

VOLUME I OF
CONTRACT DOCUMENTS
FOR THE

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

2025 SEWER SYSTEM IMPROVEMENTS

WPN 26.0091

APPROVED FOR CONSTRUCTION

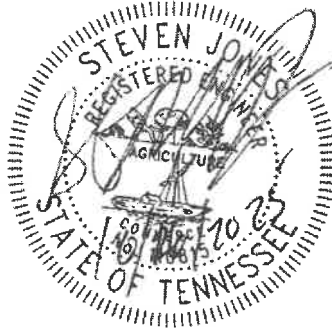
THE DOCUMENT BEARING THIS STAMP HAS BEEN RECEIVED AND REVIEWED BY THE
TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER RESOURCES
AND IS HEREBY APPROVED FOR CONSTRUCTION BY THE COMMISSIONER

Michael J. Bascom

March 24, 2026

THIS APPROVAL SHALL NOT BE CONSTRUED AS CREATING A
PRESUMPTION OF CORRECT OPERATION OR AS WARRANTING BY THE
COMMISSIONER THAT THE APPROVED FACILITIES WILL REACH THE
DESIGNED GOALS.

APPROVAL EXPIRES ONE YEAR FROM ABOVE DATE



WATER MANAGEMENT SERVICES, LLC
2 INTERNATIONAL PLAZA, SUITE 401
NASHVILLE, TENNESSEE 37217
(615) 366-6088
Fax (615) 366-6203

WMS No. 22140

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

2025 SEWER SYSTEM IMPROVEMENTS

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PROPOSAL SECTION

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

INVITATION TO BID
FOR
CONSTRUCTION OF

2025 SEWER IMPROVEMENTS

RECEIPT OF PROPOSALS

Sealed Proposals for the construction of 2025 Sewer Improvements project, will be received at the office of the City of Mt. Juliet Finance Department located at City Hall at 2425 North Mt. Juliet Road, Mt. Juliet, Tennessee 37122, Attention: Ms. Dana Hire, Finance Director, on or before 10:00 a.m. (local time) on Thursday, April 30th, 2026 and immediately thereafter all bids will be publicly opened and read aloud. Electronic Bids will not be accepted.

Sealed envelopes containing Proposals shall be marked "Proposal for the City of Mt. Juliet, Tennessee, Department of Public Works, "2025 Sewer Improvements." Bidders must be licensed by the State of Tennessee to perform the work required. The envelope containing the bid shall be marked to show the bidder's Tennessee Contractor's license number, expiration date and the part of the classification applying to the bid, otherwise the bid will not be opened. No Proposal will be considered unless it is made on the Proposal form which is included in the Contract Documents. The Proposal must not be removed from the Contract Documents with which it has been bound by the City of Mt. Juliet, Tennessee. This Proposal must be addressed as indicated in the previous paragraph. It shall be the Bidder's responsibility that the envelope be properly addressed to ensure that the proposal is received on or before the appropriate time.

The project will include the following described construction:

The furnishing, installing, and testing of approximately 4,668 linear feet of 18-inch PVC gravity interceptor sewer main replacements and concrete manholes, and unclassified excavation, stream crossings, sediment / erosion control procedures, rip-rap streambank stabilization, backfill, tie-ins of all lines entering existing manholes, bypass pumping of wastewater flows, working in close proximity with other utilities, testing, reconnections/tie-ins, sewer service reconnections, surface and property restoration, pavement restoration, and all other appurtenances and other work as shown on the Construction Drawings or indicated in the Contract Specifications.

CONTRACT DOCUMENTS

All work must be performed in accordance with the Contract Documents which are available for inspection at the following locations:

City of Mt. Juliet
Department of Public Works (Sewer)
71 East Hill Street
Mt. Juliet, Tennessee 37122

Builders Exchange of Tennessee
301 S. Perimeter Park Drive
Suite 100, Office 9
Nashville, Tennessee 37211

Water Management Services, LLC
2 International Plaza, Suite 401
Nashville, Tennessee 37217

Nashville Contractor's Association
7430 Burleson Lane
Murfreesboro, Tennessee 37129

Official (numbered) Bid Documents shall be obtained at the office of Water Management Services, LLC, 2 International Plaza, Suite 401, Nashville, Tennessee 37217 (telephone: (615-366-6088). A fee of \$100.00 must be made for each set obtained.

SUBMISSION

It shall be the responsibility of the bidder to submit a bid response which complies with: the conditions and specifications of the Bid Document; policies and procedures of the City of Mt. Juliet and applicable laws of the State of Tennessee; and any other applicable laws, regulations and requirements.

CITY OF MT. JULIET - TITLE VI COMPLIANCE

It is the policy of the City of Mt. Juliet to provide equal employment opportunities and to provide its programs, activities, and services to all individuals regardless of race, color, religion, sex, national origin, age disability, or status in any other group protected by law. Inquiries and charges of violation of this policy should be directed to the City Manager at (615) 754-2552 or at 2425 N. Mt. Juliet Rd., P.O. Box 256, Mt. Juliet, Tennessee 37121. Requests for accommodation of a disability should be directed to the City Manager at (615) 754-2552 or at 2425 N. Mt. Juliet Rd., P.O. Box 256, Mt. Juliet, Tennessee 37121.

BID SECURITY

Each Proposal shall be accompanied by a certified or cashier's check or a satisfactory bid bond payable to the City of Mt. Juliet, Tennessee in amount not less than five (5) percent of the Base Bid as a guarantee that the bidder will, within fifteen (15) days after the date of the award of the Contract, execute an Agreement and file bonds and insurance as required by the Contract Documents if his Proposal is accepted.

If an intended awardee fails to execute and file an Agreement, bonds and insurance as required by the Contract Document, the entire amount of the security submitted with the Proposal shall be forfeited.

LICENSE

Subject to the provisions of Chapter 6 of Title 62 of the Tennessee Codes Annotated, the Contractor's attention is directed to the Tennessee Codes Annotated Section 62-6-119 which states that it will be necessary for each bidder and their subcontractors to show evidence of a license before his bid will be considered and that the license number, expiration date, and that part of classification applying to the bid appear on the envelope containing the bid; otherwise the bid shall not be opened.

"62-6-119. Bid documents – Penalties

(a) Any person or entity preparing plans, specifications or any other documentation for inclusion in an invitation to bid or comparable bid document including any electronic bidding documents, shall reference this chapter in such documentation and include a specific statement informing the invited bidder that it is necessary for such bidder to be properly licensed at the time of the bid and provide evidence of compliance with the applicable provisions of this chapter before such bid may be considered.

(b) The person or entity involved in the preparation of the invitation to bid or comparable bid documents, including any electronic bid documents, shall direct that the following information be written upon the bid envelope or provided within the electronic bid document:

(1) The name, license number, expiration date, thereof, and license classification of the contractor applying to bid for the prime contract.

(2) The name, license number, expiration date thereof, and license classification of the contractor applying to bid for the masonry contract where the total cost of the materials and labor for the masonry portion of the construction project exceeds one hundred thousand dollars (\$100,000);

(3) The name, license number, expiration date thereof, and license classification of the contractor applying to bid for the electrical, plumbing, heating, ventilation, or air conditioning contracts except when such contractor's portion of the construction project is less than twenty-five thousand dollars (\$25,000);

(4) For each vertical closed loop geothermal heating and cooling project, the company name, department of environment and conservation license number, classification (G, L, or G,L) and the expiration date, except when the geothermal portion of the construction project is in an amount less than twenty-five thousand dollars (\$25,000);

(5) Prime contractor bidders who are to perform the masonry portion of the construction project which exceeds one hundred thousand dollars (\$100,000), materials and labor, the electrical, plumbing, heating, ventilation or air conditioning or the geothermal heating and cooling must be so designated; and

(6) Only one (1) contractor in each of the classifications listed above shall be written on the bid envelope provided or provided within the electronic bid document.

(c) Failure of any bidder to furnish the required information shall void such bid and such bid shall not be considered. Upon opening of the bid envelope or initial opening of an electronic bid, the names of all contractors listed shall be read aloud at the official bid opening and incorporated into the bid. Prior to awarding a contract, the awarding person or entity and its authorized representative shall verify the accuracy, correctness and completeness of the required information, and any discrepancies found in the spelling of names of bidders, transposition of license numbers, or any similar typographical errors or omissions may be corrected within forty-eight (48) hours after the bid opening excluding weekends and state-recognized holidays.

(d) No invitation to bid may require that any subcontractor be identified, listed or designated until the final bid submission by the prime contractor, or that any prime contractor accept the bid of any subcontractor until the final bid submission by the prime contractor. This subsection (d) shall only apply to design/bid/build procurements where cost is the primary criterion for the contract award.

(e) Any person or entity, public, and private, awarding a bid to a contractor who is not licensed in accordance with this chapter shall be subject to the penalty provided in § 62-6-120(b).

(f) Notwithstanding the Uniform Administrative Procedure Act, compiled in title 4, chapter 5, relative to the amount of civil penalties that may be imposed, the board may impose a civil penalty not to exceed five thousand dollars (\$5,000) for willful violation of this section.

HISTORY: Acts 1976, ch 822, § 20; T.C.A., § 62-620; Acts 1986, ch. 718, § 2; 1989, ch. 591, § 111; 1990, ch 868, § 1, 2; 1991, ch. 247, § 1; 1994, ch. 986, § 13; 1995, ch. 341, § 1; 1997, ch.

153, § 1; 2001, ch. 222, §3; 2008, ch. 792, §§ 1, 2; 2010, ch. 768, §§ 1, 2; 2010, ch 801, § 1; 2011, ch. 12, §§ 1, 2; 2014, ch. 644, §1."

ADDENDA AND QUESTIONS CONCERNING BID DOCUMENTS

Subject to the provisions of Chapter 4, Part 1, of Title 12 of the Tennessee Codes Annotated, The Contractor's attention is directed to the Tennessee Codes Annotated Section 12-4-126 which states the following:

"12-4-126

(a) If a statute, ordinance, resolution, rule or regulation mandates the use of competitive bidding of any kind or nature whatsoever, by any state agency, county or municipal corporation, then, notwithstanding such law, ordinance, resolution, rule or regulation, no addenda within less than forty-eight (48) hours of the bid opening date shall be permitted.

(b) Any questions concerning the bid documents must be received by the designer no less than ninety-six (96) hours before bid opening date.

(c) This section shall not apply to the department of transportation contracts or any state or local agency contracts funded in whole or in part with state or federal highway funds."

COMPLIANCE

In the performance of a contract the contractor must comply with all applicable federal, state, and city regulations, codes, and laws; and be liable for all required insurance, licenses, permits and bonds; and pay all applicable federal, state, and city taxes.

BID PREPARATION COSTS

The City is not liable for any costs incurred by the bidder in quote preparation.

CONFLICT OF INTEREST

An elected or appointed official, or employee of the City of Mt. Juliet may not seek to acquire, be a party to, or possess a financial interest in, this contract if (1) the elected or appointed official, or employee is an employee of the administrative unit that supervises the award of this contract; or (2) the elected or appointed official, or employee has the power to take or withhold official action so as to affect the award or execution of the contract. Non-controlling ownership in stock of publicly held companies or ownership of mutual funds shall not be considered as a financial interest.

DEFAULT

In case of default by the contractor/vendor, for any reason whatsoever, the City of Mt. Juliet may procure the goods or services from another source and hold the contractor/vendor responsible for any resulting excess cost and may seek other remedies under law or equity.

CONTINUING OBLIGATION OF CONTRACTOR

Notwithstanding the expiration date of a contract the contractor/vendor is obligated to fulfill its responsibilities until warranty, guarantee, maintenance, and parts availability requirements have completely expired.

SPECIAL NOTICE ON IRAN

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury that to the best of its knowledge and belief that each bidder is not on the list created pursuant to §12-12-106. The link below will provide access to the list of entities that are covered by the Act:

[https://www.tn.gov/assets/entities/generalservices/cpo/attachments/List_of_persons_pursuant_to_Tenn. Code Ann. 12-12-106, Iran Divestment Act-July.pdf](https://www.tn.gov/assets/entities/generalservices/cpo/attachments/List_of_persons_pursuant_to_Tenn._Code_Ann._12-12-106_Iran_Divestment_Act-July.pdf)

SPECIAL NOTICE ON ISRAEL

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief for submissions in excess of \$250k, unless the contractor has fewer than 10 employees, each bidder is not currently engaged in, and will not for the duration of the contract engage in, a boycott of Israel.

HOLDING OF PROPOSAL

No bid shall be withdrawn after the opening of the proposals without the consent of the City of Mt. Juliet, Tennessee for a period of ninety (90) days after the scheduled time of the closing of bids. The bid securities of all bidders, except those submitted with the three lowest acceptable bidders, will be returned within fifteen (15) days after the time of the opening of the bids. The bid security accompanying the three lowest acceptable proposals may be held by the City of Mt. Juliet, Tennessee until a construction contract has been executed and a satisfactory Performance Bond in the sum of the full amount of the Contract has been delivered to the City of Mt. Juliet, Tennessee.

TIME FOR COMPLETION

The successful bidder shall be required to fully complete all work in accordance with the terms and conditions of the Contract Documents within **300** consecutive calendar days from and including the date to start work established in a written order from the City of Mt. Juliet, Tennessee.

NOTE: The Contractor's attention is directed to the Provisions for Liquidated Damages as provided in the Supplementary Conditions and the Contract Agreement in addition to the Excess Cost of Engineering.

AWARD OF CONTRACT

The award of any Contract will be made by the City of Mt. Juliet, Tennessee to the lowest responsive, responsible bidder. Responsible bidder will be defined as one who furnished satisfactory evidence that the bidder has the experience and the ability and that he has sufficient capital and facilities to enable him to perform the work successfully and to complete the work within the time specified in the Contract Document. At a minimum, a responsible and responsive bidder shall be appropriately licensed by the State of Tennessee, have provided the required bid bond, have the capability of meeting the bond and insurance requirements, and be in compliance with Federal, State and local laws and regulations applicable to the project.

The City of Mt. Juliet, Tennessee reserves the right to reject any Proposal for failure to comply with all requirements of the notice or of any of the Contract Documents; however, it may waive any minor defects or informalities at its discretion. The City of Mt. Juliet, Tennessee further reserves the right to reject all Proposals.

Plans and specifications for this project were prepared by Water Management Services, LLC.

Dated at Mt. Juliet, Tennessee this 6th day of April, 2026.

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

BY: SHANE SHAMANUR, DIRECTOR OF ENGINEERING

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

2025 SEWER SYSTEM IMPROVEMENTS

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INSTRUCTIONS TO BIDDERS

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INSTRUCTIONS TO BIDDERS

1. EXAMINATION OF PROCUREMENT DOCUMENTS AND SITE

- 1.1 Before submitting a Bid, each Bidder must (a) examine the Procurement Documents thoroughly, (b) become familiar with federal, state, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress or furnishing the Goods and Special Services, (c) study and carefully correlate Bidder's observations with the Procurement Documents, and (d) if specified or if, in Bidder's judgment, any local condition may in any manner affect cost, progress or furnishing the Goods and Special Services, visit the site to become familiar with local conditions.
- 1.2 Each Bidder, by making his bid, represents that he has visited the site and familiarized himself with all the conditions under which the work is to be performed. No extra compensation will be allowed by reason of any matters or things concerning which the Bidder did not inform himself prior to bidding.
- 1.3 Each Bidder, by making his bid, represents that he has read and understands the bidding documents. The Bidder shall include in his bid prices any and all costs that may be necessary to complete the work in accordance with the requirements of the Contract Documents.
- 1.4 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article 1 and that the Procurement Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for furnishing the Goods and Special Services.

2. SUBSURFACE EXPLORATION DATA

Investigation of subsurface conditions at the site has not been made for the purpose of design. In the event this exploration has been done, the results are available for inspection by prospective bidders but are not a part of the Contract Documents. The Owner assumes no responsibility whatsoever with respect to the sufficiency or accuracy of these preliminary investigations, or of their interpretation, and there is no guarantee, either expressed or implied, that the conditions indicated are representative of those existing throughout the work or any part of it, or that unforeseen developments may not occur.

3. EASEMENTS

Portions of the improvements under this project will be constructed on private property for which easements have been secured by the Owner. Work performed on or use of such easements, shall be subject to the provisions of the easement agreements on file and open to inspection in the office of the Owner.

4. ADDENDA AND INTERPRETATION OF CONTRACT DOCUMENTS

Questions regarding documents, discrepancies, omissions, or intent of the Specifications or Drawings shall be submitted in writing to the Owner through the Engineer at least 10 days prior to opening of bids to provide time for issuing and forwarding an addendum. Any interpretation of the Contract Documents will be made only by addendum duly issued or delivered by the Owner to each person receiving a set of documents. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents.

Subject to the provisions of Chapter 4, Part 1, of Title 12 of the Tennessee Codes Annotated, The Contractor's attention is directed to the Tennessee Codes Annotated Section 12-4-126 which states the following:

"12-4-126

(a) If a statute, ordinance, resolution, rule or regulation mandates the use of competitive bidding of any kind or nature whatsoever, by any state agency, county or municipal corporation, then, notwithstanding such law, ordinance, resolution, rule or regulation, no addenda within less than forty-eight (48) hours of the bid opening date shall be permitted.

(b) Any questions concerning the bid documents must be received by the designer no less than ninety-six (96) hours before bid opening date.

(c) This section shall not apply to the department of transportation contracts or any state or local agency contracts funded in whole or in part with state or federal highway funds."

5. EXAMINATION OF BIDDING DOCUMENTS

Each bidder, by making his bid, represents that he has read and understands the bidding documents. The bidder shall include in his bid prices any and all costs that may be necessary to complete the work in accordance with the requirements of the Contract Documents.

6. MATERIAL SUBSTITUTION

Each bidder shall base his bid upon the materials and equipment as described in the bidding documents. The successful Contractor will not be allowed to make any substitutions on his own initiative but, in each instance, will be required to obtain authorization from the Engineer before installing any work in variance with the requirements of the Contract Documents.

7. APPROXIMATE QUANTITIES

On all items on which bids are to be received on a unit price basis, the quantities stated in the bid will not be used in establishing final payment due the Contractor. The quantities stated, on which unit prices are invited, are approximate only. Bids will be compared on the basis of number of units stated in the bidding schedule. Payment on the Contract on unit price items will be based on the actual number of units installed in the completed work.

8. PREPARATION OF BID

Only bids which are made out on the bid form included in the Official (numbered) Bid Documents will be considered. **The bid form must not be separated from this document.** Amounts are to be shown in both words and figures. In case of discrepancy between words and figures, the words shall prevail unless it clearly appears, in Owner's opinion, that the words rather than the figures are in error. If any portion of the bid is required to be given in unit prices and totals, the unit prices shall prevail unless it clearly appears, in Owner's opinion, that the unit prices rather than the totals are in error. If a discrepancy exists between the total base bid and the true sum of the individual bid items, the true sum shall prevail. A bid will be rejected if it does not contain a price for each and every item named in the bidding schedule. Bidders are warned against making any erasures or alterations of any kind, and bids which contain omissions, erasures, conditions, alterations, or additions not called for may be rejected.

9. SIGNING OF BID

If the bidder is a corporation, the legal name of the corporation shall be set forth together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If bidder is a partnership, the true name of the firm shall be set forth together with the signatures of all the partners. If the bidder is an individual, his signature shall be inscribed. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a power of attorney must be on file with the Owner prior to opening bids or submitting bids; otherwise, the bid may be regarded as irregular.

10. BID SECURITY

No bid will be considered unless accompanied by a bid security as defined in the Invitation to Bid as a guarantee that, if the bid is accepted, the bidder will execute the Agreement and file bonds and insurance as required by the Contract Documents within 15 days from the date of the award of the Contract.

11. RETURN OF BID SECURITIES

The security of the three lowest bidders will be returned after the execution of the Agreement with the successful bidder and the approval of his bonds and insurance. The security of all other bidders will be returned promptly after the bids have been opened and reviewed by the Owner. If all bids are rejected, the securities will be returned at the time of rejection.

12. AGREEMENT, BONDS, INSURANCE

The attention of bidders is specifically directed to the General Conditions of the Contract and to the forms of Agreement and bonds to be executed and types of insurance to be taken out in the event a Contract award is made.

The attention of bidders is specifically directed to the General Conditions of the Contract relative to the Certificate of Insurance requirements. If the Surety declines to provide the Certificate of Insurance containing the specified cancellation clause verbiage, the Surety shall be required to provide a separate letter to the Owner/Engineer stating the surety shall notify the Certificate holder in writing thirty (30) days prior to cancellation, reduction, or change in coverage on this project.

13. BID SUBMITTAL

Each bid, properly signed, together with the bid security and all documents bound herewith, shall be enclosed in a sealed envelope addressed and entitled as specified in the Invitation to Bid and delivered to the office designated in the Invitation to Bid. All addenda issued shall be included with the documents at the time of bid submittal. Reference shall be made to the Invitation for proper address as required on the envelope.

14. WITHDRAWAL OF BID

Any bid may be withdrawn at any time prior to the hour fixed in the Invitation to Bid for the opening of bids, provided that a request in writing, executed by the bidder or his duly authorized representative for the withdrawal of such bid, is filed with the Owner prior to the time specified for opening of bids. The withdrawal of a bid will not prejudice the right of a bidder to file a new bid.

15. DESIGNATION OF SUBCONTRACTORS

Each bidder shall list on the form included in these documents the names and addresses of all subcontractors who will perform work or labor or render service to the bidder on or about the construction site in addition to any and all requirements of Chapter 6 of Title 62 of the Tennessee Codes Annotated. Each bidder shall show on the form the portion of the work to be done by each subcontractor.

16. QUALIFICATION OF BIDDERS

It is the intention of the Owner to award a Contract only to a bidder who furnishes satisfactory evidence that he has sufficient capital, facilities, and plant to enable him to prosecute the work successfully and promptly and to complete the work within the time specified in the Contract Documents. Furthermore, it is the intention of the Owner to award a Contract only to a bidder with a satisfactory record of performance, skill, integrity and judgment. Each bidder shall submit with his bid a listing of past projects including references. A form is provided in the Proposal for listing of this information.

17. DISQUALIFICATION OF BIDDERS

More than one bid for the same work described in this document from an individual, firm or partnership, a corporation or an association under the same or different names will not be considered. Reasonable grounds for believing that any bidder is interested in more than one bid for the work contemplated will cause the rejection of all bids in which such bidder is interested. If there are reasonable grounds for believing that collusion exists among the bidders, the bids of the participants in such collusion will not be considered. In addition, if at any time it shall be found that the person, firm, or corporation to whom the Contract has been awarded has, in presenting any bid or bids, colluded with any other party or parties, then the contract so awarded shall be null and void, and the Contractor and his sureties shall be liable to the Owner for all loss or damage which the Owner may suffer thereby, and the Owner may advertise for new bids for said work. The attention of each bidder is directed to the Non-collusion Affidavit in the Proposal and each bidder shall submit an executed form with his bid.

18. LICENSE

Each bidder shall possess state and local licenses as are required by law and shall furnish satisfactory proof to the Owner, upon request, that the licenses are in effect during the entire period of the Contract.

19. BID OPENING

Bids will be opened and the prices bid will be read aloud publicly at the time and place indicated in the Invitation to Bid. Bidders or their agents are invited to be present.

20. AWARD OF CONTRACT

The award of any Contract or Contracts will be made to the lowest responsive responsible bidder or bidders. The Owner reserves the right to reject any or all bids or to waive irregularities or informalities at its discretion.

21. EFFECTIVE DATE OF AWARD

If a Contract is awarded by the Owner, such award shall be effective when formal notice of such award signed by the authorized representative of the Owner has been delivered to the intended awardee or mailed to him at the main business address shown on his bid by some officer or agent of the Owner duly authorized to give such notice.

22. EXECUTION OF AGREEMENT

Copies of the Agreement, in the number stated in the form of Agreement, shall be executed by the successful bidder and returned, together with the required bonds and insurance within 15 days from and after the date of the award of the Contract. Effective date of bonds shall be the same or later than the date of the Agreement. Failure of a successful bidder to execute the Agreement and file required bonds and insurance within the required time shall be just cause for the annulment of the award. On failure of a successful bidder to execute the Agreement and file the required bonds and insurance within the required time, he shall forfeit his bid security as agreed hereinbefore. Upon annulment of an award as aforesaid, the Owner may then award a Contract to the next lowest, responsible bidder.

23. COMMENCEMENT AND COMPLETION OF WORK

The successful bidder shall commence work within 15 calendar days from and after the issuance by the Owner of a written Notice to Proceed and shall complete all work in accordance with the terms and conditions of the Contract Documents within **300** calendar days from and after the date of the Notice to Proceed. The Notice to Proceed will be issued within 10 days after award of Contract.

24. LIQUIDATED DAMAGES

The Contractor's attention is directed to the Provisions for Liquidated Damages as provided in the Supplementary Conditions and in the Contract Agreement in addition to the Excess Cost of Engineering.

25. UNCLASSIFIED EXCAVATION

This Contract includes excavation on an unclassified basis. The cost of all excavation necessary for the installation of the water lines, sewer lines, gas lines, force mains, and appurtenances required under this Contract will be merged into the price per foot for pipe installed or appurtenances thereto. No distinction will be made insofar as payment is concerned between earth and rock. The bid item for unclassified excavation covers additional excavation required by removing unsuitable material (subgrade) authorized by the Engineer in the field.

26. PAYMENT FOR EXCESS COSTS

The successful Contractor will be required to pay for the excess cost of field engineering and inspection as defined in the General Conditions of the Contract, if extensions of time are granted by Owner because of avoidable delays as therein defined.

27. UNDERGROUND FACILITIES

The information and data shown or indicated in the Contract Drawings with respect to existing underground facilities is based on available information and record drawings. The Owner/Engineer shall not be responsible for the accuracy or completeness of such information or record drawings. The Contractor shall have full responsibility for reviewing and checking all such information and data for locating all underground facilities shown or indicated on the Contract

Drawings, for coordinating of the work with the Owner, and for the safety and protection thereof and repairing any damage thereto resulting from the work--the cost of which will be considered as having been included in the Contract price.

If underground facilities are uncovered or revealed which were not shown or indicated in the Contract Drawings and which the Contractor could not reasonably have been expected to be aware of, the Contractor shall promptly, after becoming aware thereof and before performing any work affected thereby, give written notice to the Owner/Engineer. The Engineer will promptly review the underground facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the underground facility and the Contract Document will be amended or supplemented to the extent necessary.

28. DELETIONS BY OWNER

Portions or segments of this work may be deleted by the Owner at their discretion during the course of construction operations because of funding considerations and/or unforeseen or unknown difficult construction conditions which may arise during the course of the work which this Contract does not cover.

29. NOTICE OF INTENT FOR STORM WATER DISCHARGES

The Bidder's attention is directed to the requirement for executing a Notice of Intent (NOI) for storm water discharges upon award of this project if so required. This NOI, which is included in the Agreement Section (if required), must be executed by the Contractor after award of the project. The Owner will pay required fee (if required) and transmit the NOI package to the State for review and approval.

30. CITY OF MT. JULIET - TITLE VI COMPLIANCE

It is the policy of the City of Mt. Juliet to provide equal employment opportunities and to provide its programs, activities, and services to all individuals regardless of race, color, religion, sex, national origin, age disability, or status in any other group protected by law. Inquiries and charges of violation of this policy should be directed to the City Manager at (615) 754-2552 or at 2425 North Mt. Juliet Road, P.O. Box 256, Mt. Juliet, Tennessee 37121. Requests for accommodation of a disability should be directed to the City Manager at (615) 754-2552 or at 2425 North Mt. Juliet Road, P.O. Box 256, Mt. Juliet, Tennessee 37121.

PROPOSAL TO

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

2025 SEWER SYSTEM IMPROVEMENTS

Full Name of Bidder _____

Main Business Address _____

Place of Business _____

TO: THE CITY OF MT. JULIET, TENNESSEE (hereinafter called "Owner")

The undersigned, as bidder, declares that the only person or parties interested in this Proposal as principals are those named herein, that this Proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, the proposed forms of Agreement and Bonds, and the Contract Drawings and Specifications for the above-designated work, all of which are on file at the City of Mt. Juliet, Tennessee, and all other documents referred to or mentioned in the Contract Documents, the Contract Drawings and Specifications, including Addenda No. _____, _____, _____, and _____ issued thereto; and he proposes and agrees if this Proposal is accepted that he will contract with the City of Mt. Juliet, Tennessee in the form of the copy of the Agreement included in these Contract Documents to provide all necessary machinery, tools, apparatus and other means of construction, including utility and transportation services necessary to do all the work, and furnish all the materials and equipment specified or referred to in the Contract Documents in the manner and time herein prescribed and according to the requirements of the Owner as therein set forth, furnish the Contractor's Bonds and Insurance specified in the General Conditions of the Contract, and to do all other things required of the Contractor by the Contract Drawings, and that he will take in full payment therefore the sums set forth in the following Bidding Schedule.

NOT OFFICIAL DOCUMENT

I. BIDDING SCHEDULE FOR SEWER MAINS

A. Unit Price Construction Items for Sewer Mains

Item No. 1

250 linear feet of proposed 18" SDR 26, PS 115 PVC sanitary sewer main, all depths, under roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

Item No. 2

270 linear feet of proposed 18" SDR 26, PS 115 PVC sanitary sewer main, 0-6 feet deep, outside roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

Item No. 3

3,280 linear feet of proposed 18" SDR 26, PS 115 PVC sanitary sewer main, 6-9 feet deep, outside roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

Item No. 4

698 linear feet of proposed 18" SDR 26, PS 115 PVC sanitary sewer main, 9 feet or greater depths, outside roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

Item No. 5

105 linear feet of proposed 18" DR 17 IPS HDPE sanitary sewer main, all depths, inside existing 20" casing pipe, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

Item No. 6

65 linear feet of proposed 18" SDR 26, PS 115 PVC sanitary sewer main, all depths, under creek per Standard Creek Crossing Detail and TDEC Permit, including handling wastewater flows, handling creek flows, concrete check dams, concrete encasement, and all other work described in the Contract Documents, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

Item No. 7

20 – Replace existing manhole with new 4-foot diameter precast concrete manhole ASTM C-478 (48" diameter) with Xypex Concrete Admixture, 0-9 deep, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 8

5 – Proposed Standard 4-foot diameter precast concrete manhole ASTM C-478 (48" diameter) with Xypex Admixture, 0-9 deep, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 9

15 vertical foot of Additional depth of manhole circular sidewall with Xypex Admixture, 9' + depth, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per vertical foot Total

Item No. 10

25 – Watertight manhole frame and cover watertight manhole frame and cover, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 11

9 – Install manhole sewer marker / bollard, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 12

4 – Install manhole vent pipe assembly, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 13

7 – 18" x 6" sewer service connection on PVC gravity sewer mains, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 14

70 linear feet of 6" SDR 26 PVC sewer service line and / or riser pipe, under or outside of roadway, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

Item No. 15

7 – Reconnect a 4" or 6" gravity sewer service reconnections including all fittings with clean-out box, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 16

6 – Reconnect existing gravity sewer mains (various sizes) to proposed manholes, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 17

4 – Bulkhead existing sewer mains (various sizes), complete in place.

@ _____ Dollars _____ Cents
\$ _____
each Total

Item No. 18

4 – Abandon and / or remove existing manholes (various sizes), complete in place.

@ _____ Dollars _____ Cents
\$ _____
each _____ Total _____

Item No. 19

23 – Earthen check dam, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
each _____ Total _____

Item No. 20

4,320 linear feet of Topsoil and seeding of trenches, complete in place.

@ _____ Dollars _____ Cents
\$ _____
per linear feet _____ Total _____

Item No. 21

20 linear feet of Pavement replacement, Type "A" asphalt full width overlay, in compliance with city paving standards, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot _____ Total _____

Item No. 22

30 linear feet of Asphalt driveway / parking lot pavement replacement / greenway, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot _____ Total _____

Item No. 23

180 linear feet of Concrete driveway replacement, complete in place and ready for use.

@ _____ Dollars _____ Cents
\$ _____
per linear foot _____ Total _____

Item No. 24

50 linear feet of Gravel driveway replacement, complete in place.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

B. UNIT PRICE CONSTRUCTION ITEMS ORDERED BY THE ENGINEER

Item No. 25

10 cubic yards of Class C concrete (2,000 psi) for encasement, concrete caps (including reinforcing steel) including concrete for bulk-heading existing pipes (as required), complete in place.

@ _____ Dollars _____ Cents
\$ _____
per cubic yard Total

Item No. 26

20 tons of Bituminous (temporary) cold mix asphalt, complete in place.

@ _____ Dollars _____ Cents
\$ _____
per ton Total

Item No. 27

30 cubic yards of Unclassified excavation for undercuts, complete in place.

@ _____ Dollars _____ Cents
\$ _____
per cubic yard Total

Item No. 28

30 cubic yards of Crushed stone backfill for undercuts, complete in place.

@ _____ Dollars _____ Cents
\$ _____
per cubic yard Total

Item No. 29

4,000 linear feet of silt fencing, sediment tubes, or approved equal device(s) for erosion control, complete in place.

@ _____ Dollars _____ Cents
\$ _____
per linear foot Total

C. LUMP SUM CONSTRUCTION ITEMS ORDERED BY THE ENGINEER

Item No. 30

1 – Connect proposed 18” sewer main to existing manhole at Station 0+00 on sheet 3, including but not limited to handling wastewater flows, resilient manhole connector boot, reworking invert, kor-n-seal connection, and all other work required and/or indicated for a complete and ready to use installation.

@ _____ Dollars _____ Cents

\$ _____ per lump sum each _____ Total

TOTAL BASE BID FOR UNIT PRICE AND LUMP SUM CONSTRUCTION ITEMS

The sum of Item Numbers 1 through 30 is

_____ (in writing)

Dollars and _____ Cents

(in writing)

Total Bid \$ _____

(in figures)

II. PROPOSAL CONDITIONS

- A. It is expressly understood that quantities in the Bidding Schedule for Unit Price Items are approximate only and that payment on a Contract will be made only on the actual quantities of work completed in place, measured on the basis defined in the Contract Conditions and the Contract Specifications.
- B. The undersigned has carefully checked the above Bidding Schedule against the Contract Drawings and Specifications before preparing this Proposal and accepts the said quantities to be substantially correct, both as to classification and amount, and as correctly listing the complete work to be done in accordance with the Contract Drawings and Specifications.
- C. If this Proposal is accepted and the undersigned shall fail to contract as aforesaid, and to give the bond for faithful performance required by the General Conditions of Contract and by law, and to provide all insurance as required by the Contract Documents within fifteen (15) days after the date of the award of the Contract, the City of Mt. Juliet, Tennessee, at its option, determined that the bidder has abandoned this Contract and thereupon this Proposal and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this Proposal shall operate and the same shall be the property of the City of Mt. Juliet, Tennessee.

