

01 11 00 SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. Construct Work as described in the Contract Documents.
 - 1. Provide the materials, equipment, and incidentals required to make the Project completely and fully operable.
 - 2. Provide the labor, equipment, tools, and consumable supplies required for a complete Project.
 - 3. Provide the civil, architectural, structural, mechanical, electrical, instrumentation, and all other Work required for a complete and operable Project.
 - 4. Test and place the completed Project in operation.
 - 5. Provide the special tools, spare parts, lubricants, supplies, or other materials as indicated in the Contract Documents for the operation and maintenance of the Project.
 - 6. The Contract Documents do not indicate or describe all Work required to complete the Project. Additional details required for the correct installation of selected products are to be provided by the Contractor and coordinated with the Engineer
- B. Owner may pre-select or pre-purchase goods for this Project per Section 01 64 00 "Owner-Furnished Goods and Special Services." Install these goods and coordinate the performance of specified special services.

1.02 DESCRIPTION OF WORK

- A. Work is described in general, non-inclusive terms as:
 - 1. **Resurface Streets**
 - 2. **Mill Streets**

1.03 WORK UNDER OTHER CONTRACTS

- A. The Owner has no knowledge of work, other than the Work included in this Contract, which may impact construction scheduling, testing, and startup.

1.04 WORK BY OWNER

- A. The Owner has no knowledge of work, other than the Work included in this Contract that may impact construction scheduling, testing, and startup.
- B. Owner will provide normal operation and maintenance of the existing facilities during construction, unless otherwise stated.

1.05 CONSIDERATION AND COOPERATION WITH UTILITIES

- A. The Contractor shall include the cost of any coordination and cooperation with utilities in their bid.

1. Prior to submission of bid, the Contractor shall make their own determination as to the following:
 - a. the nature and extent of the utility facilities including but not limited to proposed adjustments, new facilities, or temporary work to be performed by the utility owner or their representative.
 - b. whether or not any utility work is planned by the utility owner in conjunction with the project construction.
 2. The Contractor shall consider in their bid all of the permanent and temporary utility facilities in their present or relocated positions, whether or not specifically shown in the plans or covered in the special provisions. It will be the Contractor's responsibility to anticipate additional costs to them resulting from such utilities and to reflect these costs in their bid for the various items in the contract.
 3. No additional compensation shall be allowed for delays or inconvenience sustained by the Contractor due to utility relocation or adjustments.
- B. The Contractor shall use NC811 to locate utilities and shall use special care working in, around, and near all existing utilities.
1. Protect all utilities encountered (see 01 31 00 "Project Management and Coordination").
 2. No additional compensation will be made for excavating near or around existing utilities, for purposes of locating or preservation. Not all utilities (above ground or underground) will be relocated – the Contractor shall consider any mechanized and/or hand-digging necessary to preserve the integrity of utilities in their bid price.
 3. Damage to Existing Utilities
 - a. If the Work is delayed as a result of damage to an **improperly** marked utility, the Contractor may request an extension of the Contract Time in accordance with these Contract Documents. Should the Contractor determine compensation for the damages is also warranted, the Contractor will follow the change management process as outlined in these documents.
 - b. If the Work is delayed as a result of damage to a **properly** marked utility, no additional Contract Time or compensation shall be granted.
- C. Unforeseen conditions and utilities are the responsibility of the contractor to remove or relocate. Contractor shall follow the change management process for potential adjustments to Contract Time or Contract Price.
- D. Any changes to utilities made solely for the convenience of the Contractor shall be the Contractor's responsibility to arrange for and bear all costs pertaining to and resulting from such changes.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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01 26 00 CHANGE MANAGEMENT

PART 1 - GENERAL

1.01 REQUESTS FOR CHANGE PROPOSAL – OWNER INITIATED

- A. Engineer will initiate Modifications by issuing a Request for Change Proposal (“RCP”).
 - 1. Engineer will prepare a description of proposed Modifications.
 - 2. Engineer will issue the RCP form to Contractor. A number will be assigned to the Request for an RCP when issued.
 - 3. Contractor will return a Change Proposal in accordance with Paragraph **[1.02]** for evaluation by the Owner.

1.02 CHANGE PROPOSALS – CONTRACTOR INITIATED

- A. Submit a Change Proposal (“CP”) to the Engineer for Contractor-initiated changes in the Contract Documents or in response to a RCP. Submit the Change Proposal and attach the forms provided by the Engineer.
 - 1. Use the Change Proposal form provided by the Engineer.
 - 2. Include with the Change Proposal:
 - a. A complete description of the proposed Modification if Contractor-initiated or proposed changes to the description of the proposed Modification.
 - b. The reason the Modification is requested, if not in response to a RCP.
 - c. A detailed breakdown of the cost of the change if the Modification requires a change in Contract Price. The itemized breakdown is to include:
 - 1) List of materials and equipment to be installed;
 - 2) Man hours for labor by classification;
 - 3) Equipment used in construction;
 - 4) Consumable supplies, fuels, and materials;
 - 5) Royalties and patent fees;
 - 6) Bonds and insurance;
 - 7) Overhead and profit;
 - 8) Field office costs;
 - 9) Home office cost; and
 - 10) Other items of cost.
 - d. Provide the level of detail outlined in the paragraph above for each Subcontractor or Supplier actually performing the Work if Work is to be provided by a Subcontractor or Supplier. Indicate appropriate Contractor mark-ups for Work provided through Subcontractors and Suppliers. Provide the level of detail outlined in the paragraph above for self-performed Work.

- e. Submit CPs that comply with the General Conditions for Cost of Work.
- f. Provide a revised schedule. Show the impact of the change on the Project Schedule and the Contract Times.
- B. Submit a CP to the Engineer to request a Field Order.
- C. A Change Proposal is required for all substitutions or deviations from the Contract Documents.
- D. Request changes to products in accordance with Section 01 33 02 "Shop Drawings."

1.03 ENGINEER WILL EVALUATE THE REQUEST FOR A MODIFICATION

- A. Engineer will issue a Modification per the General Conditions if the CP is acceptable to the Owner. Engineer will issue a Change Order or Contract Amendment for any changes in Contract Price or Contract Times.
 - 1. Change Orders and Contract Amendments will be sent to the Contractor for execution with a copy to the Owner recommending approval. A Work Change Directive may be issued if Work needs to progress *before* the Change Order or Contract Amendment can be authorized by the Owner.
 - 2. Work Change Directives, Change Orders, and Contract Amendments can only be approved by the Owner.
 - a. Work performed on the CP prior to receiving a Work Change Directive or approval of the Change Order or Contract Amendment is performed at the Contractor's risk.
 - b. No payment will be made for Work on Change Orders or Contract Amendments until approved by the Owner.
- B. Contractor may be informed that the CP is not approved and construction is to proceed in accordance with the Contract Documents.

1.04 EQUAL NON-SPECIFIED PRODUCTS

- A. The products of the listed manufacturers are to be furnished where the Specifications list several manufacturers and do not specifically list "or equal" or "or approved equal" products. Use of any products other than those specifically listed is a substitution. Follow the procedures in Paragraph [1.05] for a substitution.
- B. Contractor may submit other manufacturers' products that are in full compliance with the Specifications where Specifications list one or more manufacturers followed by the phrase "or equal" or "or approved equal."
 - 1. Submit a Shop Drawing as required by Section 01 33 02 "Shop Drawings" to document that the proposed product is equal or superior to the specified product.
 - 2. The burden of proof for equality rests with the Contractor:
 - a. Indicate on a point-by-point basis for each specified feature that the product is equal to the Contract Document requirements.

- b. Make a direct comparison with the specified manufacturer's published data sheets and available information. Provide this printed material with the Shop Drawing.
 - c. The decision of the Engineer regarding the acceptability of the proposed product is final.
- 3. Provide a certification that, in furnishing the proposed product as an equal, the Contractor:
 - a. Has thoroughly examined the proposed product and has determined that it is equal or superior in all respects to the product specified.
 - b. Has determined that the product will perform in the same manner and result in the same process as the specified product.
 - c. Will provide the same warranties and/or bonds as for the product specified.
 - d. Will assume all responsibility to coordinate any modifications that may be necessary to incorporate the product into the construction and will waive all claims for additional Work which may be necessary to incorporate the product into the Project which may subsequently become apparent.
 - e. Will maintain the same time schedule as for the specified product.
- C. A CP is not required for any product that is in full compliance with the Contract Documents. If the product is not in full compliance, it may be offered as a Substitution.

1.05 SUBSTITUTIONS

- A. Substitutions are defined as any product that the Contractor proposes to provide for the Project in lieu of the specified product. Submit a Change Proposal per Paragraph **[1.02]** along with documents required for a Shop Drawing as required by Section 01 33 02 "Shop Drawings" to request approval of a substitution.
- B. Prove that the product is acceptable as a substitute. It is not the Engineer's responsibility to prove the product is not acceptable as a substitute.
 - 1. Indicate on a point-by-point basis for each specified feature that the product is acceptable to meet the intent of the Contract Documents requirements.
 - 2. Make a direct comparison with the specified Suppliers published data sheets and available information. Provide this printed material with the Shop Drawing.
 - 3. The decision of the Engineer regarding the acceptability of the proposed substitute product is final.
- C. Provide a certification that, in making the substitution request, the Contractor:
 - 1. Has determined that the substituted product will perform in substantially the same manner and result in the same ability to meet the specified performance as the specified product;
 - 2. Will provide the same warranties and/or bonds for the substituted product as specified or as would be provided by the manufacturer of the specified product;

3. Will assume all responsibility to coordinate any modifications that may be necessary to incorporate the substituted product into the Project and will waive all claims for additional Work which may be necessary to incorporate the substituted product into the Project which may subsequently become apparent; and
 4. Will maintain the same time schedule as for the specified product.
- D. Pay for review of substitutions in accordance with Section 01 33 02 "Shop Drawings."

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

01 29 00 APPLICATION FOR PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Submit Applications for Payment for completed Work and for materials and equipment in accordance with the General Conditions, the Supplementary Conditions, the Agreement, and this Section. The Contract Price is to include costs for:
 - 1. Providing the Work in accordance with the Contract Documents;
 - 2. Installing Owner furnished equipment and materials, if any;
 - 3. Providing Work for alternates and allowances, if any;
 - 4. Providing Work for extra work items, if any and if authorized
 - 5. Commissioning, startup, training, and initial maintenance and operation;
 - 6. Acceptance testing at the manufacturer's facilities or at the Site;
 - 7. All home office overhead costs and expenses, including profit made directly or indirectly from the Project;
 - 8. Project management, contract administration, and field office and field operations staff including supervision, clerical support, and technology system support;
 - 9. Professional services including design fees, legal fees, and other professional services;
 - 10. Bonds and insurance;
 - 11. Permits, licenses, patent fees, and royalties;
 - 12. Taxes;
 - 13. Providing all documentation and Samples required by the Contract Documents;
 - 14. Facilities and equipment at the Site including:
 - a. Field offices, office furnishings, and all related office supplies, software, and equipment,
 - b. Storage facilities for Contractor's use and storage facilities for stored materials and equipment including spare parts storage,
 - c. Shops, physical plant, construction equipment, small tools, vehicles, and technology and telecommunications equipment,
 - d. Safety equipment and facilities to provide safe access and working conditions for workers and for others working at the Site,
 - e. Temporary facilities for power and communications,
 - f. Potable water and sanitation facilities, and
 - g. Mobilization and demobilization for all these facilities and equipment.
 - 15. Products, materials, and equipment stored at the Site or other suitable location in accordance with Section 01 31 00 "Project Management and Coordination";

16. Products, materials, and equipment permanently incorporated into the Project;
 17. Temporary facilities for managing water including facilities for pumping, storage, and treatment as required for construction and protection of the environment;
 18. Temporary facilities for managing environmental conditions and Constituents of Concern;
 19. Temporary facilities such as sheeting, shoring, bracing, formwork, embankments, storage facilities, working areas, and other facilities required for construction of the Project;
 20. Temporary and permanent facilities for protection of all overhead, surface, or underground structures or features;
 21. Temporary and permanent facilities for removal, relocation, or replacement of any overhead, surface, or underground structures or features;
 22. Products, materials, and equipment consumed during the construction of the Project;
 23. Contractor labor and supervision to complete the Project including that provided through Subcontractors or Suppliers;
 24. Correcting Defective Work during the Contract Times, during the Correction Period, or as required to meet any warranty provision of the Contract Documents;
 25. Risk associated with weather and environmental conditions, startup, and initial operation of facilities including equipment, processes, and systems;
 26. Contractor safety programs, including management, administration, and training;
 27. Maintenance of facilities including equipment, processes, and systems until operation is transferred to Owner;
 28. Warranties, extended or special warranties, or extended service agreements;
 29. Cleanup and disposal of any and all surplus materials; and
 30. Demobilization of all physical, temporary facilities not incorporated into the Project.
- B. Include the cost not specifically set forth as an individual payment item but required to provide a complete and functional system in the Contract Price.
- C. Provide Sales Tax Certificates
1. Complete City of Fayetteville forms certifying sales tax paid on all materials used in construction. The Contractor may use his own forms as long as the information requested by the City certificated is supplied.
 2. The certificate shall be furnished with each pay request, regardless of amount, and list taxes for all items included in the pay request.
 3. In the event the pay request does not include any taxable items, the certificate is still required and must certify this fact.
 4. Pay requests without required certificate may be denied approval and payment until the certificate is provided.

- D. Provide written approval of the surety company providing performance and payment bonds for the Schedule of Values, Application for Payment form, and method of payment prior to submitting the first Application for Payment. Submit approval using the "Consent of Surety Company to Payment Procedures" form provided by the Engineer. Payment will not be made without this approval.
- E. Engineer may withhold processing the Applications for Payment if any of the following processes or documentation is not up to date:
 - 1. Progress Schedule per Section 01 33 05 "Construction Progress Schedule." Failure to submit Progress Schedules will cause delay in the review and approval of subsequent Applications for Payment.
 - 2. Project videos and photographs per Section 01 33 06 "Graphic Documentation."
 - 3. Record Documents per Section 01 31 13 "Project Coordination."
 - 4. Documentation required to comply with Section 00 41 00 "SDBE Program."
- F. Submit, via a separate submittal, updated red-line drawings every month in conjunction with the pay application. Failure to submit Monthly Red-Line Drawings will cause delay in the review and approval of subsequent Applications for Payment. See 01 31 13 "Project Coordination" Paragraph 1.11 for reference.

