CITY OF GREENVILLE
STATE OF SOUTH CAROLINA
INVITATION FOR BIDS

IFB NO. 18-3632

BYRDLAND DRIVE / AIRPORT ROAD SEWER IMPROVEMENTS

DUE: APRIL 24, 2018 2:00 PM
CITY OF GREENVILLE  
STATE OF SOUTH CAROLINA  
INVITATION FOR BIDS  
IFB NO. 18-3632

Sealed bids will be received in the Purchasing Division, 7th Floor, City Hall, 206 South Main Street, Greenville, South Carolina until **2:00 p.m. ET, April 24, 2018** from qualified contractors and promptly thereafter all bids that have been duly received will be publicly opened and read aloud:

**Byrdland Drive / Airport Road Sewer Improvements**

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The City encourages the use of recycled paper products and double sided print. The City discourages the use of plastic products including 3-ring binders, plastic folders, etc. for all submissions.

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**SUBMITTAL:** One (1) original and one (1) copy of all requested documentation must be received on or before 2:00 p.m. ET, April 24, 2018

**ADDRESSED TO:** City of Greenville  
Purchasing Division  
7th Floor, City Hall  
Attn: Maribel Diaz

**MAILING ADDRESS:** P.O. Box 2207, Greenville, SC, 29602

**OFFICE ADDRESS:** 206 S. Main St, Greenville, SC, 29601

**OFFICE/FAX NUMBER:** 864-467-4547 / 864-467-4597

**E-MAIL:** mdiaz@greenvillesc.gov

**MARK ENVELOPE:** IFB NO. 18-3632 – Byrdland Dr/Airport Rd Sewer Improvements

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**DEADLINE ENFORCED**  
Bids received after the time and date set for receipt of bids WILL NOT be accepted and will be returned unopened to the bidder. It is the bidder’s responsibility to ensure timely delivery of their bid. Weather, flight delays, carrier errors and other acts of otherwise excusable neglect are risks allocated to bidders and will not be exempted from deadline requirements. Telephone, e-mail or facsimile bids will not be accepted.
No bid will be accepted from a contractor who is not currently licensed as applicable, by the South Carolina Department of Labor, Licensing and Regulation Contractors’ License Board, in accordance with Title 40, Chapter 11 of the Code of Law of South Carolina, and has a current South Carolina General Contractor’s License. Requirements may be obtained at www.llr.state.sc.us. If this requirement is not met, your bid will be disqualified and rejected.

Any offer submitted as a result of this solicitation shall be binding on the offeror for SIXTY (60) CALENDAR DAYS FOLLOWING THE BID OPENING DATE. Any bid for which the offeror specifies a shorter acceptance period may be rejected.

Bid Form will be signed in ink (not typed) in the appropriate space(s) by an authorized officer or employee of the bidder.

A Certified Check, Cashier’s Check or Bid Bond in the amount of FIVE PERCENT (5%) of the bid, made payable to the City of Greenville, will be required to accompany each bid.

Upon receiving the “Notice of Award”, the successful bidder has TEN (10) CALENDAR DAYS to furnish the City of Greenville with a “PERFORMANCE BOND” in the amount of One Hundred Percent (100%) of the contract and a “PAYMENT BOND” in the amount of One Hundred Percent (100%) of the contract amount.

Upon receiving the “NOTICE OF AWARD”, the successful bidder has TEN (10) CALENDAR DAYS to submit all required bonds, insurance, permits, and licenses, and meet with the City in a Pre-construction meeting to discuss any problems or questions pertaining to the project. It is the contractor’s responsibility to contact the City’s Project Manager immediately to arrange for the pre-construction meeting during the TEN (10) DAY PERIOD.

If the bidder discovers any ambiguity, conflict, discrepancy, omission or other errors in the bid, bidder shall immediately notify the City of such error in writing and request modification or clarification of the document. The bidder is responsible for clarifying any ambiguity, conflict, discrepancy; omission or other error in the bid or it shall be deemed waived.

The successful contractor shall comply with all instructions and shall perform services in a manner commensurate with the highest professional standards by qualified and experienced personnel.

In the event that progress payments are necessary, the City will withhold ten percent (10%) retention from payment due the contractor until final acceptance of the project is issued by the City of Greenville.

It shall be the contractor’s responsibility to insure that all construction conforms to OSHA requirements and the oral or written instructions of the City pertaining to the protection of the City’s property and the safety and protection of all persons in or about the site of the work and contractor shall be responsible for any damage or injury to any person or property resulting from the contractor’s failure to maintain adequate safeguards against the occurrence of accidents, injuries, or damages at the site of work.
During the performance of the contract, the contractor shall comply with any and all Federal State or Local Laws relating to a Drug Free Workplace.

**Proprietary and/or Confidential Information**

Your proposal or bid is a public document under the South Carolina Freedom of Information Act (FOIA), except as to information that may be treated as confidential as an exception to disclosure under the FOIA. If you cannot agree to this standard, please do not submit your bid or proposal. All information that is to be treated as confidential and/or proprietary must be **CLEARLY** identified, and each page containing confidential and/or proprietary information, in whole or in part, must be stamped and/or denoted as **CONFIDENTIAL**, in bold, in a font of at least 12 point type, in the upper right hand corner of the page. *All information not so noted and identified shall be subject to disclosure by the City.*

BIDDERS ARE CAUTIONED that any statement made by City staff persons that materially change any portion of this bid document shall not be relied upon unless they are subsequently ratified by a formal written amendment to this bid document.

This Invitation for Bids is being issued by the City of Greenville Purchasing Division. Direct all questions or request for clarification of this IFB in writing to: Maribel Diaz, Lead Buyer, utilizing the fax number, or e-mail address shown on page (1) of this invitation.

Any revisions to this Invitation for Bid will be issued and distributed as an addendum. All addenda, additional communications, responses to questions, etc. pertaining to the Invitation for Bids will be posted on the City of Greenville website at:


**All bidders should consult this website for updates before submitting bids.**

**THE DEADLINE FOR QUESTIONS IS:** 2:00 P.M., APRIL 17, 2018.

Bidders are specifically directed not to contact any other City personnel for meetings, conferences, or technical discussions related to this request unless otherwise stated in this bid. Failure to adhere to this policy may be grounds for rejection of your bid.

Additional products will be considered if they meet the requirements set forth in the specification. If the contractor wishes to obtain pre-approval of a product, then they must provide third party testing data for the product that meets the requirements set forth in the specifications by the deadline for questions as specified above.

The City of Greenville reserves the right to reject any or all bids; to waive any informality or irregularity not affected by law; to evaluate, in its absolute discretion, the bids submitted; to award
the contract according to the bid which best serves the interests of the City; or to not award the contract if the City determines that it is not in its best interest to do so.

**Current E-mail Address Required**
All proposals submitted shall include a current e-mail address. Once selected, Notice of Award shall be posted on the City’s website; and Notice of Award, and notices of non-award, shall be sent to all proposers via e-mail. No hard copy notices will be sent via regular mail.

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**Policy Concerning Minority and Woman Owned Business Enterprises**

**Intent**
Business firms owned and operated by women and minority persons, in general, have been historically restricted from full participation in the nation's free enterprise system to a degree disproportionate to other businesses.

The City believes it is in the community's best interest to assist woman- and minority-owned businesses to develop fully, in furtherance of City's policies and programs which are designed to promote balanced economic and community growth.

The City, therefore, wishes to ensure that woman- and minority-owned businesses (M/WBEs) are afforded the opportunity to fully participate in the City's overall procurement process.

**Goal for Participation**
The City adopts the State of South Carolina's goal for participation of M/WBEs: ten percent (10%) of annual controllable procurement expenditures which are defined as agreements between the City and a contractor to provide or procure labor, materials, equipment, supplies and services to, for or on behalf of the City.

**Preference in Scoring Proposals**
Proposals Submitted by MWBEs: In making procurement decisions which require written evaluations using weighted factors on a 100 point scale, M/WBEs submitting bids or proposals shall receive five additional points in the evaluation.

**Required Forms**
Firms submitting proposals are required to include OMB Forms 5A and/or 5b, as appropriate. These forms can be found at the end of the General Conditions Section of this document.

**Compliance with the South Carolina Illegal Immigration Reform Act**
Any contractor entering into a service contract with the City of Greenville must certify to the City of Greenville that the contractor intends to verify any new employees’ status, and require any subcontractors or sub-subcontractors performing services under the service contract to verify their new employees’ status, per the terms of the South Carolina Illegal Immigration Reform Act, and as set out in Title 41, Chapter 8 of the Code of Laws of South Carolina, 1976.
Protest of Solicitation or Award

Solicitation – Section 2.4. A. of the City of Greenville Procurement Policy allows any prospective bidder, offeror, contractor who is aggrieved in connection with the solicitation of a contract to protest to the Purchasing Administrator within ten (10) calendar days of the date of issuance of the Invitation for Bids or Request for Proposals or other solicitation documents, whichever is applicable, or any amendment thereto. Any protest shall be in writing, submitted to the Purchasing Administrator, as stated above, and shall set forth the grounds of protest and the relief requested with enough particularity to give notice of the issues to be decided.

Award – Section 2.4. B of the City of Greenville Procurement Policy allows any actual bidder, offeror, contractor who is aggrieved in connection with the intended award or award of a contract to protest to the City Manager within ten (10) calendar days of the date the notification of award is posted in accordance with this policy. Any protest shall be in writing, submitted to the City Manager, as stated above, and shall set forth the grounds of protest and the relief requested with enough particularity to give notice of the issues to be decided.

The words “Bidder”, “Offeror”, “Proposer”, “Vendor”, and “Contractor” are used interchangeably throughout this bid, and are used in place of the person, firm, or corporation submitting a bid.

Dated at Greenville, South Carolina this 23rd day of March, 2018.

BY: Maribel Diaz, CPPB, Lead Buyer
City of Greenville, SC

Reviewed By:
Purchasing Administrator
Public Works Director
Engineering Services Manager
Risk Manager

Rev 4 (3/12/2018)
OMB Director

John E Garza

Legal Department

3/23/2018

Date

3/23/2018

Date
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SPECIAL TERMS AND CONDITIONS

The City of Greenville is requesting SEALED bids for the Byrdland Drive / Airport Road Sewer Improvements in accordance with the SCDOT Standard Specifications for Highway Construction (Edition 2007), the City of Greenville Design & Specifications Manual (Chapter 8), and the plans, and specifications. The project includes, but is not limited to, installing 126 linear feet of 15” sanitary sewer lines with related appurtenances.

BID AWARD
The City reserves the right to reject any or all bids, and the right to waive technicalities and informalities in bids.

INSPECTION AND ACCEPTANCE OF WORK
Inspection and final acceptance shall be conducted by the individuals named below:

- Engineering - Environmental

TIME OF COMPLETION
The contractor shall have **NINETY (90) calendar days.** The completion date will be measured from the issuance of the **Notice to Proceed.**

Should the contractor fail to complete this contract and the work provided therein within the time fixed for such completion, the contractor shall become liable to the City for all loss and damage which the City may suffer on account thereof. It is agreed and understood that it, and will be, difficult and impossible to ascertain and determine the actual damage which the City will sustain in the event of, and by reason of, such delay. It is therefore agreed that the contractor will pay to the City in liquidated damages the sum of **$250.00** per day for each and every day of delay beyond the time herein prescribed for finishing the work. In case same is not paid, the contractor agrees that the City may deduct the amount of liquidated damages from any money due or that becomes due the contractor under this contract. All deductions from any money due the contractor are considered to be liquidated damages and not a penalty.

The remedies provided for under this provision shall not be construed to limit, waive or otherwise abrogate any other remedy that the City shall be entitled to under other terms and conditions of this Contract. Failure of the City to enforce the liquidated damages provision of the contract shall not constitute a waiver of the breach of the contract for failure to perform in a timely manner. Any extension of time will be in the form of a Change Order duly authorized and signed by the City Engineer and Purchasing Administrator, prior to quoted completion date.

The contractor shall not be charged with resulting damage if:

A. The delay in completion of the work arises from unforeseeable causes beyond the control and without the fault or negligence of the contractor, including, but not restricted to act of God, acts of the public enemy, acts of the City, acts of another contractor in the performance of a contract with the City, fires, floods, epidemics, strikes, freight embargoes,
delays of subcontractors or suppliers arising from unforeseeable causes beyond their control; and

B. The contractor, within ten (10) days from the beginning of such delay, (unless the Engineer grants a further period of time before the date of final payment under the contract) notifies the Engineer in writing of the cause(s) of delay. The City Engineer shall ascertain the facts and the extent of the delay and extend the time for completing the work when, in his judgment, the findings of facts justify such an extension, and his findings of fact shall be final and conclusive on the parties.

BIDDER’S QUALIFICATIONS
Each bidder shall, upon request of the City, submit a statement of the bidder’s qualifications, his experience record in constructing the type of improvements embraced in the development of work specified, his organization and equipment available for the work contemplated, and when specifically requested by the City, a detailed financial statement. The City shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform his obligations under the contract and the bidder shall furnish the City all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available evidence or information does not satisfy the City that the bidder is qualified to carry out properly the terms of the Contract.

INSURANCE
The contractor shall procure and maintain, during the life of the contract, insurance coverage, for not less than any limits of liability shown below and shall include contractual liability insurance as applicable to the contractor’s obligations, with a carrier authorized to do business in the State of South Carolina.

All coverage shall be primary and shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer’s liability. Original endorsements, signed by a person authorized to bind coverage on its behalf, shall be furnished to the City by the successful bidder.

Certificate of insurance must be included in the bid.

(a) Commercial General Liability: The contractor shall maintain insurance for protection against all claims arising from injury to person or persons not in the employ of the contractor and against all claims resulting from damage to any property due to any act or omission of the contractor, his agents, or employees in the operation of the work or the execution of this contract.

Contractor shall maintain General Liability coverage required for a period of not less than five (5) years after project completion. General Liability must include Products/Completed Operations coverage.

Where the work to be performed involves excavation or other underground work or construction, the property damage insurance provided shall cover all claims due to
destruction of subsurface property such as wire, conduits, pipes, etc., caused by the contractor’s operation. The minimum shall be as follows:

**Bodily Injury (Injury or Accidental Death) and Property Damage** ......................................................... $3,000,000 per occurrence

(b) **Comprehensive Automobile Liability:** The contractor shall maintain Automobile Liability Insurance for protection against all claims arising from the use of vehicles, rented vehicles, or any other vehicle in the prosecution of the work included in this contract. Such insurance shall cover the use of automobiles and trucks on and off the site of the project. The minimum amounts of Automobile Liability Insurance shall be as follows:

**Bodily Injury (Injury or Accidental Death) and Property Damage** ......................................... $1,000,000 Combined Single Limit

(c) **South Carolina Workers’ Compensation Insurance:** The contractor shall maintain Workers’ Compensation Insurance for all of his employees who are in any way connected with the performance under this agreement. Such insurance shall comply with all applicable state laws.

South Carolina Workers’ Compensation - Statutory Limits
- $500,000 Each Accident
- $500,000 Disease Each Employee
- $500,000 Disease Policy Limit

Contractor shall provide the City with a Certificate of Insurance showing proof of insurance acceptable to the City. Certificates containing wording that releases the insurance company from liability for non-notification of cancellation of the insurance policy are not acceptable.

Contractor and/or its insurers are responsible for payment of any liability arising out of Workers’ Compensation, unemployment or employee benefits offered to its employees.

Insurance is to be placed with insurers with a current A.M. Best’s rating of not less than A:VII, and licensed to operate in South Carolina by the South Carolina Department of Insurance, unless otherwise acceptable to the City.

Workers’ Compensation policy is to be endorsed to include a waiver of subrogation in favor of the City, its officers, officials, employees, and agents.

The successful consultant shall maintain the Automobile Liability and General Liability insurance, naming the City, its officers, officials, employees and agents as Additional Insured as respects liability arising out of the activities performed in connection with this request for bids. Certificates showing proof of such insurance shall be submitted to City prior to commencement of services under this Agreement by email at inscerts@greenvillesc.gov. Further, it shall be an affirmative obligation upon the vendor to advise City by e-mail sent to inscerts@greenvillesc.gov, within two days of the cancellation or substantive change of any insurance policy set out herein, and failure
to do so shall be construed to be a breach of this Agreement. Should contractor cease to have insurance as required during any time, all work by contractor pursuant to this agreement shall cease until insurance acceptable to the City is provided.

Deductibles, Co-Insurance Penalties, & Self-Insured Retention: The contractor shall agree to be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty, or self-insured retention.

Subcontractor’s Insurance: The contractor shall agree to cause each subcontractor employed by contractor to purchase and maintain insurance of the type specified herein, unless the contractor’s insurance provides coverage on behalf of the subcontractor. When requested by the City, the contractor shall agree to obtain and furnish copies of certificates of insurance evidencing coverage for each subcontractor.

BID BOND
Bidders shall submit with their bid, A BID BOND IN THE AMOUNT OF FIVE PERCENT (5%) OF QUOTED BID PRICE. This bond may be in the form of a Certified Check, Cashier’s Check, or Bank Money Order of any national or state bank and shall be made payable to the City of Greenville, South Carolina. Bids submitted without being accompanied by any of the foregoing shall be considered non-responsive and will be rejected. The Bond will be forfeited to the City by the successful bidder as liquidated damages in case a bid award is made to that bidder and the contract and performance bond and/or payment bond are not promptly and properly executed as stated below.

RETURN OF BID BOND
When bids are awarded, the Purchasing Division will immediately return all bonds, except those of the successful bidder. The bond of the successful bidder will be returned upon compliance with the Performance and Payment Bond requirement.

PERFORMANCE BOND AND PAYMENT BOND
The successful bidder, within ten (10) working days after acceptance of the bidder’s offer by the City, shall furnish a satisfactory Performance Bond along with Payment Bond in the FULL AMOUNT OF THE QUOTED BID PRICE.

The Performance Bond of successful bidder shall be conditioned for the faithful and complete performance of the requirements/obligations found in the contractual agreement(s). Successful bidder shall have as surety a corporate surety authorized to act as surety in South Carolina. Also, successful bidder will be responsible for all claims for injuries to persons or damages to property or premises arising out of or in connection with their operations prior to the acceptance of the finished work. The successful bidder shall guarantee to indemnify and save the City, its officers, departments, employees, and agents harmless from all costs, damages, and expenses growing out of or by reason of the successful bidder’s failure to comply and perform the work and complete the contract in accordance with the plans and specifications including actual or alleged patent infringement in the matter of making, furnishing, and delivering said work.
The Performance Bond will be in effect until all work has been completed and accepted by the City of Greenville.

The Payment Bond of the successful bidder shall assure that the contractor will promptly make payments to all persons supplying him/her or them with labor and/or materials in the prosecution of the work provided for in the contract.

**FAILURE TO PROVIDE PERFORMANCE/PAYMENT BONDS WHEN REQUIRED**
In the event the successful bidder fails to deliver to the City Purchasing Division the Performance/Payment Bonds in said period of **TEN CALENDAR DAYS** after acceptance of bidder’s offer by the City, then the Bid Bond of the bidder shall be retained by the City in its entirety, all work under the contract shall be suspended and the City shall have the option of terminating the contract. The remedies provided for under this provision shall not be construed to limit, waive, or otherwise abrogate any other remedy that the City shall be entitled to under other terms and conditions of this contract.

**UNIT PRICES**
Unit prices are requested for items in the bid. Each bidder shall include its prorate share of overhead, and other items necessary for completion of the project, per plans and specifications, not specifically listed in the schedule of values, so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid represents the Total Bid. Any bid not conforming to this requirement may be rejected as unresponsive.
Byrdland Drive / Airport Road Sewer Improvements
IFB No. 18-3632

SCOPE OF SERVICES

General Scope:
The City of Greenville is requesting sealed bids for the Byrdland Drive / Airport Road Sewer Improvements in accordance with the SCDOT Standard Specifications for Highway Construction (Edition 2007), the City of Greenville Design and Specifications Manual (Chapter 8) [http://www.greenvillesc.gov/337/Design-Specifications-Manual], and the plans, specifications and details {construction documents}. The Byrdland Drive / Airport Road Sewer Improvements includes replacing 126 linear feet of existing 10” and 15” sewer with approximately 126 linear feet of 15” SDR 35 PVC sewer line in the same alignment at the intersection of Byrdland Drive and Airport Road. Reference the Summary of Work (01010) specification for a more detailed project description.

Project Specification Notes:
The Byrdland Drive / Airport Road Sewer Improvements project shall be constructed in accordance with City of Greenville Standards, specifications provided in this Project Manual, and the SCDOT Standard Specifications for Highway Construction, Edition 2007; Division 200 through Division 816. All information contained in the SCDOT specifications referenced above, shall carry their full weight and force as if included in this document verbatim, and hereby incorporated into this document by reference.

For all items, the Contractor shall first refer to the City of Greenville Standard Specifications and Standard Drawings, and if not addressed or covered, should then consult the SCDOT Standard Specifications for Highway Construction and Standard Drawings. Should there be conflicting variance between the Drawings and Specifications, the provisions of the Specifications shall control. The contractor should direct any conflict or questions concerning the following construction specifications in the form of a Request for Information (RFI) and fax to the Purchasing Division.

All provisions, terms, conditions, exceptions, etc. shall be as listed in the SCDOT specifications unless modified in the following City of Greenville Specifications or Special Provisions.

No portion of the SCDOT Specifications before Division 200 shall be in effect and/or used on this project unless specified by the following special provisions. The City of Greenville documents titled: Notice to Bid, General Terms and Conditions, General Conditions to the Contract for Construction and Fixed Price Construction Contract shall be in force and effect in lieu of the SCDOT Section 100 documents.

Items not specifically detailed in the plans shall be constructed based on SCDOT Standard Drawings and Construction Details. Copies of the Standard Drawings may be purchased from:
Byrdland Drive / Airport Road Sewer Improvements

South Carolina Department of Transportation
955 Park Street
Columbia, South Carolina 29202

The sanitary sewer construction for this project shall be in accordance with the City of Greenville’s Design and Specifications Manual Chapter 8 (“Wastewater Utility”). Additionally, Appendix D, Pages 2 & 3 (“Wastewater Final Performance Testing Forms and Tables”) shall be in effect for this project. All provisions, terms, conditions, exceptions, etc. shall be as listed unless modified in the following Special Provisions.

**Open Cut Qualifications:**
The Contractor performing the work shall be fully qualified, experienced and equipped to complete this work expeditiously and in a satisfactory manner. The Contractor shall have successfully installed a minimum of 50,000 feet of sanitary sewer using open-cut replacement methods as documented by verifiable references. The Contractor shall submit the following information for review and approval if selected as the apparent low bidder:

1) Contractor shall possess at least 5 years of experience in performing sanitary sewer pipe installation projects.
2) The satisfactory completion of at least three (3) gravity sewer projects consisting of 8” or larger gravity sewer and appurtenances. A portion of one (1) of these projects must have been constructed within right-of-way and/or through a road intersection, and required traffic diversion/maintenance. One (1) of these projects will have included raw sewage bypass.
3) A list of municipal clients that the Contractor has performed this type of work for without defects or performance problems. Provide sufficient references to total 50,000 feet or more of open-cut replacement work to date.
   a. The list shall contain names and telephone numbers of persons to be called to verify previous satisfactory performance.
   b. A full description of the actual work performed.
   c. The list of municipal clients and description of projects shall include the approximate linear footage (LF) of open-cut replacement work completed. The Contractor shall provide a sufficient number of references for sanitary sewer rehabilitation work completed to date.
4) Certification that the Contractor possesses a WL-5 contractor’s license.
5) The Contractor shall also be capable of providing crews as needed to complete the work without undue delay and shall begin work within 7 days from authorized notice to proceed.
6) The Owner shall approve or disapprove the Contractor and/or manufacturer based on the submitted information and a follow up interview.
Byrdland Drive / Airport Road Sewer Improvements

GENERAL PROVISIONS

The BYRDLAND DRIVE / AIRPORT ROAD SEWER IMPROVEMENTS project shall be constructed in accordance with the SCDOT Standard Specifications for Highway Construction, 2007 Edition and Chapter 8 of the City of Greenville Design and Specifications Manual and the following special provisions.

Where SCDOT specifications refer to the Resident Construction Engineer (RCE), the City Engineer shall be consulted. All references herein to the City Engineer shall mean the City Engineer or his designee.

These general requirements are in effect for each and every section contained in the bid documents.

GR-1 Contract time shall be counted in calendar days. The Contract Start Date (CSD), which will be established in strict conformance with the Contract General Conditions, will be listed in the Notice to Proceed (NTP) letter. The count for contract time shall begin on the CSD specified and shall run uninterrupted until construction on all sections of the project have been completed. The Contract Completion Date (CCD) shall be as specified and established in the Project Acceptance Letter authored by the City Engineer.

GR-2 The City's project manager shall be notified immediately in writing of construction delays from weather, utility relocations and unforeseen circumstances. All construction delays shall be reviewed by the City. Contract time extensions (adjusted contract completion date), if any, shall be granted in writing by the City Engineer. It is the sole responsibility of the contractor to; submit full details surrounding all delays, request a determination of the status of each delay and modify all work schedules, as needed, to complete the work within the adjusted time frame by the revised completion date.

GR-3 If required, a neighborhood public meeting for the project shall be properly announced and held prior to the beginning of any construction activity. The City will assist in scheduling and holding these meetings. Issues such as fences, walls, planters, landscaping, walkways, driveways, utilities, lane/street closures, access to property, etc. will be addressed with residents and/or property owners in attendance. The contractor shall be responsible for coordination of all construction activities with each individual utility company, property owner and/or resident. The City's project manager will be available to assist the contractor, should any special coordination issues arise.

GR-4 The contractor is responsible for obtaining any necessary storage, staging or material “lay-down” areas. All such areas, if utilized, shall be returned to their original condition, or better, upon completion of the work at the contractor's expense. A properly executed release and waiver form shall be provided from the owners of all such properties used for these purposes. Release of final payment shall be withheld until all releases have been provided to the city.
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GR-5  A construction schedule shall be presented to the City’s project manager at least one week in advance of the pre-construction meeting. The schedule shall be updated and edited as needed to keep it current and provided in written form to the city at least every two weeks during the entire project.

GR-6  It is the responsibility of the Contractor to obtain drawings of all utilities on the site and/or contact local utility companies for location and verification of underground lines so as to avoid hazards during construction. The contractor shall also locate and identify existing underground and overhead services and utilities within contract limit work areas, provide adequate means of protection of utilities and services designated to remain, and repair and/or reconnect utilities or works of other contractors damaged during construction at the Contractor's expense. Damaged facilities shall be returned to original or better condition at no additional cost to the City.

The location, size, and material type of the existing utilities shown on the plans are from the best available information. The Contractor will be responsible for determining the exact location, size, and material type of the existing facilities necessary to avoid damage to existing facilities.

When uncharted or incorrectly charted underground piping or other utilities and services are encountered during Construction, promptly notify the Engineer and the appropriate utility contractor or applicable utility company to obtain procedure directions before continuing with Construction operations.

GR-7  Permanent signs shall be installed in accordance with Section 602 of the SCDOT Specifications and SCDOT drawing 605-10-2 schemes C or E, as specified in the construction documents, and as specified in the site specific Special Provisions for the contract. These signs shall be installed prior to any other construction activities.

GR-8  A representative from the General Contractor with the authority to make decisions on behalf of the contractor shall be present during all construction activities.

GR-9  The contractor is responsible for notifying occupants no less than 48 hours prior to starting and construction activity in front of each property. Access to driveways shall be maintained at all items, except when new driveways aprons are being formed and poured. Driveways will be reopened as soon as the aprons have attained adequate strength to support vehicles without causing damage to the new aprons. No work shall be allowed in existing roadways which decreases clear lean widths to 10 feet of less, without written authorization from the City Engineer.

GR-10  One way traffic shall be maintained on all streets at all times, unless prior written authorization is obtained. At least 72 hours before starting work on each street, the contractor’s traffic control plan shall be submitted to the city engineer for review and approval. All approvals will be in writing. Work may not proceed until such time as the proposed traffic control plan has been approved.

GR-11  Temporary lane closures shall not disrupt the natural circulation of local traffic. All temporary lane closures (if allowed) must always maintain one-way traffic flow (if one-way flow is approved). All approvals will be in writing and approval must be in

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force a minimum of 24 hours before any closure. All temporary lane closures will normally be approved if they maintain two-way traffic flow. However, local traffic conditions mandate that each situation will be reviewed and approved on its own merits. The locale itself, ultimately will provide the terms, conditions and exceptions associated with each specific temporary lane closure request. Temporary lane closures shall be set up in conformance with current SCMUTCD standards, and all flagmen shall be properly equipped and trained. All signs, barrels, cones, message boards, flag-men, stop/slow paddle boards, vests, barricades, etc. shall be provided by the contractor. All provisions of national and state MUTCD manuals will be applicable.

GR-12 To accommodate normal community activities, lane closures shall begin no earlier than 9:00 am and end no later than 4:00 pm, or be suspended between 4:00 pm and 6:30 pm if night work is arranged (or as specified in the SCDOT encroachment permit, whichever is more restrictive).

GR-13 To accommodate noise concerns for nearby residential properties, work shall begin no earlier than 8 AM and end no later than 8 PM.

GR-14 All existing pavement that is to remain, which the new work must connect or tie to, shall be saw cut to obtain neat, straight and even lines. Saw cutting will not be measured or paid for directly, but is included in each of the contract items relating to existing feature(s) removal and disposal.

GR-15 Temporary maintenance stone (Aggregate No. CR-14) shall be placed as directed by the City Engineer. Maintenance Stone used on this project shall conform to the grade requirements of Section 305, or to the gradation specified for Aggregate No. CR-14 in the Standard Specifications. Payment for temporary maintenance stone shall be by the ton for the actual amount of stone used for maintenance that is applied or used on each street each month (between billings). No material shall be utilized from the maintenance stone stockpile for any other use on the project without the express authorization of the City. Stone loss and/or waste will be deducted from the monthly totals.

GR-16 Graded aggregate base course shall be in conformance with Section 305 of the SCDOT Specifications. It is to be utilized as base under asphalt driveway tie-ins and shall be compacted to not less than 98% of its maximum standard Proctor density. Locations, widths, depths, etc. may be adjusted in the field by the City, as necessary.

GR-17 The provisions of Section 208 of the SCDOT Specifications for Subgrade shall be amended as follows: The subgrade between lines 18" outside the area to be occupied by the pavement structure shall be compacted to not less than 98% of its maximum standard Proctor density.

GR-18 If required, the adjusting manholes to grade item shall involve the saw cutting and demolition of material around each existing manhole casting, removal of demolition material, placement of brick-mortar-concrete rings-etc., resetting ring/cover and patching around MH ring. Use of metal riser rings for grade adjustment will not be allowed without prior written consent of the City Engineer. Should any existing
casting (that is owned by the City) be in need of replacement, the City will provide a new casting, upon request, which the contractor will set to proper grade.

**GR-19** If required, the conversion of existing drainage boxes into different structure types assumes that the existing basin top must be removed, all damaged or defective brick work will be replaced or repaired, brick may need removal or additional brick may need to be installed to adjust grade or alter box to accommodate new top, pouring new curb/flume and pouring and/or setting new catch basin top. Regardless of the number of steps or the type of work required to convert each box, the price shall include all items of work associated with the transformation of the old box into the new box and cover the total conversion cost.

**GR-20** If required, the conversion of an existing structure to a Manhole-Junction Box (MH-JB) is assumed to involve the following work, as a minimum: removal of existing top, demolition of existing walls to grade, installation of a flat slab adapter (SCDOT drawing 719-425-01 or 02 as applicable), placement of MH cover (City of Greenville Detail 30:01 or 30:02 as applicable). If sufficient depth does not exist to install the sub-slab and castings, then the entire structure will require demolition and a new manhole built per SCDOT drawing 719-505-01 and 02. Regardless of which method is used, the unit price bid shall cover all construction costs for this item of work.

**GR-21** If required, construction and/or conversion of Special (Oversize/Undersized) drainage boxes/structures shall include the cost for all items, components and work performed to complete the conversion on these non-standard size/dimension boxes. Assumed conversion requirements are as listed above. These Special (Oversize/Undersized) boxes may require deeper, longer, or wider dimensions than standard drainage boxes. Should a box require longer or wider tops, throats, flumes, etc. they shall be formed and poured in-place with look, fit, and finish to match precast units.

**GR-22** The seeding schedule contained in Section 810 of SCDOT Specifications for Seeding (mulched) shall be modified to not include {exclude} Lespedeza and Lovegrass - Clover.

**GR-23** If plan sheets labeled Summary of Bid Quantities are inserted in the plans, they are an aid to the contractor while reviewing and analyzing the bid proposal. The actual bid sheet contained in the contract documents and labeled Schedule of Bid Values is the official document which lists items, quantities, units, etc. The order, names, and quantities as listed in the Schedule of Bid Values (contract documents) shall govern.

**GR-24** Should specifications, terms, provisions or conditions contained in this document be incomplete, the contractor shall submit a written Request for Information addressed to the City's project manager. The project manager's written response will provide further information, clarification or detail on the item(s) in question. The written response may, at times, be in the form of Addenda, but the response is not limited solely to that form. All responses to these requests will be made in writing. Responses other than in writing should not be accepted by the contractor. Nor should the contractor place any faith or confidence in the accuracy of any non-
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written response. The contractor is cautioned against providing pricing for any component of the bid and/or of submitting a bid, if it is based on any non-written information.

GR-25 If required, build-up/overlay is designed to be performed, as part of this contract, in different areas/locations and on different streets. This work should involve, but not be limited to in various degrees, the following components: exposing both edges of pavement limits; raising all sewer manholes within limits to new finished grade; cleaning work area of all loose surface material; applying asphalt "tack" coat to surfaces before they are to receive each lift; placement of paving materials used for build-up, in lifts; placement of driveway tie-downs (build-up and/or overlay), where needed; build-up of shoulders, where needed; preparation and seeding of disturbed shoulder areas; and placement of final surface overlay. All surfaces in and around these build-up/overlay areas shall be cleaned during and after each step in this process, to keep the street clean of debris, rocks, dirt or loose material of any kind. Payment for all items of work required to complete this task will be through the various individual components itemized/listed with the bid documents. No one specific direct pay item is established for this work.

GR-26 It is the contractor's responsibility to coordinate the adjustment of utility valves, meters, service lines, etc. by the respective utility company during all construction activities. All valves and meters shall be adjusted to conform to finished grade of the road, sidewalk, or cut/fill slopes respectively.

GR-27 Contractor is cautioned that not all quantities for each pay item will be needed for construction. Only items required for construction of the upgrades will be paid.

GR-28 A neighborhood public meeting for the project shall be properly announced and held prior to the beginning of any construction activity is required by the City Engineer. The City will assist in scheduling and holding these meetings. Issues such as fences, walls, planters, landscaping, walkways, driveways, utilities, lane/street closures, access to property, etc. will be addressed with residents and/or property owners in attendance. The contractor shall be responsible for coordination of all construction activities with each individual utility company, property owner and/or resident. The City's project manager will be available to assist the contractor, should any special coordination issues arise. The Contractor shall assume a minimum of 3 public meetings will be held during construction.

GR-29 For pay items which reference SCDOT Specifications, the first three (3) digits of the designation number corresponds to sections of the SCDOT Standard Specifications and each contract item shall be constructed in accordance with the section of the Standard Specifications. The remaining four (4) digits are for individual identification of each contract item.
SPECIAL PROVISIONS

These Byrdland Drive / Airport Road Sewer Improvements (BA) site specific requirements are in effect as identified below.

BA-1. **Mobilization:** Mobilization shall include the cost to mobilize and demobilize the contractor’s work forces for the project. Refer to Supplement Specifications for additional details and payment information.

BA-2. **Concrete Curb and Gutter (1’-6”):** The SCDOT Concrete Curb and Gutter (1’-6”) item shall be amended to include reference and applicability of the City of Greenville standard details as included in the construction documents and the Design and Specifications Manual.

BA-3. **Traffic Control:** The SCDOT Traffic Control item shall be amended to include payment for the fabrication, installation and maintenance of all permanent construction signs, temporary barriers (either concrete or polyethylene), barricades, changeable message signs, pavement markings, temporary pavement markers and any other item necessary to meet the provisions of the contract documents, SCMTCD, and SCDOT specifications for road/lane closures. The contractor shall provide a changeable message sign notifying residents of the impending road closure for a minimum of one week prior to any full closure. Permanent signs shall be installed in accordance with Division 600 of the SCDOT Specifications, and for full road closure, signage shall be supplied in conformance with SCDOT drawing 610-510-00 and as specified in the construction documents.

BA-4. **Site Excavation:** The SCDOT Site Excavation item shall be amended to include, but is not limited to, removal and disposal of surplus material, muck excavation, watercourse and drainage ditch excavation, and borrow excavation as described Section 203 of the SCDOT Specifications. The item shall include all materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to complete the construction of all improvements in accordance with the construction documents. Also included is any and all existing utility shoring, tree and vegetation removal as needed to construct sanitary sewer as shown on the plans, contractor should take special note of the existing water lines throughout the project limits. Free haul limits are not in effect, and no payment will be made for overhaul. All removed material shall be disposed of properly offsite. All borrow material shall be from an approved source, or may be approved by the Engineer upon submission of test results from a qualified testing firm indicating that the material meets the requirements for roadway fill. No borrow material shall be accepted at the site without prior approval. All vegetated areas shall receive a minimum of 4” organic topsoil prior to installing permanent vegetation measures. Organic topsoil shall be disked into the compacted subgrade compacted to 80% Standard Proctor density. No organic topsoil material shall be accepted at the site without prior approval. Acceptable excavated in situ soils may be reused at the discretion of the Engineer. In the event that the material is deemed unsuitable by the Engineer within the limits of the area shown in the plans to be excavated, no additional payment will be made for offsite/borrow material. Placement of fill over, around, and adjacent to structures shall follow SCDOT Specification 205.4.2. Unclassified and Borrow Excavation will only by paid for as described within these Project Specifications. Excavation for the installation of sanitary sewer pipe and manholes shall be included in the cost of the pipe and manholes. Pay limits shall include all excavation required for these items.
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BA-5. **Unclassified Excavation:** The SCDOT Unclassified Excavation item shall be amended to include only the removal of soils determined unsuitable by the City Engineer, including muck and undercut, beyond the excavation limits indicated, detailed, or otherwise inferred in the construction documents in order to complete the construction of all improvements in accordance with the construction documents. Unclassified Excavation does not include Rock Excavation or Borrow Excavation. Contractors are cautioned that not all quantities listed in the schedule of values are anticipated to be used.

BA-6. **Borrow Excavation:** The SCDOT Borrow Excavation item shall be amended to include only the soil materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to replace materials that are removed by the Unclassified Excavation item. All borrow material shall be from an approved source, or may be approved by the Engineer upon submission of test results from a qualified testing firm indicating that the material meets the requirements for roadway fill. No borrow material shall be accepted at the site without prior approval. Free haul limits are not in effect, and no payment will be made for overhaul. In areas that require Unclassified Excavation, such as mucking or undercutting, borrow material soil may be placed as a lift only as long as the grade on which the material is being placed is at least 2 feet above ground water level. In the event that groundwater does not allow backfilling with a borrow material soil, backfill shall be accomplished with the No. 57 Stone for Backfill and/or the Stone Ballast item as directed by the City Engineer.

