ADDENDUM NO. 1
FOR
211 WTP Gravity Sand Filter Demolition and Replacement
Brunswick County, North Carolina

Date: **February 12, 2020**

TO: **Prospective Bidders and Others Concerned**

The Contract documents for the subject project shall be supplemented and/or amended as follows:

1. **Amend bid opening time to 3:00 on February 17, 2020**
2. Add a 3'x 3' galvanized steel platform to the top Tank 5. Platform to meet all applicable Federal, State and local regulations.
3. Add and incorporate Approved Products List Revision 1.08 Approved 06/03/19 to the Supplementary General Conditions.

Contractor Questions/Clarifications

1. How many wall sections per tank to be provided?

   Per Evoqua erection procedure the side sheets are shipped maximum of 12 sections. Base, strainer and head plates maximum of 5 sections each.

2. Where can you dispose of existing sand media?

   Sand media is currently disposed of in the County Landfill, Contractor to contact Brunswick County Landfill to confirm disposal and price.

3. What material will be used to construct the catwalk between the filter tanks?

   The catwalk and all appurtenances shall be galvanized steel and Contractor shall submit shop drawings showing all applicable Federal, State and Local standards are being met.

4. Do ladder cages have to be provided?

   OSHA standards 29 CFR 1910.28 new ladders taller than 24' require fall protection. The current ladders are 17' tall. Contractor shall meet all applicable Federal, State and Local standards.

5. Is the tank fabrication considered confined space entry?

   The contract shall confirm and work within all OSHA requirements regarding confined space entry.

6. Is the County supplying the paint for the Tank?

   No, the Contractor shall supply paint meeting the specifications.

APPROVED PRODUCTS LIST
Brunswick County, NC

ITEM	PREFERRED BRANDS	PERFORMANCE STANDARD	JUSTIFICATION
Submersible Solids-handling Sewer Pumps	• Myers • Barnes • Flygt • Fairbanks-Morse • ABS	Compatibility with control systems and mechanical systems.	Cost savings and improved process. Limits inventory, limits required staff training, facilitates repairs, and ensures compatibility with rail systems and control systems.
Grinder Pump Station Packages	• Barnes • Myers • Liberty	Compatibility with control systems, mechanical systems, and system pressures.	Cost savings and improved process. Limits inventory, limits required staff training, facilitates repairs, and ensures compatibility with rail systems and control systems.
Air Release Valves for Sewer	• ARI D-025 Combination Air Release/ Vacuum Valve	Compatible with existing piping layout and space constraints.	Cost savings and improved process. Limits inventory, limits required staff training, and facilitates repairs.
High Service Water System Pumps	• Aurora	Same-day shipping from within United States, compatibility with existing control systems, mechanical systems, system pressures, and space constraints.	Cost savings and improved process. Reduces down-time for critical system components, limits inventory, limits required staff training, facilitates repairs, and facilitates pump interchangeability.
Fire Hydrants	• Mueller "Centurion" • American Darling "MK-73" • Clow "Medallion"	Compatible with existing piping layout and space constraints. Immediately repairable with stocked inventory.	Cost savings and improved process. Limits inventory, limits required staff training, and facilitates repairs.
Water Meters (potable water)	• Sensus • Elster	Compatible with billing software, Sensus RadioRead AMI software, and Sensus Protocol. Compatible with	Cost savings and improved process. Limits inventory, limits required staff training, facilitates repairs, and

