



Lincoln-SMD1 Wastewater Authority

Memorandum

To: Board of Directors
From: George Barber, General Manager
Date: 09/08/23 Regular Board Meeting

Agenda Item #6

SUBJECT: Supplemental Information for design agreement with Stantec Consulting Services, Inc. for engineering services for WWTRF Phase I improvements

In the original Agenda packet, I provided the following:

There are many components to the WWTRF Phase I improvements that have already been designed by Stantec. The most prudent course of action is to contract directly with them to:

- Update the designs
- Complete design of new components
- Complete the Plans, Specifications, and Bid documents
- Provide engineering support through the construction

In the attached proposal from Stantec, they have outlined the scope of work and provided a budget estimate of \$2,975,000. The services through bidding are about half of the standard of 10% due to the early efforts.

The original Agenda estimated a one-year term, but I had asked Stantec to provide an estimate for engineering support through construction after the bidding is complete. The recommendation is to have a three-year term for this project.

Staff Recommendation:

“Approval of design agreement with Stantec Consulting Services, Inc. for engineering services for WWTRF Phase I improvements for an amount not-to-exceed \$2,975,000 from September 8, 2023, to September 8, 2026 and authorizing the General Manager to execute and administer the agreement.”

**LiSWA WWTRF Phase 1
Improvement Project**

Scope of Engineering Services



Prepared for:
Lincoln-SMD1 Wastewater Authority

Prepared by:
Stantec Consulting Services Inc.

September 4, 2023

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BACKGROUND

Planning for the LiSWA WWTRF Phase 1 Improvement Project (formally the City of Lincoln Expansion Projects) was initiated in 2016 to accommodate planned growth. It was subsequently divided into Phase 1 and 2 Expansion Projects for design and, due to anticipated construction budget limitations, the Phase 2 design was not completed. Phase 1 was put out to bid in March of 2020, but subsequently canceled due to the Covid-19 pandemic amid fear that the economic downturn would halt growth and the need for the project. In 2021, having been designed to the 2019 California Building Code (CBC), an effort was initiated to update the Phase 1 Expansion design to meet the 2022 CBC with the purpose of rebidding the project, but that process was not completed for several reasons, summarized herein. Around this time, new operating conditions became known that could affect the expansion design criteria, including higher than planned influent flow rates and total water volumes during storm events. Irregular BOD (Biochemical Oxygen Demand – a measure of organic pollution) data were also observed. In addition, during this same time, the City of Lincoln completed a water temperature and anadromous fish migration and spawning habitat study and worked with the Central Valley Regional Board to amend the NPDES permit limits through development of a Time Schedule Order (TSO) for effluent discharge limitations to Auburn Ravine Creek. Further, this is also the time period that the new LiSWA organization was formed, and it was decided to pause development of the project until the appropriate improvements were confirmed, and then complete them under the direction of the new Authority.

In 2022, Stantec coordinated with the Regional Board to confirm the new discharge and temperature limitations to Auburn Ravine Creek. These are now governed by an amended NPDES adopted in April 2023. Three technical memorandums (TM) were also developed to assess the new peak flow and BOD conditions, in conjunction with the new creek discharge limits. The TMs include:

- Lincoln WWTRF Review of Maturation Pond and Tertiary Storage Operation and Sizing and Impacts on Other Facilities Based on Updated Data and New Permit Temperature Requirements, Stantec, April 13, 2023.
- Lincoln WWTRF Ultraviolet Disinfection System Expansion, Stantec, May 8, 2023
- Lincoln WWTRF Review of Secondary Treatment Capacity Based on Recent Peak Flow Events, Revised Organic Load, and Maturation Pond Operation, Stantec, May 15, 2023

The TMs were reviewed by a third-party consultant (West Yost) over the summer of 2023, who concurred with the findings and recommendations.

In 2022 new expansion construction cost estimates were also developed to capture changes in the municipal construction market that was negatively impacted through material, equipment and labor shortages and inflation related to the pandemic and world trade economics. The results of the updated construction estimate found that the cost of the combined Phase 1 and

LISWA WWTRF PHASE 1 IMPROVEMENT PROJECT

Phase 2 Expansion in 2019, when Phase 1 was first ready to bid, increased from \$38 million to \$59 million in May 2023.

To defer costs, and incorporate the recommendations from the TMs, plus needed WWTRF improvements that have manifested over the years (the facility has been operating for almost 20 years), the improvements have been restructured into three phases, as presented below. The total estimated cost of these three phases (in current dollars) is less than the \$59 million from the original two phased expansion project because some project components have changed. The total construction estimate for the updated project configuration is estimated at \$56 million. Both the original two-phase expansion and the new three-phase project configuration increase the WWTRF treatment capacity to 8 Mgal/d average dry weather flow.

Phase	Average Dry Weather Flow Capacity (Mgal/d)	Construction Cost Estimate (May 2023 Basis)	Year Capacity is Consumed with 3% Annual Growth
1	6.0	\$24 million	2033
2	7.1	\$21 million	2039
3	8.0	\$11 million	2043

This scope of engineering services provides professional services for design, support through bidding and construction, including completion of PLC and SCADA programming, and preparation of an updated Operation and Maintenance Manual to support the new Phase 1 improvements. To the extent possible, existing design, survey, and geotechnical exploration work is updated or repurposed for improvement design efficiency, including updating structural designs to the 2022 CBC and electrical designs to the latest National Electric Code (NEC).

PROJECT IMPROVEMENT SUMMARY

The LiSWA WWTRF Phase 1 Improvement Project components to be developed in this scope of services are listed below with a brief description.

Improvement	Description
Influent Pump Station	Select and design pumps to meet new flow criteria
Headworks	Re-line channels for corrosion protection; install new gates and actuators; add dedicated generator; remove screen from existing design (installed as a separate interim project);

LISWA WWTRF PHASE 1 IMPROVEMENT PROJECT

Improvement	Description
New Grit Removal	Add new vortex grit removal facility to remove abrasive materials; add knockout wall for future improvements
Blowers For Oxidation Ditch 3	Add new blowers for efficient operation (matching existing Ditch 1 and Ditch 2 equipment); include provisions for compatibility with future Phase 2 Oxidation Ditch 4
Replace Ditch 3 Diffusers	Replace diffusers; existing diffusers are at the end of their useful life (match existing Ditch 1 and Ditch 2 equipment)
Maturation Ponds Pump Station	Select and design pumps to meet new flow criteria
Maturation Ponds Inlet Splitter Structure	Raise walls; select and install new automatic gates to meet new flow criteria
Maturation Pond Effluent Pump Station	Design new pump station to facilitate use of ponds for expanded flow equalization and tertiary flow control
Maturation Pond Outlet Gates	Install new gates in existing outlet structures to provide hydraulic control
Filter Feed Pump Station	Select and design pumps to meet new flow criteria
Tertiary Filters	Add two new filters and backwash basin to meet new flow criteria
Dissolved Air Floatation Interconnection	Remove concrete work and pipe plugs and restore piping to allow both existing units to provide mainstream treatment
UV Disinfection	Install new Wedeco UV equipment (match existing manufacturer) in the existing empty channel and replace equipment and controls at the end of their useful life in two existing channels; three other existing channels will be upgraded as a future standalone project.

