



GARLAND

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PROPOSAL, BID SCHEDULE AND SPECIFICATIONS

**FOR
WYNN JOYCE ROAD 24" WATER MAIN
PROJECT No. WA26-2021**

BID NO. 0064-22

Name of Business: _____

**WATER & WASTEWATER DEPARTMENT
Wes Kucera – Managing Director**

Revised 07/23/2021

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I BID DOCUMENTS



GARLAND

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CITY OF GARLAND - NOTICE TO BIDDERS DOCUMENT

Procurement and Contracts Division

CITY OF GARLAND | 200 N. FIFTH ST., GARLAND, TX 75040



GARLAND

PURCHASING

NOTICE TO BIDDERS

Bid 0064-22

Request for Bid

Wynn Joyce 24" Water Main Upgrade

Submission:

A RFB should be submitted electronically through Ion Wave using the following link <https://garlandtx.ionwave.net>. Acknowledgment to the City of Garland's standard terms and conditions and completion of related forms such as but not limited to the Contractors Qualification, References and Conflict of Interest (CIQ) will be done electronically via Ion Wave at <https://garlandtx.ionwave.net>.

FACSIMILE OR EMAIL PROPOSALS WILL NOT BE ACCEPTED

Closing Date: 11/11/2021

Closing Time: 3:00 p.m. Local Time

Mailing/Delivering Proposals:

In addition to submitting your bid online, you may also submit a hard copy. Please use the following instructions to do so. Please note that at least one of your responses needs to be submitted online via Ion Wave.

Mailing Address	Physical Address
City of Garland Purchasing	City of Garland Purchasing
PO Box 469002	200 North Fifth Street, Second Floor
Garland, TX 75046-9002	Garland, TX 75046

Mark Outside of Envelope:

RFB 0064-22 Wynn Joyce 24" Water Main Upgrade

Late Responses:

Responses must be received by the due date and time established in this solicitation. If a response is received after this published date and time, it is considered a late response. Late responses will not be opened and the respondent will be notified that the response was rejected because it was not timely received. The City will either return the unopened response to the respondent at the respondent's expense or dispose of the response.

Withdrawal of Response:

A respondent may withdraw its response at any time prior to the closing date and time for the solicitation. The respondent's request to withdraw its response must be made in writing on company letterhead.

Questions and Answer Period:

Any questions pertaining to this request must be submitted through <https://garlandtx.ionwave.net> no later than **11/08/2021 at 5:00pm**. The City is not obligated to and may at its own discretion choose not to accept or answer questions received after that date.

Pre-Submittal Meeting:

Prospective vendors or a designated representative may attend the pre-submittal meeting on **10/28/2021 at 10:00 AM**, via www.zoom.com meeting ID: Meeting ID: 812 0294 8566 Passcode: 754226. The meeting provides an equitable forum for all proposers to:

- Meet City Staff
- Review Bid Documents
- Review Plans/Drawings
- Ask General Questions

Bid Award and Evaluation:

The City has established the award basis for this solicitation as the vendor providing the lowest responsible bid for consideration. Lowest responsible bidder can be defined as the bidder who fully complied with all of the bid requirements and whose past performance, reputation, and financial capability is deemed acceptable, and who has offered the most advantageous pricing or cost benefit, based on the criteria stipulated in the bid documents.

Surety Bonding Requirements:

- **Bid Bond**

A copy of the prospective vendors Bid Bond in the amount not less than five percent (5%) of the maximum bid price payable with recourse to the City of Garland, from a reliable surety company as a guarantee that the bidder will enter into a contract and execute the Performance Bond, Payment Bond and Maintenance Bond within ten (10) days after notice of award of contract, should be uploaded with this bid.

- **Payment & Performance Bond Requirements**

A Payment and Performance Bond is being requested for this project. Sec. 2253.021.(1) & (2) of the Local Government Code states that all public works contract in excess of \$50,000.00 require a Payment Bond and all public works contracts above \$100,000.00 require a Performance Bond. Payment and Performance bonding will be for 100% of the total awarded contract.

- **Maintenance Bond**

A Maintenance Bond is being requested for this project. This ensures the Contractor will maintain and keep in good repair all work to be performed and done under the Contract for a period of one (1) year from the date of acceptance of the completed work by the City. Maintenance Bonding will be for 25% of the total awarded contract.

Terms and Conditions:

The following terms and conditions are hereby incorporated by reference as if attached hereunto.
<https://www.garlandtx.gov/3430/How-To-Do-Business-with-Us>

Solicitation Statute:

This Solicitation is made in accordance with the following Section 252, 2269 and/or 2254 of Local Government Code as applicable.

Exhibit A
COG Terms & Conditions for Construction Projects
Example of Bonding Documents
Example of Contract

INSURANCE REQUIREMENTS

Construction Liability Insurance Requirements

Category I

Painter, Drywall, Concrete
Work, Brick Mason, Carpenter,
Cleanup, Glazier, Locksmith,
Landscaper

<u>Cost of Work</u>	<u>CGL</u>	<u>UMB</u>	<u>AUTO</u>	<u>EL</u>
\$0 - \$50,000	\$100,000	\$0	\$100,000	\$500,000
\$50,001 - \$100,000	\$250,000	\$0	\$100,000	\$500,000
\$100,001 - \$500,000	\$500,000	\$0	\$250,000	\$500,000
\$500,001 - \$1,000,000	\$1,000,000	\$0	\$500,000	\$500,000
\$1,000,001 - \$2,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$500,000
\$2,000,001 - \$5,000,000	\$1,000,000	\$4,000,000	\$1,000,000	\$500,000
\$5,000,001 +	\$1,000,000	\$10,000,000	\$1,000,000	\$500,000

Category II

Electrician, Plumbing, Crane
Operator, Fire System Installer,
HVAC Work

<u>Cost of Work</u>	<u>CGL</u>	<u>UMB</u>	<u>AUTO</u>	<u>EL</u>
\$0 - \$50,000	\$500,000	\$0	\$100,000	\$500,000
\$50,001 - \$100,000	\$500,000	\$0	\$250,000	\$500,000
\$100,001 - \$500,000	\$1,000,000	\$0	\$500,000	\$500,000
\$500,001 - \$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$500,000
\$1,000,001 - \$2,000,000	\$1,000,000	\$2,000,000	\$1,000,000	\$500,000
\$2,000,001 - \$5,000,000	\$1,000,000	\$5,000,000	\$1,000,000	\$500,000
\$5,000,001 +	\$1,000,000	\$10,000,000	\$1,000,000	\$500,000

Category III

Boiler Work, Roofer,
Hot Work (cutting and welding)

<u>Cost of Work</u>	<u>CGL</u>	<u>UMB</u>	<u>AUTO</u>	<u>EL</u>
\$0 - \$50,000	\$1,000,000	\$0	\$100,000	\$1,000,000
\$50,001 - \$100,000	\$1,000,000	\$0	\$250,000	\$1,000,000
\$100,001 - \$500,000	\$1,000,000	\$1,000,000	\$500,000	\$1,000,000
\$500,001 - \$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
\$1,000,001 - \$2,000,000	\$1,000,000	\$2,000,000	\$1,000,000	\$1,000,000
\$2,000,001 - \$5,000,000	\$1,000,000	\$5,000,000	\$1,000,000	\$1,000,000
\$5,000,001 +	\$1,000,000	\$10,000,000	\$1,000,000	\$1,000,000

Category IV

General Contractor

<u>Cost of Work</u>	<u>CGL</u>	<u>UMB</u>	<u>AUTO</u>	<u>EL</u>
\$0 - \$50,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
\$50,001 - \$100,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
\$100,001 - \$500,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
\$500,001 - \$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
\$1,000,001 - \$2,000,000	\$1,000,000	\$2,000,000	\$1,000,000	\$1,000,000
\$2,000,001 - \$5,000,000	\$1,000,000	\$5,000,000	\$1,000,000	\$1,000,000
\$5,000,001 +	\$1,000,000	\$10,000,000	\$1,000,000	\$1,000,000

CGL=Commercial General Liability UMB=Commercial Umbrella Liability Auto=Automobile Liability EL=Employers Liability

General Contractors must provide Builders Risk Insurance for the insurable value of the work.

NOTE: The insurance must be obtained from a company or companies acceptable to the Owner and licensed to transact business in the State of Texas, and have a minimum financial security rating by A.M. Best of "A-" or better, or the equivalent from any other rating system.

With the exception of Workers Compensation and Builders Risk insurance, The City of Garland, PO Box 469002, Garland, TX shall be listed as an additional insured on all required coverage and shall be shown as such on the Certificate of Insurance. The Additional Insured Endorsement may be requested by the City. A waiver of subrogation is required on all coverage, and shall be granted and shown on the Certificate of Insurance.

PAYMENT BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns, and to all persons, firms, subcontractors and corporations who may furnish materials or labor under the contract as more fully described below, the sum of _____ Dollars in the lawful currency of the United States of America (\$ _____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct:

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, this bond is given pursuant to Chapter 2253 of the Texas Government Code;

NOW, THEREFORE, if Contractor shall promptly make payment to all persons, firms, subcontractors and corporations who may furnish materials or labor under the Contract, then this obligation shall be void; otherwise to remain in full force and effect. The obligations of Contractor and Surety under this bond apply both to the original Contract and to any extension of time or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas County, Texas such that exclusive venue for any

legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the _____ day of _____, 20__.

CONTRACTOR:

SURETY:

PERFORMANCE BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns, and to all persons, firms, subcontractors and corporations who may furnish materials or labor under the contract as more fully described below, the sum of _____ Dollars in the lawful currency of the United States of America (\$ _____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct:

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, this bond is given pursuant to Chapter 2253 of the Texas Government Code;

NOW, THEREFORE, if Contractor shall well, truly and faithfully perform all of the undertakings, duties, terms, conditions and agreements of the Contract; shall satisfy all claims and demands incurred under the Contract; shall fully indemnify and hold the City harmless; shall reimburse and repay the City for any outlay or expense which the City may incur in making good any default, and shall promptly make payment to all persons, firms, subcontractors and corporations who may furnish materials or labor under the Contract, then this obligation shall be void; otherwise to remain in full force and effect. The obligations of Contractor and Surety under this bond apply both to the original Contract and to any extension or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas

County, Texas such that exclusive venue for any legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the _____ day of _____, 2____.

CONTRACTOR:	SURETY:
By:_____	By:_____

Title:_____

Title:_____

ACKNOWLEDGMENTS
[Contractor]

STATE OF TEXAS }
COUNTY OF DALLAS}

Before me _____(insert the name of the officer) on this
day _____ personally appeared _____ known to me (or proved to me on
the oath of _____) or through _____ (description of identity card or
other document) to be the person whose name is subscribed to the forgoing instrument and acknowledged to me
that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, 2_____.

Notary Public in and for the State of Texas
My Commission Expires:_____

Typed or Printed Name of Notary

[Surety]
STATE OF TEXAS }
COUNTY OF DALLAS}

This instrument was acknowledged before me on the ____day of _____, 2____ by
_____ who is the _____ of the Surety, on behalf of Surety.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____ day of _____, 2_____.

Notary Public in and for the State of Texas
My Commission Expires:_____

Typed or Printed Name of Notary

BOND NOTES

- (1) This Payment Bond applies to all contracts in excess of \$50,000.00 involving a contract for construction, alteration or repair of any public building or the completion or prosecution of any public work.
- (2) This Performance Bond applies to all contracts in excess of \$100,000.00 involving a contract for construction, alteration or repair of any public building or the completion or prosecution of any public work.
- (3) These Bonds must be payable to the awarding authority, the City of Garland (the Owner), as the named obligee, and must be approved as to form by such awarding authority.
- (4) These Bonds must be furnished before any work is commenced.
- (5) Surety must be a corporate surety duly authorized to do business in Texas, and acceptable to the Owner.
- (6) Each of these Bonds must be in the full amount of the contract which they secure.
- (7) Power of Attorney for Corporate Surety must be attached to each of these Bonds.

