

CONTRACT DOCUMENTS
and
TECHNICAL SPECIFICATIONS

for

**WEST JEFFERSON CO. MUNICIPAL
WATER DISTRICT**

JEFFERSON COUNTY, TX.

Construction Plans and Specifications for a 10" Diameter
Potable Water Transmission Line

ACE Job # 123-01A



BOARD MEMBERS

David Smith - President
James Broussard - Secretary
Randy Lyday - Treasurer

Rufus Lavergne - Director
Gene Beebe - Director
Byron Halavinka-Director
Cody Bonvillion - Director
Josh Heins-Legal Counsel



Action Civil Engineers, PLLC

3401 63rd St., Port Arthur, TX 77640
Port Arthur, Texas 77642
Phone: (409) 728-6253
Email: wlarrair@acecivilengineers.com
Firm Reg.: F-16376

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Construction Plans and Specifications for a 10” Diameter Distribution System - Water Line Improvement

West Jefferson Co. Municipal Water District Jefferson Co., TX.

BOARD MEMBERS

David Smith - President
James Broussard - Secretary
Randy Lyday - Treasurer
Rufus Lavergne - Director
Gene Beebe - Director
Byron Halavinka - Director
Cody Bonvillion - Director

ADMINISTRATION

District Manager - Daniel Hidalgo

Construction

Advertisement and Invitation for Bids

The West Jefferson County Municipal Water District will receive bids for the Construction of a 10" PVC Potable Water Transmission Line until 10:00 AM on Wednesday, September 04, 2024, at the district office located at **7824 Glenbrook Dr., Beaumont, TX 77705**. The bids will be publicly opened and read aloud thereafter on Wednesday, September 04, 2024, at 7824 Glenbrook Dr.

Bids are invited for the **Proposals** bid items and quantities of work as follows:

Proposal: 10" PVC. SDR 26- class 160 PSI Transmission Line and Appurtenances.

Bid/Contract Documents, including Drawings and Technical Specifications are on file at 7824 Glenbrook Dr., Beaumont, TX, or found online from the web site, "West Jefferson County Municipal. Water. District" at which plans and specifications can be obtained.: **westjeffersoncountymwd.com**

Copies of the Bid/Contract Documents may be obtained through the office of **West Jefferson County Municipal Water District** at the address referenced above or online. West Jefferson County MWD meets the second Tuesday each month at 6:00 PM.

A bid bond in the amount of 5 percent of the bid issued by an acceptable surety shall be submitted with each bid. A certified check or bank draft payable to the **West Jefferson County MWD** or negotiable U.S. Government Bonds (as par value) may be submitted in lieu of the Bid Bond.

Attention is called to the fact that not less than, the federally determined prevailing (Davis-Bacon and Related Acts) wage rate, as issued by the and contained in the contract documents, must be paid on this project. In addition, the successful bidder must ensure that employees and applicants for employment are not discriminated against because of race, color, religion, sex age or national origin. **West Jefferson County MWD** reserves the right to reject any or all bids or to waive any informalities in the bidding.

Bids may be held by West Jefferson County MWD for a period not to exceed 60 days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidder's qualifications prior to the contract award.

West Jefferson County Municipal Water District

Daniel Hidalgo,

Manager

All contractors/subcontractors that are debarred, suspended or otherwise excluded from or ineligible for participation on federal assistance programs may not undertake any activity in part or in full under this project.

INSTRUCTION TO BIDDERS FOR CONSTRUCTION

1. Use of Separate Bid Forms

These contract documents include a complete set of bid and contract forms which are for the convenience of the bidders and are not to be detached from the contract document, completed or executed. Separate bid forms are provided for your use.

2. Interpretations or Addenda

No oral interpretations will be made to any bidder. Each request for an interpretation shall be made in writing to the Grant Recipient or engineer no less than seven (7) days prior to the bid opening. Each interpretation made will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents no less than five (5) days prior to the bid opening. It is, however, the bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda, whether or not received by the bidders.

3. Inspection of Site

Each bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the contract. The bidder should thoroughly examine and familiarize himself with the drawings, technical specifications and all other contract documents. The contractor by the execution of the contract shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal document or to visit the site or acquaint himself with the conditions there existing. The city/county will be justified in rejecting any claim based on lack of inspection of the site prior to the bid.

4. Alternate bid items

No alternate bids or bid items will be considered unless they are specifically requested by the technical specifications.

5. Bids

- a. All bids must be submitted on the forms provided and are subject to all requirements of the Contract Documents, including the Drawings.
- b. All bids must be regular in every respect and no interlineation, excisions or special conditions may be made or included by the bidder.
- c. Bid documents, including the bid, the bid bond, and the statement of bidders' qualifications shall be sealed in an envelope and clearly labeled with the words "Bid Documents", the project number, name of bidder and the date and time of bid opening.
- d. The Grant Recipient may consider as irregular any bid on which there is an alteration of or departure from the bid form and, at its option, may reject any irregular bid.

- e. If a contract is awarded, it will be awarded to a responsible bidder on the basis of the lowest/best bid and the selected alternate bid items, if any. The contract will require the completion of the work in accordance with the contract documents.

6. Bid Modifications Prior to Bid Opening

- a. Likewise, any bidder may modify a bid by submitting a supplemental bid in person prior to the scheduled closing time for receipt of bids. Such supplemental bid should mention only additions or subtractions to the original bid so as to not reveal the final prices or terms to the District until the sealed bid is open.

7. Bid Bond

- a. A bid bond in the amount of 5% of the bid issued by an acceptable surety shall be submitted with each bid. A certified check or bank draft payable to the District or negotiable U.S. Government Bonds (as par value) may be submitted in lieu of the Bid Bond.
- b. The bid bond or its comparable will be returned to the bidder as soon as practical after the opening of the bids.

8. Statement of Bidders Qualifications

Each bidder shall submit on the form furnished for that purpose a statement of the bidder's qualifications. The District shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform his obligations under the contract, and the bidder shall furnish the District all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available data does not satisfy the District that the bidder is qualified to carry out properly the terms of the contract.

9. Lump Sum Price

The lump sum price for each of the several items in the bid shall include its pro rata share of direct and indirect overhead as well as profit, so that each item bid represents the total bid for that respective item. Any bid not conforming to this requirement may be rejected as informal.

10. Corrections:

Erasures or other corrections in the bid must be noted over the signature of the bidder.

11. Time for Receiving Bids

Bids received prior to the advertised hour of opening shall be kept securely sealed. The officer appointed to open the bids shall decide when the specified time has arrived and no bid received thereafter will be considered; except that when a bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction

of the District that the late arrival of the bid was solely due to delay in the mail for which the bidder was not responsible, such bid will be received and considered.

12. Opening of Bids

The District shall, at the time and place fixed for the opening of bids, open each bid and publicly read it aloud, irrespective of any irregularities therein. Bidders and other interested individuals may be present.

13. Withdrawal of Bids

Bidder may withdraw the bid before the time fixed for the opening of bids, by communicating his purpose in writing to the locality. Upon receipt of such notice, the unopened bid will be returned to the bidder. The bid guaranty of any bidder withdrawing his bid will be returned promptly.

14. Award of Contract/Rejection of Bids

- a. The contract will be awarded to the responsive, responsible Bidder submitting the lowest/best bid. The bidder selected will be notified at the earliest possible date. The District reserves the right to reject any or all bids and to waive any informality in bids received where such rejection or waiver is in its interest.
- b. The District reserves the right to consider as unqualified to do the work any bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the improvements embraced in this contract.

15. Execution of Agreement/Performance and Payment Bonds

- a. Performance and Payment Bonds, Requires all prime contractors which enter into a formal contract in excess of \$25,000 with the State, any department, board, agency, municipality, county, school district or any division or subdivision thereof, to obtain a Payment Bond in the amount of the contract before commencing with work and a performance bond for public works contracts in excess of \$100,000.
- b. The failure of the successful bidder to execute the agreement and supply the required bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the District may grant, shall constitute a default and the District may, at its option either award the contract to the next lowest responsible bidder, or re-advertise for bids. In either case, the District may charge against the bidder the difference between the amount of the bid, and the amount for which a contract is subsequently executed irrespective of whether this difference exceeds the amount of the bid bond. If a more favorable bid is received through re-advertisement, the defaulting bidder shall have no claim against the District for a refund.

advertisement, the defaulting bidder shall have no claim against the Grant Recipient for a refund.

16. Wages and Salaries

Attention is particularly called to the requirement of paying not less than the prevailing Davis Bacon Related Acts (DBRA) wage rates specified in the Contract Documents. These rates are minimums to be paid during the life of the contract. It is therefore the responsibility of the Bidder to inform themselves as to local labor conditions.

17. Equal Employment Opportunity

Attention is called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of their race, color, creed, sex, gender, or national origin.

COUNTY OF JEFFERSON
STANDARD FORM OF AGREEMENT
FOR OWNER-CONTRACTOR PROJECTS

STATE of TEXAS }

Jefferson County}

THIS AGREEMENT, made and entered into this ____ day of _____, A.D. 2024, by and between West Jefferson County, MWD of the COUNTY of Jefferson in the STATE OF TEXAS, thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and (Construction Firm) of the City of _____ County of _____ in the State of Texas, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the First Part (OWNER) and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follow:

and all extra work in connection therewith, under the terms as stated in the General Conditions of the Agreement and at his (or their) own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said construction, in accordance with the Notice to Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore, as prepared by Action Civil Engineers, PLLC, herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and the ENGINEER, together with the CONTRACTOR'S written proposal, the General Conditions of the Agreement, the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire contract.

The CONTRACTOR hereby agrees to commence work within ten (10) calendar days after the date written notice to do so shall have been given to him, and to substantially complete within _____ consecutive calendar days after issuance of the "Notice to Proceed" and to be at Final Completion within ____ consecutive calendar days after the issuance of the "Notice to Proceed", subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this contract, such payments to be subject to the General and Special Conditions of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Party of the First Part (OWNER)

Party of the Second Part (CONTRACTOR)

By: _____

By: _____

ATTEST: _____

ATTEST: _____

The CONTRACTOR hereby agrees to commence work within ten (10) calendar days after the date written notice to do so shall have been given to him, and to substantially complete within _____ consecutive calendar days after issuance of the "Notice to Proceed" and to be at Final Completion within _____ consecutive calendar days after the issuance of the "Notice to Proceed", subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this contract, such payments to be subject to the General and Special Conditions of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Party of the Second Part (CONTRACTOR)

West Jefferson Co. Municipal Water District

Party of the First Part (OWNER)

By: _____

By: _____

ATTEST: _____

ATTEST: _____

General Contract Conditions

1. Contract and Contract Documents

- (a) The Plans, Specifications and Addenda, hereinafter enumerated in Paragraph 1 of the Supplemental General Conditions shall form part of this contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth.

2. Definitions

Whenever used in any of the contract Documents, the following meanings shall be given to the terms here in defined:

- (a) The term "Contract" means the Contract executed between the West Jefferson Co. Municipal Water District, hereinafter called the Owner and _____, hereinafter called Contractor, of which these GENERAL CONDITIONS, form a part.
- (b) The term "Project Area" means the area within which are the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this contract.
- (c) The term "Engineer" means Action Civil Engineers, PLLC, Engineer in charge, serving the Owner with architectural or engineering services, his successor, or any other person or persons, employed by the Owner for the purpose of directing or having in charge the work embraced in this Contract.
- (d) The term "Contract Documents" means and shall include the following: Executed Contract, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

3. Supervision By Contractor

- (a) Except where the Contractor is an individual and gives his personal supervision to the work, the Contractor shall provide a competent superintendent, satisfactory to the Local Public Agency and the Engineer, on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.
- (b) The Contractor shall lay out his own work and he shall be responsible for all work executed by him under the Contract. He shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

4. Subcontracts

- (a) The Contractor shall not execute an agreement with any subcontractor or permit any subcontractor to perform any work included in this contract until he has verified the subcontractor as eligible to participate in federally funded contracts.
- (b) No proposed subcontractor shall be disapproved by the District/county except for cause.
- (c) The Contractor shall be as fully responsible to the District/county for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.
- (d) The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work and required compliance by each subcontractor with the applicable provisions of the Contract.
- (e) Nothing contained in the Contract shall create any contractual relation between any subcontractor and the Owner.

5. Fitting and Coordination of Work

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material suppliers engaged upon this Contract.

6. Payments to Contractor

(a) Partial Payments

- 1) The Contractor shall prepare his requisition for partial payment as of the 25th day of the month and submit it, with the required number of copies, to the Engineer for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) five percent (5%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection of the Engineer.
- 2) Monthly or partial payments made by the Owner to the Contractor are moneys advanced for the purpose of assisting the contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

(b) Final Payment

- 1) After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this contract shall be the amount computed as described above less all previous payments.
- 2) The Owner before paying the final estimate, shall require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems it necessary in order to protect its interest. The Owner may, if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract.
- 3) Any amount due the Owner under Liquidated Damages, shall be deducted from the final payment due the contractor.

(c) Payments Subject to Submission of Certificates

Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his subcontractors.

(d) Withholding Payments

The Owner may withhold from any payment due the Contractor whatever is deemed necessary to protect the Owner, and if so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any

moneys for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

7. Changes in the Work

- (a) The Owner may make changes in the scope of work required to be performed by the Contractor under the Contract without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.
- (b) Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.
- (c) If applicable unit prices are contained in the Supplemental Agreement, the Owner may order the Contractor to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by eighteen percent (18%).
- (d) Each change order shall include in its final form:
 - 1) A detailed description of the change in the work.
 - 2) The Contractor's proposal (if any) or a confirmed copy thereof.
 - 3) A definite statement as to the resulting change in the contract price and/or time.
 - 4) The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.
 - 5) The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

8. Claims for Extra Cost

- (a) If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Owner, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.
- (b) Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- (c) Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the Owner and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Owner.
- (d) If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

9. Termination, Delays, and Liquidated Damages

- (a) Right of the Owner to Terminate Contract.

- (b) In the event that any of the provisions of this contract are violated by the Contractor, or by any of his subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the contract. The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and complete the project by bid/contract or by force account at the expense of the Contractor and his Surety shall be liable to the Owner for any excess cost incurred. In such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.
- (c) Liquidated Damages for Delays.
- (d) If the work is not completed within the time stipulated in the applicable bid for Lump Sum or Unit Price Contract provided, the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of \$500.00 for each calendar day of delay, until the work is completed. The Contractor and his sureties shall be liable to the Owner for the amount thereof.
- (e) Excusable Delays.
- 1) The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:
 - 2) Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;
 - 3) Any acts of the Owner;
 - 4) Causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are 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 another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.
 - 5) Provided, however, that the Contractor promptly notifies the Owner within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

10. Assignment or Novation

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

11. Disputes

- (a) All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of commencement of the dispute, be presented by the Contractor to the Owner for decision. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt of the Owner.
- (b) The Contractor shall submit in detail his claim and his proof thereof.
- (c) If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest.