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		existing piping layout and space constraints.	ensures compatibility with Sensus AMI system.
Meter Boxes (1" meter & Smaller)	• Ford • McDonald	Compatible with existing piping layout and space constraints (Sensus Remotely Read Meters).	Cost savings and improved process. Limits inventory and facilitates repairs.
Isolation Valves (type as required for application)	• Mueller • American Flow Control • Clow • M & H • Spears -True Union	Compatible with existing piping layout and space constraints. Immediately repairable with stocked inventory.	Cost savings and improved process. Limits inventory, limits required staff training, and facilitates repairs.
Programmable Logic Controllers (PLC)	• Square D Schneider Electric, M340 series • Square D Schneider Electric Momentum series	The PLC's shall communicate over Modbus TCP/IP (Ethernet) network, programmed in Function Block (no ladder logic accepted), programmed in Unity Pro XL v12.0 or higher.	Compatibility with electrical and control wiring and spacing within existing enclosures. Limit Purchase of Programming Software. Limit Staff Training. System compatibility.
Operator Interface Terminal (Touchscreen)	• C-more HMI EA7-T8CL-R, EA7-T10CL-R, EA7-T12CL-R, EA7-T15CL-R	Shall have color touch screen with at least 640 x 480 resolution and Modbus TCP/IP Ethernet to communicate with Brunswick County existing PLC's.	Compatibility with component sizes. Limit Purchase of Programming Software. Limits staff training. System compatibility. Cost savings due to minimizing inventory.
Variable Frequency Drives (<75 HP) _____ Variable Frequency Drives (75 HP & larger)	• Square D Schneider Electric, Process Drive series • ABB • Siemens _____ • Square D Schneider Electric, Process Drive series	The graphic display terminal shall provide 8 lines of 240 by 160 pixels (in English) to control, adjust, and configure AC Drive. All electrical values, bar charts, configuration parameters, I/O assignments, application and activity functions, faults, local control, adjustment storage, self-test, and diagnostics shall be accessible through the terminal	Compatibility with size of existing MCC enclosures and existing electrical and control wiring. Ease of replacement and limited downtime. Limits staff training. Cost savings due to minimizing inventory.

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	• ABB	interface. Complete word parameter display messaging, conformal coating, user programmable I/O. The VFD shall be able to be connected to Ethernet and other networks, with connection to communication bus as an option. Logic input assignments shall consist of forward, reverse, jog, plus/minus speed (2 inputs required), set point memory, preset speeds (up to 8 inputs), auto/manual control, controlled stop, terminal or keypad control, output contactor (2 inputs required), motor switching, and fault reset. There shall be at least one software assignable analog output with interference filtering. The analog outputs can be selected and assigned in the software. The analog output assignments shall be proportional to the following motor characteristics: frequency, current, power torque, voltage, and thermal state. The AC Drive shall be designed to operate in an ambient temperature of at least -10 to + 40 °C (+14 to 104 °F). Type 3R shall be designed to operate from -10 to +50 °C (+14 to 122 °F).	
Solid State reduced voltage starters	• Square D Schneider Electric Altistart 22 and 48 series • ABB • Siemens	The soft starter shall be able to be connected to Ethernet and other networks, with connection to communication bus as an option. Conformal coating, user programmable I/O. Microprocessor shall	Compatibility with size of existing MCC enclosures and existing electrical and control wiring. Ease of replacement and limited downtime. Limits staff

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		control the operation of the shorting contactor. The shorting contactor shall close, shorting the SCRs after the acceleration ramp is compete and motor current is below 130% of motor FLA, and open on a stop command to allow a deceleration ramp. Overload protection integral to the soft starter shall continue to protect the motor when shorting is engaged. The shorting contactor can be contained within the soft starter frame. The soft start shall be designed to operate in an ambient temperature: - UL Type 1 and Type 12 at 14 F to 104 F (-10 C to 40 C); - UL Type 1, Type 12, and Type 3R at 14 F to 122 F (-10 C to 50 C).	training. Cost savings due to minimizing inventory.
MCC, NEMA starters, Panel boards and Switch boards, Heavy Duty rated disconnects.	• Square D Schneider Electric	MCC: Square D MCC series 6 or newer will ensure compatibility with MCC bucket and motor starter components throughout the Utility system. Motor starters: Shall be Square D - Class 8536 Type S. Coil operating voltage: 120 volts, 60 Hz. Contact inspection and replacement shall be possible without disturbing line or load wiring. Overload relay control circuit contact shall be replaceable. Thermal units shall be required for starter to operate. Solid State: Trip current rating will be established by selection of overload relay and shall be adjustable (3 to 1 current	Compatibility with existing MCC's, panel boards, disconnects, switchboards and starters throughout County. Ease of replacement, compatible sizing and wiring compatibility on existing equipment. Limits staff training. Cost savings due to minimizing inventory.

