

BIDDER CHECKLIST FOR
PROJECT NO. 2008-D-2
MOORES CREEK DRAIN EXTENSION
OLD POTASH CROSSING
CITY OF GRAND ISLAND, NEBRASKA

Bids must be received by the City Clerk before 2:00 p.m., (local time) on Wednesday, August 31, 2011.

The following items must be completed for your bid to be considered.

- 1 This completed bidder checklist form.
- 1 A signed **original and one copy** of the bidding documents. (Pages CB-1 through CB-4)
- 1 Acknowledgment of Addendum(s), if any.
- 1 Firm unit pricing; or lump sum pricing as applicable. (See bid Form)
- 1 A certified check, cashiers check or bid bond in a separate envelope attached to the **outside of the envelope containing the bid**. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened.

Bidder Company Name

Date

Print – Name of Person Completing Bid

Signature

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PROJECT NO. 2008-D-2 MOORES CREEK DRAIN OLD POTASH CROSSING

CITY OF GRAND ISLAND, NEBRASKA

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ADVERTISEMENT TO BIDDERS

ADVERTISEMENT TO BIDDERS

for

**PROJECT NO. 2008-D-2
MOORES CREEK DRAIN EXTENSION
OLD POTASH CROSSING**

for

CITY OF GRAND ISLAND, NEBRASKA

Sealed bids will be received at the office of the City Clerk, 100 E. First Street., Grand Island, NE 68801 or P.O. Box 1968, Grand Island, Nebraska 68802 until **2:00 p.m., (Local Time), Wednesday, August 31, 2011**, for the construction of **Moores Creek Drain Extension**, for the City of Grand Island. Bids will be publicly opened at this time in the Conference Room #1 located on 1st floor of City Hall. Bids received after specified time will be returned unopened to sender.

Bids shall be submitted on forms which will be furnished by the City. Each bidder shall submit with their bid a certified check, a cashiers check or bid bond payable to the City Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within 15 days, at the bid price, if accepted by the City. **“Your certified check, cashiers check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid.”** Each envelope must be clearly marked indicating its contents. **Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened or considered.** Bid bonds must be issued by surety companies authorized to do business in the State of Nebraska. **Please return one original and one copy of each bid sheet.**

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S. 73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska.

Successful bidder shall comply with the City's insurance requirements, and supply performance and payment bonds. Successful bidder shall maintain a Drug Free Workplace Policy.

Bids will be evaluated by the Purchaser based on price, quality, adherence to schedule, plan and specification, economy and efficiency of operation, experience and reputation of bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids and to waive irregularities therein and to accept whichever bid that may be in the best interest of the City, at its sole discretion. The Purchaser also reserves the right to reject any section(s) of a selected bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw their bid for a period of forty-five (45) days after date of opening bids.

Plans and specifications for use in preparing bids may be obtained from the office of the City Engineer, Second Floor, City Hall, 100 East First Street, Grand Island, NE.

TITLE VI

The City of Grand Island, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office the Secretary, Part 21, Nondiscrimination in Federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notified all bidden that it will affirmatively insure that in any contact entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin, sex, age and disability/handicap in consideration for an award.

SECTION 504/ADA NOTICE TO THE PUBLIC

The City of Grand Island does not discriminate on the basis of disability in admission of its programs, services, or activities, in access to them, in treatment of individuals with disabilities, or in any aspect of their operations. The City of Grand Island also does not discriminate on the basis of disability in its hiring or employment practices.

This notice is provided as required by Title II of the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. Questions, complaints, or requests for additional information or accommodation regarding the ADA and Section 504 may be forwarded to the designated ADA and Section 504 compliance coordinator.

City Administrator
308-385-5444, extension 140
100 East First Street, Grand Island, NE 68801
Monday through Friday; 8:00 a.m. to 5:00 p.m.

RaNae Edwards
City Clerk

CONTRACTOR'S BID

**PROJECT NO. 2008-D-2
MOORES CREEK DRAIN EXTENSION
OLD POTASH CROSSING**

CITY OF GRAND ISLAND, NEBRASKA

CONTRACTOR'S BID

TO THE MEMBERS OF THE COUNCIL
CITY OF GRAND ISLAND
GRAND ISLAND, NEBRASKA

THE UNDERSIGNED BIDDER, having examined the plans, specifications, general and special conditions, and other proposed contract documents, and all addenda thereto and being acquainted with and fully understanding (a) the extent and character of the work covered by this Bid, (b) the location, arrangement, and specified requirements for the proposed work, (c) the location, character, and condition of existing streets, roads, highways, railroad, pavements, surfacing, walks, driveways, curbs, gutters, trees, sewers, utilities, drainage courses and structures, and other installations, both surface and underground which may affect or be affected by the proposed work, (d) the nature and extent of the excavations to be made and the handling and re-handling of excavated materials, (e) the location and extent of necessary or probable dewatering requirements, (f) the difficulties and hazards to the work which might be caused by storm and flood water, (g) local conditions relative to labor, transportation, hauling and rail delivery facilities, and (h) all other factors and conditions affecting or which may be affected by the work.

HEREBY PROPOSES to furnish all required materials, supplies, equipment, tools and plans, to perform all necessary labor and supervision, and to construct, install, erect, equip and complete all work stipulated in, required by and in accordance with the contract documents and the plans, specifications and other documents referred to therein (as altered, amended or modified by all addenda thereto) for and in consideration of the following prices:

<u>No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	<u>Firm Unit Price</u>	<u>Total Price</u>
1.	48" Reinforced Concrete Pipe Storm Sewer	1,100.00 l.f.	\$ _____	\$ _____
2.	48" Reinforced Concrete Pipe 45° Precast Elbows	8.00 ea.	\$ _____	\$ _____
3.	48" Reinforced Concrete Pipe Flared End Section	4.00 ea.	\$ _____	\$ _____
4.	Remove Asphalt Pavement	54.00 s.y.	\$ _____	\$ _____
5.	Construct 7" ACC or PCC Asphalt Pavement	54.00 s.y.	\$ _____	\$ _____
6.	Pavement Saw Cut	48.00 l.f.	\$ _____	\$ _____
7.	Clear & Grub 6"-12" Trees	6.00 ea.	\$ _____	\$ _____
8.	Gravel	10.00 ton	\$ _____	\$ _____
9.	24" Reinforced Concrete Pipe Class III	62.00 l.f.	\$ _____	\$ _____
10.	18" Reinforced Concrete Pipe Class III	110.00 l.f.	\$ _____	\$ _____
11.	18" Flared End Section	2.00 ea.	\$ _____	\$ _____
12.	Special Junction Box	1.00 ea.	\$ _____	\$ _____
13.	Seeding	1.20 ac.	\$ _____	\$ _____
14.	Silt Fence	981.00 l.f.	\$ _____	\$ _____

GRAND TOTAL BID

\$ _____

Alternate Bid Items -

1A.	48" Triple Wall Polypropylene Pipe Storm Sewer	1,100.00 l.f.	\$ _____	\$ _____
2A.	48" Triple Wall Polypropylene Pipe 45° Precast Elbows	8.00 ea.	\$ _____	\$ _____
9A.	24" High Density Polyethylene Pipe N-12	62.00 l.f.	\$ _____	\$ _____
10A.	18" High Density Polyethylene Pipe N-12	110.00 l.f.	\$ _____	\$ _____

GRANT TOTAL – ALTERNATE BID ITEMS \$ _____

EXPERIENCE DATA:

Each bidder shall supply the following data on their experience:

Name of Bidder: _____

<u>Project Owner/Contact/Phone No.</u>	<u>Project Location</u>	<u>Completion Date</u>
--	-------------------------	------------------------

_____	_____	_____
_____	_____	_____
_____	_____	_____

Additional Data: _____

INSURANCE: Bidder acknowledges that bid includes compliance with the attached insurance requirements.

ADDENDA:

Bidder acknowledges that the following Addendums were received and considered in Bid preparation.

<u>ADDENDUM NO.</u>	<u>DATE</u>	<u>SIGNATURE</u>
_____	_____	_____
_____	_____	_____

Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.

Exceptions shall be listed in the following blanks. If additional space is required for exception explanation, please reference and attach a letter to bid. Reference shall not be made to other attachments for exceptions and supplementary terms. Failure to outline such exceptions as specifically stated herein will require the successful bidder to comply with these specifications. In case of conflict between the bid and these specifications, these specifications shall govern unless specific exceptions are listed by the bidder.

Exceptions to specifications, pages _____

The undersigned bidder agrees to furnish the required bond and to enter into a contract within 15 days after acceptance of this Bid, and further agrees to complete all work covered by the foregoing bid in accordance with specified requirements. **No work shall commence until the Certificate of Insurance and bonds (when required) are approved by the City and the contract is executed.** The proposed work can commence after the contract is signed and the required bond is approved. The work in this contract shall be completed no later than **November 10, 2011.**

Enclosed herewith is the required bid guarantee in the amount of _____ Dollars (\$_____) which the undersigned bidder agrees is to be forfeited to and become the property of the City of Grand Island, Nebraska, as liquidated damages should this Bid be accepted and a contract be awarded to them and they fail to enter into a contract in the form prescribed and to furnish the required bond within 15 days, but otherwise the aforesaid bid guarantee will be returned upon signing the contract and delivering the approved bond.

In submitting the bid it is understood that the right is reserved by the City to reject any and all bids; to waive irregularities therein and to accept whichever bid that may be in the best interest of the City. It is understood that this bid may not be withdrawn until after 45 days from bid opening.

In submitting the bid, the bidder states that bidder fully complies with, and will continue to comply with, applicable State fair labor standards as required by section 73-102 RRS, 1943 and also complies with, and will continue to comply with, section 48-657 RRS, 1943 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska.

The undersigned bidder hereby certifies (a) that this bid is genuine and is not made in the interest of or in the behalf of any undisclosed person, firm or corporation, and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation, (b) that they have not directly or indirectly induced or solicited any person, firm or corporation to refrain from bidding, (c) that they have not sought, by collusion or otherwise, to obtain for themselves an advantage over any other bidder or over the City of Grand Island, and (d) that they have not directly or indirectly induced or solicited any other bidder to put in a false or sham bid.

DATED _____

SIGNATURE OF BIDDER:

If an Individual: _____ doing business

as _____

If a Partnership: _____

by _____, member of firm.

If a Corporation: _____

by _____ (Seal)
Title

BUSINESS ADDRESS OF BIDDER

TELEPHONE NUMBER OF BIDDER

FAX NUMBER OF BIDDER

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

PROJECT NO. 2008-D-2 MOORES CREEK DRAIN EXTENSION OLD POTASH CROSSING

CITY OF GRAND ISLAND, NEBRASKA

EXCEPTIONS TO SPECIFICATIONS: Each bidder shall carefully check all requirements herein set forth and shall offer items which fully comply with these requirements or shall plainly set forth all points, features, conditions, specifications. Bidder must comply with all applicable Federal, State and Local rules and regulations.

SUBMISSION OF BIDS: All bids shall be submitted using the City's bid form. Bids shall be **addressed to the City Clerk** and plainly marked, "**BID FOR MOORES CREEK DRAIN EXTENSION – OLD POTASH CROSSING, PROJECT NO. 2008-D-2**".

INSURANCE COVERAGE: The Contractor shall purchase and maintain at their expense as a minimum insurance coverage of such types and in such amounts as are specified herein to protect Contractor and the interest of Owner and others from claims which may arise out of or result from Contractor's operations under the Contract Documents, whether such operations be by Contractor or by any subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. Failure of Contractor to maintain proper insurance coverage shall not relieve them of any contractual responsibility or obligation.

BASE BID: The bidder is expected to base their bids on materials and items complying fully with these specifications, and in the event their names in the bid materials or items which do not conform, they will be responsible for furnishing materials and items which fully conform at no change in the bid price.

CHECKS OR BID BONDS: Checks or bid bonds of the unsuccessful bidders will be returned when their bids have been rejected and not to exceed 45 days from the date bids are opened. All bids shall remain in force for this 45-day Period. The check or bid bond of the successful bidder will be returned when the Contracts are signed by both parties and necessary bonds supplied. Should the Purchaser make an award to a Contractor who refuses to enter into Contract and furnish the required bonds within 15 days after notification of acceptance, then the bid security which has been deposited with the Purchaser will be forfeited to the Purchaser as liquidated damages.

PERFORMANCE BOND: When required, on award of the Contract, the successful Contractor shall furnish a Performance Bond which shall be in an amount equal to the full Contract price, guaranteeing faithful compliance with all requirements of the Contract Documents and complete fulfillment of the Contract, and payment of all labor, material and other bills incurred in carrying out this Contract. According to Nebraska Law, the surety company executing the Performance Bond must be authorized to do business in the State of Nebraska.

PAYMENT BOND: When required, on award of the Contract, the successful Contractor shall furnish a Payment Bond which shall be in an amount equal to the full Contract price, guaranteeing protection of all persons supplying labor and materials to the Contractor or its subcontractors for the performance of the work provided for in the Contract. In accordance with Nebraska Law, the surety company executing the Payment Bond must be authorized to do business in the State of Nebraska.

TAXES: This project for the City of Grand Island is exempt from paying local City and State Sales Tax. Refer to Exempt Sale Certificate enclosed for your information. Contractor must pay any other tax which might be applicable.

REQUESTS FOR PAYMENT: The City of Grand Island will make payments only after approval at regularly scheduled City Council meetings. These meetings typically occur the second and fourth Monday each month. Requests for payment must be received no less than ten working days prior to the designated meeting to allow proper review and consideration.

REQUEST FOR INTERPRETATION: If any person, contemplating submitting a bid for this Contract is in doubt as to the true meaning of any part of the specifications or other proposed Contract documents, they may submit to the Purchasing Division of the City Attorney's Office a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum only issued and/or delivered to each person receiving a set of such documents. The addenda upon closing shall become a part of the Contract. The City will not be responsible for any other explanation or interpretation of the proposed documents.

TIME OF COMPLETION: This work in this contract shall be completed no later than **November 10, 2011**.

CLEANING UP: Contractor shall maintain a clean and safe work area while on site, particularly since pedestrian traffic will be prevalent during construction activities.

ADDENDA: Any addendum to the specifications issued during the time allowed for preparation of bids shall be covered in the bid and shall become a part of the specifications. One copy of each addendum issued before the date of the letting will be sent to all bidders. One signed copy is to be returned immediately to the Purchasing Department (or other department if so designated in the Addendum) as acknowledgment of receipt.

MODIFICATION OF BIDS: Bids may be modified or withdrawn by an appropriate document duly executed in the manner that a bid must be executed and delivered to the place where bids are to be submitted at any time prior to the final time set for receiving bids. Bidders may modify or withdraw bids by Fax communication at any time prior to the time set for receiving bids provided this instruction is positively identified. Any Fax modification should not reveal the amended bid price but should provide only the addition, subtraction or other modifications. A duly-executed document confirming the Fax modification shall be submitted within three days after bids are opened.

BID DATA: Bidders shall submit bid data, if required, on items offered in the Bid by **furnishing one original and one copy of the completed Contractor's Bid form**. The bid sheets shall be filled out legibly in ink to permit reproduction.

BIDDER SECURITY: Bidder security, when required, shall be enclosed in a special envelope marked, "**BIDDER SECURITY/BID FOR MOORES CREEK DRAIN EXTENSION – OLD POTASH CROSSING, PROJECT NO. 2008-D-2**". The envelope shall contain only a cashier's check, certified check or bidder's bond.

This special envelope shall be attached to a sealed envelope containing the bid and any other bid materials. This second envelope shall be "BID FOR MOORES CREEK DRAIN EXTENSION – OLD POTASH CROSSING, PROJECT NO. 2008-D-2" and be addressed to the City Clerk. Bids of an incomplete nature or subject to multiple interpretation may, at the option of the Purchaser, be rejected as being irregular.

FINANCIAL STATEMENT: If requested the bidder shall furnish a complete financial statement signed by the bidder, if an individual, by all partners if the bidder is a partnership and, by the President or Secretary, if the bidder is a corporation.

DRUG FREE WORKPLACE POLICY: Bidders shall furnish, upon request, a copy of their Drug Free workplace Policy.

EQUAL EMPLOYMENT OPPORTUNITY: The Contractor agrees that during the performance of this Contract not to discriminate in hiring or any other employment practice on the basis of race, color, religion, sex, disability, age or national origin, and to comply with Executive Order 11,246 of September 24, 1965, and the rules, regulations and relevant orders of the Secretary of Labor, and Chapter 20 of the Reissue Revised Statutes of the State of Nebraska.

LOCAL CONDITIONS: Each bidder shall have an authorized representative visit the site of the work and thoroughly inform them of all conditions and factors which would affect the work and the cost thereof, including the arrangement and conditions of existing or proposed structures affecting or affected by the proposed work; the procedure necessary for maintenance of uninterrupted operation; the availability and cost of labor and facilities for transportation, handling, and storage of materials and equipment.

It must be understood and agreed that all such factors have been investigated and considered in the preparation of every bid submitted. No claims for financial adjustment (to any Contract awarded for the work under these Specifications and documents) will be permitted by the City, which are based on lack of such prior information, or its effect on the cost of the work.

CORRESPONDENCE: Correspondence regarding drawings, instruction manuals, and other engineering data shall be clearly marked "FOR ENGINEERING DEPARTMENT" and sent through:

City of Grand Island
Public Works Department/Engineering Division
P.O. Box 1968
Grand Island, NE 68802-1968
(308) 385-5444, Extension 260
publicworks@grand-island.com
Attn: Terry Brown

LOCAL BIDDER PREFERENCE: In case of tied low bids, all other things being equal, preference shall be given in the following order:

1. To those bidders who manufacture their products within the limits of the City of Grand Island.
2. To those bidders who manufacture their products within the limits of the County of Hall.
3. To those bidders who package, process, or through some other substantial operation have employees and facilities for these purposes in the City of Grand Island.
4. To those bidders who package, process, or through some other substantial operation have employees and facilities for these purposes in the County of Hall.
5. To those bidders who maintain a bona fide business office in the City of Grand Island, whose products may be made outside the confines of the City of Grand Island.
6. To those bidders who maintain a bona fide business office in the County of Hall, whose products may be made outside the confines of the County of Hall.
7. To those bidders whose commodities are manufactured, mined, produced, or grown within the State of Nebraska, and to all firms, corporations, or individuals doing business as Nebraska firms, corporations or individuals, when quality is equal or better, and delivered price is the same or less than the other bids received.
8. To those bidders whose commodities are manufactured, mined, produced, or grown within the United States of America, and to all firms, corporations, or individuals doing business as firms registered in states other than Nebraska, when quality is equal or better, and delivered price is the same or less than the other bids received.

INSURANCE REQUIREMENTS

MINIMUM INSURANCE REQUIREMENTS

**PROJECT NO. 2008-D-2
MOORES CREEK DRAIN EXTENSION
OLD POTASH CROSSING**

CITY OF GRAND ISLAND, NEBRASKA

You are urged to include in your bid compliance with the City's minimum insurance requirements; however, any non-compliance must be detailed in the Exceptions Section of the bid. Compliance with the specified OCP coverage is mandatory.

The Bidder shall take out, throughout the duration of the Contract, insurance of such types and in such amounts as may be necessary to protect themselves and the interests of the City against all hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations to the fullest extent possible and provide no exclusions relative to any aspect of the work being performed for the City. The form and limits of such insurance, together with the underwriter thereof in each case, shall be approved by the City but regardless of such approval, it shall be the responsibility of the Bidder to maintain adequate insurance coverage at all times. Failure of the Bidder to maintain adequate coverage shall not relieve them of any contractual responsibility or obligation.

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 Combined Single Limit
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3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract. **The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the bidder cannot have the "endeavor to" language stricken, the bidder may elect to provide a new certificate of insurance every 30 days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**

EXEMPT SALES CERTIFICATE



Nebraska Resale or Exempt Sale Certificate

FORM 13

for Sales Tax Exemption

• Read instructions on reverse side/see note below

NAME AND MAILING ADDRESS OF PURCHASER			NAME AND MAILING ADDRESS OF SELLER		
Name			Name		
Street or Other Mailing Address			Street or Other Mailing Address		
City	State	Zip Code	City	State	Zip Code

Check Type of Certificate

Single Purchase Blanket If blanket is checked, this certificate is valid until revoked in writing by the purchaser.

I hereby certify that the purchase, lease, or rental by the above purchaser is exempt from the Nebraska sales tax for the following reason:

Check One Purchase for Resale (Complete Section A) Exempt Purchase (Complete Section B) Contractor (Complete Section C)

SECTION A—Nebraska Resale Certificate

Description of Item or Service Purchased

I hereby certify that the purchase, lease, or rental of from the above seller is exempt from the Nebraska sales tax as a purchase for resale, rental, or lease in the normal course of our business, either in the form or condition in which purchased, or as an ingredient or component part of other property to be resold.

I further certify that we are engaged in business as a: Wholesaler Retailer Manufacturer Lessor
of Description of Product Sold, Leased, or Rented

If None, State Reason

and hold Nebraska Sales Tax Permit Number 01-

or Foreign State Sales Tax Number

State

SECTION B—Nebraska Exempt Sale Certificate

The basis for this exemption is exemption category (Insert appropriate category as described on reverse of this form.)

If exemption category 2 or 5 is claimed, enter the following information:

Description of Item(s) Purchased	Intended Use of Item(s) Purchased
----------------------------------	-----------------------------------

If exemption categories 3 or 4 are claimed, enter the Nebraska Exemption Certificate number. 05-

If exemption category 6 is claimed, seller must enter the following information and sign this form below:

Description of Item(s) Sold	Date of Seller's Original Purchase	Was Tax Paid when Purchased by Seller?	Was Item Depreciable?
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

SECTION C—For Contractors Only

1. Purchases of Building Materials or Fixtures:

As an Option 1 or Option 3 contractor, I hereby certify that purchases of building materials and fixtures from the above seller are exempt from Nebraska sales tax. My Nebraska Sales or Consumer's Use Tax Permit Number is: 01-

2. Purchases Made Under Purchasing Agent Appointment on behalf of _____ (exempt entity)

Pursuant to an attached Purchasing Agent Appointment and Delegation of Authority for Sales and Use Tax, Form 17, I hereby certify that purchases of building materials, and fixtures are exempt from Nebraska sales tax.

Any purchaser, or their agent, or other person who completes this certificate for any purchase which is other than for resale, lease, or rental in the regular course of the purchaser's business, or is not otherwise exempted from the sales and use tax under Neb. Rev. Stat. §§77-2701 through 77-27,135, shall in addition to any tax, interest, or penalty otherwise imposed, be subject to a penalty of \$100 or ten times the tax, whichever amount is larger, for each instance of presentation and misuse. With regard to a blanket certificate, this penalty shall apply to each purchase made during the period the blanket certificate is in effect. Under penalties of law, I declare that I am authorized to sign this certificate, and to the best of my knowledge and belief, it is correct and complete.

sign here

Authorized Signature

Title

Date

NOTE: Sellers must keep this certificate as part of their records. DO NOT SEND TO THE NEBRASKA DEPARTMENT OF REVENUE.