III. BID SECURITY

Accompanying this Proposal is a _____,

in the amount of _____

Dollars (\$ _____).

- Note: (a) Insert the words "Cash," "Cashier's Check," "Certified Check" or "Bid Bond" as the case may be.
- (b) Amount must be equal to at least that stated in the Notice to Bidders but not less than that required by State Statutes.

IV. GENERAL

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

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the conditional acceptance of this bid, bidder will execute the formal Contract attached within 15 days and deliver the Surety Bond or Bonds and insurance as required by the Contract Documents. The bid security attached in the sum of _____ Dollars (\$) _____ is to become the property of the Owner in the event the Contract, Insurance and Bonds are not executed within the time above set forth.

V. STARTING AND COMPLETION AND LIQUIDATED DAMAGES

If awarded a Contract under this Proposal, the Undersigned proposes to start work at the site within fifteen (15) calendar days after the receipt from the Owner of a written Notice to Proceed. The Undersigned further agrees to fully complete all work covered by this Proposal to the point of final acceptance by the Owner within **300** consecutive calendar days from and including the date of receipt from the Owner of a written Notice to Proceed.

NOTE: The Contractor's attention is directed to the provisions for Liquidated Damages as provided in Paragraph 13 of the Supplementary Conditions and in the Agreement Section in addition to the Excess Cost of Engineering.

VI. PROPOSAL SIGNATURE

State of _____)
 County of _____)ss

_____, being first duly sworn on oath deposes and says that the bidder on the above proposal is organized as indicated below and that all statements herein made are made on behalf of such bidder and that this deponent is authorized to make them.

_____, also deposes and says that he has examined and carefully prepared his bid proposal from the Contract Drawings and Specifications and has checked the same in detail before submitting this Proposal or bid; that the statements contained herein are true and correct.

(a) Corporation

The bidder is a corporation organized and existing under the laws of the State of _____, which operates under the legal name of _____, and the full names of its officers are as follows:

President _____
Secretary _____
Treasurer _____
Manager _____

and it (does) or (does not) have a corporate seal. The (name) _____ is authorized to sign construction proposals and contracts for the company by action of its Board of Directors taken on _____, a certified copy of which is hereto attached. (Strike out this last sentence if not applicable.)

(b) Partnership

The bidder is a partnership consisting of individual partners whose full names are as follows:

The partnership does business under the legal name of:

(c) Individual

The bidder is an individual whose full name is _____, and, if operating under a trade name, said trade name is _____.

Dated _____, 20____

(Seal - If Corporation)
(Sign Here)

Legal Entity

By: _____

Telephone No. _____

Subscribed and sworn to before me this _____ day of _____, 20_____.

Notary Public

My Commission Expires:

NOT OFFICIAL BID DOCUMENT

CONTRACTOR'S BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____
(hereinafter called the Principal) and _____
_____,
(hereinafter called the Surety), a corporation chartered and existing under the laws of the State of _____
with its principal offices in the City of _____
and authorized to do business in the State of _____ are held and firmly
bound unto the City of Mt. Juliet, Tennessee (hereinafter called the Owner), in the full and just sum of
_____ Dollars (\$_____)

good and lawful money of the United States of America, to be paid upon demand of the Owner, to which
payment well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors,
administrators, and assigns, jointly and severally and firmly by these presents.

WHEREAS, the Principal is about to submit or has submitted to the Owner, a proposal for
furnishing all labor, materials, equipment and incidentals necessary to furnish and install the 2025 Sewer
Improvements project.

WHEREAS, the Principal desires to file this bond in accordance with law, in lieu of a certified
bidder's check otherwise required to accompany this Proposal.

NOW, THEREFORE: The conditions of this obligation are such that if the Proposal be accepted,
the Principal shall, within fifteen days after the date of receipt of a written notice of award of contract,
execute a contract in accordance with the Proposal and upon the terms, conditions and price(s) set forth
therein, of the form and manner required by the Owner, and execute a sufficient and satisfactory contract
performance bond payable to the Owner, in an amount of One Hundred Percent (100%) of the total
contract price in form and with security satisfactory to said Owner, then this obligation to be void;
otherwise to be and remain in full force and virtue in law; and the Surety shall, upon failure of the Principal
to comply with any or all of the foregoing requirements within the time specified above, immediately pay
to the aforesaid Owner, upon demand, the amount hereof in good and lawful money of the United States
of America.

IN TESTIMONY THEREOF, the Principal and Surety have caused these presents to be duly signed
and sealed this _____ day of _____, 20_____.

Principal

BY _____
(Seal)

Surety

(Seal)

Countersigned

Local Resident Producing Agent for _____

STATEMENT OF COMPLIANCE CERTIFICATE

EACH CONTRACTOR BIDDING SHALL FILL IN AND SIGN THE FOLLOWING:

This is to certify that _____ have fully complied with all the requirements of TCA § 50-9-113 and TCA § 50-9-114 Tennessee Code Annotated; Title 50; attached herewith for reference.

- The City of Mt. Juliet, Tennessee operates a drug-free workplace program as certified under this chapter.
- Mt. Juliet, Tennessee’s drug-free workplace program provides for testing of employees for workplace use of drugs or alcohol.
- All Bidders for construction services on this project shall be required to submit an affidavit (by executing this compliance document) as part of their bid, that attests that such Bidder operates a drug-free workplace program or other drug or alcohol testing program with requirements at least as stringent as that of the program operated by the City of Mt. Juliet, Tennessee.

Note: All prospective Bidders may review the City of Mt. Juliet, Tennessee’s drug-free workplace program by contacting the City of Mt. Juliet, Tennessee at the location provided in the Invitation to Bid.

Signed: _____

State of _____)
County of _____) ss

Personally appeared before me, _____ the undersigned Notary Public, _____, the within named bargainor, with whom I am personally acquainted, and known to me to be the President / Owner / Partner (as applicable) of the _____, Corporation, Partnership, Sole Proprietorship (as applicable) and acknowledged to me that he executed the foregoing document for the purposes recited therein.

Witness my hand, at office, this _____ day of _____, 20__.

Notary Public

My commission expires _____.

Source: Tennessee Codes/TITLE 50 EMPLOYER AND EMPLOYEE /CHAPTER 9 DRUG-FREE WORKPLACE PROGRAMS /50-9-113. State and local government construction contracts.

50-9-113. State and local government construction contracts.

(a) Each employer with five (5) or more employees receiving pay who contracts with the state or any local government to provide construction services or who is awarded a contract to provide construction services or who provides construction services to the state or local government shall submit an affidavit stating that such employer has a drug-free workplace program that complies with this chapter, in effect at the time of such submission of a bid at least to the extent required of governmental entities. Any private employer that certifies compliance with the drug-free workplace program, only to the extent required by this section, shall not receive any reduction in workers' compensation premiums and shall not be entitled to any other benefit provided by compliance with the drug-free workplace program set forth in this chapter. Nothing in this section shall be construed to reduce or diminish the rights or privileges of any private employer who has a drug-free workplace program that fully complies with this chapter. For purposes of compliance with this section, any private employer shall obtain a certificate of compliance with the applicable portions of the Drug-free Workplace Act from the department of labor and workforce development. No local government or state governmental entity shall enter into any contract or award a contract for construction services with an employer who does not comply with the provisions of this section.

(b) For the purposes of this section, "employer" does not include any utility or unit of local government, "Employer" includes any private company or corporation.

(c) If it is determined that an employer subject to the provisions of this section has entered into a contract with a local government or state agency and such employer does not have a drug-free workplace pursuant to this section, such employer shall be prohibited from entering into another contract with any local government or state agency until such employer can prove compliance with the drug-free workplace program pursuant to this section. If the same employer again contracts with any local government or state agency and does not have a drug-free workplace program pursuant to this section, then such employer shall be prohibited from entering into another contract with any local government or state agency for not less than three (3) months from the date such violation was discovered and verified and shall be prohibited from entering into another contract until such employer complies with the drug-free workplace program pursuant to this section. If the same employer for a third time contracts with any local government or state agency and does not have a drug-free workplace program pursuant to this section, then such employer shall be prohibited from entering into another contract with any local government or state agency for not less than one (1) year from the date such violation was discovered and verified and shall be prohibited from entering into another contract until such employer complies with the drug-free workplace program pursuant to this section.

(d) A written affidavit by the principal officer of a covered employer provided to a local government at the time such bid or contract is submitted stating that the employer is in compliance with this section shall absolve the local government of all further responsibility under this section and any liability arising from the employer's compliance or failure of compliance with the provisions of this section.

[Acts 2000, ch. 918, §§ 1,2.]

Source: Tennessee Code/TITLE 50 EMPLOYER AND EMPLOYEE /CHAPTER 9 DRUG-FREE WORKPLACE PROGRAMS /50-9-114. Information to be included within bid or procurement specifications for construction services – Contesting a contract.

50-9-114. Information to be included within bid or procurement specifications for construction services – Contesting a contract.

(a) The state or any local government, including departments, divisions, or agencies thereof, shall include within any bid or procurement specifications for construction services the following information:

(1) A statement as to whether the government entity issuing a construction service bid or other procurement specification operates a drug-free workplace program as certified under this chapter or operates any other program that provide for testing of employees for workplace use of drugs or alcohol;

(2) If operating such a program, a statement that describes the government entity's drug-free workplace or alcohol and drug testing program; and

(3) A statement that all bidders or proposals for construction services are required to submit an affidavit as part of their bid, that attests that such bidder operates a drug-free workplace program or other drug or alcohol testing program with requirements at least as stringent as that of the program operated by the governmental entity.

(b) Unless suit is filled in chancery court, employers shall have seven (7) calendar days to contest a contract entered into by employers subject to the provisions of this section with a local government or state government. Employers that do not contest such contracts within seven (7) calendar days by filing suit in chancery court shall waive their rights to challenge such contracts for violating the provisions of this section. Such contracts shall be contested in chancery court in the county where the contract was entered. The trial of the alleged violation of the provisions of this section shall be expedited by giving it priority over all cases on the trial docket, except workers' compensation cases.

[Acts 2002, ch. 693, § 1.]

Chapter No. 878] PUBLIC ACTS, 2006

CHAPTER NO. 878

HOUSE BILL NO. 111

By Representatives Moore, Hood, Davidson, Borchert, Sherry Jones, Langster, Tidwell, Hackworth, Cobb, Eldridge, Favors, Brown, Rowe, Mike Turner, Pruitt, McDonald, Eric Watson, Campfield, Hensley, McKee, Roach, DuBois

Substituted for: Senate Bill No. 411

By Senators Haynes, Ketron, Cohen

AN ACT to amend Tennessee Code Annotated, Title 12, Chapter 4, relative to public contracts.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 12, Chapter 4, Part 1, is amended by inserting the following as a new, appropriately designated section:

(a)

(1) The state or other state entities shall not contract to acquire goods or services from any person who knowingly utilizes the services of illegal immigrants in the performance of a contract for goods or services entered into with the state or a state entity.

(2) No person may contract to supply goods or services to the state or other state entities if that person knowingly utilizes the services of illegal immigrants in the performance of a contract to supply goods or services entered into with the state or a state entity.

(3) After the effective date of this act, no person may enter into a contract to supply goods or services to the state or other state entities without first attesting in writing that the person will not knowingly utilize the services of illegal immigrants in the performance of the contract and will not knowingly utilize the services of any subcontractor who will utilize the services of illegal immigrants in the performance of the contract.

(b) If any person who contracts to supply goods or services to the state or other state entities, or who submits a bid to contract to supply goods or services to the state or other state entities, is discovered to have knowingly utilized the services of illegal immigrants in the performance of such a contract to supply goods or services to the state or other state entities, the commissioner of finance and administration shall declare that person to be prohibited from contracting for or submitting a bid for any contract to supply goods or services to the state or other state entities for a period of one (1) year from the date of discovery of the usage of illegal immigrant services in the performance of a contract to supply goods or services to the state or other state entities.

(c) Any person who is prevented from contracting for or submitting a bid for a contract to supply goods or services to the state or other state entities for one (1) year pursuant to subsection (b) may appeal the imposition of the one (1) year prohibition by utilizing an appeals process to be established by the commissioner of finance and administration.

Chapter No. 878] PUBLIC ACTS, 2006

SECTION 2. The commissioner of finance and administration is authorized to promulgate rules and regulations to effectuate the purposes of this act. All such rules and regulations shall be promulgated in accordance with the provisions of Tennessee Code Annotated, Title 4, Chapter 5.

SECTION 3. For the purpose of promulgating rules, this act shall take effect upon becoming a law, the public welfare requiring it. For all other purposes, this act shall take effect January 1, 2007, the public welfare requiring it.

PASSED: May 25, 2006

APPROVED this 15th day of June 2006


JIMMY RAIFEH, SPEAKER
HOUSE OF REPRESENTATIVES


JOHN S. WILDER
SPEAKER OF THE SENATE


PHIL BREDESEN, GOVERNOR

SENATE BILL 1188
By Niceley

HOUSE BILL 1052
By Jernigan

AN ACT to amend Tennessee Code Annotated, Title 4; Title 8 and Title 12, relative to public contracts.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 12, Chapter 4, Part 1, is amended by adding the following language as a new section: 12-4-127.

(a) On and after the effective date of this act, in the case of any contract for services to be let by a department or agency of state government organized in title 4, chapter 3, to an outside entity, the commissioner or director of such department or agency shall certify to the comptroller of the treasury that:

(1) No state employee within that department or agency is capable of accomplishing the tasks sought to be contracted;

(2) No vacant positions in such department or agency exist that can be filled by hiring an employee to perform the services in lieu of contacting for such services to an outside entity;

(3) A cost-benefit analysis has been conducted regarding the contract and the benefit has been determined to exceed the cost;

(4) The proposed contractor does not have a record of misconduct in the performance of any past or present contract with the state of Tennessee or any other contracting agency. For the purpose of this section, evidence of misconduct shall include any finding by any criminal or civil court of competent jurisdiction in the United States, or by any agency of federal government or the state government of Tennessee, that the contractor has conducted business dishonestly or has acted in violation of state or federal law, or has violated the legally protected rights of its employees or of any other persons; and

(5) The contracting department or agency or another state department or agency competent to do so will oversee the performance of the contract. No third party outside of state government will conduct such oversight.

(b) The commissioner or director shall attach to the certification required under subsection (a) persuasive written reasons as to the inability of the department or agency's employees to perform the services required under the contract. The commissioner or director shall also attach a copy of the cost-benefit analysis to the certification.

SECTION 2. This act shall take effect July 1, 2013, the public welfare requiring it.

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

Effective July 1, 2016, this form must be submitted for any contract that is subject to the Iran Divestment Act, Tenn. Code Ann. § 12-12-101, et seq., ("Act"). This form must be submitted with any bid or proposal regardless of where the principal place of business is located.

Pursuant to the Act, this certification must be completed by any corporation, general partnership, limited partnership, limited liability partnership, joint venture, nonprofit organization, or other business organization that is contracting with a political subdivision of the State of Tennessee.

Certification Requirements.

No state agency or local government shall enter into any contract subject to the Act, or amend or renew any such contract with any bidder/contractor who is found ineligible under the Act.

Complete all sections of this certification and sign and date it, under oath, in the presence of a Notary Public or a person authorized to take an oath in another state.

CERTIFICATION:

I, the undersigned, certify that by submission of this bid, each bidder and each person signing on behalf of any Respondent certifies, and in the case of a joint bid or contract each party thereto certifies, as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to Tenn. Code Ann. § 12-12-106.

Respondent represents it has the full power, knowledge, and authority to make this Certification and that the signatory signing this Certification on behalf of bidder/contractor has been duly authorized to do so on behalf of the bidder/contractor.

Sworn as true to the best of my knowledge and belief, subject to the penalties of false statement.

Printed Respondent Name Printed Name of Authorized Official

Signature of Authorized Official

Date

LIST OF SUBCONTRACTORS

PROJECT: 2025 SEWER SYSTEM IMPROVEMENTS

The undersigned states that the following is a full and complete list of the proposed subcontractors on this Project and the class of work to be performed by each, and that such list will not be added to nor altered without written consent of the Owner.

<u>Subcontractor and Address</u>	<u>Class of Work to be Performed</u>
(1) _____ _____	_____
(2) _____ _____	_____
(3) _____ _____	_____
(4) _____ _____	_____
(5) _____ _____	_____
(6) _____ _____	_____
(7) _____ _____	_____
Dated _____	_____ Bidder

By _____

STATEMENT OF EXPERIENCE OF BIDDER

The bidder is requested to state below that work of similar magnitude in order to judge his experience, skill and business standing and his ability to conduct the work as completely and as rapidly as required under the terms of the Contract.

<u>Project and Location</u>	<u>Reference</u>
(1) _____ _____	_____ _____
(2) _____ _____	_____ _____
(3) _____ _____	_____ _____
(4) _____ _____	_____ _____
(5) _____ _____	_____ _____
(6) _____ _____	_____ _____
(7) _____ _____	_____ _____
Dated _____	_____ Bidder

By _____

AGREEMENT SECTION

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

2025 SEWER SYSTEM IMPROVEMENTS

SUPPLEMENTARY CONDITIONS OF CONTRACT

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SUPPLEMENTARY CONDITIONS OF CONTRACT

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

1. Construction Operations and Material Storage

The Contractor must carry on all his construction operations, including storage of materials, in such a way as to interfere as little as possible with the operation and maintenance of existing sewer facilities.

2. Soil Erosion, Sediment Control, and Notice of Intent (Storm Water)

2.1 The Contractor shall plan and control his construction operations to minimize all soil erosion and the siltation of drains and streams resulting from such erosion. All methods used for such control shall be approved by the Engineer.

2.2 The Contractor's attention is directed to Division G, Section 3 (Construction) - "Slope Protection and Erosion Control." This provision will be required on this project. All work shall be performed in full compliance with requirements of the State of Tennessee, Division of Water Pollution Control. The Contractor shall provide and use all measures necessary to comply with State regulations. No separate payment will be made for this work.

2.3 Where the Contractor's operations subject soil to erosion by the wind, he shall control such erosion by approved methods until affected areas can be seeded and mulched.

2.4 The Contractor's attention is directed to the requirement for executing a Notice of Intent (NOI) for storm water discharges upon award of this project if so required. This NOI, which is included in the Agreement Section (if required), must be executed by the Contractor after award of project. The Owner will pay required fee (if required) and transmit the NOI package to the State for review and approval. This NOI (if required) must be approved by the State of Tennessee prior to beginning work on this project.

It shall be the responsibility of the Contractor to fully comply with all requirements and regulations of the NOI, storm water discharge regulations, and all other requirements contained herein.

3. Project Sign (NOT REQUIRED FOR THIS PROJECT)

3.1 The Contractor shall furnish and erect one sign at an appropriate place on the project site as approved by the Engineer. The Contractor shall be responsible for protecting and maintaining the sign in good condition throughout the life of the project.

3.2 The sign will be fabricated of good quality 1-inch exterior plywood with suitable frames and posts. A 4-inch x 1¼-inch molding strip shall be placed around the outer edge projecting over the face of the sign. The entire woodwork shall be given a prime coat and final coats of high-grade sign enamel. The sign shall be not less than 4 feet by 8 feet and shall contain, at a minimum, the name of the Owner and its Officials, Project Name and

Number, Contractor and Engineer. Layout of the sign shall be approved by the Engineer before painting. Lettering shall be done by a professional painter.

4. Contract Drawings

The Drawings applicable to the work to be performed under this Contract are referred to in this document as Contract Drawings and described as follows:

CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

2025 SEWER SYSTEM IMPROVEMENTS

The sheet index and titles of all drawings appear on the index sheet of the Contract Drawings.

5. Arrangement and Charge for Water and Electrical Power

Where the Contractor desires a water and electrical power supply in connection with any construction work, he shall make complete and satisfactory arrangements with the City of Mt. Juliet, Tennessee, Department of Public Works or the appropriate utility furnishing the service.

Payments shall be made by the Contractor in accordance with the Department's official rates and policies.

6. Use of Fire Hydrants

The Contractor shall not open, turn on, or make any connection to any hydrant unless prior written permission of the City of Mt. Juliet, Tennessee and the West Wilson Utility District (local water utility) is obtained.

7. Barricades and Warning Signs

The Contractor shall furnish, erect and maintain such barricades, fences, lights and danger signals, and take such other precautionary measures that will ensure the protection of persons, property and the work.

Traffic control devices shall meet the requirements of the "Manual of Uniformed Traffic Control Devices" (MUTCD).

Special Requirements may be required by City of Mt. Juliet or State of Tennessee concerning tunnel/bore crossings and the other work near City roadways and/or State Highways on this project. The Contractor shall comply with these requirements.

8. Use of Explosives (NOT ALLOWED ON THIS PROJECT)

Should the Contractor elect to use explosives in the prosecution of the work and if permitted in this Contract, the Contractor shall employ only workmen familiar and skilled in the use of explosives, carefully cover the explosion with suitable timber, matting and/or excavation, and exercise the utmost care so as not to endanger life or property.

The Contractor shall obtain all necessary permits and/or licenses and carry on such work in compliance with all City of Mt. Juliet, Tennessee Ordinances and State of Tennessee Laws.

Whenever explosives are stored or kept they shall be stored in a safe and secure manner and all storage places shall be plainly marked "DANGEROUS -- EXPLOSIVES."

NOTE: If the Contractor chooses to utilize trenching machines or rock trenchers, the Contractor shall perform such trench excavation operations in full compliance with all applicable OSHA and TOSHA safety requirements pertaining to trench excavations.

9. Restoration of Disturbed Areas

The Contractor shall be required to restore all areas disturbed by his operation to a condition equal to or better than the condition prevailing prior to construction.

10. Vegetation Damage

Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage.

The Contractor shall be restricted in residential areas as to which trees or major tree branches may be cut or trimmed. These restrictions are due to easement acquisition on residential properties.

Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

11. Coordination of Work

The Owner may award other separate contracts in connection with this project requiring work on or near the project site and may progress simultaneously with the work relating to the construction under this Contract. It is, therefore, a requirement that each contractor, including the Contractor for this Contract, coordinate his operations with those of other contractors, especially where connections must be made between contracts.

12. Sequence of Operations

The work designated to be performed under this Contract shall be coordinated in such manner that there shall be a minimum of interference with traffic and existing utilities. Existing water, gas, electric and communications shall not be interrupted without prior arrangements having been made with the management of the utility involved.

Backfilling and clean-up work shall be continuously prosecuted to the point that satisfactory ingress and egress to roadways can be maintained.

During the period required for construction under this Contract, it will be necessary that any existing sewer facilities, sanitary sewers, force mains, and pumping stations, be maintained in operation. The Contractor shall prepare and submit to the Owner and the Engineer a schedule of operations for approval. The Contractor shall dispose of all storm water and sewage accumulated in a manner acceptable to the Engineer.

13. Time for Completion and Liquidated Damages

The successful bidder shall commence work within 15 calendar days from and after the issuance by the Owner of a Written Notice to Proceed and shall complete all work in accordance with the terms and conditions of the Contract Documents within **300** consecutive calendar days from and after the date of the Notice to Proceed. The Notice to Proceed will be issued within 10 days after award of the Contract.

It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the Contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the "Notice to Proceed."

The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed by and between the Contractor and the Owner that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality. If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Agreement, not a penalty but as liquidated damages for breach of Contract, as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the work.

The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain, and said amount shall be retained from time to time by the Owner from current periodical estimates.

Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

- a. To any preference, priority or allocation order duly issued by the government;
- b. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a Contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight, embargoes, and unusually severe weather; and
- c. To any delays of subcontractors or suppliers occasioned by any of the causes specific in subsections a and b of this article.

Provided, further that the Contractor shall within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner in writing of the causes of the delay and notify the Contractor within a reasonable time of its decision in the matter.

14. Maintenance and Access of Traffic

Portions of the work are located in developed areas requiring the access for fire and other departments to be provided for, and at least one free lane shall be available for all traffic. Contractors are to arrange operations in these areas to meet these requirements and secure approval of operating procedures from the City of Mt. Juliet, Tennessee, Wilson County Road Commission, or Tennessee Department of Transportation, as the case may be.

15. Pavement Restoration

Where sewer lines are constructed under paved roadway surfaces within public rights-of-way, the Contractor will restore the asphalt or crushed stone pavement and/or shoulders between shoulder lines. It shall be the responsibility of the Contractor, upon completion of the sewer installation, to regrade the street with pug mix to the template that existed prior to construction. This regrading shall be satisfactory to City of Mt. Juliet, Tennessee or the Wilson County Road Commission before the street is released for paving operations.

The Contractor shall further be responsible for the maintenance of disturbed streets until repaving operations have been initiated.

The Contractor shall be responsible for adjusting all new and existing utility castings and utility valve boxes to the final pavement elevations. All costs associated with this work shall be merged into unit price items established for pavement restoration.

The Contractor shall restore all curbs, gutters, sidewalks, ramps and private driveways or parking lots. Compensation for this work is detailed in other portions of this Document and any item, which must be removed as was evidenced and necessary for the installation of the proposed sewer lines for which there is no specific pay item(s), shall be considered as incidental to the construction of the proposed sewer and, therefore, no additional compensation will be allowed for the restoration of this (these) item(s).

The Contractor shall also be required to restore, at his own expense, all pavements disturbed by his operations where the sewer line was not constructed under the pavements or where existing pavements were disturbed in the correction of deficiencies discovered after restorations have been completed.

16. Work in Easements

Portions of the work to be constructed under this Contract lie within easements on private property. Work performed in such easements shall be subject to the provisions of said easements which may be found in the office of the City of Mt. Juliet, Tennessee. In general, these Easement Agreements provide for restoring the property to the condition existing before construction began.

Unless indicated otherwise, these easement widths are as follows:

Permanent Easement - 20 feet.

Typical Additional Temporary Construction Easements for Sewers above 12-inch diameter shall not exceed 15 feet on both sides.

17. Property Damage Claims

Any and all property damage claims received by the Owner, their agents, or the Contractor resulting from any alleged operation of the Contractor shall be investigated promptly (within 14 days) by the Contractor or insurance carrier. Any such claims made to the Owner shall be forwarded to the Contractor in writing and the Contractor shall subsequently forward such claims to his insurance carrier. Before final payment is made by the Owner to the Contractor, a summary of the Contractor's disposition of all such claims shall be provided to the Owner. Nothing contained in this paragraph shall be interpreted by the Contractor to lessen the requirements of the General Condition.

18. Wastewater Bypassing

The Contractor shall ensure that no wastewater bypassing will occur due to construction activities unless a schedule is approved by the State of Tennessee Division of Water Pollution Control and the U.S. Environmental Protection Agency. Contractor shall provide a Bypass pump system with sound attenuation and telemetry for management of existing flows.

19. Supervision and Emergency Procedures

The Contractor shall man this project with adequate and qualified foremen and superintendents at all times. During weekends and night time hours, the Contractor shall have someone who can be on call (with names and telephone numbers) to be furnished to the Engineer and City of Mt. Juliet, Tennessee for emergency measures such as backfilling open holes, placing of barricades, and correction of other potential problems and/or hazards. During regular working hours, the Contractor should arrange for a local office and someone to receive phone calls and instructions and/or questions.

20. Work in City and State Road Rights-of-Way

When ordered by the Engineer or Owner's Representative, the Contractor shall place temporary cold mix in street trench cuts. This temporary pavement shall be properly maintained by the Contractor until such time as final pavement restoration is completed.

The Contractor shall make every possible effort to backfill all excavations at the end of each day's construction operations. To accomplish this procedure, the Contractor shall mark and/or reference the end of the pipe each day for reopening trench the next morning. In some cases the use of "sand or gravel bags" will facilitate this procedure, especially where major roads or highways must be crossed one lane at a time.

21. Deletions by Owner

Portions or segments of this work may be deleted by the Owner at their discretion during the course of construction operations because of funding considerations and/or unforeseen or unknown difficult construction conditions which may arise during the course of the work which this Contract does not cover.

- a. General Aggregate \$2,000,000
- b. Products – Completed Operations Aggregate \$2,000,000
- c. Personal and Advertising Injury \$1,000,000
- d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
- e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverage where applicable.
- f. Excess or Umbrella Liability \$5,000,000

3. Automobile Liability under Paragraph 6.03.D of the General Conditions:

- a. Combined Single Limit (Each accident) \$1,000,000

4. The Contractual Liability coverage required by Paragraph 6.03.H the following amounts:

\$1,000,000

5. The Owner and Water Management Services, LLC shall be named as additionally insured.

26. Property Insurance – (No Builders Risk Insurance required on this project)

Delete Paragraph 6.05 of the Standard General Conditions in its entirety and insert the following in its place:

A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof.

1. This insurance shall:

- a. include the interests of Owner, Contractor, Subcontractors, Engineer and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
- b. be written on a Builder’s Risk “all-risk” or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

- c. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 - d. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 - e. allow for partial utilization of the Work by Owner;
 - f. include testing and startup; and
 - i. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.
2. Contractor shall be responsible for any deductible or self-insured retention.
 3. The policies of insurance required to be purchased and maintained by Contractor in accordance with this Supplementary Conditions Page 8 Item 27- Liability Insurance and shall comply with the requirements of paragraph 6.05 of the General Conditions.



TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
 Division of Water Resources
 William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor,
 Nashville, Tennessee, 37243
 1-888-891-8332 (TDEC)

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Certification

OFFICIAL STATE USE ONLY	Site #:	Permit #:
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Section 1. Applicant Information (individual responsible for site, signs certification below)

Applicant Name (company or individual):		SOS #:	Status:
Primary Contact/Signatory:		Signatory's Title or Position:	
Mailing Address:		City:	State: Zip:
Phone:	Fax:	E-mail:	

Section 2. Alternate Contact/Consultant Information (a consultant is not required)

Alternate Contact Name:			
Company:		Title or Position:	
Mailing Address:		City:	State: Zip:
Phone:	Fax:	E-mail:	

Section 3. Fee (application will be incomplete until fee is received)

No Fee	Fee Submitted with Application	Amount Submitted: \$ _____
Current application fee schedules can be found at the Division of Water Resources webpage at: https://www.tn.gov/environment/permit-permits/water-permits/1/aquatic-resource-alteration-permit--arap-.html or by calling (615) 532-0625. Please make checks payable to "Treasurer, State of Tennessee".		
Billing Contact (if different from Applicant):	Name:	Email:
Address:	Phone:	

Section 4. Project Details (fill in information and check appropriate boxes)

Site or Project Name:		Nearest City, Town or Major Landmark:			
Street Address or Location (include zip):					
County(ies):	MS4 Jurisdiction:	Latitude (dd.dddd):			
		Longitude (dd.dddd):			
Resources Proposed for Alteration:	Stream / River	Wetland	Reservoir		
Name of Water Resource (for more information, access http://tdeconline.tn.gov/dwr):					
Brief Project Description (a more detailed description is required under Section 8):					
Does the proposed activity require approval from the U.S. Army Corps of Engineers, the Tennessee Valley Authority, or any other federal, state, or local government agency? <table style="margin-left: 200px;"> <tr> <td>Yes</td> <td>No</td> </tr> </table>				Yes	No
Yes	No				
If Yes, provide the permit reference numbers:					
Will the activity require a 401 Water Quality Certification: <table style="margin-left: 200px;"> <tr> <td>Yes</td> <td>No</td> </tr> </table>				Yes	No
Yes	No				
If Yes, attach any 401 WQC pre-filing meeting request documentation					
Is the proposed activity associated with a larger common plan of development: <table style="margin-left: 200px;"> <tr> <td>Yes</td> <td>No</td> </tr> </table>				Yes	No
Yes	No				
If Yes, submit site plans and identify the location and overall scope of the common plan of development.					
Plans attached? <table style="margin-left: 200px;"> <tr> <td>Yes</td> <td>No</td> </tr> </table>				Yes	No
Yes	No				
If applicable, indicate any other federal, state, or local permits that are associated with the overall project site (common plan of development) that have been obtained in the past (e.g., construction general permit and/or other ARAP):					

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Certification

Section 5. Project Schedule (fill in information and check appropriate boxes)		
Proposed start date:	Estimated end date:	
Is any portion of the activity complete now?	Yes	No
If yes, describe the extent of the completed portion:		

The required information in Sections 6-11 must be submitted on a separate sheet(s) and submitted in the same numbered format as presented below. If any question is not applicable, state the reason why it is not applicable.

