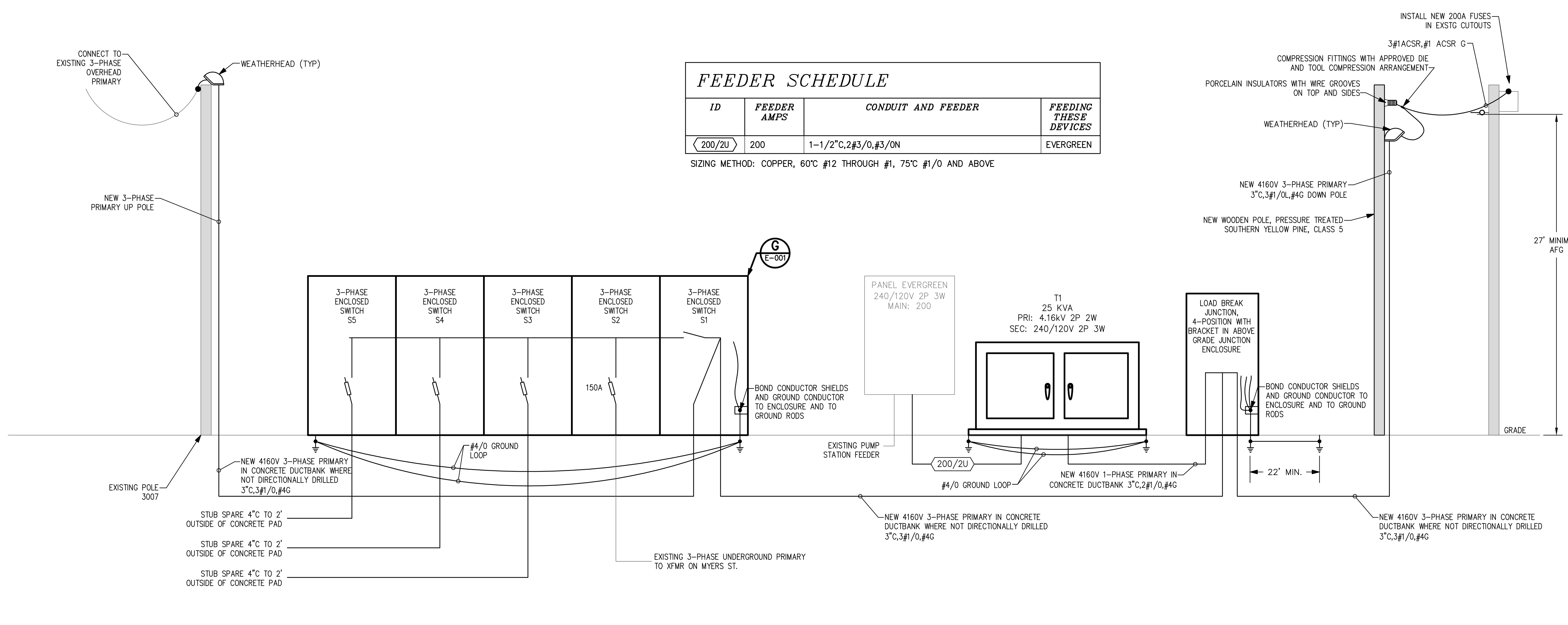


1 E-701 ELECTRICAL DEMOLITION RISER DIAGRAM
NO SCALE

FEEDER SCHEDULE

ID	FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
200/2U	200	1-1/2"C,2#3/0,#3/0N	EVERGREEN

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C #1/0 AND ABOVE



2 E-701 ELECTRICAL RISER DIAGRAM – BASE BID
NO SCALE

NOTES:
LIGHT LINEWEIGHT AND TEXT DEPICTS EXISTING EQUIPMENT AND CIRCUITS TO REMAIN.
DARK LINEWEIGHT AND TEXT DEPICTS NEW EQUIPMENT AND CIRCUITS.