12. Technical Specifications and Drawings

Anything mentioned in the Technical Specifications and not shown on the Drawings or vice versa, shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the Owner, without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

13. Shop Drawings

- (a) All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Engineer in 6 copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the contract time shall be granted by reason of his failure in this respect.
- (b) Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.
- (c) If a shop drawing is in accordance with the contract or involves only a minor adjustment in the interest of the Owner not involving a change in contract price or time; the engineer may approve the drawing. The approval shall not relieve the Contractor from his responsibility for adherence to the contract or for any error in the drawing.

14. Requests for Supplementary Information

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provision of this section.

15. Materials and Workmanship

- (a) Unless otherwise specifically provided for in the technical specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the technical specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.
- (b) The Contractor shall furnish to the Owner for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval full information concerning all other materials or articles which he proposes to incorporate.
- (c) Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
- (d) Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the technical specifications shall have full force and effect as though printed therein.
- (e) The Owner may require the Contractor to dismiss from the work such employee or employees as the Owner or the Engineer may deem incompetent, or careless, or insubordinate.

16. Samples, Certificates and Tests

- (a) The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.
- (b) Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in making a prompt decision regarding the acceptability of the sample. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.
- (c) Approval of any materials shall be general only and shall not constitute a waiver of the Owner's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.
- (d) Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
 - 1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
 - 2) The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;
 - 3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient;

4) The Owner will pay all other expenses.

17. Permits and Codes

- (a) The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the drawings and technical specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Owner. Where the requirements of the drawings and technical specifications fail to comply with such applicable ordinances or codes, the Owner will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.
- (b) Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the drawings and technical specifications), the Contractor shall remove such work without cost to the Owner.
- (c) The Contractor shall at his own expense, secure and pay for all permits for street pavement, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.
- (d) The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements contained in this Contract.
- (e) The Contractor will be required to make arrangements for and pay the water, electrical power, or any other utilities required during construction.
- (f) During construction of this project, the Contractor shall use every means possible to control the amount of dust created by construction. Prior to the close of a day's work, the Contractor, if directed by the Owner, shall moisten the bank and surrounding area to prevent a dusty condition.

18. Care of Work

- (a) The Contractor shall be responsible for all damages to person or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance.
- (b) The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.
- (c) In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Owner.
- (d) The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.
- (e) The Contractor shall shore up, brace, underpin, secure, and protect as maybe necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements included in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all

damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

19. Accident Prevention

- (a) No laborer or mechanic employed in the performance of this Contract shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards promulgated by the Secretary of Labor.
- (b) The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work.
- (c) The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.
- (d) The Contractor shall indemnify and save harmless the Owner from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.
- (e) The Contractor shall provide trench safety for all excavations more than five feet deep prior to excavation. All OSHA Standards for trench safety must be adhered to by the Contractor.
- (f) The contractor shall at all times conduct his work in such a manner as to insure the least possible inconvenience to vehicular and pedestrian traffic. At the close of the work each day, all streets where possible in the opinion of the Owner, shall be opened to the public in order that persons living in the area may have access to their homes or businesses by the use of the streets. Barricades, warning signs, and necessary lighting shall be provided to the satisfaction of the Owner at the expense of the Contractor.

20. Sanitary Facilities

The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

21. Use of Premises

- (a) The Contractor shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be desired by the Owner, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.
- (b) The Contractor shall comply with all reasonable instructions of the Owner and all existing state and local regulations regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

22. Removal of Debris, Cleaning, Etc.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for work, and put the whole site of the work and public rights of way in a neat and clean condition.

23. Inspection

- (a) All materials and workmanship shall be subject to inspection, examination, or test by the Owner and Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction occurs. The Owner shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Owner may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any Monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.
- (b) The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests by the Owner will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the technical specifications.
- (c) The Contractor shall notify the Owner sufficiently in advance of back filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Owner, the Contractor shall uncover for inspection and recover such facilities at his own expense, when so requested by the Owner.
- (d) Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.
- (e) Inspection of materials and appurtenances to be incorporated in the improvements included in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the technical specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
- (f) Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the Owner or its agents shall relieve the Contractor or his sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

24. Review by Owner

The Owner and its authorized representatives and agents shall have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representatives or agents.

25. Final Inspection

When the Improvements included in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The Owner will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

26. Deduction for Uncorrected Work

If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement, in case of dispute, as herein provided.

27. Insurance

The Contractor shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner.

- (a) Compensation Insurance: The Contractor shall procure and shall maintain during the life of this contract Worker's Compensation Insurance as required by the State of Texas for all of his employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance.
- (b) Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall procure and shall maintain during the life of this contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance and Vehicle Liability Insurance in the following amounts: (See The District t Requirements Page 47).
- (c) Proof of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the Owner."

28. Warranty of Title

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed by him to the Owner free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

29. Warranty of Workmanship and Materials

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements included in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of 12 months from the date of final acceptance of the work.

30. Job Offices

- (a) The Contractor and his subcontractors may maintain such office and storage facilities on the site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The Owner shall be consulted with regard to locations.
- (b) Upon completion of the improvements, or as directed by the Owner, the Contractors shall remove all such temporary structures and facilities from the site, and leave the site of the work in the condition required by the Contract.

31. Partial Use of Site Improvements

The Owner may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

- (a) The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.
- (b) The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
- (c) The period of guarantee stipulated in the Section 29 hereof shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

32. Contract Documents and Drawings

The Local Public Agency will furnish the Contractor without charge 2 copies of the Contract Documents, including Technical Specifications and Drawings. Additional copies requested by the Contractor will be furnished at cost.

33. Contract Period

The work to be performed under this contract shall commence within the time stipulated by the Owner in the Notice to Proceed, and shall be fully completed within _____ calendar days thereafter.

34. Liquidated Damages

Since the actual damages for any delay in completion of the work under this contract are impossible to determine, the Contractor and his Sureties shall be liable for and shall pay to the Owner the sum of Five Hundred Dollars (\$ 500.00) as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated time for completion.

35. Partial Use of Site Improvements

The owner may give notice to the contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

- (a) The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the contractor.
- (b) The contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
- (c) ©The period of guarantee stipulated in the specification shall not begin to run until the date of the final acceptance of all work which the contractor is required to construct under this contract.

36. Contract Documents and Drawings

the local public agency will furnish the contractor without charge 2 copies of the contract documents including technical specifications and drawings. Additional copies requested by the contractor will be furnished at cost.

37. Contract Period

The work to be performed under this contract shall commence within the time stipulated by the owner in the notice to proceed, and shall be fully completed within _____ calendar days thereafter.

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____ as PRINCIPAL, and _____, as SURETY are held and firmly bound unto _____ hereinafter called the "Owner", in the penal sum of _____ Dollars, (\$_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the Accompanying Bid, dated _____, for _____

NOW, THEREFOR, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefor, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

(SEAL)

Attest: _____ By: _____ (SEAL)
Affix
Corporate
Seal

Attest: _____ By: _____
Affix
Corporate
Seal

Attest:

By: _____

Countersigned

By _____

* Attorney-in-Fact, State of _____

CERTIFICATE AS TO CORPORATE PRINCIPAL

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

Corporate
Seal

Title: _____

* Power-of-attorney for person signing for surety company must be attached to bond.

Payment Bond

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor or Company)

(Address)

a _____, hereinafter called Principal,
(Corporation / Partnership)

and _____
(Name of Surety Company)

(Address)
hereinafter called Surety, are held and firmly bound unto

(Name of Recipient)

(Recipient's Address)

hereinafter called OWNER, in the penal sum of \$ _____

Dollars, \$ _____ in lawful money of the United States, for this payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents. the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, for a period of one (1) year beyond the date of approval by the engineer of Owner.

THE CONFIDENTIALITY OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

(Project Name)

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

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

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

IN WITNESS WHEREOF, this instrument is executed in _____ counter-parts, each on of
(Number)
which shall be deemed an original, this the _____ day of .

ATTEST:

(Principal)

(Principal Secretary) By _____ (s)

(SEAL)

(Witness as to Principal)

(Address)

(Address)

ATTEST:

(Surety)

(Witness as to Surety) By _____
(Attorney in Fact)

(Address)

(Address)

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

Performance Bond

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor or Company)

(Address)

a _____ hereinafter called Principal, and

(Name of Surety Company)

(Address)

hereinafter called Surety, are held and firmly bound unto

(Name of Recipient)

(Recipient's Address)

hereinafter called OWNER, in the penal sum of \$ _____ Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, for a period of one (1) year beyond the date of approval by the engineer of Owner.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

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

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

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

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

IN WITNESS WHEREOF, this instrument is executed in _____
counterparts, each one of which shall be deemed an original, this the _____ day
of _____.

ATTEST:

(Principal)

By _____(s)

(Principal Secretary)

(SEAL)

(Witness as to Principal)

(Address)

(Address)

ATTEST:

(Surety)

By _____

(Witness as to Surety)

(Attorney in Fact)

(Address)

(Address)

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

Attorney's Review Certification

I, the undersigned, _____, the duly authorized and acting legal

representative of the _____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature: _____ Date: _____

Print Attorney's Name: _____

Special Conditions of the Agreement Insurance Requirements

The following minimum limits of insurance coverage will be required:

CONTRACTOR shall maintain, at his sole cost, at all times while performing work hereunder, the insurance coverage set forth below with companies satisfactory to the **OWNER** with full policy limits applying but not less than as stated. A Certificate evidencing the required insurance and specifically quoting the indemnification provision set forth in this agreement shall be delivered to the **OWNER** prior to commencement of the work and shall provide that any change restricting or reducing coverage or the cancellation of any policies under which certificates are issued shall not be valid as respects the **OWNER'S** interest therein until the **OWNER** has received 30 days notice in writing of such change or cancellation.

- (a) Workmen's Compensation Insurance as required by laws and regulations applicable to and covering employees of **CONTRACTOR** engaged in the performance of the work under the Agreement.
- (b) Employer's Liability Insurance protecting **CONTRACTOR** against common law liability, in the absence of statutory liability, for employee bodily injury arising out of the master-servant relationship with a limit of not less than \$100,000.00.
- (c) Comprehensive General Liability Insurance including products/completed operation with limits of liability of not less than: Bodily Injury \$100,000.00 each person, \$300,000.00 each occurrence/aggregate; Property Damage \$100,000.00 each occurrence/aggregate.
- (d) Automobile Liability Insurance including non-owner and hire vehicle coverage with limits of liability of not less than: Bodily Injury \$100,000.00 each person, \$300,000.00 each occurrence; Property Damage \$100,000.00 each occurrence.
- (e) Excess Liability Insurance - Comprehensive General Liability, Comprehensive Automobile Liability and coverage's afforded by the policies described above, with minimum limits of \$1,000,000.00 excess of the specified limits.

Indemnification

(a) Definitions:

(1) "indemnified party" or "indemnified parties" means the Owner, West Jefferson Co. Municipal Water District, Jefferson County, Texas and the Engineer, Action Civil Engineers, PLLC., the consultants, officers, directors, employees, agents and other consultants of each and any of the foregoing.

(2) "damages" means all claims, demands, causes of action, suits, damages, liabilities, fines, penalties, assessments, environmental responsibility costs or injunctive obligations, judgments, losses and expenses (including without limitation expenses, costs or attorney's fees incurred for any indemnified party's primary defense or for enforcement of its indemnification rights).

(b) Contractor: to the maximum extent permitted by law, agrees to and shall defend, protect, indemnify and hold harmless indemnified parties from and against any damages which may be incurred by or assessed against any indemnified party on account of:

(1) any personal injury, disease or death of any person(s), damage to or loss of any property caused by, arising out of or in any way connected with the performance of the work under this agreement, including without limitation damages caused by or attributable to (i) the sole negligence of contractor, its subcontractors, invitees or suppliers (including without limitation the respective employees or agents of the foregoing); (ii) the concurrent, contributory, active, passive or sole negligence of any indemnified party, contractor, contractor's subcontractors, contractor's invitees, contractor's suppliers, or third parties (including without limitation the respective employees or agents of the foregoing); or (iii) where liability with or without fault is strictly imposed upon contractor and/or any indemnified party, either solely, jointly, or concurrently, by operation of law; or

(2) any breach of any representation, warranty or covenant of contractor contained herein, including without limitation, any and all damages incurred by any indemnified party due to contractor's failure to fully comply with the insurance requirements set forth in exhibits a and b, herein.

(c) It is the express intention of the parties to this agreement that the indemnity obligations of contractor are without regard to whether the negligence, fault or strict liability of an indemnified party is a sole, concurrent, passive, active or contributory factor of the occurrence or occurrences in question, and such indemnity obligations of contractor are intended to protect the indemnified parties against the consequences of their own sole, joint, concurrent, passive, active or contributory negligence, fault or strict liability. the indemnified parties expressly reserve the right to participate in their defense with counsel of their own choosing. contractor's indemnity obligations shall survive the final payment, completion and acceptance of the work and termination or completion of the agreement.

- (d) Contractor shall defend, protect, indemnify and hold harmless the indemnified parties from and against damages arising out of, resulting from or otherwise connected to any failure by contractor to comply with, or violation by contractor, of any federal, state, county or municipal laws, rules, regulations, orders or ordinances, including without limitation, any and all federal, state and local environmental, health and safety laws, rules and regulations, which may otherwise be applicable to or imposed in connection with the performance of the work under this agreement, without regard to whether contractor may be negligent in the performance of the work, without regard to whether contractor's actions may have resulted in strict liability imposed by operation of law, and regardless of the sole, concurrent, active, passive or contributory negligence of any indemnified party or parties. contractor shall further protect, defend, indemnify and hold harmless the indemnified parties from and against any damages arising out of or resulting from contractor's failure to comply with applicable health and safety procedures of company.
- (e) Contractor shall defend, protect, indemnify and hold harmless the indemnified parties against any and all liens, claims and demands (including without limitation expenses, costs or attorney's fees incurred for any indemnified party's primary defense or for enforcement of its indemnification rights) which arise in connection with the work or materials supplied by contractor and/or contractor's subcontractors and/or materialmen, and, upon request by owner, contractor shall furnish owner with any affidavits, receipts, waivers, releases, statements or other evidence that owner may require to satisfy itself that all such claims, liens or demands have been paid and discharged.
- (f) Contractor's indemnity obligations shall not limit and shall not be limited by the insurance coverage's (including without limitation the indemnified party's or parties' additional insured status, if any, as set forth in this agreement.

1) **RIGHTS OF VARIOUS INTERESTS**

- 1.1 Where work is being done by the OWNER'S forces or other CONTRACTORS contiguous to work covered by this CONTRACT, the ENGINEER shall establish the respective rights of the various interests involved to establish harmony and to secure the completion of the various portions of the work involved.

2) **PROTECTION OF PROPERTY AND PUBLIC LIABILITY**

- 2.1 The CONTRACTOR shall be accountable for any damages resulting from his operations. CONTRACTOR shall be fully responsible for the protection of all persons including members of the public, employees of the OWNER, employees of the Resident Project Representative, employees of the ENGINEER, and employees of other CONTRACTORS or SUB-CONTRACTORS, and all public and private property, including structures, sewers and utilities above and below ground.
-

3) **LAWS AND REGULATIONS**

- 3.1 CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and 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 and Regulations.

