

## SECTION 01 01 00 SUMMARY OF GOODS AND SPECIAL SERVICES

### PART 1 -- GENERAL

#### 1.1 DESCRIPTION

##### A. Description of Work

1. The summary of the Goods and Special Services described in this Section is an overall summary of the responsibilities of the Seller and its relation to the Buyer, Engineer, and Contractor. It does not supersede the specific requirements of other Contract Documents.
2. Project Background.
  - a. The Goods and Special Services consist of designing and furnishing containerized membrane filtration equipment required for the City of Sandy's Alder Creek Water Treatment Plant (WTP). The Goods and Special Services also consist of furnishing manufacturer-trained personnel for the installation, commissioning, acceptance testing, training, and operations assistance as specified.
  - b. The following narrative is provided as a general description of the project background and goals. Design or operating parameters and proposed improvements beyond those that relate to this project are provided as information based upon the current understanding of the project and shall not constitute the basis of design and/or operation of the current or proposed facilities.
  - c. The WTP will use Alder Creek as source water. The water system will have a firm capacity of 2.0 MGD. The term 'firm capacity' means that the capacity can be achieved with the largest primary membrane unit out of service. A membrane unit shall consist of a membrane module rack, dedicated feed pump and dedicated strainer.
  - d. Water will be obtained from Alder Creek using a fixed-level intake. The raw water will be coagulated with polyaluminum chloride (PACL) or aluminum chlorohydrate (ACH), dosed with sodium hydroxide for pH control, and sodium hypochlorite added for oxidation, and will pass through a static mixer. The purpose of coagulation/flocculation is to coagulate and remove natural organic matter (NOM) and color to comply with the regulatory requirements for disinfection byproduct (DBP) control. Coagulated raw water will be stored in the MF Feed Tank outside of the containerized membrane systems and will receive a minimum of two-minute reaction time prior to entering the membrane feed pumps.
  - e. The raw water will enter the containerized membrane systems under hydrostatic pressure available from the MF Feed Tank. Membrane feed pumps located inside each containerized system, will pump water through automatic backwashable strainers that are designed to remove algae and other deleterious materials.
  - f. The membrane system will be pressure-type. Water will pass through a unit modulating influent control valve and enter the treatment unit. Water is filtered across the membrane using differential pressure. The filtered water is then discharged.

- a) The system will use a periodic Air Scour – Backwash process to remove accumulated contaminants from the membranes. The process utilizes air on the feed side of the membrane with filtered water to scour the membrane fibers. The waste from the process is then discharged to the solids drying beds.
- b) The system will be periodically cleaned using a Maintenance Clean (MC) process which is a chemical washing procedure. Citric acid or sodium hypochlorite solution is used to clean the membranes. Once the MC process is complete, the remaining solution in the filtration unit is neutralized, dechlorinated, and flushed to a CIP holding tank.
- c) The membrane system will use a Clean-In-Place (CIP) process using a citric acid, sodium hydroxide, or sodium hypochlorite solution. The solution is heated and circulated through the membrane unit and returned to the CIP Tank in each containerized system. Once the cleaning process is complete, the CIP solution is recovered in the CIP Tank and the remaining solution in the filtration unit is neutralized, dechlorinated, and flushed to the CIP holding tank.
- g. After the water is filtered, chlorinated for disinfection, pH adjusted, it will be discharged to a chlorine contact tank. The Buyer's high service pump station will pump the potable water into the distribution system for customer's use.
- h. Backwash wastewater will discharge to a collection manhole. It will flow to a backwash holding pond.
- i. Process residuals from the CIP system will be neutralized, dechlorinated, and discharged to a CIP holding tank in accordance with the requirements of the Buyer.
- j. Each membrane filtration system will incorporate a direct integrity test feature to determine that the membranes are integral and not compromised.

## 1.2 WORK COVERED BY PROCUREMENT DOCUMENTS

### A. In general, the Goods and Special Services include:

- 1. Scope of Supply described in Section 11 30 00, Hollow Fiber Membrane Equipment.
  - a. Containerized membrane filtration units (excluding interconnecting pipework as shown on the Drawings).
  - b. Membrane filtrate monitoring system.
  - c. Process Air Compressor.
  - d. Blowers for air scour.
  - e. Feed/Backwash Pumps.
  - f. Air diaphragm chemical transfer pumps for citric acid, calcium thiosulfate, sodium hydroxide and sodium hypochlorite used in the membrane system cleanings.