SCO ID # 24-27857-01A
NCSPA PROJECT NO. 10657

CONVERT 4160V OH TO UG
PORT OF WILMINGTON
NORTH CAROLINA PORTS, 2202 BURNETT BLVD, WILMINGTON, NORTH CAROLINA, 28401

ELECTRICAL RISERS

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17593 MARK A. CIARROCCA

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DESIGNED BY	M.CIARROCCA
DRAWN BY	C.BEVERLY
CHECKED BY	M.CIARROCCA
JOB NUMBER	23045
SHEET	E-701
DATE	APRIL 4, 2024

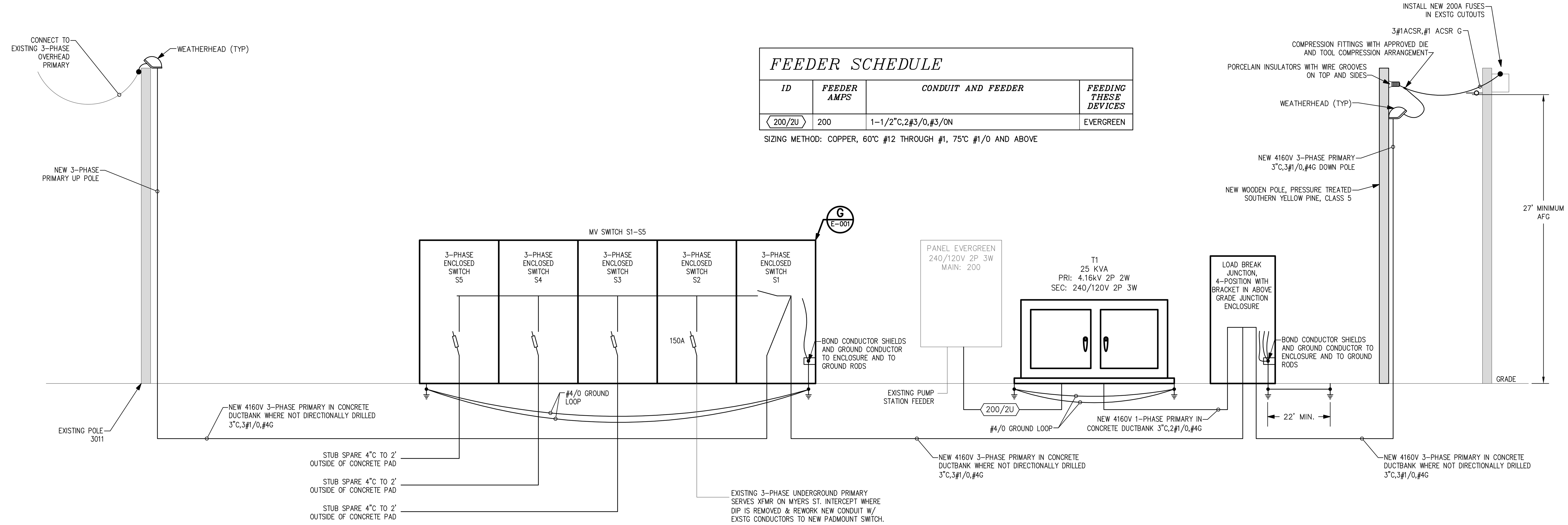
REVISION	
DATE	DESCRIPTION

CONSTRUCTION DOCUMENTS

FEEDER SCHEDULE

ID	FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
200/2U	200	1-1/2"C,2#3/0,#3/0N	EVERGREEN

