

PROJECT DESCRIPTION

The City of Antigo is accepting bids for replacement of 780 LF Sanitary Sewer, 400 LF of Storm Sewer and 14,725 SYs of pulverize and 3" of new asphalt for Clermont St from Third Ave to North Ave.

This construction site should be kept open, when possible, to public traffic.
City of Antigo will be responsible for:

- 1) Construction Staking and engineering

Contractor will be responsible for:

- 1) Traffic Control
- 2) Remove and replace Sanitary Sewer Manholes and Main line
- 3) Reconnect existing Sanitary Sewer Main line
- 4) Reconnect existing Sanitary Laterals
- 5) Remove and replace Storm Sewer Manholes and Main line
- 6) Reconnect existing Storm Sewer Main line
- 7) Reconnect existing Catch Basin leads
- 8) Replacing 8" gravel base coarse
- 9) Pulverize to a depth of 6"
- 10) Pave new 3" Asphaltic Pavement
- 11) Final Grading
- 12) Dust Control
- 13) Final adjustments of Manholes

Questions can be directed to Charley Brinkmeier, City of Antigo PW Department, 700 Edison St. Antigo WI 54409, 715-623-3633 ext. 132

Please Note this project to be completed by November 1 2020.

City of Antigo Contract for construction of Clermont St Sanitary Sewer, Storm Sewer, Pulverize and Pave

This agreement dated _____, is between Antigo herein called "CITY" and _____ herein called "Contractor".

The City and Contractor, agree as follows:

- 1) **Scope of Work** – The contractor agrees to reconstruct Sanitary Sewer, Storm Sewer and Pulverize and Pave 3" of Asphalt Pavement on Clermont St from Third Ave to North Ave per bid specification's opened on June 17 2020

For the amount of \$

- 2) **Insurance** - The Contractor shall not commence work under this contract until it has obtained all insurance required under this agreement and such insurance has been approved by the City. Nor shall the Contractor allow any subcontractor to commence work on this subcontract until all similar insurance required of the subcontractor has been so obtained and approved.

Workmen's Compensation and Employer's Liability: Statutory

Contractor's Public Liability and Contractual Liability:

Bodily Injury, including death	\$1,000,000 each person
	\$1,000,000 each occurrence
Property Damage	\$1,000,000 each occurrence

Independent Contractor's (if applicable) (contingent liability):

Bodily Injury, including death	\$1,000,000 each person
	\$1,000,000 each occurrence
Property Damage	\$1,000,000 each occurrence

Automobile Liability:

Bodily Injury, including death	\$1,000,000 each person
	\$1,000,000 each occurrence
Property Damage	\$1,000,000 each occurrence

An umbrella policy of \$1,000,000 may be used to satisfy the above requirements. The City of Antigo must be named as an additional insured with a copy of the endorsement forwarded to the City Clerk-Treasurer's Office. No insurance shall be canceled without notifying the City in writing thirty (30) days prior to cancellation.

- 3) **Performance Bond** - The Contractor shall furnish a Performance Bond in an amount of the bid for the faithful performance of this contract and for the payment of all persons performing labor and furnishing materials in connection with this contract.
- 4) **Equal Opportunity** - The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.

The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited, to the following; employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.

- 5) **Character of Workmen and Equipment** - The Contractor will employ such superintendents, foremen, and workmen as are careful and competent. All machinery and equipment used by the Contractor on the work will be of sufficient size and in such mechanical condition as to meet the requirements of the work and to produce a satisfactory quality of work.
- 6) **Site Investigations and Representatives** - The Contractor acknowledges that it has satisfied itself as to the nature and location of the work, the general and local conditions.
- 7) **Term** - The term of this contract shall be _____ 2020, through _Nov 1, 2020_.
- 8) **Termination** - In the event of unsatisfactory work by the Contractor as judged by the City, the City shall give written notice to the Contractor identifying the deficiencies. If unsatisfactory work continues, the City upon second written notice, may declare this agreement null and void. The City may terminate this agreement for any reason upon a written notice.
- 9) **Payment** - In consideration for total services and material provided by the Contractor, the City agrees to pay the Contractor \$
- 10) **Contract Binding Upon Succession** - All of the provisions and agreements of this contract shall inure to the benefit of and binding upon the heirs, executors, administrators, representatives, successors, and assigns of the respective parties hereto as fully as upon the said parties. This contract shall not be assigned by contractor without the express written permission of the City.

11) **Hold Harmless** – Contractor shall hold harmless, defend, and indemnify the City for any and all damages, loss, injuries, claims, or causes of action of any nature arising out of Contractor performance or actions related to this agreement.

Company Name: _____

Address: _____

Phone: _____

Date: _____

In witness whereof, the parties hereto have signed this Agreement.

This agreement will be effective on _ _____ _.

City of Antigo

Contractor

Mayor

Attest:

Address for giving notice

Address for giving notice

700 Edison St., City Hall
Antigo, WI 54409

____ same as above _____

CITY OF ANTIGO, WI

INSTRUCTION TO BIDDERS

IB-1 SURETIES AND BONDS

No bid will be considered unless accompanied by a contract with sureties or bonds complete with endorsement of signatures.

IB-2 BID BOND

The Council has provided that in lieu of the foregoing provision bidders may accompany their bid with a certified check or bid bond equal to five percent (5%) of the bid, payable to the City as a warranty that if their bid is accepted they will execute and file the proper contract and performance bond as required by law within ten days of the date their bid is accepted. In the event the bidder fails to file such contract and bond within the time specified, the check or bid bond shall be forfeited to the City as liquidated damages.

IB-3 SECTION TO BE READ BY THE CONTRACTOR

Before submitting a bid all contractors and subcontractors shall read the Official Notice, Instructions to Bidders, General and Special Conditions, Specifications and Contract of which contain provisions applying to all contractors and subcontractors. The execution of a proposal will be considered by the City of Antigo as evidence that the contractor is familiar with every (and all) requirements for carrying out the project for which the bid is submitted.

IB-4 EXAMINATION OF PLANS AND SITE

Bidders must satisfy themselves by personal examination of the location and the proposed work by examining the plans on file with the Owner and by such other means as they may prefer as to the accuracy of the schedule and quantities of work to be done, the intent of the specifications, requirements of the Owner and the Engineer.

The bidders are expected to make a thorough examination and familiarize themselves with the site of the work, nature of the soil, and all local conditions affecting the execution of the work.

Bidders are required to inform themselves fully of the conditions relating to the construction and labor under which the work is to be done and the successful bidder must employ as fair as possible the methods and the means for carrying out this work as will not cause any interference or interruption with other contractors. After the submission of a proposal, no complaints or claims that there were any misunderstandings in regard to the estimates of the Owner (or the nature of the quantities of work to be done) will be entertained.

IB-5 PROPOSAL FORM

The Bid Proposal Form hereto attached shall be used. The bid price shall be hand-written and completed in ink. In the case of conflict the former shall apply. Where unit prices are called for, each of these items must be filled in. All computations in a unit price bid will be checked by the Engineer and corrections made where an error in computation is found and correct figures used to determine the total. The contractor shall bid on all items. If any item is omitted, the bid will be considered incomplete and rejected. The total amount of the bid will be the summation of the extensions of the unit prices with the estimated number of units. Only proposals which are completed on the Bid Proposal Form (attached hereto) will be considered. The proposal forms may be separated from the attached volume of additional specifications.

IB-6 TIME OF COMPLETION

The completion date of contract requires substantial completion by November 1 2020. The selected contractor must provide a projected starting date to begin subsequent to the award of the contract. The contractor may be granted an extension of time as provided under "Delays" in the General Conditions.

When a contractor is delayed for any reason whatsoever, and such delay may prevent him from completing his contract within the time specified, he may apply for an extension of time to the City but such request must be made in writing within five (5) days after the delay occurs. The request shall clearly and concisely set forth the cause of the delay and the extension of time requested. The City will review the request based on its merits.

The contract shall be considered substantially completed when in the judgment of the Engineer all work called for in the specifications has been completed and the construction becomes usable to the City.

IB-7 WITHDRAWAL OF BID

Proposals may be withdrawn any time previous to the time of opening the bids; no proposal may be withdrawn after the time of opening bids is passed for a period of thirty (45) days.

IB-8 REJECTION OF BIDS

The right is reserved by the Owner to reject any and all bids or to award any and all contracts to bidders who, in the judgment of the Owner, will best serve the Owner. The City reserves the right to reject the bid on any items which they may decide not to have installed.

A bid which has not been prepared according to the instructions contained herein or which does not contain a unit price which is both adequate and reasonable for each and

every item named in the proposal is subject to rejection. Unbalanced bids are subject to rejection.

IB-9 WHEN AWARD EFFECTUAL

The Contract shall be deemed as having been awarded when formal notice of award has been duly served upon the contractor by an officer or agent of the Owner duly authorized to give such notice.

IB-10 RETURN OF BID GUARANTEE

The bid deposit of all except the three (3) lowest bidders will be returned within three (3) days after opening of the bids. The Bid deposit of the three (3) lowest bidders will be returned within forty-eight (48) hours after the award has been approved by the Owner.

CITY OF ANTIGO, WI

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GENERAL CONDITIONS

GC-1 SCOPE OF WORK AND BIDS

The work done under this contract consists of furnishing all labor, tools, equipment, machinery, appliances and all materials.

The Contractor shall, for the price bid for all items under this contract, do all work prescribed in these specifications, to make the required excavation for the specified work; do all ditching and diking, pumping, bailing and draining, all sheeting and shoring, shall make all provisions necessary to maintain and protect all buildings, walls, fences, trees, water pipes, conduits, sewers, railings, railways and other structures, and shall repair all damages occurring to same during the progress of the work, and shall provide all bridges, fences and other means of maintaining travel on intercepting streets, roads, alleys, public places, and on streets, alleys and roads on which trenches are excavated, after giving due notice to parties affected thereby; shall maintain the same in good condition so long as may be necessary, and shall then remove such temporary expedients and restore such ways to their proper conditions; shall provide watchmen, fences, yellow warning lights and all other precautionary measures for protection of persons and property; shall refill all trenches, do all paving and repairing of streets disturbed by this work as herein provided; shall furnish all materials and tools, implements and transportation required to build and put in complete working order the contract awarded him, and shall do each and all to the satisfaction of the Engineer; remove all tree roots, timber and masonry structure and other obstacles, whether shown on the plans or not, by reason of being underground, or otherwise and no extension of other work shall be allowed for delay or expense occurred by any of the above.

GC-2 CHARACTER OF WORKMEN AND EQUIPMENT

The contractor will employ such superintendents, foremen and workmen as are careful and competent. All machinery and equipment used by the contractor will be of sufficient size and in such mechanical condition as to meet the requirements of the work and will produce a satisfactory quality of work.

