



**Invitation For Bid TAC 880D
Water and Sewer Line Fittings
Water & Sewer Department
Issued: April 19, 2018**

**City of Tulsa,
Oklahoma**
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NOTICE is hereby given that the CITY OF TULSA, OKLAHOMA will receive sealed Bids for the following:

BID # TAC 880D

DESCRIPTION: Water & Sewer Line Fittings

(Commodity Code(s): 890-45)

You are invited to submit a Bid to supply the Goods and/or Services specified above. Invitations for Bid (IFB) will be posted on the City's website at www.cityoftulsapurchasing.org or a hardcopy may be obtained at:

City of Tulsa-Purchasing Division
175 East 2nd Street, Suite 865
Tulsa Oklahoma 74103

Bids must be received no later than 5:00 PM (CST) on Wednesday, May 9, 2018, and delivered to:
City Clerk's Office
175 East 2nd Street, Suite 260
Tulsa Oklahoma 74103

Bids must be sealed and either mailed or delivered. No faxed or emailed Bids will be considered. Bids received after the stated date and time **will not be accepted and will be returned to the Bidder unopened.**

The Bid Packet consists of (1) this Notice of Invitation for Bid, (2) the Summary Sheet, (3) Form #1, (4) Form #2, (5) Form #3, (6) Form #4, (7) Form #5, (8) Form #6, (9) the Instructions, Terms and Conditions for Bidders, (10) Special Requirements, (11) Technical Specifications and (12) Exhibit A.

Use this checklist to ensure you have properly read and completed all Forms.

- _____ Notice of Invitation for Bid
- _____ Summary Sheet
- _____ Form #1: Bidder Information Sheet. Must be completed.
- _____ Form #2: Purchase Agreement. **Complete legal name in first paragraph and Notice provision in Section 17.i. Original signature required.**
- _____ Form #3: Interest Affidavit. Original signature and notarization required.
- _____ Form #4: Non-Collusion Affidavit. Original signature and notarization required.
- _____ Form #5: Affidavit of Claimant. Original signature and notarization required.
- _____ Form #6: Acknowledgment of Receipt of Addenda/Amendments. Must be completed and signed.
- _____ Instructions, Terms and Conditions for Bidders
- _____ Special Requirements (Offer Period; Insurance and Bonding; References)
- _____ Technical Specifications
- _____ Exhibit A: Bid Form including Delivery and Pricing. This is your Bid. It must be completed or your Bid will be rejected.

IMPORTANT NOTE: Write the Bid Number, Bid Description (as listed above), and Bid Opening Date on the lower left corner of the outside of your Bid envelope. You must return the entire completed Bid Packet.



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SUMMARY SHEET

Project Buyer

If you have any questions or need additional information, contact the assigned Project Buyer:

Patricia Cummings

pcummings@cityoftulsa.org

Include **IFB TAC 880D** on the subject line

Bidder's Notice of Intent to Submit a Bid

Email the Project Buyer indicating your intent to Bid. Include IFB TAC 880D on the subject line of the email. You will receive an email response verifying your notice of intent to bid was received. This same procedure should be followed to request clarification, in writing, of any point in the IFB. Bidders are encouraged to contact the Project Buyer by email if there is anything in these specifications that prevents you from submitting a Bid, or completing the Bid Packet.

Questions and concerns must be received no later than **ten (10) days prior** to the Bid Packet due date.

Issuing of Addenda

If you received the notice of this IFB from the City as a result of being registered to sell the commodity code(s) on this Bid, you should also receive notice of any addenda issued. If you are not registered with the City to sell the commodities listed herein, you must register as a supplier on the City of Tulsa Purchasing website (www.cityoftulsapurchasing.org) to receive notice of any addenda, or to receive notice of any future IFBs.

Pre-Bid Conference

If a pre-Bid conference will be held for this IFB, information on that conference will be inserted below:

Date _____ Time _____

Location _____

___ Attendance at the Pre-Bid Conference is required to submit a Bid; however Bidders may make arrangements to attend via teleconference in some cases (contact the Project Buyer for details).

___ Attendance is not required to submit a Bid.

Bid Packet Submission

The City requires two completed Bid packets: 1 Original and 1 Copy. Each must be clearly labeled on the front sheet indicating "Original" or "Copy". If a copy on electronic media is also required, the line below will be checked.

___ Electronic Copy also required.

Responses to this Invitation for Bid must be made on the forms listed on page 1. The entire completed Bid Packet must be returned or your Bid may be rejected. Do not take exception to any portion of this Bid Packet. Do not make any entries except where required. Do not insert any other documents into the Bid Packet.

Bid Opening

All Bid openings are public and take place at 8:30 a.m. Thursday, the day after Bids are due. The Bid openings are held in the City of Tulsa Council Meeting Room, 175 East 2nd Street, 2nd Floor, Tulsa, Oklahoma.



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**FORM #1
BIDDER INFORMATION SHEET**

Bidder's Exact Legal Name: _____
(Must be Bidder's company name as reflected on its organizational documents, filed with the state in which bidder is organized; not simply a DBA)

State of Organization: _____

Bidder's Type of Legal Entity: (check one)

- | | |
|--|--|
| <input type="checkbox"/> Sole Proprietorship | <input type="checkbox"/> Limited Liability Company |
| <input type="checkbox"/> Partnership | <input type="checkbox"/> Limited Liability Partnership |
| <input type="checkbox"/> Corporation | |
| <input type="checkbox"/> Limited Partnership | <input type="checkbox"/> Other: _____ |

Bidder's Address: _____
Street City State Zip Code

Bidder's Website Address: _____ **Email Address:** _____

Sales Contact:

Name: _____
Street: _____
City: _____
State: _____
Phone: _____
Fax: _____
Email: _____

Legal or Alternate Sales Contact:

Name: _____
Street: _____
City: _____
State: _____
Phone: _____
Fax: _____
Email: _____



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**FORM #2 (Page 1 of 4)
PURCHASE AGREEMENT**

INSTRUCTIONS: This document **must** be properly signed and returned or your Bid will be **rejected**. This form constitutes your offer and if accepted by the City of Tulsa will constitute the Purchase Agreement under which you are obligated to perform. Your signature on this document indicates you have read and understand these terms and agree to be bound by them.

THIS PURCHASE AGREEMENT is between the CITY OF TULSA, OKLAHOMA, a municipal corporation, 175 East 2nd Street, Tulsa, Oklahoma, 74103-3827 (the "City") and:

(Bidder's company name as reflected on its organizational documents, filed with the state in which bidder is organized; not simply a DBA) (the "Seller").

WITNESSETH:

WHEREAS, the City has approved certain specifications and advertised for or solicited Bids on the following goods or services:

TAC# 880D, Water and Sewer Line Fittings

(the "Goods and/or Services"); and

WHEREAS, Seller desires to provide such Goods and/or Services to City, acknowledges that this document constitutes Seller's offer to provide the Goods and/or Services specified below, and further acknowledges that if executed by the City's Mayor, this document will become the Purchase Agreement for such Goods and/or Services.

NOW, THEREFORE, for and in consideration of the terms, covenants and conditions hereinafter set forth, the parties hereto agree as follows:

- Documents Comprising the Agreement.** The Bid Packet includes the Notice of Invitation to Bid, the Summary Sheet, Form #1, Form #2, Form #3, Form #4, Form #5, Form #6, the Instructions, Terms and Conditions for Bidders, the Special Requirements, the Technical Specifications, Exhibit A and any addenda or amendments to the Bid Packet. The Bid Packet is incorporated herein by this reference. In the event of conflicting or ambiguous language between this Purchase Agreement and any of the other Bid Packet documents, the parties shall be governed first according to this Purchase Agreement and second according to the remainder of the documents included in the Bid Packet. Seller may submit as part of its Bid additional materials or information to support the Bid. Additional materials or information submitted by Seller which are not ambiguous and which do not conflict with this Purchase Agreement or the other Bid Packet documents are incorporated herein by this reference.
- Purchase and Sale.** Seller agrees to sell City the Goods and/or Services for the price and upon the delivery terms set forth in Exhibit A hereto. City agrees to pay Seller the price as set forth in Exhibit A based on (a) the quantity actually purchased in the case of goods or services priced by unit, or (b) the total price for a stated quantity of goods or services, upon (i) delivery of the Goods and/or Services to the City, (ii) the City's Acceptance thereof, and (iii) Seller's submission and City's approval of a verified claim for the amount due. City shall not pay any late charges or fees.
- Irrevocable Offer.** Seller understands and acknowledges that its signature on this Agreement constitutes an irrevocable offer to provide the Goods and/or Services. There is no contract unless and until City's Mayor/Mayor Pro Tem executes this Agreement accepting Seller's Bid. No City officer, employee or agent except the Mayor (or Mayor Pro Tem) has the authority to award contracts or legally obligate the City to any contract. Seller shall not provide any Goods and/or Services to City pursuant to this Agreement before this Agreement is executed by City. If Seller provides any Goods and/or Services to City pursuant to this Agreement before this Agreement is executed by City, such Goods and/or Services are provided at Seller's risk and City shall have no obligation to pay for any such Goods and/or Services.
- Term.** The term of this Agreement shall be effective commencing on the date of execution of this Agreement by the Mayor/Mayor Pro Tem of the City of Tulsa and terminating one year from that date. City in its sole discretion may offer Seller an opportunity to renew this Agreement for an additional four (4) one (1) year term(s). Seller understands and acknowledges that any future contracts or renewals are neither automatic nor implied by this Agreement. The continuing purchase by City of the Goods and/or Services set forth in this Agreement is subject to City's needs and to City's annual appropriation of sufficient funds in City's fiscal year (July 1st to June 30th) in which such Goods and/or Services are purchased. In the event City does not appropriate or budget sufficient funds to perform this Agreement, this Agreement shall be null and void without further action by City.
- Warranties.** Seller shall assure that the Goods and/or Services purchased hereunder are covered by all available and applicable manufacturers' warranties for such Goods and/or Services. Seller expressly agrees that it will be responsible for performing all warranty obligations set forth in the Technical Specifications for the Goods and/or Services covered in this Agreement. Seller also warrants that the Goods and/or Services will conform to the Technical Specifications and Special Requirements, and further warrants that the Goods and/or Services shall be of good materials and workmanship and free from defects for either a minimum of one (1) year from the date of Acceptance or installation by City, whichever is later, or as **specified in the Technical Specifications**, whichever is later. In no event shall Seller be allowed to disclaim or otherwise limit the express warranties set forth herein.
- Warranty Remedies.** City shall notify Seller if any of the Goods and/or Services fails to meet the warranties set forth above, and Seller shall promptly correct, repair or replace such Goods and/or Services at Seller's sole expense. Notwithstanding the foregoing, if such Goods and/or Services shall be determined by City to be defective or non-conforming within the first thirty (30) days after the date of Acceptance by City, then City at its option shall be entitled to a complete refund of the purchase price and, in the case of Goods, shall promptly return such Goods to Seller. Seller shall pay all expenses related to the return of such Goods to Seller.



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7. **Seller Bears Risk.** The risk of loss or damage shall be borne by Seller at all times until the Acceptance of the Goods or Services by City.
8. **No Indemnification by City.** Seller understands and acknowledges that City is a municipal corporation that is funded by its taxpayers to operate for the benefit of its citizens. Accordingly, and pursuant to Oklahoma law, City shall not indemnify nor hold Seller harmless for loss, damage, expense or liability arising from or related to this Agreement, including any attorneys' fees and costs. In addition, Seller shall not limit its liability to City for actual loss or direct damages for any claim based on a material breach of this Agreement and the documents incorporated herein. City reserves the right to pursue all legal and equitable remedies to which it may be entitled.
9. **Indemnification by Seller.** Seller agrees to indemnify, defend, and save harmless City and its officers, employees and agents from all suits and actions of any nature brought against them due to the use of patented appliances, products or processes provided by Seller hereunder. Seller shall pay all royalties and charges incident to such patents.
10. **No Insurance by City.** If City is leasing Goods herein, City shall not be required to obtain insurance for Seller's property. Seller shall be solely responsible for any insurance it deems necessary. City is self-insured for its own negligence, subject to the limits of the Governmental Tort Claims Act (51 O.S. § 151 et seq.).
11. **No Confidentiality.** Seller understands and acknowledges that City is subject to the Oklahoma Open Records Act (51 O.S. §24A.1 et seq.) and therefore cannot assure the confidentiality of contract terms or other information provided by Seller pursuant to this Agreement that would be inconsistent with City's compliance with its statutory requirements thereunder.
12. **Non-Responsive Bids.** Seller understands and acknowledges that if it adds terms and conditions to its Bid that are different from the terms set forth herein that its Bid may be rejected as non-responsive. Furthermore, if City accepts Seller's Bid and awards a contract to Seller based on such Bid, City shall not be bound to any exceptions, changes or additions made by Seller, and any terms and conditions added by Seller which are not expressly agreed to by City in writing will be void and of no force and effect and the parties will be governed according to the document precedence set forth in Section 1 above.
13. **Compliance with Laws.** Seller shall be responsible for complying with all applicable federal, state and local laws, regulations and standards. Seller is responsible for any costs of such compliance. Seller certifies that it and all of its subcontractors to be used in the performance of this Purchase Agreement are in compliance with 25 O.S. Sec. 1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O.S. Sec. 1312 and includes but is not limited to the free Employee Verification Program (E-Verify) available at www.dhs.gov/E-Verify.
14. **Termination.** City, by written notice, may terminate this Agreement, in whole or in part, when such action is in the best interest of City. If this Agreement is so terminated, City shall be liable only for payment for Goods accepted and Services rendered prior to the effective date of termination. City's right to terminate this Agreement is cumulative to any other rights and remedies provided by law or by this Agreement.
15. **Price Changes.** The parties understand and agree that the variables in Seller's cost of performance may fluctuate, but any change in Seller's cost of performance will not alter its obligations under this Agreement, nor excuse performance or delay on Seller's part. If the IFB provides that Seller may include a price escalation provision in its Bid, Seller's price escalation provision will be evaluated by City as part of Seller's Bid price when awarding the Bid.
16. **Right to Audit.** The parties agree that Seller's books, records, documents, accounting procedures, practices, price lists or any other items related to the Goods and/or Services provided hereunder are subject to inspection, examination, and copying by City or its designees. Seller is required to retain all records related to this Agreement for the duration of the term of this Agreement and a period of three years following completion and/or termination of the Agreement. If an audit, litigation or other action involving such records begins before the end of the three year period, the records shall be maintained for three years after the date that all issues arising out of the action are resolved or until the end of the three year retention period, whichever is later.
17. **Notice.** Any notice, demand, or request required by or made pursuant to this Agreement shall be deemed properly made if personally delivered in writing or deposited in the United States mail, postage prepaid, to the addresses specified below.

i. To Seller:

To CITY:

City Clerk
CITY OF TULSA, OKLAHOMA
175 E. 2nd Street, Suite 260
Tulsa, Oklahoma 74103

With a copy to:

[title] [address] _____

18. **Relationship of Parties.** The Seller is, and shall remain at all times, an independent contractor with respect to activities and conduct while engaged in the performance of services for the City under this Agreement. No employees, subcontractors or agents of the Seller shall be deemed to be employees of the City for any purpose whatsoever, and none shall be eligible to participate in any benefit program provided by the City for its employees. The Seller shall be solely responsible for the payment of all employee wages and salaries, taxes, withholding



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payments, fringe benefits, insurance premiums, continuing education courses, materials or related expenses on behalf of its employees, subcontractors, and agents. Nothing in this Agreement shall be construed to create a partnership, joint venture, or agency relationship among the parties. No party shall have any right, power or authority to act as a legal representative of another party, and no party shall have any power to obligate or bind another party, or to make any representations, express or implied, on behalf of or in the name of the other in any manner or for any purpose whatsoever.

19. **Third Parties.** This Agreement is between City and Seller and creates no right unto or duties to any other person. No person is or shall be deemed a third party beneficiary of this Agreement.
20. **Time of Essence.** City and Seller agree that time is deemed to be of the essence with respect to this Agreement.
21. **Binding Effect.** This Agreement shall be binding upon City and Seller and their respective successors, heirs, legal representatives and permitted assigns.
22. **Headings.** The headings used herein are for convenience only and shall not be used in interpreting this Agreement
23. **Severability Provision.** If any term or provision herein is determined to be illegal or unenforceable, the remainder of this Agreement will not be affected thereby. It is the intention of the parties that if any provision is held to be illegal, invalid or unenforceable, there will be added in lieu thereof a provision as similar in terms to such provision as is possible to be legal, valid and enforceable.
24. **Governing Law And Venue.** This Agreement is executed in and shall be governed by and construed in accordance with the laws of the State of Oklahoma without regard to its choice of law principles, which shall be the forum for any lawsuits arising under this Agreement or incident thereto. The parties stipulate that venue is proper in a court of competent jurisdiction in Tulsa County, Oklahoma and each party waives any objection to such venue. City does not and will not agree to binding arbitration of any disputes.
25. **No Waiver.** A waiver of any breach of any provision of this Agreement shall not constitute or operate as a waiver of any other provision, nor shall any failure to enforce any provision hereof operate as a waiver of the enforcement of such provision or any other provision.
26. **Entire Agreement/No Assignment.** This Agreement and any documents incorporated herein constitute the entire agreement of the parties and supersede any and all prior agreements, oral or otherwise. This Agreement may only be modified or amended in a writing signed by both parties. Notwithstanding anything to the contrary stated herein or in the attachments to this Agreement, no future agreements, revisions or modifications that may be required under this Agreement are effective or enforceable unless such terms, revisions or modifications have been reduced to writing and signed by City and Seller. Seller may not assign this Agreement or use subcontractors to provide the Goods and/or Services without City's prior written consent. Seller shall not be entitled to any claim for extras of any kind or nature.
27. **Multiple Counterparts.** This Agreement may be executed in several counterparts, each of which shall be deemed an original, but which together shall constitute one and the same instrument.
28. **Interpretive Matters and Definitions.** The following interpretive matters shall be applicable to this Agreement:
- 28.1 Unless the context otherwise requires: (a) all references to Sections are to Sections of or to this Agreement; (b) each term defined in this Agreement has the meaning assigned to it; (c) "or" is disjunctive but not necessarily exclusive; (d) words in a singular include the plural and vice versa. All references to "\$" or to dollar amounts shall be in lawful currency of the United States of America;
- 28.2 No provision of this Agreement will be interpreted in favor of, or against, any of the parties hereto by reason of the extent to which such party or its counsel participated in the drafting thereof or by reason of the extent to which any such provision is inconsistent with any prior draft hereof or thereof;
- 28.3 Any reference to any applicable laws shall be deemed to refer to all rules and regulations promulgated thereunder and judicial interpretations thereof, unless the context requires otherwise;
- 28.4 The word "including" means "including, without limitation" and does not limit the preceding words or terms; and
- 28.5 All words used in this Agreement shall be construed to be of such gender, number or tense as circumstances require.
29. **Equal Employment Opportunity.** Each bidder agrees to comply with all applicable laws regarding equal employment opportunity and nondiscrimination.
30. **Authority to Bind.** The undersigned individual states that s/he has authority to bind Seller to this Agreement, that s/he has read and understands the terms of this Agreement, and that Seller agrees to be bound by this Agreement and its incorporated documents.



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IMPORTANT NOTE: This document must be signed by the proper person as set forth in Instructions, Terms and Conditions for Bidders, paragraph 4. FAILURE TO SUBMIT PROPERLY AUTHORIZED SIGNATURE MAY RESULT IN YOUR BID BEING REJECTED AS NONRESPONSIVE.

IN WITNESS WHEREOF, this Agreement has been executed in multiple copies on the dates set forth below to be effective during the period recited above.

Seller Company Name: _____

Sign Here ► _____

ATTEST:

Printed Name: _____

Title: _____

Corporate Secretary

Date: _____

Company Name/Address [Please Print] _____ Address _____ City _____ State _____ Zip Code _____

() - () -
Telephone Number Fax Number Email Address

**CITY OF TULSA, OKLAHOMA,
a municipal corporation,**

ATTEST:

By: _____
Mayor

City Clerk

Date: _____

APPROVED:

Assistant City Attorney



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FORM #3

INTEREST AFFIDAVIT

STATE OF _____)

)ss.