Section 6. Description	Attached
	Yes No
6.1 A narrative description of the scope of the project	
6.2 USGS topographic map indicating the exact location of the project (can be a photographic copy)	
6.3 Photographs of the resource(s) proposed for alteration with location description (photo locations should be noted on map)	
6.4 A narrative description of the existing stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	
6.5 A narrative description of the proposed stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	
6.6 In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points	
6.7 A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site	

Section 7. Project Rationale	Attached
	Yes No
Describe the need for the proposed activity, including, but not limited to the purpose, alternatives considered and rationale for selection of least impactful alternative, and what will be done to avoid or minimize impacts to water resources	

Section 8. Technical Information	Attached
	Yes No
8.1 Detailed plans, specifications, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5.x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans should be superimposed on existing and new conditions (e.g., stream cross sections where road crossings are proposed)	
8.2 For the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods and any proposed monitoring	
8.3 Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alterations and any other measures to treat, control, or manage impacts to waters	

<p>Section 9. Water Resources Degradation (degree of proposed impact)</p> <p>Note that in most cases, activities that exceed the scope of the General Permit limitations are considered greater than <i>de minimis</i> degradation to water quality. Please provide your basis for concluding the proposed activity will cause one of the following levels of water quality degradation:</p> <ol style="list-style-type: none"> a. <i>De minimis</i> degradation, no appreciable permanent loss of resource values b. Greater than <i>de minimis</i> degradation (if greater than <i>de minimis</i> complete Sections 10-11) <p><i>For information and guidance on the definition of de minimis and degradation, refer to the Antidegradation Statement in Chapter 0400-40-03-.06 of the Tennessee Water Quality Criteria Rule:</i> https://publications.tnsosfiles.com/rules/0400/0400-40/0400-40.htm <i>For more information on specifics on what General Permits can cover, refer to the Natural Resources Unit webpage at:</i> https://www.tn.gov/environment/permit-permits/water-permits/1/aquatic-resource-alteration-permit--arap-.html</p>
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Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Certification

Section 10. Detailed Alternatives Analysis		Attached Yes No
10.1	Analyze all reasonable alternatives and describe the level of degradation and permanent loss of resource value caused by each alternative. Assessment must consider options other than the "Preferred" and "No Action" alternatives. Provide associated rationale for selecting or rejecting all alternatives considered and demonstration that the least impactful practicable alternative was selected.	
10.2	Discuss the social and economic consequences of each alternative	
10.3	Demonstrate that the degradation associated with the preferred alternative will not violate water quality criteria for uses designated in the receiving waters, and is necessary to accommodate important economic and social development in the area	

Section 11. Compensatory Mitigation		Attached Yes No
11.1	A detailed discussion of the proposed compensatory mitigation. Provide evidence of credit reservation if proposing to utilize a third-party provider.	
11.2	Analysis of any proposed appreciable loss of resource value using the TN Stream Mitigation Guidelines. Provide Stream Quantification Tool (SQT) results if applicable. Include Existing Condition Score (ECS) and debit/credit calculations.	
11.3	Describe how the compensatory mitigation would result in no net loss of resource value	
11.4	Provide a detailed monitoring plan for the compensatory mitigation site if permittee-responsible project is proposed	
11.5	Describe the long-term protection measures for the compensatory mitigation site if permittee-responsible project is proposed (e.g., deed restrictions, conservation easement)	

Certification and Signature

An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official, or other duly authorized employee. ***I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury. The project proponent hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.***

Printed Name	Official Title	Signature	Date
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Note that this form must be signed by the principal executive officer, partner or proprietor, or a ranking elected official in the case of a municipality; for details see **Certification and Signature** statement above. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed ARAP Application form (keep a copy for your records) to the appropriate EFO for the county(ies) where the proposed activity is located, addressed to **Attention: ARAP Processing**. You may also electronically submit the complete application and all associated attachments to water.permits@tn.gov.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Pkwy., Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601



NPDES Notice of Intent - Construction General Permit (CGP)

version 1.26

(Submission #: HQK-NB49-Q05T2, version 1)

Details

Originally Started By Jonathan Spear
Submitted 4/1/2026 (0 days ago) by SANGAPPA SHAMANUR
Submission ID HQK-NB49-Q05T2
Site Name Creekside Drive Interceptor
Status Submitted

Fees

Fee \$250.00
Payments/Adjustments (\$250.00)
Balance Due \$0.00 (Paid)

Form Input

Site Information

Site or Project Name
Creekside Drive Interceptor

Site Location

4147 N Mt Juliet Road
Mt Juliet, TN 37122

If an Aquatic Resource Alteration Permit (ARAP) has been obtained for this site, what is the permit number?

NR2504.344

SWPPP Uploads

If you are uploading shapefile extensions (.shp, .shx, .dbf, etc.), they will need to be compressed and uploaded as a .zip file.

Stormwater Pollution Prevention Plan (SWPPP)

22140 - Creekside Drive SWPPP Sheets.pdf - 04/01/2026 02:10 PM

22140 - Creekside Dr SWPPP Narrative.pdf - 04/01/2026 02:10 PM

Comment

NONE PROVIDED

[Click here for a sample site location map.](#)

Site Location Map

22140 - Location Map.pdf - 04/01/2026 01:51 PM

Comment

NONE PROVIDED

Owner/Developer Information

Please use correct legal name of person, company, or entity that has operation or design control over construction plans and specifications for the Site Owner/Developer Name. This company name should match SOS Control Number provided (if applicable).

Are you affiliated with Tennessee Valley Authority (TVA) or Tennessee Department of Transportation (TDOT)?

Neither

Site Owner/Developer Name (Site-Wide Permittee)

Mt Juliet Public Works

Ownership Type

Municipality

Please Lookup SOS Control Number

If you do not know your SOS Control Number, please access the Tennessee Secretary of State Business Information search engine below.

[Tennessee Secretary of State Business Search](#)

Contact Affiliation Type

Consultant

Additional Contacts

Prefix

NONE PROVIDED

First Name

Gage

Last Name

Dean

Title

NONE PROVIDED

Company Name

NONE PROVIDED

Phone Type

Business

Number

615-366-6088

Extension

Email

gdean@wmsengineers.com

Address

2 International Plaza

Suite 401

Nashville, TN 37217

Outfall(s) (1 of 2)

OUT1

Unique Outfall Identifier (e.g. SW1)

OUT1

Outfall Location

36.2274,-86.5098

Receiving Water Name (Type name or enter ID)

Unnamed trib to Cedar Creek from Cedar Creek to headwaters (runs along Highway 70 on west side of Cedar Creek) (TN05130201011_0900)

Total drainage area for this outfall (Acres)

0.02

Outfall(s) (2 of 2)

Agreements and Signature(s)

SUBMISSION AGREEMENTS

- I am the owner of the account used to perform the electronic submission and signature.
- I have the authority to submit the data on behalf of the facility I am representing.
- I agree that providing the account credentials to sign the submission document constitutes an electronic signature equivalent to my written signature.
- I have reviewed the electronic form being submitted in its entirety, and agree to the validity and accuracy of the information contained within it to the best of my knowledge.

***For Owner/Developer(s):** I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.*

***For Contractor(s):** I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.*

Signed
By SANGAPPA SHAMANUR on 04/01/2026 at 3:16 PM

STORM WATER POLLUTION PREVENTION PLAN

for

City of Mt Juliet Public Works

Mt Juliet, TN

Creekside Drive Interceptor

Prepared by:

Water Management Services, LLC

March 21, 2026

Site Description

The project is located in Wilson County, Tennessee along an unnamed tributary of Cedar Creek. The project consists of the upsizing of an existing sewer line by multiple methods and replacing aging manholes.

Total project area = 2.39 acres

Estimated area to be disturbed = 2.39 acres

Receiving Bodies and parameters:

Unnamed Intermittent Tributary of Cedar Creek – available parameters for sedimentation

Required Buffers: 30 feet min.

Design Storm: 2 yr/24 hr

Reference Weather Station: Nashville WSO Airport (40-6402); 2/24 = 3.37 inches

ARAP permits obtained: N/A

Topography:

The average slope of the disturbed areas varies from 5% to approx. 12%. The majority of the site runoff is anticipated to be by sheet flow generally with smaller areas of channel flow as the grading is completed.

The majority of the disturbance will be the initial large-scale grading to level the site for the general construction activities that accompany the installation of the equalization basin and pump station as well as open-cut trenching for the installation of piping.

Work should generally proceed in the following sequence:

- >Mobilization and delivery of equipment and materials to the site
- >Installation of erosion control measures at known locations
- >Initial layout and/or staking if necessary
- >Grading of site to prepare for construction
- >Building construction and open cutting of trenches, installation of piping in trench and backfilling
- >cleanup, grading, and seeding of disturbed areas (within 14 days of construction stoppage)
- >removal of sediment control upon stabilization of disturbed areas
- >final inspection

General Information

No construction activities, such as clearing and grubbing, excavation, grading, filling, etc., or any other activity that results in soil disturbance shall begin until erosion control measures are in place and functional AND the Notice of Coverage is issued by TDEC.

The Notice of Coverage and Storm Water Pollution Prevention Plan (SWPPP) shall be kept onsite at all times during construction, at a location readily accessible for inspection.

Discharged water must not cause "objectionable color contrast" to the receiving stream or water body. There shall be no distinctly visible solids, scum, foam, oily slick, slime formations, bottom deposits, or sludge banks, etc. that would pollute the receiving water body. Muddy water pumped from work areas must be filtered, held in settling basins, or chemically treated prior to discharge from the site and must be discharged via pipes, grassy channels, or other means to avoid sedimentation or further erosion. Solids or other materials removed from erosion control measures must be disposed of in a manner to prevent fugitive discharge from the site.

In the event sediment escapes the site, accumulations that have not reached a stream or water body shall be removed and returned in a timely manner so that the fugitive soils do not reach a water body, storm drain, etc., during the next rain event. Soils that have reached a stream or other water body shall not be removed without authorization from TDEC.

Accumulated sediment shall be removed from sediment controls when design capacity has been reduced by 50% at the latest.

Existing vegetation on the site shall be maintained to the greatest extents practicable. Pre-construction vegetation shall not be disturbed or removed more than 14 days prior to earth moving activities unless sufficient and functioning controls are in place. Temporary measures may be removed at the beginning of the workday but must be replaced by the end of the workday.

Construction Phasing: (ref GCP 5.5.3.2)

Phasing not implemented on this project.

Projects exceeding 50 acres of Disturbance: (ref GCP 5.5.3.3)

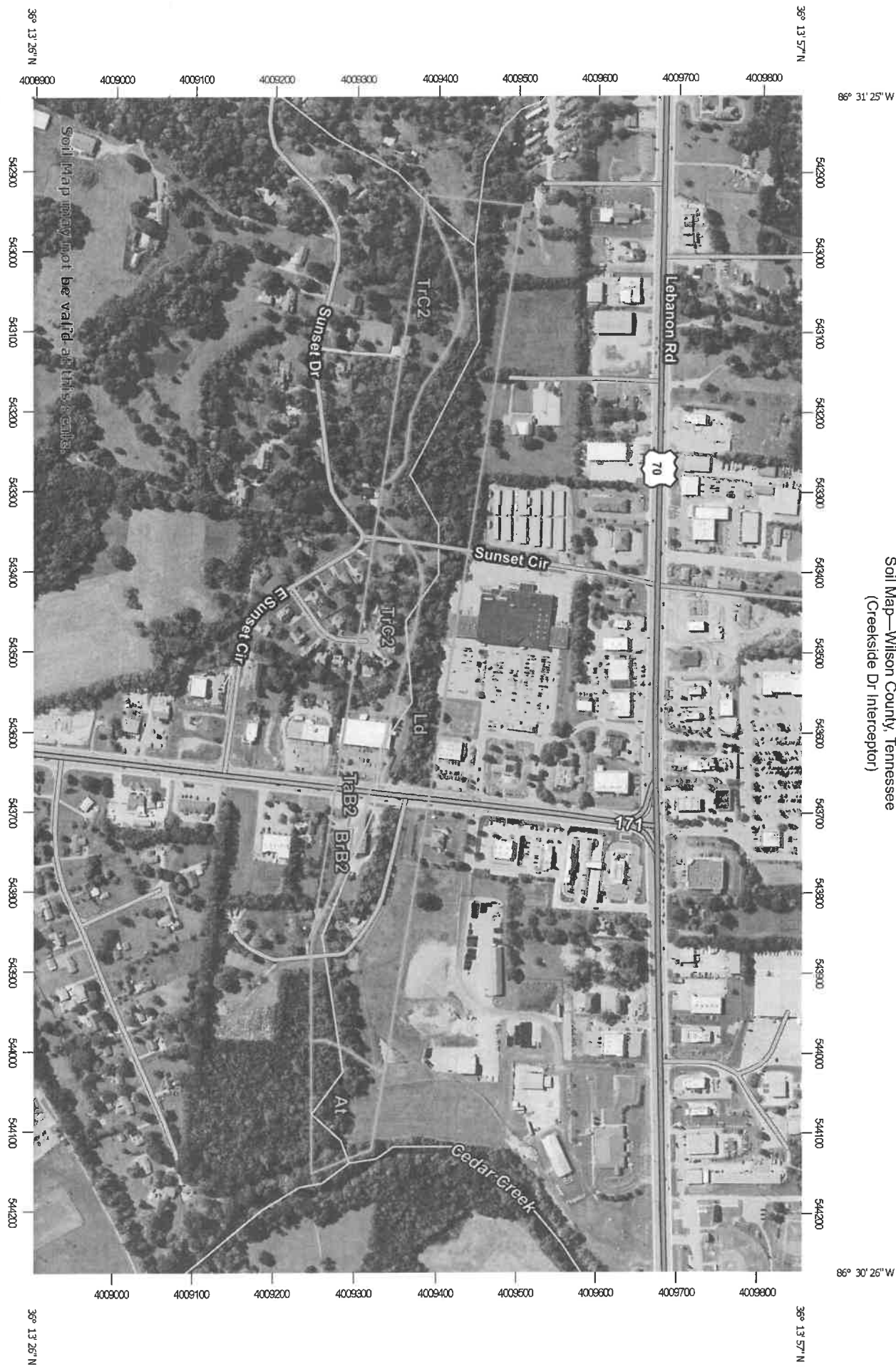
N/A

Stabilization Practices: (ref GCP 5.5.3.4)

Sound stabilization practices will be an integral part of the project from the onset of construction. This will include but not be limited to preserving natural turf, trees, and other vegetation whenever possible, careful placement of overburden within protected areas, geotextiles, sodding, and use of stone rip-rap on stream banks in a timely manner after backfilling operations are complete. It is preferable that matting utilizing monofilament backing not be used. Permanent soil stabilization (ie. matting, seeding and strawing) shall be implemented as soon as possible after completion of grading. Steep slopes shall be stabilized within 1 week after construction activities on the slope have ceased. No stabilization, erosion, or treatment measures are to be installed in a stream without obtaining an ARAP and Section 404 permit (if required).

Temporary or permanent stabilization of disturbed areas shall be implemented within 14 days of completion of disturbance. Temporary measures are not required: where initiation of stabilization measures are impractical due to snow, frozen ground, or soggy conditions, where construction has temporarily ceased but is planned to resume within 2 weeks, and if arid conditions exist that will prohibit the growth of vegetation. If such arid conditions exist, then alternative measures must be employed such as anchored mulch, soil binders, and matting.

Soil Map—Wilson County, Tennessee
(Creekside Dr Interceptor)



Soil Map may not be valid at this scale.

Map Scale: 1:6,720 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300
Meters

0 300 600 1200 1800
Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

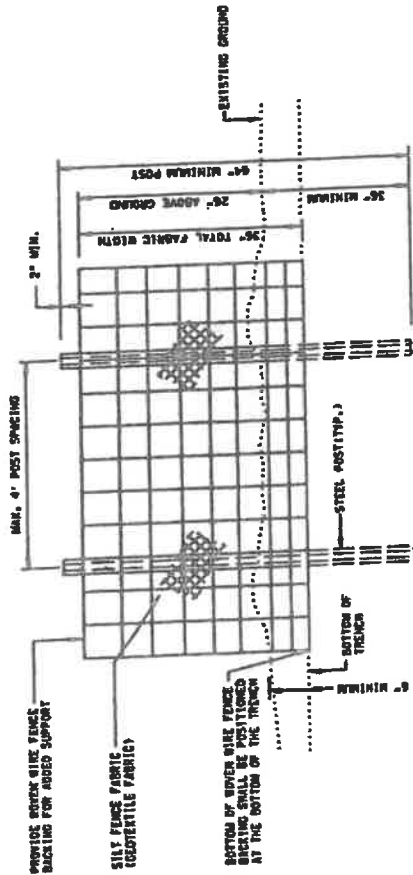
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
At	Arrington silt loam, 0 to 2 percent slopes, occasionally flooded	2.8	8.2%
BrB2	Bradyville silt loam, 2 to 5 percent slopes	0.7	2.0%
Ld	Lindell silt loam, 0 to 2 percent slopes, occasionally flooded	21.9	65.1%
TaB2	Talbott silt loam, 2 to 5 percent slopes, eroded	0.9	2.6%
TrC2	Talbott silt loam, 5 to 20 percent slopes, eroded, rocky	7.4	22.1%
Totals for Area of Interest		33.7	100.0%

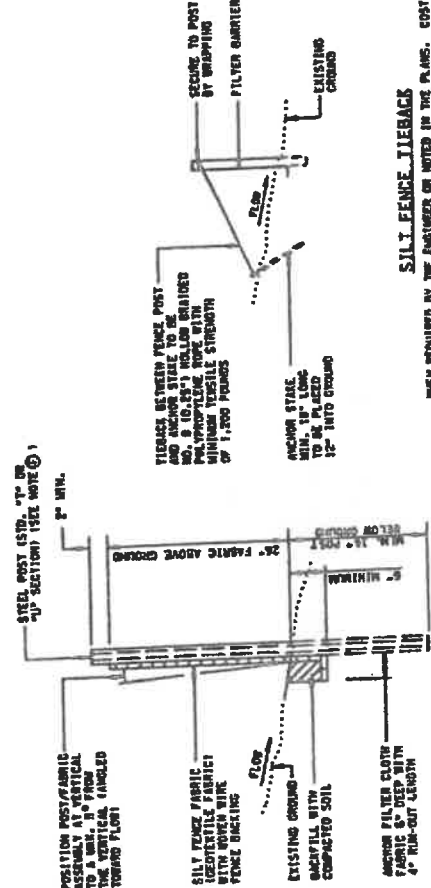


TEMPORARY SILT FENCE WITH BACKING

(ITEM NO. 203-06.02)



ELEVATION VIEW



SECTIONAL VIEW

SILT FENCE TIEBAGS

WHEN REQUIRED BY THE ENGINEER OR NOTED IN THE PLAN, COST TO BE INCLUDED IN THE ITEMS FOR TEMPORARY SILT FENCE WITH BACKING)

- 1/2\"/>

TEMPORARY SILT FENCE WITH BACKING FABRIC SPECIFICATIONS

FABRIC TYPE	REQUIRED PHYSICAL PROPERTIES (MINIMUM VALUES OF TEST DATA)
APPROX OPENING SIZE (ASTM D4751)	Woven nonwoven
PERFOR OPEN AREA (PDA)	9 TO 100 STRAINING SIEVE
WATER FLOW (ASTM D4751)	1 X TO 2
TENSILE STRENGTH (ASTM D4333)	2 1/2 DRAPES ²
WEAR/TEAR STABILITY (AFTER 500 HRS PER ASTM D4333)	2 310 LB. (WARP DIRECTION) X 200 LB. (FILL DIRECTION)
BURST STRENGTH (ASTM D5738)	2 900
PUNCTURE STRENGTH (ASTM D4833)	2 400 PSI
TRAPEZOIDAL TEAR (ASTM D4833)	2 100 LB. (WARP DIRECTION) X 60 LB. (FILL DIRECTION)

TEMPORARY SILT FENCE WITH BACKING GENERAL NOTES

1. SILT FENCE WITH BACKING IS USED TO INTERCEPT SMALL AMOUNTS OF SEDIMENT AND REDUCE VELOCITY FROM SHEET FLOW ONLY. USE TEMPORARY SILT FENCE WITH BACKING UP-COURSE TO, AND ALONG THE PERIMETER OF SWALES, WETLANDS, POND, SPRINGS, OR OTHER NATURAL WATER RESOURCES LOCATED WITHIN OR ADJACENT TO THE PROJECT RIGHT-OF-WAY.
2. THE MINIMUM CHANNEL AREA SIZE FOR A CONTINUOUS SILT FENCE WITH BACKING SHALL BE 1 SQ. YD. PER 100 LINEAR FEET OF FENCE LENGTH. THE SLOPE LENGTH BEHIND FENCE ON UP-SLOPE SIDE SHALL BE 500 FEET OR MORE ALONG THE CHANNEL SURFACE.
3. WITH TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, THEY SHALL BE JOINED ACCORDING TO THE DETAILS ON STANDARD DRAWING EC-STR-3C.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED CAPTURED SOIL MATERIAL SHALL BE REMOVED WHEN "BADGES" DEVELOP IN THE SILT FENCE AND/OR WHEN EVIDENCE OF FILTER CLOSING IS OBSERVED.
5. STEEL POSTS SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM WEIGHT OF 1 LB. PER FT. STEEL POSTS SHALL BE NOT-TIPPED GALVANIZED OR OTHERWISE PROTECTED AGAINST CORROSION. ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STRUTTED, EMBOSSED, OR PUNCHED TO FIT IN THE ATTACHMENT OF THE WIRE BACKING. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706.
6. STEEL POSTS SHALL HAVE A PROJECTION FOR FASTENING WIRE TO THEM. WHEN WIRE FENCE BACKING TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIE, FABRIC SHALL BE FASTENED SECURELY TO WIRE TIE FENCE BACKING WITH THE TIES SPACED EVERY 24 INCHES ALONG TOP AND INTERSECTION. THE WIRE FASTENERS SHOULD BE EVENLY SPACED WITH AT LEAST SIX PER FOOT.
7. WIRE FENCE BACKING SHALL MEET THE REQUIREMENTS FOR ASTM A-116 FOR NO. 11 FARM, DESIGN AT GRADE OR SHALL BE ON A ZERO PERCENT (0%) GRADE. PLUS ON MINUS FIVE TENTHS OF ONE PERCENT (1/20) AT STATIC SLOPING IS THE PREFERRED METHOD OF FENCE INSTALLATION. STATIC SLOPING SHALL BE THE INSTALLATION OF A WARPING CUTTING BLADE, PLACED AT THE POINT OF SLOPE CHANGE, TO CUT THE FABRIC AS SHOWN ON THE DRAWING. ALTERNATE TRENCH-BASED METHODS ARE ALSO ACCEPTABLE. FOR TRENCH-BASED INSTALLATIONS, FENCING SHALL BE INSTALLED PER THE FOLLOWING STEPS AND IN THE FOLLOWING ORDER:
 - o EXCAVATE TRENCH A MINIMUM OF 4 INCHES DEEP AND AT THE SPECIFIED DEPTH AS SHOWN ON THE APPLICABLE SITES. THE TRENCH SHALL BE SUB-CLEANED FOLLOWING DEGRADATION TO REMOVE SLAY DEBRIS SUCH AS ROCKS, STICKS, AND SOIL CLOSURE FROM THE TRENCH.
 - o INSTALL WIRE BACKING AND FABRIC IN TRENCH.
 - o BACKFILL TRENCH (OVER-FILL) WITH SOIL PLACED AROUND FABRIC.
 - o COMPACT SOIL BACKFILL WITH MECHANICAL EQUIPMENT. DO NOT DAMAGE THE FABRIC DURING COMPACTION. DAMAGED FABRIC SHALL BE REPLACED.
 - o DRIVE AND SET SUPPORT POSTS PER SPACING REQUIREMENTS SHOWN ON THIS DRAWING.
 - o ATTACH FABRIC TO THE POSTS USING WIRE TIE, SPACING AND DENSITY OF TIES SHALL BE INSTALLED AS DESCRIBED IN NOTE 7.
8. TRENCH-BASED METHODS SHALL BE USED FOR SLOPES GREATER THAN 1:1. THE TRENCH SHALL BE SUB-CLEANED FOLLOWING DEGRADATION TO REMOVE SLAY DEBRIS SUCH AS ROCKS, STICKS, AND SOIL CLOSURE FROM THE TRENCH.
9. SEDIMENT SHALL BE REMOVED FROM BEHIND THE TEMPORARY SILT FENCE WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL VOLUME OF THE STRUCTURE AND PAID FOR UNDER ITEM NO. 203-05. SEDIMENT REMOVAL PER CUBIC YARD.

EROSION CONTROL PLAN LEGEND: • SFB • SFB • SFB • (TEMPORARY SILT FENCE WITH BACKING)

FILTER SOCK CHECK DAM ESTIMATED QUANTITIES

VERTICAL		TRANSITIONAL BIGHT	
24" FILTER SOCK (INSTALLED HEIGHT 19")	20	18" FILTER SOCK (INSTALLED HEIGHT 17")	60
18" FILTER SOCK (INSTALLED HEIGHT 15")	60	12" FILTER SOCK (INSTALLED HEIGHT 11")	12
12" FILTER SOCK (INSTALLED HEIGHT 9")	48	6" FILTER SOCK (INSTALLED HEIGHT 5")	60

1. ESTIMATED QUANTITIES BASED ON 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL SLOPE.
 2. ESTIMATED QUANTITIES BASED ON 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL SLOPE.

FILTER SOCK SPACING FOR DITCH APPLICATION

SLOPE	12"	18"	24"
2:1	70'	100'	N/A
3:1	30'	60'	100'
4:1	N/A	30'	40'
5:1	N/A	N/A	20'
6:1	N/A	N/A	20'
7:1	N/A	N/A	20'
8:1	N/A	N/A	20'
9:1	N/A	N/A	20'
10:1	N/A	N/A	20'
12:1	N/A	N/A	20'
15:1	N/A	N/A	20'
20:1	N/A	N/A	20'
25:1	N/A	N/A	20'
30:1	N/A	N/A	20'
40:1	N/A	N/A	20'
50:1	N/A	N/A	20'
60:1	N/A	N/A	20'
75:1	N/A	N/A	20'
100:1	N/A	N/A	20'
GREATER THAN 8:1	GREATER THAN 8:1		

FILTER SOCK SPACING FOR SLOPE APPLICATION

SLOPE	12"	18"	24"			
2:1	70'	100'	N/A			
3:1	30'	60'	100'			
4:1	N/A	30'	40'			
5:1	N/A	N/A	20'			
6:1	N/A	N/A	20'			
7:1	N/A	N/A	20'			
8:1	N/A	N/A <tr <td>9:1</td> <td>N/A</td> <td>N/A</td> <td>20'</td>	9:1	N/A	N/A	20'
10:1	N/A	N/A	20'			
12:1	N/A	N/A	20'			
15:1	N/A	N/A	20'			
20:1	N/A	N/A	20'			
25:1	N/A	N/A	20'			
30:1	N/A	N/A	20'			
40:1	N/A	N/A	20'			
50:1	N/A	N/A	20'			
60:1	N/A	N/A	20'			
75:1	N/A	N/A	20'			
100:1	N/A	N/A	20'			
GREATER THAN 8:1	GREATER THAN 8:1					

N/A = NOT RECOMMENDED
 BASED ON AN INSTALLED HEIGHT OF 19 INCHES. SEE NOTE D.

FILTER SOCK GENERAL NOTES

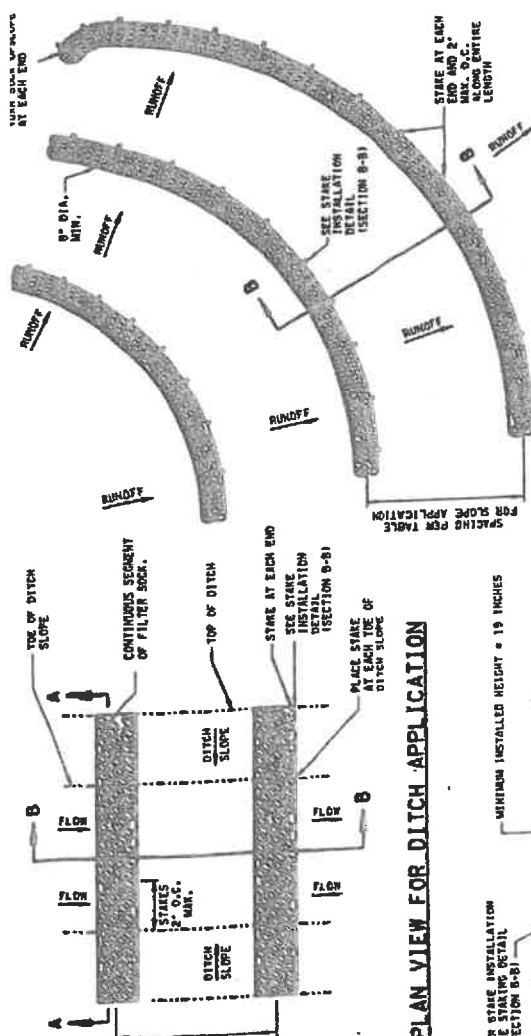
- FILTER SOCKS CAN BE PLACED IN DITCHES OR AT THE TOP OF THE FACE, OR AT THE TOP OF THE SLOPE. IF THEY CAN ALSO BE USED TO REMOVE SEDIMENT FROM THE DITCH, THEY SHOULD BE USED AS SUCH.
- FILTER SOCKS INSTALLED ON A SLOPE SHALL BE PLACED ALONG OR ON THE PERIMETER OF THE DITCH. STAKES SHALL BE APPLIED AT THE TOP OF A SLOPE SHOULD BE PLACED TO FEET AWAY FROM THE TOP IN ORDER TO PROVIDE SEDIMENT STORAGE. THE MINIMUM DRAINAGE AREA SHALL BE 1/4 ACRE PER 100 LF OF SOCK.
- FOR DITCH APPLICATIONS, THE MINIMUM DRAINAGE AREA SHALL BE 18 ACRES. AT SITES WHICH OUTFALL TO EXCEPTIONAL, TREATMENT WATER, OR SEDIMENT-IMPACTED STREAMS, THE SOCKS SHALL BE INSTALLED TO PROVIDE SEDIMENT STORAGE. SOCKS SHALL BE INSTALLED TO PROVIDE SEDIMENT STORAGE, OTHER NATURAL WATER RESOURCES, OR IN DITCHES WITH CONTINUOUS FLOWS.
- FOR DITCH APPLICATIONS, THE MINIMUM INSTALLED HEIGHT OF A SINGLE SOCK, OR AN ASSEMBLY OF STAKED SOCKS, SHALL BE 19 INCHES. FILTER SOCKS MAY BE STAKED AS DETAILED ON THIS DRAWING TO ACHIEVE THE REQUIRED HEIGHT. SOCKS SHALL BE PLACED PERPENDICULAR TO THE FLOW OF WATER. FILTER SOCKS SHALL CONTINUE ALONG THE PERIMETER OF THE DITCH OR SLOPE UNTIL ALL UPSTREAM AREAS ARE PERMANENTLY STABILIZED.
- FILTER SOCKS SHALL CONSIST OF A HEAVY WEAH SOCK WITH OPENINGS NO GREATER THAN 1/4 INCHES. THE SOCK SHALL BE MADE OF A WEAR RESISTANT POLYPROPYLENE OR A BIODEGRADABLE FILL MATERIAL SHALL CONSIST OF EITHER WOOD CHIPS (MULCH) OR A 50/50 COMBINATION OF WOOD CHIPS AND MANUFACTURED COMPOST MATERIAL.
- FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED IN DIAMETERS OF 6, 12, 18 OR 24 INCHES. DIMENSIONAL TOLERANCE IS ± 2 INCHES. A FILTER SOCK WILL FLATTEN OUT TO AN OVAL WHEN IT IS PLACED IN PLACE. THE INSTALLED HEIGHT WILL BE LESS THAN THE NOMINAL DIAMETER.
- STEEL POSTS SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM DIAMETER OF 1/2 INCH. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH GRADE WEATHER RESISTANT STEEL PAINT. POSTS SHALL BE SUPPLIED IN 10' AND 20' LENGTHS. POSTS SHALL BE SUPPLIED WITH 1/2 INCH DIA. HOLES. POSTS SHALL BE SUPPLIED WITH 1/2 INCH DIA. HOLES. POSTS SHALL BE SUPPLIED WITH 1/2 INCH DIA. HOLES. POSTS SHALL BE SUPPLIED WITH 1/2 INCH DIA. HOLES.
- FILTER SOCKS ARE FILLED ON THE PRODUCT SITE AND MAY BE UP TO 250 FEET LONG, WHEN USED ON LONG SLOPES. FILTER SOCKS MAY BE JOINTED AS SHOWN ON THIS DRAWING.
- ANY PRODUCT LISTED ON THE QUALIFIED PRODUCTS LIST IS AN APPROVED ALTERNATE. OTHER PRODUCTS MAY BE USED AS ALTERNATE MATERIALS.
- FILTER SOCKS SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF FILTER SOCKS.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE FILTER SOCK WHEN IT HAS ACCUMULATED TO ONE-HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 205-05, SEDIMENT REMOVAL PER CUBIC YARD.
- FILTER SOCKS SHALL BE INSPECTED AFTER EACH BUNDY FLOW AND SHALL BE REMOVED AND REPLACED IF SIGNS OF UNDERCUTTING OR DOWNSTREAM EROSION ARE OBSERVED.
- FILTER SOCKS SHOULD BE REMOVED FROM SITES AFTER STABILIZATION IS COMPLETE. REMOVAL SHALL BE ACCOMPLISHED BY CUTTING THE SOCK OPEN AND SPREADING THE FILL MATERIAL ON THE SITE. ALL BIODEGRADABLE MATERIALS SHALL BE REMOVED. FILTER SOCKS APPLIED IN DITCHES SHALL BE COMPLETELY REMOVED.

1. ESTIMATED QUANTITIES BASED ON 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL SLOPE.
2. ESTIMATED QUANTITIES BASED ON 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL SLOPE.

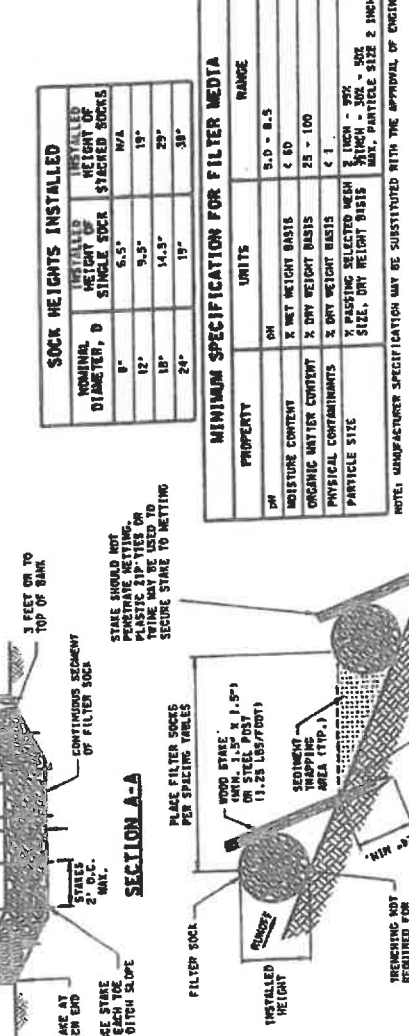
QUALIFIED PRODUCTS LIST

1. **WATER-RESISTANT POLYPROPYLENE SOCKS**
 2. **BIODEGRADABLE COMPOST MATERIAL**
 3. **WOOD CHIPS (MULCH)**
 4. **STEEL POSTS**
 5. **WIRE MESH**
 6. **PLASTIC ZIP TIES**
 7. **WOOD STAKES**
 8. **WOOD STAKES**
 9. **WOOD STAKES**
 10. **WOOD STAKES**

FILTER SOCK
 EC-STR-8
 4-1-00



PLAN VIEW FOR SLOPE APPLICATION



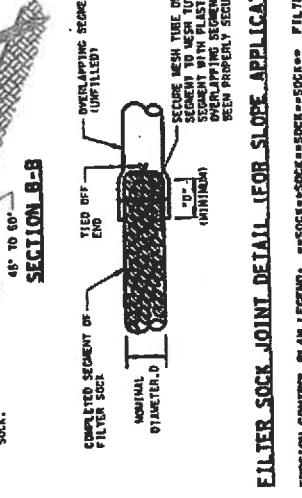
SOCK HEIGHTS INSTALLED

NOMINAL DIAMETER, D	INSTALLED HEIGHT OF SINGLE SOCK	INSTALLED HEIGHT OF STAKED SOCKS
6"	6.5"	N/A
12"	9.5"	19"
18"	14.5"	29"
24"	19"	38"

MINIMUM SPECIFICATION FOR FILTER MEDIA

PROPERTY	UNITS	RANGE
D ₁₀		5.0 - 8.5
MOISTURE CONTENT	% WET WEIGHT BASIS	≤ 60
ORGANIC MATTER CONTENT	% DRY WEIGHT BASIS	25 - 100
PHYSICAL CONTAMINANTS	% DRY WEIGHT BASIS	≤ 1
PARTICLE SIZE	2 INCH - 200 MICRON - 20% BY SIZE, DRY WEIGHT BASIS	≤ 1

NOTE: MANUFACTURER SPECIFICATION MAY BE SUBSTITUTED WITH THE APPROVAL OF ENGINEER.