CONSTRUCTION SERVICES AGREEMENT

The Owner prefers to use the following Construction Services Agreement. **AS PART OF YOUR RESPONSE TO THIS RFx, YOU MUST IDENTIFY, IN WRITING, ANY EXCEPTIONS YOU MAY HAVE TO ANY PROVISION OF THE RFx, SUPPLEMENTAL BIDDING INFORMATION FOR CONSTRUCTION-RELATED PROJECTS, OR THIS AGREEMENT** . Any desired changes are to be specific and cite the applicable section. If none, so indicate in your response. Acceptance of the terms and conditions of the Agreement is considered as a major factor in the selection of the successful contractor.

CONSTRUCTION SERVICES AGREEMENT

For

(bid title)

BID NO. (as specified)

By and Between

The City of Garland

and

(fill in contractor name)

CONSTRUCTION SERVICES AGREEMENT

BID NO. (as noted in the RFB)

This Construction Services Agreement ("Agreement") is entered into by and between the City of Garland ("the Owner") and Contractor named below ("Contractor") and establishes the terms, conditions and consideration under which Contractor will provide construction services ("Work") as specified herein.

The provisions of Contractor's bid and Owners Request for Bids are hereby made a part of this Agreement as if attached hereto. The Payment and Performance bonds, as applicable, are hereby made a part of this Agreement.

Contractor shall furnish, at Contractor's own cost, all labor, superintendence, equipment, materials, supplies, insurance, and other accessories and services necessary to complete the Work; provide all necessary installation means, methods, techniques, sequences, and procedures; and coordinate all portions of said Work, so as to complete the Work in strict accordance with the Agreement.

Final payment shall not relieve Contractor of responsibility for faulty materials or workmanship, the obligation to remedy defects, the breach of any term hereof, or terms of any special warranties required by the Agreement.

The general description of the Work to be provided under this Agreement is contained in the bid entitled:

(bid title)

The location of the City of Garland where the Work is to be performed is:

(Site Location)

The Owner agrees to pay Contractor in current funds in accordance with the terms of the Agreement, subject to additions and deductions as provided herein, the sum of:

_____ (\$_____)

Contractor acknowledges that time is of the essence for performance of this Agreement and agrees to commence Work not later than ten calendar days following receipt of the Owner's written notice to proceed ("Notice to Proceed") and to fully and finally complete all Work hereunder (within the calendar days specified in the RFB documents) following receipt of the Owner's written Notice to Proceed and issuance of all applicable building permits.

The Owner and Contractor acknowledge and agree, with regards to the matters covered hereunder, this Agreement is the complete Agreement and supersedes and replaces all prior agreements and understandings.

If any provision of this Agreement shall be held invalid for any reason, then such provision shall be severed from the remaining provisions of this Agreement and shall not affect the validity or enforceability of the other provisions of this Agreement, unless the invalidity of any such provision deprives any party of the economic benefit intended to be conferred by this Agreement.

Any waiver by either party of any provision of this Agreement shall not imply a subsequent waiver of that or any other provision, and any failure to enforce strict performance of any provision of this Agreement shall not be construed as a waiver or relinquishment to enforce strict performance of such provision on any future occasion.

Throughout the term of this Agreement, with each Application for Payment, in a format provided by the Owner, Contractor shall report a description of the type of Work provided and the amount of payments made and to be made to all Subcontractors, including certified Minority and Woman Owned Businesses. An Application for Payment submitted without this report shall be incomplete and is not subject to payment. Prior to submitting its first Application for Payment, Contractor shall contract the Owner's Business Diversity Department to receive the form to be used to report Subcontractor and supplier payments.

Notwithstanding the general rules of construction, both Contractor and the Owner acknowledge that both parties were given an equal opportunity to negotiate the terms and conditions of this Agreement and agree that the identity of the drafter of this Agreement is not relevant to any interpretation of the terms and conditions of this Agreement.

Except as otherwise specifically provided in this Agreement, all remedies set forth in this Agreement shall be in addition to all other remedies available under this Agreement or at law or in equity.

Contractor and the Owner agree that this Agreement may be executed in several counterparts, each of which when so executed shall be deemed to be an original and shall be deemed to be signed by an authorized representative of Contractor and of the Owner.

This Agreement shall be construed in accordance with the laws of the State of Texas, and exclusive venue shall lie in Dallas County, Texas.

This Agreement, executed in multiple counterparts and effective with the latter of the two signatory dates noted below, is made and entered by and between:

The City of Garland (Owner)	(contractor's company name) (Contractor)
By:_____	By: _____
Printed Name:_____	Printed Name: _____
Title:_____	Title: _____
Address:_____	Address _____
City:_____	City: _____
State:_____ Zip _____	State:_____ Zip _____
Date:_____	Date: _____

Supplemental Forms

Bidders Proposal & Bid Schedule

Bidders Qualifications Statement

Contractor's Affidavit of Bills Paid

CONTRACTOR'S AFFIDAVIT OF BILLS PAID

(To be executed prior to acceptance of project)

STATE OF TEXAS }
COUNTY OF DALLAS }

Personally, before me the undersigned authority, on this day appeared

_____, who, being duly sworn, on oath, says that he is a
legal representative of

(Full name of Contractor as in Contract)

and that the contract for the construction of the project, designated as

PROJECT No. WA18-2020 & WA27-2021

has been satisfactorily completed and that all bills for materials, apparatus, fixture,
machinery and labor used in connection with the construction of this project have, to the
best of my knowledge and belief, been fully paid.

Signature

Title

Sworn to and subscribed before me this ____ day of _____, 20____

Notary Public in and for the State of Texas

Typed or Printed Name of Notary

My Commission Expires: _____

INSTRUCTIONS:

IF THE CONTRACTOR IS AN INDIVIDUAL, HE SHALL SIGN THE AFFIDAVIT. IF THE CONTRACTOR IS A PARTNERSHIP, ANY PARTNER MAY SIGN THE AFFIDAVIT. IF THE CONTRACTOR IS A CORPORATION, A PERSON AUTHORIZED BY THE BY-LAWS OR BY THE BOARD OF DIRECTORS SHALL SIGN THE AFFIDAVIT. IF THE CONTRACTOR IS A JOINT VENTURE OF INDIVIDUALS, ANY OF THE INDIVIDUALS MAY SIGN THE AFFIDAVIT. IF THE CONTRACTOR IS A JOINT VENTURE OF PARTNERSHIPS, OR OF INDIVIDUALS AND PARTNERSHIPS, THE INDIVIDUAL OR ANY PARTNER OF ANY PARTNERSHIP MAY SIGN THE AFFIDAVIT. IF THE CONTRACTOR IS A JOINT VENTURE IN WHICH A CORPORATION IS A PARTY, SEPARATE AFFIDAVITS MUST BE EXECUTED IN THE NAME OF THE JOINT-VENTURE; ONE BY EACH CORPORATION AND ONE BY EACH INDIVIDUAL OR PARTNERSHIP. SIGNATURES FOR CORPORATIONS SHOULD BE BY A DULY AUTHORIZED OFFICER. IF SIGNATURE IS BY ANOTHER, A SHOWING OF AUTHORITY TO SIGN MUST ACCOMPANY THE AFFIDAVIT.

**ADDENDA
AND
QUESTIONS**

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HOLDER FOR ADDENDUMS AND QUESTIONS ISSUED
DURING THE BIDDING PROCESS**

BIDDERS PROPOSAL AND BID SCHEDULE

**THIS PAGE INTENTIONALLY LEFT BLANK DURING THE
BIDDING PROCESS AS A PLACE HOLDER FOR THE BIDDERS
PROPOSAL AND BID SCHEDULE**

II EXHIBIT B
GENERAL SPECIFICATIONS AND SPECIAL CONDITIONS

CONTRACTOR NOTIFICATION

The information contained in the following Supplemental Standard Specifications is intended to supplement and or amend the Third Edition to the NCTCOG Standard Specifications for Public Works Construction. These supplements do not replace any NCTCOG specifications that are not specifically described herein. The supplements are not intended replace the City Of Garland Standard Terms And Conditions (COGSTC). They are intended to supplement the General and Standard Terms and Conditions. If any conflicts exist the Contractor will contact the City Engineering Department for clarification before proceeding with the project work efforts.

**SUPPLEMENTAL STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION
NORTH CENTRAL TEXAS
Third Edition 1998**

PART I GENERAL AND SPECIAL PROVISIONS, DIVISION I

Note: The City of Garland will furnish to all prospective bidders its own special conditions, instructions to bidders, contract, and bond forms.

The City of Garland has adopted Section I, "Specifications", of the Standard Specifications for Public Works Construction in North Central Texas (Third Edition) by North Central Texas Council of Governments. Section II, "Standard Drawings" of that document is not adopted by the City of Garland. All other sections, except as modified herein, shall be followed during the construction of this project. A copy of these specifications may be obtained from the North Central Texas Council of Governments at P.O. Box 5888, Arlington, Texas 76005-5888 or (817) 695-9140. A copy is on file in the office of the Purchasing Agent of the City of Garland, located at City Hall, Garland, Texas.

1. The successful bidder shall furnish all alignment and construction staking and shall employ a Registered Professional Land Surveyor (RPLS) to supervise and direct this work. The City of Garland reserves the right to check progress and accuracy of same at any time during the life of the contract.
2. All material tests of concrete, asphalt, subgrade, lime content, cement content, densities or any other material that is required to complete the project shall be furnished and paid for by the City of Garland, and shall be made in accordance with the latest methods of the American Society for Testing and Materials. All tests shall be performed in accordance with Special Conditions Paragraph 17. Contractor is responsible for scheduling and coordinating the required testing with the City's Material Testing Laboratory. The Contractor shall provide access and cooperate with Material Testing Laboratory personnel in performing required material tests.
3. The items listed below as found in Division I of the specifications shall be amended as follows:

1.0.1 DEFINITIONS:

Remove and Replace: For items that are noted as 'Remove and Replace' the Contractor shall remove, properly dispose of, and replace with new unless otherwise called for in the plans.

Working Day or Days: Work on the legal holidays listed in the COGSTC. shall not be permitted except in cases of extreme emergency and then only with written permission from the City of Garland. Work on Saturdays and Sundays is not generally approved

and may be permitted when requested 48 hours in advance. Work hours may vary from the Monday through Friday normal business hours depending on the location of the work and impact to traffic and residents. Normal work hours shall be clarified and documented during the preconstruction meeting.

1.0.2 COMPUTATION OF DEADLINES: If any deadline contained herein by ends on a Saturday, Sunday or a legal holiday recognized by the Texas Supreme Court, such deadline shall automatically be extended to the next day that is not a Saturday, Sunday or legal holiday.

1.20.2 SUPPLEMENTAL DRAWINGS AND SPECIFICATIONS: Supplemental Drawings and Specifications are considered part of this contract. These project documents may include all, or part, but not limited to, the Supplemental Standard Specifications, Special Conditions, Geotechnical Report, Technical Specifications, City Standard Construction Details and Project Specific Details.

1.22.1 INDEPENDENT CONTRACTOR: While engaged in carrying out and complying with the terms and conditions of this contract, the Contractor is, and shall be, an Independent Contractor and shall not, with respect to its acts or omissions, be deemed an officer, employee or agent of the City. The Contractor shall not at any time or in any manner represent that it or any of its agents or employees are in any manner agents or employees of the City.

The Contractor is, and shall remain, an Independent Contractor, with full, complete and exclusive power and authority to direct, supervise, and control his own employees and to determine the method of the performance of the work covered hereby. The fact that the OWNER or OWNER's representative shall have the right to observe the Contractor's work during his performance and to carry out the other prerogatives which are expressly reserved to and vested in the OWNER or OWNER's representative hereunder, is not intended to and shall not at any time change or affect the status of the Contractor as an Independent Contractor with respect to either the OWNER or OWNER's representative or to the Contractor's own employees or to any other person, firm or corporation.

