

**CITY OF SANTA ROSA TRANSPORTATION AND PUBLIC WORKS  
PROJECT WORK ORDER NO. A010014-2011-09B**

PROJECT NAME: **LAGUNA TREATMENT PLANT DISINFECTION IMPROVEMENTS**

CITY PROJECT MANAGER: **MARK KASRAIE**

CONSULTANT PROJECT MANAGER: **DOUG WING**

SCOPE OF SERVICE: See Consultant's Scope of Services/Proposal for Services and Fee Schedule dated **October 12, 2020**, attached as Exhibit B-1.

START DATE: **OCTOBER 2020**

COMPLETION DATE: **DECEMBER 2024**

CHARGE NUMBER FOR PAYMENT: <b>86509</b>	<b>75%</b>	<b>\$1,598,349.00</b>
<b>86557</b>	<b>25%</b>	<b>\$ 532,783.00</b>

NOT-TO-EXCEED AMOUNT FOR THIS PROJECT: **\$2,131,132.00**

*MK*

TERMS AND CONDITIONS: This Project Work Order is issued and entered into as of the last date written below in accordance with the terms and conditions set forth in the "Master Professional Services Agreement with Carollo Engineers, Inc., Agreement No. A010014," dated November 1, 2011, and "Project Work Order No. A010014-2011-09", dated January 21, 2016, and "Project Work Order No. A010014-2011-09A", dated September 30, 2019, which are hereby incorporated and made part of this Project Work Order. In the event of a discrepancy or conflict between the terms and conditions of the Project Work Order and the Master Agreement, the Master Agreement shall govern.

**PROJECT WORK ORDER HISTORY**


Original Project Work Order No. A010014-2011-09	Amount:	\$2,803,599.00
Amendment No. A010014-2011-09A	Amount:	\$1,584,655.00
Amendment No. A010014-2011-09B	Amount:	<u>\$2,131,132.00</u>
	Total:	\$6,519,386.00

CITY OF SANTA ROSA,  
A Municipal Corporation

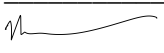
By: \_\_\_\_\_  
Daniel J. Galvin III  
Board of Public Utilities Chair

Date: \_\_\_\_\_

CAROLLO ENGINEERS, INC.,  
A Delaware Corporation

By:   
Ken Wilkins (Oct 13, 2020 10:54 PDT)  
Name: Ken Wilkins  
Title: Sr Vice President

Date: Oct 13, 2020

By:   
Name: Michael Barnes  
Title: Secretary

Date: Oct 13, 2020

APPROVED AS TO FORM:

By: \_\_\_\_\_  
Santa Rosa City Attorney's Office

Attachments: Exhibit B-1 - Consultant's proposal and fee for services for this Project Work Order

City of Santa Rosa  
Disinfection Improvement Project  
Engineering Services During Construction  
Scope of Services

**Project Understanding**

The City of Santa Rosa (City) and the Carollo Engineers consultant team (Consultant) are completing the design of the Disinfection improvements Project. The City intends to bid the construction of these facilities in early 2021, and award a construction contract to start by the middle of 2021. The project duration is estimated at 30 months. The project elements will include:

