

***Bid Package  
For  
Marion Avenue Culvert Project***

***CITY OF SPARTANBURG***

***JOB NO. SW 1505***

***January 28, 2016***

***Proposal No. 1516-02-23-01***

**TABLE OF CONTENTS**

**Section**

*Invitation to Bid*.....

*Proposal with Liquidated Damages*.....

*Information for Bidders*.....

*Noncollusion Affidavit of Prime Bidder*.....

*Statement of Bidder's Qualifications*.....

*Certification of Non-segregated Facilities*.....

*City Business License*.....

***Exhibit List***

- *Exhibit A - Scope of Work*
- *Exhibit A-1 Specifications/Provisions*
- *Exhibit A-2 Drawings*
- *Exhibit A-3- Bid Sheet*
- *Exhibit A-4- Bid Form*
- *Exhibit B - Insurance Requirements*
- *Exhibit C - S.C. Immigration Reform Act Form*
- *Exhibit D- City Business License Application*



# *City of Spartanburg*

**Procurement and Property Division**

Post Office Drawer 1749, SC 29304-1749 P (864)-596-2049 F (864) 596-2365

**Legal Notice  
Request for Bid  
Marion Avenue Culvert  
Improvement Project**

**January 29, 2016**

**NOTICE IS HEREBY GIVEN** that The City of Spartanburg will receive sealed bids from vendors to provide construction services for the Marion Avenue culvert improvement project located between Hudson Barksdale Avenue & Alexander Avenue.

Bids are invited upon the several items and quantities of work as follows:

**Proposal No: 1516-02-23-01**

City of Spartanburg, hereby, notifies all proposers that it will affirmatively ensure that all disadvantaged and women's business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, race, color, or national origin in consideration for an award. Each proposer shall attest that they engaged in good faith efforts in an endeavor to achieve the City's M/WBE goal of 15%.

The City of Spartanburg reserves the right to reject any and all Bids or to waive any informality in the bidding. Bids may be held by the City of Spartanburg for a period not to exceed sixty (60) days from the date of the opening of Bids for the purpose of reviewing the Bids and investigating the qualifications of Bidder(s), prior to awarding of the Contract.

A certified check or bank draft, payable to the City of Spartanburg, negotiable U. S. Bonds (at par value) or a satisfactory Bid Bond executed by the Bidder and an acceptable surety in an amount equal to five percent (5%) of the total bid shall be submitted with each bid.

A pre-bid meeting will be scheduled for Tuesday February 16 @ 10 a.m. @ project site.

**Drawings and Specifications may be purchased from Imaging Technologies** Construction Documents, including Drawings and Technical Specifications are on file and can be purchased at ARC , located a 7092 Howard Street #K, Spartanburg, SC (864) 585-8388

Contract documents may be examined at the offices of the Owner, (City of Spartanburg examined at:

Dodge Plan Room Website: <http://dodgeprojects.construction.com> and AGC Website: <http://www.cagc.org>

The Bidder to whom the contract is awarded will be required to furnish a corporate surety bond in a sum equal to one hundred percent (100%) of the amount of the proposal or bid.

Questions regarding bid procedures should be directed to Carl Wright, Procurement and Property Manager at 864-596-2790 or [cwright@cityofspartanburg.org](mailto:cwright@cityofspartanburg.org). Technical questions regarding the

scope of services should be directed to Jay Squires, Storm Water Manager, and (864) 596-2089 or by email at [jsquires@cityofspartanburg.org](mailto:jsquires@cityofspartanburg.org)

Sealed Proposals shall be submitted to Carl Wright, Procurement and Property Manager, on or before **February 23, 2016 at 3:00**, City Hall, 145 W. Broad Street, at which time they will be publicly opened and read aloud in the Training Room, same location. Complete proposal package also available at [www.cityofspartanburg.org](http://www.cityofspartanburg.org) by following the links for **bid opportunities**.

For further information and complete Proposal Package, please contact the Procurement and Property office at (864) 596-2049. Complete proposal package also available at [www.cityofspartanburg.org](http://www.cityofspartanburg.org) by following the links for Invitations for bids.

Proposals can be hand delivered or mailed to the following address:

City of Spartanburg  
P. O. Box 5107  
Spartanburg, S. C. 29304

Attention: Procurement and Property Division

**The following Proposal Number must be placed on the left corner of the outer envelope in order for the bid to be stamped in as accepted on time: Proposal No: 1516-02-23-01**

**PROPOSAL FOR  
MARION AVENUE CULVERT PROJECT  
CITY OF SPARTANBURG**

**Job No. 1505**

**BID**

**FROM:**

**BIDDER** \_\_\_\_\_ **Date** \_\_\_\_\_

**Address** \_\_\_\_\_ **Telephone** \_\_\_\_\_

**Bidder's License No.** \_\_\_\_\_

**Contractor's License No.** \_\_\_\_\_

**TO: CITY OF SPARTANBURG (OWNER)**  
145 West Broad Street  
Post Office Drawer 5107  
Spartanburg, S. C. 29304

The undersigned, as bidder, hereby declares that the only person, or persons, interested in this bid as principal(s) is, or are, named herein, and that no other person has any interest in the bid or the contract to be entered into; that this bid is made without connection with any person, company or parties making a bid; and that it is in all respects fair and in good faith without collusion or fraud.

The bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the contract documents relative thereto; and that he has satisfied himself as to the work to be performed.

The bidder further proposes and agrees, if this bid is accepted, to contract with the Owner in the attached form of agreement, to furnish all material, equipment, tools, apparatus means of transportation, and labor necessary to complete the project in full and complete accordance with the contract documents, to the full and entire satisfaction of the Owner, at the prices and amounts listed below.

The bidder further agrees to commence work on the date stipulated in the notice to proceed and to fully complete the project within the number of consecutive calendar days thereafter as listed below. The bidder also agrees to pay as liquidated damages, the sum as listed below for each consecutive calendar day thereafter the project remains incomplete.

**Completion Time: 45 days**  
**Liquidated Damages: \$300.00 per day**

The undersigned Bidder agrees that if this Proposal shall be accepted, the undersigned will, within ten (10) days after notifications of such acceptance, enter into the contract for their performance of all work proposed under this improvement within the number of calendar days as stated herein, and, as a guaranty of the faithful performance thereof, to furnish at the time of executing the contract a performance bond in an amount not less than one hundred percent (100%) of the total amount bid, and with sureties subject to the approval of the Owner.

Upon failure to execute the contract and bond as aforesaid, it is agreed that the undersigned shall forfeit check accompanying this proposal to the Owner as liquidated damages caused by such failure.

The work consists of the approximate quantities shown herein 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 will correspond with the estimated quantities.

In case of error in extension, the unit price shall govern rather than the amount. For lump sum items, the individual amounts shall govern the total of the bid in case of discrepancy.

The Owner may delete from the contract any or all of the alternates listed in the bid form.

The prices and amounts listed below include all labor, materials, tools, equipment, transportation, removal, overhead, profit, insurance, taxes, etc., to cover the finished work in place

**Bidder acknowledges receipt of the following Addenda:**

Addenda Received: No. \_\_\_\_\_  
Date \_\_\_\_\_

The undersigned further agrees that in case of failure on his part to execute the said contract and bonds within 10 consecutive calendar days after written notice has been given of the award of the contract, the check and/or bid bond accompanying this bid and the monies payable thereon will be paid into the funds of the Owner as liquidated damages for such failure; otherwise, said check or bid bond will be returned to the undersigned.

The bidder further purposes and agrees hereby to commence the work with adequate forces and equipment within 10 days after being notified by the Owner or Engineer to proceed, and to complete the work within the specified time.

ATTACHED HERETO is a certified check on the \_\_\_\_\_  
\_\_\_\_\_ Bank of \_\_\_\_\_ and/or bid bond  
with the \_\_\_\_\_ Company for the sum of \_\_\_\_\_  
Dollars ( \_\_\_\_\_ ), made payable to the Owner as a bid guarantee.

The attached completed and executed Debarred Firms certification is hereby made a part of this bid.

Address:

\_\_\_\_\_ Firm \_\_\_\_\_  
\_\_\_\_\_ By \_\_\_\_\_ (L.S.)  
\_\_\_\_\_ Title \_\_\_\_\_

(SEAL is bid is by a corporation)

## INFORMATION FOR BIDDERS

Bids will be received and opened as specified in the advertisement.

### 1. Bids

- a) Each Bid must be submitted in a sealed envelope, as advertised. Each sealed envelope containing a BID must be plainly marked on the outside as **BID for MARION AVENUE Culvert Project, Job No. 1505**, and the envelope should bear on the outside the Bid Number, name of BIDDER, his address, all license information, etc., typed thereon and sealed. If forwarded by mail, the sealed envelope contained in the BID must be enclosed in another envelope addressed to the OWNER as advertised.
- b) The Owner may consider informal any bid not prepared and submitted in accordance with the provisions herein and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered.
- c) All bids shall be on the printed form contained herein or on copies thereof, and shall be for all labor, material and equipment required to complete the work embraced in the contract in accordance with the plans and specifications. Bid Documents shall include the Bid, the Bid Quantity, the Non-Collusion Affidavit and the Statement of Bidder's Qualification. Bids shall be typewritten or completed in ink. All blank spaces for bid prices must be filled in, in figures, or in both words and figures if so indicated in the bid form. In addition, any other information requested in the bid form must be completed.
- d) Each BIDDER is required to state in his proposal his name and place of residence and the names of all persons interested with him; in case of a corporation the names of other than the president and secretary need not be given. Reference shall be furnished to establish the skill and business standing of the BIDDER.
- e) If the Contract is awarded, it will be awarded by the Local Public Agency to a responsible Bidder on the basis of the lowest Bid and the selected Alternative Bid items, if any. The Contract will require the completion of the work according to the Contract Documents.
- f) If called for in the bid, each bidder shall submit a price for all alternates listed therein. Failure to do so will result in the bid being considered incomplete and may result in rejection of the bid.

- g) On the first sheet of the bid form, the bidder shall write his name and address, his bidder's license number; and contractor's license number, if required. In South Carolina, where a mechanical contract amounts to \$10,000 or more, the name and license number of the sub-contractor, where his bid is used, shall also be shown.
- h) Following the BID opening, the OWNER shall determine the Items, Alternates, and Additions to be performed. Total BIDS will be calculated by adding the amounts BID by each BIDDER for such ITEMS, Alternates, and Additions, less the Deductions, so selected by the Owner in determining the low responsive, responsible BID. The OWNER reserves the right to reject any and all BIDS.
- i) The successful BIDDER will be further required to furnish the OWNER with a complete breakdown of the lump sum BID items to the satisfaction of the ENGINEER, before signing the contract documents.
- j) The Owner reserves the right to hold bids for a period of sixty (60) days after date of opening and to award the contract at any time during that period.
- k) Five (5) sets of plans and specifications will be furnished the successful Contractor at no cost and any additional sets requested will be furnished at cost.

## 2. INTERPRETATIONS OR ADDENDA

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Local Public Agency. Any inquiry received seven or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Local Public Agency and the office of the Engineer at least five days before Bids are opened. In addition, all Addenda will be mailed to each person holding Contract Documents, but it shall be the Bidder's responsibility to make inquiry as to the Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

Each bidder shall acknowledge receipt of all addenda in the spaces provided in the bid form. It shall be each bidder's responsibility to assure himself that all addenda have been received. No claim for failure to receive addenda will be considered.

## 3. INSPECTION OF SITE

Each Bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself with the Drawings, Technical Specifications, and all other Contract Documents. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing and the Local Public Agency will be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

#### 4. ALTERNATIVE BIDS

No alternative bids will be considered unless alternative bids are specifically requested by the technical specifications.

#### 5. BID GUARANTY

Each Bid must be accompanied by a BID BOND payable to the OWNER for five percent of the total amount of the Bid. As soon as the BID prices have been compared, the OWNER will return the bonds of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A Certified check may be used in lieu of a BID BOND.

A performance bond and payment bond, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract in the form attached hereto.

Attorneys-in-fact who sign BID BONDS or payment bonds and performance bonds must file with each bond a certified and effective dated copy of their power of attorney.

#### 6. COLLUSIVE AGREEMENTS

- a) Each Bidder submitting a Bid to the Local Public Agency for any portion of the work contemplated by the documents on which Bidding is based shall and attach thereto, an affidavit substantially in the form herein provided, to the effect that he has not entered into a collusive agreement with any other person, firm, or corporation with regard to any Bid submitted.
- b) Before executing any subcontract the successful Bidder shall submit the name of any proposed subcontractor for prior approval and an affidavit substantially in the form provided in Section SUBCONTRACTS under GENERAL CONDITIONS PART I hereof.

#### 7. STATEMENT OF BIDDER'S QUALIFICATIONS

Each Bidder shall upon request of the Local Public Agency submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his experience record in constructing the type of improvements embraced in the contract, his organization and equipment available for the work contemplated, and when specifically requested by the Local Public Agency, a detailed financial statement. The Local Public Agency shall have the right to take such steps as it deems necessary to determine the availability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the Local Public Agency all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Local Public Agency that the Bidder is qualified to carry out properly the terms of the Contract.

#### 8. UNIT PRICES

The unit price for each of the several items in the proposal of each Bidder shall include its prorata share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price Bid represents the total Bid. Any Bid not conforming to this requirement may be rejected as informal. The special attention of all Bidders is called to this provision, for should questions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five (25%) percent, except for work not covered in the Drawings and Technical Specifications as provided for in Section CHANGES IN THE WORK under GENERAL CONDITIONS Part I hereof.

The quantities listed in the proposal form are to be considered as approximate and are to be used only for the comparison of the BIDS and as basis for computing amounts of security or penal sums of bonds to be furnished. The unit prices to be tendered by the BIDDERS are to be tendered expressly for the scheduled quantities as they may be increased or decreased. Payments, except for lump sum contracts, and except for lump sum items in unit price contracts, will be made to the CONTRACTOR for the actual quantities only of work performed or materials furnished in accordance with the plans and specifications, and it is understood that the scheduled quantities of work to be done and materials to be furnished may each be increased or diminished without in any way invalidating the unit BID prices.

#### 9. CORRECTIONS

Bids which are incomplete, unbalanced, conditional or obscure, or which contain additions not called for, erasures, alterations or irregularities of any kind, or which do not comply with the contract documents may be rejected at the option of the Owner.

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder.

#### 10. TIME FOR RECEIVING BIDS

- a) Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered: except that when a Bid arrives by mail after the time fixed for opening, but before the reading of all other Bids is completed, and it is shown to the satisfaction of the Local Public Agency that the non-arrival on time was due solely to delay in the mail for which the Bidder was not responsible, such Bid will be received and considered.

#### 11. OPENING OF BIDS

At the time and place fixed for the opening of Bids, the Local Public Agency will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

#### 12. WITHDRAWAL OF BIDS

Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

13. AWARD OF CONTRACT: REJECT OF BIDS

- a) The Contract will be awarded to the responsible Bidder submitting the lowest Bid complying with the conditions of the Invitation for Bids. The Bidder to whom the award is made will be notified at the earliest possible date. The Local Public Agency, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interest.
- b) The Local Public Agency reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the Improvements embraced in this Contract.

14. EXECUTION OF AGREEMENT: PERFORMANCE BOND, PAYMENT BOND, BUSINESS LICENSE

- a) Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Local Public Agency an Agreement in the form included in the Contract Documents such number of copies as the Local Public Agency may require.
- b) Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in paragraph "a" above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms, or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bond shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. This bond shall be obtained from companies holding certificates of authority as acceptable sureties (31 CFR 223).
- c) The failure of the successful Bidder to execute such Agreement and to supply the required bond or bonds within ten days after the prescribed forms are presented for signature, or within such extended period as the Local Public Agency may grant, based upon reasons determined sufficient by the Local Public Agency, shall constitute a default, and the Local Public Agency may either award the Contract to the next lowest responsible Bidder or re-advertise for Bids, and may charge against the Bidder the difference between the amount of the Bid and the amount for which a Contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the Bid Bond. If a more favorable Bid is received by re-advertising the defaulting Bidder shall have no claim against the Public Agency for a refund.
- d) The NOTICE OF AWARD shall be accompanied by the necessary Agreement and bond forms.

15. NOTICE TO PROCEED

The NOTICE TO PROCEED shall be issued within 10 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 10 day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

#### 16. WAGES AND SALARIES

- a) Attention of Bidders is particularly called to the requirements concerning the payment of not less than the prevailing wage and salary rates specified in the Contract Documents and the conditions of employment with respect to certain categories and classifications of employees. See GENERAL CONDITIONS PART II.
- b) The rates of pay set forth under GENERAL CONDITIONS, PART II, are the minimums to be paid during the life of the Contract. It is therefore, the responsibility of Bidders to inform themselves as to local labor conditions, such as the length of work day and work week, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustments of rates.

#### 17. EQUAL EMPLOYMENT OPPORTUNITY

- a) Attention of Bidders is particularly called to the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin. (See Section EQUAL EMPLOYMENT OPPORTUNITY under GENERAL CONDITIONS PART I hereof).
- b) Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

The offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

The goals for minority and female participation are applicable to the entire Contractor's Construction work (whether or not it is Federal or federally assisted) performed in the covered areas.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a). And its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulation in 41 CFR, Part 60-4. Compliance with the goals will be measured against the total work hours performed.

1. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 days of

award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

2. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any).

#### GENERAL GUARANTY

3. Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Local Public Agency or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties of responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting there from which shall appear within a period of 12 months from the date of final acceptance of the work. The Local Public Agency will be given notice of defective materials and work with reasonable promptness.

#### 18. LOCAL PUBLIC AGENCY

Wherever the term "Local Public Agency" is referenced in the contract documents, it shall mean the Owner which is the City of Spartanburg, S. C.

#### 19. TAXES

Attention is called to the following provisions of the South Carolina Tax laws:

South Carolina law requires that a withholding tax of two percent (2%) be withheld from payments made to non-resident contractors performing a business of temporary nature in South Carolina, and provided the contract exceeds \$10,000. The withholding of two percent (2%) may be waived provided the nonresident taxpayer posts with the South Carolina Tax Commission a non-resident withholding tax bond. This provision insures the South Carolina Tax Commission that the non-resident contractor will comply with applicable provisions of the Income Tax Act of 1926, as amended. The prime contractor or employer of the non-resident contractor is held responsible for the tax due to be withheld and must withhold the tax unless he is notified by the South Carolina Tax Commission that a non-resident withholding bond has been posted covering the contract in question.

- a) In addition to the above, the non-resident contractor is required to act as withholding agent for the State of South Carolina and withhold tax from wages paid to his employees working in South Carolina. It is the responsibility of the non-resident contractor to apply for an employer account number and file the quarterly withholding reports on or before the appropriate due dates.

## 20. ENGINEER

Wherever the "Engineer" is referenced in the contract documents, it shall mean the City Storm Water Manager, P. O. Drawer 1749, Spartanburg, S. C. 29304, telephone (864) 596-2089.

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of South Carolina)

ss.

County of Spartanburg)

\_\_\_\_\_, being first duly sworn,  
deposes and says that:

- 1) He is \_\_\_\_\_ OF \_\_\_\_\_, the Bidder that has submitted the attached Bid:
- 2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid:
- 3) Such Bid is genuine and is not a collusive or sham Bid:
- 4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Spartanburg, S.C. or any person interested in the proposed Contract; and
- 5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(signed) \_\_\_\_\_  
Title

Subscribed and sworn to before me this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Title



<sup>5</sup>Forms of Bid Bonds prepared to meet the requirements of local or State laws or the needs of the Local Public should be substituted for this form where necessary.  
-1-

Attest:

\_\_\_\_\_  
By: \_\_\_\_\_ Affix  
Corporate Seal  
\_\_\_\_\_

Countersigned

by \_\_\_\_\_

<sup>6</sup>Attorney-in-Fact, State of \_\_\_\_\_

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, \_\_\_\_\_, certify that  
I am the \_\_\_\_\_,  
Secretary of the Corporation named as Principal in the within bond: that  
\_\_\_\_\_ who signed the said bond on behalf  
of the Principal was then \_\_\_\_\_ of said corporation: that I know  
his signature, and his signature thereto is genuine: and that said bond was duly  
signed, sealed, and attested to, for and in behalf of said corporation by  
authority of this governing body.

\_\_\_\_\_ (Corporate Seal)

Title: \_\_\_\_\_

<sup>6</sup>Power-of-attorney for person signing for surety company must be attached to bond.

STATEMENT OF BIDDER'S QUALIFICATIONS

(To be submitted by the Bidder only upon the specific request of the Local Public Agency.)

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character or work performed by your Company.
8. Have you ever failed to complete any work awarded to you?
9. Have you ever defaulted on a contract?
10. List the more important projects recently completed by your Company, stating the approximate cost for each, and the month and year completed.
11. List your major equipment available for this contract.
12. Experience in construction work similar in importance to this project.
13. Background and experience of the principal members of your organization, including the officers.
14. Credit Available: \$\_\_\_\_\_.
15. Give Bank Reference:\_\_\_\_\_.
16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the City of Spartanburg?
17. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City of Spartanburg in verification of the recitals comprising this Statement of Bidder's Qualifications.

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

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

Title: \_\_\_\_\_

State of \_\_\_\_\_ )

)

County of \_\_\_\_\_ )

\_\_\_\_\_ being duly sworn, deposes and  
says that he/she is \_\_\_\_\_ of \_\_\_\_\_

\_\_\_\_\_ and that the answers to the fore-  
going questions and all statements therein contained are true and  
correct.

Subscribed and sworn to before me this the \_\_\_\_\_  
day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(Name) Notary Public for (State)

My Commission Expires \_\_\_\_\_

**CERTIFICATION OF NONSEGREGATED FACILITIES**

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control where segregated facilities are maintained. The bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants, and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certification in his files.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

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

Date \_\_\_\_\_, 20\_\_

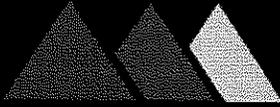
Official Address (including Zip Code).  
\_\_\_\_\_

**EXHIBIT A  
SCOPE OF WORK  
(BY OWNER)**

**Contractor will be responsible for the removal of culvert & installation of approximately 95 feet of 6 foot x 6 foot precast Concrete Box Culvert from under Marion Avenue. Contractor is responsible for all traffic control, utility locates and sediment/erosion control during construction. Repair and resurface road to project specifications once project is complete. All pipe, catch basin, headwall installation, road repair and resurfacing must be completed per SCDOT and supplied specifications. Contractor will also be responsible for stockpiling of all excavated material. Contractor will be responsible for any applicable permits**

**WORK TO BE COMPLETED IN 45 DAYS.**

**EXHIBIT A-1  
SPECIFICATIONS**

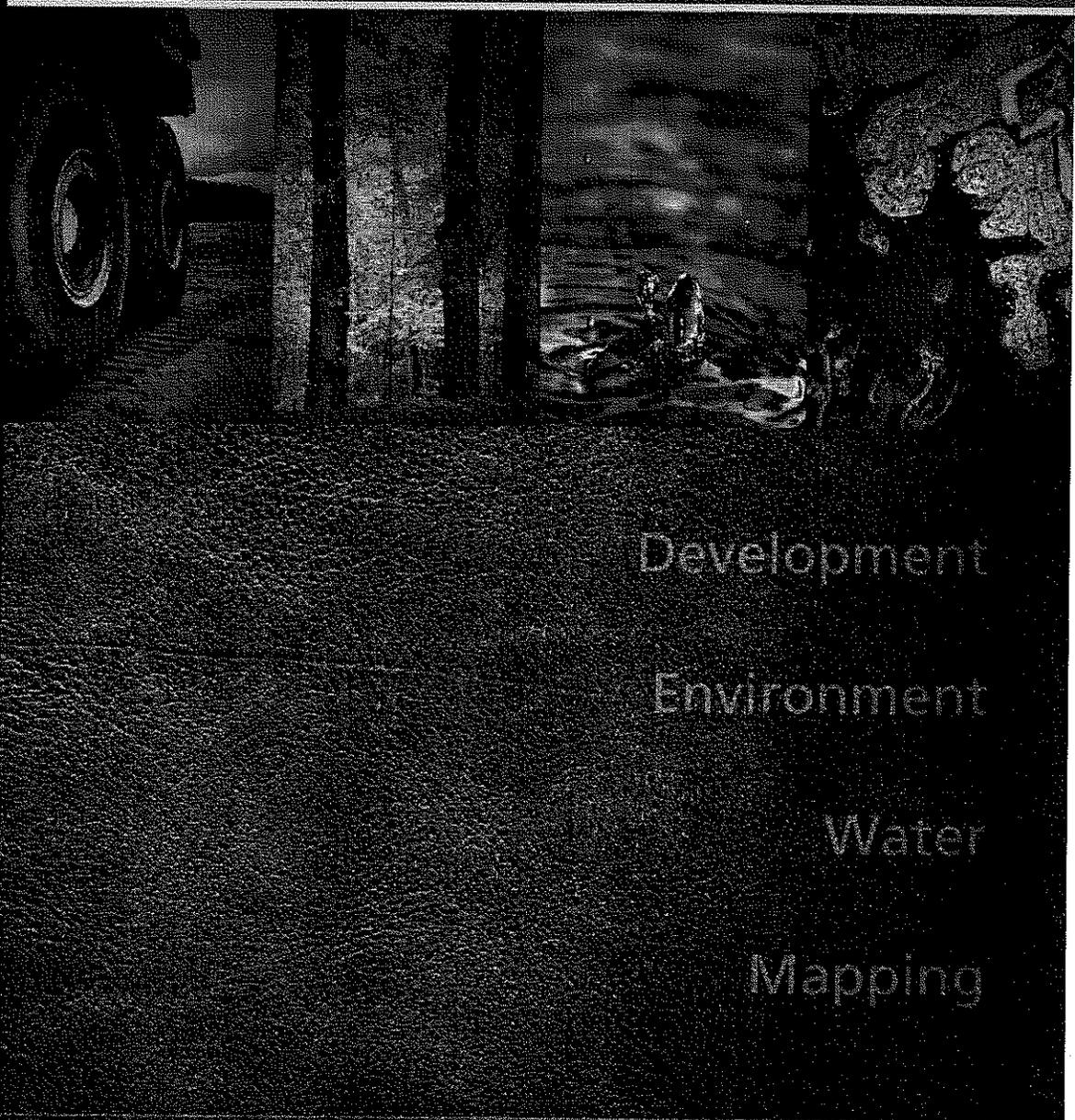


Hulsey McCormick & Wallace  
ENGINEERING • ENVIRONMENT • SCIENCE



City of  
**SPARTANBURG**  
south carolina

TECHNICAL SPECIFICATIONS  
MARION AVENUE  
STORM DRAINAGE IMPROVEMENTS  
CITY OF SPARTANBURG  
HMW PROJECT NO. SPA 001-1008-14  
OCTOBER 2015



Development

Environment

Water

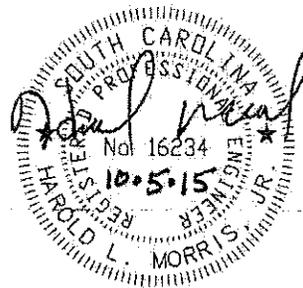
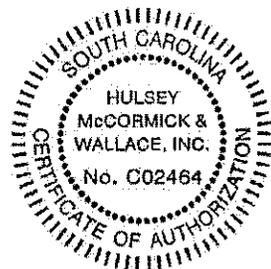
Mapping

TECHNICAL SPECIFICATIONS  
FOR THE  
CITY OF SPARTANBURG  
MARION AVENUE STORM DRAINAGE IMPROVEMENTS

Prepared for the  
City of Spartanburg, South Carolina  
HMW Project No. SPA 001-1008-14



OCTOBER 2015



# Table of Contents

## TECHNICAL SPECIFICATIONS

### DIVISION 1 – GENERAL REQUIREMENTS

<u>SECTION</u>	<u>TITLE</u>
01010	Summary of Work
01016	Occupancy
01025	Measurement and Payment
01055	Construction Staking
01060	Regulatory Requirements
01091	Codes & Standards
01200	Project Meetings
01340	Shop Drawings, Product Data and Samples
01410	Testing Laboratory Services
01510	Temporary Facilities
01540	Job Site Security
01562	Dust Control
01610	Transportation and Handling
01611	Storage and Protection
01700	Contract Closeout
01710	Cleaning
01720	Project Record Documents
01740	Warranties and Bonds

### DIVISION 2 – SITE CONSTRUCTION

<u>SECTION</u>	<u>TITLE</u>
02010	Subsurface Investigation
02230	Clearing and Grubbing
02240	Dewatering
02310	Site Grading
02315	Excavating and Backfill for Structures
02316	Trenching and Backfill for Utilities
02370	Erosion and Sediment Control
02513	Asphalt Paving
02615	Removing and Replacing Pavements
02720	Storm Drainage
02930	Grassing

**PART 1 - GENERAL**

**1.1 LOCATION OF WORK**

All of the work of this Contract shall be installed at locations shown on the drawings.

