CONTRACT DOCUMENTS
AND
SPECIFICATIONS
FOR

2020 TANK INSPECTIONS

ENGINEERING DEPARTMENT

DES MOINES WATER WORKS
Des Moines, Iowa

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Jaewon Lim, P.E.          Date
Des Moines Water Works
License number: 25069
My license renewal date is: December 31, 2021.
All pages are covered by this seal: All

JAEWON
LIM
25069
IOWA
CONTRACT DOCUMENTS AND SPECIFICATIONS FOR 2020 TANK INSPECTIONS
ENGINEERING DEPARTMENT
DES MOINES WATER WORKS
Des Moines, Iowa

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ENGINEERING DEPARTMENT
DES MOINES WATER WORKS
Des Moines, Iowa

COMPETITIVE QUOTATION PROPOSAL
FOR
2020 TANK INSPECTIONS

To: The Chairperson and Members of the Board of Water Works Trustees of the City of Des Moines, Iowa

The undersigned hereby proposes to furnish to the Board of Water Works Trustees of the City of Des Moines, Iowa, all the necessary machinery, tools, labor, and other means of construction, and to furnish all equipment and materials specified or required and to do the work according to the Drawings and Specifications now on file in the Engineering Department, at the price hereinafter set out, for construction of the 2020 TANK INSPECTIONS. All terms used herein shall be as defined in the Specifications.

Proposals will be received by the Board of Water Works Trustees of the City of Des Moines, Iowa (Board), at Des Moines Water Works, at its office, 2201 George Flagg Parkway, Des Moines Iowa, until 1pm CST on the 29 day of May, 2020. Proposals can be submitted by email to jlim@dmww.com.

BASE BID

<table>
<thead>
<tr>
<th>NO.</th>
<th>ITEM</th>
<th>UNITS</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT PRICE</th>
<th>EXTENDED PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>In-Service Inspection – Polk County</td>
<td>LS</td>
<td>1</td>
<td>$________</td>
<td>$_____________</td>
</tr>
<tr>
<td></td>
<td>Ground Storage Reservoir</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>In-Service Cleaning – Polk County</td>
<td>LS</td>
<td>1</td>
<td>$________</td>
<td>$_____________</td>
</tr>
<tr>
<td></td>
<td>Ground Storage Reservoir</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>In-Service Inspection – SE Polk - Bondurant</td>
<td>LS</td>
<td>1</td>
<td>$________</td>
<td>$_____________</td>
</tr>
<tr>
<td>4.</td>
<td>In-Service Cleaning – SE Polk - Bondurant</td>
<td>LS</td>
<td>1</td>
<td>$________</td>
<td>$_____________</td>
</tr>
<tr>
<td></td>
<td>TOTAL BID =</td>
<td></td>
<td></td>
<td>$________</td>
<td>$_____________</td>
</tr>
</tbody>
</table>
NOTE: It is understood that the above quantities are estimated for the purpose of this Competitive Quotation Proposal. All quantities are subject to revision by the Water Works. Quantity changes shall not affect the unit prices.

By submission of this Competitive Quotation Proposal for said Project, the undersigned represents that the undersigned has carefully examined the site of the said improvements, and the plans, specifications, and all other Contract Documents, and that the undersigned is fully informed concerning the requirements of the Contract, the physical conditions to be encountered in the construction of improvements, and the character, quality, and quantity of work to be performed, and of the materials and equipment to be furnished, delivered, and installed.

With the Proposal, on a separate piece of paper, submit any limitations for entering each water tank. These could include, but are not limited to, minimum access hatch dimensions, maximum length from hatch to water surface, maximum velocities of flow inside water tank, minimum water temperature, etc.

By entry of the appropriate number and date below, the undersigned acknowledges receipt of and inclusion of any addenda issued as part of this Competitive Quotation Proposal.

<table>
<thead>
<tr>
<th>Addendum No.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
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<td>Date</td>
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<tr>
<td>Addendum No.</td>
<td>Date</td>
</tr>
</tbody>
</table>

Resident/Nonresident Status
The undersigned is (check one):
- ☐ A Resident Bidder,
- ☐ A Nonresident Bidder,
  as those terms are defined in the specifications

Respectfully submitted,

______________________________________________
Signature

______________________________________________
Print Name and Title

______________________________________________
Company Name

______________________________________________
Street Address

______________________________________________
City, State, ZIP
The following descriptions are provided to assist the Contractor in determining what work is included in each Competitive Quotation Proposal item. The cost of items not listed on the Competitive Quotation Proposal, or provided by the Owner, should be distributed to the individual bid items at the Contractor’s discretion.

