**DRAFT CONSULTANT SERVICES AGREEMENT BETWEEN CITY OF SUNNYVALE AND CAROLLO ENGINEERS, INC. FOR DESIGN AND CONSTRUCTION SUPPORT SERVICES FOR SUNNYVALE CLEANWATER PROGRAM EXISTING PLANT REHABILITATION DESIGN 2.1**

THIS AGREEMENT, dated _____, is by and between the CITY OF SUNNYVALE, a municipal corporation ("CITY"), and CAROLLO ENGINEERS, INC. ("CONSULTANT").

WHEREAS, CITY desires to secure professional services necessary for investigation, analysis, design, preparation of construction drawings and contract specifications, consultation, services during construction and other services for a project known as Sunnyvale Cleanwater Program Existing Plant Rehabilitation Design 2.1; and

WHEREAS, CONSULTANT represents that it, and its sub-consultants, if any, possess the professional qualifications and expertise to provide the required services and are licensed by the State of California to practice engineering in the required disciplines;

NOW, THEREFORE, THE PARTIES ENTER INTO THIS AGREEMENT.

1. Services by CONSULTANT

CONSULTANT shall provide services in accordance with Exhibit "A" entitled “Scope of Work.” All exhibits referenced in this Agreement are attached hereto and are incorporated herein by reference. To accomplish that end, CONSULTANT agrees to assign Sanjay Reddy, P.E. to this project, to act in the capacity of Project Manager and personally direct the professional services to be provided by CONSULTANT.

Except as specified in this Agreement, CONSULTANT shall furnish all technical and professional services, including labor, material, equipment, transportation, supervision and expertise to perform all operations necessary and required to satisfactorily complete the services required in this Agreement.

2. Notice to Proceed/Completion of Services

(a) CONSULTANT shall commence services upon receipt of a Notice to Proceed from CITY. Notice shall be deemed to have occurred three (3) calendar days after deposit in the regular course of the United States mail.

(b) When CITY determines that CONSULTANT has satisfactorily completed the services defined in Exhibit “A,” CITY shall give CONSULTANT written Notice of Final Acceptance, and CONSULTANT shall not incur any further costs hereunder. CONSULTANT may request this determination of completion when, in its opinion, it has satisfactorily completed the Scope of Work (Exhibit “A”), and if so requested, CITY shall make this determination within fourteen (14) days of such request.

3. Project Schedule

The Project Schedule is set forth in the attached Exhibit “A-1.”

4. Payment of Fees and Expenses

Payments shall be made to CONSULTANT on a monthly basis as set forth in the attached Exhibit “B” entitled “Compensation Schedule.” All compensation will be based on monthly billings as provided in Exhibit "B." Compensation will not be due until said detailed billing is submitted to CITY within a reasonable time before payment is expected to allow for normal CITY processing. An estimate of the percent of total completion associated with the various categories of the services shall be furnished by CONSULTANT with said billing. When applicable, copies of pertinent financial records will be included with the submission of billing(s) for all direct reimbursables. Compensation shall not exceed the amounts set forth in Exhibit “B” for each task description total fee, and shall include services as identified in Exhibit “A” in the amount of Seven Million One Hundred Seventy Eight Thousand Six Hundred Twenty and No/100 Dollars ($7,178,620.00) for the duration of the contract, as well as optional services in an amount not to exceed One Hundred Thirty Six Thousand Nine Hundred Ninety Five and No/100 Dollars ($136,995.00) for the duration of the contract. In no event shall the total amount of compensation payable under this agreement exceed the sum of Seven Million Three Hundred Fifteen Thousand Six Hundred Fifteen and No/100 Dollars ($7,315,615.00) unless upon written modification of this Agreement. All invoices, including detailed backup, shall be sent to City of Sunnyvale, attention Accounts Payable, P.O. Box 3707, Sunnyvale, CA 94088-3707.

CONSULTANT will be reimbursed as promptly as fiscal procedures will permit upon receipt by the CITY of itemized invoices in triplicate. Invoices shall be submitted no later than 45 calendar days after the performance of work for which CONSULTANT is billing. Invoices shall detail the work performed on each milestone and each project as applicable. Invoices shall follow the format stipulated in the Compensation Schedule and shall reference the project title. The final invoice must contain the final cost and all credits due CITY. The final invoice should be submitted within 60 calendar days after completion of CONSULTANT’s work.

5. No Assignment of Agreement

CONSULTANT bind themselves, their partners, successors, assigns, executors, and administrators to all covenants of this Agreement. Except as otherwise set forth in this Agreement, no interest in this Agreement or any of the work provided for under this Agreement shall be assigned or transferred, either voluntarily or by operation of law, without the prior written approval of CITY. However, claims for money due to or to become due to CONSULTANT from CITY under this Agreement may be assigned to a bank, trust company or other financial institutions, or to a trustee in bankruptcy, provided that written notice of any such assignment or transfer shall be first furnished to CITY. In case of the death of one or more members of CONSULTANT's firm, the surviving member or members shall complete the services covered by this Agreement. Any such assignment shall not relieve CONSULTANT from any liability under the terms of this Agreement.

6. Consultant is an Independent Contractor

CONSULTANT is not an agent or employee of CITY but is an independent contractor with full rights to manage its employees subject to the requirements of the law. All persons employed by CONSULTANT in connection with this Agreement will be employees of CONSULTANT and not employees of CITY in any respect. CONSULTANT is responsible for obtaining statutory Workers' Compensation coverage for its employees.

7. Consultant's Services to be Approved by a Registered Professional

All reports, costs estimates, plans and other documents which may be submitted or furnished by CONSULTANT shall be approved and signed by a qualified registered professional in the State of California. The title sheet for calculations, specifications and reports, and each sheet of plans, shall bear the professional seal, certificate number, registration classification, expiration date of certificate and signature of the professional responsible for their preparation.

8. Standard of Workmanship

CONSULTANT represents and maintains that it is skilled in the professional calling necessary to perform the services and its duties and obligations, expressed and implied, contained herein, and CITY expressly relies upon CONSULTANT's representations regarding its skills and knowledge. CONSULTANT shall perform such services and duties in conformance to and consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California.

The plans, designs, specifications, estimates, calculations reports and other documents furnished under the Scope of Work (Exhibit "A") shall be of a quality acceptable to CITY. The criteria for acceptance of the work provided under this Agreement shall be a product of neat appearance, well-organized, technically and grammatically correct, checked and having the maker and checker identified. The minimum standard of appearance, organization and content of the drawings shall be that used by CITY for similar projects.

9. Responsibility of CONSULTANT

CONSULTANT shall be responsible for the professional quality, technical accuracy and the coordination of the services furnished by it under this Agreement. Neither CITY's review, acceptance nor payment for any of the services required under this Agreement shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement and CONSULTANT shall be and remain liable to CITY in accordance with applicable law for all damages to CITY caused by CONSULTANT's negligent performance of any of the services furnished under this Agreement.

Any acceptance by CITY of plans, specifications, calculations, construction contract documents, reports, diagrams, maps and other material prepared by CONSULTANT shall not, in any respect, absolve CONSULTANT for the responsibility CONSULTANT has in accordance with customary standards of good engineering practice in compliance with applicable Federal, State, County and/or municipal laws, ordinances, regulations, rules and orders.

10. Right of CITY to Inspect Records of CONSULTANT

CITY, through its authorized employees, representatives, or agents, shall have the right, at any and all reasonable times, to audit the books and records including, but not limited to, invoices, vouchers, canceled checks, time cards of CONSULTANT for the purpose of verifying any and all charges made by CONSULTANT in connection with this Agreement. CONSULTANT shall maintain for a minimum period of three (3) years from the date of final payment to CONSULTANT or for any longer period required by law, sufficient books and records in accordance with generally accepted accounting practices to establish the correctness of all charges submitted to CITY by CONSULTANT. Any expenses not so recorded shall be disallowed by CITY.

11. Confidentiality of Material

All ideas, memoranda, specifications, plans, calculations, manufacturing procedures, data, drawings, descriptions, documents, discussions or other information developed or received by or for CONSULTANT and all other written information submitted to CONSULTANT in connection with the performance of this Agreement shall be held confidential by CONSULTANT and shall not, without the prior written consent of CITY be used for any purposes other than the performance of the Project services, nor be disclosed to an entity not connected with the performance of the Project services. Nothing furnished to CONSULTANT which is otherwise known to CONSULTANT or is or becomes generally known to the related industry shall be deemed confidential. CONSULTANT shall not use CITY's name, insignia or distribute exploitative publicity pertaining to the services rendered under this Agreement in any magazine, trade paper, newspaper or other medium without the express written consent of CITY.

12. No Pledging of CITY's Credit

Under no circumstances shall CONSULTANT have the authority or power to pledge the credit of CITY or incur any obligation in the name of CITY.

13. Ownership of Material

All material, including information developed on computer(s), which shall include, but not be limited to, data, sketches, tracings, drawings, plans, diagrams, quantities, estimates, specifications, proposals, tests, maps, calculations, photographs, reports and other material developed, collected, prepared or caused to be prepared, under this Agreement shall be the property of CITY, but CONSULTANT may retain and use copies thereof.

CITY shall not be limited, in any way, in its use of said material, at any time, for work associated with Project. However, CONSULTANT shall not be responsible for damages resulting from the use of said material for work other than Project, including, but not limited to the release of this material to third parties for work other than on Project.

14. Hold Harmless/Indemnification

To the extent permitted by law (including, without limitation, California Civil Code section 2782.8), CONSULTANT agrees to indemnify, defend and hold harmless CITY, its officers and employees from any and all claims, demands, actions, causes of action, losses, damages, liabilities, known or unknown, and all costs and expenses, including reasonable attorneys' fees in connection with any injury or damage to persons or property to the extent arising out of any negligence, recklessness or willful misconduct of CONSULTANT, its officers, employees, agents, contractor, subcontractors or any officer, agent or employee thereof in relation to CONSULTANT's performance under this Agreement. In no event shall the cost to defend charged to the design professional exceed the design professional's proportionate percentage of fault. However, notwithstanding the previous sentence, in the event one or more defendants is unable to pay its share of defense costs due to bankruptcy or dissolution of the business, the design professional shall meet and confer with other parties regarding unpaid defense costs. Such defense and indemnification shall not apply in any instance of and to the extent caused by the sole negligence, recklessness or willful misconduct of CITY, its officers, employees, agents or representatives.

15. Insurance Requirements

CONSULTANT shall take out and maintain during the life of this Agreement policies of insurance as specified in Exhibit "C" attached and incorporated by reference, and shall provide all certificates and/or endorsements as specified in Exhibit "C."

16. No Third Party Beneficiary

This Agreement shall not be construed or deemed to be an agreement for the benefit of any third party or parties and no third party or parties shall have any claim or right of action hereunder for any cause whatsoever.

17. Notices

All notices required by this Agreement, other than invoices for payment which shall be sent directly to Accounts Payable, shall be in writing, and sent by first class with postage prepaid, or sent by commercial courier, to address below.

Nothing in this provision shall be construed to prohibit communication by more expedient means, such as by email or fax, to accomplish timely communication. Each party may change the address by written notice in accordance with this paragraph. Notices delivered personally shall be deemed communicated as of actual receipt; mailed notices shall be deemed communicated as of three business days after mailing.

To CITY: Chip Taylor, Director of Public Works
Department of Public Works
CITY OF SUNNYVALE
P. O. Box 3707
Sunnyvale, CA 94088-3707

To CONSULTANT: Carollo Engineers, Inc.
Attn: Jim Hagstrom
2700 Ygnacio Valley Rd., Suite 300
Walnut Creek, CA 94598

18. Waiver

CONSULTANT agrees that waiver by CITY of any one or more of the conditions of performance under this Agreement shall not be construed as waiver(s) of any other condition of performance under this Agreement.

19. Amendments

No alterations or changes to the terms of this Agreement shall be valid unless made in writing and signed by both parties.

20. Integrated Agreement

This Agreement embodies the agreement between CITY and CONSULTANT and its terms and conditions. No verbal agreements or conversation with any officer, agent or employee of CITY

prior to execution of this Agreement shall affect or modify any of the terms or obligations contained in any documents comprising this Agreement. Any such verbal agreement shall be considered as unofficial information and in no way binding upon CITY.

21. Conflict of Interest

CONSULTANT shall avoid all conflicts of interest, or appearance of conflict, in performing the services and agrees to immediately notify CITY of any facts that may give rise to a conflict of interest. CONSULTANT is aware of the prohibition that no officer of CITY shall have any interest, direct or indirect, in this Agreement or in the proceeds thereof. During the term of this Agreement CONSULTANT shall not accept employment or an obligation which is inconsistent or incompatible with CONSULTANT'S obligations under this Agreement.

22. Governing Law, Jurisdiction and Venue

This Agreement shall be governed by and construed in accordance with the laws of the State of California, excluding its conflict of law principles. Proper venue for legal actions will be exclusively vested in a state court in the County of Santa Clara. The parties agree that subject matter and personal jurisdiction are proper in state court in the County of Santa Clara, and waive all venue objections.

23. Records, Reports and Documentation

CONSULTANT shall maintain complete and accurate records of its operation, including any and all additional records required by CITY in writing. CONSULTANT shall submit to CITY any and all reports concerning its performance under this Agreement that may be requested by CITY in writing. CONSULTANT agrees to assist CITY in meeting CITY's reporting requirements to the state and other agencies with respect to CONSULTANT's work hereunder. All records, reports and documentation relating to the work performed under this Agreement shall be made available to City during the term of this Agreement.

24. Termination of Agreement

A. If CONSULTANT defaults in the performance of this Agreement, or materially breaches any of its provisions, CITY at its option may terminate this Agreement by giving written notice to CONSULTANT. In the event of such termination, CONSULTANT shall be compensated in proportion to the percentage of satisfactory services performed or materials furnished (in relation to the total which would have been performed or furnished) through the date of receipt of notification from CITY to terminate. CONSULTANT shall present CITY with any work product completed at that point in time.

