

CHICKASHA MUNICIPAL AUTHORITY

AGENDA

LOCATION OF MEETING

CITY HALL COUNCIL CHAMBERS

117 NORTH FOURTH STREET

CHICKASHA, OKLAHOMA 73018

TIME OF MEETING

6:30 PM

DATE OF MEETING

JANUARY 17, 2023

All items on this agenda, including but not limited to any agenda item concerning the adoption of any ordinance, resolution, contract, agreement, or any other item of business, are subject to amendment, including additions and/or deletions. This rule will apply to every individual agenda item without exception, and without providing this same amendment language with respect to each individual agenda item. Such amendments should be rationally related to the topic of the agenda item, or the governing body will be advised to continue the item.

The governing body may adopt, approve, ratify, deny, defer, recommend, amend, strike, or continue any agenda item. When more information is needed to act on an item, the governing body may refer the matter to its City/Trust Manager, staff, attorney or to the recommending board, commission or committee.

1. **Call to Order / Roll Call.**
2. **Consent Docket:**
 - a. Acceptance of the Minutes of the January 3, 2023 regular meeting.
 - b. Acceptance of the Claims List.
3. **Discussion/Approval of Items Removed from Consent Docket:**
4. **Consideration and Discussion Items:**
 - a. Discussion, consideration and possible action to authorize Staff to solicit bids for RFP CMA-2301 - Sanitary Sewer Main Replacement Project -

US81 Highway Realignment.

5. Motion for Adjournment.



City of
CHICKASHA

Meeting Type: CMA Agenda 1-17-2023

Meeting Date: 1/17/2023

Department: City Clerk

Agenda Item No. 2.a.

AGENDA ITEM: Acceptance of the Minutes of the January 3, 2023 regular meeting.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Accept the Minutes of the January 3, 2023 regular meeting.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:	Fund	Account	Amount
Susan M. McDaniel, City Clerk	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: January 17, 2023	(From)		

V. ATTACHMENTS:

1. CMA 1-3-2023

January 3, 2023

The **REGULAR** meeting of the **CHICKASHA MUNICIPAL AUTHORITY** was held in the council chambers in city hall on the 3rd day of January 2023 as specified by advance public notice with a properly prepared agenda stating the subject matter or matters to be discussed at said meeting. Chairman Mosley called the meeting to order at 7:05 p.m.

ITEM 1.

Call to Order / Roll Call:

CHAIRMAN AND TRUSTEES

PRESENT:

Chris Mosley, Chairman
Zachary Grayson, Vice Chairman
Oscar Nelson
Georgianne Hebblethwaite
R. P. Ashanti-Alexander
Brian Gerdes
Nate McCalla

ABSENT:

Kelly Boyd
Kea Ginn

STAFF

PRESENT:

Keith Johnson, City Manager
Cindy Rogers, Asst. City Manager
Amanda Mullins, City Attorney
Susan M. McDaniel, City Clerk
Tony Samaniego, Fire Chief
G. G. Music, Interim Police Chief
Darren Martin, Chief Building Inspector
Spencer Winzenried, Parks & Rec Director
Jim Crosby, Public Works Director
Shae Mortimer, Marketing and Civic Engagement Manager

ITEM 2.

Consent Docket: ITEM 2a thru ITEM 2c

ITEM 2a.

Acceptance of the Minutes of the December 5, 2022, regular meeting.

ITEM 2b.

Acceptance of the Claims List.

ITEM 2c.

Accept and ratify Sanitary Sewer Easement Agreement with Chickasha Travel Plaza, LLC.

*Motion by Trustee Ashanti-Alexander, second by Trustee Gerdes to approve Item 2a thru Item 2c.

Roll call vote:

Ayes:” Grayson, Nelson, Hebblethwaite, Ashanti-Alexander, McCalla, Gerdes and Mosley.

“Nays:” None

“Abstain:” None

Motion carried. 7-0

ITEM 3. **Discussion / Approval of Items Removed from Consent Docket:**

No action taken on Item 3.

ITEM 4. **Discussion and Consideration Items:**

ITEM4a. **Discussion, consideration, and possible action to declare surplus a tract of land out of the Southwest Quarter of the Northwest Quarter (SW/4 NW/4 and the Northwest Quarter of the Southwest Quarter (NW/4SW/4 of Section Twenty-seven (27, Township Seven (7) North, Range Seven (7) West of the Indian Meridian, Grady County, Oklahoma also known as the Mill Building area and authorize the Trust Manager to dispose of property as deemed appropriate.**

*Motion by Council Member Hebblethwaite and second by Council Member Grayson to declare surplus a tract of land out of the Southwest Quarter of the Northwest Quarter (SW/4 NW/4 and the Northwest Quarter of the Southwest Quarter (NW/4SW/4 of Section Twenty-seven (27, Township Seven (7) North, Range Seven (7) West of the Indian Meridian, Grady County, Oklahoma also known as the Mill Building area and authorize the Trust Manager to dispose of property as deemed appropriate.

Roll call vote:

“Ayes:” Grayson, Nelson, Hebblethwaite, Gerdes, McCalla, Ashanti-Alexander and Mosley.

“Nays:” None.

“Abstain:” None.

Motion passed. 7-0

ITEM4b. **Discussion, consideration, and possible action to approve the sale of surface rights to a tract of land out of the Southwest Quarter of the Northwest Quarter (SW/4 NW/4) and the Northwest Quarter of the Southwest Quarter (NW/4 SW/4) of**

Section Twenty-seven (27), Township Seven (7) North, Range Seven (7) West of the Indian Meridian, Grady County, Oklahoma (Mill Building area) to Victor Valley Mortuary Inc., in the amount of \$130,000.00 authorizing Trust Manager to execute all necessary documents.

*Motion by Council Member Hebblethwaite and second by Council Member McCalla to approve the sale of surface rights to a tract of land out of the Southwest Quarter of the Northwest Quarter (SW/4 NW/4) and the Northwest Quarter of the Southwest Quarter (NW/4 SW/4) of Section Twenty-seven (27), Township Seven (7) North, Range Seven (7) West of the Indian Meridian, Grady County, Oklahoma (Mill Building area) to Victor Valley Mortuary Inc., in the amount of \$130,000.00 authorizing Trust Manager to execute all necessary documents.

Roll call vote:

“Ayes:” Grayson, Ashanti-Alexander, Nelson, Hebblethwaite, Gerdes, McCalla, and Mosley.

“Nays:” None.

“Abstain:” None.

Motion passed. 7-0

ITEM4c. Discussion, consideration, and possible action to accept the bid for property described as all of Lot 3 and a 5-foot wide and 165-foot long strip of the east side of Lot 4, Phillips Addition to the City of Chickasha (Surface Rights Only) a/k/a 1007 N. 9th Street.

*Motion by Council Member Hebblethwaite and second by Council Member Grayson to accept the bid of \$700.00 for property described as all of Lot 3 and a 5-foot wide and 165-foot long strip of the east side of Lot 4, Phillips Addition to the City of Chickasha (Surface Rights Only) a/k/a 1007 N. 9th Street and authorize the issuance of a Quit Claim Deed contingent upon payment of balance due.

Roll call vote:

“Ayes:” Grayson, Nelson, Hebblethwaite, Gerdes, McCalla, Ashanti-Alexander, and Mosley.

“Nays:” None.

“Abstain:” None.

Motion passed. 7-0

ITEM4d. Discussion, consideration, and possible action to accept the bid for property described as all of Lots twelve (12) and thirteen (13) of Block One (1), East Side Addition, City of Chickasha (Surface Rights Only a/k/a 1407 S. 1st Street.

*Motion by Council Member Nelson and second by Council Member Hebblethwaite to accept the bid of \$500.00 for property described as all of Lots twelve (12) and thirteen (13)

of Block One (1), East Side Addition, City of Chickasha (Surface Rights Only a/k/a 1407 S. 1st Street (Surface Rights Only) a/k/a 1407 S. 1st Street and authorize the issuance of a Quit Claim Deed contingent upon payment of balance due.

Roll call vote:

“Ayes:” Grayson, Nelson, Hebblethwaite, Gerdes, McCalla, Ashanti-Alexander, and Mosley.

“Nays:” None.

“Abstain:” None.

Motion passed. 7-0

ITEM4e. Discussion, consideration, and possible action to accept the bid for property described as Lots four (4) and five (5) in Block Twelve 12 in Bookers 2nd Addition to the City of Chickasha (Surface Rights Only) a/k/a 2111 Dakota.

*Motion by Council Member Hebblethwaite and second by Council Member Nelson to accept the bid of \$75.00 for property described as Lots four (4) and five (5) in Block Twelve 12 in Bookers 2nd Addition to the City of Chickasha (Surface Rights Only) a/k/a 2111 Dakota Street and authorize the issuance of a Quit Claim Deed contingent upon payment of balance due.

Roll call vote:

“Ayes:” Grayson, Nelson, Hebblethwaite, Gerdes, McCalla, Ashanti-Alexander, and Mosley.

“Nays:” None.

“Abstain:” None.

Motion passed. 7-0

ITEM4f. Discussion, consideration, and possible action to accept the bid for property described as all of Lot Three (3), Block One (1) in Rock Island Addition, City of Chickasha (Surface Rights Only) a/k/a 923 Minnesota.

*Motion by Council Member Hebblethwaite and second by Council Member Nelson to accept the bid of \$3,000.00 for property described as all of Lot Three (3), Block One (1) in Rock Island Addition, City of Chickasha (Surface Rights Only) a/k/a 2111 Dakota Street and authorize the issuance of a Quit Claim Deed contingent upon payment of balance due.

Roll call vote:

“Ayes:” Grayson, Nelson, Hebblethwaite, Gerdes, McCalla, Ashanti-Alexander, and Mosley.

“Nays:” None.

“Abstain:” None.

Motion passed. 7-0

ITEM 5. **Motion to Adjourn.**

*Motion by Trustee Grayson, second by Trustee Ashanti-Alexander to adjourn.

Meeting adjourned.

TIME: 7:15 PM

Approved this 17th day of January 2023.

Chris Mosley, Chairman

(ATTEST)

Susan M. McDaniel, CMC
City Clerk



City of
CHICKASHA

Meeting Type: CMA Agenda 1-17-2023

Meeting Date: 1/17/2023

Department: Finance

Agenda Item No. 2.b.

AGENDA ITEM: Acceptance of the Claims List.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Accept Claims List.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: January 17, 2023	(From)		

V. ATTACHMENTS:



City of
CHICKASHA

Meeting Type: CMA Agenda 1-17-2023

Meeting Date: 1/17/2023

Department: Public Works

Agenda Item No. 4.a.

AGENDA ITEM: Discussion, consideration and possible action to authorize Staff to solicit bids for RFP CMA-2301 - Sanitary Sewer Main Replacement Project - US81 Highway Realignment.

I. BACKGROUND/DESCRIPTION:

Staff is requesting authorization to solicit bids for the Sanitary Sewer Main Replacement consisting of installing a new sanitary main by dry boring and casting, and associated elements to accommodate the US81 Realignment project.

II. RECOMMENDED ACTION:

Authorize Staff to solicit bids for RFP CMA-2301 - Sanitary Sewer Main Replacement Project - US81 Highway Realignment.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director: Jim Crosby, Public Works Director	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: January 17, 2023	(From)		

V. ATTACHMENTS:

1. RFP CMA-2301

2. Plan Proposed for RFP CMA-2301



RFP CMA-2301
SANITARY SEWER MAIN REPLACEMENT
CHICKASHA MUNICIPAL AUTHORITY
CHICKASHA, OKLAHOMA
SPECIFICATIONS & CONTRACT DOCUMENTS

Prepared by:



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Randall Scott Vaughn, P.E., 15194

OK P.E. No. 15194

Date

**RFP CMA-2301
SANITARY SEWER MAIN REPLACEMENT**

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE #</u>
Request for Proposals.....	3
Bid Proposal and Required Affidavits.....	4-7
Agreement.....	8-10
Required Bonds.....	11-14
Instructions to Bidders.....	15
Project Requirements.....	16-17
 <u>GENERAL PROVISIONS</u>	
101 DEFINITION OF TERMS.....	1
102 PROPOSAL REQUIREMENTS AND CONDITIONS.....	5
103 AWARD AND EXECUTION OF CONTRACT.....	8
104 SCOPE OF WORK.....	11
105 CONTROL OF THE WORK AND MATERIALS.....	12
106 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC.....	17
107 PROSECUTION AND PROGRESS.....	24
108 MEASUREMENT AND PAYMENT.....	29
 <u>TECHNICAL PROVISIONS – SANITARY SEWER MAIN CONSTRUCTION</u> .31 PAGES	
 <u>SPECIAL PROVISIONS</u>	
I. GENERAL.....	SP-1
II. MATERIALS SUBMITTAL.....	SP-2
III. SUBSTANTIAL COMPLETION AND FINAL COMPLETION.....	SP-2
IV. DISPOSAL OF WASTE MATERIALS AND CLEAN-UP.....	SP-2
V. OWNER RESERVED RIGHT.....	SP-3
VI. DRAWING SIZE.....	SP-3
 <u>DRAWINGS</u> SEPARATE	

**Request for Proposals – RFP CMA-2301
Sanitary Sewer Main Replacement Project**

Advertise Dates: XXXXXXXX, XXXXXXXXXXXX, 2023
 XXXXXXXX, XXXXXXXXXXXX, 2023

The Chickasha Municipal Authority, Chickasha, Oklahoma, is accepting sealed proposals for the **RFP CMA-2301 Sanitary Sewer Main Replacement Project**.

The project consists of installing a new sanitary main by dry boring and casing, and associated elements to accommodate the US81 Highway Realignment project in Chickasha, Oklahoma.

Bids shall be made in accordance with this Invitation for Bids and the Bidding Documents.

There will be a **mandatory** Pre-Bid meeting on XXXXXXXXXXXXXXXX, 2023 at 10:30 a.m. at the Public Works Building, 502 North Genevieve, Chickasha, Oklahoma, 73018.

Sealed proposals shall be addressed to Steven Adams, Assistant Public Works Director, Chickasha Municipal Authority, 117 North 4th Street, Chickasha, Oklahoma 73018, and shall be labeled "RFP CMA-2301, DO NOT OPEN" and "CMA-2301 Sanitary Sewer Main Replacement Project." Proposals shall be submitted no later than 1:30 p.m., local time on XXXXXXXXXXXX, 2023. It is the sole responsibility of the proponent to ensure that this proposal is actually in the City Hall of the City of Chickasha prior to the expiration of the time and date stated above. Bids will be opened in the City Conference Room, Second Floor – City Hall, 117 N. 4th Street, Chickasha, Oklahoma 73018.

The Issuing Office for the Bidding Documents is: Chickasha Municipal Authority. Technical questions should be emailed to Jim Crosby, Public Works Director, at jim.crosby@chickasha.org or by calling 405.222.6086. Bidding Documents also may be examined at: City of Chickasha Website <http://www.chickasha.org/Bids.aspx>. Bid documents must be obtained by accessing the project on QUESTCDN.com, linked to the previously listed page.

Upon consideration of the proposal, the Chickasha Municipal Authority reserves the right to accept or reject any and all proposals, to waive technicalities and to make any investigation deemed necessary concerning the proponent's ability to provide the services as covered by the specifications, and to accept what in their judgment is the most advantageous proposal.

Due to the type of project this is, the contractor will not be able to use tax exempt on this project.

Keith Johnson
Keith Johnson, General Manager

CERTIFICATION

I certify that the above "Request for Proposal" was posted on the bulletin board of City Hall, City of Chickasha, Oklahoma, on the _____ day of _____, 2023.
Susan McDaniel, City Clerk



117 North 4th Street
Chickasha, Ok 73018

BID PROPOSAL
RFP CMA-2301
SANITARY SEWER MAIN REPLACEMENT
PROJECT

Submission Deadline XXXXXXXXXX, 2023
1:30 p.m.

Proposal of _____
(hereinafter called "Bidder"), organized and existing under the laws of the
State of _____, doing business as _____
to the Chickasha Municipal Authority (hereinafter call "Owner").

In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all
work for the construction of RFP CMA-2301 Sanitary Sewer Main Replacement Project,
in Chickasha, Ok in strict accordance with the contract documents within the time set
forth therein and at the prices stated on the Bid Schedule.

Bidder: _____ By: _____
Name of Company *Signature & Title*

Mailing Address: _____

Phone No Fax No Email

SUBSCRIBED AND SWORN TO BEFORE ME THIS ____ DAY OF _____ 20____.

MY COMMISSION EXPIRES:

NOTARY PUBLIC

BID SCHEDULE

PAY ITEM	PAY ITEM DESCRIPTION	UNITS	EST QTY	UNIT PRICE	TOTAL PRICE
1	14" DIP SANITARY SEWER MAIN, BY TRENCHING	LF	710	\$	\$
2	14" DIP SANITARY SEWER MAIN, BORED/CASED	LF	400	\$	\$
3	SANITARY SEWER MANHOLE, INSTALLED	EA	4	\$	\$
4	CONTROLLED LOW STRENGTH MATERIAL	CY	220	\$	\$
5	SEWER FLOW CONTROL	LSUM	1	\$	\$
6	ABANDON SEWER MAIN (INCL. PLUG AND GROUT)	CY	38	\$	\$
7	LEAKAGE TESTING	LSUM	1	\$	\$
8	DEFLECTION TESTING	LSUM	1	\$	\$
9	DEMOLITION/REMOVALS	LSUM	1	\$	\$
10	P.C. PAVEMENT REPAIR	SY	27	\$	\$
11	CONSTRUCTION TRAFFIC CONTROL	LSUM	1	\$	\$

TOTAL BID \$ _____

TOTAL BID (WORDS) _____

AFFIDAVIT OF NON-COLLUSION

STATE OF _____)
) ss
COUNTY OF _____)

The undersigned, of lawful age, being first sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any City official or employee as to quantity, quality or price in the prospective contract, or any other terms of said prospective contract; or in any discussions between bidders and any City official concerning exchange of money or other thing of value for special consideration in the letting of a contract; that the bidder has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the Chickasha Municipal Authority, Oklahoma, any money or other thing of value, either directly or indirectly, in the procuring of the award of a contract pursuant to this bid.

Bidder: _____ By: _____
Name of Company Signature & Title

Mailing Address: _____

Phone No: _____ Fax No: _____ Email: _____

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY _____ OF 201_.

MY COMMISSION EXPIRES:

NOTARY PUBLIC:

BUSINESS RELATIONSHIPS AFFIDAVIT

STATE OF _____)
COUNTY OF _____) ss

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the project is as follows:

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

(If none of the business relationships hereinabove mentioned exist, affiant should so state.)

Firm Agent

Address _____

Phone Fax Email

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY _____ OF 20 ____.

MY COMMISSION EXPIRES:

NOTARY PUBLIC

AGREEMENT
(CONTRACT)

Chickasha Municipal Authority
CMA-2301
Sanitary Sewer Main Replacement Project.

THIS AGREEMENT is dated as of the ____ day of _____, in the year of 20__, by and between the CHICKASHA MUNICIPAL AUTHORITY, hereinafter referred to as OWNER, and _____ hereinafter referred to as the CONTRACTOR.

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK

CONTRACTOR shall complete all work as specified or indicated in the contract documents. The work is generally described as follows:

RFP CMA-2301 SANITARY SEWER MAIN REPLACEMENT PROJECT

ARTICLE 2. CONTRACT TIME

2.1 The work will be completed in 60 Calendar Days after the effective date of the Notice to Proceed.

2.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this agreement and that OWNER will suffer financial loss if the work is not substantially complete within the time specified in 2.1 above, plus any extensions thereof allowed. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the work is not substantially completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER Five Hundred Dollars (\$500.00) for each day that expires after the time specified in paragraph 2.1 for substantial completion until the work is substantially complete.

ARTICLE 3. CONTRACT PRICE

3.1 OWNER shall pay CONTRACTOR for performance of the work in accordance with the contract documents in current funds as follows:

_____ Dollars.
(\$ _____)

ARTICLE 4. PAYMENT PROCEDURES

4.1 CONTRACTOR may submit an invoice or application for payment on a monthly basis at any time prior to completion of the work. All payments made by the Owner are subject to procedures established by the Owner to authorize payment at its regularly scheduled meetings. The Owner regularly scheduled meetings are held on the 1st and 3rd Monday of each month. Invoice or application for payment must be received in the Public Works Department office no

less than ten (10) business days prior to the regular meeting at which authorization for payment is to be requested.

4.2 Final Payment. Upon final completion and acceptance of the work, including all submittals, OWNER shall pay the remainder of the contract price, subject to the procedures noted in paragraph 4.1 above.

ARTICLE 5. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this agreement, CONTRACTOR makes the following representations:

5.1 CONTRACTOR has familiarized himself with the nature and extent of the contract documents, and the written resolution thereof by the Owner is acceptable to CONTRACTOR.

5.2 CONTRACTOR has given the Owner written notice of all conflicts, errors, discrepancies or omissions that he has discovered in the contract documents, and the written resolution thereof by the Owner is acceptable to CONTRACTOR.

ARTICLE 6. CONTRACT DOCUMENTS

The contract documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this agreement, made a part hereof, and consists of the following:

- 6.1 This agreement (pages 1 to 3 inclusive).
- 6.2 Exhibits to this agreement (pages ___ to ___ inclusive).
- 6.3 Performance and other bonds, consisting of _____pages.
- 6.4 Notice of Award.
- 6.5 Specifications bearing the title: **CMA-2301 SANITARY SEWER MAIN REPLACEMENT PROJECT.**
- 6.6 Addenda numbers ___ to ___, inclusive.
- 6.7 CONTRACTOR'S bid (pages _____ to _____, inclusive).
- 6.8 Documentation submitted by CONTRACTOR prior to Notice of Award (pages 1 to _____ inclusive).
- 6.9 Any modification, including change orders, duly delivered after execution of agreement.

There are no contract documents other than those listed above in Article 6.

The contract documents may only be altered, amended, or repealed by written and approved change order.

ARTICLE 7. MISCELLANEOUS

7.1 No assignment by a party hereto of any rights under or interests in the contract documents will be binding on another party hereto without written consent of the party sought to

be bound; and specifically but without limitations, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment. No assignment will release or discharge the assignor from any duty or responsibility under the contract documents.

7.2 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns, and legal representatives to the other party hereto, his partners, successors, assigns, and legal representatives in respect to all covenants, agreements and obligations contained in the contract documents.

IN WITNESS WHEREOF, the parties hereto have signed this agreement in duplicate. One counterpart has been delivered to OWNER and CONTRACTOR. All portions of the contract documents have been signed or identified by OWNER and CONTRACTOR.

This agreement will be effective the _____ day of _____ 20__.

OWNER:
CHICKASHA MUNICIPAL AUTHORITY

CONTRACTOR:

By: _____
Chairman

By: _____
Signature & Title

CORPORATE SEAL
Attest:

CORPORATE SEAL
Attest:

By: _____

By: _____

ADDRESS FOR GIVING NOTICES:

ADDRESS FOR GIVING NOTICES:

Chickasha Municipal Authority

ATTN: Chairman

117 North 4th Street

Chickasha, OK 73018

Phone: 405-222-6086

Phone: _____

Fax: 405-222-6084

Fax: _____

chris.mosley@chickasha.org

Email: _____

STATUTORY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and
_____, as Surety, are
held firmly bound unto the Chickasha Municipal Authority in the sum of

_____ DOLLARS (\$ _____), for the payment of which, well and truly to be made, we, and each
of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly
and severally, firmly by these presents.

Dated this _____ day of _____, 20__.

The conditions of this obligation are such, that whereas, the above Bonded Principal
_____ is the lowest and best bidder for the making of the following work
and improvements, viz:

RFP CMA-2301 Sanitary Sewer Main Replacement Project in Chickasha, Oklahoma (Project)

and has entered into a certain written contract with the Chickasha Municipal Authority on the _____
day of _____ 20__, for the construction of said work and improvement, in exact accordance with
the bid of said Principal, and according to certain specifications heretofore made, adopted and placed on
file in the office of the City Clerk of the City of Chickasha.

NOW, THEREFORE, if said principal shall fail or neglect to pay all indebtedness incurred by said
Principal or subcontractor of said Principal who perform work in the performance of such, for labor and
materials furnished by any supplier and consumed in the performance of said contract, and such repairs to
and rental of machinery and equipment as may be furnished by a subcontractor to the person or persons
contracting with this Owner within thirty (30) days after the same becomes due and payable, the person,
firm or corporation entitled thereto may sue and recover on this bond, the amount so due and unpaid.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said
Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of
releasing the sureties, or any of them, for the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its
corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these
presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney—in—fact,
duly authorized so to do, the day and year first above written.

ATTEST:

_____	Principal
Secretary	By: _____

	Surety
	By: _____

ATTEST:

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS THAT:

_____, as Principal,
and _____, a corporation
organized under the laws of the State of _____, as Surety, are held and firmly bound unto
the Chickasha Municipal Authority, in the penal sum of
Dollars (\$_____) in lawful money of the United States of America, for the payment
of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors,
administrators, trustees, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that WHEREAS, said Principal entered into a written contract
with the Chickasha Municipal Authority, dated _____, 20____, for the RFP CMA-2301 Sanitary
Sewer Main Replacement Project in Chickasha, Oklahoma (PROJECT) all in compliance with the
specifications therefore, made a part of said Contract and on file in the office of the City Clerk, City of
Chickasha, Oklahoma.

NOW THEREFORE, if said Principal shall, in all particulars, well, truly and faithfully perform and abide
by said Contract and each and every covenant, condition, and part thereof, and shall fulfill all obligations
resting upon said Principal by the terms of said Contract and said specifications, and if said Principal shall
protect and save harmless said Chickasha Municipal Authority from any pecuniary loss resulting from
the reach of any of the items, covenants and conditions of said Contract resting upon said Principal, then
this obligation shall be null and void, otherwise to be and retain in full force and effect.

It is further expressly agreed and understood by the parties hereto that no changes or alternations in said
Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of
releasing the Sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its
corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these
presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact,
duly authorized so to do, the day and year set forth below.

Dated this _____ day of _____, 20____.

Principal

ATTEST:

Secretary

By: _____

Surety

ATTEST:

By: _____

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ as Principal,
and _____, as Surety, are
held and firmly bound into the CHICKASHA MUNICIPAL AUTHORITY, a Municipal Trust in
the State of Oklahoma, in the full and just sum of

_____ DOLLARS
(\$ _____) such sum being equal to the contract price for the payment of
which, well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, and
assigns, themselves, and its successors and assigns, jointly and severally, firmly by these
presents.

The conditions of this obligation are such, that whereas, said Principal, has by certain contract
between _____ and the CHICKASHA
MUNICIPAL AUTHORITY dated this _____ day of _____, 20____, agreed
to perform for the Chickasha Municipal Authority, RFP CMA-2301 Sanitary Sewer Main
Replacement Project in compliance with the specifications therefore, made part of said contract
and on file in the office of the City Clerk of the City of Chickasha; and to maintain the said
improvement in the amounts set forth above against any failure due to workmanship or material
for a period of ONE year from the date of acceptance of the work by the Chickasha Municipal
Authority.

NOW THEREFORE, if said Principal shall pay or cause to be paid to the Chickasha Municipal
Authority all damages, loss and expense, which may result by reason of defective materials
and/or workmanship in connection with said work, occurring within a period of ONE year from
and after acceptance of said project by the OWNER; and if Principal shall save and hold
harmless the OWNER from all damages, loss and expense occasioned by or resulting from any
failure whatsoever of said Principal, then this obligation shall be null and void, otherwise to be
and remain in full force and effect.

It is further agreed that if the said Principal or Surety herein shall fail to maintain said
improvements against any failure due to defective workmanship and/or material for a period of
ONE year and at any time repairs shall be necessary, that the cost of making said repairs shall be
determined by the Chickasha Municipal Authority or some person(s) designated by them to
ascertain the same; and if, upon thirty (30) days' notice, the said amount ascertained shall not be
paid by the Principal or Surety herein, or if the necessary repairs are not made, that said amount
shall become due upon the expiration of thirty (30) days and suit may be maintained to recover
the amount so determined in any court of competent jurisdiction; and that the amount so
determined shall be conclusive upon the parties as to the amount due on this bond for the
repair(s) included therein, and that the cost of all repairs shall be so determined from time-to-
time during the life of this bond as the conditions of the improvements may require.

