

## ADDENDUM NO. 4

**NOTICE is hereby given to prospective Bidders** of the following information, clarifications, and modifications to the Bidding Documents. The Bidding Documents remain unchanged except for modifications specifically indicated under Modifications. Bidders must acknowledge receipt of this Addendum in the Bid Form and comply with the requirements for submission of Bids as set forth in the Bidding Documents.

### **INFORMATION**

**The answers below are provided in response to questions and comments submitted by prospective Bidders.**

1. *Specification 33 36 31-7, 2.01, B, 6 states the base slab shall be designed for hydrostatic forces assuming ground water is at final grade for the oxidation ditch. Drawing S-04-2 shows final grade at 0.00 and the finished floor elevation at 147.00. If seasonal high groundwater is at final grade above the finished floor elevation, the floor will need to be thickened to resist hydrostatic uplift. Please specify the final grade and design ground water elevation*  
Answer: Reference Dwg C-01-4 for grading plan. The final grade is approximately at Elev. 148.00 adjacent to the Oxidation Ditch Structure.
2. *Per Specification 33 36 31 Section 2.01.F, the exterior straight walls of the oxidation basin must be linear post tensioned with strand. Please confirm that post tensioning of the straight walls is required to mitigate the effects of short- and long-term shrinkage.*  
Answer: Correct, reference Specification Section 33 36 31 sub-paragraph 2.01.F.5.
3. *Specification 33 36 31-15, 2.02, J, 1a states an aluminum exterior ladder is an accessory for the Oxidation Ditch but a ladder is not shown in the drawings. Please confirm the Oxidation Ditch does not have an exterior ladder*  
Answer: No ladder required. Aluminum access stairs to be provided for Oxidation Ditch per General Structural Note #4 on Dwg S-04-1.
4. *Specification 33 36 31-16, 2.02, K, 2 states the exterior tank walls for the oxidation ditch are to be coated with two coats of Tnemec Series 156. Specification 09 90 00-23, Section K states the exterior walls are to be coated with two coats of Tnemec Series 157. Please confirm the exterior of the Oxidation Ditch are to be coated with Tnemec Series 156.*  
Answer: Provide coating in accordance with Specification Section 33 36 31-16, 2.02, K.
5. *Specification 33 36 31-16, 2.02 K states the exterior walls of the Oxidation Ditch are to be coated. Please confirm the following get exterior coatings: exterior walls of the tank full height, all interior walls with a height taller than the outer tank wall from the top down to one foot above the high-water level and concrete skirts under splash cover.*  
Answer: Provide coating in accordance with Specification Section 33 36 31-16, 2.02, K.
6. *Drawing S-04-1 Shows a 3'-0" opening on the straight wall on the southwest end of the tank. Does this opening have the same detail as Section A with an opening at the top and bottom of the wall?*

Answer: Opening to 3'-0" wide and full height of the wall.

7. *Drawing S-04-2 shows the finished floor elevation at 147.00 and the top of exterior wall at 161.00 which is 14'-0". The drawing also shows the sidewall depth to be 13'-0". Please confirm the correct height of the tank wall.*

Answer: 13'-0" is the intended wall height. TOW should be revised to EL 160.00 in-lieu of 161.00.

8. *Drawing S-04-15 shows the opening in the tank wall to the splitter box opening to be 6" from the tank floor. A minimum 18" spacing from the floor is needed to properly prestress the tank. Please confirm if it is acceptable to move this opening up 12" in order to properly prestress the tank.*

Answer: Yes, the opening to the splitter box can be located 18" of the finished floor elevation of the structure.

9. *Drawing S-04-15 shows the tank wall as one of the Splitter Box walls. The Splitter Box needs to be a separate structure from the tank and should have 1" of neoprene separating the walls. Please confirm the Splitter Box can be built as a separate structure and not tie into the tank wall.*

Answer: The splitter box can be a separate structure.

10. *Drawing M-04-1 shows bubble diffusers in the Anaerobic cells, 1st Anoxic cells and 2nd Anoxic Basin. Please provide the anchor size, depth, and minimum required floor thickness for the anchors.*

Answer: Reference details on Dwg M-04-4 for anchor requirements for the mixing system.

11. *Please confirm there are no interior coating for the Oxidation Ditch.*

Answer: No interior coating required for the Oxidation Ditch.

12. *Please confirm this project is subject to American Iron and Steel and MBE/WBE requirements.*

Answer: Project is subject to AIS requirements. Project is not subject to MBE/WBE requirements.