Incomplete certificates cannot be accepted.

www.revenue.ne.gov, (800) 742-7474 (toll free in NE and IA), (402) 471-5729

INSTRUCTIONS

WHO MAY ISSUE A RESALE CERTIFICATE. Form 13, Section A, is to be issued by persons or organizations making purchases of property or taxable services in the **normal** course of their business for the purpose of resale either in the form or condition in which it was purchased, or as an ingredient or component part of other property.

WHO MAY ISSUE AN EXEMPT SALE CERTIFICATE. Form 13, Section B can only be issued by persons or organizations exempt from payment of the Nebraska sales tax by qualifying for one of the six enumerated **Categories of Exemption** (see below). Nonprofit organizations that have a 501(c) designation and are exempt from federal and state income tax are **not** automatically exempt from **sales** tax. Only the entities listed in the referenced regulations are exempt from paying Nebraska sales tax on their purchases when the exemption certificate is properly completed and provided to the seller. Organizations claiming a sales tax exemption may do so only on items purchased for their own use. For health care organizations, the exemption is limited to the specific level of health care they are licensed for. The exemption is not issued to the entire organization when multiple levels of health care or other activities are provided or owned by the organization. Items purchased by an exempt organization that will be resold must be supported by a properly completed Nebraska Resale Certificate, Form 13, Section A.

Indicate the category which properly reflects the basis for your exemption. Place the corresponding number in the space provided in Section B. If category 2 through 6 is the basis for exemption, you must complete the information requested in Section B.

Nebraska Sales and Use Tax Reg-1-013. Sale for Resale – Resale Certificate, and Reg-1-014. Exempt Sale Certificate, provide additional information on the proper issuance and use of this certificate. These and other regulations referred to in these instructions are available on our Web site: www.revenue.ne.gov/legal/regs/slstaxregs.

Use Form 13E for purchases of energy sources which qualify for exemption. Use Form 13ME for purchases of mobility enhancing equipment on a motor vehicle.

CONTRACTORS. Form 13, Section C, Part 1, must be completed by contractors operating under Option 1 or Option 3 to document their tax-free purchase of building materials or fixtures from their suppliers. Section C, Part 2, may be completed to exempt the purchase of building materials or fixtures pursuant to a Purchasing Agent Appointment, Form 17. See the contractor information guides on our Web site www.revenue.ne.gov for additional information.

WHERE TO FILE. Form 13 is given to the seller at the time of the purchase of the property or service or when sales tax is due. The certificate must be retained with the seller's records for audit purposes. Do not send to the Department of Revenue.

SALES TAX NUMBER. A purchaser who completes Section A and is engaged in business as a wholesaler or manufacturer is not required to provide an identification number. Out-of-state purchasers can provide their home state sales tax number. Section B does not require an identification number when exemption category 1, 2, or 5 is indicated.

PROPERLY COMPLETED CERTIFICATE. A purchaser must complete a certificate before issuing it to the seller. To properly complete the certificate, the purchaser must include: (1) identification of the purchaser and seller, (2) a statement whether the certificate is for a single purchase or is a blanket certificate,

(3) a statement of basis for exemption including completion of all information for the basis chosen, (4) the signature of an authorized person, and (5) the date the certificate was issued.

PENALTIES. Any purchaser who gives a Form 13 to a seller for any purchase which is other than for resale, lease, or rental in the **normal** course of the purchaser's business, or is not otherwise exempted from sales and use tax under the Nebraska Revenue Act, shall be subject to a penalty of \$100 or ten times the tax, whichever amount is larger, for each instance of presentation and misuse.

Any purchaser, or their agent, who fraudulently signs a Form 13 may be found guilty of a Class IV misdemeanor.

CATEGORIES OF EXEMPTION

1. Purchases made directly by certain governmental agencies identified in Nebraska Sales and Use Tax Reg-1-012. Exemptions; Reg-1-072. United States Government and Federal Corporations; and Reg-1-093. Governmental Units, are exempt from sales tax. A list of specific governmental units are provided in the above regulations. Governmental units are not assigned exemption numbers.

Sales to the United States government, its agencies, and corporations wholly owned by the United States government are exempt from sales tax. However, sales to institutions chartered or created under federal authority, but which are not directly operated and controlled by the United States government for the benefit of the public, generally are taxable. Construction projects for federal agencies have specific requirements, see Reg-1-017 Contractors.

Purchases that are **not** exempt from Nebraska sales and use tax include, but are not limited to, governmental units of other states, sanitary and improvement districts, urban renewal authorities, rural water districts, railroad transportation safety districts, and county historical or agricultural societies.

2. Purchases when the intended use renders it exempt as set out in paragraph 012.02D of Reg-1-012, Exemptions. Complete the description of the item purchased and the intended use as required on the front of Form 13. Sellers of **repair parts** for agricultural machinery and equipment cannot accept a Form 13 to exempt such sales from tax.

3. Purchases made by organizations that have been issued a Nebraska Exempt Organization - Certificate of Exemption are exempt from sales tax. Reg-1-090. Nonprofit Organizations; Reg-1-091. Religious Organizations; and Reg-1-092. Educational Institutions, identify such organizations. These organizations will be issued a Nebraska state exemption identification number. This exemption number must be entered in Section B of the Form 13.

4. Purchases of common or contract carrier vehicles and repair and replacement parts for such vehicles.

5. Purchases of manufacturing machinery or equipment by a taxpayer engaged in business as a manufacturer for use predominantly in manufacturing. This includes the installation, repair, or maintenance of such qualified manufacturing machinery or equipment (see Revenue Ruling 01-08-2).

6. A sale that qualifies as an occasional sale, such as a sale of depreciable machinery and equipment productively used by the seller for more than one year and the seller previously paid tax on the item. The **seller** must sign and give the exemption certificate to the purchaser. The certificate must be retained by the purchaser for audit purposes (see Reg-1-014. Exempt Sale Certificate).

**PURCHASING AGENT
APPOINTMENT**



Purchasing Agent Appointment and Delegation of Authority for Sales and Use Tax

FORM
17

PURCHASING AGENT APPOINTMENT	
Name and Address of Prime Contractor	Name and Address of Governmental Unit or Exempt Organization
Name	Name
Street or Other Mailing Address	Street or Other Mailing Address
City State Zip Code	City State Zip Code
Name and Location of Project	Appointment Information
Name	Effective Date (see Instructions)
Street or Other Mailing Address	Expiration Date
City State Zip Code	Nebraska Exemption Number (Exempt Organizations Only)

Identify Project

The undersigned governmental unit or exempt organization appoints the above-named contractor and the contractor's delegated subcontractors as its agent to purchase and pay for building materials that will be annexed to real estate by them into the tax exempt construction project stated above.

sign here

Authorized Signature of Governmental Unit or Exempt Organization Title Date

DELEGATION OF PRIME CONTRACTOR'S AUTHORITY	
Name and Address of Subcontractor	Delegation Information
Name	Effective Date
Street or Other Mailing Address	Expiration Date
City State Zip Code	Portion of Project

The undersigned prime contractor hereby delegates authority to act as the purchasing agent of the named governmental unit or exempt organization to the above-named subcontractor.

sign here

Signature of Prime Contractor or Authorized Representative Title Date

INSTRUCTIONS

WHO MUST FILE. Any governmental unit or organization that is **exempt** from sales and use tax may appoint as its agent a prime contractor to purchase building materials and/or fixtures that will be annexed to property that belongs to or will belong to the governmental unit or exempt organization pursuant to a construction contract with the governmental unit or exempt organization. The appointment of the prime contractor as its agent is completed by issuing a Purchasing Agent Appointment and Delegation of Authority for Sales and Use Tax, Form 17, to the prime contractor. The Form 17 is required to be given to the contractor **BEFORE** he or she annexes building materials. The governmental unit or exempt organization must identify the project (e.g., east wing, chapel construction, or new school auditorium). Most

nonprofit organizations are **NOT** exempt from sales tax in Nebraska. In addition, not all governmental units are exempt from Nebraska sales tax. Refer to Contractor Information on our Web site for additional information on exempt entities. A contractor can confirm the exempt status of a governmental unit or exempt organization by contacting the Nebraska Department of Revenue.

The exemption from the payment of the Nebraska and local option sales and use taxes only applies if the governmental unit or exempt organization directly, or through its contractor, pays for the building materials. **IMPORTANT NOTE:** When an organization that requires licensure in order to be exempt (i.e., nonprofit hospitals), but is not licensed at the time of the construction project, the exempt organization **CANNOT**

issue either a purchasing agent appointment or an exemption certificate. If the exempt organization becomes licensed upon completion of the project, it may apply for a refund of the tax paid or collected by the contractors.

WHEN TO FILE. A prime contractor engaging in a construction project with a governmental unit or exempt organization must receive a properly completed and signed Form 17 **BEFORE** any building materials are annexed. If Form 17 is not issued, the contractor must pay the sales and use taxes and the governmental unit or exempt organization may obtain a refund of the taxes paid by the contractor.

WHERE TO FILE. A copy of the completed form should be retained by the governmental unit or exempt organization issuing the Form 17. The original is to be retained by the prime contractor. Copies of this form must be made by the prime contractor for delegation purposes to any subcontractors working on the project identified on this form.

APPOINTMENT INFORMATION. Enter the dates the purchasing agent appointment will become effective and when it will expire. This appointment will not allow any purchases without payment of the tax by the prime contractor or subcontractor before the effective date or after the expiration date. The dates the delegation becomes effective and the expiration dates must be completed. The phrase "upon completion" or similar phrase is not acceptable as an expiration date. The governmental unit or exempt organization may need to issue another Form 17 if the project is not completed within the prior "effective" and "expiration" dates. Exempt organizations must enter their Nebraska Sales and Use Tax Exemption number.

DELEGATION OF PRIME CONTRACTOR'S AUTHORITY. The prime contractor may delegate his or her authority to act as the purchasing agent of the governmental unit or exempt organization to a subcontractor. The prime contractor must complete his or her copy of Form 17 for each subcontractor who is delegated authority to act as a purchasing agent. Reproductions of this delegation must be provided to the subcontractor, who must retain a copy for his or her records, and to the governmental unit or exempt organization.

Enter the dates the delegation of the subcontractor will become effective, when it will expire, and the portion of the project delegated. This delegation will not allow any purchases without payment of the tax by the subcontractor before the delegation date or after the expiration date. Any further delegation from a subcontractor to additional subcontractors must be delegated by providing a copy of the Form 17 that they received from the prime contractor and attaching it to a separate Form 17 with any further delegation to other subcontractors. The purchasing agent appointment is limited to the contractor's purchase of building materials and/or fixtures for the specific project and is only valid during the appointment dates shown on the Form 17.

EXEMPT SALE CERTIFICATE. A prime contractor who has been appointed to act as a purchasing agent by a governmental unit or exempt organization, and who hires a subcontractor operating as an Option 1 contractor, must provide to that subcontractor a completed copy of Form 17 and a Nebraska Resale or Exempt Sale Certificate, Form 13, with Section C,

Part 2, completed. The subcontractor will retain these forms in his or her records, and will not charge the contractor sales tax on any portion of the invoice involving the annexation of materials to the specific project identified on the Form 17. If these forms are not provided to the subcontractor operating under Option 1, the subcontractor must collect and remit sales tax on the charge for the separately stated building materials portion of the invoice. If the Option 1 subcontractor does not separately state the charge for the building materials from contractor labor, then the entire charge is taxable to the prime contractor.

Contractors operating under Option 2 (maintaining a tax-paid inventory) who have been issued a Form 17 from a governmental unit or an exempt organization, must furnish each vendor a copy of the Form 17 and a Form 13, completing Section C, Part 2, when purchasing building materials that will be annexed to real estate. Forms 13 and 17 must be retained with the vendor's and contractor's records for audit purposes. A contractor or subcontractor may reproduce copies of these documents which will be furnished to the vendors for each invoice or order made by them.

Invoices from vendors for the purchase of building materials by the contractor as purchasing agent, or the authorized subcontractor, must clearly identify that such purchase is for the specific Form 17 project.

CREDIT/REFUND OF SALES AND USE TAX. A contractor or subcontractor who has been appointed as a purchasing agent before any materials are annexed, may withdraw sales or use tax-paid materials from inventory that will be annexed to real estate or used to repair property annexed to real estate and receive a credit for the sales or use tax amount previously paid on those materials.

The contractor or subcontractor may take a credit either against his or her current tax liability, or file a Claim for Overpayment of Sales and Use Tax, Form 7, and receive a refund of the sales or use tax paid on those materials.

TOOLS, EQUIPMENT, AND SUPPLIES. The purchase, rental, or lease of tools, supplies, or equipment (i.e., scaffolding, barricades, machinery, etc.) by a contractor for use in the completion of an exempt project CANNOT be purchased tax free, even if the contractor has been issued a Form 17. These items do not become annexed to the real estate.

OPTION 1 CONTRACTOR ONLY. If an Option 1 contractor is the **only** contractor involved in performing work for a governmental unit or exempt organization, a Form 17 is NOT required. The Option 1 contractor must only obtain a Form 13, Section B, from the exempt project owner.

PENALTY. Any person who signs this document with the intent to evade payment of tax is liable for the sales and use tax, interest, and penalty, and may be found guilty of a misdemeanor.

AUTHORIZED SIGNATURE. The purchasing agent appointment must be signed by an officer of the exempt organization or proper government official. The delegation of prime contractor's authority must be signed by the owner, partner, corporate officer, or other individual authorized to sign by a power of attorney on file with the Nebraska Department of Revenue.

CONTRACT AGREEMENT

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into this _____ day of _____, 2011, by and between _____, hereinafter called the Contractor, and the City of Grand Island, Nebraska, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published, for construction of **MOORES CREEK DRAIN EXTENSION – OLD POTASH CROSSING, PROJECT NO. 2008-D-2**; and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the proposals submitted, and has determined the aforesaid Contractor to be the lowest responsive bidder, and has duly awarded to the said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself or themselves, and its or their successors, as follows:

ARTICLE I. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the contract documents as listed in the attached General Specifications, said documents forming the contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE II. That the City shall pay to the contractor for the performance of the work embraced in this contract and the contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the contract) of _____ (\$ _____) for all services, materials, and work covered by and included in the contract award and designated in the foregoing Article I; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

ARTICLE III. The contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of **MOORES CREEK DRAIN EXTENSION – OLD POTASH CROSSING, PROJECT NO. 2008-D-2**.

ARTICLE IV. That the contractor shall start work as soon as possible after the contract is signed and the required bond is approved, and that the work in this contract shall be completed no later than **November 10, 2011**.

ARTICLE V. The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska.

ARTICLE VII. During the performance of this contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis of race, color, religion, sex, national origin, age or disability and to comply at all times with all applicable state and federal civil rights acts and executive orders of the President of the United States.

ARTICLE VIII. Every public contractor and their subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE IX. City Code states that it is unethical for any person to offer, give or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

ARTICLE X. The City reserves the right to terminate this contract at any time upon 60 days notice. If the contract is terminated, the contractor will be compensated for any services rendered to date of termination.

ARTICLE XI. FAIR EMPLOYMENT PRACTICES: Each proposer agrees that they will not discriminate against any employee or applicant for employment because of age, race, color, religious creed, ancestry, handicap, sex or political affiliation.

ARTICLE XII. LB 403: Every public consultant and his, her or its subconsultants who are awarded an agreement by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

IN WITNESS WHEREOF, the parties hereto have executed this Contract Agreement as of the date and year first above written.

Contractor:

By _____

Date _____

Title _____

CITY OF GRAND ISLAND, NEBRASKA,

By _____

Mayor

Date _____

Attest: _____

City Clerk

The contract and bond are in due form according to law and are hereby approved.

Attorney for the City

Date _____

APPENDIX A – TITLE VI NON-DISCRIMINATION -

During the performance of this agreement, the consultant, for itself, its assignees and successors in interest (hereinafter referred to as the "consultant") agrees as follows:

- (1) **Compliance with Regulations:** The consultant shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this agreement.
- (2) **Nondiscrimination:** The Consultant, with regard to the work performed by it during the agreement, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subconsultants, including procurements of materials and leases of equipment. The consultant shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.
- (3) **Solicitations for Subconsultants, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the consultant for work to be performed under a subagreement, including procurements of materials or leases of equipment, each potential subconsultant or supplier shall be notified by the consultant of the consultant's obligations under this agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.
- (4) **Information and Reports:** The consultant shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the City of Grand Island or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a consultant is in the exclusive possession of another who fails or refuses to furnish this information the consultant shall so certify to the City of Grand Island, or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.
- (5) **Sanctions for Noncompliance:** In the event of the consultant's noncompliance with the nondiscrimination provisions of this agreement, the City of Grand Island shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
 - (a.) withholding of payments to the consultant under the agreement until the consultant complies, and/or
 - (b.) cancellation, termination or suspension of the agreement, in whole or in part.
- (6) **Incorporation of Provisions:** The consultant shall include the provisions of paragraphs (1) through (6) in every subagreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The consultant shall take such action with respect to any subagreement or procurement as the City of Grand Island or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a consultant becomes involved in, or is threatened with, litigation with a subconsultant or supplier as a result of such direction, the consultant may request the City of Grand Island to enter into such litigation to protect the interests of the City of Grand Island, and, in addition, the consultant may request the United States to enter into such litigation to protect the interests of the United States.

DIVISION I-A

SPECIAL PROVISIONS

PROJECT NO. 2008-D-2
MOORES CREEK DRAIN EXTENSION
OLD POTASH CROSSING

DIVISION IA - SPECIAL PROVISIONS
SECTION 200 – GENERAL

200.01 General Description of Work. The work to be performed under the provisions of these contract documents consists of furnishing all materials, equipment, tools, labor and plant, and the performance of all necessary labor to complete the construction, including all work appurtenant thereto of Portland Cement Concrete or Asphalt Concrete Surface Course in Moores Creek Drain Extension – Old Potash Crossing, Project No. 2008-D-2.

200.02 Location of Work. Intersection of North Road and Old Potash Highway.

200.03 Specifications. The specifications which govern the materials and equipment to be furnished and the work to be performed under this contract are listed herein and in Division I – General Provisions, Division IA – Special Provisions, Division II – Portland Cement Concrete, Division IV – Asphalt Concrete Surface Course, and Division VIII – Applicable Standard Plan Drawings. If there is information described in any of the divisions that is in conflict with information in Division IA – Special Provisions, the information in the Special Provisions shall govern the contract.

200.04 Polypropylene Pipe. All polypropylene pipe shall meet the requirements and specifications of ASTM F2764 (30” to 60”) and ASTM F2736 (12”-30”) for sanitary and storm sewer pipe.

200.05 High Density Polyethylene (HDPE). All HDPE storm sewer pipe shall meet the requirements and specifications to ASTM F2647 (4”-36”).

200.04 Exempt Sales Certificate. The Contractor performing work under this contract will be issued a Purchasing Agent Appointment and Sales Certificate signed by the authorized representative of the City. This is to be used by the Contractor when purchasing tangible personal property to be actually incorporated into the contract work. It does not apply to either (1) the purchase of materials to be used, but not incorporated into the contract work, including but not limited to form lumber, scaffolding, etc. of (2) the purchase or rental of machinery, equipment or tools owned or leased by the Contractor and used in performing the contract work. The Contractor may produce copies of the Purchasing Agent Appointment and Exempt Sales Certificate to furnish their supplies on each invoice or order

200.05 Provisions for Traffic. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, the Contractor shall, per bid item, provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable advance notice to the affected residents of private drives. The Contractor shall provide and maintain barricades or flashing lights in accordance with the typical traffic control plan and the Manual on Uniform Traffic Control Devices (MUTCD). The City of Grand Island will provide metal signs for the detour. The engineer shall have the authority to direct corrective actions for temporary traffic control not in compliance with the plans or MUTCD, including suspending operation and requiring removal of all equipment and materials from the right-of-way. A lump sum payment will be made for traffic provisions. The Contractor is required to work under traffic (both vehicular and pedestrian) and is expected to create as little delay and confusion as possible. Contractor shall maintain a clean and safe work area while on site, particularly since pedestrian traffic will be prevalent during construction activities.

200.06 Design Mix Alternates. Portland Cement Concrete used for pavement, curb, curb and gutter, driveway, sidewalk and concrete not being a pre-cast or pre-stressed product, shall be Class 47-B Modified per Division II of these specifications. As an alternate, the Contractor may use Class 47-B Modified with Fly-Ash per the

specification of the State of Nebraska, Department of Roads. The Contractor shall inform the Engineer of which design mix will be used prior to commencing with the actual construction. The City reserves the right to designate the mix to be used at any time during construction if any problems should arise which can be attributed to the mix design.

SECTION 201 – PAYMENT FOR COMPLETION OF WORK

201.01 Pay Items. After completion of the work, measurements will be taken and the Contractor will be paid according to the amount of actual work completed at the unit prices listed on the Contractors Bid.

Extra depth concrete at driveways and at the radius on curb sidewalks will not be paid for separately, but shall be considered subsidiary to the items for which direct payment is made.

201.02 Earthwork. All earthwork, including excavation, fill, embankment, sub grade preparation, and hauling and stockpiling any excess excavation will not be paid for separately, but shall be considered subsidiary to the items for which direct payment is made.

201.03 Removal Items. It shall be the responsibility of the Contractor to dispose of concrete, debris and other material at a location and in a manner approved by the City. No separate payment will be made for this work which is considered incidental to other items for which direct payment is made to the Contractor.

SECTION 202 - COMPLETION

202.01 Completion. This work shall be completed not later than **November 10, 2011**.

DIVISION I

GENERAL SPECIFICATIONS

**APPLICABLE TO ALL
CONSTRUCTION CONTRACTS**

**DIVISION I
GENERAL SPECIFICATIONS**

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Revised 1-25-2011

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**DIVISION I
GENERAL SPECIFICATIONS**

SECTION 1 - DEFINITIONS OF WORDS AND TERMS

Wherever in these specifications or in other contract documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

1.01 Abbreviations.

AASHTO	American Association of State Highway And Transportation Officials
ASTM	American Society for Testing and Materials
ANSI	American National Standards Institute
AWWA	American Water Works Association
AREA	American Railway Engineering Association
AWS	American Welding Society
AAN	American Association of Nurserymen

1.02 Advertisement. The advertisement for work or materials on which bids are to be received.

1.03 Award. The decision of the City to accept the bid of the lowest responsible bidder for the work, subject to the execution and approval of a satisfactory contract therefor and bond to secure the performance thereof and to such other conditions as may be specified or otherwise required by law.

1.04 Backslope. The sloping surface of a cut, the downward inclination of which is toward the roadbed.

1.05 Bidder. Any individual, firm, or corporation formally submitting a bid for the work contemplated, acting directly or through a duly authorized representative.

