

Board of County Commissioners
Clackamas County

Members of the Board:

Approval of Amendment #3 to the Contract Documents with CH2M Hill Engineers
for Tri-City Water Resource Recovery Facilities
Solids Handling Improvements Project

Purpose/Outcomes	Engineering services during construction of Tri-City Water Resource Recovery Facility Solids Handling Improvements Project.
Dollar Amount and Fiscal Impact	Funding is available in the FY 2018-19 budget. This amendment increases contract by \$4,335,300.00 for a new total contract value of not to exceed \$7,230,613.00.
Funding Source	Water Environment Service FY 2018-19 annual budget with SRF loan. No General Funds impacted.
Duration	March 30, 2017 to June 30, 2021
Previous Board Action	Approval of Original Contract with CH2M Hill 033017 IV. 1 & 2 Approval of Amendment #1, Phase 1 Engineering Services 091717 V.2 Amendment #2, Change Order for discharge piping. No Board action necessary.
Strategic Plan Assignment	1. This project supports the WES Strategic Plan to provide partner communities with reliable waste water infrastructure to serve existing customers and support future growth. 2. This project supports the County Strategic Plan of building a strong infrastructure that delivers services to customers.
Contact Person	Lynne Chicoine, Capital Program Manager – Water Environment Services – 503-742-4559

BACKGROUND:

The Solids Handling Project was identified in the 2008 Tri-City Master Plan as required to meet capacity requirements for growing service areas. Design of the facilities began in late 2015 with conceptual design being completed by MWH Global. In March 2017, WES contracted with CH2M Hill Engineers to complete the design. Design of the facilities was completed in May 2018. The project was bid and awarded to a construction contractor on July 2018 for \$33.5 million.

This Amendment includes engineering services during construction and field services by CH2M Hill. Services include provision of a full time resident project representative and field staff to monitor construction and engineering services such as submittal review, responses to requests for information, changes and substitutions, speciality inspections, preparation of operation and maintenance manuals and record drawings, assistance with start-up, training and software integration. Duration of the services will extend through final completion of construction.

The Amendment has been reviewed and approved by County Counsel.

RECOMMENDATION:

Staff recommends that the Board of County Commissioners of Clackamas County, acting as the governing body of Water Environment Services, approve and execute the Amendment #3 to the Engineering Services Contract for Tri-City Water Resource Recovery Facilities Solids Handling Improvements Project for \$4,335,300.00 for a total contract value not to exceed \$7,230,613.00.

Respectfully submitted,

Chris Storey, Assistant Director
Water Environment Services

Placed on the _____ agenda by Procurement.

AMENDMENT #3

**TO THE CONTRACT DOCUMENTS WITH CH2M Hill ENGINEERS, INC. FOR THE
TRI-CITY WATER RESOURCE RECOVERY FACILITY SOLIDS HANDLING
IMPROVEMENT PROJECT**

This Amendment #3 is entered into between CH2M Hill Engineers, Inc. (“Contractor”) and Water Environment Services (“District”) and it shall become part of the Contract documents entered into between both parties on March 30, 2017 (“Contract”).

The Purpose of the Amendment #3 is to make the following changes to the Contract:

1. **ARTICLE 1 - TERM** is hereby changed as follows:
The Contract termination date is hereby changed from September 30, 2020 to **June 30, 2021**.

2. **ARTICLE 2 - SERVICES OF THE CONSULTANT** is hereby changed as follows:
District requires engineering field services during the construction phase. This includes submittal review, responses to construction contractor’s request for information, site visits, changes orders, conformed and record drawing preparation, O&M manual preparation and start-up training. PEI Integration services is also included in this updated Scope of Work. The Scope of Services for support during the construction phase and PEI integration services is attached as **Attachment C** and hereby incorporated by reference.

3. **ARTICLE 6 – PAYMENTS TO CONSULTANT** is hereby changed as follows:
Engineering field service support during the construction phase is \$3,840,939.00. PEI integration services is \$494,360.00, for a total additional Compensation of **\$4,335,300.00**. The fee schedules are outlined at the end of Attachment C. The maximum compensation authorized under this Contract shall not exceed \$7,230,613.00.

Original Contract	\$ 580,000.00
Amendment #1	\$ 2,267,500.00
Amendment #2	\$ 47,813.00
<u>Amendment #3</u>	<u>\$ 4,335,300.00</u>
Total Amended Contract	\$ 7,230,613.00

SIGNATURE PAGE FOLLOWS

Except as expressly amended above, all other terms and conditions of the Contract shall remain in full force and effect.

By signature below, the parties agree to this Amendment #3, effective upon the date of the last signature below.

CH2M Hill Engineers, Inc.
2020 SW 4th Avenue, Ste. 300
Portland OR 97021

Clackamas County Board of County
Commissioners acting as the Governing Body for
Water Environment Services by:

Authorized Signature

Chair

Name / Title (Printed)

Recording Secretary

Date

Date

193470-95 FBC / Colorado
Oregon Business Registry Number

Approved as to Form:

County Counsel

Date

ATTACHMENT C

**SCOPE OF WORK FOR ENGINEERING CONSTRUCTION SUPPORT AND PEI
INTEGRATION SERVICES**

EXHIBIT A – SCOPE OF WORK
 Water Environment Services of Clackamas County
 Tri-City WRRF Solids Handling Improvements Project – P632162
 Services During Construction

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Background

Consultant shall provide Services During Construction (SDC) as defined below. These SDC are intended to assist the District to administer the contract for construction, monitor the performance of the construction contractor, verify that the contractor's work is in substantial compliance with the Contract Documents, and assist the District in responding to events that occur during the construction. These SDC are based upon the understanding that the District will contract directly with the General Contractor and will be actively involved in the construction process to make decisions, provide approvals, and perform other actions necessary for the completion of the construction.

Water Environment Services of Clackamas County (District) and CH2M (now Jacobs) (Consultant) recently completed design of the solids handling improvements at the Tri-City Water Resource Recovery Facility (TCWRRF). The design includes anaerobic digestion capacity and dewatering to meet 2040 capacity needs. The design also provides improvements to existing facilities to improve performance and maximize their use. Facilities to be constructed as part of this project include a new 1.3 million gallon anaerobic digester, a Dewatering and Digester Control Building, two biosolids dewatering centrifuges and cake loadout facility, rehabilitated existing solids processing facilities, and electrical, site and ancillary improvements.

