

ATTACHMENT A: Project Modification Request (PMR) Form

The purpose of this PMR form is to initiate the Project modification process and provide the SCWP with information necessary to evaluate the Project modification request.

| | |
|--|---|
| Regional Program | <input checked="" type="checkbox"/> Infrastructure Program Project <input type="checkbox"/> Scientific Studies Program <input type="checkbox"/> Technical Resources Program |
| Project/Study Name | Long Beach Municipal Urban Stormwater Treatment (LB-MUST) Phase 1 |
| Project/Study Lead | City of Long Beach |
| Watershed Area(s) | Lower Los Angeles River |
| Current Project Phase | Construction |
| Estimated Completion Date of Funded Activity | December, 2024 |
| Approved Stormwater Investment Plan Fiscal Year | FY 20-21 |
| Transfer Agreement ID (e.g., 2020RPULAR52) | 2020RPLLAR02 |

Has the Transfer Agreement or most recent Addendum been executed (i.e., signed by the project lead and the District)? Yes No

What type(s) of modification request?

- like-for-like modifications
- functionally equivalent BMP modifications
- modifications to Project or Study components that were not material to the WASC, ROC, or Board's decision to include the Project or Study in the SIP
- reallocation of annual funding projections in the SIP, provided that the total amount of Regional Program funding for the Project or Study remains unchanged
- change in primary or secondary objective
- change in Project benefits
- change in methodology (e.g., infiltration instead of diversion to sanitary sewer)
- decrease in BMP capacity
- change in Project or Study location
- change in capture area where benefits claimed are diminished or where there is a change in the municipalities that are receiving benefits
- updated engineering analysis resulting in a reduction of benefits
- increase in community support
- reduction or withdrawal of community support
- change in amount or status of leveraged funding
- any modification resulting in an increase of the total amount of Regional Program funding for the Project or Study
- any modification resulting in a decrease of the estimated total amount of Regional Program funding for the Project or Study
- other, please describe:

| |
|---|
| Funding Request for Operations and Maintenance for years 2-6. |
|---|

Impact on scope or benefits?

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> Improved | <input checked="" type="checkbox"/> Neither |
| <input type="checkbox"/> Diminished | <input type="checkbox"/> Not Sure |

Description of the proposed modification(s), a comparison to the previously approved Project, and the reason(s) why the modification(s) is/are being proposed. Attach additional pages, as needed.

Requesting \$5,000,000 increase in SCWP funding for the LB-MUST Project Phase 1 to support Operations and Maintenance (O&M) costs for years 2 - 6 after project completion.

Throughout the life of the project, the City has faced inflation, supply chain challenges, and the ongoing impact of COVID-19 which have strained the City's resources to support O&M, and we are now struggling to bridge the gap.

Although the project has received significant amounts of cost-share funds, the City continues to evaluate additional funding sources to support long-term operations. Some considerations include internal revenue sources from our Low Impact Development (LID) Program, other municipal allocations, and grants.

Proposal for one year of Operations and Maintenance is provided. O&M costs will run approximately \$1 million per year. Currently, the City has allocated \$1 million of SCWP Municipal funds for O&M to cover the first year of operations. However, LB-MUST will require ongoing maintenance to perform as an effective stormwater BMP, and subsequent years of funding O&M carry uncertainty at this time. The additional \$5 million will ensure the project can operate without disrupting facility operations while allowing the City to identify and secure other sources of long-term funding.

If applicable, list previously approved funding allocations/disbursements and revised funding request:

Note, if some or all of a previously Funded Activity cannot be completed as a result of the proposed modification, please include a description and indicate the amount of unused funds. Any unused funds should be reallocated and accounted for in your revised funding request. Attach additional pages, as needed.

| SIP Fiscal Year | Approved Funding Allocations | Increase/Decrease Requested | Revised Funding Request | Description/Phase/Status <i>If applicable, include description of unused funds</i> |
|-----------------|------------------------------|-----------------------------|-------------------------|---|
| FY 20/21 | \$1,000,000 | — | — | Design/Construction |
| FY 21/22 | \$5,000,000 | — | — | Design/Construction |
| FY 22/23 | \$4,800,000 | — | — | Construction |
| FY23/24 | — | — | — | Construction |
| FY 24/25 | — | — | — | Construction/O&M |
| FY 25/26 | — | \$1,000,000 | \$1,000,000 | O&M |
| FY 26/27 | — | \$1,000,000 | \$1,000,000 | O&M |
| FY 27/28 | — | \$1,000,000 | \$1,000,000 | O&M |
| FY 28/29 | — | \$1,000,000 | \$1,000,000 | O&M |
| FY 29/30 | — | \$1,000,000 | \$1,000,000 | O&M |
| TOTAL | \$10,800,000 | \$5,000,000 | \$15,800,000 | |

| | |
|---|--------------|
| A: Approved Total Funding Allocations | \$10,800,000 |
| B: Revised Estimate of Total Funding from Regional Program | \$15,800,000 |
| Regional Program Funds Received to date | \$10,800,000 |
| Regional Program Expenditures to date | \$10,800,000 |
| Difference between B and A | \$5,000,000 |
| Percent change between B and A | 46% |

| | |
|--|---|
| Would the additional funding request be the only option that would allow the project to be implemented? Please describe. | <input checked="" type="checkbox"/> YES |
| The City has allocated approximately \$1 million to support O&M efforts for the first year of operations, but have been unable to identify additional funding sources for subsequent years. Having the additional amount will ensure the project operates without any disruptions for years 2 - 6 while other funding sources are sought out. | |
| Would delaying funding allocations impact the project's ability to be implemented? Please describe. | <input checked="" type="checkbox"/> YES |
| The City has made significant progress and anticipates project completion in December, 2024. The additional funding will avoid disruption in operations and maintenance of the treatment facility and its ability to meet SCWP goals. | |
| Would funding only a portion of the additional funding request impact the project's ability to be implemented? Please describe. | <input type="checkbox"/> YES |
| Securing the requested \$5,000,000 for Operations and Maintenance, would allow the project to be operational for the next six years and ensure the project meets SCWP goals. However, Partial funding is still a valuable option as it will allow us to continue our efforts in finding other potential sources to cover long-term O&M costs. Generally, partial funding will only support operations through the years depending on available budget. | |
| Has the Recipient considered other funding sources? Please describe. Include type of funding, status, and amount. | <input checked="" type="checkbox"/> YES |
| We are evaluating internal revenue sources from our Low Impact Development (LID) program, municipal funding, and other grant and funding opportunities. (Include estimated amount, and status). | |

If applicable, a description of difference in SCWP Anticipated Total Funding Request. As a reminder, annual funding is at the discretion of the WASC, ROC, and ultimately the Board of Supervisors. Attach additional pages, as needed.

The requested additional funds will ensure the project runs as intended. The project is nearing completion and halting operations due to a lack of funding and ongoing expenses would undermine the progress that has been made so far.