1.06 Calendar Day. Every day shown on the calendar, Sundays and holidays included.

1.07 Change Order. A written order to the Contractor, signed by the Engineer, ordering a change in the work from that originally shown in the plans and specifications.

1.08 City. The word "City" as used in these specifications refers to the City of Grand Island, Nebraska, acting through its City Council.

1.09 Contract. The written agreement executed between the City and the Contractor, covering the performance of the work and the furnishing of labor and materials, by which the Contractor is bound to perform the work and furnish the labor and materials, and by which the City is obligated to compensate Contractor therefor at the mutually established and accepted rate or price.

The contract shall include the "Notice to Bidders", these specifications, the Contractor's bond, the general and detailed plans, the bid, special provisions, and supplemental agreements.

1.10 Contract or Performance Bond. The approved form of security, executed by the Contractor and their surety or sureties, guaranteeing complete execution of the contract and all supplemental agreements pertaining thereto and the payment of all legal debts pertaining to the construction of the project.

1.11 Contract Item. An item of work specifically described and for which a price, either unit or lump sum, is provided. It includes the performance of all work and the furnishing of all labor, equipment, and materials described in the text of a specification item included in the contract or described in any subdivision of the text of the supplemental specification or special provision of the contract.

1.12 Contract Period. The period from the date specified in the contract for the commencement of the work to the date specified for its completion, both dates inclusive.

1.13 Contractor. The party of the second part to the contract; the individual, firm, or corporation undertaking the execution of the work under the terms of the contract and acting directly or through Contractor's agents or authorized employees.

1.14 Cul-de-sac Street. A local street open at one end only and with special provision for turning around.

1.15 Culvert. Any structure not classified as a bridge which provides an opening under any street.

1.16 Easement (Right-of-way). A right acquired by public authority to use or control property for a designated purpose.

1.17 Employee. Any person working on the project mentioned in the contract of which these specifications are a part, and who is under the direction or control or receives compensation from the Contractor or Contractor's subcontractor.

1.18 Engineer. The City Engineer, acting either directly or through an assistant or other representative duly authorized by the City Engineer, such assistant or representative acting within the scope of the particular duties assigned or with the authority given.

1.19 Extra Work. Work performed by the Contractor in order to complete the contract in an acceptable manner but for which there is no basis of payment provided in the contract.

1.20 Holidays. In the State of Nebraska, holidays occur on: January 1, Martin Luther King, Jr. Day in January, Presidents' Day in February, Arbor Day in April, Memorial Day in May, July 4, Labor Day in September, Columbus Day in October, Veterans Day and Thanksgiving Day in November, and December 25. If any of said dates fall on Sunday, the following Monday shall be a holiday. If any of said dates fall on Saturday, the previous Friday shall be a holiday.

1.21 Inspector. An authorized representative of the Engineer assigned to make detailed inspection of any or all portions of the work performed and materials furnished by the Contractor.

1.22 Laboratory. The testing laboratory of the City or any other testing laboratory which may be designated by the Engineer.

1.23 Notice to Bidders. The provisions, requirements, and instructions pertaining to the work to be awarded, manner and time of submitting bids, quantities of the major items or work required, as prepared for the information of bidders.

1.24 Plans. The official plans, profiles, typical cross sections, general cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, approved by the Engineer, which show the location, character, dimensions, and details of the work to be done, and which are to be considered as a part of the contract supplementary to these specifications.

1.25 Project. All work necessary to be performed under the contract.

1.26 Bid. The offer of the bidder, submitted on the prescribed bid form, to perform the work and to furnish the labor and materials at the prices quoted by the bidder.

1.27 Bid Form. The approved form on which the City requires formal bids be prepared and submitted.

1.28 Bid Guarantee. The security furnished by the Bidder with Bidder's bid for a project as a guarantee that Bidder will enter into a contract for the work if said bid is accepted.

1.29 Right-of-way. The land area which is reserved or secured by the City for constructing the work or for obtaining material therefor.

1.30 Special Provisions. Special directions, provisions, or requirements peculiar to the project under consideration and not otherwise thoroughly or satisfactorily detailed or set forth in the specifications.

1.31 Specifications. The general term comprising all the directions, provisions, and requirements contained herein, together with such as may be added or adopted as supplemental specifications or special provisions, all of which are necessary for the proper performance of the contract.

1.32 Subcontractor. Any individual, firm, or corporation to whom the Contractor, with the written consent of the City, sublets any part of the contract.

1.33 Superintendent. The representative of the Contractor, present on the work at all times during progress, authorized to receive and fulfill instructions from the Engineer and capable of superintending the work efficiently.

1.34 Supplemental Agreements. Written agreements executed by the Contractor and the City subsequent to having entered into the contract, covering alterations in the plans or unforeseen items of construction.

1.35 Supplemental Specifications. Specifications adopted subsequent to the publication of this book. They generally involve new construction items or substantial changes in the approved specifications. Supplemental specifications shall prevail over those published in this book whenever in conflict therewith.

1.36 Surety. The corporate body bound with and for the Contractor for the acceptable performance of the contract, the completion of the work, and for payment of all just claims arising therefrom.

1.37 Work. Work shall be understood to mean the furnishing of all labor, materials, equipment, and other incidentals necessary or convenient to the successful completion of the project by the Contractor and the carrying out of all the duties and obligations imposed by the contract.

1.38 Working Day. Any day, except Saturdays, Sundays, and Nebraska holidays, on which the Contractor is not prevented by weather, soil conditions, or other conditions beyond the Contractor's control, adverse to the current controlling operation or operations, as determined by the Engineer, from proceeding with at least 80 percent of the labor and equipment force normally engaged in such operation or operations for at least 50 percent of the full number of hours in Contractor's normal daily schedule. Also, a Saturday, Sunday, or Nebraska holiday on which any work is performed on the current controlling operation or operations unless the Contractor is prevented by weather, soil conditions, or other conditions beyond the Contractor's control as determined by the Engineer, from proceeding for at least 50 percent of the full number of hours in their normal schedule with 80 percent of the normal working force.

1.39 Working Drawings. Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans for similar data which the Contractor is required to submit to the Engineer for approval.

1.40 Work Order. A written order signed by the Engineer, of a contractual status requiring performance by the Contractor without negotiation of any sort and may involve starting, resuming, or the suspension of work. (Not to be confused with extra work order).

1.41 Completion of the Work and Formal Acceptance by the City. Whenever the term "completion of the work and formal acceptance by the City" is used, it refers to and means the formal acceptance of the work by the Engineer and the City at the time the Contractor has all work under the contract completed and in place.

1.42 Final Acceptance of the Work. Whenever the term "final acceptance of the work" is used, it refers to and means the time when the Engineer and the City finally accept the work. The contractor guarantee shall remain in force from the City's final acceptance for a period of one year.

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SECTION 2 – BID REQUIREMENTS AND CONDITIONS

2.01 Contents of Bid Forms. Bidders will be furnished with bid forms which will state the location and description of the contemplated work and will show the estimate of the various quantities and kinds of work to be performed or materials to be furnished, with a schedule of items for which unit bid prices are asked, the time in which the work must be completed and the date, time, and place of opening bids. All special provisions and required provisions will be grouped together and bound with or included through reference in the bid form.

2.02 Interpretation of Quantities in Bid Forms. The quantities listed in the bid forms are to be considered as approximate, unless otherwise provided by special provision. It is understood that the quantities of work to be done and materials to be furnished may each be increased, diminished, or omitted as hereinafter provided without in any way invalidating the unit bid prices, except as provided in the section in these specifications entitled Increased or Decreased Quantities of Work.

2.03 Examination of Plans, Specifications, Special Provisions, and Site of Work. The bidder is required to examine carefully the site, the bid, plans, specifications, special provisions, and contract form for the work contemplated, and it will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished and as to the requirements of these specifications, the special provisions, and contract. It is mutually agreed that the submission of a bid shall be considered prima facie evidence that the bidder has made such examination.

2.04 Preparation of Bid. Bidders shall submit their bids on blank forms furnished by the Engineer with the full name and address and the place of business or residence of the bidder. If the bidder is co-partnership, the signature shall be by a member of the firm with the names and addresses of each member. If the bidder is a corporation, the signature shall be by an officer of the corporation in the corporate name and with the corporate name and the corporate seal attached thereto.

All blank spaces in the form shall be fully filled; numbers shall be stated in legible figures and writing when required; the signature shall be longhand; and the complete form shall be without interlineation, alteration, or erasure.

No oral, telegraphic, or telephonic bids or modifications will be considered.

When certain alternative prices, for both increasing and decreasing the cost, are required, as called for in the bid sheet, it must be understood that all materials and workmanship required shall be the best of their respective kinds and in all cases shall correspond with similar work herein specified and, if accepted, the work shall be done under the general terms of the specifications.

2.05 Statement of Bidder's Plant and Financial Conditions. Each bidder may submit with bid and, in any event, the City may, after bids are opened and prior to award of contract, require any bidder to submit the following data:

1. A statement that the bidder maintains a permanent place of business and address thereof;

2. A statement of equipment which the bidder proposes to use on the project, together with a statement noting that equipment previously mentioned which the bidder owns and that which bidder does not own but is certain bidder will be able to rent or otherwise procure for use on the project;

3. A financial statement, duly sworn to in a form approved by the City, listing assets and liabilities;

4. Statement listing projects of similar nature which the bidder has constructed or in the construction of which the bidder was actively engaged in a responsible capacity. Any bidder may be required by the City to submit additional data to satisfy the City that such bidder is prepared to fulfill the contract if it is awarded to them.

2.06 Certified Check, Cashier's Check, or Bid Bond. Each bidder must submit with the bid a certified check, cashier's check, or bid bond in the amount of not less than five percent (5%) of the amount bid, drawn to the order of the City Treasurer, Grand Island, Nebraska, guaranteeing the execution of the contract and bond required within ten (10) days of the notification of award. Any certified check must be issued by a bank in the State of Nebraska.

2.07 Filing of Bid. Bidders shall submit bid data on items offered in the Bid by filling in one set of data sheets supplied by the Engineering Department. The bid sheets shall be filled out legibly in black ink to permit reproduction.

Bidder security, when required, shall be enclosed in a special envelope marked, "BIDDER SECURITY/BID FOR _____." The envelope shall contain only a cashier's check or bidder's bond. This special envelope shall be attached to a sealed envelope containing the bid, filled out specifications, descriptive information drawings, qualification list and any other bid materials. This second envelope shall be marked "BID FOR _____." Bids of an incomplete nature or subject to multiple interpretations may, at the option of the Purchaser, be rejected as being irregular.

All bids shall be filed with the City at the place designated in the Notice to Bidders, prior to the time advertised for the opening of bids.

2.08 Withdrawal of Bid. A bidder will be permitted to withdraw said bid unopened after it has been submitted, if bidder's request for withdrawal is made in writing and delivered personally by the bidder or bidders' authorized representative prior to the time specified for opening of bids.

2.09 Public Opening of Bids. Bids will be publicly opened and read at the time and place stipulated in the Notice to Bidders.

2.10 Material Guarantee. Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the work together with samples, which samples may be subjected to the test provided for in these specifications to determine their quality and fitness for the work.

SECTION 3 - AWARD AND EXECUTION OF THE CONTRACT

3.01 Consideration of Bids. After the bids are opened and read, they will be compared on the basis of the summation of the products and the quantities shown in the bid schedule by the unit bid prices. The results of such comparisons will be immediately available to the public.

The right is reserved to reject any and all bids and to waive technical errors as may be deemed best for the interest of the City.

3.02 Award of Contract. In the award of contract, consideration will be given not only to the prices bid but also the mechanical and other equipment available to the bidder, the financial responsibility of the bidder, and bidder's ability and experience in the performance of like or similar contracts.

Award of contracts will be made as promptly as practical after bids have been opened and read. The City reserves the right to delay the award for such time as is needed for the consideration of the bids and for the receipt of concurrence in recommended contract awards from other governmental agencies whose concurrence may be required.

3.03 Cancellation of Award. The City reserves the right to cancel the award of any contract at any time before execution of the said contract by all parties without any liability against the City.

3.04 Return of Bid Guarantee. Bid guaranties will be returned to the unsuccessful bidders by mail promptly after the signing of the contract has been made. Return to the successful bidder will be made after the signing of the contract and filing of the contract bond.

3.05 Performance Bond. The Contractor shall furnish a performance bond with a company having the approval of the City in an amount of 100 percent of the contract price guaranteeing complete and faithful performance of the contract, payment of all bills of whatever nature which could become a lien against the property, and guaranteeing replacement of defective materials and workmanship for a period of one year after completion of the contract.

3.06 Contract Documents. Three (3) copies of Contract Documents shall be made, executed, and distributed as follows:

One copy to City Clerk	
One copy to Contractor	One copy to Engineer

The following documents are a part of the contract:

*Notice to Bidders	*General Specifications
*Instructions to Bidders	*Special Provisions
*Bid	*Supplemental Specifications
*Detailed Specifications	*Performance Bond
*Contract	*Additional Drawings as required to make clear the intent of the contract

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3.07 Failure to Execute Contract. Failure to execute a contract and file an acceptable performance bond as provided herein within ten (10) days from date of award shall be just cause for the annulment of the award and the forfeiture of the certified check or cashier's check to the City, not as a penalty but in liquidation of damages sustained.

SECTION 4 - SCOPE OF WORK

4.01 Intent of Plans and Specifications. The intent of the plans and specifications is to provide for the construction and completion of every detail of the work described therein. It shall be understood by the Contractor that Contractor will furnish all labor, materials, tools, transportation, and supplies required for all or any part of the work to make each item complete in accordance with the spirit of the contract. It is understood that the apparent silence of the specifications as to any detail or the apparent omission of a detailed description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used.

For the purpose of design and the preparation of the Engineer's Estimate, the City may perform a reasonable amount of exploratory work to gain information relative to surface and subsurface conditions relating to type of soil, moisture content, and types and extent of rock strata.

This information when shown on the plan represents to the best of the City's knowledge conditions as of the date the survey was made. The appearance of this information on the plan will not constitute a guarantee that conditions other than those indicated will not be encountered at the time of construction.

The bidder may utilize this information as they see fit. Any bidder interested in the work is authorized to make whatever investigation they considers advisable.

In making such additional investigation, the bidder is directed to the Engineer for information relating to available right-of-way. If there are, at that time, any parcels of land over which the City does not have jurisdiction, right of entry must be secured by the prospective bidder from those authorized to grant such permission. Investigational work, performed by a prospective bidder on existing streets open to traffic, shall be performed in compliance with the

requirements of the current Manual on Uniform Control Devices for Street and Highways. All such additional investigational work shall be performed without costing or obligating the City in any way.

4.02 Special Work. Any conditions not covered by these standard specifications are stated in the special provisions.

4.03 Increased or Decreased Quantities of Work. The Engineer reserves the right to alter the quantities of contract items for which there are bid prices. Such increases or decreases in quantities shall be made as the City considers necessary or desirable without waiving or invalidating any of the provisions of the contract. All such alterations must be ordered in writing and a supplemental agreement must be executed with the Contractor for the item or items involved when such alterations involve an increase or decrease of more than 20 percent of the total cost of the work of any group of the contract calculated from the original bid quantities and the contract unit prices. The Contractor shall not start work on any alteration requiring a supplemental agreement until the agreement setting forth an equitable adjustment of compensation, satisfactory to both parties, shall have been executed by the Engineer and the Contractor and approved by City Council.

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4.04 Extra Work. The City reserves the right to order the performance of work of a class not contemplated in the bid but which may be considered necessary to complete satisfactorily the work included in the contract. Such extra work will be paid for as provided in these specifications under section entitled Payment for Extra Work.

4.05 Maintenance of Detours. Unless so required by the plans or the special provisions, the Contractor will not be required to assume any responsibility in connection with the maintenance or marking of suitable detours.

4.06 Temporary Traffic Control. Part VI of the Manual of Uniform Traffic Control Devices (MUTCD) is the national standard for work zone traffic control. The current version that has been adopted by the Nebraska Department of Roads is also applicable to the City of Grand Island and shall be followed.

Any City crews, contractors, utility company, or any other person, firm or corporation performing work within the right-of-way of any public street, public way, or alley in the City of Grand Island shall install and maintain Temporary Traffic Control (TTC) in accordance with the standards of the MUTCD.

The Public Works Director or their representative shall have the authority to direct corrective actions for any TTC not in compliance with the MUTCD and these provisions. These actions may include suspending operations and requiring removal of all equipment or materials from the right-of-way.

If the TTC is left in place longer than four (4) hours and no personnel are on the site, the individual responsible for installing the TTC shall provide telephone numbers of personnel who will be available on a 24 hours per day, seven days per week basis to the Public Works Director. These individuals shall be responsible for repair, correction, replacement and maintenance of the traffic control devices. These individuals shall perform inspections of the TTC at the site a minimum of twice during the day and once during the night every day until the work is completed and the right-of-way is cleared.

Subsidiary: Unless contract pay items are included with the bid specifications, direct payment for providing, installing, maintaining, and performing site inspections of TTC devices will not be made but are considered subsidiary to other items for which direct payment is

provided. When the contract contains a pay item for TTC, the NDOR standard items, specifications, etc. will be used.

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4.07 Maintenance of Traffic. The Contractor shall conduct the work so as to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, the Contractor shall, at Contractor's expense, provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them. Such maintenance of travel will not be required when the Contractor has obtained permission from the owner or tenant of private property or from the authority having jurisdiction over public property involved to obstruct traffic at the designated area.

4.08 Street Closing. In the event it is deemed necessary for the Contractor to close any streets during the execution of said work, the Contractor shall notify the owner of such street closing 72 hours in advance, prior to any street closing due to open cut street crossing.

4.09 Miscellaneous Removal Items. The Contractor shall inform the Engineer sufficiently ahead of construction so landowners can be notified to remove small trees, shrubs, and fences from the construction limits if the landowners desire to save them.

4.10 Removal and Replacement of Property Stakes. If it is necessary to remove any property corners or markers during construction operations, the Contractor shall notify the Engineer so the Engineer can establish reference ties. Any markers removed without notice to the Engineer shall be replaced at the Contractor's expense in accordance with the proper land surveying techniques.

4.11 Removal and Disposal of Structures and Obstructions. The Contractor for bridge and culvert work shall remove any existing structure or part of structure that in any way interferes with the new construction. If specific payment for such work has not been provided in the contract, it will be paid for as extra work.

The Contractor shall remove any materials or structures found on the right-of-way which are not to remain in place or which have not been designated for use in the new construction. The removal and disposal of pipe culverts will not be paid for directly but shall be considered as incidental work, and the cost of such removal and disposal shall be considered to be included in the contract price for other items. Pipe culverts shall be removed by methods that will cause a minimum of damage to the pipe culverts. The removal and disposal of bridges or other masonry or monolithic concrete construction will be paid for. If the contract does not contain an item for such work, it will be paid for as extra work.

4.12 Rights In and Use of Materials Found on the Right-of-way. Unless stated to the contrary in the contract documents, all materials, such as stone, gravel, sand, timber, and structures or parts of structures, found on the right-of-way of the street or on land acquired for the work, are the property of the City or the owner of the fee title to the land, and shall not be used or destroyed by the Contractor without special permission from the Engineer. When the Contractor is permitted to use materials found on the right-of-way, any excavations that they make below the grade elevation shall be backfilled with other suitable materials so the finished street will conform to the grade shown on the plans. No extra compensation will be allowed for such backfilling.

When rock excavation is encountered, any portion of rock excavation which would otherwise be deposited in waste areas and not be incorporated in the embankments may be processed and used, royalty free, by the Contractor in any other portion of the construction in which material of that quality would be acceptable. No deduction will be made from excavation quantities for rock so used.

4.13 Construction and Demolition Debris. Debris from any City awarded project, as well as Municipal Solid Waste (that is not recycled), shall be disposed of at the City's Solid Waste facilities.

4.14 Final Cleaning Up. Upon completion of the work and before acceptance and final payment, the Contractor shall clean the street, borrow pits, and all ground occupied by Contractor in connection with the work of all rubbish, excess materials, falsework, temporary structures, and equipment, and all parts of the work, shall be left in a neat and presentable condition.

When required in the plans, the Contractor shall, at Contractor's expense, replace waste material or stripping back into borrow and material pits as directed by the Engineer. Trees, tree stumps and material placed on property adjacent to the street during the execution of the work shall be disposed of by the Contractor.

4.15 Right-of-way. Right-of-way for the work will be provided without cost to the Contractor. Right-of-way will be made available to the Contractor on or before the date specified for the commencement of the work unless a later date for the right-of-way to be made available to the Contractor is designated in the contract documents.

4.16 Railroad Crossings. Whenever the work involves construction with which railroad companies are concerned, the performance of the work is contingent upon arrangements with the railroad companies for the proposed construction. No claims will be allowed for loss or damage caused by failure to complete such arrangements.

4.17 Safety and Health Regulations for Construction. Occupational Safety and Health Standards for the Construction Industry (29 CFR Part 1926) with amendments as of February 1, 1999 promulgated by the Occupational Safety and Health Administration, United States Department of Labor, Washington, D.C. are incorporated herein as a part of the contract documents.

SECTION 5 - CONTROL OF WORK

5.01 Authority of Engineer. The Engineer will have general supervision of the work and will decide any questions that arise with reference to the intent of the contract documents and compliance therewith. Said Engineer will relay all questions relating to materials, work, progress, disputes and mutual rights between contractors, fulfillment of contract, and compensation, in accordance with the provisions of these specifications.

5.02 Plans and Working Drawings. The approved plans will be supplemented by such working drawings as are necessary to adequately control the work. It is mutually agreed that all authorized alterations affecting the requirements and information given in the approved plans shall be in writing.

Working drawings for any structure shall consist of such detailed plans as may be required of the Contractor for the prosecution of the work. These are not included in the plans

furnished by the Engineer. They shall include shop details, erection plans, masonry, and form work. The Engineer's prior approval of the shop details must be obtained before any fabrication work involving these plans is performed. Erection plans, masonry layout diagrams, and plans for cribs, cofferdams, falsework, centering, and form work, as well as any other working drawings not previously mentioned, may be required of the Contractor and shall be subject to the Engineer's approval.

No changes shall be made in any plan or drawing after it has been approved except by consent or direction of the Engineer in writing. It is expressly understood that the approval by the Engineer of the Contractor's working drawings will not relieve the Contractor from any responsibility.

The contract price shall include the cost of furnishing all working drawings, and the Contractor will be allowed no extra compensation for such drawings.

Shop plans shall be made on 22"x36" sheet with ½" margin on all sides except the left which shall be 2". The margin lines shall measure 21"x33 ½". The marking shall be in accordance with the special plans or as may be required by the Engineer. All blueprint plans which are furnished to the Engineer shall be clear and distinct and acceptable to the Engineer and shall be neatly trimmed. The Contractor shall furnish the Engineer as many extra copies of working drawings as the Engineer may direct.