GC-3 SITE INVESTIGATIONS AND REPRESENTATIONS

The Contractor acknowledges that he has satisfied as to the nature and location of the work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed during the prosecution of the work and all other matters upon which information is reasonably obtainable and which can in any way affect the work or the cost thereof under this contract. The Contractor further acknowledges that they are satisfied as to the character, quality, and quantity of surface and sub-surface materials to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, as

well as from information presented by the drawings and specifications made a part of this contract. Any failure by the Contractor to become acquainted with all the available information will not relieve them from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any understanding or representations made by any of its officers or agents during or prior to the execution of this contract unless: (1) such understanding or representations are expressly stated in the contract and (2) the contract expressly provides that the responsibility therefore is assumed by the Owner. Representations made but not so expressly stated (and for which liability is not expressly assumed by the Owner) shall be deemed only for the information of the Contractor.

GC-4 CONTRACT DOCUMENTS

The Contract documents consist of Official Notice, Instructions to Bidders, General Conditions, Special Conditions, Specifications, Contract, Bond, Contractor's Proposal, Plans and Agenda, appropriate provisions that apply to all Contractors and Subcontractors.

The General Conditions shall, in general, apply to all contractors performing work at the site. Provisions herein contained that do not apply to a particular contract, shall be disregarded.

GC-5 INTENT OF CONTRACT DOCUMENTS

The contract documents are complimentary, and what is called for by any one shall be as binding as if called for by all. The intention of this contract document is to include in the contract price, equipment, light, transportation and all other expense as may be necessary for the proper execution of the work.

In interpreting the contract documents, words describing materials or work which may have a well-known technical or trade meaning unless otherwise specifically defined in the contract documents, shall be construed in accordance with such well known meaning recognized by architects, engineers and the trade.

GC-6 ASSIGNMENT OF CONTRACT

The Contractor shall not assign this contract or any part thereof, or monies due or to become due thereunder, without the written consent of the Owner. No assignment of this contract shall be valid unless it shall contain a provision that the funds to be paid the Assignee under the assignments are subject to a prior lien for services rendered or materials supplied for the performance of the work called for in said contract in favor for all persons, firms or corporations need not be inserted if the assignment technically constitutes a notation, i.e., the assignees not only acquire the benefits under the contract, but also assumes the obligations thereunder in place of the assignor.

GC-7 SUBCONTRACTORS

The Contractor shall not subcontract any work to be performed or any materials to be furnished in the performance of this contract without the written consent of the Owner. If the Contractor shall sublet any part of this contract, the Contractor shall be fully responsible to the Owner for acts and omissions of his subcontractor and of the persons either directly or indirectly employed by his subcontractor, as he is for the acts and omissions of persons directly employed by himself.

GC-8 OTHER CONTRACTS

The Owner may award other contracts for additional work, and the Contractor shall fully cooperate with such other contractors and carefully fit in his own work to that provided under other contracts as may be directed by the Owner. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor.

GC-9 DEFINITIONS

OWNER, MUNICIPALITY, BOARD, DISTRICT, shall be understood to mean the City of Antigo, Wisconsin, represented by its City Council.

ENGINEER shall be understood to mean the City Surveyor/Project Manager of the City of Antigo, Wisconsin.

ATTORNEY shall be understood to mean the Attorney for the City of Antigo, Wisconsin.

SURETY shall be understood to mean the person or corporation which is bound with the Contractor (who is primarily liable) who engaged to be responsible for payment of all debts pertaining to the contract, and for an acceptable performance of the work for which he has contracted.

CONTRACTOR shall be understood to mean the person, firm or corporation contracting the work described herein.

PLANS shall be understood to mean all drawings or reproductions of drawings, including profiles, sections and sketches which have been made for the purpose of representing the work to the Contractor all of which are to be considered a part of the contract. Plans and drawings are used synonymously.

OR EQUAL, whenever in any part of the contract documents an article, material or equipment is defined by a proprietary product, or by using the name of a manufacturer or vendor the term "or equal", if not inserted, shall be implied. The specific article, material, or equipment mentioned shall be understood as indicating the type, function, minimum standard of design, efficiency and quality desired and shall not be construed in such manner as to exclude manufacturers' products of comparable quality, design and efficiency. The Contractor shall comply with the requirements of the contract documents

relative to the Owner's approval of materials and equipment before they are incorporated in the project.

"NOTICE", where in any of the contract documents there is any provision in respect to the giving of any notice, such notice shall be deemed to have been given; as to the Owner, when written notice shall be delivered to the Surveyor/Project Manager or the Owner, or shall have been placed in the United States mail addressed to the Clerk-Treasurer/Finance Director at the place where the bids or proposals for the contract were opened; as to the Contractor: When a written notice shall be delivered to the chief representative of the contractor at the site of the project or by mailing such written notice in the United States mail addressed to the Contractor at the place stated in the papers prepared that accompany this proposal at the address of their permanent place of business; as to the Surety of the performance bond: When a written notice is placed in the United States mail addressed to the Surety at the home office of such surety or to its agent or agents who execute such performance bond on behalf of such surety.

"COMPLETED WORK" is understood to mean work, which has been accepted by the Surveyor/Project Manager and recommended to the Owner as having been performed in accordance with these specifications. Completed work may be accepted but not paid for in full until the entire contract has been completed and accepted.

GC-10 CONTRACT SURETY

The Contractor shall furnish a surety (bond attached) in an amount of at least equal to 100% of the contract price as surety for the faithful performance of this contract and for the payment of all persons performing labor and furnishing materials in connection with this contract.

GC-11 CONTRACTOR'S INSURANCE

The Contractor shall not commence work under this contract until he has obtained all insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on their subcontract until all similar insurance required of the subcontractor has been so obtained and approved.

- (a) **Compensation Insurance:** The Contractor shall take out and maintain during the life of this contract Workmen's Compensation Insurance for all their employees employed at the site of the project and, in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case the class of employees engaged in hazardous work under this contract at the site of the project is not protected under the Workmen's Compensation Statute, the Contractor shall provide and shall cause each subcontractor to provide adequate insurance coverage for the protection of his employees not otherwise protected.

(b) **Public Liability and Property Damage Insurance:** The Contractor shall take out and maintain during the life of this contract such Public Liability and Property Damage Insurance as shall protect him and any subcontractor performing work covered by this contract from claims and damages for personal injury, including accidental by this contract from claims and damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations be by himself or by anyone directly or indirectly employed by either of them and amount as such insurance shall be as follows:

Public Liability Insurance in an amount of not less than \$1,000,000.00 for injuries, including accidental death, to any one person, and, subject to the same limit for each person, in an amount of not less than \$1,000,000.00 on account of one accident and Property Damage Insurance in an amount of not less than \$1,000,000.00 (One Million), include the City of Antigo as additional named insured, with a copy of the Certificate of Insurance and Endorsement forwarded to the City Clerk-Treasurer/Finance Director's office.

Any subcontractor not covered by the Contractor's Public Liability and Property Damage Insurance shall carry Owner's Protective and Subcontractor's Liability Insurance in the same amounts. The Contractor shall be responsible for a subcontractor's carrying the insurance herein required.

Insurance Covering Special Hazards: The following special hazards shall be covered by a rider or riders to the Public Liability and/or Property Damage Insurance Policy or Policies herein elsewhere required to be furnished by this Contractor or by separate policies of insurance, in amounts as follows:

	Public Liability Insurance (Min. Required)	Property Damage Insurance (Min. Required)
Operation of Trucks and Auto	\$1,000,000.00	\$1,000,000.00

The insurance coverage shall in all instances save, defend, indemnify and hold harmless the City against any and all manners of claims, demands, liabilities, damages or any other costs which may accrue in the protection of the work and that he will save, defend, indemnify, and hold harmless the City from all damages cause by or as a result of his operations.

No insurance shall be cancelled without notifying the Owner in writing thirty (30) days before such cancellation.

See Contractor's responsibility for damaged work.

GC-12 PROOF OF CARRIAGE OF INSURANCE

The Contractor shall furnish the Owner with satisfactory proof of carriage of the insurance required. Satisfactory proof shall consist of a duplicate or copy of the certification of insurance.

GC-13 EQUAL OPPORTUNITY

The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited, to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post inconspicuous places, available to employees and applications for employment, notice setting forth the provision of this non-discrimination clause.

GC-14 PLANS AND SPECIFICATIONS

The work shall be executed in strict conformity with the plans and specifications, and the Contractor shall do no work without proper drawings and specifications.

GC-15 DRAWINGS

Unless otherwise provided in the contract documents, the Owner will furnish the Contractor, free of charge, copies of all drawings and specifications reasonably necessary to carry out the work.

GC-16 SHOP DRAWINGS

The Contractor shall submit to the Owner or Owner's representative all shop or setting drawings and schedules required for the work. The Contractor shall make any corrections in the drawings required by the Owner or Owner's representative and re-submit same without delay.

The Contractor shall keep at the site of the work an approved or confirmed copy of the drawings and specifications, and shall at all times give the owner access thereto.

GC-17 RULES AND REGULATIONS

The bidder's attention is called to all conditions entering into the performance of this work, including the delivery point of all materials, hauling of materials, employment of labor, location of streets, State Truck Highways, County Highways, traffic conditions on these streets and highways and all laws of the State of Wisconsin and Federal Government, ordinances and regulations of the owner insofar as they may affect

operations. The Contractor shall be held responsible for using such safety measures as will protect the interests of the Owner in the fulfillment of any part or all of the contracts. The Contractor shall comply with all rules and regulations of the Owner applying to the work included in this contract.

GC-18 PERMITS, SURVEYS AND COMPLIANCE WITH LAWS

The Contractor shall pay for all permits, licenses and fees necessary for the execution of the work unless otherwise specifically provided.

GC-19 CONFLICTS

Any provisions in any of the contract documents, which may be in conflict, or inconsistent with any of the paragraphs in the General Conditions shall be void to the extent of such conflicts and inconsistency. In case of difference between the drawings and specifications, the specifications shall govern. On all plans and drawings figured dimensions shall govern in case of discrepancies between the scale and figures. Contractors shall not take advantage of any error or omission in the plans or of any discrepancy between the plans and specifications, but shall refer all such conditions to the Surveyor/Project Manager. An explanation of the plans as construed by the Surveyor/Project Manager shall be considered final and binding on all parties involved.

GC-20 POINTS AND INSTRUCTIONS

The Contractor shall provide reasonable and necessary opportunities and facilities for setting points and making measurements. He shall not proceed until he has made timely demand upon the Surveyor/Project Manager and has received such points and instructions as may be necessary as the work progresses. The work shall be done in strict conformity to such points and instructions. The Contractor shall carefully preserve such marks, reference points and stakes and in case of careless destruction shall be charged with the additional expense and shall be responsible for any mistakes that may be caused by such unnecessary loss or disturbances. The Contractor shall furnish all tools, except engineering tools, necessary to stake out and properly lay out the work, and when requested to do so furnish labor to assist the engineering party in staking of the work.

GC-21 UNAUTHORIZED WORK

Work done without lines or grades or instructions from the Surveyor/Project Manager or owner or all work done beyond the limits of this contract as designed by the plans, or extra work done without written authority will be considered unauthorized and will be done at the expense of the Contractor and will not be paid for. Work so done may be ordered removed or replaced at the Contractor's expense.

