BACWA
BAY AREA
CLEAN WATER
AGENCIES

May 22, 2014

Bay Area Clean Water Agencies (BACWA) seeks the services of a consulting engineering firm or team for a planning level study related to nutrient removal, as well as annual compliance reporting for nutrients, on behalf of BACWA member agencies that discharge to the San Francisco Bay. The accompanying Request for Proposal includes the information needed for proposal preparation. Participating member agencies are listed in Attachment 1 to this letter.

An electronic proposal as a pdf document, as well as seven (7) paper copies, shall be submitted. The electronic proposal shall be submitted to Lorien Fono at lfono@pmengineers.com by **5:00 pm on June 27, 2014**. One paper copy shall be sent to each of the seven members of the BACWA Contract Management Group, whose mailing addresses are provided in Attachment 2 to this letter. Paper copies of the proposal must be postmarked on or before June 27, 2014.

All questions and requests for information regarding this RFP or the Project shall be directed in writing, via email, to David R. Williams at dwilliams@bacwa.org. Questions shall be submitted by June 9, 2014 and answers will be distributed to all Proposers by June 13, 2014.

Sincerely,

David R. Williams

David R. Williams, P.E.
Executive Director

Attachment 1

List of Participating Agencies

Discharger	Facility Name
American Canyon, City of	Wastewater Treatment and Reclamation Facility
Benicia, City of	Benicia Wastewater Treatment Plant
Burlingame, City of	Burlingame Wastewater Treatment Plant
Central Contra Costa Sanitary District	Central Contra Costa Sanitary District Wastewater Treatment Plant
Central Marin Sanitation Agency	Central Marin Sanitation Agency Wastewater Treatment Plant
Delta Diablo	Wastewater Treatment Plant
East Bay Dischargers Authority (EBDA), City of Hayward, City of San Leandro, Oro Loma Sanitary District, Castro Valley Sanitary District, Union Sanitary District, Livermore-Amador Valley Water Management Agency, Dublin San Ramon Services District, and City of Livermore	EBDA Common Outfall
	Hayward Water Pollution Control Facility
	San Leandro Water Pollution Control Plant
	Oro Loma/Castro Valley Sanitary Districts Water Pollution Control Plant
	Raymond A. Boege Alvarado Wastewater Treatment Plant
	Livermore-Amador Valley Water Management Agency Export and Storage Facilities
	Dublin San Ramon Services District Wastewater Treatment Plant
	City of Livermore Water Reclamation Plant
East Bay Municipal Utility District	East Bay Municipal Utility District, Special District No. 1 Wastewater Treatment Plant
Fairfield-Suisun Sewer District	Fairfield-Suisun Wastewater Treatment Plant
Las Gallinas Valley Sanitary District	Las Gallinas Valley Sanitary District Sewage Treatment Plant
Marin County (Paradise Cove), Sanitary District No. 5 of	Paradise Cove Treatment Plant
Marin County (Tiburon), Sanitary District No. 5 of	Wastewater Treatment Plant
Millbrae, City of	Water Pollution Control Plant
Mt. View Sanitary District	Mt. View Sanitary District Wastewater Treatment Plant
Napa Sanitation District	Soscol Water Recycling Facility
Novato Sanitary District	Novato Sanitary District Wastewater Treatment Plant
Palo Alto, City of	Palo Alto Regional Water Quality Control Plant
Petaluma, City of	Municipal Wastewater Treatment Plant
Pinole, City of	Pinole-Hercules Water Pollution Control Plant
Rodeo Sanitary District	Rodeo Sanitary District Water Pollution Control Facility
San Francisco (San Francisco International Airport), City and County of	Mel Leong Treatment Plant, Sanitary Plant
San Francisco (Southeast Plant), City and County of	Southeast Water Pollution Control Plant
San Jose/Santa Clara Water Pollution Control Plant and Cities of San Jose and Santa Clara	San Jose/Santa Clara Water Pollution Control Plant
San Mateo, City of	City of San Mateo Wastewater Treatment Plant
Sausalito-Marin City Sanitary District	Sausalito-Marin City Sanitary District Wastewater Treatment Plant
Sewerage Agency of Southern Marin	Wastewater Treatment Plant
Sonoma Valley County Sanitary District	Municipal Wastewater Treatment Plant
Silicon Valley Clean Water	Silicon Valley Clean Water Wastewater Treatment Facility
South San Francisco and San Bruno, Cities	South San Francisco and San Bruno Water Quality Control

Discharger	**Facility Name**
of	Plant
Sunnyvale, City of	Sunnyvale Water Pollution Control Plant
U.S. Department of Navy (Treasure Island)	Wastewater Treatment Plant
Vallejo Sanitation and Flood Control District	Vallejo Sanitation and Flood Control District Wastewater Treatment Plant
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	West County Agency Combined Outfall

Attachment 2

Contract Management Group Mailing Addresses

1. Gregory G. Baatrup
   General Manager
   Fairfield-Suisun Sewer District
   1010 Chadbourne Road
   Fairfield, CA 94534

2. Vince De Lange
   East Bay Municipal Utility District
   375 11th Street
   M/S 702
   Oakland, CA 94607

3. Joanna De Sa
   San Jose/Santa Clara Regional Wastewater Facility
   700 Los Esteros Road
   San Jose, CA 95134

4. Teresa Herrera, P.E.
   Assistant Manager/Authority Engineer
   Silicon Valley Clean Water (fka South Bayside System Authority)
   1400 Radio Road
   Redwood City, CA 94065

5. Amanda Roa
   Delta Diablo
   2500 Pittsburg-Antioch Hwy
   Antioch, CA 94561

6. David R. Williams
   1133 Snyder Lane
   Walnut Creek, CA 94598

7. Bhavani Yerrapotu
   1444 Borregas Avenue
   P.O Box 3707
   Sunnyvale, CA 94088-3707

Table of Contents

Request for Proposals

Bay Area Clean Water Agencies
Order for Municipal Wastewater Discharges of Nutrients to San Francisco Bay, NPDES Permit

Introduction

Bay Area Clean Water Agencies (BACWA) seeks the services of a consulting engineering firm or team (Consultant) for a planning level study related to nutrient removal (Project) for BACWA member agencies with flows greater than or equal to one million gallons per day (mgd), and for annual nutrients compliance reporting for all member agencies that discharge to the San Francisco (SF) Bay. This Request for Proposal (RFP) includes the information needed for proposal preparation and an attachment identifying participating member agencies. The RFP and attachment describe the scope requirements for the Project.