- g. Strainers
  - h. Clean-In-Place (CIP) and Neutralization Pumps.
  - i. Electrical control panels for the MF equipment.
  - j. Process Logic Controllers (PLCs) for the MF equipment.
  - k. Human Machine Interface (HMI) for MF and other equipment.
  - l. Field-mounted instrumentation including:
    - 1) Switches.
    - 2) Gauges.
    - 3) Flowmeters.
    - 4) Pressure indicating transmitters.
    - 5) Turbidity meters.
  - m. Other analytical instrumentation.
2. Special Engineering Services and Drawings supplied by the Seller shall include, but are not limited to, the following:
- a. Design of the Goods provided by the Seller.
  - b. Submittal of Shop Drawings and Samples.
  - c. General arrangement drawings of membrane units and of interconnecting piping between membrane filtration treatment trains.
  - d. General arrangement drawing of Compressed Air/Aeration Equipment.
  - e. P&ID's for Seller furnished systems and systems denoted to be controlled by Seller's control system.
  - f. Electrical Drawings of Seller furnished systems.
  - g. PLC (remote I/O racks) Unit Panel Drawings for Seller furnished equipment.
  - h. Participate in meetings and assistance to the Buyer, Engineer, and Contractor during the design.
  - i. Any changes required by the Seller to coordinate the design with the Engineer for the membrane system.
3. Special Services shall include but are not limited to the following:
- a. Scheduling of equipment delivery, witnessing unloading and unpacking of Seller supplied equipment, and inspecting/inventorying equipment.

- b. Training of Contractor.
  - c. Operational and Maintenance Manuals for all equipment provided.
  - d. Oversee the setting of membrane filtration equipment.
  - e. Review of equipment installation.
  - f. Calibration of Seller supplied instrumentation.
  - g. Commissioning of the Goods.
  - h. Equipment and services for demonstration/performance testing.
  - i. Acceptance testing.
  - j. Operator training.
  - k. Correction period service visits.
  - l. Membrane Module and System Warranty.
4. Project responsibilities:
- a. Provide design support to Engineer.
    - 1) The Seller shall provide the Engineer with ~~design assistance and~~ [Addendum #5] review of the General Arrangement and detail drawings for the interconnecting piping between membrane units and between the membrane filtration system and support facilities (i.e., raw water supply, clearwell, backwash waste pipeline, cleaning systems, air systems, etc.).
  - b. Participation in meetings and assistance to the Buyer and the Engineer during the installation, commissioning and acceptance testing of the Goods.
  - c. Respond to requests for information (RFIs) and provide field support during construction.
  - d. Shop Drawing, Installation Manual, Operation and Maintenance (O&M) Manual and other miscellaneous submittals. Refer to Section 01 34 00, Shop Drawing Procedures.
  - e. Attend/participate in Engineering/Progress Meetings during the design, construction, commissioning, and acceptance testing of Seller provided equipment.
  - f. Any changes required by the Seller for coordination of the design with the Engineer for the membrane system.
  - g. Design and programming of the PLC and human machine interface (PLC/HMI) system for the WTP and membrane system, including but not limited to:

- 1) Design and programming of operator interface screens, data logging and reporting system.
  - 2) Coordination between Seller provided PLC and other Buyer provided PLC/SCADA systems.
  - 3) Programming of PLCs and HMIs supplied with each system.
  - 4) Factory acceptance testing of PLC system.
  - 5) Cooperation and coordination with the Engineer on development of the Seller's HMI/SCADA system.
5. The summary of the Good and Special Services described in this section is an overall summary of the responsibilities of the Seller and his relation to the Buyer.
- a. It does not supersede the specific requirements of other Procurement Documents.

**B. Special Services:**

1. Provide authorized representatives of the Seller, factory trained and experienced in the technical applications, installation, operation and maintenance of Goods to perform each of the Special Services required.
  - a. Sales representatives or agents of the Seller will not be accepted.
  - b. The only exception to this is that Seller's sales representative may represent Seller during delivery of Goods.
2. Representatives are subject to acceptance by Engineer.
3. Once assigned, no substitute representatives will be allowed unless prior written approval by Engineer has been given.
4. Where specific time is allocated for a particular Special Service, the time expended shall be documented by the Seller and Buyer at the time the Special Service is provided.
  - a. Provide documentation to the Buyer on a monthly basis.
    - 1) Documented hours shall be reconciled by the Buyer and Seller on a monthly basis.
  - b. At the conclusion of the Special Service, additional hours provided at the request of the Buyer or hours specified but not used shall be agreed to between the Seller and the Buyer.
    - 1) Based on the per diem rate provided in the Proposal, the contract amount will be adjusted.
5. Seller to provide one representative selected to be the most qualified to represent the Seller for the individual Special Service provided.

