March 13, 2020

ADDENDUM NO. 1
TO
TULSA METROPOLITAN UTILITY AUTHORITY
PROJECT NO. WPC 20-4
FY '20 SOUTHSLOPE CAPITAL EQUIPMENT REPLACEMENTS

This Addendum No. 1, consisting of six (6) items is hereby made a part of the Contract Documents to the same extent as though it were originally included therein, and shall supersede anything contained in the Plans and Specifications with which it might conflict. This Addendum shall be attached to the Table of Contents sheet of the Contract Documents and submitted with bid. Failure to do so shall result in the bid being deemed non-responsive.

All other provisions of the Plans and Specifications shall remain in full force and effect.

CITY OF TULSA WATER AND SEWER DEPARTMENT

Matt Vaughan, PE
Water Pollution Control Section Manager
13-March-2020

Addendum No. 1
to
Project No. WPC 20-4

This addendum is part of the Contract Documents for Project 20-4 and consists of the following revisions:

1. The Proposal is retracted and replaced with Proposal (Rev 1).

2. The Summary of Bid Items is retracted and replaced with Summary of Bid Items (Rev 1).

3. The technical specifications for Bid Item 10 are retracted and replaced with the technical specifications for Bid Item 10 (Rev 1).

4. The drawings associated with Bid Item 10 are retracted. These include Drawings 10-1, 10-2, 10-3 and 10-4. The drawings are replaced with Drawings 10-1(Rev1), 10-2(Rev1), 10-3(Rev1), 10-4(Rev1), 10-5(Rev1), 10-6(Rev1), 10-7(Rev1), and 10-8(Rev1).

5. The technical specifications for Bid Item 11 are retracted and are not replaced.

6. The technical specifications for Bid Item 12 are retracted and are not replaced.

Peter R. Denis, P.E.
Senior Engineer
Water and Sewer Department

This addendum is to be signed by the bidder and accompany the bid when submitted.
## 1 Summary of Bid Items (Rev 1)

<table>
<thead>
<tr>
<th>Bid Item</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bid Item 1</td>
<td>Modification of three (3) Sludge Heat Exchangers in the Digester 1&amp;2 Building. This includes: replacement of circulator pumps; modification of hydronic piping; installation of additional valves; and installation of 3-way motor-actuated valve and associated control panel. The proposed equipment will control the flow of hot water through the heat exchanger.</td>
</tr>
<tr>
<td>Bid Item 2</td>
<td>Installation of three (3) Hydronic Flow Meters at the sludge heat exchangers in the Digester 1&amp;2 Building. The proposed meters will measure the flow of hot water through the heat exchanger.</td>
</tr>
<tr>
<td>Bid Item 3</td>
<td>Replacement of three (3) Hydronic Circulator Pumps and associated equipment located in the basement of the Digester 1&amp;2 Building. The proposed circulator pumps will move hot water through the digester hydronic loop.</td>
</tr>
<tr>
<td>Bid Item 4</td>
<td>Installation of one (1) Sludge Flow Meter in the basement of the Digester 3&amp;4 Building. This includes: wall-mounted local display; proper integration with the plant’s existing SCADA system; and SCADA programing changes. The proposed meter will measure the flow of sludge from the Digester 3&amp;4 Building to the Digester 1&amp;2 Building.</td>
</tr>
<tr>
<td>Bid Item 5</td>
<td>Replacement of one (1) Scum Pit Level Indicator in the basement of the Gravity Thickener Complex. This includes: level indicator with local display; electrical wiring and conduit; proper integration with the plant’s existing SCADA system; SCADA programing changes; replacement of isolation valve; plumbing modifications; and vacuum truck service.</td>
</tr>
<tr>
<td>Bid Item 6</td>
<td>Replacement of three (3) Floc Tank Drain Valves in the RDT Building. The proposed equipment will allow operation of the valves from the mezzanine deck.</td>
</tr>
<tr>
<td>Bid Item 7</td>
<td>Extra Work Allowance</td>
</tr>
<tr>
<td>Bid Item 8</td>
<td>Mobilization Allowance. The Mobilizations Allowance shall not exceed 5% of the sum of Bid Items 1, 2, 3, 4, 5, 6 and 7.</td>
</tr>
<tr>
<td>Add Alternate A</td>
<td>Installation of water-resistant thermal insulation and stainless steel metal jacketing on four (4) external draft tube mixers at Digester 1.</td>
</tr>
<tr>
<td>Bid Item 10 (Rev 1)</td>
<td>Modification of two (2) Scum Pits at the Primary Clarifier 3&amp;4 Building. (Rev 1)</td>
</tr>
<tr>
<td>Add Alternate B</td>
<td>Bid Item 11 is retracted with Addendum 1.</td>
</tr>
<tr>
<td>Add Alternate C</td>
<td>Bid Item 12 is retracted with Addendum 1.</td>
</tr>
<tr>
<td>Bid Item 13 Add Alternate E</td>
<td>Painting of the Plant Effluent Water (PEW) piping in the Gravity Thickener Complex.</td>
</tr>
<tr>
<td>Bid Item 14 Add Alternate F</td>
<td>Replacement of one (1) Sludge Flow Meter in the basement of the Gravity Thickener Complex. This includes: wall-mounted local display; and proper integration with the plant’s existing SCADA system. The proposed meter will measure the flow of sludge from the Gravity Thickener Complex to the Digester 1&amp;2 Building.</td>
</tr>
</tbody>
</table>
4 Specific Requirements for Each Bid Item

