

**BID AND CONTRACT DOCUMENTS**

**FOR**

**CIP# 2639000-Gravity Line Replacement  
(Grayson St.)**

**NORTH CHARLESTON SEWER DISTRICT  
NORTH CHARLESTON, SC**

BID AND CONTRACT DOCUMENTS

FOR

**CIP# 2639000-Gravity Line Replacement  
(Grayson St.)**

Located in  
The City of North Charleston,  
Charleston County, South Carolina

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## INFORMATION FOR BIDDERS

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**BACKGROUND:** The existing sewer system in the easement located between Grayson St. and Leland St. has deteriorated over the years and needs to be replaced. The North Charleston Sewer District is seeking a bid from licensed contractors to furnish all labor, materials, equipment, and incidentals necessary to remove and replace approximately 334 linear feet of existing 8-inch sanitary sewer with new 8-inch PVC within the existing 10-foot-wide alley easement. Work includes bypass pumping, service reconnections, manhole tie-ins, and full site restoration.

**The Engineer for this project is Joe Arnold, EIT with the North Charleston Sewer District.**

**PRE BID MEETING:** A non-mandatory pre-bid meeting will be held at 3215 N Atlantic Ave, North Charleston, SC 29405 on May 26, 2026, at 10:00 AM.

**QUESTIONS:** Due **May 27, 2026, at 10:00 AM**. Refer to Addenda and Interpretations section below.

**RECEIPT AND OPENING OF BIDS:** Bids will be received at the North Charleston Sewer District Administrative offices until **2:00 PM, June 1, 2026**, at which time all bids received will be publicly opened and read aloud.

Bids may be **delivered** to:

Purchasing Department  
North Charleston Sewer District  
7225 Stall Road  
North Charleston, South Carolina 29406

Or

Bids may be **mailed** to:

Purchasing Department  
North Charleston Sewer District  
PO Box 63009  
North Charleston, South Carolina 29419

**MAIL IS ONLY PICKED UP FROM THE US POSTAL SERVICE ON MONDAYS AND THURSDAYS AROUND 10:30 A.M. (EXCLUDING WEEKENDS AND HOLIDAYS).**

**LICENSES:** The attention of Bidders is directed to the provisions of the acts for licensing of General Contractors for the State of South Carolina and all requirements of such acts which have bearing upon this work shall be deemed as part of the Specifications as if written therein in full. The showing by the Contractor of his license number shall be deemed as the Contractor's

representation that he is legally qualified to enter into the prescribed Contract for any or all portions of the work included in his Bid.

All Bidders submitting a Bid shall have a current valid Contractor's License for the State of South Carolina. This license number shall be shown on the bid form immediately below the signature identification and on the face of the sealed envelope containing the submitted Bid. Subcontractors who will be engaged by the General Contractor shall also hold the required licenses. The successful Bidder and all subcontractors will be required to obtain any business license required prior to beginning work, if said Bidder does not have the required license.

BID SECURITY: Each Bid must be accompanied by a Bid Bond duly executed by the Bidder as principal and having as surety thereon a surety company qualified to do business under the laws of the State of South Carolina and satisfactory to the Owner, in an amount not less than five percent (5%) of the Bid.

Such Bid Bond will be returned to all except the three (3) lowest Bidders upon request, and the remaining Bid Bonds will be returned upon request after the Owner and the accepted Bidder have executed the Agreement. If no award has been made within ninety (90) calendar days after the date of the opening of Bids, such Bid Bond will be returned upon request of the Bidder at any time thereafter, so long as he has not been notified of the acceptance of his Bid.

GUARANTY BONDS: The Bidder to whom the contract is awarded will be required to execute the Agreement and obtain the Performance Bond and Payment Bond, each in the sum of the full amount of the Contract Price, within ten (10) calendar days from the date when Notice of Award is delivered to the Bidder and prior to the start of any work.

The Bonds must be duly executed and acknowledged by the Bidder as principal and by a corporate surety company qualified to do business under the laws of the State of South Carolina, certified by the United States Treasury Department, and satisfactory to the Owner as surety, for the faithful performance of the Contract and payment for labor and materials. The premiums for such bonds shall be paid by the Contractor.

Each Bond must be irrevocable, and remain valid for the time period in which claims could be brought within the laws of the State of South Carolina..

EXECUTION OF CONTRACT: The Owner, within ten (10) calendar days of receipt of acceptable Performance Bond, Payment Bond, and Agreement signed by the party to whom the Agreement was awarded, shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may by written notice withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

POWER OF ATTORNEY FOR BONDS: Attorneys-in-fact who sign Bid or Performance or Payment Bonds must file with each Bond a certified and dated copy of their power of attorney.

**LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT:** The successful Bidder, upon his failure or refusal to execute and deliver the Contract and Bonds required within ten (10) calendar days after he has received notice of the acceptance of Bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

**LAWS AND REGULATIONS:** All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included as though herein written out in full.

**IMPORTANT TAX NOTICE - NONRESIDENTS ONLY:**

**Withholding Requirements for Payments to Nonresidents:** Section 12-8-550 of the South Carolina Code of Laws requires persons hiring or contracting with a nonresident conducting a business or performing personal services of a temporary nature within South Carolina to withhold 2% of each payment made to the nonresident. The withholding requirement does not apply to (1) payments on purchase orders for tangible personal property when the payments are not accompanied by services to be performed in South Carolina, (2) nonresidents who are not conducting business in South Carolina, (3) nonresidents for contracts that do not exceed \$10,000 in a calendar year, or (4) payments to a nonresident who (a) registers with either the S.C. Department of Revenue or the S.C. Secretary of State and (b) submits a Nonresident Taxpayer Registration Affidavit - Income Tax Withholding, Form I-312 to the person letting the contract.

The withholding requirement applies to every governmental entity that uses a contract ("Using Entity"). Nonresidents should submit a separate copy of the Nonresident Taxpayer Registration Affidavit - Income Tax Withholding, Form I-312 to every Using Entity that makes payment to the nonresident pursuant to this solicitation. Once submitted, an affidavit is valid for all contracts between the nonresident and the Using Entity, unless the Using Entity receives notice from the Department of Revenue that the exemption from withholding has been revoked.

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For information about other withholding requirements (e.g., employee withholding), contact the Withholding Section at the South Carolina Department of Revenue at 803-898-5383 or visit the Department's website at: <https://dor.sc.gov>

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This notice is for informational purposes only. This agency does not administer and has no authority over tax issues. All registration questions should be directed to the License and Registration Section at 803- 898-5872 or to the South Carolina Department of Revenue, Registration Unit, Columbia, S.C. 29214-0140. All withholding questions should be directed to the Withholding Section at 803-896-1420.

<https://dor.sc.gov/forms-site/Forms/I312.pdf>

**EXAMINATION OF DRAWINGS AND SPECIFICATIONS:** Each Bidder shall carefully examine Drawings and Specifications and all Addenda or other revisions thereto and thoroughly familiarize himself with the detailed requirements thereof prior to submitting a Bid. If any Bidder

is in doubt as to the true meaning of any part of the Drawings, Specifications, or other Documents, or if any error, discrepancy, conflict, or omission is noted, the Bidder shall immediately contact the Owner in writing and request clarification. The Owner will clarify the intent of the Documents and/or correct such error, discrepancy, conflict, or omission, and will notify all Bidders by Addendum in cases where the extent of work or cost thereof will be appreciably affected. No allowance will be made after Bids are received for oversight by Bidder.

**EXAMINATION OF SITE:** Each Bidder must visit the site of proposed work and fully acquaint himself with conditions relating to construction and labor so he may fully understand facilities, difficulties, and restrictions attending execution of work under contract. By executing the Agreement, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the work is to be performed, and correlated his observations with the requirements of the Contract Documents.

The Bidder shall confine examination to the specific areas designated for the proposed construction, including easements and public Right-of-ways. If, due to some unforeseen reason, the Owner's proceedings for obtaining the proposed construction site (including easements) have not been completed, the Bidder may enter the site only with the express consent of the property owner. The Bidder is solely responsible for any damages caused by his examination of the site.

**INFORMATION NOT GUARANTEED:** All information given on the Drawings or in the Contract Documents relating to subsurface conditions, existing structures, location of utilities, sewer inverts, or other information on existing facilities is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of the Bidders.

It is agreed and understood that the Owner does not warrant or guarantee that the conditions, pipes, or other structures encountered during construction will be the same as those indicated on the Drawings or in the Contract Documents. The Bidder must satisfy himself regarding the character, quantities, and conditions of the various materials and the work to be done.

It further is agreed and understood that the Bidder or the Contractor will not use any of the information made available to him or obtained in any examination made by in any manner as a basis or ground of claim or demand of any nature against the Owner or Engineer, arising from or by reason of any variance which may exist between the information offered and the actual materials or structures encountered during the construction work, except as may otherwise be provided for in the Contract Documents.

If any work is performed by the Contractor, or any subcontractor, prior to adequate verification of applicable data, any resultant extra cost for adjustment of work necessary to conform to existing conditions, or damage to existing facilities, shall be assumed by the Contractor without reimbursement or compensation by the Owner.

**COMPLETE WORK REQUIRED:** It is the intent of the Drawings and Specifications to provide a complete and usable facility. The Contractor's work shall be based on the Drawings and

Specification but shall include all materials and appurtenances are shown on the Drawings or described in the Specifications.

The Drawings, Specification, and all supplementary documents are essential parts of the Contact, and requirements occurring in one are as binding as though occurring in all. They are intended to be cooperative, to describe and provide for a complete work. In case of discrepancy on the Drawings, figured dimensions shall govern. In case of omissions from the Specification as to items of equipment and materials or quantities therefore, the Drawing shall govern.

**It shall be the responsibility of the Bidder to call to the attention of the Engineer obvious omissions of such magnitude as to affect the strength, adequacy, function, completeness, or cost of any part of the work in ample time for amendment by Addendum prior to bid opening date.**

ADDENDA AND INTERPRETATIONS: No interpretation of the meaning of the Drawings, Specifications, or other Bid Documents will be made orally to any Bidder by the Engineer or Owner prior to award of the contract.

Every request for such interpretation should be in writing and emailed to [purchasing@ncsd.sc.gov](mailto:purchasing@ncsd.sc.gov) with the SUBJECT: “**26-0011 CIP#2639000-Gravity Line Replacement (Grayson St.)**”. To be given consideration, such request must be received no later than **10:00 am on May 27, 2026**. All such interpretations and any supplemental instructions will be made in the form of written Addenda to the Specifications which, if issued, will be posted on the Purchasing website at [www.ncsd.sc.gov/purchasing](http://www.ncsd.sc.gov/purchasing). Failure of any bidder to receive any such Addendum or interpretation shall not relieve such Bidder from any obligation under his Bid as submitted. All Addenda so issued shall become part of the Contract Documents.

ABILITY AND EXPERIENCE OF BIDDER: It is the purpose of the Owner not to award this Contract to any Bidder who does not furnish satisfactory evidence that he has the experience of successfully completing projects of this type and magnitude and that he has sufficient capital, equipment, plant, and personnel to enable him to prosecute the work successfully and to complete it in the time named.

The Owner may make such investigations as it deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.

BIDS AND QUALIFICATIONS: Before a Bid is considered for award, the Bidder may be requested by the Engineer or Owner to submit a statement of facts in detail as to his previous experience in performing similar or comparable work, and of his business and technical organization and financial resources and plant available to be used in performing the contemplated work.

TIME FOR COMPLETION: The Bidder must agree to commence work within 15 days of the notice to proceed stipulated in the Agreement. The Bidder also must agree to fully complete the project within 45 consecutive calendar days.

LIQUIDATED DAMAGES: The Bidder must agree to pay as liquidated damages the amount set forth in the Agreement for each consecutive calendar day that the work is incomplete after the agreed upon date of completion.

WITHDRAWAL OF BIDS: Any Bidder may withdraw his Bid, either personally or by written request, at any time prior to the scheduled opening of Bids or authorized postponement thereof. Otherwise, Bidder may not withdraw his Bid for a period of ninety (90) calendar days after the date set for the opening thereof, and all Bids shall be subject to acceptance by the Owner during this period.

IRREGULAR BIDS: A Bid will be considered irregular and may be rejected for any one of the following reasons:

1. If the Bid is on a form other than that furnished by the Owner, or if the form is altered or any part detached.
2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which tend to make the Bid incomplete, indefinite, or ambiguous in its meaning.
3. If the Bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
4. If the Bid does not contain a price for each item listed.
5. If the Bid does not contain the aggregate of the Bid, obtained by adding the extended amounts of the various items, if applicable.
6. If the Bid contains obviously unbalanced bid prices.
7. If there is reason to believe that any Bidder is interested in more than one Bid on the same project or that there has been collusion among the Bidders.

DISQUALIFICATION OF BIDDERS: More than one Bid from an individual, a firm or partnership, a corporation or any association, under the same or different names, will not be considered. Reasonable grounds for believing that any Bidder is interested as a principal in more than one Bid for the work contemplated will cause the rejection of all Bids in which such Bidder is believed to be interested. Any or all Bids will be rejected if there is reason to believe that collusion exists among the Bidders. Contracts will be awarded only to responsible Bidders capable of performing the class of work contemplated within the time specified and having sufficient resources and finances to carry on the work properly.

ACCEPTANCE OR REJECTION OF BIDS: The Owner reserves the right to reject any and all Bids when such rejection is in the interest of the Owner; to reject the Bid of a Bidder who has previously failed to perform properly or complete on time contracts of a similar nature; and to reject the Bid of a Bidder who is not, in the opinion of the Engineer or Owner, in a position to perform the Contract. The Owner reserves the right to waive any informalities and technicalities in bidding. The Owner may also accept or reject any of the alternates that may be set forth on the Bid.

METHOD OF AWARD: The Contract will be awarded to the responsive, responsible Bidder submitting the lowest Bid complying with the conditions of the Contract Documents. Award will be made based on the prices given in the Base Bid or a combination of the Base Bid and Alternate, at the Owners option. The Bidder to whom the award is made will be notified.

A responsive Bidder submits a Bid in the proper form without qualifications or intent other than as called for in the Contract Documents and who binds himself or herself on behalf of the Bid to the Owner with the proper Bid Bond completed and attached, and who properly completes all forms required to be completed and submitted at the time of the Bidding. The Bidder shall furnish all data required by these Contract Documents. Failure to do so may result in the Bid being declared non-responsive.

A responsible Bidder can fulfill the following requirements:

- a. The Bidder shall maintain a permanent place of business. This requirement applies to the Bidder where the Bidder is a division of a corporation, or where the Bidder is 50 percent or more owned by a person, corporation, or firm.
- b. The Bidder shall demonstrate adequate construction experience and sufficient equipment resources to properly perform the work under and in conformance with the Contract Documents. This evaluation will be based upon a list of completed or active projects and a list of construction equipment available to the Bidder to perform the work. The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may reasonably request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Project contemplated therein.
- c. The Bidder shall demonstrate financial resources of sufficient strength to meet the obligations incident to the performance of the work covered by these Contract Documents. The ability to obtain the required Performance and Payment bonds will not alone demonstrate adequate financial capability.

Acceptance of the Bidder's documentation and substantiation or Contract Award by the Owner does not relieve the Bidder of liability for non-performance covered in the Contract Documents, nor will the Bidder be exempted from any other legal recourse the Owner may elect to pursue.

PRE-CONSTRUCTION CONFERENCE: After the Contractor signs the AGREEMENT, and submits all required documents, and prior to issuance of the NOTICE TO PROCEED, a pre-construction conference will be held with representatives of the Owner, Contractor, and the Engineer. At this conference, the construction schedule and inspection schedule will be approved. Any problems with the Plans & Specifications will be resolved, and the Project Staff of the Owner and the Contractor will receive approval.

NOTICE TO PROCEED: The Notice to Proceed will be issued within ten (10) calendar days of the execution of the Agreement by the Owner. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the Owner and Contractor. If the Notice to Proceed has not been issued within the ten (10) calendar day period or within the period mutually agreed upon, the Contractor may terminate the Agreement without further liability on the part of either party.

ESTIMATED QUANTITIES: Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examining the site and reviewing the Specifications, Drawings, and Addenda. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

COMPARISON OF BIDS: Bids will be compared based on the prices stated in the Bid. If there is a discrepancy between the unit price and or the computed total amount, the unit price shall govern.

EASEMENTS: The Owner has obtained, or will obtain, permanent easements and temporary construction easements through private property. The temporary construction easements entitle the Contractor to the occupancy and use of the designated area near or adjacent to the work for purposes related to the work. The Contractor will not encroach on any property unless it has been established that easements have been obtained. On all other land, the Contractor has no rights unless he obtains permission from the proper parties.

WORK IN STATE AND COUNTY RIGHT-OF-WAYS: The Owner will obtain the necessary easements and permits for construction across City, County and State Highway right-of-ways. The Contractor shall abide by all rules, regulations, and requirements of these agencies regarding construction under this contract, including the giving of notices, provisions for inspections, and employment of such methods of construction as may be required. Wherever these Specifications may be in conflict with the regulations or requirements of these agencies, such regulations shall govern, and these Specifications shall be modified to such extent as necessary to conform to the said rules, regulations, and requirements. Wherever additional costs are incurred due to requirements of these agencies, such additional periods of maintenance, special features of construction, etc., all such costs shall be included in the prices bid. No additional compensation will be allowed for such costs after award of the Contract.

ITEMS AND INDETERMINATE ITEMS: The work to be done under this Contract has been divided into items so that the actual quantity of work executed under each item may be paid for at the unit price bid for the particular item even though such quantity is greater or less than the estimated quantity stated in the Bid.

RIGHT TO INCREASE OR DECREASE THE AMOUNT OF WORK: The work comprises approximately the quantities shown in the bid form which will be used as a basis for comparison of Bids and not for final estimate. The Owner does not, by expression or by implication, agree that the actual amount of work shall correspond with the estimated quantities.

The Owner reserves the right to alter the quantities of work to be performed or to extend or shorten the improvements at any time when and as found necessary, and the Contractor shall perform the work as altered, increased or decreased. Payment for such increased or decreased quantity will be in accordance with General Conditions subsection 7.11 entitled Payment for Extra Work. No allowance will be made for any change in anticipated profits nor shall such changes be considered as waiving or invalidating any conditions or provisions of the Contract and Bond.

FORM OF BID: All Bids must be submitted on the blank bid form provided therefore and must state the total price for which the Bidder will complete the work in accordance with the terms of the Contract Documents. All blank spaces must be filled in and there shall be no interpretations, alterations, or erasures.

The Bid must be signed manually by a principal or an officer duly authorized to make contracts. The Bidder's legal name must be fully stated and the name and title of the person signing must be typed below his signature.

SUBMITTING BIDS: Each Bid must be submitted on the prescribed bid form. All blank spaces for bid prices must be filled in, in ink or typewritten, and the Bid must be fully completed and executed when submitted. Only one copy of the bid form is required.

Bidders are cautioned that it is the responsibility of each individual Bidder to assure that his Bid is in the possession of the responsible official or his designated alternate prior to the stated time and at the stated place of the bid opening. Owner is not responsible for Bids delayed by mail or delivery services of any nature.

CONFLICT OR INCONSISTENCIES: Bidders are also cautioned that if more than one set of conditions are included in the contract, then in case of a conflict between any of the conditions the strictest will apply.

BID SUBMISSION REQUIREMENTS: Bids shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope, marked with the project title (and if applicable, the designated portion of the Project for which the Bid is submitted) and name, address of the Bidder and accompanied by the bid bond and other required documents. If the bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with notation "**Bid Enclosed**" on the face of it.

(End Information for Bidders)

**BID**

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TO: North Charleston Sewer District Purchasing Department  
PO Box 63009  
North Charleston, SC 29419

FROM: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

of the City of \_\_\_\_\_, County of \_\_\_\_\_, and  
State of \_\_\_\_\_, hereinafter called "Bidder".

PROJECT: **CIP# 2639000-Gravity Line Replacement (Grayson St.)**

Gentlemen:

The Bidder, in compliance with your Advertisement or Invitation for Bids for the construction of above-referenced project, having examined the Specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein, and the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

The Bidder declares that he has carefully examined the site of the proposed Work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, and the difficulties attendant upon its execution, and that he has carefully read and examined the Drawings, and the Specifications and other Contract Documents therein referred to, and knows and understands the terms and provisions thereof.

Bidder understands that information relative to existing structures, apparent and latent conditions, and natural phenomena, as furnished to him on the Drawings, in the Contract Documents, or by the Owner or the Engineer, carries no guarantee expressed or implied as to its completeness or accuracy, and he has made due allowance therefore.

TIME FOR COMPLETION AND LIQUIDATED DAMAGES: Bidder hereby agrees to commence work under this contract within 15 days of receipt of the Notice to Proceed and to fully complete the project within **45** consecutive calendar days thereafter.

Bidder also agrees to pay **\$500** /day as liquidated damages for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

ADDENDA: Bidder acknowledges receipt of the following Addenda:

Addendum No. \_\_\_\_\_ Date \_\_\_\_\_  
 Addendum No. \_\_\_\_\_ Date \_\_\_\_\_  
 Addendum No. \_\_\_\_\_ Date \_\_\_\_\_  
 Addendum No. \_\_\_\_\_ Date \_\_\_\_\_

| Item No.              | Pay Item Description                                | Unit | Estimated Quantity | Unit Price | Total Price |
|-----------------------|---|------|--------------------|------------|-------------|
| 1                     | Mobilization / Demobilization                       | LS   | 1                  |            |             |
| 2                     | Traffic Control & Access Maintenance                | LS   | 1                  |            |             |
| 3                     | Bypass Pumping (6-Inch System) <b>IF APPLICABLE</b> | LS   | 1                  |            |             |
| 4                     | 8-Inch PVC Sanitary Sewer (SDR 26) Installed        | LF   | 334                |            |             |
| 5                     | Remove Existing 8-Inch Sewer                        | LF   | 334                |            |             |
| 6                     | Sewer Service Reconnections                         | EA   | 10                 |            |             |
| 7                     | Service Cleanouts (at Easement Line)                | EA   | 10                 |            |             |
| 8                     | Manhole Connections / Modifications                 | EA   | 2                  |            |             |
| 9                     | Trench Excavation & Backfill (Non-Flowable)         | CY   | 150                |            |             |
| 10                    | Surface Restoration (Alley, Fences, Yards)          | LS   | 1                  |            |             |
| 11                    | Testing   | LS   | 1                  |            |             |
| <b>TOTAL PROPOSAL</b> |   |      |                    |            | \$ _____    |

NOTE: ALL QUANTITIES ARE APPROXIMATE.

**TOTAL BASE BID** (ITEMS 1-11, INCLUSIVE) \$ \_\_\_\_\_

Additions to work and deletions from work shall be paid in accordance with these unit prices.

The above unit prices shall include all labor, materials, dewatering, shoring, removal, overhead, profit, insurance, taxes, fees, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The Bidder agrees that this Bid shall be good and may not withdraw for a period of 90 calendar days after the scheduled closed time for receiving bids.

Upon receipt of written notice of the acceptance of this Bid, Bidder will execute the formal Agreement attached with 10 days and deliver Surety bonds as required by the General Conditions. The bid security attached in the sum of \_\_\_\_\_ (\$ \_\_\_\_\_) is to become the property of the Owner in the event the Agreement and Bond are not executed within the time above set forth as liquidated damages for the delay and additional expense to the Owner caused thereby.

The undersigned declares that the person or persons signing this proposal is fully authorized to sign the proposal on behalf of the firm listed and to fully bind the firm listed to all the conditions and provisions thereof.

It is agreed that no person or persons or company other than the firm listed below or as otherwise indicated hereinafter has any interest whatsoever in this proposal or the contract that may be entered into as a result thereof, and that in all respects the proposal is legal and fair, submitted in good faith, without collusion or fraud.

Respectfully Submitted:

\_\_\_\_\_

(Name of Contractor)

(SEAL)  
(Corporations)

By: \_\_\_\_\_

(Signature)

\_\_\_\_\_

(Print Name)

\_\_\_\_\_

(Title)

\_\_\_\_\_

(Address)

SC General Contractor's License No. \_\_\_\_\_

(End Bid)

**BID BOND**

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KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, \_\_\_\_\_ as Principal, and \_\_\_\_\_ as Surety, are hereby held and firmly bound unto the North Charleston Sewer District as OWNER in the penal sum of 5% (five percent) of BID for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

The Condition of the above obligation is such that whereas the Principal has submitted to the North Charleston Sewer District a certain BID, attached hereto made a part hereof to enter into a contract in writing, for the **CIP# 2639000-Gravity Line Replacement (Grayson St.)** Documents dated \_\_\_\_\_, by the Owner.

NOW THEREFORE, (a) If said BID shall be rejected, or (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulated and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by an extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

\_\_\_\_\_  
(Principal) (LS)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

**AGREEMENT**

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, by and between **North Charleston Sewer District** acting herein through its \_\_\_\_\_ Purchasing Manager \_\_\_\_\_ (Kimberly J Caver)

hereinafter called "OWNER" and \_\_\_\_\_ (Name of Contractor)

doing business as \_\_\_\_\_ (an Individual), (a Partnership) or (a Corporation)

of the City of \_\_\_\_\_ County of \_\_\_\_\_ and

State of \_\_\_\_\_ hereinafter called "Contractor."

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR hereby agrees with the OWNER to commence and complete the construction described as follows:  
**CIP# 2639000-Gravity Line Replacement (Grayson St.)** hereinafter called the PROJECT.
2. The CONTRACTOR will furnish all the materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 15 calendar days after the date of the NOTICE TO PROCEED and will fully complete the PROJECT within **45** consecutive calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS. The CONTRACTOR further agrees to pay, as liquidated damages, the sum of **\$ 500** for each consecutive calendar day thereafter as hereinafter provided in the GENERAL CONDITIONS.
4. The CONTRACTOR agrees to perform all the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) or as shown in the Bid Schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:

- A. Advertisement for Bids
- B. Information for Bidders
- C. Bid
- D. Bid Bond
- E. Agreement
- F. General Conditions
- G. Supplemental Conditions
- H. Performance Bond
- I. Payment Bond
- J. Notice of Award
- K. Notice to Proceed
- L. Change Orders
- M. Specifications prepared by North Charleston Sewer District
- N. Addenda
  - No. \_\_\_\_\_ Dated \_\_\_\_\_
  - No. \_\_\_\_\_ Dated \_\_\_\_\_
  - No. \_\_\_\_\_ Dated \_\_\_\_\_
  - No. \_\_\_\_\_ Dated \_\_\_\_\_

- 6. The OWNER agrees to pay the CONTRACTOR in the manner and at such time as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.
- 7. The Agreement shall be binding on all parties hereto and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized officials, this Agreement in four counterparts, each of which shall be deemed an original, in the year and day first above written.

North Charleston Sewer District

\_\_\_\_\_  
(Owner)

By: \_\_\_\_\_

(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Title of Authorized Official)

(SEAL)

ATTEST:

\_\_\_\_\_  
(Witness Signature)

\_\_\_\_\_  
(Witness Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Name of Contractor)

**By:** \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Title of Authorized Official)

**ATTEST:**

\_\_\_\_\_  
(Witness Signature)

\_\_\_\_\_  
(Witness Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Print Name)

(End of Agreement Section)



**PERFORMANCE BOND**

---

KNOW ALL MEN BY THESE PRESENTS: that

---

(Name of Contractor)

---

(Address of Contractor)

a \_\_\_\_\_, hereinafter called Principal and  
(Corporation, Partnership or Individual)

---

(Name of Surety)

---

(Address of Surety)

Hereinafter called Surety, are held, and firmly bound unto

NORTH CHARLESTON SEWER DISTRICT

(Name of Owner)

7225 STALL ROAD, NORTH CHARLESTON, SC 29406

(Address of Owner)

Hereinafter called OWNER, in the penal sum of \_\_\_\_\_ Dollars, (\$ \_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents. THE CONDITION OF THIS OBLIGATION is such that whereas the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the **CIP# 2639000-Gravity Line Replacement (Grayson St.)**.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements, of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during **the two year guaranty period**, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise

affect its obligation of time, alteration, or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS. PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

(Principal)

ATTEST:

\_\_\_\_\_  
(Principal) Secretary (SEAL)

By: \_\_\_\_\_(S)

\_\_\_\_\_  
Address

\_\_\_\_\_

\_\_\_\_\_  
Witness to Principal

\_\_\_\_\_  
Address

\_\_\_\_\_

WITNESS:

\_\_\_\_\_  
Surety

\_\_\_\_\_  
(Surety)

By: \_\_\_\_\_

Attorney-in-Fact

(SEAL)

\_\_\_\_\_  
Address

\_\_\_\_\_

\_\_\_\_\_  
Witness as to Surety

\_\_\_\_\_  
Address

\_\_\_\_\_

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is a partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and authorized to transact business in the State where the PROJECT is located.

**PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_, hereinafter called Principal and  
(Corporation, Partnership or Individual)

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

Hereinafter called Surety, are held and firmly bound unto

NORTH CHARLESTON SEWER DISTRICT

(Name of Owner)

7225 STALL ROAD, NORTH CHARLESTON, SC 29406

(Address of Owner)

Hereinafter called OWNER, in the penal sum of \_\_\_\_\_ Dollars, \$(\_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents. THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the \_\_\_ day of \_\_\_\_\_, 20\_\_\_, a copy of which is hereto attached and made a part hereof for **CIP# 2639000-Gravity Line Replacement (Grayson St.)**.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to

be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ATTEST: \_\_\_\_\_  
Principal

\_\_\_\_\_  
(Principal) Secretary (SEAL)

By: \_\_\_\_\_ (S)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Witness to Principal

\_\_\_\_\_  
Address

WITNESS:

\_\_\_\_\_  
Surety

\_\_\_\_\_  
(Surety)

By: \_\_\_\_\_  
Attorney-in-Fact

(SEAL)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Witness as to Surety

\_\_\_\_\_

Address

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is a partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and authorized to transact business in the State where the PROJECT is located.

**CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION  
FOR CONTRACT BONDS**

STATE OF \_\_\_\_\_ )  
 ) SS:  
COUNTY OF \_\_\_\_\_ )

ON THIS \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me personally came

\_\_\_\_\_, to me known, who being by me duly sworn, did depose  
and say as follows:

that he resides at \_\_\_\_\_

and is the \_\_\_\_\_ of \_\_\_\_\_

(Title of Officer)

(Name of Corporation)

the Corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said Corporation; that the seal affixed to the foregoing instrument is such Corporate Seal and it was so affixed by order of the Board of Directors of said Corporation; and that by the like order he signed thereto his name and official designation.

By: \_\_\_\_\_

(Signature)

\_\_\_\_\_

(Print Name)

\_\_\_\_\_

(Title of Authorized Official)

\_\_\_\_\_  
Notary Public (Seal)

My Commission expires: \_\_\_\_\_

**CERTIFICATION**

Any person signing documents under **CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION FOR CONTRACT BONDS** section shall also make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Date of Signature \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_

Name of Firm \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Telephone No. \_\_\_\_\_

**NOTICE OF AWARD**

TO: \_\_\_\_\_ Date: \_\_\_\_\_

**PROJECT DESCRIPTION: CIP# 2639000-Gravity Line Replacement (Grayson St.)**

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement or Invitation for Bids dated \_\_\_\_\_, 20\_\_\_\_, and Information for Bidders.

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

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR’S Performance BOND, Payment Bond and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

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

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

Dated this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

North Charleston Sewer District

\_\_\_\_\_  
(Owner)

By: \_\_\_\_\_

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Title of Authorized Official)

ACCEPTANCE

OF

NOTICE

Receipt of the NOTICE OF AWARD is hereby acknowledged this the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

By: \_\_\_\_\_

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Title of Authorized Official)

**NOTICE TO PROCEED**

TO: \_\_\_\_\_ Date: \_\_\_\_\_

Project: **CIP# 2639000-Gravity Line Replacement (Grayson St.)**

You are hereby notified to commence WORK in accordance with the Agreement dated \_\_\_\_\_,20\_\_\_\_, on or before \_\_\_\_\_,20\_\_\_\_, and you are to complete the WORK within \_\_\_\_\_consecutive calendar days thereafter. The date of completion of all WORK is therefore \_\_\_\_\_, 20\_\_\_\_.

North Charleston Sewer District

\_\_\_\_\_

(Owner)

By: \_\_\_\_\_

(Signature)

\_\_\_\_\_

(Print Name)

\_\_\_\_\_

(Title of Authorized Official)

ACCEPTANCE OF NOTICE

Receipt of the NOTICE TO PROCEED is hereby acknowledged this the \_\_day of \_\_\_\_\_, 20\_\_.

By: \_\_\_\_\_

(Signature)

\_\_\_\_\_

(Print Name)

\_\_\_\_\_

(Title of Authorized Official)

**CHANGE ORDER**

Order No.: \_\_\_\_\_

Date: \_\_\_\_\_

Agreement Date:

NAME OF PROJECT: **CIP# 2639000-Gravity Line Replacement (Grayson St.)**

OWNER: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

The following changes are hereby made to the CONTRACT DOCUMENTS:

Justification:

Change to CONTRACT PRICE: \$ \_\_\_\_\_ .