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		range). The overload shall be self-powered, provide phase loss and phase unbalance protection, have a permanent tamper guard, and be ambient insensitive. It will also be available in Trip Class 10 or 20 and have a mechanical test function. Panel boards and Switch boards: Square D type: Power Pact P- and R-frame (100-1200A), NF, NQ [or approved equal]. Circuit breaker trip system shall be a MICROLOGIC electronic trip unit. All trip units shall be removable to allow for field upgrades. Trip Units shall incorporate "True RMS Sensing" and shall have LED long-time pickup indications. MICROLOGIC trip unit functions shall consist of adjustable long-time pickup and delay, [optional short-time pickup and delay], instantaneous [optional neutral protection and optional ground-fault pickup and delay]. Trip units shall be capable of communicating on MODBUS ® TCP/IP networks without software interfaces (black boxes).] Disconnect switches: Square D, Heavy duty type, HP rated. Enclosure: ANSI/NEMA ICS 6, Type [1] [3R] [4] [4X] [12] [ ], [as indicated] [as required to meet conditions of installation].	

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Flow meters (Ultrasonic, approved applications only)	• GE DF868 Dynasonics Ultra TFX	Ethernet network capable, transit time flow meter with keypad, 4-20mA output and 10/100 base-T (Ethernet/IP), 110VAC- 60Hz; Submersible transducer set for use with cable length (50' or 100' suggested).	Compatibility with existing flow meters with size and wiring. Limits staff training. Cost savings due to minimizing inventory.
Flow meters (Traditional-Magnetic, full pipe water & wastewater)	• Krohne • Siemens	Submergence IP68 rated. Nema 4X enclosure, UV resistant digital display, 120V 60Hz line power, 4-20mA output, relay and pulse outputs. HART communication protocol	Compatibility with electrical and control wiring and component spacing. Limits staff training. Cost savings due to minimizing inventory.
Flow meters (Magnetic, partially filled pipe wastewater)	• Krohne Tidalflux	Submergence IP68 rated with stainless steel housing on the IP68. Nema 4X enclosure, UV resistant digital display, 120V, 60Hz, line power, 4-20mA output, IFC300 PF with modular I/O, (2) analog outputs – one for flow and one for level. HART communication protocol	Compatibility with electrical and control wiring and component spacing. Limits staff training. Necessary to accurately read partially filled pipes. Cost savings due to minimizing inventory.
Flow transmitter (wastewater flumes)	• Sitrans Siemens LUT440	Flow transmitter shall be capable of providing highly accurate open channel flow measurement. Nema 4X enclosure, UV resistant digital display, 120V 60Hz line power, 4-20mA output, relay and pulse outputs. HART communication protocol. Accuracy +-1mm within 3 meters. External temperature measurement.	Compatibility with electrical and control wiring and component spacing. Limits staff training. Cost savings due to minimizing inventory.
Dissolved oxygen analyzer	HACH SC200 controller AC, LDO Probe	HACH SC200 controller AC, LDO Probe with 10M cable, sensor cap including 3 calibration bags, LDO Pole mount kit 1 ½" PVC SCH 80, DO float, 45-degree elbow PVC SCH 80.	Compatibility with electrical and control wiring and component spacing. Limits staff training. Cost savings

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		Capable of monitoring an additional sensor input to controller. 2- Isolated 4-20mA outputs shall be provided for two measured processes.	due to minimizing inventory.
Automatic Transfer Switch (Open transition)	• ASCO 300 series including options 11BE,14AA, 14BA, & 18RX • Cummins Power Command OTPC	Automatic transfer switches shall include 3 phase sensing, user programmable exercise timer, user programmable transfer delay time, user programmable return from utility time, user programmable engine start time. The automatic transfer switch shall include dry contacts for remote monitoring of Utility voltage and of the switch position (emergency and normal). Outside applications require a stainless steel Nema 4x rated enclosure. Indoor applications are required to be Nema 12 rated enclosure. Automatic transfer switch shall include a 2-wire start contact for generator control.	Compatibility with electrical and control wiring and component spacing. Limits staff training. Low cost of spare parts. Cost savings due to minimizing inventory.
Automatic Transfer Switch (Closed transition)	• ASCO 4000/ 7000 series	Automatic transfer switches shall include 3 phase sensing, user programmable exercise timer, user programmable transfer delay time, user programmable return from utility time, user programmable engine start time. The automatic transfer switch shall include dry contacts for remote monitoring of Utility voltage and of the switch position (emergency and normal). Outside applications require a stainless steel Nema 4x rated enclosure. Indoor applications are	Compatibility with electrical and control wiring and component spacing. Limits staff training. Low cost of spare parts.