**1.2 SCOPE OF WORK**

- A. The Contractor shall furnish all labor, materials, equipment, tools, services and incidentals to complete all work required by these specifications and as shown on the drawings.
- B. The Contractor shall perform the work complete, in place, and ready for continuous service, and shall include repairs, testing, permits, clean-up, replacements and restoration required as a result of damages caused during this construction.
- C. All materials, equipment, skills, tools and labor which are reasonable and properly inferable and necessary for the proper completion of the work in a substantial manner and in compliance with the requirements stated or implied by these specifications or drawing shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the contract documents or not.
- D. The Contractor shall comply with all municipal, county, state, federal, and other codes which are applicable to the proposed construction work.

**1.3 GENERAL DESCRIPTION OF WORK TO BE PERFORMED**

- A. Furnish all labor, materials, equipment and incidentals required and construct the Marion Avenue Storm Drainage Improvements, as shown on the drawings and specified herein.
- B. The work includes, but is not necessarily limited to, the following:  
Removal of an existing corrugated metal culvert and replacement with a 6'x 6' concrete box culvert.

**1.4 WORK SEQUENCE**

- A. All work to be done under this contract shall be done with minimum inconvenience to the existing wastewater collection lines and roadway traffic flow.
- B. Coordinate the construction schedule and operations with the Owner's representative.

**1.5 CONSTRUCTION AREAS**

- A. Contractor shall limit his use of the construction areas for work and for storage, to allow for:
  - 1. Work by other contractors.
  - 2. Owner use.
- B. Coordinate use of work site.

- C. Assume full responsibility for the protection and safekeeping of products under this contract, stored on the site.
- D. Move and store products, under Contractor's control which interfere with operations of the Owner or separate Contractor.
- E. Obtain and pay for the use of additional storage or work areas needed for operations.

**1.6 PLANS AND SPECIFICATIONS**

- A. The technical specifications consist of three parts: General, Products, and Execution. The General Section contains General Requirements which govern the work. Products and Execution modify and supplement the General Requirements. The Products and Execution parts shall always govern whenever there appears to be a conflict.

- B. Intent

All work called for in the specifications applicable to this contract, but not shown on the plans in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the plans or in the specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though were specifically delineated or described.

The apparent silence of the specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these specifications shall be made upon that basis. The inclusion of the General Requirements (or work specified elsewhere) in the general part of the specifications is only for the convenience of the Contractor, and shall not be interpreted as a complete list of related specification sections.

**1.7 OWNER OCCUPANCY**

Owner will have full access to and use of all existing wastewater collection facilities. Cooperate with Owner's representative in all construction operations to minimize conflict and to facilitate Owner usage.

**1.8 PARTIAL OWNER OCCUPANCY**

The Contractor shall schedule his operations for completion of portions of the work, as designated, for the Owner's occupancy prior to substantial completion of the entire work.

**PART 2 - PRODUCTS**

Not used

**PART 3 - EXECUTION**

Not used

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 PARTIAL OCCUPANCY BY OWNER**

Whenever, in the opinion of the Engineer, any section or portion of the work or any structure is in suitable condition, it may be put into use upon the written order of the Engineer and such usage will not be held in any way as an acceptance of said Work or structure, or any part thereof, or as a waiver of any of the provisions of the specifications and the contract. Pending final completion and acceptance of the Work, all necessary repairs and replacement, due to defective materials or workmanship or operations of the Contractor, for any section of the work so put into use shall be performed by the Contractor at Contractor's own expense.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. The bid form lists each item of the project for which payment will be made. No payment will be made for any items other than those listed in the bid form.
- B. Required items of work and incidentals necessary for the satisfactory completion of the Work which are not specifically listed in the bid, and which are not specified in this section to be measured or to be included in one of the items listed in the bid, shall be considered as incidental to the work. All costs thereof, including Contractor's overhead costs and profit, shall be considered as included in the lump sum or unit prices bid for the various bid items. The Contractor shall prepare the bid accordingly.
- C. Work includes furnishing all labor, equipment, tools and materials, which are not furnished by the Owner and performing all operations required to complete the work satisfactorily, in place, as specified and as indicated on the drawings.

**1.2 DESCRIPTIONS**

- A. Measurement of an item of work will be by the unit indicated in the bid.
- B. Final payment quantities shall be determined from the record drawings. The record drawing lengths, dimensions, quantities, etc. shall be determined by a survey after the completion of all required work. Said survey shall conform to Section 01720 of these specifications. The precision of final payment quantities shall match the precision shown for that item in the bid.
- C. Payment will include all necessary and incidental related work not specified to be included in any other item or work listed in the bid.
- D. Payment will be made by extending unit prices multiplied by quantities provided and then summing the extended prices to reflect actual work. Such price and payment shall constitute full compensation to the Contractor for furnishing all permits, labor, equipment, tools and materials not furnished by the Owner and for performing all operations required to provide to the owner the entire project, complete in place, as specified and as indicated on the drawings.
- E. No separate payment will be made for any item of work, materials, parts, equipment, supplies or related items required to perform and complete the work. The costs for all such items required shall be included in the price bid for item of which it is a part. The Bid Form is provided for the Contractor's convenience and to assign values to the work to be performed. No separate payment shall be made for incidental work required in the contract documents. The total bid amount shall be all inclusive of the work to be performed, in place, complete, and accepted. No separate payment shall be made for any work not specifically listed on the Bid Form, but required to perform the work in the bid documents. This work will be considered incidental to the performance of the contract.

- F. No separate payment shall be made to meet the work required in Section 01140 – Easement Special Conditions. Work required in the section shall be included in the unit price bid for which the work pertains.
- G. “Products” shall mean materials or equipment permanently incorporated into the work.

### **1.3 CASH ALLOWANCES**

#### **A. General**

1. The Contractor shall include in the bid total all allowances stated in the contract documents. These allowances shall cover the net cost of the services provided by a firm selected by the Owner and approved by the Engineer in writing. The Contractor’s handling costs, labor, overhead, profit and other expenses contemplated for the original allowance shall be included in the items to which they pertain and not in allowances.
2. No payment will be made for nonproductive time on the part of testing personnel due to the Contractor’s failure to properly coordinate testing activities with the work schedule or the Contractor’s problems with maintaining equipment in good working condition. The Contractor shall make all necessary excavations and shall supply any samples of materials necessary for conducting compaction and density tests.
3. No payment shall be provided for services which fail to verify required results.
4. The soils testing cash allowance, if any, shall apply only to those tests required in Section and 02221 to verify construction quality. Cash allowances shall not be used for exploration or other uses.

- B. Should the net cost be more or less than the specified amount of the allowance, the contract will be adjusted accordingly by change order. The amount of change order will not recognize any changes in handling costs at the site, labor, overhead, profit and other expenses caused by the adjustment to the allowance.

#### **C. Documentation**

1. Submit copies of the invoices with each periodic payment request from the firm providing the services.
2. Submit results of services provided which verify required results.

#### **D. Schedule of Cash Allowances**

None included

### **1.4 TRENCH EXCAVATION AND BACKFILL**

- A. No separate or additional payment will be made for any special or unique method, means, techniques or equipment necessary for the Contractor’s compliance with these

Specifications, regulatory requirements, permits, laws or regulations which govern this project.

- B. Trench Excavation: No separate payment will be made for trench excavation. All costs shall be included in the unit price bid for the item to which it pertains at the appropriate depth.
- C. Sheeting, Bracing and Shoring: No separate payment will be made for providing sheeting, bracing and shoring.
- D. Rock Excavation
1. Rock excavation shall be paid for as an extra in addition to payment for pipe or other items provided elsewhere in these specifications. Payment will be made for the measured quantity of rock excavated, at the sum of the unit prices for base cost and premium cost.
  2. The unit price for base cost is for the normally anticipated cost of rock excavation for work performed under Section 02221, the cost of additional bedding and backfill material as specified shall be included in the unit price bid.
  3. The maximum allowable volume of rock excavation for payment shall be based on a trench width equal to the outside diameter of the pipe barrel plus 18 inches, but not less than 36 inches, and depth of rock on the pipe centerline, from the top of the rock to the bottom of the rock or the specified bottom of the trench, whichever has the higher elevation.
  4. The Engineer must be given reasonable notice to measure all rock. The Engineer's determination of rock quantities is final.
  5. No allowance shall be made for excavating to extra widths for construction of manholes or other appurtenances, for excavating to sloping sides, or for excavations made necessary by the physical limitations of the Contractor's equipment. Cost of such additional rock excavation shall be included in the unit price bid for the item to which it pertains.
  6. Payment for blasting monitoring shall be made from the "Blasting Monitoring" cash allowance. A fee must be agreed upon by the Engineer prior to the Contractor employing an independent, qualified specialty subcontractor to monitor the blasting. If the Contractor employs the specialty subcontractor prior to the Engineer's approval of the fee, all such costs are subject to non-reimbursement.
- E. Dewatering Excavations: All costs of equipment, labor and materials required for dewatering shall be included in the price bid for the item to which it pertains. No additional payments will be made for dewatering, including well-point systems.
- F. Trench Foundation and Stabilization

---

**MEASUREMENT AND PAYMENT**

1. No payment for trench stabilization shall be authorized until after the trench has been dewatered. If the pipe is installed in an inadequately prepared trench bottom, the Engineer shall notify the Contractor in writing of the deficiency and will not authorize payment for that portion of that length of pipe which was improperly installed.
2. Payment for trench stabilization shall be made on the basis of the amount authorized and the unit price bid for trench stabilization. Payment shall include all costs for the removal and disposal of the unsuitable material and replacement with crushed stone. No additional payment will be made for material required for specified bedding.

**G. Bedding and Haunching**

1. The unit price bid for pipe for gravity sewer mains shall include excavation of the trench to the depth below the pipe necessary to provide specified bedding and to lay the pipe.
2. No separate payment will be made for labor and material used to provide specified bedding. The cost of all bedding materials shall be included in the unit price bid for the item to which it relates, except for trench stabilization.
3. No additional payment will be made for improved bedding required to compensate for over-excavation of the trench.

**H. Initial Backfill**

1. No separate payment shall be made for initial backfill.
2. No separate payment shall be made for drying out the initial backfill material in order to meet the compaction requirements.
3. No separate payment shall be made for the adding of moisture to the initial backfill materials in order to meet the compaction requirements.
4. Payment for providing select material for backfilling will be made only if ordered by the Engineer. Select backfill will be ordered by the Engineer only if the in-situ material does not meet the requirements for initial backfill for reasons other than moisture content, i.e., the backfill material contains rock larger than that specified, organics, cinders, stumps, limbs, frozen earth or mud, man-made wastes or other unsuitable materials. No payment will be made for select backfill acquired from the project site. Payment will be made only for select backfill which is imported to the project site.

**I. Final Backfilling**

1. No additional payment will be made for additional material when excavated materials are used.

---

**MEASUREMENT AND PAYMENT**

2. No separate payment shall be made for drying out the final backfill material in order to meet the compaction requirements.
3. No separate payment shall be made for the adding of moisture to the final backfill materials in order to meet the compaction requirements.
4. Payment for providing select material for backfilling will be made only if ordered by the Engineer. Select backfill will be ordered by the Engineer only if the in-situ material does not meet the requirements for final backfill for reasons other than moisture content, i.e., the backfill material contains rock larger than specified, organics, cinders, stumps, limbs, frozen earth or mud, man-made wastes or other unsuitable materials. No payment will be made for select backfill acquired from the project site. Payment will be made only for select backfill which is imported to the project site.

**1.5 REMOVING AND REPLACING PAVEMENT**

- A. Payment for removing and replacing pavement will be made as a separate item based on the measured quantity replaced at the unit price in the bid. The unit price bid shall include all costs associated with removing and replacing pavement, including providing select backfill if necessary, traffic control and temporary measures for maintaining traffic.
- B. Payment shall be made only for that length for which the pipeline is constructed within three feet of the edge of the pavement as shown on the drawings. The measured width of the removal and replacement of the pavement shall not exceed three feet.
- C. The Owner shall be responsible for payment of soils and concrete testing. The contractor shall pay for failed tests.
- D. No additional payment will be made for removing and replacing damaged adjacent pavement.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. Construction staking shall include all of the surveying work required to layout the work and control the location of the finished project. The Contractor shall have the full responsibility for constructing the project to the correct horizontal and vertical alignment, as shown on the drawings, as specified, or as ordered by the Engineer. The Contractor shall assume all costs associated with rectifying work constructed in the wrong location.
- B. From the information shown on the drawings and the information to be provided as indicated under project conditions below, the Contractor shall:
  - 1. Be responsible for setting reference points and/or offsets, establishment of baselines and all other layout, staking, and all other surveying required for the construction of the project.
  - 2. Safeguard all reference points, stakes, grade marks, horizontal and vertical control points, and shall bear the cost of re-establishing same if disturbed.
  - 3. Stake out the permanent and temporary easements or the limits of construction to ensure that the work is not deviating from the indicated limits.
  - 4. Be responsible for all damage done to reference points, baselines, center lines and temporary bench marks, and shall be responsible for the cost of re-establishment of reference points, baselines, center lines and temporary bench marks as a result of the operations.
- C. Baselines shall be defined as the line to which the location of the work is referenced; i.e., edge of pavement, road centerline, property line, right-of-way or survey line.
- D. Record drawing surveys shall be performed in accordance with Section 01720 of these specifications.

**1.2 PROJECT CONDITIONS**

- A. The drawings provide the location and/or coordinates of principal components of the project. The alignment of some components of the project may be indicated in the specifications. The Engineer may order changes to the location of some of the components of the project or provide clarification to questions regarding the correct alignment.
- B. The Owner's Surveyor will provide the following:
  - 1. Vertical control points, with elevation, as shown on the plans.
  - 2. Horizontal control points, with coordinates, as shown on the plans.

**1.3 QUALITY ASSURANCE**

- A. The level of detail of survey required shall be that from which the correct location of the pipeline or appurtenances can be established for the construction and verified by the Engineer.
- B. Any deviations from the drawings shall be confirmed by the Engineer prior to construction of that portion of the project.

**PART 2 - PRODUCTS**

The contractor shall provide all equipment and field supplies, including but not limited to, stakes, hubs, PK nails, flagging, paint, etc. necessary to perform construction staking.

**PART 3 - EXECUTION**

**3.1 STAKING PRECISION**

The precision of construction staking required shall be that from which the correct location and elevation of the water line, gravity sanitary sewer or sanitary sewer force main can be established for construction and verified by the Engineer. Where the location of components of the gravity sanitary sewer, (e.g. fittings, road crossings, manholes) are not dimensioned, the establishment of the location of these components shall be based upon scaling these locations from the drawings with relation to survey reference points.

**3.2 REFERENCE POINTS**

- A. Reference points shall be placed, at or no more than three feet from the outside of the construction easement or right-of-way. The location of the reference points shall be recorded in a log with a copy provided to the Engineer for use, prior to verifying reference point locations. Distances shall be accurately measured to 0.01 foot.
- B. The Contractor shall give the Engineer reasonable notice that reference points are set. The reference point locations must be verified by the Engineer prior to commencing clearing and grubbing operations.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

A. Permits and Responsibilities

The Contractor shall, at no additional cost to the Owner, be responsible for obtaining all necessary licenses and permits, including building permits and land disturbance permits, and for complying with any applicable federal, state, county and municipal laws, ordinances, codes and regulations, in connection with the performance of the work.

B. The Contractor shall take proper safety and health precautions to protect the work, the workers, the public and the property of others.

C. Prior to commencing any work, the Contractor shall submit a job-specific Health and Safety Plan to the Owner for their records.

D. Contractor shall provide inspection of sediment and erosion control measures required by the NPDES General Permit for Stormwater Discharges, SCR10000, and as described in the Stormwater Pollution Prevention Plan for the project. The Contractor shall be listed as a co-permittee in the Notice of Intent for coverage under the permit and shall sign the required certification for co-permittees.

E. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the work.

F. The Contractor shall post a copy of the construction permit in a conspicuous location on site.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Whenever reference is made to conforming to the standards of any technical society, organization, body, code or standard, it shall be construed to mean the latest standard, code, or specification adopted and published at the time of advertisement for bids. This shall include the furnishing of materials, testing of materials, fabrication and installation practices. In those cases where the Contractor's quality standards establish more stringent quality requirements, the more stringent requirement shall prevail. Such standards are made a part hereof to the extent which is indicated or intended.
- B. The inclusion of an organization under one category does not preclude that organization's standards from applying to another category.
- C. In addition, all work shall comply with the applicable requirements of local codes, utilities and other authorities having jurisdiction.
- D. All material and equipment for which a UL Standard, an AGA or NSF approval, or an ASME requirement is established, shall be so approved and labeled or stamped. The label or stamp shall be conspicuous and not covered, painted, or otherwise obscured from visual inspection.
- E. The standards which apply to this project are not necessarily restricted to those organizations which are listed in Article 1.02.

**1.2 STANDARD ORGANIZATIONS**

A. Piping and Valves

ACPA	American Concrete Pipe Association
ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
AWWA	American Water Works Association
CISPI	Cast Iron Soil Pipe Institute
DIPRA	Ductile Iron Pipe Research Association
FCI	Fluid Controls Institute
MSS	Manufacturers Standardization Society
NCPI	National Clay Pipe Institute
NSF	National Sanitation Foundation
PPI	Plastic Pipe Institute
	Uni-Bell PVC Pipe Association

B. Materials

AASHTO	American Association of State Highway and Transportation Officials
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials

- C. Painting and Surface Preparation
  - NACE National Association of Corrosion Engineers
  - SSPC Steel Structures Painting Council
  
- D. Aluminum
  - AA Aluminum Association
  - AAMA American Architectural Manufacturers Association
  
- E. Steel and Concrete
  - ACI American Concrete Institute
  - AISC American Institute of Steel Construction, Inc.
  - AISI American Iron and Steel Institute
  - CRSI Concrete Reinforcing Steel Institute
  - NRMA National Ready-Mix Association
  - PCA Portland Cement Association
  - PCI Prestressed Concrete Institute
  
- F. Welding
  - ASME American Society of Mechanical Engineers
  - AWS American Welding Society
  
- G. Government and Technical Organizations
  - AIA American Institute of Architecture
  - APHA American Public Health Association
  - APWA American Public Works Association
  - ASA American Standards Association
  - ASAE American Society of Agricultural Engineers
  - ASCE American Society of Civil Engineers
  - ASQC American Society of Quality Control
  - ASSE American Society of Sanitary Engineers
  - CFR Code of Federal Regulations
  - CSI Construction Specifications Institute
  - EDA Economic Development Administration
  - EPA Environmental Protection Agency
  - FCC Federal Communications Commission
  - FmHA Farmers Home Administration
  - FS Federal Specifications
  - IAI International Association of Identification
  - ISEA Industrial Safety Equipment Association
  - ISO International Organization for Standardization
  - ITE Institute of Traffic Engineers
  - NBFU National Board of Fire Underwriters
  - (NFPA) National Fluid Power Association
  - NBS National Bureau of Standards
  - NISO National Information Standards Organization
  - OSHA Occupational Safety and Health Administration
  - SI Salt Institute

SPI	The Society of the Plastics Industry, Inc.
USDC	United States Department of Commerce
WEF	Water Environment Federation

H. Roadways

AREA	American Railway Engineering Association
DOT	Department of Transportation
SSRBC	Standard Specifications for Construction of Transportation Systems, Georgia Department of Transportation

I. Plumbing

AGA	American Gas Association
NSF	National Sanitation Foundation
PDI	Plumbing Drainage Institute
SPC	SBCC Standard Plumbing Code

**1.3 SYMBOLS**

Symbols and material legends shall be as scheduled on the drawings.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. Work under this section includes all scheduling and administration of pre-construction and progress meetings as herein specified and necessary for the proper and complete performance of this work.
- B. Scheduling and Administration by Engineer/Owner:
  - 1. Prepare agenda.
  - 2. Make physical arrangements for the meetings.
  - 3. Preside at meetings.
  - 4. Record minutes and include significant proceedings and decisions.
  - 5. Distribute copies of the minutes to participants.

**1.2 PRE-CONSTRUCTION CONFERENCE**

- A. The Engineer shall schedule the pre-construction conference prior to the issuance of the Notice to Proceed.
- B. Representatives of the following parties are to be in attendance at the meeting:
  - 1. Owner
  - 2. Engineer
  - 3. Contractor and superintendent
  - 4. Major subcontractors
  - 5. Representatives of governmental or regulatory agencies when appropriate
- C. The agenda for the pre-construction conference shall consist of the following as a minimum:
  - 1. Distribute and discuss a list of major subcontractors and a tentative construction schedule.
  - 2. Critical work sequencing.
  - 3. Designation of responsible personnel and emergency telephone numbers.
  - 4. Processing of field decisions and change orders.
  - 5. Adequacy of distribution of contract documents.

6. Schedule and submittal of shop drawings, product data and samples.
7. Pay request format, submittal cutoff date, pay date and retainage.
8. Procedures for maintaining record documents.
9. Use of premises, including office and storage areas and owner's requirements.
10. Major equipment deliveries and priorities.
11. Safety and first aid procedures.
12. Security procedures.
13. Housekeeping procedures.
14. Work hours.

**1.3 PROJECT COORDINATION MEETINGS**

- A. Schedule regular monthly meetings as directed by the Engineer.
- B. Hold called meetings as the progress of the work dictates.
- C. The meetings shall be held at the location indicated by the Engineer.
- D. Representatives of the following parties are to be in attendance at the meetings:
  1. Engineer
  2. Contractor and superintendent
  3. Major subcontractors as pertinent to the agenda
  4. Owner's representative as appropriate
  5. Representatives of governmental or other regulatory agencies as appropriate
- E. The minimum agenda for progress meetings shall consist of the following.
  1. Review and approve minutes of previous meetings.
  2. Review work progress since last meeting.
  3. Note field observations, problems and decisions.
  4. Identify problems which impede planned progress.
  5. Review off-site fabrication problems.

---

**Section 01200**  
**PROJECT MEETINGS**

6. Review Contractor's corrective measures and procedures to regain planned schedule.
7. Review Contractor's revision to the construction schedule.
8. Review submittal schedule; expedite as required to maintain schedule.
9. Maintenance of quality and work standards.
10. Review changes proposed by Owner for their effect on the construction schedule and completion date.
11. Complete other current business.