Background

BACWA is a local government agency created by a joint powers agreement in 1984. Our membership includes local clean water agencies that provide sanitary sewer services to the more than seven million people living in the nine county SF Bay Area. BACWA was founded, and continues, to assist agencies in carrying out mutually beneficial projects, and to facilitate the development of scientific, economic and other information about the San Francisco Bay environment and the agencies that work to protect it and public health.

The San Francisco Bay estuary has long been recognized as nutrient-enriched. Despite this, the abundance of phytoplankton in the estuary is lower than would be expected due to a number of factors, including strong tidal mixing; high turbidity, which limits light penetration; and high filtration by clams. However, recent data indicate an increase in phytoplankton biomass and a small decline in dissolved oxygen concentrations in many areas of the estuary, suggesting that its historic resilience to the effects of nutrient enrichment may be weakening. The contributing factors for this include (1) natural oceanic oscillations that have increased benthic predators, thus reducing South San Francisco Bay's clam population and clam grazing; and (2) decreases in suspended sediment that have resulted in a less turbid environment and increased light penetration.

Under current conditions, phytoplankton growth and biomass accumulation are limited much of the time by lack of light, and biomass accumulation is further controlled by clam grazing. If these constraints continue to shift, increases in phytoplankton biomass could follow. Under this scenario, it may be necessary to limit the availability of essential

nutrients. There are three potential problems that might be addressed with different nutrient removal objectives:

1. Ammonia toxicity and/or inhibition of phytoplankton growth; may require full or partial nitrification
2. Increased phytoplankton growth (eutrophication where total inorganic nitrogen is the limiting nutrient); may require full or partial denitrification
3. Undesirable phytoplankton assemblage changes due to an unfavorable nitrogen to phosphorus ratio; may require phosphorus reduction

Municipal wastewater treatment plants account for about 63 percent of the annual average total nitrogen load to San Francisco Bay. Several years may be needed to determine an appropriate level of nutrient control and to identify management actions necessary to protect San Francisco Bay beneficial uses.

The Regional Water Board has issued a Nutrient Watershed Permit (R2-2014-0014), to take effect July 1, 2014, which represents the first phase of what is expected to be a multi-permit effort. The Order sets forth a regional framework to facilitate collaboration on studies that will inform future management decisions and regulatory strategies. The overall purpose of this phase is to track and evaluate treatment plant performance, fund nutrient monitoring programs, support load response modeling, and conduct treatment plant optimization and upgrade studies for nutrient removal. These studies will increase the understanding of external nutrient loads, improve load response models, support development of nutrient objectives, and increase the certainty that any required nutrient removal at treatment plants will produce the desired outcome. In the 2019 permit reissuance, the Regional Water Board anticipates considering establishment of performance-based effluent limits for nutrients and may require implementation of treatment optimization. The 2019 permit reissuance will also continue efforts to evaluate control measure scenarios as informed by load response modeling. In the 2024 and 2029 permit reissuances, the Regional Water Board anticipates using the information garnered from studies conducted under earlier orders to require implementation of additional management actions, as needed. It should be noted that although the Optimization and Upgrade studies will provide a good foundation for understanding the potential for nutrient reduction at Bay Area Publically Owned Treatment Works (POTWs) and high level estimates of the costs, if plants were actually required to implement reductions, significantly more engineering analyses would be needed to produce facilities plans at individual POTWs and to better refine the cost estimates.

Project Description

BACWA is seeking a consultant to conduct the optimization and facility upgrades planning studies, as well as group annual reporting. The two studies and group annual report are described below.

SPECIAL STUDY 1: EVALUATION OF POTENTIAL NUTRIENT DISCHARGE REDUCTION BY TREATMENT OPTIMIZATION AND SIDESTREAM TREATMENT

The major Dischargers listed in Table A-1 shall, individually or in collaboration with other Dischargers, evaluate options and costs for nutrient discharge reduction by optimization of current treatment works. The evaluation shall include the following:

- Describe the treatment plant, treatment plant process, and service area;
- Evaluate site-specific alternatives, along with associated nitrogen and phosphorus removal levels, to reduce nutrient discharges through methods such as operational adjustments to existing treatment systems, process changes, or minor upgrades;
- Evaluate side-stream treatment opportunities along with associated nitrogen and phosphorus removal levels;
- Describe where optimization, minor upgrades, and sidestream treatment have already been implemented;
- Evaluate beneficial and adverse ancillary impacts associated with each optimization proposal, such as changes in the treatment plant's energy usage, greenhouse gas emissions, or sludge and biosolids treatment or disposal;
- Identify planning level costs of each option evaluated; and
- Evaluate the impact on nutrient loads due to treatment plant optimization implemented in response to other regulations or requirements.

Dischargers that have recently completed optimization evaluations may use previously completed reports.

SPECIAL STUDY 2: EVALUATION OF POTENTIAL NUTRIENT DISCHARGE REDUCTION BY TREATMENT UPGRADES OR OTHER MEANS

The major Dischargers listed in Table A-1 shall, individually or in collaboration with other Dischargers, conduct an evaluation to identify options and costs for potential treatment upgrades for nutrient removal.