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		required to be Nema 12 rated enclosure. Automatic transfer switch shall include a 2-wire start contact for generator control.	
Ultrasonic Level Transmitter	• Siemens LUT 400 series	NEMA 4X enclosure, 100-230 VAC, 50/60 Hz., backlit multi-field LCD display, two (2) discrete inputs, one (1) 4-20 mA input, six (6) SPDT relays, two (2) isolated 4-20mA analog output, and built-in Modbus RTU via RS-485, with quick-start manual and complete manuals on CD-ROM. Siemens XPS series transducer.	Compatibility with electrical and control wiring and component spacing. Limits staff training. Cost savings due to minimizing inventory.
Submersible level Transducer (Sewer)	• Dwyer PBLT-2	High-quality, designed for wastewater applications, 316-SS construction for excellent chemical compatibility. Large-diameter, 316-SS diaphragm seal is non-clogging and resists damage from floating solids. Unit must measure the height of liquid above the position in the tank referenced to atmospheric pressure—applications including wastewater, slurries, sludge pits, storage tanks and reservoirs. Must incorporate lightning and surge protection. A ventilation tube in the cable automatically compensates for changes in atmospheric pressure above the tank. A maintenance-free filter protects the vent, so particulates or water cannot enter the transmitter. Transmitter must have a 1/2" NPT(M) conduit connection. Transmitter wetted materials: 316 SS, 316L SS, Buna-N	Compatibility with electrical and control wiring and component spacing. Short lead time on reorder. Cost savings due to minimizing inventory.

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		Cable wetted materials: polyurethane. Accuracy: ±0.25% of full scale. Power: 13 to 30 VDC. Output: 4-20 mA, 2-wire. Cable length ordered specific to site, typically 100ft minimum. No spices allowed from transducer to PLC)	
Pressure Transmitter (sewer)	• WIKA IS-20 with diaphragm seal; Part # 52358038	WIKA model IS-20, Range: 0 – 200psi, Output 4 – 20mA, 2-wire supply, 10-30 VCD, pressure connection: G1/2B flush with original; electrical connection: vented cable NEMA 6, IP68, zero span, cable length 100', include diaphragm seal Type L990.36, (½) inch NPT connections	Compatibility with electrical and control wiring and component spacing. Short lead time on reorder. Cost savings due to minimizing inventory.
Pressure Transmitter (system pressure water tanks only)	• WIKA	WIKA S-10 pressure transmitter. Part # 50360213. Range 0-200psi, 4-20mA output, 10-30VDC. Body housing shall be 316 Stainless Steel including a ½ NPT process connection.	Compatibility with electrical and control wiring and component spacing. Short lead time on reorder. Cost savings due to minimizing inventory.
Pressure Transmitter (potable water booster pumping stations, etc.)	• Rosemount Smart 3051 series • Siemens Sitrans (Smart)	Transmitters capable of reading and connecting to various processes (including but not limited to: temperature, water, sewer, sludge etc.) Adjustable backlit digital display, 15-36VDC powered, 4-20mA output, aluminum enclosure, stainless steel process connection, HART communication.	Compatibility with electrical and control wiring and component spacing. Limits staff training. Cost savings due to minimizing inventory.
Diesel Generator	• Cummins (ONAN) • Caterpillar • Detroit MTU)	Generator Enclosure must be constructed of 1/8"gauge marine grade aluminum. The enclosure sound rating shall not exceed 75 dBa at 25 feet.	Compatibility with electrical and control wiring and component spacing. Limits staff training. Local