Original CONTRACT PRICE: \$ \_\_\_\_\_ .

Current CONTRACTOR PRICE adjusted by previous CHANGE ORDER: \$ \_\_\_\_\_

The CONTRACT PRICE due to this CHANGE ORDER will be (increased) (decreased) by:

\$ \_\_\_\_\_ .

Change to CONTRACT TIME:

The CONTRACT TIME will be (increased) (decreased) by \_\_\_\_\_ calendar days.

The date for completion of all work will be \_\_\_\_\_  
(Date)

Approvals Required:

To be effective this Order must be approved by the State agency if it changes the scope or objective of the PROJECT.

ENGINEER: \_\_\_\_\_ OWNER: \_\_\_\_\_

North Charleston Sewer District: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

\*\*\*NOTE: AIA payment forms may be submitted in lieu of this form for payment.\*\*\*

**REQUEST FOR PAYMENT**

**CONTRACTOR:**

**ENGINEER:**

REQUEST FOR PAYMENT

DATE: \_\_\_\_\_

TO: \_\_\_\_\_

MONTHLY PAYMENT NO. \_\_\_\_\_

PROJECT: **CIP# 2639000-Gravity Line Replacement (Grayson St.)**

LOCATION: \_\_\_\_\_

FOR PERIOD \_\_\_\_\_

TO \_\_\_\_\_

TOTAL VALUE OF WORK COMPLETED TO DATE (SEE ATTACHED SHEETS) \$ \_\_\_\_\_

TOTAL VALUE MATERIALS STORED FOR PROJECT (SEE ATTACHED SHEETS) \$ \_\_\_\_\_

SUB-TOTAL \$ \_\_\_\_\_

DEDUCTIONS: \_\_\_\_\_ LESS \_\_\_\_\_%RETAINED \$ \_\_\_\_\_  
LESS PREVIOUS PAYMENTS \$ \_\_\_\_\_

TOTAL AMOUNT THIS PAYMENT \$ \_\_\_\_\_

**PREVIOUS PAYMENTS**

- |          |          |          |           |
|----------|----------|----------|-----------|
| 1. _____ | 4. _____ | 7. _____ | 10. _____ |
| 2. _____ | 5. _____ | 8. _____ | 11. _____ |
| 3. _____ | 6. _____ | 9. _____ | 12. _____ |

**CONTRACTOR'S CERTIFICATION:**

I HEREBY CERTIFY THE ABOVE WORK PERFORMED AND MATERIALS STORED ON PROJECT ARE AS PER THE PROVISIONS OF THE CONTRACT AGREEMENT.

CONTRACTOR

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED FOR ENGINEER

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED FOR OWNER

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED FOR ADMINISTRATOR

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

## **GENERAL CONDITIONS**

### **1.0 GENERAL**

1.1 THE CONTRACT DOCUMENTS: The Contract Documents consists of the Advertisement of Bids, Information for Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, Conditions of the Contract (General, Supplemental and Other Conditions), Drawings, Specifications, Addenda, Notice of Award, Notice to Proceed, and Change Orders.

1.2 CORRELATION AND INTENT OF DOCUMENTS: The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all.

The intent of the Drawings and Specifications is to provide a complete and usable facility. The Contractor's work shall be based on the Drawings and Specifications, but the Contractor shall furnish all labor, supplies, materials, tools, machinery, equipment, transportation, supervision, temporary construction of any nature, and all other services, facilities and means necessary to produce a complete and workable facility whether or not such material and appurtenances are shown on the Drawings or described in the Specifications.

Any mention in the Specifications or indication on the Drawings of articles, materials, methods or operations shall require the Contractor to furnish such item or services as if it were fully specified unless it is noted or specified as not in the Contract. It is intended that all materials shall be new and best quality in every respect unless otherwise noted or specified. All workmanship, methods of assembly, and erection shall be first class in every respect.

1.3 CONFLICT OR INCONSISTENCY: If there is any conflict or inconsistency between the provisions of the Supplemental Conditions and the provisions of the other Contract Documents, the provisions of the Supplemental Conditions shall prevail. If there is any conflict or inconsistency between the provisions of the General Conditions and the provisions of any of the Contract Documents, other than the Supplemental Conditions, the provisions of the General Conditions shall prevail.

In case of conflict the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed Drawings shall govern over general Drawings.

In case of difference between small-scale and large-scale drawings, the large-scale drawings shall govern. Schedules on any contract drawing shall take precedence over conflicting information on that or any other contract drawing.

On any of the drawings where a portion of the work is detailed or drawn out and the remainder is shown in outline, the parts detailed or drawn out shall apply also to all other like portions of the work. Where the word "similar" occurs on the drawings, it shall have a general meaning and not be interpreted as being identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.

Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

Should a conflict be discovered within the Contract Documents, the Contractor shall be deemed to have estimated the higher quality way of doing the Work unless he shall have asked for and obtained a decision in writing from the Engineer before entering into this Contract.

**1.4 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS:** The contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents. The additional drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.

**1.5 SPECIFICATION HEADINGS:** For convenience of reference, these Specifications are divided into various divisions, Sections, subsections and Paragraphs, The titles of these headings shall not be taken as a correct or complete segregation of the various types of material and labor nor as an attempt to outline jurisdictional procedures. The headings shall not be deemed to limit or restrict the content, meaning or effect of such section, subsection, paragraph, provision, or part.

The organization of the Specifications into the various headings, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Each subcontract shall be dependent upon its own definite confines, regardless of Divisions of these Specifications. No responsibility, either direct or implied, is assumed by the Owner for omissions or duplications by the Contractor or by any of his subcontractors due to real or alleged errors in arrangement of matter in Contract Documents.

**1.6 DRAWINGS AND SPECIFICATIONS FOR CONSTRUCTION PURPOSES:** The Contractor will be furnished four (4) complete sets of Drawings and Specifications to be used during construction. If more than four (4) sets are needed, the Contractor will be required to pay the actual cost of printing and handling.

**1.7 CONTRACT MODIFICATION:** All changes which affect the cost of the construction of the Project must be authorized by means of a contract change order. All change orders and contract modifications must be approved by the Owner prior to becoming effective. The contract change order will include extra work, work for which quantities have been altered from those shown in the bidding schedule as well as decreases or increases in the quantities of installed units which are different from those shown in the bidding schedule because of final measurements. All changes should be recorded on a contract change order as they occur so that they may be included in the partial payment estimate.

**1.8 COMPUTATION OF QUANTITIES:** For estimating quantities in which the computation of

areas by geometric methods would be comparatively laborious, it is agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas. It is further agreed that the computation of the volume of prisms shall be by the method of average end areas.

1.9 SIGNS: The Owner reserves the right to all advertising privileges about the job and no signs shall be posted by the Contractor anywhere on the premises without approval by the Owner except those signs, posters, or bulletins required by Federal, State, or local authorities. Directional signs identifying offices and/or storage areas of the Contractor may be erected as required to facilitate work, provided:

1. The Contractor shall submit to the Owner for approval a scale drawing or sketch of the proposed sign showing size, type of material, painting, and proposed location. All submittal data shall be in triplicate.
2. The size of the individual sign shall be not greater than 24 inches wide by 12 inches high.
3. Signs shall be neatly painted on weather-resistant materials.
4. The signs will be removed upon completion of the job.
5. No sign shall be erected prior to approval by the Owner.

1.10 PUBLICITY: All prime contractors and their subcontractors shall submit to the Owner for approval all publicity items, including photographs, relating to the work of this project. Owner shall approve any and all material prior to release for publication.

1.11 DEFINITIONS: Wherever the words hereinafter defined, or pronouns used in their stead occur in the Contract Documents, they shall have the following meanings:

**ADDENDA:** Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Document, Drawings and Specifications by additions, deletions, clarifications, or corrections. Such addendum or addenda will take precedent over the position of the general drawings and specifications concerned and will be considered as part of the Contract Documents.

**AGREEMENT:** The Agreement represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the bidding documents. The Agreement may be amended or modified by a Change Order.

**BID:** The written offer or proposal of the Bidder, submitted on the prescribed form, properly signed, and guaranteed, to perform the work at the prices quoted by the Bidder.

**BID BOND:** The security furnished by the Bidder with his proposal for the Project is

guaranty he will enter into a contract for the work if his proposal is accepted.

**BIDDER:** Any individual, firm or corporation or combination of same submitting a bid for work contemplated, acting directly or through a duly authorized representative.

**BONDS:** Bid, Performance and Payment Bonds and other instruments of security furnished by the Contractor and his Surety in accordance with the Contract Documents.

**CALENDAR DAY:** Every day shown on the calendar, Sundays and holidays included.

**CHANGE ORDER:** A written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents or authorizing an adjustment in the Contract Price or Contract Time.

**CONTRACT:** The Contract Documents form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the bidding documents. The Contract may be amended or modified by a Change Order.

**CONTRACT DOCUMENTS:** The Contract Documents consist of the Advertisement for Bids, Information for Bidders, Bid, bid Bond, Agreement, Payment Bond, Performance Bond, the Conditions of the Contract (General, Supplemental, and other Conditions), the Drawings, the Specifications, Addenda issued prior to execution of the Contract, Notice of Award, Notice to Proceed, Change Orders and Supplemental Conditions.

**CONTRACT PRICE:** The total moneys payable to the Contractor under the terms and conditions of the Contract Documents.

**CONTRACTOR:** The individual, firm, or corporation with whom the Owner has executed the Agreement by which the Contractor is obligated directly, or through Subcontractors, to perform work in connection with the Project.

The Contractor is the person or organization identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his authorized representative.

**CONTRACT TIME:** The number of calendar days stated in the Contract Documents for the completion of the Work.

**DRAWINGS:** The part of the Contract Documents which show the characteristics and scope of the Work to be performed and which have been prepared or approved by the Engineer.

**EARTH:** An excavated material or material to be excavated; all kinds of material other than rock.

**ELEVATION:** The figures given on the Drawings or in the other Contract Documents after the work “elevation” or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.

**ENGINEER:** The person, firm or corporation named as such in the Contract Documents and duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly authorized representatives.

**EQUIPMENT:** All machinery, together with the necessary supplies for upkeep and maintenance, and all tools and apparatus necessary for the proper construction and acceptable completion of the work.

**FIELD ORDER:** A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.

**FURNISH:** Furnish and install complete, in place, and ready for use.

**INFORMATION FOR BIDDERS:** The Notice to Contractors containing all necessary information as to provisions, requirements, date, place, and time of submitting bids.

**INCLEMENT WEATHER:** Weather affecting the work area severe enough to warrant cessation of all work activities. This includes heavy rain, hail, hurricane, earthquake, freezing rain, heavy fog, tornado, or any other weather condition for which a weather alert, warning or watch is issued, and which affects the project area. Additional time may be afforded for inclement weather.

**MATERIALS:** Any substance specified for use in the construction of the Project and its appurtenances.

**NET COST:** The cost to the Contractor after application of all credits and discounts (excepting only cash discounts) and without the addition of any factor for burden, overhead or indirect cost or profit.

**NOTICE OF AWARD:** The written notice of the acceptance of the Bid from the Owner to the successful Bidder.

**NOTICE TO PROCEED:** Written communication issued by the Owner to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.

**OPTIMUM MOISTURE CONTENT FOR COMPACTION:** The moisture content of a soil calculated on the basis of dry weight of soil at which the soil can be compacted to

the approximate density under a specified standard method of compaction.

**OWNER:** A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the Work is to be performed.

**PAYMENT BOND:** The approved of security furnished by the Contractor to guarantee the payment to all persons supplying labor and materials in the prosecution of the work in accordance with the terms of the Contract.

**PERFORMANCE BOND:** The approved form of security furnished by the Contractor to guarantee the completion of the work in accordance with the terms of the Contract.

**PRECONSTRUCTION CONFERENCE:** A conference following award and prior to start of construction to be attended by a duly authorized representative of the Engineer and by the responsible officials of the Contractor and other affected parties.

**PROJECT:** The understanding to be performed as provided in the Contract Documents.

**PROPOSAL:** The written offer of the Bidder, submitted on the prescribed form, properly signed, and guaranteed, to perform the work at the prices quoted by the Bidder.

**PROPOSAL FORM:** The approved form on which the Owner requires formal bids to be prepared and submitted for the work.

**PROPOSAL GUARANTY:** The security furnished by the Bidder with his proposal for a Project, as guaranty he will enter into a contract for the work if his proposal is accepted.

**PROVIDE:** Furnish and install complete, in place, and ready for use.

**RESIDENT PROJECT REPRESENTATIVE:** The authorized representative of the Owner who is assigned to the Project site or any part thereof.

**ROCK :** An excavated material or material to be excavated; only boulders and pieces of concrete or masonry exceeding  $\frac{1}{2}$  cu. yd. in volume, or solid ledge rock which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrate rock which can be removed with hand pick or power-operated excavator or shovel, no loose shaken, or previously blasted rock or broken stone in rock fillings or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation will be classified as rock.

**SHOP DRAWINGS:** All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, Supplier

or distributor, which illustrate how specific portions of the Work shall be fabricated or installed.

**SPECIALIST:** An individual or firm of established reputation which is regularly engaged in, and which maintains a regular force of workmen skilled in either manufacturing or fabricating items required by the Contract, installing items required by the Contract, or otherwise performing work required by the Contract. Where the contract specifications require installation by a specialist, that term shall also be deemed to mean either the manufacturer of the item, an individual or firm licensed by the manufacturer, or an individual or firm who will perform the work under the manufacturer's direct supervision.

**STRUCTURES:** Bridges, culverts, catch basins, drop inlets, manholes, retaining walls, cribbing, endwalls, buildings, sewers, service pipes, under drains, foundation drains, and other miscellaneous items which may be encountered in the work, and which are not otherwise classified herein.

**SUBBASE:** The layer or layers of specified or selected material of designated thickness or rate of application placed on a sub grade to comprise a component of the pavement structure to support the base course, pavement or subsequent layer of the construction.

**SUBCONTRACTOR:** An individual, firm or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site. The term subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative.

**SUB-SUBCONTRACTOR:** An individual, firm or corporation having a direct or indirect contract with Subcontractor to perform any of the Work at the site. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Sub-subcontractor or an authorized representative thereof.

**SUBGRADE:** The top surface of a roadbed upon which the pavement structure and shoulders are constructed.

**SUBSTANTIAL COMPLETION:** That date as certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it is intended.

**SUPPLEMENTAL CONDITIONS:** Conditions of that Contract other than the General Conditions.

**SUPERINTENDENT:** The Contractor's authorized representative in responsible

charge of the Work.

**SUPPLIER:** Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

**SURETY:** The corporation, partnership or individual bound with and for the Contractor for the full and complete performance of the Contract, and for the payment of all debts pertaining to the Work.

**TITLES (OR HEADINGS):** The titles or headings of the sections and subsections herein are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.

**WORK:** All labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in the Project.

**WRITTEN NOTICE:** Any notice to any part of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the Work.

1.12 **ADDITIONAL DEFINITIONS:** Wherever in the Specifications or on the Drawings, the words, “as designated”, “as detailed”, “as directed”, “as ordered”, “as permitted”, “as prescribed”, “as provided”, “as requested”, “as required”, or words of like import are used, it shall be understood that the designation, detail, direction, order, permission, prescription, provision, request or requirement of the Engineer is intended.

Similarly, the words “approved”, “acceptable”, “satisfactory”, and words of like import shall mean approved by, acceptable to, or satisfactory to the Engineer.

1.13 **ABBREVIATIONS:** Where any of the following abbreviations are used in the Specifications, they shall have the meaning set forth opposite each.

|        |  |
|--------|--|
| AA     | Aluminum Association   |
| AWWA   | American Water Works Association                                   |
| AAMA   | Architectural Aluminum Manufacturers Association                   |
| BHMA   | Builders Hardware Manufacturers Association                        |
| AAN    | American Association of Nurserymen                                 |
| CABRA  | Copper and Brass Research Association                              |
| AAR    | Association of American Railroads                                  |
| CDA    | Copper Development Association                                     |
| AASHTO | American Association of State Highway and Transportation Officials |

|       |   |
|-------|---|
| CEMA  | Conveyor Equipment Manufacturers Association            |
| AATC  | American Association of Textile Chemists and Colorists  |
| CGA   | Compressed Gas Association                              |
| CRSI  | Concrete Reinforcing Steel Institute                    |
| ACI   | American Concrete Institute                             |
| CS    | Commercial Standards, U.S. Department of Commerce       |
| ACPA  | American Concrete Pipe Association                      |
| AED   | American Equipment Dealers                              |
| CSI   | Construction Specification Institute                    |
| AFBMA | Anti-Friction Bearing Manufacturers Association         |
| DCDMA | Diamond Core Drill Manufacturers Association, Inc.      |
| AFI   | American Filter Institute                               |
| EIA   | Electronic Industries Association                       |
| AGA   | American Gas Association                                |
| FCI   | Fluid Controls Institute                                |
| AGC   | Associated General Contractors                          |
| FGJA  | Flat Glass Jobbers Association                          |
| AGMA  | American Gear Manufacturers Association                 |
| FIA   | Factory Insurance Association                           |
| AHAM  | Association of Home Appliance Manufacturers             |
| FM    | Factory Manual  |
| FMEC  | Factory Mutual Engineering Corporation                  |
| AHDGA | American Hot Dip Galvanizers Association                |
| FS    | Federal Specification                                   |
| AIA   | American Institute of Architects                        |
| FSPT  | Federation of Societies for Paint Technology            |
| AIEE  | American Institute of Electrical Engineers              |
| AISC  | American Institute of Steel Construction                |
| FSS   | Federal Specifications, General Services Administration |
| AISI  | American Iron and Steel Institute                       |
| ALS   | American Lumber Standards                               |
| FHWA  | Federal Highway Administration                          |
| AMA   | Acoustical Materials Association                        |
| GA    | Gypsum Association                                      |
| AMCA  | Air Moving and Conditioning Association                 |
| IBI   | Insulation Board Institute                              |
| ANS   | American Nuclear Society                                |
| IBR   | Institute of Boiler and Radiator Manufacturers          |
| ANSI  | American National Standards Institute                   |
| APA   | American Plywood Association                            |
| IEEE  | Institute of Electric and Electronics Engineers         |
| API   | American Petroleum Institute                            |
| ARA   | American Railway Association                            |
| IES   | Illuminating Engineering Society                        |
| AREA  | American Railway Engineering Association                |

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| ILIA   | Indiana Limestone Institute of America                                   |
| ARI    | Air Conditioning and Refrigeration Institute                             |
| IME    | Institute of Makers of Explosives  |
| ASA    | Acoustical Society of America  |
| IP     | Institute of Petroleum (London)  |
| ASCE   | American Society of Civil Engineers                                      |
| IPC    | Institute of Printed Circuits  |
| ASHRAE | American Society of Heating and Refrigerating Air Conditioning Engineers |
| IPCEA  | Insulated Power Cable Engineers Association                              |
| ASLA   | American Society of Landscape Architects                                 |
| ISA    | Instrument Society of America  |
| ASLE   | American Society of Lubricating Engineers                                |
| ISO    | International Organization for Standardization                           |
| ASME   | American Society of Mechanical Engineers                                 |
| ASQC   | American Society for Quality Control                                     |
| ITE    | Institute of Traffic Engineers   |
| ASSE   | American Society of Sanitary Engineers                                   |
| LIA    | Lead Industries Association  |
| ASTM   | American Society for Testing and Materials                               |
| MBMA   | Metal Building Manufacturers Association                                 |
| AVATI  | Asphalt and Vinyl Asbestos Tile Institute                                |
| MIA    | Marble Institute of America  |
| AWI    | Architectural Woodwork Institute   |
| MLA    | Metal Lath Association   |
| AWPA   | American Wood Preservers' Association                                    |
| MLMA   | Metal Lath Manufacturers Association                                     |
| AWPI   | American Wood Preservers' Institute                                      |
| MPTA   | Mechanical Power Transmission Association                                |
| AWS    | American Welding Society   |
| MRIS   | Maritime Research Information Service                                    |
| PDCA   | Painting and Decorating Council of America                               |
| MS     | Military Specification   |
| MSTD   | Military Standard  |
| PEI    | Porcelain Enamel Institute   |
| NAAMM  | National Association of Architectural Metal Manufacturers                |
| PI     | Perlite Institute  |
| RIS    | Redwood Inspection Service   |
| NAFM   | National Association of Fan Manufacturers                                |
| RMA    | Rubber Manufacturers Association   |
| NBFU   | National Board of Fire Underwriters                                      |
| RTI    | Resilient Tile Institute   |
| NBS    | National Bureau of Standards   |
| RWMA   | Resistance Welder Manufacturers Association                              |
| NCCLS  | National Committee for Clinical Laboratory Standards                     |

|         |   |
|---------|---|
| SAE     | Society of Automotive Engineers                                   |
| NCMA    | National Concrete Masonry Association                             |
| SAMA    | Scientific Apparatus Makers Association                           |
| NEC     | National Electrical Code  |
| SBI     | Steel Boiler Institute  |
| NECA    | National Electrical Contractors Association                       |
| SCDOT   | South Carolina Department of Transportation                       |
| NEMA    | National Electrical Manufacturers Association                     |
| SCPI    | Structural Clay Products Institute                                |
| NFC     | National Fire Code  |
| SCSH    | South Carolina State Highway Department                           |
| NFPA    | National Fire Protection Association                              |
| SDI     | Steel Deck Institute  |
| NHLA    | National Hardware Lumber Association                              |
| SIS     | Swedish Standards Association                                     |
| NLA     | National Lime Association   |
| SJI     | Steel Joist Institute   |
| NLGI    | National Lubricating Grease Institute                             |
| SMA     | Screen Manufacturers Association                                  |
| NLMA    | National Lumber Manufacturers Association                         |
| SMACCNA | Sheet Metal and Air Conditioning Contractors National Association |
| NMA     | National Microfilm Association                                    |
| SPIB    | Southern Pine Inspection Bureau                                   |
| NMWIA   | National Mineral Wool Insulation Association                      |
| SPR     | Simplified Practice Recommendation, U.S. Department of Commerce   |
| NPC     | National Plumbing Code  |
| SSBC    | Southern Standard Building Code                                   |
| NRCA    | National Roofing Contractors Association                          |
| SSGC    | Southern Standard Gas Code  |
| NRMCA   | National Ready Mixed Concrete Association                         |
| SSPC    | Steel Structures Painting Council                                 |
| NSF     | National Sanitation Foundation                                    |
| TAPPI   | Technical Association of the Pulp and Paper Industry Institute    |
| NTMA    | The National Terrazzo and Mosaic Association                      |
| TCA     | Tile Council of America   |
| NWMA    | National Woodwork Manufacturers Association                       |
| TRB     | Transportation Research Board                                     |
| OSHA    | Occupational Safety and Health Act                                |
| UL      | Underwriters' Laboratories, Inc.                                  |
| PCA     | Portland Cement Association                                       |
| WWPA    | Western Wood Products Association                                 |
| PCI     | Pre-stressed Concrete Institute                                   |

## **2.0 OWNERS RIGHTS AND RESPONSIBILITIES**

2.1 CHANGES IN THE WORK: The Owner, without invalidating the Contract, may make changes in the Work and in the Drawings and Specifications therefore by making alterations therein, additions thereto, or omissions therefrom. All work resulting from such changes shall be performed and furnished under and pursuant to the terms and conditions of the Contract. If such changes result in an increase or decrease in the work to be done hereunder, or increase or decrease the quantities thereof, adjustment in compensation shall be made therefore as provided in Subsection 7.12 PAYMENT FOR EXTRA WORK.

Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the Engineer authorizing the change, and no claim for additional compensation shall be valid unless the change is so ordered.

The Contractor agrees that he shall neither have nor assert any claim for, or be entitled to, any additional compensation for damages or for loss of anticipated profits on work that is eliminated.

2.2 PROJECT ENGINEER: Owner

2.3 Not Used

2.4 LIABILITY OF OWNER: No person, firm, or corporation, other than the Contractor, who signed this Contract as such, shall have any interest herein or right hereunder. No claim shall be made or be valid either against the Owner or any agent of the Owner and neither the Owner nor any agent of the Owner shall be liable for or be held to pay any money, except as herein provided. The acceptance by the Contractor of the payment as fixed in the final estimate shall operate as and shall be a full and complete release of the Owner and of every agent of the Owner of and from any and all claims, demands, damages and liabilities of, by or to the Contractor for anything done or furnished for or arising out of or relating to or by reason of the work or for or on account of any act or neglect of the Owner or of any agent of the Owner or of any other person, arising out of, relating to or by reason of the work, except the claim against the Owner for the unpaid balance, if any there be, of the amounts retained as herein provided.

2.5 RIGHTS-OF-WAY AND SUSPENSION OF WORK: The Owner shall furnish all land and rights-of-way necessary for carrying out this Contract and the completion of the Work herein contemplated; and will use due diligence in acquiring said land and rights-of-way as speedily as possible. It is possible that all lands and rights-of-way may not be obtained as contemplated herein before construction begins. In this event the Contractor shall begin his work upon such land and rights-of-way as the Owner may have previously acquired. No claim for damages will be allowed whatsoever by reason of delay in obtaining the remaining lands and rights-of-way.

Should the Owner be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the said work, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay or to withdraw from the contract except by consent of the Owner; but time for completion of the work will be

extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to be set forth in writing.

**2.6 SURVEYS, PERMITS AND REGULATIONS:** The Owner will furnish all boundary surveys and establish all base lines for location the principal component parts of the Work together with a suitable number of bench marks adjacent to the Work as shown in the Contact Documents.

Encroachment permits, easements for permanent structures and permits for permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified.

**2.7 LINES, GRADES AND MEASUREMENTS:** The Owner's Engineer will set sufficient base lines and elevations as shown on the Drawings for location of the Work. The Contractor shall employ a registered civil engineer, or land surveyor and shall require said Engineer to establish all lines, elevations, reference marks, batter boards, etc., needed by the Contractor during the progress of the work, and from time to time to verify such marks by instrument or other appropriate means.

The datum adopted by the Engineer is NAVD 29. All elevations shown on the Drawings or referred to in these specifications refer to this datum.

The Owner's Engineer shall be permitted at all times to check the lines, elevations, reference marks, batter boards, etc., set by the contractor, who shall correct any errors in lines, elevation, reference marks, batter boards, etc., disclosed by such check. Such check shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish in any way the responsibility of the Contractor for the accurate and satisfactory construction and completion of the entire work.

The Owner's Engineer shall have access to all field notes. Field notes will be recorded in bound field books, and carbon copies given the Owner's Inspector at the close of each shift.

**2.8 OWNER'S RIGHT OF AUDIT :** The Owner is to have a full and complete right to audit and make copies of Contractor's or Subcontractor's records with respect to any payment that the Owner may be requested to make, or may make, for any work done on the project. Further, the contractor will furnish all documents necessary for the Owner to obtain a Certified Audit of the entire project.

**2.9 OWNER'S RIGHT TO SEPARATE CONTRACTS:** The Owner reserves the right to let other contracts in connection with the Work under similar General Conditions. The Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

The Owner may perform additional Work related to the Project by himself, or he may let other contracts containing provisions similar to these. The Contractor will afford the other contractors who are parties to such contracts (or the Owner, if he is performing the additional Work himself),

reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work and shall properly connect and coordinate his Work with theirs.

2.10 OWNER'S RIGHT TO DO WORK: If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the Owner, after three (3) days' written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. If such expense shall exceed the unpaid balance, the Contractor shall pay the difference to the Owner on demand.

The Engineer's certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding or restoring any damaged or defective work or equipment when performed by one other than the Contractor shall be binding and conclusive as to the amount thereof upon the Contractor.

2.11 OWNER'S RIGHT TO TERMINATE CONTRACT : The Owner may, without prejudice to any other right or remedy, and after giving the Contractor and his surety, if any, seven days' written notice, terminate the employment of the Contractor and take possession of the premises and of such materials as it may deem expedient if:

1. The Contractor should be adjudged a bankrupt,
2. The Contractor should make a general assignment for the benefit of his creditors,
3. A receiver or trustee should be appointed on account of the Contractors insolvency,
4. The Contractor should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials,
5. The Contractor should fail to make prompt payment to Subcontractors or suppliers of material or labor,
6. The Contractor should persistently disregard laws, ordinances or the instructions of the Owner and his representatives, or otherwise be guilty of substantial violation of any provision of the Contract

In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work including compensation for additional engineering, managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner.

2.12 SUSPENSION OF WORK, TERMINATION AND DELAY: The Owner may suspend the Work or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the Contractor, by written notice to the Contractor and the Engineer, which notice shall fix the date on which Work shall be resumed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

2.13 INSPECTIONS AND TESTING: If the Contract Documents, Owner's instructions, laws, ordinances or any public authority having jurisdiction require any work to be specially tested or approved, the Contractor shall give the Owner timely notice of its readiness for observation by the Owner or inspection by another authority and, if the inspection is by another authority rather than the Owner, of the date fixed for such inspection.

The required certificates of such inspection shall be secured by the Contractor. Observations by the Owner shall be promptly made and, where practicable, at the source of supply. If any work should be covered up without approval or consent of the Owner, it must, if required by the Owner, be uncovered for examination at the Contractor's expense.

2.14 INSPECTION OF WORK AWAY FROM THE SITE: If the work to be done away from the construction site is to be inspected on behalf of the Owner during its fabrication, manufacture, or testing or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

2.15 PIPE LOCATION: Exterior pipelines will be located as indicated on the Drawings, but the Owner reserves the right, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with structures or for other reasons. Where fittings, etc., are noted on the Drawings such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

2.16 PRIOR USE OR OCCUPANCY: The Owner reserves the right to use or occupy the Work or portion thereof, and to use equipment installed under the Contract, prior to final acceptance. Such use or occupancy will not constitute acceptance of the Work or any part thereof. Despite such use or occupancy, guarantee periods will not begin until the completion of all work under the Contract, unless agreement to the contrary is made in writing between the parties.

2.17 WEATHER CONDITIONS : In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct, the Contractor will, and will cause his subcontractors to, protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors so to protect its work, such materials shall be removed and replaced at the expense of the Contractor.

2.18 OWNER'S RIGHT TO CLEAN UP: If a dispute arises between the separate contractors as to their responsibility for cleaning up, the Owner may clean up, the Owner may clean up and charge the cost thereof to the Contractor as the Engineer shall determine to be just.

### **3.0 CONTRACTOR'S RIGHTS AND RESPONSIBILITIES**

3.1 ACCESS TO WORK: The Owner, the Engineer, and their officers, agents, servants, and employees plus representatives of the various participating Federal or State agencies may, at any

and all times and for any and all purposes, enter upon the work and site thereof and the premises used by the Contractor, and the Contractor shall at all times provide safe and proper facilities therefore.

3.2 ACCIDENT PREVENTION : In the performance of the Contract the Contractor shall comply with the applicable provisions of the regulations issued by the Secretary of Labor pursuant to section 107 of the Contract Work Hours and Safety Standards Act entitled “Safety and Health Regulations for Construction” (29 CFR 1518, renumbered as Part 1926). Occupational Safety and Health Standards (29 CFR Part 1910) issued by the Secretary of Labor pursuant to the Williams-Steiger Occupational Safety and Health Act of 1970 are applicable to work performed by the Contractor subject to the provisions of the Act.

3.3 STATED ALLOWANCES: The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. These allowances shall cover the net cost of the materials and equipment delivered and unloaded at the site and all applicable taxes. The Contractor’s handling costs on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in the allowance. If the cost, when determined, is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order which will include additional handling costs on the site, labor, installation costs, overhead, profit and other expenses resulting to the Contractor from any increase over the original allowance.

3.4 ARCHAEOLOGICAL RIGHTS: There is a possibility that items of archaeological significance may be found during the excavation of the site. In such event, the Contractor shall stop excavation in the vicinity of the find and notify the Engineer immediately; subsequent excavation work shall proceed as directed by the Engineer. All items found which are considered to have archaeological significance are the property of the Owner.

3.5 AS-BUILT DRAWINGS: The Contractor shall designate one set of Drawings for “As-Built Drawings”. The Contractor shall indicate on these drawings all field changes affecting various mechanical, electrical, piping, and other items as well as locations as actually installed. The “As-Built Drawings” will be kept current by the Contractor. The “As-Built Drawings” shall be delivered to the Engineer upon completion and acceptance of the Work. Final payment for the Work will not be made until the “As-Built Drawings” have been completed and delivered as indicated above.

3.6 SURVEYS, PERMITS AND REGULATIONS : From the information provided by the Owner, unless otherwise specified in the Contract Documents, the Contractor shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets. The Contractor shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

The Contractor shall obtain any required state and local permits, licenses, inspections, and certificates necessary for the prosecution of the work. The Contractor shall obtain these

documents, and pay the fees assessed, for each division of work for which such permits, licenses, and inspections are required. The Contractor shall also obtain and pay the fees for general permits such as Building Permits and Certificates of Occupancy.

The Contractor shall give all notices and comply with all applicable Federal, State, and municipal laws, codes, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in Subsection 2.1 entitled CHANGES IN THE WORK.