**END OF SECTION**

**PART 1 - GENERAL****1.1 SCOPE**

- A. The work under this section includes submittal to the Engineer of shop drawings, product data and samples required by the various sections of these specifications.
- B. Submittal Contents: The submittal contents required are specified in each section.
- C. Definitions: Submittals are categorized as follows:
  - 1. Shop Drawings
    - a. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instruction, measurements and similar information as applicable to the specific item for which the shop drawing is prepared.
    - b. Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated) or appropriate number of prints hereof, with name or preparer (firm name) indicated. The contract drawings shall not be traced or reproduced by any method for use as or in lieu of detail shop drawings. Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards and special coordination requirements. Do not allow shop drawing copies without appropriate final "Action" markings by the Engineer to be used in connection with the work.
    - c. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail, specification section, schedule or room numbers shown on the Contract Drawings.
    - d. Minimum assembly drawings sheet size shall be 24 x 36-inches.
    - e. Minimum detail sheet size shall be 8-1/2 x 11-inches.
    - f. Minimum Scale:
      - 1) Assembly Drawings Sheet, Scale: 1 - inch = 30 feet.
      - 2) Detail Sheet, Scale: 1/4 - inch = 1 foot.
  - 2. Product Data
    - a. Product data include standard printed information on materials, products and systems not specially prepared for this project, other than the designation of selections from among available choices printed therein.

---

**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- b. Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked and special coordination requirements.
3. Samples
- a. Samples include both fabricated and un-fabricated physical examples of materials, products and units of work, both as complete units and as smaller portions of units of work, either for limited visual inspection or, where indicated, for more detailed testing and analysis.
  - b. Provide units identical with final condition of proposed materials or products for the work. Include "range" samples, not less than three units, where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where the Engineer's selection is required. Prepare samples to match the Engineer's sample where indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the Engineer. Engineer will note "test" samples, except as otherwise indicated for other requirements, which are the exclusive responsibility of the Contractor.
4. Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the work but not processed as shop drawings, product data or samples.

**1.2 SPECIFIC CATEGORY REQUIREMENTS**

- A. General: Except as otherwise indicated in the individual work sections, comply with general requirements specified herein for each indicated category of submittal.
  - 1. Submittals shall contain:
    - a. Three (3) sets of shop drawings, manufacturer's literature, etc. to be retained by the Engineer, plus the number of copies required by the Contractor, Manufacturer, etc.
    - b. The date of submittal and the dates of any previous submittals
    - c. The project title.

**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- d. Numerical submittal numbers, starting with 1.0, 2.0, etc. Revisions to be numbered 1.1, 1.2, etc.
- e. The names of:
  - 1) Contractor
  - 2) Supplier
  - 3) Manufacturer
- f. Identification of the product, with the specification section number, permanent equipment tag numbers and applicable drawing number.
- g. Field dimensions, clearly identified as such.
- h. Relation to adjacent or critical features of the work or materials.
- i. Applicable standards, such as ASTM or federal specification numbers.
- j. Notification to the Engineer in writing, at time of submissions, of any deviations on the submittals from requirements of the contract documents.
- k. Identification of revisions on re-submittals.
- l. An 8 x 3-inch blank space for Contractor and Engineer stamps.
- m. Contractor's stamp, initialed or signed, certifying the review of submittal, verification of products, field measurements and field construction criteria and coordination of the information within the submittal with requirements of the work and of contract documents.
- n. Submittal sheets or drawings showing more than the particular item under consideration shall have all but the pertinent description of the item for which review is requested crossed out.

**1.3 ROUTING OF SUBMITTALS**

- A. Submittals and routing correspondence shall be routed as follows:
  - 1. Supplier to Contractor (through representative if applicable).
  - 2. Contractor to Engineer
  - 3. Engineer to Contractor and Owner
  - 4. Contractor to Supplier

---

**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES****1.4 ADDRESS FOR COMMUNICATIONS**

Engineer: Hulsey McCormick & Wallace, Inc.  
106 Clair Drive  
Piedmont, SC 29673  
(864) 269-0890 FAX (864) 269-9030

**PART 2 - PRODUCTS****2.1 SHOP DRAWINGS**

- A. Unless otherwise specifically directed by the Engineer, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the work.
- B. Submit all shop assembly drawings larger than 11 x 17-inches in the form of one reproducible transparency with two opaque prints or blue lines.
- C. Submit all shop drawings 11 x 17 inches and smaller in the form of six opaque prints or blue lines.
- D. One reproducible for all submittals larger than 11 x 17- inches and no more than three prints of other submittals will be returned to the Contractor.

**2.2 MANUFACTURER'S LITERATURE**

- A. Where content of submitted literature from manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being submitted for the Engineer's review.
- B. Submit the number of copies which are required to be returned (not to exceed three) plus three copies which will be retained by the Engineer.

**2.3 SAMPLES**

- A. Samples shall illustrate materials, equipment or workmanship and established standards by which completed work is judged.
- B. Unless otherwise specifically directed by the Engineer, all samples shall be of the precise article proposed to be furnished.
- C. Submit all samples in the quantity which is required to be returned plus one sample which will be retained by the Engineer.

**2.4 COLORS**

- A. Unless the precise color and pattern is specifically described in the contract documents, wherever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the Engineer for review and selection.

---

**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- B. Unless all available colors and patterns have identical costs and identical wearing capabilities, and are identically suited to the installation, completely describe the relative costs and capabilities of each.

**2.5 OPERATION, MAINTENANCE AND SERVICE MANUALS**

- A. Prepare and submit for the Owner's use two (2) copies of O&M Manual for each piece of equipment.
  - 1. Submit Manuals 60 days prior to delivery of equipment.
- B. Manuals shall be specific to the equipment supplied.
  - 1. Manuals applicable to many different configurations and which require the operator to selectively read portions of the instructions will not be accepted.
  - 2. The equipment model that the Manual applies to shall be indicated by an arrow.
- C. Provide a Table of Contents specific to each Manual.
- D. At the beginning of each Manual, provide a description of the equipment to include model numbers, purchase order numbers, serial numbers, motor information, and performance and design criteria.
- E. Correlate Manuals with the approved shop drawings and include the following minimum information:
  - 1. Parts list, including recommended spare parts list.
  - 2. Guarantees.
  - 3. Recommended maintenance instructions.
  - 4. Recommended lubricants and lubrication instructions.
  - 5. Address and telephone number of the source for repairs, spare parts and service.
  - 6. Detailed description of operating procedure for the item of equipment specifically written for this installation, including start-up and shut-down procedures.
  - 7. Equipment performance specifications, including pump curves.
  - 8. Results of start-up and any further recommendations resulting from start-up.
  - 9. Current cost for each recommended spare part and agreement to provide updated costs at Owner's request.
- F. Provide a maintenance and lubrication schedule to be a summary of all preventative maintenance and lubrication, including the following information:

---

**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

1. Title.
  2. Type of activity (inspection, adjustment, oil change, etc.).
  3. Brief description of activity.
  4. Type of lubricant.
  5. Frequency (daily, weekly, etc.).
- G. The manufacturer shall provide the Owner with a log chart to record all servicing and maintenance required during the equipment warranty period.
- H. For process oriented equipment, treatment plants, etc., provide a detailed description of the process operation and trouble-shooting of problems.
- I. Provide clear and legible copies. Type parts lists, etc.
- J. Layout and detail drawings shall be reduced to a maximum size of 11" x 17", unless written approval is received from the Engineer prior to submittal of Manuals.
- K. Provide a clearly labeled three-ring binder for Manuals having a thickness greater than 1/2". Provide sheet lifters if binder is more than 1/2 full.
1. Provide multiple binders for Manuals having a thickness greater than 2".

**PART 3 - EXECUTION****3.1 CONTRACTOR'S COORDINATION OF SUBMITTALS**

- A. Prior to submittal for the Engineer's review, the Contractor shall use all means necessary to fully coordinate all material, including the following procedures:
1. Determine and verify all field dimensions and conditions, catalog numbers and similar data.
  2. Coordinate as required with all trades and all public agencies involved.
  3. Submit a written statement of review and compliance with the requirements of all applicable technical Specifications as well as the requirements of this section.
  4. Clearly indicate in a letter or memorandum on the manufacturer's or fabricator's letterhead, all deviations from the contract documents.
- B. Each and every copy of the shop drawings and data shall bear the Contractor's stamp showing that they have been so checked. Shop drawing submittal to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement.

---

**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- C. The Owner may back charge the Contractor for costs associated with having to review a particular shop drawing, product data or sample more than two times to receive a “No Exceptions Taken” mark.
- D. Grouping of Submittals
  - 1. Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items.
  - 2. No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the Contractor’s responsibility to assemble the shop drawings for all such interconnecting and/or interdependent items, check them, and then make one submittal to the Engineer along with Contractor’s comments as to compliance, non-compliance or features requiring special attention.
- E. Schedule of Submittals: Within 30 days of contract award and prior to any shop drawing submittal, the Contractor shall submit a schedule showing the estimated date of submittal and the desired approval date for each shop drawing anticipated. A reasonable period shall be scheduled for review and comments. Time lost due to unacceptable submittals shall be the Contractor’s responsibility and some time allowance for re-submittal shall be provided. The schedule shall provide for submittal of items which relate to one another to be submitted concurrently.

**3.2 TIMING OF SUBMITTALS**

- A. Engineer Review
  - 1. Allow a minimum of 30 days for the Engineer’s initial processing of each submittal requiring review and response, except allow longer periods where processing must be delayed for coordination with subsequent submittals. The Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the Engineer on each submittal as to whether processing time is critical to progress of the Work, and therefore the work would be expedited if processing time could be foreshortened.
  - 2. Acceptable submittals will be marked “No Exceptions Taken”. A minimum of three (3) copies will be retained by the Engineer for Engineer’s and the Owner’s use and the remaining copies will be returned to the Contractor.
  - 3. Submittals requiring minor corrections before the product is acceptable will be marked “Make Corrections Noted”. The Contractor may order, fabricate and ship the items included in the submittals, provided the indicated corrections are made. Drawings must be resubmitted for review and marked “No Exceptions Taken” prior to installation or use of products.
  - 4. Submittals marked “Revise and Resubmit” must be revised to reflect required changes and the initial review procedure repeated.

---

**SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

5. The "Rejected" notation is used to indicate products which are not acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial review procedure utilizing acceptable products.
  6. Only two copies of items marked "Revise and Resubmit" and "Rejected" will be reviewed and marked. One copy will be retained by the Engineer and the other copy with all remaining unmarked copies will be returned to the Contractor for re-submittal.
- B. No work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" notation. The Contractor shall maintain at the job site a complete set of shop drawings bearing the Engineer's stamp.
- C. Substitutions: In the event the Contractor obtains the Engineer's approval for the use of products other than those which are listed first in the contract documents, the Contractor shall, at the Contractor's own expense and using methods approved by the Engineer, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.
- D. Use of the "No Exceptions Taken" notation on shop drawings or other submittals is general and shall not relieve the Contractor of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the contract documents. The Engineer's review shall not relieve the Contractor of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the project and compliance with the information given in the contract documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. The Contractor is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the work of all trades.

**3.3 RESUBMISSION REQUIREMENTS**

- A. Shop Drawings
1. Revise initial drawings as required and resubmit as specified for initial submittal, with the re-submittal number shown.
  2. Indicate on drawings all changes which have been made other than those requested by the Engineer.
- B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal, with re-submittal number shown.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. This section includes testing which the Owner may require, beyond that testing required of the manufacturer, to determine if materials provided for the project meet the requirements of these specifications.
- B. This work also includes all testing required by the Owner to verify work performed by the Contractor is in accordance with the requirements of these specifications, i.e., concrete strength and slump testing, soil compaction, etc.
- C. This work does not include materials testing required in various sections of these specifications to be performed by the manufacturer, e.g., testing of pipe.
- D. The testing laboratory or laboratories will be selected by the Owner and will work for the Owner.

**1.2 PAYMENT FOR TESTING SERVICES**

- A. The cost of testing services required by the contract shall be paid for by the Owner; i.e., concrete testing, soil compaction, and asphalt testing, etc.
- B. The cost of additional testing services not specifically required in the specifications, but requested by the Owner or Engineer, shall be paid for by the Owner.
- C. The cost of material testing described in various sections of these specifications or as required in referenced standards to be provided by a material manufacturer, shall be included in the price bid for that item and shall not be paid for by the Owner.
- D. The cost of retesting any item that fails to meet the requirements of these specifications shall be paid for by the Contractor. Retesting shall be performed by the testing laboratory working for the Owner.

**1.3 LABORATORY DUTIES**

- A. Cooperate with the Owner, Engineer and Contractor.
- B. Provide qualified personnel promptly on notice.
- C. Perform specified inspections, sampling and testing of materials.
  - 1. Comply with specified standards, ASTM, other recognized authorities, and as specified.
  - 2. Ascertain compliance with requirements of the contract documents.
- D. Promptly notify the Engineer and Contractor of irregularity or deficiency of work which are observed during performance of services.

**TESTING LABORATORY SERVICES**

- E. Promptly submit three copies (two copies to the Engineer and one copy to the Contractor) of report of inspections and tests in addition to those additional copies required by the Contractor with the following information included:
  - 1. Date issued
  - 2. Project title and number
  - 3. Testing Laboratory name and address
  - 4. Name and signature of inspector
  - 5. Date of inspection or sampling
  - 6. Record of temperature and weather
  - 7. Date of test
  - 8. Identification of product and Specification section
  - 9. Location of Project
  - 10. Type of inspection or test
  - 11. Results of test
  - 12. Observation regarding compliance with the contract documents
- F. Perform additional services as required.
- G. The laboratory is not authorized to release, revoke, alter or enlarge on requirements of the contract documents, or approve or accept any portion of the work.

**1.4 CONTRACTOR RESPONSIBILITIES**

- A. Cooperate with laboratory personnel; provide access to work and/or manufacturer's requirements.
- B. Provide to the laboratory, representative samples, in required quantities, of materials to be tested.
- C. Furnish copies of mill test reports.
- D. Furnish required labor and facilities to:
  - 1. Obtain and handle samples at the site;
  - 2. Facilitate inspections and tests;

**TESTING LABORATORY SERVICES**

3. Build or furnish a holding box for concrete cylinders or other samples as required by the laboratory.
- E. Notify the laboratory sufficiently in advance of operation to allow for the assignment of personnel and schedules of tests.
- F. Laboratory Tests: Where such inspection and testing are to be conducted by an independent laboratory agency, the sample(s) shall be selected by such laboratory or agency, or the Engineer, and shipped to the laboratory by the Contractor at Contractor's expense.
- G. Copies of all correspondence between the Contractor and testing agencies shall be provided to the Engineer.

**1.5 QUALITY ASSURANCE**

Testing shall be in accordance with all pertinent codes and regulations and with procedures and requirements of the American Society for Testing and Materials (ASTM).

**1.6 PRODUCT HANDLING**

Promptly process and distribute all required copies of test reports and related instructions to insure all necessary retesting or replacement of materials with the least possible delay in the progress of the work.

**1.7 FURNISHING MATERIALS**

The Contractor shall be responsible for furnishing all materials necessary for testing.

**1.8 CODE COMPLIANCE TESTING**

Inspections and tests required by codes or ordinances or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of, and shall be paid for by the Contractor, unless otherwise provided in the contract documents.

**1.9 CONTRACTOR'S CONVENIENCE TESTING**

Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor and at the Contractor's expense.

**1.10 TESTING SCHEDULE**

- A. Establishing Schedule
  1. The Contractor shall, by advance discussion with the testing laboratory, determine the time required for the laboratory to perform its tests and to issue each of its findings, and make all arrangements for the testing laboratory to be on site to provide the required testing.
  2. Provide all required time within the construction schedule.

---

**Section 01410**  
**TESTING LABORATORY SERVICES**

- B. When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.
- C. When the testing laboratory is ready to test according to the determined schedule, but is prevented from testing or taking specimens due to incompleteness of the work, all extra costs for testing attributable to the delay will be back-charged to the Contractor and shall not be borne by the Owner.

**1.11 SAMPLING SPECIMENS**

Unless otherwise indicated in the contract documents, all specimens and samples for tests will be sampled by the testing laboratory or the Engineer.

**1.12 TRANSPORTING SAMPLES**

The Contractor shall be responsible for transporting all samples, except those taken by testing laboratory personnel, to the testing laboratory.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. Temporary facilities required for this work include, but are not necessarily limited to:
  - 1. Temporary utilities such as water and electricity
  - 2. First aid facilities
  - 3. Sanitary facilities
  - 4. Potable water
  - 5. Temporary enclosures and construction facilities

**1.2 GENERAL**

- A. First aid facilities, sanitary facilities and potable water shall be available on the project site on the first day that any activities are conducted on site. The other facilities shall be provided as the schedule of the project warrants.
- B. Maintenance: Use all means necessary to maintain temporary facilities in proper and safe condition throughout progress of the work. In the event of loss or damage, immediately make all repairs and replacements necessary, at no additional cost to the Owner.
- C. Removal: Remove all such temporary facilities and controls as rapidly as progress of the work will permit.
- D. Contractor shall maintain access to Owner's facilities during the course of construction. Any temporary closing of Owner access shall be coordinated with the Owner's schedule.

**1.3 TEMPORARY UTILITIES**

- A. General
  - 1. Provide and pay all costs for all water, electricity and other utilities required for the performance of the work.
  - 2. Pay all costs for temporary utilities until project completion.
  - 3. Costs for temporary utilities shall include all power, water, and the like, necessary for testing equipment as required by the contract documents.
- B. Temporary Water: Provide all necessary temporary piping, and upon completion of the work, remove all such temporary piping. Provide and remove water meters.
- C. Temporary Electricity
  - 1. Provide all necessary wiring for the Contractor's use.

2. Furnish, locate and install area distribution boxes such that the individual trades may use their own construction type extension cords to obtain adequate power, and artificial lighting at all points where required by inspectors and for safety.

**1.4 FIRST AID FACILITIES**

The contractor shall provide a suitable first aid station, equipped with all facilities and medical supplies necessary to administer emergency first aid treatment. The Contractor shall have standing arrangements for the removal and hospital treatment of any injured person. All first aid facilities and emergency ambulance service shall be made available by the Contractor to the Owner and the Engineer's personnel.

**1.5 SANITARY FACILITIES**

Prior to starting the work, the Contractor shall furnish, for use of Contractor's personnel on the job, all necessary toilet facilities which shall be secluded from public observation. These facilities shall be either chemical toilets or shall be connected to the Owner's sanitary sewer system. All facilities, regardless of type, shall be kept in a clean and sanitary condition and shall comply with the requirements and regulations of the area in which the work is performed. Adequacy of these facilities will be subject to the Engineer's review and maintenance of same must be satisfactory to the Engineer at all times.

**1.6 POTABLE WATER**

The Contractor shall be responsible for furnishing a supply of potable drinking water for employees, subcontractors, inspectors, engineers, the Owner, and others who are associated with the work.

**1.7 ENCLOSURES AND CONSTRUCTION FACILITIES**

Furnish, install and maintain for the duration of construction, all required scaffolds, tarpaulins, canopies, steps, bridges, platforms and other temporary construction necessary for proper completion of the Work in compliance with all pertinent safety and other regulations.

**1.8 PARKING FACILITIES**

Parking facilities for the Contractor's and Contractor's subcontractors' personnel shall be the Contractor's responsibility. The storage and work facilities provided by the Owner will not be used for parking by the Contractor's or subcontractor's personnel.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 BARRICADES, LIGHTS AND SIGNALS**

- A. The Contractor shall furnish and erect such barricades, fences, lights and danger signals and shall provide such other precautionary measures for the protection of persons or property and of the work as necessary. Barricades shall be painted in a color that will be visible at night. From sunset to sunrise, the Contractor shall furnish and maintain at least one light at each barricade and sufficient numbers of barricades shall be erected to keep vehicles from being driven on or into any work under construction.
  
- B. The Contractor will be held responsible for all damage to the work due to failure of barricades, signs and lights. Whenever evidence is found of such damage, the Contractor shall immediately remove the damaged portion and replace it at Contractor's cost and expense. The Contractor's responsibility for the maintenance of barricades, signs and lights shall not cease until the project has been accepted by the Owner.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

Limit blowing dust caused by construction operations by applying water or employing other appropriate means or methods to maintain dust control, subject to the approval of the Owner. At a minimum, this may require the use of a water wagon twice a day to suppress dusty conditions.

**1.2 PROTECTION OF ADJACENT PROPERTY**

- A. The bidders shall visit the site and note the buildings, landscaping, roads, parking areas, environmentally sensitive areas and other facilities near the work site that may be damaged by their operations. The Contractor shall make adequate provision to fully protect the surrounding area and will be held fully responsible for all damages resulting from Contractor's operations.
- B. Protect all existing facilities (indoors or out) from damage by dust, fumes, spray or spills (indoors or out). Protect motors, bearings, electrical gear, instrumentation and building or other surfaces from dirt, dust, welding fumes, paint spray, spills or droppings causing wear, corrosion, malfunction, failure or defacement by enclosure, sprinkling or other dust palliatives, masking and covering, exhausting or containment.

**END OF SECTION**

**PART 1 - GENERAL****1.1 SCOPE**

- A. The Contractor shall provide transportation of all equipment, materials and products furnished under these contract documents to the work site. In addition, the Contractor shall provide preparation for shipment, loading, unloading, handling and preparation for installation and all other work and incidental items necessary or convenient to the Contractor for the satisfactory prosecution and completion of the work.
- B. All equipment, materials and products damaged during transportation or handling shall be repaired or replaced by the Contractor at no additional cost to the Owner prior to being incorporated into the work.

**1.2 TRANSPORTATION**

- A. All equipment shall be suitably boxed, crated or otherwise protected during transportation.
- B. Where equipment will be installed using existing cranes or hoisting equipment, the Contractor shall ensure that the weights of the assembled sections do not exceed the capacity of the cranes or hoisting equipment.
- C. Small items and appurtenances such as gauges, valves, switches, instruments and probes which could be damaged during shipment shall be removed from the equipment prior to shipment, packaged and shipped separately. All openings shall be plugged or sealed to prevent the entrance of water or dirt.

**1.3 HANDLING**

- A. All equipment, materials and products shall be carefully handled to prevent damage or excessive deflections during unloading or transportation.
- B. Lifting and handling drawings and instructions furnished by the manufacturer or supplier shall be strictly followed. Eyebolts or lifting lugs furnished on the equipment shall be used in handling the equipment. Shafts and operating mechanisms shall not be used as lifting points. Spreader bars or lifting beams shall be used when the distance between lifting points exceeds that permitted by standard industry practice.
- C. Under no circumstances shall equipment or products such as pipe, structural steel, castings, reinforcement, lumber, piles, poles, etc., be thrown or rolled off of trucks onto the ground.
- D. Slings and chains shall be padded as required to prevent damage to protective coatings and finishes.

**1.4 OWNER FURNISHED EQUIPMENT**

- A. Owner furnished equipment, if any, shall mean any Owner equipment purchased and required by these specifications to be installed by the Contractor.
- B. The Owner shall be responsible for transportation to the site of all Owner furnished equipment.
- C. The Contractor shall off-load and store all Owner furnished equipment per this section of these specifications.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

The work under this section includes, but is not necessarily limited to, the furnishing of all labor, tools and materials necessary to properly store and protect all materials, equipment, products and the like, as necessary for the proper and complete performance of the work.

**1.2 STORAGE AND PROTECTION**

**A. Storage**

1. Maintain ample way for foot traffic at all times, except as otherwise approved by the Engineer.
2. All property damaged by reason of storing of material shall be properly replaced at no additional cost to the Owner.
3. Packaged materials shall be delivered in original unopened containers and so stored until ready for use.
4. All materials shall meet the requirements of these specifications at the time that they are used in the work.
5. Store products in accordance with manufacturer's instructions.

**B. Protection**

1. Use all means necessary to protect the materials, equipment and products of every section before, during and after installation and to protect the installed work and materials of all other trades.
2. All materials shall be delivered, stored and handled to prevent the inclusion of foreign materials and damage by water, breakage, vandalism or other causes.
3. Substantially constructed weather tight storage sheds, with raised floors, shall be provided and maintained as may be required to adequately protect those materials and products stored on the Site which may require protection from damage by the elements.

**C. Replacements:** In the event of damage, immediately make all repairs and replacements necessary for the approval of the Engineer and at no additional cost to the Owner.

**D. Equipment and products stored outdoors** shall be supported above the ground on suitable wooden blocks or braces arranged to prevent excessive deflection or bending between supports. Items such as pipe, structural steel and sheet construction products shall be stored with one end elevated to facilitate drainage.

- E. Unless otherwise permitted in writing by the Engineer, building products and materials such as cement, grout, plaster, gypsum board, particleboard, resilient flooring, acoustical tile, paneling, finish lumber, insulation, wiring, etc., shall be stored indoors in a dry location. Building products such as rough lumber, plywood, concrete block and structural tile may be stored outdoors under a properly secured waterproof covering.
- F. Tarps and other coverings shall be supported above the stored equipment or materials on wooden strips to provide ventilation under the cover and minimize condensation. Tarps and covers shall be arranged to prevent ponding of water.

**1.3 EXTENDED STORAGE**

In the event that certain items of major equipment such as air compressors, pumps and mechanical aerators have to be stored for an extended period of time, the Contractor shall provide satisfactory long-term storage facilities which are acceptable to the Engineer. The Contractor shall provide all special packaging, protective coatings, power, nitrogen purge, desiccants, lubricants and exercising necessary or recommended by the manufacturer to properly maintain and protect the equipment during the period of extended storage.

**1.4 OWNER FURNISHED EQUIPMENT**

The Contractor shall provide storage and protection for all Owner furnished equipment and materials, including extended storage as specified above.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work included shall be providing compliance with the requirements of the Standard General Conditions and Supplementary Conditions Of these Specifications for administrative procedures in closing out the project work.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Other requirements for technical services are stated in other sections of these Specifications.
  - 3. Section 00625 - Certificate of Substantial Completion.
  - 4. Section 01720 - Project Record Documents.
  - 5. Section 01016 - Occupancy

**1.2 SUBSTANTIAL COMPLETION**

- A. The Contractor shall notify the Engineer that, in his opinion, the project is substantially complete. A written statement listing items complete shall be submitted.
- B. Upon receipt of the Contractor's notice, the Engineer shall make an observation to determine if substantial completion is provided.
- C. If, in the Engineer's opinion, the project is not substantially complete, a written notice to the Contractor shall follow outlining reasons and deficiencies in work which comprised his decision. The Engineer's decision shall be final.
- D. Generally, substantial completion shall be defined as units or facilities properly functioning as designed.