Securing the necessary funds will enable us to sustain our efforts and achieve SCWP that the project promised to deliver.

Brief description of Supporting Documentation provided. Please include any documentation needed to support benefits claimed by the modified Project or Study and confirm compliance with the Feasibility Study Guidelines.

1. Years 1 - 6 O&M Cost Estimate
2. O&M Proposal -Year 1

Contact information of persons who should be included in correspondence with the SCWP regarding this Project or Study. Attach additional pages, as needed.

| Name | Title | Email Address |
|-----------------|-----------------------------|-------------------------------|
| Colin Averill | Stormwater Division Manage | colin.averial@longbeach.gov |
| Cecilia Salazar | Environmental Specialist A. | cecilia.salazar@longbeach.gov |
| | | |
| | | |
| | | |

| | |
|--|---|
| I certify the information and supporting documentation provided is accurate and true. | <input checked="" type="checkbox"/> YES |
| I certify the modified Project complies with all requirements described in the Feasibility Study Guidelines. | <input checked="" type="checkbox"/> YES |
| I understand this is a request and it is under the WASC's discretion to consider requested modifications. | <input checked="" type="checkbox"/> YES |

Name Colin AverillOrganization City of Long Beach Public WorksSignature *Colin Averill*Date 10/31/2024

FOR SCWP STAFF USE ONLY

Proposed Modifications to Projects or Studies:

| | Status | Date |
|---|---|------|
| Scope/benefits of the modified Project or Study is consistent with the Project or Study included in the current fiscal year's SIP and proposed modifications were approved by the SCWP. | <input type="checkbox"/> YES | |
| Scope/benefits of the modified Project or Study requires reapproval in the SIP. If yes, select all that apply: | <input checked="" type="checkbox"/> YES | |
| Budget/schedule modifications would impact future SIP funding allocations. If yes, select all that apply: | <input checked="" type="checkbox"/> YES | |
| PMR was received after October 31 of a fiscal year and the PMR will be considered for approval during the preparation of subsequent SIP for the fiscal year <u>after</u> the next | <input type="checkbox"/> YES | - |
| Project or Study abandoned the proposed modifications | <input type="checkbox"/> YES | |
| Project or Study was withdrawn from consideration by the WASC and shall issue repayment of unspent funds | <input type="checkbox"/> YES | |
| Proposed scope/benefit modifications were recommended for approval in the SIP | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A | |
| Modifications to the Project or Study's funding allocations were recommended for approval as identified in the SIP | <input type="checkbox"/> YES <input type="checkbox"/> PARTIAL <input type="checkbox"/> NO | |

Proposed Modifications to Project Concepts:

| | Status | Date |
|---|------------------------------|------|
| Proposed modifications were deemed consistent with the Project concept that was approved by the WASC, ROC and Board for inclusion in the SIP and can be addressed within the existing budget. SCWP staff will proceed to incorporate the proposed modification into the Feasibility Study immediately. | <input type="checkbox"/> YES | |
| Proposed modifications were deemed significant enough to result in a significantly different Project concept from the one approved by the WASC, ROC and Board for inclusion in the SIP. If yes, select one: | <input type="checkbox"/> YES | |
| SCWP staff to discontinue work on the Feasibility Study, return unused funds to be programmed in the SIP for the next fiscal year, and advise the proponent to submit the modified Project concept during the Call for Projects for a future fiscal year. | <input type="checkbox"/> YES | - |
| SCWP staff to abandon the proposed modifications and proceed with the Project concept included in the SIP. | <input type="checkbox"/> YES | - |

Public Works - Project Funding / Budget Form (Blue Sheet)

| | | |
|-------------------------|-------------------|---|
| Project Number: | 3006040002 O&M | Meeting Date: 5/20/2024 |
| Project Name: | LB-MUST O&M | Attendees: Colin A, Sophia M, Cecilia S. |
| Project Manager: | Colin Averill | |
| Administrative Analyst: | Sophia Meng-Chhom | |
| Estimated Start Date | 1/1/2025 | |
| Estimated End Date | 12/31/2030 | |

Project Description:

LB-MUST O&M costs year 1-6.

Funding:

| <u>Sources:</u> | <u>Grant #</u> | <u>Amount</u> |
|--|--------------------------------------|-----------------|
| Measure W Municipal | FY24/25 | \$1,000,000 |
| | | |
| | | |
| | | |
| | Total | \$1,000,000.00 |
| | | |
| <u>Uses of Funds (include staff time):</u> | <u>Amount</u> | |
| Year 1 O&M | \$ | 972,780.00 |
| Year 2 O&M | \$ | 837,760.00 |
| Year 3 O&M | \$ | 837,760.00 |
| Year 4 O&M | \$ | 837,760.00 |
| Year 5 O&M | \$ | 837,760.00 |
| Year 6 O&M | \$ | 837,760.00 |
| Contingency | \$ | 400,000.00 |
| Program Management | \$ | 300,000.00 |
| | Subtotal: | 5,861,580.00 |
| | CIP Overhead (2.5% of the Subtotal): | 146,539.50 |
| | Estimated Total: | 6,008,119.50 |
| | Revenue less Budget: | -\$5,008,119.50 |

May 20, 2024

Colin Averill, PE
Senior Civil Engineer
City of Long Beach
Engineering Bureau
411 W. Ocean Blvd., 5th Floor
Long Beach, CA 90802

Via Email: Mr. Colin Averill, PE, Colin.Averill@longbeach.gov

Reference

Proposal – LB MUST Final Design Change Order No. 4 – Amended for Additional Services

Dear Mr. Averill:

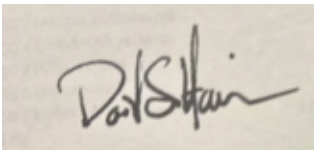
Stantec is pleased to submit Change Order No. 4, which has been amended for additional services for Final Design related to the Long Beach Municipal Urban Stormwater Treatment Project (LB-MUST).

Stantec appreciates the opportunity to submit this Proposal on this important project for the City of Long Beach. Should you have any questions, please do not hesitate to contact Dave Harrison at 626.568.6110, david.harrison@stantec.com or Ed Othmer at 619.279.3682, Ed.Othmer@stantec.com.

STANTEC Consulting Services, Inc.



Ed Othmer, PE, CPESC, CPSWQ. QSP/D ToR, QISP ToR, ENV SP
Project Manager



David Harrison, PE, DEE
Senior Program Manager

Statement of Understanding

This Project will create a facility that will treat urban runoff before it enters the LA River. Water traveling through the City's storm drain system contains a series of pollutants, including bacteria, hydrocarbons, metals, and trash. While the City does provide trash screening at its various pump stations, there is currently no method of treatment for any other pollutants. The proposed LB-MUST facility will meet the Federal and State compliance regulations that mandate cleanup of the LA River and will be in accordance with the City's National Pollutant Discharge Elimination System (NPDES) permit. The LB-MUST Project will improve the water quality within the LA River, the LA River estuary, and the City's beaches. In addition to water quality improvement, the Project will incorporate educational features to inform the public of the Project benefits.

