This document contains the Plans and Specifications for

Sanitary Sewer Improvements Stanton, North Dakota IE# B20-00-029

The Specifications are contained in pages 3-108 and are set up to print two-sided (duplex) on $8\frac{1}{2}$ " x 11" paper. The plan sheets are on Pages 109-158 and are set up to print on 11"x17" paper, either single or double-sided.

If your printer has the option to choose the paper source by PDF page size you may select it and the complete document will print single-sided to the correct sizes all at once.

SUBMITTED BID MUST CONTAIN THE FOLLOWING INFORMATION:

All bids must be placed in a sealed envelope upon the outside of which there is disclosed the following information:

- a) The work covered by the bid as described in Advertisement for Bid
- b) The name of the person, firm or corporation submitting the bid
- c) The date and hour of the bid opening
- d) Acknowledgement of each Addendum

All bids must contain a separate bid bond envelope attached to the actual bid envelope. The bid bond envelope shall contain the following information:

- a) The bid bond for the project
- b) The contractor's license

** The above listed items must be in the bid bond envelope located outside the actual bid envelope. If any of these items are not located in the bid bond envelope, the actual bid will not be opened.

The actual Bid envelope must contain:

a) Bidder's Proposal made on a form prepared by the Engineer

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PLANS AND SPECIFICATIONS

FOR

STREET IMPROVEMENTS FOR

PROJECT B20-00-030 DISTRICT 2020-1

CITY OF STANTON, NORTH DAKOTA

I, Charles J. Hankins, hereby certify that these Plans and Specifications were prepared by me or under my direct supervision. I further certify that I am a Registered Professional Engineer under the laws of the State of North Dakota.

Charles J. Hankins, PE

Date April 23, 2020

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SECTION 101 ADVERTISEMENT FOR BIDS

Notice is hereby given that sealed bids will be received for the Stanton Street Improvement District No. 2020-1, Stanton, North Dakota, IE #B20-00-030. Bids will be received by the City Auditor, Chonny Braithwaite, at the office of the Auditor until 6:30 pm. on May 14, 2020 and then at said office all bids properly submitted will be publicly opened and read aloud.

Digital copies of the Bidding Documents are available at www.interstateeng.com or www.questcdn.com for a fee of \$30.00. These documents may be downloaded by selecting this project from the "Bid Documents" tab and by entering Quest Project Number 7017256 on the "Search Projects" page. For assistance and free membership registration, contact QuestCDN at (952) 233-1632 or info@questcdn.com. Paper copies of the Bidding Documents may be obtained from Docunet Corp. located at 2435 Xenium Lane North, Plymouth, MN 55441, phone (763) 475-9600, for a fee of \$60.00 per set. The bidding and contract documents may also be examined at the Interstate Engineering office located at 117 Highway 49 North, Beulah, North Dakota. Any technical questions may be directed to Travis Frey at (701) 873-2266.

The project will consist of the following approximate quantities:

36,000 SY of Milling, 23,600 SY of Cement treated base, 600 tons of Asphalt Cement, 9,000 tons of Superpave, 12,500 gallons of Emulsified asphalt, and 300 SY of valley gutter removal and replacement, and incidental items thereto. Alternate bid option - no cement treaded base and 14,000 SY of asphalt removal and

1,500 tons of hot bituminous patching.

Each bid will be submitted on the basis of a cash payment for work. It will be enclosed in a sealed envelope addressed to the above mentioned City Auditor, 109 Harmon Ave. PO Box 156, Stanton, ND 58571, and shall be designated that the bid is for "Stanton Street Improvement District No. 2020-1, Stanton, North Dakota, IE #B20-00-030." The bid shall be accompanied by a Bidder's Bond in a separate envelope in the amount of five percent (5%) of the full amount of the bid, executed by the Bidder as Principal and by a Surety Company authorized to do business in North Dakota. If the Principal's bid is accepted by the OWNER and the contract awarded, the principal, within ten (10) days after the Notice of Award, will be required to execute and effect a contract in accordance with the terms of the principal's bid and any requirements and conditions of the OWNER.

A Contractor's Bond, as required by Section 48-01.2-10 of the North Dakota Century Code, shall be included with the executed Contract Documents. The Bid Security shall be as required in Section 48-01.2-05 of the North Dakota Century Code.

All bidders must be licensed for the highest amount of their bids, as required by Section 101 (1)

43-07-05 of the North Dakota Century Code and a copy of the license or certificate of renewal thereof issued shall be <u>enclosed</u> in the required bid bond envelope.

No bid will be read or considered which does not fully comply with the above provisions as to Bond and Licenses, and any deficient bid submitted will be resealed and returned to the Bidder immediately.

The OWNER retains the right to reject any or all of the bids submitted and to waive any informality in any bid and to hold all bids for a period not to exceed thirty (30) days from said date of opening and to hold the three low bids and bid securities for a period not to exceed sixty (60) days from said date of bid opening.

The work on the improvements is to commence upon a date to be specified by the OWNER, notice of which will be given to the successful bidder ten (10) days in advance of the start of construction, no later than August 15, 2020. The Contractor will be required to commence construction, and in an approved sequence, complete the project by November 1, 2020 within 10 working days.

By order of the Owner Stanton, North Dakota Chonny Braithwaite City Auditor Stanton, North Dakota

Dated this 13 day of April, 2020.

SECTION 102 INFORMATION FOR BIDDERS

102-1 Sealed bids will be received by the OWNER as specified in the Advertisement for Bids for performing work as set forth in the Plans and Specifications. At the time and place indicated, the bids will be publicly opened and read.

102-2 FORM: Each proposal shall be made on a form prepared by the ENGINEER and included as one of the Contract Documents, and shall be submitted in a sealed envelope bearing the title of the work, the name of the Bidder, the license number and class of license of the bidder, and date and hour of the bid opening. Proposals must be filled in, in ink or typewritten. No alterations or interlineations will be permitted, unless made before submission and initialed and dated.

102-3 DISCREPANCIES: In case of a difference between the extended price and the unit price of the proposal, the unit price shall govern.

102-4 PROPOSAL GUARANTEE: All bids are to be submitted on the basis of cash payment for the work and are to be enclosed in a sealed envelope addressed to the undersigned Authorized Representative accompanied by a bidder's bond for a sum equal to five (5) percent of the full amount of the bid, executed by the bidder as Principal and by a Surety Company authorized to do business in this state, conditioned that if the Principal's bid be accepted and the contract awarded to him, he will, within ten days after Notice of Award, execute and effect a contract in accordance with the terms of his bid and a Contractor's bond. Bid security shall be as required in Section 48-01.1-05 of the North Dakota Century Code as amended.

All bidders must be licensed for the highest amount of their bids, as required by Section 43-07-05 of the North Dakota Century Code.

No bid will be read or considered which does not fully comply with the above provisions as to bonds and licenses, and any deficient bid submitted will be resealed and returned to the bidder immediately. As soon as the bid prices have been compared, the OWNER will return the bid securities of all except the three (3) lowest responsible bidders. When the Contract is awarded, the bid securities of the two remaining unsuccessful bidders will be returned. The bond of the successful bidder will be retained until the Agreement and Surety Bond have been executed and approved, after which it will be returned.

102-5 CONTRACT AND BOND: The party to whom the Contract is awarded will be required to execute the Agreement and a Performance Payment Bond within ten (10) calendar days from the date when the written "Notice of Award" is mailed to the Bidder at the address given by him. If any Bidder to whom a contract is awarded fails or refuses to enter into such Agreement when requested to do so, the bond accompanying his bid shall be retained by the OWNER as liquidated damages for such failure. The bond shall be delivered to the OWNER and shall be credited by him to the fund from which the consideration for such work is payable. The sufficiency of any bond filed by a bidder shall be determined by the governing body at the time it considers the bids.

102-6 PERFORMANCE AND PAYMENT BOND: A Performance and Payment Bond in the amount of one hundred percent (100%) of the Contract price with a Corporate Surety approved by the OWNER and the ENGINEER will be required for the faithful performance of the Contract, and the bidder shall state in the proposal the name and address of the Surety or Sureties who will sign this bond in case the Contract is awarded to him. The Contract Bond shall be as required by Section 48-02-06.2 of the North Dakota Century Code as amended.

A maintenance guarantee for the repair of all damages due to improper materials or workmanship for a period of one year after the acceptance of the work by the OWNER will also be required.

102-7 AWARD OR REJECTION: The Contract will be awarded to the lowest and/or best qualified responsible Bidder complying with these instructions and with the Advertisement. The OWNER reserves the right to reject any or all Proposals or to

102 (2)

waive any formality or technicality in any Proposal. The OWNER reserves the right to hold all bids and bid securities for a period not to exceed thirty (30) days and to hold the three low bids and bid securities for a period not to exceed sixty (60) days, from the date of the bid opening.

102-8 CONTRACTOR QUALIFICATIONS: Before the award of the Contract, any bidder may be required to furnish evidence, satisfactory to the OWNER and to the ENGINEER, of the necessary facilities, ability and pecuniary resources to fulfill the conditions of the said Contract. Before contracts are executed by the OWNER, the CONTRACTOR will furnish the OWNER'S ENGINEER with a list of Subcontractors for his review, so as to conform to Section 226 of the General Conditions.

102-9 MODIFICATIONS: Alternate proposals will not be considered unless called for. Oral proposals or modifications will not be considered.

102-10 EXAMINATION OF DOCUMENTS AND SITE VISIT: Before submitting a Proposal, Bidders shall carefully examine the Drawings, read the Specifications, and the other Contract Documents, shall visit the site of work, and shall fully inform themselves as to all existing conditions and limitations. The CONTRACTOR shall accept such conditions and limitations as the same are eventually found to exist, and to waive all claims for extra compensation arising from unforeseen difficulties, except as may be expressly provided for in the Specifications. Professions of ignorance regarding the work may in no way serve to nullify the provisions of the contract or specifications.

102-11 DOCUMENT NUMBER: Each set of Plans, Specifications and Construction Drawings will have a document number, assigned by the ENGINEER, and the number of each set with the name of the purchaser will be recorded by the ENGINEER. Bids will be accepted only from the original purchasers or from another qualified Bidder to whom such a set has been transferred by the original purchaser, provided that in the event of such transfer the ENGINEER shall receive from the original purchasers, at least five (5) days prior to the scheduled bid opening, written notice of such transfer, together with the name of the party to whom the transfer has been made.

102 (3)

102-12 OWNER INFORMATION OBLIGATION: The Construction Agreement and the detailed specifications contain the provisions required for the construction of the project. No information obtained from any officer, agent, or employee of the OWNER on any such matters shall in any way affect the risk or obligations assumed by the CONTRACTOR, or relieve him from fulfilling any of the conditions of the Contract, except to the extent provided in Paragraph 102-13.

102-13 INTERPRETATIONS OF DOCUMENTS: If any person contemplating submitting a Proposal is in doubt as to the true meaning of any part of the Drawings, Specifications, or other Contract Documents, or finds discrepancies in or omissions from the Drawings or Specifications, he may submit to the ENGINEER a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the documents will be made only by Addendum duly issued and a copy of the Addendum will be mailed or 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.

102-14 UNACCEPTABLE BIDS: Bids which are incomplete, unbalanced, conditioned or obscure or which contain additions not called for, erasures, alterations or irregularities of any kind, or which do not comply with the Information for Bidders may be rejected at the option of the OWNER.

If the OWNER so elects, proposals may be issued for projects in combination and/or separately, so that bids may be submitted either on the combinations or on separate units of the combinations. The OWNER reserves the right to make awards on combination bids or separate bids to the best advantage of the OWNER.

Proposals will not be considered if the Bidder adds any provisions reserving the right to accept or reject an award or enter into a Contract pursuant to an award.

102-15 BID SUBMITTAL CONDITIONS: All bids must be placed in a sealed envelope upon the outside of which there is disclosed the following information:

- a) The work covered by the bid.
- b) The name of the person, firm or corporation submitting the bid.
- c) A <u>copy</u> of the license or certificate of renewal thereof issued shall be <u>enclosed</u> in the required bid bond envelope.
- d) Acknowledgement of each Addendum.

No contract will be awarded to any CONTRACTOR unless he is the holder of a license in the class within which the value of the project shall fall. A CONTRACTOR must be the holder of a license at least ten (10) days prior to the date set for receiving bids to be a qualified bidder.

Proposals shall be delivered by the time and to the place stipulated in the Advertisement for Bids. It is the sole responsibility of the Bidder to see that his 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.

102-16 WITHDRAWAL: A bidder may withdraw any proposal he has submitted at any time prior to the hour set for the opening of the bids, provided the request for withdrawal is signed in a manner identical to the proposal being withdrawn. No withdrawal or modification will be permitted after the hour designated for the opening of the bids.

102-17 ADDENDA: Any addenda issued during the time of bidding, or forming a part of the Contract Documents loaned to the bidder for the preparation of his proposal, shall be covered in the proposal and shall be made a part of the Contract. Receipt of each Addendum shall be acknowledged in the proposal and upon the outside of the Bid Envelope.

102-18 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 sub-proposal to a bidder, or who has quoted prices on materials to a bidder, is not hereby disqualified from submitting a sub-proposal or quoting prices to other bidders.

102-19 NORTH DAKOTA STATE TAX CLEARANCE: The successful CONTRACTOR shall file with the OWNER prior to award of the Contracts a current statement of income tax clearance from the North Dakota Tax Department in accordance with Section 43-07-11.1 North Dakota Century Code as amended.

102-20 GENERAL CONDITIONS: General Conditions of the Contract as bound herewith, are hereby made a part of the Contract Documents.

102-21 ESTIMATE QUANTITIES: Approval of quantities that will be the basis for payment estimates, both monthly and final, will be made by the ENGINEER.

102-22 CONFERENCES: The CONTRACTOR will be notified by the ENGINEER of any conferences that require his attendance. A date and time for said conferences will be set by the ENGINEER.

102-23 GOVERNMENT REQUIREMENTS: The CONTRACTOR shall comply with all "Government Requirements" as found in Section 300, if applicable, contained herein.

Dated this ____ day of _____, 20____.

OWNER BY TITLE

102 (6)

SECTION 103 BIDDER'S PROPOSAL

103-1 PROPOSAL: In compliance with your Advertisement for Bids and subject to all the conditions thereof, the undersigned

hereby proposes to furnish and do everything required by the Contracts to which this refers for the construction of all structures listed at the unit prices shown for each bid item on the following Bid Schedule. (The Bid Schedule attached lists the various divisions of construction contemplated in the Plans and Specifications, together with an estimate of the units of each. With these units as the basis, the bidder will extend such item, using the cost he inserts in the unit column. Any total cost found inconsistent with the unit cost when the bids are examined will be deemed in error and corrected to agree with the unit cost, which shall be considered correct.)

103-2 PROJECT: This project consists of ______ as shown in the Advertisement for Bids.

103-3 EXAMINATION OF DOCUMENTS AND SITE VISIT: The undersigned has examined the location of the proposed work, the Drawings, Specifications and other Contract Documents and is familiar with the local conditions and limitations at the place where the work is to be performed.

103-4 ADDENDA: The Receipt of Addenda ______ through ______ is hereby acknowledged.

103-5 BASIS OF PROPOSAL: All various phases of work enumerated in the Detailed Specifications with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the CONTRACTOR under one of the items listed in the bid schedule, irrespective of whether it is named in said list, and that the OWNER may specify any number or combination of units that the ENGINEER may deem necessary for the construction of the Project.

103-6 TAXES: Along with 103-5 above, the undersigned agrees that the prices in this Contractor's Proposal includes provisions for the payment of all monies which will be payable by the Bidder or the OWNER in connection with the construction of Project on account of taxes imposed by any taxing authority upon the sale, purchase or use of materials, supplies or equipment to be incorporated in the Project. The Bidder agrees to pay all such taxes and to furnish the appropriate taxing authorities all required information and reports pertaining thereto.

103-7 COLLUSION: The undersigned bidder does hereby declare and stipulate that this proposal is made in good faith, without collusion or connection with any other person or persons bidding for the same work, and that it is made in pursuance of and subject to all the terms and conditions of the Information for Bidders, the Construction Agreement, the Detailed Specifications, and the Plans pertaining to the work to be done, all of which have been examined by the undersigned.

103-8 PROPOSAL GUARANTEE: Accompanying this Proposal is a Bidder's Bond payable to the OWNER in the amount of five percent (5%) of this bid, in accordance with the Information for Bidders, Section 102-4.

103-9 PERFORMANCE AND PAYMENT BOND: As shown in Section 102-6, the undersigned bidder agrees to execute the Agreement and a Performance and Payment Bond for the amount of the total of this bid within ten (10) calendar days from the date when the written notice of the award of the Contract is delivered to him at the address given on this proposal. The name and address of the corporate surety with which the Bidder proposes to furnish the specified Performance and Payment Bond is as follows:

103-10 CONTRACTOR'S LICENSE: The undersigned hereby warrants it possesses Contractor's License Class ______ No. _____ for the State of ______, in which the project is located and said license expires on ______, 20___.

103-11 CONTRACT TIME: Bidder hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the project November 1, 2020. Bidder further agrees to pay as liquidated damages the sum of \$1000 for each calendar day that the CONTRACTOR shall be in default of the time specified. This is as provided in Section 215 of the General Conditions.

103-12 OWNER'S RIGHTS RESERVED: The undersigned understands that 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.

103-13 PAYMENT: This bid is submitted on the basis of cash payment for work. Payment for work performed will be in accordance with the Bid Schedule, subject to changes as provided for in the Construction Contract.