13. *Please confirm this project is not subject to Davis-Bacon wage requirements.*

Answer: Davis-Bacon not required for this project.

14. *There is no specification on the sprinkler heads. Why do you need a vendor to install the sprinkler heads? Can the GC just install the sprinkler heads?*

Answer: There is no specification for Sprinkler heads because they will be replaced in kind. Irrigation improvements work to be performed by the specialized irrigation vendor for quality assurance.

15. *Section 46 33 33 - How much backpressure there is between the VeloBlend and the clarifier?*

Answer: Sludge to be pumped to dewatering boxes via the Sludge Transfer Pumps P-1101 & P-1102 as specified in Specification Section 43 21 36, which lists a design discharge pressure of 60psi per Article 2.03.

16. *Can the waste activated sludge removal be bid per wet ton? This is how these companies typically price this scope. In similar projects recently, the engineer has given a quantity of wet tons to be removed in its own line item and we provided a unit price.*

Answer: Item to be included as part of lump sum pricing for item #4. The typically concentration of WAS is 0.6% solids but may vary depending on if the sludge has settled in the digester or equalization basins.

17. *For the disposal of the material in the drying bed, can we haul it off to the local landfill? If not, does the City of Starke have a preferred location for disposal?*

Answer: Non-liquid waste can be disposed of at the local landfill. "Liquid Waste" means any waste material that is determined to contain free liquids as defined by Method 9095 (Paint Filter Liquids Test), as described by "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA publication no SW-846). If the waste qualifies as "liquid waste" an alternate disposal method/location is required.

18. *40 67 05 2.01C.1.b. States: "Provide enclosure with all components required for controlling the operation of the Aeration & Oxidation system including starting, stopping, running, and protecting the motors as well as features required by the skid manufacturer for warranty of the mixers and surface aerators. Items such as motor circuit protectors, thermal overload detection or seal failure detection shall be included". The paragraph seems to indicate this equipment should be in the control panel, but the drawings seem to indicate that this equipment is housed in MCC 2. Please confirm whether this equipment should be provided by Ovivo.*

Answer: The EC will be providing the MCC with motor controls for the surface aerators and other motors at the Oxidation Ditch. The Oxidation Ditch vendor just needs to provide starting and stopping of each motor relevant to their system via I/O (run command, run status, fault status, speed control, speed feedback). Specification Section 40 67 05 has been revised accordingly.

19. *Section 46 53 61 2.04 B 1 a -Oxidation Ditch Manufacturer is not responsible for chemical feed evaluations cannot guarantee this dosing rate as the need for carbon will be dependent on influent loading conditions within the specified range.*

Answer: Specification 46 53 61 – Oxidation Ditch Equipment has been revised, please see attached.

20. *Section 46 53 61 2.04 B 2 - Metal salts are required to guarantee a TP  $\leq$  1. Oxidation Ditch Manufacturer has no control over the influent BOD or TP, both of which are key to the success of bioP. Oxidation Ditch Manufacturer does not guarantee effluent TP without metal salt option. We recommend the removal of this statement. This limit shall be met without the addition of metal salt to the oxidation ditch.*

Answer: Specification 46 53 61 – Oxidation Ditch Equipment has been revised, please see attached.

21. *Please clarify if the pump column is to be threaded or flanged for the vertical turbine pumps specified in Specification Section 43 21 11 - Vertical Turbine Pumps.*

Answer: Reference Specification Section 43 21 11 Paragraph 2.04.D.

22. *Please clarify if the packing/seal requirements for the vertical turbine pumps specified in Specification Section 43 21 11 - Vertical Turbine Pumps.*

Answer: Reference Specification Section 43 21 11 Paragraph 2.04.F.

**MODIFICATIONS**

**NOTICE is hereby given that the Bidding Documents have been modified as follows.**

Replacement pages are issued herewith, have an Issue Date of August 22, 2022, contain reference to “ADDENDUM NO. 4” in the footer, and text changes identified by double-underline for additions and ~~Strikeout~~ for deletions.

| Sections with Revisions                   | Replacement pages (with text changes) | Provided for purposes of double-sided printing only (reverse side of page with no changes) or revised page endings |
|---|---------------------------------------|--|
| 46 53 61 – Oxidation Ditch Equipment      | 46 53 61-11<br>46 53 61-28            | 46 53 61-12<br>46 53 61-27   |
| 40 67 05 – Control Panels and Instruments | 40 67 05-7                            | 40 67 05-8   |