B. Without limitation to such rights or remedies as CITY shall otherwise have by law, CITY also shall have the right to terminate this Agreement for any reason upon ten (10) days' written notice to CONSULTANT. In the event of such termination, CONSULTANT shall be compensated in proportion to the percentage of services performed or materials furnished (in relation to the total which would have been performed or furnished) through the date of receipt of notification from CITY to terminate. CONSULTANT shall present CITY with any work product completed at that point in time.

C. If CITY fails to pay CONSULTANT, CONSULTANT at its option may terminate this Agreement if the failure is not remedied by CITY within (30) days after written notification of failure to pay.

25. Subcontracting

None of the services covered by this Agreement shall be subcontracted without the prior written consent of CITY. Such consent may be issued with notice to proceed if subcontract consultants are listed in the project work plan.

26. Fair Employment

CONSULTANT shall not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, condition of physical handicap, religion, ethnic background or marital status, in violation of state or federal law.

27. Changes

CITY or CONSULTANT may, from time to time, request changes in the terms and conditions of this Agreement. Such changes, which are mutually agreed upon by CITY and CONSULTANT, shall be incorporated in amendments to this Agreement.

28. Other Agreements

This Agreement shall not prevent either Party from entering into similar agreements with others.

29. Severability Clause.

In case any one or more of the provisions contained herein shall, for any reason, be held invalid, illegal or unenforceable in any respect, it shall not affect the validity of the other provisions which shall remain in full force and effect.

30. Captions

The captions of the various sections, paragraphs and subparagraphs, of the contract are for convenience only and shall not be considered nor referred to for resolving questions of interpretation.

31. Entire Agreement; Amendment

This writing constitutes the entire agreement between the parties relating to the services to be performed or materials to be furnished hereunder. No modification of this Agreement shall be effective unless and until such modification is evidenced by writing signed by all parties.

32. Miscellaneous

Time shall be of the essence in this Agreement. Failure on the part of either party to enforce any provision of this Agreement shall not be construed as a waiver of the right to compel enforcement of such provision or any other provision.

IN WITNESS WHEREOF, the parties have executed this Agreement.

ATTEST:

By_____
City Clerk

CITY OF SUNNYVALE ("CITY")

By_____
City Manager

CAROLLO ENGINEERS, INC.
("CONSULTANT")

APPROVED AS TO FORM:

By_____

_____
Name/Title

_____
City Attorney

By_____

_____
Name/Title

**Exhibit A**
**SCOPE OF WORK**
**Sunnyvale Cleanwater Program**
**Existing Plant Rehabilitation Design—Project 2.1**

## General

This scope is to provide professional services for design and construction support of the Existing Plant Rehabilitation Project (Project), including the following areas:

- Rehabilitation of five existing treatment plant system assets, including the following process systems, subsystems, and associated components:
    - System 50000 - Oxidation Ponds
    - System 60000 - Chlorination
    - System 70000 - FGR-AFT (Fixed Growth Reactors, Air Flotation Thickeners)
    - System 80000 - Tertiary DMF (Dual Media Filters)
    - System 90000 - Chlorine Contact
- Construction of the Perimeter Protection Wall (western portion)
- Rehabilitation of the Primary Effluent (PE) Pipeline
- Rehabilitation of the Influent Sewer Pipelines
- Utility relocation for the new Admin/Lab Facility
- Partial rerouting and consolidation of influent pipelines north of Carl Road.

The scope of work generally includes preparation of preliminary design, design development, bid documents, and bidding/construction/commissioning support for Public Works competitive bidding. Ancillary work includes the following:

- Project management
- Conducting workshops
- Preparing California Environmental Quality Act (CEQA) documentation
- Preparing permit application(s)
- Preparing preliminary Stormwater Pollution Prevention Plan or Erosion and Sediment Control Plan (optional, not included)
- Performing structural testing and investigations
- Geotechnical investigation
- Land survey
- Construction cost estimating
- Schedule development

At this time, it is expected that all work will be designed as two potential separate sets of plans and specifications and bid as two separate construction contracts. The Consultant will confirm the contract packaging during preliminary design.

## Project Information

*Description*

### Program Description

The City has prepared a Master Plan for the Sunnyvale Clean Water Program (SCWP) to guide improvements to the City of Sunnyvale Water Pollution Control Plant (WPCP) facilities and operations over the next 30 or more years (see Item 2 of Available Documents, Section IV). The Master Plan was developed to address several challenges facing the WPCP today and into the future, as well as to support City policies. These challenges include; aging infrastructure; changes in regulatory requirements; and increases in population, flows and loads. The Master Plan identifies capital improvement projects, estimates costs, and recommends implementation approaches to achieve the planning objectives. Consultant shall review and become familiar with the Master Plan. The City has adopted a final program environmental impact report (PEIR) for the Master Plan in compliance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines (see Item 3 of Available Documents, Section IV). These documents identify need for and intent to construct repairs and improvements to the existing facilities consistent with this SOW.

### Project Description

Rehabilitation of select plant assets is needed now so that these facilities remain functional for the next 15+ years (e.g., through 2035). Another core objective of this project is to optimize the treatment performance of the pond system (oxidation ponds through the AFTs) with respect to removal of cBOD, TSS, ammonia, and total nitrogen (TN). Current and future limits on the quality of the treated effluent discharged to the Bay are provided in Section II.C. In addition, this project also includes the design of the completion of the western portion of the perimeter wall.

The existing site plan is shown in Figure 1. The majority of assets to be rehabilitated as part of this project are located in the western portion of the site. The location of these assets is identified in Figure 1.

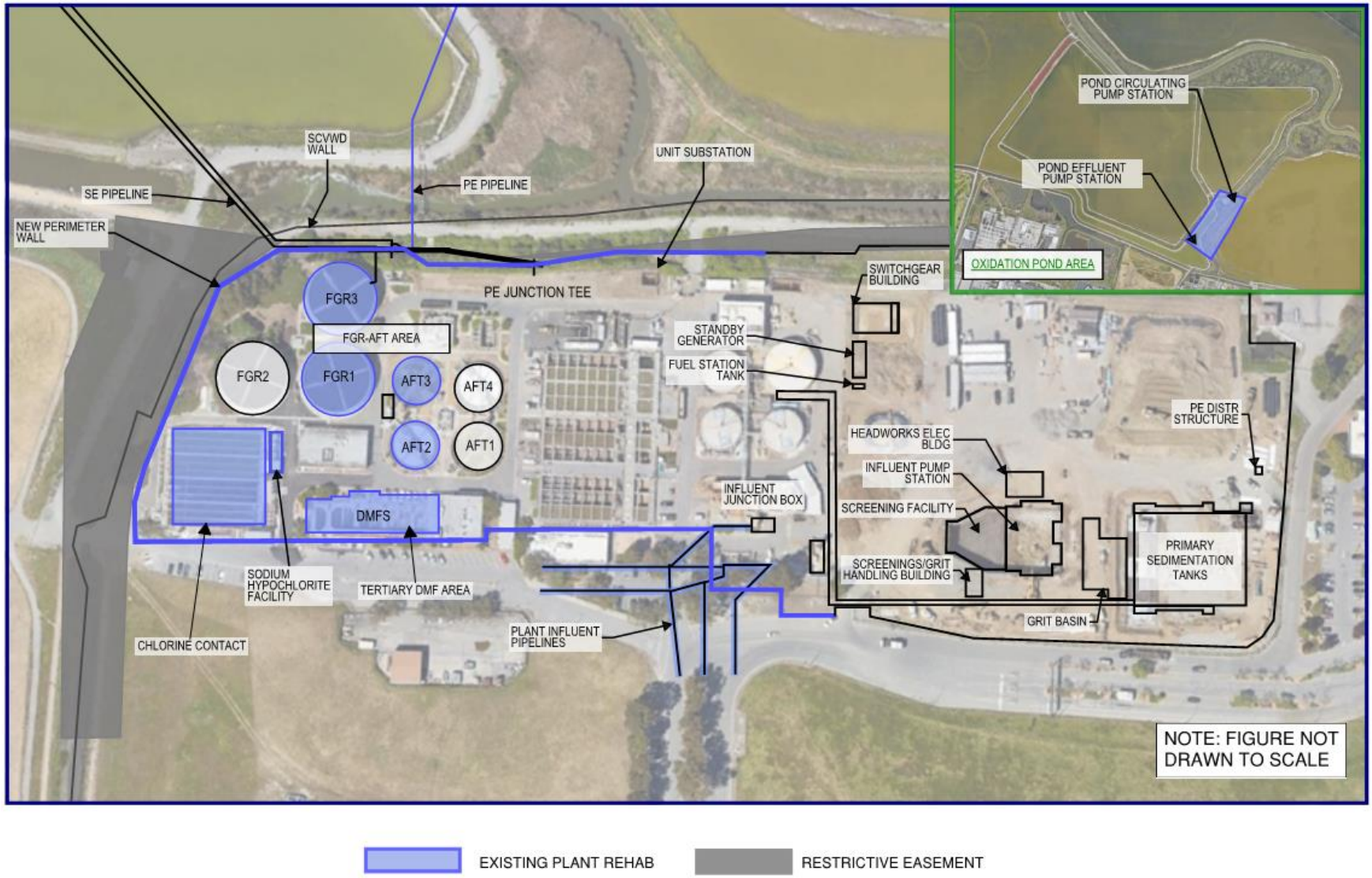


Figure 1. WPCP Existing Plant Rehabilitation Site Layout

Several concurrent projects are underway at and adjacent to the WPCP (see Table 1).

Table 1. Projects Underway at Sunnyvale WPCP

| Project | Expected Bid | Expected Substantial Completion |
|---|---|---|
| Project 1.1 – Headworks and Primary Treatment Facility | NTP Awarded June 2016 | 2021Q2 |
| Project 8.1 - Caribbean Drive Parking and Trail Access Enhancements | 2018Q4 | 2019Q3 |
| Project 8.3 - Administration and Lab Building | 2020Q2 | 2022Q1 |
| Projects 2.2 – Secondary Treatment and Thickening and Dewatering | 2021Q1 | 2023Q4 |
| Valley Water East\|West Channel Project | 2019Q2 | 2021Q2 |

In addition, there are other smaller-scale projects being implemented by maintenance personnel and/or outside contractors (e.g., disinfection controls upgrades, routine preventive maintenance, and minor equipment replacements). The Consultant is responsible to be familiar with these other projects and their potential overlapping impact to the site, schedule, and plant operations personnel time demands, and to incorporate appropriate constraints and contractor coordination requirements into the design documents to address project coordination issues.

The project elements included in this scope of work include demolition and removal of existing aged components, replacement of key equipment and components, rehabilitation of other components, plus system integration upgrades to improve overall process control. A condition summary and the list of specific improvement recommendations by system, subsystem, and location is included in the AECOM Condition Assessment Report. Recommendations listed in this table to occur within 10 years form the basis of the scope of upgrades to be designed by the Consultant; items in "strikeout" (i.e., ~~like this~~) are excluded.

**System 50000 - Oxidation Ponds**

Work in this area includes:

- Pond circulation pump system (51000)
- Pond Aerators (52000)
- Pond Effluent Pump station (54000)
- Primary effluent (PE)
- Gates and Valves
- Site lighting
- ACS upgrades

**System 60000 – Chlorination**

Work in this area includes:

- Tank Drainage Pump Station (65000)
- Secondary Effluent Station (66000)
- Piping, gates and auxiliary systems – Minor repairs.
- ACS upgrades

**System 70000 - FGR-AFT (Fixed Growth Reactors, Air Flotation Thickeners)**

Work in this area includes:

- FGRs (Tanks 1 and 3) (71000)
- FGR Distribution Structure (72000)
- AFTs (Systems 2 and 3) (73000-76000)
- AFT Distribution Structure (75000)
- ACS upgrades

**System 80000 - Tertiary DMF (Dual Media Filters)**

Work in this area includes:

- Tertiary Control Building (81000)
- DMFs (85000)
- ACS upgrades

**System 90000 - Chlorine Contact**

Work in Areas 90000-98000 includes:

- Chemical Building (91000)
- Filtered Water (FW) Pump Station (92000)
- Chlorine Contact Channels (CCTs) (93000)
- Dechlorination Area (94000)

- Backwash Pump Station (95000)
- 3W Pump Station (96000)
- Recycled Water Pump Station (98000)
- ACS upgrades

**Primary Influent and Effluent Pipelines**

As part of Project 1.1 - Headworks and Primary Treatment Facility, raw sewage will be diverted into a new influent junction structure which will direct influent into the new barscreen facility. Several of the raw sewage pipelines in the immediate vicinity of the WPCP have been in service for over 40 years. The condition of these pipelines has been determined as part of the condition assessment phase of Project 2.1 - Existing Plant Rehabilitation.

The primary effluent (PE) pipeline has been in continuous service since the early 1980's and serves as the main means of conveyance of primary effluent between the WPCP and the oxidation ponds. Condition assessments conducted in 2006 (Carollo Engineers/V&A) and 2014 (V&A) noted deterioration of the junction structures and manholes along the PE pipeline alignment (see Items 8A and 8D of Available Documents, Section IV). Work included under this project shall include:

- Evaluation of how the influent system of pipelines could be consolidated through rehabilitation or replacement (i.e., concrete repair, coating, sliplining, etc.)
- Rehabilitation (sliplining) of the existing 60-inch PE pipeline extension from Manhole No. 3 (as denoted in the 2014 Condition Assessment Report) to the oxidation pond recirculation channel
- Miscellaneous repairs of the various manholes/junction structures

**Perimeter Protection Wall (Stage 2)**

The eastern portion of the planned perimeter wall has already been designed (Stage 1) and will be constructed by 2020 as part of Project 1.1.2 (Headworks/Primary, Package 2); refer to Figure 2 for a detail of the planned wall. Work under this contract includes:

- Approximately 2,300 LF of new perimeter wall and four hydrostatic gates to be located around the western portion of the plant site, as shown in Figure 2 (Project 2.1). Design of remaining wall should match form and function of Stage 1.