4.10 Bid Item 10 (Rev 1)

| Item Description |  
|------------------|---
| Bid Item 10 (Rev 1)  
Add Alternate B | Modification of two (2) Scum Pits at the Primary Clarifier 3&4 Building. (Rev 1) |

4.10.1 Proposed Equipment

Approved equipment and materials are listed below. Contractor will coordinate with the Engineer for approval of other makes, models, or materials.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Access Hatch with integral fall-through protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make</td>
<td>EJ Group</td>
</tr>
<tr>
<td>Model</td>
<td>Aluminum Access Hatch with Safe Hatch Safety Access System</td>
</tr>
<tr>
<td>Style</td>
<td>Double Cover and Double Safety Grate</td>
</tr>
<tr>
<td>Mounting</td>
<td>Top-Mounted</td>
</tr>
<tr>
<td>Clear Opening</td>
<td>30 inches deep from the front handle-side to the back hinge-side and 48 inches wide</td>
</tr>
<tr>
<td>Load Rating for Cover</td>
<td>300 pounds per square foot live load</td>
</tr>
<tr>
<td>Cover Material</td>
<td>¼ inch thick diamond plate, 5086 aluminum alloy</td>
</tr>
<tr>
<td>Load Rating for Safety Grate</td>
<td>300 pounds per square foot live load</td>
</tr>
<tr>
<td>Safety Grate Material</td>
<td>6061-T6 aluminum</td>
</tr>
<tr>
<td>Hinges on Covers</td>
<td>316 stainless steel hinge pins and hardware</td>
</tr>
<tr>
<td>Hold open for covers</td>
<td>Each cover should have a feature (such as a latching strut) that automatically engages holds the cover open when the cover is fully opened.</td>
</tr>
<tr>
<td>Hold open for safety grate</td>
<td>Each safety grate should have a feature that locks the safety grate in the upright position when the safety grate is fully opened.</td>
</tr>
<tr>
<td>Lift Handle on Covers</td>
<td>Each cover should have a permanently mounted exterior handle made from stainless steel. Each handle should be centered near the edge of the cover. The handle may be pre-fabricated or the handle may be custom fabricated from a 3/8 inch diameter, 8-inch wide, stainless steel, square U-bolt, with stainless steel washers and nuts. There should be about 3 inches of clearance under the handle so that a person with a thick winter glove should not have a problem gripping the handle.</td>
</tr>
<tr>
<td>Security Options</td>
<td>None. The covers should not have any security options. The cover should not have any type of lock, slam lock, catch, or padlock clip. The cover should be held shut by gravity.</td>
</tr>
<tr>
<td>Lift Assist</td>
<td>None</td>
</tr>
</tbody>
</table>

(Rev 1)
4 Specific Requirements for Each Bid Item

4.10.2 Removal of Existing Equipment
The following items are to be removed and disposed at each scum pit. See Drawing 10-1 (Rev 1), Drawing 10-2 (Rev 1) and Drawing 10-3 (Rev 1).