COUNTY OF _____)

I, _____, of lawful age, being first duly sworn, state that I am the agent authorized by Seller to submit the attached Bid. Affiant further states that no officer or employee of the City of Tulsa either directly or indirectly owns a five percent (5%) interest or more in the Bidder's business or such a percentage that constitutes a controlling interest. Affiant further states that the following officers and/or employees of the City of Tulsa own an interest in the Bidder's business which is less than a controlling interest, either direct or indirect.

By: _____
Signature

Title: _____

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

Notary Public

My Commission Expires: _____

Notary Commission Number: _____

County & State Where Notarized: _____

The Affidavit must be signed by an authorized agent and notarized



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FORM #4

NON-COLLUSION AFFIDAVIT

(Required by Oklahoma law, 74 O.S. §85.22-85.25)

STATE OF _____)

)ss.

COUNTY OF _____)

I, _____, of lawful age, being first duly sworn, state that:
(Seller's Authorized Agent)

1. I am the authorized agent of Seller herein for the purposes of certifying facts pertaining to the existence of collusion between and among Bidders and municipal officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the Bid to which this statement is attached.
2. I am fully aware of the facts and circumstances surrounding the making of Seller's Bid to which this statement is attached, and I have been personally and directly involved in the proceedings leading to the submission of such Bid; and
3. Neither the Seller nor anyone subject to the Seller's direction or control has been a party:
 - a. to any collusion among Bidders in restraint of freedom of competition by agreement to Bid at a fixed price or to refrain from Bidding,
 - b. to any collusion with any municipal official or employee as to quantity, quality, or price in the prospective contract, or as to any other terms of such prospective contract, nor
 - c. in any discussions between Bidders and any municipal official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

By: _____
Signature

Title: _____

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

Notary Public

My Commission Expires: _____

Notary Commission Number: _____

County & State Where Notarized: _____

The Affidavit must be signed by an authorized agent and notarized



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FORM #5

AFFIDAVIT OF CLAIMANT

STATE OF _____)

)ss.

COUNTY OF _____)

The undersigned person, of lawful age, being first duly sworn on oath, says that all invoices to be submitted pursuant to this agreement with the City of Tulsa will be true and correct. Affiant further states that the work, services or material furnished will be completed or supplied in accordance with the plans, specifications, orders, requests and/or contract furnished or executed by the affiant. Affiant further states that (s)he has made no payment directly or indirectly to any elected official, officer or employee of the City of Tulsa or of any public trust where the City of Tulsa is a beneficiary, of money or any other thing of value to obtain payment of the invoice or procure the contract or purchase order pursuant to which an invoice is submitted. Affiant further certifies that (s)he has complied with all applicable laws regarding equal employment opportunity.

Company: _____

Remit to
Address: _____

City, State
Zip: _____

Phone: _____

Name (print): _____

Signature: _____

Title: _____

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

Notary Public

My commission expires: _____

My commission number: _____

County and State where notarized: _____

The Affidavit must be signed by an authorized agent and notarized



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FORM #6

ACKNOWLEDGMENT OF RECEIPT OF ADDENDA/AMENDMENTS

I hereby acknowledge receipt of the following addenda or amendments, and understand that such addenda or amendments are incorporated into the Bid Packet and will become a part of any resulting contract.

List Date and Title/Number of all addenda or amendments: (Write "None" if applicable).

Sign Here ►

Printed Name:

Title:

Date:



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INSTRUCTIONS, TERMS AND CONDITIONS FOR BIDDERS

1. **PURCHASING AUTHORITY.** City issues this Invitation For Bid pursuant to Tulsa City Charter, Art. XII, §14 and Tulsa Revised Ordinances, Title 6, Ch. 4, the provisions of which are incorporated herein.
2. **DEFINITIONS.** The following terms have the following meanings when used in the documents comprising this Bid Packet.
 - A. **"Acceptance"** with respect to a Bid shall mean the City's selection of a Bid, and award of a contract to the Bidder/Seller.
 - B. **"Acceptance"** with respect to delivery of Goods and/or Services provided under a Purchase Agreement shall mean City's written acknowledgement that Seller has satisfactorily provided such Goods and/or Services as required.
 - C. **"Addenda" "Addendum" or "Amendment(s)"** shall mean a clarification, revision, addition, or deletion to this Invitation For Bid by City which shall become a part of the agreement between the parties.
 - D. **"Authorized Agent"** means an agent who is legally authorized to bind the Seller under the law of the State in which the Seller is legally organized. An Authorized Agent must sign all documents in the Bid Packet on behalf of the Seller. Under Oklahoma law, the Authorized Agent for each of the following types of entities is as stated below:
 - o **Corporations** – the president, vice president, board chair or board vice chair can sign; others can sign if they have and provide the City with (i) a corporate resolution giving them authority to bind the Seller, and (ii) a recent corporate secretary's certificate indicating the authority is still valid.
 - o **General Partnerships** – any partner can sign to bind all partners.
 - o **Limited Partnerships** – the general partner must sign.
 - o **Individuals** – no additional authorization is required, but signatures must be witnessed and notarized.
 - o **Sole Proprietorship** – the owner can sign. Any other person can sign if s/he provides a recent Power of Attorney, signed by the owner, authorizing him/her to bind the sole proprietorship.
 - o **Limited Liability Company (LLC)** – The manager as named in the Operating Agreement can sign. Any person authorized by the Operating Agreement or a member can sign providing the person submits a copy of the authorization with a certificate of the members indicating the authorization is still valid.Entities organized in States other than Oklahoma must follow the law of the State in which they are organized.
 - E. **"Bid"** means the Seller's offer to provide the requested Goods and/or Services set forth in Exhibit A and any additional materials or information the Seller chooses to submit to support the Bid.
 - F. **"Bidder"** means the legal entity which submits a Bid for consideration by City in accordance with the Invitation For Bid.
 - G. **"Bid Packet"** consists of the following documents (1) the Notice of Invitation for Bid, (2) the Summary Sheet, (3) Form #1, (4) Form #2, (5) Form #3, (6) Form #4, (7) Form #5, (8) Form #6, (9) the Instructions, Terms and Conditions for Bidders, (10) Special Requirements, (11) Technical Specifications, and (12) Exhibit A.
 - H. **"Bid Submission Date"** shall mean the last date by which the City will accept Bids for an Invitation For Bid.
 - I. **"City"** shall mean the City of Tulsa, Oklahoma.
 - J. **"Days"** shall mean calendar days unless specified otherwise.
 - K. **"Primary Seller"** shall mean the Seller whose Bid City selected as the principal supplier of the Goods and/or Services required under this Agreement.
 - L. **"Project Buyer"** shall mean the City's employee assigned to serve as the contact person for Bidders/Sellers responding to Invitations For Bid or completing contracts herein.
 - M. **"Purchasing Division or Office"** shall mean the City of Tulsa's Purchasing Division, located at 175 East 2nd Street, Suite 865, Tulsa, Oklahoma 74103
 - N. **"Secondary Seller"** shall mean the Seller whose Bid City selected as a back-up supplier in the event the Primary Seller is unable to provide all the Goods and/or Services required.



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- O. **"Seller"** shall mean the Bidder whose Bid City selected and awarded a contract.
- P. **"You" or "Your"** shall mean the Bidder responding to this Invitation For Bid or the Seller whose Bid the City selected and awarded a contract.
- Q. **"Website"** shall mean the City of Tulsa's website for the Purchasing Division: www.cityoftulsapurchasing.org.

3. **QUESTIONS REGARDING INVITATION FOR BID.** Questions regarding any portion of this Invitation For Bid must be submitted in writing (sent by mail, fax or email) to the Project Buyer indicated on the Summary Sheet herein. You should submit questions as early as possible and preferably before the pre-Bid conference. Questions and concerns must be received no later than ten (10) days prior to the Bid Packet due date. Any oral responses to questions before the contract is awarded are not binding on City. At City's discretion, any information or clarification made to you may be communicated to other Bidders that notified City of their intent to Bid if appropriate to ensure fairness in the process for all Bidders. You must not discuss questions regarding the Invitation For Bid with anyone other than the Project Buyer or other Purchasing Division staff or your Bid may be disqualified, any contract recommendation or Acceptance may be rescinded, or any contract may be terminated and delivered Goods returned at your expense and City refunded any payments made.
4. **ORAL STATEMENTS.** No oral statements by any person shall modify or otherwise affect the provisions of this Invitation For Bid and/or any contract resulting therefrom. All modifications, addenda or amendments must be made in writing by City's Purchasing Division.
5. **EXAMINATION BY BIDDERS.** You must examine the specifications, drawings, schedules, special instructions and the documents in this Bid Packet prior to submitting any Bid. Failure to examine such documents and any errors made in the preparation of such Bid are at your own risk.
6. **ADDENDA OR AMENDMENTS TO INVITATIONS FOR BID.** City may addend or amend its Invitation For Bid at any time before the Bid Submission Date, and any such addenda or amendments shall become a part of this Agreement. City will attempt to send a notification (by fax or email) of any addenda or amendments to those Bidders who have responded to the City's Project Buyer of their intent to respond to the Invitation For Bid. However, it is your responsibility to inquire about any addenda or amendments, which will be available from the City's Purchasing Division and its website. You must acknowledge receipt of any addenda or amendments by signing and returning the Acknowledgment of Receipt of Addenda/Amendments form and attaching it to this Invitation For Bid with your Bid. City may reject any Bid that fails to acknowledge any addenda or amendments.
7. **SPECIFICATIONS/DESCRIPTIVE TERMS/SUBSTITUTIONS.** Unless the term "no substitute" is used, the City's references to a brand name, manufacturer, make, or catalogue designation in describing an item in this Bid Packet does not restrict you to that brand or model, etc. The City may make such references to indicate the type, character, quality and/or performance equivalent of the item desired. However, you are required to furnish the exact item described in your Bid unless a proposed substitution is clearly noted and described in the Bid.

The parties recognize that technology may change during the period Bids are solicited and subsequent contracts are performed. Therefore, City may at its option accept changes or substitutions to the specifications for Goods of equal or better capabilities at no additional cost to City. In the case of existing contracts, you shall give City 30 days advance notice in writing of any such proposed changes or substitutions. City shall determine whether such items are acceptable as well as any proposed substitute.

All Goods shall be new unless otherwise so stated in the Bid. Any unsolicited alternate Bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of this Bid, may be considered non-responsive and the Bid rejected.

8. **PRICES/DISCOUNTS.** Prices shall be stated in the units and quantity specified in the Bid Packet documents. In case of discrepancy in computing the Bid amount, you guarantee unit prices to be correct and such unit prices will govern. Prices shall include transportation, delivery, packing and container charges, prepaid by you to the destination specified in the Specifications. Discounts for prompt payment will not be considered in Bid evaluations, unless otherwise specified. However, offered discounts for prompt payment will be taken if payment is made within the discount period.
9. **DELIVERY.** All prices quoted shall be based on delivery F.O.B. Tulsa, Oklahoma or to any other points as may be designated in the Technical Specifications, with all charges prepaid by Seller to the actual point of delivery. Bids must state the number of days required for delivery under normal conditions.



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10. **TAXES.** City is exempt from federal excise and state sales taxes and such taxes shall not be included in the Bid prices.
11. **BID SUBMISSION.** The Bid Packet forms must be prepared in the name of Bidder and properly executed by an Authorized Agent with full knowledge and acceptance of all provisions, in ink and notarized. Bids may not be changed or withdrawn after the deadline for submitting Bids (the "Bid Submission Date"). A Bid is an irrevocable offer and when accepted by City (as evidenced by City's execution of the Purchase Agreement) shall constitute a firm contract.
- A. **BIDS MUST BE SUBMITTED ONLY ON THE BID PACKET FORMS AND SIGNED BY AN AUTHORIZED AGENT. THE ENTIRE BID PACKET MUST BE RETURNED AS RECEIVED WITH ALL FORMS COMPLETED. YOU MAY ATTACH, AFTER EXHIBIT A, ANY DOCUMENTS NECESSARY TO COMPLETELY AND ACCURATELY RESPOND TO THE REQUEST. BIDS MUST BE IN STRICT CONFORMANCE WITH ALL INSTRUCTIONS, FORMS, AND SPECIFICATIONS CONTAINED IN THIS BID PACKET.**
 - B. Sealed Bids may be either mailed or delivered, but must be received at:
City of Tulsa – Office of City Clerk
175 East 2nd Street, Suite 260
Tulsa, Oklahoma 74103
 - C. Bids will be accepted at the above address from 8:00 a.m. to 5:00 p.m., Monday thru Friday except for City holidays. City is not responsible for the failure of Bids to be received by the City Clerk's Office prior to the due date and time.
 - D. Late Bids will be **rejected**. The Purchasing Agent, in his sole discretion, may make exceptions only for the following reasons:
 - 1. City Hall closed for business for part or all of the day on the date the response was due;
 - 2. If the City deems it appropriate due to large-scale disruptions in the transportation industry that may have prevented delivery as required.
 - 3. If documented weather conditions caused the late delivery. You must provide documentation of such weather to the satisfaction of the Purchasing Agent.
 - E. **City will not accept faxed Bids**, nor will City accept Bids faxed to the City Clerk, Purchasing Division or Office, or any other City office or employee.
 - F. City is not responsible for any of your costs in preparing the Bid response, attending a pre-Bid conference, or any other costs you incur, regardless of whether the Bid is submitted, accepted or rejected.
 - G. All Bids must be securely sealed and plainly marked with the Bid Number, Bid Title, and Bid Opening Date on the lower left corner of the outside of the Bid envelope. Your name and address must also be clearly indicated on the envelope.
 - H. If submitting multiple options ("Option(s)") to the Invitation for Bid, each will be considered separately requiring each response to be complete and accurate. Each Option must be clearly marked as Option 1 of 3, Option 2 of 3, etc.
 - I. The number of copies you must submit is listed on the Summary Sheet in the front of the Bid Packet. However, at a minimum, there will be (1) an original, clearly labeled as such in 1" red letters on the Bid Packet cover page, and (2) a copy for City's Purchasing Division, clearly labeled as such in 1" red letters on the Bid Packet cover page. If binders are used, they must also be labeled.
 - J. Multiple boxes or envelopes are permissible, but must not weigh more than 50 pounds. Each box must be labeled as instructed herein and numbered (i.e., Box 1 of 3; Box 2 of 3). **The original must be in Box #1.**
 - K. The original and all copies (either paper or electronic) must be identical in all respects. Bids must be completed and submitted in ink or typewritten. Bids written in pencil will be rejected. Any corrections to the Bids must be initialed in ink.
12. **BID REJECTION OR WITHDRAWAL.**
- A. City may reject any or all Bids, in whole or in part.
 - B. **A Bid may be rejected if it contains additional terms, conditions, or agreements that modify the requirements of this Invitation For Bid or attempts to limit Bidder's liability to the City.**
 - C. A Bid may be rejected if Bidder is currently in default to City on any other contract or has an outstanding indebtedness of any kind to City.
 - D. City reserves the right to waive any formalities or minor irregularities, defects, or errors in Bids.
 - E. Bid withdrawal may only be accomplished by an Authorized Agent requesting the withdrawal in person at the City Clerk's office before the City's close of business on the Bid Submission Date.
13. **BID RESULTS.** A tabulation of Bids received will be made available on the City's Purchasing Division website generally within 5 working days after the Bid Opening Date. After a contract award is recommended to the Mayor, a copy of the Bid summary will be available in the City Clerk's Office. Bid results are not provided in response to telephone or email inquiries.
14. **PURCHASE ORDER.** In the event that it is determined by the City to be in the best interests of the City, the City, in its sole discretion, may issue a Purchase Order rather than execute the Purchase Agreement to purchase the Goods. If a Purchase Order is issued, however, the terms of the Bid Packet documents, including the Purchase Agreement, will govern the transaction and be enforceable by the City and Bidder/Seller.



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15. **CONTRACT AWARD.** If a contract is awarded, it will be awarded to the Bidder that City determines is the lowest secure Bidder meeting specifications. Such Bid analysis will consider price and other factors, such as Bidder qualifications and financial ability to perform the contract, as well as operating costs, delivery time, maintenance requirements, performance data, history of contract relations with City, and guarantees of materials and equipment, as applicable. A complete list of the factors that are considered is set forth in Tulsa Revised Ordinances, Title 6, Ch. 4, §406E. Unless otherwise noted, City reserves the right to award a contract by item, one or more groups of items, or all the items in the Bid, whichever is in City's best interest.
16. **IRS FORM W-9.** If City selects your Bid and awards a contract to you, you will have ten (10) days from notification of the award to provide City with your complete IRS Form W-9.
17. **NOTICE TO PROCEED.** If City accepts your Bid and executes the Purchase Agreement, you shall not commence work until authorized to do so by the Purchasing Agent or his representative. Receipt of a Purchase Order from the City is notice to proceed.
18. **PAYMENTS.** Invoices should be e-mailed to City of Tulsa – Accounts Payable at:

apinvoices@cityoftulsa.org

Payment will be made Net 30 days after receipt of a properly submitted invoice or the City's Acceptance of the Goods and/or Services, whichever is later, unless City decides to take advantage of any prompt payment discount included in the Bid.

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SPECIAL REQUIREMENTS

1. Irrevocable Offer Period. You understand and acknowledge that the offer submitted as your Bid is firm and irrevocable from the City's close of business on the Bid Submission Date until 365 days after the Bid Opening Date.

2. General Liability/Indemnification. You shall hold City harmless for any loss, damage or claims arising from or related to your performance of the Purchase Agreement. You must exercise all reasonable and customary precautions to prevent any harm or loss to all persons and property related to the Purchase Agreement. You agree to indemnify and hold the City harmless from all claims, demands, causes of action or suits of whatever nature arising out of the Goods, Services, labor, or materials furnished by you or your subcontractors under the provisions of the Bid Packet documents.

3. Liens. Pursuant to City's Charter (Art. XII, §5), no lien of any kind shall exist against any property of City. Bidder shall deliver all goods to City free and clear of liens. Delivery by Seller to City of goods which are subject to liens under the Purchase Agreement shall be a material breach of the Purchase Agreement and all damages and costs incurred by City as a result of the existence of such liens shall be paid to City by Seller. At City's option, City may return such goods to Seller and Seller shall pay the cost of returning such goods and reimburse City for any payments made for such goods.

4. Insurance. If checked "Yes," the following insurance is **required**: **Yes:** x **No:**

Seller and its subcontractors must obtain at Seller's expense and keep in effect during the term of the Purchase Agreement, including any renewal periods, policies of General Liability insurance in the minimum amounts set forth below and Workers' Compensation insurance in the statutory limits required by law.

Personal injury, each person	\$ 175,000.00
Property damage, each person	\$ 25,000.00
Auto Liability, each occurrence	\$ 1,000,000.00
Personal injury and property damage, each occurrence	\$ 1,000,000.00
Workers' Compensation	(Statutory limits)

SELLER'S INSURER MUST BE AUTHORIZED TO TRANSACT BUSINESS IN THE STATE OF OKLAHOMA.

You will have 10 days after notification that your Bid was selected for contract award by City to provide proof of such coverage by providing the assigned Project Buyer shown on the Summary Sheet of this Bid Packet with a Certificate of Insurance. The Certificate of Insurance must be completed with the following information:

- A. Your name
- B. Insurer's name and address
- C. Policy number
- D. Liability coverage and amounts
- E. Commencement and expiration dates
- F. Signature of authorized agent of insurer
- G. Invitation for Bid number

The Seller shall not cause any required insurance policy to be cancelled or to permit it to lapse. It is the responsibility of Seller to notify City of any change in coverage or insurer by providing City with an updated Certificate of Liability Insurance. Failure of Seller to comply with the insurance requirements herein may be deemed a breach of the Purchase Agreement. Further, a Seller who fails to keep required insurance policies in effect may be deemed to be ineligible to bid on future projects, ineligible to respond to invitations for bid, and/or ineligible to engage in any new purchase agreements

5. Bonding.

A. Bid Bond. If the box is checked "Yes," the Bid Bond is **required**:

Yes: **No:** X

B. Performance Bond. If the box is checked "Yes," the Performance Bond is **required**:



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A New Kind of Energy.