1.02 SCHEDULE OF VALUES

- A. Divide the Contract Price into an adequate number of line items to allow more accurate determination of the earned value for each line item when evaluating progress payments. Submit a detailed Schedule of Values for the Project at least 10 days prior to submitting the first Application for Payment using forms provided by the Engineer.
- B. Do not apply for payment until the Schedule of Values has been approved by the Engineer.
- C. Divide the cost associated with each line item in the Schedule of Values into installation and materials components.
 - 1. Installation cost is to include all cost associated with the line item except materials cost.
 - 2. Materials cost is the direct cost (as verified by invoice values) for products, materials, and equipment to be permanently incorporated into the Project associated with the line item.
 - 3. Installation cost is to include all direct costs and a proportionate amount of the indirect costs for the Work associated with each line item. Include costs not specifically set forth as an individual payment item but required to provide a complete and functional system.
 - 4. The sum of materials and installation costs for all line items must equal the Contract Price.
- D. Use each unit price line item in the Agreement as a line item in the Schedule of Values. The sum of materials and installation costs for each line item for unit price contracts must equal the value of the line item in the Agreement. In addition to the installation cost described in

Paragraph **[1.02.C.3]**, installation costs for unit price items are to include costs for waste and overages.

1. Installation and materials cost may be left as a single installation component if:
 - a. Contractor does not intend to request payment for stored materials for that line item; or
 - b. Work in the line item will be completed within a single payment period.
 2. Provide adequate detail to allow a more accurate determination of the earned value for installation costs, expressed as a decimal fraction of Work completed, for each line item.
 3. Installation cost line items may not exceed \$50,000.00. Items that are not subdivided into smaller units may only be included in the Application for Payment when Work on the entire unit is complete.
 4. Lump sum items may be divided into an estimated number of units to estimate earned value. The estimated number of units times the cost per unit must equal the lump sum amount for that line item.
 5. Include Contractor's overhead and profit in the installation costs each line item in proportion to the value of the line item to the Contract Price.
 6. Include cost not specifically set forth as an individual payment item but required to provide a complete and functional system in the Contract Price for each item.
 7. Line items may be used to establish the value of Work to be added or deleted from the Project.
- E. Include a breakdown of both mobilization and demobilization costs in the Schedule of Values. Partial payments for Mobilization will be made with the first and second partial pay estimates paid on the contract and will be made at the rate of 50% lump sum price on each of these partial pay estimates, provided the amount bid for Mobilization does not exceed 5% of the total amount bid for the contract. Where the amount bid for Mobilization exceeds 5% of the total amount bid for the contract, 2.5% of the total amount bid will be paid on each of the first two partial pay estimates. That portion exceeding 5% will be paid on the last partial pay estimate:
1. Bonds and insurance;
 2. Transportation and setup for equipment;
 3. Transportation and/or erection of all field offices, sheds, and storage facilities;
 4. Salaries for preparation of documents required before the first Application for Payment; and
 5. Salaries for field personnel directly related to the mobilization of the Project.

1.03 SCHEDULE OF ANTICIPATED PAYMENTS

- A. Submit a schedule of the anticipated Application for Payments showing the anticipated application numbers, submission dates, and the amount to be requested for each Application for Payment on the form provided by the Engineer.

- B. Update the schedule of anticipated payments as necessary to provide a reasonably accurate indication of the funds required to make payments each month to the Contractor for Work performed.

1.04 ALTERNATES, ALLOWANCES, AND EXTRA WORK ITEMS

- A. Include line items and amounts for specified alternate Work and allowances for Work in the Agreement, if any, and as described in Section 01 23 10 "Alternates and Allowances."
- B. Include line items and amounts for Extra Work items in the Agreement, if any, and as described in Section 01 29 01 "Measurement and Basis for Payment."

1.05 RETAINAGE AND SET-OFFS

- A. Retainage will be withheld from each Application for Payment per the Agreement.
- B. Reduce payments for set-offs per the General Conditions as directed by the Engineer.

1.06 PROCEDURES FOR SUBMITTING AN APPLICATION FOR PAYMENT

- A. Submit a draft Application for Payment to the Engineer each month on the twenty-fifth (25th) day of the month. Do not submit Applications for Payment more often than monthly unless approved by the City of Fayetteville. Review the draft Application for Payment with the Engineer to determine concurrence with:
 - 1. Values requested for materials and equipment, stored or incorporated into the Project as documented by invoices;
 - 2. The earned value for installation costs for each line item in the Application for Payment form expressed as a percent complete for that line item;
 - 3. The quantity of Work completed for each unit price item;
 - 4. Amount of retainage to be held; and
 - 5. Set-offs included in the Application for Payment.
- B. Submit Applications for Payment to the Engineer after agreement has been reached on the draft Application for Payment with the Engineer.
- C. Provide all information requested in the Application for Payment form. Do not leave any blanks incomplete. If information is not applicable, enter "N/A" in the space provided.
 - 1. Number each application sequentially and include the dates for the application period.
 - 2. Complete the "Contract Time Summary" section on the Application for Payment form. If the Final Completion date shows the Project is more than 30 days behind schedule, revise the Schedule of Anticipated Payments to correspond to the updated schedule required per Section 01 33 05 "Construction Progress Schedule."
 - 3. Complete the "Summary of Earned Value and Set-offs" section on the Application for Payment form. Show the total amounts for earned value of original Contract performed, earned value for Work on approved Contract Amendments and Change Orders, retainage and set-offs.

4. Sign and date the Contractor's Certification on the Application for Payment form that all Work, including materials, covered by this Application for Payment have been completed or delivered and stored in accordance with the Contract Documents, that all amounts have been paid for Work, materials, and equipment for which previous Payment has been made by the Owner, and that the current payment amount shown in this Application for Payment is now due.
 5. Include "Attachment A - Tabulation of Earned Value of Original Contract Performed" to show the value of materials stored and successfully incorporated into the Project and the earned value for installation of the Work for each line item in the Application for Payment for Work. Attachment A includes Work on the original Contract Price and on approved Contract Amendments and Change Orders.
 6. Include "Attachment B - Tabulation of Values for Materials and Equipment" to track invoices used to support amounts requested as materials in Attachment A. Enter materials to show the amount of the invoice assigned to each item in Attachment A if an invoice includes materials used on several line items.
 7. Include "Attachment C - Summary of Set-offs" to document set-offs made per the Contract Documents. Show each set-off as it is applied. Show a corresponding line item to reduce the set-off amount if a payment held by a set-off is released for payment.
 8. Include "Attachment D - Retainage Calculation" to show method for calculating retainage. The amount of retainage with respect to progress payments is stipulated in the Agreement. Any request for a reduction in retainage must be accompanied by a Consent of Surety to Reduction or Partial Release of Retainage.
 9. Include "Attachment E - EVA Calculation" and the EVA Chart showing the anticipated and actual total earned value of fees, Work, and materials. Create a graphic representation (curve) of the anticipated progress on the Project each month. Compare the anticipated cumulative total earned value of fees, Work, and materials to the actual total earned value of fees, Work, and materials to determine performance on budget and schedule. Adjust the table and curve to incorporate Modifications.
 10. Include Sales Tax Certificate.
- D. Submit attachments in Portable Document Format (PDF).
1. Generate attachments to the Application for Payment using the Excel spreadsheet provided by the Engineer.
 2. Submit PDF documents with adequate resolution to allow documents to be printed in a format equivalent to the document original. Documents are to be scalable to allow printing on standard 8-1/2 x 11 or 11 x 17 paper.

1.07 ADJUSTMENTS TO THE SCHEDULE OF VALUES IN THE APPLICATION FOR PAYMENT

- A. Submit a Change Proposal to request any changes to the Schedule of Values incorporated into the Application for Payment once approved. A Field Order will be issued by the Engineer to modify the Application for Payment form if approved.

- B. Payment for materials and equipment shown in the Application for Payment will be made for the total of associated invoice amounts, up to the value shown for materials in the Application for Payment for that line item.
 - 1. If the total amount for invoices for materials and equipment for a line item are less than the amount shown for the materials component of that line item in the Application for Payment, and it can be demonstrated that no additional materials or equipment are required to complete Work described in that item, the difference between the total invoice for materials and equipment and the materials component for that line item can be added to the installation component of that Work item.
 - 2. Costs for material and equipment in excess of the value shown in the Schedule of Values may not be paid for under other line items.

1.08 ENGINEER'S RESPONSIBILITY

- A. Engineer will review each draft Application for Payment with Contractor to reach an agreement on the amount to be recommended to Owner for payment. Contractor is to revise the Application for Payment to incorporate changes, if any, resulting from this review process.
- B. Engineer will review the Application for Payment to determine that the Application for Payment has been properly submitted and is in accordance with the agreed to draft Application for Payment.
- C. Engineer will either recommend payment of the Application for Payment to Owner or notify the Contractor of the reasons for not recommending payment. Contractor may make necessary corrections and resubmit the Application for Payment. Engineer will review resubmitted Application for Payment and reject or recommend payment of the Application for Payment to Owner as appropriate.
- D. Engineer's recommendation of the Application for Payment constitutes a representation that based on its experience and the information available:
 - 1. The Work has progressed to the point indicated;
 - 2. The quality of the Work is generally in accordance with the Contract Documents; and
 - 3. Requirements prerequisite to payment have been met.
- E. This representation is subject to:
 - 1. Further evaluation of the Work as a functioning whole;
 - 2. The results of subsequent tests called for in the Contract Documents; or
 - 3. Any other qualifications stated in the recommendation.
- F. Engineer does not represent by recommending payment that:
 - 1. Inspections made to check the quality or the quantity of the Work as it was performed were exhaustive or extended to every aspect of the Work in progress; or
 - 2. Other matters or issues that might entitle Contractor to additional compensation or entitle Owner to withhold payment to Contractor exist.

- G. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of payment imposes responsibility on the Engineer or Owner:
 - 1. To supervise, direct, or control the Work;
 - 2. For the means, methods, techniques, sequences, or procedures of construction, or safety precautions and programs;
 - 3. For Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - 4. To make examinations to ascertain how or for what purposes Contractor has used the monies paid on account of the Contract Price; or
 - 5. To determine that title to the Work, materials, or equipment has passed to Owner free and clear of Liens.

1.09 FINAL APPLICATION FOR PAYMENT

- A. Include adjustments to the Contract Price in the final Application for Payment for:
 - 1. Approved Change Orders and Contract Amendments;
 - 2. Allowances not previously adjusted by Change Order;
 - 3. Deductions for Defective Work that have been accepted by the Owner;
 - 4. Penalties and bonuses;
 - 5. Deduction for all final set-offs; and
 - 6. Other adjustments if needed.
- B. Engineer will prepare a final Change Order reflecting the approved adjustments to the Contract Price which have not been covered by previously approved Change Orders and, if necessary, to reconcile estimated unit price quantities with actual quantities.
- C. Submit the final Application for Payment per the General Conditions, including the final Change Order. Provide the following with the final Application for Payment:
 - 1. Evidence of payment or release of Liens on the forms provided by the Engineer and as required by the General Conditions.
 - 2. Consent from surety to final payment.
- D. Final payment will also require additional procedures and documentation per Section 01 70 00 "Execution and Closeout Requirements."

1.10 PAYMENT BY OWNER

- A. Owner is to pay the amount recommended for monthly payments within 30 days after receipt of the Engineer's recommended Application for Payment.
- B. Final payment may take longer than 30 days since Owner's **Engineer** must approve final payment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

29 01 MEASUREMENT AND BASIS FOR PAYMENT

PART 1 - GENERAL

1.01 PAYMENT FOR MATERIALS AND EQUIPMENT

- A. Payment will be made for materials and equipment materials properly stored and successfully incorporated into the Project less the specified retainage.

1.02 MEASUREMENT AND BASIS FOR PAYMENTS ON UNIT PRICE ITEMS

- A. Measure the Work using the unit of measure indicated in this Section for each unit price line item. Payment will be made only for the actual measured unit and/or computed length, area, solid contents, number, and weight unless other provisions are made in the Contract Documents. Payment on a unit price basis will not be made for Work outside dimensions shown in the Contract Documents.
- B. Payment will be made for the actual quantity of Work completed and for materials and equipment stored during the payment period. Payment amount is the Work quantity measured per Paragraph A above multiplied by the unit price for that line item in the Agreement.

1.03 MEASUREMENT AND BASIS FOR PAYMENT FOR BASE ITEMS

- A. Item A-01 – Mobilization:
 - 1. Measuring for payment is on a lump sum basis. Payment for mobilization, unless otherwise specified here within, will be made on the first and second payments in equal portions.
- B. Item A-02 – Traffic Control
 - 1. Measurement shall not be made for this item.
 - 2. Traffic Control will be paid as contract lump sum price. Partial payments for Traffic Control will be made on the following schedule of pay estimates:
 - a. 50% of lump sum on First Partial Pay Estimate
 - b. 25% of lump sum at Completion of 50% of the Project
 - c. 15% of lump sum at Substantial Completion of the Project
 - d. 10% of lump sum at Final Payment
- C. Item A-03 – Remove and Dispose of Existing Concrete Curb & Gutter
 - 1. Measurement and payment for Remove and Dispose of Existing Concrete Sidewalk shall be made on the basis of the unit price and shall be per Linear Foot removed per City of Fayetteville Technical Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to remove and dispose of existing concrete sidewalk.

- D. Item A-04 – Remove and Dispose of Existing Asphalt Pavement
 - 1. Measurement and payment for Remove and Dispose of Existing Pavement shall be made on the basis of the unit price and shall be per square yard used as per City of Fayetteville Specification. This payment shall be considered compensation for furnishing, hauling, placing materials, fabric, staples, grading, equipment, tools, labor and other incidentals necessary to remove existing pavement.
- E. Item A-05 – Unclassified Excavation
 - 1. Measurement and payment for Unclassified Excavation shall be made on the basis of the unit price and shall be per cubic yard per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for unclassified excavation.
- F. Item A-06 – Undercut Excavation
 - 1. Measurement and payment for Undercut Excavation shall be made on the basis of the unit price and shall be per cubic yard per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for undercut excavation.
- G. Item A-07 – Select Borrow
 - 1. Measurement and payment for Select Borrow shall be made on the basis of the unit price and shall be per cubic yard as per City of Fayetteville Specification Section. This payment shall be considered compensation for material, placement, steel plating, backfilling, tools, equipment and will be paid by each cubic yard installed.
- H. Item A-08 – Replace Curb and Gutter
 - 1. Measurement and payment for Replace Concrete Curb and Gutter shall be made on the basis of the unit price and shall be per Linear Foot removed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to replace curb and gutter as described in the Contract Documents.
- I. Item A-09 – Adjust Existing Manholes
 - 1. Measurement and payment for Adjust Existing Manhole Cover shall be made on the basis of the unit price and shall be per each per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to adjust existing manhole cover as described in the contract documents.
- J. Item A-10 – Adjust Existing Water Valves
 - 1. Measurement and payment to adjust existing water valves will be per unit price per Each per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to adjust existing water valves as described in the contract documents.