BA-7. **No. 57 Stone for Backfill:** The SCDOT No. 57 Stone for Backfill item shall be amended to include all materials, labor, equipment, tools, supplies, transportation, and incidentals necessary for the placement of No. 57 washed stone backfill along the sides of the culvert, behind retaining walls, adjacent to other structures, and as otherwise detailed in the plans or as directed by the City Engineer unless otherwise provided for below. No. 57 Stone shall also be placed as fill for the replacement of material removed by the Unclassified Excavation item as directed by the City Engineer. No. 57 stone aggregate shall be separated from other borrow and insitu materials by a geotextile fabric for separation of sub-grade and sub-base. No. 57 Stone for Backfill item shall include the all materials and workmanship for the installation of the minimum 4 oz. non-woven geotextile fabric. No. 57 stone aggregate shall be placed in lifts not to exceed 2 feet thick and each lift shall be vibratory compacted to accomplish full consolidation of aggregate backfill. Placement of material over, around, and adjacent to structures shall follow SCDOT Specification 205.4.2.

BA-8. Contractor shall become familiar with the project site conditions prior to bidding. Contractor shall note location of all utilities trees, and other elements that may affect installation of culverts and estimate accordingly. Utilities include but not limited to underground power lines, gas, telephone, cable, and water. It will be the responsibility of the Contractor to coordinate with the utilities for any temporary relocation, adjustments, disconnections, or any other temporary facilities necessary for the completion of the work.

BA-9. Contractor shall verify prior to starting construction the proposed layout will work with the existing site conditions. Costs associated with this verification, or adjustment, shall be included in the cost of Engineering Staking. All layouts shall be approved by the City Engineer.

BA-10. Contractor shall notify all Utility companies and the City of Greenville Sewer Department for relocation or adjustment of their respective utility covers.
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Contractor shall give the Utility companies sufficient notice so that adjustments do not negatively affect the construction schedule.

BA-11. Contractor shall maintain access to residences at all times. Driveways are not anticipated to be demolished, should this be required demolished drive entrances shall be filled with maintenance stone to maintain temporary access prior to replacement. Contractor shall notify Residents prior to reconstruction of sidewalks and drive entrances, and provide alternate access to properties. In cases where alternate access is not possible, Contractor shall work with Residents to schedule installation of drives when most convenient.

BA-12. Contractor shall replace existing lateral to edge of pavement when work is performed in the roadway, residential driveways and landscaping are not to be disturbed without written permission from the City Engineer or his representative.

BA-13. Contractor shall phase the project in such a manner to reduce the amount of bypass pumping required for the project. Any sewer discharges to adjacent properties or waterways as a result of faulty bypass pumping shall be the contractor’s full responsibility to clean up and remediate as necessary.

BA-14. Contractor is responsible for obtaining a City of Greenville Encroachment Permit, no line item has been provided for this and it shall be considered incidental to the work.

BA-15. Contractor shall only reconnect sewer laterals that are active. Contractor to verify whether a lateral is active or abandoned through the use of dye test, CCTV, or other means.

BA-16. Contractor is to verify that no flow is present on all sewer lines prior to abandonment.

BA-17. No additional payment shall be due the Contractor for complying with work hour requirements of either the City or SC DOT.

BA-18. The contractor shall note that the sewer mains designated to be installed as C900 will be tested at a higher testing standard as further defined in Specification 02730, Gravity Sanitary Sewer Systems.

BA-19. This project will require Permits to Operate (PTO’s) from SCDHEC prior to flow entering any of the reconstructed lines. Partial PTO’s can be obtained for each pipe (from manhole to manhole), and each manhole once it installed, successfully tested, contractor field confirmation of grade/slope, and the engineer of record has notified SCDHEC.

BA-20. The contractor will be responsible for obtaining record drawings (as-built) prepared by a third party surveyor registered in the State of South Carolina. The record drawings shall, at a minimum, include the wastewater main and manhole locations, rim elevations, ground elevation, invert elevations, drop elevations, pipe slope, pipe material for the main and service lateral stub outs, and the distance from the downstream manhole to connection of each service lateral to the main sewer. If any sewer mains are abandoned or removed as part of the project, the record drawings shall indicate such. The plans must show the new wastewater main in both plan and profile views, and both views must show all utility crossings. Plans must display a vicinity map, graphic scale bar, north arrow, and a note designating the basis of vertical datum. AutoCAD 2014 or newer submission of record drawings shall be required using South Carolina State Plane Coordinate System. Datum: NAD 83/2000 (HARN) units and international feet (NAVD 88). The costs for record drawings shall be paid for under Field Engineering and Surveying.
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SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK UNDER THIS CONTRACT

The work to be performed under this contract includes all labor, materials, tools, and construction services for the installation of gravity sewer pipe as shown on the drawings, specified herein, and as summarized below:

1. Install new sanitary sewer lines; 126 linear feet of 15-inch with related appurtenances.
2. Install new sanitary sewer manhole: 3 total.
3. Transfer existing sewer service laterals to the new sewer line after testing and acceptance is complete.
4. Install new sanitary sewer service laterals to the right-of-way as indicated in the contract drawings.
5. Restoration of disturbed surfaces

1.2 PROJECT LOCATION

The project is located at the intersection of Byrdland Drive and Airport Road. Refer to the Location Map on the Drawings for the project site location.

1.3 PRINCIPAL ITEMS OF WORK

Included as principal items of work under this Contract, but are not limited to:

1. Clearing and grubbing
2. Furnishing and installing all erosion and sedimentation control measures, including required maintenance.
3. Trench excavation, bedding and backfill.
4. Plugging existing sewers and/or bypass pumping to facilitate work.
5. Furnishing, installing and testing all pipe, manholes and appurtenances for the gravity sanitary sewer system.
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6. Removal or abandonment of existing manholes.

7. Removal or abandonment of existing sanitary sewer main.

8. Furnishing and maintaining all traffic control devices in accordance with the latest edition of the South Carolina Manual on Uniform Traffic Control Devices.

9. Furnishing and installing all materials for pavement patching in public and private roads and driveways.

10. Furnishing and installing both temporary and permanent fertilizing, seeding and mulching.

11. Restoration of all road shoulders, curb and gutter, driveways, fencing, landscaping, other property and right-of-way disturbed during construction.

12. General cleanup disturbed areas of construction activities.

13. Providing Record drawings and other records of the construction including close-out documentation as described in the Scope of Services.

1.4 ACCESS TO THE WORK

A. Access to Work: The work under this Contract may be in easement areas along creeks, easement areas in private yards, in residential roads, private parking lots, and in major thoroughfares. The Contractor shall be responsible for accessing the sewers and manholes to perform the work, including determining access requirements and developing alternate access points when required. All existing areas disturbed shall be restored to equal or exceed preconstruction conditions. The Contractor should expect to have contact with private property owners; however, the Owner can aid the Contractor with the initial contact with each private property owners where access is needed to complete the work. In many cases, the Owner will discuss the work with the private property owner prior to issuing the work to the Contractor.

B. Access shall be along with existing 25-foot-wide sewer easements (or less as recorded), within the existing road right-of-way’s unless otherwise approved by the individual property owners and/or the Owner. The Contractor shall be responsible for negotiating with property owners for any alternate access. All such negotiations with property owners shall be in writing, and copies of the agreements shall be submitted to the Owner prior to using the access. A restoration bid item is included for removing and replacing fences, removing trees, and restoring impacted areas. All other costs associated with accessing the sewers shall be included in the various unit prices bid for the work.

1.5 EXISTING UTILITIES:
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A. Prior to performing any excavation, the Contractor shall contact the utility location service as well as any local utility that do not participate in SC 811. The Contractor shall accommodate existing utilities near the work being performed and shall be responsible for repairing any damage to the utilities caused by the work. In addition, the Contractor shall be responsible for contacting and coordinating with utility companies to move utilities in conflict with the work.

1.6 BYPASS PUMPING

A. The Contractor shall bypass pump flows around the work as required while the work is being performed. The Contractor shall submit a plan to handle the existing wastewater flow prior to performing any work. As required or requested by the Owner, the plan shall conform to Section 02510, Temporary Wastewater Bypass Pumping.

B. Sewer overflows or spills that occur because of construction will not be tolerated. The Contractor shall be responsible for all overflows and spills, including remedial work, complete cleanup, reporting, and paying any fines imposed by regulatory agencies. The Contractor will be named on the overflow report to SC DHEC.

1.7 UTILITY SERVICE

The Contractor shall make application for utility services, if any, (power, telephone, etc.), and shall pay all required fees and capital costs. The Contractor shall be responsible for all utility costs associated with construction, and testing until such time as the project is accepted by the Owner.

1.8 CLEAN UP

A. The Contractor shall keep the premises free at all times from accumulations of waste materials and rubbish. Contractor shall provide adequate trash receptacles about the site, and shall promptly empty the containers when filled.

B. Construction materials shall be neatly maintained by the Contractor when not in use. Contractor shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids and cleaning solutions from surfaces to prevent marring or other damage.

C. Volatile wastes shall be properly stored in covered metal containers and removed daily.

1.9 RESTORATION
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A. The Contractor shall be responsible for completely restoring all areas disturbed by the work to equal or exceed pre-construction conditions. A restoration bid item is included for removing and replacing fences, removing trees, removing and replacing concrete curb and gutter, and restoring impacted areas.

B. The Contractor shall restore disturbed areas as the work progresses. All restoration must be up-to-date by the end of each week for work, completed that week or work will not be allowed to continue the following week. In addition, daily site clean-up shall be performed. The Contractor shall be responsible for all damage caused by him or by his Subcontractors or their agents both on and off the site of the work. This includes such things as roads, flora or appurtenances at, or near, or adjacent to the Project. The Contractor shall repair, restore or replaced damaged articles and areas disturbed by construction to their original or better condition. The Contractor shall review the completed restoration work with each property owner in the presence of the Owner or Engineer (whenever possible) to verify that the restoration is acceptable. The Engineer may require signed releases from property owners as documentation that restoration is acceptable.

PART 2 PRODUCTs

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01010
Byrdland Drive / Airport Road Sewer Improvements

SECTION 01050

FIELD ENGINEERING AND SURVEYING

PART 1 GENERAL

1.1 DEFINITIONS:

A. As-Built Drawings: Changes made to the original construction documents prepared by the Contractor that show in red-ink all field changes, utilities encountered and all other information relevant to the work completed by the Contractor. These changes shall include final survey elevations on manhole rim and inverts, changes in length of pipe installed and all relevant information that the Owner needs to maintain as a final record of the system. These drawings are to be delivered to the Owner at the completion of the Work.

B. Record Drawings: These documents are prepared by a professional land surveyor licensed in the State of South Carolina. Horizontal survey datum control shall be based upon and referenced to South Carolina State Plane NAD 83 HARN, international feet coordinates. Vertical survey datum control shall be based upon and referenced to the North American Vertical Datum of 1988 (NAVD 88).

1.2 SCOPE OF WORK

A. Provide and pay for field surveying and engineering services required for the Project.

1. Survey work required in execution of the Project.

2. Civil, structural or other professional engineering services specified, or required to execute Contractor’s construction methods.

B. Retain the services of a professional land surveyor licensed in the State of South Carolina to:

1. Identify existing vertical and horizontal control points and property line corner stakes indicated on the Drawings, as required.

2. Verify all existing structure locations and all proposed building corner locations, tank and equipment locations. Verify top of wall and floor elevations of existing structures including invert elevations for existing sanitary and storm manholes and drainage inlets. Verify existing electrical, instrumentation, and telephone utilities. This information, and any variations noted during construction, shall be incorporated on the As-built drawings.
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3. Maintain accurate, up-to-date Record Drawings of all underground utilities installed as a part of this Contract and existing utilities located during the Work. With the minimum information to include:
   a. All wastewater pipes and manhole locations; including all manhole rim elevations, invert elevations, drop elevations, ground elevation adjacent to manhole rim (if different that top of manhole) and inside diameter of each manhole. Gravity sewer pipe information shall include all horizontal distances, and horizontal locations with bearing and pipe slope, pipe material for all mainline pipe and service stub-outs. Horizontal information for gravity sewers shall include service lateral locations with the distance from the downstream manhole to the connection of each lateral to the main. Force main or pressure sewers shall include coordinates for all fittings (bends) and valves as well as centerline elevations for these sewer systems.
   b. Photographic records of each new manhole shall also be provided in JPEG or similar format. Each photograph shall include a view of the manhole from the top looking into the manhole. The interior of the manhole shall be clearly visible in the photograph, or the manhole interior shall be illuminated with artificial light or flash photography sufficient to record a clear image of the interior. The JPEG (or similar file) shall be named consistent with the structure identified on the plans.
   c. Duct bank and conduit horizontal locations where included in the construction shall indicate coordinates for all turns and bends and cross sectional dimensions at 50-foot intervals as well as top elevations.

4. Locate unmapped utilities and other features uncovered during the course of the Work and inform the Owner immediately of potential conflicts. DO NOT disturb unmapped utilities until the status of the utility has been verified.

5. After completion of construction and before Final Acceptance, prepare and submit a Record Drawing of the manhole and sanitary sewer installation completed work.

C. The Owner will provide standards for As-Built Drawings that are to be maintained by the Contractor.

1.3 SUBMITTALS

A. Submit to the Owner, within five (5) working days of receipt of the Notice to Proceed, the complete name and address of professional land surveyor and professional engineers proposed for participation in the execution of this Contract.

B. Submit to the Owner, within fifteen (15) working days of receipt of the Notice to Proceed, and before beginning any structural excavation, certification signed by the professional
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land surveyor verifying the accuracy of the design elevations. Notify the Owner immediately of any discrepancy between design elevations and actual field elevations.

C. All surveys shall be tied to South Carolina State Plane NAD 83 HARN. Vertical datum control shall be based on NAVD 88.

D. At the end of the project, and prior to final payment, submit Record Drawings from the Surveyor containing the items listed below.

   1. Contractor shall submit computer generated drawing files in AutoCAD Civil 3D 2014 (or later) format on a thumb drive, or another media approved by the Owner. All entries shall be placed on layers named to describe the entity being mapped.

E. All survey documents shall include all the requirements outlined within this section.

1.4 QUALIFICATIONS OF SURVEYOR OR ENGINEER

A. Registered professional engineer or professional land surveyor of the discipline required for the specific service on the project, currently licensed in the State of South Carolina.

B. All documents submitted shall clearly identify the professional completing the work and be identified and certified in accordance with state licensing laws.

1.5 SURVEY REFERENCE POINTS

A. Existing basic horizontal and vertical control points for the Project will be as designated on the Drawings.

B. Locate and protect control points prior to starting site work and preserve all permanent reference points during construction.

   1. Make no changes or relocations without prior written notice to the Owner.

   2. Report to the Owner when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

   3. Require surveyor to correctly replace project control points which may be lost or destroyed.
      a. Establish replacements based on original survey control.

1.6 PROJECT SURVEY REQUIREMENTS
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A. Establish a minimum of two permanent bench marks on site, referenced to data established by survey control points. Record locations of permanent benchmarks, with horizontal and vertical data, on Project Record Drawings.

B. Establish lines and levels, locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements
   2. Stakes for grading, fill and topsoil placement.
   3. Utility slopes and invert elevations.

C. From time to time, verify layouts by same methods.

D. Establish all lines and grades prior to construction of line work for all force mains and sewers at 100-ft increments and at defined breaks in grade.

E. Survey stake and flag the limits of construction and clearing prior to any construction and clearing.

1.7 RECORDS

A. Maintain a complete, accurate log of all control and survey work as it progresses.

B. Update the project As-built Drawings monthly based on the work performed during the month ending at the pay request as a condition for approval of monthly progress payment requests. The Owner may check the As-built drawings monthly. Complete accurate updating is a condition precedent to approving and processing of monthly pay applications.

C. Maintain an accurate record of all changes, revisions, and modifications.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01050
Byrdland Drive / Airport Road Sewer Improvements

SECTION 01140

PROJECT ACCESS AND RESTRICTIONS

PART 1 - GENERAL

1.1. RIGHT OF ENTRY

The Owner and their representatives shall have access to the work at all times. Representatives of Federal, State and Local Agencies affected by the work shall be allowed access to the project site for inspection. Contractor shall provide the proper facilities for access and inspection of all phases of the work.

1.2. RIGHTS-OF-WAY AND EASEMENTS

A. The project will be constructed within existing public rights-of-way and easements obtained by the Owner across private properties. The limits of the easements can be assumed to be 25-feet wide, unless otherwise shown on the drawings.

B. Contractor shall set stakes to mark the easement boundaries across private property. These stakes shall remain until completion of construction.

C. Contractor shall not encroach upon any private property outside the easement limits without written permission from the property owner.

D. For work performed within state and county road rights-of-way, encroachment agreements have been obtained, and copies may be obtained from the Owner.

1.3. WORK HOURS

Except for emergency repairs, all construction work shall be performed during the hours of 8:00 A.M. to 8:00 P.M., Monday through Friday (or as specified in the SCDOT encroachment permit, whichever is more restrictive). No heavy equipment may be operated prior to 8:00 A.M. or after 5:00 P.M. After hours, holiday or weekend work, except for emergencies, shall not be performed without prior permission from the Owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 01140
SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.1 PRECONSTRUCTION CONFERENCE

A preconstruction conference will be scheduled by the Owner within 14 days after issuance of the Notice to Proceed. The Contractor, and his major subcontractors as well as Utility Owners shall attend the meeting, which will be chaired by the Owner or his representative. The purpose of the pre-construction conference will be to discuss administration of the Contract and the execution of work, and to answer any questions relative to performance of the work, under these Contract Documents. The Contractor shall provide a summary of the meeting prior to construction.

1.2 MONTHLY PROGRESS MEETINGS

The Contractor and any subcontractor, material suppliers or vendors whose presence is necessary or requested shall attend meetings, referred to as Monthly Progress Meetings, when requested by the Owner or his representative for the purpose of discussing the execution of work. Each meeting will be held at the time and place designated by the Owner or his representative. All decisions, instructions and interpretations given by the Owner or his representative at these meetings shall be binding and conclusive on the Contractor and such decisions, instructions and interpretations shall be confirmed in writing by the Owner or his representative.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01200
PART 1 GENERAL

1.1 SCOPE OF WORK

A. This section defines the method of measurement and payment for items of Work under this Contract.

B. The total Bid Price shall cover all Work required by the Contract Documents. All costs include the proper and successful completion of the Work, including furnishing all materials, equipment, supplies, tools, appurtenances and performing all necessary labor, supervision and project management to fully complete the Work. All Work not specifically set forth as a pay item in the Bid Form shall be considered an incidental, subsidiary obligation of Contractor and all costs in connection therewith shall be included in the prices bid.

C. All quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only as:

1. A basis for estimating the probable cost of the Work, and

2. For comparing the bids submitted for the Work.

D. The actual amounts of work completed and the materials furnished under unit price items may differ from the estimated quantities in the Bid. The basis of payment for work and materials will be the actual amount of work done and materials furnished.

1. Contractor agrees that he will make no claim for damages, anticipated profits, or money otherwise due to any difference between approximated amount listed in the Bid and the actual amount of work performed and materials furnished.

1.2 UNIT PRICE ITEMS

A. The Bid Form includes the following abbreviations:

1. CY = cubic yard (Length x Width x Depth rounded to the nearest foot, divided by 27)

2. EA = per each

3. HR = per hour
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4. \( LF = \) linear foot (horizontal)

5. \( LS = \) lump sum

6. \( SY = \) square yard \((L \times W \text{ divided by } 9)\)

7. \( TN = \) ton (as indicated on the delivery tickets)

8. \( VF = \) vertical Foot

9. \( AL = \) allowance

B. Measurements shall be made daily for all unit price items and agreed upon by the Owner. Quantities for items not verified by the Owner will not be approved for payment. Measurements shall be made as follows:

1. Linear distances for gravity sewers, including services, shall be measured horizontally from center of manhole to center of manhole to the nearest one-tenth of a foot based on the actual length installed.

2. Depth of gravity sewers shall be measured vertically from the finished grade to the invert of the sewer carrier pipe.

3. Depth of manholes shall be measured vertically from the top of the frame (rim) to the finished invert in the center of the manhole.

4. Volume quantities shall be based on the volume of material measured in place and compacted, or based on the in-place measurements taken after removal.

5. Area quantities shall be calculated using horizontal length and width measurements of the pay item in place.

6. Weight quantities shall be calculated using length, width, and depth measurements times a density given in the appropriate specification section.

C. The items listed will be measured in place as described in this section and paid for at the unit price stated in the bid form.

1. **Mobilization** consists of the movement of personnel, equipment, supplies and incidentals to the project site; obtaining all bonds and insurance; establishment of field offices, as necessary; and all other activities required to begin the Work. Mobilization shall be paid for as follows:
   a. 50 percent upon receipt of the executed Notice to Proceed, and the remainder with the first monthly pay request.
   b. Mobilization shall not exceed 2.0 percent of the total project cost.
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c. Mobilization will only be paid on the original contract amount, and not for change orders or added work. The only exception shall be if the contractor has completely demobilized from the site prior to issuance of any change order.

2. Field Engineering and Surveying consists of providing the necessary professional services required of a professional engineer and professional land surveyors registered in the state of South Carolina to complete all work identified in Section 01050 in the project specifications. Payment will be based on a lump sum price indicated in the Bid form with payment issued in accordance to the payment schedule as follows:

a. 10 percent of lump sum value - Verity accuracy of design elevations.

b. 50 percent (total up to 60 percent of lump sum value) - Establish construction control points, staking for construction procedures including staking and flagging limits of construction. Produce progress drawings of work complete suitable for use as final Project Record Drawings. All professional engineering services are complete as evidenced by submittals required of the project drawings or specifications or to confirm construction methods used by the Contractor.

c. 20 percent (total up to 80 percent of lump sum value) – When construction progress meets the 80 percent complete mark, and project As-Built drawings are presented for review monthly showing that the progress of work recorded equals the work value claimed.

d. Final 20 percent (total 100 percent of lump sum value complete) – Record Drawings submitted and accepted by the Owner.

3. Traffic Control: A lump sum payment for traffic control will be paid to cover all Work associated with maintaining safe vehicle and pedestrian movement around the Work zone. The Contractor shall complete all work in accordance with the encroachment agreements with associated state and local jurisdictions, as well SCDOT 1071000. Payment will be made in accordance with the schedule, as follows:

a. 25 percent with the first pay application.

b. Amount equal to 50 percent of the lump sum bid item when the work equals or exceeds 50 percent of the scheduled Work.

c. Amount equal to 75 percent of the lump sum bid item when the work equals or exceeds 75 percent of the scheduled Work.

d. 100 percent with the final application of payment.
4. **Gravity Sewer Sanitary Pipe**: Payment shall be made for each size, type and class of pipe to the nearest linear foot by depth ranges and as indicated on the Bid Form. The unit price bid for the new sewer shall include all materials, labor and equipment necessary to install the new sewer as specified on the Drawings, including obtaining access to the sewers and restoring all areas disturbed by the work. Incidental work shall include cleaning / flushing of new sewers of debris and completing all acceptance tests. Temporary seed with mulch, and permanent seed with mulch shall also be included in the unit prices bid for the new sewer pipe.

   a. Pipe shall be considered complete and ready for payment after compaction testing and acceptance tests has been completed and accepted by the Owner.

   b. Unclassified excavation shall be paid for as a separate unit price item.

   c. Borrow Excavation shall be paid for as a separate unit price item.

   d. Rock excavation shall be paid for as a separate unit price item.

5. **Installation of New Standard Manhole**: Payment shall be made for each size and type by depth ranges as indicated in the Bid Form. Price shall include all work necessary to complete the installation such as up to 8-inches of bedding stone beneath the new manhole, step installation, concrete invert and bench construction, frames and cover installation, joint sealing, vacuum testing and surface restoration. Manholes shall be considered for payment after all work is completed including acceptable vacuum tests. Depth shall be measured from the rim elevation to the invert out elevation.

   a. Add for Flat Top Slab: Additional compensation will be made for providing a new flat top manhole section in lieu of a new eccentric cone section under New Standard Manhole.

   b. Add for Invert Above Ground: Additional compensation will be made for providing a manhole where the associated invert is above the ground elevation, as shown on the Drawings.

   c. Add for Water Tight Manhole: Additional compensation will be made for providing a water tight ring and cover as shown on the drawings.

   d. Add for Internal Drop Connection: Additional compensation shall be made for each internal drop pipe installed in accordance with the standard detail. A lump sum price shall be paid for installing the internal drop connection, regardless of vertical height or diameter of pipe.

6. **Abandon Existing Manhole**: This bid item includes all materials, equipment, and work required for abandonment of any diameter, depth, or material of manhole. Work shall include removal and disposal of all portions of the manhole identified for removal, plugging existing pipe, and backfilling manhole and related voids with granular
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material or flowable fill as specified and approved by the Owner. The existing frame and cover shall be returned to the Owner.

7. **Removal of Existing Sewer:** Where existing sewer pipe is called for on the Drawings to be removed, excavate, remove, and dispose of properly any abandoned pipe. Backfill the resulting trench and properly compact using local excavated material or select backfill as required. Pipe to remain in place shall be plugged prior to backfill.

8. **By-pass Pumping:** Payment for by-pass sewage pumping will cover all equipment, labor, fuel, materials and appurtenances to maintain safe transfer of the flow contained within the sanitary sewer to receiving sewers outside of the area of Work. Payment shall be made on from receipts presented to the Owner demonstrating the costs to provide and maintain by-pass pumping while completing the Work. Costs will reduce the allowance presented by the Owner and identified in the Bid. All anticipated costs shall be presented in the by-pass pumping plan submitted prior to starting the Work. Any expected cost overrun shall be identified in the submittal, and accepted by the Owner prior to starting the Work. Only costs presented with appropriate documentation will be approved. Acceptable costs include:

   a. Cost of rental equipment to complete the by-pass pumping, plus 20% to cover operation and related overhead costs.

   b. Fuel used specifically to operate the pump equipment.

   c. Any allowance fee not utilized shall be credited back to the Owner.

9. **Pavement Restoration:** Asphalt pavement, concrete surfaces, and concrete curb and gutter shall be measured and paid for in accordance with this paragraph. Work shall include everything necessary to remove and restore the existing asphalt pavement, concrete pavement, and curb and gutter. Work shall be in accordance with the construction documents. This series of bid items shall also include all costs associated with removing existing pavement and concrete including saw cutting, removal and offsite disposal of all waste materials.

   a. Asphalt Pavement will be paid for as the actual number of tons of material, complete in place that has been incorporated into the project and accepted. The asphalt surface course material will be measured by being weighed in trucks on certified platform scales or other certified weighing devices.

   b. Concrete Pavement will be paid for in the number of square yards complete and in place up to 6-inches thick. Concrete pavement shall match thickness of the existing surface, as well as final surface finish. Payment shall include all incidental work including, but not limited to protection of the completed repair until testing confirms that the initial strength has been achieved to prohibit damage by use. Sampling, preparation and curing of concrete test specimens (cylinders), as well as performance testing in accordance to the specifications shall be included in the cost of this work.
c. Concrete Curb and Gutter will be paid for as the actual linear feet of curb and gutter removed and replaced. Payment shall include all incidental work including, but not limited to protection of the completed repair until testing confirms that the initial strength has been achieved to prohibit damage by use. Sampling, preparation and curing of concrete test specimens (cylinders), as well as performance testing in accordance to the specifications shall be included in the cost of this work.

10. Erosion Control

a. Silt Fence: Silt Fence will be measured and paid for in linear feet, accepted in place, along the ground line of the fence. Such payment shall be full compensation for furnishing material, construction, maintenance, and removal of silt fence in locations shown on the plans or in locations that require surface drainage to be filtered. Excavation for silt fence will be considered incidental to the cost of silt fence.

b. Sediment Tubes: This pay item includes all work required to install, maintain and remove, as required all sediment tubes installed as shown in the Drawings. Payment shall be made per linear foot of tubes properly installed and maintained throughout the construction. Maintenance shall include sediment removal and disposal as indicated in the Drawings or as requested by the Owner.

11. SCDOT Pay Items:

a. Unclassified Excavation: This pay item is measured by the cubic yard (CY) and includes the removal of soils determined unsuitable by the City Engineer, including muck and undercut, beyond the excavation limits indicated, detailed, or otherwise inferred in the construction documents in order to complete the construction of all improvements in accordance with the construction documents. Unclassified Excavation does not include Rock Excavation or Borrow Excavation. Contractors are cautioned that not all quantities listed in the schedule of values are anticipated to be used.

b. Borrow Excavation: This pay item is measured by the cubic yard and includes only the soil materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to replace materials that are removed by the Unclassified Excavation item. All borrow material shall be from an approved source, or may be approved by the Engineer upon submission of test results from a qualified testing firm indicating that the material meets the requirements for roadway fill. No borrow material shall be accepted at the site without prior approval. Free haul limits are not in effect, and no payment will be made for overhaul. In areas that require Unclassified Excavation, such as mucking or undercutting, borrow material soil may be placed as a lift only as long as the grade on which the material is being placed is at least 2 feet above ground water level. In the event that groundwater does not allow backfilling with a borrow material soil, backfill shall be accomplished with the No. 57 Stone for Backfill and/or the Stone Ballast item as directed by the City Engineer.
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c. **No. 57 Stone for Backfill:** This pay item is measured by the ton (TN) and includes all materials, labor, equipment, tools, supplies, transportation, and incidentals necessary for the placement of No. 57 washed stone backfill along the sides of the culvert, behind retaining walls, adjacent to other structures, and as otherwise detailed in the plans or as directed by the City Engineer unless otherwise provided for below. No. 57 Stone shall also be placed as fill for the replacement of material removed by the Unclassified Excavation item as directed by the City Engineer. No. 57 stone aggregate shall be separated from other borrow and insitu materials by a geotextile fabric for separation of sub-grade and sub-base. No. 57 Stone for Backfill item shall include the all materials and workmanship for the installation of the minimum 4 oz. non-woven geotextile fabric. No. 57 stone aggregate shall be placed in lifts not to exceed 2 feet thick and each lift shall be vibratory compacted to accomplish full consolidation of aggregate backfill. Placement of material over, around, and adjacent to structures shall follow SCDOT Specification 205.4.2.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

END OF SECTION 01270
PART 1 GENERAL

1.1 RELATED SECTION

Section 1340 - Shop Drawings, Working Drawings, and Samples

1.2 CONSTRUCTION SCHEDULE

A. The Contractor shall, within thirty (30) days after receipt of the Notice of Award, prepare and submit to the Owner for approval a practical construction schedule showing the order in which the Contractor proposes to carry on the work, the date on which he will start the several salient features and the contemplated dates for completing such salient features. The schedule may be in any form, at the option of the Contractor, and it shall be maintained current with each submittal for progress payment. At least the following information shall be included in the schedule:

1. The various classes and areas of work broken down into times projected for submittals, approvals and procurement; times for installation and erection; and times for testing and inspection.

2. The work completed and the work remaining to complete the project.

3. Any items of work which will delay the start or completion of other major items of work so as to delay completion of the whole project.

4. Dates for submission of shop drawings, product data and samples. The Engineer shall endeavor to review submittals and return within two weeks from date received.

B. Thereafter, the Contractor shall update the schedule weekly, as appropriate, to indicate planned locations of the work to be performed. The updated schedule may be delivered to the Owner electronically each week no later than 5:00 p.m. Friday. The Contractor shall be responsible of fully informing the Owner of all locations and associated schedule of all work to be performed during the subsequent week.

1.3 LIST OF EMERGENCY CONTACTS.

Within 15 days after award of contract, Contractor shall submit a list of four names for emergency contact.
1.4 SHOP DRAWINGS AND SAMPLES

The Contractual requirements for shop drawings and samples are specified in the General Conditions or other designated sections. The Contractor shall submit shop drawings and samples accompanied the Owner's standard transmittal form. Resubmissions, where required, shall be in accordance with the procedures established for the initial submittal.

1.5 PROGRESS PAYMENTS

Shall be completed in accordance with the Contract General Conditions.

1.6 AS-BUILTS

The Contractor shall keep a complete an accurate as-built record of changes and/or deviations from the Contract Documents and shop drawings, indicating the work as actually installed. Changes shall be neatly and correctly shown on the respective portion of the affected document, using prints of the Drawings affected, or the Specifications, with appropriate supplementary notes. The record set of marked-up Drawings, shop drawings, and Specifications shall be kept at the job site during construction and be available for inspection by the Owner. A clean set of marked prints shall be included in the package of final documentation submitted before final payment is requested.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01330
SECTION 01340

SHOP DRAWINGS, WORKING DRAWINGS, AND SAMPLES

PART 1    GENERAL

1.1   DESCRIPTION

A. Definitions:

1. Data – When cited in this section shall collectively include working drawings, shop drawings, test reports, material data sheets and specified equipment proposed to complete the work.

2. Shop drawings - shall be considered to mean the Contractor’s plans for materials and equipment which become an integral part of the project. These drawings shall be complete and detailed. Shop Drawings shall include as needed fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, and wiring and control diagrams.

a. Cuts, catalogs, pamphlets, descriptive literature, and performance and test data, shall be considered supportive to Shop Drawings as defined above. As used herein, the term “manufactured” applies to standard units usually mass-produced; and “fabricated” means items specifically assembled or made out of selected materials to meet individual design requirements of this contract.

b. Manufacturer’s catalog sheets, brochures, diagrams, illustrations and other standard descriptive data shall be clearly marked to identify pertinent materials, product or models. Delete information which is not applicable to the Work by striking out or cross-hatching appropriate text, tables and diagrams.

c. Data on materials and equipment shall include materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

d. For all mechanical and electrical equipment furnished, the Contractor shall provide a list including the equipment name, and address and telephone number of the manufacturer’s representative and service company so that service and/or spare parts can be readily obtained.
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3. Working Drawings – are considered to mean the Contractor’s plan for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and falsework; for underpinning; and for such other work as may be required for construction but does not become an integral part of the Project.

   a. Copies of working drawings shall be submitted to the Owner where required by the Contract Documents or requested by the Owner, and shall be submitted at least thirty (30) calendar days in advance of their being required for work.

   b. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of South Carolina and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, working drawings must have been reviewed by the Owner for general conformance and will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract.

B. Scope of Work:

1. Within fourteen (14) calendar days after the Effective Date of the Agreement, the Contractor shall submit to the Owner a list of preliminary Data on items that are scheduled to be submitted. As required, this list shall also include the names of all proposed manufacturers furnishing specified items. The review of this list by the Owner shall in no way relieve the Contractor from submitting a complete set of Data in full compliance with the Specifications.

   a. This procedure is requested in order to expedite the final review of Shop Drawings.

   b. If the construction project is simple with only limited Data sheets necessary to describe the materials or Work, then the Contractor can submit that Data in lieu of this preliminary list. The Owner still reserves the right to request additional Data to completely understand the Work and materials being provided under this contract.

C. Related Requirements Described Elsewhere:

1. Project Record Documents: Section 01720.
D. Contractor’s Responsibilities:

1. The Contractor shall check all drawings, samples, and field measurements before submitting Data to the Owner for review. Each submittal shall bear the Contractor's stamp showing that Data has been checked by the Contractor. Shop drawings submitted to the Owner without the Contractor’s stamp will be returned to the Contractor and corrected in conformance with these requirements.

   a. Submittals shall indicate any deviations from requirements of the Contract Documents.

   b. If the Contractor takes exception to the Specifications, the Contractor shall note the exception in the letter of transmittal to the Owner.

2. The Contractor shall not begin any of the work covered by a drawing, data, or sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the Owner, with approval.

3. The Contractor shall submit to the Owner all drawings and schedules sufficiently in advance of construction requirements to provide not less than fourteen (14) calendar days for allowing the Owner to review and return the appropriate action.

4. All submittals shall be accompanied with a transmittal letter prepared in duplicate containing the following information.

   a. Date

   b. Project Title and Number.

   c. Contractor's name and address.

   d. The number of each Shop Drawing, Project Data, and Sample submitted.

   e. Notification of Deviations from Contract Documents.

5. No partial submittals will be reviewed without prior approval of the Owner. Submittals not complete will be returned to the Contractor for resubmittal. All Data required by a system specification shall be submitted at one time as a package to facilitate interface checking.
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6. Sufficient information shall be supplied to show that the equipment meets all aspects of the Specification including applicable standards, experience and technical features. Submittals which do not clearly indicate compliance will be returned to the Contractor for resubmittal.

7. On resubmittals, the Contractor shall direct specific attention to revisions and corrections requested by the Owner or previous submissions.

8. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Owner.

9. Specific product samples or Data that cannot be photoduplicated or submitted as scanned documents shall be submitted to the Owner with 2 copies of the product data plus the number of copies that the Contractor needs to be returned. The Owner will retain 2 sets. The Owner will review the submittals and comment accordingly, returning to the Contractor his copies with appropriate review comments.

10. The Contractor shall be responsible for and bear all costs of damages which may result from the ordering of any material or from proceeding with any part of the Work prior to the completion of the review by the Owner of the necessary Shop Drawings.

11. Shop Drawings that have been returned completed to the satisfaction of the Owner shall confirm that the Contractor shall carry out the construction in accordance with the accepted Data. The Contractor shall not make any further changes except with written approval of the Owner.

E. Owner’s Review of Data:

1. The Owner’s reviews of drawings, data and samples submitted by the Contractor will cover only general conformity to the Contract Documents. The Owner’s review and exceptions, if any, will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown.

2. The review of drawings and schedules will be general, and shall not be construed as:

   a. Permitting any departure from the Contract requirements;

   b. Relieving the Contractor of responsibility for any errors, including details, dimensions, and materials.
3. Each submittal will be identified with the appropriate stamp and date of the review.

4. Resubmittals will be handled in the same manner as first submittals, including the time allowed to review the submittal.

5. Shop Drawings and submittal data shall be reviewed by the Owner for each original submittal and first and second resubmittal; thereafter review time for subsequent resubmittals shall be charged to the Contractor.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01340
SECTION 01410

REGULATORY REQUIREMENTS AND REFERENCES

PART 1 GENERAL

1.1 All work shall comply with applicable codes and standards of the following:

A. City of Greenville Design and Specification Manual

B. U.S. Army Corps of Engineers

C. South Carolina Department of Health and Environmental Control (SC DHEC)

D. Occupational Safety and Health Act (OSHA)

E. South Carolina Department of Transportation (SC DOT)

F. County, City, and Local Governments

G. Water and Sewer Municipalities and Districts

1.2 SILTATION AND EROSION CONTROL

Surface drainage within the construction limits, shall be graded to control erosion and sedimentation. Temporary erosion and sediment control measures such as berms, dikes or drains shall be provided and maintained during construction. The area of bare soil exposed at any one time by construction operations should be held to a minimum.

1.3 SAFETY AND HEALTH REGULATIONS

A. In addition to other requirements stated elsewhere herein, the Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54).
Byrdland Drive / Airport Road Sewer Improvements

B. All chemicals used during project construction or furnished for project operations whether herbicide, pesticide, disinfectant, polymer, reactant, paints, solvents, cleaner or of other classification must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be the Contractor’s responsibility and shall be in strict accordance with instructions and applicable local, state and federal regulations.