GC-22 USE OF JOB SITE

The Contractor shall confine his equipment, apparatus, the storage of materials and operations of the crew to limits indicated by law, ordinances, permits and directions of the Owner and shall not encumber the premises with his materials.

The Contractor shall inform the Owner or Owner's authorized representative, instructions regarding signs, advertising, fires and smoke.

GC-23 SUPERINTENDENT AND SUPERVISION

The Contractor must at all times have an authorized representative at the work site. This representative is to have full authority to carry out all instructions given by the Surveyor/Project Manager and shall keep informed regarding the work during its progress. A competent superintendent and any necessary assistants shall represent the Contractor in his absence and all directions given to this person shall be binding. Directions shall be confirmed in writing upon written request in each case. The Contractor shall give sufficient supervision to the work using his best skill and attention. Any orders given by the Surveyor/Project Manager or the owner, to the superintendent, or foreman of the Contractor, in the absence of the Contractor, shall have the same force and effect as if given to the Contractor.

Neither party shall employ or hire an employee of another party without the other party's consent. Prior to commencing the work the Contractor shall designate in writing to the Surveyor/Project Manager the name of his superintendent who shall be in complete charge and be the authorized representative of the Contractor.

GC-24 SURVEYOR/PROJECT MANAGER'S AUTHORITY

The Surveyor/Project Manager shall have general supervision and direct all work and shall have the authority to stop the work whenever such stoppage may be necessary to insure proper execution of the contract. It is further agreed by all parties hereto that the Surveyor/Project Manager shall in all cases determine the amount, quantities of classification of the several kinds of work or material, which are to be paid for under this contract. The Surveyor/Project Manager shall decide all questions, which may arise relative to the performance of this contract. All the decisions of the Surveyor/Project Manager shall, when so requested, be rendered in writing. They shall be final and conclusive in all matters except the financial consideration involved. They shall be final also to the financial considerations unless within ten (10) days after such decisions the Contractor applied in writing to the Municipality for a review of such decisions.

GC-25 AUTHORITY AND DUTIES OF INSPECTOR

The Surveyor/Project Manager and representative shall at all times have access to the work wherever it is in preparation of progress and the Contractor shall provide proper facilities for such access and inspection. The Inspector employed by the Owner shall be authorized to inspect all work done and materials furnished. Such Inspectors shall report to the Surveyor/Project Manager as to the progress of the work and the manner in which it is being performed and shall report any failure on the part of the Contractor to fulfill the requirements of these specifications and the contract. Such Inspectors shall not relieve the Contractor from any obligations to perform all the work strictly in accordance with the requirements of the specifications. Disagreements between the Inspector and the Contractor and any employee of the Contractor shall be referred to and be decided by the Surveyor/Project Manager. The Inspector is authorized to alter the plans and specifications and to accept any part of the work. The Inspector is in no case to act as foreman or to perform any duties for the Contractor nor to interfere in any way with the management of the work by the latter.

Any advice which the Inspector may give shall not be construed as binding on the Owner or the Engineer, or release the Contractor from fulfilling the terms of the contract. No work shall be done under this contract except in the presence of an Inspector or the Engineer and any work not done in accordance with these provisions shall not be considered as work done under this contract therefore.

GC-26 MATERIAL AND WORKMANSHIP

Unless otherwise stipulated in the specifications, all workmanship, equipment, materials and articles incorporated in the work covered by this contract are to be new and of the best grade of their respective kinds for the purpose and should any workmanship or materials be needed which are not directly or indirectly denoted in these specifications or drawings, but are never-the-less necessary to the proper execution according to the obvious intent thereof, the Contractor shall understand the same to be implied and shall provide for it in his tender as fully as if it were particularly described.

When required by the specifications, or when called for by the Owner, the Contractor shall furnish the Owner for approval all information concerning the materials or articles which he contemplates incorporating in the work.

The Contractor shall furnish to the Owner for his approval, name of the manufacturer of machinery, mechanical or other equipment, which he contemplates installing, together with their performance capacities and other pertinent information. Samples of materials shall be submitted for approval when so directed. Machinery, equipment, materials and articles installed or used without such approval shall be at the risk of subsequent rejection.

GC-27 INSPECTION

(a) All materials and workmanship (if not otherwise designated by the specifications) shall be subject to inspection, examination, and test by the Owner at any and all times where such manufacturing or construction is carried on.

(b) The Contractor shall furnish promptly without additional charge, all reasonable facilities, labor and material necessary for safe and convenient inspection and test or shall, upon request, at his expense, submit material samples to a testing laboratory for any tests required by the Owner. All inspections and tests that may be required by the Owner shall be performed in such manner as not to unnecessarily delay the work. Special, full size and performance tests shall be as described in the specifications.

(c) Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of the work already completed, by removing or tearing out same, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any material respect, due to the fault of the Contractor or his subcontractors, he shall defray all the expense of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the actual cost of labor and material necessarily involved in the examination and replacement plus 15%, shall be allowed the Contractor and he shall, in addition, if completion time of the work has been delayed thereby, be granted a suitable extension of time on account of the addition work involved.

(d) All materials or workmanship not conforming to the requirements of these specifications shall be considered as defective, and all such materials, whether in place or not shall be rejected and shall be removed immediately from the work, unless otherwise permitted. Material which has been rejected, and defects of which have not been corrected, shall not be used until approval has been given. All work, which has been rejected or condemned, shall be remedied, or if necessary, removed and replaced in an acceptable manner by the Contractor at his own expense.

An equitable deduction from the contract price shall be made for damaged work or corrected work not done in accordance with the contract, when the Engineer deems it expedient to accept.

GC-28 EXTRA, ADDITIONAL OR OMITTED WORK PAYMENT

The Owner may authorize changes in, additions to, or deductions from, the work to be performed or the materials to be furnished pursuant to the provisions of the contract or any other contract document.

Adjustments, if any, in the amounts to be paid to the Contractor by reason of such change, addition, or deduction shall be determined by one or more of the following methods:

- (a) By unit prices contained in the Contractor's original bid and incorporated in the construction contract.
- (b) By a supplement schedule of prices contained in the Contractor's original bid and incorporated in the construction contract.
- (c) By an acceptable lump sum proposal from the Contractor.
- (d) On a cost plus basis not to exceed a specified limit.

A cost plus limited basis is defined as the cost of labor, materials and insurance plus 15% of the said cost to cover superintendent, general expenses and profit.

No claim for an addition to the contract price shall be valid unless authorized aforesaid.

The Owner reserves the right to increase or decrease the estimated quantities on a unit price contract 15% without affecting the unit prices fixed by the proposal. The final payment shall be based upon the actual number of units or completed work as determined by final measurements taken by the Engineer or Inspector.

GC-29 INCIDENTALS ABSORBED

Prices and amounts mentioned in the Contractor's proposal shall include all work and materials covered or reasonable from the information given by these specifications or the drawings illustrating same and any tools, appliances, or supplemental structures, necessary to carry out this work.

GC-30 CONTRACTOR'S RESPONSIBILITY FOR DAMAGED WORK

Until the acceptance of the work by the Owner, it shall be in charge of the Contractor and he shall take every necessary precaution against injury or damage or the work completed or any part thereof, by an action of the elements or by any cause what-so-ever arising from the execution or non-execution of the work. The Contractor shall build, repair and restore at his own expense, injuries of any character whatever to any part of the work in place, or any material to be used in the work, and shall upon order of the Engineer remove any materials which might have been damaged, and will make good any damage of the work which may have occurred through any cause whatsoever and the work will not be considered complete until such damages have been acceptably repaired.

GC-31 CUTTING AND PATCHING

The Contractor shall do all cutting, fitting or patching, or any work that may be required to make its several parts fit together or to receive the work of other contractors shown upon, or reasonably implied by, the plans and specification for the complete structure and

he shall make good after them as may be directed by the Owner or Owner's representative.

Any cost caused by defective or ill-timed work shall be borne by the party responsible therefore.

The Contractor shall not endanger any work by cutting, digging, or otherwise shall not cut or alter the work of any other Contractor without the consent of the Owner or Owner's authorized representative.

GC-32 DELAYS

If the Contractor is delayed in the completion of the work by act or neglect of the Owner or Owner's representative or by any other Contractor employed by the Owner, or by causes beyond the Contractor's control, including strikes, lockouts, fire or unavoidable casualties, then the time of completion may be extended for such reasonable time as may be agreed upon by the Owner and the Contractor, after such notices in writing to the owner of the cause of such delay. Such notice must be given by the Contractor to the Owner within five (5) days following the beginning of such delay.

GC-33 SUSPENSION OF WORK

The Owner may at any time suspend the work or any part thereof by giving five (5) days' notice to the Contractor in writing. The work shall be resumed by the Contractor within ten (10) days after the date fixed in the written notice from the Owner to the Contractor to do so. The Owner shall reimburse the Contractor for expenses incurred by the Contractor in connection with the work under this contract as a result of such suspension, unless such suspension is ordered to secure compliance within the terms of this contract, but if the work for any part thereof shall be stopped by notice in writing aforesaid and if the Owner does not give notice in writing to the Contractor to resume work at a date within ten (10) days of the fixed date in the written notice to suspend work, then the Contractor may abandon the portion of the work so suspended and he will be entitled to the estimate for payment for all completed work on that portion abandoned.

GC-34 TERMINATION FOR BREACH

In the event that any of the provisions of this contract are violated by the Contractor or by any of his subcontractors, the Owner may serve written notice upon the Contractor and his surety of its intention to terminate such contract, such notice to contain the reasons for such notice upon the Contractor such violation shall cease and satisfactory arrangement for correction be made, the Contractor shall, upon the expiration of said ten (10) days, cease and terminate. In the event of such termination, the Owner shall immediately serve notice thereof upon the Contractor and his surety and the surety shall have the right to take over and perform the contract, provided, however, that if the surety does not commence performance thereof within thirty (30) days from the date of the mailing to such surety the notice of the termination, the Owner may take over the work and

prosecute the same to completion by contract for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any access costs occasioned by the Owner thereby, and in such event, the Owner may take possession and utilize in completing the work, such materials, appliances and plant as may be on the site of the work and necessary therefore.

GC-35 OWNER'S RIGHT TO DO WORK

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this contract, the Owner after three (3) days written notice to the Contractor and his surety, may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment due the Contractor.

GC-36 PAYMENT

Once a month, the Owner will make partial payment to the Contractor on the basis of a fully certified approved estimate of the completed work, but the Owner will retain 10% of the amount of each such estimate until final completion and acceptance of all work covered by this contract.

GC-37 OWNER'S RIGHT TO WITHHOLD AMOUNTS AND MAKE APPLICATION THEREOF

In addition to the payments to be retained by the Owner under a preceding provision of these General Conditions, the Owner may withhold a sufficient amount of any payment otherwise due the Contractor to cover (a) payments that may be past due and payable for just claims for labor and materials furnished in and about the performance of the work on the project under this contract, (b) for defective work not remedied, and (c) for failure of the Contractor to make proper payments to his subcontractors. The Owner shall disburse and shall have the right to act as agent pursuant to this paragraph to the party or parties who are entitled to payment therefrom. The Owner will render to the Contractor a proper accounting of all such funds disbursed in behalf of the Contractor.