The evaluation shall be conducted for each Discharger's treatment works or categories of like treatment works (e.g., high purity oxygen plants, conventional activated sludge plants, plants without anaerobic digestion). The evaluation must estimate nutrient reductions from treatment upgrades and, at a minimum, shall entail the following:

- Describe the treatment plant, treatment plant process, and service area;

- Identify potential upgrade technologies for each treatment plant category along with associated nitrogen and phosphorous removal levels;
- Identify site-specific constraints or circumstances that may cause implementation challenges or eliminate any specific technologies from consideration;
- Include planning level capital and operating cost estimates associated with the upgrades and for different levels of nutrient reduction, applying correction factors associated with site-specific challenges and constraints;
- Describe where Dischargers have already upgraded existing treatment systems or implemented pilot studies for nutrient removal. As part of this description, document the level of nutrient removal the upgrade or pilot study is achieving for total nitrogen and phosphorus;
- Evaluate the impact on nutrient loads due to treatment plant upgrades implemented in response to other regulations and requirements; and
- Evaluate beneficial and adverse ancillary impacts associated with each upgrade, such as changes in the treatment plant's energy use, changes in greenhouse gas emissions, changes in sludge and biosolids treatment or disposal, and reduction of other pollutants (e.g., pharmaceuticals) through advanced treatment.

Dischargers that have recently completed upgrade evaluations may use previously completed reports.

Dischargers who have planned or are implementing facility upgrades or modifications to address the impacts of sea level rise and climate change alone, or as part of infrastructure renewal, shall also include in its nutrient removal evaluation consideration of the impacts of sea level rise and climate change on identified nutrient upgrade options.

In addition to the above upgrade evaluation, Dischargers may evaluate ways to reduce nutrient loading through alternative discharge scenarios, such as water recycling or use of wetlands, in combination with, or in-lieu of, the upgrades to achieve similar levels of nutrient load reductions. This evaluation shall identify any institutional barriers to water recycling along with proposals for overcoming such barriers and include ancillary benefits and adverse impacts associated with such alternative discharge scenarios such as the following:

- Reduction in potable water use through enhanced reclamation;
- Creation of additional wetland or upland habitat;
- Changes in energy use, greenhouse gas emissions, sludge and biosolids quality and quantities;
- Reduction of other pollutant discharges;

- Impacts to existing permit requirements related to alternative discharge scenarios; and
- Implications related to discharge of brine or other side-streams associated with advanced recycling technologies.

GROUP ANNUAL REPORT

Starting in 2015, by September 1 of each year, each Discharger shall provide its nutrient information in a separate annual report or state that it is participating in a group report that will be submitted by the Bay Area Clean Water Agencies (BACWA). Starting 2015, by October 1 of each year, the Annual Group Nutrients Report shall include the information detailed below.

i. Summary tables depicting the Discharger's annual and monthly flows, nutrient concentrations, and nutrient mass loads, calculated as described in Section VIII.1 Arithmetic Calculations of Standard Provisions (Attachment G of individual permits) covering July 1 through June 30 of the preceding year. The nutrient loads of each individual Discharger shall be reported relative to other facilities covered by this Order that discharge to the same subembayment, i.e., Suisun Bay, San Pablo Bay, Central Bay, South Bay, and Lower South Bay. Nutrient information from each Discharger may be obtained from the State Water Board's California Integrated Water Quality System (CIWQS) Program website http://www.waterboards.ca.gov/ciwqs/index.html).

ii. An analysis of nutrient trends, load variability, and an assessment as to whether or not nutrient mass discharges are increasing or decreasing.

iii. If trend analysis shows a significant change in load, the Discharger shall investigate the cause and shall report its results, or status, or plans for investigation, in the annual report or in subsequent annual reports. This investigation shall include, at a minimum, whether treatment process changes have reduced or increased nutrient discharges, changes in nutrient loads related to water reclamation (increasing or decreasing), and changes in total influent flow related to water conservation, population growth, transient work community, new industry, and/or changes in wet weather flows.

An example of a Group Annual Report that BACWA has prepared in the past that could provide a template for this report is the Mercury Watershed Permit Group Report, last prepared for the 2011 reporting year.

Scope of Services

This section describes the nature and scope of engineering services to be provided for the completion of this Project for BACWA. The successful proposal will demonstrate the approach and qualifications for the entire project.

BACWA has prepared a scope of services necessary for completion of the Project, which is provided below. This scope of services shall be used as a basis for preparation of the proposal. Additional tasks or modifications to the scope of services that the Consultant feels will produce a more useful and/or cost-effective project should be included in the proposal.

The project is divided into seven tasks that are described below:

- Task 1: Project Management and QA/QC
- Task 2: Scoping and Evaluation Plans
- Task 3: Data Collection and Synthesis
- Task 4: Special Study Number 1 – Evaluation of Potential Nutrient Discharge Reduction by Treatment Optimization and Sidestream Treatment
- Task 5: Special Study Number 2 – Evaluation of Potential Nutrient Discharge Reduction by Treatment Upgrades
- Task 6: Potential Nutrient Discharge Reduction by Other Means
- Task 7: Group Annual Report
- Task 8: Reporting

It is anticipated that BACWA will initially authorize only the scope of work for Task 1 and 2 services. Following approval of the Scoping and Evaluation Plans by the Regional Water Board, BACWA will negotiate and approve the remaining scope of services.

A list of all the participating BACWA Member Agencies is provided in Attachment A. The table in Attachment A identifies whether each agency is considered a minor ($\leq$1 mgd design flow) or major (>1 mgd design flow) discharger. Only major dischargers are required to perform the special studies associated with this RFP. Some dischargers may elect to perform the studies on their own.