**1.3 FINAL OBSERVATION**

- A. The Engineer will make a final observation for the Contractor after any and all items noted in the substantial completion observation have been corrected. The Contractor shall notify the Engineer in writing when a final observation is needed. Incomplete and/or defective work shall be given to the Contractor by written notice.

**1.4 REOBSERVATION**

- A. Re-observation required due to failure by the Contractor to make previously noted corrections will be performed by the Engineer.

- B. Cost for such observations will be due to and payable by the Contractor at a rate equal to charges to the Owner for similar work.
- C. Re-observations will continue until the work is acceptable to the Engineer.

**1.5 COMPLETION BY CONTRACTOR**

- A. When the Engineer finds the Contractor's work acceptable, the Contractor shall be given such notice and should proceed with closeout submittals.
- B. Closeout submittals shall contain at least the following:
  - 1. Project record documents.
  - 2. Equipment operation and maintenance manuals and copies of start-up reports.
  - 3. Warranties and bonds.
  - 4. Spare parts and manuals.
  - 5. Evidence of payment and release to liens per General Conditions.

**1.6 FINAL PAYMENT**

- A. Final payment to the Contractor will be made upon completion of the previous items and others required by these specifications. A final statement shall be forwarded to the Engineer. The statement shall address:
  - 1. Previous change orders.
  - 2. Unit prices.
  - 3. Deductions for uncorrected work.
  - 4. Deductions for liquidated damages.
  - 5. Deductions for re-testing work.
  - 6. Deductions for re-observation.
  - 7. Deductions for shop drawing review.
  - 8. Adjusted contract sum.
  - 9. Previous payments.
  - 10. Amount due.
- B. When required, the Engineer will prepare a contract change order for adjustments not previously made.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SCOPE**

This section covers the general cleaning which the Contractor shall be required to perform both during construction and before final acceptance of the project unless otherwise shown on the drawings or specified elsewhere in these specifications.

**1.2 QUALITY ASSURANCE**

- A. Daily, and more often if necessary, conduct inspections verifying that requirements of cleanliness are being met.
- B. In addition to the standards described in this section, comply with all pertinent requirements of governmental agencies having jurisdiction.

**1.3 HAZARD CONTROL**

- A. The Contractor shall store volatile wastes in covered metal containers and remove from premises daily.
- B. The Contractor shall prevent accumulation of wastes which create hazardous conditions.
- C. Burning or burying rubbish and waste materials on the site shall not be allowed.
- D. Disposal of volatile wastes into sanitary storm sewers shall not be allowed.

**1.4 DISPOSAL OF SURPLUS MATERIALS**

- A. Unless otherwise shown on the drawings, specified or directed, the Contractor shall legally dispose, off the site, all surplus excavated materials and materials and equipment from demolition and shall provide Contractor's own suitable, off-site spoil area, or utilize a site designated by the Owner.
- B. The Owner shall have the opportunity to inspect any removed equipment or materials prior to disposal by the Contractor. If said equipment and/or materials are determined to be salvageable by the Owner, the Contractor shall transport said equipment and material to a building or area designated by the Owner.

**PART 2 - PRODUCTS**

**2.1 CLEANING MATERIALS AND EQUIPMENT**

Provide all required personnel, equipment and materials needed to maintain the specified standard of cleanliness.

**2.2 COMPATIBILITY**

Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material or as approved by the Engineer.

---

**PART 3 - EXECUTION**

**3.1 PROGRESS CLEANING**

A. General

1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic and providing the required protection of materials.
2. Do not allow the accumulation of scrap, debris, waste material and other items not required for construction of this work.
3. At least each week, and more often as necessary, completely remove all scrap, debris and waste material from the job site.
4. Provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the environment.

B. Site

1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris and waste material. Remove all such items to the place designated for their storage.
2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site; restack or otherwise service all arrangements to meet the requirements of paragraph 3.1 above.
3. At all times maintain the site in a neat and orderly condition which meets the approval of the Engineer.

**3.2 FINAL CLEANING**

- A. Definitions: Except as otherwise specifically provided, "clean" for the purpose of this Section shall be interpreted as meaning the level of cleanliness generally provided by commercial building maintenance subcontractors using commercial quality building maintenance equipment and materials.
- B. General: Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris and waste. Conduct final cleaning as described in 3.1 above.
- C. Site: Unless otherwise specifically directed by the Engineer, hose down all paved areas on the site and all public sidewalks directly adjacent to the site; rake clean other surfaces of the grounds. Completely remove all resultant debris.
- D. Restoration of Landscape Damage: Any landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense. The Engineer will decide what method of restoration shall be used.

- E. The Contractor shall protect all trees outside of the limits of construction. The Contractor shall be responsible for the replacement of damaged trees outside the limits of construction.
- F. Post-Construction Clean-up or Obliteration: The Contractor shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction, as directed by the Engineer.
- G. Timing: Schedule final cleaning as approved by the Engineer to enable the Owner to accept a completely clean project.

**3.3 CLEANING DURING OWNER'S OCCUPANCY**

Should the Owner occupy the work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning of the occupied spaces shall be as determined by the Engineer in accordance with the supplementary conditions of the contract documents.

**END OF SECTION**

**PART 1 - GENERAL****1.1 SCOPE**

- A. The work under this section includes, but is not necessarily limited to, the compiling, maintaining, recording and submitting of project record documents as herein specified.
- B. Record documents include, but are not limited to:
  - 1. Drawings
  - 2. Specifications
  - 3. Change Orders and other modifications to the Contract
  - 4. Engineer field orders or written instructions, including requests for information (RFI) and clarification memorandums
  - 5. Reviewed shop drawings, product data and samples
  - 6. Test records
- C. The Contractor shall maintain on the project site throughout the contract time an up to date set of record drawings.

**1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES**

- A. Storage
  - 1. Store documents and samples in the Contractor's field office, apart from documents used for construction.
  - 2. Provide files and racks for storage of documents.
  - 3. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with format of these Specifications.
- C. Maintenance
  - 1. Maintain documents in a clean, dry, legible condition and in good order.
  - 2. Do not use record documents for construction purposes.
  - 3. Maintain at the site for the Owner one copy of all record documents.
- D. Make documents and samples available at all times for inspection by Engineer.
- E. Failure to maintain the record documents in a satisfactory manner may be cause for withholding of a certificate for payment.

### 1.3 QUALITY ASSURANCE

- A. Unless noted otherwise, record drawings shall provide dimensions, distances and coordinates to the nearest 0.1 foot.
- B. Unless noted otherwise, record drawings shall provide elevations to the nearest 0.01 foot for all pertinent items constructed by the Contractor.
- C. The Contractor shall employ a currently registered surveyor to prepare the record drawings from a post-construction, field run survey. The record drawings shall provide elevations to the nearest 0.01 foot for all manhole inverts, manhole frames and other pertinent items constructed by the Contractor. The record drawings shall provide dimensions, distances, and coordinates to the nearest 0.01 foot and horizontal angles to the nearest 10 seconds.

### 1.4 RECORDING

- A. Label each document "project record" in neat, large printed letters.
- B. Recording
  - 1. Record information concurrently with construction progress.
  - 2. Do not conceal any work until required information is recorded.

### 1.5 RECORD DRAWINGS

- A. Contractor shall provide two sets of neat, clean, legible redline drawings to the Owner.
- B. Legibly mark and revise drawings to record actual construction, including:
  - 1. All Construction
    - a. Changes of dimension and detail.
    - b. Changes made by requests for information (RFI), field order, clarification memorandums or by change order.
    - c. Details not on original drawings.
    - d. Two sets of approved shop drawings.
  - 2. Site Improvements, Including Underground Utilities
    - a. Horizontal and vertical locations of all exposed and underground utilities and appurtenances, both new facilities constructed and those utilities encountered, referenced to permanent surface improvements.
    - b. Location of and dimensions of roadways and parking areas, providing dimensions to back of curb when present.

- c. The locations shall be referenced to at least two easily identifiable, permanent landmarks (e.g., power poles, valve markers, etc.) or benchmarks.
  - d. All sewer mains (type, size) and appurtenances such as manholes, laterals, cleanouts, pump stations, etc. shall be located and tied into the state plane coordinates. Also show the distance between manholes, invert and rim elevations, angles and sewer profiles.
3. Structures
- a. Depths of various elements of foundation in relation to finish first floor datum or top of wall.
  - b. Location of internal and buried utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

## 1.6 SPECIFICATIONS

- A. Legibly mark each section to record:
- 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  - 2. Changes made by requests for information (RFI), field order, clarification memorandums, or by change order.

## 1.7 SUBMITTAL

- A. At contract closeout, deliver record documents to the Owner.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
- 1. Date
  - 2. Project title and number
  - 3. Contractor's name and address
  - 4. Title and number of each record document
  - 5. Signature of Contractor or Contractor's authorized representative

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 PROJECT MAINTENANCE AND WARRANTY**

- A. Maintain and keep in good repair the work covered by these drawings and specifications until acceptance by the Owner.
- B. The Contractor shall warrant for a period of one year from the date of Owner's written acceptance of certain segments of the work and/or Owner's written final acceptance of the project, as defined in the contract documents, that the completed work is free from all defects due to faulty products or workmanship. The Contractor shall promptly make such corrections as may be necessary by reason of such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the Cost thereby incurred. The performance bond shall remain in full force and effect throughout the warranty period.
- C. The Contractor shall not be obligated to make replacements which become necessary because of ordinary wear and tear, or as a result of improper operation or maintenance, or as a result of improper work or damage by another Contractor or the Owner, or to perform any work which is normally performed by a maintenance crew during operation.
- D. In the event of multiple failures of major consequence prior to the expiration of the one year warranty described above, the affected unit shall be disassembled, inspected and modified or replaced as necessary to prevent further occurrences. All related components which may have been damaged or rendered non-serviceable as a consequence of the failure shall be replaced. A new 12-month warranty against defective or deficient design, workmanship, and materials shall commence on the day that the item is reassembled and placed back into operation. As used herein, multiple failure shall be interpreted to mean two or more successive failures of the same kind in the same item or failures of the same kind in two or more items. Major failures may include, but are not limited to, cracked or broken housing, piping, or vessels, excessive deflections, bent or broken shafts, broken or chipped gear teeth, premature bearing failure, excessive wear or excessive leakage around seals. Failures which are directly and clearly traceable to operator abuse, such as operations in conflict with published maintenance instructions, shall be exempted from the scope of the one year warranty. Should multiple failures occur in a given item, all products of the same size and type shall be disassembled, inspected, modified or replaced as necessary and re-warranted for one year.
- E. The Contractor shall, at Contractor's own expense, furnish all labor, materials, tools and equipment required and shall make such repairs and removals and shall perform such work or reconstruction as may be made necessary by any structural or functional defect or failure resulting from neglect, faulty workmanship or faulty materials, in any part of the work performed by the Contractor. Such repair shall also include refilling of trenches, excavations or embankments which show settlement or erosion after backfilling or placement.

- F. Except as noted on the drawings or as specified, all structures such as embankments and fences shall be returned to their original condition prior to the completion of the contract. Any and all damage to any facility not designated for removal, resulting from the Contractor's operations, shall be promptly repaired by the Contractor at no cost to the Owner.
- G. The Contractor shall be responsible for all road and entrance reconstruction and repairs and maintenance of same for a period of one year from the date of final acceptance. In the event the repairs and maintenance are not made immediately and it becomes necessary for the Owner of the road to make such repairs, the Contractor shall reimburse the Owner of the road for the cost of such repairs.
- H. The Contractor shall protect existing trees and other vegetation to remain in place against unnecessary cutting, breaking, skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line and excess foot or vehicular traffic, or parking of vehicles within drip line. The Contractor shall be responsible for the replacement of such damaged trees and vegetation.
- I. In the event the Contractor fails to proceed to remedy the defects upon notification within 15 days of the date of such notice, the Owner reserves the right to cause the required materials to be procured and the Work to be done, as described in the drawings and specifications, and to hold the Contractor and the sureties on Contractor's bond liable for the cost and expense thereof.
- J. Notice to Contractor for repairs and reconstruction will be made in the form of a registered letter addressed to the Contractor at Contractor's home office.
- K. Neither the foregoing paragraphs nor any provision in the contract documents, nor any special guarantee time limit implies any limitation of the Contractor's liability within the law of the place of construction.

**END OF SECTION**

---

**SUBSURFACE INVESTIGATION****PART 1 - GENERAL****1.1 DESCRIPTION****A. Subsurface Investigation**

1. A Soils Investigation Report has been prepared for the site of this work by Summit Engineering, Laboratory and Testing, Inc.
2. The Soils Investigation Report may be inspected at the office of the Engineer, and copies may be obtained at the cost of reproduction and handling upon request addressed to the Engineer and accompanied by full payment.

**B. Use of Data**

1. This report was obtained only for the Engineer's use in design and is not a part of the contract documents.
  - a. The report is available for bidders' information, but is not a warranty of sub-surface conditions.
  - b. It is the responsibility of the bidders to visit the site and acquaint themselves with existing conditions.
  - c. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Engineer.

**1.2 QUALITY ASSURANCE**

- A. A soils engineer will be retained by the Owner to observe performance of work in connection with excavating, trenching, filling, backfilling and grading, and to perform compaction tests.
- B. The Contractor shall readjust work performed that does not meet technical or design requirements, but shall make no deviation from the contract documents without specific and written approval from the Engineer.

**END OF SECTION**

**CLEARING AND GRUBBING**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work Included: Remove trees, underbrush, undesirable growth, stumps, roots, etc., from the area to the limits shown on the drawings, as specified herein, and as needed to meet the requirements of the construction shown in the contract documents.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections in Division 1 of these specifications.
  - 2. Section 02370: Erosion and Sediment Control.

**1.2 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity and numbers to accomplish the work in a timely manner.
- C. Comply with requirements of governmental agencies having jurisdiction.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

**3.1 AREA INCLUDED**

- A. Permanent easement and construction zone as indicated on drawings.
- B. Certain parcels contain areas where the temporary construction zones are noncontiguous. The Contractor shall not encroach on areas outside the construction zones identified in the drawings.

**3.2 PROTECTION**

- A. The Contractor shall protect all areas outside the designated construction zones. These areas shall not be used for site access, vehicle parking, or stockpiling of soil or construction materials.
- B. The Contractor shall protect any trees within the designated construction zones that have been marked by the landowner for preservation. The contractor shall not park vehicles or

**CLEARING AND GRUBBING**

stockpile soil or construction materials within the drip line of these trees. If the sewer line is to pass within the drip line of a marked tree, the Contractor shall take reasonable precautions to prevent excessive damage to the roots and trunk of the tree.

- C. The Contractor shall protect trees outside the construction zone whose drip line extends into the construction zone. The Contractor shall not park vehicles or stockpile soil or construction materials within the drip line of these trees.

**3.3 PROCEDURES**

- A. **Site Walkthrough:** Following the layout of the construction work (including manhole locations and limits of construction) and prior to beginning clearing and grubbing, the Contractor, Engineer, and Owner shall walk through the site to identify potential conflicts with easement special conditions or other project requirements. The Contractor shall not proceed with clearing and grubbing until any identified conflicts have been addressed in writing.
- B. **Clearing and Grubbing:** Except as otherwise noted in this Specification, the entire area within the limit lines described above shall be cleared and grubbed. Remove all vegetation, trees, brush, stumps, etc., from the area. All debris from this operation shall be burned if allowed by local regulations or shall otherwise be disposed of off the owner's property.
- C. **Selective clearing** shall be done in areas designated by the engineer. Selective clearing shall consist of removing vegetation, brush, stumps, etc., from the area. Selected trees shall be left standing and care shall be taken not to damage trees to be left. All debris from this operation shall be burned if allowed by local regulations or shall otherwise be disposed of off the owner's property. Grubbing will not be required in areas designated for selective clearing.
- D. **Removal of trees and shrubs:** All trees to be removed shall be felled in such a manner as to avoid injury to remaining trees and to other features not proposed for removal. Trees shall be cut up and the trunks, limbs, and other debris shall be removed from the site. Undesirable shrubs and small trees shall be selectively removed as directed.
- E. **Stumps and Roots:** All stumps and roots larger than 2" in diameter shall be completely removed by grubbing except in areas of building site, parking areas and drives, they may be cut off not less than 18" below any sub-grade. The area of operation then shall be cleared of resulting debris and matted roots, weeds and other extraneous matter and such shall be hauled away from the site. Generally, all material that cannot be compacted to 90% maximum density in lawn areas and 95% of maximum density elsewhere shall be removed.
- F. **Erosion Control:** Construct and maintain erosion control as shown on the drawings and in accordance with Section 02370, Erosion and Sediment Control, and the local county's requirements.

---

**CLEARING AND GRUBBING**

**3.4 MEASUREMENT AND PAYMENT**

- A. Comply with the pertinent provisions of Section 01025.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This section shall apply to all excavation.
- B. Construct all permanent work in areas free from water. Design, construct and maintain all dikes, levees, cofferdams and diversion and drainage channels as necessary to maintain the areas free from water and to protect the areas to be occupied by permanent work from water damage. Remove temporary works after they have served their purpose.
- C. The Contractor shall be responsible for the stability of all temporary and permanent slopes, grades, foundations, materials and structure during the course of the Contract. Repair and replace all slopes, grades, foundations, materials and structures damaged by water, both surface and subsurface, to the lines, grades and conditions existing prior to the damage, at no additional cost to the Owner.
- D. No additional compensation shall be paid to the contractor for dewatering activities.

**PART 2 - PRODUCTS**

**2.1 PRODUCTS SUPPLIED BY CONTRACTOR**

- A. Furnish well points, pumps, tile drains or other approved methods of the type normally used in dewatering operations. Well points shall be provided where required at no additional cost to the Owner.

**PART 3 - EXECUTION**

**3.1 CARE OF WATER**

- A. Except where the excavated materials are designated as materials for permanent work, material from required excavation may be used for dikes, levees, cofferdams and other temporary backfill provided the material meets suitability requirements for these structures.
- B. Furnish, install, maintain and operate necessary pumping and other equipment for dewatering the various parts of the work and for maintaining the foundation and other parts free from water as required for constructing each part of the work.
- C. Install all drainage ditches, sumps and pumps to control excessive seepage on excavated slopes, to drain isolated zones with perched water tables and to drain impervious surfaces at final excavation elevation.
- D. Dewater by means which will insure dry excavations, preserve final lines and grades, and not disturb or displace adjacent soil.
- E. All pumping and drainage shall be done with no damage to property or structures and without interference with the rights of the public or owners of private property.

- F. Do not overload or obstruct existing drainage facilities.
- G. After they have served their purpose, remove all temporary protective work at a satisfactory time and in a satisfactory manner. All diversion channels and other temporary excavations in areas where the compacted fill or other structures will be constructed shall be cleaned out, backfilled and processed under the same Specifications as those governing the compacted fill.
- H. When temporary works will not adversely affect any item of permanent work or the planned usage of the Project, the Contractor may be permitted to leave such temporary works in place. In such instances, breaching of dikes, levees and cofferdams may be required.

### **3.2 DEWATERING**

- A. By the use of well points, pumps, tile drains or other approved methods, the Contractor shall prevent the accumulation of water in excavated areas. Should water accumulate, it shall be promptly removed.
- B. Excavations shall be continuously dewatered to maintain a ground water level no higher than three to four feet below the lowest point in the excavation. Dewatering shall be accomplished well enough in advance of excavation to ensure that groundwater is already lowered prior to completing the final excavation to finish sub-grade.
- C. All destabilized sub-grade conditions caused by inadequate or untimely dewatering operations shall be undercut and backfilled with suitable backfill material at no additional cost to the Owner.
- D. Where the presence of fine grained subsurface materials and a high groundwater table may cause the upward flow of water into the excavation with a resulting quick or unstable condition, the Contractor shall install and operate a well point system to prevent the upward flow of water during construction. Water pumped or drained from excavations, or any sewers, drains or water courses encountered in the work, shall be disposed of in a suitable manner without injury to adjacent property, the work under construction, or to pavements, roads, drives, and water courses. No water shall be discharged to sanitary sewers. Sanitary sewage shall be pumped to sanitary sewers or shall be disposed of by an approved method.

### **3.3 DEWATERING TRENCH EXCAVATIONS**

- A. Dewater excavation continuously to maintain a water level two feet below the bottom of the trench.
- B. Control drainage in the vicinity of excavation so the ground surface is properly pitched to prevent water from running into the excavation.
- C. There shall be sufficient pumping equipment, in good working order, available at all times, to remove any water that accumulates in excavation. Where the pipe line crosses natural drainage channels, the Work shall be conducted in such a manner that unnecessary damage or delays in the prosecution of the Work will be prevented.

**Section 02240**  
**DEWATERING**

---

Provisions shall be made for the satisfactory disposal of surface water to prevent damage to public or private property.

- D. In all cases, accumulated water in the trench shall be removed before placing bedding or haunching, laying pipe, placing concrete or backfilling.
- E. Where dewatering is performed by pumping the water from a sump, crushed stone shall be used as the medium for conducting the water to the sump. Sump depth shall be at least two feet below the bottom of the trench. Pumping equipment shall be of sufficient quantity and/or capacity to maintain the water level in the sump two feet below the bottom of the trench. Pumps shall be a type such that intermittent flows can be discharged. A standby pump shall be required in the event the operating pump or pumps clog or otherwise cease operation.
- F. Dewater by use of a well point system when pumping from sumps does not lower the water level two feet below the bottom of the trench. Where soil conditions dictate, the Contractor shall construct well points cased in sand wicks. The casing, 6" to 10" in diameter, shall be jetted into the ground, followed by the installation of the well point, filling casing with sand and withdrawing the casing.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work Included: Cut, fill, excavate, backfill, compact and grade the site as necessary to bring the roads, drives, building sites, paved areas and open areas to the lines and grades shown on the drawings.
1. The work includes, but is not necessarily limited to:
    - a. Building site preparation.
    - b. Roadway, parking area, drive, and walk subgrade preparation.
    - c. Excavations and formations of embankments.
    - d. Dressing of graded areas, shoulders, and ditches.
    - e. Construction and lining of treatment basins.
  2. Classification: Material determined by the engineer to be rock as defined herein will be classified as "Rock Excavation".
    - a. Excavation of rock will be paid for at the unit price indicated on the bid form.
    - b. Quantities for rock excavation shall be as determined by the Engineer from field measurements.
    - c. Do not perform any rock excavation without prior approval of the engineer.
- B. Related Work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.
  2. Section 02316 - Trenching, Backfilling for Utilities.
  3. Section 02370 - Erosion and Sediment Control.
- C. Definitions:
1. Open areas: Open areas shall be those areas that do not include building sites, paved areas, street right-of-way, and parking areas.
  2. Maximum Density: Maximum weight in pounds per cubic foot of a specific material.
  3. Optimum moisture: Percentage of water in a specific material at maximum density.

4. **Rock Excavation:** Excavation of any hard natural substance which requires the use of explosives and/or special impact tools such as jack hammers, sledges, chisels or similar devices specifically designed for use in cutting or breaking rock, but exclusive of trench excavating machinery. To be considered as rock excavation, the material shall be continuous; individual boulders or rocks in soil will not be considered rock excavation. Any material occupying an original volume of more than 1 cubic yard which cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rating not less than 56,000 pounds usable pull (Caterpillar D-8K), or the excavator listed in Section 02316 is considered Rock.
  5. **Unsuitable Material:** Unsuitable material is defined as earth material unsatisfactory for its intended use and as classified by the soils technician. In addition to organic matter (greater than 5% organic content based on loss on ignition), sod, roots and rubbish, highly plastic clay soils of the CH and MH descriptions, and organic soils of the OL and OH descriptions, as defined in the Unified Soil Classification System shall be considered as unsuitable material.
  6. **Suitable Material:** Where the term suitable material is used in specification sections pertaining to earthwork, it means earth or materials designated as being suitable for their intended use by soils technicians or the engineer. Suitable material shall be designated as meeting the requirements of the Unified Soil Classification System types SW, GW, GC, SP, SC, SM, ML, CL or as designated in these specifications.
  7. **Select material:** Select material is defined as granular material to be used where indicated on the drawings or where specified herein consisting of soils conforming to the Unified Soil Classification types SW, SM, GW or GM or as otherwise approved by the engineer as select fill. Select material shall contain no stones or rubble larger than 1" in diameter.
  8. **Crushed stone (gravel):** Crushed stone shall be No. 57 aggregate or equal conforming to ASTM C-33.
  9. **Excavation:** Excavation is defined as unclassified excavation of every description regardless of materials encountered.
- D. The contractor must determine for himself the volume of material required by the site.

## **1.2 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Comply with requirements of governmental agencies having jurisdiction.
- C. A testing laboratory retained by the owner will make such tests as are deemed advisable. The contractor shall schedule his work so as to permit a reasonable time for testing before placing succeeding lifts of fill material and shall keep the laboratory informed of his

progress. The cost of the initial tests shall be paid for by the owner. Subsequent tests required as a result of improper compaction shall be paid for by the contractor.

**1.3 PRODUCT HANDLING**

- A. Comply with pertinent provisions of Section 01610.