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Yes: ☐

No: ☒

6. References. If the box is checked "Yes," References are required:

Yes: ☐

No: ☒

For each reference, the following information must be included: Company Name, Contact Name, Address, Phone Number, E-Mail Address, and the nature of their relationship with the Bidder.

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TECHNICAL SPECIFICATIONS

Water

ALL MATERIALS CONTAINING BRASS shall be manufactured from a material known as “Low Lead Brass” and meet Federal Reduction of Lead in Drinking Water Act, Federal Regulations effective January 4, 2017

Disclaimer: All products received must meet Federal guidelines even if not stated in specifications.

Section 1

MB Wfitting 041620017

(Use Specs with: Items 1-97)

Meter Brass Fitting Specifications

All meter brass fittings shall be full port and of the same design as the corresponding fittings indicated. If make and model other than those requested are offered, the make and model are to be shown and the **specification literature supplied for the fitting (s) offered.** Exceptions must be equal to and interchangeable with the fittings requested.

All brass fittings shall be manufactured “Low Lead Brass”. Disclaimer: **All products received must meet Federal guidelines even if not stated in specifications.**

Section 2

WfittingCI 03082005

(Use Specs with: Items 1-215)

CAST IRON AND DUCTILE IRON FITTINGS

Fittings shall conform to the American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, ANSI/AWWA C110; or the American National Standard for Ductile-Iron Compact Fittings, 3" through 12" ANSI/AWWA C153. Fittings larger than 12" must be C110. The length of all solid sleeves (both AWWA C110 and C153) shall be the longest length listed in the AWWA C110 specification (12-inch length for 3-inch through 12-inch sleeves, 15-inch length for 14-inch through 24-inch sleeves, and 24-inch length for 30-inch through 48-inch sleeves). All fittings shall be bituminous coated outside and cement-mortar lined inside with seal coat in accordance with American National Standard for Cement Mortar Lining for Ductile-Iron and Gray-Iron Pipe and Fittings for Water, ANSI/AWWA C104/A21.4. Unless otherwise specified below, only the following brands will be accepted for fittings made from cast iron or ductile iron American, Griffen, McWane, Clow, Star, Sigma, US Pipe, Tyler, East Jordan, or Pipeline Components (PCI).

Mechanical joints and push-on joints shall conform to the American National Standard for Rubber Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings, ANSI/AWWA C111/A21.11.

Flange joints shall conform to the American National Standard for Cast Iron Pipe Flanges and Flanged Fittings, ANSI B16.1.



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Split case iron tapping sleeves shall be 150 psi working pressure with a cast iron body conforming to ANSI/AWWA C110. Sleeve must have mechanical joints conforming to ANSI/AWWA C111 on the run and a flange branch conforming to ANSI B16.1, Class 125. Ends gaskets shall be natural rubber or neoprene material conforming to ANSI/AWWA C111. Tapping saddles for ductile pipe must be Mueller, Clow, American, Tyler, Powerseal, Smith-Blair or approved equal.

Flexible stainless steel tapping sleeves shall be rated at 150 psi pressure, with flanges meeting AWWA 207. Assembly shall be NSF or UL rated. Bolts, nuts, and washers shall be stainless steel. Gaskets shall conform to ANSI/AWWA C111.

Blind flanges must be fabricated from material as specified under ANSI/AWWA C200.

Joint restrainers must be a wedge action type restrained joint assembly equal to the Megalug Series 1100 or the Ford Meter Box Uni-Flange Series 1400. Restrainers must have twist-off-nuts that break at a specific torque. Screw type retainer glands will not be accepted. Only American Flex Ring, EBAA Megalug, Ford Meter Box Uni-Flange, or Star StarGrip restrainers will be accepted.

Tapped Full circle repair clamp double band couplings must be furnished with stainless steel nuts and bolts coated to prevent galling. Only Ford Meter Box, Rockwell, Powerseal, Smith Blair, Mueller, or JCM Ind. full circle clamp couplings will be accepted.

Flange coupling adapters must be Smith-Blair or Powerseal. Other brands will not be accepted.

Bell joint clamps must be Smith-Blair or Dresser. Other brands will not be accepted.

Multi-couplings must be Powerseal or Romac. Other brands will not be accepted.

Bidder must specify the make and model of the item(s) bid. **Fittings shall be complete with necessary accessories.** Unless otherwise specified above, bolts for cast iron and/or ductile iron fittings shall be carbon steel ANSI/ASTM A307, Grade A only, in accordance with ANSI/AWWA C207.

Note: All accessories provided including nuts and bolts must come complete with fitting(s) from the manufacturer to insure tolerances are met. Accessories are to be combined and boxed as an individual kit for each fitting.

Section 3

SPECIFICATION ASTM 53 and ASTM A120

(Use Specs with: Items 1-161)

SPECIFICATIONS FOR STEEL PIPE

Published pipe standards serve three functions.

1 They dictate manufacturing and testing requirements and prescribed methods of measuring the required mechanical and physical properties.



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2 Without specifications, it would be difficult for the pipe buyer to establish a common ground of understanding with the producer as to product requirements.

3 When the pipe producer marks a specification on this product they warrant that the pipe is made from prime quality steel and meets all the requirements **of the specification.**

Standard pipe is manufactured and tested as prescribed by ASTM (formerly American Society for Testing Materials), an international, non-profit technical and Scientific organization formed for "the consensus development of standards on characteristics and performance of materials, products, systems and services." The society operates through more than 127 main technical committees. These committees function under regulations that ensure balanced representation among producers, users and general interest groups. The published standards, therefore, represent the consensus viewpoint of all involved. Line pipe and Oil Country products are manufactured and tested as prescribed by the American Petroleum Institute (API). The API operates similarly to the ASTM except that producers, consumers, and associations with primary interests in oil or gas are involved.

GRADE

Grade refers to divisions within different types of seamless and ERW pipe and designates mechanical properties such as minimum yield and tensile strengths. Grade B has higher tensile and yield strength than Grade A. It is manufactured to higher carbon content steel. Grade A, being a softer steel, is easier to bend and is recommended for use in close coiling and cold bending. Grade B has higher stress values and is better suited for machining operations. Grade C, which is available in ASTM-106, has higher tensile and yield strength than Grades A & B.

DIMENSIONS

Many changes have been made to ASTM specifications over the years. One of the more recent has been to make the specifications fit with metric, and more correctly, with the measurements of pipe and the related fittings.

To change the pipe outside diameter (OD) and wall thickness, simply multiply the SI dimensions by the appropriate factor to convert to metric. However, an inch is not a real inch. Nowhere on pipe 12" and smaller is there a corresponding measurement because this size has no real numerical value. To solve this problem and still retain the intent of the size designation, the inch mark was removed from the column showing the size, and the term NPS was added as were the following words: The dimensionless designator NPS (nominal pipe size) has been substituted in this standard for such traditional terms as "nominal diameter," "size," and "nominal size." They are now stated as NPS 1, NPS 2, NPS 6, NPS 12, NPS 14, etc.

WARNING

Most pipe specifications are restricted by tolerances for outside diameter, wall thickness, and weight. Pipe must meet all three criteria or material could be rejected. Please refer to the applicable specifications.



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**ASTM SPECIFICATION A-120, SCHEDULE 40 DIMENSIONS,
NOMINAL WEIGHTS AND TEST PRESSURES OF MS ERW PIPE**

Size	Out side Dia- meter	Wall Thick- ness	Nominal Weight Black Pipe				Weight Plan End Galvanised Pipe		Test Pre- ssure psi Grade A	Coupling		Thre- ads No.
			Plain end		Threaded and coupled					O.D.	Lengt h	
Inch	Inch	Inch	lb/ft	Ft/ton	lb/ft	Ft/ton	lb/ft	Ft/ton	lb	Inch	Inch	Per inch
½	0.840	0.109	0.85	2635	0.85	2635	0.89	2517	700	1.063	1.9/16	14
¾	1.050	0.113	1.13	1982	1.13	1982	1.19	1882	700	1.313	1.5/8	14
1	1.315	0.133	1.68	1333	1.68	1333	1.75	1280	700	1.576	2	11 ½
1 ¼	1.660	0.140	2.27	987	2.28	982	2.37	945	1000	1.900	2.1/16	11 ½
1 ½	1.900	0.145	3.65	824	2.73	820	2.82	794	1000	2.200	2.1/16	11 ½
2	2.375	0.154	6.79	14	3.69	609	3.79	591	1000	2.750	2.1/8	11 ½
2 ½	2.875	0.203	5.79	387	5.82	385	5.96	376	1000	3.250	3.1/8	8
3	3.500	0.216	7.58	296	7.62	294	7.78	288	1000	4.000	3.1/4	8
4	4.500	0.237	10.79	208	10.89	206	11.05	203	1200	5.000	3.1/2	8
5	5.563	0.258	14.62	153	14.81	151	14.94	150	1200	6.296	3.3/4	8
6	6.626	0.280	18.97	118	19.18	117	19.36	116	1200	7.390	4	8

ASTM A53 is a carbon steel alloy, used for structural steel pipe. The alloy specifications are set by ASTM International, in specification ASTM A53/A53M.[1] A53 pipe is suitable for structural or pressure applications.

A53 pipe comes in three types and two grades, A53 Type F, which is longitudinally furnace butt welded or continuous welded (Grade A only), A53 Type E, which is longitudinally electric resistance welded (Grades A and B), and A53 Type S, which is seamless pipe, produced by hot working, and possibly cold finishing, the steel (Grades A and B). ASTM A53, Type S is now currently an outdated specification and has been replaced by ASTM A106 specification for seamless carbon steel pipe. This is a standard set by the standards organization ASTM International, a voluntary standards development organizations that sets technical standards for materials, products, systems, and services.

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DIGEST OF COMMON - PIPE SPECIFICATIONS

Specification and Size Range Where Indicated	Scope	Type	Grades	Chemistry																																																																																																																					
A-120 (has been withdrawn) NPS 1/8 - 16	Blk & Galv Welded & SMLS pipe for ordinary use - not intended for close coiling bending or high temperature service	CW ERW SMLS	None Specified	None Specified																																																																																																																					
A-53 NPS 1/8 - 26	Blk & Galv Welded & SMLS pipe suitable for welding and forming operations CW not intended for flanging. Grade B not intended for close coiling or severe cold forming. Pipe required for close coiling should be specified on order.	CW - Type F ERW - Type E SMLS - Type S	CW - Type F ERW & SMLS Grade A & B	<div>Composition, max %</div> <table><tr><td></td><td>C</td><td>Mg</td><td>P</td><td>S</td></tr></table> <div>Type S (seamless pipe)</div> <div>Open-hearth, electric-furnace or basic-oxygen:</div> <table><tr><td>Grade A</td><td>0.25</td><td>.095</td><td>0.05</td><td>0.045</td></tr><tr><td>Grade B</td><td>0.30</td><td>1.20</td><td>0.05</td><td>0.045</td></tr></table> <div>Type E (electric resistance welded)</div> <div>Open-hearth, electric-furnace or basic-oxygen:</div> <table><tr><td>Grade A</td><td>0.25</td><td>.095</td><td>0.05</td><td>0.045</td></tr><tr><td>Grade B</td><td>0.30</td><td>1.20</td><td>0.05</td><td>0.045</td></tr></table> <div>Type F (furnace welded pipe)</div> <div>Open-hearth, electric-furnace or basic-oxygen:</div> <table><tr><td></td><td>0.30</td><td>1.20</td><td>0.05</td><td>0.045</td></tr></table> <div>Ladle and Check Limits</div>		C	Mg	P	S	Grade A	0.25	.095	0.05	0.045	Grade B	0.30	1.20	0.05	0.045	Grade A	0.25	.095	0.05	0.045	Grade B	0.30	1.20	0.05	0.045		0.30	1.20	0.05	0.045																																																																																							
	C	Mg	P	S																																																																																																																					
Grade A	0.25	.095	0.05	0.045																																																																																																																					
Grade B	0.30	1.20	0.05	0.045																																																																																																																					
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	0.30	1.20	0.05	0.045																																																																																																																					
A-106 NPS 1/8 - 26	SMLS for high temperature service. Suitable for bending, flanging, and similar forming operations.	SMLS Only	Grades A, B & C	<div>Composition, max %</div> <table><tr><td>Element*</td><td>Grade A</td><td>Grade B</td><td>Grade C</td></tr><tr><td>Chrome</td><td>0.40</td><td>0.40</td><td>0.40</td></tr><tr><td>Copper</td><td>0.40</td><td>0.40</td><td>0.40</td></tr><tr><td>Molybdenum</td><td>0.15</td><td>0.15</td><td>0.15</td></tr><tr><td>Nickel</td><td>0.40</td><td>0.40</td><td>0.40</td></tr><tr><td>Vanadium</td><td>0.08</td><td>0.08</td><td>0.08</td></tr></table> *These five elements combined shall not exceed 1%.	Element*	Grade A	Grade B	Grade C	Chrome	0.40	0.40	0.40	Copper	0.40	0.40	0.40	Molybdenum	0.15	0.15	0.15	Nickel	0.40	0.40	0.40	Vanadium	0.08	0.08	0.08																																																																																													
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Vanadium	0.08	0.08	0.08																																																																																																																						
A-135 NPS 2-30	Electric resistance welded for conveying fluid, gas or vapor.	ERW Only	Grades A & B	<div>% max</div> <table><tr><td>Element</td><td>Grade A</td><td>Grade B</td></tr><tr><td>Carbon</td><td>0.25</td><td>0.30</td></tr><tr><td>Manganese</td><td>0.95</td><td>1.20</td></tr><tr><td>Phosphorus</td><td>0.035</td><td>0.035</td></tr><tr><td>Sulfur</td><td>0.035</td><td>0.035</td></tr></table> <div>Ladle and check limits</div>	Element	Grade A	Grade B	Carbon	0.25	0.30	Manganese	0.95	1.20	Phosphorus	0.035	0.035	Sulfur	0.035	0.035																																																																																																						
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A-252 NPS 6 - 24	ERW or SMLS for Pipe Piles	ERW SMLS DSAW	Grades 1, 2, 3	<div>All grades .05 Max. % Phos.</div> <div>Ladle & check limits</div>																																																																																																																					
A-333	SMLS & Welded Carbon & Alloy Steel pipe for low temperature service	SMLS ERW	1, 3, 4, 6, 7, 8, 9	<div>% max</div> <table><tr><td>GR</td><td>C</td><td>MN</td><td>P</td><td>S</td><td>SI</td><td>NI</td><td>CR</td><td>CU</td></tr><tr><td>1</td><td>30</td><td>40-1.05</td><td>.025</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>19</td><td>31-54</td><td>.025</td><td>.025</td><td>18-37</td><td>3.18-3.82</td><td></td><td></td></tr><tr><td>4</td><td>12</td><td>20-1.05</td><td>.025</td><td>.025</td><td>.08</td><td></td><td>44-121</td><td>40-75 (R-30)</td></tr><tr><td>6</td><td>30</td><td>29-1.05</td><td>.025</td><td>.025</td><td>10min</td><td></td><td></td><td></td></tr><tr><td>7</td><td>10</td><td>90 max</td><td>.025</td><td>.025</td><td>13-32</td><td>2303-257</td><td></td><td></td></tr><tr><td>8</td><td>13</td><td>90 max</td><td>.025</td><td>.025</td><td>13</td><td>8.40-9.60</td><td></td><td></td></tr><tr><td>9</td><td>20</td><td>40-</td><td>.025</td><td>.025</td><td></td><td>1.80-2.24</td><td>75-125</td><td></td></tr><tr><td>10</td><td>20</td><td>1.15-1.30</td><td>.025</td><td>0.018</td><td>10-30</td><td>25 max</td><td>15 max</td><td>95</td></tr><tr><td>11</td><td>10</td><td>0.90 max</td><td>.025</td><td>.025</td><td>35.0-37.0</td><td>50 max</td><td></td><td></td></tr></table>	GR	C	MN	P	S	SI	NI	CR	CU	1	30	40-1.05	.025						3	19	31-54	.025	.025	18-37	3.18-3.82			4	12	20-1.05	.025	.025	.08		44-121	40-75 (R-30)	6	30	29-1.05	.025	.025	10min				7	10	90 max	.025	.025	13-32	2303-257			8	13	90 max	.025	.025	13	8.40-9.60			9	20	40-	.025	.025		1.80-2.24	75-125		10	20	1.15-1.30	.025	0.018	10-30	25 max	15 max	95	11	10	0.90 max	.025	.025	35.0-37.0	50 max																													
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11	10	0.90 max	.025	.025	35.0-37.0	50 max																																																																																																																			
A-335 NPS 1/8 - 26	SMLS Alloy Steel Pipe for high temperature service	SMLS Only	P1, P2, P5, P5b, P5c, P9, P11, P12, P15, P21, P22, P91	<table><tr><td>Grade</td><td>UNS Des.</td><td>C</td><td>Mg</td><td>P</td><td>S</td><td>Si</td><td>Cr</td><td>Mo</td></tr><tr><td>P1</td><td>K11522</td><td>10-30</td><td>30-80</td><td>.025</td><td>.025</td><td>10-30</td><td></td><td>44-55</td></tr><tr><td>P2</td><td>K11527</td><td>10-30</td><td>30-61</td><td>.025</td><td>.025</td><td>10-30</td><td>5-81</td><td>44-55</td></tr><tr><td>P5</td><td>K41545</td><td>15max</td><td>30-80</td><td>.025</td><td>.025</td><td>50max</td><td>4-6</td><td>45-55</td></tr><tr><td>P5b</td><td>K51545</td><td>15max</td><td>30-80</td><td>.025</td><td>.025</td><td>1.02-2.02</td><td>4-6</td><td>45-55</td></tr><tr><td>P5c</td><td>K41240</td><td>12max</td><td>30-80</td><td>.025</td><td>.025</td><td>50max</td><td>4-6</td><td>45-55</td></tr><tr><td>P9</td><td>304303</td><td>15max</td><td>30-80</td><td>.025</td><td>.025</td><td>25-100</td><td>8-10</td><td>80-110</td></tr><tr><td>P11</td><td>K11520</td><td>25-15</td><td>30-80</td><td>.025</td><td>.025</td><td>50-100</td><td>1-15</td><td>44-55</td></tr><tr><td>P12</td><td>K11582</td><td>25-15</td><td>30-80</td><td>.025</td><td>.025</td><td>50max</td><td>30-125</td><td>44-55</td></tr><tr><td>P15</td><td>K11528</td><td>25-15</td><td>30-80</td><td>.025</td><td>.025</td><td>1.5-1.05</td><td></td><td>44-55</td></tr><tr><td>P21</td><td>K11545</td><td>25-15</td><td>30-80</td><td>.025</td><td>.025</td><td>50max</td><td>2.85-3.35</td><td>80-106</td></tr><tr><td>P22</td><td>K21590</td><td>25-15</td><td>30-80</td><td>.025</td><td>.025</td><td>50max</td><td>1.9-2.5</td><td>80-113</td></tr><tr><td>P91</td><td>K91080</td><td>08-12</td><td>30-80</td><td>.020</td><td>.010</td><td>20-30</td><td>8-9.5</td><td>86-105</td></tr></table> <div>a. New designation established in accordance with Practice E-527 and SAE J1086, Practice for Numbering Metals and Alloys (UNS).</div> <div>b. Grade P5c shall have a titanium content of not less than 4 times the carbon content and not more than 0.70% of a.</div>	Grade	UNS Des.	C	Mg	P	S	Si	Cr	Mo	P1	K11522	10-30	30-80	.025	.025	10-30		44-55	P2	K11527	10-30	30-61	.025	.025	10-30	5-81	44-55	P5	K41545	15max	30-80	.025	.025	50max	4-6	45-55	P5b	K51545	15max	30-80	.025	.025	1.02-2.02	4-6	45-55	P5c	K41240	12max	30-80	.025	.025	50max	4-6	45-55	P9	304303	15max	30-80	.025	.025	25-100	8-10	80-110	P11	K11520	25-15	30-80	.025	.025	50-100	1-15	44-55	P12	K11582	25-15	30-80	.025	.025	50max	30-125	44-55	P15	K11528	25-15	30-80	.025	.025	1.5-1.05		44-55	P21	K11545	25-15	30-80	.025	.025	50max	2.85-3.35	80-106	P22	K21590	25-15	30-80	.025	.025	50max	1.9-2.5	80-113	P91	K91080	08-12	30-80	.020	.010	20-30	8-9.5	86-105
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P5c	K41240	12max	30-80	.025	.025	50max	4-6	45-55																																																																																																																	
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P12	K11582	25-15	30-80	.025	.025	50max	30-125	44-55																																																																																																																	
P15	K11528	25-15	30-80	.025	.025	1.5-1.05		44-55																																																																																																																	
P21	K11545	25-15	30-80	.025	.025	50max	2.85-3.35	80-106																																																																																																																	
P22	K21590	25-15	30-80	.025	.025	50max	1.9-2.5	80-113																																																																																																																	
P91	K91080	08-12	30-80	.020	.010	20-30	8-9.5	86-105																																																																																																																	
A-501 Square & Rectangular 1" - 10" Round 1" - 24"	Hot Formed Welded & SMLS Round, Square & Rectangular Tubing	SMLS Welded	None Specified	<div>Composition %</div> <table><tr><td>Element</td><td>Heat Analysis</td><td>Product Analysis</td></tr><tr><td>Carbon, max.</td><td>0.26</td><td>0.30</td></tr><tr><td>Phosphorus, max.</td><td>0.035</td><td>0.045</td></tr><tr><td>Sulfur, max.</td><td>0.035</td><td>0.045</td></tr><tr><td>Copper, min.*</td><td>0.20</td><td>0.18</td></tr></table> <div>*When copper steel is specified</div>	Element	Heat Analysis	Product Analysis	Carbon, max.	0.26	0.30	Phosphorus, max.	0.035	0.045	Sulfur, max.	0.035	0.045	Copper, min.*	0.20	0.18																																																																																																						
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Copper, min.*	0.20	0.18																																																																																																																							
A-587 NPS 1/2" - 10"	EW Pipe for process lines suitable for severe forming involving flanging and close bending	ERW Only	None Specified	<table><tr><td colspan="4">% MAX.</td><td colspan="2">% MIN.</td></tr><tr><td>C</td><td>MN</td><td>P</td><td>S</td><td>AL</td><td></td></tr><tr><td>15</td><td>27-63</td><td>.035</td><td>.035</td><td>.02-11</td><td></td></tr></table>	% MAX.				% MIN.		C	MN	P	S	AL		15	27-63	.035	.035	.02-11																																																																																																				
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C	MN	P	S	AL																																																																																																																					
15	27-63	.035	.035	.02-11																																																																																																																					
A-589 Type 1 NPS 6-16	SMLS & Welded Water Pipe Type 1 Drive Pipe	Type 1 SMLS or Welded	Type 1 A or B	<div>% MAX.</div> <table><tr><td>P</td><td>S</td></tr><tr><td>.050</td><td>.030</td></tr></table>	P	S	.050	.030																																																																																																																	
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CONTINUED