1.22.2 INDEMNIFICATION: Refer to City of Garland Standard Terms and Conditions.

1.22.5 PROGRESS SCHEDULE: The Contractor, upon the execution and delivery of the contract, shall prepare and submit for the OWNER'S approval a Critical Path Method (CPM) progress schedule showing the manner of prosecution of the work in order to complete the contract within the allocated time and to meet the intermediate milestones.

The schedule shall contain activities for all significant work items necessary to complete the project.

In addition to project completion, the schedule shall contain two intermediate milestones. Each milestone will be the completion of a major critical work item or phase of construction, such as the completion of sewer or water mains. These intermediate milestones will approximately divide the project into thirds, i.e.: 1st milestone scheduled after approximately 1/3 of project time, 2nd milestone after approximately 2/3 of project time.

The intent of establishing the milestones is to help assure that the Contractor diligently pursues the project schedule from the beginning. Liquidated damages as specified in 1.36.1 will attach to each of the milestones, including project completion.

The OWNER will review the proposed progress schedule, within a reasonable time, and present the Contractor any concerns or problems they see with the proposed schedule. The Contractor will cooperate with the OWNER in resolving any concerns the OWNER may have and to develop a mutually agreeable schedule. This approved schedule shall clearly establish the two intermediate milestones and completion time and be mutually agreeable to both the OWNER and Contractor. The schedule shall be approved before the notice to proceed date and start of construction.

Throughout the course of the project, the progress schedule shall be revised if, in the opinion of the OWNER, the scheduled progress of the work is not being maintained. This revised schedule will address the methods by which time lost shall be made up.

1.36.1 LIQUIDATED DAMAGES FOR FAILURE TO ACHIEVE INTERMEDIATE MILESTONES AND TO COMPLETE PROJECT ON TIME: The time to achieve the mutually agreed to milestones and the completion of the project is the essence of this contract.

For each calendar day that any work, associated with each intermediate milestone, shall remain uncompleted after the time specified in the approved schedule, or the increased time granted by the OWNER for that milestone, the sum per calendar day given in the following schedule, unless otherwise specified in the special provisions, shall be deducted from the monies due the Contractor.

For each calendar day that any work, associated with the project completion, shall remain uncompleted after the time specified in the proposal and the contract, or the increased time granted by the OWNER, or as equitably increased by additional work or materials ordered after the contract is signed, the sum per day given in the following schedule, unless otherwise specified in the special provisions, shall be deducted from the monies due the Contractor:

\$ Amount of Contract	\$ Amount of Liquidated Damages for Intermediate Milestones	\$ Amount of Liquidated Damages for Project Completion
Less than 5000	60 per day	60 per day
5,000 to 14,999	80 per day	80 per day
15,000 to 24,999	100 per day	100 per day
25, 000 to 49,999	120 per day	240 per day
50,000 to 99,999	160 per day	320 per day
100,000 to 1,000,000	240 per day	480 per day
More than 1,000,000	500 per day	1000 per day

The sum of money thus deducted for such delay, failure or non-completion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the Contractor shall be in default after the time stipulated in the contract for completing the work. The said amounts are fixed and agreed upon by and between OWNER and Contractor because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the Contractor under this contract; and if said monies be insufficient to cover the amount owing, then the Contractor or his surety shall pay any additional amounts due.

1.51.1 MONTHLY ESTIMATE: As this is a separated contract (as that term is defined in Texas Comptroller's Rule 3.291, as amended) between the OWNER and the Contractor, all invoices for payment presented by the Contractor including the estimate or invoice for which final payment is requested, shall be separated into three components as follows: (a) billings attributable to materials, supplies, equipment and other tangible personal property physically incorporated into the work done; (b) billings attributable to materials, supplies, equipment and other tangible personal property purchased or leased for use in the work, but not physically incorporated into the work; (c) billings attributable to other costs and fees allowable under the contract, including labor, overhead, profit and other reasonable, incidental allowable costs related to the work. The Contractor's invoice may include acceptable, non-perishable materials delivered to the work site; payment shall be allowed on the same percentage basis of the net invoice value as provided hereinafter.

Except as otherwise provided by the contract, between the 25th day and the last day of each month the OWNER shall make an approximate confirming estimate of the

value of the work done through the 25th of the month under the specifications. The monthly confirming estimate shall then be used to verify the Contractor's invoice. The OWNER shall verify that the sum total of the Contractor's invoice matches the total value of work done and acceptable, non-perishable materials delivered to the work site, based upon the bid proposal prices and quantities measured by the OWNER. In the event of a discrepancy between quantities of work as shown in the Contractor's invoice and measured quantities as shown in the OWNER 'S confirming estimate the OWNER 'S determination or measurement shall be final, and the Contractor's invoice shall be adjusted to reflect the quantities of work as shown by the OWNER 'S confirming estimate. Whenever the said confirming estimate or estimates of the completed work, since the last previous estimate, exceeds \$100 in amount a percentage of such estimate sum shall be paid to the Contractor no later than 30 days from receipt of the Contractor's invoice.

The Contractor's invoice and all required supporting documents shall be submitted to the OWNER's Engineering Department no later than the 26th of the month or the next working day if the 26th falls on a weekend or recognized holiday.

The Contractor shall furnish to the OWNER such detailed information as he may request to assist him in the preparation of monthly confirming estimates. It is understood that the monthly confirming estimates shall be approximate only, and all monthly confirming estimates and partial payments shall be subject to correction in the confirming estimate rendered following the discovery of an error in any previous confirming estimate, and such estimate shall not in any respect be taken as an admission of the OWNER of the amount of work done or of its quality or sufficiency nor as an acceptance of the work or the release of the Contractor of any of his responsibility under the contract.

If the Contractor is not in compliance with the approved work progress schedule or the approved revised schedule at the end of the monthly estimate period, payment for work performed during the period of noncompliance will be reduced by 30% of the work performed. All withheld moneys will be paid to the Contractor with the next regular monthly estimate when the work progress returns to compliance with the approved progress schedule.

1.51.2 RETAINAGE: As security for the faithful completion of the work by the Contractor, the OWNER shall retain ten percent (10%) of the total dollar amount of work done on all contracts less than \$200,000.00; five percent (5%) of the total dollar amount of work done on all contracts of \$200,000.00 or more.

On all contracts in excess of \$200,000.00, the following shall apply:

- (a) when work progress is fifty percent (50%) complete, retainage may at the OWNER 'S option be reduced to two percent (2%) of the dollar value of all work satisfactorily completed to date (not to include material on hand) provided that the

Contractor is on or ahead of the approved progress schedule and there is no cause for greater retainage as determined by the OWNER;

- (b) when work progress is substantially complete, the retainage may be further reduced to only that amount necessary to assure completion as determined by the OWNER;
- (c) if the OWNER determines that the Contractor is not making satisfactory progress or if there is other specific cause, the OWNER may, at his discretion, reinstate up to the five percent (5%) retainage.

1.51.4 FINAL PAYMENT: The Contractor shall furnish a Maintenance Bond for an amount equal to ten percent (10%) of the contract price for improvements and shall be for two (2) years from and after the date of the OWNER's acceptance of the work.

1.58 STATE AND LOCAL SALES AND USE TAX: The OWNER qualifies for exemption from state and local sales and use taxes, pursuant to the provisions of Section 151.309 of the Texas Tax Code, as amended. Therefore, the OWNER shall not be liable for, or pay the Contractor's cost of, such sales and use taxes which would otherwise be payable in connection with the purchase of tangible personal property furnished and incorporated into the real property being improved under the contract. This contract is a separated contract (as that term is defined in Texas comptroller's Rule 3.291, as amended) between the OWNER and the Contractor. A Contractor performing work under these specifications is a seller of tangible personal property furnished and incorporated into the real property being improved, pursuant to Section 151.056(b) of the Texas Tax Code, as amended. All invoices or estimates submitted by the Contractor to the OWNER shall be separated into three categories: (a) billings attributable to materials, supplies, equipment and other tangible personal property physically incorporated into the work; (b) billings attributable to materials, supplies, equipment and other tangible personal property purchased or leased for use in the work, but not physically incorporated into the work; and (c) billings attributable to other costs and fees allowable under the contract, including labor, overhead, profit and other reasonable, incidental costs related to the work. The Contractor must obtain a Texas Sales Tax Permit prior to commencement of work and shall file appropriate returns with the Comptroller of Public Accounts of the State of Texas, as required from time to time by rules and regulations of the Comptroller. The Contractor shall issue a resale certificate in lieu of the tax on the purchase of all materials, supplies, equipment and other tangible personal property to be incorporated into the real property being improved under the contract. Supplies, tools, materials, equipment and other tangible personal property that are purchased or leased merely for use in the performance of the contract, and not for incorporation into the improved real property, are not exempted from sales or use tax and are not covered by this Item.

All subcontractor agreements entered into by and between the Contractor and any subcontractor relating to the work shall be separated contracts (as that term is

defined in Texas Comptroller's Rule 3.291, as amended). The subcontracts shall provide for, and all requests for payment by subcontractors shall include, separate statements as follows:

billings attributable to materials, supplies, equipment and other tangible personal property physically incorporated into the work;

billings attributable to materials, supplies, equipment and other tangible personal property not physically incorporated into the work, and

billings attributable to other costs and fees, including labor, relating to the work.

The Contractor shall also require its subcontractors to issue resale certificates in lieu of the tax on the purchase of all materials, supplies, equipment and other tangible personal property to be incorporated into the real property improved under the contract.

The Contractor shall fully indemnify and hold harmless the OWNER from the cost of any and all sales and use taxes otherwise exempted as a result of the separated contract arrangement, if such sales or use taxes become due and payable, or are paid by the Contractor or the OWNER, as a result of the Contractor's failure or refusal to abide by the provisions of this Item 1.58 or the other applicable provisions of the specifications relating to separated contracts.

1.59 VENUE AND GOVERNING LAW: The Parties herein agree that this contract shall be enforceable in Dallas County, Texas. Venue for any dispute shall be in any court of competent jurisdiction in Dallas, County, Texas. For any dispute in federal court, the parties agree that venue is appropriate in the United States District Court for the Northern District of Texas, Dallas Division. The terms and provisions of the contract documents shall be construed in accordance with the laws and court decisions of the State of Texas.

NOTICE: The following products and construction methods contained within the above mentioned NCTCOG specifications will not be considered for use as standard specifications, nor will they be allowed for use in any City of Garland construction project.

PART II.

DIVISION 2, MATERIALS

2.12.1 Clay Sewer Pipe

2.12.2 Concrete sewer pipe, non-reinforced.

- 2.12.7 Gray iron pressure pipe.
- 2.12.12 ABS truss pipe for sanitary sewer.
- 2.12.18 Asbestos bonded, bituminous lined smooth interior corrugated metal sanitary sewer pipe.
- 2.13.4 Butterfly valves (unless specifically authorized by the Engineer).
- 2.14 Fire hydrants (Refer to Technical Specification TS450 - Fire Hydrants)
- 2.17 Single strap service clamps will not be allowed.
- 2.20 Fiberglass manholes other than what is specified in the plans and bid documents.

PART III. CONSTRUCTION METHODS

DIVISION 4, SUBGRADE, SUBBASE AND BASE COURSES

- 4.6.4 Dry placement for lime subgrade will not be allowed.
- 4.7 Portland cement treatment for base (only by special approval by the Engineer).
- 4.8 Asphalt treatment.

DIVISION 5. PAVEMENT AND SURFACE COURSES

Refer to City of Garland Special Conditions for concrete batch designs.

- 5.8.6 Pavement testing (refer to City of Garland Special Conditions).