4) **ENGINEER'S STATUS DURING CONSTRUCTION**

- 4.1 The ENGINEER will be the 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 DOCUMENT and shall not be extended without written consent of OWNER and ENGINEER.

5) **INSPECTION**

- 5.1 In addition to the inspection by the ENGINEER, the work under this CONTRACT shall be subject to the inspection by representatives of the OWNER. The cost of re-inspection by the ENGINEER due to the CONTRACTOR'S neglect in performance of his work shall be borne by the CONTRACTOR.

6) **CLAIMS/LIENS**

- 6.1 The OWNER shall have the express right to pay claims or liens and deduct that amount from the CONTRACT for any claims or liens originating from the actions of the CONTRACTOR relative to the project if said claims or liens are not settled within thirty (30) days of notification by the OWNER.

7) **COMPLIANCE**

- 7.1 Safety, Health, and Accident Prevention – CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.
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**JEFFERSON COUNTY/
WEST JEFFERSON COUNTY MUNICIPAL WATER DISTRICT
SPECIAL PROVISIONS**

10" Water Transmission Line

ACE JOB NO. 123-01A

1. The selection of a **CONTRACTOR** for this project shall be determined by the low responsive, responsible bid for the base bid proposal. The price bid for the base proposal should include the cost of all items outlined in the scope of work to accomplish the respective tasks.

Bidders are advised that if an Addendum is issued, it must be recognized by signature and a copy of all signed Addenda must be submitted with your Bid.

Award of a contract will be made to one successful contractor based on two (2) considerations; the dollar amount indicated as a total price bid for the base proposal, and the number of total calendar days bid to complete the project. Please indicate the number of calendar days in the space provided on the **BID PROPOSAL FORMS**. It is the intent of these specifications to pay the contractor for all items required to successfully complete the project for the **OWNER**.

2. It is the intent of these specifications to pay the **CONTRACTOR** for those items in the proposal which he performs on. The **CONTRACTOR** will not be due profit or any other compensation for those items in the proposal, which are not used, not used completely, used in quantities exceeding the approximate quantities or for items deleted from this contract.
3. "Supplemental Items" proposal has been included for use when designated by the **ENGINEER**. The unit price bid for Supplemental Items should be realistic, reflecting payment required to perform the designated task. Supplemental items are not to be considered part of the base bid proposal; when required for use these items must be change ordered into the contract.
4. A Pre-Bid Conference will be held. The date and time of day to be determined.
5. The **CONTRACTOR** shall provide the **OWNER**, upon request, with a financial statement and experience record.
6. The **CONTRACTOR** is requested to use local workmen when possible.
7. Prevailing wage scale for this area must be paid.
8. When conflicts exist between Special Provisions and General Specifications, the Special Provisions shall control.

9. Where there is conflict of measurement designation between the specifications and the proposal, the unit of measure indicated on the proposal shall govern.
10. The **ENGINEER** shall furnish control lines for alignment and convenient benchmarks when required for the control of grades. Any additional stakes required by the **CONTRACTOR** shall be set at his expense. When necessary, work shall be suspended to permit this work, but such suspension will be as brief as practicable, and the **CONTRACTOR** shall be allowed no extra compensation therefor. The **CONTRACTOR** shall give the **ENGINEER** ample notice of the time and place where control lines and benchmarks will be needed. All control stakes, marks, etc., shall be carefully preserved by the **CONTRACTOR**, and in case of careless destruction or removal by him, or his employees, such control stakes, marks, etc., shall be replaced by the **ENGINEER** at the **CONTRACTOR'S** expense.

11. Safety Standards and Accident Prevention

With respect to all work performed under this contract, the **CONTRACTOR** shall:

- a) Comply with safety standard provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction", published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of Code Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.
 - b) Always exercise every precaution for the prevention of accidents and the protection of person (including employees and property).
 - c) **ANY QUESTIONS ARISING ON THE PLANS AND SPECIFICATIONS MUST BE SUBMITTED TO THE ENGINEER IN WRITING PRIOR TO BID OPENINGS.**
12. Regardless of culpability, the **CONTRACTOR** shall not be allowed to take advantage of any errors or omissions in these plans and specifications or his work orders. The **CONTRACTOR** is required to notify the **ENGINEER** of all errors or omissions as soon as he becomes aware of them. Suitable instructions will be given to the **CONTRACTOR** by the **ENGINEER** when such errors or omissions are discovered. No compensation for any delay or down time, including time to receive the **ENGINEER'S** instructions or approval, shall be allowed. Further, any errors and/or omissions contained in the plans and/or specifications do not absolve the **CONTRACTOR** from ultimate and final responsibility for the successful completion of this project to the satisfaction of the **ENGINEER**. The

degree of detail reflected in the plans or lack of same does not absolve the **CONTRACTOR** from the necessity of conducting an extensive investigation of the project area prior to submission of his/her bid. The **CONTRACTOR** will not be due any additional compensation for difficulties arising out of his/her failure to inspect, analyze the actual job site prior to submission of his/her bid.

13. The **CONTRACTOR** is expected to be completely familiar with the provisions contained in these specifications. The **CONTRACTOR** will not be allowed any additional payment or extension of time due to difficulties caused by his/her failure to acquaint himself/herself with this document.
14. Any and all work which, in the opinion of the **ENGINEER**, is necessary to complete the project and which is neither specifically listed and/or identified in the bid proposal items not elsewhere in these specifications, shall be considered incidental to the work and the **CONTRACTOR** will not be due any additional payment for completion of said required work.
15. Liquidation damages for delay beyond specified time for completion is \$500.00 per day.

16. **Warranty**

The **CONTRACTOR** and/or his Surety will be required by the **OWNER** to repair, replace, restore, and/or to make to comply strictly in all things with the contract, and the plans and specifications, and any and all of said work and/or materials which within a period of **one year** from and after the date of the passing, approval, and/or acceptance of any such work or materials are found to be defective, or to fail in any way to comply with this contract or with the plans and specifications. **An anniversary inspection date will be established by the OWNER prior to issue a certificate of completion.**

17. The **OWNER** reserves the right to control the sequence of work. The **CONTRACTOR** shall submit a Construction Schedule for approval prior to beginning work.

18. **Permits, Licenses and Laws**

The **CONTRACTOR** shall obtain at his own expenses, all necessary permits and licenses from the proper authorities and shall give all notice required by law or ordinance and shall pay all fees and charges incidental to the due and lawful prosecution for the work and shall comply with all laws, ordinances and regulations relating thereto.

19. Although trade names for materials may have been used in the Proposals and Plans for this project, it is intended that materials of equal quality will be acceptable on approval of the **ENGINEER** and the **OWNER**. Approval shall be obtained prior to receiving bids.
20. All materials for this project shall meet AWWA Specifications and requirements.
21. Pipe for this project shall be as indicated below: (a) Above ground installation pipe shall be ductile iron with flanges and shall conform to ANSI/AWWA C115/A21.5. Threads for flanges shall be taper pipe threads in conformity with ANSI B2.1; flanges are to meet all requirements of ANSI/AWWA C151/A21.51.

(b) Below ground installation pipe from the tank facility to the distribution system, shall be SDR-26 Class 160 PVC. Gaskets shall conform to ASTM F477; push on joints ASTM D3139, and PVC materials ASTM 1784.
24. Fittings "below ground" for this project shall be mechanical joint, ductile iron short body, AWWA-C153/A 21.53, cement-lined in accordance with AWWA-C104/A 21.4. Contractor shall furnish enough thrust blocking on all pipes fitting when applicable.
25. Gate valve for this project shall be resilient seat gate valve.
26. All pipes shall be installed in strict accordance with the manufacturer's recommendations in accordance with various related installation guides of handbooks, field representatives and as directed by the **ENGINEER**.
27. Waterlines under ground will have a minimum cover of 30".
28. Disinfection of proposed facilities shall be performed by the **CONTRACTOR** and should comply with current AWWA Standards C651, C652 and C564, which are for water mains, storage tanks and wells. Specifications are revised to concur with this Special Provision.
29. The Contract is issued by an organization which qualified for exemption pursuant to the provisions of Article 20.04 (F) of the Texas Limited Sales, Excise and Use Tax Act. The **CONTRACTOR** performing this Contract may purchase, rent or lease all material, supplies, equipment used or consumed in the performance of this Contract by issuing to his suppliers and Exemption Certificate in lieu of the tax, said Exemption Certificate complying with State Comptroller's ruling #95-0.07.
30. Bidders are advised that **OWNER** reserves the right to reduce any proposal by any amount, in accordance with General Conditions of the Agreement.

31. If a bidder desires to make qualifications in his bid, it shall be done in writing, attached to and submitted with his sealed bid.
32. The **CONTRACTOR** is responsible for any damage resulting from material entering or leaving the project site related to and during tank erection, cleaning, blasting, and painting operations. The **CONTRACTOR** will take the necessary steps to prevent these occurrences and damage to owner's property or adjacent properties.
33. **Utilities**

It shall be the **CONTRACTOR'S** responsibility to contact public and private utility companies of the proposed work and work schedule. Contact is to be made in advance of construction, allowing each their respective lead time to locate and to obtain adjustment as necessary, of water, electric, telephone and gas mains or service lines. The **CONTRACTOR** shall also notify various utility companies of changes to the proposed work and work schedule. The **CONTRACTOR** will verify the existing utility or pipelines horizontal and vertical locations prior to initiation of construction. No additional compensation will be allowed for any extra excavation incurred or downtime, which results from the required location of existing utilities. Any damage to utilities as a result of the **CONTRACTOR'S** negligence will be repaired to the satisfaction of the **OWNER** of the damaged utility with no compensation due the **CONTRACTOR**.
34. All surplus excavated materials shall become the property of the **CONTRACTOR**, to be disposed of as the **CONTRACTOR** wishes and as directed by the **ENGINEER**. Suitable material may be retained to facilitate site drainage about the tank as directed by the **ENGINEER**.
35. All concrete for this project will be 3000 psi at 28 days. Concrete containing a concrete mixture temperature of 100° or greater at time of placement shall not be allowed.
36. All materials for this project shall meet AWWA specifications and requirements.
37. Contractor shall furnish thrust blocking at all pipe fittings, reducers, etc.
38. All water used for testing and chlorination on this project shall be furnished by the **OWNER**.
39. If disruption to the water system occurs as a result of construction activities, water line materials used in the repair of the Public Water System shall be new and meet current AWWA specifications and requirements.



SUMMARY OF WORK

FURNISH all labor, materials, equipment, insurance, payroll, taxes, permits, and supervision required to install approximately 17,000 linear feet of 10-inch water line and appurtenances. All water lines installed will have a minimum burial depth of 30 inches.

Owners existing drinking water plant site located on FM Highway 365 has adequate acreage to provide storage for materials delivered for the project, allowing lesser quantities of pipe to be left in the field.

FINAL CLEANUP

CONTRACTOR is to level all excess excavated materials and fill ruts to maintain drainage, remove all excess construction materials and leave surrounding area clean to the satisfaction of the owner.

Specifications for Waterlines and Appurtenances

1.0 DESCRIPTION OF THE WORK

The work to be done comprises the furnishing of all materials, all equipment, tools, transportation, services, labor and superintendence necessary for the construction and completion of improvements to the existing water system and appurtenances, including setting Flushing Valves; making wet connections between proposed lines and existing lines; sheeting, bracing, and supporting the adjacent ground of structure where necessary; handling all drainage or ground water; replacing damaged water and sewer service lines, conduits, ducts, etc; backfilling the trench and pits; removing surplus excavated materials; sterilizing the complete pipeline; removing and replacing street base and surfaces; and other incidentals required to complete the work.

2.0 BASIS OF PAYMENT

All of the work outlined above and as shown on the drawings is included in the several items of the proposal for which unit or lump sum prices are shown, and these prices shall be the basis of payment.

3.0 MEASUREMENTS OF QUANTITIES

The quantities of work to be performed will be computed by the **ENGINEER** on the basis of measurements taken by the **ENGINEER** or his assistant, and these measurements shall be final and binding. All work computed under the Contract shall be measured by the **ENGINEER** according to the United States Standard Measurements and Weights.

4.0 SURFACE AND SUB-SURFACE INFORMATION NOT GUARANTEED

Sub-Surface and surface information shown is for the general information of the bidders and is not guaranteed.

5.0 MATERIALS FOUND ON WORK

All pipe, fittings, equipment, and other serviceable materials found on the site of the work, or dismantled by reason of construction required in these specifications, shall remain the property of the **OWNER**. Unless otherwise specified, such materials shall be delivered to the **OWNER** at such point or points as the **ENGINEER** may direct. The **CONTRACTOR** shall be responsible for all materials to be removed and reinstalled in the new work, until such time as the project is accepted by the **OWNER**.

6.0 BARRICADES AND WARNING SIGNS

Where the **CONTRACTOR'S** operations create, in the opinion of the **ENGINEER**, a hazard to traffic or public safety, the **CONTRACTOR** shall furnish and maintain suitable barricades, warning signs, and lights, and shall remove same where no longer necessary; this work is to be considered subsidiary to the several items for which unit prices are shown in the proposal.

7.0 RIGHTS-OF-WAY AND EASEMENTS

The **OWNER** shall furnish all rights-of-way and easements required.

8.0 SUB-SURFACE EXPLORATION

Whenever necessary to determine the location of existing storm sewers, sewer mains and services, water mains and service valves, gas mains and services, telephone and electrical conduits, and other underground structures, the **CONTRACTOR**, after an examination of available records and through cooperation with the **OWNER** shall make all explorations and excavations for such purpose at his own expense. It is not represented that the Plans show all underground structures.

9.0 PUBLIC UTILITIES AND PRIVATE PROPERTY

- A. The **CONTRACTOR** shall protect any building or other property which, in the opinion of the **ENGINEER**, may be endangered during the procedure of the work and shall leave it in as good condition as when found. Where sewer mains, sewer services, telephone or electrical conduits, poles, gas mains and services, water mains and services, and facilities of other public utilities are encountered, protection shall be given in all cases.
- B. Where excavation is made below existing utilities, the **CONTRACTOR** shall substantially support, with wood blocks, concrete beams, or by any other units so that same may be left in good working condition with no danger of after-settlement. Lines considered substantially self-supporting by the **ENGINEER** will not require concrete beams. No direct compensation will be made to the **CONTRACTOR** for this work, as this work is considered subsidiary to the several items for which unit prices are shown in the Proposal.
- C. The **CONTRACTOR** shall be responsible for damage to private and public property and shall replace damaged property or make satisfactory restitution at no cost to the **OWNER**.