**Invitation For Bid TAC 880D
Water and Sewer Line Fittings
Water & Sewer Department
Issued: April 19, 2018**

DIGEST OF COMMON - PIPE SPECIFICATIONS

CONTINUED

Specification and Size Range Where Indicated	Tensiles	Hydrostatic	Tests Bend	Flattening	Wall Tolerance	OD Tolerance																																	
A-120 (has been withdrawn) NPS 1/8 - 16	None Specified	yes	None Specified	None Specified	Min. wall shall not be more than 12.5% under nominal wall	1/2" - 1-1/2" + 1/64" -1/32" 2" & over - +/- 1% of OD																																	
A-53 NPS 1/8 - 26	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Grade</th><th>Yield</th><th>Tensile</th></tr><tr><td>C W</td><td>25,000</td><td>45,000</td></tr><tr><td>GR-A</td><td>30,000</td><td>48,000</td></tr><tr><td>GR-B</td><td>35,000</td><td>60,000</td></tr></table>	MIN. P.S.I.			Grade	Yield	Tensile	C W	25,000	45,000	GR-A	30,000	48,000	GR-B	35,000	60,000	yes	yes - 2" & under Std. & XHY 90° to 12 times nom. diameter. Close coiling 180° to 8 times nom. dia.	yes - over 2" nom. XHY & lighter. CW 90° to 75% ODv	Min. wall shall not be more than 12.5% under nominal wall	1/2" - 1-1/2" + 1/64" -1/32" 2" & over - +/- 1% of OD																		
MIN. P.S.I.																																							
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A-106 NPS 1/8 - 26	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Grade</th><th>Yield</th><th>Tensile</th></tr><tr><td>A</td><td>30,000</td><td>48,000</td></tr><tr><td>B</td><td>35,000</td><td>60,000</td></tr><tr><td>C</td><td>40,000</td><td>70,000</td></tr></table>	MIN. P.S.I.			Grade	Yield	Tensile	A	30,000	48,000	B	35,000	60,000	C	40,000	70,000	yes	Not req'd over 2" diameter, 90° to 12 times dia. Close coiling 180° to 8 times diameter	yes - over 2" dia.	Min. wall shall not be more than 12.5% under nominal wall	1/8" - 1-1/2" + 1/64" -1/32" 2" - 4" +/- 1/32" 5" - 8" + 1/16" -1/32" 10" - 18" + 3/32" -1/32" 18" & over - 1/8" -1/32"																		
MIN. P.S.I.																																							
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A	30,000	48,000																																					
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A-135 NPS 2-30	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Grade</th><th>Yield</th><th>Tensile</th></tr><tr><td>A</td><td>30,000</td><td>48,000</td></tr><tr><td>B</td><td>35,000</td><td>60,000</td></tr></table>	MIN. P.S.I.			Grade	Yield	Tensile	A	30,000	48,000	B	35,000	60,000	yes	None Specified	yes - for all sizes to 2/3 OD	Min. wall shall not be more than 12.5% under nominal wall	For all sizes +/- 1% of OD																					
MIN. P.S.I.																																							
Grade	Yield	Tensile																																					
A	30,000	48,000																																					
B	35,000	60,000																																					
A-252 NPS 6 - 24	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Grade</th><th>Yield</th><th>Tensile</th></tr><tr><td>1</td><td>30,000</td><td>50,000</td></tr><tr><td>2</td><td>35,000</td><td>60,000</td></tr><tr><td>3</td><td>40,000</td><td>66,000</td></tr></table>	MIN. P.S.I.			Grade	Yield	Tensile	1	30,000	50,000	2	35,000	60,000	3	40,000	66,000	None Specified	None Specified	None Specified	Min. wall shall not be more than 12.5% under nominal wall. Surface defects no more than 25% deep	+/- 1% of OD																		
MIN. P.S.I.																																							
Grade	Yield	Tensile																																					
1	30,000	50,000																																					
2	35,000	60,000																																					
3	40,000	66,000																																					
A-333	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Grade</th><th>Yield</th><th>Tensile</th></tr><tr><td>1</td><td>30,000</td><td>50,000</td></tr><tr><td>2</td><td>35,000</td><td>65,000</td></tr><tr><td>3</td><td>35,000</td><td>60,000</td></tr><tr><td>6</td><td>35,000</td><td>60,000</td></tr><tr><td>7</td><td>35,000</td><td>65,000</td></tr><tr><td>8</td><td>75,000</td><td>100,000</td></tr><tr><td>9</td><td>46,000</td><td>63,000</td></tr><tr><td>10</td><td>65,000</td><td>80,000</td></tr><tr><td>11</td><td>35,000</td><td>65,000</td></tr></table>	MIN. P.S.I.			Grade	Yield	Tensile	1	30,000	50,000	2	35,000	65,000	3	35,000	60,000	6	35,000	60,000	7	35,000	65,000	8	75,000	100,000	9	46,000	63,000	10	65,000	80,000	11	35,000	65,000	yes	None Specified	yes - for all sizes	Min. wall shall not be more than 12.5% under nominal wall	2" - 4" +/- 1/32" 5" - 8" + 1/16" - 1/32" 10" - 18" + 3/32" - 1/32" 18" & + 1/8" Over - 1/32"
MIN. P.S.I.																																							
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A-335 NPS 1/8 - 26	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Grade</th><th>Yield</th><th>Tensile</th></tr><tr><td>P1</td><td>30,000</td><td>55,000</td></tr><tr><td>P2</td><td>30,000</td><td>55,000</td></tr><tr><td>P-91</td><td>60,000</td><td>85,000</td></tr><tr><td>All</td><td></td><td></td></tr><tr><td>Others</td><td>30,000</td><td>60,000</td></tr></table>	MIN. P.S.I.			Grade	Yield	Tensile	P1	30,000	55,000	P2	30,000	55,000	P-91	60,000	85,000	All			Others	30,000	60,000	yes	yes	yes	Min. wall shall not be more than 12.5% under nominal wall	1/8" - 1-1/2" + 1/64" -1/32" 2" - 4" +/- 1/32" 4" - 8" + 1/16" - 1/32" 10" - 18" + 3/32" - 1/32" 20" - 26" + 1/8" -1/32"												
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P2	30,000	55,000																																					
P-91	60,000	85,000																																					
All																																							
Others	30,000	60,000																																					
A-501 Square & Rectangular 1" - 10" Round 1" - 24"	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Yield</th><th colspan="2">Tensile</th></tr><tr><td>35,000</td><td colspan="2">58,000</td></tr></table>	MIN. P.S.I.			Yield	Tensile		35,000	58,000		None Specified	Round None Shapes Yes	None Specified	None Specified Weight shall not be less than specified by more than 3.5%. Surface defect no more than 15%	Round: 1-1/2" & under + 1/65" - 1/32" 2" & over +/- 1% of OD Shapes: 2-1/2" & under +/- .020 2-1/2" - 3-1/2" +/- .025 3-1/2" - 5-1/2" +/- .030 5-1/2" & over +/- 1%																								
MIN. P.S.I.																																							
Yield	Tensile																																						
35,000	58,000																																						
A-587 NPS 1/2" - 10"	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Yield</th><th colspan="2">Tensile</th></tr><tr><td>30,000</td><td colspan="2">48,000</td></tr></table>	MIN. P.S.I.			Yield	Tensile		30,000	48,000		None Specified Nondestructive test shall be made	None Specified A flange test shall be made	yes - for all sizes	Refer to table 4 ASTM Standards for A-587	Refer to table 4 ASTM Standards for A-587																								
MIN. P.S.I.																																							
Yield	Tensile																																						
30,000	48,000																																						
A-589 Type 1 NPS 6-16	<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>Grade</th><th>Yield</th><th>Tensile</th></tr><tr><td>C W</td><td>25,000</td><td>45,000</td></tr><tr><td>A</td><td>30,000</td><td>48,000</td></tr><tr><td>B</td><td>35,000</td><td>60,000</td></tr></table>	MIN. P.S.I.			Grade	Yield	Tensile	C W	25,000	45,000	A	30,000	48,000	B	35,000	60,000	yes	None Specified	None Specified	Min. wall shall not be more than 12.5% nominal wall	1-1/2" & under + 1/64" - 1/32" 2" & over +/- 1% of OD																		
MIN. P.S.I.																																							
Grade	Yield	Tensile																																					
C W	25,000	45,000																																					
A	30,000	48,000																																					
B	35,000	60,000																																					

DIGEST OF COMMON - PIPE SPECIFICATIONS (cont.)

Specification and Size Range Where Indicated	Scope	Type	Grades	Chemistry																																																																																				
Type II NPS 1-12	Type II Water well reamed and drifted	Type II SMLS, ERW or CW	Type II A or CW	<table><tr><td colspan="2">% MAX.</td></tr><tr><td>P</td><td>S</td></tr><tr><td>.050</td><td>.050</td></tr></table>	% MAX.		P	S	.050	.050																																																																														
% MAX.																																																																																								
P	S																																																																																							
.050	.050																																																																																							
Type III NPS 1-2	Type III Driven well pipe	Type III SMLS, ERW or CW	Type III A or CW																																																																																					
Type IV NPS 3-8	Type IV Water well casing	Type IV SMLS, ERW or CW	Type IV A or CW																																																																																					
API 5L	Welded and SMLS Line pipe	CW, ERW, SMLS DSAW	CW Grade 25 DSAW ERW & SMLS Grades A & B	<table><tr><td colspan="5">Ladle % Max</td></tr><tr><td>GR</td><td>C</td><td>MN</td><td>P</td><td>S</td></tr><tr><td>A-25</td><td>.21</td><td>.60</td><td>.08</td><td>.06</td></tr><tr><td>SMLS</td><td></td><td></td><td></td><td></td></tr><tr><td>A</td><td>.22</td><td>.90</td><td>.04</td><td>.05</td></tr><tr><td>B</td><td>.27</td><td>1.15</td><td>.04</td><td>.05</td></tr><tr><td>ERW</td><td></td><td></td><td></td><td></td></tr><tr><td>A</td><td>.21</td><td>.90</td><td>.04</td><td>.05</td></tr><tr><td>B</td><td>.26</td><td>1.15</td><td>.04</td><td>.05</td></tr></table>	Ladle % Max					GR	C	MN	P	S	A-25	.21	.60	.08	.06	SMLS					A	.22	.90	.04	.05	B	.27	1.15	.04	.05	ERW					A	.21	.90	.04	.05	B	.26	1.15	.04	.05																																							
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B	.26	1.15	.04	.05																																																																																				
API 5LX	Welded and SMLS High test line pipe	ERW & SMLS DSAW	X-42 X-46 X-52 X-60 X-65 X-70 X-80	<table><tr><td colspan="7">Ladle % Max % Min</td></tr><tr><td>GR</td><td>C</td><td>MN</td><td>P</td><td>S</td><td>CB</td><td>V</td></tr><tr><td>SMLS</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>X-42</td><td>.29</td><td>1.25</td><td>.04</td><td>.05</td><td></td><td></td></tr><tr><td>X-46</td><td>.31</td><td>1.35</td><td>.04</td><td>.05</td><td></td><td></td></tr><tr><td>X-52</td><td>.31</td><td>1.35</td><td>.04</td><td>.05</td><td></td><td></td></tr><tr><td>X-60</td><td>.26</td><td>1.35</td><td>.04</td><td>.05</td><td></td><td>.02</td></tr><tr><td>ERW</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>X-42</td><td>.28</td><td>1.25</td><td>.04</td><td>.05</td><td></td><td></td></tr><tr><td>X-46</td><td>.30</td><td>1.35</td><td>.04</td><td>.05</td><td></td><td></td></tr><tr><td>X-52</td><td>.30</td><td>1.35</td><td>.04</td><td>.05</td><td></td><td></td></tr><tr><td>X-60</td><td>.26</td><td>1.35</td><td>.04</td><td>.05</td><td>.005</td><td></td></tr></table>	Ladle % Max % Min							GR	C	MN	P	S	CB	V	SMLS							X-42	.29	1.25	.04	.05			X-46	.31	1.35	.04	.05			X-52	.31	1.35	.04	.05			X-60	.26	1.35	.04	.05		.02	ERW							X-42	.28	1.25	.04	.05			X-46	.30	1.35	.04	.05			X-52	.30	1.35	.04	.05			X-60	.26	1.35	.04	.05	.005	
Ladle % Max % Min																																																																																								
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Federal WWP-406	Comparable to A-120 (has been withdrawn)																																																																																							
Federal WWP-404	Comparable to A-53																																																																																							

CONTINUED

ASTM & API SPECIFICATIONS WITH COMPARABLE ANSI DESIGNATIONS

ASTM OR API DESIGNATIONS	ANSI DESIGNATIONS		TITLE
	CURRENT	REPLACED	
ASTM A-53	B-125.1	B-36.1	Welded & Seamless pipe
ASTM A-106	B-125.30	B-36.3	Seamless carbon steel pipe for high temperature service
ASTM A-120*	B-125-2	B-36.20	Black & galvanized and seamless steel pipe for ordinary uses
ASTM A-134	B-125.55	B-36.4	Electric-fusion (Arc) welded steel plate pipe (sizes 16" & over)
ASTM A-135	B-125.3	B-36.5	Electric resistance welded pipe
ASTM A-139	B-125.31	B-36.9	Electric-fusion (Arc) welded steel plate pipe (sizes 4" & over)
ASTM A-155	B-125.4	B-36.11	Electric fusion welded steel pipe for high temperature service
ASTM A-211	B-125.56	B-36.16	"Insert discontinued 1994"
ASTM A-312	B-125.16	B-36.26	Seamless and welded austenitic stainless steel pipe
ASTM A-333	B-125.17	B-36.40	Seamless and welded steel pipe for low temperature service
ASTM A-335	B-124.24	B-36.42	Seamless ferritic alloy steel pipe for high temperature service

* has been withdrawn

FEDERAL

WWP-404c is similar to ASTM A-53 except that Government inspection and continuous identification marking of electric weld and seamless is mandatory. It covers black and galvanized welded and seamless pipe for flanging, bending, and coiling and for use with fresh water, oil, steam, air, and gas on shore plus a limited number of shipboard uses. Sizes 1/8 inch through 24 inch. WWP-406c is a federal specification comparable to ASTM A-120 (withdrawn 1988). Mills can certify that A-120 pipe in a distributor's stock meets all the requirements of WWP-406c.

A.W.W.A.

C-200 covers black welded and seamless pipe intended for the conveyance of water in sizes 6 inch and larger. Specification prescribes hydrostatic test pressures for sizes of pipe covered. Tensile, flattening, and bending tests are required.

ASME

B31.1 Code for pressure piping. Prescribes minimum requirements for design, manufacture, test, and installations of power piping systems for steam generating plants, central heating plants, and industrial plants.

B31.2 Fuel Gas Piping.

B31.3 Petroleum Refinery Piping.

B31.4 Liquid Petroleum Transportation Piping Systems.

B31.5 Refrigeration Piping.

B31.7 Nuclear Power Piping

B31.8 Gas Transmission and Distributing Piping Systems. Covers design, fabrication, installation, inspection, testing, and the safety aspects of operation and maintenance of gas transmission and distribution systems.

ANSI (ASME)

B36.10 American Standard for Wrought-Steel and Wrought-Iron pipe. Designates dimensions, weights, and schedule numbers for welded and seamless pipe. Schedules 10 through Schedules Double Extra Heavy (DXH/XXH).

B36.19 American Standard for Stainless Steel Pipe. Designates dimensions, weights, and schedule numbers for welded and seamless Stainless Steel Pipe, Schedules 5 through Schedules 80.

A.A.R.

M-111 covers black and galvanized welded and seamless pipe intended for coiling, bending, flanging, and other special purposes; and is suitable for welding. Purpose for which pipe is intended should be stated on orders. M-111 is comparable in most requirements to ASTM A-53.

M-130 covers black and galvanized welded and seamless pipe for ordinary uses in steam, water, gas, and air lines. Sizes 1/8 inch through 12 inch. Pipe to this specification is not intended for close coiling, bending, or high temperature service. M-130 is comparable in most requirements to ASTM A-120.



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Section 4

WValveGTCA 03072005

(Use Specs with: Items 1-10)

VALVE SPECIFICATIONS

GATE VALVES: Resilient-wedged gate valves shall conform to the ANSI/AWWA C509. Valves shall be bubble tight from either direction at a rated design pressure of 200 psi. Valves shall have a single disc gate with synthetic rubber seat bonded or mechanically attached to the disc; counter clockwise opening, "O" ring stem seals; corrosion resistant interior coating acceptable for potable water use. Flanges if specified shall be ANSI B16.1 Class 125 cast iron flanges. Non rising stem if specified shall be with "2" AWWA operating nut. O S & Y valves if specified shall be complete with hand-wheel for manual operation. Where 2" Gate Valves are specified they shall have a 200 lb. cold water working pressure rating and shall conform to AWWA Standard for Gate Valves, 3" through 48", ANSI/AWWA C500 in regard to operation and materials.

Only the following makes shall be permitted: American, Mueller, M & H, Clow, Kennedy, U.S. Pipe, or AVK.

TAPPING VALVES: Tapping valves shall conform to AWWA Standard for Gate Valves, 3" through 48", Nominal Pipe Size, for Water and Sewer Systems, ANSI/AWWA C500 in regard to operation and materials. Mechanical joint tapping valves are to be furnished complete with joint accessories.

Only the following makes shall be permitted: Mueller, Clow, American, Tyler, Powerseal, Smithblair, or Dresser.