1.4 Reference to technical societies, institutions, or governmental standards is made in the specifications in accordance with the following abbreviations:

A. AASHTO - American Association of State Highway and Transportation Officials

B. ACI - American Concrete Institute

C. ACPA-American Concrete Pipe Association

D. AIA - American Institute of Architects

E. ANSI - American National Standards Institute

F. ASTM - American Society for Testing and Materials

G. AWWA - American Water Works Association

H. NAAMM - National Association of Architectural Metal Manufacturers

I. NSF – National Sanitation Foundation

J. OSHA – Occupational Safety and Health Administration

K. SCDHEC – South Carolina Department of Health and Environmental Control

L. SCDOT - South Carolina Department of Transportation

PART 2 PRODUCTS

NOT USED
Byrdland Drive / Airport Road Sewer Improvements

PART 3 EXECUTION

NOT USED

END OF SECTION 01410
Byrdland Drive / Airport Road Sewer Improvements

SECTION 01502

MOBILIZATION

PART 1 GENERAL

1.1. SCOPE

A. Work included is the mobilization and demobilization of the Contractor’s forces and equipment necessary for performing the work required under the contract.

1. Mobilization will not be considered as work in fulfilling the contract requirements for commencement of work.

B. The work shall include all activities and associated costs for transportation of Contractor’s personnel, equipment, and operating supplies to the site; establishment of offices, buildings, staging areas, stockpiling areas and other necessary general facilities for the Contractor’s operations at the site; including coinsurance and reinsurance agreements as applicable; and other items specified.

C. Mobilization shall include sanitary facilities. The Contractor shall furnish and install temporary sanitary facilities for use throughout the construction period. This includes containers to dispense drinking water, enclosed toilet facilities and general washing facilities for construction personnel, which complies with OSHA safety and health regulations for these facilities. Appropriate sanitary facilities are to be established within the project site.

D. Mobilization shall include all activities and costs for transportation of personnel, equipment, and supplies not required or included in the contract from the site; including the disassembly, removal and site cleanup of offices, buildings and other facilities assembled on the site specifically for this contract.

E. This work includes mobilization and demobilization required by the contract at the time of award. If additional mobilization and demobilization activities and costs are required during the performance of the contract because of Work that is changed, deleted, or added to the Contract, the Contractor is entitled to an adjustment in contract price. Compensation for such costs will be included in the price adjustment for the item or items of work changed or added.

1. Mobilization shall not be used to cover costs of bond premiums.
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PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01502
Byrdland Drive / Airport Road Sewer Improvements

SECTION 01510
TEMPORARY UTILITIES

PART 1 GENERAL

1.1 UTILITY SERVICE

The Contractor shall make application for utility services, if any, and shall pay all required fees and capital costs. The Contractor shall be responsible for all utility costs until the project is accepted by the Owner.

1.2 TEMPORARY UTILITIES

A. All water required for execution and testing of the work shall be supplied by and at the expense of the Contractor, unless otherwise directed by the Owner.

B. The Contractor shall furnish temporary sanitary facilities at the site for his personnel and others performing work related to the project.

   1. Sanitary facilities shall be properly maintained throughout the construction period.

   2. Facilities shall be in an obscure location to the greatest possible extent.

   3. Facilities shall not be located within 20-feet of any stormwater structure and / or within 50-feet of any watercourse, wetland area, stream, floodplain or lake.

C. The Contractor shall provide all power required in connection with the work.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01510
SECTION 01550

VEHICULAR ACCESS AND TRAFFIC CONTROL

PART 1 GENERAL

1.1 PROJECT ACCESS

A. Contractor shall establish and maintain temporary access roads to various parts of the site as required to complete the project. Such roads shall be available for the use of all others performing work in connection with the project.

B. Contractor shall provide and maintain suitable parking areas for the use of all persons performing work on the project. Parking areas shall be of a size that will eliminate the need for parking personal vehicles where they may interfere with traffic, Owner's operations, private property access, or construction activities.

1.2 TRAFFIC CONTROL

A. Although the nature of the project may require that traffic be halted for temporary periods, vehicular accessibility for local traffic shall be maintained at all times, unless stated otherwise in the encroachment permits. The Contractor shall provide and be responsible for all signs, barricades, warning lights and flagmen required to allow safe vehicular movement in the vicinity of the project.

B. The Contractor shall comply with Part V of the current edition of the "South Carolina Manual on Uniform Traffic Control Devices for Streets and Highways" as published by the South Carolina Department of Transportation. The Contractor shall also comply with any local requirements regarding traffic regulation.

C. For work in the South Carolina Department of Transportation (SCDOT) right-of-way, the Contractor shall be responsible for identifying and selecting an appropriate traffic control plan for the given work from the list of standard details available from the SCDOT. These details are listed in Division 600 of the SCDOT Standard Drawings library. Contractor shall submit selected detail to the Owner representative for SCDOT review prior to beginning the work. The work shall not proceed until it has been authorized by the SCDOT as communicated to the Contractor by the Owner’s representative.

D. All signs, barricades, etc. used for traffic control shall be removed from the site upon completion of the project or portion of project requiring traffic control.
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PART 2    PRODUCTS

NOT USED

PART 3    EXECUTION

NOT USED

END OF SECTION 01550
Byrdland Drive / Airport Road Sewer Improvements

SECTION 01560
TEMPORARY BARRIERS AND CONTROLS

PART 1  GENERAL

1.1  SECURITY

A. The Contractor shall be responsible for the security of stored materials, unfinished work, temporary facilities, construction equipment, and all other items stored on the project site. The Owner shall not be held responsible for losses incurred by the Contractor from theft or vandalism.

B. The Contractor shall be responsible for the protection of the site and existing facilities located within the project area. Security measures shall be at least equal to those usually provided by the Owner to protect his existing facilities during normal operations.

1.2  PROTECTION OF PROPERTY

A. The Contractor shall be responsible for the protection of public and private property adjacent to the Work and shall exercise due caution to avoid damage to such property.

B. The Contractor shall repair or replace all existing improvements within the right-of-way that are not designated for removal (e.g., curbs, sidewalks, driveways, fences, walls, signs, utility installations, pavement, structures, etc.), which are damaged or removed as a result of its operations. Repairs and replacements shall be at least equal to existing improvements and shall match in finish material and dimension.

C. Trees, lawns, and shrubbery that are not to be removed shall be protected from damage or injury. If damaged or removed due to Contractor's operations, they shall be restored or replaced in as near the original condition and location as is reasonably possible.

D. The Contractor shall give reasonable notice to occupants or owners of property to permit them to salvage or reallocate plants, trees, fences, sprinklers, and other improvements, within the right-of-way, which are designated for removal and would be destroyed because of the Work.
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1.3 BARRICADES

Open trenches and other excavations shall have suitable barricades, signs, and lights to provide adequate protection to the public. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights.

1.4 DUST CONTROL

The Contractor shall control dust throughout the life of the project within the project area and at all other areas affected by the construction of the project, including, but not specifically 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.

1.5 NOISE CONTROL

The Contractor shall exercise every reasonable precaution throughout the life of the project to prevent excessive and unnecessary noise. The Contractor shall choose his methods so as to minimize the disturbance of area residents.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01560
PART 1  GENERAL

1.1  SUMMARY

Review exposure to possible environmental problems with Owner. Establish procedures and discipline among tradesmen and provide needed facilities, which will protect against environmental problems (pollution of air, water and soil, excessive noise, and similar problems).

1.2  WATER AND AIR POLLUTION

A. The Contractor shall exercise every reasonable precaution throughout the life of the project to prevent pollution of rivers, streams, and bodies of water. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful waste shall not be discharged into or alongside of rivers, streams, and bodies of water or into natural or manmade channels leading thereto.

B. Contractor shall provide for the drainage of stormwater and such water as may be applied or discharged on the site in performance of the Work. Drainage facilities shall be adequate to prevent damage to the Work, the site, and adjacent property.

C. The Contractor shall comply with all State or local air pollution regulations throughout the life of the project.

1.3  WASTEWATER FLOW

The Contractor shall conduct his operations in manner and sequence, which will provide for the continued transportation of wastewater flows during construction. Contractor shall take all actions required to prevent discharge of sewer flow from the system to the ground or any stream. Any construction actions that impede or interrupt flow shall be carefully executed and monitored to prevent surcharging and overflow.
Byrdland Drive / Airport Road Sewer Improvements

PART 2            PRODUCTS

Not Used

PART 3            EXECUTION

Not Used

END OF SECTION 01570
PART 1  GENERAL

1.1  DELIVERY AND HANDLING

A. All materials shall be handled carefully and in such a manner as to preserve their quality. Materials damaged during delivery or handling shall not be used without approval from the Owner.

1.2  STORAGE

A. The Contractor shall be responsible for obtaining any material storage site that is required. Storage of materials on the project site is subject to the approval of the Owner.

B. Stored materials shall be so located as to facilitate inspection by the Owner.

PART 2  PRODUCTS

NOT USED

PART 3  EXECUTION

NOT USED

END OF SECTION 01660
PART 1  GENERAL

1.1  FINAL INSPECTION

A. Upon receipt of Contractor’s request, the Owner will either proceed with an inspection of the completed work or advise the Contractor of prerequisites not fulfilled. Following the initial inspection, the Owner will advise the Contractor of work that remains in the form of a “punch-list” of work that must be complete to satisfy final acceptance.

B. Upon receipt of Contractor’s notice that work has been completed, including the punch-list items resulting from the earlier inspections, the Owner will re-inspect the work. Upon completion of the re-inspection, the Owner will either recommend final acceptance and final payment, or advise the Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, this procedure will be repeated until all work has been completed.

1.2  FINAL DOCUMENTATION

A. Prior to final payment, and before the issuance of a final certificate for payment, the Contractor shall file with the Owner the documents listed below:

1. Guarantee that are required by the Contract, including all guarantees stated in the Specifications.

2. Release or Waiver of Liens as required by the Contract.

3. Project Record Documents as specified in Section 01720.

4. The above records shall be arranged in order, in accordance with various sections of the Specifications, and properly indexed. At the completion of the work, the Contractor shall certify by endorsement that each of the revised and marked-up prints of the Drawings and Specifications are complete and accurate.
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5. No review or receipt of such records by the Owner shall be a waiver of any change from the Contract Documents or in any way relieve the Contractor of his responsibility to perform the work as required by the Contract.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01700
PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

A. Maintain at the site for the Owner one (1) record copy of:

1. Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other Modifications to the Contract.

5. Owner’s Field Orders or written instructions.

6. Approved Shop Drawings, Working Drawings and Samples.

7. Field Test records.

8. Preconstruction Videos and Photographs


10. Detailed progress schedule.

B. Maintain at the site for the Owner one record sample of each item for which samples are specified to be furnished.

C. Prior to Completion, deliver Record Documents and Samples to the Owner.
1.2 RELATED REQUIREMENTS

A. Section 01300 – Submittals

B. Section 01340 – Shop Drawings and Working Drawings

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Store documents and samples in Contractor's field office apart from documents used for construction.

B. Provide files and racks for storage of documents.

C. Provide locked cabinet or secure storage space for storage of samples.

D. File documents and samples in accordance with project manual format.

E. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

F. Make documents and samples available at all times for inspection by the Owner.

G. As a prerequisite for monthly progress payments, the Contractor shall provide current updated "record documents" for review by the Owner.

1.4 MARKING DEVICES

Provide felt tip marking pens for recording information in the color code designated by the Owner.

1.5 PRECONSTRUCTION VIDEO INSPECTIONS AND PHOTOGRAPHY

The Contractor shall be responsible for performing video inspections and taking photographs of all project areas prior to performing any work. This shall document the pre-construction conditions for comparison with the final restoration work. If the Contractor fails to make inspections and photographs and the Owner receives a complaint on the final restoration, the Contractor shall be responsible for additional restoration at no additional cost to the Owner to resolve the complaint.
Byrdland Drive / Airport Road Sewer Improvements

1.6 RECORDING

A. Label each document "PROJECT RECORD" or "Record Drawing" as applicable, with month and year in large bold letters.

B. Record information concurrently with construction progress.

1. Do not conceal any work until required information is recorded.

C. Drawings; legibly mark to record actual construction (complete set):

1. Depths of various elements of foundation in relation to finish first floor datum.

2. All underground piping with elevations and dimensions. Document changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe diameter, material, class, etc.

3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

4. Field changes of dimension and detail.

5. Changes made by Field Order or by Change Order.

6. Details not on original Contract Drawings.

7. Mechanical and electrical changes.

8. All underground duct banks with elevations and dimensions (horizontal and vertical), and manholes along duct banks.

9. All underground cable elevations and horizontal locations of underground cables.

D. Specifications and Addenda; legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and Supplier of each Product and item of equipment actually installed.
2. Changes made by Field Order or by Change Order.

E. Shop Drawings (after final review and approval):

1. One set of record shop drawings for each process equipment, piping, (including casings) electrical system and instrumentation system.

1.7 SUBMITTALS

A. At Substantial Completion, deliver one draft full-size original set of the certified Record Drawings to the Owner. At Completion, deliver one complete full-size original set and two full-size plain paper copies of the certified Record Drawings to the Owner.

B. Submit one (1) set of specifications, addenda, and Shop Drawings prior to Final Completion.

C. Accompany submittal with transmittal letter in duplicate, containing:

1. Date.

2. Project title and number.

3. Contractor’s name and address.

4. Title and number of each Record Document.

5. Signature of Contractor or his authorized representative.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01720
1.1 EXISTING UTILITIES

A. Special precautions shall be taken by the Contractor to avoid damage to existing overhead and underground utilities owned and operated by the Owner or by public or private utility companies. Location of existing lines have been taken from utility records, supplemented by field inspection and should indicate, in general the type of underground facilities now in service. However, locations shown are not guaranteed and the Contractor should not only make his own investigations but should also allow for contingencies which might arise by reason of encountering unrecorded lines or of lines being in different locations than indicated on the plans.

B. At locations of the proposed work where there is a possibility of interference with existing lines, either water, sewer, storm sewer, gas or telephone, the Owner may require excavation to verify the routing of the work. The Contractor shall include in his price or prices, the cost of such operations.

C. Before proceeding with the work, the Contractor shall confer with all public or private companies, agencies or departments that own and operate utilities in the vicinity of the construction work. The purpose of the conference, or conferences, shall be to notify said companies, agencies, or departments of the proposed construction schedule, verify the location of, and possible interference with, the existing utilities that are shown on the plans, arrange for necessary suspension of service and make arrangements to locate and avoid interference with all utilities (including house connections) that are not shown on the plans. The Owner has no objection to the Contractor arranging for the said utility companies, agencies, or departments to locate and uncover their own utilities.

D. The Contractor will locate all unknown metallic hazards, namely buried pipe, metals, etc. by using a pipe locator. The pipe locator shall immediately proceed the trench ditching and all hazards located and marked in such manner as to notify the machine operator of such hazard.

E. When existing utilities or appurtenant structures, either underground or above ground are encountered, they shall not be displaced or molested unless necessary, and in such case shall be replaced in as good or better condition than found as quickly as possible. Permanent or
Byrdland Drive / Airport Road Sewer Improvements

temporary relocation and replacement of all utilities and appurtenant structures to accommodate the construction work shall be at the Contractor's expense.

1.2 INTERUPTION OF UTILITY SERVICE

A. No valve, switch or other control device on existing utility systems shall be operated for any purpose by the Contractor. All such operations shall be performed by the utility owner. All consumers affected by such operations or any other service interruption shall be notified by the Contractor before the operation and advised of the probable time when service will be restored. The duration and frequency of any necessary service interruptions shall be kept to an absolute minimum.

B. All work associated with this Contract, which requires or results in an interruption of service and restoration of service (whether interrupted intentionally or unintentionally), shall be performed in a manner which will require minimum interruption time. Operations to restore service shall be conducted at such periods, whether day or night, Saturday, Sunday, or holidays, as necessary to restore service in the shortest possible time interval. Special equipment or labor required to accomplish this work in this manner shall be at the expense of the Contractor.

1.3 CONNECTION TO EXISTING UTILITIES

At places shown on the plans, physical connections will be made between the proposed and existing lines. The plans indicated the manner in which the connections are to be made and are based upon information secured from utility records and above grade surveys. In all instances involving tie-ins, the utility owner shall be consulted and his approval secured prior to performing the work.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01725
Byrdland Drive / Airport Road Sewer Improvements

SECTION 01740

SITE CLEANING

PART 1  GENERAL

1.1 PROGRESS CLEANING

A. The Contractor shall keep the premises free at all times from accumulations of waste materials and rubbish. Adequate trash receptacles shall be located on site and shall be promptly emptied when filled.

B. Construction materials shall be neatly maintained by the Contractor when not in use. The Contractor shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning materials from surfaces to prevent damage, or discoloration.

C. Volatile wastes shall be properly stored in covered containers and removed daily.

1.2 FINAL CLEANING

At closeout time the Contractor shall clean entire work area. Remove non-permanent protection and labels, clean exposed finishes, remove debris, sweep and wash paved areas, police yards and grounds, and perform similar cleanup operations needed to produce a "clean" condition as judged by the Owner.

PART 2  PRODUCTS

NOT USED

PART 3  EXECUTION

NOT USED

END OF SECTION 01740
Byrdland Drive / Airport Road Sewer Improvements

SECTION 02070

EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.1 SCOPE OF WORK

A. The work under this section consists of furnishing all labor, materials, tools, equipment and services for soil and erosion control for all earth disturbing construction activities including installation and maintenance until establishment of permanent vegetation.

B. Work included in this section shall be as shown on the drawings and as specified herein for all temporary and permanent erosion control measures to include, but not limited to, the following:

1. Matting and Mulching.
2. Temporary Drains.
4. Stream Protection.
5. Silt Fence.
6. Temporary Construction Entrances.
7. Diversion Swales.
8. Temporary Culvert Crossings.

C. Related Work:

1. Section 02221 Trench Excavation, Bedding and Backfill
2. Section 02900 Landscape Restoration

1.2 QUALITY ASSURANCE

A. Standard of quality shall conform to the standards and practices set forth in:
Byrdland Drive / Airport Road Sewer Improvements


2. City of Greenville Design and Specifications Manual and as shown on the drawings, or directed by the Owner.

3. City of Greenville Land Management Ordinance, Chapter 19.

1.3. SUBMITTALS

A. Submit product data for the following items:

1. Jute or excelsior matting.

2. Sediment Tubes

3. Turf Reinforcement Mats (TRM)


B. Submittals shall meet all requirements of Section 01340.

PART 2 MATERIALS

2.1. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

Temporary Gravel Construction Entrance. Gravel construction entrances shall consist of 2-1/2” to 1-1/2” nominal size clean crushed aggregate in accordance with Size #1, AASHTO M 43.

2.2. BALED STRAW

Baled straw shall consist of standard size (18-inch x 48 inch) rectangular.

2.3. SILT FENCES

A. Filter Cloth: Filter cloth for silt fences shall be a pervious sheet of synthetic polymer filaments forming a stable network of fibers retaining their relative position. The filter cloth shall be of the type recommended by its manufacturer for the intended application of silt fences. Filter cloth shall appear on the most recent edition of the SCDOT Qualified Product List #34.
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B. Posts: Steel posts shall be used. Steel posts shall be at least 4 feet in length, approximately 1-3/8 inches wide measured parallel to the fence, and have a minimum weight of 1.25 lb./ft of length.

C. Maximum post spacing shall be 6 ft. without woven wire backing.

D. Woven Wire Fence: Wire fence fabric shall be at least 32 inches high, and shall have at least 6 horizontal wires. Vertical wires shall be spaced 12 inches apart. The top and bottom wires shall be at least 10 gage. All other wires shall be at least 12-1/2 gage.

E. Wire Staples: Wire staples shall be a No. 9 staple and shall be at least 1-1/2 inches long.

F. Prefabricated Silt Fence: Prefabricated silt fence shall be Mirafi "Environfence" or approved equal.

2.4. HIGH DENSITY POLYETHYLENE (HDPE) PIPE

For Sediment Traps, and Temporary Drains: HDPE pipe shall be heavy duty corrugated with smooth bore meeting AASHTO M 294 Type C or S (8"-24" diameter), with maximum stretch resistance of 10% as manufactured by Hancor, Crumpler, ADS, or equal.

2.5. POLYVINYL CHLORIDE PLASTIC (PVC) PIPE

For Drainage. PVC pipe shall meet the requirements of AASHTO M 278 and ASTM D 1785.

2.6. TEMPORARY MULCH

Mulch for erosion control shall consist of grain straw, fiber mats, netting, bark, wood chips, or other acceptable material approved by the Owner. All mulch shall be reasonably free of mature seed-bearing stalks, roots or restricted noxious weeds as defined by the State Agriculture Department and in compliance with State and Federal domestic plant quarantines. Straw mulch that is matted or lumpy shall be loosened and separated before being used. Material for holding mulch in place shall be asphalt or other approved binding material.

2.7. MATTING FOR EROSION CONTROL

A. General: Matting for erosion control shall be jute matting or excelsior matting. Other acceptable material manufactured especially for erosion control may be used when approved by the Owner in writing before being used. Matting for erosion control shall not be dyed, bleached, or otherwise treated in a manner that will result in toxicity to vegetation.
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B. Jute Matting: Jute matting shall be of a uniform open plain weave of single jute yarn. The yarn shall be of a loosely twisted construction and shall not vary in thickness by more than one-half its normal diameter.

C. Excelsior Matting: Excelsior matting shall consist of a machine produced mat of curled wood excelsior at least 47 inches in width. The mat shall weigh 0.975 pounds per square yard minimum. At least 80 percent of the individual excelsior fibers shall be 6 inches or more in length. The excelsior fibers shall be 6 inches or more in length. The excelsior fibers shall be evenly distributed over the entire area of the blanket. One side of the excelsior matting shall be covered with a woven fabric of twisted paper cord or cotton cord, or with an extruded plastic mesh. The mesh size for either the fabric or plastic mesh shall be a minimum of 1" x 1" and a maximum of 1-1/2" x 3".

D. Wire Staples: Staples shall be machine made of No. 11 gage new steel wire formed into a "U" shape. The size when formed shall be not less than 6 inches in length with a throat of not less than 1 inch in width.

2.8. GEOTEXTILE FABRIC

Fabric shall be Mirafi 700X, or approved equal. Fabric shall be used where shown on plans or included in bid schedule.

2.9. RIP RAP AND FILTER STONE

A. Materials. Stones shall be hard quarry or field stone and shall be of such quality that they will not disintegrate on exposure to water or weathering. The stone shall be suitable in all respects for the purpose intended.

B. Stone for hand placing to a thickness of 12 inches shall range in weight from a minimum of 25 pounds to a maximum of 150 pounds. At least 50 percent of the stone pieces shall weigh more than 60 pounds. The stone pieces, except spalls shall have a minimum dimension of at least 12 inches.

C. Stone for hand placing to a thickness of 6 inches shall be no less than 3 inches in one dimension and no less than 6 inches in another dimension.

D. Heavy duty stone shall be used where shown on the plans. Heavy duty stone shall be NSA No. R-6 with maximum size of 24", average size is 12", minimum size of 7" and 50% of the tonnage larger than the average size.

E. Filter material shall consist of a pit run mixture of sand and gravel (or crushed stone) reasonably well graded from 1/4 inch to 2-1/2 inches except that between 5 and 15 percent will be required to pass the No. 4 sieve.
2.10. SEDIMENT TUBES FOR DITCH CHECKS AND OVERLAND FLOW

A. Provide sediment tubes for ditch checks that meet the minimum performance requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-installed Tube Diameter Field Measured</td>
<td>Field Measured</td>
<td>18.0-inch minimum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24.0-inch maximum</td>
</tr>
<tr>
<td>Mass per Unit Length</td>
<td>Field Measured</td>
<td>3.0 lbs./ft +/−10% minimum for 18-in diameter,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.0 lbs./ft +/−10% minimum for 24-in diameter</td>
</tr>
<tr>
<td>Tube Filtering Efficiency Performance</td>
<td>ASTM D5141 or</td>
<td>80% Total Suspended Solids (TSS)</td>
</tr>
<tr>
<td></td>
<td>ASTM D7351</td>
<td></td>
</tr>
<tr>
<td>Netting Ultraviolet Stability (Retained strength after 500 hrs.)</td>
<td>ASTM D4355</td>
<td>70%</td>
</tr>
<tr>
<td>Tube Length</td>
<td>Field Measured</td>
<td>10-ft minimum*</td>
</tr>
</tbody>
</table>

* Select length to minimize the number of sediment tubes needed. If the ditch check length (perpendicular to the water flow) is 15 feet, then one 15-foot sediment tube is preferred over two overlapped 10-foot sediment tubes.

B. Quality Assurance: Provide sediment tubes for ditch checks listed on the most recent edition of SCDOT Qualified Product List #57.

C. Material Submittal shall include:
   a. Manufacturers name and location
   b. Sediment tube name, model number and/or serial number
   c. Sediment tube diameter, length and weight
   d. Certification that the sediment tube meets the physical and performance requirements of this specification.

2.11. STORM DRAIN INLET TRAPS

Storm drain inlet traps shall conform to the project drawing details and to the most recent edition of the SCDOT Qualified Product List #58.

PART 3 EXECUTION

3.1. CONSTRUCTION SEQUENCE SCHEDULE

A. Temporary and permanent erosion control measures shall be carried out and coordinated to provide continuous erosion and siltation control from the pre-construction stage through
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Post-construction stage. When a specific construction sequence is not shown on the Drawings, the following general requirements shall be used:

1. Prior to general stripping of topsoil and excavation, perimeter erosion and siltation control measures shall be installed. All devices installed shall be maintained throughout the construction period. Seeding and mulching shall be carried out immediately after construction is complete and shall be considered a part of the completed Work for the purpose of estimate payments. Deviations from this procedure shall be only with the written permission of the Owner.

3.2. MAINTENANCE REQUIREMENTS

A. All erosion control measures installed by the Contractor shall be maintained by the Contractor to include, but not limited to:

1. A site inspection shall be conducted weekly and within 24 hours after each rainfall event that produces ½-inch or more of precipitation. Each inspection for damage or maintenance shall include all structures installed. Maintenance, repair or replacement of damaged items shall be completed by the Contractor at no additional cost to the Owner.

2. Provide temporary or permanent grassing of exposed earth areas as soon as practical following disturbance.

3. Remove accumulated sediment in basins, traps and inlet protection when capacity of the device has been reduced 50 percent, and provide proper disposal of all sediment removed.

4. Remove sediment behind silt fence, check dams and tube barriers to prevent structural failure of the device and overtopping.

5. Topsoil, fine grade, seed and mulch all slopes and swales as soon as possible at the completion of construction activities.

3.3. EROSION CONTROL MEASURES

A. The Contractor shall take such action as required to accomplish erosion and siltation control, including but not limited to, the following measures:

1. Temporary Construction Entrances, where shown on the Drawings and shall conform to the minimum thickness, width and length shown on the drawing details. Geotextile fabrics shall be used as shown beneath all temporary construction entrances.
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2. Storm water diversion ditches shall be constructed in the right-of-way to control run-off and convey the run-off from the disturbed area to controlled discharge points.

3. Silt fences, rip-rap, crushed stone, and earth berms shall be constructed as indicated in the Drawings or directed by the Owner at discharge points to contain silt. On erodible slopes these devices shall be constructed to inhibit erosion and prevent siltation.

4. Install inlet protection as shown on the drawings and in accordance to the design details and manufacturers requirements.

B. The Contractor shall install pipe culverts at the locations where major access or haul roads cross drainage ditches or streams. When the access or haul road is no longer required for construction purposes, the Contractor shall remove the pipe culvert and stabilize the disturbed drainage ditch or stream banks as noted on the plans.

C. The Contractor shall schedule and complete all work including restoration in a continuous operation in the vicinity of all water features in order to minimize the amount of time disturbance remains active in the vicinity of drainage ditches or streams.

D. Seeding and mulching shall be employed as a permanent erosion control measure as soon after pipe installation as practicable.

3.4. TEMPORARY MULCHING

A. Temporary mulch may be used for the prevention of excessive soil erosion during construction operations where it is impossible or impractical to perform permanent seeding and mulching because of weather conditions. Temporary mulch shall be placed promptly when directed by the Owner.

B. Mulch shall be spread uniformly over the area by hand or by appropriate mechanical spreaders or blowers to obtain an application satisfactory to the Owner.

C. The Contractor shall apply asphalt or other approved material to assure that the temporary mulch is properly secured in place.

3.5. MATTING

A. Placing of matting shall be done immediately following seeding. The earth surface shall be smooth and free from stones, clods, or debris which will prevent the contact of the matting with the soil. Care shall be taken to preserve the required line, grade, and cross section of the area covered.

B. Matting shall be unrolled in the direction of the flow of water, and shall be applied without stretching so that it will lie smoothly but loosely on the soil surface. The up-channel or top of
slope end of each piece of matting shall be buried in a narrow trench at least 5 inches deep and tamped firmly. Where one roll of matting ends and a second roll begins, the end of the upper roll shall be brought over the buried end of the second roll so that there will be a 6-inch overlap. Check slots shall be constructed at each 50 feet longitudinally in the matting or as directed by the Owner. These slots shall be narrow trenches at least 12 inches deep. The matting shall be folded over and buried to the full depth of the trench, after which the trench shall be closed and firmly tamped. Where 2 or more widths of matting are laid side by side, the overlap shall be at least 4 inches.

C. Staples shall be placed on 10-inch spacing across matting at ends, junctions, and check slots. Staples shall be placed at 3-foot spacing along the outer edges and down the center of each strip of matting. Staples shall be placed along all lapped edges 2 to 3 feet apart.

D. When excelsior matting is used, the matting shall be installed with the fabric on the top side.

E. In the installation of erosion control matting on cut or fill slopes the Owner may require adjustments in the trenching or stapling requirements to fit individual slope conditions.

3.6. GEOTEXTILE FABRIC

Install geotextile fabric per manufacturer's recommendations under all areas to receive riprap.

3.7. PLACING RIP RAP

A. The thickness of hand placed rip rap shall be not less than that specified, measured perpendicular to the slope. When the thickness is not specified on the plans, it shall be installed with a minimum thickness of 12 inches.

B. The width of placed rip rap for stream crossings shall be ten (10) feet each side of the pipe or ditch centerline unless otherwise shown on the drawings.

C. The slope upon which this rip rap is to be placed shall conform to the cross section shown on the plans or as directed by the Owner. Depressions that may be filled in trimming and shaping the slope shall be properly compacted. Fabric shall be placed to manufacturer’s specifications prior to placement of the rip rap. Placing shall begin in a trench at least two feet below the toe of the slope, measured along the slope, unless otherwise shown on the plans. It shall progress upward with each piece being placed by hand perpendicular to the slope. It shall be firmly embedded against the slope and the adjoining piece with the sides in contact and with well broken joints. The spaces between the larger pieces shall be filled with spalls of suitable size which shall be thoroughly rammed into place. The finished surface shall present an even, tight surface true to line, grade and section.

END OF SECTION 02070
PART 1 GENERAL

1.1. SCOPE OF WORK

A. Work shall consist of all necessary clearing and grubbing as shown on the Drawings and as specified herein. Contractor shall consult with the Owner prior to beginning clearing to confirm the work specific to this project and the limits as specified herein or on the Drawings.

B. When work to be performed is within an easement obtained or prescribed by the Owner, the Contractor shall notify the property owner in writing (typically using a door hanger) of the following:

1. Name and permanent address of the Contractor awarded the work.

2. The name, telephone number, and address of the Contractor's representative in charge of the right-of-way clearing.

3. An estimate as to when work will start in the area.

4. A description of the Contractor's responsibility as set forth in this section including a statement that the Contractor is directly responsible to the Owner for damages.

C. The Contractor shall be responsible for all work on easements or rights of way and shall avoid unnecessary removal of trees, unnecessary interference with natural or installed drainage systems, landscaping or fencing. The Contractor is responsible for all claims of damage by a property owner arising from the work on or off the right of way and shall agree to indemnify, save and hold harmless the Owner from all suits, claims, actions or damages of any kind whatsoever, including costs of litigation and attorney fees arising from the Contractor's acts or omissions whether upon contract, nuisance, tort or on an alleged taking. All work shall be accomplished within the rights of way.

D. The Contractor shall prevent erosion of the area during and after construction in compliance with all applicable local codes and regulations related to erosion and sediment control.

1.2. RELATED WORK:

Section 02070 - Erosion and Sedimentation Control.
PART 2  PRODUCTS

NOT USED

PART 3  EXECUTION

3.1. GENERAL

A. Operations shall be conducted with full consideration of all proper and legal rights of the property owner, adjacent property owners and the public, and with the least possible amount of inconvenience to them. The Contractor is to make every possible effort to avoid damage to trees outside of the Construction Rights-of-Way (R/W) limits.

B. Storage of materials to be used in construction shall be within the R/W limits. Such storage areas shall be selected to prevent damage to remaining trees or to any of the property owners adjacent to the R/W.

C. Top soil shall be stockpiled in designated areas. Top soils, so stockpiled, shall be protected until it is placed as specified. The Contractor shall dispose of any topsoil remaining after all work is in place.

D. Pipelines. Clearing, grubbing and provisions for erosion and sediment control along pipeline R/W shall be done prior to trenching and pipe installation.

1. Trees and brush within the 25-ft. permanent right-of-way shall be cleared. All stumps shall be completely removed and disposed of in a manner satisfactory to the Owner. Trees located outside of the 25-ft. permanent R/W, but within the expanded construction R/W, shall only be removed as directed or approved by the Owner.

2. Unless otherwise requested by the property owner, trees 6-inches or more in diameter shall be trimmed into lengths directed by the property owner, but not over 16 feet long. All cut wood shall be neatly stacked on the edge of the R/W in accessible locations for the property owner’s use. If the property owner requests that a complete removal of material is required, then all trees shall be removed as part of this work. Brush and laps shall be ground into mulch or disposed of in accordance with state and local regulations and to the Owner’s satisfaction.

3. Grubbing of stumps shall be done in any convenient manner which will not cause damage to the remaining trees or adjacent property. Stumps may be piled and burned completely, or otherwise disposed of as approved by the Owner. Stumps shall not be buried on right-of-way.
4. Burning of Cleared Materials shall not be performed without the Owner's permission and shall be accomplished in strict compliance with all applicable local, state and federal regulations pertaining to open burning, including smoke abatement and solid waste disposal.

5. Upon completion of the construction work the contractor shall immediately remove all construction equipment, excess materials, tools, debris, etc., from the site(s) and leave the same in a neat orderly condition acceptable to the Owner. All project areas shall be graded to shed water to natural drainage areas. The areas shall be raked to a uniform surface free from rocks, clods of earth or other irregularities. All areas shall be left in a clean, neat condition.

END OF SECTION 02100
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SECTION 02221

TRENCH EXCAVATION, BEDDING AND BACKFILL

PART 1 GENERAL

1.1. SCOPE

A. The work in this section shall consist of furnishing all labor, equipment and materials required for earthwork operations conducted for completing the trench excavation for all piping and conduit, including bedding and backfill operations necessary for a complete installation as shown on the Drawings.

B. Excavation shall be classified as "common excavation" or "rock excavation" as defined herein. Excavation of every description, regardless of material encountered within the grading limits of the project shall be performed to the lines and grades indicated. Excavation and backfilling shall be performed in a manner and sequence that will always provide surface drainage. Grading shall be done as may be necessary to prevent surface water from flowing into trenches or other excavations; any water accumulating therein shall be removed by pumping or by other approved methods. Sheetin and shoring shall be erected as required for the protection of the work and for the safety of personnel.

1.2. RELATED WORK

A. Section 02070 - Erosion and Sedimentation Control

B. Section 02240 - Dewatering

C. Section 02250 - Sheetin and Bracing

1.3. MANHOLE EXCAVATION

Excavation for manholes and similar appurtenances shall extend a sufficient distance from walls and footings to allow for placing and removal of forms, installation of services and for inspection. An over depth excavation below such appurtenances, which has not been directed by the Owner, will be considered unauthorized and shall be refilled with sand, gravel, or concrete, as directed, at no additional cost to the Owner.

1.4. PIPE LINES

The width of the trench 18-inches above the top of the pipe shall be wide as necessary for
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sheeting and bracing and the proper performance of the work.

1.5. REFERENCE STANDARDS

A. ASTM D 698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort


PART 2 PRODUCTS

2.1. BEDDING MATERIALS

Materials for pipe bedding shall be washed stone (No. 57 in accordance with the SCDOT Standard Specifications for Highway Construction).

2.2. BACKFILL MATERIAL

General backfill material for the lower portion of the trench above the bedding material and around manholes shall consist of fine, loose earth, free of large clods, stones, vegetable matter, debris, and/or other objectionable material. It shall have a moisture content suitable for compaction.

2.3. STABILIZATION STONE

Materials used for stabilization shall be equal to bedding materials, unless otherwise approved by the Owner.

2.4. SELECT BACKFILL

Select backfill material shall be well graded soil obtained from on site or off-site locations. Material shall be free from roots and vegetative matter, debris, stones larger than 1-1/2", and organic matter including soils OL, OH and PT as defined in the Unified Soil Classification System and referenced in ASTM D 2487-93.

PART 3 EXECUTION
3.1. TRENCH EXCAVATION

A. Trenches shall be excavated by an approved method to a depth to permit installation of pipe along the lines and grades shown on the Drawings.

B. Common excavation shall include all types of materials that do not fall into the category of rock excavation as defined in this section. Classification of excavation shall be confirmed by the Owner.

C. Where excavation is in rock, the rock shall be removed to a depth below grade of at least 6 inches. Before laying the pipe, the trench shall be refilled to grade with bedding material, firmly compacted to provide proper bedding for the pipe. Bell holes shall be excavated accurately to size.

D. If ground water is encountered in the bottom of the trench, material shall be excavated below subgrade sufficiently to allow a bed of suitable material to be placed in which to bed pipe. Depth of cut below subgrade shall be the minimum amount to accomplish the purpose and shall be as directed by the Owner.

3.2. ROCK EXCAVATION

A. The Contractor shall notify the Owner immediately if rock excavation is encountered. Rock excavation shall be material which, in the opinion of the Owner, cannot be removed by a John Deere 230, Caterpillar 522, Komatsu 220 or other similar trackhoe with a bucket equipped with rock teeth, or by means including the use of a pneumatic hammer, or use of explosives (blasting). Materials that can be removed by ripping shall not be considered rock excavation. Removal of “hard material” will not be considered rock excavation because of intermittent drilling and blasting that is performed merely to increase production.

B. Rock excavation in pipe trenches shall be removed to a width of 8-inches beyond the outside nominal diameter of the pipe, or a minimum width of 3 feet, which also includes 6-inches below the bottom of the pipe. Bell dimensions are not included in this measurement.

C. Rock excavation for manholes shall be removed 12” beyond the outside wall. Rock shall be excavated to 6-inches below the base of the manhole and backfilled to subgrade with crushed stone.

3.3. BLASTING

A. If conditions are such that blasting or any use of explosives is required, prior to blasting, the Contractor shall submit to the Owner satisfactory evidence of blasting and explosive insurance. Insurance shall be in the amounts of bodily injury and property damage specified...
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in the Contract Documents. Contractor shall provide to the satisfaction of the Owner, experience and capability of the Contractor's organization to safely handle and perform such operations.