TASK 1: PROJECT MANAGEMENT AND QA/QC

Task 1.1 – Project Management

Consultant shall control the Project in terms of staffing, budget, schedule and scope, and promote communication within the project team including the participating agencies. BACWA has assembled a Contract Management Group (CMG), made up of representatives from our member agencies that, along with the BACWA Executive Director, will be guiding the work of the consultant. BACWA Executive Director or his designee will be the assigned project manager for this contract and will be responsible for scope and budget.

Items covered under this task include, but are not limited to:

- Kickoff meeting
- Monthly meetings with the BACWA CMG
- Quarterly progress meetings at the BACWA Executive Board Meetings
- Twice-yearly meetings presenting findings to entire BACWA membership and regulators
- Scope, budget and schedule management
- Management and coordination of Consultant staff
- Monthly invoicing and progress reports

The Consultant shall also develop and implement a quality assurance and quality control (QA/QC) program during the course of executing this scope of work.

TASK 2: SCOPING AND EVALUATION PLANS

The initial steps in performing the special studies in Tasks 4 and 5 require a series of subtasks to scope the effort, develop an evaluation plan, and submit these documents to BACWA and the Regional Water Board for approval.

Task 2.1 - Scoping Plan

The Scoping Plan will identify the work necessary to complete the two special studies: i) optimize facilities for nutrient reduction and ii) determine nutrient reductions possible through treatment plant upgrades. The special studies will look at three types of nutrient removal: nitrification, denitrification and phosphorus removal. Because the science has not yet indicated the type or level of nutrient removal that might be required to protect the San Francisco Bay, the Consultant will develop a range of nutrient removal objectives as part of the Scoping Plan. The Consultant will propose a strategy for setting these objectives to meet either concentration- or load-based nutrient reduction goals. Objectives will include different levels of nitrification, denitrification and phosphorus removal, combinations thereof, as well as how the removal rates may vary seasonally.

Task 2.2 - Evaluation Plan

An Evaluation Plan is required as part of the Watershed Permit that includes a schedule describing how the work will be conducted to evaluate the potential nutrient discharge reduction by treatment optimization (Study 1) or by treatment upgrades (Study 2). The Evaluation Plan shall include sampling, as necessary, to support the proposed optimization study. In addition, the Evaluation Plan shall define the treatment works categories that will be evaluated to support the potential upgrades and alternative discharge scenarios. The Evaluation Plan will also set up a standard approach/basis for conducting planning level cost estimates.

TASK 3: DATA COLLECTION AND SYNTHESIS

This Task includes data collection and review, as well as synthesis of existing data, including development of descriptions of existing facilities.

Task 3.1: Data Collection and Review

The Consultant will work through the BACWA Executive Director, who will act as the point contact person with participating agencies, to gather information necessary to complete the study.

Prior to contract execution, BACWA will work with participating member agencies to determine a point of contact, collect basic facility information, and obtain copies of related planning documentation such as master plans. The Consultant will also be given the influent and effluent nutrient data of participating agencies collected from the Water Code 13267 Letter issued by Regional Water Board Executive Officer (dated March 2, 2012) and compiled by San Francisco Estuarine Institute (SFEI).

After contract execution, the Consultant will work with the CMG to develop a data collection template to send to each participating agency. The requested material will include both data and facility information and shall build upon the influent and effluent data already collected and compiled. The material may also include information requests about the existing facilities, future growth and development, and other site specific questions (e.g., space constraints, excess tankage, etc.) necessary to conduct the studies. Where there are data gaps, the Consultant will use assumptions based on the best available industry data.

Additional data may be requested, as required, to complete the studies.

Task 3.2 – Summary of Existing Facilities

The Consultant will use the information collected in Task 3.1 to develop descriptions of each treatment plant, treatment plant unit processes, and service area. The descriptions shall include the following, at a minimum:

- Service area description – defines the service area by number of service connections, area covered by the agency, etc.
- Current permit discharge requirements for BOD, TSS, and nutrients.
- Summary of current and future flows and loads, based on available data
- Process description of each unit process, including information such as number of unit processes, size, operational loadings at design, etc.
- Process flow diagram
- Current design capacity
- Plant footprint and summary of any space constraints
- Factors which may increase or decrease each POTW's influent/effluent loads through 2040.

The Consultant will use the nutrient discharge information collected from the 13267 Letter to establish a baseline for existing levels of nutrient loadings that may be used to account

for changes in loadings that result from optimization and upgrade efforts at treatment facilities.

Task 3.3 – Evaluate the Impact on Nutrient Loads in Response to Other Regulations or Requirements

Consultant shall identify how nutrient loads will increase or decrease due to process upgrades made in response to other regulations or requirements. For example, an upgrade from biosolids incineration to anaerobic digestion will result in an increase in nutrient loading to the effluent. On the other hand, some agencies have completed optimizations for treatment plant reliability and have seen an ancillary decrease in nutrient loads. Background about other regulatory drivers will be provided by individual agencies through existing studies and information.

TASK 4 – SPECIAL STUDY NUMBER 1 - EVALUATION OF POTENTIAL NUTRIENT DISCHARGE REDUCTION BY TREATMENT OPTIMIZATION AND SIDESTREAM TREATMENT

The Consultant shall evaluate options and costs for nutrient discharge reduction by optimization of current treatment works, including the addition of sidestream treatment. For each participating agency, the following sub-tasks are to be completed.

Task 4.1 – Describe Existing Optimization, Minor Upgrades, and Sidestream Treatment

Based on the information collected and reviewed in Task 3, the Consultant shall summarize the past work already conducted for each plant to optimize their treatment works, including minor upgrades and sidestream treatment additions that may have achieved nutrient reductions. This will include modifications that have been completed as well as modifications that are already planned.