CHECK VALVES: Check valves shall conform to the AWWA Standard for Swing-Check Valves for Ordinary Water Works Service, AWWA C508 in regard to operation and materials. Valves shall be single disc with full diameter passage, non-slamming type designed for the future installation of outside lever and weight. Disc faces and seat rings shall be bronze.

Only the following makes shall be permitted: M & H, American Flow Control, Mueller, U.S. Pipe, Clow, Kennedy or Watts.

AIR RELIEF VALVES: Air relief valves shall be heavy-duty combination air release and vacuum type for 150 psi working pressure, tested to 300 psi. Body, cover, and baffle shall be cast iron or nylon. All internal parts shall be highest quality stainless steel, nylon or bronze, and the interior and exterior of valve coated with epoxy.

Only the following makes will be permitted: Apco, Crispin, ARI or ValMatic.

All accessories required for connection will be included. Bolts for connection shall be carbon steel ANSI/ASTM A307, Grade A only, in accordance with ANSI/AWWA C207.

All MATERIALS CONTAINING BRASS shall be manufactured from a material known as "Low Lead Brass and meet Federal Reduction of Lead in Drinking Water Act, Federal Regulations effective January 4, 2014.

Disclaimer: All products received must meet Federal guidelines even if not stated in specifications.



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Section 5

WPipe 03152010

(Use Specs with: Items 1-18)

COPPER TUBING

Where copper tubing is specified, it shall be Type "K" soft annealed copper tubing, and shall meet applicable requirements of the current edition of A.S.T.M. B88-61.

PIPE SPECIFICATIONS

DUCTILE IRON AND CAST IRON PIPE*

Ductile iron or cast iron pipe shall be bituminous coated outside and cement-mortar lined inside with seal coat in accordance with ANSI/AWWA C104/A21.4. Pipe shall conform to the current American National Standard for Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids, ANSI/AWWA C151/A21.51. Length of joints shall be twenty feet. Please insert vendors Tally Sheet with Packing Slip. The minimum standard thickness of each size pipe shall be Class 51 for pipe size 4" through 8" and Class 50 for pipe size 10" and larger. Mechanical joints and push-on joints shall conform to the American National Standard for Rubber Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings, ANSI/AWWA C111/A21.11.

Where cast iron pipe (CIP) is specified, it shall conform to the American National Standard for Gray-Iron Pipe Centrifugally Cast in Metal Molds for Water or Other Liquids, ANSI/AWWA C106/A21.8 or Cast Iron Pipe Centrifugally Cast in Sand-Lined Molds for Water, ANSI/AWWA C108/A21.8. Lengths shall be twenty foot. Strength of iron shall be 18/40 with Class 22 for 3-inch to 12-inch diameters, and thickness Class 24 for diameters over 12-inch.

POLYVINYL CHLORIDE (PVC) PIPE*

Where polyvinyl chloride pipe is specified, it shall conform to pressure Class 200 (equivalent to Dimension Ratio 14) it shall have an outside diameter (OD) equal to the OD of equivalent size of ductile iron pipe. Unless otherwise specified pipe shall have integral wall-thickened bell ends. Solvent cement jointing shall not be permitted. Where pipe is 4" or larger it must be in accordance with AWWA C900. PVC water pipe shall be approved by Underwriters Laboratory and bear the seal of approval ("NSF" mark) of the National Sanitation Foundation Testing Laboratory for potable water pipe.

Note: All accessories provided including nuts, ring bolts and bell rubbers must come complete with pipe.



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Section 6

WMeterCan 08052008

(Use Specs with: Items 1-5)

METER BOX RIMS AND LIDS - Meter box rims and lids shall be in accordance with the attached Standard Drawing(s). Meter can cast iron lids shall be standard City of Tulsa design, in accordance with the attached Standard detail. The lids shall be ground to fit into the rim recess snugly and evenly without forcing. Lettering shall match that shown in the standard drawing detail. Castings shall be strong with even grain, smooth, free from scale, blisters, sand holes and other defects which would make them unfit for the intended use. Castings shall be made accurately to dimensions shown and shall be planed or ground where marked or where otherwise necessary to secure perfectly flat and true surfaces.

1. Gray iron castings shall conform to and be tested in accordance with the Standard Specification for Gray Iron Castings ASTM A48 and *Drainage Structure Castings, AASHTO Designation: M 306-89*. All castings, including manhole steps, lamphole covers, water meter lids, manhole frames and lids, adjustment rings and valve boxes shall be Class 35-B iron.
2. Casting dimensions shall vary by not more than plus or minus 1/16 inch per foot.
3. All bearing surfaces *shall be* machined to prevent rocking and rattling.
4. Only those castings which have been approved by the Department will be permitted.
5. Markings or wording on all gray iron castings shall conform to AASHTO Designation M306-89. (AASHTO M306-89 states: Each casting shall be identified by the foundry showing):
 - Name of Foundry
 - Country of Manufacture
 - ASTM Designation Number
 - Class by a number followed by a letter indicating the minimum tensile strength and size of test bar. (i.e. Class 35-B)
 - Heat Number and DateNo other wording or marking of any kind other than those stated above or shown on the plan will be permitted on castings.

OFFSET PLUGS FOR METER CAN LIDS

Offset plugs with cotter pin for meter can lid shall be provided only when specifically requested.

A. STEEL METER BOXES

All steel meter boxes shall be in accordance with the attached Standard Detail, and shall be galvanized.

Only the following preapproved models or their components will be accepted:

<u>Meter can for:</u>	<u>Approved Model</u>
3/4" service	East Jordan 18OD X 18H ASSEMBLY 32534019 (Fits 3/4" & 5/8" Meter) SIGMA 18OD X 18H MB-161TT-35 (Fits 3/4" & 5/8" Meter) Meter Can must be 20 gauge GALV for 3/4" and 5/8" Service.
1" service	East Jordan 24OD X 18H ASSEMBLY 32535019 (1" Meter) SIGMA 18 X 24 MB-163TT-35 (1") Meter Can must be 20 gauge GALV for 1" Service.
2" service	East Jordan 00842801 (8428 GALV) (2" Meter) SIGMA 36OD X 36H MB-147T2-35 (2") Meter Can must be 20 gauge GALV for 2" Service.

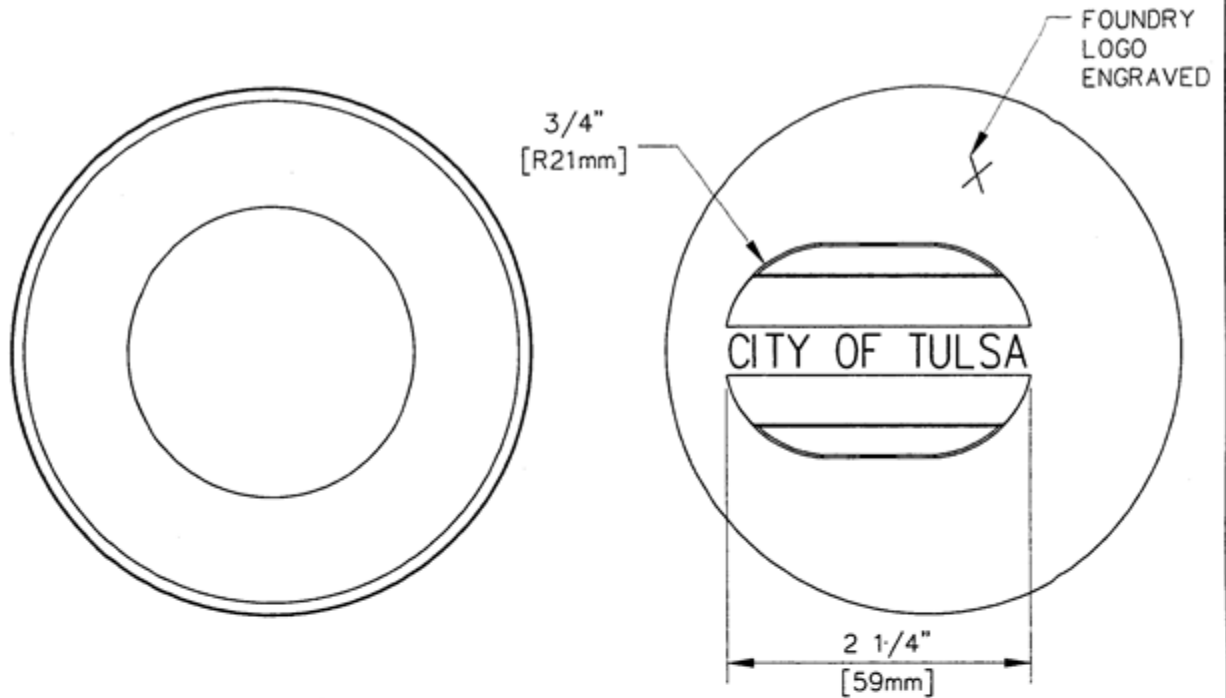
East Jordan 2" lid shall be the key hole model #3219704.



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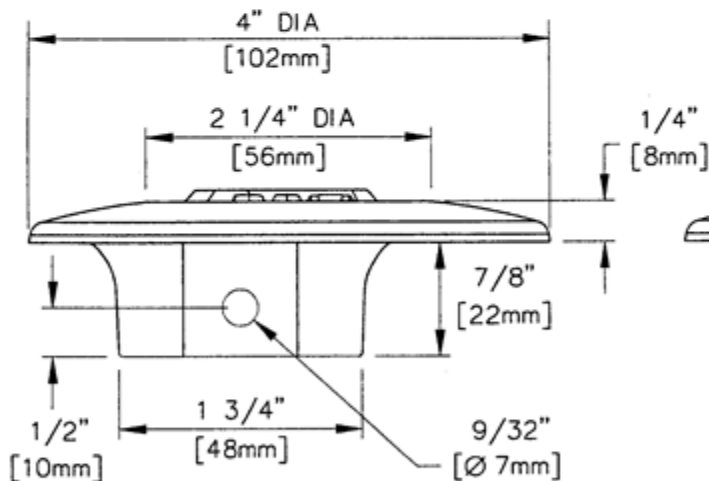
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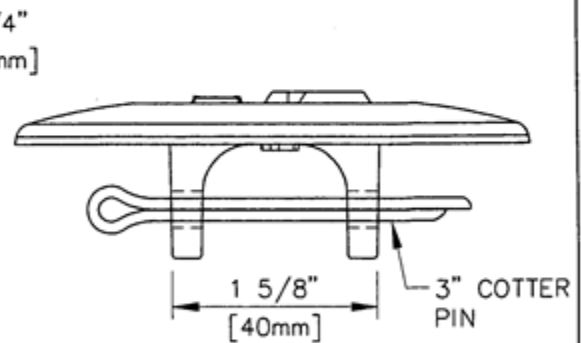


TOP VIEW

BOTTOM VIEW



SIDE VIEW



SIDE VIEW

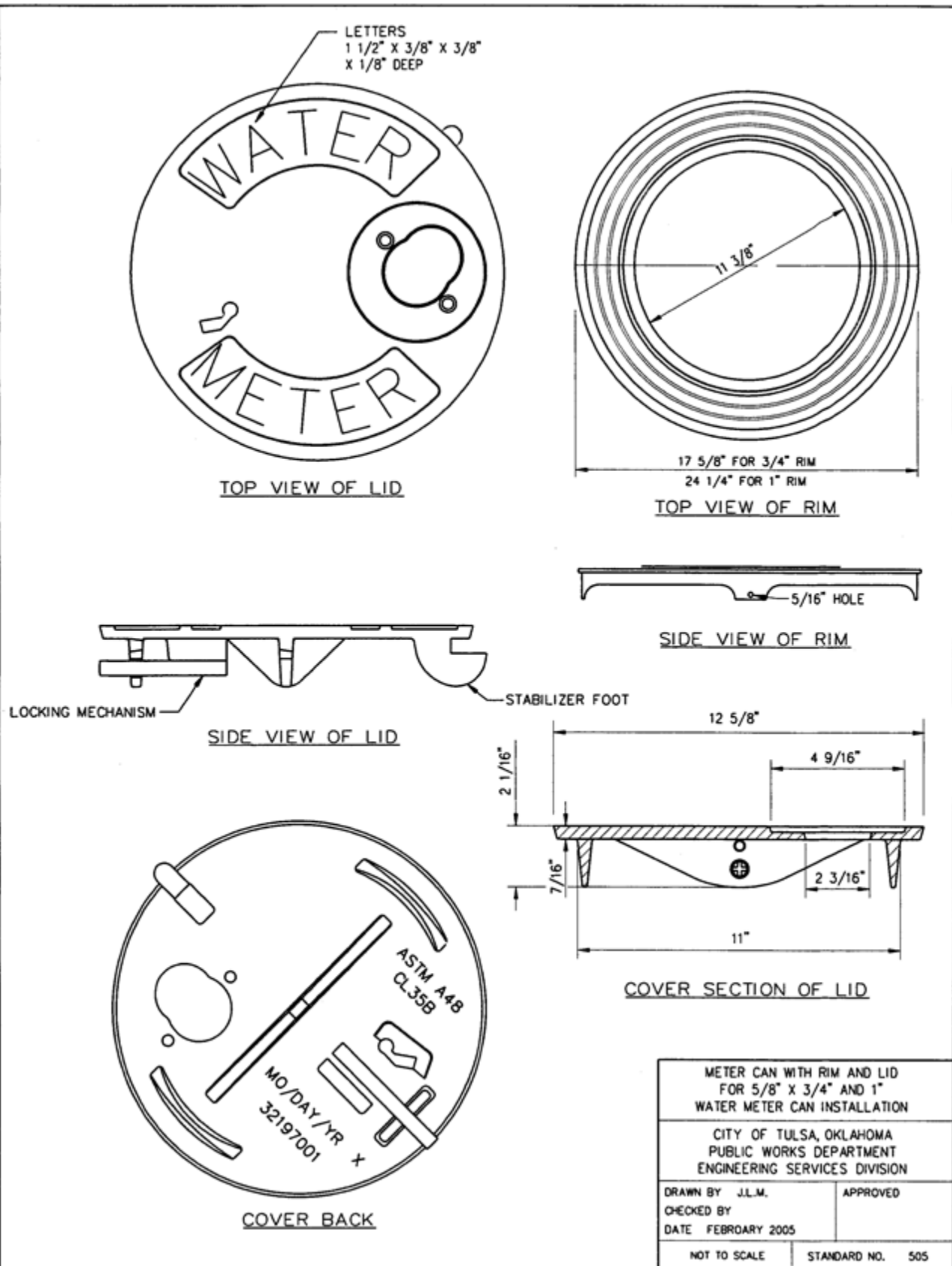
OFFSET PLUG		
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT ENGINEERING SERVICES DIVISION		
DRAWN BY	S.B.W.	APPROVED
CHECKED BY		
DATE	OCTOBER 2004	
NOT TO SCALE	STANDARD NO.	508



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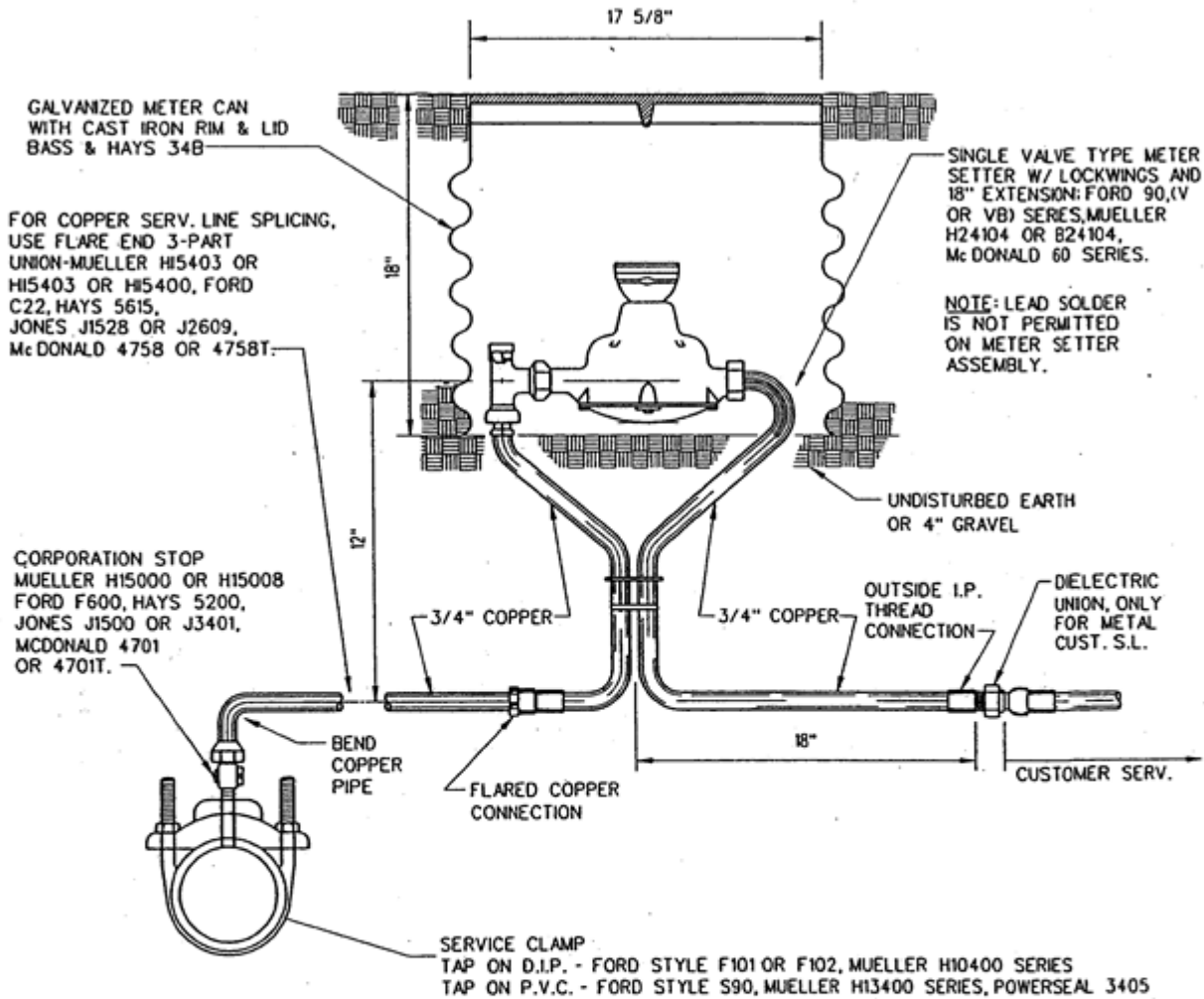
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45° TAP



SIDE TAP

NOTE:

1. SERV. CLAMP REQUIRED FOR ALL SIZES PVC, & FOR 4" & SMALLER IRON. FOR 6" & LARGER IRON, TAP DIRECTLY.
2. TAP AT ANGLE NECESSARY TO PROVIDE 30" OF COVER OVER THE SERVICE LINE.
3. COPPER SERVICE LINES SHALL BE TYPE K SOFT ANNEALED.
4. COMPRESSION FITTINGS NOT ALLOWED.