103-14 BIDDER'S PROPOSAL: L & M = Labor & Materials

Base Bid

Stanton Street Improvement District 2020-1

Item No.	Description	Unit	Quantity	Unit Price L&M	Extended Price L&M
101	Aggregate Base Course	TON	1,000		
102	PG 58-28 Asphalt Cement	TON	586		
103	Superpave FAA 43	TON	9,022		
104	SS1H or CSS1H or MS1 Emulsified Asphalt	GAL	12,528		
105	Surface Milling - Variable Depth	SY	36,262		
106	Soil Cement Subgrade Preparation & Stabilization	SY	23,587		
107	Portland Cement	Ton	684		
108	Traffic Control	LS	1		
109	Mobilization	LS	1		
110	Concrete Valley Gutter Removal	SY	262		
111	Concrete Valley Gutter - Installed	SY	356		
112	Testing Laboratory Services	LS	1		
113	Valve Box Adjustments	EA	1		
114	Manhole Adjustments	EA	34		
115	Pavement Markings Painted 6 in Line	LF	500		
116	Curb and Gutter Removal	200	LF		
117	Curb and Gutter Replacement	200	LF		
	Alternate A				
201	Asphalt Removal	SY	5,500		
202	Hot Bituminous Patching	Ton	412		
106	Soil Cement Subgrade Preparation & Stabilization	SY	-23,587		
107	Portland Cement	Ton	-684		

103-15 MODIFICATIONS OF BASE BID - only approved materials will be considered.

	se	
	(Na	ame Alternate Material)
tor	_ deduct \$	
(System Component)	from base bir	4
αυυ ψ		
If the CONTRACTOR is allowed to us	se	
	(Na	ame Alternate Material)
for	_ deduct \$	
(System Component)	(
add \$	from base bio	d.
If the CONTRACTOR is allowed to us	se	
		ame Alternate Material)
for	deduct \$`	,
(System Component)		
add \$	from base bio	d.
103-16 THE ABOVE PROPOSAL IS	HEREBY RESPE	CTFULLY SUBMITTED BY:
(0	CONTRACTOR)	
(By)	(Title)
(Business Address)	(City)	(State)
(Business Address) (Date)	(City)	(State) Felephone Number)
(Business Address) (Date) ATTEST:	(City)	(State) Telephone Number) (SEAL)

Corporate Secretary

(The Proposal must be signed with the full name of the Bidder. In the case of a partnership, the Proposal must be signed in the firm name of each partner. In the case of a corporation, the Proposal must be signed in the corporate name by a duly authorized officer and the corporate seal affixed and attested by the Secretary of the corporation.)

SECTION 104 NOTICE OF AWARD

то:	
Description of Wo	vrk:
	for the
	The OWNER, represented by the undersigned, has
considered the P	oposal submitted by you for the above described work in response to
its "Advertisemen	t for Bids" dated, and Information for Bidders.
It appearing that amount of	t is in the best interest of said OWNER to accept your proposal in the
	DOLLARS (\$), you are hereby
notified that	Proposal has been accepted for items
	You are
required by Sect undersigned OWI	ion 102 Information for Bidders to execute the agreement with the NER and to furnish the required Contractor's Performance and Payment
Bond within ten (?	0) days from the date of the sending of this notice to you.

If you fail to execute said agreement and to furnish said bond within ten (10) days from the date of the sending of this notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your proposal, as abandoned, and to award the work covered by your Proposal to another, or to re-advertise the work or otherwise dispose thereof as the OWNER may see fit. Dated this _____ day of _____, 20____.

OWNER:	
BY:	
TITLE:	

(SEAL)

ATTEST:

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award

is hereby acknowledged this

_____ day of _____, 20___.

Ву:_____

Title:_____

SECTION 105 CONSTRUCTION AGREEMENT

THIS AGREEMENT, Made this	day of	, 20	, at
State of	by and between the		,
hereinafter called the "OWNER", and_			, hereinafter
called the "Contractor" to complete the	e following work:		

WITNESSETH THAT:

In consideration of the mutual covenants and conditions hereinafter set forth, the OWNER and Contractor hereby agree as follows:

105-1 SCOPE OF WORK: The Contractor shall furnish and pay the cost, including sales tax and all other applicable taxes and fees, of all the necessary materials not furnished by the OWNER and shall furnish and pay for all the superintendence, labor, tools, equipment and transportation and perform all the work required for the construction of all structures listed and itemized under the bid schedule of the Bidder's Proposal attached hereto in strict accordance with the General Conditions; Special Conditions, Governmental Requirements, the Plans, which include all maps, plats, blueprints, and other drawings and printed or written explanatory matter therein; the Specifications and Contract Documents as prepared by Interstate Engineering, Inc., herein called "ENGINEER", and any amendments thereto and such supplemental Plans and Specifications as may hereafter be approved.

All addendums ______ through _____ are hereby made part of this Contract.

105-2 COMPLETION OF WORK: The Contractor shall commence the work covered by this Agreement within ______ calendar days after the date of the Notice to Proceed and shall complete the same by ______ unless the period for completion is extended as hereinafter provided.

105-3 CONTRACT SUM: The OWNER shall pay the CONTRACTOR for the performance of said work as set forth by Section 105-1 above, _____

_____ DOLLARS (\$______).

Breakdown of above mentioned contract amount is as follows:

105-4 MAINTENANCE: The CONTRACTOR shall guarantee the repair of all damages or defects due to faulty materials or workmanship done by the CONTRACTOR or subcontractors. This guarantee shall remain in effect for a period of one year after acceptance of the project by the OWNER according to the General Conditions.

105-5 PAYMENT: Payment shall be made to the CONTRACTOR for work performed under this Agreement for the quantities of work as determined in accordance with the General Conditions.

105-6 SUB-CONTRACTORS: The CONTRACTOR agrees to bind every sub-contractor by the terms of the Contract Documents. The Contract Documents shall not be construed as creating any contractual relation between any sub-contractor and the OWNER.

105-7 SUCCESSORS AND ASSIGNS: This Agreement and all of the covenants hereof shall insure to the benefit of and be binding, upon the OWNER and the CONTRACTOR respectively and his partners, successors, assigns and legal representatives. Neither the OWNER nor the CONTRACTOR shall have the right to assign, transfer or sublet his interests or obligations hereunder without written consent of the other party.

105-8 SOURCE AND MANNER OF PAYMENT: All payments shall be made in warrants drawn on the construction account of the funds of the _____

_____and said warrants shall bear no interest, and shall be payable immediately on issuance.

105-9 OWNER'S RIGHT TO SUSPEND WORK: The OWNER by resolution duly adopted by the governing body, shall have the right to suspend the work at any time for

improper construction, and to relet the contract therefore, or to order the reconstruction of the work as to any part thereof improperly done. This right shall be additional to the rights, powers, and privileges reserved to the OWNER in the several provisions of the plans and specifications.

105-10 OWNER ASSUMES NO GENERAL LIABILITY: It is expressly agreed and understood that the OWNER assumes and incurs no general liability under the contract for the payment of any compensation to the CONTRACTOR, or any other person; the OWNER'S obligation hereunder being limited solely to the administration and application of the funds of said _______, in accordance with the law, and the provisions of this Agreement.

105-11 ENGINEER'S FAILURE TO REJECT WORK: Failure of the ENGINEER to reject work and materials which are not up to specifications and acceptance of the job by the ENGINEER shall not release the CONTRACTOR from liability for any failure on his part to perform work or furnish materials in accordance with the plans and specifications.

105-12 INDEMNIFICATION: To the fullest extent permitted by law, the CONTRACTOR shall indemnify and hold harmless the OWNER, ENGINEER, ENGINEER'S consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expenses attributable to bodily injury, sickness, disease or death, or injury to or destruction of tangible property (other than the Work itself) including loss of use resulting there from, but only to the extent caused in whole or in part by negligent acts or omissions of the CONTRACTOR, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

105-13 SERVICE OF NOTICE: All notices required to be given hereunder shall be mailed or delivered in the case of the OWNER to _______ and in the case of the CONTRACTOR to ______.

IN WITNESS WHEREOF, the parties hereto have caused these present to be executed the day and year first above written.

(SEAL)	OWNER:
ATTEST:	BY:
TITLE:	TITLE:
(SEAL)	CONTRACTOR:
ATTEST:	BY:
TITLE:	TITLE:

SECTION 106

PERFORMANCE - PAYMENT BOND

THE STATE OF		_	
COUNTY OF		_	
KNOW ALL MEN BY THE	SE PRESEN	ITS: That we (1)	
(2)		of	
hereinafter called Principa	al and (3)		
of	_State of		, hereinafter called the
Surety, are held and firmly	y bound unto	(4)	,
hereinafter called OWNER	R, and unto all	l persons, firms, and corp	orations who may furnish
materials for, or perform l	abor upon the	e building or improvemer	nts hereinafter referred to
in the penal sum			
DOLLARS (\$) in lawful money of the	United States to be paid
in (5)	_County, No	orth Dakota, for the payme	ent of which sum well and
truly to be made, we bind	ourselves, ou	ir heirs, executors, admin	istrators and successors,
jointly and severally, firmly	y by these pre	esents.	
THE CONDITION OF TH	IIS OBLIGAT	TON is such that Where	as, the Principal entered
into a certain contract with	n (6)		which is dated the
day of	20	_, a copy of which is here	eto attached and made a
part hereof for the constru	iction of		

NOW THEREFORE, the principal shall (1) well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said contract and any extension thereof that may be granted by the OWNER with or without notice to the surety, and during the life of the one year guaranty required under the contract, and (2) promptly make payment to all persons supplying labor and materials including supplies used for machinery and equipment, performed,

furnished and used in and about the performance of the contract to the principal or to any subcontractor of the principal in the prosecution of the work provided for in said contract (failing which such persons shall have a direct right of action against the principal and surety under this obligation), also such payment shall include interest in the amount authorized under Section 13-01-14 of the North Dakota Century Code on all bills and claims not paid within ninety (90) days and (3) well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made and promptly make payment to all persons supplying labor and materials including supplies used for machinery and equipment, performed, furnished and used in and about the performance of the contract to the principal or to any subcontractor to the principal in the prosecution of the work provided for in such modifications (failing which such persons shall have a direct right of action against the principal and surety under this obligation), notice to the surety of all duly authorized modifications being hereby waived, and (4) make, prior to the commencement of any work by himself or any subcontractor under the contract, full and true report to Workforce Safety & Insurance of the payroll expenditures for the employees to be engaged in such work and pay the premium thereon prior to the commencement of such work, and (5) the Contractor will pay or cause to be paid all sales and use taxes payable as a result of the performance of the contract for which the bond is given, as well as the payment of gasoline and special motor fuels taxes used in the performance of the contract, and all motor vehicle fees required for commercial motor vehicles used in connection with the performance of such contract then this obligation to be void; otherwise to remain in full force and effect.

In case of a default on the part of the principal herein in the performance of the work as provided in the above contract, the sum of this bond as set out above shall be taken and held to be fixed and liquidated damages in favor of the OWNER, and said full amount may be recovered from the principal and surety in an action against them on this bond.

IN WITNESS WHEREOF, this instrum	nent is executed in counterparts, each				
one of which shall be deemed an orig	inal, this the day of, 20				
ATTEST:	Principal: (7)				
	Ву:				
Secretary or Principal	Title:				
(CORPORATE SEAL)	Address:				
	Surety:				
	Ву:				
ATTEST:	Attorney-in-Fact				
Secretary of Surety	(CORPORATE SEAL)				
Full Name of Surety Company					
Home Office Address					
Name of Attorney-in-Fact					
Name of Local Agency					
Address of Local Agency					
A copy of the Power of Attorney of the of the date of the Bond must be attac	e Attorney-in-fact showing that it remains in force as hed to the Bond.				
interie. Bate of Bond must not be priv					

- (1) Correct name of Contractor
- (2) A Corporation, a Partnership or an Individual as case may be.
- (3) Correct Name of Surety
- (4) Correct Name of OWNER
- (5) County
- (6) OWNÉR
- (7) If Contractor is Partnership, all partners should execute Bond.

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SECTION 107 ADDITIONAL DOCUMENTS OF CONTRACT

(To be supplied after award)

- 107-1 Acknowledgment of Principal
- **107-2** Power of Attorney
- **107-3** Liability Insurance (See Section 221 of General Conditions)
- **107-4** Current Workmen's Compensation Certificate of Premium Paid
- 107-5 Contractor's Certificate of North Dakota Income and Sales Tax Clearance

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SECTION 108 NOTICE TO PROCEED

то:	DATE:			
	PROJECT:			
You are hereby notified to commence WORk	K in accordance with t	he Agreer	ment dat	ted
, 20, on or before		_, 20	_, and	you
are to complete the WORK within	_ consecutive calenda	ar days the	ereafter.	The
date of completion of all WORK is therefore		_, 20	_·	
	OWNER			
	Ву:			
	Title:			
ACCEPTANCE OF NOTICE				
Receipt of the above NOTICE TO				
PROCEED is hereby acknowledged				
Ву:				
Title:				

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SECTION 200 GENERAL CONDITIONS OF THE CONTRACT

- 1. Definitions
- 2. Additional Instructions and Detail Drawings
- 3. Schedules, Reports, and Records
- 4. Drawings and Specifications
- 5. Shop Drawings
- 6. Materials, Services and Facilities
- 7. Inspection and Testing
- 8. Substitutions
- 9. Patents
- 10. Surveys, Permits, Regulations
- 11. Protection of Work, Property, Persons
- 12. Supervision by Contractor
- 13. Changes in the Work
- 14. Changes in Contract Price
- 15. Time for Completion and Liquidated Damages

- 16. Correction of Work
- 17. Subsurface Conditions
- Suspension of Work, Termination and Delay
- 19. Payments to Contractors
- 20. Acceptance of Final Payment as Release
- 21. Insurance
- 22. Contract Security
- 23. Assignments
- 24. Indemnification
- 25. Separate Contracts
- 26. Subcontracting
- 27. Engineer's Authority
- 28. Land and Rights-of-Way
- 29. Guaranty
- 30. Taxes

201 DEFINITIONS

201-1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

201-2 ADDENDA- Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.

201-3 BID- The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

201-4 BIDDER- Any person, firm or corporation submitting a BID for the WORK.

201-5 BONDS- Bid, Performance, and other instruments of security, furnished by the CONTRACTOR and his Surety in accordance with the CONTRACT DOCUMENTS.

201-6 CHANGE ORDER- A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE OF CONTRACT TIME.

201-7 CONTRACT DOCUMENTS- The contract, including Advertisement for Bids, Information for Bidders, BID, Bid Bond, Agreement, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS and ADDENDA.

201-8 CONTRACT PRICE- The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

201-9 CONTRACT TIME- The number of calendar days, or weather working days, stated in the CONTRACT DOCUMENTS for the completion of the WORK.

201-10 CONTRACTOR- The person, firm or corporation with whom the OWNER has executed the Agreement.

201-11 DRAWINGS- The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

201-12 ENGINEER- INTERSTATE ENGINEERING, INC., Jamestown, North Dakota, or its representative, duly authorized in writing to act for the ENGINEER.

201-13 FIELD ORDER- A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

201-14 NOTICE OF AWARD- The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

201-15 NOTICE TO PROCEED- Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

201-16 OWNER- A public or quasi-public body or authority, corporation, association, partnership or individual for whom the WORK is to be performed.

201-17 PROJECT- The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

201-18 RESIDENT PROJECT REPRESENTATIVE- The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

201-19 SHOP DRAWINGS- All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER, or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

201-20 SPECIFICATIONS- A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

201-21 SUBCONTRACTOR- An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

201-22 SUBSTANTIAL COMPLETION- That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

201-23 SUPPLEMENTAL GENERAL CONDITIONS- Modifications to General Conditions required by a Federal Agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable tribal or federal law.

201-24 SUPPLIER- Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design.

201-25 WORK- All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

201-26 WRITTEN NOTICE- Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the WORK.

202 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

202-1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

202-2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

203 SCHEDULES, REPORTS AND RECORDS

203-1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress-schedules, payrolls, reports, estimates, records and other data where applicable as required by the CONTRACT DOCUMENTS for the WORK to be performed.

203-2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry out the WORK, including dates at which he will start the various portions of the WORK, estimated date of completion of each part and, as applicable:

203-2.1 The dates at which special detail drawings will be required; and

203-2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and installation of materials, supplies and equipment.

203-3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

204 DRAWINGS AND SPECIFICATIONS

204-1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

204-2 In case of conflict between the DRAWINGS, and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

204-3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

204-4 Ownership of DRAWINGS and SPECIFICATIONS: All original or duplicated DRAWINGS and SPECIFICATIONS and other data prepared by the ENGINEER shall remain the property of the ENGINEER, and they shall not be reused on other work, but shall be returned to him upon completion of the WORK.

205 SHOP DRAWINGS

205-1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER, which shall likewise require approval by the Federal Contracting Officer.

205-2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

205-3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A
copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

205-4 EQUIPMENT DATA- The CONTRACTOR shall submit for the ENGINEER'S review 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 gauge or thickness, brand name, catalog number and general type. This submission shall be compiled by the CONTRACTOR and reviewed by the ENGINEER before any equipment is ordered.

