

## EXHIBIT 4

### RECYCLED WATER PUMP STATION

#### Scope of Work

##### **Background**

The TTDF Phase 1 project that is currently under construction uses Membrane Bioreactor (MBR) and ultraviolet (UV) disinfection process for producing high quality recycled water that meets Title 22 requirements for unrestricted reuse. The treated water will be stored in an on-site recycled water storage reservoir before pumping to off-site recycled water users through the RWPS.

Under the original contract document, Parsons had only provided a concrete slab; pump cans; and some provisions for electrical and instrumentation and controls. Recently the City requested that Parsons complete the design of the RWPS. The original intent featured five (5) pumps, each with 3,500 gpm @ 100 feet TDH capacity. The City has since requested RWPS to feature two (2) pumps, each with 2,000 gpm @ 175 feet TDH and two (2) pumps, each with 1,000 gpm @ 175 feet TDH to meet TTDF's Phase 1 demands instead. To meet future 25 mgd expansion demands, provisions will be made to accommodate five (5) pumps, each with 3,500 gpm @ 175 feet TDH. Pressure surge analyses will also be performed to identify required surge protection measures with the expectancy that a surge tank will be needed.

The City is seeking for a scope of work, level of effort, and fee proposal from Parsons to prepare a bid package. Parsons anticipates the design process to be completed in three months, with the commissioning of the RWPS to be summer 2016. The City has also requested for Parsons to provide a preliminary construction cost estimate for RWPS, which is included as Attachment 3 to his proposal.

##### **BASIS FOR SCOPE**

- (1) Install 2 pumps with VFD, each 2,000 gpm @ 175' TDH.
- (2) Install 2 pumps with VFD, each 1,000 gpm @175' TDH.
- (3) Discharge of each pump shall be sized for 3,500 gpm.
- (4) The discharge header should be connected to the point of connection provided on the 54" line downstream of the RWPS. The design of the 54" pipeline is by others. (BCF). The point of connection is shown on BCF's drawing 10-E-1957-J5499.
- (5) Provisions will be made for sodium hypochlorite storage and feed facilities, which will be constructed at a later date. This provision is required for maintaining residual chlorine. An injection tap will be provided on the 54" inch effluent line as a part of this project.
- (6) Signal for control of pumps will come from plant PLC.
- (7) Perform pressure surge analysis and install surge tank as required.
- (8) Assume no analysis of surges associated with the operation of any downstream booster pump stations and the opening and closing of customer demand valves will be performed.
- (9) Pressure instrument on the RW distribution system to be provided, installed, and programmed in PLC-10 by the City.

- (10) VFDs for RW pumps to be interfaced via Ethernet/IP with PLC-10. Latest submittal on PLC-10 confirms 4 spare RJ45 ports on the Ethernet switch.
- (11) Magnetic flowmeters will be provided at the discharge of each RW pump. Spare analog I/O is available in PLC-10.
- (12) PLC-10 has sufficient spare I/O to accommodate all additional I/O associated with the new hydraulic valves (2 Discrete inputs, 1 output/valve).
- (13) Control of the RW pumps will be based on pressure setpoint. All PLC/SCADA programming associated with the operation of the RW pumps is by the City.
- (14) PLC based controls for the surge tank system. Communication with PLC-10 via Ethernet/IP over new fiber optic cable. New fiber optic patch panel will be required in PLC-10 (space available). No additional I/O required. Spare Ethernet port available in PLC-10.
- (15) 200 HP, stand-alone, 18 pulse, normal duty VFDs will be provided to control the two (2) 60 HP RW pumps and two (2) 125 HP RW pumps. Feeder cables will be sized per 200 HP pump motors.
- (16) 200 HP, stand-alone, 18 pulse, normal duty VFD and 125 HP, stand-alone, 18 pulse VFD will have the same enclosure dimensions. 200 HP, stand-alone, 18 pulse VFD will fit in the existing space allocated inside the electrical and blower room for 125 HP, standalone, 18 pulse VFD.
- (17) 200 HP, stand-alone, 18 pulse VFD has provisions for bottom conduit entry and existing conduit stub-up is acceptable for the 200 HP, stand-alone, 18 pulse VFD.
- (18) Contract documents (drawings and specifications) shall be prepared as a stand-alone bid package in case the City decides to advertise and award the project as a competitive bid.
- (19) The level of effort provided herein includes design, bid phase and services during construction.

## SCOPE OF WORK AND LEVEL OF EFFORT

Detailed scope of work and level of effort is presented below.

### Task 1: Design of RWPS

The design of the RWPS will consist of management and coordination activities and design effort by the civil, structural, mechanical, electrical, and instrumentation and control disciplines.

**Sub-task 1.1: Coordination and Management** – This task involves coordination of the efforts of various disciplines, project team and communications with the City.

**Sub task 1.2: General** – Drawings and specifications will be prepared for the general section.

**Sub-task 1.3: Civil** – Drawings and specifications will be prepared by the civil engineering Discipline.

**Sub-task 1.4: Structural Discipline** – Drawings and specifications will be prepared by the structural engineering discipline.

**Sub-task 1.5: Mechanical** – Drawings and specifications will be prepared by the mechanical Discipline.

**Sub-task 1.6: Electrical** – Drawings and specifications will be prepared by the electrical Discipline.

**Sub-task 1.7: Instrumentation and Control (I&C) Discipline** – Drawings and specifications will be prepared by the instrumentation and control (I&C) discipline.

**Sub-task 1.8: Pressure Surge Analysis** – Pressure surge analyses of the RWPS system will be performed under both the initial 8.6 mgd pump capacity and expanded 25 mgd pump capacity. The following work will be performed under this sub-task:

- (1) Gather data required and build a surge model of the system to include the RWPS and RW quadrant piping system.
- (2) Establish initial non-transient hydraulic grade line elevations for the operation of the RWPS with initial 8.6 mgd pump capacity and expanded 25 mgd pump capacity.
- (3) Perform simulations for the sudden loss of power and startup of the pumps at RWPS with initial 8.6 mgd pump capacity and expanded 25 mgd pump capacity.
- (4) Review the results of the analysis and, if necessary, recommend surge protection measures to prevent adverse pressure surges in the system under both initial 8.6 mgd pump capacity and expanded 25 mgd pump capacity. This may include, but is not limited to, pressurized surge tanks, pump flywheels, vacuum relief valves, pressure/surge relief/anticipator valves or any combination thereof.
- (5) Prepare a detailed report describing the results of the analysis and recommendations for the safe operation of the system with the initial and expanded capacity.

### Task 2: Bid Phase Support Services

**Sub-task 2.1: Response to Bidders' Questions** – This sub-task includes providing assistance to the City in responding to bidders' questions during bid phase.

**Sub-task 2.2: Conformed Set** – This sub-task includes preparing a conformed set of drawings and specifications according to addenda issued during the bid phase.

**Task 3: Engineering Services during Construction**

**Sub-task 3.1: Conduct Site Visits** – Parsons will conduct two site visits during the construction phase to observe construction activities.

**Sub-task 3.2: Review Submittals, Respond to RFIs and RFCs** – Parsons will respond to Request for Information (RFIs) and Request for Clarification (RFCs) and will review submittals.

**SCHEDULE AND FEE**

Task 1: Design of RWPS -----October 1, 2015 – December 1, 2015  
Task 2: Bid Phase Support Services -----January 1, 2016 – February 15, 2016  
Task 3: Engineering Services during Construction -----March 1, 2016 – July 15, 2016

The fee to complete Tasks 1, 2, and 3 is **\$209,524**.