

CITY OF YANKTON

SOUTH DAKOTA

PROJECT MANUAL

SPECIFICATIONS AND BID FORM

FOR

**Walnut Street Reconstruction
From
2nd Street to 4th Street**

Project # 2017-043

CITY OF YANKTON, OWNER
PO BOX 176
YANKTON, SOUTH DAKOTA 57078



BID SUBMITTAL TO:
CITY OF YANKTON
ATTN: CITY FINANCE OFFICER
PO BOX 176
YANKTON, SOUTH DAKOTA 57078

BID CLOSING & OPENING:
March 29, 2018
3:00 P.M.

BID AWARD
April 9, 2018
AFTER 7:00 P.M.

CITY OF YANKTON
PROJECT MANUAL

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**Walnut Street Reconstruction
From
2nd Street to 4th Street**

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Walnut Street Reconstruction – 2nd to 4th Street – Project No. 2017-043

Publishing Dates: March 8th & 12th, 2018

ADVERTISEMENT FOR BIDS

Notice is hereby given that the City of Yankton, South Dakota, will receive bids for the **Walnut Street Reconstruction from 2nd Street to 4th Street.**

The project includes the following major construction items:

Removal of Concrete Pavement	10046	SY
6" PVC Watermain	870	LF
8" PCC Pavement	5125	SY
Concrete C&G – Type B68	2155	LF
6" Aggregate Base Course	5880	SY
And Other Miscellaneous and Landscape Items		

Owner reserves the right to make the award based on the lowest responsive bid.

Sealed bids will be received for the City Commission of the City of Yankton, South Dakota, at the office of the City Finance Officer of said City until 3:00 PM or may be hand delivered to the place of opening at 3:00 PM on the 29th day of March, 2018, at which time they will be publicly opened and read in the Second Floor Meeting Room A, of City Hall, located at 416 Walnut Street in Yankton, South Dakota. Disposition of said bids is expected to be held on the 9th day of April, 2018, after 7:00 PM, in the Technical Education Center at 1200 W. 21st Street, Yankton, South Dakota.

Drawings, Specifications and Contract Documents may be obtained at the City Engineer's Office, 416 Walnut Street, Yankton, SD, 57078, or by going to: <http://www.cityofyankton.org/how-do-i/bid-rfp-posts-list>. With any questions please call 605-668-5251.

The Bidder to whom the contract is awarded will be required to furnish a construction performance bond and a construction payment bond to the OWNER in the amount of one hundred percent (100%) of the contract award for each bond, in conformance with the requirements of the Contract Documents. The construction performance bond and construction payment bond shall remain in full force until the completion of the Contract as specified in the General Conditions.

Each Bid must be accompanied by a certified check, cashier's check or draft in the amount of 5% of the base bid and all add alternates and drawn on a State or National Bank or a 10% bid bond issued by a surety authorized to do business in the State of South Dakota and made payable to the City of Yankton.

The bid guarantee will be retained by the OWNER as liquidated damages if the successful bidder refuses or fails to enter into an Agreement within ten (10) days after Notice of Award or fails at time of executing the contract to furnish a construction performance bond and construction payment bond guaranteeing the faithful performance of the work.

Bids may not be withdrawn after the time fixed for opening them. The OWNER reserves the right to reject any and all bids, and to waive any irregularities therein.

Adam Haberman, Public Works Director
City of Yankton, South Dakota

INSTRUCTIONS TO BIDDERS

BIDS will be received by the Finance Officer of the CITY OF YANKTON, South Dakota (herein called the "OWNER"), at the City Finance Office until 3:00 P.M. on the date specified in the Notice to Bidders or the BIDS may be hand delivered to the Second Floor Meeting Room A, in City Hall, at 416 Walnut Street, Yankton, South Dakota until 3:00 P.M. on the date specified in the Notice to Bidders, whereupon they will be publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to The Board of City Commissioners, c/o City Finance Officer, Yankton, South Dakota. Each sealed envelope containing a BID must be plainly marked on the outside with the name of the project for which the BID is submitted, and the name of the BIDDER and the bidder's address. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the City of Yankton, 416 Walnut Street, Yankton, South Dakota 57078.

All BIDS must be made on the required BID forms. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within thirty (30) days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights of way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a certified check, cashier's check or draft, for five percent of the amount of the BID, such check to be certified or issued by either a state or a national bank and payable to the OWNER, or in lieu thereof a BID BOND for ten percent of the amount of the BID, such bond to be issued by a surety authorized to do business in the State of South Dakota payable to the OWNER, as a guaranty that such BIDDER will enter into a contract with the OWNER, in accordance with the terms of such letting and BID in case such BIDDER be awarded the contract.

As soon as the BID has been awarded, the OWNER will return the BONDS of all unsuccessful BIDDERS. The BID BOND of the successful BIDDER will be retained until the CONTRACT, PAYMENT BOND and the PERFORMANCE BOND have been executed and approved, after which it will be returned.

A PERFORMANCE BOND and a PAYMENT BOND, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or PAYMENT BONDS and PERFORMANCE BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the PERFORMANCE BOND, PAYMENT BOND and all required insurance certificates within ten (10) calendar days from the date when the NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable insurance certificates and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR.

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to his BID.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when requested to do so by the OWNER. The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when requested to do so by the OWNER.

Pre-bid inspection trip for prospective BIDDERS is not proposed for this project.

BID PROPOSAL

**Walnut Street Reconstruction
2nd Street to 4th Street
Project # 2017-043**

Date: _____

Proposal of _____ (hereinafter

called "BIDDER") a corporation, organized and existing under the laws of the State of

_____, a partnership, or an individual doing business as:

To: City Finance Officer
City of Yankton
Yankton, South Dakota

Proposals to be filed
no later than 3:00 P.M.
on March 29, 2018

Gentlemen:

The BIDDER, in compliance with your invitation to bid for this project, having examined the specifications and related documents, being familiar with the site of the proposed work, and being familiar with all of the conditions surrounding the proposed project, including the availability of materials and labor hereby proposes to furnish all labor, materials, and supplies in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below. This price covers all expenses incurred in performing the work required under the contract documents, of which this proposal is a part.

The undersigned bidder does hereby declare and stipulate that each proposal is made in good faith, without collusion or connection with any other person or persons bidding for the same work, and that it is made in pursuance of and subject to the detailed specifications, and all other contract documents, pertaining to the work to be done, all of which have been examined by the undersigned.

All the various phases of work enumerated in the contract documents with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the Contractor.

The BIDDER hereby agrees to fully complete the PROJECT by November 1, 2018. The BIDDER further agrees that if he does not complete the project within the time period specified, to pay as liquidated damages, the sum of \$1050.00 for each consecutive calendar day the project exceeds the completion date as provided in Section 15 of the GENERAL CONDITIONS.

The BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following unit prices or lump sum. (Note: BIDS shall include all applicable taxes and fees.)

Schedule I - Street Construction					
Item No.	Description	Quantity	Unit	Unit Price	Total Price
Removals and Grading					
1	Mobilization	1	LS	\$	\$
2	Saw Existing Concrete	1000	LF	\$	\$
3	Removal of Concrete Pavement	10046	SY	\$	\$
4	Removal of Asphalt Pavement	1504	SY	\$	\$
5	Removal of Curb and Gutter	1195	LF	\$	\$
6	Unclassified Excavation	1	LS	\$	\$
7	Undercutting	100	CY	\$	\$
8	Water for Embankment or Granular Material	10	KGal	\$	\$
9	Stump Removal	38	EA	\$	\$
Erosion Control					
10	Seeding, Mulching, Fertilizer	1	LS	\$	\$
11	Vehicle Tracking Control	1	EA	\$	\$
12	Inlet Sediment Control	3	EA	\$	\$
13	Silt Fence	50	LF	\$	\$
14	Geotextile Fabric	300	SY	\$	\$
Storm Sewer					
15	Removal of JB/MH/DI	13	EA	\$	\$
16	2'x 3' Type B Drop Inlet	14	EA	\$	\$
17	Type S Drop Inlet	2	EA	\$	\$
18	Standard Storm Sewer Junction Box 4'x 4'	5	EA	\$	\$
19	F&I 18" RCP - CL III	500	LF	\$	\$
20	F&I 24" RCP - CL III	78	LF	\$	\$
21	Removal of Existing Pipe	482	LF	\$	\$
22	Core Into Existing Drop Inlet	2	EA	\$	\$
23	R 1801-E Frame and Grate	2	EA	\$	\$
Watermain					
24	6" PVC Watermain C-900	870	LF	\$	\$
25	1" Copper Service Line	730	LF	\$	\$
26	6" MJ Gate Valve w/Box	5	EA	\$	\$
27	6" Megalugs	29	EA	\$	\$
28	6" MJ Oversized Sleeve	2	EA	\$	\$
29	6"x 8" MJ Tee	1	EA	\$	\$

30	20" MJ Oversized Sleeve	2	EA	\$	\$
31	20" Megalugs	5	EA	\$	\$
32	20" PVC Watermain C-900	16	LF	\$	\$
33	Cut & Tie into Existing Main	4	EA	\$	\$
34	1" Curb Stop w/Box	19	EA	\$	\$
35	Water Service Line Reconnect	19	EA	\$	\$
36	Temporary Fire Hydrant	2	EA	\$	\$
37	Granular Material for Watermain	886	LF	\$	\$
38	Remove Existing Valve Box	3	EA	\$	\$
39	6" MJ Cap	2	EA	\$	\$
40	6"x 45 deg. Bend	4	EA	\$	\$
Traffic Control					
41	Traffic Control	1335	UNITS	\$	\$
42	Traffic Control Miscellaneous	1	LS	\$	\$
Surfacing					
43	8" PCC Pavement	5125	SY	\$	\$
44	8" Fillet Section	384	SF	\$	\$
45	Concrete C&G – Type B68	2155	LF	\$	\$
46	Type P C&G and Special Curb	205	LF	\$	\$
47	6" Sidewalk w/Attached Curb	2580	SF	\$	\$
48	6" Curb	185	LF	\$	\$
49	8" Approach Pavement	1717	SF	\$	\$
50	6" Concrete Sidewalk	20978	SF	\$	\$
51	6" Colored Concrete Sidewalk	13673	SF	\$	\$
52	6" Aggregate Base Course	5880	SY	\$	\$
53	Detectable Warning Panel	160	SF	\$	\$
54	Insert Steel Bars Into Pavement	45	EA	\$	\$
55	Sidewalk Drain	1	EA	\$	\$
56	Temporary Boardwalk	6160	SF	\$	\$
Schedule II - Landscaping					
Item No.	Description	Quantity	Unit	Unit Price	Total Price
General Items					
1	Mobilization	1	LS	\$	\$
Removals					
2	Clear and Grub Tree	2	Each	\$	\$

3	Landscape Clearing	155	Sq Yd	\$	\$
Hardscape Items					
4	Corten Steel Raised Planter	70	Ln Ft	\$	\$
5	Corten Steel Edging	1873	Ln Ft	\$	\$
6	Storm Water Cut Out	67	Each	\$	\$
7	Quartzite Pavers	2192	Sq Ft	\$	\$
8	Quartzite Steppers	68	Each	\$	\$
9	ADA Tile	5	Each	\$	\$
10	Limestone Seating Block	55	Each	\$	\$
11	Granite Sculpture Base, Relocated	2	Each	\$	\$
12	Yankton Lantern	3	Each	\$	\$
13	Fire Pit	1	Each	\$	\$
14	Utility Enclosure	1	Each	\$	\$
Furnishings					
15	Concrete Planter	21	Each	\$	\$
16	Bench	4	Each	\$	\$
17	Little Receptacle	8	Each	\$	\$
18	Bike Rack	20	Each	\$	\$
Landscape Items					
19	Weed Barrier Fabric	1091	Sq Yd	\$	\$
20	3" Depth Shredded Bark Mulch	1029	Sq Yd	\$	\$
21	Planting Soil	1551	Cy Yd	\$	\$
22	2" Cal. B&B Deciduous Tree	47	Each	\$	\$
23	2" Cal. B7B Ornamental Tree	6	Each	\$	\$
24	#2 Cont. Shrub	254	Each	\$	\$
25	#1 Cont. Perennial	279	Each	\$	\$
26	#1 Cont. Ornamental Grass	481	Each	\$	\$
Electrical					
27	Tax on City Furnished Electrical Materials	1	LS	\$	\$
28	Incidental Work, Electrical	1	LS	\$	\$
29	Controller Cabinet and Base	1	Each	\$	\$
30	Raceways, Conductors, Trenching, Boring, Warning Tape	1	LS	\$	\$
31	Type "AA" Luminaire	48	Each	\$	\$
32	Type "BB" Luminaire	3	Each	\$	\$

33	120V, 20A Receptacle and Pedestal	21	Each	\$	\$
34	120/240V, 50A Receptacle and Pedestal	3	Each	\$	\$
35	Fire Pit Connections and Switches	1	Each	\$	\$

Base Bid (Schedule I & II) \$ _____

(Base Bid Amount Written Out)

Alternate #1 – Site Furnishing					
36	Table, 6-Seat	2	Each	\$	\$
37	Table, 5-Seat	1	Each	\$	\$
Alternate #1 – Color Changing Luminaires					
38	Type "AA-ALT" Luminaire (Would Replace Item #31 in Schedule II)	48	Each	\$	\$

Bidder acknowledges receipt of the following addenda:

Date: _____ Number: _____
 _____ _____
 _____ _____

The Bidder understands that the Owner reserves the right to reject any or all bids, to waive any informalities in the bidding and to award the contract in the best interest of the Owner.

Respectfully submitted:

 Name of Firm

 Federal ID No.

 Officer

 Address

 Telephone No.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called PRINCIPAL, and

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are hereby held and firmly bound unto the CITY OF YANKTON, SOUTH DAKOTA, hereinafter called OWNER, in the penal sum of _____ Dollars, (\$ _____) in lawful money of the United States, for the payment of which, will and truly to be made, we hereby jointly and severally bind ourselves, successors, and assign.

THE CONDITON OF THIS OBLIGATION is such that whereas, the PRINCIPAL has submitted the accompanying BID PROPOSAL, dated _____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID be accepted and the PRINCIPAL shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the SURETY for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The SURETY, for value received, hereby stipulates and agrees that the obligations of said SURETY and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said SURETY does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the PRINCIPAL and the SURETY have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(LS)
PRINCIPAL

by _____(s)

ATTEST:

(Principal) Secretary

(SEAL)

(Witness as to Principal)

(Address)

BY SURETY

ATTEST:

(Surety) Secretary

(SEAL)

(Witness as to Surety)

(Address)

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of South Dakota

BIDDERS STATEMENT OF QUALIFICATIONS

(Must be submitted with bid)

To: City of Yankton
Yankton, South Dakota

Date Submitted: _____

The following statements of qualification and experience are current for:

Name of Organization: _____

Address: _____

We are incorporated in the State of: _____

Our principal work is: _____

We are licensed to perform this work in the State of South Dakota at the present time: (Yes)
(No)

EXPERIENCE RECORD

A. Completed projects of comparable nature (list 3 minimum)

Location & Description of Work	Owner	Contract Amount	Date Completed
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B. Work in Progress

Location & Description of Work	Owner	Contract Amount	Date Completed
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The following list of equipment is proposed for use on this project:

Description	Manufacturer	Size & Class	Capacity	Year
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(use additional sheets if required)

Our superintendent for this project will be: _____

His experience includes:

General statement of experience and qualifications of this organization includes:

We propose to use the following major suppliers (include name & address of suppliers and equipment manufacturing type, and model no.'s if more than one type is offered by specifications):

We propose to use the following subcontractors (name & address):

Our Bonding Company is: _____

Address: _____

We propose to accomplish the required work on this project using the step-by-step approach, or schedule, and personnel as herein stated: (use extra sheets as required)

I certify that all the statements outlined above or attached hereto are a true representation of:

Name of Organization: _____

Address: _____

Prepared by: _____

(Signature)

Title: _____

Address: _____

Telephone: _____

NOTICE OF AWARD

Date: _____

TO: _____

ADDRESS: _____

OWNER'S PROJECT NO. _____

PROJECT: _____

CONTRACT FOR: _____

You are notified that your bid, dated _____

for the above contract has been considered. You are the apparent Successful Bidder and have been awarded a contract for (all items contained on the Bid Itemization).