**3.7 LINES, GRADES AND MEASUREMENTS:** The Contractor shall employ, at his own expense, a competent civil engineer or land surveyor who shall be registered in South Carolina and who shall be thoroughly experienced in field layout work. Said Engineer shall establish all lines, elevations, reference marks, etc., needed by the Contractor during the progress of the Work, and from time to time he shall verify such marks by instrument or by other appropriate means.

Alignment and grade of all pipe, tunnels, and borings shall be continuously controlled by use of lasers established through the pipe or casing, not transferred from another medium. The Contractor shall furnish lasers and accessories as required and approved by the Engineer. The Contractor's Engineer will set and check each laser each day that work is in progress or more often as required to assure continuous accurate control.

The Contractor shall make all measurements and check all dimensions necessary for the proper construction of the work called for by the Drawings and Specifications. During the prosecution of the Work, he shall make all necessary measurements to prevent mis-fitting in said work, and he shall be responsible therefore, and for the accurate construction of the entire work.

The Contractor's Engineer responsible for lines and grades shall verify to the Owner in writing that work has been constructed to lines and grades as shown on the Drawings. This certification shall accompany each request for payment.

**3.8 OBLIGATIONS OF CONTRACTOR :** The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, tools, machinery, equipment, transportation, supervision, temporary construction of any nature, and all other services, means and facilities except as herein otherwise expressly specified, necessary or proper to perform and complete all work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and in accordance with the Drawings and Specifications and in accordance with the direction of the Engineer as given from time to time during the progress of the work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required.

The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the Contract and Specifications, and shall do, carry on, and complete the entire work to the satisfaction of the Engineer and the Owner.

The Contractor shall check all dimensions, elevations, quantities and instructions shown on the Drawings or given in the Specifications and shall notify the Engineer should any discrepancy of any kind be found in the Drawings, Specifications or conditions at the site. He will not be allowed to take advantage of any discrepancy, error, or omission in the Contract Documents. If any discrepancy is discovered, the Engineer will issue full instructions pertaining thereto and the Contractor shall carry out these instructions as if originally specified.

**3.9 CLAIMS FOR ADDITIONAL COST:** If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give written notice thereof within twenty days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property, in which case the Contractor shall proceed in accordance with Subsection 3.28 entitled PROTECTION OF WORK, PROPERTY AND PERSONS IN AN EMERGENCY. No such claim shall be valid unless so made. If the Owner and the Contractor cannot agree on the amount of the adjustment in the contract Sum, it shall be determined by the Engineer. Any change in the Contract sum resulting from such claim shall be authorized by Change Order.

**3.10 CLAIMS FOR DAMAGE:** If the Contractor makes claim for any damages alleged to have been sustained by breach of contract or otherwise, he shall, within ten (10) days after occurrence of the alleged breach or within ten (10) days after such damages are alleged to have been sustained, whichever date is the earlier, file with the Engineer a written, itemized statement in triplicate of the details of the alleged breach and the details and amount of the alleged damages. The Contractor agrees that unless such statement is made and filed as so required, his claim for damages shall be deemed waived, invalid and unenforceable, and that he shall not be entitled to any compensation for any such alleged damages. Within ten (10) days after the timely filing of such statement, the Engineer shall file with the Owner one copy of the statement together with his recommendations for action by the Owner.

The Contractor shall not be entitled to claim any additional compensation for damages by reason of any direction, instruction, determination or decision of the Engineer, nor shall any such claims be considered, unless the Contractor shall have complied in all respects with the last paragraph of Subsection 2.3 entitled ENGINEER'S AUTHORITY, including, but not limited to, the filing of written protest in the manner and within the time therein provided.

**3.11 CUTTING AND PATCHING:** The Contractor shall leave all chases or openings for the installation of his own or any other contractor's subcontractor's work, or shall cut the same in existing work, and shall see that all sleeves or forms are at the work and properly set in ample time to prevent delays. He shall see that all such chases, openings, and sleeves are located accurately and are of proper size and shape and shall consult with the Engineer and the contractors and subcontractors concerned in the reference to this work.

In case of his failure to leave or cut all such openings or have all such sleeves provided and set in proper time, he shall cut them or set them afterwards at his own expense, but in so doing he shall confine the cutting to the smallest extent possible consistent with the work to be done. In no case shall piers or structural members be cut without the written consent and approval of the Engineer.

The Contractor shall carefully fit around, close-up, repair, patch, and point around the work specified herein to the satisfaction of the Engineer.

All of his work shall be done by careful workmen competent to do such work and with the proper small hand tools. Power tools shall not be used except where, in the opinion of the Engineer, the type of tool proposed can be used without damage to any work or structure and without inconvenience or interference with the operation of any facility. The Engineer's approval of the type of tool shall not in any way relieve or diminish the responsibility of the Contractor for such damage, inconvenience or interference resulting from the use of such tools.

The Contractor shall not cut or alter the work of any subcontractor or any other contractor, nor permit any of his subcontractors to cut or alter the work of any other contractor or subcontractor except with the written consent of the contractor or subcontractor whose work is to be cut or altered or with the written consent of the Engineer. All cutting and patching or repairing made necessary by the negligence, carelessness, or incompetence of the Contractor or any of his subcontractors shall be done by or at the expense of the Contractor and shall be the responsibility of the Contractor.

3.12 CLEANING UP: The Contractor at all times shall keep the site of the work free from rubbish and debris caused by his operation under the Contract. When the work has been completed, the Contractor shall remove from the site of the work all of his plant, machinery, tools, construction equipment, temporary work and surplus materials so as to leave the work and the site clean and ready for use.

All public streets adjacent to the site and all private ways at the site shall be kept clean of debris, spilled materials, and wet and dry earth at all time and shall be cleaned at the end of each working day. When wet earth is encountered, it shall be cleaned from the vehicles before they leave the site and enter streets and private ways.

3.13 NON-COMPLIANCE WITH CONTRACT REQUIREMENTS : In the event the Contractor, after receiving written notice from the Owner of non-compliance with any requirement of this Contract, fails to initiate promptly such action as may be appropriate to comply with the specified requirement within a reasonable period of time, the Owner shall have right to order the Contractor to stop any or all work under the Contract until the Contractor has complied or has initiated such action as may be appropriate to comply within a reasonable period of time. The Contractor will not be entitled to any extension of contract time or payment for any costs incurred as a result of being ordered to stop work for such cause.

3.14 OVERALL PROJECT COORDINATION: The Contractor shall coordinate all Work of his Contract to produce the required finished Project in accordance with the Contract Documents. Special attention shall be given to the submission of shop drawings, samples, color charts, and requests for substitution within the specified time; furnishing the proper shop drawings to Subcontractors and material suppliers, whose work and equipment is affected by and related thereto; and the furnishing of all information concerning location, type, and size of built-in equipment and materials and equipment utilities. This coordination is in addition to all other coordination requirements called for in the technical sections of the Specifications.

3.15 COMMUNICATIONS: The Contractor shall forward all communications to the Owner through the Engineer.

3.16 NO DISCRIMINATION IN EMPLOYMENT: In connection with the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

3.17 DRAWINGS AND SPECIFICATIONS AT THE SITE: The Contractor shall maintain at the site one complete set of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders and other Modifications, in good and readable condition and marked to record all changes made during construction. These shall be available to the Engineer. The Drawings, marked to record all changes made during construction, shall be delivered to the Engineer for the Owner upon completion of the work.

3.18 EMPLOY COMPETENT PERSONS: The Contractor shall endeavor to employ only competent persons on the Work. Whenever the Engineer notifies the Contractor in writing that in his opinion any person on the Work is incompetent, unfaithful, disorderly, or otherwise unsatisfactory, or not employed in accordance with the provisions of the Contract, such person shall be discharged from the Work and shall not again be employed on it, except with the written consent of the Engineer. Provided, however, that the failure of the Owner or Engineer to object to an employee is not to be considered acknowledgment or approval of the employee's competence by the Engineer or Owner.

3.19 EMPLOY SUFFICIENT LABOR AND EQUIPMENT: If, in the judgment of the Engineer, the Contractor is not employing sufficient labor, plant, equipment or other means to complete the Work within the time specified, the Engineer may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means as the Engineer may deem necessary to enable the Work to progress properly.

3.20 EXISTING STRUCTURES: Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the Work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the corrections of such information.

3.21 BENCHMARKS, PROPERTY CORNERS AND MONUMENTS: The Contractor shall maintain, carefully, all benchmarks, property corners, monuments and other reference points encountered. If disturbed or destroyed, the Contractor shall obtain the services of a Registered Land Surveyor to replace them, or pay for the replacement by appropriate authorities, at the Contractor's own expense.

3.22 INDEMNIFICATION : The Contractor shall indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses and

expenses, including attorneys' fees, arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

In any and all claims against the Owner or the Engineer, or any of their agents or employees, by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under worker's compensation acts, disability benefit acts or other employee benefits acts.

**3.23 INTOXICATING LIQUORS:** The Contractor shall not sell and shall neither permit nor suffer the introduction or use of intoxicating liquors upon or about the Work.

**3.24 LEGAL ADDRESS OF CONTRACTOR:** The Contractor's business address and his office at or near the site of the Work are both hereby designated as places to which communications may be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the Contractor's business address in a post office box regularly maintained by the U. S. Postal Service or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon the Contractor, and the date of such service shall be the date of deposit. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the Engineer. Service of any notice, letter or other communication upon the Contractor personally shall likewise be deemed sufficient service.

**3.25 MUTUAL RESPONSIBILITY OF CONTRACTORS:** The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials/equipment and the execution of their work, and shall properly connect and coordinate his Work with theirs.

If any part of the Contractor's Work depends for proper execution or results upon the work of any other separate contractor, the Contractor shall inspect and promptly report to the Owner any apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor so to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper to receive his Work, except as to defects which may develop in the other separate contractor's work after the execution of the contractor's Work. To ensure proper execution of the subsequent work, the Contractor shall measure work already in place and shall at once report to the owner any discrepancy between the executed work and the Contract Documents.

Should the Contractor cause damage to any separate contractor on the Work, the Contractor agrees, upon due notice, to settle with such contractor by agreement or arbitration, if he will so settle. If such separate contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall defend such proceedings at the Contractor's expense, and if any judgment against the Owner arises therefrom, the Contractor

shall pay or satisfy it and pay all costs incurred by the Owner.

3.26 WORK HOURS: The Contractor shall maintain a normal work schedule, consisting of five (5) days of eight (8) hours each or four (4) days of ten (10) working hours each per week. Night, Weekend, and Holiday work will not be permitted unless it meets the requirements of the following section AND has written approval of the Owner.

Work performed by the Contractor at his own volition outside such customary working hours shall be at no additional expense to the Owner.

Any requests received by the Contractor from occupants of existing buildings to change the hours of work shall be referred to the Owner for determination.

3.27 NIGHT AND SUNDAY WORK: No work shall be done at night or on Sunday except:

1. Usual protective work, such as pumping and the tending of lights and fires;
2. Work done in case of emergency threatening injury to persons or property;
3. When provided for under Supplemental Conditions as herein specified;

If all of the conditions set forth in the next paragraph below are met no work other than that included in (1), (2), and (3) above, shall be done at night except when:

- a. In the judgment of the Engineer, the work will be of advantage to the Owner and can be performed satisfactorily at night;
- b. The work will be done by a crew organized for regular and continuous night work;
- c. The Engineer has given written permission for such night work.

Any work necessary to be performed after regular hours, on Sundays, or on Legal Holidays shall be performed without additional expense to the Owner.

3.28 OCCUPYING PRIVATE LAND: The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials, or equipment, any land outside the rights-of-way or property of the Owner. A copy of the written consent shall be given to the Engineer prior to occupation of private land.

3.29 DEWATERING EXCAVATIONS: The Contractor shall remove and dispose of water in all excavations for pipelines, structures, and appurtenances so that construction can be carried out under relatively dry conditions. The dewatering shall be accomplished using pumps, ditches, well points, or other approved methods, as required. Excavations shall be de-watered and brought to the specified grade prior to installation of any permanent structure and shall be maintained in this relatively dry condition throughout project construction.

3.30 PRECAUTIONS DURING ADVERSE WEATHER: During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other approved means.

During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by approved means which will result in a moist or a dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will warm throughout when used.

The Engineer may suspend construction operations at any time when, in his judgment, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather may be, in any season. The Contractor agrees that he shall not have or assert any claim for or be entitled to any additional compensation or damages on account of any such suspension.

**3.31 PROTECTION OF WORK, PROPERTY AND PERSONS:** The Contractor will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor will comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or anyone for which acts any of them maybe liable, except damage or loss attributable to the acts or omissions of the Owner or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

**3.32 PROTECTION OF WORK, PROPERTY AND PERSONS IN AN EMERGENCY:** In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. He will give the Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

**3.33 PROTECTION AGAINST WATER AND STORM:** The Contractor shall take all precautions necessary to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor shall at his own cost and expense make such repairs or replacements or rebuild such parts of the

Work as the Engineer may require in order that the finished work may be completed as required by the Contractor.

**3.34 PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, AND IMPROVEMENTS:** The Contractor will preserve and protect all existing vegetation such as trees, shrubs, and grass on or adjacent to the site of the work which is not to be removed and which does not unreasonably interfere with the construction work. Care shall be taken in removing trees authorized for removal to avoid damage to vegetation to remain in place. Any limbs or branches of trees broken during such operations or by the careless operation of equipment or by workmen shall be trimmed with a clean cut and painted with a tree pruning compound as approved by the Engineer.

The Contractor will protect from damage all existing improvements or utilities at or near the site of the work, the location of which is made known to him, and will repair or restore any damage to such facilities resulting from failure to comply with the requirements of this Contract or the failure to exercise reasonable care in the performance of the Work. If the Contractor fails or refuses to repair any such damage promptly, the Owner may have the necessary work performed and charge the cost thereof to the Contractor.

The Contractor shall enclose the trunks of trees adjacent to his work and not to be cut with substantial wooden boxes of such height as may be necessary to protect them from injury from piled material, from equipment, from his operation, or otherwise due to his work. Excavating machinery and cranes shall be of suitable type and shall be operated with care to prevent injury to trees not to be cut and particularly to overhanging branches and limbs.

On paved surfaces, the Contractor shall not use or operate tractors, bulldozers or other power operated equipment, the treads, or wheels of which are so shaped as to cut or otherwise injure such surfaces.

**3.35 RESTORATION OF PROPERTY:** All existing surfaces, including lawns, grassed and planted areas which have been injured by the Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately before work was begun. Suitable materials and methods shall be used for such restoration. All restored plantings shall be maintained by cutting, trimming, fertilizing, etc., until acceptance. The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the construction period.

**3.36 INTERFERENCE WITH AND PROTECTION OF STREETS:** The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits therefore from the proper authorities. If any street, road, or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.

Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made, therefore.

The Contractor shall, at least 24 hours in advance, notify the highway, police, and fire departments in writing, with a copy to the engineer, if the closure of a street or road is necessary. He shall cooperate with the police department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, to minimize confusion.

3.37 WORK IN STATE, CITY AND COUNTY RIGHTS-OF-WAY: Attention is directed to the fact that work will be going on in County, City and State rights-of-way. The Owner has obtained permission for the Contractor to encroach on these rights-of-way for work.

The Contractor will be required to conform to the requirements of the South Carolina Department of Highways and Public Transportation, the Charleston County Public Works Department, and the North Charleston Public Works while working within the rights-of-way.

Attention is directed to the fact that existing drainage pipes and ditches will be disturbed during the course of work. Any pipe which is damaged during construction shall be replaced with new pipe of the same size and material. Drainage ditches disturbed by the construction are to be graded to drain and grassed upon completion of the construction.

3.38 SCDHEC DISTRICT ENGINEER INSPECTION: All the work constructed on this project, related to water and sewer lines and appurtenances, is subject to the inspection and approval by the South Carolina Department of Health and Environmental Control District Engineer. This inspection and acceptance is in addition to inspection and acceptance of the Engineer.

3.39 EASEMENTS: The Owner has obtained, or will obtain, permanent easements and temporary construction easements through private property. The temporary construction easements entitle the Contractor to the occupancy and use of the designated area near or adjacent to the work for purposes related to the work.

The Contractor will not encroach on any property unless easements have been obtained. On all land, the Contractor has no rights unless he obtains permission from the proper parties.

3.40 TRAFFIC CONTROL: The Contractor will comply with the South Carolina Department of Highways and Public Transportation manual entitled "Traffic Controls for Street and Highway Construction and Maintenance Operations, Part V, of the South Carolina Manual on Uniform Traffic Control Devices for Streets and Highways, 1982" and provide traffic control as required and approved by the South Carolina Department of Highways and Public Transportation.

Upon completion and acceptance of the work or as the need for temporary traffic control devices ceases, they shall be removed by the Contractor. Signs shall be used where warranted to maintain traffic or to call attention to conditions on, or adjacent to, the construction work. Such signs shall be removed when they are no longer required.

All traffic control and marking devices shall be in accordance with the provisions of the "State of South Carolina Uniform Manual on Traffic Control Devices". Upon completion and acceptance of the work or as the need for temporary traffic control devices ceases, they shall be removed by

the Contractor and shall remain the property of the Contractor.

**3.41 DANGER SIGNALS AND SAFETY DEVICES:** The Contractor shall make all necessary precautions to guard against damages to property and injury to persons. He shall put up and maintain in good condition, sufficient red or warning lights at night, suitable barricades, and other devices necessary to protect the public.

In case the Contractor fails or neglects to take such precautions, the Owner may have such lights and barricades installed and charge the cost of this work to the Contractor. Such action by the Owner does not relieve the Contractor of any liability incurred under this Specification or contract.

**3.42 CONSTRUCTION DRAINAGE:** The Contractor shall furnish all labor, materials, and necessary equipment for the temporary control of surface water and seepage water during construction and keep all excavations, pits and trenches free from water at all times.

The Contractor shall furnish and operate pumps and other equipment required. Dikes and ditches shall be constructed around excavations and elsewhere as necessary to prevent surface water from flooding the excavations or standing in areas adjacent to excavations, in work areas or in material storage areas. The Contractor shall take all necessary precautions to protect adjacent areas and properties at points other than that which would be considered the natural flow, prior to construction, without the expressed consent of the Owner in writing with a copy to the Engineer. He shall take steps to prevent the erosion of soil, earth and other material and the conduction of the eroded materials onto adjacent properties and shall be responsible for the removal of such materials and the restoration of adjacent areas to their original condition.

**3.43 RETURNS OF DRAWINGS:** All copies of Drawings, Specifications and other Documents furnished by the Owner or the Engineer to the Contractor may be used only in connection with prosecution of the Work and shall be returned by the Contractor upon completion of the Work.

**3.44 SITE INVESTIGATION:** The Contractor acknowledges that he has investigated and satisfied himself as to the conditions affecting the Work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, water table, tides or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the Work.

The Contractor further acknowledges that he has satisfied himself as to character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonable ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from information presented by the Drawings and Specifications made a part of this Contract.

Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusions or interpretations made by

the Contractor based on the information made available by the Owner.

**3.45 SOIL EROSION AND SEDIMENT CONTROL:** The Contractor's attention is directed to the fact that unless exposed earth areas are properly cared for during construction, they may result in substantial sedimentation damage downstream from the construction area.

The Contractor shall be responsible for conducting his site grading and drainage operations in such manner as to prevent soil erosion of the construction site work areas. He shall at all times provide satisfactory means to prevent the movement and washing of soil onto pavements or into adjacent ditches, swales, inlets, and drainage pipes, to avoid the possibility of these structures becoming clogged with soil. He shall promptly repair all areas which may become eroded and shall clear drainage ditches, swales, and structures of siltation.

The Contractor shall indemnify and save harmless the Owner and Engineer from and against any and all claims, demands, fines, or assessments, including attorneys' fees and cost of defense arising out of or caused by the Contractor's failure to provide soil erosion and sediment control.

**3.46 SUBSURFACE CONDITIONS:** The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner by Written Notice of:

1. Subsurface or latent physical conditions of the site differing materially from those indicated in the Contract Documents.
2. Unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

The Owner shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause and increase or decrease in the cost of, or in the time required for, performance of the Work, and equitable adjustment shall be made and the Contract Documents shall be modified by the Change Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given the required Written Notice: provided that the Owner may, if he determines that the facts so justify, consider and adjust any such claims asserted before the date of final payment.

**3.47 SUBCONTRACTING:** The Contractor may utilize the services of specialty Subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty Subcontractors. The Contractor will, without additional expense to the Owner, utilize the services of specialty Subcontractors on those parts of the Work which are specified to be performed by specialty Subcontractors.

The Contractor shall not award any work to a subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require. No request for payment will be approved before this list has been received and reviewed by the Owner.

The Contractor shall not award Work to Subcontractor(s) in excess of fifty (50%) percent of the Contract Price without prior written approval of the Owner.

The Contractor will be fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts or omissions of persons directly employed by him.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provisions of the Contract Documents.

If any other contractor or any subcontractor of such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the Contractor or of any of his subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss, damage or delay and from and against any and all claims, demands, costs and expenses, including attorney's fees, arising out of, relating to or resulting from such claims.

The Contractor shall be responsible for the coordination of the trades, subcontractors, and material men engaged upon his Work. The Owner or Engineer will not undertake to settle any differences between the Contractor and his subcontractors or between subcontractors. If any Subcontractor on the project, in the opinion of the Engineer, proves to be incompetent or otherwise unsatisfactory, he shall be replaced if and when directed in writing.

3.48 SUPERVISION: The Contractor shall keep on his Work, during its progress, a competent superintendent, and any necessary assistants, all satisfactory to the Owner. The superintendent shall not be changed except with the consent of the Owner unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ. The superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor. Important directions shall be confirmed in writing to the Contractor. Other directions shall be so confirmed on written request in each case. The Owner shall not be responsible for the acts or omissions of the superintendent or his assistants.

The Contractor shall give efficient supervision to the Work, using his best skill and attention. He shall carefully study and compare all Drawings, Specifications and other instructions and shall at once report to the Owner any error, inconsistency, or omission which he may discover.

3.49 TAXES: The Contractor shall promptly pay all federal, state and local taxes which may be assessed against him in connection with the Work or his operations under the agreement and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of materials and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

3.50 TEMPORARY HEAT: The Contractor shall provide temporary heat whenever necessary to protect all Work and materials against injury from dampness and cold and to dry out moisture from the building. Fuel, equipment, and method of heating shall be satisfactory to the Owner's Insurer and the Engineer.

3.51 TEMPORARY UTILITIES: The Contractor shall make arrangements for and furnish as a part of the Contract, all electricity, water lighting and other utilities needed to do the Work called for by the Contract. Any separate contractors having a contract with the Owner shall make arrangements for and share the cost with the Contractor for the use of the required utilities on a pro-rated schedule based on an agreed basis. All Electrical Work shall comply with the National Electric Code.

The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters. The Contractor shall provide sufficient electric lighting so that all work may be done in a workmanlike manner when there is not sufficient daylight.

3.52 UNCOVERING AND CORRECTION OF WORK: The Engineer shall be furnished by the Contractor with every reasonable facility for examining and inspecting the Work and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring the uncovering or taking down of portions of finished Work by the Contractor.

Should the Work thus uncovered or taken down prove satisfactory, the cost of uncovering or taking down and the replacement thereof shall be considered as extra Work unless the original Work was done in violation of the Contract in point of time or in the absence of the Engineer or his inspector and without his written authorization, in which case said cost shall be borne by the Contractor. Should the Work uncovered or taken down prove unsatisfactory, said cost shall likewise be borne by the Contractor.

The inspection of the Work shall not relieve the Contractor of any of his obligations to perform and complete the Work as required by the Contract. Defective Work shall be corrected and unsuitable materials, equipment, apparatus and other items shall be replaced by the Contractor, notwithstanding that such Work, materials, equipment, apparatus and other items may have been previously overlooked or accepted or estimated for payment.

If the Work or any part thereof shall be found defective at any time before the final acceptance of the Work, the Contractor shall forthwith make good such defect in any manner satisfactory to the Engineer. If any materials, equipment, apparatus or other items brought upon the site for use or incorporation in the Work, or selected from the same, are condemned by the Engineer as unsuitable or not in conformity with the Specifications or any of the other Contract Documents, the Contractor shall forthwith remove such materials, equipment, apparatus and other items from the site of the Work and shall at his own cost and expense make good and replace the same and any material furnished by the Owner which shall be damaged or rendered defective by the handling of improper installation by the Contractor, his agents, servants, employees or subcontractors.

If the Owner deems it inexpedient to correct Work injured or done not in accordance with the Contract, an equitable deduction from the Contract Price shall be made, therefore.

**3.53 COOPERATION WITH UTILITIES:** The Owner will notify all utility companies, all pipe line owners, or other parties affected, and endeavor to have all necessary adjustments of the public or private utility fixtures, pipe lines, and other appurtenances within or adjacent to the limits of construction, made as soon as practicable.

During the course of construction, the Contractor shall maintain in operating condition all active utilities such as gas, electric, telephone, water, sewer, gutters and other drains encountered in the new utility installation: and shall repair to the satisfaction of the Owner any surface, aerial or subsurface utility damage unless such utility is shown to be abandoned or removed.

Water lines, gas lines, wire line, sewer lines, water and gas meter boxes, water and gas valve boxes, manholes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the Owners under separate agreement, except as otherwise noted on the Drawings.

The Drawings will show all known utilities located within the limits of the contract according to information obtained. The accuracy of the Drawings in this respect is not guaranteed by the Owner. The Contractor shall have considered in his bid all the permanent and temporary utility appurtenances in their present or relocated position. No additional compensation will be allowed for any delays, inconveniences, or damages sustained by him due to any interference from the said utility appurtenances or the operation of moving them.

Unless otherwise provided, the cost of temporary rearrangement of utilities made only to facilitate the construction of the Work will be borne by the Contractor.

**3.54 WORK WITHIN DRAINAGE DITCH RIGHTS-OF-WAY:** Where any portion of the project is to be constructed within the rights-of-way maintained by the County Public Works Department for drainage, the Owner will obtain permission from these agencies to construct within their rights-of-way. The Contractor will be required to conform to the requirements of the County Public Works Department while working within the drainage rights-of-way.

**3.55 WORK ADJACENT TO TELEPHONE, POWER AND GAS COMPANY STRUCTURES:** Where work is being performed within the telephone company or electric and gas company rights-of-way, the Owner has acquired, or will acquire, permission from these agencies to construct facilities within their rights-of-way or easements. In all cases where work is being performed near telephone company or electric or gas company facilities, the Contractor will notify the respective companies of areas in which work is being performed.

**3.56 WORK BEING PERFORMED NEAR WATER LINES:** The Contractor will inform the Town or City having jurisdiction as to the areas where work is being performed. It is required of a Contractor to obtain permission from the appropriate Water Authority where alterations to their system are required.

3.57 WORK IN RAILROAD RIGHTS-OF-WAY: Some work for this project may occur within railroad rights-of-way. The Contractor will be required to conform to the requirements of each railroad company while working within the rights-of-way. The Contractor must contact the Engineer and each railroad company prior to commencing any work within the rights-of-way.

3.58 UTILITY LOCATIONS: Prior to beginning any excavation, the Contractor shall notify all public utility companies and have their lines located and marked.

3.59 VERIFICATION OF DIMENSIONS AND ELEVATIONS: Dimensions and elevations indicated on the Drawings in reference to existing structures, location of utilities, sewer inverts, or other information on existing facilities, are the best available data obtainable but are not guaranteed by the Engineer. The Engineer will not be responsible for their accuracy. Before proceeding with any work dependent upon the data involved, the Contractor shall field check and verify all dimensions, grades, inverts, lines, elevations, or other conditions or limitations at the site of the work to avoid construction errors or damage to existing facilities. If any work is performed by the Contractor or a subcontractors prior to adequate verification of applicable data, any resultant extra cost for adjustment of work necessary to conform to existing facilities shall be assumed by the Contractor without reimbursement or compensation by the Owner.

If the Contractor, in the course of the work, finds any discrepancy between the Drawings and the physical conditions of the locality, or any errors or omissions in the Drawings or in the layout as given by survey points and instructions, he shall immediately inform the Engineer, in writing. The Engineer will promptly investigate the reported conditions and issue such instructions as may be necessary for the proper execution of the work. Any work done after such discrepancy and prior to receipt of such instructions shall be at the risk of the Contractor.

#### **4. MATERIALS, EQUIPMENT AND WORKMANSHIP**

4.1 CONTRACTOR'S TITLE TO MATERIALS: No materials or supplies for the Work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the Work, free from all liens, claims or encumbrances.

4.2 CORRECTION OF WORK BEFORE COMPLETION: The Contractor shall promptly remove from the premises all work condemned by the Owner as failing to conform to the Contract Documents, whether incorporated or not and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement. The fact that the Engineer may have previously overlooked such defective work shall not constitute an acceptance of any part of it.

If the Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Owner may remove it, and after storing it at the job site for 30 days, due written notice thereof being given the Contractor, the Owner may offer the material for sale and removal from the premises. Net proceeds from such sale shall be for the Contractor's credit

against the “Owner’s Right To Do Work”. If the material has no sale value, the Owner may remove it from the premises and/or otherwise dispose of it. The cost of such disposition shall be deducted for payments to the Contractor as provided in Subsection 2.10 entitled OWNER’S RIGHT TO DO WORK.

**4.3 CORRECTION OF WORK AFTER COMPLETION:** The Contractor shall remedy any defects due to faulty materials or workmanship and pay for any damage to other work resulting therefrom which shall appear within a period of two years from the date of final acceptance of the work except where longer periods are specified and in accordance with the terms of any special guarantees provided in the Contract.

**4.4 CORRECTIONS OF WORK AFTER GUARANTEE PERIOD:** It shall be the responsibility of the Contractor to permanently correct all defective items called to his attention within the guarantee period, whether such correction be made within the guarantee period or not. The Contract shall not be fully performed until such permanent corrections are made.

**4.5 GENERAL GUARANTY:** The Contractor warrants to the Owner that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not so conforming to these standards may be considered defective. If required by the Owner, the Contractor shall furnish all satisfactory evidence as to the kind and quality of materials and equipment.

Neither the final certificate of payment nor any provision in the Contract Documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

The Contractor shall further guarantee for a period of 24 months that any building or buildings, constructed under this Project, shall be watertight and leak proof at every point in every area, except where leaks can be attributed to damage to the building by external forces other than storm or foundation settlement. He shall, immediately upon notification by the Owner of water penetration, determine the source of water penetration and, at his own expense, repair or replace any other damaged material to return the building or buildings to the original accepted condition.

In addition to the foregoing stipulations, the Contractor shall comply with all other guarantees and warranties referred to in any portions of the Contract Documents, the more stringent requirement governing. Unless otherwise specifically stated elsewhere in the Specifications, the date of beginning of all guarantee or warranty periods shall be the date of acceptance of the project.

If for any reason, the Contractor cannot guarantee any part of his work using material or construction methods which have been specified, or shown, he shall notify the Engineer in writing before Contracts are signed, giving reasons together with the name of the product and data on substitutions he can guarantee. Should the Contractor fail to so notify the Engineer prior to the signing of the Contracts, he will be held to have agreed to guarantee all Work specified of

shown.

**4.6 WARRANTY REPAIR WORK:** The Contractor shall fully and unconditionally warrant the materials and workmanship of the project for a period of two years, beginning on the date of project completion.

The Contractor shall maintain both the Performance Bond and the Payment Bond in force throughout the two-year warranty period.

The Contractor warrants that he shall investigate, in a sincere, thorough and workmanlike manner, all claims for warranty work within 48 hours of receipt of notice from the Owner of the need for same of existence of deficient parts or portions of the Project. Workmen responding to such notices, shall be skilled craftsmen prepared to perform best quality work. Deficiencies shall be corrected immediately.

The Contractor or his representative shall immediately upon investigation of a notice of deficiency, deliver a report of his findings in writing with 72 hours of receipt of a warranty work at the Contractors expense, therefore.

The Contractor warrants that he shall pay all invoices for warranty work performed by the Owner due to his default under this clause. Should the Contractor fail or refuse to pay such invoice rendered by the Owner within 15 days of receipt, the Owner may enter claim with any court of competent jurisdiction for collection of same with interest at the maximum legal rate, together with all associated legal costs and attorney's fees, as a breach of this Contract.

**4.7 HANDLING AND DISTRIBUTION:** The Contractor shall handle, haul and distribute all materials and all surplus materials in the different portions of the work as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the work; and shall be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the Work.

Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

**4.8 RIGHT TO MATERIALS:** Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus and other items furnished after they have been installed or incorporated in or attached or affixed to the work or the site, but incorporated, attached or affixed, become the property of the Owner.

**4.9 STORAGE OF MATERIAL AND EQUIPMENT:** All excavated materials, construction equipment, and materials and equipment to incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants, and occupants.

**4.10 MANUFACTURER'S DIRECTIONS:** All 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.

If the specifications or plans are contrary to the manufacturer's directions, the manufacturer shall be contacted by the Contractor before proceeding with the Work and the Engineer advised if the manufacturer has any objections to the specified application.

**4.11 MATERIALS, SERVICES AND FACILITIES:** It is understood that, except otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all labor, supplies and materials, tools, machinery, equipment, transportation, supervision, temporary construction of any nature, and all other services, means and facilities of any nature whatsoever necessary to execute, complete, and deliver the Work within the specified time.

Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located to facilitate prompt inspection.

Materials supplied and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.

**4.12 MISCELLANEOUS ITEMS:** The work to be done by the Contractor, specified and enumerated under this Contract, shall include any minor details of the Work not specifically mentioned in the Specifications or shown on the Drawings, but obviously necessary for the proper completion of the Work, which shall be considered incidental and as being a part of and included with the Work for which prices are given in the Bid. The Contractor will not be entitled to any additional compensation, therefore.

Miscellaneous items and accessories which are not specifically mentioned, but which are essential to produce a complete and properly operating installation or usable structure or plant, providing the indicated function, shall be furnished and installed without change in the contract price. Such miscellaneous items and accessories shall be of the same quality standards, including material, style, finish, strength, class, weight and other applicable characteristics as specified for the major component of which the miscellaneous item or accessory is an essential part, and shall be approved by the Engineer before installation. The above requirement is not intended to include major components not covered by or inferable from the Drawings and Specifications.

**4.13 MISTAKES OF CONTRACTOR:** The Contractor shall promptly correct and make good any and all defects, damages, omissions, or mistakes, for which he and/or his agents, servants, employees or subcontractors are responsible, and he shall pay the Owner all costs, expenses, losses, and damages resulting therefrom or by reason thereof as determined by the Engineer.

**4.14 PROTECTION AGAINST ELECTROLYSIS:** Where dissimilar metals are used in conjunction with each other, or against concrete surfaces, suitable insulation shall be provided between adjoining surfaces to eliminate direct contact and any resultant electrolysis. The

insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other approved materials.

4.15 ROYALTIES AND PATENTS: The Contractor shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has information that the process of article specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner in writing.

4.16 CONSTRUCTION SCHEDULE: A construction schedule shall be submitted by the Contractor at the PRE-CONSTRUCTION conference for approval by the Engineer.

The construction schedule shall consist of a bar chart incorporating the bid items. Further breakdown of each bid item may be required for clarity. A cost curve shall be plotted on the bar chart. An update of the schedule will be furnished at the Engineer's request, normally with each monthly submittal of Partial Pay Estimate.

The schedule shall be supported by copies of the proposed equipment, quotations showing the item identification, stated delivery time, and the date of expiration of the quotation. Current and valid quotations are required. These quotations shall be presented to the Engineer with the construction schedule.

4.17 SUBMITTAL SCHEDULE: Within twenty (20) days after execution and delivery of the Contract, the Contractor shall prepare and deliver to the Engineer a Submittal Schedule. This includes a list of all submittals required under the Contract. This list shall identify each major group of shop drawings, coordination drawings and schedules and each sample and the planned submission date for each.

After the Engineer's review of the list of submittals, the Engineer will meet with the Contractor for a joint review and correction and adjustment, as necessary, for agreement on the submittal. In addition, at the meeting the duration of the review period for each submittal will be established. The Contractor's planned submission date for each submittal shall allow no less than fifteen (15) working days for review and appropriate action before approval of the submittal becomes critical to the progress of the Contractor's work. Within five (5) calendar days after the joint review, the Contractor shall make any necessary revisions to the list of submittals, including duration's of the review periods, in accordance with the agreements reached during the joint review and submit two (2) revised copies to the Engineer. No application for partial payment will be approved until the submittal schedule is approved. The Engineer shall not review more than two sets of submittal data (original submittal and one re-submittal) for each item or material without compensation by the Contractor. In the event that additional reviews are required, The Contractor shall compensate the Engineer at a rate of \$100.00 per hour for such review.

4.18 SHOP DRAWINGS: Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or any

Subcontractor, manufacturer, supplier or distributor, and which will illustrate some portion of the Work. It shall be the Contractor's responsibility to furnish Shop Drawings as required by the technical specifications or as requested by the Engineer. These submittals must be made no later than is required by the submittal schedule.

Shop Drawings shall show the principal dimensions, weight, structural and operating features, space required, clearance, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer of fabricator as correct for the Contract.

When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive manner, illustrations, etc., may be submitted for approval in place of shop and working drawings. In such case, the requirements shall be as specified for shop and working drawings, insofar as applicable except that the submission shall be in quadruplicate.

The Contractor shall be responsible for the prompt and timely submittal for all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings.

The Contractor shall check the Shop Drawings, shall coordinate them (by means of coordination drawings wherever required) with the work of all trades involved before submission and shall indicate thereon his approval. Drawings and schedules submitted without evidence of the Contractor's approval may be returned for re-submission.

By approving and submitting Shop Drawings, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, or will do so, and that he has checked and coordinated Shop Drawings with the requirements of the Work and of the Contract Documents.

If drawings or schedules show variations from the contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, the Engineer may approve any or all such variations and issue an appropriate change order. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such drawings or schedules may have been approved.

Each Shop Drawing or Coordination Drawing shall have a blank area 5 by 5 inches located adjacent to the title block. The title block shall display the following:

Number and Title of Drawing  
Date of Drawing  
Revision number and date (if applicable)  
Project Title  
Name of the project building or facility  
Name of Contractor

Name of Subcontractor (if applicable)  
Clear identity of contents and location of work

Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.

The Contractor shall stamp all drawings which are to be submitted to the Engineer for approval. The rubber stamp shall incorporate the following items:

|                       |                 |
|-----------------------|-----------------|
| PROJECT TITLE         |                 |
| CONTRACTOR'S NAME     |                 |
| APPROVED BY           | DATE            |
| SPECIFICATION SECTION | TRANSMITTAL NO. |

The review of the Shop Drawings will be general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc., necessary for the proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified thereunder.

Should the Contractor submit for approval equipment that required modifications to the structures, piping, layout, etc., detailed on the Drawings, he shall also submit for approval details of the proposed modifications. If such equipment and modifications are approved, the Contractor, at no additional cost to the Owner, shall do no work necessary to make such modifications. Required structural changes shall be designed and detailed by an Engineer registered in the state in which the project will be constructed. Drawings shall be signed and show registration number or may have seal affixed.

Submission of Shop Drawings shall be accompanied by a copy of a transmittal letter containing Project name, Contractor's name, number of drawings, titles, specifications section, and other pertinent data. The submittal shall include the following:

Four (4) legible copies of Shop Drawings or printed matter

The review of Shop Drawings will be performed by the Engineer as follows:

When the submittal conforms fully with the Contract Drawings and Specifications, the Engineer will approve it. The reproducible of each drawing or page of approved submittals will be stamped approved, signed, dated and returned to the Contractor. No changes shall be made on approved drawings by the Contractor. If the Contractor desires to make any changes from approved drawings, or pages of approved submittals, he shall notify the Engineer in writing that the approved material has been withdrawn and shall submit the substitution set in accordance with the above procedure.

When the submittal clearly does not conform with the Contract Drawings and Specifications, the Engineer will disapprove it by stamping “Rejected”. Rejected submittals shall be corrected and resubmitted within fourteen (14) calendar days from the date of rejection. Submittals which are rejected shall not be released for any work.

When the submittal has only minor deviations from the Contract Drawings and Specifications, the Engineer will note the deviations and omissions as may be appropriate and approve the submittal subject to the notations by stamping it “Approved as Noted”. Approved as Noted submittals may be released for fabrication of work at the Contractor’s risk; in any event the submittal shall be corrected and resubmitted for approval within fourteen (14) calendar days from the date of approval as noted.

The Contractor shall be responsible for delays resulting from the rejection or approval as noted of incomplete, inadequate, incorrect, or otherwise unacceptable submittals.

The Contractor shall assure that only drawings and pages of printed materials bearing the Engineer’s “Approved” stamp are allowed on the job site.

The Contractor shall submit, at the completion of the Project, one set of all reviewed and correct shop drawings, catalog cuts, and descriptive literature for all Work previously submitted. These sets shall be sent to the Engineer for the Owner before the final Certificate of Payment is issued.

4.19 OPERATING AND MAINTENANCE MANUALS: One copy of each is required. Operating and Maintenance Manual must be submitted to the Engineer with the first submittal of shop drawings. Five additional copies of each required Operating and Maintenance Manual must be submitted to the Engineer within fourteen (14) calendar days of the return of the approved shop drawings to the Contractor. No payment will be approved on any equipment for which Operating and Maintenance Manuals are required until the Operating and Maintenance Manuals are received by the Engineer. These O&M manuals must be addressed specifically to the piece of equipment supplied and shall not be general in nature; each item must be clearly identified and located. Each page must be printed on 8 ½” x 11” paper or folded to that size in a manner which will be suitable for insertion in a 3-ring binder.

4.20 SAMPLES: Samples are physical examples furnished by the Contractor to illustrate materials, equipment, or workmanship, and to establish standards by which the Work will be judged. It shall be the Contractor’s responsibility to furnish samples as required by the technical specifications or as required by the Engineer. These samples must be submitted no later than is required by the Submittal Schedule.

Each sample shall have a label indication:

- Project Title
- Name of the project building or facility
- Name of Contractor
- Name of Subcontractor (if applicable)
- Identification of material with specification section

Name of producer and brand (if any)

Samples shall be submitted in duplicate unless otherwise noted in the technical specifications and shall be accompanied by a copy of a transmittal letter containing Project Name, Contractor's Name, number of samples, specification section and other pertinent data.

If the Engineer so requires, either prior to or after commencement of the work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. Except as otherwise expressly specified, the Contractor shall make arrangements for, and pay for, the tests.

All samples shall be packed to reach their destination in good condition. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

The Contractor shall submit data samples, or place his orders, sufficiently early to provide ample time for consideration, inspection, testing, and approval before the materials and equipment are needed for incorporation in the work. The consequences of his failure to do so shall be the Contractor's sole responsibility.

In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor finish, etc., as may be required.

When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

**4.21 INSPECTION AND TESTING:** All materials and equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents.

The Owner shall provide all inspection and testing services not required by the Contract Documents.

The Contractor shall provide at his expense the testing and inspection services required by the Contract Documents.

If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority have jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

Inspections, tests, or approvals by the Engineer or others shall not relieve the Contractor from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

The Engineer and his representatives will at all times have access to the Work. In addition, authorized representatives, and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records, records of personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and for any inspection or testing thereof.

If any Work is covered contrary to the written instructions of the Engineer, it must, if requested by the Engineer, be uncovered for his observation, and replaced at the Contractor's expense.

If the Engineer considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, materials, tools and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection, and testing and if satisfactory reconstruction. If, however, such Work is not found to be defective, the Contractor will be allowed to increase in the Contract Price or extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate Change Order shall be issued.

4.22 SUBSTITUTIONS: The Contractor may recommend the substitution of a material, article, or piece of equipment of equal function for those referred to in the Contract Documents by reference to brand name or catalogue number, and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price and the Contract Documents shall be appropriately modified by Change Order.

The Contractor warrants that if substitutes are approved, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time.

4.23 "OR EQUAL" CLAUSE: The phrase "or equal" shall be construed to mean that material or equipment will be acceptable only when in the judgment of the Engineer they are composed of parts of equal quality or equal workmanship and finish and are designed and constructed to perform or accomplish the desired result as efficiently as the indicated brand, pattern, grade, class, make or model.

When a material, article or piece of equipment is identified on the Drawings or in the Specifications by the reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard of quality and function; and any materials, article, or equipment of other manufactures and vendors which will perform

adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed, is, in the opinion of the Engineer, of equal substance and function. It shall not be purchased or installed by the Contractor without the Engineer's written approval.

4.24 WAGES AND OVERTIME COMPENSATION: The Contractor and each of his subcontractors shall comply with all applicable State and local laws or ordinances with respect to the hours worked by laborers and mechanics engaged in work on the project and with respect to compensation for overtime.

4.25 NO WAIVER: Neither the inspection by the Owner or the Engineer, nor any order, measurement, approval, determination, decision or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the work by the Owner, nor the extension of time, nor any other act or omission of the Owner or the Engineer shall constitute or be deemed to be an acceptance of any defective or improper work, materials, or equipment nor operate as a waiver of any requirement or provision of the Contract, or of any remedy, power or right of or herein reserved to the Owner, nor of any right and remedy provided for herein or by law, the Owner shall be entitled as of right to a writ of injunction against any breach or threatened breach of the Contract by the Contractor, by his Subcontractors or by any other person or persons.

4.26 WORK TO CONFORM: During its progress and on its completion, the work shall conform truly to the lines, levels, and grades indicated on the Drawings or given by the Engineer and shall be built in a thoroughly substantial and workmanlike manner, in strict accordance with the Drawings, Specifications, and other Contract Documents and the directions given from time to time by the Engineer.

All work done without instruction having been given therefore by the Engineer, without prior lines or levels, or performed during the absence of the Engineer, will not be estimate of paid for except when such work is authorized by the Engineer in writing. Work so done may be ordered uncovered or taken down, removed, and replaced at the Contractor's expense.

## **5. INSURANCE, LEGAL RESPONSIBILITY AND SAFETY**

5.1 COMPLIANCE WITH LAWS: The Contract shall be governed by the law of the State of South Carolina. The Contractor shall abide by all local and State Laws or ordinances to the extent that such requirements do not conflict with more stringent Federal laws or regulations. The Contractor shall keep himself fully informed of all existing and future Federal, State and local laws, ordinances, rules and regulations affecting those engaged or employed on the work, the materials and equipment used in the work of the conduct of the work, and of all orders, decrees and other requirements of bodies or tribunals having any jurisdiction or authority over the same, including, but not limited to the US Department of Labor and Bureau of Standards Safety and Health Regulations for Construction and its amendments as set up under the Williams-Steiger Occupational Safety and Health Act of 1970. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the

Contractor shall forthwith report the same to the Engineer in writing.

The Contractor shall at all times observe and comply with, and cause all his agents, servants, employees, and subcontractors to observe and comply with, all such existing requirements, and he shall protect, indemnify and save harmless the Owner, its officers, agents, servants, and employees from and against any and all claims, demands, suits, proceedings, liabilities, judgments, penalties, losses, damages, costs and expenses, including attorney's fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulation, order, decree, or other requirement, whether committed by the Contractor or any of his agents, servant employees, or subcontractors.

**5.2 REQUIRED PROVISIONS DEEMED INSERTED:** Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein. If through mistake or otherwise any such provision is not inserted or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

**5.3 LIENS:** If at any time any notice of lien is filed for labor performed or materials or equipment manufacturers, furnished, or delivered to or for the Work, the Contractor shall, at its own cost and expense, promptly discharge, remove or otherwise dispose of the same and until such discharge, removal or disposition, the Owner shall have the right to retain from any moneys payable hereunder and amount which, in its sole judgment, it deems necessary to satisfy such liens and pay the costs and expenses, including attorney's fees, of defending any actions brought to enforce the same or incurred in connection therewith or by reason thereof.

**5.4 CLAIMS:** If at any time there is any evidence of any claims for which the Contractor is or may be liable of responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same, and until such claims are settled or disposed of, the Owner may retain from any moneys which would otherwise be payable hereunder so much thereof as, in its judgment, it may deem necessary to settle or otherwise dispose if such claims and to pay the costs and expenses, including attorney's fees of defending any actions brought to enforce such claims or incurred in connection therewith or by reason thereof.

**5.5 PERFORMANCE BOND AND PAYMENT BOND:** Unless otherwise noted in the Supplemental Conditions, a Performance Bond and a Payment Bond are required. The Contractor shall obtain a Performance Bond and Payment Bond, (acceptable to the Owner in a surety company authorized to do business in the same state in which the Project is constructed and certified by the United States Treasury Department), each for the full amount of the Contract Sum, The bonds shall guarantee the Contractor's faithful performance of the Contract and the payment of all obligations arising thereunder.

The Contractor shall pay all charges in connection with the bonds as a part of the Contract. One executed copy of the bonds shall be attached to each copy of the Contract before they are returned to the Engineer for the Owner's signature.

If the Contractor defaults, the Contractor, or his Surety shall reimburse the Owner for any additional Engineering fees for additional services made necessary because of the Contractor's default.

**5.6 ADDITIONAL OR SUBSTITUTE BOND:** If at time the Owner for justifiable cause, shall be or become dissatisfied with the surety or sureties for the Performance and/or Payment Bonds, the Contractor shall, within 5 days after notice from the Owner to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond to the Owner.

**5.7 CHANGES NOT TO AFFECT BONDS:** It is distinctly agreed and understood that any changes made in the Work or the Drawings or Specifications therefore (whether such changes increase or decrease the amount thereof of the time required for its performance) or any changes in the manner or time of payments made by the Owner to the Contractor, or any other modifications of the Contract, shall in no way annul, release, diminish or affect the liability of the Surety on the Contract Bonds given by the Contractor, it being the intent hereof that notwithstanding such changes the liability of the Surety on said bonds continue and remain in full force and effect.

**5.8 OWNER'S INSURANCE AUTHORITY:** During all phases of construction, the Contractor will be required to perform his operations to comply expeditiously with the recommendations of the Owner's Insurance Authority.

**5.9 ASSIGNMENTS:** The Contractor shall not assign the whole or any part of this Contractor any moneys due or to become due hereunder without written consent of the Owner. If the Contractor assigns all or any part of the moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to prior claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the work called for in this Contract.

**5.10 INSURANCE:** The Contractor shall procure, pay for, and maintain in full force and effect, at all times during the performance of the Work until final acceptance of the Work or for such duration as required, policies of insurance in the form and substance reasonably satisfactory to the Owner. Such insurance shall be of the types and in the amounts described below from an insurer(s) authorized to transact business in the State of South Carolina and maintains an A.M. Best's rating of not less than A- VII. The Contractor shall not commence any work until he obtains, at its own expense, all required insurance (such as Workers Compensation, Commercial General Liability (CGL) and Comprehensive Automobile Liability etc. as required). Such insurance must have the approval of the Owners as to limit, form, and amount. The contractor will not permit any Subcontractor to commence work on this project until the same insurance requirements have been complied with by the Subcontractor.

The Contractor shall furnish the Owner with the certificates showing the type, amount, class of

operations covered, effective dates and dates of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after thirty (30) days' notice in writing and delivered by registered mail to the Owner." Should any policy be canceled before final payment by the Owner to the Contractor and the Contractor fail immediately to procure other insurance as specified, the Owner reserved the right to procure such insurance and to deduct the cost thereof from any sum due the Contractor under this Contract.

Any insurance bearing on adequacy of performance shall be maintained after completion of the project for the full guaranty period. Should such insurance be canceled before the end of the guaranty period and the Contractor fails immediately to procure other insurance as specified, the Owner reserves the right to procure such insurance and to charge the cost thereof to the Contractor.

Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment for damages resulting from his operations under this Contract.

The Contractor is required to obtain and maintain for the full period of the Contract the following types of insurance coverage with limits not less than stated below:

**WORKER'S COMPENSATION INSURANCE:** As required by the State of South Carolina, with Statutory Limits, and Employer's Liability Insurance with limit of no less than \$1,000,000 per accident per employee for bodily injury or disease.

**COMMERCIAL GENERAL LIABILITY (CGL):** Insurance Services Office (ISO) Form CG 00 01 12 07 covering CGL on an "occurrence" basis, including products-completed operations, premises-operations, independent contractors, personal and advertising injury, and contractual liability with limits no less than \$1,000,000 per occurrence. If a general aggregate limit applies, the general aggregate limit shall be twice the required occurrence limit. This contract shall be considered to be an "insured contract" as defined in the policy.

**COMPREHENSIVE AUTOMOBILE LIABILITY:** ISO Form Number CA 00 01 covering any auto (Code 1), or if Contractor has no owned autos, hired, (Code 8) and non-owned autos (Code 9), with limits no less than \$1,000,000 per accident for bodily injury and property damage.

**UMBRELLA EXCESS LIABILITY:** Contractor shall provide umbrella excess liability insurance on an "occurrence" basis providing "following form" coverage for the underlying coverages outlined herein with minimum limits of \$5,000,000 per occurrence and \$5,000,000 aggregate. Such excess liability coverage will apply over all liability policies, without exception, including but not limited to general liability, automobile liability, employer's liability and professional liability.

**SUBCONTRACTOR'S LIABILITY INSURANCE:** The Contractor shall cause each of its Subcontractor to (i) procure insurance satisfactory to the Owner, and (ii) name the Owner as an additional insured under the Subcontractor's comprehensive general liability policy affording the

same coverage requirements as set forth herein for the Contractor, unless otherwise agreed to in writing by the Owner.

5.11 ORAL AGREEMENTS: No oral order, objection, claim of notice by any party to the others 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 a definitely agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceeding of any other waiver or modification.

5.12 SAFETY: In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property affected directly by his operations during the performance of the work. This requirement will apply continuously 24 hours per day until acceptance of the Work by the Owner and shall not be limited to normal working hours.

The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

All employees on the Work and all other persons who may be affected thereby;

All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody, or control of the Contractor or any of the Subcontractors of Sub-subcontractors; and

Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner and the Engineer.

The Contractor shall not load or permit any part of the Work to be loaded so as to endanger its

safety.

THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY INJURIES OR PROPERTY DAMAGE DURING PROGRESS OF THE WORK.

## **6. PROGRESS AND COMPLETION OF WORK**

6.1 NOTICE TO PROCEED: Following the execution of the Agreement by the Owner and the Contractor, written Notice to Proceed with the work shall be given by the Owner to the Contractor. The Contractor shall begin and shall prosecute the work regularly and uninterruptedly thereafter (except as provided for herein) with such force as to secure the completion of the work within the Contract Time.

6.2 CONTRACT TIME: The Contractor shall complete, in as acceptable manner, all the work contracted for in the time stated in the Agreement. Computation of Contract Time shall commence the day to be specified in the Notice to Proceed and every calendar day following, except as herein provided, shall be counted as Contract Time.

6.3 SCHEDULE OF COMPLETION: The Contractor shall submit, at such times as may reasonably be requested by the Engineer, schedules showing the order in which the Contractor proposes to carry on the Work, with dates at which the Contractor will start the various parts of the Work, and estimated date of completion of each part.

6.4 WORK CHANGES: The Owner may, as the need arises, order changes in the work through additions, deletions, or modification to the extent of 25% of the Contract Amount, without invalidating the Contract. Compensation and time of completion affected by the change shall be adjusted at the time of ordering such change.

6.5 EXTRA WORK: New and unforeseen items of work found to be necessary, and which cannot be covered by an item or combination of items for which there is a Contract Price, shall be classed as Extra Work. The Contractor shall do such Extra Work and furnish such materials as may be required for the proper completion or construction of the whole work contemplated, upon written order from the Owner as approved by the Engineer. In the absence of such written order, no claim for Extra Work shall be considered. Extra Work shall be performed in accordance with these Contract Documents where applicable and work not covered by such shall be done in accordance with the best construction practice and in a workmanlike manner. Extra Work required in an emergency to protect life and property shall be performed by the contractor as required.

6.6 EXTENSION OF CONTRACT TIME: A delay beyond the Contractor's control occasioned by an Act of God, by act or omission on the part of the Owner or by strikes, lockouts, fire, etc., may entitle the Contractor to an extension of time in which to complete the work as agreed by the Owner, provided, however, that the Contractor shall immediately give written notice to the Owner of the cause of such delay.

Act of God shall mean 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 damage to the Work resulting therefrom.

All claims for extension of time shall be made in writing to the engineer no more than twenty days after the occurrence of the delay; otherwise they shall be waived. In the case of continuing cause of delay only one claim is necessary. Any claim should include complete justification for the extent of the delay claimed.

The Subsection does not exclude the recovery of damages for delay for either party under other provisions of the Contract Documents.

**6.7 ENGINEER'S CERTIFICATE OF SUBSTANTIAL COMPLETION:** When the work to be performed under this Contract is substantially completed in accordance with the Contract Documents, the Engineer shall prepare an Engineer's Certificate of Substantial Completion to be acknowledged and accepted by the Owner and the Contractor. The Certificate may list items to be completed or corrected but such Certificate shall not relieve the Contractor of his obligation to complete all work, whether listed or not, in accordance with the Contract Documents nor will it preclude any right the Owner may have for recourse in accordance with the Contract Documents.

**6.8 TERMINATION OF CONTRACTOR'S RESPONSIBILITY:** The Contract will be considered complete when all work has been finished, the final review made up by the Engineer, and the project accepted in writing by the Owner. The Contractor's responsibility shall then cease, except as set forth in his Performance Bond, as provided in Subsection 4.6 entitled GENERAL GUARANTY, and as provided in Subsection 6.9 entitled CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT.

**6.9 CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT:** The making of the final payment by the Owner to the Contractor shall not relieve the Contractor of responsibility for faulty materials or workmanship. The Contractor shall promptly replace any such defects discovered within two years, except where longer periods are specified, from the date of written acceptance of the work.

**6.10 PROGRESS SCHEDULE :** Within twenty (20) days after execution and delivery of the Agreement and not less than ten (10) days prior to making an application for partial payment, the Contractor shall prepare and deliver to the Engineer a Progress Schedule on forms approved by the Engineer.

The schedule shall be set up in a Critical Path format and shall show the proposed dates of commencement and completion of the various subdivisions of work required under the Contract Documents.

The schedule shall show the dates of commencement and completion of the various subdivisions of work required by the Contract Documents and all activities required to accomplish the Work. No activity included in the schedule shall have a duration greater than fifteen (15) days. After approval of the Submit Schedule, the Contractor shall incorporate this schedule into the CPM schedule.

The schedule shall be updated monthly. No progress payments will be made unless application is accompanied by the updated schedule.

6.11 SCHEDULES, REPORTS AND RECORDS: The Contractor shall submit to the Owner such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the Contract Documents for the Work to be performed.

The Contractor shall also submit, in a format as approved by the Engineer, a schedule of payments that he anticipates he will earn during the course of the Work.

6.12 ABANDONMENT OF WORK OR OTHER DEFAULT: The Contractor may be declared in DEFAULT of the contract for the following reasons:

If the CONTRACTOR:

1. abandons the work.
2. sublets any part of the work without previous written permission of the OWNER.
3. assigns the contract of any moneys payable hereunder in any manner other than as specified herein or, if at any time the Engineer shall be of the opinion, and shall so certify in writing, that:
  1. The conditions herein specified as to rate of progress are not being complied with.
  2. The work or any part thereof is being unnecessarily or unreasonably delayed.
  3. The Contractor has violated or is in default under any of the provisions of the Contract.
  4. The Contractor becomes bankrupt or insolvent.
  5. The Contractor goes or is put into liquidation or dissolution, either voluntarily or involuntarily.
  6. The Contractor petitions for an arrangement or reorganization under the Bankruptcy Act.
  7. The Contractor makes a general assignment for the benefit of creditors or otherwise acknowledges insolvency.

Upon a finding of DEFAULT by the Contractor, the Owner may notify the Contractor in writing with a copy of such notice mailed to the Surety, to discontinue such work or any part thereof.

The Contractor shall discontinue such work or such part thereof as the Owner may designate; and the Owner may, upon giving notice, by contract or otherwise as it may determine, complete the work or such part thereof and charge the entire cost and expense of so completing the work or such part thereof to the Contractor as specified under 2.10: OWNERS RIGHT TO DO WORK.

In addition to the said entire cost and expense of completing the work, the Owner shall be entitled to reimbursement from the Contractor and the Contractor agrees to pay the Owner any losses,

damages, costs and expenses, including attorneys' fees, sustained or incurred by the Owner by reasons of any of the foregoing causes.

For purposes of such completion the Owner may for itself or for any contractors employed by the Owner take possession of any and use or cause to be used any and all materials, equipment, plant machinery, appliances, tools, supplies and such other items of every description that may be found or located at the site of the Work. No equipment or materials may be removed from the Work without the written consent of the Owner.

All costs, expenses, losses, damages, attorneys' fees and any and all other charges incurred by the Owner under this Subsection shall be charged against the Contractor and deducted and/or paid by the Owner out of any moneys due or payable or to become due or payable to the Contractor under the Contract.

In computing the amounts chargeable to the Contractor, the Owner shall not be held to a basis of the lowest prices for which the completion of the work or any part thereof might have been accomplished; but all sums actually paid or obligated therefore to effect its prompt completion shall be charged to and against the account of the Contractor.

In case the costs, expenses, losses, damages, attorneys' fees and other charges together with all payment there-to-fore made to or for the account of the Contractor are less than the sum which would have been payable under the Contract if the work had been properly performed and completed by the Contractor, the Contractor shall be entitled to receive the difference.

In case such costs, expenses, losses, damages, attorneys' fees and other charges, together with all payments there-to-fore made to or for the account of the Contractor, shall exceed the said sum, the Contractor shall pay the amount of the excess to the Owner.

6.13 FINAL INSPECTION: When the work has been completed and finished in accordance with the Contract, the Contractor shall notify the OWNER in writing, and request a final inspection.

The Owner and Engineer shall jointly review the work, after the Engineer is otherwise satisfied that all work on the project has been substantially completed in accordance with the contract documents and change orders.

A list shall be made of all deviations from the Contract requirements (commonly termed "punch list") and a copy of such list furnished to the Contractor. The Contractor shall with reasonable haste remedy all defects so noted and shall notify the Owner upon the completion of such work.

When inspection by the Owner's authorized representatives shows the work to be complete in accordance with the Contract, application for final payment may be made.

After project completion, funds may be withheld from the Contractor only if they are required to insure specific performance of deficient portions of the contract. The contractor shall be required to provide a representative for all work reviews and regulatory agency inspections. Work noted

as requiring the attention of the Contractor, after satisfaction of the “Final Punch List” shall be considered as warranty work.

## **7. PAYMENTS TO THE CONTRACTOR**

7.1 PRICES FOR WORK: The Owner shall pay and the Contractor shall receive the prices stipulated in the Bid made a part hereof as full compensation for everything performed and furnished and for all risks and obligations undertaken by the Contractor under and as required by the Contract.

7.2 SCHEDULE OF VALUES: Except in cases where unit prices form the basis for payment under the Contract, the Contractor shall, within twenty (20) days of the execution of the Contract and not less than ten (10) days prior to making an application for partial payment, submit to the Owner in a form approved by the Owner a schedule of values showing a breakdown of the Contract Sum itemized by trade and/or specification sections or as otherwise directed by the Owner and for each item shall show the total value including the Contractor’s overhead and profit. Upon approval by the Owner, this schedule will be used in determining the value of the work done for the purpose of partial payments.

The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the Contract Price.

7.3 APPLICATIONS FOR PARTIAL PAYMENT: Before the first day of each month, or as otherwise directed by the Owner, the Contractor shall make applications for the value of the work done and the materials installed and/or delivered to the site for installation in the project during the previous month.

Such applications shall show the breakdown of the project into the same items as the schedule of values specified in Subsection 7.2 entitled SCHEDULE OF VALUES, and showing for each item the total value, the value previously reported as complete, the value completed during the month, the cumulative value completed and the value remaining to be done.

The application shall also show the value of materials delivered to the site which have not been incorporated into the work and whose value is not included in the amount shown for the work of which they are a part. The value of such materials shall be established by attaching copies of invoices covering the materials to the application,

The application shall include a summary of value of the work performed during the previous month, plus the value of the material delivered to the job site but not incorporated in the work, and minus the amount of the retainage indicated in Subsection 7.4 entitled RETAINAGE.

The Engineer will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the Owner, or return the partial payment estimate to the Contractor indicating in writing his reasons for

refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate.

**7.4 RETAINAGE:** The Owner shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the Contract Documents. The Owner at any time, however, after fifty (50) percent of the work has been completed, if he finds that satisfactory progress is being made, may make further partial payments in full on the current and remaining estimates, but amounts previously retained shall not be paid to the Contractor at fifty (50) percent completion.

Any time thereafter, when, in the opinion of the engineer, the progress of the Work is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than ten (10) percent of the value of the work completed. Upon substantial completion of the work, any amount retained may be paid to the Contractor.

When the Work has been substantially completed except for Work which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the Owner are valid reasons for non-completion, the Owner may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the Work still to be completed.

**7.5 PAYMENTS WITHHELD:** The Owner may withhold payment or, on account of subsequently discovered evidence, nullify the whole or part of any application to the extent necessary to protect himself from loss on account of:

1. Defective work not remedied;
2. Claims filed or reasonable evidence indicating the probable filing of claims;
3. Failure of the Contractor to make payments to Subcontractors, material suppliers, or employees;
4. A reasonable doubt that the Contract work can be completed for the balance unpaid; or
5. Damage to another Contractor.

When the above grounds are removed, payment will be made for the amounts withheld because of them.

**7.6 PAYMENT OF APPLICATIONS FOR PARTIAL PAYMENT:** Upon verification and approval of the application for partial payment made as specified, the Owner will make payment of the amount found properly due. No payment made to the Contractor nor partial or entire use or occupancy of the Work by the Owner shall be an acceptance of any work or materials not in accordance with this Contract.

**7.7 RELEASE OF LIENS :** Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the Owner a complete and notarized release of all

liens arising out of this Contract, or receipts in full in lieu thereof, and if required in either case, an affidavit that so far as he had knowledge or information the releases and receipts include all the labor and material for which a lien could be filed; but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and reasonable attorneys' fees.