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Improvement	Description
Pump Station Interconnection Piping	Add pipe and valves between the existing effluent pump station and existing Booster pump station to optimize pressure (energy) supplied for various water uses. Under current conditions, some high pressure water is provided to low pressure applications.
Water Source Interconnection Piping	Provide Division of Drinking Water approved pivot to allow on-site potable water to provide a back-up supply to reclaimed water uses in case reclaimed water is unavailable or does not meet required treatment criteria
Solids Handling Tank 1	Replace diffusers; existing diffusers are at the end of their useful life (match existing Ditch 1 and Ditch 2 equipment, and planned Ditch 3 improvements)
Plantwide Plc Upgrade	Replace and upgrade programmable logic controllers around the plant. Existing equipment is at the end of its useful life.
Reclaimed Water Filter and Chemical Injection	Add new reclaimed water filter (mesh screen) and chlorine injection system for the reclaimed water system to remove algae and minimize biogrowth in the distribution system; improvements will minimize water quality deterioration and avoid fouling downstream sprinkler systems

ASSUMPTIONS

The following assumptions have been made in preparation of this scope of services:

- No new geotechnical exploration is required, such as that for the new Maturation Pond Effluent Pump Station. Existing geotech data nearest to the site of the new facilities will be sufficient for design.
- The existing available geotech data does not require updates for design. Geotech reports are valid for five years and the original Expansion report is dated April 2018. A small allowance is included in the fee to consult the geotechnical Engineer, Blackburn Consulting.

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- No new survey is required to complete the design improvements; existing survey and base mapping will suffice.
- A CEQA update is not required, will be provided by LiSWA, or can be provided by Stantec with additional authorization. LiSWA, as the responsible agency, can make this decision. While the project configuration has changed, no net capacity change is being provided (and so the project is not growth inducing). LiSWA may consider if the project funding source has CEQA requirements.
- No new or updated environmental permits are required, they will be provided by LiSWA, or if required, they can be provided by Stantec with additional authorization. Environmental permitting needs have not been evaluated.
- NPDES permitting is not included. It is assumed that updating the facility process and infrastructure with the Regional Board will be completed through the operations contract. Current Waste Discharge Requirements for the WWTRF specifies that “the average dry weather flow shall not exceed the flow rate approved by the Executive Officer up to a maximum of 8.4 MGD.” Currently, the WWTRF is permitted for an average dry weather flow rate of 5.9 MGD. An increase in permitted flow rate requires the submittal of a Request for Increase. A letter will be required to provide justification for the increase, including discussion regarding treatment, disposal, industrial pretreatment, stormwater, and California Environmental Quality (CEQA).
- No construction management (CM), inspection, and material testing services are provided in this scope. These services can be provided by Stantec with additional authorization.

SCOPE OF ENGINEERING SERVICES

TASK 1 - PROJECT MANAGEMENT

Stantec will provide project coordination, provide quality assurance and quality control of the design, and maintain a schedule and budget to help ensure successful delivery of the Project.

1.1 - PROJECT COORDINATION AND MANAGEMENT

Stantec will provide supervision and coordination with our staff, and sub-consultants, and overall coordination of the multiple project activities. Stantec will prepare a Project Management Plan outlining the project objectives, deliverables, and work breakdown structure.

Deliverables: Project Management Plan.

LISWA WWTRF PHASE 1 IMPROVEMENT PROJECT

1.2 - PROJECT KICKOFF MEETING

Stantec will conduct a project kickoff meeting with LiSWA staff to review the scope of work and the basis of design. Meeting minutes will be prepared and distributed to the meeting participants.

Deliverable: Agenda and meeting minutes.

1.3 - DESIGN REVIEW MEETINGS

Stantec will conduct four (4) design review meetings at the following project milestones: 1) completion of the Basis of Design Report; 2) 65% Design Submittal; 3) 90% Design Submittal; and 4) 100% Design Submittal. Meeting minutes will be prepared and distributed to the meeting participants.

Deliverables: Agenda and meeting minutes.

1.4 - MONITOR PROJECT BUDGET AND DELIVERABLES SCHEDULE

Stantec will monitor the project budget and deliverables schedule and prepare a Monthly Task Summary Report to accompany the invoice for the previous month's work. The status report will review major work activities completed, budget expended, and updated deliverables schedule.

Deliverables: Monthly Task Summary Report and updated Deliverables Schedule.

1.5 - QUALITY ASSURANCE / QUALITY CONTROL (QA/QC) ACTIVITIES

Stantec will provide quality assurance and quality control for the design work which includes peer review of all project deliverables. Documents shall be reviewed for correctness, completeness, and coordination with other documents and between disciplines.

TASK 2 - PRELIMINARY DESIGN – WWTRF PHASE 1 PROJECT

Stantec will provide preliminary design engineering for the new Maturation Pond Effluent Pump Station and summarize other design criteria in a Basis of Design Report.

2.1 - MATURATION POND EFFLUENT PUMP STATION

Stantec will complete a preliminary design TM for the new Maturation Pond Effluent Pump Station. For many components of this scope of services, the intended nature of the design needs are understood and simply need to be designed. This pump station will be a new, unique facility and this TM will outline the basis of the pump station for design. Detailed design can then proceed on this basis.

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NOTE: many components of this project require preliminary design work, prior to proceeding to detailed design, such as the expanded influent pump station, or the Maturation Pond inlet improvements, among others. A PDR is not provided for each of these applications. Due to the anticipated nature of some of these preliminary tasks (model and identify new pumps, for example, not development of a whole new pump station), it is assumed that the equipment selection or appropriate concepts, will be determined during detailed design. Work effort for this purpose is therefore included in the detailed design tasks.

Deliverables: Draft and Final PDR

2.2 - BASIS OF DESIGN REPORT (SUMMARY OF EXISTING TM CRITERIA)

The design criteria for the LiSWA WWTRF Phase 1 Improvement Project are presented in previous design documents and the 2023 TMs identified in the previous sections of this scope. This Basis of Design Report will capture the various criteria in one location, adding appropriate detail, such as recycle flows that each facility must accommodate, for purposes of finalizing the project design criteria. This BODR is anticipated to be concise and efficient to prepare, with limited explanatory descriptions. This data will also be reflected on the Design Criteria drawings.

Deliverable: Draft and Final Report.

TASK 3 - FINAL DESIGN

3.1 - PREPARE DRAWINGS AND SPECIFICATIONS

Stantec will prepare a title sheet, index of drawings, general site plans, standard notes, design criteria, process flow diagram, hydraulic profile, and flow schematic drawings using AutoCAD. A total of 16 general drawings are anticipated for this project.

Stantec will prepare stamped demolition drawings for each of the project elements where existing infrastructure must be removed prior to construction of new improvements. A total of 5 demolition drawings are anticipated for this project.

Stantec will prepare stamped civil, structural and mechanical typical drawings in AutoCAD. A total of 33 typical drawings (not including electrical and instrumentation) are anticipated for this project.

Stantec will prepare stamped paving and grading, coordinate tables, yard piping, and piping profiles and detail drawings in AutoCAD. A total of 36 civil drawings are anticipated for this project.

Stantec will prepare stamped structural drawings in AutoCAD and stamped structural calculations for each of the project structures. A total of 25 structural drawings are anticipated for this project.

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Stantec will prepare stamped mechanical drawings for each of the project elements. A total of 40 mechanical drawings are anticipated for this project.

Stantec will prepare stamped cathodic protection drawings in AutoCAD for application of buried or submerged metallic fittings or materials exposed to corrosive conditions. A total of 2 cathodic protection drawings are anticipated for this project.

Stantec will prepare stamped electrical and instrumentation drawings for each of the project elements. A total of 100 electrical and instrumentation drawings are anticipated for this project.

A total of 257 drawings are anticipated for the LiSWA WWTRF Phase 1 Improvement Project.