(Indicate total work, alternates or sections of work awarded)

The contract price of your contract is

_____ dollars

(Written out)

\$ _____.

Three copies of each of the proposed Contract Documents accompany this Notice of Award.

You must comply with the following conditions precedent within ten (10) days of the Notice of Award, that is by _____.

(Date)

- 1. You must deliver to the OWNER three (3) fully executed counterparts of the Agreement.**
- 2. You must deliver with executed Agreement, the Contract Security (bonds) as specified in the Instructions to Bidders and General Conditions.**
- 3. Provide Certificate of Insurance with the Contract.**
- 4. List other conditions precedent: _____**

Failure to comply with these conditions within the time specified will entitle the OWNER to consider your bid abandoned to annul the Notice of Award and to declare your Bid Security forfeited.

Within the ten (10) days after you comply with those conditions, the OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

CITY OF YANKTON, SOUTH DAKOTA

By: _____

(Title)

You are required to return an acknowledged copy of the NOTICE OF AWARD to the OWNER.

ACCEPTANCE OF NOTICE OF AWARD

Receipt of the above NOTICE OF AWARD is hereby acknowledged by

_____ this the _____ day of _____ 20____.

By: _____

Title: _____

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20____, by and between the CITY OF YANKTON, SOUTH DAKOTA, hereinafter called "OWNER", and

_____ doing business as (an individual,) or (a partnership,) or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of

2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 10 calendar days after the NOTICE TO PROCEED and will complete the same within November 1, 2018, unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of \$ _____ or as shown in the BID schedule

5. The term "CONTRACT DOCUMENTS" means and includes the following:

- (A) Advertisement for Bids
- (B) Instruction to Bidders
- (C) Bid Proposal
- (D) Bid Bond
- (E) Bidders Statement of Qualifications
- (F) Agreement
- (G) General Conditions
- (H) Supplemental General Conditions
- (I) Payment Bond
- (J) Performance Bond
- (K) Notice of Award
- (L) Notice to Proceed
- (M) Change Order
- (N) Waiver and Release of Lien
- (O) Specifications prepared or issued by The City of Yankton dated _____
- (P) Addenda:
 - No. _____, dated _____
 - No. _____, dated _____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called PRINCIPAL, and

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are hereby held and firmly bound unto the CITY OF YANKTON, SOUTH DAKOTA, hereinafter called OWNER, in the penal sum of _____ Dollars, (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

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

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

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

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

IN WITNESS WHEREOF, the PRINCIPAL and the SURETY have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
PRINCIPAL

By _____(s)

ATTEST:

(Principal) Secretary
(SEAL)

(Witness as to Principal)

(Address)

SURETY

BY _____

ATTEST:

(Surety) Secretary
(SEAL)

(Witness as to Surety)

(Address)

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of South Dakota.

**ACKNOWLEDGMENT OF PRINCIPAL
(Corporation)**

State of _____)

: SS

County of _____)

On this ____ day of _____, 20____, before me personally appeared _____, who acknowledged himself to be the _____ of _____, a corporation, and that he, as such _____ being authorized to so do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as _____.

Notary Public

My Commission expires the ____ day of _____, 20____.

AFFIDAVIT OF CORPORATE SURETY

State of _____)

: SS

County of _____)

Affiant

_____, being first duly sworn on oath, deposes and says that he is the _____ of _____; and that he is duly authorized to execute and deliver the foregoing obligation; that said company is authorized to execute the same and has complied in all respects with the laws of _____ in reference to becoming sole surety upon bonds, undertakings and obligations.

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

Notary Public Residing In:

My Commission expires the ____ day of _____, 20____.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called PRINCIPAL, and

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are hereby held and firmly bound unto the CITY OF YANKTON, SOUTH DAKOTA, hereinafter called OWNER, in the penal sum of _____ Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

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

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

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

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

IN WITNESS WHEREOF, the PRINCIPAL and the SURETY have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
PRINCIPAL
By _____(s)

ATTEST:

(Principal) Secretary
(SEAL)

(Witness as to Principal)

(Address)

SURETY
BY _____

ATTEST:

(Surety) Secretary
(SEAL)

(Witness as to Surety)

(Address)

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of South Dakota.

**ACKNOWLEDGMENT OF PRINCIPAL
(Corporation)**

State of _____)

: SS

County of _____)

On this ____ day of _____, 20____, before me personally appeared _____, who acknowledged himself to be the _____ of _____, a corporation, and that he, as such _____ being authorized to so do, by signing the name of the corporation by himself as _____.

Notary Public

My Commission expires the ____ day of _____, 20____.

AFFIDAVIT OF CORPORATE SURETY

State of _____)

: SS

County of _____)

Affiant

_____, being first duly sworn on oath, deposes and says that he is the _____ of _____, that he is duly authorized to execute and deliver the foregoing obligation; that said company is authorized to execute the same and has complied in all respects with the laws of _____ in reference to becoming sole surety upon bonds, undertakings and obligations.

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

Notary Public Residing In

My Commission expires the ____ day of _____, 20____.

NOTICE TO PROCEED

Dated _____, 20__

TO: _____
(Contractor)

ADDRESS: _____

PROJECT NO: _____

PROJECT: _____

CONTRACT FOR: _____

You are notified that the correct time under the above contract will commence to run on _____ . By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement the date of final completion is _____ .

Other requirements, if any

(Owner)

By _____
(Authorized Signature)

(Title)

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

_____, this _____ day of _____, 20 _____.

(Signature)

CHANGE ORDER

PROJECT TITLE: _____ CHANGE ORDER NO.: _____

PROEJCT NO: _____ DATE: _____

DESCRIPTION: _____

The following changes are hereby made to the Contract Documents:

<u>Quantity</u>	<u>Each</u>	<u>Total</u>
-----------------	-------------	--------------

Total Amount of this Change Order \$ _____

JUSTIFICATION:

Original Contract Amount:	\$ _____
Current Contract Amt. Adjusted by Previous Change Orders:	\$ _____
Contract Amt. due to this Change Order will be (increased)(decreased) by:	\$ _____
Contract Amount including this Change Order will be:	\$ _____

Contract Time will be (increased)(decreased) by _____
Completion Date for all work will be _____

APPROVAL:

ORDERED BY: _____
City of Yankton

ACCEPTED BY: _____
Contractor

WAIVER AND RELEASE OF LIEN

WHEREAS, the undersigned, _____
(Manufacturer, Materialman, Subcontractor)

has furnished to _____ the following
(Name of Contractor)

_____ for use in the construction
(Kind of Material and Services Furnished)

of a project belonging to _____, and
(Name of Owner)

designated as _____
(Name of Project)

NOW, THEREFORE, the undersigned:

_____ for and in
(Manufacturer, Materialman, Subcontractor)

consideration of \$ _____, and other good and valuable consideration, the receipt
whereof is hereby acknowledged, do (does) hereby waive and release any and all liens, or
right to or claim of lien, on the above described project and premises, under any law,
common or statutory, on account of labor or materials, or both, heretofore or hereafter
furnished by the undersigned to or for the account of said _____
(Name of Contractor)
for said project.

Given under my (our) hand(s) and seal(s) this _____ day of _____, 20 _____.

(Manufacturer, Materialman or Subcontractor)

By: _____

GENERAL CONDITIONS

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GENERAL CONDITIONS

1. DEFINITIONS:

1.1 Wherever used in the contract documents the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof.

1.2 **ADDENDA:** Written or graphic instruments issued prior to the execution of the agreement, which modify or interpret the contract documents' drawings and specifications by additions, deletions, clarifications or corrections.

1.3 **BID:** The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the work to be performed.

1.4 **BIDDER:** Any person, firm or corporation submitting a bid for the work.

1.5 **BONDS:** Bid, performance and payment bonds and other instruments of security furnished by the contractor and his surety in accordance with the contract documents.

1.6 **CHANGE ORDER:** A written order to the contractor authorizing an addition, deletion or revision in the work within the general scope of the contract documents, or authorizing an adjustment in the contract price or contract time.

1.7 **CONTRACT DOCUMENTS:** The contract, including advertisement for bids, information for bidders, bid, bid bond, agreement, payment bond, performance bond, notice of award, notice to proceed, change order, drawings, specifications and addenda.

1.8 **CONTRACT PRICE:** The total monies payable to the contractor under the terms and conditions of the contract documents.

1.9 **CONTRACT TIME:** The number of calendar days stated in the contract documents for the completion of the work.

1.10 **CONTRACTOR:** The person, firm or corporation with whom the owner has executed the agreement.

1.11 **DRAWINGS:** The part of the contract documents which show the characteristics and scope of the work to be performed and which have been prepared or approved by the Engineer.

1.12 **ENGINEER:** The person, firm or corporation named as such in the contract documents.

1.13 **FIELD ORDER:** A written order effecting a change in the work not involving an adjustment in the contract price or an extension of the contract time issued by the Engineer to the contractor during construction.

1.14 **NOTICE OF AWARD:** The written notice of the acceptance of the bid from the owner to the successful bidder.

1.15 NOTICE TO PROCEED: Written communication issued by the owner to the contractor authorizing him to proceed with the work and establishing the date of commencement of the work.

1.16 OWNER: A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the work is to be performed.

1.17 PROJECT: The undertaking to be performed as provided in the contract documents.

1.18 RESIDENT PROJECT REPRESENTATIVE: The authorized representative of the owner who is assigned to the project site or any part thereof.

1.19 SHOP DRAWINGS: All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the contractor, a subcontractor, manufacturer, supplier or distributor which illustrate how specific portions of the work shall be fabricated or installed.

1.20 SPECIFICATIONS: A part of the contract documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR: An individual, firm or corporation having a direct contract with the contractor or with any other subcontractor for the performance of a part of the work at the site.

1.22 SUBSTANTIAL COMPLETION: That date as certified by the Engineer when the construction of the project or a specified part thereof is sufficiently completed in accordance with the contract documents so that the project or specified part can be utilized for the purpose for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS: Modifications to general conditions required by a Federal agency for participation in the project and approved by the agency in writing prior to inclusion in the contract documents, or such requirements that may be imposed by applicable state laws.

1.24 SUPPLIER: Any person or organization who supplies materials or equipment for the work including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK: All labor necessary to produce the construction required by the contract documents and all materials and equipment incorporated or to be incorporated in the project.

1.26 WRITTEN NOTICE: Any notice to any party of the agreement relative to any part of this agreement in writing and considered delivered and the service thereof completed when posted by certified or registered mail to the said party at his last given address or delivered in person to said party or his authorized representative on the work.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS:

2.1 The contractor may be furnished additional instructions and detail drawings by the Engineer as necessary to carry out the work required by the contract documents.

2.2 The additional drawings and instruction thus supplied will become a part of the contract documents. The contractor shall carry out the work in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS:

3.1 The contractor shall submit to the owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the contract documents for the work to be performed.

3.2 Prior to the first partial payment estimate the contractor shall submit construction progress schedules showing the order in which he proposes to carry on the work including dates at which he will start the various parts of the work and, as applicable, the dates at which special detail drawings will be required and respective dates for submission of shop drawings, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The contractor shall also submit a schedule of payments that he anticipates he will earn during the course of the work.

4. DRAWINGS AND SPECIFICATIONS:

4.1 The intent of the drawings and specifications is that the contractor shall furnish all labor, materials, tools, equipment and transportation necessary for the proper execution of the work in accordance with the contract documents and all incidental work necessary to complete the project in an acceptable manner ready for use, occupancy or operation by the owner.

4.2 In case of conflict between the drawings and specifications, the specifications shall govern. Figure dimensions on drawings shall govern over scale dimensions and detailed drawings shall govern over general drawings.

4.3 Any discrepancies found between the drawings and specifications and site conditions or any inconsistencies or ambiguities in the drawings or specifications shall be immediately reported to the Engineer in writing who shall promptly correct such inconsistencies or ambiguities in writing. Work done by contractor after his discovery of such discrepancies, inconsistencies or ambiguities and prior to the Engineer's written response shall be done at the contractor's risk.

5. SHOP DRAWINGS:

5.1 The contractor shall provide shop drawings as may be necessary for the prosecution of the work as required by the contract documents. The Engineer shall promptly review all shop drawings. The Engineer's approval of any shop drawings shall not release the contractor from responsibility for deviations from the contract documents. The approval of any shop drawings, which substantially deviates from the requirement of the contract documents, shall be evidenced by a change order.

5.2 When submitted for the Engineer's review shop drawings shall bear the contractor's certification that he has reviewed, checked and approved the shop drawings and that they are in conformance with the requirements of the contract documents.

5.3 Portions of the work requiring a shop drawing or sample submission shall not begin until the shop drawing or submission has been approved by the Engineer. A copy of each approved shop drawing and each approved sample shall be kept in good order by the contractor at the site and shall be available to the Engineer.

6. MATERIALS, SERVICES AND FACILITIES:

6.1 It is understood that, except as otherwise specifically stated in the contract documents, the contractor shall provide and pay for all material, labor, tools, equipment, water, lights, power, transportation, supervision, temporary construction of any nature and all other services and facilities of any nature whatsoever necessary to execute, complete and deliver the work within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the work. Stored materials and equipment to be incorporated in the work shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the contractor and approved by the Engineer.

6.5 Materials, supplies or equipment to be incorporated into the work shall not be purchased by the contractor or the subcontractor subject to a chattel mortgage or under a conditional sale contract or either agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING:

7.1 All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with generally accepted standards as required and defined in the contract documents.

7.2 The owner shall provide all inspection and testing services not required by the contract documents.

7.3 The contractor shall provide, at his expense, the testing and inspection services required by the contract documents.

7.4 If the contract documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to specifically be inspected, tested or approved by someone other than the contractor, the contractor will give the Engineer timely notice of readiness. The contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the Engineer or others shall not relieve the contractor from his obligations to perform the work in accordance with the requirements of the contract documents.

7.6 The Engineer and his representatives will at all time have access to the work. In addition, authorized representatives and agents of any participating Federal or State agency be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records. The contractor will provide proper facilities for such access and observation of the work and also for any inspection or testing thereof.

7.7 If any work is covered contrary to the written instructions of the Engineer it must be uncovered for the Engineer's observation and if requested by the Engineer be replaced at the contractor's expense.

7.8 If the Engineer considers it necessary or advisable that covered work be inspected or tested by others, the contractor at the Engineer's request will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the work in question furnishing all necessary labor, materials, tools and equipment. If it is found that such work is defective the contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such work is not found to be defective, the contractor will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate change order shall be issued.

8. SUBSTITUTIONS:

8.1 Whenever a material, article or piece of equipment is identified on the drawings or specifications by reference to brand name or catalog number it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, qualities and function shall be considered. The contractor may recommend the substitution of a material, article or piece of equipment of equal substance and function for those referred to in the contract documents by reference to brand name or catalog number and if in the opinion of the Engineer such material, article or piece of equipment is of equal substance and function to that specified the Engineer may approve its substitution and use by the contractor. Any cost differential shall be deductible from the contract price and the contract document shall be appropriately modified by change order. The contractor warrants that if substitutes are approved, no major changes in the function or general design of the project will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the contractor without a change in the contract price or contract time.

9. PATENTS:

9.1 The contractor shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the owner harmless from loss on account thereof, except that the owner shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however, if the contractor has reason to believe that the design, process or product

specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Engineer.

10. SURVEYS, PERMITS, REGULATIONS:

10.1 The owner shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the work together with a suitable number of bench marks adjacent to the work as shown in the contract documents. From the information provided by the owner unless otherwise specified in the contract documents, the contractor shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The contractor shall carefully preserve bench marks, reference points and stakes and in case of willful or careless destruction he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the contractor unless otherwise stated in the supplemental general conditions. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the owner unless otherwise specified. The contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the contractor observes that the contract documents are at variance therewith, he shall promptly notify the Engineer in writing and any necessary changes shall be adjusted as provided in "Changes in Work" sections below.