- The small concrete curb (on top of the existing retaining wall) of each scum pit.
- Existing covers and support hardware. The anchor bolts are to be cut off so they are flush with the concrete surface.
- Sluice gate. This includes:
  - Pedestal and handle
  - Stem and sliding gate
  - Upper support bracket
  - Middle stem guide bracket
  - Lower frame
  - Any other associated hardware for the sluice gate.
- Anchor bolts that are embedded in the concrete should be cut off so they are flush with the concrete surface.
- Scum mixer. This includes:
  - Any associated hardware for the scum mixer.
  - Anchor bolts that are embedded in the concrete should be cut off so they are flush with the concrete surface.
  - Electrical wiring and conduit for each scum mixer. See Section 4.10.4.8 below.

4.10.3 Materials that May be Reused
- Green odor control piping that is in good condition

4.10.4 Installation of Proposed Equipment

4.10.4.1 Contractor’s Responsibility
- Refer to Section 3.1 of the Common Requirements for All Bid Items for Contractor’s Responsibility.
- Contractor will provide all necessary components to ensure that that the complete system is fully operational.
- Contractor will provide flow stoppage (into the scum pit) and plugging of the scum pit inlet pipe (as needed) to allow work in the scum pit.
- Contractor will provide vacuum truck service and proposer disposal of residual material in the scum pit. The residual material will include scum, plastics, grease, rags, sediment, sludge, grit, sand, trash and may include other debris.
- Contractor will provide sump pumping (as needed) to allow work in the scum pit.
- Work on this bid item includes “Significant Events” and requires coordination with plant operations. Contractor will coordinate with the engineer or Superintendent at least two (2) days before conducting any of the Significant Events as defined in Section 3.2 of the Common Requirements for All Bid Items.
- Only one (1) scum pit is to be taken out of service at a time.
- Work will be done in two separate phases. Once one scum pit is complete and back in service, then work may precede with the other scum pit.
- Contractor will coordinate with Engineer regarding the order of scum pits that are to be worked on.
4 Specific Requirements for Each Bid Item

4.10.4.2 Corrosion Protection Measures
- The area where the new equipment will be installed is designated as a “Corrosive Area” as defined in Section 3.8.1 of the Common Requirements for All Bid Items. In particular, the equipment will be exposed to the following contributors of corrosion:
  - The continuous presence of moisture and condensing humidity on a diurnal cycle.
  - The continuous presence of trace amounts hydrogen sulfide (H₂S).
  - The natural formation of sulfuric acid (H₂SO₄) due to the presence of both moisture (H₂O) and hydrogen sulfide (H₂S).
- Contractor is to ensure that all new equipment and materials installed for this bid item complies with the corrosion protection measures described in Section 3.8 of the Common Requirements for All Bid Items.
- All new fasteners and hardware are to be stainless steel or other approved material as specified in Section 3.8.2 of the Common Requirements for All Bid Items.

4.10.4.3 General
- Contractor will stop flow into the scum pit, then clean the inside of the scum pit as described above in Section 4.10.4.1.
- Contractor will remove the existing items as described above in Section 4.10.2.
- Contractor will modify the retaining wall as described below in Section 4.10.4.4.
- Contractor will provide a concrete coating as described below in Section 4.10.4.5.
- Contractor will provide a back cover as described below in Section 4.10.4.6.
- Contractor will provide an access hatch with integral fall-through protection as described below in Section 4.10.4.7.
- Contractor will provide electrical work as described below in Section 4.10.4.8.

4.10.4.4 Retaining Wall
The top of each scum pit retaining wall is to be raised to an elevation of 632.85 feet (NAVD88). This equates to 8.5 inches higher that the existing scum pit retaining wall. When complete, the top of the scum pit retaining wall should be equal to (or slightly higher than) the top of the existing retaining wall around each primary clarifier.
- See Drawing 10-5 (Rev 1) and Drawing 10-6 (Rev 1) for additional notes.
- Steel reinforcing bar and dowels: Grade 40, unfinished.
- Provide a concrete bonding adhesive between new and old concrete. Follow the application instructions. Acceptable products include: Quikrete Concrete Bonding Adhesive Product No. 9902; and others.
- Concrete strength: 4,000 psi
- Provide ¾ inch chamfer on corners and top edge (as appropriate).
4 Specific Requirements for Each Bid Item

4.10.4.5 Concrete Coating
Contractor is to provide a concrete coating on the following surfaces:
• The bottom of the scum pit
• The four inside walls of the scum pit, up to an elevation of 632.85 feet
• The brick veneer inside the scum pit, up to an elevation of 632.85 feet
• The top of the new retaining wall, at an elevation of 632.85 feet

Contractor is to provide proper surface preparation for the concrete coating which includes the following:
• Wait at least 28 days for the freshly poured concrete to cure and dry out before applying coating.
• Follow SSPC-SP13 for the surface preparation of concrete. SSPC-SP13 is an abbreviation for the Society of Protective Coatings, Surface Preparation standard #13 which provides requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems.