Stantec will prepare technical specifications in five-digit CSI format using Microsoft Word. Stantec will prepare EJCDC front-end specifications for the bid documents using Microsoft Word.

Deliverables: Drawings and Specifications will be submitted electronically in PDF format.

3.2 - PREPARE 65% COMPLETE SUBMITTAL PACKAGE

The 65 percent complete submittal will include the drawings in progress at that time as well as draft specifications for key equipment items.

Deliverables: Drawings and specifications will be submitted electronically in PDF format.

3.3 - PREPARE 90% COMPLETE SUBMITTAL PACKAGE

The 90% complete submittal will include fully developed drawings as well as final specifications for key equipment items.

Deliverables: Drawings and specifications will be submitted electronically in PDF format.

3.4 - CONSTRUCTIBILITY REVIEW OF 90% DRAWINGS AND SPECIFICATIONS

Stantec shall complete a constructability review of all drawings, specifications, and other bidding documents between the 90 percent and final submittals. Documents shall be reviewed for correctness, completeness, and coordination with other documents and between disciplines.

Deliverable: Constructability review memorandum.

3.5 - PREPARE FINAL BID SET SUBMITTAL PACKAGE

After receiving final comments from the LiSWA and completion of the final QA/QC in-house review, Stantec will prepare final bidding documents for reproduction and distribution.

Deliverable: Final bidding documents (stamped and signed drawings and specifications) will be provided to LiSWA electronically in PDF format.

3.6 - PREPARE FINAL COST ESTIMATES

Stantec will prepare and submit to the LiSWA within three weeks after submission final bid set submittal, the Engineer's opinion of probable construction costs. This shall include quantity takeoffs, unit costs, and extended costs for all significant items of construction, with appropriate subtotals for major project components and overall total.

Deliverable: Cost estimate spreadsheets in PDF format.

TASK 4 – BID SUPPORT

Engineering services will be provided by Stantec during the bid period for the LiSWA WWTRF Phase 1 Improvement Project. The services to be provided include the following:

4.1 - RESPOND TO BIDDER REQUEST

Stantec will receive and respond to questions during the bid period. A log of the questions and responses will be kept and distributed to LiSWA to post, as desired.

Deliverable: RFI Log in spreadsheet format as a PDF.

4.2 - PRE-BID MEETING

Stantec will conduct a pre-bid meeting at the LiSWA WWTRF to review the project and the bidding requirements for bidding the construction work.

Deliverables: Agenda and meeting minutes.

4.3 - PREPARE BID ADDENDA

Stantec will prepare addenda in response to all questions from the contractors and vendors that require clarifications or changes to the bid documents.

Deliverable: Addenda in PDF format.

4.4 - EVALUATE BIDS

Stantec will evaluate the bid results and check references and then make a recommendation to LiSWA regarding award of the construction contract.

Deliverable: Bid investigation letter to LiSWA.

4.5 - PREPARE CONFORMED DRAWINGS FOR PHASE 1 PROJECT

Stantec will prepare conformed drawings and specifications to include all changes by addenda during bidding.

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Deliverable: Provide conformed PDF files of the Phase 1 drawings and specifications for LiSWA and Contractor reproduction.

TASK 5 - PHASE 1 CONSTRUCTION SUPPORT

5.1 - REVIEW CONTRACTOR SUBMITTALS

Upon receipt from the Contractor and in coordination with LiSWA staff, Stantec design staff will review material, equipment, and operation manual submittals for compliance with the contract documents and the design intent. Review comments will be conveyed to the Construction Manager for processing and distribution. Submittals will be reviewed and returned to the Construction Manager within 30 days unless an earlier reply is requested on selected submittals.

Deliverables: Review and provide written responses electronically for an estimated 210 submittals and 50 resubmittals.

5.2 - RESPOND TO CONTRACTORS RFIS AND CLARIFICATIONS

Stantec design staff will respond in writing and in a timely manner to requests for information (RFI's) from the contractor. RFI's will be reviewed and returned to the Construction Manager. Stantec shall respond to RFI's in writing within 7 calendar days, unless an earlier reply is requested on selected RFI's.

Deliverables: Respond in writing electronically to an estimated 150 RFIs.

5.3 - ASSIST IN PREPARATION OF CHANGE ORDERS (10)

Stantec will assist with the technical review, drawings and specifications for change orders prepared by the Construction Manager. It is assumed the Construction Manager will be responsible for preparing the change order document and negotiating the change order cost with the Contractor.

Deliverables: Respond in writing electronically to an estimated ten (10) change orders.

5.4 - FACTORY TESTING, START-UP ASSISTANCE

Stantec's and/or subconsultant ControlPoint, will witness and document factory testing for equipment and electrical control panels, and will assist with start-up of new equipment and facility operations. It is assumed the Construction Manager, working with the Contractor, will be responsible for scheduling factor tests and start-up operations.

Deliverables: Attend witness tests, provide appropriate documentation, and support start-up.

5.5 - ATTEND CONSTRUCTION PROGRESS MEETINGS

Stantec will attend and participate in the weekly construction progress meetings and visit the job site as necessary in order to provide better communication between the Construction Manager, Contractor and the Design Team.

Deliverables: Attend, support and provide comments to meeting minutes (provided by the Construction Manager) electronically for a maximum of eighty (60) weekly construction progress meetings.

TASK 6 - SPECIALTY CONSTRUCTION SERVICES

6.1 - SCADA PROGRAMMING AND GRAPHICS

Stantec and subconsultant ControlPoint will provide PLC and SCADA programming and screen graphics for the new unit processes utilizing the existing software and formatting that was setup and provided with the previous expansion project. See attached ControlPoint scope of services.

Deliverables: Fully functional SCADA system for the new treatment processes included with the LiSWA WWTRF Phase 1 Improvement Project.

6.2 - UPDATE LISWA WWTRF O&M MANUAL

Stantec will update the existing hard copy operation and maintenance (O&M) manuals at the LiSWA WWTRF by replacing outdated information with new replacement pages and entering new O&M pages for new facilities.

Deliverables: A total of two (2) hard copy manuals at LiSWA WWTRF will be updated with new replacement pages. A PDF of the updated manual will be delivered to LiSWA.

TASK 7 - PROJECT CLOSEOUT

7.1 - PREPARE AS-BUILT RECORD DRAWINGS

Stantec will prepare as-built record drawings based on the markups from the Contractor and Construction Manager. It is expected that the Construction Manager will verify that the as-built markups prepared by the Contractor are accurate and correct.

Deliverables: PDF files of as-built record drawings will be delivered to LiSWA.

BUDGET ESTIMATE

Our services will be performed on time and expenses basis. Attached is a work breakdown structure (WBS) of the estimated work effort totaling \$2,975,000. The fee estimate is broken out for each team member in a matrix format showing hours and charge rates per team member. Also included is our Standard Billing Rates for 2023 showing hourly rates by skill classification.