The goal of the LB-MUST Project is to provide a significant improvement to water quality, which will in turn benefit aquatic life and recreational beach activities. By intercepting, diverting, and treating the dry weather urban runoff and the first flush of rainwater runoff, the facility will reduce and/or eliminate pollution that would otherwise discharge into the LA River and spread into City beaches and ocean waters. The alternative water byproduct of the LBMUST Facility will help create and sustain the proposed wetlands riparian habitat, which will function as a retention basin.

The alternative water will supplement potable water for the irrigation of parks.

The purpose of this change order is to provide additional tasks related to the final design and construction services for the treatment facility, wetland, conveyance system, and new facilities at an adjacent parcel.

It is anticipated that these services will extend for a period of 12 months from the date of Notice to Proceed to provide the services. Tasks 20 and 21, described below and in the Attachments to this Change Order proposal shall fully define the scope of work to be performed by Stantec under this Change Order.

Scope of Work

Tasks 1 through – 19

No changes.

Task 20 – Facility Startup and Optimization

Stantec will startup, operate, optimize, and maintain the brackish water train of the LB MUST treatment facility using flow from pumps located at manhole SD-02. Flow from this storm drain manhole is intermittent; it ranges from 0 to 150 gpm depending upon dry weather flow amounts and periodic rainfall. The brackish water train consists of a cartridge filter and a *Purifics* Ceramic Ultrafilter (CUF) module. Stantec will also operate and maintain the LID lift station which consists of two submersible pumps. The startup and optimization period shall be a maximum of three months from the date of the Notice to Proceed for this work.

The following tasks define the scope of work for the Stantec team with respect to this Change Order.

- 1 **Project Management:** Stantec will manage specific aspects of the plant Operation & Maintenance (O&M) during the startup and optimization phase of the work. Project Management activities are as follows:
 - 1.1 Project Management will consist of managing all operations, maintenance and engineering personnel working on the project under the Stantec contract. This includes all subcontract personnel and authorized suppliers who are working at the plant performing operations and maintenance activities. Management activities will include the following:

- 1.1.1 Hire and manage staff with appropriate licenses to operate and maintain the plant in accordance with agreed staffing levels.
 - 1.1.2 Optimize facility operation to meet discharge requirements consistently and efficiently.
 - 1.2 Progress Reports: Stantec will prepare and submit to the City monthly written progress reports that will accompany monthly invoices.
 - 1.3 Monthly Invoicing: Stantec will submit monthly invoices detailing all labor and non-labor costs associated with the contractual efforts to operate and maintain the plant. These invoices will include labor, materials, supplies, and analytical laboratory services.
- 2 Manufacturer Training:** Engineering and operations personnel shall participate in a maximum of 80 hours of training provide by equipment manufacturers. This will be on site training at the LB MUST facility.
 - 3 Operations Optimization:** Engineering and operations personnel will work together to evaluate the performance of the LB MUST facility and determine operational protocols that produce the required effluent quality in an efficient and effective manner. These protocols will be incorporated into Task 21 – 1.1.2 - Standard Operating Procedures. Operations staffing during the three-month Operations and Optimization period shall be a maximum of 5 days per week, 7 hours per day.
 - 4 Maintenance:** Stantec shall provide routine maintenance for all process equipment and systems that are part of the brackish water operation. Stantec shall provide two days per month (7 hrs/day) of maintenance technician's time to provide routine maintenance activities. This shall include:
 - 4.1** Schedule, perform and document routine recommended maintenance work. This includes routine recommended or industry standard maintenance work on idle equipment to maintain good working condition for future use (e.g. pump rotation, lubrication, and other manufacturer-recommended on all equipment at the LB MUST facility).
 - 4.2** Maintain and repair equipment in accordance with manufacturer recommendations.
 - 4.3** Stantec team shall provide maintenance services to keep the operating facility clean and free of trash. Standard weekly trash service will be provided by City via dumpster or bin(s).
 - 5 Process Chemicals:** Stantec shall procure, store and feed process chemicals into the brackish water treatment system in accordance with Standard Operating Procedures for this system. Details of expected chemical requirements and dosing rates are shown in Attachment No. 1. Any expired process chemicals shall be disposed of and handled in accordance with applicable regulations.
 - 6 Sampling & Analysis:** Stantec shall arrange for sample collection and laboratory analysis as detailed in Attachment No. 2, Table 2.1. This will include:
 - Collection of samples in appropriate containers provided by the analytical laboratory or meeting the requirements of the analytical laboratory.
 - Proper storage and transport of the samples to the analytical laboratory.
 - Inclusion of sampling results in Monthly Reports.
 - Evaluation of sampling results and recommendations for any additional sampling to support plant operations and maintenance.

Task 21 – Facility Operation, Maintenance, Monitoring, and Reporting

Stantec will operate and maintain the brackish water train of the LB MUST treatment facility using flow from pumps located at manhole SD-02. Flow from this storm drain manhole is intermittent; it ranges from 0 to 150 gpm depending upon dry weather flow amounts and periodic rainfall. The brackish water train consists of a cartridge filter and a *Purifics* Ceramic Ultrafilter (CUF) module. Stantec will also operate and maintain the LID lift station which consists of two submersible pumps.

- 1 Project Management:** Stantec will manage specific aspects of the plant Operation & Maintenance

(O&M) activities as follows:

1.1 Project Management will consist of managing all operations, maintenance and engineering personnel working on the project under the Stantec contract. This includes all subcontract personnel and authorized suppliers who are working at the plant performing operations and maintenance activities. Management activities will include the following:

1.1.1 Hire and manage staff with appropriate licenses to operate and maintain the plant in accordance with agreed staffing levels.

1.1.2 Develop, review, and maintain the following plans and systems for the LB MUST plant:

1.1.2.1 Safety Program

1.1.2.2 Standard Operating Procedures

1.1.2.3 Spill Prevention Control and Counter Measures Plan

1.1.2.4 Emergency Response Plan

1.1.2.5 Up to date Spare Parts Inventory

1.2 Progress Reports: Stantec will prepare and submit to the City monthly written progress reports that will accompany monthly invoices.

1.3 Monthly Invoicing: Stantec will submit monthly invoices detailing all labor and non-labor costs associated with the contractual efforts to operate and maintain the plant. These invoices will include labor, materials, supplies and analytical laboratory services.

2 Operations: Stantec shall operate the plant to comply with all applicable permits and regulations, including City of Long Beach Department of Health requirements and Los Angeles Regional Water Quality Control Board MS4 Permit (Order No. R4-2021-0105). All CUF blowdown and other waste flows from the plant will be returned to the sewer: these flows must be in compliance with the City of Long Beach Industrial Waste Discharge Permit.

