

SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

**2026/27 STREET RECONSTRUCTION PROGRAM -
N AVE FROM 5TH ST TO 8TH ST**

City of Nevada

2026

WHKS No. 10540

whks

engineers + planners + land surveyors

CITY OFFICIALS

Mayor

Ryan Condon

City Council

Andrew Kelly, At-Large
Jason Sampson, At-Large
Henry Corbin, Ward 1
Luke Spence, Ward 2
Sandy Ehrig, Ward 3
Charlie Good, Ward 4

City Clerk

Erin Mousel

Public Works - Street Supervisor

Joe Mousel

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SEALS PAGE

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.	
		<u>3-12-2026</u>
	Signature	Date
	Printed or Typed Name <u>Noah D. Collins</u>	
License Number <u>P28589</u>		
My license renewal date is December 31, <u>2027</u>		
Pages or sheets covered by this seal: <u>All Sheets</u>		

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**SECTION 00 01 10
TABLE OF CONTENTS**

PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

- A. 00 01 01 - Project Title Page
- B. 00 01 03 - City Officials
- C. 00 01 07 - Seals Page
- D. 00 01 10 - Table of Contents
- E. 00 11 13 - Notice to Bidders and Notice of Public Hearing
- F. 00 21 13 - Information for Bidders
- G. 00 42 00 - Proposal Form
- H. 00 42 01 - Bidder Status Form
- I. 00 50 00 - Contract
- J. 00 50 01 - Performance and Maintenance Bond
- K. 00 50 02 - Payment Bond
- L. 00 72 00 - General Conditions

SPECIFICATIONS

DIVISION 01 -- GENERAL REQUIREMENTS

- A. 01 11 00 - Special Provisions

DIVISION 33 -- UTILITIES

- A. 33 35 01 - Pipe Rehabilitation
- B. 33 35 02 - Chemical Pressure Grouting
- C. 33 35 03 - Manhole Rehabilitation

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NOTICE TO BIDDERS AND NOTICE OF PUBLIC HEARING

ON PROPOSED PLANS, SPECIFICATIONS, FORM OF CONTRACT, AND ESTIMATE OF COST FOR CONSTRUCTION OF 2026/27 STREET RECONSTRUCTION PROGRAM - N AVENUE FROM 5TH ST TO 8TH ST, IN AND FOR THE CITY OF NEVADA, IOWA, AND THE TAKING OF BIDS FOR SAID IMPROVEMENTS.

Sealed proposals, subject to the conditions contained herein, will be received by the City Clerk of the City of Nevada, at the City Clerk’s office in Nevada City Hall, 1209 6th Street, Nevada, IA 50201, until 2:00 p.m. on the 21st day of April, 2026 for:

Construction of "2026/27 Street Reconstruction Program – N Avenue from 5th St to 8th St", as hereinafter described in general and as described in detail in the plans and specifications now on file in the office of the City Clerk, Nevada, Iowa.

Proposals received will be opened, read aloud, and tabulated at 2:00 p.m. on the 21st day of April, 2026 in the City Clerk’s office in Nevada City Hall, 1209 6th Street, Nevada, IA 50201, and considered by the City Council at a meeting beginning at 6:00 p.m. on the 27th day of April, 2026, in the Council Chambers at Nevada City Hall, Nevada, Iowa. Bids will be acted upon at such time or at such later time as may then be fixed. Prior thereto, at said time specified above at the City Council Chambers in said City Hall, a hearing will be held on the proposed plans, specifications, form of contract, and estimate of cost for said Improvements, and at said hearing any interested person may appear and file objections thereto.

The extent of the work involved is the furnishing of labor and new materials for the construction of a new asphalt street, but not limited to the following: asphalt paving, new concrete curb and gutter, storm structure replacement, sanitary structure replacement, new storm pipe, new sanitary pipe, new driveway paving, and new sidewalk paving.

The bid security shall be made payable to the City of Nevada.

The bid security must not contain any conditions either in body or as an endorsement thereon. The bid security shall be forfeited to the City as liquidated damages in the event the successful bidder fails or refuses to enter into contract within ten (10) days after the award of contract and post bond satisfactory to the City insuring the faithful fulfillment of the contract and the maintenance of said work, if required, pursuant to the provisions of this notice and the other contract documents. The City will accept bid bond forms that meet the Requirements of Iowa Code, Section 26.8.

Sales Tax Exemption. Contractors and subcontractors shall not include sales tax for material purchases. At the time of the contract acceptance by the City Council, the prime contractor and all subcontractors will be issued a certificate of exemption.

Bidders shall not be permitted to withdraw their bids for a period of thirty (30) days after the same are opened.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

Bidders will be required to complete a Bidder Status Form from the Iowa Department of Labor regarding the Contractor's resident status within the State of Iowa. Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

The right is reserved, as the interest of the Owner may require, to reject all bids, any unresponsive bid and to waive technicalities in bids received.

The Contractor shall commence work within ten (10) days after the Notice to Proceed is issued and shall be completed on or before the 13th day of November, 2026.

Payment to the Contractor for said Project will be made in cash derived from the proceeds of the issuance of bonds as may be legally used for such purposes, governmental grants and/or from cash on hand. Any combination of the above methods of payment may be used at the discretion of the Owner.

The Contractor will be paid each month ninety-seven (97) percent of the Engineer's estimate of the value of acceptable work completed at the end of the preceding month. Final payment will be made in accordance with Iowa Code chapters 26 and 573, as amended. No partial or final payment will be due until the Contractor has certified to the City that the materials, labor and services involved in each estimate have been paid for in accordance with the requirements stated in the specifications.

The successful bidder will be required to furnish a bond in an amount equal to one hundred (100) percent of the contract price, said bond to be issued by a responsible surety approved by the Owner and which shall guarantee a faithful performance of the Contract and the terms and conditions therein contained and shall guarantee the prompt payment of all materials and labor and protect and save harmless the Owner from claims and damages of any kind caused by the operations of the Contractor and shall also guarantee the

maintenance of the improvements constructed for a period of four (4) year(s) after completion and acceptance by the Owner.

The project is funded in part with Federal funds and is therefore subject to certain labor standards and civil rights requirements included in the Contract Documents. Contractors performing work on the project shall comply with the requirements as enumerated in the applicable statutes.

Minimum wage rates to be paid laborers and mechanics have been determined by the Department of Labor and are listed in the Contract Documents. The Contractor(s) will be required to comply with the wage and labor requirements and to pay minimum wages in accordance with the schedule of wage rates.

The successful bidder(s) will be required to submit a certification of Non-segregated Facilities and of compliance with Section 3 of the Housing and Urban Development Act of 1968, as Amended. The successful bidder(s) shall also notify prospective subcontractors of the requirements for such certification.

Plans and specifications governing the construction of the proposed improvements have been prepared by WHKS & Co., Engineers, Planners, and Surveyors, which plans and specifications and the proceedings of the Owner referring to and defining said proposed improvements are hereby made a part of the Notice by reference, and the proposed contract shall be executed in compliance therewith. Copies of said plans and specifications are now on file with the City Clerk and at the offices of WHKS & Co., and may be examined by the bidders.

Plans and specifications are available to download free of charge by clicking on the "Letting Info" link at www.whks.com and choosing this project from the list, eBidDoc10118414 or at www.questcdn.com. Plans and specifications for private use may also be obtained from WHKS & Co., Engineers, Planners, and Surveyors, 1421 S Bell, Suite 103, Ames, IA 50010, for a refundable deposit of \$250. If the plans and specifications are not returned to WHKS & Co. within fourteen (14) days after the award of the project and in reusable condition, the deposit shall be forfeited. Published upon order of the City Council of the City of Nevada.

City of Nevada

Attest: _____ /S/Erin Mousel
City Clerk

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INFORMATION FOR BIDDERS

Proposals

Proposals must be submitted on forms furnished by the Engineer and endorsed:

To: City Council
Nevada, Iowa
Bid for 2026/27 Street Reconstruction Program – N Avenue from 5th St to 8th St

Proposals must be filled out with ink or typewriter, and without erasure, interlineation or changes, and if not made in accordance with Information for Bidders, will be subject to rejection as irregular, yet the Owner reserves the right to waive any irregularity.

It is expressly agreed that by submitting a proposal the bidder acknowledges that he/she has examined the location or site of the proposed improvements and the plans and specifications and accepts all the terms and conditions thereof.

Proposals will be made in the name of the principal, and if a partnership, the names of all partners shall be given. Exact post office address shall be given in all cases.

Facsimile Proposals will not be considered, but modifications by facsimile of Proposals already submitted will be considered if received prior to the time set for the bid opening.

Proposal Guaranty

See Bid Announcement for requirements and responsibility.

Award

The Owner will proceed without unnecessary delay to consider the proposals and reserves the right to reject all bids, to reject any unresponsive bid, or to waive any technicalities in bids received. One contract will be awarded for the total project construction work based on the low total bid.

Time for Completion

The work shall commence after the Notice to Proceed is issued and shall be completed within the time frame stated in the Bid Announcement. Any extension of time shall be at the discretion and express approval of the Owner.

Failure to Complete on Time

If the Contractor should fail to complete the contract within the date set for completion or the date set for completion as extended by the Owner, he/she shall be held liable, as stated in the Special Provisions.

Return of Proposal Guaranty

Proposal guarantees of the lowest two or more bidders may be retained until a contract is awarded or rejection made, but not to exceed the time period listed in the Bid Announcement. Other proposal guarantees shall be returned after the review and tabulation of bids is completed.

Owner

Whenever the term "Owner" appears in these specifications, it shall mean the City of Nevada, IA.

Engineer

Whenever the term "Engineer" appears in these specifications, it shall be understood to mean WHKS & Co., Engineers, Planners, and Surveyors or their duly authorized representatives, such representatives acting severally within the scope of the particular duties entrusted to them.

Drawings

The drawings which show the details of the work specified herein are designated the "Plans" and form an integral part of the specifications and contract documents.

Right-of-Way

The Owner will furnish all property, easements or right-of-way necessary for the construction of the project. The Contractor shall conduct their operations within the right-of-way provided, unless additional arrangements are made between the Contractor and adjacent property owners.

Title VI Requirements

The Contractor shall comply with all requirements of Appendix A and Appendix E of the Standard Title VI/Non-Discrimination Assurances. Appendix A and Appendix E are included in the specifications.

Payment

The Contractor should refer to the Notice to Bidders for the method of financing and work progress payments.

Pre-Construction Meeting and Schedule of Work

The pre-construction meeting shall be held on call by the Engineer and shall include discussion of the schedule of work, safety, related responsibilities with utilities, and other pertinent related items concerning the proposed construction. At this meeting the Contractor shall provide the Owner with a list of subcontractors, their foreman, and telephone numbers, as well as a planned construction schedule.

Representatives of the various utility companies will be invited to the pre-construction meeting to begin early coordination and cooperation.

Bond and Insurance

The Contractor shall present the following documents before completion and signing of the contract:

- A. Performance Bond equal to 100% of the contract amount.
- B. Payment Bond equal to 100% of the contract amount.
- C. Maintenance Bond whereby the Contractor expressly agrees to maintain the work for four (4) year(s) from the date of final acceptance by the Owner. It is understood and agreed that the maintenance shall cover all repairs and replacements made necessary by defects in material and workmanship and such maintenance shall be provided without additional charge or cost to the Owner.
- D. The Contractor shall file with the Owner proof of insurance coverage meeting the requirements of Section 6.1 of the General Conditions.

Sales Tax

All bids shall not include Iowa Sales Tax for materials used in the project. Upon award, the successful bidder shall immediately provide a listing of all Contractors, which will work on the project. The listing shall include name, address, tax ID number, and brief description of the work to be performed. The City will register the contractors with the Iowa Department of Revenue and will furnish appropriate tax-exempt certificates to the successful bidder for distribution and use.

Prior to final payment, the Contractor and subcontractors shall file with the Owner Form 35-002, "Contractor's Statement", indicating the amount of sales or use tax paid for construction supplies and materials.

Plan Charge

See Notice to Bidders for details.

Prompt Payment to Subcontractors Provisions

The Iowa Legislature has passed legislation relating to progress payments, final payments, and retention from payments made to subcontractors on public improvement construction projects. Provisions of the legislation include the following:

- A. Retention: The Contractor may retain from each payment to a subcontractor not more than the lesser of three percent (3%) or the amount specified in the contract between the Contractor and the Subcontractor.
- B. Prompt Payment: A progress payment or final payment to a subcontractor for satisfactory performance of the subcontractor's work shall be made no later than:
 - 1. Seven (7) days after the Contractor receives payment for that subcontractor's work.
 - 2. A reasonable amount of time after the Contractor could have received payment for the subcontractor's work, if the reason for nonpayment is not the subcontractor's fault.

3. A Contractor's acceptance of payment for one subcontractor's work is not a waiver of claims, and does not prejudice the rights of the Contractor, as to any other claim related to the Contract or project.
- C. Interest Payments: If the Contractor receives an interest payment, the Contractor shall pay the subcontractor a share of the interest payment proportional to the payment for the subcontractor's work.

Addenda

No interpretation of the meaning of the Plans, Specifications or other prebid documents will be made to any bidder orally.

Every request for such interpretation should be in writing addressed to WHKS & Co., 1421 S Bell Avenue Suite 103, Ames, IA 50010 and to be given consideration must be received at least five days prior to the date fixed for the opening of Bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications which, if issued, will be delivered to all prospective bidders (at the respective address furnished for such purposes). Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his Bid as submitted. All addenda so issued shall become part of the Contract documents.

Bidders shall file their names and addresses with the Engineer in order that any addenda, which may be issued, may be mailed to them.

Substitution of Materials

A. Substitution or approval of materials prior to bidding

Whenever any particular brand or make of material or apparatus is hereinafter called for, every bidder, submitting a Bid upon this Specification and the accompanying Drawings, obligates himself to the use of such brands and makes, or of such other brands or makes as shall have been duly approved by the Engineer and the Owner in the manner described herein.

Whenever any article or any material is specified by a reference to the name of any manufacturer or dealer, or by specific reference to the catalogs of manufacturers or dealers, the intent is to establish a standard of excellence which the Engineer and the Owner have determined upon as requisite and necessary for this Project, and subject only therefore, to such modifications as the Engineer and the Owner may make in accordance with the procedure given in this article. It is, therefore, mandatory and binding upon the bidders to abide within the limits of the restrictions imposed.

Where the words "or equal", "as selected", "approved", "approved make" or other synonymous terms are used in reference to material, quality, methods or apparatus in lieu of or in addition to other specific references, it is to be distinctly understood that the approval of any such substitutions is vested in the Engineer whose decision shall be final and binding upon all concerned.

The intent of this Specification is not to ELIMINATE PROPERLY QUALIFIED ENTRANTS FROM COMPETITION, but to confine the bidding on the part of Contractors, manufacturers and dealers, to those whose standing and qualifications are such that the Engineer and the Owner feel warranted in giving them their approval. If, however, any bidder desires to have consideration given to INDIVIDUALS, FIRMS, MATERIALS, BRANDS, MAKES, ETC., OTHER THAN SPECIFIED, he may have the privilege at any time prior to ten days (240 hours) of the hour and day set for the opening of Bids of submitting or causing to be submitted to the Engineer for his approval, any such matters. Request for approval of

materials or equipment shall be submitted to the Engineer in writing at: 1421 S. Bell Ave Suite 103, Ames, IA 50010, at any time prior to the established deadline. Requests received after the established deadline will not be considered. All requests shall clearly define and describe materials or equipment for which approval is requested. Requests shall be accompanied by manufacturer's literature, specifications, drawings, cuts, performance data, etc., where same is necessary to completely describe the product.

If, therefore, the same shall receive the Engineer's approval, or if the Engineer himself shall decide to enlarge the scope of the Specifications, such approvals or additional information will be made only by addendum duly numbered, dated and issued and delivered to each bidder receiving a set of Contract Documents, so that the bidders may have an opportunity to avail themselves of any such information prior to the submission of their proposals.

It is hereby understood and agreed by all bidders that all Bids will be based upon materials and equipment as specified or approved via addendum by the Engineer and the Owner as acceptable on this project.

Where specific reference has been made to one or more brands, or makes or materials, no substitution will be considered or permitted after the Bids have been opened, except as the Owner may elect in accordance with the following provision of these Specifications.

B. Substitution or approval of materials after bidding

Since all Bids are based upon materials and equipment as specified or approved prior to bidding, the Engineer and the Owner will not consider substitutions after bidding except in such cases where it is necessary to make a substitution because of strikes, lockouts, bankruptcy, discontinuance of a product, etc. Requests for such substitutions of materials after the award of a Contract shall be made in writing to the Engineer with a copy to the Owner and shall be made within ten days of the date that the Contractor ascertains he cannot obtain the material or equipment specified. Such request shall be accompanied by a complete description of the material or apparatus on which a substitution is desired to be made. Substitution of materials or apparatus other than those specified will not be accepted except upon the recommendation of the Engineer to the Owner and with written approval of the Owner.