The Engineer may require reproducible prints of all approved shop plans, which shall be furnished by the Contractor without cost to the Engineer. Such reproducible prints shall not be folded but shall be mailed in tubes sized to accommodate these plans without injuring them. No preliminary working drawings will be accepted by the Engineer unless they have been carefully checked by the Contractor. Drawings showing gross errors will be returned for recheck before examination by the Engineer. The name of the shop or company furnishing the drawings shall be on the tracing.

5.03 Alteration of Plans or of Character of Work. The Engineer shall have the right to make alterations in plans or character of work as may be considered necessary or desirable during the progress of the work to satisfactorily complete the proposed construction. Such alterations shall not be considered as a waiver of any conditions of the contract or invalidate any of the provisions thereof.

5.04 Coordination of Plans, Specifications, Special Provisions, and Supplemental Specifications. These specifications, the supplemental specifications, the plans, special provisions, and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, figured dimensions shall govern over scaled dimensions, plans shall govern over specifications, special plans shall govern over standard plans, supplemental specifications shall govern over standard specifications, and special provisions shall govern over specifications, supplemental specifications, and the plans.

5.05 Cooperation of Contractor. The Contractor will be supplied with a minimum of two sets of approved plans and contract assemblies, including special provisions, one set of which the Contractor shall keep available on the work at all times.

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof and shall cooperate with the Engineer and other contractors in every way possible.

The Contractor shall at all times have at the work site, as Contractor's agent, a competent superintendent capable of reading and thoroughly understanding the plans and specifications, thoroughly experienced in the type of work being performed, who shall receive

instructions from the Engineer or Engineer's authorized representatives. The superintendent shall have full authority to execute the orders or directions of the Engineer without delay, and to promptly supply materials, equipment, tools, labor, and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet.

5.06 Surveys. Lines and elevations shall be established by the Engineer before the work commences and the Contractor shall obtain lines and elevations from the points so set by the Engineer. The Contractor shall furnish all stakes necessary for lines and elevations and cooperate with the Engineer in setting same.

5.07 Authority and Duties of Inspector. The City may appoint inspectors to represent the Engineer in the inspection of all materials used in and all work done under the contract. Such inspection may extend to any part of the work and to the preparation or manufacture of the materials to be used. The inspector will not be permitted to modify in any way the provisions of the contract documents, nor to delay the work by failing to inspect materials and work with reasonable promptness. An inspector is placed at the work site to keep the Engineer informed as to its progress and the manner in which it is being done and to call the Contractor's attention to any infringements of the contract documents. The inspector will not act as foreman or perform other duties for the Contractor nor improperly interfere with the management of the work. They will not be authorized to approve or accept any portion of the work. In case of dispute between the Contractor and the inspector as to quality of materials or the manner of performing the work, the inspector shall have the authority to reject materials or suspend the work until the question at issue can be decided by the Engineer. Written notice of the suspension of work will be given to the Engineer and the Contractor.

5.08 Inspection of Work. The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether the work is being performed in conformance with the contract documents. At any time before acceptance of the work, upon request of the Engineer, the Contractor shall remove or uncover such portions of the finished work as the Engineer may direct. After examination has been made, the Contractor shall restore such portions of the work to the standard required by the contract documents.

If the work thus exposed or examined proves acceptable, the uncovering or removing and replacing of the covering or the restoring of the parts removed shall be paid for as extra work, except that no payment will be made for the work involved in checking the smoothness of pavement surfaces. If the work thus exposed and examined proves unacceptable, the Contractor shall replace the defective work in accordance with the specifications and will be paid only the contract price for the work as finally accepted. Work done or materials used without the Engineer having been afforded ample opportunity to provide suitable inspection may be ordered removed and replaced at the Contractor's expense or may be excluded from the quantities measured for payment.

5.09 Removal of Defective Work. Any defective work shall be removed and replaced at the Contractor's expense. Should the Contractor fail or refuse to remove defective work when so ordered by the Engineer, the Engineer shall have authority to order the Contractor to suspend further operations and may withhold payment on estimates until such defective work has been removed and replaced in accordance with the plans and specifications. Continued failure or refusal on the part of the Contractor to correct defective work promptly shall be sufficient cause for the City to declare the contract in default and to proceed to have the work completed in accordance with these specifications under section entitled Abrogation.

5.10 Final Inspection. Upon notification by the Contractor or Contractor's authorized representative that the work is completed, the Engineer shall make prompt final inspection of each item of work included in the contract. If the work is found to not be in accordance with the contract documents, the Contractor will be advised as to the particular defects to be remedied.

SECTION 6 - CONTROL OF MATERIALS

6.01 Source of Supply and Quality Requirements. The materials used on the work shall meet all quality requirements of the contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Engineer of Contractor's proposed sources of materials prior to delivery. At the option of the Engineer, approval of the source or approval of materials at the source prior to delivery may be required. If it is found after trial that sources of supply for previously approved materials do not produce specified products or when conditions are such that the use of unfit materials cannot be prevented except by extraordinary inspection methods, the Contractor shall

furnish materials from other sources. Before delivery is started and at any time during the process of preparation and use, the materials shall be subject to the approval of the Engineer.

6.02 Methods of Sampling and Testing, and Cited Specifications. Sampling and testing of all materials and the laboratory methods and testing equipment required under these specifications shall be in accordance with the latest published standard method of the AASHTO, except as otherwise provided.

The sampling and testing of all materials not covered by the AASHTO, but not otherwise provided for, shall conform to the latest published standard or tentative methods of the ASTM.

6.03 Storage of Materials. The Contractor shall be responsible for the care and storage of materials delivered at the work site or purchased for use thereon. Any material that has been delivered to the work site and has become damaged before actual incorporation in the work may be rejected by the Engineer even though it may previously have been accepted. Stored materials shall be so located as to facilitate thorough inspection.

6.04 Unacceptable Materials. All materials not conforming to the requirements of the specifications at the time they are to be used shall be considered as unacceptable, and all such materials will be rejected and shall be removed immediately from the site of the work unless otherwise instructed by the Engineer. No rejected materials, the defects of which have been corrected, shall be used until approval has been given.

6.05 Guarantee. The Contractor shall be responsible for any and all defects which may develop in any part of the entire installation furnished by said Contractor and, upon receipt of written notice from the Engineer, shall immediately replace and make good without expense to the City any such faulty part or parts and damage done by reason of same during a period of one (1) year from the date of formal acceptance of the installation (except when specific guarantee for another length of time is elsewhere specified).

The acceptance of the installation, or any part of it, shall not act to waive this liability on the part of the Contractor.

Upon completion and formal acceptance of the work, the Contractor may furnish a satisfactory bond in an amount of fifteen percent (15%) of contract price to insure the provisions of this guarantee. Otherwise, the original bond shall remain in full force and effect until final acceptance of the work, which acceptance shall be made one (1) year after the formal acceptance of the work as provided herein.

6.06 "Or Equal" Clause. Whenever, in any section of the contract documents, plans, or specifications, any article, material, or equipment is defined by describing a proprietary product or by using the name of a manufacturer or vendor, the term "or approved equal", if not inserted, shall be implied. The specific article, material, or equipment mentioned shall be understood as indicating the type, function, minimum standard or design, efficiency, and quality desired and shall not be construed in such a manner as to exclude manufacturer's products of comparable quality, design, and efficiency. The Engineer shall determine the acceptability of articles, materials, or equipment proposed as equals.

SECTION 7 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

7.01 Laws to be Observed. The Contractor shall keep fully informed of and, at all times, shall observe and comply with all Federal and State laws, all local bylaws, ordinances, and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority which in any manner affect those engaged or employed on the project, or which in any way affect the project. The Contractor shall protect and indemnify the City and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by said Contractor or Contractor's employees. It shall be the responsibility of the Contractor to provide all safeguards, safety devices, and protective equipment and to take any other needed actions as are reasonably necessary to protect the life and health of employees on the project.

7.02 State and City Fair Labor Standards. The Contractor agrees to comply with all applicable State and City fair labor standards in the execution of the contract, including compliance with Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. In addition, the Contractor agrees to comply with the provisions of Section 52-118, R.R.S. 1948, pertaining to payment of all labor performed and for payment for materials and equipment rental which is actually used in performing this contract.

7.03 Anti-discrimination. During the performance of the work, the Contractor agrees not to discriminate against any employee or application for employment because of race, color, age, religion, sex, or national origin.

7.04 Permits. The Contractor shall procure and pay for all permits, licenses, and bonds necessary for the prosecution of Contractor's work and/or required for municipal, State, and Federal regulations and laws.

7.05 Patents. The Contractor and the surety in all cases shall indemnify and save harmless the City for any costs, expenses, and damages which it may be obligated to pay by reason of any such infringement at any time during the prosecution of or after the completion of the project.

7.06 Restoration of Surfaces Opened by Permit. Upon the presentation of a duly authorized and satisfactory permit from the City which provides that all necessary repair work will be paid for by the party to whom such permit is issued, the Engineer may authorize the Contractor to allow parties bearing such permits to make openings in the street. The Contractor shall, when ordered by the Engineer in writing, make in an acceptable manner all necessary repairs due to such openings, and such necessary work ordered by the Engineer shall be paid for on the basis of "Extra Work" as provided for in these specifications and shall be subject to the same conditions as original work performed.

7.07 Safety, Health, and Sanitation. In the performance of the contract, the Contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation. The Contractor shall furnish such additional safeguards, safety devices, and protective equipment and shall take actions as the Engineer may determine as being reasonably necessary to protect the life and health of Contractor's employees and the public.

7.08 Barricades and Warning Signs. Except as otherwise provided specifically in this section, the Contractor shall provide and maintain barricades, danger and warning signs, and suitable and efficient lights, and shall take every reasonable precaution to prevent accidents. The name of the Contractor shall be clearly visible on the barricades. The Contractor shall provide, at their own expense, such watchmen as are necessary to protect their equipment and to maintain proper lights.

Watchmen who may be necessary to direct traffic or prevent travel on any portion of the street shall be provided by the Contractor on written order from the Engineer. Unless the contract specifically provides that such watchmen are to be furnished by the Contractor, this expense shall be paid for as provided in "Extra Work."

7.09 Use of Explosives. When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives shall be stored in a secure manner, and storage places shall be clearly marked "DANGER--EXPLOSIVES."

7.10 Claims for Labor and Materials. The Contractor shall indemnify and save harmless the City from all claims for labor and materials furnished under this contract. When requested by the City, the Contractor shall submit satisfactory evidence that all persons, firms, or corporations who have done work or furnished materials under this contract, for which the City may become liable under the laws of the State, have been fully paid or satisfactorily secured. In case such evidence is not furnished or is not satisfactory, an amount will be retained from money due the Contractor which, in addition to any other sums that may be retained, will be sufficient, in the opinion of the City, to meet all claims of the persons, firms, and corporations as aforesaid. Such sum shall be retained until the liabilities as aforesaid are fully discharged or satisfactorily secured.

7.11 Contractor's Insurance. The Contractor shall secure and maintain throughout the duration of this contract insurance, from companies authorized to do business in Nebraska, of such types and in such amounts as may be necessary to protect themselves and the interests of the City against all hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Contractor's operations and completed operations. The form and limits of such insurance, together with the underwriter thereof in each case, shall be approved by the City, but regardless of such approval it shall be the responsibility of the Contractor to maintain adequate insurance coverage at all times. Failure of the Contractor to maintain adequate coverage shall not relieve them of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. "Worker's Compensation and Employer's Liability." This insurance shall protect the Contractor against all claims under applicable State worker's compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The Contractor shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a worker's compensation

law. This policy shall include an "all states" endorsement. The liability limits shall be not less than the following:

Worker's Compensation	Statutory Limits
Employer's Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

2. "Business Automobile Liability." This insurance shall be written in comprehensive form and shall protect the Contractor, Contractor's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$500,000 Combined Single Limit
---------------------------------	---------------------------------

3. "Comprehensive General Liability." The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

4. "Umbrella Liability Insurance." This insurance shall protect the Contractor against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

5. Additional Requirements. The City may require insurance covering a Contractor or Subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Contractor or Subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Contractor of all obligations under the contract.

The Contractor shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. Certificate of Insurance. Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this contract. The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Contractor cannot have the "endeavor to" language stricken, the Contractor may elect to provide a new certificate of insurance every thirty (30) days during the contract. The Contractor shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.

7.12 Proof of Carriage of Insurance. Satisfactory certificates of insurance shall be filed with the City prior to starting any construction work on this contract. The certificates shall show the City as "Additionally Insured." The certificates shall state that thirty (30) days written notice shall be given to the City before any policy covered thereby is changed or canceled (strike the "endeavor to" wording often shown on certificate forms).

7.13 Contractor's Responsibility for Utility Property and Services. At points where the Contractor's operations are adjacent to properties of railway, telegraph, telephone, and power companies or adjacent to other property to which damage might result, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

In the event of interruption to water or utility services as a result of accidental breakage or as result of being exposed or unsupported, the Contractor shall promptly notify the proper authority. Contractor shall cooperate with said authority in the restoration of service as promptly as possible. In no case shall interruption to water service be allowed to exist outside of working hours. Fire hydrants shall be kept accessible to the Fire Department at all times and no materials shall be kept or stockpiled within fifteen (15) feet of any fire hydrant.

The Contractor must cooperate with the utility companies and schedule work in such a manner as to protect the existing utility facilities until the facilities are abandoned or replacement facilities are completed. In instances where partial grading is necessary before a utility can install its facilities, the Contractor shall consult with the utility and plan the work so reasonable time can be allowed the utility for completing its work.

7.14 No Waiver of Legal Rights. The City shall not be precluded or estopped by any measurement, estimate, or certificate made either before or after the completion and acceptance of the work and payment therefor from showing the true amount and character of the work performed and materials furnished by the Contractor, nor from showing that such measurement, estimate, or certificate is untrue or is incorrectly made, nor that the work or materials do not in fact conform to the contract. The City shall not be precluded or estopped, notwithstanding any such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the Contractor or Contractor's sureties, or both, such damage as it may sustain by reason of Contractor's failure to comply with the terms of the contract. Neither the acceptance by the City or any representative of the City, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by the City shall operate as a waiver of any portion of the contract or of any power herein reserved or of any right to damages. A waiver of any breach of the contract shall not be held to be a waiver of any other or subsequent breach.

7.15 Exposure of Pipe or Manholes. The Contractor shall conduct the work at all times in such a manner as will insure no disruption to the normal function of the sanitary sewer collection system. Particular attention shall be paid to the threat of introduction of storm water or other waters to the piping and manholes of the collection system. The Contractor shall take whatever precautions are necessary, such as, but not limited to installation of plugs in exposed pipes and manholes when work is not in progress or when leaving the work site. The Contractor will be held responsible for damages which may occur to either the collection system or to private property through introduction of storm water or other waters to exposed piping or manholes relating to the construction work.

SECTION 8 - PROSECUTION AND PROGRESS

8.01 Subletting or Assigning of Contract. The Contractor will not be permitted to sublet, assign, sell, transfer, or otherwise dispose of the contract or any portion thereof or Contractor's right, title, or interest therein or to either legally or equitably assign any of the money payable under Contractor's contract or claim thereto without the written consent of Contractor's surety and the Engineer. The Contractor will not be relieved of any responsibility through any of the above actions.

8.02 Prosecution of Work. The bid for each project will show the contract period. The progress of the work shall be at a rate sufficient to complete the contract within the contract period. If it appears that the rate of progress is such that the contract will not be completed within the contract period or if the work is not being executed in a satisfactory and workmanlike manner, the City may order the Contractor to take such steps as it considers necessary to complete the contract within the period of time specified or to prosecute the work in a satisfactory manner. If the Contractor fails to comply with such order within two (2) weeks after receipt of the order, Contractor shall automatically be disqualified from receiving any additional contract awards, and the City shall have the right to declare the contract in default and to complete the work in accordance with these specifications under section entitled Abrogation.

The Contractor's sequence of operations shall be such as to cause as little inconvenience to the general public as possible.

The Contractor will be granted additional and suitable time for the prosecution of the work, as was lost by reason of a delay or delays attributable to other parties authorized to do work on the project over which the Contractor had no control or jurisdiction, as provided in these specifications under section entitled Extension of Contract Period.

8.03 Limitations of Operations. The Contractor shall conduct the work at all times in such a manner and in such sequence as will insure the least interference with traffic. Contractor shall have due regard to the location of detours and to the provisions of handling traffic. Contractor shall not open up work to the prejudice of work already started, and the Engineer may require the Contractor to finish a section on which work is in progress before work is started on any additional section. The Contractor shall so conduct operations and maintain the work in such condition that adequate drainage shall be in effect at all times.

8.04 Methods and Equipment. The methods, equipment, and appliances used shall produce a satisfactory quality of work and shall be adequate to maintain the schedule of progress specified. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other streets will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that is demonstrated to accomplish the contract work in conformity with the requirements of the contract to the satisfaction of the Engineer.

When the contract specifies that the construction be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than those specified in the contract, a request may be made to the Engineer for authority to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the contractor will be fully responsible for producing construction work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not

meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining construction with the specified methods and equipment. The Contractor shall remove the deficient work and replace it with work of specified quality or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved nor in contract time as result of authorizing a change in methods or equipment under these provisions.

8.05 Temporary Suspension of Work. Work shall be suspended wholly or in part when, in the opinion of the Engineer, weather or other conditions are unfavorable to its satisfactory prosecution. Work shall also be suspended at the direction of the Engineer pending settlement of disputes arising out of failure of the Contractor to comply with the provisions of the contract. Written notice of suspension of work shall be given by the Engineer. When the conditions causing suspension no longer exist, such written notice shall be given to the Contractor by the Engineer. Promptly after such written notice, the Contractor shall resume prosecution of the work as provided in these specifications under section entitled Prosecution of Work.

8.06 Liquidated Damages. Time is an essential element of the contract, and it is important that the work be pressed vigorously to completion.

For each calendar day that any work shall remain uncompleted after the end of the contract period, the amount per calendar day specified in the bid form will be assessed, not as a penalty but as predetermined and agreed liquidated damages. The City will prepare and forward to the Contractor an invoice for such liquidated damages. The final payment will be withheld until payment shall have been made of this invoice.

Due account shall be taken of any adjustment of the contract period granted under the section of these specifications entitled Extension of Contract Period.

The assessment of liquidated damages for failure to complete the work within the contract period shall not constitute a waiver of the City's right to collect any additional damages which the City may sustain by failure of the Contractor to carry out the terms of the contract.

8.07 Extension of Contract Period. An extension of the contract period may be granted by the City for any of the following reasons:

1. Additional work resulting from a modification of the plans for the project
2. Delays caused by the City
3. Other reasons beyond the control of the Contractor which, in the City's judgment,

would justify such extension.

No extension of contract period will be allowed for variations between contract quantities and actual quantities which cannot be predetermined and which amount to less than twenty percent (20%) of the contract quantities.

8.08 Abrogation. If the Contractor abandons, sublets, or assigns the work under this contract without the consent of the City, or if Contractor fails to give - personal attention to it, or if it is the Engineer's opinion, and is so certified in writing to the Contractor and the City, that the Contractor is violating any of the provisions of this contract or that Contractor is not prosecuting the work in good faith or at the rate of progress specified, or that Contractor has unnecessarily or unreasonably delayed or neglected the work or any part of it, written notice to that effect is to be given to the Contractor by the Engineer. After such notice, no materials or equipment shall be removed from the work. If, within five (5) days thereafter, the Contractor does not take steps, which in the judgment of the Engineer will insure the satisfactory completion of the work, then the City may declare this contract null and void and the security forfeited and may notify the Contractor in writing to discontinue the work or any part of it; thereupon ceasing the Contractor's right of possession of the ground and of all materials and equipment thereon. The City then, at

their option, may enter upon and take possession of the work with all materials, supplies, and equipment remaining thereon and by contract or otherwise, as the City may determine, may complete the work or the part of it designated and charge the expense thereof to the Contractor using any materials or equipment found on the site. The expense so charged, together with all damages incurred, will be deducted from any funds due or to become due under this contract and, should the unexpended balance of these funds be insufficient, the excess shall be at the cost of the Contractor and sureties on the Contractor's bond. Neither completion of a part of the work nor the extension for any reason of the time of the completion of the work is to be considered a waiver of this right to abrogate the contract for abandonment, delay, or unsatisfactory work.

8.09 Termination of Contractor's Responsibility. The contract shall be considered completed when the work has been accepted in writing by the City. Such acceptance shall release the Contractor from all further obligation with respect thereto, except as to conditions and requirement set forth in Contractor's bond.

SECTION 9 - MEASUREMENT AND PAYMENT

9.01 Payments. Payments for estimated work completed will be made only on certificates of the Engineer at a regular City Council meeting.

The City, at its discretion, may include in such estimates payments for materials that will eventually be incorporated in the project, provided that such materials are suitably stored on the site of the project at the time of preparing estimates for payment. Such payment is to be based upon the estimated value thereof as ascertained by the Engineer. Such material when so paid for by the City shall not be removed from the project without consent of the City and, in case of default on the part of the Contractor; the City may use or cause to be used by others these materials in construction of the project.

The City will retain five percent (5%) of the estimated amount of work executed in an approved manner and of the approved materials and apparatus suitably stored on the site.

Payment of the retained five percent (5%) will be made within sixty (60) days after the formal approval and acceptance by the Engineer of all apparatus, materials, and work embraced in the contract.

9.02 Payments Withheld. The City may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect itself from loss on account of:

1. Defective work not remedied
2. Claims filed or reasonable evidence indicating probable filing of claims
3. Failure of the Contractor to make payments properly to subcontractors or for materials or labor
4. A reasonable doubt that the contract can be completed for the balance then unpaid
5. Damage to another contractor.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

9.03 Acceptance and Final Payment. If final inspection reveals that all details of the work have been completed satisfactorily, the Engineer shall tentatively accept the work, in writing, relieving the Contractor of further responsibility for the care and maintenance of the completed work and, provided that all equipment and materials have been removed from the right-of-way, shall also relieve the Contractor of further public liability. As soon as possible after tentative

acceptance of the work, the Engineer shall measure the completed work and compute the quantities of work for which payment is to be made. Before final settlement is made, the City shall be satisfied with the completed work. When the Engineer is satisfied that all items of the work have been found to be consistent with the terms of the contract and specifications, a final estimate including the retained percentage due the Contractor shall be released for payment. Release of the final estimate shall constitute final acceptance of the work.

All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

Extra work - See these specifications under section entitled Extra Work.

9.04 Payment for Extra Work. The Contractor will receive and accept payment for work performed under the contract as follows:

1. Items of work performed which are covered by definite prices stipulated in the contract. For all items of work performed which are covered by definite unit prices or lump sum amounts specified in the contract, the Contractor shall receive and accept compensation at the rate specified in the contract.

2. Extra work ordered by the Engineer, of a quality or class not covered by the contract, will be paid for at an agreed price. For extra work ordered by the Engineer and performed on an agreed price basis, the Engineer and the Contractor shall enter into a written agreement, and have City Council approval, before such work is undertaken. This written agreement shall describe the extra work that is to be done and shall specify the agreed price or prices therefore.