Figure 2. WPCP Perimeter Wall Site Layout

**ACS Integration**

The existing supervisory control and data acquisition (SCADA) System will be updated and migrated to a new Automated Control System (ACS). Stage 1 of ACS will be constructed as part of Project 1.1 – Headworks and Primary Treatment Facility, which will establish a new ACS backbone and initial fiber optics distribution for the headworks, primary treatment, and cogeneration facilities. Project 1.1 – Headworks and Primary Treatment will extend a temporary fiber optic from the Primary Treatment area through the existing Administration Building to the Tertiary Control Building. During Project 2.2 - Secondary Treatment and Dewatering, the ACS will be expanded to the new treatment facilities and the fiber optic cable to the Tertiary Control Building will be rerouted when the existing Administration Building is demolished.

During this rehabilitation project, the Consultant shall:

- Integrate instrumentation, control logic and automation improvements for the rehabilitated facilities with the plant ACS. Upgrades and improvements must adhere to WPCP ACS standards.
- Develop, process control narratives (including calculations to be used in PLC logic), P&IDs to integrate all new/replaced components into updated control loops for process control of the existing facilities. The designer must coordinate control narrative development with control algorithms developed by the PMC.
- Loops include:
    - Pond System (50000)
    - Chlorination System (60000)
    - FGR-AFT System (70000)
    - Tertiary DMFs (80000)
    - Chemical Building Systems (91000)
    - Filtered Water Systems (92000)
    - Chlorine Contact Systems (93000)
    - Dechlorination Systems (94000)
    - Backwash Pump Station (95000)
    - 3W Pump Station (96000)
    - Recycled Water Pump Station (98000)

**Other**

Landscaping and site restoration of areas impacted by construction and contractor staging

*Location*

The existing WPCP is located at 1444 Borregas Avenue, Sunnyvale, Santa Clara County, California.

The site lies in the Moffett Park neighborhood, directly south of South San Francisco Bay, in the northern part of the City of Sunnyvale. The site includes approximately 16.5 acres within the main WPCP, and approximately 440 acres of oxidation ponds. The City's SMaRT (Sunnyvale Materials Recovery and Transfer) Station lies to the east. The City's closed municipal solid waste landfill borders the south and west of the site. The Sunnyvale West Channel forms the western boundary of the site.

*Existing Conditions*

The existing WPCP was originally built in 1956. With additions over the subsequent 15-20 years, it grew to a tertiary treatment facility with an average dry weather flow of 14 million gallons per day (MGD) and a permitted average dry weather flow of 29.5 MGD. An asset condition assessment conducted in 2006 identified several critical WPCP structures as at-risk and in need of immediate rehabilitation. Based on this assessment, the City began implementing several rehabilitation projects and also developed a long-term Strategic Infrastructure Plan (SIP) to serve as a road map for the physical improvements and process enhancements needed to maintain a high level of treatment and to meet current and expected regulatory requirements and stewardship objectives (see Item 2B of Available Documents, Section IV). In 2013, the City secured the professional services of a team of consultants to develop a comprehensive Master Plan, which included the Basis of Design for the various process areas to be rebuilt and a Program Environmental Impact Report (PEIR). The Master Plan was adopted by City Council in 2016. Following adoption of the Master Plan, the City has embarked on implementation of the Cleanwater Program, initiated by projects described in the Master Plan. Projects under way to date include completion of construction of Package 1 of the new Headworks and Primary Treatment Facilities, (Package 2 construction is currently under way), design of the new Administration Building, Caribbean Drive Parking and Trail Enhancements, and design of the new Secondary Treatment and Dewatering Project.

The Sunnyvale WPCP operates in accordance with NPDES Permit No. CA0037621, as adopted by Order R2-2014-0035 of the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SF Bay), Order No. R2-2014-0014 Waste Discharge Requirement for Nutrients from Municipal Wastewater Discharges to San Francisco Bay and Order No. R2-2017-0041 Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Discharges to San Francisco Bay.

**Consultant Scope of Services**

Consultant services shall include engineering services over three phases: Preliminary Design, Detailed Design, and Engineering Services During Construction. Each phase includes project management. Preliminary Design includes permit applications, documenting existing conditions, a conceptual design report and a design information memorandum. Detailed design includes design development of the base scope and the western perimeter wall as separate packages. Additionally, bid documents and bidding

services are part of the detailed design phase. Finally, engineering services during construction includes construction support services, commissioning support services, and operations and maintenance manual updates, as further detailed below.

## I. Preliminary Design

### *A. Project Management*

The Consultant will be the primary responsible party for managing the project's schedule and Consultant contract budget. In addition, the Consultant will lead a biweekly progress meeting and prepare action item logs for subsequent follow-up. The Consultant will maintain frequent and timely communication with City staff throughout the duration of the project.

The City has engaged a program management consultant (PMC) who provides management services to the City's Public Works Department and oversight of all projects in the Sunnyvale Cleanwater Program. This design project will be managed by City staff in collaboration with the PMC.

All on-site investigations including surveying, hazardous materials assessment, or other work performed by the Consultant shall be scheduled and coordinated with the City. Consultants shall coordinate these efforts with the efforts of the Master Plan, specifically the Existing Utilities TM, and the Land Survey and Monumentation Documents (see Items 2D, 2E, and 2F of Available Documents, Section IV).

<u>Design Consultant shall be responsible for the following items:</u>

1. <u>Project Management Plan:</u> Consultant shall submit Draft and Final Project Management Plan that includes a calendar of meetings, workshops, and deliverables. This calendar shall be tabular and include the name, date, required attendees, and decisions to be made at each workshop; and the subtask, deliverable name, Draft due date, comment due date, Final due date, and objective of all technical memoranda (TM) and design information memoranda (DIM). Calendar shall show no more than three deliverables under review at any time, not including the deliverables submitted under this Task A.

2. <u>Meeting Management:</u> Meetings must be scheduled at least one month in advance and the schedule shall identify the purpose of each meeting as well as who is required (or optional) to attend from City staff. Meeting agendas shall be prepared prior to all meetings with City staff and emailed at least three days prior to each meeting. Agendas shall identify the purpose of each meeting and who is required (or optional) to attend from City staff. Meeting minutes shall be provided by the consultant within one week of each meeting and emailed to all meeting participants. Consultant shall prepare a final set of meeting minutes that incorporate any comments and shall distribute them to all meeting participants.

3. <u>Project Schedules:</u> All project schedules shall be prepared in Gantt chart format, utilizing Microsoft Project software. Schedules shall include all required workshops, four weeks for City review of each design submittal in Task F, two weeks for City review of each other deliverable, and adequate time for review of permit applications. Schedule updates shall be provided at all progress meetings.

4. <u>Quality Assurance/Quality Control:</u> Prior to submittal, all deliverables shall be reviewed by a senior professional. Draft deliverables must be complete and technically reviewable by PMC and City reviewers. Prime firm is responsible for reviewing and ensuring the quality and accuracy of subconsultant-led

deliverables and attending and managing the content of subconsultant-led calls and meetings. With the final design submittal, a statement of peer review will be required for overall constructability, coordination, and reasonable reduction in errors and omissions.

5. Document Management: Unifier is the records management system for the Program. Consultant shall use Unifier to submit invoices and deliverables, and to log action items and design decisions made during meetings and ad hoc communications. One hour of training and licenses for up to 3 users will be provided to Consultant by the PMC.

6. Pay Applications: Consultant shall submit monthly invoices. Invoices shall include complete back-up of all project costs and include a cover page listing the total budget, amount authorized by NTP, previous billed-to-date, current billing, and total billed-to-date for each task. Invoice shall be accompanied by a brief progress report which lists the work accomplished in the previous month.

7. DIR Requirements: In compliance with California Public Works Law, the Consultant, and its subconsultants with prevailing wage workers, shall register with the Department of Industrial Relations (DIR). The City will coordinate with Consultant to setup the project in the Labor Compliance Program Tracker (LCPTracker). Consultant and its subconsultants must submit weekly certified payroll (CPR) to the DIR e-CPR website and to LCPTracker for all prevailing wage work conducted that week or state that no prevailing wage work was conducted during that week. At completion of the project all weekly CPRs must be submitted in LCPTracker with the last CPR marked final, the fringe benefit statement (DAS 140, DAS 142, CAC 2, DAS Apprentice Certificates, as applicable), and all weeks of CPRs uploaded to the DIR e-CPR website. Use of contractors, and all applicable subcontractors which are required to pay prevailing wages, requires registration with the State of California, Department of Industrial Relations (DIR) through the Public Works Contractor Registration Program (PWC Registration) before bidding, being awarded, or performing work on public works projects in California. This includes those performing surveying work, material testing, inspection, trucking, boring, potholing, concrete deliveries and temporary service companies who provide workers to prevailing wage contractors. For complete details, please refer to Exhibit A: Labor Compliance.

**Deliverables**

- Draft Project Management Plan
- Final Project Management Plan
- Biweekly progress meetings, agenda, minutes
- Monthly invoices and progress report
- Weekly certified payroll submitted to e-CPR and LCPTracker

*Support for Council Study Sessions (Optional, not included)*

*The City will potentially require Consultant's support for two Council Study Sessions. If such support is required, Consultant's role will be to prepare a PowerPoint presentation and up to three attachments per sessions, presenting the project scope, status, and issues. Presentations and attachments shall provide comprehensive but high-level information about the projects, suitable for an executive decision-making audience. Consultant's Project Manager shall attend the sessions and be prepared to answer questions.*

***Deliverables***

1. *Two (2) Draft PowerPoint presentations and attachments*
2. *Two (2) Final PowerPoint presentations and attachments*
3. *Attendance at two (2) Council Study Sessions*

*B. Permitting*

1. CEQA

Consultant shall prepare an Addendum, which documents the activities, impacts, and mitigation measures in the PEIR that are applicable to these projects (see Item 3 in Available Documents, Section IV). It is anticipated that these projects will have no effects beyond those analyzed in the PEIR. Consultant is responsible for confirming this assumption. Should the project(s) require additional CEQA documents, these services shall be priced and included in Section B3–Preparation of a Tiered Negative Declaration (Optional).

Because the City intends to apply for Clean Water State Revolving Fund financing, the Draft Addendum will be circulated through State Clearinghouse, and the Final Addendum will be certified by City Council. Consultant is responsible for addressing one round of City/PMC review comments on the Draft Addendum prior to circulation, and one round of City/PMC review comments on the Final Addendum prior to certification.

**Deliverables**

- Administrative Draft CEQA Addendum
- Response-to-comments table for Administrative Draft CEQA Addendum
- Draft CEQA Addendum
- Response-to-comments table for Draft CEQA Addendum
- Draft Final CEQA Addendum
- Response-to-comments table for Draft Final CEQA Addendum
- Final CEQA Addendum

2. Preparation of a BCDC Permit Amendment

Because West Sunnyvale Channel bordering the WPCP is tidally influenced, the Bay Conservation and Development Commission (BCDC) has jurisdiction of all areas within 100 feet of its bank. The perimeter wall is aligned within this 100-foot zone. Construction of a new structure within BCDC jurisdiction requires a permit. Initial conversations with BCDC indicate that a single permit which covers the Program could be amended for each new action.

Consultant shall prepare and obtain a permit amendment and file a copy of the executed amendment with the Santa Clara County Recorder.

**Deliverables**

- Draft BCDC permit application

- Response-to-comment table for Draft BCDC permit application
- Final BCDC permit application
- Response to questions and comments from BCDC
- Recorder's Copy of BCDC permit amendment

*3. Preparation of a Tiered Negative Declaration (Optional, not included)*

*If the CEQA memorandum prepared under Task B.1 identifies new effects not analyzed and mitigated in the Program's PEIR, the City will request that Consultant prepare an Initial Study leading to a Negative Declaration. It is assumed for this task that any change from the PEIR would result in impacts at the less-than-significant level. If Consultant identifies one or more new and significant impacts, Consultant shall immediately notify the City.*
*Consultant shall prepare a draft Project Description and develop the environmental analysis for any changes from the PEIR. Consultant shall complete an Administrative Draft Initial Study checklist, Notice of Intent, Negative Declaration, and Environmental Document Transmittal Form. The PEIR shall be incorporated by reference and used as the basis of the documents, such that discussion in these documents is limited to new effect(s) which had not been considered in the PEIR.*

*Consultant shall prepare a Public Draft Initial Study, Notice of Intent, Negative Declaration, and Environmental Document Transmittal Form, incorporating any comments on the Administrative Draft. Consultant shall distribute the Public Draft documents to the State Clearinghouse and a distribution list provided by the City. Consultant is responsible for reproduction of all required hardcopies. It is anticipated that 15 hardcopies of each Public Draft document will be required by the State Clearinghouse. Consultant is also responsible for providing public notice, including associated expenses, via notification in the Sunnyvale Sun and San Jose Mercury News and distribution of nine hardcopies to local libraries.*

*Consultant shall prepare responses to up to 5 comment letters received on the Public Draft Initial Study and Negative Declaration. Consultant shall prepare a memorandum providing Responses to Comments. Consultant shall also prepare the Statement of Findings. Consultant shall also prepare the Council Resolution. The City will prepare and present the Report to Council. For each of these deliverables, Consultant shall submit an Administrative Draft and respond to and incorporate City's comments on this draft, prior to producing and releasing the Final version.*

*Consultant shall prepare Administrative Draft Notice of Determination, respond to and incorporate City's comments on this draft, and prepare and submit required hardcopies of Final Notice of Determination to the State Clearinghouse and Santa Clara County Recorder.*