206 MATERIALS, SERVICES AND FACILITIES

206-1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

206-2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

206-3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

206-4 Materials, supplies and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

206-5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUB-CONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

206-6 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 shall notify the ENGINEER. Unless otherwise noted or specifically stated, materials furnished by the OWNER, which are not of local occurrence, are considered to be f.o.b., the nearest railroad station. The CONTRACTOR shall be prepared to unload and properly protect all such material from damage or loss. The CONTRACTOR shall be responsible for material loss or damage after receipt of material at the point of delivery.

206-6.1 INDEX- Each data sheet or catalog in the submission shall be indexed according to SPECIFICATION section and paragraph for easy reference.

206-6.2 RELATION TO CONTRACT DOCUMENTS- Catalog data for equipment reviewed by the ENGINEER shall not supersede the ENGINEER'S CONTRACT DOCUMENTS. The review of the ENGINEER shall not relieve the CONTRACTOR from responsibility for deviations from DRAWINGS of SPECIFICATIONS, unless he has in writing called the ENGINEER'S attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in the items submitted. The CONTRACTOR shall check the WORK described in the catalog data with the ENGINEER'S CONTRACT DOCUMENTS for deviations and errors.

206-6.3 CONTRACTOR'S CERTIFICATION- Equipment data shall be submitted by the CONTRACTOR with a covering letter indicating that he has reviewed, checked and approved the data submitted, that they are in harmony with the requirements of the PROJECT and with the provisions of the CONTRACT DOCUMENTS and that he has verified all field measurements and construction criteria, materials, catalog numbers and similar data. CONTRACTOR shall also certify that the WORK represented by the SHOP DRAWINGS is recommended by the CONTRACTOR and that his GUARANTY will fully apply.

207 INSPECTION AND TESTING

207-1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

207-2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

207-3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

207-4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

207-5 Inspections, tests or approvals by the ENGINEER or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

207-6 The OWNER and the ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.

207-7 If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.

207-8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

208 SUBSTITUTIONS

208-1 Whenever a material, article or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalog number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalog number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

209 PATENTS

209-1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringements of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however, if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

210 SURVEYS, PERMITS, REGULATIONS

210-1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of

bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS, unless otherwise specified in the CONTRACT DOCUMENTS, the OWNER shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

210-2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

210-3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 213, CHANGES IN THE WORK.

211 PROTECTION OF WORK, PROPERTY AND PERSONS

211-1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

211-2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify OWNER of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for those acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

211-3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury, or loss. He will give

the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

212 SUPERVISION BY CONTRACTOR

212-1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

213 CHANGES IN THE WORK

213-1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

213-2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter, the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes, pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER, <u>provided</u>, that all such change orders must also be approved by the Federal Contracting Officer.

214 CHANGES IN CONTRACT PRICE

214-1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below, and not to exceed 25% of the CONTRACT AMOUNTS. If requested by CONTRACTOR in writing:

- 1. Unit prices previously approved.
- 2. An agreed lump sum.
- 3. The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work. In addition, there shall be added a percentage to be agreed upon of the actual cost of the WORK to cover the cost of general overhead and profit.

215 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

215-1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

215-2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

215-3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS. Liquidated damages shall be as shown in the Specifications.

215-4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

215-4.1 To any preference, priority or allocation order duly issued by the OWNER.

215-4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

215-4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in Paragraphs 215-4.1 and 215-4.2 of this article.

216 CORRECTION OF WORK

216-1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS whether destroyed or damaged by such removal or replacement.

216-2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

217 SUBSURFACE CONDITIONS

217-1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

217-1.1 Subsurface or latent physical conditions of the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

217-1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

217-2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE; provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

218 SUSPENSION OF WORK, TERMINATION AND DELAY

218-1 The OWNER may suspend the WORK or any portion thereof, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension, which is not attributable to fault of the CONTRACTOR.

218-2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER.

Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

218-3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

218-4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the CONTRACT. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

218-5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days WRITTEN NOTICE to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

218-6 If the performance of all or any portion of the WORK is suspended, delayed or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

219 PAYMENTS TO CONTRACTOR

219-1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such

supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect his interests therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may take the necessary corrections and resubmit the partial payment estimate. The OWNER will, within thirty (30) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The retainage shall be an amount equal to ten percent (10%) of said estimate until fifty percent (50%) of the work has been completed. At fifty percent (50%) completion, further partial payments shall be made in full to the CONTRACTOR and no additional amounts may be retained unless the ENGINEER certifies that the job is not proceeding satisfactorily, but amounts previously retained shall not be paid to the CONTRACTOR. At fifty percent (50%) completion or any time thereafter when the progress of the WORK is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than ten percent (10%) of the value of the work completed. Upon substantial completion of the work, any amount retained may be paid to the CONTRACTOR. When the WORK has been substantially completed except for WORK which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the OWNER are valid reasons for non-completion, the OWNER may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the WORK still to be completed. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.

219-2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

219-3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

219-4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damages WORK except such as may be caused by agents or employees of the OWNER.

219-5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

219-6 The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out of the lawful demands of SUBCONTRACTOR'S, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

219-7 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the rate of 6% By Annum commencing on the first day after said payment is due and continuing until payment is received by the CONTRACTOR.

220 ACCEPTANCE OF FINAL PAYMENT AS RELEASE

220-1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the PERFORMANCE BOND.

220-2 CLEANING UP - 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 his operation or caused by his employees, and shall remove all surplus materials leaving the site smooth, clean and true to line and grade.

220-3 ACCEPTANCE AND FINAL PAYMENT - When the CONTRACTOR shall have completed the WORK in accordance with the terms of the CONTRACT DOCUMENTS, he shall certify completion of the WORK to the OWNER and submit a final REQUEST FOR PAYMENT, which shall be the CONTRACT AMOUNT plus all approved additions less all approved deductions and less previous payments made. The CONTRACTOR shall furnish evidence (See Attached Affidavit) that he has fully paid all debts for labor, materials, and equipment incurred in connection with the WORK, and upon acceptance by the OWNER, the OWNER will release the CONTRACTOR except as to the conditions of the CONTRACT

BOND, any legal rights of the OWNER, required guaranties, and Correction of Faulty Work After Final Payment, and will pay the CONTRACTOR'S final Request for Payment. The CONTRACTOR shall 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.

221 INSURANCE

221-1 The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

221-1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts:

221-1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

221-1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

221-1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

221-1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting there from.

221-2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

221-3 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified:

221-3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him. Insurance shall be written with a limit of liability of not less than \$500,000 for all damages arising out of bodily injury, including death, at any time resulting there from, sustained by any one person in any one accident; and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in any one

accident. Insurance shall be written with a limit of liability of not less than \$100,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than \$200,000 aggregate for any such damage sustained by two or more persons in any one accident.

221-3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

221-4 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the work is performed. Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

221-5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured, the CONTRACTOR, the ENGINEER, and the OWNER.

221-6 RAILROAD INSURANCE COVERAGE - The CONTRACTOR and his SUBCONTRACTORS shall provide adequate insurance to cover limits set forth by the railroad company for working adjacent to crossing their tracks. (When applicable)

222 CONTRACT SECURITY

222-1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance Bond and a Payment Bond in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the State in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The

expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other Surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

223 ASSIGNMENTS

223-1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise, dispose of the CONTRACT or any portion thereof, or of his right, title or interest therein, or his obligations there under, without written consent of the other party.

224 INDEMNIFICATION

224-1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting there from; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

224-2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

224-3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

225 SEPARATE CONTRACTS

225-1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK with theirs. If the proper execution of results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the

ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

225-2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.

225-3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a claim therefore as provided in Sections 214 and 215.

226 SUBCONTRACTING

226-1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

226-2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

226-3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

226-4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

226-5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

227 ENGINEER'S AUTHORITY

227-1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may rise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site

and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

227-2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.

227-3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

227-4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

228 LAND AND RIGHTS-OF-WAY

228-1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

228-2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

228-3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

229 GUARANTY

229-1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of acceptance by the OWNER. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of acceptance by the OWNER of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

230 TAXES

230-1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

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SECTION 300 GOVERNMENT REQUIREMENTS

300-1 EMPLOYMENT PREFERENCE IN CONTRACT

The Contractor must give preference to the employment of bona fide North Dakota residents, with preference given first to honorably discharged disabled veterans and veterans of the armed forces of the United States, who are deemed to be qualified in the performance of said work. Such preference shall not apply to engineering, superintendence, management, or office or clerical work. No contract shall be let to any person, firm, association, cooperative, corporation, or limited liability company refusing to execute an agreement containing the aforementioned provisions. This preference in employment is mandated by Section 43-07-20 of the NDCC.

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SECTION 601 PORTLAND CEMENT CONCRETE

601-1 DESCRIPTION

601-1.1 General: This section shall consist of either plain or reinforced Portland Cement Concrete, proportioned, mixed, and constructed in accordance with these specifications and at the locations shown on the plans. The concrete shall be composed of coarse aggregate, fine aggregate, Portland Cement, water and permitted admixtures.

601-1.2 Classification: These Specifications divide the concrete into four classes as follows:

CLASS	COMPRESSIVE STRENGTH AT 28 DAYS (PSI)
AA	4000
А	3750
В	3000
С	2300

The class of concrete to be used for any item of work shall be as designated in the plans or in the Specifications.

601-2 MATERIALS

601-2.1 General: Only approved materials, conforming to the requirements of these specifications, shall be used in the work. They may be subjected to inspection and tests at any time during the progress of their preparation or use. The source of supply of each of the materials shall be approved by the ENGINEER before delivery or use is started. Representative preliminary samples of the materials shall be submitted by the CONTRACTOR, when required, for examination and test. Materials shall be stored and handled to insure the preservation of their quality and fitness for use. All equipment for handling, and transporting materials and concrete must be clean before any material or concrete is placed therein.

In no case shall the use of pit-run or naturally mixed aggregates be permitted. All fine and coarse aggregates shall be stored separately and kept clean. The mixing of different kinds of aggregates from different sources in one storage pile or alternating batches of different aggregates will not be permitted.

Prior to construction, the CONTRACTOR shall submit Certified Analysis of materials listed in Sub-Section 601-2.2, 601-2.4, and 601-2.5.

601-2.2 Portland Cement: The cement used in the work shall be Air-Entrained Portland Cement, Type 1A, meeting the requirements of A.S.T.M. C 150 or Portland Cement, Type I, meeting the requirements of A.S.T.M. C 150 with admixtures for producing air entrainment meeting the requirements of A.S.T.M. C260.

601-2.3 Aggregate: The CONTRACTOR shall notify the ENGINEER of the source of the coarse and fine aggregate, which is proposed for use on the contract. Sufficient time shall be allowed so that sampling and testing can be completed prior to the beginning of construction. During the construction period the CONTRACTOR shall, at all times, make available to the ENGINEER samples of aggregate. All aggregate shall meet the requirements of these specifications.

601-2.4 Fine Aggregate: Except as noted herein, the fine aggregate shall conform to the requirements of A.S.T.M. C 33. Fine aggregate shall be natural sands washed clean, consisting of hard, strong, sharp uncoated grains, free of dust, lumps, mica, shale, organic matter or other deleterious substances.

MOF	RTAR	CONCRE	TE SAND
SIEVE SIZE	PERCENT PASSING	SIEVE SIZE	PERCENT PASSING
No. 4	100	3/8"	100
No. 8	95-100	No. 4	95-100
		No. 8	80-100
		No. 16	45-80
		No. 30	25-60
		No. 50	10-30

Fine aggregate shall be graded within the following limits when tested in conformity with A.S.T.M. C 136.

The testing, sampling and quality of mortar sand for use in cement mortar shall conform to A.S.T.M. C 144.

No. 100

0-10

25 (max)

10 (max)

No. 100

No. 200

601-2.5 Coarse Aggregate: Except as noted herein, the coarse aggregate used shall conform to the requirements of A.S.T.M. C 33. Coarse aggregate shall consist of gravel or broken stone, composed of strong, hard, durable, uncoated pebbles or rock fragments, washed clean, and free from injurious amounts of shale, coal, clay, lumps, soft fragments, dirt, glass, organic or any other deleterious substances.

Coarse aggregate shall be graded from coarse to fine within one of the following limits when tested in conformity with A.S.T.M. C 136. Either graduation may be used, but once adopted, no change in gradation will be made during the course of the work.

COARSE AGGREGATE SIZE		
SIEVE	PERCENT	PERCENT
SIZE	PASSING	PASSING
2"	100	
1-1/2"	95-100	100
1"		95-100
3/4"	35-70	
1/2"		25-60
3/8"	10-30	
No. 4	0-5	0-10
No. 8		0-5

601-2.6 Water: Water used in concrete shall be clean and free from injurious amounts of oils, acids, Alkalis, salts, organic materials, or other substances that may be deleterious to concrete or reinforcement. Water shall be subject to test and approval by the ENGINEER.

601-2.7 Admixtures: Substances other than cement, water, aggregates, and air-entraining agents shall not be used in the concrete except as otherwise required or when permitted in writing by the ENGINEER. Unless otherwise provided in the plans or special provisions, no reduction will be made in the specified cement content of the concrete mixture by reason of using any admixtures. Admixtures containing calcium chloride shall not be used. No admixture shall be used which interferes with proper control of the entrained air content of concrete. Permission to use any admixtures may be withdrawn at any time if the properties of the admixture are not uniform or if satisfactory results are not being obtained.

Should the CONTRACTOR request and obtain permission to use admixtures for his own benefit, no additional compensation will be allowed for the cost of furnishing the admixtures and incorporating them into the concrete mixture.

601-2.8 Reinforcing Steel: Reinforcing Steel shall be Grade 60 deformed bars conforming to A.S.T.M. A 615. Wire mesh reinforcing shall comply with the requirements of A.S.T.M. A 185 or A 82. Tie wire shall be No. 16 gauge annealed wire.

Approved bar supports shall be used to support reinforcing bars. Pre-molded concrete blocks shall be used at the bottom of slabs or girders. Bar spacers made of steel shall be used between layers of bars. These shall have sufficient strength to support the load without deformation. Steel bar spacers shall not come in contact with the forms.

601-2.8.1 Minimum Bend Diameters: Where bars are to be bent, the diameter of the bend measured on the inside of the bar, other than for stirrups and ties shall not be less than the following values:

<u>Bar Size</u>	Minimum Diameter
#3 through #8	6 bar diameters
#9, #10, and #11	8 bar diameters
#14 and #18	10 bar diameters

Inside diameter of bends for stirrups and ties shall not be less than 4 bar diameters for #5 bar and smaller. For #6 bar and larger, minimum bend diameter shall be as shown in the above table.

All reinforcement shall be bent cold unless otherwise permitted by the ENGINEER.

601-2.8.2 Surface Conditions of Reinforcement: At the time that concrete is placed, metal reinforcement shall be free from mud, oil, or other nonmetallic coatings that adversely affect bonding capacity.

Metal reinforcement with rust, mill scale, or a combination of both shall be considered satisfactory provided that the minimum dimensions (including height of deformations) and weight of a hand-wire brushed test specimen are not less than the applicable A.S.T.M. specification requirements.

601-2.9 Expansion Joint Material: Pre-molded Bituminous Fiber Expansion Joint Material shall be used in expansion joints and shall consist of preformed strips of one (1) continuous piece per joint which have been formed from cane or other suitable fibers of cellular nature securely bound together and uniformly impregnated with a suitable asphaltic binder and shall be sealed with a hot-poured "Para Plastic" rubberized asphalt sealing compound or equal. Said joint materials shall conform to A.S.T.M. D1190 (sealing compound) and A.S.T.M. D1751 (pre-molded material). Joints shall be sealed within fourteen (14) days after they are installed.

601-3 CONSTRUCTION REQUIREMENTS

601-3.1 General: The CONTRACTOR shall furnish all labor, materials and services necessary for the completion of all works as shown on the drawings and specified herein. All work shall be subject to the inspection and the approval of the ENGINEER.

601-3.2 Materials Storage: All materials shall be stored in a manner approved by the ENGINEER.

Cement shall be stored in such a manner as to permit easy access for inspection and in a suitable watertight building that will protect the cement from dampness.

601-3.3 Mix Design: Mix Designs and tests for each concrete mix to be used shall be made using aggregates, which have been approved.

Concrete proportions, including water cement ratio, shall be established on the basis of field experience (section 601-3.3.1) or laboratory trial batches (Section 601-3.3.2) with materials to be employed, except as permitted in Section 601-3.3.3.

601-3.3.1 Proportioning Based on Field Experience: Where a concrete production facility has a record based on at least 30 consecutive strength tests that represent similar materials and conditions to those expected, required average compressive strength used as the basis for selecting concrete proportions shall exceed specified compressive strength at twenty eight (28) days by at least:

- 400 PSI if standard deviation is less than 300 PSI
- 550 PSI if standard deviation is 300 to 400 PSI
- 700 PSI if standard deviation is 400 to 500 PSI
- 900 PSI if standard deviation is 500 to 600 PSI

If standard deviation exceeds 600 PSI, concrete proportions shall be selected to produce an average strength at least 1200 PSI greater than the required compressive strength.

Strength test data for the determining standard deviation shall be considered to comply with the requirements of this section if the data represent either a group of at least 30 consecutive tests or a statistical average for two groups totaling 30 or more tests.

Strength tests used to establish the standard deviation shall represent concrete produced to meet a specified strength or strengths within 1000 PSI of that specified for the proposed work.

Variations in materials quality and proportions within the population of background tests used to establish the standard deviation shall not have been more closely restricted than for the proposed work.

The CONTRACTOR shall furnish the ENGINEER with two (2) copies of the above mentioned record of tests together with a calculation of the standard deviation and proposed mix design for approval by the ENGINEER.