## BASE BID

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In-Service Inspection – Polk County Ground Storage Reservoir</td>
<td>Provide labor and equipment to inspect the interior and exterior of the Polk County Ground Storage Reservoir. Provide written report and DVD video of inspection. Inspection method to be as specified. <strong>Pay Unit: Lump Sum</strong></td>
</tr>
<tr>
<td>2. In-Service Cleaning – Polk County Ground Storage Reservoir</td>
<td>Provide labor and equipment and sediment bags to remove any sediment of assumed depth of 1 inch (55 CY) and remove foreign material from the Polk County Ground Storage Reservoir. Provide required number of sediment bags for estimated sediment quantity. <strong>Pay Unit: Lump Sum</strong></td>
</tr>
<tr>
<td>3. In-Service Inspection – SE Polk - Bondurant</td>
<td>Provide labor and equipment to inspect the interior and exterior of the SE Polk – Bondurant Elevated Tank. Provide written report and DVD inspection video. Inspection method to be as specified. <strong>Pay Unit: Lump Sum</strong></td>
</tr>
<tr>
<td>4. In-Service Cleaning – SE Polk - Bondurant</td>
<td>Provide labor, equipment, and sediment bags to remove any sediment of assumed depth of 1 inch (5 CY) and remove foreign material from the SE Polk – Bondurant Elevated Tank. Provide required number of sediment bags for estimated sediment quantity. <strong>Pay Unit: Lump Sum</strong></td>
</tr>
</tbody>
</table>
THIS CONTRACT, made and entered into at Des Moines, Iowa, this _____ day of __________________, 2020, by and between the Board of Water Works Trustees of the City of Des Moines, Iowa, hereinafter called the "Water Works", and ________________________ hereinafter called the "Contractor".

WITNESSETH:

The Contractor hereby agrees to furnish all labor, tools, materials, and equipment necessary to undertake and complete the various items of construction described in the plans and specifications therefor as prepared by the Engineer, which plans and specifications are officially on file in the office of the Engineering Director, and by reference are made part of this Contract. The Contractor further agrees to perform the construction in strict accordance with said plans and specifications including all of the Contract Documents therein defined.

This Contract is awarded and entered into on the basis of the construction shown on the plans and described in the specifications, and for the price bid thereon as definitely set forth in the written Competitive Quotation Proposal attached hereto submitted by the Contractor on the _____ day of __________________, 2020, covering

2020 TANK INSPECTIONS

The Extended Price appearing on said Competitive Quotation Proposal totals:

___________________________________________________ Dollars ($_________________).

The Unit Price Bid for each item shall be the basis upon which the actual compensation due the Contractor shall be computed, the quantities being subject to such additions or reductions as may be officially ordered by the Engineer.
Progress payments will be made as provided in the specifications. So long as no claim under Chapter 573, Code of Iowa, is then on file, the Water Works agrees to pay the Contractor 95 percent of the actual compensation upon substantial completion and acceptance of the work and the balance shall be payable 30 days thereafter as provided by such statute. If such claims are filed, then payment shall be made as provided by such statute.

IN WITNESS WHEREOF, the Parties hereto have executed this instrument on the date first shown written.

BOARD OF WATER WORKS TRUSTEES
OF THE CITY OF DES MOINES, IOWA

BY: 

______________________________
Ted Corrigan
Interim CEO and General Manager

ATTEST:

____________________________________
Mike McCurnin
Engineering Director

____________________________________
Contractor

____________________________________
Signature and Title

____________________________________
Address

____________________________________
Date

ATTEST:

____________________________________
Ted Corrigan
Interim CEO and General Manager
1.1 INSURANCE-CONTRACTOR’S LIABILITY

1.1.1 GENERAL. The Contractor shall purchase and maintain insurance to protect himself and the Owner.

Certificates of insurance shall be written by companies which hold an AM Best A-VII rating or higher and are licensed to do business in the state of Iowa. The selected companies must be satisfactory to the Owner.