DIVISION 6. UNDERGROUND CONDUIT CONSTRUCTION

- 6.2.8 Blasting or use of explosives not allowed.
- 6.2.9(c) For embedment refer to City of Garland Standard Details.
- 6.2.12 Backfill and embedment no pay item.
- 6.3.2 Foundation material no pay item.
- 6.5 Street cut excavation (refer to City of Garland Standard Details).
- 6.7.3(f) Use City of Garland specifications for hydrostatic test for all water conduit. (See Technical Specifications TS-400 – Ordinary Water Works Service)
- 6.7.3(j)(5) Direct tapping of PVC water pipe will not be allowed. Taps, or tapping saddles, or service clamps are not a pay item.
- 6.7.3(n) Fittings and pipe special for reinforced concrete steel cylinder pipe will not be measured and paid for as a separate item.
- 6.7.3(s) Purging and sterilization of water mains shall be performed by the Contractor at his expense.
- 7.4.5(b) The City of Garland shall designate its own strength requirements for concrete for structures.

DIVISION 8 MISCELLANEOUS CONSTRUCTION

8.3.2 MATERIALS: For reinforcement of drive approaches refer to City of Garland Standard Construction Details.

INCIDENTAL PAY ITEMS

All work not specifically identified as a pay item in the Bid Forms shall be considered incidental to the related pay items and the construction of the project. The following lists items that are considered incidental and included in the unit and lump sum bid prices. Refer to the Special Conditions and Scope of Work and Additional Related Information for more detailed explanation on incidental items

- Locating existing utilities
- Coordinating with Contractors working adjacent to the project limits.
- Videotaping of work site prior to construction
- Contractor negotiations with property owners for temporary staging areas
- Construction staking
- Preservation and protection of plant materials and trees, unless specified otherwise on the plans on a case by case basis.
- Removing brush and trees smaller than 6".
- Additional Barricades and Traffic Control Devices within the project limits to maintain traffic safety
- Removing asphalt detour pavement
- Repairing asphalt detour pavement
- Cutting and plugging existing utility lines to be abandoned
- Removal of existing lines in any location or in proposed trench lines
- Adjusting water valve stacks, meters, wastewater cleanouts to finished grades
- Maintaining positive drainage during all construction phases
- Removing valves and fittings
- Coordinating with KCS and TxDOT on work in their ROW.
- Substituting 5" of non-reinforced concrete for the asphalt detours.
- Concrete curb is incidental to concrete pavement.
- Field adjusting locations of taps, connections, manholes, junction boxes, driveways, ramps, sidewalks, signs, and other miscellaneous appurtenances due to site changes occurring after bidding of plans.
- Painting of steel railings
- All fees, unless stated otherwise is this contract
- Repairs to driveways, fences, walls, landscaping, irrigation and other private property that is avoidable, caused by the Contractor and not approved in writing by the City.
- Field Office
- Removing erosion control devices
- Final cleanup

SPECIAL CONDITIONS

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SPECIAL CONDITIONS

1. PERMITS AND RIGHT-OF-WAY.

The City of Garland (City) will provide rights-of-way for the purpose of construction without cost to the Contractor by securing permits in areas of public dedication or by obtaining easements or Rights-of-Way across privately owned property. Forty-eight (48) hours prior to initiation of any work within easements and other areas of public dedication it shall be the responsibility of the Contractor to inform all private property owners and public agencies having jurisdiction in the area

2. TRADE NAMES AND MATERIALS.

No material, which has been used by the Contractor for any temporary purpose whatsoever, is to be incorporated in the permanent structure without written consent of the City.

Where materials or equipment are specified by a trade or brand name, it is not the intention of the City to discriminate against an equal product or another manufacturer, but rather to set a definite standard or equality or performance, and to establish an equal basis for the evaluation of bids. Where the words "equivalent", "proper", or "equal to" are used, they shall be understood to mean that the item referred to shall be proper, the equivalent of, or equal to some other thing, in the opinion of judgment of the City. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved sample. Notwithstanding that the words "or equal to" or other such expressions may be used in the specifications in connections with the materials, manufactured article or process, the material, article or process specifically designated shall be used, unless a substitute shall be approved in writing by the City and the City shall have the right to require the use of such specifically designated material, article or process.

3. PROPERTY LINES AND MONUMENTS.

The Contractor shall protect all property corner markers, and when any such marker or monuments are in danger of being disturbed, they shall be properly referenced and if disturbed shall be reset at the expense of the Contractor.

4. DURING CONSTRUCTION.

During construction of the work, the Contractor shall at all times keep the site of the work and adjacent premises as free from material, debris, and rubbish as is practicable and shall remove same from any portion of the site, if in the opinion of the City, such material debris or rubbish constitutes a nuisance or is objectionable.

The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops.

5. PROJECT MAINTENANCE.

The Contractor shall maintain and keep in good repair the work contemplated under these plans, specifications, drawings, etc., and shall perform for a period as set forth in the Maintenance Bond from the date of acceptance all necessary repair, reconstruction and renewal of any part of said construction and shall furnish the labor and materials to make good and to repair any defective condition growing out of or on the account of the breakage or failure of any substance or the improper function of same. Said maintenance contemplates the complete restoration to a functional use during the said period as set forth in the Maintenance Bond.

6. PROTECTION OF IMPROVEMENTS.

The Contractor shall be entirely responsible for the protection of all improvements that are not designated by the City to be removed for proper construction of the project. This shall include, but not be limited to, sidewalks, building walls, existing inlets and manholes, underground utilities, shrubs, trees, signs, sod, irrigation heads, irrigation lines, valves, meters and fences. The Contractor shall be entirely responsible for the protection of all pavements adjacent to the project, unless such pavement is specifically noted to be removed or otherwise modified in the plans.

7. ACCIDENTS.

The Contractor must report in writing to the City all accidents whatsoever arising out of, or in connections with the performance of the work, whether on, or adjacent to, the site, which caused death, personal injury, or property damages, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the City.

If any claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the City giving full details of the claim.

8. ARRANGEMENTS FOR WATER FURNISHED BY THE CITY.

Water used for mixing and curing concrete and mortar shall be obtained from the City water mains. The Contractor shall make all necessary arrangements with the City Water Department for metering and payment for all water used on this project. The City provides and installs the fire hydrant meters. If it becomes necessary to move the meter to a different site, the Contractor shall be responsible for contacting the City Water Department to request the relocation of the meter to the new site.

Water used for dust control, jetting or flooding trenches, sprinkling, testing and flushing of pipe lines, or any other purpose incidental to this project, will be furnished by the Contractor. The Contractor shall make the necessary arrangements for securing the transporting of such water and shall take such water in a manner and at such time that will not produce a harmful drain or decrease of pressure in the City's water system. Water shall not be used in a wasteful manner.

9. USE OF FIRE HYDRANTS.

No person shall open, turn off, interfere with, attach any pipe or hose to, or connect anything with any fire hydrant, stop valve or stop cock, or tap any water main belonging to the City, unless duly authorized to do so by the City Water Department.

10. LIGHTS AND POWER.

The Contractor shall provide, at his own expense, temporary lighting and facilities required for the proper prosecution and inspection of the work.

11. PRESERVATION AND PROTECTION OF TREES, SHRUBS AND VEGETATION

No trees, shrubs or vegetation shall be removed except upon the specific authority of the City. Trees adjacent to the work shall be protected in accordance with the City Park Department Standard Details and Specifications.

It is the City's intention that all native plant material at this project site not specifically indicated on the plans for removal be protected and preserved. The Contractor shall take all necessary precautions to avoid damage or removal of trees, shrubs and other plant materials that are to remain following construction. Specimen trees and other plants within and closely adjacent to construction sites shall be adequately protected by the Contractor.

Do not store, stack or place equipment, material, chemicals or supplies within twenty-five (25) feet from edge of canopy of any plant materials that are to remain.

Plant protection requirements cited above include authorized pruning and cutting of limbs and major roots. The Contractor is cautioned not to cut, prune or otherwise remove plant parts without prior approval and guidance by the City inspector or representative. Any trees, shrubs or vegetation removed without approval by the City will be replaced as directed by the City and at the Contractors expense.

No separate measurement or payment will be made for preservation and protection of plant materials. This item shall be considered incidental to the other various items bid for the project.

12. REMOVAL OF TREES, FENCES, ETC.

Removal of trees, stumps, brush, etc. including disposal will be measured and paid for as provided in the proposal, or as directed by the Engineer. Fences within the right-of-way of this project shall be kept in good repair and closed at all times, except when it is necessary to move machinery and equipment through the fence. Gates shall be closed immediately after use. When the project is complete, the Contractor shall repair all fences and gates that have been moved or damaged as a result of construction. Fences shall be left in repair equal to the original condition. No separate compensation shall be made for this work.

The Contractor shall not be held liable for unavoidable damage to crops provided such damage occurs within the construction easement provided by the property owner.

13. POLES, SIGNS, GUY WIRES, ETC.

All utility poles and guy wires, private sign posts, signs and guy wires, and similar private obstructions which interfere with the construction of this project will be removed and replaced, or moved to new permanent locations without cost to the Contractor.

The removal and replacement of street sign posts and signs is the responsibility of the Contractor. The Contractor shall be responsible for all damage to street sign posts and signs within the limits of his operations that remain in place or are removed and replaced. In the event street sign posts and signs are damaged or destroyed by the Contractor's operations, they shall be replaced by the Contractor. No separate compensation will be paid for this work, but the costs thereof shall be included in such contract pay items as are provided.

14. EXISTING UTILITIES AND SERVICE LINES.

In the preparation of the plans, the City has indicated the location of certain underground utility lines known to the City. It is probable that some utility lines have not been shown, and no attempt has been made to show service lines. Hence, it is not guaranteed that all utility lines or structures as shown on the plans. Prior to the start of construction, the Contractor shall communicate with the proper representative of all the utility systems including but not limited to the water and sewer departments, the gas company, electric company, telephone company and any other private utility companies and advise said representative of the route of the proposed construction, in order to obtain the assistance of the utility in the location of and in the avoidance of conflicting with utility lines.

The Contractor will verify that all commercial and residential properties existing service lines are tied back into the proposed or existing main if disturbed. This applies to water, fire yard lines, wastewater and storm sewer services.

The Contractor shall be responsible for the protection of all existing utilities or service lines crossed or exposed by his construction operations. Where existing utilities or service lines are cut, broken, or damaged, the Contractor shall replace or repair the utilities or service lines with the same type of original material and construction, or better, at his own cost and expense, with the exception of those items included in the bid schedule.

15. EXISTING STRUCTURES.

The plans show the locations of all known surface and subsurface structures. However, the City assumes no responsibility for failure to show any or all of these structures on the plans, or to show them in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or requires the building of special work, provisions for which are not made in the plans and proposal, in which case the provisions in these specifications for extra work shall apply.

16. TESTING, INSPECTION AND CONTROL.

The City has contracted with a separate Material Testing Firm for all material testing on this project. The Contractor shall coordinate with this Material Testing firm during construction of the project for all testing required. Coordination shall consist of the following items:

- Contractor to notify the Material Testing firm and the City Inspector 48 hours in advance of all required testing.
- Provide access to project and testing areas sufficient to perform the required tests.
- Furnish incidental labor and facilities as required for testing.
- Provide a secure onsite storage area for test samples.
- Provide necessary Traffic Control for testing performed in traffic areas.
- Contractor to request Standard Procter tests from the Material Testing Firm and City Inspector at least ten (10) days in advance of beginning subgrade or trench excavation.

The City will pay for all testing as required in the contract documents except as noted in the following:

- The Contractor shall be responsible for all retesting due to initial test results that do not comply with the contract documents. These costs will be deducted from the construction pay requests.

- Testing that is requested by the Contractor that is not required by the contract documents.
- Pressure testing and chlorination of water lines is the responsibility of the Contractor.
- Pressure testing, mandrelling and video taping of the wastewater lines is the responsibility of the Contractor.

17. BORINGS.

Wherever certain test borings are made on the site, the locations of such test borings and the information revealed by them is indicated on the plans and profiles for the project. These borings shall not be construed as a warranty on the part of the City of the exact nature of the subsurface conditions that will be encountered during the construction of the work. The information thus furnished is intended only as a guide to the Contractor in making his own investigations preliminary to submitting a bid for the work.

18. DRAINAGE.

The Contractor shall provide at his own cost and expense all methods for adequately draining the work. No separate measurement or compensation will be paid for sub-drains or other methods of draining, but the cost thereof shall be included in such contract pay items as are provided in the Proposal and Contract.