Assumptions – General

1. Bentley ProjectWise Construction Management (PWCM) software will be used as the means of all project documentation including submittals, RFI's, pay requests, and change orders.
2. Where deliverable documents are identified, unless noted otherwise, five (5) hard copies of the deliverable will be provided in addition to electronic version in .PDF and original .DOC format.
3. The project will be constructed under one general contract with a lump sum price.
4. Submittals will be provided via an electronic document management system (e.g. Bentley ProjectWise® Construction Management). Materials samples and O&M submittals are the only physical submittals anticipated.
5. Consultant's services during construction are based upon the schedule or duration of construction of 910 calendar days.
6. Consultant will not be responsible for the means, methods, techniques, sequences or procedures of the Contractor, nor will Consultant be responsible for the Contractor's failure to perform in accordance with the Contract Documents.

District-provided Services

1. District will make its facilities accessible to Consultant as required for Consultant's performance of its services.
2. District will give prompt notice to Consultant when District observes or becomes aware of developments that affect the scope or timing of Consultant's services, or of defects in the work of Consultant.
3. The District will participate in regularly scheduled project status meetings.
4. District will procure and provide access for Consultant to Bentley ProjectWise Construction Management software.
5. Field office including furniture, photocopy, potable water, restroom and internet access for Consultant staff.

6. Monthly utility, internet and cleaning charges will be paid by the District.
7. Independent Testing, Inspection and Survey Services.
8. The District will examine information submitted by Consultant and render in writing or otherwise provide decisions in a timely manner.
9. The District will furnish required information and approvals in a timely manner.
10. The District will cause agreements with the contractor to be consistent with Consultant's Agreement.
11. The District will participate in partnering workshops and meetings and provide a meeting space.
12. The District will prepare One Year Performance Certification Report as described in SRF Loan Documentation letter.

Task 1 Project Management

1.1 Progress Meetings and Updates

Consultant's project manager shall meet with District's project manager periodically throughout the construction phases of the project to review project progress and discuss upcoming work activities.

1.2 Project Work Plan

Consultant shall prepare a general work plan that defines Consultant's delivery approach, staffing, responsibilities and project deliverables.

The following subtasks are provided under this task:

- Update and maintain a work plan to include organization, roles, responsibilities, schedule, budget, and staff plan for execution of services during construction or the Project. The work plan and project instructions will include an update to the quality assurance/quality control (QA/QC) plan.
- Work with Consultant's Project Representative to develop a Construction Management Manual and Construction Quality Assurance Plan.
- Consultant project manager may also participate in weekly Contractor coordination meetings.

1.3 Prepare and Submit Monthly Narrative Report and Invoice

Consultant shall submit a monthly invoice with a report regarding progress of construction.

Task 1 Deliverables: Monthly progress reports, invoices and project work plan.

Task 2 Partnering Workshops

Consultant shall participate in a partnering program with the District and the Contractor. The purpose of this partnering program will be to lay the ground rules for a good working relationship between the participating parties. It is anticipated that the partnering workshop will consist of a kickoff meeting and up to 10 quarterly meetings. Kickoff workshop will include participation by Consultant Project Manager, Consultant Design Manager and Consultant Construction Manager.

Task 2 Deliverables: Meeting minutes.

Task 3 Engineering Services During Construction

Consultant shall provide services to assist in coordinating the site activities, administering the contract for construction, monitoring the contractor's performance, responding to design and technical submittals and closing out the contract for construction.

3.1 Conformed Documents

Consultant shall incorporate addenda during bidding phase into the Contract Documents. Consultant shall update original 3D model electronically to incorporate addenda that were issued as part of the bid period to create a conformed-to-bid 3D model.

Deliverables: Eight (8) half-size and two (2) full-size sets of conformed drawings; eight (8) sets of specifications. One (1) DVD with electronic files (PDF format), and same files posted to Bentley PWCM in format required by District. Prepare individual PDFs for each spec section and each drawing (formatted for half-size and full-size printing).

3.2 Document Management System and Procedures

Consultant shall work with District to establish a system and set of procedures for managing, logging, tracking and storing all relevant correspondence between the contractor, Consultant and District and documents produced during the project. The Consultant shall, in coordination with the District, maintain hard copy records, suitably organized, of relevant documentation.

Consultant shall assist the District in monitoring all outstanding decisions, approvals or responses required from the District.

Deliverables: Document management instructions.

3.3 Site Coordination

3.3.1 Preconstruction Meeting

Consultant's project manager and design manager will attend a preconstruction meeting with the Contractor and District at the Project site prior to the commencement of construction.

3.3.2 Mobilize On-Site Team

Consultant shall mobilize a team on-site for the duration of the construction to provide site coordination, contract administration and monitor the performance of the contractor. Consultant on-site team shall mobilize in the field offices to be provided by the District.

3.3.3 Project Site Meetings

Consultant shall conduct weekly construction coordination meeting with the contractor and prepare and distribute minutes of these meetings.

3.3.4 Site Communications

Consultant shall issue other communications during construction as provided in the Contract Documents.

Deliverables: Preconstruction meeting agenda and notes; weekly construction meeting agenda and notes.

3.4 Construction Contract Administration

3.4.1 Permits, Bonds and Insurance

Consultant shall verify that the required permits, bonds and insurance have been obtained and submitted by the contractor.

3.4.2 Correspondence and Communication

Consultant shall coordinate all written communication among the contractor, Consultant and District during the construction phase. Consultant shall prepare written communication to the contractor and provide recommendations to the District for written communication between the District and contractor.

3.4.3 Payments to Contractor

Consultant shall receive and review the contractor's monthly requests for payment. Consultant shall determine whether the amount requested reflects the progress of the contractor's work and is in accordance with the contract for construction.

Consultant shall provide recommendations to the District as to the acceptability of the requests. Consultant shall advise the District as to the status of the total amounts requested, paid and remaining to be paid under the terms of the contract for construction. Consultant's knowledge, information and belief from its observations of the work on site and selected sampling that the work has progressed to the point indicated. Such recommendations do not represent that continuous or detailed examinations have been made by Consultant to ascertain that the contractor has completed the work in exact accordance with the contract for construction; that Consultant has made an examination to ascertain how or for what purpose the contractor has used the moneys paid; that title to any of the work, materials or equipment has passed to the District free and clear of liens, claims, security interests or encumbrances.

Deliverables: Payment recommendation, written communication to contractor.

3.5 Contract Changes

Consultant will assist the District with the issuance of changes to the contract for construction.

3.5.1 Defective Work

Consultant shall disapprove or reject work which Consultant believes to be defective, or that Consultant believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

3.5.2 Minor Variations in Work

Consultant may authorize minor variations in the work from the requirements of the Contract Documents which do not involve an adjustment in the contract price or the contract times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

3.5.3 Coordinate Issuances of Changes

Consultant shall assist the District with the issuance of changes to the contract for construction. Consultant shall receive and review the contractor's response to the request for change including cost, construction schedule, duration and completion date and will obtain such further information as is necessary to evaluate the basis for the contractor's proposal. Consultant shall assist the District with negotiations of the proposal and, upon approval by the District, prepare final change order documents for execution by the District and contractor.