**7.8 USE OR PARTIAL PAYMENT NOT ACCEPTANCE:** It is agreed that this is an entire contract for one whole and complete work or result and that neither the Owner's entrance upon nor use of the Work or any part thereof nor any partial payments by the Owner shall constitute an acceptance of the Work or any part thereof before its entire completion and final acceptance.

**7.9 PAYMENT FOR UNCORRECTED WORK:** Should the Owner direct the Contractor not to correct work that has been damaged or that was not performed in accordance with the Contract Documents, an equitable deduction from the Contract Amount shall be made to compensate the Owner for the Uncorrected Work.

**7.10 PAYMENT FOR REMOVAL OF REJECTED WORK AND MATERIALS:** The removal of work and materials rejected in accordance with Subsection 4.3 entitled CORRECTION OF WORK BEFORE COMPLETION and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor, and he shall 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.

Removal of rejected work or materials and storage of materials by the Owner, in accordance with Subsection 4.3 entitled CORRECTION OF WORK BEFORE COMPLETION, shall be paid by the Contractor within thirty (30) days after written notice to pay is given by the Owner. If the Contractor does not pay the expenses of such removal and after ten (10) days' written notice being given by the Owner of his intent to sell the materials, the Owner may sell the materials at auction or at private sale and will pay the Contractor the net proceeds therefrom after deducting all the costs and expenses that should have been borne by the Contractor.

**7.11 PAYMENT FOR EXTRA WORK:** Written notice of claims for payment for Extra Work shall be given by the Contractor within ten days after receipt of instructions from the Owner to proceed with the Extra Work and also before any work is commenced, except in emergency endangered life or property. No claim shall be valid unless so made. In all cases, the Contractor's itemized estimate sheets showing all labor and material shall be submitted to the Owner.

Owner's order for Extra Work shall specify any extension of the Contract Time and one of the following methods of payment:

1. Unit price or combinations or unit prices which form the basis of the original Contract.
2. A lump sum based on the Contractor's estimate and accepted by the Owner.

3. Net cost plus a fixed fee. Net costs are defined as follows:

3.1 Labor costs, including time of foreman while engaged directly upon extra work at rates not greater than the scale of rated for each respective classification of labor customary in the area where the work is performed for each respective job classification.

3.2 Labor, insurance, and taxes, including amounts paid on a percent of such labor rates or on a cents per hour basis for Worker's Compensation, Public Liability, Contractor's Contingent Liability and Contractual Liability Insurance and all Federal Old Age and Unemployment Taxes and any other taxes applicable as well as fringe benefits as may be approved by the Engineer.

3.3 Materials and supplies actually used on the work.

3.4 Rental charges are necessary equipment, as agreed upon by the Owner and Contractor. Rental charges shall not exceed those published in Rental Rates for Construction Equipment issued by the American Equipment Distributor. Equipment and tools having a value of \$100.00 or less are considered to be "small tools" and as such, are considered to be part of overhead.

To the cost under (3) there shall be added a fixed fee to be agreed upon but not to exceed fifteen (15) percent of the estimated cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit, and any other general expenses. On work performed by subcontractors, the fixed fee shall not exceed five (5) percent of the cost of work.

7.12 PAYMENT FOR WORK SUSPENDED BY THE OWNER: If the work or any part thereof shall be suspended by the Owner and abandoned by the Contractor as provided in Subsection 2.12 entitled SUSPENSION OF WORK, TERMINATION AND DELAY, the Contractor will then be entitled to payment for all work done on the portions so abandoned.

7.13 PAYMENT FOR WORK BY THE OWNER: The cost of the work performed by the Owner, in accordance with Subsection 2.10 entitled OWNER'S RIGHT TO DO WORK, shall be paid to the Contractor.

7.14 PAYMENT FOR WORK BY THE OWNER FOLLOWING TERMINATION OF CONTRACT BY OWNER: Upon termination of the Contract by the Owner in accordance with Subsection 2.11 entitled OWNER'S RIGHT TO TERMINATE CONTRACT, no further payment shall be due the Contractor until the work is completed. If the unpaid balance of the Contract Amount Shall Exceed the cost of completing the work shall exceed the unpaid balance, the Contractor shall pat the difference to the Owner. The cost incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default shall be certified by the Owner.

7.15 PAYMENT FOR SAMPLES AND TESTING OF MATERIALS: Samples furnished in accordance with Subsection 4.18 entitled SAMPLES shall be furnished by the Contractor at his expense.

Testing of samples and materials furnished in accordance with Subsection 4.18 entitle SAMPLES shall be arranged and paid for by the Owner.

7.16 ACCEPTANCE AND FINAL PAYMENT: When the Contractor shall have completed the work in accordance with the terms of the Contract Documents, he shall certify completion of the work to the Owner and submit a final Request for Payment. This request shall be the Contract Amount plus all approved additions, less all approved deductions, less previous payments made.

The Contractor shall furnish evidence that he has fully paid all debts for labor, materials, and equipment incurred in connection with the work. Upon acceptance, the Owner will release the Contractor (except as to the conditions of the Performance Bond and the Payment Bond, and any legal rights of the Owner, required guaranties, and Correction of Faulty Work after Final Payment), and will pay the Contractor's final Request for Payment.

The Contractor will allow enough time for the Engineer to assemble and check all necessary data. The Contractor shall deliver to the Owner a complete release of all liens arising out of this Contractor before the retained percentage of before the final Request for Payment is paid.

7.17 ACCEPTANCE OF FINAL PAYMENT AS RELEASE: The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor other than claims in stated amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Owner and other relating to or arising out of this Work. Any payment, however, final, or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the Performance Bond and Payment Bond.

7.18 DELAYS AND DAMAGES: The date of beginning and the time of completion of the Work are essential conditions of the Contract Documents and the Work embraced shall be commenced on a date specified in the Notice to Proceed.

The Contractor will proceed with the Work at such a rate of progress to insure full completion within the Contract Time. It is expressly understood and agreed by and between the Contractor and the Owner that the Contract Time for the completion of the Work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work.

If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will insure its completion within he time specified in the Contract, or any extension thereof, or fails to complete said Work within such time, the Owner may, by written notice to the Contractor and his Surety, terminate his right to proceed with the Work or such part of the work as to which there has been delay.

In such event the Owner may take over the Work and prosecute the same to completion, by contract and otherwise, and may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefore.

Whether or not the Contractor's right to proceed with the Work is terminated, he and his sureties shall be liable for any damage to the Owner resulting from his refusal of failure to complete the Work within the specified time.

If fixed and agreed liquidated damages are provided in the Contract and if the Owner so terminated the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until such reasonable time as may be required for final completion of the Work together with any increased costs occasioned by the Owner in completing the Work.

If fixed and agreed liquidated damages are provided in the Contract, and if the Owner does not so terminate the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until the Work is completed or accepted.

The Contractor's right to proceed shall not be so terminated nor the Contractor charged with resulting damage if:

1. The delay in the 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, Acts of God, acts of the public enemy, acts of the Government in either its sovereign or contractual capacity, acts of another contractor in the performance of a contract with the Owner, fires, flood, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays or subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and such subcontractors or suppliers: and
2. The Contractor, within ten (10) days from the beginning of any such delay (unless the Owner grants a further period of time before the date of final payment under the Contract), notifies the Owner in writing of these causes of delay.

As used in subparagraph 1, above, the term "subcontractors or suppliers" means subcontractors or suppliers at any time.

The 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 fact justify such an extension, and his findings of fact shall be final and conclusive on the parties, subject only to appeal as provided in these General Conditions.

The rights and remedies of the Owner provided in this clause are in addition to any other rights and remedies provided by law or under this Contract.

(End of Conditions)

# GUIDELINES FOR THE DESIGN OF WASTEWATER COLLECTION SYSTEMS

For  
NORTH CHARLESTON SEWER DISTRICT

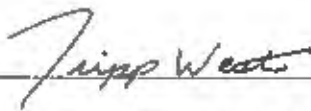


North Charleston Sewer District  
P.O. Box 63009  
North Charleston, South Carolina 29418

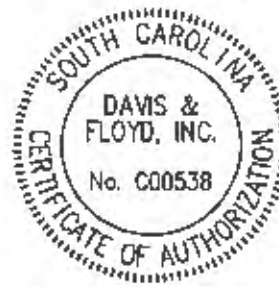
Origination Date: June 23, 1992

Current Revision Date: June 18, 2019

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|---|----------------|---------------------------------|
| SC DEPT. OF HEALTH & ENVIRONMENTAL CONTROL<br>BUREAU OF WATER<br>STANDARD SPECIFICATIONS APPROVAL<br>WATER SYSTEMS <input type="checkbox"/> SEWER SYSTEMS <input checked="" type="checkbox"/> | DATE APPROVED: | July 24, 2019                   |
|   | APPROVED BY:   | <i>Matthew</i>                  |
|   | APPROVED FOR:  | North Charleston Sewer District |
|   |                |                                 |

  
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Donald Wayne West, III, P.E., ENV SP  
S.C. No. 33143



## Record of Revisions:

| Revision # | Revision Date | Revisions By   |
|------------|---------------|--|
| <b>1</b>   | Aug. 22, 2005 | <ul style="list-style-type: none"> <li>• Kendall Johnson / NCSD</li> </ul>   |
| <b>2</b>   | Dec., 2010    | <ul style="list-style-type: none"> <li>• W. Brad Smith, PE / HLA, Inc.</li> <li>• Jarred Jones, PE / NCSD</li> <li>• Robert Judy / NCSD</li> <li>• Joel Stoner / NCSD</li> </ul>                                   |
| <b>3</b>   | June 18, 2019 | <ul style="list-style-type: none"> <li>• Donald “Tripp” West, PE, ENV SP/ Davis &amp; Floyd, Inc.</li> <li>• Phillip Sexton, PE / NCSD</li> <li>• Chad Abrams, PE / NCSD</li> <li>• Kevin Trepen / NCSD</li> </ul> |
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## INTRODUCTION

These Standards have been adopted by the North Charleston Sewer District (the District) and shall be incorporated into the design of all sanitary sewer system design. The District realizes that there are occasions when extenuating circumstances occur, and these Standards may not work in all situations. Developers/Developer's Engineers shall contact the District's Capital Projects Division to review plans and discuss the reason for a deviation prior to proceeding with any project. An appointment can be made by calling District's Capital Projects Director at (843)764-3072.

## SAFETY

The Contractor is solely responsible for providing a safe place for performance of the work under this contract in compliance with all Federal, State and local laws and regulations. All applicable safety precautions and safety regulations must be followed by persons performing work for the North Charleston Sewer District (the "District") including all contractors, sub-contractors, engineers, surveyors, inspectors, observers, etc. while located on the property or in easements of the District for the purpose of surveying, constructing, testing, inspecting, or otherwise performing services. The Contractor acknowledges that serious injuries or death could result from vertical falls, deadly gases/fumes, equipment, etc. if proper safety precautions are not taken. All contractors and other businesses performing work for the District must ensure that their employees, sub-contractors and/or representatives are properly instructed in safety procedures and devices relative to sewer systems and associated construction activities while on property or easements owned by the District.

## REFERENCES AND RESOURCES

1. North Charleston Sewer District Use Resolution, 2017-03
2. Ten States Standards, Recommended Standards for Wastewater Facilities, 2014 Edition. (*a.k.a. GLUMRB: Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers*)
3. ASTM (American Society for Testing and Materials)
4. AWWA (American Water Works Association)
5. ANSI (American National Standards Institute)
6. BCD-COG (Berkeley-Charleston-Dorchester Council of Governments)
7. SC-DHEC (South Carolina Department of Health and Environmental Control)
8. SC-DHEC/OCRM (office of Ocean and Coastal Resource Management)
9. NEC (National Electric Code)

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Not applicable to CIP# 2639000-Gravity  
Line Replacement (Grayson St.)

## 1.0 NCSD USE RESOLUTION, 2017-03

**The current version of the document titled “North Charleston Sewer District Use Resolution, 2017-03” (Appendix A), or its latest revision, shall be referenced in correlation with these Guidelines. This document can be accessed at the website,**

**[https://ncsd.sc.gov/wp-content/uploads/2019/11/Resolution\\_2017-03 -  
Use Resolution Final - INDEXED.pdf](https://ncsd.sc.gov/wp-content/uploads/2019/11/Resolution_2017-03_-_Use_Resolution_Final_-_INDEXED.pdf)**

**In the event of any discrepancies between these Guidelines and the “Use Resolution” document, the “Use Resolution” document shall supersede these guidelines.**

## 2.0 ENGINEERING REPORTS

- A. See Article VI of the “North Charleston Sewer District Use Resolution, 2017-03” (Appendix A), or its latest revision, for specific information. Additional items below may be required along with the “Use Resolution” requirements.
- B. Short description of the proposed work and why it is required.
- C. Potential impact, if any, on the existing facilities.
- D. Engineering cost estimate of the Sanitary Sewer facilities if requested by NCSD.
- E. Provide applicable geotechnical investigation report as may be needed.
- F. SWPPP plan/report, erosion controls, etc. that may be applicable to the project.
- G. Project approval from OCRM and the local MS4 as applicable.
- H. Project approval from Water Resources (if necessary).

## 3.0 PLANS & SPECIFICATIONS

### *3.1 NCSD Use Resolution 2017-03*

See Article VI of the “North Charleston Sewer District Use Resolution, 2017-03” (Appendix A), or its latest revision, for specific information. Additional items below may be required along with the “Use Resolution” requirements.

### *3.2 General*

Submission to reviewing agencies shall include sealed plan design criteria, appropriate construction permit application and permit fees where required. All necessary encroachment permits and the required easement plats, if applicable.

- A. Plan Title – All plans for wastewater facilities shall bear a suitable title showing the name of the North Charleston Sewer District. They shall indicate the horizontal and vertical scale in feet, vertical datum with benchmark, North arrow, date, the name of the Engineer, the imprint of the registration seal, company seal, and the Engineer’s signature with signed date.
- B. Plan Format – The plans shall be clear and legible. They shall be drawn to a scale which will permit all the necessary information to be plainly shown, preferably on quality paper, measuring 24 x 36 inches. Vertical datum used shall be shown. The location of test borings, when required, will also be indicated on the drawings. Blueprints will be unacceptable.
- C. Plan Content – Detail plans shall consist of plan view and the corresponding profile views, preferably on the same sheet. Supplementary views, together with the specifications and general layouts, provide the working information for the contract and construction of the facilities. They shall, also, include the dimensions and elevations of structures, the location and outline of equipment, location and size of piping, water levels and ground elevations.
- D. Design Criteria – Complete design criteria shall be included with the plans and specifications, all bearing the Seal of the Engineer. Design criteria shall include, but not be limited to minimum, peak, and average flows and loadings, and wastewater characteristics.

### *3.3 Plans of Gravity Sanitary Sewer Systems*

- A. General: A comprehensive plan of existing and proposed sewers shall be submitted for projects involving new sewer systems and/or substantial additions to or renovation of existing systems. This plan shall show the following:

1. Geographical Features:
    - a. Topography and elevations. Existing or proposed street and contour lines of both existing and proposed finish elevations. All streams and water surfaces shall be clearly shown.
    - b. Streams or water sheds shall include direction of flow, high and low water elevations.
    - c. Boundaries: The boundary line and/or easements of the Sewer District and the area to be served shall be shown.
  2. Sewers: The plan shall show the location, size and direction of flow of all existing and proposed sanitary sewers draining to the treatment facilities.
- B. Detail Plans shall be submitted. The maximum acceptable scale will be 1-inch equals 50 feet on Plan View and 1-inch equals 5 feet on Profile View. Plans and Profiles shall show:
1. Location of streets and sewers.
  2. Profiles of existing surface, size, material and type of pipe, length between manholes (a maximum of 400 feet recommended), invert elevations of each manhole and the grade of the sewer between each two adjacent manholes. All manholes shall be numbered on both the Plan and Profile. Special consideration will be given to manhole spacing when large diameter carrier pipes are utilized.
  3. Locations of all special features pertaining to the sewer line; such as, but not limited to, pipe material transition, bores, encasement, etc.
  4. All known existing structures and utilities, both above and underground which might interfere with the proposed construction or require isolation set back, such as water mains, gas mains, telephone lines, fiber optic lines, storm drains, and power conduits.
  5. Detail drawings shall be or conform to the current District details available from the NCSD engineering department.
    - a. All stream crossings with elevations of the stream bed, normal and extreme high and low water levels and encasement, if used.
    - b. Provide details of any special installations not included in the standard NCSD details.
    - c. Details of all appurtenances such as, but not limited to, manholes, drops, pile bents, encasement, inverts, etc.

### 3.4 *Plans of Sanitary Sewer Pump Station & Force Main*

- A. Location Plan – A general area plan shall be submitted for projects involving construction or revision of pumping stations. This plan shall show the following:
  - 1. The location and extent of the wastewater system drainage area to the pumping station facility.
  - 2. All Sewer District boundaries within the wastewater drainage area. Contact the District for information on boundary locations.
  - 3. The location of the pumping station, the routing of the force main and the pertinent elevations.
- B. Detail Plans shall be submitted showing the following, where applicable:
  - 1. Topography of the site.
  - 2. Existing pump station, if applicable.
  - 3. Proposed pump station, including any proposed expansion thereof.
  - 4. Elevation of high water at the site and maximum elevation of wastewater within the system should an extended power failure occur. Include FEMA flood zone information and 100-year flood elevation.
  - 5. Maximum hydraulic gradient in downstream gravity sewers when all installed pumps are discharging.
  - 6. Test borings and ground water elevation.
  - 7. The design engineer should edit as needed the NCSO typical pump station detail “PS-001” to include pump models, motors, flows, alarm elevations, etc. as applicable. Non-typical pump stations, grinder pump stations, etc. shall be reviewed on a case-by-case basis.
- C. Design Criteria – Provide minimum, maximum, and average flows, size and number of pumps, standby power, etc.

## 4.0 DESIGN OF SEWERS

### *4.1 Approval of Sewers*

In general, the reviewing agency will only approve plans for new systems, extensions of existing systems and rehabilitation of existing lines that are exclusively used for the transportation of sanitary sewage.

### *4.2 Single Property Sewer Systems*

- A. The District will not own, operate, or maintain new sewer systems that serve a “single property”. Reference “NCSD Use Resolution 2017-03”, Section 6.03, stating “The District will not own, operate, or maintain any wastewater system serving a single property.” These sites will be considered private sewer systems unless item “B” below is applicable.
- B. Sewer systems passing through single property sites that serve upstream properties will be required to be owned, operated, and maintained by the District and an applicable easement shall be provided in such instances. Ownership is strictly confined to the area of the easement.
- C. Single property private sewer systems shall be constructed, tested, inspected, and permitted to District standards and per DHEC regulations.
- D. The single property site owner shall be responsible for ownership, operation, and maintenance of the private sewer system.
- E. A temporary sewer line plug shall be provided at the sewer main tie-in and shall not be removed until the single property sewer system is permitted for operation by DHEC. It will be the property owner/developer’s responsibility to ensure the plug is removed upon initial permitted operational use.
- F. Any wastewater, stormwater, or other liquids or debris in the private sewer system shall be removed via a vacuum truck or other DHEC approved methods by the apartment owner/developer prior to permitted operation, i.e., no liquids or debris are allowed to flow into the District’s system until the operating permit is obtained.

### *4.3 Swimming Pools*

- A. The filter “backwash” flow from swimming pools will be allowed to be discharged into the District’s sewer system. The developer, contractor, or design engineer shall be responsible for requesting a Discharge Acceptance Letter from the District for the pool filter backwash flow.

#### 4.4 *Design Capacity and Design Flows*

In general, sewer capacities should be designed for ultimate tributary population, anticipated capacity of industry and institutions. Where applicable, they should also conform to the area BCDCOG 208/201 plan.

#### 4.5 *Details of Design and Construction*

- A. Minimum Size – No public gravity sewer mains conveying raw wastewater shall be less than 8 inches in diameter.
- B. Depth – In general, all sewers will have a minimum of 3 feet of cover over the top of pipe. Special consideration may be given for particular situations on a case-by-case basis.
- C. Easements – An easement for maintenance shall be dedicated to the District for gravity sewer mains based on the following parameters:
  - 1. Sewer depth 0’-6’                      Easement 15’ wide
  - 2. Sewer depth 6’-10’                      Easement 20’ wide
  - 3. Easement widths for gravity sewer greater than 10’ deep will be handled on a case-by-case basis.
- D. Buoyancy – In areas of high ground water, the buoyancy of sewers shall be considered, and the flotation of the pipe shall be prevented by appropriate design calculations and construction.
- E. Slope
  - 1. All sewers shall be designed and constructed to give mean velocities when flowing full, of not less than 2.0 feet per second nor greater than 15.0 feet per second based on Manning’s Formula using an “N” value of 0.013. Minimum slopes and design for various sizes of pipe will conform to current “Ten States Standards”.
  - 2. Minimum Flow Slopes – Slopes slightly less than those recommended in the above section may be permitted. Such decreased slopes will only be considered where anticipated average depth of flow will be 30% or greater of the diameter of the transport pipe. The operations authority must give written assurance to the regulatory agency, that they will provide additional sewer maintenance to these lines.
  - 3. Minimize Solids Disposition – The pipe diameter and slope shall be selected to obtain the greatest practical velocities to minimize settling problems. Over sizing of pipe to achieve flatter slopes will not be approved. If the proposed slope is less than the minimum slope of the smallest pipe which can accommodate the design peak hourly flow, the actual depths, and velocities at minimum, average and design maximum day

and peak hourly flow for each design section of the sewer shall be calculated by the design engineer and be included with the plans.

4. Slope between Manholes – Sewers shall be laid with uniform slope between manholes.
5. A minimum elevation differential of 0.10 feet across the inverts of the manhole shall be provided. Special situations where the design engineer presents the case that the 0.10 feet drop across the manhole inverts cannot be achieved due to shallow depths, etc shall be reviewed on a case-by-case basis.
6. Drop type manholes will be required when the invert separation distance is greater than two (2) vertical feet. See Section 4.6.C.
7. High Velocity Protection – Where velocities greater than 15 feet per second are attained, special provisions shall be made to protect against displacement by erosion and impact.
8. Steep Slope Protection – It is recommended that sewers have maximum slope of 20 percent. In areas where the topography of the land is such, that a greater slope is required, the use of drop manholes should be considered as a means of reducing velocities.

#### F. Alignment

1. In general, all gravity sewers will be laid with straight alignment between manholes. Alignment shall be controlled or checked by utilizing a laser or surveyor transit.
2. Curvilinear alignment of gravity sewers larger than 30 inches may be considered on a case by case basis, provided compression joints are specified and specific pipe manufacturer's maximum allowable pipe deflection limits are not exceeded. Curvilinear sewers will be limited to a single simple curve that starts and ends at a manhole. Corresponding slopes shall be increased to assure the minimum velocity of 2 feet per second (when flowing full).

#### G. Changes in pipe sizes

1. When a smaller sewer joins a large one, care should be taken to maintain the same energy gradient. An approximate method for obtaining this is to match the 0.8 depth point of each sewer to the same elevation. An alternate method is to match the crown elevations of the different size pipes at the manhole.
2. Changes in pipe size for gravity sewer mains shall occur via a manhole. Reducers/increasers shall not be accepted within the main.

## H. Materials

1. All new gravity sanitary sewer mains shall primarily be constructed using polyvinyl chloride pipe (PVC) and/or ductile iron pipe (DIP) where applicable. For gravity sewer mains of depths from 0-feet to 20-feet deep, the PVC shall be SDR-26 rated. For sewer deeper than 20-feet, then PVC of SDR-18 (C-900) shall be used. DIP pipe shall only be used for specific structural crossings under storm pipes, ditches, shallow installations, etc. as directed by the District. Pipe shall be DIP Class 52, 100 % solids epoxy protective coating, 431 Perma-Shield or equivalent.
2. Suitable couplings complying with ASTM Specifications shall be used for joining dissimilar materials.
3. All sewers shall be designed to prevent damage from superimposed live or dead loads. Proper allowances for loads on the sewer line shall be made because of soil and ground water conditions, as well as the width of trench. Where necessary, special bedding, cradles, piling or other special construction shall be used to withstand the anticipated potential superimposed loading.
4. In the selection of materials to satisfy the previously listed requirements, they must meet the following criteria:
  - a. Small diameter PVC sewer pipe (less than 18" diameter) shall be SDR-26 and conform to ASTM D3034. PVC pipe must be installed in accordance with ASTM D2321.
  - b. Large diameter PVC (18" to 48" diameter) shall conform to ASTM F679 and installed per ASTM D2321.
  - c. Ductile Iron Pipe and joints must conform to ANSI A21.10, ANSI A21.11, ANSI A21.4, ANSI A21.5, ANSI A21.51, ANSI A21.6, ANSI A21.8, and ASTM A746 and A74 – latest revision.
  - d. Pressure pipe, if Ductile Iron, must conform to ASTM A377 – latest revision, or if PVC ASTM D2241 and installed in accordance with ASTM D2321 – latest revision.
  - e. New pipe materials, for which ASTM standards have not been established, will not be considered.

## I. Installation

1. Standards
  - a. Installation specifications shall contain appropriate requirements based on the criteria, standards and requirements established by industry in its technical publications. Requirements shall be set forth in the specifications for the pipe and methods of bedding and backfill, thereof, so as not to damage the pipe or its joints, impede future

cleaning or tapping, nor create excessive ovalation of the pipe, nor seriously impair flow capacity.

- b. Regardless of the pipe materials used, each section of pipe should be laid to the specific line and grade, working in the upstream direction and with the bell end laid upgrade.
- c. At no time shall trench water, pumped ground water, storm water, sewage, and/or other liquids be allowed to discharge directly into wetlands, creeks, rivers, etc. Vacuum trucks, sediment basins, silt fencing, and/or other approved agency methods shall be used as needed for the situation per applicable MS4 and SC-DHEC/OCRM standards and regulations.

## 2. Trenching

- a. The width of the trench shall be ample to allow the pipe to be laid and jointed properly and to allow the bedding to be placed and compacted to adequately support the pipe.
- b. All debris, rocks, boulders or stone larger than 4 inches shall be removed from the trench.
- c. All trench construction shall conform to applicable OSHA and/or other regulatory safety standards.

## 3. Bedding and Backfill

- a. Ductile Iron Pipe (DIP) gravity mains shall be installed per ASTM A746, and PVC gravity mains shall be installed per ASTM D2321. All force mains shall be installed per AWWA C600.
- b. No pipe will be joined in the presence of water. All ground water entering the trench will be removed by pumping or other approved means and lowered to an elevation below the top of the bedding material. Trench water will not be disposed of in existing sanitary sewers and shall be discharged per approved applicable agency regulations.

## 4. Final Back Fill

- a. Final back fill will be of a suitable material and free of rock, or debris larger than 4 inches in diameter or length.
- b. Final back fill will be placed in such a manner as not to disturb the pipe alignment.

## 5. Directional Drilling/Boring – Directional drilling or boring of fusible C900 PVC pipe may be allowed in specific circumstances and will be reviewed on a case-by-case basis. The minimum slope of directional drilling for gravity sewer mains shall be no less than 2.0% unless allowed by the District's engineer.

6. Jack and Bore Installations – Jack and bore installations under roads, railroads, etc. shall conform to the Standard Details and per applicable regulations of the roadway or railway owner.
7. Deflection Test
  - a. Deflection tests will be required using a 5% mandrel for all new gravity sanitary sewer systems.
  - b. No pipe shall exceed a deflection of 5 percent. If deflection exceeds 5 percent, that portion of the line will be replaced by the contractor.
  - c. The mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter or as specified in the ASTM specifications to which the pipe is manufactured. The test will be performed manually using ropes without mechanical pulling devices.

J. Joints and Infiltration

1. Joints – All pipe joints and the material used shall be specified. Joints shall be designed to minimize infiltration and to prevent the intrusion of roots throughout the life of the system.
2. Infiltration - All gravity sewers shall be designed and specified such that the leakage outward (exfiltration) or inward (infiltration) shall not exceed two hundred (200) gallons per inch of pipe diameter per mile per day. An air test may be utilized in lieu of an infiltration/exfiltration test, if approved by the District.
3. Low-Pressure Air Test
  - a. A low-pressure air test shall be performed on all new sewer mains. This test shall conform to ASTM F1417 for plastic gravity sewer lines.
  - b. Appropriate notes and Low-Pressure Air Test Form shall be completed at the time of testing by the responsible design/inspection firm.

***Safety Note: At no time shall any person be inside any sewer manhole while a sewer line is actively being pressurized or after pressurization is in progress for a low-pressure air test or force main pressure testing as death or serious injury could occur!***
4. Televised Video Inspections
  - a. Televised, recorded video inspections performed by a NASSCO certified inspector are required on all new gravity sewer mains and laterals at the owner/developer's expense prior to inspections by NCSD.
  - b. Videos must be in CUES-GraniteNet or NAASCO exchange database.

- c. Videos must be recorded with labels on the video stream of the line section being recorded that denote the line section, date, and time.
- d. Videos must be provided to NCSD on a CD, DVD, or other approved media with the media cover labeled accordingly with the project name, sewer section(s), video date(s), and name of the company performing the video inspection service.
- e. Video submittals must include contact information for the video inspection company to include company name, inspection operator's name, company address, company phone, and company email address. The inspector shall obtain GIS asset numbers from NCSD before the start of the inspection.
- f. NCSD may video the sewer line at its expense at any time within the 2-year construction warranty period before it expires.

## 4.6 *Manholes*

### A. Location

- 1. Manholes shall be installed:
  - a. At the termination point of each line.
  - b. At all changes in pipe grade.
  - c. At all changes in pipe direction.
  - d. At all changes in pipe sizes.
  - e. At all intersections with other pipe.
  - f. Normally at distances not greater than 400 feet.
  - g. All manhole rings and cover shall be set to at least the 100-year flood elevation, unless conditions warrant otherwise. Should conditions exist that make these impractical, watertight rings and covers must be installed and approved by the District.
- 2. Clean outs may be approved for special conditions on a case-by-case basis, but they shall not be substituted for manholes.
- 3. Marking Manholes
  - a. For sites with curbs, such as residential subdivisions and commercial sites, the contractor shall cut with a concrete saw the letters "MH" in the top of the curb to denote the manhole location.
  - b. For sites with no concrete curb, the manhole location shall be denoted with a saw cut "MH" in the asphalt pavement at the edge of pavement.

### B. Typical Gravity Sewer Manholes

1. Precast reinforced concrete gravity sewer manholes shall be constructed and conform to ASTM C478 and C443.
2. ASTM C478
  - a. Part I, Sections 1-11, of this specification presents general requirements and requirements that are common to each precast concrete product covered by this specification.
  - b. Part II of this specification presents specific requirements for each manhole product in the following ASTM C478 sections:

| Product                 | ASTM C478 Section |
|-------------------------|-------------------|
| Grade Rings             | 12                |
| Flat Slab Tops          | 13                |
| Risers and Conical Tops | 14                |
| Base Sections           | 15                |

C. Drop Type Manhole

1. A drop pipe consisting of a “T”, connecting pipe and a 90 degree bend shall be provided for each sewer line entering a manhole when the invert separation distance is greater than two (2) vertical feet.
2. All drops will be constructed inside the manhole.
3. All manholes having one inside drop will be a minimum of five (5) feet in diameter for pipe sizes 8 thru 12 inches in diameter. For pipe sizes 15 thru 24 inches in diameter the manhole must be six (6) feet in diameter.
4. No more than two (2) separate drops will be permitted in any manhole.

D. Typical Diameter

1. The minimum diameter of a manhole will be 48 inches and have a minimum wall thickness of 5 inches.
2. A minimum 48 inch diameter manhole shall be used for sewer lines 8 inches thru 16 inches.
3. A minimum 60 inch diameter manhole shall be used for sewer lines 18 thru 24 inches and for all new inside drop manholes.
4. A minimum 72 inch diameter manhole shall be used for sewer lines 24 inches or greater and with two or more inside drops.

E. Flow Channel

1. The flow channel across straight thru manholes shall be shaped to conform as closely as possible to the shape of the pipe, from the invert to the spring

line of the pipe. From the spring line of the channel, the concrete fills will extend to the respective sides of the manhole to an elevation no less than 6 inches above the spring line of the channel.

2. Where a change of direction occurs, the channel shall be constructed to conform as closely as possible to the shape of the pipe. The curve shall be shaped to an elevation of three fourths of the pipe diameter on either side, then a bench extended to the walls of the manhole to a point no less than 6 inches above the edge of the channel. Branch inlets will be formed in a similar manner and be curved to conform to the direction of flow in the main channel. It is recommended that all channels have a minimum elevation differential of 0.10 feet across the manhole when a change in direction is necessary. No lateral sewer, service connection or drop pipe shall discharge onto the surface of a bench. A channel shall be formed into the bench to combine flows together.
3. New flow channels shall be constructed so that the applicable test mandrel can easily be inserted and removed from the pipe inverts for ease of mandrel testing and low-pressure air testing using pneumatic inflatable plugs.
4. Flow channels and benches shall be formed and rubbed smooth such that no “burrs” or other protrusions can catch fibers, string, fabric, or other materials present in the wastewater.