K. Item A-11 – Adjustment Rings

1. Measurement and payment for adjustment rings will be per unit price per Each per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for adjustment rings.

L. Item A-12 – Profile by Milling (0"-2" depth)

1. Measurement and payment for profile by milling will be made on the basis of the unit price per square yard milled per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to mill pavement, clean the milled surface, load, haul, and legally dispose of milled materials. Any equipment necessary to remove asphalt in the areas of manholes, water valves, curb and gutter and any other obstructions shall be part of milling contract price.

M. Item A-13 – Edge Milling (0"-2" Depth)

1. Measurement and payment for Edge Milling will be made on the basis of the unit price per square yard milled per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to mill pavement, clean the milled surface, load, haul, and legally dispose of milled materials. Any equipment necessary to remove asphalt in the areas of manholes, water valves, curb and gutter and any other obstructions shall be part of milling contract price.

N. Item A-14 – Incidental Milling

1. Measurement and payment for Incidental Milling will be made on the basis of the unit price per square yard milled per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to mill pavement, clean the milled surface, load, haul, and legally dispose of milled materials. Any equipment necessary to remove asphalt in the areas of manholes, water valves, curb and gutter and any other obstructions shall be part of milling contract price.

O. Item A-15 – Bituminous Concrete Base Course (Type 25.0 B)

1. Measurement and payment for Bituminous Concrete Base Course (Type 25.0 B) will be made on the basis of the unit price per ton per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for Bituminous Concrete Base Course (Type 25.0 B).

P. Item A-16 – Bituminous Concrete Binder Course (Type I 19.0 B)

1. Measurement and payment for Bituminous Concrete Binder Course (Type I 19.0 B) will be made on the basis of the unit price per ton per City of Fayetteville Specifications. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for Bituminous Concrete Binder Course (Type I 19.0B).

Q. Item A-17 – Bituminous Asphalt Concrete Surface Course (Type S 9.5 B)

1. Measurement and Payment for Bituminous Asphalt Concrete Surface Course (Type S 9.5 B) will be made on the basis of the unit price per ton installed per City of

Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for Bituminous Asphalt Concrete Leveling Course (Type S 9.5 B).

- R. Item A-18 – Bituminous Asphalt Concrete Leveling Course (Type S 9.5 B)
 - 1. Measurement and Payment for Bituminous Asphalt Concrete Leveling Course (Type S 9.5B) will be made on the basis of the unit price per ton installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for Bituminous Asphalt Concrete Leveling Course (Type S 9.5 B).
- S. Item A-19 – Asphalt Binder for Plant Mix PG 64-22
 - 1. Measurement and Payment for Asphalt Binder Plant Mix PG 64-22 will be made on the basis of the unit price per ton installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for Asphalt Binder for Plant mix PG 64-22.
- T. Item A-20 – Crack Sealing (Asphalt)
 - 1. Measurement and payment for crack sealing will be made on the basis of the unit price per ton per city of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for crack sealing.
- U. Item A-21 – Incidental Stone
 - 1. Measurement and payment for incidental stone will be made on the basis of the unit price per ton per city of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for incidental stone.
- V. Item A-22 – Shoulder Reconstruction
 - 1. Measurement and payment for Shoulder Reconstruction will be made on the basis of the unit price per square yard per Technical Specification for Shoulder Reconstruction. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary for shoulder reconstruction.
- W. Item A-23 – Remove and Replace Precast Manhole Slab
 - 1. Measurement and payment to remove and replace precast manhole slab will be made on the basis of each per City of Fayetteville Specification. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to remove and replace precast manhole slab.
- X. Item A-24 – Retrofit Existing Handicap Ramps
 - 1. Measurement and payment to Retrofit Existing Handicap Ramps will be made on the basis of square yards per Technical Specification for Retrofit Existing handicap ramps. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to retrofit existing handicap ramps.

Y. Item A-25 – ADA Handicap Ramps

1. Measurement and payment to ADA Handicap Ramps will be made on the basis of square yards per Technical Specification ADA Handicap Ramps. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to ADA handicap ramps.

Z. Item B-01 – (4”), White, 120 Mils (Edgeline)

1. Measurement and payment for (4”), White, 120 Mils (Edgeline) will be per unit price per linear foot installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install (4”), White, 120 Mils (Edgeline) as described in the Contract Documents.

AA. Item B-02 – (4”), Yellow, 120 Mils (Centerline)

1. Measurement and payment for (4”), Yellow, 120 Mils (Centerline) will be per unit price per linear foot installed per City of Fayetteville Specifications Section 00495. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install (4”), Yellow, 120 Mils (Centerline) as described in the Contract Documents.

BB. Item B-03 – (24”), White, 120 Mils (Stop Bar Line)

1. Measurement and payment for (24”), White, 120 Mils (Stop Bar Line) will be per unit price per linear foot installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install (24”), White, 90 Mils (Stop Bar Line) as described in the Contract Documents.

CC. Item B-04 – Symbols, White, 120 mils (Left Turn Arrow)

1. Measurement and payment for Symbols, White, 120 mils (Left Turn Arrow) will be per unit price per each installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Symbols, White, 120 mils (Left Turn Arrow) as described in the Contract Documents.

DD. Item B-05 – Symbols, White, 120 mils (Right Turn Arrow)

1. Measurement and payment for Symbols, White, 120 mils (Right Turn Arrow) will be per unit price per each installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Symbols, White, 120 mils (Right Turn Arrow) as described in the Contract Documents.

EE. Item B-06 – Symbols, White, 120 mils (Combination Right or Left Turn and Straight Arrow)

1. Measurement and payment for Symbols, White, 120 mils (Combination Right or Left Turn and Straight Arrow) will be per unit price per each installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Symbols, White, 120 mils (Combination Right or Left Turn and Straight Arrow) as described in the Contract Documents.

FF. Item B-07 – Symbols, White, 15 mils (School and Railroad)

1. Measurement and payment for Symbols, White, 15 mils (School and Railroad) will be per unit price per each installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Symbols, White, 15 mils (School and Railroad) as described in the Contract Documents.

GG. Item B-08 – Symbols, White, 120 mils (6' X 6" Sharks Tooth)

1. Measurement and payment for Symbols, White, 120 mils (6' X 6" Sharks Tooth) will be per unit price per each installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Symbols, White, 120 mils (6' X 6" Sharks Tooth) as described in the Contract Documents.

HH. Item B-9 – Raised Reflective Pavement Markers, Non-Snow Plowable (Yellow & Yellow)

1. Measurement and payment for Raised Reflective Pavement Markers, Non-Snow Plowable (Yellow & Yellow) will be per unit price per each installed per City of Fayetteville Specifications Section. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Raised Reflective Pavement Markers, Non-Snow Plowable (Yellow & Yellow) as described in the Contract Documents.

II. Item B-10 – Raised Reflective Pavement Markers, Non-Snow Plowable (Crystal & Red)

1. Measurement and payment for Raised Reflective Pavement Markers, Non-Snow Plowable (Crystal & Red) will be per unit price per each installed per City of Fayetteville Specifications Section 00495. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Raised Reflective Pavement Markers, Non-Snow Plowable (Crystal & Red) as described in the Contract Documents.

JJ. Item B-11 – (16"), White, 120 mils Railroad X Lines

1. Measurement and payment for (16"), White, 120 mils Railroad X Lines will be per unit price per linear foot installed per City of Fayetteville Specifications Section 00495. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Temporary Striping Paint as described in the Contract Documents.

KK. Item B-12 – 15 mils, Temporary Paint

1. Measurement and payment for 15 mils, Temporary Paint will be per unit price per linear foot installed per City of Fayetteville Specifications Section 00495. This payment shall be considered full compensation for all materials, labor, equipment, and incidentals necessary to install Temporary Striping Paint as described in the Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

01 31 00 PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Furnish resources required to complete the Project in accordance with the Contract Documents and within the Contract Times.
- B. Construct Project in accordance with current safety practices.
- C. Manage Site to allow access to Site and control both construction operations and traffic.

1.02 STANDARDS

- A. Perform Work to comply with:
 - 1. Requirements of the Contract Documents;
 - 2. Laws and Regulations; and
 - 3. Specified industry standards.

1.03 DOCUMENTATION

- A. Provide documents and permits in accordance with Section 01 33 00 "Document Management."
- B. Provide copies of Supplier's printed storage instructions prior to furnishing materials or products and installation instructions prior to beginning the installation.
- C. Incorporate field notes, sketches, recordings, and computations made by the Contractor in Record Drawings per Section 01 31 13 "Project Coordination."
- D. Prepare a Plan of Action per Section 01 31 13 "Project Coordination" for Utility work if required.
- E. Provide a Plan of Action in accordance with Section 01 35 00 "Special Procedures" if facilities must be taken out of operation.
- F. Provide a project-specific Site Safety Program.
- G. Provide the City of Fayetteville Traffic Engineer with a Traffic Control Plan within fourteen (14) days of being declared the lowest responsible bidder. See "Traffic Control" Section 00497 for further information.

1.04 PERMITS

- A. Obtain permits for the Project from the local authorities having jurisdiction. Contractor shall pay all permit fees and include these costs in the Contract Price.
- B. Verify and obtain copies of North Carolina Division of Environmental Quality ("NCDEQ") environmental permits required for construction at the Site from the Engineer.
- C. Apply and obtain a Truck Route Permit from the City of Fayetteville.
- D. Apply and obtain a Temporary Use Permit from the City of Fayetteville.

- E. Apply and obtain approval for any intended street closures at least five (5) working days in advance. See "Traffic Control" Section 00497.
- F. Provide other permits required to conduct any part of the Work. The Contractor shall procure and bear the costs of all permits, licenses, fees, and inspections, and give all notices necessary and incidental to the due and lawful prosecution of the work.
- G. Arrange for inspections and certification by agencies having jurisdiction over the Work and include the cost for these inspections and certifications in the Contract Price.
- H. Make arrangements with private utility companies and pay fees associated with obtaining services or inspections.
- I. Retain copies of permits and licenses at the Site and comply with all regulations and conditions of the permit or license.

1.05 SAFETY REQUIREMENTS

- A. Contractor shall submit a project-specific Site Safety Program. Corporate Safety handbooks or programs are not acceptable.
- B. Manage safety to protect the safety and welfare of persons at the Site.
- C. Provide safe access to move through the Site. Provide protective devices to warn and protect from hazards at the Site.
- D. Provide safe access for those performing tests and inspections.
- E. Maintain a supply of personal protective equipment for visitors to the Site.
- F. Comply with latest provisions of the Occupational Health and Safety Administration ("OSHA") and other Laws and Regulations.
- G. Cooperate with accident investigations. Provide two copies of all reports, including insurance company reports, prepared concerning accidents, injuries, or deaths related to the Project to the Engineer as Record Data per Section 01 31 13 "Project Coordination."
- H. Secure the area and contact the City of Fayetteville Public Services Department (910) 433-1656 if any materials considered or suspected of being hazardous are encountered.
- I. Fire hydrants on or adjacent to the street shall be kept accessible to fire apparatus at all times.
- J. If the Engineer, or City of Fayetteville shall stop the prosecution of the work at any time because of life safety issues, such stoppage shall not relieve the Contractor of his responsibility under this paragraph.
- K. The Contractor shall adhere to all applicable regulations and follow accepted safety procedures when working in the vicinity of utilities in order to ensure the safety of construction personnel and the public.

1.06 ACCESS TO THE SITE

- A. Maintain access to the facilities at all times.

1. Do not obstruct roads, pedestrian walks, or access to the various buildings, structures, stairways, or entrances. Contractor shall also, at their expense, construct and maintain any necessary ramps, boardwalks, or other means to maintain pedestrian traffic.
 2. Provide safe access for vehicle and pedestrian access (which may include temporary bridges and their maintenance) to all properties, both public and private and conduct operations in such a manner that inconvenience to the property owners will be held to a minimum.
 3. Provide safe access for normal operations during construction. The Contractor is required to leave the project in a manner that will be safe to the traveling public and which will not impede motorists unless approved.
 4. The Contractor shall so schedule their work as to keep all storefronts open to their prospective customers.
 5. Contractor shall at all times cooperate with the public and merchants affected by their operations and shall endeavor to maintain good public relations at all times.
 6. Any lighting or other special facilities required to carry on work shall be furnished by the Contractor.
- B. Provide adequate and safe access for inspections. Leave ladders, bridges, scaffolding, and protective equipment in place until inspections have been completed. Construct additional safe access if required for inspections.
- C. Use roadways for construction traffic only with written approval of the City of Fayetteville.
1. A Traffic Control Plan is required within fourteen (14) days of being declared the lowest responsible bidder. See "Traffic Control" Section 00497 for further.
 2. Contractor shall comply with the City of Fayetteville's Truck Route Ordinance. The Contractor shall make a thorough examination of the individual streets and establish all haul routes to comply with the Truck Route Ordinance.
 3. The Contractor is required to leave the project in a manner that will be safe to the traveling public and which will not impede motorists unless otherwise approved in writing by the City of Fayetteville.
 4. Furnish copies of all written approvals to the Engineer as Record Data per Section 01 31 13 "Project Coordination."

1.07 CONTRACTOR'S USE OF THE SITE

- A. Limit the use of Site for Work and storage to those areas designated on the Drawings or approved by the Engineer. Coordinate the use of the Site with the Engineer.
- B. Provide security at the Site as necessary to protect against vandalism and loss by theft.
- C. Park construction equipment in designated areas only and provide spill control measures as discussed in Section 01 57 00 "Temporary Controls."
- D. Park employees' vehicles in designated areas only.
- E. Obtain written permission of the property owner before entering privately-owned land outside of the Owner's property, rights-of-way, or easements.