ATTACHMENT A – TASK LABOR AND BUDGET ESTIMATE

Task Labor and Budget Estimate and Standard Billing Rates

FEE ESTIMATE - LISWA WWTRF Phase 1 Expansion Project

	Principal-in-Charge	Project Manager	Senior Civil Engineer	Senior Process Engineer	Civil Engineer	Civil Engineer	Civil Engineer	Senior Designer	Designer	Electrical Designer	Civil Engineer	QA/QC	Construction Manager	Admin Assistant	ODCs	Capstone (Structural)	ControlPoint (Electrical)	Blackburn (Geotech)
Name	Beck, Steven	Aronow, Gabe	Cohen, Beth	Botrous, Akram	McGartland, Kelly	Vakulchik, Alex	Fonseca, Cristina	Bartos, Andy	Maddux, Mike	Morales, Heather	Padilla, Mitchell	Hauser, Jeff	Chavez, Stephen	Herrera, Olivia				
Project Billing Rate	\$276	\$276	\$275	\$275	\$200	\$200	\$250	\$211	\$211	\$200	\$187	\$276	\$275	\$164				
Total Units (T&M)	96	772	834	710	872	1,152	244	828	508	262	300	80	24	300				
Fee (T&M)	\$26,496	\$213,072	\$229,350	\$195,250	\$174,400	\$230,400	\$61,000	\$174,708	\$107,188	\$52,400	\$56,100	\$22,080	\$6,600	\$49,200				
Escalation (T&M)	\$1,908	\$14,963	\$19,255	\$17,018	\$13,234	\$14,934	\$5,460	\$8,770	\$7,792	\$2,500	\$7,007	\$719	\$264	\$2,795				
Total Fee (T&M)	\$28,404	\$228,035	\$248,605	\$212,268	\$187,634	\$245,334	\$66,460	\$183,478	\$114,980	\$54,900	\$63,107	\$22,799	\$6,864	\$51,995	\$17,698	\$261,289	\$969,269	\$11,880

Project Summary Totals				
Hours	Labour	Expense	Subs	Total
6,982	\$1,714,864	\$17,698	\$1,242,438	\$2,975,000

Task	Task Name	Hours																	Hours	Labour	Expense	Subs	Total				
1	Project Management																		409	\$112,008	\$1,650	\$0	\$113,658				
1.1	Project Coordination and Administration	20	120																40	500			180	\$48,340	\$500	\$0	\$48,840
1.2	Project Kickoff Meeting	2	2		2														1	\$150			7	\$1,818	\$150	\$0	\$1,968
1.3	Design Review Meetings	6	8		8				4										4	\$400			30	\$7,810	\$400	\$0	\$8,210
1.4	Monitor Project Budget & Schedule	6	80											8					8	\$400			94	\$26,788	\$400	\$0	\$27,188
1.5	Quality Assurance / Quality Control	6					8					80		4					4	\$200			98	\$27,252	\$200	\$0	\$27,452
2	Preliminary Design - WWTRF Phase 1 Project																		120	\$26,748	\$200	\$2,970	\$29,918				
2.1	Prepare Maturation Pond Effluent PS TM		24	4			24		8	16				6	\$100	\$990	\$990	\$990	6	\$100	\$990	\$990	82	\$18,572	\$100	\$2,970	\$21,642
2.2	Prepare Basis of Design Report		4	4		12	12		4					2	\$100				2	\$100			38	\$8,176	\$100	\$0	\$8,276
3	Final Design - WWTRF Phase 1 Project																		2,540	\$568,916	\$5,200	\$361,334	\$935,450				
3.1	Prepare Drawings and Specifications		140	140	90	300	540	20	560	190	190			120	\$2,000	\$143,974	\$170,500	\$10,890	120	\$2,000	\$143,974	\$170,500	2,290	\$506,903	\$2,000	\$325,364	\$834,267
3.2	65% Submittal Package	2	8	8	8				16	16	16			8	\$500	\$4,950	\$5,940		8	\$500	\$4,950	\$5,940	82	\$19,161	\$500	\$10,890	\$30,551
3.3	90% Submittal Package	2	8	8	8				16	16	16			8	\$500	\$4,950	\$5,940		8	\$500	\$4,950	\$5,940	82	\$19,161	\$500	\$10,890	\$30,551
3.4	Constructability Review 90% Submittal												24		\$100					\$100			24	\$6,864	\$100	\$0	\$6,964
3.5	Prepare Final Bid Documents	4	10	10	10									8	\$2,000	\$4,950	\$5,940		8	\$2,000	\$4,950	\$5,940	42	\$11,103	\$2,000	\$10,890	\$23,993
3.6	Prepare Final Construction Cost Estimate		4	8	8										\$100		\$3,300			\$100		\$3,300	20	\$5,724	\$100	\$3,300	\$9,124
4	Bid Support																		177	\$42,399	\$1,000	\$12,210	\$55,609				
4.1	Respond to Contractor RFIs		8	12	8	8	8	8						4	\$100	\$2,475	\$4,950		4	\$100	\$2,475	\$4,950	56	\$14,107	\$100	\$7,425	\$21,632
4.2	Pre-Bid Meeting	2	2											1	\$100				1	\$100			5	\$1,319	\$100	\$0	\$1,419
4.3	Bid Addenda	2	8	8	8									2	\$500				2	\$500			28	\$7,788	\$500	\$0	\$8,288
4.4	Evaluate Bids		2	8										2	\$100				2	\$100			12	\$3,203	\$100	\$0	\$3,303
4.5	Prepare Conformed Drawings		4				16		24	16				16	\$200	\$1,485	\$3,300		16	\$200	\$1,485	\$3,300	76	\$15,983	\$200	\$4,785	\$20,968
5	Engineering Services During Construction																		2,618	\$692,657	\$5,500	\$235,950	\$934,107				
5.1	Review Contractor Submittals (260)	10	100	300	300	300	300	60							\$2,000	\$50,490	\$42,900			\$2,000	\$50,490	\$42,900	1,370	\$362,173	\$2,000	\$93,390	\$457,563
5.2	Respond to Contractor RFIs (150)	18	80	80	80	80	80	80	100	50				24	\$500	\$43,560	\$35,200		24	\$500	\$43,560	\$35,200	672	\$173,910	\$500	\$78,760	\$253,170
5.3	Assist in Preparation of Change Orders (10)	16	80	80	40	40	40	40	40	40					\$500		\$15,400			\$500		\$15,400	416	\$112,235	\$500	\$15,400	\$128,135
5.4	Factory Testing and Startup Assistance		4	4	4	4	4	4							\$500		\$28,600			\$500		\$28,600	20	\$5,376	\$500	\$28,600	\$34,476
5.5	Attend Construction Progress Meetings (60)		40	40	20	20	20								\$2,000		\$19,800			\$2,000		\$19,800	140	\$38,962	\$2,000	\$19,800	\$60,762
6	Specialty Support Services																		936	\$226,654	\$1,500	\$617,159	\$845,313				
6.1	PLC / SCADA Programming and Graphics		16	20	20	8	8	8							\$500		\$607,259			\$500		\$607,259	80	\$22,601	\$500	\$607,259	\$630,361
6.2	Update LISWA WWTRF O&M Manual		16	80	80	100	100	20		120		300		40	\$1,000		\$9,900			\$1,000		\$9,900	856	\$204,052	\$1,000	\$9,900	\$214,952
7	Project Closeout																		182	\$45,482	\$2,648	\$12,815	\$60,945				
7.1	Prepare As-Built Record Drawings		4	20	16				60	40	40			2	2,648	\$3,465	\$9,350		2	2,648	\$3,465	\$9,350	182	\$45,482	\$2,648	\$12,815	\$60,945

SCHEDULE OF BILLING RATES – 2023 (USD)