F. Water Tightness

1. Manholes shall be of pre-cast reinforced concrete utilizing both a bell and spigot, O ring gasket, or a tongue and groove approved sealant as per ASTM C443. In either case, all manhole joints will be cover sealed both inside and outside per NCSD’s “Manhole Joint Detail”, wiped smooth, and cured before back filling.
2. Inlet and outlet pipes shall be joined to the manhole with a flexible water tight connection or a water tight gasket boot that allows for differential settlement per ASTM C923.
3. No groundwater shall be visibly allowed to infiltrate into new sewer manholes. The contractor shall seal any leaks by approved methods and, if warranted, replacement of the entire manhole is at the discretion of the NCSD inspector/engineer prior to acceptance.
4. Water tight manhole covers are to be used whenever manhole tops may be flooded by runoff or high water. See Section 4.6.A.1.g above.
5. The engineering designer shall plan sewer systems to reduce the possibility of crossing floodways, rivers, etc. as much as possible. Water tight manholes are required in all floodways (different than floodplains), and any manholes that must be located in floodway zones shall account for possible

floatation, scour of soils, etc. as may be applicable to prevent movement and damage to the manhole, manhole foundation, pipes, and appurtenances.

6. Locked manhole covers may be required at locations where vandalism has been known to occur.

G. Sewer Service Laterals

1. Service laterals are to be provided to connect residential homes, businesses, etc. to the sewer main system. The following notes do not apply within the building/dwelling perimeter.
2. The District-owned portion of service laterals shall terminate at the property line or right-of-way line with a 6-inch clean out extended to the ground surface and concrete collar.
3. It is recommended that service laterals tie to an adjacent manhole if possible, but not required.
4. No short side laterals shall tie into manholes greater than 6-feet deep.
5. Marking Service Laterals:
  - a. For sites with curbs such as residential subdivisions and apartments, the contractor shall cut with a concrete saw an "X" in the top of the curb to denote the sewer service lateral location directly passing below the "X" mark.
  - b. For sites with no concrete curb, the service lateral shall be marked with a saw cut "X" in the asphalt pavement at the edge of the pavement.
6. All sewer laterals shall be designed and located so as to readily serve the basement or lowest floor of the building when possible. If designing for a vacant parcel, then the sewer lateral shall be designed to serve the lowest point of the parcel so that at least 3-feet of soil, but no more than 5-feet of soil covers the top of pipe.
7. In the event a gravity service lateral cannot serve a building or vacant parcel, then it shall be the Designer's responsibility to determine a means of serving the parcel using a pump station, grinder pump, etc.
8. A minimum 6" diameter service lateral is required for the District's portion for single-family residential dwellings. This size may be reduced beyond the property line by the utility contractor or plumber.
9. No more than two (2) residential units are allowed to tie to a single 6-inch service lateral.
10. A minimum 6" lateral shall be provided for any apartment building, commercial business, or industrial application and it shall be the responsibility of the Designer to establish the minimum size needed based on discharge flows, land use, etc.

11. No more than one (1) service lateral is allowed per apartment, commercial, or industrial building.
  12. A 1.04% minimum slope (1/8" per foot) is required for service laterals, however, a 2.0% minimum slope is recommended. Flatter slopes for service lateral lines less than 1.04%, but greater than 0.50% will be reviewed on a case-by-case basis if steeper slopes cannot be achieved and must be noted on the design plans and as-built drawings. These slopes only apply outside of the building/dwelling perimeter.
  13. An NCS D inspector must be present to witness all sewer service lateral tie-ins to buildings.
  14. Service lateral tie-ins shall not occur until the SC-DHEC Wastewater Operating Permit is obtained, the sewer system is approved/accepted by NCS D, and a connection permit is obtained.
- H. Inspection & Testing – The specifications will require that all manholes and connections are watertight before placing into service. All new sewer systems shall require the service laterals be sealed and the low-pressure air test performed to include the service laterals.

#### 4.7 *Sewers Crossing Wetlands, Streams, etc.*

A. Stream Crossings –

All sewer lines crossing non-jurisdictional wetlands, jurisdictional wetlands, and/or any creeks, rivers, or other Waters of the State (WoS) shall be permitted accordingly through the applicable agencies such as OCRM, ACOE, etc. and copies of all applicable permits shall be provided to the District in such instances.

1. Cover and Depth – Whenever possible, the top of all sewers crossing streams or drainage ditches will be located at least 3 feet below the natural bottom of the stream bed or ditch. Ductile iron pipe, encased in concrete, will be utilized in every case where the cover over the pipe is 5 feet or less. In areas where the cover is greater than 5 feet, the specified pipe may be used. It is preferred that all such crossings be held to a minimum and be designed to cross perpendicular to the ditch or stream flow.
  2. Horizontal Location – Sewers located along streams will be located outside the stream bed and preferably outside the drainage easement, if one exists. Care must be taken to prevent pollution by siltation during construction by the use of staked hay bales, siltation fabric or other means of erosion control.
- B. Exposed sewers crossing flowing streams, creeks, rivers, tidal creeks, flood canals, etc. shall be appropriately designed to prevent scour of the stream bed and banks. The design shall also account for the buoyancy and force of the stream flow on the pipe. Such cases shall be reviewed as special cases by the District.

- C. Construction – Sewers entering or crossing streams shall be constructed of ductile iron pipe with mechanical joints, if the crossing cannot be spanned by one single joint. The ductile iron pipe will commence no less than one-half joint before the top of the ditch or stream slope and terminate no less than one-half a joint beyond the top of the opposite slope. Encasement, where required, will be with 3000 P.S.I. concrete and salt-water inhibitors where necessary.

#### 4.8 *Aerial Crossings*

- A. At least one support will be provided for each joint of pipe utilized for aerial crossings. Supports shall be located no more than 3 feet behind the bell end of the pipe and shall commence with the first joint of pipe that protrudes at least 6 feet beyond the normal trench bedding materials. Supports shall continue until the horizontal distance between the last support and the existing ground is no greater than 9 feet.
- B. For aerial stream crossings, the impact of floodwaters and debris must be considered. The bottom of all pipes should be placed no lower than the 50-year flood plain. Ductile iron pipe with flanged joints are required, or approved equivalent.
- C. Bridge crossings shall be reviewed on a case-by-case basis by the District and also must be approved by the authority responsible for the bridge.

#### 4.9 *Protection of Water Supplies*

- A. When wastewater sewers are proposed in the vicinity of a water supply facility, requirements of the Ten States Standards (GLUMRB), Recommended Standards for Wastewater Facilities, 2014 Edition should be used to confirm isolation distances.
- B. Cross Connections – There shall be no physical connections between a public or private potable water supply system and a sewer or appurtenance which would permit the passage of any wastewater into the potable supply. No water pipe shall pass through or come in contact with a sewer manhole. Backflow preventors shall be provided for city water connections to pumping stations or other facilities where contamination is a potential risk.
- C. Relation to Water Mains
  - 1. Horizontal & Vertical Separation
    - a. Sewers shall be laid a minimum of 10 feet horizontally from any existing or proposed water main. The distance will be measured closest edge to closest edge. In cases where it is not practical or impossible to maintain the required 10 foot separation, the appropriate reviewing agency may allow deviation on a case by case basis. This deviation may occur provided that the water main is in a separate

trench or on an undisturbed earth shelf on one side of the sewer, and at an elevation so the bottom outside edge of the water pipe is at least 18 inches above the outside edge of the top of the sewer line.

- b. In extreme cases, if the previous criteria cannot be met, both the water main and the sewer line must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the agency and be pressure tested to 150 P.S.I. to assure water tightness before back filling.

## 2. Crossings

- a. Sewers crossing water mains shall be laid to provide a minimum vertical separation of 18 inches between the closest outside edges of the respective pipes. This case applies whether the water main crossed above or below the sewer line. The crossing should be arranged so that the sewer pipe joints are equal distance from the water main. Where the water main crosses under the sewer line, adequate support will be added to the sewer line to assure that its line and grade will be maintained.
- b. When conditions arise that prevent the proper horizontal or vertical separation as previously mentioned, one of the following methods must be specified and approved by the District:
  - 1. Provide a single twenty (20) foot section of DIP for the sewer main centered on the crossing point, OR...
  - 2. Either the water main and/or the sewer line may be encased in a water tight casing pipe which will extend 10 feet in both directions from the point of crossing. The casing pipe must be constructed of materials approved by the regulatory agency for use in water main construction.
  - 3. In either case, the design shall allow enough distance to make repairs to each of the lines without damaging the other.

## 6.0 APPENDIX

6.1 North Charleston Sewer District Use Resolution, 2017-03

6.2 NCSD Standard Forms

A. Mandrel & Low-Pressure Air Test Form (included below)

B. Force Main Pressure Test Form (included below)

C. Pump Station Draw Down Test Form (included below)

6.3 NCSD Standard Specifications

A. Chain Link Fence (Example Bid Project) (included below)

B. Subsurface Manhole Rehabilitation (available upon request)

C. Sewer Rehabilitation by Cured-In-Place Pipe Method (available upon request)

6.4 NCSD Standard Details (included below)

Note: Original copies of these documents in pdf, AutoCAD, or MS Word format are available upon request.

## ***6.1 North Charleston Sewer District Use Resolution, 2017-03***

Available online:

<https://ncsd.sc.gov/wp-content/uploads/2019/09/Resolution-2017-03-Use-Resolution-Final-INDEXED.pdf>

## **6.2 *NCSD Standard Forms***

Only forms applicable to the CIP#  
2639000-Gravity Line Replacement  
(Grayson St.) are included



## Mandrel and Air Pressure Test Report

Project: \_\_\_\_\_ Date: \_\_\_\_\_

Contractor: \_\_\_\_\_ Inspector: \_\_\_\_\_

Tested Section: \_\_\_\_\_ to \_\_\_\_\_

| <u>Diameter (in)</u> | <u>Material</u> | <u>Length (ft)</u> | <u>Time</u> | <u>Pressure</u>    |
|----------------------|-----------------|--------------------|-------------|--------------------|
|                      |                 |                    | Start       | PSI                |
|                      |                 |                    | End         | PSI                |
| Mandrel Test:        | Passed          | Failed             | Air Test:   | Passed      Failed |

Tested Section: \_\_\_\_\_ to \_\_\_\_\_

| <u>Diameter (in)</u> | <u>Material</u> | <u>Length (ft)</u> | <u>Time</u> | <u>Pressure</u>    |
|----------------------|-----------------|--------------------|-------------|--------------------|
|                      |                 |                    | Start       | PSI                |
|                      |                 |                    | End         | PSI                |
| Mandrel Test:        | Passed          | Failed             | Air Test:   | Passed      Failed |

Tested Section: \_\_\_\_\_ to \_\_\_\_\_

| <u>Diameter (in)</u> | <u>Material</u> | <u>Length (ft)</u> | <u>Time</u> | <u>Pressure</u>    |
|----------------------|-----------------|--------------------|-------------|--------------------|
|                      |                 |                    | Start       | PSI                |
|                      |                 |                    | End         | PSI                |
| Mandrel Test:        | Passed          | Failed             | Air Test:   | Passed      Failed |

Tested Section: \_\_\_\_\_ to \_\_\_\_\_

| <u>Diameter (in)</u> | <u>Material</u> | <u>Length (ft)</u> | <u>Time</u> | <u>Pressure</u>    |
|----------------------|-----------------|--------------------|-------------|--------------------|
|                      |                 |                    | Start       | PSI                |
|                      |                 |                    | End         | PSI                |
| Mandrel Test:        | Passed          | Failed             | Air Test:   | Passed      Failed |

### ***6.3 NCSD Standard Specifications***

Applicable details are included in the plan set for the CIP# 2639000-Gravity Line Replacement (Grayson St.)

## 6.4 *NCSD Standard Details*

### **General Notes**

SS-000 NCSD Wastewater System Notes

### **Force Main Details**

FM-000 Cover Page

FM-001 Air Release Valve Detail

FM-002 Tracer Wire and Metallic Warning Tape for Force Mains

FM-003 Pipe and Casing Jack and Bore Detail

FM-004 Vertical Offset Detail

FM-005 Typical Force Main Connection Detail

FM-006 Force Main Inside Drop Detail

FM-007 Force Main Bedding Detail

### **Gravity Sanitary Sewer System Details**

GS-000 Cover Page

GS-001 Standard Precast Concrete Manhole Detail

GS-002 Standard Shallow Manhole Detail

GS-003 Standard Inside Drop Manhole Detail

GS-004 Standard Sewer Connection to Existing Manhole

GS-005 Doghouse Manhole Detail

GS-006 Typical Gravity Wastewater Trench Section

GS-007 Typical Gravity Wastewater Road Cut Section

GS-008 Typical Shallow Sewer Service Construction Detail

GS-009 Typical Deep Sewer Service Construction Detail

GS-010 Cleanout Detail

GS-011 Standard Manhole Frame & Cover

GS-012 Manhole Joint Detail

GS-013 Manhole Invert Boot Detail

GS-014 Standard Manhole Channel and Bench Detail

GS-015 Sewer Crossing Over/Under Existing Pipe

GS-016 Typical Underground Grease Trap 1000 Gallon

GS-017 Typical Underground Grease Trap 1500 Gallon

GS-018 Conflict Box Detail

### **Wastewater Pump Station Details**

PS-000 Cover Page

PS-001 Pump Station and Site Details

PS-002 Fencing for Pump Stations and Facilities

PS-003 Typical Pump Station Site Plan

PS-004 Emergency Notification Sign Detail

PS-005 Typical Pump Station Electrical Site Plan

PS-006 Typical Pump Station Power Riser Diagram

PS-007 Generator Pad Detail

PS-008 Light Pole Base Detail

PS-009 Ground Test Well Detail

PS-010 Typical Pump Station Canopy Detail

Applicable details are included in  
the plan set for the CIP#  
2639000-Gravity Line  
Replacement (Grayson St.)  
Project



# NORTH CHARLESTON SEWER DISTRICT

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## GENERAL NOTES

Sheet SS-000

## WASTEWATER SYSTEM NOTES:

1. WASTEWATER INSTALLATION SHALL BE IN ACCORDANCE WITH TEN STATES STANDARDS, SCDHEC. REGULATIONS AND NORTH CHARLESTON SEWER DISTRICT'S "GUIDELINES FOR THE DESIGN OF WASTEWATER COLLECTION SYSTEMS" AS FOUND AT [www.ncsd.sc.gov/engineering](http://www.ncsd.sc.gov/engineering).
2. CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE IN THE PRESENCE OF A NCSD REPRESENTATIVE. CONTRACTOR SHALL NOTIFY NCSD AT LEAST 48 HOURS BEFORE CONNECTION BEGINS.
3. EXISTING GRAVITY AND FORCE MAIN SEWER MAINLINES MAY BE ACTIVE AND IN USE. IF ANY SHUTDOWNS ARE ANTICIPATED, A BYPASS SEWER PUMPING OPERATION SHALL BE ESTABLISHED, INCLUDING GENERATOR BACKUP FOR 24-HOUR OPERATION. BYPASS PUMPING SHALL BE DISCHARGED IN A LEGAL MANNER INTO THE EXISTING SANITARY SEWER SYSTEM.
4. CONTRACTOR SHALL COORDINATE SHUTDOWNS AND SERVICE INTERRUPTIONS WITH OWNERS AND UTILITY PROVIDERS TO MINIMIZE DOWNTIME.
5. ROUGH GRADING SHALL BE DONE PRIOR TO INSTALLATION OF WASTEWATER MAINS.
6. NO MANHOLE COVERS ARE ALLOWED IN CURBING. MANHOLES SHALL BE LOCATED OUTSIDE CONCRETE AND ASPHALT PAVING WHENEVER POSSIBLE. ALL SANITARY MANHOLES OR CLEANOUTS WITHIN ASPHALT OR CONCRETE PAVEMENT SHALL BE FLUSH WITH THE FINISHED PAVEMENT SURFACE.
7. ALL FINISHED FLOOR ELEVATIONS SHALL BE ONE (1) FOOT HIGHER THAN THE RIM ELEVATION OF THE DOWNSTREAM SANITARY SEWER MANHOLE.
8. CONNECTIONS TO GRAVITY LINES AND MANHOLES SHALL BE EQUAL TO OR GREATER THAN 90° TO THE DOWNSTREAM LINE.
9. CONTRACTOR SHALL INSTALL WATERTIGHT RINGS AND COVERS ON ALL MANHOLES.
10. ALL 6" SEWER SERVICES SHALL BE SDR 26 PVC AND LAID ON A MINIMUM SLOPE OF 1.08% UNLESS OTHERWISE STATED. THE SERVICES SHALL BE CONNECTED TO MANHOLES WHERE REASONABLY POSSIBLE.
11. ALL GRAVITY MAINS SHALL BE SDR 26 PVC UNLESS CONDITIONS REQUIRE PVC C900, C905, OR DUCTILE IRON PIPE.
12. DIP OR PVC C900/C905 FOR WASTEWATER SHALL BE USED:
  - WITH LESS THAN 3' OF COVER OR GREATER THAN 20' OF COVER;
  - CROSSING OVER STORM DRAINAGE PIPE WITH LESS THAN 2' OF CLEARANCE;
  - CROSSING UNDER STORM DRAINAGE PIPE WITH LESS THAN 3' OF CLEARANCE;
  - CROSSING WATER MAINS WITH LESS THAN 18" CLEARANCE;
  - WITHIN CASINGS.
13. ALL DIP SHALL BE DIP CLASS 52, 100% SOLIDS EPOXY PROTECTIVE COATING, 431 PERMA-SHIELD, OR EQUIVALENT. ALL DIP SHALL BE ENCASED IN LINEAR LOW DENSITY 8 MILS GREEN POLYETHYLENE.
14. SLEEVES SHALL BE USED TO TRANSITION BETWEEN PVC AND DIP. FERNCO OR SIMILAR COUPLINGS ARE NOT ALLOWED.
15. WHERE WATER AND SANITARY SEWER LINES CROSS, THE LINE LAID LAST SHALL HAVE A FULL LENGTH OF PIPE INSTALLED WITH ITS MIDPOINT VERTICALLY IN LINE WITH THE OTHER LINE. THE CROSSING SHALL BE AT NOT LESS THAN A 45° ANGLE.
16. ALL MATERIAL SHALL CONFORM TO NCSD SPECIFICATIONS AS TO TYPE, DESIGN, AND MANUFACTURER.
17. DEVELOPER'S ENGINEER SHALL INSPECT PROJECT WEEKLY TO PROVIDE WRITTEN WEEKLY UPDATES AND TO CERTIFY THE CORRECTNESS OF THE WASTEWATER PORTION OF CONTRACTOR'S RECORD DRAWINGS.
18. DEVELOPER SHALL TAKE NECESSARY MEASURES TO PROTECT NCSD'S WASTEWATER SYSTEM DURING THE TIME BETWEEN THE COMMISSIONING INSPECTION AND THE 2-YEAR MAINTENANCE BOND INSPECTION.
19. JUST PRIOR TO COMMISSIONING, CONTRACTOR, AT HIS EXPENSE, SHALL TELETYPE IN CUES-GRANITE NET OR NASSCO EXCHANGE DATABASE FORMAT ALL SEWER MAINS AND SERVICES FOR NCSD'S RECORDS.
20. ALL GRAVITY MAINS SHALL BE AIR AND MANDREL TESTED PRIOR TO ACCEPTANCE.
21. NORTH CHARLESTON SEWER DISTRICT IS SEPARATE FROM THE CITY OF NORTH CHARLESTON. AS SUCH, NCSD NEEDS TO INSPECT THE ENTIRE SANITARY SEWER SERVICE FROM THE BUILDING TO THE TAP.
22. DEVELOPER/CONTRACTOR SHALL PROVIDE FINAL SANITARY SEWER AS-BUILTS TO NCSD AFTER INSPECTIONS ARE COMPLETE.
23. COOLING SYSTEM DISCHARGE SHALL NOT BE CONNECTED TO THE SANITARY SEWER SYSTEM.

## NCSD WASTEWATER SYSTEM NOTES

N.T.S.



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### NC.S.D. STANDARD DETAILS

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| REV. DATE: | JUNE 2019 | DWG#: | SS-000 |
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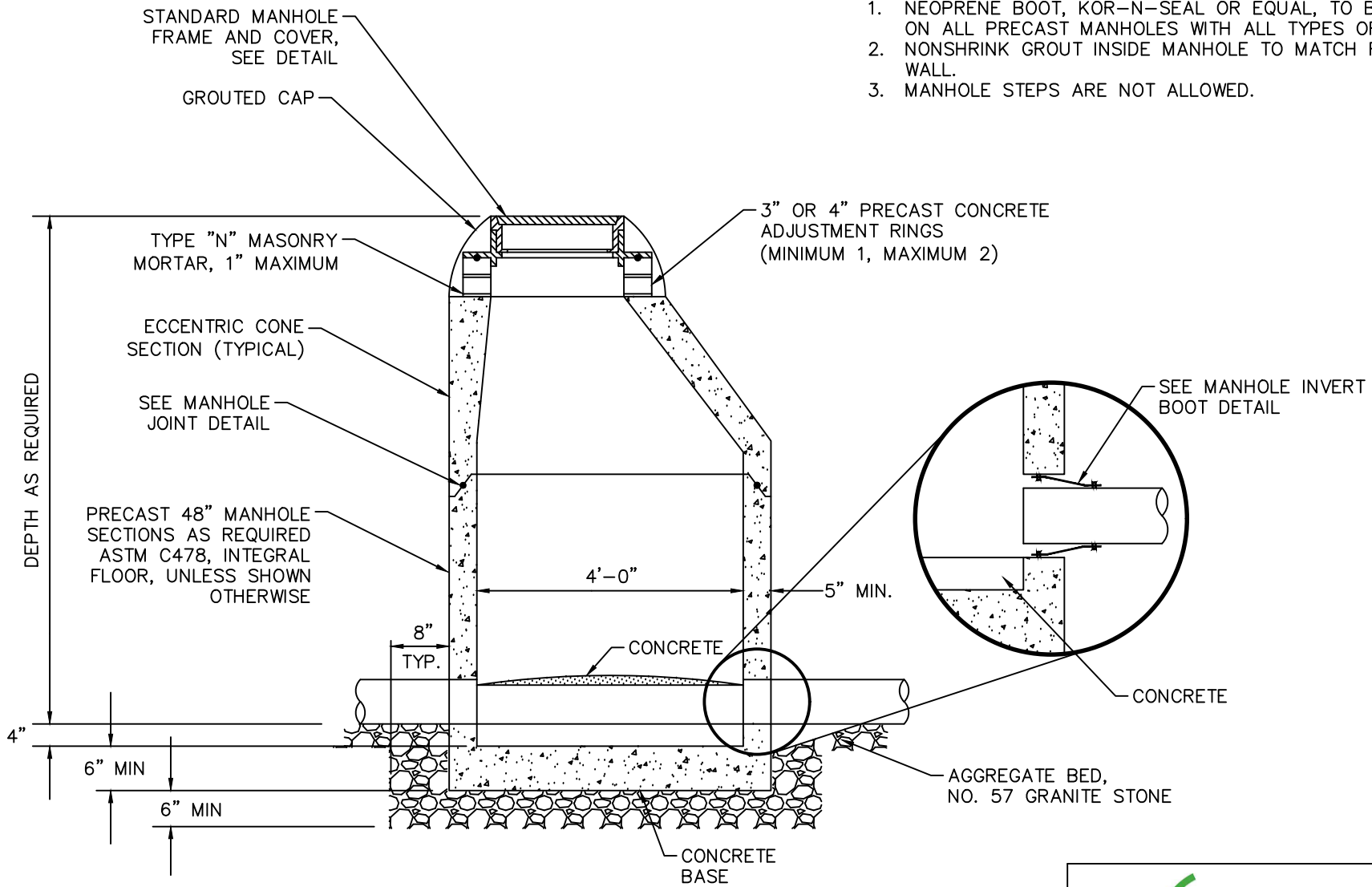
# NORTH CHARLESTON SEWER DISTRICT

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## GRAVITY SANITARY SEWER SYSTEM DETAILS

Sheets GS-001 to GS-018



- NOTES:**
1. NEOPRENE BOOT, KOR-N-SEAL OR EQUAL, TO BE USED ON ALL PRECAST MANHOLES WITH ALL TYPES OF PIPES.
  2. NONSHRINK GROUT INSIDE MANHOLE TO MATCH FINISH WALL.
  3. MANHOLE STEPS ARE NOT ALLOWED.

**STANDARD PRECAST CONCRETE MANHOLE DETAIL**  
 N.T.S.

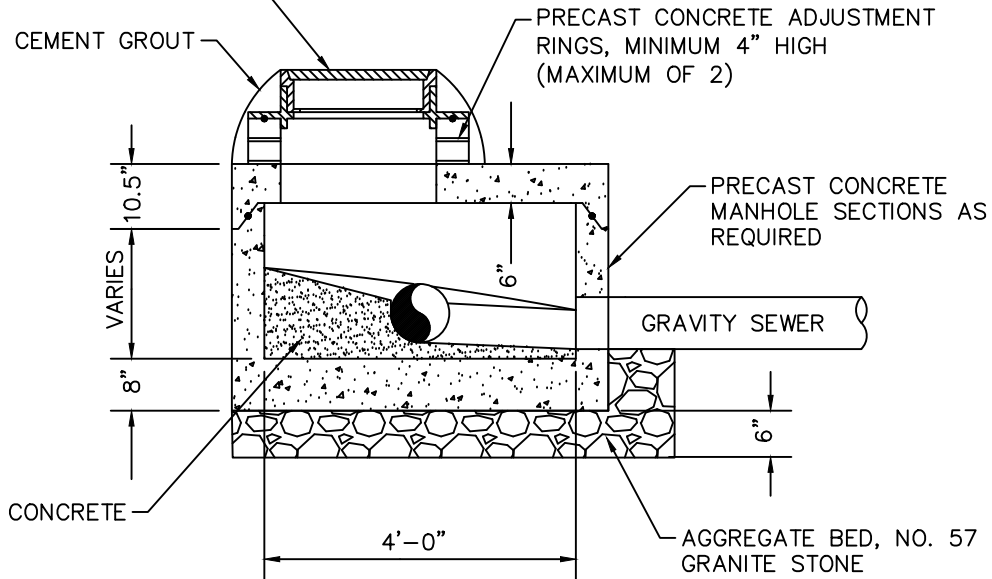
**NORTH CHARLESTON SEWER DISTRICT**

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**N.C.S.D. STANDARD DETAILS**

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| REV. DATE: JUNE 2019 | DWG#: GS-001 |
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STANDARD MANHOLE FRAME AND COVER  
OR FLAT SLAB FRAME AND COVER  
SEE DETAIL



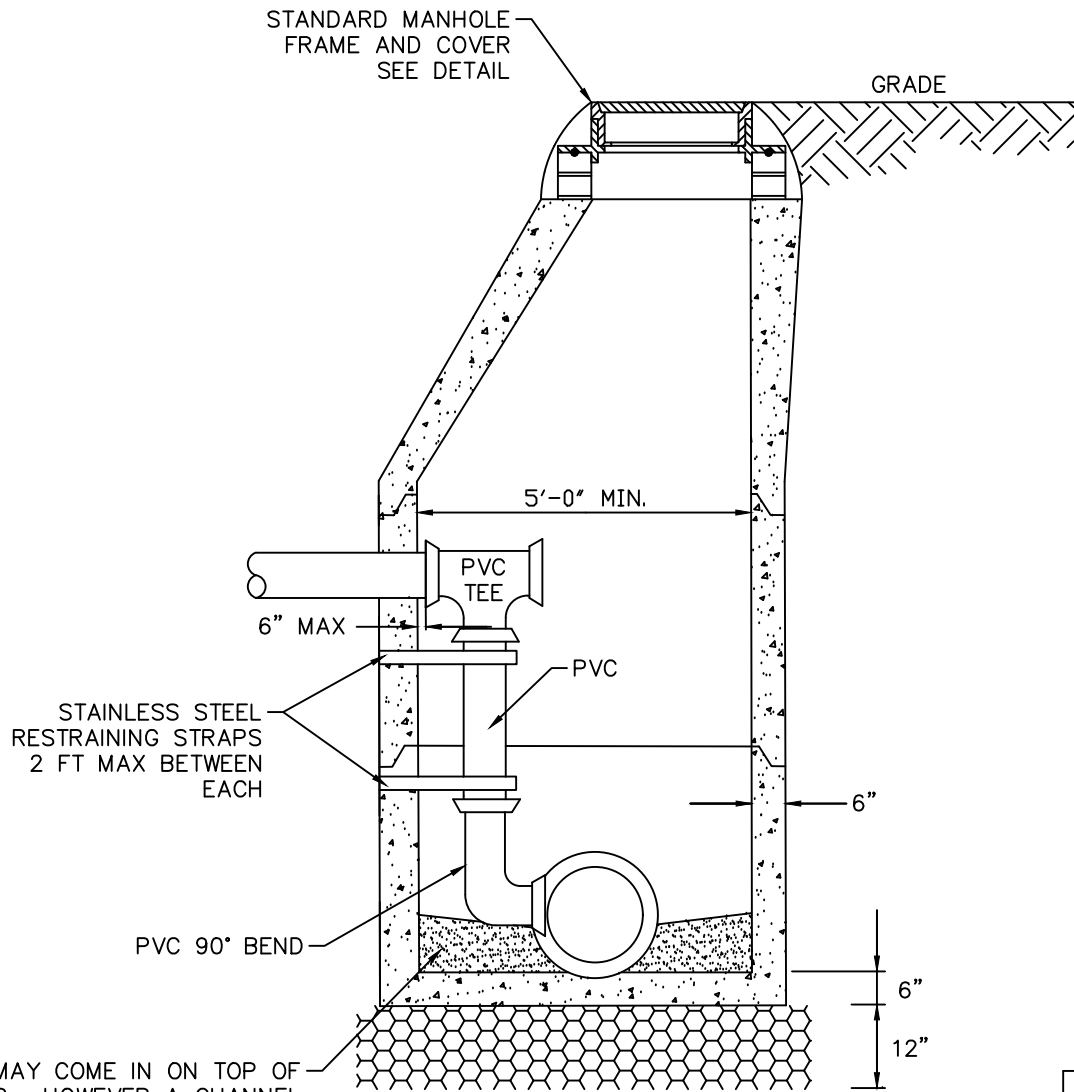
STANDARD SHALLOW MANHOLE DETAIL  
N.T.S.



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**N.C.S.D. STANDARD DETAILS**

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DROP INVERT MAY COME IN ON TOP OF INVERT SHOULDER. HOWEVER A CHANNEL TO DIRECT THE FLOW TOWARD THE OUTLET PIPE SHALL BE FORMED AROUND THE BEND.

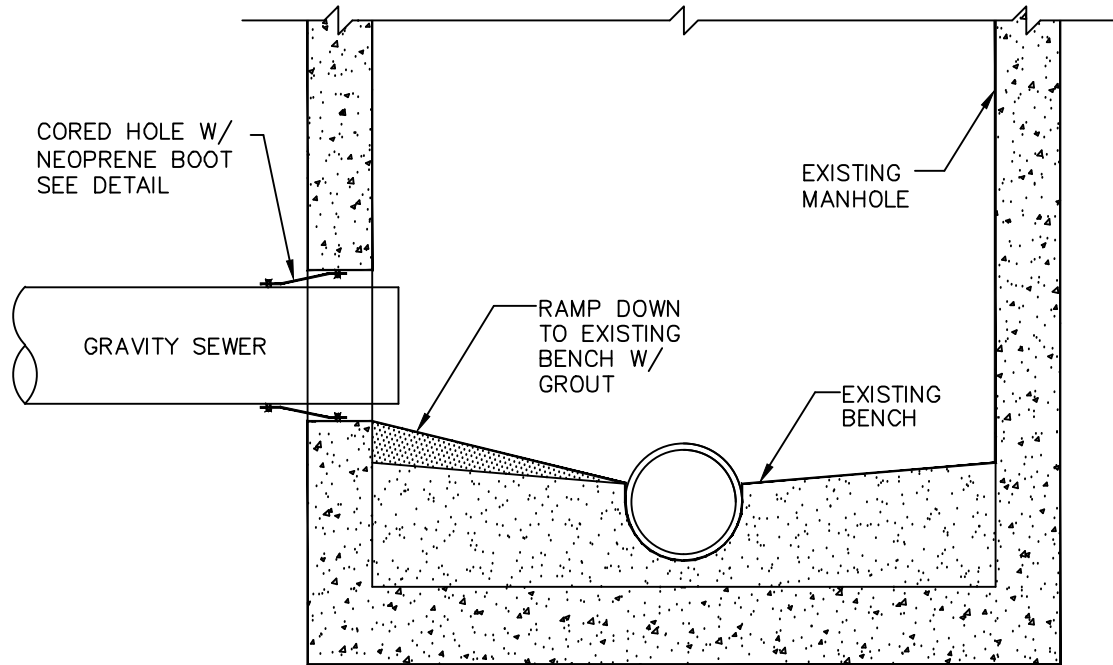
STANDARD INSIDE DROP MANHOLE DETAIL  
N.T.S.