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C #1/0 AND ABOVE

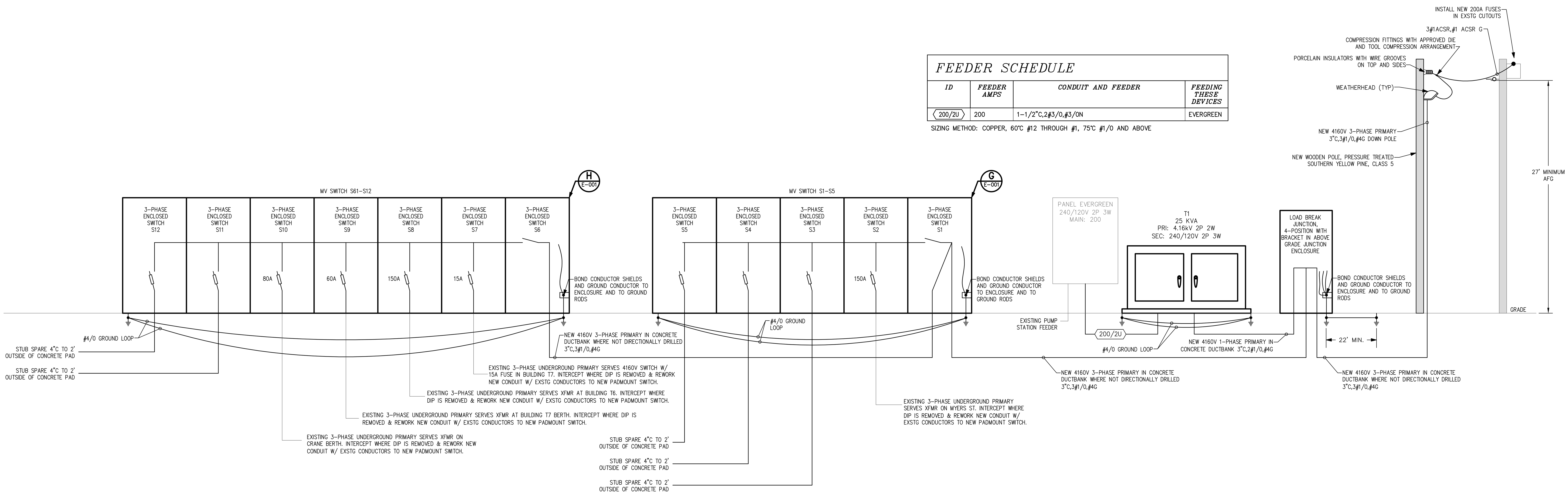


1 E-702 ELECTRICAL RISER DIAGRAM – ALTERNATE #1
NO SCALE

FEEDER SCHEDULE

ID	FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
200/2U	200	1-1/2"C,2#3/0,#3/0N	EVERGREEN

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C #1/0 AND ABOVE



2 E-702 ELECTRICAL RISER DIAGRAM – ALTERNATE #2
NO SCALE

NOTES:
LIGHT LINEWEIGHT AND TEXT DEPICTS EXISTING EQUIPMENT AND CIRCUITS TO REMAIN.
DARK LINEWEIGHT AND TEXT DEPICTS NEW EQUIPMENT AND CIRCUITS.

SCO ID # 24-27857-01A
NCSPA PROJECT NO. 10657

CONVERT 4160V OH TO UG
PORT OF WILMINGTON
NORTH CAROLINA PORTS, 2202 BURNETT BLVD, WILMINGTON, NORTH CAROLINA, 28401

ELECTRICAL RISERS

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E-MAIL: OFFICE@CHEATHAMPA.COM
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NORTH CAROLINA PROFESSIONAL SEAL 17593 ENGINEER MARK A. CIARROCCA

Digitally signed by Mark A. Ciarrocca
Date: 2025.05.05 14:15:43-04'00'

DESIGNED BY	M.CIARROCCA
DRAWN BY	C.BEVERLY
CHECKED BY	M.CIARROCCA
JOB NUMBER	23045
SHEET	E-702
DATE	APRIL 4, 2024

SECTION D

F O R M OF P R O P O S A L

Convert 4160V Line to Underground Contract:________________________________

North Carolina State Ports Authority Bidder: ________________________________

SCO ID# 24-27857-01A Date:________________________________

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed. The bidder further declares that he and his subcontractors have fully complied with NCGS 64, Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

The Bidder proposes and agrees if this proposal is accepted to contract with the State of North Carolina through the **North Carolina State Ports Authority** in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of:

Convert 4160V Line to Underground

in full in complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the State of North Carolina, and the **North Carolina State Ports Authority** and **Cheatham Associates, PA** with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the contract documents, for the sum of:

SINGLE PRIME CONTRACT:

Base Bid:

____Dollars($)________________

General Subcontractor:

____ Lic____________________

Electrical Subcontractor:

____ Lic____________________

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

ALTERNATES:

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" or "deducted from" the base bid.