11. PROTECTION OF WORK, PROPERTY AND PERSONS:

11.1 The contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. He will take all necessary precautions for the safety of and will provide the necessary protection to prevent damage, injury or loss to all employees on the work and other persons who may be affected thereby, all the work and all materials or equipment to be incorporated therein whether in storage on or off the site and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain as required by the conditions and progress of the work all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the work may affect them. The contractor will remedy all damage, injury or loss to any property caused, directly or indirectly in whole or in part by the contractor, any subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the contract documents or to the acts or omissions of the owner or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part to the fault or negligence of the contractor.

11.3 In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto the contractor without special instruction or authorization from the Engineer or the owner shall act to prevent threatened damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the work or deviations from the contract documents caused thereby, and a change order shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR:

12.1 The contractor will supervise and direct the work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The contractor will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the contractor as the contractor's representative at the site. The supervisor shall have full authority to act on behalf of the contractor and all communications given to the supervisor shall be as binding as if given to the contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

13. CHANGES IN THE WORK:

13.1 The owners may at any time, as the need arises, order changes within the scope of the work without invalidating the Agreement. If such changes increase or decrease the amount due under the contract documents or in the time required for performance of the work an equitable adjustment shall be authorized by change order.

13.2 The Engineer also may at any time by issuing a field order make changes in the details of the work. The contractor shall proceed with the performance of any changes in the work so ordered by the Engineer unless the contractor believes that such field order entitles him to a change in contract price or time or both in which event he shall give the Engineer written notice thereof within seven (7) days after the receipt of the ordered change. Thereafter the contractor shall document the basis for the change in contract price on time within thirty (30) days. The Contractor shall not execute such changes pending the receipt of an executed change order or further instruction from the owner.

14. CHANGES IN CONTRACT PRICE:

14.1 The contract price may be changed only by a change order. The value of any work covered by a change order or of any claim for increase or decrease in the contract price shall be determined by one or more of the following methods in the order of precedence listed below:

- (a) Unit prices previously approved.
- (b) An agreed lump sum.
- (c) The actual cost for labor, direct overhead, materials, supplies, equipment and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the work to cover the cost of general overhead and profit.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES:

15.1 The date of beginning and the time for completion of the work are essential conditions of the contract documents and the work embraced shall be commenced on a date specified in the Notice to Proceed.

15.2 The contractor will proceed with the work at such rate of progress to insure full completion within the contract time. It is expressly understood and agreed, by and between the contractor and the owner, that the contract time for the completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

15.3 If the contractor shall fail to complete work within the contract time or extension of time granted by the owner, the contractor will pay to the owner the amount for liquidated damages as specified in the bid for each calendar day that the contractor shall be in default after the time stipulated in the contract documents.

15.4 The contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due to the following and the contractor has promptly given written notice of such delay to the owner or Engineer.

(1) To any preference, priority or allocated order issued by the owner.

(2) To unforeseeable causes beyond the control and without the fault or negligence of the contractor including but restricted to acts of God, or the public enemy, acts of the owner, acts of another contractor in the performance of a contract with the owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather, and

(3) To any delays of subcontractors occasioned by any of the causes specified in the two paragraphs above.

16. CORRECTION OF WORK:

16.1 The contractor shall promptly remove from the premises all work rejected by the Engineer for failure to comply with the contract documents, whether incorporated in the construction or not, and the contractor shall promptly replace and re-execute the work in accordance with the contract documents and without expense to the owner and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

16.2 All removal and replacement work shall be done at the contractor's expense. If the contractor does not take action to remove such rejected work within ten (10) days after receipt of written notice the owner may remove such work and store the materials at the expense of the contractor.

17. SUBSURFACE CONDITIONS:

17.1 The contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the owner by written notice of:

(1) Subsurface or latent physical conditions at the site differing materially from those indicated in the contract documents, or

(2) Unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract documents.

17.2 The owner shall promptly investigate the conditions and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the work an equitable adjustment shall be made and the contract documents shall be modified by a change order. Any claim of the contractor for adjustment thereunder shall not be allowed unless he has given the required written notice, provided that the owner may if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY:

18.1 The owner may suspend the work or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the contractor by written notice to the contractor and the Engineer which notice shall fix the date on which work shall be resumed. The contractor will resume that work on the date so fixed. The contractor will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to any suspension.

18.2 If the contractor is adjudged a bankrupt or insolvent or if he makes a general assignment for the benefit of his creditors or if a trustee or receiver is appointed for the contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to subcontractors, or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the work or if he disregards the authority of the Engineer, or if he otherwise violates any provision of the contract documents then the owner may, without prejudice to any other right or remedy, and after giving the contractor and his surety a minimum of ten (10) days from delivery of a written notice terminate the services of the contractor and take possession of the project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the contractor and finish the work by whatever method he may deem expedient. In such case the contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the project, including compensation for additional professional services such excess shall be paid to the contractor. If such costs exceed such unpaid balance the contractor will pay the difference to the owner. Such costs incurred by the owner will be determined by the Engineer and incorporated in a change order.

18.3 Where the contractor's services have been so terminated by the owner said termination shall not affect any right of the owner against the contractor then existing or which may thereafter accrue. Any retention or payment of monies by the owner due the contractor will not release the contractor from compliance with the contract documents.

18.4 After ten (10) days from delivery of a written notice to the contractor and the Engineer the owner may, without cause and without prejudice to any other right or remedy, elect to abandon the project and terminate the contract. In such case, the contractor shall be paid for all work executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the contractor, the work is suspended for a period of more than ninety (90) days by the owner or under an order of court or other public authority, or the owner fails to pay the contractor substantially the sum approved by the Engineer or awarded by arbitrators within thirty (30) days of its approval and presentation then the contractor may, after ten (10) days delivery of a written notice to the owner and the Engineer, terminate the contract and recover from the owner payment for all work executed and all expenses sustained in addition and in lieu of terminating the contract. If the Engineer has failed to act on a request for payment or if the owner has failed to make any payment as aforesaid the contractor may upon ten (10) days written notice to the owner and the Engineer stop the work until he has been paid all amounts then due, in which event and upon resumption of the work change orders shall be issued for adjusting the contract price or extending the contract time or both to compensate for the costs and delays attributable to the stoppage of the work.

18.6 If the performance of all or any portion of the work is suspended, delayed or interrupted as a result of a failure of the owner or Engineer to act within the time specified, within a reasonable time, an adjustment in the contract price or an extension of the contract time, or both, shall be made by change order to compensate the contractor for the costs and delays necessarily caused by the failure of the owner or Engineer.

19. PAYMENTS TO CONTRACTOR:

19.1 At least ten (10) days before each progress payment falls due (but not more than once a month) the contractor will submit to the Engineer a partial payment estimate filled out and signed by the contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data satisfactory to owner as will establish the owner's title to the material and equipment and protect his interest therein including applicable insurance. The Engineer will within ten (10) days after receipt of each partial payment estimate either indicate in writing his approval of payment and present the partial payment estimate to the owner, or return the partial payment estimate to the contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the contractor may make the necessary corrections and resubmit the partial payment estimate. The owner will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the contractor a progress payment on the basis of the approved partial payment estimate. The owner shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the contract documents. The owner at any time, however, after fifty (50) percent of the work has been completed, if he finds that satisfactory progress is being made, shall reduce retainage to five (5) percent on the current and remaining estimates. When the work is substantially complete (operational or beneficial occupancy) the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the work on which the price is stated separately in the contract documents payment may be made in full including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment, which are suitably stored either at or near the site.

19.3 Prior to substantial completion the owner with the approval of the Engineer and with the concurrence of the contractor may use any completed or substantially completed portions of the work. Such use shall not constitute an acceptance of such portions of the work.

19.4 The owner shall have the right to enter the premises for the purpose of doing work not covered by the contract documents. This provision shall not be construed as relieving the contractor of the sole responsibility for the care and protection of the work or the restoration of any damaged work except such as may be caused by agents or employees of the owner.

19.5 Upon completion and acceptance of the work the Engineer shall issue a certificate attached to the final payment request that he has accepted the work under the conditions of the contract documents. The entire balance found to be due the contractor, including the retained percentages but except such sums as may be lawfully retained by the owner, shall be paid to the contractor within thirty (30) days of completion and acceptance of the work.

19.6 The contractor will indemnify and save the owner or the owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, tools and all supplies incurred in the furtherance of the performance of the work. The contractor shall, at the owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged or waived. If the contractor fails to do so the owner may, after having notified the contractor either pay unpaid bills or withhold from the contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharge where upon payment to the contractor shall be resumed in accordance with the terms of the contract document, but in no event shall the provisions of this sentence be construed to impose any obligation upon the owner to either the contractor, his surety, or any third party. In paying any unpaid bills of the contractor any payment so made by the owner shall be considered as a payment made under the contract documents by the owner to the contractor and the owner shall not be liable to the contractor for any such payment made in good faith.

19.7 If the owner fails to make payment thirty (30) days after approval by the Engineer in addition to other remedies available to the contract there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the contractor.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE:

20.1 The acceptance by the contractor of final payment shall be and shall operate as a release to the owner of all claims and all liability to the contractor other than claims in stated amounts as may be specifically excepted by the contractor for all things done or furnished in connection with this work and for every act and neglect of the owner and others relating to or arising out of this work. Any payment, however, final or otherwise shall not release the contractor or his sureties from any obligations under the contract documents or the performance bond and payment bond.

21. INSURANCE:

21.1 The contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the contractor's execution of the work, whether such execution be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

- (1) Claims under workmen's compensation, disability benefit and other similar employee benefit acts.
- (2) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees.
- (3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees.
- (4) Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the contractor, or (2) by any other person, and
- (5) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of insurance acceptable to the owner shall be filed with the owner prior to commencement of the work. These certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least fifteen (15) days prior written notice has been given to the owner.

21.3 The contract shall procure and maintain at his own expense during the contract time liability insurance as hereinafter specified:

- (1) Contractor's general public liability and property damage insurance including vehicle coverage issued to the contractor and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property arising out of or in connection with any operations under the contract documents whether such operations be by himself or by a subcontractor under him or anyone directly or indirectly employed by the contractor or by a subcontractor under him. Insurance shall be written with a limit of liability of not less than \$500,000 for all damages arising out of bodily injury, including death, at any time resulting there from sustained by any one person in any one accident and a limit of liability of not less than \$500,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$200,000 for all property damage sustained by any one person in any one accident and a limit of liability of not less than \$500,000 aggregate for any such damage sustained by two or more persons in any one accident.
- (2) The contractor shall acquire and maintain if applicable fire and extended coverage insurance upon the project to the full insurable value thereof for the benefit of the owner, the contractor and subcontractors as their interest may

appear. This provision shall in no way release the contractor or contractor's surety from obligations under the contract documents to fully complete the project.

21.4 The contractor shall procure and maintain at his own expense during the contract time in accordance with the provisions of the laws of the state in which the work is performed workmen's compensation insurance including occupational disease provisions for all of his employees at the site of the project and in case any work is sublet, the contractor shall require such subcontractor similarly to provide workmen's compensation insurance including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the contractor. In case any class of employees engaged in hazardous work under this contract at the site of the project is not protected under workmen's compensation statute, the contractor shall provide, and shall cause each subcontractor to provide adequate and suitable insurance for the protection of his employees not otherwise protected.

21.5 The contractor shall secure, if applicable, "All Risk" type builder's risk insurance for work to be performed. Unless specifically authorized by the owner the amount of such insurance shall not be less than the contract price totaled in the bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the contract time and until the work is accepted by the owner. The policy shall name as the insured the contractor, the Engineer and the owner.

22. CONTRACT SECURITY:

22.1 The contractor shall within ten (10) days after the receipt of the notice of award furnish the owner with a performance bond and a payment bond in penal sums equal to the amount of the contract price conditioned upon the performance by the contractor of all undertakings, covenants, terms, conditions and agreements of the contract documents and upon the prompt payment by the contractor to all persons supplying labor and materials in the prosecution of the work provided by the contract documents. Such bonds shall be executed by the contractor and a corporate bonding company licensed to transact such business in the state in which the work is to be performed and named on the current list of Surety Companies acceptable on Federal Bonds as published in the Treasury Department Circular Number 570. The expense of these bonds shall be borne by the contractor. If at any time a surety on any such bond is declared a bankrupt or loses its right to do business in the state in which the work is to be performed or is removed from the list of surety companies accepted on Federal bonds the contractor shall within ten (10) days after notice from the owner to do so substitute an acceptable bond (or bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the owner. The premiums on such bond shall be paid by the contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable bond to the owner.

23. ASSIGNMENTS:

23.1 Neither the contractor nor the owner shall sell, transfer, assign or otherwise dispose of the contract or any portion thereof or his right, title or interest therein, or his obligations there under, without written consent of the other party.

24. INDEMNIFICATION:

24.1 The contractor will indemnify and hold harmless the owner and the Engineer and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the work provided that any such claims, damages, loss or expense is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property, including the loss of use resulting there from and is caused in whole or in part by any negligent or willful act or omission of the contractor and subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the owner or the Engineer or any of their agents or employees by any employee of the contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the contractor or any subcontractor under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the contractor under this paragraph shall not extend to the liability of the Engineer, his agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications.

25. SEPARATE CONTRACTS:

25.1 The owner reserves the right to let other contracts in connection with this project. The contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs. If the proper execution or results of any part of the contractor's work depends upon the work of any other contractor, the contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

25.2 The owner may perform additional work related to the project by himself or he may let other contracts containing provisions similar to these. The contractor will afford the other contractors who are parties in such contracts for the owner if he is performing the additional work himself reasonable opportunity for the introduction and storage of materials and equipment and the execution of work and shall properly connect and coordinate his work with theirs.

25.3 If the performance of additional work by other contractors or the owner is not noted in the contract documents prior to the execution of the contract written notice thereof shall be given to the contractor prior to starting any such additional work. If the contractor believes that the performance of such additional work by the owner or others involves him in additional expense or entitles him to an extension of the contract time he may make a claim therefor as provided in prior sections.

26. SUBCONTRACTING:

26.1 The contractor may utilize the services of specialty subcontractors on those parts of the work, which under normal contracting practices are performed by specialty subcontractors.

26.2 The contractor shall not award work to subcontractors in excess of fifty (50) percent of the contract price without prior written approval of the owner.

26.3 The contractor shall be fully responsible to the owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

26.4 The contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the contractor by the terms of the contract documents insofar as applicable to the work of subcontractors and to give the contractor the same power as regards terminating any subcontract that the owner may exercise over the contractor under any provision of the contract documents.

26.5 Nothing contained in this contract shall create any contractual relation between any subcontractor and the owner.

27. ENGINEER'S AUTHORITY:

27.1 The Engineer shall act as the owner's representative during the construction period. He shall decide questions that may arise as to quality and acceptability of materials furnished and work performed. He shall interpret the intent of the contract documents in a fair and unbiased manner. The Engineer will make visits to the site and determine if the work is proceeding in accordance with the contract documents.

27.2 The contractor will be held strictly to the intent of the contract documents in regard to the quality of materials, workmanship and execution of the work. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures or construction safety.

27.4 The Engineer shall promptly make decisions relative to interpretation of the contract documents.

28. LAND AND RIGHT-OF-WAY:

28.1 Prior to issuance of notice to proceed the owner shall obtain all land and right-of-way necessary for carrying out and for the completion of the work to be performed pursuant to the contract documents unless otherwise mutually agreed.

28.2 The owner shall provide to the contractor information which delineates and describes the lands owned and right-of-way acquired.

28.3 The contractor shall provide at his own expense and without liability to the owner any additional land and access thereto that the contractor may desire for temporary construction facilities or for storage of materials.

29. GUARANTY:

29.1 The contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year from the date of substantial completion. The Contractor warrants and guarantees for a period of one (1) year from the date of substantial completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The owner will give notice of observed defects with

30. ARBITRATION: (Deleted) - Re Supplementary Conditions

31. TAXES:

31.1 The contractor will pay all sales, consumer, use and other similar taxes required by the law of the place where the work is performed.

SUPPLEMENTAL GENERAL CONDITIONS

These Supplementary Conditions to the Contract amend or supplement the General Conditions and other provisions of the Contract Documents as indicated below. All provisions which are not as amended or supplemented remain in full force and effect.