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**N.C.S.D. STANDARD DETAILS**

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|------------|-----------|-------|--------|
| REV. DATE: | JUNE 2019 | DWG#: | GS-003 |
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**NOTES:**

1. CONTRACTOR SHALL CONTACT NCSD A MINIMUM OF 48 HOURS PRIOR TO CONNECTION.
2. CORING THROUGH MANHOLE JOINTS IS NOT ALLOWED.

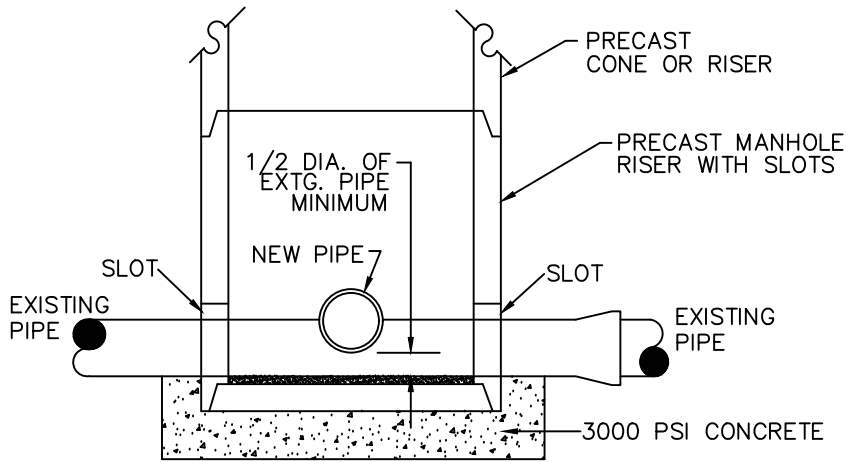
STANDARD SEWER CONNECTION TO  
EXISTING MANHOLE  
N.T.S.



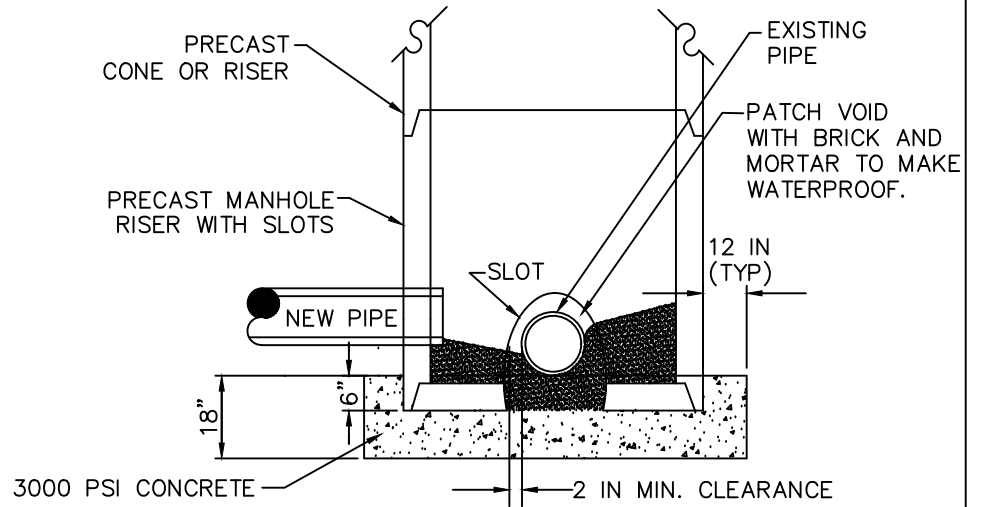
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**NC.S.D. STANDARD DETAILS**

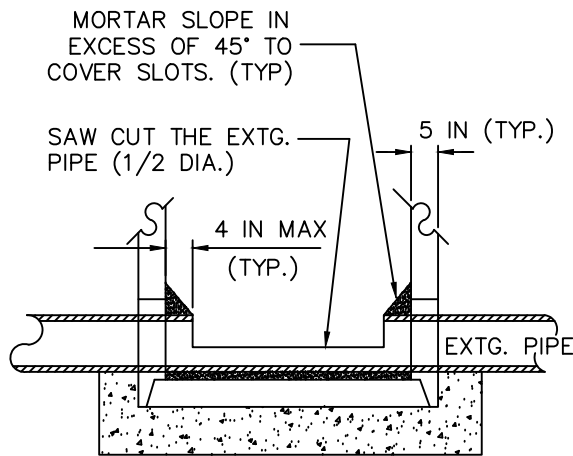
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| REV. DATE: | JUNE 2019 | DWG#: | GS-004 |
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ELEVATION ALONG PIPE

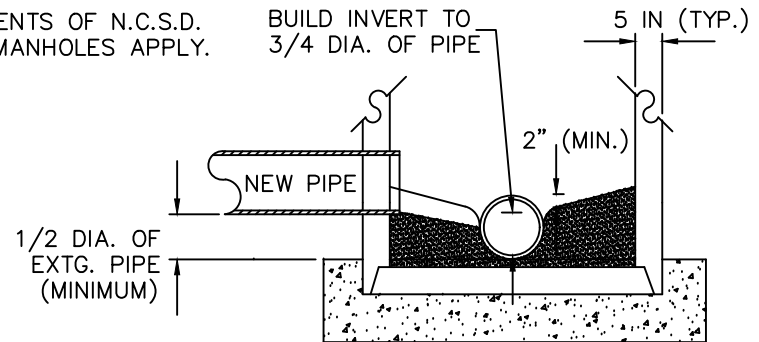


ELEVATION THRU PIPE



SECTION ALONG PIPE

**NOTE:**  
ALL OTHER REQUIREMENTS OF N.C.S.D. STANDARD PRECAST MANHOLES APPLY.



SECTION THRU MANHOLE

**ALTERNATIVE METHOD:**  
REMOVE 10 FT (MIN) SECTION OF EXISTING MAIN AND INSTALL STANDARD MANHOLE AND LENGTH OF NEW PIPE. AS WITH DOGHOUSE TYPE MANHOLES, THE NEW PIPE WILL HAVE TO BE CUT INSIDE THE MAHOLE TO RECEIVE THE FLOWS FROM THE NEW SYSTEM EXTENSION.

DOGHOUSE MANHOLE DETAIL  
N.T.S.

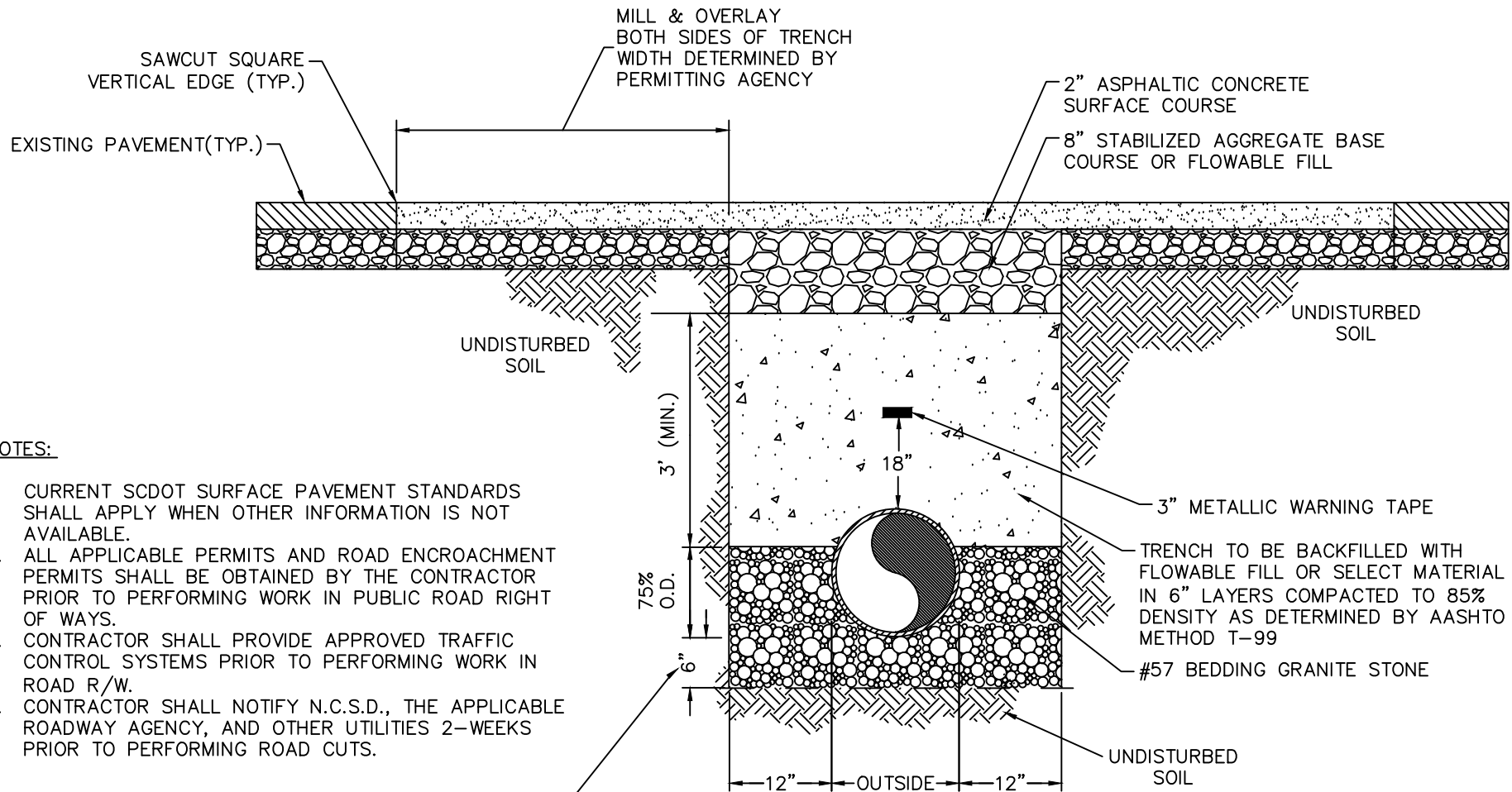


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**N.C.S.D. STANDARD DETAILS**

REV. DATE: JUNE 2019 DWG#: GS-005





**NOTES:**

1. CURRENT SCDOT SURFACE PAVEMENT STANDARDS SHALL APPLY WHEN OTHER INFORMATION IS NOT AVAILABLE.
2. ALL APPLICABLE PERMITS AND ROAD ENCROACHMENT PERMITS SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO PERFORMING WORK IN PUBLIC ROAD RIGHT OF WAYS.
3. CONTRACTOR SHALL PROVIDE APPROVED TRAFFIC CONTROL SYSTEMS PRIOR TO PERFORMING WORK IN ROAD R/W.
4. CONTRACTOR SHALL NOTIFY N.C.S.D., THE APPLICABLE ROADWAY AGENCY, AND OTHER UTILITIES 2-WEEKS PRIOR TO PERFORMING ROAD CUTS.

THIS DEPTH SHALL INCREASE WHEN ROCK, UNSTABLE, UNSUITABLE OR WET MATERIAL IS ENCOUNTERED, OR AS DIRECTED BY THE ENGINEER AND/OR NCSD

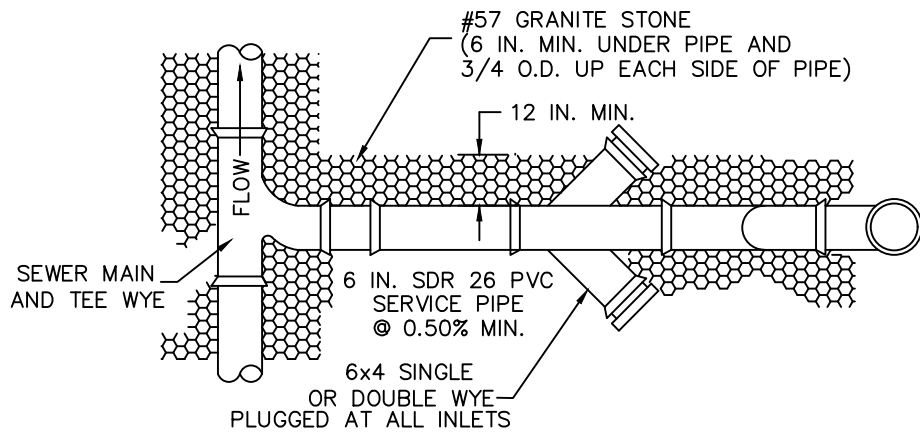
TYPICAL GRAVITY WASTEWATER  
ROAD CUT SECTION  
N.T.S.



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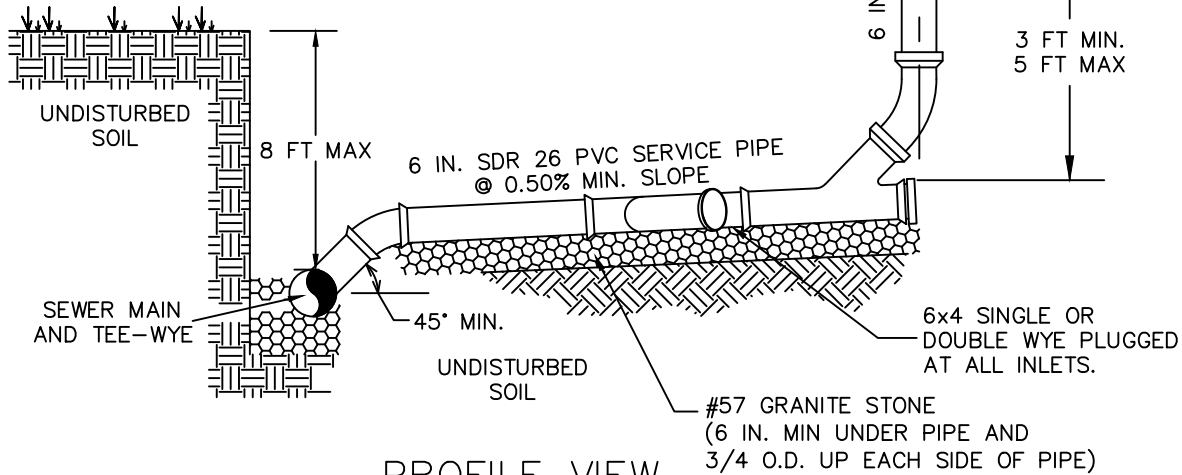
**N.C.S.D. STANDARD DETAILS**

REV. DATE: JUNE 2019      DWG#:      GS-007



PLAN VIEW

NOTE:  
INSTALL 3 IN. WARNING  
TAPE 18 IN. ABOVE MAINS  
AND SERVICES.



PROFILE VIEW

**NOTES:**

1. THE DISTRICT'S PORTION OF ALL SEWER SERVICE LATERALS SHALL BE A MIN. OF 6-INCHES.
2. NO MORE THAN TWO (2) RESIDENTIAL UNITS ARE ALLOWED TO TIE INTO A SINGLE 6-INCH SERVICE LATERAL.
3. A MIN. 6-INCH LATERAL SHALL BE PROVIDED FOR ANY APARTMENT BUILDING, COMMERCIAL BUSINESS, OR INDUSTRIAL APPLICATION.
4. A 1.04% MIN. SLOPE ( $\frac{1}{8}$ " PER FOOT) IS REQUIRED FOR SERVICE LATERALS, HOWEVER 2.0% IS RECOMMENDED. FLATTER SLOPES FOR SERVICE LATERAL LINES, LESS THAN 1.04%, BUT GREATER THAN 0.50% WILL BE REVIEWED ON A CASE-BY-CASE BASIS.

TYPICAL SHALLOW SEWER SERVICE  
CONSTRUCTION DETAIL  
N.T.S.



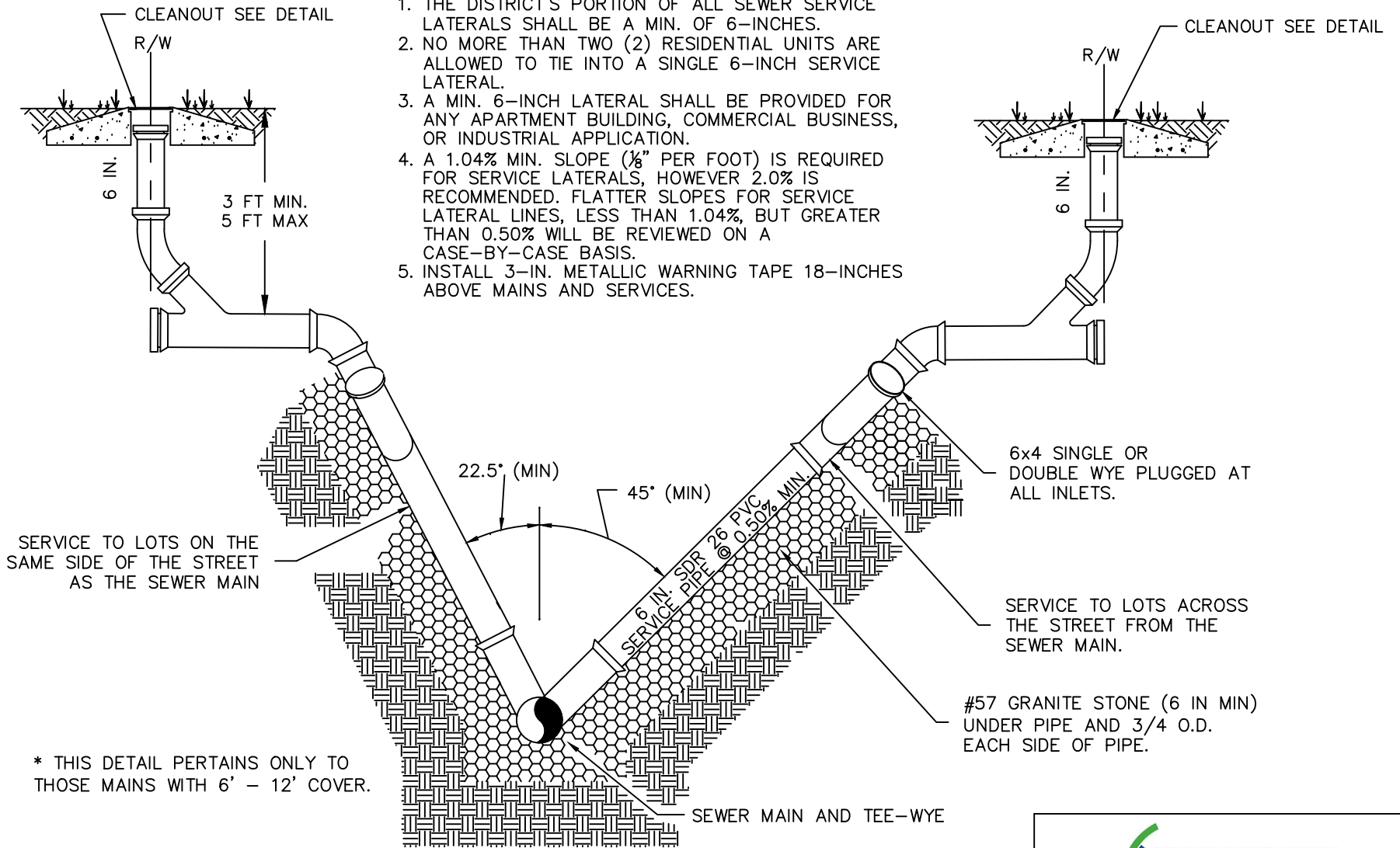
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**N.C.S.D. STANDARD DETAILS**

REV. DATE: JUNE 2019 DWG#: GS-008

**NOTES:**

1. THE DISTRICT'S PORTION OF ALL SEWER SERVICE LATERALS SHALL BE A MIN. OF 6-INCHES.
2. NO MORE THAN TWO (2) RESIDENTIAL UNITS ARE ALLOWED TO TIE INTO A SINGLE 6-INCH SERVICE LATERAL.
3. A MIN. 6-INCH LATERAL SHALL BE PROVIDED FOR ANY APARTMENT BUILDING, COMMERCIAL BUSINESS, OR INDUSTRIAL APPLICATION.
4. A 1.04% MIN. SLOPE ( $\frac{1}{8}$ " PER FOOT) IS REQUIRED FOR SERVICE LATERALS, HOWEVER 2.0% IS RECOMMENDED. FLATTER SLOPES FOR SERVICE LATERAL LINES, LESS THAN 1.04%, BUT GREATER THAN 0.50% WILL BE REVIEWED ON A CASE-BY-CASE BASIS.
5. INSTALL 3-IN. METALLIC WARNING TAPE 18-INCHES ABOVE MAINS AND SERVICES.



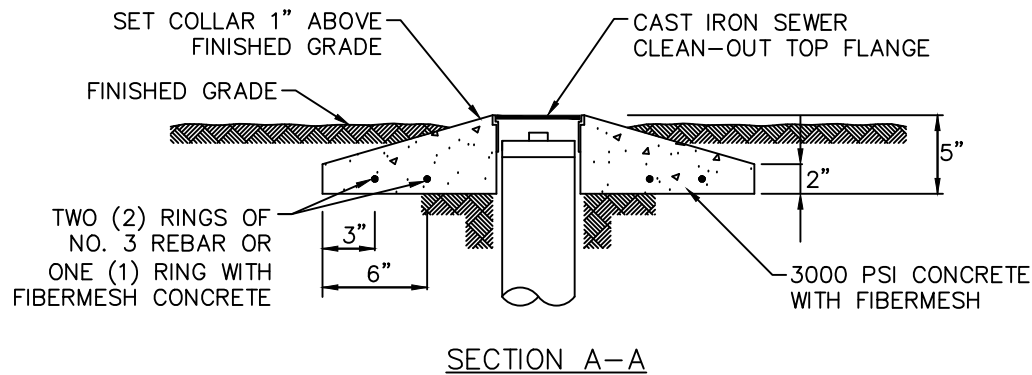
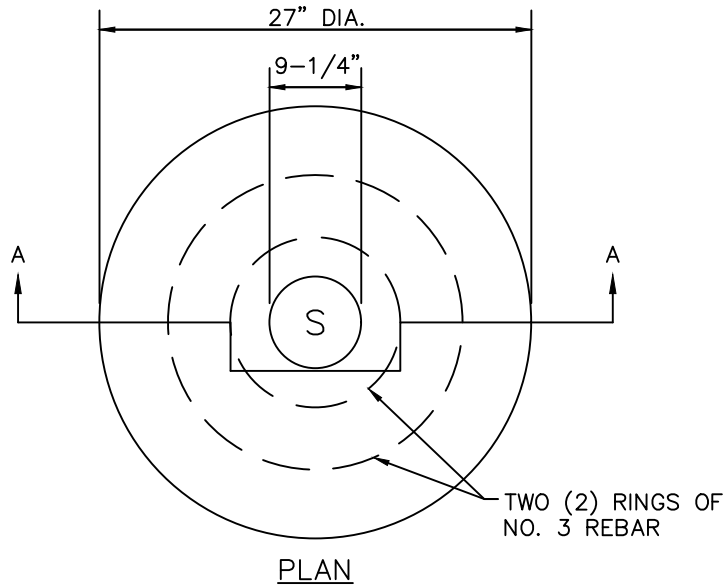
**TYPICAL DEEP SEWER SERVICE  
CONSTRUCTION DETAIL**  
N.T.S.



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**N.C.S.D. STANDARD DETAILS**

REV. DATE: JUNE 2019 DWG#: GS-009

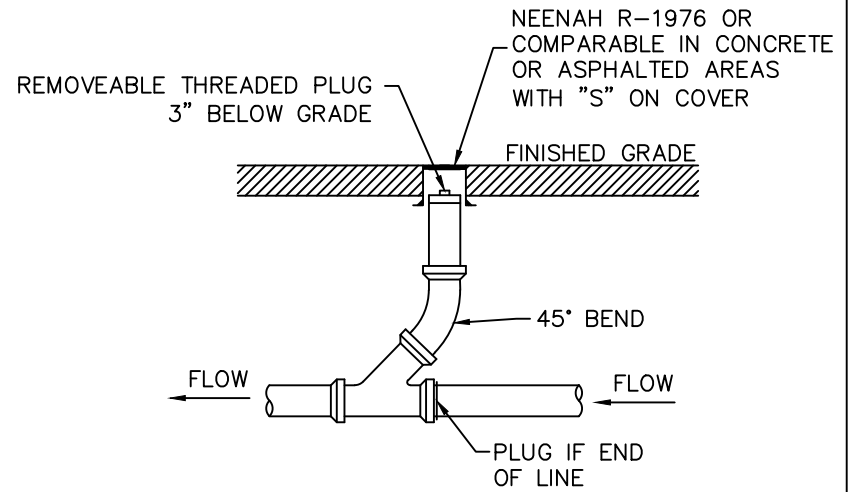


PRECAST CONCRETE COLLAR

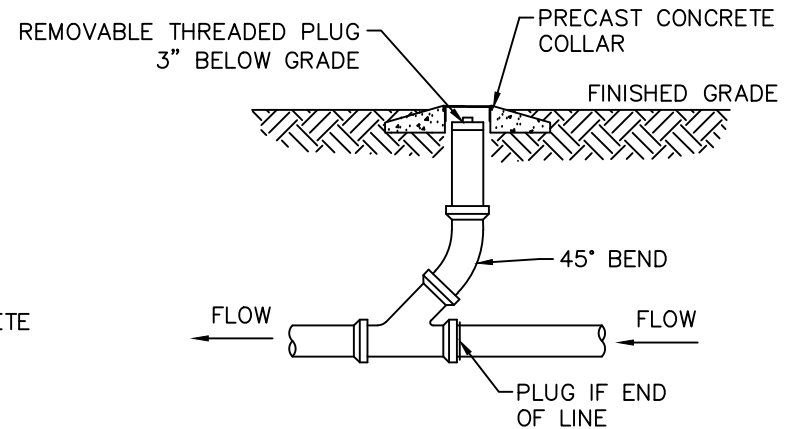
NOTES:

1. CLEANOUTS TO BE PROVIDED ON ALL SERVICE LATERALS AT 50' INTERVALS AND AT CHANGES IN DIRECTION.
2. PROVIDE 4" CLEANOUTS FOR RESIDENTIAL & 6" CLEANOUTS FOR COMMERCIAL APPLICATIONS.

CLEANOUT DETAIL  
N.T.S.



CLEANOUT IN PAVEMENT



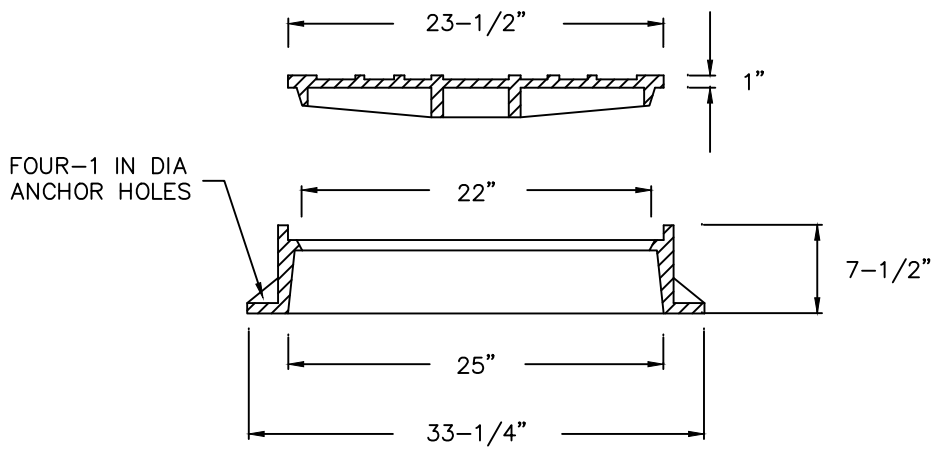
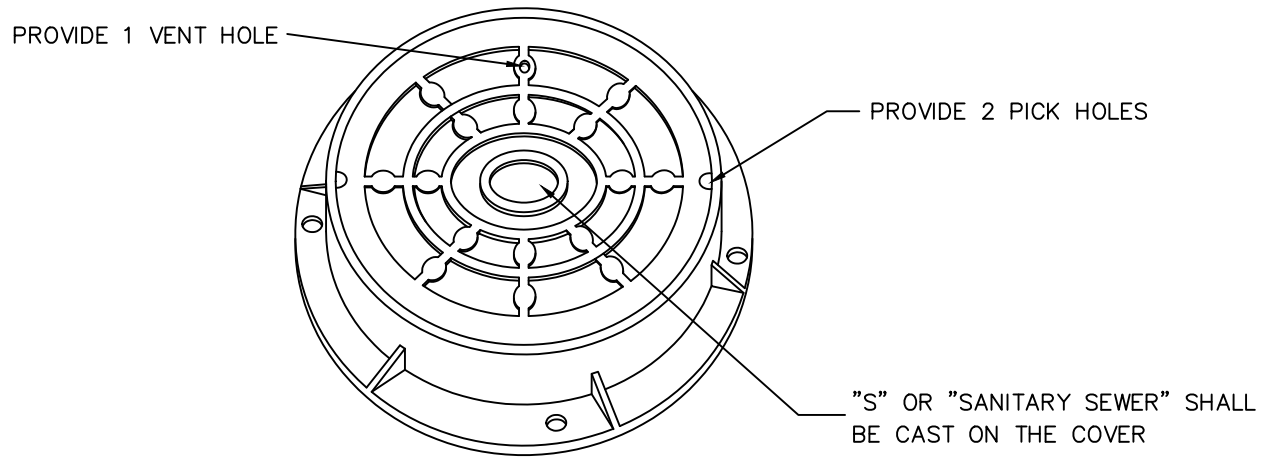
CLEANOUT IN LANDSCAPED AREA



7255 STALL ROAD, NORTH CHARLESTON, SC 29406  
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**N.C.S.D. STANDARD DETAILS**

REV. DATE: JUNE 2019      DWG#:      GS-010



STANDARD FRAME AND COVERS  
 EAST JORDAN IRON WORKS #V-1384  
 US FOUNDRY #USF-668, KL

WATERPROOF FRAME AND COVER  
 EAST JORDAN IRON WORKS #V-1384 WITH CAMLOCK  
 US FOUNDRY #668-KL BWLT

FLAT SLAB FRAME AND COVER  
 EAST JORDAN IRON WORKS #V-1845, #V-1384  
 US FOUNDRY #USF-1261, KL

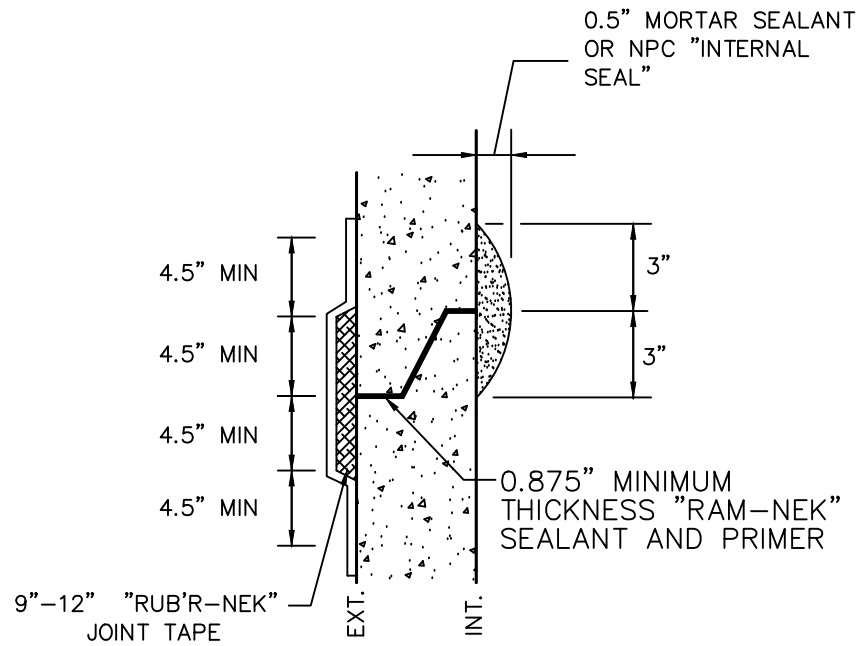
STANDARD MANHOLE FRAME AND COVER  
 N.T.S.



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**N.C.S.D. STANDARD DETAILS**

|                      |       |        |
|----------------------|-------|--------|
| REV. DATE: JUNE 2019 | DWG#: | GS-011 |
|----------------------|-------|--------|



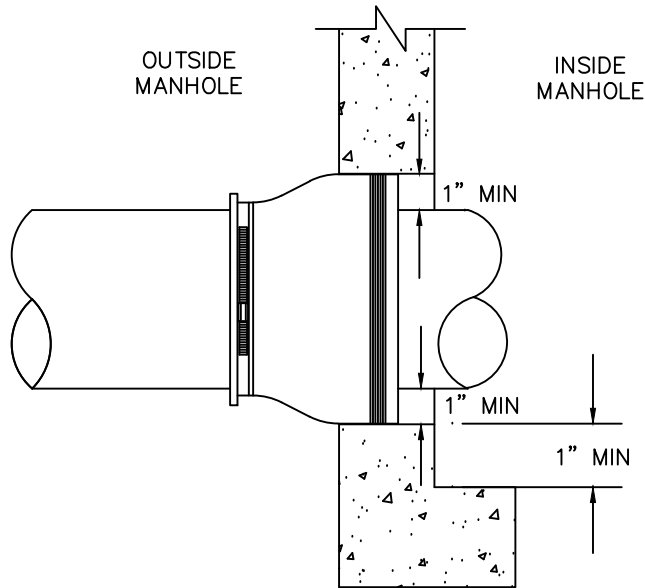
MANHOLE JOINT DETAIL  
N.T.S.