**PART 2 - PRODUCTS**

**2.1 SOIL MATERIALS**

- A. Soil material used as fill, backfill, subgrade for structures or pavements, embankments, or site grading shall consist of suitable material as found available on site until such supply of on-site material is depleted.
  - 1. Provide suitable material free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension, and with not more than 15% of the rocks or lumps larger than 2" in their greatest dimension.
  - 2. Do not permit rocks having a dimension greater than 1" in the upper 6" of fill or embankment.
- B. Should the quantity of suitable on-site material be insufficient to complete the work, suitable borrow material as approved by the engineer shall be provided by the contractor at no additional expense to the owner.
- C. Select materials may be provided from on-site if acceptable material as approved by the engineer is available on site. Otherwise approved select material shall be provided by the contractor from an off-site source.

**2.2 TOPSOIL**

- A. Use topsoil consisting of material removed from the top 3" to 6" of existing on-site soils.
- B. Use topsoil containing no stones, roots, or large clods of soil.
- C. Stockpile topsoil separate from other excavated material.

**2.3 SPECIAL SOIL MATERIALS**

- A. Provide basin liner soils consisting of fine grained soils selected from excavated area or approved borrow sites, stockpiled and then placed and compacted in areas to receive liner.
- B. Sufficient material for the liner, as selected by the engineer, shall be stockpiled, kept separate from other excavated materials and piled free of undesirable materials.

**2.4 WEED KILLER**

- A. Provide a dry, free-flowing, dust free chemical compound, soluble in water, capable of inhibiting growth of vegetation and approved for use on this work by governmental agencies

having jurisdiction.

## **2.5 EQUIPMENT**

- A. Use equipment adequate in size, capacity and numbers to accomplish the work in a timely manner without undue waste or damage of material.

## **PART 3 - EXECUTION**

### **3.1 SURFACE CONDITIONS**

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

### **3.2 PREPARATION**

- A. Clearing and Grubbing: Clear and grub areas to be graded prior to commencement of the grading operations.
- B. Where so directed by the owner, protect and leave standing designated desirable trees.
- C. Complete any demolition and/or removal work as may be required prior to grading operations.
- D. Dispose of all clearing, grubbing and demolition debris and other deleterious material off the project site. Vegetation, roots, brush, rubbish, stumps, etc. may be burned on-site where permitted by local authorities and regulations and approved by the Engineer.
- E. Topsoil: Strip topsoil to a depth of 3" to 6" without contamination from the subsoil and stockpile topsoil separate from other excavated materials.
  - 1. Transport and deposit topsoil in storage piles convenient to areas that are to receive topsoil or in other locations as indicated or approved by the engineer.
  - 2. Deposit topsoil in areas that are already graded and will not be disturbed by on-going construction.
  - 3. Dispose of unsuitable or unusable stripped material off-site or as otherwise directed by the engineer.
- F. Sampling and Preliminary Testing:
  - 1. Prior to beginning the grading operations, the contractor shall submit to the engineer his proposed sequence of excavation operations.
  - 2. Based upon the sequence of excavation, samples of the fill materials will be obtained as excavation proceeds and tested for grain size permeability and moisture density relationship using the Standard Proctor Method (ASTM D698, Method A).

3. Allow sufficient time for completion of laboratory tests before any fill operations begin, using the soils being tested.

**3.3 FINISH ELEVATIONS AND LINES**

- A. Construct areas outside of building or structure lines true to grades shown.
  1. Where no grade is indicated, shape finish surface to drain away from buildings or structures, as approved by the engineer.
- B. Degree of finish shall be that ordinarily obtainable from blade grader, supplemented with hand raking and finishing.
- C. Finish surfaces to within 0.10' above or below the established grade or approved cross section.

**3.4 GENERAL PROCEDURES**

- A. Existing Utilities:
  1. Unless shown to be removed, locate and protect active utility lines shown on the drawings or otherwise made known to the contractor prior to excavating. If damaged, repair or replace at no additional cost to the owner.
  2. If active utility lines are encountered and are not shown on the drawings or otherwise made known to the contractor, promptly notify the engineer and take necessary steps to assure that service is not interrupted.
  3. If service is interrupted as a result of work under this section, immediately restore service by repairing the damaged utility at no additional cost to the owner.
  4. If existing utilities are found to interfere with the permanent facilities being constructed under this section, immediately notify the engineer and secure his instructions.
  5. Do not proceed with permanent relocation of utilities until written instructions are received from the engineer.
- B. Protection of Persons and Property:
  1. Barricade open holes and depressions occurring as part of this work, and post warning lights on property adjacent to or with public access.
  2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
  3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout and other hazards created by operations under this section.

- C. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
- D. Maintain access to adjacent areas at all times.
- E. Excavate and backfill in a manner and sequence that will provide proper drainage at all times

**3.5 EXCAVATING (CUTS)**

- A. Perform excavating of every type of material encountered within the limits of the work to the lines, grades and elevations indicated and specified herein.
- B. Suitable excavated materials:
  - 1. Use all suitable materials removed from the excavation as far as practicable in the formation of the embankments, subgrades, shoulders, building sites, and other places as directed.
  - 2. Unless otherwise indicated on the drawings or approved by the engineer, surplus suitable material shall be removed from the site and disposed of by the contractor.
- C. Unsuitable Excavated Material: Remove from the site and dispose of all unsuitable material unless otherwise approved by the engineer.
- D. Rock Excavation:
  - 1. Notify the engineer upon encountering rock or similar material which cannot be removed or excavated by conventional earth moving or ripping equipment.
  - 2. Do not use explosives without written permission from the engineer.
  - 3. When explosives are permitted, use only experienced persons who are licensed or otherwise authorized to use explosives. Store, handle, and use explosives in strict accordance with all regulatory bodies and the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America, Inc.
  - 4. The contractor shall be solely responsible for any damage resulting from the use of explosives.
  - 5. The contractor is responsible for securing all permits required in performing this work.
- E. Unauthorized Excavation:
  - 1. Excavation of material to depths below the grades indicated, unless so directed by the engineer will be deemed unauthorized excavation.
  - 2. Unauthorized over-excavation shall be backfilled and compacted without any additional expense to the owner.

F. Authorized Over-Excavation:

1. In the event that it is necessary to remove unsuitable material to a depth greater than that shown on the drawings or otherwise specified, the contractor, upon receiving direction from the engineer, shall remove, replace and compact such material as directed by the engineer at the unit prices indicated in the bid form.

**3.6 FILLING AND BACKFILLING**

A. Use fills formed of suitable material placed in layers of not more than 8" in depth measured loose and rolled and/or vibrated with suitable equipment until compacted.

B. Do not place rock that will not pass through a 6" diameter ring within the top 12" of the surface of the completed fill or rock that will not pass through a 3" diameter ring within the top 6" of the completed fill.

C. Do not use broken concrete or asphaltic pavement in fills.

D. Selection of Borrow Material:

1. Material in excess of that available on the site shall be suitable material furnished by the contractor from private sources selected by the contractor. The material shall be approved by the engineer before use. All expenses involved in securing, developing, transporting and placing the material shall be borne by the contractor.

E. Placing and Compacting:

1. Place backfill and fill materials in layers not more than 8" in loose depth.
2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
3. Compact each layer to required percentage of maximum density for the area.
4. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
5. Place backfill and fill materials evenly adjacent to structures, to required elevations.
6. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structures to approximately the same elevation in each lift.

F. Moisture Control:

1. Do not use soil material that is either too dry or too wet to achieve proper compaction.

2. Where subgrade or layer of soil material is too dry to achieve proper compaction, uniformly apply water to surface of soil material such that free water does not appear on the surface during or subsequent to compacting operations.
3. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to the specified density.
4. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the engineer.

**G. Compaction Requirements:**

1. Compact soils to not less than the following percentages of maximum dry density as determined in accordance with ASTM D698, Method A (Standard Proctor).
2. Fill beneath structures and beneath an area extending 10' beyond the limits of the foundation:
  - a. Top 12" of subgrade 100%
  - b. All other fill material 98%
3. Fill beneath roadway:
  - a. Top 12" of subgrade 100%
  - b. All other fill material 95%
4. Embankments:
  - a. Top 12" of subgrade 98%
  - b. All other fill material 95%
5. Fill beneath walkways:
  - a. Top 12" of subgrade 95%
  - b. All other fill material 90%
6. Lawn and unpaved open areas:
  - a. All other fill material 90%

**3.7 PLACING SPECIAL MATERIALS**

- A. Placing Impervious Liner Materials:
1. Place selected fine grain soils on bottom and side slopes of the basin to the indicated depth.
  2. Inspect and proofroll the stripped and grubbed subgrade prior to placement of any liner material, as specified hereinafter.
  3. Spread liner material in 8" maximum, loose lift thickness to provide a 6" compacted lift thickness.
  4. Adjust soil moisture content to 1 to 3 percentage points "wet" of the optimum moisture contents.
  5. Compact at 98% of maximum density.
  6. Maintain liner material sufficiently moist to prevent drying and cracking, until such time as the basin is filled.

### **3.8 FINISH GRADING**

- A. General:
1. Uniformly grade the areas within limits of grading under this section, including adjacent transition areas.
  2. Smooth the finished surfaces within specified tolerance.
  3. Grade with uniform levels or slopes between points where elevations are shown on the drawings, or between such points and existing grades.
  4. Where a change of slope is indicated on the drawings, construct a rolled transition section having a minimum radius of approximately 8'0", unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.
- B. Grading Adjacent to Structures: Grade areas adjacent to buildings to achieve drainage away from the structures and to prevent ponding.
- C. Ditches and Gutters and Swales:
1. Cut accurately to the cross sections, grades and elevations shown.
  2. Maintain excavations free from detrimental quantities of leaves, sticks, trash and other debris until completion of the work.
  3. Dispose of excavated materials as specified herein; do not in any case deposit materials within 3'0" of the edge of a ditch.

### **3.9 FIELD QUALITY CONTROL**

- A. Secure the engineer's inspection and approval of subgrades and fill layers before subsequent construction is permitted thereon.
- B. Field density determinations will be made, at no cost to the contractor, to insure that the specified densities are being obtained. Field density tests will be performed as determined by the engineer, considering the following:
  - 1. At areas to receive paving, at least one field density test for every 5,000 sq.ft. of subgrade area, but not less than three tests.
  - 2. In each compacted fill layer, one field density test for every 5,000 sq.ft. of overlying paved area, but not less than three tests.
  - 3. In fill beneath structures, one field density test for every 2,500 sq.ft. in each layer.
  - 4. Other tests as deemed necessary by the engineer.
- C. If, in the engineer's opinion based on reports of the testing laboratory, subgrade or fills which have been placed are below specified density, provide additional compacting and testing until specified requirements are met.
  - 1. Additional testing will be provided by the owner's selected testing laboratory and all costs for the additional testing will be borne by the contractor.
- D. Proofrolling:
  - 1. The contractor shall proofroll subgrade of areas to receive paving, structures on fill or impervious lining material.
    - a. Make not less than 3 passes of a 25 to 50 ton rubber tired roller over the full area.
    - b. Unstable, soft or otherwise unsuitable materials revealed by the proofrolling shall be removed and replaced with satisfactory materials, compacted as specified herein.

### **3.10 PLACING TOPSOIL**

- A. Upon completion of site grading and other related site work, topsoil shall be uniformly spread over the graded or improved areas. Topsoil shall be evenly distributed to conform to final grade elevations shown on the plans.
- B. Place, level and lightly compact topsoil to a depth of not less than 3".
- C. Maintain topsoil free of roots, rocks, debris, clods of soil and any other objectionable material which might hinder subsequent grassing or mowing operations.
- D. Any surplus materials shall be disposed of in approved areas on the site.

**3.11 MAINTENANCE**

- A. Protection of Newly Graded Areas:
  - 1. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds.
  - 2. Repair and re-establish grades in settled, eroded and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

**3.12 MEASUREMENT AND PAYMENT**

- A. Comply with the pertinent provisions of Section 01025.

**END OF SECTION**

**EXCAVATING/BACKFILLING FOR STRUCTURES**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work Included: Excavating, backfilling, compacting and grading to build the structures as shown on the drawings, as specified herein, and as needed to meet the requirements of the construction shown in the contract documents.
  
- B. Related Work:
  - 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections in Division 1 of these specifications.
  - 2. Section 02310: Site Grading.
  
- C. Classification: Material determined by the Engineer to be rock as defined herein will be classified as "Rock Excavation".
  - 1. Excavation of rock will be paid for at the unit price indicated on the bid form.
  - 2. Quantities for rock excavation shall be as determined by the Engineer from field measurements.
  - 3. Do not perform any rock excavation without prior approval of the Engineer.
  
- D. Definitions:
  - 1. Open Areas: Open areas shall be those areas that do not include building sites, paved areas, street right-of-way, and parking areas.
  - 2. Maximum Density: Maximum weight in pounds per cubic foot of a specific material.
  - 3. Optimum Moisture: Percentage of water in a specific material at maximum density.
  - 4. Rock excavation: Excavation of any hard natural substance which requires the use of explosives and/or special impact tools such as jack hammers, sledges, chisels or similar devices specifically designed for use in cutting or breaking rock, but exclusive of trench excavating machinery. To be considered as rock excavation, the material shall be continuous; individual boulders or rocks in soil will not be considered rock excavation. The reference excavating machinery for this definition is a Caterpillar CAT 330 excavator (59,750-lb maximum drawbar pull) or other equipment with equivalent drawbar pull. Any material that cannot be excavated with the reference machinery is considered rock.
  - 5. Unsuitable Material: Unsuitable material is defined as earth material unsatisfactory for its intended use and as classified by the soils technicians. In addition to organic matter, sod, roots, and rubbish, highly plastic clay soils of the CH and MH descriptions, and organic soils of the OL and OH descriptions, as

---

**EXCAVATING/BACKFILLING FOR STRUCTURES**

defined in the Unified Soil Classification System shall be considered as unsuitable material.

6. **Suitable Material:** Where the term suitable material is used in specification sections pertaining to earthwork, it means earth or materials designated as being suitable for their intended use by soils technicians or the Engineer. Suitable material shall be designated as meeting the requirements of the Unified Soil Classification System types SW, GW, GC, SC, SM, ML, CL or as designated in these specifications.
7. **Select Material:** Select material is defined as granular material to be used where indicated on the drawings or where specified herein consisting of soils conforming to the Unified Soil Classification types SW, SM, GW, or GM or as otherwise approved by the Engineer as select fill. Select material shall contain no stones or rubble larger than 1 ½ inch in diameter.
8. **Crushed Stone (gravel):** Crushed stone shall be No. 57 aggregate or equal conforming to ASTM C-33.
9. **Excavation:** Excavation is defined as unclassified excavation of every description regardless of materials encountered.

**1.2 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Comply with requirements of governmental agencies having jurisdiction.
- C. **Testing:** A testing laboratory retained by the Contractor and approved in writing by the Engineer will make such tests as are deemed advisable.
  1. Schedule fill and backfill operations so as to permit a reasonable time for inspection and testing before placing succeeding lifts and keep the laboratory and Engineer informed of progress.
  2. Notify the Engineer and allow sufficient time for inspection and/or testing of foundation sub-grades prior to commencing any work on the exposed excavation.

**1.3 JOB CONDITIONS**

- A. If, in the opinion of the Engineer, conditions encountered during construction warrant a change in the footing elevation, or in the depth of removal of unsuitable material from that indicated on the drawings, an adjustment will be made in the contract price based upon unit prices for additional work as contained in the bid form.

**1.4 PRODUCT HANDLING**

- A. Comply with pertinent provisions of Section 01610.

---

**EXCAVATING/BACKFILLING FOR STRUCTURES**

**PART 2 - PRODUCTS**

**2.1 SOIL MATERIALS**

- A. Soil material used as fill, backfill or sub-grade for structures shall consist of suitable material.
  - 1. Provide suitable material free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension, and with not more than 15% of the rocks or lumps larger than 2" in their greatest dimension.
  - 2. Do not permit rocks having a dimension greater than 1" in the upper 6" of fill or sub-grade.
- B. Where select material is indicated on the drawings or specified, use select granular material as defined herein and approved by the Engineer.
- C. Where indicated on the drawings or specified, use gravel or crushed stone as defined herein.
- D. Where indicated on the drawings, provide a lean concrete "mud slab" beneath foundations.
  - 1. Use 2000 psi concrete and a minimum thickness of 2".
  - 2. With prior approval of the Engineer, a "mud slab" may be substituted for gravel base material except where the gravel base is required for drainage or for use with pressure relief valves.

**PART 3 - EXECUTION**

**3.1 EXCAVATION**

- A. Protection of Persons and Property:
  - 1. Protect structures, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout and other hazards created by operations under this Section.
  - 2. Unless shown to be removed, locate and protect active utility lines shown on the drawings or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to the Owner.
  - 3. If active utility lines are encountered and are not shown on the drawings or otherwise made known to the Contractor, promptly notify the Engineer and take necessary steps to assure that service is not interrupted.
  - 4. Barricade open holes and depressions occurring as part of this work, and post warning lights on property adjacent to or with public access. Operating warning lights during hours from dusk to dawn each day and as otherwise required.

**EXCAVATING/BACKFILLING FOR STRUCTURES**

5. Side Slopes: Slope, bench and/or shore sides of excavations and trench walls to maintain stability of the wall or sides. Pile materials obtained from the excavation a minimum of four feet from the edge of the excavation.
  6. Shoring and Sheeting: Where necessary, shore and sheet excavations with members of sizes and arrangement sufficient to prevent injury to persons, damage to structures or injurious caving or erosion.
    - a. Furnish, put in place, and maintain such sheeting and bracing as may be required to support the sides of excavations, to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction, and to protect adjacent structures from undermining or other damage. Any movement or bulging which may occur shall be corrected immediately by the Contractor. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and compacted.
    - b. Take all precautions to prevent distress of existing structures because of sheeting installation or removal. Where the removal of sheeting may cause damage to existing or newly constructed structures, such sheeting shall be left in place at no expense to the Owner.
    - c. All sheeting and shoring operations, cost, and maintenance thereof shall be the responsibility of the Contractor.
- B. Excavating: Perform excavating of every type of material encountered to the lines, grades and elevations indicated or as necessary for construction of the structures shown.
1. Conform to elevations and dimensions shown within a tolerance of 0.10', and extending a sufficient distance from footings and foundations to permit placing and removing concrete formwork, installation of services, other construction required and for inspection.
  2. Where earth will stand, shallow footing excavations may be cut to the exact size of the footing.
  3. Separate suitable materials and stockpile for future use.
  4. Dispose of unsuitable material and excess suitable material.
- C. Foundation Sub-Grades: Excavate foundations and footings to a level bottom in firm, solid, suitable material.
1. Take care not to disturb the bottom of the excavation unless further compaction of the sub-grade is required.
  2. Notify the Engineer in due time to permit inspection of the completed excavation prior to performing work on the foundation sub-grade.

---

**EXCAVATING/BACKFILLING FOR STRUCTURES**

3. Should unsuitable or soft material be encountered at sub-grade elevation, remove such material and replace with compacted suitable material or crushed stone from firm earth up to the indicated elevation.
  - a. In wet excavations or where groundwater is normally present, replace unsuitable material with crushed stone or lean concrete.
  - b. In dry excavations above the normal groundwater level, replace unsuitable material with compacted suitable material.
  - c. Removal and replacement of unsuitable material shall be paid for at the unit prices for such work as stated in the bid form.
4. Where rock is encountered at foundation level:
  - a. Use drilling, picking, wedging or similar methods leaving the foundation rock in an entirely solid and unshattered condition.
  - b. Roughen approximately level surfaces to provide satisfactory bond with concrete.
  - c. Cut steps or benches in sloped surfaces to provide satisfactory bond.
- D. Drainage: Provide drainage and control grading in the vicinity of the work to prevent drainage into the excavation.
- E. Rock Excavation:
  1. Notify the Engineer upon encountering rock or similar material which cannot be removed or excavated by conventional earth moving or ripping equipment.
  2. Do not use explosives without written permission from the Engineer.
  3. When explosives are permitted, use only experienced powdermen or persons who are licensed or otherwise authorized to use explosives. Store, handle and use explosives in strict accordance with all regulatory bodies and the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America, Inc.
  4. The Contractor shall be solely responsible for any damage resulting from the use of explosives.
  5. The Contractor is responsible for securing all permits required in performing this work.
  6. Do not use blasting adjacent to existing buildings or structures.
    - a. Remove rock at such locations using jack hammers and bull points.

**EXCAVATING/BACKFILLING FOR STRUCTURES**

- F. Unauthorized Excavation:
  - 1. Excavation of material to depths below the grades indicated unless so directed by the Engineer will be deemed unauthorized excavation.
  - 2. Backfill and compact unauthorized excavation at no expense to the Owner.
    - a. In wet excavations or excavations below normal groundwater elevations: Use crushed stone or lean concrete as directed by the Engineer.
    - b. In dry excavations above normal groundwater elevations: Use compacted suitable material.

**3.2 DEWATERING**

- A. Remove all surface and subsurface waters from excavations and maintain the excavation in a dry condition during construction operations.
- B. Maintain the water level below the excavation sub-grade during excavation and construction.
  - 1. Material disturbed below the foundation sub-grade due to improper dewatering shall be removed and replaced with crushed stone or lean concrete at no expense to the Owner.
  - 2. Use sumps, pumps, drains, trenching or well point system as necessary to maintain a dry excavation.
  - 3. Dewatering by trench pumping will not be permitted if migration of fine grained natural material (running sand) from bottom, side walls or bedding material will occur.
- C. Dispose of water pumped from excavations in storm drains having capacity, canals, trenches or other approved locations.
  - 1. Contractor is responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the operation.
  - 2. Prevent flooding of streets, roadways, or private property.
  - 3. Provide engines driving dewatering pumps with residential type mufflers.

**3.3 BACKFILLING, FILLING AND COMPACTION**

- A. Use suitable material for all filling and backfilling operations.
- B. Fill Under Structures: Deposit suitable material in layers not exceeding 8" in depth and compact each layer using proper equipment.
  - 1. Do not place rock that will not pass through a 6" diameter ring within the top 12" of the surface of the completed fill or rock that will not pass through a 3" diameter ring within the top 6" of the completed fill.

---

**EXCAVATING/BACKFILLING FOR STRUCTURES**

2. Do not place broken concrete, bricks, or asphaltic pavement in fills.
  3. Where indicated on the drawings, provide select granular material.
- C. Backfill excavations as promptly as progress of the work permits, but not until completion of the following:
1. Inspection and acceptance of construction below finish grade, including where applicable, damp-proofing and waterproofing.
  2. Inspecting, testing, approving and recording locations of underground utilities.
  3. Removing concrete formwork.
  4. Removing shoring and bracing, and backfilling of voids with satisfactory materials.
  5. Removing trash and debris.
  6. Foundation walls have been in place seven days.
- D. Placing and Compacting:
1. Place backfill and fill materials in layers not more than 8" in loose depth.
  2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content within 2%.
  3. Compact each layer to required percentage of maximum density for area.
  4. Do not place backfill or fill material on surfaces that are muddy, frozen, or containing frost or ice.
  5. Place backfill and fill materials evenly adjacent to structures, to required elevations.
  6. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structure to approximately the same elevation in each lift.
  7. Do not operate heavy equipment closer to foundation or retaining walls than a distance equal to height of backfill above the footing.
    - a. Compact remaining area using power driven hand tampers.
  8. Where the construction includes basement or other underground walls having structural floors over them, do not backfill such walls until the structural floors are in place and have attained sufficient strength to support the walls.

---

**EXCAVATING/BACKFILLING FOR STRUCTURES**

- E. Compaction Requirements:
1. Compact soils to not less than the following percentages of maximum dry density as determined in accordance with ASTM D698 (Standard Proctor).
  2. Existing in place sub-grade below structures where sub-grade has been disturbed by water, improper dewatering, or construction traffic.
    - a. Top 12" of sub-grade 100%
    - b. Below top 12" of sub-grade 98%
  3. Fill beneath structures and beneath an area extending 10 feet beyond the limits of the foundation:
    - a. Top 12" of sub-grade 100%
  4. Compaction of suitable material used to replace unsuitable material below foundation sub-grades:
    - a. Top 12" of sub-grade 100%
    - b. Below top 12" of sub-grade 98%

**3.4 FIELD QUALITY CONTROL**

- A. Secure the Engineer's inspection and approval of sub-grades and fill layers before subsequent construction is permitted thereon.
- B. Field density determinations will be made, at no additional cost to the Owner, to insure that the specified densities are being obtained. Field density tests will be performed as determined by the Engineer, considering the following:
1. At areas to receive paving, at least one field density test for every 5000 sq.ft. of sub-grade area, but not less than three tests.
  2. In each compacted fill layer, one field density test for every 5000 sq.ft. of overlying paved area, but not less than three tests.
  3. In fill beneath structures, one field density test for every 2,500 square feet in each layer.
  4. Other tests as deemed necessary by the Engineer.
- C. If, the Engineer's opinion based on reports of the testing laboratory, sub-grade or fills that have been placed are below specified density, provide additional compacting and testing until specified requirements are met.
1. Additional testing will be provided by the Owner's selected testing laboratory and all costs for the additional testing will be borne by the Contractor.

---

**EXCAVATING/BACKFILLING FOR STRUCTURES**

2. Any costs for required testing in excess of the stated cash allowance will be borne by the Contractor.
- D. Proof-Rolling:
1. Upon request by the Engineer, proof-roll the sub-grade of structure foundations.
    - a. Make not less than three passes of a 25 to 50 ton rubber tired roller over the full area.
    - b. Unstable, soft or otherwise unsuitable materials revealed by the proof-rolling shall be removed and replaced with satisfactory material and compacted as specified herein.

**3.5 MEASUREMENT AND PAYMENT**

- A. Comply with the pertinent provisions of Section 01025.
- B. The work under this section and all costs for same shall be included in the lump sum price bid for the item to which it pertains, with additional or deductive payments allowed for the specified items based on the unit prices given in the bid form.
- C. Additive or deductive items:
  1. Rock excavation above or below that indicated on the drawings.
  2. Removal of unsuitable material below sub-grade.
  3. Backfill and compaction of suitable material to replace unsuitable material.