***Deliverables***

- *Draft Project Description*
- *Response-to-comment table for Draft Project Description*
- *Final Project Description*
- *Administrative Draft Initial Study checklist, Notice of Intent, Negative Declaration, and Environmental Document Transmittal Form*
- *Response-to-comment table for Administrative Draft Initial Study checklist, Notice of Intent, Negative Declaration, and Environmental Document Transmittal Form*
- *Public Draft Initial Study checklist, Notice of Intent, Negative Declaration, and Environmental Document Transmittal Form*
- *Administrative Draft response to public comments, Statement of Findings, and Council Resolution*
- *Response-to-comment table for Administrative Draft response to public comments, Statement of Findings, and Council Resolution*
- *Final response to public comments, Statement of Findings, and Council Resolution*
- *Administrative Draft Notice of Determination*
- *Response-to-comments table for Administrative Draft Notice of Determination*
- *Final Notice of Determination*

*4. <u>Bay Area Air Quality Management District (BAAQMD) Permitting (Optional, not included)</u>*

*The Sunnyvale WPCP operates in accordance with Bay Area Air Quality Management District (BAAQMD) Major Facility Review Permit #A0733, commonly referred to as Title V. Emissions of particulate matter, organic compounds, sulfur dioxide, hydrogen sulfide, mono-nitrogen oxides, and carbon monoxide are regulated under this permit.*

*Because this project involves changes to treatment processes regulated under the existing Title V permit, these changes may require an Authority to Construct (ATC) and a Title V Minor Modification. Consultant is responsible for confirming that the specific improvements designed will trigger this requirement. If so, Consultant shall prepare all information and submittals necessary to obtain these permits.*

***Deliverables***

- *Draft ATC/Title V Minor Modification application*
- *Response-to-comments table for Draft ATC/Title V Minor Modification application*

- *Final ATC/Title V Minor Modification application*
- *Draft and Final letter responses to BAAQMD comments on the submitted application*

*C. Documentation of Existing Conditions*

As part of the Master Plan, desktop and field investigation of the WPCP site were performed. The desktop investigation included compilation of historical boring logs on the western half of the WPCP; geologic hazard evaluation of the WPCP site; and consolidation of subsurface utility information from record drawings, design drawings, and potholes into an AutoCAD basemap. The field investigation included several borings and cone penetrometer tests in the vicinity of the proposed aeration basins and aeration blower building referenced in the Master Plan; manhole measure-downs; installation of permanent monuments that create a horizontal grid and vertical control for the WPCP; shallow soil borings to test for soil and groundwater contamination across the WPCP site. Valley Water completed a topographic and planimetric survey and geotechnical investigation as part of the East|West Channel Project, including the area between West Channel and the WPCP fence line.

It is anticipated that additional field investigation will be necessary to adequately characterize existing conditions for detailed civil and structural design and prepare a bid package that minimizes the risk of differing site conditions claims during construction. It is assumed that additional soil and groundwater testing will be required of the Contractor prior to waste disposal, but that the testing completed as part of the Master Plan will be adequate for bidding purposes.

1. <u>Supplemental Topographic and Planimetric Survey</u>

   Consultant shall identify and perform ground topographic and planimetric survey as needed to supplement LiDAR and land survey performed as part of the Master Plan, to the extent necessary to obtain detailed elevations and fill in surface improvement locations required for detailed design of the Project (see Item 2F of Available Documents, Section IV). PMC will use this information to update the WPCP basemap (see Item 4C of Available Documents, Section IV).

   **Deliverables**

   - Survey data in AutoCAD format

2. <u>Supplemental Subsurface Utility Mapping</u>

   Consultant shall perform potholing as needed to confirm vertical and horizontal location of critical utilities, e.g. connection points and utilities in conflict with the proposed wall alignment. PMC will update the WPCP existing utility plan with information obtained from potholes (see Item 2E of Available Documents, Section IV).

   **Deliverables**

   - Subsurface utility data in AutoCAD format

3. Supplemental Geotechnical Investigation and AFT Settlement Analysis

Consultant shall perform geotechnical investigations needed to supplement available information from the Master Plan to characterize the cause and extent of settling observed at the AFT structures and obtain necessary information to complete detailed static and dynamic structural evaluation of the CCTs. An analysis of the causes of observed settlement or heave shall be performed based on historical geotechnical investigations as well as any additional investigations performed under this task. The analyses should address the historical rate of movement and the potential for future movement. Design and construction recommendations shall be developed to address the potential for heave and/or settlement of the planned improvements.

**Deliverables**

- Draft Intrusive Fieldwork Plan (including health and safety section)
- Final Intrusive Fieldwork Plan (including health and safety section)
- Draft Geotechnical Report
- Final Geotechnical Report

4. Hazardous Building Material Assessment

Consultant shall perform a hazardous building material assessment as part of this task. Consultant shall identify areas that could potentially contain hazardous material and provide rough volume take offs.

**Deliverable**

- Lab results from the hazardous building material assessment, locations and quantities

*D. Conceptual Design Report*

The WIFIA Report will describe the project elements included in this scope of work, including demolition and removal of existing aged components, replacement of key equipment and components, rehabilitation of other components, plus system integration upgrades to improve overall process control. A condition summary and the list of specific improvement recommendations by system, subsystem, and location will be based on the AECOM Condition Assessment Report. The WIFIA Report will include a high level cost opinion and be submitted in accordance with the WIFIA application deadline.

Following the WIFIA Report submittal, a workshop will be scheduled to discuss priorities, which will serves as a basis for the conceptual design report. The purpose of the conceptual design report task is to assess the technical issues associated with each element of the Project; identify and evaluate equipment selection and other specific design criteria; and document the recommendations and decisions which the plans and specifications produced during Design Development (Task F) will be based upon. This will be accomplished through a

multi-chapter conceptual design report. Consultant shall provide eight hardcopies of each Draft and Final conceptual design report to the City, as well as electronic copies in PDF format. PDFs shall be fully text-searchable and formatted to be navigable with a "bookmark" for each heading and subheading.

The conceptual design report shall include a summary of the recommendations and assumptions, a discussion of the issues and alternatives evaluated, and preliminary drawings and cost estimate for the selected alternatives. The conceptual design report shall describe the work to a 15% design level of detail, including a description of how this work will integrate into the overall construction program (i.e., sequencing and bid packages) and start-up/commissioning sequence. The conceptual design report should reflect the scope, schedule, budget, and site construction staging area provided by the City.

Draft conceptual design report shall be submitted at least two weeks prior to the conceptual design report Workshop. The conceptual design report Workshop shall include a pre-call to discuss the workshop agenda, a presentation of the Draft conceptual design report content, discussion of review comments, and resolution of all decisions required prior to finalizing the conceptual design report. Final conceptual design report shall incorporate review comments and decisions made at the conceptual design report Workshop; and include the Workshop minutes, PowerPoint presentation, comment log, and decision log as appendices. Each step shall be completed in accordance with the calendar included in the Project Management Plan submitted under Task A.

1. Influent and Primary Effluent Pipelines Refurbishment Plan

**Overview**

In order to maintain reliable delivery of influent flow to the WPCP, the influent sewage pipelines must be evaluated for refurbishment/replacement. Recommended modifications to pipe size and alignment must be consistent with the planned installation of the new influent junction structure to be constructed as part of Project 2.2 – Secondary Treatment and Dewatering. The primary effluent pipeline must be refurbished in order to maintain effluent from the primary sedimentation tanks to the oxidation ponds.

**Requirements**

The Consultant will develop preliminary design for rehabilitation of the PE pipeline and rehabilitation and/or replacement of the multiple primary influent sewers and manholes which convey sewage to the WPCP. This chapter will finalize the design criteria, layout, and sequencing prior to final design. The analysis will include the following items, at a minimum:

- A brief overview and description of the Consultant's understanding of the influent sewer and PE pipelines operation and condition, based on previous condition assessment results
- Recommended changes/corrections to influent sewer pipelines

- Evaluation of alternative construction methods (i.e., point repair, lining, trenchless, open cut, pipe bursting, etc.)
- A description of the design and construction requirements, including bypass pumping, for inclusion in the bid package
- Preliminary opinion of probable construction costs (OPCCs) of various construction methods
- A ranking of construction methods in order of preference for each pipeline segment and manhole

  Recommended construction method and justification for each pipeline segment, manholes and appurtenance

2. Pond-FGR-AFT System Refurbishment Plan (Areas 50000 and 70000)

**Overview**

To consistently meet current and expected future discharge limits, the FGRs, AFTs, and related mechanical systems will be refurbished. The design criteria must be determined, in accordance with industry best practices and in conjunction with the plant operational plan recommended by Project 2.2 – Secondary Treatment and Dewatering.

**Requirements**

The chapter will include the following items, at a minimum. Consultant shall verify equipment alternatives to be considered with the City, prior to submitting Draft conceptual design report.

- Process evaluation:
  - Flow balance, including evaporation, storage, and odor control to the ponds
  - Flow balance, including impact on rotating arm speed, FGR recirculation pump capacity, and AFT influent, effluent, and solids flows
  - Flows for supplemental streams (polymer, 3W, air supply, service air supply, etc.)
  - cBOD, ammonia, TKN, TN, and TSS loading, unit loading, and % removal expectations
- Assessment of pump station hydraulics, accounting for change in pipe wall thickness due to re-coating.
- Recommendations to upgrade or replace the following:
  - FGR Pumps 1-3 (including motors, drives, impellers and controls)
  - Polymer batching and feed system to the AFTs
  - Process control instrumentation

- Design criteria for replacement FGR media, and all components to be rehabilitated
- Code requirements, including seismic requirements
- Provisions to reduce/mitigate AFT settlement, if necessary
- Location of known hazardous materials located on site in vicinity of work and recommendations for handling and disposal.
- Recommended implementation plan (schedule, sequence of work) for the recommended approach(es)

3. Tertiary Filtration System Refurbishment Plan (System 80000)

**Overview**

Structural, mechanical, electrical and instrumentation upgrades are planned to the DMFs and tertiary control building. This chapter will finalize the design criteria, layout, and sequencing prior to final design.

**Requirements**

The Consultant will develop preliminary design for rehabilitation of the DMFs and tertiary control building. The analysis will include the following items, at a minimum:

- Design criteria for all components to be rehabilitated in the DMFs and tertiary control building, including:
    - Flow and mass balance
    - Component sizing (physical dimensions, hp, capacity, unit loading metrics e.g., gpd/sf)
    - Make/model of representative equipment for pumps, blowers, and major mechanical (> 10 hp) equipment
- System layout plans
- Recommendations for specific coatings, grout, and other structural repair
- Location of known hazardous materials located on site in vicinity of work and recommendations for handling and disposal.
- Capital, O&M and life cycle cost (including expected life of the repair options)

4. Disinfection Systems Refurbishment Plan (Systems 60000 and 90000)

**Overview**

Structural, mechanical, electrical and instrumentation upgrades are planned to the Chlorination Area, CCTs, and dechlorination facilities as described above. To clearly define existing structural deficiencies, the Consultant will conduct a structural analysis of CCTs (static and

dynamic). Where appropriate the detailed structural evaluation should consider the use of finite element models and/or higher level analysis approaches in order to optimize the locations where actual structural deficiencies exist.

This chapter will finalize the design criteria, layout, and sequencing prior to final design.

**Requirements**

The Consultant will propose and conduct additional field testing of the CCTs, as necessary, in order to provide a complete preliminary design of the structural and seismic repairs. The analysis will include the following items, at a minimum:

- Structural recommendations
    - Options for concrete coating and repairs and seismic upgrades to the chlorine contact tanks, considering risk, cost-effectiveness, construction duration (and the associated outage periods), and longevity of the solution.
    - Recommendations for specific bracing locations, type
    - Recommendations for specific coatings, grout, and other structural repair
- Process evaluation:
    - Process design criteria (flow and mass balance)
    - Calculations for contact time and dose of sodium hypochlorite solution (chlorination chemical) and sodium bisulfite (dechlorination chemical) for the design flows
- Preliminary design:
    - Plan and sections (3) showing the CCTs
    - System layout plan for replacement facilities
    - Location of known hazardous materials located on site in vicinity of work and recommendations for handling and disposal.
    - Design criteria for all components to be rehabilitated
    - Sequencing criteria to be included in future Section 01014 (Construction sequencing and scheduling constraints) for this area
    - Capital, O&M and life cycle cost (including expected life of the repair options)

5. Power

**Overview**

Electrical upgrades are planned to the Oxidation Ponds, Chlorination, FGR-AFT, Tertiary DMF and Chlorine Contact. This chapter will finalize the electrical design criteria, layout, and sequencing prior to final design.

**Requirements**

This chapter shall evaluate the following items, at a minimum:

- A brief overview and description of the Consultant's understanding of the electrical systems operation and condition, based on previous condition assessment results
- Recommended modifications and replacement to electrical equipment
- Evaluation of alternative construction methods (i.e., replacement in same location or new location for construction sequencing purposes, improvements to location of equipment for code compliance such as ventilation or physical separation to comply with NFPA 820, etc.)
- Code requirements, including NFPA 820
- Preliminary opinion of probable construction costs (OPCCs) of various construction methods
- A ranking of construction methods in order of preference for each equipment location
- Recommended implementation plan (schedule, sequence of work, contract packaging) for the selected alternative

6. Process Control and Integration Plan

**Overview**

Improvements to the rehabilitated facility instrumentation and control systems shall be upgraded as described in the Facility Condition Assessment Report and shall adhere to the WPCP ACS standards. It is assumed that the facilities slated for rehabilitation in this contract may be modified in size, operation, I/O, instrumentation, network communication protocol, and/or other feature such that it may be necessary to update the systems that are controlled. This DIM will describe all changes recommended by the Consultant to the existing control systems in order to 1) optimize treatment performance for all facilities, systems, subsystems, and components included in this rehabilitation effort and 2) integrate with the WPCP ACS.