Each certificate of insurance shall state that thirty (30) days written notice will be given to the Owner before the policy is canceled or changed. Certificates of insurance shall be delivered to the Owner and the Engineer prior to start of operations.

Certificates of insurance shall be furnished to Owner accompanied by a Waiver of Subrogation endorsement for Workers’ Compensation, per Project Aggregate endorsement for General Liability and Additional Insured endorsement shall apply to all liability policies except Workers’ Compensation insurance prior to the commencing of work at the jobsite. An additional insured endorsement shall be provided with the certificate of insurance naming Owner, Owner’s employees, and Owner’s representatives as additional insureds for both ongoing operations and completed operations using ISO Form CG2010 or its equivalent with respect to any liability arising out of contractor’s performance of the Work and ISO Form CG2037 or its equivalent with respects to completed operations under this Agreement.

An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted prior to the release of final payment described in Section 1.9-6.5 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 1.1.3-5. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

1.1.2 REQUIRED COVERAGE. The Contractor shall purchase and maintain insurance which will protect him from the following type claims:

1.1.2-1 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;
1.1.2-2 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;
1.1.2-3 Claims for damages, insured by usual personal injury liability coverage, which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (b) by any other person;
1.1.2-4 Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
1.1.2-5 Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle; and,
1.1.2-6 Claims under workers’ compensation, disability benefit, and other similar employee benefit acts.
Protection shall be provided whether the claim results from operations of the Contractor, his subcontractors, employees of any of them, or anyone for whose acts any of them may be liable.

1.1.3 LIMITS OF LIABILITY. Policies for the insurance required by Section 1.1.2-6 shall be written for the limits of liability specified below:

1.1.3-1 General Liability: (including contractual, independent contractors, broad form property damage, personal injury underground explosion and collapse hazards.)
Listing Owner as Additional Insured
$1,000,000 Combined Single Limit per Occurrence
$2,000,000 Aggregate per Project, endorsement to be included.

Such liability insurance shall be primary and not contributing to any insurance available to Owner and Owner’s insurance shall be in excess thereof. Contractor shall provide copies of policies when requested by Owner.

1.1.3-2 Automobile Liability: (including all owned, non-owned, and hired automobiles.)
$1,000,000 Combined Single Limit

1.1.3-3 Workers’ Compensation Coverage B:
Statutory Benefits $100,000/$500,000/$100,000

A waiver of subrogation endorsement is required.

1.1.3-4 Umbrella Liability: (applying directly in excess of above liability coverages.)
$5,000,000 Aggregate; $5,000,000 Combined Single Limit

1.1.3-5 The insurance required by Section 1.1.3 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater.

Coverages, whether written or an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor’s completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

The coverage shall be maintained for three (3) years after final payment, with the total limits required herein. If requested by Owner, the Contractor shall furnish Certificates of Insurance verifying this coverage for the three (3) years after final payment.

1.1.4 CONTRACTOR’S LIABILITY INSURANCE. General liability coverage shall include contractor’s liability insurance applicable to the Contractor’s obligations in the following subsections:

1.1.4-1 The Contractor shall indemnify and hold harmless the Owner and the Engineer and their agents, officers, and employees from and against all claims, damages, losses, and expenses, including but not limited to attorney’s fees arising out of or resulting from the performance of the work, provided that such claim, damage, loss, or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom, and (b) is caused in whole or in part by
any negligent act or omission of the Contractor or any subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in Section 1.1.4.

1.1.4-2 In claims against the Owner or the Engineer or their agents, officers, or employees by any employee of the Contractor, subcontractors, anyone directly or indirectly employed by them, or anyone for whose acts any of them may be liable, the indemnification obligation under Section 1.1.4 shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or subcontractors under workers’ compensation acts, disability benefit acts, or other employee benefit acts.

1.1.4-3 The obligation of the Contractor under Section 1.1.4 shall not extend to the liability of the Engineer, his agents, or employees, arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs, or specifications, or (b) the giving of or the failure to give directions or instructions by the Engineer, the Engineer’s agents, or employees providing such giving or failure to give is the primary cause of the injury or damage.