Consultant shall review all contractor-related changes to the contract for construction including impact on cost, construction schedule, duration and completion date. Consultant shall make recommendations to the District regarding the acceptability of the contractor's request and, upon agreement and approval, Consultant shall prepare change order documents.

Deliverables: Defective work notices; field orders; work change directives; and change order documents.

3.6 Project Controls

3.6.1 Contractor's Schedule Submittal

Consultant shall review the contractor's initial construction schedule and verify that it is consistent with the requirements of the contract for construction. Consultant shall advise contractor of any areas where the schedule is not in compliance with the contract for construction. Consultant shall provide comments to the District to assist with District in approving, accepting or taking other action on the contractor's schedule, in accordance with the contract for construction.

3.6.2 Contractor's Schedule Updates

Consultant shall review the contractor's periodic schedule updates or other schedule submissions. Consultant shall advise the contractor if the updates or other submissions are not in accordance with the contract for construction. Consultant shall provide comments to the District regarding the updates or other submissions.

3.6.3 Reports During Construction for Compliance DEQ SRF Program

Consultant shall prepare reports as required by the DEQ SRF program during construction for District's review and submission. Consultant shall maintain current the documentation for the reports on the document management system. DEQ SRF report includes, but is not limited to, submission of contractor's weekly certified payroll, monthly inspection reports, and annual Disadvantaged Business Enterprises utilization reports, compliance with American Iron and Steel requirements. Receipt of contractor's documentation by the Consultant shall be a requirement of recommendation of approval of contractor's pay request.

Deliverables: Schedule review comments; DEQ SRF reports.

3.7 Claims and Disputes

Consultant shall receive, log, and notify the District about all letters and notices from the contractor concerning claims or disputes between the contractor and District pertaining to the acceptability of the work or the interpretation of the requirements of the contract for construction. Consultant shall review all such letters and notices and will discuss them with the contractor as necessary to understand each such claim or dispute.

Consultant shall advise the District regarding the contractor's compliance with the contract requirements for such claims and disputes. Consultant will assist the District in discussions with the contractor to resolve claims and disputes.

Consultant shall issue recommendations on contractor claims or disputes. Consultant will not, except as part of Additional Services, participate in judicial or alternative dispute resolution procedures for the claims or disputes.

The level of effort includes an allowance of 72 hours for this subtask.

Deliverables: Written documentation related to claims and disputes.

3.8 Interpretation of Contract Documents (RFIs)

Consultant shall issue written clarifications or interpretations of the requirements of the Contract Documents as necessary. Per common construction language, these are called "Requests for Information (RFIs)". Consultant will coordinate such review with District.

Assumptions: Assume 375 RFIs will be reviewed.

3.9 Submittals/Shop Drawing Reviews

Consultant shall obtain from the contractor a proposed show drawing and submittal schedule, which will identify all show drawings, samples and submittals required by the contract for construction with the anticipated dates for submission.

Consultant shall review and approve shop drawings and samples required by the Contract Documents. Consultant shall log and track all shop drawings, samples and submittals. Consultant's review of all shop drawings, samples and submittals shall be for general conformance with the design concept and general compliance with the requirements of the contract for construction. Such review shall not relieve the contractor from its responsibility for performance in accordance with the contract for construction, nor is such review a guarantee that the work covered by the shop drawings, samples and submittals is free of errors, inconsistencies or omissions.

Consultant's scope shall be based upon the scope of work in the contract for construction and shall include a maximum of three submissions by the contractor for each shop drawing, sample or submission.

Assumptions: Assume 300 submittals plus 50% resubmittals will be reviewed.

Deliverables: Submittal log, submittal review comments.

3.10 Proposed Substitutions

Consultant shall assist the District in reviewing and responding to the contractor's request for substitution of materials and equipment. Consultant shall review such requests and advise the District as to the acceptability of such substitutions.

Deliverables: Documentation of reviews and recommendations for substitution.

3.11 Design Team Visits

Consultant shall coordinate visits to the site by the design team members to review progress and quality of the work. The visits shall observe the general quality of the work at the time of the visit and review

any specific items of work that are brought to the attention of the design team members by the Contractor or the District. Consultant shall provide District 48-hour notice of design team member visit.

Assumptions: Assume two design team visits per month on average for the duration of the project.

3.12 Testing, Inspection and Survey Services

The District will employ or cause the contractor to employ independent firms for material testing, survey services and the Consultant shall geotechnical and structural observation services listed below.

Consultant will assist in coordinating District provided testing, inspection and survey services. Consultant will review the reports and other information prepared by the independent firms that are provided to the District. Consultant will assist in coordinating their schedules and the transmittal of their reports, findings or other information to the Contractor and the District. Consultant will not be responsible for the accuracy or completeness of the work and reports of the independent testing, inspection and survey firms.

Factory and Off-Site Tests and Inspections: Consultant will observe Factory Demonstration Test at off-site facilities as specified for two control panels per Section 40 90 00 Instrumentation and Control for Process Systems.

Geotechnical Observation of Specialty Work: Consultant geotechnical engineer will attend and observe installation of stone columns, helical piles, secant pile wall, and ground anchors (if ground anchors are required in construction of Contractor-designed secant pile wall) as specified in Section 31 23 21 Ground Improvement by Stone Columns, Section 31 63 13 Helical Piles and Section 31 63 30 Secant Pile Wall and Section 31 68 13 Ground Anchors

Structural Observations: Consultant structural Engineer of Record will make project visits at key points of construction and document findings and any defects observed for corrective action.

Assumptions:

- Factory Demonstration Testing of two control panels at off-site location.

Task 4 Public Outreach Support

4.1 Descriptions/Objectives

This task will provide limited support to the District for communicating project information to public during construction of the Project. Specific activities are to be authorized in advance as tasks by the District.

Deliverables:

- Drawings and other design materials, such as posters and PowerPoint presentations that may be requested, to the limits of the task budget.

Task 5 Control System Software Services

Consultant shall provide control system software services. The services include planning, programming, testing, and startup for the plant control system PLC and HMI system components to provide the functions described in the process control narratives developed during the design phase.