2.1 Operations Staffing: Stantec shall provide one full-time operator defined as 2 or three days per week, 7 hours per day. This staffing level shall be maintained for the duration of the contract.

2.2 Operations Activities: Stantec shall operate the plant in a safe manner consistent with standard industry practices to meet discharge requirements. Operational requirements shall include:

- Set parameters and control systems to optimize treatment plant process control.
- Operate in accordance with manufacturer's recommendations and Standard Operating Procedures developed for the plant.
- Collect all required samples and arrange for an analytical laboratory to perform required analyses of these samples. Stantec shall be responsible for transporting the samples in an appropriate and safe manner to the analytical laboratory. Sampling requirements are as shown in Attachment No. 2.
- Maintain an electronic reporting database of plant operations and maintenance activities and performance. Store all hard copy records of operations and maintenance data at the plant.
- Prepare daily operations logs and daily maintenance logs. Logs will be available at the plant for inspection by the City.

2.3 Sampling Plan: Stantec shall arrange for sample collection and laboratory analysis as detailed in Attachment No. 2. This will include:

- i. Collection of samples in appropriate containers provided by the analytical laboratory or meeting the requirements of the analytical laboratory.

- ii. Proper storage and transport of the samples to the analytical laboratory.
- iii. Inclusion of sampling results in Monthly Reports.
- iv. Evaluation of sampling results and recommendations for any additional sampling to support plant operations and maintenance.

2.4 Process Chemicals; Stantec shall procure, store and feed process chemicals into the brackish water treatment system in accordance with Standard Operating Procedures for this system. Details of expected chemical requirements and dosing rates are shown in Attachment No. 1. Any expired process chemicals shall be disposed of and handled in accordance with applicable regulations.

2.5 Health & Safety: Prior to the start of any O&M activities, Stantec shall prepare a Health & Safety Plan suitable for the operation and maintenance of a stormwater treatment facility and shall provide training for all O&M staff on this plan.

3 Maintenance: Stantec shall provide routine maintenance for all process equipment and systems that are part of the brackish water operation. Stantec shall provide two days per month (7 hrs/day) of maintenance technician's time to provide routine maintenance activities. This shall include:

- Schedule, perform and document routine recommended maintenance work. This includes routine recommended or industry standard maintenance work on idle equipment to maintain good working condition for future use (e.g. pump rotation, lubrication, and other manufacturer-recommended on all equipment at the LB MUST facility).
- Maintain and repair equipment in accordance with manufacturer recommendations.

Standard weekly trash service will be provided by City via dumpster or bin(s).

4 Emergency Services: Stantec shall provide staff to handle any emergency callouts to the plant during non-staffed hours. This includes all hours that the regularly scheduled operations person is not at the plant. The estimated labor required for this effort is 12 hrs/month of an operator's time.

5 Process Engineering and Regulatory Reporting: Stantec shall provide the services of qualified process engineers to provide operational support, evaluation of analytical data, and preparation of required monthly regulatory reports. Stantec has estimated the labor effort to prepare the reports noted below and shown in the Cost Estimate for this task. Should additional reporting be required or should the time to complete these reports, as agreed upon with the City of Long Beach, exceed this estimate, then additional compensation may be provided to Stantec. The reporting requirements are estimated at this time to include the following:

5.1.1 Process Optimization: Stantec will optimize the brackish water treatment train to meet discharge requirements as efficiently as possible. The brackish water train is intended to send effluent to the constructed wetland as a Stormwater Best Management Practice. As part of the process optimization work, Stantec will provide recommendations for optimization of the treatment process including chemicals, operational setpoints and flow rates.

5.1.2 Regulatory Reporting: Stantec will prepare performance reports to demonstrate compliance with Los Angeles Regional Water Quality Control Board MS4 Permit (Order No. R4-2021-0105). The frequency of these reports is anticipated to be no more than once per quarter. Additional reports, such as LACSD Industrial Waste discharge report may be required on a semiannual basis.

5.1.3 Grant reporting: Assist in preparation of data for annual reports to support the City's compliance with project grants including the Safe Clean Waer Program and other grants..

ASSUMPTIONS AND EXCLUSIONS

ASSUMPTIONS:

This proposal was based on the following assumptions related to the proposed project:

- Labor estimates are as noted in the Scope of Work above.

- An estimate of \$100,000 for emergency repairs is included. The use of these funds would require written authorization from the City of Long Beach.

EXCLUSIONS:

Items not specifically identified in the scope of service sections of this proposal are to be excluded from this work effort and would be considered additional services. Such services would include, but are not limited to, the following:

- Equipment repair or replacement
- O&M labor above the levels noted in the Scope of Work

CITY TO PROVIDE:

- The City of Long Beach will provide the following: water service, electrical power, internet service, and trash service for the operation of the plant and to maintain appropriate environments in the plant area and office areas of the facility.
- The City of Long Beach will provide the maintenance services for the following systems at the plant: HVAC, janitorial, hot water, landscaping, and lighting.

SCHEDULE AND STAFF AVAILABILITY

Stantec will complete these additional services throughout the term of the contract.

PROPOSED COST AND BILLING RATES

Stantec has prepared a detailed cost estimate for the labor and expenses necessary to complete the proposed scope of work and the proposed schedule described in this proposal. A detailed Cost Estimate is provided as a separate file. The total estimated cost for the above scope of work is **\$972,780**. Stantec services will be charged on a time-and-materials basis in accordance with the terms and conditions of the Agreement No. 34908 with the City of Long Beach. The schedule of rates presented in Agreement No. 34908, were established for use through March 31, 2026.

City of Long Beach MUST
Cost Estimate - Amendment No. 4
Task 20 Plant Operations and Maintenance
 5/20/2024