1.1.5 CONTRACTOR’S INSURANCE FOR OTHER LOSSES. The Contractor shall maintain insurance to cover loss or damage to tools, machinery, equipment, or motor vehicles, used for the Work of the Contract, by the Contractor, his subcontractors, material men, or employees of them.

1.1.6 INSURANCE REQUIREMENTS FOR CONTRACTOR’S SUBCONTRACTORS. The Contractor shall use its best efforts to cause all of its subcontractors to procure and maintain insurance in like forms including, without limitation, the Additional Insured requirements naming Owner as additional insured, all as set forth above. The limits of liability on subcontractors’ General Liability insurance policies shall be not less than One Million Dollars ($1,000,000) per occurrence (combined single limit for bodily injury and property damage); One Million Dollars ($1,000,000) for personal injury liability; Two Million Dollars ($2,000,000) aggregate for products-completed operations; and Two Million Dollars ($2,000,000) general aggregate per project.

Certificates and Additional Insured Endorsements from subcontractors must be provided prior to the Contractor and its subcontractors entering the jobsite.

In the event any subcontractor cannot maintain insurance in like forms and amounts, Contractor shall notify Owner, in writing of the same, and advise Owner of the form and amount of insurance maintained by subcontractor. Contractor must obtain Owner’s written approval of any subcontractor who cannot comply with the insurance requirements set forth herein.

1.1.7 BUILDER’S RISK INSURANCE. The Owner will purchase Builders Risk Insurance to provide coverage for loss or damage to the structure on which the Work of the Contract is to be done or to materials and supplies necessary for the Work. The Contractor will be required to pay the deductible of $1,000 per occurrence for claims against this policy, which are the result of Contractor’s operations.

1.1.8 NOTIFICATION IN EVENT OF LIABILITY OR DAMAGE. The Contractor shall immediately notify the Owner, in writing, upon the occurrence of any event covered by Section 1.1.2. This notice shall describe the event, give the cause, as far as it can
be determined, provide an estimate of loss or damage, list the witnesses, if any, and state the amount of claim.

1.1.9 **WAIVER OF SUBROGATION.** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Engineer, Engineer’s consultants, separate contractors if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to Section 1.1.6 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary.

The Owner or Contractor, as appropriate, shall require of the Engineer, Engineer’s consultants, separate contractors if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.
CHAPTER ONE
DETAILED SPECIFICATIONS
# CHAPTER ONE
## DETAILED SPECIFICATIONS
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<td>Section 33 01 10.56  Cleaning and Inspection of Water Storage Tanks</td>
<td>33 01 10.56-1</td>
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<tr>
<td>APPENDIX A – PROJECT DRAWINGS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PART 1   GENERAL

1.01 SUMMARY OF WORK

A. The intent of this Project is to clean, evaluate, document, and identify deficiencies in existing potable water storage tanks. It is the intent of the Water Works to use the findings of the inspection for planning of routine preventative maintenance of inspected water storage tanks.

B. Work under this Contract includes, but is not limited to, the furnishing of all labor, materials, tools, equipment, transportation, and temporary protection necessary for, or incidental to, the execution of the following major items:

<table>
<thead>
<tr>
<th>Name</th>
<th>Capacity (MG)</th>
<th>Diameter (feet)</th>
<th>Height to Low Water Level (feet)</th>
<th>Water Level Range (feet)</th>
<th>Type of Inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polk County Ground Storage Reservoir</td>
<td>5.0</td>
<td>150.0</td>
<td>-</td>
<td>38.0</td>
<td>In-Service (Diver inspection)</td>
</tr>
<tr>
<td>SE Polk – Bondurant Tower</td>
<td>0.4</td>
<td>54.0</td>
<td>126.0</td>
<td>26.0</td>
<td>In-Service (Diver inspection)</td>
</tr>
</tbody>
</table>

C. Where type of inspection is identified as in-service, the operations are to be performed in a manner so as to not require dewatering of the tank or disruption of distribution system operations. Specifically, operations will not require the Owner to have or make arrangements for:
   1. Additional utility personnel or equipment.
   2. Special schedule.