Assumptions:

- The following tasks are not included in this subtask because they will be included elsewhere in the construction services scope of work:
 - Submittal review
 - Preparation of design clarifications and change orders
- Up to three weeks of effort will be included for developing software loop descriptions.
- Maximum I/O count. The scope and fee are based on PLC I/O quantities as shown in documents and as listed below:
 - Up to 970 total new I/O points distributed into the following categories:
 - 145 new I/O points wired to existing PLC4A (existing thickening and digester building)
 - 205 new I/O points wired to new PLC14A (Digester feed tanks, Digester 3, Gas Collection, Polymer System)
 - 115 new I/O points wired to new RIO14B (Cogen Engine, heat recovery, hot water, boiler, centrifuge, biosolids)
 - 140 new Ethernet I/O points connected PLC14A for approximately 20 VFD's
 - 80 new Ethernet I/O points connected to existing PLC4A for approximately 10 VFD's
 - 285 new Vendor system I/O points
- New PLC and existing PLC programs will be configured as three phase deliverable requiring an interim and final PLC programs for each of the two PLC's.
- HMI and PLC software will be configured to District software standards.
- PEI will configure new Wonderware Intouch tags and graphics for processes monitored and controlled by new PLCs. The scope and fee are based on HMI quantities as listed below:
- Up to 40 new Wonderware HMI process graphics (excluding control popups)
- Up to 70 new Wonderware HMI process graphics popups for VFD's, actuators, motor starters etc.
- Existing Intouch graphics and tags will be re-used for processes that are monitored and controlled by existing PLCs.
- PEI will write programs in new files so all work can be done offsite at PEI office and only brought online at site as systems and components are brought online.
- PEI will use the District's existing programming licenses for all software, including Wonderware Intouch HMI, Wonderware Intouch development, Allen-Bradley PLCs, Siemens TIA, Siemens Step 7, and WIN-911 alarm dialer.
- Siemens PLC programming will be based on the add-on instructions developed and implemented by PEI for the 2010 plant expansion project. For the expansion project PEI developed standard programming for analog inputs, digital inputs, VFD's, motor starters, totalizers and other miscellaneous functions. These blocks will be migrated to the new PLC processor programming environment and used for new system programming.
- Wonderware Intouch HMI software tags and graphics format/style will be based on the approach used by PEI during the 2010 plant expansion project. Standardized graphics for motors, VFD's analog and digital displays were developed specifically to match up with PLC function blocks allowing tight integration between PLC and HMI systems. This approach will be used for the solids project.

- The scope assumes up to two graphics workshops (draft and final). Draft workshop will be one day duration and the final workshop will be up to two days duration.
- Up to a maximum of 200 new WIN-911 tags will be added. The programming will be executed using the existing onsite system.
- Configurations of historian and automated reporting to be executed. PEI will provide detailed tag information to WES staff for import and configuration of historian tags. WES staff is responsible for development of desired automated data reporting
- No scope of work, or effort, has been included for any network systems testing, configuration, or startup. The District will be responsible for set up and configuration of District- provided equipment.
- Total PEI onsite testing effort includes up to 80 person days at the site.
- Operations training will include up to 15 days of onsite training for District operations staff.
- Site final software acceptance testing will include five days of formal testing, signoff, and documentation of software functionality with District.
- District staff will participate in software factory testing and final site software testing.
- No factory testing of equipment (drives or package systems) will be provided.
- Software O&M documentation is limited to printouts and electronic copies of the final HMI and PLC programs.

5.1 Control Systems Software Services PM

Consultant shall provide Task 3 project management, billing, and coordination.

Deliverables: Monthly invoices including summary of services provided and budget status summary by task.

5.2 Project Meetings

Consultant shall plan and participate in project meetings related to Task 5 activities including attending construction meetings, and coordinating with vendors.

Deliverables: Meeting notes

5.3 Software Planning – Software Loop Descriptions

Consultant shall review project design control narratives, develop detailed control strategies, incorporate actual IO points and create alarm list in software, identify HMI displays elements, review vendor systems and develop control strategy for integrating vendor system into plant controls and HMI.

Consultant shall develop final software loop descriptions based on the control narratives contained in the Contract Documents as updated in the course of the Process O&M Manual developed under Task 7.1. Software loop descriptions shall define the automated monitoring and control functions to be provided by the PLC and HMI software.

Deliverables: Final software loop descriptions

5.4 Software Programming

Consultant shall perform the following activities:

- PLC programming for each new process systems according to control strategies.
- PLC programming for modifying existing systems.

- HMI programming for new process systems according to the control strategies.
- HMI programming for modifying existing systems.
- PLC and HMI programming for vendor system coordination.

Consultant shall provide control system software programming services based on the final software loop descriptions defined in Task 5.3. The purpose of this task is to configure the PLC and HMI software to perform the functions identified in the process control narratives. The major task items of software configuration shall include:

- PLC programming for new automated monitoring and control functions at the following PLCs:
 - Facility 580
 - Facility 540 PLC
- Wonderware Intouch HMI graphics for the facility improvements. Includes the following major approaches:
 - Draft Graphics Review #1: Consultant shall provide printed copies of up to 5 major process graphics and 3 control popups for review of concepts by District staff before labor is invested in development of all graphics required for the project. Consultant shall lead a graphics review workshop with District staff at the project site to demonstrate the concepts and collect District feedback within one week after the printed copies are provided for review. District staff will provide marked-up copies of the printed graphics identifying the desired changes following the graphics review workshop.
 - Graphics Review #2: Same as draft graphics review #1 except that review #2 will include all major process graphics.
- Add new critical alarms to the existing WIN-911 alarm dialer software

Deliverables:

- Draft Graphics Review Submittal
- Final Graphics Review Submittal

5.5 Factory software acceptance testing:

Consultant shall perform offline software testing in PEI's Portland, Oregon, office. Two days will be coordinated with District staff to demonstrate the proper function of the PLC-HMI links with simulated I/O before the software is taken to the field for final site acceptance testing with actual I/O. The testing will be executed with the final PLC and HMI software configurations developed in PEI's office.

Perform the following activities:

- Bench testing and coordination for all new PLC and HMI code.
- Write simulation logic to the extent possible to test control functions, feedback loops and HMI graphics.
- Coordinate with PIC contractor for control panel checkout, testing and configuration.

5.6 Site Acceptance Testing

Consultant shall perform the following activities:

- Onsite verification of field instrument operation, IO function and wiring.
- Onsite setup and testing of control network hardware and networked field devices.

- Onsite integration and testing of vendor system integration including PLC data and control wiring.
- Create and maintain startup testing documentation.
- Performance testing of each subsystem.
- Coordination with plant staff for final commissioning.