Where surface drainage channels are disturbed or blocked during construction, they shall be restored to their original condition of grade and cross section after the work of construction is completed.

19. CONSTRUCTION IN CITY STREETS AND PRIVATE DRIVES.

It shall be the responsibility of the Contractor to build and maintain all weather bypasses and detours, if necessary, and to properly light, barricade, and mark all bypasses and detours that might be required on and across the streets involved in the work included in this contract.

The street paving projects shall remain open to traffic at all times unless special permission for closing the street is given by the City. After permission is given for closing any portion of the street, the Contractor shall be responsible for notifying the Police and Fire Department six (6) hours in advance of such closing.

The Contractor shall make every effort to complete construction and allow immediate access to adjacent property at all driveway entrances located along the streets. Property owners or tenants of improvements where access and/or entrance drives are located shall be notified at least forty eight (48) hours prior to the time the construction will be started at their driveways or entrances and informed as to the length of time driveways will be closed.

Any sand, gravel, or other similar material inadvertently spilled or otherwise deposited in private residential or commercial driveways or parking areas shall be cleaned up and removed by the Contractor as soon as possible or immediately upon the direction of the City Inspector.

During wet weather the Contractor shall construct temporary gravel crossings and wooden walkways to allow ingress and egress across excavated areas at no expense to the City and as directed by the City.

The Contractor shall at all times, keep a sufficient width of the roadway clear of dirt and other materials to allow the free flow of traffic. The Contractor shall assume any and all responsibility for damage, personal or otherwise, that may be caused by the construction along City streets or private drives.

If it becomes apparent that barricades do not sufficiently protect the general public and the Contractor's workmen from traffic hazards, the Contractor may be required to furnish such flagmen and/or watchmen as may be deemed necessary to properly direct traffic.

20. BOND PROJECT SIGNS.

The Contractor shall furnish and erect Bond Project signs at the locations on all bond funded projects as directed by the city, payment for same shall be as provided in the proposal. The unit bid price of the sign includes fabrication, installation, modifications requested by the city and the TCEQ SWPPP permit number. The Contractor shall be responsible for the protection and maintenance of these signs for the duration of the project.

21. CONSTRUCTION IN RAILWAY RIGHT OF WAY.

See Division One (1), Item 1.32.2 of the North Central Texas Standard Specifications for Public Works Construction as adopted by the City of Garland. Where the work encroaches upon any right-of-way (ROW) of any freight or passenger rail, the City will secure the necessary permits for the work. Where highways are crossed, the Contractor shall observe all the regulations and instructions of AREMA (American Railway Engineering and Maintenance of Way Association) and the railway entity as to methods of doing the work, or precautions for safety of property and the public. All negotiations with the railway owner, except for permits, shall be made by the Contractor. ■ The Texas Department of Transportation shall be notified by the Contractor not less than fifteen calendar days prior to the time of his intention to begin work. Any added costs of working within the railway ROW due to Contractor delays will be the responsibility of the Contractor.

22. CONSTRUCTION IN TEXAS DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY.

Where the work encroaches upon any right-of-way of the Texas Department of Transportation (TxDOT), the City will secure the necessary permits for the work. Where highways are crossed, the Contractor shall observe all the regulations and instructions of TxDOT as to methods of doing the work, or precautions for safety of property and the public. All negotiations with TxDOT, except for permits, shall be made by the Contractor. TxDOT shall be notified by the Contractor not less than five days previous to the time of his intention to begin work.

23. MAINTENANCE OF STORM SEWER AND UTILITIES THAT CROSS EXISTING ROADWAYS.

The Contractor shall maintain at all times during construction storm sewer and utility crossings of existing roadways at no expense to the City. Storm sewers and utilities crossing existing roadways shall be backfilled in accordance with the provisions of these specifications to an elevation six inches below the elevation of the existing roadway. A six-inch thick compacted gravel base shall be constructed to the elevation of the existing pavement and shall be maintained throughout the construction phase, until such time as permanent pavement replacement is performed. Potholes appearing in the existing roadway which in the opinion of the City, are a hazard to the general public shall be filled and maintained as directed by the City.

24. BARRICADES, LIGHTS AND WATCHMEN.

Where the work is carried on in or adjacent to any street, alley or public place, the Contractor shall, at his own cost and expense, furnish and erect such barricades, fences, battery type flasher-markers and danger signals, shall provide such watchmen, and shall provide such other precautionary measures for the protection of persons or property and of the work as are necessary. **ALL SIGNS, BARRICADES, AND TRAFFIC CONTROL DEVICES SHALL BE PLACED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).** From sunset to sunrise, the Contractor shall furnish and maintain at least one battery type flasher-marker at each barricade and sufficient number of barricades shall be erected to keep vehicles from being driven on or into any work under construction. The Contractor shall furnish watchmen in sufficient numbers to protect the work. Should the Contractor need to contract an additional outside source for barricading, the invoice for additional barricading shall be submitted to the City with no additional markup.

The Contractor will be held responsible for all damage to the work due to failure of barricades, signs, lights, and watchmen to protect it. Whenever evidence is found of such damage, the City will order the damaged portion immediately repaired, removed and/or replaced by the Contractor at his cost and expense. The Contractor's

responsibility for the maintenance of barricades, signs, and lights and for providing watchmen shall not cease until the project shall have been accepted by the City.

During the execution of the work, the Contractor shall obstruct public travel as little as possible and in no case shall there be less than twelve (12) feet in width of unobstructed roadway for the use of traffic, unless specifically directed otherwise by the City. Materials and equipment stored in or near the path of traffic shall be protected with red flags during the day and with lights during the night.

25. PROTECTION AND ADJUSTMENT OF EXISTING WATER VALVE BOXES.

Water valve locations will be furnished by the City prior to grading operations. Protection of existing water valve boxes located within the limits of the work shall subsequently be the responsibility of the Contractor. Failure to show water valve box locations on the plans does not relieve the Contractor of the responsibility to prevent damage to the valve and boxes. The Contractor shall adjust all water valve boxes which require adjustment to the new pavement grade at no expense to the City.

26. ADJUSTMENT OF TOPS OF EXISTING WASTEWATER MANHOLES.

Tops of existing wastewater manholes will be adjusted where necessary to match grade of new pavement. Adjustment will be made by breaking back the top portion of the manholes and rebuilding to conform to the new grade. The Contractor shall adjust all wastewater manholes which require adjustments to the new pavement grade at no expense to the City.

27. CONCRETE STRENGTH.

Minimum requirements for various batch design shall be as follows:

A. Class P1 and Class C Concrete

Refer to Section 303 – “PORTLAND CEMENT CONCRETE PAVEMENT”, of the Standard Specifications For Public Works Construction-North Central Texas (Fifth Edition) by North Central Texas Council of Governments.

B. 4,200 PSI Compressive Strength Concrete

Minimum 28-day Compressive Strength - 4,200 PSI

Minimum Sacks of Cement per Cubic Yards - 6.5

Maximum Water/Cement Ratio – 5.5

Course Aggregate No. [NCTCOG Item 2.1.1.(c)(4)] - 1 - 2 - 3

No Fly Ash Allowed

One (1) Sack of Cement = 94 lbs.

C. 6,000 psi Compressive Strength Concrete

Cement Content: 7.5 sack Type I Cement per Cubic Yard
Strength: 6000 psi compressive at 28 days
Water Content: 4.0 gal/sack (0.354 lb/lb)
Air Content: 3%-6%
Slump: 3"-4" before addition of admixture
Admixtures: ASTM C-494 Type F or G
Coarse Aggregate: Max 1" - No. 4 Crushed Stone

28. **SUBGRADE IN ROCK**

Where the subgrade is rock, the rock shall be removed and backfilled with soil. The depth of rock removed, thickness of soil replaced and soil specifications shall be as recommended by the project Geotechnical Engineering Report.

29. **CONCRETE TESTING & PENALTIES**

- I. Testing: Concrete shall be tested by others and as required by the City. Coordination between Contractor and testing agency is required 48 hours in advance of scheduled concrete pours.
- II. Cores: Concrete cores shall be 2" in diameter and taken no less than 300' intervals or requested by a City Engineer or Inspector. The core locations shall be marked on a plan and approved by a City Engineer or Inspector prior to making said cores. Pavement cores shall be made no less than 2'6" from the outside edge of any pavement. Areas found to have insufficient thickness shall be cored in a 10' grid to determine the extent of the removal area. The City Inspector shall be present during coring operations to approve the additional core locations and determine the area of insufficient thickness. Refer to paragraphs III and V for additional requirements related to cores and deficient thickness.
- III. Deficient Thickness: Where the measured thickness of pavement is less than specified, the Director of Engineering will make a determination of its acceptability. If the Director determines the deficient thickness pavement may remain in place, then payment will be made at an adjusted price as specified in the following table:

Deficiency in Thickness Determined by Cores <u>Inches</u>	Proportional Part of Contract Price <u>Allowed</u>
0.00 to 0.005	100 percent
0.005 to 0.20	90 percent
0.21 to 0.30	80 percent
0.31 to 0.40	72 percent

0.41 to 0.50	68 percent
0.51 to 0.75	57 percent

Any area of pavement found deficient in thickness by more than 0.75 of an inch shall be removed and replaced, at the Contractor's entire expense, with concrete of the thickness shown on the plans.

- IV. Deficient Strength: Where the tested 28 day strength of pavement is less than specified, the Director of Engineering will make a determination of its acceptability. If the Director determines the deficient strength paving may remain in place, then payment will be made at an adjusted price as specified in the following table:

Deficiency in Strength Determined by Beam Test (Center Point Loading)	Proportional Part of Contract Price
<u>PSI</u>	<u>Allowed</u>
0-5	100%
6-75	90%
76-125	80%
126-150	70%

Any area of paving found to have a 28 day strength less than 75 percent of the specified strength shall be removed and replaced, at the Contractor's entire expense, with concrete of the strength show on the plans.

- V. Payment: No additional payment over the contract unit price will be made for any pavement of a thickness or strength exceeding that required by plans.

When concrete for inlet construction does not conform to the required compressive strength of 3000 P.S.I. at 28 days, the inlet shall be removed and replaced by the Contractor without cost to the City.

The finished concrete base and pavement thickness shall conform to the minimum typical cross sections shown on the plans.

The City will require a sufficient number of cores to have a representative sample of the thickness and strength of the pavement throughout the project.

RECHECK - If the Contractor believes that the cores and measurements taken are not sufficient to indicate fairly the actual thickness of pavement and strength, additional cores and measurements will be taken provided the Contractor will bear the extra cost of drilling, testing and filling holes in the pavement.

30. SURPLUS MATERIALS.

Surplus materials shall be disposed of by the Contractor at his own cost and expense.

All excavated earth in excess of that required for backfilling shall be removed from the job site and disposed of in a satisfactory manner except in locations where, in the judgment of the City, it can be neatly spread over the site to form the finished contours.

31. SALVAGED MATERIALS.

All materials removed during the construction of the project and designated on the plans or by the City as salvaged materials shall be removed, cleaned, hauled to and stacked at a location designated by the City. Salvaged materials shall be the property of the City.

32. FINAL CLEAN-UP.

Upon completion of the work and before acceptance and final payment, the Contractor shall clean, remove rubbish, unused materials and temporary structures from the limits of the project and restore in a manner acceptable to the City, all property, both public and private, that has been damaged during the prosecution of the work, and shall level and grade all portions of the work where the surface of the natural ground or street surface has been disturbed during construction and shall leave the site of the work in a neat and presentable condition, free from ruts or holes at no additional cost and to the satisfaction of the City.

Material cleared from the limits of the project and deposited on adjacent property will not be considered satisfactory unless prior approval is obtained from the property owner involved, and the work is accomplished to the satisfaction of and at no additional cost to the City.