**STANDARD METER SETTINGS FOR
5/8"X3/4" AND 3/4" WATER SERVICE**

**CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES DIVISION**

**DRAWN BY J.L.M.
CHECKED BY
DATE MARCH 2003**

APPROVED

CLL

NOT TO SCALE

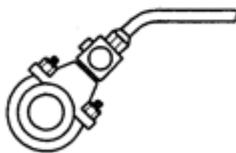
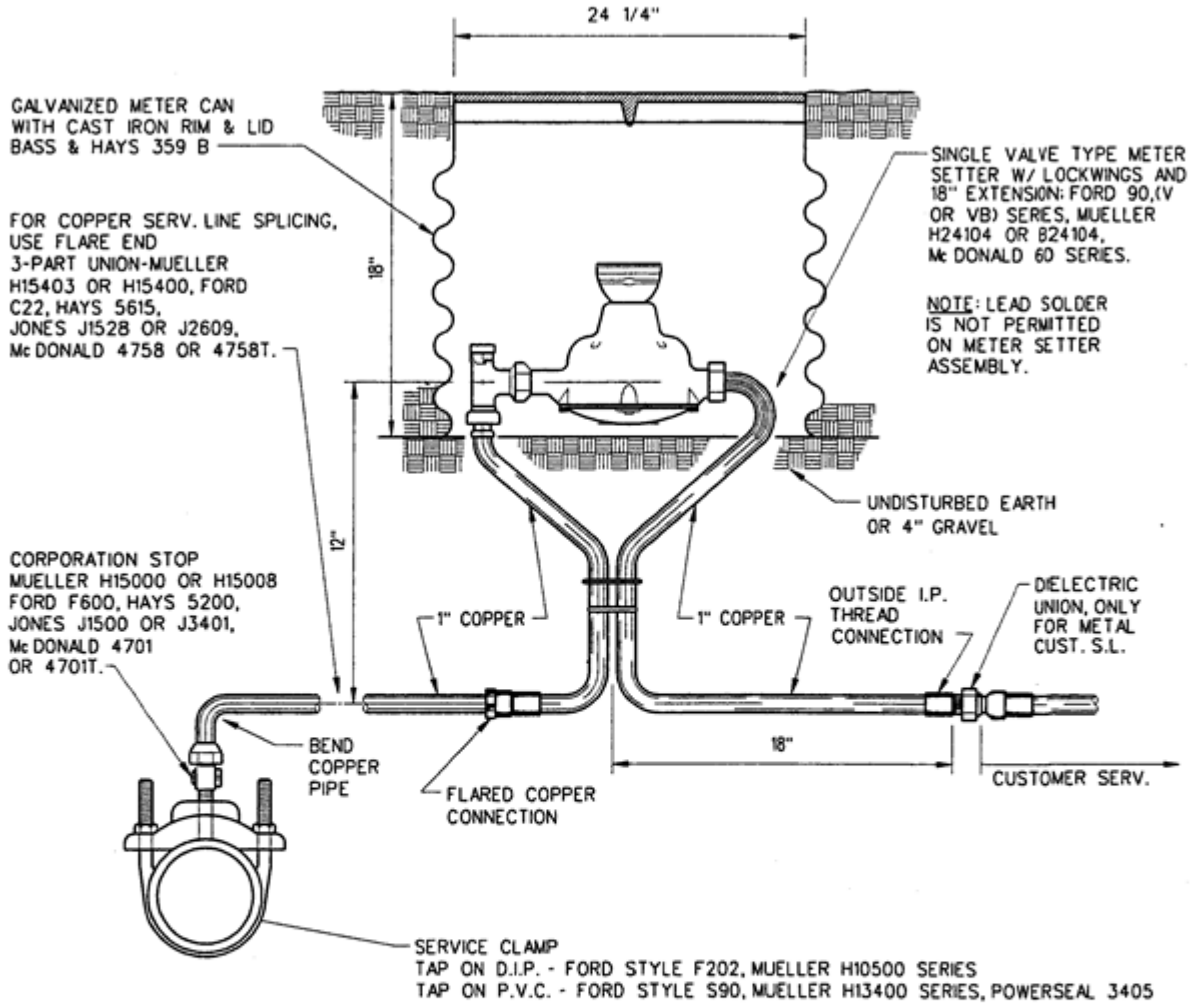
STANDARD NO. 501



**CITY OF
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A New Kind of Energy.

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45° TAP



SIDE TAP

NOTE:

1. SERV. CLAMP REQUIRED FOR ALL SIZES
PVC, & FOR 6" & SMALLER IRON. FOR
8" & LARGER IRON, TAP DIRECTLY.
2. TAP AT ANGLE NECESSARY TO PROVIDE
30" OF COVER OVER THE SERVICE LINE.
3. COPPER SERVICE LINES SHALL BE
TYPE K SOFT ANNEALED.
4. COMPRESSION FITTINGS NOT ALLOWED

**STANDARD METER SETTINGS FOR
1" WATER SERVICE**

**CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES DIVISION**

DRAWN BY J.L.M.
CHECKED BY
DATE OCTOBER 2004

APPROVED

NOT TO SCALE

STANDARD NO. 502



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Section 7

WManhole6000 04162007

(Use Specs with: (Item 1))

MANHOLE FRAME AND LID SPECIFICATIONS

Lids shall be solid cast aluminum with type G lift handles, flush hinges and the following printing on lid top "CITY OF TULSA WATER METER". Rim to be cast iron. Each rim and lid must come with one holding ratchet per lid, attached to unit, to keep lid(s) open when unit is accessed. Lid and rim shall meet the appropriate dimension table requirements for the unit requested. Note: Lids shall come with non-removable hinges.

Where requested manhole frames and lids shall be Neenah model R6660-KH or equal and conform to the following dimensions:

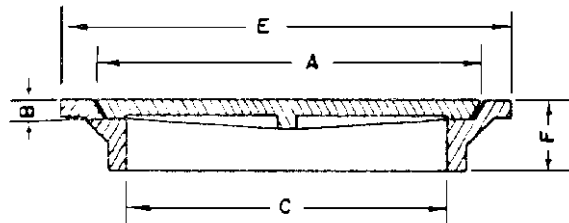
A) 25-1/2" x 25-1/2"

B) 3/4"

C) 24" x 24"

E) 30" x 30"

F) 4"



Number of lids in unit shall be one.

Where requested manhole frames and lids shall be Neenah model R6663-NH or equal and conform to the following dimensions:

A) 31-1/2" x 49-1/2"

B) 1-1/2"

C) 30" x 48"

E) 36" x 54"

Number of lids in unit shall be two.



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Section 8

WValveBox 03152010

(Use Specs with: Items 1-5)

VALVE BOX SPECIFICATIONS: Valve box components shall be in accordance with the attached standard drawing. The bidder shall indicate the type offered. Only the following makes which have been approved by the Department will be permitted:

Tyler 6850 Series 562-S, East Jordan 85502737 (562-S), Sigma VB 262-35, or Star VR 562SHD.

General Notes for Gray Iron Castings

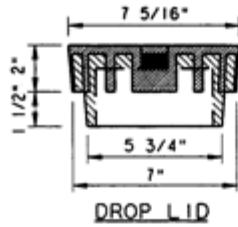
4. Gray iron castings shall conform to and be tested in accordance with the Standard Specification for Gray Iron Castings ASTM A48 and *Drainage Structure Castings, AASHTO Designation: M 306-89*. All castings, including manhole steps, lamphole covers, water meter lids, manhole frames and lids, adjustment rings and valve boxes shall be Class 35-B iron.
5. Casting dimensions shall vary by not more than plus or minus 1/16 inch per foot.
6. All bearing surfaces *shall be* machined to prevent rocking and rattling.
7. Only those castings which have been approved by the Department will be permitted. **Tops and bottoms cannot be shipped in the same box.**
8. Markings or wording on all gray iron castings shall conform to AASHTO Designation M306-89. (AASHTO M306-89 states: Each casting shall be identified by the foundry showing):
 - Name of Foundry
 - Country of Manufacture
 - ASTM Designation Number
 - Class by a number followed by a letter indicating the minimum tensile strength and size of test bar. (i.e. Class 35-B)
 - Heat Number and DateNo other wording or marking of any kind other than those stated above or shown on the plan will be permitted on castings.
9. No Tyler Box or Valve Box Top section with the name "INDIA" stamped on it will be acceptable. The thread pattern is not interchangeable with the Tyler 562-S Valve Box or Top Section.



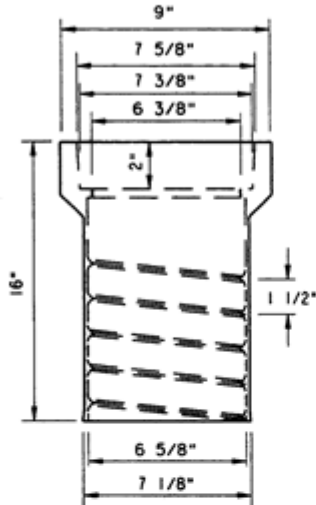
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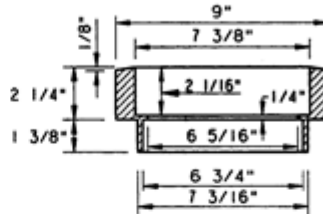
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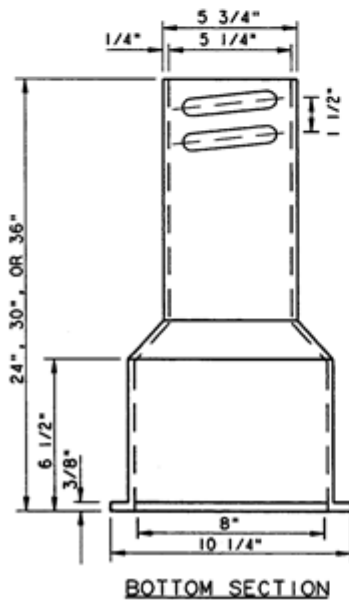
DROP LID



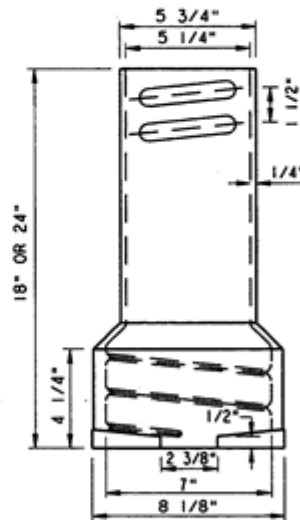
TOP SECTION



RISER



BOTTOM SECTION



EXTENSION

**STANDARD DETAIL
VALVE BOX**

**CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES DIVISION**

**DRAWN BY J.L.C.
CHECKED BY
DATE 3-25-2002**

APPROVED

NOT TO SCALE

STANDARD NO. 313



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Section 9

WPacking 012606

(Use Specs with: Items 1-9)

SQUARE CROSS BRAIDED PACKING SPECIFICATIONS:

Cross-braided (square, interlocking) long-fiber high grade flax packing where requested shall be of medium hardness. Packing shall be free from tow & short fibers, be treated with blended paraffin, well lubricated with Marine wax but must not contain asbestos or graphite.

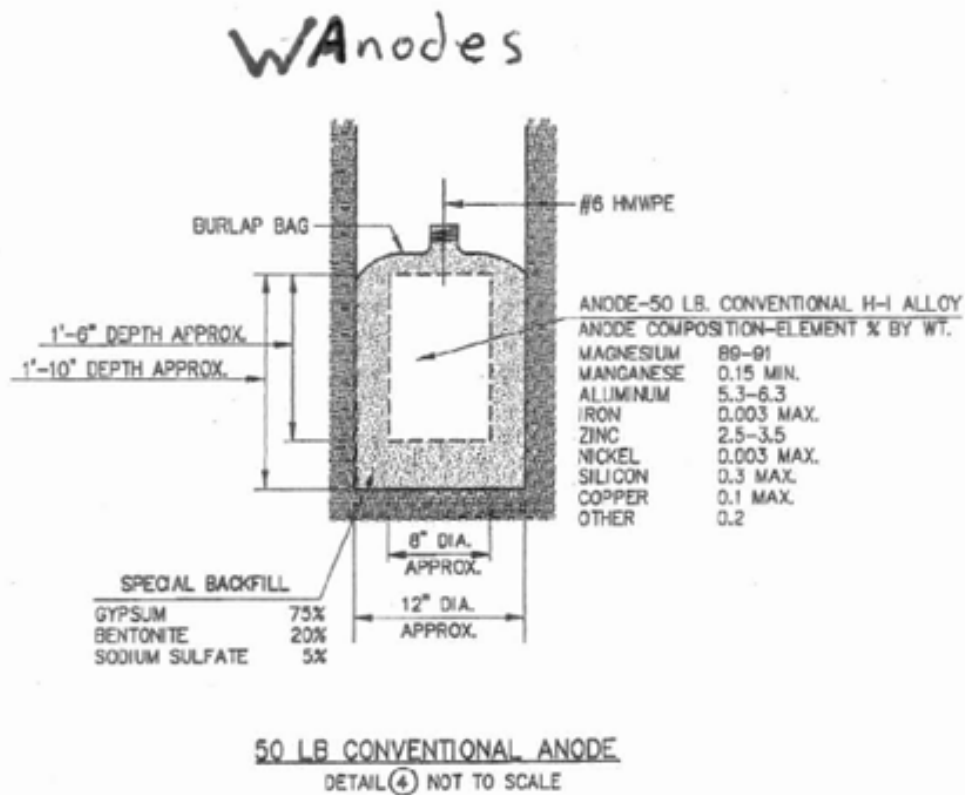
Material must be supplied in 1 pound boxes. Bidder must supply specification literature of the material being bid. Product shall be TEADIT No. 2138 or equal.

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Section 10

Wanodes

(Use Specs with: Items 1-2)





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Section 11

SFittingV 1201

VITRIFIED CLAY FITTING SPECIFICATIONS

(Use Specs with: Items 1-42)

Vitrified clay fittings shall be extra strength and conform to the Standard Specification for Vitrified Clay Pipe, Extra Strength ANSI/ASTM C700. Joints shall conform to the Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings, ANSI/ASTM C425. If vitrified clay tees are ordered, the length shall not exceed 30 inches. All accessories required for connection will be included.

Section 12

SPipe 1201

(Use Specs with: Items 1-7)

SEWER PIPE SPECIFICATIONS

Vitrified Clay Pipe

Vitrified clay pipe shall conform to the Standard Specification for Vitrified Clay Pipe ASTM C700. Joints shall conform to the Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings ASTM C425. Vitrified clay pipe shall be extra strength.

Polyvinyl Chloride (PVC) Pipe for Sewer Service

Polyvinyl chloride (PVC) pipe 8-inches in diameter through 15-inches in diameter for sewer service shall conform to the specification ASTM D3034 "Type PSM Polyvinyl Chloride Sewer Pipe and Fittings", for standard dimension ratio (SDR) of 35. The pipe shall be supplied in standard 20-foot lengths.

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**EXHIBIT A
BID FORM INCLUDING DELIVERY AND PRICING**

1. Delivery. If your Bid is accepted and a contract is executed, state the number of days you need to deliver the Goods and/or to begin providing Services:

You must be able to deliver the Goods and/or Services as specified in your Bid. Failure to do so may result in City terminating your contract or canceling the Purchase Order, pursuing collection under any performance bond, as well as seeking any other damages to which it may be entitled in law or in equity.

2. Pricing- Bidders are not required to respond to all sections to be considered responsive. Award of bid will be made by section. You must bid all items in a section to be considered for award.

(ESTIMATED QUANTITIES FOR EVALUATION PURPOSES ONLY)

Section 1 Water Fittings

Item #	Service Fittings 5/8" & 3/4" (See Specification "MB Wfitting ")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Coupling C to C 3/4" (Nibco #600)	35			
2	Service coupling 3/4" (Ford C44-33)	300			
3	Service Clamp 2" X 5/8" (S/B 311-025605)- Saddle	20			
4	Service Clamp 2" X 3/4" (Mueller DE1A0235CC075)-Saddle	125			
5	Meter Yoke (7" rise) 5/8" X 3/4" (Mueller B24118)	1200			
6	Meter Yoke (12" rise) 5/8" X 3/4" (MuellerB24118)	300			
7	Quarter Bend Coupling 5/8" X 3/4" X 3/4" (Mueller H14200)	100			
8	Angle Meter Curb Stop 5/8" X 3/4" X 3/4" (Mueller B24255)	600			
9	Corporation Stop 3/4" X 3/4" (Mueller H15000)	350			
10	Corporation Stop 5/8" X 3/4" (Mueller H15000)	150			
11	Quarter Bend Coupling 3/4" (Mueller H15068) 90 degrees	400			
12	Two Branch Connection 3/4" X 1" (Mueller H15340)	10			
13	Three Part Union 3/4" (Mueller H-15400)	250			
14	Straight Coupling 3/4" (Mueller H15425)	50			



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15	Straight Coupling 3/4" X 1" (Mueller H15425)	25			
16	Straight Coupling 3/4" (Mueller H15450)	50			
17	Quarter Bend Coupling 5/8" x 3/4" (Mueller H15490)	125			
18	Quarter Bend Coupling 3/4" x 3/4" (Mueller H15490)	40			
19	Quarter Bend Coupling 3/4" (Mueller H15530)	125			
20	STR Meter Coupling W/ Hole 3/4" X 2" (McDonald 4620)	35			
21	STR Meter Coupling W/ Hole 3/4" X 2-1/2" (McDonald 4620)	30			
22	STR Meter Coupling W/ Hole 3/4" X 1-1/2" (McDonald 4620H)	30			
Item #	Fittings 1" (See Specification "MB Wfitting")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
23	Service Coupling 1" (Ford C44-44)	40			
24	Corporation Stop 1" (Mueller H9971)	40			
25	Brass Corporation Plug 1" (Mueller H10033)	3			
26	Service Clamp 2" X 1" (Mueller DE2A0235CC100)	10			
27	Quarter Bend Coupling 1" (Mueller H10892)	40			
28	Meter Yoke (12" Rise) 1" (Mueller B24118)	35			
29	Quarter Bend Coupling 1" (Mueller H14200)	15			
30	Angle Meter Curb Stop 1" (Mueller B24255)	115			
31	Three Part Union 1" (Mueller H15400)	40			
32	Straight Coupling 1" X 3/4" (Mueller H15425)	10			
33	Straight Coupling 1" X 1" (Mueller H15425)	7			
34	Straight Coupling 1" X 1" (Mueller H15450)	13			
35	Straight Corp. Stop Coupling 1" (Mueller H15480)	5			
36	Quarter Bend Coupling 1" (Mueller H15490)	25			
37	Quarter Bend Coupling 1" (Mueller H15530)	25			



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Item #	Fittings 1-1/2" (See Specification "MB Wfitting")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
38	Coupling w/stop C to C 1-1/2" (Nibco #600)	1			
39	Female Adaptor C to F.S.P.S. 1-1/2" (Nibco #603)	1			
40	Male Adaptor C to M.S.P.S. 1-1/2" Nibco #604)	1			
41	Elbow 45 degree C to C 1-1/2" (Nibco #606)	1			
42	Elbow 90 degree C to C 1-1/2" (Nibco #607)	2			
43	Elbow 90 degree Street 1-1/2" (Nibco #607-2)	1			
44	Elbow 90 degree C to F.S.P.S 1- 1/2" (Nibco #707-3)	1			
45	Elbow 90 degree C to M.S.P.S 1- 1/2" (Nibco #707-4)	1			
46	Service Coupling 1-1/2" (Ford C44-66)	20			
47	Corporation Stop 1-1/2" (Mueller H10003)	15			
48	Service Clamp 4" X 1-1/2" (Mueller DR2A0500CC150)	2			
49	Service Clamp 6" X 1-1/2" (Mueller DR2A0659CC150)	7			
50	Service Clamp 8" X 1-1/2" (Mueller DR2A0854CC150)	5			
51	Service Clamp 10" X 1-1/2" (Mueller DR2A1064CC150)	1			
52	Service Clamp 12" X 1-1/2" (Mueller DR2A1262CC150)	3			
53	SERVICE CLAMP 16" X 1-1/2" (MUELLER DR2A1740CC150)	1			
54	Brass Coupling (Collar) 1-1/2" (Ford C4466)	4			
55	Bronze Meter Flange, Female 1-1/2" (Ford #6)	2			
56	Bronze Meter Flange, Male 1-1/2" (Ford #6M)	1			
Item #	Fittings 2" (See Specification "MB Wfitting")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
57	Coupling with Stop C to C 2" Nibco #600)	2			
58	Male Adaptor C to M.S.P.S. 2" Nibco #604)	1			
59	Elbow, 45 degree C to C 2" (Nibco #606)	1			



