

April 26, 2022

Mr. Ben Kikugawa  
Chief Plant Operator  
Tuolumne City Sanitary District  
Wastewater Treatment Plant  
18050 Box Factory Road  
Tuolumne, CA 95379

**Subject:** Proposal to Provide Professional Engineering Services for Reservoir pH Study

Dear Mr. Kikugawa:

Carollo Engineers is pleased to provide the Tuolumne City Sanitary District (District) with this scope of services to assist with completion of a Reservoir pH Study.

## **UNDERSTANDING**

The District operates a wastewater treatment plant (WWTP) that treats wastewater from the unincorporated area of Tuolumne City and adjacent properties to a secondary (un-disinfected) level prior to land application at a privately owned ranch (Baker Ranch).

Treated effluent is discharged to the Grinding Rock Reservoir, where it is mixed with high quality supplemental water (Turnback Creek) before it is used to irrigate pasture land for non-dairy animals. Prior to October 2020, treated effluent was also discharged directly to flood irrigation sites (Diversion #1 and #2) without going through the reservoir during the irrigation season. Waste Discharge Requirements (WDR) Order No. R5-2019-0058 eliminated the direct (unblended) discharge to the effluent diversions, requiring that all treated flow be sent to the effluent storage reservoir and mixed with supplemental water prior to discharge to the various land application areas (LAAs).

The District's new WDR was adopted in June 2019 and includes the following new discharge limitation not included in the previous Order: "Wastewater contained in any unlined pond or reservoir shall not have a pH less than 6.0 or greater than 9.0." Prior to adoption of the permit Order, the District did not sample reservoir pH. Since adoption of the permit Order, the District has recorded reservoir pH exceeding the upper limit in late summer and fall of 2020 and 2021. The Scope of Services included herein includes a workplan and study to evaluate the cause of the high reservoir pH and recommend steps to comply with the WDR.

## **SCOPE OF WORK**

Carollo will provide the following services.

### **Task 1 – Project Management and Meetings**

This task includes project management efforts and review meetings with District staff that are necessary for successful project delivery.

### **Task 1.1 Project Management**

Carollo's project manager will manage project budget, prepare monthly progress reports, and coordinate with District staff on the development of the required deliverables.

### **Task 1.2 Meetings**

Carollo will participate in coordination meetings with the District and/or regulatory review meetings with the Central Valley Regional Water Quality Control Board (RWQCB), as desired by the District. For budgeting purposes, it is assumed that Carollo will attend four (4) meetings over the duration of the project, requiring four (4) hours of two (2) team members' time (each) per meeting.

#### **Task 1 Deliverables:**

- Monthly invoices and progress reports.
- Meeting materials.
- Summarized meeting notes of key points and action items.

#### **Assumptions:**

- This task is based on a thirty-five (35) month project duration.
- Meetings with District and/or RWQCB will be held on a virtual platform.

## **Task 2 – Reservoir pH Study**

### **Task 2.1 Reservoir pH Study Workplan**

Carollo will prepare a workplan for conducting the comprehensive Reservoir pH Study. The workplan will consist of the following main items:

- Background information describing the purpose of the workplan, a summary of the wastewater treatment system, and current effluent and reservoir water quality.
- A sampling plan to collect influent, supplemental irrigation water, effluent, reservoir, and blended effluent water quality and flow monitoring data.
- A summary of the proposed approach for the Reservoir pH Study.
- A proposed schedule for completing the Reservoir pH Study. Carollo will coordinate with the District to develop the sampling plan, tasks, achievable completion dates, and justifications.

In advance of the workplan deliverable, Carollo will prepare a notification letter to the RWQCB regarding the planned study and schedule. Draft language will be finalized through discussion with the District, and Carollo will assist with submittal of the notification letter under District letterhead.

### **Task 2.2 Technical Support and Data Review/Compilation**

Carollo will compile and review data as it is received from the District and will develop modified sampling approaches, as needed, based on the results received and perceived information needs to complete study efforts.

### **Task 2.3 Reservoir pH Study Report**

Carollo will prepare a Reservoir pH Study Report. The report will summarize study findings and propose a timeline for implementing feasible measures to reduce and/or control reservoir pH.