| | Labor Costs | | | | | | | | | | Other Direct Costs | | | | | |
|---|----------------------------|-----------------|----------|--------------------|-------------|---------------|-----------|-----------------|--------------------|---------------------|--------------------------|-------------------|---|-----------------------------|-----------|-----------|
| | Project Mgr/Chief Engineer | Senior Engineer | Engineer | Associate Engineer | O&M Manager | Lead Operator | Operator | Mech/Elect Tech | Emergency Operator | Sampling & Analysis | Maint Mat'l's & Supplies | Process Chemicals | Field Turbidity Meter & composite sampler | Emergency Repairs Allowance | Misc ODCs | TOTAL |
| 20 Startup and Optimization | \$301 | \$203 | \$180 | \$164 | \$250 | \$240 | \$210 | \$235 | \$225 | | | | | | | |
| 20.1 Project Mgmt | 104 | | 26 | | 8 | | | | | | | | | | \$2,000 | \$39,984 |
| 20.2 Mfr Training | 2 | | 80 | | | 70 | 28 | | | | | | | | \$1,000 | \$36,002 |
| 20.3 Operations Optimization | | 208 | 156 | | 26 | 455 | 48 | | | \$6,000 | | \$14,000 | | | | \$194,194 |
| 20.4 Maintenance | | | | | | | | | | | | | | | | \$17,280 |
| 20.5 Process Chemicals | | | | | | | | | | | \$15,000 | | | | | \$15,000 |
| 20.6 Sampling & Analysis | | | | | | | | | | \$42,000 | | | | | | \$42,000 |
| | | | | | | | | | | | | | | | | \$344,460 |
| 21 LB MUST Plant O&M | | | | | | | | | | | | | | | | |
| 21.1 Project Management | 144 | | 36 | 216 | 140 | | | | | | | | | | \$9,000 | \$129,248 |
| 21.2 Operations | | | | | 72 | 850 | 144 | | | | \$18,000 | \$45,000 | | | \$4,500 | \$254,280 |
| 21.3 Maintenance | | | | | | | | | | | | | | | | \$51,840 |
| 21.4 Emergency Services | | | | | | | | | 108 | | | | | \$100,000 | | \$124,300 |
| 21.5 Process Engineering & Regulatory Reporting | | 72 | 144 | 144 | 18 | | | | | | | | | | | \$68,652 |
| | 250 | 280 | 362 | 440 | 166 | 98 | 1,375 | 220 | 144 | | | | | | | \$628,320 |
| | \$75,250 | \$56,840 | \$65,160 | \$72,160 | \$41,500 | \$23,520 | \$288,750 | \$51,700 | \$32,400 | | | | | | | |
| Stantec | | \$269,410 | | WQS | \$437,870 | | | | | | | | | | | \$972,780 |

- Notes:** 20.2 - one operator for 2 weeks, 7 hrs/day.
 20.3 - full time operator for three months- 5 days/week, 7 hours/day, 39 weeks
 20.4 - Mech/Elec techs - 16 hrs/month for three months and maintenance supplies estimated at \$2K/month for three months
 20.5 - chemicals estimated at \$5K/month for three months
 20.6 - Optimization sampling at \$14K/month for three months
 21.1 - includes 100 hours to prepare required plans and manuals per Subtask 21.1.1.2
 21.2 - Operational staffing level is one operator, 7 hours/day, three days/week for 39 weeks.
 21.3 - sampling/analysis at \$2,000/month and chemicals at \$5,000/month
 21.5 - Regulatory reporting requirements are undefined at this point in time. Estimated time commitment is 16 hrs/month for both Engr and Assoc Engineer plus 8 hrs/month for Sr. Engr.

1.0 CHEMICAL FEED SYSTEM

The chemical feed systems include metering pumps, storage tanks, and chemical injection skids. Chemical storage and pumping equipment are located in the Chemical Room of the Treatment Facility Building. The secondary containment sumps are provided below the room finish floor, covered with grating, with volumes sized in compliance with the International Fire Code (IFC, 2013). Incompatible chemicals are divided by isolation walls and two-hour fire rated walls span the peripheral of the room.

Table 3-2 from the OM&M Plan summarizes the chemical pumping requirements and dosing schedule for each application point. Chemicals are either fed continuously to injection points within the treatment train or fed as needed for cleaning. Continuous dosing is based on a flow-paced dose in milligrams per liter, and cleaning flows are controlled by the skid control panels. Dosing is subject to change based on optimization monitoring (refer to Section 6.1.1 of the OM&M Plan).

Table 3-2. Chemical Pump and Dosing Schedule (from OM&M Plan)

| Skid | Chemical | Common Name | Purpose | Application Point | Number of Pumps | Typical Flow (gph) | Strength | Sp. Gr. | Dosing | Dose Range | Lifespan of Supply at Average Dose |
|------|---|-------------|--|----------------------------------|-----------------|--------------------|----------|---------|--------------|-------------|------------------------------------|
| 6 | Calcium Polysulfide (CaS ₂) | Calmet | Metals Precipitation | Purifies CUF Feed (CUF Influent) | 2 (1 per train) | 0.03 to 0.30 | 29% | 1.27 | Continuous | 1-5 mg/L | 78 days for (4) 55-gallon drums |
| 3 | Sodium Hypochlorite (NaOCl) | Bleach | Disinfection | Effluent Pumps | 1 total | 0.03 to 0.25 | 12.5% | 1.22 | Continuous | 0.5-2 mg/L | 92 days |
| 4 | | | Cleaning | Purifies CUF TMP | 2 (1 per train) | 2.6 | | | Intermittent | N/A | |
| 3 | | | Oxidation | Iron/Manganese Influent | 2 (1 per train) | 0.03 to 0.58 | | | Continuous | 0.5-2 mg/L | |
| 5 | Ferric Chloride (FeCl ₃) | N/A | Coagulation, Organics and Metals Removal | Purifies CUF Feed (CUF Influent) | 2 (1 per train) | 0.004 to 0.3 | 40% | 2.9 | Continuous | 0.5-20 mg/L | 146 days |
| 7 | Sodium Hydroxide (NaOH) | Caustic | Cleaning | Purifies CUF TMP | 2 (1 per train) | 0.6 | 50% | 1.53 | Intermittent | N/A | N/A |
| 1 | Sulfuric Acid (H ₂ SO ₄) | N/A | Cleaning | Purifies CUF TMP | 2 (1 per train) | 0.5 | 98% | 1.84 | Intermittent | N/A | N/A |
| | | | | Purifies Photo-CAT Acid Rinse | 2 (1 per train) | 0.5 | | | Intermittent | N/A | |

Key:

CUF= ceramic ultrafiltration

gph = gallons per hour

mg/L= milligrams per liter

N/A = non-applicable

Sp. Gr. = specific gravity

TMP = trans-membrane pressure

2.0 MONITORING

Described herein are excerpts from the Operation, Maintenance, and Monitoring Plan. These excerpts provide clarity on the specific monitoring that must be performed. Monitoring the LB-MUST Facility will include the following:

1. **Optimization monitoring.** Once the system is installed, optimization monitoring will occur immediately following commissioning to determine optimal performance to achieve water quality goals.
2. **Routine water quality monitoring in compliance with the Safe, Clean Water Program.** The Regional Program Transfer Agreement for the Safe, Clean Water Program requires post-construction stormwater quality monitoring data to be collected and reported in a manner consistent with the State Water Resources Control Board database, the California Environmental Data Exchange Network.
3. **Sanitary sewer discharge monitoring in compliance with the LA County Sanitation Industrial Wastewater Permit.** An Industrial Wastewater Discharge Permit has been approved for the LB-MUST Facility for the sewered flow that includes the filter backwash from treating dry weather flows and stormwater runoff and equipment maintenance cleaning. The approved permit (Permit Number 22538) is included in Appendix U of the OM&M Plan and is active from 9/3/2020 through 9/2/2025.