It is further expressly agreed and understood by the parties hereto that no changes or alterations
in said contract and no deviations from the plan or mode of procedure herein fixed shall have the
effect of releasing the sureties, or any of them, from the obligations of this bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name
and its corporate seal to be hereunto affixed by its duly authorized officers; and the said Surety

has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

ATTEST: _____ Principal

Secretary By: _____

Surety

ATTEST: By: _____

Chickasha Municipal Authority
RFP CMA-2301
Sanitary Sewer Main Replacement Project

INSTRUCTIONS TO BIDDERS

1. Bid documents and copies of specifications shall be obtained from QUESTCDN.com. Bid documents, plans, and specifications may be examined at the City Clerk's Office or at the Public Works Department Complex, 502 N. Genevieve, Chickasha, Oklahoma 73018.
2. Bidders assume full responsibility for ensuring they have obtained all contract documents, including but not limited to: Bid Proposal forms, affidavits, Specifications, Drawings and Addenda. By submitting a bid for this project, Bidder thereby agrees that he/she has obtained all required documents prior to submitting said bid.
3. Hard copy bidding documents may be obtained from the Engineer for a non-refundable fee of \$100 per set.
4. A cashier's check or a certified check on a solvent bank in Oklahoma or a bid bond in the amount of five percent (5%) of the bid shall accompany the proposal of each bidder. The check or bond shall be made payable to the Owner. All checks or bonds will be returned to unsuccessful bidders. This check or bond shall be as a guarantee of contractor's ability to perform the contract bid upon, and that he will enter into a written contract with the Owner to perform said work and/or furnish said materials in accordance with said specifications and furnish the required bonds within ten (10) business days after the acceptance of his bid. No bidder may withdraw his bid for a period of sixty (60) days after the closing date for the receipt of bids.
5. In accordance with Oklahoma statutes, any bid must be accompanied by a Non-Collusion Affidavit and a Business Relations Affidavit. All bidders shall use the enclosed forms to satisfy this requirement.
6. Any bids received after the closing time will be returned unopened. Minority and small business owners are encouraged to submit proposals.
7. A Maintenance Bond guaranteeing the repair of all damage due to improper materials or workmanship for a period of one (1) year after the acceptance of the work by the Owner will be required.
8. A Performance Bond and a Statutory Payment Bond in the amount of 100% of the contract price each with a Corporate Surety licensed in Oklahoma and approved by the Owner will be required for the faithful performance of the contract, and the bidder shall state in the proposal the name and address of the Surety or Sureties who will sign this bond in case the contract is awarded to him. Copies of required bond forms are included in the bid packet.
9. **Attendance at the Pre-Bid Conference is MANDATORY. Bids will not be accepted from firms who do not have a representative attending the Pre-Bid Conference. No plans, specifications or bid documents will be issued after the Pre-Bid Conference. All bidders must visit and inspect the construction sites and shall be familiar with the physical characteristics and conditions at the construction sites prior to submitting a bid.**

Chickasha Municipal Authority
RFP CMA-2301
Sanitary Sewer Main Replacement Project

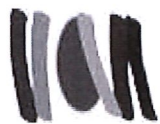
PROJECT REQUIREMENTS

I. GENERAL CONDITIONS

- A. Proposal is to perform Sanitary Sewer Main Replacement as described below and in these specifications under CMA-2301 Sanitary Sewer Main Replacement Project in Chickasha, Oklahoma.
- B. Quoted prices shall remain valid for not less than 60-days.
- C. The prices bid shall be for completed work as specified herein. Details necessary for completed work not listed herein shall be considered incidental to the work and will not be paid for separately.
- D. The Chickasha Municipal Authority reserves the right to reject any and all bids.
- E. Oklahoma Department of Environmental Quality rules and regulations, City of Chickasha/ Chickasha Municipal Authority standards and specifications and Oklahoma Department of Transportation (ODOT) Utility Relocation Regulations shall govern the technical provisions.
- F. The Owner reserves the right to consider alternative proposals submitted in writing by Bidders or by the Contractor.
- G. Refer to the Drawings for additional information.
- H. Contractor shall be responsible for Quality Control of all products and the work.
- I. The work shall proceed continuously from Notice to Proceed until Final Completion.
- J. Contractor shall perform all work consistent with ODOT, MUTCD and OSHA regulations and requirements.
- K. Dimensions and distances provided are approximate. Contractor shall verify dimensions in the field before ordering materials.
- L. Contractor shall participate in a pre-construction conference with the Owner before beginning work.
- M. All materials shall be new and shall be of standard production as offered by the manufacturer, unless otherwise approved by the Owner.
- N. Contractor shall submit two hard copies of materials submittals for review and acceptance by the Owner prior to ordering materials.
- O. All work shall comply with the applicable Rules, Codes and Standards listed in these Special Provisions, and all Federal, State and Local codes and ordinances, as well as any other authorities that may have lawful jurisdiction pertaining to the work specified. None of the terms or provisions of this specification shall be construed as waiving any of the rules, regulations or requirements of these authorities. The contractor shall procure all necessary permits or licenses to carry out his work.
- P. In any instance where these specifications call for materials for construction of a better quality or larger capacity than required by the codes, the provisions of these specifications shall take precedence. The codes shall govern in other cases of direct conflict between the codes and the specifications.
- Q. Purchases of materials for this project shall not be exempt from Sales taxes and use taxes.

II. SEQUENCE OF CONSTRUCTION

- A. Contractor shall provide written notice to the Chickasha Municipal Authority two weeks in advance of starting work.
- B. All work shall be complete within 60 Calendar Days after issuance of the Notice to Proceed.
- C. OWNER and CONTRACTOR recognize that time is of the essence of this agreement and that OWNER will suffer financial loss if the work is not substantially complete within the time specified in 2.1 above, plus any extensions thereof allowed. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the work is not substantially completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER Five Hundred Dollars (\$500.00) for each day that expires after the time specified in paragraph II.B above for substantial completion until the work is substantially complete.



Chickasha Municipal Authority, Oklahoma

RFP CMA-2301 GENERAL PROVISIONS

SECTION 101 DEFINITION OF TERMS

Wherever the words, forms or phrases herein defined, or pronouns used in their stead occur in these specifications, in the contract or in the advertisement or any document or instrument herein contemplated or to which these specifications apply, the intent and meaning shall be interpreted as follows:

ADVERTISEMENT - All of the legal publications pertaining to the work contemplated or under contract.

ATTORNEY - The Attorney of the City of Chickasha/Chickasha Municipal Authority or the duly authorized assistants or agents of the Attorney.

AWARD - The decision of the Owner to accept the proposal of the lowest and best bidder for the work, subject to the execution and approval of a satisfactory contract and the required bonds therefor, and to such other conditions as may be specified or otherwise required by law.

AUTHORITY - Chickasha Municipal Authority, acting through its duly authorized representatives or agents.

AUDITOR - The Auditor of the City of Chickasha/Chickasha Municipal Authority of Chickasha, Oklahoma or the duly authorized assistants or agents of the Auditor.

BIDDER - Any person or persons, partnership, company, firm or corporation acting directly or through a duly authorized representative, submitting a proposal for the work contemplated.

CHANGE ORDER - A written order issued by the Owner to the Contractor providing for additions, deletions or revisions to the Work, or for an adjustment in the Contract Price or the Contract Time.

CITY - City of Chickasha, a Municipal Corporation in the State of Oklahoma.

CLERK/TREASURER - The Clerk/Treasurer of the City of Chickasha or the duly authorized assistants or agents of the Clerk/Treasurer.

CONTRACT - The written agreement covering the performance of the work. The contract includes the Advertisement and Notice to Contractors, Proposal, Bonds, Specifications, including special Provisions, Plans, or working drawings and any supplemental agreement pertaining to the work or materials therefore.

CONTRACTOR - The person or persons, partnership, company, firm or corporation entering into contract for the execution of the work, acting directly or through a duly authorized representative.

CONTRACT TIME - The number of calendar days stated in the Agreement to achieve completion of the Contract so that it is ready for final acceptance and final payment. When a calendar date of completion is shown in a proposal, the Contract Time shall be the number of days between the effective date of the Notice to Proceed and the specified Completion Date.

ENGINEER - City Engineer, City of Chickasha/Chickasha Municipal Authority, Oklahoma or the duly authorized agents, engineers, assistants, inspectors or superintendents, acting singularly or severally within the scope of the particular duties entrusted to them.

EXTRA WORK - Any work performed by the Contractor not provided for by the plans, specifications or special provisions.

FURNISH - To supply.

CITY MANAGER/GENERAL MANAGER - The Manager of the City of Chickasha/Chickasha Municipal Authority of Chickasha, Oklahoma.

DIRECTOR OF PUBLIC WORKS - Director of Public Works of the City of Chickasha/Chickasha Municipal Authority, Oklahoma or the duly authorized agents, engineers, assistants, inspectors or superintendents, acting singularly or severally within the scope of the particular duties entrusted to them.

MAINTENANCE BOND - The approved form of security furnished by the Contractor and his Surety as a guarantee that he will maintain the work constructed by him in good condition for the period of time required.

OWNER - The City of Chickasha or Chickasha Municipal Authority, as listed in the Solicitation for Bids or Advertisement for Bids.

OWNER'S REPRESENTATIVE - The individual or company designated by the Owner to represent the Owner during the execution of the work with a duty to protect the Owner's interests in the work.

PERFORMANCE BOND - The approved form of security furnished by the Contractor and his Surety as a guarantee of good faith on the part of the Contractor to execute the work in accordance with the plans, specifications and terms of the contract.

PLAN OR PLANS - All of the drawings pertaining to the contract and made a part thereof, including such supplemental drawings as the Owner may issue from time to time, in order to clarify or explain other drawings or for the purpose of showing changes in the work as authorized under the Section, "Changes and Alterations", or for showing details not shown thereon.

PROPOSAL – The written statement or statements duly filed with the Clerk/Treasure of the person or persons, partnership, company, firm or corporation proposing to do the work contemplated.

PROPOSAL FORM - The approved form on which the formal bids for the work are to be prepared and submitted.

PROPOSAL GUARANTY - The security, designated in the “proposal form” and in the Advertisement, to be furnished by the bidder as a guarantee of good faith to enter into a contract with the Owner and to execute the required bonds for the work contemplated after the work is awarded to him and as liquidated damages in event of failure to do so.

PROVIDE - To furnish and construct, erect or install.

SPECIAL PROVISIONS - The special clauses setting forth conditions or requirements peculiar to the specific project involved, supplementing the Standard Specifications and taking precedent over any conditions or requirements of the Standard Specifications with which they are in conflict.

SPECIFICATIONS - The directions, provisions, and requirements contained herein, together with the “Special Provisions” supplemental hereto, pertaining to the method and manner of performing the work or to the kinds, quantities or qualities of materials to be furnished under the contract, and methods of measurement and basis of payment.

The Standard Specifications, referred to hereinafter, are the editions in effect on the date of the invitation for bids.

STATUTORY BOND - The approved form of Surety furnished by the Contractor and his Surety as a guarantee that he will pay, in full, all bills and accounts for material and labor used in the construction of the work, as provided by law.

SURETY OR SURETIES - The Corporate body which is bound by such bonds as are required with and for the Contractor, and engages to be responsible for the entire and satisfactory fulfillment of the contract and for any and all requirements as set out in the specifications, contract or plans.

THE WORK - All design and construction activities included within the scope of the plans and specifications, including the furnishing of labor, materials, tools, equipment and incidentals, to be performed by the Contractor and Consultant under the terms of the contract.

TREASURER – The Treasurer of the City of Chickasha/Chickasha Municipal Authority of Chickasha, Oklahoma, or the duly authorized assistants or agents of the Treasurer.

TRUSTEES - The Trustees of the Chickasha Municipal Authority.

A.A.N.	American Association of Nurserymen
A.A.R.	Association of American Railroads
A.A.S.H.T.O.	American Association of State Highway and Transportation Officials
A.G.C	Associated General Contractors of America
A.I.A.	American Institute of Architects
A.I.S.C.	American Institute of Steel Construction
A.N.S.I.	American National Standards Institute (United States of American Standards Institute)
A.R.A.	American Railway Association
A.R.E.A.	American Railway Engineering Association
A.S.A.	American Standards Association
A.S.C.E.	American Society of Civil Engineers
A.S.L.A.	American Society of Landscape Architects
A.S.T.M.	American Society for Testing Materials
A.W.P.A.	American Wood Preservers Association
A.W.S.	American Welding Society
A.W.W.A.	American Water Works Association
F.A.A.	Federal Aviation Agency of the U.S. Department of Transportation
F.H.W.A.	Federal Highway Association
F.R.A.	Federal Rail Administration
F.S.S.	Federal Specifications and Standards (General Services Administration)
FM	Factory Mutual
I.E.S.	Illuminating Engineering Society
I.M.S.A.	International Municipal Signal Association
I.T.E.	Institute of Traffic Engineers
M.U.T.C.D.	Manual on Uniform Traffic Control Devices
N.E.C.	National Electrical Code
N.E.M.A.	National Electrical Manufacturers Association
N.S.F.	National Sanitary Foundation
O.A.C.	Oklahoma Aeronautics Commission
O.D.E.Q.	Oklahoma Department of Environmental Quality
O.D.O.T.	Oklahoma Department of Transportation
O.S.D.H.	Oklahoma State Department of Health
O.S.H.A	Occupational Safety and Health Association
O.W.R.B.	Oklahoma Water Resources Board
S.A.E.	Society of Automotive Engineers
S.S.P.C.	Steel Structures Paint Council
U.L.	Underwriter's Laboratory

SECTION 102
PROPOSAL REQUIREMENTS AND CONDITIONS

102.01 CONTENTS OF PROPOSAL FORM. The Owner will furnish bidders with proposal forms which will state the general location and description of the contemplated work and which will contain a list of the items of work to be completed or materials to be furnished and upon which bid prices are requested. The proposal form will state the time limits for commencing and for completing the work and will provide for entering the amount of the proposal guaranty. The proposal form will contain a non-collusion affidavit.

102.02 INTERPRETATION OF PLANS AND SPECIFICATIONS. If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the plans, specifications or other proposed contract documents, he shall submit to the Owner a written request for an interpretation thereof. The person submitting such request will be responsible for its prompt delivery. An interpretation of the proposed documents will be made only by Addendum duly issued and a copy of such Addendum will be mailed or delivered to each person receiving a set of such documents. The Owner will not be responsible for any other explanations or interpretations of the proposed documents.

102.03 EXAMINATION OF DOCUMENTS AND SITE OF THE WORK. Bidders are advised that the plans and specifications on file with the Clerk/Treasurer shall constitute all the information which the Owner will furnish. No other information given by the Owner or any official thereof prior to the execution of the contract shall ever become a part of or change the contract, plans or specifications or be binding on the Owner. Bidders are required, prior to submitting any proposal, to read carefully the specifications, the proposal, contract and bond forms; to examine carefully all plans on file with the Clerk/Treasurer; to visit the site of the work; to examine carefully local conditions; to inform themselves by their independent research of the difficulties to be encountered and judge for themselves of the accessibility of the work and all attending circumstances affecting the cost of doing the work or the time required for its completion and obtain all information required to make an intelligent proposal. Bidders shall rely exclusively upon their own estimates, investigations and other data, which are necessary for full information upon which the proposal may be based. It is mutually agreed that submission of a proposal will be evidence that the bidder has made the examination and investigations required herein.

102.04 PREPARATION OF PROPOSAL. The bidder shall submit his proposal in single copy on the forms furnished by the Owner. All blank spaces in the proposal forms shall be correctly filled in and the bidder shall state the prices, written in ink, both in words and numerals, for which he proposes to do the work contemplated or furnish the materials required.

Such prices shall be written distinctly legible, in case of conflict between words and

numerals, the words will govern. If an individual submits the proposal, he must sign his name or his duly authorized agent and list his mailing address. If the proposal is submitted by a firm or partnership, the name and mailing address of the firm or partnership must be listed and the proposal signed by a member of the firm or partnership as a person duly authorized. If the proposal is made by a company or corporation, the company or corporate name and the state under the laws of which said company, or corporation is chartered and the business address must be listed and the proposal signed by an official or agent duly authorized. Powers of Attorney, authorizing agents or others to sign proposals must be properly certified and must be in writing on file with the Clerk/Treasurer.

102.05 NON-COLLUSION AFFIDAVIT. Each proposal or copy thereof shall be accompanied by a sworn statement in writing that the person signing the proposal executed said proposal on behalf of the bidder therein named and that he had lawful authority to do so and that said bidder has not directly or indirectly entered into any agreement, expressed or implied, with any other bidder or bidders having for its object the controlling of the amount of such bid or any bids, the limiting of the bid or bidders, the parceling or farming out to any bidder or bidders or other persons of any part of the contract or any bid or the subject matter of the bid or of the profits thereof, and that he had not and will not divulge said sealed bid to any person whatever except those having a partnership or other financial interest with him in said bid, until after the said sealed bids are opened.

102.06 PROPOSAL GUARANTY. Proposals will not be considered unless the original filed with the Clerk/Treasurer is accompanied by a certified or cashier's check, bank money order, or bidder's bond, in the required amount, made payable to the Owner. The proposal guaranty shall be in an amount of not less than five percent (5%) of the total amount of the bid unless otherwise provided in the Advertisement or Special Provisions. The proposal guaranty is required as evidence of good faith and as a guarantee that if awarded the contract, the bidder will execute the contract and furnish the required bonds within the required time and as liquidated damages in event of failure to do so.

102.07 FILING OF PROPOSALS. No proposals will be considered by the Owner unless they are filed in sealed envelopes with the Clerk/Treasurer in his office in the City Hall, Chickasha, Oklahoma, within the time limit for receiving proposals, as stated in the advertisement. Each proposal shall be plainly marked on the envelope with the word "Proposal", the name of the project, and the date and hour of opening.

102.08 WITHDRAWAL OF PROPOSALS. Permission will not be granted to withdraw or modify any proposal after it has been filed.

102.09 OPENING OF PROPOSALS. The proposals filed with the Clerk/Treasurer will be opened in public at the time and place stated in the advertisement.

Bidders are invited to attend the bid opening at the time and place set forth in the advertisement.

102.10 IRREGULAR PROPOSALS. Proposals may be considered irregular if they show any omissions, alterations of forms, additions or conditions not requested unauthorized alternate bids or irregularities of any kind. However, the Owner reserves the right to waive technicalities as to changes, alterations or reservations and make the award in the best interest of the Owner.

102.11 REJECTION OF PROPOSALS. The Owner reserves the right to reject any or all proposals, and all proposals submitted are subject to this reservation. Proposals may be rejected for any of the following specific reasons:

- (a) Proposal received after the time limit for receiving proposals as stated in the advertisement;
- (b) Proposal prices obviously unbalanced;
- (c) Summation of proposal prices on any one project above the Engineers estimate of cost for such project;
- (d) Proposal containing any irregularities.

102.12 DISQUALIFICATION OF BIDDERS. Bidders may be disqualified and their proposals not considered for any of the following specific reasons:

- (a) Where more than one proposal for an individual, firm, partnership or corporation is filed under the same or different names and where such proposals are not identical in every respect;
- (b) Reasonable grounds for believing that any bidder is interested in more than one proposal for the work contemplated or materials to be furnished;
- (c) Reason for believing that collusion exists among bidders;
- (d) The bidder being in arrears on any existing contracts, interested in any litigation against the Owner or having defaulted on a previous contract;
- (e) Incomplete work which, in the judgment of the Owner, will hinder or prevent the prompt completion of additional work, if awarded.

SECTION 103 AWARD AND EXECUTION OF CONTRACT

103.01 CONSIDERATION OF PROPOSALS. After the proposals are opened, those proposals containing unit prices will be tabulated for comparison on the basis of the quantities shown in the approximate estimate. Until the final award of the contract, the Owner reserves the right to reject any or all proposals, to waive technicalities and to advertise for new proposals or proceed to do the work otherwise when the best interests of the Owner will be promoted thereby.

Projects advertised as all parts tied: Bidder shall submit a bid for each part. Tied bid projects will be considered on the basis of the total dollar amount bid for all tied parts.

Projects advertised as parts not tied: Bidder may submit a bid for an individual part, or multiple parts, as either tied or separate. Bidder shall clearly indicate the intent of his bids. Bids submitted as tied bids will be considered on the basis of the total dollar amount bid for all tied parts. Bids submitted as separate parts may be considered on the basis of the dollar amount for each part, or the total dollar amount of any combination of parts, when it appears to be in the best interest of the Owner.

103.02 AWARD OF CONTRACT. The Owner reserves the right to withhold the award of the contract for a reasonable period of time from the date of opening the proposals and no award will be made until the necessary investigations are made as to the responsibility of the low bidder. The awarding of the contract shall give the bidder no right of action of claim against the Owner upon such contract until the execution of the contract shall have been completed and the contract delivered to the Contractor. The Owner reserves the right to award all or any portion or portions of the work.

103.03 RETURN OF PROPOSAL GUARANTY. As soon as the proposal prices have been compared, the Owner may, at its discretion, return the proposal guaranties accompanying proposals which in its judgment would not be considered in making the award.

103.04 SURETY BONDS. With the execution and delivery of the contract, the Contractor shall furnish and file with the Owner in the amounts herein required, the following surety bonds:

- (a) A good and sufficient Performance Bond in an amount equal to one hundred percent (100%) of the approximate total amount of the contract, guaranteeing the full and faithful execution of the work and performance of the contract and for the protection of the Owner and all property owners interested against any damage by reason of the negligence of the Contractor, or the improper execution of the work or the use of inferior materials;

- (b) A good and sufficient Statutory Payment Bond in an amount equal to one hundred percent (100%) of the approximate total amount of the contract, guaranteeing payment for all labor, materials and equipment used in the construction of the improvement.
- (c) A good and sufficient Maintenance Bond in an amount equal to one hundred percent (100%) of the contract price, conditioned for the maintenance in good condition of the improvement for a period of one (1) year from the time of acceptance by the Owner, or as otherwise specified in the Advertisement and Proposal.
- (d) No surety will be accepted who is now in default or delinquent on any bond or who is interested in any litigation against the Owner. AD bonds shall be made on forms acceptable to the Owner and shall be executed by surety companies licensed to do business in the State of Oklahoma and acceptable to the Owner. Each bond shall be executed by the Contractor and the Surety.

Should any surety on the contract be determined unsatisfactory at any time by the Owner, notice will be given to the Contractor to that effect and the Contractor shall forthwith substitute a new Surety or Sureties satisfactory to the Owner. No payment will be made under the contract until the new surety or sureties, as required, have qualified and been accepted by the Owner. The contract shall not be operative nor shall any payments be due until approval of the bonds has been made by the Owner.

103.05 EXECUTION OF CONTRACT. The person(s), partnership, company, firm or corporation to whom a contract is awarded shall within ten (10) business days after such award sign the necessary agreements entering into the required contract with the Owner and execute and deliver the required bonds.

No contract shall be binding on the Owner until it has been approved by the Attorney, executed by the Owner and delivered to the Contractor.

103.06 FAILURE TO EXECUTE CONTRACT. Upon failure of the bidder to execute the required bonds or to sign the required contract within ten (10) business days after the contract is awarded, he will be considered to have abandoned his proposal and the Owner may annul the award. By reason of the uncertainty of market prices of the materials and labor and it being impracticable and extremely difficult to fix the amount of damages to which the Owner would be put by reason of said bidder's failure to execute said bonds and contract within ten (10) business days, the proposal guaranty accompanying the proposal shall be the agreed amount of damages which the Owner will suffer by reason of such failure on the part of the bidder and shall thereupon be retained by the Owner as liquidated damages. The filing of a proposal will be considered as an acceptance of this provision.

103.07 PRE-WORK CONFERENCE. The Contractor and Consultant shall attend a Pre-Work Conference, scheduled by the Owner, to clarify the intent of the work and to present the Contractor's work plan, including progress schedule as provided by Section 107.04, prior to starting work on the project.

SECTION 104 SCOPE OF WORK

104.01 INTENT OF PLANS AND SPECIFICATIONS. The intent of the plans and specifications is to prescribe a complete work or improvement which the Contractor undertakes to provide, in full compliance with the plans, specifications, special provisions, proposal and contract. The Contractor shall provide all work as specified in the plans, special provisions, specifications, proposal and contract, except that specifically shown to be provided by the Owner or others, and shall provide such additional extra and incidental work as may be considered necessary to complete the work in a satisfactory and acceptable manner. He shall furnish all labor, materials, tools, equipment and incidentals necessary to the prosecution of the work.

104.02 SPECIAL PROVISIONS. Should any work or any conditions which are not thoroughly or satisfactorily stipulated or covered by the general or standard specifications be anticipated on any proposed work "Special Provisions" for such work may be prepared and shall be considered as a part of the specifications and contract.

104.03 INCREASED OR DECREASED QUANTITIES OF WORK. The Owner reserves the right to alter the quantities of the work to be performed or to extend or shorten the improvement any time when and as found necessary, by means of change orders, and the Contractor shall perform the work as altered, increased or decreased. No allowance will be made for any change in anticipated profits nor shall such changes be considered as waiving or invalidating any condition or provision of the contract.

104.04 ALTERATIONS OF PLANS AND SPECIFICATIONS. The Owner reserves the right to make such changes in the plans and in the character of the work as may be necessary or desirable to insure completion of the work in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications or change the general nature of the work as a whole. Such changes shall not be considered as waiving or invalidating any condition or provision of the contract.

104.05 EXTRA WORK. When any work is necessary to the proper completion of the project for which no prices are provided in the proposal or contract, the Contractor shall do such work, but only when and as ordered in writing by the Owner and with the prior approval of the Owner.

Payment for extra work will be made as hereinafter provided.

104.06 FINAL CLEANUP. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall clean and remove from the site of the work surplus and discarded materials, temporary structures, stumps or portions of trees and debris of any kind. He shall leave the site of the work in as good or better than condition as prior to work.

SECTION 105 CONTROL OF THE WORK AND MATERIALS

105.01 AUTHORITY OF OWNER'S REPRESENTATIVE. All work shall be provided to the satisfaction of the Owner's Representative. He shall decide all questions which arise as to the quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, interpretation of the plans and specifications, acceptable fulfillment of the contract, compensation, mutual rights between contractors under these specifications and suspension of work. He shall determine the amount and quality of work performed and materials furnished and his decisions and estimates shall be final. His estimate in such event shall be a condition precedent to the right of the Contractor to receive money due him under the contract.

The authority of the Owner's Representative shall not be construed to include the authority to waive, revise or modify specifications as herein set forth either as to kind, type or quality of materials or manner or quality of construction, unless an appropriate Change Order is executed.

Neither the Owner's Representative, nor his designated representatives, shall act as supervisor of the work, nor shall the Contractor rely on any such supervision.

105.02 DETAIL SHOP AND WORKING DRAWINGS FURNISHED BY CONTRACTOR. The Contractor shall submit to the Owner's Representative for approval, such additional shop and working drawings of structures or equipment as may be required, and, prior to the approval of such drawings by the Owner's Representative, any work done or materials ordered shall be at the Contractor's risk. The contract price shall include the cost of furnishing such drawings.

105.03 CONFORMITY WITH PLANS. ALLOWABLE DEVIATIONS. All work shall conform to the lines, grades, cross-sections and dimensions shown on the plans. All deviations from the plans will be accomplished by Change Orders prepared by the Engineer. All Change Orders shall be in writing, and shall, except in case of emergency, be approved by the governing body of the Owner before the work is commenced. Where an actual emergency exists, wherein the delay caused by submitting the Change Order to the governing body of the Owner for approval would jeopardize the interest of the Owner or the public, the Owner's Representative may approve the change in writing. However, Change Orders approved by the Owner's Representative under the circumstances outlined above shall be submitted to the governing body of the Owner for consideration at the next regular meeting. Two (2) copies shall be furnished to the Owner and two (2) copies shall be furnished to the Contractor of all Change Orders approved by the Owner's Representative. Change Orders submitted to the governing body of the Owner for approval shall bear the approval of the Owner's Representative and shall be prepared in four (4) copies, distribution as follows: 2 copies to the Contractor; and 2 copies to the Owner's Representative.

Change Orders shall include the following:

- (a) Complete detail of the work contemplated.
- (b) Estimated cost of the work as originally planned and as contemplated by the Change Order.
- (c) Complete justification.
- (d) Statement as to whether the prices shown are contract bid prices or agreed prices.
- (e) Statement by the Contractor that he agrees to perform the work at the prices shown.

105.04 EXISTING STRUCTURES NOT SHOWN ON PLANS. The plans show the location of certain existing surface and subsurface structures. The Owner assumes no responsibility for failure to show any or all structures on the plans or to show them in their exact location. It is mutually agreed such failure will not be considered sufficient basis for claims for extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as to necessitate substantial changes in the lines or grades or requires the building of a special structure, provision for which is not made in the plans, in which case the provisions in these specifications for "Extra Work" will apply.

105.05 COORDINATION OF PLANS, SPECIFICATIONS, PROPOSAL AND SPECIAL PROVISIONS. The plans, these specifications, the proposal, Special Provisions and all supplementary documents are intended to describe a complete work and are essential parts of the contract. A requirement occurring in any of them is binding. In case of discrepancies, figured dimensions shall govern over scaled dimensions; plans shall govern over specifications; Special Provisions shall govern over the plans and over both General and Standard Specifications, and the quantities shown on the plans shall govern over those shown in the proposal. The Contractor shall take no advantage of any apparent error or omission in the plans and specifications, and the Owner's Representative shall be permitted to make such corrections or interpretations as may be deemed necessary for the fulfillment of the plans and specifications. In the event the Contractor discovers any apparent error or discrepancy, he shall immediately call such error or discrepancy to the attention of the Owner's Representative.

105.06 COOPERATION OF CONTRACTOR. Three sets of plans and specifications will be furnished the Contractor as follows: One office copy, one for the Field Superintendent, and one copy for job use. The Contractor, however, shall have a set of plans and specifications available at all points where a separate construction crew is working.

The Contractor shall give the work the consistent attention necessary to facilitate the progress thereof, and he shall cooperate with the Owner's Representative and any inspectors and with other contractors in every way possible. The Contractor shall provide a competent Superintendent on the work at all times who is fully authorized as his agent on the work. Such Superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Owner's Representative or his representative.

The Contractor and his Superintendent shall provide all reasonable facilities to enable the Owner's Representative and any inspectors to inspect the workmanship and materials entering the work.

105.07 CONSTRUCTION STAKING. The Contractor shall furnish, place and maintain construction layout stakes necessary for the proper prosecution and inspection of the work under the contract in accordance with these Specifications.

The Owner will locate and reference the centerline of construction and will establish bench marks and set sufficient right-of-way stakes to define right-of-way limits. The Owner will set stakes to mark centerline and establish bench marks for bridges and special structures as may be considered necessary. The Owner's stakes and benchmarks shall constitute field control staking.

The Contractor shall exercise care in the preservation of stakes and bench marks and shall have them reset at his expense when any are damaged, lost, displaced or removed. The Contractor shall use competent personnel and suitable equipment for the layout of the work required. The Contractor shall not engage the services of any person or persons in the employment of the Owner or its equipment for the performance of any of this work.

The Contractor shall provide field forces and shall set all additional stakes needed, such as offset stakes, reference point stakes, slope stakes, pavement and curb line and grade stakes, stakes for bridges, sewers, roadway drainage, pipe underdrains, paved gutter, fence, culverts or other structures, and any other horizontal or vertical controls necessary to secure a correct layout of the work. Stakes for line and grade shall be adequate to maintain the specified tolerances for the operation being performed. The station number and the distance from the centerline of construction shall be marked on all grade stakes.

The Contractor shall furnish the original of his survey records to the Owner for the Owner's permanent file. These records shall be furnished as they are completed during the progress of the work. These records shall be in permanently bound field books and/or level books and formatted in a manner commonly accepted by the surveying profession. The Owner's Representative may at any time check the correctness of the Contractor's staking work by using spot check method. When significant errors occur, the Contractor shall resurvey to the satisfaction of the Owner's Representative. The Contractor shall furnish, at his expense, platforms and equipment necessary for proper and safe access for checking his staking. Any inspection or checking of the Contractor's layout by the Owner's Representative and the acceptance of all or any part of it shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades, and elevation of the several parts of the work. Deviations resulting from plan errors will be resolved by the Owner.

Contractor construction staking will not be paid as a separate item, but all associated costs shall be included in the price bid for other items of work.

105.08 MEASUREMENTS. Before ordering any material or doing any work, the Contractor shall verify all measurements involved and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the drawings, and any difference which may be found shall be submitted to the Owner's Representative for consideration before proceeding with the work.

105.09 SOURCE OF SUPPLY AND QUALITY OF MATERIALS. The Contractor shall not start delivery of materials until the Owner's Representative has approved the source of supply. Only materials conforming to the requirements of these specifications shall be used in the work and such materials shall be used only after written the Owner's Representative has given approval and only so long as the quality of said material remains equal to the requirements of the specifications. The Contractor shall furnish approved materials from other sources, if, for any reason, the product from any source at any time before commencing or during the prosecution of the work proves unacceptable. After approval, any material which has become mixed with or coated by dirt or any other foreign substances during its delivery and handling shall not be used in the work.