B. The Contractor shall maintain the blasting insurance coverage for the duration of the blasting. The Owner shall be given five (5) calendar-days written notice of any changes to the policy, including cancellation.

C. Handling and storing of blasting materials shall be performed only by qualified persons skilled in such work. Adequate precautions shall be taken to prevent accidents, injury to persons, or damage to property. Qualifications of blasting operation personnel and safety precautions shall be in full compliance with all codes governing such operations, Local, State or Federal. Full responsibility for all blasting operations shall remain with the Contractor. The Contractor shall also be responsible for all damage resulting from blasting.

D. Where near building, transmission lines, telephone lines or other facilities, timber mats or other means of preventing damage from flying debris shall be used. Ample and suitable signals shall be given in proximity to the work before each blast, and flagmen shall be placed on all roads beyond the danger zone in every direction to warn traffic. Contractor shall be responsible for all damage resulting from blasting.

E. The Contractor shall maintain drilling and blasting log, in the permanent job file, of all blasting operations performed on the project. The format may vary, but the logs should contain all the information shown on the Typical Blasting Log at the end of this section.

F. If rock below the required grade is fractured due to blasting and the Owner's representative determines that the fractured rock is unfit for foundation, then the Contractor shall remove and replace the fractured rock with bedding stone. Cost of removal and replacement shall be completed at no additional cost to the Owner.

3.4. BEDDING

A. The bedding surface for all pipe shall be a firm foundation of uniform density throughout the entire length of the pipe. If soft, unstable or high organic materials are encountered in the trench bottom, it shall be removed and replaced with stabilization stone as directed by the Owner.

B. Bell holes and depressions for joints shall be shaped in order that the pipe or conduit rest on the prepared bottom and is supported for its full length. Bell holes and depressions shall be only of such length, depth and width as required for completing the pipe connection. Blocking under pipe or conduit will not be allowed.

C. Manholes shall have a minimum bedding of 4 inches of compacted crushed aggregate bedding material placed on a stable subgrade to prevent settlement and misalignment.
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3.5. BRACING AND SHEETING

The side of all trenches and excavations shall be adequately braced and sheeted to protect personnel, structures and property from slides, cave-ins, or settlement and to maintain the work clear of all obstructions. Bracing, shoring and sheeting shall comply with all applicable safety regulations governing the work. Full responsibility for the design, type, and strength of shoring, sheeting and bracing shall rest with the Contractor.

3.6. DEWATERING

The Contractor shall do all pumping necessary for dewatering trenches and to provide proper work conditions for installation of pipe and appurtenances. Pipe shall be installed on dry, stable trench bottoms.

3.7. TRENCH EARTH DAMS

Earth dams, consisting of a minimum ten (10) foot trench length of select compacted backfill shall be used to replace the angular bedding and shall be installed as directed by the Owner in wet areas to prevent groundwater movement within the bedding material.

3.8. BACKFILL

A. Immediately after the pipe has been laid the trench shall be backfilled around the barrel of the pipe with the required bedding or backfill material. Backfill materials shall be deposited in layers not to exceed 6-inches in thickness tamped or rammed around the pipe with approved hand or power driven tools until enough material has been placed and compacted to provide a cover of not less than 18-inches over the top of the pipe. Care shall be exercised to avoid any wedging action or eccentric action upon or against any pipe or structure and to avoid any disturbance or damage to the work.

B. No rock or cobbles shall be used in the backfill for at least 18 inches above the top of the pipe and no stone larger than 6-inches in its greatest dimension shall be used in any backfill placed above the pipe.

C. Along the pipe lines in areas not subject to superimposed loads, trench backfill may be placed from the level 18-inches above the top of the pipe upward in 12-inch layers and compacted lightly by rolling with wheeled equipment or other means. Care shall be taken to prevent damage to the pipe. Such backfill may be coarser than specified above, but shall be free of roots, brush, trash, other perishable matter and organic material, and no stone larger than 6 inches in any dimension. In open acreage areas, backfill shall be neatly rounded and dressed over with sufficient height to allow for settlement to existing surface. The overfill shall not impede existing surface drainage. In built-up areas, the top of backfill shall be maintained to the original surface.
D. In roads and road right-of-way, parking lots, across sidewalks and driveways and at other places subject to vehicular traffic or other superimposed loads, trench backfill material as specified above shall be compacted in 6-inch layers for the full depth of the trench and consolidated in such a manner to provide an unyielding foundation for vehicular traffic. Unless otherwise shown on the plans or required by governing authorities, the compaction density shall be equal to the density of the original adjacent material. However, the minimum compaction density shall be 95% of maximum density as specified by ASTM-D-698 (Standard Proctor) Method A, at optimum moisture content. Wet or dry backfill as necessary. In all other areas, outside of the right-of-way and not subject to vehicle loads compaction shall meet a minimum density of 90% standard proctor, method A.

E. In all paved areas, the Contractor shall provide crushed stone for the top 4" of the trench backfill as a temporary patch. The crushed stone shall be maintained flush with existing pavement until the temporary patch is removed and replaced with the required base course. The Contractor shall be responsible for maintaining the pavement cut in a safe condition for pedestrian and vehicular traffic.

F. Backfill adjacent to manholes shall be placed and compacted uniformly in such a manner as to prevent wedging action or eccentric loading upon or against the structure. Slopes bounding or within the areas to be backfilled shall be stepped or serrated to prevent sliding of the fill. During backfilling operations, equipment that will overload the structure in passing over and compacting these fills shall not be used.

H. Any deficiency in the quantity or quality of material for backfilling the trenches, or for filling depressions caused by settlement, shall be supplied by the Contractor at his expense from an approved borrow site or the Contractor may use crusher run stone at his option without additional cost to the Owner.

I. In paved areas or areas subject to vehicular traffic where the Owner determines soil conditions adjacent to the trench prohibit adequate compaction of soil backfill, crusher run stone shall be required for backfill. The Contractor shall be paid for the backfill material at the unit price bid for crusher run stone.

3.9 TESTING

Field and laboratory tests will be performed as necessary by a Soils Engineer to ensure compliance of the Contractor’s work and materials with the drawings and these specifications. Initial tests will be paid for by the Owner. Should the Contractor’s work or materials used fail to meet the specified requirements, the unacceptable areas will be reworked and unacceptable materials replaced with specified materials at the expense of the Contractor. Subsequent tests will be made to ensure compliance of replaced materials and reworked areas. In any case, the Owner shall select the Soils Engineer. Owner shall back charge the Contractor for all retests.
PART 1 GENERAL

1.1. SUMMARY

Work includes the removal and abandonment of utility piping and related structures.

1.2. REFERENCE STANDARDS

ASTM D 698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1. REMOVAL

Completely remove and dispose of pipe and appurtenances, and structures to full depth as shown on the plans. Trench widths shall be limited to widths as specified for new pipeline installation. Voids resulting from removed structures and piping shall be filled with acceptable fill material and trench shall be back-filled and compacted.

3.2. ABANDONMENT

A. Remove the upper portion of structures to a depth of at least 1 foot below subgrade. The bottom of structures shall be broken or perforated to prevent the entrapment of water.

B. Seal all conduits connecting to structures or ends of conduit to be abandoned with a wall of concrete not less than 6 inches thick or an 8-inch wall of brick and mortar.
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C. Fill structural voids with flowable fill to one-foot above the crown of the pipe and fill the remaining structure with compacted backfill.

3.3. SALVAGED PARTS

Grates, frames, covers, and other steel/metal components of removed or abandoned structures may be salvaged by the Contractor.

END OF SECTION 02226
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SECTION 02240

DEWATERING

PART 1 GENERAL

1.1. SUMMARY

A. Work consists of providing, and maintaining dewatering facilities including well points, sump pumps and underdrains necessary to make excavations and construction areas free from water.

B. Related Sections

1. Section 02221 - Trench Excavation and Backfill

2. Section 02250 - Sheeting and Bracing

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1. GENERAL

A. Provide and maintain adequate pumping, bailing and drainage facilities for removal and disposal of water from trenches or other excavations. Provide pumping and drainage for bulk-headed excavations and operate the same until bulkheads have been removed or construction is completed if bulkheads are to be left in place. Where work is in ground containing free water, provide, install and maintain suitable drainage facilities such as well points connected to manifolds and reliable pumping equipment and so operate them to insure proper working conditions. In impervious materials, construct suitable drains, underdrains, and sumps and provide adequate pumping facilities to maintain excavation in a dry condition.

B. Take measures to protect pipe or structures from hydrostatic uplift. Connect drainage or discharge lines to nearby watercourses wherever possible. In any event, all pumping and
drainage shall be done without damage to construction underway or in place or to other property. The Contractor shall ascertain the availability of adequate drainage for dewatering operations.

C. Earth dams, consisting of a minimum ten-foot trench length of select compacted backfill to replace the angular bedding, shall be installed as directed by the Owner in wet areas to prevent groundwater movement in bedding material.

END OF SECTION 02240
PART 1 GENERAL

1.1. SUMMARY

A. Work consists of providing and maintaining trench boxes, bracing, shoring and any supports required to stabilize excavations in order to proceed with the work.

B. Related Sections

1. Section 02221-Trench Excavation and Backfill
2. Section 02240 - Dewatering

1.2. SITE CONDITIONS

Contractor shall be fully responsible for the protection of his crew and equipment, and to assure compliance with all local, state, and federal regulations. It will not be the Owner's responsibility to notify the Contractor of insufficient or improper supports.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1. INSTALLATION

Sheeting and bracing shall remain in place to allow for inspection of the work.

3.2. REMOVAL
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A. In removing sheeting and bracing after the construction has been completed, take special care to prevent any collapse of the excavation and injury to the completed work or adjacent property.

B. Remove sheeting as the backfilling progresses. Take special care to fill and compact voids created by removal of bracing and sheeting.

END OF SECTION 02250
SECTION 02317

ROCK EXCAVATION

PART 1 GENERAL

1.1. SUMMARY

A. The Contractor shall notify the Owner immediately if rock is encountered. Work consists of drilling, blasting and removal of rock material for excavation, grading and trenching work.

B. Related Sections

1. Section 02221 - Trench Excavation and Backfill

1.2. DEFINITIONS

“Rock excavation” (rock) shall be material which, in the opinion of the Owner, cannot be removed or ripped by a John Deere 230, Caterpillar 522, Komatsu 220 or other similar trackhoe with a bucket equipped with rock teeth. Materials that can be removed by ripping shall not be classified as rock. Rock excavation shall include all material that must be removed by means of drilling and blasting or with a pneumatic hammer. Rock shall also occupy a minimum original volume of at least one-half cubic yard or more. Boulder removal of ½ cubic yard or less shall not be classified as rock. Removal of hard material that can be ripped will not be classified as rock excavation even if intermittent drilling and blasting is performed merely to increase production.

1.3. SUBMITTALS

A. Submit one copy of blasting insurance to Owner prior to blasting.

B. Daily Log of operations

PART 2 PRODUCTS

NOT USED
Byrdland Drive / Airport Road Sewer Improvements

PART 3 EXECUTION

3.1. PREPARATION

A. Notify Owner upon encountering rock and before blasting operations begins. Contractor shall obtain all permits and contact all local agencies required for the work.

B. The Contractor shall provide information on experience and qualifications to Owner when requested.

C. The Contractor shall maintain the blasting insurance coverage for the duration of the blasting. The Owner shall be given 5-days written notice of cancellation of the blasting insurance.

D. Only qualified persons skilled in such work shall perform handling and storing of blasting materials. Adequate precautions shall be taken to prevent accidents, injury to persons, or damage to property. Qualifications of blasting operation personnel and safety precautions shall be in full compliance with all codes governing such operations, Local, State or Federal. Full responsibility for all blasting operations shall remain with the Contractor.

E. The Contractor shall maintain permanent drilling and blasting log of all blasting operations performed on the project. The format may vary and the logs may follow a standard format used by the Contractor; however, all logs shall contain the minimum information shown below:

1. Name of Contractor and Superintendent performing the Work.
2. Date and Time of blast.
3. Weather conditions
4. Sketch or detailed description of the drill pattern including pertinent dimensions of the drill hole depth, blast area, and location by station.
5. Materials used in creating the blast charge; strength - weight, volume and type of blasting agent or compound used.
6. Method used to control debris.
7. One set of photographs showing a typical pre-and-post blast condition for each day that blasting work is being completed with the station location marked on each photograph.
8. Comments pertaining to the blast noting any unforeseen circumstance, damage occurring outside of the blast area, as well as any complaints addressed.

3.2. REMOVAL LIMITS

A. Rock excavation in pipe trenches shall be removed to a width of 8-inches beyond each side of the pipe outside diameter and 6-inches below the outside bottom of the pipe.
B. Rock excavation for manholes shall be removed 12" beyond the outside wall. Rock shall be excavated to 6-inches below the base of the manhole and backfilled to subgrade with crushed stone.

3.3. BLASTING

A. Maintain adequate means for preventing damage from flying debris. Flagmen and signals shall be used in every direction to warn traffic. Warn all persons in vicinity prior to blasting. Where in close proximity to building, transmission lines, telephone lines or other facilities, timber mats or other means of preventing damage from flying debris shall be used. Ample and suitable signals shall be given in proximity to the work before each blast, and flagmen shall be placed on all roads beyond the danger zone in every direction to warn traffic. Contractor shall be responsible for all damage resulting from blasting.

B. No blasting will be performed adjacent to existing buildings or structures. Remove all rock at such locations by use of non-blasting methods.

C. Conduct all operations involving explosives with all possible care to avoid injury to persons and property. Blast with only such quantities and strengths of explosives and in such manner as will break the rock approximately to the intended lines and grades and yet will leave the rock not to be excavated in an unbroken condition. Take care to avoid excessive cracking of the rock upon or against which any structure will be built, and to prevent injury to existing pipes or other structures and property above and below ground.

D. If rock below the required grade is shattered due to blasting and the Owner's representative determines that the shattered rock is unfit for foundations, remove shattered rock and replace with stabilization stone. Cost of removal of shattered rock and replacement with stabilization stone shall be borne by the Contractor.

E. Keep explosives on the site only in such quantities as may be needed for the work under way and only during such time as they are being used. Notify the Owner in advance of any intention to store and use explosives. Store explosives in a secure manner and separate from all tools. Safely store caps or detonators from the explosives in accordance with federal, state and local permit regulations. When the need for explosives has ended, promptly remove from the premises all such materials remaining.

F. Contractor shall be responsible for all damages as the result of blasting.

3.4. EXCAVATION

A. Remove all loose rock and soil material from remaining rock surfaces for inspection. Leave surfaces of rock foundations sufficiently rough and clean to bond well with material placed on these surfaces. Benches shall be cut in accordance with Specification Section 02315 when fill is to be placed against existing rock slopes.
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B. All rock excavated shall be removed from site and disposed of.

END OF SECTION 02317
PART 1   GENERAL

1.1 SCOPE OF WORK

A. The Work under this section shall consist of furnishing all labor, materials, tools, equipment and services for maintaining the sanitary sewer flow within the Work area and pumping the wastewater in the gravity sewer line around the Work area when required. The wastewater pumping shall be completed in a manner that does not cause backup or surcharge of the existing flow into the line upstream of the Work area and the pump system established to maintain the flow, regardless of the flow conditions encountered.

B. The Contractor shall be responsible for analyzing the flow in the sewer line and preparing a pump system that will be capable for handling all of the flow rates that could be expected during the period of time that the sewer line segment will be under construction and not capable of conducting normal gravity flow.

C. The Contractor shall prepare a bypass pumping plan and submit that plan for review and acceptance by the Owner.

1.2 SUBMITTALS

A. Bypass pumping plan shall be prepared by the Contractor and submitted in accordance with Section 01330. The bypass pumping plan (Plan) shall be submitted in a bound booklet or compiled into a single electronic document, such as a PDF file, and shall meet the following minimum requirements and the acceptance of the Owner:

1. Schedule of Operation – a narrative of the proposed operating schedule shall be included in the Plan. The narrative shall describe the area required for the pump system, the hours of operation and a general description of the equipment and Contractor personnel that will be required to operate the pump system.

   a. The Plan shall accommodate all existing flows plus additional flows that could result from periods of heavy rains.

   b. The Plan shall not allow for interruption of normal service to the Owner's customers unless otherwise accepted by the Owner. Any notification of service interruption to the customers that contribute flow to the line shall be identified in the Plan and completed by the Contractor before the initiation of the Plan or service interruption.
2. Pump locations and all support equipment shall be submitted on a sketch plan map. The base map can be a plan view from a construction drawing issued by the Owner, a city street map or other suitable map that will illustrate to a drawing scale the complete planned location of all equipment required of the bypass pump system. The sketch plan shall graphically show the actual gravity sewer line segment to be isolated and the bypass pumping system location from manhole to manhole around the isolated section. If a Plan is designed to be moved as the Work progresses along a construction route, then the sketch plan shall show a typical length of sewer that will be isolated with each bypass pump set-up.

3. A Safety Plan shall be included to indicate how the equipment will be isolated from access by anyone that is not employed by the Contractor. That plan shall include the all required barricade equipment to isolate the Work area and any traffic control plan that will be necessary to conduct vehicle and pedestrian traffic around the pump system for any bypass pumping system that will extend beyond the limits of an existing sanitary sewer easement.

4. Bypass pump sizes, capacity, pump curves, number of each size to be on site, and power requirements shall be included in the Plan. It is required that all equipment and calculations proposed in the Plan be reviewed by a Competent Person that has experience in completing such designs. The Competent Person can be a pump system vendor, subcontractor or Contractor employee, but a certifying statement shall be included in the Plan indicating that the plan has been reviewed, approved and signed by that Competent Person.

5. Calculations of static lift, friction losses, and flow velocity shall be included in the Plan.

6. Plan details shall include, but not be limited to:
   a. Number, size, material, location and method of installation of suction piping.
   b. Number, size, material, location and method of installation of discharge piping.
   c. Standby power generator size and location.
   d. Description of all ancillary equipment to be used, including any additional stand-by or back-up equipment should the primary equipment fail.
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7. A certified statement by the Contractor that he understands and accepts responsibility of the Plan and will execute the Plan as described, and include the following conditions:

   a. Modifications will be made to the Plan only after being examined and approved by the Competent Person that certified the original Plan that was accepted by the Owner.

   b. All Plan modifications will be accepted by the Owner before being implemented unless the Competent Person will remain onsite and direct operations while the bypass pumping operations are in progress;

   c. That the Contractor accepts all responsibility for the safe operation of the Plan and that the review and acceptance of the Plan by the Owner does not relieve the Contractor of any responsibility of completing the Plan as submitted or revised by the Contractor and approved by the Competent Person.

PART 2 MATERIALS

NOT USED

PART 3 EXECUTION

3.1 MAINTENANCE OF FLOW IN EXISTING SEWERS

   A. The Contractor is responsible for handling and accommodating all existing wastewater flows during the work, including a provision for handling the existing peak flow by pumping or gravity bypass.

   B. When plugging or blocking is used, a sewer plug shall be inserted into the pipe at a manhole upstream of the section being accessed. The plug shall be designed so that all or any portion of the flow can be released. The wastewater flow may be plugged and contained within the capacity of the existing upstream collection system. However, this shall only be done when it has been determined by the Contractor and accepted by the Owner that the system can accommodate the surcharge without any adverse impacts.

   C. When pumping is used, the Contractor shall use all necessary pumps, conduits and other equipment identified in the Plan to divert the flow around the sewer line section being inspected or repaired.

   D. The Contractor shall follow all provisions of the Plan or any modifications made and approved by the Competent Person.
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E. The Contractor will be responsible for furnishing the necessary labor and supervision to set-up and operating the pumping and bypass system. The Contractor shall follow all requirements of the Plan at all times.

F. In sections of line to be inspected via CCTV, the flow shall be reduced to levels below 25 percent of the pipe diameter.

G. If, at any time during construction, effluent from the existing sewer is not fully contained by the bypass system, gravity service will be restored and work shall be suspended until the problem is resolved to the satisfaction of the Competent Person and acceptance of the Owner. Sanitary sewer system overflows will not be tolerated. The Contractor shall immediately notify the Owner should an overflow or spill occur. The following shall not be allowed:

1. No flow shall be allowed to back up into any homes or buildings.

2. No flow shall exit any manhole, clean-out, or any other gravity sewer access.

3. No flow shall be discharged into any excavation.

4. No interruption of service to the users upstream of the repair area shall occur and all users of the gravity sewer system under construction shall be able to use all of their water and sewer facilities without changing their normal use patterns, unless previously accepted by the Owner.

5. The Contractor is responsible for cleaning up solids and disinfection of areas affected by sewage spills or overflows at the Contractor’s expense with no additional cost to the Owner.

6. Any property damage (Damage) shall also be returned to a condition equal to or better than that before the Damage occurred. Final acceptance of the repaired area will be subject to acceptance by the Owner. All costs associated with the Damage will be paid for by the Contractor including all legal cost associated with representation required of the Owner by claims made against the Owner as a result of the Damage.

7. All fines imposed on the Owner and associated with overflows caused by the Contractor’s Work shall be paid by the Contractor.

END OF SECTION 02510
PART 1  GENERAL

1.1.  SCOPE:

Work under this Section consists of furnishing all materials, labor, equipment and services required for removal and replacement of pavement.

1.2.  RELATED WORK:

Section 02221 - Trench Excavation, Bedding and Backfill

1.3.  TRAFFIC CONTROL

A. The South Carolina Department of Transportation Standard Specification for Highway Construction, latest edition, shall form a part of these specifications to the extent indicated by the references thereto.

B. All work on South Carolina State Highways shall conform to SCDOT requirements as well as the requirements specified herein. The Contractor shall familiarize himself with all requirements of the SCDOT. The Owner will furnish copies of State Highway Encroachment Permits to the Contractor. The Contractor shall perform all work in accordance with all requirements and stipulations contained therein.

C. All work completed on Greenville City Streets shall conform to the requirements of the City of Greenville Design and Specifications Manual (DSM) and the General Encroachment permit obtained by the Owner for this Work.

D. Traffic shall be maintained on all roads and streets during pipeline construction in accordance with the Manual on Uniform Traffic Control Devices, latest edition.

1.4.  CONDITIONS FOR REMOVAL AND REPAIR

A. Where drives, patios or pavement on private property must be cut for the execution of the work, the Contractor shall replace pavement with similar materials or as approved by the property owner. Entire disturbed areas shall be repaired to as good or better condition than existed prior to construction.
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B. Copies of load tickets shall be submitted to the Owner on a daily basis when paving work is performed.

PART 2 PRODUCTS

2.1. SURFACE COURSE

The surface course shall be "Hot Laid Asphaltic Concrete Surface Course", Type 2, in accordance with Section 403 (omitting measurement and payment paragraphs 403.5 and 403.6) of the SCDOT Specifications.

2.2. STABILIZED AGGREGATE BASE COURSE

The aggregate base course shall meet all requirements of Section 305 (omitting measurement and payment paragraphs 305.5 and 305.6) of the SCDOT specifications. Rolling shall meet requirements of Section 305.4.3, and the surface shall be rolled three times with a steel roller. The finished surface shall be protected until hard.

2.3. CONCRETE

Concrete shall be 3,000 PSI minimum 28-day compressive strength air-entrained ready-mix batched in accordance with SCDOT SC-M-501.

PART 3 EXECUTION

3.1. GENERAL:

Asphalt pavement materials specified shall be installed in accordance with the requirements of Section 401 of SCDOT Specifications. Concrete materials shall be installed in accordance with the SCDOT Specification Section 720.

3.2. SUBGRADE PREPARATION

Before construction of the base course, the subgrade shall be prepared as required. Subgrade shall conform to the lines, grades and cross sections indicated on the Drawings or encroachment permits, and fills shall be compacted as specified in Section 02221.

3.3. CUTTING AND REPLACING PAVEMENT
A. Where pavement is to be cut for installation of pipe, the Contractor shall saw cut pavement neatly in advance of trenching. Pavement shall be saw cut to a straight edge 12 inches wider than excavated area on each side, with the face of the cut being vertical. Ragged and irregular edges shall be re-cut.

B. Pavement shall be replaced with base course. Base courses shall be placed to the thickness specified or shown on the Drawings or Encroachment Permit details.

C. Contractor shall properly maintain the pavement cut until the patch is made and shall promptly fill ruts and depressions.

D. Entire area to be patched (including edges of existing pavements) shall be primed with an asphalt prime coat before placing new pavement. Material and application shall be as specified in paragraph 305.4.6 of the SCDOT Standard Specifications.

E. Pavement patch shall be made within the same week the trench is cut unless other procedures are presented to and approved by the Owner. If inclement weather delays pavement replacement, Contractor shall not cut additional pavement until he has notified Owner and received specific permission and instructions. Contractor shall be responsible for repairs of pavement damaged outside of specified trench patch.

F. Pavement shall be replaced with hot laid asphaltic concrete, or Portland cement concrete, all conforming to specifications of State Highway Department of each type.

G. For asphalt pavement or bituminous surfacing, entire areas to be resurfaced (including edges of existing pavement) shall be primed with an acceptable asphalt prime coat just prior to placing new pavement.

H. For concrete pavement resurfacing, the entire area to be repaired shall be dampened prior to the placement of the concrete to limit the moisture extraction by the base material.

I. All Work on State Highways shall conform to State Highway requirements as well as the above. It shall be the responsibility of the Contractor to familiarize himself with all requirements of Highway Encroachment Permits and shall conform to all requirements and stipulations therein.

3.4. SURFACE COURSE

A. Asphalt surface course shall be as specified and shall be applied at the minimum rate of 110 pounds per square yard per inch of thickness.

B. Where the trench patch crosses a SCDOT roadway, the roadway shall be resurfaced for a distance of 50 feet on each side of the trench patch. The limit of surface course shall be feathered into the existing pavement.

3.5. CONCRETE PAVEMENT AND CURB AND GUTTER:
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The replacement of concrete pavements, and concrete curb and gutters shall meet all requirements of Section 720 of the SCDOT specifications.

3.6. CUTTING AND REPLACING SIDEWALK.

A. Where sidewalk is cut for installation of pipe or other utilities, Contractor shall cut it neatly in advance of trench and replace as described below or as shown on the plans. Where installation is along the line of sidewalk, sidewalk may be removed, with Owner’s approval and replaced in kind, at no additional expense to the Owner.

1. Sidewalk cutting shall be as described for pavement cutting above.

2. Trench Backfill under sidewalk shall be as describe in Subgrade Preparation.

3. Base for sidewalk shall be minimum 4-inches compacted crusher run granite stone material.

4. Pavement for sidewalk shall match existing walk in material and finish with a minimum 3-inches thick hot plant mix asphalt or minimum 4-inches thick concrete, to match existing sidewalk material.

END OF SECTION 02575
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SECTION 02730

GRAVITY SANITARY SEWER SYSTEMS

PART 1   GENERAL

1.1. SCOPE OF WORK

Work in this section consists of the supplying the materials and installation of all gravity sanitary sewer lines including layout, identification of other utility crossings or conflicts, establishment and maintenance of required alignment and grade, cleaning, and testing as shown on the Drawings and specified herein.

1.2. RELATED SECTIONS AND REFERENCE

A. Section 01300 Submittals
B. Section 02100 Clearing and Grubbing
C. Section 02221 Trench Excavation, Bedding and Backfill
D. Section 02732 Polyvinyl Chloride (PVC) Gravity Sewer Pipe

1.3. OTHER REQUIREMENTS

A. All pipe elevations shown on the Drawings are invert elevations (i.e., the bottom inside of pipe), unless otherwise shown.
B. Cut sheets must be prepared giving the centerline cut at each 50-foot station and at manholes. The cut sheets will be review by the Owner and used as the basis for payment.

1.4. SUBMITTALS

A. Submit material certifications and product data for all pipe, couplings and fittings demonstrating conformance to specifications.
B. Submittals shall meet all requirements of Section 01300.

1.5. QUALITY ASSURANCE
A. Comply with all applicable standards contained herein and with the provisions of the following codes and standards except as otherwise shown or specified:

1. South Carolina Department of Health and Environmental Control: All applicable rules and regulations.

2. All codes, laws, ordinances and regulations of governmental authorities having jurisdiction over this work.

1.6. REFERENCE STANDARDS


G. AWWA C200 – Standard for Steel Water Pipe 6 Inch (150 mm) & Larger.

PART 2 PRODUCTS

2.1. PIPE

A. Unless specifically noted on the drawings, or field conditions necessitate the use of a different material or as cited in the Special Provisions, the Contractor may use SDR 35 PVC in compliance with these specifications.

B. Steel Pipe for aerial crossing and other locations shall be used where shown on the Plans. Pipe shall be high strength steel seamless or welded pipe manufactured in accordance to ANSI A53, Type S, Grade B plain end and beveled end. Steel pipe shall have a minimum yield strength of 35,000 psi. All casing pipe shall be furnished in 20-foot lengths and all joints welded in accordance with AWWA C206.
1. Length and diameter shall be as shown on the Drawings.

2. Interior and exterior coating shall be coal tar epoxy, minimum 16 mils thick, Koppers 300M or equal. Sandblast to commercial standard SSPC SP-6 prior to coating. Apply coal tar epoxy to manufacturer’s recommendations.

2.2. COUPLINGS:

A. Pipes cannot change material between manholes unless approved by the Owner and only for point repairs and lateral connections.

B. Couplings shall be used to join pipe of different materials. The transition must be of a rigid type coupling designed specifically for transitioning between two types of materials in conformance with ASTM C1173, D5926 and ASTM A240/A240M such as 5000 Series Strong Back RC Coupling by Fernco, or approved equal.

C. Flexible couplings and adapter are not permitted.

2.3. CAST-IN-PLACE CONCRETE PIERS AND PROTECTION WORK

A. Foundation for piers shall be adequate to support intended load.

B. Concrete for piers, protection and other uses shall be composed of Portland cement, sand, coarse aggregate, water and such admixtures as may be allowed, in such proportions as to provide a minimum 28-day compressive strength of 3,000 psi. Fresh concrete shall have an entrained air content of 4 to 6 percent air by volume. Source of concrete and mix design shall be approved by Owner prior to use.

2.4. PRECAST CONCRETE MANHOLES

A. Sections shall conform to ASTM C478. Concrete shall have a minimum 28-day compressive strength of 4,000 psi. Minimum wall thickness shall be 5-inches.

B. Where watertight joints are not a primary concern, joints in riser sections shall be set with Type B Butyl Rubber, minimum 1-inch in diameter or thickness complying with ASTM C990 and grouted inside and out with non-shrink grout in conformance with this section.

C. Watertight joints between sections shall be waterproofed with one of the following methods:


2. Precast with a waterproofing admixture IPANEX by IPA Systems in accordance with the manufacturers dosing and mix instructions.
D. Inverts shall be U-shaped channel with a minimum height of 0.8 of the diameter and be a smooth continuation of the pipe.

1. The benches shall be constructed with a slope of $\frac{1}{2}$-inch per foot to the channel.

2. The channel and invert may be precast or constructed in the field. Bench and channel shall be formed with concrete with a minimum 28-day compression strength of 3,000 psi and troweled to a smooth finish.

3. Where sewer changes directions, the manhole channel shall be constructed with a smooth curve with a radius as large as the diameter of the manhole will allow.

2.5. MANHOLE FRAMES AND COVERS

A. Manhole frames and covers shall be gray iron, Class 35B, conforming to ASTM A48. Manhole frames and covers shall be for heavy duty use with standard weights of 160 pounds min. for each frame, and 130 pounds min. for each cover. Castings shall be free from blow holes, porosity, hard spots, shrinkage distortion, or other defects. Casting shall be well cleaned and coated with asphalt paint which shall result in smooth coating, tough and tenacious when cold, not tacky and not brittle. Bearing surfaces between frame and cover or grate shall be machined to prevent rocking and rattling. Provide EJIW product number 41384169, U.S. Foundries 8015157 or approved equal.

1. Watertight covers where specified shall be EJIW product number V-2384, US Foundry Product number 8015480, or approved equal.

2.6. MANHOLE STEPS

A. Steps shall conform to ASTM C-478 and OSHA standards.

B. Copolymer Polypropylene Plastic reinforced with a 1/2" diameter grade 60 steel bar.

2.7. FOUNDATION MATERIAL

Materials placed for structure foundations shall be washed stone (No. 57 stone per SCDOT Standard Specifications for Highway Construction).

2.8. FLEXIBLE PIPE CONNECTORS

Flexible connectors shall conform to ASTM C923, ASTM A666 and ASTM 240. All clamps and metal accessories shall be stainless steel. Provide Kor-N-Seal as manufactured by NPC Inc. or
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approved equal.

2.9. NON-SHRINK GROUT

A. Non-shrink grout shall conform with ASTM C1107, C827 and CRD C621, such as 1107 Advantage Grout by Dayton Superior, or approved equal.

B. Water used in mixing mortar shall be clean and free of deleterious amounts of acid, oil, alkalis or organic materials. Mortar shall not be allowed to stand for longer than one hour after water is added.

PART 3 EXECUTION

3.1. GENERAL

A. Under no circumstances shall pipe be laid in water, on rock, or when trench conditions or weather is unsuitable for such work. Each pipe shall be carefully examined before being installed and any defective or damaged pipe shall be removed from the site. Proper facilities shall be provided for lowering sections of pipe into trenches. The pipe shall have uniform bearing upon the pipe bed for the full length of its barrel. Raising the pipe off the subgrade (bridging) to obtain the proper elevation will not be allowed. Pipe shall be laid on a uniform slope between pipe invert elevations. Each section shall be securely attached to the adjoining sections by the method approved in accordance with the type of joints used.

B. Any pipe which is not in true alignment or shows undue settlement after laying, or is damaged, shall be taken up and re-laid without extra compensation.

C. Pipe shall be hoisted from the trench side to the trench by means of wide belt slings. Chains, cables, tongs, or other equipment likely to cause damage to the pipe coatings will not be permitted, nor will dragging or skidding of the pipe. The Contractor shall allow inspection of the pipe while it is suspended from the slings. Any damage shall be repaired before the pipe is lowered into the trench.

D. At all times during storage and construction of the pipeline, the Contractor shall use every precaution to prevent damage to protective coating on the pipe. Pipe shall be stored along the trench side, suitably supported off the ground to avoid damage to the coating. No metal tools or heavy objects shall be permitted to come into contact unnecessarily with the finished coating. Any damage to the pipe or the protective coating from any cause before final acceptance by the Owner shall be repaired, as directed by the Owner by and at the expense of the Contractor.

E. During times when pipe laying is not in progress, the open ends of pipe shall be closed and no trench water shall be permitted to enter the pipe.
3.2. PIPE INSTALLATION

A. Piping shall be installed in accordance with best practice, manufacturer's instructions and Owner's direction. Where pipeline crosses under or is installed on highway or railroad right-of-way, work shall be done in accordance with such requirements specified by the right-of-way agreement.

B. Pipelines shall be installed in locations as shown on the plans, and to alignment and grade shown thereon. Prior to beginning work on any section of sewer line, Contractor shall consult with Owner and determine that all rights-of-way and necessary permits have been obtained. Contractor shall familiarize himself with all conditions and/or limitations of such rights-of-way and any encroachment beyond these limits shall be contractor's liability.

C. Pipe shall be laid with bell ends facing in the direction of pipe-laying, beginning at the bottom of the slope and proceed upward with the bell ends of the new pipe upgrade.

D. Pipe joints shall be made up in strict accordance with the manufacturer's directions.

E. Sewer lines in relation to water lines must conform to Section 38.3 of the "Recommended Standards for Wastewater Facilities" 1990 Edition as a minimum.

1. Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten-foot separation, the Owner shall be contacted to request a deviation. Such deviation may allow installation of the sewer closer to a water main, if the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches (46 cm) above the top of the sewer.

2. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main.

3. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be constructed equal to water pipe. This section of sewer line shall be air pressure tested based on the following calculations:

   a. Testing Pressure = (Upstream Manhole Depth (ft) + (Upstream Invert (ft) - Downstream Invert (ft))) * 0.43 (psi/ft)
   b. The testing time shall be as specified in Table 1 below. The contractor shall take care in using a pneumatic plug that has a maximum back pressure greater than the testing pressure calculated above. The testing pressure shall not be less than 4 psi and shall not exceed 17 psi. In lieu of the above air pressure test, the contractor can choose to
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hydrostatic pressure test the line to 150 psi. If the contractor chooses to perform a hydrostatic pressure test, he shall construct the sewer in a manner that will facilitate said test.

3.3. INSTALLATION OF PIPE REPAIR COUPLINGS (POINT REPAIR)

A. All couplings shall be installed in accordance with the manufactures instructions and requirements.

B. Existing sewer pipe shall be excavated with care so as not to damage the pipe or existing fittings. Hand digging around the existing pipe may be required to provide a clear opening for repairing or removing and reinstalling new pipe as specified herein.

C. All repair couplings shall be examined before installation and none shall be installed which are found to be defective.

D. Any damage to existing pipe or fittings other than pipe or fittings specifically intended to be removed, replaced or abandoned as part of this Contract shall be repaired by the Contractor as directed by the Owner. If the Contractor damages existing pipe or fittings through error or for his own convenience, then he shall repair all damages to the pipe and at his own expense. Flexible sleeve type couplings shall be installed for connecting new replacement pipe and fittings to existing sewer pipe made of any pipe material.

E. Flexible sleeve type couplings shall be installed over smooth spigot or cut ends of pipe. If cutting pipe is required, the cutting shall be done by machine or tool specifically intended for cutting the type of pipe being worked on. Pipe cutting shall be at right angles to the axis of the pipe and shall be performed to leave a smooth cut.

F. Replacement of existing sewer pipe using flexible couplings shall consist of removing the damaged pipe to the length as specified on the Drawings for each point repair. Care shall be exercised so that on the existing pipe left-in-place, a clean, unbroken spigot end (or smooth cut end) and a clean, unbroken bell end (or smooth cut end) are available to connect the replacement pipe. The replacement pipe shall have a sleeve coupling slid onto the opposite end of the replacement pipe aligned with the existing spigot end. The sleeve coupling shall then be slid halfway back over the existing spigot and clamped securely into place. The new pipe shall be bedded and backfilled as specified. The new pipe shall be accurately cut to length so that the gap left is 1/2 inch or less.

3.4. MANHOLE INSTALLATION

A. Precast base sections shall be installed on a firm foundation, which has been prepared to prevent settlement and misalignment. Pipe openings shall be exactly aligned to that of pipe entering and leaving structure.
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B. Joint sealant shall be installed against clean, dry concrete surfaces to form seal between sections. Remove protective backing from sealant and fill annular space uniform to make a watertight seal between all precast sections.

1. All joint surfaces must be grouted inside and out with non-shrink grout and troweled to a smooth surface.

2. Where watertight joints are called for in the Drawings, joints shall be sealed with O-ring gaskets in conformance ASTM C443 and non-shrinking grout.

C. Frames and covers shall be properly set using butyl rubber joint material.

1. Up to 12-inches of grade rings can be used to adjust the height of the rim and cover to final grade. All grade rings must be set using butyl rubber and grouted inside and out in accordance with the details in Division 2000 of the City of Greenville DSM.