**Drawings are hereby modified as follows.** Replacement pages/sheets are not being issued.

Drawing modifications are identified in the following table and text changes are identified by double-underline for additions and ~~strikeout~~ for deletions.

| Drawing No./ Sheet No. | Modifications  |
|------------------------|--|
| S-04-2                 | Indicate <u>EL. FIN. GR. = 147.00 in-lieu of 0.00.</u> |
| S-04-3                 | Indicate <u>TOW. = 160.00 in-lieu of TOW 161.00.</u>   |
| S-04-5                 | Indicate <u>TOW. = 160.00 in-lieu of TOW 161.00.</u>   |
| S-04-8                 | Indicate <u>TOW. = 160.00 in-lieu of TOW 161.00.</u>   |
| S-04-11                | Indicate <u>TOW. = 160.00 in-lieu of TOW 161.00.</u>   |
| S-04-13                | Indicate <u>TOW. = 160.00 in-lieu of TOW 161.00.</u>   |
| S-04-14                | Indicate <u>TOW. = 160.00 in-lieu of TOW 161.00.</u>   |

This Addendum and items listed above are provided to Bidders in Portable Document Format (.PDF) as indicated in the email notice and is also available on the Project’s Procore website: [https://app.procore.com/2090119/project/documents?folder\\_id=564918309](https://app.procore.com/2090119/project/documents?folder_id=564918309).

0232639.00  
Issue Date: August 22, 2022

Wastewater Treatment Facility Upgrades  
City of Starke, FL

**Prepared and Issued by Woodard & Curran (Engineer) on behalf of Owner:**

City of Starke, Florida  
209 N. Thompson St.  
Starke, FL 32091

- C. Oxidation Ditch Control Panel: provided by manufacturer of equipment specified in Section 46 53 61.
1. Enclosure
    - a. Provide a single NEMA 4X ~~metallic-painted-14-gauge minimum type 304 stainless-~~steel gasketed enclosure, with lockable handle operated three-point latching door mechanism.
    - b. ~~Provide enclosure with components required for controlling the operation of the Aeration & Oxidation system including starting, stopping and speed controls of the motors via discrete and analog I/O as well as features required by the skid manufacturer for warranty of the mixers and surface aerators. Items such as motor circuit protectors, contactors, VFDs and thermal overload detection shall be by others. Provide enclosure with all components required for controlling the operation of the Aeration & Oxidation system including starting, stopping, running, and protecting the motors as well as features required by the skid manufacturer for warranty of the mixers and surface aerators. Items such as motor circuit protectors, thermal overload detection or seal failure detection shall be included.~~
    - c. Provide enclosure suitable for bottom conduit entry.
    - d. Provide space for network cable conduit entry.
  2. Alarms
    - a. Control panel shall send alarm notifications to the SCADA system via TCP/IP communication protocols on CAT6 rated Ethernet copper and fiber optic cable.
    - b. Provide the following alarms:
      - 1) Control Panel Loss of Power
      - 2) Surface Aerator #1 NOT in REMOTE
      - 3) Surface Aerator #1 VFD FAULT
      - 4) Surface Aerator #1 HIGH Motor Temperature
      - 5) Surface Aerator #1 LOW Oil Pressure
      - 6) Surface Aerator #2 NOT in REMOTE
      - 7) Surface Aerator #2 VFD FAULT
      - 8) Surface Aerator #2 HIGH Motor Temperature

- 9) Surface Aerator #2 LOW Oil Pressure
- 10) Surface Aerator #3 NOT in REMOTE
- 11) Surface Aerator #3 VFD FAULT
- 12) Surface Aerator #3 HIGH Motor Temperature
- 13) Surface Aerator #3 LOW Oil Pressure
- 14) Recycle Flow Control Gate NOT in REMOTE
- 15) Inside Loop LOW DO Level
- 16) Outside Loop LOW DO Level
- 17) Re-aeration Zone HIGH Water Level
- 18) Re-aeration Zone Wier Gate NOT in REMOTE
- 19) Re-aeration Blower #1 NOT in REMOTE
- 20) Re-aeration Blower #1 VFD FAULT
- 21) Re-aeration Blower #1 HIGH Motor Temperature
- 22) Re-aeration Blower #2 NOT in REMOTE
- 23) Re-aeration Blower #2 VFD FAULT
- 24) Re-aeration Blower #2 HIGH Motor Temperature
- 25) Mixing System Air Compressor #1 GENERAL FAULT
- 26) Mixing System Air Compressor #1 WARNING
- 27) Mixing System Air Compressor #2 GENERAL FAULT
- 28) Mixing System Air Compressor #2 WARNING
- 29) Mixing System Valve Module LOW PRESSURE