105.10 MATERIALS AND WORKMANSHIP. The Contractor shall submit samples of materials, finish, appliances, etc., when required by the Owner's Representative, and all such samples must be approved by the Owner's Representative in writing before the work is executed and all work shall conform in all respects to the approved samples. Any work which does not conform to the approved samples will be rejected, and shall be removed and replaced by work that does so conform.

105.11 SAMPLES AND TESTS OF MATERIALS. Where, in the opinion of the Owner's Representative or called for in the specifications, tests of materials are necessary, such tests shall be made by, and at the expense of the Contractor, unless otherwise provided. Tests, unless otherwise specified, are to be made in accordance with the latest standard methods of the American Society for Testing Materials. The Contractor shall provide such facilities as the Owner's Representative may require for collecting and forwarding samples and shall not use the materials represented by the samples until test results have been approved by the Owner's Representative.

The Contractor in all cases shall furnish the required samples without charge.

105.12 CONTRACTOR'S QUALITY CONTROL

- (a) Contractor shall be responsible for all Quality Control necessary to ensure compliance with these specifications and any manufacturer's requirements. Contractor's Quality Control shall include testing, documentation, and daily diaries, with copies to the Owner's Representative. All associated costs for Contractor's Quality Control shall be included in the price bid for other items.
- (b) The Contractor must show proof that all employees associated with this project shall have been employed by the Contractor for a period not less than six (6) months, unless waived by the Owner's Representative.

105.13 STORAGE OF MATERIALS. Materials shall be stored so as to insure the preservation of their quality and fitness for the work. They shall be placed on wooden platforms or other hard, clean surfaces and not on the ground, and shall be placed under cover when directed. Stored materials shall be located so as to facilitate prompt inspection.

105.14 INSPECTION. The Contractor shall furnish the Owner's Representative with every reasonable facility for ascertaining whether or not the work as performed is in accordance with the requirements and intent of the plans and specifications. If the Owner's Representative requires, the Contractor shall at any time before acceptance of the work, remove and uncover

such portions of the finished work as may be directed, for inspection. After inspection, the Contractor shall restore said portions of the work to the condition required by the specifications.

Should the work thus exposed on examination prove acceptable the cost of uncovering or removing and the replacing of the covering or making good the parts removed will be paid for as "Extra Work". Should the work so exposed or examined prove unacceptable, the cost of covering or removing and the replacing of the covering or making good of the parts removed shall be at the Contractor's expense. When ample notice of the intention to complete or cover up the work was not given by the Contractor to the Owner's Representative, then the cost of the uncovering or removing and the replacing of the covering or making good of the parts removed shall be borne by the Contractor regardless of whether or not the work examined proved acceptable or unacceptable. Any work provided or materials used without suitable supervision or inspection by the Owner's Representative may be ordered removed and replaced at the Contractor's expense.

105.15 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK All work which has been rejected or condemned shall be repaired, or, if it cannot be satisfactorily repaired, it shall be removed and replaced at the Contractor's expense. Defective materials shall be removed immediately from the site of the work.

Work provided without lines and grades having been given, work provided beyond the lines or not in conformity with the grades shown on the plans or as given, save as herein provided; work provided without written authority and prior agreement in writing as to prices, will be provided at the Contractor's risk and will be considered unauthorized, and, at the option of the Owner's Representative may not be measured and paid for and may be ordered removed at the Contractor's expense.

Upon the failure of the Contractor to satisfactorily repair or to remove and replace, if so directed, any rejected, unauthorized or condemned work or materials immediately after receiving notice from the Owner's Representative, the Owner's Representative shall, after giving written notice to the Contractor, have the authority to cause unauthorized work to be removed and to deduct the cost thereof from any compensation to become due to the Contractor. If the Owner's Representative and Owner deem it inexpedient to correct work injured or done not in accordance with the contract, an equitable deduction from the contract price may be made therefor.

105.16 CORRECTION OF WORK AFTER FINAL PAYMENT. Neither the final certificate nor payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of substantial completion. The Owner shall give notice of observed defects with reasonable promptness.

105.17 FINAL INSPECTION. The Owner's Representative shall make final inspection of all work included in the contract or any portion thereof as soon as practicable after the work is completed and ready for acceptance. If the work is not acceptable to the Owner's Representative at the time of such inspection, he shall inform the Contractor as to the particular defects to be remedied before the final acceptance can be made.

SECTION 106
LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

106.01 LAWS TO BE OBSERVED. The Contractor shall, at all times, observe and comply with all Federal and State laws and City ordinances and regulations which in any manner affect the conduct of the work and shall observe and comply with all orders and decrees which exist at the present or which may be enacted later, of bodies or tribunals having jurisdiction or authority over the work, and no plea of misunderstanding or ignorance thereof will be considered. The Contractor and his surety shall defend, indemnify and save harmless the City and all its officers, agents, employees and servants against any claims or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees.

106.02 PERMITS AND LICENSES. The Contractor shall procure all permits and licenses, pay all charges or fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.

106.03 PATENTED DEVICES, MATERIALS AND PROCESSES. If the Contractor is required or desires to use any design, device, material or process covered by letters patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. It is mutually understood and agreed that without exception the contract prices shall include all royalties or costs arising from patents, trademarks and rights in any way involved in the work. The Contractor and Surety shall defend, indemnify and save harmless the Owner and all its officers, agents and employees from all suits, actions or claims of any character, name and description brought for or on account of infringement or alleged infringement by reason of the use of any such patented design, device, material or process or any trademark or copyright used in connection with the work agreed to be performed under this contract, and shall indemnify the Owner for any cost, expense or damage which it may be obliged to pay by reason of any action or actions, suit or suits which may be commenced against the Owner for any such infringement or alleged infringement at any time during the execution or after the completion of the work contracted for herein, It is mutually agreed that the Owner may give written notice of any such suit to the Contractor, and thereafter the Contractor shall attend to the defense of the same and save and keep harmless the Owner from all expense, counsel fees, cost liabilities, disbursements, recoveries, judgments and executions in any manner growing out of, pertaining to or connected therewith.

106.04 SANITARY PROVISIONS. The Contractor shall establish and enforce among his employees such regulations in regard to cleanliness and disposal of garbage and waste as will tend to prevent the inception and spread of contagious or infectious diseases and to effectively prevent the creation of a nuisance about the work or any property, either public or private and such regulations as are required by the Owner's Representative shall be put into effect immediately by the Contractor. Contractor shall strictly comply with all sanitary laws and regulations of the Owner and the State of Oklahoma.

106.05 PUBLIC CONVENIENCE AND SAFETY. Materials stored about the work shall be so placed and the work shall at all times be so conducted as to cause no greater obstruction of the traveling public than is considered necessary by the Owner's Representative. The Contractor shall make arrangements satisfactory to the Owner's Representative for handling traffic. Sidewalks must not be obstructed unless by special permission of the Owner's Representative. Neither the materials excavated nor the construction materials or plant used in the construction

of the work shall be placed so as to endanger the work or prevent free access to all fire hydrants, water valves, gas valves, manholes for electric, telephone, telegraph or traffic signal conduits, sewers or fire alarm or police call boxes in the vicinity. The Owner reserves the right to remedy any neglect on the part of the Contractor as regards the public convenience and safety which may come to its attention, after twenty-four (24) hours notice in writing to the Contractor, save in cases of emergency when it shall have the right to remedy any neglect without notice and, in either case, the cost of such work done by the Owner shall be deducted from monies due or to become due the Contractor. The Contractor shall notify the Public Works Director a minimum of 24 hours before any street is closed or obstructed and shall keep any street or streets in condition for unobstructed use by fire and other emergency apparatus, as much as is practical.

Where the Contractor is required to construct temporary culverts or bridges or make other arrangements for crossings over ditches or streams, his responsibility for accidents shall include the roadway approaches as well as the structures of such crossings.

Contractor shall give written notice to all residents/occupants/businesses that may be affected by the work (e.g. water disruption, street closure, sewer jet cleaning). Said written notice shall be delivered no less than 48 hours, nor more than 2 weeks prior to the start time of the disruption.

The written form may be "door hangars", but in any event shall be submitted to and approved by the Owner's Representative prior to use. At a minimum the form shall contain:

- Project Identification
- Contractor Name, address, Telephone Number
- Type of Construction
- Reason for affecting or disrupting service and duration of such

106.06 PRIVILEGES OF CONTRACTOR IN STREETS, ALLEYS, OR RIGHTS-OF-WAY.
For the performance of the contract, the Contractor will be permitted to occupy such portions of streets or alleys, other public places or other rights-of-way as provided for in the ordinances of the City, as shown on the plans or as permitted by the Owner's Representative. A reasonable amount of tools, materials and equipment for construction may be stored in such space but not more than is necessary to avoid delay in the construction. Excavated and waste materials shall be piled or stacked in such a way as not to interfere with spaces that may be designated to be left free and unobstructed, nor inconvenience occupants of adjoining property. Other contractors of the Owner may, for all purposes required by their contracts, enter upon the work and premises used by the Contractor, and the Contractor shall give to other contractors of the Owner, all reasonable facilities and assistance for the completion of the adjoining work. Any additional grounds desired by the Contractor for his use shall be provided by him at his own expense.

106.07 RAILWAY CROSSINGS. When the work encroaches upon the right-of-way of any railway, the Owner will secure for the Contractor, all the necessary contracts, easements or authority to enter upon such right-of-way for the prosecution and completion of the work. Where railway tracks are to be crossed, the railway company, if it elects to do so, may construct the necessary bridges, trestles, cribs or other structures for the safe operation of trains or cars across any excavation during the time of construction of the work, and the cost of construction of such bridges, trestles, cribs or other structures shall be paid to the railway company by the Contractor together with the necessary cost of any supervision or other incidental expenses which may be required by the railway company while the work is in progress on the right-of-way of the railway company, and all such costs shall be taken into consideration by the Contractor in submitting proposals. The Contractor shall take such special precautions for the safety of the

work and the traveling public as may be necessary by sheeting, bracing and thoroughly supporting the sides of any excavation and supporting and protecting any adjacent structures.

106.08 BARRICADES AND WARNING SIGNS. Where work is carried on, in or adjacent to any street, alley, or public place, the Contractor shall furnish and erect such barricades, fences, lights, signs and other appurtenances in accordance with the MUTCD and OSHA requirements. The Contractor shall take such precautionary measures for the protection of persons or property and of the work as are necessary. Failure to comply with this requirement may result in the Owner's Representative discontinuing or suspending the work until the Contractor shall have provided the necessary protection.

The Contractor's responsibility for the maintenance of barricades, signs and lights and protection of the work shall not cease until the project shall have been accepted by the Owner.

106.09 USE OF EXPLOSIVES. Should the Contractor elect to use explosives to loosen rock or for any other purpose in the prosecution of the work, he shall obtain the required permits and the written permission of the Owner's Representative before any blasting is done, but neither the issuance of said permits, the granting of said permission nor any other act, requirement or condition contained in the specifications, nor any order, direction or approval given by the Owner's Representative or any other official or employee of the Owner shall be construed as requiring or directing the use of any explosives or as accepting any liability for any injury or damage to persons or property resulting from such usage. No blasting shall be done unless an Inspector is present and the Contractor shall notify the City Code Enforcement Division when he is ready to begin any blasting work. All necessary precautions shall be taken by the Contractor as required by the ordinances of the City or the laws of the State of Oklahoma relative to blasting and the necessary provisions shall be made for the protection of the new work and all blasting shall be so conducted as not to endanger persons or property. Only sufficient quantity of explosives necessary for the immediate day's work shall be kept on hand by the Contractor. Storage of caps, exploders and explosives shall be done strictly in compliance with the orders of the Owner's Representative and the ordinances of the City. The Contractor shall be responsible for and shall make good any damage caused by blasting or accidental explosions.

The Contractor shall notify the proper representatives of any public service corporation, any company or individual, not less than forty-eight (48) hours in advance of any blasting which might cause damage to their or his property along or adjacent to the work. Wherever explosives are stored, they shall be kept in a safe, secure manner and all storage places shall be plainly marked "Dangerous Explosives", and shall be under the care of a competent watchman at all times.

106.10 PROTECTION AND RESTORATION OF PROPERTY. The Contractor shall not enter upon private property for any purpose without first obtaining permission and he shall be responsible for the preservation of and shall use every precaution necessary to prevent damage to all trees, fences, culverts, bridges, pavements, driveways, sidewalks, etc., to all water, sewer, gas or electric lines or appurtenances thereof and to all other public or private property along or adjacent to the work. The Contractor shall notify the proper representatives of any public service corporation, and company or any individual, not less than twenty-four (24) hours in advance of any work which might damage or interfere with the operation of their or his property, along or adjacent to the work. He shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect, or misconduct in the manner or method of executing the work or due to his non-execution of the work, or at any time due to defective work or materials, and said responsibility shall not be released until the work shall have been completed and accepted. When any direct or indirect damage or injury is done to public or private property

on account of any act, omission, neglect or misconduct in the execution of the work or in consequence of the non-execution thereof on the part of the Contractor, he shall restore at his expense such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding or otherwise restoring, or he shall make good such damage for injury in an acceptable manner.

In case of the failure on the part of the Contractor to restore such property or make good such damage or injury, the Owner may, upon forty-eight (48) hours written notice, under ordinary circumstances, and without notice when a nuisance or hazardous condition results, proceed to repair, rebuild or otherwise restore such property as may be determined necessary and the cost thereof will be deducted from any monies due or to become due the Contractor under his contract.

106.11 PROTECTION AND PRESERVATION OF LAND MONUMENTS AND PROPERTY-LINE MARKS. The Contractor shall protect carefully from disturbance or damage all land monuments and iron pins or other markers which establish property lines, provided that where such monuments or markers must, of necessity, be disturbed or removed in the performance of the contract, the Contractor shall first give ample notice to the Owner's Representative, so that he may witness or reference in such monuments or markers. Should the Contractor disturb, remove or damage any established land monument or property line mark without first giving the Owner's Representative ample notice, the Owner's Representative may, at his option deduct the cost of re-establishing such monuments or markers from any monies due to become due the Contractor.

106.12 RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor and his surety shall defend, indemnify and save harmless the Owner and all its officers, agents and employees from all suits, actions or claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person or persons or property by or from the said Contractor or his employees or by or in consequence of any negligence in safeguarding the work or through the use of unacceptable materials in constructing the work or by or on account of any act or omission, neglect or misconduct of said Contractor or by or on account of any claim or amounts arising or recovered under the Workmen's Compensation Law or any other law, ordinance, order or decree, and so much of the money due the said Contractor under and by virtue of his contract as shall be considered necessary by the Owner may be retained for the use of the Owner, or in case no money is due, his surety shall be held until such suit or suits, action or actions, claim or claims for injury or damages as aforesaid shall have been settled and satisfactory evidence to the effect furnished to the Owner.

106.13 CONTRACTOR'S CLAIM FOR DAMAGES. Should the Contractor claim compensation for any alleged damage by reason of the acts or omissions of the Owner, he shall within ten (10) days after the sustaining of such damage, make a written statement to the Owner's Representative, setting out in detail the nature of the alleged damage. On or before the 25th day of the month succeeding that in which any such damage is claimed to have been sustained, the Contractor shall file with the Owner's Representative an itemized statement of the details and amount of such damage, and upon request shall give the Owner's Representative access to all books of accounts, receipts, vouchers, bills of lading and other books or papers containing any evidence as to the amount of such damage. Unless such statement shall be filed as thus required, the Contractor's claim for compensation shall be waived and he shall not be entitled to payment on account of any such damage.

106.14 PUBLIC UTILITIES AND PUBLIC PROPERTY. In the event it is necessary to change or move the property of any owner of a public utility, such owner will, upon proper application by the Contractor, be notified by the Owner's Representative to change or move such property within a specified time, and the Contractor shall not interfere with such property until ordered to do so by the Owner's Representative. The right is reserved to the owner of public utilities to enter upon the limits of the contract for the purpose of making such repairs or changes of their property that may be necessary by performance of the contract. The Owner shall have the privilege of entering upon the limits of the contract for the purpose of repairing or relaying sewer and water lines and appurtenances, repairing culverts or storm drains, and for making other repairs, changes or extensions to any utilities.

The Contractor shall provide all notices to the ONE-OKIE system prior to excavating, in accordance with State law.

106.15 TEMPORARY SEWER AND DRAIN CONNECTIONS. When existing sewers have to be taken up or removed, the Contractor at his own expense shall provide and maintain temporary outlets and connections for all private or public drains, sewers or sewer, inlets. He shall also take care of all sewage and drainage which will be received from these drains, sewers and sewer inlets, and for this purpose he shall provide and maintain at his own expense adequate pumping facilities and temporary outlets or diversions. He shall construct such troughs, pipes or other structures necessary and be prepared at all times to dispose of drainage and sewage received from these temporary connections until such time as the permanent connections are built and in service. The existing sewers and connections shall be kept in service and maintained under the contract, save where specified or ordered to be abandoned by the Owner's Representative. All water or sewage shall be disposed of in a satisfactory manner so that no nuisance is created and that the work under construction will be adequately protected.

106.16 ARRANGEMENT AND CHARGE FOR POTABLE WATER FURNISHED BY THE OWNER. If the Contractor desires to use Owner water he shall pay the rate established by City ordinances for such service and he shall make complete and satisfactory arrangements with the Water Department for so doing. Meters will be used and the Contractor shall deposit the cost of the water meter with the Water Department and will pay for all repairs and maintenance of the meter for the period which he has the meter in use or in his possession.

106.17 USE OF FIRE HYDRANTS. The Contractor or his employees shall not open, turn off, interfere with, attach pipe or hose to or connect anything with any fire hydrant, stop valve or stop cock or tap any water main belonging to the Owner, unless duly authorized to do so by the Water Department.

106.18 USE OF A SECTION OR PORTION OF THE WORK. Whenever in the opinion of the Owner's Representative any portion of the work or any structure is in suitable condition it may be put into use by the written order of the Owner's Representative and such usage shall not be held to be in any way acceptance of said work or structure or any part thereof or as a waiver of any of the provisions of these specifications or contract. Pending final completion and acceptance of the work, all necessary repairs and renewals on any section of the work so put into use, due to defective material or workmanship, to natural causes other than ordinary wear and tear or to the operations of the Contractor shall be performed by and at the expense of the Contractor.

106.19 CONTRACTOR'S RESPONSIBILITY FOR THE WORK. Until issuance of written acceptance by the Owner's Representative as provided for in these specifications, the work shall

be under the charge and care of the Contractor, and he shall take every necessary precaution to prevent injury or damage to the work or any part thereof by the action of the elements or from any other cause whatsoever, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good, at his own expense, all injuries or damage to any portion of the work occasioned by any of the above causes before acceptance.

106.20 PERSONAL RESPONSIBILITY OF PUBLIC OFFICIALS. In carrying out any of the provisions contained herein or in exercising any power or authority granted to him by the contract, there shall be no liability upon the Owner's Representative or his authorized assistants, either personal or as officials of the Owner, it being understood that in such matters he acts as the agent and representative of the Owner.

106.21 WAIVER OF LEGAL RIGHTS. Inspection by the Owner's Representative or by any of the duly authorized representatives of the Owner's Representative, any order, measurement, or certificate by the Owner's Representative, any order by the Owner for the payment of money, any payment for or acceptance of any work or any extension of time or any possession taken by the Owner, shall not operate as a waiver of any provision of the contract or any power therein provided. Any waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach. The Owner reserves the right to correct any error that may be discovered in any estimate that may have been paid and to adjust the same to meet the requirements of the contract and specifications. The Owner reserves the right to claim and recover by process of law sums as may be sufficient to correct any error or errors or make good any deficiency in the work resulting from such error or deficiency, dishonesty or collusion discovered in the work after the final payment has been made.

106.22 CONTRACTOR'S INSURANCE. The Contractor shall not commence work under this contract until he has obtained all insurance required under this specification and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required for the subcontractor has been so obtained and approved.

- (a) WORKMEN'S COMPENSATION AND DEATH LIABILITY INSURANCE. The Contractor shall secure and maintain during the life of this contract Workmen's Compensation Insurance as prescribed by the laws of the State of Oklahoma for all his employees employed at the site of the project. The Contractor shall require any subcontractor similarly to provide Workmen's Compensation and Employer's Death Liability insurance for all the latter's employees, unless such employees are covered by the protection afforded by the Contractor.
- (b) PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE. The Contractor shall secure and maintain during the life of this contract such Public Liability and Property Damage Insurance as will protect the Owner, himself, and any subcontractor performing work covered by this contract, from claims for damages for personal injury, including accidental death, as well as from claims for property damages, which may arise from operations under this contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either of them.
- (c) Contractor shall provide to the City a certificate of public liability insurance, a certificate of worker's compensation insurance, and automobile public liability insurance as follows:

Comprehensive Public Liability and Property Damage

Bodily Injury	\$ 125,000 per individual
	\$1,250,000 in the aggregate per occurrence;
Property Damage	\$ 25,000 per occurrence
	\$ 125,000 in the aggregate

Worker's Compensation Insurance. Statutory limits as required by the laws of the State of Oklahoma, including employer's liability insurance with \$500,000 limit.

Automobile Public Liability Insurance

Bodily Injury	\$ 125,000 per individual
	\$1,000,000 in the aggregate per occurrence

Public Liability Insurance in the amount of not less than fifty thousand dollars(\$50,000) for injuries, including accidental death, or one hundred thousand dollars(\$100,000) for one accident.

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

SECTION 107 PROSECUTION AND PROGRESS

107.01 **SUBLETTING OF WORK.** If the Contractor sublets the whole or any part of the work to be done under this contract, he will not under any circumstances be relieved of his responsibility and obligations. All transactions of the Owner's Representative shall be with the Contractor. Subcontractors will be considered only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competency. The Contractor shall at all times when work is in operation, be represented either in person or by a qualified superintendent or qualified designated representative.

The Contractor shall submit the name and address of any proposed subcontractor to the Owner's Representative in writing prior to said subcontractor performing any of the work. The Contractor shall clearly list the types and amounts of work of the subcontractor.

107.02 **ASSIGNMENT OF CONTRACT.** The Contractor shall not assign, transfer, convey or otherwise dispose of the contract or his right, title, or interest in or to the same or any part thereof without the previous consent of the Owner's Representative in writing, approved by the governing body of the Owner and concurred in by the Surety. If the Contractor does, without such previous consent, assign, transfer, convey, or otherwise dispose of the contract or of his right, title or interest therein or any part thereof to any person or persons, partnership, company, firm or corporation or by bankruptcy, voluntary or involuntary, or by assignment under the insolvency laws of any state, attempt to dispose of the contract or make default in or abandon said contract, then the contract may, at the option of the Owner, be revoked and annulled unless the Surety shall successfully complete said contract and any monies due or to become due under said contract shall be retained by the Owner as liquidated damages for the reason that it would be impractical and extremely difficult to determine the actual damages.

107.03 **PROSECUTION OF WORK.** The Contractor shall begin the work to be performed under the contract within the time limit stated in the advertisement, proposal and contract, and shall conduct the work in such a manner and with sufficient equipment, materials and labor as is necessary to insure its completion within the time limit set forth in the proposal and contract. Should the prosecution of the work for any reason be discontinued by the Contractor for an extended period of time, he shall notify the Owner's Representative at least twenty-four (24) hours in advance of resuming operations.

107.04 **PROJECT SCHEDULES.** Within ten days after the effective date of the agreement, the Contractor shall submit to the Owner's Representative for review a progress schedule indicating the times (number of days or dates) for starting and completing the various stages of the Work, including any milestones specified in the contract documents.

No progress payment shall be made to the Contractor until the schedules are submitted to and acceptable to the Owner's Representative as provided below. The progress schedule will be acceptable to the Owner's Representative as providing an orderly progression of the work to completion within any specified milestones and the contract times, but such acceptance will neither impose on the Owner's Representative responsibility for the sequencing, scheduling or progress of the work nor interfere with or relive the Contractor from the Contractor's full responsibility therefor. The Contractor's schedule of Shop Drawing(s) and Sample submissions will be acceptable to the Owner's Representative as providing a workable arrangement for reviewing and processing the required submittals.

107.05 LIMITATION OF OPERATIONS. The Contractor shall conduct his work so as to create a minimum amount of inconvenience to the public. At any time when in the judgment of the Owner's Representative the Contractor has obstructed or closed or is carrying on operations on a greater portion of the site or public way than is necessary for the proper execution of the work, the Owner's Representative may require the Contractor to finish sections on which work is in progress before work is started on any additional section.

107.06 CHARACTER OF WORKMEN AND EQUIPMENT. The Contractor shall employ such superintendents, foremen and workmen as are careful and competent, and the Owner's Representative may require removal from the project of any person or persons employed by the Contractor, in, about or on the work who shall misconduct himself or be incompetent or negligent in the proper performance of his or their duties or neglect or refuse to comply with the directions of the Owner's Representative, and such person or persons shall not be employed again thereon without the written consent of the Owner's Representative. The Owner's Representative may withhold all payments which are or may become due or may suspend the work until such orders are fulfilled.

All workmen shall have sufficient skill and experience to properly perform the work assigned them. All workmen engaged on special work or skilled work or in any trade shall have sufficient experience in such work to properly and satisfactorily perform it and operate the equipment involved, and shall make due and proper effort to execute the work in the manner prescribed in these specifications.

In the employment of labor, preference shall be given, other conditions being equal, to bona fide residents of the Owner or the area, but no other preference or discrimination among citizens of the United States shall be made.

The Contractor shall furnish such equipment as is considered necessary for the prosecution of the work in an acceptable manner and at a satisfactory rate of progress. All equipment, tools and machinery used for handling materials and executing any part of the work shall be operated and maintained in a satisfactory working condition in accordance with the equipment manufacturers' recommendations. Equipment on any portion of the work shall be such that no injury to the work or adjacent property will result from its use.

107.07 DAYS WORK WORKING HOURS. Work shall be performed only during regular and commonly accepted and prescribed working hours. No work shall be performed nights, Sundays or during City holidays unless authorized in writing.

107.08 TIME OF COMMENCEMENT AND COMPLETION. The Contractor shall commence work within the time specified in the advertisement, proposal and contract and the rate of progress shall be such that the whole work will be performed and the premises cleaned up in accordance with the contract, plans and specifications within the time limit, as stated in the contract, unless an extension of time is granted in the manner hereinafter specified.

107.09 EXTENSION OF TIME OF COMPLETION. If the Contractor finds it impossible, for reasons beyond his control, to complete the work within the Contract time as specified or as extended in accordance with the provisions of this Subsection, he may, at any time prior to the expiration of the Contract time as extended, make a written request to the Owner's Representative for an extension of time setting forth therein the reasons which he believes will justify the granting of his request. The Contractor's plea that insufficient time was specified in

the Proposal and the Contract or that previously unprotested time charges were incorrect shall not be grounds for an extension of time. If the Owner's Representative finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner's Representative may extend the time for completion in such amounts as the conditions justify. The extended time for completion shall be in full force and effect the same as though it were the original time for completion. Daily time charges will cease when the project is completed.

In adjusting the contract time for the completion of the project, all strikes, lockouts, unusual delays in transportation or any condition over which the Contractor has no control and also any suspensions ordered by the Owner's Representative for causes not the fault of the Contractor shall be excluded from the computation of the contract time for completion of the work. If the satisfactory execution and completion of the contract should require work or materials in greater amounts or quantities than those set forth in the contract, then the contract time shall be increased in the same proportion as the cost of the original work. No allowance shall be made for delays or suspension of the prosecution of the work due to the fault of the Contractor.

107.10 FAILURE TO COMPLETE WORK ON TIME. It is mutually agreed by Owner and Contractor that time is of the essence of this Contract and that Owner will suffer financial loss if the Work is not substantially complete within the time specified in the Contract, plus any extensions thereof allowed in accordance with Section 107.09 of these General Conditions. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner the amount set forth in the Special Provisions, until the work is substantially complete.

107.11 TEMPORARY SUSPENSIONS. The Owner's Representative shall have the authority to suspend the work wholly or in part for such period or periods, as he may deem necessary, due to unsuitable weather or such other conditions as are considered favorable for the suitable prosecution of the work.

If it should be necessary to stop work for an indefinite period, the Contractor shall store all materials in such manner that they will not obstruct or impede the traveling public unnecessarily nor become damaged in any way, and he shall take every precaution to prevent damage or deterioration of the work performed, and shall provide suitable drainage of the work.

107.12 SUSPENSION OF WORK AND ANNULMENT OF CONTRACT. The work or any portion of the work under contract may be suspended on written order of the Owner's Representative or the Owner, with copy of such notice to be served upon the Contractor's Surety, or the contract may be annulled by the Owner, for any good cause or causes, said causes including but not limited to the following:

- (a) Failure of the Contractor to start the work within the time limit specified;
- (b) Substantial evidence that the progress being made by the Contractor is insufficient to complete the work within the specified time;
- (c) Failure of the Contractor to provide sufficient and proper equipment for properly executing the work;

- (d) Deliberate failure on the part of the Contractor to observe any requirements of these specifications or to comply with any orders given by the Owner's Representative, as provided for in these specifications;
- (e) Failure of the Contractor to promptly make good any defects in materials or workmanship or any defects of any other nature, the correction of which had been directed in writing by the Owner's Representative.
- (f) Substantial evidence of collusion for the purpose of illegally procuring a contract or perpetrating fraud on the Owner in the construction of work under contract.

When work is suspended for any one of the causes itemized above, or for any other cause or causes, the Contractor shall discontinue the work or such part thereof as the Owner shall designate, whereupon the Surety may, at its option, assume the contract or that portion thereof which the Owner has ordered the Contractor to discontinue and may perform the same or may, with the written consent of the Owner's Representative, approved by the Owner, sublet the work or portion of the work so assumed; provided, however, that the Surety shall exercise its option, if at all, within two (2) weeks after the written notice to discontinue work has been served upon the Contractor and upon the Surety or its authorized agent. The Surety, in such event shall assume the Contractor's place in all respects and shall be paid by the Owner for all work performed by it in accordance with the terms of the contract and, if the Surety, under the provisions hereof, shall assume said entitled contract, all monies remaining due the Contractor at the time of his default shall thereupon become due and payable to the Surety as the work progresses, subject to all the terms of the contract.