Consultant shall provide control system software site acceptance testing services to confirm that the configured control system software provides the automated monitoring and control functions identified in the final loop descriptions. Major tasks include:

- Functional Test Part 1 (FT1): This effort is entirely the responsibility of the contractor. The tests and documentation are requirements of the contractor as specified in the Contract Documents.
- Functional Test Part (FT2): Repeat the Contractor’s unwitnessed Functional Test Part 1 (FT1) to confirm that the wiring systems and field equipment are ready for software functional testing. This testing requires support by the contractor for simulating field I/O and troubleshooting wiring.
- Software Functional Acceptance Testing: Test the software functions identified in the final loop descriptions on a loop-by-loop basis using actual I/O from field devices. This testing will require multiple testing phases, dictated by the Contractor’s schedule. For the purposes of estimating this effort, possible testing phases are outlined below:
 - Gas detection equipment and truck scale
 - Digester 3 and Dewatering and Digester Control Building
 - Phase 1 - Build new digester, hot water system, digester recirculation pumping system.
 - Phase 2 – Build dewatering feed tank, gas cleaning system (defer startup until cogeneration system started up), dewatering centrifuge system, cake handling conveyors and hopper, polymer system, centrate pumping improvements.
 - Primary switchgear and new transformers for facilities
 - Existing Thickening Building
 - Build digester feed tank, and modify existing thickening building.
 - Existing Digester 1&2
 - Build digester mixing improvements, gas handling improvements.
 - Cogeneration System
 - Startup gas cleaning system constructed earlier. Build cogeneration system improvements.
- Software Training:
 - Train District operations staff to use the new control system software
- Site Software Acceptance Test Completion Documentation
 - Site software acceptance testing: Software testing at project site with District staff to demonstrate the proper function of the PLC-HMI links with actual I/O after functional testing with the contractor has been completed. The testing will be executed with the final PLC and HMI software configurations started up at the project site.

Deliverables: Final site software acceptance test documentation consisting of formal signoff of software functions.

5.7 HMI/SCADA Staff Training

Consultant shall perform the following activities:

- Onsite training with plant staff on how new system operate and how to use the HMI.
- Review all HMI graphics and the functions of each screen element
- Provide on the job assistance to operators as they begin using the new systems.
- Review alarm list and appropriate responses to alarms.
- Review basic troubleshooting for control system equipment.

5.8 HMI O&M Manual and Final Control System Software Documentation

Consultant shall perform the following activities:

- Provide written user manual for HMI system that includes process graphic screen captures and detailed description of associated functions.
- Incorporate as build control functionality description into HMI user manual to provide user with practical description of how the system operates.
- Include alarm list with descriptions and appropriate responses

PEI will provide deliverables to document the final PLC and HMI software configurations.

- Final Software O&M Files

Deliverables:

- Written HMI user manual (draft and final)
- DVDs containing the following (three copied):
 - Final HMI Graphics application
 - Final PLC files
- Electronic files for each of the following software O&M documents:
 - Three 3-ring binders containing the final software O&M document
 - Final software loop descriptions
 - Final software tag list
 - Printed color copies of the HMI main process graphics

Task 6 Construction Management/Field Services

Consultant shall provide one on-site full time Resident Project Representative for duration of project, one part-time Resident Engineer and one full-time Field Inspector for portions of the project duration. The Resident Engineer and Field Inspector shall work under the authority and direction of the Resident Project Representative for construction management of the General Contractor's work. These construction contract management services are based upon the responsibilities, authority and limitations of authority set forth in the Contract Documents for the Resident Project Representative and are further described and limited as follows:

6.1 Responsibilities and Authority of Resident Project Representative

The Resident Project Representative is expected to follow the responsibilities and exercise authority as designated by the Contract Documents.

- 6.1.1 Schedules: Review and monitor Progress Schedule, Schedule of Submittals, and Schedule of Values prepared by contractor and consult with Engineer concerning acceptability.
- 6.1.2 Conferences and Meetings: Conduct or attend meetings with contractor, such as preconstruction conferences, progress meetings, Work conferences and other Project

related meetings.

- 6.1.3 Liaison: (i) Serve as Engineer’s liaison with contractor, working principally through Contractor’s authorized representative, and assist in understanding the intent of the Contract Documents; (ii) assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s onsite operations; (iii) assist in obtaining from Owner additional details or information when required for proper execution of the Work.
- 6.1.4 Interpretation of Contract Documents: Inform Engineer and Owner when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor technical clarifications and interpretations as issued by Engineer, or non-technical clarifications and interpretations of the Contract Documents issued by Owner.
- 6.1.5 Submittals: Receive submittals that are furnished at the Site by Contractor, and notify Engineer of availability for examination. Advise Engineer and Contractor of the commencement of any Work or arrival of materials and equipment at Site, when recognized, requiring a Shop Drawing or Sample if the submittal has not been approved by Engineer.
- 6.1.6 Modifications: Consider and evaluate Contractor’s suggestions for modifications in Drawings or Specifications and provide recommendations to Engineer; transmit to Contractor, in writing decisions as issued by Engineer.
- 6.1.7 Review of Work and Rejection of Defective Work: (i) Conduct onsite observations of the Work in progress to assist Engineer in determining if the Work is, in general, proceeding in accordance with the Contract Documents; (ii) inform Engineer and Contractor whenever RPR believes that any Work is defective; (iii) advise Engineer whenever RPR believes that any Work will not produce a completed Project that conforms generally to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, whenever RPR believes Work should be uncovered for observation, or requires special testing, inspection, or approval; (iv) monitor to ensure that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; (v) observe, record and report to Engineer appropriate details relative to the test procedures and startups; and (vi) accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to the Engineer.
- 6.1.8 Inspections, Tests, and System Startups: (i) Verify tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; (ii) observe, record, and report to Engineer appropriate details relative to the test procedures and system startups; and (iii) accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections, and report to Engineer.
- 6.1.9 Records: (i) Maintain at the Site files for correspondence, conference records, Submittals including Shop Drawings and Samples, reproductions of original Contract Documents including all Addenda, the signed Agreement, Written Amendments, Work Change Directives, Change Orders, Field Orders, additional Drawings issued after the Effective Date of the Agreement, Engineer’s written clarifications and interpretations, progress reports, and other Project related documents; (ii) keep a record of pertinent Site conditions, activities, decisions and events.
- 6.1.10 Reports: (i) Furnish Engineer periodic reports of progress of the Work and of Contractor’s

- compliance with the Progress Schedule and Schedule of Submittals; (ii) consult with Engineer in advance of scheduled major tests, inspections or start of important phases of the Work; and (iii) assist in drafting proposed Change Orders, Work Change Directives, and Field Orders, and obtain backup material from Contractor as appropriate.
- 6.1.11 Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
- 6.1.12 Certificates, Operation and Maintenance Manuals: During the course of the Work, verify materials and equipment certificates and operation and maintenance manuals and other data required by Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and ensure these documents have been delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
- 6.1.13 Substantial Completion: (i) Conduct an inspection in the company of Engineer, Owner, and contractor and prepare a list of items to be completed or corrected; (ii) submit to Engineer a list of observed items requiring completion or correction.
- 6.1.14 Final Completion: (i) Conduct final inspection in the company of Engineer, Owner, and contractor; and (ii) notify Contractor and Engineer in writing of all particulars in which this inspection reveals that the Work is incomplete or defective; and (iii) observe that all items on final list have been completed, corrected, or accepted by Owner and make recommendations to Engineer concerning acceptance.