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		Enclosure hardware and fasteners shall be made of 304 Stainless Steel. The generator alternator shall have the PMG excitation option included and shall be a 4-pole revolving field type with 12 reconnectable leads. The generator shall provide a dry contact for remote monitoring of the "engine running" status. The generator fuel base tank shall be sized to meet a minimum of 48 hour run time at 100% load. The generator controller shall be a digital type including indication status of all available alarms and conditions and shall have the ability to communicate over Ethernet TCP/IP (optional).	repair/service and stock availability.
Batteries	• AGM type	The generator battery shall be of the absorbed glass mat (AGM) type and shall have a CCA that meets the engine manufactures requirements.	Stock availability and reliability. Cost of ownership reduced with fewer callouts and failures. Longer life batteries than traditional batteries.
Radios	• MDS iNET-II 900	MDS Radio shall be high speed capable of 1Mbps and have a Range of at least 30 miles line of sight. Shall have Ethernet and Serial interfaces to connect to serial devices and the County Existing IP Network.	Compatibility with electrical and control wiring and component spacing. Proven in high temperature environments. Limits purchase of programming software. Limits staff training. Cost savings due to minimizing inventory.
Plug Valves	• Dezurik • Milliken	Compatible with existing piping layout and space constraints.	Cost savings and improved process. Limits inventory, limits

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		Immediately repairable with stocked inventory.	staff training, and facilitates repairs.
Altitude Control Valves	• Bermad • Ross • Cal-Val	Compatible with existing piping layout and space constraints. Immediately repairable with stocked inventory.	Cost savings and improved process. Limits inventory, limits required staff training, and facilitates repairs
Oxidation Ditch Treatment Process (Biodenipho)	• Kruger/Veolia	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing process, limits required staff training due to familiarity with existing equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.
Secondary Clarifiers (wastewater)	• Clear Stream Environmental, Inc. as provided by Kruger/Veolia	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment and existing treatment process, limits required staff training. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.

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Tertiary Filters	• Kruger/Veolia	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment and existing treatment process, limits required staff training. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.
U.V. Disinfection System	• Trojan/U.V. 3000+	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment and existing treatment process, limits required staff training. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.

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Rotary Drum Thickening System	• KD Maskinfabrik A/S as provided by Kruger/Veolia	Standardization and compatibility with existing process, control systems, and mechanical systems.	Critical to performance of sludge digestion system downstream (FUCHS ATAD). Unit responsibility integrated with that of sludge digestion system. Limits required staff training due to familiarity with equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.
Post-ATAD Holding/Aeration System	• FUCHS Enprotec GmbH as provided by Kruger/Veolia	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment, limits required staff training due to familiarity with equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.

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Valve Actuator	• Beck • EIM/Bettis • Auma	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment, limits required staff training due to familiarity with equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support.
Return Activated Sludge (RAS), Waste Activated Sludge (WAS) Pumps	• Cornell • Hydromatic • Layne	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment, limits required staff training due to familiarity with equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support.
Autothermal Thermophilic Aerobic Digestion (ATAD) Sludge Digestion System	• FUCHS as provided by Kruger/Veolia	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment, limits required staff training due to familiarity with equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a

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			single point of contact/responsibility for equipment/warranty support.
Flocculating Clarifiers	• SuperPulsators® by Suez	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment, limits required staff training due to familiarity with equipment and process. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.
Gravity Filters with Central Regulating Unit	• Greenleaf® by Suez	Standardization and compatibility with existing process, control systems, and mechanical systems.	Compatibility with existing equipment, limits required staff training due to familiarity with equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.

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Chemical Metering Pumps (Diaphragm Type)	• Dia-series by Neptune	Standardization and compatibility with existing process, control systems, and mechanical systems	Compatibility with existing equipment, limits required staff training due to familiarity with equipment and process. Reduces needed inventory for R&M. Allows for consistency in treatment, performance and technical/maintenance support. Provides for a single point of contact/responsibility for equipment/warranty support.
Vertical Turbine Pumps (backwash feed, LPRO feed)	• Aurora • Fairbanks • Flowserve	Compatibility with existing control systems, mechanical systems, system pressures, and space constraints.	Provides consistent and reliable performance in critical treatment processes.