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60	Elbow, 90 degree C to C 2" (Nibco #607)	7			
61	Elbow, 90 degree C to M.S.P.S. 2" (Nibco #707-4)	1			
62	Service Coupling 2" (Ford #C44-77)	9			
63	Corporation Stop 2" (Mueller H10003)	30			
64	Quarter Bend Coupling 2" (Mueller H10096)	15			
65	Service Clamp 4" X 2" (Mueller DR2A0500CC200)	1			
66	Service Clamp 6" X 2" (Mueller DR2A0659CC200)	5			
67	Service Clamp 8" X 2" (Mueller DR2A0905CC200)	5			
68	Service Clamp 10" X 2" (Mueller DR2A1064CC200)	1			
69	Service Clamp 12" X 2" (Mueller DR2A1262CC200)	6			
70	Service Clamp 16" X 2" (Mueller DR2A1740CC200)	2			
71	Bronze Meter Flange Female 2" (Ford #7)	6			
72	Bronze Meter Flange Male 2" (Ford #7M)	1			
Item #	Fittings, Propress Compression (See Specification "MB Wfitting")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
73	90 degree Street Bend C to M 1-1/2" X 1-1/2" (Only Viega #77522)	20			
74	90 degree Street Bend C to M 2" X 2" (Only Viega #77527)	40			
75	45 degree Bend C to C 1-1/2" X 1-1/2" (Only Viega #77627)	20			
76	45 degree Bend C to C 2" X 2" (Only Viega #77632)	30			
77	90 degree Bend C to C 1-1/2" (Only Viega #77377)	50			
78	90 degree Bend C to C 2" X 2" (Only Viega #77342)	60			
79	90 degree Bend C to F 1-1/2" X 1-1/2" (Only Viega #77562)	10			
80	90 degree Bend C to F 2" X 2" (Only Viega #77567)	5			
81	TEE C X C X C 1-1/2" (Only Viega #77457)	1			
82	TEE C X C X C 2" (Only Viega #77477)	1			



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83	Reducer C X C 2" X 1-1/2" (Only Viega #78167)	10			
84	Male Adaptor C X M 1-1/2" X 1-1/2" Only Viega #77872)	30			
85	Male Adaptor C X M 2" X 2" Only Viega #77877)	75			
86	Coupling C X C w/o Stop 1-1/2" (Only Viega #78192)	50			
87	Coupling C X C w/o Stop 2" (Only Viega #78197)	100			
Item #	Fittings, Tectite Push-Fit (See Specification "MB Wfitting")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
88	BRS Coupling w/st C X C 3/4" (Only Tectite 200)	200			
89	BRS Female Adaptor C X F 3/4" Only Tectite 203)	300			
90	BRS Male Adaptor C X M 3/4" (Only Tectite 204)	450			
91	BRS 90 Degree Bend C X C 3/4" (Only Tectite 207)	375			
92	BRS Tee C X C X C 3/4" (Only Tectite 211)	40			
93	BRS Coupling w/st C X C 1" (Only Tectite 200)	50			
94	BRS Female Adaptor C X F 1" (Only Tectite 203)	45			
95	BRS Male Adaptor C X M 1" (Only Tectite 204)	50			
96	BRS 90 degree Bend C X C 1" (Only Tectite 207)	60			
97	BRS Tee C X C X C 1" Only Tectite 211)	5			
Extended Total Section 1				\$	

**Section 2
Cast Iron and Ductile Iron**

Item #	Bends (See Specification "Wfitting CI") Note: PE = Plain End, FLG = Flange	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	C.I. Bend 11-1/4 degree (MJ-MJ) 6"	1			
2	C.I. Bend 11-1/4 degree (MJ-PE) 6"	1			
3	C.I. Bend 11-1/4 degree (MJ-MJ) 8"	1			
4	C.I. Bend 11-1/4 degree (MJ-MJ) 12"	1			



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5	C.I. Bend 11-1/4 degree (MJ-PE) 12"	1			
6	C.I. Bend 11-1/4 degree (MJ-MJ) 16"	1			
7	C.I. Bend 11-1/4 degree (MJ-MJ) 24"	1			
8	C.I. Bend 11-1/4 degree (MJ-MJ) 30"	1			
9	C.I. Bend 22-1/2 degree (MJ-MJ) 4"	1			
10	C.I. Bend 22-1/2 degree (MJ-PE) 4"	1			
11	C.I. Bend 22-1/2 degree (MJ-MJ) 6"	1			
12	C.I. Bend 22-1/2 degree (MJ-PE) 6"	1			
13	C.I. Bend 22-1/2 degree (MJ-MJ) 8"	1			
14	C.I. Bend 22-1/2 degree (MJ-MJ) 10"	1			
15	C.I. Bend 22-1/2 degree (MJ-MJ) 12"	1			
16	C.I. Bend 22-1/2 degree (MJ-PE) 12"	1			
17	C.I. Bend 22-1/2 degree (MJ-MJ) 16"	1			
18	C.I. Bend 22-1/2 degree (MJ-MJ) 24"	1			
19	C.I. Bend 22-1/2 degree (MJ-MJ) 30"	1			
20	C.I. Bend 45 degree (FLG-FLG) 3"	1			
21	C.I. Bend 45 degree (MJ-MJ) 4"	1			
22	C.I. Bend 45 degree (MJ-MJ) 6"	1			
23	C.I. Bend 45 degree (MJ-PE) 6"	1			
24	C.I. Bend 45 degree (MJ-MJ) 8"	1			
25	C.I. Bend 45 degree (MJ-PE) 8"	1			
26	C.I. Bend 45 degree (MJ-MJ) 10"	1			
27	C.I. Bend 45 degree (MJ-MJ) 12"	1			
28	C.I. Bend 45 degree (MJ-PE) 12"	1			



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29	C.I. Bend 45 degree (MJ-MJ) 16"	1			
30	C.I. Bend 45 degree (MJ-MJ) 24"	1			
31	C.I. Bend 45 degree (MJ-MJ) 30"	1			
32	C.I. Bend 90 degree (FLG-FLG) 3"	10			
33	C.I. Bend 90 degree (MJ-MJ) 4"	1			
34	C.I. Bend 90 degree (FLG-FLG) 4"	3			
35	C.I. Bend 90 degree (MJ-MJ) 6"	1			
36	C.I. Bend 90 degree (MJ-PE) 6"	1			
37	C.I. Bend 90 degree (FLG-FLG) 6"	7			
38	C.I. Bend 90 degree (MJ-MJ) 8"	1			
39	C.I. Bend 90 degree (FLG-FLG) 8"	1			
40	C.I. Bend 90 degree (MJ-MJ) 10"	1			
41	C.I. Bend 90 degree (MJ-PE) 10"	1			
42	C.I. Bend 90 degree (FLG-FLG) 10"	1			
43	C.I. Bend 90 degree (MJ-MJ) 12"	1			
44	C.I. Bend 90 degree (FLG-FLG) 12"	3			
45	C.I. Bend 90 degree (MJ-MJ) 16"	1			
46	C.I. Bend 90 degree (MJ-MJ) 24"	1			
Item #	Tees (See Specification "Wfitting CI")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
47	C.I. Tee (FLG-FLG-FLG) 3"	8			
48	C.I. Tee (MJ-MJ-MJ) 4"	1			
49	C.I. Tee (FLG-FLG-FLG) 4"	1			
50	C.I. Tee (MJ-MJ-MJ) 6"	1			
51	C.I. Tee (FLG-FLG-FLG) 6"	11			



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52	C.I. Tee (MJ-MJ-MJ) 8" X 8" X 6"	1			
53	C.I. Tee (MJ-MJ-MJ) 8"	1			
54	C.I. Tee (FLG-FLG-FLG) 8"	1			
55	C.I. Tee (MJ-MJ-MJ) 10" X 10" X 6"	1			
56	C.I. Tee (MJ-MJ-MJ) 10" X 10" X 8"	1			
57	C.I. Tee (MJ-MJ-MJ) 10"	1			
58	C.I. Tee (FLG-FLG-FLG) 10"	1			
59	C.I. Tee (MJ-MJ-MJ) 12" X 12" X 4"	1			
60	C.I. Tee (MJ-MJ-MJ) 12" X 12" X 6"	1			
61	C.I. Tee (MJ-MJ-MJ) 12" X 12" X 10"	1			
62	C.I. Tee (MJ-MJ-MJ) 12"	2			
63	C.I. Tee (MJ-MJ-MJ) 16" X 16" X 4"	1			
64	C.I. Tee (MJ-MJ-MJ) 16" X 16" X 12"	1			
65	C.I. Tee (MJ-MJ-MJ) 24"	1			
66	C.I. Tee (MJ-MJ-MJ) 24" X 24" X 12"	1			
Item #	Reducers (See Specification "Wfitting CI") Note: LEPE-Led End Pipe End	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
67	C.I. Reducer (MJ-PE) 4" X 3"	1			
68	C.I. Reducer (MJ-FLG) 4" X 3"	5			
69	C.I. Reducer (MJ-MJ) 6" X 4"	1			
70	C.I. Reducer (MJ-FLG) 6" X 4"	1			
71	C.I. Reducer (MJ-MJ) 6" X 4"	1			
72	C.I. Reducer (PE-MJ) 8" X 4"	1			
73	C.I. Reducer (MJ-MJ) 8" X 4"	1			
74	C.I. Reducer (PE-PE) 8" X 6"	1			



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75	C.I. Reducer (MJ-MJ) 8" X 6"	1			
76	C.I. Reducer (FLG-FLG) 8" X 6"	1			
77	C.I. Reducer (PE-MJ) 10" X 6"	1			
78	C.I. Reducer (MJ-MJ) 10" X 6"	1			
79	C.I. Reducer (FLG-FLG) 10" X 6"	1			
80	C.I. Reducer (PE-MJ) 10" X 8"	1			
81	C.I. Reducer (MJ-MJ) 10" X 8"	1			
82	C.I. Reducer (PE-PE) 12" X 4"	1			
83	C.I. Reducer (MJ-MJ) 12" X 4"	1			
84	C.I. Reducer (PE-PE) 12" X 6"	1			
85	C.I. Reducer (PE-MJ) 12" X 6"	1			
86	C.I. Reducer (MJ-MJ) 12" X 6"	2			
87	C.I. Reducer (FLG-FLG) 12" X 6"	1			
88	C.I. Reducer (PE-PE) 12" X 8"	1			
89	C.I. Reducer (MJ-MJ) 12" X 8"	1			
90	C.I. Reducer (MJ-MJ) 12" X 10"	1			
91	C.I. Reducer (MJ-MJ) 14" X 12"	1			
92	C.I. Reducer (MJ-PE) 16" X 6"	1			
93	C.I. Reducer (FLG-FLG) 16" X 8"	1			
94	C.I. Reducer (MJ-MJ) 16" X 10"	1			
96	C.I. Reducer (MJ-PE) 16" X 14"	1			
97	D.I. Reducer (LEPE-MJ) 16" X 14"	1			
98	C.I. Reducer (MJ-MJ) 20" X 16"	1			
99	C.I. Reducer (PE-MJ) 24" X 16"	1			



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100	C.I. Reducer (MJ-PE) 24" X 20"	1			
Item #	Crosses (See Specification "Wfitting CI")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
101	C.I. Cross (MJ-MJ-MJ-MJ) 4"	1			
102	C.I. Cross (MJ-MJ-MJ-MJ) 6"	1			
103	C.I. Cross (MJ-MJ-MJ-MJ) 8"	1			
104	C.I. Cross (MJ-MJ-MJ-MJ) 10" X 10" X 6" X 6"	1			
105	C.I. Cross (MJ-MJ-MJ-MJ) 10" X 10" X 8" X 8"	1			
106	C.I. Cross (MJ-MJ-MJ-MJ) 10"	1			
107	C.I. Cross (MJ-MJ-MJ-MJ) 12" X 12" X 6" X 6"	1			
108	C.I. Cross (MJ-MJ-MJ-MJ) 24"	1			
109	C.I. Cross (MJ-MJ-MJ-MJ) 30"	1			
Item #	Nipples (See Specification "Wfitting CI")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
110	C.I. Nipple (FLG-PE) 3" X 12"	5			
111	C.I. Nipple (FLG-PE) 3" X 24"	5			
112	C.I. Nipple (FLG-PE) 3" X 36"	10			
113	C.I. Nipple (FLG-FLG) 3" X 36"	5			
114	C.I. Nipple (FLG-FLG) 3" X 42"	5			
115	C.I. Nipple (FLG-PE) 4" X 12"	1			
116	C.I. Nipple (FLG-FLG) 4" X 12"	1			
117	C.I. Nipple (FLG-PE) 4" X 24"	1			
118	C.I. Nipple (FLG-FLG) 4" X 24"	2			
119	C.I. Nipple (FLG-PE) 4" X 36"	5			
120	C.I. Nipple (FLG-FLG) 4" X 36"	1			
121	C.I. Nipple (FLG-PE) 4" X 42"	1			



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122	C.I. Nipple (FLG-FLG) 4" X 42"	1			
123	C.I. Nipple (FLG-PE) 4" X 48"	1			
124	C.I. Nipple (FLG-FLG) 4" X 48"	5			
125	C.I. Nipple (FLG-PE) 6" X 12"	3			
126	C.I. Nipple (FLG-PE) 6" X 24"	5			
127	C.I. Nipple (FLG-PE) 6" X 36"	1			
128	C.I. Nipple (FLG-PE) 6" X 60"	1			
129	C.I. Nipple (FLG-FLG) 6" X 60"	1			
130	C.I. Nipple (FLG-FLG) 6" X 66"	1			
131	C.I. Nipple (FLG-PE) 6" X 72"	1			
132	C.I. Nipple (FLG-FLG) 6" X 78"	1			
133	C.I. Nipple (FLG-PE) 8" X 12"	2			
134	C.I. Nipple (FLG-PE) 8" X 36"	3			
135	C.I. Nipple (FLG-FLG) 8" X 36"	5			
136	C.I. Nipple (FLG-FLG) 8" X 48"	1			
137	C.I. Nipple (FLG-PE) 8" X 60"	1			
138	C.I. Nipple (FLG-FLG) 8" X 60"	1			
139	C.I. Nipple (FLG-PE) 8" X 72"	1			
140	C.I. Nipple (FLG-FLG) 8" X 72"	1			
141	C.I. Nipple (FLG-MJ) 10" X 8"	1			
142	C.I. Nipple (FLG-PE) 10" X 12"	1			
143	C.I. Nipple (FLG-PE) 10" X 24"	1			
144	C.I. Nipple (FLG-FLG) 10" X 24"	1			
145	C.I. Nipple (FLG-PE) 10" X 36"	1			



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146	C.I. Nipple (FLG-FLG) 10" X 36"	1			
147	C.I. Nipple (FLG-PE) 10" X 54"	1			
148	C.I. Nipple (FLG-FLG) 10" X 60"	1			
149	C.I. Nipple (FLG-PE) 12" X 36"	1			
150	C.I. Nipple (FLG-PE) 14" X 24"	1			
151	C.I. Nipple (FLG-PE) 16" X 24"	1			
152	C.I. Nipple (FLG-FLG) 16" X 38"	1			
153	C.I. Nipple (FLG-PE) 20" X 30"	1			
154	Ductile Iron Pipe-Class 53 (FLG-PE) 24" X 2' (Nipple)	30			
Item #	Sleeves & Couplings (See Specification "Wfitting CI")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
155	C.I. Tapping sleeve (MJ) 4" X 4"	1			
156	C.I. Tapping sleeve (MJ) 6" X 6"	1			
157	C.I. Tapping sleeve (MJ) 8" X 6"	1			
158	C.I. Tapping sleeve (MJ) 8" X 8"	1			
159	C.I. Tapping sleeve (MJ) 10" X 6"	1			
160	C.I. Tapping sleeve (MJ) 10" X 8"	2			
161	C.I. Tapping sleeve (MJ) 10" X 10"	1			
162	C.I. Tapping sleeve (MJ) 12" X 6"	3			
163	C.I. Tapping sleeve (MJ) 12" X 8"	1			
164	C.I. Tapping sleeve (MJ) 12" X 10"	1			
165	C.I. Tapping sleeve (MJ) 12" X 12"	1			
166	C.I. Tapping sleeve (MJ) 16" X 6"	1			
167	C.I. Tapping sleeve (MJ) 16" X 8"	1			
168	C.I. Tapping sleeve (MJ) 16" X 10"	1			



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169	C.I. Tapping sleeve (MJ) 24" X 12"	1			
170	C.I. Tapping Sleeve (MJ) 2" X 8"	2			
171	C.I. Tapping Sleeve (MJ) 3" X 12"	10			
172	C.I. Tapping Sleeve (MJ) 4" X 12"	70			
173	C.I. Tapping Sleeve (MJ) 6" X 12"	500			
174	C.I. Tapping Sleeve (MJ) 8" X 12"	150			
175	C.I. Tapping Sleeve (MJ) 10" X 12"	20			
176	C.I. Tapping Sleeve (MJ) 12" X 12"	125			
177	C.I. Tapping Sleeve (MJ) 16" X 15"	1			
178	C.I. Tapping Sleeve (MJ) 20" X 15"	1			
179	C.I. Tapping Sleeve (MJ) 24" X 15"	2			
180	Steel Sleeve 30" (Smith & Blair 411-320008-003)	1			
181	Sleeve 24" (Smith & Blair 411-263208-003)	1			
182	Sleeve 30" x 7" (Smith & Blair 411-00320007-003)	1			
183	Sleeve 36" x 8" (Smith & Blair 411-00367508)	1			
184	Multi-Coupling 4" (Powerseal 3502-4B)	1			
185	Multi-Coupling 6" (Powerseal 3502-6B)	1			
186	Multi-Coupling 8" (Powerseal 3502-8B)	1			
187	Multi-Coupling 10" (Powerseal 3502-10B)	1			
188	Multi-Coupling 12" (Powerseal 3502-12B)	1			
189	Transition Coupling 12" (Smith & Blair Omni 441-14201350-900)	2			
190	Transition Coupling (Smith-Blair Omni 441-00001350-9001) 12.75" to 13.20" X 13.20" TO 13.50"	1			
191	Transition Coupling DI-PIT Cast 24" (Powerseal 3501)	2			
192	Transition Coupling DI-PIT Cast 30" (Powerseal 3501)	1			



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193	Transition Coupling (Powerseal 3501) 31.74" to 32.00" X 32.40" TO 32.74"	1			
194	Transition Coupling DI-PIT Cast 36" (Powerseal 3501)	1			
Item #	Bell Joint Clamp (See Specification "Wfitting Cl")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
195	C.I. Bell Joint Clamp 4" (Smith & Blair 274-0480-000)	9			
196	C.I. Bell Joint Clamp 6" (Smith & Blair 274-0690-000)	32			
197	C.I. Bell Joint Clamp 8" (Smith & Blair 274-0905-000)	4			
198	C.I. Bell Joint Clamp 10" (Smith & Blair 274-1110-000)	3			
199	C.I. Bell Joint Clamp 12" (Smith & Blair 274-1320-000)	14			
200	C.I. Bell Joint Clamp 16" (Smith & Blair 274-1740-000)	8			
201	C.I. Bell Joint Clamp 20" (Smith & Blair 274-2160-000)	1			
202	C.I. Bell Joint Clamp 24" (Smith & Blair 274-2580-000)	15			
203	C.I. Bell Joint Clamp 30" (Dresser 160)	2			
204	C.I. Bell Joint Clamp 36" (Dresser 160)	1			
Item #	Flange Coupling Adapters (See Specification "Wfitting Cl")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
205	Flange Coupling Adapter 3" (Smith & Blair 912-038003-000)	19			
206	Flange Coupling Adapter 4" (Smith & Blair 912-048004-000)	13			
Item #	Companion Flanges & Joint Restrainers (See Specification "Wfitting Cl")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
207	C.I. Companion Flange 3"	2			
208	C.I. Companion Flange 6"	3			
209	C.I. Companion Flange 8"	1			
210	C.I. Companion Flange 10"	1			
211	Joint Restrainer 4" (Megalug 1104)	35			
212	Joint Restrainer 6" (Megalug 1106)	375			



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213	Joint Restrainer 8" (Megalug 1108)	40			
214	Joint Restrainer 10" (Megalug 1110)	10			
215	Joint Restrainer 12" (Megalug 1112)	75			
Extended Total Section 2				\$	

**Section 3
Iron Pipe and PVC Water Pipe**

Item #	Caps - Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Galv. Cap 3/4"	3			
2	Galv. Cap 1"	3			
3	Galv. Cap 1-1/4"	1			
4	Galv. Cap 1-1/2"	1			
5	Galv. Cap 2"	18			
6	Galv. Cap 3"	1			
7	Galv. Cap 4"	1			
Item #	ELLS - Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
8	Galv. ELL, 45 Degree 3/4"	5			
9	Galv. ELL, 45 Degree 1"	1			
10	Galv. ELL, 45 Degree 1-1/4"	2			
11	Galv. ELL, 45 Degree 2"	11			
12	Galv. ELL, Common 90 Degree 3/4"	54			
13	Galv. ELL, Common 90 Degree 1"	11			
14	Galv. ELL, Common 90 Degree 1-1/4"	5			
15	Galv. ELL, Common 90 Degree 1-1/2"	3			
16	Galv. ELL, Common 90 Degree 2"	87			