In the event that the Surety does not within the time hereinbefore specified, exercise its right and option to assume the contract, or that portion thereof which the Owner has ordered the Contractor to discontinue, then the Owner shall have the power to complete, by contract or otherwise as it may determine, the work herein described, or such part thereof as it may deem necessary, and the Contractor hereby agrees that the Owner shall have the right to take possession of and use any of the materials, tools, equipment, supplies and property of every kind provided by the Contractor for the purpose of his work and to procure other tools, equipment and materials for the completion of the same, and to charge to the account of the Contractor the expense of said contract for labor, materials, tools, equipment and expenses incident thereto. The expense so charged shall be deducted by the Owner out of such monies as may be due or may at any time thereafter become due to the Contractor under and by virtue of the contract or any part thereof. The Owner shall not be required to obtain the lowest bid for the work of completing the contract but the expense to be deducted shall be the actual cost of such work. In case such expense is less than the same which would have been payable under the contract, if the same had been completed by the Contractor, the balance shall operate as liquidated damages, as herein above set forth. In case such expense shall exceed the amount which would, have been payable under the contract, if the same had been completed by the Contractor, then the Contractor and his Surety shall pay the excess as due and payable. When, any particular part of the work is being carried out by the Owner by contract or otherwise under the provisions of this Section, the Contractor shall continue the remainder of the work in conformity with the terms of the contract and in such manner as not to hinder or interfere with the performance of workmen employed as above provided by the Owner.

107.13 TERMINATION OF CONTRACT. The Contract will be considered fulfilled save as provided in any bond or bonds or by law, when all the work has been completed, the final inspection made by the Owner's Representative, and final acceptance and final payment made by the Owner.

SECTION 108 MEASUREMENT AND PAYMENT

108.01 MEASUREMENT OF QUANTITIES. The determination of quantities of work accepted and completed under the terms of the contract or as directed by the Owner's Representative, in writing, will be made by the Owner's Representative, based on measurements taken by him or his assistants, or at the sole discretion of the Owner's Representative determination of quantities may be based on measurements taken by the Contractor. These measurements will be taken according to the United States Standard Measurements. When materials are measured in the vehicle, the measurement will be taken at the point of delivery. The capacity of all vehicles shall be plainly marked on each vehicle and the capacity or markings shall not be changed without permission of the Owner's Representative.

108.02 SCHEDULE OF VALUES. (For Lump Sum Items or Contracts Only) Prior to work commencing, Owner's Representative and Contractor shall determine and agree to payments based on a percentage of the Lump Sum amount, to correlate to completion of respective phases of the work.

108.03 SCOPE OF PAYMENT. The Contractor shall receive and accept the compensation as herein provided as full payment for furnishing all labor, materials, tools, equipment and incidentals; for performing all work contemplated and embraced under the contract; for all loss or damage arising out of the nature of the work or from the action of the elements; for any unforeseen defects or obstructions which may arise or be encountered during the prosecution of the work and before its final acceptance by the Owner's Representative; for all risks of every description connected with the prosecution of the work; for all expenses incurred by or in consequence of suspension or discontinuance of such prosecution of the work as herein specified; for any infringement of patents, trademarks or copyrights and for completing the work in an acceptable manner according to the plans and specifications.

The payment of any current or partial estimate prior to final acceptance of the work by the Owner shall in no way constitute an acknowledgment of the acceptance of the work nor in any way prejudice or affect the obligation of the Contractor to repair, correct, renew, or replace at his expense any defects or imperfections in the construction or in the strength or quality of the materials used in or about the construction of the work under the contract and its appurtenances nor any damage due to or attributable to such defects, which defects, imperfections or damage shall have been discovered on or before the final inspection and acceptance of the work. The Owner's Representative shall be the sole judge of such defects, imperfections or damage and the Contractor shall be liable to the Owner for failure to correct the same as provided herein.

108.04 PAYMENT FOR EXTRA WORK. Extra work provided by the Contractor, as authorized and approved by the Owner's Representative and the Owner, will be paid for in the manner hereinafter described and the compensation thus provided shall be accepted by the Contractor as payment in full for all labor, materials, tools, equipment and incidentals, and all superintendents' and timekeepers' services, all insurance and all other overhead expense incurred in the prosecution of the extra work. Payment for extra work will be made by one or more of the following methods:

- (a) Unit prices agreed upon by the Owner's Representative and the Contractor and approved by the governing body of the Owner in writing, before said work is commenced, subject to all other conditions of the contract;

- (b) A lump sum price agreed upon by the Owner's Representative and the Contractor and approved in writing by the governing body of the Owner before said work is commenced, subject to all other conditions of the contract;
- (c) The actual cost including labor, materials, tools, equipment and field supervision of such extra work plus fifteen percent (15%); said 15% understood and agreed to be full compensation for all overhead expenses and profits, when agreed upon by the Owner's Representative and the Contractor, and approved in writing by the governing body of the Owner before said work is commenced; subject to all other conditions of the contract.

The Contractor shall, on or before the 10th day of the month succeeding that in which any extra work shall have been performed, file with the Owner's Representative his claim and an account giving the itemized cost of such work and shall give the Owner's Representative access to all accounts, bills and vouchers relating thereto.

108.05 PAYMENT PROCEDURES. The Contractor shall submit an Invoice or Application for Payment for work completed as of the date of the Invoice or Application. All payments made by the Owner are subject to procedures established for the governing body of the Owner to authorize payment at its regularly scheduled meetings.

Invoice or Application for Payment must be received in the Public Works Director's Office no less than ten (10) business days prior to the regular meeting at which authorization for payment is to be requested.

Retainage shall be withheld from all progressive payments in accordance with Oklahoma Statutes.

Upon final completion and acceptance of the work, including all submittals, the Owner shall pay the remainder of the Contract price, subject to the procedures as noted in this section.

It is understood that payments will be subject to correction in the payment rendered following discovery of an error in any previous payment and such payment shall not in any respect, be taken as an admission by the Owner of the amount of work done or of its quality or sufficiency nor as an acceptance of the work or the release of the Contractor of any of his responsibility under the contract.

108.06 PAYMENTS WITHHELD. The Owner's Representative may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any payment to such extent as may be necessary to protect the Owner from loss on account of:

- (a) Defective work not remedied;
- (b) Claims filed or reasonable evidence indicating probable filing of claims;
- (c) Failure of the Contractor to make payments properly to subcontractors or for materials or labor;
- (d) A reasonable doubt that the contract can be completed for the balance then paid;
- (e) Damage to another Contractor.

When the above conditions are remedied, payment shall be made for amounts withheld as a result of such condition.

108.07 STATE SALES AND USE TAX. Under the terms of contracts established between the City of Chickasha and the Contractor, the Contractor will be appointed agent for the City of Chickasha, Oklahoma, for the purpose of the tangible personal property purchased or rented for the project. Legal title to all tangible personal property purchased, and the right to direct the use of all tangible personal property rented by Contractor shall pass directly from the vendor to the City of Chickasha. Upon passage of title, all of such property will be included in the project owned by the City of Chickasha. Title to all such property shall pass to the City of Chickasha from the vendor. All such property procured under the terms of contracts established between the City of Chickasha and the Contractor is exempt from Oklahoma sales and use taxes and/or City sales taxes. Contracts established between the Chickasha Municipal Authority and the Contractor shall not provide for sales and/or use tax exemption.

108.08 ACCEPTANCE AND FINAL PAYMENT. Whenever the improvement provided for by the contract shall have been completely performed on the part of the Contractor, and all parts of the work have been approved by the Owner's Representative and accepted by the Owner a final pay request showing the value of the work will be prepared by the Contractor as soon as the necessary measurements and computations can be made. All prior pay requests, upon which payments have been made, are subject to necessary corrections or revisions in the final payment. The amount of this pay request, less any sums that have been deducted or retained under the provisions of the contract, will be paid to the Contractor as soon as practicable after the final acceptance, provided the Contractor has furnished to the Owner satisfactory evidence that all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for the purpose of such improvement have been paid or that the person or persons to whom the same may respectively be due have consented to such final payment.

The acceptance by the Contractor of the last payment, as aforesaid, shall operate as and shall be a release to the Owner from all claims of liability under the contract for anything performed or furnished or relating to the work under the contract or for any act or neglect of Owner relating to the contract.

108.09 FINAL MEASUREMENT AND FINAL PAY REQUESTS. Final measurement will be taken and final pay requests compiled as soon as work has progressed to a point where the final measurements may be taken accurately.

108.10 This contract, and all documents incorporated herein by reference or executed in connection herewith, are intended solely to govern the relationship between the Contractor and the Owner and their mutual obligations in respect to the subject of the contract. To that end, no provision of this contract, or of any document mentioned above, shall be interpreted or given legal effect to create an obligation on the part of the Owner to third persons, including by way of illustration but not of exclusion, sureties upon performance bonds, payment bonds, or other bonds; assignees of the contractor; subcontractors; and persons performing labor, furnishing material, or in any other way contributing to or assisting in the performance of the obligations of the Contractor; nor shall any such provisions be interpreted or given legal effect to afford a defense against any obligation owed or assumed by such third person to the Owner or in any way to restrict the freedom of the Owner to exercise full discretion in its dealing with the Contractor.



Chickasha Municipal Authority, Oklahoma

RFP CMA-2301 SANITARY SEWER MAIN CONSTRUCTION SPECIFICATIONS

TABLE OF CONTENTS SECTION 600
SANITARY SEWER MAIN CONSTRUCTION

SECTION 600 – SANITARY SEWER CONSTRUCTION	1
SECTION 600 – GENERAL REQUIREMENTS	1
600.1 – DESCRIPTION	1
600.2 – MATERIALS	1
600.4 – ORDER OF CONSTRUCTION	1
600.4.1 – TEST HOLES	1
600.4.2 – SEWER GRADES	1
600.4.3 – STOPPERS OR BULKHEADS	2
600.4.4 – SURFACE DRAINAGE STRUCTURES	2
600.4.5 – TEMPORARY SEWER AND DRAIN CONNECTIONS	2
600.4.6 – CLEANUP	2
SECTION 610 - PIPE INSTALLATION	2
610.1 - DESCRIPTION	2
610.2 – PIPE MATERIALS	2
610.2.1 - PIPE	2
610.2.2 - EMBEDMENT MATERIAL	3
610.4 – CONSTRUCTION METHODS	3
610.4.1 – BEDDING	3
610.4.2 - INSTALLATION REQUIREMENTS	3
610.4.3 - BACKFILLING	4
610.6 – METHOD OF MEASUREMENT	4
610.7 - BASIS OF PAYMENT	5
SECTION 611 – SEWER SERVICE CONNECTION	5
611.1 – DESCRIPTION	5
611.2 – MATERIALS	5
611.2.1 – PIPE MATERIALS	5
611.2.2 – CONNECTION TYPES	5
611.2.3 – RISER	5
611.4 – CONSTRUCTION METHODS	6
611.6 – METHOD OF MEASUREMENT	6
611.7 – BASIS OF PAYMENT	6
SECTION 612 – SEWER SERVICE LINE	7
612.1 – DESCRIPTION	7
612.2 – MATERIALS	7
612.4 – CONSTRUCTION METHODS	7
612.6 – METHOD OF MEASUREMENT	7
612.7 – BASIS OF PAYMENT	7
SECTION 614 – ABANDONING SEWER	7
614.1 – DESCRIPTION	7
614.2 – MATERIALS	8
614.6– METHOD OF MEASUREMENT	8
614.7 – BASIS OF PAYMENT	8

SECTION 615 – NOT USED	
SECTION 616 – NOT USED	
SECTION 617 – NOT USED	
SECTION 618 – SEWER FLOW CONTROL	8
618.1 – DESCRIPTION	8
618.2 – CONSTRUCTION METHODS	8
618.6 – METHOD OF MEASUREMENT	9
618.7 – BASIS OF PAYMENT	9
SECTION 619 – CLEANING SEWER LINE	9
619.1–DESCRIPTION	9
619.2 – EQUIPMENT	9
619.2.1 – APPROVAL OF CLEANING EQUIPMENT AND PROCEDURE	9
619.2.2 – MECHANICALLY POWERED CLEANING EQUIPMENT	9
619.2.3 – HYDRAULICALLY PROPELLED CLEANING EQUIPMENT	9
619.2.4 – HIGH-VELOCITY CLEANING EQUIPMENT	9
619.4 – CONSTRUCTION METHODS	10
619.3.1 – CLEANING PRECAUTIONS	10
619.4.2 – ROOT AND DEBRIS REMOVAL	10
619.5 – TESTING (CLEANING AND FINAL ACCEPTANCE)	10
619.6 – METHOD OF MEASUREMENT	10
619.7 – BASIS OF PAYMENT	11
SECTION 620 – BORING	11
620.01 - DESCRIPTION	11
620.02 - MATERIALS	11
620.04 – CONSTRUCTION METHODS	11
620.06 – METHOD OF MEASUREMENT	12
620.07 – BASIS OF PAYMENT	12
SECTION 621 – NOT USED	
SECTION 622 – NOT USED	
SECTION 623 – DEFLECTION TEST	12
623.1 – DESCRIPTION	12
623.5 – TESTING	12
623.6 – METHOD OF MEASUREMENT	12
623.7 – BASIS OF PAYMENT	13
SECTION 624 – TELEVISION INSPECTION	13
624.1 – DESCRIPTION	13
624.3 – EQUIPMENT	13
624.4 – CONSTRUCTION METHODS	14
624.5 – DOCUMENTATION	15
624.6 – METHOD OF MEASUREMENT	16
624.7 – BASIS OF PAYMENT	17

SECTION 625 – SEWER PIPE LEAKAGE TESTING	17
625.1 – DESCRIPTION.....	17
625.5 – TESTING.....	17
625.6 – METHOD OF MEASUREMENT	17
625.7 – BASIS OF PAYMENT	17
SECTION 626 – SANITARY SEWER MANHOLES.....	18
626.1 – DESCRIPTION.....	18
626.2 – MATERIALS.....	18
626.2.1 – PRECAST REINFORCED CONCRETE MANHOLES.....	18
626.2.2 – CAST-IN-PLACE CONCRETE MANHOLES	19
626.2.3 – MANHOLE INVERT AND BENCH	19
626.3.4 – MANHOLE RING AND COVER	20
626.4 – CONSTRUCTION METHODS.....	20
626.5 – TESTING.....	21
626.5.1 - MANHOLE INSPECTION.....	21
626.5.2 - MANHOLE TESTING	21
626.6 – METHOD OF MEASUREMENT	21
626.7 – BASIS OF PAYMENT	21
SECTION 627 – MANHOLE TESTING	21
627.1 – DESCRIPTION.....	21
627.5 – TESTING.....	21
627.5.1 – HYDROSTATIC TESTING.....	21
627.5.2 – VACUUM TESTING	21
627.6 – METHOD OF MEASUREMENT	22
627.7 – BASIS OF PAYMENT	22
SECTION 649 – VITRIFIED CLAY SEWER PIPE (VCP).....	22
649.1 – DESCRIPTION.....	22
649.2 – MATERIALS.....	22
649.2.1 – SUBMITTALS	22
649.4 – CONSTRUCTION METHODS.....	22
649.6 – METHOD OF MEASUREMENT	23
649.7 – BASIS OF PAYMENT	23
SECTION 650 – DUCTILE IRON PIPE (DIP)	23
650.1 – DESCRIPTION.....	23
650.2 – MATERIALS.....	23
650.2.1 – SUBMITTALS	23
650.2.2 – GENERAL, FITTINGS.....	23
650.2.3 – COATING AND LINING	24
650.6 – METHOD OF MEASUREMENT	24
650.7 – BASIS OF PAYMENT	24
SECTION 652 – POLYVINYL CHLORIDE (PVC) PIPE	24
652.1 – DESCRIPTION.....	24
652.2 – MATERIALS.....	24
652.2.1 – SUBMITTALS	24
652.2.2 – SOLID WALL (PVC).....	24

652.2.3 – PROFILE WALL (PVC)	25
652.6 – METHOD OF MEASUREMENT	25
652.7 – BASIS OF PAYMENT	25
 SECTION 654 – STEEL CASING PIPE	 26
654.1 DESCRIPTION.....	26
654.2 – MATERIALS.....	26
654.2.1 – SUBMITTALS	26
654.2.2 – GENERAL.....	26
654.2.4 – EXTERIOR PROTECTIVE COATING	26
654.6 – METHOD OF MEASUREMENT	26
654.7 – BASIS OF PAYMENT	26

SECTION 600 – SANITARY SEWER MAIN CONSTRUCTION

SECTION 600 – GENERAL REQUIREMENTS

600.1 – DESCRIPTION

This section covers general construction requirements of sanitary sewer mains and sewer appurtenances as described herein.

600.2 – MATERIALS

Construction materials shall not be delivered to the site of the work more than three (3) days in advance of their anticipated use nor shall the quantity of pipe or other materials on hand at the site of the work at any time be in excess of the amount required to complete three hundred (300) feet of sewer main unless with special permission of the Engineer.

Unless otherwise specified, all concrete used in construction of sewer mains and their appurtenances shall have a minimum twenty-eight (28) day compressive strength of three thousand five hundred (3,500) pounds per square inch (psi). All steel reinforcement used shall be grade sixty (60) with a minimum yield strength of sixty thousand (60,000) psi.

600.4 – ORDER OF CONSTRUCTION

The Contractor shall start at enough different locations to complete the entire contract within the time limit specified. The construction of all sewer mains shall begin at the low point in the line in every case working toward the high point. When the construction involves the building of main or submain sewer mains having one or more lateral or tributary, the construction of tributary lines shall not be started until the main or submain sewer has been completed to the point where the tributaries or laterals discharge into it, except as may be approved by the Engineer. Approval by the Engineer does not relieve the Contractor of any responsibility for making the specified connections in reasonable conformance to the design.

Sewer appurtenances shall be constructed as soon as the sewer main to which they are to be connected is constructed to their locations. The postponing of the construction of appurtenances until the entire sewer main has been completed, or the building of appurtenances in advance of the construction of the sewer main, will not be permitted.

The construction of sewer mains eighteen (18) inches in diameter and smaller for more than six hundred (600) feet, and sewer mains twenty-one (21) inches in diameter and larger for more than three hundred (300) feet in advance of appurtenances which are incomplete or the construction of which has not been started, will not be permitted.

Unless otherwise directed by the Engineer, the Contractor shall leave no more than nine hundred (900) feet between backfilling operations and the complete restoration of paving, paving repairs, fencing, sodding, etc.

When temporary surfacing is provided for in the contract documents, the Contractor shall complete temporary paving repair immediately after backfill is completed.

600.4.1 – TEST HOLES

Test hole information, when shown on the plans or included in the specifications, shall only represent subsurface characteristics to the extent indicated, and only for the point location of the test hole.

Each bidder shall make his own interpretation of the character and condition of the materials that will be encountered between test hole locations. Each prospective Bidder may, at his own expense, make additional surveys and investigations as he may deem necessary to determine conditions which will affect performance of the work.

600.4.2 – SEWER GRADES

General - The grade line shown on the plans is the elevation of the invert or flow line of the sewer. The sewer grade shall be established by use of laser beam, or other methods approved by the Engineer.

Laser Beams - When laser beams are used to establish line and grade, they shall first be calibrated in accordance with the equipment manufacturers recommended procedures. The Contractor shall establish horizontal and vertical controls (offset stakes) with a transit or theodolite or any other equipment approved by the Engineer. The Contractor may then proceed to establish line and grade using the laser equipment. In conjunction with the laser beam, the Contractor may also be required to provide temporary benchmarks at intervals as specified by the Engineer.

600.4.3 – STOPPERS OR BULKHEADS

Dead ends of all sewer mains, wyes, tees, etc., shall be closed with approved stoppers securely cemented in place. When shown on the plans or required by the Engineer, such openings shall be tightly walled up with brick masonry or concrete. Tight fitting stoppers or bulkheads shall be securely placed in or across the end of all sanitary sewer lines when construction is stopped at the end of each day's work or for any other cause. When work is stopped temporarily on sanitary sewer mains twenty-four (24) inches in diameter and smaller, the exposed end of the pipe shall be closed to prevent trash or debris from entering the pipe. Such stoppers need not be watertight.

600.4.4 – SURFACE DRAINAGE STRUCTURES

When not called for on the plans or specified as separate bid item, all surface drainage structures and appurtenances shall be removed and replaced in a condition equal to or better than the original installation when required. No additional compensation shall be made for this work, and the cost of same shall be included in the other pay items.

600.4.5 – TEMPORARY SEWER AND DRAIN CONNECTIONS

When existing sewer mains have to be taken up or removed, the Contractor at his own expense, shall provide and maintain temporary outlets and connections for all private or public drains, sewer mains or sewer inlets. He shall also take care of all sewage and drainage which will be received from these drains, sewer mains and sewer inlets; and for this purpose he shall provide and maintain at his own expense, adequate pumping facilities and temporary outlets or diversions. He shall construct such trough, pipe or other structures necessary and be prepared at all times to dispose of drainage and sewage received from these temporary connections until such time as the permanent connections are built and in service. The existing sewer mains and connections shall be kept in service and maintained under the contract, save where specified or ordered to be abandoned by the Engineer. All water or sewage shall be disposed of in a satisfactory manner so that no nuisance is created and that the work under construction will be adequately protected.

600.4.6 – CLEANUP

After installation of each section of sewer line, the Contractor shall remove all spoils resulting from work, debris, construction materials and equipment from the site of work, grade, and smooth over surfaces on both sides of the line, and leave the right-of-way in a clean, neat, and serviceable condition prior to placement of permanent erosion control.

SECTION 610 - PIPE INSTALLATION

610.1 - DESCRIPTION

This section covers installation of pipes in open-cuts, in conformity with the lines, grades, and dimensions and as provided in applicable sections of these specifications.

610.2 – PIPE MATERIALS

610.2.1 - PIPE

Acceptable pipe materials and fittings shall meet the requirements of the appropriate sections listed below:

Pipe Type	Pipe Material	Section
Rigid	Vitrified Clay Pipe (VCP)	649
Flexible	Ductile-Iron Pipe (DIP)	650
	Polyvinyl Chloride (PVC) Pipe	652

610.2.2 - EMBEDMENT MATERIAL

General - Embedment material shall be 3/8-inch limestone screenings, or approved equivalent. Prior to delivery, the Contractor shall submit laboratory tests for materials to be used for embedment. Approval shall be issued by the Engineer prior to placement.

Invoices - The Contractor shall submit invoices for the purpose of complying with the minimum quantities necessary to complete installation pursuant to the appropriate standard details and the minimum dimensions specified.

610.4 – CONSTRUCTION METHODS

610.4.1 – BEDDING

Rigid Pipes - All rigid pipes shall be bedded a minimum of six (6) inches below the bottom of the pipe to the springline of the pipe (half the pipe diameter).

Flexible Pipes - All flexible pipes shall be bedded a minimum of six (6) inches below the bottom of the pipe to a minimum of six (6) inches above the top of the pipe.

610.4.2 - INSTALLATION REQUIREMENTS

Shipping, Handling and Storage - Pipe shall be transported from the plant, where it is manufactured, to the job site employing special methods of packaging to prevent damage to the pipe. After the pipe is received at the job site, it shall be carefully inspected for any damage that may have occurred in transit. The pipe shall be handled at all times with care using padded slings or hooks. The pipe shall not be dropped, skidded or rolled against pipe already on the ground. If any damage occurs to pipe, the pipe shall be rejected. All pipe and accessories shall be stored on flat, level ground with no rocks or other objects under the pipe. Gaskets for push-on joints and pipe shall be stored in cool location out of direct sunlight in accordance with the manufacturer's recommendations.

Quality of Work - Watertight joints, first grade material and accurate construction shall be required. Furthermore, utmost care shall be exercised in laying pipe to line and grade, constructing inverts in manholes, transitions, drop manhole connections and etc.

Pipe Foundation - No sewer shall be laid unless the foundation is in a condition satisfactory to the Engineer. Where trenches are excavated in soft, unsuitable soil, or rock, the trench bottom shall be stabilized as approved by the Engineer.

Laying Requirements - All pipes, specials, fittings and other appurtenances shall be examined carefully for damage and other defects before installation. The City retains the right to reject damaged and defective materials.

The pipe ends shall be free of all lumps, blisters and they shall be wiped clean of foreign materials such as dirt and sand before installation.

Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells uphill, using laser beams or other methods approved by the Engineer.

Bell holes for bell-and-spigot pipe shall be excavated at proper intervals so that the barrel of the pipe will rest for its entire length upon the bottom of the trench. Bell holes shall be large enough to permit proper installation of pipe. Bell holes shall not be excavated more than ten (10) joints ahead of pipe laying. Filling and ramming earth or other material beneath the pipe to raise it to grade shall not be permitted.

The Contractor shall use every precaution at all times during construction of the pipeline. All pipe, specials, fittings, and other appurtenances shall be lowered carefully into the trench with suitable equipment, to prevent damage to the sewer main materials. In rock trenches, plywood shields or other approved means shall be used to prevent the cradled pipe from swinging against the sides of the trench.

All joint preparation and joining operations shall comply with the instructions and recommendations of the pipe manufacturer and meet the joint requirements in the appropriate material section. For reinforced concrete pipe the position of the rubber gasket shall be checked with a feeler after each joint is completed. Rubber gaskets shall be positioned on the joint in accordance with the manufacturer's recommendations. Immediately before joints are pushed together, all joint surfaces shall be coated with the lubricant furnished with the pipe.

Any damage to the pipe, from any cause during installation of the pipeline shall be cause for replacement, as directed by the Engineer, and at the expense of the Contractor.

610.4.3 BACKFILLING

After a section of pipe is properly installed and approved for backfill, the trench shall be backfilled and compacted in accordance with the following.

A) Description - Backfill is that portion of the total trench from the top of the pipe embedment material to the top of natural or proposed ground line. The backfill material shall be only material approved by the Engineer consisting of loose earth, free of clods, stones, organic matter, debris or other objectionable materials. All backfilling shall be done in such a manner so as not to disturb or injure the pipe or structures over or against which it is being placed. Damaging or moving any pipe or structure from its proper line or grade during backfilling operations shall be cause for excavating, repairing and replacing backfill in a manner approved by the Engineer.

The placing of backfill material shall not begin until approval for so doing has been given by the Engineer, but backfilling about structures or portions of structures shall be done immediately when so ordered by the Engineer. The top surface or slopes of all backfill shall be neatly graded off where select topsoil, sod or other material is removed and piled separately; such material shall be carefully replaced in a manner satisfactory to the Engineer. The top twelve inches (12") of backfill material shall be of as good quality as the original topsoil that was removed.

B) Compaction Requirements - All backfill shall be placed and compacted in six inch (6") lifts for hand-tamped equipment and eighteen inch (18") lifts for self-propelled or power-driven equipment to the following minimum percent of Standard Proctor Density or Relative Density as determined by ASTM D-698, "Tests for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures". Cohesive backfill material shall reach the indicated compaction levels at plus or minus ($\pm$) three percent (3%) of optimum moisture content. The lift thickness shall be reduced, if necessary, to meet the compaction requirements specified herein.

General Location	Percent Compaction (%)
Under Traffic Area or Existing Improved Surfaces	95
Urban and Residential areas not under pavement	90
Undeveloped areas	85

610.6 – METHOD OF MEASUREMENT

Payment for "Sanitary Sewer Main" shall be made at the unit price bid per lineal foot of pipe installed for each size. The price established shall be full compensation for all materials including pipe, material, labor, tools, equipment and incidentals necessary to complete this item of work. Payment shall include the cost of trench excavation, backfill AND foundation material, unless noted otherwise.

Measurement for "Sanitary Sewer Main" shall be from station to station through manholes, junction boxes and other small structures.

610.7 - BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SANITARY SEWER MAIN (SIZE)

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 611 – SEWER SERVICE CONNECTION

611.1 – DESCRIPTION

This section covers construction of sewer service connections where called for on the plans or as directed by the Engineer.

611.2 – MATERIALS

611.2.1 – PIPE MATERIALS

Acceptable pipe materials and fittings shall meet the requirements of the appropriate sections listed below:

Pipe Type	Pipe Material	Section
Rigid	Vitrified Clay Pipe (VCP)	649
Flexible	* Ductile-Iron Pipe (DIP)	650
	Polyvinyl Chloride (PVC) Pipe	652

* Not to be used for wye branches but for risers only.

611.2.2 – CONNECTION TYPES

The following connection types may be required to make sewer service connections:

External Connections for New Construction

Wye Branches - For new construction there shall be installed wye branches of size and type shown on the plans with a minimum of four inch (4") openings at locations shown on the plans or as designated by the Engineer.

External Connections to Existing Main - Connections to existing main may be accomplished as follows:

Saddles - Connections may be made by excavating to the existing main and cutting a hole using approved equipment and installing a saddle. When existing main has been rehabilitated by a trenchless method of construction, the saddle connection shall be made to the trenchless pipe and/or liner.

Tees - Connections may be made by removing a section of the existing pipe and installing a tee.

Wye Branches - Connections may be made by removing a section of the existing pipe and installing a wye branch.

Fittings, riser, and closure assembly shall be used to make the connection and shall be supplied in a nominal diameter a minimum of four inches (4"). The external connections shall be considered complete when backfilling and subsequent surface restoration is completed.

Internal Connections (Reinstatements) – Shall not be allowed.

611.2.3 – RISER

General - Risers shall be connected to sewer pipe using standard wyes, tees or saddles. No services may be connected to sewer pipe that is twenty-one inches (21") and larger in diameter unless approved by the Engineer. Concrete encasement support and collar shall be required in all cases and constructed in accordance with the following schedule:

Pipe Nominal Size (inches)	Depth of Encasement (feet)	Width of Encasement (feet)	Length of Encasement (feet)
8	1.5	2.2	2.0
10	2.0	2.2	2.0
12	2.0	2.2	2.0
15	2.5	2.6	2.0
18	3.0	3.0	2.5

Riser Construction - Particular care shall be exercised in cutting the sewer pipe so that no damage is done to the pipe and its strength impaired by shattering or cracking of the pipe wall. The end of the fitting shall not protrude beyond the inside surface of the sewer main. The annular space around the fitting shall be completely filled and smoothly finished with concrete, as specified in Section 600.2. The backfill shall be thoroughly compacted under and above the pipe in the main sewer trench and up to at least the top of the concrete riser support. The backfill around the vertical pipe shall be carefully placed and tamped avoiding disturbance of the alignment of the pipe and damage to the joints. The vertical pipe shall be anchored to sewer trench wall with one-fourth inch (1/4") round hairpin bars.

A locator tape, green in color, and stating "CAUTION - SANITARY SEWER RISER PIPE BURIED BELOW" shall be attached to the sanitary sewer riser and extend to a minimum of two feet (2') above ground. The tape shall be three inch (3") width DuraTec as manufactured by THOR Enterprises, Inc. of Sun Prairie, Wisconsin or approved equal.