Revised 1-25-2011

DIVISION II

PORTLAND CEMENT CONCRETE PAVEMENT

**DIVISION II
PORTLAND CEMENT CONCRETE PAVEMENT**

C O N T E N T S

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**DIVISION II
PORTLAND CEMENT CONCRETE PAVEMENT**

SECTION 10 - SCOPE OF WORK

The work covered by this division of the specifications consists of furnishing all labor, plant, equipment, appliances, and materials and performing all operations necessary to construct and complete concrete pavement and appurtenances in strict accordance with these specifications, the applicable drawings, and subject to the terms and conditions of the contract.

SECTION 11 - MATERIALS

11.01 Cement - 47-B (Modified) and ABX (Modified) Concrete. The specifications for 47-B (Modified) and ABX (Modified) concrete shall be as specified in Section 1002 "Portland Cement Concrete" of the most current State of Nebraska Department of Roads Standard Specifications for Highway Construction with the following exceptions.

1. Paragraph 1 of Section 1002.04 is deleted and the following added:

For 47-B (Modified) concrete no more than 50 lbs. of total water will be added for each 100 lbs. of cement (water to cement ratio not to exceed 0.50). For ABX (Modified) concrete no more than 47 lbs. of total water will be added for each 100 lbs. of cement (water to cement ratio not to exceed 0.47).

Concrete with water to cement ratios greater than specified above will be rejected. If any water is added to the concrete at any time without the permission of the Engineer, the concrete will be rejected.

2. Portland Cement Concrete for pavement shall meet the following requirements:

<u>Class of Concrete</u>	<u>Compressive Strength Requirements in Pounds per Square Inch</u>	
	<u>7 days</u>	<u>28 days</u>
47-B (Modified)	2100	3600
ABX (Modified)	2300	3800

11.02 Portland Cement. Shall be as specified in Section 1004 "Portland Cement" of the most current Nebraska Department of Roads specifications.

11.03 Mixing Water. Shall be as specified in Section 1005 "Water for Concrete" of the most current Nebraska Department of Roads specifications.

11.04 Fine Aggregate for 47-B (Modified) Concrete. Shall be as specified in Section 1033 "Aggregates", Table 1033.02A "Gradation Limits" of the most current Nebraska Department of Roads specifications.

11.05, Coarse Aggregate for 47-B (Modified) Concrete. Shall be as specified in Section 1033 "Aggregates", Table 1033.03A, of the most current Nebraska Department of Roads specifications.

11.06 Aggregate for ABX (Modified) Concrete. Shall be as specified in Section 1033 "Aggregates" of the most current Nebraska Department of Roads specifications with below noted additions.

It shall be the responsibility of the Contractor to submit test results conforming to ASTM C295 that indicate the aggregate to be used in ABX Modified concrete is non-reactive with the alkalis in cement. If the results of this test are not conclusive, then results shall be submitted that conform to ASTM C227 (Mortar Bar) which remove all doubt as to the acceptability of the aggregate for Portland cement concrete.

These results must be submitted prior to any concrete being used from any source of aggregate. New test results must be submitted each time the aggregate comes from a new source or for each 700 cubic yards of concrete poured.

In the event that non-reactive aggregate is not available, the Contractor will not be allowed to use the sand-gravel mix but will be required to use 47-B Modified Portland cement concrete as specified in these specifications under section entitled Cement - 47-B (Modified) and ABX (Modified) Concrete.

11.07 Granular Foundation Course. The granular materials shall be sand from local pits that are shown on the plans, or it may be a coarse sand, fine sand, loamy soil, or any mixture of any of these materials that conforms to the following requirements:

	<u>Minimum</u>	<u>Maximum</u>
Total Percent Retained on #200 Sieve	80	92
Plasticity Index		6

11.08 Joint Filler. Joint filler shall consist of premoulded bituminous fiber uniformly impregnated with between 35% and 50% durable asphalt by weight and be furnished in strips of the dimensions specified in the plans. A one (1) inch thick sample when compressed to 50% of original thickness at rate of 1/10 inch per minute and released shall show at least 70% recovery within one hour after compression and shall not have required more than 500 pounds per square inch compression load and extrusion of not more than 1/8 inch.

11.09 Joint Sealing Material. The hot pour joint material shall be of the rubber-asphalt type and shall be melted in a double jacket kettle equipped with an agitator for stirring the material during melting and pouring. The rubber-asphalt shall meet Federal Specification SS-S-164 or subsequent revisions.

11.10 Curing Compound. The curing compound shall consist of a nonbituminous pigmented liquid conforming to AASHTO Designation M148-49 or subsequent revisions.

SECTION 12 - CONSTRUCTION METHODS

12.01 Clearing and Grubbing. Except for trees, shrubs, and grasses which are to be preserved as indicated on the plans or as designated by the Engineer, all trees, stumps, hedges, shrubs, weeds, grass, other herbaceous vegetation, and rubbish shall be removed from the right-of-way and from borrow pits furnished by the contracting authority. This work shall be classified as follows:

Clearing shall consist of the cutting, removal, and disposal of trees six (6) inches or more in diameter.

Grubbing shall consist of the removal and disposal of stumps, including roots. Hedge removal shall consist of the pulling or grubbing and disposal of hedges or other shrubs planted close together in rows. If any individual tree of those composing a hedge has a diameter greater than four (4) inches, it shall be measured separately as a tree.

Weed and rubbish removal shall consist of the removal and disposal of all weeds, grass, other herbaceous vegetation, and all rubbish encountered on the work.

12.02 Site Preparation. This work shall consist of removal and disposal of all crosswalks, private walks, driveway approaches, curbs, curb and gutter, and headers as indicated on the plans or as directed by the Engineer.

Topsoil shall be carefully removed and deposited in storage piles convenient to the area which will subsequently receive topsoil. Topsoil shall be kept separate from other excavated materials and shall be piled free from roots, stones, and other undesirable materials.

The backfill over all existing utility lines shall be consolidated when shown on the plans or directed by the Engineer. This shall be done by water jetting and vibration to the full depth of the utility lines unless other methods are approved by the Engineer. When compaction over existing utility lines is not shown on the plans or is not a bid item and is directed to be done by the Engineer, the work shall be negotiated for in writing before any work is commenced and will be paid for as a single unit.

All sanitary and storm sewers will be televised before a street is paved or repaved to insure that the street will not have to be torn up to repair the sewer in the near future.

Revised 1-18-2010

12.03 Subgrade Preparation. All paving subgrade shall be brought to the exact lines, grades, and cross sections shown on the plans or as directed by the Engineer.

The subgrade shall be constructed to have a uniform density throughout its entire width. All soft or yielding material and other portions of the subgrade which will not compact readily shall be removed as directed. All hollow places, settlements, or other imperfections shall be filled with approved material and compacted.

In all places where embankment may be required to bring the subgrade to the required height, it shall be constructed in horizontal layers not to exceed six (6) inches in depth before rolling. Each successive layer of material placed as described shall be wetted to within 3% of the optimum moisture content and compacted to at least 95% of the maximum dry density obtained at optimum moisture content as determined by AASHTO Method T99.

In all embankment areas where highly expansive soils are encountered, materials shall be wetted at one percent (1%) to three percent (3%) above optimum moisture.

In cuts when the undisturbed earth is suitable for the subgrade, manipulation other than rolling will not be required, provided the upper three (3) inches is at 95% maximum dry density as called for in embankments.

12.04 Water Main, Storm and Sanitary Sewer Pipe Bedding and Backfill. The pipe bedding and backfill shall be Type "C" as required by Division V, Pipe Bedding, Trench Backfill, and Nonshrinkable Backfill. The completion of the trench backfill under pavement shall be adequate to provide 95% of maximum dry density and shall be wetted to within 3% optimum moisture as specified in this division under Subgrade Preparation.

12.05 Granular Foundation Course. This work shall consist of the construction of a compacted foundation course of granular material to the lines, grade, and dimensions shown on the plans on a previously prepared and approved subgrade.

12.06 Surplus Earth. All surplus earth shall be stockpiled by the Contractor at the location or locations designated on the plans or as the Engineer shall direct.

12.07 Adjustment of Manholes. All manholes encountered whether shown on the plans or not shall be brought to the proper grade by removing the castings and adjusting the tops of the existing manholes by removal or addition of concrete or brick, as the case may be, and resetting the frames and covers.

Brick masonry shall consist of the type of brick satisfactory to the Engineer, laid in 1:2 cement mortar. All brick must be wetted before being laid. All joints shall be completely filled with mortar and shall not be less than 1/4 inch and not more than 1/2 inch in thickness.

Contractors are instructed to use plastic or concrete risers to bring manhole ring and covers to grade. Using pieces of wood, concrete or bricks and then filling with concrete mortar will no longer be accepted.

All manholes will be inspected before and after a concrete or asphalt street is laid down to insure that no foreign material is in the flow line or at the bottom of a manhole.

Revised 1-18-2010

12.08 Adjustment of Storm Sewer Inlets. All storm sewer inlets shall be adjusted to line and grade by removing the castings and adjusting the tops of the existing storm sewer inlets by removing or adding concrete or bricks, as the case may be, and resetting the castings.

Brick masonry shall consist of the type of brick satisfactory to the Engineer, laid in 1:2 cement mortar. All brick must be wetted before being laid. All joints shall be completely filled with mortar and shall not be less than 1/4 inch and not more than 1/2 inch in thickness.

12.09 Integral Curb. Integral curb shall be constructed on the edge of the concrete slab in accordance with the plans and typical cross section. This curb shall be placed immediately after the concrete on the pavement has been placed and finished and before it takes its initial set. That part of the pavement which is to be covered by the integral curb shall be cleaned of all laitance and shall be roughened. Integral Curb will be required on all new pavement construction. If construction is a very short section, the Director of Public Works may allow an exception upon written request.

SECTION 13 - CONCRETE CONSTRUCTION

13.01 Forms and Form Setting. On all new mainline pavement construction, slip form process will be required. If the Contractor wants to use standard forms rather than slip forms because the area is small, they must submit a written request to the Director of Public Works for an exception. If the request is granted, the contractor will be required to meet certain requirements as listed herein. Outside forms shall be metal, of depth equal to the design thickness of the pavement at its edge, and straight and free from warp. When integral curb is required, the additional height represented by the curb may be obtained by bolting extra forms upon the top of the main form. Wood forms or flexible or curved metal forms of proper radii shall be used for curves having radii of less than 100 feet. The forms shall be neatly, tightly, and securely pinned and staked to the line and grade furnished by the Engineer. They shall not at any time show a variation of more than 1/8 inch in a ten (10) foot length from the true plane of top of forms. Shimming with loose earth, pebbles, etc. will not be permitted.

Forms shall be cleaned and oiled before concrete is placed against them. When pavement is being laid contiguous to previously finished concrete pavement of the same finish grade elevation or contiguous to previously finished independent curb and gutter, such finished pavement or curb and gutter may be made to serve as side forms and as a guide for striking, tamping, and finishing equipment.

13.02 Air Entraining. When using specifications for State of Nebraska 47-B concrete, the total air content shall be 6% plus or minus 1-1/2% by volume of the wet concrete as determined by AASHTO Standard Method T-121 or ASTM Method C-231 and up to 9% for sand and gravel mix.

13.03 Consistency. The quantity of water shall be determined by the Engineer in accordance with these specifications under section entitled Cement - 47-B (Modified) and ABX (Modified) Concrete and not varied without the Engineer's consent. The Contractor shall furnish and use with the mixer an approved adjustable water measuring device which will prevent excess water flowing into the mixer so the consistency may be under positive control and all batches may be of the same consistency.

In general, the minimum amount of water shall be used which will produce the required workability. The mortar shall cling to the coarse aggregate and shall show no free water when removed from the mixer. The upper surface of the set concrete shall show a cement film upon the surface and shall be free from all laitance. In no case shall an amount of water be used sufficient to cause the collection of a surplus on the surface or to cause segregation during the transportation to place of deposit. The concrete must be of workable consistency when placed.

13.04 Mixing. The mixing shall be done in a batch-mixer of approved type which will insure the uniform distribution of the material throughout the mass so the mixture is uniform in color and smooth in appearance. No mixer which has a capacity of less than one-sack batch shall be used on any work. The concrete shall be mixed in quantities required for immediate use. Concrete which has developed initial set or is not in place within thirty (30) minutes after the water has been added shall not be used. Retempering concrete by adding water or by other means will not be permitted.

The concrete shall be mixed for a period of at least one (1) minute after all the ingredients are assembled in the drum with the drum revolving at a rate for which the mixer was designed but, in no case, shall it be less than twelve (12) nor more than twenty (20) revolutions per minute. The mixer shall be equipped with an attachment for satisfactorily locking the discharging device to prevent the emptying before the minimum time required. The entire contents of the drum shall be discharged before any materials for the succeeding batch are placed therein.

No concrete shall be mixed while the air temperature is at or below 40 degrees Fahrenheit, except when specifically permitted by the Engineer. In such case, all water used for mixing concrete shall be heated to a temperature of at least 70 degrees but not over 150 degrees Fahrenheit. When artificial heat is applied and the air temperature is above 32 degrees Fahrenheit, the mixed concrete shall not be less than 70 degrees Fahrenheit at the time of the placing in the forms, and no concrete shall be placed in the forms when the air temperature is below 32 degrees Fahrenheit. In no case shall material containing frost or lumps of hardened material be used. When ready-mixed concrete is to be produced, the Contractor shall notify the Engineer in writing at least fourteen (14) days in advance of mixing operations as to location, type of plant and equipment which they propose to use in proportioning, mixing, and hauling concrete.

The Contractor shall furnish at least eight (8) standard 50 pound weights for calibrating and testing scales used in weighing aggregates and cement.

Ready-mixed concrete shall be mixed and delivered to the site of work by means of one of the following combinations of operations:

1. Mixed completely at a central mixing plant and the mixed concrete transported to the point of delivery in a truck agitator or in a truck mixer operating at agitator speed or in approved non-agitating equipment (known as central-mixed concrete).
2. Mixed partially at a central mixing plant and mixing completed in a truck mixer (known as transit-mixed concrete).
3. Aggregates and cement proportioned in a central plant and mixed completely in a truck mixer (known as transit-mixed concrete).

All mixers and agitators shall be operated within the limits of the manufacturer's rated capacity. They shall be operated at the speed of rotation for which the equipment was designed. Attached to each truck mixer and truck agitator shall be a metal plate on which is stated the manufacturer's capacities in terms of volume of mixed concrete and the manufacturer's stated speed of rotation for both mixing and agitation.

The truck mixer or agitator shall consist of a closed water-tight revolving drum suitably mounted and fitted with adequate revolving blades. Truck mixers shall be capable of combining aggregates, cement, and water into a thoroughly mixed and uniform mass of concrete and of discharging the concrete without segregation. Truck agitators shall be capable of transporting and discharging concrete without segregation.

For revolving drum type mixers the mixing speed shall not be less than seven (7) revolutions per minute of the drum nor greater than that which will produce a peripheral velocity of more than 225 feet per minute. For revolving blade type mixers, the mixer speed shall not be less than six (6) nor more than sixteen (16) revolutions per minute of the mixing blades. Agitation speed shall not be less than two (2) nor more than six (6) revolutions per minute of the drum or mixing blades.

Concrete transported without agitation shall not be used if the period elapsed between the time the concrete is discharged from the mixer and the time it is placed is greater than thirty (30) minutes. Concrete transported with agitation shall not be used when the cement has been in contact with the aggregate more than 1-1/2 hours before it is placed.

13.05 Placing and Finishing. The concrete shall be deposited on the prepared subgrade or on the granular foundation course so there shall be no separation of the mortar and the aggregate, and then shall be spread to the required depth and for the entire width of the pavement by approved methods, struck off, and finished. The subgrade templet shall be drawn over the subgrade or foundation course ahead of the point where concrete is being placed and shall be kept in position while the concrete is being placed. The concrete shall be deposited on the subgrade or granular foundation course between the forms in position and in such quantity as to make a uniform layer of about one (1) inch greater than the required thickness. During the operation of striking off the concrete, a uniform ridge of concrete at least three (3) inches in depth shall be maintained ahead of the vibratory strike-off screed for its entire length. After being deposited, it shall be consolidated along the forms and along all joints. At the end of the day or in case of unavoidable interruption of more than thirty (30) minutes, a transverse construction joint shall be placed at the point of stopping work, provided the section on which the work has been suspended shall not be less than ten (10) feet in length. The working edge of the screed shall be shaped to the required cross section of the pavement. After the concrete has been properly consolidated and struck off, the entire surface shall be floated longitudinally, from bridges, with a float at least twelve (12) feet long and twelve (12) inches wide. If made of wood, this float shall be two (2) inches thick. If made of metal, it shall have a weight approximately equal to a similar float made of two (2) inch plank and shall be lined on its bottom face with wood, having rounded edges. The float shall be operated by two men, one at each end, each man standing on a bridge spanning the pavement. The longitudinal and transverse motion shall be passed slowly from one side of the pavement to the other a sufficient number of times, at least twice, until the float on its last passage shall show contact with the concrete throughout its entire length. The bottom surface of the float shall remain flat on the surface of the concrete during the entire operation of longitudinal floating. The next section to be floated shall overlap the one previously floated by half the length of the float.

After the concrete has been floated longitudinally, the surface shall be floated transversely using a float of 1"x12" material three (3) to four (4) feet in length and fitted with a handle of sufficient length to permit the float to reach just beyond the center line. Any high or low areas exposed as a result of this floating shall be corrected prior to belt finishing.

After the concrete has been floated transversely and the water sheen has disappeared from the surface of the pavement, the final finish shall be given with a canvas or rubber belt, burlap drag or brooming, or any combination of the above as directed by the Engineer.

If belting is selected, it shall be accomplished with a belt of two to four ply having a width of not less than six (6) inches and a length at least two (2) feet greater than the width of the pavement. The belt shall be operated with a combined crosswise and longitudinal motion, care being taken not to work the crown out of the pavement or to permit the edges of the belt to dip into the surface of the concrete.

If a broom finish is selected, it shall be accomplished by drawing a broom across the surface from the center line toward each side with the broom held perpendicular to the surface with only one stroke of the broom on each portion of the surface. (If the pavement is being constructed lane-at-a-time, the broom shall be drawn across the full width of each lane in one operation.) The broom shall be of the push broom type not less than 18" wide made from bass or bassine fiber not more than five (5) inches long and with a handle at least one (1) foot longer than the width of pavement being broomed in one operation. The brooming operations shall be executed so the corrugation will be uniform in appearance and not more than 1/16 inch in depth.

If a burlap drag finish is selected, it shall be accomplished by drawing a wet burlap, carpet, or canvas drag over the surface in a longitudinal direction. The drag shall be at least two (2) feet longer than the width of the slab being placed and shall be wide enough so about three (3) feet will be in contact with the pavement while it is in use. If burlap is used, the drag shall consist of not less than two (2) layers. Drags shall be rinsed or washed as often as necessary to remove hardened particles which would mar the uniform surface that would be obtained with a clean drag.

13.06 Surface Test. Before final finishing and previous to initial set, the surface of the pavement shall be tested under the supervision of the Engineer. All irregularities or undulations not within the tolerance of the following test shall be corrected with fresh concrete and the affected surface brought within the requirement of the test and refinished if necessary. The test shall be made with a transverse testing templet and straightedge at least ten (10) feet long. The templet shall be accurately shaped in conformity with the typical cross section and shall be subject to the approval of the Engineer. The templet shall be used to test the shape of the surface transversely, the straightedge for longitudinal trueness. The straightedge shall be placed parallel to the center line so as to bridge any depressions and touch any high spots. Ordinates exceeding one fourth inch measured from the face of the templet or straightedge when in position at any point shall be eliminated by means of a long-handled wood float.

As soon as the pavement has set sufficiently to permit walking on it and not later than 10:00 a.m. of the day following the placing of the concrete, it shall be thoroughly checked by the inspector with a straightedge. All variations in excess of one fourth inch measured from the surface of the straightedge when it is placed parallel to the center line shall be plainly marked. The Contractor shall at once eliminate such variations by the use of approved grinding tools or carborundum brick and water. The work of grinding or rubbing shall not be performed in such manner or carried to such extremes that the bond of the concrete shall be broken. The use of brush hammer or similar device to remove irregularities after the concrete has taken its final set will not be permitted. All templates, straightedges, and other testing devices shall be furnished by the Contractor.

13.07 Headers. Concrete headers extending to full depth and width of the pavement shall be constructed at locations shown on the plans. They shall be constructed to the dimensions and design called for in the plans.

13.08 Transverse Construction Joints. Whenever concreting is stopped for a period of over thirty (30) minutes, a transverse construction joint shall be formed by finishing the concrete to a bulkhead made of two (2) inch material cut to the exact cross section of the pavement slab, as shown in the plans. When the concreting is resumed, the bulkhead shall be moved taking care not to disturb any concrete placed. The joints shall be constructed perpendicular to both the center line and the surface of the pavement. In no case shall an emergency construction joint be allowed within ten (10) feet after placing a regular expansion or construction joint. If the joint falls within this limit, the concrete shall be removed back to the previously installed joint.

When a construction joint is placed at a location where integral curb is being constructed, a piece of pre-formed joint material one half inch in thickness and conforming to the cross section of the curb shall be placed through the curb at the construction joint. The edges of the concrete shall be rounded to a radius of not more than one fourth inch.

13.9 Transverse Expansion Joints. Expansion joints shall be of a premoulded bituminous fiber type conforming to these specifications under the section entitled Joint Filler.

The joint shall extend entirely through the pavement and the joint filler shall be placed so the top edge will be one half inch below the surface of the finished pavement. No section of the joint material shall be shorter than the width of pavement strip between longitudinal joints. Before the pavement is opened to traffic, this space shall be swept, cleaned, and filled with approved joint sealing material.

The pre-formed expansion joint material shall be held securely by means of a special metal joint holder and removable cap, perpendicular to both the center line and the surface of the pavement. The metal joint holder and cap shall remain in place until after the passage of the concrete spreader. After the concrete has been finished, the metal joint holder and cap shall be removed and the edge of the concrete rounded to a radius of not more than one fourth inch. When integral curb is being constructed, an additional piece of pre-formed material of the same cross section as the curb shall be extended through the curb and to the top surface of the pavement. The joints shall be so installed and finished to insure complete separation of the slabs.

13.10 Transverse Contraction Joints. Transverse contraction joints shall be constructed at intervals of not less than ten (10) feet or more than sixteen (16) feet. The joints shall be true and straight to the center line and surface of the pavement. Variation of more than one half inch in ten (10) feet from a straight line will not be permitted. The joint shall be placed so its junction with the longitudinal joint will be a neat fitting connection. All transverse contraction joints shall be done by the saw cut method. To prevent the development of random cracks, joints at approximately eighty (80) feet intervals shall be sawed the same day as the pour is made. All other transverse contraction joints shall be sawed the following afternoon.