Task 4.2 – Evaluate Site-Specific Strategies for Process Optimization

The Consultant will use the data and information obtained under Task 3 to identify strategies to reduce nutrient discharge levels via nitrification, denitrification, and phosphorus removal. Strategies could consider modest changes to the existing process, typically modifications that may require some equipment replacement, but no additional basin volume.

Consultant shall identify a list of up to five strategies that could be employed to optimize treatment works. For each participating agency, the list will be reviewed and likely strategies for success will be identified. Some typical options might include, but are not limited to: i) split flow treatment, ii) return sidestream flow control, iii) additional chemicals, etc.

Task 4.3 – Evaluate Side-Stream Treatment Opportunities

Based on the information collected and reviewed in Task 3, the Consultant will evaluate the feasibility of implementing sidestream treatment into the existing treatment plant for the participating agencies. It is anticipated that the load removal is about 85 percent for either nitrogen or phosphorus.

For sidestream nitrogen treatment, the Consultant shall only consider nitrogen removal. For sidestream phosphorus treatment, the Consultant shall consider both phosphorus removal and phosphorus recovery.

Consultant shall summarize the expected reduction in nutrient concentration as a result of sidestream treatment.

Task 4.4 – Evaluate Beneficial and Adverse Ancillary Impacts

The Consultant shall identify, and where possible, quantify, beneficial and adverse ancillary impacts associated with each optimization strategy. These impacts shall include items such as nutrient effluent concentrations, energy usage, greenhouse gas emissions, space requirements, plant capacity, sludge production and quality, and others. Optimization options that re-purpose available capacity in existing facilities at current loadings will be noted as having an adverse impact in terms of reduced capacity.

Task 4.5 – Develop Capital and Operating Costs

For each optimization strategy identified in Subtask 4.2, the Consultant shall prepare planning level costs for any facility modifications. Capital cost estimates shall be consistent with a Level IV estimate, per the American Association of Cost Engineers, Recommended Practice No. 17R-97, Class 4 and the American National Standards Institute definition of a "budget estimate".

In addition to capital cost estimates, the Consultant shall also provide estimated annual costs (or savings) for energy and chemicals associated with the proposed optimization strategies. Consultant shall develop appropriate unit costs for energy and chemicals. Where appropriate, associated operating costs will also be developed for the beneficial and adverse ancillary impacts identified in Task 4.4.

TASK 5 – SPECIAL STUDY NUMBER 2 - EVALUATION OF POTENTIAL NUTRIENT DISCHARGE REDUCTION BY TREATMENT UPGRADES

The purpose of this task is to evaluate options, constraints, and costs for treatment upgrades to meet the nutrient discharge objectives identified under Task 2.1.

Task 5.1 – Describe Existing Technology Upgrades and Pilot Studies

Based on the information collected and reviewed in Task 3, the Consultant shall summarize treatment plant upgrades already implemented by each participating agency to upgrade

their treatment works for nutrient reductions, including minor and major upgrades, , or pilot studies. In addition, the Consultant shall summarize the level of nutrient removal the upgrade or pilot study is achieving for total nitrogen and phosphorus.

Task 5.2 – Identify Site-Specific Constraints

Based on the information collected and reviewed in Task 3, the Consultant shall identify any site-specific constraints or other circumstances that may limit the feasibility of a lower cost treatment upgrade for each participating agency. For example, some participating agencies have footprint constraints which may eliminate a particular treatment upgrade as an option for their facility.

Task 5.3 – Identify Potential Upgrade Technologies

Consultant shall develop a set of standard plant-type categories and group each participating POTW into a category. Categories may include for example, high purity oxygen plants, conventional activated sludge plants, plants without anaerobic digestion, etc.

For each treatment plant category, the Consultant shall develop a list of potentially viable treatment upgrade technologies that meet the treatment objectives identified in Task 2.1. Consultant shall also develop high level evaluation criteria. The criteria will focus on, but not be limited to, nutrient removal requirements coupled with constraints identified in Subtask 5.2.

The treatment upgrades that best meet the evaluation criteria for each category, shall be carried forward for planning level cost estimating.

Task 5.4 – Evaluate Beneficial and Adverse Ancillary Impacts

The Consultant shall identify, and where possible, quantify, beneficial and adverse ancillary impacts associated with each treatment plant upgrade carried forward for planning level cost estimating. These impacts shall include, but not be limited to nutrient effluent concentrations and loads, energy usage, greenhouse gas emissions, plant capacity, sludge and biosolids production and disposal, reduction of other pollutants (e.g., pharmaceuticals), and others.

Task 5.5 – Develop Capital and Operating Costs

For each upgrade identified in Subtasks 5.3, the Consultant shall prepare planning level costs. Capital cost estimates shall be consistent with a Level IV estimate, per the American Association of Cost Engineers, Recommended Practice No. 17R-97, Class 4 and the American National Standards Institute definition of a “budget estimate”. The estimates should be accurate within a range of +40 percent to -20 percent.

In addition to capital cost estimates, the Consultant shall also provide estimated annual costs (or savings) for energy and chemicals. Consultant shall develop appropriate unit costs for energy and chemicals.

Task 5.6 –Evaluate Impacts of Sea Level Rise

Consultant shall identify participating agencies that are vulnerable to the impacts of sea level rise. For each of those identified agencies, the Consultant shall identity the impacts of sea level rise on the identified treatment upgrade infrastructure. Where appropriate, associated operating costs will also be developed for the beneficial and adverse ancillary impacts identified in Task 5.4.

TASK 6 – POTENTIAL NUTRIENT DISCHARGE REDUCTION BY OTHER MEANS

Per the Watershed Permit, dischargers may also decide to evaluate strategies that reduce nutrient loadings separate from the special studies identified in the Watershed Permit (Tasks 4 and 5). Examples of these alternative strategies are increasing recycled water, pretreatment of ammonia by industrial users, and wetlands treatment.