33. LABOR PREFERENCE.

The Contractor should give preference to all labor hired on the project in the following order:

- (a) to bona fide residents of the City of Garland, Texas
- (b) to bona fide residents of the County of Dallas, Texas
- (c) to bona fide residents of the State of Texas
- (d) to bona fide residents of the United States

Provided that these preferences shall apply only where such qualified labor is available to perform the work to which the employment relates.

34. SALES TAX EXEMPTION FOR CONSTRUCTION MATERIALS.

SEE SUPPLEMENT TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. RE: 1.58 STATE AND LOCAL SALES AND USE TAX

35. LIENS.

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, has delivered to the City a complete release of all liens arising out of this contract, or receipt in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all the labor and material for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the City, to indemnify the City against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

36. STEEL RAILING COATINGS.

The Contractor will provide steel railings with a primer coating applied in accordance with manufacturer's specifications prior to installation. After installation, all steel railings will be painted, in accordance with manufacturer's specifications, prior to installation with Sherwin Williams Industrial Enamel "Walnut Brown" B54N16. Walls and areas around railings will be masked to prevent overspray, drippings and spillage. All priming and painting will be considered incidental to the unit cost for rail construction.

37. PRIVATE PROPERTY ACCESS.

The Contractor shall not enter upon or use private property except as allowed by easements shown on the contract documents or if the Contractor obtains specific written permission from the property owner. A copy of all correspondence between property owners and the Contractor related to this project shall be provided to the City immediately upon receipt from the property owner.

38. CONSTRUCTION SEQUENCING.

For construction sequencing and traffic control plans, other than what is included in the contract document, the Contractor will provide his proposed plan sealed by a Registered Professional Engineer in the State of Texas. An alternate construction sequencing plan will be reviewed and approved by the City Engineering and Transportation Departments prior to the Contractor beginning the work. Any alternate construction sequencing plans will not be considered for additional pay to the Contractor but shall be paid at the contract bid price.

39. TRENCH SAFETY SYSTEM

Trench safety drawings and details for Item Numbers 196.0000, 496.0000, 596.0000, and 896.0000 are not provided within the plans. Trench safety and shoring shall

conform to all Codes, Regulations, Specifications and Laws of the City of Garland, State of Texas, and the United States, with particular emphasis on all applicable requirements of Occupational Safety Health Administration (OSHA) Standards, OSHA 2207, Part 1926 and OSHA 2226.

The Contractor shall provide trench shoring design for Items 196.0000, 496.0000, 596.0000, and 896.0000. Such design shall be prepared, signed and sealed by a Registered Professional Engineer in the State of Texas. Such engineer shall carry liability insurance against errors and omission in the amount of \$1,000,000 minimum. A copy of the policy binder shall be furnished to the City. Four (4) copies of the final report shall be provided to the City prior to the issuance of the notice to proceed for this project.

The Trench Support System shall cover all excavations more than five feet (5') in depth. Such excavations shall be provided with a support system or some equivalent means of protection which will provide a safe environment for workmen. The minimum such support shall be a trench box consisting of a pre-fabricated movable trench shield composed of steel plates welded to a heavy steel frame. Other systems may consist of sheet-piling, shoring or bracing and must be approved by the City.

All work, reports, and plans required herein shall be included in the cost of Item 196.0000, 496.0000, 596.0000, and 896.0000.

40. EROSION CONTROL.

A Storm Water Pollution Prevention Plan (SW3P) or Erosion Control Plan (ECP) has been prepared for the project and is incorporated into this bid package. The Contractor and the City will be co-operators for the site as defined in the Texas Pollution Discharge Elimination System (TPDES) General Permit issued for storm water discharges from construction sites. Both the Contractor and the City will submit a Notice of Intent (NOI) as co-permittees to discharge storm water from sites that disturb more than 5 acres in compliance with the General Permit. Both the City and the Contractor will generate a construction site notice to discharge storm water from sites that disturb more than 1 acre in compliance with the General Permit.

All additional contractors and/or subcontractors whose activities impact the (SW3P) shall sign a certification similar to that shown in Section IX - Erosion Control stating that they understand their responsibilities under the Plan.

The SW3P has been prepared in accordance with the most current North Central Texas Council of Governments (NCTCOG) best practices for construction activities manual which has been adopted by the City of Garland as a means for compliance with the TPDES General Permit. All other SW3P's that may be prepared in relation to this project must comply with the BMP Manual and, ultimately, the TPDES General Permit. Copies of the BMP Manual are available at the offices of the North Central Texas Council of Governments and on the NCTCOG website.

All Stormwater Pollution Prevention Plan measures and fees, including but not limited to those shown on the Erosion Control Plan and described in the Contract Documents shall be paid on a lump sum basis under the Erosion Control pay item. Temporary seeding, hydro mulching or sodding required during construction, prior to final re-sodding, will not be paid for separately but shall be paid for under this lump sum item.

All Site Operators/Contractors shall become familiar with and comply with all requirements detailed in the NCTCOG manual.

41. PERMIT-REQUIRED CONFINED SPACES.

The Contractor shall comply with the Occupational Safety and Health Administration (OSHA) Standards for permit- required spaces.

Title 29 Code of Federal Regulations Part 1910.146

Prior to construction, the Contractor shall provide a copy of a written program for permit-required confined spaces. The program should be developed in accordance with OSHA standards.

42. DISCHARGE OF HEAVILY CHLORINATED WATER FROM WATER LINES.

For this project, heavily chlorinated water shall pertain to water containing a residual chlorine level greater than potable water (3.5 mg/l). Heavily chlorinated water discharged from purging and sterilization activities during any water line installation, repair or replacement, shall be directed under permit to the City's wastewater system. This procedure shall apply for any individual discharge that exceeds 1000 gallons. The City may allow other discharge methods where accessibility to a wastewater line is limited.

For the described discharges, the Contractor shall apply to the Engineering working department for a Wastewater Discharge Permit after the mandatory chlorine detention time (usually 24 hours).The heavily chlorinated water may be discharged to the wastewater beginning two (2) working days after permit application.

There will be no fee associated with the discharge permit. Specific administration procedures are listed under Technical Specification TS-400 in Section VI of this bid book.

43. AIR QUALITY MONITORING AND ACTION.

In cooperation with a region-wide effort, the City of Garland is attempting to decrease the amount of Volatile Organic Compounds released. The City will receive an Air Pollution Watch from TCEQ when a particular day is predicted to be a public health risk. An Air Pollution Warning is issued when air pollution levels reach unhealthy levels. When the Air Quality Index (AQI) is above 100 or noted as

orange, red or purple an Air Pollution Warning is issued. This information will be relayed to the Contractor as quickly as practical.

The following steps will be taken by the Contractor on designated Air Pollution watch or Warning days:

- Utilize mass transit services or car pool if possible.
- Use low emission diesel fuels.
- Purchase low emission equipment.
- Ban early morning use of heavy equipment.
- Demonstrate emission reduction in lieu of early morning ban and new equipment purchase.
- Limit driving or fueling of gasoline-powered vehicles whenever possible by rescheduling meetings and inspections until after 10:00 a.m. or until another working day.
- Limit the use of two-cycle gasoline powered engines until after 10:00 a.m. from May 1 to October 31.
- Refrain from using oil-based paints, paint thinners, and solvents until after 10:00 a.m. or until another working day.

In all cases, through discussions with the Contractor, the City will make the final determination as to what activities should be limited, delayed, or deleted during unhealthy AQI days. Through these discussions, the City will also determine whether a working day should be charged if any limitations, delays or deletions are utilized in order to reduce emissions.

44. DISPOSAL OF MATERIAL.

Excavated or surplus material may be disposed of at the City Landfill located at **3175 Elm Grove Road, Rowlett, TX 75089** based on the following fees and stipulations:

Fill Dirt that is very clean and free of debris

No Charge *

Other Excavated or Surplus Material

Call for Price Per Ton *

No Liquids

No Hazardous Material

No Tires

All Material must be contained within typical 7-9 yard or smaller dump truck bed.

THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS (INCLUDING TIPPING FEES) ASSOCIATED WITH THE LEGAL DISPOSAL OF SURPLUS MATERIAL. THESE RATES AND FEES ARE PROVIDED FOR THE CONTRACTOR FOR USE ON THIS PROJECT ONLY.

PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL IDENTIFY THE TRUCKS THAT WILL BE INVOLVED IN THE PROJECT. THIS IDENTIFICATION SHALL CONSIST OF LICENSE NUMBERS, IDENTIFICATIONS NUMBERS, ETC. THAT WILL FACILITATE THEIR ASSOCIATION WITH THIS

PROJECT. TRUCKS THAT ARE NOT OR CANNOT BE IDENTIFIED WILL PAY FULL PRICE AT THE LANDFILL.

CONTACT THE CITY LANDFILL AT (972) 205-3670 FOR RATE VERIFICATION.

45. MOBILIZATION

- A. Description: This item shall consist of the mobilization of personnel, equipment and supplies at the project site in preparation for commencing work on other contract items. Mobilization shall include, but is not limited to, the movement of equipment, personnel, material, supplies, etc., to the project site and the establishment of necessary field facilities.
- B. Measurement: Measurement of the item "Mobilization" as specified herein, will be by the "lump sum", as the work progresses.
- C. Payment: The price bid for mobilization may not exceed five (5) percent of the total contract amount for the project. Partial payments of the lump sum bid for mobilization will be as follows:
 - (1) When ten (10) days of contract time have elapsed, fifty (50) percent of the mobilization lump sum bid will be paid on the following monthly payment.
 - (2) When twenty-five (25) days of contract time have elapsed, one hundred (100) percent of the mobilization lump sum bid will be paid on the following monthly payment, minus retainage.
 - (3) Upon completion of all work under this contract, payment for the remainder of the lump sum bid for mobilization will be made.

46. CONSTRUCTION CONTINGENCY

The construction contingency, Item 2000.0000, is no longer included in the bid items to pay the Contractor for unforeseen items or additional quantities necessary to construct the project in accordance with the intent of the contract documents. The Contractor is expected to provide unit pricing to construct the project as presented in the bid documents.

47. REGULATION OF IRRIGATION SYSTEMS AND IRRIGATORS

Any new irrigation system, any extension to an existing irrigation system, and/or any replacement of an existing irrigation system must be installed by an irrigator who is licensed as such by the Texas Commission on Environmental Quality.

Prior to installing a new irrigation system or installing/replacing a backflow device, the irrigator shall obtain a permit from the Building Inspection Department. Permit fees are waived for city projects.

To obtain a permit, the irrigator must register with Building Inspections. The irrigator must present his/her TCEQ irrigator's license and a government issued picture ID. A registration fee must be paid even when the work is for the city.

It is the irrigator's responsibility to design and install the system in conformance with the currently adopted TCEQ "Standards for Landscape Irrigation" as published in the TCEQ rules. Additionally, the irrigation system shall meet the City of Garland Water Conservation Plan, as published as Article VIII, Chapter 51 of the City of Garland Code of Ordinances.

The Contractor shall be responsible for repairing to existing or better condition any irrigation systems disturbed outside the designated work zone or in staging areas at his own expense.

Existing irrigation systems within the work zone shall be paid for at the contract unit price on a per head basis. This bid item shall include all irrigation work required to restore the existing system, including but not limited to pipes, heads, valves, coordination with property owners and resetting controllers. It is the Contractor's responsibility to check the existing condition of these systems prior to construction and to return the systems to existing or better operating condition. Repairs shall be made in a timely manner so as to not cause damage to the existing vegetation.

48. ESTIMATED QUANTITIES

All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the bids submitted for the Work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that it will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts.

49. VIDEO OF WORK SITE:

The Contractor shall be required to video the entire project work site prior to beginning construction. A copy of the tape shall be furnished to the City prior to the first pay request. (No separate pay item).

50. MAILBOXES:

The Contractor shall be required to maintain mailboxes and mail services throughout the project and maintain access to them by the mail carrier at all times during construction. Payment for removal, temporary relocation, temporary mailboxes, and permanent replacement of all mailboxes, regardless of type or construction shall be included in other items of work. Contractor shall notify the United States Postal Service of any modifications to mailboxes and coordinate the

location of temporary mailboxes and permanent mailboxes. (No separate pay item).