611.4 – CONSTRUCTION METHODS

General - All work shall be constructed in accordance with the Standard Details. Unless otherwise specified, sanitary sewer connections shall be installed so that a plane through the center of the branch and the centerline of the main sewer shall make an angle of forty-five (45°) degrees with the horizontal. A minimum of one (1) cubic foot of concrete shall be placed around each connection, the cost of which shall be included in other items.

Wye Branches - Sewer Service Connections constructed with wye branches shall include a one-eighth (1/8°) degree bend, elbow, and when required, a closure piece.

Tees - Sewer Service Connections constructed with tees shall include a one-eighth (1/8°) degree bend, and when required, an elbow and a closure piece.

Saddles - Sewer Service Connections constructed with saddles shall include straps, a one-eighth (1/8°) degree bend, and a closure piece.

611.6 – METHOD OF MEASUREMENT

Payment for "Sewer Service Connection" shall be made at the unit price bid for each external connection. The price established shall be full compensation for all material, labor, equipment, trench excavation, backfill, and incidentals necessary to complete this item of work.

Payment for "Riser Pipe" shall be made at the unit price bid per lineal foot of pipe for new sewer construction. The price established shall be full compensation for materials, labor, tools, equipment and incidentals necessary to complete this item of work.

Payment for "Riser Pipe" for replacement and/or rehabilitative sewer construction shall not be made directly, but shall be included in the cost for "Sewer Service Line".

611.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SEWER SERVICE CONNECTION

EA.

RISER PIPE

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 612 – SEWER SERVICE LINE

612.1 – DESCRIPTION

This section covers service lines for future or existing connections. The service line shall be installed to a point where an acceptable connection can be made to the existing service if necessary. Pipe shall be supplied in nominal diameter a minimum of four inches (4").

612.2 – MATERIALS

Acceptable pipe materials and fittings shall meet the requirements of the appropriate sections listed below:

Pipe Type	Pipe Material	Section
Rigid	Vitrified Clay Pipe (VCP)	649
Flexible	Ductile-Iron Pipe (DIP)	650
	Polyvinyl Chloride (PVC) Pipe	652

612.4 – CONSTRUCTION METHODS

The installation of a service line includes removing any cap or plug from existing riser, cutting and removing any existing service line, and reconnecting the riser and the existing service line if necessary.

612.6 – METHOD OF MEASUREMENT

Payment for "Sewer Service Line" shall be made at the unit price bid per lineal foot of pipe, including closure piece, and when required, adapters and other fittings. The price established shall be full compensation for all material, labor, tools, equipment and incidentals necessary to complete this item of work.

612.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SEWER SERVICE LINE

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 613 - DELETED

SECTION 614 – ABANDONING SEWER MAINS AND MANHOLES

614.1 – DESCRIPTION

Abandoning sewer mains shall include construction of embedment plugs and/or pressure grouting in order to control groundwater infiltration and/or to provide stabilized fill of the interior of the existing pipe. Other methods may be approved by the Engineer.

Embedment plugs shall be placed as near as practical to the nearest manhole on each end of the sewer main segment. The minimum length of embedment plugs shall be ten feet (10'), and shall extend six inches (6") below the bottom and above top of pipe at the accessible end of the pipe. Embedment Plugs shall be made using Controlled Low-Strength Material (CLSM), as specified in Section 701.19 of ODOT Standard Specifications for Highway Construction, 2009 Edition having a minimum twenty-eight (28) day compressive

strength of five hundred pounds per square inch (500 psi).

Pressure grouting: Design grout mix to be pumped through a 2-inch-diameter hose for a distance of 1000 feet, with a minimum pressure at point of placement of 10 psi. The cast density shall be 55 pcf plus or minus 5 pcf. Minimum penetration resistance after 24 hours shall be 100 psi in accordance with ASTM C 403. The minimum compressive strength at 28 days shall be 500 psi in accordance with ASTM C 495. Grout mix shall have less than 1 percent shrinkage by volume.

The application system shall have sufficient gages, monitoring devices and tests to determine the efficiency and effectiveness of the grouting work and to provide a means of accurately determining the amount of grout injected. Contractor shall be prepared to modify the operation should grouting not perform as proposed.

Sewer mains to be abandoned shall first be cleaned by jetting, flushing and/or vacuuming to the satisfaction of the Engineer.

Unless otherwise noted or approved by the Engineer, remove the top two feet of manholes to be abandoned and fill the remaining void with CLSM.

614.2 – MATERIALS

The materials shall meet the requirements listed above.

614.6 – METHOD OF MEASUREMENT

Payment for "Abandoning Sewer" shall be made at the unit price bid per cubic yard. The price established shall be full compensation for furnishing and placing all materials, labor, tools, equipment and incidentals necessary to complete this item of work.

614.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

ABANDONING SEWER

C.Y.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 618 – SEWER FLOW CONTROL

618.1 – DESCRIPTION

This section covers sewer flow control when necessary, to be completed in a manner approved by the Engineer.

618.2 – CONSTRUCTION METHODS

General - The line shall be completely blocked off and plugged and all flows shall be by-passed to the extent necessary or as required by the Engineer. In no event will an unpermitted bypass or overflow of the sanitary sewer system be permitted.

Plugging or Blocking - A sewer line plug shall be inserted into the line upstream of the section being worked. The plug shall be so designed that all or any portion of the sewage can be released.

Pumping and Bypassing - When pumping and bypassing is required the Contractor shall supply the pumps, conduits, and other equipment to divert the flow of sewage around the sewer main segment or manhole in which work is to be performed. The bypass system shall be of sufficient capacity to handle existing flow plus additional flow that may occur during a rainstorm. The Contractor will be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and bypassing system. If pumping is required on a twenty-four (24) hour basis, engines shall be equipment in a manner to keep noise to a minimum.

Flow Control Precautions - When flow in a sewer line is plugged, blocked, or bypassed; sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging.

Further, precautions must be taken to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewer mains involved. The Contractor shall be liable for damages resulting from sewer surcharge.

618.6 – METHOD OF MEASUREMENT

Payment for "Sewer Flow Control" shall be made at the unit price bid per lump sum. The price established shall include furnishing and operation of pumping and by-passing, labor, tools, and incidentals necessary to complete this item of work.

Plugging or blocking of the sewer flow shall be considered incidental to the work and shall not be considered for payment.

618.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SEWER FLOW CONTROL	L.S.
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Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 619 – CLEANING SEWER LINE

619.1 – DESCRIPTION

This section covers cleaning of existing sewer lines. The designated sewer manhole sections and the manholes themselves shall be cleaned using mechanical, hydraulically propelled and/or high velocity sewer cleaning equipment. Selection of the equipment shall be based on the condition of the sewer mains at the time the work commences. The equipment shall be capable of removing dirt, roots, sand, rocks, grease, and other materials from the sewer lines.

619.2 – EQUIPMENT

619.2.1 – APPROVAL OF CLEANING EQUIPMENT AND PROCEDURE

The Engineer shall approve the cleaning system and plan for each manhole section. The Contractor shall demonstrate the performance of the proposed cleaning equipment for use on the project. No work shall begin until the Engineer gives such time approval.

619.2.2 – MECHANICALLY POWERED CLEANING EQUIPMENT

Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of three hundred (300) feet of rod. The rod shall be heat-treated (tempered) steel. To ensure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

619.2.3 – HYDRAULICALLY PROPELLED CLEANING EQUIPMENT

Hydraulically propelled devices that require a head of water to operate shall utilize a collapsible dam to obtain the head. The dam shall be designed to easily collapse in the event of a sudden surcharge of the line to prevent damage to the sewer, property, etc. Sewer cleaning balls are acceptable for use only in sanitary sewer mains having a diameter of eighteen inches (18") or greater.

The movable dam shall be of equal diameter as the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure effective operation.

Whenever possible, flows present in the sewer lines shall be used to provide necessary fluid for hydraulic cleaning devices.

619.2.4 – HIGH-VELOCITY CLEANING EQUIPMENT

All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The

equipment shall have a selection of two (2) or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from fifteen (15°) degrees to forty-five (45°) degrees in all size lines designated to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel. Filler piping on the tank shall have an air cap to prevent backflow and contamination of water supply system.

619.4 – CONSTRUCTION METHODS

619.3.1 – CLEANING PRECAUTIONS

Satisfactory precautions shall be taken to protect the sewer lines from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning force or any tools which retard the flow of water in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to public or private property being served by the manhole section involved. Additionally, the Contractor shall not allow the overflow from sanitary sewer mains to enter storm sewer mains.

The Contractor, at no additional cost to the City, and to the satisfaction of the Engineer, shall repair any damage inflicted upon the sewer, regardless of the cleaning method used.

619.4.2 – ROOT AND DEBRIS REMOVAL

All roots shall be removed. Special attention shall be given during the cleaning operation to assure complete removal of roots from the joints. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners. Chemical root treatment may also be used.

When chemicals are used to aid in the removal of roots, the chemical shall be EPA registered and labeled for use in sewer lines and acceptable to all applicable State and City agencies.

All materials and mixing/application procedures for chemical root treatment shall be consistent with the latest standards, requirements, and recommendations of the manufacturer of the chemical root treatment material used.

All sludge, dirt, sand, rocks, grease, and other solid or semi-solid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. Passing of debris from manhole to manhole shall not be permitted.

When hydraulic cleaning equipment is used, a suitable sand trap, weir, or dam shall be constructed in the downstream manhole in such a manner that the solids shall be trapped.

All solids or semi-solids resulting from the cleaning operations shall be removed from the site and disposed of at no additional cost to the City. The City shall provide a dumpsite for all debris removed from the sewer mains during the cleaning operation.

Under no circumstances shall sewage or solids removed therefrom be dumped onto streets or into ditches, catch basins, storm drains, or sanitary sewer manholes.

619.5 – TESTING (CLEANING AND FINAL ACCEPTANCE)

Acceptance of sewer line cleaning shall be made upon the successful completion of the television inspection and shall be to the satisfaction of the Engineer. If television inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to clean and inspect the sewer line again until the cleaning is shown to be satisfactory.

619.6 – METHOD OF MEASUREMENT

Payment for "Cleaning Sewer Line" shall be made at the unit price bid per lineal foot of pipe regardless of size. The price established shall be full compensation for furnishing and operation of all equipment, labor, tools, and incidentals necessary to complete this item of work. No deduction shall be made for manholes.

619.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

CLEANING SEWER LINE

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 620 – BORING

620.01 – DESCRIPTION

This section covers furnishing of pipe by boring and casing as shown on the plans or specified.

Boring and casing consists of the initial installation of a steel casing pipe, installed mechanically, and with a suitable assembly designed to produce a smooth, straight shaft at the established line and grade. The pipe is then installed inside the casing pipe pursuant to the Standard Detail for Boring.

620.02 – MATERIALS

For casing pipe materials and submittal requirements, refer to section 654.

620.04 - CONSTRUCTION METHODS

A) General – Where pipe is required to be installed under railroad embankments, highways, streets, or other facilities by boring and casing, construction shall be made in such a manner that will not interfere with the operation of the railroad, street, highway, or other facility, and shall not weaken or damage any embankment or structure. During construction operations, barricades and lights to safeguard traffic and pedestrians shall be furnished and maintained, until such time as the backfill has been completed after which the barricades and lights shall be removed from the site.

The Contractor shall take proper precautions to avoid excavating earth or rock or shattering rock beyond the limits of excavation shown on the plans. All damages caused by the construction to either surface or subsurface structures, shall be repaired or replaced by the Contractor at his own cost and expense.

Suitable pits, shafts, or trenches shall be excavated for the purpose of conducting the boring and casing operations and for placing end joints of the pipe. Wherever end trenches are cut in the sides of the embankment or beyond it, such work shall be sheeted securely and braced in a manner satisfactory to the Engineer to prevent earth caving.

The removal of any obstruction that may be found to conflict with the placing of the pipe shall not be measured for payment nor paid for as a separate contract pay item. The removal of any such obstruction shall be included in the cost of other items.

Once the casing installation has commenced it shall be continued uninterrupted around the clock until the pipe has been installed between the specified limits.

Any pipe damaged during operations shall be removed and replaced by the contractor at his expense. The pits or trenches excavated to facilitate the operations shall be backfilled immediately after the pipe has been installed.

B) Boring Requirements - Work shall comply with the Standard Detail for Boring. The excavation and backfill for pits shall be as outlined in Section 610.

Boring without the concurrent installation of a casing pipe shall not be permitted, unless shown on plans or directed by the Engineer. All joints in casing pipe shall be welded. Casing pipe shall extend through the entire fill and be installed in a manner that shall not disrupt traffic nor damage roadway grade and surface. The introduction of water into the excavation shall be prohibited.

The size of the bored hole shall not exceed the outside diameter of the pipe bell or casing pipe more than one inch (1"). The use of water or other fluids in connection with the boring operation shall only be permitted

when approved by the Engineer.

Nothing contained herein shall be construed as relieving the Contractor from his responsibility for the safety of the work and for all damage to persons and property.

C) Skid Supports

Plastic or rubber skid supports, shall be used and fastened securely to the carrier pipe with steel strapping, cables or clamps. Use of petroleum products shall not be allowed as a lubricant to ease installation. Skid support spacing and position shall be in accordance with the Standard Detail for Boring.

D) Casing Pipe End Seals - Both ends of the casing pipe shall be sealed with a pull-on type EPDM, neoprene or comparable material flexible end seal manufactured for this purpose. End Seals shall be secured with stainless steel straps or clamps.

E) Filling Annular Space - The annular space between the sewer pipe and the steel casing pipe shall not be filled. Sewers under highway crossings shall include annular space vents meeting ODOT requirements.

620.06 – METHOD OF MEASUREMENT

Bored and cased pipe shall be measured by the lineal foot of pipe bored and cased. Payment shall be made at the unit price bid per lineal foot for each size. The price established shall be full compensation for furnishing and placing all materials including steel casing pipe, carrier pipe, grout or concrete, excavation and backfill, sheeting, shoring, bracing and drainage, disposal of all surplus materials, labor, tools, equipment, and incidentals necessary to complete this item of work

620.07 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

(PIPE SIZE) Bored/Cased..... L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 623 – DEFLECTION TEST

623.1 – DESCRIPTION

This section covers deflection tests intended to be performed on all flexible pipe installations.

623.5 – TESTING

All testing shall be observed by the Owner's Representative. The test shall be performed not less than thirty (30) days after backfill has been placed. The maximum allowable deflection shall not exceed five (5%) percent of the pipe's base internal diameter.

A mandrel (go/no-go) device cylindrical in shape shall be hand-pulled by the Contractor through all sewer mains. Any sections of pipe not passing the mandrel test shall be uncovered and the Contractor, at no additional cost to the Owner, shall replace the pipe to the satisfaction of the Engineer. The repaired sections shall be re-tested.

The Engineer shall approve the mandrel and the testing procedures. Proving rings furnished by the Contractor shall be used to verify the mandrel diameter.

623.6 – METHOD OF MEASUREMENT

Payment for "Deflection Test" shall be made at the unit price bid per lump sum for pipes smaller than twenty-four inches (24") and per lineal foot for pipes twenty-four inches (24") and larger in diameter. The price established shall be full compensation for all material, labor, tools, equipment and incidentals necessary to complete this item of work.

623.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

DEFLECTION TEST (< 24") L.S.

DEFLECTION TEST (>= 24") L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 624 – TELEVISION INSPECTION

624.1 – DESCRIPTION

This section covers closed-circuit television (CCTV) inspection of existing sewer lines and rehabilitated and newly constructed sewer lines.

The work shall consist of furnishing all labor, materials, accessories, equipment, tools, transportation, services and technical competence for performing all operations required to professionally execute the internal inspection of sewer mains in strict accordance with these specifications.

Information concerning depths of flow, manhole depths, air quality in the sewer mains, accessibility of manholes, traffic conditions, and other safety considerations are to be the sole responsibility of the Contractor to obtain and to incorporate the necessary provisions into the overall contract price to complete the specified work under the conditions existing in the sewer mains to be inspected.

For large-diameter sewer inspections, the Contractor may be required to submit sample video recordings from recently completed projects demonstrating the picture quality obtained with each available inspection system for pipe diameters twenty-seven inches (27") and larger.

All television testing shall be performed in accordance with guidelines published by the National Association of Sewer Service Companies (NASSCO) and as modified or specified in these specifications.

624.3 – EQUIPMENT

All television cameras used for inspection shall be color units specifically designed and constructed for the method of inspection performed. Camera(s) may be modified by mounting on conventional or floating skids, or rafts, for use in multiple-diameter, sewer line inspection work. Units shall have either automatic or remote focus and iris controls, and the complete system(s) shall be operable in conditions of hundred (100) humidity.

Lighting shall be suitable to allow a clear picture of the entire periphery of the main sewer pipe. For large-diameter twenty-seven inches (27") and larger] pipe, the camera lens shall have not less than a sixty-five (65°) degree viewing angle. A radial viewing camera with a three hundred and sixty (360°) degree vertical rotation and a two hundred and seventy (270°) degree horizontal rotation, or any combination of the two, may be required to properly evaluate the condition of the main sewer and laterals. Lighting shall operate in a manner that allows the viewed object to be illuminated no matter what the angle of the lens. For a radial viewing camera, the lighting shall be built into the unit so that the lamp(s) remains aligned with the lens. A minimum illumination of three (3) lux with a light color in the twenty-two hundred (2200°) to thirty-two hundred (3200°) degree Kelvin range shall be provided. Auxiliary lighting acceptable to the Engineer shall be provided for large diameter pipe. For diameters of sixty inches (60") and greater, a minimum of one million (1,000,000) candlepower lighting in the thirty-two hundred (3200°) degree Kelvin range shall be made available.

The Contractor shall be responsible for having the necessary camera skids, floats, and rafts available to allow for inspection of lines in a manner acceptable to the City under live flow conditions.

In all cases, the complete video system (camera, lens, lighting, cables, monitors and recorders) shall be capable of providing a picture quality acceptable to the Engineer, and if unsatisfactory, equipment shall be removed and no payment shall be made for unsatisfactory inspections.

624.4 – CONSTRUCTION METHODS

624.4.1 – GENERAL

The Contractor shall use one of the following methods individually or in combination, as approved by the Engineer:

Conventional color inspection cameras specifically designed for use in sewer line inspection work, mounted on conventional camera skids or tracks.

Conventional color inspection cameras specifically designed for use in sewer line inspection work, mounted on floating skids or rafts.

Special industrial grade, color-inspection cameras contained in waterproof housings, and mounted on floating skids or rafts

Special industrial grade, color-inspection cameras, either hand held or contained in waterproof housings, and carried manually through the sewer during inspection work.

624.4.2 – PROCEDURE

Pre-work Submittals for Inspection of Large Diameter Pipes - For pipes twenty-seven inches and larger, the Contractor shall submit a listing of actual measured flow depths and times of measurement at a sufficient number of locations to indicate the flow depths that could be expected during inspection work.

A prestart-up meeting shall be scheduled prior to beginning any internal pipe inspection work to review the Contractor's proposed inspection methods for each of the line section groupings. At that time, the Contractor shall have available the necessary flow depth data as well as the overall listing of proposed inspection methods in each area.

Remote Inspections - Remote pipe inspections shall be permitted in cases where conditions are, as determined by the Engineer, to be unsafe or impractical for manual inspections, and where acceptable picture quality can be obtained by the Contractor.

The main sewer shall be cleaned as directed by the Engineer and in accordance with Section 619 of grease, roots and debris that may hinder movement of inspection equipment through the lines. Major line obstructions that require point repairs are excluded.

The maximum flow depth for remote inspection work in pipes twenty-four inches (24") and less is twenty (20%) percent of the pipe diameter.

For large pipe diameters [twenty-seven inches and greater], the maximum flow shall be thirty (30%) percent of the pipe diameter. The contractor may be required to perform inspections during off-peak hours (night inspections) when specifically requested by the Engineer to obtain this flow standard.

No inspections shall be performed where flow depths exceed fifty (50%) percent of pipe diameter without prior approval of the Engineer.

Suspended moisture or fog in pipes shall be cleared with blowers. Filming shall commence only when the ambient temperature above ground is a minimum of forty (40°) degrees Fahrenheit.

CCTV inspection shall be done one manhole section at a time and the flow in the section being inspected shall be suitably controlled as specified in Section 624. The inspection shall proceed from one section to another starting either upstream or downstream and completing in that order for the entire line. When an obstruction prevents the camera from passing through the entire manhole section, the inspection shall be continued from the opposite manhole before proceeding to the next section.

The camera shall be moved through the line at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. The maximum speed of the camera shall not exceed thirty (30) feet per minute. Caution shall be taken to not linger in one spot allowing the heat generated from the unit to ignite roots, debris, etc.

The camera shall be moved through the line by conventional means of manual winches, power winches, television cable, and powered rewinds or other devices, which do not obstruct camera view or interfere

with proper documentation of the sewer conditions. In instances where manual or remote power winches are used to pull the camera through the sewer constant two-way communication shall be set up between the two manholes of the line being inspected.

Accurate and continuous footage readings shall be superimposed on the video recording for each line inspected by remote inspection methods. Also shown shall be the date of inspection and a manhole number designation that corresponds to the field logs for each manhole on the line section inspected.

When specified, a lateral sewer camera shall be employed to inspect up to twenty-five feet (25') of the lateral. The lateral camera launcher shall be brought into position by the main sewer television camera. Lateral sewer mains entering manholes shall be inspected with a mini push camera. Actual footage inspected shall vary depending on the condition of the pipe. Videotapes of laterals may be in black and white, and shall show a view of the lateral connection by the main sewer camera before showing the internal view of the lateral by the launcher.

The Contractor shall provide photographs developed from the television screen of problems revealed by the CCTV camera upon the request of the Engineer, as long as such photographing does not interfere with the Contractor's operations.

Manual (Walk Through) Inspections - Manual inspections shall be required in lines where conditions will allow the Contractor's inspection crew to safely walk through the sewer. In general, lines sixty inch (60") in diameter and larger, and having flow depths of less than twenty (20%) percent of the pipe diameter, shall be manually inspected as directed by the Engineer.

Inspection crews shall consist of two or more people. Blowers and exhaust fans shall be available to provide ventilation for the sewer line being inspected.

Manual pipe inspections shall be conducted in such a manner as to transmit the video signal to an aboveground viewing room to permit the Engineer to watch the inspection work live on a color monitor in the viewing facility. In addition, direct voice communication between the Engineer, the in-pipe inspection personnel, and the recording technician in the aboveground unit shall be maintained at all times during the manual inspection work. Video recording equipment shall also be located above ground in the inspection truck and accurate, continuous footage readings shall be superimposed on the video recording for permanent record. Camcorders shall not be permitted for use as the sole means of obtaining video records.

During manual inspections, the video camera shall be used to look up sidelines and laterals, whenever practical. Conditions noted in these sidelines and laterals shall be noted on the inspection logs and videotapes for the project.

During manual inspections, thirty-five (35mm) millimeter color photographs shall be obtained as instructed by the Engineer or as deemed necessary by the in-pipe technicians to document line conditions.

624.5 – DOCUMENTATION

Television Inspection Logs - Printed location records shall be kept by the Contractor and will clearly show the location in relation to an adjacent manhole of each infiltration point observed during inspection. In addition, other points of significance such as locations of building sewer mains, unusual conditions, roots, storm sewer connections, broken pipe, presence of scale and corrosion, and other discernible features will be recorded and a copy of such records shall be supplied to the Engineer. The video audio recording and written report of the condition of each lateral, if inspected, shall be included along with an identification number corresponding to main sewer log and approximate locations of any pipe defects.

If preliminary inspection occurs in conjunction with a rehabilitation or replacement project, no construction activities shall begin without prior review and subsequent approval by the Engineer of the work outlined in the submittals.

During large-diameter pipe inspections, the Contractor shall document in writing observed conditions and comments given about each sewer line. These field logs shall then be reviewed by the Contractor's technical staff, along with reviewing the associated video record, as a means of insuring that no defects or entries are omitted or incorrect, and as a means of gaining a second opinion as to the condition of

each sewer line. Edited field logs shall then be reprinted or typed for use in the final project reports. Detailed, one-page summaries shall also be prepared for each line section inspected, during the data review, presenting the Engineer's synopsis of the general line condition and the relative severity of observed defects. These summaries shall also be included in all field report copies immediately before each associated inspection report. Direct submittal of copies of the field technician's field logs, without this secondary review and summary pages, shall not be acceptable.

Five (5) complete copies of the final project reports shall be submitted to the City within fifteen (15) calendar days of completion of all field activities. One of the five (5) copies shall contain the original photos.

An overall summary narrative shall be provided in the final report describing the overall conditions found in each associated line section grouping and detailed summary tables shall also be compiled showing those lines where major and significant defects were located.

Original recordings, along with the required submittals, shall be forwarded to the Engineer upon completion of the inspection and shall become the property of the City.

Video Audio Recordings - A forward introduction sequence stating the time and date, location or segment number, depth, diameter, and pipe material for each length between manholes shall precede the recording of each line segment. The camera shall progress through the pipe indicating the beginning manhole and destination manhole as it marks the footage continuously. Should there be a need to access the line from the other direction, a new introduction track shall precede the setup, and the footage shall begin at zero.

The camera shall pause as it approaches a service so that the connection between pipe and service may be evaluated. The lens shall then rotate to display the interior of the service. The service inspection should reveal any roots, cracks, or capped risers.

Audio description shall accompany the visual. Operator's comments shall contain verbal verification of footage and condition of each service, and any defects or unusual conditions noted in the main. When television inspection is performed as a part of final examination for acceptance of project, it shall be performed after all the lines have been constructed and within twenty-four hours of conducting deflection test on a line. It shall be continuous and present each segment in the order laid out in the plans (e.g., Line A: station 0+00 to 4+00, station 4+00 to 8+00, Line B: station 0+00 to 3+00, etc.).

All recordings shall be DVD format or a format specified by the Engineer. Each tape shall be professionally labeled showing the Owner's name, project number, project location, the date(s), etc., lines recorded on the tape, and name of the Contractor. If the quality of the recordings is not satisfactory to the Engineer, the lines shall be rerecorded at the Contractor's expense.

Photographs - All photographs taken during manual, walk-through inspections shall be properly mounted and labeled on eight and one half by eleven (8½" x 11") inch paper for inclusion in the final project reports. One (1) copy of the final reports shall contain the original thirty-five (35) millimeter photos, on fully laminated pages, and the remaining requested copies shall contain copier of pages of these photos. The photo pages shall be presented immediately following the inspection report for the line section in which they were taken.

Photographs taken from the monitor for remote television inspections shall also be presented in the same manner as described above.

624.6 – METHOD OF MEASUREMENT

Payment shall be made for pre-construction inspection, when required for construction, and post construction inspection only. Unless separately specified, all other recording and/or photographs requested by the Engineer shall be considered incidental to the project and the cost included in the price for other items.

"Television Inspection" shall be measured along the stations, through manholes, junction boxes and other small structures. Payment for "Television Inspection (CCTV)" shall be made at the unit price bid per lineal foot of pipe regardless of size. The price established shall be full compensation for all

equipment, labor, materials, mobilization, demobilization, reverse setups, recordings, reports, photographs, and incidentals necessary to complete these items of work.

624.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

TELEVISION INSPECTION (CCTV)

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 625 – SEWER PIPE LEAKAGE TESTING

625.1 – DESCRIPTION

After backfilling has been completed, the Contractor shall conduct leakage tests as approved by the Engineer and shall submit the results of all testing to the Engineer. All tests shall be performed in the presence of the Owner's Representative.

Hydrostatic tests must use a two-foot head. The procedures listed in the *Handbook of PVC Pipe*, Uni-Bell PVC Pipe Association, 2001 may be used for PVC pipe. An air test result must assure a leakage limit equivalent to the hydrostatic test limit.

625.2– TESTING

If at any time the leakage between two adjacent manholes is observed and measured to exceed ten (10) gallons per inch of nominal pipe diameter per mile of sewer per day. The Contractor shall locate the leakage and shall make such repairs as are necessary to reduce the infiltration. The infiltration shall be measured under the direction of the Engineer by use of a weir or other suitable flow rate-measuring device furnished and installed by the Contractor.

For purposes of determining the maximum allowable leakage, manholes shall be considered as sections of pipe having an inside diameter equal to the diameter of the manhole times depth of the manhole.

The Contractor shall provide all necessary piping between the reach to be tested and the source of water supply, together with equipment and materials required for the tests. The methods used and the time of conducting the exfiltration tests shall be subject to the approval of the Engineer.

If the leakage in any reach exceeds the allowable maximum, the Contractor shall locate the leakage and shall make such repairs as are necessary for the pipe to pass testing. The pipe reach shall be retested after the leaks are repaired.

625.3. – METHOD OF MEASUREMENT

Payment for "Sewer Leakage Test" shall be made at the unit price bid per lump sum for pipes smaller than twenty-four inches (24") and per lineal foot for pipes twenty-four inches (24") and larger in diameter. The price established shall be full compensation for all material, labor, tools, equipment and incidentals necessary to complete this item of work.

625.4– BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SEWER LEAKAGE TEST (SIZE)

L.S. (<24")

SEWER LEAKAGE TEST (SIZE)

L.F. (>=24")

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 626 – SANITARY SEWER MANHOLES

626.1 – DESCRIPTION

This section covers construction of sanitary sewer manholes, zero (0') to six (6') feet deep. Manholes may be constructed of the following types at locations specified or directed by the Engineer:

- A) Precast Reinforced Concrete
- B) Cast-In-Place Non-Reinforced Concrete

626.2 – MATERIALS

626.2.1 – PRECAST REINFORCED CONCRETE MANHOLES

General - This specification covers construction of precast reinforced concrete manhole base sections, riser sections (walls) and appurtenances in accordance with ASTM C-478 Standard Specification for "Precast Reinforced Concrete Manhole Sections" and as modified herein.

Submittals - When requested by the Engineer, the Contractor shall submit the following, but not limited to, for review and approval.

- 1) Concrete cylinder compressive test results as per ASTM C-478.
- 2) Amount and detail layout of steel reinforcement as per ASTM C-478.
- 3) Type "D" Certification for the specified protective coating.
- 4) Daily log of applied protective coating per Part "J".
- 5) Affidavit of compliance with these specifications.

Types - Components of manholes shall be as follows:

- 1) Precast Risers and Grade Rings - Precast risers and grade rings shall be cylindrical type.
- 2) Precast Tops - Precast tops shall be of the following two types:
 - a) Concentric cone
 - b) Eccentric cone
- 3) Precast Base Sections - Base section types shall be as follows:
 - a) Base riser section and separate base slab with Mastic sealer.
 - b) Base riser section with integral floor and preformed socket to accept a rubber ring.

Sizes - The standard internal diameter of a manhole shall be four feet (4').

Dimensions - The manholes shall be constructed pursuant to the appropriate Standard Details for Pre-Cast Manholes.