The Consultant shall incorporate information provided by BACWA and participating agencies in appendices to the Report. No separate analysis of these strategies is to be included.

TASK 7 – GROUP ANNUAL REPORT

The purpose of this task is to gather and provide analysis of the magnitude and trends in nutrient loads from POTWs to the SF Bay.

Task 7.1 – Data Collection and Review

Consultant shall obtain the previous reporting year's nutrient loading data, covering July 1st to June 30th, from the California Integrated Water Quality System (CIWQS) or from individual participating agencies. The Consultant will identify data gaps and work with BACWA and its member agencies to address these. The nutrient load data will be sorted by subembayment to calculate aggregate loads.

Task 7.2 – Data Analysis

Consultant shall compare data from each reporting year to data from previous reporting years, as well as data collected from the Water Code 13267 Letter issued by Regional Water Board Executive Officer (dated March 2, 2012) and compiled by San Francisco Estuarine Institute (SFEI). If significant trends in nutrient loads are observed, the Consultant will work with member agencies to identify the cause of the trends. (See graphic illustrating current nutrient loads from SF Bay area POTWs)

TASK 8 – REPORTING

This task includes the preparation of the Bay Area POTW Nutrient Optimization and Upgrade Master Plan. The report shall include the technical information developed in Tasks 2 through 4 and an executive summary.

Consultant shall prepare an annotated report outline for review and approval following completion of Task 3.

This task also includes preparing four group annual reports, using information developed in Task 7, to be submitted to the Regional Water Board each October 1st from 2015 to 2018).

The Draft Report will be released to the participating agencies for a 30 day comment period. Following the comment period, the Consultant will work with BACWA to finalize the Report for submission to the Regional Water Board. After review by the Regional Water Board, the Draft and Final Reports may require modification.

After development of deliverables, the Consultant will participate in meetings to present the findings to the BACWA community, regulators, and other stakeholders.

Project Schedule

The project shall be completed based on the major milestones as provided below.

Major Milestone	**Date**
Notice to Proceed	9/12/2014
Submit Scoping Plan to Regional Water Board	10/10/2014
Submit Evaluation Plan to Regional Water Board	11/21/2014
Present Evaluation Plan to Regulators and Stakeholders	December 2014
Finalize and Distribute Standard Questionnaire for Data Collection and Information	1/5/2015
Participating agencies provide data and information	2/15/2015
Start Optimization and Upgrade Studies	2/20/2015
Quarterly BACWA Executive Board Status Updates	April, July, October, January each year until submission of Final Report to Regional Water Board
Semi-annual BACWA membership Status Updates	August and February every year until submission of Final Report to Regional Water Board
Status Update Submitted to Regional Water Board	7/1/2016 and 7/1/2017
Group Annual Report Submitted to Regional Water Board	10/1/2015, 10/1/2016, 10/1/2017, 10/1/2018
Final Report Submitted to Regional Water Board	December, 2017

Organization and Content of the Proposal

Section	Page Limit	Contents
Cover Letter	None	Transmittal
1	None	Identification of Proposer
2	2	Project Overview
3	14	Project Approach
4	6	Project Team and Qualifications
5	6	Project Experience
6	None	Project Schedule
7	None	Level of Effort
8	None	Fee Estimate (Separate)
9	None	Exceptions to Contract Terms and Conditions
A	2 per staff person	Resumes of Key Staff

<u>Section 1: Identification of Proposer</u>

Clearly list the following information for your firm: company name, address, phone number, fax number, and main contact person with title and email address.

Section 2: Project Overview (maximum 2 pages)

Provide a description of the project.

Section 3: Project Approach (maximum 14 pages)

(Note: If accepted by BACWA, this Section (or a mutually agreed upon, modified version) will be inserted into the Consulting Services Contract between BACWA and the selected Proposer/Consultant.)

Use the information provided in this RFP to provide a detailed description of your approach and proposed tasks for completing the desired services. Describe the tasks that you see as necessary to complete the work of this RFP, meet the BACWA's goals and objectives, and satisfy the requirements of the Agreement.

Describe how you will provide the requested services and how you will flexibly staff the project given the various tasks. Describe how your firm's and sub-consultant's project members will interface with one another. Outline the methods and controls by which your firm will manage and complete the tasks as described in this RFP.

Discuss the specific tasks that you may require from BACWA and participating agencies. Explain how your firm's staff and BACWA will interface.

Section 4: Project Team and Qualifications (maximum 6 pages)

Describe the proposed team organization (include an organizational chart); the specific role of key staff members; and how BACWA will be involved with the proposed team. Specifically list the names and titles of the firm's key staff that will participate on the project and indicate the portion of the time that key staff will be available to work on the subject project. Describe prior projects where key team members have worked together. Describe the manner in which key team members interfaced with each other and with the owners of prior projects. For each key project team member describe their level of experience with similar projects (include resumes in the Proposal Appendix).

If sub-consultants will make up part of the project team, indicate the role and responsibility of each sub-consultant; how the sub-consultant will be managed; and how the sub-consultant will interface with BACWA. Provide the following information for sub-consultants: company name, address, phone number, fax number, and main contact person. Include an organizational chart

showing how the project team will be managed.

Section 5: Project Experience (maximum 6 pages)

Describe the length of time that the firm has provided the services requested in this RFP and prior clients that have received such services. Summarize recent experience gained from other projects that are specifically relevant to the subject project.

*Include five (5) references for relevant and related projects over the last seven (7) years. The references shall include the following: owner name; contact person with email and phone number; project name; date of project commencement and completion; project location; contract amount; brief project description; and a description of the services provided by your firm.

Section 6: Project Schedule

Include a proposed project schedule listing major milestones for the project from project kick-off, through and including, interim milestones and final deliverables.