D. The Board will award a single Contract for the Work included in the Project Plans and Specifications.

1.02 WORK TO BE PERFORMED BY OWNER

A. Schedule coordination between the Contractor / Water Works Operation.
B. Disposal of collected sediments / sediment bags used during cleaning activities.

1.03 FORM AND INTERPRETATION

A. Detailed Specifications are in outline form and include incomplete sentences; omission of words or phrases is intentional; supply omitted words or phrases by inference.

B. Report errors, contradictions, or ambiguities in Plans and Specifications to Engineer as soon as detected. Engineer will answer questions regarding Plans and Specifications and interpret intended meaning of Plans and Specifications. Engineer's interpretation to be accepted as final.
1.04 DEFINITIONS
   A. “Project” means the undertaking described in and governed by the Contract Documents.

1.05 EVALUATION OF PROPOSAL
   A. Owner reserves the right to reject any or all Proposals, including without limitation, non-conforming,
      non-responsive, unbalanced, or conditional Proposals. Owner further reserves the right to reject the
      Proposal of any bidder who it finds, after reasonable inquiry and evaluation, to not be responsible.
      Owner may reject the Proposal of any bidder if Owner believes that it would not be in the best interest
      of the Project to make award to that bidder. Owner also reserve the right to waive all informalities not
      involving price, time, or changes in the Work to negotiate contract terms with the successful bidder.

1.06 CONTRACT COMPLETION TIMES
   A. Cleaning and inspection to be completed prior to November 1st of 2020.
   B. Inspection reports to be submitted to Owner within 30 days of completion of inspection.

1.07 CONSTRUCTION PROGRESS SCHEDULE
   A. Submit an anticipated schedule of the proposed cleaning and inspection activities within 15 days of
      receipt of Notice of Award.

1.08 MEASUREMENT, PAYMENT, AND ACCEPTANCE
   A. Owner will make monthly partial payments based on work and labor performed and materials
      furnished.
      1. Lump sum items will not be measured.
      2. Items not listed as specific bid items will not be measured and will be considered as incidental
         items. Pay for incidental items to be included in unit bid payments.

   B. Owner will accept Work and make final payment to Contractor when:
      1. Engineer has certified that cleaning and inspections are satisfactory.
      2. Contractor has provided with Owner all documents called for in Specifications.

1.09 SAFETY AND HEALTH REQUIREMENTS
   A. Comply with applicable OSHA regulations and otherwise ensure that the Work is conducted in a safe
      manner. Without limiting the Contractor’s responsibility, Contractor to comply with the following:
      1. Iowa Occupational Safety and Health Act of 1972 (IOSHA).
      4. Other applicable federal statute.

   B. Provide for availability of medical services and accessibility of first aid kits. Telephone numbers of
      doctors, hospitals, and ambulances to be conspicuously posted.
C. Maintain operable fire extinguishers or other fire-fighting equipment on the jobsite.

D. Submit Safety Data Sheets to the Owner prior to commencing the Work for material used during, or incorporated into, the Work.

1.10 INSPECTION BY OWNER

A. An inspector, or agent of the Owner, shall be assigned to the Project to perform duties specified in Section 1.5-2 of Chapter 1.

B. Owner recognizes the following as legal holidays in 2020:
   1. New Year’s Day January 1, 2020
   2. Memorial Day May 25, 2020
   3. Independence Day July 3, 2020
   4. Labor Day September 7, 2020
   5. Thanksgiving November 25 and 26, 2020
   6. Christmas December 24 and 25, 2020

1.11 COORDINATION

A. Coordinate and cooperate with Des Moines Water Works’ staff operating tanks to be inspected. Owner reserves the right to reschedule Contractor work if schedule is deemed to adversely influence operation of system.

B. During cleaning and inspection, the Contractor may be required to coordinate his operations with other contractors working within the same area.

C. Coordinate with the appropriate agencies the relocation of utilities required to complete the Work.

1.12 OPERATION DURING CLEANING AND INSPECTION

A. Unless noted otherwise, existing facilities to remain completely operational during cleaning and inspection. The Contractor to be responsible for insuring facilities to continue to operate as they should. Sequence of construction or place of commencement may be determined by the Engineer as deemed to best serve the needs of the convenience of operation, or as necessity of occasion requires.