2. All grout surfaces shall be troweled to a smooth finish.

D. Lift holes shall be plugged with a rubber plug and grouted inside and out with non-shrink grout.

E. Fill in all chips or holes greater than 1/2" in depth with mortar to provide a final finish.

F. Steps shall be vertically aligned at the spacing indicated, but in no case more than 16 inches on center.

G. Pipe shall be placed in openings provided in the base section and properly aligned and set to grade.

1. The installed pipe shall have a smooth formed invert and all casting debris shall be removed prior to inserting the pipe into the base opening.

2. No tributary inlet, including service connections, nor drop manhole pipes shall discharge onto the surface of the bench.

3. For field-cored connections, no core hole shall be made within six inches of a manhole barrel section joint.

4. All connections must be completed with a flexible boot installed in accordance with the manufacturer's instructions.

H. For Concrete Collars. Pipe shall be firmly held in place, and the opening around the exterior of pipe and the base opening shall be filled with an expanding non-shrink grout rammed into place, to provide a water-tight connection.
I. Where visible leakage occurs through the structure walls, excavate and expose outside wall, and apply bituminous or cement waterproofing.

J. Where watertight manholes are indicated in the Drawings, and the exterior sealed in the field with coal tar epoxy the following surface preparation and application procedures shall be followed:

1. All surfaces must be clean and structurally sound, free of dirt, grease, oil, paint, etc.

2. Remove contamination with abrasive blasting, water blasting or wire brush.

3. Make sure that all dust is removed after abrasives.

4. Concrete shall be blasted or acid etched before coating. Remove acid with water before coating.

5. Coating shall be applied in accordance with manufacturer’s instructions.

3.5. PETERS AND CONCRETE PROTECTION WORK

A. Piers and concrete protection work shall be constructed where indicated on plans or directed by Owner. All piers shall be of reinforced concrete unless shown otherwise on plans or directed by Owner.

B. Concrete Piers: Foundation for piers shall be adequate to support intended load and will be subject to Owner’s approval prior to pouring concrete.

C. Protection Concrete shall be provided in locations as shown on plans or directed by Owner.

D. All construction shall be complete and in accordance with the Drawings and the City of Greenville DSM.

3.6. SEWER LINE CLEANING

All foreign matter and dirt shall be cleaned from the inside of the pipe before installing and shall be kept clean during and after installation. All lines, upon completion or as directed shall be cleaned, inspected and tested.

3.7. INSPECTION AND TESTING

A. General. After completion of the work or any part thereof, but before its final acceptance, all parts of the job shall be tested by the Contractor unless otherwise noted to determine that it is constructed or installed in accordance with the Drawings and Specifications. Failure of any section to meet the requirements of the testing shall be repaired at the Contractor’s expense.
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and retested until conformance is achieved. The Contractor shall maintain the project for such time as is necessary to satisfy the Owner that all installations are correct. All final testing and inspections shall be performed in the presence of the Owner.

B. Air Testing. All new sewer lines including service lines shall be subjected to a low-pressure air test to determine the presence of damaged pipe or faulty installation. All testing shall be completed in conformance with the City of Greenville DSM and ASTM F1417. The Contractor will furnish all facilities and personnel for conducting the tests. The Contractor may desire to make an air test prior to backfilling for his own purposes. However, the required air test shall be made after backfilling has been completed and compacted and in the presence of the Owner. The test shall be performed as outlined below.

1. Low pressure testing shall be performed with a continuous monitoring gauge no less than 4 inches in diameter with minimum divisions of 0.10 psi and an accuracy of 0.04 psi ±. All air shall pass through a single, above ground control panel visible to the Owner.

2. Determine the test time for the section being tested using Table 1 located at the end of this specification section. Add time for service laterals connected to the line being tested.

3. Plug all openings in test section.

4. Pressurize the section to 4.0 psi and allow pressure to stabilize (maintain 4.0 psi for a minimum of 2 minutes). Do not over-pressurize the section. No one will be allowed in the manhole during testing.

5. At a reading of 3.5 psi, shut off pressure supply and start timing using a stop watch or other acceptable timing device. Measure the pressure drop for the period of time as computed in Table 1.

6. If the pressure drops 1.0 psi or more during the elapsed time, then the section has failed.

C. Alignment and grade between manholes may be tested by the Owner by flashing a light between manholes. A practically full circle of light shall be seen when viewed from the adjoining end of the line. Video camera or other technology may be used at the Owner's discretion.

1. If there is any settlement or loss of slope observed, the line shall be uncovered and repaired to the satisfaction of the Owner, at no additional cost.

2. If in the opinion of the Owner that the misalignment is excessive between manholes, the entire line shall be exhumed and re-laid.

D. Deflection of flexible gravity sewer pipe shall be tested by pulling a go/no-go gage through the pipe. Diometric deflection of the pipe shall not exceed 5% of the base inside diameter as stated in ASTM D3034 latest edition. The gage shall be drawn through the pipe from manhole to manhole. Any portion of pipe through which the gage passes freely shall be deemed to have passed the deflection test.
Byrdland Drive / Airport Road Sewer Improvements

E. Vacuum Testing will be performed by following these steps:

1. Each manhole shall be tested after assembly (preferably prior to backfilling) using an approved vacuum tester.

2. The vacuum test shall be made in accordance with ASTM C1244 and as follows:
   a. Plug all manhole entrances and exits other than the manhole top access using suitably sized pneumatic or mechanical pipeline plugs and follow all manufacturer’s recommendations and warnings for proper and safe installation of such plugs.

   b. Install the vacuum tester head assembly at the top access of manhole.

   c. Evacuate the air in the manhole to 10 in. Hg. (approximately negative 4.91 psig). Close vacuum inlet/outlet ball valve and shut off vacuum pump. The testing time shall be measured for the vacuum to drop from 10 in. Hg (4.91 psig) to 9 in. Hg. (negative 4.42 psig).

   d. Pipe is acceptable if the time for the vacuum reading to drop from 10 in. Hg to 9 in. Hg. meets or exceeds the time indicated below the manhole diameter being tested cited in the Table 2 below:

3. Visual Inspection. Manholes shall be inspected for visible leaks. Manholes showing signs of leakage will not be accepted.

4. If the manhole fails the initial test, necessary repairs shall be made with a suitable non-shrink grout while the vacuum is being drawn. Re-testing shall proceed until a satisfactory test is obtained.

5. Visual Inspection. Manholes shall be inspected for visible leaks. Manholes showing signs of leakage will not be accepted.

3.8. CLEAN UP

A. Upon completion of the construction work the Contractor shall immediately remove all construction equipment, excess materials, tools, debris, etc., from the site(s) and leave the same in a neat, orderly condition acceptable to the Owner. All project areas shall be graded to shed water to natural drainage areas. The areas shall be raked to a uniform surface free from rocks, clods of earth or other irregularities. All areas shall be left in a clean, neat condition.
Byrdland Drive / Airport Road Sewer Improvements

B. Final Clean-Up will meet approval of Owner and the private property owner where applicable, with all defects in trench settlement, pavement patches or other deficiencies being promptly corrected.
## TABLE 1

**MINIMUM TEST TIME REQUIRED FOR A 1.0 psig PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED**

ASTM F1417

<table>
<thead>
<tr>
<th>Pipe Diameter (in.)</th>
<th>Minimum Time (Min: Sec)</th>
<th>Length for Min. Time (ft)</th>
<th>Time for Longer Length (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3:46</td>
<td>597</td>
<td>0.380(L)</td>
</tr>
<tr>
<td>6</td>
<td>5:40</td>
<td>398</td>
<td>0.854(L)</td>
</tr>
<tr>
<td>8</td>
<td>7:34</td>
<td>298</td>
<td>1.520(L)</td>
</tr>
<tr>
<td>10</td>
<td>9:26</td>
<td>239</td>
<td>2.374(L)</td>
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<tr>
<td>12</td>
<td>11:20</td>
<td>199</td>
<td>3.418(L)</td>
</tr>
<tr>
<td>15</td>
<td>14:10</td>
<td>159</td>
<td>5.342(L)</td>
</tr>
<tr>
<td>18</td>
<td>17:00</td>
<td>133</td>
<td>7.692(L)</td>
</tr>
<tr>
<td>21</td>
<td>19:50</td>
<td>114</td>
<td>10.470(L)</td>
</tr>
<tr>
<td>24</td>
<td>22:40</td>
<td>99</td>
<td>13.674(L)</td>
</tr>
</tbody>
</table>
# TABLE 2

MINIMUM TEST TIMES FOR VARIOUS MANHOLE DIAMETERS

ASTM C1244

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Diameter (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>48</td>
</tr>
<tr>
<td>4 ft or less</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>18</td>
<td>45</td>
</tr>
<tr>
<td>20</td>
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<tr>
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<td>55</td>
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<tr>
<td>26</td>
<td>64</td>
</tr>
<tr>
<td>28</td>
<td>69</td>
</tr>
<tr>
<td>30</td>
<td>74</td>
</tr>
</tbody>
</table>

END OF SECTION 02730
Byrdland Drive / Airport Road Sewer Improvements

SECTION 02732

POLYVINYL CHLORIDE SEWER PIPE

PART 1 GENERAL

1.1. SCOPE

A. This section establishes the criteria for acceptance of Polyvinyl Chloride (PVC) pipe.

B. Related Work and References:

1. Section 02221 Trench Excavation, Bedding and Backfill

2. Section 02730 Gravity Sanitary Sewer Systems


C. DRAWINGS AND DATA. Drawings and data shall be submitted in accordance with the Section 01300. Drawings and data shall include, but not be limited to, the following:

1. Details of joints.

2. Gasket material.

3. Pipe length.

4. Certification in accordance with ASTM D3034, Section 11, ASTM F679, Section 10, or ASTM F794.

1.2. REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM):


3. ASTM D 3034 – Type PSM PVC Sewer Pipe and Fittings.


B. American National Standard Institute (ANSI) and American Water Works Association (AWWA):


1.3. QUALITY ASSURANCE

A. The PVC pipe shall be furnished by manufacturers who are fully experienced, reputable and qualified in the manufacture of the PVC pipe to be furnished. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with this Section.

B. Inspections of the pipe may be made by the Inspector or other representatives of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the requirements specified herein, even though sample pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the job at once.

1.4. DELIVERY, STORAGE AND HANDLING

A. Care shall be taken in shipping, handling and laying to avoid damaging the pipe and fittings. Extra care will be necessary during cold weather construction. Any pipe damaged in shipment shall be replaced as directed by the Inspector.
Byrdland Drive / Airport Road Sewer Improvements

B. Any pipe or fitting showing a crack or which has received a blow that may have caused an incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work.

C. While stored, pipe shall be adequately supported from below at not more than 3 ft intervals to prevent deformation. Pipe shall not be stacked higher than 6 ft. Pipe and fittings shall be stored in a manner which will keep them at ambient outdoor temperatures. Temporary shading as required to meet this requirement shall be provided. Simple covering of the pipe and fittings which allows temperature buildup when exposed to direct sunlight will not be permitted.

PART 2       PRODUCTS

2.1. PIPE

A. General. All PVC pipe shall meet or exceed the performance requirements of ASTM as indicated in the table in this section, unless otherwise specified on the Drawings. All PVC compounds shall have a cell classification of 12454 as defined in ASTM D1784.

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>ASTM (latest edition)</th>
<th>Other Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 to 12 inch</td>
<td>D3034</td>
<td>SDR 35, Min./Stiffness Factor 46</td>
</tr>
<tr>
<td>15 to 27 inch</td>
<td>D3034</td>
<td>SDR 26</td>
</tr>
</tbody>
</table>

B. Each length of pipe and each fitting shall be legibly and permanently marked with the name of the manufacturer (or trademark), nominal size, PVC classification, SDR designation (26 or 35, as appropriate) and “ASTM 3034”.

C. Integral bell and single rubber gasket joints shall conform to ASTM F477. Push-on and/or mechanical joints shall conform to ASTM D 3212. Gaskets shall conform to ASTM F477, synthetic rubber. Natural rubber will not be acceptable.

PART 3       EXECUTION

3.1. GENERAL

Flexible Conduit PVC Pipe shall be installed in accordance with ASTM D 2321-11.

3.2. JOINING METHODS

A. PVC sewer pipe and fittings shall be joined in accordance with the recommendations of the latest ASTM Standards and detailed instructions of the manufacturer.
B. All manhole connections shall be as shown on the Drawings or details and as specified in related sections. All work must be completed in accordance with the City of Greenville DSM.

END OF SECTION 02732
PART 1 GENERAL

1.1. SCOPE

A. Work in this section consist of the supply and installation of service connections from sanitary sewer collector mains to the right-of-way/sewer easement that serve each dwelling, commercial building and/or residential or industrial lot in the area unless otherwise designated by the Owner.

B. Related Work.

1. Section 02221 Trench Excavation, Bedding and Backfill
2. Section 02730 Gravity Sanitary Sewer System
3. Section 02732 Polyvinyl Chloride Sewer Pipe

C. Unless otherwise noted on the drawings, or instructed by the Owner, all service connections for vacant lots shall be extended to the property line and shall terminate on the property line at a point approximately ten (10) feet upgrade of the low property corner.

D. As required, the Contractor shall be responsible for locating existing service lines and coordinating reconnection of existing service laterals. Reconnection of existing services shall be performed after sanitary sewer collector lines have been completed, tested and accepted.

1.2. SUBMITTALS

A. Submit product data for all service pipe and fittings.

B. Submittals shall meet all requirements of Section 01300.
Byrdland Drive / Airport Road Sewer Improvements

C. Drawings showing the location of service connections properly referenced sewer line station numbers shall be prepared as the work progresses. No payment shall be made for a particular section until acceptable maps as described have been turned over to the Owner.

1.3. QUALITY ASSURANCE

A. Comply with all applicable standards contained herein and with the provisions of the following codes and standards except as otherwise shown or specified.

1. South Carolina Department of Health and Environmental Control: All applicable rules and regulations.

1.4. REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM):

1. ASTM D3034 – Type PSM PVC Sewer Pipe and Fittings.


PART 2 PRODUCTS

2.1. SERVICE PIPE

A. In-line wyes for service connections to mainline carrier pipe shall be either PVC or DIP. DIP shall be used when the main line pipe material is either vitrified clay pipe (VCP) or DIP.

B. PVC and fittings shall be SDR-35 pipe meeting all requirements of ASTM D3034, latest edition. In line wyes on ribbed PVC pipe shall have SDR 35 branches and meet all requirements of ASTM F949, latest edition.

2.2. COUPLINGS

5000 Series Strong Back RC Coupling by Fernco, or approved equal.

2.3. CLEANOUT FRAME AND COVER
Byrdland Drive / Airport Road Sewer Improvements

A. Gray cast iron that conforms to ASTM A48, H-20 traffic rated and be manufactured by East Jordan Iron Works (EJIW), Unit No. 1566, or approved equal.

B. See City of Greenville DSM, Division 2000 for additional dimensions and weight requirements.

PART 3 EXECUTION

3.1. GENERAL

A. Grades. The service shall be placed to a minimum grade of ¼-inch per foot and shall be left low enough to give basement service to the building to be served and placed low enough to give a minimum of 2'-0" cover in piping to the building unless otherwise designated by the Engineer.

B. Failure on the part of the Contractor to place the service to the grades specified shall make the Contractor liable for constructing a new lateral sewer at his cost that is parallel to the defective lateral sewer to a point where the appropriate grade can be met.

C. Wyes or Tees shall be placed on the sewer main line for connecting all services installed, saddles are not acceptable.

D. Service connection to manholes shall be installed with invert and benches to prevent solids deposition on the bench of the manhole.

3.2. SERVICE LATERAL REPLACEMENT

A. New service laterals shall be the same size as the existing lateral. No lateral replacement shall be performed on private property unless directed by the Engineer. Existing active laterals that are in compliance with Owner standards will be re-instated but not replaced.

B. The Contractor shall be responsible for protecting and locating existing utilities during installation and shall pay for repairing all damages to the utilities. Damages shall be repaired in accordance with the utility’s requirements.

C. New service laterals shall be installed at the same slope and piping layout as the existing laterals, but not at less than the minimum slope cited in this specification. Contractor shall supply and install all necessary fittings to make the connection to the main sewer.

D. Service connection cleanouts shall be located 1-foot from the right-of-way line or easement boundary complete with a cleanout frame and cover as illustrated in the City of Greenville DSM, Division 2000 details.
Byrdland Drive / Airport Road Sewer Improvements

E. Contractor shall provide bypass pumping as necessary during installation of the new service lateral.

3.3. INSPECTION AND TESTING

Service laterals shall be tested in accordance with Section 02730. For services being reconnected, Contractor shall test lateral prior to reconnection to existing service.

END OF SECTION 02733
PART 1 GENERAL

1.1. SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment and incidentals required to construct asphalt concrete pavements to the grades and cross-sections shown on the Drawings and as specified herein.

1.2. QUALITY ASSURANCE

A. Use only materials which are furnished by a bulk asphalt concrete producer regularly engaged in production of hot-mix, hot-laid asphalt concrete.

B. Comply with applicable requirements of South Carolina Department of Transportation (SCDOT) Standard Specifications for Highway Construction.

1.3. SUBMITTALS

A. Certificates: Provide certificates stating that materials supplied comply with Specifications. Certificates shall be signed by the asphalt producer and the Contractor.

B. Mix Design: Submit mix design for each course to the Owner for acceptance.

C. Traffic paint manufacturer’s application instructions and a description and other data relative to the Contractor’s application equipment and methods shall be submitted to the Owner for approval.

1.4. CONDITIONS

A. Weather Limitations

1. Apply bituminous prime and tack coats only when the ambient temperature in the shade has been at least 40 degrees F.
Byrdland Drive / Airport Road Sewer Improvements

2. Do not conduct paving operations when surface is wet, frozen or contains excess moisture which would prevent uniform distribution and required penetration.

3. Construct bituminous concrete courses only when atmospheric temperature in the shade is above 35 degrees F, when the underlying base is dry and when weather is not rainy.

4. Place base course when air temperature is above 35 degrees F and rising. No base course shall be placed on a frozen or muddy subgrade.

B. Grade Control: Establish and maintain the required lines and grades for each course during construction operations.

1.5. INSPECTION AND TESTING

A. Pavement and base testing will be performed by an independent testing laboratory selected and compensated by the Contractor.

B. The testing agency shall test in-place courses for compliance with specified compaction, thickness and surface smoothness requirements.

C. The testing agency shall take one 4-inch diameter core per 2,500 square yards of paved surface at locations selected by the Owner for density and thickness tests. Repair holes resulting from coring to match existing paving.

D. Compaction

1. Graded Aggregate Base: Minimum acceptable density shall be 95 percent of maximum dry density in accordance with ASTM D 1557, Method D. Conduct one test for each 2,500 square yards of in-place material, but in no case less than one daily for each layer. Test density of graded aggregate base per ASTM D 2167.

2. Bituminous Concrete: Compare density of in-place material against laboratory specimen of same mixture. Minimum acceptable density of in-place material shall be 94 percent of the calculated void less density based upon the effective specific gravity of the aggregate used. It is intended that acceptance density testing will be accomplished while the bituminous mixture is hot enough to permit further densification if such is shown to be necessary. If the density does not conform to the requirements stated herein above, the Contractor shall continue compaction effort until the required density is obtained.

E. Pavement Thickness: Inspect the cores of the base, intermediate and surface courses to determine the average thickness of the course. If the average thickness exceeds the allowable variation below, additional cores shall be made at the Contractor’s expense to determine the area of deficient thickness. The deficient area shall be corrected by overlay with the same type mix to the limits as directed by the Owner.
Byrdland Drive / Airport Road Sewer Improvements

1. Base Course: +1/2-inch.
2. Binder Course: + 1/4-inch.
3. Surface Course: + 1/4-inch.

F. Surface Smoothness: Test finished surface of each asphalt course for smoothness using a 10-foot straightedge. Intervals of tests shall be as directed by the Owner. Surfaces will not be acceptable if exceeding the following:

1. Base Course: 1/4-inch in 10 feet.
2. Binder Course: 1/4-inch in 10 feet.
3. Surface Course: 1/8-inch in 10 feet.

G. Contractor's Duties Relative to Testing

1. Notifying laboratory of conditions requiring testing.
2. Coordinating with and paying costs of laboratory for field testing.
3. Paying costs for additional testing performed beyond the scope of that required and for retesting where initial tests reveal non-conformance with specified requirements.
4. Paying the cost of overlays or pavement removal and replacement which does not comply with the specified testing limits.

PART 2  PRODUCTS

2.1. MATERIALS

A. Graded Aggregate Base Course: Graded aggregate base course shall be of uniform quality throughout and shall meet the requirements of the South Carolina Department of Transportation Standard Specifications for Highway Construction.

B. Binder Course: Binder course shall be of uniform quality throughout and shall conform to the requirements of Section 610 the South Carolina Department of Transportation Standard Specifications for Highway Construction.

C. Surface Course: Surface course shall be of uniform quality throughout and shall conform to the requirements of South Carolina Department of Transportation Standard Specifications for Highway Construction.
Byrdland Drive / Airport Road Sewer Improvements

D. Prime Coat: Prime coat shall conform to the requirements of South Carolina Department of Transportation Standard Specifications for Highway Construction. Use prime coat between graded aggregate base and asphalt where less than 5 total inches of asphalt are to be placed.

E. Tack coat shall conform to the requirements of South Carolina Department of Transportation Standard Specifications for Highway Construction. Use tack coat between binder and surface courses.

PART 3 EXECUTION

3.1. SURFACE PREPARATION

A. Graded Aggregate Base Course

1. Check subgrade for conformity with elevations and section immediately before placing aggregate base material.

2. Place aggregate base material in compacted layers not more than 6-inches thick, unless continuing tests indicate that the required results are being contained with thicker layers.

3. No more than 8-inches of compacted base shall be placed in one lift.

4. Spread, shape, and compact all aggregate base material deposited on the subgrade during the same day.

5. The compacted base shall have sufficient stability to support construction traffic without pumping.

6. If compacted base becomes unstable due to excessive moisture, the base material and underlying subgrade, if necessary, shall be dried and reworked to a moisture content that can be re-compacted.

B. Loose and Foreign Material

1. Remove loose and foreign material from surface immediately before application of paving.

2. Use power brooms or blowers, and hand brooms as required.

3. Do not displace surface material.

C. Prime Coat

1. Uniformly apply at a rate of 0.20 to 0.50 gallon per square yard over compacted and cleaned subbase surface.
2. Apply enough material to penetrate and seal, but not flood the surface.

3. Allow to cure and dry as necessary to attain penetration and evaporation of volatile and in no case less than 24 hours unless otherwise acceptable to the Owner.

4. Blot excess asphalt with just enough sand to prevent pick-up under traffic.

5. Remove loose sand before paving.

D. Tack Coat

1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphalt concrete or Portland cement concrete and similar surfaces.

2. Apply at a rate of 0.05 to 0.15 gallon per square yard of surface.

3. Apply tack coat by brush to contact surfaces of curbs, gutters, manholes, and other structures projecting into or abutting asphalt concrete pavement.

4. Allow surfaces to dry until material is at condition of tackiness to receive pavement.

3.2. EQUIPMENT

A. Provide size and quantity of equipment to complete the work specified within the Project time schedule.

B. Bituminous paving machines shall be self-propelled that spread hot bituminous concrete mixtures without tearing, shoving or gouging surfaces, and control pavement edges to true lines without use of stationary forms.

C. Rolling equipment shall be self-propelled, steel-wheeled and pneumatic-tired rollers that can reverse direction without backlash.

D. Provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools to complete the work specified.

3.3. BITUMINOUS CONCRETE PLACEMENT

A. Place bituminous concrete mix on prepared surface, spread and strike-off using paving machine.

B. Spread mixture at a minimum temperature of 225 degrees F.

C. Inaccessible and small areas may be placed by hand.
D. Place each course at a thickness such that when compacted it will conform to the indicated grade, cross-section, finish thickness, and density indicated.

E. Pavement Placing

1. Unless otherwise directed, begin placing along centerline of the crowned section and at high side of sections on one-way slopes, all in the direction of traffic flow.

2. After the first bituminous strip, has been placed and rolled, place adjacent strips and extend rolling to overlap previous strips.

3. Complete base courses for a section before placing surface courses.

4. Place mixture in as continuous an operation as practical.

F. Hand Placing

1. Spread, tamp, and finish mixture using hand tools in areas where machine spreading is not possible, as acceptable to Owner.

2. Place mixture at a rate that will ensure handling and compaction before mixture becomes cooler than acceptable working temperature.

G. Joints

1. Carefully make joints between old and new pavements, or between successive days' work, to ensure a continuous bond between adjoining work.

2. Construct joints to have same texture, density and smoothness as adjacent sections of asphalt concrete course.

3. Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.

4. Offset transverse joints in succeeding courses not less than 24-inches.

5. Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.

6. Offset longitudinal joints in succeeding courses not less than 6-inches.

7. When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.

3.4. BITUMINOUS CONCRETE COMPACTION
Byrdland Drive / Airport Road Sewer Improvements

A. Provide sufficient rollers to obtain the required pavement density.

B. Begin rolling operations as soon after placing as the mixture will bear weight of roller without excessive displacement.

C. Do not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.

D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

E. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.

F. Do not roll centers of sections first under any circumstances.

G. Breakdown Rolling

1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.

2. Operate rollers as close as possible to paver without causing pavement displacement.

3. Check crown, grade, and smoothness after breakdown rolling.

4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

H. Second Rolling

1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.

2. Continue second rolling until mixture has been thoroughly compacted.

I. Finish Rolling

1. Perform finish rolling while mixture is still warm enough for removal of roller marks.

2. Continue rolling until roller marks are eliminated and course has attained specified density.

J. Patching

1. Remove and replace defective areas.
Byrdland Drive / Airport Road Sewer Improvements

2. Cut-out and fill with fresh, hot asphalt concrete.

3. Compact by rolling to specified surface density and smoothness.

4. Remove deficient areas for full depth of course.

5. Cut sides perpendicular and parallel to direction of traffic with edges vertical.

6. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

3.5. CLEANING AND PROTECTION

A. Cleaning: After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of the Owner.

B. Protection:

1. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened and in no case no sooner than six hours.

2. Provide barricades and warning devices as required to protect pavement and the public.

3. The Contractor shall maintain the surfaces of pavements until the acceptance of the Project. Maintenance shall include replacement, overlay, milling and reshaping as necessary to prevent raveling of the road material, the preservation of smooth surfaces and the repair of damaged or unsatisfactory surfaces, to the satisfaction of the Owner.

3.6. SUPERVISION AND APPROVAL

Failure of Pavement: Should any pavement restoration or repairs fail or settle during the life of the Contract, including the bonded period, promptly restore or repair defects.

END OF SECTION 02740
PART 1 GENERAL

1.1. SCOPE OF WORK

A. Furnish all labor, materials, equipment and incidentals required to replace all existing, active service laterals by open cut replacement, pipe bursting within the manhole reach and to each manhole as identified on the Drawings. Pipe bursting of service laterals is only allowed where the associated main line is to be pipe burst. In the case of a service lateral connecting to a manhole, pipe bursting of the service lateral will be allowed if the upstream or downstream main line is to be pipe burst.

B. Replacement will be for active service laterals only. Contractor shall identify each active customer service connection prior to rehabilitation or replacement of main sewer by dye testing with CCTV inspection using a pan and tilt camera or other means should dye testing prove inconclusive.

C. After review and approval of dye test results by Owner, inactive service laterals shall be abandoned.

D. Replacement of service laterals shall be from the main sewer or manhole to the right-of-way line, or sewer easement. If a cleanout exists at the right-of-way line or easement line, the replacement pipe shall connect to the existing cleanout unless the Owner directs replacement of the existing cleanout. If a cleanout does not exist, the Contractor shall install a cleanout at the property line at a location designated by the Owner and terminate the replacement pipe at this new cleanout. Service laterals and cleanouts shall be PVC unless the laterals are pipe burst. If laterals are pipe burst, laterals shall be HDPE, and cleanouts may be PVC or HDPE.

E. Contractor should be aware of the order time for electrofusion saddles and Inserta Tee connections.

F. The Owner may determine in the field that a given service lateral is not to be rehabilitated in the manner described in this Section because of surface obstructions or other sensitive features.

G. The contractor shall provide post CCTV for all service laterals replaced. The cost of the CCTV record shall be considered incidental to completing this work and no additional payment shall be made to complete this work. The Owner will review CCTV for acceptance of the work.
Byrdland Drive / Airport Road Sewer Improvements

Service lateral installations that are found to be defective shall be replaced by the Contractor at no additional cost to the Owner

1.2. RELATED WORK

Section 02732 - Polyvinyl Chloride Pipe.

1.3. SUBMITTALS

Submit material product sheets in accordance with the related sections.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1. DETERMINATION OF ACTIVE SERVICE LATERALS

A. Contractor shall identify each active customer service connection prior to rehabilitation or replacement of main sewer by dye testing with CCTV inspection using a pan and tilt camera or other means should dye testing prove inconclusive. A list of all service laterals to be abandoned or replaced as part of the work shall be submitted to the Owner for approval. The compiled list will include the following information:

1. Location of each service lateral based on the television inspection logs. Location shall include both accurate distance measured from the centerline of the starting manhole as well as a notation (by clock-reference) of where on the circumference of the pipe the service lateral connects.

2. Status (Active or Inactive)

3. Lateral material (PVC, VCP, CIP, etc.)

4. The address of each customer and associated active lateral location.
B. Prior to performing any of this work, Contractor should properly notify customers as discussed in the Pre-Construction Meeting.

C. Dye testing shall be performed using CCTV inspection with a colored dye that can be easily seen through the CCTV inspection camera.

3.2. ABANDONING INACTIVE LATERALS

A. If the main sewer is being replaced through pipe bursting, the Contractor shall abandon inactive laterals without further action and shall burst through the abandoned laterals. No payment will be made for disconnecting or reconnecting abandoned laterals. No bursting through abandoned laterals shall be performed without prior approval from the Owner.

B. If the main sewer is being rehabilitated with cured-in-place lining, the Contractor shall seal all inactive (dead) service laterals by not reinstating the dead lateral via an internal remote cutter.

3.3. SERVICE LATERAL REPLACEMENT

A. Laterals shall be investigated to determine if they are active and are installed in accordance with City standards. Active laterals that are not in compliance with City standards shall be replaced to the right-of-way, or easement line. The new lateral shall comply with City standards.

B. New service laterals shall be the same size as the existing lateral. Any lateral encountered that is smaller than 4 inches in diameter shall be replaced with 6-inch-diameter pipe. Existing active laterals that are in compliance with City standards will be re-instated but not replaced.

C. The Contractor shall be responsible for protecting and locating existing utilities during installation and shall pay for repairing all damages to the utilities. Damages shall be repaired in accordance with the utility's requirements.

D. New service laterals shall be installed at the same slope and piping layout as the existing laterals. Contractor shall supply and install all necessary fittings to make the connection to the main sewer.

E. Contractor shall provide bypass pumping as necessary during installation of the new service lateral.

3.4. CLEANOUTS
Byrdland Drive / Airport Road Sewer Improvements

A. Services with cleanouts are assumed to meet Owner standards; however, they shall be inspected by the Contractor. All existing services with cleanouts at the right-of-way or easement line shall be inspected through CCTV by the Contractor. All active services without cleanouts shall have cleanouts installed and the service shall be replaced per the Owner’s standards.

B. Where existing cleanouts are encountered, the Contractor shall notify the Owner of the location and condition of the cleanout. The existing cleanout shall be replaced with a new cleanout or left in service as directed by the Owner.

C. Sewer lateral one-way cleanouts shall be in accordance with City standards.

D. New cleanouts shall be located near the property line as directed by the Owner. Contractor is responsible for and shall coordinate and schedule with the Owner the locations of the cleanouts sufficiently in advance of service lateral replacement or lining to allow for proper manufacture and delivery of replacement pipe or pipe lining. No additional time or money shall be given to the Contractor for any delays associated with improper coordination related to locating cleanouts.

END OF SECTION 02761
PART 1     GENERAL

1.1. SUMMARY

A. Work includes the installation of Portland cement concrete curb and gutter, curbs, sidewalks, valley gutters, medians, and driveways.

B. Related Sections

    1. Section 02221 - Trench Excavation, Bedding and Backfill

1.2. SUBMITTALS

A. Provide material certificates from material supplier(s) which certifies compliance with specified requirements for the following items.

    1. Portland Cement Concrete
    2. Expansion Joint Filler
    3. Steel Reinforcement

1.3. REFERENCES

    South Carolina Department of Transportation (SCDOT) - Standard Specifications for Highway Construction, latest edition.

PART 2     PRODUCTS
2.1. PORTLAND CEMENT CONCRETE

Provide Class 3000 concrete meeting requirements of Section 701 of the SCDOT Standard Specifications for Highway Construction.

2.2. EXPANSION JOINT FILLER

Provide joint filler meeting requirements of Section 702.2.2 of the SC DOT Standard Specifications for Highway Construction.

2.3. REINFORCING STEEL

Provide reinforcing steel meeting requirements of AASHTO M 31, Grade 60.

PART 3 EXECUTION

3.1. PLACEMENT

Place curbs, sidewalks, driveways, medians, and curb and gutter in accordance with Section 720 of the SCDOT Standard Specifications for Highway Construction.

3.2. FIELD QUALITY CONTROL

Horizontal and Vertical Tolerances. The maximum horizontal drift from proposed alignment is 0.25'. Vertical tolerance is 0.1'. For replacement of existing, match existing location and grade to within 1/8 of an inch.

END OF SECTION 02770
PART 1 GENERAL

1.1. SCOPE

The work under this section shall consist of furnishing all labor, materials, equipment and services necessary to protect, or replace existing landscaping disturbed by the work under this contract. This work shall consist of protection of ornamental trees and shrubs, trimming of trees and shrubs damaged by Contractor's operations, and establishment of grass in construction areas.

1.2. GUARANTEE

Contractor shall guarantee all work under this section for a period of one year.

1.3. PROTECTION OF EXISTING TREES, SHRUBS, ETC.

Contractor shall make every effort to avoid damage to existing trees, shrubs, etc.

1.4. LAWN REPLACEMENT

   A. Contractor shall re-establish turf in all areas disturbed by construction activities. Type of turf shall be as existed prior to construction. The Contractor shall be required to produce a satisfactory stand of perennial grass with a root system which is developed sufficiently to survive dry periods and winter weather, capable of reestablishment in the spring.

   B. If cold weather prohibits germination or survivorship of the matching lawn type, the Contractor shall provide temporary seeding in accordance with Section 02370. Temporary seed mix shall be in accordance with this Section. However, lawn area shall be permanently seeded prior to project closeout.

1.5. MISCELLANEOUS LANDSCAPE MATERIALS

Contractor shall protect from damage all miscellaneous items (walkways, planters, edging
1.6. PLANTING PLAN

Contractor shall submit a planting plan to the Owner for approval prior to the installation of any replacement trees and/or shrubs. The plan shall indicate the size, variety, and spacing of all plant material to be installed.

PART 2 PRODUCTS

2.1. TOPSOIL

Topsoil shall consist of fertile, friable surface soil. It shall be reasonably free from subsoil, refuse, roots, heavy or still clay, stones larger than one inch in size, noxious seeds, brush or other deleterious substances.

2.2. FERTILIZER

A. Commercial fertilizers used shall comply with State fertilizer laws. In a mixed fertilizer such as 5-10-10, the first number shall represent the minimum percent of nitrogen required; the second number shall represent the minimum percent available phosphoric acid required; and the third number shall represent the minimum percent of water soluble potash required in the fertilizer.

B. Fertilizer of 10-10-10 grade, minimum, shall be delivered to the site in bags or other convenient containers which are labeled as conforming to applicable State laws, trade name, and warranty of the producer.

2.3. LIME

South Carolina Department of Agriculture-grade limestone ground to pass on 8-mesh sieve with 40 percent passing a 100-mesh sieve shall be furnished. In addition, calcareous limestone shall contain not less than 40 percent magnesium oxide.

2.4. SEED

A. The Contractor shall submit to the Owner the seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentage of purity, germination and weed seed for each grass seed species.
B. All seed shall conform to all State laws and to all requirements and regulations of the South Carolina Department of Agriculture (SCDA). Deliver seed to the site in the original bag or container. The bag or container shall be tagged to show net weight, origin, and percentages of germination and purity.

C. Provide the minimum percentages of germination and purity as follows:

<table>
<thead>
<tr>
<th>Seed Type</th>
<th>Germination</th>
<th>Purity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Common Bermuda (Hulled)</td>
<td>85%</td>
<td>97%</td>
</tr>
<tr>
<td>2. Common Bermuda (Unhulled)</td>
<td>85%</td>
<td>89%</td>
</tr>
<tr>
<td>3. Kentucky 31 Fescue</td>
<td>90%</td>
<td>98%</td>
</tr>
<tr>
<td>4. Pensacola Bahia</td>
<td>70%</td>
<td>80%</td>
</tr>
<tr>
<td>5. Sericea Lespedeza (Scarified)</td>
<td>85%</td>
<td>98%</td>
</tr>
<tr>
<td>6. Sericea Lespedeza (Unscarified)</td>
<td>85%</td>
<td>98%</td>
</tr>
<tr>
<td>7. Rye Grass</td>
<td>90%</td>
<td>98%</td>
</tr>
<tr>
<td>8. Rye Grain</td>
<td>85%</td>
<td>97%</td>
</tr>
</tbody>
</table>

2.5. MULCH

Mulch of threshed straw of cereal grain such as oats, wheat, barley, rye, or grass hay, or wood fiber shall be furnished. Materials which contain objectionable weed seeds or species which might be detrimental to the planting being established or to adjacent lands will not be accepted.

2.6. SOD

Variety of sod, where shown, shall be as specified on plan. Otherwise, shall be a blend of two or more varieties of turf-type tall fescues listed as rated excellent by the SC Cooperative Extension or approved by the Owner. Sod shall be two years old with a minimum thickness of 5/8 inch plus thickness of top growth and thatch.

2.7. TREES AND SHRUBS

A. All tree and shrub material shall conform to the current issue of the American Standard for Nursery Stock published by the American Society of Nurserymen.

B. Tree and shrub materials must be selected from certified nurseries that have been inspected by state and/or federal agencies. Nursery inspection certificates shall be furnished to the Owner upon request.

C. Plant material collected from the wild is prohibited, unless prior authorization is obtained from the Owner, including the proposed source of the material.

D. The Owner may reject plants damaged in handling or transportation.
2.8. WATER

Water shall be free from oil, acids, alkalis, salts or any other substances that are toxic or otherwise harmful to vegetation. Water from an untreated source (e.g. pond or well) must be approved by the Owner.

PART 3 EXECUTION

3.1. GROUND SURFACE PREPARATION

A. Previously established grades shall be maintained on the areas to be planted. All surfaces shall be brought to an even and properly compacted condition to prevent formation of depressions.

B. Clear ground surface of stone, roots, and debris, which hinder tillage and seeding.

C. Scarify soil to a depth of 3 inches.

D. Spread 4 inches of topsoil.

E. Fertilizer shall be uniformly distributed at a rate of 1,000 pounds per acre over areas to be seeded and shall be incorporated into the soil to a depth of three inches (3”) minimum by disking or harrowing.

F. Immediately following or simultaneously with incorporation of fertilizer, limestone shall be applied at a rate of 3,000 pounds per acre. Mix lime and fertilizer into soil by tilling.