Billing Level	Hourly Rate	Description
3	\$122	Junior Level position <ul style="list-style-type: none"> <input type="checkbox"/> Independently carries out assignments of limited scope using standard procedures, methods and techniques <input type="checkbox"/> Assists senior staff in carrying out more advanced procedures <input type="checkbox"/> Completed work is reviewed for feasibility and soundness of judgment <input type="checkbox"/> Graduate from an appropriate post-secondary program or equivalent <input type="checkbox"/> Generally, one to three years' experience
4	\$129	
5	\$145	
6	\$150	Fully Qualified Professional Position <ul style="list-style-type: none"> <input type="checkbox"/> Carries out assignments requiring general familiarity within a broad field of the respective profession <input type="checkbox"/> Makes decisions by using a combination of standard methods and techniques <input type="checkbox"/> Actively participates in planning to ensure the achievement of objectives <input type="checkbox"/> Works independently to interpret information and resolve difficulties <input type="checkbox"/> Graduate from an appropriate post-secondary program, with credentials or equivalent <input type="checkbox"/> Generally, three to six years' experience
7	\$164	
8	\$170	
9	\$178	First Level Supervisor or first complete Level of Specialization <ul style="list-style-type: none"> <input type="checkbox"/> Provides applied professional knowledge and initiative in planning and coordinating work programs <input type="checkbox"/> Adapts established guidelines as necessary to address unusual issues <input type="checkbox"/> Decisions accepted as technically accurate, however may on occasion be reviewed for soundness of judgment <input type="checkbox"/> Graduate from an appropriate post-secondary program, with credentials or equivalent <input type="checkbox"/> Generally, five to nine years' experience
10	\$187	
11	\$200	
12	\$211	Highly Specialized Technical Professional or Supervisor of groups of professionals <ul style="list-style-type: none"> <input type="checkbox"/> Provides multi-discipline knowledge to deliver innovative solutions in related field of expertise <input type="checkbox"/> Participates in short and long range planning to ensure the achievement of objectives <input type="checkbox"/> Makes responsible decisions on all matters, including policy recommendations, work methods, and financial controls associated with large expenditures <input type="checkbox"/> Reviews and evaluates technical work <input type="checkbox"/> Graduate from an appropriate post-secondary program, with credentials or equivalent <input type="checkbox"/> Generally, ten to fifteen years' experience with extensive, broad experience
13	\$220	
14	\$238	
15	\$250	Senior Level Consultant or Management <ul style="list-style-type: none"> <input type="checkbox"/> Recognized as an authority in a specific field with qualifications of significant value <input type="checkbox"/> Provides multi-discipline knowledge to deliver innovative solutions in related field of expertise <input type="checkbox"/> Independently conceives programs and problems for investigation <input type="checkbox"/> Participates in discussions to ensure the achievement of program and/or project objectives <input type="checkbox"/> Makes responsible decisions on expenditures, including large sums or implementation of major programs and/or projects <input type="checkbox"/> Graduate from an appropriate post-secondary program, with credentials or equivalent <input type="checkbox"/> Generally, more than twelve years' experience with extensive experience
16	\$267	
17	\$275	
18	\$276	Senior Level Management under review by Vice President or higher <ul style="list-style-type: none"> <input type="checkbox"/> Recognized as an authority in a specific field with qualifications of significant value <input type="checkbox"/> Responsible for long range planning within a specific area of practice or region <input type="checkbox"/> Makes decisions which are far reaching and limited only by objectives and policies of the organization <input type="checkbox"/> Plans/approves projects requiring significant human resources or capital investment <input type="checkbox"/> Graduate from an appropriate post-secondary program, with credentials or equivalent <input type="checkbox"/> Generally, fifteen years' experience with extensive professional and management experience
19	\$286	
20	\$296	
21	\$314	

All labor rates will be subject to annual increase of 4% on January 1st of each calendar year.

ATTACHMENT B – PLC AND SCADA PROGRAMMING SCOPE

ControlPoint PLC and SCADA programming scope of services

Scope of Services
Lincoln-SMD1 Wastewater Authority
WWTRF Improvement Project Phase 1
PLC & SCADA Integration
September 1, 2023

Scope of Services

Our scope of services will provide the following:

- Project Coordination
- Process Control Strategies
- PLC Programming
- SCADA System Development
- Software Testing & Validation
- Startup & Commissioning

1. Engineering Construction Coordination

1.1 - Project Management

The main components of the Project Management task will include coordination with Stantec, the District, and the Contractor. We will provide project progress reports and invoices throughout the project. The schedule, progress reports, and detailed billings, including labor reports, will be submitted in sufficient detail to track the project status and contract expenditures. It is assumed that the construction duration will be approximately 30 months.

1.2 - Correspondence and Coordination

Successful SCADA Integration will require ongoing coordination with the Project Engineers, the WWTRF Operations team, and the Contractor. We have budgeted time for ongoing communication throughout the project.

1.3 - SCADA Application Development Meetings with Operations

We will organize and lead on-site SCADA Application Development meetings with the WWTRF Operations group. These meetings ensure that our SCADA development is performed in alignment with the Operations team's expectation.

2. Process Control Strategies

2.1 - Control Strategy Workshops with Engineering and Operations

We anticipate a minimum of two meetings with the Project Engineers and WWTRF Operations staff in order to gather the required information to develop comprehensive control strategies. ControlPoint will organize and lead these meetings.

2.2 - Control Strategy Document

Written Control Strategies will be developed to describe the control system improvements. An Alarm Spreadsheet will be developed for testing and signoff purposes.



3. PLC Programming

3.1~3.7 - PLC Programming

We will develop PLC code per the control strategies developed in Task 2 and in alignment with the plant's existing PLC standards. The following PLCs will receive modifications as part of this task:

1. PLC-100 Headworks and Influent Pump Station
2. PLC-203 Ox Ditch 3 (new PLC)
3. PLC-300 Filter Feed
4. PLC-301 Filter 7, Filter 8
5. PLC-UV Programming (Messaging with Plant PLCs)
6. PLC-480 Reclaim Water Filter and Chemical Injection
7. PLC-930 Maturation Pond Effluent Pumps

3.8 - Plant-wide PLC Processor Upgrades (16 total)

The following PLC racks contain aging processors and will be replaced with new processors provided by the Contractor. We have budgeted 16 hours for each processor upgrade. The upgrade work for each processor upgrade includes off-site bench testing, cutover coordination with Operations, on-site installation and testing, and post-cutover monitoring and corrections.

1. PLC-100A
2. PLC-100B
3. PLC-200
4. PLC-202
5. PLC-300
6. PLC-301
7. PLC-400
8. PLC-480
9. PLC-500
10. PLC-700
11. PLC-800
12. PLC-911
13. PLC-912
14. PLC-930
15. PLC-950
16. PLC-970

4. SCADA System Development

4.1~4.10 - SCADA System Development

We will develop new SCADA application graphics and tags within the District's Ignition® SCADA application, while also providing process visualization, setpoint manipulation, alarming, history, and trending for the following processes:

1. PLC-100 Headworks and Influent Pump Station
2. PLC-203 Ox Ditch 3 (new PLC)
3. PLC-300 Filter Feed
4. PLC-301 Filter 7, Filter 8
5. PLC-UV Programming (Messaging with Plant PLCs)



6. PLC-480 Reclaim Water Filter and Chemical Injection
7. PLC-930 Maturation Pond Effluent Pumps

5. Software Testing & Validation

5.1 - PLC-203 Control Panel Factory Testing

We will attend Control Panel Factory Testing for the new PLC-203 enclosure.

5.2 - Bench Test PLC Code with SCADA Screens

We will demonstrate the new PLC code to District staff in a consequence-free environment. The PLC and SCADA objects will be vetted, and the functionality demonstrated prior to signal cutovers and again during each signal cutover. This labor-intensive exercise provides an opportunity to find development bugs prior to field deployment. We will test display points, setpoints, alarms, and control strategy functions during these exercises.