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PROPOSAL FORM

Proposal
of _____

(Name of Bidder)

of _____
(City) (State)

To construct 2026/27 Street Reconstruction Program – N Avenue from 5th St to 8th St

To: The City Council
Nevada, Iowa

(I) (We) hereby certify that (I am) (we are) the only person or persons interested in this proposal as principals; that an examination has been made of the plans, specifications and contract forms, including the supplemental requirements contained herein, and of the site of the work; (I) (we) understand that all quantities of work are to be performed at the unit prices or lump sums stipulated herein; (I) (we) propose to furnish all necessary machinery, equipment, tools, labor, and other means of construction and to furnish all materials specified, in the manner and the time prescribed, and to do the work at the prices herein set out.

To do the work in accordance with the Plans, Special Provisions and Technical Specifications.

To do all "extra work" which may be required to complete the work contemplated at unit prices or lump sums to be agreed upon in writing prior to starting such work.

As evidence of good faith in submitting this Proposal, the undersigned encloses a bid security as required by the Notice, which, in case he/she refuses or fails to accept an award and to enter into a contract and file the required bonds within the prescribed time, shall be forfeited to the Owner, as liquidated damages.

The undersigned agrees to execute the Standard Form of Contract upon written notice of acceptance of the bid as accepted and give bond with good and sufficient surety or sureties and in the required amounts within ten (10) days after the prescribed forms are presented for signature or forfeit the bid security furnished herewith.

The undersigned understands that the breakdown of proposal items into various categories of work is for the convenience of the Owner. The undersigned agrees to begin work within ten (10) days after "Notice to Proceed" is issued and to complete the same within the contract period shown below:

Beginning Date
10 days after Notice to Proceed

Completion Date
13th day of November, 2026

Any Contractor who proposes any alteration of the plans in any respect from that shown shall submit such proposal to the Engineer for approval at least ten days prior to the letting date.

2026-27 ASPHALT STREET RECONSTRUCTION- N AVE FROM 5TH ST TO 8TH ST

Item No.	Item Code	Item	Unit	Quantity	Unit Price	Total
Division 2						
Earthwork						
2.01	2010-D-1	Topsoil, On-site	CY	1174.0		
2.02	2010-E	Excavation, Class 10, Roadway and Borrow	CY	1511.0		
2.03	2010-E	Excavation, Class 10, Waste	CY	1078.0		
2.04	2010-G	Subgrade Preparation	SY	5239.8		
2.05	2010-I	Subgrade Treatment, Geogrid Type 1	SY	5925.7		
2.06	2010-J	Subbase, Modified Subbase, 6"	SY	5925.7		
					Division 2 Subtotal	
Division 3						
Trench and Trenchless Construction						
3.01	3010-D	Replacement of Unsuitable Backfill Material	CY	50.0		
					Division 3 Subtotal	
Division 4						
Sewers and Drains						
4.01	4020-A-1	Storm Sewer, Trenched, RCP Class III, 15"	LF	40.0		
4.02	4020-A-1	Storm Sewer, Trenched, PVC, 12"	LF	8.0		
4.03	4040-A	Subdrain, Type 2, 6" PVC	LF	1805.4		
4.04	4040-C-1	Subdrain Cleanout, A-1, 6"	EA	10.0		
4.05	4040-D-1	Subdrain Outlets and Connections, Structure, 6"	EA	10.0		
4.06	4050-H-1	Spot Repairs by Pipe Replacement, PVC, 8"	EA	3.0		
4.07	4050-H-1	Spot Repairs by Pipe Replacement, RCP Class III, 18"	EA	1.0		
4.08	4050-H-2	Spot Repairs by Pipe Replacement, PVC, 8"	LF	251.0		
4.09	4050-H-2	Spot Repairs by Pipe Replacement, RCP Class III, 18"	LF	10.0		
					Division 4 Subtotal	
Division 6						
Structures for Sanitary and Storm Sewers						
6.01	6010-A	Manhole, SW-301, 48"	EA	2.0		
6.02	6010-A	Manhole, SW-401, 48"	EA	4.0		
6.03	6010-B	Intake, SW-501	EA	8.0		
6.04	6010-B	Intake, SW-502 (48")	EA	1.0		
6.05	6010-B	Intake, SW-507	EA	1.0		
6.06	6010-B	Intake, SW-541	EA	1.0		
6.07	6010-E-1	Manhole Adjustment, Minor	EA	2.0		
6.08	6010-H-1	Remove Manhole	EA	8.0		
6.09	6010-H-2	Remove Intake	EA	9.0		
					Division 6 Subtotal	
Division 7						
Streets and Related Work						
7.01	7010-E	Curb and Gutter, 2.5', 7"	LF	2381.0		
7.02	7020-A	Pavement, ST, 4 IN. Asphalt, Base Course, 3/4 IN., PG58-28S	TON	851.7		
7.03	7020-A	Pavement, ST, 1.5 IN. Asphalt, Intermediate Course, 1/2 IN., PG58-28S	TON	319.4		
7.04	7020-A	Pavement, ST, 1.5 IN. Asphalt, Surface Course, 1/2 IN., PG58-28S	TON	319.4		
7.05	7030-A-1	Removal of Sidewalk	SY	444.0		
7.06	7030-A-3	Removal of Driveway	SY	591.7		
7.07	7030-E	Sidewalk, PCC, 4 in.	SY	265.3		
7.08	7030-E	Sidewalk, PCC, 6 in.	SY	268.4		
7.09	7030-G	Detectable Warning	SF	160.0		
7.10	7030-H-1	Driveway, Paved, Type A, 6"	SY	646.3		
7.11	7030-H-1	Driveway, Paved, Type A, 7"	SY	84.7		
7.12	7030-H-2	Driveway, Granular, 6"	SY	165.1		
7.13	7040-H	Pavement Removal	SY	4594.0		
					Division 7 Subtotal	
Division 8						
Traffic Control						
8.01	8020-B	Painted Pavement Markings, High-Build	STA.	2.2		
8.02	8030-A	Temporary Traffic Control	LS	1.0		
					Division 8 Subtotal	
Division 9						
Site Work and Landscaping						
9.01	9010-A	Conventional Seeding, Seeding, Fertilizing, and Mulching, Type 1	AC	0.5		
9.02	9010-D	Watering	MGAL	149.4		
9.03	9040-D-1	Filter Sock, 9 in.	LF	860.0		
9.04	9040-D-2	Filter Socks, Removal	LF	860.0		
9.05	9040-T-1	Inlet Protection Device, Grate Intake Sediment Bag	EA	8.0		
9.06	9040-T-1	Inlet Protection Device, Manhole Well	EA	6.0		
9.07	9040-T-2	Inlet Protection Device, Maintenance	EA	14.0		
					Division 9 Subtotal	
Division 11						
Miscellaneous						
11.01	11,010-A	Construction Survey	LS	1.0		
11.02	11010-A-2	Pedestrian Facility Construction Survey and Staking	LS	1.0		
11.03	11,020-A	Mobilization	LS	1.0		
11.04	11,030-B	Maintenance of Solid Waste Collection	LS	1.0		
11.05	11,050-A	Concrete Washout	LS	1.0		
					Division 11 Subtotal	
					Base Bid Total	

The undersigned has completed the attached Bidder Status Form from the Iowa Department of Labor regarding the Contractor's resident status within the State of Iowa. Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

The right is reserved, as the interest of the Owner, may require, to reject all bids, any unresponsive bid and to waive technicalities in bids received.

The receipt of the following addenda is hereby acknowledged:

Addendum No.	Dated
_____	_____
_____	_____
_____	_____

The Contractor understands that this Proposal is binding upon him/her for a period of thirty (30) days from and after the opening of all bids for this proposed construction.

Dated this _____ day of _____, _____.

Company Name

Company Owner/Officer Printed Name

Company Owner/Officer Signature

Address _____

E-mail _____

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BIDDER STATUS FORM

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

- Yes No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).
- Yes No My company has an office to transact business in Iowa.
- Yes No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.
- Yes No My company has been conducting business in Iowa for at least 3 years prior to the first request for for on this project.
- Yes No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

- Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____
City, State, Zip: _____
- Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____
City, State, Zip: _____
- Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____
City, State, Zip: _____

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State: _____
2. Does your company's home state or foreign country offer preferences to resident bidders, resident labor force preferences or any other type of preference to bidders or laborers? Yes No
3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

You must submit the completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156. This form has been approved by the Iowa Labor Commissioner.

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

- Yes No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
- Yes No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- Yes No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- Yes No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- Yes No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- Yes No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- Yes No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

CONTRACT

This contract, made as of the ____ day of _____, 2026, by and between the City of Nevada, Iowa, hereinafter called the Owner, and _____, hereinafter called the Contractor.

WITNESSETH:

That whereas the Owner intends to have constructed 2026/27 Street Reconstruction Program – N Avenue from 5th St to 8th St hereinafter called the Project, in accordance with the Plans, Specifications, Addenda and other Contract Documents prepared by WHKS & Co., Consulting Engineers and Planners, Ames, Iowa.

Now, therefore, the Owner and Contractor for the considerations hereinafter set forth, agree as follows:

The Contractor agrees to furnish all the necessary labor, materials, equipment, tools and services necessary to perform and complete in an acceptable manner all work required for the construction of the Project, in strict compliance with the Contract Documents.

The Owner agrees to pay and the Contractor agrees to accept, in full payment for the performance of this contract, the contract amount of: _____ Dollars and _____/100 (\$_____) in accordance with the provisions of the Contract Documents.

This Contract and all of the covenants hereof shall insure to the benefit of and be binding upon the Owner and the Contractor respectively and his/her partners, successors, assigns and legal representatives. Neither the Owner nor the Contractor shall have the right to assign, transfer or sublet his interest or obligations hereunder without written consent of the other party.

IN WITNESS WHEREOF, the parties have made and executed this contract the day and year first written.

Contractor Signature

Printed Name

City State

City of Nevada _____
Owner

ATTEST:

Mayor Signature

City Representative Signature City State

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PERFORMANCE AND MAINTENANCE BOND

KNOWN BY ALL THESE PRESENTS, That we, the undersigned

(Hereinafter called the "Principal")

of _____

a/an _____

duly authorized by the law to do business as a Construction Contractor in the State of Iowa and _____ of _____ (hereinafter called the "Surety") a Corporation duly authorized to do a Surety business under the laws of the State of Iowa, are held and firmly bound unto City of Nevada, Iowa (hereinafter called the "Obligee,") in the penal sum of _____ Dollars and _____/100 (\$ _____), lawful money of the United States, for the payment of which well and truly to be made unto said Obligee, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents, as follows:

The conditions of this obligation are such that, whereas on the ____ day of _____, 2026, the said Principal entered into a written agreement with said Obligee for the construction of 2026/27 Street Reconstruction Program – N Avenue from 5th St to 8th St as set forth in detail in the Bid Announcement, Proposal, Plans, Specifications, and other related contract documents referred to in said Agreement, all of which are hereby made a part hereof as if written herein at length.

NOW, THEREFORE, if the said Principal shall well and truly perform and complete said project in strict accordance with said agreement, Bid Announcement, Proposal, Plans, Specifications, and related documents shall comply with all the requirements of the Laws of the State of Iowa, shall pay as they become due all just claims for work or requirements performed and materials furnished in connection with said Agreement, and shall defend, indemnify and save harmless said Obligee, against any and all liens, encumbrances, damages, claims, demands, expenses, costs and charges of every kind, including patent infringement claims arising out of or in relation to the performance of said work and the provisions of said Agreement, and shall guarantee the work against defects in workmanship and material during the construction and for four (4) years after the time of acceptance of the work, and make good such guarantee; then these presents shall be void; otherwise they shall remain in full force and effect.

This obligation is made for the use of said Obligee and also for use and benefit of all persons who may perform any work or labor or furnish any material in the execution of said Agreement.

The Principal and Sureties on this bond hereby agree to pay to all persons, firms, or corporations having contracts directly with the principal or with subcontractors all just claims due them for labor performed or

materials furnished, in the performance of the contract on account of which this bond is given when the same are not satisfied out of the portion of the contract price which the public corporation retains until completion of the public improvement but the Principal and Sureties shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portion of the contract price shall have been established as provided by law.

Every Surety on this bond shall be deemed and held, any contract to the contrary notwithstanding, to consent without notice:

- A. To the extension of time to the Contractor in which to perform the contract.
- B. To any change in the plans, specifications, or contract, when such change does not involve an increase of more than twenty percent (20%) of the total contract price, and shall be released only as to such excess increase.

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Agreement or to the work to be performed thereunder or the specifications accompanying the same, shall in anywise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement or to the work or to the specifications.

IN TESTIMONY WHEREOF, the parties hereunto have caused the execution hereof as of the ____ day of _____, 2026.

(SEAL)

ATTEST: _____
Principal

By: _____

Title: _____

(SEAL)

ATTEST: _____
Surety

By: _____

PAYMENT BOND

KNOWN BY ALL THESE PRESENTS, That we, the undersigned

_____ (Hereinafter called the "Principal")

of _____

a/an _____

duly authorized by the law to do business as a Construction Contractor in the State of Iowa and _____ of _____ (hereinafter called the "Surety") a Corporation duly authorized to do a Surety business under the laws of the State of Iowa, are held and firmly bound unto City of Nevada (hereinafter called the "Obligee,") in the penal sum of _____ Dollars and ____/100 (\$_____ . ____), lawful money of the United States, for the payment of which well and truly to be made unto said Obligee, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents, as follows:

The conditions of this obligation are such that, whereas on the ____ day of _____, 2026, the said Principal entered into a written agreement with said Obligee for the construction of the 2026/27 Street Reconstruction Program – N Avenue from 5th St to 8th St items as set forth in detail in the Bid Announcement, Proposal, Plans, Specifications, and other related contract documents referred to in said Agreement, all of which are hereby made a part hereof as if written herein at length.

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

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

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

IN WITNESS WHEREOF, this instrument is executed in five counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2026.

(SEAL)

ATTEST: _____
Principal

By: _____

Title: _____

(SEAL)

ATTEST: _____
Surety

By: _____

**INDEX OF
GENERAL CONDITIONS**

	<u>Page</u>
Acceptance and Final Payment	25
Act of God	2
Addenda	4
Arbitration.....	9
Assignment of Contract.....	11
Award of Contract.....	3
Bidders Interested in More Than One Proposal	4
Bid Announcement	1
Bid Letting.....	3
Changes in the Work.....	21
Character of Workers	14
Contract	1
Contractor	1
Contractor's Right to Suspend or Terminate Contract	12
Contractor's Superintendence.....	10
Copies of Plans and Specifications Furnished	5
Correction of Work After Final Payment	25
Crossing Utilities	19
Cutting and Patching	15
Delivery of Proposals	3
Detailed Breakdown of Contract Amount	22
Dimensions	5
Discrepancies	3
Discrepancies in Plans	5
Discrepancies in Surveys.....	8
Engineer	1
Engineer's Action on a Request For Payment.....	22
Engineer's Decisions.....	9
Engineer's Responsibility and Authority.....	9
Equipment Approval Data	7
Errors	4
Estimate of Quantities	4
Examination of Completed Work	10
Examination of Contract Documents and Visit to Site.....	3
Extension of Contract Time.....	21
Extra Work.....	21
Fire Insurance.....	17
Form of Proposal	3
Guarantee.....	15
Insurance	16
Intent of Plans and Specifications	5

	<u>Page</u>
Interest on Unpaid Requests for Payment.....	23
Interpretation of Documents.....	3
Lands by Contractor	10
Lands by Owner	10
Laws to be Observed	19
Maintenance Bond (definition)	2
Maintenance Bond	18
Manufacturer's Directions.....	14
Materials Furnished by the Contractor.....	14
Materials Furnished by the Owner	14
Models	5
Modifications.....	3
No Waiver of Legal Rights	26
Notice to Proceed	21
Observation of Work.....	10
Oral Agreements	13
Owner	1
Owner's Action on an Approved Request for Payment.....	23
Owner's Right to Correct Deficiencies	11
Owner's Right to Terminate Contract and Complete the Work.....	11
Owner's Right to Withhold Payment of an Approved Request for Payment	23
Ownership of Plans and Specifications	5
Patents and Royalties	19
Payment Bond (definition).....	2
Payment Bond.....	18
Payments for Extra Work	24
Payment for Rejected Work and Materials.....	24
Payment for Samples and Testing of Materials.....	25
Payment for Work Terminated by the Contractor.....	25
Payment for Uncorrected Work.....	24
Payment for Work by the Owner.....	24
Payment for Work by the Owner Following His/Her Termination of the Contract.....	24
Payment for Work Suspended by the Owner	24
Performance Bond (definition)	2
Performance Bond	18
Permits.....	19
Plans.....	2
Plans and Specifications at Job Site.....	5
Preparing the Proposal.....	4
Private and Public Property.....	11
Progress Payments	22
Proposal.....	1
Proposal Guaranty	4
Public Safety and Convenience.....	19

	<u>Page</u>
Quality of Equipment and Materials	6
Rejected Work and Materials	14
Removal of Construction Equipment, Tools and Supplies.....	11
Resident Observation.....	10
Responsibility of the Contractor	23
Restoration of Site	15
Rights of Various Interests	12
Samples.....	5
Sanitary Provisions.....	19
Schedule of Completion	21
Separate Contracts	12
Shop Drawings	5
Specifications.....	2
Storage of Materials	14
Subcontractor	1
Subcontracts.....	12
Surety.....	2
Surveys.....	7
Suspension of Work	9
Suspension of Work by Owner	11
Termination of Contractor's Responsibility	25
Use of Completed Portions	21
Use of Explosives	19
Warning Signs and Barricades	19
Withdrawal	3
Work During an Emergency.....	12
Working Day	2
Written Notice	2

GENERAL CONDITIONS

DEFINITIONS

1.1 **Contract** is the agreement covering the performance of the work described in the Contract Documents including all supplemental agreements thereto and all general and special provisions pertaining to the work or materials therefore. The contract includes the Contract Documents listed below. In the event any provision of one Contract Document conflicts with the provision of another Contract Document, the provision in that Contract Document first listed shall govern.