1. Influent channel connection from the existing filter effluent channel to the new UV disinfection facility.
2. The new UV disinfection facility, including:
  - a. Concrete structure with 5 channels for the UV equipment
  - b. UV equipment cleaning and maintenance area including acid wash tanks.
  - c. Control and electrical room for UV process.
  - d. Effluent channel and diversion gates to control effluent flow to Llano pump station.
  - e. Effluent junction structure for connection to the existing effluent piping, and for temporary flow bypass during construction
  - f. Metal building over UV channels for weather and sun protection, with 3 walls and open on the north end.
  - g. Overhead bridge crane for equipment maintenance
3. Diversion Wetwell and Pump Station (PS) including:
  - a. Open wet well connected to the UV at the diversion overflow wall/weir.
  - b. Pump station for pumping diverted flow to the existing FEBs.
  - c. Connections to the existing diversion tanks
4. Diversion Pipeline consisting of a 42-inch diversion pipe, installed in existing roadways from the new diversion PS to the existing Flow Equalization Basin (FEB).
5. Replacement hypochlorite storage and feed facility that will include 2 chemical storage tanks and three feed pumps.
6. New electrical power facilities including:
  - a. Load center housing switchgear, motor control center and control equipment to be located between the diversion PS and the adjacent to the W3 pump station.
  - b. New ductbank to feed 12-KV power from the exiting Substation M-2 to the new load center. New cable in the existing ductbank will be used for a portion of the power distribution system.
7. Stormwater Wetwell and Pump station including
  - a. Open wet well with common wall construction with the diversion wet well.
  - b. Pump station for storm water pumping to the existing storm water discharge outfall.
  - c. New storm water collection piping to collect stormwater from the UV process area.
  - d. New discharge to the existing stormwater outlet at the SW corner of the plant site
8. Site work including paving and grading for new facilities and relocation/reconstruction of the existing temporary flood wall.
9. Relocation and replacement of existing construction trailers for use by the contractor during construction and eventual use by plant staff for future training facilities.

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Engineering Services During Construction  
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The City will contract with a third party CONSTRUCTION MANAGER to manage the construction phase of the project. The City has requested that Consultant provide Engineering Services During Construction Services. The proposed scope for these services is outlined below.

#### Detailed Scope of Services

The following scope of services was prepared based on the project construction documents.

#### Task 1 – ESDC Project Management

This task includes providing overall management and administration of the ESDC effort. Project management activities will include oversight of project budget and submitting written monthly invoices, maintaining a decision log recording decisions made by the team, developing and maintaining a schedule of ESDC activities, coordination with the CONTRACTOR and Construction Manager (CM), and QA/QC of all deliverables to the client.

##### Deliverables:

- Monthly invoices, decision log, schedule of ESDC activities, and meeting agendas and presentation materials, as-needed.

##### Assumptions:

- CONSULTANT will provide project management for a total of 30 months.
- Contractor is given notice to proceed with construction by July 2021.

#### Task 2 – Progress Meetings and Site Visits

CONSULTANT will attend weekly construction progress meetings to support coordination with the key project stakeholders. CONSULTANT will be prepared to discuss status of deliverables including shop drawings, submittals, Requests for Information (RFI), change orders, etc., and support timely resolution of design related issues that may impact the Project budget or schedule. CONSULTANT will conduct a site walk with Construction Manager during the weekly site visit.

##### Deliverables:

- None.

##### Assumptions:

- CONSULTANT will attend up to 8 person-hours of progress meetings per week, for a total of 30 months.

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### Task 3 – Submittal Review

CONSULTANT will complete the initial review of all shop drawings and submittals submitted by the CONTRACTOR to determine compliance with the Contract Documents, prior to OWNER final review/approval. It is expected that all shop drawings will be returned to the CONTRACTOR as “Approved” with No Exceptions, Make Corrections Noted (MCN), MCN Confirm; “Not approved” with Correct and Resubmit or Rejected; or Receipt Acknowledge – Filed for record, within no more than 3 submittal rounds. If issues with the quality of the shop drawings are identified, CONSULTANT will bring it to OWNER’s attention to take corrective action with the CONTRACTOR.

Deliverables:

- Shop drawing review comments (if any), and initial review documentation.

Assumptions:

- CONSULTANT fee assumes a total of 250 first time Shop Drawings submittals, at an average of 8 hours per submittal, and 65 second time Shop Drawing submittals at an average of 4 hours per submittal

### Task 4 – RFI/RFC Review

CONSULTANT will evaluate and respond to the Requests for Information (RFI) generated by the CONTRACTOR and Requests for Clarification (RFC) generated by the CONTRACTOR and/or CM. Issues that are particular complex may require additional examination prior to responding to the RFI or RFC, in which case the need for additional time will be communicated to the CONTRACTOR and/or CM within five (5) calendar days.