- F. The Contractor(s) shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.
- G. Cooperate with public and private agencies with facilities operating within the limits of the Project. Contractor shall use 811 to provide notice to any applicable agency when Work is anticipated to proceed in the vicinity of any facility.
- H. Conduct of Contractor's or Subcontractor's Employees:
 - 1. Do not permit alcoholic beverages or illegal substances on the Site. Do not allow persons under the influence of alcoholic beverages or illegal substances to enter or remain on the Site at any time. Persons on Site under the influence of alcoholic beverages or illegal substances will be permanently prohibited from returning to the Site. Criminal or civil penalties may also apply.
 - 2. Do not allow the use of offensive language or sexual harassment in any form. These actions will cause immediate and permanent removal of the offender from the premises. Criminal or civil penalties may apply.
 - 3. Require workers to wear clothing that is inoffensive and meets safety requirements. Do not allow sleeveless shirts, shorts, or any exceedingly torn, ripped, or soiled clothing to be worn on the Site.
 - 4. Do not allow the use, possession, concealment, transportation, promotion, or sale of the following prohibited items anywhere on the Site:
 - a. Firearms (including air rifles and pistols and BB or pellet guns) and ammunition;
 - b. Bows, crossbows, arrows, bolts, or any other projectile weapons;
 - c. Explosives of any kind, including fireworks;
 - d. Illegal knives;
 - e. Other weapons prohibited by state Laws and Regulations; and
 - f. Any other item that has been designed or intended to be used as a weapon.
 - 5. No exceptions will be made for the possession of a firearm by a person that has a valid state-issued license to carry a firearm. Remove any of the prohibited items listed above from the Site immediately and permanently. Any person found to be in possession of any prohibited item must also be removed from the Site and may be reported to local law enforcement.

1.08 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. Examine the Site and review the available information concerning the Site. Locate utilities, underground facilities, and existing structures. Verify the elevations of the structures adjacent to excavations. Contractor has a duty to report any discrepancies from information in the Contract Documents to the Engineer before beginning construction.
- B. It shall be the responsibility of the Contractor to contact all affected utility owners and determine the precise location of all utilities prior to beginning construction. Utility owners shall be contacted a **minimum of 48 hours** prior to the commencement of operations.
- C. Protect utilities, underground facilities and existing structures unless they are shown to be replaced or relocated on the Drawings.

1. In the event that any utility service is interrupted, the Contractor shall notify the utility owner immediately and shall cooperate with the owner, or his representative, in the restoration of service in the shortest time possible.
 2. Restore damaged items to the satisfaction of the City of Fayetteville, the utility, or the property owner.
- D. Carefully support and protect all structures and/or utilities so that there will be no failure or settlement where excavation or demolition endangers adjacent structures and utilities. Do not take existing utilities out of service unless required by the Contract Documents or approved by the Engineer.
- E. Protect existing trees and landscaping at the Site. Mark trees that may be removed during construction and review with the Engineer for approval before removing. Protect trees to remain from damage limiting activity, including stockpiling of materials within the drip line of the tree.
- F. Protect buildings from damage when handling material or equipment. Protect finished surfaces, including floors, doors, and jambs. Remove doors and install temporary wood protective coverings over jambs, if needed.

1.09 DISRUPTION TO SERVICES/CONTINUED OPERATIONS

- A. Owner's facilities are to continue in service as usual during the construction unless noted otherwise. Owner or utilities must be able to operate and maintain the facilities. Keep disruptions to existing utilities, piping, process piping, or electrical services to a minimum.
1. Do not restrict access to critical valves, operators, or electrical panels.
 2. Do not store material or products inside structures unless authorized by the Engineer.
 3. Limit operations to the minimum amount of space needed to complete the specified Work.
 4. Maintain storm sewers and sanitary sewers in service at all times. Provide temporary service around the construction or otherwise construct the Work in a manner that flow is not restricted.
- B. Provide a Plan of Action in accordance with Section 01 35 00 "Special Procedures" if facilities must be taken out of operation.

1.10 FIELD VERIFICATION

- A. Perform complete field measurements prior to purchasing products or beginning construction for products required to fit existing conditions.
- B. Verify property lines, control lines, grades, and levels indicated on the Drawings.
- C. Verify pipe class, equipment capacities, existing electrical systems, and power sources for existing conditions.
- D. Check Shop Drawings and indicate the actual dimensions available where products are to be installed.
- E. Include field measurements in Record Documents as required in Section 01 31 13 "Project Coordination."

1.11 CONSTRUCTION STAKING, REFERENCE DATA, AND CONTROL POINTS

- A. The City Public Services Department will do all construction staking.
 - 1. Staking will be done only during normal office hours, Monday through Friday. All stakes knocked out by the Contractor will be replaced by the Public Services Department at a charge to the Contractor of \$5 per stake.
 - 2. The Contractor must give at least two days (48 hours) notice prior to requiring staking or re-staking.
 - 3. If control points or benchmarks are damaged, disturbed or destroyed as a result of the Contractor's negligence, then Owner will impose a set-off as compensation for the effort required to reestablish. The Contractor may be charged a minimum of \$15 for replacing control points, P.C., etc., and \$50 for replacing monuments.
- B. Locate and protect control points prior to starting the Work and preserve permanent reference points during construction.
 - 1. Designated control points may be on an existing structure or monument. Do not change or relocate points without prior approval of the Engineer.
 - 2. Notify Engineer when a reference point is lost, destroyed, or requires relocation. Replace Project control points on the basis of the original survey.

1.12 DELIVERY AND STORAGE

- A. Deliver products and materials to the Site in time to prevent delays in construction.
- B. Deliver packaged products to Site in original undamaged containers with identifying labels attached. Open cartons as necessary to check for damage and to verify invoices. Reseal cartons and store properly until used. Leave products in original packages or other containers until installed. If original packages or containers are damaged, repackage in containers and include packing slips, labels and other information from the original packaging.
- C. Deliver products that are too large to fit through openings to the Site in advance of the time enclosing walls and roofs are erected. Set in place, raised above floor on cribs or pallets.
- D. Assume full responsibility for the protection and safekeeping of products stored at the Site.
- E. Store products at locations acceptable to the Engineer and to allow Owner access to maintain and operate existing facilities.
- F. Store products in accordance with the Supplier's storage instructions immediately upon delivery. Leave seals and labels intact. Arrange storage to allow access for maintenance of stored items and for inspection. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.
- G. Provide additional storage areas as needed for construction. Store products subject to damage by elements in substantial weather-tight enclosures or storage sheds. Provide and maintain storage sheds as required for the protection of products. Provide temperature, humidity control, and ventilation within the ranges stated in the Supplier's instructions. Remove storage facilities at the completion of the Project.

- H. Protect the pipe interior. Keep all foreign materials such as dirt, debris, animals, or other objects out of the pipe during the Work.
- I. Provide adequate exterior storage for products that may be stored out-of-doors.
 - 1. Provide substantial platforms, blocking, or skids to support materials and products above ground which has been sloped to provide drainage. Protect products from soiling or staining.
 - 2. Cover products subject to discoloration or deterioration from exposure to the elements, with impervious sheet materials. Provide ventilation to prevent condensation below covering.
 - 3. Store loose, granular materials on clean, solid surfaces, or on rigid sheet materials, to prevent mixing with foreign matter.
 - 4. Provide surface drainage to prevent erosion and ponding of water.
 - 5. Prevent mixing of refuse or chemically injurious materials or liquids with stored materials.
 - 6. Pipes and conduits stored outdoors are to have open ends sealed to prevent the entrance of dirt, moisture, and other injurious materials. Protect PVC pipe from ultraviolet light exposure.
 - 7. Store products to prevent wind damage.
- J. Protect and maintain mechanical and electrical equipment in storage.
 - 1. Provide Supplier's service instructions on the exterior of the package.
 - 2. Service equipment on a regular basis as recommended by the Supplier. Maintain a log of maintenance services. Submit the log as Record Data per Section 01 31 13 "Project Coordination" when Owner assumes responsibility for maintenance and operation.
 - 3. Provide power to and energize space heaters for all equipment for which these devices are provided.
 - 4. Provide temporary enclosures for all electrical equipment, including electrical systems on mechanical devices. Provide and maintain heat in the enclosures until equipment is energized.
- K. Maintain storage facilities. Inspect stored products on a weekly basis and after periods of severe weather to verify that:
 - 1. Storage facilities continue to meet specified requirements;
 - 2. Supplier's required environmental conditions are continually maintained; and
 - 3. Products that can be damaged by exposure to the elements are not adversely affected.
- L. Replace any stored item damaged by inadequate protection or environmental controls.
- M. Payment may be withheld for any products not properly stored.

1.13 CLEANING DURING CONSTRUCTION

- A. Provide positive methods to minimize raising dust from construction operations and provide positive means to prevent air-borne dust from disbursing into the atmosphere. Control dust and dirt from demolition, cutting, and patching operations.
- B. Clean the Site as Work progresses and dispose of waste materials, keeping the Site free from accumulations of waste or rubbish. Provide containers at the Site for waste collection. Do not allow waste materials or debris to blow around or off of the Site. Control dust from waste materials. Transport waste materials with as few handlings as possible.
- C. Comply with Laws and Regulations. Do not burn or bury waste materials. Remove waste materials, rubbish, and debris from the Site and legally dispose of these at public or private disposal facilities.

1.14 MAINTENANCE OF ROADS, DRIVEWAYS, AND ACCESS

- A. Maintain roads and streets in a manner that is suitable for safe operations of public vehicle during all phases of construction unless the City of Fayetteville approves a street closing. See "Traffic Control" Section 00497 for further.
- B. Approval is required for any intended street closures at least five (5) working days in advance. See "Traffic Control" Section 00497.
 - 1. Submit a Street Closure Request, in writing, to the City of Fayetteville Traffic Engineer. The request must state the elements outlined in "Traffic Control" Section 00497, Part 3.01(A).
 - 2. No work shall begin until all the traffic devices required for the particular work activity have been installed, inspected, and approved by the City of Fayetteville Traffic Engineer or their representative.
- C. Do not close public roads overnight without written permission from the City of Fayetteville Traffic Engineer. Coordinate and arrange for emergency vehicle access when streets are to be closed.
- D. If the roads are not within the jurisdiction of the City of Fayetteville, obtain permits and permissions of the entity that owns the road prior to any Work and provide a copy of the permit or permission Record Data per Section 01 31 13 "Project Coordination."
- E. Contractor assumes responsibility for any and all damage resulting from construction along roads or drives.
- F. Comply with all Erosion and Sedimentation Control plans. Clean off sediment transported onto roadways within the project site and public roads at the end of each day. Sediment shall be removed by shoveling or sweeping and be transported to a controlled disposal area. Street washing shall be allowed *after* sediment is removed in this manner. See Section 01 57 23 "NC Erosion and Sedimentation Control" for further.
- G. The Contractor shall control dust throughout the life of the project in all areas within and affected by the construction, including but not limited to unpaved secondary roads, haul roads, access roads, disposal sites, borrow and material sources and production sites. Dust control shall not be considered effective where the amount of dust creates a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or

appearance of any property. Dust control shall be incidental to the work and no additional compensation will be made.

1.15 BLASTING

- A. Blasting is not allowed for any purpose.

1.16 ARCHAEOLOGICAL REQUIREMENTS

- A. Cease operations immediately and contact the Owner for instructions if historical or archaeological artifacts are found during construction.
- B. Conduct all construction activities to avoid adverse impact of the sites where significant historical or archaeological artifacts are found or identified as an area where other artifacts could be found.
 - 1. Obtain details for working in these areas from regulatory agencies.
 - 2. Maintain confidentiality regarding the site(s) of artifacts.
 - 3. Adhere to the requirements of applicable local, state, and federal Laws and Regulations.
 - 4. Notify the City of Fayetteville, the Engineer and any local, state, or federal agency as required by applicable Laws and Regulations.
- C. Do not disturb archaeological sites.
 - 1. Obtain the services of a qualified archaeological specialist to instruct construction personnel on how to identify and protect archaeological finds on an emergency basis.
 - 2. Coordinate activities to permit archaeological work to take place within the area.
 - a. Attempt to archaeologically clear areas needed for construction as soon as possible.
 - b. Provide a determination of priority for such areas.
- D. Assume responsibility for any unauthorized destruction that might result to such sites by construction personnel, and pay all penalties assessed by state or federal agencies for non-compliance with these requirements.
- E. Contract Times will be modified to compensate for delays caused by such archaeological finds. No additional compensation will be paid for delays.

1.17 ENDANGERED SPECIES RESOURCES

- A. Do not perform any activity that is likely to destroy or adversely modify the habitat or jeopardize the continued existence of a threatened or endangered species as listed or proposed for listing under the Federal Endangered Species Act ("ESA") or applicable North Carolina Laws and Regulations.
- B. Cease Work immediately in the area of the encounter and notify the Engineer if a threatened or endangered species is encountered during construction. Engineer will implement actions in accordance with the ESA and applicable North Carolina statutes. Only

resume construction in the area of the encounter when authorized to do so by the Engineer.

- C. Contract Times will be modified to compensate for delays caused by such encounters. No additional compensation will be paid for delays.

1.18 BUILDING COORDINATION

- A. Coordinate the efforts of various trades having interdependent responsibilities for Work.
- B. Conceal ducts, pipes, wiring, and other non-finish items in finished areas, except as otherwise shown. Coordinate locations of concealed items with finish elements. Install access panel or doors where units requiring access for maintenance or operation are concealed behind finished surfaces.
- C. Coordinate architectural reflected ceiling plans with the exact location of items installed in suspended ceilings. Request clarification from the Engineer prior to proceeding with fabrication or installation of an item if it appears that a conflict exists.
- D. Coordinate the installation of items to be installed later, including:
 - 1. Accepted alternates.
 - 2. Products purchased using allowances.
 - 3. Work by others.
 - 4. Owner-supplied, Contractor-installed items.
- E. Sequence, coordinate, and integrate the various elements of mechanical, electrical, and other systems, materials, and equipment. Comply with the following requirements:
 - 1. Coordinate mechanical and electrical systems, equipment, and materials installation with other building components.
 - 2. Verify all dimensions by field measurements.
 - 3. Arrange for chases, slots, and openings in other building components during progress of construction.
 - 4. Coordinate the installation of required supporting devices, sleeves, embedded items, and other structural components to be set in concrete before concrete is placed.
 - 5. Install systems, materials, and equipment to provide the maximum headroom possible where mounting heights are not detailed or dimensioned.
 - 6. Coordinate the connection of systems with exterior underground and overhead utilities and services. Comply with the Laws and Regulations and requirements of franchise service companies. Provide required connection for each service.
 - 7. Install systems, materials, and equipment to conform with approved Shop Drawings, Product Data, and Operation and Maintenance Data. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Adjust routing of piping, ductwork, utilities, and location of equipment as needed to resolve spatial conflicts between the various trades. Document changes in the indicated routings in the Record Documents per Section 01 31 13 "Project Coordination."

8. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components.
9. Install systems, materials, and equipment to facilitate servicing, maintenance, and repair or replacement of components.
10. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

1.19 BUILDING CUTTING AND PATCHING

- A. Perform cutting, fitting, and patching required to complete the Work or to:
 1. Uncover Work to provide for installation of new Work or the correction of Defective Work.
 2. Provide routine penetrations of non-structural surfaces for installation of mechanical, electrical, and plumbing Work.
 3. Uncover Work that has been covered prior to observation by the Engineer.
- B. Submit Notification by Contractor in accordance with Section 01 31 13 "Project Coordination" to the Engineer in advance of performing any cutting which affects:
 1. Work of any other contractor or the Owner;
 2. Structural integrity of any structure or system of the Project;
 3. Integrity or effectiveness of weather exposed or moisture resistant structure or systems;
 4. Efficiency, operational life, maintenance, or safety of any structure or system; or
 5. Appearance of any structure or surfaces exposed occasionally or constantly to view.
- C. Include in request:
 1. Location and description of affected Work;
 2. Reason for cutting, alteration, or excavation;
 3. Effect on the Work of any separate contractor or Owner;
 4. Effect on the structural or weatherproof integrity of the Work;
 5. Description of proposed Work, including:
 - a. Scope of cutting, patching, or alteration;
 - b. Trades that will perform the Work;
 - c. Products proposed for use; and
 - d. Extent of refinishing to be performed.
 6. Alternatives to cutting and patching;
 7. Written authorization from any separate Contractor whose Work would be affected; and
 8. Date and time Work will be uncovered or altered.

- D. Inspect existing conditions prior to starting the Work, including elements subject to damage or movement during cutting and patching. Uncover elements where required for an adequate inspection. Notify the Engineer of any conditions that negatively impact the ability to perform cutting and patching. Contractor is deemed to have accepted the existing conditions and assumed the risk associated with completing the Work when cutting or patching is started after the inspection.
- E. Provide adequate support to maintain the structural integrity of facilities, structures, or elements that could be affected by cutting, patching or installing new Work. Provide devices and methods to protect facilities, structures, or elements from damage that could be affected by Contractor's efforts. Provide protection from the weather for portions of the Project that may be exposed by cutting and patching.
- F. Make cuts or penetrations using methods that prevent damage to other Work and provide proper surfaces for patching and repairs.
- G. Fit and adjust installed products to comply with specified products, functions, tolerances, and finishes.
- H. Patch or repair facilities, structures or elements to provide completed Work per the Contract Documents.
- I. Fit Work air-tight to pipes, sleeves, ducts, conduit, and other penetrations through the surfaces. Where fire rated separations are penetrated, fill the space around the pipe with materials with physical characteristics equivalent to fire resistance requirements of penetrated surface. Provide firestop inserts inside pipes, sleeves, ducts, conduit, and other penetrations when required by fire resistance requirements.
- J. Patch finished surfaces and building components using new products specified for the original installation. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to the nearest intersection.
 - 2. For an assembly, refinish the entire unit.

1.20 BUILDING PRELIMINARY OCCUPANCY

- A. Owner may deliver, install, and connect equipment, furnishings, or other apparatus in buildings or other structures. These actions do not indicate acceptance of any part of the building or structure and does not affect the start of warranties or correction periods.
- B. Protect the Owner's property after installation is complete.
- C. Owner may use any product for testing or to determine that the product meets the requirements of the Contract Documents. This use does not constitute acceptance by Owner. These actions do not indicate acceptance of any part of the product and does not affect the start of warranties or correction periods.

1.21 OCCUPANCY

- A. Owner has the right to occupy or operate any portion of the Project that is ready for use after notifying the Contractor of its intent to do so.

- B. Testing of equipment and appurtenances including specified test periods, training, and startup does not constitute acceptance for operation.
- C. Owner may accept the facility for continued use after startup and testing at the option of the Owner. If acceptance is delayed at the option of the Owner, shut down facilities per approved operation and maintenance procedures.
- D. The execution of bonds is understood to indicate the consent of the surety to these provisions for occupancy of the structures and use of equipment.
- E. Provide an endorsement from the insurance carrier permitting occupancy of the structures and use of equipment during the remaining period of construction.
- F. Conduct operations to ensure the least inconvenience to the Owner and general public.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

01 31 13 PROJECT COORDINATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Administer contract requirements to construct the Project. Provide documentation per the requirements of this Section. Provide information as requested by the Owner.

1.02 DOCUMENTATION

- A. Provide documents in accordance with Section 01 33 00 "Document Management."

1.03 COMMUNICATION DURING THE PROJECT

- A. Engineer is to be the first point of contact for all parties on matters concerning this Project.
- B. Engineer will coordinate correspondence concerning:
 - 1. Contract administration;
 - 2. Clarification and interpretation of the Contract Documents;
 - 3. Contract modifications;
 - 4. Observation of Work and testing; and
 - 5. Claims.
- C. Engineer will normally communicate only with the Contractor. Any required communication with Subcontractors or Suppliers will only be with the direct involvement of the Contractor.
- D. Direct written communications to the Engineer at the address indicated at the pre-construction conference. Include the following with communications as a minimum:
 - 1. Name of the Owner
 - 2. Project name
 - 3. Contract title
 - 4. Project number
 - 5. Date
 - 6. A reference statement
- E. Submit communications on the forms referenced in this Section or in Section 01 33 00 "Document Management."

1.04 PROJECT MEETINGS

- A. Pre-Construction Conference:
 - 1. Attend a pre-construction conference.
 - 2. The location of the conference will be determined by the Engineer.

3. The time of the conference will be determined by the Engineer, but will be after the Notice of Award is issued and not later than 15 days after the Notice to Proceed is issued.
 4. The Owner, Contractor's project manager and superintendent, representatives of utility companies, and representatives from major Subcontractors and Suppliers may attend the conference.
 5. Provide and be prepared to discuss the following:
 - a. Preliminary construction schedule per Section 01 33 05 "Construction Progress Schedule"
 - b. Preliminary Schedule of Documents per Section 01 33 00 "Document Management"
 - c. Schedule of Values and anticipated schedule of payments per Section 01 29 00 "Application for Payment Procedures"
 - d. List of Subcontractors and Suppliers
 - e. Contractor's organizational chart as it relates to this Project
 - f. Letter indicating the agents of authority for the Contractor and the limit of that authority with respect to the execution of legal documents, contract modifications, and payment requests
- B. Progress Meetings:
1. Attend meetings with the Engineer, and Owner.
 - a. Meet monthly or as requested by the Engineer to discuss the Project.
 - b. Meet at the Site or other location as designated by the Engineer.
 - c. Contractor's superintendent and other key personnel are to attend the meeting. Other individuals may be requested to attend to discuss specific matters.
 - d. Notify the Engineer of any specific items to be discussed a minimum of 1 week prior to the meeting.
 2. Provide information as requested by the Engineer and Owner concerning this Project. Prepare to discuss the following:
 - a. Status of overall project schedule
 - b. Contractor's detailed schedule for the next month
 - c. Anticipated delivery dates for equipment
 - d. Coordination with the Owner
 - e. Status of documents
 - f. Information or clarification of the Contract Documents
 - g. Claims and proposed modifications to the Contract
 - h. Field observations, problems, or conflicts
 - i. Maintenance of quality standards

3. Engineer will prepare a record of meeting proceedings. Review the record of the meeting and notify the Engineer of any discrepancies within 10 days of the date the record of the meeting is provided. The record will not be corrected after the 10 days have expired. Corrections will be reflected in the record of the following meeting.
- C. Pre-Documentation and Pre-Installation Meetings:
1. Conduct pre-documentation and pre-installation meetings as required in the individual technical Specifications or as determined necessary by the Engineer (for example, instrumentation, roofing, concrete mix design, etc.).
 2. Set the time and location of the meetings when ready to proceed with the associated Work. Submit a Notification by Contractor in accordance with Paragraph **[1.07]** for the meeting 2 weeks before the meeting. Owner must approve of the proposed time and location.
 3. Attend the meeting and require the participation of appropriate Subcontractors and Suppliers in the meeting.
 4. Engineer will prepare a record of meeting proceedings. Review the record of the meeting and notify the Engineer of any discrepancies within 10 days of the date the record of the meeting is provided. The record will not be corrected after the 10 days have expired. Corrections will be reflected in the record of the following meeting.
- D. Weekly Coordination Meetings: Meet on a weekly basis with the Engineer or designated on-site representative of the Owner to discuss Work planned for the following week, review coordination issues, testing required, or other issues. Records of these meetings are not required.

1.05 REQUESTS FOR INFORMATION

- A. Submit a Request for Information to the Engineer to obtain additional information or clarification of the Contract Documents.
1. Submit a separate Request for Information for each item on the form provided by the Engineer.
 2. Attach adequate information to permit a response without further clarification. Engineer will return requests that do not have adequate information to the Contractor for additional information. Contractor is responsible for all delays resulting from multiple reviews due to inadequate information.
 3. A response will be made when adequate information is provided. The response will be made on the Request for Information form provided by the Engineer.
 4. A response will be made to an adequate Request for Information within 5 days from receipt.
- B. Response to a Request for Information is given to provide additional information, interpretation, or clarification of the requirements of the Contract Documents, and does not modify the Contract Documents.
1. Submit a Change Proposal per Section 01 26 00 "Change Management" if a contract modification is suggested or required.

- C. Use the Decision Register to document decisions made at meetings and actions to be taken in accordance with Paragraph **[1.06]**.
- D. Use the Action Item Register to document assignments for actions to be taken in accordance with Paragraph **[1.06]**.

1.06 DECISION AND ACTION ITEM REGISTER

- A. Engineer will maintain a Decision Register to document key decisions made during meetings, telephone conversations, or visits to the Site using the format provided by the Engineer:
 - 1. Review the Decision Register prior to each regular meeting.
 - 2. Report any discrepancies to the Engineer for correction or discussion at the next monthly meeting.
- B. Engineer will maintain an Action Item Register in conjunction with the Decision Register to track assignments made during meetings, telephone conversations or visits to the Site using the format provided by the Engineer:
 - 1. Review the Action Item Register prior to each regular meeting.
 - 2. Report actions taken after the previous progress meeting on items in the register assigned to the Contractor or through the Contractor to a Subcontractor or Supplier to the Engineer. Report on status of progress 1 week prior to each progress meeting established in Paragraph **[1.04]** to allow Engineer to update the register prior to the Progress Meetings.
 - 3. Be prepared to discuss the status at each meeting.
- C. Decisions or action items in the register that require a change in the Contract Documents will have the preparation of a Modification as an action items if appropriate. The Contract Documents can only be changed by a Modification.

1.07 NOTIFICATION BY CONTRACTOR

- A. Notify the Engineer of any of the following:
 - 1. Need for testing (48 hours' notice)
 - 2. Intent to work outside regular working hours (72 hours' notice)
 - 3. Request to shut down facilities or utilities (2 weeks' notice)
 - 4. Proposed utility connections (2 weeks' notice)
 - 5. Required observation by Engineer, or inspection agencies prior to covering Work (72 hours' notice)
 - 6. Training (1 weeks' notice)
- B. Provide notification in advance as indicated above to allow Owner time to respond appropriately to the notification.
- C. Use the Notification by Contractor form provided by the Engineer.

1.08 REQUESTS FOR MODIFICATIONS

- A. Submit requests for Modifications per Section 01 26 00 "Change Management."

1.09 RECORD DATA

- A. Submit information required by the Contract Documents that is not related to a product as Record Data using the form provided by the Engineer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

01 33 00 DOCUMENT MANAGEMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Submit documentation as required by the Contract Documents and as requested by the Engineer.
- B. Submit all documentation via email to the following addresses:
JeffreyRiddle@FayettevilleNC.gov

1.02 QUALITY ASSURANCE

- A. Submit legible, accurate, complete documents presented in a clear, easily understood manner. Documents not meeting these criteria will be returned without review as "Not Approved."

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. Review documents prior to submission. Make certifications as required by the Contract Documents and as indicated on provided forms.
- B. Provide a Schedule of Documents to list the documents that are to be submitted, the dates on which documents are to be sent to the Engineer for review. Use the form provided by the Engineer for this list.
- C. Incorporate the dates for processing documents into the Progress Schedule required by Section 01 33 05 "Construction Progress Schedule."
 - 1. Provide documents in accordance with the schedule so construction of the Project is not delayed.
 - 2. Allow a reasonable time for the review of documents when preparing the Progress Schedule. Assume a fourteen (14) day review cycle for each document unless a longer period of time is indicated in the Contract Documents or agreed to by Engineer and Contractor.
 - 3. Schedule delivery of review documents to provide all information for interrelated Work at one time.
 - 4. Allow adequate time for processing documents so construction of the Project is not delayed.

1.04 FORMS AND WORKFLOWS

- A. Use the forms or workflow process provided by the Engineer for project documentation.

1.05 DOCUMENT PREPARATION AND DELIVERY PROCEDURES

- A. Deliver documents in electronic format as directed by the Engineer.
 - 1. Do not leave any blanks incomplete. If information is not applicable, enter NA in the space provided.

2. Deliver all documents in Portable Document Format (PDF).
 - a. Create PDF documents from native format files unless files are only available from scanned documents.
 - b. Rotate pages so that the top of each document appears at the top of the monitor screen when opened in PDF viewing software.
 - c. Provide PDF document with adequate resolution to allow documents to be printed in a format equivalent to the document original. Documents are to be scalable to allow printing on standard 8-1/2 x 11 or 11 x 17 paper.
 - d. Submit color PDF documents where color is required to interpret the document.
 - e. Create or convert documents to allow text to be selected for comments or searched using text search features. Run scanned documents through Optical Character Recognition (OCR) software if necessary.
 - f. Flatten markups in documents to prevent markups made by Contractor from being moved or deleted. Flatten documents to allow markup recovery.
 - g. Add footers to each document with the name of the Project.