The following sections provide additional details of each element of the monitoring program. The OM&M Plan shall also be consulted.

2.1 OPTIMIZATION MONITORING

Optimization monitoring shall be performed in accordance with Table 2-1 and Figure 2-1 for a period of a minimum of three months.

Table 2-1. Optimization Monitoring

| Monitoring Point ID | Location Description of Location | Constituent | Treatment Goal | Analytical Method | Frequency | Sample Method | Submit Results To/ Frequency |
|---------------------|----------------------------------|---|---------------------------------------|---------------------|---------------------------------------|---------------------|-----------------------------------|
| | | | | | | | |
| CUF_01B CUF_02B | | Mercury | 0.51 µg/L (0.00051 mg/L) | EPA 245.1 | 2 times per week | Grab | Stantec and City Every 2 weeks |
| | | Total Copper ¹ | 3.1 µg/L (0.0031 mg/L) | EPA 1638 or 1640 | 2 times per week | Grab | |
| | | Total Lead | 8.1 µg/L (0.0081 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Total Zinc | 81 µg/L (0.081 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Dissolved Copper ¹ | 3.1 µg/L (0.0031 mg/L) | EPA 1638 or 1640 | 2 times per week | Grab | |
| | | Dissolved Lead | 8.1 µg/L (0.0081 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Dissolved Zinc | 81 µg/L (0.081 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Iron | 300 µg/L (0.3 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Manganese | 50 µg/L (0.05 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Total Cadmium | 3.1 µg/L (0.0031 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Total Selenium | 5 µg/L (0.005 mg/L) | EPA 200.7 | 2 times per week | Grab | |
| | | Alkalinity all forms as CaCO ₃ | N/A | SM 2320B | 2 times per week | Grab | |
| | | Chloride | N/A | SM 1030E | 2 times per week | Grab | |
| | | Total Hardness (as CaCO ₃) | N/A | SM 2340B | 2 times per week | Grab | |
| | | Turbidity | 5 NTU | PLC | Continuous | Field meter | |
| | | pH | 6.0 to 9.0 | PLC | Continuous (at least once per minute) | In situ field meter | |
| Flow Rate | N/A | PLC | Continuous (at least once per minute) | In situ field meter | | | |
| TMP | N/A | PLC | Continuous | In situ field meter | | | |
| Temperature | N/A | PLC | Continuous | In situ field meter | | | |
| pH | 6.0 to 9.0 | PLC | Continuous (at least once per minute) | In situ field meter | | | |
| CUF_03B | CUF Loop / Blowdown | Flow Rate | 7,500 GPD Daily Average Flow Limit | PLC | Continuous (at least once per minute) | In situ field meter | |
| | | | 150 GPM 5-Minute Peak Flow Limit | PLC | Continuous (at least once per minute) | In situ field meter | |

1. Copper shall be analyzed according to method 1638 or 1640. The commonly used USEPA method 200.7 (Trace Elements-ICP) has been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample analyzed by method 200.7 are known.

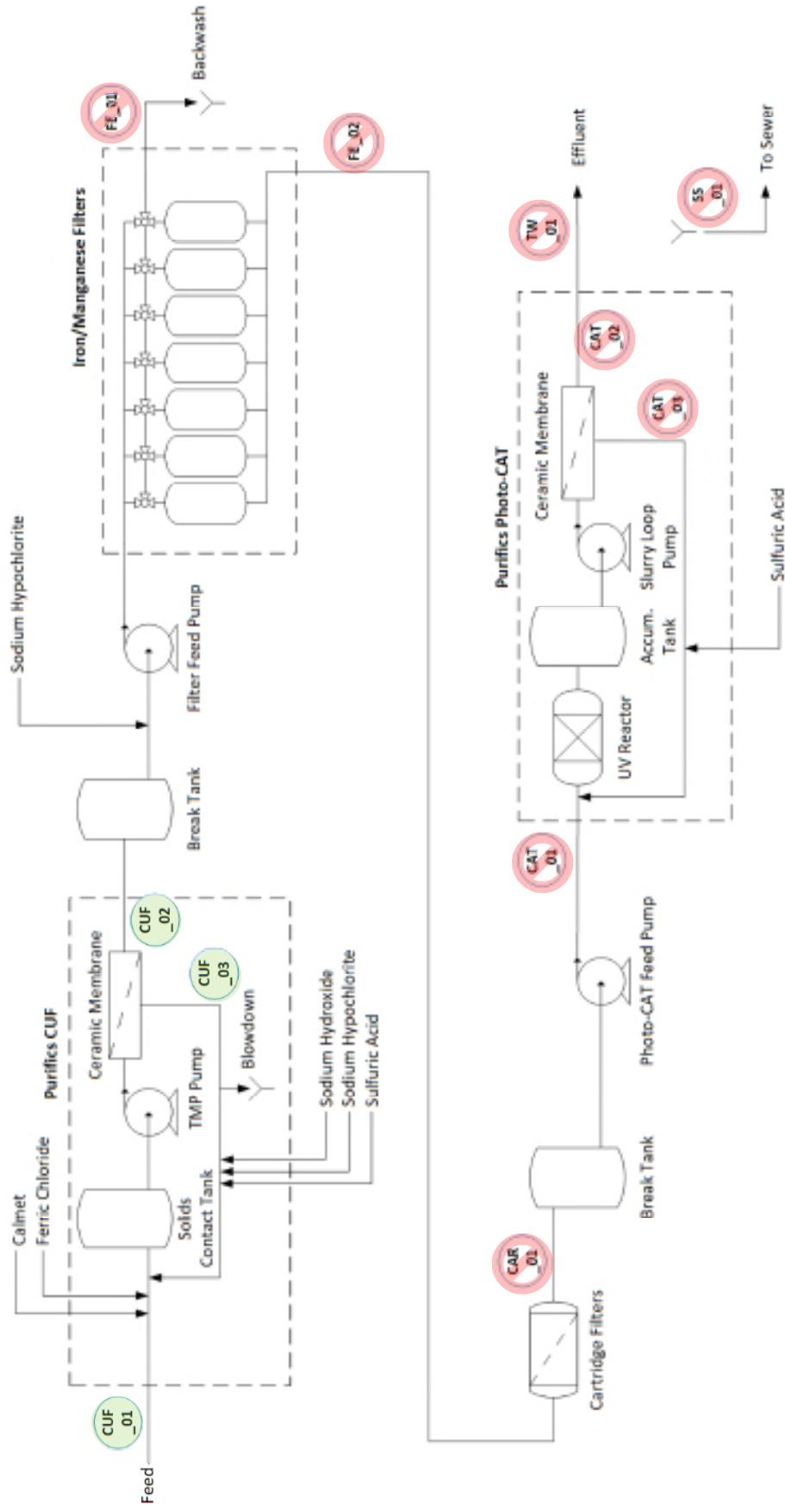


Figure 2-1. Optimization Monitoring Sample Locations

2.2 ROUTINE WATER QUALITY MONITORING

Routine water quality monitoring shall be performed in accordance with Table 2-2 and Figure 2-2 upon completion of the Optimization Monitoring Phase. Monitoring shall be expanded to evaluate the performance of PhotoCat when placed in operation. Monitoring shall be in conformance with the OM&M Plan.