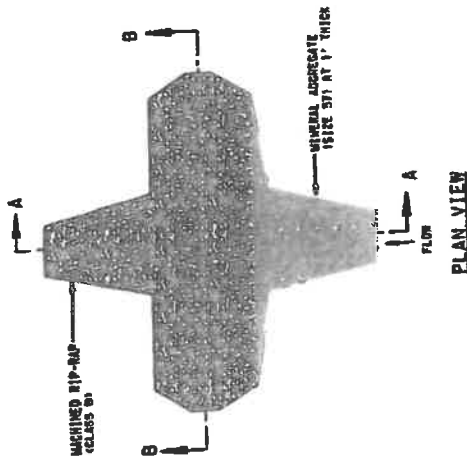
FILTER SOCK JOINT DETAIL (FOR SLOPE APPLICATION ONLY)

EROSION CONTROL PLAN LEGEND: **SOCKS=SOCK=SOCK=SOCKS** FILTER SOCK

IF THIS DESIGN IS FOR APPROVAL, NOT REQUIRED.
 NOT TO SCALE
 OFFICE OF TRANSPORTATION
 DEPARTMENT OF TRANSPORTATION

TEMPORARY ROCK SEDIMENT DAM

(ITEM NOS. 308-10-01, 709-05-08, 140-10-03 & 140-10-04)



SPRINKLE AREA (ACRES)	REQUIRED WEIR LENGTH, L_w (FEET)	REQUIRED CHANNEL WIDTH (FEET)	MAXIMUM WEIR FLOW VELOCITY (FT/SEC)	MINIMUM REQUIRED WEIR HEIGHT, H_w (FEET)
20	4.0	4.0	6.97	2.1
30	4.0	4.0	7.15	2.1
40	4.0	4.0	7.18	2.1
50	5.7	5.7	7.72	4.5

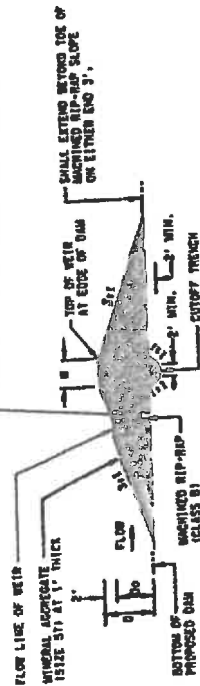
HEIGHT OF DAM (D) IN FEET	HEIGHT OF DAM TO FLOW LINE OF WEIR (D ₁) IN FEET	WIDTH AT TOP OF STRUCTURE (W) IN FEET
3 - 7	3 - 5	4
7 - 9	3 - 6	5
9 - 10	6 - 8	6

MAXIMUM HEIGHT (D₁) OF DAM AT WEIR IS 8 FEET.

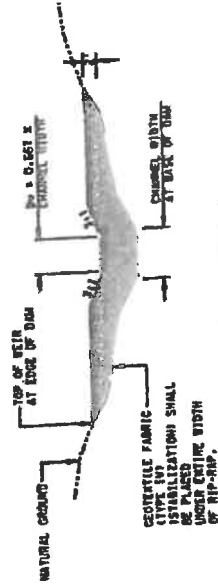
ROCK SEDIMENT DAM GENERAL NOTES

- ① DIMENSIONS SHOWN ON THESE DETAILS ARE THE MINIMUM THAT WILL BE ACCEPTABLE UNLESS OTHERWISE SPECIFIED BY THE PROJECT ENGINEER.
- ② THE CENTER OF THE TEMPORARY SEDIMENT DAM MUST BE AT LEAST TWO (2) FEET LOWER THAN THE OUTER EDGE. THIS WILL ELIMINATE THE RISK OF FAILURE POINT WHERE THE TEMPORARY SEDIMENT DAM AND NATURAL GROUND MEET.
- ③ THE MAXIMUM DRAINAGE AREA SHALL BE 50 ACRES.
- ④ GEOTEXTILE FABRIC SHALL MEET REQUIREMENTS OF THE STANDARD SPECIFICATION FOR GEOTEXTILES AASHTO DESIGNATION M-209, STABILIZATION.
- ⑤ SEDIMENT SHALL BE REMOVED FROM BEHIND THE TEMPORARY SEDIMENT DAM WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NO. 709-05, SEDIMENT REMOVAL FOR CUBIC YARD.

ITEM NOS. 140-10-03
 GEOTEXTILE FABRIC (TYPE 311) (EROSION CONTROL)
 SHALL BE PLACED BETWEEN INTERNAL AGGREGATE LAYER AND RIP-RIP LAYER AND BETWEEN THE TWO LAYERS OF FABRIC IN THIS AREA.



SECTION A-A



SECTION B-B

EROSION CONTROL PLAN LEGEND: (TEMPORARY ROCK SEDIMENT DAM)

- NO. 10-10-01, CHECKED SHEET.
- NO. 10-10-02, CHECKED SHEET.
- NO. 10-10-03, CHECKED SHEET.
- NO. 10-10-04, CHECKED SHEET.
- NO. 10-10-05, CHECKED SHEET.
- NO. 10-10-06, CHECKED SHEET.
- NO. 10-10-07, CHECKED SHEET.
- NO. 10-10-08, CHECKED SHEET.
- NO. 10-10-09, CHECKED SHEET.
- NO. 10-10-10, CHECKED SHEET.
- NO. 10-10-11, CHECKED SHEET.
- NO. 10-10-12, CHECKED SHEET.
- NO. 10-10-13, CHECKED SHEET.
- NO. 10-10-14, CHECKED SHEET.
- NO. 10-10-15, CHECKED SHEET.
- NO. 10-10-16, CHECKED SHEET.
- NO. 10-10-17, CHECKED SHEET.
- NO. 10-10-18, CHECKED SHEET.
- NO. 10-10-19, CHECKED SHEET.
- NO. 10-10-20, CHECKED SHEET.
- NO. 10-10-21, CHECKED SHEET.
- NO. 10-10-22, CHECKED SHEET.
- NO. 10-10-23, CHECKED SHEET.
- NO. 10-10-24, CHECKED SHEET.
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STATE OF MISSOURI
 DEPARTMENT OF TRANSPORTATION
**TEMPORARY
 ROCK
 SEDIMENT DAM**
 10-10-12 EC-STR-11

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 Reference Standards

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 Reporting and Resolving Discrepancies

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
 3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.
- B. *Resolving Discrepancies:*
1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds:* The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance:* If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
 - C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
 - D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
 - E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
 - F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.
- E. *Resubmittal Procedures:*
1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
 2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
 3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
- D. *Payment Becomes Due:*
- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.
- E. *Reductions in Payment by Owner:*
- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
 - 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

AGREEMENT WITH THE
CITY OF MT. JULIET, TENNESSEE
DEPARTMENT OF PUBLIC WORKS

2025 SEWER SYSTEM IMPROVEMENTS

THIS AGREEMENT made this _____ day of _____, 20___, by and between the City of Mt. Juliet, Tennessee, hereinafter called the "Owner," and, _____ hereinafter called the "Contractor."

WITNESSETH:

WHEREAS, Owner has heretofore solicited bids for all the work and improvements and for the doing of all things included within the hereinafter specified improvements; and

WHEREAS, Owner did on the _____ day of _____, 20___ find that Contractor was the lowest responsible bidder for the hereinafter specified construction work and did award Contractor a Contract for said construction work;

NOW, THEREFORE, for and in consideration of their mutual promises, covenants, undertakings and agreements, the parties hereto do hereby agree as follows:

ARTICLE I - WORK TO BE DONE BY CONTRACTOR

Contractor agrees, at his own cost and expense, to do all the work and furnish all the labor, materials, equipment and other property necessary to do, construct, install, and complete all the work and improvements required for the 2025 Sewer System Improvements all in full accordance with and in compliance with and as required by the hereinafter specified Contract Documents, including any and all Addenda for said work, and to do, at his own cost and expense, all other things required of the Contractor by said Contract Documents of said work.

ARTICLE II - CONTRACT DOCUMENTS

The Contract Documents herein named include all of the following component parts, all of which are as fully a part of this Contract as if herein set out verbatim or, if not attached, as if hereto attached:

1. Invitation to Bid
2. Instructions to Bidders
3. Proposal
4. Supplementary Conditions of Contract
5. General Conditions of Contract
6. Agreement
7. Contract Specifications
8. Contract Drawings
9. All Bonds, Insurance Certificates and Insurance Policies mentioned or referred to in the foregoing documents
10. Any and all other documents or papers included or referred to in the foregoing documents
11. Any and all Addenda to the foregoing

ARTICLE III - CONTRACT AMOUNT

The Contractor agrees to receive and accept the unit prices stated in the Contractor's Proposal included in the Contract Documents and made a part of this Agreement as full compensation for furnishing all materials and equipment and for doing all the work contemplated and embraced in this Contract; also for all loss or damage arising out of the nature of the work aforesaid or from the action of the elements or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the Owner, and for all risks of every description connected with the work; also for well and faithfully completing the work, and the whole thereof, in the manner and according to and in compliance with the Contract Documents and the requirements of the Engineer under them; also for any and all other things required by the Contract Documents.

The quantities and totals on unit price items and the Total Contract Amount are approximate only, being inserted for the purpose of establishing the face amount of bonds to be provided by the Contractor. Payment of work covered by the unit price items will be made only on the basis of actual quantities of work complete in place as authorized and as measured as provided in the Contract Documents.

<u>Item</u> <u>No.</u> <u>Description</u>	<u>Est.</u> <u>Qty.</u>	<u>Unit</u>	<u>Price</u> <u>Per Unit</u>	<u>Total</u>
A. <u>Unit Price Construction Items for Sewer Mains</u>				
1 Proposed 18" SDR 26, PS 115 PVC sanitary sewer main, all depths, under roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.	250	LF	\$ _____	\$ _____
2 Proposed 18" SDR 26, PS 115 PVC sanitary sewer main, 0-6 feet deep, outside roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.	270	LF	\$ _____	\$ _____
3 Proposed 18" SDR 26, PS 115 PVC sanitary sewer main, 6-9 feet deep, outside roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.	3,280	LF	\$ _____	\$ _____
4 Proposed 18" SDR 26, PS 115 PVC sanitary sewer main, 9 feet or greater depths, outside roadway, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.	698	LF	\$ _____	\$ _____
5 Proposed 18" DR 17 IPS HDPE sanitary sewer main, all depths, inside existing 20" casing pipe, including handling wastewater flows, and all other work described in the Contract Documents, complete in place and ready for use.	105	LF	\$ _____	\$ _____
6 Proposed 18" SDR 26, PS 115 PVC sanitary sewer main, all depths, under creek per Standard Creek Crossing Detail and TDEC permit, including handling wastewater flows, handling creek flows, concrete check dams, concrete encasement, and all other work described in the Contract Documents and permits, complete in place and ready for use.	65	LF	\$ _____	\$ _____
7 Replace existing manhole with new standard 4-foot diameter precast concrete manhole ASTM C-478 (48" diameter) with Xypex Concrete Admixture 0-9 feet deep, complete in place and ready for use.	20	EA	\$ _____	\$ _____

<u>Item No.</u>	<u>Description</u>	<u>Est. Qty.</u>	<u>Unit</u>	<u>Price Per Unit</u>	<u>Total</u>
8	Install new standard 4-foot diameter precast concrete manhole ASTM C-478 (48" diameter) with Xypex Admixture, 0-9 deep, complete in place and ready for use.	5	EA	\$ _____	\$ _____
9	Additional depth of manhole circular sidewall with Xypex Admixture, 9' + depth, complete in place and ready for use.	15	VF	\$ _____	\$ _____
10	Watertight manhole frame and cover watertight manhole frame and cover, complete in place and ready for use.	25	EA	\$ _____	\$ _____
11	Install manhole sewer marker / bollard, complete in place and ready for use.	9	EA	\$ _____	\$ _____
12	Install manhole vent pipe assembly, complete in place and ready for use.	4	EA	\$ _____	\$ _____
13	18" x 6" sewer service connection on PVC gravity sewer mains, complete in place and ready for use.	7	EA	\$ _____	\$ _____
14	6" SDR 26 PVC sewer service line and / or riser pipe, under or outside of roadway, complete in place and ready for use.	70	LF	\$ _____	\$ _____
15	4" or 6" PVC sewer service reconnections including all fittings with clean-out box, complete in place and ready for use.	7	LSE	\$ _____	\$ _____
16	Reconnect existing gravity sewer mains (various sizes) to proposed manholes, complete in place and ready for use.	6	EA	\$ _____	\$ _____
17	Bulkhead existing sewer mains (various sizes), complete in place.	4	EA	\$ _____	\$ _____
18	Abandon and / or remove existing manholes (various sizes), complete in place.	4	EA	\$ _____	\$ _____
19	Earthen check dam, complete in place and ready for use.	23	EA	\$ _____	\$ _____
20	Topsoil and seeding of trenches, complete in place.	4,320	LF	\$ _____	\$ _____
21	Pavement replacement, Type "A" asphalt full width overlay, in compliance with city paving standards, complete in place and ready for use.	20	LF	\$ _____	\$ _____
22	Asphalt driveway / parking lot pavement replacement / greenway, complete in place and ready for use.	30	LF	\$ _____	\$ _____
23	Concrete driveway replacement, complete in place and ready for use.	180	LF	\$ _____	\$ _____
24	Gravel driveway replacement, complete in place.	50	LF	\$ _____	\$ _____
B. <u>Unit Price Construction Items Ordered by the Engineer</u>					
25	Class C concrete (2,000 psi) for encasement, concrete caps (including reinforcing steel) including concrete for bulk-heading existing pipes (as required), complete in place.	10	CY	\$ _____	\$ _____
26	Bituminous (temporary) cold mix asphalt, complete in place.	20	TON	\$ _____	\$ _____
27	Unclassified excavation for undercuts, complete in place.	30	CY	\$ _____	\$ _____
28	Crushed stone backfill for undercuts, complete in place.	30	CY	\$ _____	\$ _____
29	Silt Fencing, sediment tubes, or approved equal device(s) for erosion control, complete in place	4,000	LF	\$ _____	\$ _____

Item No. Description	Est. Qty.	Unit	Price Per Unit	Total
C. <u>Lump Sum Construction Items Ordered by the Engineer</u>				
30 Connect proposed 18" sewer main to existing manhole at Station 0+00 on Sheet 3, including but not limited to handling wastewater flows, resilient manhole connector boot, reworking invert, kor-n-seal connection and all other work required and/or indicated for a complete and ready to use installation.	1	LSE	\$ _____	\$ _____
				TOTAL \$ _____

ARTICLE IV - CONFLICT BETWEEN COMPONENT PARTS OF CONTRACT

In the event that any provision in any of the following component parts of this Contract conflicts with any provision in any other of the following component parts, the provision in the component part first enumerated below will govern over any other component part which follows it numerically, except as may be otherwise specifically stated. Said component parts are the following:

1. Addendum Nos. _____, _____, _____, and _____.
2. Supplementary Conditions of Contract
3. General Conditions
4. Contract Specifications
5. Contract Drawings
6. Instructions to Bidders
7. Invitation to Bid
8. Contractor's Proposals
9. This Instrument

This Contract is intended to conform in all respects to applicable statutes of the state in which the work is to be constructed and, if any part or provision of this Contract conflicts therewith, the said statute shall govern.

ARTICLE V - STARTING AND COMPLETION

The Contractor shall, and agrees to, commence work at the site within 15 calendar days after the issuance by the Owner of a written Notice to Proceed, and to fully complete all work to the point of final acceptance by the Owner, and to complete doing all other things required of him by the Contract Documents within **300** consecutive calendar days from and including the date to start work established in a written order from the Owner. Contractor shall, and agrees to, furnish and deliver to Owner within fifteen (15) days after date of award of this Contract, the Performance Bond, Payment Bond, and the insurance certificates and policies of insurance required of him by the provisions of the Conditions of the Contract, and to do, prior to starting work, all other things which are required of him by the Contract Documents as a prerequisite of starting work.

NOTE: The Contractor's attention is directed to the provisions for liquidated damages as provided in Paragraph 13 of the Supplementary Conditions, in addition to the Excess Cost of Engineering.

The Contractor hereby agrees to commence work on this Project on or before a date to be specified in a written "Notice to Proceed" issued by the Owner and to fully complete the project within **300** consecutive calendar days from and including the date to start work established in a written order for the Owner as stipulated in the Supplementary Conditions. The Contractor further agrees to pay as liquidated damages the sum of \$500.00 per day for each consecutive calendar day thereafter as provided in Paragraph 13 of the Supplementary Conditions.

ARTICLE VI - PAYMENTS TO CONTRACTOR

The Owner agrees with said Contractor to employ, and does hereby employ, the said Contractor to provide the materials and do all the work and do all other things hereinabove mentioned according to the terms and conditions hereinabove contained or referred to for the prices aforesaid, and hereby contracts to pay the same at the time, in the manner and upon the conditions set forth or referred to in the Contract Documents; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained.

In WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in four original counterparts the day and year first above written.

(SEAL)

Contractor

ATTEST:

By _____

By _____

Title _____

Title _____

CITY OF MT. JULIET, TENNESSEE

By: _____
Mayor

BY: _____
City Manager

By: _____
Director of Public Works

Approved as to Form and Legality

By _____
Attorney for the Owner

IMPORTANT

NOTE: If the Contractor is a corporation, the legal name of the corporation shall be set forth above together with a signature of the officer or officers authorized to sign Contracts on behalf of the corporation; if Contractor is a partnership, the true name of the firm shall be set forth above together with the signatures of all the partners; and if Contractor is an individual, his signature shall be placed above. If signature is by an agent other than an officer of a corporation or a member of a partnership, a power-of-attorney must be attached hereto. Signature of Contractor shall also be acknowledged before a Notary Public or other person authorized by law to execute such acknowledgment.

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CITY OF MT. JULIET
PO BOX 256
MT. JULIET, TN 37122

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):* MT. JULIET, TN – 2025 SEWER IMPROVEMENTS

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount: \$

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence,

to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CITY OF MT. JULIET
PO BOX 256
MT. JULIET, TN 37122

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):* CITY OF MT. JULIET, TN – 2025 SEWER SYSTEM IMPROVEMENTS

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount: \$

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)

Contractor's Name and Corporate Seal

(seal)

Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____

Signature

Attest: _____

Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

- 16.1 **Claim:** A written statement by the Claimant including at a minimum:
1. The name of the Claimant;
 2. The name of the person for whom the labor was done, or materials or equipment furnished;
 3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 4. A brief description of the labor, materials, or equipment furnished;
 5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 7. The total amount of previous payments received by the Claimant; and

8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

- 16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

- 16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

- 16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

- 16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

AFFIDAVIT

(To be attached to all Contracts)

STATE OF _____)
)ss
COUNTY OF _____)

_____ being first duly sworn on oath deposes and says that he is

_____ (attorney)

_____ (in fact or agent)

of _____
(bonding company)

surety on the attached Contract for the 2025 Sewer System Improvements project executed by

_____ (Contractor)

Affiant further deposes and says that no officer, official or employee of the Owner has any interest directly or indirectly, or is receiving any premium, commission fee or other thing of value on account of the same or furnishing of the bond, undertaking or contract of indemnity, guaranty, or suretyship in connection with the above-mentioned Contract.

Signed _____

Subscribed and sworn to before me

this _____ day of _____, A.D., 20__.

Notary Public _____ County _____)

My Commission expires:

CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY)

PRODUCER

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A

COMPANY LETTER B

COMPANY LETTER C

COMPANY LETTER D

COMPANY LETTER E

INSURED

COVERAGES

THIS IS TO CERTIFY THAT POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENTS, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS, AND CONDITIONS OF SUCH POLICIES.

CO LTR	TYPE OF INSURANCE	POLICY NO.	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	ALL LIMITS IN THOUSANDS												
	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCURRENCE <input type="checkbox"/> OWNERS & CONTRACTORS PROTECTIVE				<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">GENERAL AGGREGATE</td> <td style="width: 30%;">\$</td> </tr> <tr> <td>PRODUCTS-COMP/OPS AGGREGATE</td> <td>\$</td> </tr> <tr> <td>PERSONAL & ADVERTISING INJURY</td> <td>\$</td> </tr> <tr> <td>EACH OCCURRENCE</td> <td>\$</td> </tr> <tr> <td>FIRE: DAMAGE (ANY ONE FIRE)</td> <td>\$</td> </tr> <tr> <td>MEDICAL EXPENSE (ANY ONE PERSON)</td> <td>\$</td> </tr> </table>	GENERAL AGGREGATE	\$	PRODUCTS-COMP/OPS AGGREGATE	\$	PERSONAL & ADVERTISING INJURY	\$	EACH OCCURRENCE	\$	FIRE: DAMAGE (ANY ONE FIRE)	\$	MEDICAL EXPENSE (ANY ONE PERSON)	\$
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	WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY				<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">STATUTORY</td> <td style="width: 30%;">EACH ACCIDENT</td> </tr> <tr> <td>\$</td> <td>\$</td> </tr> <tr> <td>\$</td> <td>DISEASE-POLICY LIMIT</td> </tr> <tr> <td>\$</td> <td>DISEASE-EACH EMPLOYEE</td> </tr> </table>	STATUTORY	EACH ACCIDENT	\$	\$	\$	DISEASE-POLICY LIMIT	\$	DISEASE-EACH EMPLOYEE				
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\$	DISEASE-EACH EMPLOYEE																
	OTHER																

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / RESTRICTIONS / SPECIAL ITEMS

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY SHALL MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT.

AUTHORIZED REPRESENTATIVE

Owner: _____

Project Name: _____

Location: _____

Contractor: _____

Contract Supplement No. _____

Date: _____

I. DESCRIPTION OF CHANGES INVOLVED

A.

B.

II. ADJUSTMENTS IN AMOUNT OF CONTRACT

- | | |
|--|----------|
| 1. Amount of Original Contract | \$ _____ |
| 2. Net (Addition) (Reduction) due to all previous Contract Supplements | \$ _____ |
| 3. Amount of Contract including all previous Contract Supplements | \$ _____ |
| 4. (Addition) (Reduction) to Contract due to this Contract Supplement | \$ _____ |
| 5. Amount of Contract including this Contract Supplement | \$ _____ |

III. CONTRACT SUPPLEMENT CONDITIONS

1. The Contract completion date established in the Original Contract or as modified by previous Change Orders is hereby (extended) (reduced) _____ calendar days, making the final date of completion _____.
2. Any additional work to be performed under this Contract Supplement shall be carried out in compliance with the specifications included in the preceding Description of Changes Involved, with the supplemental contract drawings, and under the provisions of the Original Contract, including compliance with applicable Equipment Specifications and Project Specifications for the same type of work.

- 3. This Contract Supplement, unless otherwise provided herein, does not relieve the Contractor from strict compliance with the guarantee provisions of the Original Contract, particularly those pertaining to performance and operation of equipment.
- 4. The Contractor expressly agrees that he will place under coverage of his Performance and Payment Bonds and Contractor's Insurance all work covered by this Contract Supplement. The Contractor will furnish to the Owner evidence of increased coverage of his Performance and Payment Bonds for the accrued value of all Contract Supplements which exceeds the Original Contract Price by twenty percent (20%).

RECOMMENDED FOR ACCEPTANCE:

WATER MANAGEMENT SERVICES, LLC

ACCEPTED: CONTRACTOR

BY: _____

OWNER:

CITY OF MT. JULIET, TENNESSEE

BY: _____
MAYOR

BY: _____
CITY MANAGER

BY: _____
DIRECTOR OF PUBLIC WORKS

Approved as to Form and Legality

By: _____
Attorney for the Owner

NOTICE OF AWARD

TO: _____

Project Description: _____

The Owner has considered the Bid submitted by you for the above described work in response to its Advertisement for Bids dated _____, 20__, and Instructions to Bidders.

You are hereby notified that your Bid has been accepted for items in the amount of \$ _____.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Contractor's Performance Bond, Payment Bond and Certificate of Insurance within fifteen (15) days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said bonds within fifteen (15) days from the date of this Notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Bid as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this _____ day of _____, 20__.

Owner

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by _____

_____ this the _____ day of _____, 20__.

By: _____

Title: _____

NOTICE TO PROCEED

TO: _____

Date: _____

Project: _____

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

Owner

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by _____,
_____ this the _____ day of _____, 20____.

By: _____

Title: _____

CONTRACT SPECIFICATIONS

DIVISION A - GENERAL REQUIREMENTS

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DIVISION A
GENERAL REQUIREMENTS

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2	SUBMITTALS	1-3

GENERAL REQUIREMENTS

SECTION 1

SUMMARY OF WORK

1. WORK COVERED BY CONTRACT DOCUMENTS

The Work to be performed is as described in the Invitation to Bid.

2. CONTRACTOR'S DUTIES

2.1 Except as specifically noted, provide and pay for:

Labor, materials, and equipment;

Tools, construction equipment, and machinery;

Samples, shipping costs, and tests;

Necessary utilities, such as water supply, electrical power, telephones, roads, fences, and sanitary facilities, including maintenance thereof;

Other facilities and services necessary for proper execution and completion of the Work.

2.2 Pay legally required sales, consumer, and use taxes.

2.3 Secure and pay for legally required permits, licenses, and government fees.

2.4 Give required notices.

2.5 Employ workmen and foremen with sufficient knowledge, skill, and experience to perform the work assigned to them.

2.6 Comply with the codes, laws, ordinances, rules, regulations, orders, and other legal requirements. Any necessary changes will be adjusted as provided in the Contract for changes in the Work.

2.7 Submit written notice to Engineer of observed variance of Contract Documents from legal requirements. Any necessary changes will be adjusted as provided in the Contract for changes in the Work.

2.8 Enforce discipline and good order among Contractor and Subcontractor employees. Any person employed by Contractor or Subcontractors who does not perform his work in a skillful manner, is incompetent, or acts in a disorderly or intemperate manner shall, at the written request of Owner, be removed from the project immediately and shall not be employed again in any portion of the Work without the approval of Owner.

2.9 Provide at all times facilities for access and inspection of the Work by representatives of Owner and of official governmental agencies designated by Owner as having the right to inspect the work.

2.10 Cooperate with other contractors who may be performing work for Owner and with Owner's employees working in the vicinity of the Work done under this Contract.

3. CONTRACTOR'S USE OF PREMISES

3.1 Confine operations at site to areas permitted by law, ordinances, permits, and the Contract Documents.

3.2 Do not load or permit any part of a structure to be subjected to any force that will endanger its safety.

3.3 Comply with and enforce Owner's instructions regarding signs, advertisements, fires, and smoke.

3.4 Assume responsibility for protection and safekeeping of products stored on premises.

3.5 Do not discharge smoke, dust, or other contaminants into the atmosphere, or fluids or materials into any waterway as will violate regulations of any legally constituted authority.

4. EXISTING FACILITIES

4.1 The existing facilities will be in continuous operation during the construction period.

4.2 Plan and conduct construction operations to avoid disturbing existing utilities, piping, equipment, and services in any manner which will interrupt or impair operations, except as approved by Engineer.

4.3 Submit for approval a construction sequence and detailed drawings and written explanations of the temporary facilities and appurtenances intended to be used in maintaining the uninterrupted operation of the existing sewer facilities.

5. PARTIAL OWNER OCCUPANCY

5.1 Owner, at its discretion, may place into service certain portions of the completed Work.

5.2 Provide proper access to Owner's personnel for this purpose.

5.3 Use and operation of a completed portion by Owner will constitute acceptance of that work.

5.4 Liability of Contractor for defects due to facility construction will extend for one year after the Work is placed in service.

GENERAL REQUIREMENTS

SECTION 2

SUBMITTALS

1. PROGRESS SCHEDULE

- 1.1 Prepare a detailed Progress Schedule in graphic form showing proposed dates of starting and completing each major division of the Work.
- 1.2 The schedule shall be consistent with the time and order of work requirements of the Specifications and shall be the basis of Contractor's operations.
- 1.3 Submit 3 copies to Engineer within 14 days after Notice to Proceed.
- 1.4 At the end of every month, submit a revised schedule showing the current status of the Work as compared to the projected status. The current application for a progress payment will not be processed until the revised schedule is delivered to Engineer.

2. BREAKDOWN OF CONTRACT AMOUNT

- 2.1 Submit a typewritten breakdown of major lump sum items for use in computing and checking periodical payment estimates.
- 2.2 No payment will be made until the breakdown has been submitted and accepted by Engineer and Owner.
- 2.3 The breakdown shall establish amounts for each division of work such as excavation, concrete, piping, electrical, process equipment, backfill, restoration, etc.

3. SHOP DRAWINGS, PROJECT DATA, AND SAMPLES

3.1 General

- 3.1.1 Submit to Engineer shop drawings, project data, and samples required by the Specifications.

3.2 Shop Drawings

- 3.2.1 Shop drawings are original drawings prepared by the Contractor, subcontractors, suppliers, or distributors which illustrate some portion of the Work and show fabrication, layout, setting, or erection details of equipment, materials, and components.
- 3.2.2 Unless otherwise instructed, submit to Engineer for review and approval 5 prints of each plan.

3.3 Project Data

- 3.3.1 Project data are manufacturers' standard schematic drawings, catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.

- 3.3.2 Modify drawings to delete information not applicable and to add information applicable to the project.
- 3.3.3 Mark copies of printed material to identify pertinent materials, products, or models.
- 3.3.4 Show dimensions and clearances required, performance characteristics and capacities, and wiring diagrams and controls.
- 3.3.5 Submittal procedures shall be the same as for shop drawings.

3.4 Contractor Responsibilities

- 3.4.1 Review and approve shop drawings, project data, and samples before submitting them.
- 3.4.2 Verify field measurements, field construction criteria, catalog numbers, and similar data.
- 3.4.3 Coordinate each submittal with the requirements of the Contract Documents.
- 3.4.4 Submit shop drawings for major equipment items in one package to permit checking complete installation details.
- 3.4.5 In a clear space above the title block or on the back, hand stamp the following and enter the required information:

Specification Section

This document has been checked for accuracy of content and for compliance with the Contract Documents and is hereby approved. The information contained herein has been coordinated with all involved contractors.

Contractor

Signed

- 3.4.6 Contractor's responsibility for errors, omissions, and deviations from requirements of the Contract Documents in submittals is not relieved by Engineer's review.
- 3.4.7 Notify Engineer, in writing at time of submittal, of deviations in submittals from requirements of the Contract Documents.
- 3.4.8 Do not install materials or equipment which require submittals until the submittals are returned with Engineer's stamp and initials or signature indicating approval.
- 3.4.9 Revise returned shop drawings as required and resubmit until final approval is obtained. Indicate on the Drawings any changes which have been made other than those requested by Engineer.
- 3.4.10 Submit new project data and samples when the initial submittal is returned disapproved.
- 3.4.11 No claim will be allowed for damages or extension of time because of delays in the work resulting from rejection of material or from revision and resubmittal of shop drawings, project data, or samples.

3.5 Engineer's Duties

- 3.5.1 Engineer will review submittals for compliance with the Contract Documents and with the design concept of the project.
- 3.5.2 Review of a separate item does not constitute acceptance of an assembly in which the item functions.
- 3.5.3 Engineer will affix a stamp to the returned copy of each submittal. The stamp will be marked to indicate whether the submittal is "Approved," "Approved as Noted," or "Disapproved," and an explanation will be given if the submittal is unsatisfactory. The stamp will be initialed or signed certifying the submittal review.

4. OPERATING AND MAINTENANCE MANUALS

- 4.1 Furnish 5 copies of manuals of instructions for operation and maintenance of each item of equipment and valves furnished.
- 4.2 Include instructions for all components of the equipment, whether manufactured by the supplier or not, including valves, controllers, and other miscellaneous components.
- 4.3 Included Material as follows:
 - Parts lists.
 - Exploded or sectional views.
 - Recommended lubrication and maintenance procedures.
 - Internal wiring and piping diagrams.
 - Detailed description of process, where applicable.
 - Operating procedures.
 - Other pertinent information of value to obtain peak performance.
- 4.4 Equipment Maintenance Schedule
 - 4.4.1 In addition to the equipment operation and maintenance manuals, an equipment maintenance schedule shall be prepared for each piece of equipment. The schedule shall list routine preventive maintenance recommended by the equipment manufacturer. The schedule shall be listed as daily, weekly, monthly, quarterly, semiannually and annually.
 - 4.4.2 The items listed in the schedule shall be those maintenance functions that Contractor and equipment suppliers expect the plant operating personnel to follow in order to meet warranty provisions, when the equipment is turned over to Owner.
 - 4.4.3 The schedule for each piece of equipment shall be prepared in the same format. No photocopies or reproductions of the various equipment operation and maintenance manuals will be permitted.