SURVEYS, PERMITS, REGULATIONS:

Add the following to Section 10.3:

The Contractor shall be responsible for securing and paying for all required Federal, State and City permits and licenses necessary for the prosecution of the work. The Contractor prior to commencing work on this project shall be licensed in the City of Yankton as a "Water and Sewer Installation Contractor" or a "Plumbing Contractor" if any water and sanitary sewer work is a part of the project. However, prior to issuing a city license the Contractor shall be licensed as a "Water and Sewer Installation Contractor" or be licensed as a "Plumbing Contractor" in the State of South Dakota, if any water or sanitary sewer system work is called for in this contract.

SUBSURFACE CONDITIONS:

SC.17. Delete paragraph 17.2 of the "General Conditions" entirely and in its place insert the following:

17.2. No subsurface exploration other than that listed on the construction plans was conducted at the proposed construction site. The Contractor is responsible to obtain any information he deems appropriate to allow him to perform the work at the price bid. No extra compensation will be allowed by the Owner for unusual subsurface conditions unless the Engineer finds that such conditions warrant extra compensation.

INSURANCE:

SC.21. Delete paragraph 21 of the General Conditions in its entirety and insert in its place the following:

21.1 During the term of this Contract, the Contractor shall maintain such insurance as will protect him from claims as set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by a subcontractor or sub-subcontractor or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be held liable:

(A) for claims arising under any Workmen Compensation, Employers Liability, or any similar employee benefit acts;

(B) for claims because of bodily injury, sickness, disease or death of any person or persons other than his employees, and for claims because of damage to or destruction of property of others resulting therefrom, including loss of use thereof.

Such insurance shall be written for amounts not less than the following as respects subparagraph (A) above:

Workmen's Compensation	Statutory
Employers Liability	\$500,000 each occurrence;

and as respects subparagraph (B) above:

- | | | |
|-----|--|---|
| 1. | Bodily Injury and Property
Damage with a Combined Single
Limit of Liability of | \$1,000,000 each occurrence,
including collapse and underground liability |
| or | | |
| 2. | Bodily Injury:
General and Automobile | \$1,000,000 each person |
| and | General and Automobile | \$1,000,000 each occurrence, including
collapse and underground liability |
| and | Property Damage:
General and Automobile
General | \$500,000 each occurrence
\$500,000 aggregate, including collapse
and underground liability |

The insurance referred to in subparagraph (B) above shall be written under the Comprehensive General and Comprehensive Automobile Liability policy forms, including coverage for all owned, hired, and non-owned automobiles. The Contractor may at his option provide the limits of liability as set out above by a combination of the above described policy forms and an Umbrella Excess Liability policy. Unless otherwise specifically approved in writing by the Owner the policies shall be written on an "occurrence" basis and not on a "claims made " basis.

"The First National Bank in Sioux Falls" must be listed (as shown here in quotes) as an additional insured party on the contractor's insurance certificate.

"All Risk" type builder's risk insurance **will not** be required on this project.

All responsibility for payment of any sums resulting from any deductible provisions, corridor, or self-insured retention conditions of the policy or policies shall remain with the Contractor.

Proof of insurance shall be submitted directly to the Owner for review and approval with a record copy only to the Engineer for his files. The Contractor shall not begin any work until the Owner has reviewed and approved the Insurance Certificate and has so notified the Contractor directly in writing. Any Notice to Proceed issued shall be subject to such approval by the Owner.

ARBITRATION: Delete Paragraph 30 "Arbitration" in its entirety.

MEASUREMENT AND PAYMENT

GENERAL

The method of measurement and basis of payment described are for work itemized in the Bid Form and in the sections of the specifications. Items may include work within a single section or in more than one section.

MEASUREMENT

When the contract stipulates that payment will be made on a lump sum basis, no separate measurement will be made. When the contract stipulates that payment will be made on a unit basis, measurement will be made by the unit stipulated in the contract.

Unless otherwise specified, all longitudinal measurements will be made vertically, and computation will be neat dimensions shown on the drawings and details.

Quantities will be rounded off to the nearest whole unit.

PAYMENT

Provided the Contractor meets the requirements of the plans and specifications and the provisions for the contract proposal, payment will be made at the applicable unit price or lump sum in the bid schedule for the quantities as directed by the engineer to be installed in the field. Plan quantities are not to be exceeded without written approval of the Engineer.

Unit or lump sum bid prices as quoted in the Bid Form shall be full compensation for labor, materials, fabricating, tools, transporting, mobilization and demobilization, delivering, placing of materials, equipment, rentals, overhead, profit, and incidentals to furnish and install and complete all work in each pay item; and for all risk, loss, damage, fees, taxes or expense of whatever nature arising from the nature of the work of the prosecution thereof.

Work or materials that are essential to the work, but for which there are not pay items, will not be measured and paid for separately, but shall be included in other items of work.

MEASUREMENT AND PAYMENT ITEMS

1. **Mobilization:** – **Lump sum** price for all preparatory work and operations, including, but not limited to the necessary movement of personnel, equipment, and incidentals to the project site; for the establishment of offices, buildings and other facilities necessary for work on the project; for work and operations which must be performed, and for costs incurred before starting work on the various contract items on the project site. Mobilization will be paid for as outlined in Section 9.10 of the 1998 South Dakota DOT Standard Specifications.
2. **Saw Existing Concrete:** – **Per linear foot** unit price shall be full compensation for sawing existing concrete pavement to get a final vertical surface acceptable to the Engineer. Measurement will be to the nearest whole foot of sawing.
3. **Removal of Concrete Pavement:** - **Per square yard** unit price as marked and measured in the field prior to construction, and removed to the thickness encountered in the field. This price and payment shall be full compensation for hauling, handling, excavating, sawing, transporting to City stockpile at 23rd and Kellen Gross Drive, and any other items that may pertain to the removal of concrete. This item will be used for all concrete removal including pavements, sidewalks, curb and gutter, driveway approaches and fillets. No extra payment will be made for concrete that contains reinforcement of any kind.
4. **Removal of Asphalt Concrete:** - **Per square yard** unit price as marked and measured in the field prior to construction, and removed to the thickness encountered in the field. This price and payment shall be full compensation for hauling, handling, excavating, transporting to City stockpile at 23rd and Kellen Gross Drive, and any other items that may pertain to the removal of the asphalt concrete.
5. **Removal of Curb and Gutter:** - **Per linear foot** unit price shall be full compensation for removing and disposing of the concrete curb and gutter noted on the plans and marked in the field to be removed by the contractor. The removal shall be measured to the nearest whole linear foot.
6. **Unclassified Excavation:** – **Lump sum** price will include all excavation, scarifying and recompacting, embankments, topsoil salvage, hauling, compaction, stockpiling, placing, spreading, and fine grading the surface smooth. Quantities and volumes are listed on the plans for information only. Bidder must determine the accuracy of quantities given and apply appropriate shrink factor prior to bidding. Price is to include scarifying and recompacting the subgrade six (6) inches deep in areas of street pavement if required by plan notes.
7. **Undercutting:** - **Cubic yard** unit price will be for area and depth directed by engineer to be removed. Unit price will include all items listed under earthwork item. Payment will be full compensation for work over and above that normally required for excavation to finished subgrade.
8. **Water for Embankment or Granular Material:** - **Per thousand gallons** unit price will include furnishing, hauling and incorporating the water into the embankment or granular material. Payment will be based on the measured gallons of water used.

9. **Seeding, Mulching and Fertilizer:** – **Lump sum** price will be full compensation for all soil preparation, labor, seed, mulch and fertilizer required for the project.
10. **Temporary Vehicle Tracking Control:** - **Per each** unit price shall be the amount paid for each site where the Engineer requires the use of the temporary vehicle tracking control for however long as it is needed. The gravel utilized in the vehicle tracking pad shall be paid for at the unit price bid for service gravel. The temporary vehicle tracking control unit price shall be full compensation for installing, maintaining and removing the device along with cleaning tracked soil from the adjacent street surfacing. The Contractor will be charged \$50.00 for each day that dirt is not cleaned off of the adjacent street after it is placed or tracked onto the adjacent street.
11. **Inlet Sediment Control:** - **Per each** unit price shall be full compensation for furnishing and installing the plan specified material to prevent sediment from entering drop inlets, junction boxes, manholes, etc.
12. **Silt Fencing:** - **Per linear foot** unit price as stipulated in the proposal, and called for by the specifications. The Contractor shall regularly inspect and maintain the silt fences. The unit price shall be full compensation for the installation, maintenance, and removal of the silt fence.
13. **Geotextile Fabric:** - **Per square yard** unit price shall be the amount paid for all labor, equipment and material, as described in plans, required for the proper installation of fabric. Installation shall be in accordance with the manufacture’s recommendations. Overlap shall be a minimum of 24 inches. The end of the roll overlaps shall be three feet minimum. Measurement for payment excludes the fabric used for overlapping as well as seam overlaps.
14. **Removal of Manholes/Drop Inlet/Junction Box:** - **Per each** unit price is for removal and disposal of existing structure at Yankton Municipal Solid Waste Dump Site and earthwork necessary to fill the excavated area. Unit price includes plugging abandoned in place pipe with concrete plug and all fees associated with disposal of said material.
15. **Stormwater Drop Inlet and Junction Box:** - **Per each** unit price for the type and style call for in the plans and proposal will be full compensation for structural excavation and back fill, all materials including concrete and reinforcing steel, ring and cover, casting, forming, placement and items required for concrete placement.
16. **Reinforced Concrete Pipe (RCP):** - **Linear foot** (or each for flared ends) unit price will be for type called for and include furnishing and installing pipe. Includes excavation, backfill, compaction tie bolts and 1” mastic (butyl robe) for joint sealing material as a standard, or o-ring gaskets if specifically noted.
17. **Remove Existing Storm Sewer:** **Per lineal foot** unit price shall be full compensation for excavating, removing pipe and backfilling the excavated trench. The salvaged pipe shall be disposed of by the Contractor.

- 18. Watermain & Service Lines: - Per linear foot** unit price is for the size, type, and class of pipe as stipulated in the proposal or as shown on the plans. This price and payment shall be full compensation for furnishing and installing pipe, hauling, handling, boring or excavating, dewatering, laying, jointing, bedding, backfilling, shoring, water for compaction, compacting, extra depth as shown on plans or as is necessary to avoid conflict with other (existing and proposed) utilities, copper wire, temporary fittings and plugs to maintain water service, testing and disinfection of the furnished pipe line in accordance with the plans and specifications. The unit price also includes dewatering and cleanup of the work area. Ground surface is to be graded smooth in anticipation of seeding or pavement materials.
- 19. Gate Valves and Valve Boxes: - Per each** unit price includes the size and type as stipulated in the bid proposal, and called for by the specifications. This price and payment shall be full compensation for furnishing and installing valves and boxes in the proper location, adjusting to grade, poly wrapping, and items listed with watermain installation.
- 20. Specials and Fittings: - Per each** includes the various kinds and sizes as stipulated in the proposal. This price and payment shall be full compensation for furnishing and installing of fittings, poly wrapping, thrust restraint, appurtenances and items listed with watermain installation.
- 21. Cut and Tie to Existing Watermain: – Per each** unit price shall be full compensation for excavation and backfilling, cutting the existing watermain, draining the pipe and dewatering as necessary, furnishing all labor necessary to do the work and to contact the affected water users. These items will be counted as noted on the plans. Where a single valve, plug, cap, etc. is cut in, the cut and tie to existing watermain bid item will only be paid for once.
- 22. Water Service Line Reconnection: - Per each** includes furnishing and installing service saddle, corporation stop, pipe, pipe fittings and sleeves as are necessary to reconnect existing services to new main. Includes temporary service arrangements if necessary.
- 23. Temporary Fire Hydrant: – Per each** unit price shall be full compensation to set a fire hydrant to provide for flushing out the watermain, sampling the watermain for bacteria and then removing the fire hydrant after the testing is completed.
- 24. Granular Material for Watermain: – Per linear foot** unit price shall be full compensation for furnishing and installing granular material under, around and above the watermain, measured to the nearest whole linear foot.
- 25. Remove Existing Fire Hydrant or Valve: - Per each** unit price shall be full compensation for excavating, removing, and backfilling a fire hydrant or valve. The salvaged hydrant or valve shall be disposed of by the Contractor.
- 26. Traffic Control: - Per each** unit price is for furnishing, installing, and maintaining the traffic control devices shown on the plans. All traffic control devices and locations shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices". The unit price shall be full compensation for re-locations or re-installing any sign or device during the duration of the project as directed by the Engineer.

- 27. Traffic Control Misc.: - Lump sum** unit price is for furnishing, installing, and maintaining the small barricades, drums, cones, etc. at all other areas of the project that are not shown on the plans. All traffic control devices and locations shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices." The lump sum price shall be full compensation for any re-location or re-installing of any device due to change in traffic patterns, scheduling, or as deemed necessary by the Engineer through the duration of the project.
- 28. Portland Cement Concrete Pavement: - Per square yard** unit price called for by the proposal includes subgrade preparation and fine grading, furnishing materials, reinforcing, placement, finishing, control joints, sawing existing pavement as shown on drawings, sealing joints, protecting existing concrete from damage, curing compound, expansion joint material, traffic control and barricading, and backfill after forms have been removed.
- 29. Concrete Fillet Section and/or Valley Gutter: - Per square foot** unit price will be for fillets or valley gutter without reinforcing steel. Concrete is to contain fiber mesh as specified. Unit price includes all general concrete work items. Curb attached to fillets is considered part of fillet and no separate measurement will be made for curb attached to fillet.
- 30. Sidewalk and Approach Pavement: - Per square foot** unit price shall be for the thickness as stipulated in the proposal or shown on the plans. Shall be full compensation for measured in place sidewalk or approach pavement, consisting of SDDOT Class M-6 on bid proposal. Concrete placed as directed. Includes aggregate base course material used for fine grading and general items for concrete pavement. This unit price will be applied for sidewalk and approach ramps behind curbs as stipulated on bid form.
- 31. Concrete Curb & Gutter: - Per linear foot** unit price includes general items for concrete pavement placement for the type and style stipulated and shall be full compensation for measured in place curb and gutter consisting of Class M-6 Concrete (curved and straight sections if not separated on bid form). Separate payment will not be made for dropping curb for sidewalk ADA ramps. Gravel cushion under the curb and gutter is being paid for under the bid item Aggregate Base Course.
- 32. Aggregate Base Course (as Gravel Cushion): - Per square yard** unit price includes loading hauling, compacting, installing and shaping to depth called for on plans. Measurement will be based on areas of P.C.C. pavement, fillets and valley gutters where called for in the plans and specifications. Does not include aggregate for sidewalks and approach pavement areas. **(City of Yankton to supply material)**
- 33. Insert Steel Bars in PCC Pavement: - Per each** unit price for furnishing and installing the steel bars called out in the plans, specifications and standard plates.

TECHNICAL INFORMATION AND REQUIREMENTS

SECTION 101 GENERAL:

The following requirements are a part of the General Conditions of the contract and shall be used in conjunction with them as a part of the contract documents. Should there be any conflict in the General Conditions, these requirements shall govern.

SECTION 102 REQUEST FOR APPROVAL - PRODUCTS AND MANUFACTURERS:

Equivalents to specified products may be accepted at the approval of ENGINEER. Requests for approval of products or material other than those specifically named in the project manual shall be submitted to the ENGINEER for consideration and recommendations at least ten (10) days prior to bid date.

Specific items scheduled by manufacturer catalog numbers are to be used as a basis for bidding. Listing of other products or manufacturers by name shall not in any way be construed as being equal or equivalent for bidding purposes.

All component parts, equipment and materials furnished shall be new, unused, and the same as the manufacturer's current production models.

SECTION 103 REPORTS AND TESTING:

103.1 Laboratory Testing. Certain tests and inspections will be necessary for quality control as specified for this project. The OWNER is scheduled to perform the tests and inspections; if not called for in other sections of the specifications, utilizing recognized standard procedures and criteria. Retests required due to initial test failures will be paid for by the CONTRACTOR.