10.0 DEVIATIONS OCCASIONED BY UTILITY STRUCTURES

Whenever existing utilities present obstructions to the grade and alignment of the pipe, the **CONTRACTOR** shall immediately notify the **ENGINEER** who will determine whether the existing improvements are to be relocated or the grade and alignment of the pipe changed. Where it is necessary to move services, poles, guy wires, pipelines or other obstruction, the **CONTRACTOR** will make all arrangements with the **OWNER** of utilities. The **OWNER** will not be liable for damages on account of delays due to changes made by the owners of privately owned utilities which delays or hinder the progress of the **CONTRACTOR**.

11.0 SERVICE CONNECTIONS TO UTILITIES

The **CONTRACTOR** shall exercise care so as not to interrupt house connections to sewer, water or gas mains. The Water Department and owners of the other utilities will cooperate with the **CONTRACTOR** in pointing out locations of know connections. The **CONTRACTOR** shall be responsible for the actual uncovering of pipelines ahead of the trenching machine. The **CONTRACTOR** will be expected to lift the trenching machine

over such connections or to cut and reconnect connections with minimum interruption of service, all at his own expense and to the satisfaction of the **ENGINEER**. The **CONTRACTOR** shall, at his own expense, replace any sewer, water, gas, telephone, telegraph, or electric service that has been cut or broken.

12.0 FENCES

Where it is necessary for the **CONTRACTOR** to take down fences, signs or other obstructions, this shall be done at his own cost and they shall be replaced in their original condition at the **CONTRACTOR'S** expense.

13.0 USE OF STREETS

- A. As soon as the work on any block is complete, unless otherwise directed by the **ENGINEER**, each block shall be opened for public use and all accumulated or surplus rubbish removed. The use of any portion of such street shall not be deemed or held to constitute an acceptance of any portion of the work. All trenches across intersections or driveways shall be properly backfilled and shaped for safe traffic at night. In some instances, where permitted by the **ENGINEER**, the **CONTRACTOR** will be permitted to span open trenches with wooden mats or bridges to permit traffic flow. When driveways are cut, immediate placement of mats for ingress or egress of automobiles may be directed by the **ENGINEER** in instances where undue hardship to a property owner could otherwise result.
- B. Travel upon the street or upon an intersecting alley or street shall not be hindered or needlessly inconvenienced for more than two blocks at any one time, except in special cases where a greater space may be allowed by the **ENGINEER**. Whenever a street is closed, the **CONTRACTOR** shall cause a plain, properly worded sign announcing the fact to the public to be placed with proper barricade at the nearest street corner, on both sides of such obstruction. No street or driveway shall be blocked at night.
- C. The **CONTRACTOR** shall notify the Chief of the Fire Department and/or the Chief of Police and/or the Sheriff's Office when a crossing is closed and shall not obstruct access to Flushing Valves.
- D. Ditches, inlets, Flushing Valves, etc., shall not be blocked by the **CONTRACTOR**. If it is necessary to place boxes, temporary drainage, or any other structure to take care of drainage, this shall be done at the **CONTRACTOR'S** expense without extra compensation.

14.0 INTERRUPTION OF WATER SERVICE AND SHUT-OFFS

No valve or other control on the existing water distribution system shall be operated for any purpose by the **CONTRACTOR** without official approval. Whenever it becomes necessary at any time during the progress of the work to partially or wholly shut off or control any part of the existing water distribution system, the **CONTRACTOR** shall apply

for approval from the **ENGINEER**. The Water Department will handle the work of operation of gate valves or other controls without cost to the **CONTRACTOR**.

15.0 UTILITY SERVICES

Water required for construction purposes will be furnished without cost to the **CONTRACTOR** at the nearest Flushing Valve or water main, except that the **CONTRACTOR** shall pay for the necessary tap and temporary meter installation and extend the necessary pipe or hose service line to the work site at his own expense. If the **CONTRACTOR** requires temporary electrical service, he shall arrange and pay for same through the local power agency.

16.0 PATENTS

All equipment furnished and processes or methods employed in fulfilling this Contract, which are patented, shall not obligate the **OWNER** beyond the agreed contract price. The **CONTRACTOR** shall include royalties, fees, and all other pertinent cost in his Contract prices.

17.0 DETAILED SPECIFICATIONS

Several items of these specifications cover general construction requirements in a comprehensive manner, and only such portions of these items as relate directly to the work specifically required under this Contract shall apply.

18.0 CLEANING UP

The **CONTRACTOR** shall, as directed by the **ENGINEER**, remove from the **OWNER'S** property and from all public and private property, at his own expense, all temporary structures, rubbish and waste materials, including excess excavated materials, resulting from his operation.

19.0 LINES AND GRADES

The **ENGINEER** will establish reference points at all turns in the lines and at intervals agreed upon; from these the **CONTRACTOR** shall stake out all work and establish all levels and measurements required, and the **CONTRACTOR** shall be responsible for the accuracy of all measurements beyond the reference points.

20.0 MAIN WATER LINES

20.1 DESCRIPTION

This item shall govern the construction of water lines and appurtenances and connections with the existing water distribution system as shown on the plans, as directed by the **ENGINEER**, and as described in these Specifications.

20.2 MATERIALS

20.2.1 DUCTILE IRON PIPE & FITTINGS

1. GENERAL

These Specifications cover the furnishing and the installing of ductile iron pipe and ductile iron fittings, including taps, connections, and appurtenances as required for a functional system as indicated herein.

- (a) All ductile iron pipe furnished under the Specifications shall be manufactured by either of the following processes:
 - 1) Nominal sizes 4-inch through 24-inch centrifugally cast in Metal Molds and Sand Lined Molds in conformity with AWWA Standard Specifications C151/A21.51-96 except as may be herein modified.
- (b) All ductile iron pipe furnished under the specifications shall be in agreement with AWWA Standard Specifications C150/A21.50-96 and C151/A21.51-96.
- (c) All pipe shall be AWWA Class 150 standard weight and wall thickness for installation in flat-bottom trenches with tamped backfill of four (4) foot cover. Joints shall be flange, mechanical joint, or of the push-on type as specified and furnished in nominal 16 or 18 foot lengths. Rubber gasket joints shall conform with American Standards' Association Specification C111/A21.11-95.
- (d) All pipe shall be furnished with standard outside coatings consisting of coal tar. Inside surface of nominal pipe sizes 4-inch through 48-inch shall be Cement Mortar lined to standard thickness and sealed in conformity with AWWA Standard Specifications C104/A21.4-95.
- (e) All pipe shall be acceptable, without penalty, to the Texas Fire Insurance Commission for use in Water Works Distribution Systems.

The plans show size, approximate location and arrangement for all piping and responsibility for exact "make-up" rests with the CONTRACTOR.

2. FITTINGS

- (a) All fittings shall be short body ductile iron designed and manufactured in conformance with "AWWA Standard Specifications" C110/A21.10-98 revision thereto.
- (b) Fittings shall be furnished with the type of joint and end combinations as well as pressure class specified. Mechanical joint fittings shall be furnished complete with glands, gaskets and bolts. All bolts shall be coated according to provisions of Item 600, Section 600.29.

Push-on fittings shall be furnished complete with joint gaskets and lubricant. Flange joint fittings shall be furnished complete with gasket and bolts.

All mechanical joint pipe and fittings shall be supplied with ductile iron T-Head bolts with hexagonal nuts and shall comply with ASTM A536 ANSI-AWWA standard specification C-111/A21.11-95.

- (c) All fittings shall be furnished with standard outside coatings consisting of coal tar. Fittings shall be cement mortar lined and sealed in conformity with AWWA Specification C104/A21.4-95.

A testing laboratory as designated by the OWNER shall inspect and test all pipes; the cost of the inspection will be stipulated elsewhere in the specifications.

20.2.2 POLYVINYL CHLORIDE (PVC) – WATER PIPE

- (1) **SCOPE:** This specification covers the furnishing of PVC pressure pipe for potable water projects as designated on project drawings.
- (2) **PIPE AND FITTINGS:** All PVC water pipe and fittings shall be manufactured in accordance with one of the following Standard Specifications:
- i) **AWWA SDR26 CL160:** Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. through 12 in. (100 mm through 300 mm) for Water Distribution.
 - ii) **AWWA C900:** Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. through 12 in. (100 mm through 1,200 mm), for Water ion and Distribution.
 - iii) **AWWA C905:** Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 in. through 48 in. (350 mm through 1,200 mm), for Water ion and Distribution.
 - iv) **AWWA C907:** Polyvinyl Chloride (PVC) Pressure Fittings for Water – 4 in. through 8 in (100 mm Through 200 mm).
 - v) **AWWA C909:** Molecularly Oriented Polyvinyl Chloride (PVCO) pressure Pipe, 4 in. through 24 in. (100 mm through 300 mm), for Water Distribution.
 - vi) **ASTM D2241:** Poly Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR PR Series)
- (3) **JOINTS:** Pipe joints shall be gasket, push-on type. Gaskets shall be part of a complete pipe section and purchased as such. Lubricant shall be as recommended by the pipe or fitting manufacturer and shall not adversely affect the potable qualities of the water to be transported. The gasketed joint shall meet the laboratory performance requirements specified in ASTM D3139. (This is a qualification test to verify a leak-free design of the specified joint.)
- (4) **CERTIFICATIONS:** PVC water pipe shall be certified to NSF International Standard No. 61.
- (5) **ACCEPTANCE:** Pipe may be rejected for failure to comply with any requirement of this specification **CAST IRON FITTINGS**

20.2.3 VALVES, TAPPING SLEEVE, TAPPING CROSSES, TAPPING VALVES AND VALVE BOXES

1. Gate Valves: - Gate valves shall conform to AWWA C515 and as specified under "Resilient Wedge Gate Valves Sizes 4" Thru 66."
2. Tapping Sleeves, Tapping Crosses, and Tapping Valves - Tapping sleeves, tapping crosses, and tapping valves shall be *Mueller No. 615, 715, and 667*, respectively, or approved equal.
3. Valve Boxes - Valve boxes shall be *Mueller No. H-10364*, or approved equal, of proper length.

20.3 LAYING PIPE

A. GENERAL

Unless specifically indicated on the plans or called for in Specifications, water lines shall be constructed of mechanical joint pipe or SDR26 CL160, with mechanical joint fittings and valves.

B. CONSTRUCTION METHODS

1. FIELD INSPECTION

All pipe and accessories shall be laid, jointed, tested for defects and for leakage with pressure and chlorinated in the manner herein specified in the presence of the **ENGINEER** or his authorized inspector, and subject to their approval.

2. HANDLING PIPE AND ACCESSORIES

- a) Care - Pipe, fittings, valves and other accessories, shall unloaded at the point of delivery, hauled to and distributed at the site of the project by the **CONTRACTOR**; they shall at all times be handled with care to avoid damage. In loading and unloading they shall be lifted by hoists or slid or towed on skidways in such manner as to avoid shock. Under no circumstances shall they be dropped. Pipe handled on skidways must not be skidded or rolled against pipe already on the ground.
- b) At Site of Work - In distributing the material at the site of the work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench and shall be laid on high ground so that it will not be in a drainageway.

- c) Pipe Kept Clean - The interior of all pipe, fittings, and other accessories shall be kept free from dirt and foreign matter at all times.

3. ALIGNMENT AND GRADE

- a) General - All pipe shall be laid and maintained in the required lines and grade with fittings and valves at the required location, and with joints centered and spigots home, and with all valve stems plumb.
- b) Depth of Pipe Cover - Where pipe is laid in roadways and parkways of streets, the top of barrel or pipe shall have a minimum depth of 36 inches below the curb line of the street or where no curb line has been estimated, below the existing ground line. Where the pipe is laid in open, unsubdivided areas, the top of barrel of pipe shall have a cover of 36 inches. A greater depth of cover is required for certain sections of the main, such as railroad crossings, valve locations and other sections of special construction where necessary to avoid abrupt changes in grade. No additional payment will be allowed for extra excavation involved in this procedure.

4. TRENCH SAFETY SYSTEMS AND EXCAVATION AND PREPARATION OF TRENCH

- a) Trench Safety System
 - i) Description - This item shall govern for the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project and including all additional excavation and backfill necessitated by the protection system. A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but width of a trench (measured at the bottom) is not greater than 15 feet.
 - ii) Construction Methods - Trench safety systems shall be accomplished in accordance with the design set out in the provisions of Excavations, Trenching, and Shoring, Federal Occupational Safety and Health Administration Standards, 29CFT, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on Wednesday, April 15, 1987, and any revision to the "Proposed Rules" issued prior to the bid date. The sections that are incorporated into these specifications by reference include Section 1926-650 through 1925-653.

Legislation that has been enacted by the Texas Legislature (H.B. No. 662 and H.B. No. 665) with regard to Trench Safety Systems, is hereby incorporated, by reference, into these specifications.

If the **CONTRACTOR** elects to use a trench protective system that, in the Proposed Rules, required "Design by a qualified person or a qualified engineer", (For example see 1926.652 (b) (3) and 1926.652 (c) (4)), the qualified person or qualified engineer shall be a Professional Engineer registered in the State of Texas.

- iii) Inspection - The **CONTRACTOR** shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the **CONTRACTOR**. If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the **CONTRACTOR** to safeguard personnel entering the trench. It is the sole duty, responsibility and prerogative of the **CONTRACTOR**, not the **OWNER** or the **ENGINEER**, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The **CONTRACTOR** shall maintain a permanent record of daily inspections.
- iv) Indemnification - The **CONTRACTOR** shall indemnify and hold harmless the **OWNER**, its employees and agents, including the **ENGINEER**, from any and all damages, costs (including, without limitation, legal fees, court costs, and the cost of investigation), judgements or claims by anyone for injury or death of persons resulting from the collapse or failure of trenches constructed under this contract.
- v) Payment - Payment for Trench Safety Systems shall be made according to the monthly progress payment method described in the General Conditions (As a percent Complete of the lump sum bid price in the proposal and schedule of values). Payment of all work prescribed under this item shall be full compensation for the Trench Safety Systems including any additional excavation and backfill required, for furnishing, placing and removing all shoring, sheeting, or bracing, for dewatering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment and incidentals necessary to complete the work.

All timber furnished shall be free from seriously weakening defects such as large knots and splits, solid and sound, sufficient in strength without increased thickness and suitable for the use intended. All sheeting left in the trench shall, before the backfilling is completed

be cut off not less than two (2) feet below the surface of the ground. At roads, the sheeting shall be cut off not less than two (2) feet below the proposed elevation for the top of the nearest adjacent curb.