601-3.3.2 Proportioning by Laboratory Trial Batches: When laboratory trial batches are used as the basis for selecting concrete proportions, strength tests shall be made in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens" (A.S.T.M. C 39) on Cylinders prepared in accordance with "Method of Making and Curing Test Specimens in the Laboratory" (A.S.T.M. C 192).

When the laboratory trial batches are made, air content shall be within ± 0.5 percent and slump within ± 0.75 inches of the maximums permitted by these specifications.

If the concrete construction facility has a record based on at least 30 consecutive strength tests representing materials similar to those to be used for the design mix, the required average compressive strength to be used as the basis for selecting concrete proportions shall be as designated in Section 601-3.3.1 of these specifications. If the facility does not have such a record, the required average compressive strength to be used as a basis for the design mix shall exceed the specified compressive strength by 1200 PSI.

A curve shall be established showing the relationship between water cement ratio (or cement content) and compressive strength. The curve shall be based on at least three (3) points representing batches, which produce compressive strengths above and below the average compressive strength as required in the above paragraph. Each point on the curve shall represent the average of at least three (3) test cylinders.

The maximum permitted water to cement ratio (or minimum cement content) for concrete to be used in the structure shall be that shown by the curve to produce the average required strength as indicated in this section or greater strength.

601-3.3.3 Proportioning by Water-Cement Ratio: If suitable test data from a record of 30 consecutive tests (Section 601-3.3.1) or from laboratory trial batches (Section 601-3.3.2) are not available, permission in writing from the ENGINEER may be granted upon written request from the CONTRACTOR to base concrete proportions on the following water - cement ratios.

CONCRETE CLASS	SPECIFIED COMP.	RATIO BY WEIGHT OF	U.S. GALLONS PER 94
	STRENGTH (PSI)	WATER TO CEMENT	LB. BAG OF CEMENT
AA	4,000	0.35	4.0
A	3,750	0.37	4.2
В	3,000	0.46	5.2
С	2,300	0.57	6.4

601-3.3.4 Test of Design Mix: Concrete proportioned under the provisions of Section 601-3.3.1, or Section 601-3.3.2, or Section 601-3.3.3 of this specification shall be tested before placement on the job. A minimum of six (6) test cylinders shall be prepared in accordance with "Method of Making and Curing Test Specimens in the Laboratory" (A.S.T.M C 192) and tested in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens" (A.S.T.M C 39) at 28 days at a test facility approved by the ENGINEER. A report of such test shall be prepared and submitted to the ENGINEER. The approval of the ENGINEER is required prior to placing the concrete on the job.

601-3.4 Concrete Testing: During the progress of the work, and for each different mix of concrete, the following sets of compression cylinders will be taken by the CONTRACTOR:

First Pour - Two (2) 7 day and Two (2) 28 day cylinders. Intermediate Pours as follows:

1- 25 CY -	Two (2) 28 day cylinders
25- 50 CY -	Three (3) 28 day cylinders
50- 75 CY -	Four (4) 28 day cylinders
75-100 CY -	Five (5) 28 day cylinders
100-150 CY -	Six (6) 28 day cylinders
150-200 CY -	Eight (8) 28 day cylinders

These compression cylinders shall be tested by a testing laboratory approved by the ENGINEER. The CONTRACTOR shall pay for all testing required. The testing laboratory shall supply two (2) copies of the results to the ENGINEER.

The cylinders comprising one (1) set shall be taken from the same sample of concrete. The required minimum strength of concrete shall be as shown in Sub-Section 601-1.2 for the class of concrete specified.

Slump tests made in accordance with A.S.T.M. C 143 shall be made as necessary to maintain desired concrete consistency. Slump tests shall also be made and recorded for each sample of concrete used in making test cylinders. The maximum allowable slump of the concrete mix shall be four (4) inches. Air content, in accordance with A.S.T.M. C 231 shall also be tested and recorded for each sample of concrete used in making test cylinders. The air content shall fall within the range of 5% to 7%.

If any test cylinder shows strength at 28 days, which fails to meet the specified strength for the class of concrete from which the sample was taken, then the concrete represented by such test cylinder shall be further tested by the ENGINEER. If such further tests indicate that concrete has been placed which does not meet the compressive strength requirements established by this specification, then the concrete shall be rejected and shall be removed and replaced with new work of the specified strength, all at the expense of the CONTRACTOR.

601-3.5 Proportioning Materials: The proportion of materials shall be as shown on the mix design determined in accordance with Sub-Section 601-3.3.

The amounts and proportions of fine and coarse aggregates to be used in each mix shall be such as to produce a plastic, workable mix, free from harshness, which can be readily placed into the corners and angles of the forms and around reinforcement and other embedded work without undue accumulation of water on the surface and such that there will be no honeycombing in the structure. Proportions of fine and coarse aggregates shall be such that the ratio of the coarse to the fine aggregate shall not be less than one (1) nor more than two (2).

601-3.6 Cold Weather: Concrete shall not be placed when the atmospheric temperature is below 40°F. or when there is a probability the temperature will go below that in the next twenty-four (24) hours unless the concrete is protected and heated in a manner suitable to the ENGINEER.

Frozen concrete shall be immediately removed upon direction of the ENGINEER and replaced with new work at no expense to the OWNER.

601-3.7 Forms: Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the ENGINEER. Forms shall be of suitable material and shall be of the type, size, shape, quality and strength to build the structure as designed on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The CONTRACTOR shall bear responsibility for their adequacy. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes.

The internal ties shall be arranged so that, when the forms are removed, no metal will show in the concrete surface or discolor the surface when exposed to weathering. All forms shall be coated with a non-staining mineral oil, which shall be applied shortly before the concrete is placed. Forms shall be constructed so that they can be removed without injuring the concrete or concrete surface. Forms supported by false work under slabs, beams, girders, arches, and similar construction shall not be removed until tests indicate that at least 60% of the design strength of the concrete has developed.

601-3.8 Placing Reinforcement: All reinforcement shall be placed within $\pm 3/8$ inches of locations shown on the plans and held firmly in position during placement of concrete. Reinforcing bars shall be fastened together at intersections. Shop drawings lists and bending details shall be supplied by the CONTRACTOR to the ENGINEER.

Splices not shown on the drawings shall be lapped a minimum of thirty-six (36) bar diameters and securely wired. These splices shall be staggered. Location of splices not shown on the plans shall be approved by the ENGINEER.

601-3.9 Embedded Items: Before placing concrete, any items that are to be embedded shall be firmly and securely fastened in place as indicated. All such items shall be clean and free from rust, scale, oil, or any foreign matter. The embedding of wood shall be avoided. The concrete shall be consolidated around and against embedded items.

601-3.10 Placing Concrete: All concrete shall be placed during daylight, unless otherwise approved. The concrete shall not be placed until the depth and character of foundation, the adequacy of forms and false work, and the placing of the steel reinforcing have been approved. Concrete shall be placed as soon as practical after mixing and in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall be such to avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. Dropping the concrete, a distance of more than five (5) feet, or depositing a large quantity at one point, will not be permitted. Concrete shall be placed upon clean surfaces, free from running water, or upon properly consolidated damp soil.

The concrete shall be consolidated by suitable mechanical vibrators. When necessary, vibrating shall be supplemented by hand spading with suitable tools to assure proper and adequate consolidation. Vibrators shall be manipulated so as not to displace reinforcement or forms. The vibration at any point shall be of sufficient duration to accomplish consolidation but shall not be prolonged to the point where segregation occurs. Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie, a closed bottom dump bucket, or other approved method and shall not be disturbed after being deposited.

601-3.11 Construction Joints: When the placing of concrete is suspended, necessary provisions shall be made for joining future work before the placed concrete takes its initial set. For the proper bonding of old and new concrete, such provisions shall be made for grooves, steps, keys, dovetails, reinforcing bars or other devices as may be prescribed. The work shall be arranged so that a section begun on any day shall be finished during daylight of the same day. Before depositing new concrete on or against concrete, which has hardened, the surface of the hardened concrete shall be cleaned, thoroughly wetted, and given a thin coating of neat cement mortar.

Beams, girders, column capitals and haunches shall be considered as part of a slab system and shall be placed monolithically therewith.

Beams, girders, or slabs supported by columns or walls shall not be cast or erected until concrete in the vertical support members is no longer plastic.

Construction joints in floors shall be located near the middle of spans of slabs, beams, or girders, unless a beam intersects a girder at the middle location, in which case joints in the girders shall be offset a distance equal to twice the width of the beam.

601-3.12 Expansion Joints: Expansion Joints shall be constructed at such points and of such dimensions as may be indicated on the drawings. The pre-molded filler shall be cut to the same shape as that of the surfaces being joined. The filler shall be fixed firmly against the surface of the concrete already in place in such a manner that it will not be displaced when concrete is deposited against it.

601-3.13 Defective Work: Any defective work disclosed after the forms have been removed shall be immediately removed and replaced. If any dimensions are deficient, or if the surface of the concrete is bulged, uneven, or shows honeycomb, which in the opinion of the ENGINEER cannot be repaired satisfactorily, the entire section shall be removed and replaced at the expense of the CONTRACTOR.

601-3.14 Surface Finish: All exposed concrete surfaces shall be true, smooth, free from open or rough spaces, depressions or projections. All exposed concrete shall be float finished on all surfaces unless otherwise shown on the plans. This shall include patching all tie rod holes and defective surfaces immediately after removing forms using cement mortar.

601-3.15 Curing and Protection: All concrete shall be properly cured and protected by the CONTRACTOR. The work shall be protected from the elements, flowing water, and from defacement of any nature during the building operations. The concrete shall be cured as soon as it has sufficiently hardened by covering with an approved material. Water-absorptive coverings shall be thoroughly saturated when placed and kept saturated for a period of at least three (3) days. All curing mats or blankets shall be sufficiently weighted or tied down to keep the concrete surface covered and to prevent the surface from being exposed to currents of air. Traffic shall not be allowed on concrete surfaces until tests indicate that sufficient strength has been reached. All concrete shall be maintained above 50°F. for at least the first seven (7) days after placement.

601-4 MEASUREMENT AND PAYMENT

601-4.1 Portland Cement Concrete: In general Portland Cement Concrete will be considered incidental to the bid item it is incorporated into.

601-4.2 Reinforcing Steel: Reinforcing Steel will be considered incidental to the bid item it is incorporated into.

SECTION 740 MOBILIZATION

740-1 SCOPE

The work shall consist of the mobilization of the CONTRACTOR'S forces and equipment necessary for performing the work required under the contract.

It shall include the purchase of contract bonds; transportation of personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary facilities at the site, and other preparatory work at the site.

It shall not include mobilization for any specific item of work for which payment for mobilization is provided elsewhere in the contract.

The specification covers mobilization for work required by the contract at the time of award. If additional mobilization costs are incurred during performance of the contract as a result of changed or added items of work for which the CONTRACTOR is entitled to an adjustment in contract price, compensation for such costs will be included in the price adjustment for the items of work changed or added.

740-2 PAYMENT

Payment will be made as the work proceeds, after presentation of invoices by the CONTRACTOR showing his own mobilization costs and evidence of the charges of suppliers, subcontractors, and others for mobilization work performed by them. If the total of such payments is less than the contract lump sum for mobilization, the unpaid balance will be included in the final contract payment. Total payment will be the lump sum contract price for mobilization, regardless of actual cost to the CONTRACTOR.

Payment will not be made under this item for the purchase costs of materials having a residual value, the purchase costs of materials to be incorporated in the project, or the purchase costs of operating supplies.

Payment of the lump sum contract price for mobilization will constitute full compensation for all labor, materials, equipment and all other items necessary and incidental to completion of the work.

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SECTION 803 AGGREGATE BASE COURSE

803-1 DESCRIPTION

This item shall consist of constructing aggregate base course on a prepared base. The thickness and width shall be as shown on the plans or as directed by the ENGINEER.

803-2 MATERIALS

803-2.1 <u>Aggregate</u>. The material shall conform to the requirements for Class 5 Aggregate as specified in "Standard Specifications for Road and Bridge Construction", 2014 Edition as published by the NDDOT, and all supplemental specifications.

803-2.2 <u>Sampling and Testing</u>. Only approved materials, conforming to the requirements of these specifications shall be used in the work. They may be subjected to inspection and tests at any time during the progress of their preparation or use. The source of supply for each of the materials shall be approved by the ENGINEER before delivery or use is started. Representative preliminary samples of the materials shall be submitted by the CONTRACTOR, to an independent testing lab at no cost to the OWNER when required, for examination and test. Materials shall be stored and handled to insure the preservation of their quality and fitness for use.

The CONTRACTOR shall notify the ENGINEER of the source of the coarse aggregate, which is proposed for use on the contract. Sufficient time shall be allowed so that sampling and testing can be completed prior to the beginning of construction. During the construction period the CONTRACTOR shall, at all times, make available to the ENGINEER samples of aggregate. All aggregate shall meet the requirements of these specifications.

803-3 CONSTRUCTION REQUIREMENTS

All equipment used in the performance of the work in this section shall be maintained in a satisfactory working condition at all times and shall be subject to the approval of the ENGINEER.

The subbase shall be shaped by using a blade. Any soft or yielding areas shall be removed and replaced with suitable soil by the CONTRACTOR at no expense to the OWNER. The subbase shall have a uniform density in accordance to Section 701 before the base course is placed.

The base course shall be placed to obtain a compacted depth as shown on the plans or directed by the ENGINEER. A blade and adequate compaction equipment shall be used to obtain surface smoothness so that there is no deviation in excess of one (1) inch in any ten (10) feet when tested with a ten (10) foot straightedge.

The base course shall be compacted to 95% dry density according to AASHTO T-180. Moisture content to be \pm 2% of optimum.

803-4 MEASUREMENT AND PAYMENT

803-4.1 <u>Aggregate Base Course</u>. Aggregate Base Course shall be measured by the ton as measured in place and shall be paid for at the unit price bid for "Aggregate Base Course (Class 5)", complete in place and accepted by the ENGINEER. CONTRACTOR'S bid price shall include all items specified above. Failure to meet acceptance parameters will result in deducts being applied as described in the "Standard Specifications for Road and Bridge Construction," 2014 edition as published by the NDDOT and the Supplemental Specifications.

SECTION 901 HOT BITUMINOUS PAVEMENT

901-1 DESCRIPTION

This item shall consist of a hot bituminous mixture composed of mineral aggregate and bituminous material, mixed in a central mixing plant and placed on a prepared base course or existing pavement in accordance with these specifications and in conformance with the dimensions and typical cross sections shown on the plans and with the lines and grades established by the ENGINEER. The mixture shall be used for base course, overlays, leveling course and pavement construction.

The hot bituminous surface course shall be constructed as shown on the plans in lifts not to exceed two (2) inches in thickness.

The two (2) inch maximum lift thickness will be waived if the CONTRACTOR is able to demonstrate, by means of a test section, that compaction, texture and surface tolerance can be obtained for a thicker lift. If the results of the test are satisfactory, the ENGINEER will authorize the CONTRACTOR in writing to construct the thicker lift.

901-2 MATERIALS

901-2.1 <u>Aggregate</u>. The aggregate shall conform to the requirements for Class 29 Aggregate as specified in the "Standard Specifications for Road and Bridge Construction", 2014 edition as published by the NDDOT and the supplemental Specification.

The aggregate shall be tough, durable, and sound and shall consist of angular fragments reasonably uniform in density and quality. The aggregate shall be free of dirt and other objectionable matter and shall not contain more than 8% of thin and elongated pieces nor more than 5% of soft pieces.

The coarse aggregate shall not show evidence of disintegration nor show a total loss greater than 12% when subjected to five (5) cycles of the sodium sulfate accelerated soundness test as specified in ASTM C 88.

The fine aggregate, including any blended filler, shall have a plasticity index of not more than six (6) as determined by ASTM D 424 and a liquid limit of not more than twenty-five (25) as determined by ASTM D 423.

901-2.2 <u>Filler</u>. If filler, in addition to that naturally present in the aggregate, is necessary, it shall consist of stone dust, loose Portland Cement, hydrated lime, or other approved mineral matter. The filler material shall meet the requirements of ASTM D 242.

901-2.3 <u>Bituminous Material</u>. The bituminous material shall be accepted by certification. The asphalt supplier will certify that the product furnished to the project complies with the SHRP binder specification for a PG 58-28 binder. In order to supply asphalt material to this project by certification, the supplier shall submit a letter to the ENGINEER stating that the supplier has an established quality control plan. This Control plan must be in accordance with the January 1999 publication "Combined State Binder Group". Results of the required tests shall be sent to Interstate Engineering, Inc. P.O. Box 742 Beulah, ND 58523.

901-2.4 <u>Job-Mix Formula</u>. The CONTRACTOR shall submit for the ENGINEER'S approval, a job-mix formula for each mixture to be supplied for the project. The job-mix formula with the allowable tolerances shall be within the master range specified for the particular type of mixture. The job-mix formula for each mixture shall be in effect until modified in writing by the ENGINEER. The job-mix formula for each mixture shall establish a single percentage of aggregate passing each required sieve size, a single percentage of bituminous material to be added to the aggregate, and a single temperature at which the mixture is to be delivered at the point of discharge. The job-mix formulas shall be supplied by an independent testing laboratory acceptable to the ENGINEER at the CONTRACTOR'S expense.