Materials - All materials for construction of manholes shall be in accordance with Section 6 of ASTM C-478.

Design - Design including concrete properties, reinforcement type and grade, joints, manufacturing and physical requirements shall be in accordance with Section 7 to 10 of ASTM C-478.

Base slabs or floors shall have a minimum riser thickness of six (6") inches for diameters up to and including forty-eight (48") inches.

Manhole Steps and Ladders - Steps and ladders shall not be constructed unless otherwise directed by the Engineer. If called for, they shall conform to Section 13 of ASTM C-478.

Handling - All lifting holes shall be repaired with a mixture of cement and sand grout firmly packed.

Protective Coating - All inside surfaces (walls, bottom, and etc.) of pre-cast concrete manholes shall be shop coated with a total dry film thickness of not less than 8 mils of TNEMEC Series 69 Hi-Build Epoxoline II, or approved equal. The material manufacturer shall furnish an affidavit attesting to the successful use of their material as a lining for applications where sewage conditions are recognized as corrosive or otherwise detrimental to concrete. Coating materials shall be stored, mixed, applied and cured in accordance with guidelines set by the manufacturer.

For every manhole coated as required, a daily log shall be kept indicating the date, weather conditions, size and identification numbers of manholes coated, and number of gallons of coating applied to each manhole. The average number of gallons applied per manhole shall be equal to or exceed the manufacturer's recommended coverage rate for the coating.

Field Testing - When directed by the Engineer, a set of three cylinders, three (3") inches in diameter, shall be cut from randomly selected manholes. Testing shall be performed to verify compliance with the requirements of these specifications. Basis of acceptance for testing shall be in accordance with the appropriate ASTM requirements.

Acceptance - Acceptance of manhole structure shall be based on the conformance and performance of materials required in ASTM C478, and the Engineer's inspection of the installed product. The assessment shall include, but not be limited to, the Engineer's random plant inspections during production, the quantity and the placement of reinforcement, surface fractures and roughness, and the test results of compressive strength performed on cores and cured cylinders in accordance with Section 7 of ASTM C-497.

626.2.2 – CAST-IN-PLACE NON-REINFORCED CONCRETE MANHOLES

General - This specification covers construction of cast-in-place non-reinforced manholes consisting of plain concrete walls with brick masonry or precast grade ring at the surface and rings and covers (castings), shall be constructed in accordance with the dimensions and requirements of the standard details.

Types - Manholes may be constructed of the following three (3) types, when called for on the plans:

- 1) Concentric Manholes
- 2) Eccentric Manholes
- 3) Offset Manholes

Sizes - The standard manhole size shall be four (4') feet internal diameter.

Dimensions - The manholes shall be constructed pursuant to the appropriate Standard Details Cast-In-Place Concrete Manholes".

Materials - All materials for the construction of cast-in-place manholes shall be in accordance with the Material Specifications.

Protective Coating - Protective coating shall not be required unless otherwise called for on the plans or as directed by the Engineer.

Acceptance - Ready-mix concrete may be accepted on the basis of Type "E" Certification, provided that all applicable requirements are met, and that visual inspection at destination shows the workmanship and condition of the material to be satisfactory.

626.2.3 – MANHOLE INVERT AND BENCH

All loose materials shall be removed prior to shaping the invert. The invert shall be smooth, U-shaped, have a minimum depth of one half (1/2) pipe diameter and be channeled across the floor of the manhole using the materials specified herein to obtain the proper form and shape. The bench shall also be formed and built up with concrete approved by the Engineer. Additionally, all work shall comply with the appropriate "Standard Details for Precast Manholes" and the "Standard Details for Cast-In-Place Concrete Manholes".

For precast manholes, inverts and benches shall be formed and poured in place after manhole base and pipe sections are in place.

Materials used for invert or benches shall not be allowed to enter the sewer line. Finished benches shall be smooth and free of any defects that could cause the accumulation of debris.

626.3.4 – MANHOLE RING AND COVER

General - Cast iron rings, tops, covers, gratings and all cast iron fittings shall be sound, true to form and thickness and neatly finished and shall fit together in a satisfactory manner. Castings shall be clean, uniform and whole, and without blow or sand holes, deposits, hard spots, shrinkage, distortion or any other surface defects which would impair serviceability. Casting surfaces shall be smooth and well cleaned by shot blasting or other approved cleaning method. Plugging or filling of holes or other defects shall not be permitted. Parting fins and pouring gates shall be removed. Sharp edges resulting from fabrication shall be dulled by any acceptable method to ensure safety in handling. Casting shall conform to the requirements of the Standard Specifications for Grey Iron Fittings ASTM A-48, Class "30 B" for rings and "35 B" for covers and the appropriate Standard Details.

All rings and covers shall be accurately and carefully placed. All rings shall be bedded in a substantial layer of mortar, or a flexible ring seal, shall have a full bearing, and shall be set to the exact grade. Unless otherwise shown, the top of covers shall be flush with, or slightly above, the surrounding surface. When each cover is placed in any position on the ring, the side play shall not exceed one-eighth (1/8") inch in any direction. Wording and markings on covers shall be in accordance with the Standard Details.

Rings - Rings shall be manufactured in accordance with the Standard Details.

Covers -

- 1) General - Manhole covers shall be manufactured in accordance with the appropriate Standard Detail. Unless otherwise specified or directed by the Engineer, non-vented manhole covers shall not be used in the streets.
- 2) Coating - When called for on the plans or specified, the underside of all manhole covers shall be given one (1) coat of asphalt varnish after visual inspection and approval on the job site.

626.4 – CONSTRUCTION METHODS

Foundation - Manholes shall be constructed in a dry excavation. A crushed rock foundation mat shall be constructed under the manhole. The mat shall be a minimum of six (6) inches thick.

Backfilling - Backfilling for all manholes shall conform to the requirements of Section 610.

Manhole to Pipe Connection at Inverts - Manhole to pipe connections shall be made pursuant to manufacturer's recommendations and to the Standard Details. In addition, flexible gasket pipe seals shall be required where each pipe enters the wall of manholes. Where possible, the opening for each connecting sewer pipe shall be circular and match the diameter of the pipe. For manholes built over existing lines or for special conditions, horseshoe shaped openings shall be accepted. Flexible gaskets shall be ALoK, or an approved equal. The Engineer prior to construction shall approve the method and materials used for grouting any remaining annular space. Flexible pipe seals may be accepted on the basis of Type "D" Certification and a sample, provided that all applicable requirements are met, and that visual inspection shows the workmanship and condition of the material to be satisfactory. All material furnished under certification shall be tagged, stenciled, stamped or otherwise marked with a lot number, heat number, order number, or other appropriate identification which can be readily recognized and checked against the certification.

Finishing Manhole to Grade - The manhole ring and cover shall be adjusted to grade with concrete grade rings or course(s) of brick masonry.

Mortar shall be ASTM C270 Type M, composed of one volume Portland Cement, one volume of masonry cement and six volumes of sand. All brick shall be laid in a full bed of mortar and all joints shall be shoved joints completely filled with mortar. The joints on the inside face or exposed face of the masonry shall be rubbed full and cut as the brickwork is built up. The masonry shall be built up in level courses, true to line, grade and dimension. Bats shall be used only when necessary to close joints. All brick shall be thoroughly wet down immediately before being placed unless otherwise permitted by the Engineer. All work shall be completed and finished in a careful, workmanlike manner. Old brick masonry shall be thoroughly cleaned and wetted before joining new masonry thereto. Where a mortar coating is required it

shall have the minimum thickness shown on the plans, shall be troweled and re-troweled until a uniform, smooth and impervious surface is obtained.

All pipes that extend through masonry walls shall be tightly sealed in the wall with mortar throughout the circumference of the pipe. The mortar shall be pressed in and troweled off flush with the face of the wall.

626.5 – TESTING

626.5.1 - MANHOLE INSPECTION

After manhole construction has been completed, the manhole shall be visually inspected by the Engineer for acceptability. Visual inspection shall be done to check for leaks, thin spots, honey combs, voids, pinholes and conformance with these specifications.

626.5.2 - MANHOLE TESTING

Manhole testing shall be accomplished in accordance with Section 627.

626.6 – METHOD OF MEASUREMENT

Payment for "Sanitary Sewer Manhole" shall be made at the unit price bid. The price established shall be full compensation for excavation, backfill, crushed rock foundation, inverts and benches, walls and cones, ring and cover, protective coating, outside waterproofing when specified, removal of existing manhole when necessary or specified or called for on the plans, brick masonry or precast grade ring and all labor, materials, tools, equipment and incidentals necessary to complete this item of work.

626.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SANITARY SEWER MANHOLE

EA.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 627 – MANHOLE TESTING

627.1 – DESCRIPTION

This section covers testing of manholes when called for on the plans or specified. Manholes shall be tested, before acceptance, by either performing exfiltration or vacuum test. The Engineer shall determine which test shall be performed.

627.5 – TESTING

627.5.1 – HYDROSTATIC TESTING

All incoming and outgoing lines (including services) shall be plugged and the manhole filled with water up to the bottom of the manhole ring. If the water loss exceeds the maximum allowable as shown, the manhole shall be considered to have failed the test. The Contractor shall drain, perform the necessary repairs as directed by the Engineer, and then retest the manhole until it passes, all at no additional cost to the City.

Manhole Depth (feet)	Maximum Allowable Water Loss
< 8	One (1") inch over Five (5) minutes
> 8	One-eighth (1/8") inch per vertical Foot of depth over five (5) minutes

627.5.2 – VACUUM TESTING

All incoming and outgoing sewer and service lines shall be plugged, the plugs restrained and the vacuum tester head placed on the manhole ring and sealed. A vacuum of ten inches (10") Hg shall

then be drawn on the manhole and the time measured for the vacuum to drop to nine inches (9") Hg. The time measured shall be not less than 60 seconds.

627.6 – METHOD OF MEASUREMENT

No separate payment will be made for "Manhole Testing".

627.7 – BASIS OF PAYMENT

No separate payment will be made for "Manhole Testing".

SECTION 649 – VITRIFIED CLAY SEWER PIPE (VCP)

649.1 – DESCRIPTION

This section covers vitrified clay pipe and fittings intended to be used for the conveyance of sewage and industrial waste. Pipe may be supplied in sizes ranging from four (4") inches to forty-two (42") inches.

649.2 – MATERIALS

649.2.1 – SUBMITTALS

The Contractor shall submit the following:

- A) Type "A" Certification for pipes and Type "D" Certification for fittings shall be prepared by the manufacturer and shall consist of a certified copy of a report covering tests conducted by an approved laboratory. Tests performed shall be sufficient to determine the conformance of the material to the Standard Specifications. Such tests shall have been conducted on samples obtained from the lot or lots of material in the shipment.
- B) Tests results for Three-Edge Bearing Tests, Hydrostatic Tests, Joint Tests, Joint Leakage, Absorption, and Compressive Strength Tests.
- C) The Contractor shall submit three (3) copies of all submittals requested in this specification.

649.4 – CONSTRUCTION METHODS

649.4.1 – OPEN-CUT CONSTRUCTION

- A) **General** - All vitrified clay pipes and fittings shall be extra strength and conform to the requirements of the appropriate ASTM listed below or as modified herein.
 - 1) ASTM C-700, Standard Specification for "Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated.
 - 2) ASTM C-425, Standard Specification for "Compression Joints for Vitrified Clay Pipe and Fittings."
 - 3) ASTM C-12, Standard practice for "Installing Vitrified Clay Pipelines."

Minimum laying lengths shall not be less than five and one-half (5 ½') feet for pipes twelve (12") inches and smaller, and seven and one-half (7 ½') feet for pipes fifteen (15") inches and larger in diameter.

Pre-fabricated joints shall be of a type where the same resilient material is used both on the spigot end and the bell end of the pipe. Other type joints may be approved by the Engineer in writing, and shall similarly conform to the requirements of said ASTM C-425.

- B) **Maximum Depth of Cover** - The maximum depth of cover above top of the pipe shall not exceed the value shown in the table below. The maximum depth of cover for each pipe size is based on AASHTO HS-20 live loading, ordinary clay backfill with k_p of 0.130 and a unit weight of one hundred twenty (120 pcf) pounds per cubic foot, a design load safety factor of 1.30, Class "B" Bedding Installation, the maximum trench width, and the minimum required three-edge bearing strength, for each pipe size as specified in ASTM C-700.

TABLE 649.4.1 – Maximum Depth of Cover

Nominal Size (inches)	Minimum Three-Edge Bearing Strength (lb/ft)	Maximum Depth of Cover (feet)
4	2000	25
6	2000	25
8	2200	20
10	2400	18
12	2600	16
15	2900	15

649.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

649.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

VITRIFIED CLAY SEWER PIPE (VCP)(SIZE)

L.F

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 650 – DUCTILE IRON PIPE (DIP)

650.1 – DESCRIPTION

This section covers Ductile Iron Pipe (DIP) and fittings intended to be used for conveyance of sewage and industrial waste. Pipes may be supplied in sizes ranging from four (4) to sixty-four (64) inches in diameter.

650.2 – MATERIALS

650.2.1 – SUBMITTALS

The Contractor shall submit the following provided that all applicable requirements are met, and that visual inspection at destination shows the workmanship and condition of the material to be satisfactory.

- A) Type "A" Certification for pipe
- B) Type "D" Certification for elastomeric gasket
- C) Shop drawings of the pipe and joints
- D) Documentation of an ongoing manufacturer's quality control program

All material furnished under certification shall be tagged, stenciled, stamped or otherwise marked with a lot number, heat number, order number, or other appropriate identification which can be readily recognized and checked against the certification.

The Contractor shall submit six (6) copies of all submittals requested in this specification.

650.2.2 – GENERAL, FITTINGS

All ductile iron pipe and fittings shall conform to the requirements of the following ASTM Standards listed below or as modified herein.

- A) ASTM A-746, Standard Specifications for Ductile Iron Gravity Sewer Pipe
- B) B) AWWA C-111/ANSI A21.11, Rubber Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings
- C) AWWA C-150/ANSI A21.60, Thickness Design of Ductile-Iron Pipe

D) AWWA C-151/ANSI A21.61, Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lines Molds, for Water or Other Liquids

E) AWWA C-600, Installation of Ductile Iron Water Mains and Their Appurtenances

Pipe shall be provided on nominal lengths of twenty (20') feet. Pipe joints shall be push-on joints and comply with all applicable requirements of AWWA C-111/ANSI A21.11.

650.2.3 – COATING AND LINING

A) **Exterior Coating** - The exterior of ductile iron pipe, specials and fittings shall be coated with an asphaltic coating in accordance with ASTM A-746, Section 6.1. The coating shall have a minimum thickness of one (1) mil. The finished coating shall be smooth, continuous and strongly adherent to the pipe. Any damage to the outside coating during shipping, storage, handling and installation shall be field repaired with a fresh coating in accordance with the manufacturer's recommendations.

B) **Interior Lining** - Interior surfaces of pipe and fittings shall be lined with forty (40) mils of Virgin Polyethylene complying with ASTM D-1248 or Madison Polyurethane Lining, Corropipe II TX-5 Minute Number 17115, manufactured by Madison Chemicals, Inc., Canada, or an approved equal. The lining materials shall be compounded with a minimum of two (2%) percent carbon black to resist ultra violet rays.

650.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

650.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

DUCTILE IRON PIPE (DIP)(SIZE)

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 652 – POLYVINYL CHLORIDE (PVC) PIPE

652.1 – DESCRIPTION

This section covers polyvinyl chloride (PVC) pipe and fittings intended to be used for conveyance of sewage and industrial waste.

652.2 – MATERIALS

652.2.1 – SUBMITTALS

Submittals shall be furnished in accordance with Section 650.2.

652.2.2 – SOLID WALL (PVC)

All solid wall PVC pipe and fittings shall conform to the requirements of the appropriate ASTM listed below or as modified herein.

A) **ASTM D-3034** - Standard Specification for "Type PSM Poly (Vinyl Chloride) (VC) Sewer Pipe and Fittings". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch and a minimum SDR of thirty-five (35). Pipe and fittings may be supplied in sizes ranging from four (4") inches to fifteen (15") inches in diameter.

The pipe shall be made of PVC plastic having a cell classification of 12454-B or 12454-C or 12364-C or 13364-B (with minimum tensile modulus of 500,000 psi) as defined in ASTM D- 1784. The fittings shall be made of PVC plastic having a cell classification of 12454-B, 12454- C, or 13343-C as defined in ASTM D-1784.

Elastomeric Gasketed Joints shall be used to provide a watertight seal and shall meet the requirements of ASTM D-3212.

- B) **ASTM F-679** - Standard Specification for "Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch and a minimum SDR of thirty-five (35). Pipe and fittings may be supplied in sizes ranging from eighteen (18") inches to thirty-six (36") inches in diameter.

The pipe and fitting materials shall be made of PVC plastic having a minimum cell classification of 12364-C or 12454-C as defined in ASTM D-1784. Homopolymer PVC compounds must equal or exceed the requirements of the above listed minimum cell classification number.

Integral Bell Gasket Joint shall be used to provide a watertight seal and shall meet the requirements of ASTM D-3212.

- C) **ASTM F-789** - Standard Specification for "Type PS-46 Poly (Vinyl Chloride) (PVC) Plastic Gravity Flow Sewer Pipe and Fittings". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch. Pipe and fittings may be supplied in sizes ranging from four (4") inches to eighteen (18") inches in diameter.

The pipe shall be made of PVC plastic having a minimum cell classification of 12164-B as defined in ASTM D-1784. The fittings shall be made of PVC plastic having a cell classification of 12454-C or 13343-C as defined in ASTM D-1784.

Elastomeric Gasketed Joints shall be used to provide a watertight seal and shall meet the requirements of ASTM D-3212. Joints shall also be compatible to ASTM D-3034 joint dimensions.

652.2.3 – PROFILE WALL (PVC)

All profile (open or closed) wall PVC pipe and fittings shall conform to the requirements of the appropriate ASTM listed below and modified herein. Regardless of size, open profile wall pipes will be allowed only on sections of pipe when there are no apparent service connections. Otherwise, open profile wall pipe will not be allowed.

- A) **ASTM F-794** - Standard Specification for "Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch. Pipe and fittings may be supplied in sizes ranging from twelve (12") inches to forty-eight (48") inches in diameter.

The pipe and fittings shall be made of PVC plastic having a minimum cell classification of 12454-B or 12364-C as defined in ASTM D-1784.

Gasketed Joint Systems shall be used. The integral bell gasketed joint, coupling or fitting joints shall be designed so that when assembled, the gasket will be compressed radially on the pipe spigot or in the bell to form a watertight seal. The joints shall be designed to comply with and show no leakage when tested in accordance with ASTM D-3212.

The pipe shall be made of PVC plastic having a minimum cell classification 12454-B or 12454-C as defined in ASTM D-1784. The fittings shall be made of PVC plastic having a cell classification of 12464-B, 12464-C, or 13343-C as defined in ASTM D-1784.

Elastomeric Gasketed Joints shall be used to provide watertight seal and shall meet the requirements of ASTM D-3212.

652.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

652.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

POLYVINYL CHLORIDE (PVC) (SIZE)

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.

SECTION 654 – STEEL CASING PIPE

654.1 – DESCRIPTION

This section covers steel pipe intended to be used as a carrier pipe for sanitary sewer aerial crossings or casing pipe for boring and micro and small diameter tunneling installations.

654.2 – MATERIALS

654.2.1 – SUBMITTALS

When requested, the Contractor shall submit the following, provided that all applicable requirements are met, and that visual inspection at destination shows the workmanship and condition of material to be satisfactory.

- A) Type "A" certification for pipe and coating
- B) Shop drawings of pipe, joints and seams
- C) Documentation of manufacturer's on-going quality control program.

654.2.2 – GENERAL

- A) General - Steel pipe shall conform to ASTM A-139, Standard Specification for Electric-Fusion (ARC)-Welded Steel Pipe (NPS 4 and Over). The steel material shall be new, smooth wall, carbon steel, Grade B, with minimum sixty thousand (60,000 psi) pounds per square inch tensile strength, and minimum thirty-five thousand (35,000 psi) pounds per square inch yield strength.

The pipe shall be straight seam pipe, seamless pipe, or spiral weld pipe. For spiral weld pipe, the spiral shall be one hundred (100%) percent welded, and the weld's height over the outside wall surface shall be equal to or less than three-sixteenths (3/16") inch. All steel pipe shall be square cut and shall have a roundness such that the difference between the major and minor outside diameters shall not exceed one (1%) percent of the specified nominal outside diameter or one-fourth (1/4") inch, whichever is less. The outside circumference must be within plus or minus ($\pm$) one (1%) percent of the nominal circumference or within plus or minus ($\pm$) one-half (1/2") inch, which is less. The pipe shall have a maximum allowable straightness deviation in any ten (10') foot length of one-eighth (1/8") inch. Steel pipe joints shall be continuously welded with an approved butt weld. The welds shall attain the full strength of the pipe and shall result in a fully watertight section. The welded joints shall conform to the requirements of AWWA C-206.

B) Boring Installations

- 1) Casing Pipe Size - Steel casing pipe shall have the following suggested inside diameters:

Pipe Nominal Size (inches)	Casing Pipe Inside Diameter (inches)
4	8 to 10
6	10 to 12
8	14 to 16
10	16 to 18
12	18 to 20
15	20 to 22

- 2) Casing Pipe Thickness - Steel casing pipe shall have a minimum wall thickness of 3/8 inch, unless special conditions required by Railroads for railroad crossings apply.

654.2.4 – EXTERIOR PROTECTIVE COATING

Exposed exterior surfaces shall have protective coating, shop applied coal-tar enamel, conforming to the requirements of AWWA C-203. The coating thickness shall be forty (40) mils, applied in two (2) coats.

654.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

654.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

STEEL CASING PIPE (SIZE)

L.F.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools and incidentals, and for performing the work in accordance with these specifications.



Chickasha Municipal Authority, Oklahoma

RFP CMA-2301 SPECIAL PROVISIONS

SPECIAL PROVISIONS
RFP CMA-2301
SANITARY SEWER MAIN REPLACEMENT

I. GENERAL

- A. These Special Provisions are supplemental to the General Provisions and shall be considered as a part of the specifications and contract. In case of conflict between the stipulations of the Special Provisions and the specifications, plans, or general provisions, the Special Provisions shall take precedence and govern. The Owner's Representative shall make interpretation of the plans and specifications.
- B. The Contractor's work consists of furnishing all tools, labor, plant, equipment, materials, and performing all work necessary for the complete construction of all improvements shown on the plans in strict accordance with the plans and specifications.
- C. It is the intent of these plans and specifications to prescribe a complete work and improvement. Where items of work are necessary for the satisfactory completion of the improvement, for which specific contract prices are not provided in the proposal and contract, then such work shall be considered incidental to the main construction and any costs involved shall be reflected in such other prices as are provided.
- D. The successful bidder shall furnish Performance Bond, Statutory Bond, and Maintenance Bond each in the amount of 100 percent of the contract, in accordance with Oklahoma Statutes.
- E. Waiver of Legal Rights. Inspection by the Owner's Representative or by any the duly authorized representative(s) of the Owner's Representative or any order, measurement or certificate by the Owner's Representative of any work or any extension of time or any possession taken by the Owner shall not operate as a waiver of any provisions of the contract or any power therein provided. Any waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach. The Owner reserves the right to correct any error that may be discovered in any estimate that may have been paid and to adjust the same to meet the requirements of the contract and specifications. The Owner reserves the right to claim and recover by process of law sums as may be sufficient to correct any error or errors or make good any deficiency in the work resulting from such error or deficiency, dishonesty, or collusion discovered in the work after the final payment has been made.
- F. Subletting of Contract. The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract or Contracts or any portion thereof, or any of his rights, title, or any interests therein, without written consent of the Owner.
 - (a) Requests for permission to sublet, or otherwise dispose of any portion of the Contract work shall be in writing and accompanied by a statement showing that the organization which will perform the work is particularly experienced and equipped for such work. No Subcontracts, or transfer of Contract, shall in any case release the Contractor of his liability under the Contract and bonds.

(b) Should the Contractor assign any of his right title or interest in the Contract said assignment shall be made only with the full knowledge and written consent of the Surety. It is specifically understood that a violation of this Subsection will constitute an act of default on the part of the Contractor.

- G. Purchases made for this project will not be exempt from sales taxes and use taxes.
- H. The General Provisions contained herein and these Special Provisions shall govern the work.

Oklahoma Department of Environmental Quality rules and regulations, Oklahoma Department of Transportation Utility Permit Regulations and City of Chickasha/Chickasha Municipal Authority standards and specifications shall govern Sanitary Sewer Main Replacement.

II. MATERIALS SUBMITTAL

The Contractor shall submit two (2) copies of detailed descriptive (and completely legible) information, concrete mix designs, asphalt mix designs, aggregate gradations, reinforcing steel bar lists and mill test reports, catalog cuts, certifications, etc., of all material items he proposes to use on this project. Submittals are due when the Notice to Proceed is issued. Revised submittals are due two weeks prior to use of the material. Submittals shall be presented in the order in which they are specified, i.e., by section number, followed by items described on the drawings. Identifying marks shall be used on descriptive sheets, certifications and catalog cuts to indicate exactly which item is being presented for approval.

III. SUBSTANTIAL COMPLETION AND FINAL COMPLETION

- A. SUBSTANTIAL COMPLETION. The intent of this term is to imply complete use of the facility by the Owner during the construction period.
- B. FINAL COMPLETION. The project shall be completed in accordance with the number of Calendar Days as stated in the proposal and contract.

IV. DISPOSAL OF WASTE MATERIALS AND CLEAN-UP

- A. All waste materials shall become Contractor property to be disposed of in a manner approved by the Owner's Representative. The Owner reserves the right to claim selected items that are determined to have potential value to the City, and will instruct the Contractor as to their disposition. The Contractor shall provide transportation for disposition of all waste materials regardless of their destination.
- B. Before the project is accepted by the Owner, the area must be cleaned of all foreign materials such as rock, wood, etc. that could be picked up by mowers. The Owner's Representative and the Contractor shall make a thorough inspection of the area before final inspection of the project is made. Failure of the Contractor to clean up the jobsite could delay final inspection and thereby delay final payment on his contract. The cleaning up of the project work area is incidental to all other work involved, and no separate

payment for this work will be made.

- V. The Owner reserves the right to consider alternative proposals submitted in writing by responsive bidders.
- VI. Only 11" x 17" size plans shall be issued for this project.
- VII. The Oklahoma Department of Environmental Quality Permit-to-Construct SL000026190693 issued on September 11, 2019 for this project, copy of which is included at the end of these Special Provisions, is hereby incorporated into the Contract Documents by reference.
- VIII. The Oklahoma Department of Transportation Work Order issued on May 6, 2019 for this project, copy of which is included at the end of these Special Provisions, is hereby incorporated into the Contract Documents by reference.
- IX. AS-BUILT DRAWINGS

As-built drawings are the marked-up drawings, maintained by the Contractor on-site, that depict actual conditions and deviations from the Contract Documents. Maintain the as-builts throughout construction as red-lined hard copies on site. Submit As-built drawings prior to issuance of final payment.

Show on the as-built drawings the following information:

- A. The actual locations of manholes and cleanouts by dimensioning along the utility run from a reference point.
- B. Actual slopes of sanitary sewer mains and elevations of manholes if any changes were made from contract plans.
- C. Unusual or uncharted obstructions that are encountered in the contract work area during construction.
- D. Any other deviations from the contract drawings.

END OF SPECIAL PROVISIONS

Public Works

From: geocall@callokie.com
Sent: Monday, January 9, 2023 10:52 AM
To: Public Works
Subject: OKIE811 Locate Request - 23010910511998 - Normal

S00859 -- 7 -- OKOCS -- 01/09/2023 10:51 -- 23010910511998 -- Normal

OOCSI LOCATE REQUEST

Ticket Number: 23010910511998 Old Ticket Number:
Message Type: Normal Lead Time: 93
Prepared: 01/09/23 at 10:51 By: acook

Excavator

Name: CRADDOCK FENCE Phone: (405) 222-1616
Address: 314 FLORIDA ST
City: CHICKASHA State: OK Zip: 73018
Caller: PAULA CRADDOCK Phone: (405) 833-9339 Ext:
Email:
Contact: PAULA CRADDOCK Phone: (405) 833-9339 Ext:
Add'l Callback: Email:

Work

To Begin: 01/13/23 at 08:00 State: OK
County: GRADY Place: CHICKASHA
Address: 3240 Street: CALIFORNIA AVE
Cross Street: S 33RD ST
Latitude: 35.027876 Longitude: -97.974356
Secondary Latitude: 35.028649 Secondary Longitude: -97.97338
Work Type: Fence/Gate Done For: HOMEOWNER Extent: 12/16/2023
Job Number:

Location Information

FENCE/GATE -- REPLACEMENT -- -- LOC BACK AND SIDES --

Explosives: N White Paint: N Access Issues: N
Directional Boring: N Multiple Ticket: N

Grids

07WI06N06NE

Utilities Notified

Code	Name	Code	Name
T11158	AT&T Distribution T11158	S00153	Public Services of OK/A...
T10851	USIC/Suddenlink/Chickas...	T10656	Norge Water & Sewer T10656
S00859	Chickasha City of S00859	S00982	OEC Fiber S00982
SUOLA02	Summit Utilities Duncan...		

CHICKASHA MUNICIPAL AUTHORITY

PLAN OF PROPOSED SANITARY SEWER MAIN INSTALLATION TO ACCOMMODATE

US 81 HIGHWAY REALIGNMENT

CMA-2301



PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK, THE CONTRACTOR SHALL CALL OKIEB11, THE OKLAHOMA ONE-CALL SYSTEM NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.

KEITH JOHNSON
GENERAL MANAGER

JIM CROSBY
PUBLIC WORKS DIRECTOR

INDEX OF SHEETS

SHEET NUMBER	SHEET TITLE
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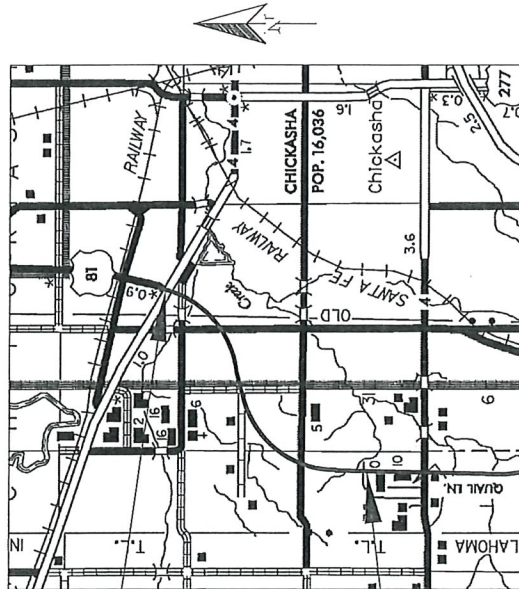
1	TITLE SHEET
2	PAY ITEMS AND NOTES
3	PLAN AND PROFILE
4	SURVEY DATA
SSM1	SANITARY SEWER MAIN DETAILS
SSM2	SANITARY SEWER MAIN DETAILS
SSM3	SANITARY SEWER MAIN DETAILS
SSM4	SANITARY SEWER MAIN DETAILS
USPR	UTILITY CUT PAVEMENT REPAIR
PCPR 3.4	P.C. CONCRETE PAVEMENT REPAIR DETAILS

PROJECT LOCATION

JCT US62/US81

PROPOSED
US81 HWY
REALIGNMENT
(BY OTHERS)

PROJECT LOCATION LIES WITHIN THE CORPORATE
LIMITS OF THE CITY OF CHICKASHA.