The CONTRACTOR shall furnish all sample materials required for these tests and shall deliver same without charge to the OWNER when and where directed by the OWNER. Any additional tests necessary beyond those required under this specification may be ordered by the ENGINEER to settle disagreements with the CONTRACTOR regarding quality of work done. If the work is defective, the CONTRACTOR shall pay all costs of the extra tests and shall correct the work.

If work is satisfactory, the OWNER will pay for extra tests. Quality testing shall include, but not necessarily be limited to, concrete testing, aggregate testing, soils testing, compaction testing and the like.

103.2 Factory Testing. Factory tests of any materials relative to performance, capacity, rating, efficiency, function, or special requirements shall be conducted in the factory or shop for each item when this type of test is specified and/or required by the ENGINEER. These tests shall be performed in accordance with applicable standards and test codes.

Factory tests shall be set up and accomplished by the equipment manufacturer who shall provide all shop space, tools, equipment, instruments, personnel, and other facilities required for the satisfactory completion of each test. Test data and results shall be submitted to the ENGINEER for his review and approval.

The cost of factory tests shall be included in the bid price of the contract and no additional payment will be made for factory testing.

SECTION 104 EXAMINATION OF PREMISES:

The CONTRACTOR shall inform himself of conditions under which the work is to be performed, concerning the site of the project, the obstacles that may be encountered and all other relevant matters concerning the work to be performed. No extra compensation will be allowed for failure to secure information available prior to bidding.

SECTION 105 MEASUREMENTS AND PAYMENT FOR INCIDENTAL WORK:

Prices bid for bid item shall represent full compensation for all labor, materials, equipment, supervision and other incidental items necessary for the performance and completion of each item of work in place, in strict accordance with the Contract Documents. Payment for said item shall therefore include all work, which may be reasonably inferred from the contract documents as being necessary to produce the intended results. All items of work necessary to produce the intended results not specifically contained in the Bid Form shall be considered incidental work to the bid item, and no allowance for separate, additional compensation shall be made.

SECTION 106 ERRORS, OMISSIONS, AND DISCREPANCIES:

In the event any error, omission, or discrepancy in or between the plans and specifications exists or appears to exist, the contractor shall not take advantage of same, but must have same explained or adjusted by the engineer before submitting his proposal. Should the contractor fail to give notice and obtain a written decision, clarifying materials or methods required, he shall be deemed to have estimated on the more expensive way of doing the work and shall at his own expense, make good any damage to or defect in his work.

SECTION 107 CONTRACTORS RESPONSIBILITY:

Until the final acceptance of the work as evidenced in writing, the CONTRACTOR shall have charge and care thereof and shall take every necessary precaution against injury or damage to any part of the work by action of the elements or other causes. The CONTRACTOR shall make good all damages occurring to any portion of the work before its completion and acceptance and shall bear the expense thereof.

Any material that is lost or stolen before or after it is in place, but before acceptance of the work by the owner, shall be made good at the contractor's expense.

Unless otherwise specified, each CONTRACTOR shall supply all labor, transportation, materials, apparatus, and tools necessary for the entire, proper, and substantial completion of his work, and shall install, maintain, and remove all equipment of the construction and other utensils or things, and be responsible for the safe, proper, and lawful construction, maintenance, and use of same; and shall execute the work in the best and most workmanlike manner, complete with everything properly incidental thereto as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

SECTION 108 LAYING OUT WORK:

The OWNER will provide reference control points and construction control staking unless provided elsewhere in the specifications. The CONTRACTOR shall be responsible for careful preserving all benchmarks, construction stakes, reference points and monuments. Should destruction of same occur, the CONTRACTOR will bear the expense of their replacement and shall be held responsible for any mistakes or loss of time that may be caused. Permanent benchmarks or monuments, which must be removed or disturbed, shall be protected until properly referenced for relocation.

SECTION 109 WORKMANSHIP:

All work shall be done by competent skilled workmen of the different trades to insure a degree of workmanship acceptable to the ENGINEER. There shall be a foreman on the job at all times during working hours who has the authority to act for the CONTRACTOR, to make necessary decisions, and to carry out directions of the CONTRACTOR and the ENGINEER. In the event the CONTRACTOR does not have a complete understanding concerning the work or the materials, he shall refer the matter to the ENGINEER for opinion or decision. This will, however, not relieve the CONTRACTOR of any responsibility concerning the work.

The CONTRACTOR shall notify the ENGINEER before any work is covered up on his work, or on any mechanical work.

The CONTRACTOR shall not install work covering the other trades until they have made their complete installation.

Any work not acceptable shall be promptly removed and replace at the CONTRACTORS expense and the ENGINEER notified of compliance for inspection.

SECTION 110 SUB-BIDDERS AND BREAKDOWN:

The CONTRACTOR shall be responsible for scheduling and coordinating the work of his own crews as well as those of all his Subcontractors and others involved in order to maintain acceptable progress and assure timely completion in accordance with the contract time frame. The CONTRACTOR shall be responsible for complete supervision, control, and progress of his Subcontractors as though they were his own forces. Notice to the CONTRACTOR shall be considered as notice to all affected subcontractors. The CONTRACTOR shall, upon award of the contract, supply the ENGINEER with a complete list of Sub-bidders and Material Suppliers for his approval. Within ten (10) days after award of the contract the CONTRACTOR shall submit a complete breakdown of labor and materials for the ENGINEER'S records.

SECTION 111 SUBCONTRACTORS:

All work of the SUBCONTRACTORS for each separate division of the project shall be subject to the Instructions to Bidders, General Conditions and Supplements, and Special Conditions, as if repeated in each separate section of the project manual.

SECTION 112 INTERRUPTION OF UTILITY SERVICE AND ACCESS:

The CONTRACTOR shall make every possible effort to minimize the downtime of any utilities or property access, which may be directly or indirectly affected by work performed on this project. The CONTRACTOR shall at all times conduct his work in such a manner as to cause minimum interference with routine daily use.

The CONTRACTOR shall notify residents affected by his proposed action at least twenty-four (24) hours in advance of such interruptions in residential, commercial and industrial areas and all other areas.

Notification is to be coordinated with City or other appropriate utility service providers.

SECTION 113 EXISTING FACILITIES:

The CONTRACTOR shall take complete field measurements affecting all existing construction in the work, and he shall be solely responsible for proper fit between his work and existing structures.

He shall examine all work to which he will connect; and if any misalignment is found he shall so arrange his work that the misalignment is corrected. Any dimensions given on the Drawings related to existing structures are based on available records and it shall be the responsibility of the CONTRACTOR to verify the accuracy of these dimensions. Any discrepancies shall be brought to the attention of the ENGINEER prior to start of new construction.

SECTION 114 PROTECTION OF EXISTING STRUCTURES AND ADJACENT PROPERTIES:

The CONTRACTOR will be held responsible for any damage to existing structures, work, materials, or equipment either on site or off site because of his operations and shall repair or replace any damaged structures, work, materials, or equipment to the satisfaction of, and at no additional cost to the OWNER. The CONTRACTOR shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property structure or facilities which may be caused by transporting equipment, materials, or men to and from work, wind, drainage or other natural events, or by performance of the work. The CONTRACTOR shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

SECTION 115 PROTECTION OF EXISTING UTILITIES:

It is the sole responsibility of the CONTRACTOR to verify the exact location of any and all existing utilities. Locations of any utility shown on the drawings are for informational purposes only and may not represent the exact location, size, type, or depth of said utility. The CONTRACTOR shall give notice to the owners of any such lines or obstructions in order that they may have time to take necessary precautions for protecting their property. Existing utilities shall be protected from damage during excavation and backfilling operations and if damaged, shall be promptly repaired by the CONTRACTOR at his expense. The CONTRACTOR shall be responsible for any injuries to persons and property, for all damages to any pipe, conduit, sewer or other structure injuriously affected by the work and shall save harmless the OWNER, ENGINEER, and state and federal agencies from any liability thereof.

BEFORE DIGGING CALL 1-800-781-7494 (South Dakota One Call)

SECTION 116 ADVERSE CONSTRUCTION CONDITIONS:

In the event of unsatisfactory weather, wet ground, or other unsuitable construction conditions, the CONTRACTOR shall confine his operations to those portions of the work, which will not be adversely affected. No portion of the work shall be constructed under conditions, which would compromise the quality required unless special precautions are taken by the CONTRACTOR to perform the work in a satisfactory manner acceptable to the ENGINEER.

SECTION 117 SALVABLE EQUIPMENT AND MATERIAL:

Any equipment or materials removed during construction, which is deemed salvable by ENGINEER, shall remain the property of the OWNER and shall be carefully preserved by the CONTRACTOR.

SECTION 118 CLEANING UP:

The site shall be kept in a tidy condition at all times during the work, and all rubbish removed from the premises. No final payment will be made until all rubbish and debris has been removed. No burning will be permitted on the premises.

The CONTRACTOR and each individual subcontractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his employees or work, and at the completion of work he shall remove all his rubbish from and about the work site and all his tools, scaffolding, and surplus material. He shall leave his work in a manner acceptable to the ENGINEER.

SECTION 119 RESPONSIBILITY FOR WORK (WARRANTY):

Neither the final certificates, nor payment, nor any provision in the contract documents, shall relieve the CONTRACTOR for 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 final acceptance. The OWNER shall give notice of observed defects with reasonable promptness.

SECTION 120 TEMPORARY CONSTRUCTION FACILITIES:

Site facilities, which are necessary for construction, shall be provided by and paid for by the CONTRACTOR. These may include but are not necessarily limited to material storage and/or waste areas, utility costs, office space, toilet facilities, storage buildings for the protection of materials and equipment, or other services. As requested by the State Historical Preservation Office (SHPO), staging areas for heavy equipment and material storage must be confined to previously disturbed road right-of-way or established parking lots. All such field office, storage sheds, and the like shall remain the property of the CONTRACTOR and shall be removed after completion of the work and the site restored to its original condition.

When necessary, the CONTRACTOR shall make his own arrangements for electrical power and telephone service at the construction site. Obtaining water for construction purposes shall also be the responsibility of the CONTRACTOR.

The CONTRACTOR shall contact the OWNER to inquire about possible storage areas and material waste areas. However the CONTRACTOR shall be responsible for securing these areas.

SECTION 121 RECORD COPY OF CONTRACT DOCUMENTS:

The CONTRACTOR shall maintain a careful up-to-date record of all changes on the drawings during construction. Upon completion of the work, and prior to acceptance by the OWNER, the CONTRACTOR shall file with the ENGINEER one set of complete drawings with all changes and CONTRACTOR'S field construction notes neatly and legibly recorded thereon. Such drawings shall include the exact routing, if changed from drawing location, of sewer, water, gas, fuel oil tanks and lines, buried electrical feeder lines, changes to routing of conduit runs which are buried or concealed in concrete slabs, and any other major buried utility lines. Such information may be used to prepare record drawings for the OWNER.

SECTION 122 TRAFFIC CONTROL:

Traffic control necessary for the completion of the project and related operations is considered incidental to the other bid items unless specifically listed as a bid item. All traffic control is to be in accordance with the "Manual on Uniform Traffic Control Devices".

SECTION 123 GENERAL NOTES AND TECHNICAL SPECIFICATIONS:

The project manual is divided into various divisions and sections for the convenience of the contractors. Each division is not necessarily all-inclusive as related items may appear in various divisions. The contractor shall be solely responsible to furnish and install all items shown on the drawings, and/or included in the project manual regardless of where they appear.

For this project, the OWNER is incorporating the latest Edition of the South Dakota Department of Transportation (DOT) Standard Specifications for Roads and Bridges. Specific Construction Sections may include:

<u>Section</u>	<u>Description</u>
100	Clearing & Grubbing
110	Removal of Structures & Obstructions
120	Roadway & Drainage Excavation & Embankment
230	Top Soil
250	Incidental Work
380	Portland Cement Concrete
450	Pipe Culverts
462	Concrete for Incidental Construction - Class M-6
480	Reinforcing Steel
634	Traffic Control
882	Aggregates for Granular Bases and Surfacing

Where specific SDDOT specification sections are not mentioned above but are referenced in any of the sections listed above, or relate to work called for on the drawings, those sections will also apply.

Where project manual information conflicts with DOT standards, project manual will govern.

**SECTION 124 COMPACTION OF EARTH EMBANKMENTS AND TRENCH
BACKFILLING:**

All earth embankments and trench backfill will be compacted to 95% of maximum dry density as determined by AASHTO T-99 unless otherwise specified. Compaction of earth embankments shall be governed by the ordinary compaction method (South Dakota Specifications for Roads and Bridges 1998).

The Transportation Enhancement Materials Manual will be used for testing and materials criteria.

**CITY OF YANKTON
STANDARD SPECIFICATIONS**

**SECTION 203
EXCAVATION, TRENCHING AND BACKFILLING - WATERMAIN**

203.1 DESCRIPTION:

Trench excavation and backfill shall include all excavation, backfilling, disposal of surplus material, and all other work incidental to the construction of trenches, including any additional excavation which may be necessary for manholes, fire hydrants, inlets, or other structures forming a part of the pipe line.

Work shall be in conformance with all local, State, Federal and other regulatory requirements pertaining to such work.

203.2 CONSTRUCTION REQUIREMENTS:

A. Excavation: The length of trench excavated in advance of pipe laying shall be kept to a minimum, and in no case shall it exceed 200 feet for sewers or water unless specifically authorized in writing by the Engineer. Minimum trench width for water at the bottom shall be equal to the outside diameter of the pipe plus sixteen (16) inches unless otherwise specified. For sewers, trench widths at the bottom shall not exceed:

15 inch diameter and smaller - 40 inches

18 inch diameter and larger - 1-1/2 x inside diameter plus 18 inches

In all cases, trenches must be of sufficient width to permit proper jointing of the pipe and backfilling of material around it. Trench width at the surface of the ground shall be kept to a minimum amount necessary to install the piping in a safe manner. Trenches shall be kept as nearly vertical as practicable or if required by the angle of repose of the material, the banks may be sloped a reasonable amount, or if required, the banks shall be properly sheathed and braced.

Excavation of manholes and other structures shall be sufficient to provide a minimum of 12 inches between surfaces and the sides of the excavation.

All material excavated from trenches and piled adjacent to the trench or in a roadway or public thoroughfare shall be piled and maintained so that the toe of the slope of the material is at least 2 feet from the edge of the trench. It shall be piled in such a manner as will cause a minimum of inconvenience to public travel, and provisions shall be made for merging traffic where such is necessary. Free access shall be provided to all fire hydrants, water valves and meters and clearance shall be left to enable free flow of storm water in all gutters, other conduits, and natural water courses.

If the contractor elects to bore or jack any portion not so specified, he shall first obtain approval from the Engineer.

The bottom of the trench shall be carried to the lines and grades shown on the plans or established by the Engineer, or at depths noted on the plans or in the specifications. Any excavation below the depths indicated shall be backfilled with select backfill material and compacted at the Contractor's expense.

Unstable soil shall be removed and replaced with gravel, crushed stone, or crushed slag, which

shall be thoroughly tamped. The Engineer shall determine the depth of removal of unstable soil. The Contractor will not be paid extra for removing unstable soil and replacing with gravel, crushed rock or crushed slag unless separate unit price is provided for on the bid form.

The bottom of the trenches shall be accurately graded to provide uniform bearing and support for each length of pipe on undisturbed or compacted soil at every point along its entire length except at joints. Bell holes shall be excavated to assure even bearing of the pipe upon the bedding material and to permit accurate work in making and inspecting the joints.

B. Dewatering: Pipe trenches shall be kept free from water during pipe laying and jointing by such methods as the Contractor may elect, provided the method is acceptable to the Engineer. The Contractor shall be responsible for any damages of any nature resulting from the dewatering operations. Dewatering of the trench shall be considered as incidental to the construction, unless otherwise stated on bid form. A general dewatering permit is required when a discharge from pumping and dewatering, flushing and disinfection, or pressure testing could reach waters of the State. To obtain information on the general dewatering permit, contact DENR's Surface Water Quality Program, at 605-773-3351.