After the job-mix formula is established, all mixtures furnished for the project shall conform thereto within the following ranges of tolerances:

Aggregate passing sieves No. 4 and larger	± 7 percent
Aggregate passing sieves No. 10, 50 & 100	± 4 percent
Aggregate passing sieve No.200	± 2 percent
Asphalt cement	± 0.4 percent
Temperature of mixing and placing	± 20°F.

The CONTRACTOR shall furnish to the testing laboratory, bituminous material from the supplier for the project. If he changes suppliers, another job mix formula shall be completed by him with this supplier's material at no cost to the OWNER.

901-3 COMPOSITION OF MIXTURE

The mineral aggregate for the hot bituminous surface course shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation specified. The percent by weight for the bituminous material shall be within the limits given. The bituminous content of the mixture shall be calculated on a percentage basis by weight of the total mix.

The composition limits tabulated shall govern, but a closer control, appropriate to the job materials will be required for the specific project in accordance with job-mix formula. The final gradations decided on, within the limits designated in the table, shall be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieves or vice versa.

For the aggregate gradations, the mixture shall meet the requirements of the following ASTM tests, plus the stated limitations on voids, and swell:

MARSHALL STABILITY	ASTM D 1559
Number of blows each end of specimen	50
Stability (Min.)	1500
Flow (Max.) hundredths of an inch	18
Flow (Min.) hundredths of an inch	8
Percent Voids	3 to 5

A sample of the coarse and fine aggregates shall be washed to determine the percentage of the total material passing the No. 200 mesh sieve; of the amount of the material passing the No. 200 mesh sieve, at least one-half ($\frac{1}{2}$) shall pass the No. 200 mesh sieve by dry sieving.

The percentage of bituminous material, by weight, to be added to the aggregate shall be specified by the ENGINEER on the basis of preliminary laboratory tests and field sieve analysis furnished by the CONTRACTOR.

901-4 EQUIPMENT

901-4.1 <u>Equipment and Organization</u>. All methods and equipment, tools, plants, and machinery used for handling materials and executing any part of the work shall be subject to the approval of the ENGINEER before the work is started. If unsatisfactory, they shall be changed and improved as required.

901-4.2 Bituminous Mixing Plant.

<u>General</u>. Adequate storage space shall be provided to prevent intermingling of stockpiles containing separated aggregate sizes until the aggregates are delivered into the plant. The various units of the plant shall be designed and coordinated to permit uniform, uninterrupted production under the normal operating conditions. The plant shall be provided with means for readily obtaining representative samples and for calibrating and checking the proportions of each ingredient used in the mixture.

- (a) <u>Requirements for All Plants</u>. Mixing plants shall be of sufficient capacity and coordinated to adequately handle the proposed bituminous construction.
 - (1) <u>Plant Scales</u>. Scales shall be accurate to within 0.5% of the required maximum load. Poises shall be designed to be locked in any position to prevent unauthorized change of position. In lieu of plant and truck scales, the CONTRACTOR may provide an approved automatic printer system to print the weights of the material delivered, provided the system is used in conjunction with an approved automatic batching and mixing control system. Such weights shall be evidenced by a weigh ticket for each load. Scales shall be inspected and sealed as often as the ENGINEER may deem necessary to assure their continued accuracy. The CONTRACTOR shall have on hand not less than ten (10) fifty (50) pound weights for testing the scales.

- (2) Equipment for Preparation of Bituminous Material. Tanks for the storage of bituminous material shall be equipped to heat and hold the material at the required temperatures. Heating shall be accomplished by steam coils, electricity, or other approved means so that flame(s) will not contact the tank. The circulating system for the bituminous material shall be designed to assure proper and continuous circulation during the operating period. Provision shall be made for measuring and sampling storage tanks.
- (3) <u>Feeder for Drier</u>. The plant shall be provided with accurate mechanical means for uniformly feeding the aggregate into the drier to obtain uniform production and temperature.
- (4) <u>Drier</u>. The plant shall include a drier(s), which continuously agitates the aggregate during the heating and drying process.
- (5) <u>Screens</u>. Plant screens, capable of screening all aggregate to the specified sizes and proportion and having normal capacities in excess of the full capacity of the mixer, shall be provided.
- (6) <u>Bins</u>. The plant shall include storage bins of sufficient capacity to supply a mixer operating at full capacity. Bins shall be arranged to assure separate and adequate storage of appropriate fractions of the mineral aggregates. When used, separate dry storage shall be provided for filler or hydrated lime and the plant shall be equipped to feed such material into the mixer. Each bin shall be provided with overflow pipes of such size and at such locations to prevent backup of material into other compartments or bins. Each compartment shall be provided with its own individual outlet gate, constructed so as to prevent leakage. The gates shall cut off quickly and completely. Bins shall be so constructed that samples may be obtained readily. Bins shall be equipped with adequate telltale devices, which indicate the position of the aggregates in the bins at the lower quarter points.
- (7) <u>Bituminous Control Unit</u>. Satisfactory means, either by weighing or metering, shall be provided to obtain the specified amount of bituminous material in the mix. Means shall be provided for checking the quantity or rate of flow of bituminous material into the mixer.
- (8) <u>Thermometric Equipment</u>. Dual armored thermometers of adequate range shall be fixed in the bituminous feed line at a suitable location near the charging valve of the mixer unit.

The plant shall also be equipped with an approved thermometric instrument placed at the discharge chute of the drier to indicate the temperature of the heated aggregates. The ENGINEER may require replacement of any thermometer by an approved temperature recording apparatus for better regulation of the temperature of aggregates.
- (9) <u>Dust Collector</u>. The plant shall be equipped with a dust collector to waste or return uniformly to the hot elevator all or any part of the material collected.
- (10) <u>Safety Requirements</u>. Adequate and safe stairways to the mixer platform and sampling points shall be provided, and guarded ladders to other plant units shall be placed at all points where accessibility to plant operations is required. Accessibility to the top of truck bodies shall be provided by a suitable device to enable the ENGINEER to obtain samples and mixture temperature data. Means shall be provided to raise and lower scale calibration equipment, sampling equipment, and other similar equipment between the ground and the mixer platform. All gears, pulleys, chains, sprockets, and other dangerous moving parts shall be thoroughly guarded. Ample and obstructed passage shall be maintained at all times in and around the truck loading area. This area shall be kept free of drippings from the mixing platform.
- (b) <u>Cold Feed Control</u>. The CONTRACTOR may elect to operate the hot plant without plant screens. The basic requirements of this method of operation are to remove all plant screens with the exception of the scalping screen. Permission to continue under this option may be rescinded upon failure to maintain production within the specified gradation limits.

The volume or tonnage placed in each of the two (2) or more stockpiles shall be such a significant portion of the whole tonnage produced, as to enable adequate control of the gradation within the job-mix formula.

Each individual aggregate shall be fed through a separate feeder that has a positive feed and that can be easily and accurately calibrated. The feed shall be quick adjusting and shall maintain a constant and uniform flow throughout the range of its calibration.

(1) <u>Batch Plants and Continuous Mix Plants</u>. The point of acceptance for the physical properties of the aggregates will be in the stockpiles at the plant site. Acceptance testing for aggregate gradation will be performed just prior to the addition of bituminous material to the mixture.

In batch mix plants, a surge bin shall be provided between the drier and the batch plant and the discharge into the weigh hopper shall be from one bin only which shall discharge into the center of the weigh hopper. The amount of aggregate stored in the bin at any one time shall not exceed one batch in weight and shall be fed into the bin in a manner that will prevent sluffing and segregation.

In continuous mix plants, a surge bin and mechanical feeder shall be provided. The storage in each bin shall be limited in amount so that sluffing and segregations will not occur. If more than one (1) bin is used, separation shall be accomplished in such a manner as to ensure flow to each bind and preclude segregation of the total material as obtained from the individual bins. (c) <u>Dryer Drum Plants</u>. An approved dryer drum mixing process will be permitted in lieu of pug mill mixing. The system shall provide positive weight control of the cold aggregate feed, by use of a belt scale or other device, which will automatically regulate the feed gate and permit instant correction of variations in load. The cold feed flow shall be automatically coupled with the bitumen flow to maintain the required proportions. Proportioning shall be within the tolerances specified in the job-mix formula. The system shall be equipped with automatic burner controls and shall provide for temperature sensing of the bituminous mixture at discharge.

The moisture contents of the bituminous mixture at discharge from the mixer shall not exceed three (3) percent.

The temperature of the bituminous mixture at discharge from the mixer shall not exceed 300°F. The temperature of the mix at lay down shall be not less than 180°F. The actual mixing temperature shall be adjusted as directed by the Engineer within the allowable limitations to best suit construction conditions.

901-4.3 <u>Hauling Equipment</u>. Trucks used for hauling bituminous mixtures shall have tight, clean, smooth metal beds, which have been lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material to prevent the mixture from adhering to the beds. In adverse weather, each truck shall have a suitable cover to protect the mixture.

901-4.4 <u>Bituminous Pavers</u>. Bituminous Pavers shall be self-contained, power propelled units, provided with an activated screed or strike-off assembly, heated if necessary. It shall be capable of spreading and finishing courses of bituminous plant mix material, which will meet the specified thickness, smoothness, and grade. The paver shall be capable of spreading and finishing courses of bituminous plant mix material in lanes not less than ten (10) feet in width and shall be capable of operating at forward speeds consistent with satisfactory laying of the mixture.

The paver shall have a receiving hopper of sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed.

The screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving or gouging the mixture.

901-4.5 <u>Rollers</u>. Rollers shall be in good condition, capable of reversing without backlash and shall operate at slow speeds to avoid displacement of the bituminous mixture. The number, type, and weight of rollers used shall be sufficient, to compact the mixture while the mixture is still in a workable condition. The use of equipment, which results in excessive crushing of the aggregate, will not be permitted.

901-4.6 <u>Field Laboratory</u>. The Field Laboratory if required shall have at least one hundred forty (140) square feet of floor space and shall be suitably weatherproofed, heated and ventilated. It shall be equipped with a sink, cold running water, an adequate supply of electricity, and benches and tables as required by the ENGINEER. A first aid kit and suitable fire extinguishers shall also be furnished.

The Field Laboratory shall have at least two (2) windows, one of which must offer a clear and unobstructed view of plant mix proportioning operations at all times.

The following items shall be furnished with the Field Laboratory:

Dial thermometers Brass wire brush Camel hair brush Electric aggregate shaker Sufficient sieves to test specified aggregate Small containers, pans, buckets Heavy-duty fine mesh sample sacks Sample splitters

The Field Laboratory shall be placed on the job site prior to the start of construction and remain at the job site until the project is complete. The Field Laboratory shall be furnished incidental to the price bid for Hot Bituminous Surface Course unless otherwise stated in the Special Conditions.

901-5 CONSTRUCTION REQUIREMENTS

901-5.1 <u>Weather and Seasonal Limitations</u>. The Hot Bituminous Surface Course shall be constructed only when the surface is dry, the atmospheric temperature is above 40°F. and the weather is not foggy or rainy. The temperature requirement may be waived, but only when so directed by the ENGINEER.

901-5.2 <u>Preparation of Bituminous Material</u>. The Bituminous Material shall be heated to the mixing temperature specified in Sub-Section 901-2.3 in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at a uniform temperature at all times.

901-5.3 <u>Preparation of Mineral Aggregate</u>. The aggregate for the mixture shall be dried and heated at the paving plant before entering the mixer. When introduced into the mixer, the combined aggregate shall not contain more than 0.5% moisture. Water in the aggregate shall be removed by heating to the extent that there is no subsequent foaming in the mixture prior to the placing of material. The aggregate shall be heated to temperature as designated by the job-mix formula within the job tolerance specified. The maximum temperature and rate of heating shall be such that no permanent damage occurs to the aggregates. Particular care shall be taken that aggregate shall be screened to specified sizes and conveyed into separate bins ready for mixing with bituminous material.

901-5.4 <u>**Preparation of Bituminous Mixture**</u>. Before delivery, the aggregate shall be mixed with the bituminous material at a central mixing plant. The mixture shall be prepared at a temperature as shown in Sub-Section 901-2.3.

The dry aggregates, prepared as specified in 901-5.3 shall be combined in the plant in proportionate amounts of each fraction of aggregate required to meet the specified gradation. The quantity of aggregate for each batch shall be determined, measured and conveyed into the mixer. In case of volumetric proportioning, the size of the grate openings shall be determined, and the gates locked in position.

The quantity of bituminous material for each batch of calibrated amount shall be determined by the ENGINEER. The bituminous material shall be measured by weight or volume and introduced into the mixer at the specified temperature, using the lowest range possible for adequate mixing and spreading. For batch mixers, all mineral aggregates shall be in the mixer before the bituminous material is added. The exact temperature within the specified range shall be fixed by the ENGINEER. As determined by the ENGINEER the mixing shall continue for the time necessary to coat all particles uniformly. This time is dependent upon the mix designs and the type of mixing equipment used.

901-5.5 <u>Transportation and Delivery of the Mixture</u>. The mixture shall be transported from the mixing plant to the point of use in vehicles such as described in Sub-Section 901-4.3.

The mixture shall be placed at a minimum temperature of 225°F. When mixture is being placed during warm weather and the ENGINEER has determined that satisfactory results can be obtained at lower temperatures, he may direct that the mixture be mixed and delivered at the lower temperatures.

Loads shall not be sent out so late as to interfere with spreading and compacting the mixture during daylight unless artificial light, satisfactory to the ENGINEER, is provided. The mixture shall be delivered at a temperature within the tolerance specified in the approved job-mix formula.

901-5.6 Spreading and Laying.

(a) <u>Preparation for Placing</u>. Immediately before placing the bituminous mixture, the existing underlying course shall be cleaned of loose or deleterious materials and tacked in accordance with Section 902.

The mixture shall be laid only upon an approved underlying course, which is dry and only when weather conditions are suitable. No mixture shall be placed when air temperature away from the artificial heat is 40°F. or lower, unless so directed by the ENGINEER. The ENGINEER may, however, permit work of this character to continue when overtaken by sudden rains, up to the amount, which may be in transit from the plant at the time, provided the mixture is within the temperature limits specified.

Placing shall commence at the point(s) farthest from the mixing plant and progress continuously toward the plant, unless otherwise ordered by the ENGINEER. Hauling over material already placed shall not be permitted until the material has been thoroughly compacted as specified and allowed to cool to atmospheric temperature.

(b) <u>Machine Spreading Hot Bituminous Surface Course</u>. Upon arrival, the Hot Bituminous Surface Course mixture shall be dumped into an approved bituminous paver and immediately spread to the full width required. It shall be struck off in a uniform layer of such depth that, when the work is completed, it will have the required thickness and will conform to the grade and surface contour required. The speed of the paver shall be regulated to eliminate the pulling and tearing of the bituminous mat.

The mixture shall be placed in strips of uniform width. To ensure proper drainage, the spreading shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope. After the first strip or width has been compacted, the second width shall be placed, finished and compacted in the same manner as the first width. After the second strip has been placed and rolled, a ten (10) foot straightedge shall be placed across the longitudinal joint to determine if the surface conforms to grade and contour requirements.

Exposed vertical edges of paved strips shall be free of all accumulations of dirt or other foreign material before any mixture is spread in an adjacent lane. If joint faces become dry or dusty, the contact surfaces shall be given a brush coat of asphalt. In lieu of painting the contact surfaces, the CONTRACTOR may use a joint heater approved by the ENGINEER. If the spreading machine should drift from an adjacent lane during construction, the unfilled space shall be carefully filled with fresh hot mixture obtained from truck or the hopper of the spreading machine. Stealing mixture from that already spread to fill up these areas shall not be permitted.

In areas where due to irregularities or unavoidable obstacles, the use of mechanical spreading and finishing equipment is not practical, the mixture may be hand spread.

901-5.7 <u>Compaction of Mixture</u>. The hot bituminous surface course shall be compacted by one of the following methods:

(a) <u>Method A</u>. Breakdown rolling shall consist of one (1) complete coverage with a tandem type steel wheel roller with a fully ballasted gross weight of ten (10) tons or more. Intermediate rolling shall be performed with the same roller. For intermediate rolling the passes of the roller shall overlap each other by one half (½) the width of the lead steel roller and a minimum of two (2) complete passes shall be made. Finish rolling shall be performed with a self-propelled pneumatic roller. This roller shall be equipped with not less than seven (7) wheels with smooth tread tires of equal size and uniformly inflated. The wheels shall be staggered on the front and rear axles to provide a complete coverage of the area the roller covers. This rolling shall continue until all roller marks and other paving irregularities are removed.

Roller operating conditions shall be approved by the ENGINEER. All rollers shall be equipped with a system to uniformly moisten compaction wheels and tires without excessive water.

(b) <u>Method B</u>. Initial rolling shall consist of one (1) to four (4) complete passes of a vibratory steel face roller, depending on depth and as established by the ENGINEER. The front drum of the roller shall be steel and have a minimum width of seven (7) feet. The amplitude shall be variable with a maximum dynamic force of at least 27,000 pounds.

The CONTRACTOR shall test roll a section to establish a satisfactory amplitude of operation under the surveillance of the ENGINEER. This test section may be a portion of the project and shall be paid for at the price bid for Hot Bituminous Surface Course.

The intermediate rolling shall use the same roller except that the amplitude shall be reduced. A minimum of two (2) complete passes with a minimum of six (6) inches overlap shall be required.

Finish rolling shall be performed with a self-propelled pneumatic roller. This roller shall be equipped with not less than seven (7) wheels with smooth tread tires of equal size and uniformly inflated. The wheels shall be staggered on the front and rear axles to provide a complete coverage of the area the roller covers. This rolling shall continue until all roller marks and other paving irregularities are removed.