LOCATION MAP

CITY OF CHICKASHA/CHICKASHA MUNICIPAL AUTHORITY STANDARDS AND SPECIFICATIONS, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY RULES AND REGULATIONS AND OKLAHOMA DEPARTMENT OF TRANSPORTATION UTILITIES POLICIES, ODOT-APPROVED UTILITY RELOCATION PROPOSALS AND DETAILS PROVIDED HEREIN SHALL GOVERN THE WORK.

NOTE: ALL SURVEY INFORMATION IS
BASED ON INFORMATION PROVIDED
BY ODOT, AND SUPPLEMENTED BY
SECTION 37 SURVEYING MAPPED.

DATE APPROVED BY CHICKASHA MUNICIPAL AUTHORITY

DRAFT FINAL DRAWINGS
NOT APPROVED
FOR CONSTRUCTION

DATE RANDALL SCOTT VAUGHN, OKLA. REG. NO. 15194

PREPARED BY:



CHISHOLM TRAIL CONSULTING, LLC
OKLA. REG. NO. 7771
2124 SCOTT LANE
DUNCAN, OK 73533
580-467-8130

GENERAL CONSTRUCTION NOTES

ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF CHICKASHA STANDARD SPECIFICATIONS, ODEQ REGULATIONS, OKLAHOMA DEPARTMENT OF TRANSPORTATION UTILITY RELOCATION REQUIREMENTS AND THE CONSTRUCTION DRAWINGS.

ALL COSTS OF MAINTENANCE DURING CONSTRUCTION AND BEFORE THE PROJECT IS ACCEPTED SHALL BE INCLUDED IN THE UNIT PRICES BID ON THE VARIOUS PAY ITEMS. THE CONTRACTOR SHALL MAINTAIN THE WORK DURING CONSTRUCTION AND UNTIL THE PROJECT IS ACCEPTED. THIS MAINTENANCE SHALL CONSTITUTE CONTINUOUS AND EFFECTIVE WORK PROSECUTED DAY BY DAY, WITH ADEQUATE EQUIPMENT AND FORCES TO THE END THAT THE WORK SITE, PRIVATE PROPERTY AND STRUCTURES ARE KEPT IN A SATISFACTORY CONDITION AT ALL TIMES. IF THE CONTRACTOR, AT ANY TIME, FAILS TO COMPLY WITH THESE PROVISIONS, THE OWNER'S REPRESENTATIVE MAY IMMEDIATELY NOTIFY THE CONTRACTOR OF SUCH NON-COMPLIANCE. IF THE CONTRACTOR FAILS TO REMEDY UNSATISFACTORY MAINTENANCE WITHIN 24 HOURS AFTER RECEIVING NOTICE, THE OWNER MAY IMMEDIATELY ORDER MAINTENANCE TO BE PERFORMED AND THE ENTIRE COST OF THIS MAINTENANCE WILL BE DEDUCTED FROM MONIES DUES OR BECOME DUE TO THE CONTRACTOR ON THIS CONTRACT.

THE CONTRACTOR SHALL NOTIFY THE CITY OF CHICKASHA IN WRITING A MINIMUM OF TWO WEEKS AND NO MORE THAN 30 DAYS PRIOR TO STARTING WORK.

THE CONTRACTOR SHALL NOTIFY THE CITY OF CHICKASHA IN WRITING A MINIMUM OF FIVE (5) DAYS AND A MAXIMUM OF TEN (10) DAYS PRIOR TO THE CLOSING OF ANY CITY STREET OR ROAD, INCLUDING LANE CLOSURES.

THE PROJECT SHALL BE COMPLETED WITHOUT CLOSING ANY PORTION OF US HIGHWAY 62 OR US HIGHWAY 81 TO TRAFFIC. CONSTRUCTION TRAFFIC CONTROL SHALL BE INSTALLED ON US HIGHWAY 62 AND ON US HIGHWAY 81 TO INDICATE THAT UTILITY WORK IS TAKING PLACE IN ACCORDANCE WITH ODOT REQUIREMENTS.

CONTRACTOR SHALL GIVE WRITTEN NOTICE TO ALL RESIDENTS, OCCUPANTS OR BUSINESSES THAT MAY BE AFFECTED BY THE WORK. SAID WRITTEN NOTICE SHALL BE DELIVERED NO LESS THAN 48 HOURS, NOR MORE THAN 2 WEEKS PRIOR TO THE START TIME OF ANY DISRUPTION. THE WRITTEN FORM MAY BE "DOOR HANGERS", BUT IN ANY EVENT SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO USE. AT A MINIMUM, THE FORM SHALL CONTAIN: PROJECT IDENTIFICATION, CONTRACTOR NAME, CONTRACTOR ADDRESS, CONTRACTOR TELEPHONE NUMBER, TYPE OF CONSTRUCTION, REASON FOR AFFECTING OR DISRUPTING SERVICE AND DURATION OF SUCH.

REVISIONS PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION SUBJECT TO THE REVISION.

IN THE EVENT ANY PORTION OF A PUBLIC STREET IS CLOSED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING AND MAINTAINING ALL TRAFFIC CONTROL DEVICES. CONSTRUCTION TRAFFIC CONTROL SHALL BE DONE ACCORDING TO THE STANDARDS SET FORTH IN THE CURRENT EDITION OF THE "MUTCD", "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE ADEQUATE DRAINAGE DURING CONSTRUCTION. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

ANY DAMAGE CAUSED BY THE CONTRACTOR TO ANY STRUCTURES, PARKING AREAS, ROADWAY SURFACES, STRIPING, RAISED PAVEMENT MARKERS, SIGNS, GUARDRAIL, SLOPES OR OTHER FEATURES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

THE PROJECT SHALL BE CONSTRUCTED TO MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES.

GENERAL CONSTRUCTION NOTES (CONT.)

THE DRIVEWAY AT 412+34 MAY BE LIMITED TO ONE LANE OF TRAVEL FOR A MAXIMUM AGGREGATE TIME OF 10 CALENDAR DAYS. CONTRACTOR SHALL COORDINATE THIS WORK WITH THE OWNER OF THE CHICKASHA TRUCK PLAZA. CONTRACTOR SHALL INSTALL AND MAINTAIN APPROPRIATE TRAFFIC CONTROL DEVICES DURING THE WORK.

BIDDERS SHALL FULLY INFORM THEMSELVES OF THE NATURE OF THE WORK AND CONDITIONS UNDER WHICH IT WILL BE PERFORMED. THE CONTRACTOR SHALL ADOPT METHODS CONSISTENT WITH GOOD CONSTRUCTION PRACTICE AND TAKE NECESSARY PRECAUTIONS TO PREVENT DAMAGE IN EXISTING RIGHT-OF-WAY. ANY DAMAGE DONE DUE TO CONTRACTOR'S NEGLIGENCE SHALL BE PREPARED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

THE PRICE BID ON ALL ITEMS SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS.

EXISTING UTILITIES MAY OR MAY NOT BE SHOWN ON PLAN SHEETS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INFLECTED TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF THEIR DIGGING, TRENCHING, BORING, ETC., PRIOR TO DIGGING NEAR THE UTILITIES. THE CONTRACTOR SHALL CALL THE "OKIE 811" NOTIFICATION CENTER FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION. THE "OKIE 811" NOTIFICATION CENTER MAY BE NOTIFIED ONLINE AT okie811.org, BY CALLING 811 OR 1-800-522-6543. DEPTH OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

ALL BIDDERS AND THE SUCCESSFUL CONTRACTOR ARE HEREBY ADVISED THAT OTHER WORK TO RELOCATE UTILITIES MAY BE TAKING PLACE WITHIN THE EXISTING RIGHT-OF-WAY DURING CONSTRUCTION OF THIS PROJECT.

SANITARY SEWER MATERIALS AND INSTALLATION SHALL MEET THE REQUIREMENTS OF OKLAHOMA ADMINISTRATIVE CODE 252-656 AND THE SPECIFICATIONS AND DETAILS PROVIDED.

AREAS EXCAVATED WITHIN ODOT RIGHT-OF-WAY UNDER THE PROPOSED ROADBED SHALL BE BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM), MEETING THE REQUIREMENTS OF ODOT SPECIFICATIONS. ALL OTHER AREAS WITHIN ODOT RIGHT-OF-WAY SHALL BE BACKFILLED WITH NATIVE SOIL AND COMPACTED TO A CONDITION EQUAL TO THE ADJACENT SOIL, AS DIRECTED BY THE ODOT RESIDENT ENGINEER.

PAY ITEM NOTES (CONTINUED):

(10) PAY ITEM IS FOR REPLACEMENT OF EXISTING CONCRETE PAVEMENT AND CURB FROM APPROXIMATE STATION 412+10 TO 412+40. REFER TO DRAWINGS FOR DETAILS.

(11) PAY ITEM IS FOR REMOVAL OF EXISTING LIGHT POLE AND FOR RELOCATING SAME OUTSIDE OF THE PROPOSED EASEMENT. UNIT PRICE BID WILL INCLUDE ALL COST OF MATERIALS, LABOR AND EQUIPMENT FOR FOOTINGS, ELECTRICAL WIRING AND REUSE OF EXISTING LIGHT POLE.

(12) PAY ITEM IS FOR INSTALLATION, MAINTENANCE AND REMOVAL UPON COMPLETION OF NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH ODOT REQUIREMENTS AND MUTCD REQUIREMENTS.

PAY ITEM	PAY ITEM DESCRIPTION	UNITS	EST QTY
SUMMARY OF QUANTITIES			
1	14" DIP SANITARY SEWER MAIN, BY TRENCHING	(1) LF	710
2	14" DIP SANITARY SEWER MAIN, BORED/CASED	(2) LF	400
3	SANITARY SEWER MANHOLE, INSTALLED	(3) EA	4
4	CONTROLLED LOW STRENGTH MATERIAL	(4) CY	220
5	SEWER FLOW CONTROL	(5) LSUM	1
6	ABANDON SEWER MAIN (INCL. PLUG AND GROUT)	(6) CY	38
7	LEAKAGE TESTING	(7) LSUM	1
8	DEFLECTION TESTING	(8) LSUM	1
9	DEMOLITION/REMOVALS	(9) LSUM	1
10	P.C. PAVEMENT REPAIR	(10) SY	27
11	LIGHT POLE REMOVAL AND RESET	(11) EA	1
12	CONSTRUCTION TRAFFIC CONTROL	(12) LSUM	1

PAY ITEM NOTES:

(1) PAY ITEM IS FOR 14" I.D., THICKNESS CLASS 52 DUCTILE IRON PIPE INSTALLED COMPLETE. REFER TO SECTIONS 600, 610 AND 650 AND THESE DRAWINGS. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF TRENCH, EXCAVATION, TEMPORARY SHORING, DEWATERING, IF NECESSARY AND BACKFILL, EXCEPT WHERE CLSM IS USED FOR BACKFILL.

(2) PAY ITEM IS FOR 14" I.D., THICKNESS CLASS 52 DUCTILE IRON PIPE INSTALLED BY DRY BORING INSIDE STEEL CASING PIPE, INSTALLED COMPLETE. REFER TO SECTIONS 600, 610, 620 AND 654 AND THESE DRAWINGS. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF EXCAVATING, TEMPORARY SHORING AND BACKFILLING BORE PITS.

(3) PAY ITEM IS FOR MANHOLES, INSTALLED COMPLETE. REFER TO SECTIONS 600, 626 AND 627 AND THESE DRAWINGS. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF EXCAVATION, TEMPORARY SHORING AND BACKFILLING AT MANHOLES.

(4) PAY ITEM IS FOR PLACING CONTROLLED LOW STRENGTH MATERIAL (CLSM) AS BACKFILL AT ALL DESIGNATED LOCATIONS, COMPLETE. CLSM SHALL MEET THE REQUIREMENTS OF ODOT SPECIFICATIONS SECTION 501. USE OF CLSM OUTSIDE THE MAXIMUM TRENCH WIDTH WILL BE AT THE EXPENSE OF THE CONTRACTOR.

(5) PAY ITEM IS FOR TEMPORARY SEWER FLOW CONTROL, INCLUDING TEMPORARY BYPASS PUMPING, IF NEEDED, AS DETERMINED BY THE OWNER'S REPRESENTATIVE REFER TO SECTION 618.

(6) PAY ITEM IS FOR ABANDONING, CLEANING, GROUTING AND PLUGGING EXISTING SANITARY SEWER MAINS AND MANHOLES COMPLETE. REFER TO SECTION 614. MANHOLES SHALL BE REMOVED TO A MINIMUM OF FOUR (4) FEET BELOW EXISTING GROUND LINE AND BACKFILLED WITH NATIVE SOIL IN ACCORDANCE WITH SECTION 610.

(7) PAY ITEM IS FOR LEAKAGE TESTING OF ALL NEW SANITARY SEWER PIPE AND MANHOLES IN ACCORDANCE WITH ODEQ REGULATIONS AND THE SPECIFICATIONS. REFER TO SECTION 625.

(8) PAY ITEM IS FOR DEFLECTION TESTING OF ALL NEW SANITARY SEWER PIPE IN ACCORDANCE WITH ODEQ REGULATIONS AND THE SPECIFICATIONS. REFER TO SECTION 623.

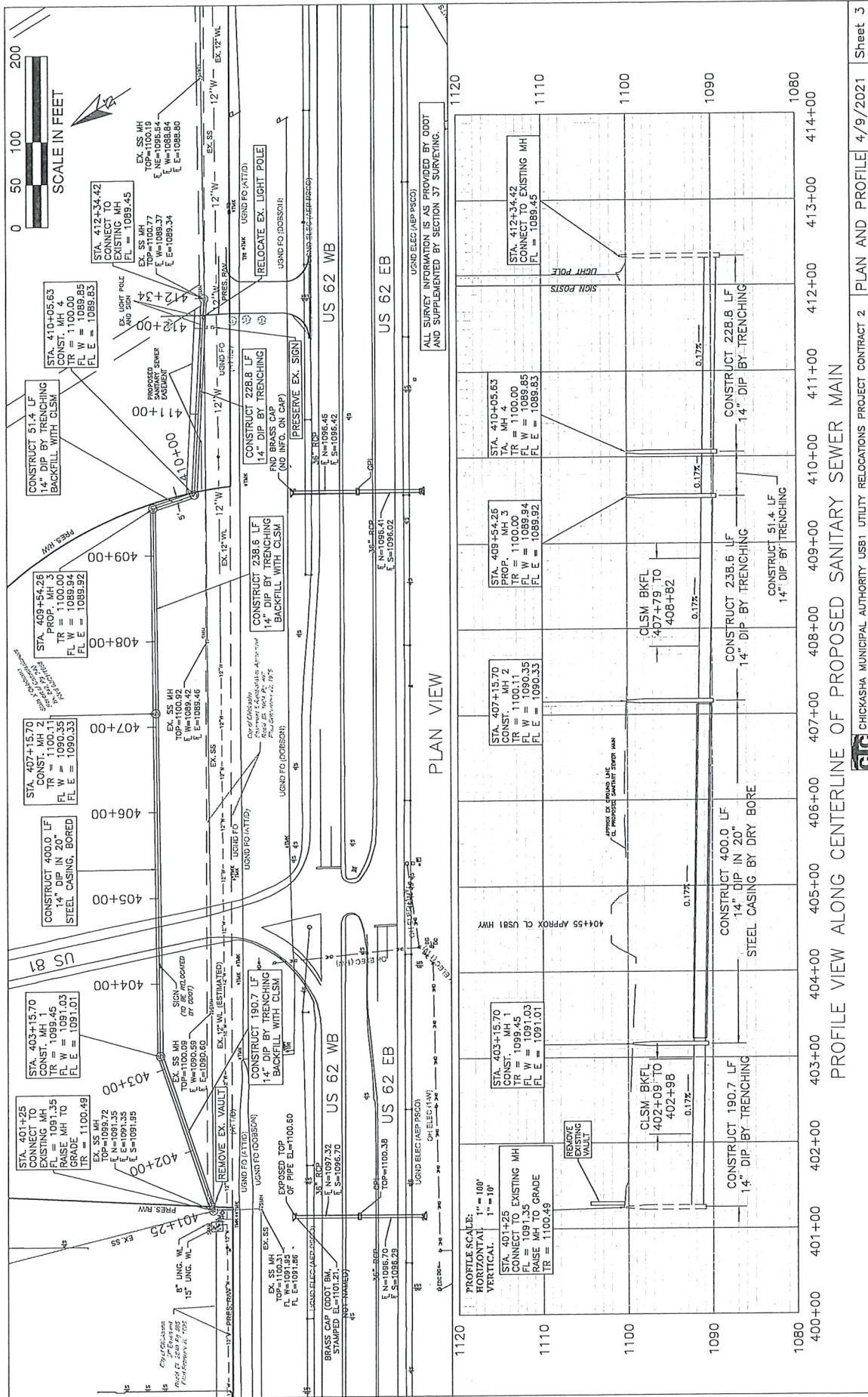
(9) PAY ITEM IS FOR DEMOLITION AND REMOVAL OF EXISTING VAULT AT APPROXIMATE STATION 401+30, AND FOR AN ESTIMATED 27.0 CY CONCRETE PAVEMENT AND AN ESTIMATED QUANTITY OF 16.0 LF OF CURB FROM APPROXIMATE STATION 412+10 TO 412+40. PRICE BID SHALL INCLUDE COST OF PRESERVING EXISTING SIGN.

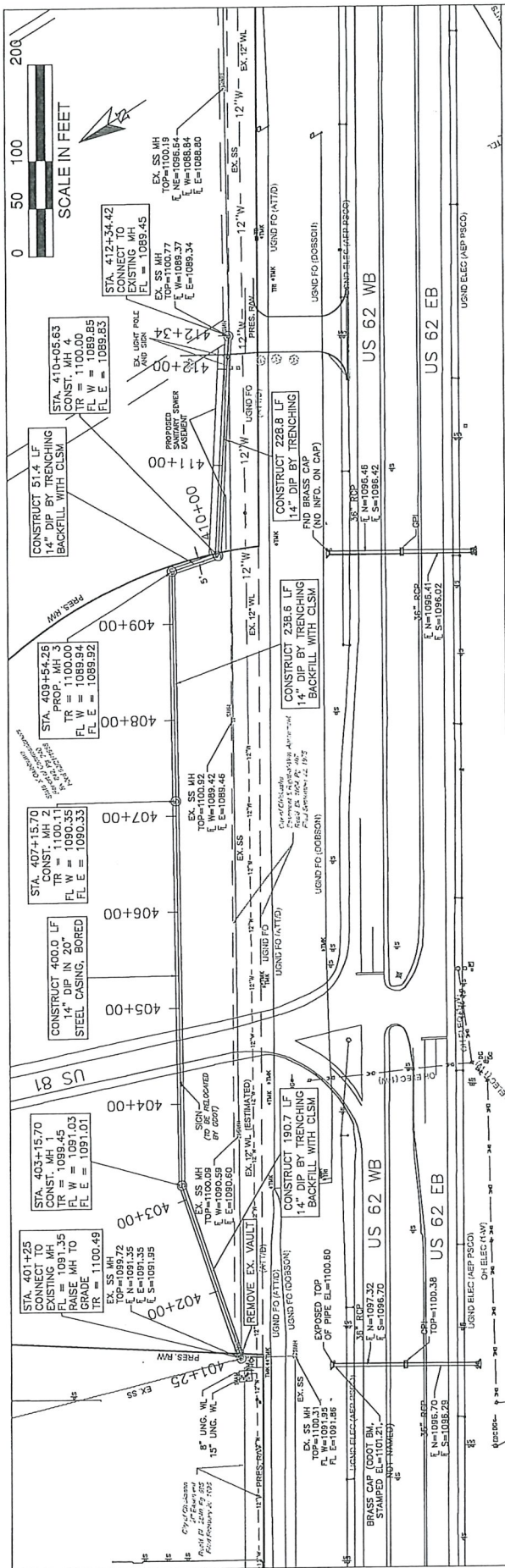
CHICKASHA, OKLAHOMA, UTILITY
US
SANITARY SEWER MAIN REPLACEMENT



QUANTITIES
AND NOTES

NIS 1-7/3/2021 1 SHEET 2



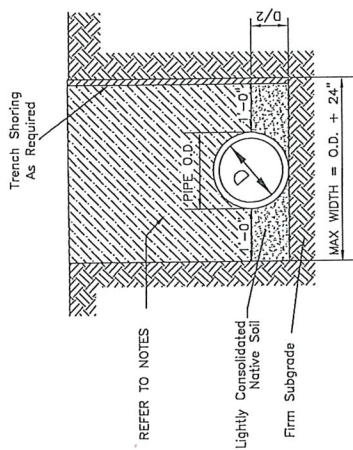


SANITARY SEWER PIPELINE SURVEY DATA								
UPSTREAM MANHOLE NUMBER	DNSTREAM MANHOLE NUMBER	UPSTREAM MANHOLE STATION	DNSTREAM MANHOLE STATION	MANHOLE TO MANHOLE DISTANCE (feet)	MANHOLE TO MANHOLE SLOPE	UPSTREAM MANHOLE CENTER INVERT ELEVATION	DNSTREAM MANHOLE CENTER INVERT ELEVATION	UPSTREAM TO DNSTREAM BEARING
EX1	1	401+25.00	403+15.70	190.70	-0.17%	1091.35	1091.02	S77° 36' 36"E
1	2	403+15.70	407+15.70	400.00	-0.17%	1091.02	1090.34	S59° 16' 26"E
2	3	407+15.65	409+54.26	238.61	-0.17%	1090.34	1089.93	S59° 16' 26"E
3	4	409+54.26	410+05.63	51.37	-0.17%	1089.93	1089.84	S13° 17' 41"W
4	EX2	410+05.63	412+34.42	228.79	-0.17%	1089.84	1089.45	S55° 32' 19"E

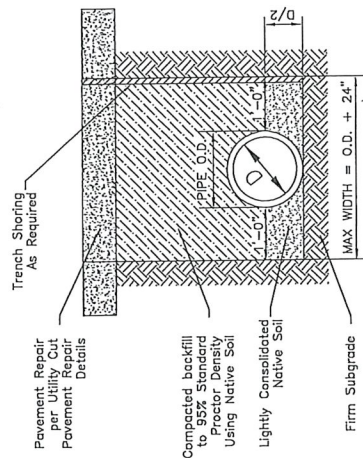
(1) EXISTING TOP OF RIM ELEVATION SHOWN FOR MANHOLE EX1.
RAISE MANHOLE TO TOP OF RIM ELEVATION 1100.49

MANHOLE NUMBER	STATION	CENTER OF MANHOLE INVERT ELEVATION	TOP OF RIM ELEVATION	DEPTH (feet)	NORTHING	EASTING
EX1 (1)	401+25.00	1091.35	1099.72	8.37	628826.1201	1978827.5719
1	403+15.70	1091.02	1099.45	8.43	628785.2046	1979013.8209
2	407+15.70	1090.34	1100.11	9.77	628580.8275	1979357.6723
3	409+54.26	1089.93	1100.00	10.07	628458.9377	1979562.7442
4	410+05.63	1089.84	1100.00	10.16	628408.9391	1979550.9298
EX2	412+34.42	1089.45	1100.77	11.39	628279.4771	1979739.5702





RIGID PIPE TYPICAL



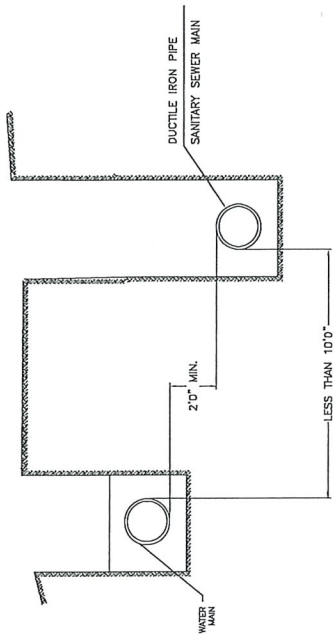
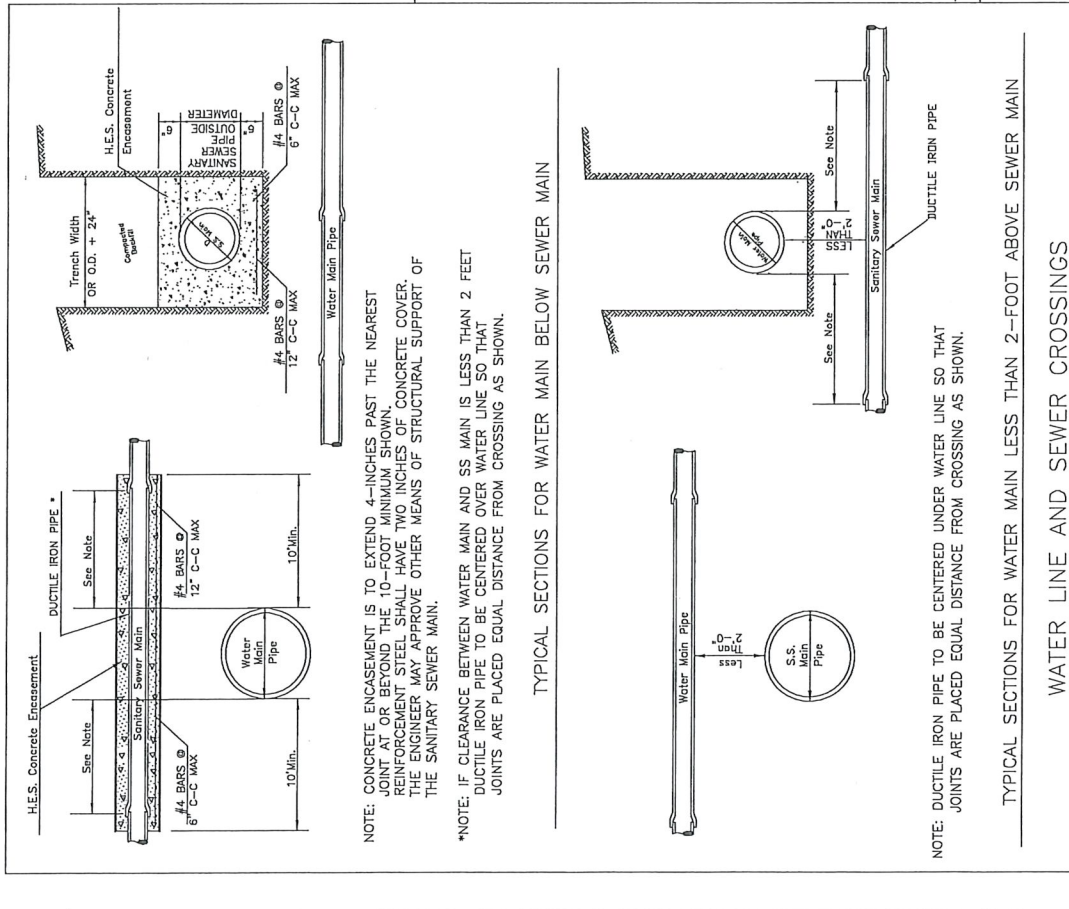
RIGID PIPE UNDER PAVEMENTS

TRENCH TYPICALS

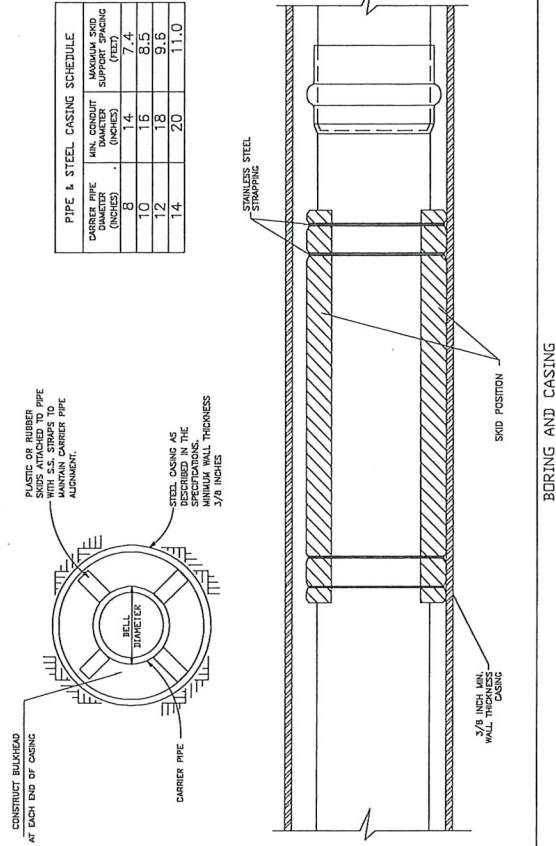
NOTES

1. ONLY RIGID PIPE WILL BE PERMITTED ON THIS PROJECT PER ODOT REQUIREMENTS.
2. RIGID PIPE SHALL BE DUCTILE IRON PIPE, THICKNESS CLASS 52, AS DEFINED BY AWWA C151.
3. PIPE PLACED BY TRENCHING SHALL BE PLACED IN ACCORDANCE WITH AWWA C150, TABLE 2, LAYING CONDITION TYPE 2.
4. COST OF TRENCHING, TEMPORARY SHORING, DEWATERING AND BACKFILLING WILL NOT BE MEASURED OR PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
5. COST OF EXCAVATION, TEMPORARY SHORING, DEWATERING AND BACKFILLING OF ALL BORE PITS WILL NOT BE MEASURED OR PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
6. COST OF EXCAVATION, TEMPORARY SHORING, DEWATERING AND BACKFILLING AT ALL MANHOLES TO BE ABANDONED WILL NOT BE MEASURED OR PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
7. AREAS EXCAVATED WITHIN ODOT RIGHT-OF-WAY UNDER THE PROPOSED ROADBED SHALL BE BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM), MEETING THE REQUIREMENTS OF ODOT SPECIFICATIONS. USE OF CLSM IN THESE AREAS WILL BE MEASURED AND PAID FOR SEPARATELY. ALL OTHER AREAS WITHIN ODOT RIGHT-OF-WAY SHALL BE BACKFILLED WITH NATIVE SOIL AND COMPACTED TO A CONDITION EQUAL TO THE ADJACENT SOIL, AS DIRECTED BY THE ODOT RESIDENT ENGINEER.
8. THE CONTRACTOR MAY USE CLSM AT AREAS OTHER THAN THOSE DESIGNATED ON THE PLANS, IF APPROVED BY THE OWNER'S REPRESENTATIVE. USE OF CLSM OUTSIDE THE MAXIMUM TRENCH WIDTH WILL BE AT THE EXPENSE OF THE CONTRACTOR. ANY SUCH USE WILL BE CONSIDERED AS A WATER OF CONVENIENCE TO THE CONTRACTOR AND WILL NOT BE MEASURED OR PAID FOR SEPARATELY.
9. REFER TO THE SPECIFICATIONS FOR BACKFILL AND COMPACTION REQUIREMENTS NOT LISTED HEREIN.