- i) Description - The trench shall be excavated to the alignment and depth required and not to exceed 200 feet in advance of pipe laying. The trench shall be braced if necessary and drained so that workmen may work therein, safely and efficiently. It is essential that the discharge from any pumps be led to natural drainage channels, to drains, or to storm sewers.
- ii) Width - All trenches shall be of sufficient width to provide ample working space on each side of the pipe for maintaining a straight line of pipe. A bell hole of sufficient size to allow making a perfect joint shall be excavated at all pipe bells.
- iii) Pipe Foundation in Earth - The pipe shall be laid upon a found earthen foundation cut true and even so that the barrel of the pipe will have a bearing for its full length.
- iv) Correcting Faulty Grade - Any part of the trench excavated below grade shall be corrected with approved material and thoroughly compacted.
- v) Bell Holes Required - Bell holes of ample dimension shall be excavated in trenches at each joint to permit the jointing to be made properly.
- vi) Braced and Sheeted Trenches - Wherever necessary to prevent caving, excavations shall be adequately sheeted and braced. Where sheeting and bracing are used, the trench width shall be increased accordingly. Trench sheeting shall remain in place until the pipe has been laid, tested for defects and repaired if necessary, and the earth around it compacted to a depth of two feet over the top of the pipe.
- vii) Care of Surface Materials for Re-Use - If local conditions permit their re-use, in storing the surface material shall be kept separate from the general excavation materials.
- viii) Manner of Piling Excavated Material - All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing provisions made for street drainage.
- ix) Trenching by Machine or by Hand - The use of trench-digging machinery will be permitted except in places where operation of same will

cause damage to existing structure above or below ground; in which case, hand methods shall be employed. Excavation shall be made by ladder type trenching machine. Backhoe or dragline excavation will be permitted only when trenching machine excavation is impracticable and then only by permission of the ENGINEER.

5. PIPE HANDLING

- a) Manner of Handling Pipe and Accessories into Trench - Proper implements, tools and facilities shall be provided and used by the **CONTRACTOR** for the safe and convenient prosecution of the work. All pipe, fittings, and valves shall be carefully lowered into the trench piece by piece by means of derrick ropes or other suitable tools or equipment, in such manner as to prevent damage to pipe or pipe coating. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.
- b) Hammer Test - Before lowering and while suspended, the pipe shall be inspected for defects and rung with a light hammer to detect cracks. Any defective, damaged or unsound pipe shall be rejected.
- c) Pipe Kept Clean - All foreign matter or dirt shall be removed from the pipe and it shall be kept clean by approved means during and after laying.
- d) Laying the Pipe - The spigot shall be centered in the bell, the pipe forced "home" and brought into true alignment; it shall be secured there with earth carefully tamped under and on each side of it, except at the bell holes. Care shall be taken to prevent dirt from entering the joint space. No "blocking up" of pipe or joints will be permitted. The joint shall be made as hereinafter described.
- e) Preventing Trench Water from Entering Pipe - At times when pipe laying is not in progress, the open ends of pipe shall be closed. By approved means, and no trench water shall be permitted to enter the pipe.
- f) Cutting Pipe - Cutting of pipe for inserting valves fittings, or closures pieces shall be done in a neat and workmanlike manner without damage to the pipe.
- g) Bell Ends to Face Direction of Laying - Unless otherwise directed, pipe shall be laid with bell ends facing in the direction of laying; and for lines on an appreciable slope, bells shall, at the discretion of the ENGINEER, face upgrade.

- h) Permissible Deflections at Joints - Wherever necessary to deflect pipe from a straight line, either in the vertical or horizontal plans to avoid obstructions, to plumb stems or for any other reason, the degree or deflection shall be approved by the ENGINEER.
- i) Unsuitable Conditions for Laying Pipe - No pipe shall be laid in water, or when the trench conditions or the weather is unsuitable for such work, except in emergency designated by the ENGINEER.

6. JOINTING PIPE MECHANICAL JOINTS

The following steps shall be taken in making mechanical joints:

- a) All lumps, blister, coal-tar enamel shall be removed from socket and spigot of the pipe.
- b) Wash socket and plain end with soapy water, containing chlorine solution; then slip gland and gasket over plain end. The small side of gasket and lip of gland shall face bell.
- c) Paint gasket with soapy water containing chlorine solution.
- d) Push gasket into position, being sure it is evenly seated in socket.
- e) Slide gland into position; insert bolts and run nuts up finger tight.
- f) Tighten bolts to uniform tightness with ratchet wrench. The first bolt tightened shall be the bottom bolt, then the top. All other bolts shall be tightened in a sequence at 180 degrees apart.

7. SETTING VALVES, VALVE BOXES, FITTINGS

- a) General - Gate Valves and pipe fittings shall be set and jointed to new pipe in the manner heretofore specified for cleaning, laying and jointing pipe.
- b) Valve Boxes and Manhole - Cast iron valve boxes shall be firmly supported, and maintained centered and plumb over the wrench nut of the gate valve, with box cover flush with the surface of the surface of the finished pavements or at such other level as may be directed.

8. PLUGGING DEAD ENDS

9. CONCRETE BACKING

Concrete having compressive strength not less than 1500 pounds per square inch shall be used as a cradle or backing where directed by the ENGINEER. Bends exceeding 22½ degrees, crosses with one opening plugged and all tees shall be backed with concrete as a trust backing. Backing shall be placed between solid ground and the fitting to be anchored; the area of bearing on pipe and on

ground shall be; in each instance, that required by the ENGINEER. The backing shall, unless otherwise directed, be so placed that the pipe and fitting joints will be accessible for repair. No extra payment will be made for concrete in backing.

10. **BACKFILLING, CLEANING UP AND MAINTAINING SURFACES**

- a) **Time of Backfilling** - As soon as practicable after the completion of laying and jointing of the pipe, the trench shall be backfilled; and at no time shall the complete backfilled trench be more than 300 feet behind the pipe laying.
- b) **Backfill Procedure at Pipe Zone** - Selected backfill material, free from rock fragments, shall be deposited in the trench simultaneously on both sides of the pipe for the full width of the trench and to an elevation of six inches above the top of the barrels of pipe. The backfill material shall be moistened, if necessary, tamped in thin (about 4-inch) layers, and thoroughly compacted under and on each side of the pipe to provide solid backing against the external surface of the pipe.
- c) **Backfill Procedure Above Pipe Zone** - Succeeding layers of backfill may contain coarse materials, and shall be compacted thoroughly by puddling with hose and long pipe nozzle, or by flooding the trench, or by tamping if the material does not puddle readily. It is important that proper precautions are taken to prevent floating of the pipe when flooding the trench, and **CONTRACTOR** shall be wholly responsible for neglect of these precautions. The **OWNER** will furnish without charge to the **CONTRACTOR** at some convenient point on the present system such water as may be necessary in backfilling operations.
- d) **Rock and Rock Fragment Exclusion** - No rock and rock fragments shall be used in the backfill for at least one foot above the top of the pipe and no stone larger than eight inches in its greatest dimension shall be used in the backfilling.
- e) **Procedure Where Settlement is Important** - Where it is important that the surface of the backfill be made safe for vehicular traffic at unpaved street crossing and along existing unpaved streets, the upper thirty-six inches of backfill shall be approved moist material, thoroughly compacted in eight inch layers by tamping, and shall be brought to the required surface grade.
- f) **Procedure Where Settlement is Unimportant** - Where pipe is laid behind curbs or outside of District streets, tamping may be omitted in the layers above those described under Paragraph 1 (2) and the backfill shall be neatly rounded over the trench to a sufficient height to allow for settlement to grade after consolidation.

- g) Deficiency of Backfill, by Who Supplied - Any deficiency in the quantity of material for backfilling the trenches, or for filling depressions caused by settlement, shall be supplied by the **CONTRACTOR**.
- h) Restoration of Surfaces - The **CONTRACTOR** shall replace all curbing, side walks, gutters, shrubbery, fences, sod, and other surfaces disturbed to a condition equal to that before the work began, furnishing all labor and material incidental thereto and complete the work in a manner satisfactory to the **ENGINEER**. Replacement of street base and surfaces removed to permit installation of pipelines shall be as provided for elsewhere in these specifications.
- i) Backfill Under Paved Surfaces - In backfilling trenches where gravel, rock, asphalt surfacing, brick or concrete pavement has been cut in making the excavation, the following procedure shall be followed. The ditch shall be filled with selected earth, free from stone and thoroughly compacted with hand tampers of approved weight. The ditch shall then be water soaked thoroughly. Backfilling shall be discontinued a sufficient distance below the surface to allow for pavement replacement. The surfacing material shall be placed and the roadway replaced with the same kind of improvement that was removed in excavating the trench. The finished surface shall conform to the remainder of the roadway. Pavement shall be replaced in accordance with the specifications contained herein under "Replacing Street Surfaces". No additional payment will be allowed beyond the unit prices bid per lineal foot for pipe in place, for backfilling, flooding, tamping and replacing street surfacing.
- j) Surplus Earth - Surplus excavated material from trenches in streets or at railroad crossing shall be disposed of by the **CONTRACTOR** at his expense and in a manner satisfactory to the **ENGINEER**.
- k) Cleaning Up - Surplus pipe line materials, tools, surplus excavated materials, rubbish and temporary structures shall be removed by the **CONTRACTOR** and the construction site shall be left clean, to the satisfaction of the **ENGINEER**. The line shall be cleaned up immediately after satisfactory pressure test has been made.

20.4 WATER PIPE POST - INSTALLATION TEST: HYDROSTATIC TEST

A post - installation hydrostatic test shall be performed on the installed system in accordance with AWWA C605. The **CONTRACTOR** shall furnish the pump pipe connection, necessary apparatus, gauges, meters and all necessary labor and assistance for conducting the tests. The **OWNER** will furnish, through connections made by **CONTRACTOR** to existing mains, water for filling line and making tests.

a) TEST PROCEDURE:

Each valve section of pipe shall be slowly filled with water at a maximum velocity of 1 fps (0.3 m/s) while venting all air. Precautions shall be taken to prevent entrapping air in the lines. The specified test pressure, measured at the point of highest elevation, shall be supplied by means of a pump connected to the pipe in a satisfactory manner.

- i) Water lines installed shall be subject to a four (4) hour duration test at a test pressure of 150 psi. Test will not begin if pressure exceeds 150 psi; once the test pressure has been established at 150 psi the test will begin. Test pressure shall not drop more than 5 psi below the established testing pressure. Testing of the water lines shall not exceed 2,000 feet.
- ii) Following completion of the second hour of testing if the field tester observes that no movement has occurred from the initial 150 psi starting test point, the test may be deemed successful thereby terminating the test following two complete hours.
- iii) Following completion of the second hour of testing if the field tester observes pressure drop from the initial 150 psi starting test point, water is to be added to the test section until the initial 150 psi starting point is reestablished, after which the test will continue an additional hour.
- iv) Following the completion of a full three (3) hours of testing, if the field tester observes no pressure drop at the end of the third hour, the test may be deemed successful thereby terminating the test after three full hours.
- v) Following the completion of the third hour of testing, if the volume of water added to reestablish the initial 150 psi starting point is within the **allowable volume** derived from the test formula, the test should continue for the fourth hour to validate completion of the four hour test procedure, and confirm that there is either no additional pressure drop, or the volume of water to reestablish the initial 150 psi starting point remains within the allowable calculated water loss per thousand feet of pipe tested.

vi) Allowable Leakage

The maximum allowable leakage for push-on joints is the number of gallons per hour as determined by the following formula:

$$\text{Allowable Leakage, } L = \frac{SD\sqrt{P}}{148,000}$$

Where:

- L = Allowable leakage in *gallons per hour*
- S = Length of pipe tested in *feet*
- D = Nominal diameter of the pipe in *inches*

$P =$ Average of the max. and min. pressures within the test section in pound per square inch (psi).

The above equation and Table-1 in this section are based on a leakage rate of 10.5 gallons per day per mile per inch of nominal diameter of pipe.

b) Examination Under Pressure

At intervals during the test, the routed of the pipeline shall be inspected to locate any leaks or breaks. Any defective joints, cracked or defective pipe, fittings, or valves discovered in consequence of this pressure test shall be removed and replaced with sound material in the manner provided, and the same test shall be repeated until satisfactory results are obtained.

c) Variation from Permissible Leakage

Should any test of combined sections of pipe laid disclose leakage of pipe greater than that specified, or if individual sections shown leakage greater than the specified limit, the **CONTRACTOR** shall, at his own expense, locate and repair the defective joints until the leakage is within the specified allowance.

TABLE-1: Allowable Leakage (gal/hr) per 1000 ft of gasketed PVC or DIP pipe

Nominal Pipe Size (in)	Average Test Pressure in Pipe, psi																			
	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450			
2	0.10	0.12	0.14	0.15	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29			
4	0.19	0.23	0.27	0.30	0.33	0.36	0.38	0.41	0.43	0.45	0.47	0.49	0.51	0.52	0.54	0.56	0.57			
6	0.29	0.35	0.41	0.45	0.50	0.54	0.57	0.61	0.64	0.67	0.70	0.73	0.76	0.79	0.81	0.84	0.86			
8	0.38	0.47	0.54	0.60	0.66	0.72	0.76	0.81	0.85	0.90	0.94	0.97	1.01	1.05	1.08	1.11	1.15			
10	0.48	0.59	0.68	0.76	0.83	0.89	0.96	1.01	1.07	1.12	1.17	1.22	1.26	1.31	1.35	1.39	1.43			
12	0.57	0.70	0.81	0.91	0.99	1.07	1.15	1.22	1.28	1.34	1.40	1.46	1.52	1.57	1.62	1.67	1.72			
14	0.67	0.82	0.95	1.06	1.16	1.25	1.34	1.42	1.50	1.57	1.64	1.71	1.77	1.83	1.89	1.95	2.01			
16	0.76	0.94	1.08	1.21	1.32	1.43	1.53	1.62	1.71	1.79	1.87	1.95	2.02	2.09	2.16	2.23	2.29			
18	0.86	1.05	1.22	1.36	1.49	1.61	1.72	1.82	1.92	2.02	2.11	2.19	2.28	2.36	2.43	2.51	2.58			
20	0.96	1.17	1.35	1.51	1.66	1.79	1.91	2.03	2.14	2.24	2.34	2.44	2.53	2.62	2.70	2.79	2.87			
22	1.05	1.29	1.49	1.66	1.82	1.97	2.10	2.23	2.35	2.47	2.57	2.68	2.78	2.88	2.97	3.06	3.15			
24	1.15	1.40	1.62	1.81	1.99	2.15	2.29	2.43	2.56	2.69	2.81	2.92	3.03	3.14	3.24	3.34	3.44			
30	1.43	1.76	2.03	2.27	2.48	2.68	2.87	3.04	3.21	3.36	3.51	3.65	3.79	3.93	4.05	4.18	4.30			
36	1.72	2.11	2.43	2.72	2.98	3.22	3.44	3.65	3.85	4.03	4.21	4.39	4.55	4.71	4.86	5.01	5.16			
42	2.01	2.46	2.84	3.17	3.48	3.75	4.01	4.26	4.49	4.71	4.92	5.12	5.31	5.50	5.68	5.85	6.02			
48	2.29	2.81	3.24	3.63	3.97	4.29	4.59	4.86	5.13	5.38	5.62	5.85	6.07	6.28	6.49	6.69	6.88			
54	2.58	3.16	3.65	4.08	4.47	4.83	5.16	5.47	5.77	6.05	6.32	6.58	6.83	7.07	7.30	7.52	7.74			
60	2.87	3.51	4.05	4.53	4.97	5.36	5.73	6.08	6.41	6.72	7.02	7.31	7.58	7.85	8.11	8.36	8.60			
64	3.06	3.74	4.32	4.83	5.30	5.72	6.12	6.49	6.84	7.17	7.49	7.80	8.09	8.37	8.65	8.91	9.17			

20.5 DISINFECTION OF MAINS

- 1) The disinfection work shall not be performed until after all required hydrostatic testing and cleaning of the pipelines has been completed.
- 2) All water used in disinfecting the pipelines shall be wasted and disposed of in a manner acceptable to the ENGINEER, and shall not be allowed enter other parts of the system.
- 3) All disinfection work shall be performed in accordance with the requirements of the Texas Commission on Environmental Quality (TCEQ), and any and all requirements thereof which may be in conflict with the provisions of this specification shall govern.
- 4) The CONTRACTOR shall provide the necessary apparatus for conducting the chlorine residual tests by the drop dilution methods in accordance with AWWA C651. Tests will be monitored by the OWNER'S representative.
- 5) Prior to starting any disinfection work, the CONTRACTOR shall submit to the ENGINEER a detailed outline of the procedure proposed, the coordination and sequence of operations, manner of filling and flushing disinfected lines, and the disposal of wasted water. All procedures shall be acceptable to the ENGINEER.
- 6) Water shall be wasted in accordance with AWWA, C651, C652, C653, and as directed by the ENGINEER.
- 7) All pipelines conveying treated water shall be disinfected in accordance with the requirements of AWWA C651.
- 8) During disinfection, all valves shall be operated to ensure that all appurtenances are disinfected.
- 9) Following chlorination, all treated water shall be flushed from the entire length between extremities of each line until the replacement water throughout its entire length, on test, is satisfactory to the ENGINEER.
- 10) Should the initial treatment fail to produce the required residual content, the original chlorination procedure shall be repeated until satisfactory results are obtained.