**Requirements**

The Consultant shall provide the design criteria to expand the existing ACS to provide monitoring and control for the process upgrades included in this scope of work. Design criteria shall be consistent with the ACS implementation for Project 1.1 – Headworks and Primary Treatment

Facility design, Instrumentation and Control Design Standards and ACS Programming Standards. Prior to development of this DIM, the consultant shall facilitate an ACS Review Workshop to demonstrate their understanding of the City's ACS. The workshop shall also review Instrumentation and Control Standards and ACS programming standards and identify any variances that shall be addressed in the design criteria. Prior to the ACS review workshop, the Consultant shall review and follow the City's Instrumentation and Design Standards and compile the existing control strategies for all rehabilitated systems and subsystems (i.e., those currently in use). The ACS Review Workshop shall be attended by City and PMC.

The PMC will develop detailed flow chart style control algorithms based on the Consultant-developed control strategies and design. The control algorithms provide specific guidance to the system integrator on implementation of the Rockwell Automation PlantPAx and provide a valuable operational reference. The Consultant shall include the control algorithms as an appendix to the Contract Documents. This chapter shall address coordination requirements with the control algorithms.

The Consultant shall:

- Identify the existing control elements and their location, including all motorized valves and gates (location, size, type, and control approach)
- Make recommendations for changes if/where needed to optimize treatment performance (e.g., cBOD, TSS, TN removal), improve equipment longevity (e.g., reduce pump starts per day), improve consistency/stability of operations, improve energy efficiency, and/or reduce maintenance requirements. Work includes:
    - Preliminary (draft) process control strategies for all key process parameters, including but not limited to: flow split, recycle ratio control (FGRs), flow-to-air ratio (AFTs), air-to-solids ratio (AFTs), backwashing interval (DMFs), chlorine dosing (CCTs), dechlorination dosing (CCTs) and polymer dosing (AFTs).
    - Identification of process configurations and operational modes that will be accommodated as required.
        - Examples include: normal operation, 1 unit out of service, summer vs. winter operational mode, high flow mode, flushing mode, backwashing mode, local, remote
        - Conditions when process configurations will be changed, including seasonal changes from full nitrification to partial nitrification, number of units online, etc.

        - Process schematics and text description outlining changing process configurations, including gates or valves that would need to be opened or closed and units brought on/off line.
    - Functional narrative describing each control loop and recommended changes to existing control strategy, if any
- Confirm location of all probes to ensure representative and repeatable readings.
- Confirm automated sampling locations and need for changes to existing sampling measurement protocol, if any.

The design criteria, completed to a 15% conceptual design level, shall include the following items, at a minimum:

- Conceptual ACS Block Diagram
- Development and confirmation of Equipment Tagging scheme.
- Design criteria for ACS expansion for process areas in this scope of work, including interface with vendor control panels, application of field networks, location of PLC and communication cabinets, and preliminary control descriptions
- Coordination with Control Algorithms developed by PMC
- Sequencing criteria to be included in future Section 01014 (Construction sequencing and scheduling constraints) related to controls upgrades and system integration programming
- Capital Cost Estimate for all ACS-related elements serving the refurbished facilities

7. Sequencing, Scheduling and Site Layout

**Overview**

The improvements included in this set of projects will impact a majority of the western portion of the WPCP site and will occur concurrently with several other construction contracts (see Project Description, Table 1). The WPCP must remain operational and fully accessible at all times during the construction period, treating wastewater in compliance with the NPDES permit and in a safe manner. Careful coordination is needed to consider access, parking, outages, City staff involvement, downtime for unit processes, by-pass pumping, and related scheduling and sequencing issues.

The general location and layout of refurbished facilities within the site is not expected to change as compared to existing. However, there is an expectation that the location of possible replacement facilities within existing buildings/rooms may be different. Consideration of contractor

staging area, site security, and access for construction equipment and personnel will be considered.

**Requirements**

This chapter will determine sequencing and site layout, and shall address the following items, at a minimum:

- Identify major below-grade facilities impacted by the rehabilitation work (e.g., pipelines, ductbanks) and establish the physical limits of work for such utilities and yard piping
- Identify options for staff, contractor, and visitor parking during construction and evaluate the likely impacts of each option on construction cost and plant operations
- Recommend temporary relocations for temporary processes
- Confirm time duration limits on outages with Operations Staff, by-pass pumping, location/manual operations (vs. Remote/Auto), traffic detours within the site, and operation of temporary facilities.
- Prepare a Maintenance of Planned Operations (MOPO) Plan to inform the contractor about operational constraints that may be encountered during construction and potential responses to these constraints.
- Sequencing criteria developed in the MOPO Plan to be included in future Section 01010 - Summary of Work (Section 2.0 - Work Sequence and Constraints) for Systems planned for refurbishment in (i.e., Systems 50000-90000 and related subsystems and plant-wide infrastructure) and the perimeter wall.
- Preliminary construction schedule (P6 or MSProject)
- Identify recommended early milestones and sequencing constraints for concurrent construction projects, and describe the impact to this set of work if each sequencing constraint is not enforced

**Deliverables**

- WIFIA Report shall be submitted in accordance with the WIFIA application deadline
- Draft Conceptual Design Report
- Workshop to present findings to City
- Responses to City comments
- Final Conceptual Design Report incorporating City comments and addressing any questions City personnel may have.

8. DIM: Western Perimeter Wall

**Overview**

The WPCP must secure a minimum level of perimeter protection against the 100-year flood. A perimeter wall will be constructed around the eastern portion of the WPCP as part of Project 1.1 Headworks and Primary Treatment Facility.

The remaining western portion of the perimeter wall must be designed and constructed as part of the Project. This segment would be approximately 2,300 linear feet in length, located as shown in Figure 2. The top of wall elevation shall be consistent with that of the Project 1.1 – Headworks and Primary Treatment Facility design across the full length. Existing yard piping (primary effluent line and the pond effluent line) cross under/through the wall, which connects the plant to the pond system. The wall must be designed to accommodate these crossings while minimizing risk for backflow into the site from a high HGL condition in the ponds. The Valley Water West Channel flood wall may be under concurrent construction and within close proximity to the westerly portion of the WPCP perimeter wall. Consultant shall coordinate with Valley Water and PG&E and prepare modified easement documents for easements that prohibit construction within the proposed alignment of the perimeter wall.

**Requirements**

This DIM shall include the following items, at a minimum:

- Wall section alternatives and recommended design, with consideration given to wall height, existing soil properties, and United States Army Corps of Engineers (USACE) 100-year flood criteria.
- Means to address settlement potential, corrosion protection, and Building Department preferences
- Recommended construction method for accommodating large-diameter pipe penetrations without damage to the existing sewers and pipelines
- Recommended methods for relocation of utilities in Project 8.3 area and new alignment for influent sewer pipelines
- Approach to provide access for equipment likely necessary to rehabilitate the influent sewer line and primary effluent line after the wall is constructed (extent to which rehabilitation or replacement will be required is unknown at this time).
- Analysis of geotechnical and structural design criteria, under all applicable load cases, for the easterly and western portions of the wall

- Approach for addressing conflicts with Valley Water and PG&E easements
- Approach for coordination with Valley Water for potential shared wall segments and other concurrent construction (Project 2.2 and 8.3)

**Deliverables**

- Modified easement documents
- Draft DIM: Western Perimeter Wall
- Workshop to present findings to City
- Responses to City comments
- Final DIM: Western Perimeter Wall, incorporating all City comments

9. Lab/Admin Utility Relocation

**Overview**

Lab / Administration Building is being designed by others and not part of this project's scope of work. However, utilities for the building are included in this design. A planning-level utility relocation study was performed in order to:

- Identify relocation challenges for utilities in Carl Road, in and around the existing Administration Building parking area, and in the future biosolids post-processing area.
- Provide an assessment of geotechnical conditions that are likely to be encountered in the study areas and provide input regarding the potential building foundation types and design criteria.

**Project Description**

This project is based on the utility relocation study's key findings and recommendations listed below:

- Coordinate with the City's Pacific Gas and Electric (PG&E) account representative to begin discussion regarding the costs, scheduling, and additional requirements associated with relocating the power and gas lines that conflict with the desired placement of the retaining wall and potential locations for the Administration or Lab buildings. These utilities include 12.47 kV power, 4160 V power, and a 2-NG pipeline.
- Further investigate the AT&T fiber optic lines located in the vicinity to determine the exact location of the lines and relocation

requirements, if needed. These lines were not considered for relocation.

- Utilities are planned to be relocated into Carl Road between Gates C and D. This will impact deliveries to the Sunnyvale Materials Recovery Transfer (SMaRT) Station®, located east of the water pollution control plant (WPCP). Coordinate with the SMaRT Station® prior to implementing the utility relocations to determine traffic control requirements.
- Consolidating flows into a single larger sewer from the west between Gates A and C to facilitate construction of the new buildings and perimeter retaining wall. Modeling the impacts of this change to the collection system should be performed to confirm the feasibility of these sewer relocations. Note that some of these sewers appear to be at adverse slopes near the influent of the plant based on plant survey information performed in 1990. The Primary Treatment Project performed additional supplemental survey for this area that was inconclusive for the sewers considered for consolidation.
- Examine impacts to the existing "groundwater sink" as defined in the City's Corrective Action Plan (CAP) due to the perimeter retaining wall installation and relocation of the storm water facilities.
- Consider planning a future 66-SS to extend south from MH 17 as design of the utility relocations progresses. The 72-STD will need to be installed at an elevation that does not conflict with the future 66-SS. Additionally, evaluate the sanitary sewer relocations and consolidations to determine the most cost effective approach for consolidation and if it makes sense to design and construct a portion of the future 66-SS in conjunction with the other utility relocations.

**Deliverables**

- Draft DIM: Lab/Admin Utility Relocation
- Workshop to present findings to City
- Responses to City comments
- Final DIM: Lab/Admin Utility Relocation, incorporating all City comments

10. Influent Pipelines Consolidation Package

**Overview**

As part of the Headworks and Primary Treatment Improvements project, raw sewage will be diverted into a new influent junction structure which transitions to a 66-inch pipeline which conveys the influent into the new bar screen facility. The location of the new influent junction structure was

selected due to the difficulty in finding a convenient location to intercept the various sewers which feed the WPCP. Some of these raw sewage pipelines in the immediate vicinity of the WPCP have been in service for over 40 years and their condition is unknown. There is a risk that one or more of these sewers could fail, which would result in raw sewage not being conveyed to the new preliminary treatment facilities.

**Project Description**

This project would initially involve a condition assessment of the raw sewage pipelines which feed the WPCP. Following this assessment, an evaluation would be made as to how this influent system of pipelines could be consolidated through a program of rehabilitation and/or replacement. Major elements of this project would be defined as part of the detailed evaluation but could include pipeline/manhole rehabilitation (i.e., sliplining) and replacement of pipelines/manholes along with the construction of a diversion structure.

Design considerations will include the following:

- The collection system hydraulics to remove potential bottlenecks based on the anticipated future flow.
- Coordination of traffic control plans for the work.

**Deliverables**

- Draft DIM: Influent Pipelines Consolidation Package
- Workshop to present findings to City
- Responses to City comments
- Final DIM: Influent Pipelines Consolidation Package, incorporating all City comments

*11. SRF Assistance – Project Technical Report and Environmental Package (Optional, not included)*

*The Clean Water State Revolving Fund (SRF) provides low interest loans and grant funds to address high-priority water quality needs, including development of publicly-owned treatment plants and improvements or upgrades to utilities. The scope of the projects in this contract matches the eligibility criteria for the SRF program.*

*The PMC is responsible for applying for and obtaining SRF financing. The application consists of general, technical, environmental, and financial security packages. A Project Report is one of the required attachments to the technical package. Consultant shall prepare Draft and Final Project Report:*

- *Project area*
    - *Vicinity and service area map*
    - *Current land use and land use trends*
    - *Current system users and any new users*

    - *Current population and population trends*
- *Wastewater characteristics, existing facilities, and current water quality*
    - *Description of existing facilities*
    - *Description of all entities responsible or contributing to the existing facilities*
    - *Sources of wastewater to the facility*
    - *Sources of industrial or other problem constituents and current control measures*
    - *Information about any discharge violations*
    - *Wastewater influent characteristics and variations*
    - *Wastewater effluent characteristics and variations*
    - *Past efforts to address the problem through operational improvements*
    - *Current asset, operation, and maintenance management systems*
    - *An evaluation of excessive infiltration/inflow to the system*
- *Treatment objectives for discharge or reuse*
    - *Reason for the project and its objectives/expected benefits*
    - *Performance characteristics required for efficient treatment*
    - *Health-related water characteristics required for discharge, operational, and on-site requirements*
    - *Wastewater discharge or reuse requirements and anticipated changes in requirements*
    - *Relevant operation and on-site requirements*
    - *Projected future flow rates or other changes to the influent wastewater characteristics*
    - *Additional facilities or actions needed to comply with waste discharge requirements*
- *Project Alternatives Analysis*
    - *Planning and design parameters and assumptions*
    - *Detailed alternatives analysis*
- *Selected project*
    - *A detailed description of the recommended project alternative and basis for selection*
    - *Design criteria and useful life of the project*
    - *Life-cycle cost estimate based on time of construction*

- *Detailed schedule*
- *Permits required for project implementation*
- *Description of any key issues to be resolved*

- *Consultant shall be responsible for preparation and compilation of the entire SRF Environmental Package, including all requested information included in the Environmental Package application form and necessary attachments. The Environmental Package application form can be found on the State Water Resources Control Board (SWRCB) website:*

  *(https://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml) .*

  *Consultant shall submit draft and final Environmental Package submittals to the City/PMC. The City/PMC shall be responsible for submittal of the Environmental Package to the SWRCB.*

  *The SRF application process involves multiple rounds of review and comment by the SWRCB. The PMC is responsible for managing this process and providing responses in a timely manner. Consultant shall support the PMC by providing supplemental environmental and technical information related to the content of the Environmental Package, Project Report and other aspects of the design, as requested by SWRCB.*

  ***Deliverables***

  1. *Draft Project Report*
  2. *Response-to-comment table for Draft Project Report*
  3. *Final Project Report*
  4. *Draft Environmental Package (form and necessary attachments)*
  5. *Response-to-comment table for Draft Environmental Package*
  6. *Final Environmental Package (form and necessary attachments)*
  7. *Responses to ad hoc technical questions from SWRCB*

## II. Detailed Design

*E. Project Management*

The Consultant will continue the project management responsibilities as described in the preliminary design phase.