Roller operating conditions shall be approved by the ENGINEER. All rollers shall be equipped with a system to uniformly moisten compaction wheels and tires without excessive water.

901-5.8 Joints.

- (a) <u>General</u>. The mixture at the joints shall comply with the surface requirements and present the same uniformity of texture, density, smoothness, etc., as other sections of the course. In the formation of all joints, provision shall be made for proper bond with the adjacent course for the specified depth on the course. Joints shall be formed by cutting back on the previous day's run to expose the full depth of the course. The exposed edge shall then be given a light paint coat of asphalt, as required by the ENGINEER, and the fresh mixture raked against the joint.
- (b) <u>Transverse</u>. The placing of the course shall be as continuous as possible. The roller shall pass over the unprotected end of the freshly laid mixture only when discontinuing the laying of the course.

(c) <u>Longitudinal</u>. The placing of the course shall be as specified and in such a manner that the joint is exposed for the shortest period possible. The joint shall be placed so that it will not coincide with that in the base, binder or existing course by at least one (1) foot.

901-5.9 <u>Shaping Edges</u>. While the surface is being compacted and finished the CONTRACTOR shall carefully trim the outside edges of the pavement to the proper alignment. The edge so formed shall be beveled while still hot with the back of the rake or a smoothing iron.

901-5.10 <u>Surface Tests</u>. Tests for conformity with the specified crown and grade shall be made by the CONTRACTOR immediately after initial compression. Any variation shall be corrected by the removal or addition of materials and by continuous rolling.

The finished surface shall not vary more than 3/8 inch when tested with a ten (10) foot straightedge applied parallel with, or at right angles to, the centerline.

After the completion of final rolling, the smoothness of the course shall again be tested; the humps or depressions exceeding the specified tolerances or that retain water on the surface shall be corrected immediately as directed by the ENGINEER; this shall be done at the CONTRACTOR'S expense.

901-5.11 <u>Bituminous and Aggregate Material Contractor's Responsibility</u>. Samples of the bituminous and aggregate materials that the CONTRACTOR proposes to use, together with a statement of their source and character, shall be submitted to the ENGINEER; approval must be obtained before the use of such material begins. The CONTRACTOR shall require the manufacturer or producer of the bituminous and aggregate materials to furnish material subject to this and all other pertinent requirements of the contract. Only those materials that have demonstrated performance under the proposed design requirements will be accepted.</u>

The ENGINEER or his authorized representative shall have access, at all times, to all parts of the paving plant for the purpose of inspecting equipment, conditions and operation of the plant, for verification of weights or proportions and character of materials, and to determine temperatures maintained in the preparation of the mixtures.

The CONTRACTOR shall furnish vendor's certified test reports for each carload or equivalent of bitumen shipped to the project. The report shall be delivered to the ENGINEER before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing samples of materials received for use on the project. Two (2) one (1) pint can samples for each transport load delivered to the project shall be taken by the CONTRACTOR under the supervision of the ENGINEER and stored by the ENGINEER for the warrantee period.

901-6 MEASUREMENT AND PAYMENT

901-6.1 <u>Bituminous Material</u>: Bituminous material shall be measured by the ton and paid for at the unit price bid for "Bituminous Material, PG 58-28" complete, in place and accepted by the ENGINEER. Only bituminous material incorporated into accepted pavement will be paid for.

901-6.2 <u>Hot Bituminous Pavement – Class 29</u>: Hot Bituminous Pavement – Class 29 shall be measured by the ton and paid for at the unit price bid for "Hot Bituminous Pavement – Class 29" complete, in place and accepted by the ENGINEER. Recorded batch weights or truck scale weights will be used to determine the basis for the tonnage. Failure to meet acceptance parameters will result in deducts being applied as described in the "Standard Specifications for Road and Bridge Construction," 2014 edition as published by the NDDOT and the Supplemental Specifications.

SECTION 902 BITUMINOUS PRIME OR TACK COAT

902-1 DESCRIPTION

This item shall consist of supplying and applying bituminous material to a previously prepared, and/or bituminized binder, leveling, or base course or existing pavement in accordance with these specifications and to the width shown on the typical cross section on the plans.

902-2 MATERIALS

902-2.1 <u>Quantity</u>. The approximate amount of bituminous material per square yard for Prime or Tack Coat shall be as provided in the following table. The exact amount shall be as ordered by the ENGINEER.

<u>Material</u>	<u>Amount</u>
Bituminous Prime Coat	0.25 to 0.50 Gal/Sq Yd
Bituminous Tack Coat	0.02 to 0.20 Gal/Sq Yd

902-2.2 <u>Bituminous Material</u>. The types, grades, controlling specifications, and application temperatures for the bituminous materials are shown in the following table. The specific material to be used shall be designated by special conditions, by the ENGINEER or in the Bidder's Proposal.

PRIME COATS

Type and Grade	Specification	Application Temperature
RC-70	ASTM D2028 (RC) (RC-70)	120° - 175°F
MC-30, MC-70	ASTM D2027 (MC) (MC-30)	85° - 140°F
	(MC-70)	120° - 175°F
SS-1, SS-lh	ASTM D 977	75° - 130°F
	TACK COATS	
Type and Grade	Specification	Application Temperature
SS-1, SS-1h	ASTM D977	75° - 130°F

A.A.S.H.T.O. M140

70° - 160°F

902-3 CONSTRUCTION REQUIREMENTS

MS-1

903-3.1 <u>Weather Limitations for Prime Coat</u>. The prime coat shall be applied only when the existing surface is dry or contains sufficient moisture to get uniform distribution of the bituminous material, when the atmospheric temperature is above 32°F., and when the weather is not foggy or rainy. The temperature requirements may be waived, but only when so directed by the ENGINEER.

902-3.2 <u>Weather Limitations for Tack Coat</u>. The tack coat shall be applied only when the existing surface is dry and clean, when the atmospheric temperature is above 32°F, and when the weather is not foggy or rainy. The temperature requirements may be waived, but only when so directed by the ENGINEER.

902-3.3 <u>Equipment</u>. The equipment used by the CONTRACTOR shall include a self-powered pressure bituminous material distributor and equipment for heating bituminous material.

The distributor shall have pneumatic tires of such width and number that the load produced on the surface shall not exceed 650 pounds per inch of tire width and shall be designed, equipped and operated so that bituminous material at even heat can be applied uniformly on variable widths of surface at readily controlled rates from 0.02 to 0.5 gallons per square yard. The material shall be applied within a pressure range from 25 to 75 pounds per square inch and with an allowable variation from any specified rate not to exceed 5%. Distributor equipment shall include a thermometer for reading temperatures of tank contents, a tachometer, pressure gauges, and volume-measuring devices.

902-3.4 <u>Application of Bituminous Material</u>. Immediately before applying the tack or prime coat, the full width of surface to be treated shall be swept with a power broom to remove all loose dirt and other objectionable material.

The application of the bituminous material shall be made by means of a pressure distributor at the pressure, temperature, and in the amounts directed by the ENGINEER.

During all applications, the surfaces at adjacent structures shall be protected in such a manner as to prevent their being spattered, marred or tracked.

Following the application, the surface shall be allowed to cure without being disturbed for such period of time as may be necessary to permit drying out and setting of the tack or prime coat, this period shall be determined by the ENGINEER, the surface shall then be maintained by the CONTRACTOR until the next course has been placed. Suitable precautions shall be taken by the CONTRACTOR to protect the surface against damage during this interval, including any sand necessary to blot up excess bituminous material.

902-3.5 <u>Bituminous Material CONTRACTOR'S Responsibility</u>. Samples of the bituminous material that the CONTRACTOR proposes to use, together with a statement as to its source and character, must be submitted and approved before use of such material begins. The CONTRACTOR shall require the manufacturer or producer of the bituminous material to furnish material subject to this and all other pertinent requirements of the contract. Only satisfactory materials so demonstrated by service tests, shall be acceptable.

The CONTRACTOR shall furnish vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the project. The report shall be delivered to the ENGINEER before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing samples of material received for use on the project. Two (2) one (1) pint can samples for each transport load delivered to the project shall be taken by the CONTRACTOR under the supervision of the ENGINEER and stored by the ENGINEER for the Warrantee period.

902-3.6 <u>Freight and Weigh Bills</u>. Before the final estimate is allowed, the CONTRACTOR shall file with the ENGINEER receipted bills when railroad shipments are made, and certified weigh bills when materials are received in any other manner, of the bituminous materials actually used in the construction covered by the contract.

Copies of freight bills and weigh bills shall be furnished to the ENGINEER during the progress of the work.

902-4 MEASUREMENT AND PAYMENT

902-4.1 <u>Bituminous Prime Coat</u>. Bituminous Prime Coat, if shown on the typical drawing, shall be incidental to the bid price of the project.

902-4.2 <u>Bituminous Tack Coat</u>. Bituminous Tack Coat shall be measured and paid for as per Sub-Section 1909.

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SECTION 903 AGGREGATE SURFACE COURSE

903-1 DESCRIPTION

This item shall consist of constructing aggregate surface course on a prepared base. The thickness and width shall be as shown on the plans or as directed by the ENGINEER.

903-2 MATERIALS

903-2.1 Aggregate: The material shall consist of sound, durable particles of gravel or sand with which may be included limited amounts of fine soil particles as binding material. It shall be reasonably free of sod, roots, plants and other organic matter or any other objectionable materials. The physical characteristics and quality of the materials shall be approved by the ENGINEER.

The gradation of the aggregate shall conform to the requirements of Class 13 aggregate as specified in the "Standard Specifications for Road and Bridge Construction," 2014 edition as published by the NDDOT.

903-3 CONSTRUCTION REQUIREMENTS

All equipment used in the performance of the work in this section shall be maintained in a satisfactory working condition at all times and shall be subject to the approval of the ENGINEER.

The base shall be shaped by using a blade. Any soft or yielding areas shall be removed and replaced with suitable soil by the CONTRACTOR at no expense to the OWNER. The top of the base shall have a uniform density before the surface course is placed.

The surface course shall be placed to obtain a compacted depth as shown on the plans or directed by the ENGINEER. A blade shall be used to obtain surface smoothness so that there is no deviation in excess of one (1) inch in any ten (10) feet when tested with a ten (10) foot straightedge.

903-4 MEASUREMENT AND PAYMENT

903-4.1 Aggregate Surface Course. Aggregate Surface Course shall be measured by the square yard (S.Y.) as measured in place and shall be paid for at the unit price bid for "Aggregate Surface Course" complete in place and accepted by the ENGINEER. CONTRACTOR'S bid price shall include all items specified above. Failure to meet acceptance parameters will result in deducts being applied as described in the "Standard Specifications for Road and Bridge Construction," 2014 edition as published by the NDDOT and the Supplemental Specifications. CONTRACTOR'S bid price shall include all items specified including placement, shaping and compaction of the aggregate.

903-4.2 Aggregate Street Preparation. Aggregate Street Preparation shall be measured by the square yard (S.Y.) and paid for at the unit price bid for "Aggregate Street Preparation", complete and accepted by the ENGINEER. Aggregate alley preparation shall be paid for under this item.

SECTION 904 BITUMINOUS SEAL COAT

904-1 DESCRIPTION

This work shall consist of a bituminous surface treatment as a wearing coarse composed of applications of bituminous material and aggregate on a prepared base or properly cured surface in accordance with these specifications and in reasonably close conformity with the lines and quantities shown on the plans or established by the ENGINEER.

904-2 MATERIALS

904-2.1 <u>Bituminous Material</u>. The types, grade, controlling specifications, and application temperatures for the bituminous materials are given below. The ENGINEER shall designate the specific materials to be used. The supplier of the bituminous materials shall supply asphalt viscosity charts for the materials delivered.

Application

		, application
Type and Grade	Specification	Temperature
RC 250	A.S.T.M. D 2028	165°-220°F.
RC 800	A.S.T.M. D 2028	195°-225°F.
RS-1, RS-2K, SS-1, SS-K	A.S.T.M. D 977 & D 2397	75°-130°F.
CRS-1, CRS-2, CRS-2P	A.S.T.M. D 977 & D 2397	110°-160°F.
MC-3000	AASHTO M-82	215°-290°F

HFMS-2, HFMS-2s as per North Dakota State Highway Specification 818.02 E.

904-2.2 <u>Aggregate</u>. The Seal Aggregate for this project shall conform to the requirements of Class 41 Aggregate as specified in the 2008 Specifications for Road and Bridge Construction as published by the North Dakota Department of Transportation.

904-3 CONSTRUCTION REQUIREMENTS

904-3.1 <u>Quantity of Material</u>. The approximate amounts of bituminous material and aggregates per square yard for the Bituminous Seal shall be as provided in the following table. The exact amount shall be as ordered by the ENGINEER.

<u>Material</u>	<u>Amount</u>
Bituminous Material	0.30 to 0.50 Gal/Sq Yd.
Cover Aggregate	25 to 40 Lbs/Sq Yd.
Blotter Sand	as Needed

904-3.2 <u>Weather Limitations</u>. Bituminous material shall not be applied to a wet surface or when the pavement temperature is below 70°F or when weather conditions would prevent the proper construction of seal coat. No bituminous material shall be placed which cannot be covered during daylight hours. Seal work shall not be started after September 1.

904-3.3 <u>Operation of Pits</u>. The aggregate material shall be obtained from sources approved by the ENGINEER. The CONTRACTOR shall make all necessary arrangements for obtaining the material, and all work involved in clearing and stripping pits or quarries and handling unsuitable material shall be performed by the CONTRACTOR at his own expense. The material in the pits shall be handled so that a uniform and satisfactory product shall be secured. Unless otherwise directed, pits shall be adequately drained and shall be left in a neat and presentable condition with all slopes dressed uniformly.

904-3.4 <u>**Organization and Equipment**</u>. Each item required in the execution of these specifications shall be under the continuous supervision of a competent superintendent thoroughly experienced in this type of work. Experienced operators will be required on all equipment used in hauling and applying bituminous material and aggregates.

All equipment necessary to perform this work properly shall be on the project, in first-class working condition, and approved by the ENGINEER before construction is permitted to start. The CONTRACTOR shall furnish, while applying the seal coat, all barricades, lights, flagmen or other traffic control devices as directed by the ENGINEER or required by Governmental Regulation.

The following equipment will be the minimum required for this type of construction, and additional machinery shall be secured if, in the opinion of the ENGINEER, it is necessary to fulfill the conditions of these specifications or to complete the item within the time specified.

- (a) The distributor shall have pneumatic tires of such width and number that the load produced on the pavement surface shall not exceed 650 pounds per inch of tire width and it shall be designed and operated so that bituminous material at even heat may be applied uniformly on variable widths of surface at readily controlled rates from 0.05 to 1.0 gallons per square yard. The bituminous material shall be applied within a pressure range of 25 to 75 pounds per square inch and with an allowable variation from any specified rate not to exceed 5%. Distributor equipment shall include a tachometer, pressure gauges, volume-measuring devices, and a thermometer for reading temperatures of tank contents.
- (b) The mechanical spreader shall be capable of depositing the designated amount of aggregate per square yard in a smooth, uniform layer on the freshly deposited bitumen, and in such a manner that the wheels of the equipment will not contact any bitumen, which has not been covered by the aggregate. The rate of aggregate discharge shall be uniform over the full application width and, whenever necessary, cutoff plates or other approved, means shall be provided to reduce the width of spread in suitable increments to meet the job requirements.
- (c) The blotter sand spreader shall be a mechanical truck mounted type.

- (d) The pneumatic roller shall consist of pneumatic tires arranged in a manner to provide a satisfactory compacting unit. The roller shall have an effective rolling width of at least 60 (sixty) inches and shall give a compression of at least 275 pounds per inch of tread width when fully loaded. The wheels shall be staggered on the front and rear axles to provide complete coverage of the area over which the roller travels.
- (e) A power broom or power blower, broom dragging equipment and equipment for heating aggregate shall be included, when needed.
- (f) A self-propelled pickup sweeper shall be used in the maintenance of the seal aggregate. The pickup sweeper shall be equipped with tanks and sprinkling apparatus.

904-3.5 <u>Preparation of Surface</u>. The surface of the underlying course shall be prepared, shaped, and conditioned to a uniform grade and section, as shown on the plans and as specified. All dirt and other objectionable material shall be removed from the surface and disposed of by the CONTRACTOR. Vegetation in or adjacent to the surface to be sealed shall be removed prior to all applications.

On those types of bases where a prime coat is required and specified, the prime shall be applied and satisfactorily cured before starting the bituminous surface treatment.

When specified, the CONTRACTOR shall be required to patch, with premixed material, any holes, or other malformations deviating from the true cross section and grade. The premixed material shall be made of the bituminous material specified in the proposal or on the plans and prepared by the method as directed by the ENGINEER. Areas to be patched shall be tacked or primed prior to placement of the bituminous material. All small patches shall be thoroughly hand tamped while large patches shall be rolled with a power or pneumatic roller.

904-3.6 <u>Application of Bituminous Material</u>. Bituminous material shall be applied upon the properly prepared surface at the rate and temperature specified using a pressure distributor to obtain uniform distribution at all points. The yardage over which the binder is spread in advance of placing the aggregate shall be as determined by the ENGINEER. During all applications, the surfaces of the adjacent structures shall be protected in such a manner as to prevent their being spattered or marred.