GENERAL CONTRACT:

Alternate #1 Extend electrical project to include the next adjacent block to the west (i.e., Cold Storage).

(Add)____ Dollars($)__________________

Alternate #2 Extend electrical project to include the next adjacent block to the west of Cold Storage (i.e., T-7).

(Add)____ Dollars($)__________________

UNIT PRICES:

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Supplementary General Conditions Article 23. Applicable liquidated damages amount is also stated in the Supplementary General Conditions Article 23.

Unit prices should include all contractors general construction costs that are required to install that particular Item of the project as listed below. This includes, but is not limited to, any contractor overhead and profit.

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

> **NOTE**: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B)** to that effect in lieu of Affidavit (**A)** required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

*** OR ***

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

Proposal Signature Page

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of ____, 2025.

____

(Name of firm or corporation making bid)

WITNESS:

By:____
Signature

____
(Proprietorship or Partnership)

Name: ______________________________________
Print or type

Title____
(Owner/Partner/Pres./V.Pres)

Address_______________________________________

____

ATTEST:

By:____________________________________

Title:__________________________________
(Corp. Sec. or Asst. Sec. only)

License No.____________________________________

Federal I.D. No. _______________________________

Email Address: ________________________________

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 _______ Addendum No. 3 _______ Addendum No. 5________ Addendum No. 6________

Addendum No. 2 _______ Addendum No. 4 _______ Addendum No. 6 ________ Addendum No. 7 ________

Identification of HUB Certified/ Minority Business Participation

I,____,
(Name of Bidder)

do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority Category	**HUB Certified (Y/N)

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

The total value of minority business contracting will be ($)________________.

State of North Carolina **AFFIDAVIT A – Listing of Good Faith Efforts**

County of __________________________

(Name of Bidder)

Affidavit of____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ☐ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ☐ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ☐ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ☐ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ☐ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.
- ☐ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ☐ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ☐ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ☐ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ☐ **10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:___________ Name of Authorized Officer:____

Signature:____

Title:____

SEAL

State of______________, County of_____________________________________

Subscribed and sworn to before me this ________day of _______________20_____

Notary Public___________________________________

My commission expires ______________________

State of North Carolina **--AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.**

County of ____________________

Affidavit of____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the ____________________

____contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date:_____________Name of Authorized Officer:____

Signature:____

Title:____

SEAL

State of __________________________, County of________________________
Subscribed and sworn to before me this __________________day of ________20___
Notary Public ____________________________
My commission expires________________________

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of ________________________

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.
This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of ____I do hereby certify that on the
(Name of Bidder)

____
(Project Name)

Project ID#____________________________________Amount of Bid $__________________________

I will expend a minimum of ____________% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____________Name of Authorized Officer:____

Signature:____

Title:____

SEAL

State of ______________, County of __________________________
Subscribed and sworn to before me this __________day of ________20_____
Notary Public_______________________________
My commission expires________________

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of ____________________

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of ____I do hereby certify that on the
(Name of Bidder)

____
(Project Name)

Project ID#_____________________________________Amount of Bid $_________________________________

I will expend a minimum of __________% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:______________ Name of Authorized Officer:____

Signature:____

Title:____

SEAL

State of _____________________, County of __________________________________

Subscribed and sworn to before me this ___________day of ________________20_____

Notary Public_________________________

My commission expires ______________

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT ___________________________________
____ as principal, and
____, as surety, who is duly licensed to act as surety in North Carolina, are held and firmly bound unto the State of North Carolina through **North Carolina State Ports Authority (NCSPA)** as obligee, in the penal sum of
____________________________ DOLLARS, 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 presents.