Deliverables:

- RFI or RFC response form, and supplemental information (when required).

Assumptions:

- CONSULTANT fee assumes a total of 250 RFI’s or RFC’s (cumulative), and an average of 5 hours per RFI or RFC.

### Task 5 – Design Clarifications / Review of Requested Change Orders

The CONSULTANT will prepare design clarifications for OWNER and CONSULTANT initiated changes and provide an as-requested review of change orders prepared by Construction Manager with respect to compliance with the contract documents, and overall validity. Change order review may include technical/feasibility review, contract adherence review, and cost reviews.

Deliverables:

- Design clarification for OWNER, and CONSULTANT initiated changes.
- Documentation of change order request reviews including comments or proposed revisions.

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Assumptions:

- CONSULTANT fee assumes a total of 20 design clarification at 12 hours each
- CONSULTANT fee assumes a total of 50 change orders at 12 hrs each.

**Task 6 – As-Built Record Drawings**

CONSULTANT will provide as-built record drawings in PDF format to the OWNER based on markups provided by the CONSTRUCTION MANAGER and CONTRACTOR. The intent of the record drawings is to document changes to the contract documents (drawings and specifications) associated with the following:

- RFI/RFC Review
- Shop Drawing Review
- Change Order Requests

Deliverables:

- PDF markups in electronic format for updated contract documents per above.

Assumptions:

- Record drawings will be based on markups provided by the CONTRACTOR and CONSTRUCTION MANAGER.
- CONSULTANT will not manage the creation of a comprehensive As-Built set of CAD drawings. Drawings will be provided in PDF format only.
- CONSULTANT fee assumes a total of 3 hrs per drawing (200 drawings) for record drawings.
- Estimate of 3 hrs per drawing level of effort assumes that the number of reviews of RFI/RFC, Shop Drawing submittals, and Change Orders are per the assumptions above.

**Task 7 – Startup Assistance**

CONSULTANT will review the Start-up and Commissioning Plan developed by the CONTRACTOR, and will work with the OWNER and CM to monitor implementation of the plan. During start-up, CONSULTANT will be on-site to support the CONTRACTOR, OWNER, and CM as necessary in implementation of the plan, review data collection, and confirm proper operation. After start-up of each system and facility in the PROJECT, CONSULTANT will review and comment on the findings report prepared by the CM which identifies any outstanding issues that require address.

Deliverables:

- Review comments for the CONTRACTOR's Start-up and Commissioning Plan.
- Review comments for the CM's Report of Start-up and Commissioning Findings.

Assumptions:

- CONSULTANT fee assumes a total of 150 hours for this task.

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- Start-up Assistance is in addition to the Commissioning Services (UV Process) included with the current Project Work Order (PWO)

#### Task 8 – O&M Manual Development

CONSULTANT will provide a new O&M manual for the new ultraviolet light (UV) disinfection system, and diversion system facility. The new O&M material will document the design, operation, maintenance, and overall process considerations for the UV disinfection and diversion processes. The new O&M manuals will be provided in hard copy and electronic format.

Deliverables:

- Hard copy and electronic PDF of the O&M manual for the new UV disinfection and diversion processes.

Assumptions:

- CONSULTANT fee assumes a total of 480 hours for this task.
- The O&M manual deliverables will follow the same format as the existing O&M manual.

#### Task 9 – Project Closeout

CONSULTANT will provide assistance to the OWNER and CM in closing out the construction contract. Upon declaration of substantial completion, CONSULTANT will assist in preparing Closeout Reports, including a list of all deliverables and tasks completed in accordance with the terms of the Contract. The Closeout Report should include a Project Background, Contract Summary, Summary of Change Orders, Contract Duration, Summary of Project Budget, Contract Status, Status of Contract Deliverables and lessons learned.