- a. The use of multiple representatives for any particular Special Service shall have prior approval by the Engineer.
- C. Chronological Overview of Special Services and Meetings:
1. Project Kick-Off Meeting:
    - a. Review project requirements, introduce team members and establish communication protocol.
    - b. Seller to include four (4) hours for one (1) virtual MS Teams meeting.
  2. Coordination Meeting (P&ID Submittal Review Meeting):
    - a. Review and resolve Engineer review comments provided for the P&ID Shop Drawing Submittal.
    - b. Attend virtual MS Teams meeting after Engineer review of P&ID Shop Drawing Submittal.
    - c. Seller to include cost of one (1) eight (8) hour day for one (1) meeting.
  3. Coordination Meeting (Single Line Piping Submittal Review Meeting):
    - a. Review and resolve Engineer review comments provided for the Single Line Piping Shop Drawing Submittal.
    - b. Attend virtual MS Teams review meeting after Engineer review of Single Line Piping Shop Drawing Submittal.
    - c. Seller to include cost of one (1) eight (8) hour day for one (1) meeting.
  4. Coordination Meeting (Equipment Data Technical Cut Sheet Submittal Review Meeting):
    - a. Review and resolve Engineer review comments provided for the Equipment Shop Drawing Submittal.
    - b. Attend virtual MS Teams review meeting after Engineer review of Equipment Data Technical Cut Sheet Shop Drawing Submittal.
    - c. Seller to include cost of one (1) eight (8) hour day for one (1) meeting.
  5. Coordination Meeting (Electrical Power, Instrumentation Power and Control Wiring, and electrical equipment data technical cut sheets Shop Drawing Submittal Review Meeting):
    - a. Review and resolve Engineer review comments provided for the Electrical Power, Instrumentation Power and Control Wiring Drawing and electrical equipment data technical cut sheet Shop Drawing Submittal.

- b. Attend virtual MS Teams review meeting after Engineer review of Electrical Power, Instrumentation Power and Control Wiring, and electrical equipment data technical cut sheets Shop Drawing Submittal.
  - c. Seller to include cost of one (1) eight (8) hour day for one (1) meeting.
6. Final Facility Design Integration:
- a. Provide information and assistance to the Buyer and Engineer to coordinate and integrate Goods provided by Seller with the remaining interrelated systems designed by the Engineer.
  - b. Attend three (3) separate virtual MS Teams meetings with the Buyer and Engineer for integration of Goods into facility design.
  - c. Seller to include cost of one (1) eight (8) hour day for each meeting.
  - d. Integration shall include review by the Seller of the membrane tank(s) and/or skids(s) and pump orientations to confirm layout protects the membranes from excessive hydraulic forces that could damage the membranes or impact warranty.
  - e. Integration shall include review by the Seller of the membrane inlet channel/piping configuration to confirm the Seller's feed water conditions to the membrane equipment are met under all standard operating scenarios.
  - f. Initial meeting will be tentatively scheduled two (2) weeks following project kickoff coordination meeting.
    - 1) The second meeting will be scheduled at the initial meeting.
    - 2) The third meeting will be scheduled at the second meeting.
7. Receipt of Goods:
- a. Verify and document that Goods are properly delivered and unloaded and that storage requirements are clearly communicated to the Contractor.
  - b. Provide construction site representation during delivery of Goods including all partial shipments.
  - c. Seller to include in the bid all the costs associated with delivery of Goods to the project site.
    - 1) Buyer will not be responsible for additional costs associated with partial shipments or delivery of goods.
8. Pre-Demonstration Period:
- a. Assist Contractor with supervision of the installation of Goods.
    - 1) Coordinate services with Contractor's overall construction schedule.