Section 7: Level of Effort

Include a spreadsheet that details the Proposer's/Consultant's Estimated Work Effort. The Estimated Work Effort shall list the number of hours with employee title/category that will be devoted to each task and/or subtask described in the Scope of Work (Approach to the Work) submitted by the Proposer/Consultant. The Estimated Work Effort, if accepted by BACWA, will form the basis of the Consultant's Fee (Part F – Fee Proposal, sealed envelope).

Note: The Estimated Work Effort shall not include or otherwise indicate the Consultant's hourly rates or total cost. The Estimated Work Effort will be used to assess the amount of time required to complete the desired services, not the cost.

Section 8: Fee Estimate (**To be submitted in a sealed envelope**)

Submit in **a separate sealed envelope** a Fee Proposal which shall be used for billing under this contract. The Fee Proposal shall include all costs required to complete the "Work" for this

contract. The "Work" shall address all items described in the RFP. The fee proposal shall specifically include the following:

a. An itemized list of all tasks required for the completion of the Work (i.e. Project Management, Site Visit, Final Report, etc.).
b. A list of all involved personnel (name, title, and/or employee category) with proposed hours and hourly rate for each.
c. Indicate the use of any sub-consultants (if applicable). Include the sub-consultant's name, employee names with titles and/or employee categories, labor hours, and cost.
d. Include all required costs required to make a complete project, i.e. labor hours, technology charges, etc. in an itemized format.
e. Indicate the overhead and profit rates as a percentage of labor.
f. Indicate the markup on sub-consultants and all other costs.
g. Indicate the overall not-to-exceed total cost for the work.

*Note: The Fee Proposal will be reviewed after the evaluation of the Proposals is complete. The final Fee Proposal cost is subject to approval and acceptance by BACWA.

Section 9: Exceptions to Contract Terms and Provisions

Clearly indicate any exceptions to BACWA's RFP and/or Contract documents. Any exceptions or changes will require review by BACWA's Legal Counsel and are subject to Board review and approval. Any changes may delay the project if not identified with the submission of this proposal.

Appendix A: Resumes of Key Staff (maximum 2 pages per staff person)

Provide resumes of key staff, including subconsultants.

Contract Negotiations

The contract will be based on a two-phased negotiation. The first phase will include the development of Project Management and the Scoping Plan and Evaluation Plan (Tasks 1 and 2). Once the final Evaluation Plan is accepted by the Regional Water Board, the contract will then be amended based on a second phase of negotiations that will cover the remaining tasks. Proposals should contain estimated labor hours allocated to all the tasks in this RFP, including the level of seniority of staff assigned to each task.

Proposal Evaluation Criteria

Criteria	Points
Project approach – Setting objectives and developing alternatives for optimization and upgrades	30
Expertise of proposed team in nutrient removal and facilities planning	15
Principal in Charge/Project Manager – Availability and responsiveness	25
Relevant firm experience with optimization and upgrades for nutrient removal in the Bay Area and nationwide	10
Level of Effort – Appropriate distribution of labor resources	15
Proposed Schedule	5
Total	**100**

Standard Agreement

Proposal Costs

The cost for developing the proposal shall be the sole responsibility of the Proposer. BACWA shall not be responsible for any costs to develop proposals.

Proposals to Remain Open

The Proposer shall guarantee its proposal for a period of ninety (90) calendar days from the proposal due date.

Withdrawal of Proposal

Proposals may be withdrawn at any time prior to date/time established in this RFP for receipt of Proposals and only by written request for the withdrawal of the Proposal filed with BACWA. The request shall be executed by the Proposer or its duly authorized representative. The withdrawal of the Proposal does not prejudice the right of the Proposer to file a new Proposal. Proposals will not be received after the specified due date and time, and no Proposal may be withdrawn after the specified due date and time established in this RFP.

Owner's Right Reserved

The RFP does not commit BACWA to award an Agreement. BACWA, at its sole discretion, reserves the right to accept or reject any or all Proposals received, to waive any informality in a Proposal, to interview any and all firms submitting Proposals, to negotiate with any qualified Proposer, to amend the RFP prior to the Proposal due date, or to cancel the RFP in part or completely. All Proposals will become the property of BACWA. If any proprietary information is contained in the Proposal, it should be clearly identified.

BACWA may contact any Consultant to clarify a response and/or contact any of the Consultant's references during the evaluation and review period. BACWA will make a selection based upon the Evaluation Criteria which establishes the greatest overall value of the professional services to BACWA.

Execution of the Agreement

Upon final selection of a Consultant, staff will issue a Notice of Award and Agreement documents to the Consultant for signature. The Consultant selected for the Work shall enter into an Agreement with BACWA and furnish the required insurance certificates with endorsements within fourteen (14) calendar days after receipt of the Agreement and Notice of Award.

Questions and Other Requests for Information

All questions and requests for information regarding this RFP or the Project shall be directed in writing, via email, to David R. Williams at dwilliams@bacwa.org. Questions shall be submitted by June 9, 2014 and answers will be distributed to all Proposers by June 13, 2014.

Attachment A

A listing of all BACWA Member Agencies and whether they are considered minor (<1 mgd) or major (>1 mgd) dischargers is provided in Table A - 1.