904-3.7 <u>Aggregate Application</u>. Immediately after the application of the bituminous material or when directed, the aggregates at the rate specified for each designated application shall be spread uniformly over the bituminous material with the aggregate equipment specified. Trucks spreading aggregate shall be operated backwards so that the bituminous material will be covered before the truck wheels pass over it. The aggregate shall be spread in the same width of application as the bituminous material and shall not be applied in such thickness as to cause blanketing. Backspotting or sprinkling of additional aggregate material, and spraying additional bituminous material over areas that show up having insufficient cover of bitumen, shall be done by hand whenever necessary. Additional spreading of aggregate material shall be done by means of a broom drag, or other approved method, as directed by the ENGINEER.

Power rollers shall be used immediately after the aggregate is spread. Following the rolling with the steel-wheel roller, the course shall be further rolled with a pneumatic roller to the satisfaction of the ENGINEER to ensure proper embedding into the bitumen. The blotter sand shall be applied as directed and rolling shall be continued until no more aggregate material can be worked into the surface. Further brooming and rolling on the strip being placed on adjacent strips previously placed shall be done as often as necessary to keep the aggregate material uniformly distributed. These operations shall be continued until the surface is evenly covered and cured to the satisfaction of the ENGINEER.

Succeeding applications shall not be applied until the preceding application has set and excess aggregate has been removed. If dust, dirt, or other foreign matter accumulates on the surface between the applications, the CONTRACTOR shall be required to sweep and clean the surface as specified herein. The bituminous material and the aggregate shall be spread upon the clean and properly cured surface and handled as required. Extreme care shall be taken in all applications to avoid brooming or tracking dirt or any foreign matter on any portion of the pavement surface under construction. Traffic shall be restricted until rolling has been completed and oil sufficiently cured to prevent "Pickup" and until the ENGINEER shall authorize the receiving of traffic.

904-3.8 <u>Maintenance of Bituminous Seal Coat</u>. The seal coat shall be maintained by the CONTRACTOR in a satisfactory manner and condition for five (5) days. Maintenance of seal coat may require redistribution of loose aggregate, application of additional aggregate and bitumen, additional rolling and application of blotter material.

The CONTRACTOR shall pick up the excess seal chips with a pickup sweeper in the fall after the fifteen (15) day maintenance period. The CONTRACTOR shall come back in the spring when instructed by the ENGINEER to do so, and pick up the loose chips from the entire sealed streets and curb gutters. Prior to picking up the chips in the spring, the CONTRACTOR shall have available seal oil and chips to repair any striping and skipping that may have appeared since placement. The one-year warranty period shall be from the date this work has been accomplished. Excess seal aggregate shall be deposited at a location designated by the ENGINEER.

The CONTRACTOR shall place the seal oil and seal aggregate to produce a uniform cover over the pavement area. Should any stripping appear within the warranty period, the CONTRACTOR shall at his expense re-seal the entire area of the stripping.

904-3.9 <u>Blotter Material Application</u>. The application of blotter material shall be in the amount and manner approved by the ENGINEER to correct "bleeding". Blotter material shall be considered incidental to the price bid for seal aggregate.

904-3.10 <u>Contractor's Responsibility</u>. Samples of the bituminous materials that the CONTRACTOR proposes to use, together with a statement as to their source and character, shall be submitted and approval obtained before use of such material begins.

The CONTRACTOR shall furnish vendor's certified test reports for each carload, or equivalent, of bitumen shipped to the project. The report shall be delivered to the ENGINEER before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing sample materials as received for use on the project.

904-3.11 <u>Truck Scales</u>. The CONTRACTOR shall furnish a truck scale. The CONTRACTOR shall furnish a weather-tight building that has light and furniture for the scale operator's use. The building shall enclose the recording beams of the scale.

The scale shall be maintained accurate within a tolerance of $\pm 1\%$ of the correct weight of the applied load.

The scale shall not be altered from the manufacturer's original design unless such alterations are approved by the Department of Weights and Measures or a certified scale service, and specifically shall not be altered to weigh loads in excess of the rated capacity of the scale.

The scale shall have a platform of adequate length to weigh the longest truck or truck-trailer combination in one operation or; (1) The truck or truck-trailer combination may be weighed on separate scales whose platforms are at the same elevation and are arranged to permit simultaneous weighing of the entire unit; (2) The wheel loads of the truck or truck-trailer combination may be weighed in separate operations provided any wheels not resting on the scale platform are supported on a concrete or asphalt paved level approach or on independent level platforms rigidly constructed of wood or steel.

The scale shall be installed on a firm, level foundation. All working parts shall be installed and maintained in correct position with respect to level and vertical alignment, and adequate clearance shall be maintained around all working parts. Knife-edge pivots shall be sharp and straight, and pivot-bearing surfaces shall be smooth. The scale shall be cleaned as necessary for proper functioning and accuracy.

Prior to using the scale at each location, the CONTRACTOR shall arrange to have the scale tested by the Department of Weights and Measures or a certified scale service. The ENGINEER may give written authorization to waive this requirement if the scale has been certified by that agency within the previous 6 months and if the scale is within the required accuracy when tested by the ENGINEER. The CONTRACTOR shall provide at least 1000 pounds of test weights to test the scale to its maximum capacity in increments. Such weights shall be made of metal not easily altered in size or weight, that have been certified as to weight by the Department of Weights and Measures on a certified scale service, and stamped or permanently marked with its certified weight.

The CONTRACTOR shall, when directed by the ENGINEER, make weight comparisons with other permanently located scales that have been certified by the Department of Weights and Measures or a certified scale service. These weight comparisons shall be for the purpose of providing information on the performance of the CONTRACTOR'S scale and shall not be used as a basis for adjusting his scale.

The CONTRACTOR shall bear any expense and fees for having scales tested and certified by the Department of Weights and Measures or a certified scale service, and for making weight comparisons on other scales.

904-3.12 <u>Freight and Weigh Bills</u>. Before the final estimate is allowed the CONTRACTOR shall file with the ENGINEER receipted bills where railroad shipments are made, and certified weigh bills when materials are received in any other manner, of the bituminous and covering materials actually used in the construction covered by the contract.

Copies of all freight bills and weigh bills shall be furnished to the ENGINEER during the progress of the work.

904-4 MEASUREMENT AND PAYMENT

904-4.1 <u>Bituminous Seal Coat</u>. Bituminous Seal Coat shall be measured by weighing and this weight then converted to gallons at 60°F. based on the unit weight shown on the certified analysis report on each car. Payment shall be made at the unit price bid per gallon (Gal) for "Bituminous Seal Coat", complete in place, and accepted by the ENGINEER.

904-4.2 <u>Seal Aggregate</u>. Seal Aggregate shall be measured by the ton and paid for at the unit price bid for "Seal Aggregate", complete in place and accepted by the ENGINEER.

904-4.3 <u>Maintenance of Bituminous Seal Coat</u>. Maintenance of Bituminous Seal Coat shall be measured as a lump sum (LS) per project and paid for at the price bid for "Maintenance of Bituminous Seal Coat", complete and accepted by the ENGINEER.

SECTION 930 MILLING

930-1 GENERAL

This item shall consist of furnishing equipment and labor to improve the cross slope of an existing pavement edge for installation of hot bituminous overlay and leveling course.

930-2 CONSTRUCTION REQUIREMENTS

930-2.1 Equipment: The milling machine shall be a self-propelled machine specifically designed to mill and remove existing asphalt pavement to a specified depth, profile and cross slope.

930-2.2 Milling: The existing pavement surface from the gutter to 12 feet from the curb line shall be cleaned of deleterious material before the milling operation.

The milling shall be completed by the CONTRACTOR in a sequence that will provide for a milled edge at the gutter (depth varies) to a point 10 feet from the gutter edge. The milling shall be tapered gradually to meet the original pavement surface. The milling surfaces shall be free from transverse irregularities exceeding 3/8" when measured with a ten foot (10) straight edge.

930-2.3 Milling Material: The CONTRACTOR shall sweep up the milling material from the sidewalks and streets. This milled material shall be disposed of by the CONTRACTOR at a CONTRACTOR located site acceptable to the ENGINEER.

930-3 MEASUREMENT AND PAYMENT

930-3.1 Milling: Milling shall be measured by the square yard (S.Y.) and paid for at the unit price for "Milling" complete in place and accepted by the ENGINEER. The materials, equipment and labor for the cleaning of the street prior to an after the milling shall be incidental to the unit price bid for "Milling".

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SECTION 1001 CONCRETE VALLEY GUTTER CURB AND GUTTER

1001-1 DESCRIPTION

This work shall consist of the construction of Air-Entrained Portland Cement Concrete Curb and Gutter and Valley Gutters in accordance with these specifications and standard drawings at the locations and to the lines and grades shown on the plans or as directed by the ENGINEER.

This work shall also include the removal of old curb and gutter when listed on the proposal, as shown on the plans or as directed by the ENGINEER.

1001-2 MATERIALS

Materials shall meet the requirements of Sub-Section 601-2. Concrete shall be Class AA meeting the requirements of Section 601.

1001-3 CONSTRUCTION REQUIREMENTS

Construction requirements shall conform to Sub-Section 601-3 with the following additional provisions:

1001-3.1 <u>General</u>. Concrete Curb and Gutter and Valley Gutter shall be constructed as shown on the standard drawing D-748-1. The type of curb and gutter shall be stated on the plans or the Bidder's Proposal.

1001-3.2 <u>Excavation</u>. All excavation necessary to complete this item shall be considered incidental to the unit price bid for Concrete Curb and Gutter and Valley Gutter.

The CONTRACTOR shall strip and remove the topsoil from the area to be excavated. Topsoil shall be stockpiled at a site approved by the ENGINEER. The CONTRACTOR shall take adequate steps to prevent any loss of stockpiled topsoil from wind erosion or water erosion.

Replacement of the topsoil shall be in accordance with Section 1801 of these specifications.

Stripping and stockpiling of the topsoil shall be considered incidental to the unit price bid for Concrete Curb and Gutter and Valley Gutter.

1001-3.3 <u>Forms</u>. Forms for use on curves shall be capable of installation to within one-half $(\frac{1}{2})$ inch of the true curve and if the radius is less than four hundred (400) feet they shall be either flexible material or shaped to fit the curve.

1001-3.4 <u>Surface Finish</u>. The final surface finish shall be obtained by brooming longitudinally. No plastering will be permitted.

1001-3.5 <u>**Backfill**</u>. After the concrete has cured for maximum of 48 hours, the areas in front and back of the curb and gutter shall be backfilled to the required elevation with the suitable material and compacted.

1001-3.6 <u>**Curb and Gutter Removal**</u>. The CONTRACTOR shall dispose of the removed curb and gutter at the inert landfill. The CONTRACTOR shall construct a stockpile of the removed material.

1001-3.7 <u>Joints</u>. Expansion joints shall be placed at all radius points and at 150 feet or less. Contraction joints shall be spaced at ten (10) feet or less.

1001-4 MEASUREMENT AND PAYMENT

1001-4.1 <u>Concrete Curb and Gutter</u>. Concrete Curb and Gutter shall be measured by the linear foot (LF) and paid for at the unit price bid for "Concrete Curb and Gutter", complete in place and accepted by the ENGINEER.

1001-4.2 <u>Concrete Valley Gutter</u>. Concrete Valley Gutter shall be measured by the square yard (SY) and paid for at the unit price bid for "Concrete Valley Gutter", complete in place and accepted by the ENGINEER.

1001-4.3 <u>Curb and Gutter Removal</u>. Curb and Gutter Removal shall be measured by the linear foot (LF) and paid for at the unit price bid for "Curb and Gutter Removal", complete and approved by the ENGINEER. Disposal and stockpiling of the removed curb and gutter shall be incidental to curb and gutter removal.

1001-4.4 <u>Concrete Valley Gutter Removal</u>. Concrete Valley Gutter Removal shall be measured by the square yard (SY) and paid for at the unit price bid for "Concrete Valley Gutter Removal", complete and approved by the ENGINEER. Disposal and stockpiling of the removed concrete valley gutter shall be incidental to concrete valley gutter removal.

SECTION 1002 CONCRETE DRIVEWAY AND ALLEY RETURNS

1002-1 DESCRIPTION

This work shall consist of the construction of Air-Entrained Portland Cement Concrete Driveways and alley return in accordance with these specifications and the standard drawings at the locations and to the lines and grades shown on the plans or as directed by the ENGINEER.

1002-2 MATERIALS

Materials shall meet the requirements of Sub-Section 601-2. Concrete shall be Class AA meeting the requirements of Section 601.

1002-3 CONSTRUCTION REQUIREMENTS

Construction requirements shall conform to Sub-Section 601-3 with the following additional provisions:

1002-3.1 <u>General</u>. Concrete Driveway and alley return shall be constructed as shown on Standard Drawing D-750-1. The Concrete Driveway and alley return surface finish shall be obtained by brooming transverse.

1002-4 MEASUREMENT AND PAYMENT

1002-4.1 <u>Concrete Driveway Removal</u>. Concrete Driveway Removal shall be measured by the square yard (SY) and paid for at the unit price bid for "Concrete Driveway Removal", as measured by the ENGINEER in the field. Disposal and stockpiling of the removed concrete driveway or alley return shall be incidental to concrete driveway removal.

1002-4.2 <u>**6" Concrete Driveway and Alley Return**</u>. 6" Concrete Driveway and alley return shall be measured by the square yard (SY) and paid for at the unit price bid for "6" Concrete Driveway and Alley Returns", complete in place and accepted by the ENGINEER.

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SECTION 1900 SPECIAL CONDITIONS

1901 GENERAL

The Special Conditions stated hereinafter shall supersede any conflicting variances stated in these specifications.

1902 UTILITY COMPANIES

Notice to utilities shall be given by the CONTRACTOR. This notice shall state his contemplated starting date, construction schedule and areas to be disturbed.

Utilities known to exist in the project area are:

<u>Utility</u>	<u>Owner</u>
Water	City of Stanton
Sewer	City of Stanton
Telephone	West River Telephone
Cable TV	Midcontinent
Electric	City of Stanton

This list is not meant to be inclusive and other utilities may exist within the project area. The CONTRACTOR is required to give 48 hour notice to all utilities within the project area of pending construction.

The utilities shown on the plans were obtained from the various utility companies' asbuilt drawings and the utility locations shown are to be considered approximate locations. Existing utilities may exist at locations not shown on the plans.

1903 CONSTRUCTION SIGNING

DESCRIPTION: This item shall consist of barricades, warning signs, lights and flagging for the protection of the work and safety of the public.

MATERIALS

1903-2.1 Barricades, Warning Signs, Temporary Signals and Other Protective Devices: Barricades, warning signs, temporary signals and other protective devices shall conform to "Traffic Controls in Construction and Maintenance Work Zones" as published by the Federal Highway Administration.

MEASUREMENT AND PAYMENT

1903-3.1 Barricades, Warning Signs, Temporary Signals, and Other Protective Devices: Barricades, warning signs, temporary signals and other protective devices shall be considered incidental to the project.

Construction signing shall be considered an integral part of the work being performed and no payments will be made to the CONTRACTOR for any work until adequate construction signing has been erected.

1904 PRECONSTRUCTION CONFERENCE

A preconstruction conference shall be held prior to any work on the project. All subcontractors shall be in attendance. The CONTRACTOR shall have a construction schedule, list of suppliers and proposed testing laboratory service company.

1905 WATER

All costs associated with providing water for compaction of materials, serving as a dust palliative, etc. shall be considered to be incidental to the bid items into which water use shall be incorporated into.

1906 STORMWATER POLLUTION PREVENTION – GENERAL PERMIT

This project may require a General Permit to be obtained from the North Dakota Department of Environmental Quality (NDDEQ). An application package with all related and subsequent requirements may be acquired by contacting the NDDEQ at:

North Dakota Department of Environmental Quality Division of Water Quality 1200 Missouri Avenue, Room 203 PO Box 5520 Bismarck, ND 58506-5520 Telephone: (701) 328-5210

The forms and requirements outlined in the package area are also available at: <u>https://deq.nd.gov/WQ/2_NDPDES_Permits/7_Stormwater/StW.aspx</u>. It is mandatory that the CONTRACTOR fulfill all requirements as directed by the North Dakota Department of Environmental Quality.

The CONTRACTOR will furnish a copy of the completed application package and General Permit to the ENGINEER.

Any costs associated with obtaining the permit shall be considered incidental to the project.

1907 BACKFILL SETTLEMENT

Where the CONTRACTOR has placed pavement (concrete or asphalt), or performed grading operations, and where settlement has occurred prior to the CONTRACTOR'S bond expiration date, the CONTRACTOR shall return the surface to required grade. In asphalt paved areas, the CONTRACTOR shall add paving materials in a method satisfactory to the ENGINEER. If no satisfactory method of adding pavement exists,

the CONTRACTOR shall remove the pavement, recompact the subgrade and repave the area. In concrete areas, if settlement occurs, those panels shall be removed and replaced in a method satisfactory to the ENGINEER. In turfed areas, the area of settlement shall be filled with black dirt, and the area seeded or sodded replaced. All costs associated with correcting settlement shall be at the expense of the CONTRACTOR.

1908 PAVEMENT REMOVAL

Description.

This item shall include all pavement removal, concrete or asphalt, and shall include suitable offsite disposal of all removed material.

Existing pavement to be removed shall be cut with either a saw or some device that produces a vertical face. Saw cutting of the existing pavement shall be considered incidental to the project. The CONTRACTOR shall only saw cut areas identified by the ENGINEER.