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17	Galv. ELL, Common 90 Degree 3"	2			
18	Galv. ELL, Common 90 Degree 4"	2			
19	Galv. ELL, Common 90 Degree 6"	1			
20	Galv. ELL, Street 3/4" 90 Degree	20			
21	Galv. ELL, Street 1" 90 Degree	1			
22	Galv. ELL, Street 1-1/4" 90 Degree	1			
23	Galv. ELL, Street 1-1/2" 90 Degree	5			
24	Galv. ELL, Street 2" 90 Degree	56			
25	Galv. ELL, Street 3" 90 Degree	1			
26	Galv. ELL, Street 4" 90 Degree	1			
Item #	TEES - Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
27	Galv. Tee 3/4"	3			
28	Galv. Tee 1"	3			
29	Galv. Tee 1-1/2"	1			
30	Galv. Tee 2" X 2" X 1"	1			
31	Galv. Tee 2"	9			
32	Galv. Tee 3" X 3" X 2"	1			
33	Galv. Tee 3"	1			
34	Galv. Tee 4" X 4" X 3"	1			
35	Galv. Tee 4"	1			
Item #	Reducers Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
36	Galv. Reducer 3/4" X 1/4"	1			
37	Galv. Reducer 3/4" X 1/2"	1			
38	Galv. Reducer 1" X 1/2"	1			



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39	Galv. Reducer 1" X 3/4"	14			
40	Galv. Reducer 1-1/4" X 3/4"	4			
41	Galv. Reducer 1-1/2" X 3/4"	3			
42	Galv. Reducer 1-1/2" X 1"	4			
43	Galv. Reducer 1-1/2" X 1-1/4"	1			
44	Galv. Reducer 2" X 3/4"	3			
45	Galv. Reducer 2" X 1"	5			
46	Galv. Reducer 2" X 1-1/4"	2			
47	Galv. Reducer 2" X 1-1/2"	6			
48	Galv. Reducer 2-1/2" X 2"	9			
49	Galv. Reducer 3" X 2"	4			
50	Galv. Reducer 4" X 2"	4			
51	Galv. Reducer 4" X 3"	2			
Item #	Crosses Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
52	Galv. Cross 1"	1			
53	Galv. Cross 2"	1			
Item #	Plugs Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
54	Galv. Plug, S.E. 3/4"	20			
55	Galv. Plug, S.E. 1"	16			
56	Galv. Plug, S.E. 1-1/2"	1			
57	Galv. Plug, S.E. 2"	14			
58	Galv. Plug, S.E. 3"	4			
59	Galv. Plug, S.E. 4"	5			
Item #	Nipples Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number



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60	Galv. Nipple (Allthread) 3/4"	28			
61	Galv. Nipple 3/4" X 2"	25			
62	Galv. Nipple 3/4" X 3"	38			
63	Galv. Nipple 3/4" X 4"	48			
64	Galv. Nipple 3/4" X 6"	40			
65	Galv. Nipple 3/4" X 8"	16			
66	Galv. Nipple 3/4" X 10"	15			
67	Galv. Nipple 3/4" X 12"	17			
68	Galv. Nipple (Allthread) 1"	13			
69	Galv. Nipple 1" X 3"	1			
70	Galv. Nipple 1" X 4"	15			
71	Galv. Nipple 1" X 6"	4			
72	Galv. Nipple 1" X 7"	7			
73	Galv. Nipple (All Thread) 1-1/4"	5			
74	Galv. Nipple 1-1/4" X 3"	1			
75	Galv. Nipple 1-1/4" X 4"	1			
76	Galv. Nipple 1-1/4" X 6"	1			
77	Galv. Nipple 1-1/4" X 10"	5			
78	Galv. Nipple (Allthread) 1-1/2"	8			
79	Galv. Nipple 1-1/2" X 3"	4			
80	Galv. Nipple 1-1/2" X 4"	4			
81	Galv. Nipple 1-1/2" X 6"	8			
82	Galv. Nipple 1-1/2" X 8"	3			



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83	Galv. Nipple 1-1/2" X 10"	1			
84	Galv. Nipple 1-1/2" X 12"	1			
85	Galv. Nipple (Allthread) 2"	13			
86	Galv. Nipple 2" X 3"	13			
87	Galv. Nipple 2" X 4"	37			
88	Galv. Nipple 2" X 6"	66			
89	Galv. Nipple 2" X 8"	53			
90	Galv. Nipple 2" X 10"	53			
91	Galv. Nipple 2" X 12"	164			
92	Galv. Nipple (All Thread) 3"	2			
93	Galv. Nipple 3" X 4"	4			
94	Galv. Nipple 3" X 6"	1			
95	Galv. Nipple 3" X 8"	2			
96	Galv. Nipple 3" X 10"	2			
97	Galv. Nipple 3" X 12"	1			
98	Galv. Nipple (All Thread) 4"	3			
99	Galv. Nipple 4" X 4"	1			
100	Galv. Nipple 4" X 6"	1			
101	Galv. Nipple 4" X 8"	3			
102	Swage Nipple 2-1/2" X 2"	1			
103	Swage Nipple 3" X 1-1/2"	1			
104	Swage Nipple 3" X 2"	2			



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105	Swage Nipple 4" X 1-1/2"	1			
106	Swage Nipple 4" X 2"	1			
107	Swage Nipple 6" X 2"	1			
108	Swage Nipple 6" X 3"	1			
109	Swage Nipple 6" X 4"	1			
Item #	Bushings Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
110	Galv. Bushing 3/4" X 1/2"	1			
111	Galv. Bushing 1" X 3/4"	8			
112	Galv. Bushing 1-1/4" X 3/4"	1			
113	Galv. Bushing 1-1/2" X 3/4"	1			
114	Galv. Bushing 1-1/2" X 1"	3			
115	Galv. Bushing 1-1/2" X 1-1/4"	2			
116	Galv. Bushing 2" X 3/4"	1			
117	Galv. Bushing 2" X 1"	1			
118	Galv. Bushing 2" X 1-1/4"	1			
119	Galv. Bushing 2" X 1-1/2"	3			
120	Galv. Bushing 2-1/2" X 2"	3			
121	Galv. Bushing 3" X 2"	8			
122	Galv. Bushing 4" X 3"	9			
Item #	Unions Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
123	Galv. Union 3/4"	1			
124	Galv. Union 1"	1			



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125	Galv. Union 1-1/2"	1			
126	Galv. Union (Ground Joint) 2"	10			
127	Galv. Union 3"	1			
128	Galv. Union 4"	1			
Item #	Sleeves & Clamps Must meet ASTM 53 and ASTM A120	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
129	Compression Sleeve 3/4" (Smith & Blair 525-10500-003)	100			
130	Compression Sleeve 1" (Smith & Blair 525-13200-003)	25			
131	Compression Sleeve 1-1/4" (Smith & Blair 525-16600-003)	10			
132	Compression Sleeve 1-1/2" (Smith & Blair 525-19000-003)	3			
133	Emergency Clamp 3/4" X 6" (Smith & Blair 245)	50			
134	Emergency Clamp 1" X 6" (Smith & Blair 245)	15			
135	Emergency Clamp 1-1/4" X 3" (Smith & Blair 245)	5			
136	Emergency Clamp 1-1/4" X 6" (Smith & Blair 245)	5			
137	Emergency Clamp 1-1/2" X 6" (Smith & Blair 245)	3			
138	Emergency Clamp 2" X 3" (Smith & Blair 245)	20			
139	Emergency Clamp 2" X 6" (Smith & Blair 245)	5			
140	Emergency Clamp 2" X 9" (Smith & Blair 245)	7			
141	Emergency Clamp 2-1/2" X 9" (Smith & Blair 245)	1			
142	Sleeve 1-1/2" (Smith & Blair 411-00019001-003)	10			
143	Sleeve 2" X 7" Min. Length (Smith & Blair 411-00000263-900)	675			
144	Sleeve 3" X 7" Min. Length (Smith & Blair 411-00000350-900)	10			
PVC (See Specification "Wpipe")					
Item #	Reducers	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
145	PVC Reducer 1-1/4" X 3/4" SCH. 40	1			



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146	PVC Reducer 1-1/2" X 3/4" SCH. 40	1			
147	PVC Reducer 1-1/2" X 1" SCH. 40	1			
Item #	Service Clamps	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
148	PVC Service Clamp 4" X 3/4" (Mueller H13440)	10			
149	PVC Service Clamp 6" X 3/4" (Mueller H13441)	75			
150	PVC Service Clamp 8" X 3/4" (Mueller H13442)	6			
151	PVC Service Clamp 10" X 3/4" (Mueller H13443)	1			
152	PVC Service Clamp 12" X 3/4" (Mueller H13444)	3			
Item #	Sleeves	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
153	Full Circle PVC Sleeve 2" X 7-1/2" (Smith & Blair 226-023807)	350			
154	Full Circle PVC Sleeve 2-1/2" X 7-1/2" (Smith & Blair 226-027507)	5			
155	Full Circle PVC Sleeve 3" X 7-1/2" (Smith & Blair 226-035007)	1			
156	Full Circle PVC Sleeve 4" X 7-1/2" (Smith & Blair 226-045007)	1			
157	Full Circle PVC Sleeve 5" X 7-1/2" (Smith & Blair 226-052507)	2			
158	Sleeve 3" X 12" (Smith & Blair 411-90035010-003)	1			
159	Sleeve 5" X 7" (Smith & Blair 411-00055602-003)	1			
Item #	Solvent	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
160	PVC Blue Cement In 1 Pint Can (Oatey #30893)	99			
161	PVC Primer Solvent (P-70) In pint cans	100			
Extended Total Section 3				\$ _____	

Section 4
Valves (See Specification "WValveGTCA")

Item #	Gate (See Specification "WValveGTCA")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Brass Gate Valve, FIPT 1-1/2" (125 PSI/Hammond 606)	20			



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2	Brass Gate Valve, FIPT 2" (125 PSI/Hammond 606)	95			
3	Resilient-Wedged Mech. (NRS) Gate Valve 12"	5			
4	BRASS GATE VALVE, FIPT 1- 1/2"(125 PSI/HAMMOND 606)	18			
5	BRASS GATE VALVE, FIPT 2" (125 PSI/HAMMOND 606)	96			
6	RESILIENT-WEDGED MECH. (NRS) GATE VALVE 12"	6			
Item #	Special Meter	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
7	Brass Meter Valve 1-1/2" (Jones J-372F)	3			
8	Brass Meter Valve 2" (Jones J-372F)	6			
Item #	Check Valve (See Specification "WVValveGTCA")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
9	Check Valve (FLG) 2"	1			
Item #	Air and Vacuum	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
10	Air and Vacuum Valve 2" (300 PSI/APCO 145C)	8			
Extended Total Section 4				\$	

**Section 5
Water Pipe**

Item #	Galvanized (See Specification "Wpipe") T AND C = Threaded & Coupled	Estimate Annual QTY (ft)	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Galv. Pipe 21' X 2" (in ft) (T AND C / Schedule 40)	3000			
Item #	Ductile Iron, Cast Iron and Steel (See Specification "Wpipe")	Estimate Annual QTY (ft)	Unit Cost	Extended Cost	Manufactures Name and Part Number
2	Ductile Iron Pipe, M.J. 4"	20			
3	Ductile Iron Pipe, M.J. 6"	1,900			
4	Ductile Iron Pipe, M.J. 8"	920			
5	Ductile Iron Pipe, M.J. 12"	1,960			
6	Ductile Iron Pipe, M.J. 16"	60			
7	Ductile Iron Pipe, Push On 4"	1,000			



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8	Ductile Iron Pipe, Push on 6"	5,000			
9	Ductile Iron Pipe, Push on 8"	1,290			
10	Ductile Iron Pipe, Push on 10"	2,540			
11	Ductile Iron Pipe, Push on 12"	23,340			
12	Ductile Iron Pipe, Push on 16"	1,300			
13	Ductile Iron Pipe, Push on 20"	20			
14	Ductile Iron Pipe, Push on 24"	20			
15	Ductile Iron Pipe, Push on 36"	360			
16	Copper Pipe – 3/4" - Type K, Soft, approx. 60 ft. rolls (price per foot)	4,800			
17	Copper Pipe – 1", Type K, Soft, approx. 60 ft. rolls (price per foot)	600			
18	Copper Pipe – 2", Type K, Soft 20 ft. joints (price per 20ft. joint)	20			
Extended Total Section 5				\$ _____	

**Section 6
Water Castings, Sealing Materials and Anodes**

Item #	Meter Can Lids (See Specification "WMetercan")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Meter Can lid for 3/4" and 1" Service	638			
2	Meter Can w/rim for 3/4" Service	2,600			
3	Meter Can w/rim for 1" Service	155			
4	Meter Can Lid for 2" Service (Remote Read) 36"x36". (No 28"x36")	349			
5	Meter Can w/rim for 2" Service	15			
Extended Total Section 6				\$ _____	

Section 7

Item #	Manholes (See Specification "WManhole6000")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
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1	Manhole Frame and Lid 24" X 24" (Neenah R6660-KH)	5			
Extended Total Section 7				\$ _____	

**Section 8
Valve Boxes**

Item #	Valve Boxes (See Specification "WValveBox")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Valve Box Riser 2-1/4" (Tyler for Series 6850)	350			
2	Valve Box Extension 18" (Tyler #59)	150			
3	Valve Box Drop Lid (Tyler #685055)	265			
4	Valve Box Top Section (Tyler Series 6850/562-S)	205			
5	Valve Box Bottom Section (Tyler Ser. 6850/562-S)	180			
Extended Total Section 8				\$ _____	

**Section 9
Sealing Materials**

Item #	Sealing Materials (See Specification "Wpacking")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Cross Braided Packing 1/4" (Square interlocking) Teadit 2138	8			
2	Cross Braided Packing 5/16" (Square interlocking) Teadit 2138	8			
3	Cross Braided Packing 3/8" (Square interlocking) Teadit 2138	5			
4	Cross Braided Packing 7/16" (Square interlocking) Teadit 2138	2			
5	Cross Braided Packing 1/2" (Square interlocking) Teadit 2138	4			
6	Teflon Tape 1/2"W X 320"L	750			
7	Meter Gasket 3/4"ID X 1-3/16"OD X 1/8"Thick Neoprene	350			
8	Meter Gasket 1"ID X 1-1/2"OD X 1/8"Thick Neoprene	35			
9	Fluorocarbon Joint Sealant 3/8"X25' (Gore-Tex PTFE)	4			
Extended Total Section 9				\$ _____	



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Section 10

Item #	Anodes (See Specification "Wanodes")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Anode, Magnesium (#32D5) W/10' #12 T.W. Leads	2			
2	Anode, Magnesium (#H-1) W/15' #6 AWG HMWPE Leads	1			
Extended Total Section 10				\$	

**Section 11
Sanitary Sewer Fittings**

Item #	Bends (See Specification "SFittingV")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	Vit. Clay 90 degree bend 8" (Extra length)	1			
2	C.I. 45 degree bend 4" w/gasket (For soil pipe)	1			
3	C.I. 90 degree bend 4" w/gasket (For soil pipe)	1			
4	PVC DWV 22-1/2 degree bend 4" (B-B) Schedule 40	10			
5	PVC DWV 22-1/2 degree bend 6" (B-B) Schedule 40	10			
6	PVC DWV 45 degree bend 4" (B-B)	35			
7	PVC DWV 45 degree bend 6" (B-B)	10			
8	PVC DWV 90 degree bend 4" (B-B)	60			
9	PVC DWV 90 degree bend 6" (B-B)	7			
10	PVC DWV 22-1/2 degree bend 4" Street bend. Schedule 40	20			
11	PVC DWV 45 degree bend 4" Street bend. Schedule 40	20			
12	PVC DWV 45 degree bend 6" Street bend. Schedule 40	3			
13	PVC DWV 90 degree bend 4" Street bend. Schedule 40	25			
14	PVC DWV 90 degree bend " Street bend. Schedule 40	4			
Item #	Tees (See Specification "SFittingV")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number



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15	Vit. Clay Tee Extra Length 8" X 8" X 4"	85			
16	Vit. Clay Tee Extra Length 8" X 8" X 6"	20			
17	Vit. Clay Tee Extra Length 8" X 8" X 8"	5			
18	Vit. Clay Tee Extra Length 10" X 10" X 4"	1			
Item #	Adaptors (See Specification "SFittingV")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
19	Clay to PVC Adaptor 4" (Fernco 1002-44)	90			
20	Clay to PVC Adaptor 6" (Fernco 1002-66)	20			
Item #	Saddles (See Specification "SFittingV")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
21	Reducing Tee Saddle 8" X 4" (For ABS Pipe)	1			
Item #	Clamps and Flexible Couplings (See Specification "SFittingV")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
22	Clamp, 4" C.I./PVC Romac LSS1 (4.00" - 4.40") X 12"	2			
23	Clamp, 6" C.I./PVC Romac LSS1 (5.95" - 6.35") X 12"	7			
24	Clamp, 6" Clay Romac LSS1 (7.17" - 7.57") X 12"	5			
25	Clamp, 8" Conc. Romac LSS1 (9.55" - 9.95") X 12"	275			
26	Clamp, 8" C.I./PVC Romac LSS1 (7.99" - 8.39") X 12"	7			
27	Clamp, 10" Clay Romac LSS1 (11.55" - 11.95") X 12"	5			
28	Clamp, 12" Clay Romac LSS1 (13.80" - 14.20") X 12"	5			
29	Clamp, 15" Clay Romac LSS2 (17.50" - 17.90") X 12"	2			
30	Clamp, 18" Clay Romac LSS2 (21.05" - 21.45") X 12"	2			
31	Clamp, 21" Clay Romac LSS2 (24.62" - 25.02") X 12"	1			
32	Clamp, 24" Clay Romac LSS3 (28.15" - 28.55") X 12"	1			
33	Clamp, 30" Concrete Romac LSS3 (31.80" - 32.20") X 12"	1			
34	Coupling, Flexible 4" X 4" Clay to Clay (Fernco 1001-44RC)	1			
35	Coupling, Flexible 4" X 4" Clay to C.I. (Fernco 1002-44RC)	8			



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36	Coupling, Flexible 4" X 4" Conc. to C.I. (Fernco 1006-44RC)	5			
37	Coupling, Flexible, 4" X 4" C.I. TO C.I. (Fernco 1056-44RC)	59			
38	Coupling, Flexible 6" X 4" Clay to Clay (Fernco 1001-64RC)	1			
39	Coupling, Flexible 6" X 4" Clay to C.I. (Fernco 1002-64RC)	1			
40	Coupling, Flexible 6" X 6" Concrete. to C.I. (Fernco 1006-66RC)	13			
41	Coupling, Flexible 6" X 6" C.I. to C.I. (Fernco 1056-66RC)	7			
42	Coupling, 8" Clay to D.I. (Omni 441)	4			
Extended Total Section 11			\$		

**Section 12
Sewer Pipe**

Item #	Verified Clay (See Specification "Spipe")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
1	VIT. Clay Pipe 8", (5.5'/JT) (Extra Strength)	985			
2	VIT. Clay Pipe 10", (5.5'/JT) (Extra Strength)	25			
3	VIT. Clay Pipe 12", (5.5'/JT) (Extra Strength)	5			
4	VIT. Clay Pipe 15" (Extra Strength)	5			
Item #	Miscellaneous Sewer Pipe (See Specification "Spipe")	Estimate Annual QTY	Unit Cost	Extended Cost	Manufactures Name and Part Number
5	C.I. Soil Pipe 4" (B-SP)	1			
6	C.I. Pipe 18" (For sewer only) (W205)	1			
7	PVC Pipe 8" SDR-35 (For sewer only)	265			
Extended Total Section 12			\$		
TOTAL COST NOT TO EXCEED: (All costs must be included or your Bid will be disqualified)				\$	



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Bidder's Company Name _____

Authorized Signature Here ► _____

Printed Name: _____

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