5.3 - PLC Code Requests from Operations

We have budgeted for 40 hours to incorporate minor PLC code improvements and develop system functions that were not previously considered during the development of Process Control Strategies.

5.4 - SCADA Application Requests from Operations

We have budgeted for 40 hours to incorporate minor SCADA Application improvements and develop system functions that were not previously considered during the development of Process Control Strategies.

6. Software Testing & Validation

6.1 - I/O Loopchecks with Electrical Contractor

We will perform I/O loopchecks with the Contractor within each modified Control Panel. Each I/O point that is cutover will be loop checked to/from the corresponding field device and to the new RIO rack. Once loop checks are completed, the PLC code and HMI functionality will be tested. Functional tests will be performed with operations staff as each pump or field device is cutover.

6.2 - Functional and Operational Testing

Once loop checks are completed, the PLC code and HMI functionality will be tested. Functional tests will be performed with plant Operations staff as new field device and process is brought online.

6.3 - Training

We will provide SCADA Application User training sessions for the Operations group. The training sessions will focus on the capabilities and features of the new SCADA application components.

6.4 - Post-commissioning Punchlist

Newly installed process controls often require adjustments or enhancements after being online for a few months, so we have budgeted time to address post-commissioning punchlist items captured by the plant Operations team.



Deliverables

- Fully-documented, electronic copies of all PLC Programs
- Ignition Gateway Backups
- Control Strategy Document

Scope of Services Assumptions and Understandings

Our Scope of Services is based upon the following assumptions and understandings:

- The construction phase is estimated to last thirty (30) consecutive months.
- Plant Operations team engagement will be ongoing throughout the project.

Exclusions

- Items not specifically mentioned in this scope of services.

ControlPoint Engineering, Inc.

Jeremy Pollet, P.E.

Principal Engineer

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ATTACHMENT C – ESTIMATED DRAWING LIST

Estimated Drawing List

LINCOLN-SMC1 WASTEWATER AUTHORITY WWTRF PHASE 1 IMPROVEMENT PROJECT ESTIMATED DRAWING LIST

SHT NO.	DWG NO.	DWG TITLE (1)
1	G001	PROJECT TITLE, VICINITY MAP AND LOCATION MAP
2	G002	INDEX OF DRAWINGS
3	G003	INDEX OF DRAWINGS CONTINUED
4	G004	ABBREVIATIONS, AREA DESIGNATIONS, LEGENDS, PIPING SYSTEM AND SYMBOLS
5	G005	ABBREVIATIONS
6	G006	GENERAL SITE PLAN 1
7	G007	GENERAL SITE PLAN 2
8	G008	DESIGN CRITERIA 1
9	G009	DESIGN CRITERIA 2
10	G010	DESIGN CRITERIA 3
11	G011	PROCESS FLOW DIAGRAM
12	G012	HYDRAULIC PROFILE
13	G014	POTABLE AND NON-POTABLE WATER FLOW SCHEMATIC
14	G015	RECLAIMED WATER FLOW SCHEMATIC
15	G016	PLANT DRAIN SYSTEM FLOW SCHEMATIC
16	D220	EXISTING OXIDATION DITCH 3 AERATION BLOWERS DEMOLITION PLAN AND SECTION
17	D230	EXISTING OXIDATION DITCH 3 DIFFUSER DEMOLITION PLAN AND DETAILS
18	D330	DISSOLVED AIR FLOTATION FLATWORK AND PIPE PLUG DEMOLITION
19	D710	EXISTING SOLIDS HOLDING TANK 1 DEMOLITION PLAN
20	D711	EXISTING SOLIDS HOLDING TANK 1 DEMOLITION SECTION AND DETAIL
21	C001	TYPICAL CIVIL DETAILS 1
22	C002	TYPICAL CIVIL DETAILS 2
23	C003	TYPICAL CIVIL DETAILS 3
24	C004	TYPICAL CIVIL DETAILS 4
25	C005	TYPICAL CIVIL DETAILS 5
26	C006	TYPICAL CIVIL DETAILS 6
27	C007	TYPICAL CIVIL DETAILS 7
28	C008	TYPICAL CIVIL DETAILS 8
29	C010	CIVIL KEY MAP AND SURVEY CONTROL
30	C020	GRADING AND PAVING PLAN 1
31	C021	GRADING AND PAVING PLAN 2
32	C022	GRADING AND PAVING PLAN 3
33	C023	GRADING AND PAVING PLAN 4
34	C024	GRADING AND PAVING PLAN 5
35	C025	GRADING AND PAVING PLAN 6
36	C026	GRADING AND PAVING PLAN 7
37	C027	GRADING AND PAVING PLAN 8
38	C028	GRADING AND PAVING PLAN 9
39	C029	GRADING AND PAVING PLAN 10
40	C030	GRADING AND PAVING PLAN 11
41	C031	GRADING AND PAVING PLAN 12
42	C032	GRADING AND PAVING PLAN 13
43	C033	GRADING AND PAVING PLAN 14
44	C034	GRADING AND PAVING PLAN 15
45	C040	YARD PIPING PLAN 1
46	C041	YARD PIPING PLAN 2
47	C042	YARD PIPING PLAN 3
48	C043	YARD PIPING PLAN 4
49	C044	YARD PIPING PLAN 5
50	C045	YARD PIPING PLAN 6
51	C046	YARD PIPING PLAN 7
52	C047	YARD PIPING PLAN 8
53	C048	YARD PIPING PLAN 9
54	C049	YARD PIPING PLAN 10
55	C050	YARD PIPING PLAN 11
56	C051	YARD PIPING PLAN 12
57	C052	YARD PIPING PLAN 13
58	C053	YARD PIPING PLAN 14
59	C054	YARD PIPING PLAN 15
60	C082	PIPE PROFILES 1
61	C082	PIPE PROFILES 2
62	C930	EXISTING MATURATION PONDS OUTLET MODIFICATION PIPING PLAN
63	C931	EXISTING MATURATION PONDS OUTLET MODIFICATION GRADING AND PAVING PLAN
64	C932	EXISTING MATURATION PONDS OUTLET STRUCTURE 1 & 2 MODIFICATION PLANS, SECTION AND DETAIL
65	CP01	CATHODIC PROTECTION SYSTEM DETAILS 1