Deliverables:

- Draft and final Closeout Reports as described above.

Assumptions:

- CONSULTANT fee assumes a total of 110 hours for this task.

#### Task 10 – Discipline Engineer Observations and Factory Testing for System Programming

CONSULTANT will provide discipline engineer observations to observe construction of critical aspects of the structural, mechanical, electrical, and instrumentation and controls portions of the project. These observations could include coordination with manufacturer representatives for critical equipment, electrical installation, instrumentation and controls installation, and critical structural elements such as concrete pours and installation of structural members.

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Factory testing Observation for UV system programming will be provided by the CONSULTANT to confirm that the correct control logic is setup prior to field integration. Per the Contract Documents, CONTRACTOR will assist the City to complete system programming and integration into the plant SCADA system. This testing is limited to reviewing the logic as programmed, and does not include programming, re-programming, or system troubleshooting.

Deliverables:

- Engineer observations provided in daily reports.

Assumptions:

- All laboratory and field material testing requiring equipment to be provided by the OWNER.
- Daily construction data to be collected by the CM and provided to the CONSULTANT to support Special Inspections.
- This task does not include Special Inspections as part of Specification Section 01455, which are typically done by a third party or by the CM.
- This task does not include third party coating inspections.
- CONSULTANT fee assumes a total of 200 hours for discipline engineer observations at the plant, and 40 hours for programming factory testing.

#### Task 11 – Contingency

Contingency task is included to cover unanticipated items or issues. The City must authorize the use of contingency before it is billed.

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Engineering Services During Construction  
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## Fee Proposal

The tasks described in the Scope of Services will be provided on a time and materials basis based on the attached fee estimate and fee schedule, billed monthly. The proposed estimated fees for each task are provided below in Table 1.

Note - Task 11, As-Needed Design Services During Construction, will be completed on an as-needed basis with prior approval by the OWNER, and with prior written agreement between the OWNER and CONSULTANT on specific scope, schedule, and fee for requested work.

Table 1 – Estimated Fee

Task Description	Fee
Task 1 – ESDCs Project Management	\$149,703
Task 2 – Progress Meetings and Site Visits	\$287,744
Task 3 - Submittal Review	\$609,448
Task 4 - RFI/RFC Review	\$347,921
Task 5 – Design Clarifications	\$216,045
Task 6 - Record Drawings	\$118,786
Task 7 - Startup Assistance	\$40,991
Task 8 - O&M Manuals	\$112,263
Task 9 - Project Closeout	\$30,014
Task 10 – Discipline Engineers Site Visits and Factory Testing	\$68,218
<b>Subtotal</b>	<b>\$1,981,132</b>
Task 11 - Contingency	\$150,000
<b>TOTAL</b>	<b>\$2,131,132</b>

## Assumptions

The Scope of Services includes ESDCs only, and does not include Construction Management (CM) services, which will be provided by the OWNER. The CONSULTANT will work with the contractor who is awarded the project (CONTRACTOR) and the CM to assist with professional ESDCs as defined in the Scope of Services, including all assumptions and limitations for level of effort (hours of labor). The following general assumptions apply to this Scope of Services:

- Per the bid documents provided by the CONSULTANT, a cloud-based construction document management software application will be setup and utilized for delivery of this construction project. This Scope of Services assumes that the document management will be setup, managed, and administered by the CM (or OWNER), including all fees and labor. The CONSULTANT will be given access to and will utilize the system to download and upload information and documents in response to Requests for Information (RFIs), Submittals, Change Order reviews, and as part of completing the ESDC tasks of the Scope of Services.
- The CONSULTANT will not provide daily inspections.



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- The CONSULTANT will not provide material testing of any kind.
- The primary line of communication for the CONSULTANT shall be through the OWNER, with all supporting documents, information, and correspondence being distributed by the OWNER to the CONTRACTOR and other stakeholders.
- A Resident Engineer will not be provided.
- Analysis and/or defense of claims brought by the CONTRACTOR or other parties to the OWNER is not included.
- Construction duration is assumed to be 30 months, and any extensions to that construction duration will require additional fee for ESDCs support.