Contractor is to provide the complete concrete coating system which includes the following:
• Primer: Raven 175
• Epoxy Coating: Rave 405
Follow the application instructions for both products.

4.10.4.6 Back Cover
Contractor is to provide a new back cover as shown in Drawing 10-7 (Rev 1). Contractor is to re-connect the green odor control piping to the new cover. The Contractors may need to modify the odor control piping to allow it to connect properly.

The back cover should have the following characteristics:
• Rated for 300 pounds per square foot live load.
• Made from a corrosion resistant material such as aluminum, stainless steel, or other composition material.
• The thickness will depend on the type of material, but is should be robust enough to support a 300 pound person without any noticeable deflection.
• Anchored to the top of the new (higher) retaining wall using stainless steel drop-in anchors such as Hilt HDI stainless steel.

4.10.4.7 Access Hatch with Integral Fall-through Protection
The proposed access hatch with integral fall-through protection is to be installed as follows:
• In accordance with the Manufacturer's Installation Instructions.
• As shown on Drawing 10-7 (Rev 1) and Drawing 10-8 (Rev 1).
• Anchored to the top of the new (higher) retaining wall using stainless steel drop-in anchors such as Hilt HDI stainless steel.
4 Specific Requirements for Each Bid Item

4.10.4.8 Electrical
- Electrical work is to be in accordance with NFPA 70, National Electrical Code.
- Remove the electrical wiring and conduit from the scum pit all the way back to the Motor Control Center (MCC). This includes the outdoor disconnect switches and the indoor conduit (overhead).
- Remove the disconnect switches in the MCC.
- Provide proper blanking plates in the MCC.
- Properly fill the holes in the wall where the conduit passes.
- Remove the conduit mounting hardware

4.10.4.9 Painting of Metal
- Not applicable because all metal should be stainless steel or aluminum.

4.10.4.10 Identification Tags
- Not applicable.
Modifications to Scum Pits at the Primary Clarifier 3&4 Building, Photograph (Existing)

WPC 20-4, Bid Item 10, Drawing 10-1 (Rev 1)

Existing small concrete curb (on top of existing retaining wall) is to be removed.

Sluice gate is to be removed.

Scum mixer is to be removed.

Existing back cover and support brackets are to be removed and replaced with proposed (new) back cover.

Green odor control piping is to be reinstalled and connected to the proposed (new) back cover.

Electrical conduit is to be removed.

Front cover and support brackets are to be removed.

Green odor control piping is to be reinstalled and connected to the proposed (new) back cover.

Top of existing retaining wall around each primary clarifier is Elevation 632.85 feet (NAVD88).

Top of existing scum pit retaining wall is Elevation 632.14 feet (NAVD88) and is to be raised to Elevation 632.85 feet (NAVD88). This equates to 8.5 inches higher.

When complete, the top of the scum pit retaining wall should be equal to (or slightly higher than) the top of the existing retaining wall around each primary clarifier.

Existing small concrete curb (on top of existing retaining wall) is to be removed.

Top of existing scum pit retaining wall is Elevation 632.14 feet (NAVD88) and is to be raised to Elevation 632.85 feet (NAVD88). This equates to 8.5 inches higher.

When complete, the top of the scum pit retaining wall should be equal to (or slightly higher than) the top of the existing retaining wall around each primary clarifier.

See Section 4.10.2 of Technical Specifications

Drawing Not to Scale

South Scum Pit is shown.
North Scum Pit is similar but opposite hand.
Modifications to Scum Pits at the Primary Clarifier 3&4 Building, Plan View (Existing)  
WPC 20-4, Bid Item 10, Drawing 10-2 (Rev 1)

- Green odor control piping is to be reinstalled and connected to the proposed (new) back cover.
- Existing back cover and support brackets are to be removed and replaced with proposed (new) back cover.
- Green odor control piping is to be reinstalled and connected to the proposed (new) back cover.
- Electrical conduit is to be removed.
- Front cover and support brackets are to be removed.
- South Scum Pit is shown.
- North Scum Pit is similar but opposite hand.
- Sluice gate is to be removed.
- Scum mixer is to be removed.
- Top of existing scum pit retaining wall is Elevation 632.14 feet (NAVD88).
- Existing small concrete curb is to be removed.