DIVISION G -
SEWER LINE REHABILITATION, REPLACEMENT, AND APPURTENANCES

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FOR
DIVISION G
SEWER LINE REHABILITATION, REPLACEMENT, AND APPURTENANCES

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SEWER LINE REHABILITATION, REPLACEMENT, AND APPURTENANCES

SECTION 1

GENERAL REQUIREMENTS

1. GENERAL

1.1 Scope of Work

The sewers and appurtenances required on this Contract shall be furnished in full compliance with the Contract Specifications and the Contract Drawings.

Work to be performed under the Unit Price Items described subsequently herein shall include for each item all excavation (including rock excavation, if any) the removal of existing pavements, curb and gutter, sidewalks, driveways, brush and timber, structures and piping to be relocated or abandoned; also sheeting, diking, well pointing, bailing, dewatering; the furnishing and placing of bulkheads, the restoration of any utilities, parkways, trees, shrubbery, culverts, fences, and other items not covered under subsequent items disturbed by construction operations; backfilling and removal of excess excavated materials; and testing.

The cost of all such work and the cost of other work necessary for the complete sewer installation not specifically included for payment under the item of unit price payment Nos. described herein shall be merged with the various unit prices for the Unit Price Construction Items.

1.2 Standards

Where material and methods are indicated in the Specifications as being in conformance with the standard specification, it shall refer in all cases to the latest edition of the specifications and shall include all interim revisions. Listing of a standard specification without further reference indicates that the particular material or method shall conform with such listed specification.

1.3 Infiltration Tests

Certain times of the year acceptance of concrete sanitary sewers is not possible because there is not sufficient groundwater in order to make a proper infiltration test. Therefore, should the acceptance of lines be required during dry periods of the year, an exfiltration test is a part of the Contract and shall be used when ordered by the Owner or Engineer to ascertain whether a line is acceptable during dry periods. The maximum allowable infiltration and/or exfiltration shall not exceed 25 gallons per mile per inch diameter of sewer per 24-hour day at any time. This test shall not be required on lines that are low-pressure air tested as set forth below.

All sanitary sewer lines shall be air tested as a part of this Contract as specified in ASTM C-828-76T, as detailed in Section 4, Paragraph 1.2 of these Specifications. **Visual and video inspection shall also be required.**

2. WORK INCIDENTAL TO CONSTRUCTION

2.1 Work to be performed under this heading includes all the work designated as "Incidental to Construction" and shall be done in compliance with the Contract Drawings. The

Contractor is hereby referred to the Agreement, General and Supplementary Conditions Sections of these Specifications and the Contract Drawings. All work wherein there are not specified pay items shall be considered as "Incidental to Construction" and no additional compensation will be allowed.

2.2 In addition to the above-referenced requirements, and unless otherwise noted below, listed work shall be considered incidental to construction.

2.3 Public and Private Utilities

Utilities. Where any utilities, such as water, sewer, telephone, power, oil and gas transmission or any other, either public or private, are encountered, the Contractor shall provide adequate protection for them and will be held responsible for any damage to such utility from his operations. When it is apparent that construction operations may endanger the foundation of any utility conduit, pole, or the support of any structure, the Contractor shall notify the utility owner of this possibility and shall take such steps as may be required to provide temporary bracing or support of conduits, poles, or structures.

The cost of any bracing or support of conduits, poles, or structures as shown on the Contract Drawings shall be merged into the unit price per linear foot of gravity sewer. The Contractor shall be reimbursed for the bracing or supporting of utilities due to realignments of the gravity sewer to meet field conditions. Any realignment which eliminates any bracing or supporting necessary according to the Contract Drawings shall be credited to the Owner by the Contractor.

When in order to carry out the work, a pole (power or telephone) must be removed to a new location or moved and replaced after construction, the Contractor shall arrange for the moving of such pole or poles and lines thereof.

Where it is the policy of any utility owner to make his own repairs to damaged conduit or other structures, the Contractor shall cooperate to the fullest extent with the utility owner and he shall see that his operations interfere as little as possible with the utility owner's operations.

Existing Sewer Facilities. In some instances, existing sewers, force mains, or drains may be encountered along the line of work. In all such cases, the Contractor shall perform his operations in such manner that sewer service will not be interrupted and shall, at his own expense, make all temporary provisions to maintain sewer and drain service. Unless otherwise indicated on the plans, the Contractor shall replace any disturbed sewer or drain or re-lay same at his own expense to a new grade to be approved by the Engineer, such that sufficient clearance for the sewer will be provided. The Contractor will reuse existing castings if not damaged or furnish new castings of the type required by the Engineer.

Where it is necessary to cut, remove and/or replace existing storm sewers and drain tiles, the Contractor shall make specific arrangements to maintain the flow of water and shall not place permanent bulkheads in any conduit. Temporary earth dams may be used to confine and/or channel the flow and shall be removed upon completion of the crossing.

The Contractor shall receive no extra compensation for replacement of sewers or drains encountered or for re-laying same at a new grade or line.

Existing Pumping Station Operation. The existing pumping station(s) will be in continuous operation during the construction period until such time as the tie-over is made.

The Contractor shall plan and conduct construction operations to avoid disturbing existing structures, piping, equipment, and services in any manner which will interrupt or impair operations except as approved by the Engineer.

The Contractor shall submit for approval a construction sequence intended to be used in maintaining the uninterrupted operation of the existing pumping station.

Existing Water Facilities. Where existing water mains are encountered in the work, they shall be maintained in operation.

Existing Gas Facilities. Where existing gas mains shown on the Contract Drawings are encountered, the Contractor shall arrange with the gas department for any necessary re-laying.

The Contractor will give adequate notice to the gas department to allow their location of gas lines ahead of the proposed construction with paint or stakes. The Contractor will be required to expose the gas mains prior to dynamiting and excavation where crossing pipeline installations. Track drill operations will be ceased short of the gas main and will resume on the other side of the main. The material under the gas line will be removed with hand drills and/or jack hammers. The selective use of "pop-shooting" with dynamite, which must be strictly controlled by the Contractor, may be allowed at the discretion of the Engineer.

Before backfilling any trench in which a gas main has been exposed, the Contractor shall notify the gas department to inspect the exposed main and perform any protective measures deemed necessary.

When the proposed construction is completed on a particular street, the Contractor and/or the gas department will check each particular street with natural gas detectors.

Existing Underground Electric and Telephone Facilities. Where existing underground electric or telephone facilities are encountered, the Contractor shall arrange with the Electric Company or Telephone Company for any necessary re-laying.

2.4 Dewatering

The Contractor shall perform all pumping, well pointing, ditching and any other necessary procedure to keep the excavation clear of groundwater, stormwater, or sewage during the progress of the work and until the completed work is safe from injury.

The Contractor shall maintain dewatering operations such that no groundwater, stormwater, or sewage will be allowed to build up over any concrete and/or masonry at manholes or structures for a period of 6 hours. This time period will be adjusted by the Engineer should temperature and curing conditions warrant.

All water pumped or drained from the work shall be disposed of in a manner satisfactory to the Engineer without damage to adjacent property or to other work under construction. The Contractor shall not dispose of storm or surface water through new or existing sanitary sewerage facilities.

It shall be the Contractor's responsibility to take all necessary precautions to protect all construction against flooding and/or flotation from hydrostatic uplift.

All dewatering procedures and maintenance thereof shall be considered an integral part of pipe laying and manhole construction operations and no separate payment will be allowed therefore.

Dewatering operations for manhole and/or structure construction shall be such that the groundwater or surface water is not being pulled over, around, or through the freshly placed concrete or masonry. The use of multiple pumps placed on each side of the manhole and/or at points in the trench downstream might be required. When required to protect the freshly placed concrete and/or masonry, timber or plywood forms will be positioned around the concrete or masonry so that the dewatering operations will not cause a separation of cement and aggregate. The cost of these dewatering and/or protection procedures shall be merged into the appropriate manhole or structure bid items.

2.5 Barricades and Warning Signs

The Contractor shall furnish, erect, and maintain such barricades, fences, lights, and danger signals and take other precaution measures that will ensure the protection of persons, property, and the work. Traffic control devices shall meet the requirements of the "Manual of Uniformed Traffic Control Devices" (MUTCD).

2.6 Maintenance and Access of Traffic

Portions of the work are located in developed areas requiring the access for fire and other departments to be provided for and at least one free lane shall be available for all traffic. Contractors are to arrange operations in these areas to meet these requirements and secure approval of operating procedures from the City of Lebanon, Tennessee, Department of Transportation, Wilson County Road Commission, or as the case may be.

Where sewers and/or force mains are constructed under paved roadway surfaces within public rights-of-way, the Contractor will restore the asphalt or crushed stone pavement and/or shoulders between shoulder lines. It shall be the responsibility of the Contractor, upon completion of the sewer installation, to regrade the street with pug mix to the template that existed prior to construction. This regrading shall be satisfactory to the City of Lebanon, Tennessee or Wilson County Road Commission before the street is released for paving operations.

The Contractor shall further be responsible for the maintenance of disturbed streets until repaving operations have been completed.

The Contractor shall restore all curbs, gutters, sidewalks, ramps and private driveways, or parking lots. Compensation for this work is detailed in other portions of this document and any item which must be removed as was evidence and necessary for the installation of the proposed sewer, for which there is no specific pay item(s), shall be considered as incidental to the construction of the proposed sewer and, therefore, no additional compensation will be allowed for the restoration of this (these) item(s).

The Contractor shall also be required to restore, at his own expense, all pavements disturbed by his operations where the sewer and/or force main was not constructed under the pavements. He shall further be required to replace at his own expense all pavements disturbed in the correction of sewer and/or force main deficiency discovered after restorations have been completed.

3. MATERIAL AND EQUIPMENT

Materials, products, and equipment shall be properly containerized, packaged, boxed, and protected to prevent damage during transportation and handling. Provide suitable, temporary weathertight storage facilities as may be required for materials or equipment which will be damaged by storage in the open. Protect from damage all materials delivered at the site. Do not use damaged material on the work.

Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers unless directed otherwise by the provisions of these Specifications.

4. SUPPLEMENTARY CONDITIONS

The Contractor's attention is called to the Supplementary Conditions indicated on the Plans and Specifications. The Drawings and Specifications reflect the type of construction that is anticipated in the various locations requiring special attention, but it shall be the responsibility of the Contractor to contact the various agencies including the State Highway Department, the gas company, telephone company, railroad company, Corps of Engineers, and other utilities and/or entities involved when working in areas where they will be concerned and for coordinating construction with their requirements in such a way to avoid conflicts, damage, or interruptions in service.

- (a) The Contractor shall perform his work in such a manner that normal service on existing sewer lines and service to customers is maintained to the maximum extent possible. Such service shall be disrupted at such times and in such a manner as approved by the Engineer.
- (b) The Contractor shall submit a work schedule to the Engineer for approval prior to beginning work. The schedule shall establish the planned sequence of line installation, service switch-over if required, and property restoration for the project.
- (c) The Contractor shall maintain access to businesses and residences to the maximum extent possible.
- (d) Easement Restrictions - The Contractor, upon request, will be furnished with plans showing easements obtained for the construction of sewers and appurtenances. The Contractor shall exercise due care in staying within the easement indicated and will be held strictly accountable for violations thereof. Any desired access points not shown on the Drawings must be acquired by the Contractor by negotiation with the property owner involved.

5. TESTING

The Specifications for Materials designate the testing applicable for materials incorporated in the work. Testing shall be done by the manufacturer in accordance with the applicable ASTM specification. Manufacturer shall furnish the Engineer with three (3) certified copies of the test results.

The Owner may, at his option, elect to have an independent testing laboratory test material to be furnished for incorporation in the work. Such testing, when done, shall be in accordance with provisions of the Specifications for Materials.

Acceptance testing for installed sewer line will be limited to visual testing, infiltration testing, and air testing unless directed otherwise by the Engineer.

6. PROJECT CLOSE-OUT

The premises and the job site shall be maintained in a reasonably neat and orderly condition and kept free from an accumulation of waste materials and rubbish during the entire construction period. Remove crates, cartons and other flammable waste materials or trash from the work areas at the end of each working day.

When the Contractor requests a final inspection, the Engineer will inspect the work for completeness in accordance with the Contract Documents. Any deficiencies shall be promptly corrected by the Contractor.

Final acceptance cannot be made until the Contractor furnishes to the Owner a notarized certification in a form suitable to the Owner that all labor and material costs for the work have been paid by the Contractor and that there are no liens against the work.

Payment in full of the Final Application for Payment shall constitute acceptance of the work by the Owner subject to conditions of the Contract Documents.

SEWER LINE REHABILITATION, REPLACEMENT, AND APPURTENANCES

SECTION 2

MATERIALS

1. GENERAL

All materials to be incorporated in the project shall be first quality, new, and undamaged material conforming to all applicable portions of these Specifications.

The Contractor shall order materials for this project, including pipe materials, based on his own material take-off instead of the approximate quantities established in the bid proposal documents.

2. CONCRETE

Cement - Cement shall be Portland cement of a brand approved by the Engineer and shall conform to "Standard Specifications for Portland Cement," Type 1, ASTM Designation C-150, latest revision. Cement shall be furnished in undamaged 94-pound, one cubic foot sacks and shall show no evidence of lumping.

Concrete Fine Aggregate - Fine aggregate shall be clean, hard, uncoated natural sand conforming to ASTM Designation C-33, latest revision, "Standard Specifications for Concrete Aggregate."

Concrete Coarse Aggregate - Coarse aggregate shall consist of clean, hard, dense particles of stone or gravel conforming to ASTM Designation C-33, latest revision, "Standard Specifications for Concrete Aggregate." Aggregate shall be well graded between 1-1/2-inch and #4 sieve sizes.

Water - Water used in mixing concrete shall be clean and free from organic matter, pollutants, and other foreign materials.

Ready-Mix Concrete - Ready-mix concrete shall be secured only from a source approved by the Engineer and shall conform to ASTM Designation C-94, latest revision, "Specifications for Ready-Mix Concrete." Before any concrete is delivered to the job site, the supplier must furnish a statement of the proportions of cement, fine aggregate, and coarse aggregate to be used for each mix ordered and must receive the Engineer's approval of such proportions.

Class "D" Concrete - Class "D" concrete shall have a minimum compressive strength of 4,500 pounds per square inch in 28 days and shall contain not less than 5.5 sacks of cement per cubic yard.

Class "C" Concrete - Class "C" concrete shall have a minimum compressive strength of 2,000 pounds per square inch in 28 days and shall contain not less than 4.5 sacks of cement per cubic yard.

Class "B" Concrete - Class "B" concrete shall have a minimum compressive strength of 3,500 pounds per square inch in 28 days and shall contain not less than 5.0 sacks of cement per cubic yard.

Metal Reinforcing - Reinforcing bars shall be intermediate grade steel conforming to ASTM Designation A-615, latest revision, "Standard Specifications for Billet Steel Bars for Concrete Reinforcement." Bars shall be deformed with a cross-sectional area at all points equal to that of plain bars of equal nominal size.

3. CRUSHED STONE

Crushed stone for pipe bedding shall meet the quality requirements of ASTM D-692 and the grading requirements of AASHTO M-43 for size 67.

Crushed stone for backfill shall meet the quality requirements of ASTM D-692 and the grading requirements of AASHTO M-43 for size 67.

4. MANHOLE FRAMES & COVERS

Manhole castings shall conform to ASTM Designation A-48, latest revision, Class 30, and shall be free from scale, lumps, blisters, sandholes, and defects of every nature which would impair their use. Castings shall be well cleaned, with a smooth tough asphaltic coating. Covers shall be of the solid-indented type with the words "SANITARY SEWER" cast in raised letters thereon. Bearing surfaces of frames and covers shall be machined to provide a solid bearing and prevent rocking. Pattern drawings and weights of castings shall be submitted for the approval of the Engineer.

Vented lids shall be furnished and installed at ends of lines and at approximately 1,400 feet along line segments. Locations of all vented lids shall be at locations determined by the Engineer.

Manhole frames and covers (minimum clear openings to be 24 inches) shall be equal to those listed below for particular applications.

NON-TRAFFIC (Standard)	John Bouchard No. 1155 Composite Access Products Model Cap One
TRAFFIC	Same as Non-Traffic type specified above
WATERTIGHT	To be used where manhole casting is subject to flood or submergence by surface runoff John Bouchard No. 1123 Composite Access Products Model Cap One
HINGED WATERTIGHT	To be used where manhole casting is subject to flood or submergence by surface runoff and a hinged watertight is called for on the drawings (only outside of roadway/ not to be used in roadway) John Bouchard No. 1295-LM
WATERTIGHT INSERT	To be used as directed by Engineer. Manhole frame and cover to be same as non-traffic type as specified above. Insert to be Sewer Guard as manufactured by Preco Industries Ltd. or equal.

Exceptions to the above shall be noted on the Construction Drawings.

5. MANHOLE STEPS

Steps shall be (1) aluminum, equal to #15295 by Alcoa, or (2) ductile iron equal to Neenah No. R1981-Q, or (3) plastic encapsulated steel equal to No. PS 1-45 as manufactured by M.A. Industries, Inc., East Point, Georgia.

6. MONOLITHIC POURED-IN-PLACE MANHOLES

Concrete shall be Class D design mix and shall be submitted to the Engineer for approval. Also, for each day's pour, two test cylinders should be made and tested in compliance with ASTM 172, ASTM C-31 and ASTM C-39. These testings shall be done by a testing laboratory selected, employed, and paid for by the Contractor.

The Contractor shall submit to the Engineer and the Owner his choice of a testing laboratory for their approval. The Contractor shall instruct the testing laboratory to forward copies of the test reports to the Engineer and the Owner.

All manholes constructed and installed on this project shall be cast with XYPEX® Admix C-1000 RED in the concrete for waterproofing and corrosive protection. The manufacturer's recommended addition rate for Concentrate C-1000 RED is 3.5% by weight of cement. XYPEX® Concentrate C-1000 RED shall be as supplied by NexGen Coating Resources, Inc; 1231 Antioch Pike; Nashville, Tennessee.

The maximum depth of 4' diameter manhole sidewall shall not exceed 20 feet. The minimum wall thickness for 4'-0" inside-diameter manholes shall be 6 inches. The minimum wall thickness for 5'-0" and 6'-0" inside-diameter manholes shall be 8 inches.

The base concrete shall be Class D as stated above, vibrated on firm sub-grade foundation or suitable crushed stone bedding. The base shall have a minimum diameter 8 inches greater than the outside diameter of the manhole and a minimum thickness, including the area under the pipe, as follows:

0' to 8' Manhole	8"
8' to 12' Manhole	10"
12' to 20' Manhole	12"

All water shall be removed from the form before and during the placement of the concrete. The first placement of base concrete shall consist of approximately 1/2 cubic yard of concrete deposited evenly around the walls and vibrated until there is a minimum slope of 60 degrees from the bottom of the forms to the bearing surface both inside and outside of the manhole. When this is complete and before additional concrete is added, the concrete must be carefully vibrated on each side of each pipe.

Concrete must be deposited in evenly distributed layers of 18 inches with each layer vibrated to bond to the preceding layer. The wall spacers must be raised as the placements are made with the area from which the spacer is withdrawn being carefully vibrated.

Should a cold joint become necessary, a formed groove and reinforcing dowels (#5 bars 36 inches long at 12-inch centers) will be required in the top of the first placement for shear protection. Immediately before the second placement is made, the surface of the cold joint shall be thoroughly cleaned and wetted with a layer of mortar being deposited on the surface.

Felt adjustment rings will be formed and/or poured into the top section of the manhole to provide future manhole casting adjustments equal to two courses of brick.

The forms may be removed 24 hours after placement. At this time a membrane curing compound with a fugitive dye included will be applied by power spraying to the outside of the manhole. The Contractor must submit manufacturer's descriptive details for curing compounds for approval.

The monolithic manholes shall be backfilled to same level simultaneously all around. The manholes shall not be backfilled until they reach 75% of the specified design strength. A select gravel backfill material shall be placed adjacent to the manholes in areas where swelling clays exist.

A resilient pipe connector and "Cavity-O-Ring" seal shall be utilized to connect pipe to manhole sidewall.

Eccentric manhole cones shall be furnished and installed for 5-foot and 6-foot diameter manholes on precast or poured-in-place manholes. Concentric manhole cones may be installed on 5-foot and 6-foot diameter manholes if transition sections are used from 5-foot or 6-foot diameter to 4-foot diameter at approximately 60 inches above pipes. Details of proposed manhole construction shall be submitted to Engineer for approval.

7. PRECAST MANHOLES

Precast manholes shall conform to the latest revision of ASTM C-478. Drawings of manhole sections proposed for use on this project must be submitted to the Engineer for approval prior to use. Steps shall be furnished in accordance with Paragraph 5 of this Section, and care must be taken to assure a firmly embedded step with no cracks from mortar shrinkage which will allow leakage. Aluminum in contact with concrete shall be coated with heavy bitumastic paint. Loose steps and shrinkage cracks passing through manhole walls shall be cause for rejection.

All manholes constructed and installed shall be cast with XYPEX® Admix C-1000 RED, or approved equal, in the concrete for waterproofing protection. The minimum required addition rate for Concentrate C-1000 RED is 3.5% by weight of cement. Alternative waterproofing additives may be submitted for review and approval. Engineer must provide documentation that proposed substitutes for XYPEX® Admix C-1000 RED are equal in protection and manufacturer warranty. **This requirement for XYPEX® C-1000 shall also apply to formed and/or poured manhole invert and benches.**

Manholes that are identified to be epoxy coated shall be exempt from the admixture requirement.

Manhole sections showing evidence of cracking, crazing, honeycombing, crumbling, or excessive roughness will not be acceptable. Sections with improper cut-outs, misalignments or other defects shall not be utilized in the project.

Precast manhole panel (monolithic) bases may be used. Drawings of the monolithic bases proposed for use on this project must be submitted to the Engineer for approval prior to use. Bases shall have a minimum poured thickness of 6 inches with an additional minimum thickness of 2 inches above the poured base allowed at the invert of the downstream pipe for the construction of the invert.

Manhole sections shall be steam or water cured and shall not be delivered to job site until at least 7 days old. Each section shall be marked in a permanent manner with date of manufacture, manufacturer's mark, and manhole location or manhole number.

Manhole sections to receive pipes shall be furnished with appropriate cut-outs with resilient connectors for installation of pipe.

On precast manhole sidewall, an approved flexible plastic gasket equal to RAM-NEK shall be applied to the joint surface to placement of next manhole section. The placement of this gasket shall also be required under all manhole castings and adjustment rings for castings.

Testing and Inspection of precast manhole sections shall be done at the site of manufacture in accordance with ASTM C-478 by the Manufacturer. Compression tests shall be run on specimens obtained from each day's production: a minimum of 2 cylinders or cores per day's run but no less than the maximum number designated by ASTM C-478. The absorption test shall be run on a minimum of 2 randomly selected manhole sections per each day's production. Certified test reports shall be submitted in three (3) copies to the Engineer.

In addition to testing required of the manufacturer as described above, the Owner may provide an independent testing laboratory to make visual inspections of manhole sections produced from selected sections. The random samples will be selected by the Owner's testing laboratory and will be taken from stock on the Manufacturer's yard intended for use on this project. Core samples shall be cut from designated sections amounting to no more than 4% of the total production in order to run compressive strength and absorption tests. The Manufacturer shall cut the cores and seal the holes, but this testing shall be done by the Owner's testing laboratory and paid for by the Owner. In the event the samples fail to conform to the Specifications, the Manufacturer may furnish additional test specimens to the extent permitted by the Specifications. Testing done by the Owner's testing laboratory shall be in accordance with ASTM C-478, latest revision.

In the event of a discrepancy between results of tests run by the Manufacturer and tests run by the Owner's testing laboratory, the Engineer shall determine the test results which will be applicable.

8. RESILIENT CONNECTORS

All connections of pipes to manhole sidewalls shall be made with resilient connectors. Openings in the manhole sidewall shall be so constructed as to include the resilient connector such that it is an integral part of the sidewall and to provide for the required size and location of the pipe to connect to the manhole. The sidewall opening shall be manufactured to allow for lateral and vertical movement, as well as angular adjustments through 20°. The resilient connector shall be A-Lok as manufactured by A-Lok Products, Inc. or approved equal. The resilient connector shall meet all physical and performance requirements as set forth by ASTM C-923.

The Contractor shall install a flexible annular space filler around entire pipe with "Cavity-O-Ring" as manufactured by NPC Systems, Inc. of Milford, NH or approved equal.

9. DUCTILE IRON PIPE

Ductile iron pipe for gravity lines and force mains shall conform to USA Standard A21.51 for centrifugally cast pipe. The pipe shall be manufactured of iron having acceptance values of 60-42-10.

Pipe shall be furnished in lengths of 18 feet to 20 feet and, unless otherwise indicated, shall be provided with a compression type slip joint equal to the Fastite joint as manufactured by American. Gaskets and lubricants shall be furnished with the pipe.

Pipe shall be furnished with standard thickness cement lining on the inside with a bituminous seal coat and a bituminous coating on the outside. Cement lining shall conform to USA Standard A21.4. The exterior of the pipe shall be clearly marked to indicate the manufacturer, date of manufacture, the pipe class and weight. Exterior markings shall also positively identify the pipe as being Ductile Iron.

Ductile iron pipe shall be furnished with wall thickness in accordance with the following schedule (or heavier), unless noted otherwise on the Drawings (Thickness Class 52).

<u>Nominal Pipe Diameter</u>	<u>Minimum Wall Thickness</u>
6"	0.31"
8"	0.33"
10"	0.35"
12"	0.37"
16"	0.40"
18"	0.41"
20"	0.42"
24"	0.44"
30"	0.47"
36"	0.53"
42"	0.59"
48"	0.65"

All ductile iron pipe shall be first quality, with manufacturer's identification and pipe class clearly shown on each section.

Where restrained joint ductile iron pipe (DIP) and restrained joint ductile iron pipe (DIP) fittings are required, the restrained joint DIP pipe shall be Class 52, thickness class. The restrained joint DIP pipe and fittings shall be manufactured in accordance with the requirements of ANSI/AWWA C151/A21.51. Restrained joint fittings and the restraining components shall be ductile iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 and/or C153/A21.53 with the exception of manufacturer's proprietary design dimensions. Restrained joint pipe and fittings shall be United States Pipe and Foundry Company's TR FLEX® pipe and fittings or Engineer approved equal. Restraint of field cut pipe shall be provided with U.S. Pipe's TR FLEX GRIPPER™ ring, TR FLEX® pipe field weldments or Engineer approved equal.

Pipe manufacturer shall furnish, upon request, the test date for quality control during the manufacturing period for pipe furnished on the project. Testing and inspection shall be in accordance with ASA A21.51. Tests to include hydrostatic test (500 psi - 10 sec.); tensile test; impact test; one sample to be taken during each casting period of approximately 3 hours.

10. POLYVINYL CHLORIDE (PVC) SEWER PIPE (SOLID WALL PIPE)

PVC sewer pipe may be used for gravity sewer lines, if indicated on the Contract Drawings. PVC sewer pipe shall be **SDR 26**, or heavier, manufactured in accordance with ASTM D-3034, latest revision, for type PSM sewer pipe and fittings, 4-inch through 15-inch; ASTM F-679, 18-inch through 27-inch. Pipe shall be furnished in lengths not exceeding 14 feet. Pipe shall be furnished with integral bells: gaskets and lubricants

shall be furnished by the pipe manufacturer. Pipe and fittings shall be made of PVC plastic having a cell classification of 12454-B or 12454-C as defined in ASTM D-1784.

Joints shall be compression type utilizing an elastomeric gasket providing a positive seal against groundwater and root intrusion as well as sewage leakage and shall be in accordance with ASTM D-3212. Gaskets shall comply with physical requirements specified in ASTM F-477, latest revision. Lubricant shall be furnished with the gaskets and shall be entirely compatible with gasket and pipe material.

Joints shall show no signs of leakage when tested as follows (supersedes ASTM D-3034): Typical joint assembly shall be subjected to internal hydrostatic pressure of 10.8 psig for 10 minutes without leakage; assembly shall also be subjected to internal vacuum of 22 inches of mercury or external pressure of 10.8 psig for 10 minutes without leakage. The above internal pressure and vacuum (or external pressure) tests shall be run on a typical joint assembly in concentric alignment and in a position of angular deflection to at least 3.

Testing and inspection of all pipe shall be done at the factory with a certified copy of test results furnished to the Engineer prior to any pipe being installed. Tests shall be done in accordance with ASTM D-3034 or ASTM F-679 and shall include: Pipe and Fitting Dimensions; Pipe Flattening; Impact Resistance; Pipe Stiffness; Joint Tightness; and Extrusion Quality. At least 1% of the production of each size furnished for this project shall be tested.

Each pipe section shall be marked with the following information:

4-inch to 15-inch:

Manufacturer's name or trademark; nominal pipe size; PVC cell classification; Legend "Type PSM SDR 26 PVC Sewer Pipe"; ASTM D-3034.

18-inch to 30-inch:

Manufacturer's name or trademark; nominal pipe size; PVC cell classification; Legend "PS 115 PVC Sewer Pipe"; ASTM F-679.

Note: Sewer service pipe from the sewer mains shall be Schedule 40 PVC. The Contractor shall utilize an adapter at the mainline tee to transition from ASTM 3034; SDR 35 PVC pipe to Schedule 40 PVC service pipe.

11. SEWER FITTINGS AND ADAPTERS

Fittings and adapters for use with PVC or D.I.P. pipe shall be manufactured in accordance with the Specifications for the respective types of pipe.

Note: Special coupling adapters for point repairs on sewer lines and/or joining sewer services, sewer lines shall provide for shear / differential settlement protection and shall be Mission Flex-Seal ARC sewer couplings as manufactured by Mission Rubber Company or Engineer/Owner-approved equal.

12. SEWER SERVICE SADDLES, CLEAN-OUTS, WYES, BOXES, AND COVERS

Typical sewer service clean-outs (4-inch) shall be installed as per Standard Details. The clean-out shall consist of a clean-out wye (no tees) along with a 45° bend. The 4-inch Sewer Popper Cleanout and Relief Valve by Jones Stephens Corporation or Engineer approved equal shall be contained in a precast concrete/cast iron valve box.

Wherever the valve box is located, either in a roadway or outside roadway, the valve box shall be constructed of concrete and cast iron in accordance with the following:

Valve Boxes - Valve boxes are to be made of pre-cast concrete sections measuring 11" x 13-1/4" inside dimensions and 17" x 19-1/4" outside dimensions with the height of 12 to 15 inches. Reinforcement shall be placed and shall conform to the requirements of ASTM A-15 and ASTM A-305 for intermediate grade.

Footing blocks for standard concrete valve boxes are to be pre-cast in blocks measuring 12" x 12" x 4". No reinforcing steel is required in footing blocks.

Valve Box Frames and Covers shall be made of heavy cast iron and shall meet the requirements of ASTM A-48, Class 40.

All casting shall be made accurately to the required dimensions and shall be sound, smooth, clear and free of blemishes or other defects. Defective castings which have been plugged or otherwise treated to remedy defects shall be rejected. Contact surfaces of frames and covers to be machined so that the covers rest securely in the frames with no rocking. The cover shall be in contact with the frames for the entire perimeter of the contact surface.

The valve box frames and covers shall be as manufactured by Bouchard No. 8006, Roadway Type, Nashville Standard or equal. The cover shall be marked "SEWER."

Sewer service saddles used for reconnection of existing sewer service to main line sewer rehabilitated by CIP lining shall be DFW / HPI Flexible Saddle of a molded unit consisting of an insert surrounded by Elastomeric Polyvinyl Chloride (PVC) as manufactured by Hefco Plastics, Inc. of Troupe Texas, local dealer Hayes Pipe Supply in Nashville, Tennessee (615) 217-3040 or approved equal. Each saddle shall be supplied with corrosion resistance series 300 stainless steel clamps.

Epoxy used to bond saddle to CIP host pipe shall be PC-11® White Epoxy Paste as manufactured by PC-Products of Allentown, Pennsylvania, local dealer Hayes Pipe Supply in Nashville, Tennessee (615) 217-3040 or approved equal. Epoxy shall be capable of being applied to a dry, wet or underwater surface.

13. SEALING AND PROTECTIVE COATING FOR INTERIOR SURFACES OF EXISTING MANHOLES

The Contractor shall submit materials to be used to the Engineer for review and approval.

Manhole sealing involves materials to be used for sealing existing manhole sidewalls and/or inverts. For voids, brickwork joints, leaks, and/or invert work required, a Portland cement based hydraulic cement, Thoroc™ Plug and Thoroc™ Patch as manufactured by Thoroc / ChemRex, Inc. (formally Preco Industries Ltd.), Shakopee, Minnesota or Engineer-approved equal shall be used.

Materials for sealant applications shall be Durpal, Drycon Grey, Drycon White, Brush-Bond, SP15 Spray Mortar as manufactured by Thoroc / ChemRex, Inc., or Engineer-approved equal. This material shall be a Portland cement slurry which consists of Portland cement and finely graded mineral fillers and inorganic co-polymer additives which prevents seepage of water through the manhole inverts, benches and sidewalls under a hydrostatic pressure.

NOTE: Other optional manhole sealing material suppliers may be as follows:

- a. Quadex Manhole Restoration Systems as manufactured by Quadex, Inc. of Little Rock, Arkansas (888-831-1650).
- b. Strong-Seal® Systems as manufactured by Chemtron International, Inc. for Strong-Seal Systems of Pine Bluff, Arkansas. The local representative for Strong-Seal is Mr. Greg Guess, Hendersonville, Tennessee (615-264-6326).

The Contractor shall submit materials to be used to the Engineer for review and approval.

The cured system shall exhibit the following properties:

1.	TENSILE STRENGTH, psi ASTM C-190	745
2.	COMPRESSIVE STRENGTH, psi ASTM C-109	5715
3.	FLEXURAL STRENGTH, psi ASTM C-348	1585
4.	BRICK BOND STRENGTH, psi ASTM C-321	475
5.	SHEAR BOND STRENGTH ASTM C-109	775
6.	ABRASION RESISTANCE (percent weight loss) ASTM C-241	1.15
7.	IMPACT STRENGTH Inch Pounds	16
8.	WATER VAPOR TRANSMISSION RATE Perms 1/4" Thick Specimens ASTM E-96	3-7
9.	WATER ABSORPTION (percent water absorbed) ASTM C-140	2

10. FREEZE THAW RESISTANCE
 (cycles passed)
 ASTM C-291 60

Where specified on the Contract Drawings and in the Proposal Section, the Contractor shall furnish and apply to the interior of manholes a chemical-resistant epoxy Sewer Guard® HBS 100 Epoxy Liner (formally Fosroc Epoxy Liner) as manufactured by Thoroc / ChemRex, Inc., of Shakopee, Minnesota or Engineer-approved equal. The local representative for Thoroc / ChemRex, Inc. is Mr. Andrew Karp, Franklin, Tennessee (615-794-6392).