GC-38 CORRECTION OF WORK AFTER FINAL PAYMENT

Neither the final payment nor any provision in the contract document shall relieve the Contractor of the responsibility for negligence of faulty materials or workmanship within the extent and period provided by law and, upon written notice, shall remove any defects due thereto, and pay for any damage due to other work resulting therefrom which shall appear within three (3) years after date of completion and acceptance.

GC-39 USE OF COMPLETED PORTIONS

The Owner shall have the right to take possession of and use any completed or partially completed portion of the work, notwithstanding the time of completion of the entire work or such portions may not have expired. If such prior use increases, the cost of, or delays

the work, the Contractor shall be entitled to extra compensation, extension of time, or both, as the Engineer may determine.

GC-40 BARRICADES, SIGNS AND WARNING DEVICES

The Contractor will provide sufficient barricades, signs and warning devices equipped with flashing warning lights to adequately indicate the construction area. Barricades and warning signs shall be in conformance with the Manual of Uniform Traffic Control Devices and the Wisconsin Administrative Code.

Every barricade shall have the contractor's name, address and phone number legibly stenciled thereon. In addition, the contractor will inform the Engineering Department and the Antigo Police Department of the name, address and phone number of a person designated by the contractor who will be responsible for the maintenance of the barricades and warning lights 24 hours per day, 7 days per week while the contractor's barricades are in use.

GC-41 PATENTS AND TRADE SECRETS

It is hereby expressly agreed that alleged ownership by any Contractor of trade secrets as to materials used in any part of the work or preparation of any fixtures for such work shall not be recognized by the City in the performance of this contract. The Engineer shall at all times have the right to demand and shall be furnished information concerning the materials or samples of ingredients for any materials used or proposed to be used in the work, nor shall mixtures once agreed upon be changed in any manner without the knowledge and written consent of the Engineer.

GC-42 CLEAN UP

The Contractor shall at all times keep the construction area free from an accumulation of rubbish and discarded materials caused by his employees or work. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove all surplus and discarded materials, rubbish and temporary structures from the construction area as well as from adjacent property for which he is responsible. He shall leave these areas in a neat and presentable condition.

The Contractor shall restore all property, both public and private, which has been damaged in performance of the work to an acceptable condition as determined by the Owner. Restoration shall be to a condition equivalent to or better than that which existed prior to the start of construction.

If the Engineer determines that the final clean-up is unsatisfactory and this deficiency is not rectified by the Contractor in a reasonable period of time, such clean-up operations as are deemed necessary will be completed by the Owner and charged to the Contractor. Charges for this work will be as the Owner determines to be just.

All work involved in the clean-up operations incidental to the other items of the contract, and no separate or additional compensation will be made thereof.

GC-43 LIMITATIONS OF OPERATIONS

The Contractor shall conduct his work so as to create a minimum vehicular and foot traffic. At any time when, in the judgment of the City the Contractor has obstructed or closed, or is carrying an operation on a greater portion of the street than is necessary for the proper prosecution of the work, the City may require the contractor to finish the sections on which work is in progress before work is started on any additional section.

GC-44 MAILBOXES

Rural type mailboxes exist along certain streets included in this project. The Contractor will be responsible so as not to damage said mailboxes during construction. In the event the Contractor must remove a mailbox to facilitate the construction of the curb and gutter, driveway approach, sidewalk, paving project, or street excavation, he will set it in the proper place according to rules by the U.S. Postal Department.

GC-45 TRAFFIC CONTROL AND DETOURS

It is anticipated that two-way traffic be maintained throughout the construction areas if possible. If not possible and a street must be closed, the Contractor can do so upon approval of the Engineer. Upon closing of the streets, the Contractor will be responsible to furnish all necessary barricades, road closed signs, warning devices (equipped with flashing warning lights), and fencing to adequately close the streets to traffic and still provide accesses in cooperation with the property owners whenever possible. The Contractor must set up and maintain road closed signs, one block on either side of the project street and on all cross streets not left open. In general, two (2) adjacent streets cannot be closed at the same time, unless cross streets are left open. No more than two (2) blocks will be torn up at any one time unless prior approval is obtained from the Engineer. The Contractor must submit to the Engineer for approval a schedule indicating the order in which the streets will be closed. If agreement on this schedule cannot be reached between the Contractor and the Engineer, the Engineer reserves the right to make the final decision on the order of street closings. It will be the Contractor's responsibility to notify the ANTIGO POLICE and FIRE DEPARTMENTS of the street closings and also the subsequent street openings. The CITY OF ANTIGO will be responsible for all DETOURS whenever needed.

CITY OF ANTIGO SPECIAL SPECIFICATIONS

PRE-CONSTRUCTION CONFERENCE

A pre-construction conference will be held prior to commencement of the project with representatives of the successful contractor, all utilities involved, City of Antigo, and any other interested parties. The purpose of this meeting will be to coordinate the activities of all parties involved in the completion of these projects.

STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

The latest edition of the State of Wisconsin, Department of Transportation, Standard Specifications for Road and Bridge Construction will be considered a part of the contract and its provisions apply except where specifically modified.

SAFETY, HEALTH AND SANITATION

The Contractor will comply with all Federal, State and local laws governing safety, health and sanitation and will provide all safeguards, safety devices and protective equipment and take any other needed actions, on his own responsibility or as the Engineer or Inspector may determine reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

PROGRESS MEETINGS

The City of Antigo will hold weekly meetings with the Contractor at a place and time as designated by the Engineer. The Contractor will inform the City of his progress of the work, the work schedule for the upcoming week or any problems that may arise.

ACCESS TO HYDRANTS AND VALVES

Access to all hydrants, water and gas valves must be provided at all times. In the event of any emergency condition, the Contractor will render all possible assistance as directed. The Contractor will not have the right to use any hydrant or shut off any water valve without the notification and authorization from the City of Antigo Water Department.

NOTIFICATION OF UTILITIES AND “DIGGERS HOTLINE”

The Contractor will notify all utilities both public and private including gas, electric, telephone cable, sewer and water of his schedule of operations. The notice will be given 72 hours prior to

actual date of the commencing of construction. The Contractor will determine the ownership of any utility facilities not indicated on the plans, but encountered during the construction and will also notify the Engineer or Inspector.

PROTECTION OF UTILITIES

The Contractor will give special attention to safeguarding and protecting all utilities, public and private and he will be held liable for any damage thereto during construction of the projects he is involved in.

MANHOLES, INLETS, WATER VALVES AND SEWERS TO BE KEPT CLEAN

It is the Contractor's responsibility to see that manholes, inlets, water valves, and sewer lines are entirely clean and free of dirt, gravel and debris, from his operations at all times. The City of Antigo will charge the Contractor for the cleaning of any manholes, inlets, water valves, sewer lines or inlet leads on these projects, whether they require cleaning during or after construction. The City of Antigo will be responsible for any damage or debris prior to the construction.

WORK BY OTHERS

Some underground work by utility companies might be done before or during the course of this contract. Several sanitary sewer and water services could be installed to various vacant lots throughout the project.

STREET ACCESS

The construction area must be maintained in a condition that will permit access by the FIRE and POLICE DEPARTMENTS at all times and also to allow access to all adjacent businesses and industrial establishments. An exception to this requirement will be during paving operations or while allowing for sufficient cure time of the curb and gutter. The Contractor will be permitted to pour ½ (one-half) of the curb and gutter or driveway approach at a time to supply access for the businesses involved. No extra payment will be allowed for this work.

STORM SEWER STRUCTURES

PART 1 GENERAL

1.01 APPLICABLE PROVISIONS

- A. Applicable provisions of Division 1 shall govern the work of this section.

1.02 APPLICABLE PUBLICATIONS

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
 1. American Society for Testing and Materials (ASTM), Annual Book of ASTM Standards, Current Edition.
 2. Federal Specifications (FS), Specifications and Standards, Current Edition.
 3. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, current edition, and current Supplemental Specifications.

1.03 DESCRIPTION OF WORK

- A. The work under this section shall cover furnishing and installing catch basins, storm manholes, inlets and similar structures constructed of precast concrete sections, or solid concrete block, set on a concrete base and fitted with standard structure covers, frames and steps, in accordance with the Contract Drawings and as specified herein.

1.04 RELATED WORK ELSEWHERE

- A. Submittals - Division 1
- B. Excavating, Trenching and Backfilling for Utilities - Division 2
- C. Erosion Control - Division 2
- D. Storm Sewer - Division 2

1.05 SHOP DRAWINGS

- A. Contractor shall submit such product literature and catalog cuts of materials to be supplied. Information shall be in conformance with requirements of Submittals - Division 1 of this specification.
- B. Contractor shall submit Shop Drawings and details required for the construction and installation of the materials. Shop drawings and details shall indicate the intended materials arrangement, dimensions, major support requirements, plot area and or detailed construction requirements.

1.06 OPERATION AND MAINTENANCE MANUAL (NONE)

PART 2 PRODUCTS AND MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

- A. The products listed are intended to establish a basis for comparison of products of other manufacturers. Substitutions will be permitted but only with the prior written approval of the Engineer. Catalogue reference numbers stated are those of Neenah Foundry Company and are intended to establish a basis for comparing the products of other manufacturers. Other manufacturers are McKinley Iron Works or Bingham and Taylor.

2.02 STRUCTURES

- A. Materials furnished and used in this work shall conform to the requirements of Section 611 of the State of Wisconsin, Department of Transportation, Standard Specifications and details in the contract drawings.

2.03 STEPS

- A. Steps shall be constructed of a 1/2 inch diameter, Grade 60 reinforcing steel bar conforming to ASTM A615 completely encased in polypropylene conforming to ASTM D2146 to obtain a minimum thickness of 1-1/8 inch and minimum width of 12 inches. They shall be securely and permanently set in the manhole wall. Steps shall be set at 16 inches on center and have a 5-3/4 inch projection from the wall. Steps shall conform to ASTM F783.

2.04 FRAMES, COVERS AND GRATINGS

- A. Frames, covers and gratings shall be of the type and duty as shown on the contract drawings. Iron castings shall conform to ASTM A48, Class 20. All castings shall be true to pattern in form and dimensions, free from faults, sponginess, cracks, blow holes, and other defects affecting their strength.

- B. The standard castings for storm sewer manholes shall be Neenah R-1540, Type B with non-rocking lids except as designated otherwise on the contract drawings or in Special Conditions - Division 1.

Where bolted lids are specified on the contract drawings or in Special Conditions - Division 1, they shall be Neenah R-1916 C1, manhole frames with bolted lids. Where low profile castings are specified on the contract drawings or in Special Conditions - Division 1, they shall be Neenah R-1689 (4-inch casting) with Type B non-rocking lid.

- C. The standard casting for inlets shall be Neenah R-3070 series with T3107-103 Frame (S3070-0001), Grate (S3070-0009, Diagonal Bar Reversible), Curb Box

(S3070-0005, Open Style.) No other casting will be acceptable without the written approval from the City Prior to placement.