C. Ordinary Excavation: Ordinary excavation is all excavation not classified as rock excavation.

D. Rock Excavation: Solid rock excavation shall include solid rock formations requiring systematic drilling and blasting with explosives and any boulders or broken rock larger than 1 cubic yard in volume. Hard pan or cemented gravel, even though it would be advantageous to use explosives in its removal, will not be classified as solid rock excavation.

Solid rock shall be excavated to a width equal to outside diameter of the pipe, plus 24 inches and to a grade line of not less than 6 inches below bottom of pipe. Bottom of trench shall be brought up to grade by backfilling with selected backfill material and compacted to the satisfaction of the Engineer. The Contractor shall notify the Engineer at least 24 hours prior to any blasting. All blasting shall be done in accordance with local regulations. Any damage to persons or property resulting from blasting operations shall be the sole responsibility of the Contractor and his surety.

E. Paving and Sidewalk Cuts: Where necessary to make open cuts or excavation in slabs, pavements or sidewalks the Contractor shall do the same at the unit price bid. The entire backfill shall be placed and tamped in layers not exceeding 6" in depth. Moist earth may be required and the backfill shall be compacted to a density equal to 95% of maximum dry density as determined by AASHTO T99 (standard proctor) in order that the paving surfaces, slabs, or sidewalks may be promptly reconstructed. After approved backfilling is completed, the Contractor shall replace or reconstruct the slab, paving or sidewalk with like materials and in a manner satisfactory to the Engineer. All edges along or around the cuts in asphalt or concrete slabs shall be saw cut just prior to replacement in order to provide a neat and clean joint.

Removal of paved surface beyond that marked or indicated for pay quantity will be considered Contractor's responsibility and not paid for separately.

F. Prevention of Damage to Existing Structures: All below ground and above ground existing structures whether or not they lie within the limits of the easement obtained by the owner, shall be protected from damage. Where such existing fences, buildings, or any other structure must be

removed in order to properly carry out the construction or are damaged during construction, they shall be restored to their original condition to the satisfaction of the property owner involved at no additional cost to the owner. The Contractor shall notify the Engineer of any damage to underground structures and repairs or replacements shall be made before backfilling takes place.

If the Contractor encounters existing structures which will prevent the construction of the pipe line and such structures are not properly shown on the plans, he shall notify the Engineer before continuing with the construction in order that the Engineer may make such field revisions as necessary to avoid conflict with the existing structures. The cost of waiting or down time during such field revisions shall be borne by the Contractor without additional cost to the owner. If the Contractor shall fail to notify the Engineer when the existing structure is encountered and shall proceed with the construction despite the interference, he shall do so at his own risk. The Contractor shall notify all public and private agencies, which are affected by the construction operation at least 48 hours in advance. It shall be the Contractor's responsibility to locate and expose, if necessary, all the existing underground utilities, considered structures, in advance of the trenching operation. Permission to expose any substructure must be obtained from the affected agency before any work takes place. Should interruption of domestic water or other utility service take place during construction, it shall be the Contractor's responsibility to notify the proper authorities. Full cooperation will be given to enable the restoration of service as soon as possible and the Contractor shall bear all costs of the repair.

The Contractor shall make note of the list of the major public utilities serving the area in which the project is to take place. Surface and underground utilities excepting service connections, which may affect the construction, will be shown on the plans insofar as they are known. The Contractor shall thoroughly acquaint himself with the nature of the utilities and any structure or thing that may interfere with the construction. Underground utilities are shown for the Contractor's convenience only, and the owner assumes no responsibility for improper locations or for failure to show utility locations on the construction plans.

G. Shoring and Bracing of Excavation: The Contractor shall be fully responsible for the needs, sufficiently and adequacy of bracing excavation. If sheeting is used to support the excavated trench, the sheeting shall be removed by the Contractor. No such sheeting will be permitted to remain in the trench except, when in the opinion of the Engineer, field conditions, the type of sheeting, or methods of construction used by the Contractor are such to make the removal of the sheeting impracticable. In such cases the Engineer may permit portions of the sheeting to be cut off to such a depth as he may approve and permit lower portions thereof to remain in the trench.

H. Traffic and Public Protection: No work shall proceed until the Contractor has sufficient signs, barricades, fencing, etc. at the job site for the protection of the public. Refer to SDDOT Specifications Section 634 and 984 for specific Traffic Control Devices requirements.

All trenches left open overnight shall be completely fenced off and barricaded.

At street crossings, driveways, and sidewalks, the Contractor shall bridge the trenches in an approved manner so as to prevent serious inconvenience in vehicular and pedestrian traffic and to provide access to public and private property. The location of such bridges shall meet with the approval of the Engineer and must be constructed and removed at the Contractor's expense.

Where pipelines are constructed in a local street or road parallel to the same, the street or road shall be kept open to traffic at all times by providing at least one open lane. No single traffic

lane shall extend for more than 500 feet without provision being made for the passing of traffic. Traffic control on collector and arterial streets is to be coordinated with the City engineer.

Traffic control and safety barricading and fencing and temporary bridging, other than that specifically listed in the bid schedule is considered incidental to other bid items and will not be paid for separately.

I. Bedding: Bedding shall be defined as that material supporting and surrounding the pipeline and extending from the bottom of the trench excavation (or the top of special foundation material) to 6 inches above the top of the pipe and from trench wall to trench wall. Bedding material shall be placed and compacted in accordance with this section, plan requirements, and applicable parts of installation specifications for the type of pipeline being installed.

All pipe shall be bedded in material meeting the requirements shown below. Material shall be installed around the pipe in six inch layers to the limits shown in the plans, carefully placed to provide uniform bedding and lateral support for the pipe while maintaining true alignment and grade. Material shall be carefully and thoroughly hand compacted and tamped under, over, and around the pipe to provide uniform and continuous support and protection for the pipe. Bedding material shall be compacted to the same density specified for backfill in Paragraph J. below.

Bedding material shall be compacted in the trench bottom so that the pipe is installed on a firm, unyielding surface providing uniform and continuous support for the pipe barrel. Bell holes shall be excavated in the compacted bedding material and be of the minimum size required to construct satisfactory joints.

Bedding material shall not be dumped directly on the pipe from the top of the trench and shall be placed in such a way as to avoid movement of or damage to the pipe.

The most suitable on-site material that has consistent grading, with no particles larger than 1 inch diameter shall be used when select backfill is called for as bedding material.

Where bedding material is specified or shown on the plans as granular material it shall be Class I as defined in ASTM D2321 and specified below or Class II as defined in ASTM D2487 and specified below.

(1) Class I bedding material shall be Select Granular Backfill as specified in Section 850 of the South Dakota Department of Transportation Standard Specifications for Roads and Bridges, 1998 Edition. Contractor may submit samples of such other Class I material that he may desire to use to the Engineer for approval.

(2) Class II bedding material shall be Gravel Surfacing as specified in Section 882 of the above DOT Standard Specifications except that maximum size will be increased to 1". Contractor may submit samples of such other Class II material that he may desire to use to the Engineer for approval.

Granular material shall be Class II bedding material unless Class I bedding material is called for in the Plans. Locally available pit-run sand is acceptable as Class II bedding. The following placement of bedding and select backfill material shall be used unless otherwise noted:

Sanitary Sewer & Water Line granular material to 6" above pipe. Select backfill from 6" to 18"

above pipe.

J. Backfilling: All native material or sand used for backfill shall be free from frozen materials, rocks, foreign material that may decompose, and other materials that may affect the stability of the backfill. Length of open trench shall not exceed 200 feet before backfilling shall commence.

All trenches and structure excavations shall be backfilled as soon as the jointing compound, mortar, concrete, etc. has attained a suitable degree of hardness, and this work shall be prosecuted expeditiously until completed.

The space between the pipe and the bottom and sides of the trench shall be packed and compacted as fast as placed up to the level of the top of the pipe. Bedding material as specified shall be used. Material shall be deposited carefully in the trench to avoid injuring the pipe and shall be placed in layers not more than six (6") inches in thickness, and each layer shall be solidly and carefully tamped with a tamping bar in conjunction with other compactive tools and equipment. Select backfill shall be compacted with hand operated mechanical compactor. The filling shall be carried up evenly on both sides. The above method shall be used to cover the pipe to at least two (2') above its top. Stones larger than three inches in diameter shall not be placed within two feet of the top of the pipe.

All tamping above an elevation of two (2') feet above the crown of the pipe shall be placed and tamped in layers not more than 8 inches in thickness unless specialized compaction equipment has demonstrated effective in achievement of compaction requirements with larger lifts and shall be done by hand or with pneumatically operated tampers or other approved tampers. Tamping with the side or bottom of an excavating bucket shall not be acceptable.

Compaction will be in accordance with South Dakota Department of Transportation Standard Specifications Section 120 - Roadway and Drainage Excavation and Embankment Construction or these specifications, whichever is more stringent.

All backfill shall be compacted to 95% of maximum dry density at a moisture content within 2% of optimum as determined by AASHTO T99. Backfill material shall be pre-moistened dried or mixed if outside of that specified at Contractor's expense. Flushing will never be allowed. When the trench is filled the Contractor shall remove all surplus material leaving the work area clean and in good order to the satisfaction of the Engineer.

K. Guarantee of Backfilling: The Contractor shall maintain all excavations for a period of two (2) years from date of acceptance of the work, and any depression caused by settling of the earth in the ditch or other excavation in the opinion of the Engineer becomes dangerous, due to the caving or settling of the earth in or above such excavation, the City shall cause such filling to be made and collect the cost thereof from the Contractor or his bond.

Should the City refill any excavation, such action will in no way relieve the Contractor of his responsibility on that part of the work, nor in any way relieve the Contractor of any liability caused by subsequent settlement or cavity of that portion of the excavation. Infiltration of earth due to leaky joints or clogging of earth due to rough joints shall be guaranteed against.

L. Clean-up: The Contractor shall clean up and dispose of all excess material, trash, wood, forms, and other debris at the local landfill unless otherwise approved. Landfill fees are Contractor's responsibility.

The Contractor shall clean up all parts of the work area which may have been used by him and replace same to satisfactory condition to the Engineer. He shall not leave equipment or materials stored in or on any part of the street or highway where work is not in progress or has been completed, and shall keep proper warning signals where necessary, in place at all times.

M. Sewer and Water Installation Contractors: All sewer and water installation must be done by a sewer and water installation Contractor licensed by both the State of South Dakota and the City of Yankton. This requirement shall not be required of persons licensed as a plumbing contractor in the City of Yankton.

N. Backfilling and Grading in Unimproved Areas: Backfill in areas not containing surface improvements shall be the same as that specified above – 95% of AASHTO T99 +/- 2% of optimum moisture.

O. Topsoil: Place minimum of 6 inches of topsoil over areas to be sodded or seeded. Topsoil may be salvaged prior to trenching; imported or borrowed but must meet or exceed quality of existing undisturbed material.

CITY OF YANKTON
STANDARD SPECIFICATIONS
SECTION 210

**SEWER CONSTRUCTION FOR SANITARY SEWER MAINS,
SERVICE LINES AND APPURTENANCES**

210.1 GENERAL

The work covered by this section includes furnishing, inspecting, storing, handling, laying, and testing of sewer pipe and appurtenances required for the installation of sewer mains and service lines. The Contractor shall furnish all materials, equipment, plant, labor, supervision, and incidentals necessary to complete this work.

The pipe used in the construction of the sewer mains and service lines shall be tested at the factory for compliance with applicable standard specifications specified herein. The manufacturer shall furnish a certificate and test report for each carload, truckload or segment thereof showing the conformity of the pipe with the specifications. Manufacturer shall also certify that each and every piece of pipe and fitting has been inspected for defect and that defective pieces have been rejected. Contractor shall furnish above certificates and test reports to the Engineer prior to installing pipe.

If, during the course of the work, it appears to the Engineer that the above measure has not provided adequate quality control, he may require the Contractor to provide, at the Contractor's sole expense, substantiation of the pipe's compliance with the specifications from an independent testing laboratory acceptable to the Engineer.

When PVC pipe or ductile iron pipe are used, each piece shall bear complete markings and identification as required in ASTM D3034 and ANSI A21.51, respectively.

The Contractor shall inspect all pipe and fittings upon delivery and reject any that do not meet the specifications. He shall make a final inspection of each piece of pipe and each fitting immediately before it is installed. Rejected material shall be removed from the job site promptly.

210.2 PVC SEWER MAIN AND FITTINGS

PVC pipe and fittings in sizes 4" to 15", inclusive, shall meet the requirements of ASTM D3034 and shall have a Standard Dimension Ratio (SDR) less than or equal to 35.

PVC pipe and fittings in sizes 18" to 27", inclusive, shall meet the requirements of ASTM F679 and shall have an SDR less than or equal to 35.

Pipe shall be joined with an integral bell, bell-and-spigot rubber gasketed joint conforming to the requirements of ASTM D3212 with gaskets meeting requirements of ASTM F477.

PVC material for pipe shall be polyvinyl chloride having a cell classification of 12364-B as defined in ASTM D1748. Pipe manufacturer may use clean reworked PVC material within limit imposed by the above specifications.

Fitting joints shall be sealed with a rubber gasket. PVC material for fittings shall have a cell classification of 12454-B, or 12454-C or 13343-C as defined in ASTM D1784.

Special fittings and adapters, not subject to one of the above standard specifications, shall be subject to the approval of the Engineer.

210.3 DUCTILE IRON PIPE SEWER MAIN

Ductile iron pipe (DIP) shall comply with provisions of ANSI A21.51. Pipe shall be of the size shown on the Plans and specified in the Bid. Pipe shall be Class 50 unless shown otherwise in the Plans and/or the Bid.

Pipe shall be furnished with push-on joints unless mechanical joints are specified on the Plans. Pipe joints shall comply with requirements of ANSI A21.11.

Pipe shall be furnished with an asphaltic outside coating approximately 1 mil thick. Pipe shall be cement mortar lined in accordance with the provisions of ANSI A21.4. Lining shall be standard thickness.

Due to prevailing soil conditions, all ductile iron pipe where the joint is assembled with nuts and bolts shall be wrapped with a minimum 8 mil polyethylene encasement sufficient to prevent soil contact with the joint in accordance with AWWA C105.

210.4 EXCAVATION, BEDDING AND BACKFILL

Excavation, bedding and backfill for installation of sewer main shall be as specified in Section 203 and in this Section of the Technical Specifications.

210.5 INSTALLATION OF SEWER MAIN

PVC pipe shall be installed in accordance with Uni-Bell Plastic Pipe Association recommended Standard UNI-B-5 and the manufacturer's written recommendations except as these specifications and recommendations are changed, modified, added to or deleted from herein.

Ductile iron pipe shall be installed in accordance with AWWA C600, the manufacturer's written recommendations and as specified herein.

Unless special permission is given, no pipe shall be laid except in the presence of the Engineer or his representative.

Pipe shall be laid up grade from manhole to manhole with the bells uphill. It shall be laid on a stable foundation with bearing under the full length of the barrel, with no bearing on bells. The pipe shall be laid accurately to line and grade with the spigot centered in the bell.

The Owner will, at no expense to the Contractor, provide sufficient stakes for determining the horizontal and vertical locations of each manhole; and for establishing the line and grade for laser equipment. The Contractor may, at his option, maintain the sewer grade either by laser equipment or batter boards. If the Contractor destroys the stakes, all costs for resetting them will be at the Contractor's expense.

If the batter board method is used, the Contractor shall, at his own expense, provide stakes along the line at intervals not exceeding 50 feet. At least three batter boards shall be maintained at all times. Whichever method is used, the Contractor shall use targets or such other practical means as are available to check the accuracy of stakes and the correctness of the pipe lines and grade.

Trenches and pipes shall be kept free of accumulated water until the sewer has been bedded and backfilled. When the trench is left for the night or pipe laying is stopped because of rain or other reasons, the ends of the pipe shall be plugged to prevent dirt or other substances from entering the sewer. The interior of the pipe shall be kept clear of all dirt and superfluous substances of all kinds.

Where water lines cross under gravity sewer lines, the sewer shall be fully encased in concrete for a distance of ten feet (10') each side of the water main. The Contractor shall encase piping at other locations as shown on the plans or as may be directed by the Engineer.