Design Consultant shall be responsible for the following items:

1. Meeting Management
2. Project Schedules
3. Quality Assurance/Quality Control
4. Document Management
5. Pay Applications

6. DIR Requirements

**Deliverables**

- Biweekly progress meetings, agenda, minutes
- Monthly invoices and progress report
- Weekly certified payroll submitted to e-CPR and LCPTracker

*F. Design Development*

**Overview**

Consultant shall perform all work including but not limited to: Civil Engineering, Environmental Engineering, Electrical Engineering, Mechanical Engineering, Structural Engineering, Land Surveying, Geotechnical, and related work necessary to prepare sets of plans and specifications suitable for Public Works bidding, and compliant with all applicable requirements. The Consultant shall also coordinate plans with the City's other consultants for compatibility and synergy. Plans and technical specifications must be stamped and signed by the California-licensed Engineer-of-Record. The plans and specifications shall be coordinated with the City's bid documents, standard provisions, and special provisions. All submittals shall be in both digital and hard copy format.

Plans and specifications shall not have any statements obligating the City to do anything other than what is stated in the City's standard construction contract. The plans and specifications shall provide sufficient detail to result in a high quality product while allowing competitive pricing where possible and appropriate. The bid documents shall also provide options to the contractor where appropriate to obtain the same high level of quality for the best bid price. Plans and specifications must be readily biddable and objective, avoiding use of subjective terms, such as, performing work to the satisfaction of the designer or the City. Proprietary products or services shall be avoided unless the Consultant has demonstrated there is no viable alternative.

Plans and details shall generally be to scale unless not-to-scale drawings provide better information. Match lines shall be provided as necessary. All plan sheets shall be organized and coordinated for clarity during construction. The horizontal and vertical control established in the Master Plan shall be used. Other components of the design include but are not necessarily limited to: Coordinate all relevant CEQA mitigation measures into the design, plans, and specifications.

In terms of sustainable design, the overall design shall consider minimizing energy consumption, water consumption, and scarce non-renewable resources. The capital cost shall be balanced with the future maintenance and operating costs with a bias toward reducing ongoing operation and maintenance costs. Consultant shall weigh both the fiscal and environmental costs of ongoing operation and maintenance in considering the best options. Consultant shall consider site constraints during all efforts of design.

Consultant shall comply with all applicable laws, regulations, and best practices. The design provided shall be robust, with enough redundancy to maintain reliable

and effective process treatment while using passive control systems when able if active control systems fail. The entire project shall address comprehensive subsystems that provide: reliability and flexibility of operation; energy efficiency and green-house gas reduction; compliance with all relevant laws, rules, regulations, ordinances, codes, permits, and foreseeable future revisions to these conditions, including: safety, hazardous materials, air quality, and water quality.

All changes to access, if any, shall be designed to meet the latest Americans with Disabilities Act (ADA) and accessibility requirements, and City standard details. Designs shall meet regulatory compliance including local, Federal, and State.

Instrumentation and control design including symbols and abbreviations, P&IDs, wiring and loop drawings, control strategy narratives, fiber patching diagrams, network and communication diagrams, and control panel drawings shall follow the City's Instrumentation and Design Standards.

**Coordination with Control Algorithm Development**

The PMC will develop detailed flow chart style control algorithms based on the Consultant-developed control strategies and design. The control algorithms provide specific guidance to the system integrator on implementation of the Rockwell Automation PlantPAx and provides a valuable operational reference. The Consultant will include the control algorithms as an appendix to the Contract Documents. The PMC will provide interim submittals of the Control Algorithms to the Consultant for review. Consultant shall review Control Algorithms and attend up to five review workshops to provide feedback and input on the design intent.

**Design Steps**

Design Development shall include the following steps:

- 30% Design
- 60% Design
- 90% Design
- 100% Design

Bid documents will be produced under Task G, Bid Package.

Each design package shall be submitted in accordance with the calendar included in the Project Management Plan delivered under Task A. Four weeks are allotted for review of each design. PMC will return comments in a compiled log, and Consultant shall schedule a design review workshop to resolve comments and decisions. Following design review workshops, Consultant shall return comment log with responses reflecting discussion at the workshop. Consultant shall also submit updated decision log. Follow-up conference calls may be scheduled for comments that remain unresolved.

**Note that the continual operation of the WPCP, permit compliance, and site safety are of greatest importance. Any work done on site, including all**

**planning and design must be done in a manner to not disrupt the operation of the WPCP or jeopardize safety of on-site personnel**.

**Format**

The City's standard plan format shall be used (24" X 36" nominal). The specifications shall be in CSI standard format (8-1/2" X 11" nominal) bound. Plans shall be organized in logical layers, including but not necessarily limited to: existing underground, surface and overhead conditions; proposed underground by utility, proposed surfacing, proposed pavement markings, proposed overhead, etc

All submittals shall be provided both digitally and in hard copy. Hard copy submittals shall consist of 2 sets of full sized plans, 12 sets of half sized plans, and 14 copies for reports, specifications and other material. An additional 2 sets of full sized plans and specifications shall be provided at the 90% and 100% design stages for Building Department review. Digital Submittals shall be submitted via Unifier in: AutoCAD and Adobe pdf for plans; MS Word and Adobe pdf for specifications or reports; MS Excel and Adobe pdf for Cost Estimates or spread-sheets, and MS Project and Adobe pdf for time schedules. Files over 100 MB shall be broken up into smaller files. Adobe pdf files shall include bookmarks to all section and subsection headers.

Construction schedules shall be developed in P6 software or MSProject and submitted along with the 30%, 60%, and 90% design submittals.

Opinions of probable construction cost (OPCCs) shall be developed and submitted along with the conceptual (10-15%), 30%, 60%, and 90% design submittals. OPCCs shall be prepared using a "bottom up" approach divided by System Area, with all mark-ups added after development of the construction cost. OPPC format shall follow the same format shown in the Project 2.1 Facility Condition Assessment Report. A "Basis of Estimate" technical memorandum shall be submitted with the OPCCs explaining the cost estimate methodology and key assumptions.

1. <u>30% Design</u>

   Given the critical nature of these facilities for compliance operations as well as the mechanical/control components involved with the project, the City will be requiring significant details development as part of the 30% design. The Consultant shall provide comprehensive P&IDs, completed to a 90% level, and a thorough review of the control strategies and operations implications through facilitation of a reliability, operability, and process hazard analysis of the facilities being implemented and their integration with existing infrastructure and controls. Deliverables for this phase shall include but are not limited to:

   - Preliminary plans and profiles, including cover sheet, and plan sheets with base mapping and all existing utilities
     - Plan cover sheet template to be provided by City

- Contractor mobilization area(s) and construction traffic routing
- Preliminary details
- General process schematics
- Draft Section 01010 including a detailed description of special construction requirements and constraints required to minimize the impacts of construction on continuous and safe operation of existing facilities
- Draft Sections 01354 describing supplemental conditions related to handling of hazardous materials in the vicinity of the work and/or to be handled, removed, and disposed of during the construction phase.
- Survey control plan with vertical and horizontal controls description, monuments, and benchmarks.
- Sizing and number of facility improvement components including piping, mechanical, electrical, instrumentation and support equipment.
- Cut sheets, model numbers and curves for equipment/appurtenances
- Preliminary construction schedule divided by System Area and including no less than 200 activities
- 30% capital cost estimates
- Provide a list of any facilities belonging to PG&E, AT&T, Comcast Cable, and others. Identify utility facilities that will need to be adjusted and/or relocated as a result of the proposed construction, if any.
- Provide a list of utilities that will require relocation as part of the perimeter wall construction.
- Determine if the project construction activities are covered under the NPDES Construction General Permit (CGP) and the Municipal Regional Permit (MRP) C.6 construction provisions. If covered under the NPDES Construction General Permit, determine the project type and risk level. Prepare a brief memo that summarizes the project classification.
- Determine if the project is subject to the MRP C.3 New Development and Redevelopment provisions. Prepare a brief memo that summarizes the applicability of low impact development stormwater treatment system or green infrastructure (GI) opportunity requirements and include the general layout of the treatment systems or GI features on the plans.

The plans shall clearly show the entire site, relevant surrounding areas, and the following at a minimum:

- Underground utilities:
  - Sanitary lines, (laterals as necessary), manholes, or cleanouts
  - Storm drainage lines (laterals as necessary), manholes, catch basins, or inlets
  - Water lines, laterals, valve boxes, hydrants, relief valves, irrigation lines, heads, valves, wiring, other components
  - Electrical, communications, gas and other power lines, other underground, utilities lines, boxes, vaults
- Surface features:
  - Existing structures
  - Concrete pavement, driveways, and emergency access routes
  - Survey monuments and boxes, benchmarks
  - Buildings, appurtenances, utility poles, other features
  - Trees, shrubs, and other surface features
- Overhead features in affected area:
  - Signage, benches, amenities
  - Tree canopies, vegetation
  - Overhead wires or obstructions
  - Other overhead features or obstructions
- Contaminants either in/on existing buildings, improvements, pavement markings, or underground
- Site access for construction
- Process/Mechanical
  - Standard mechanical details
  - 90% complete P&IDs
  - Preliminary equipment list
  - General equipment arrangement plans and major sections
  - Major facility dimensions
  - Preliminary drafts of major specifications
  - Preliminary process control narratives
  - NFPA 820 Guidelines review for project specifics
- Structural

- Standard structural details
- Structural foundation plans and sections
- Final structural design criteria
- Structural general notes and standard details
- Specification index and boilerplate specification section drafts

- Electric power
  - Review of site power system and City Standards for electric power systems
  - Preliminary site power plans
  - Preliminary facility single line power diagrams
- Instrumentation and Controls
  - Control system architecture and integration with existing system
  - All instruments on 90% complete P&IDs
  - Preliminary process control narratives

2. <u>60% Design</u>

Consultant shall develop the approved 30% design submittals into 60% design plans, specifications, and cost estimates. Design development shall include incorporation of power systems elements, ACS elements that coordinate future anticipated improvements. Development of the design shall also include consideration of sustainability and the following:

- Coordinate all conceptual and preliminary design ideas and features into the constraints of the site and opportunities of the site
- Consider public safety, and provide good access and visibility for easy patrol and observation, both day and night
- Develop good foundations, and infrastructure to support reasonable maintenance and operation of all features.
- Provide consideration of sufficient storage and access for equipment, and supplies to support operations and maintenance
- Provide safety equipment in appropriate locations
- Incorporate any mitigation measures for compliance with CEQA or other legitimate concerns raised at public meetings

The Consultant shall develop detailed performance metrics and testing protocols in the specifications for each major system, subsystem, or major equipment component rehabilitated, replaced, or otherwise modified under this contract in the 60% submittal. This information shall

identify the industry standard tests (e.g., Standard Methods), field stress testing, sampling and laboratory analysis, and other performance field measurements and test forms required to be included in the construction contractor's test plan submittal.

If it was determined that the CGP is applicable, Consultant shall prepare a draft preliminary Stormwater Pollution Prevention Plan (SWPPP) consistent with the CGP and the CASQA SWPPP template. The SWPPP shall be prepared by a Qualified SWPPP Developer.

If it was determined that the CGP is not applicable, Consultant shall prepare a draft preliminary Erosion and Sediment Control Plan (ESCP) consistent with the Sunnyvale Municipal Code Section 12.60 Stormwater Management and guidance issued by the City (https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?BlobID=22907).

All plan sheets shall be started and included as part of the submittal for this phase. Deliverables for this phase shall include but are not limited to the following:

Plans

- Cover Sheet – title, sheet index, vicinity map, location maps, notes, brief description of contractor's scope of work, horizontal and vertical control, graphical scale, other information as necessary
- Layout of new facilities (perimeter wall)
- Details and sections
- Yard piping and duct bank plans and profiles
- Paving & grading
- Process / Mechanical
    - Complete Piping and Instrumentation Diagrams
    - Equipment arrangement plans, sections and details
    - Specifications for vendor review
    - Final process control narratives
- Structural
    - Structural plans, sections and details
    - Preliminary rebar detailing
    - Specifications
- Electric Power
    - WPCP power single line drawings
    - Process area single line drawings

- Electrical room plans and equipment sections.
- Schematic site power plans
- Specifications

- Instrumentation and Controls
  - ACS system architecture and integration with existing system
  - ACS I/O on P&IDs
  - Control schematics
  - I/O and instrument index
  - Final process control narratives
  - Specifications

Specifications

- Technical specifications
- Description of each item on bid schedule with requirements
- Recommended revisions to Special Provisions
- Bid schedule
- Engineer's construction cost estimate
- Construction schedule

Other

- Responses to City's review comments, along with return of mark-ups

3. 90% Design

Consultant shall develop the approved 60% design submittal into 90% design plans, specifications, and cost estimates. All comments from the previous submittal shall be resolved and incorporated. In addition to previous reviews, this submittal will be reviewed by the Building Department. Deliverables shall include but are not limited to:

Plans

- Cover Sheet – title, sheet index, vicinity map, location maps, notes, brief description of contractor's scope of work, horizontal and vertical control, graphical scale, other information
- Layout of new facilities
- Details and sections
- Yard piping and duct bank plans and profiles

- Paving & grading
- Process / Mechanical
    - Piping and Instrumentation Diagrams
    - Demolition drawings
    - Equipment and piping plans, sections and details
    - Specifications
    - Final process control narratives
- Structural
    - Structural plans, sections, and details
    - Specifications
- Electric Power
    - WPCP power single lines
    - Process area single lines
    - Site power and lighting plans
    - Process area power, communication, and lighting plans
    - Electrical, building, and equipment elevations
    - Specifications
- Instrumentation and Controls
    - ACS architecture
    - Comprehensive P&IDs
    - Control and fiber diagrams
    - Control single line diagrams
    - Final process control narratives
    - Control panel details
    - Instrumentation installation details
    - Specifications (including control algorithms appendix developed by the PMC)

<u>Specifications</u>

- Technical Specifications
- Description of each item on bid schedule with requirements
- Recommended revisions to Special Provisions
- Bid schedule

- Engineer's construction cost estimate
- Construction schedule
- Preliminary SWPPP or ESCP
- Draft C.3 Checklist

Other

- Responses to City's review comments, along with return of mark-ups

4. 100% Design

Consultant shall develop the approved 90% Design Development submittal into 100% design plans, specifications, and cost estimates. All comments from the previous submittal shall be resolved and incorporated. The Consultant shall design and prepare complete plans, technical specifications, cost estimates, and revisions to the City's special provisions, for the project. The 100% plans shall be suitable to submit for Building Department review in hard copy format, and to prepare draft Building Permits, ready for the winning bidder. Include all necessary attachments and schedules in hard copy, including but not necessarily limited to: structural calculations, energy efficiency worksheets, and related work.