#### **Task 2 Deliverables:**

- *Draft Reservoir pH Study Notification Letter | Due Date – Within three (3) weeks of Notice to Proceed (NTP) (Electronic only)*
- *Final Reservoir pH Study Notification Letter | Due Date – Within one (1) week of receipt of District comments (Electronic only)*
- *Draft Reservoir pH Study Workplan | Due Date – August 15, 2022 (Electronic only)*
- *Final Reservoir pH Study Workplan | Due Date – September 30, 2022 (Electronic plus two hard copies)*
- *Modified Sampling Plan | Due Date – As needed*
- *Draft Reservoir pH Study Report | Due Date – March 14, 2025 (Electronic only)*
- *Final Reservoir pH Study Report | Due Date – April 15, 2025 (Electronic plus two hard copies)*

#### **Assumptions:**

- The District will collect and provide necessary data/information for completion of the Reservoir pH Study. This includes, but is not limited to, water quality data for the influent flow to the WWTP, supplemental irrigation water, effluent flow from the WWTP, reservoir, and blended effluent discharge from the reservoir to the LAAs.
- Sample collection, shipping, and laboratory analysis will be completed (and/or contracted separately) by the District.
- The schedule for delivery of the Draft Reservoir pH Study Report assumes that District sampling efforts will commence in October 2022 and will continue for a period of 24 months.

### **SCHEDULE**

The schedule of draft and final deliverables is identified with each Task herein.

Completion within the schedules identified assumes receipt of NTP by June 15, 2022, and District comments within one (1) week of receipt of the draft notification letter submittal and two (2) weeks of receipt of draft workplan and report submittals.

### **COMPENSATION**

Carollo's compensation for the proposed basic services will not exceed eighty thousand three hundred dollars (\$), as summarized below, without prior authorization from the District. These costs are developed in the attached Exhibit A, utilizing Carollo's current Fee Schedule.

| Basic Services Tasks                     | Fee             |
|--|-----------------|
| Task 1 – Project Management and Meetings | \$17,200        |
| Task 2 – Reservoir pH Study              | \$63,100        |
| <b>Total Basic Services Fee</b>          | <b>\$80,300</b> |

## EXCLUSIONS

This scope includes the following project exclusions:

- On-site assistance with pilot studies is not included in the current scope of work. Carollo will work with the District in scoping this effort, as necessary.
- Design of identified improvements is not included in the current scope of work. Carollo will work with the District in scoping this effort, as necessary.

Our team appreciates the opportunity to continue to serve the District with WDR permit-related compliance requirements. Please do not hesitate to contact us with any questions or concerns you may have regarding this proposal to assist your team.

Sincerely,

CAROLLO ENGINEERS, INC.



Brianna Barton, P.E.  
Project Manager



Beverly J. Hann, P.E., PMP  
Principal-in-Charge

BJH:kh

Enclosure: Exhibit A (Labor Hour and Cost Proposal)

Tuolumne City Sanitary District  
Reservoir pH Study  
LABOR HOUR AND COST PROPOSAL  
Exhibit A