LABOR AND COST ESTIMATE																																		
CITY OF SANTA ROSA - DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS																																		
LAGUNA TREATMENT PLANT																																		
DISINFECTION IMPROVEMENTS PROJECT																																		
ENGINEERING SERVICES DURING CONSTRUCTION																																		
		Carollo										Carollo		Hazen & Sawyer										Hazen										
Task	Task Description / 2020 Fee Schedule Rates	PIC \$300	PM \$293	PE \$230	UV Tech \$293	E \$230	E&IE \$273	SE \$273	CAD \$170	Support \$125	Total Hours	Labor Cost		PM \$300	PM \$293	PE \$250	E \$210	"CE \$290	ME \$280	E&IE \$220	CAD \$135	Support \$130	Total Hours	Labor Cost (1)	Total Hours	Sub (3) Amount	PECE(2) \$13.00	PECE(1,2) \$10.50	Printing	Mileage Trips	\$0.58 Amount	ODC Cost	Total Cost	
1.0	Project Management (30 months)	0	240	80	0	0	0	0	0	0	320	\$88,720		120	0	60	0	0	0	0	0	0	180	\$53,550	500	\$0	\$4,160	\$1,985	\$0	16	\$1,288	\$7,433	\$149,703	
2.0	Progress Meeting and Site Visits (30 months)	4	120	360	0	100	0	60	0	36	680	\$163,040		60	0	200	0	60	40	0	0	0	360	\$101,430	1040	\$0	\$8,840	\$3,969	\$0	130	\$10,465	\$23,274	\$287,744	
3.0	Submittal Review (250/100)	0	100	300	40	200	240	392	8	4	1284	\$330,416		24	0	200	200	200	100	240	8	4	976	\$251,580	2260	\$0	\$16,692	\$10,760	\$0	0	\$0	\$27,452	\$609,448	
4.0	RFI/RFC Review (250)	0	100	160	24	130	100	200	16	16	746	\$189,652		24	0	100	40	100	100	120	16	4	504	\$133,014	1250	\$10,000	\$9,698	\$5,557	\$0	0	\$0	\$25,255	\$347,921	
5.0	Design Clarifications (20) and Change Orders (50)	4	40	80	0	148	80	100	40	8	500	\$122,300		16	0	40	60	60	40	80	40	4	340	\$83,496	840	\$0	\$6,500	\$3,749	\$0	0	\$0	\$10,249	\$216,045	
6.0	As-Built Record Drawings	0	4	24	0	40	16	16	220	0	320	\$62,028		0	0	16	16	16	16	16	200	0	280	\$49,350	600	\$0	\$4,160	\$3,087	\$0	2	\$161	\$7,408	\$118,786	
7.0	Start-Up Assistance	0	24	24	0	12	8	0	0	0	68	\$17,496		8	0	20	20	0	24	10	0	0	82	\$21,546	150	\$0	\$884	\$904	\$0	2	\$161	\$1,949	\$40,991	
8.0	O&M Manual Development	4	24	72	24	40	24	0	80	40	308	\$66,176		4	0	40	24	0	40	24	40	0	172	\$40,026	480	\$0	\$4,004	\$1,896	\$0	2	\$161	\$6,061	\$112,263	
9.0	Project Closeout	0	4	36	10	0	16	0	0	0	66	\$16,750		4	0	0	10	10	10	10	0	0	44	\$11,760	110	\$0	\$858	\$485	\$0	2	\$161	\$1,504	\$30,014	
10.0	Discipline Engineer	0	8	8	40	0	40	40	0	0	136	\$37,744		0	0	16	12	20	20	32	0	4	104	\$26,754	240	\$0	\$1,768	\$1,147	\$0	10	\$805	\$3,720	\$68,218	
	Task Total	12	664	1,144	138	670	524	808	364	104	4,428	\$1,094,322		260	0	692	382	466	390	532	304	16	3,042	\$772,506	7,470	\$10,000	\$57,564	\$33,538	\$0	164	\$13,202	\$114,304	\$1,981,132	
OPTIONAL SERVICES																																		
11.0	Contingency											\$100,000												\$50,000		\$0							\$150,000	
Total		12	664	1,144	138	670	524	808	364	104	4,428	\$1,194,322		260	0	692	382	466	390	532	304	16	3,042	\$822,506	7,470	\$10,000	\$57,564	\$33,538	\$0	164	\$13,202	\$114,304	\$2,131,132	
Notes:																																		
1. Includes a 5% markup on subconsultant																																		
2. Project Equipment Communication Expense (PECE)																																		
3. Kleinfelder Geotechnical services as needed																																		
Legend:																																		
PIC Principal in Charge (Senior Professional)																																		
PM Project Manager(Lead Project Professional)																																		
UV Tech UV Technologist																																		
PE Project Engineer (Professional)																																		
E Engineer (Professional)																																		
C E Civil Engineer																																		
SE Structural Engineer (Lead Project Professional)																																		
ME Mechanical Engineer (Lead Project Professional)																																		
E&IE Electrical and Instrumentation Engineer (Lead Project Professional)																																		
CAD CAD Technician																																		
Support Support Staff																																		
ODC Other Direct Costs																																		