Signed, sealed and dated this _________________________ day of ________________ 20______

WHEREAS, the said principal is herewith submitting proposal for

Convert 4160V Line to Underground – Port of Wilmington
NCSPA Contract Number C-1799
SCO ID# 24-27857-01A

and the principal desires to file this bid bond in lieu of making the cash deposit as required by G.S. 143-129.

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 and give bond for the faithful performance thereof within ten days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so execute such contract and give performance bond as required by G.S. 143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by G.S. 143-129.1

____(SEAL)

____(SEAL)

____(SEAL)

____(SEAL)

____(SEAL)

FORM OF CONSTRUCTION CONTRACT

(ALL PRIME CONTRACTS)

THIS AGREEMENT, made the ____________ day of _____________ in the year of 20__ by and between ________________________________ ____ hereinafter called the Party of the First Part and the State of North Carolina, through the **North Carolina State Ports Authority (NCSPA)** hereinafter called the Party of the Second Part.

WITNESSETH:

That the Party of the First Part and the Party of the Second Part for the consideration herein named agree as follows:

1. Scope of Work: The Party of the First Part shall furnish and deliver all of the materials, and perform all of the work in the manner and form as provided by the following enumerated plans, specifications and documents, which are attached hereto and made a part thereof as if fully contained herein: advertisement; Instructions to Bidders; General Conditions; Supplementary General Conditions; specifications; accepted proposal; contract; performance bond; payment bond; power of attorney; workmen's compensation; public liability; property damage and builder's risk insurance certificates; approval of attorney general; certificate by the Office of State Budget and Management, and drawings, titled:

CONVERT 4160V OH TO UG

NCSPA Contract Number C-1799

Port of Wilmington, Wilmington, North Carolina

Consisting of the following drawings: **E-001, E-101, E-701, and E-702**

Dated: **April 4, 2024** and the following addenda:

Addendum No	______	Dated:	____________	Addendum No.	______	Dated:	______________
Addendum No	______	Dated:	____________	Addendum No.	______	Dated:	______________

2. That the Party of the First Part shall commence work to be performed under this agreement on a date to be specified in a written order of the Party of the Second Part and shall fully complete all work hereunder within ___ consecutive calendar days from said date. For each day in excess thereof, liquidated damages shall be as stated in Supplementary General Conditions. The Party of the First Part, as one of the considerations for the awarding of this contract, shall furnish to the Party of the Second Part a construction schedule setting forth planned progress of the project broken down by the various divisions or part of the work and by calendar days as outlined in Article 14 of the General Conditions of the Contract.

3. The Party of the Second Part hereby agrees to pay to the Party of the First Part for the faithful performance of this agreement, subject to additions and deductions as provided in the specifications or proposal, in lawful money of the United States as follows: ________________________________
____ ($ __________________).

Summary of Contract Award:

4. In accordance with Article 31 and Article 32 of the General Conditions of the Contract, the Party of the Second Part shall review, and if approved, process the Party of the First Party's pay request within 30 days upon receipt from the Designer. The Party of the Second Part, after reviewing and approving said pay request, shall make payments to the Party of the First Part on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the First Party, less five percent (5%) of the amount of such estimate which is to be retained by the Second Party until all work has been performed strictly in accordance with this agreement and until such work has been accepted by the Second Party. The Second Party may elect to waive retainage requirements after 50 percent of the work has been satisfactorily completed on schedule as referred to in Article 31 of the General Conditions.

5. Upon submission by the First Party of evidence satisfactory to the Second Party that all payrolls, material bills and other costs incurred by the First Party in connection with the construction of the work have been paid in full, final payment on account of this agreement shall be made within thirty (30) days after the completion by the First Party of all work covered by this agreement and the acceptance of such work by the Second Party.