**END OF SECTION**

**PART 1 - GENERAL****1.1 DESCRIPTION**

- A. Work Included: Trench, backfill, and compact as specified herein and as needed for installation of underground utilities associated with the work.
- B. Related Work:
1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these specifications.
  2. Section 02530: Sanitary Sewerage Collection.
- C. Classification: Material determined by the Engineer to be rock as defined herein will be classified as "Rock Excavation".
1. Excavation of rock will be paid for at the unit price indicated on the bid form.
  2. Quantities for rock excavation shall be as determined by the Engineer from field measurements.
  3. Do not perform any rock excavation without prior approval of the Engineer.
- D. Definitions:
1. Maximum Density: Maximum weight in pounds per cubic foot of a specific material.
  2. Optimum Moisture: Percentage of water in a specific material at maximum density.
  3. Rock excavation: Excavation of any hard natural substance which requires the use of explosives and/or special impact tools such as jack hammers, sledges, chisels or similar devices specifically designed for use in cutting or breaking rock, but exclusive of trench excavating machinery. To be considered as rock excavation, the material shall be continuous; individual boulders or rocks in soil will not be considered rock excavation. The reference trench excavating machinery for this definition is a Caterpillar CAT 330 excavator (59,750-lb maximum drawbar pull) or other equipment with equivalent drawbar pull. Any material that cannot be excavated with the reference machinery is considered rock.
  4. Unsuitable Material: Unsuitable material is defined as earth material unsatisfactory for its intended use and as classified by the soils technicians. In addition to organic matter, sod, muck, roots, and rubbish, highly plastic clay soils of the CH and MH descriptions, and organic soils of the OL and OH descriptions, as defined in the Unified Soil Classification System shall be considered as unsuitable material.

---

**TRENCHING & BACKFILLING FOR UTILITIES**

5. Suitable Material: Where the term suitable material is used in specification sections pertaining to earthwork, it means earth or materials designated as being suitable for their intended use by soils technicians or the Engineer. Suitable material shall be designated as meeting the requirements of the Unified Soil Classification System types SW, GW, GC, SC, SM, ML, CL or as designated in these specifications.
6. Select Material: Select material is defined as granular material to be used where indicated on the drawings or where specified herein consisting of soils conforming to the Unified Soil Classification types SW, SM, GW, or GM or as otherwise approved by the Engineer as select fill. Select material shall contain no stones or rubble larger than 1½ inch in diameter.
7. Crushed Stone (gravel): Crushed stone shall be No. 57 aggregate or equal conforming to ASTM C-33.
8. Excavation: Excavation is defined as unclassified excavation of every description regardless of materials encountered.

**1.2 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

**1.3 JOB CONDITIONS**

- A. Existing Utilities:
  1. There now exists in the construction areas, waterworks, storm drainage, sanitary sewers, street paving, gas mains and other utilities.
  2. Approximate location of certain underground lines and structures are shown on the plans for information only, other underground lines or structures are not shown.
  3. Locate these and other possible unknown utility lines using electronic pipe finder, or other approved means.
  4. Locate, excavate and expose all existing underground lines in advance of trenching operations.
  5. The Contractor will be held responsible for the workmanlike repair of any damage done to any of these utilities in the execution of his work under this section.

---

**TRENCHING & BACKFILLING FOR UTILITIES**

6. The Contractor shall familiarize himself with the existing conditions and be prepared to adequately care for and safeguard himself and the Owner from damage.
- B. Notification of Intent to Excavate:
1. South Carolina Underground Utility Damage Prevention Act (S.C. Code Ann, 58-35-10, CT-SEQ, Supp. 1978) requires persons to ascertain the location of underground public utility property prior to excavation or demolition in certain situations. The Act also requires such persons to give timely notice of intent to excavate or demolish prior to commencing such operations. Failure to comply could subject the violator to a civil penalty of up to one thousand dollars (\$1,000) for each violation of the Act.
  2. Notification of intent to excavate may be given by calling this toll free number: 1-800-922-0983.
- C. Clearing:
1. Perform all clearing necessary for installation of the complete work.
  2. Clearing shall consist of removing all trees, stumps, roots, brush and debris in the rights-of-way obtained for the work.
  3. All other material, including trimmings from above, shall be completely disposed of in a satisfactory manner.
- D. Removing and Resetting Fences:
1. Where existing fences must be removed to permit construction of utilities:
    - a. Remove such fences and, as the work progresses, reset the fences in their original location and condition.
    - b. Provide temporary fencing or other safeguards as required to maintain security at the plany.
- E. Restoration Of Disturbed Areas:
1. Restore all areas disturbed by, during or as a result of construction activities to their existing or better condition.
  2. Do not interpret this as requiring replacement of trees and undergrowth in undeveloped sections of the rights-of-way.
- F. Minimizing Silting and Bank Erosion During Construction:
1. During construction, protective measures shall be taken and maintained to minimize silting and bank erosion of creeks and rivers adjacent to the work being performed during construction.

---

**TRENCHING & BACKFILLING FOR UTILITIES**

2. Sack breakers are to be used on steep slopes along creek banks and fill slopes to prevent washing of ditch. Sack breakers are to be placed at the direction of the Engineer.
3. Comply with Section 02370.

**G. Blasting:**

1. Store all explosives in a secure manner, complying with all laws, ordinances, and regulations.
2. Contractor shall be responsible for damage caused by blasting operations.

**PART 2 - PRODUCTS****2.1 EXCAVATED MATERIALS**

- A. Perform all excavation of every description and of whatever substances encountered to depths indicated or specified.
- B. Pile material suitable for backfilling in an orderly manner at safe distance from banks or trenches to avoid overloading and to prevent slides or cave-ins.
- C. Remove and deposit unsuitable or excess materials as directed by the Engineer.

**2.2 BACKFILL MATERIALS**

- A. Provide from materials excavated for installation of utility.
  1. Select soil material free from organic matter and deleterious substances, containing no rocks or lumps over 2" in greatest dimension for backfill up to 12" above top of utility being covered.
  2. Do not permit rocks larger than 2" in greatest dimension in top 6" of backfill.

**2.3 OTHER MATERIALS**

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

**PART 3 - EXECUTION****3.1 PROCEDURES**

- A. Existing Utilities:
  1. Unless shown to be removed, protect active utility lines shown on the drawings or otherwise made known to the Contractor prior to trenching. If damaged, repair or replace at no additional cost to the Owner.

---

**TRENCHING & BACKFILLING FOR UTILITIES**

2. If active utility lines are encountered and are not shown on the drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.
3. If service is interrupted as a result of work under this section, immediately restore service by repairing the damaged utility at no additional cost to the Owner.
4. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Engineer and secure his instructions.
5. Do not proceed with permanent relocation of utilities until written instructions are received from the Engineer.

**B. Protection of Persons and Property:**

1. Barricade open holes and depressions occurring as part of the work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout and other hazards created by operations under this section.

**C. Dewatering:**

1. Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods.
2. Keep trenches and site construction area free from water.

**D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.**

**E. Maintain access to adjacent areas at all times.**

**3.2 TRENCH EXCAVATION (Unclassified)**

**A. Remove all materials of whatever substance encountered.**

**B. Comply with pertinent OSHA regulations in regards to the excavation of utilities.**

**C. Rock Excavation:**

1. Notify the Engineer upon encountering rock or similar material which cannot be removed or excavated by conventional earth moving or ripping equipment.
2. Do not use explosives without written permission from the Engineer.

---

**TRENCHING & BACKFILLING FOR UTILITIES**

3. When explosives are permitted, use only experienced powdermen or persons who are licensed or otherwise authorized to use explosives. Store, handle and use explosives in strict accordance with all regulatory bodies and the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America, Inc.
  4. The Contractor shall be solely responsible for any damage resulting from the use of explosives.
  5. The Contractor is responsible for securing all permits required in performing this work.
  6. Do not use blasting adjacent to existing buildings or structures.
    - a. Remove rock at such locations using jack hammers and bull points.
- D. Unauthorized Excavation:
1. Excavation of material to depths below the grades indicated unless so directed by the Engineer will be deemed unauthorized excavation.
  2. Backfill and compact unauthorized excavation at no expense to the Owner.
    - a. In wet excavations or excavations below normal groundwater elevations: Use crushed stone or lean concrete as directed by the Engineer.
    - b. In dry excavations above normal groundwater elevations: Use compacted suitable material.

**3.3 BACKFILLING**

- A. General:
1. Backfill trenches and excavations immediately after the pipes are laid, unless other protection is directed or indicated.
  2. Select and deposit backfill materials with special reference to the future safety of the pipes.
  3. Reopen trenches which have been improperly backfilled, to a depth as required for proper compaction. Refill and compact as specified or otherwise correct to the approval of the Engineer.
  4. Surplus material shall be disposed of as directed by the Engineer.
  5. Original surface shall be restored to the approval of the Engineer.
- B. Lower Portion of Trench:
1. Deposit approved backfill and bedding material in layers of 6" maximum thickness, and compact with suitable tampers to the density of the adjacent soil

---

**TRENCHING & BACKFILLING FOR UTILITIES**

- until there is a cover of not less than 24" over sewers and 12" over other utility lines.
2. Take special care in backfilling and bedding operations not to damage pipe and pipe coatings.
- C. Remainder of Trench:
1. Except for special materials for pavements, backfill the remainder of the trench with material free from stones larger than 6" or half the layered thickness, whichever is smaller, in any dimension.
  2. Deposit backfill material in layers not exceeding the thickness specified, and compact each layer to the minimum density directed by the specifications found within these documents.
- D. Adjacent to Buildings: Mechanically compact backfill in 6" layers within ten (10') feet of buildings.
- E. Under Roads, Streets and Other Paved Areas:
1. Mechanically tamp in 6" layers using heavy duty pneumatic tampers or equal.
  2. Tamp each layer to a density equivalent of not less than 100% of an ASTM D698 Proctor Curve.
  3. Provide additional compaction by leaving the backfilled trench open to traffic while maintaining the surface with crushed stone.
  4. Refill any settlement with crushed stone and continue such maintenance until replacement of pavement is authorized by the Engineer.
- F. Undeveloped Areas:
1. Backfill in wooded, swampy or undeveloped areas shall be as specified hereinbefore, except that tamping of the backfill above a level 2' over the top of the pipe will not be required.
  2. Mound excavated material neatly over the ditch to provide for future settlement.

**3.4 MEASUREMENT AND PAYMENT**

- A. Comply with the pertinent provisions of Section 01025.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work Included: Provide protection of the environment during the construction of this project to reduce soil erosion and siltation to the lowest reasonably achievable level. Provide protection of wetlands, lakes, stream buffers, bed and bank areas outside of work limits.

**1.2 GENERAL**

- A. Exercise every reasonable precaution, throughout the life of the project, to prevent the eroding of soil and the silting of rivers, streams, lakes, reservoirs, other water impoundments, ground or roadway surfaces, or other property. Erosion control practices to be used for this project are shown on the drawings and are to conform to South Carolina Department of Health and Environmental Control regulations.
- B. Contractor shall comply with the requirements of the current NPDES General Permit for Stormwater Associated with Construction Activities, and the Stormwater Pollution Prevention Plan for the project.

**PART 2 - PRODUCTS**

**2.1 CRUSHED STONE**

- A. Provide 2" – 3" diameter crushed stone for project entrance and exit.
- B. Provide 9" – 12" depth crushed stone for temporary sediment barriers around inlets.

**2.2 GRASSING**

- A. Comply with Section 02930: Grassing.

**2.3 SILT FENCE**

- A. Posts:
  - 1. Only steel posts shall be used. Steel posts shall be self-fastener angle steel type, 5' in length.
- B. Provide not less than No. 9 wire staples, 1.5" long for fastening wire mesh.
- C. Woven wire shall conform to the requirements of ASTM A116, Class I zinc coating for wire. Each woven square shall measure 5.33" X 12". The top and bottom wires shall be 10 gauge. All other wires shall be 12 gauge.
- D. Wire mesh is not required with synthetic, extra strength filter fabric providing a puncture strength of 50 psi in accordance with ASTM D4833.
- E. Filter fabric shall be burlap or synthetic.

- F. If silt fencing is used more than 5 days, synthetic type shall be used.
- G. Burlap shall be 7.5 ounces weight and a minimum 32" wide.
- H. Filter fabric shall be Mirafi 100X as manufactured by Celanese Fibers Co., or Bidim C34 as manufactured by DuPont or equivalent.

**2.4 EROSION CONTROL BLANKET**

- A. Use erosion control blanket S150, from North American Green or approved equal.

**PART 3 – EXECUTION****3.1 GENERAL**

- A. Construct and maintain all erosion control measures until the substantial completion of the project.

**3.2 CONSTRUCTION ENTRANCE**

- A. Construct a gravel area or pad at points where vehicles enter and leave a construction site.
- B. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade and place gravel to the grade and dimensions shown on the plans.
- C. Construct drainage channels to carry water to a sediment trap or other suitable outlet.
- D. Use geotextile fabrics to improve stability of the foundation in locations subject to seepage or high water table.
- E. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site by periodic top dressing with two inches of stone.
- F. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary.
- G. Immediately remove objectionable materials spilled, washed, or tracked onto public roadways.

**3.3 TEMPORARY GRASSING**

- A. Provide a temporary cover for erosion control on disturbed areas that will remain unstabilized for a period of more than 14 days in accordance with Section 02930.
- B. This practice applies to cleared areas, diversions, dams, temporary sediment basins, temporary road banks, and topsoil stockpiles where vegetation is needed for less than 1 year.
- C. Provide grassing on slope 5% or greater within 14 days of disturbance.
  - 1. Comply with Section 02930: Grassing.

**3.4 SILT FENCE**

- A. Provide silt fence barrier where shown on the plans and on utility construction parallel to the disturbed trench where perpendicular sheet flow runoff occurs on disturbed areas with slopes greater than 4%.
- B. Place at the extreme limits of the area to be disturbed as shown.
- C. Construct temporary sediment barriers of filter fabric, buried at the bottom, stretched and supported by posts and install below small disturbed areas as indicated on the drawings to retain sediment by reducing the flow velocity to allow sediment deposition.
- D. Provide spacing between posts 5'0" on center, minimum.
- E. Fasten wire mesh to steel posts with wire staples.
- F. Remove sediment deposits prior to reaching one-third height of the fence.
- G. Monitor site frequently and place additional silt fencing should evidence indicate that erosion is about to occur at locations other than those shown on plan.

**3.5 EROSION CONTROL BLANKET**

- A. Provide on areas as shown on the plans or on all embankments with slopes equal to or steeper than 2:1.

**3.6 TEMPORARY SEDIMENT TRAPS**

- A. Utilize temporary sediment traps at the bottom of all disturbed slopes where runoff is parallel to the utility trench and draining into an existing ditch or stream and where slopes are 5% or greater along the trench.
- B. Provide at intervals of 75'.

**3.7 MAINTENANCE**

- A. Place all erosion control devices or measures prior to any land disturbing activity within the drainage area they are located.
- B. Periodically check erosion control devices and clean or otherwise remove silt build-up as necessary to maintain them in proper working order.

**3.8 REMOVAL**

- A. Remove temporary structures after protected areas have been stabilized.

**3.9 INSPECTION**

- A. Contractor shall provide inspection of erosion and sediment control measures shown on the drawings and described in this section and the Stormwater Pollution Prevention Plan for the project. Inspections shall be performed by a qualified person as described in the current

---

**EROSION AND SEDIMENT CONTROL**

NPDES General Permit for Stormwater Associated with Construction Activities, and in accordance with the schedule in the Stormwater Pollution Prevention Plan.

**3.10 MEASUREMENT AND PAYMENT**

- A. Comply with the pertinent provisions of Section 01025.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work included: Provide asphaltic concrete paving where shown on the Drawings, as specified herein, as needed for a complete and proper installation, and where damaged during the course of construction activities.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 02310-Site Grading.

**1.2 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

**1.3 SUBMITTALS**

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section.
  - 2. Certificates, signed by the materials producer and the asphalt-paving Subcontractor, stating that materials meet or exceed the specified requirements.

**1.4 PRODUCT HANDLING**

- A. Comply with pertinent provisions of Section 01610.

**PART 2 - PRODUCTS**

**2.1 GENERAL**

- A. All materials and products used shall comply with pertinent sections of the South Carolina Department of Transportation's (SCDOT) "Standard Specifications for Highway Construction", current edition.

**2.2 ASPHALTIC CONCRETE MIXTURE**

- A. Materials and composition of mixture shall comply with Section 403 of the SCDOT "Standard Specifications for Type 1 Mix".

- B. Provide hot plant mixed asphaltic concrete paving materials.
  - 1. Temperature leaving the plant: 290°F minimum, 320°F maximum.
  - 2. Temperature at time of placing: 280°F minimum.

### 2.3 EQUIPMENT

- A. Comply with requirements of Section 401 of SCDOT's "Standard Specifications".

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
  - 1. Sweep primed surfaces if needed.
  - 2. Adjust frames and covers if needed.

### 3.2 WEATHER RESTRICTIONS

- A. Do not apply asphalt mixtures to a wet or frozen surface or when air temperature is below 40° F in the shade and falling, or below 35°F in the shade and rising.

### 3.3 SPREADING AND FINISHING

- A. On arrival at point of use, dump directly into mechanical spreader.
- B. Immediately spread and strike off true to the line, grade and cross section indicated, to such loose depth that when work is completed, the indicated thickness or weight per square yard will be secured.
- C. Correct irregularities while the mixture is still hot.
- D. At locations not readily accessible to mechanical spreaders, acceptable hand spreading methods may be used.
- E. Finished surfaces placed adjacent to curbs, gutters, manholes, etc., shall be approximately ¼ inch above the edges of these structures.

### 3.4 COMPACTION

- A. Perform initial rolling with 3-wheel steel roller or a steel wheel 2-axle tandem roller.
- B. Follow initial rolling with at least four complete coverages by a pneumatic tired roller.

---

**ASPHALTIC CONCRETE PAVING**

- C. Complete rolling with steel wheel 2-axle tandem roller.
- D. Rolling shall start longitudinally at the sides and proceed gradually toward the center of the pavement, overlapping on successive trips approximately  $\frac{1}{4}$  the width of the roller.
- E. Use hand or mechanical tampers in areas not accessible to powered rollers.
- F. Surface mixture after compaction shall be smooth and true to the established crown and grade.
- G. Feather and smooth the edges of fill so that the joint between fill and original surface is invisible.
- H. Finished paving smoothness tolerance:
  - 1. Free from birdbaths.
  - 2. No deviations greater than  $\frac{1}{4}$  inch in 10 feet.

**3.5 PROTECTION OF SURFACE**

- A. Allow no traffic on surface until the mixture has hardened sufficiently to prevent distortion.

**3.6 MEASUREMENT AND PAYMENT**

- A. Measurement of length and width of paved areas will be made.
- B. Payment will be made at the unit price per square yard as stated in the Proposal.

**END OF SECTION**

---

**REMOVING AND REPLACING PAVEMENTS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work included: Removal and replacement of existing pavements for installation of utility lines, as specified herein, and as needed for a complete and proper installation.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.
  - 2. Section 02316 - Trenching, Backfilling for Utilities.

**1.2 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods for proper performance of the work of this Section.

**1.3 SUBMITTALS**

- A. Comply with pertinent provisions of Section 01340.

**1.4 PRODUCT HANDLING**

- A. Comply with pertinent provisions of Section 01610.

**1.5 WARRANTY**

- A. All remove and replace pavement work within the South Carolina Department of Transportation (SCDOT) rights-of-way shall be warranted for two years beginning on the date of acceptance by the SCDOT.

**PART 2 - PRODUCTS**

**2.1 CONCRETE**

- A. Comply with Section 03300, using strength specified herein.

**2.2 ASPHALTIC CONCRETE**

- A. Use Types A and B complying with South Carolina Department of Transportation Standard Specifications, Section 403.

---

**REMOVING AND REPLACING PAVEMENTS****2.3 AGGREGATE BASE COURSE WITH PRIME**

- A. Comply with applicable portions of South Carolina Department of Transportation Standard Specifications, Section 305.

**PART 3 - EXECUTION****3.1 GENERAL**

- A. Remove to neat lines and dispose of as directed.
- B. Replace with bases and pavements similar to type removed, unless otherwise indicated.

**3.2 CUTTING**

- A. Concrete pavement or base:
  - 1. Cut on straight and true lines, to a minimum depth of 2", using powered concrete saw.
  - 2. Shear off remaining depth with pneumatic tools.
- B. Concrete sidewalks shall be removed back to the nearest joint on each side of the crossing.
- C. Asphaltic concrete pavements:
  - 1. Cut to straight and true lines with powered concrete saw.

**3.3 REPLACEMENT**

- A. Concrete pavements:
  - 1. Use 3000 psi concrete.
  - 2. Replace to 6" below existing slab and undercut each edge 12" to form shelf.
  - 3. Finish surface to match existing surface.
- B. Concrete sidewalks:
  - 1. Replace with 2500 psi concrete.
  - 2. Depth shall be equal to existing section removed, but not less than 4".
  - 3. Finish surface to match existing sidewalk.
- C. Flexible pavements (Ditch Line) - Secondary and Primary Roads:
  - 1. Compact subgrade thoroughly.

---

**REMOVING AND REPLACING PAVEMENTS**

2. Undercut each edge 12" to form a shelf.
  3. Place 8" 2500 psi concrete leaving surface rough and depressed 2".
  4. Top with 2" of asphaltic concrete.
- D. Flexible pavements (Ditch Line) – Driveways:
1. Compact subgrade thoroughly.
  2. Place 8" deep aggregate base course with prime.
  3. Top with 2" of asphaltic concrete.
- E. Flexible pavements (Resurfacing):
1. In some instances where utilities are installed within existing pavements, resurfacing of the entire width of the original pavement will be required.
  2. Replace pavement in ditch line as specified above.
  3. Prime and resurface with 1-1/2" of asphaltic concrete.
  4. Taper resurfacing to existing pavement evenly for a distance of 50 feet beyond repaired area.

**3.4 MEASUREMENT AND PAYMENT**

- A. Ditch line replacements:
1. Length will be measured along center line of the utility from center to center of manholes or fittings.
  2. No measurement of width will be made.
  3. Payment will be made at the unit price per linear foot stated in the Bid Form.
- B. Resurfacing:
1. Length will be measured from end to end of the resurfaced area.
  2. Width will be measured as the average width.
  3. Area will be determined from length and width measurements.
  4. Payment will be made at the unit price per square yard as stated in the Bid Form.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION OF WORK**

- A. This section includes furnishing all labor, materials, and equipment for the installation of all drainage lines, including headwalls, inlets, catch basins, and other special appurtenances and structures as required for this project, shown on the drawings and specified herein.
- B. The layout of underground lines and invert elevations at governing points are shown on the drawings.
- C. All pipe in place shall have been approved before backfilling.
- D. All grades shown as pipe elevations are to the bottom of inside of pipe, unless otherwise noted. Pipe lines shall be kept cleaned out as the laying progresses.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Concrete shall be 3000 psi mix using Portland Cement ASTM C150 Type 1, sand ASTM C33 and coarse aggregate ASTM C33.
- B. Reinforcing bars shall conform to ASTM A615 new billet steel, intermediate grade.
- C. Water shall be clean, free from oils, acids, alkalis, or organic or deleterious substances.
- D. Corrugated Aluminum Alloy Culvert Pipe (CM) shall conform to AASHTO M-196.
- E. Gray Iron Castings - frames, solid covers and grates for drainage structures shall be gray iron conforming to ASTM A-48, size as indicated, free from blow holes, porosity, hard spots, shrinkage distortion or other defects, well cleaned and coated with asphalt paint which shall result in smooth coating, tough and tenacious when cold, not tacky and not brittle, bearing surface between frame and cover or grate shall be machined to prevent rocking and rattling.
- F. Steps - steps for manholes and drainage structures shall be manufacturers standard.
- G. Drainage Structures - provide precast reinforced concrete catch basins as indicated.
- H. All materials shall conform to South Carolina Department of Transportation Standards.

**PART 3 - EXECUTION**

**3.1 PIPE TRENCH EXCAVATION**

- A. Excavation shall be classified as 'common excavation' or 'rock excavation' as defined in Section 02316. Base bids shall be based on 'common excavation' in trenches.

- B. The trench shall be excavated by an approved method, to a depth to permit installation of the pipe along the lines and grades shown on the drawings. The width of the trench shall be sufficient to allow thorough compacting of the backfill under and around the pipe. Where rock is encountered, the rock shall be removed to a depth below grade of at least 6 inches (6"), and the trench shall be refilled to grade with earth, sand, gravel, or other suitable material, firmly compacted to provide proper bedding for the pipe.
- C. If directed by the Engineer, soft, mucky, or otherwise unstable or unsuitable material in the trench bottom shall be removed and replaced with crushed stone, or stabilized with crushed stone.
- D. The Contractor shall notify the Engineer immediately if 'rock excavation' is encountered. Rock removal or backfill shall not proceed until directed by the Engineer. Section 02316 shall apply to 'rock excavation' in trenches.
- E. The sides of all trenches and excavation shall be adequately braced and sheeted to protect personnel, structures and property from slides, cave-ins, or settlement and to maintain the work clear of all obstructions. Bracing, shoring and sheeting shall comply with all applicable safety regulations governing the work. Full responsibility for the design, type and strength of shoring, sheeting and bracing shall rest with the Contractor.