SHT NO.	DWG NO.	DWG TITLE (1)
66	CP02	CATHODIC PROTECTION SYSTEM DETAILS 2
67	CP03	CATHODIC PROTECTION SYSTEM DETAILS 3
68	S001	TYPICAL STRUCTURAL NOTES 1
69	S002	TYPICAL STRUCTURAL NOTES 2
70	S003	TYPICAL STRUCTURAL DETAILS 1
71	S004	TYPICAL STRUCTURAL DETAILS 2
72	S005	TYPICAL STRUCTURAL DETAILS 3
73	S006	TYPICAL STRUCTURAL DETAILS 4
74	S007	TYPICAL STRUCTURAL DETAILS 5
75	S008	TYPICAL STRUCTURAL DETAILS 6
76	S009	TYPICAL STRUCTURAL DETAILS 7
77	S010	TYPICAL STRUCTURAL DETAILS 8
78	S011	TYPICAL STRUCTURAL DETAILS 9
79	S012	TYPICAL STRUCTURAL DETAILS 10
80	S130	EXISTING HEADWORKS MODIFCATIONS DEMOLTION PLAN AND SECTION
81	S131	EXISTING HEADWORKS MODIFCATIONS PLANS EL +103.00 AND EL +112.00
82	S132	EXISTING HEADWORKS MODIFCATIONS PLANS EL +114.00 AND EL +120.00
83	S133	EXISTING HEADWORKS MODIFCATIONS SECTION 1
84	S134	EXISTING HEADWORKS MODIFCATIONS SECTION 2
85	S135	EXISTING HEADWORKS MODIFCATIONS PARTIAL PLAN
86	S240	AERATION BLOWERS FOUNDATION AND CANOPTY PLAN AND SECTION
87	S245	MCC-200 EQUIPMENT FOUNDATION AND CANOPY PLAN AND SECTIONS
88	S350	DISSOLVED AIR FLOATATION FLATWORK PLAN AND SECTIONS
89	S350	TERTIARY FILTER ADDITION TOP PLAN AND SECTION
90	S351	TERTIARY FILTER ADDITION SECTION 1
91	S352	TERTIARY FILTER ADDITION SECTION 2
92	S353	TERTIARY FILTER ADDITION SECTION 3
93	S354	TERTIARY FILTER ADDITION TOP PARTIAL PLAN AND SECTION
94	S355	TERTIARY FILTER ADDITION TOP PARTIAL PLAN AND SECTION
95	S356	TERTIARY FILTER ADDITION TOP PARTIAL PLAN AND SECTION
96	S357	TERTIARY FILTER ADDITION TOP PARTIAL PLAN AND SECTION
97	S490	18" RECLAIMED WATER PIPELINE FILTER, CHEMICAL INJECTION AND METER FOUNDATION AND CANOPY PLAN
98	S491	18" RECLAIMED WATER PIPELINE FILTER, CHEMICAL INJECTION AND METER CANOPY SECTION AND DETAIL
99	S610	STANDBY GENERATOR PLAN AND SECTIONS
100	S920	MATURATON PONDS INLET PLAN, SECTION AND DETAIL
101	S925	MATURATION POND LEVEL CONTROL STRUCTURE MODIFICATIONS PLAN AND SECTIONS
102	S925	MATURATION POND EFFLUENT PUMP STATION PLAN AND SECTION
103	S931	MATURATON POND EFFLUENT PUMP STATION SECTION
104	S935	MATURATON POND EFFLUENT FLOW METER VAULT PLAN AND SECTIONS
105	M001	TYPICAL MECHANICAL DETAILS 1
106	M002	TYPICAL MECHANICAL DETAILS 2
107	M003	TYPICAL MECHANICAL DETAILS 3
108	M004	TYPICAL MECHANICAL DETAILS 4
109	M005	TYPICAL MECHANICAL DETAILS 5
110	M006	TYPICAL MECHANICAL DETAILS 6
111	M007	TYPICAL MECHANICAL DETAILS 7
112	M008	TYPICAL MECHANICAL DETAILS 8
113	M009	TYPICAL MECHANICAL DETAILS 9
114	M010	TYPICAL MECHANICAL DETAILS 10
115	M011	TYPICAL MECHANICAL DETAILS 11
116	M012	TYPICAL MECHANICAL DETAILS 12
117	M013	TYPICAL MECHANICAL DETAILS 13
118	M020	GATE SCHEDULE 1
119	M021	GATE SCHEDULE 2
120	M022	PRESSURE GUAGE SCHEDULE
121	M110	EXISTING INFLUENT PUMP STATION AND HEAWORKS KEY PLAN
122	M120	INFLUENT PUMP STATION MODDIFICATIONS PLANS, SECTIONS AND DETAIL
123	M121	INFLUENT PUMP STATION MODDIFICATIONS SECTIONS AND DETAIL
124	M130	EXISTING HEADWORKS MODIFICATIONS GRIT BASIN, PUMP AND CLASSIFER PLAN
125	M131	EXISTING HEADWORKS MODIFICATIONS GRIT BASIN, PUMP AND CLASSIFER SECTION AND DETAIL
126	M132	EXISTING HEADWORKS MODIFICATIONS GRIT PUMP AND CLASSIFER PARTIAL PLAN
127	M133	EXISTING HEADWORKS MODIFICATIONS GRIT PUMP AND CLASSIFER SECTION
128	M134	EXISTING HEADWORKS MODIFICATIONS FOUL AIR PIPING AND DUMPSTER PARTIAL PLAN AND SECTION
129	M135	EXISTING HEADWORKS MODIFICATIONS RECIVING CHANNEL REPAIR & RE-COATING PLAN AND SECTION
130	M220	EXISTING OXIDATION DITCH 3 BLOWERS PARTIAL PLAN
131	M121	EXISTING OXIDATION DITCH 3 BLOWERS PARTIAL SECTION AND DETAIL
132	M230	EXISTING OXIDATION DITCH 3 DIFFUSER PLAN

SHT NO.	DWG NO.	DWG TITLE (1)
133	M231	EXISTING OXIDATION DITCH DIFFUSER SECTION AND DETAILS
134	M310	MATURATION POND PUMP STATION MODIFICATIONS PLANS, SECTIONS AND DETAIL
135	M310	FILTER FEED PUMP STATION MODIFICATIONS PLANS, SECTIONS AND DETAIL
136	M350	TERTIARY FILTER ADDITION OVERALL PLAN
137	M351	TERTIARY FILTER ADDITION FILTER NO. 7 & NO. 8 PARTIAL PLAN AND SECTIONS
138	M352	TERTIARY FILTER ADDITION NEW PIPE GALLERY SECTIONS AND DETAIL
139	M353	TERTIARY FILTER ADDITION EXISTING PIPE GALLERY SECTIONS
140	M354	TERTIARY FILTER ADDITION FILTER NO. 7 SECTIONS
141	M355	TERTIARY FILTER ADDITION FILTER NO. 8 SECTIONS
142	M356	TERTIARY FILTER ADDITION DETAILS
143	M400	UV MODIFICATIONS OVERALL PLAN
144	M401	UV MODIFICATIONS SECTIONS AND DETAILS
145	M402	UV MODIFICATIONS DETAILS
146	M403	UV MODIFICATIONS GATE DETAILS
147	M470	EFFLUENT PUMP STATION PLAN AND SECTION
148	M471	EFFLUENT PUMP STATION SECTION AND DETAILS
149	M490	18" RECLAIMED WATER FILTER, CHEMICAL INJECTION AND METER PLANS
150	M491	18" RECLAIMED WATER FILTER, CHEMICAL INJECTION AND METER SECTIONS
151	M710	EXISTING SOLID HOLDING TANK 1 MODIFICATIONS PLAN AND DETAIL
152	M711	EXISTING SOLID HOLDING TANK 1 MODIFICATIONS SECTION AND DETAIL
153	M920	EXISTING MATURATION PONDS INLET MODIFICATIONS PLAN AND SECTION
154	M921	EXISTING MATURATION PONDS INLET MODIFICATIONS SECTIONS AND DETAILS
155	M930	MATURATION POND EFFLUENT PUMP STATION AND FLOW METER VAULT PLAN
156	M931	MATURATION POND EFFLUENT PUMP STATION SECTIONS
157	M935	MATURATION POND EFFLUENT FLOW METER VAULT PARTIAL PLAN AND SECTIONS
158	I001	INSTRUMENTATION SYMBOLS & ABBREVIATIONS
159	I002	SCADA SYSTEM BLOCK DIAGRAM 1
160	I003	SCADA SYSTEM BLOCK DIAGRAM 2
161	I003	SCADA SYSTEM BLOCK DIAGRAM 3
162	I010	TYPICAL CONTROL PANEL ELEVATION
163	I011	TYPICAL CONTROL PANEL ELEMENTARY DIAGRAM
164	I020	EXAMPLE INTERCONNECT DRAWING
165	I021	EXAMPLE AI MODULE LOOP DIAGRAM
166	I022	EXAMPLE AO MODULE LOOP DIAGRAM
167	I023	EXAMPLE DI MODULE LOOP DIAGRAM
168	I024	EXAMPLE DO MODULE LOOP DIAGRAM
169	I030	INSTRUMENTATION DETAILS 1
170	I031	INSTRUMENTATION DETAILS 2
171	I032	INSTRUMENTATION DETAILS 3
172	I090	PROCESS FLOW DIAGRAM
173	I100	MCC-100 EMERGENCY STANDBY GENERATOR P&ID
174	I121	INFLUENT PUMP STATION MODIFICATION P&ID 1
175	I122	INFLUENT PUMP STATION MODIFICATION P&ID 2
176	I130	GRIT REMOVAL P&ID
177	I131	GRIT CLASSIFIER P&ID
178	I203	CONTROL PANEL CP-203 P&ID
179	I214	OXIDATION DITCH 3 MODIFICATIONS P&ID
180	I219A	OXIDATION DITCH 3 AERATION BLOWER P&ID 1
181	I219B	OXIDATION DITCH 3 AERATION BLOWER P&ID 2
182	I330	DAF INTERCONNECTION P&ID
183	I350	FILTER NO.7 P&ID
184	I351	FILTER NO.8 P&ID
185	I401	UV SYSTEM P&ID
186	I410	UV UNIT 2 MODIFICATIONS P&ID
187	I410	UV CHANNEL 6 P&ID
188	I490	RECLAIM WATER FILTER AND CHEMICAL INJECTION
189	I930	MATURATION POND EFFLUENT PS P&ID
190	E001	ELECTRICAL SYMBOLS AND ABBREVIATIONS
191	E002	ELECTRICAL NOTES
192	E003	EXISTING 12KV MAIN SWITCHGEAR "MSG-1" PLANT DISTRIBUTION ONE-LINE DIAGRAM
193	E003A	PLANT WIDE LOAD CALCULATION
194	E010	FVNR SCHEMATIC DIAGRAM (CONTROLLED FROM MCC)
195	E011	FVNR SCHEMATIC DIAGRAM (CONTROLLED FROM FIELD)
196	E012	VFD SCHEMATIC DIAGRAM (CONTROLLED FROM MCC)
197	E013	VFD/FS REMOTE START/STOP SCHEMATIC DIAGRAM
198	E014	VFD REMOTE START/STOP SCHEMATIC DIAGRAM
199	E015	DRIVE FVNR SCHEMATIC DIAGRAM