- a. Contract
- b. Addenda to Contract Documents
- c. Other Legal and Procedural Documents
- d. Proposal
- e. Bid Announcement
- f. Special Provisions
- g. Detailed Specifications
- h. Plans
- i. General Conditions
- j. Performance and Maintenance Bond
- k. Proposal Guaranty

1.2 **Engineer** is the Engineer named in the Contract Documents or his/her representative duly authorized to act for the Engineer.

1.3 **Owner** is the Owner named in the Contract Documents.

1.4 **Contractor** is the individual, firm, partnership or corporation, and his/her, their, or its heirs, executors, administrators, successors and assigns, or the lawful agent of any such individual, firm, partnership, covenant or corporation, or his/her, their or its surety under the contract bond, constituting one of the principals to the Contract and undertaking to perform the work herein specified. Where any pronoun is used, as referring to the work "Contractor" it shall mean the Contractor as defined above.

1.5 **Subcontractor** is any person, firm or corporation with a direct contract with the Contractor who acts for or on behalf of the Contractor in executing any part of the Contract, but does not include one who only furnishes material.

1.6 **Proposal** is the offer of a Bidder to perform the work described by the Contract Documents when made out and submitted on the prescribed Proposal Form, properly signed and guaranteed.

1.7 **Bid Announcement** is the Notice of Hearing and Letting or Advertisement for Bids.

1.8 **Performance Bond** is the approved form of security furnished by the Contractor and his/her Surety as a guaranty of good faith on the part of the Contractor to execute the work in accordance with the terms of the Contract.

1.9 **Maintenance Bond** is the approved form of security furnished by the Contractor and his/her Surety as a maintenance guaranty on the part of the Contractor furnished in accordance with the applicable statutes or as specifically required by the terms of the Contract or Contract Documents.

1.10 **Payment Bond** is the approved form of security furnished by the Contractor and his/her surety as a guaranty of payment to subcontractors and suppliers in accordance with the applicable statutes.

1.11 **Surety** is the person, firm or corporation who executes the Contractor's required bonds.

1.12 **Specifications** shall mean the Legal and Procedural Documents, General Conditions of the Contract, together with the modifications thereof, and the Detailed Specification Requirements, with all addenda thereto.

1.13 **Plans** shall mean the detailed construction drawings or sketches furnished to the Contractor.

1.14 **Written Notice** shall be considered as served when delivered in person or sent by mail to the individual, firm or corporation or to the last business address of such known to him/her who serves the notice.

- a. **Change of Address:** It shall be the duty of each party to advise the other parties to the Contract as to any change in his/her business address until completion of Contract.

1.15 **Act of God** means an earthquake, flood, cyclone or other cataclysmic phenomenon of nature. Rain, wind, flood or other natural phenomenon of normal intensity for the locality shall not be construed as an Act of God and no reparation shall be made to the Contractor for damages to the work resulting therefrom.

1.16 **Working Day** is any day the Contractor can work six hours or more, excluding Saturday, Sunday or Legal Holidays.

INFORMATION FOR BIDDERS

2.1 **Form of Proposal:** Each Proposal shall be made on a form prepared by the Engineer and included as one of the Contract Documents. The Proposal shall be submitted in a sealed envelope bearing the title of the work and the name of the Bidder.

2.2 **Discrepancies:** In case of a difference between the unit price amount of a bid item and the extension total amount of a bid item, the unit price amount shall govern.

2.3 **Modifications:** Proposals shall not contain any modifications of the work to be done. Alternate proposals will not be considered unless called for. Oral proposals or modifications will not be considered. Facsimile proposals will not be considered, but modifications by facsimile of proposals already submitted will be considered if received prior to the time set for the bid opening.

2.4 **Examination of Contract Documents And Visit To Site:** Before submitting a Proposal, bidders shall carefully examine the plans, read the specifications and the other Contract Documents, visit the site of work and fully inform themselves as to all existing conditions and limitations.

2.5 **Delivery of Proposals:** Proposals shall be delivered by the time and to the place stipulated in the Bid Announcement. It is the sole responsibility of the bidder to see that his/her Proposal is received in proper time. Any Proposal received after the scheduled closing time for receipt of Proposals shall be returned to the bidder unopened.

2.6 **Withdrawal:** Any bidder may withdraw his/her Proposal, either personally, by facsimile or written request, at any time prior to the scheduled closing time for receipt of Proposals.

2.7 **Bid Letting:** Proposals will be opened and publicly read aloud at the time and place set forth in the Bid Announcement.

2.8 **Award of Contract:** The Contract will be awarded to the lowest, responsive, responsible bidder complying with these instructions and with the Bid Announcement. The Owner reserves the right to reject any or all Proposals or to waive any formality or technicality in any Proposal in the interest of the Owner. No bidder may withdraw his/her Proposal for a period of 30 days after the date of opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the bidder.

2.9 **Interpretation of Documents:** If any person contemplating submitting a Proposal is in doubt as to the true meaning of any part of the Plans, Specifications or other Contract Documents, or finds discrepancies in or omissions from the Plans or Specifications, he/she shall submit to the Engineer a request for an interpretation or correction thereof. Any interpretation or correction of the documents will be made only by Addenda duly issued and copies of the Addenda will be delivered to each person receiving a set of the Contract

Documents. Neither the Owner nor the Engineer will be responsible for any other explanations or interpretations of the Contract Documents.

2.10 **Addenda:** All addenda issued during the time of bidding or forming a part of the Contract Documents issued to the bidder for the preparation of his/her Proposal, shall be covered in the Proposal and shall be made a part of the Contract. Receipt of each addendum shall be acknowledged on the Proposal Form.

2.11 **Bidders Interested in More Than One Proposal:** No person, firm, or corporation shall be allowed to make, file or to be interested in more than one Proposal for the same work, unless alternate Proposals are called for. A person, firm, or corporation who has submitted a subproposal to a bidder or who has quoted prices on materials to a bidder is not disqualified from submitting a subproposal or quoting prices to other bidders.

2.12 **Errors:** To insure against accidental errors, the Contractor shall read carefully the contract documents before preparing his/her Proposal.

2.13 **Proposal Guaranty:** Each Proposal shall be accompanied by a guaranty of the form and in the amount indicated in the Contract Documents.

2.14 **Preparing the Proposal:** In preparing the Proposal, the bidder shall specify the unit prices, written legibly in ink or typewritten, at which he/she proposes to do each item of work. The unit price shall be stated in figures and the total amount of each item shall be computed by the bidder based on the unit prices bid for the quantities given in the Proposal.

2.15 **Estimate of Quantities:** The estimate of quantities listed in the Proposal is approximate only and is to be used only as a basis of comparing bids. Any later change in the quantities will not affect the previous selection of the low bidder and any change in quantities less than twenty percent (20%), or as provided by law, shall not require the approval of the Contractor.

DRAWING, SPECIFICATIONS AND RELATED DATA

3.1 Intent of Plans and Specifications: The intent of the Plans and Specifications is that the Contractor furnish all labor, materials, equipment and transportation necessary for the proper execution of the work, unless specifically noted otherwise. The Contractor shall do all the work shown on the Plans and described in the Specifications and all incidental work considered necessary to complete the project in a substantial and acceptable manner and to fully complete the work or improvements ready for use, occupancy and operation by the Owner.

3.2 Discrepancies in Plans: Any discrepancies found between the Plans and Specifications and site conditions or any errors or omissions in the Plans or Specifications shall be immediately reported to the Engineer. The Engineer shall promptly correct such error or omission in writing. Any work performed by the Contractor after discovery of such discrepancies, errors or omissions shall be done at the Contractor's risk.

3.3 Copies of Plans and Specifications Furnished: Except as provided for otherwise, all required copies of Plans and Specifications necessary for the execution of the work shall be furnished to the Contractor.

3.4 Plans and Specifications at Job Site: One complete set of all Plans and Specifications shall be maintained at the job site and shall be available to the Engineer at all times.

3.5 Ownership of Plans and Specifications: All original or duplicated Plans and Specifications and other data prepared by the Engineer shall remain the property of the Engineer.

3.6 Dimensions: Listed dimensions on the Plans shall be used in preference to scaling the Plans. Where the work of the Contractor is affected by finish dimensions, these dimensions shall be determined by the Contractor at the site and he/she shall assume the responsibility therefore.

3.7 Models: All models prepared for this work shall become the property of the Owner at the completion of the work.

3.8 Samples: Samples called for in the Specifications or required by the Engineer shall be furnished by the Contractor. Samples shall be furnished so as not to delay fabrication and to allow the Engineer reasonable time for the consideration of the samples submitted.

3.9 Shop Drawings: The Contractor shall provide shop drawings, schedules and such other drawings and samples as may be necessary for the prosecution of the work in the shop and in the field. Drawings shall include, but not necessarily be limited to, all equipment, materials, machinery, piping layouts, electrical line drawings, structural steel, reinforcement, and apparatus required to be furnished under this Contract.

Reviews by the Engineer of Shop Drawings and Samples for any material, apparatus, devices, and layouts shall not relieve the Contractor from the responsibility of furnishing same of proper dimension, size, quantity, quality, and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Such review shall not relieve the Contractor from responsibility for errors of any sort on the Shop Drawings. If the Shop Drawings or Samples deviate from the Contract Documents, the Contractor shall advise the Engineer of the deviation in writing accompanying the Shop Drawings or Samples, including the reasons for the deviation.

Shop Drawings shall be submitted according to the following schedule:

- a. A minimum of six copies shall be submitted at least thirty (30) days before the materials indicated thereon are to be needed, or earlier if required to prevent delay of work.
- b. The Engineer will return all Samples or all but three Shop Drawing copies to the Contractor marked with corrections and changes.
- c. The Contractor shall then correct the Shop Drawings or Samples to conform to the corrections and changes requested by the Engineer.
- d. Following completion of such corrections and changes, the Contractor shall furnish the Engineer three copies of the Shop Drawings conforming to the required corrections and changes.
- e. One copy of all Shop Drawings used shall be kept in good condition at the job site by the Contractor.
- f. Upon submittal of corrected Shop Drawings, the Contractor shall also furnish the Engineer with two copies of operating and maintenance manuals, spare parts catalogs and equipment maintenance data sheets with nameplate data for each item of mechanical, electrical and process equipment and the source of procurement of spare parts.

3.10 Quality of Equipment and Materials: In order to establish standards of quality, the Engineer has, in the detailed Specifications, referred to certain products by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design.

- a. The Contractor shall furnish the complete list of proposed desired substitutions prior to signing of the Contract, together with such engineering and catalog data as the Engineer may require.
- b. The Contractor shall abide by the Engineer's judgment when proposed substitute materials or items of equipment are judged to be unacceptable and shall furnish

the specified material or item of equipment in such case. All proposals for substitutions shall be submitted in writing by the General Contractor and not by individual trades or material suppliers. The Engineer will approve or disapprove proposed substitutions in writing within a reasonable time. No substitute materials or equipment shall be used unless approved in writing.

3.11 Equipment Approval Data: The Contractor shall furnish one (1) copy of complete catalog data for every manufactured item of equipment and all components to be used in the work, including specific performance data, material description, rating, capacity, working pressure, material gage or thickness, brand name, catalog number and general type.

- a. The submittal shall be compiled by the Contractor and approved by the Engineer before the equipment is ordered.
- b. Each data sheet or catalog in the submittal shall be indexed according to specification section and paragraph for easy reference.
- c. After written approval, this submittal shall become a part of the Contract and may not be deviated from except upon written approval of the Engineer.
- d. Catalog data for equipment approved by the Engineer does not in any case supersede the Engineer's Contract Documents. The approval of the Engineer shall not relieve the Contractor from responsibility for deviations from Plans or Specifications, unless he/she has in writing called the Engineer's attention to such items submitted. The Contractor shall check the work described by the catalog data with the Engineer's Contract Documents for deviations and errors.
- e. It shall be the responsibility of the Contractor to insure that items to be furnished fit the space available. He/she shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Plans and Specifications.
- f. Where equipment requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install the equipment to operate properly and in harmony with the intent of the Plans and Specifications and to make all changes in the work required by the different arrangement of connections.

3.12 Surveys: Unless otherwise specified, the Owner shall establish all base lines for the location of the principal component parts of the work together with a suitable number of grade stakes, slope stakes and bench marks adjacent to the work. Based upon the information provided by the Owner, the Contractor shall develop and set other necessary construction stakes, including batter boards, stakes for individual pile locations and other working points. The Contractor shall have the responsibility to carefully preserve bench marks, reference points and stakes; and, in the case of destruction thereof by the Contractor or resulting from

his/her negligence, the Contractor shall be charged with the expense and damage resulting therefrom and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.

3.13 Discrepancies in Surveys: If the Contractor, in the course of the work finds any discrepancy in the layout of the work as given by the grade stakes, slope stakes or other references given for construction procedures, he/she shall immediately inform the Engineer of such discrepancy. The Engineer shall promptly verify the same and shall make corrections where they are required. Any work performed by the Contractor after such discovery, until authorized, shall be accomplished at the Contractor's risk.

ENGINEER-OWNER-CONTRACTOR RELATIONS

4.1 Engineer's Responsibility and Authority: The Engineer shall be the Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of the Engineer as the Owner's representative during construction are set forth in Sections 1 through 8 of these General Conditions and shall not be extended without written consent of the Owner and Engineer.

The Engineer shall not be responsible for the construction means, methods, techniques, sequences or procedures or the health and safety precautions and programs incident thereto, and he/she will not be responsible for the Contractor's failure to perform the work in accordance with the Contract Documents.

4.2 Engineer's Decisions: All claims of the Owner or the Contractor shall be presented to the Engineer for decision, which shall be made in writing within a reasonable time. All decisions of the Engineer shall be final, except in cases where time and/or financial considerations are involved. In these cases, disputed decisions shall be subject to mediation or arbitration.

4.3 Suspension of Work: The Owner shall have the authority to suspend the work, wholly or in part, for such period or periods as he/she may deem necessary due to unsuitable weather, or such other conditions as are considered unfavorable for prosecution of the work, or failure on the part of the Contractor to carry out the provisions of the Contract or to supply materials meeting the requirements of the Specifications. The Contractor shall not suspend operation without the Owner's permission.

4.4 Arbitration: Should there be any dispute or any questioned decision of the Engineer which is subject to arbitration, it shall be promptly submitted to arbitration upon demand by either party to the dispute. The Contractor shall not delay the work because arbitration proceedings are pending unless he/she has written permission from the Engineer to do so and such delay shall not extend beyond the time when the arbitrators shall have opportunity to determine whether the work shall continue or be suspended pending decision by the arbitrators of such a dispute. Any demand for arbitration shall be in writing and shall be delivered to the Engineer and any adverse party either by personal delivery or by registered mail addressed to the last known address of each within twenty (20) days of receipt of the Engineer's decision, and in no event after final payment has been made and accepted, subject however, to any express stipulation to the contrary in the Contract Documents. Should the Engineer fail within a reasonable period to make a decision, a demand for arbitration may then be made as if the Engineer's decision had been rendered against the party demanding arbitration.