6.2 Limitations of Authority

Resident Project Representative will not:

- 6.2.1 Have authority to authorize a deviation from Contract Documents or substitution of materials or equipment, unless authorized by Owner; or
- 6.2.2 Exceed the limitations of Engineer's authority as set forth in Contract Documents; or
- 6.2.3 Undertake any of the responsibilities of contractor, subcontractors, suppliers, or contractor's authorized representative; or
- 6.2.4 Advise on, issue directions relative to, or assume control over an aspect of the means, methods, techniques, sequences, or procedures of contractor's work unless such advice or directions are specifically required by the Contract Documents; or
- 6.2.5 Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor; or
- 6.2.6 Participate in specialized field or laboratory tests or inspections conducted offsite by others, except as specifically authorized by District; or
- 6.2.7 Accept Shop Drawings or Samples from anyone other than contractor; or
- 6.2.8 Authorize Owner to occupy the Project in whole or in part; or
- 6.2.9 Take an action that would affect Owner's obligations related to scope or schedule of the Work.

Assumptions:

- Assume the RPR and his staff will review approximately 20% submittals. Assume the RPR and his staff will process approximately 20 % of RFIs.
- Assume that the construction manager will work 45 hours per week for the duration of the construction contract, 910 calendar days.
- Assume that an additional one full time equivalent (FTE) will be on site for 24 months.

Task 7 O&M Manual and Startup Support

7.1 Operations and Maintenance Manual

Consultant shall develop an Operations and Maintenance manual describing the operation and maintenance of facilities and systems constructed and modified by this Project. The manual will explain the various primary modes of operation that may be used, including both normal operation and initial emergency operation procedures. The manual will explain the purpose and basic concept of the various processes that are incorporated into the overall facility. Where appropriate, reference will be made to the manufacturer's detailed O&M submittals. It will include instructions for process operations and test or laboratory procedures that may be required to monitor the performance of the facilities.

The manual will be suitable for use as an operational tool and to facilitate operator training. The manual will be produced in a computerized format using commercially available software (MS WORD or Adobe PDF's), suitable for inclusion in an online, electronic O&M manual. The District's existing O&M manual data will remain unchanged except for those facilities and processes modified by the Project.

A draft Manual that describes the operation and maintenance of the new facilities will be prepared and submitted to the District and DEQ for review prior to the 50% point of construction completion. Consultant shall then incorporate District and DEQ review comments into a final updated O&M Manual to be delivered with Final Completion.

Deliverables: Six hard copies (including one unbound copy), four for District, two for DEQ, of the final updated O&M Manual will be prepared for District's use and for submittal to DEQ for approval. Draft and final copies in MS WORD and PDF format.

7.2 Startup Process Support and Training

Consultant will provide engineering and operations and maintenance support during startup.

Consultant will ensure that the new process systems are operating as they were designed. This assistance includes:

- Prepare a Plan of Operation to identify specific actions and related completion dates for startup and operation of new facilities.
- Review Contractor's startup plan
- Troubleshoot operational and process issues during and after startup of each Unit Process
- Provide onsite support during transition of process operating modes.
- Consultant shall witness the performance tests as specified in the Contract Documents, review test reports applicable to the equipment and systems, and make recommendations to the District as to acceptance.
- Provide training for the new and modified process facilities by conducting classroom training and field training using the new process equipment. This instruction shall cover both the basic

operational concept and actual operation of the systems and components under both normal and abnormal operations that are likely to occur.

Task 8 Post Construction, Construction Closeout and Documentation

8.1 Construction Document Closeout

Consultant shall finalize all documentation and project notebooks associated with Consultant support during the design and construction phase, providing any critical information and documentation to the District, and archiving critical backup files and documents.

Consultant shall provide to the District an organized set of hard copy project documents and records only for those items that were submitted in hard copy format. PWCM electronic project records are expected to be the primary source of project documents.

Consultant shall coordinate with the Contractor for the submission of required warranties, guarantees, lien releases and other similar documents as required by the contract for construction. Consultant will advise the District as to the acceptability and compliance of these documents with the contract for construction.

Consultant shall coordinate submission of letters from structural engineer of record, and Third Party Special Inspector that work is complete.

8.2 Substantial and Final Completion

Consultant shall assist the District in issuing documents for substantial and final completion and acceptance of the work. Consultant will advise the District on payment, and partial release of retention, final payment, release of retention, and release of insurance and bonds.

8.3 Occupancy and Start-Up Permits

Consultant shall assist the District with securing occupancy and start-up permits. As the contract for construction will require the contractor to secure such permits, Consultant will monitor the contractor's efforts and will advise the District of the contractor's progress. Should the District be required to secure such permits, Consultant will assist the District by coordinating final inspections, submitting documents to the governmental agencies and coordinating inspections by the agencies.

8.4 Warranty Period Services

Consultant shall coordinate with the contractor for the submission of required warranties, guarantees, lien releases and other similar documents as required by the Contract Documents. Consultant shall advise the District as to the acceptability and compliance of these documents with the Contract Documents.

8.5 Record Drawings

During the course of construction, the 3D model will be updated as part of record drawings to reflect changes to structural and mechanical features.

On a monthly basis, as part of the ongoing construction effort, Consultant will update 2-dimensional record drawings on the basis of information furnished by the contractor and field staff. Following substantial completion, these updates will be checked by Consultant field staff against all RFI's and any

changes to design. Field staff shall inspect the contractor redlines monthly, prior to approving contractor pay request.

- No formal updates to specifications will be prepared or performed as part of this work. The field team is anticipated to keep an updated set of specifications in the field office noting changes authorized by the Contract.

Deliverables: 1 electronic copy of half and full-size drawings in PDF and AutoCad formats; 3 hard copies of half-size drawings on bond paper; Updated set of specifications noting authorized changes.