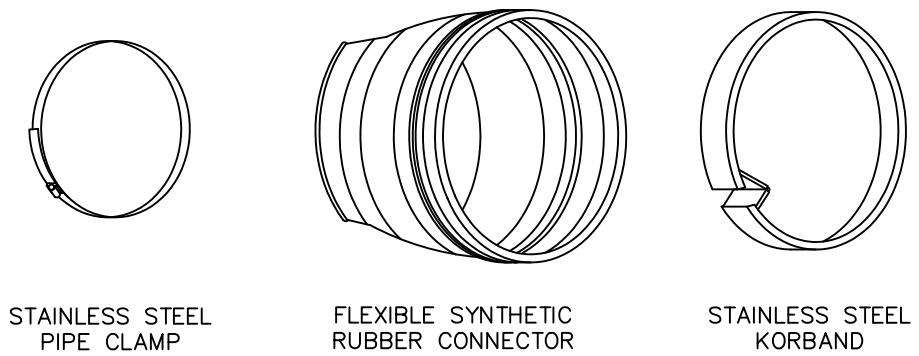
7255 STALL ROAD, NORTH CHARLESTON, SC 29406  
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**N.C.S.D. STANDARD DETAILS**

|            |           |       |        |
|------------|-----------|-------|--------|
| REV. DATE: | JUNE 2019 | DWG#: | GS-012 |
|------------|-----------|-------|--------|



WALL SECTION



TYPICAL PARTS

NOTES:

1. NEOPRENE BOOT, KOR-N-SEAL OR EQUAL, TO BE USED ON ALL PRECAST MANHOLES WITH ALL TYPES OF PIPES.
2. EXTERNAL BAND (300-SERIES NON- MAGNETIC CORROSION-RESISTANT STEEL).
3. KORBAND (6061-T6 ALUMINUM ALLOY WITH A BLACK ANODIZED SURFACE).

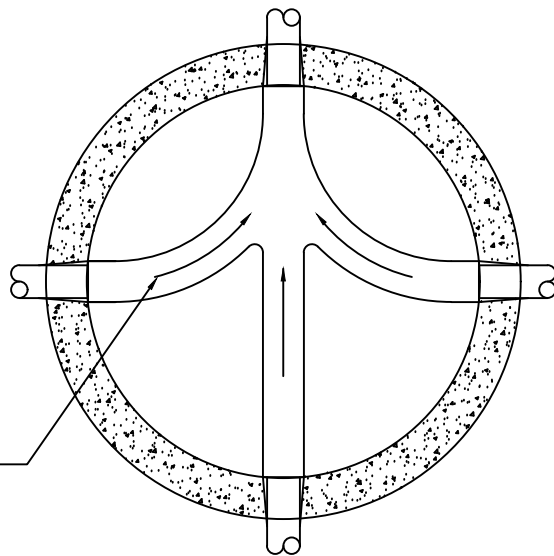
MANHOLE INVERT BOOT DETAIL  
N.T.S.



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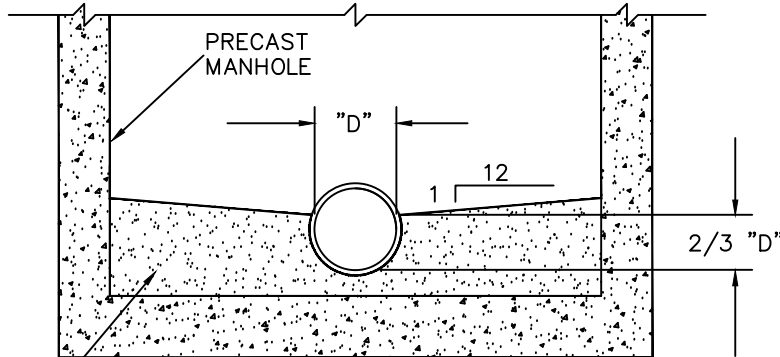
**N.C.S.D. STANDARD DETAILS**

|            |           |       |        |
|------------|-----------|-------|--------|
| REV. DATE: | JUNE 2019 | DWG#: | GS-013 |
|------------|-----------|-------|--------|



CHANNELS SHALL BE FORMED TO ALLOW TESTING MANDREL TO BE INSERTED OR REMOVED INTO PIPES

PLAN VIEW #1

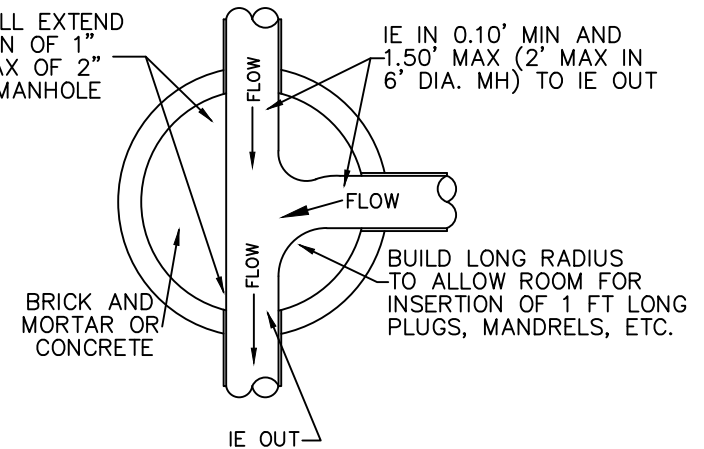


CONCRETE

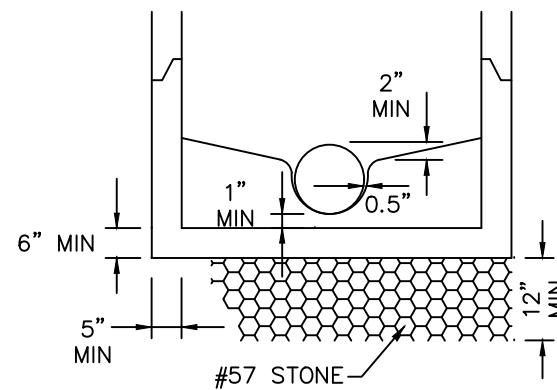
SECTION #1

STANDARD MANHOLE  
CHANNEL AND BENCH DETAIL  
N.T.S.

MAINS SHALL EXTEND A MIN OF 1" AND MAX OF 2" INTO MANHOLE



PLAN VIEW #2



SECTION #2



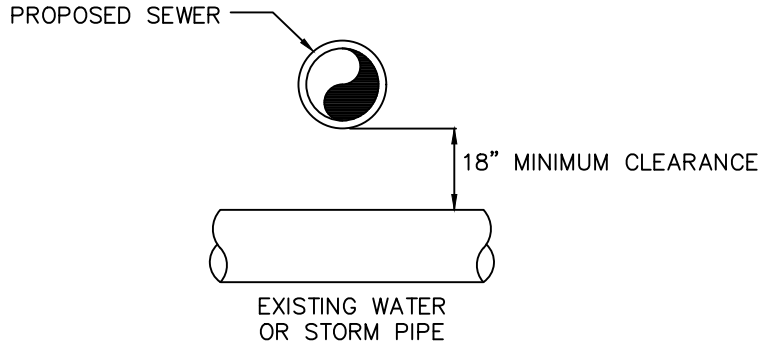
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PH: (843) 764-3072 FAX: (843) 764-2655

**N.C.S.D. STANDARD DETAILS**

REV. DATE: JUNE 2019 DWG#: GS-014

**NOTES:**

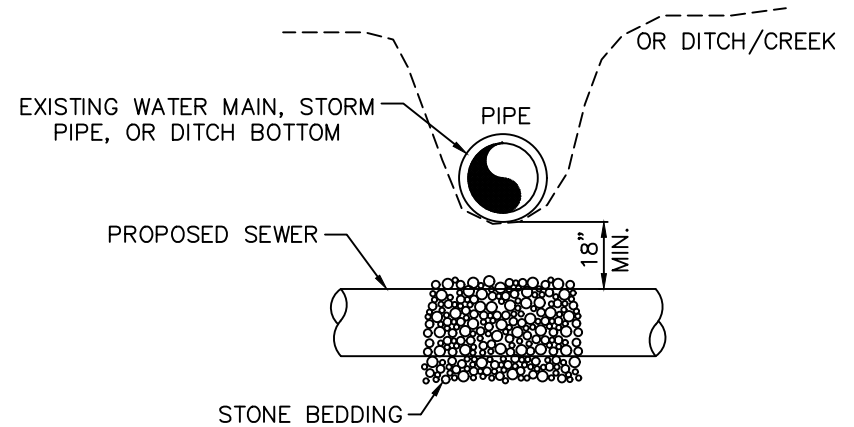
- 1. INSTALL A FULL JOINT OF PIPE CENTERED AT THE CROSSING.
- 2. IF THE MINIMUM CLEARANCE IS NOT MET, THE SEWER SHALL BE POLYWRAPPED DUCTILE IRON PIPE.



SEWER CROSSING OVER EXISTING PIPE

**NOTES:**

- 1. SOIL REPLACED UNDER THE EXISTING WATER OR STORM PIPE SHALL BE WELL COMPACTED PER APPLICABLE AGENCY STANDARDS.
- 2. IF CLEARANCE IS LESS THAN 18", C900/C905 PVC INSIDE STEEL CASING OR DUCTILE IRON PIPE SHALL BE USED. CENTER PIPE AND CASING UNDER THE EXISTING WATER MAIN, STORM PIPE, OR DITCH.



SEWER CROSSING UNDER EXISTING PIPE

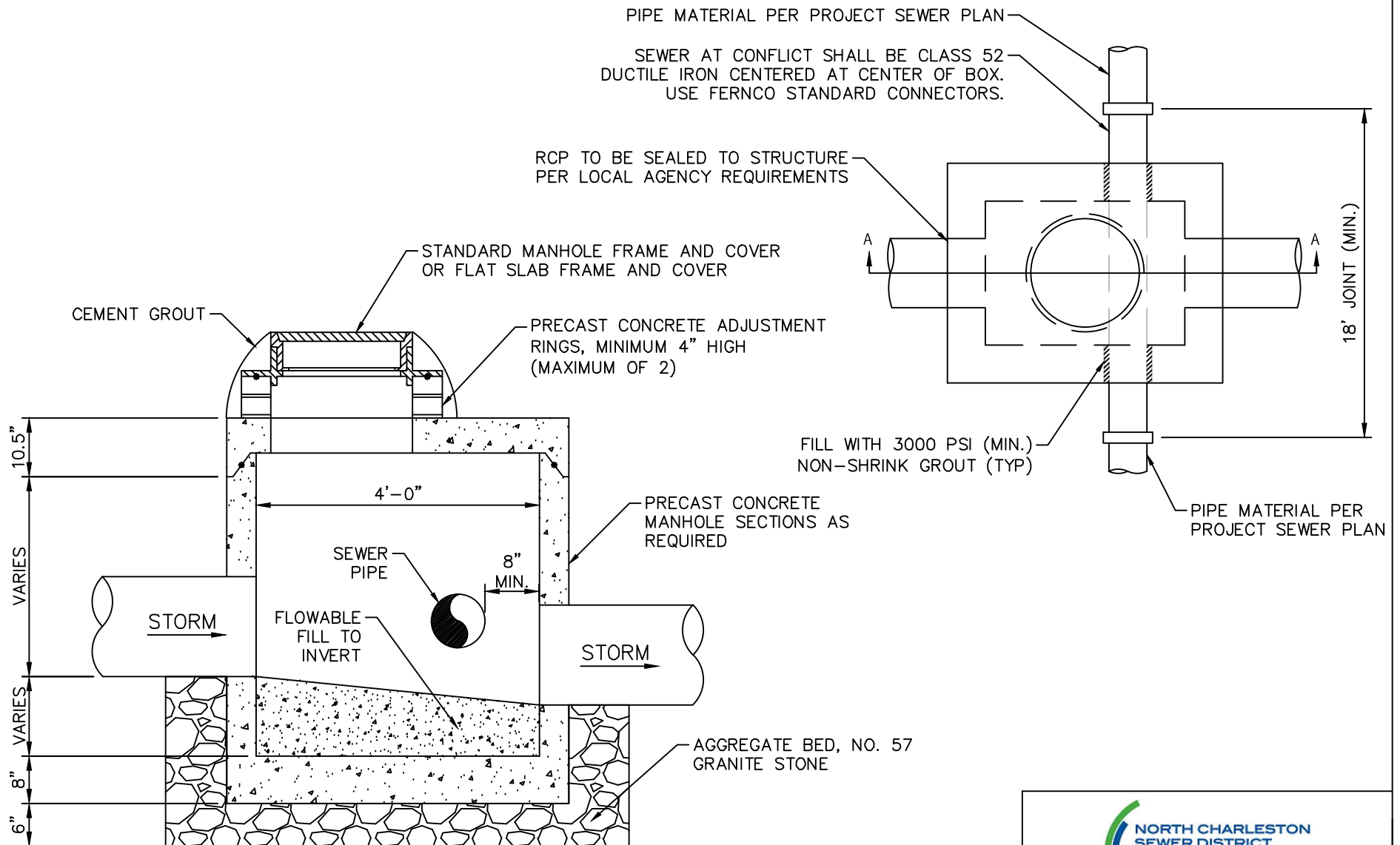
SEWER CROSSING OVER/UNDER  
EXISTING PIPE  
N.T.S.



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**N.C.S.D. STANDARD DETAILS**

REV. DATE: JUNE 2019 | DWG#: GS-015



CONFLICT BOX DETAIL  
N.T.S.



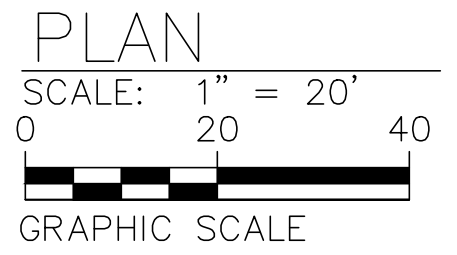
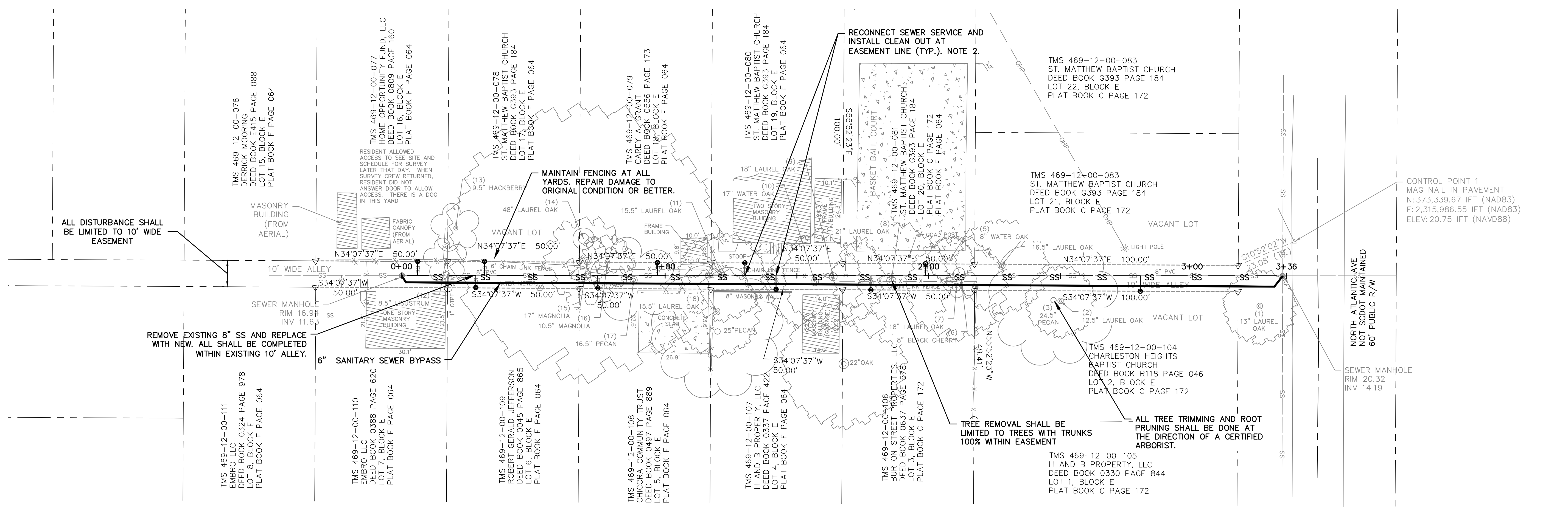
**NORTH CHARLESTON  
SEWER DISTRICT**

7255 STALL ROAD, NORTH CHARLESTON, SC 29406  
PH: (843) 764-3072 FAX: (843) 764-2655

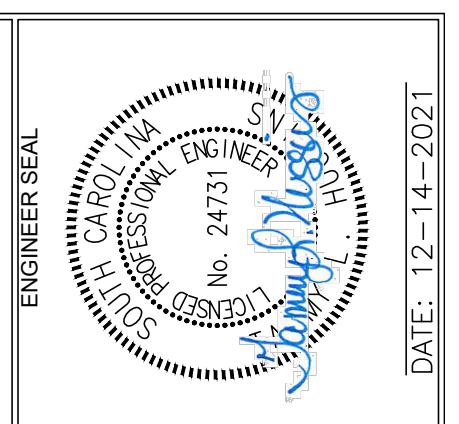
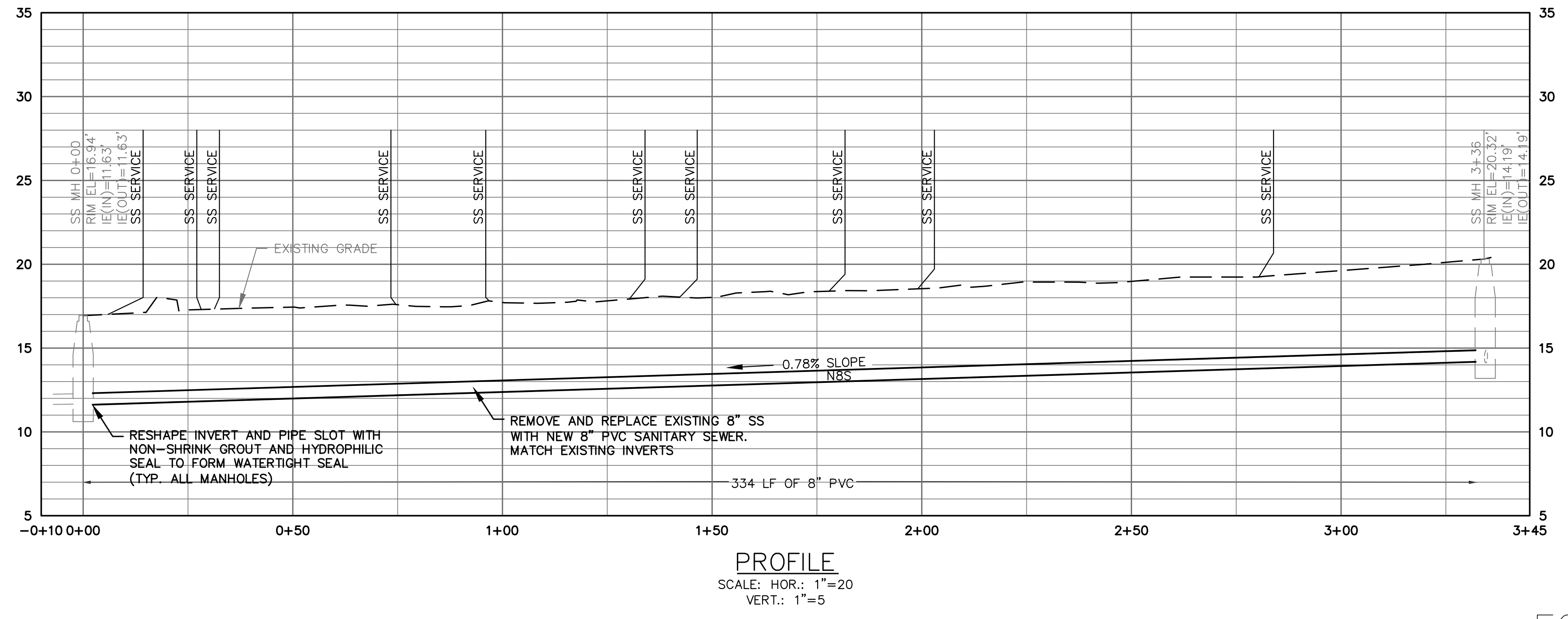
**N.C.S.D. STANDARD DETAILS**

|            |           |       |        |
|------------|-----------|-------|--------|
| REV. DATE: | JUNE 2019 | DWG#: | GS-018 |
|------------|-----------|-------|--------|

H:\PROJECT FILES\100345 - NORTH CHARLESTON SEWER DISTRICT\100345.04 NCSD FY21 GRAVITY LINE ENGINEERING\300 DESIGN\355 PRELIMINARY DRAWINGS\01 CIVIL & DEMO\100345.04 GRAYSON-LELAND-PP.DWG  
 REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CONSTANTINE ENGINEERING. HOWEVER, THIS SHALL NOT PROHIBIT THE REUSE OF THIS DOCUMENT BY THE CLIENT AS PROVIDED FOR BY THE CONTRACT. 12/15/2021 10:14 AM

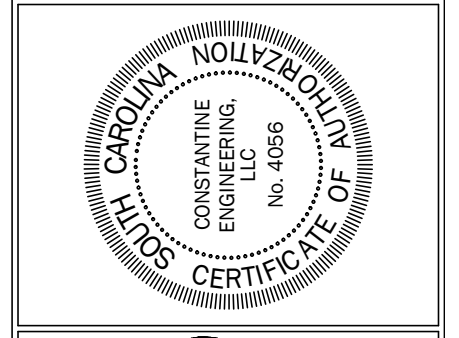


- NOTES:
1. BACKFILL TOP 3' WITH FLOWABLE FILL IN ROAD.
  2. TIE EXISTING SERVICE TO NEW SEWER MAIN. BYPASS SEWER SERVICE.
  3. PROVIDE VIBRATION MONITORING WITHIN 50 FT OF STRUCTURES.
  4. ALL WORK WITHIN THE DRIP LINE OF PROTECTED TREES SHALL BE DONE AT THE DIRECTION OF A CERTIFIED ARBORIST.



|                                     |           |
|-------------------------------------|-----------|
| FILE                                | SEE LEFT  |
| VERIFY SCALE                        |           |
| BAR IS ONE INCH ON ORIGINAL DRAWING |           |
| DATE                                | DEC 2021  |
| PROJ.                               | 100345.04 |
| DWG.                                | C2        |

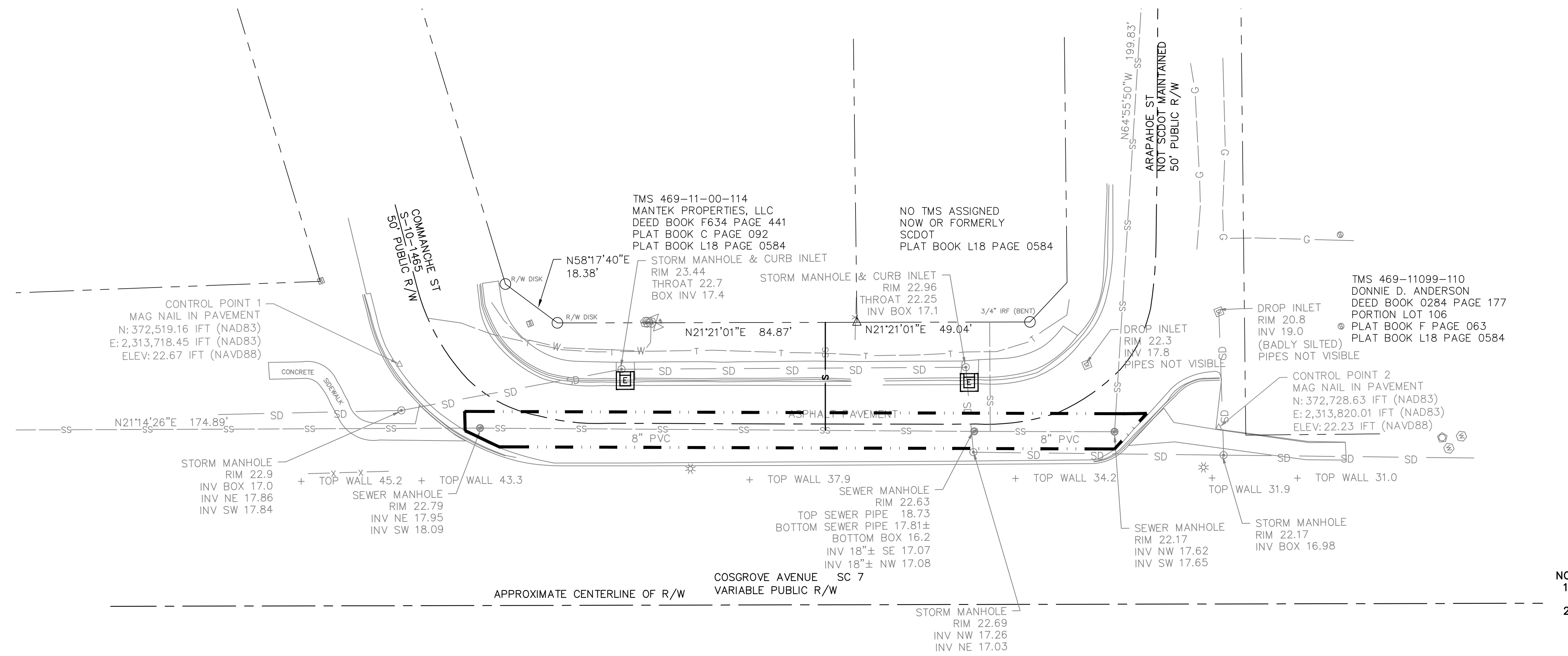
GRAYSON STREET ALLEY SEWER REPLACEMENT PLAN AND PROFILE  
 NORTH CHARLESTON SEWER DISTRICT  
 FY 21 GRAVITY LINE ENGINEERING



|              |     |
|--------------|-----|
| DESIGNED BY: | TLH |
| CHECKED BY:  | MAB |
| APPROVED BY: | MAB |
| DATE         | TLH |

FOR AGENCY REVIEW

H:\PROJECT FILES\100345 - NORTH CHARLESTON SEWER DISTRICT\100345.04 NCSDFY21 GRAVITY LINE ENGINEERING\300 DESIGN\355 PRELIMINARY DRAWINGS\01 CIVIL & DEMO\100345.04 ARAPAHOE-GRAYSON-EC.DWG  
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### LEGEND

LIMITS OF CONSTRUCTION/  
LIMITS OF DISTURBANCE:

SILT FENCE:

TREE BARRICADE:

INLET PROTECTION - SCDHEC TYPE E:

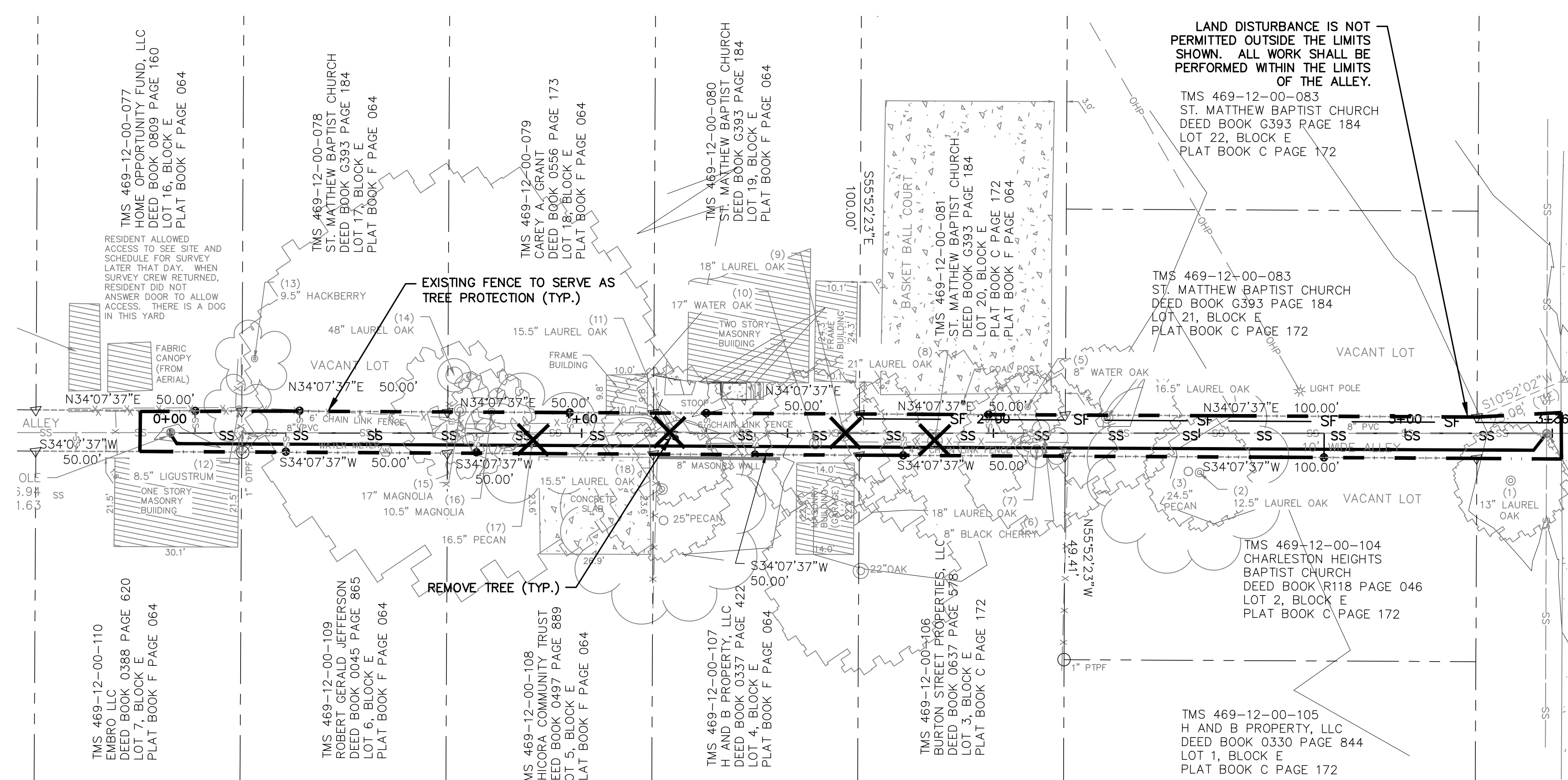
### PLAN

SCALE: 1" = 20'

0 20 40

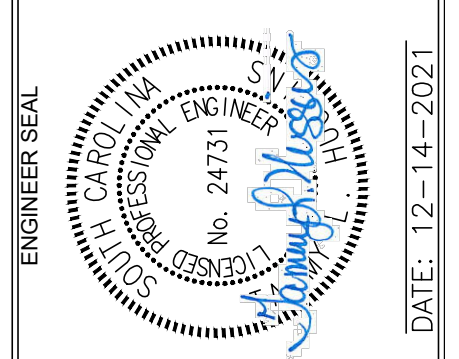
GRAPHIC SCALE

- NOTES:
- ARAPAHOE STREET DISTURBED AREA = 0.1 ACRES.
  - GRAYSON STREET ALLEY DISTURBED AREA = 0.1 ACRES.



### TREE REMOVAL TABLE

| TREE NUMBER | DESCRIPTION      | HEALTH GRADE | HEALTH DESCRIPTION | CONDITION |
|-------------|------------------|--------------|--------------------|-----------|
| 17          | 16.5" PECAN      | D            | LEAN, POOR FORM    | POOR      |
| 11          | 15.5" LAUREL OAK | C            | FORKED             | FAIR      |
| 9           | 18" LAUREL OAK   | D            | CROOK, SWEEP       | POOR      |
| 8           | 21" LAUREL OAK   | D            | SWEEP, FORKED      | POOR      |



|              |             |              |     |
|--------------|-------------|--------------|-----|
| NO.          | DATE        | DESIGNED BY: | TLH |
| REVISION     | CHECKED BY: | MAB          | TLH |
| APPROVED BY: | MAB         |              |     |

ARAPAHOE ST AND GRAYSON ST  
EROSION CONTROL AND TREE  
PROTECTION

NORTH CHARLESTON SEWER DISTRICT  
FY 21 GRAVITY LINE ENGINEERING



4000 FABER PLACE DRIVE, STE. 330  
CHARLESTON, SC 29405  
PH. 843-628-3352

|                                     |           |
|-------------------------------------|-----------|
| FILE                                | SEE LEFT  |
| VERIFY SCALE                        |           |
| BAR IS ONE INCH ON ORIGINAL DRAWING |           |
| DATE                                | DEC 2021  |
| PROJ.                               | 100345.04 |
| DWG.                                | C8        |



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