1.13 QUALITY ASSURANCE AND QUALITY CONTROL

A. Work to be performed only by personnel experience in type of construction being performed.

B. Comply with codes, ordinances, rules and regulations, orders, and other legal requirements of public authorities, which bear on the performance of the Work.

C. Give required notices as defined by the Contract Documents. Exceptions to this are not allowed.

D. Promptly submit written notice to Engineer of observed variance of the Contract Documents from legal requirements. Assume responsibility for Work known to be contrary to such requirements, without notice.

E. Enforce strict discipline and good conduct and order among employees. Do not employ on the Work:
   1. Unfit, not trained persons.
   2. Persons not skilled in assigned tasks.

** END OF SECTION **
SECTION 33 01 10.56
CLEANING AND INSPECTION OF WATER STORAGE TANKS

PART 1 GENERAL

1.01 SUMMARY OF WORK

A. The work under this contract includes, but is not limited to, the furnishing of all labor, materials, tools, equipment, transportation, and temporary protection necessary for, or incidental to, the execution of the following major items:


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B. Where type of inspection is identified as in-service, the operations are to be performed in a manner so as to not require dewatering of the tank or disruption of distribution system operations. Specifically, operations will not require the Owner to have or make arrangements for:

1. Additional utility personnel or equipment.
2. Special schedule.

C. Where the type of inspection is identified as dry, Owner will drain tank to the lowest possible level prior to inspection. Contractor to clean and inspect the dry tank and provide all labor, tools, and equipment for disinfection of tank prior to placing it back in service. Contractor to coordinate with Owner for placing tank back in service.

1.02 RELATED SECTIONS

A. Section 01 00 00 – General Requirements for the Project.

1.03 REFERENCES


1.04 SUBMITTALS
A. Submit one copy of a schedule for the inspection of the tanks, including duration of the inspection.
B. Submit the Inspection and Assessment Reports in Portable Document Format (PDF) as detailed elsewhere in this Section.
C. Submit all still photographs in color (.jpg) format.
D. Submit audio-video recordings in color and viewable in DVD format.
E. Submit all files on flash drive or DVD.

1.05 MEASUREMENT AND PAYMENT
A. Measurement and Payment as identified in Competitive Quotation Proposal Reference Guide.

PART 2 PRODUCTS

2.01 SEDIMENT BAGS
A. Provide sufficient number of sediment bags for dewatering of sediment removed from water storage tanks.
   1. Sediment bags to be designed to collect silt, sand, and other sediment removed during tank cleaning operations.
   2. Bags to be made from a UV resistant, non-woven geotextile material sewn into a completely enclosed bag. Use dewatering bags sewn for high strength. Use dewater bags that have a sewn-in sleeve to receive the pump discharge hose.

PART 3 EXECUTION

3.01 SAFETY
A. General Safety
   1. The Contractor is responsible for the safety of all workers, subcontractors, and suppliers performing work on this Project.
   2. The Contractor is to protect the Water Works, their agents, and the general public from harm attributable to the Contractor’s performance, or non-performance, of the work on this Project. The protection will include, but not be limited to, providing necessary safety equipment.
   3. The Contractor is to protect the existing structures and environment from damage attributable to the Contractor’s performance, or non-performance, of the work on this Project.
   4. The Contractor is to comply with the applicable standards of 29 CFR Part 1910, Occupational Safety and Health Standards, and 29 CFR Part 1926, Safety and Health Regulations for Construction.
   5. The listing of potential hazards will in no way relieve the Contractor’s responsibility for safety on this Project.
   6. The interior of the tanks may be considered a confined space hazard. The Contractor will confirm to the Water Works, prior to the start of the Project, that the Contractor has training programs, trained personnel, and is otherwise in compliance with 20 CFR 1910-146.
   7. Contractor to provide a suitable ladder for entrance and exit of storage tanks.

B. Diving Safety
   1. Diving operations to be performed in accordance with:
      b. ADC, Consensus Standards for Commercial Diving Operations and Underwater Operations.
   2. When diving is performed, a minimum of a 3-man dive team, according to OSHA regulations, will perform the inspection.
### 3.02 TANK CLEANING

A. Prior to cleaning, gather four (4) samples of the sediment from the bottom of tank for Owner.

B. The Contractor is to provide the procedure, labor, equipment and supplies necessary to thoroughly remove all accumulated bottom sediment and debris from the potable water storage tank.