8.6 Oregon DEQ Documentation

Consultant shall assemble project documentation and furnish to DEQ to support SRF Loan closeout. This work is expected to include compiling of change order information, pulling info from PWCM, documenting functional and performance testing, etc. In addition, Consultant will coordinate and submit the following:

- Draft Plan of Operation, and Draft Project Performance Standards, submitted at 50% of construction completion.
- Final Plan of Operation, and Final Project Performance Standards, submitted at 90% of construction completion.
- Summary report, and operational readiness testing (ORT), and show that every device was tested. Demonstrate that all facilities were installed, tested, commissioned and operating as intended.

Task 9 Safety

Consultant shall manage the health, safety and environmental activities of its staff and the staff of its subcontractors to achieve compliance with applicable State and Federal health and safety laws and regulations. Consultant will prepare a Health Safety and Environment (HS&E) Plan covering its staff activities. It is assumed that confined space entry is not required by Consultant employees.

Consultant shall coordinate its health, safety and environmental program with the responsibilities for health, safety and environmental compliance specified in the contract for construction. Consultant shall coordinate with responsible parties to correct conditions that do not meet applicable federal, state and local occupational safety and health laws and regulations, when such conditions expose Consultant staff, or staff of Consultant subcontractors, to unsafe conditions.

Consultant shall notify affected personnel of any site conditions posing an imminent danger to them which Consultant observes.

Consultant is not responsible for health or safety precautions of construction workers. Consultant is not responsible for the contractor's compliance with the health and safety requirements in the contract for construction, or with federal, state, and local occupational safety and health laws and regulations.

Task 10 Utility Management Systems

The purpose of this task is to provide assistance with laboratory reporting, data collection during construction, historian updating, and CMMS runtime information integration.

10.1 Laboratory Reporting System

10.1.1 Define New Parameters to be added to Labworks LIMS System.

Some new parameters are expected to derive data from the control system using the District's existing Wonderware and Labworks interface. At time of contracting Labworks is the District's lab software.

HACH WIMS software may be installed by the time this task is implemented and the level of effort is assumed to be equal between these software packages.

- Conduct one workshop with staff to determine new parameters
- Produce findings report
- SCADA staff will provide up to 8 hours of assistance in identifying tag sources.

Deliverable: Final list of new parameters.

10.1.2 Develop Report Mockups Based on New Parameters and Existing Reports.

- Produce report mockups in Excel
- Present mockups to staff

Deliverable: Report mockups

10.1.3 Modify Existing Labworks Reports to Include New Parameters.

- Add new parameters to Labworks
- Configure parameters to gather data from the SCADA system if necessary
- Add parameters to existing reports

Deliverable: Configuration changes to Labworks

Assumptions:

- District already owns Labworks and the Wonderware to Labworks interface.
- District will provide personnel to attend workshops and review deliverables
- Consultant to add up to 100 new parameters to the District's current Labworks system
- Consultant to modify up to 10 reports to include new parameters
- Consultant to modify up to 5 dataviews to facilitate the collection new parameter data

10.2 CMMS Data Collection during Construction

The spreadsheet provided in the bid documents provides information for Contractor to prepare and submit information for all new equipment and systems suitable for inclusion with District's Computerized Maintenance Management System (CMMS). Monthly submission by the contractor of required CMMS data will be required prior to Consultant recommendation for payment of contractor's pay request.

10.3 SCADA Historian Updates

10.3.1 Determine SCADA TAGS to be ADDED to Historian.

- Have up to one 2-hour workshop with District staff and SCADA team to determine required tags to add to the historian and collection parameters.
- Write requirements based on workshop findings
- District staff to review requirements

Deliverable: Requirement document for adding tags to the Historian

10.3.2 Add SCADA TAGS to the Historian and QAQC.

- Consultant will provide list of tags and District will add required tags to existing historian using determined collection parameters.
- Consultant to quality check data collected for new historian tags.

Deliverable: Historian configured with new tags.

Assumptions:

- District to provide Historian
- District to provide personnel to determine new historian tags.
- District, assisted by Consultant, to add up to 300 tags into the Wonderware historian.

10.4 Integration of SCADA Runtimes into CMMS System

10.4.1 Determine SCADA Run Time Tags to be delivered to the CMMS System.

- Have up to one 2-hour workshop with District staff and SCADA team to determine required run time tags to be monitored.
- Create list of tags based on workshop findings
- District staff to review list

Deliverable: List of run time tags

10.4.2 Create Daily Runtime CSV file from Historian.

- Produce daily runtime CSV file formatted by data, tagname, and value.

Deliverable: CSV file for runtime values

10.4.3 Assumptions

- District's CMMS system uses an automated feature to upload run time data from CSV files.

Additional Services

The following services shall be considered as Additional Services. No budget has been included for Consultant to support the following:

- Services necessary due to the default of the Contractor.
- Services for the investigation and analysis of contractor claims or preparation of reports on contractor claims except as specifically described in above scope of work. Provision of professional claims analysis services; participation in litigation or alternative dispute resolution of claims.
- Preparation for and serving as a witness in connection with any public or private hearing or other forum related to the project.
- Services to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by the District.

Project Schedule – Amendment No. 3

The services during construction services described and required herein shall be completed in a timely manner based on the District's intent to receive bids in May 2018, Contractor Notice to Proceed in July 2018 and the completion of construction in 910 calendar days.

Budget – Amendment No. 3

Staff (except Construction Manager, Resident Engineer and Construction Inspector) will bill at a raw labor multiplier of 3.15. Field staff, (Construction Manager, Resident Engineer and Construction Inspector) will bill at a raw labor multiplier of 2.7.

EXHIBIT A – SCOPE OF WORK

Labor billing rates are current at the time of the execution of the agreement and will be adjusted annually (January 1) per the Bureau of Labor and Statistics Consumer Price Index – Seattle Area CPI-All Urban Consumers.

The current authorized compensation limit for services performed under this scope of work shall not exceed the amount shown in Exhibit B. Exhibit B also shows the basis for labor and expenses used to develop the fee.