- a. No one shall be qualified to act as an arbitrator who has, directly or indirectly, any financial interest in the Contract or who has any business or family relationship with the Owner, the Contractor, or the Engineer. Each arbitrator selected shall be qualified by experience and knowledge of the work involved in the matter to be submitted to arbitration.

- b. Arbitration shall be in accordance with the procedure and standards of The American Arbitration Association and/or the applicable State Statutes.

In lieu of arbitration, if both parties agree, the dispute may be submitted for mediation.

4.5 Observation of Work: The Contractor agrees to complete the construction in conformity with the contract documents regardless of the extent or character of the observation. All materials and each part or detail of the work shall be subject at all times to construction observation. Such observation may include mill, plant or shop observation and any material furnished under this contract is subject to such observation. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed observation.

4.6 Resident Observation: The Resident Engineer or Resident Observer shall observe the work being performed. The primary purpose of this function is to help assure the Contractor's compliance with the plans and specifications and does not guarantee the Contractor's performance nor does it relieve the Contractor of his/her responsibility to construct the work in accordance with the Plans and Specifications. The Observer's duties do not include construction means, methods or procedures used by the Contractor. The Contractor is solely responsible for construction means, methods, procedures and job-site safety.

4.7 Examination of Completed Work: If requested by the Engineer, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the Specifications. Should the work thus exposed or examined prove acceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed shall be paid for as Extra work. Should the work so exposed or examined prove unacceptable, the uncovering, removing and replacing shall be at the Contractor's expense.

4.8 Contractor's Superintendence: A qualified superintendent shall be on the project site and shall give efficient supervision to the work until its completion. The superintendent shall have full authority to act on behalf of the Contractor and all directions given to the superintendent shall be considered given to the Contractor. The Engineer's instructions shall be confirmed in writing upon written request from the Contractor.

4.9 Lands by Owner: The Owner shall provide the lands shown on the Plans upon which the work under the Contract is to be performed and to be used for rights-of-way for access. Any delay in furnishing these lands by the Owner shall be deemed proper cause for adjustment in the contract amount and in the time of completion.

4.10 Lands by Contractor: Any additional land and/or access thereto not shown on the Plans that may be required for temporary construction facilities or for storage of materials shall be provided by the Contractor with no liability to the Owner. The Contractor shall confine his/her apparatus, storage of materials and operation of his/her workmen to those areas

described in the Plans and Specifications and to such additional areas which he/she may provide as approved by the Engineer.

4.11 **Private and Public Property:** The Contractor shall not enter upon private property for any purpose without obtaining permission. The Contractor shall be responsible for the preservation of all public property, trees, monuments, etc. along and adjacent to the project area, and shall use every precaution necessary to prevent damage or injury thereto. The Contractor shall notify all public and private utilities and use suitable precautions to prevent damage to pipes, conduits, and other underground structures and shall protect carefully from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until so directed. The Contractor shall bear the cost of repair for all damage caused by his/her negligence.

4.12 **Assignment of Contract:** Neither the Contractor nor the Owner shall sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his/her right, title or interest therein, or his/her obligations thereunder, without written consent of the other party.

4.13 **Removal of Construction Equipment, Tools and Supplies:** At the termination of the Contract and before acceptance of the work by the Owner, the Contractor shall remove all equipment, tools and supplies from the property of the Owner. Should the Contractor fail to remove such equipment, tools, and supplies, the Owner shall have the right to remove them.

4.14 **Suspension of Work by Owner:** The work or any portion thereof may be suspended at any time by the Owner provided that he/she gives the Contractor five (5) days' written notice of suspension and sets forth the date on which work is to be resumed. The Contractor shall resume the work upon written notice from the Owner and within ten (10) days after the date set forth in the notice of suspension. If the Owner does not give written notice to resume work within ten (10) days of the date fixed in the notice of suspension, the Contractor may abandon that portion of the work so suspended and shall be entitled to payment in accordance with Paragraph 8.11.

4.15 **Owner's Right to Correct Deficiencies:** Upon failure of the Contractor to perform the work in accordance with the Contract Documents, including any requirements with respect to the Schedule of Completion, the Owner may, after five (5) days' written notice to the Contractor, correct such deficiencies, at the Contractor's expense, without prejudice to any other remedy he/she may have.

4.16 **Owner's Right to Terminate Contract and Complete the Work:** The Owner shall have the right to terminate the employment of the Contractor after giving ten (10) days' written notice of termination to the Contractor in the event of any default by the Contractor and upon receiving written notice from the Engineer certifying cause for such action. In the event of such termination, the Owner may take possession of the work and of all materials, tools and equipment thereon, and may finish the work by whatever method and means he/she may select. It shall be considered a default by the Contractor whenever he/she shall:

- a. Declare bankruptcy, become insolvent, or assign his/her assets for the benefit of his/her creditors, or
- b. Disregard or violate important provisions of the Contract Documents or Engineer's instructions, or fail to prosecute the work according to the agreed Schedule of Completion, including extensions thereof, or
- c. Fail to provide a qualified superintendent, competent workmen or subcontractors, or proper materials, or fail to make prompt payment therefor.

4.17 Contractor's Right to Suspend Work or Terminate Contract: The Contractor may suspend work or terminate Contract upon ten (10) days' written notice to the Owner and the Engineer for the following reason:

- a. If an order of any court or other public authority caused the work to be stopped or suspended for a period of ninety (90) days through no act or fault of the Contractor or his/her employees.

4.18 Rights of Various Interests: Wherever work being done by the Owner's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work in general harmony.

4.19 Separate Contracts: The Owner may let other contracts requiring coordination of the work of the Contractor. The Contractor shall cooperate with other Contractors with regard to storage of materials and execution of their work. It shall be the Contractor's responsibility to inspect all work by other Contractors affecting his/her work and to report to the Engineer any irregularities which will not permit him/her to complete his work in a satisfactory manner. Failure to notify the Engineer of such irregularities shall indicate the work of the other Contractors has been satisfactorily completed to receive this work.

4.20 Subcontracts: The Contractor shall submit to the Owner the names of the subcontractors proposed for the work. Subcontractors may not be changed except with the approval of the Owner. The Contractor is responsible to the Owner for the acts and omissions of his/her subcontractors, and of their direct and indirect employees, to the same extent as he/she is responsible for the acts and omissions of his/her employees. The Contract Documents shall not be construed as creating any contractual relation between any subcontractor and the Owner. The Contractor shall bind every subcontractor by the terms of the Contract Documents.

4.21 Work During an Emergency: The Contractor shall perform any work and shall furnish and install any materials and equipment necessary during an emergency endangering life or property. In all cases, he/she shall notify the Engineer of the emergency as soon as practicable, but he/she shall not wait for instructions before proceeding to properly protect both life and property.

4.22 **Oral Agreements:** No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, nor shall any of the provisions of the Contract Documents be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed upon waiver or modification in writing.

MATERIALS AND WORKMANSHIP

5.1 **Materials Furnished by the Contractor:** All materials used in the work shall meet the requirements of the respective Specifications and no material shall be used until it has been approved by the Engineer. All materials not otherwise specifically indicated shall be furnished by the Contractor.

5.2 **Materials Furnished by the Owner:** Materials specifically indicated shall be furnished by the Owner. The fact that the Owner is to furnish material is conclusive evidence of its acceptability for the purpose intended and the Contractor may continue to use it until otherwise directed. If the Contractor discovers any defect in material furnished by the Owner, he/she shall notify the Engineer. The Contractor shall be responsible for material loss or damage after receipt of Owner-furnished material.

5.3 **Storage of Materials:** Materials shall be so stored as to insure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground and/or they shall be placed under cover. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purpose without the written permission of the Owner or leasee of the property.

5.4 **Character of Workers:** The Contractor shall at all times be responsible for the conduct and discipline of his/her employees and/or any subcontractor or persons employed by subcontractors. All workers shall have sufficient knowledge, skill, and experience to properly perform the work assigned to them.

5.5 **Rejected Work and Materials:** All materials which do not conform to the requirements of the Contract Documents, are not equal to samples approved by the Engineer, or are, in any way, unsatisfactory or unsuited to the purpose for which they are intended, shall be rejected. Any defective work whether the result of poor workmanship, use of defective materials, damage through carelessness or any other cause, shall be removed within ten (10) days after written notice is given by the Engineer and the work shall be re-executed by the Contractor. The fact that the Engineer may have previously overlooked such defective work shall not constitute an acceptance of any part of it.

- a. Should the Contractor fail to remove rejected work or materials within ten (10) days after written notice to do so, the Owner may remove and store the materials.
- b. Correction of Faulty Work After Final Payment shall be in accordance with Paragraph 8.19.

5.6 **Manufacturer's Directions:** Manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned by the Contractor as directed by the Manufacturer unless specified to the contrary.

5.7 **Cutting and Patching:** The Contractor shall do all necessary cutting and patching of the work that may be required to properly receive the work of the various trades or as required by the contract documents to complete the structure. The Contractor shall restore all such cut or patched work as directed by the Engineer.

5.8 **Restoration of Site:** The Contractor shall remove from the Owner's property and from all public and private property all temporary structures, rubbish, and waste materials resulting from the construction operations. The Contractor shall remove all surplus materials leaving the site smooth, clean and true to line and grade. Upon failure to do so within seventy-two (72) hours after request by the Engineer, the work may be done by the Owner and the cost thereof be charged to the Contractor and deducted from the final payment.

5.9 **Guarantee:** The Contractor shall guarantee all work and material against all defects for the period specified in the Bond Form or Special Provisions. The Contractor shall repair or replace any such defective work and/or material to conform to the provisions of this Contract and without expense to the Owner within (10) days after notification in writing by the Owner of such defective work or material. If the Contractor shall not have made such repairs or replacements or have made arrangements for the correction thereof within the period specified above, the Owner shall do so and shall charge the cost of same to the Contractor. The Contractor shall perform the work so as to cause the Owner a minimum of inconvenience and interruption of services.

3.	Personal and Advertising Injury Limit	\$ 1,000,000
4.	Each Occurrence Limit	\$ 1,000,000
5.	Fire Damage Limit (any one fire)	\$ 50,000
6.	Medical Damage Limit (any one person)	\$ 5,000

The above insurance must include the following features:

1. Coverage for all premises and operations.
 2. Personal and Advertising injury.
 3. Operations by independent contractors or subcontractors.
 4. Coverage for demolition of any building or structure, collapse, explosion, blasting, excavation, and damage to property below the surface of the ground (XCU coverage).
 5. Inclusion of the Owner and Engineer as an additional insured on the Commercial General Liability Insurance on a primary and non-contributory basis.
 6. Waiver of Subrogation in favor of the Owner and Engineer.
 7. If the policy is a claims-made policy, coverage shall remain in effect for a period of two (2) years after the project is complete.
 8. The policy shall not contain a total or absolute pollution exclusion. Coverage shall be provided for pollution exposures arising from products and completed operations. Pollution coverage limits shall be \$1,000,000.
- c. Automobile Liability Insurance covering all owned, non-owned, hired and leased vehicles with a minimum combined single limit of \$1,000,000 per accident covering claims for damages because of bodily injury, personal injury, or damage to property which arise out of operations in performance of the contract.
- d. Railroad Protective Liability Insurance if required by the Owner in the Special Provisions or by an affected railroad. The Contractor shall procure and maintain Railroad Protective Liability Insurance naming the railroad as the insured with minimum limit for bodily injury and property damage liability of \$2,000,000 per occurrence, \$6,000,000 aggregate, or with such other limits as the railroad shall require. The original of said Policy shall be furnished to the railroad and a certified copy of said Policy shall be furnished to the Owner prior to any construction or entry upon the railroad premises by the Contractor.

- e. Umbrella/Excess Insurance - At the Contractor's option, the limits specified in Section 6.1, a, b and c may be satisfied with a combination of primary and Umbrella/Excess Insurance. Umbrella Insurance shall be in the minimum amount of \$2,000,000.
- f. Builder's Risk Insurance (Property Insurance) - Unless otherwise provided in the Special Provisions, the Contractor shall purchase and maintain Builder's Risk Insurance in the amount of the initial contract amount. Such insurance shall allow for partial utilization of the work by the Owner and shall be maintained until final acceptance of the work by the Owner.

Builder's Risk Insurance shall be on an all-risk policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, flood and earthquake, theft, vandalism, malicious mischief, collapse, falsework, temporary buildings, debris removal, materials and equipment in transit, materials and equipment stored at the site or another location approved by the Owner.

Testing and startup services shall be included or the Contractor shall notify the Owner in writing forty eight (48) hours prior to testing or startup so the Owner can ensure that Boiler and Machinery coverage is in place.

- g. Proof of Insurance - The Contractor shall, prior to the Owner's approval and execution of the contract, provide to the Owner a certificate(s) of insurance documenting all required insurance coverages as required in this Section 6.1, utilizing the ACORD certificate form, or equivalent form.

Copies of additional insured endorsements and waivers of subrogation shall also be provided with the certificate of insurance.

6.3 Performance Bond: The Contractor shall, at the time of execution of the Contract, furnish a corporate surety bond in the sum equal to the Contract Amount. The form of the bond shall be as the Owner may approve and with a Surety Company authorized to do business in the State where the work is located.

6.4 Maintenance Bond: The Contractor shall, at the time of execution of the Contract, furnish a corporate surety bond whereby the Contractor agrees to maintain the work for the time specified in the Contract Documents. The maintenance shall cover all repairs and replacements made necessary by defects in materials and workmanship. The form of the bond shall be as the Owner may approve and with a Surety Company authorized to do business in the State where the work is located.

6.5 Payment Bond When required in the Contract Documents, the Contractor shall, at the time of execution of the contract, furnish a corporate surety bond in the sum equal to the Contract Amount. The form of the bond shall be as the Owner may approve and with a Surety Company authorized to do business in the State where the work is located.

6.6 **Patents and Royalties:** If any design, device, material or process covered by letters of patent or copyright is used by the Contractor, he/she shall provide for such use by legal agreement with the owner of the patent or a duly authorized licensee of such owner and shall save harmless the Owner from any and all loss or expense on account thereof, including its use by the Owner.

6.7 **Permits:** All temporary permits and licenses necessary for the prosecution of the work shall be secured by the Contractor.

6.8 **Laws to be Observed:** The Contractor shall give all notices and shall comply with all applicable Federal, State and local laws, ordinances and regulations in any manner affecting the conduct of the work; with all such orders and decrees as exist or may be enacted by bodies or tribunals having any jurisdiction or authority over the work; and shall indemnify and save harmless the Owner against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, order or decree.

6.9 **Warning Signs and Barricades:** The Contractor shall provide adequate signs, barricades, fencing, lights and watchperson and take all necessary precautions for the protection of the work and the safety of the public.

6.10 **Public Safety and Convenience:** The Contractor shall at all times conduct the work so as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property in a manner satisfactory to the Engineer. No road or street shall be closed to the public except with the permission of the Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks and the proper functioning of all gutters, sewer inlets, drainage ditches and irrigation ditches, which shall not be obstructed except as approved by the Engineer.

6.11 **Crossing Utilities:** When new construction crosses highways, railroads, streets or utilities under the jurisdiction of State, County, City or other public agency, public utility or private entity, the Contractor shall secure written permission from the proper authority before executing such new construction. A copy of this written permission must be filed with the Owner before any work is done. The Contractor will be required to furnish a release from the proper authority before final acceptance of the work.

6.12 **Sanitary Provisions:** The Contractor shall provide and maintain such sanitary accommodations for the use of his/her employees and those of subcontractors as may be necessary to comply with local and State health requirements and regulations.

6.13 **Use of Explosives:** Blasting will not be permitted in any case without specific approval of the Owner and then only under such restrictions as may be required by the proper authorities and only when the Contractor has adequate blasting insurance in force.

When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care so as not to endanger life or property, cause slides or disturb the materials outside the neat lines of the cross section.

Blasting shall be completed in the vicinity of new structures before construction on such structures is undertaken. All explosives shall be stored in a secure manner and place in compliance with local laws and ordinances and all such storage places shall be clearly marked "Dangerous - Explosives". No explosive shall be left in an unprotected manner along or adjacent to any existing roadway or public place.

PROGRESS AND COMPLETION OF THE WORK

7.1 **Notice to Proceed:** Following the execution of the Contract by the Owner, written Notice to Proceed with the work shall be given to the Contractor. The Contractor shall begin and shall prosecute the work regularly and uninterruptedly thereafter (unless otherwise directed in writing by the Owner) with such effort as to secure the completion of the work within the time stated in the Contract Documents.

7.2 **Schedule of Completion:** The Contractor shall submit, at such times as may be reasonably requested by the Engineer, schedules which shall show the order in which the Contractor proposes to carry on the work. Said schedules shall include dates at which the Contractor will start the several parts of work and estimated dates of completion of the several parts.