20.6 SAFETY AND PROPERTY PROTECTION

a) Barricades, Guards, and Safety Provisions

To protect persons from injury and to avoid property damage, adequate barricades, construction signs, torches, red lanterns and guards as required shall be placed and maintained during the progress of the construction work and until it is safe for traffic to use the trenched highway. Whenever required, watchman shall be provided to prevent accidents, and no extra compensation shall be allowed therefor. Rules and regulations of the local authorities respecting safety provisions shall be observed.

b) Traffic and Utility Controls

Excavations for pipe laying operations shall be conducted in a manner to cause the least interruption to traffic. Where traffic must cross open trenches, the **CONTRACTOR** shall provide suitable bridges at street intersections and driveways. Flushing Valves under pressure, valve pit covers, valve boxes, curb stop boxes and fire or policy call boxes, or other utility controls shall be left unobstructed and accessible during the construction period.

c) Flow of Drains and Sewer Maintained

Adequate provisions shall be made for the flow of storm and sanitary sewers, drains and water courses encountered during the construction, and the structures which may have been disturbed shall be satisfactorily restored upon completion of the work.

d) Property Protection

Trees, fences, signs, poles, guy wires and all other property shall be protected, unless their removal is authorized; and any property damage shall be satisfactorily restored by the **CONTRACTOR**.

e) Interruption of Water Service

No valve or other control on the existing system shall be operated for any purpose by the **CONTRACTOR**. All valves will be operated under the supervision of the water works superintendent with the approval of the **ENGINEER**.

20.7 MEASUREMENT

Water mains, installed in accordance with the above specifications and accepted by the **ENGINEER**, will be measured from center of fitting to center of fitting or end of pipe in place, without any deduction for the length of intermediate fittings or valves. Cast iron fittings will be measured as each complete in place according to size and type. Valves and valve boxes will be measured as each valve and valve box, or the size and type, complete in place.

20.8 PAYMENT

Payment for work performed and materials furnished as prescribed for in this item, measured as provided above, will be paid for at the contract unit prices bid, as set forth on Bid Proposal. Payment terms made shall be full compensation for furnishing and installing all water pipe, cast iron fittings, valves and valve boxes; concrete for backing and blocking; and for all other materials, labor, tools, equipment, and incidentals necessary to complete the work in a thorough and workmanlike manner.

Specifications for Mobilization and Demobilization

1.0 GENERAL

1.1 MOBILIZATION

This section covers the mobilization of personnel, equipment, materials and supplies, and their transport to the job site, insurance, payment and, performance bonds. Also included is setting up the CONTRACTOR's complete construction plant, field office and other construction facilities, as required for the CONTRACTOR's operation, all in adequate time for satisfactory performance of all Work under the Contract.

1.2 DEMOBILIZATION

Demobilization shall include the removal of all construction plant, equipment and accessories, materials, supplies, appurtenances, construction debris and the like from the job site upon completion of the Work.

2.0 MEASUREMENT AND PAYMENT

2.1 MEASUREMENT

No measurement for Work of this Section will be made.

2.2 PAYMENT

Payment for Mobilization and Demobilization Work of this Section will be made at the lump sum price for Bid Item No. 1, Mobilization and Demobilization, in the Schedule of Quantities and Prices, which shall not exceed 10 percent of the Bid Subtotal. Payment for mobilization will be made with the first progress payment and will be equal to 90% of the amount bid for Bid Item No. 1. The remaining 10% will be paid with the final project payment and will be proportional to the amount of the CONTRACTOR Use Areas that have been cleaned and restored to their original condition in a total amount of 10 (Ten) % of the amount

21.0 FLUSHING VALVES

21.1 GENERAL

Flushing Valves shall conform to requirements and test of AWWA Specifications **C502-94** "AWWA Standard for Flushing Valves for Ordinary Water Works Service" or the latest revision thereto as the design, component materials, construction and manufacture of all Flushing Valves furnished under these specifications except as otherwise modified or supplemented below:

21.2 MATERIALS

- a) Flushing Valves - Flushing Valves shall be *American* or approved equal, with mechanical joint end inlet. Depth of bury shall be a minimum 3.0' to the bottom of connecting pipe. Treads on nozzles and operating nut shall be furnished in accordance with the standard drawing provided and conform to the standards of the Texas Fire Insurance Commission. Three-way", having two (2) 2-1/2" NST hose nozzles and one (1) pumper with integral Storz nozzle (5"), factory installed.
- b) Valves, Fittings, Etc. - Valves fitting, etc. to be used in the completed installation shall be as specified under "*Resilient Wedge Gate Valves Sizes 4" Thru 66.*".

21.3 INSTALLATION

- a) Flushing Valves shall be connected to the main by means of a swivel (anchor) tee, mechanical joint gate valve with valve box, and a variable length Flushing Valve Gradelok anchoring device.
- b) Where Gradelok cannot be used, concrete having a compressive strength of not less than 1,500 psi shall be used, as a cradle or blocking as shown on the plans, or where directed by the ENGINEER. Blocking shall be placed between solid undisturbed ground and the Flushing Valve elbow (inlet shoe).
- c) Bury depth is variable, depending on depth of main. Runout pipe to be horizontal and ground line flange 3" above ground.
- d) Flushing Valves shall be placed at the locations shown on the Plans and in conformity with details thereon, unless otherwise directed by the ENGINEER. Flushing Valves, valves, and valve boxes shall be set plum with valve boxes placed directly over the valves after they have been connected.
- e) Flushing Valves shall rest on a concrete block or base not less than 4 inches thick and 15 inches square, and the back side opposite the pipe connection shall be firmly wedged between the Flushing Valves and vertical wall of the trench to prevent the Flushing Valve from blowing off the line. Flushing Valves shall be located as directed by the ENGINEER. Flushing Valves shall be set truly vertical.
- f) A six inch gate valve and valve box shall be installed on the lead.

- g) Around the base of each Flushing Valve shall be placed not less than three cubic feet of broken stone or gravel to insure the complete drainage of the Flushing Valve when closed. All backfill around Flushing Valve shall be thoroughly compacted at the surface of the ground.
- h) Before installing any Flushing Valve or valves, care shall be taken to see that all foreign material is removed from the interior of the valve or barrel. Stuffing boxes shall be tightened and the Flushing Valve of valve opened and closed to see that all parts are in working order.

21.4 MEASUREMENT

Flushing Valve installed in accordance with the above Specifications and accepted by the **ENGINEER** will be measured as each Flushing Valve set, complete in place, including valve, box, cast iron tee from main to lead, 6 inch cast iron lead from main to Flushing Valve.

21.5 PAYMENT

Payment for work performed and materials furnished as specified for this item, measured as provided above, will be paid for at the contract unit price for each Flushing Valve set, complete in place. Payment thus made shall be full compensation for furnishing and installing all pipe, fittings, Flushing Valve, valves, valve boxes, and leads, and for all other incidental work, equipment and materials required for a complete installation.

Specifications for Resilient Wedge Gate Valves Sizes 4" Thru 66"

1.0 GENERAL DESCRIPTION

Gate valves shall conform strictly to AWWA Standard Specifications requirements for Resilient wedge Gate Valves for Ordinary Water Works Service C515-01, including changes and additions specifically stated in these specifications. Valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve.

2.0 TESTING AND OPERATING PROCEDURES

All gate valve parts shall be designed to withstand safely and without permanent deformation both stresses resulting from an internal test pressure of 500 psi and combined stresses resulting from full internal pressure of 250 psi for valves sized up to and including 66 inches.

Further, the valve body and the internal parts of all valves shall be so constructed to develop full strength of the valve to the point of failure, in moving the valve gates in either direction across their seats from the point of opening to their full-closed position under full service pressure without rupture or permanent deformation of any other part.

The gate valve shall be subjected to a 500 psi hydrostatic seat and shell test which shall be applied between the gates. All joints and castings shall be completely water-tight. No casting shall show any suggestion of permanent distortion.

The resilient wedge mechanism shall provide zero leakage at the rated water working pressure when installed with the line flow in either direction.

3.0 VALVE CONSTRUCTION

- (a) Valves shall open left with fixed non-rising stem.
- (b) Operating nut is to be 2 inch square.
- (c) For Valve Sizes from 4" thru 24", the Stem shall be made of bronze (ASTM B-763, Alloy 867) with tensile strength of not less than 80,000 psi, a yield strength greater than 32,000 psi, and an elongation of not less than 15 percent. The stem shall not be designed to break above the stuffing box from excess torque.

For Valve Sizes from 30" to 66", the Stem shall be made of bronze (ASTM B-862) with tensile strength of not less than 90,000 psi, a yield strength greater than 40,000 psi, and an elongation of not less than 18 percent.

- (d) All valves are manufactured with mechanical joints.
- (e) The body and bonnet shall be cast from a high-grade ductile iron which conforms to all requirements of ASTM 536-6545-12, or latest revision thereof.
- (f) All ferrous surfaces inside and outside shall have a fusion-bonded epoxy coating in accordance with AWWA C-550 or latest revision thereof.

- (g) The sealing mechanism shall consist of a ductile iron gate having a vulcanized synthetic rubber coating. The valve shall not contain metal stops.
- (h) Packing shall be double "O" ring construction, with two above and one below the thrust collar except for 24" valves and larger where one above and one below the thrust collar are required. "O" rings set in a cartridge shall not be allowed. Valve stem should have one stainless steel friction washer above and one below the stem collar to provide lower torques.
- (i) The manufacturer shall supply certified reports stating the materials used in the gate valve conform to this specification and the latest AWWA C515-01 specification.

4.0 BASIS OF PAYMENT

Payment for valves in place shall be for size listed in bid item of the proposal and shall include the valve, concrete support, cast iron adjustable valve box and cover, reinforced concrete slab around valve box including all materials, labor, tools, equipment and supervision necessary to install, sterilize, test and make the valve ready for operation.

Specifications for Hot-Mix Asphaltic Concrete Pavement

1.0 DESCRIPTION

This specification shall consist of a surface coat composed of a compacted mixture of mineral aggregate and asphaltic materials. The pavement shall be placed on an approved subgrade; base or wearing surfaces in accordance with details shown on the Plans.

MATERIALS

All materials, mineral aggregate, asphaltic materials, prime coat tack coat and additives shall be in accordance with Item 340 Texas Department of Transportation Standard Specification for Construction of Highways, Streets and Bridges.

PLACING

Materials shall be placed in accordance with Item 340, TxDOT and compacted as set out in Item 340 and as directed by the ENGINEER.

MEASUREMENT

Measurement shall be in units designated on Bid Proposal of specified thickness.

PAYMENT

Payment for completed and acceptable surface coat shall be made at the unit price bid on Bid Proposal and the unit price bid shall be full compensation for tack coat, prime coat, materials, rolling, all equipment, labor machinery, supervision required for completion of work.

Specifications for Cement Stabilized Sand Backfill

1.0 DESCRIPTION

This item shall govern the material, basis for payment, and measurement of cement stabilized sand.

MATERIALS

Cement stabilized sand shall be composed of River sand (P.I. of 4 or less) or equal and not less than one and one-half (1½) sacks of Portland Cement per cubic yard thoroughly mixed, in a mill type mixer.

BASIS OF PAYMENT

Basis of payment shall be at the unit price bid for designated unit as it appears on bid proposal. The unit price bid of specified unit shall be full compensation for all materials, labor, machinery, or other operations required to place cement stabilized sand.

MEASUREMENT

Measurement will be made by weight ticket showing pounds of material per truckload and shall be acknowledged by the OWNER'S representative on the job.

Specifications for Crushed Limestone Flexible Base

1.0 DESCRIPTION

This item shall consist of a foundation course for surface course; and shall be composed of crusher-run broken stone; and shall be constructed as herein specified in courses not over 6" thick after compaction in conformity with the typical sections shown on the plans and to lines and grades as established by the ENGINEER.

MATERIALS

2.1 The material shall be obtained from an approved source, shall be crushed, shall consist of durable particles of crushed stone graded from coarse to fine; shall be screened or otherwise manipulated prior to crushing to remove all soil, clay, or other objectionable material, and shall contain approved binding material produced in the crushing process.

2.2 When properly slaked and tested by current standard laboratory methods, materials shall meet the following requirements:

Retained on 1 ¾" screen	0%
Retained on ¾" screen	15-45%
Retained on ¼" screen	45-75%
Retained on 40 mesh sieve	60-85%

2.3 When tested by current standard laboratory methods, the soil binder (material passing the 40 mesh sieve) shall meet the following requirement:

The liquid limit shall not exceed	40
The PlastiDistrict index shall not exceed	10

2.4 When tested by the Wet Ball Method for determining disintegration of Flexible Base Material, the material shall not have a wet ball mill wear exceeding 40%.

CONSTRUCTION METHODS

3.1 Preparation of Subgrade – The area to be surfaced shall be excavated and shaped to conform with the typical sections shown on the plans and to the lines and grades established by the ENGINEER. All unstable or otherwise objectionable material shall be removed from the subgrade and replaced with approved material. All holes, ruts, and depressions shall be filled with approved material, and if required, the subgrade shall be thoroughly wetted and reshaped and rolled to the extent directed in order to place the subgrade in an acceptable condition to receive the base material. The surface of the subgrade shall be finished to line and grade within a tolerance of ½" in cross section, and ½" in a length of 16" longitudinally. Material excavated in preparing the subgrade shall be utilized in filling adjacent areas, or otherwise disposed of as directed.