Table A - 1. BACWA Member Agency Discharger Info

Discharger	Facility Name	Facility Address	Minor / Major
American Canyon, City of	Wastewater Treatment and Reclamation Facility	151 Mezzetta Court American Canyon, CA 94503 Napa County	Major
Benicia, City of	Benicia Wastewater Treatment Plant	614 East Fifth Street Benicia, CA 94510 Solano County	Major
Burlingame, City of	Burlingame Wastewater Treatment Plant	1103 Airport Boulevard Burlingame, CA 94010 San Mateo County	Major
Central Contra Costa Sanitary District	Central Contra Costa Sanitary District Wastewater Treatment Plant	5019 Imhoff Place Martinez, CA 94553 Contra Costa County	Major
Central Marin Sanitation Agency	Central Marin Sanitation Agency Wastewater Treatment Plant	1301 Andersen Drive San Rafael, CA 94901 Marin County	Major
Delta Diablo	Wastewater Treatment Plant	2500 Pittsburg-Antioch Highway Antioch, CA 94509 Contra Costa County	Major
East Bay Dischargers Authority (EBDA), City of Hayward, City of San Leandro, Oro Loma Sanitary District, Castro Valley Sanitary District, Union Sanitary District, Livermore-Amador Valley Water Management Agency, Dublin San Ramon Services District, and City of Livermore	EBDA Common Outfall	EBDA Common Outfall 14150 Monarch Bay Drive San Leandro, CA 94577 Alameda County	Major
	Hayward Water Pollution Control Facility		
	San Leandro Water Pollution Control Plant		
	Oro Loma/Castro Valley Sanitary Districts Water Pollution Control Plant		
	Raymond A. Boege Alvarado Wastewater Treatment Plant		
	Livermore-Amador Valley Water Management Agency Export and Storage Facilities		
	Dublin San Ramon Services District Wastewater Treatment Plant		
	City of Livermore Water Reclamation Plant		
East Bay Municipal Utility District	East Bay Municipal Utility District, Special District No. 1 Wastewater Treatment Plant	2020 Wake Avenue Oakland, CA 94607 Alameda County	Major
Fairfield-Suisun	Fairfield-Suisun	1010 Chadbourne Road	Major

Discharger	Facility Name	Facility Address	Minor / Major
Sewer District	Wastewater Treatment Plant	Fairfield, CA 94534 Solano County	
Las Gallinas Valley Sanitary District	Las Gallinas Valley Sanitary District Sewage Treatment Plant	300 Smith Ranch Road San Rafael, CA 94903 Marin County	Major
Marin County (Paradise Cove), Sanitary District No. 5 of	Paradise Cove Treatment Plant	3700 Paradise Drive Tiburon, CA 94920 Marin County	Minor
Marin County (Tiburon), Sanitary District No. 5 of	Wastewater Treatment Plant	2001 Paradise Drive Tiburon, CA 94920 Marin County	Minor
Millbrae, City of	Water Pollution Control Plant	400 East Millbrae Avenue Millbrae, CA 94030 San Mateo County	Major
Mt. View Sanitary District	Mt. View Sanitary District Wastewater Treatment Plant	3800 Arthur Road Martinez, CA 94553 Contra Costa County	Major
Napa Sanitation District	Soscol Water Recycling Facility	1515 Soscol Ferry Road Napa, CA 94558 Napa County	Major
Novato Sanitary District	Novato Sanitary District Wastewater Treatment Plant	500 Davidson Street Novato, CA 94945 Marin County	Major
Palo Alto, City of	Palo Alto Regional Water Quality Control Plant	2501 Embarcadero Way Palo Alto, CA 94303 Santa Clara County	Major
Petaluma, City of	Municipal Wastewater Treatment Plant	950 Hopper Street Petaluma, CA 94952 Sonoma County	Major
Pinole, City of	Pinole-Hercules Water Pollution Control Plant	11 Tennent Avenue Pinole, CA, 94564 Contra Costa County	Major
Rodeo Sanitary District	Rodeo Sanitary District Water Pollution Control Facility	800 San Pablo Avenue Rodeo, CA 94572 Contra Costa County	Major
San Francisco (San Francisco International Airport), City and County of	Mel Leong Treatment Plant, Sanitary Plant	918 Clearwater Drive San Francisco International Airport San Francisco, CA 94128 San Mateo County	Major
San Francisco (Southeast Plant), City and County of	Southeast Water Pollution Control Plant	750 Phelps Street San Francisco, CA 94124 San Francisco County	Major
San Jose/Santa Clara Water Pollution Control Plant and Cities of San Jose and Santa Clara	San Jose/Santa Clara Water Pollution Control Plant	4245 Zanker Road San Jose, CA 95134 Santa Clara County	Major
San Mateo, City of	City of San Mateo Wastewater Treatment Plant	2050 Detroit Drive San Mateo, CA 94404 San Mateo County	Major
Sausalito-Marin City Sanitary District	Sausalito-Marin City Sanitary District	#1 Fort Baker Road Sausalito, CA 94965	Major

Discharger	Facility Name	Facility Address	Minor / Major
	Wastewater Treatment Plant	Marin County	
Sewerage Agency of Southern Marin	Wastewater Treatment Plant	450 Sycamore Avenue Mill Valley, CA 94941 Marin County	Major
Sonoma Valley County Sanitary District	Municipal Wastewater Treatment Plant	22675 8th Street East Sonoma, CA 95476 Sonoma County	Major
Silicon Valley Clean Water	Silicon Valley Clean Water Wastewater Treatment Facility	1400 Radio Road Redwood City, CA 94065 San Mateo County	Major
South San Francisco and San Bruno, Cities of	South San Francisco and San Bruno Water Quality Control Plant	195 Belle Air Road South San Francisco, CA 94080 San Mateo County	Major
Sunnyvale, City of	Sunnyvale Water Pollution Control Plant	1444 Borregas Avenue, Sunnyvale, CA 94089 Santa Clara County	Major
U.S. Department of Navy (Treasure Island)	Wastewater Treatment Plant	681 Avenue M, Treasure island San Francisco, CA 94130-1807 San Francisco County	Major
Vallejo Sanitation and Flood Control District	Vallejo Sanitation and Flood Control District Wastewater Treatment Plant	450 Ryder Street Vallejo, CA 94590 Solano County	Major
West County Agency (West County Wastewater District and City of Richmond Municipal Sewer District)	West County Agency Combined Outfall	601 Canal Blvd. Richmond, CA 94804 Contra Costa County	Major