13.11 Longitudinal Joints. Longitudinal contraction joints, when required, shall be in accordance with the requirements for transverse contraction joints.

All sawed longitudinal joints shall be sawed before the concrete has attained an age of seven (7) days and before the pavement is opened to any vehicular traffic.

13.12 Curing. As soon as the concrete has hardened sufficiently to prevent excessive marring of the surface or adherence thereto, the concrete shall be protected with a single covering of burlap, placed and kept saturated for at least twelve (12) hours. As soon as the burlap is removed, the top surface and the edges of the pavement shall be covered with a continuous uniform nonbituminous impervious coating. The curing compound may be applied in either one or two applications in accordance with the directions of the manufacturer. However, if applied in two coatings, the second shall be applied not later than thirty (30) minutes after the first. In no case shall the rate of application be less than one (1) gallon per fifteen (15) square yards of surface area.

The sides of the pavement slab or back side of integral curb shall be covered with the curing compound within thirty (30) minutes after removal of the form.

When wet cotton mats, wet jute felt mats, paper, or any other method than curing compound is to be used for curing, the Contractor shall notify the Engineer in writing at least fourteen (14) days in advance giving the type and specifications of material and method to be used.

When it is expected that during the progress of the work the temperature may fall below 40 degrees Fahrenheit, a sufficient supply of straw, hay, grass, or other material suitable, in the judgment of the Engineer, must be maintained on hand to cover the concrete and to sufficiently protect the surface and edges against freezing until it is at least ten (10) days old. In such case, at the discretion of the Engineer, wetting and spraying may be omitted. Manure shall not be used as a protection for green concrete. Whenever the temperature falls below 40 degrees Fahrenheit, freshly finished concrete shall be protected by frames enclosed by canvas or other type of housing and the temperature of the air surrounding the concrete shall be maintained at not less than 45 degrees Fahrenheit. Sufficient heating apparatus, such as lanterns, suitable stoves, or steam equipment, shall be furnished and maintained by the Contractor. Any concrete showing injury by freezing on uncovering shall be removed and replaced at the expense of the Contractor.

13.13 Sealing of Joints. Joint sealing operations shall not be started until after final curing is completed. All joints which require sealing shall be thoroughly cleaned by a jet of compressed air. Any excess mortar or concrete shall be cut out with chisels. Joints shall be filled only when completely dry. The filler used shall be material as specified in these specifications under the section entitled Joint Sealing Material. The cleaning and filling shall be carefully done with proper equipment and a neat workmanlike joint obtained, free from excess and unsightly filler.

The joint sealing material shall be melted uniformly and with constant stirring in an asphalt kettle of such design that direct flames are not applied to the immediate surfaces of the kettle which are in contact with the joint sealing material. The material shall be furnished or prepared in pieces of such size and shape that the material can be melted readily to the proper pouring consistency. The heating of the material shall be arranged to minimize the length of time during which the temperature of the material exceeds 350 degrees Fahrenheit. In no case shall the temperature exceed the maximum recommended by the manufacturer. The joints shall be filled with the use of a pouring device which is satisfactory to the Engineer. Precautions shall be taken to prevent spilling material on surfaces of the pavement adjacent to the joint.

13.14 Protection. The Contractor shall provide and maintain substantial barricades, warning signs, and flares to provide the public and the construction work adequate protection and keep all traffic off the pavement.

13.15 Opening to Traffic. Before any traffic is permitted on the concrete, all curing and protecting materials other than membrane shall be carefully removed from the finished work and the concrete shall be swept clean. No section of pavement shall be opened to traffic until the concrete has reached a minimum age of fourteen (14) days or compression strength of 3000 psi.

The Contractor's forces may be allowed on the pavement for the purpose of clean up work any time after the concrete has reached a minimum age of seven (7) days.

13.16 Acceptance. The Contractor shall furnish a minimum of two (2) cores at locations designated by the Engineer for each 1000 square yards of pavement placed, and the acceptance of the pavement may be governed by the quality and thickness as shown by the cores. Slabs of pavement which are found to be more than one half inch short of the specified thickness shall be removed and replaced at the Contractor's expense with concrete of specified quality and thickness. If, however, in the opinion of the Engineer, there is no probability of immediate failure of such deficient slabs, they may allow the Contractor the choice of leaving the defective slabs in place and receiving no compensation or payment for the same or of replacing the pavement slab as provided above.

If the average strength of test cores or test cylinders, cured at a temperature within the range of 60 to 80 degrees Fahrenheit, is more than ten percent (10%) below the required strength, the Engineer may elect either to permit such pavement to remain in place and limit the payment for such defective work to a maximum of 90% of the contract unit price or require the Contractor, at Contractor's expense, to remove the pavement area deficient in the specified strength and replace it with pavement of satisfactory quality.

SECTION 14 - METHOD OF MEASUREMENT AND BASIS OF PAYMENT

14.01 Clearing and Grubbing. Clearing and grubbing of trees larger than six (6) inches in diameter will be measured for payment by counting the actual number of trees removed. The diameters of trees will be computed by measuring the circumference and dividing by 3.14. Payment shall be made at the contract unit price per each tree at the diameter or group of diameters shown in the bid.

Stumps will be measured for payment by taking the average diameter at cutoff. Payment shall be made at the contract unit price per each stump at the diameter or group of diameters shown in the bid.

Hedge removal will be measured for payment in lineal feet of a row of hedges.

Weeds, rubbish, and other herbaceous vegetation will not be measured for payment but will be considered as subsidiary to the contract work.

14.02 Site Preparation. Crosswalks and private walks to be removed within the area between construction lines will be measured for payment in square feet in their original position. Driveway approaches will be measured for payment in square yards in their original position.

Existing straight curb and curb and gutter to be removed will be measured for payment by length in lineal feet. Measurements for the straight curb will be made along the front face of the curb. Measurements for curb and gutter will be made along the flow line of the gutter.

Removal of existing pavement headers will be measured for payment by length in lineal feet.

Compaction over all existing utility lines will be measured for payment as a single unit except when in clay soil. In clay soil, excavation, additional materials, and recompaction over utility lines will be paid for as additional excavation.

14.03 Grading, Surplus Earth, Embankment. All grading, removal of surplus earth, and embankment will not be measured for payment but shall be subsidiary to the paving.

14.04 Granular Foundation Course. Granular foundation course will be measured for payment by area in square yards or cubic yards.

14.05 Manholes. Adjusting manholes to grade will be measured for payment as a single unit for each manhole that is adjusted to grade as shown in the plans or as directed by the Engineer.

14.06 Storm Sewer Inlets. Adjusting storm sewer inlets to line and grade will be measured for payment as a single unit.

14.07 Integral Curb. Integral curb will be measured for payment by length in lineal feet. Measurement will be made along the back side of the curb.

14.08 Concrete Pavement. Concrete pavement will be measured for payment by area in square yards. Concrete pavement shall include all joints, curing, sealing, etc. not specifically designated as separate items.

14.09 Beams. Concrete pavement beams will be measured for payment by length in lineal feet.

14.10 Headers. Concrete headers constructed as part of the project will be measured for payment by length in lineal feet.

14.11 Transverse Expansion and Miscellaneous Joints. Transverse expansion joints and all miscellaneous joints using premoulded bituminous fiber will be considered incidental to the paving construction and not as a separate pay item.

14.12 Concrete Test Cylinders. Three (3) concrete test cylinders shall be required for each block of concrete pavement placed or as directed by the Engineer.

14.13 Testing. The Engineer may require testing of coarse and fine aggregates and cement before they are used in the work. If so ordered, the Contractor shall pay the cost thereof.

The testing of cylinders shall be paid for by the Contractor.

14.14 Miscellaneous. Any item listed in the Engineer's Estimate and not covered in the specifications will be measured in the most workmanlike manner for payment according to the designation listed such as cubic yards, square feet, square yards, lineal feet, gallons, each, etc.

DIVISION IV

**ASPHALT CONCRETE
SURFACE COURSE**

**DIVISION IV
ASPHALT CONCRETE SURFACE COURSE**

C O N T E N T S

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**DIVISION IV
ASPHALT CONCRETE SURFACE COURSE**

This division is written so that ordinarily the type of construction described is complete, but, where applicable, other divisions are considered a part of this specification.

SECTION 22 - SCOPE OF WORK

The work covered by this division of the specifications consists of furnishing all labor, plant, equipment, appliances, and materials and performing all operations necessary to construct and complete the prime coat and asphaltic concrete pavement and appurtenances in strict accordance with the specifications and applicable drawings and subject to the terms and conditions of the contract.

SECTION 23 - SPECIFICATIONS

23.01 State Specifications. The most current State of Nebraska Standard Specifications for Highway Construction along with any drawings or additional addenda shall apply to any and all asphaltic concrete materials and construction methods.

23.02 Smoothness. Except as specified in NDOR 502, acceptance requirements for smoothness shall be as specified in Section 3.17 "ACCEPTANCE REQUIREMENTS" of the Asphalt Institute's latest edition of "MODEL CONSTRUCTION SPECIFICATIONS FOR ASPHALT CONCRETE AND OTHER PLANT-MIX TYPES."

SECTION 24 - CONSTRUCTION METHODS

24.01 Compaction Requirements. The top six (6) inches of the final subgrade shall be scarified and rolled with a sheep's foot roller, with water added, if necessary, to obtain compaction to a density of not less than 95% of maximum dry density at optimum moisture content as determined by AASHTO Method T-99. A minimum of one successful density test per block will be required before the placement of any asphaltic concrete surfacing.

Final preparation of the subgrade shall include minor compaction and scarifying up to a depth of two (2) inches, furnishing and applying water, removing loose material, and minor shaping and smoothing of the surface.

Direct payment will not be made for earthwork, subgrade preparation, final preparation, and maintenance of the subgrade. This work shall be subsidiary to asphaltic concrete surface course.

24.02 Asphaltic Cement. Asphaltic cement shall be paid for separately by the gallon. Total pay gallons will be based on actual AC content when the actual AC content is within 0.2% points of the AC content specified by the Engineer. If the actual AC content is more than 0.2% points below that specified by the Engineer, an additional 0.1% point will be deducted from the payment for each 0.1% point below the 0.2% point variance allowed. No payment will be made for asphaltic cement beyond 0.2% points above the specification. The Engineer may reject areas where the AC content is more than 0.5% points above or below specifications based on individual extractions. Areas where the AC content is more than 1% point above or below specifications based on individual extractions must be rejected. Following are examples to illustrate:

AC Content	Specified Extraction	Payment Based On
5.0%	5.2%	5.2%
5.0%	4.8%	4.8%
5.0%	5.5%	5.2%
5.0%	4.5%	4.2%
5.0%	5.6%	May be rejected
5.0%	4.4%	May be rejected
5.0%	6.1%	Will be rejected
5.0%	3.9%	Will be rejected

Where more than one extraction is taken, an average will be computed for payment. In computing the average, AC contents more than 0.2% above the specified content will be changed to the specified content plus 0.2% points. Following is an example based on a specified AC content of 5.0%.

Actual Extractions	Use for Payment Computations
5.1%	5.1%
4.8%	4.8%
4.5%	4.5%
6.0%	5.2% (if accepted by Engineer)
Avg = 5.1%	Avg = 4.9%

Payment would be made based on the 4.9% average.

24.03 Prime Coat. The prime coat shall conform to the most current State of Nebraska, Standard Specifications for Highway Construction.

24.04 Tack Coat. The tack coat shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.05 Armor Coat. The armor coat shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.06 Bituminous Base Course and Surface Course for Asphaltic Concrete Pavements. The bituminous base course and/or surface course for asphaltic concrete pavements shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.07 Seal Coat. The seal coat shall conform to the most current State of Nebraska, Department of Roads, Specifications for Highway Construction.

24.08 Heater-Planing. The work covered by this section consists of furnishing all plant, labor, and equipment and performing all operations in connection with the heating and planing of existing pavements to true up existing surfaces within the limits and in accordance with the methods, procedures, type, and area as outlined and described in this section and the applicable drawings, and to the depth designated by the Engineer.

The amount of work indicated in the bid form may be increased or decreased by whatever amount is deemed advisable by the Engineer. For any such increase or decrease in work there shall be no consequent change from the unit prices as bid in this contract.

A. Equipment - The planing machine shall be designed and built for the heater planing of heavy traffic type asphaltic concrete pavements and shall be self-propelled. The heating and cutting width of the machine shall be the same and shall not be less than three and one-half (3-1/2) feet. The total weight shall not be less than 17,000 pounds of which seventy percent (70%) plus or minus ten percent (10%) shall be on the rear wheels. The machine shall be capable of traveling at a speed as low as forty (40) feet per minute and be able to cut against all curbs, catch basins, inlets, and other similar obstructions within the paved area. The machine shall have, in combination, a means for heating and cutting the surface and blading the displaced material into one or two windrows in one continuous operation. The overall width or spread of the rear wheels of the machine shall not be greater than the lateral width of the cutting edges and the effective wheelbase of the machine shall not be less than eighteen (18) feet. The make and design of the machine shall be one that has operated successfully on a considerable mileage of work comparable with that proposed to be done under this contract.

B. Public Convenience and Safety - The Contractor shall plan the work so that there will be the least possible interruption to the usual flow of traffic and shall conform to the specific requirements. The Contractor shall be governed by the current regulations of the City. The Contractor shall use all proper precautions to protect persons from injury. Proper guards shall be placed in the vicinity of the work and a sufficient number of colored warning lights placed to protect the public from damage and injury. The Contractor shall be held responsible for all such damage and injuries.

C. Protection of Utilities - Contractors shall use care not to disturb, break, or otherwise damage any visible existing manhole covers, gate valves, etc. in the planing operation. Covers, valves, etc. visible prior to the Contractor's operation shall be replaced by Contractor at Contractor's expense. The adjustment of manholes to the finished grade produced by the heater planer operation is not to be included as work to be done under this item.

D. Construction Methods - Areas to be planed shall be definitely marked out in advance of the work by the Engineer. They shall be rectilinear in shape except where existing facilities do not permit. Payment for completed work shall be made only on the basis of areas as marked out by the Engineer in advance of the work.

Planing operations shall accomplish the cutting of the bituminous surface of the pavement, not to exceed one-half (1/2) inch depth per pass, to a smooth surface without gouging, shoving, or tearing the pavement. The Contractor shall make as many trips with the machine as are necessary to cut to the depth indicated in the plans, specifications, Special Provisions, or as directed by the Engineer and to bring the surface to a tolerance of one-fourth

(1/4) inch when checked with a ten (10) foot straightedge. The Contractor is not to remove more surface than required or directed. Should the bituminous material not permit planing to this tolerance, the condition of the pavement must be called to the attention of the Engineer whose decision will be final.

Immediately after completion of the planing operation, the Contractor shall roll the planed areas with a smooth wheel roller weighing not more than ten (10) tons. Not less than three (3) passes of the roller will be required over the entire area planed.

The Contractor shall remove all pavement cuttings, debris, etc. which resulted from the performance of the work on the street.

E. Coordination with Other Contractors - Some of the projects, which will be properly identified on the plans or in the Special Provisions, are to be overlaid with an asphaltic material after the surface has been heater-planed. The application of the asphaltic material will be accomplished under a separate contract; therefore, close coordination shall be maintained to assure that the surface is heater-planed in advance of the asphaltic material application. The heater-planing contractor shall cooperate with the resurfacing contractor to assure orderly progression of the work to be accomplished.

F. Inspection and Acceptance - Planing operations will be under the direct supervision of the Engineer or Engineer's authorized representative on the work, and the depth and extent to which the planing will be carried out shall be decided by the Engineer as the work progresses. The Engineer shall have authority to reject any work, materials, and parts thereof which do not, in the Engineer's opinion, conform to the plans, specifications, and contract.

G. Measurement and Payment - Heater-planing shall be measured for payment in square yards of pavement actually heated and planed and accepted by the Engineer and shall be paid for at the contract unit price per square yard for the item "Heater-Planing." This price shall be full compensation for furnishing all equipment, plant, tools, labor, flagmen, operators, fuel, hauling, rolling, disposing of planed material, and incidentals necessary to complete the work.

24.09 Surface and Base Reconditioning. This work shall consist of filling cracks, removing and replacing undesirable areas, and patching holes and depressions in existing pavements and bases preparatory to subsequent surfacing or surface treatment.

A. Methods - Except as otherwise provided in this section, all materials used for this work shall conform to the material requirements of these specifications.

B. Crack Filling - On surfaces to be seal coated or armor coated the surface cracks one-fourth (1/4) inch or larger shall be hand raked for a depth of not less than one-half (1/2) inch and then blown clean with compressed air.

Cleaned out cracks shall be filled with MC-800 or Emulsified Asphalt RS-1, and cover coat aggregate poured or broomed into the crack in sufficient quantity to fill the crack.

All cracks one-half (1/2) inch or larger in width in the existing base shall be opened in a wedge shape with air hammers, cleaned with compressed air, painted with Emulsified Asphalt RS-1, and then filled with Asphaltic Concrete Wedge material and thoroughly compacted so as to be even with the adjacent surface.

C. Surface and Base Removal - Surfaces and bases as shown in the plans or as designated by the Engineer shall be removed in accordance with the applicable requirements of the section of these specifications entitled Pavement Removal.

In general, the surfaces requiring removal shall consist of the following types:

1. Asphalt or other surfaces considered unsuitable for use as a base.
2. Asphalt patches containing an excess of bitumen.
3. Loose, excessively cracked or disintegrated asphalt areas.
4. Brick and cobblestone surfaces excessively off grade.
5. Brick, cobblestone, and asphalt surfaces requiring removal to provide for a butt joint.

Except as otherwise shown in the plans or directed by the Engineer, removal of concrete pavements and bases will generally be limited to those areas evidencing disintegration and/or sinking or humping.

Crushed rock bases, when shown in the plans or directed by the Engineer, shall be reworked in accordance with the requirements of the Special Provisions.

D. Surface and Base Repair - Concrete base repair shall be constructed in accordance with the applicable requirements of State of Nebraska specifications which shall be construed to include the following:

1. Repaving areas of concrete bases or pavements previously removed.
2. Resurfacing areas from which brick or cobblestone surface was previously removed, to the level of the existing surface or to such grade as the Engineer may direct.
3. Filling of holes and depressions in the existing base or pavement as the Engineer may direct.
4. Any other work of similar nature or properly inferable from the plans or Special Provisions or directed by the Engineer.

When the contract provides for the placing of asphaltic concrete wedge, base, binder, or surface courses, this material shall be used for patching all holes and depressions in accordance with the requirements of State of Nebraska specifications, except as otherwise provided in this article.

When the contract does not provide for the placing of asphaltic concrete wedge, base, binder, or surface courses, the material used for patching asphalt surfaces shall be one of the following:

1. Asphaltic Surface Course, Type I
2. Material obtained from asphalt plant operated by the City.

This mixture shall be placed in all holes and depressions previously tack coated in accordance with the requirements of the section of these specifications entitled Tack Coat as directed by the Engineer, leveled to the required thickness, and compacted by tamping, ironing, or rolling as may be required to obtain the required density and stability.

E. Measurement and Payment -

1. Crack Filling - Cracks filled under the conditions related in Section 24.09-B shall be measured for payment by length in lineal feet in five (5) chords and shall be paid for at the contract unit price per lineal foot for the item "Crack Filling." This price shall be considered full compensation for all materials, labor, equipment, tools, and incidentals necessary to complete the work required for this item.
2. Removals - Removal of pavements, surfaces, and bases shall be measured and paid for in accordance with the applicable requirements of the section of these specifications entitled Pavement Removal.
3. Reworking Rock Base - Reworking crushed rock base shall be measured and paid for in accordance with the requirements of the Special Provisions.
4. Concrete Base Repair - Concrete used for base repair as related in Item D of this article shall be measured and paid for in accordance with the requirements of the Special Provisions.
5. Asphaltic Concrete Wedge, Binder, or Surface Material - Asphaltic concrete wedge, binder, or surface material used in patching and leveling as provided in Item D of this article shall not be measured separately for payment but shall be included in the quantity for which the contract provides that payment shall be made.
6. Asphalt Patching - Asphaltic mixtures used for patching under the conditions related in Item D of this article shall be measured for payment by weight in tons and shall be paid for at the contract unit price per ton for the item "Asphalt Patching." This price shall be considered full compensation for furnishing and applying all materials including tack coat; for all tamping, ironing, and rolling; and for all labor, tools, equipment, and incidentals necessary to complete the work required for this item.

24.10 Emulsified Asphalt Slurry Coat. The work covered by these specifications consists of furnishing all plant, labor, equipment, and materials and performing all operations in connection with the application of a following described slurry seal coat

upon the so designated surface, complete in strict accordance with these specifications, applicable plans, the Special Provisions, and as directed by the Engineer.

A. Description - The slurry seal coat shall consist of a mixture of emulsified asphalt, mineral aggregate and water, properly proportioned, mixed, and spread on the surface as specified herein and as directed by the Engineer.

B. Materials -

1. Aggregates - Aggregate shall consist of natural or manufactured sand, slag, crusher fines, or other materials approved by the Engineer, blended with mineral filler, if necessary to meet the gradation requirements. Portland Cement, limestone dust, fly ash, or hydrated lime may be used as a filler, provided the blended gradation is within the requirements. The aggregate shall be clean and free of deleterious substances and shall have a plasticity index of not more than five (5) when tested in accordance with ASTM D424. Smooth-textured sand, whose water absorption is less than 1.25% when tested by ASTM C128, shall not exceed 50% of the total combined aggregate. The aggregate, when tested for soundness with Sodium Sulfate in accordance with ASTM C88, shall show a loss of not more than ten (10) percent.

The gradation of the combined aggregate, when tested by ASTM C136, shall meet the following requirements:

Sieve Size	Percent Passing		
	Type 1	Type 2	Type 3
3/8"		100	100
#4	100	80 - 100	70 - 90
#8	80 - 100	65 - 85	45 - 70
#16	60 - 85	45 - 70	35 - 50
#30	45 - 70	30 - 50	20 - 35
#50	30 - 50	20 - 35	12 - 25
#100	15 - 30	12 - 25	10 - 20
#200	10 - 20	10 - 20	8 - 15

2. Water - Water shall be potable and free from harmful soluble salts and in accordance with Grand Island City water quality.
3. Emulsified Asphalt - The emulsified asphalt shall meet the requirements of ASTM D977 (anionic) or ASTM D2397 (cationic). The type and grade, including the penetration of the residual asphalt, will be as listed in the bid or as designated by the Engineer.

C. Slurry Mixture -

1. Mixture Proportions - The mixture shall contain from 14% to 22% asphalt emulsion for Type 1, 10% to 16% for Type 2, and 8% to 14% for Type 3, based on the weight of dry aggregate.

Only the amount of water will be used that is necessary to produce a fluid, creamy texture which will flow smoothly. The actual proportions to be used shall be determined by the Engineer.