NOTE: Another optional epoxy liner may be Strong-Seal ® Systems Epoxy Topcoat as manufactured by Chemtron International, Inc. for Strong-Seal Systems of Pine Bluff, Arkansas. The local representative for Strong-Seal is Mr. Greg Guess, Hendersonville Tennessee (615-264-6326) and Quadex Aluminaliner as manufactured by Quadex, Inc. of Little Rock AR (888-831-1650).

Note: All sealing and coating of interior manhole and invert surfaces shall be by the spray applied method only.

18. 80 PSI FLOWABLE FILL FOR TRENCHES IN CITY STREETS OR STATE HIGHWAYS, IF REQUIRED

Flowable fill is a low-strength mixture consisting of Portland cement, sand, Class F fly ash, water and other materials as approved by the Engineer. Flowable fill shall have a density between 115 lbs/cubic foot and 130 lbs/cubic foot.

Ingredient materials shall meet the following requirements:

Portland Cement, Type I:	801	
Sand:	804	
Fly Ash, Class F:	844	(Contrary to subsection 844.01, the loss on ignition shall not exceed 12%)
Water:	803	

Flowable fill shall be proportioned as follows, per cubic yard:

Cement:	30 lbs.
Fly Ash, Class F:	300 lbs.
Sand (S.S.D.):	3,000 lbs.
Water (Maximum):	550 lbs.

Flowable fill shall be provided in accordance with requirements of Tennessee Department of Transportation's current Standard Specifications for Road and Bridge Construction

19. PLAIN STONE RIP-RAP

Plain stone rip-rap material shall be sound, durable, free from cracks, pyrite intrusion and other structural defects. Wear shall not exceed sixty by the Los Angeles Method. When crushed aggregate is subjected to five alternations of the sodium sulfate soundness test, the weighted percentage of loss shall not be more than fifteen. At least 90 percent of the stone shall not be less than 8 inches wide by 12 inches long by 12 inches deep and shall be approximately rectangular in shape. This material and

placement shall be in compliance with paragraph 709.06 of the Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction.

20. GROUTED STONE RIP-RAP (not anticipated on this project)

Grouted stone rip-rap material shall be provided and placed as specified for plain stone rip-rap above. After chinking and filling, the voids shall be filled with grout. The grout shall be composed of one-part Portland Cement and four parts of sand. These materials and placement shall be in full compliance with Paragraph 709.07 of the Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction.

21. EROSION CONTROL MATTING FOR SEEDED AREAS, IF REQUIRED

Erosion control matting for seeded areas, if required, shall consist of furnishing, placing, and securing either jute mesh, excelsior matting, erosion control fabric or other approved matting on previously shaped and seeded drainage channels, slopes, or other areas at locations shown on the plans or as specified by the Owner/Engineer. These materials and placement shall be in full compliance with Section 805; Paragraphs 805.01 thru 805.05 of the Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction. North American Green No. 125 or Engineer approved equal may be used for this purpose.

23. MANHOLE (DISH) INSERTS FOR INFLOW PROTECTION

The Contractor shall install "inflow protector manhole inserts" with the exception of watertight F & C's and the end-of-line manholes which shall be equipped with a manhole cover with vent holes. The manhole insert shall be as manufactured by Syneco Systems, Inc., of Chanhassen, MN; or, Parson Environmental Products, Inc., of Reading, PA, or Owner/Engineer approved equal.

24. EXTERNAL JOINT WRAP

External joint wrap shall consist of a minimum 9" width wrap with an outer layer of polyethylene, having a minimum tensile strength of 3,000 psi. Joint wrap may utilize either an under layer of rubberized mastic that is reinforced with a woven polypropylene fabric, or a heat-shrinkable sleeve of polyethylene. The joint wrap shall be installed on all manhole joints prior to backfilling. Joint wrap shall be RUBR-NEK, ConWrap CS-212, Wrapid Seal or approved equal.

SEWER LINE REHABILITATION, REPLACEMENT, AND APPURTENANCES

SECTION 3

CONSTRUCTION

1. PRELIMINARY WORK

- 1.1 Surveying, Staking and Cut Sheets - The Engineer will provide adequate bench marks and control lines, but offset staking shall be the responsibility of the Contractor. The Contractor shall prepare cut sheets and submit them in quadruplicate for the Engineer's approval. The cut sheets shall have ground elevations at 25-foot intervals and at major changes of the ground profile (ditches, ledges, etc.). Two sets of the approved cut sheets will be returned to the Contractor. The Engineer shall check cut sheets before construction is started.

Alignment and grade shall be maintained by the use of offset hubs. There shall be at minimum:

- (1) Two (2) alignment and grade offset hubs at each manhole.
- (2) For use with batter boards: At a maximum interval of 50 feet (when sewer grade is less than 1%, maximum intervals shall be 25 feet).
- (3) For use with laser device: At 50 feet and 100 feet out of each manhole.

- 1.2 Location and Protection of Underground Utilities - Prior to trenching the Contractor shall determine, insofar as possible, the actual location of all underground utilities in the vicinity of these operations and shall clearly mark their locations so they may be avoided by equipment operators. Where such utility lines or services appear to lie in the path of construction, they shall be uncovered in advance to determine the exact location and depth and to avoid damage due to trenching operations. Existing facilities shall be protected during construction or removed and replaced in equal condition, as necessary.

Should any existing utility line or service be damaged during, or as a result of, the Contractor's operations, the Contractor shall take such emergency measures as may be necessary to minimize damage and shall immediately notify the utility involved. The Contractor shall then repair the damage to the satisfaction of the utility or shall pay the utility for making the repairs. In all cases, the restoration and/or repair shall be such that the damaged structure will be in as good or better condition as before the damage occurred.

- 1.3 Minimum Horizontal and Vertical Clearances for Sanitary Sewers and Water Mains - Where sewer lines pass over or within 4 feet of water mains, the sewer line shall be encased in concrete. A vertical clearance of 18 inches shall be maintained between sanitary sewer and water main. A horizontal clearance of 10 feet shall be maintained between sanitary sewers and water mains.

- 1.4 Removal of Obstructions - The Contractor shall be responsible for the removal, safeguarding and replacement of fences, walls, structures, culverts, street signs, billboards, shrubs, mailboxes, or other obstructions which must be moved to facilitate construction. Such obstructions must be restored to at least their original condition.

- 1.5 Clearing and Grubbing - The Contractor shall be responsible for cutting, removing and disposing of all trees, brush, stumps, roots and weeds within the construction area. Disposal shall be by means of chippers, landfills, or other approved method and not in conflict with State or local ordinances.

Care shall be taken to avoid unnecessary cutting or damage to trees not in the construction area. The Contractor will be responsible for loss or damage to trees as well as other damages outside the permanent easement or rights-of-way resulting from the Contractor's activities.

2. EXCAVATION

- 2.1 General - The Contractor shall perform all required excavation and backfilling incidental to the installation of the sewers, manholes, force mains, and other appurtenances under this Contract. Excavation shall be carried to the depths indicated on the Drawings or as necessary to permit the installation of pipe, bedding, structures, or appurtenances. Care shall be taken to provide a firm, undisturbed, uniform surface in the bottoms of trenches and excavations for structures. Where the excavation exceeds the required depth, the Contractor shall bring the excavation to proper grade through the use of an approved incompressible backfill material (generally crushed stone or fill concrete, depending upon the nature of the facility to be placed thereon). In the event unstable soil conditions are encountered at the bottom of the excavation, the Engineer may direct the Contractor to continue the excavation to firm soil or to provide pilings or other suitable special foundations.

The Contractor shall take such precautions as may be necessary to avoid endangering personnel, pavement, adjacent utilities or structures through cave-ins, slides, settlement or other soil disturbance resulting from his operations. The Contractor shall be responsible for storage of excavated material, disposal of surplus excavated material, trench dewatering and other operations incidental to excavation and backfilling operations.

The Contractor's attention is directed to the requirements on the Contract Drawings where portions of trench excavation prohibits any blasting operations.

- 2.2 Classification of Excavation - All excavation shall be unclassified and the cost of excavation shall be merged into the price per foot for the pipe sewer. No distinction will be made between rock and earth excavation and no separate payment will be allowed thereof.

This item includes all cost involved in the removal and disposal of the rock.

- 2.3 Pavement Removal - Where existing paved streets, roads, parking lots, drives or sidewalks must be disturbed during construction of the project, the Contractor shall take the necessary steps to minimize damage. Permanent type pavement shall be cut or sawed in a straight line before removal, and care shall be taken during excavation to avoid damage to adjacent pavement. Where trucks or other heavy equipment must cross curbs or sidewalks, such areas shall be suitably protected.

- 2.4 Trench Excavation - Trenches shall be neatly excavated to the alignment and depth required for the proper installation of pipe, bedding material, and appurtenances. Trenches shall be opened up far enough ahead of pipe laying to reveal obstructions but, in general, shall not include more than 300 feet of continuous open trench at any time. The Contractor will be required to follow up trenching operations promptly with pipe laying, backfill and clean-up and, in event of failure to do so, may be prohibited from opening additional trenches until such work is completed.

The Contractor shall plan his operations so as to cause a minimum of inconvenience to property owners and to traffic. No road, street or alley may be closed unless absolutely necessary, and then only if the following conditions are met:

1. Permit is secured from appropriate State, County or Municipal authorities having jurisdiction.
2. Fire and Police Departments are notified before road is closed.
3. Suitable detours are provided and are clearly marked.

No driveways shall be cut or blocked without first notifying the occupants of the property. Every effort shall be made to schedule the blocking of drives to suit the occupants' convenience and, except in case of emergency, drives shall not be blocked for a period of more than 8 hours.

The Contractor shall furnish and maintain barricades, signs, flashing lights, and other warning devices as necessary for the protection of public safety. Flagman shall be provided as required on heavily traveled streets to avoid traffic jams or accidents.

Trench width shall be held to a minimum, consistent with proper working space for the assembly of pipe. Maximum trench width up to a point one foot above top of pipe shall be limited to the outside pipe diameter plus 16 inches. Boulders, large stone, shale, and rock shall be removed to provide clearance of 6 inches below and on each side of the pipe.

Trench walls shall be kept as nearly vertical as possible with due consideration to soil conditions encountered and when necessary, sheeting or bracing shall be provided to protect life and property.

Where unstable soil conditions are encountered at the trench bottom, the Contractor shall remove such additional material as may be directed by the Engineer and replace the excavated material with approved backfill.

The Contractor shall excavate by hand wherever necessary to protect existing structures or utilities from damage or to prevent over-depth excavation in the trench subgrade.

Excavated material shall be stored safely away from the edge of trench and in such a way as to avoid encroachment on private property.

- 2.5 Excavation for Structures - Excavation for manholes, junction boxes, piers, or other structure shall be only as large as may be required for the structure and for working room around the structure. In earth, excavation shall generally extend to the outer limits of the structure at the bottom and shall slope outward at such angle as may be required for stability of excavated face. In rock, excavation shall be carried to a point 6 inches outside the structure so that no rock is left within 6 inches of the finished structure. Rock excavation for manhole slabs shall extend only to the bottom and edges of the slab.

Care shall be taken as the excavation approaches the desired grade to avoid over-depth excavation and provide a firm and undisturbed soil surface on which footings, slabs, or foundations are to be placed. Should the Contractor excavate below the desired grade level, the excavation shall be brought to grade by the use of Class C concrete at the expense of the Contractor. The use of tamped earth backfill under foundations, footings, or slabs will not be acceptable.

Where structures rest partially upon rock, the rock shall be excavated to a point 6 inches below bottom of structure and compacted crushed stone shall be used to bring the excavation back to grade. Where the structure will rest completely on sound solid rock, the rock shall be excavated to a point 4 inches below bottom of structure and compacted crushed stone shall be used to bring the excavation back to grade. The Contractor is cautioned to use care in leveling prior to the setting of precast manholes of junction boxes.

Should the material found at the desired subgrade appear to be unstable or otherwise unsuitable for support of the structure, such condition shall be immediately called to the attention of the Engineer. The Engineer may direct that such unsuitable material be removed and replaced with concrete, he may modify the foundation design to suit the condition, or he may determine the bearing capacity of the material for the load to be supported; but, in any case, he shall provide written instructions to the Contractor as to the procedure to be followed.

- 2.6 Rock Excavation - Where rock excavation is encountered in trenches, the excavation shall be carried to a depth of 6 inches below the bottom of the pipe. The rock shall also be removed to a width of at least 6 inches beyond the outside of the pipe on each side so that no rock is left within 6 inches of the outside wall of the pipe. Where rock is excavated in the bottom of the trench, the trench shall be brought back to grade by the use of crushed stone which shall be compacted to form a stable base for the pipe laying operation. If track drills are used for drilling rock, water must be provided and used with the drilling operation to control dust.

The Contractor shall exercise all necessary precautions in blasting operations. Suitable blasting mats shall be provided and utilized as required. Blasting shall be done only by experienced men. Careless shooting, resulting in the ejection of stones or other debris during blasting, shall be corrected immediately by the Contractor's representative.

Where rock is encountered in the immediate vicinity of gas mains, telephone cables, building footings, gasoline tanks, or other hazardous areas, the Contractor shall remove the rock in a manner that will ensure protection of these structures. Care shall be taken in blasting operations to see that pipe or other structures previously installed are not damaged by blasting. In general, blasting shall not be done within 25 feet of the completed pipeline or any existing structure.

Excavated rock that cannot be utilized in trench backfill as permitted under paragraph 4 of this Section shall be removed from the site and disposed of as directed by the Engineer.

Note: The Contractor's attention is directed to the fact that explosive blasting of trenches shall not be allowed on this project due to close proximity of residences, streams, existing utilities, and other considerations. Trench excavation, including rock excavation, shall be accomplished by rock trenchers, hoe-rams, and alternate means other than the use of explosives.

This no blasting requirement may be waived by the Owner/Engineer in specific situations such as deep cuts in areas remote from existing structures and existing utilities. The Contractor must specifically request this waiver and must detail the extent of blasting procedures desired. If this waiver is granted, the Owner/Engineer will only allow selective "pop shots" in trenches to an open trench face with adequate cover and matting.

- 2.7 Sheeting and Shoring - The Contractor shall provide such bracing, sheeting, or shoring as may be necessary for the protection of life and property. Sheeting will be required where necessary to restrict the trench width to acceptable limits above the top of pipe.

Sheeting, shoring, or bracing shall conform to applicable safety codes and shall be left in place until the pipe is laid, checked, and backfilled to a safe level at or above top of pipe. The bracing or sheeting may then be removed in an approved manner unless the Engineer specifically directs that the sheeting be left in place. Where the sheeting is left in place, either at the direction of the Engineer or option of the Contractor, the sheeting shall be cut off at least 18 inches below the finished ground level.

Care shall be taken in removing sheeting to avoid weakening the trench, increasing the backfill load, or endangering adjacent property. Voids left by the removal of sheeting shall be filled in and compacted with suitable material using tamps intended for this purpose.

- 2.8 Storage of Excavated Material - Excavated material shall be deposited in such a manner as to avoid danger to workmen, sewer, or traffic and to cause minimum inconvenience through blocking of drives, sidewalks, natural drains, etc. Where indicated on the Drawings or necessitated by conditions prevailing, the Contractor shall haul away and stockpile excavated material.

- 2.9 Disposal of Surplus Excavated Material - Excavated material that is unsuitable or unnecessary for backfilling shall be hauled to sites as directed by the Engineer for use as fill on the project. No surplus excavated material may be disposed of except as provided herein unless specifically authorized by the Engineer. Any material which is not suitable or not required for the fill on the project shall be disposed of by the Contractor.

- 2.10 Subsurface Obstructions - In excavating, backfilling, and laying pipe, care must be taken not to remove, disturb, or injure other pipes, conduits, or structures without the approval of the utility. If necessary, the Contractor, at his own expense, shall sling, shore up, and maintain such structures in operation and, within a reasonable time, shall repair any damage done thereto. Repairs to these facilities shall be made to the satisfaction of the utility.

The Contractor shall give sufficient notice to the interested utility of his intention to remove or disturb any other pipe, conduit, etc. and shall abide by their regulations governing such work. In the event subsurface structures are broken or damaged in the prosecution of the work, the Contractor shall immediately notify the proper authorities and shall be responsible for any damage to persons or property caused by such breaks.

When pipes or conduits providing service to adjoining buildings are broken during the progress of the work, the Contractor shall have them repaired at once. Delays, such as would result in buildings being without service overnight or for needlessly long periods during the day, will not be tolerated, and the City reserves the right to make repairs at the Contractor's expense without prior notification. Should it become necessary to move the position of a pipe, conduit or structure, it shall be done by the Contractor in strict accordance with instructions given by the Engineer or the utility involved.

- 2.11 Special Conditions - Special care must be exercised in excavation under or near State Highway, railroads, or other areas as designated on the Drawings in order to avoid or minimize delays or injuries resulting therefrom. Where it is necessary to cross beneath State Highways, railroads, or other designated areas, the Contractor shall make such installations as shown on the Drawings and/or as directed in paragraph 6 of this Section - Special Construction Items.

3. INSTALLATION OF SEWER PIPE AND ACCESSORIES

- 3.1 General - The Contractor shall use only experienced men in the final assembly of pipe in the trench, and all pipe shall be laid in accordance with these Specifications and the recommended practice of the pipe manufacturer. Trench bottoms shall be carefully prepared, shall be free of water, and bedding, as specified, shall be in place.

Care shall be exercised to ensure that pipe of the proper strength or classification, meeting the Specifications in every respect, is provided at the site of pipe laying operations. Recommended tools, equipment, lubricant, and other accessories needed for proper assembly or installation of the pipes shall be provided at the site of the work. Any damaged or defective pipe discovered during the pipe laying operations shall be discarded and removed from the site of the pipe laying operations.

Alignment and grade shall be carefully maintained during the laying operations. The method used for maintaining grade and alignment must be acceptable to the Engineer and must produce the desired results. The top of the bedding material must be brought to the exact grade and must be shaped so as to provide effective support for the bottom quadrant of the pipe except at the bells.

The Contractor shall exercise care in the storage and handling of pipe, both on the storage yard and at the site of laying operations. Suitable clamps, slings, or other lifting devices shall be provided for handling pipe and fittings. Pipe and fittings shall be carefully lowered into the trench piece by piece. Pipe and fittings shall be carefully inspected for defects and for dirt or other foreign material immediately before placing them in the trench. Suitable swabs shall be available at the site of laying operations, and any dirt or foreign material shall be removed from the pipe before it is lowered into the trench.

Conditions permitting, property clean-up and restoration shall begin and be prosecuted to completion on a timely basis as set forth in the Supplementary Conditions of the Contract. Failure by the Contractor to prosecute and complete property clean-up and restoration on a timely basis will result in the withholding of 15% of the payment due for that part of the completed pipe sewer for which clean-up and property restoration has not been accomplished. This 15% withholding constitutes payment for work not completed. This amount shall be in addition to the retained percentage for work completed. This withholding of 15% will continue on subsequent payment estimates until such time as clean-up and property restoration is in compliance with the Supplementary Conditions of the Contract.

- 3.2 Removal of Water - The Contractor shall be responsible for handling run-off, groundwater, and sewage in such a way as to maintain trenches and excavations in a dry condition until the work is completed. Pumps, piping, well points, labor, fuel, and other facilities necessary to control, intercept, remove and/or dispose of water shall be provided by the Contractor at his own expense.

Water shall be kept out of trenches and other excavations to the extent necessary to protect the supporting strength of the foundation material, permit efficient and satisfactory assembly or replacement of facilities, and to prevent floating or misalignment. Water removed from trenches or holes shall be discharged to natural drains in such a way as to avoid danger or damage to adjacent property owners or sewers. No pipe shall be laid with water in the bells.

Where the Contractor fails, refuses, or neglects to control water in trenches or other excavations, and corrective work is deemed by the Engineer to be necessary as a consequence thereof, such work shall be at the Contractor's expense.

- 3.3 Pipe Bedding and Envelope - Trench width from a point 1 foot above the top of the pipe (top of "pipe zone") down to bottom of trench shall be held to a minimum, consistent with the provision of necessary space for proper assembly of the pipe. In general, the trench width shall not exceed the outside pipe diameter plus 16 inches.

Note: The minimum trench and bedding requirements shall be Type 4 Trench Condition for Ductile Iron Pipe and Type 5 Trench Condition for PVC as set forth in AWWA-C-600-Latest Revision.

A minimum of 6 inches of crushed stone bedding shall be placed in the bottom of the trench to provide continuous support of the bottom quadrant of the pipe. The Contractor shall bring the crushed stone bedding up to the level required to provide support of the bottom quadrant and shall then shape the bedding to receive the pipe. Bell holes shall be dug so that the bottom of the bells will not support the pipe.

After the bedding has been shaped and the pipe has been installed, the pipe shall be carefully backfilled with crushed stone bedding material placed by hand and compacted up to a level 12 inches above the top of the pipe. The pipe bedding and envelope shall consist of clean, crushed stone, free from debris and other objectionable materials, placed in even layers simultaneously on each side of the pipe, and shall be thoroughly consolidated to completely fill the haunches of the pipe. Consolidation by jetting will not be allowed. The furnishing and installation of the crushed stone bedding and envelope shall be considered as an integral part of the pipe installation and its cost merged into the unit price item for pipe installation.

The crushed stone envelope for ductile iron pipe outside of roadway will not be required above the centerline of the pipe if the Contractor hand-places a select earth envelope of loose native soil or select material excavated from the trench, free of deleterious substances such as rocks, roots, stumps, humus material, frozen earth, other organic material and any other objectionable material around the pipe. The envelope shall be lightly tamped to 85% compaction around the pipe in lifts not to exceed 6 inches to a point up to 12 inches over the top of the pipe. Consolidation by jetting will not be allowed. The furnishing and installation of the crushed stone bedding and select material envelope shall be considered as an integral part of the job and its cost merged into the unit price bid for D.I.P or PVC pipe. No separate payment shall be allowed.

- 3.4 Pipelaying - After the pipe has been cleaned and inspected for defects and lowered into the trench, the mating surfaces of the compression joint shall be wiped clean and coated with lubricant of a type supplied by the pipe manufacturer. The pipe shall then be assembled with due care being taken to ensure that the spigot end of the pipe is shoved home and that the pipe is left in proper grade and alignment.

Whenever pipe laying operations are to be discontinued for a period of time exceeding 2 hours, the end of the pipe shall be carefully secured to avoid displacement or misalignment and a tight-fitting plug or stopper shall be placed in the line. Upon resumption of laying operations, the plug or stopper shall not be removed from the line until any water, mud or other debris has been removed to avoid entry into the completed section of the sewer.

Installation of sewer pipe including force mains shall conform to provisions of these Specifications and recommendations of the pipe manufacturer. Installation instructions provided by the pipe manufacturer shall be available at all times at the location of the work.

The proper gaskets and lubricants shall be furnished by the pipe manufacturer and lubricants shall be delivered to the job site in properly labeled, unopened containers.

Wye branches or tees and other fittings shall be placed in the sewer line as shown on the Drawings or as directed by the Engineer as pipe laying progresses. The Contractor shall keep accurate records of their location.

Cradle, encasement, or cap concrete shall be provided in locations as shown on the Drawings or where the nature of the work requires such protection. In the event the cradle, encasement, or cap concrete is required but is not shown on the Drawings, the Contractor shall obtain written authorization from the Engineer for the installation of such protection. Cradle, encasement, and cap concrete will be measured in cubic yards, based on the linear feet of cradle, encasement, or cap concrete furnished and placed on each pipe size, multiplied by the cubic yards per linear foot for each pipe size indicated in the cradle tabulation or shown on the encasement cross-sections included in the Contract Drawings. The unit bid and Contract price for cradle, encasement, or cap concrete shall include the cost of removing and disposing of the added excavation required to accommodate these materials.

Whenever it is necessary to cut a joint of pipe in order to fit the trench conditions, the cutting shall be done using the equipment as recommended by the manufacturer for the specific type of pipe involved. The cut shall be made so as to leave smooth end at right angles to the axis of the bore and the end shall be beveled or finished as required to make the joint without risk or damage to the gasket.

Laying Ductile Iron Pipe in Gravity Sewers - Unless otherwise indicated, ductile iron pipe shall be laid with slip type compression joints equal to the manufacturer's standard for pressure water pipe, and assembly of the joints shall be in accordance with the manufacturer's recommendations using lubricant and accessories as provided by the pipe manufacturer.

Note: The minimum trench and bedding requirements for Ductile Iron Pipe (DIP) shall be Type 4 Trench Condition as set forth in AWWA-C-600-Latest Revision.

In stream crossings, ravines, shallow cuts and other locations where the pipe will not be laid on bedding placed on original subgrade, the pipe shall be supported on concrete piers as detailed on the Drawings or as directed by the Engineer. Piers shall be of Class D concrete with reinforcing as shown. The tops of piers shall be carefully set at the exact elevation and shall be shaped so as to provide support for the bottom half of the pipe with allowance being made for the outside diameter of the pipe plus the thickness of a layer of tarred felt around the outside of the pipe. After the concrete has attained satisfactory strength, the ductile iron pipe may be installed across the piers using one or more layers of tarred felt between the surface of the concrete and the outside diameter of the pipe. The Contractor may, at his option, install the pipe to exact grade and alignment using temporary supports and then construct the permanent piers for the pipe, provided suitable precautions are taken to avoid any misalignment during the construction of the piers.

Laying PVC Sewer Pipe - Installation of the pipe shall be in strict accordance with ASTM Designation D-2321, Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe. Due precautions must be taken in placing the backfill under the pipe haunches and on the sides of the pipe to ensure proper support of the pipe and at the same time avoid any misalignment. Attention is called to the fact that these Specifications limit pipe diametric deflection to 5%.

Note: The Contractor shall exercise care in the delivery, storage, handling, and placement of PVC pipe materials on this project.

Note: The minimum trench and bedding requirements for Polyvinyl Chloride (PVC) shall be Type 5 Trench Condition as set forth in AWWA-C-600-Latest Revision.

After the pipe has been placed and brought to grade, the pipe shall be held in place while crushed stone is carefully worked in around the pipe for firm support of bottom and sides. Extreme care shall be taken in backfilling around the pipe to avoid raising the pipe above the grade line, but at the same time provide the required support. The crushed stone shall be placed in small quantities and distributed by hand up to the top of the pipe. Backfill shall be compacted on the sides by means of small hand tamps or vibrators, but excessive tamping over the top of the pipe should be avoided.

Should the bottom or sides of the trench be unstable to the extent that firm support cannot be provided for the bottom or sides of the pipe, this condition shall be reported to the Engineer so that suitable corrective measures may be authorized.

PVC pipe shall pass a go/no-go mandrel inspection sized to 95% of the pipe diameter of the actual pipe diameter after the pipe is in place and completely backfilled. No testing shall be performed on PVC pipe until after backfilling (see testing specifications).

Contractor shall furnish labor and equipment and perform the mandrel inspection in the presence of the Engineer. Cost for performing this test shall be merged into the unit price bid for sewers.

- 3.5 Service Connections - Sewer service lines (if required) shall be provided as shown on the Drawings or as directed by the Engineer. The service connection shall be made in the manner as directed with the size and type pipe as indicated. Service pipe shall be laid on a minimum slope of 1/4-inch per foot unless otherwise directed in writing. Excavation, laying and backfilling for service lines shall conform to applicable specifications for main sewer.

Note: 90° bends are not permitted.

Service line connection shall include the furnishing and installation of 4-inch connection openings for riser pipes for existing and/or future house services. Opening shall be "T" branches. The connection shall be plugged either at the "T" connection or at the end of the 4-inch service line.

Clean-outs and boxes shall be installed as per Details.

Pipe stoppers for D.I. service and main line pipe shall consist of Standard C.I. bell and spigot caps and plugs.

Pipe stoppers for PVC service line shall consist of 4-inch plug with thrust clamp or quick caps with stainless steel clamps as manufactured by Fernco.

3.6 Pipe Sewers in Tunnel and/or Bore (none on this project)

All work performed beneath existing structures, across railroad right-of-ways, and under pavements shall be performed in accordance with the requirements of the parties or agencies having jurisdiction over these locations. The Contractor shall contact the parties or agencies prior to starting work and shall meet all requirements of the parties or agencies in regard to methods of construction and the parties or agencies in regard to methods of construction and the safety precautions to be taken in performing the tunnel work. All costs involved in meeting these requirements shall be paid for by the Contractor and no additional compensation will be allowed.

A. Bore Method

At the Contractor's option and with consent of the parties or agencies having jurisdiction, steel pipe or other acceptable material may be jacked or bored into place in lieu of a liner plate tunnel provided the Contractor be responsible for all approvals from the parties and/or agencies having jurisdiction including, but not limited to, furnishing complete details of the methods to be employed for approval.

Refer to casing pipe specifications in Material Section for Bores.

The sewer pipe shall be adequately secured in the tunnel/bore casing by a method approved by the Engineer. At a minimum, the carrier pipe must be secured and noncompressible sand or pea gravel shall be placed in the space between the liner/casing and the carrier pipe by a method approved by the Engineer. Concrete bulkheads will be placed at the end of the tunnel, thickness and placement of which shall be subject to the Engineer's approval. Excavation shall be unclassified and no distinction made between rock and other materials excavated, with the cost of excavation merged in the unit price per foot of pipe sewer in tunnel/bore.

Note: In situations where the bore method is utilized with a steel casing pipe, the carrier pipe shall be secured inside the steel casing pipe with casing chocks (minimum three (3) per joint) as manufactured by Powerseal Pipeline Products Corporation of Wichita Falls, Texas, or Engineer-approved equal. Where casing chocks are used inside steel casing pipes, the requirement for sand or pea gravel backfill can be eliminated. Additionally, the ends of the steel casing pipe shall be sealed with casing pipe "End-Seals", "Link-seal", or Engineer-approved equal.

B. Tunneling Method

Construction of the culvert shall be carried on in such a manner that settlement of the ground surface above the culvert shall be held to an absolute minimum. Where ground conditions are unstable, poling plates or poling boards shall be used to prevent caving of material above the tunnel before the liner plates can be installed.

Steel liner plates shall be installed as soon after the excavation is removed as possible and excavation shall not be removed more than 24 inches ahead of the installed liner plates. Excavation shall be carried on in such a manner that voids behind the liner plates will be held to a minimum. However, should any boulders larger than 1 foot in diameter be encountered, they shall be removed so that none are closer than 6 inches to the outer face of the liner. Where boulders or piling are excavated, the holes shall be backfilled by tamped material.

The steel lining shall consist of plates not to exceed 18 inches wide. Each circumferential ring shall be composed of the number and length of plates to complete the required diameter. The Contractor shall submit details of the lining for approval.

The strength of the casing or tunnel lining will be determined by its section modulus. Thickness of the metal for these steel plates shall not be less than 8 gauge allowing for standard mill tolerance.

All plates shall be punched for bolting on both longitudinal and circumferential seams and shall be so fabricated as to permit complete erection for the inside of the tunnel. The longitudinal seam shall be of the lap type with offset equal to gauge of metal for full width of plates including flanges and shall have staggered bolt construction so fabricated as to allow the cross-section of the plate to be continuous through the seam. All plates shall be of uniform fabrication and those intended for one size tunnel shall be interchangeable.

The material used for the construction of these plates shall be new and unused and suitable for the purpose intended. Workmanship shall be first-class in every respect.

After the plates are formed to shape and after all holes are punched, the plates shall be galvanized on all surfaces by the hot-dip process. A coating of prime western spelter, or equal, shall be applied at the rate of not less than 3 ounces per foot of double-exposed surface. If the average spelter coating as determined from the required samples is less than the amount specified above, or if any one specimen shows a deficiency of 0.2 ounce, the lot shall be rejected. Spelter coating shall be of first-class commercial quality free from injurious defects such as blisters, flux and uncoated spots.

All nuts and bolts shall be galvanized.

Plates shall be fabricated with grout holes to facilitate grouting above and around the tunnel liner. These grout openings shall be 2-inch I.P.T. half couplings welded into a hole in the center corrugation of a plate and a galvanized C.I. plug shall be provided for each opening to permit tight closure after grout is pumped. All rings are to be provided with grout holes so that the spacing of holes will be on a maximum spacing of 18-inch centers at the top of the tunnel and at the top quarter points, staggered with the holes at the top.

Field coating material shall be asphaltic mastic, Trumball 5X, or approved equal, and shall be applied with hydraulic spray equipment using a minimum of 2,400 pounds pressure at the nozzle tip.

The material shall be supplied at spraying consistency and shall be applied both to the outside and inside of the liner plates. Plates may be hot-dipped to produce a similar coating.

When installing a liner plate by the tunneling method, the excavation shall be performed in such a manner that voids between the undisturbed earth and the liner plate shall be maintained at a minimum. Any void occurring shall be filled with a Portland cement and sand grout pumped under pressure through grouting openings in the liner plate.

Pumping of grout shall be done (1) at the completion of the installation of approximately each 9 feet of liner plate, (2) at more frequent intervals than 9 feet if conditions indicate the necessity, and (3) at the end of a work shift or for stopping of work for any reason.

Measurement for payment shall be for the linear feet of tunnel measured from the face of tunnel to the face of tunnel.

- 3.7 Manholes - Individual riser sections shall be furnished for the exact conditions to be encountered in the field. Misalignment of pipe openings with the "cast in" resilient connectors or steps within the section or with other sections shall be cause for rejection.

Precast manhole sections shall be joined with male and female ends joined together to provide a smooth uniform joint which shall be structurally sound and watertight. A flexible, acid and alkali-sewage and water-resistant sealant equal to Ram-Nek as manufactured by K.T. Snyder Company, Inc. shall be applied to the joint surface for placement of the next manhole section, casting ring, or casting. A maximum of 3 precast manhole castings rings may be used to adjust the casting to final grade.