2.05 JOINT MATERIALS

- A. Joint materials shall be plastic gasket material or butyl rubber gasket material. Plastic gaskets shall be preformed, high adhesion material, packaged ready for use between protective paper strips conforming to Federal Spec SS-S-00210, Type I, Rope Form; Ram-Nek by K.T. Snyder Company, Inc.; Kent Seal No. 2 or equal. Butyl rubber gaskets shall be preformed, high adhesion material, packaged ready for use between protective paper strips, conforming to Federal Spec SS-S-210A, Rope Form; CPS-210 by Press Seal Gasket Corporation or equal.

2.06 ADJUSTMENT RINGS

- A. Adjustment rings shall be concrete with steel reinforcement in conformance with ASTM C478. Rings shall be either 2 inches or 4 inches in thickness. The manholes shall be built so that a minimum of two 2 inch rings are installed for adjustment. A maximum of 12 inches of adjustment will be allowed, but the top two rings shall be of 2 inches thickness.
- B. Precompressed butyl gasket, 3/8 inch x 3-1/2 inch or mortar shall be used between the manhole and all adjustment rings. Butyl material shall be E-Z stik or equal.
- C. Sanitary Sewer Steel Adjusting Rings. Placement of a steel manhole adjusting rings will be done during the paving process after all base compaction is complete. These adjusting rings or “extension rings” shall be Neenah R-1979 Series (non-rocking seat N1979-0023). Payment for furnishing adjusting rings shall be at the unit price bid per each Steel Adjustment Ring.

PART 3 CONSTRUCTION METHODS

3.01 STORM SEWER STRUCTURES, GENERAL

- A. All lift holes on structures shall be sealed watertight.

3.02 FRAMES AND COVERS

- A. Structures shall be built up so that the frames and cover, when placed, will be at the established required grade. Mortar shall be used under the frame to adjust the casting to the required grade.

3.03 PROVISION FOR FUTURE CONNECTION

- A. Connections for future sewers, when specified, shall consist of a short piece of sewer terminating with a bell end and stopper or bulkhead not more than one full pipe length outside the structure wall unless otherwise shown. Other structure

components and requirements are indicated on detail drawings. If no elevation is given for future connections, set the invert 1/2 inch above the main sewer invert.

3.04 ABANDONMENT OF STORM SEWER AND STRUCTURES

- A. Storm sewer lines to be abandoned shall be plugged at both ends with concrete or sewer brick and mortar. Where a new structure is to be built or an existing structure is to remain, the plugged end of the abandoned sewer line shall end no closer than five feet from the structure and concrete backing shall be poured between the plug and the structure. Where the structure and the sewer are to be abandoned, the sewer shall be blocked and the structure shall be filled with concrete above the crown of both the inflowing and outflowing sewers to a maximum of 4 feet. Sewers entering the structure more than 4 feet above the bottom shall be plugged with concrete or brick and mortar. All structures to be abandoned shall be removed to a minimum of 3 feet below ground level.
- B. Backfill shall conform to the requirements of Excavating, Trenching and Backfilling for Utilities - Division 2 of these specifications.

PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. Storm sewer structures shall be paid for at the bid price in accordance with one of the following methods, unless indicated otherwise in the Bid Schedule.
- B. All work specified herein shall be considered in each of the measurement and payment method(s) stipulated, unless indicated otherwise in the Bid Schedule.

4.02 STORM SEWER STRUCTURES

- A. Storm Sewer Structures, Complete. The unit price for a storm sewer structure shall include all materials and labor to provide the complete storm sewer structure in accordance with the contract drawings and specifications.
- B. Storm Sewer Structures, Unit Price
 - 1. Vertical Foot. Payment shall include all risers, steps, cone top, and appurtenances and shall be measured from the crown of the outflowing sewer to the top of the cone section.
 - 2. Storm Sewer Structure Casting and Base. Payment shall include the frame and lid, adjustment rings, waterproofing, adjustments to set flush at final grade, and complete base with finished inverts.

END OF SECTION

STORM SEWER

PART 5 GENERAL

5.01 APPLICABLE PROVISIONS

- A. Applicable provisions of Division 1 shall govern work of this section.

5.02 APPLICABLE PUBLICATIONS

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
 1. American Association of State Highway and Transportation Officials (AASHTO), Standard Specifications, Latest Edition.
 2. American Society for Testing and Materials (ASTM), Annual Book of ASTM Standards, Current Edition.
 3. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, current edition, and current Supplemental Specifications.

5.03 DESCRIPTION OF WORK

- A. The work covered under this section shall consist of furnishing all material, equipment, and labor required to install the storm sewer for this project.

5.04 RELATED WORK ELSEWHERE

- A. Dewatering - Division 2
- B. Excavating, Trenching and Backfilling for Utilities - Division 2
- C. Structural Excavation, Backfill and Compaction - Division 2
- D. Storm Sewer Structures - Division 2

5.05 SHOP DRAWINGS

- A. Contractor shall submit such product literature and catalog cuts of materials to be supplied to relate these materials to the specifications. Information shall be in conformance with requirements of Submittals - Division 1 of these specifications.

PART 6 PRODUCT
S AND
MATERIALS

6.01 CONCRETE PIPE

- A. Reinforced concrete pipe shall conform to the requirements of Sections 608 and 610 of the State of Wisconsin, Department of Transportation standard Specifications.
- B. Non-reinforced concrete pipe shall conform to the requirements of Section 607 of the State of Wisconsin, Department of Transportation, standard specifications.

6.02 CORRUGATED METAL PIPE (CMP)

- A. Corrugated metal pipe shall conform to the requirements of Sections 520 and 521 of the State of Wisconsin, Department of Transportation standard specifications.

6.03 HIGH DENSITY POLYETHYLENE PIPE (HDPE)

- A. High density polyethylene pipe shall conform to the requirements of Section 530 of the State of Wisconsin, Department of Transportation Standard Specifications. Pipes which are between 42 inch diameter and 48 inch diameter shall meet the requirements of AASHTO M252 and M294, Type D.
- B. Couplings and fittings for 4-36 inch pipe shall be suitable for the specific project application and as recommended by the pipe manufacturer. The joint for 42-48 inch pipe shall consist of a bell and spigot, integrally welded to the barrel of the pipe, utilizing a suitable profile gasket located on the spigot end.
 - 1. The fittings shall not reduce or impair the overall integrity or function of the pipe line. Fittings may be either molded or fabricated. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings may be installed by various methods, such as snap-on, screw-on, bell and spigot, and wrap around.
 - 2. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints.
 - 3. Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the Plans, a neoprene or rubber gasket shall be supplied.

6.04 PVC

- A. PVC Pipe. Four inch to 15 inch diameter pipe shall be Type PSM SDR-35 and meet the requirements of ASTM D3034. Pipe over 15 inch diameter shall meet the requirements of ASTM F679. Pipe shall be of the bell and spigot type and meet the requirements of ASTM D3034 Type PSM SDR-35.

6.05 PIPE JOINTS

- A. General. Manufacturer=s instructions for making joints shall be followed. The use of joints as specified herein shall not relieve the Contractor of the responsibility of meeting testing specifications.
- B. PVC Pipe. Pipe joints shall be chemically welded conforming to ASTM D2564 or elastomeric seals (rubber gaskets) conforming to ASTM F477 and joint assembly conforming to ASTM D3212

6.06 CONCRETE BRICK OR BLOCK

- A. Concrete brick and block masonry units shall conform to the requirements of Section 519 of the State of Wisconsin, Department of Transportation, Standard Specifications.

PART 7 CONSTRUCTION METHODS

7.01 GENERAL

- A. Construction of the storm sewer shall include all excavation, backfilling, compacting of trenches and breaking into existing manholes, inlets or storm sewers required to provide a completed storm sewer at the locations shown on the Plans.

7.02 PROTECTION OF EXISTING UTILITIES

- A. Utility locations shown on Plans and Profile are approximate. Contractor shall contact all utility companies at least three working days prior to excavation for locations of all buried utilities owned by them. Should utilities be unexpectedly encountered during excavation, consult Engineer immediately for directions as to procedure. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility owner. Contractor shall be responsible for the cost of repairing damaged utilities.

7.03 CONCRETE STORM SEWER

- A. Concrete storm sewer shall be constructed as shown on the Plans and in accordance with Sections 607, 608, and 610 of the State of Wisconsin, Department of Transportation, Standard Specifications, with the following exceptions and additions:
 - 1. Joints shall be of flexible watertight rubber gaskets installed as per manufacturer=s instructions.
 - 2. Flexible watertight gaskets will not be required for elliptical storm sewer. Elliptical joints shall be sealed with trowellables “dauber” chemical joint compound, or equal.

3. Backfill shall be as indicated on the Plans and specified in Excavating, Trenching and Backfilling for Utilities - Division 2 and Special Conditions - Division 1. Backfill shall be incidental to storm sewer construction.
4. If no embedment class is specified, then Class B embedment with a shaped subgrade shall be used.
5. Joint ties shall be installed on apron endwall joints and the adjacent two pipe joints.

7.04 CORRUGATED METAL PIPE (CMP) STORM SEWER

- A. Corrugated metal pipe shall be constructed as shown on the Plans and in accordance with the Special Conditions and Sections 520, 521, and 607 of the State of Wisconsin, Department of Transportation, Standard Specifications, with the following exceptions and additions:
 1. Joints shall be of watertight bolted bands installed as per manufacturer=s instructions.
 2. Embedment shall be Class II and shall be incidental to storm sewer construction.
 3. Backfill shall be Type II as specified in Excavating, Trenching and Backfilling for Utilities - Division 2. Backfill shall be incidental to storm sewer construction.
 4. Basis of payment will be per lineal foot in place. Miscellaneous bends, fittings and bands shall be included in the unit bid price of the associated pipe. The footage to be paid for shall not include the construction into or through catch basins, manholes, and inlets.

7.05 HIGH DENSITY POLYETHYLENE PIPE (HDPE)

- A. High density polyethylene pipe shall be constructed as shown on the Plans and, in accordance with the Special Conditions - Division 1 and Section 607 of the State of Wisconsin, Department of Transportation, Standard Specifications. Standard practice for underground installation of flexible sewer pipe (ASTM D 2321) with the following exceptions and additions:
 1. Joints for sewer pipe shall be sealed to be soil tight in accordance with AASHTO Standard Specifications for Highway Bridges, Section 26.4.2.4.
 2. Embedment shall be Class II and shall be incidental to storm sewer construction.
 3. Backfill shall be Type II as specified in Excavating, Trenching and Backfilling for Utilities - Division 2. Backfill shall be incidental to storm sewer construction.

7.06 TESTING

- A. Leakage Testing. All storm sewers shall be tested for excessive infiltration and sand leakage. All sand leaks shall be repaired by the Contractor at his expense. If in the judgment of the Engineer the infiltration will cause a continued

maintenance problem, the sewer shall be repaired by the Contractor at his expense.