51. COMPANY LOGO:

All equipment used on the project shall be clearly marked with the contractor's name and LOGO. Subcontractor equipment shall also be similarly marked.

UNDERGROUND UTILITIES

UTILITY CONTACTS

During the construction of this project, the following should be contacted in order to determine the location of their respective utilities:

Water & Wastewater Lines Garland City Waterworks	DIG TESS 800-344-8377
Conduits & Cables Power & Street Lighting Garland Power & Light	DIG TESS 800-344-8377
Traffic Signal Lights Transportation Department	DIG TESS 800-344-8377
City of Garland Interconnections Data Services	DIG TESS 800-344-8377
Conduits & Cables AT&T	DIG TESS 800-344-8377
Conduits & Cables Verizon	DIG TESS 800-344-8377
Conduits & Cables Time Warner Cable	DIG TESS 800-344-8377
Conduits & Cables ONCOR Electric	DIG TESS 800-344-8377
Gas Lines ATMOS Energy	DIG TESS 800-344-8377
Water Transmission Lines North Texas Municipal Water District	972-442-5405
Fiber Communication Lines Garland Independent School District	DIG TESS 800-344-8377
Brazos Electric Power Company	254-750-6500

Updated August 2013

III EXHIBIT C

TECHNICAL SPECIFICATIONS AND INFORMATION

TECHNICAL SPECIFICATIONS AND INFORMATION

GEOTECHNICAL REPORT

**INSERT GEOTECHNICAL REPORT OR INDICATE A
GEOTECHNICAL REPORT IS NOT PROVIDED FOR THIS
PROJECT**

TECHNICAL SPECIFICATIONS

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TS-203	TOPSOIL
TS-271	TURF ESTABLISHMENT (BERMUDA GRASS SOD)
TS-400	ORDINARY WATER WORKS SERVICE
TS-450	FIRE HYDRANTS

TS-203

TOPSOIL

I GENERAL

This section governs the preparation of the ground surface for topsoil application; removal of topsoil from areas to be stripped on the site, designated stockpiles or from approved sources off the site; and placement of the topsoil on prepared areas within the right-of-way in accordance with this specification at the locations shown on the plans or as directed by the OWNER.

II MATERIALS

Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth or hazardous to humans and animals, and it shall be free from subsoil and stumps, roots, brush, stones one (1) inch or more in diameter, clay lumps or similar objects. Brush and other vegetation which will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sods and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Where there is discrepancy by the Owner as to the suitability of the existing surface layer material for use as topsoil, the topsoil or soil mixture, unless otherwise specified or approved, shall have a PH range of approximately 5.5 PH to 7.6 PH when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 2% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh sieve as determined by the wash test in accordance with AASHTO T11.

On-site existing natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

Ten (10) days prior to stripping topsoil for use or reuse on-site, the OWNER'S representative shall be notified by the Contractor. The topsoil shall be inspected to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths for testing.

III CONSTRUCTION

Areas to receive topsoil include all areas disturbed by construction which are to be revegetated, as indicated on the Drawings, or as instructed by the OWNER in writing. Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the OWNER before the various operations are started.

1. PREPARING THE GROUND SURFACE

- A. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the OWNER, to a minimum depth of two (2) inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than two (2) inches in any dimension and all litter or other material, which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive scarification by the use of small tillers or hand tools.
- B. Grades on the areas to be topsoiled which have been established by others, as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and properly compacted condition to prevent, insofar as practical, the formation of low places or pockets where water will stand.

2. OBTAINING TOPSOIL

- A. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas which may interfere with subsequent operations shall be removed using methods approved by the OWNER. Heavy sod or other cover which cannot be incorporated into the topsoil by discing or other means shall be removed.
- B. When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the OWNER. The topsoil shall be stockpiled in areas approved by the OWNER, or if otherwise directed, spread on areas already tilled and smooth-graded. Any topsoil that has been stockpiled on the site by others, and is required for topsoiling purposes, shall be placed by the Contractor. The site of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required, and put into a condition acceptable for seeding.
- C. When suitable topsoil is secured off the site, the Contractor shall locate and obtain the supply subject to the approval of the OWNER. The Contractor shall notify the OWNER sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

3. PLACING TOPSOIL

- A. The topsoil shall be evenly spread on the prepared areas to a uniform depth of four (4) inches after compaction unless otherwise shown on the plans. Spreading shall not be done when the ground or topsoil is frozen, excessively wet or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turving operations can proceed with a minimum of soil preparation or tilling.

- B. After spreading, any large stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks one (1) inch or more in diameter, roots, litter or any foreign matter shall be raked up and disposed of by the Contractor. After spreading is completed, the topsoil shall be satisfactorily compacted to 90% Standard Proctor Density by rolling with a cultipacker or by other means approved by the OWNER. The compact topsoil surface shall conform to the required lines, grades and cross sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.
- C. Topsoil placed in medians, in areas to be re-vegetated, shall be placed at 1:12 or achieving a 6" crown in center of median at the conclusion of backfill and placement operations described this specification.

IV MEASUREMENT AND PAYMENT

Topsoil shall be measured by the square yard compacted in place. All work performed as ordered and measured as provided for under this item shall be paid for at the unit price bid for topsoil. The price shall be full compensation for excavating, loading, hauling, placing and for furnishing all labor, equipment, tools, supplies, and incidental necessary to complete the work.

END OF SECTION

TS-271

BERMUDA GRASS SOD

1.1 DESCRIPTION

The work covered by this section of the specifications consist of furnishing all labor, materials, equipment and services necessary to sod lawns as indicated on the drawings and specified herein.

1.2 QUALITY ASSURANCE

Provide at least one person who shall be present at all times during execution of this portion of the work, who shall be thoroughly familiar with the type of equipment being installed and the proper materials and methods for their installation, and who shall direct all work performed under this section.

Landscape materials shall comply with government regulations prevailing at the supply source and job site. All materials shall be of the type and quality as specified herein.

1.3 GUARANTY

Guaranty all sodded lawns for a period of 30 days from the date of completion to be at least the quality and condition as at final acceptance. Promptly resod unacceptable areas during the guaranty period as directed by the Landscape Architect.

1.4 SUBMITTALS

Within thirty (30) days of the award of the contract, submit a complete list of all materials proposed to be furnished and installed under this section. Submit the name and address of grower of the sod. Supply the sod growers Certificate verifying the turf variety to the Owner.

1.5 FINAL ACCEPTANCE

There will be one date of acceptance for the entire project. Acceptance will be based upon a satisfactory stand of turf as specified under "Establishment".

2.1 SOD

Provide Common Bermuda grass (*Cynodon dactylon*) grown in a sod nursery on topsoil, one year old with a heavy top, and a strong, well-knit root system. Sod shall be free of noxious weeds and disease.

2.2 SOIL AMENDMENTS

Prior to sod installation, the contractor will apply a complete fertilizer with a dry weight percentage of 27-9-18 (N-P-K) containing zinc and iron. Application will be at the rate of 325 pounds per acre.

Apply a second application of fertilizer, dry weight percentage 27-9-18 (N-P-K), four weeks after the planting date. Application will be at the rate of 325 pounds per acre.

3.1 SOIL PREPARATION

The Contractor will scarify, till, float and drag the top soil as necessary to bring it to finished grade. Eliminate and remove all weeds, debris, rocks, etc. prior to planting.

3.2 SODDING

Sod shall be delivered to the site within 12 hours after cutting and shall be laid immediately upon receipt. Areas to receive sod should be moist but not muddy.

Lay the sod solidly with joints staggered so that no voids occur between the strips. Roll sod to compact and provide a firm contact of roots with topsoil. The finished surface shall be true to grade, smooth, even, and equally firm at all points. Cut and fit around irrigation heads and other features.

3.3 CLEAN-UP AND REPAIR

Remove all debris, excess soil and equipment from job site prior to substantial completion.

Restore all site areas and improvements to their original condition. Repair existing utilities, pavements, structures landscape or other improvements damaged as a result of work related to this contract.

3.4 IRRIGATION

Provide temporary irrigation in areas where no automatic irrigation is available.

3.5 ESTABLISHMENT PERIOD

The Contractor shall be responsible for providing a complete and uniform stand of turf grass. The Contractor shall provide all necessary mowing, watering, insect and disease control until the date of Final Acceptance by the Owner.

The Contractor will not be responsible for defects resulting from abuse or damage by others, or unusual natural phenomena beyond the Contractors control, such as flood, freezing rain, winds over 60 miles per hour, vandalism, or fire.

Acceptance in areas that receive Bermuda grass sod will be based on establishment of a uniform stand of turf grass, defined as coverage of specified grass at a density of 95% coverage, with no bare spots greater than one square foot.

END OF SECTION

TS-400

ORDINARY WATER WORKS SERVICE

2.A.1.1 I MATERIAL

Refer to the North Central Texas Standard Specifications for Public Works Construction, Division 2 and 6 for materials and construction Methods for the following conduit only.

- (1) Poly Vinyl Chloride (PVC 6" - 12") water main DR18 Class 150 P.S.I.
- (2) Ductile Iron (poly wrapped) 6" - 12" water main 250 P.S.I. thickness Class 51.
- (3) Pretensioned Reinforced Concrete Cylinder AWWA Standard C-303 (16" - 30").
- (4) Water Mains 36" and larger shall be Prestressed AWWA C-301. No other materials for water mains will be considered.

SEWER SERVICE.

- (1) Poly Vinyl Chloride SDR 26 (6" - 24").
- (2) PVC Large Diameter Ribbed Sewer Pipe ASTM F 794 D 1784 (27" - 48").

TAPPING. Direct tapping of PVC water mains will not be allowed service clamps for same shall be Mueller Bronze double strap with outlet boss tapped with CC thread. Co-ops and curb stops shall be those as manufactured by Mueller, Ford, or Jones. Curb stops shall be of the angle pattern.

II TESTING

HYDROSTATIC TEST FOR WATER MAINS. As soon as a continuous section of new water main has been installed, and all concrete blocking has been in place the specified time, the Contractor shall proceed immediately to complete all testing and sterilizing, make all connections, and place those sections in service. The Contractor shall furnish all labor, materials, tools and equipment necessary to bulkhead and seal off the line for testing, fill it with water, raise the filled line to test pressure and measure the amount of leakage over the test period.

The entire length of the installed line shall be field tested for water tightness in the following manner: The section of the line to be tested shall be filled with water for the escape of all air from the line. During the filling of the line, care shall be exercised to see that all air vents are open, and all bulkheads, valves, manholes, connections, etc., in the section undergoing test shall be carefully examined for leakage. If any leakage is found, it

shall be completely stopped or provisions shall be made for its accurate measurement during the test.

The test shall consist of raising and hold the hydrostatic pressure in the test section of 150 pounds per square inch. Such test pressure shall be maintained for a period of four (4) hours, during which time the water pumped into the line to maintain the test pressure shall be accurately measured in a manner satisfactory to the Engineer. The line leakage shall be defined as the amount of water pumped into the line to maintain the test pressure during the prescribed period less the measured leakage through valves and bulkheads.

Leakage as determined by the above test shall not exceed a rate equal to 50 gallons per inch of internal pipe diameter per mile per 24 hours.

The testing of the pipe shall be included in and paid for at the unit price bid for the pipe, and no extra compensation for the testing will be allowed.

In the event any section of the line tested fails to meet the above specified requirements for water tightness, the cause of the excessive leakage shall be determined and remedied to the satisfaction of the Engineer including retesting if required.

STERILIZATION. Prior to sterilizing, each valved section of the new pipe line shall be pressure-tested and flushed with clean water from the City system to remove all visible evidence of dust, sod, and fine debris which may have entered the line during construction and testing. The water required to flush and sterilize the lines, without unnecessary waste, will be furnished by the City, without charge to the Contractor.