3.2. SEEDING

A. Seed shall be sown within 24 hours following the application of fertilizer and lime and soil preparation. Seed shall be uniformly sown at the rate specified. Make at least two passes over the areas at right angles to each other. Rotary hand seeders, power sprayers or other satisfactory equipment may be used. Seeds shall be covered and lightly compacted by a light roller. On slopes inaccessible to compaction equipment, the seed shall be covered by light harrowing, raking, or other satisfactory methods.

B. Seed prepared ground surfaces in accordance with the following schedules:
Byrdland Drive / Airport Road Sewer Improvements

<table>
<thead>
<tr>
<th>Planting Dates</th>
<th>Seed Mix</th>
<th>Type 1 Rate (lbs/acre)</th>
<th>Type 2 Rate (lbs/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 15 to August 14</td>
<td>Common Bermuda (Hulled)</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Kentucky 31 Fescue</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Pensacola Bahia</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Sericea Lespedeza (Scarified)</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>August 15 to March 14</td>
<td>Common Bermuda (Unhulled)</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Kentucky 31 Fescue</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Pensacola Bahia</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Ryegrass</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Sericea Lespedeza (Unscarified)</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Rye Grain</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

C. Type 1 shall be used for rural areas and utility easements or rights-of-way. Type 2 shall be used for lawn restoration and roadway shoulder stabilization.

D. Mulch material, approved by the Owner, shall be carefully placed as a top layer on the seeded areas. The depth shall vary according to the material used and shall be determined by the Owner.

3.3. SODDED AREAS

A. Preparation of Planting Bed: Unless otherwise approved by the Owner, all other site work required by this contract shall be complete and in place before sodding operations begin. Work may be completed in parts if so requested by the Contractor and approved by the Owner. Prior to sodding operations, all proposed lawn areas shall be tilled/scarified to 6" depth and prepared until the surface is smooth, friable and of a uniformly fine texture. Remove stones and foreign material over one inch in diameter and grade for positive drainage as required to prevent ponding of water.

B. Pre-emergent Herbicide: A pre-emergent herbicide and fertilizer combination (oxadiazon + fertilizer, or approved equal) shall be broadcast according to label recommendations.

C. Sod Planting: Prepare sub-grade as specified above. Allow for thickness of sod to finished grade.

D. Lay sod within 24 hours from time of stripping. Protect any sod stored on site from damage. Do not lay sod on frozen ground.

E. Soil should be moist, but not wet, prior to laying sod. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to sub-grade or sod. Tamp or roll lightly to ensure contact with sub-grade. Work sifted soil into minor cracks between pieces of sod, and remove excess to avoid smothering of adjacent grass.
F. Anchor sod on slopes with wood pegs to prevent slippage. Lay sod perpendicular to slope directions.

3.4. **TREES AND SHRUBS**

A. Immediately after site preparation and approval, trees, shrubs and herbaceous plants shall be planted. Planting shall be conducted between October 15 and March 15, or as directed by the Owner.

B. Root stock of the plant material shall be kept moist during transport, from the source, to the job site and until planted.

C. When shipment is made by open truck, pack all plant material to provide adequate protection against climate and breakage during transit, and tie to prevent wind-whipping. The tops shall be covered with tarpaulin to minimize wind-whipping and drying.

D. Exercise care at all times during handling operations to prevent damage to bark, branches, and root system. Employ a suitable method of handling to insure the careful delivery of heavy balled plants to preclude loose or crushed plant balls. All balled and burlap plants shall have wire baskets.

E. The Contractor may be required to flag and label individual planting pits at specific locations. Upon planting a typical area within each planting zone, the Contractor shall have the Owner inspect and approve plant spacing and planting techniques before proceeding.

F. Remove all non-organic debris from the hole and tamp loose soil in the bottom of the hole by hand.

G. When planting, spread roots in the hole, add fertilizer tablet, and gradually backfill with soil. Firm the soil, being careful to avoid breaking roots, fill hole with water (weather permitting), and backfill with additional soil as necessary. Hand tamp as hole is being backfilled to completely fill all voids and air pockets. Do not over compact soil. Make sure plant remains straight during backfilling/tamping procedure.

H. An 18-inch minimum diameter area of mulch shall be placed around seedlings, 24-inch diameter area around one gallon shrubs, and 36-inch diameter area around 2” caliper balled and burlap (B&B) trees. Mulch shall be 3 inches thick. Mulch shall NOT be placed directly against the stem of the plant.

I. The Contractor shall leave no open planting holes at the close of each day.

3.5. **MAINTENANCE**

A. During planting, all areas shall be kept neat, clean and free of all trash and debris, and all reasonable precautions shall be taken to avoid damage to existing plants, turf, structures, and private property.
B. Remove all tags, labels, burlap strings and wire from the plant materials, unless otherwise directed by the Owner.

C. Once grass is established, water and mow grass as necessary to maintain a healthy stand of grass. Repair and re-seed damaged or eroded areas until final acceptance.

D. Final cleanup shall be the responsibility of the Contractor and consist of removing all trash and materials incidental to the project, including off-site disposal.

END OF SECTION 02900
SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1. SUMMARY

This section covers all cast-in-place concrete, including reinforcing steel, forms, finishing, curing, and related work.

1.2. QUALITY ASSURANCE

A. Codes and Standards

1. ACI 301 - Specification for Structural Concrete for Buildings

2. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

3. ACI 305 - Recommended Practice for Hot Weather Concreting

4. ACI 306 - Recommended Practice for Cold Weather Concreting

5. ACI 318 - Building Code Requirements for Reinforced Concrete

6. ACI 347 - Recommended Practice or Concrete Formwork

7. ASTM A615- Deformed and Plain Billet Steel Bars for Concrete Reinforcement
Byrdland Drive / Airport Road Sewer Improvements

8. ASTM C33 - Concrete Aggregates

9. ASTM C94 - Ready-Mixed Concrete

10. ASTM C150 - Portland Cement

11. ASTM C171 - Sheet Material for Curing Concrete

12. ASTM C260 - Air Entraining Admixtures for Concrete

13. ASTM C494 - Chemical Admixtures for Concrete

14. ASTM C618 - Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral admixture in Portland Cement Concrete

PART 2  PRODUCTS

2.1. CONCRETE MATERIALS

A. Portland Cement - ASTM C 150, Type I or II

B. Aggregates -ASTM C 33

C. Water - Clean and potable

D. Air - Entraining Admixture - ASTM C 260

E. Chemical Admixture - ASTM C 494
F. Pozzolan - ASTM C618, Class C of F

2.2. REINFORCEMENT

Provide grade 60 steel meeting requirements of ASTM A 615

2.3. MIXES

A. Unless specified otherwise, concrete mixes shall conform to the following:

1. 28-day Compressive Strength of 3,000 psi.
2. Maximum slump of 4”.
3. Maximum water - cement ratio of 0.50.
4. Air - entrainment for various coarse aggregates in accordance with the following:

<table>
<thead>
<tr>
<th>Nominal Maximum Size of Aggregate (in.)</th>
<th>Air Content Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8</td>
<td>4.5 to 7.5</td>
</tr>
<tr>
<td>1/2</td>
<td>4.0 to 6.0</td>
</tr>
<tr>
<td>3/4</td>
<td>3.5 to 6.0</td>
</tr>
<tr>
<td>1</td>
<td>3.0 to 6.0</td>
</tr>
<tr>
<td>1-1/2</td>
<td>2.5 to 5.5</td>
</tr>
<tr>
<td>2</td>
<td>2.0 to 5.0</td>
</tr>
</tbody>
</table>

PART 3 EXECUTION

3.1. PREPARATION

A. Construct formwork in accordance with ACI 347.
Byrdland Drive / Airport Road Sewer Improvements

B. Place reinforcing steel in accordance with ACI 318.

C. Set and place items to be embedded in concrete.

D. Clean and remove all foreign material accumulated in forms. Wet forms sufficiently to maintain workability of the concrete.

3.2. PLACING CONCRETE

A. Transport and place concrete to site in accordance with ACI 304. In cold weather comply with ACI 306 except that the use of a calcium chloride admixture shall not be allowed. In hot weather comply with ACI 305.

B. Deposit concrete in a continuous operation. Consolidate placed concrete using mechanical vibrating equipment supplemented by hand rodding or tamping.

3.3. FORM REMOVAL

A. Do not disturb or remove forms until the concrete has hardened sufficiently to permit form removal with complete safety. Do not remove shoring until the member has acquired sufficient strength to support its own weight, the load upon it, and the added load of construction.

B. Exercise care in removing forms from finished concrete surfaces so that surfaces are not marred or gouged, and that corners are true, sharp, and unbroken.

3.4. CURING

A. Beginning immediately after placement, protect concrete from premature drying, excessively hot and cold temperatures, and mechanical injury.

B. Apply one of the following methods of curing.
Byrdland Drive / Airport Road Sewer Improvements

1. Water curing by covering the entire surface of concrete with water. The curing water should not be more than 20 degrees Fahrenheit cooler than the concrete.

2. Water curing by fog spraying or sprinkling to provide a continuous film of water over the entire surface of concrete.

3. Water curing by means of covering the entire surface with absorbent materials, which shall be kept moist. Absorbent materials can be burlap, cotton mats, rugs, or other approved materials.

4. Curing by means of covering the entire surface with waterproof sheet materials to reduce the loss of mixing water from the concrete. Materials can be polyethylene sheeting, waterproof paper, or polyethylene coated burlap. On slabs the sheets should extend over the edges at least twice the slab thickness. During cold weather black polyethylene sheeting should be used and in hot weather white polyethylene sheeting should be used. Do not use polyethylene on slab surfaces that will be exposed.

5. Curing by means of spraying or rolling a liquid membrane forming curing compound according to manufacturer’s recommendations over the entire surface. Curing compounds shall conform to ASTM C309.

6. Minimum period of curing for all methods is 7 days unless a shorter period is approved by the Owner.

3.5. FINISHES

A. Slabs and Foundations

1. After the concrete has been placed, struck off and leveled, the concrete shall not be worked further until ready for floating. Begin floating when surface water has disappeared and when concrete has stiffened enough to permit the operation of power driven floats.

2. After floating provide a broomed or scratched finish to surface unless a troweled finish is specified.
Byrdland Drive / Airport Road Sewer Improvements

B. Form Finish


2. For all surfaces exposed to view, rub entire surface with carborundum brick or other abrasive until a uniform color and texture is produced.

3.6. FIELD QUALITY CONTROL

A. Sampling and testing of concrete may be performed during the placement of the concrete in accordance with the following:

1. Sampling - ASTM C 172

2. Slump - ASTM C 143. One slump test per load.

3. Air Content - ASTM C 173. One for each set of cylinders made for compressive strength testing.

4. Compressive Strength - ASTM C 31. Four test cylinders shall be made for each 50 cubic yards of concrete poured. One cylinder will be tested at 7 days, and 2 cylinders at 28 days with the final cylinder to remain as a reserve to be tested or disposed of as directed by the Owner.

B. Cost of resampling and additional testing required due to failed tests shall be borne by the Contractor.

END OF SECTION 03300
PART 1 GENERAL

1.1. SUMMARY

The work under this section consists of furnishing all labor, materials, equipment required to place grout in vault bottoms, wet wells, manholes, and related Work as shown on drawings and specified herein.

PART 2 PRODUCTS

2.1. MATERIALS

A. Portland Cement: ASTM C 150, Type 1.
B. Aggregate: ASTM C 33.
C. Water: Potable and free from foreign materials.
D. Admixtures: ASTM C 494.

2.2. GROUT MIX

A. A suggested guide for the grout mixture for one cubic yard is:

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td>940 lbs.</td>
</tr>
<tr>
<td>Fine Aggregate</td>
<td>2,220 lbs.</td>
</tr>
<tr>
<td>Water</td>
<td>415 lbs.</td>
</tr>
<tr>
<td>Admixture</td>
<td>per manufacturer</td>
</tr>
</tbody>
</table>

B. Material quantities shown are surface dry quantities.

PART 3 EXECUTION
3.1. INSTALLATION

A. Surfaces to receive grout shall be cleaned to remove any grease, dirt, or other materials which might prevent adhesion of the grout.

B. A cement wash mix shall be broomed onto the concrete surface prior to placement of grout. The cement wash shall consist of water and Portland cement.

C. The grout shall be placed to the elevations and slopes as indicated on the Drawings.

END OF SECTION 03310
BYRDLAND DRIVE / AIRPORT ROAD SEWER IMPROVEMENTS

SECTION 03311

FLOWABLE FILL

PART 1 GENERAL

1.1. SUMMARY

A. Work consists of furnishing and placing flowable fill or a controlled low strength material.

B. Related Sections

1. Section 03300-Cast-In-Place Concrete

1.2. REFERENCES


PART 2 PRODUCTS

2.1. FLOWABLE FILL

Provide flowable fill meeting the requirements of Section 210 of the SCDOT Standard Specifications for Highway Construction.

PART 3 EXECUTION

3.1. FLOWABLE FILL

A. Prepare and place flowable fill in accordance Section 210.06 of the SCDOT Standard Specifications for Highway Construction.

B. Vehicular traffic shall not be allowed on backfilled areas for a minimum of 8 hours after flowable fill has been placed.

END OF SECTION 03311
GENERAL TERMS & CONDITIONS

BID OPENING AND AWARD
Bids will be examined promptly after opening and each bid will be announced to all participating. It is not a practice to award any bid until the Purchasing Division and the interested Division/Department have had ample time to review each Bid.

PUBLIC RECORD
After an award is made, copies of the bids will be available for public inspection, under the supervision of the City’s Purchasing Division from 8:00 a.m. ET to 5:00 p.m., Monday through Friday, at 206 South Main Street, 7th Floor, City Hall, and Greenville, South Carolina.

TAXES
The City pays South Carolina State Sales Taxes. No mention shall be made in the bid of Sales Tax, Use Tax or any other tax, as all amounts bid will be deemed and held to include any such taxes which may be applicable. The City is exempt from Federal Excise Taxes and will issue exemption certificates as are requested.

EXAMINATION OF PLANS, PROJECT MANUAL, CONTRACTS AND WORK SITE
The bidder shall examine carefully, the site of work contemplated, the plans and project manual, the proposal and contract forms therefor. The submission of a bid shall be conclusive evidence that the bidder has investigated, and is satisfied as to the conditions encountered as to the character, quality and quantities of work to be performed and the materials to be furnished, and as to the requirements of the proposal, plans, project manual and the contract.

BASIS OF BID AWARD
Award of the bid shall be made to the responsive, responsible bidder meeting the specifications and requirements of the bid and having the lowest possible cost consistent with the expected quality and service.

The following criteria will be used in making this determination:

- Adherence to the plans/specifications;
- Bidder’s reputation and financial status;
- Past experience with bidder’s work and bidder’s references;
- Total Bid Price for the project in accordance with the requirements of the Invitation for Bids and the ability to satisfy those requirements.

BACKGROUND CHECK
The City reserves the right to conduct a background inquiry of each bidder which may include the collection of appropriate criminal history information, contractual and business associations and practices, employment histories and reputation in the business community. By submitting a proposal to the City, the bidder consents to such an inquiry and agrees to make available to the City such books and records as the City deems necessary to conduct the inquiry.
INTERPRETATION AND ADDENDA
No verbal interpretation made to any respondent as to the meaning of this bid shall be binding on the City unless repeating into writing and distributed as an addenda by the City. Interpretation and/or clarifications shall be made in writing via e-mail from the City’s Purchasing Division.

It shall be the bidder’s responsibility to acknowledge receipt of addenda and ascertain that its bid includes all addenda.

REQUIREMENTS
The successful contractor shall comply with all instructions and shall perform services in a manner commensurate with the highest professional standards by qualified and experienced personnel.

JURISDICTION
This agreement shall be governed by the laws of South Carolina.

DISCREPANCIES AND MISUNDERSTANDING
Bidders must satisfy themselves by personal examination of the work site, plans, project manual, and any other contract documents and by any other means as they may believe necessary, as to the actual physical conditions, requirements and difficulties under which the work must be performed. No bidder shall, at any time after the submission of a proposal, make a claim or assertion that there was any misunderstanding or lack of information regarding the nature or the amount of work necessary for the satisfactory completion of the job. Any errors, omissions or discrepancies found in the plans, project manual, or other contract documents shall be called to the attention of the City and clarified prior to the submission of proposals.

INFORMATION AND IRREGULARITIES
The City has the right to waive minor defects or variations of a bid from the exact requirements of the specifications that do not affect the price, quality, quantity, delivery, or performance time of the services being procured. If insufficient information is submitted by a bidder with the bid, the City has the right to require such additional information as it may deem necessary after the time set for receipt of bids to properly evaluate the bid, provided that the information requested does not change the price, quality, quantity, delivery, or performance time of the services being procured.

PATENTS AND ROYALTIES
The contractor covenants to save, defend, keep harmless, and indemnify the City and all of its officers, departments, agencies, agents, and employees from and against all claims, loss, damage, injury, fines, penalties, and costs - including court costs and attorney’s fees, charges, liability, and exposure, however caused for or on account of any copyright or patented or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City. If the contractor uses any design, device, or materials covered by patent or copyright, it is mutually agreed and understood without exception that the contract price includes all royalties or costs arising from the use of such design, device, or materials in any way in the work.
**BID FORM**
Each bidder must submit a bid on the blank forms attached. Bids may be rejected if they show any omissions, alterations of form, additions not called for, conditional bid or any irregularities of any kind.

All information shall be typewritten or entered in ink. Mistakes may be crossed out and corrections inserted before submission of bid. Corrections shall be initialed in ink by the person signing the bid.

When bids are signed by an agent, other than the officer or officers of a corporation authorized to sign contracts on its behalf, or a member of a partnership, a “Power of Attorney” must be on file with the City of Greenville prior to opening bids or shall be submitted with the bid; otherwise, the bid will be rejected as irregular and unauthorized.

Where a bid bond is required and has been properly furnished with the bid package, the City reserves the right, in its sole and absolute discretion, to accept the Bid Form unsigned in the event the lack of a signature was the result of a good faith mistake or inadvertence on the part of the bidder. However, before final award can be made, the vendor may be required to furnish said Bid Form signed within 24 hours upon notice from the City. The City will accept an electronic copy in this situation. If the vendor does not furnish said Bid Form within the 24 hour period, the vendor will be considered non-responsive and the City will have the right to execute the vendors Bid Bond.

**COMPLIANCE WITH LAWS**
The contractor shall, in the performance of work under this contract, fully comply with all applicable Federal, State, County, or Municipal Laws, Rules, Regulations, Ordinances, and ADA Title II requirements; and shall hold the City harmless from any liability resulting from failure of such compliance.

**INDEPENDENT CONTRACTOR**
The contractor shall be legally considered an independent contractor and neither the contractor nor its employees shall, under any circumstances, be considered employees of the City; and the City shall be at no time legally responsible for any negligence or other wrong doing by the contractor or its employees. The City shall not withhold from the contract payment to the contractor any federal or state unemployment taxes, federal or state income taxes, Social Security tax, or any other amounts for benefits to contractor. Further, the City shall not provide to the contractor any insurance coverage or other benefits, including Worker’s Compensation, normally provided by the City for its employees.

**TERMINATION FOR CONVENIENCE OR CAUSE**
The performance of work under the contract may be terminated by the City in whole or in part whenever the City determines that termination is in the City’s best interest. Any such termination shall be effected by the delivery to the contractor of a written notice of termination at least fifteen (15) days before the date of termination, specifying the extent to which performance of the work under the contract is terminated and the date upon which such termination becomes effective.
The performance of work under the contract may be terminated by the City in whole or in part whenever the City determines, in its sole discretion that the selected contractor is not performing as set out in the contract. If the contract is terminated for cause, the contractor shall be liable for all additional costs incurred by the City, if any, in the completion of the Contract. Any such termination shall be effected by the delivery to the selected contractor of a written notice of termination at least seven (7) days before the date of termination, specifying the extent to which performance of the work under the contract is terminated and the date upon which such termination becomes effective.

After receipt of a notice of termination, except as otherwise directed, the contractor shall stop work on the date of receipt of the notice of termination or other date specified in the notice; place no further orders or subcontracts for materials, services, or facilities except as necessary for completion of such portion of the work not terminated; terminate all vendors and subcontracts; and settle all outstanding liabilities and claims.

ASSIGNMENT
The contractor shall not assign, transfer, convey, sublet, or otherwise dispose of any award or any or all of its rights, title, or interest therein, without the prior written consent of the City.

RECORDS
The contractor shall maintain accurate and detailed books, records, correspondence and accounts relating to all parts of the project. Records shall be kept in accordance with sound generally accepted accounting principles. The City shall have the right to audit all records pertaining to the costs incurred under this contract. Such records shall be available during the term of the contract and for four (4) years after final payment under this contract.

LABOR LAWS
The contractor, and all subcontractors, suppliers, and vendors, shall comply with all City, State and Federal orders regarding affirmative action to ensure equal employment opportunities and fair employment practices. Failure to file any report due under said orders will result in suspension of periodic progress payments. The contractor shall ensure unlimited access to the job site for all equal employment opportunity compliance officers.

EMPLOYMENT DISCRIMINATION
During the performance of the contract, the successful contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, age, handicap, or national origin; however, some conditions may be a bonafide occupational qualification reasonably necessary for the normal operations of the contractor. The contractor agrees to post in conspicuous places, visible to employees and applicants for employment, notices setting forth the provision of this nondiscrimination clause.

SUBCONTRACTING WITH SMALL, MINORITY, HANDICAP AND WOMAN-OWNED BUSINESS ENTERPRISES
In accordance with City Council Resolution R-86-10, and subsequent amendments, the City of Greenville expects all of their general contractors to show a good faith effort in subcontracting to small, minority, handicap and woman-owned business enterprises (M/W/DBE) for all of the City’s
contracts. It is the policy of the City of Greenville to provide small, minority, handicap and woman-owned business enterprises equal opportunity to participate in all aspects of the City’s contracting and purchasing programs, including but not limited to, participation in procurement contracts for commodities and services, as well as contracts relating to construction and repair.

Further, it is the policy of the City of Greenville to prohibit discrimination against any person or business in pursuit of these opportunities on the basis of race, color, national origin, ancestry, religion, disability, political affiliation or gender and to conduct its contracting and purchasing programs in such a manner as to prevent such discrimination.

Definitions of small, minority, handicap and woman-owned business enterprises are as follows:

A. Small Business Enterprises are those businesses that are defined in accordance with criteria established by the United States Small Business Administration.

B. Minority-Owned Business Enterprises are those businesses owned and controlled by one or more socially disadvantaged persons. Such persons include, but may not be limited to, Black Americans, Native Americans, Asian Americans, Hispanic Americans, American Eskimos and Aleuts.

C. Handicap Business Enterprises are those businesses which are 51% owned and controlled by disabled persons.

D. Woman-Owned Business Enterprises are those businesses which are 51% owned and controlled by one or more women.

It is the policy of the City of Greenville to award a fair share of all contracts to small, minority, handicap, and woman-owned businesses, providing they are competitive. Accordingly, affirmative steps should also be used by contractors to assure that small, minority, handicap and woman-owned businesses are utilized whenever possible as sources for supplies, equipment, construction and services. Affirmative steps shall include the following:

A. Including qualified small, minority, handicap and woman-owned businesses on solicitation lists.

B. Assuring that small, minority, handicap and woman-owned businesses are solicited whenever they are potential sources.

C. When economically feasible, dividing total requirements into small tasks or quantities so as to permit maximum participation of small, minority, handicap and woman-owned businesses.

D. When requirements permit, establishing delivery schedules which will encourage participation by small, minority, handicap and woman-owned businesses.
E. Using the services and assistance of the United States Small Business Administration and Office of Minority Business Enterprise of the Department of Commerce and the Community Services Administration, as required.

F. If any subcontracts are to be let, the City will require the prime contractor to show good faith efforts in the affirmative steps indicated above.

CERTIFICATES AND LICENSES
The contractor shall secure and pay for licenses, permits and/or certificates that may be necessary for proper execution and completion of the contract, and which are legally required when bids are received or negotiations concluded.

INDEMNIFICATION
The contractor covenants to save, defend, keep harmless, and indemnify the City and all of its officers, departments, agencies, agents, and employees from and against all claims, loss, damage, injury, fines, penalties, and costs - including court costs and attorney’s fees, charges, liability, and exposure, however, caused - resulting from, arising out of, or in any way connected with the contractor’s negligent performance or nonperformance of the terms of the contract, including, but not limited to, unloading of supplies and equipment.

FAILURE TO ENFORCE
Failure by the City at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the City to enforce any provision at any time in accordance with its terms.

FAILURE TO DELIVER
In the event of failure of the contractor to deliver services in accordance with the contract terms and conditions, the City, after due oral or written notice, may procure the services from other sources and hold the contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies that the City may have.

FORCE MAJEURE
The contractor shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions, and acts of God beyond the control of the contractor, unless otherwise specified in the contract.

DETERMINATION OF RESPONSIBILITY
The City may make such investigation as it deems necessary to determine the ability of an offeror to furnish the required services, and the offeror will furnish to the City all such information and data for this purpose as the City may request. The City reserves the right to reject any offeror if the evidence submitted by or investigation of such offeror fails to satisfy the City that such offeror is properly qualified to carry out the obligations of a Contract, and to deliver the services...
contemplated herein.

Offerors will fully inform themselves as to conditions, requirements, and specifications before submitting their proposal. Failure to do so will be at the offeror’s own risk.

**DUST ABATEMENT**
The contractor shall furnish all labor, equipment, and means required and shall carry out effective measures whenever and as often as necessary to prevent his operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals or causing a nuisance to persons living or occupying buildings in the vicinity.

The contractor shall be responsible for any damage resulting from any dust originating from his operations. The dust abatement measures shall be continued until the contractor is relieved of further responsibility by the Engineer. No separate payment will be allowed for dust abatement measures and all costs thereof shall be included in the various prices named in the bid sheet for completion of the work.

**BID REJECTION OR PARTIAL ACCEPTANCE**
The City reserves the right to reject any or all bids. It further reserves the right to waive technicalities and informalities in bids as well as to accept in whole or in part such bid or bids where the City deems it advisable or necessary to protect the best interests of the City.

**INCORPORATED BY REFERENCE**
The specifications set forth in the attachments is referenced herein, and hereby made a part of this **INVITATION FOR BID**.

**CITY OF GREENVILLE BUSINESS LICENSES**
The contractor must obtain all business license(s) required by the Greenville City Code and Ordinances. A Business License is not required to submit a bid. However, any firm that receives an award under this bid shall be required to obtain a City Business License before work can begin. For further information on the provisions of The City Business License Regulations and their applicability to this contract, contact the Greenville City Business License Division at (864) 467-4550.

**PROFESSIONAL LICENSING**
Contractor shall secure and pay for licenses, permits and/or certificates that are legally required by its profession and/or necessary for the proper execution and completion of the contract, before negotiations are concluded.

**MINORITY/DISADVANTAGED SMALL BUSINESS PARTICIPATION**
The City of Greenville expects all of their general contractors to show a good faith effort in subcontracting to small, minority, disabled, and women-owned businesses for all of the City’s contracts.

To this end, every contractor or potential contractor with the City is required to complete the MDSB Participation form for its firm.
ETHICS IN PUBLIC CONTRACTING
To comply with the provision of Section 8-13-100 et seq., the offeror shall certify in writing and include with its proposal that its offer was made without fraud; that it has not offered or received any kickbacks or inducements from any other offeror, supplier, manufacturer, or subcontractor in connection with the offer; and that it has not conferred on any public employee, public member, or public official having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money services, or anything of more than nominal value.

The offeror shall certify further that no relationship exists between itself and the City, another person, or organization that interferes with fair competition or constitutes a conflict of interest with respect to a contract with the City.

NONCOLLUSION AFFIDAVIT
As part of the respondent’s proposal, the offeror shall include the attached Non-Collusion Affidavit duly signed by a principal of the firm certifying that it is not a party to any collusive action or any action that may be in violation of the Sherman Antitrust Act. Any or all bids shall be rejected if there is any reason for believing that collusion exists among the offerors. The City may or may not, at its discretion, accept future bids for the same work from participants in such collusion.

NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT
Nonresident firms receiving income from business conducted in South Carolina are required to pay taxes to the state on that income. To facilitate this requirement, a nonresident firm must register with the South Carolina Secretary of State or the South Carolina Department of Revenue. In compliance with South Carolina Code Section 12-8-540 and 12-8-550, a firm located outside of South Carolina that receives a contract from the City, must furnish to the City Form 1-312 (Rev. 10/05/07), Nonresident Taxpayer Registration Affidavit Income Tax Withholding, properly executed and signed. If your firm is not presently registered with the appropriate state office, you may indicate the intent to do so should your firm be awarded a contract. Questions concerning this form may be directed to the South Carolina Department of Revenue at (800) 763-1295.

COMPLIANCE WITH THE SOUTH CAROLINA ILLEGAL IMMIGRATION REFORM ACT
Any contractor entering into a service contract with the City of Greenville must certify to the City of Greenville that the contractor intends to verify any new employees’ status, and require any subcontractors or sub-subcontractors performing services under the service contract to verify their new employees’ status, per the terms of the South Carolina Illegal Immigration Reform Act, and as set out in Title 41, Chapter 8 of the Code of Laws of South Carolina, 1976.

CERTIFICATION OF COMPLIANCE WITH ANTI-DISCRIMINATION PROVISIONS OF SECTION 11-35-5300, CODE OF LAWS OF SOUTH CAROLINA, 1976
If this Agreement shall have a total potential value of ten thousand dollars ($10,000.00) or more, and/or unless such goods and/or services are offered to City for at least twenty percent (20%) less than the lowest certifying business, then, by submitting your bid and/or proposal, Contractor hereby certifies to City that Contractor is not currently engaged in, nor will it engage in, the boycott of a person or entity based in or doing business with World Trade Organization members and/or those with which the United States has free trade or other agreements aimed at ensuring open and nondiscriminatory trade relations, with the understanding that Contractor’s failure to make such
affirmative certification will prevent the City from being able to contract with Contractor, thus affecting a rejection of your bid and/or proposal.

**COMPLIANCE WITH THE SOUTH CAROLINA IRAN DIVESTMENT ACT OF 2014**
By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to Section 11-57-310 of the Code of Laws of South Carolina, 1976.

**UNIFORM COMMERCIAL CODE**
All sections of the Uniform Commercial Code which protect the buyer are hereby incorporated by reference in this contract.

**NON-APPROPRIATION**
Any contract entered into by the City resulting from this invitation shall be subject to cancellation without damages or further obligation when funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal period or appropriated year.

**INCORPORATION OF BID INTO CONTRACT**
The terms, conditions, and specifications of this bid and the selected firm’s response are to be incorporated, in total, into the contract.
GENERAL CONDITIONS TO THE CONTRACT FOR CONSTRUCTION

USE OF THE GENERAL CONDITIONS TO THE CONTRACT FOR CONSTRUCTION ARE EXPRESSLY MADE SUBJECT TO THE FOLLOWING: It is specifically understood and agreed by and between the parties to the Contract and/or Agreement that these General Conditions shall be understood and construed to be supplementary, only, to any Contract and/or Agreement to which they are attached and/or made a part of, and if any provision(s) in the Contract and/or Agreement, or the remaining portions thereof, deal more specifically with any provision set out herein, or conflict with any provision set out herein, then the provision(s) in the Contract and/or Agreement, or the remaining portions thereof, shall be construed to take precedence and control.

1. DEFINITIONS:

A. Engineer is the Engineer named in the contract documents or his representative duly authorized in writing to act for the Engineer. In the event no Engineer is named in the Documents, the Engineer shall be construed to be the City Engineer.

B. Proposal Guaranty (Bid Bond): The cashier’s check or Bidder’s bond accompany the Proposal submitted by the bidder as a guaranty that the Bidder will enter into a contract with the City for the Construction of the work, if the Contract is awarded to him.

C. Performance and/or Payment Bond(s) is/are the approved form of security furnished by the Contractor and his surety as a guaranty of good faith on the part of the Contractor to execute the work in accordance with the terms of the Contract and pay all debts of Contractor to subcontractors, materialmen, etc. for the work.

D. Surety is the person, firm, or corporation who executes the Contractor’s Performance and/or Payment Bond(s).

E. Acts of God means an earthquake, flood, cyclone, or other cataclysmic phenomenon of nature. Rain, wind, flood, or other natural phenomenon of normal intensity for the locality shall not be construed as an Act of God, and no reparation shall be made to the Contractor for damages to the work resulting there from.

F. Change Order - a written directive to alter, exchange, substitute, or amend the plans, specifications, payment, time, or contract documents or terms in accordance with conditions approved by both the City and the Contractor.

G. Owner - City of Greenville.

H. City Engineer - City of Greenville’s City Engineer.

I. Field Engineer - City of Greenville’s Project Engineer or his/her designee.

2. DRAWINGS, SPECIFICATIONS AND RELATED DATA:

A. Intent of Drawings and Specifications: The intent of drawings and specifications is that the Contractor furnishes all labor and materials, equipment and transportation necessary
for the proper execution of the work unless specifically noted otherwise. The Contractor shall do all work shown on the Drawings and described in the Specifications and all incidental work considered necessary to complete the project in a substantial and acceptable manner, and to fully complete the work or improvement, ready for use, occupancy and operation by the City. Should the specifications fail to particularly describe the material or kind of goods to be used in any place, then it shall be the duty of the Contractor to make immediate inquiry of the Engineer for what is best suited. The material that would normally be used in this place to produce first quality finished work shall be considered a part of the Contract.

B. Conflict: If there be conflicting variance between the Drawings and Specifications, the provisions of the Specifications shall control.

C. Discrepancies in Drawings: Any discrepancies found between the Drawings and Specifications and site conditions, or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Engineer. No guarantee is shown on the drawings. The City shall not be held responsible for the omission from the plans of any mains or services, nor shall the City be responsible for any misrepresentations as to their size, type, number, location, or depth. Any work done by the Contractor after his discovering of such discrepancies, errors, or omissions shall be done at the Contractor’s risk. If any errors, inconsistencies, or omissions in Contract Documents are recognized by the Contractor or any member of his organization, the Contractor shall notify the Engineer in writing of such error, inconsistency, or omission before proceeding with the work. If the Contractor fails to give such notice and knowingly proceeds with incorrect work, he shall correct any such errors, inconsistencies, or omissions at no additional cost to the owner.

D. Deviations Occasioned by other Structures or Utilities: The locations of proposed structures and sewers, as shown on the drawings, have been selected to provide the least possible interference with existing structures and utilities. The City reserves the right to make minor variations in the locations of these items during the construction to meet any changed conditions discovered during the construction, and no extra payment will be allowed the Contractor for such shifts in alignment.

E. Adequacy of Drawings and Specifications: Responsibility for adequacy of the design and the sufficiency of the drawings and specifications shall not be borne by the City unless prepared by the City. Responsibility for the adequacy of the design and sufficiency of the drawings and specifications shall be borne by the Architect or Design Engineer who prepared them. The General Contractor shall review the drawings and specifications prior to bidding and shall advise the City of any inadequacies discovered. In case of Design/Build projects, the responsibility for adequacy of the design and the sufficiency of the drawings and specifications shall be borne by the Contractor as well as the Architect or Design Engineer.

F. Additional Instructions: Further instructions may be issued by the Engineer during the progress of the work by means of Drawings or otherwise to make clearer or specific the Drawings and Specifications, or as may be necessary to explain or illustrate changes in the work to be done. Any instructions which the Engineer may issue the Contractor shall be adjudged as an interpretation of the Contract requirements and not an act of supervision.
The Engineer has no authority nor accepts any responsibility, either direct or implied, to
direct and superintend the work.

G. **Drawings and Specifications at Job Site and As-built Records:** One complete set of all
Drawings and Specifications shall be maintained at the job site and shall be available to
the Engineer at all times. A complete set of As-built records shall be kept by the
Contractor. These records shall show all types of construction and equipment which differ
in size, shape or location from those shown on the contract drawings; also, any additional
work, existing features or utilities revealed by the construction which are not shown on the
contract drawings. These records shall be kept up to date daily. They shall be available at
all times during construction for reference by the Engineer, and shall be delivered to the
Engineer upon completion of the work prior to final payment.

H. **Ownership of Drawings and Specifications:** All original or duplicated Drawings and
Specifications and other data provided to the Contractor shall remain the property of the
City, and they shall not be re-used on other work, but shall be returned to the City Engineer
upon completion of the work.

I. **Dimensions:** Figured dimensions on the plans shall be used in preference to scaling the
Drawings. Where the work of the Contractor is affected by finish dimensions, these shall
be determined by the Contractor at the site, and he shall assume responsibility therefore.

J. **Models:** Any models prepared for this work shall become the property of the City at the
completion of the work.

K. **Samples:** All samples called for in the Specifications or required by the Engineer shall be
furnished by the Contractor and shall be submitted to the Engineer for his approval.
Samples shall be furnished so as not to delay fabrication, allowing the Engineer reasonable
time for the consideration of the samples submitted.

1. **Sample for Tests:** The Contractor shall furnish such samples of materials
as may be required for examination and test. All materials and
workmanship shall be in accordance with approved samples. All samples
of materials for tests shall be taken according to methods provided in the
specifications.

L. **Supplementary Drawings:** The Contractor shall provide shop drawings, settings,
schedules, and other drawings as may be necessary for the prosecution of the work in the
shop and in the field. Deviations from the Drawings and Specifications shall be called to
the attention of the Engineer at the time of the first submission of shop drawings and other
drawings for approval. The Engineer’s approval of any drawing shall not release the
Contractor from responsibility for such deviations. Shop drawings shall be submitted
according to the technical specifications. The Contract Price shall include the cost of
furnishing all supplementary drawings and the Contractor will be allowed no extra
compensation for such drawings.

M. **Quality of Equipment and Materials:** In order to establish standards of quality, the
Engineer has referred, in the Detailed Specifications, to certain products by name and
catalog number. This procedure is not to be construed as eliminating from competition
other products of equal or better quality by other manufacturers where fully suitable in
design.
1. The Contractor shall furnish the complete list of proposed designed
substitutions prior to signing of the contract, together with such engineering
and catalog data as the Engineer may require.

2. The Contractor shall abide by the Engineer’s judgment when proposed
substitute materials or items of equipment are judged to be unacceptable
and shall furnish the specified material or items of equipment in such case.
All proposals for substitutions shall be submitted in writing by the General
Contractor and not by individual trades or material suppliers. The Engineer
will approve or disapprove proposed substitutions in writing within a
reasonable time. No substitute material shall be used unless approved in
writing.

N. Equipment Approval Data: The contractor shall furnish one copy of the complete catalog
data for every manufactured item of equipment and all components to be used in the work,
including specific performance data, material description, rating, capacity, working
pressure, material gage or thickness, brand name, catalog number and general type.