- B. Alignment and Grade shall be checked by lamping method to detect poor alignment, offset joints, sags, kinks, or open joints; defects shall be corrected by the Contractor before final acceptance. If closer inspection is warranted, the Owner may arrange for a televised inspection. The Owner will assume the cost of televised inspection if no serious defect is found. If defects are found which the Engineer attributes to the failure of proper installation or sound materials, the Contractor shall pay for the test. Defects shall be promptly corrected.
- C. Deflection Limitation. Deflections in corrugated metal pipe and HDPE pipe shall be limited to 5 percent of the nominal pipe diameter. If visual inspection indicates a greater deflection, the Contractor shall supply and pull a rigid ball or mandrel with a diameter 5 percent less than the nominal pipe size through the sewer. Failure of the ball to freely pass through shall be cause for rejection of the sewer.

7.07 PROTECTING OPENINGS

- A. Fences shall be provided around all openings and whenever required for the protection of the public. They shall be neat and substantial. All openings, fences, and surface obstructions shall be guarded and shall be indicated at night by suitable flashers.

PART 8 MEASURE MENT AND PAYMENT

8.01 GENERAL

- A. Storm sewer shall be paid for at the bid price in accordance with one of the following methods, unless indicated otherwise in the Bid Schedule or Special Conditions - Division 1.
- B. All work specified herein shall be considered in each of the measurement and payment method(s) stipulated, unless indicated otherwise in the Bid Schedule or Special Conditions - Division 1.

8.02 STORM SEWER

- A. Storm Sewer, Lineal Foot. Measurement for the storm sewer shall be for the lineal foot of storm sewer installed and shall not include construction into or through catch basins, manholes, or inlets. Payment shall be made at the contract unit price bid per lineal foot of storm sewer installed.

Pavement Specifications

I. DESCRIPTION:

This work shall consist of the construction of a plant mixed bituminous concrete surface or pavement of the prepared foundation or base course in accordance with the specifications and contract and in conformity with the lines, grades and typical sections shown on the plans

Bituminous concrete shall be composed of a mixture of mineral aggregates, mineral filler (when required), and bituminous material.

The requirements of Sections 401, 405 and 407 of the State of Wisconsin Department of Transportation, Division of Highways, Standard Specifications for Road and Bridge Construction, latest edition, except as hereinafter otherwise stipulated, shall be applicable to the work.

II. MATERIALS:

The bituminous materials to be used in the work shall be asphalt type E-1 as specified in the Wisconsin Department of Transportation Construction Manual.

(COMPOSITION OF PAVING MIXTURES)

III. GENERAL:

The paving mixture shall be composed of a homogeneous mixture of course aggregate, fine aggregate, mineral filler (when required) and bituminous material.

IV. SURFACE COURSE:

The aggregates, including mineral filler (when required), shall conform to the following gradation requirements:

<u>Sieve Size</u>	<u>Percentage by Weight Passing</u>
3/4 inch	100
1/2 inch	95-100
3/8 inch	75-100
Number 4	45-85
Number 8	30-60
Number 50	10-30
Number 200	5-12

Mixtures made in the laboratory with aggregate and asphalt cement proposed for the work shall yield a Marshall stability of not less than 1200, a void content of the compacted mixture between 2 and 6 percent and a flow value of not more than 18.

The Marshall value indicated above will be determined in accordance with the Method of Test for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus, ASTM Designation: D 1559, as modified by current laboratory design procedure. Determination of air void content shall be by the method used in the laboratory employing direct measurement of maximum theoretical density.

In the event that the aggregate proposed for use is all, or substantially all, of crushed limestone, natural sand shall be blended with the crushed stone in such proportion, within the limitations of the master range of gradation, as to provide a workability of the finished mixture satisfactory to the Engineer.

Bituminous material in the approximate range of 5 to 7 percent by weight, of the composite mix, but as specifically determined by the Engineer, shall be incorporated into the mixture.

V. MINERAL FILLER:

When the aggregates proposed for the work do not provide the required stability or void content in the compacted mixture or are deficient in the fraction passing the No. 200 sieve, the contractor may elect to use other satisfactory aggregates or correct the deficiencies by the incorporation of mineral filler into the mixture. The Engineer's approval shall be obtained by the contractor for all proposed mineral filler materials proposed to be used in the work.

VI. JOB MIX:

Within the master ranges, from the job aggregated furnished by the contractor, the Engineer will establish a job-mix formula, which formulas shall include a gradation and quantity of aggregate material to be incorporated in the mix.

At least 21 days prior to use, the contractor shall furnish the engineer with samples of all material proposed to be used to construct the bituminous concrete pavement. The Engineer will conduct the necessary laboratory tests on said samples to determine the job mix. The job mix formula shall be effective unless and until modified by the Engineer.

The Engineer may take as many samples as are necessary to check the gradation of the aggregate furnished and the composition and uniformity of the mixture when unsatisfactory results or changed conditions make it necessary, the Engineer may establish a new job mix formula.

VII. UNIFORMITY:

The aggregates and bituminous material used in the paving mixtures shall conform to the job mix formula with the following percentage tolerances:

Aggregates passing Number 4 and larger sieves -----	± 7%
Aggregates passing Number 8 to Number 100 sieves (inclusive) --	± 4%
Aggregates passing Number 200 sieves -----	± 2%
Bituminous Material -----	± 0.4%

Irrespective of such tolerances, gradations shall fall within the applicable master range specified heretofore.

VIII. TESTS:

The contractor shall furnish free of charge all test samples of aggregates, bituminous material and bituminous mixtures which the Engineer shall require in order to conduct all necessary tests.

For the verification of weights or proportions and character of materials and determination of temperatures used in the preparation of the mixture, the Engineer shall have access at all times to all parts of the paving plant.

IX. EQUIPMENT:

Equipment used in the work shall conform to the requirements set forth in Section 405 of the State of Wisconsin Division of Highways, Standard Specifications for Road and Bridge Construction, latest edition.

(CONSTRUCTION METHODS)

X. GENERAL:

The construction methods shall be as required under Section 405 of the above mentioned State Highway Specifications, except as hereinafter otherwise stipulated.

XI. PREPARATION OF AGGREGATE:

The dried and heated aggregates shall be separated into sizes, stored in separate bin compartments and recombined in the proper proportion in the mixer.

Aggregates for the gradation heretofore specified shall be separated into at least two sizes. The separation of the aggregate going into the "fine" bin from that going into the next larger aggregate size bin shall be made by means of a screen not larger than a Number 6 mesh. Except for the bin containing the minus Number 8 materials, no other bin shall contain an excess of 15 percent of material passing a Number 8 sieve, as determined on the basis of a dry sieve analysis. Continued variation in excess of this limitation shall be corrected by increasing the amount of screening area or by reducing the rate of plant production.

When mineral filler is required in the mixture, the preparation shall be as specified by the Engineer.

The aggregate shall be dried and heated to such temperature not in excess of 375° F., that the mixture when discharged from the mixer will be within 15° F., plus to minus of 275° F.

XII. PREPARATION OF ASPHALT CEMENT:

The asphalt cement shall be heated and fed into a mixer at a temperature, within the temperature range of 250° F. to 325° F., which is within 25° F., plus to minus the temperature of the produced mixture.

XIII. FINISHED MIXTURES:

The surface and binder mixture shall be delivered to the job site at a temperature not lower than 250° F. nor higher than 310° F.

XIV. PREPARATION OF EXISTING SURFACE PRIOR TO CONSTRUCTION:

Preparation of Existing Gravel Surface

Prior to laying any bituminous concrete pavement, the contractor shall do final grading and compaction of existing gravel to insure proper grades, thickness and smoothness of the finished surface. Gravel, if needed, will be supplied by the City. Compaction to be with a vibratory roller.

Longitudinal Joints

Longitudinal joints shall be offset at least 18 inches from the underlying course. No longitudinal joints shall be exposed at the end of a day. Paving shall be brought up to a transverse joint.

Note: All items in the above Section XIV shall be included in the cost of the asphalt as no extra monies will be paid for this work.

XV. PREPARATION OF EXISTING MANHOLES AND INLETS PRIOR TO SURFACE COURSE OVERLAY CONSTRUCTION:

The City of Antigo's storm sewer, sanitary sewer and water valve manholes, electrical manholes, catch basins and water valves manholes and the General Telephone Co. manholes and the Wisconsin Public Service manholes and roadway boxes in the streets on which the contractor places bituminous concrete surface course or bituminous concrete surface course overlay on old pavement, shall be adjusted by the owners to the new surface grade. The contractor will give owners 24 hours' notice before final paving begins on each street and give owner's final grade elevations at each utility.

XVI. THICKNESS AND SURFACE REQUIREMENT

The bituminous pavement shall be constructed at a typical 3% grade. Pavement shall be constructed in two layers with a thickness of 1 1/2 inches/layer or as specified.

A tack coat is generally not required between layers of the pavement. However, the City reserves the right to require tack coat and sweeping between layers if the conditions warrant it.

The surface will be tested using a 10-foot straightedge at selected locations. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall at no point exceed 1/8 inch. All humps or depressions exceeding the specified tolerance shall be corrected by removing defective work and replacing it with new material or by other methods of repair approved by the Engineer.

Where the average thickness is greater than the plan thickness, the overrun shall be figured in tons and will be deducted from the total tonnage. The bituminous material will also be deducted from the total tonnage. The number of tons of bituminous material to be deducted will be figured on the percentage obtained from the tests taken during those days of operation in which the overrun occurred.

The surface course shall be laid only upon a base or pavement that is free of standing water. If it starts to rain in sufficient amounts as to cause standing water on the surface to be paved during paving operations, that truck load of asphalt mixture being unloaded into the paver may, at the contractor's discretion, discharge its full load into the paver; however, all other trucks waiting to discharge asphalt mixtures and enroute to the job site shall not be permitted to discharge their loads into the paver and the asphalt mixture contained therein shall be wasted.

XVII. DRIVEWAYS

All asphalt drives will be paved according to the Typical Section and Detail Sheet for Blacktop Driveways. The cost will be paid for at the contract unit price per square foot under its respective bid item. All excavation, grading and old asphalt removal will be done by the Contractor. The Contractor will water and compact driveways prior to asphalt placement. Care should be taken so as to minimize damage to the curb section and existing driveway.

XVIII. CLEAN-UP

The Contractor shall be responsible for clean-up of the construction area and disposal of all equipment, material and debris. The area shall be restored to a neat and workmanlike condition satisfactory to the Engineer.

The Contractor shall clean all sidewalks, curbs, boulevards, private property, catch basins and manholes of all material resulting from construction.

XIX. METHOD OF MEASUREMENT

Bituminous concrete pavement shall be measured by the ton (2,000 lbs.) of mixed aggregate and bitumen, unless otherwise provided. Mixtures shall be weighed on an approved truck scale, tested by an authorized testing firm and subject to inspection by the Engineer.

Weigh tickets shall be furnished in duplicate to the city, one copy to be retained by the Inspector at the weigh station and one copy to be given to the Inspector at the job-site.

XX. BASIS OF PAYMENT

The items of bituminous concrete pavement, measured as provided above will be paid for at contract unit price per ton for bituminous concrete pavement. This price shall be full compensation for furnishing, preparing, hauling, mixing and placing of all materials; tack coat and application if required; for compacting mixtures; and for all labor, tools, equipment and incidentals including maintenance, necessary to complete the work.