- a) Assume five (5) four (4) day trips (32 hours on site each trip) for supervision assistance along with all time required for travel to and from the site as well as expenses.
- b) Be present to supervise the assembly and/or installation of:
  - (1) Membrane Tank(s) including chemical storage and neutralization, backwash storage, and membrane tanks and/or skids.
  - (2) Membrane blowers, air compressors and pumps and/or pump skids.
  - (3) Process control valves external to the membrane tanks or skids.
  - (4) Process control valves and piping internal to the membrane tanks or skids that are not pre-piped and/or factory installed.
  - (5) Control panels and/or valve panels.
  - (6) Membrane racks.

b. Equipment Startup and Training:

- 1) Provide startup and operator training services for Seller provided equipment.
- 2) Cost of these services is included in Seller's bid price for supplying Goods.
  - a) Duration of this phase is dependent on the quality of the Seller's equipment and programming.
  - b) Seller to assume no more than one (1) piece of equipment can be started in one (1) eight (8) hour day with one (1) training session for operation and maintenance personnel in said eight (8) hour day.
- 3) Seller may utilize representatives from air compressor, blower, pump, and other bought out equipment for installation assistance of Seller's purchased equipment.
  - a) Seller remains responsible for coordination and quality of Special Services if such representatives are used.
- 4) Training
  - a) Assist Contractor in training Buyer's personnel on the operation and maintenance of Goods.

9. Functional Demonstration:

- a. Assist Contractor in demonstrating the functional integrity of the mechanical, electrical and control systems related to the Goods.



- b. Cost associated with this phase of the work is included in the Seller's price of the Goods.
- c. Duration of this phase is dependent on the quality of the Seller's equipment and programming.

10. Performance Demonstration:

- a. Demonstrate and document that the Goods provided meet the operational criteria specified and, if performance does not meet specified criteria, provide corrective action to meet those criteria.
- b. Duration of this phase is dependent on the quality of the Seller's equipment and programming.

11. Acceptance Testing:

- a. Demonstrate the Goods supplied meet the minimum performance requirements of the contract.
- b. Duration of this phase is dependent on the quality of the Seller's equipment.

12. Operations Assistance:

- a. Provide operational assistance to the Buyer over the period of one (1) year.
- b. Assume three (3), two (2) day trips (16 hours on site each trip) for operational assistance along with all time required for travel to and from the site as well as expenses.
- c. Participate in a two (2) day on-site warranty inspection at the end of the correction period.

D. The WORK is located near Boardman Oregon as described in Division 00.

1.3 WORK BY OTHERS

A. Individual Party Responsibilities:

1. Engineer's Responsibilities:

a. Facility Design:

- 1) Overall facility design.
- 2) Design/specification of yard piping (raw, potable, residuals).
- 3) Design/specification of Raw Water Supply Piping/Valves up to containerized membrane systems.
- 4) Design/specification of filtered water piping/valves from containerized membrane System Buyer's chlorine contact tank.

- 5) Design/specification of the bulk chemical feed facilities (e.g., caustic soda, sodium hypochlorite, aluminum chlorohydrate).
- 6) Design/specification of the Recovery/Maintenance clean interconnecting piping.
- 7) Design/specification of chlorination facilities.
- 8) Design/specification of service water pumps.
- 9) Design/specification of electrical motor control centers (MCCs) and conduit schedules.
- 10) Design/specification Structural Elements of Facility, including awning that containerized units will be placed under..
- 11) Preparation of bidding documents for Contractor.
- 12) Design/specification of waste washwater handling facilities.

b. Project Responsibility:

- 1) Review and approval of shop drawing submittals.
- 2) Review of Applications for Payment.
- 3) Review of Applicable Building Codes.
- 4) Assist Buyer to obtain required permits.
- 5) Observation during installation and acceptance testing.

2. Contractor's Responsibilities:

- a. Constructing the treatment facility, including any lifting/moving equipment associated with the building structure.
- b. Receiving, unloading, and storing of all equipment at the project site.
- c. Installation of all Containerized Membrane Filtration Equipment and other equipment provided by Seller.
- d. Submittal, purchase, and installation of equipment specified by the Engineer and denoted on the Drawings.
- e. Installation of all yard piping.
- f. Installation of interconnecting piping between Containerized Membrane Filtration Units.
- g. Installation of electrical systems and operator interfaces.
- h. Corrective assistance during equipment commissioning.

- i. Administer Seller's Contract, if assigned by the Buyer.
  - j. Other work as identified in the Contract Documents.
3. Buyer's Responsibilities:
- a. Provide operator(s) for training.
  - b. Obtain permits as required.
  - c. Operation of the treatment facilities in accordance with Seller's recommendations.
  - d. Payment to contracted parties.
  - e. Timely responses to RFIs and design decisions.
  - f. Provide meeting locations and attend meetings.
  - g. Provide any applicable Buyer standards.
  - h. General oversight of Contractor.

**PART 2 -- PRODUCTS (NOT USED)**

**PART 3 -- EXECUTION (NOT USED)**

END OF SECTION