See Section 4.10.2 of Technical Specifications
Modifications to Scum Pits at Primary Clarifier 3&4 Building, Retaining Wall, Plan View (Existing)

WPC 20-4, Bid Item 10, Drawing 10-3 (Rev 1)

Drawing Not to Scale

Existing retaining wall around scum pit elevation.

Existing small concrete curb (on top of existing retaining wall) is to be removed.

Existing concrete block wall

Existing brick veneer

South Scum Pit is shown. North Scum Pit is similar but opposite hand.

See Section 4.10.2 of Technical Specifications
Modifications to Scum Pits at Primary Clarifier 3&4 Building, Retaining Wall, Elevation View (Existing)

WPC 20-4, Bid Item 10, Drawing 10-4 (Rev 1)

Drawing Not to Scale

See Section 4.10.2 of Technical Specifications

South Scum Pit is shown. Looking North
North Scum Pit is similar but opposite hand.

Existing floor of building. Elevation 632.14 feet (NAVD88)

Existing concrete curb with concrete block and brick veneer on top

Existing concrete block wall

Existing Brick Veneer

Existing small concrete curb (on top of existing retaining wall) is to be removed.

Top of existing scum pit retaining wall
Elevation 632.14 feet (NAVD88)
Modifications to Scum Pits at Primary Clarifier 3&4 Building, Retaining Wall, Plan View (Proposed)

WPC 20-4, Bid Item 10, Drawing 10-5 (Rev 1)

Existing retaining wall around scum pit is to be modified and raised to an elevation of 632.85 feet (NAVD88). This equates to 8.5 inches higher. When complete, the top of the scum pit retaining wall should be equal to (or slightly higher) than the top of the existing retaining wall around each primary clarifier.

Proposed Vertical Dowels (typical)
- #4 deformed dowel rebar, 12 inches long, anchored 6 inches into existing concrete, spaced 12 inches center-to-center
- 14 total

Proposed Horizontal Dowels (typical)
- #4 deformed dowel rebar, 12 inches long, anchored 4 inches into existing concrete block wall, 1 horizontal dowel on each side, evenly spaced between top and bottom, 2 total

Proposed Horizontal Rebar (typical)
- #4 deformed rebar, Length as needed, Properly tied to dowels
- 1 horizontal bar on each side, evenly spaced between top and bottom, 3 total

Remove existing brick veneer (as needed) to connect new concrete to existing concrete block wall.
Replace brick veneer to properly patch wall.

Proposed Vertical Dowel Anchors

Proposed Horizontal Dowel Anchors

Proposed Horizontal Rebar Anchors

Existing Brick Veneer

Existing concrete block wall

South Scum Pit is shown.
North Scum Pit is similar but opposite hand.

See Section 4.10.4.4 of Technical Specifications
Modifications to Scum Pits at Primary Clarifier 3&4 Building, Retaining Wall, Elevation View (Proposed)

WPC 20-4, Bid Item 10, Drawing 10-6 (Rev 1)

See Section 4.10.4.4 of Technical Specifications
Green odor control piping is to be reinstalled and connected to the proposed (new) back cover.

Proposed (new) back cover, top-mounted

Green odor control piping is to be reinstalled and connected to the proposed (new) back cover.

Top of proposed (higher) scum pit retaining wall
Elevation 632.85 feet (NAVD88).

Hinge for covers on west side

Handle for covers on east side

Top-mount frame of proposed cover anchored to top of proposed (higher) retaining wall

Handles are centered near the edge of each cover

South Scum Pit is shown. North Scum Pit is similar but opposite hand.

See Sections 4.10.4.6 and 4.10.4.7 of Technical Specifications

Modifications to Scum Pits at Primary Clarifier 3&4 Building, Plan View, Covers Closed (Proposed)
WPC 20-4, Bid Item 10, Drawing 10-7 (Rev 1)
Modifications to Scum Pits at Primary Clarifier 3&4, Plan View, Covers Open, Safety Grate Closed (Proposed)

WPC 20-4, Bid Item 10, Drawing 10-8 (Rev 1)

Drawing Not to Scale

See Sections 4.10.4.6 and 4.10.4.7 of Technical Specifications

South Scum Pit is shown. North Scum Pit is similar but opposite hand.