Design new facilities and processes for meeting the goals of each phase of the project, including power distribution, piping and other ancillary facilities as appropriate based upon geotechnical reports, design reports, testing and field review. Coordinate all applicable City standards into plans and specifications.

Clearly provide all details necessary for contractor to construct the project. Review, evaluate, revise plans and specifications and provide responses to City's review comments. Verify that the design is in compliance with all applicable laws, regulations, City Standards, CEQA, and other applicable requirements. Recommend any other items of work necessary to provide good value to the City to complete the project. Deliverables shall include:

Plans

- Cover Sheet – title, sheet index, vicinity map, location maps, notes, brief description of contractor's scope of work, horizontal and vertical control, graphical scale, other information
- Civil Plans –utilities plans & profiles, lighting, equipment and convenience power, pavement, walks, stairs, rails, details
- Coordinate power, ACS and irrigation plans and details
- Other specialties

Specifications

- Technical Specifications (including Control Algorithms appendix developed by the PMC), description of each item on bid schedule with requirements for payment (e.g. complete, in place, and suitable for its intended use.)
- Complete revised Special Provisions and reviewed Supplemental General Provisions, and bid instructions
- Recommended revisions to special specifications
- Bid schedule
- Engineer's construction cost estimate in the form of the Bid Schedule, (along with supporting documents not part of the Bid Package)
- Final list of submittals
- List of information available to bidders with disclaimer
- Revised project cost estimate
- Revised project time schedule
- Final Preliminary ESCP
- Final C.3 Checklist

<u>Other</u>

- Responses to City's review comments, along with return of mark-ups
- Based on City comments from the 90% design review, input received during any public meeting as interpreted by the City, and the Consultant's design judgment and peer review, Consultant shall prepare the 100% plans for submittal to the City.
- A peer review by another licensed professional in the consultant's firm other than the designer of record is required for overall constructability, coordination, and reasonable reduction in errors and omissions is to be accomplished as part of the 100% submittal.
- Hard copies of signed and sealed, by discipline, plans and specifications.
- In review with City, revise plans and specifications based upon Peer Review. The professional shall sign, date and seal the following Certification of Peer Review on a letterhead document with the transmittal of the final plans and specifications:

  *"The undersigned hereby certifies that a professional peer review of these plans and the required designs was conducted by me, a professional engineer with expertise and experience in the appropriate fields of engineering*

*equal to or greater than the Engineer of Record, and that appropriate corrections have been made."*

- The Assistant Director of Public Works/City Engineer statement on the plans shall be on the title sheet of the project plans:

  *"The City of Sunnyvale hereby accepts these plans for construction, as being in general compliance with plans preparation requirements of this agency. Responsibility for the completeness and accuracy of the plans and related designs resides with the Engineer and Engineering Firm of Record."*

5. Second Bid Package Design Development

   Consultant shall prepare separate design deliverables to include, but are not limited to, 30%, 60%, 90%, and 100% plans, specifications, construction schedules and cost estimates for the perimeter wall construction contract.

   Plans, specifications, construction cost estimates and schedule for the second bid package shall be incorporated into the deliverables submitted under Tasks F1, F2, F3, and F4 of the Base Scope. All deliverables required for this Task are listed in the respective Base Scope Tasks of this scope of work.

   The price for this Task F5 shall represent the cost to include design of the second bid package to be broken out to include the following deliverables:

   a. 30% Design

      All deliverables required for this Task are listed in the Base Scope 30% Design Task, Task F1 of this scope of work.

   b. 60% Design

      All deliverables required for this Task are listed in the Base Scope 60% Design Task, Task F2 of this scope of work.

   c. 90% Design

      All deliverables required for this Task are listed in the Base Scope 90% Design Task, Task F3 of this scope of work.

   d. 100% Design

      All deliverables required for this Task are listed in the Base Scope 100% Design Task, Task F4 of this scope of work.

*G. Bid Package*

Consultant shall develop the approved 100% Design submittal into bid package plans, specifications, and cost estimates. All comments from the previous submittal shall be resolved and incorporated. Task G includes Base Scope bid package services and bid package services for the Perimeter Wall. Base Scope

bid package services are described in Task G1, while the perimeter wall bid package services are described in Task G2.

*1. Base Scope Bid Package Plans, Specifications, and Cost Estimates*

Hard copy submittals shall consist of 2 sets of full sized plans, and 2 copies for reports, specifications and other material. Deliverables shall include but are not limited to:

- Complete revised Special Conditions and reviewed Standard Conditions, and bid instructions
    - Final Bid Schedule and/or schedule of values
    - Tabulation of quantities of all work
    - Final engineer's construction cost estimate in the form of the Bid Schedule (along with supporting documents not part of the Bid Package)
    - Final list of submittals, including identification of items governed by American Iron and Steel requirements
    - Recommendation for allowed construction time period
    - Final list of information available to bidders with disclaimer
- Coordinate plans and technical specifications with the City's (front end) bid instructions, standard provisions, and revised special provisions ready for Public Works bidding
- Complete sets of plans, stamped, and signed on each sheet by the Engineer of Record
- Complete Technical Specifications stamped and signed on the table-of-contents sheet by the Engineer of Record. If there is more than one Engineer of Record, stamp and sign the table of contents sheet for only that/those section(s) that applies to each engineering discipline
    - The headers and footers of the Technical Specifications shall be formatted per the example provided by Public Works and include the Invitation for Bids number provided by Purchasing. The final version of the Technical Specifications shall be submitted as a PDF.
- Reviewed City's Standard Construction Contract with completion of blanks that are determined by the work (time of construction)
- Certification of Peer Review signed that the entire Bid Package was reviewed and is recommended for Public Works bidding (Not incorporated with Bid Package)
- Digital copy of all work products and supporting work

- Structural calculations, energy efficiency worksheets, and related work

*2. Second Bid Package - Perimeter Wall*

Final plans, specifications, construction cost estimate, and schedule for the perimeter wall shall be incorporated into the deliverables submitted under Task G1 of the Base Scope. The price for this Task G2 shall represent the additional cost associated with design of the perimeter wall as a separate bid package.

*H. Bidding Services*

Consultant shall provide bidding services for all aspects of this project. Task H includes Base Scope bidding services and optional bidding services. Base Scope bidding services are described in Task H1 of this scope of work, while perimeter wall bidding services are described in Task H2.

1. Base Scope Bidding Services

***Overview***

Respond to all Requests for Information in a timely manner, attend pre-bid meeting(s), and prepare addenda as necessary and provide information to Purchasing to inform plan-holders of significant responses to Requests for Information. All communications shall be directed through the City (Purchasing Officer).

Conformed Documents will be prepared by the Consultant, incorporating all addenda to the bid documents. Contractor must sign off on Conformed Documents as part of the Conformed Document process. City will provide reproduction services.

**Submittals**

- Prompt response to all Requests for Information
- Minutes of pre-bid meeting
- Addenda as necessary
- Conformed documents (specifications and drawings) in PDF and Native Format

2. Perimeter Wall Bidding Services

Responses to all Requests for Information, minutes for pre-bid meeting(s), necessary addenda, and conformed documents for the perimeter wall shall be incorporated into the deliverables submitted under Task H1 of the Base Scope. The price for this Task H2 shall represent the cost to respond to bidder's RFIs related to the perimeter wall.

## III. Engineering Services During Construction

*I. Project Management*

The Consultant will continue the project management responsibilities as described in the preliminary design phase.

Design Consultant shall be responsible for the following items:

1. Meeting Management
2. Project Schedules
3. Quality Assurance/Quality Control
4. Document Management
5. Pay Applications
6. DIR Requirements

**Deliverables**

- Biweekly progress meetings, agenda, minutes
- Monthly invoices and progress report
- Weekly certified payroll submitted to e-CPR and LCPTracker

*J. Construction Support Services*

Consultant shall provide construction support services for all aspects of this project.

1. Base Scope Construction Support Services

**Overview**

The Construction Management Consultant (CMC) in conjunction with the City's Public Works staff will have primary responsibility for construction management and inspection. The Consultant's point of contact shall be the CMC, not the contractor. The Consultant shall provide the following services at a minimum:

- Respond to Requests for Information (RFIs), clarifying the plans and specifications where appropriate, or providing revisions or additional detail where necessary
- Review and respond to **all** submittals
- Attend pre-construction meeting, and periodic construction meetings and field inspection for final completion as determined by the City. All other required on-site meetings shall be considered necessary and based on the competency and adequacy of the contract documents and therefore the responsibility of the consultant
- Prepare As-Built Drawings based upon red-lines provided by contractor
- Review proposed substitutions for conformance to drawings and technical specifications, if any
- Review and make recommendations on proposed changes to the contract (Request for Quotation/Contract Change Order)

- Provide coordination and oversight related to equipment testing, integration, commissioning and startup (all documentation of these events shall be submitted to the City by the Consultant)
- Participate in testing, commissioning, integration and documentation process
- Participate in the final inspection and development of the punch lists
- Participate in "Lessons Learned" meetings
- Include allowance for construction phase redesign due to unknowns found during construction

Operation and Maintenance Manual updates shall be included in Task L.

**Submittals**

- Prompt responses to all requests for information (RFIs)
- Prompt responses to all submittals
- As-Built Drawings submitted as AutoCAD and PDF files

2. Second Bid Package - Perimeter Wall Construction Support Services

At the request of the City, the Consultant shall provide construction support services for the perimeter wall. All activities and submittals are described in the Base Scope Construction Support Services Task, Task J1 of this scope of work. The price for this Task J2 shall represent the additional cost for construction support services associated with the perimeter wall bid as a separate package.

*K. Commissioning Support Services*

Leading up to and during commissioning, the contractor will be responsible for preparing and executing training and testing plans and schedules; and equipment, system, and facility start-up plans in accordance with the specifications. The Consultant will be responsible for observing and documenting the completion of the majority of these activities, with some training and test witnessing performed by the PMC. The Consultant's role is to review and accept submittals and tasks performed by the contractor. Commissioning support services are described in Task K1, K2, K3 and K4.

1. Planning Phase

Consultant shall review, critique, and accept owner training plans, manufacturers' certificate of installation and functionality compliance, and test water management plan for clean water facility testing.

**Deliverables**

- Review comments on all planning/commissioning-phase submittals

2. Commissioning Phase

Consultant shall witness factory testing for instrumentation and major mechanical and electrical equipment. Consultant shall witness and accept all installation and functional testing, including instrument field calibration.

**Deliverables**

- Letter report summarizing findings from each testing witnessed
- Onsite support during the entire clean water testing period and report

3. Process Start-Up Phase

Prior to start-up, Consultant shall review, critique, and accept commissioning documentation and data and process start-up plans. Consultant shall participate in building, HVAC functionality checks; and final HVAC testing, adjusting, and balancing. Consultant shall review start-up decision criteria and make a go/no-go recommendation to the City.

Consultant shall observe facility-wide process start-up activities and verify satisfactory completion of all contractor tasks. During process operational period, Consultant shall coordinate, observe, and accept operational testing activities and perform water quality testing. Consultant shall review, critique, and accept final testing reports and water quality testing documentation. Subsequent to the process operational period, Consultant shall observe and accept instrumentation and control performance testing and fine tuning.

**Deliverables**

- Review comments on all process start-up phase submittals
- Written go/no-go recommendation
- Letter report summarizing observations and certifying completion of each test
- Water quality sampling and analysis plan
- Water quality sampling and analysis results

4. Second Bid Package - Perimeter Wall Commissioning Support Services

Consultant shall provide commissioning support services for the perimeter wall. The price for this Task K4 shall represent the cost to review and accept submittals and tasks performed by the contractor for the commissioning effort.

a. Perimeter Wall Planning Phase

Consultant shall conduct all activities and provide all deliverables required for the perimeter wall in the Base Scope Planning Phase Task, Task K1 of this scope of work.

b. Perimeter Wall Commissioning Phase

Consultant shall conduct all activities and provide all deliverables required for the perimeter wall in the Base Scope Commissioning Phase Task, Task K2 of this scope of work.

c. Perimeter Wall Process Start-Up Phase

Consultant shall conduct all activities and provide all deliverables required for the perimeter wall in the Base Scope Process Start-Up Phase Task, Task K3 of this scope of work.