B. Software Requirements:

1. Owner and Contractor will each acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the following software formats:

Document	Document Format
Email	.htm, .rtf, or .txt without formatting that impairs legibility of content on screen or in printed copies
Submittals	Bluebeam or Adobe PDF
Applications for Payment	Bluebeam or Adobe PDF and Microsoft® Excel
Progress Schedules	PDF and Schedule in Native Format
Layouts and drawings to be submitted to Owner for future use and modification.	Autodesk® AutoCAD .dwg format
Document submitted to Owner for future word processing use and modification.	Microsoft® Word
Spreadsheets and data submitted to Owner for future data processing use and modification.	Microsoft® Excel

2. Software will be the version currently published at the time Contract is signed, unless a specific software version is listed in the Supplementary Conditions. Prior to using any updated version of the software required in this Section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or convert to comply with this Paragraph **[1.05.B]**.

1.06 DOCUMENT NUMBERING

- A. Assign a document number to the Contractor originated document to allow tracking of the document during the review process.

1. Assign the number consisting of a prefix, a sequence number, and a letter suffix.
Prefixes will be as follows:

Prefix	Description
AP	Application for Payment
CP	Change Proposal
CTR	Certified Test Report
EIR	Equipment Installation Report
GD	Graphic Documentation
NBC	Notification by Contractor
O&M	Operation and Maintenance Manuals
PD	Product Data
RD	Record Data
RFI	Request for Information
SD	Shop Drawing
SCH	Schedule of Progress

2. Issue sequence numbers in chronological order for each type of document as directed by the Engineer.
3. Issue numbers for resubmittals that have the same number as the original document followed by an alphabetical suffix indicating the number of times the same document has been sent to the Engineer for processing. For example: SD-025 A represents Shop Drawing number 25 and the letter "A" designates this is the second time this document has been sent for review.
4. Clearly note the document number on each page or sheet of the document.
5. Correct assignment of numbers is essential since different document types are processed in different ways.
- B. Include reference to the Drawing number and/or Specification Section, detail designation, schedule, or location that corresponds with the data submitted on the Document Transmittal form. Other identification may also be required, such as layout drawings or schedules to allow the reviewer to determine where a particular product is to be used.

1.07 DOCUMENTATION

- A. Furnish documents as indicated in Section 01 33 01 "Document Register" or in the individual Specification Sections. Submit documents per the procedures described in the Contract Documents.
- B. Submit documents per the Specification Sections shown in the following table:

Document Type	Specification Section
Application for Payment	01 29 00

Document Type	Specification Section
Certified Test Report	01 33 02 for approval of product 01 40 00 to demonstrate compliance
Change Management	01 26 00
Equipment Installation Report	01 75 00
Graphic Documentation	01 33 06
Notification by Contractor	01 31 13
Operation & Maintenance Manuals	01 33 04
Product Data	01 33 03
Progress Schedules	01 33 05
Record Data	01 31 13
Request for Information	01 31 13
Schedule of Values	01 29 00
Shop Drawing	01 33 02
Substitutions	01 26 00
Suppliers and Subcontractors	01 31 13 01 33 03

1.08 Electronic Documents Protocol

- A. The parties shall follow the provisions in this Section, referred to as the Electronic Documents Protocol ("EDP"), for exchange of electronic transmittals.
- B. Basic Requirements:
 1. Except as otherwise stated elsewhere in the Contract Documents, the Owner and Contractor will send and accept Electronic Documents sent by Electronic Means using the protocols provided in this Section.
 2. The contents of the information in any Electronic Document will be the responsibility of the transmitting party. Electronic Documents may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, and are subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
 3. Provisions of this Contract regarding Electronic Documents must be incorporated into other agreements or subcontracts on the Project. Nothing in this paragraph reduces or eliminates requirements:
 - a. to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations;
 - b. to comply with any applicable Law or Regulation governing the signing and sealing of design documents and related Modifications or the signing and electronic transmission of any other documents; or
 - c. to comply with the notice requirements.
 4. When sending Electronic Documents by Electronic Means the sending party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages,

operating systems, or computer hardware differing from those used in the drafting or sending Electronic Documents.

C. System Infrastructure for Electronic Document Exchange:

1. Contractor will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost. System Infrastructure must comply with these requirements.
2. The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **10 MB**. Attachments larger than that may be exchanged in parts or by using large file transfer functions or physical media.
3. Contractor assumes full and complete responsibility for its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software.
4. Contractor is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
5. Contractor will operate and maintain industry-standard, industry-accepted, ISO standard, commercial-grade security software and systems that are intended to protect others from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. Contractor will not be liable to others for any breach of system security to the extent that Contractor maintains and operates required security software and systems.
6. In the case of disputes, conflicts, or modifications to the use of Electronic Documents required to address issues affecting System Infrastructure, Contractor and Owner will cooperatively resolve the issues; but, failing resolution, Owner is authorized to make and require reasonable and necessary changes meet its original intent. Contractor may submit a Change Proposal if the changes cause additional cost or time to Contractor that could not have reasonably been anticipated.
7. Contractor and Owner are both responsible for their own back-up and archive of documents sent and received during the term of the contract. Contractor and Owner remain solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract as each party deems necessary for its own purposes.
8. If a Contractor or Owner receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.

9. Owner will operate a project information management system (Project Website) for use of Owner and Contractor during the Project for exchange and storage of Project-related communications and information. Except as otherwise provided in this Contract, use of the Project Website will be mandatory for exchange of Project documents, communications, submittals, and other Project-related information.

D. Software Requirements:

1. Owner and Contractor will each acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the following software formats:

Document	Document Format
Email	.htm, .rtf, or .txt without formatting that impair legibility of content on screen or in printed copies
Submittals	Bluebeam or Adobe PDF
Applications for Payment	Bluebeam or Adobe PDF and Microsoft® Excel
Progress Schedules	PDF and Schedule in Schedule in Native Format
Layouts and drawings to be submitted to Owner for future use and modification	Autodesk® AutoCAD .dwg format
Document submitted to Owner for future word processing use and modification	Microsoft® Word
Spreadsheets and data submitted to Owner for future data processing use and modification	Microsoft® Excel

2. Software will be the version currently published at the time Contract is signed, unless a specific software version is listed in the Supplementary Conditions. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or convert to comply with this Section.
3. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.

E. Requests by Contractor for Electronic Documents in Other Formats:

1. Release of any Electronic Documents developed during the design process (including Contract Documents, Technical Data, Drawings, and computer models) in formats other than those identified in this Section will be at the discretion of the Owner.
2. To the extent determined by Owner, release of Electronic Documents and other project information requested by Contractor ("Request") in formats other than those

identified in this Section will be subject to the provisions of Owner's response to the Request, and to the following conditions:

- a. The content included in the Electronic Documents covered by the Request was prepared by Engineer as an internal working document or electronic computer model solely for Engineer's purposes and not for any construction processes, and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.
 - b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the Request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and Contractor waives any claims against the Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
 - c. **CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND ENGINEER AND THEIR SUBCONSULTANTS FROM ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING ATTORNEYS' FEES AND DEFENSE COSTS ARISING OUT OF OR RESULTING FROM THE CONTRACTOR'S USE, ADAPTATION, OR DISTRIBUTION OF ANY ELECTRONIC DOCUMENTS PROVIDED UNDER THE REQUEST.**
 - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to the Contractor's subcontractors. Contractor warrants that subsequent use by the Contractor's subcontractors complies with all terms of the Contract Documents and the Owner's response to Request.
3. In the event that Owner elects to provide or directs Engineer to provide to Contractor any Contractor-requested Electronic Document versions of project information that is not explicitly identified in the Contract Documents as being available to Contractor, Owner shall be reimbursed by Contractor on an hourly basis for any costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer in accordance with the General Conditions.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

01 33 05 CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.01 SUMMARY

- A. Prepare and submit a Progress Schedule for the Work and update the schedule on a monthly basis for the duration of the Project.
- B. Provide Progress Schedule in adequate detail to allow Owner to monitor progress and to relate submittal processing to sequential activities of the Work.
- C. Incorporate Contract Milestones into the schedule and show activities leading to achievement of these milestones.
- D. Assume complete responsibility for maintaining the progress of the Work per the Progress Schedule submitted.

1.02 DOCUMENTATION

- A. Submit the schedules to the Engineer. Send all documents in digital format for processing.
- B. Do not leave any blanks incomplete. If information is not applicable, enter NA in the space provided.
- C. Provide schedules, schedule updates and revisions to the Engineer in electronic format in its originating software and in Portable Document Format (PDF) as required by Section 01 33 00 "Document Management."
- D. Submit a preliminary Progress Schedule at the pre-construction conference.
- E. Submit a detailed Progress Schedule at least 10 days prior to the first payment request.
- F. Submit Progress Schedule updates monthly with the Applications for Payment to indicate the progress made on the Project to the closing date for the Application for Payment. Failure to submit Progress Schedules will cause delay in the review and approval of subsequent Applications for Payment.

1.03 PROGRESS SCHEDULE REQUIREMENTS

- A. Progress Schedule is to be in adequate detail to:
 - 1. Ensure adequate planning, scheduling, and reporting during the execution of the Work;
 - 2. Ensure the coordination of the Work of the Contractor and the various Subcontractors and Suppliers;
 - 3. Monitor the progress of the Work; and
 - 4. Evaluate the impact of proposed changes to the Contract Times and Project Schedule.
- B. Provide personnel with 5 years' minimum experience in scheduling construction work comparable to this Project. Prepare the Progress Schedule using acceptable scheduling software.

- C. Provide the Progress Schedule in the form of a computer-generated critical path schedule which includes Work to be performed on the Project. It is intended that the Progress Schedule accomplish the following:
1. Give early warning of delays in time for correction.
 2. Provide detailed plans for the execution of the Work in the form of future activities and events in sequential relationships.
 3. Establish relationships of significant planned Work activities and provide a logical sequence for planned Work activities.
 4. Provide continuous current status information.
 5. Allow analysis of the Contractor's program for the completion of the Project.
 6. Permit schedules to be revised when the existing schedule is not achievable.
 7. Log the progress of the Work as it actually occurs.
- D. Provide a time-scaled horizontal bar chart which indicates graphically the Work scheduled at any time during the Project. The chart is to indicate:
1. Complete sequence of construction by activity;
 2. Identification of the activity by structure, location, and type of Work;
 3. Chronological order of the start of each item of Work;
 4. The activity start and stop dates;
 5. The activity duration; and production rates used to determine the duration;
 6. Successor and predecessor relationships for each activity;
 7. A clearly indicated single critical path; and
 8. Projected percentage of completion, based on dollar value of the Work included in each activity as of the first day of each month.
- E. Provide a Progress Schedule for Submittals:
1. Indicate the specific dates each document is to be delivered to the Engineer.
 2. Allow a reasonable time to review each document, taking into consideration the size and complexity of the document, other documents being processed, and other factors that may affect review time.
 3. Include time for making revisions to the Shop Drawings and resubmitting the Shop Drawing for at least a second review.
 4. Assume a 14-day review cycle for each time a Shop Drawing is submitted for review unless a longer period is indicated in the Contract Documents or provided by the Engineer.
 5. Contractor is responsible for delays associated with additional time required to review incomplete or erroneous documents and for time lost when documents are submitted for products that do not meet specification requirements.

1.04 PROGRESS SCHEDULE REVISIONS

- A. Revise the Progress Schedule if it appears that the schedule no longer represents the actual progress of the Work.
 - 1. Submit a Plan of Action for schedule recovery if the Progress Schedule or earned value analysis indicates that the Project is more than 30 days behind schedule. The report is to include:
 - a. Number of days behind schedule;
 - b. Narrative description of the steps to be taken to bring the Project back on schedule; and
 - c. Anticipated time required to bring the Project back on schedule.
 - 2. Submit a revised Progress Schedule indicating the action that the Contractor proposes to take to bring the Project back on schedule.
- B. Revise the Progress Schedule to indicate any adjustments in Contract Times approved by a Modification.
 - 1. Include a revised Progress Schedule with Change Proposals if a change in Contract Times is requested.
 - 2. Engineer will deem any Change Proposal that does not have a revised Progress Schedule and request for a change in Contract Times as having no impact on the ability of the Contractor to complete the Project within the Contract Times.
- C. **Updating the Progress Schedule to reflect actual progress is not considered a revision to the schedule.**
- D. Applications for Payment will not be recommended for payment without a revised Progress Schedule and if required, the report indicating the Contractor's plan for bringing the Project back on schedule.

1.05 FLOAT TIME

- A. Define float time as the amount of time between the earliest start date and the latest start date of a chain of activities on the construction schedule.
- B. Float time is not for the exclusive use or benefit of either the Contractor or Owner.
- C. Where several subsystems each have a critical path, the subsystem with the longest time of completion is the critical path and float time is to be assigned to other subsystems.
- D. Schedule completion date must be the same as the Contract completion date. Time between the end of construction and the Contract completion date is float time.

1.06 MODIFICATION OF CONTRACT TIMES

- A. Contract Times cannot be changed by the submission of a Progress Schedule. Contract Times can only be modified by a Change Order or Contract Amendment.
- B. Submit a Change Proposal for any proposed change in Contract Times, and include justification for the change in accordance with the provisions of the Contract Documents.