**CAROLLO ENGINEERS, INC.  
FEE SCHEDULE**

**As of January 1, 2020  
California**

	<u><b>Hourly Rate</b></u>
<b>Engineers/Scientists</b>	
Assistant Professional	\$188.00
Professional	230.00
Project Professional	273.00
Lead Project Professional	293.00
Senior Professional	300.00
<b>Technicians</b>	
Technicians	142.00
Senior Technicians	198.00
<b>Support Staff</b>	
Document Processing / Clerical	125.00
<b>Project Equipment Communication Expense (PECE) Per DL Hour</b>	<b>13.00</b>
<b>Other Direct Expenses</b>	
Travel and Subsistence	at cost
Mileage at IRS Reimbursement Rate Effective January 1, 2020	\$.575 per mile
Subconsultant	cost + 5%
Other Direct Cost	cost + 5%

# A010014-2011-09B Laguna Treatment Plant Disinfection Improvements Packet

Final Audit Report

2020-10-13

Created:	2020-10-13
By:	Joyce Brandvold (JBrandvold@srcity.org)
Status:	Approved
Transaction ID:	CBJCHBCAABAAIzN8puxxw2ZEC-nLvtN139f5sCDiqMt6

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-  Document created by Joyce Brandvold (JBrandvold@srcity.org)  
2020-10-13 - 5:26:55 PM GMT- IP address: 12.249.238.210
-  Document emailed to Mark Kasraie (MKasraie@srcity.org) for approval  
2020-10-13 - 5:27:47 PM GMT
-  Email viewed by Mark Kasraie (MKasraie@srcity.org)  
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2020-10-13 - 5:30:35 PM GMT









# A010014-2011-09B Laguna Treatment Plant Disinfection Improvements approved by SE

Final Audit Report

2020-10-13

Created:	2020-10-13
By:	Joyce Brandvold (JBrandvold@srcity.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAAB1JpIblUvyY0VYptk6xLvaxQ2wiiPsl

## "A010014-2011-09B Laguna Treatment Plant Disinfection Improvements approved by SE" History

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Signature Date: 2020-10-13 - 5:54:56 PM GMT - Time Source: server- IP address: 12.239.246.106
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-  Document e-signed by Michael Barnes (mbarnes@carollo.com)  
Signature Date: 2020-10-13 - 6:28:57 PM GMT - Time Source: server- IP address: 69.145.170.19
-  Agreement completed.  
2020-10-13 - 6:28:57 PM GMT