D. Disk Filter Control Panel

1. Provided by manufacturer of equipment specified in Section 46 61 41.
2. Enclosure
3. Existing control panel enclosures to be re-used in accordance with Section 46 61 41. Alarms

2. Influent Wastewater Characteristics:

| OXIDATION DITCH INFLUENT CHARACTERISTICS |       |       |     |    |
|--|-------|-------|-----|----|
|  | BOD   | TSS   | TKN | TP |
| Average Wastewater Concentrations (mg/L) | 100   | 100   | 26  | 3  |
| Current Average Load (lbs/day)           | 540   | 540   | 140 | 16 |
| Design Average Load (lb/day)             | 1,040 | 1,040 | 270 | 31 |
| Design Peak Month Load (lbs/day)         | 2,350 | 3,130 | 470 | 63 |
| Design Peak Day (lbs/day)                | 3,130 | 5,096 | 810 | 93 |

**2.04 PERFORMANCE REQUIREMENTS**

- A. Final effluent limits: oxidation ditch shall be designed to work with the secondary clarifiers and effluent filters to achieve the following final effluent limits at the plant’s effluent sampler under the full range of influent conditions specified above:

| FINAL EFFLUENT LIMITS (ANNUAL AVERAGE) |        |
|--|--------|
| BOD Effluent Limit                     | 5 mg/L |
| TSS Effluent Limit                     | 5 mg/L |
| Total Nitrogen                         | 3 mg/L |
| Total Phosphorus                       | 1 mg/L |

- B. Oxidation ditch effluent limits: oxidation ditch shall be designed to meet the following limits in composite samples taken from the inlet chamber of the secondary clarifier distribution box. Reference Article 3.06 in this Section for Process Performance Testing Requirements.

1. Total inorganic nitrogen (TIN) concentration, maximum average: 2 mg/L. TIN is defined as the sum of ammonia, nitrite and nitrate.

a. The addition of supplemental non-methanol carbon in doses up to 15 gallons per day at the specified current average influent TKN loading may be used to achieve this limit.

a-b. Supplemental carbon source shall be a readily available commercial non-methanol carbon source such as one of the MicroC products (EOSi, Pocasset, MA) or similar, proposed by the Manufacturer.

2. Ortho-phosphorous (OP) concentration, maximum average: 1 mg/L. This limit shall be met without the addition of metal salt to the oxidation ditch.



3. 5-day carbonaceous biological oxygen demand (CBOD5) concentration, maximum average: 5 mg/L.

## 2.05 PROCESS DESIGN REQUIREMENTS

- A. Overall process design requirements for the oxidation ditch are as follows:

| <b>OXIDATION DITCH PROCESS DESIGN REQUIREMENTS</b> |   |
|--|---|
| Number of Oxidate Ditch Units                      | 1   |
| Electrical Hazard Area <sup>1</sup>                | Class 1, Division 2 / Unclassified <sup>1</sup> |
| Power Supply                                       | 460V / 3 Ph / 60 Hz                             |
| Minimum Design MLSS                                | 2000 mg/L                                       |
| Minimum SRT at Design Max Month                    | 8 days  |
| Maximum Design MLSS                                | 4000 mg/L                                       |
| Maximum SRT at Current Avg. Load                   | 25 days   |
| Mechanical Surface Aerator Power                   | 40 HP   |
| Anaerobic Basin Volume, Total                      | 0.078 MG  |
| 1 <sup>st</sup> Anoxic Basin Volume, Total         | 0.190 MG  |
| Aerobic Basin Volume                               | 0.546 MG  |
| 2 <sup>nd</sup> Anoxic Basin Volume                | 0.102 MG  |
| Re-aeration Zone Volume                            | 0.026 MG  |
| Sidewater Depth                                    | See M-04 Drawing Series                         |
| Length   | See M-04 Drawing Series                         |
| Width  | See M-04 Drawing Series                         |

<sup>1</sup>Per NFPA 820 Table 5.22, Row 7, Line C. Class 1 Div 2 applies to interior of the tank, extending 18-inches above top of tank and 18-inches beyond exterior wall. Areas outside these extents will be considered unclassified. .