7.3 **Changes in the Work:** The Owner may, as the need arises, order changes in the work through additions, deletions or modifications without invalidating the Contract. Compensation and time of completion affected by the change shall be adjusted at the time of ordering such changes.

7.4 **Extra Work:** New and unforeseen items of work found to be necessary and which cannot be covered by any item or combination of items for which there is a Contract price, shall be classed as Extra Work. The Contractor shall do such Extra Work and furnish such materials as may be required for the proper completion or construction of the whole work contemplated upon written order from the Engineer. In the absence of such written order, no claim for Extra Work shall be considered. Extra Work shall be performed in accordance with these Specifications where applicable and work not covered by the Specifications or Special Provisions shall be done in accordance with the best practice as approved by the Engineer. Extra Work required in an emergency to protect life and property shall be performed by the Contractor as required.

7.5 **Extension of Contract Time:** A delay beyond the Contractor's control occasioned by an Act of God, or act or omission on the part of the Owner or by strikes, lockouts, fire, etc. may entitle the Contractor to an extension of time in which to complete the work as determined by the Engineer. The Contractor shall immediately give written notice to the Engineer and Owner of the cause of such delay.

7.6 **Use of Completed Portions:** The Owner shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding that the time for completing the entire work or such portions may not have expired. Taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the completion of uncompleted work or causes refinishing of completed work, the Contractor shall be entitled to such extra compensation or extension of time or both, as the Engineer may determine.

MEASUREMENT AND PAYMENT

8.1 **Detailed Breakdown of Contract Amount:** Except in cases where unit prices form the basis for payment under the Contract, the Contractor shall submit a complete breakdown of the Contract Amount showing the value assigned to each part of the work. Upon approval of the breakdown of the Contract Amount by the Engineer, it shall be used as the basis for all Requests for Payment.

8.2 **Progress Payments:** Where the project financing permits, the Contractor shall be entitled to monthly progress payments corresponding to the stage of the work. Progress estimates will be prepared by the Contractor not later than thirty (30) days after commencing work and every thirty (30) days thereafter, if so entitled, for the duration of the construction. These progress payments shall be based upon an approximate estimate of quantities of work completed and considered acceptable multiplied by the unit prices established in the Contract.

Cost of materials, properly stored, protected and insured at the site of work will be paid on monthly estimates only for the specific materials listed therein for partial payment. In preparing the monthly estimates, advancement will be made therein for ninety percent of the cost of such materials, as evidenced by invoices to the Contractor. All materials must conform to the requirements of the Specifications; however, advancement for materials will not constitute acceptance and any faulty material will be condemned although advancement may have been made for same in the estimates. Deductions at the same rates and equal in amount to the advancements will be made on the estimates as the material is used.

Quantities used for progress estimates shall be considered only as approximate and provisional and shall be subject to recalculations, adjustment and correction by the Engineer in subsequent progress estimates and in final estimates. Inclusion of any quantities in progress estimates, or failure to disapprove the work at the time of progress estimate, shall not be construed as acceptance of the corresponding work or materials.

Payment of the retained percentage shall be withheld for a period consistent with applicable state law following the final acceptance by the Owner and shall be paid to the Contractor at the expiration of said time period in event no claims, as provided by law, have been filed against such funds. In the event such claims are filed, the Contractor shall be paid such retained percentages less an amount sufficient to pay any such claims, together with a sum sufficient to pay the cost of such action and to cover attorney fees.

8.3 **Engineer's Action on a Request for Payment:** Within ten (10) days of submission of the Request for Payment by the Contractor, the Engineer shall:

- a. Approve the Request for Payment as submitted.
- b. Approve such other amount as he/she shall decide is due the Contractor, informing the Contractor in writing of the reasons for approving the amended amount.

- c. Withhold the Request for Payment, informing the Contractor in writing of the reasons for withholding it.

8.4 Owner's Action on an Approved Request for Payment: Within thirty (30) days, when monthly payments are specified, from the date of approval of a Request for Payment by the Engineer, the Owner shall:

- a. Pay the Request for Payment as approved.
- b. Withhold payment in accordance with Paragraph 8.5 informing the Contractor and the Engineer in writing of the reasons for withholding payment.
- c. Withhold any payment in accordance with statutory requirements.

8.5 Owner's Right to Withhold Payment of an Approved Request for Payment: The Owner may withhold payment in whole or in part on an approved Request for Payment to the extent necessary to protect him/her from loss for any of the following causes discovered subsequent to approval of a Request for Payment by the Engineer.

- a. Defective work.
- b. Evidence indicating the probable filing of claims by other parties against the Contractor.
- c. Failure of the Contractor to make payments to subcontractors, material suppliers or labor.
- d. Damage to another contractor.
- e. Conflict with legal requirements.

8.6 Interest on Unpaid Requests for Payment: Should the Owner fail to pay, unless otherwise regulated by statute, an approved Request for Payment within sixty (60) days from the date of approval by the Engineer, and should he/she fail to inform the Engineer and the Contractor in writing of the reasons for withholding payment, the Owner shall pay the Contractor interest on the amount of the Request for Payment at the rate of six percent (6%) per annum until payment is made.

8.7 Responsibility of the Contractor: Unless specifically noted otherwise, the Contractor shall furnish all materials and services and perform all the work described by the Contract Documents and complete said work within the time specified plus any additional time extensions that might be granted by the Owner.

Should the Contractor fail to complete the work within the time specified, he/she shall pay the Owner all extra cost for engineering and observation, as evidenced by suitable vouchers, and such damages as may be shown to have been incurred by the Owner due to failure to complete the work within the time limit.

8.8 Payment for Uncorrected Work: Should the Engineer direct the Contractor not to correct work that has been damaged or that was not performed in accordance with the Contract Documents, an equitable deduction from the Contract Amount shall be made to compensate the Owner for the uncorrected work.

8.9 Payment for Rejected Work and Materials: The removal of work and materials rejected and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor and he/she shall pay the cost of replacing the work of other contractors destroyed or damaged by the removal of the rejected work or materials and subsequent replacement of acceptable work.

- a. Removal of rejected work or materials and storage of materials by the Owner shall be paid by the Contractor within thirty (30) days after written notice to pay is given by the Owner. If the Contractor does not pay the expenses of such removal and after ten (10) days' written notice being given by the Owner of his/her intent to sell the materials, the Owner may sell the materials at auction or at private sale and shall pay to the Contractor the net proceeds therefrom after deducting all the costs and expenses that should have been borne by the Contractor.

8.10 Payments for Extra Work: Written notice of claims for payments for Extra Work shall be given by the Contractor within ten (10) days after receipt of instructions from the Engineer to proceed with the Extra Work and also before any work is commenced except in emergency endangering life or property. No claim shall be valid unless so made. In all cases, the Contractor's itemized estimate sheets showing all labor and material shall be submitted to the Engineer. The order for Extra Work shall specify any extension of the Contract Time and one of the following methods of payment:

- a. Unit prices or combinations of unit prices which formed the basis of the original Contract.
- b. A lump sum based on the Contractor's estimate, approved by the Engineer and accepted by the Owner.
- c. Actual cost plus 10% for overhead and profit.

8.11 Payment for Work Suspended by the Owner: If the work or any part thereof shall be suspended by the Owner and abandoned by the Contractor, the Contractor will be entitled to payment for all work done on the portions so abandoned, plus 10% of the value of the abandoned work to compensate for overhead, plant expense, and anticipated profit.

8.12 Payment for Work by the Owner: The cost of the work performed by the Owner in removing construction equipment, tools and supplies and in correcting deficiencies shall be paid by the Contractor.

8.13 Payment for Work by the Owner Following His/Her Termination of the Contract: Upon termination of the Contract by the Owner, no further payments shall be due the

Contractor until the work is completed. If the unpaid balance of the Contract Amount shall exceed the cost of completing the work, including all overhead costs, the excess shall be paid to the Contractor. If the cost of completing the work shall exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The cost incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Owner and approved by the Engineer.

8.14 Payment for Work Terminated by the Contractor: Upon suspension of the work or termination of the Contract by the Contractor, the Contractor shall recover payment from the Owner for the work performed, plus loss on plant and materials, plus established profit and damages, as approved by the Engineer.

8.15 Payment for Samples and Testing of Materials: Samples shall be furnished by the Contractor at his/her expense.

- a. Initial testing of samples and materials furnished shall be arranged and paid for by the Owner. Subsequent testing due to failed tests shall be paid for by the Contractor.

8.16 Acceptance and Final Payment: When the Contractor has completed the work in accordance with the terms of the Contract Documents, the Engineer shall state his/her acceptance to the Owner and his/her approval of the Contractor's Final Request for Payment, which shall be the Contract Amount plus all approved additions less all approved deductions and less previous payments made. After acceptance of the work by the Owner, the Owner shall release the Contractor, except as to the conditions of the Bonds, any legal rights of the Owner, required guarantees, and Correction of Faulty Work after Final Payment, and shall authorize payment of the Contractor's final Request for Payment. The Contractor must allow sufficient time between the time of completion of the work and approval of the final Request for Payment for the Engineer to assemble and check the necessary data.

8.17 Termination of Contractor's Responsibility: The Contract will be considered complete when all work has been finished, the final review made by the Engineer, and the project accepted in writing by the Owner. The Contractor's responsibility shall then cease, except as set forth in these Contract Documents.

8.18 Correction of Work After Final Payment: The approval of the final Request for Payment by the Engineer and the making of the final payment by the Owner to the Contractor shall not relieve the Contractor of responsibility for faulty materials or workmanship. The Owner shall promptly give notice of faulty materials or workmanship and the Contractor shall promptly replace any such defect, discovered within the time stated in the Maintenance Bond, from the date of written acceptance of the work. The Engineer shall decide all questions arising under this paragraph.

8.19 **No Waiver of Legal Rights:** Should an error be discovered in or payment of unauthorized work be made by the final estimate or should dishonesty on the part of the Contractor be discovered in the work, the Owner reserves the right, after the final payment has been made, to claim and recover by process of law such sums as may be sufficient to correct the error, to recover the overpayment, or to make good the defects in the work resulting from the Contractor's dishonesty.

Revised 2/07

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**SECTION 01 11 00
SPECIAL PROVISIONS**

DIVISION 1 – GENERAL

1.01 SCOPE

The work consists of the furnishing of labor and new materials for constructing removing and replacement of asphalt street, curb and gutter, driveway, sidewalk, sanitary and storm structures, and sanitary and storm pipe.

1.02 SPECIFICATIONS

Standard Specifications shall be the current Statewide Urban Design and Specifications (SUDAS). The most current version of the Iowa Department of Transportation (IaDOT) Standard Specifications for Highway and Bridge Construction shall also apply where referenced.

When work is specified to comply with Iowa Department of Transportation (IDOT) Standard Specifications for Highway and Bridge Construction, the latest edition of all standards shall apply, except that the Contractor will be solely responsible for the means, methods, techniques, sequences, procedures of construction, safety requirements and first aid requirements and any portion of said Standard Specifications which infer otherwise shall be disregarded. The Contractor shall be responsible to see that the finished work complies accurately with the Contract Documents. Copies of said specifications may be obtained from the Iowa Department of Transportation.

The following contractual documents and specifications are hereby made a part of this contract by reference.

1. Code of Federal Regulations (CFR) 29, Part 1926, Safety and Health Regulations for Construction.

1.03 OWNER

The Owner, referred to herein, is the City of Nevada, Iowa.

The Contractor shall be responsible to comply with all City requirements regarding the use of existing public roadways for construction traffic and shall immediately clean up leakage, spillage, or repair any damage caused by his operations in any part of the City.

1.04 ENGINEER

“Engineer” shall refer to WHKS & Co., 1421 S Bell Avenue Suite 103, Ames, IA, 50010, or their authorized representative.

1.05 EXISTING FACILITIES

A reasonable effort has been made to show existing facilities on the plans; however, bidders shall be thoroughly familiar with the site and the extent of the work, and the existing facilities and difficulties in connection therewith. Contact with various utilities to determine the exact location of underground facilities will be the responsibility of the Contractor.

The Contractor shall protect all existing utilities within the project boundaries.

No extra compensation shall be made to the Contractor for repairing any existing facilities damaged by the Contractor except those facilities which occupy a location which shall be occupied by the proposed improvements after installation.

1.06 REMOVALS AND EXCAVATION

All removals, rock excavation, and other material removed will remain the property of the Contractor. The Contractor shall dispose of all excavated material off the site. The Contractor shall secure said site.

The Contractor may stockpile these items temporarily as directed by the Owner. The stockpile areas shall be cleaned up and returned to their original condition.

The Contractor shall be required to saw existing concrete and asphalt surfacing where removal is not to be made to an existing joint. This shall apply to all paving, driveways, and sidewalks. No separate payment will be made for the required saw cuts.

All signs shall be removed, salvaged, and replaced as an incidental item.

1.07 SURFACE DRAINAGE

The Contractor shall take special care to provide good surface drainage for excavated areas. Subgrade preparation and aggregate base construction shall be scheduled as soon as possible after excavation to avoid the possibility of unacceptable moisture and density conditions occurring within the underlying soils. This may require the Contractor to furnish and install temporary drainage pipes and to construct temporary ditches at the locations determined by the Engineer during the construction, at the Contractor's expense.

1.08 ITEMS INCIDENTAL TO PROJECT

Items of work for which no pay items are included in the bid proposal shall be considered as incidental expense and no separate payment will be made therefore. Incidental items include, but are not limited to, the following:

1. Off-site disposal of excess materials
2. Signs, barricades, lights, etc., for maintaining traffic other than as specified below
3. Maintenance, protection, replacement and/or restoration of poles and utilities
4. Billboards for display of permits, posters, and other required documents
5. Restoration or replacement of culverts or other drainage courses or structures not designated for removal
6. Sanitary and water service pipe removal
7. Miscellaneous removals and disposal of material including debris, silt, mud, organic material remaining in the work area
8. Sawcutting of in-place driveways, streets, sidewalks, or parking lots
9. Shaping existing crushed stone base in surfacing aggregate areas
10. Removal and replacement for any fences, street signs, and other miscellaneous items necessary for proper installation of any work required by this contract
11. Locating and excavating for existing utilities and gas mains
12. Dewatering
13. Temporary aggregate surfacing for street and driveway access
14. Maintenance of sub-base aggregate materials prior to paving
15. Removal and re-installation of mailboxes
16. Connecting to existing watermain
17. Watermain retainer glands
18. Locating existing sanitary and water services
19. Minor tree and root removal

1.09 COMPENSATION FOR INCREASED OR DECREASED QUANTITIES

There will be no quantities which are subject to adjusted compensation for an increase or decrease of quantities as defined by the Iowa DOT specification and General Conditions.

1.10 PROJECT SCHEDULE

All work must be completed before the date stated within the Bid Announcement, unless otherwise agreed by the City.

The parties hereby agree that damages occasioned the City by the Contractor's failure to complete the work within the Contract time are difficult to measure. Therefore, if the Contractor does not complete all work under this Contract as required herein above, the Contractor shall pay to the City the sum of One Thousand Dollars and no/100 (\$1,000) per calendar day as agreed liquidated damages accrued by the City as a result of not having 100% use of the facilities and for administrative costs and professional services.

Said payment of liquidated damages at daily rate stated above shall continue until all work is satisfactorily completed as specified and so determined by the Engineer. The City shall have the right to collect the above described liquidated damages by deducting said amounts from funds payable to the Contractor or by such other means as are available. In addition to the above liquidated damages for delay in performance, the City reserves all rights and remedies they may have against the Contractor for breach of Contract.

1.11 CONTROL OF WORK

The initial staking of the project shall require five calendar days advance notice. All subsequent staking shall require 48 hours advance notice.

The Contractor shall provide and maintain signs and barricades to adequately mark the construction areas. Flashing lights shall be provided for nighttime marking.

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

1.12 CONTINUITY OF EXISTING WATER SUPPLY

The Contractor shall notify and coordinate water service shutdown with city Officials a minimum of two (2) weeks before the work commences. The Contractor shall coordinate work so that disruption to homes and businesses is minimized.

1.13 MAINTAINING TRAFFIC FLOW

A traffic pattern on City streets and alleys shall be maintained to provide emergency vehicle access to all property or as close as good construction planning will permit.

The Contractor is encouraged to open the road to safe traffic as soon as possible. Traffic control around the work zone is required.

Cooperation with City, State, and County Officials, adjacent property owners, other Contractors, Engineers, and Inspectors will be required at all times.

1.14 DRIVEWAYS

Private driveways, commercial entrances, and alleys shall be restored to usable condition immediately. This may require temporary driveway material to be placed by the Contractor. No payment will be made for temporary driveway material. Reclaimed gravel from existing streets or drives may be used.