2. Mixture Requirements - A free flowing creamy consistency, obtained by varying the quantity of water only, is required for proper application of the mix. The quantity of emulsified asphalt required shall not be altered unless directed by the Engineer. The Contractor shall make trial batches at his expense to determine the final blend of mineral aggregate, mineral filler, and asphaltic binder to be used for most adequate results and approval of the Engineer. Mixture shall be of such consistency as to flow in a wave of approximately two (2) feet ahead of strike-off squeegee.
3. Wearability - The mixture, when tested by the Standard Wet Track Abrasion Test, shall show a loss of not more than 1.5 pounds/square yard (75 gm./square foot).

D. Equipment -

1. Mixing Machine - The slurry seal coat mixing machine shall be a continuous flow mixing unit and be capable to accurately deliver and proportion aggregate, asphalt emulsion, and water to an approved mixer tank and discharge the thoroughly mixed product on a continuous basis from a minimum of two (2) minutes to a maximum of four (4) minutes mixing time.

The mixer shall be washed clean with water immediately after discharging the slurry. Any mixer which becomes clogged or caked with hardened material will be rejected by the Engineer until properly cleaned.

2. Spreader Box - The spreader box may incorporate numerous features but shall consist of at least a rectangular frame of traffic lane width with a squeegee across the box about three-fourths of the way back from the front. The squeegee shall be fastened to the bottom of the cross member which shall be sectional and adjustable for thickness of application and adjustable to the crown of the pavement in segments not over three (3) feet long. The squeegee shall be neoprene rubber belting one (1) inch thick and six (6) to eight (8) inches wide across the width of the box, bolted to the adjustable frame with at least four (4) inches of free face to provide sufficient flexibility in order to maintain contact with the pavement surface in depressions and compress sufficiently to pass over high spots. The front and sides of the spreader box shall be lined on the inside with heavy rubber belting secured by bolts and a heavy metal strip. The belting material shall be slotted at the holes so it can be raised or lowered to make contact with the pavement surface to prevent the slurry from escaping

from the bottom of the sides and front members. The spreader also shall be equipped with a guide wheel mounted on the side to force the box to follow the tow truck in a straight line. The spreader box shall also contain longitudinal or diagonal baffles to distribute the slurry the full length of the squeegee.

3. Miscellaneous Equipment - Long-handled, rubber-faced squeegees shall be constructed and have flexibility to permit uniform spreading of the slurry mixture. Power sweepers, air compressors, sprinkler trucks, distributor, weighing and measuring equipment shall be provided to accurately weigh and measure the ingredients of the mix. Where traffic is not sufficient to properly knead the mix into the cracks, a pneumatic tire roller shall be required to obtain the desired results.
- E. Preparation of Surface - The existing surface shall be thoroughly cleaned of all loose material, dirt, oil drippings, and other matter which may adversely affect proper bond of the slurry seal. Depressions and bumps shall be brought to proper grade and distressed areas shall be patched or otherwise repaired, as directed by the Engineer. When deemed necessary by the Engineer, the surfacing of the existing pavement and all crack faces shall be sprayed with diluted asphalt emulsion at a rate of 0.05 to 0.1 gallons per square yard and all surfaces shall be in a uniformly damp condition.
- F. Application and Spreading Slurry Mixture -
1. Application Rates - The slurry mixture shall be applied at the rate of seven (7) to thirteen (13) pounds/square yard for Type 2 and seventeen (17) to twenty-three (23) pounds/square yard for Type 3. The type to be used will be as listed in the bid or as designated by the Engineer.
 2. Spreading Requirements - The slurry mixture shall be chuted into the moving spreader box at a rate so that there is sufficient slurry in the box to cover the full width of the squeegee blade at all times. In restricted areas when hand spreading is necessary, the mixture shall be poured in a small windrow along one edge of the surface to be covered. The mix shall then be spread by means of a squeegee so as to permit the operator to drag it over the surface along the windrow with the edge of the squeegee at an angle to the direction of travel. Weighted sacks or burlap shall trail behind the spreader box to smooth joints between lanes. When hand spread, the surface shall be given this drag treatment if ridges are developed.
- G. Curing - The slurry seal coat shall be allowed to cure until firm and to a condition that no pick up of the mix will occur before permitting access to traffic or as directed by the Engineer.

- H. Weather Conditions - The slurry mixture shall not be applied if either the pavement surface or the local ambient temperature is 55 degrees Fahrenheit or below and falling, but may be applied when both the pavement and air temperature is 45 degrees Fahrenheit or above and rising. The mixture shall not be applied if high relative humidity prolongs the curing beyond a reasonable time, as determined by the Engineer.
- I. Basis of Payment - The emulsified asphalt slurry coat will be measured by the square yard and paid for at the contract unit price per square yard for the item "Slurry Coat." This price shall be considered full compensation for furnishing, mixing, hauling, and placing all materials, including all labor, equipment, tools, barricades, and other incidentals necessary to complete the work in full compliance with these specifications and in a workmanlike manner.

24.11 Asphalt Carpet Coat. This mixture is designed for the filling of small holes and depressions and for the provision of a wearing surface on asphaltic concrete pavements. The work shall consist of furnishing all plant, labor, equipment, placing of material, and performing all operations in connection with the application of asphalt carpet coat on existing asphaltic concrete pavement and in strict accordance with applicable sections of State of Nebraska specifications.

A. Composition of Mixture - This mineral aggregate shall conform to State of Nebraska specifications, within the following recommended limits:

<u>Material</u>	<u>Percent of Mineral Aggregate</u>	<u>Percent of Total Mix</u>
Limestone Screenings	40 - 45	
Crushed Gravel	40 - 45	
Fine Sand	10 - 20	
Asphalt Cement (80-100 pen.)		6 - 6.8

B. Properties and Tests - The mixtures shall have test properties conforming to State of Nebraska specifications.

C. Basis of Payment - The asphalt carpet coat shall be measured by weight in tons actually constructed and accepted by the Engineer and shall be paid for at the contract unit price per ton for the item "Asphalt Carpet Coat." The asphaltic mixture shall be weighed, after mixing, on scales accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, including necessary tack coat and asphaltic cement. All equipment, scales, cleaning, sweeping, handling, mixing, placing, shaping, compacting, rolling, finishing, and incidentals necessary to complete the work required by these specifications.

24.12 Asphaltic Concrete Surface Course and Base Course. The asphaltic concrete surface course and base course shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.13 Pavement Removal. This work shall consist of the removal of existing pavement, surface courses, cushion courses, if any, driveways, sidewalks, curb or combination curb and gutter, and concrete headers. The work shall also include disposal of the resultant materials as provided in these specifications.

- A. Removal and Disposal -
 - 1. Breaking Concrete - The Contractor shall exercise due care in breaking concrete to be removed and shall be responsible for any damage caused by such breaking and removal.
 - 2. Removal Limits - In removing existing pavement, sidewalks, driveways, and similar items where a portion of such item is to be left in place, the removal shall be extended to the limits shown on the plans or to an existing joint as directed by the Engineer. In the event the Engineer does not consider it practical to extend the limit of removal to an existing joint, the line of removal shall be scored with a concrete saw to a depth of at least two (2) inches prior to breaking out the concrete. Connecting edges shall be cut and chipped to true vertical faces.
 - 3. Backfilling - All trenches, holes, and pits resulting from the removal of any of the items listed herein shall be backfilled if and as required with suitable material in accordance with the requirements of sections in these specifications in Division VI entitled Backfilling and Backfilling Under Pavement.
 - 4. Disposal - Except as otherwise provided or noted on the plans, all materials obtained in the removal of items listed herein shall become the property of the Contractor and shall be disposed of by him in any manner acceptable to the Engineer.

- B. Classification -
 - 1. Remove Existing Pavement - This item shall consist of the removal and disposal of plain or reinforced concrete, brick, stone, block, or asphalt surfaced pavements and shall include base, surface, and cushion courses, if any, regardless of the material or materials encountered.
 - 2. Remove Surface Course - This item shall consist of removing and disposing of asphaltic surfacing from concrete or crushed rock bases or from previously resurfaced brick or cobblestone surfaces, except asphaltic surfacing as defined in the following paragraph and the removal of brick or cobblestone surfacing, including cushion courses, if any.
 - 4. Remove Asphalt Mat - This item shall consist of the removal and disposal of roadway surfacing of any one or any combination of the following:

- a. Gravel, crushed rock, cinder, or earth surfaced roadways which have acquired an asphaltic character through repeated dust palliative treatments with bituminous materials.
- b. Armor coated gravel or rock bases.
- c. Asphalt pavements of a temporary nature which may be similar to plant mix, hot or cold laid, or road mix asphaltic surfacing applied to previously existing gravel or rock surfacings.

The work involved herein shall be considered incidental to grading as set forth in the Standard Specifications, unless there is a contract unit price for this work.

4. Remove Driveway - This item shall consist of the removal and disposal of plain or reinforced concrete, brick, stone, block, or asphalt paved driveways. Removal of crushed rock, gravel, rubble, or cinder surfaced driveways will be considered incidental and will not be paid for separately.
5. Remove Curb - This item shall consist of the removal and disposal of stone or concrete separate curb or combination curb and gutter. Combination curb and gutter is defined as any integral concrete curb and gutter section whose combined total width is less than three (3) feet and which was not constructed integrally with an adjoining base or pavement. If the combined total width is three (3) feet or more, it shall be classified as pavement with integral curb. Integral curb will not be measured separately for payment but shall be included in the number of square yards of pavement or driveway, whichever is applicable, and no additional compensation shall be allowed except as provided in the following paragraph.
6. Remove Integral Curb - This item shall consist of removing and disposing of integral curb when it is desired to widen or provide new connections to an existing pavement or driveway with integral curb. It shall also include scoring the pavement or driveway to a depth of two (2) inches with a concrete saw parallel to and not less than one (1) foot nor more than three (3) feet from the back of curb as shown on the plans or directed by the Engineer. Connecting edges shall be cut and chipped to true vertical faces.
7. Remove Concrete Headers - This item shall consist of removing and disposing of concrete headers previously placed at the open ends of existing pavement.

C. Measurement and Payment -

1. General - When the contract does not include a separate item and unit price for removing any of the removal items listed herein, the Contractor will be paid for such items on the basis of the Engineer's Estimate of unit prices. Otherwise, such item or items shall be measured and paid for as follows:

- a. Removal of Surface Course - Will be measured for payment in square yards of material of whatever thickness actually removed and disposed of and shall be paid for at the contract unit price per square yard for the item "Remove Surface Course, Small Areas" or for the item "Remove Surface Course, Large Areas." Small areas shall consist of individual areas of sixty (60) square yards or less or areas having a lateral dimension of six (6) feet or less. Large areas shall consist of all individual areas which do not conform to the definition of small areas.
 - b. Removal of Existing Pavement - Will be measured in square yards of pavement or base actually removed of whatever thickness encountered and shall be paid for at the contract unit price for the item "Remove Existing Pavement, Small Areas" or for the item "Remove Existing Pavement, Large Areas." Small areas shall consist of individual areas of sixty (60) square yards or less or areas having a lateral dimension of six (6) feet or less. Large areas shall consist of all individual areas which do not conform to the definition of small areas.
 - c. Removal of Driveways - Shall be measured in square yards of driveway actually removed of whatever thickness encountered and shall be paid for at the contract unit price for the item "Remove Driveway."
 - d. Removal of Sidewalks - Shall be measured in square feet of sidewalk actually removed of whatever thickness encountered and shall be paid for at the contract unit price per square foot for the item "Remove Sidewalks."
 - e. Removal of Curbs, Integral Curbs, and Concrete Headers - Shall be measured for payment by length in lineal feet and shall be paid for at the contract unit price per lineal foot for the item "Remove Curb", for the item "Remove Integral Curb", or for the item "Remove Concrete Headers."
2. Compensation Requirement - Payment for the work at the contract unit price in each instance shall be full compensation for removing and disposing of the surplus material; the necessary excavation and backfilling; sawing, cutting, and chipping concrete as required; and for all labor, equipment, tools, materials, and incidentals which may be necessary to complete the work.

24.14 Miscellaneous Removals. This work shall include the removing of existing concrete or masonry steps and retaining walls, culverts, inlet or sewer pipe, manholes, other concrete and masonry structures, and other items of removal called for on the plans or bid forms and the salvaging and disposing of the resulting materials, together with the necessary excavation and backfilling.

A. Removal -

1. Concrete Structure - Concrete or masonry retaining walls and steps and other concrete and masonry structures shall be entirely removed to a depth of at least six (6) inches below subgrade, surface of cuts and slopes, or existing ground surface, whichever is the lower, and to the horizontal limits shown on the plans or as directed by the Engineer. When a portion of an existing retaining wall is to be left in place, the discontinued end of such wall shall be refaced in a manner which will match the original construction as nearly as possible and which, in the opinion of the Engineer, will present a neat and workmanlike appearance.
2. Culverts and Sewer Pipe - Driveway and roadway culverts and inlet and sewer pipe shall be completely removed at each location indicated in the plans or as directed by the Engineer and shall include all sizes up to and including 24 inch diameter regardless of the material or materials of which they are made. For any culvert or sewer pipe over 24 inches in diameter, the size will be indicated in the bid for that particular item of removal.
3. Manholes and Inlets - In removing manholes or inlets, any sewer pipes connecting to them shall be preserved or rebuilt as required when the plans call for extensions to these pipes. When the existing pipe connections are to be abandoned, they shall be plugged with concrete or by any other device satisfactory to the Engineer. Manholes and inlets need not be completely removed, providing they are broken down to at least six (6) inches below subgrade, surface of cuts and slopes or existing ground surface, whichever is the lower. The remainder of the manhole or inlet structure shall then be cleaned of all rubble and debris and backfilled with suitable earth as provided in City Code Section 32.32.

- B. Disposal - All materials resulting from the removal of the items listed herein or indicated in the bid to be removed shall be hauled from the project site and disposed of by the Contractor in a manner satisfactory to the Engineer, except that items deemed salvable by the Engineer shall remain the property of the City, such as culverts in good condition or inlet and manhole castings, and shall be stored on the project site for subsequent removal by the City.

C. Measurement and Payment -

1. Concrete Structures - Removal of concrete and masonry retaining walls and other concrete and masonry structures shall be measured by the cubic yard actually removed and disposed of and shall be paid for at the contract unit price per cubic yard for the item "Remove Concrete and Masonry."

2. Culvert and Sewer Pipe - Removal of culverts and inlet and sewer pipes shall be measured by length in lineal feet actually removed and disposed of and shall be paid for at the contract unit price per lineal foot for the item "Remove Culvert" or for the item "Remove Sewer Pipe" whichever is applicable. For any culvert or pipe over 24 inch diameter, the size of the removal item will be indicated in the bid for that particular item to be removed.
 3. Manholes and Inlets - Removal of manholes and inlets shall be measured by the number of units actually removed and shall be paid for at the contract unit price per each for the item "Abandon Inlet" or for the item "Abandon Manhole" whichever is applicable.
 4. Other items - All other items of removal called for on the plans and in the bid forms will be measured in units as indicated thereon and shall be paid for at the contract price for such items.
 5. Compensation Requirement - In each instance, measurement shall include the total quantity actually removed and accepted by the Engineer and the contract unit price shall be full compensation for removing; disposing of surplus material; all necessary excavation and backfilling; sawing, cutting, and chipping edges; refacing retaining walls; and for all labor, equipment, tools, materials, and all other incidentals necessary to complete the work as shown in the plans and specifications.
- D. Remove and Replace Mail Boxes and Posts - This item shall consist of removing and resetting mail boxes and posts in the locations directed by the Engineer. Any elements of the mail boxes or posts damaged by the Contractor shall be repaired or replaced as directed by the Engineer at the Contractor's expense.
1. Furnishing Posts - When a mail box post is unsuitable for reuse, not due to the Contractor's negligence, the Contractor will furnish and install new posts satisfactory to the Engineer and payment will be made as per contract documents.
 2. Measurement and Payment - Removal and resetting of mail boxes and posts shall be measured as single units actually removed and replaced and shall be paid for at the contract unit price per each for item "Remove and Replace Mail Boxes." This price shall be full compensation for removing and resetting and for all labor, equipment, tools, and incidentals necessary to complete the work required for this item. Single unit shall mean a single post, regardless of the number of mail boxes on that particular post.

24.15 Special Provisions. See Special Provisions for asphaltic construction.

DIVISION V

**STORM AND
SANITARY SEWER**

**DIVISION V
STORM AND SANITARY SEWERS**

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DIVISION V STORM AND SANITARY SEWERS

This division is written so that ordinarily the type of construction described is complete but, where applicable, other divisions are considered a part of this specification.

SECTION 25 - SCOPE OF WORK

The work covered by this division of the specifications consists of furnishing all labor, plant, equipment, appliances, and materials and performing all operations necessary to construct and complete storm and sanitary sewers and appurtenances in strict accordance with these specifications, the applicable drawings, and subject to the terms and conditions of the contract.

SECTION 26 - MATERIALS

26.01 Reinforced Concrete Pipe. All reinforced concrete pipe shall meet the requirements and specifications of Reinforced Concrete Culvert, Storm Drain and Sewer Pipe, ASTM C76, Class III, and subsequent revisions, or as otherwise shown in the plans.

26.02 Concrete Pipe Joints.

1. Rubber Joint Filler. Rubber based joint filler shall be used on all concrete pipe joints unless otherwise specified.
 2. Gasket Type Joints. When gasket type joints are required, they shall be as follows: Bell and Spigot Pipe Joints, ASTM C361, and subsequent revisions
Tongue and Groove Pipe Joints, ASTM C443, and subsequent revisions.
- All new storm sewer piping will be plastic or concrete where possible.

Revised 1-18-2010

26.03 Vitrified Clay Pipe. All vitrified clay pipe shall meet the requirements and specifications for Extra Strength Clay Sewer Pipe conforming to ASTM C700 or C425 compression joint and subsequent revisions or as otherwise shown on the plans.

26.04 Vitrified Clay Pipe Factory-Fabricated Joints. All vitrified clay pipe shall have O-ring gasket factory-fabricated joints that meet the requirements and specifications for Vitrified Clay Pipe Joints Using Materials Having Resilient Properties, ASTM C700 and subsequent revisions or as otherwise shown on the plans.

26.05 Cast Iron Pipe and Fittings. See Division VI, Water Mains.

26.06 Cast Iron Pipe Joints. See Division VI, Water Mains.

26.07 Portland Cement Concrete. The concrete shall be air-entrained as specified in Division III, Curb and Gutter, Sidewalks, and Driveways, in the section entitled Materials -- Sand-Gravel.

26.08 Reinforcement. The deformed bars that are used in reinforcing shall be Type B, Grade 2.

26.09 Structural Brick. Bricks shall be of the type that are satisfactory to the Engineer and shall be laid in 1:2 cement mortar.

26.10 Storm Sewer Inlet Frames and Grates. The frames and grates shall be of cast iron with tensile strength test not less than Class 25.

26.11 Manhole Rings and Covers. Unless shown otherwise on the plans, the rings and covers for manholes shall be 450 pound cast iron machined rings and covers with tensile strength test not less than Class 25.

All manholes will be inspected when any work is being done around the manhole ring and/or cover.

Revised 1-18-2010

26.12 Grout. Grout, where required, shall consist of equal parts of sand and cement with sufficient water to produce the proper consistency.

26.13 Manholes. All concrete used in the construction of manholes shall be in accordance with the following Sulfate Resistant Concrete Specifications, Section 26.15, dated March 20, 2002. This shall include all concrete used in the construction of pre-case manholes, manhole bases, and manhole inverts.

26.14 Core Drilling. If a sewer service is installed by core drilling into the public sanitary sewer main, the connection will be televised at the Contractor's expense prior to acceptance by the City.

Revised 1-18-2010

26.15 Sulfate Resistant Concrete Specifications

March 20, 2002
SUBMITTALS

A. Shop Drawings:

1. Curing compound data
2. Complete data on the concrete mix, including aggregate gradations and admixtures, in accordance with ASTM C94

B. Quality Control Submittals:

1. Manufacturer's application instructions for curing compound.
2. Ready-mix delivery tickets for each truck in accordance with ASTM C94.

QUALITY ASSURANCE

- A. Concrete and Reinforcement: Unless otherwise specified. Meet the requirements of ACI 301 and 318/318R
- B. Precast Reinforced Concrete: Unless otherwise specified. Meet the requirements of ASTM C478.
- C. Formwork: Unless otherwise specified, follow the recommendations of ACI 347.
- D. Hot Weather Concreting: Conform to ACI 305R
- E. Cold Weather Concreting: Conform to ACI 306R

ENVIRONMENTAL REQUIREMENTS

- A. Do not place Concrete when the ambient temperature is below 40 degrees F or approaching 40 degrees F and air temperature less than 40 degrees F for the first 7 days, without special protection to keep Concrete above 40 degrees F.
- B. Do not use curing compound where solvents in the curing compounds are prohibited by state or federal air quality laws. Use only water curing methods.

CONCRETE

- A. Ready-mixed meeting ASTM C94, Option A.
- B. Portland Cement: ASTM C595, Type IP containing less than 8 percent tricalcium aluminate.
- C. Admixtures:
 - 1. Air-Entraining; ASTM C260.
 - 2. Water-Reducing; ASTM C494, Type A or D.
 - 3. Superplasticizer: ASTM C494, Type for G.
 - 4. Fly Ash: ASTM C618, Class C or F; not to exceed 25% total pozzolan by weight.
- D. Mix Design:
 - 1. Minimum Allowable 28 day Compressive Field Strength: 4,000 psi when cured and tested in accordance with ASTM C31 and C39.
 - 2. Coarse Aggregate Size: 0.5-inch and smaller, 40% Limestone by volume minimum; State of Nebraska approved source.
 - 3. Water/Cement Ratio: 0.38%.
 - 4. Air Entrainment: Between 5.0 to 7.5%.
 - 5. Water Reducers: Use in all concrete as per manufactures recommended guidelines.
 - 6. Suerplasticizer: Use in all walls. Use in slabs at CONTRACTOR's option.
 - 7. Slump Range: 1 to 4 inches; before addition of Suerplasticizer.
 - 8. Slump Range: 5 to 9 inches; after addition of Suerplasticizer.
- E. Mixing: Minimum 70 and maximum 270 revolutions of mixing drum. Nonagitating equipment is not allowed.

REINFORCING STEEL

- A. Deformed Bars: ASTM A615, Grade 60.