- 3.2 First Course – The material shall be delivered in vehicles of an approved capacity, and it shall be the responsibility of the CONTRACTOR that the required amount of material shall be delivered and spread to provide the required compacted thickness. Material deposited on the subgrade shall be spread the same day. The material shall be sprinkled, if the moisture content is less than the optimum required for compaction, and shall then be bladed, and shaped to conform to the typical section shown on the plan. Sufficient moisture shall be added to the material to minimize segregation of the coarse or fine aggregate, and any “nests” of segregated coarse or fine material shall be corrected or removed and replaced with well graded material. If additional binder is necessary after the material is spread and shaped, it shall be furnished and applied in the amounts required to fill the voids of the coarser aggregate. Additional binder material shall be carefully and evenly incorporated with the material in place by blading, scarifying, harrowing, or other approved methods. The course shall be sprinkled as required and rolled until a uniform compaction is secured. Irregularities, depressions or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding suitable material as required, reshaping and re-compacting by sprinkling and rolling. Blading and rolling shall continue until the base is compacted to a minimum of 95% of Standard Proctor Density.
- 3.3 Rollers shall be pneumatic tired rollers with not less than nine (9) pneumatic tired wheels, running on axles in such a manner that the rear group of tires will not follow in the tracks of the forward group, and mounted in a rigid frame provided with a platform or body suitable for ballast loading. The pneumatic tired roller shall have an effective rolling width of approximately 60" and shall be so designed that by ballast loading, the load may be varied uniformly from 100 pounds to 325 pounds per inch of width of tire tread. The pneumatic tired roller may be either the self-propelled type, or towed type roller drawn by a pneumatic tired tractor. Rollers shall be maintained in good repair and operating condition, and shall be approved by the ENGINEER.
- 3.4 Succeeding Courses – Construction methods and requirements shall be the same for succeeding courses as prescribed for the first course, except that the surface of the final course shall be finish rolled with a steel wheeled roller, if required, to obtain a smooth and uniform surface.

MEASUREMENT

Measurement shall be made in the units designated on the bid proposal, usually by the square yard, in place, and compacted.

PAYMENT

Payment shall be made at the unit price bid for designated unit on Bid Proposal and the unit price bid and shall be full compensation for all materials, labor, machinery, equipment, preparation, shaping, compaction, etc., necessary to meet Plans and Specifications, in accordance with and acceptable to, the ENGINEER.

Specifications for Care of Streets and Utilities

1. DESCRIPTION

- a) It is the purpose and intent of these specifications to govern and to control existing traffic signs, street markers, streets and utilities, etc., both above ground and underground that exist in the construction area.
- b) Where these traffic signs, street markers, etc., are encountered in the line of construction, they are to be removed and replaced in their original positions insofar as it is practical to do so.
- c) Extreme care must be used when working on streets. The CONTRACTOR shall be held liable for any damage to these streets. Where such damage is incurred, the CONTRACTOR shall be required to place the streets back into as good a condition as they were originally. The OWNER or his authorized representative will be the sole judge of the extent of such damage.
- d) The CONTRACTOR shall exercise extreme caution to avoid damaging existing utilities.
- e) Information relative to the existing utilities is approximate only and may be subject to discrepancies and errors. The data generally is based on scaled dimensions. It shall be the responsibility of the CONTRACTOR to locate accurately all utilities as the work progresses and to provide the immediate cutting off of gas or water lines damaged and the immediate repair of any breakage in lines that may occur due to his operations during construction. The CONTRACTOR shall be responsible for any delays in the work caused by utility lines or by the adjustment of the same.

2. PAYMENT

All work required as described in this item will not be paid for directly but shall be considered subsidiary work pertaining to the various contract items and such costs shall be included in the unit price bid.

NOTE:

During the course of construction where streets and alleys are damaged and request to have the same repaired is not complied with in a reasonable period of time, the OWNER reserves the right to repair same and deduct the cost from the CONTRACTOR'S estimate.

Specifications for Man Hours and Equipment Time

1.0 DESCRIPTION

It is the intent and purpose of these specifications to govern the use of man time and equipment time where required and authorized by the ENGINEER.

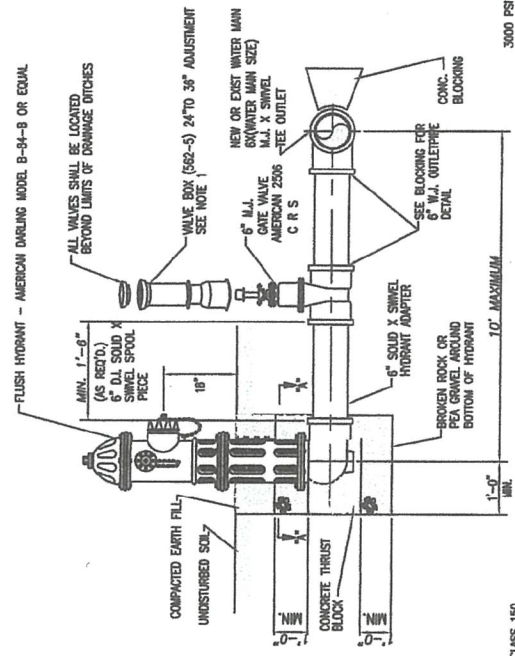
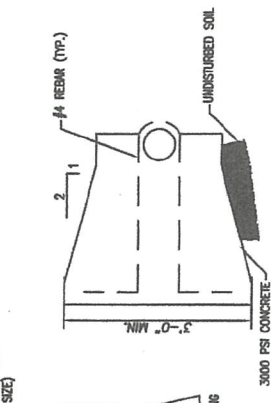
- 1.1 **MAN HOURS:** The labor of one able-bodied man working for one (1) hour.
- 1.2 **TRUCK HOURS:** A truck in good and acceptable repair rated at 2 ½ tons but capable of hauling a minimum of three (3) cubic yards of material, with a competent driver and with all necessary fuel, lubricating oil and grease furnished, operating on the work for one hour.
- 1.3 **BULLDOZER HOURS:** A bulldozer in good and acceptable repair, having a minimum rated capacity of 35 HP with a competent operator and with all necessary fuel, lubricating oil and grease furnished, operating on the work for one hour.
- 1.4 **LOADER/BACKHOE HOURS:** A rubber tired Loader/Backhoe in good and acceptable repair, with a minimum size loader of 1 ¼ C.Y. and backhoe bucket of a minimum size of 24" with a competent operator and with all necessary fuel, lubricating oil and grease furnished, operating on the work for one hour.
- 1.5 **MOTOR GRADER HOURS:** A motor grader in good and acceptable repair, having a mould-board or blade twelve (12) feet in length, with a competent operator and with all necessary fuel, lubricating oil and grease furnished, operating on the work for one hour.

2.0 MEASUREMENT AND PAYMENT

- 2.1 **MEASUREMENT:** Measurement for the above personnel and equipment will be made by the hour.
- 2.2 **PAYMENT:** Payment for the above equipment and personnel will be made at the unit price bid per hour for each item which price shall be full compensation for furnishing the above described items, which includes all supervisory personnel, including foremen, all Social Security, Old Age Benefits, Insurance, Overhead, Profit, Fuel, Lubrication, and Maintenance required to efficiently operate man and equipment. Insurance requirements shall meet or exceed State and other governing agency requirements.

NOTE:

1. PROVIDE MEDIUM DUTY ADJUSTABLE VALVE BOX W/ SUP TYLER PIPE OR APPROVED EQUIPMENT
2. A CONC. SLAB 1'-6" SQUARE BY 6" THICK IS REQUIRED WHEN THE VALVE BOX IS NOT LOCATED IN A PAVED AREA.
3. THE CONTRACTOR SHALL PROVIDE THE NECESSARY ATTACHES TO ADJUST THE HYDRANT TO THE PROPER ELEVATION AND POSITION
4. DRAIN HOLES IN HYDRANT SIDE MUST NOT BE BLOCKED.
5. PROVIDE FLUSH HYDRANT EXTENSION, IF NECESSARY.
6. PUMPER NOZZLE SHALL FACE ROADWAY. (4 1/2" N.T.S.)
7. COMPLETE FIRE HYDRANT UNIT CONSISTS OF ALL ITEMS IN DETAIL INCLUDING "MAIN LINE", 4" 6" SWIMEL / TEE



STANDARD FIRE HYDRANT UNIT

1. JOINT DEFLECTION OF PIPELINES SHALL NOT EXCEED MANUFACTURERS RECOMMENDATION.

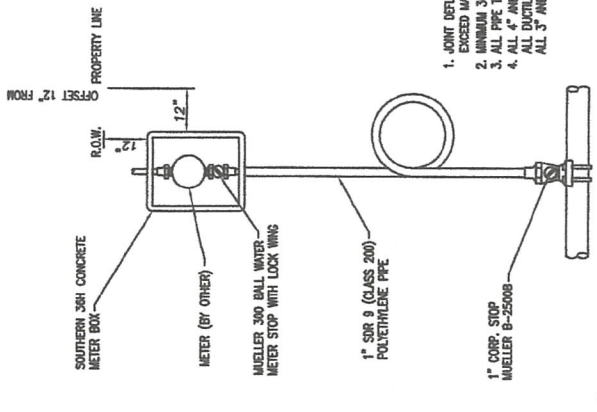
2. MINIMUM 3/8" COVER OVER ALL PROPOSED PIPELINES.

3. ALL PIPE TO BE PLACED WITH BELL ENDS UPSTREAM

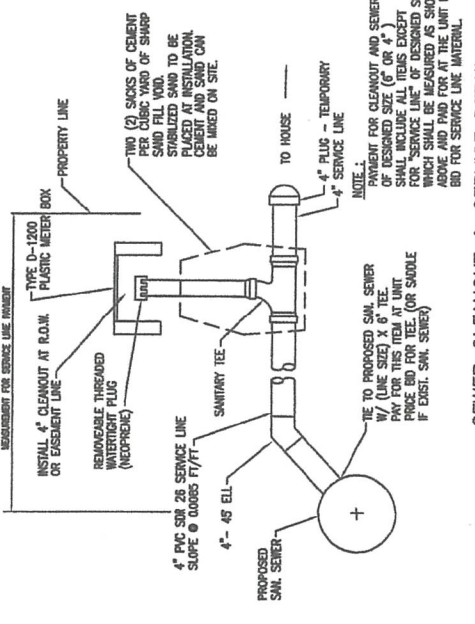
4. ALL 4" AND ABOVE PVC WATER LINE TO BE C-900, DR-18, CLASS 150

5. ALL DUCTILE IRON WATER LINE TO BE CLASS 300

6. ALL 3" AND SMALLER PVC WATER LINE TO BE SDR-21, CLASS 200



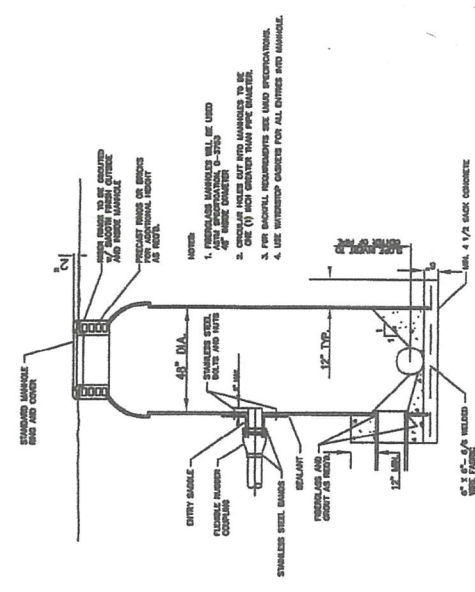
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SEWER CLEANOUT & SERVICE DETAIL

GENERAL NOTES

1. ALL STORM SEWER AND LEADS TO BE H.D.P.E.
2. ALL STORM SEWER MANHOLE SHALL BE CITY OF LUMBERTON STANDARDS UNLESS OTHERWISE NOTED.
3. ALL STORM SEWER LEADS SHALL BE 18 INCHES UNLESS OTHERWISE INDICATED.
4. CONCRETE FOR ALL STRUCTURES SHALL BE CLASS "A" FIVE SACK/ CU YD WITH A COMPRESSIVE STRENGTH OF 3000 PSI AFTER 28 DAYS.
5. ALL OF EXPOSED CORNERS OF INLETS SHALL BE CHAMFERED ONE HALF INCH.
6. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES. CONTRACTOR TO REPAIR DAMAGE TO ANY EXIST. FACILITY CAUSED BY HIS ACTIONS.
7. LUMBERTON MUNICIPAL UTILITY DISTRICT STANDARDS SHALL TAKE PRECEDENCE OVER THE STANDARD DRAWINGS SHOWN.



SANITARY SEWER FIBERGLASS MANHOLE

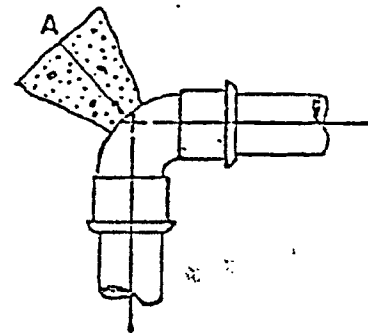
NOTE:

STANDARDS FOR WATER & SEWER CONSTRUCTION

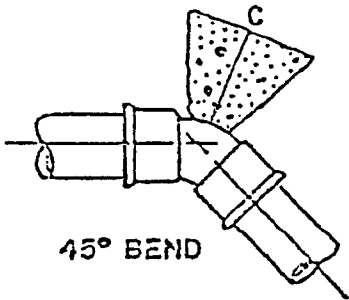
PIPE SIZE (IN.)	MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL (SQ. FT.)					
	A	B	C	D	E	F
4	2	2	1	1	1	2
6	4	3	3	1	1	3
8	8	5	4	2	1	5
10	12	8	6	3	2	8
12	16	12	9	5	2	12
14	22	15	12	6	3	15
16	29	20	16	8	4	20
18	36	25	20	10	5	25
20	44	32	24	12	6	32
24	64	45	35	18	9	45

NOTES:

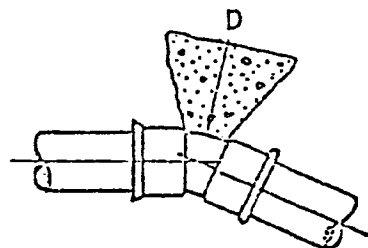
1. Thrust is based on a working pressure of 150 psi.
2. Bearing area is based on a safe soil bearing load of 1500 psf.
3. Blocking shall bear against fittings only and shall be clear of the joint.