Payment will be made under:

- Bid Item - Bituminous concrete pavement binder -- per SY.
- Bid Item - Bituminous concrete pavement surface -- per SY
- Bid Item - Removal of Bituminous concrete pavement by "Pulverizing" (6" deep) – per SY

XXI. CHANGES AND INCREASED OR DECREASED QUANTITIES OF WORK

The City of Antigo reserves and shall have the right to make such changes, from time to time, in the plans, the character or quantity of various items of work as may be considered necessary or desirable to complete fully and acceptably construction in a satisfactory manner, provided such alterations do not change the total cost of the project based original total bid price by more than or less than 15%. Should it become necessary, for the best interest of the owner, to make changes in excess of the herein specified, the same shall be covered by supplemental agreement.

The contractor shall not start work on any item requiring a supplemental agreement until the agreement setting forth the adjusted price is executed by the owner and the contractor.

XXII. ELIMINATION OF STREETS

The City of Antigo reserves the right to eliminate a street or street segment from those designated in the plans if, due to excessive leveling courses, the contract tonnage is exceeded. The Engineer shall have sole authority to determine which street or street segment will be eliminated.

XXIII. SIGNS AND BARRICADES

The Contractor will supply and use adequate signs, barricades (equipped with flashing warning lights), traffic cones, flag-men etc. to maintain safe and expedient routing of traffic through and around the paving area.

The contractor will be responsible at all times for the protection of the newly paved areas. Any damage done to the newly paved areas will be repaired by the Contractor at his expense. All signs and barricades will be maintained in good working condition.

XXIV. PROGRESS SCHEDULE

The contractor shall submit a progress schedule within ten (10) days after the award of the contract. The progress schedule shall include starting date and expected completion date for all work on each street within the contract. The contractor shall allow within the schedule for the normal expected time delay for inclement weather. Should the contractor fail to perform the work in conformance with the progress schedule, the City Engineer may order additional plant, equipment and manpower to the project.

XXV. WORK SUPERINTENDENT

The contractor shall have at all times during the progress of construction, irrespective of the amount of work sublet, a competent superintendent or a designated representative capable of reading and thoroughly understanding the plans and specifications, as his agents on the work, who shall receive instructions from the Engineer or his authorized representatives. The superintendent or designated representative shall have full authority to execute the orders or directions of the Engineer without delay and to supply promptly such materials, tools, plant, equipment and labor as may be required to properly perform the work.

SECTION 02533

SANITARY SEWER MANHOLES

PART 9 GENERAL

9.01 APPLICABLE PROVISIONS

- A. Applicable provisions of Division 1 shall govern the work of this section.

9.02 APPLICABLE PUBLICATIONS

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
 - 1. American Society for Testing and Materials (ASTM), Annual Book of ASTM Standards:
 - a. ASTM A48 - Specification for Gray Iron Castings, Current Edition.
 - b. ASTM A240 - Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels, Current Edition.
 - c. ASTM A615 - Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement, Current Edition.
 - d. ASTM A668 - Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use, Current Edition.
 - e. ASTM C76 - Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, Current Edition.
 - f. ASTM C478 - Specification for Precast Reinforced Concrete Manholes Sections, Current Edition.
 - g. ASTM C913 - Specification for Precast Concrete Water and Wastewater Structures, Current Edition.
 - h. ASTM C923 - Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes, Current Edition.

- i. ASTM D2146 - Specification for Polypropylene Plastic Injections and Extrusion Materials, Current Edition.
 - j. ASTM F593 - Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs, Current Edition.
 - k. ASTM F783 - Specification for Staple, Handgrab, Handle, and Stirrup Rung, Current Edition.
2. Code of Federal Regulations (CFR), Title 29, Chapter XVII - Occupational Safety and Health Administration (OSHA), Department of Labor, Part 1926 Regulations, Current Edition.
 3. Federal Specifications (FS), Specifications and Standards, Current Edition.
 4. State Department of Commerce (DOC), Administrative Code of Rules and Regulations, Current Edition.
 5. State Department of Natural Resources (DNR), Administrative Code of Rules and Regulations, Current Edition.
 6. State Standard Specifications (SSS), for Sewer and Water Construction, Current Edition.

9.03 DESCRIPTION OF WORK

- A. The work under this section shall cover furnishing and installing standard manholes constructed of precast concrete sections, circular in horizontal section set on a concrete base and fitted with standard manhole covers, frames, waterproofing, and steps in accordance with the Contract Drawings and as specified herein.

9.04 RELATED WORK ELSEWHERE

- A. Submittals - Division 1
- B. Excavating, Trenching and Backfilling for Utilities - Division 2
- C. Sanitary Sewer - Division 2

9.05 SHOP DRAWINGS

- A. Contractor shall submit such product literature and catalog cuts of materials to be supplied. Information shall be in conformance with requirements of Submittals - Division 1 of this specification.
- B. Contractor shall submit Shop Drawings and details required for the construction and installation of the materials. Shop drawings and details shall indicate the intended materials arrangement, dimensions, major support requirements, plot area and intricate or detailed construction requirements.

9.06 OPERATION/MAINTENANCE MANUALS AND INSTRUCTIONS (NONE)

PART 10 PRODUCTS AND MATERIALS

10.01 ACCEPTABLE MANUFACTURERS

- A. The products listed are intended to establish a basis for comparison of products of other manufacturers. Substitutions will be permitted but only with the prior written approval of the Engineer. Catalogue reference numbers stated are those of Neenah Foundry Company and are intended to establish a basis for comparing the products of other manufacturers. Other manufacturers are McKinley Iron Works or Bingham and Taylor.

10.02 PRECAST MANHOLE SECTIONS

- A. Precast concrete manhole sections shall have a minimum inside diameter of 48 inches. The cone section shall be the eccentric type with a minimum clear opening of 24 inches. Compressive strength of the concrete shall be 4000 psi and shall conform to ASTM C478. Wall thicknesses of manholes will vary with diameter in conformance with ASTM C76, Class B concrete tongue and groove joint pipe. Larger diameter manholes (7 feet +) shall have wall thickness a minimum of one twelfth the inside diameter of the manhole as specified in ASTM C478.
- B. Steel reinforcement (sq. in./lin. ft.) shall not be less than 0.0025 times the inside diameter of the manhole in inches.
- C. The Contractor shall verify size, invert elevation, and location of all pipes in existing manholes and inform Engineer of any discrepancies before the replacement manhole is constructed.

10.03 STEPS

- A. Steps shall be constructed of a 1/2 inch diameter, Grade 60 reinforcing steel bar conforming to ASTM A615 completely encased in polypropylene conforming to ASTM D4101 to obtain a minimum thickness of 1-1/8 inch and minimum width of 12 inches. They shall be securely and permanently set in the manhole wall. Steps shall be set at 16 inches on center and have a 5-3/4 inch projection from the wall. Steps shall conform to ASTM F783.

10.04 FRAMES, COVERS AND GRATINGS

- A. Frames, covers and gratings shall be of the type and duty as shown in the Contract Documents. Iron castings shall conform to ASTM A48, Class 20. All castings shall be true to pattern in form and dimensions, free from faults, sponginess, cracks, blow holes, and other defects affecting their strength.

- B. The standard castings for sanitary sewer manholes shall be Neenah R-1540-580, Type B with self-sealing, gasketed non-rocking lids with concealed pick holes, except as designated otherwise on the contract drawings.
- C. Where bolted lids are specified on the contract drawings, they shall be Neenah R-1916 C1, watertight manhole frames with bolted lids.
- D. Where low profile castings are specified on the contract drawings, they shall be Neenah R-1689 (4-inch casting) with Type B self-sealing gasketed, non-rocking lid with concealed pick holes.

10.05 SANITARY SEWER MANHOLE JOINT MATERIALS

- A. Sanitary sewer manhole joint materials shall be plastic gasket material or butyl rubber gasket material. Plastic gaskets shall be preformed, high adhesion material, packaged ready for use between protective paper strips conforming to Federal Spec SS-S-00210, Type I, Rope Form; Ram-Nek by K.T. Snyder Company, Inc.; Kent Seal No. 2 or equal. Butyl rubber gaskets shall be preformed, high adhesion material, packaged ready for use between protective paper strips, conforming to Federal Spec SS-S-210A, Rope Form; CPS-210 by Press Seal Gasket Corporation or equal.

10.06 WATERSTOP SEALS

- A. Waterstop seals shall be flexible, watertight, rubber wedge ring or O-ring compression seals for pipe entrance holes. Wedge ring type shall be Press-Wedge II by Press-Seal Gasket Corporation, PSX Boot by Press Seal Gasket Corporation, Boot Coupling by KOR-N-SEAL or equal. O-ring type shall have cast iron compression flange, Res-Seal by Scales Manufacturing Corporation or equal.

10.07 ADJUSTMENT RINGS

- A. Adjustment rings shall be concrete with steel reinforcement in conformance with ASTM C478. Rings shall be either 2 inches or 4 inches in thickness. The manholes shall be built so that a minimum of two 2 inch rings are installed for adjustment. A maximum of 12 inches of adjustment will be allowed, but the top two rings shall be of 2 inches thickness.
- B. Precompressed butyl gasket, 3/8 inch x 3-1/2 inch shall be used between the manhole and all adjustment rings. Butyl material shall be E-Z stik or equal.
- C. Sanitary Sewer Steel Adjusting Rings. Placement of a steel manhole adjusting rings will be done during the paving process after all base compaction is complete. These adjusting rings or "extension rings" shall be Neenah R-1979 Series (non-rocking seat N1979-0023). Payment for furnishing adjusting rings shall be at the unit price bid per each Steel Adjustment Ring.

10.08 SANITARY SEWER MANHOLE CHIMNEY SEALS

- A. Sanitary sewer manhole chimney seal shall be internal or external type, rubber sleeve, unless indicated otherwise in the Special Conditions - Division 1 or the Contract Documents. The sleeve and extension shall have a minimum thickness of 3/16 inches and shall be extruded or molded from a high grade rubber compound conforming to the applicable requirements of ASTM C923, with a minimum 1,500 psi tensile strength, maximum 18 percent compression set and hardness (durometer) of 48 ∇ 5. The sleeve shall be doubled pleated with a minimum unexpanded vertical height of 8 inches and be capable of vertical expansion of not less than 2 inches when installed.
- B. The bands used for compressing the sleeve and extension against the manhole shall be fabricated from 16 gauge stainless steel conforming to ASTM A240 Type 304. All screws, bolts or nuts used on this band shall be stainless steel conforming to ASTM F593, Type 304.
- C. Sanitary sewer manhole chimney seal shall provide a watertight seal from 2 inches above the bottom of the casting to 2 inches below the top of the manhole cone section or flat top.

PART 11 CONSTRUCTION METHODS

11.01 MANHOLES, GENERAL

- A. All lift holes on sanitary sewer manholes shall be sealed watertight.