Table 2-2. Routine Water Quality Monitoring

| Monitoring Point ID | Monitoring Location Description of Location | Constituent | Treatment Goal | Analytical Method | Frequency | Sample Method | Submit Results To/ Frequency |
|---------------------|---|---|--|-------------------|---------------------------------------|---------------------|------------------------------|
| CUF_01B CUF_02B | CUF Influent CUF Effluent | Mercury | 0.51 µg/L | EPA 245.1 | Once per month | Grab | Stantec and City Monthly |
| | | Total Copper ¹ | 3.1 µg/L | EPA 1638 or 1640 | Once per month | Grab | |
| | | Total Lead | 8.1 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Total Zinc | 81 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Dissolved Copper ¹ | 3.1 µg/L | EPA 1638 or 1640 | Once per month | Grab | |
| | | Dissolved Lead | 8.1 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Dissolved Zinc | 81 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Iron | 300 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Manganese | 50 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Total Cadmium | 3.1 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Total Selenium | 5 µg/L | EPA 200.7 | Once per month | Grab | |
| | | Alkalinity all forms as CaCO ₃ | N/A | SM 2320B | Once per month | Grab | |
| | | Chloride | N/A | SM 1030E | Once per month | Grab | |
| | | Total Hardness (as CaCO ₃) | N/A | SM 2340B | Once per month | Grab | |
| | | Turbidity | 5 NTU | PLC | Continuous | Field meter | |
| | | pH | 6.0 to 9.0 | PLC | Continuous (at least once per minute) | In situ field meter | |
| CUF_03B | CUF Loop / Blowdown | Flow Rate | N/A | PLC | Continuous (at least once per minute) | In situ field meter | |
| | | TMP | N/A | PLC | Continuous | In situ field meter | |
| | | Temperature | N/A | PLC | Continuous | In situ field meter | |
| | | pH | 6.0 to 9.0 | PLC | Continuous (at least once per minute) | In situ field meter | |
| | | Flow Rate | 7,500 GPD Daily Average Flow Limit 150 GPM 5-Minute Peak Flow Limit | PLC | Continuous (at least once per minute) | In situ field meter | |

1. Copper shall be analyzed according to method 1638 or 1640. The commonly used USEPA method 200.7 (Trace Elements-ICP) has been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample analyzed by method 200.7 are known.

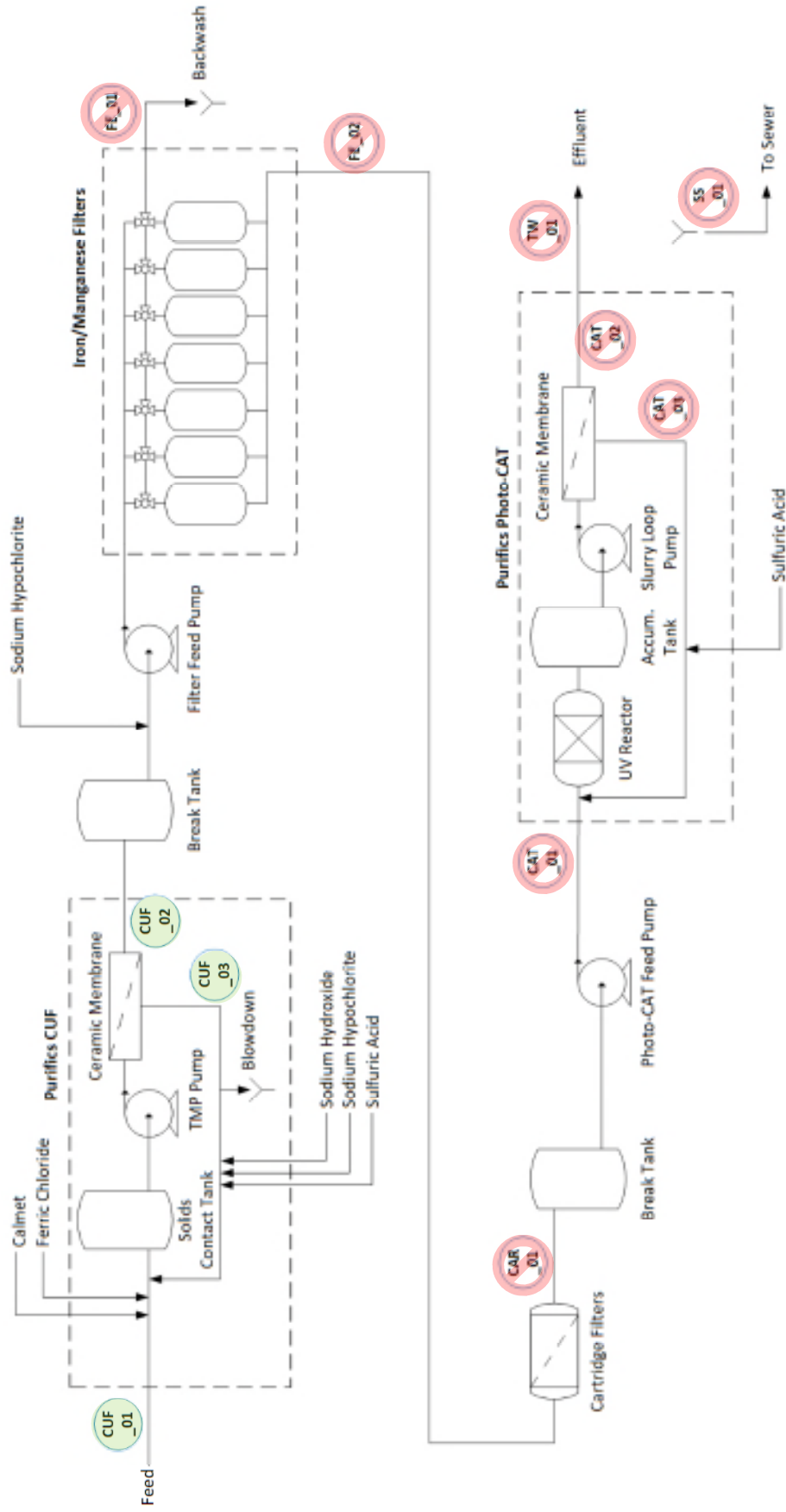


Figure 2-2. Routine Water Quality Monitoring Sample Locations

2.3 SANITARY SEWER DISCHARGE MONITORING

Sanitary sewer discharge monitoring will be performed in accordance with Table 2-3 and Figure 2-3. Monitoring shall be in conformance with the OM&M Plan and the Industrial Wastewater Discharge Permit (Permit Number 22538).