   1. This submission shall be compiled by the Contractor and approved by the
   Engineer before any of the equipment is ordered.
   2. Each data sheet or catalog number in the submission shall be indexed
   according to specification section and paragraph for easy reference.
   3. After written approval, this submission shall become a part of the Contract,
   and may not be deviated from except upon written approval of the Engineer.
   4. Catalog data for equipment approved by the Engineer does not in any case
   supersede the Engineer’s Contract Documents. The approval of the
   Engineer shall not relieve the Contractor from responsibility from Drawings
   or Specifications, unless he has in writing called the Engineer’s attention to
   such deviations at the time of submission, nor shall it relieve him from
   responsibility for errors of any sort in the items submitted. The Contractor
   shall check the work described by the catalog data with the Engineer’s
   Contract Documents for deviations and errors.
   5. It shall be the responsibility of the Contractor to ensure that items to be
   furnished fit the space available. He shall make necessary field
   measurements to ascertain space requirements, including those connections,
   and shall order such sizes and shapes of equipment that the final installation
   shall suit the true intent and meaning of the Drawings and Specifications.
   6. Where equipment requiring different arrangements of connections from
   those shown is approved, it shall be the responsibility of the Contractor to
   install the equipment to operate properly and in harmony with the intent of
   the Drawings and Specifications, and to make all changes in the work
   required by the different arrangement of connections.

O. Surveys: Based upon the information provided by the City, the Contractor shall develop
and make all detail surveys necessary for construction, including slope stakes, batter
boards, stakes for pile location and other working points, lines and elevations. In a situation
resulting in the destruction of the marks, reference points, and stakes by the Contractor
resulting from his willful misconduct and/or negligence, the Contractor shall be charged
with the expense and damage resulting there from, and shall be responsible for any
mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.

P. Specifications and Standard Drawings: Unless otherwise set out in a contract, or in the plans and/or specifications attached thereto and/or made a part thereof, all materials and construction shall conform to the Standard Specifications of the City of Greenville and/or the South Carolina Department of Highway and Public Transportation Standard Specifications for Highway Construction, 2007 Edition, and/or the Standard Building Code series, and the National Electric Code with the latest revisions thereof as adopted by Ordinance by City Council.

3. ENGINEER-CITY-CONTRACTOR RELATIONS:

A. Engineer’s Responsibility and Authority: The Contractor shall bear all responsibility for and have all control over the construction means, methods, techniques, sequences, procedures, and safety precautions or programs, and the Engineer shall not have control nor bear responsibility for same. Nor will the Engineer have control over or bear responsibility for acts or omissions of the Contractor, Subcontractors, Sub-subcontractors, their agents or employees, or for failure of any of these to carry out the work in accordance with the Contract Documents. The Engineer has the authority to reject work which does not conform to the Contract Documents. The Engineer has the authority to make and/or approve minor changes in the work. For more substantial changes, the Engineer will prepare and issue Change Orders and Construction Change Directives. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, rate of progress of work, and interpretation of Drawings and Specifications.

B. Suspension of Work: The Engineer shall have the authority, but not the responsibility, to suspend the work, wholly or in part, for such period or periods as he may deem necessary, due to unsuitable weather or such other conditions as are considered unfavorable for prosecution of the work, or failure on the part of the Contractor to carry out the provisions of the Contract regarding the supply of materials meeting the requirements of the Specifications. The Contractor shall not suspend operation without the Engineer’s permission, unless otherwise allowed under the Contract.

C. Inspection of Work: All materials and each part or detail of the work shall be to the true intent of the Specifications in regard to quality of materials, workmanship, and the diligent execution of the Contract. Such inspection may include mill, plant, or shop inspection, and any materials furnished under these Specifications are subject to such inspection. In case of any dispute arising between the Contractor and the inspector as to materials furnished or the manner of performing the work, the inspector shall have the authority to stop the use of material or suspend the work until the question at issue can be referred to and decided by the Project Engineer. The inspector shall not be authorized to revoke, alter, change, relax or release any requirements of these provisions, nor to approve or accept any portion of the work or to issue instructions contrary to the drawings and specifications. The inspector shall not act as foreman or perform other duties for the contractor or interfere with the management of the work by the latter. The Engineer shall be allowed access to
all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make complete detailed inspection.

D. Examination of Completed Work: If the Engineer reasonably requests it, the Contractor at any time before acceptance of the work shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the Specifications. Should the work thus exposed or examined prove acceptable, making good of the parts removed shall be paid for as extra work, but should the work so exposed or examined prove unacceptable, the uncovering, removing and replacing shall be the Contractor’s expense.

E. Contractor’s Superintendents: A qualified superintendent, who is acceptable to the Engineer, shall be maintained on the work and provide efficient supervision to the work until its completion. The superintendent shall have full authority to act on behalf of the Contractor, and all directions given to the superintendent shall be considered given to the Contractor. In general, the Engineer’s instructions shall be confirmed in writing and always upon written request from the Contractor.

F. Reasonable Access to City Property: To the extent that same is possible and feasible, the City shall provide reasonable access to City properties that are reasonably necessary for the accomplishment of the purposes set out in the Contract. Any delay in furnishing such reasonable access by the City shall be deemed proper cause for adjustment in the Contract Amount and/or in the Time of Completion.

G. Access to Properties Not Belonging to City: Unless otherwise agreed between the City and Contractor, to the extent that access to lands not belonging to City are necessary for the accomplishment of the purposes set out in the Contract, whether for the storage of materials, equipment, work processes, or otherwise, such access shall be at the Contractor’s sole risk and expense, and Contractor shall be presumed to have planned for and/or made allowance for such when it sought to secure the work from City. Contractor shall not enter upon private property for any purpose related to the Contract without obtaining permission, and he shall be responsible for the preservation of all public property, trees, monuments, etc. along and adjacent to the street and/or right-of-way and shall use every precaution necessary to prevent damage to pipes, conduits, and other underground structures, and shall protect carefully from disturbance or damage all monuments and property marks. Any damage to properties resulting from the work under contract shall be repaired or replaced to the satisfaction of the owners of such properties. The Contractor shall not be entitled to additional payment for such replacement or repair or damaged property.

H. Removal of Construction of Equipment, Tools and Supplies: At the termination of this Contract, before acceptance of the work by the Engineer, the Contractor shall remove all of his equipment, tools, and supplies from the property of the City. Should the Contractor fail to remove such equipment, tools, and supplies, the City shall have the right to remove them and recover the actual cost of removal from the Contractor.

I. City’s Right to Correct Deficiencies: Upon failure of the Contractor to perform the work in accordance with the Contract documents, including any requirements with respect to the Schedule of Completion, and after five (5) days written notice to the Contractor, the City may, without prejudice to any other remedy it may have, correct such deficiencies and charge the cost of same to the Contractor. Any expense incurred by City for the cost of
correction of such deficiency(ies) shall be deducted by City from any payments due or which may become due under to Contractor under the Contract, and an itemization of the costs of such correction(s) shall be provided to the Contractor and/or the Contractor’s surety, if such is applicable.

J. City’s Right to Terminate Contract and Complete the Work: The City shall have the right, but not the responsibility, to terminate the employment of the Contractor upon good cause, or for City’s convenience, if so allowed. In the event of such termination, the City may take possession of the work and of the materials, tools, and equipment thereon and may finish the work by whatever method and means he may select. It shall be considered a default by the Contractor whenever Contractor shall:

1. Declare bankruptcy, become insolvent, or assign his assets for the benefit of his creditors,
2. Disregard or violate substantive provisions of the Contract Documents or fail to prosecute the work according to the agreed schedule of completion, including any extensions thereof,
3. Fail to provide a qualified superintendent, competent workmen, subcontractor(s), proper materials, or fail to make prompt payment therefor of amounts received from City as payment hereunder.
4. Violate any law, ordinance, or other governmental regulation that has jurisdiction over the Contractor and/or the work under the Contract.

K. Contractor’s Right to Suspend or Terminate Contract: The Contractor may suspend work or terminate the Contract upon thirty (30) days written notice to the City if the City fails to act upon any request for payment within thirty (30) days after its approval by the City, which approval shall not be unreasonably delayed.

L. Right of Various Interests: Whenever work being done by the City’s forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work in general harmony.

M. Separate Contracts: The City may let other contracts in connection with the work of the Contractor. The Contractor shall cooperate with other contractors with regard to storage of materials and execution of their work. It shall be the Contractor’s responsibility to inspect all work by other contractors affecting his work and report any irregularities which will not permit him to complete his work in a satisfactory manner. His failure to notify the Engineer of such irregularities shall indicate the work of other contractors has been satisfactorily completed to receive his work. The Contractor shall not be responsible for defects of which he could not have known, which develop in the work of others after the work is complete. It shall be the responsibility of the Contractor to measure the complete work in place and report to the Engineer immediately any difference between complete work by others and the drawings.

N. Subcontracts: At the time specified by the Contract Documents or when requested by the Engineer, the Contractor shall submit in writing to the City, for approval of the Engineer, the names of the subcontractors proposed for the work. Subcontractors may not be changed except at the request or with the approval of the Engineer. The Contractor is responsible to the City for the acts and omissions of his subcontractors, and of their direct and indirect
employees, to the same extent as he is responsible for the acts and omissions of his
employees. The Contract Documents shall not be construed as creating any contractual
relation between any subcontractor and the City. The Contractor shall bind every
subcontractor by the terms of the Contract Documents.

O. Work During an Emergency: The Contractor shall perform any work and shall furnish any
materials and equipment necessary during an emergency endangering life or property. In
all cases he shall notify the Engineer of the emergency as soon as practicable, but he shall
not wait for instructions before proceeding to properly protect both life and property.

P. Oral Agreements: No oral order, objections, claim, or notice by any party to the other shall
affect or modify any of the terms or obligations contained in any of the Contract
documents, and none of the provisions of the Contract documents shall be held to be waived or
modified by reason of any act whatsoever, other than by an agreed waiver or modification
thereof in writing, and no evidence shall be admissible in any proceeding of any other
waiver or modification.

Q. Tests and Inspections: Tests, inspections, and approvals of portions of the Work required
by the Contract Documents or by other governing authorities shall be made at any
appropriate time, in a manner so as not to delay the work. Unless otherwise provided, the
Contractor shall make arrangements for such tests, inspections and approvals with an
independent testing laboratory or entity acceptable to the City, if applicable, and shall bear
all related costs of tests, inspections and approvals. If the Engineer is to observe tests,
inspections and approvals, he will do so without undue delay, and where practicable, at the
normal place of testing.

1. The Contractor shall give the Engineer a minimum of 24 hours notice of
when and where tests and inspections are to be made so that the Engineer
may observe such procedures. The City shall bear costs of tests, inspections, or approvals which are not, or do not become, requirements of
Contractor under the Contract.

2. The Contractor shall make provision for additional testing, inspection, or
approval as may be reasonably required by the Engineer, city, or other
public authorities, following the procedure outlined above. The City shall
bear costs of such additional testing if same is done at City request or
direction, except as set out in item 3, below.

3. If such procedures of testing, inspections, or approval reveal failure of the
portions of the Work to comply with requirements established by the
Contract Documents, the Contractor shall bear all costs made necessary by
such failure including the of repeated procedures and compensation for the
Engineer’s services and expenses.

4. Required certificates of testing, inspection or approval shall, unless
otherwise required by the Contract Documents, be secured by the
Contractor and promptly delivered to the Engineer.

4. MATERIALS AND WORKMANSHIP:

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A. **Materials Furnished by the Contractor:** All materials used in the work shall meet the requirements of the respective Specifications. All material not otherwise specifically indicated shall be furnished by the Contractor.

B. **Materials Furnished by the City:** If specifically indicated, materials may be furnished by the City. The fact that the City is to furnish materials is conclusive evidence of its acceptability for the purpose intended and the Contractor may continue to use it until otherwise directed. If the Contractor discovers any defect in materials furnished by the City, he shall notify the Engineer.

C. **Title to Materials:** Title to any materials removed from existing buildings or from grounds, and not specified to be used in the performance of the work shall remain the property of the City and/or the owner, unless otherwise set out in the Contract, and/or agreed by and between the parties to the Contract.

D. **Storage of Materials:** Materials shall be securely stored so as to insure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard clean surfaces and not on the ground, and/or they shall be placed under cover. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessee of the private property.

E. **Character of Workman:** The Contractor shall at all times be responsible for the conduct and discipline of his employees and/or any subcontractor or persons employed by subcontractors. All workmen must have sufficient knowledge, skill, and experience to perform properly the work assigned to them. Any foreman or workman employed by the Contractor or subcontractor who, in the opinion of the Engineer, does not perform his work in a skillful manner, or appears to be incompetent, or to act in a disorderly or intemperate manner, shall be discharged immediately at the written request of the Engineer and shall not be employed again in any portion of the work without the approval of the Engineer. The sole purpose of this provision shall be for the good order of the project, and no supervisory authority regarding the project shall be imputed to the Engineer as a result of this paragraph.

F. **Rejected Work and Material:** All materials which do not conform to the Contract Documents, are not equal to the samples approved by the Engineer, or are in any way unsatisfactory or unsuited to the purpose for which they are intended, shall be rejected. Any defective work, whether the result of poor materials and/or workmanship, or any other cause, shall be removed within ten (10) days after written notice is given by the Engineer, and the work shall be re-executed by the Contractor at the Contractor’s sole cost, risk, and expense. The fact that Engineer may have previously overlooked such defective work shall not constitute acceptance of work that does not comply with the requirements of the Contract.

1. Should the Contractor fail to remove rejected work or material within ten (10) days after written notice to do so, the City may remove them and may store the materials, if same are salvageable, and Contractor shall be liable for all costs of such work.
G. **Manufacturer’s Directions**: Manufactured articles, material, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer unless herein specified to the contrary.

H. **Cutting and Patching**: The Contractor shall do all necessary cutting and patching of the work that may be required to properly receive the work of the various trades or as required by the Drawings and Specifications to complete the structure. Contractor shall restore all such cut or patched work as reasonably necessary.

I. **Cleaning Up**: Upon completion, the Contractor shall remove from the City’s property and from all public and private property all temporary structures, rubbish, and waste materials resulting from Contractor’s operations, and leave all such property in a clean and orderly condition.

J. **Guaranty Period**: The Contractor shall warrant all equipment and work performed by him for a period of one year from the date of written acceptance of the work by City. All mechanical equipment and systems, electrical controls, etc., shall be serviced by the representative or manufacturer for a minimum period of one (1) year after substantial completion of the project, provided that nothing in the Guaranty shall be construed to limit or restrict other warranties arising by contract or operation of law. If applicable, semi-annual reports as to the operational status of all items requiring service shall be sent to the City Engineer.

K. **Coordination**: Contractor shall exercise special care to coordinate with employees and subcontractors so that procedures will not conflict with any concurrent or subsequent construction. Those items which are indicated primarily in a schematic manner on the plans must be installed so as to not interfere with items whose locations are critical, and are specifically indicated.

5. **RESPONSIBILITY OF CONTRACTOR AND PUBLIC SAFETY**: 

A. **Permits**: All permits and licenses necessary for the prosecution of the work shall be secured by the Contractor unless otherwise provided in the Contract documents.

B. **Laws to be Observed**: The Contractor shall comply with all applicable federal, state, county and City laws and ordinances in the performance of its obligations hereunder, including, but not limited to, the procuring of any necessary business license(s).

The Contractor shall also specifically comply with the Underground Utility Damage Prevention Act of 1978 and any revisions thereof. Within not less than three (3) nor more than ten (10) days prior to beginning work on this project, the Contractor shall notify Palmetto Utility Location Services (PLUS), and/or any successor thereto, and all local utility firms of the proposed project construction schedule.

C. **Warning Signs and Barricades**: The Contractor shall provide adequate signs, barricades, warning lights, and watchmen and take all necessary precautions for the protection of the work and safety of the public. All barricades and obstructions shall be protected at night by warning lights which shall be kept burning/on from sunset to sunrise. Barricades shall be of substantial construction and shall be painted to conform to current safety standards to increase their visibility at night. Suitable warning signs shall be so placed and
illuminated at night as to show in advance where construction and barricades for detours exist.

D. Public Safety and Convenience: The Contractor shall at all times conduct his work so as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Engineer and the proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches which shall not be obstructed except as approved by the Engineer.

E. Crossing Utilities: When new construction crosses highways, railroads, streets, or utilities under the jurisdiction of State, County, City or other public agency, public utility or private entity, the Contractor shall secure written permission from the proper authority before executing such new construction. A copy of this written permission must be filed with the City before any work is done. The Contractor shall be responsible for repair, in a manner satisfactory to the affected utility, any main facilities damaged by the Contractor’s labor force or equipment, or for any damages incurred through neglect or failure to provide protective barriers, lights, and other devices or means required to protect existing utilities. The Contractor will be required to furnish a release from the proper authority before final acceptance of the work.

F. Sanitary Provisions: The Contractor shall provide and maintain such sanitary accommodations for the use of his employees and those of his subcontractors as may be necessary to comply with the requirements and regulations of the Local and State Departments of Health.

G. Temporary Access to Area Merchants and Businesses: If the work is in a predominantly commercial business section of the City, public access to all businesses must be maintained at all times. The Contractor shall provide safe and ready means of ingress and egress to all stores and shops, public and private and professional offices and any other businesses or residences in the project area, both day and night, for the duration of the project.

6. PROGRESS AND COMPLETION OF WORK:

A. Notice to Proceed: Following the execution of the Contract by the City, written notice to proceed with the work shall be given to the Contractor. The Contractor shall begin and shall prosecute the work regularly and uninterruptedly thereafter (unless otherwise directed in writing by the City) with such force as to secure the completion of the work within the completion of the work within the time stated in the Contract.

B. Contract Time: The Contractor shall complete in an acceptable manner all of the work contracted for in the time stated in the Contract.

C. Project Schedule and Reporting Requirements: Within seven (7) calendar days after the Contract has been awarded, or at the Pre-Construction Conference, whichever is earlier, the Contractor shall submit electronically to the City Engineer, a Critical Path Method
(CPM) schedule for the project. The CPM schedule shall indicate on a weekly basis the proposed progress of the project. The CPM schedule shall indicate construction work sequences, submittals, equipment delivery, significant events, installation milestones, and inspections.

This schedule shall show the various activities of work in sufficient detail to demonstrate that the Contractor has a reasonable and workable plan to complete the project within the Contract time. The schedule shall show order and interdependence of activities and the sequence in which the work is to be accomplished as planned by the Contractor. All activities shall be described so that the work is readily identifiable and the progress in each activity can be easily measured.

The completion date may be adjusted by the City Engineer to reflect any delays that may be caused by City, or by reasons not within the reasonable control of the Contractor. The Contractor may propose to the City Engineer modifications to this schedule. The modifications shall be subject to the City Engineer’s approval.

Approval of the CPM schedule will be dependent upon satisfactory identification of work items, the use of dates and event duration’s that are in conformance with the terms of the Contract, and adherence to the Contract time for completion.

If the CPM schedule is determined to be deficient by the City Engineer, it will be returned to the Contractor for revision, which must be done timely and without delay to the project.

If applicable, the City Engineer will designate the time and location for a regular Weekly Progress Meeting at which all principal parties are expected to attend. Principal parties include the Contractor, the City Engineer, the City’s Inspection Representative and other City representatives.

If requested by the City Engineer, the Contractor shall submit a revised baseline CPM schedule electronically prior to the Weekly Progress Meeting and when requested by the City Engineer. If revisions are required to the working schedule, the Contractor shall furnish revised charts and analysis within seven (7) calendar days of being notified by the City Engineer.

Failure to finalize either the initial or the revised CPM schedule in the specified time will result in the withholding of all Contract payments until the CPM schedule is approved.

D. Weekly Progress Reports and Weekly Status Meetings: If required by the City Engineer, the Contractor’s designated Project Manager shall prepare and submit eight copies of Weekly Progress Reports to the City Engineer and his designated representatives. The Progress Reports shall provide a complete description of activities completed by the Contractor during the preceding week. The report shall include such items as:

1. A description of materials brought on site.
2. A description of any activity or event that has delayed, or will lead to delay, of the Contractor’s work.
3. An updated CPM schedule and work plan.

The Weekly Progress Report shall be delivered to the City Engineer by the end of the first day of the following week. Partial payments will not be made to the Contractor until the City Engineer receives the Weekly Progress Report.
If required by the City Engineer, a weekly Status Meeting shall be held at a location to be designated by the City Engineer. The Contractor’s designated Project Manager will discuss technical and Contract status issues at this meeting. The Project Manager and/or the City Engineer’s designated Inspection Representative shall record meeting notes for distribution to and review by the City Engineer and his representatives.

E. Changes in the Work: The City may, as the need arises, order changes in the work through a valid change order.

F. Extra Work: New and unforeseen items of work found to be necessary and which are not reasonably covered by any item or combination of items for which there is a Contract price set out shall be classed as Extra Work. The Contractor shall do such Extra Work and furnish such materials for same as may be reasonably directed by the Engineer. In the absence of such direction from the Engineer, no claim for Extra Work shall be considered. Extra Work shall be performed in accordance with the Specifications, where applicable; and work not covered by the Specifications or Special Provisions shall be done in accordance with the best practices in the industry. Extra Work required in an emergency to protect life and property shall be performed by the Contractor as required.

G. Extension of Contract Time: A delay beyond the Contractor’s control occasioned by an Act of God, or act or omission on the part of the City, or by strikes, lockouts, fire, etc. may entitle the Contractor to an extension of time in which to complete the work as determined by the Engineer, provided, however, that the Contractor shall immediately give written notice to the Engineer of the cause of delay, and the Engineer confirms in writing his consent, such consent not being unreasonably withheld.

H. Use of Completed Portions: The Owner shall have the right to take possession of and use any completed or partially completed portion of the work, notwithstanding that the time for completing the entire work or such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of, or delays the completion of uncompleted work, or causes refinishing of completed work, the Contractor shall be entitled to such extra compensation or extension of item, or both, as the Engineer may determine.

7. MEASUREMENT AND PAYMENT:

A. Detailed Breakdown of Contract Amount: Except in cases where unit prices form the basis of payment under the Contract, the Contractor shall submit, within ten (10) days of receipt of Notice to Proceed, a complete breakdown of the Contract Amount showing the value assigned to each part of the work, including allowance for profit and overhead. Upon approval of the breakdown of the Contract amount by the Engineer, it shall be used as the basis for all Requests for Payment.

B. Requests for Payment: the Contractor may submit periodically, but not more than once each month, a Request for Payment for work done and materials delivered and stored on the site. The Contractor shall furnish the Engineer all reasonable facilities for obtaining the necessary information relative to the progress and execution of the work. Payment for
materials stored on the site will be conditioned upon evidence submitted to establish the City’s title to such materials, and their security onsite.

Each Request for Payment shall be computed from the work completed on all items listed in the Detailed Breakdown of Contract Amount, less ten percent (10%) to be retained until final completion and acceptance of the work, and less previous payments. Where unit prices are specified, the Request for Payment shall be based on the quantities completed. All Requests for Payment shall be submitted on a standard payment form acceptable to City.

C. Engineer’s Action on a Request for Payment: Within ten (10) days of submission of any Request for Payment by the Contractor, the Engineer shall:
   1. Approve the Request for Payment as submitted.
   2. Approve such other amount as he shall decide is due the Contractor, informing him in writing of his reasons for approving the amended amount.
   3. Withhold the Request for Payment, in whole or in part, informing the Contractor in writing of his reasons for withholding it.

D. City’s Action on an Approved Request for Payment: Within thirty (30) days from the date of approval of a Request for Payment by the Engineer, the City shall pay, in whole or in part, the Payment Request as approved by the Engineer.

E. City’s Right to Withhold Payment of an Approved Request for Payment: The City may withhold payment in whole or in part on an approved Request for Payment to the extent necessary to protect City from loss on account of any of the following causes discovered subsequent to approvals of a Request for Payment by the Engineer.
   1. Defective work.
   2. Evidence indicating the probable filing of claims of other parties against the Contractor.
   3. Failure of the Contractor to make payments to subcontractors, material suppliers, or labor.
   4. Damage to another contractor.
   5. Any additional basis addressed in the Construction Contract.

F. Payment for Uncorrected work: The Engineer may choose to accept project work that was not performed by Contractor in accordance with the Contract Documents and make an equitable deduction from the Contract amount otherwise owing to Contractor to compensate the city for the uncorrected work.

G. Payment of Rejected Work and Materials: The removal of work and materials rejected and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor, and Contractor shall additionally pay the cost of replacing the work of other contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement of acceptable work.

H. Payments for Extra Work: Written notice of claims for payments for extra work shall be given by the Contractor within ten (10) days after receipt of instructions from the City as approved by the Engineer to proceed with the extra work and also before any work is commenced, except in an emergency endangering life and property, and no claim shall be valid unless so made. In all cases, the Contractor’s itemized estimate sheets showing all
labor and materials shall be submitted to the Engineer. The City’s order for Extra Work shall specify an extension of the Contract Time and one of the Following methods of payment:

1. Unit prices or combinations of unit price which formed the base of the original Contract.
2. A lump sum based on the Contractor’s estimate, accepted by the City and approved by the Engineer.
3. Actual cost plus fifteen percent (15%) for overhead and profit.

In determining the cost or credit to the Owner resulting from a change in the work, the allowances for overhead and profit combined, shall not exceed the percentages herein scheduled, as follows:

1. For the Prime Contractor, for any work performed by his own forces, _____% of the cost;
2. For each Subcontractor involved, work performed by his own forces, _____% of the cost;
3. For the Prime Contractor, for work performed by his Subcontractor, _____% of the amount due to the Subcontractor.

I. Payment for work Suspended by the City: If the work or any part thereof shall be suspended by the City for a period of time for convenience, then City shall pay Contractor reasonable demobilization and remobilization costs. If the work is suspended by City per a Cease and Desist Order, as set out in the Contract, and the reason for the Cease and Desist Order not timely corrected by Contractor, then Contractor shall be subject to the terms of the Cease and Desist and the costs resulting from such as set out in the Contract.

J. Payment for Work by the City: If the project is terminated for cause by City, or subject to a Cease and Desist Order that is not timely corrected by the Contractor, the cost of the work performed by the City in removing construction equipment, tools, and supplies, and in correcting deficiencies and/or completing the work, shall be deducted from any Contract amounts owed by the City to Contractor under the Contract; and if the remaining amounts owed to Contractor under the Contract are insufficient to compensate the City for the remaining work, then the difference shall be paid by the Contractor to City within thirty days of invoicing for said costs by the City.

K. Payment for Work Terminated by the Contractor: Upon suspension of the work or termination of the Contract in accordance with the provisions herein, the Contractor shall recover payment from the City for the work performed plus loss on plant and materials, plus established profit and damages, as set out in the Contract, or reasonably determined by the City Engineer.

L. Payment for Samples and Testing of Materials: Samples to be furnished under the Contract, and the testing of such, shall be at the expense of the Contractor unless otherwise set out in the Contract.

M. Release of Liens: The Contractor shall deliver to the City a complete release of all liens arising out of this Contract before payment to Contractor of the retained percentage or before the final Request for Payment is paid. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the City such amounts as the City may
have been compelled to pay in discharging such liens, including all costs and a reasonable attorney’s fee. The City may require, from time to time or monthly, partial waiver of lien releases. Such partial waivers shall be submitted by the Contractor with monthly pay requests. Failure to provide partial waivers will be basis for withholding of payment.

N. **Acceptance and Final Payment**: Upon completion of the Contract work and upon request of the Contractor, the Project Inspector shall perform a preliminary inspection prior to the final inspection. After any noted preliminary inspection deficiencies are completed to the satisfaction of the Project Engineer, a final inspection shall be scheduled with all interested parties who wish to attend. If all construction provided for and contemplated by the Contract is found completed to the final inspection party and the Project Engineer’s satisfaction, the Project Engineer shall proceed with the review and/or approval of the Request for Payment. If the work is not acceptable to the Project Engineer at the time of such inspection, he will advise the Contractor as to the particular corrective work to be performed prior to final payment.

Before final payment is made, the Contractor will be requested to furnish satisfactory evidence that all bills, liens, or judgments have been satisfied; or, in the absence of such proof, the Engineer may retain from the amount shown on the final estimate an amount sufficient to cover all bills, liens, or judgment remaining unsatisfied. No reference to lien contained herein shall be deemed a waiver by the City as a political subdivision of the state to be immune from liens.

O. **Erection Drawings**: The Contractor shall furnish the Engineer with two (2) copies of all construction layouts of necessary use for completion of the work. These drawings shall show the location of all anchor bolts, piping, and other for completion of the work. Such drawings shall be subject to the approval of the Engineer.

P. **Correction of Faulty Work after Final Payment**: The Approval of the final Request for Payment by the Engineer and the making of the final payment by the City to the Contractor shall not relieve the Contractor of responsibility for faulty materials and workmanship. The City, after discovery of any deficiency, shall give notice of faulty materials and workmanship and the Contractor shall promptly replace such defects discovered within one (1) year from the date of written acceptance of the work, or within such longer period as may be provided under the Contract.

END OF GENERAL CONDITIONS TO THE CONTRACT FOR CONSTRUCTION
DISCLAIMER CONSTRUCTION CONTRACT

NOTE: The following Fixed Price Construction Contract between Owner and Contractor is a base form contract, and not the actual contract which will be entered into between the City and the selected contractor. Rather, the contract which will be entered into by and between the City and the selected contractor will be in substantially the form as following, with changes necessary to conform to the project. As the extent of the work to be done can only be estimated at this time, the fixed price component of this contract will be the unit prices, and the contract will be structured accordingly.
This FIXED PRICE CONSTRUCTION CONTRACT BETWEEN OWNER AND CONTRACTOR (the “Contract”) is made and entered into by and between ________________ (“Owner”) and ________________ (the “Contractor”). This Contract is executed under seal, and shall be effective on the date executed by the party to execute it.

This Contract is for the construction of a project identified as ______________________ (the “Project”).

NOW, THEREFORE, in consideration of the mutual promises, covenants and agreements stated herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree:

1. DOCUMENTS INCORPORATED BY REFERENCE. This Contract includes the plans and specifications for the Project identified thereon as such, plus the following (if any):

   a. Legal and Procedure Documents (Resolutions, RFP, Purchase Orders, etc.)
   b. Conditions to the Contract (General, Supplementary and other conditions)
   c. Detailed Specifications Requirements
   d. Drawings

All of which are hereby incorporated herein by reference and made a part hereof. Change Orders issued hereafter, and any other amendments executed by the Owner and the Contractor, shall become and be a part of this Contract. Documents not included or expressly contemplated in this Paragraph 1 do not, and shall not, form any part of this Contract.

2. REPRESENTATIONS OF THE CONTRACTOR. In order to induce the Owner to execute this Contract and recognizing that the Owner is relying thereon, the Contractor, by executing this Contract, makes the following express representations to the Owner:

   (A) The Contractor is fully qualified to act as the contractor for the Project and has, and shall maintain, any and all licenses, permits or other authorizations necessary to act as the contractor for, and to construct, the Project;

   (B) The Contractor has become familiar with the Project site and the local conditions under which the Project is to be constructed and operated;

   (C) The Contractor has received, reviewed and carefully examined all of the documents which make up this Contract, including, but not limited to, the plans and specifications, and has found them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient for construction.
3. **INTENT AND INTERPRETATION.** With respect to the intent and interpretation of this Contract, the Owner and the Contractor agree as follows:

(A) This Contract, together with the Contractor's and Surety's performance and payment bonds for the Project, if any, constitute the entire and exclusive agreements between the parties with reference to the Project, and said Contract supersedes any and all prior discussions, communications, representations, understandings, negotiations, or agreements. This Contract also supersedes any bid documents, except as identified and incorporated by reference in Section 1 above;

(B) Anything that may be required, implied or inferred by the documents which make up this Contract, or any one or more of them, shall be provided by the Contractor for the Contract Price;

(C) Nothing contained in this Contract shall create, nor be interpreted to create, privity or any other relationship whatsoever between the Owner and any person except the Contractor;

(D) When a word, term, or phrase is used in this Contract, it shall be interpreted or construed first, as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage;

(E) The words "include", "includes", or "including", as used in this Contract, shall be deemed to be followed by the phrase, "without limitation";

(F) The specification herein of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence or condition shall be deemed not to constitute a material breach of this Contract;

(G) The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the documents which make up this Contract, shop drawings, and other submittals and shall give written notice to the Owner of any conflict, ambiguity, error or omission which the Contractor may find with respect to these documents before proceeding with the affected work. The express or implied approval by the Owner or the Architect of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Owner has requested the Architect to only prepare documents for the Project, including the plans and specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction. HOWEVER, THE OWNER MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. The Contractor again hereby acknowledges and represents that it has received, reviewed and carefully examined such documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that the Contractor has not, does not, and will not rely
upon any representations or warranties by the Owner concerning such documents, as no such representations or warranties have been or are hereby made;

(H) In the event of any conflict, discrepancy, or inconsistency among any of the documents which make up this Contract, the following shall control:

1) As between figures given on plans and scaled measurements, the figures shall govern;

2) As between large scale plans and small scale plans, the large scale plans shall govern;

3) As between plans and specifications, the requirements of the specifications shall govern;

4) As between this document and the plans or specifications, this document shall govern;

5) As between any standard document prepared by the American Institute of Architects (AIA) and the National Construction Law Center (NCLC), the NCLC document shall govern.

4. OWNERSHIP OF THE DOCUMENTS WHICH MAKE UP THE CONTRACT. The documents which make up this Contract, and each of them, as well as any other documents furnished by the Owner, shall remain the property of the Owner. The Contractor shall have the right to keep one (1) copy of the Contract upon completion of the Project; provided, however, that in no event shall the Contractor use, or permit to be used, any portion or all of such Contract on other projects without the Owner’s prior written authorization.

5. CONTRACTOR’S PERFORMANCE. The Contractor shall perform all of the work required, implied or reasonably inferable from this Contract including, but not limited to, the following:

(A) Construction of the Project;

(B) The furnishing of any required surety bonds and insurance;

(C) The provision or furnishing, and prompt payment therefore, of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, fuel, heat, light, cooling, or other utilities, required for construction and all necessary building permits and other permits required for the construction of the Project;

(D) The creation and submission to the Owner of detailed and comprehensive as-built drawings depicting all as-built construction. Said as-built drawings shall be submitted to the Owner upon final completion of the Project and receipt of same by the Owner shall be a condition precedent to final payment to the Contractor.

6. TIME FOR CONTRACTOR’S PERFORMANCE.
(A) The Contractor shall commence the performance of this Contract on _____ and shall diligently continue its performance to and until final completion of the Project. The Contractor shall accomplish Substantial Completion of the Project on or before _______.

(B) The Contractor shall pay the Owner the sum of ___________ Dollars ($___________) per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth herein for Substantial Completion. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at the time of executing this Contract. When the Owner reasonably believes that Substantial Completion will be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages;

(C) The term “Substantial Completion”, as used herein, shall mean that point at which, as certified in writing by the Engineer, the Project is at a level of completion in strict compliance with this Contract such that the Owner or its designee can enjoy beneficial use or occupancy and can use or operate it in all respects, for its intended purpose. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion;

(D) All limitations of time set forth herein are material and are of the essence of this Contract.

7. FIXED PRICE AND CONTRACT PAYMENTS.

(A) The Owner shall pay, and the Contractor shall accept, as full and complete payment for the Contractor’s timely performance of its obligations hereunder the fixed price of ___________ Dollars ($___________).

The price set forth in this Subparagraph 7(a) shall constitute the Contract Price, which shall not be modified except by Change Order as provided in this Contract.

(B) Within ten (10) calendar days of the effective date hereof, the Contractor shall prepare and present to the Owner the Contractor’s Schedule of Values apportioning the Contract Price among the different elements of the Project for purposes of periodic and final payment. The Contractor’s Schedule of Values shall be presented in whatever format, with such detail, and backed up with whatever supporting information the Architect or the Owner requests. The Contractor shall not imbalance it’s Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Contract. The Contractor’s Schedule of Values will be utilized for the Contractor’s Payment Requests but shall only be so utilized after it has been acknowledged in writing by the Owner;
(C) The Owner shall pay the Contract Price to the Contractor in accordance with the procedures set forth in this Paragraph 7. On or before the ______ day of each month after commencement of performance, but no more frequently than once monthly, the Contractor may submit a Payment Request for the period ending the ____ day of the month. Said Payment Request shall be in such format and include whatever supporting information as may be required by the Owner. Therein, the Contractor may request payment for ninety percent (90%) of that part of the Contract Price allocable to Contract requirements properly provided, labor, materials, and equipment properly incorporated in the Project, and materials or equipment necessary for the Project and properly stored at the Project site (or elsewhere if offsite storage is approved in writing by the Owner), less the total amount of previous payments received from the Owner. Any payment on account of stored materials or equipment will be subject to the Contractor providing written proof that the Owner has title to such materials or equipment and that they are fully insured against loss or damage. Each such Payment Request shall be signed by the Contractor and shall constitute the Contractor’s representation that the quantity of work has reached the level for which payment is requested, that the work properly installed or performed in strict compliance with this Contract, and that the Contractor knows of no reason why payment should not be made as requested. Thereafter, the Engineer shall review the Payment Request and may also review the work at the Project site or elsewhere to determine whether the quantity and quality of the work is as represented in the Payment Request and is as required by this Contract. The Engineer shall approve in writing the amount which, in the opinion of the Engineer, is properly owing to the Contractor. The Owner shall make payment to the Contractor within thirty (30) days following the Engineer’s written approval of each Payment Request. The amount of each such payment shall be the amount approved for payment by the Engineer less such amounts, if any, otherwise owing by the Contractor to the Owner or which the Owner shall have the right to withhold as authorized by this Contract. The Engineer’s approval of the Contractor’s Payment Requests shall not preclude the Owner from the exercise of any of its rights as set forth in Subparagraph 7(F) herein below. The submission by the Contractor of a Payment Request also constitutes an affirmative representation and warranty that all work for which the Owner has previously paid is free and clear of any lien, claim, or other encumbrance of any person whatsoever. As a condition precedent to payment, the Contractor shall, if required by the Owner, also furnish to the Owner properly executed waivers of lien, in a form acceptable to the Owner, from all subcontractors, materialmen, suppliers or others having lien rights, wherein said subcontractors, materialmen, suppliers or others having lien rights, shall acknowledge receipt of all sums due pursuant to all prior Payment Requests and waive and relinquish any liens, lien rights or other claims relating to the Project site. Furthermore, the Contractor warrants and represents that, upon payment of the Payment Request submitted, title to all work included in such payment shall be vested in the Owner;

(D) When payment is received from the Owner, the Contractor shall immediately pay all subcontractors, materialmen, laborers and suppliers the amounts they are due for the work covered by such payment. In the event the Owner becomes informed that the Contractor has not paid a subcontractor, materialman, laborer, or supplier as provided herein, the Owner shall have the right, but not the duty, to issue future checks and payment to the Contractor of amounts otherwise due hereunder naming the Contractor;
and any such subcontractor, materialman, laborer, or supplier as joint payees. Such joint check procedure, if employed by the Owner, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the Owner to repeat the procedure in the future;

(E) Neither payment to the Contractor, utilization of the Project for any purpose by the Owner, nor any other act or omission by the Owner shall be interpreted or construed as an acceptance of any work of the Contractor not strictly in compliance with this Contract;

(F) The Owner shall have the right to refuse to make payment and, if necessary, may demand the return of a portion or the entire amount previously paid to the Contractor due to:

1) The quality of a portion, or all, of the Contractor's work not being in accordance with the requirements of this Contract;

2) The quantity of the Contractor's work not being as represented in the Contractor's Payment Request, or otherwise;

3) The Contractor's rate of progress being such that, in the Owner's opinion, Substantial Completion or final completion, or both, may be inexcusably delayed;

4) The Contractor's failure to use Contract funds, previously paid the Contractor by the Owner, to pay Contractor's Project-related obligations including, but not limited to, subcontractors, laborers and material and equipment suppliers;

5) Claims made, or likely to be made, against the Owner or its property;

6) Loss caused by the Contractor;

7) The Contractor's failure or refusal to perform any of its obligations to the Owner.