SHT NO.	DWG NO.	DWG TITLE (1)
200	E016	DRIVE FCS SCHEMATIC DIAGRAM
201	E020	CONDUIT AND CABLE SCHEDULE 1
202	E021	CONDUIT AND CABLE SCHEDULE 2
203	E022	CONDUIT AND CABLE SCHEDULE 3
204	E023	CONDUIT AND CABLE SCHEDULE 4
205	E023	CONDUIT AND CABLE SCHEDULE 5
206	E030	TYPICAL ELECTRICAL DETAILS 1
207	E031	TYPICAL ELECTRICAL DETAILS 2
208	E032	TYPICAL ELECTRICAL DETAILS 3
209	E033	TYPICAL ELECTRICAL DETAILS 4
210	E034	TYPICAL ELECTRICAL DETAILS 5
211	E035	TYPICAL ELECTRICAL DETAILS 6
212	E036	TYPICAL ELECTRICAL DETAILS 7
213	E037	TYPICAL ELECTRICAL DETAILS 8
214	E050	GENERAL ELECTRICAL SITE PLAN
215	E051	OVERALL ELECTRICAL SITE PLAN 1
216	E052	OVERALL ELECTRICAL SITE PLAN 2
217	E053	OVERALL ELECTRICAL SITE PLAN 3
218	E101	EXISTING MCC-100A MODIFICATION ONE-LINE DIAGRAM
219	E102	EXISTING MCC-100A MODIFICATION ELEVATIONS
220	E103	EXISTING MCC-100A MODIFICATION LOAD CALCULATIONS
221	E110	EXISTING HEADWORKS AND INFLUENT PS ELECTRICAL PLAN
222	E111	EXISTING MCC-100A ELECTRICAL PLAN
223	E112	EXISTING MCC-100A GROUNDING PLAN
224	E120	EXISTING INFLUENT PUMP STATION ELECTRICAL PLAN
225	E130	EXISTING HEADWORKS MODIFICATION ELECTRICAL PLAN
226	E202A	MCC-202A ONE-LINE DIAGRAM
227	E202B	MCC-202A ELEVATIONS
228	E203A	MCC-203A ONE-LINE DIAGRAM
229	E203B	MCC-203A ELEVATIONS
230	E215	MCC-202A AND MCC-203A POWER PLAN
231	E216	OXIDATION DITCH 3 MODIFICATION PLAN
232	E220	OXIDATION DITCH 3 AERATION BLOWER ELECTRICAL PLAN
233	E221	OXIDATION DITCH 3 AERATION BLOWER LIGHTING PLAN
234	E301	EXISTING MCC-300A MODIFICATIONS ONE LINE DIAGRAM
235	E302	EXISTING MCC-300A MODIFICATIONS ELEVATION
236	E310	FILTER AND PUMP STATION AREA ELECTRICAL PLAN
237	E320	FILTER FEED PUMP STATION MODIFICATIONS
238	E330	DAF SYSTEM OVERALL ELECTRICAL PLAN
239	E350	FILTER OVERALL PLAN
240	E351	FILTER NO. 7 ELECTRICAL PLAN
241	E352	FILTER NO. 8 ELECTRICAL PLAN
242	E401	MCC-400A ONE-LINE DIAGRAM
243	E401A	MCC-400A ELEVATION
244	E401B	UV SYSTEM ONE-LINE DIAGRAM
245	E402	MCC-402A ONE-LINE DIAGRAM
246	E402A	MCC-402A ELEVATION
247	E410	UV ELECTRICAL PLAN
248	E480A	MCC-480 BLDG MODIFICATIONS
249	E480B	MCC-480 BLDG MODIFICATIONS
250	E481	MCC-480 ONE LINE DIAGRAM
251	E490	RECLAIM WATER FILTER, CHEMICAL INJECTION AND METER ELECTRICAL PLAN
252	E491	RECLAIM WATER FILTER, CHEMICAL INJECTION AND METER LIGHTING PLAN
253	E930A	MATURATION POND ELECTRICAL PLAN
254	E930B	MCC-930 BUILDING ELECTRICAL PLAN
255	E931	MCC-930A ONE LINE DIAGRAM
256	E932	MCC-930A ONE LINE DIAGRAM
257	E933	CONTROL PANEL CP-930A MODIFICATIONS

(1) A SITE GRID IS PROVIDED FOR GRADING, PAVING, AND YARD PIPING DRAWINGS TO COVER THE WHOLE SITE AND PROVIDE CLARITY. THIS RESULTS IN THE NUMBER OF SHEETS SHOWN. SOME GRID DRAWINGS WILL NOT HAVE NEW IMPROVEMNTS, HOWEVER, COLLECTIVELY, THEY CREATE A COMPLETE VIEW OF THE SITE. DRAWINGS THAT DO NOT HAVE NEW IMPROVEMENTS DO NOT INCUR SIGNIFICANT TIME TO IMPLEMENT AND INCLUDE IN THE SET.