210.6 SEWER MAIN TESTING

Each completed section of sewer main between manholes shall be inspected visually to verify accuracy of alignment and grade and freedom from debris or obstruction. The full diameter of the pipe shall be visible from manhole to manhole with mirrors and lights.

Each section of PVC sewer mains between manholes shall be subjected to a deflection test by hand pulling a rigid ball or mandrel equal in size to 95% of the base inside diameter of the sewer being inspected. Tests shall be performed by the Contractor in the presence of and to the satisfaction of the Engineer. Tests shall be performed without mechanical pulling devices after the backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If deflection exceeds 5%, the Contractor shall locate and correct the unsatisfactory portion of the line at his own expense, and re-test the section in question until satisfactory results are obtained.

All new sewer main and all sewer service line as directed by the Engineer shall be subjected to a leakage test. Contractor shall furnish all labor, materials and equipment necessary to perform the tests. Tests shall be performed in the presence of and to the satisfaction of the Engineer. Sections of sewer which fail to pass the leakage test shall have defects located and repaired or replaced and be retested until within the specified allowance. Test section shall be from manhole to manhole.

The leakage test shall be as per ASTM C-924 for concrete pipe and ASTM F-1417 for plastic pipe.

The Contractor shall conduct leakage tests of manholes. Leakage from the manhole shall not exceed 2.0 gallons per day per vertical foot of manhole when the water level is maintained at four feet below the top of rim elevation. Sewer lines shall be adequately plugged against thrust due to water pressure.

The Contractor shall be responsible for the repair of any and all damage to surface improvements, including pavement and curb and gutter, resulting from the repair of unsatisfactory sections of sewer main or service line identified by the test specified in this section.

210.7 WYES AND TEES

Wyes and tees shall be installed as shown on the Plans or as specified herein. Wyes and tees and other fittings used therewith shall be of one piece, of the same material as the main on which it is installed and joints shall meet the requirements of the main line joints.

Wyes or tees for service line connections shall be installed as indicated on the Plans or as directed by the Engineer. Wye and tee locations, if shown on the Plans, are based on the information available during design of the system. It may be necessary to change the location of wyes and tees due to underground obstacles, unforeseen conditions, or actual location of service lines as determined by the Contractor during construction. Contractor shall make necessary changes to meet actual conditions for the unit price bid for wyes and tees with no extra cost to the Owner.

The Contractor shall keep an accurate record of the location of all wyes and tees including measurement to two above ground structures or manholes. This record shall be given to the Engineer upon completion of the project.

210.8 MANHOLES

Manholes shall be four (4) feet in diameter and constructed of precast concrete rings conforming to requirements to ASTM C478 except as modified or changed herein. Precast top sections shall be eccentric/concentric cones where total manhole depth is six feet and more. For manholes of less than six feet deep, top section shall be flat, Cretex Type II or equal.

Manhole steps shall not be installed. Bases shall be precast of the standard design manufactured by the supplier of the manhole rings. Cast in place base may be used around existing sanitary sewer pipes as approved by engineer. Grade and adjusting rings, where used, shall conform to requirements of ASTM C478. Total height of adjusting rings may not exceed 12 inches.

Manhole frames and covers shall be ASTM A48, Class 35 grey iron, castings similar and equal to Neenah R-1733 or Deeter 1260 with self sealing Type A solid ribbed lid weighing a minimum of 195 pounds, and two lifting holes. All casting shall have an O-ring seal fitted securely into a machined, dovetail groove in the cover, similar and equal to Neenah Self-Sealing Lid and shall have cast lettering label, "Sanitary Sewer". Contractor shall furnish to the Owner a cover lifting device designed to remove lids actually supplied.

Changes in pipe size and grades through manholes shall be made gradually and evenly. Changes in direction shall have a smooth curve of as large a radius as the manhole will permit. The invert shall slope evenly from the manhole inlet to the outlet except where the inlet sewer is more than two feet above the outlet sewer, in which case the manhole shall be constructed with a drop connection. Invert channels shall be smooth, accurately shaped and in accordance with the Plan elevations or as modified by the Engineer. Invert channels shall be formed by hand troweling cement grout directly on the concrete base.

Connections of the sewer pipe to the manholes shall be made using a short section of pipe in such a manner so as to provide a flexible joint within 18" of the manhole. Where shown on the Plans, plugged stubs shall be installed in manholes. Channels shall be constructed in the manhole for the stubs the same as for other sewers entering the manhole. Where unstable subgrade is encountered at the manhole base, it shall be stabilized as specified in Section 203.2.

All manholes shall be watertight and subject to a leakage test as specified elsewhere. Rubber or neoprene waterstops or a rubber boot device shall be used on plastic sewer pipe to develop a watertight seal where connecting to the manhole. Contractor may elect to use manhole adapters approved by the Engineer in lieu of the waterstops. All lifting holes shall be grouted and coated outside with a bituminous material. Joints of precast concrete manhole rings shall be sealed with Ram-nek or equal or an O-ring gasket seal may be used. Additional measures shall be taken as necessary by the Contractor to prevent leakage.

210.9 SERVICE LINES

Sewer service line pipe and fittings shall be PVC, meeting the same specifications shown in Section 210.2 for sewer main.

Sewer service line pipe installation shall be in accordance with specifications shown in Section 210.5 for sewer main except as changed or modified in this Section.

Service lines will not be staked for grade by the Owner. Grade control shall be by builder's level or carpenter's level. Minimum grade shall be 1.05% for 4" and 0.60% for 6" service lines.

Each service line shall be terminated with a plug and as shown in the Plans. A steel fence post of a minimum 3 feet in length shall be buried in a vertical position at the end of each service line. The top of the fence post shall be set 3" to 6" below finished grade. All costs of furnishing and installing the plug and the fence post shall be absorbed in the unit prices bid for 4" and 6" sanitary sewer service line.

Sewer service lines shall be installed as stated above, however, sewer service lines shall be laid in separate trenches from water service lines at least ten feet (10') apart horizontally. Sewer service lines may be installed in the same trench with the water service line only when conditions prevent separate trenches and when approved by the Engineer.

**CITY OF YANKTON, SD
STANDARD SPECIFICATIONS**

**SECTION 501
WATER DISTRIBUTION SYSTEM**

501.1 DESCRIPTION:

The work covered by this section consists of furnishing and installation of the various sizes, types and classes of pressure piping, fittings, and other appurtenances required to complete the work in accordance with the plans and specifications. All construction and materials shall conform to the requirements of the South Dakota Department of Environment and Natural Resources and associated U.S. Environmental Protection Agency (EPA) Standards. All construction procedures and watermain installation shall be in accordance with manufacture's recommendation and requirements and with City, State, Federal and other regulations, codes and ordinances pertaining to such work.

WATER SUPPLY MAINS

501.2 MATERIALS:

All materials shall conform to the current standard specifications referenced herein except as noted otherwise.

A. General Appurtenances:

- (1) **Specials and Fittings:** for pipe shall be Class D conforming to AWWA C 153/ANSI A 21.53 Ductile iron Compact fittings, 3 inch through 24 inch and 54 inch through 64 inch Specials and fittings for use with mechanical joint pipe shall conform to ANSI Specification A21.11.
- (2) **Bolts, Nuts and Washers:** for bolted joints shall conform to the recommendations of the pipe manufacturer and conform to AWWA C111 or ANSI A21.11.
- (3) **Cement Mortar:** lining of standard thickness shall coat the inside of all cast iron pipe, specials and fittings conforming to ANSI Specification A21.4 and AWWA C 104/A 21.4. The outside of cast iron pipe shall be coated with a bituminous coating (AWWA C 203).
- (4) **Jointing Materials:** Packing for joints of standard type bell and spigot pipe and fittings shall be wedge section rubber rings packing. Unless otherwise required all jointing material shall conform to AWWA C111/ANSI A21.11.
 - (a) **Mechanical Joint Accessories:** Including bolts necessary gasket materials for each bell of mechanical joint pipe and fittings shall be furnished

by the pipe manufacturer, conforming to ANSI Specification A21.11. Glands shall be coated with bituminous material.

(b) Slip Type Joints: If slip type joint "Tyton" equivalent is used the manufacturer's instructions and materials for the specific joint shall be used.

(c) Push-On-Joints: shall be furnished with standard joint materials including rubber ring gaskets and gasket lubricant in sufficient quantities for the specified total laying length of pipe.

Fittings and valves shall be mechanical joint unless otherwise noted. Fittings shall be manufactured by one of the following manufactures: American, U.S. Pipe, Griffen Pipe, Union, Tyler and Clow.

B. Ductile Iron Pipe: Ductile iron pipe shall be cement mortar lined conforming to the ductile iron pipe standards ANSI A21.51 (AWWA C151) and AWWA C104 with joints the same as that provided for cast iron pipe. Pipe thickness shall be Class 50 unless otherwise noted on the plans.

C. PVC Pipe: PVC pipe shall be Class 150 or heavier and shall meet the requirements of AWWA C900 Poly (Vinyl Chloride) (PVC) Pressure Pipe and Fabricated Fittings, 4 in. Through 12 in., for Water Distribution. Class 150 pipe shall conform to the requirements of DR 18 and Class 200 shall meet the requirements of DR 14.

All pipe shall be suitable for use as a pressure conduit. Provisions must be made for expansion and contraction at each joint with an elastomeric ring. The bell shall consist of an integral wall section with an elastomeric ring, which meets the requirements of ASTM F477, Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe. The wall thickness in the bell section shall conform to the requirements of ASTM D3139. Sizes and dimensions shall be as shown in the standards cited in this specification. When used for potable water systems, pipe shall meet ANSI/NSF Standard No. 61. The pipe shall be manufactured to cast iron or ductile iron outside dimensions in accordance with AWWA C900.

The minimum wall thickness shall be:

Size (in.)	DR	4	6	8
T (in.) Class 150	18	0.267	0.383	0.503
T (in.) Class 200	14	0.343	0.493	0.646
Size (in.)	DR	10	12	
T (in.) Class 150	18	0.617	0.73	
T (in.) Class 200	14	0.793	0.94	

Standard laying lengths shall be 20 feet (plus or minus 1") for all sizes. At least 85% of the total footage of pipe of any class and size shall be furnished in standard lengths and the remaining 15% in random lengths. Each length of pipe shall be tested to four times the class pressure of the

pipe for a minimum of 5 seconds. The integral bell shall be tested with the pipe.

Pipe shall be a minimum Class 150 unless otherwise called for on the plans and specifications.

D. Valves: All valves shall be designed for a minimum water working pressure of not less than 150 pounds per square inch. The valves shall conform to Federal Specifications WW-V-0054a, WW-V-58, and AWWA Standard C-509. Valves shall be all bell with a two-inch (2") operating nut, unless otherwise noted. Valves shall be iron body, fully bronze mounted, stationary stem, resilient wedge and shall be opened by turning counter-clockwise. The operating nut shall have an arrow, cast in the metal indicating the direction of the opening. Each valve shall have the maker's monogram or initials, pressure rating, and year of manufacturer cast on the body. Valves shall be provided with "O" ring seal plates. Valves shall be similar and equal to American Series 2500, U.S. Pipe Metroseal or American AVK Co. Series 45.

The seal plate shall be fitted with at least two (2) "O" rings. The "O" rings shall be precision rubber product's quality number 122-70 or equivalent. All cast iron surfaces of valves shall be thoroughly cleaned and coated with asphaltic varnish, applied hot. All bronze shall be left bright.

Prior to shipment from the factory, each valve shall be tested by hydraulic pressure equal to twice the specified water working pressure. A written certification shall be furnished by the manufacturer that each valve has been satisfactorily tested and is watertight.

E. Valve Boxes: All valves shall be equipped with heavy duty valve boxes consisting of a cast iron enter section, and a top section with cover which shall be marked "Water". The top section shall be adjustable for elevation and have a maximum extended length of 72 inches. Must be Tylor pipe Model 666-S, or approved equal. The valve boxes shall be equipped with a rubber boot/sleeve that covers and firmly holds the bottom of the valve box over the valve nut (Valve Box Adapter II).

F. Fire Hydrants: All fire hydrants shall be of a standard make and shall comply with the latest standard specification adopted by the American Water Works Association (C502) and meet with the Standard requirements of the National Board of Fire Underwriters and will have a highway (breakaway) type flange. All hydrants must have a bronze to bronze seat.

Fire hydrants and extensions shall be factory painted safety yellow. Color shall be selected by Owner from color chips submitted with shop drawings.

Unless otherwise specified or shown on the drawings, all hydrants shall have two (2) 2-1/2" nozzles and one (1) 4-1/2" nozzle with National Standard hose coupling threads. Nozzles shall be bronze or other non-corrosive metal. Nozzle caps, chained to the barrel shall be provided.

The hydrant valve shall close with the pressure of the water in the mains and unless otherwise specified all valve openings shall be 5-1/4" minimum sized. Hydrants shall have mechanical joint connections for connecting to 6" size branch line from the water main unless otherwise indicated on the drawings. There shall be no obstruction whatsoever in the hydrant, which

interferes with a free flow of water and creates undue friction loss. All hydrants shall have a positive drain mechanism, which will permit the water to escape readily from the hydrant barrel when the hydrant valve is closed. This drain mechanism must be closed when the hydrant is partially or fully open.

Fire hydrants are to be stamped by manufacturer with raised lettering indicating the date that matches the year of the project.

The hydrant valve and valve stem shall be removable from the upper barrel or bonnet without the necessity of digging up the hydrant.

All hydrants shall be of the proper length to provide the amount of cover over the branch line connection as specified for cover over the watermains to which the hydrants are attached.

The opening direction of the hydrant shall be counter-clockwise and operating, but shall be the same as those on the hydrants elsewhere in the city.

G. Make of Hydrants: All hydrants furnished by the Contractor shall be American Darling B-62B or B84B, Waterous Pacer WB67. All hydrants shall be furnished to the appropriate bury depth for project conditions. A minimum six and one-half foot bury hydrant will be used to account for standard 6-foot (in the street) ground cover/ 6 inch fire hydrant lead and 6 inch ground rise for standard behind the curb ground surface rise.

H. Concrete: South Dakota Department of Transportation Standard Specifications for Class M-5.

WATER SERVICE LINES

501.3 MATERIALS:

All materials and fittings shall conform to the standard specifications referenced herein except as noted otherwise (AWWA C 800).

A. Copper Piping: All water service lines shall comply with ASTM-D-88 Type "K", seamless soft annealed.

B. Corporation Stops: Corporation stops shall be made from brass as furnished by either Ford (F600), Mueller (H-15000), McDonald (4700) or an approved equal. The corporations shall be provided with AWWA taper threads on the inlet and a flared or compression copper connection on the outlet.

C. Service Saddles: Service saddles will only be installed when PVC watermain is specified or used. Service saddles furnished shall be "Ford" S90 brass saddles for C900 PVC pipe or an approved equal. The service saddle body and strap shall be cast from 85-5-5-5 brass per ASTM B-62 and AWWA C800. The body and strap shall be permanently hinged together with a stainless steel or silicon bronze pin. The clamping bolt shall be a slotted hex head made

with a stainless steel or silicon bronze pin. The clamping bolt shall be a slotted hex head made from 18-8 stainless steel. The saddle shall be provided with a "Buna-N" rubber "O" ring gasket. The saddle body shall be provided with AWWA tapered threads to allow the installation of either a "Ford" F600 series, "Mueller" H-15000 or McDonald 3805 and 3806 corporation stops.

D. Curb Stops: The curb stops shall be manufactured from heavy duty brass and shall be of the ball valve type as manufactured by Ford, Mueller, McDonald or an approved equal. Curb stops shall be provided with tee head checks and have a flared or compression copper fitting on one end and a compression copper fitting on the other end.

E. Curb Stop Boxes: Curb stop service boxes shall be dip coated with asphaltum paint and have the lower section made of cast iron with a 1-1/4" steel pipe extension service box upper section H 1030 Mueller Co. with cover #5830 Hays, 5614 McDonald with 5614L cover or equal. All curb stop service boxes shall be able to telescope a minimum of 12".

F. Fittings and Connections: (AWWA C 800) All fittings or connections used shall be constructed of heavy-duty brass and shall be of the compression type for copper water piping.