In the event that the Owner makes written demand upon the Contractor for amounts previously paid by the Owner as contemplated in this Subparagraph 7(F), the Contractor shall promptly comply with such demand;

(G) If within thirty (30) days from the date payment to the Contractor is due, the Owner, without cause or basis hereunder, fails to pay the Contractor any amounts then due and payable to the Contractor, the Contractor shall have the right to cease work until receipt of proper payment after first providing ten (10) days' written notice of its intent to cease work to the Owner. Any payment not made within thirty (30) days after the date due shall bear interest at the rate of ______ percent (___%) per annum;

(H) When Substantial Completion has been achieved, the Contractor shall notify the Owner in writing and shall furnish to the Engineer a listing of those matters yet to be finished. The Engineer will thereupon conduct an inspection to confirm that the work is in fact substantially complete. Upon its confirmation that the Contractor's work is
substantially complete, the Engineer will so notify the Owner and Contractor in writing and will therein set forth the date of Substantial Completion. If the Engineer, through its inspection, fails to find that the Contractor's work is substantially complete, and is required to repeat all, or any portion, of its Substantial Completion inspection, the Contractor shall bear the cost of such repeat inspection(s) which cost may be deducted by the Owner from any payment then or thereafter due to the Contractor. Guarantees and equipment warranties required by this Contract shall commence on the date of Substantial Completion. Upon Substantial Completion, the Owner shall pay the Contractor an amount sufficient to increase total payments to the Contractor to one hundred percent (100%) of the Contract Price less any amounts attributable to liquidated damages, together with ________ percent (___%) of the reasonable costs as determined by the Owner for completing all incomplete work, correcting and bringing into conformance all defective and nonconforming work, and handling any outstanding or threatened claims;

(I) When the Project is finally complete and the Contractor is ready for a final inspection, it shall notify the Owner thereof in writing. Thereupon, the Engineer will perform a final inspection of the Project. If the Engineer confirms that the Project is complete in full accordance with this Contract and that the Contractor has performed all of its obligations to the Owner hereunder, the Engineer will furnish a final Approval for Payment to the Owner certifying to the Owner that the Project is complete and the Contractor is entitled to the remainder of the unpaid Contract Price, less any amount withheld pursuant to this Contract. If the Engineer is unable to issue its final Approval for Payment and is required to repeat its final inspection of the Project, the Contractor shall bear the cost of such repeat inspection(s), which costs may be deducted by the Owner from the Contractor's final payment;

(J) If the Contractor fails to achieve final completion within ____ days of the date 3 of Substantial Completion, the Contractor shall pay the Owner the sum of ____ Dollars ($_____) per day for each and every calendar day of unexcused delay in achieving final completion beyond the date set forth herein for final completion of the work. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at or before the time of executing this Contract. When the Owner reasonably believes that final completion will be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving final completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages;

(K) Prior to being entitled to receive final payment and as a condition precedent thereto, the Contractor shall furnish the Owner, in the form and manner required by Owner, if any, with a copy to the Architect:

1) An affidavit that all of the Contractor's obligations to subcontractors, laborers, equipment or material suppliers, or other third parties in connection with the Project, have been paid or otherwise satisfied;
2) If required by the Owner, separate releases of lien or lien waivers from each subcontractor, lower tier subcontractor, laborer, supplier or other person or entity who has, or might have a claim against the Owner or the Owner's property;

3) If applicable, consent(s) of surety to final payment;

4) All product warranties, operating manuals, instruction manuals and other record documents, drawings and things customarily required of the Contractor, or expressly required herein, as a part of or prior to Project closeout;

(L) The Owner shall, subject to its rights set forth in Subparagraph 7(D) above, make final payment of all sums due the Contractor within ten (10) days of the Engineer's execution of a final Approval for Payment.

8. INFORMATION AND MATERIAL SUPPLIED BY THE OWNER,

(A) The Owner shall furnish to the Contractor, prior to the execution of this Contract, any and all written and tangible material in its possession concerning conditions below ground at the site of the Project. Such written and tangible material is furnished to the Contractor only in order to make complete disclosure of such material as being in the possession of the Owner and for no other purpose. By furnishing such material, the Owner does not represent, warrant, or guarantee its accuracy either in whole, in part, implicitly or explicitly, or at all, and shall have no liability therefore. The Owner shall also furnish, if appropriate, the legal description of the Project site, and any required survey;

(B) The Owner shall obtain all required authorizations, approvals, easements, and the like excluding the building permit and other permits or fees required of the Contractor by this Contract, or permits and fees customarily the responsibility of the Contractor;

(C) The Owner will provide the Contractor_________ copies of the complete Contract. The Contractor will be charged, and shall pay the Owner, __________ Dollars ($_________) per additional copy of the Contract which it may require.

9. CEASE AND DESIST ORDER. In the event the Contractor fails or refuses to perform the work as required herein, the Owner may instruct the Contractor to cease and desist from performing further work in whole or in part. Upon receipt of such instruction, the Contractor shall immediately cease and desist as instructed by the Owner and shall not proceed further until the cause for the Owner's instructions has been corrected, no longer exists, or the Owner instructs that the work may resume. In the event the Owner issues such instructions to cease and desist, and in the further event that the Contractor fails and refuses within seven (7) days of receipt of same to provide adequate assurance to the Owner that the cause of such instructions will be eliminated or corrected, then the Owner shall have the right, but not the obligation, to carry out the work with its own forces, or with the forces of another contractor, and the Contractor shall be fully responsible and liable for the costs of performing such work by the Owner. The rights set forth herein are in addition to, and without prejudice to, any other rights or remedies the Owner may have against the Contractor.
10. **DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR.** In addition to any and all other duties, obligations and responsibilities of the Contractor set forth in this Contract, the Contractor shall have and perform the following duties, obligations and responsibilities to the Owner:

(A) The Contractor is again reminded of its continuing duties set forth in Subparagraph 3(G), which are by reference hereby incorporated in this Subparagraph 10(A). The Contractor shall not perform work without adequate plans and specifications, or, as appropriate, approved shop drawings, or other submittals. If the Contractor performs work knowing or believing it involves an error, inconsistency or omission in the Contract without first providing written notice to the Owner, the Contractor shall be responsible for such work and pay the cost of correcting same;

(B) All work shall strictly conform to the requirements of this Contract;

(C) The work shall be strictly supervised, the Contractor bearing full responsibility for any and all acts or omissions of those engaged in the work on behalf of the Contractor;

(D) The Contractor hereby warrants that all labor furnished under this Contract shall be competent to perform the tasks undertaken, that the product of such labor shall yield only first-class results, that all materials and equipment provided shall be new and of high quality, that the completed work will be complete, of high quality, without defects, and that all work strictly complies with the requirements of this Contract. Any work not strictly complying with the requirements of this Subparagraph shall constitute a breach of the Contractor's warranty;

(E) The Contractor shall obtain and pay for all required permits, fees and licenses customarily obtained by the Contractor. The Contractor shall comply with all legal requirements applicable to the work;

(F) The Contractor shall employ and maintain at the Project site only competent supervisory personnel. Key supervisory personnel assigned by the Contractor to this Project are as follows:

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So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Owner agrees to the contrary in writing. In the event one or more individuals not listed above subsequently assumes one or more of those functions listed above, the Contractor shall be bound by the provisions of this Subparagraph 10(f) as though such individuals had been listed above;

(G) The Contractor, within fifteen (15) days of commencing the work, shall provide to the Owner, and comply with, the Contractor's schedule for completing the work. Such
schedule shall be in a form acceptable to the Owner. The Contractor's schedule shall be updated no less frequently than monthly (unless the parties otherwise agree in writing) and shall be updated to reflect conditions encountered from time to time and shall apply to the total Project. Each such revision shall be furnished to the Owner. Strict compliance with the requirements of this Subparagraph 10(G) shall be a condition precedent to payment to the Contractor, and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract;

(H) The Contractor shall keep an updated copy of this Contract at the site. Additionally, the Contractor shall keep a copy of approved shop drawings and other submittals. All of these items shall be available to the Owner at all regular business hours. Upon final completion of the work, all of these items shall be finally updated and provided to the Owner and shall become the property of the Owner;

(I) Shop drawings and other submittals from the Contractor do not constitute a part of the Contract. The Contractor shall not do any work requiring shop drawings or other submittals unless such shall have been approved in writing by the Engineer. All work requiring approved shop drawings or other submittals shall be done in strict compliance with such approved documents. However, approval by the Owner shall not be evidence that work installed pursuant thereto conforms with the requirements of this Contract. The Owner shall have no duty to review partial submittals or incomplete submittals. The Contractor shall maintain a submittal log which shall include, at a minimum, the date of each submittal, the date of any resubmittal, the date of any approval or rejection, and the reason for any approval or rejection. The Contractor shall have the duty to carefully review, inspect and examine any and all submittals before submission of same to the Owner;

(J) The Contractor shall maintain the Project site in a reasonably clean condition during performance of the work. Upon final completion, the Contractor shall thoroughly clean the Project site of all debris, trash and excess materials or equipment;

(K) At all times relevant to this Contract, the Contractor shall permit the Owner and the Architect to enter upon the Project site and to review or inspect the work without formality or other procedure.

11. **INDEMNITY.** The Contractor shall indemnify and hold the Owner harmless from any and all claims, liability, damages, loss, cost and expense of every type whatsoever including, without limitation, attorneys’ fees and expenses, in connection with the Contractor's performance of this Contract, provided that such claims, liability, damage, loss, cost or expense is due to sickness, personal injury, disease or death, or to loss or destruction of tangible property (other than the work itself), including loss of use resulting therefrom, to the extent caused by the Contractor, or anyone for whose acts the Contractor may be liable, regardless of whether such liability, claim, damage, loss, cost or expense is caused in part by the Owner.

12. **THE PROJECT ARCHITECT AND THE ENGINEER.** The architect for this Project is ______________. The Engineer is the Owner’s City Engineer. Unless otherwise directed by the Owner in writing, the Engineer will perform those duties and discharge those
responsibilities allocated to the Engineer in this Contract. The duties, obligations and responsibilities of the Engineer shall include, but are not limited to, the following:

(A) When requested by the Contractor in writing, the Engineer shall render interpretations necessary for the proper execution or progress of the work;

(B) The Contractor shall draft proposed Change Orders;

(C) The Engineer shall approve, or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor;

(D) The Engineer shall be authorized to refuse to accept work which is defective or otherwise fails to comply with the requirements of this Contract. If the Engineer deems it appropriate, the Engineer shall be authorized to call for extra inspection or testing of the work for compliance with requirements of this Contract;

(E) The Engineer shall review the Contractor's Payment Requests and shall approve in writing those amounts which, in the opinion of the Engineer, are properly owing to the Contractor as provided in this Contract;

(F) The Engineer shall, upon written request from the Contractor, perform those inspections required in Paragraph 7 herein above;

(G) The Engineer shall be authorized to require the Contractor to make changes which do not involve a change in the Contract Price or in the time for the Contractor's performance of this Contract consistent with the intent of this Contract.

13. **CLAIMS BY THE CONTRACTOR.** Claims by the Contractor against the Owner are subject to the following terms and conditions:

(A) All Contractor claims against the Owner shall be initiated by a written claim submitted to the Owner. Such claim shall be received by the Owner no later than seven (7) calendar days after the event, or the first appearance of the circumstances, causing the claim, and same shall set forth in detail all known facts and circumstances supporting the claim;

(B) The Contractor and the Owner shall continue their performance hereunder regardless of the existence of any claims submitted by the Contractor;

(C) In the event the Contractor discovers previously concealed and unknown site conditions which are materially at variance from those typically and ordinarily encountered in the general geographical location of the Project, the Contract Price shall be modified, either upward or downward, upon the written claim made by either party within seven (7) calendar days after the first appearance to such party of the circumstances. As a condition precedent to the Owner having any liability to the Contractor due to concealed and unknown conditions, the Contractor must give the Owner written notice of, and an opportunity to observe, such condition prior to disturbing it. The failure by the Contractor to give the written notice and make the claim as provided by this Subparagraph 13(C) shall constitute a waiver by the
Contractor of any rights arising out of or relating to such concealed and unknown condition;

(D) In the event the Contractor seeks to make a claim for an increase in the Contract Price, as a condition precedent to any liability of the Owner therefore, the Contractor shall strictly comply with the requirements of Subparagraph 13(A) above and such claim shall be made by the Contractor before proceeding to execute any additional or changed work. Failure of the condition precedent to occur shall constitute a waiver by the Contractor of any claim for additional compensation;

(E) In connection with any claim by the Contractor against the Owner for compensation in excess of the Contract Price, any liability of the Owner for the Contractor's cost shall be strictly limited to direct cost incurred by the Contractor and shall in no event include indirect cost or consequential damages of the Contractor. The Owner shall not be liable to the Contractor for claims of third-parties including subcontractors, unless and until liability of the Contractor has been established therefore in a court of competent jurisdiction;

(F) In the event the Contractor should be delayed in performing any task which at the time of the delay is then critical, or which during the delay becomes critical, as the sole result of any act or omission by the Owner or someone acting in the Owner's behalf, or by Owner-authorized Change Orders, unusually bad weather not reasonably anticipatable, fire or other Acts of God, the date for achieving Substantial Completion, or, as applicable, final completion, shall be appropriately adjusted by the Owner upon the written claim of the Contractor to the Owner. A task is critical within the meaning of this Subparagraph 13(F) if, and only if, said task is on the critical path of the Project schedule so that a delay in performing such task will delay the ultimate completion of the Project. Any claim for an extension of time by the Contractor shall strictly comply with the requirements of Subparagraph 13(A) above. If the Contractor fails to make such claim as required in this Subparagraph 13(F), any claim for an extension of time shall be waived.

14. **SUBCONTRACTORS.** Upon execution of this Contract, the Contractor shall identify to the Owner, in writing, those parties intended as subcontractors on the Project. The Owner shall, in writing, state any objections the Owner may have to one or more of such subcontractors. The Contractor shall not enter into a subcontract with an intended subcontractor with reference to whom the Owner objects. All subcontracts shall afford the Contractor rights against the subcontractor which correspond to those rights afforded to the Owner against the Contractor herein, including those rights of Contract termination as set forth herein below.

15. **CHANGE ORDERS.** One or more changes to the work within the general scope of this Contract may be ordered by Change Order. The Contractor shall proceed with any such changes, and same shall be accomplished in strict accordance with the following terms and conditions:

(A) Change Order shall mean a written order to the Contractor executed by the Owner after execution of this Contract, directing a change in the work and may include a change in the Contract Price or the time for the Contractor's performance, or any combination thereof;
(B) Any change in the Contract Price resulting from a Change Order shall be determined as follows:

1) By mutual agreement between the Owner and the Contractor as evidenced by (a) the change in the Contract Price being set forth in the Change Order, (b) such change in the Contract Price, together with any conditions or requirements relating thereto, being initialed by both parties and (c) the Contractor's execution of the Change Order, or;

2) If no mutual agreement occurs between the Owner and the Contractor, the change in the Contract Price, if any, shall be derived by determining the reasonable actual costs incurred or savings achieved, resulting from revisions in the work. Such reasonable actual costs or savings shall include a component for direct job site overhead and profit but shall not include home-office overhead or other indirect costs or components. Any such costs or savings shall be documented in the format and with such content and detail as the Owner requires.

(C) The execution of a Change Order by the Contractor shall constitute conclusive evidence of the Contractor's agreement to the ordered changes in the work, this Contract as thus amended, the Contract Price and the time for performance by the Contractor. The Contractor, by executing the Change Order, waives and forever releases any claim against the Owner for additional time or compensation for matters relating to or arising out of or resulting from the work included within or affected by the executed Change Order;

(D) The Contractor shall notify and obtain the consent and approval of the Contractor's surety with reference to all Change Orders if such notice, consent or approvals are required by the Owner, the Contractor's surety or by law. The Contractor's execution of the Change Order shall constitute the Contractor's warranty to the Owner that the surety has been notified of, and consents to, such Change Order and the surety shall be conclusively deemed to have been notified of such Change Order and to have expressly consented thereto.

16. DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK.

(A) In the event that the Contractor covers, conceals or obscures its work in violation of this Contract or in violation of a directive from the Owner, such work shall be uncovered and displayed for the Owner's inspection upon request, and shall be reworked at no cost in time or money to the Owner;

(B) If any of the work is covered, concealed or obscured in a manner not covered by Subparagraph 16(A) above, it shall, if directed by the Owner or be uncovered and displayed for the Owner's inspection. If the uncovered work conforms strictly to this Contract, the costs incurred by the Contractor to uncover and subsequently, replace such work shall be borne by the Owner. Otherwise, such costs shall be borne by the Contractor;
(C) The Contractor shall, at no cost in time or money to the Owner, correct work rejected by the Owner as defective or failing to conform to this Contract. Additionally, the Contractor shall reimburse the Owner for all testing, inspections and other expenses incurred as a result thereof;

(D) In addition to its warranty obligations set forth elsewhere herein, the Contractor shall be specifically obligated to correct any and all defective or nonconforming work for a period of twelve (12) months following final completion upon written direction from the Owner.

(E) The Owner may, but shall in no event be required to, choose to accept defective or nonconforming work. In such event, the Contract Price shall be reduced by the greater of (1) the reasonable costs of removing and correcting the defective or nonconforming work, and (2) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming work. If the remaining portion of the unpaid Contract Price, if any, is insufficient to compensate the Owner for the acceptance of defective or nonconforming work, the Contractor shall, upon written demand from the Owner, pay the Owner such remaining compensation for accepting defective or nonconforming work.

17. **TERMINATION BY THE CONTRACTOR.** If the Owner repeatedly fails to perform its material obligations to the Contractor for a period of thirty (30) days after receiving written notice from the Contractor of its intent to terminate hereunder, the Contractor may terminate performance under this Contract by written notice to the Owner. In such event, the Contractor shall be entitled to recover from the Owner as though the Owner had terminated the Contractor's performance under this Contract for convenience pursuant to Subparagraph 19(A) hereunder.

18. **OWNER'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE.**

   (A) The Owner shall have the right at any time to direct the Contractor to suspend its performance, or any designated part thereof, for any reason whatsoever, or without reason, for a cumulative period of up to thirty (30) calendar days. If any such suspension is directed by the Owner, the Contractor shall immediately comply with same;

   (B) In the event the Owner directs a suspension of performance under this Paragraph 18, through no fault of the Contractor, the Owner shall pay the Contractor as full compensation for such suspension the Contractor's reasonable costs, actually incurred and paid, of:

   1) Demobilization and remobilization, including such costs paid to subcontractors;

   2) Preserving and protecting work in place;

   3) Storage of materials or equipment purchased for the Project, including insurance thereon;
4) Performing in a later, or during a longer, time frame than that contemplated by this Contract.

19. **TERMINATION BY THE OWNER.** The Owner may terminate this Contract in accordance with the following terms and conditions:

(A) The Owner may, for any reason whatsoever, terminate performance under this Contract by the Contractor for convenience. The Owner shall give written notice of such termination to the Contractor specifying when termination becomes effective. The Contractor shall incur no further obligations in connection with the work and the Contractor shall stop work when such termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The Owner may direct the Contractor to assign the Contractor's right, title and interest under termination orders or subcontracts to the Owner or its designee. The Contractor shall transfer title and deliver to the Owner such completed or partially completed work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has. When terminated for convenience, the Contractor shall be compensated as follows:

1) The Contractor shall submit a termination claim to the Owner specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the Owner. If the Contractor fails to file a termination claim within one (1) year from the effective date of termination, the Owner shall pay the Contractor, an amount derived in accordance with Subparagraph (3) below;

2) The Owner and the Contractor may agree to the compensation, if any, due to the Contractor hereunder;

3) Absent agreement to the amount due to the Contractor, the Owner shall pay the Contractor the following amounts:

4) Contract prices for labor, materials, equipment and other services accepted under this Contract;

5) Reasonable costs incurred in preparing to perform and in performing the terminated portion of the work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for direct job site overhead and profit thereon (such profit shall not include anticipated profit or consequential damages); provided however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any;

6) Reasonable costs of settling and paying claims arising out of the termination of subcontracts or orders pursuant to Subparagraph 19(A) of this Paragraph. These costs shall not include amounts paid in accordance with other provisions hereof.
The total sum to be paid the Contractor under this Subparagraph 19(A) shall not exceed the total Contract Price, as properly adjusted, reduced by the amount of payments otherwise made, and shall in no event include duplication of payment.

(B) If the Contractor does not perform the work, or any part thereof, in a timely manner, supply adequate labor, supervisory personnel or proper equipment or materials, or if it fails to timely discharge its obligations for labor, equipment and materials, or proceeds to disobey applicable law, or otherwise commits a violation of a material provision of this Contract, then the Owner, in addition to any other rights it may have against the Contractor or others, may terminate the performance of the Contractor and assume possession of the Project site and of all materials and equipment at the site and may complete the work. In such case, the Contractor shall not be paid further until the work is complete. After final completion has been achieved, if any portion of the Contract Price, as it may be modified hereunder, remains after the cost to the Owner of completing the work, including all costs and expenses of every nature incurred, has been deducted by the Owner, such remainder shall belong to the Contractor. Otherwise, the Contractor shall pay and make whole the Owner for such cost. This obligation for payment shall survive the termination of the Contract. In the event the employment of the Contractor is terminated by the Owner for cause pursuant to this Subparagraph 19(B) and it is subsequently determined by a Court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination for Convenience under Subparagraph 19(A) and the provisions of Subparagraph 19(A) shall apply.

20. **INSURANCE.** The Contractor shall have and maintain insurance in accordance with the requirements of Exhibit "A" attached hereto and incorporated herein by reference.

21. **SURETY BONDS.** The Contractor shall furnish separate performance and payment bonds to the Owner. Each bond shall set forth a penal sum in an amount not less than the Contract Price. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Contract Price is adjusted by Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be in form suitable to the Owner and shall be executed by a surety, or sureties, licensed in South Carolina and reasonably acceptable to the Owner.

22. **PROJECT RECORDS.** All documents relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Contractor, or any subcontractor of the Contractor, shall be made available to the Owner for inspection and copying upon written request by the Owner. Furthermore, said documents shall be made available, upon request by the Owner, to any state, federal or other regulatory authority and any such authority may review, inspect and copy such records. Said records include, but are not limited to, all drawings, plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos, or other writings or things which document the Project, its design, and its construction. Said records expressly include those documents reflecting the cost of construction to the Contractor. The Contractor shall maintain and protect these documents for no less than four (4) years after final completion of the Project, or for any longer period of time as may be required by law or good construction practice.
23. **APPLICABLE LAW.** The law applicable to this Contract is hereby agreed to be the law of the State where the Project is situated.

24. **SUCCESSORS AND ASSIGNS.** Each party binds itself, its successors, assigns, executors, administrators or other representatives to the other party hereto and to successors, assigns, executors, administrators or other representatives of such other party in connection with all terms and conditions of this Contract. The Contractor shall not assign this Contract without prior written consent of the Owner.

WITNESSES:

________________________

________________________

WITNESSES:

________________________

________________________

CONTRACTOR

BY:

ITS:

OWNER

BY:

ITS:

Approved as to Form:

________________________

Legal Department
**BID SUBMISSION SHEET**

When responding to this Bid, the following documents must be included. Omission of any one may be reason for disqualification of bid.

1. All pricing and costing data as called for in the Bid; bid form will be signed. **Bid Form not signed may be rejected.**

2. Bid Bond

3. Schedule of Values

4. Copy of the Offeror's City Business License (A Business License is not required to submit an offer, however, if an award is made, the offeror will have ten (10) days to furnish a copy of the license to the Purchasing Division).

5. Copy of South Carolina Contractor’s License

6. Insurance Certificates

7. Ethics in Public Contracting Affidavit

8. NonCollusion Affidavit

9. NonResident Taxpayer Registration Affidavit (if applicable)

10. OMB Form 5A

11. OMB Form 5B

12. Small/Woman-Owned/Minority Business Enterprise Form

13. Immigration Certification Form
BID FORM

CITY OF GREENVILLE
SOUTH CAROLINA

IFB NO. 18-3632

BIDDER'S NAME: ________________________________________________________________

The undersigned, having become familiar with the existing conditions and the Bid Specifications and Contract Documents, hereby proposed and agree, if this bid is accepted, to furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment, and services to complete the work as described in these specifications in accordance with the Invitation for Bids and Contract Documents.

Bidder accepts all of the terms and conditions, including without limitations those dealing with the disposition of Bid Security. Bidder further agrees to pay as liquidated damages, the sum of $250.00 for each consecutive calendar day thereafter for each and every day of delay beyond the time herein prescribed for finishing the work.

Bidder accepts all of the terms and conditions, including without limitations those dealing with the disposition of Bid Security.

In submitting this bid, BIDDER represents, as more fully set forth in agreement, that:

1. Bidder has examined copies of all documents and of the following addenda:

<table>
<thead>
<tr>
<th>Addendum No.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>____________</td>
<td>__________</td>
</tr>
</tbody>
</table>

2. Bidder has examined site and locality where work is to be performed, legal requirements (federal, state and local laws, ordinances, rules and regulations) and conditions affecting cost, progress or performance of work and has made such independent investigations as Bidder deems necessary.

3. Bidder warrants that no gratuities, in the form of gifts, entertainment, or otherwise, were offered or given by the Bidder, to any officer or employee of the City with a view toward securing the contract or securing favorable treatment with respect to any determination concerning the performance of the contract.
4. This bid is genuine and not made in interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; **Bidder** has not directly induced or solicited any other **Bidder** to submit false or sham bid; **Bidder** has not solicited or sought by collusion to obtain for itself any advantage over any other **Bidder** or over **Owner**.

5. It is understood and agreed that the quantities shown herein are approximates only and are subject to increase or decrease.

6. **Bidder** proposes to complete work in accordance with the specifications and as described in the Invitation for Bids for the price of:

   Total Bid: $________________________

7. **BID ALTERNATES:**
   The cost for each alternate is the net addition to the Base Bid to incorporate alternate(s) into the Work. No other adjustments are made to the Base Bid. Alternate bids shall include the costs of all materials, delivery, overhead and profit, general conditions, taxes, installation, and coordination with other trades for the alternate construction. The acceptance of any Alternate bid is at the sole discretion of the City. If an Alternate bid is considered, the sum of the Base Bid and any Alternate bid(s) will be considered as the total Bid Price and all bids will then be reviewed in this manner.

8. SC Contractor’s License Number ______________________________________

9. City of Greenville Business License Number ____________________________

10. **SUBCONTRACTORS**
    For work outlined in these documents, **Bidder** expects to engage the following subcontractors:

    | Subcontractor | *Business Representation | Description of Work | Dollar Amount |
    |---------------|--------------------------|---------------------|--------------|
    |               |                          |                     |              |
    |               |                          |                     |              |
    |               |                          |                     |              |

Bid Form - IFB No. 18-3632
Page 194
*Specify if subcontractor is a minority, woman, small, veteran owned business, etc.

11. **BIDDER REFERENCES & PAST EXPERIENCE (MINIMUM OF THREE (3))**

   Company Name: ________________________________
   Address: ______________________________________
   Contact Person and Title: _________________________
   Phone: _______________ Email: ____________________
   Scope of Work: __________________________________

   Company Name: ________________________________
   Address: ______________________________________
   Contact Person and Title: _________________________
   Phone: _______________ Email: ____________________
   Scope of Work: __________________________________

   Company Name: ________________________________
   Address: ______________________________________
   Contact Person and Title: _________________________
   Phone: _______________ Email: ____________________
   Scope of Work: __________________________________

12. **NAME OF INSURANCE CARRIERS**

   Liability ________________________________ Expires ________
   Property Damage __________________________ Expires ________
   Workers’ Compensation _______________________ Expires ________
13. **BIDDING ORGANIZATION**

Bidding Organization ____________________________________________

Post Office Box _________ City _______________ State _____ Zip ______

Street Address ____________________________________________ Zip ______

Telephone __________________________ Fax _______________________

Email _______________________________________________________

*Signature of Bidders Representative ____________________________

* Bid may not be accepted unless signed in ink (not typed) in the appropriate space above, by an authorized officer or employee of the bidder.

Printed Name ________________________________________________

Title ___________________________ Date ________________________
## Byrdland Drive / Airport Road Sewer Improvements
### Schedule of Values

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SCDOT</th>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>UNIT</th>
<th>UNIT COST</th>
<th>TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Mobilization (not to exceed 2.0% of total project cost)</td>
<td>1</td>
<td>LS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Field Engineering and Surveying</td>
<td>1</td>
<td>LS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Traffic Control</td>
<td>1</td>
<td>LS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Gravity Sewer Sanitary Pipe</td>
<td>126</td>
<td>LF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Install New 4’ Dia. Precast Manhole (10’ - 12’ Deep)</td>
<td>2</td>
<td>EA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Abandon Existing Manhole</td>
<td>3</td>
<td>EA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Remove Existing Sewer Pipe</td>
<td>126</td>
<td>LF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>By-pass Pumping</td>
<td>1</td>
<td>AL</td>
<td>$20,000.00</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Pavement Restoration</td>
<td>20</td>
<td>TN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Erosion Control</td>
<td>50</td>
<td>LF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>SCDOT Pay Items</td>
<td>70</td>
<td>TN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***Unless noted as a SCDOT pay item, payment shall be as set forth in Specification 01270 Measurement and Payment***

TOTAL $
ETHICS IN PUBLIC CONTRACTING AFFIDAVIT

STATE OF ____________________________

COUNTY OF ____________________________

____________________________________, being first duly sworn, deposes and says that:

1. He/She is ______________________ (title) for/of ______________________ (company/business), the Bidder that has submitted the attached Bid;
2. He/She is legally qualified and capable of signing this affidavit and is authorized to do so by Bidder;
3. He/She is fully informed regarding the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
4. Such Bid is genuine and is made without fraud;
5. Neither the said Bidder, nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest has offered or received any kickbacks or inducements from any offeror, suppliers, manufacturer, or subcontractor in connection with the offer, and they have not conferred on any public employee, public member, or public official having official responsibility for this procurement or transaction, any payment, loan, subscription, advance, deposit of money, services, or anything of value as defined in Section 8-13-100 of the South Carolina Code of Laws; and
6. Furthermore, neither the Bidder, nor any of its officers, partners, owners, agents representatives, employees or parties in interest has any relationship with the City, another person, or organization that interferes with fair competition or that constitutes a conflict of interest with respect to a contract with the City.

_________________________________  __________________________________
DATE      COMPANY/BUSINESS

BY:________________________________
SIGNATURE

________________________________
PRINTED NAME

SWORN to before me this _____

day of ____________, 20____

Notary Public for _____________________ (state)
My commission expires _______________
By:________________________________
(signature)
NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

STATE OF ______________________________
COUNTY OF ____________________________

_____________________________________, being first duly sworn, deposes and says that:

1. He/She is ____________________________ of ______________________________, the Bidder that has submitted the attached Bid;
2. He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such Bid is genuine and is not a collusive or sham Bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached Bid or of any other bidder, or to secure through any other bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any other bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Greenville, SC or any person interested in the proposed contract; and
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by a collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(signed)_______________________________
______________________________________
(title)

Subscribed and sworn to before me
this _____ day of ________________, 20___
______________________________________
(signature)
My commission expires__________________
Mail to: The company or individual you are contracting with.
The undersigned nonresident taxpayer on oath, being first duly sworn, hereby certifies as follows:

1. Name of Nonresident Taxpayer: 

2. Trade Name, if applicable (doing business as):

3. Mailing Address:

4. Federal Employer Identification Number (FEIN):

5. Hiring or Contracting with:
   Name: 
   Address: 

   Receiving Rentals or Royalties From:
   Name: 
   Address: 

   Beneficiary of Trusts and Estates:
   Name: 
   Address:

6. I hereby certify that the above named nonresident taxpayer is currently registered with (check the appropriate box):
   - [ ] The South Carolina Secretary of State or
   - [ ] The South Carolina Department of Revenue

   Date of Registration:

7. I understand that by this registration, the above named nonresident taxpayer has agreed to be subject to the jurisdiction of the South Carolina Department of Revenue and the courts of South Carolina to determine its South Carolina tax liability, including estimated taxes, together with any related interest and penalties.

8. I understand the South Carolina Department of Revenue may revoke the withholding exemption granted under Code Sections 12-8-550 (temporarily doing business or professional services in South Carolina), 12-8-540 (rentals), and 12-8-570 (distributions to nonresident beneficiary by trusts or estates) at any time it determines that the above named nonresident taxpayer is not cooperating with the Department in the determination of its correct South Carolina tax liability.

The undersigned understands that any false statement contained herein could be punished by fine, imprisonment or both. Recognizing that I am subject to the criminal penalties under Code Section 12-54-44 (B) (6) (a) (i), I declare that I have examined this affidavit and to the best of my knowledge and belief, it is true, correct and complete.

________________________ (Seal) __________________________ (Name - Please Print)

If Corporate officer, state title: ____________________________ Date

________________________ (Name - Please Print)
INFORMATION
NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT

Submit this form to the company or individual you are contracting with.

Do not submit this form to South Carolina Department of Revenue.

PURPOSE OF AFFIDAVIT
A person is not required to withhold taxes for a nonresident taxpayer who submits an affidavit certifying that they are registered with either the South Carolina Secretary of State or the South Carolina Department of Revenue.

REQUIREMENTS TO MAKE WITHHOLDING PAYMENTS
Code Section 12-8-550 requires persons hiring or contracting with a nonresident taxpayer to withhold 2% of each payment made to the nonresident where the payments under the contract exceed $10,000. However, this section does not apply to payments on purchase orders for tangible personal property when those payments are not accompanied by services to be performed in this state.

Code Section 12-8-540 requires persons making payment to a nonresident taxpayer of rentals or royalties at a rate of $1,200 or more a year for the use of or for the privilege of using property in South Carolina to withhold 7% of the total of each payment made to a nonresident taxpayer who is not a corporation and 5% if the payment is made to a corporation.

Code Section 12-8-570 requires trusts or estates making distribution of South Carolina taxable income to a nonresident beneficiary to withhold 7% of the beneficiary’s distribution which is attributable to South Carolina taxable income.

Our Internet address is:  www.sctax.org
City of Greenville
Identification of M/WBE Participation (OMB Form 5A)

I, ____________________________________________
(Name of Bidder/Proposer)

do hereby certify that on this project, we will use the following M/WBEs as subcontractors, vendors, suppliers or providers of professional services.

<table>
<thead>
<tr>
<th>Firm Name, Address, and Phone Number</th>
<th>Work Type</th>
<th>*Minority Category</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

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

The total value of M/WBE contracting will be ($) ____________________________

OMB 5A – Minority/Woman Business Enterprise Program

Rev1/05.2016
City of Greenville M/WBE Program
Listing of the Good Faith Efforts (OMB Form 5B)

Affidavit of____________________________________________________
  (Name of Bidder/Proposer)

I have made a good faith effort to comply under the following areas checked:

☐ Contacted M/WBEs that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.

☐ Made the construction plans, specifications and requirements available for review by prospective M/WBEs, or providing these documents to them at least 10 days before the bids are due.

☐ Broken down or combined elements of work into economically feasible units to facilitate M/WBE participation.

☐ Worked with M/WBE trade, community, or contractor agencies and organizations provide assistance in recruitment of M/WBEs.

☐ Attended prebid meetings scheduled by the City.

☐ Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.

☐ Negotiated in good faith with interested M/WBEs and did not reject them as unqualified without sound reasons based on their capabilities. (Any rejection of a M/WBEs based on lack of qualification should have the reasons documented in writing.)

☐ Provided assistance to an otherwise qualified M/WBEs in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted M/WBEs in obtaining the same unit pricing with the bidder’s suppliers in order to help minority businesses in establishing credit.

☐ Negotiated joint venture and partnership arrangements with M/WBEs in order to increase opportunities for minority business participation on a public construction or repair project when possible.

☐ Provided quick pay agreements and policies to enable M/WBE contractors and suppliers to meet cash-flow demands.

The undersigned hereby certifies that he or she has read the terms of the M/WBE commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:______________ Name of Authorized Officer:________________________

Signature:_________________________________________________________

Title:____________________________________________________________

OMB Form 5B

Rev1/05.2016
<table>
<thead>
<tr>
<th>YOUR COMPANY'S CURRENT STATUS</th>
<th>SUPPLIER BUSINESS CLASSIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is this a small business?</strong></td>
<td>A small business is a business which is independently owned and operated, not dominant in its field of operation, and can qualify under criteria concerning number of employees, average annual receipts, or other criteria as outlined by the Small Business Administration. (See CFR Title 13, Part 121, as amended)</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>Is this a woman-owned business?</strong></td>
<td>A woman-owned business is a business which is at least 51% owned by a woman or women who also control and operate the business.</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>Is this a minority-owned business?</strong></td>
<td>A minority-owned business is a business which is at least 51% owned, controlled and operated by socially and economically disadvantaged individuals. The following groups are among those presumed to be socially and economically disadvantaged: Asian Americans, Black Americans, Hispanic Americans, and Native Americans.</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>If Yes, please indicate minority group:</strong></td>
<td></td>
</tr>
<tr>
<td><em>Asian American</em></td>
<td><em>Black American</em></td>
</tr>
<tr>
<td><em>Hispanic American</em></td>
<td><em>Native American</em></td>
</tr>
<tr>
<td><strong>Is this a disabled-owned business?</strong></td>
<td>A disabled-owned business is a business which is at least 51% owned, controlled and operated by an individual or individuals who are disabled.</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>Is this a veteran-owned business?</strong></td>
<td>A veteran-owned business a business which is at least 51% owned, controlled and operated by an individual or individuals who are U.S. veterans.</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>Is this a disabled veteran-owned business?</strong></td>
<td>A disabled veteran-owned business is a business which is at least 51% owned, controlled and operated by an individual or individuals who are U.S. veterans and disabled.</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
<tr>
<td><strong>Are the individuals who own, control and operate this business U.S. citizens?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Is this business a non-profit organization?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Is this business incorporated?</strong></td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Submit copy of certification certificate, as applicable
CERTIFICATION OF COMPLIANCE WITH THE SOUTH CAROLINA ILLEGAL IMMIGRATION REFORM ACT

I, _______________________________, hereby state and declare that I am the (name)
__________________________ of _______________________________________, and
(title)     (name of entity)

hereby certify to the City of Greenville that, as to any service contract subsequently entered
into with the City of Greenville, that __________________________________________
(name of entity)

intends to verify any new employees' status, and require any of my subcontractors or sub-
subcontractors performing services under any contract with the City of Greenville to verify
any new employees' status, per the terms of the South Carolina illegal Immigration Reform
Act, and as set out in Title 41, Chapter 8 of the Code of Laws of South Carolina, 1976.

_______________________________________
(name of official)

Date: ____________________________