ANCILLARY MATERIALS

A. Nonshrink Grout:

1. Color: To match concrete.
2. Manufacturers and Products
 - a. Master Builders Co., Cleveland, OH; Master Flow 928.
 - b. Euclid Chemical Co., Cleveland, OH; Hi-flow Grout
 - c. Or equal

B. Grout for Slipliner Invert Rehabilitation:

1. Description: Rapid strength repair mortar.
2. Final Set Time: 20 to 36 minutes.
3. Manufacturers and Products:
 - a. Master Builders Co., Cleveland, OH; EMACO T415
 - b. Or equal

C. Protective Epoxy Coating for Exposed Grout at Slipliner Invert Rehabilitation:

1. Strong Seal System by Johnson Service Co.; Kearney, NE 68848

D. Curing Compound: Required for Cast In Place Concrete

1. Material: Solvent based containing chlorinated rubber solids in accordance with ASTM C309, with additional requirements that the moisture loss not exceed 0.030 grams per centimeter squared per 72 hours.
2. Manufacturers and Products:
 - a. Master Builders Co., Masterkure N Seal HS.
 - b. Euclid Chemical Co.; Euco Super Floor Coat.
 - c. Or Equal

FORMWORK

A. Form Material

1. Use hard plastic finished plywood for exposed areas, and new shiplap or plywood for unexposed areas.
2. Earth cuts may be used for forming footings.

B. Form Ties:

1. Fixed conical or spherical type inserts that remain in contact with forming material and allow for dry packing of form ties holes.
2. Ties shall withstand pressures and limit deflection of forms to acceptable limits.
3. Wire ties are not acceptable.

C. Construction:

1. In accordance with ACI 347.
2. Make joints tight to prevent escape of mortar and to avoid formation of fins.
3. Brace as required to prevent distortion during concrete placement.
4. Brace as required to prevent distortion during concrete placement.
On exposed surfaces locate form ties in uniform pattern or as shown. Construct so ties remain embedded in the wall with no metal within 1 inches of concrete surface when forms, inserts, and tie ends are removed.

D. Form Removal:

1. Remove forms with care to prevent scarring and damaging the surface.

PLACING REINFORCING STEEL

A. Unless otherwise specified, place reinforcing steel in accordance with CRSI Recommended practice for placing Reinforcing Bars.

B. Splices and Laps:

1. Top Bars: Horizontal bars placed such that 12 inches of fresh concrete is cast below in single placement.
2. Horizontal wall bars are considered top bars.
3. Laptop bars 42 diameters or minimum 24 inches.
4. Lap all other bars 30 diameters or minimum 18 inches. Tie splices with 18-gauge annealed wire as specified in CRSI Standard.

PLACING CONCRETE

- A. Place concrete in accordance with ACI 301.
- B. Prior to placing concrete, remove water from excavation and debris and foreign material from forms. Check reinforcing steel for proper placement and correct discrepancies.
- C. Before depositing new concrete on old concrete, clean surface using sandblast or bush hammer or other mechanical means to obtain a ¼-inch rough profile.
- D. Place concrete as soon as possible after leaving mixer, without segregation or loss of ingredients, without splashing forms or steel above, and in layers not over 2 feet deep. Place within 1-1/2 hours after adding cement mix.
- E. 8 feet maximum vertical drop to final placement, when not guided with chutes or other devices to prevent segregation due to impact with reinforcing.

COMPACTION

A. Vibrate concrete as follows:

1. Apply approved vibrator at points spaced not farther apart than vibrator's effective radius.
2. Apply close enough to forms to vibrate surface effectively but not damage form surfaces.
3. Vibrate until concrete becomes uniformly plastic.
4. Vibrator must penetrate fresh placed concrete and into previous layer of fresh concrete below.

CONSTRUCTION JOINTS

A. Locate as shown or as approved.

FINISHING

A. Floor Slabs and Tops of Walls

1. Screed surface to true level planes.
2. After initial water has been absorbed, float with wood float and trowel with steel trowel to smooth finish free from trowel marks.
3. Do not absorb wet spots with neat cement.

B. Unexposed Slab Surfaces: Screed to true surface, bull float with wood float, and wood trowel to seal surface.

PROTECTION AND CURING

- A. Protect fresh concrete from direct rays of sunlight, drying winds, and wash by rain.
- B. Keep concrete slabs continuously wet for a 7-day period. Intermittent wetting is not acceptable or use curing compound only where approved by ENGINEER. Cure formed surfaces with curing compound applied in accordance with manufacturer's directions as soon as forms are removed and finishing is completed.
- C. Remove and replace concrete damaged by freezing.

FIELD TESTS

- A. Evaluation of Concrete Field Strength: In accordance with ACI 318/318R

SECTION 27 - CONSTRUCTION METHODS

27.01 Excavation. The ditch shall be excavated along the lines and to the depth as designated by the Engineer. The Contractor shall furnish, at Contractor's expense, all planks, stakes, spikes, grade boards, and twine that may be required. The Engineer shall have the right to limit the amount of trench that may be opened in advance of the line of work. Should the trench be excavated to a greater depth than that given by the Engineer, the Contractor shall refill to grade, at Contractor's expense, with good, well-tamped material. Trenches, where required, shall be properly sheeted and braced. The bottom of the trench under each pipe shall be shaped to receive the bottom quadrant of the pipe barrel. Bell holes shall be excavated so, after placement, only the barrel of the pipe receives bearing pressure from the trench bottom.

Whenever wet or unstable soil that is incapable of properly supporting the pipe, as determined by the Engineer, is encountered in the trench bottom, such soil shall be removed to the depth and length determined by the Engineer and the trench backfilled to grade with sand, gravel, or other suitable material.

All grading in the vicinity of trench excavation shall be controlled to prevent surface water from flowing into the trench. Any water accumulating in the trench shall be removed by pumping or other approved method. Material excavated from the trench shall be stacked in an orderly manner a sufficient distance back from the edge of the trench to avoid overloading and to prevent slides or cave-ins. Materials unsuitable for backfilling shall be wasted by the Contractor as directed by the Engineer.

A minimum of one foot of topsoil (unless otherwise noted on the plans) shall be removed in any and all areas covered by vegetation. This topsoil shall be stockpiled separately from the material removed from the remainder of the trench. After the pipe is installed and the trench backfilled to an elevation one foot (unless otherwise noted on the plans) below grade, the topsoil shall be replaced and compacted as previously described.

Excavation will not be classified. Whatever material is encountered shall be excavated to the proper grades and, if in any location such material is not sufficient to provide a uniform, even bed for the pipe, the trench shall be excavated at least three (3) inches deeper than the grade at the bottom of the pipe and the space thus excavated shall be refilled with earth or sand and thoroughly compacted.

Trench excavation shall not be paid for separately but shall be considered incidental to the sewer in place.

27.02 Protection of Existing Utilities. The accuracy of location of existing underground utilities as shown on the plans is not guaranteed. It shall be the duty of the Contractor to locate these utilities in advance of excavation and to protect them from damage after uncovering. No house service lines are shown on the plans. The Contractor shall contact the owners of the utilities for assistance in locating these service lines. Any expense incurred by reason of damaged or broken lines shall be the responsibility of the Contractor.

Pipe Laying and Jointing. Pipe shall be protected at all times against impact shocks and free fall. Laying of pipe in finished trenches shall be commenced at the lowest point with the spigot ends on bell-and-spigot pipe and tongue ends on tongue-and-groove pipe pointing in the direction of the flow. Pipe shall be set firmly to line and grade and, preparatory to making pipe joints, all surface of the pipe to be jointed shall be cleaned and dried. Joints shall be made tight to meet requirements of tests specified in the section of these specifications entitled Exfiltration, Infiltration, and Air Testing.

Sewer trenches shall be kept free from water by a method approved by the Engineer. The Contractor shall not pump sewage into a street or pump to a storm sewer unless authorized by the Engineer. Sanitary sewage must be returned to the sanitary sewer by means of pipe and hoses unless it is impossible to do so. In that instance, disposal must be approved by the Engineer.

27.04 Manholes. Manholes shall be constructed as indicated on the plans. Tops shall be fitted with cast iron rings and covers weighing approximately 450 pounds and satisfactory to the Engineer. Manholes over three (3) feet in depth shall be equipped with cast iron steps placed on approximately sixteen (16) inch centers. Drop inlet manholes shall be constructed where indicated on the plans.

Manholes of Precast sections conforming to ASTM C478 specifications may be used. The three (3) types of manhole construction which have been approved are as follows:

- Type 1 – Standard Manhole
- Type 2 – Manhole with ConShield
- Type 3 – Manhole with ConShield and Epoxy Coating

Any substitutes must be approved by the Public Works Director.

Revised 1-18-2010

27.05 Storm Sewer Inlets. Storm sewer inlets shall be of the type as shown on the plans and constructed as per the detailed drawings.

27.06 Pipe Bedding. For Class "C" bedding, the space between the pipe and the side of the excavation up to one (1) foot above the top of the pipe shall be filled with sand or fine earth in layers of not more than six (6) inches thick and carefully tamped to form a solid bedding.

For Class "B" bedding, the trench shall be backfilled with a granular fill of crushed stone or pea gravel to an elevation which is half the diameter of the pipe, and the remaining distance from half the diameter of the pipe to one (1) foot above top of pipe shall be a tamped backfill as specified for Class "C" bedding. The granular fill shall have not less than 95% passing 1/2" and not less than 95% retained on a #4 sieve, shall be placed in not more than six (6) inch layers and compacted by slicing with a shovel.

27.07 Trench Backfill. The area more than one foot over the top of pipe shall be designated as trench backfill. Trenches shall not be backfilled until all required tests are performed and until the system installed conforms to the requirements of the plans and specifications. The trenches shall then be carefully backfilled up to one foot above the top of the pipe as specified in the section entitled Pipe Bedding. The balance of the excavated material shall be consolidated in the following manner. As backfilling proceeds, the entire mass shall be vibrated with a mechanical vibrator, provided, however, in all locations where plastic soils are encountered, the backfill material shall not be placed until the moisture content is low enough to obtain maximum density when tamped into place with mechanical tampers. Materials for tamped backfill and the method of placement and compaction thereof shall be specified for Class "C" pipe bedding. The completion of the trench backfill under pavement shall be done according to the section of these specifications entitled Backfilling Under Pavement.

Trench backfill and compaction testing shall adhere to the following requirements:

- A. Public Right-of-Way: Backfill shall be compacted to at least 95% of the maximum dry density (obtained at optimum moisture content plus or minus 2% for silt or clay with no required moisture content for sand) as determined by AASHTO Method T99. The minimum frequency shall be one test for every 12" compacted lift for an area or length worked, but no more than 300' apart. A minimum of one test shall be taken for every 12" compacted lift for each street crossing regardless of the length.
- B. Public Utility Easement: Backfill shall be compacted to at least 90% of the maximum dry density (obtained at optimum moisture content plus or minus 2% for silt or clay with no required moisture content for sand) as determined by AASHTO Method T99. The frequency shall be the same as that for public right-of-way. A minimum of one test shall be taken for every 12" lift for each easement crossing, regardless of the length.

The Engineer in charge shall be furnished a copy of the density testing results. Information on length or area worked, material identification and description, test thickness such as probe length or sample depth, location of sample, elevation of sample, etc. shall be recorded for each sample.

In unimproved areas such as easements and alleys, the trench or opening may be backfilled with sand which shall be flushed into place with water, provided the top twelve (12) inches of backfill shall be made of the excavated topsoil.

No separate or additional payment will be made for backfill compaction and density testing.

27.08 Backfilling Under Pavement. Nonshrinkable backfill will be required under all street sections, existing or proposed, unless the Director of Public Works approves the standard backfill methods. Standard backfill methods shall be as specified in the section of these specifications entitled Trench Backfill. When standard backfill methods are used, density tests will be required for each twelve (12) inch lift of compacted material placed and for each 300 lineal feet of trench regardless of the length Density test results shall be submitted to the Engineer before acceptance of the project by the City.

Trenches shall not be backfilled until all required tests are performed and the system conforms to the plans and specifications. The Contractor shall maintain the sewer trench backfill for one (1) year from the date of acceptance of the project by the City.

27.09 Nonshrinkable Backfill. All excavations where a sidewalk, curb, gutter, or paved street has been cut or where new paving (concrete or asphalt) will be placed shall be backfilled using nonshrinkable backfill. The backfill shall be filled to the subgrade of the undisturbed sidewalk, curb, gutter, paving, or earth surface.

The nonshrinkable backfill shall be a mixture of sand, gravel, Portland cement, and water which flows easily around the utility being covered and develops a 28 day compressive strength of from 30 to 200 psi. No nonshrinkable backfill mix designs shall be used without the approval of the Director of Public Works. Fly ash may be approved in the mix if test data are submitted to indicate the above characteristics are met.

27.10 Stacks. Where indicated on the plans or directed by the Engineer, six (6) inch stacks will be furnished and constructed complete with clay stoppers to within ten (10) feet of ground surface or above underground water surface. All stacks will be constructed in accordance with the standard plan entitled Stack Construction Details in Division VIII, Standard Plan Drawings.

A separate stack shall be constructed for each house connection and in no case shall two service connections be connected to the same stack.

27.11 Relation to Water Mains.

Horizontal and Vertical Separation. Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches (460 mm) above the top of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the agency and be pressure tested to 150 psi (1034 kPa) to assure watertightness before backfilling.

Crossings. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods must be specified:

- a. The sewer shall be designed and constructed of PVC pipe and equal to water pipe, and shall be pressure tested at 150 psi (1034 kPa) to assure water tightness prior to backfilling.
- b. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends 10 feet (3 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the regulatory agency for use in water main construction.

27.12 Testing. Upon completion of sewer, each pipe line and manhole will be tested as specified by the Engineer in charge. The Contractor shall furnish such tools, hose, and other equipment necessary for making such tests and shall be present during the inspection to note any deficiencies that may exist. Before final acceptance, all sewers shall be clean, shall comply with the specifications and all contract documents, and shall be acceptable to the Engineer and municipal authorities.

27.13 Exfiltration and Air Testing. Both the sewer pipe line and the manholes shall be tested. Manholes shall be exfiltration tested only. Sewer pipe lines shall be air tested only.

The first line between manholes shall be tested before backfilling and before any sewer pipe is installed in the remainder of the work. Thereafter, individual or multiple lines (optional to the Contractor with approval of the Engineer) shall be tested.

Exfiltration Test. This test shall be performed according to stated procedures and under the supervision of the Engineer. The test shall be conducted by blocking off all manhole openings, filling the manhole, and measuring the water level in the manhole for reference. The head above the pipe invert shall be about ten (10) feet. The head shall not exceed twenty-five (25) feet or be less than five (5) feet. The parameters for infiltration are similar. When the ground water level is above the pipe invert, the head shall be measured from ground water elevation. The total exfiltration shall not exceed 200 gallons per inch of diameter per mile of pipe per day. Manholes shall be considered as sections of 48 inch or 60 inch pipe. The exfiltration test shall be maintained for at least two (2) hours or as long as necessary to locate all leaks, as directed by the Engineer. If the leakage in any reach exceeds the allowable maximum, it shall be retested after the leaks are repaired.

Air Test. This test shall be performed according to stated procedures and under the supervision of the Engineer.

Equipment used shall meet the following minimum requirements: (a) Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested, (b) pneumatic plugs shall resist internal testing pressure without requiring external bracing or blocking, (c) all air used shall pass through a single control unit, and (d) individual hoses shall be used for the following connections: (1) from control unit to pneumatic plugs for inflation, (2) from control unit to sealed line for introducing the low pressure air, and (3) from sealed line to control unit for continually monitoring the air pressure inside the pipe being tested.

Procedures: All pneumatic lugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be pressurized to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against this pressure without movement of the plugs out of the pipe.

After a manhole to manhole reach of pipe has been backfilled and cleaned and the pneumatic plugs are checked by the above procedures, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any ground water that may be over the pipe.

After a manhole to manhole reach of pipe has been backfilled and cleaned and the pneumatic plugs are checked by the above procedures, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any ground water that may be over the pipe.

At least two (2) minutes shall be allowed for the air pressure to stabilize.

After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control unit to the air supply shall be disconnected. The portion of line being tested shall be termed "acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 3.0 psig (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

				SPECIFICATION TIME FOR LENGTH (L) SHOWN (MIN:SEC)							
1 Pipe Diameter (in.)	2 Minimum Time (Min: sec)	3 Length for Minimum Time (ft)	4 Time for Longer Length (sec)	100 FT	150 FT	200 FT	250 FT	300 FT	350 FT	400 FT	450 FT
4	1:53	597	.190L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653L	14:25	21:38	28:51	36:40	43:16	50:30	57:42	64:89
30	14:10	80	10.683L	17:28	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.384L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23

In areas where ground water is known to exist, the Contractor shall determine the water elevation prior to running the test. The height of water over the invert of the pipe shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. For example, if the height of the water is 11-1/2 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig and the 3.0 psig to 8.0 psig. The allowable drop of one half pound and the timing remain the same. For safety reasons, do not exceed 9.0 psig.

If the installation fails to meet this requirement, the Contractor shall, at Contractor's expense, determine the source of the leakage. Contractor shall then repair or replace all defective materials and/or workmanship. Air testing shall then be performed on the repaired line to meet the above specifications.

27.14 Television Inspection. Television inspection shall be required to determine if any defects exist prior to final acceptance. A minimum of 30 days shall lapse between completion of construction and television inspection.

Mobile closed circuit television inspection equipment shall be used to televise sewer lines between manholes. The camera shall be pulled through the line. Push type cameras are not acceptable. Robotic type camera equipment shall be used to televise stubouts.

The television camera used for the inspection shall be a color camera specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. Picture quality and definition shall be satisfactory to the Engineer. Inspection operations shall cease if the quality of the image on the screen is unsatisfactory. No payment will be made for unsatisfactory inspections.

A continuous image for viewing shall be produced. The images shall be of first rate quality according to the currently accepted standards for television inspection of sewers. A system, which displays the camera location in feet on the monitor with respect to the starting manhole's centerline, shall be used. This system shall automatically update the camera location display as the camera is pulled forward or backward through the sewer line.

Measurement for location of observations to be recorded shall be made at the ground level by means of a meter device. Measurement meters shall be accurate to one-half (0.5) foot. Measurements shall be referenced from the center of the manhole where the camera is started to the center of the manhole where observations are terminated. The measurements shall be checked at the completion of the observations by measuring the distance between manhole centers at the ground level. The observed measurements made by the meter and the ground level measurements shall correspond to within plus or minus one foot. Surface measurements shall be made by the contractor in the presence of the Engineer's representative.

The television camera shall be moved through the line at a uniform slow rate. During the inspection the camera shall be stopped at the points where one or more of the following conditions are observed and distances recorded.

1. Service line tees, wyes or taps.
2. Infiltration/inflow sources.
3. Structural defects, including broken pipe, collapsed pipe, cracks, punctures, settling, etc.
4. Abnormal joint conditions, such as horizontal and vertical misalignment, open joints, joints not fully sealed, etc.
5. Unusual conditions.

All such conditions shall be photographed as determined by the Engineer. Photographs of all questionable conditions shall be taken for subsequent review. The photographs shall be taken from the image on the TV monitor with a Polaroid, a 35 mm camera, or other approved methods. Before taking the photographs, the TV camera shall be properly positioned so the optimum view can be obtained. The image size of photographs shall be no smaller than three inches by four inches.

All photographs shall be identified by location, date taken, and names of the owner's and Contractor's representative. The location of all photographs shall be identified by recording the distance from each defect or point of interest to the center of the reference manhole. All photographs shall be submitted as specified.

A DVD/CD with a clear and audible voice narrative of the entire TV monitoring shall be furnished. Each disk will be delivered to the Engineer in charge. Each disk shall be titled on the screen with the date, manhole numbers, pipe size, district or project number. The camera shall be set to begin at the center of the manhole and the footage zeroed out.

The title shall change at each manhole and the footage zeroed out again before starting a new pull when more than one section of sewer is televised in succession. Defects in the sewer line shall be repaired or replaced by the Contractor, as directed by the Engineer, at no cost to the City.

One bound copy of the final inspection report shall be submitted to the Engineer. Included in the report shall be a map showing the work area, a wye location report, a television inspection report, and a DVD/CD and all pictures.

Television inspection shall be measured and paid for on the basis of unit price as set forth in the bid. Such unit price payment shall be full compensation for all reports, photographs, and other work related work to complete the closed circuit television monitoring.

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27.15 Exposure of Pipe or Manholes. The Contractor shall conduct the work at all times in such a manner as will insure no disruption to the normal function of the sanitary sewer collection system. Particular attention shall be paid to the threat of introduction of storm water or other waters to the piping and manholes of the collection system. The Contractor shall take whatever precautions are necessary, such as, but not limited to, installation of plugs in exposed pipes and manholes when work is not in progress or when leaving the work site. The Contractor will be held responsible for damages which may occur to either the collection system or to private property through introduction of storm water or other waters to exposed piping or manholes relating to the construction work.

SECTION 28 - DRAINAGE STRUCTURE CONSTRUCTION

28.01 Concrete Work. The construction of forms, mixing, placing, finishing, and curing of concrete work, as well as the fabrication, placement, protection, and cleaning of reinforcement, shall conform to the applicable parts of Division II, Portland Cement Concrete Pavement.

28.02 Brick Work. All brick shall be wetted before being laid in a 1:2 cement mortar. All joints shall be completely filled with mortar and shall not be less than 1/4 inch and not more than 1/2 inch in thickness. The joints shall be completely filled, smooth and free from surplus mortar on the inside of the walls. Bricks shall be laid radially with every sixth course laid as a stretcher course. Brick shall be plastered with 1/2 inch of mortar over the entire outside surface of wall.

28.03 Precast Manhole Sections. Precast concrete sections for manholes shall be installed with bituminous joint filler.

28.04 Acceptance. Upon completion of a job, all debris and surplus materials shall be removed from the job by the Contractor. The Engineer shall be notified, and shall make an inspection of the work. The City will be notified in writing as to the acceptability of the work.

Prior to City acceptance all storm and sanitary sewers will be televised by the City. Payment will be per foot for televising. Fifteen (15) days after any dewatering wells have been turned off the televising can be performed.

Any cleaning performed by the City will be charged by the hour to the Contractor.

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SECTION 29 - METHOD OF MEASUREMENT AND BASIS OF PAYMENT

29.01 Sewer Pipe in Place. Sewer pipe shall be measured and paid for at the contract unit price per lineal foot for various sizes including excavation and backfill complete in place. Sewer pipe shall be measured for payment after installation of the sewer through all line manholes and through the walls of structures and existing manholes and shall include the portion of all wyes considered as main line sewer. Such payment shall be full compensation for all labor, plant, equipment, and materials necessary for a complete and acceptable project, including removal of all debris and final cleanup of the job.

29.02 Wyes. Wyes shall be paid for at the contract unit price for various size wyes. Measurement for payment shall include that portion of the wye from the barrel of the main line sewer to the end of the wye. A 1" x 4" lumber sufficient in length to reach the ground surface shall be placed vertically at the end of each wye.

29.03 Manholes. Manholes shall be paid for at the contract unit price bid per manhole for a depth of five (5) feet which payment shall include base, stubouts, and ring cover. Additional payment shall be made for manholes more than five (5) feet in depth, measured from flow line to top of cover, at the contract unit price for each vertical foot or fraction thereof in excess of five (5) feet.

29.04 Storm Sewer Inlets. Storm sewer inlets shall be paid for at the contract unit price bid per inlet.