1.15 STREET CLOSINGS

The Contractor shall notify the Public Works Director, the Fire Department, and the Police Department at least two (2) weeks prior to the closing of any streets. Warning signs and barricades shall be provided to adequately alert motorists of the closed streets.

1.16 SOIL CONDITIONS

The Contractor shall accept the existing soil conditions at the site and shall make the excavations required in the Plans and Specifications. Structural changes required by unforeseen soil conditions will be compensated for as provided by the extra work provisions of the Specifications.

1.17 INVESTIGATION OF THE SITE AND ORAL AGREEMENTS

The Contractor shall investigate the nature and location of the work, the general and local conditions including but not limited to existing electrical distribution and other utilities, transportation, disposal, handling, and storage of materials, availability of labor, water, electric power, fuel, roads, and uncertainties of weather, or other physical conditions at the site, the conformation and condition of the ground, the character, quality and quantity of surface and sub-surface materials to be encountered and the character of equipment and facilities needed prior to and during the prosecution of the work. The Contractor's failure to properly conduct such investigation shall not relieve him from the responsibility for performing the work for the Contract Sum.

No oral agreement or conversation with any officer, agent, or employee of the Owner or the Engineer, either before or after the execution of this contract, shall effect or modify any of the terms or obligations contained in the Contract Documents.

1.18 OBSERVATION AND TESTING

All work performed and all material and equipment furnished by the Contractor shall strictly conform to the drawings and specifications. Competent labor, mechanics, and tradesmen shall be used on all work.

The acceptance at any time of the materials by or on behalf of the Owner shall not bar the Owner from future rejection if they are subsequently found to be defective or inferior in quality or uniformity to the material specified.

When any material shall be rejected by the Engineer, such material shall be removed at once from the line of work at the Contractor's expense, and shall not be brought back.

The Engineer shall have the right to observe and witness routine testing of all work and materials covered by the specifications. He shall have the right to review the manner in which special or requested tests are conducted.

The Contractor shall perform their own quality control testing based on IDOT testing requirements. The CONTRACTOR shall obtain an Independent Testing Laboratory for quality assurance soil investigation and tests including soil proctors and density tests, which meet IDOT testing I.M. 204A requirements. The Contractor shall also obtain an independent Testing Laboratory for satisfactory compression and/or flexural tests on concrete specimens made by the Testing Laboratory from materials furnished by the Contractor meeting IDOT I.M. 204E. If, however, in the event that personnel from the Testing Laboratory are not on the job site during the placing of concrete, then it shall be the CONTRACTOR'S responsibility to obtain and store concrete test specimens, made at the job site, for delivery to the Testing Laboratory. No concrete shall be placed unless said test specimens are made.

The Contractor shall perform pressure testing and disinfection tests at their own expense.

Work rejected by the Engineer shall be replaced with acceptable work at the expense of the Contractor.

Any inspections, tests, or approval of waiver of test shall not in any way relieve the Contractor of full responsibility for furnishing apparatus, equipment and all materials meeting the guaranteed performance and requirements of the Contract.

1.19 MATERIALS AND EQUIPMENT

All materials and equipment shall be new and unused unless otherwise specified, shall be of good quality, free from faults and defects, and shall meet or exceed the requirements of the specifications.

1.20 CROSS REFERENCES

The cross references listed in several Sections of these Specifications shall be used as a general guide only and shall not determine or limit the extent of the work required by the balance of the Specifications or Drawings.

1.21 APPLICABLE CODES AND REGULATIONS

All work shall conform to the requirements of all National, State, or local laws, ordinances, building codes, or other regulations that are in effect at the place of work.

1.22 PROGRESS AND COMPLETION

The work shall be commenced and completed within the time limits stated in the specifications. The Contract Time may be extended by the Owner in an amount equal to the time lost due to delays beyond the control of the Contractor if he makes a claim therefore in accordance with the General Conditions. Such delays shall include delays caused by fire, flood, labor strikes, epidemics, abnormal weather conditions, or Acts of God. A weather condition which is not more extreme than has occurred at the closest official weather recording stations in the most recent five year period will not be considered an abnormal weather condition. The term "Act of God" as used herein above shall be defined as an inevitable accident; such as an extraordinary interruption of the usual course of events that no experience, foresight of care which might reasonably have been expected could have foreseen or guarded against it, as lightning or tornadoes.

Once started, the Contractor shall devote their full attention to the project until the project is complete. Stopping and restarting the project at a later date shall not be allowed.

1.23 SUNDAYS, HOLIDAYS, AND OVERTIME

Any work necessary to be performed after regular working hours, Sundays, or legal holidays, shall be performed without additional expense to the Owner. Additionally, the Contractor shall reimburse the Owner for additional Engineering expenses incurred during such period of Sunday, legal holiday or after regular working hours when work is being performed.

1.24 PERMITS, LICENSES AND MISCELLANEOUS FEES

The Contractor shall be responsible for obtaining all the necessary permits and licenses required by law. Any utility connections, charges, or other miscellaneous fees shall be paid by the Contractor.

1.25 ENVIRONMENTAL PROTECTION

The Contractor is required to rigorously control the work so that the environment including air, water, and land is not environmentally damaged by dust, runoff, erosion, and/or noise during the course of construction. When spoil from earthwork is stored as part of the Contract work, it will be protected by barriers or dikes to prevent erosion of spoil material and runoff of solids to any stream or other body of water.

In accepting the Contract, the Contractor accepts full liability for any lawsuits brought by any person, corporation, or agency as a result of environmental damage caused by the construction work.

1.26 RECORD DRAWINGS

The Contractor shall maintain at the construction site one complete set of drawings suitably marked to show all deviations from the original set of drawings and other information as specified. Supplementary sketches shall be included, if necessary, to clearly indicate all work as constructed.

All work shall be clearly shown and the record drawings shall be satisfactory to the Owner in order to insure that adequate information is indicated to show the actual construction. One complete set of the record drawings shall be furnished to the Engineer prior to submittal of the final Application for Payment. Failure of the Contractor to maintain an up-to-date set of record drawings on the project site shall be reason to withhold payments. All underground lines shall be referenced to surface landmarks so the exact location can be determined from the record drawings.

1.27 SIGNS AND BARRICADES

The Contractor shall furnish, erect, and maintain all signs, barricades, fencing, etc. to adequately mark and protect the construction area. Flashing lights shall be provided for nighttime marking.

1.28 CLEANUP

The term cleanup applies to the removal of excess materials, the shaping of streets adjacent to the excavation, and the related work necessary to restore the construction area to its original condition and usability.

Unnecessary delay by the Contractor in cleanup may result in the suspension of further construction until such cleanup is completed.

1.29 PRECEDENCE WITHIN THE SPECIFICATION

Should any of the items of these Special Provisions conflict with any other items of the Contract Documents, these Special Provisions shall govern.

1.30 HISTORICAL/ARCHAEOLOGICAL

If, during the course of construction, evidence of deposits of historical or archaeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Owner. No further disturbance of the deposits shall ensue until the Contractor has been notified by the Owner that he may proceed. The Owner will issue a Notice to proceed only after the State official has surveyed the find and made a determination of value and effect and submitted such determination to the Environmental Protection Agency and the Owner. Compensation to the Contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or change order provisions of the specifications.

1.31 CONSTRUCTION SITE SAFETY

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs for their employees in connection with the work. Furthermore, the Contractor is responsible to provide a safe work site for employees and/or representatives of the Owner.

The Contractor shall comply with all Federal, State, and local safety requirements. The Contractor shall have a current safety plan and a designated safety officer.

END OF SECTION

**SECTION 33 35 01
PIPE REHABILITATION**

DESCRIPTION

1.01 SCOPE

- A. It is the intent of the Specification to provide for the rehabilitation of sewers by the installation of a pipe liner system into the existing sewer line. When complete, the pipe liner should be a continuous, tight fitting, watertight pipe-within-a-pipe.
- B. The Contractor shall furnish all labor, equipment and materials necessary to complete the lining of sewers as stipulated herein and as shown on the Plans.

MATERIALS

2.01 CURED IN PLACE PIPE LINER (CIPP LINER)

- A. CIPP lining system selected shall be present on the following list of prequalified lining processes, or Engineer approved equal:
 - 1. Insituform Process (Cured in Place Pipe)
 - 2. National Liner Process (Cured in Place Pipe)
 - 3. Applied Felts Aqua Cure (Cured in Place Pipe)
- B. The resin shall be a general purpose, unsaturated, styrene-based thermoset resin and catalyst or an epoxy resin and hardener that is compatible with the proposed installation process. The resin must cure in the presence of water and the initiation temperature for cure must be less than 180 degrees F (82.2 degrees C).
- C. The tube shall consist of one or more layers of flexible needled felt or an equivalent woven or nonwoven material. The tube shall be capable of carrying resin, withstanding installation pressures and curing temperatures, and compatible with the resin system used. The material should be able to stretch to fit irregular pipe section and negotiate bends. Allowance should be made for stretching during the installation process.
- D. The CIPP liner system shall be installed, meet the requirements and conform to the minimum structural standards of ASTM F1216.
- E. The minimum nominal liner thickness for 6" pipe shall be 4.5mm, the minimum nominal liner thickness for 8" and 10" pipe shall be 6mm.
- F. Liner pipe thickness design for pipes larger than 10" shall be in accordance with Appendix XI of ASTM F1216. The existing pipe shall not be considered as providing any structural support to the liner pipe (fully deteriorated). In the liner thickness calculations, the following parameters shall be utilized:

Slope of Host Pipe	1.0 %
Ovality	5 %
Modulus of Soil Reactoin	1,000 psi
Safety Factor	2
Unit Weight of Soil	120 pcf
Unite Weight of Water	62.4 pcf
Height of Groundwater	1/2 depth of ground cover
Impact Factor - dimensionless factor	1
Poisson's Ratio of CIPP	0.30
Initial Flexural Strent	4,500 psi
Long - Term Flexural Strength	2,250 psi
Enhancement Factor	7.0

Live Load	16,000 lbs
Chemical Resistance	ASTM D5

- G. The long term flexural modulus of elasticity shall be 50% of the short term modulus but may not be greater than 200,000 psi.
- H. The thickness calculations using these parameters are based on previously observed conditions and shall constitute the minimum finished thickness to be installed. If conditions at the time of the pre-lining televising differ such that the liner thickness needs to be increased, the Contractor shall notify the Engineer immediately. The cost for modifying the liner thickness, if any, will be negotiated after the need is confirmed by the Engineer and prior to liner installation. There will be no penalty or additional compensation for delays caused by changes in previously observed conditions, provided the Owner, the Engineer, and the Contractor are notified of such changes as they become evident.
- I. No liner greater than 10" diameter will be approved for installation until liner thickness calculations have been submitted and reviewed for conformance with the specifications and installation requirements.

2.02 PULLED-IN-PLACE UV-CURED LINER

- A. UV Lining system selected shall be present on the following list of prequalified lining processes, or Engineer approved equal:
 - 1. Seartex (UV Liner)
 - 2. Omega (UV Liner)
 - 3. Impreg (UV Liner)
- B. UV liners shall meet the requirements and conform to the minimum structural standards of ASTM F2019 for a fully deteriorated host pipe condition, and all requirements in the Contract Documents specific to the Project.
- C. UV Liner thickness calculations provided by Contractor shall be stamped by a Professional Engineer licensed in the State of Iowa.

2.03 FIBERGLASS LINER

- A. Fiberglass lining system selected shall be present on the following list of prequalified lining processes, or Engineer approved equal:
 - 1. Insituform (Fiberglass Liner)
- B. Fiberglass liners shall meet the requirements and conform to the minimum structural standards of ASTM F1216 for a fully deteriorated host pipe condition, and all requirements in the Contract Documents specific to the Project.
- C. Fiberglass Liner thickness calculations provided by Contractor shall be stamped by a Professional Engineer licensed in the State of Iowa.

2.04 SPOT LINER (SHORT LINER)

- A. Spot Liner (Short Liner) system selected shall be present on the following list of prequalified processes, or Engineer approved equal:
 - 1. CUES Lok
 - 2. UV GRP
- B. Spot Liners (Short Liners) that are intended for standalone installation shall be zero shrink resin or comparable system specifically design for short length repairs in conformance with SUDAS Specifications Section 4050. Thickness and strength design shall be the same as specified for full-length liners.
- C. Alternately, Spot Liners (Short Liners) that are intended as a preparatory (stabilizing) step to full length CIPP lining shall be as thin as practical for the application. In 8"- and 10"-diameter pipes

the thickness of such "pre-liners" shall not exceed 2 mil and in 12"- diameter and larger pipes the thickness shall not exceed 3 mil.

- D. In all cases, Spot Liners (Short Liners) shall have ends that self-seal against the host pipe with chamfered edges to provide smooth transition to the host pipe.

2.05 ODOR MASKING AGENT

- A. Contractor shall use chemical additives specifically designed and approved by the CIPP liner manufacturer to mask polystyrene odor during curing.

2.06 WATER-TIGHT END SEALS

- A. The Contractor is responsible for installing water-tight end seals to achieve a water tight seal at both ends of the liner:
 - 1. Install gasketed stainless steel bands (LMK or pre-approved equal) inside each end of the host pipe prior to lining. This method shall be the only acceptable method.
 - 2. Hydrotite and chemical pressure grouting of end seals is NOT acceptable unless pre-approved by the Engineer in limited circumstances.

2.07 WARRANTY

- A. The Contractor shall Warrant and save harmless the Owner and his Engineer against claims for patent infringement and any loss thereof.

INSTALLATION:

3.01 PEAK WET WEATHER FLOW RATES AND BYPASS PUMPING

- A. Contractor is responsible for bypass pumping. Contractor shall maintain in operating condition all active sewers encountered in the sewer lining installation. The Contractor, when required, shall provide for the flow around the section of pipe designated for the liner. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow.
- B. See Plans for information on existing flow conditions.
- C. If Plans do not state existing flow conditions, assume full pipe flow for gravity pipes and contact the Engineer for forcemain discharge rates.
- D. Contractor shall coordinate with all affected residents and business.
- E. No business can be without sanitary service during its normal business hours.
- F. Sanitary services shall not be out of service for more than 8 hours during lining process.
- G. Night work may be required.

3.02 SITE ACCESS

- A. See Plans for information on site access restrictions, if present. Restrictions may include such items as easements, designated pathways, seasonal crop restrictions, private property timing restrictions, etc.
- B. Contractor must review the site prior to bidding and make his/her own determinations as to access, timing, and means necessary to complete the work in his Proposal. Means may include but are not limited to utilizing off-road equipment, matting, temporary driving surfaces, scaffolding, RR and/or DOT permits, nighttime work, holding and/or relocating utilities, restoring private property encumbrances, temporary removal of manhole components, etc.
- C. Contractor is responsible for furnishing, installing, and removing any temporary facilities necessary for site access of his/her equipment and materials.

- D. Contractor is responsible for restoring the site to pre-existing condition. Any damages to public or private property, is the responsibility of the contractor and the contractor shall returned the property to original or better condition.

3.03 EXISTING HOST PIPE AND MANHOLE CONDITIONS

- A. Contractor must examine the available prior CCTV videos and manhole conditions prior to bidding and make his own determinations as to appropriate preparation work and lining technogy.
- B. Make all necessary observations of existing conditions, including but not limited to conditions such as leaking joints, broken pipe, groundwater, pipe depths, etc, and deploy the appropriate equipment to install the liner successfully and without further damage to the pipe.
- C. Depths of manholes and pipe sizes vary throughout the Project.
- D. Depths and pipe sizes are listed on the Plans and shall be field verified by Contractor prior to fabricating the liner. Make all necessary measurements in the field to ensure precise fit of liner. Contractor shall notify Engineer of any discrepancy found between the Plans and field conditions.

3.04 PRECONSTRUCTION SUBMITTAL:

- A. Cut sheets for all materials proposed to be furnished and installed such as:
 - 1. Liner materials. This will show manufacturer's name and catalog number for each item, complete catalog cuts and technical data, and the manufacturers' recommendations as to method of installation. Upon approval of the Engineer, the manufacturers' recommendations shall become the basis for acceptance or rejection of actual methods of installation used in the work.
 - 2. Pre-Liners and / or Spot Liners
 - 3. End Seals
 - 4. Cure monitoring tape/wire
 - 5. Grout
- B. Liner pipe design thickness calculations. Include PE stamp if required by the Specifications.
- C. Sample of CCTV Video, report, and database to confirm compatibility with submittal requirements.
- D. By-pass pumping plan.
- E. Site access plan. Plan shall account for site access limitations, proposed equipment including preparation, installation, and support vehicles, and restoration.
- F. Sample of door hangers, flyers, etc. Contractor will use to communicate with affected residents during construction.
- G. American Iron and Steel (AIS) certificates, if applicable by Specifications.