1.07 NEAR-TERM LOOK AHEAD SCHEDULES

- A. Provide a near-term look ahead schedule (NTLA Schedule) every 14 days, typically at periodic coordination meetings, using the form provided by the Engineer which shows the days of planned activity for the following:
 - 1. Submittals to be provided and day of anticipated return;
 - 2. Equipment and material deliveries;
 - 3. Arrival and departure of key construction equipment; and
 - 4. Activities for the Contractor and each Subcontractor.
- B. Coordinate NTLA Schedule with Project Schedule. Submit a report with each NTLA Schedule identifying deviations from the Project Schedule.
- C. Submit a report of near-term work planned in the previous NTLA Schedule that was delayed or not executed by marking actual activity on the previous near term look ahead schedule. Provide explanation of why planned work was not executed and plan to execute in the future and regain time lost.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

01 40 00 QUALITY MANAGEMENT

PART 1 - GENERAL

1.01 OVERVIEW

- A. Quality management refers to the overall process of delivering a completed Project to the Owner that complies with the requirements of the Contract Documents. Quality management applies to documentation, products, services and the Work.
- B. The Contractor is responsible for the quality of documentation, products, services and the Work provided.
 - 1. Contractor is to integrate quality control procedures into the execution of the Work that are adequate to produce a Project that meets the requirements of the Contract Documents while minimizing loss of time and increased cost. Contractor is solely responsible for time and cost impacts of correcting Defective Work.
 - 2. Contractor is to provide all testing and inspection required to control the quality of the Work in progress to determine that completed Work will comply with the requirements of the Contract Documents.
 - 3. Contractor is to provide verification or acceptance testing as required by the Contract Documents to demonstrate that the completed Work complies with the requirements of the Contract Documents, except for those test that the Owner has determined are to be conducted independent of the Contractor and identified as Owner testing in the Owner's Quality Management Plan.

1.02 STANDARDS

- A. Provide testing laboratories that comply with the American Council of Independent Laboratories (ACIL) "Recommended Requirements for Independent Laboratory Qualifications."
- B. Perform testing per recognized test procedures as listed in the various Sections of the Specifications, standards of the State Department of Transportation, ASTM International (American Society for Testing and Materials), or other testing associations. Perform tests in accordance with published procedures for testing issued by these organizations.

1.03 DOCUMENTATION

- A. Provide documentation which includes:
 - 1. Contractor's Quality Management Plan that establishes the methods of ensuring compliance with the Contract Documents. Submit this plan as Product Data per Section 01 31 13 "Project Coordination."
 - 2. A statement of qualifications for any proposed testing laboratory that includes a list of the engineers and technical staff that will provide testing services on the Project, descriptions of the qualifications of these individuals, list of tests that can be performed, equipment used with date of last certification, and a list of recent projects for which testing has been performed with references for those projects.

3. Certified Test Reports for products to be incorporated into the Project. Provide reports to indicate that the proposed products comply with the Contract Documents or indicate that the proposed products do not comply with the Contract Documents and why those products do not comply. Submit Certified Test Reports as part of a Shop Drawing submitted per Section 01 33 02 "Shop Drawings."
4. Certified Test Reports for inspections and testing required in this Section and in other Sections of the Specifications. Provide reports to indicate that the Work complies with the Contract Documents or indicate that the Work does not comply with the Contract Documents and why the Work does not comply. Submit these test reports on forms provided by the Engineer per Section 01 33 00 "Document Management."
5. Certified Test Reports of Defective Work and Certified Test Reports documenting that successful corrective action has produced Work that complies with the Contract Documents. Engineer will maintain a Defective Work register. Progress on correction of Defective Work will be discussed at progress meetings as described in Paragraph [1.05.E]. The final Defective Work register will be incorporated into closeout documentation required per Section 01 70 00 "Execution and Closeout Requirements" as a record that all Defective Work has been corrected.

1.04 OWNER'S QUALITY MANAGEMENT ACTIVITIES

- A. Owner may perform its own verification testing independent of the Contractor. Owner's Quality Management Plan describes the Owner's anticipated verification testing program for this Project. The preliminary testing plan **is provided as Article 1.05 to the Contract Documents**. This plan outlines the anticipated testing in general terms and may not reflect the actual testing performed by the Owner. Actual testing will depend on the Contractor's means, methods, and procedures of construction which will not be known until the Contractor submits the Contractor's Quality Control Plan (CQCP) to the Owner. There is no guarantee that all testing in the preliminary OQMP included in the Bidding/Proposal Documents will be performed by the Owner. Contractor will arrange and pay for all production control testing deemed necessary by the Contractor to produce quality results.
- B. Quality management activities of the Owner are for verifying the results of the Contractor's Work complies with the requirements of the Contract Documents. Performance or non-performance of verification activities by the Owner:
 1. Does not relieve the Contractor of its responsibility to provide Work and furnish products that comply with the requirements of the Contract Documents;
 2. Does not relieve the Contractor of its responsibility to provide adequate quality control measures to produce quality documents, products, services or Work;
 3. Does not relieve the Contractor of its responsibility for damage to or loss of Work or products before Owner's acceptance; and
 4. Does not affect the continuing rights of the Owner after Owner's acceptance of the completed Work.
- C. The Work is subject to Owner's observations or testing at any time. Products which have been tested or inspected and accepted by the Owner at a supply source or staging area may be inspected or tested again by the Owner before, during, or after incorporation into the Work and rejected if products do not comply with the Contract Documents. Verification

testing performed by the Owner will be paid for by the Owner, except for testing related to Defective Work as discussed in Paragraph **[3.03]**.

1.05 CONTRACTOR'S RESPONSIBILITIES

- A. Review the QQMP and provide a Contractor's Quality Control Plan (CQCP) outlining testing to be provided by the Contractor per Paragraph **[1.07]**.
- B. Implement the CQCP to provide Work that complies with the requirements of the Contract Documents.
 - 1. Provide quality documents meeting the requirements of the Contract Documents.
 - 2. Provide services meeting the requirements of the Contract Documents.
 - 3. Provide the services of a Construction Materials Inspection and Testing (CMIT) provider meeting the requirements of this Section to provide testing required by the Contract Documents to demonstrate that products proposed for the Project in Shop Drawings and Product Data fully comply with the Contract Documents.
 - 4. Inspect and test products to be incorporated into the Project to identify defects before installing them. Do not install Defective products. Conspicuously mark Defective products and remove from the Site. If products are installed before the defect is recognized, remove the Defective products, mark them as Defective and remove them from the Site when the defect is recognized.
 - 5. Integrate production quality control measures into construction activities to produce Work meeting the requirements of the Contract Documents. Inspect self-performed Work and the Work of Subcontractors and Suppliers to identify defects. Correct or replace Defective Work.
 - 6. Provide facilities, equipment, and Samples required for inspections and tests.
 - a. Give the Engineer adequate notice before proceeding with Work that would interfere with inspections or testing.
 - b. Notify the Engineer and CMIT provider prior to the time that testing is required, providing adequate lead time to allow arrangements for inspections or testing to be performed.
 - c. Do not proceed with Work that would impact the ability to correct defects, or with Work that would require that it be removed to correct defects, until testing is complete, and test results indicate that the corrected Work is acceptable.
 - d. Provide safe access for all CMIT activities, including those to be conducted as part of the Owner's Quality Management Program.
 - e. Cooperate fully with the performance of sampling, inspection, and testing. Provide personnel to assist with sampling or to assist in making inspections and field tests.
 - f. Provide Samples and products in adequate quantities for testing at the Site or at the production source of the product for testing.
 - g. Provide facilities required to store and cure test Samples.

- h. Provide calibrated scales and measuring devices for Owner's use in performing inspections and testing.
 - i. Provide adequate lighting to allow Owner observations.
 - j. Make Contract Documents available to testing agencies when requested.
- C. Perform tests as indicated in Contract Documents. All verification testing is to be observed by the Engineer or its designated representative.
- D. Submit test reports to the Engineer.
- E. Provide an update on quality control activities performed the previous month and planned for the coming month at monthly progress meetings required by Section 01 31 13 "Project Coordination."
- F. Determine testing or inspections required to implement the CQCP. Include costs for additional testing and inspections required to meet Contractor's quality control obligations in the Contract Price.

1.06 CONTRACTOR'S QUALITY CONTROL MANAGER

- A. Provide a Quality Control Manager for the Project. The Quality Control Manager must have authority to reject Defective Work, redirect the efforts of the Contractor, Subcontractor and Suppliers to correct Defective Work and implement steps to prevent future Defective Work.
- B. The resident superintendent or an approved assistant can serve as Quality Control Manager, provided other duties will allow adequate time to serve in this capacity.

1.07 CONTRACTOR'S QUALITY CONTROL PLAN

- A. Provide a CQCP that describes testing and inspections for Work performed at the Site and at remote locations. Include Work by Subcontractors and Suppliers. The CQCP is to include:
 - 1. A description of the quality control organization, including an organization chart showing lines of authority to control the quality of Work;
 - 2. Documentation describing name, qualifications (in resume format), duties, responsibilities, and level of authority of the Quality Control Manager.;
 - 3. The name, qualifications (in resume format), duties, responsibilities, and authorities of other persons assigned a quality control function;
 - 4. Procedures for scheduling, reviewing, certifying, and managing documentation including documentation provided by Subcontractors and Suppliers;
 - 5. Control, verification, and acceptance testing procedures for each specific test. Include:
 - a. Name of tests to be performed,
 - b. Specification paragraph requiring test,
 - c. Parameters of Work to be tested,
 - d. Test frequency,
 - e. Persons responsible for each test, and

- f. Applicable industry testing standards and laboratory facilities to be used for the test;
- 6. Incorporate the testing specified in the OQMP into the CQCP, specifically identifying the tests or inspections that will be provided by the OQMP;
- 7. Procedures for tracking and documenting quality management efforts per Paragraph **[1.03]**.
- 8. Reporting procedures which incorporate the use of forms provided by the Engineer.
- 9. The name of the proposed testing laboratories along with documentation of qualifications per Paragraph **[1.03]**.
- B. Use the Contractor's Quality Control Plan Checklist provided by the Engineer to review the CQCP before submitting and include a copy of the completed checklist with the CQCP. Do not begin Work until the CQCP is accepted. Submit an interim plan covering only the portion of Work to be performed if the Contractor plans to begin Work prior to submitting the complete CQCP for the Project. Do not begin Work on other parts of the Project until the complete CQCP is accepted.
- C. Meet with the Owner 7 days after CQCP is submitted and before start of construction to discuss the CQCP.
- D. Notify the Engineer of any changes to the CQCP or quality control personnel.

1.08 CONTRACTOR'S USE OF OWNER'S TEST REPORTS

- A. Contractor will receive copies of all test reports documenting Owner's verification tests. Contractor is entitled to rely on the accuracy of these tests results and use these as part of its quality control efforts.
- B. Contractor may submit a Change Proposal if the Owner's testing program deviates significantly from the OQMP. Contractor must demonstrate that actual testing and inspection costs were incurred implementing the CQCP as a result of Owner's decision to not provide testing described in the OQMP.

1.09 LIMITATION OF AUTHORITY OF THE TESTING LABORATORY

- A. The testing laboratory representatives are limited to providing testing services and interpreting the results of the test performed.
- B. The testing laboratory is not authorized to:
 - 1. Alter the requirements of the Contract Documents;
 - 2. Accept or reject any portion of the Work;
 - 3. Perform any of the duties of the Contractor; or
 - 4. Direct or stop the Work.

1.10 TEST REPORTS

- A. Certified Test Reports are to be prepared for all tests.

1. Tests performed by testing laboratories may be submitted on their standard test report forms if acceptable to the Owner using the process directed by the Engineer. These reports must include the following:
 - a. Name of the Owner, Project title and number, and name of the Contractor;
 - b. Name, address, and telephone number of the laboratory;
 - c. Name and signature of the laboratory personnel performing the test;
 - d. Description of the product being sampled or tested;
 - e. Date and time of sampling, inspection, and testing;
 - f. Date the report was issued;
 - g. Description of the test performed;
 - h. Weather conditions and temperature at time of test or sampling;
 - i. Location at the Site or structure where the test was taken;
 - j. Standard or test procedure used in making the test;
 - k. A description of the results of the test;
 - l. Statement of compliance or non-compliance with the Contract Documents; and
 - m. Interpretations of test results, if appropriate.
 2. Submit reports on tests performed by Contractor, Subcontractors, or Suppliers on the as directed by the Engineer.
 3. Owner will prepare test reports on tests performed by the Owner.
- B. Submit test reports as directed by the Engineer within 24 hours of completing the test. Flag tests reports with results that do not comply with Contract Documents for immediate attention. Notify the Engineer using acceptable means other than the test report, immediately of any test that fails to comply with the Contract Documents.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Handle and protect test specimens of products and construction materials at the Site in accordance with recognized test procedures. Provide facilities for storing, curing, and processing test specimens as required by test standards to maintain the integrity of Samples. Transport test specimens in a manner to prevent damage to specimens while in transit.

PART 2 - PRODUCTS

2.01 TESTING APPARATUS

- A. Furnish testing apparatus and related accessories necessary to perform the tests.

2.02 SAMPLE PRODUCTS

- A. Provide Samples of products in adequate quantity for testing.

PART 3 - EXECUTION

3.01 IMPLEMENTING CONTRACTOR'S QUALITY CONTROL PLAN

- A. Perform quality control observations and testing as required in each Section of the Specifications and where indicated on the Drawings.
- B. Include the following phases for each definable work task. A definable work task is one which is separate and distinct from other tasks, has separate control requirements, may be provided by different trades or disciplines, or may be work by the same trade in a different environment.
 - 1. Planning Phase: Perform the following before beginning each definable work task:
 - a. Review the Contract Documents.
 - b. Review documents the Contractor will submit and determine that they are complete in accordance with the Contract Documents.
 - c. Check to ensure that all materials and/or equipment have been tested, submitted, and approved.
 - d. Examine the work area to ensure that all required preliminary Work has been completed and complies with the Contract Documents.
 - e. Examine required materials, equipment, and sample Work to ensure that they are on hand, conform to Contract Documents, Shop Drawings and Product Data, and are properly stored.
 - f. Review requirements for quality control inspection and testing.
 - g. Discuss procedures for controlling quality of the Work. Document construction tolerances and workmanship standards for the work task.
 - h. Check that the portion of the plan for the Work to be performed incorporates document review comments.
 - i. Discuss results of planning phase with the Engineer. Conduct a meeting attended by the Engineer, Quality Control Manager, superintendent, other quality control personnel as applicable, and the foreman responsible for the work task. Instruct applicable workers as to the acceptable level of workmanship required to meet the requirements of the Contract Documents. Document the results of the planning phase actions by separate meeting minutes prepared by the Quality Control Manager and attached to the quality control report.
 - j. Do not move to the next phase unless results of investigations required for the planning phase indicate that requirements have been met.
 - 2. Work Phase: Complete this phase after the planning phase:
 - a. Notify the Engineer at least 1 week in advance of beginning the Work and discuss the review of the planning phase effort to indicate that requirements have been met.
 - b. Check the Work to ensure that it is in full compliance with the Contract Documents.