### **3.2 PUMPING**

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

### **3.3 BACKFILLING**

- A. Immediately after the pipes have been laid and approved, the trench shall be backfilled around the barrel of the pipe with fine materials, free from large stones, deposited in level layers no more than 6 inches (6") in depth, each layer to be thoroughly tamped and compacted before the next layer is deposited. Care should be exercised to avoid any wedging action or eccentric action upon or against any pipe or structure and to avoid any disturbance or damage to the work.
- B. Trench backfilling material as specified above shall be compacted in 6 inch (6") layers for the full depth of the trench and consolidated in such a manner to provide an unyielding foundation for vehicular traffic. Unless otherwise shown on the plans or required by governing authorities, the compaction density shall be equal to the density of the original adjacent material. However, under paving, the minimum compaction density shall be 95% of maximum density according to ASTM D-698, except that the upper 18 inches (18") shall be compacted to 100% of maximum density.
- C. No rock or boulders shall be used in the backfill for at least one foot (1') above the top of the pipe and in the upper 18 inches (18"). No stone larger than 6 inches (6") in its greatest dimension shall be used in the backfilling.

**3.4 DRAINAGE LINE CONSTRUCTION**

- A. Installation of Pipe - Under no circumstances shall pipe be laid in water, on rock, or when trench conditions or weather is unsuitable for such work. Each pipe shall be carefully examined before being laid, and any defective or damaged pipe shall be removed from the site. Proper facilities shall be provided for lowering sections of pipe into trenches. The pipe shall be laid true to line and grade, beginning at the lowest point with the spigot and pointing in the direction of flow, with uniform bearing upon the pipe bed for the full length of its barrel. Raising the pipe off the subgrade (bridging) to obtain the proper elevation will not be allowed. Each section shall be securely attached to the adjoining sections by the method contemplated by the type of joints used.
- B. In laying concrete pipe all joints shall be made water tight using a flexible Butyl Resin Sealant according to the manufacturer's specifications and AASHTO M 198.
- C. Any pipe which is not in true alignment or which shows undue settlement after laying, or is damaged, shall be taken up and re-laid without extra compensation.
- D. Drainage Structures - Drainage structures shall be constructed as shown on the drawings.

**3.5 CLEAN UP**

- A. The Contractor shall remove all excess material from excavations to points designated by the Engineer, and clean the site of the work of all debris collected during the construction.

**END OF SECTION**

---

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work Included: Provide grassing of the areas specified herein, or as indicated, for a complete and proper installation.
  - 1. Sanitary Sewer Easements, including highway and street shoulders: All areas disturbed by the construction operation.
- B. Related Work:
  - 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections in Division 1 of these specifications.

**1.2 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Seed: Conform to all State laws and to all requirements and regulations of the South Carolina Department of Agriculture.
  - 1. Deliver to site each variety of seed individually packaged and tagged to show name, net weight, origin and lot number.
- C. Fertilizer: Conform to State fertilizer law.

**1.3 SUBMITTALS**

- A. Comply with pertinent provisions of Section 01340.

**1.4 PRODUCT HANDLING**

- A. Comply with pertinent provisions of Section 01610.
- B. At time of delivery, furnish the Engineer invoices of all materials received in order that application rates may be determined.
- C. Immediately remove from the site materials that do not comply with the specified requirements, and promptly replace with materials meeting the specified requirements.

**PART 2 - PRODUCTS**

**2.1 FERTILIZER**

- A. Provide a mixed fertilizer with a designation such as 10-10-10, where the first number represents the minimum percent of nitrogen required, the second number represents the minimum percent of available phosphoric acid required, and the third number represents

the minimum percent of water soluble potash required in the fertilizer. For centipede grass, use only 15-0-15 or 16-4-8 fertilizer. Fertilizer shall be delivered to the site in bags labeled with the manufacturer's guaranteed analysis.

**2.2 GRASS SEED**

- A. Provide grass seed which is:
  - 1. Free from noxious weed seeds, and recleaned.
  - 2. Grade A recent crop seed.
  - 3. Treated with appropriate fungicide at time of mixing.
  - 4. Delivered to the site in sealed containers with dealer's guaranteed analysis.

**2.3 LIME**

- A. Provide agricultural grade, standard ground limestone conforming to current "Rules, Regulations and Standards of the Fertilizer Board of Control" issued at Clemson University.
- B. Bag tags or delivery slip for bulk loads shall indicate brand or trade name, calcium carbonate equivalent, and other pertinent data to identify the lime.

**2.4 WOOD CELLULOSE FIBER**

- A. Provide wood chip particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer.
- B. Material to be heat processed so as to contain no germination or growth inhibiting factors.
- C. It shall be dyed (non-toxic) an appropriate color to facilitate metering.

**2.5 STRAW MULCH**

- A. Provide straw or hay material.
  - 1. Straw to be stalks of wheat, rye, barley or oats.
  - 2. Hay to be timothy, peavine, alfalfa, or coastal Bermuda.
- B. Material to be reasonably dry and reasonably free from mature seed bearing stalks, roots or bulblets or Johnson Grass, Nutgrass, Wild Onion, Sandburg, Wild Garlic, Wild Mustard, Crotolaria, Pigweed, Witchweed, and Cocklebur and other noxious weeds.

**2.6 EXCELSIOR FIBER MULCH**

- A. To consist of 4" to 6", average length, wood fibers cut from sound, green timber.
- B. Make cut in such a manner as to provide maximum strength of fiber, but at a slight angle to natural grain of the wood.

**2.7 EROSION CONTROL BLANKET**

- A. Provide on areas as shown on the plans.
- B. Provide Erosion Control Blanket S150, from North American Green, or approved equal.

**PART 3 - EXECUTION**

**3.1 GENERAL**

- A. Seed these areas immediately upon completion of grading or construction and clean-up operations.
  - 1. Slopes greater than four horizontal to one vertical.
  - 2. Utility rights-of-way adjacent to stream banks.

**3.2 SEEDING SCHEDULES**

- A. Unless otherwise provided, select the type of seeding from the tables shown below for the upper state and the lower state regions as applicable to the project. The total seed rate in pounds per acre is the sum total shown for all the varieties of seed opposite the schedule number in the seeding schedules included herein. The upper state region consists of all counties west of the counties of Aiken, Lexington, Richland, Kershaw, and Chesterfield. The lower state region consists of the above-cited counties and all counties east.

B. Adhere to the following seeding schedules:

Seeding Schedule for Permanent Vegetation Upper State				
Schedule No.	Common Name of Seed	Pounds/acre Rural <sup>1</sup>	Pounds/acre Urban <sup>1</sup>	Planting Dates
1	Common Bermuda (hulled) <sup>3</sup>	23	23	March 15 to August 14
	Sericea Lespedeza (scarified) <sup>2</sup>	50	50	
	Kentucky 31 Fescue	50	60	
	Weeping Lovegrass <sup>2</sup>	10	10	
2	Kentucky 31 Fescue	50	80	August 15 to March 14
	Sericea Lespedeza (unhulled, unscarified) <sup>2</sup>	80	80	
	Common Bermuda (unhulled) <sup>3</sup>	30	30	
	Weeping Lovegrass <sup>2</sup>	10	10	
	Reseeding Crimson Clover <sup>4</sup>	20	0	
	Annual Rye Grass <sup>5</sup>	5	15	
Rye Grain	20	0		

Notes:

<sup>1</sup> Includes rural areas adjacent to well-developed lawns.

<sup>2</sup> Not required on shoulders, medians, etc. and on slopes under 5 feet in height.

<sup>3</sup> Do not use Giant Bermuda seed including NK-37.

<sup>4</sup> Provide an inoculant for treating reseeding crimson clover seed of a pure culture of nitrogen-fixing bacteria selected for a maximum vitality and ability to transform nitrogen from the air into soluble nitrates and deposit them into the soil. Ensure that inoculants consist of purebred cultures and are not more

than one year old. Do not plant clover in medians or in rural areas adjacent to well-developed lawns.

<sup>5</sup> The use of Italian Rye Grass is prohibited on all projects.

Seeding Schedule for Permanent Vegetation Lower State				
Schedule No.	Common Name of Seed	Pounds/acre Rural <sup>1</sup>	Pounds/acre Urban <sup>1</sup>	Planting Dates
3 <sup>5</sup>	Common Bermuda (hulled) <sup>3</sup>	30	30	March 1 to August 14
	Weeping Lovegrass <sup>2</sup>	10	10	
	Sericea Lespedeza (scarified) <sup>2</sup>	50	50	
	Weeping Lovegrass <sup>2</sup>	10	10	
4 <sup>5</sup>	Common Bermuda (unhulled) <sup>3</sup>	40	40	August 15 to February 28
	Weeping Lovegrass <sup>2</sup>	10	10	
	Sericea Lespedeza (unhulled, unscarified) <sup>2</sup>	80	80	
	Reseeding Crimson Clover <sup>4</sup>	20	0	
	Annual Rye Grass <sup>5</sup>	5	15	
	Rye Grain	20	0	
5 <sup>6</sup>	Centipede	10	10	March 1 to April 15

Notes:

<sup>1</sup> Includes rural areas adjacent to well-developed lawns.

<sup>2</sup> Not required on shoulders, medians, etc. and on slopes under 5 feet in height.

<sup>3</sup> Do not use Giant Bermuda seed including NK-37.

<sup>4</sup> Provide an inoculant for treating reseeding crimson clover seed of a pure culture of nitrogen-fixing bacteria selected for a maximum vitality and ability to transform nitrogen from the air into soluble nitrates and deposit them into the soil. Ensure that inoculants consist of purebred cultures and are not more than one year old. Do not plant clover in medians or in rural areas adjacent to well-developed lawns.

<sup>5</sup> Pensacola Bahia is allowed only as shown in Seeding Schedules 3 and 4 at the rate of 50 pounds per acre only when seeding pit areas that are governed by the South Carolina Mining Act. Otherwise, do not include Bahia seed in the mix.

<sup>6</sup> Apply one-half of lime rates and one-half of maintenance fertilizer rates. Fertilize centipede at the application rate of 20 pounds per acre of 16-4-8 or 15-0-15 fertilizers in May and repeat in August.

<sup>7</sup> The use of Italian Rye Grass is prohibited.

- C. The Contractor may include quantities of rye grain and millet in Schedule Nos. 1 and 3 to establish quick ground cover for erosion control purposes.

Seeding Schedule for Temporary Vegetation Upper and Lower State			
Schedule No.	Common Name of Seed	Pounds/acre	Planting Dates
1	Brown Top Millet	50	April 1 to August 15
2	Rye Grain	55	August 16 to March 31
	Annual Rye Grass <sup>1</sup>	15	
<sup>1</sup> The use of Italian Rye Grass is prohibited.			

### 3.3 GROUND PREPARATION

- A. Bring all areas to proper line, grade and cross section indicated on the plans.
- B. Repair erosion damage prior to commencing seeding operations.
- C. Loosen seedbed to minimum depth of 3".
- D. Remove all roots, clods, stones larger than 1" in any dimension, and other debris.
- E. Provide and prepare topsoil in accordance with Section 02310.
- F. Conduct soil test to determine pH factor.
1. If pH is not in the range of 6.0 to 6.5, adjust.

### 3.4 APPLICATION OF FERTILIZER

- A. Spread uniformly over areas to be seeded at:
1. Rate of 1000 lbs. per acre.
  2. Fertilize centipede at the application rate of 20 pounds per acre of 16-4-8 or 15-0-15.
  3. Use approved mechanical spreaders.
- B. Mix with soil to depth of approximately 3".

3.5 SOWING METHODS

A. General:

1. Perform seeding during the periods and at the rates specified in the seeding schedules.
2. Do not conduct seeding work when ground is frozen or excessively wet.
3. Produce satisfactory stand of grass regardless of period of the year the work is performed.

B. Seeding, slopes less than four horizontal to one vertical:

1. Shall conform to Methods EA, WF or WCF as specified hereinafter.
2. Method EA (Emulsified Asphalt):
  - a. Sow seed not more than 24 hours after application of fertilizer.
  - b. Use mechanical seed drills on accessible areas, rotary hand seeders, power sprayers, etc. may be used on steep slopes or areas not accessible to seed drills.
  - c. Cover seed and lightly compact with cultipacker if seed drill does not.
  - d. Within 24 hours following compaction of seeded areas, uniformly apply 0.2 gallons per square yard of emulsified asphalt over the seeded area.
3. Method WF
  - a. Sow seed as specified for Method EA.
  - b. Within 24 hours following covering of seeds, uniformly apply excelsior fiber at the rate of 100 lbs. per 1000 sq.ft.
  - c. Apply material hydraulically.
  - d. Seeded areas to be lightly rolled to form a tight mat of the excelsior fibers.
4. Method WCF
  - a. Apply seed, fertilizer and wood fiber mulch using hydraulic equipment.
  - b. Equipment to have built-in agitation system with capacity to agitate, suspend and homogenously mix a slurry of the specified amount of fiber, fertilizer, seed and water.
  - c. Minimum capacity of slurry tank: 1000 gallons.
  - d. Apply fiber mulch at rate of 35 lbs. per 1000 sq.ft.

- e. Regulate slurry mixture so that amounts and rates of application will result in uniform application of all materials at not less than the specified amounts.
  - f. Apply slurry in a sweeping motion, in an arched stream, so as to fall like rain, allowing the wood fibers to build upon each other.
  - g. Use color of wood pulp as guide, spraying the prepared seedbed until a uniform visible coat is obtained.
- C. 1. Seeding (slopes greater than four horizontal to one vertical)
2. Sow seed as specified for Method EA, unmulched.
3. Cover seeded area with erosion control blanket.

**3.6 SECOND APPLICATION OF FERTILIZER**

- A. When plants are established and showing satisfactory growth, apply nitrogen at the rate of 1.0 lb. per 1000 sq.ft.
- B. Apply in dry form unless otherwise directed by the Engineer.
- C. Do not apply to stands of temporary grasses.

**3.7 MAINTENANCE**

- A. Maintain all seeded areas in satisfactory condition until final acceptance of the work.
- B. Areas not showing satisfactory evidence of germination within six weeks of the seeding date shall be immediately reseeded, fertilized and/or mulched.
- C. Repair any eroded areas.
- D. Mow as necessary to maintain healthy growth rate until final acceptance of the work.

**3.8 ACCEPTANCE**

- A. Permanently seeded areas will be accepted when the grass attains a height of 2".
- B. No acceptance will be made of temporary seeded areas. Rework and seed per Permanent Seeding Schedule.

**3.9 MEASUREMENT AND PAYMENT**

- A. Comply with the pertinent provisions of Section 01025.

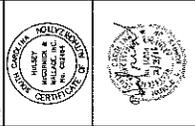
**END OF SECTION**

## **EXHIBIT A-2 DRAWINGS**





NO.	DATE	DESCRIPTION
1	08/11/11	PROVISIONAL CLIENT REVIEW
2	08/11/11	FINAL CLIENT REVIEW
3	08/11/11	ISSUED FOR BIDD

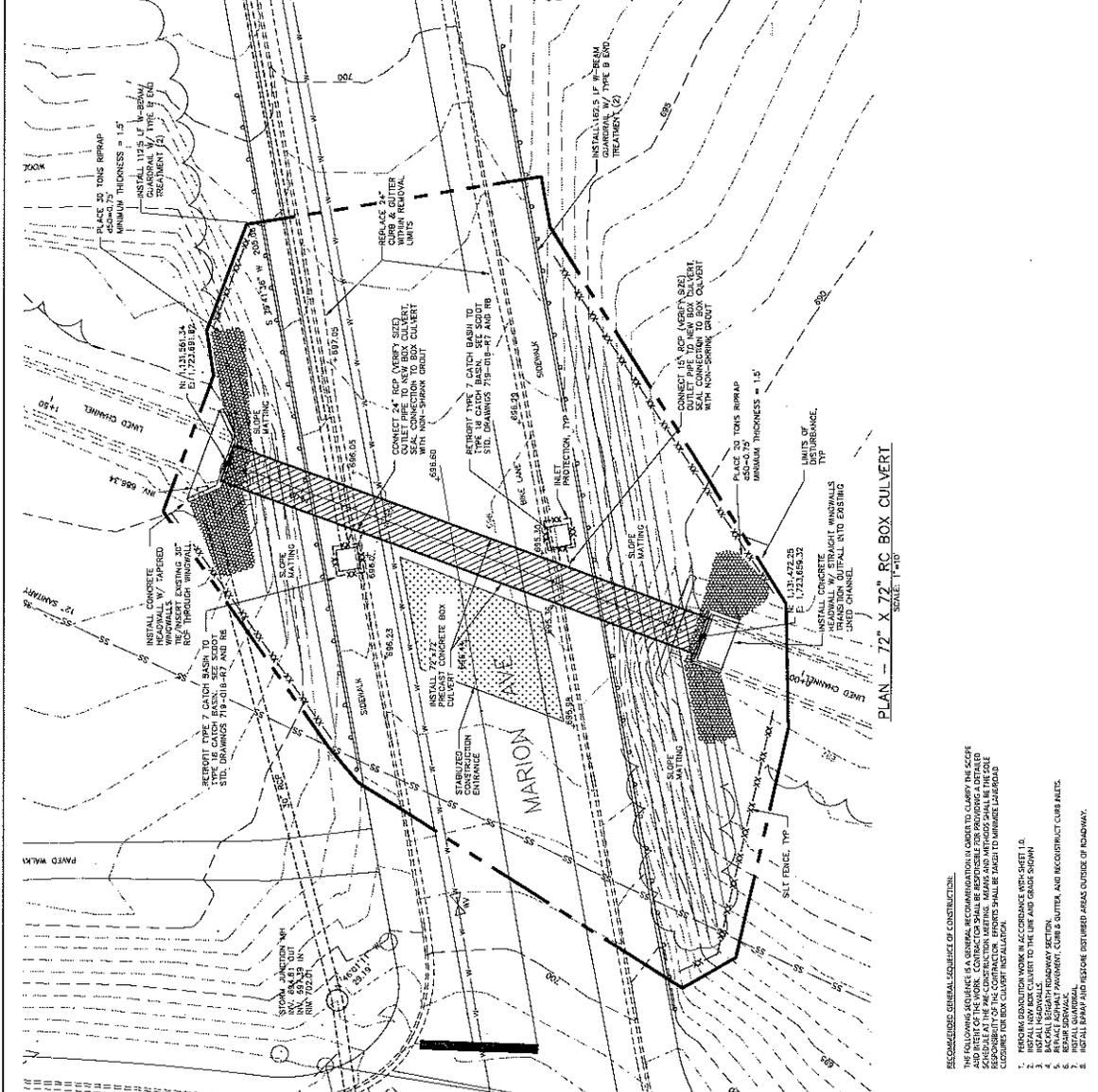
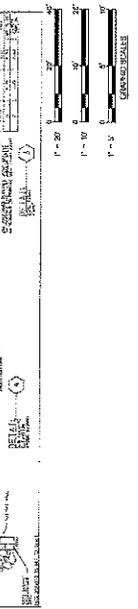
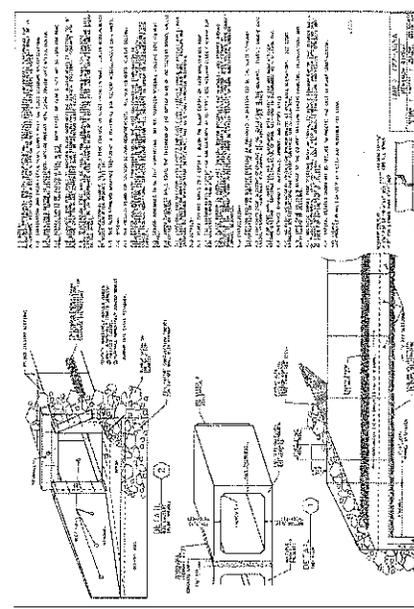
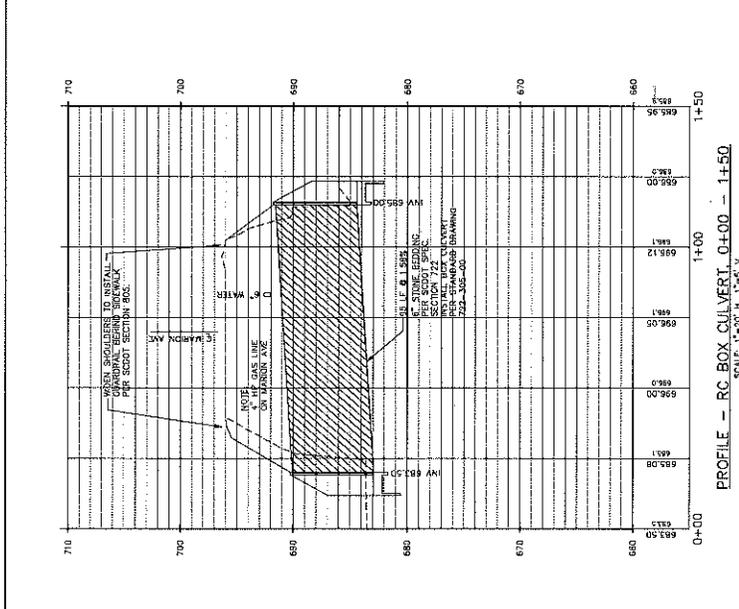


**Hulsey McCormick & Wallace**  
 ENGINEERS & ARCHITECTS  
 1000 W. PARKWAY  
 SPARTANBURG, SOUTH CAROLINA 29176  
 Phone: (803) 259-0390  
 Fax: (803) 259-0391  
 www.hmw.com

**RC CULVERT PLAN, PROFILE, AND DETAILS**  
**MARION AVENUE**  
**STORM DRAINAGE IMPROVEMENTS**  
 CITY OF SPARTANBURG  
 SPARTANBURG, SOUTH CAROLINA

SCALE:	DATE:
DRAWN:	REVISION:
CHECKED:	IN CHARGE:
APPROVED:	

**2.0**



- RECOMMENDATIONS - GENERAL SEQUENCE OF CONSTRUCTION:**
- THE FOLLOWING SEQUENCE IS A GENERAL RECOMMENDATION IN ORDER TO CLARIFY THE SCOPE OF WORK AND TO PROVIDE A GENERAL UNDERSTANDING OF THE SEQUENCE OF WORK. THE SEQUENCE OF WORK SHALL BE DETERMINED BY THE PROJECT ENGINEER AND SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER. THE SEQUENCE OF WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
1. REMOVE EXISTING ROADWAY PAVEMENT, CURB & GUTTER, AND RECONSTRUCT CURB AND GUTTER.
  2. REPAIR EXISTING ROADWAY PAVEMENT, CURB & GUTTER, AND RECONSTRUCT CURB AND GUTTER.
  3. REPAIR EXISTING ROADWAY PAVEMENT, CURB & GUTTER, AND RECONSTRUCT CURB AND GUTTER.
  4. REPAIR EXISTING ROADWAY PAVEMENT, CURB & GUTTER, AND RECONSTRUCT CURB AND GUTTER.
  5. REPAIR EXISTING ROADWAY PAVEMENT, CURB & GUTTER, AND RECONSTRUCT CURB AND GUTTER.
  6. REPAIR EXISTING ROADWAY PAVEMENT, CURB & GUTTER, AND RECONSTRUCT CURB AND GUTTER.
- GENERAL NOTES:**
1. ALL WORK RELATED TO BOX CULVERT INSTALLATION, ANCHORING STRUCTURES, CURB AND GUTTER, ROADWAY PAVEMENT, SIDEWALKS AND OTHER WORK WITHIN STREET RIGHT-OF-WAY SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
  2. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.
  3. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.
  4. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.
  5. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.
  6. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.

DATE	DESCRIPTION
1/1/2018	PRELIMINARY CLIENT REVIEW
2/1/2018	FINAL CLIENT REVIEW
3/1/2018	APPROVED FOR BIDD

DESIGNED BY: HULSEY MCCORMICK & WALLACE  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 APPROVED BY: [Name]



**Hulsey McCormick & Wallace**  
 ENGINEERS & ENVIRONMENTAL SCIENTISTS  
 1000 W. BROADWAY  
 FLORENCE, SC 29502  
 PHONE: (803) 652-9300  
 FAX: (803) 652-9371

# CONSTRUCTION DETAILS

## STORM DRAINAGE IMPROVEMENTS

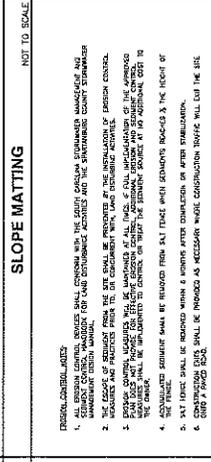
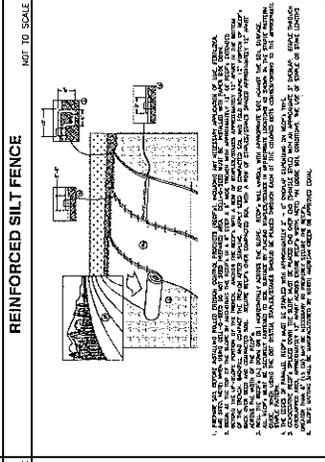
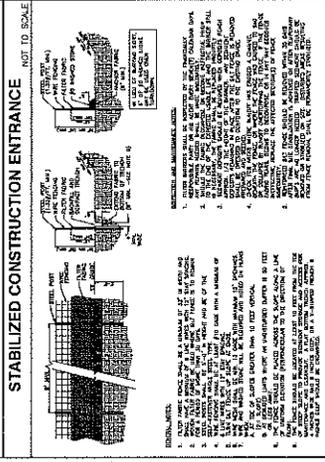
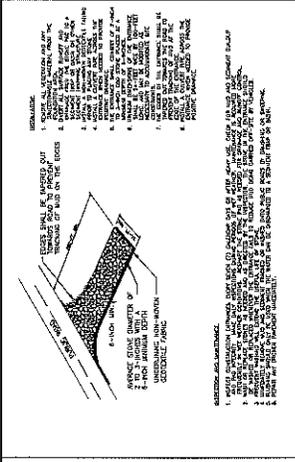
### MARION AVENUE

#### CITY OF SPARTANBURG

##### SPARTANBURG, SOUTH CAROLINA

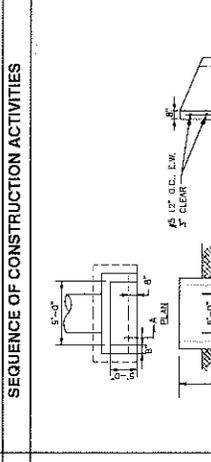
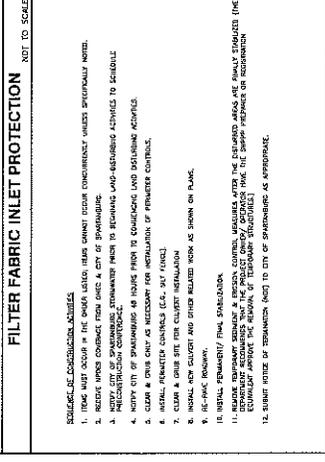
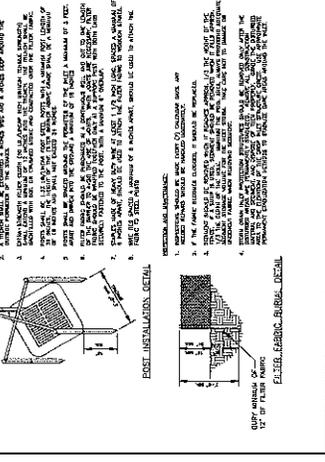
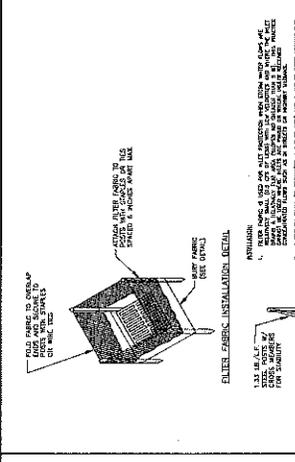
PROJECT NO: 2018-001  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 APPROVED BY: [Name]

**3.0**



**GENERAL EROSION CONTROL NOTES**

1. ALL EROSION CONTROL MEASURES SHALL CONFORM WITH THE SOUTH CAROLINA EROSION CONTROL ACT AND THE SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL CONTROL REGULATIONS.
2. THE EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
3. THE EROSION CONTROL MEASURES SHALL BE DEMOLISHED AND THE AREA RESTORED TO ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE.