Measurement and Payment. 1908-2.1

Pavement Removal.

The removal and disposal of pavement shall be measured by the square yard (S.Y.), regardless of thickness, and paid for at the unit price bid for "Pavement Removal", complete and accepted by the ENGINEER. Any thickness encountered other than that to be replaced will be deducted from the "Unclassified Excavation" total.

1909 SOIL CEMENT SUBGRADE PREPARATION & STABILIZATION

Description. The existing section shall be blended together and excess material shall be incorporated into the new street pavement section to meet final grade and cross section. After the roadway has been brought up to the final grade and cross section, the subgrade shall be treated with cement to the dimensions shown on the typical section in the plans and only to the areas identified in the plans. The cement shall be spread using spreaders that give a precise measurement of cement needed for the area being covered. The spreaders shall be close to the surface and shrouded so as to minimize cement loss due to wind. The cement shall then be reclaimed into the precise amount of water needed to achieve the necessary moisture content. The reclaimer shall be followed by a roller to compact the subgrade to the necessary density, and a blade for final shaping.

The CONTRACTOR shall submit a mix design to the ENGINEER including details on the cementitious materials, compressive strengths, and required moisture and density to be achieved during compaction. The compressive strengths shall meet a minimum of 100 pounds per square inch (psi) at seven (7) days cure and no more than 175 psi at seven days. Certifications for the portland cement and supplementary cementation materials shall be submitted to the ENGINEER 14 days prior to the start of work.

The treaded subgrade shall be compacted to a minimum of 95% of the maximum dry density as determined by AASHTO T-99, and tested every 1500 square yards of placed material. Compressive strength samples shall be taken at a rate of two per 1500 square yards of placed material. Three (3) cylinders shall be cast per 1500 square yards of placed material for two (2) seven day breaks and one (1) spare. All traffic shall remain off of the newly treated base for a period of 24 hours prior to paving operations.

Measurement and Payment.

All costs associated with this work, including the reclamation & blending of existing materials, and necessary water, shall be measured on an individual unit (SY) basis and paid for at the unit price bid for "Soil Cement Subgrade Preparation & Stabilization". The portland cement utilized will be paid for separately per ton.

1910 PORTLAND CEMENT

Description. This item shall conform to the technical specifications as identified in "North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction", adopted October, 2014.

Measurement and Payment.

Portland cement shall be measured on an individual unit (Ton) basis and paid for at the unit price bid for "Portland Cement", complete and accepted by the engineer.

1911 AGGREGATE BASE COURSE

This item shall be placed in accordance with Section 302 of the Specifications. The base aggregate shall be tested prior to placement which will include the physical properties, and gradation tested an additional 3 times randomly during placement, by an independent testing firm and a report submitted to the ENGINEER. The material shall meet the requirements of Section 816 of the Specifications for Class 5 or Class 13. The cost for the testing of the aggregate is incidental to the price bid for this item. Payment for this item will be at the unit price bid per TON complete in place and accepted by the ENGINEER.

1912 UTILITIES ADJUSTMENTS

Description. This item shall include the resetting of manhole frames and covers, water works, valve access covers, boxes or any other accessory items requiring adjustment to new lines and grades in accordance with the plans or as directed by the ENGINEER. The items to be adjusted shall be only in the overlay, leveling, reconstructed or patch areas.

Items to be adjusted shall be carefully removed and re-installed by the CONTRACTOR. If the height of the manhole structure walls is to be increased, the addition shall be of precast rings. Gate valve access cover risers shall be turned to be flush with top surface of completed asphalt work.

In the event that the top part of any existing structure is weak and faulty, it shall be replaced as directed by the ENGINEER and the extension completed. Where manhole castings, gratings or covers are to be lowered, the masonry or concrete shall be removed to a sufficient depth to provide a seat with the proper dimensions to receive the casting, grating or cover at the new grade. Upon completion of the adjustment, all structures shall be thoroughly cleaned of any accumulation of silt, debris, or foreign mater and shall be free of all such accumulations at the time of final inspection.

Manhole castings to be raised shall be adjusted by rings manufactured by Neenah or approved equal. Rings and castings shall be grouted into place. Manhole covers shall be between $\frac{1}{4}$ " and $\frac{1}{2}$ " below finished pavement grade when measured with a 10' straightedge.

Measurement and Payment: 1912-2.1

Manhole Adjustment.

Manhole adjustment shall be measured on an individual unit (Ea.) basis and paid for at the unit price bid for "Manhole Adjustment", complete and accepted by the ENGINEER.

1912-2.2 Gate Valve Adjustments.

Gate Valve adjustments shall be measured on an individual unit (Ea.) basis and paid for at the unit price bid for "Gate Valve Adjustment", complete and accepted by the ENGINEER.

1913 GATE VALVE AND MANHOLE COVERS

Upon completion of the seal coat, the CONTRACTOR shall open the gate valve and manhole covers. If the covers are found to have seal oil around the edge, the CONTRACTOR shall clean the oil from the cover and seating edge of the casting.

The cost of removing, cleaning and replacing the covers shall be incidental to the cost of the bituminous seal coat.

1914 COORDINATION/SCHEDULING

The CONTRACTOR shall be responsible for keeping traffic open to the public after final placement of aggregate is accomplished and prior to paving. The CONTRACTOR shall be solely responsible for any disturbance of the aggregate prior to paving and shall be responsible for any soft/yielding areas that arise between the time of final placement of aggregate and prior to paving.

1915 BACKFILL CLASS

Backfill shall be Class B for all areas.

1916 HOT BITUMINOUS PATCHING MATERIAL

Description. Hot Bituminous Patching Material shall be placed in conformance with and conform to the requirements of Section 901 of these specifications.

This item is defined as the material to replace existing full depth pavement removal areas of less than fifty (50) square yards. Larger areas will be paid for under "Hot Bituminous Pavement – Class 29".

Measurement and Payment. 1914-2.1

Bituminous Material.

Bituminous Material shall be considered incidental to the unit price for "Hot Bituminous Patching Material".

1916-2.2 Hot Bituminous Patching Material.

Hot Bituminous Patching Material shall be measured by the ton and paid for at the unit price bid for "Hot Bituminous Patching Material", complete, in place and accepted by the ENGINEER. Recorded batch weights or truck scale weights will be used to determine the basis for tonnage. Only areas smaller than fifty (50) square yards will be paid for under this bid item.

1917 CURB AND GUTTER, CROSSWALK AND STREET STRIPING

Description. This item shall consist of providing pavement markings and curb and gutter markings as shown on Plan Sheets. All pavement markings shall be accomplished in 2021 after the maintenance period of the seal coat.

Materials. Materials shall conform to Epoxy Paint as specified in Section 762 of the "Standard Specifications for Road and Bridge Construction", 2008 edition as published by NDDOT. Drop on glass beads shall be utilized for all 4" Pavement Markings with the exception of striping done in parking lots. This includes all associated items paid as 4" Pavement Markings.

Construction Method. The construction method shall conform to Section 762 of the "Standard Specifications for Road and Bridge Construction", 2008 edition as published by NDDOT. Crosswalks shall be painted as shown on the plan sheets.

Measurement and Payment.

1917-4.1 4"(Color) Pavement Marking. 4" Pavement markings shall be measured by the lineal foot (L.F.) and paid for at the unit price bid for "4" (Color) Pavement Marking" complete in place and accepted by the ENGINEER. Only the painted portion of broken

lines will be measured.

1917-4.2 (Color) Curb - Top and Face. (Color) Curb - Top and Face shall be measured by the lineal foot (L.F.) and paid for at the unit price bid for "(Color) Curb-Top and Face" complete in place and accepted by the ENGINEER. Only the painted portion of broken lines will be measured.

1917-4.3 Crosswalk. Crosswalks will be measured by the square foot (S.F.) and paid for at the unit price bid for "Crosswalk" complete in place and accepted by the ENGINEER. Only the painted portion of the crosswalk will be measured.

1918 BEDDING MATERIAL

Curb and Gutter, sidewalk, valley gutter, or any other concrete items shall have a minimum of two inches of bedding sand under all concrete items to be placed. The bedding material shall be incidental to the bid item under which it was placed.

1919 CONSTRUCTION SEQUENCING

The CONTRACTOR shall conduct pavement removal and replacement operations so that access is maintained to local businesses and residents. In all cases where pavement is removed, the requirements of Subsection 1908 shall be strictly followed.

1920 MILLING

Millings obtained from the project may, at the CONTRACTOR'S discretion, be used as the aggregate base for patches and reconstruction areas.

1921 COORDINATION

The CONTRACTOR shall be aware that a sewer main replacement project is proposed in conjunction with the 2020 construction season. The completion date for that work is August 1, 2020. The CONTRACTOR shall work closely with the contractor for the sewer main replacement and shall coordinate the paving efforts to accommodate the sewer main replacement.

1922 MOBILIZATION

This item shall consist of any and all necessary means to mobilize the CONTRACTOR'S forces for performing the work required under the contract. It shall include the purchase of contract bonds; transportation of personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary facilities at the site, and other preparatory work at the site.

It shall not include mobilization for any specific item of work for which payment for mobilization is provided elsewhere in the contract.

The specification covers mobilization for work required by the contract at the time of award. If additional mobilization costs are incurred during performance of the contract as a result of changed or added items of work for which the CONTRACTOR is entitled to an adjustment in contract price, compensation for such costs will be included in the price adjustment for the items of work changed or added.

Payment will be made as the work proceeds, after presentation of invoices by the CONTRACTOR showing his own mobilization costs and evidence of the charges of suppliers, subcontractors, and others for mobilization work performed by them. If the total of such payments is less than the contract lump sum for mobilization, the unpaid balance will be included in the final contract payment. Payment for this item will be at the unit price bid per LSUM, regardless of the actual cost to the CONTRACTOR.

1923 CLAIMS

If the basis for a CLAIM in CONTRACT PRICE or TIME or both does not become apparent until the CONTRACTOR has proceeded with the work and it is not feasible to stop the work, the CONTRACTOR shall immediately inform the OWNER that the work is continuing and that written notification of intent to make claim will be submitted within 7 calendar days. Thereafter any CLAIM must be submitted to the OWNER within thirty (30) days. Failure of the CONTRACTOR to give required notification will constitute a waiver of the claim for additional compensation in connection with the work already performed.

A statement containing the following language shall also be submitted with the CLAIM:

Under the penalty of law for perjury of falsification, the undersigned,

NAME	,,,,,	
of		, hereby certifies
COMPANY		
that the claim for extra statement of the actual the contract between the	compensation made costs incurred, and e parties.	herein for work on this Project is a true is fully documented and supported under
Date		
		/s/
Subscribed and sworn b 20	etween me this	day of,

NOTARY PUBLIC My Commission Expires _____ THIS PAGE INTENTIONALLY LEFT BLANK
CONSTRUCTION PLANS FOR **CITY WIDE STREET IMPROVEMENTS**



VICINITY MAP

Professionals you need, people you trust



STATE OF NORTH DAKOTA

PLAN INDEX

- C-1 LEGEND AND CONSTRUCTION NOTES
- C-2 QUANTITIES
- D1 TO D2 STREET DETAILS
- B0 PROJECT PLAN SHEET INDEX
- B1 TO B43 STREET IMPROVEMENT PLANS



This document was originally issued and sealed by Charles Hankins Registration Number PE-27170, on April 23, 2020 and the original document is stored at Interstate Engineering, Inc. 117 Hwy 49 N Beulah, ND

c 2020, INTERSTATE ENGINEERING, INC.

LEGEND

SANITARY SEWER EXISTING

WATER MAIN EXISTING

MANHOLE

GATE VALVE

FIRE HYDRANT



<u>NOTE 1:</u>

NOTICE TO UTILITIES SHALL BE GIVEN BY THE CONTRACTOR. THIS NOTICE SHALL STATE HIS CONTEMPLATED STARTING DATE, CONSTRUCTION SCHEDULE AND AREAS TO BE DISTURBED. UTILITIES KNOWN TO EXIST IN THE PROJECT AREA ARE.

OWNER
CITY OF ST
CITY OF ST
MIDCONTIN
CITY OF ST
WEST RIVE

THIS LIST IS NOT MEANT TO BE INCLUSIVE AND OTHER UTILITIES MAY EXIST WITHIN THE PROJECT AREA. THE CONTRACTOR IS REQUIRED TO GIVE 48 HOUR NOTICE TO ALL UTILITIES WITHIN THE PROJECT AREA OF PENDING CONSTRUCTION.

THE UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM VARIOUS UTILITY COMPANIES AS-BUILT DRAWINGS AND THE UTILITY LOCATIONS SHOWN ARE TO BE CONSIDERED APPROXIMATE LOCATIONS. EXISTING UTILITIES MAY EXIST AT LOCATIONS NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES IN THE FIELD PRIOR TO COMMENCING ANY WORK.

AREA OF WORK: WITH IN SECTION 6, T144N, R84W

NOTE 2:

NO BORINGS WERE DONE BEFORE DESIGN. THE EXISTING STREET SECTION IS UNKNOWN. SEWER IMPROVEMENT PROJECT IS SET TO TAKE PLACE BEFORE STREET PROJECT. VALLEY GUTTERS TAKEN OUT DURING SEWER PROJECT WILL BE REPLACED DURING THAT TIME. THIS PLAN SET HAS NEW VALLEY GUTTERS AS INDICATED FOR THE STREET PROJECT. STREET PROJECT WILL OVERLAY THE SEWER PROJECT DISTURBANCES. EDGE MILLING IS TYPICAL EXCEPT IN THE AREAS LISTED AS CEMENT TREADED BASE. CURB AND GUTTER REPLACEMENT WILL BE DETERMINED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ABBREVIATIONS

ALT	ALTERNATE
BIT	BITUMINOUS
BLDG	BUILDING
C&G	CURB & GUTTER
CIP	CAST IRON PIPE
CO	CLEANOUT
CSP	CORRUGATED STEEL PIPE
EL OR ELEV	ELEVATION
EX	EXISTING
INV	INVERT
MAX	MAXIMUM
MH	MANHOLE
FMMH	FLOW MEASUREMENT MANHOLE
MIN	MINIMUM
PE	POLYETHYLENE PIPE
P&P	PLAN & PROFILE
PP	POWER POLE
PVC	POLYVINYL CHLORIDE SEWER PIPE
RCP	REINFORCED CONCRETE PIPE
R&R	REMOVE & REPLACE
RR	RAIL ROAD
R/W	RIGHT OF WAY
SAN	SANITARY SEWER
SS	STAINLESS STEEL
STA	STATION
SW	SIDEWALK
SY	SQUARE YARD
TEL PED	TELEPHONE PEDESTAL
VCP	VITRIFIED CLAY PIPE
WMV	WATER MAIN VALVE



QUANTITIES

BASE BID

Item			
Number	Item	Quantity	Unit
101	Aggregate Base Course	1,000	TON
102	PG 58-28 Asphalt Cement	586	TON
103	Superpave FAA 43	9,022	TON
104	SS1H or CSS1H or MS1 Emulsified Asphalt	12,528	GAL
105	Surface Milling - Variable Depth	36,262	SY
106	Soil Cement Subgrade Preparation & Stabilization	23,587	SY
107	Portland Cement	684	Ton
108	Traffic Control	1	LS
109	Mobilization	1	LS
110	Concrete Valley Gutter Removal	262	SY
111	Concrete Valley Gutter - Installed	356	SY
112	Testing Laboratory Services	1	LS
113	Valve Box Adjustments	1	EA
114	Manhole Adjustments	34	EA
115	Pavement Markings Painted 6 in Line	500	LF
116	Curb and Gutter Removal	200	LF
117	Curb and Gutter Replacement	200	LF

ALTERNATE A

Item			
Number	Item	Quantity	Unit
201	Asphalt Removal	5,500	SY
202	Hot Bituminous Patching	412	Ton
106	Soil Cement Subgrade Preparation & Stabilization	-23,587	SY
107	Portland Cement	-684	Ton



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Interstate Engineering, Inc. CITYOFSTANTON Revision Discription P.O. Box 742 BEULAH, NORTHDAKOTA P.O. Box 742 BEULAH, NORTHDAKOTA I17 Pigiway 49 North 0.0 Martines BEULAH, NORTHDAKOTA P.O. Box 742 Interstate Engineering, Inc. Discription Discription Interstate Engineering, Inc. Discription Discription Interstate Discription Discription Interstate Discription Discription	.					ł			
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ENGINEERING Ph (701) 873-2266 www.interstateeng.com Drawn By: Professionals you need, people you rust Oner offices in Minnesola, Montana, North Dakota and South Dakota			Beulah, NĎ 58523	OLIAN	TITIES				
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	\prec	Professionals you need, people you trust	Other offices in Minnesota, Montana, North Dakota and South Dakota	Checked By: T.F.	Date: APRIL2020 .				

SHEET NO.









All quantified hatch items shown in the legend are limited to the hatched areas shown within this sheet's **INTERSTATE** ENGINEERING ied, people you mu This document was originally issued and sealed by Charles Hankins Registration Number PE-27170, on April 23, 2020 and the original document is stored 30 at Interstate Engineering, Inc. 117 Hwy 49 N Beulah, ND feet 2020, INTERSTATE ENGINEERING, IN SHEET NO








































































	Sheet B25 Match Line	Shee	et B24 h Line		
551+00 FOGARTY AVE				<u> </u>	NOTE: All quantified hatch items shown in the are limited to the hatched areas show this sheet's match lines.
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