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

7. The Party of the First Part attest that it and all of its subcontractors have fully complied with all requirements of NCGS 64 Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

IN WITNESS WHEREOF, the Parties hereto have executed this agreement on the day and date first above written in ____________ counterparts, each of which shall without proof or accounting for other counterparts, be deemed an original contract.

Witness: ________________________________
Contractor: (Trade or Corporate Name)

____________________________ By: ________________________________

(Proprietorship or Partnership)

Title: ________________________________
(Owner, Partner, or Corp.
Pres. or Vice Pres. only)

Attest: (Corporation)

By: ______________________________

(CORPORATE SEAL)

Title: ____________________________
(Corp. Sec. or Asst. Sec. only)

The State of North Carolina through
North Carolina State Ports Authority
(Agency, Department or Institution)

Witness:

________________________ By: ________________________________

Title:________________________________

FORM OF PERFORMANCE BOND

Date of Contract: ______________________________

Date of Execution: ______________________________

Name of Principal: ______________________________
(Contractor)

Name of Surety: ______________________________

Name of Contracting Body: **State of North Carolina through the North Carolina State Ports Authority (NCSPA)**

Amount of Bond: **$**______________________________

Project: **CONVERT 4160V OH TO UG**

NCSPA Contract Number C-1799

SCO ID# 24-27857-01A

Port of Wilmington, Wilmington, North Carolina

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind, ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body, identified as shown above and hereto attached:

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

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

Executed in ____________________ counterparts.

Witness:

____

Contractor: (Trade or Corporate Name)

____
(Proprietorship or Partnership)

By:______________________________________

Title:______________________________________
(Owner, Partner, or Corp.
Pres. or Vice Pres. only)

Attest: (Corporation)

By: ________________________________

Title: ________________________________
(Corp. Sec. or Asst. Sec. only)

(Corporate Seal)

____
(Surety Company)

Witness:

By:_______________________________

____

Title:___________________________
(Attorney in Fact)

Countersigned:

____

(Surety Corporate Seal)

____
(N.C. Licensed Resident Agent)

____

____
Name and Address-Surety Agency

____

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

FORM OF PAYMENT BOND

Date of Contract: ______________________________

Date of Execution: ______________________________

Name of Principal: ______________________________
(Contractor)

Name of Surety: ______________________________

Name of Contracting Body: **State of North Carolina through the North Carolina State Ports Authority (NCSPA)**

Amount of Bond: **$**______________________________

Project: **CONVERT 4160V OH TO UG**

NCSPA Contract Number C-1799

SCO ID# 24-27857-01A

Port of Wilmington, Wilmington, North Carolina

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body identified as shown above and hereto attached:

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

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

Executed in ____________________ counterparts.

Witness:

____

Contractor: (Trade or Corporate Name)

____
(Proprietorship or Partnership)

By:______________________________

Title:______________________________
(Owner, Partner, or Corp.
Pres. or Vice Pres. only)

Attest: (Corporation)

By: ______________________________

Title: ______________________________
(Corp. Sec. or Asst. Sec. only)

(Corporate Seal)

____
(Surety Company)

Witness:

____

By:______________________________

Title:______________________________
(Attorney in Fact)

Countersigned:

____

(Surety Corporate Seal)

____
(N.C. Licensed Resident Agent)

____

____
Name and Address-Surety Agency

____

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

SHEET FOR ATTACHING POWER OF ATTORNEY

SHEET FOR ATTACHING INSURANCE CERTIFICATES

APPROVAL OF THE ATTORNEY GENERAL

CERTIFICATION BY THE OFFICE OF STATE BUDGET AND MANAGEMENT

Provision for the payment of money to fall due and payable by the **North Carolina State Ports Authority, SCO ID# 24-27857-01A** under this agreement has been provided for by allocation made and is available for the purpose of carrying out this agreement.

This ____________________ day of ______________________________ 20______.

Signed ____

Budget Officer