| CAROLLO LABOR                                     |           |          |            |            |           |          |                     |                     |          | EXPENSES    |                  |                 |                   |                  | TOTAL |
|---|-----------|----------|------------|------------|-----------|----------|---------------------|---------------------|----------|-------------|------------------|-----------------|-------------------|------------------|-------|
| Description                                       | VP (LPP)  | PIC (PP) | PM (P)     | AP         | CAD       | WP (C)   | TOTAL CAROLLO HOURS | TOTAL CAROLLO LABOR |          | Mileage     |                  | PECE            |                   |                  | TASK  |
| Labor Cost (\$/Hr)                                | \$311.00  | \$290.00 | \$245.00   | \$200.00   | \$180.50  | \$134.00 |                     | COSTS               |          | Miles       | \$0.560 per mile | Printing        | \$ 13.00 per hour | TOTAL ODCs       | COSTS |
| <b>Task 1 - Project Management and Meetings</b>   |           |          |            |            |           |          |                     |                     |          |             |                  |                 |                   |                  |       |
| 1.1 Project Management                            | 0         | 0        | 35         | 0          | 0         | 0        | 35                  | \$ 8,575            | 0        | \$ -        | \$ -             | \$ 455          | \$ 455            | \$ 9,000         |       |
| 1.2 Meetings                                      | 8         | 0        | 12         | 12         | 0         | 0        | 32                  | \$ 7,828            | 0        | \$ -        | \$ -             | \$ 416          | \$ 416            | \$ 8,200         |       |
| <b>Task 1 Total</b>                               | <b>8</b>  | <b>0</b> | <b>47</b>  | <b>12</b>  | <b>0</b>  | <b>0</b> | <b>67</b>           | <b>\$ 16,403</b>    | <b>0</b> | <b>\$ -</b> | <b>\$ -</b>      | <b>\$ 871</b>   | <b>\$ 871</b>     | <b>\$ 17,200</b> |       |
| <b>Task 2 - Reservoir pH Study</b>                |           |          |            |            |           |          |                     |                     |          |             |                  |                 |                   |                  |       |
| 2.1 Reservoir pH Study Workplan                   | 8         | 2        | 20         | 48         | 8         | 4        | 90                  | \$ 19,548           | 0        | \$ -        | \$ 500           | \$ 1,170        | \$ 1,670          | \$ 21,200        |       |
| 2.2 Technical Support and Data Review/Compilation | 4         | 0        | 8          | 24         | 0         | 0        | 36                  | \$ 8,004            | 0        | \$ -        | \$ -             | \$ 468          | \$ 468            | \$ 8,500         |       |
| 2.3 Reservoir pH Study Report                     | 8         | 2        | 40         | 72         | 8         | 4        | 134                 | \$ 31,029           | 0        | \$ -        | \$ 500           | \$ 1,848        | \$ 2,348          | \$ 33,400        |       |
| <b>Task 2 Total</b>                               | <b>20</b> | <b>4</b> | <b>68</b>  | <b>144</b> | <b>16</b> | <b>8</b> | <b>260</b>          | <b>\$ 58,581</b>    | <b>0</b> | <b>\$ -</b> | <b>\$ 1,000</b>  | <b>\$ 3,486</b> | <b>\$ 4,486</b>   | <b>\$ 63,100</b> |       |
|   |           |          |            |            |           |          |                     |                     |          |             |                  |                 |                   |                  |       |
| <b>TOTALS</b>                                     | <b>28</b> | <b>4</b> | <b>115</b> | <b>156</b> | <b>16</b> | <b>8</b> | <b>327</b>          | <b>\$ 74,984</b>    | <b>0</b> | <b>\$ -</b> | <b>\$ 1,000</b>  | <b>\$ 4,357</b> | <b>\$ 5,357</b>   | <b>\$ 80,300</b> |       |

**CAROLLO ENGINEERS, INC.  
FEE SCHEDULE**

**As of January 1, 2022  
California**

|   | <u><b>Hourly Rate</b></u> |
|---|---------------------------|
| <b>Engineers/Scientists</b>   |                           |
| Assistant Professional  | \$200.00                  |
| Professional  | 245.00                    |
| Project Professional  | 290.00                    |
| Lead Project Professional   | 311.00                    |
| Senior Professional   | 332.00                    |
| <b>Technicians</b>  |                           |
| Technicians   | 151.00                    |
| Senior Technicians  | 210.00                    |
| <b>Support Staff</b>  |                           |
| Document Processing / Clerical  | 134.00                    |
| <b>Project Equipment Communication Expense<br/>(PECE) Per DL Hour</b> | <b>13.00</b>              |
| <b>Other Direct Expenses</b>  |                           |
| Travel and Subsistence  | at cost                   |
| Mileage at IRS Reimbursement Rate<br>Effective January 1, 2021*       | \$.56 per mile            |
| Subconsultant   | cost + 10%                |
| Other Direct Cost   | cost + 10%                |
| Expert Witness  | Rate x 2.0                |

This fee schedule is subject to annual revisions due to labor adjustments.

\*IRS Mileage rate for 2022 is not yet available.