3.05 PUBLIC NOTICE

- A. Contractor shall place door hangers, flyers, etc. to alert affected residents in the vicinity of the proposed lining work.

3.06 WORK IN FLOOD PLAIN OR DRAINAGEWAYS

- A. FEMA-designated flood plains, if present, will be indicated on the Plans.
- B. Manholes in drainage swales or channels may not be noted as such in the Plans but will be evident by field inspection.
- C. Contractor shall place a temporary 3-ft high ring of sandbags around any manhole that must be left open and unattended and in a flood plain or drainageway. Typical examples of this situation include bypass locations and manholes with cones temporarily removed to facilitate lining. The intent of sandbagging is to avoid inundation of the sanitary sewer system by flood water in the event of a rain event.

3.07 SAFETY

- A. The Contractor shall carry out his operations in strict accordance with all OSHA and manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with hazardous/combustible materials, scaffolding, and entering confined spaces.
- B. In addition to the public safety requirements in the Contract Documents, the Contractor shall also shall erect and maintain a 6-ft high locked temporary chain-link fence around sanitary manholes and/or excavations left open and unattended at the following locations:
 - 1. Within 20 feet of bike trails, sidewalks, shared use paths, driveways, and roads.
 - 2. Any other location that the Contractor feels is necessary to protect public safety.

3.08 CCTV INSPECTION

- A. Contractor shall perform CCTV inspection of the pipes to be lined. Inspections shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by closed circuit television.
- B. Inspection is required at the following intervals. Provide records to the Engineer.
 - 1. Pre-Cleaning. This may be televised with live flow, at Contractor's discretion. The interior of the pipeline shall be carefully inspected to determine the location of any condition which may prevent proper installation of the liner into the pipelines and it shall be noted so that these conditions can be corrected.
 - 2. Pre-Lining ('Prep'). Pipe must be dry, 0% full. Pre-lining CCTV shall be provided to the Engineer a minimum of 7 days prior to lining.
 - 3. Post-Lining. Pipe must be dry, 0% full.
 - 4. Post-Service Grouting. This is only applicable if services are found to be active. Flow must be low enough to verify footage and post-grout condition.
- C. Contractor shall provide a copy of all CCTV videos, PACP exchange-compatible database, and PDF reports of video sessions to the Engineer in one complete submittal at the end of the Project.

3.09 DETERMINATION OF ACTIVE SERVICE LATERALS

- A. The Contractor shall be responsible for determining which service laterals are active. Active service laterals are defined as those currently conveying wastewater from a private source. Water flowing from a lateral is not an adequate indicator of being active. Laterals with clear water (I/I) flowing may be inactive. Determination of active service laterals is incidental to lining.

3.10 CLEANING

- A. Cleaning of sewer line: It shall be the responsibility of the Contractor to clean the host pipe prior to lining. Cleaning includes removal of sediment, mineral deposits, compacted deposits, compacted sediment, grease, degraded and/or delaminated host pipe material, and foreign objects to restore the inside diameter of the pipe to 100% of its design diameter. Contractor shall utilize light and heavy cleaning processes as necessary.
 - 1. Light cleaning is generally defined as up to two passes with a high pressure jet.
 - 2. Heavy cleaning is generally defined as three or more passes of the jet or use of mechanical cleaning equipment such as reaming or chain-type "lumberjack" tools.
- B. Contractor shall install 'parachutes' or comparable devices downstream of the work to capture and remove all materials dislodged by cleaning activities. Do not allow grit, debris, etc. into the the downstream sewer collection system.
- C. Disposal of waste generated by cleaning shall be by Contractor. All costs of hauling and disposing of waste is incidental to the Project.

3.11 AVAILABILITY OF WATER

- A. See the Special Provisions of these Specifications for water sources and cost.

3.12 ACTIVE LEAKS

- A. Contractor shall stop active leaks in pipes by chemical pressure grouting prior to installation of the liner.
- B. Contractor shall stop active leaks in manholes, bychemical pressure grouting or other means, if those leaks are flowing into pipes and impacting the lining or televising operations.

3.13 SEQUENCING WITH EXCAVATION REPAIRS

- A. Contractor shall complete excavation point repairs and installation of new manholes prior to installation of the liner.

3.14 FABRICATION

- A. The liner shall be fabricated to a size that, when installed, will neatly fit the internal circumference of the conduit specified by the Engineer. Allowance for circumference stretching during insertion shall be made and shall meet ASTM standards.
- B. The minimum length shall be of a distance to span the distance from inlet to the outlet of the respective pipe to be lined. The Contractor shall verify the lengths in the field before reforming.

3.15 INSTALLATION

- A. The method of installation shall be compatible with the manufacturer's recommended practices, NASSCO standard recommended practices, and the following:
- B. Preparation of Liner
 1. Designate location where uncured resin in original containers and unimpregnated liner will be vacuum impregnated prior to installation. Contractor shall allow Engineer to inspect materials and "wet out" procedure.
 2. Resin and catalyst system compatible with requirement of this method shall be used. Quantities of liquid thermosetting materials shall be to manufacturer's standards to provide lining thickness required.
 3. Liner tube shall be impregnated with resin not more than 10 days before proposed time of installation and stored out of direct sunlight at temperature less than 40 degrees Fahrenheit (4 degrees Celsius)
 4. Transport resin impregnated liner to site immediately prior to inversion in suitable light-proof container with temperature maintained below 40 degrees Fahrenheit (4 degrees Celsius).
 5. For UV liners storage and transportation of liners shall be by ASTM 2019 and the manufacturers recommendations.
 6. No pipe shall be lined without prior notification of the Engineer. Each pipe liner shall be subject to inspection by the Engineer immediately before it is installed, and defective liner will be rejected.
- C. End Seals and Cure Monitoring Devices
 1. Install End-Seals and Cure-Monitoring Devices.
 2. Contractor shall install cure-monitoring tape (VeriCure or equal) the entire length of the existing sewer. Tape shall be placed at the botton (invert) of the pipe unless another location is approved by the Engineer. This is required for heat and UV-cured processes. Maintain a tamper-proof cure log throughout the duration of the cure.
 3. Maintain a verified and tamper-proof cure log throughout the duration of the cure.
- D. Insertion of Liner
 1. Insert liner into the existing sewer through existing manholes. CIPP liners shall be inserted via an inversion process. UV liners shall be pulled in place using a power winch or other means approved by the manufacturer.

2. After liner is inserted, the Contractor shall supply suitable heat (of light) source equipment. The equipment shall be capable of uniformly curing the pipe. The temperature or light duration/intensity shall be determined by the system employed.
- E. Curing Liner:
1. After inversion is complete, provide heat source and water recirculation equipment. Equipment shall be capable of delivering hot water or steam throughout section to uniformly raise water temperature above temperature required to effect cure of resin.
 2. Initial cure shall be complete when inspection of exposed portions of liner indicate that it is hard and sound and remote temperature sensor indicates that temperature is of magnitude to realize an exotherm. Cure period shall be of duration recommended by resin manufacturer.
 3. Cool hardened liner to temperature below 100 degrees F before relieving static head in inversion standpipe. Cool down by introduction of cool water into inversion standpipe to replace water being drained from downstream end. Care shall be taken in release of static head so that vacuum will not be developed that could damage newly installed liner.
 4. For UV Liners, the liner shall be pulled into place and inflated to seat the impregnated fabric tube tightly against the host pipe per the manufacturer's recommended level of internal pressure. Contractor shall provide UV light curing equipment to adequately cure the liner in accordance with the manufacturers recommendations and ASTM2019.
- F. Disposal of Cure Water
1. Cure water may be disposed of via the sanitary sewer system provided it has been adequately cooled, as required above, prior to discharge.
- G. Service connections shall be reinstalled using the following procedures:
- H. Reinstall and reconnect service connections unless service connection is deemed to be inactive or abandoned.
- I. Detailed length measurements from pre-televising shall be marked and used to determine reinstatement locations. No 'shot gunning' pilot holes is permitted.
- J. Reconnect services without excavation by television camera and cutting device that re-establishes services for minimum of 95% of the flow capacity:
1. Liner shall be sufficiently tight so that there is no annular space between connection and liner.
 2. Reconnected services shall have the edges buffed smooth to prevent any jagged edges.
 3. Proof test via an air test or other approved method each reinstated service lateral connection.
 4. Active leaks at reinstated service lateral connections and reinstated service lateral connections which do not pass a proof test shall be sealed by chemical grout or other method approved by Engineer.
 5. Contractor shall take care not to plug service lateral. If service lateral becomes plugged by sealing action, Contractor shall be responsible for all repairs and damages.
- K. As part of the testing requirement, upon completion of the installation, a visual inspection shall be performed of the pipe liner in place via a closed circuit television camera.
- L. Correction of Defects
1. If the liner fails to form, the Contractor shall remove the failed liner and replace it with a new liner. This work shall be performed without additional cost to Owner.
 2. After the liner has been formed, the ends of the liner shall be cut away at both manholes.
 3. The finished liner pipe shall be continuous over the entire length of run between two manholes and be as free as commercially practical from visual defects such as foreign inclusions and pin holes.
 4. Any defects which affect the integrity or strength of the liner pipe shall be repaired at the Contractor's expense.
- M. Restoration
1. The Contractor shall restore or replace all removed or damaged paving, curbing, sidewalks, gutters, shrubbery, fences, sod or other disturbed surfaces or structures in a condition equal

to that before the work began, to the satisfaction of the Engineer, and shall furnish all labor and material incidental thereto.

2. Surplus liner material, tools and temporary structures shall be removed by the Contractor. All dirt, rubbish and excess earth from operation shall be legally disposed of by the Contractor, and the construction site shall be left clean, to the satisfaction of the Engineer.

3.16 POST-CONSTRUCTION SUBMITTAL

- A. Post-construction submittal shall include:
 1. CCTV submittal. See CCTV for post-construction video submittal requirements.
 2. Verified Cure Log.

END OF SECTION

SECTION 33 35 02
CHEMICAL PRESSURE GROUTING

DESCRIPTION

1.01 SCOPE

- A. The work in this Section consists of providing for the rehabilitation of defective pipe joints, circumferential pipe cracks, service laterals, and other pipe and manhole defects by the application of chemical grouting materials.
- B. Applicable Standards and References:
 - 1. ASTM F2304 "Standard Practice for Rehabilitation of Sewers Using Chemical Grouting" for sewer pipes
 - 2. ASTM F2454 "Standard Practice for Sealing Lateral Connections and lines from the mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting."
 - 3. ASTM F2414 "Standard Practice for Sealing Sewer Manholes Using Chemical Grouting."
- C. The Contractor shall furnish all labor, equipment, and materials necessary to complete the grouting as stipulated herein and as shown on the Plans.

MATERIALS

2.01 CHEMICAL GROUT

- A. Chemical grout shall be De Neef, Inc., Hydroactive Multigel NF, Avanti International, AV-100 or preapproved equal.
- B. Chemical grout shall be acrylic or acrylate based grout or urethane based grout depending on existing field conditions, pipe / manhole materials, and in accordance with the manufacturer's recommendations for use in sanitary sewer systems. Grout shall be able to create water tight seals to stop active infiltration and withstand freeze/thaw conditions.
- C. Contractor shall provide a chemical sealant solution containing principal chemical sealant constituent, initiator, and catalyst specifically designed for the purpose of sealing leaks in sanitary sewer lines and manholes. Chemical sealant constituent, initiator and catalyst shall be compatible when mixed. Solution shall have ability to tolerate dilution and react in moving water. After final reaction, it shall be a stiff, impermeable, yet flexible gel. The grout proportions shall be such that dilute aqueous solutions — when properly catalyzed — will form stiff gels. Solutions shall have ability to accept dilution by groundwater of at least 50% by volume, without significantly changing sealing ability of the gel when at rest or in motion. Solutions shall gel in a predetermined time when exposed to normal groundwater pH ranges, and be capable of formula adjustments to compensate for changing conditions. Final reaction shall produce a continuous, irreversible, impermeable stiff gel at chemical concentrations as low as 0.4 lbs per gallon of water that is able to break away from the joint sealing packer when the packer is deflated. Gel shall not be rigid or brittle. Gel shall have negligible corrosion rate on mild steel plates. The use of insoluble additives shall not be permitted.

2.02 CHEMICAL ROOT INHIBITOR

- A. Contractor shall add root inhibitor to the chemical grout mixture at a safe level of concentration having the ability to remain active within the grout for a minimum of 12 months. Contractor shall mix root inhibitor with the grout according to the instructions of the grout manufacturer and in the specified quantities. NOTE, application of chemical root inhibitor is not required where prohibited by EPA regulations.

INSTALLATION

3.01 EXISTING CONDITIONS

- A. Existing structure may be brick, precast concrete, plastic adjusting rings, or other materials in any combination.
- B. Existing pipe and service laterals may be clay, concrete, plastic, ductile iron, cast iron, or combinations of materials.
- C. Depths of manholes and pipe / service diameters vary.

3.02 PRECONSTRUCTION SUBMITTAL

- A. Preconstruction submittal shall include:
 - 1. Material type, manufacturer, catalog data sheets, ASTM references, material composition, manufacturer's recommended specifications, component physical properties and chemical resistance.
 - 2. Manufacturer's detailed recommendations for material storage, installation/application process, mixing, additives, set time, cure time, and equipment required for proper installation.
 - 3. Third party testing that describes each component to be applied/installed, expected longevity in a wastewater environment, recommended field conditions for installation.
 - 4. Manufacturer's recommendations for manhole preparation, field testing processes and procedures.
 - 5. Copies of third-party testing stating product meets or exceeds plan and specification requirements and performs as required to seal manhole structures against groundwater infiltration in existing field conditions.
 - 6. Bypass pumping plan if required for installation.
 - 7. Certified statement from manufacturer that contractor is an approved installer for the submitted product.
 - 8. Proposed post construction inspection and testing documentation.
 - 9. Proposed methods and procedures to repair grout in case of material/application failure to ensure manhole is watertight against groundwater infiltration. Non-conforming or unacceptable product installation/end product shall be repaired at no cost to the City.

3.03 SAFETY

- A. The Contractor shall carry out his operations in strict accordance with all OSHA and manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with hazardous/combustible materials, scaffolding, and entering confined spaces.

3.04 INSTALLATION:

- A. Bypass pump as required.
- B. Sequence:
 - 1. All excavation work shall be completed prior to grouting. Examples include casting / chimney replacements and excavation point repairs. Backfilling must be completed prior to grouting.
 - 2. Grout must be installed to stop active leaks prior to all dry-dependent work such as CCTV inspections, manhole lining, and pipe lining.
 - 3. CIPP lining and service reinstatement must be completed prior to service grouting.
- C. Cleaning of Pipes, Services, and/or Manholes as applicable:
 - 1. Manholes:
 - 2. Remove debris from manhole and do not allow debris to discharge downstream through sanitary sewer system. Properly dispose of debris removed from manhole.
 - a. Prepare manhole for grouting installation per manufacturer's recommendations including, but not limited to, removal of steps, removal of roots and debris, sealing of large diameter lift holes or gaps.
 - 3. Pipes and Services:

- a. Remove debris, solids, roots, protruding taps, and other deposits in the sewer line; particularly at sewer pipe joints.
 - b. Remove roots and deposits, if present in the service tap, via the use of a remotely-launched cutting tool. This includes the potential for tuberculation in cast iron service wyes.
 - c. If inspection reveals an obstruction, such as a badly dropped joint or badly misaligned joint, the Contractor shall notify the Owner immediately. The Owner shall have the opportunity to order a point repair excavation to remove or repair the obstruction.
- D. Identification of Locations Requiring Grout
- 1. Manholes
 - a. Grout active leaks or evidence of leaks (mineral deposits) that are visible in the structure. Locations may include corbel, flat top section, wall, pipe connections, cone, bench, and invert.
 - 2. Pipes and Services
 - a. Grout active leaks and evidence of leaks (mineral deposits) that are visible in pipe joints, manhole junctions, small circumferential cracks, or holes.
 - b. Grout service laterals and pipe joints that fail pressure testing.
- E. Gel Checks
- 1. Contractor shall make gel checks daily for each sealing vehicle to monitor induction period and gel characteristics. Contractor shall also make checks for every mixed batch or at least twice per day if only one batch is used. Contractor shall also make gel checks in the pipe at the request of Owner by seating the packer on the pipe barrel and filling the packer void with grout solutions. Pressure will then be monitored until a rise in pressure is observed, indicating that grout has gelled in the packer void. Contractor shall certify results of required gel checks.
 - 2. Owner reserves right to request adjustment of gel times or reject the entire batch if acceptable gel characteristics do not exist.
- F. Installation
- 1. Manholes
 - a. Grout shall be installed via drilled holes through manhole sections at location of leaking joints, bench/channel, and pipe connections. Minimum distance shall be one third of leaking joint/wall/pipe connection circumference. Alternate installation methods are acceptable with approval by Engineer. Drill holes as required in order to install grout and in accordance with manufacturer recommendations. Additional holes may be required to verify that grout installation has encompassed entire structure.
 - b. Injection holes shall be cleaned and patched once grouting process has been completed.
 - 2. Pipes and Services
 - a. Apply sufficient grout to stop active leaks or to pass air testing, as applicable.
 - b. The repair shall be such that the original cross-sectional area and shape of the interior of sewer pipe or lateral shall not be permanently reduce or changed.
 - c. Service lateral grouting distance shall be noted in the Plans. If not noted in Plans the grouting shall include the service tap and four (4) linear feet up the service lateral measured from the wye.
 - d. Contractor shall position the sealing packer over the area of infiltration by means of a metering device at the surface and CCTV camera in the line. Accurate measurement of the location of the defect to be sealed shall be made, using the portion of the sealing packer as "Datum" or measurement point or target. Contractor shall expand the sealing packer sleeves using controlled pressures. Expanded sleeve shall seal against the inside periphery of pipe to form a void area at the point of infiltration, completely isolated from the remainder of the line. Contractor shall inject grout at controlled pressures that are in excess of groundwater pressures.
 - e. Contractor shall inject as much grout as is field-required to seal any leaks and fill voids.