**SEQUENCE OF CONSTRUCTION ACTIVITIES**

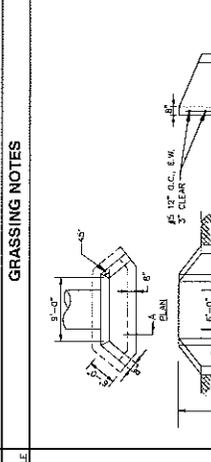
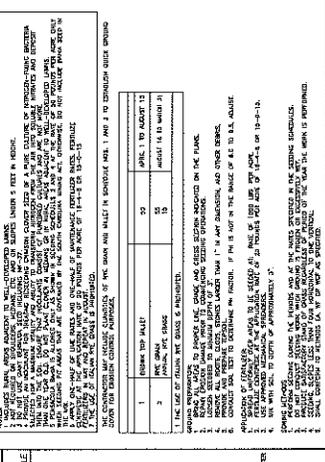
1. PREPARE CONSTRUCTION SCHEDULE.
2. OBTAIN PERMITS AND APPROVALS.
3. CONSTRUCT EROSION CONTROL MEASURES.
4. CONSTRUCT STORM DRAINAGE IMPROVEMENTS.
5. CONSTRUCT SIDEWALKS AND GUTTERS.
6. CONSTRUCT ASPHALT ROADWAY.

**GRASSING NOTES**

1. THE GRASSING SHALL BE CONSTRUCTED TO PREVENT EROSION AND SEDIMENTATION FROM THE CONSTRUCTION SITE.
2. THE GRASSING SHALL BE CONSTRUCTED WITH A CONCRETE CURB AND A FABRIC FILTER.
3. THE GRASSING SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
4. THE GRASSING SHALL BE DEMOLISHED AND THE AREA RESTORED TO ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE.

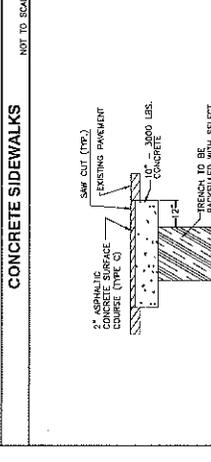
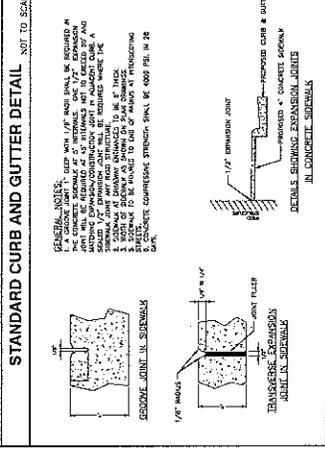
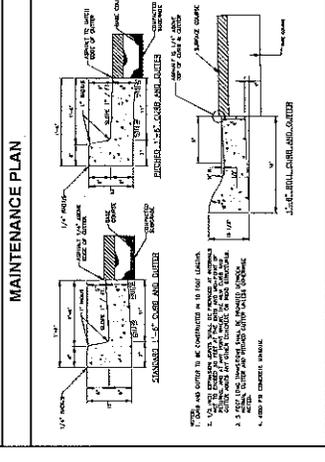
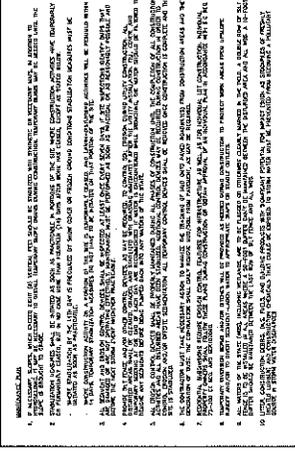
**GRASSING NOTES**

1. SEED TYPE	2. SEED RATE	3. SOIL PREP	4. SOIL TEST
1. BENTONITE	1.0	1.0	1.0
2. BENTONITE	1.0	1.0	1.0
3. BENTONITE	1.0	1.0	1.0
4. BENTONITE	1.0	1.0	1.0



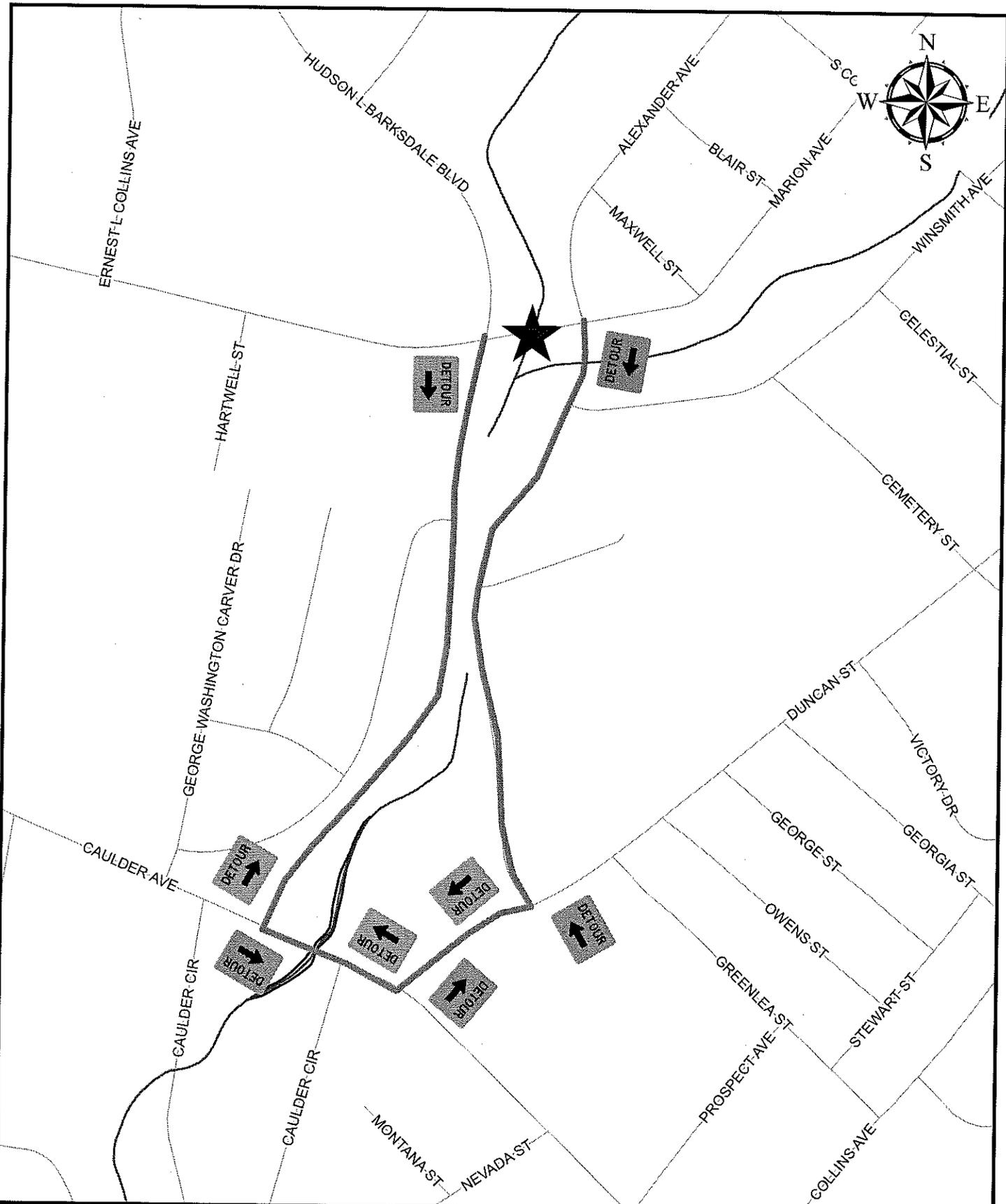
**GRASSING NOTES**

1. THE GRASSING SHALL BE CONSTRUCTED TO PREVENT EROSION AND SEDIMENTATION FROM THE CONSTRUCTION SITE.
2. THE GRASSING SHALL BE CONSTRUCTED WITH A CONCRETE CURB AND A FABRIC FILTER.
3. THE GRASSING SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
4. THE GRASSING SHALL BE DEMOLISHED AND THE AREA RESTORED TO ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE.



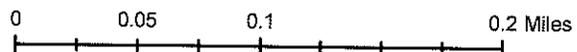
**TYPICAL PAVEMENT REPAIR DETAILS**

1. THE PAVEMENT REPAIR SHALL BE CONSTRUCTED TO PREVENT EROSION AND SEDIMENTATION FROM THE CONSTRUCTION SITE.
2. THE PAVEMENT REPAIR SHALL BE CONSTRUCTED WITH A CONCRETE CURB AND A FABRIC FILTER.
3. THE PAVEMENT REPAIR SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
4. THE PAVEMENT REPAIR SHALL BE DEMOLISHED AND THE AREA RESTORED TO ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE.




**Hulsey McCormick & Wallace**  
 ENGINEERING • ENVIRONMENT • SCIENCE

**Detour Plan**  
**Marion Ave**  
**Culvert Replacement**  
**City of Spartanburg, South Carolina**



**EXHIBIT A-3**

**Procurement & Property Division**

CITY OF



SPARTANBURG  
SOUTH CAROLINA

*Request for Proposal*

**Construction Services for Marion Avenue Culvert Project.**

**Proposal No. 1516-02-23-01**

**(Show this number on envelope and all correspondence)**

\_\_\_\_\_ submits herewith our proposal in response to the bid request  
(Company Name)

number shown above in compliance with the description(s) and specifications (s) for the following:  
Bidder will supply materials and labor for the following fixed price:

In compliance with the proposal invitation and subject to all conditions thereof, the undersigned agrees:

- A. This proposals is stated, is open for acceptance for a period of 60 calendar days from day of pending.
- B. To furnish any and all material and labor at the prices set forth the items unless otherwise specified, within contract and/or notice proceed.

Total Price \_\_\_\_\_

Company Name:	
Street Address:	
City, State, Zip:	
Telephone #:	
Fax #:	
Federal ID or SS #:	

SIGNATURE OF PROPOSALER'S REPRESENTATIVE

Name & Title: \_\_\_\_\_

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

**Exhibit A- 4 BID FORM**  
**Marion Avenue Storm Drainage Improvements**  
**Spartanburg, South Carolina**  
**June 25, 2015**

Item Number	Item Description	Quantity	Units	Unit Cost	Total Cost
	<b>Lump Sum Items</b>				
2.1.1	Construction Staking, Testing and Erosion Control	1	L.S.		
2.1.2	Maintenance & Protection of Traffic	1	L.S.		
2.1.3	Site Removals & Clearing and Grubbing				
	a. Full Depth Pavement Removal	213	S.Y.		
	b. Miscellaneous Removal (Pipe, Structures, Etc.)	1	L.S.		
	c. Tree Removal	1	L.S.		
2.1.4	Site Restoration and Cleanup	1	L.S.		
2.1.5	Mobilization	1	L.S.		
2.1.6	Storm Drainage				
	a. 15" RCP, CLIII, T&G	48	L.F.		
	b. 24" RCP, CLIII, T&G	16	L.F.		
	c. 30" RCP, CLIII, T&G	24	L.F.		
	d. 72"x72" Precast Concrete Box Culvert	95	L.F.		
	e. SCDOT Type 18 CB	2	Each		
	f. Precast Concrete Headwall	2	Each		
	g. Rip Rap	50	Ton		
2.1.7	Reconstruct Asphalt Roadway				
	a. 2" Bituminous Concrete Surface Paving	213	S.Y.		
	b. 10" Concrete Base	60	C.Y.		
2.1.8	24" Curb & Gutter (Includes Type 18 Throat & Curb)	116	L.F.		
2.1.9	W-Beam Steel Guardrail	275	L.F.		
2.2.0	W-Beam Steel Guardrail End Treatment Type B	4	Each		
	<b>Unit Price Items</b>				
2.2.1	Improved Trench Bedding (Washed Stone) (Allowance)	80	Ton		
2.2.2	Unsuitable Soil Excavation (Allowance)	50	C.Y.		

**TOTAL**

Total Bid Price in Words \_\_\_\_\_

Contractor \_\_\_\_\_

Quantities under the Lump Sum Items are shown for comparison and reference purposes only. Contractor is to determine the exact quantities required for the proper construction of the project prior to bidding. Lump Sum Items will therefore not be individually measured for payment. The quantities listed under the Unit Price Items are considered an allowance if those items are required. Any quantities not used will not be paid and any excess quantities required must be approved by the City prior to the work. Unit Costs for either Lump Sum or Unit Price Items may be used in the addition or deletion of work at the Owner's discretion if site conditions vary from those expected.

## **EXHIBIT B INSURANCE REQUIREMENTS**

### **CONTRACTOR INSURANCE REQUIREMENTS**

Contractor shall provide, pay for and maintain in full force and effect, all insurance outlined herein with limits of liability not less than the limits of liability shown covering Contractor's activities, those of any subcontractors or anyone directly or employed by any of them, or by anyone for whose acts any of them might be liable.

#### **Insurer Qualifications**

All insurance should be provided through insurance companies authorized to do business in South Carolina with an A M Best's Rating of no less than A and shall be approved by and acceptable to Owner.

#### **Certificates of Insurance**

Prior to execution of Contract and commencing Work, Contractor's insurer shall provide to Owner a Certificate of Insurance issued by an authorized representative of its insurer certifying that the insurance as required in this Exhibit is in full force and effect. Certificates should be sent via fax or mail to the following:

Risk Coordinator  
City of Spartanburg  
P. O. Box 1749  
Spartanburg, SC 29304  
Fax:# 864-596-2365  
Email: [cwright@cityofspartanburg.org](mailto:cwright@cityofspartanburg.org)

The original of the Certificate is to be sent as well. The Certificate shall include a statement that the policies will not be canceled or non-renewed without 30 days advance written notice to Owner.

### **Primary Insurance**

All insurance coverage required of the Contractor shall be primary over any in-surance or self insurance carried by City of Spartanburg.

### **Duration of Coverage**

All required insurance coverage shall be maintained without interruption during the entire term of the Contract plus an additional 3 years for Products and Completed Operations Coverage following final acceptance of the Work by Owner.

### **Subcontractor's Insurance**

The Contractor shall require any Subcontractor to purchase and maintain insurance of same types and limits required herein.

### **Waiver of Subrogation**

The Contractor shall require all policies of insurance as required herein to be en-dorsed to provide that the insurance company shall waive all of its right of recovery or subrogation against Owner. The Contractor shall require similar waivers from any Sub-contractors.

### **Additional Insured**

The Contractor's insurance policies as required herein with the exception of Workers Compensation shall be endorsed to name Owner as an additional insured.

### **Insurance Coverage and Limits**

**Workers' Compensation:** The Contractor shall provide and maintain Workers Compensation insurance in each jurisdiction in which the Work is located.

#### Limits:

Coverage A -- State Statutory Benefits	
Coverage B - Employers Liability	\$1,000,000

#### Specific Coverage:

- United States Longshoremen and Harbor Workers Act
- Coverage endorsement must be provided if any work is to be performed on or around navigable water.

**Automobile Liability:** Contractor shall provide and maintain Business Auto

Liability insurance covering bodily injury and/or property damage liability arising out of the use of any auto (including owned, hired, and non-owned autos).

#### Limits:

Combined Single Limit Each Accident:	\$1,000,000
--------------------------------------	-------------

**Commercial General Liability:** Contractor shall provide and maintain in full force and effect Commercial General Liability Insurance covering all operations by or on behalf of Contractor on an occurrence basis against claims for bodily injury, personal injury, and/or property damage (including loss of use).

Limits:

Each Occurrence	\$1,000,000
General Aggregate	\$2,000,000
Products/Completed Operations	\$2,000,000

Specific Coverage:

Occurrence Form  
Blanket Contractual Liability  
Underground Explosion and Collapse

**Umbrella/Excess Liability:** Contractor shall provide and maintain Umbrella/Excess Liability Insurance on an occurrence basis with coverage as broad as underlying policies.

Limits:

Each occurrence:	\$2,000,000
Annual Aggregate:	\$2,000,000

Specific Coverage:

Blanket Contractual Liability  
Follow Form Primary

**Builder's Risk Insurance:** If Owner provides Builder's Risk Insurance, Contractor is responsible for its pro-rata share of the \$\_\_\_\_\_ dollar deductible.

**Other Insurance:** Any other insurance as specified by Owner in the Contract Documents.

**Changes:** Exceptions to specified insurance requirements shall be submitted at time of any bid.

## **EXHIBIT C**

**South Carolina's Immigration Reform Act**

Contractor agrees to verify the hiring eligibility of its employees as required under South Carolina's Eligible Immigration Reform Act, S.C. Code Ann., § 41-8-10, et seq. by either registering and participating in the Federal Work Authorization Program (E-Verify) pursuant to the Statute or employ only workers who at the time of their employment possess a valid South Carolina Driver's License or Identification Card or are eligible to obtain same or possess a valid Driver's License or Identification Card from another state deemed by the Director of the Department of Motor Vehicles to have requirements at least as strict as those in South Carolina. Contractor certifies that it will comply with the Statute in its entirety and agrees to provide the Owner with documentation to establish applicability of the Statute to the Contractor and compliance by same.

Furthermore, The City of Spartanburg will have the right to request and receive legal status verification within five working days of any person working under Contract with Contractor or Sub Contractor. Failure to comply can result in the immediate cancellation of the contract.

\_\_\_\_\_ Contractor

\_\_\_\_\_ Subcontractor

certifies that it is compliant with the South Carolina Eligible Immigration Reform Act by either registering and participating in the Federal Work Authorization Program (E-Verify) pursuant to the Statute or employing only workers who at the time of their employment possess a valid South Carolina Driver's License or Identification Card or are eligible to obtain same or possess a valid Driver's License or Identification Card from another state which has been deemed by the Director of the Department of Motor Vehicles to have requirements at least as strict as South Carolina. By the signature below, the Contractor (Subcontractor, etc.) agrees to provide the City with documentation to establish the applicability of the Statute to the Contractor and by the signature below, certifies that it is compliant with the Statute with all regards. This certification and the requirements of this Statute require that the Contractor verify the hiring eligibility of its employees before and during the Project.

\_\_\_\_\_  
Name of Contractor (Subcontractor, etc.)

By \_\_\_\_\_

Its \_\_\_\_\_

Date \_\_\_\_\_

## **EXHIBIT D**



# BUSINESS LICENSE APPLICATION

Business Licenses expire December 31<sup>st</sup> each year.

City of Spartanburg | PO Drawer 1749 | Spartanburg, SC 29304  
Phone: (864) 596-2055 Fax: (864) 596-2424

For Calendar Year

License Number (office use only):

1. **Location Information** (If outside City limits, write OUTSIDE):  
Physical street address: \_\_\_\_\_  
Phone: \_\_\_\_\_ email: \_\_\_\_\_

3. **Describe business activity:**  
4. **NAICS code** (required; see back): \_\_\_\_\_ 5. **Rate Class** (office use only): \_\_\_\_\_

2. **Mailing Information:**  
Legal/Organization name: \_\_\_\_\_  
DBA/name on signs: \_\_\_\_\_  
Mailing address: \_\_\_\_\_

6. **Applying for:**  
 New (Open \_\_\_/\_\_\_/\_\_\_)  Renewal  Closed (\_\_\_/\_\_\_/\_\_\_)  
7. **Ownership:**  
 Individual  Partnership  Corporation  Other: \_\_\_\_\_  
Minority/woman owned:  No  Yes  
8. **Federal Employer Identification Number or Social Security Number:**

9. **Will alcoholic beverages be served/consumed on site?**  No  Yes (If yes, owner must first complete background check with Spartanburg Public Safety Dept.)

10. **Gross Revenue** (Choose one section only: a, b, or c. Nonresident businesses report gross revenue earned within the City limits only):  
a. **New Business:**  
1. Total estimated gross revenue for the balance of the year ending December 31<sup>st</sup> (Round up to a whole thousand) a.1. \$ \_\_\_\_\_  
b. **Second Year Business** (First time renewing; Line 9.b.1. adjusts overestimated or underestimated revenue from last year)  
1. Actual gross revenue from last year: \_\_\_\_\_ - estimated revenue from last year: \_\_\_\_\_ = b.1. \_\_\_\_\_ (indicate + or -)  
2. **Resident business only:** Allowable ordinance deductions from last year, if applies (see back). b.2. - \_\_\_\_\_  
3. **Resident business:** use annualized gross revenue from last year (see back); **Nonresident business:** use actual. b.3. + \_\_\_\_\_  
4. Total adjusted gross revenue (Line b.3. minus Line b.2. plus or minus Line b.1. Round up to a whole thousand). b.4. \$ \_\_\_\_\_  
c. **Established Business or Nonresident Contractor**  
1. Gross revenue from last calendar year (or YTD City revenue for Nonresident Contractor). c.1. \_\_\_\_\_  
2. **Resident business only:** Allowable ordinance deductions from last year, if applies (see back). c.2. - \_\_\_\_\_  
3. Total adjusted gross revenue (Line c.1. minus Line c.2. Round up to a whole thousand). c.3. \$ \_\_\_\_\_

11. **Calculation of fee** (New Businesses call for Additional Fee and Base Fee amounts):  
a. Base Fee: Covers the first \$2,000 in gross revenue. All businesses must pay at least the Base Fee on right. \$ \_\_\_\_\_ Base Fee a. \$ \_\_\_\_\_  
b. Total revenue from Section 10: \_\_\_\_\_ - \$2,000 = \_\_\_\_\_ ÷ 1,000 = \_\_\_\_\_  
c. Add'l Fee: Per \$1,000 in gross revenue. Multiply final amount on line 11.b. by the Add'l Fee on right. \$ \_\_\_\_\_ Add'l Fee c. + \_\_\_\_\_  
d. Penalties: Operation without a current license (see back). **Minimum is \$25.00.** Add 11.a. and 11.c and multiply by: \_\_\_\_\_ % d. + \_\_\_\_\_  
e. Total Due: Add 11.a., 11.c., and 11.d. e. \$ \_\_\_\_\_

12. **Commercial Property class only:** Include rental property street address and Tax Map Number (attach list if needed):  
Address: \_\_\_\_\_ Tax Map #: \_\_\_\_\_

13. **Name, title, and ID for each owner/partner/officer** (everyone authorized to make license changes/access financial information; attach list if needed):  
Name: \_\_\_\_\_ Title: \_\_\_\_\_ State: \_\_\_\_\_ DL or ID #: \_\_\_\_\_  
Name: \_\_\_\_\_ Title: \_\_\_\_\_ State: \_\_\_\_\_ DL or ID #: \_\_\_\_\_

This is to certify the above is a true statement of the business done or transacted at or through the above location. The information reported corresponds with the books and records of the business and with the report of same filed, or to be filed, for the corresponding period with the SC DEPARTMENT OF REVENUE or INSURANCE COMMISSIONER and with the US INTERNAL REVENUE SERVICE. The exact amount returned as TOTAL GROSS REVENUE from this business or profession as reported herein is true and correct. I am familiar with the City ordinance providing for penalties and revocation of this license for making false or fraudulent statements in this application. The books of this business are available for inspection by authorized agent of the City. The issuance of a business license is conditional upon compliance with the ordinances of the City of Spartanburg and failure to so comply may result in revocation of the license in addition to other remedies.

Printed Name \_\_\_\_\_ Phone \_\_\_\_\_ Signature of preparer \_\_\_\_\_ Date \_\_\_\_\_