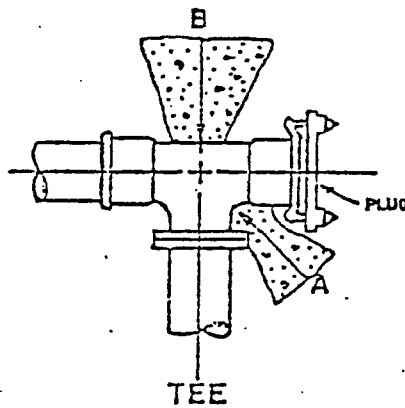
90° BEND



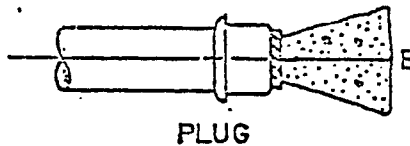
45° BEND



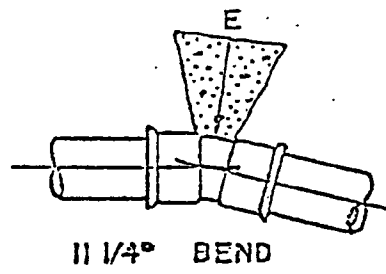
22 1/2° BEND



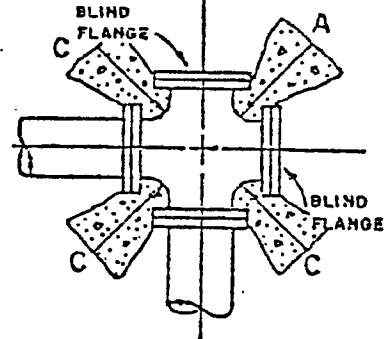
TEE



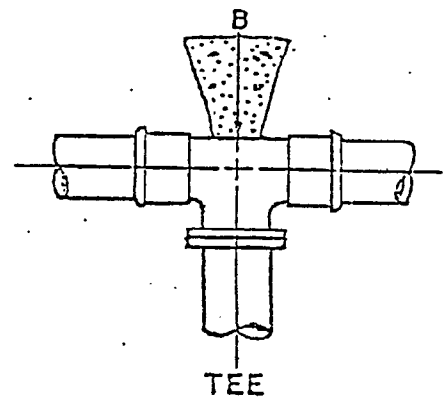
PLUG



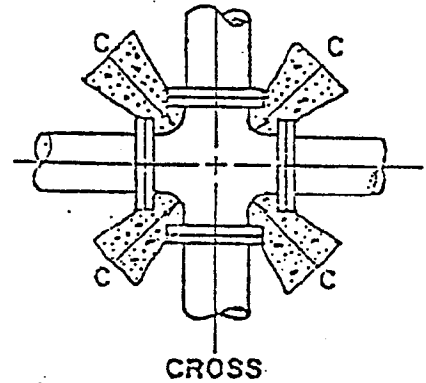
11 1/4° BEND



CAPPED CROSS



TEE



CROSS

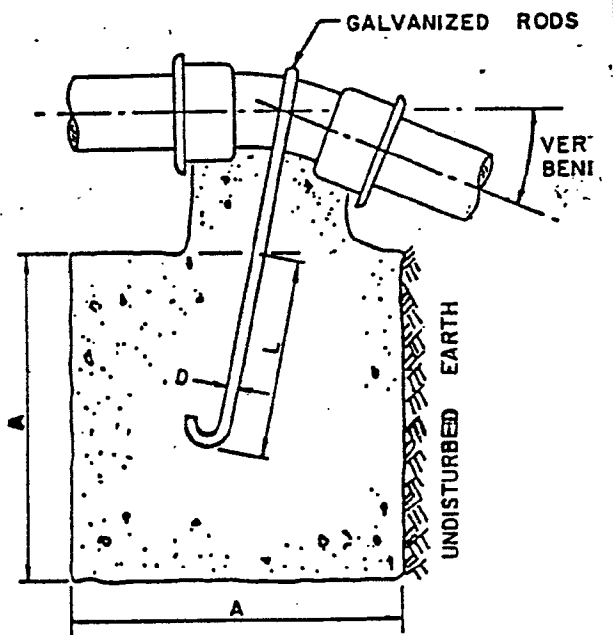
d. p. CONSULTING ENGINEERS
 808 Memorial Highway Suite 105-B
 Nederland, TX. 77627

SCALE

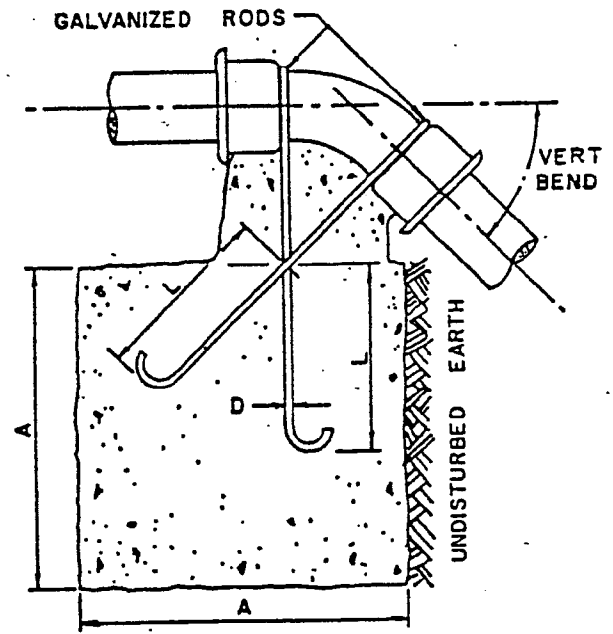
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JOB NUMBER

PIPE SIZE	VERT. BEND	CUBIC FEET	A (FT.)	D (IN.)	L (FT.)
4"	11½°	3	1.0	¾	0.5
	22½°	6	2.0		1.5
	45°	10	2.2		2.0
	90°	19	2.7		
6"	11½°	6	1.5	¾	1.0
	22½°	12	2.3		2.0
	45°	23	3.0		
	90°	43	3.5		
8"	11½°	11	2.5	¾	2.0
	22½°	21	2.8		2.5
	45°	41	3.5		
	90°	76	4.3		
10"	11½°	17	2.7	¾	2.0
	22½°	33	3.3		3.5
	45°	64	4.0		
	90°	119	5.0		
12"	11½°	24	3.0	¾	2.5
	22½°	47	3.7		4.0
	45°	93	4.6		
	90°	172	5.6		
14"	11½°	32	3.3	1	2.5
	22½°	64	4.0		4.5
	45°	126	5.1		
	90°	233	6.2		
16"	11½°	43	3.5	1	3.0
	22½°	84	4.4		4.5
	45°	166	5.5		
	90°	305	6.8		
18"	11½°	54	3.8	1	3.0
	22½°	107	4.8		4.5
	45°	209	5.9		
	90°	386	7.3		
20"	11½°	66	4.0	1	3.5
	22½°	132	5.1		5.0
	45°	258	6.4		
	90°	477	7.8		
24"	11½°	95	4.6	1½	4.0
	22½°	190	5.8		6.0
	45°	371	7.2		
	90°	686	8.8		



VERTICAL BLOCKING FOR 11½°, 22½° & 30° BENDS

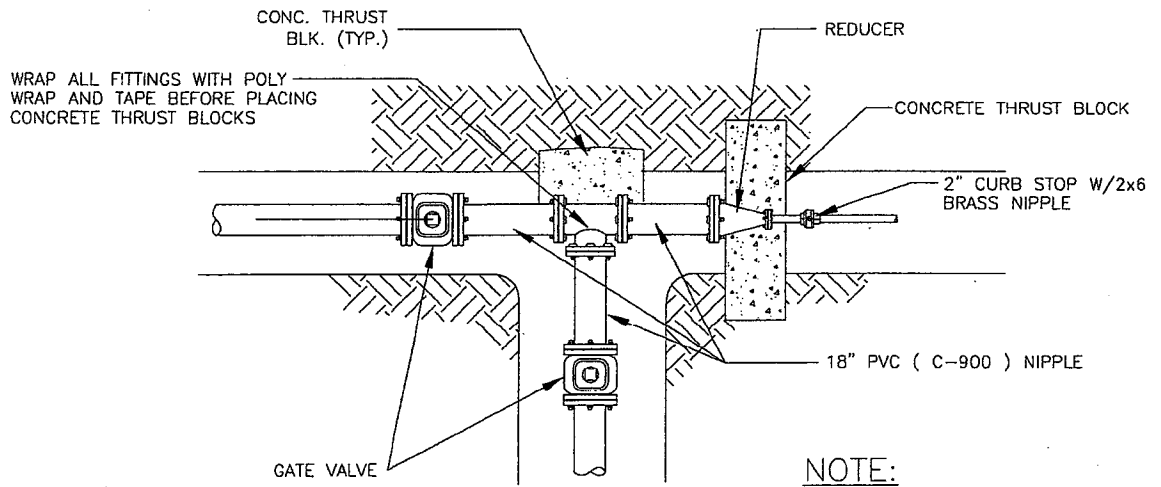


VERTICAL BLOCKING FOR 45° & 90° BENDS

- NOTES:
1. Thrust is based on a working pressure of 150 psi.
 2. Volume of concrete is based on 140 lbs. per cubic foot.

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 808 Memorial Highway Suite 105-B
 Nederland, TX. 77627

SCALE	DATE	JOB NUMBER
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NOTE:
ALL BLOCKING TO UNDISTURBED TRENCH WALL

TYPICAL FITTINGS & CONCRETE THRUST BLOCK INSTALLATION

SCALE: 1/2" = 1'-0"

PROPOSAL
WEST JEFFERSON COUNTY MUNICIPAL WATER DISTRICT
WATER DISTRIBUTION SYSTEM IMPROVEMENTS

ACE Job No. 123-01A

NO.	ITEM	UNIT	QUANTITY	UNIT PRICE BID WRITTEN IN WORDS		UNIT PRICE WRITTEN IN FIGURES		TOTAL PRICE BID WRITTEN IN FIGURES	
				DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS
1.	10" PVC WATERLINE - SDR 26 CL. 160 - CUT 0' - 5'	L.F.	14,550						
2.	10" GATE VALVE W/ VALVE BOX - AMERICAN 2506, CRS, D.I., M.J.	EA.	31						
3.	10" X 6" REDUCER, D.I., M.J.	EA.	1						
4.	10" D.I., M.J. TEE - RESTRAIN W/ "MEGA LUGS"	EA.	10						
5.	DIRECTIONAL BORE FOR 10" WATERLINE UNDER PIPE LINES, ROADWAYS AND CONCRETE DRIVES	EA.	620						
6.	10" - 45 DEGREE D.I., M.J. ELL - RESTRAIN W/ "MEGA LUGS"	EA.	26						
7.	10" X 4" REDUCER, D.I., M.J.	EA.	6						
8.	10" X 2" REDUCER, D.I., M.J.	EA.	10						
9.	AIR RELEASE VALVE - APCO 200A - W/ VALVE BOX	EA.	8						

PROPOSAL
WEST JEFFERSON COUNTY MUNICIPAL WATER DISTRICT
WATER DISTRIBUTION SYSTEM IMPROVEMENTS

ACE Job No. 123-01A

NO.	ITEM	UNIT	QUANTITY	UNIT PRICE BID WRITTEN IN WORDS		UNIT PRICE WRITTEN IN FIGURES		TOTAL PRICE BID WRITTEN IN FIGURES	
				DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS
10.	STANDARD FLUSHING VALVE - RESTRAIN W/ "MEGA LUGS", M.J. [locations to be determined]	EA.	8						
11.	CONNECT PROPOSED 10" WATERLINE TO EXISTING 10" WATERLINE, REMOVE EXISTING PLUG AND SALVAGE. MATERIALS & LABOR	L.S.	2						
12.	DRY BORE & CASE FOR 10" WATERLINE UNDER PIPE LINES OR CONCRETE DRIVE	L.F.	250						
13.	TRENCH SAFETY EXCAVATION - CUT 0' - 5'	L.F.	14,550						
14.	TRENCH SAFETY SPECIAL SHORING	S.F.	400						
15.	TRENCH SAFETY PLAN - CONTRACTORS RESPONSIBILITY	L.S.	1						

PROPOSAL
WEST JEFFERSON COUNTY MUNICIPAL WATER DISTRICT
WATER DISTRIBUTION SYSTEM IMPROVEMENTS

ACE Job No. 123-01A

NO.	ITEM	UNIT	QUANTITY	UNIT PRICE BID WRITTEN IN WORDS		UNIT PRICE WRITTEN IN FIGURES		TOTAL PRICE BID WRITTEN IN FIGURES	
				DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS
16.	610 ROCK FOR DRIVEWAY - TRUCK MEASURE	TON	40						
17.	CONNECT EXISTING 1" WATER SERVICE TO PROPOSED 10" WATER LINE INCLUDING 10" x 1" SADDLE, CORPORATION STOP & CURB STOP	EA.	4						
18.	CONNECT EXISTING 2" WATER SERVICE TO PROPOSED 10" WATER LINE INCLUDING 10" x 2" SADDLE, CORPORATION STOP & CURB STOP	EA.	4						
18.	TRACER WIRE FOR WATERLINE WITHIN TXDOT OR COUNTY R.O.W. (14 GAUGE)	L.F.	14,550						
19.	MAN-HOURS	HOUR	10						
20.	TRUCK-HOURS	HOUR	10						
21.	BACKHOE/LOADER HOUR	HOUR	10						
22.	CEMENT STABILIZED SAND BACKFILL	TON	10						
23.	EXTRA CLASS-A CONCRETE-BULK	C.Y.	10						

PROPOSAL
WEST JEFFERSON COUNTY MUNICIPAL WATER DISTRICT
WATER DISTRIBUTION SYSTEM IMPROVEMENTS

ACE Job No. 123-01A

NO.	ITEM	UNIT	QUANTITY	UNIT PRICE BID WRITTEN IN WORDS		UNIT PRICE WRITTEN IN FIGURES		TOTAL PRICE BID WRITTEN IN FIGURES	
				DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS
24.	EXTRA CLASS-A CONCRETE-FORMED	C.Y.	10						
25.	UNSPECIFIED DUCTAL IRON FITTINGS, PRICE PER POUND INSTALLED	LB.	500						
26.	4 FOOT BARBED WIRE FENCE	L.F.	1,320						
27.	METER BOX DFW-D-1200	EA.	2						
28.	SERVICE CLAMP 3/4" or 1"	EA.	2						
29.	PROPOSED 10"x 6" TEE FOR FUTURE FLUSHING VALVE INSTALLATIONS	EA.	5						
30.	2" PVC WATERLINE - SDR 26 CL.160 - CUT 0' - 5'	L.F.	500						
31.	FINAL CLEAN UP	L.F.	14,550			TOTAL			\$

PROPOSAL
WEST JEFFERSON COUNTY MUNICIPAL WATER DISTRICT
WATER DISTRIBUTION SYSTEM IMPROVEMENTS

ACE Job No. 123-01A

NO.	ITEM	UNIT	QUANTITY	UNIT PRICE BID WRITTEN IN WORDS		UNIT PRICE WRITTEN IN FIGURES		TOTAL PRICE BID WRITTEN IN FIGURES	
				DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS
	STATEMENT FOR SEPARATED CONTRACT COMPLIANCE:								
	NON-CONSUMABLE MATERIALS AND EQUIPMENT.....								
	SKILLED LABOR, MATERIALS, EQUIPMENT AND TOOLS.....								
								\$	
						TOTAL		\$	