11.02 INVERTS AND BENCHES

- A. Invert channels shall be smooth and accurately shaped and in accordance with the contract drawings.
- B. No horizontal surfaces shall be left on the inside of the manhole. The bench shall be shaped to drain into the floor channel.

11.03 FRAMES AND COVERS

- A. Sanitary sewer manholes shall be built up so that the frames and cover, when placed, will be at the required finish grade. Mortar shall be used under the frame to adjust the casting to the required grade. Contractor shall be responsible for setting all manholes to finish grade prior to paving.

11.04 PROVISION FOR FUTURE CONNECTION

- A. Connections for future sewers, when specified, shall consist of a short piece of sewer terminating with a bell end and stopper or bulkhead not more than one full pipe length outside the manhole wall unless otherwise shown. If no elevation is given for future connections, set the invert 1/2 inch above the main sewer invert.

- B. ABS and PVC pipe shall be fitted with rubber waterstop seals where they pass through the manhole wall.

11.05 DROP CONNECTIONS

- A. Sanitary sewer manhole drop connections shall be outside drops constructed according to detail drawings and the following provisions.
 - 1. The drop assembly shall consist of a tee or wye connecting to the inflowing sewer, a drop pipe of the same diameter as the inflowing sewer, and a 90 degree bend at the bottom, all encased in concrete.
 - 2. Ductile iron pipe used for the drop connection need not be encased in concrete if the drop is free of joints between the 90 degree bend and the tee.

11.06 PLUGGING OF ABANDONED LINES

- A. Unless otherwise directed by the Engineer, the Contractor shall remove all abandoned pipelines from each manhole. Each pipe shall be entirely removed from the manhole wall. All loose or defective mortar, concrete block, or concrete shall be removed. The entire area shall then be plugged with non-shrink mortar, packed in place. All costs associated with abandoning pipelines shall be incidental to proposed utility construction.

11.07 ABANDONMENT OF SEWER AND SANITARY SEWER MANHOLES

- A. Sanitary sewer lines to be abandoned shall be plugged at both ends with concrete or sewer brick and mortar. Where a new manhole is to be built or an existing manhole is to remain, the plugged end of the abandoned sewer line shall end no closer than five feet from the manhole and concrete backing shall be poured between the plug and the manhole. Where the manhole and the sewer are to be abandoned, the sewer shall be blocked and the manhole shall be filled with concrete above the crown of both the inflowing and outflowing sewers to a maximum of 4 feet. Sewers entering the manhole more than 4 feet above the bottom shall be plugged with concrete or brick and mortar. All manholes to be abandoned shall be removed to a minimum of 2 feet below sub-grade level.
- B. Backfill shall conform to the requirements of Excavating, Trenching and Backfilling for Utilities - Division 2 of these specifications.

PART 12 MEASUREMENT AND PAYMENT

12.01 GENERAL

- A. Sanitary sewer manholes shall be paid for at the bid price in accordance with one of the following methods, unless indicated otherwise in the Bid Schedule.
- B. All work specified herein shall be considered in each of the measurement and payment method(s) stipulated, unless indicated otherwise in the Bid.

12.02 SANITARY SEWER MANHOLES

- A. Sanitary Sewer Manholes, Complete. The unit price for a sanitary sewer manhole shall include all materials and labor to provide the complete manhole in accordance with the contract drawings and specifications.
- B. Sanitary Sewer Manholes, Unit Price
 - 1. Sanitary Manhole, Vertical Foot. Payment shall include all risers, steps, cone top, and appurtenances and shall be measured from the crown of the outflowing sewer to the top of the cone section.
 - 2. Sanitary Sewer Base and Casting, Each. Payment shall include the frame and lid, adjustment rings, waterproofing, adjustments to set flush at final grade, and complete base with finished inverts.
 - 3. Sanitary Manhole Drop, Vertical Foot. Payment when included as a bid item, shall be per vertical foot measured between the high and low inverts of the drop assembly.
- C. Sanitary Sewer Steel Adjusting Rings, Each. Payment for furnishing steel adjusting rings shall be at the unit price bid per each size Steel Adjustment Ring installed.
- D. Connect to Existing San. Sewer Manhole, Each. This bid item involves connecting the new Sanitary Sewer main to the existing manhole as shown on the plans. Payment shall be at the unit price per each manhole and shall include but not be limited to: sawing or core drilling, bench removal and rebuilding, providing a watertight seal and furnishing all labor necessary.
- E. Sanitary Sewer Abandon Manholes, Each. This bid item involves all work associated with manholes, planned to be abandoned. Where the manhole will be removed to a minimum of 3 feet below ground level and then abandoned as specified. Payment shall be at the unit price per each and shall include but not be limited to; excavating all labor, and materials necessary to abandon the manhole.
- F. Sanitary Sewer Remove Manhole, Each. This bid item involves all work associated with manholes, planned to be removed. Where the manhole will be completely removed, with the sewer pipes abandoned as specified. Payment shall be at the unit price per each and shall include but not be limited to; excavation, all labor, and materials necessary to remove the manhole.

END OF SECTION

SECTION 02542

PRECAST STRUCTURES

PART 13 GENERAL

13.01 APPLICABLE PROVISIONS

- A. Applicable provisions of Division 1 shall govern work of this section.

13.02 APPLICABLE PUBLICATIONS

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
1. American Society for Testing and Materials (ASTM), Annual Book of ASTM Standards:
 - a. ASTM A82 - Specification for Steel Wire, Plain, for Concrete Reinforcement, Current Edition.
 - b. ASTM A496 - Specification for Steel Wire, Deformed, for Concrete Reinforcement, Current Edition.
 - c. ASTM A615 - Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement, Current Edition.
 - d. ASTM A668 - Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use, Current Edition.
 - e. ASTM A730 - Specification for Forgings, Carbon and Alloy Steel, for Railway Use, Current Edition.
 - f. ASTM C76 - Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, Current Edition.
 - g. ASTM C478 - Specification for Precast Reinforced Concrete Manholes Sections, Current Edition.
 - h. ASTM C913 - Specification for Precast Concrete Water and Wastewater Structures, Current Edition.
 - i. ASTM C1227 - Specification for Precast Concrete Septic Tanks, Current Edition.
 2. Code of Federal Regulations (CFR), Title 29, Chapter XVII - Occupational Safety and Health Administration (OSHA), Department of Labor, Part 1926 Regulations, Current Edition.
 3. Federal Specifications (FS), Specifications and Standards, Current Edition.
 4. State Department of Commerce (DOC), Administrative Code of Rules and Regulations, Current Edition.
 5. State Department of Natural Resources (DNR), Administrative Code of Rules and Regulations, Current Edition.
 6. State Standard Specifications (SSS), for Sewer and Water Construction, Current Edition.

13.03 DESCRIPTION OF WORK

- A. The work under this section shall cover the furnishings of all materials, equipment, tools, labor and supervision necessary to provide precast concrete structures as shown on the Contract Drawings and as specified herein.

13.04 RELATED WORK ELSEWHERE

- A. Submittals - Division 1
- B. Excavating, Trenching and Backfilling for Utilities - Division 2
- C. Structural Excavation Backfill and Compaction - Division 2

13.05 SHOP DRAWINGS

- A. Contractor shall submit such product literature and catalog cuts of materials to be supplied to relate these materials to the specifications. Information shall be in conformance with requirements of Submittals - Division 1 of these specifications.
- B. Contractor shall submit such Shop Drawings and details required for the construction and installation of the materials. Shop drawings and details shall indicate the intended materials arrangement, dimensions, major support requirements, and intricate or detailed construction requirements.

13.06 OPERATION/MAINTENANCE MANUALS AND INSTRUCTIONS (NONE)

PART 14 PRODUCTS AND MATERIALS

14.01 GENERAL

- A. All precast structures shall be watertight.
- B. Compressive strength of the concrete shall be 5,000 psi. Minimum concrete thickness shall be 6 inches for walls and 8 inches for floors and ceilings.
- C. Reinforcing steel shall meet ASTM A82, ASTM A496, ASTM A615 or ASTM A668, GR60. Minimum concrete cover over reinforcing steel shall be 1 inch. Lap of reinforcement at splices shall be a minimum of two cross wires for wire mesh.
- D. Each piece of a structure shall be cast from a one piece mold. The use of connecting form ties which may result in corrosion or leakage points is not acceptable.
- E. All joints shall be bell and spigot connections in conformance with ASTM C478.

- F. Joint materials shall be plastic gasket material or butyl rubber gasket material. Plastic gaskets shall be preformed, high adhesion material, packaged ready for use between protective paper strips conforming to Federal Spec SS-S-00210, Type I, Rope Form; Ram-Nek by K.T. Snyder Company, Inc.; Kent Seal No. 2 or equal. Butyl rubber gaskets shall be preformed, high adhesion material, packaged ready for use between protective paper strips, conforming to Federal Spec SS-S-210A, Rope Form; CPS-210 by Press Seal Gasket Corporation or equal.
- G. Waterstop seals shall be flexible, watertight, rubber wedge ring or O-ring compression seals for pipe entrance holes. Wedge ring type shall be Press-Wedge II by Press-Seal Gasket Corporation, PSX Boot by Press Seal Gasket Corporation, Boot Coupling by KOR-N-SEAL or equal. O-ring type shall have cast iron compression flange, Res-Seal by Scales Manufacturing Corporation or equal.

14.02 CIRCULAR PRECAST STRUCTURES

- A. Wall thicknesses of structures will vary with diameter in conformance with ASTM C76 for CLASS B concrete tongue and groove joint pipe. Larger diameter circular precast structures (7 feet +) shall have wall thickness a minimum of one twelfth the inside diameter of the structure as specified in ASTM C478.
- B. Steel reinforcement (sq. in./lin. ft.) shall not be less than 0.0025 times the inside diameter of the structure in inches.

14.03 RECTANGULAR PRECAST STRUCTURES

- A. Tanks shall meet all the requirements of ASTM C913 and ASTM C1227.

PART 15 CONSTRUCTION METHODS

15.01 INSTALLATION

- A. Install all equipment in accordance with manufacturer's instructions and reviewed Shop Drawings.
- B. The bottom of the excavation shall be dry and firm. Dewater as necessary to provide these conditions.
- C. The precast structure shall sit on a layer of 12 inch washed stone wrapped in Geotextile fabric Type SAS. Backfill material shall be as specified in Granular Backfill - Division 2.

PART 16 MEASUREMENT AND PAYMENT

16.01 GENERAL

- A. Precast Concrete Structures shall be paid for at the bid price in accordance with one of the following methods, unless indicated otherwise in the Bid Schedule.
- B. All work specified herein shall be considered in each of the measurement and payment method(s) stipulated, unless indicated otherwise in the Bid Schedule.

16.02 PRECAST CONCRETE STRUCTURES

- A. Precast Concrete Structures, Lump Sum. When so provided, payment shall be made in accordance with the price bid for the Precast Concrete Structures complete and shall include all labor and materials necessary to install.
- B. Precast Concrete Structures, Inclusive. When no quantity is provided, Precast Concrete Structures shall be considered inclusive to payment for associated work.

END OF SECTION