501.4 CONSTRUCTION REQUIREMENTS:

A. General: All pipe and fittings shall be laid in trenches to the depth or grade shown on the plans, but in all cases with a minimum cover of 6 feet over the top of the pipe at the locations shown on the drawings and/or as directed by the Engineer. All pipe and fittings shall be installed as specified in this Section. Unless otherwise specifically called for on the plans or the specifications, all pipe and appurtenances thereto shall be new material meeting the requirements of these specifications (AWWA C 600 and 602 or AWWA C605 as is applicable).

The Contractor will be held responsible to insure the protection of all existing improvements such as fire hydrants, street lights, traffic lights, parking meters, traffic signs, catch basins, manholes, valves, survey monuments, overhead utility lines and poles, and any existing underground sprinkler or utility lines which may be damaged during the execution of the contract. It will be the Contractor's responsibility to replace all public improvements so damaged at his own expense. Contractor is responsible to call for locates on all underground utilities.

The Contractor shall take proper precautions for the protection of and replacement or restoration of driveway culverts, street intersection culverts or aprons, storm drains or inlets, fences, irrigation ditches crossings and diversion boxes, mail boxes, shrubbery, sod, trees, driveway approaches and all other public or private installations that may be encountered during the performance of the work. He shall provide each property with access at all times during construction. Existing driveways shall be cut, filled and graded as required or as directed by the City representative to provide permanent access. Existing driveways shall be resurfaced with the then existing type of surfacing, whenever surfaces are destroyed. Costs are considered incidental and will not be paid for separately unless listed separately on bid schedule.

Excavation, trenching and backfilling will be in accordance with City of Yankton Standard Specifications pertaining to such work - Section 203.

B. Handling of Pipe: Unloading of pipe from railroad cars, truck or trailers and the placing of the pipe in their final locations of the work shall be carefully performed in an approved manner in order to avoid damage to the pipe or its coating.

C. Excavation, Trenching and Backfilling: Excavation, trenching and backfilling shall conform to standards and regulations governing such work and the requirements set forth in the excavation, trenching and backfilling section of the Technical Specifications. Backfill is to be compacted to 95% of maximum density ASTM D 698 (standard proctor density) at +/- 2% of optimum moisture content.

D. Tapping: Tapping of watermains for water service lines shall be accomplished in one of two methods as specified below:

Where the plans specify that the City will install the water service line taps the City will furnish labor, equipment and corporation stops, up to a maximum of a 1" corporation. Notify the City Water Department a minimum of 24 hours prior to the time that taps are desired. The tapping pit and trench excavation are the Contractor's responsibility and subject to the approval of water department personnel.

When service saddles are specified on the plans, the contractor shall be responsible for furnishing all labor, materials and equipment for the complete installation of the service saddle and corporation stop. Payment for service saddles and corporation stops shall be as noted elsewhere in these specifications.

In installations that require a tap larger than a 1" tapped tee, meeting the same requirements of Materials Section shall be installed with the specified corporation stop. The cost of the tapped tee and corporation stop shall be borne by the contractor unless it is included in the bid schedule.

Multiple small diameter taps in the conjunction with a yoke to join the taps will not be permitted. The Contractor shall be responsible for securing and paying for all water connection permits and fees. It is the Contractor's responsibility to contact the Department of Public Works for current fee schedules. The Contractor shall not receive additional payment for permit fees.

E. Installing Fire Hydrants: Fire hydrants shall be set at the locations indicated on the drawings or as directed by the Engineer. Setting details shall be as indicated on the detail drawings.

In the area surrounding the drain mechanism for the hydrant, 3 cubic feet of crushed rock or equivalent porous material shall be placed to provide adequate drainage from the barrel of the hydrant.

Each hydrant shall be set to the same depth of cover as specified for the water mains and no hydrant shall be set more than 3" above or below the ground line mark cast thereof, then the hydrant shall be set so that the 2-1/2" nozzles will be at least 18 inches from the ground and not more than 24 inches above the finished ground line.

F. Installation of Water Pipe and Appurtenances: Piping for water mains may be of PVC or ductile iron as called for. Piping for water service lines shall be type "K" copper as specified elsewhere in these specifications. All pipe and accessories shall be new. Pipe and accessories shall be handled in such a manner as to insure delivery to the trench in sound, undamaged condition. Particular care shall be taken not to injure the pipe coatings. No other pipe or material of any kind shall be placed inside a pipe or fitting. The interior of the pipe shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved methods. The full length of each section of pipe shall rest solidly upon the pipe bed with the recesses to accommodate bells and joints, shaped by hand. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for work. Water shall be kept from the trench until the joints have been completed in a satisfactory manner.

When work is not in progress, open ends of pipe and fittings shall be securely closed to prevent the entrance of trench water or other extraneous substances. Any section of pipe found to be defective before or after laying shall be replaced with sound pipe without additional expense to the City.

Where water lines cross under or where the bottom of the water line is within 18" of the top of a gravity sewer main, storm sewer or a sewer service line, the water line shall be fully encased in concrete for a distance of ten feet (10') each side of the sewer main, storm sewer or sewer service line. The Contractor shall encase piping at other locations as shown on the plans or as may be directed by the Engineer.

Water service lines shall be installed as stated above, however, water service lines shall be laid in separate trenches from sewer service lines at least ten feet (10') apart horizontally. Water service lines may be installed in the same trench with the sewer service line only when conditions prevent separate trenches and when approved by the Engineer

All water service line connections at the watermain shall be no closer than 18" apart and no closer than 24" to a bell or mechanical joint. The final location of the curb stop shall be as determined by the Engineer.

Adjust valve boxes, curb boxes and other appurtenances to the proposed final surface grades.

(1) Highway and Railroad Crossings: The highway and railroad crossings shall be constructed by boring or jacking an encasement pipe without interference of traffic. The encasement pipe for use for crossing under the highway and railroad shall be of the size and thickness indicated on the plans and permits. Highway and railroad crossings shall be constructed in accordance with AWWA C-600 and meets the conditions of the permitting agency.

Operations and details of construction shall comply fully with the rules and regulations of the railroad, State or County agency issuing the permit. Contractor shall notify permit issuing agency and the City 48 hours prior to the commencement of boring and jacking

operations.

(2) Blocking and Joint Restraint: All hydrants, bends, tees, plugs and other appurtenances in the pipeline shall be secured against movement by suitable thrust restraint. Blocking shall consist of poured concrete and shall be placed in accordance with the following City of Yankton Standard Plates:

1. 34-1 - Standard Thrust Rod Details.
2. 34-2 - Blocking for Convex Vertical Bend - buried.
3. 34-3 - Standard Thrust Block Details.
4. 34-4 - Typical Ditch Section (used for utility conflicts also).

Poured concrete shall not be placed over the entire fitting. The contact surface shall be limited to areas as shown on standard plates.

Dry (precast) concrete blocks can be used to substitute poured concrete on dead end plugs and tees. Soil bearing surface must be equal to or exceed that shown for poured blocks. Poured concrete may be required by Engineer if in his judgment field conditions are unsuitable for precast blocks.

Rodding in conjunction with uniflange/star clamp restrainers may be used on 45-degree vertical bends. Fire hydrants are to be rodded (use of uniflange/star clamps acceptable).

(3) Future Connections: Pipe ends left for future connections shall be valved, plugged or capped.

(4) Cutting Pipe: Cutting of pipe shall be done in a neat and workmanlike manner without damage to the pipe. Cutting shall be done by means of an approved type of mechanical cutter. Wheel cutters shall be used when practicable.

(5) Cut-In Connections: All cut-in connections shall be made by using a standard tee and sleeve. Connections under pressure will be permitted by use of standard tapping valve and sleeve. No cut-in connections will be allowed by using cut-in tees.

G. Installing Valve Boxes: Valve boxes shall be centered on the valves and shall rest on compacted backfill. The top of the entire assembly shall be plumb. Earth fill shall be carefully tamped around each valve box and adjusted to proposed finish grade.

H. Ductile Iron Pipe: All installations of PVC, cast iron, or ductile iron pipe shall be in accordance with AWWA Standard C-600 or AWWA Standard C-605 as is appropriate. Before installation of pipe, the pipe shall be inspected for defects and cracks. Defective, damaged or unsound pipe will be rejected. Deflecting from a straight line or grade, as required by vertical curves, horizontal curves or offsets, shall not exceed $6/D$ inches per linear feet of pipe, where D represents the nominal diameter of the pipe expressed in inches, between the center lines extended of any two connecting pipes. If the alignment requires deflections in excess of these

limitations, special bends or a sufficient number of shorter lengths of pipe shall be furnished to provide angular deflections within the limit set forth at the Contractor's expense. Tracer wire shall be installed with all pipe materials as noted in the plan and specifications.

A rubber gasket shall be inserted in bell before pushing into place. The spigot shall be centered in the bell and the pipe pushed into position and brought into required alignment. Except where necessary in making connections with other lines, or as authorized by the Engineer, pipe shall be laid with the bells facing in the direction of laying.

(1) Joints: Bell and spigot points - before jointing bell and spigot pipe, all lumps, blisters, and excess coating material shall be removed from the bell and spigot ends of the pipes. All oil or grease shall be removed. The outside of the spigot and the inside of the bell shall be wire-brushed and wiped clean and dry.

(2) Slip Joints: If slip seal "Tyton" joint pipe or equivalent is used, the materials and work shall be in strict accordance with the manufacturer's recommendations and specifications for the specific joint used.

(3) Mechanical Joints: shall be installed in accordance with the recommendations of the joint manufacturer.

I. Cleanup: During the progress of the work and upon completion of the work the Contractor shall remove all surplus construction materials and debris resulting from the work, and all areas of the work shall be left in an orderly manner.

J. Disinfection: Each unit of completed supply line shall be disinfected with chlorine before acceptance for domestic operation.

Disinfection shall be accomplished as described below or by the system prescribed by the American Water Works Association Standard C-651. The amount of chlorine applied shall be such as to provide a dosage of not less than 50 parts per million. The chlorinating material shall be introduced into the water lines in an acceptable manner. If possible to do so, the lines shall be thoroughly flushed before introduction of the chlorinating materials. After a contact period of not less than twenty-four (24) hours, the system shall be flushed with clean water until the residual chlorine content is not greater than 1.0 part per million. When flushing the line, the water used for disinfecting the water line must not reach a stream, river, or other waterway if chlorine is detected in the water.

After disinfection, the water lines must be flushed and the disinfected line must be sampled. Two consecutive samples of water from the end of the disinfected line must be collected at least 24 hours apart. These samples must be submitted to the State Health Laboratory in Pierre, or other laboratory acceptable to the department. The samples must be free of coliform bacteria and must meet the State sanitary bacteriological testing standards before the system is placed into service.

Samples will be taken by City personnel. Contractor shall furnish a service line on new pipe at

which a sample can be collected. The initial sample bottles, sampling and laboratory costs will be provided by the water utility. Retests will be accomplished by the utility and the Contractor will be responsible for all costs of retests including cost of materials, sampling, and laboratory fees.

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

Disinfection costs are considered incidental to pipe installation and are not paid for separately.

K. Pressure Tests for Mains: It is the intent of this specification that all joints in piping be watertight and that all joints which are found either by observation or any specified test to leak shall be made watertight by the Contractor. After the pipe is laid, the joints exposed for examination, and before service line connections are made the newly laid piping or any valved section of piping shall be subjected to a hydrostatic test in accordance with AWWA C600 and AWWA C605. 100 PSI is the minimum test pressure for all mains.

The Contractor shall furnish the pump, pipe connections, gauges, and measuring equipment and shall perform the testing under the direct supervision of the Engineer. Where permanent air vents are not provided, the Contractor shall provide and install corporation cocks at the high points as needed for release of air as the line is filled with water.

Should any test of combined sections of pipeline disclose leakage greater per mile than specified, or should individual sections show leakage greater than the specified limit, the Contractor shall locate and repair the defective joints until the leakage is within the specified limits.

All pipe, fittings, valves, pipe joints, and other materials which are found to be defective when the line is tested shall be removed from the line immediately and replaced with new and acceptable material by and at the expense of the contractor.

Pressure testing Is considered incidental to pipe installation and is not paid for separately.

L. Inspection: When the pipe and fittings are all installed and before the hydrostatic tests are applied to the pipe the Engineer must be notified that the line is ready for inspection and testing. No water shall be allowed in the line, no testing shall take place unless the Engineer or his authorized representative is on the job.

M. Tracer Wire System

The tracer wire system shall be installed with cast iron, ductile iron and PVC water mains to the satisfaction of the Engineer.

Tracer wire shall be No. 12 solid single strand type TW or THHN, or approved equal.

The conductor shall be solid or stranded copper per ASTM B-1, B-3, or B-8. The ground rod shall be a 3/8-inch diameter, 60-inch long steel rod uniformly coated with metallicly bonded

electrolytic copper. Blackburn Catalog No. 3755, or equal. The ground rod at the fire hydrant shall be of the same material except that the ground rod shall be 30 inches long.

Ground rod clamps shall be high strength, corrosion resistant copper alloy. Blackburn Catalog No. G3, or equal.

Splice kits shall be Scotchlok DBY Y Connectors or equal.

The cost of the tracer wire system is considered to be a part of the cost of the water main installation.

N. Tracer Wire Installation

Tracer wire shall be installed with PVC, cast iron and ductile iron water mains. The wire shall be installed along the lower quadrant of the pipe, but the pipe shall not be laid directly on the wire. Ground rods shall be installed adjacent to connections to existing piping and in the locations specified on the plans. The tracer wire shall be brought to each fire hydrant and connected to a 30" ground rod that extends up to the bolted flange just above the ground surface or a minimum distance of 3" above the ground surface. The ground rod shall be taped to the fire hydrant barrel in at least four locations below the ground surface. The tracer wire shall be spliced only if approved by the Engineer and all underground splices shall be inspected by the Engineer prior to backfilling. The tracer wire system is considered to be a part of the price bid for water mains.

The Contractor shall be responsible for testing the tracer wire system for conductivity. Testing for conductivity shall be completed prior to finish surfacing activities. If the tracer wire does not function as intended, the Contractor shall repair the system to the satisfaction of the Engineer.

O. Casing Pipe Spacers and End Seals

Casing spacers shall be constructed of circular stainless steel segments which bolt together forming a shell around the carrier pipe. The spacers shall be designed with risers (when needed) and runners to support and center the carrier within the casing and maintain a minimum clearance of 0.50" between the casing ID and the spacer OD. On carrier pipes with an OD of less than 16", each spacer shall have four riser and runner combinations - two on each segment. On carrier pipes with an OD of 16" and larger, each spacer shall contain six riser and runner combinations - four on the bottom segment and two on the top segment. T-304 stainless steel bolts and nuts shall be supplied with the spacers.

The band shall be manufactured of 8" wide, 14 gauge T-304 stainless steel (1.88mm). The risers shall be constructed of T-304 stainless steel having a minimum length of 6".

Abrasion resistant runners, having a minimum length of 7", and a minimum width of 1", shall be attached to each riser to minimize friction between the casing pipe and the carrier pipe as it is installed. Runners shall be made of ultra high molecular weight polymer which has a low coefficient of friction. The ends of all runners shall be beveled to facilitate installation over

rough weld beads or the welded ends of misaligned or deformed casing pipe.

Interior surfaces of the stainless steel shell shall be lined with PVC or EPDM having a minimum thickness of 0.090" with a hardness of durometer "A" 85-90.

The spacing of the spacers shall be a maximum of one foot on each side of the bell joint and one spacer at the center of the pipe.

Full conical shaped wrap-around end seals made of 1/8" synthetic rubber shall be provided for each end of the casing pipe. T 304 stainless steel banding straps with a 100% non-magnetic worm gear mechanism and pressure sensitive butyl mastic strips shall be provided to seal up the end seals. Casing spacers and end seals shall be manufactured by Advanced Products and Systems Inc. or an approved equal. Costs for the spacers and seals shall be included in the price bid for the casing pipe.

P. Steel Casing Pipe Specifications

The steel casing pipe shall be the diameter with a minimum wall thickness shown on the plans and shall be 35,000 psi, ANSI B36.1.

End of Section