TRENCH WIDTHS		
NOMINAL PIPE DIAMETER (INCHES)	MINIMUM TRENCH WIDTH (INCHES)	MAXIMUM TRENCH WIDTH (INCHES)
8	22	33
10	24	36
12	28	38
14	32	40

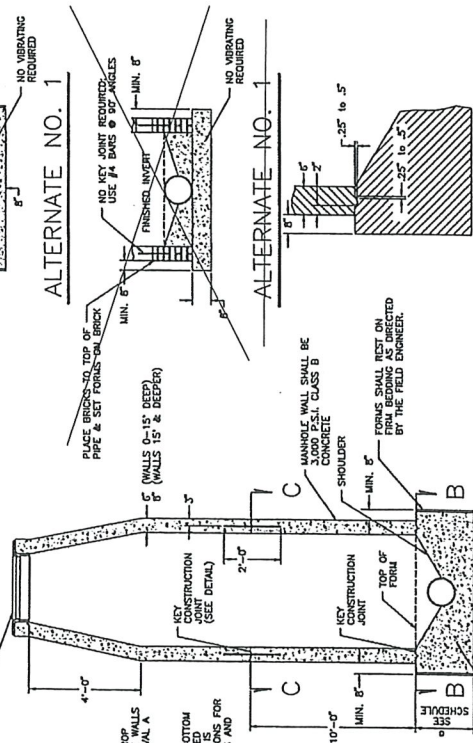


WATER AND SEWER LINES WITH HORIZONTAL CLEARANCE OF LESS THAN TEN FEET



STANDARD POURED-IN-PLACE MANHOLE

TYPE "B" FRAME IS TYPICAL

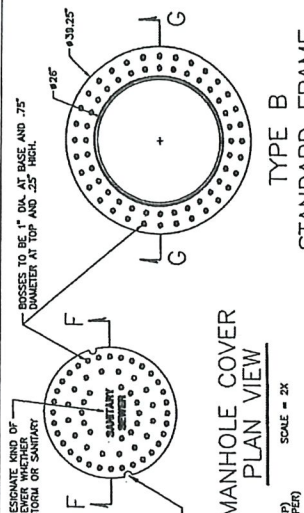


PIPE DIAMETER	SCHEDULE OF THICKNESS
8"	1"-8"
10"	1"-10"
12"	2"-1"
15"	2"-4"
18"	2"-8"
21"	3"-0"
24"	3"-5"

3500 P.S.I. CLASS A
CONCRETE

CONCRETE POURED (ACTUAL VERTICAL DROP SHALL NOT EXCEED 10' FOR MANHOLE WALLS) SHALL NOT EXCEED 10' FOR MANHOLE WALLS. MONOLITHIC POORS OF THE MANHOLE BOTTOM SHALL NOT EXCEED 10' FOR MANHOLE WALLS. THAT ALL CONCRETE (BOTTOM & WALLS) IS VIBRATED ACCORDING TO THE SPECIFICATIONS FOR APPLICANCES.

STANDARD POURED-IN-PLACE DROP MANHOLE



TYPE B
STANDARD FRAME

NOTE: TYPE "B" FRAMES SHALL BE USED ON ALL STREETS AND ALLEYS.

CONCRETE DROP CONNECTION TO SPRING LINE W/3.500 P.S.I. CONCRETE

CONCRETE DROP CONNECTION TO SPRING LINE W/3.500 P.S.I. CONCRETE

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CONCRETE DROP CONNECTION TO SPRING LINE W/3.500 P.S.I. CONCRETE

KEY CONSTRUCTION JOINT DETAIL FOR BOTTOM & WALLS

SCALE = 2X

THIS MANHOLE IS STANDARD ONLY FOR SIZES 36" IN DIAMETER OR LESS, PROVIDED THAT AT JUNCTION POINTS, SPECIAL MANHOLES MAY BE REQUIRED FOR SIZES SMALLER THAN 36" IN DIAMETER. INTERSECTIONS OF MANHOLE WALLS SHALL BE REINFORCED WITH MINIMUM INTERNAL OF 24 HOURS SHALL ELAPSE BETWEEN APPLICATIONS OF COATINGS.

FORMS SHALL BE PROVIDED FOR THE SHAPES & FINISHING OF THE WALLS OF MANHOLE WALLS. CONSTRUCTION OF MANHOLE BOTTOM SHALL BE PROVIDED FOR THE SHAPES & FINISHING OF THE BOTTOM OF MANHOLE WALLS. CONSTRUCTION OF MANHOLE BOTTOM SHALL BE PROVIDED FOR THE SHAPES & FINISHING OF THE BOTTOM OF MANHOLE WALLS.

MORTAR FOR FINISHING AND SEALING SHALL BE CLASS "C" ANY HONEYCOMBING OF CONCRETE LESS THAN 2" DEEP IN 6" MANHOLE WALLS MAY BE REPAIRED USING CLASS "D" MORTAR.

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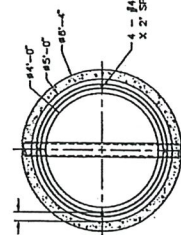
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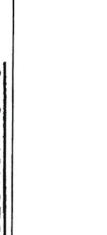
MORTAR FOR FINISHING AND SEALING SHALL BE CLASS "C" ANY HONEYCOMBING OF CONCRETE LESS THAN 2" DEEP IN 6" MANHOLE WALLS MAY BE REPAIRED USING CLASS "D" MORTAR.



SECTION B-B



SECTION C-C



CASTING WEIGHTS (FOR COVERS)

THE AVERAGE WEIGHTS OF CASTING WEIGHTS OF INDIVIDUAL CASTINGS WILL NOT BE LESS THAN SET UP WEIGHTS SHOWN BELOW.

WEIGHTS OF INDIVIDUAL CASTINGS WILL NOT BE LESS THAN SET UP WEIGHTS SHOWN BELOW.

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GENERAL NOTES

1. CASTING SHALL CONFORM TO THE A.S.T.M. SPECIFICATIONS FOR GRAY-IRON CASTINGS. SERIAL DESIGNATION A 18-21.
2. NOT EXCEED ONE-DEPTH (1/8) INCH.
3. NO WELDING OR WELDING OF ANY KIND, OTHER THAN THOSE SHOWN ON THE PLAN, WILL BE PERMITTED ON THESE CASTINGS.

SCALE

TYPICAL SECTION

TO BE USED ON EXISTING AND FUTURE PAVING

SECTION H-H

SCALE = 2X

MANHOLE COVER UNDERSIDE PLAN VIEW

SCALE = 2X

SECTION E-E

SCALE = 2X

SECTION D-D

SCALE = 2X

SECTION F-F STANDARD COVER

SCALE = 2X

SECTION G-G

SCALE = 2X

SECTION A-A

SCALE = 2X

SECTION B-B

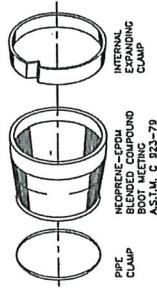
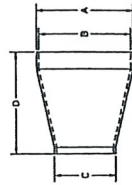
SCALE = 2X

SECTION C-C

SCALE = 2X

GENERAL NOTES

1. ALL PRECAST COMPONENTS SHALL BE REINFORCED WITH THE REINFORCING A.S.T.M. SPECIFICATIONS. (C-478-72)
2. ALL JOINTS SHALL BE COVERED BY THE FOLLOWING SPECIFICATIONS:
3. ALL JOINTS SHALL HAVE APPROVED RUBBER RINGS.
4. ALL LIFTING HOLES SHALL BE MADE BY SAWING AND SHALL BE COVERED WITH TWO COATS OF MORTAR, OR APPROVED EQUAL.
5. ALL CASTINGS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
6. THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE IN MANHOLE AND CONE SECTIONS SHALL BE 4,000 P.S.I.

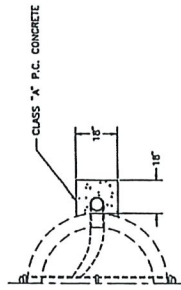


SUGGESTED PIPE O.D. RANGE	A	B	C	D
5.5" - 6.5"	7"	6.125"	4.25"	6"
6.5" - 7.5"	7"	6.125"	4.25"	6"
7.5" - 8.5"	7"	6.125"	4.25"	6"
8.5" - 9.5"	7"	6.125"	4.25"	6"
9.5" - 10.5"	7"	6.125"	4.25"	6"
10.5" - 11.5"	7"	6.125"	4.25"	6"
11.5" - 12.5"	7"	6.125"	4.25"	6"
12.5" - 13.5"	7"	6.125"	4.25"	6"
13.5" - 14.5"	7"	6.125"	4.25"	6"
14.5" - 15.5"	7"	6.125"	4.25"	6"
15.5" - 16.5"	7"	6.125"	4.25"	6"
16.5" - 17.5"	7"	6.125"	4.25"	6"
17.5" - 18.5"	7"	6.125"	4.25"	6"
18.5" - 19.5"	7"	6.125"	4.25"	6"
19.5" - 20.5"	7"	6.125"	4.25"	6"
20.5" - 21.5"	7"	6.125"	4.25"	6"
21.5" - 22.5"	7"	6.125"	4.25"	6"
22.5" - 23.5"	7"	6.125"	4.25"	6"
23.5" - 24.5"	7"	6.125"	4.25"	6"
24.5" - 25.5"	7"	6.125"	4.25"	6"
25.5" - 26.5"	7"	6.125"	4.25"	6"
26.5" - 27.5"	7"	6.125"	4.25"	6"
27.5" - 28.5"	7"	6.125"	4.25"	6"
28.5" - 29.5"	7"	6.125"	4.25"	6"
29.5" - 30.5"	7"	6.125"	4.25"	6"
30.5" - 31.5"	7"	6.125"	4.25"	6"
31.5" - 32.5"	7"	6.125"	4.25"	6"
32.5" - 33.5"	7"	6.125"	4.25"	6"
33.5" - 34.5"	7"	6.125"	4.25"	6"
34.5" - 35.5"	7"	6.125"	4.25"	6"
35.5" - 36.5"	7"	6.125"	4.25"	6"
36.5" - 37.5"	7"	6.125"	4.25"	6"
37.5" - 38.5"	7"	6.125"	4.25"	6"
38.5" - 39.5"	7"	6.125"	4.25"	6"
39.5" - 40.5"	7"	6.125"	4.25"	6"
40.5" - 41.5"	7"	6.125"	4.25"	6"
41.5" - 42.5"	7"	6.125"	4.25"	6"
42.5" - 43.5"	7"	6.125"	4.25"	6"
43.5" - 44.5"	7"	6.125"	4.25"	6"
44.5" - 45.5"	7"	6.125"	4.25"	6"
45.5" - 46.5"	7"	6.125"	4.25"	6"
46.5" - 47.5"	7"	6.125"	4.25"	6"
47.5" - 48.5"	7"	6.125"	4.25"	6"
48.5" - 49.5"	7"	6.125"	4.25"	6"
49.5" - 50.5"	7"	6.125"	4.25"	6"
50.5" - 51.5"	7"	6.125"	4.25"	6"
51.5" - 52.5"	7"	6.125"	4.25"	6"
52.5" - 53.5"	7"	6.125"	4.25"	6"
53.5" - 54.5"	7"	6.125"	4.25"	6"
54.5" - 55.5"	7"	6.125"	4.25"	6"
55.5" - 56.5"	7"	6.125"	4.25"	6"
56.5" - 57.5"	7"	6.125"	4.25"	6"
57.5" - 58.5"	7"	6.125"	4.25"	6"
58.5" - 59.5"	7"	6.125"	4.25"	6"
59.5" - 60.5"	7"	6.125"	4.25"	6"
60.5" - 61.5"	7"	6.125"	4.25"	6"
61.5" - 62.5"	7"	6.125"	4.25"	6"
62.5" - 63.5"	7"	6.125"	4.25"	6"
63.5" - 64.5"	7"	6.125"	4.25"	6"
64.5" - 65.5"	7"	6.125"	4.25"	6"
65.5" - 66.5"	7"	6.125"	4.25"	6"
66.5" - 67.5"	7"	6.125"	4.25"	6"
67.5" - 68.5"	7"	6.125"	4.25"	6"
68.5" - 69.5"	7"	6.125"	4.25"	6"
69.5" - 70.5"	7"	6.125"	4.25"	6"
70.5" - 71.5"	7"	6.125"	4.25"	6"
71.5" - 72.5"	7"	6.125"	4.25"	6"
72.5" - 73.5"	7"	6.125"	4.25"	6"
73.5" - 74.5"	7"	6.125"	4.25"	6"
74.5" - 75.5"	7"	6.125"	4.25"	6"
75.5" - 76.5"	7"	6.125"	4.25"	6"
76.5" - 77.5"	7"	6.125"	4.25"	6"
77.5" - 78.5"	7"	6.125"	4.25"	6"
78.5" - 79.5"	7"	6.125"	4.25"	6"
79.5" - 80.5"	7"	6.125"	4.25"	6"
80.5" - 81.5"	7"	6.125"	4.25"	6"
81.5" - 82.5"	7"	6.125"	4.25"	6"
82.5" - 83.5"	7"	6.125"	4.25"	6"
83.5" - 84.5"	7"	6.125"	4.25"	6"
84.5" - 85.5"	7"	6.125"	4.25"	6"
85.5" - 86.5"	7"	6.125"	4.25"	6"
86.5" - 87.5"	7"	6.125"	4.25"	6"
87.5" - 88.5"	7"	6.125"	4.25"	6"
88.5" - 89.5"	7"	6.125"	4.25"	6"
89.5" - 90.5"	7"	6.125"	4.25"	6"
90.5" - 91.5"	7"	6.125"	4.25"	6"
91.5" - 92.5"	7"	6.125"	4.25"	6"
92.5" - 93.5"	7"	6.125"	4.25"	6"
93.5" - 94.5"	7"	6.125"	4.25"	6"
94.5" - 95.5"	7"	6.125"	4.25"	6"
95.5" - 96.5"	7"	6.125"	4.25"	6"
96.5" - 97.5"	7"	6.125"	4.25"	6"
97.5" - 98.5"	7"	6.125"	4.25"	6"
98.5" - 99.5"	7"	6.125"	4.25"	6"
99.5" - 100.5"	7"	6.125"	4.25"	6"

NOTE: ALL CLAMPS SHALL BE STAINLESS STEEL

PIPE INSTALLATION DETAIL

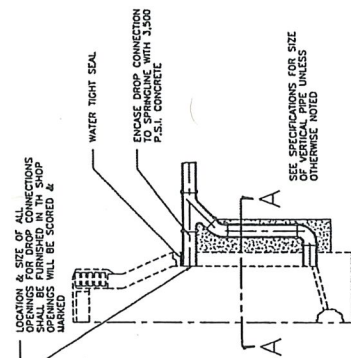
NOT TO SCALE



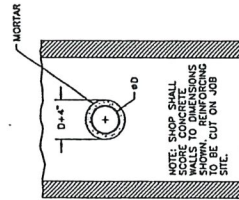
SECTION A-A

SCALE

DROP MANHOLE CONNECTION



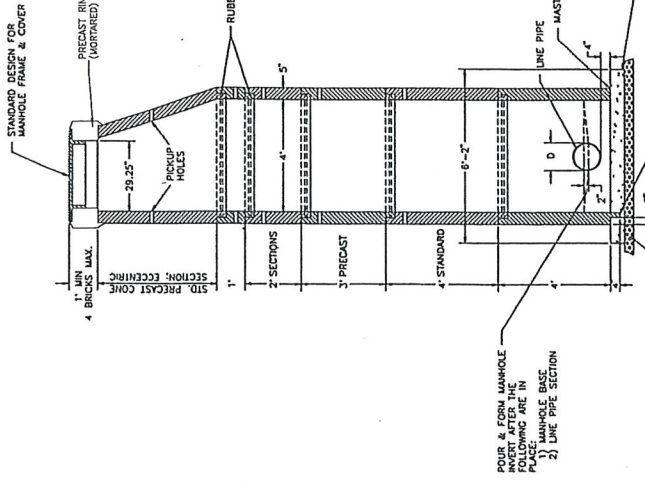
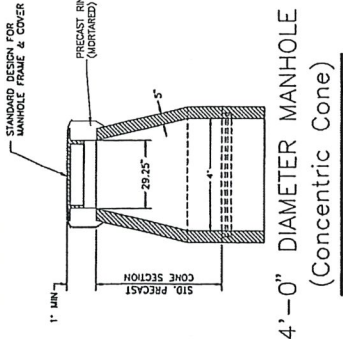
PIPE CONNECTION DETAILS

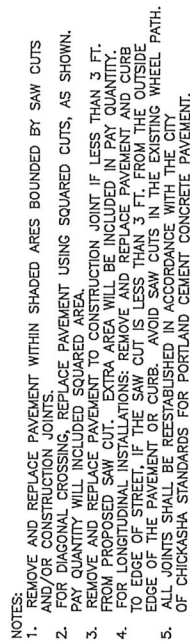


- 1) MANHOLE BOTTOM WILL BE POURED OR PRECAST
- 2) PRECAST SHALL BE OF TWO TYPES:
- 3) 1) FLAT PRECAST WITH MASTIC SEALER OR
- 4) 2) PRECAST WITH RUBBER RING.

TYPICAL BASE DETAILS 4'-0" DIAMETER MANHOLE (Eccentric Cone)

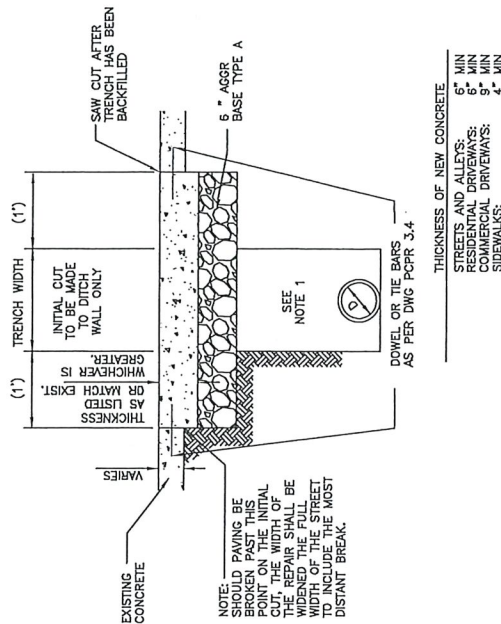
5'-0", 6'-0", 7'-0" DIAMETER MANHOLE



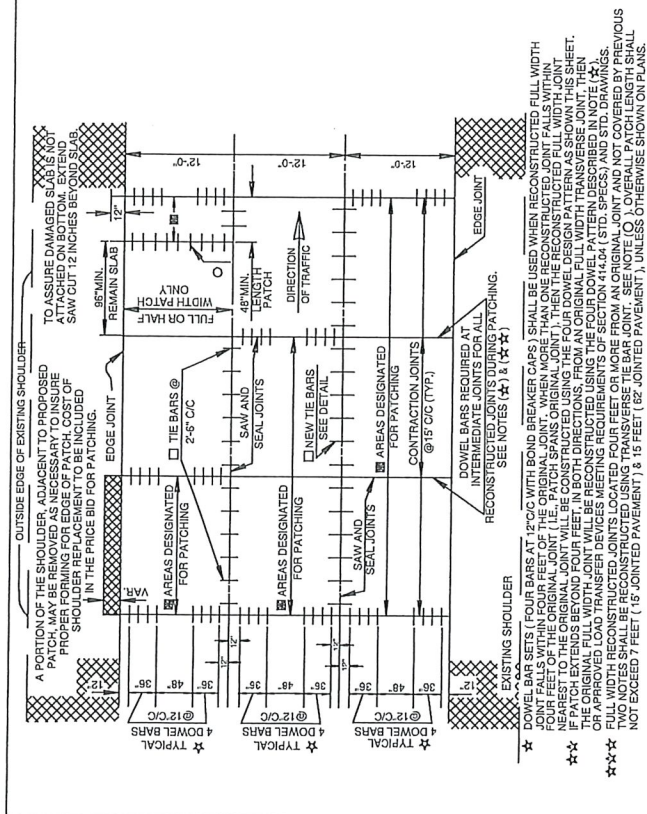


PAVEMENT REMOVAL AND REPLACEMENT

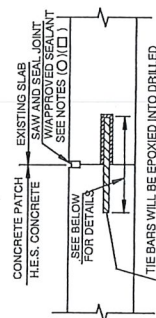
D	STD. TRENCH WIDTH	IN.	
		6	2D
8	22		
10	24		
12	28		
14	32		
18	34		
21	42		
24	42		
27	48		
30	48		
33	54		
36	54		
42	60		
54	72		
60	78		
66	84		



- GENERAL NOTES:
1. ALL PUBLIC ROAD CROSSINGS ARE TO BE BACKFILLED WITH D007 703.01 TYPE A AGGREGATE BASE OR APPROVED EQUIVALENT.
 2. BASE OR PIPE TRENCH TO NEAREST JOINT IF PROPOSED SAW CUT IS LESS THAN 3' FROM JOINT.
 3. NO PAYMENT WILL BE MADE FOR REPAIRS TO EXISTING PAVEMENT OUTSIDE OF STD. PAY WIDTH DUE TO TRENCH EXCAVATION WIDER THAN STANDARD TRENCH WIDTH.
 4. PAY QUANTITY WILL INCLUDE REPLACEMENT OF PAVEMENT DUE TO SQUARING OF DIAGONAL CUTS.
 5. WHERE TRENCH EXCAVATION IS WITHIN 12" OF BACK OF CURB BACKFILL SHALL BE COMPACTED TO 95% DENSITY FROM 6" ABOVE PIPE TO TOP OF TRENCH.
 6. CONCRETE SHALL BE CLASS A (OR CLASS A/HES) AS SPECIFIED IN THE PROPOSAL, AND SHALL COMPLY TO D007 SPECS. SECTION 701. MIX DESIGNS SHALL BE APPROVED BY THE ENGINEER.
 7. REFER TO DRAWING PC09 FOR ADDITIONAL DETAILS.



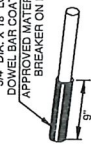
FULL DEPTH PATCHING DETAIL



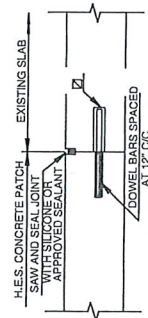
DETAIL OF TIE BAR JOINT

- LONGITUDINAL JOINT - TIE BARS - NO. 4 DEFORMED REINFORCING STEEL BARS, 24" LONG, SHALL BE EPOXYED INTO 3/4" DIA. (MAX.) DRILLED HOLES AT 30" C.C. TIED LONGIT. JOINT SHALL BE SAWED AND SEALED.
- TRANSVERSE JOINT - TIE BARS - NO. 4 DEFORMED REINFORCING STEEL BAR, 18" LONG, SHALL BE EPOXYED INTO 3/4" DIA. (MAX.) DRILLED HOLES AT 30" C.C. TIED TRANSVERSE JOINTS SHALL NOT BE SAWED OR SEALED. SEE NOTE (1) (★ ★ ★)

DETAIL OF DOWEL BAR W/CAP



- 3/4" DIA. 18" LONG SMOOTH DOWEL BAR COATED WITH PLASTIC OR APPROVED MATERIAL AS A BOND BREAKER ON HALF OF LENGTH
- 3/4" DIA. DOWELS FOR 6" PAVEMENTS.



DETAIL OF TRANSVERSE JOINT (DOWEL BAR WITH CAP)

- DOWEL BARS SHALL BE 3/4" DIAMETER X 18" LONG SMOOTH EPOXYED INTO 1 1/4" MAX. DIA. BY H.E.S. DRILLED HOLES, PLACED AT MID-SLAB. DRILLED HOLES AND DOWEL BARS SHALL BE PLACED PARALLEL TO THE DIRECTION OF TRAFFIC. HOLES SHALL BE USED TO COMPLETELY FILL THE VOID BETWEEN THE DOWEL BAR AND THE HOLE.
- DOWEL BAR SHALL BE COVERED WITH BOND BREAKER SAFF OR EQUIVALENT. THE MATERIAL COVER ONE HALF LENGTH OF DOWEL BAR. THE OTHER HALF OF DOWEL BAR AND CONCRETE PATCH IS BROKEN (PAINT NOT ACCEPTABLE).

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2003 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. COST OF SAWING AND REMOVAL OF PAVEMENT FOR FULL OR PARTIAL DEPTH PATCHING TO BE INCLUDED IN THE PRICE BID FOR H.E.S. CONCRETE PATCHING UNLESS OTHERWISE SHOWN ON THE PLANS.
3. A PORTION OF THE SHOULDER, ADJACENT TO PROPOSED PATCH MAY BE REMOVED AS NECESSARY TO INSURE PROPER FORMING FOR EDGE OF PATCH. COST OF SHOULDER REPAIRS SHALL BE INCLUDED IN THE PRICE BID FOR THE PATCH.
3. COST OF DOWEL BARS, TIE BARS, EPOXY AND ANY INCIDENTALS REQUIRED FOR INSTALLATION TO BE INCLUDED IN THE PRICE BID FOR THE H.E.S. CONCRETE FULL DEPTH PATCHING.

BASE REPAIR AND PREPARATION

IN AREAS WHERE PATCHING IS REQUIRED, THE REMOVAL OF THE DAMAGED PAVEMENT SHALL BE PERFORMED IN A MANNER THAT WOULD MINIMIZE FURTHER DAMAGE TO THE UNDERLYING SUBBASE(S), SUBGRADE OR ADJACENT PAVEMENT(S). NO COMPENSATION WILL BE MADE FOR THE REMOVAL OF EXISTING PAVEMENT OR FOR REPAIRING DAMAGE SUSTAINED DURING THE REMOVAL PROCESS.

COST OF ANY INCIDENTALS BASE REPAIR, LEVELING OR BACKFILLING, UP TO 2", SHALL BE INCLUDED IN THE PRICE BID FOR THE PATCH. INCIDENTALS FOR REPAIRS EXCEEDING 2" SHALL BE PAID FOR BY THICKENING H.E.S. FULL DEPTH PATCH, ENCOUNTERED, CRUSHED LESTONE OR BY THICKENING H.E.S. FULL DEPTH PATCH.

BASE REPAIR, LEVELING AND RELATED BACKFILLING OF SUBBASE(S) OR SUBGRADE IN EXCESS OF 2" SHALL BE PAID FOR AS UNCLASSIFIED EXCAVATION WITH QUANTITIES COMPUTED FROM BOTTOM OF SLAB DOWNWARD TO LIMITS OF REMOVAL.

SEQUENCE OF OPERATIONS

- (INITIAL AND FINAL)
- (1) SAW EXISTING LONGITUDINAL AND CONTRACTION JOINTS TO WIDTH AND DEPTH REQUIRED. SEE ROADWAY STANDARD, LESS-4 FOR DETAILS.
 - (2) PATCH DAMAGED AREAS WITH H.E.S. CONCRETE. PATCHES SHALL BE 12" WIDE AND 12" DEEP.
 - (3) SAND BLAST JOINT. BLOW CLEAN AND IMMEDIATELY PLACE BACKER ROD.
 - (4) BLOW JOINT CLEAN WITH COMPRESSED AIR AND FILL CLEAN JOINT WITH SEALANT WITHIN 2 MINUTES.
 - (5) BID ITEM FOR JOINT REHABILITATION WILL INCLUDE SAWING, CLEANING OF JOINT, BACKER ROD, SEALANT AND ANY INCIDENTALS REQUIRED TO COMPLETE THE WORK.

STEP 1

CONCRETE PATCHING

- (1) AREAS TO BE PATCHED WILL BE IDENTIFIED BY THE H.E.S. CONTRACTOR.
- (2) FOR REMOVAL OF FULL DEPTH PATCHES, SAWING IS TO BE FULL DEPTH AND FULL WIDTH OF DAMAGED PAVEMENT WHEN ENTER FRONTAL.

STEP 2

JOINT REHABILITATION

- (INITIAL)
- (1) INITIAL CUT AND SUBSEQUENT PATCHES SHALL BE 12" WIDE AND 12" DEEP. HIGH EDGE OF THE DRIVING LANES AND MOVE TOWARD THE LOW EDGE.
 - (2) SEE SEQUENCE OF OPERATIONS FOR JOINT REHABILITATION THIS SHEET AND APPLICABLE SPECIAL PROVISIONS.

STEP 3

JOINT REHABILITATION

- (FINAL)
- (1) FINAL JOINT CUT SHALL BEGIN AT THE LOW EDGE OF THE DRIVING LANES AND MOVE TOWARD THE HIGH EDGE OF THE JOINT TO THE LOW EDGE.
 - (2) INSTALLATION OF BOND BREAKER AND JOINT SEALANT SHALL BE FROM THE END OF THE INITIAL CUT TO THE LOW EDGE OF THE JOINT TO THE LOW EDGE.
 - (3) SEE SEQUENCE OF OPERATIONS FOR JOINT REHABILITATION THIS SHEET AND APPLICABLE SPECIAL PROVISIONS.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
222.05(C)	UNCLASSIFIED EXCAVATION	CU.YD.
414.05(B)	H.E.S. CONCRETE (FULL DEPTH PATCHING)	SQ.YD.
418.05	CONCRETE JOINT REHABILITATION	L.F.
425.05	DIAMOND GRINDING CONCRETE PAVEMENT	SQ.YD.
426.05(A)	CORED HOLES	EA.
426.05(B)	PORTLAND CEMENT	TON
426.05(C)	FLY ASH	TON

105 DIVISION 1000 - PAVEMENTS
SANTITAS SERIES MAN REPLACEMENT

ctc

P.C. CONCRETE PAVEMENT REPAIRS

NIS 7/5/2009 1000 3.4