Table 2-3. Sanitary Sewer Discharge Monitoring¹

| Sample Point ID | Monitoring Location Description of Location | Constituent | Limit | Analytical Method | Frequency ² | Sample Method | Submit Results To |
|-----------------|---|------------------------------------|--|---------------------|---------------------------------------|-------------------------------|---|
| SS-01 | Sanitary Sewer Discharge at Sampling Box upstream of MH 03-0595 | Total Cadmium | 15 mg/L | EPA 200.7 | Semiannual | 24-hr Time-weighted Composite | Stantec and City by: July 1 January 1 Results to be submitted to LA County Sanitation District on agency-provided Self Monitoring Report (SMR) form by: July 15 January 15 |
| | | Total Chromium | 10 mg/L | EPA 200.7 | Semiannual | 24-hr Time-weighted Composite | |
| | | Total Chemical Oxygen Demand (COD) | No Limit | EPA 410.4 | Semiannual | 24-hr Time-weighted Composite | |
| | | Total Copper ³ | 15 mg/L | EPA 1638 or 1640 | Semiannual | 24-hr Time-weighted Composite | |
| | | Total Lead | 40 mg/L | EPA 200.7 | Semiannual | 24-hr Time-weighted Composite | |
| | | Total Nickel | 12 mg/L | EPA 200.7 | Semiannual | 24-hr Time-weighted Composite | |
| | | Oil & Grease | No Limit | EPA 1664A | Semiannual | Grab | |
| | | pH | 6.0 Minimum Local 5.0 Minimum Federal | In situ field meter | Semiannual | Grab | |
| | | Total Silver | 5 mg/L | EPA 200.7 | Semiannual | 24-hr Time-weighted Composite | |
| | | Soluble Sulfide | 0.1 mg/L | SM 9030B | Semiannual | Grab | |
| | | Total Suspended Solids | No Limit | EPA 160.2 | Semiannual | 24-hr Time-weighted Composite | |
| | | Total Cyanide | 10 mg/L | EPA 335.4 | Semiannual | Grab | |
| | | Total Zinc | 25 mg/L | EPA 200.7 | Semiannual | 24-hr Time-weighted Composite | |
| | | Flow Rate | 7,500 GPD Daily Average Flow Limit 150 GPM 5-Minute Peak Flow Limit | PLC | Continuous (at least once per minute) | In situ field meter | |

- Per conversation with Los Angeles County Sanitation District on December 11, 2023 (562-908-4288, EXT 2916), Surcharge Monitoring is not required.
- Semiannual Reporting Periods: January 1 – June 30, July 1 – December 31
- Copper shall be analyzed according to method 1638 or 1640. The commonly used USEPA method 200.7 (Trace Elements-ICP) has been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample analyzed by method 200.7 are known.

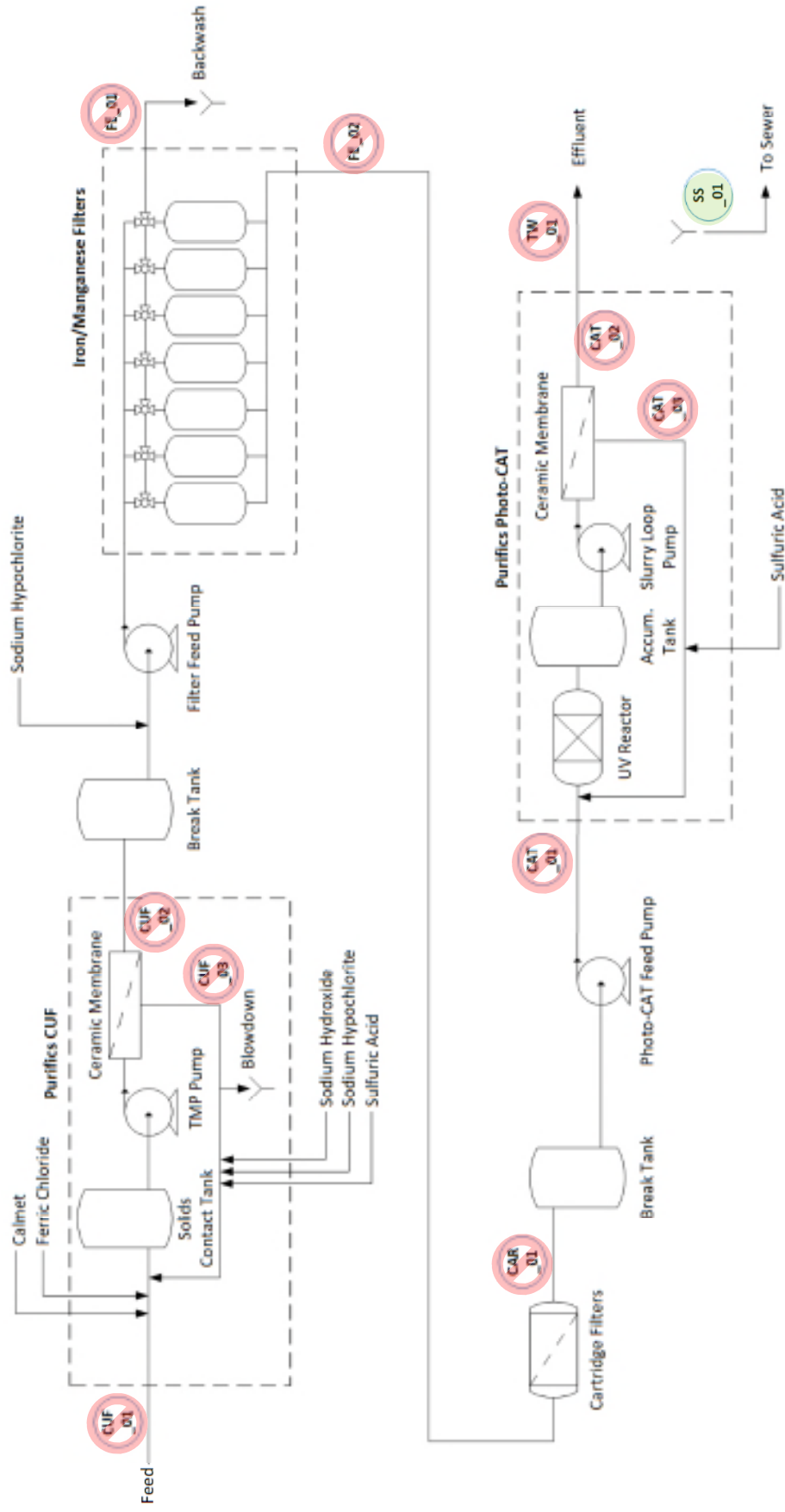


Figure 2-3. Sanitary Sewer Discharge Sample Location