- f. Grout shall break away from the packer and stay in place when the packer is deflated and moved away.
- g. Upon completion of injection, Contractor shall retest the joint / service via pressure test. If retesting shows the seal was not completely effective, Contractor shall repeat the sealing process until the defect successfully passes the pressure test.
- h. After sealing the entire sewer section or lateral, Contractor shall remove surplus grouting material from section at the immediate downstream manhole. If surplus grouting materials left in the sewer section or lateral by Contractor results in sewer surcharging or backups, and subsequent damage to public or private property, Contractor shall be responsible for damage to property and expenses incurred by the Owner and/or private property owner.

3.05 TESTING

- A. Pressure Testing:
 - 1. Pressure Testing is Required for:
 - a. Service taps, wyes, and lateral pipe.
 - b. Sewer mains when grouting is done as a final repair, ie, without being followed by CIPP.
 - 2. Pressure Testing is Not Required, unless otherwise specified in the Contract Documents, for the following:
 - a. Manholes.
 - b. Sewer mains when grouting is done as preparation for CIPP lining.
 - c. In the event of service taps that are in close proximity to other taps or manholes and, in the opinion of the Engineer are unable to be safely air tested, specific taps may be excluded from air testing by permission from Engineer.
 - 3. Contractor shall provide equipment such as pumps, gauges, regulators, and hoses, necessary to perform air tests. The system shall be able to be monitored live by the Engineer and maintain permanent records of the testing. Systems which incorporate bladders for monitoring pressure and which have questionable accuracy shall not be allowed.
 - 4. The accuracy and calibration of pressure sensing/monitoring system shall have been certified by an independent testing firm within a one-month period preceding the use of equipment. Submit proof of certification to the Owner.
 - 5. To confirm that joint testing is not a more severe test than the pipe itself can pass, Contractor shall perform an on-job barrel test between joints in each pipe line to be tested to determine that the pipe barrel can pass the test criteria. If the pipe barrel will not pass decay rate limits, adjustment of maximum pressure levels will be evaluated jointly between Contractor and Owner. Owner shall render final written decision on each such situation.
 - 6. Air test process:
 - a. Isolate the area to be tested within the testing device and apply positive pressure into the joint and void area created by the test device.
 - b. Introduce pressurized air until the target air pressure is met.
 - c. Target air pressure is 1/2 psi per ft of depth plus 4 psi, to a maximum of 10 psi.
 - d. Shut off air supply.
 - e. Rate of decay of pressure shall not exceed 1 psi in 30 seconds.
 - f. If the target pressure cannot be met, or if the rate of decay exceeds allowable rate, the joint / service being tested fails. Failure indicates the need for grouting and retesting.
 - 7. Contractor shall continuously record the air testing, grouting, and re-testing of sequence within sewer mains by CCTV and maintain the written records required in this Section.
- B. Sewer Mains Where Pressure Testing is Not Required: Visually confirm by CCTV that sufficient grout has been injected to stop leaks.
- C. Manholes:
 - 1. All manholes grouted will be visually inspected by the Contractor prior to acceptance. All visible infiltration will be sealed with chemical grouting prior to acceptance.

2. Complete and accurate record of all manholes grouted including field sketches of injection sites, joints sealed, cracks sealed, pipe connections sealed.
3. Identify manhole structure using the City's ID, location, and quantity of grout utilized. If quantity of grout utilized is above the amount shown in the bid, identify the representative who authorized action.
4. Visual inspection will include a report detailing manhole structure ID, location, inspection personnel, date, time, recent weather, and two high-quality photos of each manhole taken during inspection. Photos will be clearly labeled with time and date and manhole ID number and show upper interior of manhole, and lower interior of manhole.

3.06 POST-CONSTRUCTION SUBMITTAL

- A. Post construction submittal shall include:
 1. Post construction testing results, date and time of testing, who performed tests, and person who witnessed testing.
 2. Logs and Records of Air Testing and Grouting
 - a. CCTV records
 - b. Records including identification of the sewer section tested, test pressure used, footage of each grouted location, location of grouted defects not tested, and test results (pass or fail, and psi) for each grouted defect tested, and air temperature at time of grouting.
 - c. Equipment pressure test results
 - d. Gel checks

END OF SECTION

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**SECTION 33 35 03
MANHOLE REHABILITATION**

DESCRIPTION

1.01 SCOPE

- A. It is the intent of the Specification to provide for the rehabilitation of manholes and other sanitary sewer structures.
- B. The Contractor shall furnish all labor, equipment, and materials necessary to complete the rehabilitation items.
- C. Contractor shall coordinate his own crews and subcontractors to complete the work in the proper sequence.

MATERIALS

2.01 GENERAL

- A. These Specifications supplement SUDAS (current revision). In the event of conflict, these Specifications will govern.

2.02 CASTINGS

- A. Castings shall comply with modified figure 6010.601 as shown on the Plans, and comply with SUDAS Section 6010.
- B. If not specified in the Plans:
 - 1. lids shall be bolt-down in fields, ditches, gutters, gravel shoulders, low-lying grass areas, and other areas where ponding water is typically expected to be encountered.
 - 2. lids shall be concealed pickhole type in pavement and grass areas where ponding water is not typical.
- C. Castings shall be bolted through all adjusting rings to the cone of the manhole.

2.03 ADJUSTING RINGS

- A. Adjusting rings shall be polypropylene, polyethylene, or precast complying with SUDAS Section 6010 except as modified below.
- B. Adjusting rings shall be precast only, no plastic permitted, at locations specified for cementitious spray lining, internal flexible chimney seal, or heat-shrink wrap applications.

2.04 EXTERNAL CHIMNEY SEALS

- A. External Chimney Seal shall be Cretex X-85 with Stainless Steel Bands, no exceptions.
- B. Chimney seals shall be UV-resistant when used on locations exposed to sunlight.

2.05 EXTERIOR CHIMNEY / CONE WRAP

- A. Wrap shall be a thermoplastic flexible rubber that is firmly attached to all manhole components. Approved materials are Canusa WrapidSeal, SSI Infini-Shield or Engineer-approved equal. Wrap must be heat-shrink installed, and UV resistant. Adhesive-based wraps are not acceptable.

2.06 EXTERIOR JOINT WRAP

- A. Wrap shall be a thermoplastic flexible rubber designed for protection of buried and exposed sanitary sewer structures, Canusa Wrapid-Seal, SSI Infini-Shield or pre-approved equal.

2.07 CEMENTITIOUS SPRAY / TROWEL LINER

- A. Cementitious liner material shall be designed for structural build-back, preventing infiltration and inflow, corrosion resistance, and repairing inverts.
- B. Material shall be designed for use in wastewater structures. Material shall be able to create water tight manhole structure and withstand freeze/thaw conditions.
- C. **Liner shall be GeoKrete by Quadex, AP/M Permacast MS-10,000 with ConMicShield, Strong-Seal High Performance Mix or equal.**
- D. Liners such as Strong Seal, Quadex Dynastone, Permacast, or equal are approved if combined with epoxy coating.
- E. Physical properties in accordance with SUDAS Section 6020 for centrifugally cast cementitious mortar liner and shall be a high-strength, high-build, corrosion-resistant mortar based on portland cement fortified with micro silica designed to resist chemical corrossions, H2S, pH < 2, and pH >12.
- F. Comply with ASTM F2551 Standard Practice for Installing a Protective Cementitious Liner System in Sanitary Sewer Manholes, and all associated ASTM standards for the cementitious liner materials.

2.08 INTERIOR FLEXIBLE BRUSH-ON CHIMNEY SEAL

- A. Materials:
 - 1. Seal shall be Flex-Seal Utility Sealant by Sealing Systems Inc or pre-approved equal.
 - 2. Sealant shall be composed of aromatic flexible urethane resin complying with the following requirements modified per SUDAS 6020:
 - i. ASTM D2240-Hardness (Durometer), 75
 - ii. ASTM D412-Elongation (at break), 800% minimum
 - iii. ASTM D412-Tensile Strength, 1,150 psi minimum
 - iv. ASTM D903-Adhesive Strength, 175 lb./in. minimum
 - v. ASTM D570-Water Absorption, 0.05% by weight
 - vi. ASTM D1004-Tear Resistance, 155 lb. l/in
 - vii. ASTM C1244-Pressure Resistance, 2 minutes

2.09 EPOXY TOP COAT

- A. Materials:
 - 1. Epoxy system shall be Raven, Quadex Structure Guard, Tnemec Permashield, or equal.
 - 2. Epoxy shall resist hydrogen sulfide corrosion and acidic conditions down to pH 2.
 - 3. Epoxy shall comply with the following requirements per SUDAS 6020:
 - i. Dry Time, 4-6 hours at 75 F
 - ii. ASTM D695-Compressive Strength, 16,800 psi
 - ii. ASTM D790-Flexural Strength, 13,900 psi
 - iv. ASTM D638-Tensile Strength, 12,400 psi
 - v. ASTM D2240-Hardness, 68-72 Shore D
 - vi. ASTM D648-Heat Distortion, 220 F
 - vii. ASTM D638-Ultimate Elongation, 4.5%
 - viii. ASTM C882-Adhesive Shear, 1,000 psi

2.10 CHEMICAL PRESSURE GROUT

- A. See Specification Section 33 35 02.

2.11 POUR-IN-PLACE MANHOLE

- A. Approved systems are Monoform, and Permaform.

- B. The system shall provide full structural restoration of existing brick and block manholes by pouring a monolithic concrete liner within the existing structure extending from the bench to the top of the cone section.
- C. The monolithic concrete liner shall have a minimum thickness of 3".
- D. Liner system shall be HS-20 (Highway load) rated.
- E. Concrete with minimum 28-day cure strength of 4,500 psi. Fibermesh or other reinforcing admixtures shall be included. Pour-in-place systems shall be Monoform, Permaform, or equal.
- F. Concrete shall be treated to resist hydrogen sulfide corrosion and acidic conditions down to pH 2.

2.12 BENCH / CHANNEL REPAIR

- A. Mortar shall be Octocrete, Strong-Seal QSR, Quadex Hyperform, Permacast Patch, or equal.
- B. Mortar shall be formulated for use in wastewater structures with low slump and high adhesion to existing materials.
- C. Concrete shall be treated to resist hydrogen sulfide corrosion and acidic conditions down to pH 2.

2.13 BUTYL RUBBER SEALANT, WATERPROOFING, ADHESIVES, AND MORTAR

- A. Butyl rubber sealant, waterproofing, adhesives, and mortar shall comply with SUDAS Section 6010.

2.14 PIPE ABANDONMENT

- A. Pipe abandonment by CLSM shall utilize a low-strength high-flow CLSM conforming to Iowa Department of Transportation Standard Specifications.
- B. Pipe abandonment by end-plugging shall utilize mortar type Octocrete, Strong-Seal QSR, Quadex Hyperform, Permacast Patch, or equal.

INSTALLATION

3.01 EXISTING MANHOLES / EXISTING CONDITIONS

- A. Existing manholes may be precast eccentric, concentric, or flat top manholes.
- B. Existing manholes may be brick, block, hand-poured, or any combination. Existing chimneys may be brick, precast, polypropylene, polyethylene, or other. Pre-existing chimney seals may be present.
- C. Existing chimneys may be brick, precast, polypropylene, polyethylene, or other.
- D. Pre-existing chimney seals may be present.
- E. Manholes may be in paved, and off-road locations.
- F. Depth of manholes and chimneys vary.
- G. Depth of removal and replacement varies per manhole, construct per plans and specifications.

3.02 PRECONSTRUCTION SUBMITTAL SHALL INCLUDE:

- A. Material type, manufacturer, and model number(s) for proposed materials per SUDAS 6010.
- B. Certified Installer certificates for cementitious, epoxy, and urethane products.
- C. American Iron and Steel (AIS) Certificates if required for the Project.

3.03 GENERAL INSTALLATION NOTES

- A. Bypass pump if necessary.
- B. Remove debris from manhole and do not allow debris to discharge downstream through sanitary sewer system. Properly dispose of debris removed from manhole.
- C. Allow adequate curing time for each step. Cementitious spray / trowel liners and epoxy liners shall be applied a minimum of 30 days prior to brush-on chimney seals.

3.04 SEQUENCE / INSTALLATION

- A. Installation process shall be as shown on the Detail Sheet in the Plans and per these Specifications.
- B. **Exterior chimney seals and chimney / cone wraps:**
 - 1. Prepare exterior concrete surfaces to be free of dirt and loose material.
 - 2. Install wrap according to manufacturer's recommendations and firmly attached to all structure components.
 - 3. Wraps shall have a minimum height equal to chimney measurement plus 5" overlap at casting and cover plus a minimum of 12" overlap at cone section, or 2' total, whichever is greater.
 - 4. Do NOT cut wraps to accommodate flange ribs.
 - 5. Extensions shall be made of the same material and manufacture as the chimney seal itself. Maximum depth is 48".
- C. **Flexible brush-on interior chimney seals:**
 - 1. Application requires a sound base surface with no abrupt transitions or pockets.
 - 2. Casting/Chimney replacement and cementitious/epoxy liners shall be completed prior to application of the interior brush-on seal.
 - 3. Cement, cementitious spray/trowel liner (older than 30 days), and epoxy coating (older than 30 days), are all acceptable substrates.
 - 4. Adjusting rings made of HDPE, polypropylene, polyethylene, existing interior chimney seals, exposed brick, and cementitious/epoxy liner applied within the last 30 days are NOT acceptable substrates.
 - 5. Notify Engineer of deficient substrate conditions before proceeding.
 - 6. It is the Contractor's responsibility to apply the seal only at locations with suitable surface preparation, adequate curing time of any preceding works, and materials compatibility with the sealant.
- D. **Cementitious spray / trowel liner:**
 - 1. Casting/Chimney replacement shall be completed prior to cementitious lining.
 - 2. Stop active leaks utilizing grouting method if required.
 - 3. Clean and prepare manholes to be lined per manufacturer's recommendations including but not limited to high pressure wash.
 - 4. Material shall be installed to a uniform thickness in accordance with manufacturer's recommendations.
- E. **Epoxy top coat:**
 - 1. Apply epoxy top coat to precast concrete and cementitious repair products forming a smooth, sound, and adequately cured substrate.
- F. **Pour-in-place liners:**
 - 1. Prepare bench and invert prior to installing liner. Bench and invert shall form a smooth, sound, and watertight bearing surface for the pour-in-place liner. Repair of the bench and invert is included in this item.
 - 2. Repair manhole as required for proper installation of liner including but not limited to, stopping active leaks, patching holes and gaps, and repairing bench and invert (channel). All materials used to stop active leaks, repair manhole in preparation for liner installation shall be specifically designed to work with proposed liner material and be installed in accordance with manufacturer's recommendations.

3. Clean and prepare manholes to be lined per manufacturer's recommendations including but not limited to high pressure wash.
4. Install formwork per manufacturer's recommendations.
5. Liner shall be installed in a single monolithic pour for full depth of manhole in accordance with manufacturer's recommendations.

3.05 TESTING:

- A. Testing shall be by visual inspection unless otherwise specified herein.
- B. No infiltration or inflow shall be visible in the lined manhole.

END OF SECTION