Chlorine shall be used to sterilize the pipe line by the following method: The amount of chlorine applied shall be such as to provide a dosage of not less than fifty (50) parts per million of available chlorine, or sufficient chlorine to give a residual of 5 P.M. in all parts of the line. The chlorinating material shall be introduced to the water lines and distribution system in a manner approved by the Engineer. After a contract period of not less than eight (8) hours, the system shall be flushed and the Contractor shall fill the lines with City water and shall submit samples of water taken from several locations, not less than one per section or two per mile to the City for bacteriological test. In the event, the bacteriological tests are positive (unsatisfactory), the Contractor shall drain the lines and repeat the chlorination until the test results are negative, or satisfactory.

All valves in the lines being sterilized shall be opened and closed several times during the contract period.

The cost of furnishing the chlorine, labor, tools, equipment, and test of chlorine content will be at the expense of the Contractor. No water mains shall be placed in service until samples of the water from the main, taken by the Contractor, have been submitted for tests performed by an approved laboratory and a satisfactory test report on the samples received from the laboratory.

Bleeder lines installed for testing purposes will not be a pay item. Co-ops, curb stops, service clamps, tapping saddles, and all other fittings except cast iron bends, toes, crosses, etc. will not be a pay item.

III SANITARY SEWER MANHOLES.

Sanitary sewer manholes shall be pre-cast, or cast in place non-reinforced concrete. Fiberglass manholes shall not be used except by special permission of the Engineer.

IV FITTINGS FOR R.C.C.P..

Fittings (bends, wyes, tees, and pipe specials) for reinforced concrete cylinder water pipe will not be a separate pay item.

V FIRE HYDRANTS.

For Fire Hydrants, see separate City of Garland Standard Specification TS-450.

VI RETAINER GLANDS.

All PVC water main pipe with mechanical joint fittings shall be retained with Retainer Glands (Ebba Series 2000 PV or equal) plus standard thrust blocking.

END OF SECTION

TS450

FIRE HYDRANTS

I DESCRIPTION OF WORK

The work to be performed under this section of the specifications, shall consist of furnishing and installing fire hydrant, removal, salvage and relocating same, including all clearing, grubbing, excavation, sheering, shoring, dewatering, jointing, testing, backfilling and any other work that is required or necessary to complete the installation as shown on the plans as specified herein.

II MATERIAL

All fire hydrants furnished shall conform strictly to the latest specification C502 by the A.W.W.A. and shall be either Kennedy Guardian, Waterous WB67 with options or Mueller Centurion A-423 or as approved by the City of Garland Water Department, with the following supplementary details and changes or additions:

(1) Type of Shut-off

Type of Shut-off shall be:

- (a) Compression type with the flow, dry barrel

(2) Inlet Connection

Unless otherwise ordered, the inlet connection shall be a six-(6) inch standard mechanical joint inlet complete with all joint accessories. The inlet valve shall not be less than five and one-quarter (5 1/4) inch net opening.

(3) Delivery Classification

All hydrants shall be equipped with two hose nozzles and one pumper nozzle.

(4) Bury Length

The depth of bury shall be determined by the Contractor. The height above natural round or finished grade shall be as specified in TS24.3.

(5) Diameter Outlet Connections

Two hose nozzles two and one-half (2 1/2) inch nominal I.D. One pumper nozzle four (4) inch nominal I.D. and 4.962 inches O.D.

(6) Hose and Pumper Nozzle Threads

Hose Nozzles

(a) Two and one-half (2 1/2) inch National Standard thread

Pumper Nozzles

- (a) Inside diameter - 4 inch nominal
- (b) Outside diameter - 4.962 plus 0 minus 0.40
- (c) Pitch diameter - - 4.800 plus 0 minus .020
- (d) Root diameter - 4.612 max.
- (e) Four threads per inch

(7) Harnessing Lugs

Not required.

(8) Inlet Valve

Inlet valve shall be not less than 5 1/4" opening and valve to be constructed of high quality synthetic rubber or neoprene.

(9) Operating Nut and Cap Nuts

Operating and cap nuts shall be made of bronze not less than 1" in height and shall be equipped with weather shield. The nut shall be pentagon shaped 1 1/2" point to face at bottom tapered to 1 7/16" point to face at top.

(10) Oil Reservoir

Oil reservoir to be factory filled with double rubber "O" ring seal - Filler plug to be recessed type.

(11) Wetted Surfaces

All wetted ferrous metal surfaces in the hydrant shoe including lower valve plate shall be coated with epoxy. All exposed surfaces below ground line to be coated with asphalt varnish.

(12) Drain Way

Drain way shall be all bronze with two drain way openings.

(13) Valve Seat

Valve seat shall be bronze to bronze connection.

(14) Hose Nozzle Caps

Hose nozzle caps are to be securely chained to hydrant barrel and have durable neoprene gasket seals. Hose nozzles shall be threaded and locked to hydrant barrel caulked in nozzles will not be accepted. Hose nozzles shall have a minimum clearance of 21" from centerline to ground line.

(15) Direction to Open

Turn too left (counter-clockwise). No hydrant will be accepted that requires less than the following turns to open:

<u>Size of Inlet Valve</u>	<u>Turns to Open</u>
5 1/4"	10
6"	12

(16) Working Pressure

150 PSI Min. - 300 PSI Test

(17) Hydrant Upper Barrel

The hydrant shall be constructed so that the nozzle may be faced in any desired direction.

(18) Main Valve Seats

Main valve seats on compression type hydrants closing with the flow shall be of such design that incorrect positioning is impossible and that the threads will be adequately guided into position. Arrangements shall also be made to hold the main valve gasket in place during assembly.

(19) Gaskets - Ground Line

Gaskets furnished for ground line flanges shall be full face or the flange shall be recessed to hold the gasket in place. Gaskets shall be rubber compound.

(20) Breakable Type Hydrants

Breakable type hydrants shall be furnished.

(21) Lower Barrel

Breakable parts of lower barrel shall be located no less than two (2) inches but not more than five (5) inches above the ground line. These parts shall be of the breakable flanges screwed to the lower barrel will not be accepted. Flanges shall be designed so that an end wrench can be used on the nuts and bolts. All bolts below ground to be stainless steel.

(22) Stem

Provision shall be made in the design of the stem to disconnect the stem from the hydrant parts above the lower barrel break point in the event of traffic accident.

(23) Breakable or Sleeve Type Couplings

If breakable or sleeve type couplings are used they shall have sufficient torsional strength such that a torsional failure of the stem will occur at some point other than at the coupling. Design of the coupling shall be such that when the coupling is broken no parts will come loose and fall into hydrant, and the break will not occur through the pins or bolts holding the coupling to the stem.

(24) Provisions for Extension

All hydrants shall be capable of being extended to accommodate future grade changes without excavation. Compression type hydrants that close with the flow shall have breakable type stem coupling installed at the ground line flange. Extension of this hydrant shall be made by adding at the ground line flange a new coupling and stem section equal to the length of the extension. Stem extensions made by adding new section of stem to the threaded section of the stem at the top of the hydrant will not be accepted.

(25) Operating Stems

Operating stems whose threads are located in the barrel or waterway shall be of manganese, bronze, everdure, or other high quality non-corrodible metal, and all working parts in the waterway shall be bronze to bronze/

Operating stems whose threads are not located in the barrel or waterway may be made of high-grade bronze, genuine wrought iron or steel, and stem nuts shall be bronze. Iron or steel stems shall have a bronze stainless steel, or other non-corrodible metal, sleeve where passing through stuffing box or O-rings. Operating

threads must be sealed against contact with the water at all times regardless of open or closed position of the main valve.

(26) O-Rings

O-rings will be furnished in lieu of stem packing. They shall be the double O-ring type designed so that the rubber rings will move against a bronze surface.

(27) Color of Finish Paint Above Ground Line

Two top coats of durable and weatherproof composition and finish coat of linseed oil base aluminum.

All hydrant tops shall be colored coded according to main line size as follows: silver for six (6) inch, blue for eight (8) inch, and yellow for ten (10) inch and larger.

(28) Drawings

Each company bidding on these specifications shall have on file at the Garland Water Department a detailed drawing of the hydrants to be furnished under these specifications, and shall refer to the specific drawing number in its bid. Failure to meet these requirements will be sufficient cause for disqualification of bidder.

Drawing furnished under this requirement shall show principal dimensions, including metal thickness, construction details, materials used in all parts of the valve with A.S.T.M.

Designation and structural properties. Failure to furnish as shown on these drawings shall be cause for rejection and supplier shall bear all costs.

(29) Experience Record

No hydrant will be considered which has not been regularly manufactured and in successful continuous use for at least ten (10) years.

(30) Upper Valve Plat

Upper valve plate shall be bronze.

(31) Repair

All internal operating parts shall be removable from above ground level with a lightweight stem wrench.

III CONSTRUCTION METHOD

Fire hydrants shall be placed at all locations shown in the plans. Each hydrant shall be set upon a slab of stone or concrete not less than four (4) inches thick and not less than one square foot of surface area. Where solid rock exists in the bottom of the trench and same is excavated to the proper depth to form a foundation for the hydrant, the slab of stone or concrete above specified may be omitted. Hydrants to be set not less than 2'6" behind back of curb and a maximum of 8'0".

The hydrant shall be set perpendicular, and to the proper depth, but in no case shall the distance from the center of the pumper nozzle be less than fifteen (15) inches, nor more than (21) inches from natural ground or finished grade, and shall be carefully and substantially blocked against firm trench walls using 2,000 PSI concrete.

There shall be placed around the base of the hydrant not less than seven (7) cubic feet of sound broken stone or clean gravel or other suitable material to provide reservoir capacity so that the hydrant will completely drain when closed.

IV MEASUREMENT AND BASIS OF PAYMENT

Fire hydrants, complete in place as shown on the plans and as specified, will be paid for at the unit contract price per each as provided in the proposal and Bid Schedule, but shall not include the six (6) inch pipe for leads which shall be paid for at the unit price bid per foot for six (6) inch pipe.

The unit price per each installation shall be the total compensation for furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work including excavation, base blocking, painting, disposal of surplus materials and backfill in conformance with the plans and these specifications.

V CONSTRUCTION METHOD

Fire hydrants shall be removed and relocated at all locations shown in the plans. Each hydrant shall be set upon a slab of stone or concrete not less than four (4) inches thick and not less than one square foot of surface area. Where solid rock exists in the bottom of the trench and same is excavated to the proper depth to form a foundation for the hydrant, the slab of stone or concrete above specified may be omitted.

The hydrant shall be set perpendicular, and to the proper depth but in no case shall the distance from the center of the nozzle be less than fifteen (15) inches, nor more than eighteen (18) inches from natural ground or finished grade, and shall be carefully and substantially blocked against firm trench walls using 2,000 PSI concrete.

There shall be placed around the base of the hydrant not less than seven (7) cubic feet of sound broken stone or clean gravel, or other suitable material to provide reservoir capacity so that the hydrant will completely drain when closed.

The Contractor will be allowed to shut the line down to make these changes after obtaining approval of the City of Garland Water Department twenty-four (24) hours prior to the date of making the changes.

VI MEASUREMENT AND BASIS OF PAYMENT

Relocation of fire hydrants will be paid for at the contract unit price per each, complete in place, as provided in the proposal and contract, but shall not include the additional six (6) inch pipe for leads, if required, which shall be paid for at the unit price bid per foot for six (6) inch pipe. The contract price shall be the total compensation for the furnishing of all labor, materials, tools, equipment, and incidentals necessary to complete the relocation, including excavation, base blocking, painting, disposal of surplus materials, and backfill in accordance with the plans and these specifications.

Fire hydrants designed on the plans to be removed and not relocated shall be salvaged, cleaned, hauled to and placed on the City of Garland Warehouse grounds. Salvaged fire hydrants will be paid for at the contract unit price per each and shall be the total compensation for removing, cleaning, hauling and incidentals necessary to complete the removal.

END OF SECTION

CITY STANDARD CONSTRUCTION DETAILS

City of Garland Standard Construction Details can be found on-line at the web address shown below.

<http://www.garlandtx.gov/gov/eg/eng/cip/construction.asp>