Manholes shall be constructed on Class "D" concrete slabs with flow channel. Flow channels shall consist of smooth uniform cross sections conforming to the cross section of the pipes so as to provide a minimum of turbulence and avoid deposition of solids. Flow channels shall have a depth of about 8/10 of the pipe diameter. The finished floor of the manhole shall have a slope of approximately 1/2-inch from wall to channel to provide for proper drainage, but at the same time offer a safe footing for workmen. Brick or pieces of brick may be used for filler material in forming the flow channel and finished floor in the manholes provided that no brick shall be left within 1 inch of the finished surface.

Manhole frames, covers and steps shall conform to Section 2 of these Specifications. Manhole steps shall be staggered with even spacing of approximately 16 inches between steps. Manholes deeper than 6 feet to be located in paved streets where the top of the casting is flush with the pavement shall be provided with one backstep set opposite the staggered row of manhole steps.

Manholes shall have diameters as indicated on the Drawings. Where 5-foot or larger diameter manholes are called for, the diameter of the upper part of the barrel may be reduced to 4-foot subject to the following conditions:

1. Specified diameter must be maintained up to a point 5 feet above invert of incoming sewer or up to a point 2 feet above top of pipes entering or leaving manhole, whichever is greater.
2. Reduction in diameter must be made with an approved transition section having dimensions such as to maintain alignment of steps.

Drop connections shall be provided whenever an incoming sewer enters the manhole a sufficient distance above the outlet to permit the use of the drop connection fittings. Drop connections shall be one size smaller than the incoming sewer except that the

minimum size drop shall be 8 inches in diameter. Where drop connections are required, the manhole base slab shall be extended to support the drop pipe and the entire drop pipe assembly shall be encased in Class C concrete having a minimum cover of 6 inches outside the pipe.

On precast manhole sections, no pipe opening may be cut or enlarged by use of sledgehammer or other impact-type tool which could cause structural damage to the riser section.

See "Materials - Section 2" regarding the requirement for XYPEX® C-1000 RED concrete admix for waterproofing and corrosive protection for all manholes on this project. In addition to XYPEX admixture, additional spray on hydrogen sulfide lining may be required as shown on the drawings and/or as called for in these specifications.

3.8 Connections to Structures - Connections of pipes to manholes or other large structures shall be made using short lengths of pipe to avoid stressing the pipe at the point where it is placed in the wall of the structure. Pipes entering or leaving masonry or concrete walls shall have one flexible joint located not more than 18 inches outside the structure wall followed by a length of pipe of more than 2 feet in length with another flexible joint at the end of the 2-foot pipe length in such a way as to provide for limited lateral or vertical movement of the pipe line as well as limited deflection. Ordinary compression-type joints of the types specified for gravity sewers shall be considered as having sufficient flexibility for this purpose. The supplier of the pipe for the sewer lines shall furnish with the pipe order the required number of special and short lengths of pipe for the Contractor to install the required flexible connections without improvising.

3.9 Connections to Existing System - No pipe shall be connected to the existing sewage system until all new upstream construction has been completed, is free of foreign materials, and obvious defects have been corrected. New lines, then, must remain disconnected from the existing system by actual physical separation by plugs of a type approved by the Engineer or by other means approved by the Engineer. The Contractor shall make connections to existing sewers in accordance with details as shown on the Drawings or as directed by the Engineer.

In all cases, the Contractor shall locate and uncover existing sewers and shall verify invert elevations before laying the connecting sewer so as to allow opportunity for making adjustments to compensate for discrepancies.

Work shall include any required stopping or diversion of flow in existing lines or structures and the necessary rebuilding of any manhole inverts to the lines shown generally on the Standard Detail sheet.

Note: Connections to existing structures shall be by the Kor-N-Seal Resilient Connector method, or Engineer approved equal.

3.10 Cleaning and Televising of Existing Sewers Prior to Lining

3.10.1 The Contractor shall clean all existing sewer lines prior to televising. On occasions the conditions of the existing lines will require heavy cleaning procedures such as power root cutters, buckets, etc. This type of cleaning shall be included in the unit price item established for cured-in-place lining of existing sewers.

Hydraulic cleaning shall also be included in the unit price item for cured-in-place lining, pipe bursting, and open cut replacements and shall consist of a self-propelled high-pressure hydraulic spray nozzle using water to propel the cleaner. This equipment shall use high velocity capable of sufficiently removing grease, sand, roots, rocks and other deleterious materials and obstructions from the existing sewer line and manholes.

The Contractor shall install weirs, and/or dams in the downstream manhole in such a manner to stop solids, gravel, sand, etc. This material shall be removed and deposited at an approved landfill.

Cleaning existing sewers by power tools, buckets, etc. shall be performed in areas as required. This method is intended to be used where roots, sand, protruding service connections or other obstructions are existing which require removal prior to lining of the sewer and which cannot be removed by hydraulic cleaning alone. This cleaning shall provide for buckets, scrappers, root saws, cork screws, rodding or balling units and other power tools as may be required to sufficiently clean the existing sewer. Care should be taken in the utilization of this equipment so as not to damage the existing sewer which is to be lined. This method shall also include other hydraulic cleaning, if necessary, after the power tools, to result in a sufficiently cleaned line.

The power rodding equipment shall be a "positive rod drive" type and shall produce a rod pull sufficient to accomplish the desired cleaning.

The bucket equipment shall be capable and properly sized for the differing sewer sizes.

The Contractor shall advise the Engineer of the type of equipment considered for use.

3.10.2 The Contractor shall televise the existing sewer after the cleaning operations. If televising indicates the existing lines are not clean, the Contractor shall re-clean or perform heavy cleaning of the lines (if ordered by the Engineer) prior to this televising. Televising and/or cleaning will not be paid as a separate unit price item.

Televising of existing sewers shall consist of a survey utilizing a closed-circuit television pulled through the existing sewer one segment at a time. This survey shall locate all live connections that must be reconnected to the newly replaced line or the sewer to be lined. The survey shall also reveal existing defects, all service connections, and deviations in the line or grade of the sewer.

The televising work shall be performed in the presence of the Engineer. The Contractor shall prepare logs and video tapes with audio sound detailing the information mentioned above and giving the distance of each of the manholes.

Copies of the television survey logs and video/audio tapes (DVD format is preferred) shall be provided to the Engineer/ Owner.

The television camera to be used shall be specifically designed and manufactured for pipeline inspections and equipped with rotating/pivoting head capable of inspecting entire circumference of pipe joint and sewer laterals. The camera shall have sufficient lighting for a clear picture of the entire pipe and be capable of operating in 100 percent humidity. The entire video system and

components shall be capable of producing a minimum 500-line resolution video picture. The picture quality and definition shall be to the satisfaction of the Engineer.

The camera shall be measured from the manhole by both electrical and mechanical meters. These measurements shall be recorded on the log for all data entered. Measurement must be accurate for connections and defects found. The measurement meters shall be accurate to within 0.2 of a foot over the length of a manhole segment. Should the Contractor use remote power winches for pulling the camera, radios or telephones shall be provided for communication between the manholes.

The Contractor shall not fail to remove all strings or other debris used in stringing the sewers to be televised, nor shall this material be allowed to go downstream in the Owner's existing sewer system. See Supplementary Conditions of this Contract regarding this matter.

The Contractor shall furnish the Engineer/Owner copies of each day's TV logs. These field logs shall show manholes, defects, service locations, collapsed sections, corrosion, and etc.

The video/audio tapes / DVDs must also be provided to the Engineer/Owner; however, they do not have to be provided the same day as the written logs.

In some sections sewage flow may have to be plugged or bypass pumps set up in order to televise this line. When required, this cost shall be merged into the unit item for cured-in-place lining of existing sewers.

3.11 Lining by Resin Impregnated Flexible Felt Tube Method

3.11.1 The Contractor shall clean and televise the existing sewers prior to beginning the lining process. All house service protrusions or other obstructions shall be cleared and a log of all services shall be made in the televising process.

Where defects or obstructions which prevent relining still exist after either of the cleaning operations, the Contractor shall dig-down at this location for the purpose of opening the pipe to permit the relining operation. When required due to sewage flow conditions, bypass pumping shall be provided for the flow of sewage around the sections to be lined.

Suitable locations and facilities shall be provided for the flexible felt tube to be impregnated with the uncured resin. A resin and catalyst system shall be used similar to Insituform of North America, Inc., or equal.

The felt tube liner shall be inserted through the existing manhole by means of an inversion process and the application of a hydrostatic head and/or air pressure head sufficient to fully extend it to the next designated manhole. This insertion and procedure shall be performed in accordance with manufacturer's recommendations.

3.11.2 After the inversion process is complete the Contractor shall supply a suitable heat source and water and/or steam recirculation equipment. The equipment shall be capable of delivering hot water and/or steam throughout the section by means of a pre-strung hose to uniformly raise the water and/or steam

temperature above the temperature required to effect a cure of the resin. This temperature shall be determined by the resin/catalyst system employed.

Heat monitors shall be provided to gauge the temperature of the incoming and outgoing water and/or steam supply.

The cure period shall be of a duration recommended by the resin manufacturer.

Note: Caution – Air pressure inversion and/or steam curing shall only be used based on an evaluation and recommendation from the manufacturer that the air pressure inversion and/or steam curing will result in a satisfactory end product.

- 3.11.3 The Contractor shall seal the liner at the manholes with a resin mixture compatible with the liner and in accordance with the manufacturer's recommendations.
- 3.11.4 The Contractor shall reinstate existing sewer services by the use of a television camera and a remote-control cutting device which will reestablish the service to not less than 100 percent capacity in conjunction with epoxied-on-saddle, etc.
- 3.11.5 Watertightness of the liner shall be tested while curing and under a positive head.

3.12 Existing Service Line Connection Renewal

- 3.12.1 Renew all existing sewer service lines (which are not of new PVC materials) to the street right-of-way per method shown on the Contract Drawings. Excavated and replaced sewer services shall be replaced with approved epoxied-on-saddle and 4-inch or 6-inch PVC sewer service pipe per "Section 2 – Materials".
- 3.12.2 After sewer main line has been lined, existing sewer service shall have service opening reinstated 100% after mainline has fully cured. DFW saddle shall be epoxied and banded onto the CIP mainline using epoxy adhesive that can be applied under dry, wet or underwater conditions to service that yields a chemical welded watertight seal between renewed services and mainline.
- 3.12.3 All service lines (which are not of new PVC materials) are to be replaced from the property or easement line to the mainline with new 6-inch PVC service.

4. BACKFILL

- 4.1 General - Backfilling above the pipe envelope shall be carried out as expeditiously as possible but shall not be undertaken until the Engineer has been given the opportunity to inspect the work. The Contractor must carry out all backfilling operations with due regard to: the protection of pipes, structures and appurtenances; the use of prescribed backfill materials; and procedures to obtain the desired degree of compaction. No equipment or method may be used which will result in damage to or misalignment of the pipe.
- 4.2 Acceptable Backfill Material - Where crushed stone backfill is required, the crushed stone shall be No. 67 size as designated by Tennessee Department of Transportation Standards for crushed stone used in road surfacing.

Where crushed stone is not required, but the excavated material is unsuitable for use in the backfill, the Contractor may use fine, dry selected earth or clay as backfill material. Material containing excessive organic matter: stumps, roots, refuse or foreign matter or

hard clay lumps that cannot readily be compacted will not be acceptable for use as backfill.

In highways, streets, drives, or other paved or traveled areas or within 3 feet of these areas and where called for on the Drawings, the Contractor shall backfill entire trench with crushed stone which shall be placed in layers or lifts not exceeding 9 inches in thickness. After placing in layers, crushed stone shall be carefully compacted to maximum density or minimum volume. Stone backfill in areas other than as described above, and where directed by the Engineer, shall be designated as crushed stone backfill.

Where the trench is located in open country or on public right-of-way more than 3 feet from the roadway or shoulder, the backfill up to a point 12 inches above the top of the pipe shall be placed as specified under "Pipe Bedding and Envelope". Above this point the backfill may consist of excavated material provided such material is selected to exclude rocks larger than 6 inches in any dimension. No rocks larger than 1-1/2 inches may be used in the top 6 inches in any dimension.

Sufficient care must be exercised to avoid leaving any holes or voids over, around, or under stones, boulders, or other backfill materials which may later be filled by leaching or settlement of surrounding material thereby causing future trench settlement.

The Contractor shall be responsible for and shall protect all sewers, storm sewers and electric, telephone, water or other pipes or conduits against danger or damage while the trenches are being backfilled and from future settlement of the backfill. Where such damage should occur as a result of the Contractor's operations, he shall repair such damage promptly to the Engineer's satisfaction.

The Contractor's attention is called to the fact that he will be held completely responsible for any damage to pavement, sidewalks, curbs, gutters, meter or valve boxes, street inlets, or other structure or appurtenances as a result of the Contractor's operations. It should be specifically noted that the Contractor shall be responsible for damage even though the character or nature of the original pavement or structure was such that it was not capable of carrying the load of the construction equipment regardless of the construction methods used.

4.3 Other Backfill - Backfill around manholes located in highways, streets, or other traveled areas shall consist of such material and shall be placed in such manner as described for adjacent trenches under "Backfill" above. Backfill around manholes, piers, or other structures in locations not subject to traffic may consist of excavated material subject to the following restrictions:

1. **No rock larger than 6 inches in any dimension shall be placed within 6 inches of the manhole walls or pipes entering or leaving the manhole.**
2. **No rock larger than 6 inches in any dimension shall be placed in the vertical prism above and extending 9 inches outside of the pipe lines.**
3. **Crushed stone shall be used under, around, and up to a point 12 inches over the tops of any pipes entering or leaving the manholes. This requirement shall include the inlet pipe for drop manholes.**
4. **Excavated material used for backfill shall be carefully placed in layers not exceeding 9 inches and compacted in such manner as to fill all voids and prevent excessive settlement.**

5. COMPLETING INSTALLATION OF LINES, STRUCTURES, ETC.

- 5.1 General - The Contractor shall not, without the permission of the Engineer, remove from the line any earth excavated therefrom which may be suitable for backfilling or surfacing until the excavation has been refilled and surfaced.

As soon as the backfilling of any excavation is completed and when in areas of existing development, the Contractor must, at once, begin the removal of all surplus dirt except that actually necessary to provide for the settlement of the fill. He shall also remove all the pipe and other material placed or left on the street by him except material needed for the replacement of paving, and the street shall be opened up and made passable for traffic. Following the above work, the repairing and complete restoration of the street surfaces, bridges, crossings, and all places affected by the work shall be done as promptly as possible.

All excavated material shall be cleared from adjacent street surfaces, gutters, sidewalks, parkways, railroads, grass plots, yards, etc., and the whole work shall be left in tidy and acceptable condition. Contractor will be required to re-grass lawns or neutral grounds where trenches are excavated in these locations or where Contractor has damaged lawns or neutral grounds by his operations.

The Engineer shall be sole authority in determining time in which rough and final clean-up shall be prosecuted. Rough clean-up shall consist of removal of large rocks, grading of excess backfill material over pipe line or removal of said material, opening of any drainage device, restoration of any street or roadway to condition so that traffic may safely and conveniently use street or roadway, restoration of pedestrian ways to condition where pedestrians may safely and conveniently use same. Rough clean-up shall, in general, be prosecuted no later than 1 day after pipe laying and backfilling or no farther behind pipe laying operations than 1,000 feet; whichever time limit is shortest shall govern. Final clean-up consisting of pavement replacement, side of lawns and neutral grounds, adjusting grade of ground over pipeline, property repairs, and other items shall be prosecuted as soon as is practical after pipe has been laid and backfilled. In general, this would be no later than 2 to 3 weeks after completion of backfilling.

- 5.2 Final Grading and Seeding - Final clean-up shall consist of, among other items, placing of topsoil, final grading of disturbed areas and seeding of areas where grass growth was damaged or destroyed by the Contractor's operation. In areas of established lawns, no rock shall be left in the top 6 inches of soil and the finished grade shall be that which existed before construction began. In all cases, lawn areas shall be left neat and, in a condition, so that hand mowing is as easy and convenient as before construction began. The lawn areas and other areas disturbed by Contractor's activities shall have ground cover restored at least equal to the condition which existed before construction began. In established lawn areas, new grass shall be of the same type as originally present. Grass and other ground cover shall be properly applied, fertilized, strawed, and watered as necessary and required to establish a good stand of grass.

Fertilizer shall be "Vertigreen," Vigaro," or approved equal. It shall contain not less than 5% nitrogen, 10% phosphorus, and 4% potash. If the area soil requires, by test, adjustment of the pH for proper growth of ground cover, ground limestone shall be applied to bring the pH into the proper range.

In existing garden areas disturbed by sewer construction, the Contractor shall place topsoil to a finished depth of 24 inches and fine rake the garden area. The topsoil may

be obtained by stripping the garden area prior to construction and stockpiling the topsoil or bringing in additional topsoil. Seeding and mulching shall be omitted in garden areas.

Note: See special requirements on Contract Drawings for seeding / sodding, etc. as noted.

- 5.3 Pavement Restoration - Before trenching in paved roadways for street crossings, the Contractor shall straight-line cut pavement on each side of trench. This is to be done to minimize damage to existing paving.

As soon as the pipe has been installed, the trench shall be backfilled as specified and, where directed by Engineer, a temporary pavement patch shall be provided in areas which have permanent paving. "Permanent paving" shall mean asphaltic concrete ("hot mix") or Portland cement concrete.

Cold mix, surface treatments, crushed stone are excluded from the "permanent pavement" classification. The temporary pavement patch shall consist of at least 6 inches of compacted stone base brought to within 2 inches of the surface of the existing permanent pavement. A 1-inch layer of cold mix asphaltic concrete shall then be applied to protect the base, prevent "pot holes" or "chuck holes," and provide a reasonably smooth pavement surface until the permanent patch is made. The temporary pavement patch shall be placed within 48 hours of receipt of written instruction of the Engineer.

In addition, this trench pavement repair patch shall be maintained by the Contractor for the duration of this sewer rehabilitation project. If necessary, the Contractor shall add hot mix consisting of asphalt topping to the sewer trench repair patches to provide a smooth pavement surface.

Pavement types shall be designated by Engineer for installation in specific location where such designation is not shown on the Drawings. All street pavements, unless otherwise noted herein or directed by the Engineer, which have sewers installed parallel with the road, across streets, driveways or parking lots shall be restored by the following. Prior to placement of the pavement restoration, the Contractor shall reshape the street or roadway surface. Street preparation shall include all required scarifying, shaping, and rolling in pug mix of areas to be paved. This item will also include the removal of all pavement which is heaved by the Contractor's blasting operations. This street preparation shall return the streets to the template which existed prior to construction. This street preparation shall be satisfactory to the Department of Public Works before the street is accepted for paving operations. No separate payment will be allowed for street preparation.

1. Asphalt Pavement or Driveway Replacement Type A or B

This item of pavement restoration shall conform to the details included in the Contract Drawings. The leveling binder course shall conform to Section 407 and the surface course shall conform to Section 411 of the Tennessee Department of Highways Standard Specifications.

2. Asphalt Driveway and Parking Lot Replacement

Asphalt Driveways and Parking Lots shall be replaced equal to that existing prior to construction and shall consist of no less than 2 inches of surface course conforming to Section 411 of the Tennessee Department of Highways Standard Specifications.

3. Crushed Stone Roadway Replacement or Driveway Replacement

Crushed Stone Roadways and Pavements shall be replaced to that existing prior to construction but in no case less than 6 inches in depth.

4. Concrete Driveway Replacement

Concrete driveway shall be replaced equal to that existing prior to construction but in no case less than 6 inches in depth with 4-inch x 4-inch reinforcing wire mesh.

The above pavement replacements will be measured for payment on a linear foot or square yard basis unless otherwise indicated.

NOTE: All new and existing gas valves, water valves, and manholes will be adjusted to the final surface elevations by the Contractor. The cost for this work is to be merged into unit price construction items for pavement replacement.

5.4 Dust Control - From the time backfilling is complete until the time permanent pavement surface is replaced or, in the absence of pavement replacement, until job is accepted, Contractor shall, at direction of Engineer, water streets or place calcium chloride on roadways to settle dust where excessive dust has, in the opinion of Engineer, been caused by Contractor's operations. If Contractor refuses or delays unnecessarily to obey direction of Engineer, the Owner shall, after 24 hours written notice through Engineer, be permitted to proceed with such work with cost to be billed to Contractor.

5.5 Sodding or Sprigging - Where shown on the Drawings or directed by Engineer, Contractor shall install sodding or sprigging in lieu of seeding in order to establish ground cover. Normally this would be done in areas subject to erosion in soils that are difficult to hold.

Such sodding or sprigging, when authorized by the Engineer as a necessary part of the work and not elected to be used by the Contractor in lieu of seeding, shall be a separate pay item if identified separately on the Bid Form.

Prior to sodding or sprigging, soil shall be properly prepared and fertilized. The top 3 ± inches of soil shall be pulverized to remove roots, stocks, etc. and smooth the surface. Area shall be fertilized by a suitable application of high-grade commercial fertilizer at a minimum rate of 500 pounds per acre. Fertilizer shall be mixed into the top 3 inches of soil by raking, discing, or other acceptable method. Do not over-fertilize areas in order to avoid damaging growth. Fertilizer shall be "Vertigreen," "Vigaro," or approved equal. It shall contain not less than 5% nitrogen, 10% phosphorus, and 4% potash. If the area soil requires, by test, adjustment of the pH for proper growth of ground cover, ground limestone shall be applied to bring the pH into the proper range.

Sod shall be at least 8 inches wide and 12 inches long with at least 3 inches of dirt on the roots. It shall be placed on the prepared surfaces with edges in close contact and, as much as is practicable, in a position to break joints. Each section shall be pounded into place with wooden tamps or other approved implements. Sod shall be maintained moist from the time of its removal until reset and shall be reset as soon as practicable after removal. Immediately after placing, it shall be rolled or hand tamped to the satisfaction of the Engineer. On steep slopes, pinning or pegging will be required to hold the sod in place.

Sprigs shall be placed in a random manner at spacing suitable for optimum growth and cover as recommended by the supplier.

Immediately prior to sodding or sprigging, the areas shall be sprinkled until saturated to at least a 1-inch depth and kept moist until sodding or sprigging is completed. Sprigs or sod shall be watered as required after setting (normally through a 14-day period). Contractor shall not allow any equipment or material on any planted area and shall erect barricades and guards as necessary to prevent his equipment, labor or the public from traveling on any planted area until satisfactory growth is established.

Note: The Contractor's attention is directed to provisions established in the project specifications for furnishing and placement of erosion control matting for seeded areas, if required.

6. SPECIAL CONSTRUCTION ITEMS

- 6.1 General - The Contractor's attention is called to the special conditions indicated on the plans by notes and/or special details and described in this Section of the Specifications. The Drawings and Specifications reflect the type of construction that is anticipated in the various locations requiring special attention, but it shall be the responsibility of the Contractor to contact the various agencies including the State Highway Department, the gas company, telephone company, and other utilities involved when working in areas where they will be concerned and for coordinating construction with their requirements in such a way to avoid conflicts, damage, or interruptions in service.

If these special construction items are to be paid for separately, they will be discussed in Measurement and Payment of the Specifications.

The Contractor is cautioned that no new construction may be tied into the existing system until such construction is complete to the extent of being watertight and clean. This provision is meant to avoid groundwater or stormwater with accompanying dirt, gravel, etc. from entering the existing system and flooding, overloading, or otherwise damaging those facilities.

- 6.2 Construction Schedule - The Contractor shall submit his proposed construction schedule for the Engineer's approval before construction begins. The normal requirement will be to begin pipelaying at the lower end of any proposed line or Contract and continue laying upstream until the line is completed. Construction will begin at points where proposed sewers tie into existing sewers, existing or proposed pump stations, or existing or proposed treatment facilities.

The Contractor may utilize more than one pipelaying crew in which case the additional crew(s) will be started at various points along the sewer(s) as approved by the Engineer.

It is anticipated that adjacent projects to this project will be under construction simultaneously. It is the Contractor's responsibility to coordinate his work with that of other Contractors on this project.

The Contractor is cautioned that no new construction may be tied into the existing system until such construction is complete to the extent of being watertight and clean. This provision is meant to avoid groundwater or stormwater with accompanying dirt, gravel, etc. from entering the existing system and flooding, overloading, or otherwise damaging those facilities.

- 6.3 Protection of Trees and Shrubs - The Contractor shall make every reasonable effort to protect trees, shrubbery, and flowers within and outside of the work area. Easements have been (or will be) obtained by the Owner for work on private property and permits

for work on public property, but these easements do not permit indiscriminate destruction of property including trees, shrubs, and flowers.

The Contractor will be required to protect and replace, if damaged, trees, shrubs, and flowers laying outside of a work area 10 feet wide centered on the pipeline or other work area designated on the Drawings. Such protection or replacement will be at no cost to the Owner.

Within the designated work area 10 feet wide centered on the pipeline or other work area designated on the Drawings, trees, shrubs, and flowers may be removed if necessary, for proper execution of the work. Exceptions to this will be noted on the Drawings. Where replacement of damaged or destroyed trees, shrubs, or flowers is required which were not designated to be protected (by note on the Drawings), the Contractor shall perform the replacement and the Owner shall pay the costs in accordance with provisions of the General Conditions.

6.4 Concrete Work - Concrete is to be proportioned into classes according to use as follows:

Class "D" (4,500 psi) for reinforced concrete structures, non-reinforced portions of manholes, control chambers and interceptor structures, curbs and gutters, driveways, sidewalks and surface base courses for highway and street paving.

Class "C" (2,000 psi) for refill, tunnel backfill, and for thrust blocks.

Class "B" (3,500 psi) for encasement around sewers and for cradle and caps

Class "D" concrete is to be proportioned with one 94 lb. sack of Portland Cement, 195 lbs. of sand, and 270 lbs. of coarse aggregate. These proportions may be varied by the Engineer after the materials supplied have been tested and proportions for the greatest density and workability determined, provided that no more than 7.25, nor less than 5.5, bags of cement per cubic yard of concrete will be required. Class "D" concrete shall have a minimum compressive strength of 4,500 lbs. per square inch in 28 days.

6.5 Connection to Existing System - Connections of gravity-flow sewers and force mains to the existing system shall be made in the manner indicated on the Drawings. As previously stated, new lines must remain disconnected from the existing system by actual physical separation, by plugs of a type approved by the Engineer, or by other means approved by the Engineer.

6.6 Manhole Sealing and Protective Coating

Manhole sidewall, invert, and bench sealing and rehabilitation shall be performed on existing manholes indicated or as directed by the Engineer. The sealing of sidewalls and inverts in the manhole shall conform to the following specifications and Section 2 - Materials.

The manhole coating and sealing materials as allowed in Section 2 - Materials shall be applied in strict accordance with manufacturer's recommendations and as approved by the Engineer.

Safety regulations and precautions set out by the manufacturer and OSHA shall be strictly observed.

Manholes to be waterproofed and sealed must first be cleaned by high-velocity cleaning equipment to remove all foreign matter from the walls and base. This cleaning shall remove oil, grease, loose mortar, paints, protective coatings, efflorescence, laitance and curing compounds.

The Contractor shall use a spray from above of a 10 percent solution of muriatic acid. The Contractor shall wash this material off and the manhole allowed to dry.

The manhole and invert shall then be gone over by patching with a quick setting Portland Cement based hydraulic cement to seal all cracks, etc.

This work shall be done in complete accordance with the manufacturer's recommendations. For material requirements see Section 2 - Materials.

The manhole is now ready for the sealing application process. Mixing shall be as per the manufacturer's recommendations. The first coat shall be applied by vertical brush strokes so that all brick joints in the direction receive an adequate coating of material. The first coat will be white in color to ease inspection and make the second coat visually simple to apply. After the first coat has cured, the surface is ready for the second coat. This second coat will be gray in color and should be applied with horizontal brush strokes to insure complete coverage of joints.

The sealant coatings shall be applied and be capable of withstanding a hydrostatic pressure of 7 psi (16 feet of water).

This sealing and waterproofing procedure shall be applied to the sidewalls, base, invert, and benches. As necessary to accomplish this work, the Contractor shall control the sewage flow through the manhole.

After all sealing, the Engineer and Contractor shall inspect the sealed manholes after rainfall events have sufficiently raised the ground water table. See Section 4 - Testing and Acceptance for other requirements including vacuum testing.

This inspection shall be scheduled at a time to be determined by the Engineer.

See Supplementary Condition to Contract for requirements of the Contractor to provide pre-construction and post-construction photographs for all manholes rehabilitated on this Project.

Manholes which do not pass this inspection / testing shall be resealed at no additional costs to the Owner.

The Contractor's attention is directed to the fact that some or all of the existing manholes may not contain steps installed in the sidewall. This may require the Contractor to perform some work by the use of short portable ladders or other equipment.

6.7 Manhole Replacements

The unit price items for manholes shall include removal of the existing manholes and disposing of the old structure at an approved landfill.

The Contractor shall deliver all removed and/or old manhole frames and covers to the owner's storage yard.

6.8 Sealing Around PVC and/or Polyethylene (PE) Slipliner Pipe in Existing Manholes (none anticipated on this project)

Sealing and waterproofing annular spaces around existing PVC and PE slipliner pipes in manholes shall be performed by the use of "jute/oakum" material driven **a minimum of 18 inches** into the annular space around the existing pipes. Once this material is driven

in to the required minimum, the Contractor shall inject sealant materials to stop the intrusion of water.

The injection sealant shall be equal to PRIME FLEX 920 as manufactured by Prime Resins Inc. of Conyers (Atlanta), Georgia 30012 or Engineer-approved equal. The local representative for this injection sealant is Mr. Tom Williams of Williams Coating Consultants, Inc., Nashville, Tennessee 37211 (615-333-1000).

Once the Contractor has driven in the jute/oakum and this material has been sufficiently recessed to allow for the injection resin sealant, a hydraulic cement filler shall be placed to act as a retainer for the recessed sealant systems.

See testing requirements for vacuum testing of manholes after sealing around PE slipliner pipes.

6.9 Repair / Replacement of Sewer Connection on "PE" Slipliner Pipe
(none anticipated on this project)

The repair/replacement of existing 4-inch and/or 6-inch sewer service connections on existing polyethylene (PE) slipliner pipe sewer mains shall be performed in accordance with the following provisions. The purpose of this repair/replacement item is to repair and replace an existing PVC sewer service saddle which has slipped out of alignment with the existing 4-inch or 6-inch sewer service.

The Contractor shall dig down on the existing sewer service connection point; remove the existing PVC saddle tap, realign the 4-inch or 6-inch sewer service piping, install a 4-inch or 6-inch PE electro-fused saddle, and reconnect the existing sewer service piping. The Contractor shall furnish and install the same size pipe and fittings as the existing sewer service and sewer tap connection.

The PE electro-fused saddle shall be Frialen® saddle fitting by Friatec, Inc., Greenville, SC or approved equal.

6.10 Repair / Replacement of 4-inch Steel Manhole Vent Pipe Assemblies
(none anticipated on this project)

The repair and/or replacement of 4-inch steel manhole vent pipe assemblies shall be performed at locations shown on the enclosed drawings and/or as directed by the Owner/Engineer. This item includes removal of the existing deteriorated or broken vent pipe assembly and installation of a new manhole vent pipe assembly in full compliance with the standard detail included in the back of these specifications.

The 4-inch steel pipe material shall be Schedule 40 painted in accordance with the requirements indicated on the standard detail drawing.

Note: The Contractor may use schedule 40 galvanize steel pipe in lieu of schedule 40 painted steel piping.

6.11 Manhole - Where shown on the Drawings or where directed by the Engineer, the Contractor shall install vents at manholes to provide for ventilation of the sewer line.

Vents shall be installed in accordance with Standard Detail Drawings. Vent pipe shall be Schedule 40, steel, 4-inch, connected to the manhole as high as practicable while maintaining adequate cover on the vent pipe and vented above high water at the elevation shown on the Drawings or as directed by the Engineer.

Vent pipe shall have at least a 2-foot bury, be sloped to drain from the support pole to the manhole, and be connected through the manhole wall with a non-shrink grout. Vent pipe shall be painted with 2 coats of bitumastic paint as approved by Engineer.

Galvanized steel or rigid aluminum electrical conduit and fittings may be used in lieu of the Schedule 40 steel.

- 6.12 Manhole Stub-Outs (If Required) - Where shown on the Drawings or as directed by the Engineer, the Contractor shall construct pipe stub-outs from the manholes for future line connections.

Stub-outs shall consist of a short length of sewer pipe 8 inches to 10 inches in length installed at an invert elevation and plan angle as shown on Drawings or as designed by the Engineer. The manhole invert shall be shaped to receive discharge from this line. The connection through the manhole wall shall be made with resilient connectors in accordance with the Standard Details for Manhole Construction. The pipe shall be plugged with a watertight, removable plug of a design and material approved by the Engineer. The area under the stub-out and to the level of pipe bedding shall be backfilled with crushed stone.

Stub-out pipe material and size shall be as designated on the Drawings or as directed by the Engineer.

- 6.13 Concrete and/or Earthen Trench Dam - Where shown on the Drawings or as directed by the Engineer, the Contractor shall install concrete and/or earthen trench dams to prohibit the flow of water along the sewer trench. Concrete and/or earthen trench dams shall be installed in accordance with the Standard Detail Drawing.

- 6.14 Slope Protection and Erosion Control - This section shall consist of temporary control measures as shown in the Drawings or directed by the Engineer during the life of the Contract to control erosion and water pollution through the use of hay bales and other control devices.

The temporary pollution control provisions contained herein shall be coordinated with the permanent erosion control features to assure economical effective and continuous erosion control throughout the construction and post-construction period.

- a. Baled hay or straw erosion checks are temporary measures to control erosion and prevent siltation. Bales shall be either hay or straw containing five (5) cubic feet or more of material.

Baled hay or straw checks shall be used where the existing ground slopes in ditches or other areas where siltation erosion or water run-off is a problem.

- b. Baled Hay or Straw Erosion Checks - Hay or straw erosion checks shall be embedded in the ground 4 to 6 inches to prevent water flowing under them. The bales shall also be anchored securely to the ground by wooden stakes driven through the bales into the ground. Bales can remain in place until they rot or can be removed after they have served their purpose, as determined by the Engineer. The Contractor shall keep the checks in good condition by replacing broken or damaged bales immediately after damage occurs. Normal debris clean-out will be considered routine maintenance.