- c. Verify adequacy of controls to ensure full compliance with Contract Documents. Verify required control inspection and testing is performed.
 - d. Verify that established levels of workmanship meet acceptable workmanship standards. Compare with required Sample panels as appropriate.
 - e. Repeat the work phase for each new crew to work on-site, or any time acceptable specified quality standards are not being met.
- 3. Follow-Up Phase: Perform daily checks to ensure control activities, including control testing, are providing continued compliance with contract requirements:
 - a. Make checks daily and record observations in the quality control documentation.
 - b. Conduct follow-up checks and correct all defects prior to the start of additional work tasks that may be affected by the Defective Work. Do not build upon nor conceal Defective Work.
 - c. Conduct a review of the Work at least 1 month prior to the expiration of the correction period prescribed in the General Conditions with the Owner. Correct defects as noted during the review.
- C. Conduct additional planning and work phases if:
 - 1. The quality of on-going Work is unacceptable;
 - 2. Changes are made in applicable quality control staff, on-site production supervision, or crews;
 - 3. Work on a task is resumed after a substantial period of inactivity; or
 - 4. Other quality problems develop.

3.02 DEFECTIVE WORK

- A. Immediately correct any Defective Work or notify the Engineer why the Work is not to be corrected immediately and when corrective action will be completed.
- B. Work performed that is connected or adjacent to Defective Work or Work that would have to be removed to correct Defective Work is also considered to be Defective. Contractor is responsible for all costs associated with replacing any acceptable Work that must be removed, or might be damaged by corrective actions.
- C. Document Defective Work, corrective actions taken to correct defects and that corrected Work complies with the Contract Documents.
- D. Implement countermeasures to prevent future Defective Work.
- E. No payment will be made for Defective Work. Remove Work from the Application for Payment if Work paid for on a previous Application for Payment is found to be Defective.
- F. Owner will withhold payment for Defective Work or Work that has not been tested or inspected in accordance with the CQCP, OQCP, or the Contract Documents.

3.03 VERIFICATION TESTING FOR CORRECTED DEFECTS

- A. Provide verification testing on corrected Work when corrective action is complete to demonstrate that the corrected Work complies with the Contract Documents. Conduct the

same tests or inspections used to determine that the original Work was Defective. Different tests or methods may be used if approved by the Owner. Document that Defective Work has been corrected with the Engineer.

- B. Pay for verification testing until Work meets quality requirement set forth in the Contract Documents. Owner may perform verification testing as part of its Quality Management Program and impose a Set-off to recover the cost for this testing.

3.04 OWNER'S PRELIMINARY QUALITY CONTROL PLAN

END OF SECTION

01 57 00 TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide labor, materials, equipment, and incidentals necessary to construct temporary facilities to provide and maintain control over environmental conditions at the Site. Remove temporary facilities when no longer needed. Comply with Section 01 57 23 "NC Erosion and Sedimentation Control."
- B. Construct temporary impounding works, channels, diversions, furnishing, and operation of pumps, installing piping and fittings, and other construction for control of conditions at the Site. Remove temporary controls at the end of the Project. Comply with Section 01 57 23 "NC Erosion and Sedimentation Control."

1.02 DOCUMENTATION

- A. Provide Shop Drawings in accordance with Section 01 33 02 "Shop Drawings."
- B. Provide copies of notices, records, and reports required by the Contract Documents or Laws and Regulations as Product Data in accordance with Section 01 31 13 "Project Coordination." Comply with Section 01 57 23 "NC Erosion and Sedimentation Control."

1.03 QUALITY ASSURANCE

- A. Construct and maintain temporary controls with adequate workmanship using durable materials to provide effective environmental management systems meeting the requirements of the Contract Documents and Laws and Regulations. Use materials that require minimal maintenance to prevent disruption of construction activities while providing adequate protection of the environment.
- B. Periodically inspect systems to determine that they are meeting the requirements of the Contract Documents.
- C. Comply with Section 01 57 23 "NC Erosion and Sedimentation Control."

1.04 POLLUTION CONTROL

- A. Prevent the contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations. Provide adequate measures to prevent the creation of noxious air-borne pollutants. Prevent dispersal of pollutants into the atmosphere. Do not dump or otherwise discharge noxious or harmful fluids into drains or sewers, nor allow noxious liquids to contaminate public waterways in any manner.
- B. Provide equipment and personnel and perform emergency measures necessary to contain any spillage.
 - 1. Contain chemicals in protective areas and do not dump on soil. Dispose of such materials at off-site locations in an acceptable manner.
 - 2. Excavate contaminated soil and dispose at an off-site location if contamination of the soil does occur. Fill resulting excavations with suitable backfill and compact to the density of the surrounding undisturbed soil.

3. Provide documentation to the Owner which states the nature and strength of the contaminant, method of disposal, and the location of the disposal site.
 4. Comply with Laws and Regulations regarding the disposal of pollutants.
- C. Groundwater or run-off water which has come into contact with noxious chemicals, sludge, or contaminated soil is considered contaminated. Do not allow contaminated water to enter streams or water courses, leave the Site in a non-contained form, or enter non-contaminated areas of the Site.
1. Construct temporary holding ponds or take other precautions and measures as required to contain the contaminated water and pump to a designated storage area.
 2. Wash any equipment used for handling contaminated water or soil within contaminated areas three times with uncontaminated water prior to using such equipment in an uncontaminated area. Dispose of wash water used to wash such equipment as contaminated water.

1.05 EARTH CONTROL

- A. Remove excess soil, spoil materials, and other earth not required for backfill. Control stockpiled materials to eliminate interference with Contractor and Owner's operations.
- B. Dispose of excess earth off the Site. Provide written approval from the property owner for soils deposited on private property as Product Data per Section 01 31 13 "Project Coordination." Obtain approval of the Owner if this disposal impacts the use of Site or other easements.

1.06 AIR POLLUTION CONTROL

- A. Air Pollution Watch Days:
 1. Air Pollution Watch Days (APWD) may occur in the following times:
 - a. Typical Ozone Season: May 1 through October 31.
 - b. Critical Emission Time: 6:00 a.m. to 10:00 a.m.
 2. Watch Days:
 - a. State or local environmental regulatory agencies, in coordination with the National Weather Service, may designate the following day as an APWD by 3:00 p.m. on the prior afternoon.
 - b. Begin work after 10:00 a.m. on designated APWD if work requires the use of heavy construction equipment for run times in excess of 1 hour prior to 10:00 a.m. Heavy construction equipment may be used prior to 10:00 a.m. if equipment is certified by EPA as "Low Emitting" or equipment burns Ultra Low Sulfur Diesel (ULSD), diesel emulsions, or alternative fuels such as CNG.
- B. Obtain air permit for construction activities per requirements of Laws and Regulations.

1.07 TEMPORARY STORMWATER POLLUTION CONTROL

- A. Provide temporary stormwater pollution control per Section 01 57 23 "NC Erosion and Sedimentation Control."

1.08 MANAGEMENT OF WATER

- A. Manage water resulting from rains or ground water at the Site. Maintain trenches and excavations free of water at all times.
- B. Lower the water table in the construction area by acceptable means if necessary to maintain a dry and workable condition at all times. Provide drains, sumps, casings, well points, and other water control devices as necessary to remove excess water.
- C. Provide continuous operation of water management actions. Maintain standby equipment to provide proper and continuous operation for water management.
- D. Ensure that water drainage does not damage adjacent property. Divert water into the same natural watercourse in which its headwaters are located, or other natural stream or waterway as approved by the Owner. Assume responsibility for the discharge of water from the Site.
- E. Remove the temporary construction and restore the Site in a manner acceptable to the Engineer and to match surrounding material at the conclusion of the Work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide materials that comply with Laws and Regulations.

PART 3 - EXECUTION

3.01 CONSTRUCTING, MAINTAINING, AND REMOVING TEMPORARY CONTROLS

- A. Construct temporary controls in accordance with Laws and Regulations.
- B. Maintain controls in accordance with regulatory requirements where applicable or in accordance with the requirements of the Contract Documents.
- C. Remove temporary control when no longer required, but before the Project is complete. Correct any damage or pollution that occurs as the result of removing controls while they are still required.

END OF SECTION

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01 70 00 EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Comply with requirements of the General Conditions and specified administrative procedures in closing out the Contract.

1.02 DOCUMENTATION

- A. Submit affidavits and releases on forms provided by the Engineer **through the Engineer Inspector.**

1.03 SUBSTANTIAL COMPLETION

- A. The following requirements must be met for the Project or a designated portion of the Work to be Substantially Complete per the General Conditions:
 - 1. Work must be fully functional and able to operate in accordance with the Contract Documents without special or extraordinary efforts on the part of the Owner.
- B. Conduct inspections with superintendent, Subcontractors, and Suppliers for the Work or a designated portion of the Work prior to calling for a Substantial Completion inspection by the Owner. Create a list of deficiencies in the Work that must be completed for the Project to qualify for Substantial Completion. Review the list with the Engineer or the designated member of the Owner. The Engineer or the designated member of the Owner may assist the Contractor with this effort; however, it is the Contractor's responsibility to create and manage this list of deficiencies until corrections are made.
- C. Correct the identified deficiencies prior to calling for a Substantial Completion inspection.
- D. Notify the Engineer that the Work or a designated portion of the Work is Substantially Complete per the General Conditions. Include a list of the items remaining to be completed or corrected before the Project will be considered for Final Completion.
- E. Owner will visit the Site to observe the Work within a reasonable time after notification is received to determine the status of the Project.
- F. Engineer will notify the Contractor that the Work is either Substantially Complete or that additional Work must be performed before the Project will be considered Substantially Complete.
 - 1. Engineer will notify the Contractor of items that must be completed before the Project will be considered Substantially Complete.
 - 2. Correct the noted deficiencies in the Work.
 - 3. Notify the Engineer when the items of Work in the Engineer's notice have been completed.
 - 4. Owner will revisit the Site and repeat the process.

5. Engineer will issue a Certificate of Substantial Completion to the Contractor when the Owner considers the Project to be Substantially Complete. The certificate will include a tentative list of items to be corrected before Final Payment will be recommended.
6. Review the list and notify the Engineer of any objections to items on the list within 10 days after receiving the Certificate of Substantial Completion.

1.04 TRANSFER OF UTILITIES

- A. Transfer utilities to the Owner when the Certificate of Substantial Completion has been issued.
- B. Submit final meter readings for utilities and similar data as of the date the Owner occupied the Work.

1.05 CLOSEOUT REQUIREMENTS

- A. Provide the following before Final Completion:
 1. Record Documents per Section 01 31 13 "Project Coordination";
 2. Keys and keying schedule;
 3. Warranties, bonds, and service agreements;
 4. Equipment Installation Reports;
 5. Shop Drawings, Product Data, operation and maintenance manuals, and other documentation required by the Contract Documents;
 6. Specified spare parts and special tools;
 7. Certificates of occupancy, operating certificates, or other similar releases required to allow the Owner unrestricted use of the Work and access to services and utilities;
 8. Evidence of continuing insurance and bond coverage as required by the Contract Documents; and
 9. Final videos and photographs per Section 01 33 06 "Graphic Documentation."

1.06 WARRANTIES, BONDS, AND SERVICES AGREEMENTS

- A. Provide warranties, bonds, and service agreements required by Section 01 33 00 "Document Management" or by the individual Sections of the Specifications.
- B. The date for the start of warranties, bonds, and service agreements is established per the General Conditions.
- C. Compile warranties, bonds, and service agreements and review these documents for compliance with the Contract Documents.
 1. Each document is to be signed by the respective Supplier or Subcontractor.
 2. Each document is to include:
 - a. The product or Work item description;
 - b. The firm name, with the name of the principal, address, and telephone number;

- c. Scope of warranty, bond, or services agreement;
 - d. Date, duration, and expiration date for each warranty bond and service agreement;
 - e. Procedures to be followed in the event of a failure; and
 - f. Specific instances that might invalidate the warranty or bond.
- D. Submit digital copies of the documents to the Engineer for review.
 - E. Submit warranties, bonds, and services agreements within 10 days after equipment or components placed in service.

1.07 FINAL COMPLETION

- A. Conduct inspections with Superintendent, Subcontractors, and Suppliers prior to calling for a Final Completion inspection by the Owner. Create a list of deficiencies in the Work that must be completed for the Project to qualify for the Final Completion inspection. Review the list with the Engineer or the designated member of the Owner. The Engineer or the designated member of the Owner may assist the Contractor with this effort; however, it is the Contractor's responsibility to create and manage this list of deficiencies until corrections are made.
- B. Identify, list, and correct deficiencies prior to calling for a Final Completion inspection. The Project at the call for Final Completion represents the Contractor's interpretation of a project completed in conformance with the Contract Documents and reflects the Contractor's representation of a quality project meeting the Owner's expectations.
- C. Notify the Engineer when:
 - 1. Work has been completed and complies with the Contract Documents;
 - 2. Equipment and systems have been tested per the Contract Documents and are fully operational;
 - 3. Final operation and maintenance manuals have been provided to the Owner and all operator training has been completed;
 - 4. Specified spare parts and special tools have been provided;
 - 5. Work is complete and ready for final inspection;
 - 6. Final documentation for all outstanding Modifications and Claims (other than those listed on the Certificate of Final Completion) have been processed and are ready for incorporation into the final Application for Payment; and
 - 7. Closeout requirements in Paragraph **[1.05]** have been completed.
- D. Owner will visit the Site to determine if the Project is complete and ready for final payment within a reasonable time after the notice is received.
- E. Engineer will notify the Contractor that the Project is complete or will notify the Contractor that Work is Defective.
- F. Take immediate steps to correct Defective Work. Notify the Engineer when Defective Work has corrected. Owner will visit the Site to determine if the Project is complete and the

Work is acceptable. Engineer will issue a Certificate of Final Completion to the Contractor when the Project is complete or will notify the Contractor that Work is Defective.

- G. Submit the request for final payment with closeout documentation described in Paragraph **[1.06]** if notified that the Project is complete and the Work is acceptable.

1.08 REINSPECTION FEES

- A. Owner may impose a set-off against the Application for Payment in accordance with the General Conditions to compensate the Owner for additional visits to the Project if additional Work is required.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

END OF SECTION