C. Perform cleaning operations in a manner which does not compromise the tank integrity or coating system.

D. Cleaning to be completed to the Owner’s satisfaction.

E. Provide photographic and audio-visual documentation of tank interior and exterior before and after cleaning.

F. Sediment removed from tank is to be pumped to sediment bags for storage. Disposal of sediment bags is the Owner’s scope of work.

### 3.03 TANK INSPECTION

A. Tank inspection and report should be focused on documenting findings related to the following criteria:
   1. Any AWWA or OSHA health or safety compliance discrepancies related to water tanks, such as potential contamination sources, ladders, balconies, hatches, or any other safety issue.
   2. Contractor to examine all ladders, shells, roofs, floors, manways, welds, seams, coatings, bolts, hatches, overflows, plumbing, and any interior or exterior supports for deficiency.
   3. Interior and exterior coatings are to be inspected for conditions including peeling, blistering or other indications of loss of coating integrity. Any areas of pitting or rust, as well as any associated undercutting or migration, should be documented in the final report.
   4. The entire interior of the water tank will be videoed during the inspection in a manner that allows detailed review by Owner.

### 3.04 INSPECTION AND ASSESSMENT REPORT

A. Contractor to prepare a report which represents, in tabular and narrative form, the information, data, assessments and professional recommendations related to the inspection.

B. General information required for each tank:
   1. Location and address of tank.
   2. Type of tank.
   3. Date of inspection.
   4. Name(s) of inspectors.

C. Report to provide a summary of the following:
   1. Structural condition of tank.
   2. Coating integrity: coating condition, estimated service life remaining.
   3. Description of hatch, vent, screen, piping, and ladder conditions.
   4. Description and conditions of other items found during inspection.
   5. Recommended maintenance program:
      a. Recommendation of repairs, including urgency.
      b. Recommendation as to coating rehabilitation.
      c. Schedule and type of future cleaning and inspecting.
      d. Estimated cost of recommended repair.
   6. Report to include photographic and audio-visual documentation of the following:
      a. Tank exterior.
      b. Tank interior.
   7. Provide a clear, narrated audio-video recording of tank inspection activities.
   8. Provide photographs of identified problem areas.
   9. Cost estimation to address all recommendation.
3.05 DISINFECTION

A. In-Service inspections:
   1. When divers are used to clean and inspect the tank interior, such will be disinfected prior to entering the tank. Review disinfection procedures with Owner prior to work activities. Evidence of such disinfection procedure to be captured on audio-video recording.
   2. Disinfect in accordance with AWWA C652-11.
   3. Divers to be sealed so there is no human contact with the water.

B. Dry inspections:
   1. Contractor to be responsible for disinfection of water storage tank prior to placing tank back in service.
   2. Disinfection to comply with AWWA C652-11 Chlorination method 3.

** END OF SECTION **
APPENDIX

APPENDIX A – PROJECT DRAWINGS
2020 TANK INSPECTIONS

Des Moines Water Works
Water You Can Trust for Life

Jaewon Lim, P.E.

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer under the laws of the State of Iowa.

Jaewon Lim, P.E.

My license renewal date is Dec. 31, 2021.
Pages or sheets covered by this seal: __ to ___.
POLK COUNTY GROUND STORAGE RESERVOIR
(SECTION VIEW)
NOT TO SCALE

POLK COUNTY GROUND STORAGE RESERVOIR
(TOP VIEW)
NOT TO SCALE

LADDER FROM ACCESS POINT
NOT TO SCALE

POLK COUNTY GROUND STORAGE RESERVOIR
SCOPE
LOCATION: 4011 NE 14TH ST
DES MOINES, IOWA 50311

TANK CAPACITY: 5.4 MILLION GALLONS
TANK BUILDER: TBD
YEAR BUILT: TBD
TYPE OF TANK: CONCRETE TANK
HEIGHT TO LOW LEVEL:
HEIGHT TO HIGH LEVEL:
ELEVATION OF OVERFLOW:
ROOF ACCESS HATCH:
LADDER:
SAFETY CLimb:

VICINITY MAP
NOT TO SCALE