- c. Temporary Silt Fences - Silt fences utilizing posts, filter cloth (burlap or plastic filter fabric, etc.) or other approved materials are temporary measures for erosion control. These fences shall be installed to retain suspended silt particles in the run-off water.
- d. The temporary erosion control features installed by the Contractor shall be acceptably maintained by the Contractor until no longer needed or permanent erosion control methods are installed. Any materials removed shall become the property of the Contractor.

In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of work as scheduled and are ordered by the Engineer, such work shall be performed by the Contractor at his own expense.

Where the work to be performed is not attributed to the Contractor's negligence, carelessness, or failure to install permanent controls and falls within the specifications for a work item that has a Contract price, the units of work shall be paid for at the proper contract price.

- e. Erosion Control Outside Project Area - Temporary pollution control shall include construction work outside the project area where such work is necessary as a result of construction such as borrow pit operations, haul roads and equipment storage sites. Bid price, in such cases, shall include all necessary clearing and grubbing, construction incidentals, maintenance, and site restoration when no longer needed.
- f. No separate measurement and payment will be made for this work. It will be considered a subsidiary obligation of the Contractor under other bid items to which it reflects.
- g. See the Detail Sheets in project Drawings for erosion control details.

6.15 Rehabilitation of Existing Manholes Utilizing Injected Chemical Polyurethane Grout

All active hydrostatic infiltration leaks shall be plugged or sealed with polyurethane grout designated in the materials Section 2, Item 22, page 14 of this specification. All manholes designated on the Drawings for grout application shall be treated using the following procedure, regardless of whether a crack or leak can be seen during construction.

1. If the manhole has a rubber boot seal at the pipe penetrations, drill into the manhole barrel approximately 8-inches above the pipe opening, all the way through the manhole wall. Drill two more holes, one on each side of the pipe opening, approximately 8-inches from the pipe opening. If a crack is visible in the manhole wall, drill ports along the crack, about 8-10-inches apart.
2. If the pipe penetration does not utilize a boot, drill three holes spaced around the pipe penetration area, approximately 4-8 inches from the pipe edge, completely through the manhole barrel.
3. If the manhole has a rubber boot seal, drill or penetrate the rubber pipe boot seal. Using an injection needle, inject water first through the boot into the space behind the boot. Inject water into the other injection ports. Water injection may

not be necessary depending upon groundwater levels at the time of the work. If pipe penetration has a boot, using the injection needle, inject grout first through the boot into the annular area outside of the boot.

4. If the pipe penetration does not have a boot, prepare one drilled port with an injection fitting. Inject grout into that fitting.
5. When grout starts to come out the next higher or next closer drilled opening, insert an injection tap into that opening and inject grout at the next higher opening.
6. Finally, inject grout into the top or third port. A total of 2 gallons of (unexpanded) grout shall be pumped into each pipe opening area. More injection taps may be used if needed but the grout application shall normally be concentrated in the vicinity the pipe openings.
7. More grout may be used as necessary as approved by the Engineer. Injected grout in excess the amount stated here shall be paid for on a per gallon (neat) unit price basis.
8. Inject grout through the taps at a minimum 250 psi pressure. Injection pressure shall not cause damage to the manhole structure or surrounding features. Any damage caused shall be repaired by the Contractor at no additional cost to the owner.
9. If grout begins to freely flow into the manhole from a crack or defect, seal the crack by ramming with grout-soaked dry oakum or foam rod designed for this purpose.
10. Contractor shall utilize these procedures along with recommendations of the grout manufacturer in regards to grout preparation and injection so as to effectively seal the leaking annular seals or annular areas and any adjacent manhole defects or wall cracks.
11. If grouting is performed on a manhole with an epoxy coating, then the grout injection tap openings shall be repaired with a quick setting fiber reinforced cementitious patch product followed by an epoxy patch product, compatible with the existing epoxy finish, and finished flush with the existing adjacent surface.
12. If grouting is performed on a manhole that has no further lining required by the directions of the Drawings, then the grout injection openings shall be patched with a quick setting fiber reinforced cementitious patch product and finished flush with the existing adjacent surface.
13. No injection taps shall be left in place.
14. Where the manhole has a cracked or broken pipe end in which the pipe defect may extend outside of the pipe resilient boot seal, contractor shall repair this defect with the injection of polyurethane grout using the procedure noted above. No additional payment shall be made for this category of repair. However, if grout quantities needed to affect the repair exceed the minimum quantities noted in item 7. (above), they will be paid for on a per gallon basis if approved by the Engineer.

SEWER LINE REHABILITATION, REPLACEMENT, AND APPURTENANCES

SECTION 4

TESTING AND ACCEPTANCE

1. TESTING

Testing and inspection of the completed work shall be accomplished by one or more of the following methods. Visual and Video Inspection, Air Pressure Testing, Hydrostatic Testing, Mandrel Testing, and Infiltration Test will always be done and will not be paid for as a separate pay item. The Roundness Test for flexible pipe will always be done and will not be paid for as a separate pay item.

Upon completion of construction, the Contractor shall remove all sand, dirt, brick and other foreign materials from the sewers and shall conduct his own inspection to locate any defects and determine when the sewers are ready for final inspection, testing, and acceptance by the Engineer. After all apparent defects have been corrected, the Contractor shall notify the Engineer and request a final inspection.

No final inspection will be scheduled by the Engineer until the Contractor advises that he has conducted his own inspection and believes the project to be ready for such final inspection. Should the Engineer begin a final inspection at the request of the Contractor and find that the sewers have not been cleaned or defects have not been corrected, the inspection will be terminated and will not be rescheduled until the Contractor again advises that the project is ready for inspection.

Acceptance of the project shall involve visual and video inspection, hydrostatic testing, mandrel testing, leakage test, and air pressure tests. The procedures shall be as outlined hereinafter. The work will not be accepted until the visual and video inspection, hydrostatic testing, mandrel testing, leakage testing, and air testing results are satisfactory.

- 1.1 Visual and Video Inspection - Engineer shall make visual inspection of pipe, fittings, and other materials to be incorporated into the work before they are installed. Items found to be defective or otherwise not in accordance with Drawings and Specifications shall be immediately removed from the site of the work.

Visual inspection of pipe, joints, manholes, etc. will proceed as work is being done and no backfill shall be placed until this is accomplished unless otherwise approved by the Engineer. Acceptance of work at this stage in no way relieves Contractor of responsibility and does not preclude testing by any of the following methods at the discretion of the Engineer.

On completion of the work, all sewers and manholes will be visually and video inspected for foreign matter, including sand and mud brought in by infiltration or inflow, and any such matter shall be removed before final acceptance of lines. If visual and video inspection of lines, manholes, or other items reveals leaks, structural failures, or other defects, the Contractor shall repair such immediately. Any sags, humps, bends, or other evidence of misalignment - regardless of the type of pipe - if in the opinion of the Engineer is detrimental to the operation of the system, shall be cause for rejection. Inspection will include observation of clean-up, property restoration, pavement replacement, etc. Any defects must be corrected to the Engineer's satisfaction before acceptance. A video is to be taken of completed lines by the Contractor and is to be

delivered the Engineer for final review and approval of the completed work. An additional copy of the video is to be delivered to the Owner for their permanent records.

1.2 Air Pressure Test - Equipment shall be top quality, in good condition, and approved by Engineer for use on this Project. Plugs should have a sealing length equal to or greater than the diameter of pipe being tested. External bracing of the plugs should not be required in order for the plug to hold against internal air pressure. The test equipment shall include accurate pressure gages to monitor test pressure, safety relief valve(s), and quick-release air bleed valve(s).

1. The procedure for air pressure testing shall conform to ASTM C-828 unless modified herein.
2. After backfilling and cleaning the line (including flushing, if necessary), making sure all service plugs are adequately braced against internal pipe pressure and checking air test equipment including pipe plugs (suitably graded against internal pipe pressure, if necessary), the sewer line section to be tested shall be pressurized to 4 psig (pounds per square inch-gauge) greater than the average back pressure of any groundwater that may be over the pipe (2.31 feet of water - 1 psig). At least 2 minutes shall be allowed for air pressure to stabilize. After the stabilization period and with 3.5 psig minimum pressure in pipeline, air supply shall be disconnected and the time observed which results in a 1 psig pressure drop.
3. The portion of line being tested shall be termed "Acceptable" if the time required for the pressure to drop from the stabilized 3.5 psig to 2.5 psig (greater than the average back pressure of any groundwater over pipe) is more than or equal to minimum calculated test time as determined by using the following table:

PIPE DIA. inches	TIME minutes	LENGTH* feet
8	4.2	350
10	4.7	275
12	5.7	225
15	7.0	175
18	8.5	150
21	9.9	125
24**	11.3	125

* Shorter or longer test length shall have test time modified in accordance with Engineer's decision

** Air test will not be run on pipe larger than 24 inches in diameter.

NOTE: For pipe sewers larger than 24 inches in diameter, the Contractor shall perform exfiltration and infiltration tests.

4. If the pipe is tested in a "dry" condition and fails to meet the test, specifications allow for the pipe to be wetted and tested in that condition. Initial testing may be in the "dry" or "wet" condition at the Contractor's option.
5. Observe safety precautions during test. Caution all workers to remain clear of test plugs which can blow out under considerable force at any time the line is pressurized.

- 1.3 Roundness Test – All sewers constructed of PVC pipe (all sizes) shall pass a go/no-go mandrel sized to 95% of the actual pipe diameter with the pipe in place and backfill completed. Contractor shall provide a suitable ball or mandrel having a diameter equal to 95% of the actual inside pipe diameter which he shall pull through each section of pipe while the Engineer observes the test. Any section of sewer showing a deflection of more than 5% of the actual inside diameter shall be considered to have failed and shall be re-laid to correct the condition.

Mandrel shall be pulled without mechanical pulling devices and shall not be performed until a minimum of 30 days after backfilling operations.

- 1.4 Infiltration Test - In addition to any other testing which may be required, any infiltration observed in any section of sewer shall be measured by using flow weirs. The weir test shall be made on the flow of water from sewers in not over 1,000-foot sections at any one time when, in Engineer's opinion, groundwater level is at highest point during a normal year. Contractor shall furnish all weirs, other materials, and labor required for such test. Weirs shall be in good condition and approved for the intended use by the Engineer. Engineer shall be responsible only for direction, reading, recording data, and calculating infiltration rates.

Maximum allowable infiltration shall be 25 gallons per mile per inch diameter per 24 hour period, but in no case shall exceed 1,500 gallons per mile of pipe per day for pipe 30 inches in diameter or larger. Joints shall be tight and leakage in excess of that specified herein shall be repaired.

The Infiltration Test shall not be relied on as the sole indicator of leakage if groundwater is determined to be less than 2 feet over the top of the pipe.

If the quantity of infiltration is in excess of the maximum quantity specified above, the joints shall be remade, the sewer re-laid, or other work performed by and at the expense of the Contractor in order to reduce the amount of leakage to an amount within the limits specified. The test will be repeated until the section of sewer passes the test requirements.

All visible leaks in pipes and manholes must be corrected regardless of the amount of infiltration.

- 1.5 Exfiltration Test - In case period of year of highest groundwater is not available before sewer is needed by the Owner, exfiltration testing may be used by the Contractor if approved by the Engineer.

Such testing shall be done between manhole segments by plugging the incoming lines on the downstream manhole and the upstream manhole. The method of filling the sewer with water shall be approved before use by the Engineer, and extreme care shall be used in conducting the test to avoid damage to the main sewer, service laterals, and service plugs. The line shall be filled slowly in such a manner to allow exhausting of air from the line as it fills. Suitable methods of measuring leakage rate shall be utilized as approved by the Engineer. Generally, exfiltration testing will not be used on line segments where the water elevation at the upstream manhole is more than 5 feet above the invert elevation at the downstream manhole so that pipe joints will not be subject to excessive internal pressures.

Maximum allowable exfiltration rate shall be 25 gallons per mile per inch diameter per 24-hour period, but in no case shall exfiltration exceed 1,500 gallons per mile per day for pipe 30 inches in diameter or larger.

If the quantity of exfiltration is in excess of the maximum quantity specified above, the joints shall be remade, the sewer re-laid, or other work performed by and at the expense of the Contractor in order to reduce the amount of leakage to an amount within the limits specified. The test will be repeated until the section of sewer passes the test requirements.

- 1.6 Vacuum Testing of Manholes - All new manholes and all existing manholes which are rehabilitated/waterproofed and sealed on this project will be required to pass a vacuum test of at least 10" Hg. prior to acceptance. This test shall be considered acceptable if the vacuum remains at 10" Hg. or drops to no less than 9" Hg. within one (1) minute. If the manhole fails the initial test, the Contractor shall locate the leak and make appropriate repairs acceptable to the Engineer in preparation for additional tests.

It is also called to the Contractor's attention that he will be required to furnish all equipment necessary for this test including the manhole sealing apparatus, gauges, pump, plugs, and operating personnel.

The cost of this work shall be merged into the unit price bid for manholes, and no additional payment will be allowed.

Note: The vacuum testing of manholes shall include plugging all inlet and outlet PE slipliner pipes in the manhole and vacuum testing of annular space seals at the same time as manholes which have been rehabilitated.

Note: Prior to connecting to any existing gravity sewer manholes, the Contractor shall be required to perform vacuum testing of the existing manhole. Any deficiencies found in the existing manhole must be addressed with assistance and coordination of the Owner/Engineer prior to making the connection. The Contractor shall be required to perform a subsequent and satisfactory vacuum test of the existing manhole after the Kor-N-Seal type tie-in is completed.

1.7 Cured-In-Place Gravity Sewer and Force Main Lining Testing Requirements

- 1.7.1 After completing lining and service renewals, every liner shall be TV inspected with a 360° integral lighthouse camera as soon as practical to verify proper installation. The rate of travel shall not exceed 30 feet per minute. At each service, the camera shall come to a complete stop and the service shall be panned. The footage meter count shall be clearly visible. Submit a color, continuous digital video recording of the internal TV inspection and a log for each segment. Logs shall include date, line size, length, manhole numbers, project number, direction of camera travel, direction of flow, individual distance locations for all sewer service laterals including directions left or right, and any observed defects or comments.

- 1.7.2 Video Recording: Continuous digital video recordings of the inspection view as it appears on the television monitor shall be taken. It is intended that digital video recording will be made of the complete television inspection of all sewer lines constructed as part of this project. The recording shall also be used as a permanent record of defects. The recording shall be MPEG. The digital video encoding shall include both sound and video information that can be reproduced with a video image equal or very close to the quality of the original picture on the television monitor. The replay of the recorded video information, when received

by an ISO-MPEG-1 compliant viewer, shall be free of electrical interference and shall produce a clear, stable image. The audio portion of the composite digital coding shall be sufficiently free of electrical interference and background noise to produce an oral report that is clear and completely and easily discernible.

1.7.3 The audio portion of the inspection report shall include the location or identification of the section, the manhole-to-manhole direction of travel, and the distance traveled on the specific run encountered. The inspection camera equipment shall be continuously connected to the television inspection or monitoring equipment. The recording and monitoring equipment shall have the built-in capability to allow the Engineer to instantly review both the audio and video quality of the recordings at all times during the television survey. Playback speed shall be continuously adjustable from one-third normal speed for slow-motion viewing to normal playback speed. Separate MPEG files shall be created for each sewer line segment. In case of a reverse setup, such inspection shall be stored in a separate MPEG file. MPEG files shall be written to a CD-ROM media for delivery to the Engineer. Multiple MPEGs may exist on each CD-ROM. Each CD-ROM shall be labeled, at a minimum, with the following information: Owner, Engineering Firm, Project Name, Date of CD creation, CD ID, Sewer Line Sections and Contractor Firm.

1.7.4 The Owner/Engineer, at his sole discretion, reserves the right to refuse any MPEG, on the basis of poor image quality, excessive bit rates, inconsistent frame rates or any other characteristics that may affect usability by the Engineer or Owner.

1.7.5 After installation, test shall be performed on each sewer line segment to determine if the rehabilitated sewer is watertight, including renewed services to the sewer service cleanout, where applicable and where possible.

Furnish all necessary equipment to conduct the tests. Acceptable methods include low-pressure air test, infiltration method, exfiltration method, as contained herein for gravity sewer and hydrostatic pressure testing for force mains.

1.7.6 Finished liner samples taken from manhole cutoffs, service coupons, etc. shall be made available for the Owner to have analyzed by an independent testing lab. Samples shall be furnished directly to the Engineer or Owner within 24 hours (or less) after installation.

1. A minimum of 2 samples shall be taken of the first segment installed.
2. A sample shall be taken for each liner insertion or inversion on the project. Multiple segment insertions/inversions from one manufacturing lot require one (1) sample unless in excess of 1,200 feet for which two (2) must be taken.
3. A minimum of 6 samples per project shall be taken for each type of liner furnished.
4. Tests in accordance with ASTM standards for Tensile Properties, Flexure Modulus and wall thickness shall be conducted.
5. The Contractor shall determine sampling location and procedures to ensure representative samples are obtained from the finished liner, subject to approval by the Engineer.

6. The Contractor shall furnish removable sizing sleeves to collect liner samples, which accurately replicate the host pipe diameter.

- 1.7.7. The cured-in-place gravity sewer liner shall be furnished and installed in the thickness necessary to withstand earth loads and live loads as shown on the Contract Drawings (approximately 6 to 22 feet) and a maximum external water pressure of 25 feet. In all cases, the cured-in-place liner shall have a minimum thickness as shown on the drawings.

Third party testing of all sewers lined shall be required at each inversion and at all locations over 1,000 feet thereafter. Third party testing shall be in accordance with ASTM standards and tested for Tensile Properties, Flexure Modulus and Wall Thickness. All costs for testing shall be merged into unit price bid for sewer lining.

1.8 TESTING OF VALVES

Upon completion of this project, the Contractor shall operate all buried valves in the presence of the Engineer to verify proper operation of each valve.

- 1.9 Warranty - The work to be performed under this Contract shall be guaranteed against defects in materials or workmanship for a period of one year following the date of formal acceptance of the project. In the event defects in materials or workmanship should appear, the Contractor shall promptly make the necessary correction. When the defects are not of an emergency nature, the Contractor will be notified and will be given a period of two weeks in which to make the necessary corrections.

Should the defects be of an emergency nature which, in the opinion of the Owner or the Engineer requires immediate correction, the Contractor will be notified and requested to make the necessary repairs immediately. Should this be impractical or if the Contractor should fail to respond to the request for corrective action within the specified period, the Owner may proceed to have the defects corrected and shall bill the Contractor for all charges in connection therewith including labor, materials, and equipment rental. Such charges may be deducted from amounts due the Contractor if any of the Contractor's money has been withheld. In the event the Contractor fails, refuses or neglects to pay the Owner, the surety shall be liable for such charges.

SEWER LINE REHABILITATION, REPLACEMENT, AND APPURTENANCES

SECTION 5

MEASUREMENT AND PAYMENT

1. GENERAL

The Contractor shall furnish all labor, tools, equipment, and materials to construct the proposed improvements complete as shown on the Drawings and described in these Specifications. The work shall be measured for payment in accordance with applicable provisions of these Specifications and payment shall be made on the basis of the unit prices or lump sum prices bid. The sum of the payments for eligible pay items contained in the proposal form shall be the compensation to be paid for the completed project, provided however, that changes in the work covered by written change orders, properly executed, may result in additions or deductions from the Contract price.

The Contractor's attention is called to the fact that although the pay items shown shall be the basis for establishing the contract price, the descriptions of the pay items do not necessarily reflect the extent of work to be performed. The cost of incidental work such as clearing and grubbing, trenching, backfilling, testing, etc., which is necessary but which is not specifically listed as one of the pay items, shall be included in the prices bid for the pay items to which the incidental work is most closely related.

2. SEWER PIPE

Service lines shall be measured for payment by horizontal measurements from the centerline of the main sewer to the plugged end of the service.

Sewer pipe and service lines shall be classified as under roadway if the sewer line is within 3 feet of the edge of the road. Any sewer or service line located more than 3 feet from the edge of the road shall be classified as outside roadway.

- A. Measurement - Sewer pipe shall be measured for payment by horizontal measurements or station distances along the centerline from center of manholes to the nearest 0.1 foot. Sewer size shall be based on nominal pipe diameter as shown on the Drawings.

Measurement for establishing cut classification shall be the vertical distance from undisturbed ground elevation to the invert of the sewer as determined by the centerline cuts as determined by the Engineer. Where cut classification changes between adjacent stations and/or measured ground elevations, the ground slope shall be assumed to be uniform, and the distance to point of change in cut classification shall be calculated as proportional.

- B. Payment - Sewer pipe shall be paid for on the basis of the respective unit prices bid per linear foot for pipe of the various sizes, materials, and cut classifications.

Payment for furnishing and installing the sewer lines shall constitute compensation in full for furnishing all labor, tools, equipment and materials, and installing the sewer complete, including incidental work such as location and protection of existing utilities, clearing, excavation (including rock), dewatering trenches, bedding with crushed stone in accordance with Specifications, backfilling, disposal of surplus excavated material, the removal of existing

pavements, curb and gutter, sidewalks, driveways, brush and timber, structures and piping to be relocated or abandoned; also sheeting, diking, well pointing, bailing, dewatering; testing, the furnishing and placing of bulkheads, the restoration of any utilities, parkways, trees, shrubbery, culverts, fences, and other items not covered under subsequent items and testing.

Backfill shall be in accordance with Section 3, Paragraph 4.2.

3. MANHOLES, DROP ASSEMBLIES, REHABILITATION, SEALING AND PROTECTIVE COATING, CHEMICAL GROUTING, AND/OR REPLACEMENT MANHOLES

A. Measurement - Manholes shall be measured by actual count of the manholes of the various sizes installed. Measurement of the drop assemblies shall be the actual count of assemblies installed to the elevations shown on the Contract Drawings. Measurement of watertight and traffic-type manhole frames and covers shall be by actual count of such covers actually installed.

B. Payment - Payment for manholes shall be made on the basis of the unit prices bid per each (EA) for the various size manhole bases.

Payment for additional manhole sidewall shall be made on the basis of the unit prices bid per vertical feet of the various sizes installed above the 0' to 9' depth. No separate payment shall be made for the first 9 feet of manhole sidewall. No separate payment shall be made transition section required to transition from one size sidewall to another size sidewall, cost for the transition shall be merged into the unit price bid for sidewall.

Payment for drop inlet to manholes, where shown, shall be made on the basis of the unit price bid per each (EA) for each drop pipe and shall constitute payment in full for furnishing the drop tee, drop pipe, elbow, and encasement, and for constructing the drop inlet complete.

Payment for watertight manhole castings and traffic-type castings shall be made on the basis of the unit prices bid for each (EA) such casting installed.

Payment for manhole vent pipe assemblies shall be made on the basis of the unit price bid for each such vent pipe assembly installed.

Filling of existing manholes which are to be abandoned in place shall be paid based on the unit price bid for each in accordance with the detail on the Contract Drawings.

Bulkheads of existing pipes shall be paid based on the unit price bid for each.

NOTE: The Contractor's attention is directed to the requirement for XYPEX® C-1000 RED Concrete Admixture in all manholes and siphon structures constructed on this project, that are not epoxy coated.

Manhole stub-outs and connections shall include all pipe and materials to connect or reconnect to the existing sewer line. All costs associated with this work shall be merged into the unit price bid for 8-inch through 15-inch manhole stub-outs and connections. No separate payment shall be made under pipe items per linear foot.

4. MANHOLE AND/OR PIPE SEAL/REPAIR REHABILITATION ITEMS

- A. Measurement – Manhole and/or pipe seal/repair rehabilitation items shall be measured by actual count of items installed and/or performed.
- B. Payment – Payment for manhole and/or pipe seal/repair rehabilitation items shall be made on the basis of unit prices bid per each (EA).

5. HYDRAULIC CLEANING AND INTERNAL TV INSPECTION (included as part of other pay items, this is not a separate pay item on this project)

- A. Measurement – Hydraulic cleaning and internal TV inspection of existing sewers **(if included as a separate pay item on the bid form)** shall be measured for payment by the horizontal distances along the centerline of the sewer measured from the centerline of the manholes.
- B. Payment – Hydraulic cleaning and internal TV inspection **(if included as a separate pay item on the bid form)** shall be paid for on the basis of the respective unit price items of liner installed in the various sewer sizes.

Payment for hydraulic cleaning and televising existing sewer mains **(if included as a separate pay item on the bid form)** shall constitute compensation in full for furnishing all labor, tools, equipment, materials, bypass pumping of sewage, incidental work, and all other work necessary for the completed job.

Payment for hydraulic cleaning and television inspection of existing sewer lines **(if included as a separate pay item on the bid form)** shall be made one time only for any one segment and shall include cleanup. Payment for hydraulic cleaning, heavy cleaning, and TV inspection shall not be made separately where such are included as part of another bid item such as lining of existing sewers and force mains by the resin impregnated flexible felt tube method.

6. "POINT OR SEGMENT" REPLACEMENTS

- A. Measurement - "Point or Segment" replacements shall be measured by unit price for each point and/or segment replacement and shall include all work associated with repair and replacement of existing sewers up to 12 feet in length of the various pipe diameter sizes indicated. Any points or segments requiring replacement greater than 12 feet in length will be measured and paid by the linear foot for each foot exceeding the 12 feet amount.
- B. Payment - Payment for "Point or Segment" replacements will be made in accordance with the unit price bid per each and unit price bid per linear foot (greater than 12 feet) for the appropriate sizes.

Payment shall include all excavation, dewatering, removal of old pipe, replacement with PVC sewer pipe, trench wall sheeting and/or use of trench boxes, wastewater bypass pumping, cleaning and preparing existing sewer for connecting, stabilization of subgrade for aligning new pipe and existing pipe invert flowlines (concrete cradle when used shall be paid under supplemental foundation items) backfilling with crushed stone or approved non-compressible material and other work necessary to complete the point or segment repair. The concrete, cradle or encasement (if required), and pavement repair will be included in the appropriate pay items.

Such pay shall constitute compensation for all labor, materials, equipment, connectors, and all other work necessary to complete the "Point or Segment" replacements.

7. LINING BY THE RESIN IMPREGNATED FELT TUBE METHOD

- A. Measurement - Lining of existing sewers and/or force mains by the resin impregnated flexible felt tube method shall be measured for payment by the horizontal distances along the centerline of the lined sewer or force main measured from the centerline of the manholes.
- B. Payment - Lined sewer or force main by the resin impregnated felt tube method shall be paid for on the basis of the respective unit price items of liner installed in the various sewer and/or force main sizes.

Payment for furnishing and installing the liner shall constitute compensation in full for furnishing all labor, tools, equipment, materials, bypass pumping of sewage, hydraulic cleaning and heavy cleaning, pre- and post-televising, testing, installation, incidental work and all other work necessary for the completed job.

Payment shall also include cleanup, and reconnecting existing service if specified, and third party testing of liner.

8. SEWER SERVICE LINE CONNECTION RENEWAL

- A. Measurement - Sewer service line connection renewal shall include all connection items shown in detail of Contract Drawings including reconnection of existing sewer service line to existing 15" or 8" sewer rehabilitated by CIP lining including reinstatement of existing 4-inch or 6-inch service by remote 100% cut-out method; installation of epoxied-on-saddle; service bands; and all other labor and materials for complete re-connection of sewer service to mainline sewer. The sewer clean-out will be paid under unit price bid item of the Contract Documents. Measurement will be by an actual count of items installed.
- B. Payment - Payment for these sewer service line connection renewals will be made in accordance with the unit price bid per lump sum each. Payment shall include the cost of all labor and materials necessary to construct these items in accordance with the Contract Specifications and details shown in the Project Drawings.

9. CLEAN-OUT ASSEMBLIES

- A. Measurement - The clean-out assemblies will be measured by actual count of each size and type installed as part of the existing sewer rehabilitation system.
- B. Payment - Payment for furnishing and installing the clean-out assemblies shall be based on the Contract unit price bid for each type installation. The unit price bid shall include all labor, materials, and equipment necessary to complete the valve installations as shown on the Drawings (including the valve(s) and connecting piping, traffic rated valve box, cover, crushed stone, excavation, backfill, and incidental work necessary for a complete installation).

10. ROADWAY MAINTENANCE, DRIVEWAY AND ROADWAY REPLACEMENT

1. ROADWAY MAINTENANCE

- A. Measurement - Roadway maintenance items shall be measured by the actual quantity used for the item as follows: bituminous "cold mix" per ton and calcium chloride per 100 pounds.
- B. Payment - Payment for roadway maintenance items shall be made in accordance with the unit prices bid for each item and shall include the cost of all labor and materials necessary for the application of these items.

2. DRIVEWAY REPLACEMENT

- A. Measurement - Measurement for asphalt driveway or parking lot replacement, gravel driveway, or concrete driveway replacement shall be made by the linear foot along the centerline of the sewer for the actual quantity placed.
- B. Payment - Payment for these items shall be made at the unit prices bid per linear foot and shall include the cost of all labor and materials necessary to construct these items at the locations and to the details shown on the Contract Drawings.

3. ROADWAY REPLACEMENT

- A. Measurement - Measurement for Type "A" and Type "B" asphalt pavement replacement shall be made by the linear foot along the centerline of the sewer for the actual quantity placed.
- B. Payment - Payment for roadway replacement items shall be made at the unit prices bid and shall include the cost of all labor and materials necessary to construct these items at the locations and to the details shown on the Contract Drawings.

NOTE: Payment for pavement replacement shall be made on the basis of the unit prices bid for various classifications of pavement as indicated in the Proposal Form. Such payment shall constitute the furnishing of all labor, materials, and equipment and replacing the damaged pavement, including the crushed stone base as required. The Contractor is advised that, although the limits of payment shall be as described under paragraph A. above, he shall be responsible for replacing all pavement damaged during construction, so that the paved area is left in a condition as good as or better than before the start of the construction.

All new and existing gas valves, water valves, and manholes will be adjusted to the final surface elevations by the Contractor. Cost for this work is to be merged into unit price construction items for pavement replacement.

11. TOPSOIL AND SEEDING OF TRENCHES SOD/GRASS REPLACEMENT, AND EROSION CONTROL MATTING FOR SEEDED AREAS

- A. Measurement - Measurement for topsoil and seeding of trenches, sod/grass replacement, and erosion control matting for seeded areas will be made by the linear foot of trench along the centerline of the sewer or per square yard as shown on the bid form.

- B. Payment - Payment shall be made at the unit price bid and shall include all costs of labor and materials (including fine grading, mulching) for the completion of this item.

12. CONCRETE FOR CRADLE, CAP, THRUST BLOCKING AND/OR ENCASEMENT

- A. Measurement – Class C (2,000 PSI) Concrete used in cradling, encasement, or caps will be measured by computing the theoretical volume of concrete required to construct the item in accordance with Standard Detail Drawings. The length shall be the actual length of such concrete as installed at the Engineer's direction. Measurement for concrete used in pads, low piers, or blocks shall be placed on the theoretical volume required for the dimensions of the structure as shown on the plans or as directed by the Engineer.

- B. Payment - Payment for Class C (2,000 PSI) concrete shall be made on the basis of the unit price bid per cubic yard and shall constitute full compensation for excavation, forming, furnishing, and placing the concrete, reinforcing steel, and other incidental work required to complete the work. No separate payment will be made for concrete included in manholes, drop pipes, service risers, or other structures where the price of such concrete is included in the unit price or lump sum price bid for the item.

13. CRUSHED STONE BACKFILL FOR UNDERCUTS

- A. Measurement - In areas (other than areas specifically designated by these Specifications) where directed by the Engineer to backfill with crushed stone or to refill an undercut where the Engineer has directed that unsuitable material be removed, this item shall be measured for payment by the formula $(\frac{4}{3} \text{ O.D.} + 24)/12$ (length (ft)) (depth (ft)) divided by 27.

- B. Payment - Payment for crushed stone backfill shall be at the unit price bid per cubic yard and such payment shall constitute complete compensation for all extra labor, materials, and equipment necessary to furnish, haul, place and compact the crushed stone backfill.

14. UNCLASSIFIED EXCAVATION FOR UNDERCUTS

- A. Measurement - In areas where directed by the Engineer to remove unsuitable material below grade, this item shall be measured by the formula $(\frac{4}{3} \text{ pipe O.D.} + 24)/12 \times \text{depth}$ divided by 27 for sewer mains and outside diameter plus 36 inches $\times \text{depth}$ divided by 27 for manholes.

- B. Payment - Payment shall be made at the unit price bid and no distinction shall be made between rock and earth excavation as far as payment is concerned.

15. PLAIN STONE RIP-RAP

- A. Measurement - Measurement for plain stone rip-rap shall be made by the square yard as measured in place.

- B. Payment - Payment shall be made at the unit price bid and shall include the cost of all labor and materials necessary to construct the item at the locations on the Contract Drawings or as directed by the Engineer.

16. GROUTED STONE RIP-RAP

- A. Measurement - Measurement for grouted stone rip-rap shall be made by the square yard as measured in place.
- B. Payment - Payment shall be made at the unit price bid and shall include the cost of all labor and materials necessary to construct the item at the locations on the Contract Drawings or as directed by the Engineer.

17. LUMP SUM BID ITEMS

Lump Sum Construction Items shall be paid under established items and shall include all related work as set forth in the Proposal Section and as indicated on the Contract Drawings.

18. STREAM CROSSINGS

- A. Measurement - Stream crossings shall be made measured for payment by horizontal measurements or station distances along the centerline of the pipe to the nearest 0.1 foot. Sewer size the linear foot along the centerline of the sewer as shown on the plan sheets.
- B. Payment - Payment shall be made at the unit price bid for each and shall include all costs of labor and materials (including but not limited sewer pipe, concrete encasement, and check dams) for the completion of this item as shown in the Standard Details.

19. EARTHEN AND/OR CONCRETE CHECK DAMS

- A. Measurement - Measurement for earthen and/or concrete check dams will be made by the actual number installed.
- B. Payment - Payment shall be made at the unit price bid for each and shall include all costs of labor and materials (including clay soil) for the completion of this item. Two (2) concrete check dams utilized at each stream crossings shall not be paid for under this unit price item.

18. SILT FENCING, STRAW WADDLES, AND OTHER APPROVED EROSION CONTROL DEVICES

- A. Measurement - Measurement for silt fencing, straw waddles, rock check dams, and other approved erosion control and sediment prevention devices will be made by the linear foot as shown on the bid form.
- B. Payment - Payment shall be made at the unit price bid and shall include all costs of labor and materials for the completion of this item, along with maintenance and upkeep as needed.