## 2.06 MECHANICAL SURFACE AERATORS

- A. Performance

1. The mechanical surface aerators shall be of the low speed, vertical, fixed type with a surface impeller and a submerged, radial pumping impeller (if used) and related appurtenances specified.
2. The mechanical surface aerators shall provide sufficient pumping to maintain an average aeration basin channel velocity of no less than 1.0 fps with all aerators operating at full power.
3. The surface impeller shall be capable of delivering a clean water standard oxygen transfer efficiency (SOTE) of no less than 3.6 lb. O<sub>2</sub>/HP-hr based on motor power at standard transfer conditions (20 degrees C, 1 atmosphere, zero dissolved oxygen).
4. The aerators shall be capable of maintaining an average DO range 1-2 mg/L under peak day loading.

2. Owner will be responsible for all operation and maintenance of the oxidation ditch in accordance with approved manufacturer O&M Manual and standard industry practices:
  - a. Including providing chemicals, sampling, and analysis.
  - b. Excluding items that are the responsibility of the Contractor such as punch list and warranty items.
3. Performance testing may begin as specified below.

### 3.06 PROCESS PERFORMANCE TESTING

- A. Owner's routine performance monitoring shall include bi-weekly analysis of oxidation ditch mixed liquor samples (MLSS) for TSS
- B. Performance test period will begin when the MLSS concentration reaches the target startup concentration (2,000 mg/L). Owner will control wasting to maintain MLSS concentration with 20% of the target MLSS concentration (1,600 to 2,400 mg/L) during performance test period.
- C. Owner will take samples of oxidation ditch effluent for performance testing. Grab Samples will be from taken from the influent side of the secondary clarifier splitter box and the composte samples Effluent Sampler. Owner shall promptly report results of all analyses to the Engineer, who will compile and promptly communicate them to the Contractor and manufacturer.
- D. During performance test period, Owner will take three grab samples per week of oxidation ditch effluent and three plant effluent composite samples. Unless otherwise indicated, samples will be analyzed by a third-party laboratory (Laboratory) Certified by the State of Florida Department of Environmental Protection, using industry-standard protocols as described in Standard Methods. Owner will filter, preserve and ship samples promptly in accordance with the Specification, Standard Methods and Laboratory requirements.
- E. The manufacturer may conduct its own sampling and analysis at its own expense.
- F. Analysis listed as filtered below shall be performed on samples filtered through a 0.45 micron filter.
- G. ~~S~~Composite samples will be analyzed for the following parameters:
  1. Sludge volume index (analysis by Owner on Site).
  2. Filtered Orthophosphate

3. Filtered TKN, Ammonia, Nitrate, and Nitrite
  4. Filtered 5-Day Carbonaceous BOD
- H. Performance testing shall last for a minimum of 30 days. Performance Testing will be complete when the 30-day rolling statistics for TN, OP, and CBOD5 meet the limits specified.
- I. If sample results indicate performance issues, manufacturer shall advise Owner and Engineer of any operational changes required to meet performance requirements. Provide any physical modifications required including modifications to equipment, ~~tankage~~, controls, and instruments.
- J. In the unlikely event of influent conditions that prevent enhanced biological phosphorous removal (such as toxicity or insufficient VFA), effluent phosphorous requirements may be met by metal salt addition until influent conditions are favorable. Owner shall conduct influent sampling as required for troubleshooting as determined by the Manufacturer and Engineer.

### 3.07 AEROBIC BASIN MIXING PERFORMANCE TESTING

- A. All mixing system components for the aerobic basin shall be field tested with the respective aerobic zone full to the maximum water surface elevation.
- B. Operate the mixing system at the maximum water surface elevation in the basins for a continuous period of not less than 72 hours. Correct and resolve operating problems and deficiencies, determined as a result of the tests.
- C. After testing is complete, field mixing performance testing of the installed air mixing system shall be performed by the manufacturer as described below.
  1. Mixing performance testing shall be conducted in the location of each of the three surface aerators.
  2. All personnel and equipment necessary to conduct and supervise testing shall be provided by the mixer manufacturer with Contractor's assistance. Engineer and Owner shall be notified of the test to witness at their option and expense.
  3. Prior to performing the tests, the basin which will be tested must have been in normal operating mode for at least two days with TSS in typical operating ranges of 1,500 – 5,000 mg/L.
  4. The ~~compressed gas~~-mixing system manufacturer shall conduct