Tri City WRRF Solids Handling Improvements Services During Construction					TOTAL LABOR & EXPENSES
	Labor Hours	Labor Dollars	PEI	Expenses	
	Rate				
1.0 Project Management	0	\$ -	\$0	\$0	\$ -
1.1 Progress Meetings and Updates	1256	\$ 242,028	\$0	\$0	\$ 242,028
1.2 Project Work Plan	12	\$ 2,748	\$0	\$0	\$ 2,748
1.3 Monthly Narrative Report and Invoice	120	\$ 19,881	\$0	\$0	\$ 19,881
2.0 Partnering	80	\$ 18,320	\$0	\$2,400	\$ 20,720
3.0 Engineering Services During Construction	0	\$ -	\$0	\$0	\$ -
3.1 Conformed Documents	336	\$ 49,260	\$0	\$500	\$ 49,760
3.2 Document Management System and Procedures	0	\$ -	\$0	\$0	\$ -
3.3 Site Coordination	16	\$ 3,664	\$0	\$600	\$ 4,264
3.4 Construction Contract Administration	0	\$ -	\$0	\$0	\$ -
3.5 Contract Changes	694	\$ 129,280	\$0	\$0	\$ 129,280
3.6 Project Controls	72	\$ 14,103	\$0	\$0	\$ 14,103
3.7 Claims and Disputes	72	\$ 13,545	\$0	\$0	\$ 13,545
3.8 Interpretation of Contract Documents (RFIs)	1040	\$ 192,410	\$5,600	\$0	\$ 198,010
3.9 Submittals/Shop Drawing Reviews	2900	\$ 527,425	\$5,600	\$0	\$ 533,025
3.10 Proposed Substitutions	104	\$ 19,061	\$0	\$0	\$ 19,061
3.11 Design Team Visits	600	\$ 111,137	\$0	\$10,560	\$ 121,697
3.12 Testing, Inspection and Survey Services	372	\$ 63,558	\$0	\$2,600	\$ 66,158
4.0 Public Outreach Support	60	\$ 10,012	\$0	\$500	\$ 10,512
5.0 Control System Software Services	0	\$ -	\$0	\$0	\$ -
5.1 Control Systems Software Services PM	164	\$ 27,651	\$21,000	\$0	\$ 48,651
5.2 Project Meetings	120	\$ 20,291	\$21,000	\$0	\$ 41,291
5.3 Software Planning - Software Loop Descriptions	120	\$ 20,291	\$63,510	\$0	\$ 83,802
5.4 Software Programming	120	\$ 20,291	\$153,790	\$0	\$ 174,081
5.5 Factory Software Acceptance Testing	0	\$ -	\$59,574	\$0	\$ 59,574
5.6 Site Acceptance Testing	0	\$ -	\$87,712	\$0	\$ 87,712
5.7 HMI/SCADA Staff Training	296	\$ 53,632	\$15,746	\$0	\$ 69,378
5.8 HMI O&M Manual/Final Control system Software Documentation	0	\$ -	\$17,059	\$0	\$ 17,059
6.0 Contract Management/Field Services	10780	\$ 1,899,107	\$0	\$0	\$ 1,899,107
7.0 O&M Manual and Startup Report	0	\$ -	\$0	\$0	\$ -
7.1 Operations and Maintenance Manual	618	\$ 102,708	\$0	\$500	\$ 103,208
7.2 Startup Process Support and Training	468	\$ 85,793	\$0	\$2,540	\$ 88,333
8.0 Post Construction, Construction Closeout and Documentation	0	\$ -	\$0	\$0	\$ -
8.1 Construction Document Closeout	68	\$ 13,307	\$0	\$0	\$ 13,307
8.2 Substantial and Final Completion	16	\$ 2,832	\$0	\$525	\$ 3,357
8.3 Occupancy and Start-Up Permits	0	\$ -	\$0	\$0	\$ -
8.4 Warranty Period Services (not authorized)	0	\$ -	\$0	\$0	\$ -
8.5 Record Drawings	1162	\$ 125,491	\$0	\$0	\$ 125,491
8.6 O&M DEQ Documentation	52	\$ 6,228	\$2,660	\$0	\$ 8,888
9.0 Safety	16	\$ 1,637	\$0	\$0	\$ 1,637
10.0 Utility Management Systems	0	\$ -	\$0	\$0	\$ -
10.1 Laboratory Reporting System	140	\$ 24,523	\$3,360	\$0	\$ 27,883
10.2 CMMS Data Collection During Construction	0	\$ -	\$0	\$0	\$ -
10.3 SCADA Historian Updates	0	\$ -	\$6,720	\$0	\$ 6,720
10.4 Integration of SCADA Runtimes into CMMS System	0	\$ -	\$7,489	\$0	\$ 7,489
Total Hours	21,874	\$ 3,820,214	\$0	\$0	\$ 4,311,758
		\$ 3,820,214	\$ 470,819	\$ 20,725	
				Labor	\$3,820,214
				Expenses	\$491,544
				5% markup on Subconsultants	\$23,541
				Rounded, not to exceed	\$ 4,335,299



Gregory L. Geist
Director

August 16, 2018

Board of County Commissioners
Clackamas County

Members of the Board:

**Approval of Purchase from Evoqua Water Technologies LLC for
Bioxide for Water Environment Services Wastewater Treatment Plants**

Purpose/ Outcomes	To authorize the purchase of Bioxide from Evoqua Water Technologies LLC for the next ten (10) years
Dollar Amount and Fiscal Impact	Estimated \$150,000 per year, with a not to exceed amount of \$1,500,000 for a ten year period.
Funding Source	District funds. No general funds involved.
Duration	Approval through 6/30/2028
Previous Board Action	None
Strategic Plan Alignment	<ol style="list-style-type: none">1. This project supports the WES Strategic Plan goal to provide properly functioning infrastructure that supports healthy streams and a vibrant economy.2. This project supports the County's Strategic Plan of building a strong infrastructure that delivers services to customers and honors, utilizes, promotes and invests in our natural resources.
Contact Person	Andrew Robins, Field Operations Supervisor x2817

BACKGROUND:

Bioxide is a proprietary product that assists plant operations with odor control and hydrogen sulfide generation, in addition to protecting the collections system assets. This proprietary product is only available through this vendor. The plants and pump stations have installed infrastructure such as tanks, piping, and dosing pumps specifically for the proprietary Bioxide product. It is anticipated that the plants will need to continue purchasing Bioxide for at least the next ten (10) years. WES is requesting approval to place periodic orders for Bioxide from Evoqua Water Technologies LLC over the next ten (10) years as supplies are needed. The price for Bioxide fluctuates over time based on market conditions.

In accordance with LCRB C-047-0275, the Procurement Division issued a notice of intent to award a sole source contract on July 17, 2018. The protest period closed on July 24, 2018 and no protests were received. WES will work with the Procurement Division to issue periodic purchase orders to Evoqua Water Technologies LLC as Bioxide is needed.

County Counsel has reviewed and approved the standard County Purchase Order and has no concerns with this transactional process.

RECOMMENDATION:

Staff recommends the Board of County Commissioners authorize Water Environment Services, in coordination with the Procurement Division, to issue purchase orders for Bioxide as needed over the next ten (10) years for an amount not to exceed \$1,500,000.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Greg Geist", with a long horizontal flourish extending to the right.

Greg Geist, Director

Placed on the Agenda of _____ by the Procurement Division