*L. Operation and Maintenance Manual Updates*

The WPCP has an existing electronic Operation and Maintenance Manual (O&M Manual), prepared and updated by others. Consultant shall prepare Area Procedure and Expectations (APE) documents for refurbished and replaced unit processes and equipment, to supplement the existing O&M Manual and furnish information for staff to understand, operate, and optimize new unit processes in a format that can be used to train future workers. The City will be responsible for updates to the CMMS/INFOR EAM database. Four APEs are expected:

1. Secondary liquid stream treatment unit processes including the ponds, FGRs, AFTs and sampling.
2. Tertiary liquid stream filtration through the DMF System, disinfection, dechlorination, reuse system, and final effluent sampling.
3. Solids handling processes, including the AFT thickening equipment, top and bottom sludge pumping (from the AFTs), sampling, and odor control scrubber and fans.
4. Building HVAC systems

APE sections shall include:

- Process overview and objectives
- Design criteria
- Process parameters and performance goals
- Key performance indicators
- Process control variables and parameters
- Process control decisions
- Process control response
- Process control observations
- Sampling and data recording
- Situational response (links to Standard Operating Procedures by others)
- Duties and/or expectations of the O&M staff working within each area

**Deliverables**

- O&M Manuals, including any spreadsheets to assist with operation and control
- Draft APEs for each operational area
- 4 Workshops to review and confirm expectations of the O&M staff working within each operational area
- Final APEs
- 1 presentation to staff on APE information updates prior to implementation

## IV. Available Documents

These documents can be found on the project website:
http://www.sunnyvalecleanwater.com/project-2-1-existing-plant-rehabilitation

1. City standard specifications and details are available on the City's website: http://sunnyvale.ca.gov/Departments/PublicWorks/CityStandardDetailsandSpecifications.aspx
2. Program design standards and master planning documents are available on the Program website: http://www.sunnyvalecleanwater.com/WPCP-master-plan
    A. Basis of Design Report: http://www.sunnyvalecleanwater.com/documents/master-plan/Basis-of-Design-Report_Final-for-City-Web(Rev1).pdf
    B. Strategic Infrastructure Plan: http://www.sunnyvalecleanwater.com/documents/master-plan/SIP-Validation-TM_Final-for-City-Web.pdf
    C. ACS Plan TM: http://www.sunnyvalecleanwater.com/documents/master-plan/ACS-Plan-TM_Final-for-City-Web.pdf
    D. Geotechnical Study for the Master Plan: http://www.sunnyvalecleanwater.com/documents/master-plan/Geotechnical-Study_Final-for-City-Web.pdf
    E. Existing Utilities TM: http://www.sunnyvalecleanwater.com/documents/master-plan/Existing-Utilities-Plan-TM_Final-for-City-Web.pdf
    F. Land Survey and Monumentation Documents: http://www.sunnyvalecleanwater.com/documents/master-plan/Record-of-Survey_Final-for-City-Web.pdf
    G. Flows and Loads TM: http://www.sunnyvalecleanwater.com/documents/master-plan/Flow-and-Loads-Evaluation-TM_Final-for-City-Web.pdf

H. Civil Design Standards: http://www.sunnyvalecleanwater.com/documents/master-plan/Civil-Design-Standards_Final-for-City-Web.pdf

I. Corrosion Design Standards: http://www.sunnyvalecleanwater.com/documents/master-plan/Corrosion-Design-Standards_Final-for-City-Web.pdf

J. Electrical Design Standards: http://www.sunnyvalecleanwater.com/documents/master-plan/Electrical-Design-Standards_Final-for-City-Web.pdf

K. Instrumentation and Control Design Standards: http://www.sunnyvalecleanwater.com/documents/master-plan/Instrumentation-and-Control-Design-Standards_Final-for-City-Web.pdf

L. Mechanical Design Standards: http://www.sunnyvalecleanwater.com/documents/master-plan/Mechanical-Design-Standards_Final-for-City-Web.pdf

M. Structural and Seismic Design Standards: http://www.sunnyvalecleanwater.com/documents/master-plan/Structural-and-Seismic-Design-Standards_Final-for-City-Web.pdf

N. Primary Treatment Design – Design Information Memorandum No. 14 – Basis of Design – Flood/Retaining Wall and Flood Gate

3. The PEIR is available on the Program website: http://www.sunnyvalecleanwater.com/program-environmental-impact-report
4. Plant schematics
    A. Electrical schematic
    B. General process schematic
    C. WPCP Facilities Basemap
5. Plans, specifications, and reports for current construction projects
    A. Headworks and Primary Treatment Design Information Memoranda
    B. Headworks and Primary Treatment Package 2 plans and specifications
    C. City of Sunnyvale Secondary Treatment and Dewatering Technical Memorandum D1, Carollo/Jacobs, Draft January 2018
    D. City of Sunnyvale Secondary Treatment and Dewatering: Appendix to Technical Memorandum D1 - PMC Recommendations Regarding Rehabilitation of Pond System Treatment Components

6. Record drawings. The City does not guarantee the accuracy or completeness of record drawings. Consultant shall verify all information to their professional satisfaction.
    A. PR-62-14: Sludge Circulating Piping Changes, October 1962.
    B. PR-65-1: Sewage Treatment Works Oxidation Pond, August 1965.
    C. PR-66-5: 1967 STP Modifications, February 1967.
    D. PR-69-5: Sewage Treatment Works 1969 Enlargements and Modifications, June 1969.
    E. PR-73-2: Water Pollution Control Plant Drawings for Tertiary Facilities, July 1975.
    F. PR-79-3: Primary Effluent Pipeline, June 1979.
    G. PR-80-16: Addition of Dual Media Filter No. 4, December 1980.
    H. PR-82-4: Tertiary Facilities, April 1982.
    I. PR-82-6: Primary Facilities, June 1982.
    J. PR-89-10: Lab/Tertiary Control Building Modifications and Administration Building Expansion, Phase 1, Locker Room Addition, April 1989.
    K. PR-90-9: Barscreen Replacement Project, August 1990.
    L. PR-93-10: Sludge Dewatering Improvements, July 1993.
    M. PR-93-11: Surface Aerator Installation, September 1993.
    N. PR-98/10-99: Upgrade of Electrical System, May 1999.
    O. STP-1955: City of Sunnyvale Sewage Treatment Works, March 1953.
    P. STP-1961: City of Sunnyvale Sewage Treatment Plant Enlargement, July 1961.
    Q. PR-65: Oxidation Pond Additions, August 1965.
    R. UW-95-02: Polymer Feed System Improvements, June 1996.
    S. UW-96-01: Tertiary Plant Improvements, July 1997.
    T. UW-98-02: Recycled Water Pump Station Capacity Expansion, March 2000.
    U. UY-96-01: Oxidation Pond Levee Improvements, September 1996.
    V. UY-00-06-01: Air Flotation Tank Gate Actuators, October 2002.
    W. UY-00-02-01 and UY-02-02-03: Chemical System Improvements, April 2004.
    X. UY-02-07-03: Oxidation Pond Levee Improvements Phase 4, April 2006.
    Y. UY-04-01-05: Laboratory Building, August 2005.

Z. UY-05-04-06: Tertiary Plant Tank Drainage System Modifications, April 2010.

AA. UY-08-02-09: Air Flotation Tank Improvements, November 2010.

BB. UY-09/01-10: Sodium Bisulfite System, November 2009.

CC. UY-11-03-11: DSMBI – Sunnyvale, June 2011.

DD. Primary Control Building Remodeling, February 1993.

EE. UY—11/01-12: Rehabilitation of Anaerobic Digesters No. 1 and No. 2 and Improvements to No. 3, June 2013.

FF. UY-08/01-09: Rehabilitation of WPCP Digester No.4, March 2009.

GG. UY-14/01-15: Emergency Flow Management Improvements, March 2015.

HH. UY-15/01-19: Primary Treatment Facility Package 1 – Site Preparation, June 2016.

II. UY-12/09-15: Hypochlorite Conversion and Continuous Recycled Water Production Facilities, February 2015.

7. WPCP manuals and data
    A. Sunnyvale WPCP O&M Manual
    B. Influent hourly flow data
    C. Process Control Reports
8. Other plans, studies, and reports
    A. Asset Condition Assessment, 2006
    B. Strategic Infrastructure Plan and Peer Review
    C. Collection System Master Plan
    D. City of Sunnyvale Primary Effluent Pipeline Evaluation, 2014
    E. Sunnyvale Cleanwater Program Facility Condition Assessment Report, 2018
    F. Dual Media Filter Basins 1 and 2 Condition Assessment, 2016
9. Permits
    A. NPDES
    B. Title V
    C. Fire Prevention and Environmental Programs Consolidated Permit

<u>The following information will be provided to the Consultant during design:</u>

1. Master Planning documents:
    A. Site Security TM
    B. Detailed cost estimates
2. Environmental Services Department standards

A. Equipment numbering policy
B. Process piping and equipment paint colors policy
C. Shutdown request forms

3. Easement documents
4. Engineering data and analyses
    A. Standby power analysis
    B. Plant loads analysis

**Glossary of Abbreviations**

| | |
|---|---|
| ACS | Automated Control System |
| ADA | Americans with Disabilities Act |
| AFT | air flotation tank |
| AOI | add-on instructions |
| APE | Area Procedure and Expectations |
| ATC | Authority to Construct |
| BAAQMD | Bay Area Air Quality Management District |
| BCDC | Bay Conservation and Development Commission |
| CAS | conventional activated sludge |
| CBOD | chemical biological oxygen demand |
| CEQA | California Environmental Quality Act |
| CGP | Construction General Permit |
| CMC | construction management consultant |
| CSI | Construction Specifications Institute |
| DIM | design information memorandum |
| EIR | environmental impact report |
| ESCP | Erosion and Sediment Control Plan |
| FGR | fixed growth reactor |
| GI | Green Infrastructure |
| HVAC | heating, ventilation, and air conditioning |
| I&C | Instrumentation and Control |
| I/O | input/output |
| kV | kilovolts |

| | |
|---|---|
| kVA | kilovolt amps |
| LID | Low Impact Development |
| MB | megabytes |
| MCC | motor control center |
| MGD | million gallons per day |
| MRP | Municipal Regional Permit |
| MS | Microsoft |
| NFPA | National Fire Protection Agency |
| NPDES | National Pollutant Discharge Elimination System |
| NTP | notice to proceed |
| O&M | operations and maintenance |
| PDF | portable document format |
| PE | primary effluent |
| PEIR | Program Environmental Impact Report |
| PLC | programmable logic controller |
| PMC | program management consultant |
| Program | Sunnyvale Clean Water Program |
| PG&E | Pacific Gas and Electric Co. |
| P&IDs | Piping and Instrumentation Diagrams |
| QSD | Qualified SWPPP Developer |
| RFI | Request for Information |
| RWQCB | Regional Water Quality Control Board |
| SCADA | supervisory control and data acquisition |
| SCVWD | Santa Clara Valley Water District |
| SCWP | Sunnyvale Clean Water Program |
| SF Bay | San Francisco Bay Region |
| SIP | Strategic Infrastructure Plan |
| SMaRT | Sunnyvale Materials Recovery and Transfer |
| SRF | Clean Water State Revolving Fund |
| SRT | solids retention time |
| SWPPP | Stormwater Pollution Prevention Plan |

| | |
|---|---|
| SWRCB | State Water Resources Control Board |
| TM | technical memorandum |
| TSS | total suspended solids |
| USACE | United States Army Corps of Engineers |
| V | volts |
| WPCP | City of Sunnyvale Water Pollution Control Plant |

**Exhibit A-1**
**Project Schedule**

City of Sunnyvale

Exhibit B

Proposal for: SCWP Existing Plant Rehabilitation

**Carollo Engineers, Inc.**

| Tasks | | Labor | | | | | | | | | | | | | | | | Subconsultants | | | | | | | | | | ODCs | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task # | Task Description | PIC | Project Manager | Project Engineer | Liquids Lead | Utilities | Quality Management | Permitting/ CEQA | Modeling | Lead Professional | Assistant Professional | Construction Professional | Senior CAD Tech | CAD Tech | Doc Processing | Total Hours | Total Labor Costs | Key Partner | Permitting and CEQA | Geotech | Technical Advisor | Survey | Laser Scan | Haz Waste | Condition Assessment | Condition Assessment | Cost Estimating | Other Direct Costs | Total Fee |
| | | Jim Hagstrom | Sanjay Reddy | Becky Gherini | Alan Straub | Ryan Hook | Steve Swanbeck | Becky Gherini | Anne Conklin | Various | Various | John Newbrough | Various | Various | Various | | | Brown and Caldwell | ESA | Fugro | David Jenkins | Towill | Vara3D | Al Clancy | V&A | JDH | Ewing Construction | | |
| | | $320 | $310 | $215 | $295 | $215 | $295 | $215 | $240 | $254 | $208 | $240 | $200 | $155 | $135 | | | Fee | Fee | Fee | Fee | Fee | Fee | Fee | Fee | Fee | Fee/Hr or LS | | |
| I | Preliminary Design Services | 64 | 268 | 250 | 84 | 200 | 151 | 24 | 0 | 301 | 364 | 0 | 148 | 412 | 172 | 2,438 | $ 543,641 | $ 273,720 | $ 43,800 | $ 25,000 | $ 10,500 | $ 70,000 | $ 30,000 | $ 5,000 | $ 5,000 | $ 10,000 | $ 10,000 | $ 14,770 | $ 1,041,431 |
| A | Project Management | 8 | 70 | 48 | 10 | 0 | 18 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 62 | 276 | $ 63,690 | $34,553 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $6,100 | $104,343 |
| A.1. | Project Management Plan | | 24 | | | | | | | | | | | | 8 | 32 | $ 8,520 | $10,456 | | | | | | | | | | $500 | $19,476 |
| A.2 | Meeting Management | 4 | 28 | 20 | 10 | | | | | | | | | | | 62 | $ 17,210 | $5,836 | | | | | | | | | | $2,800 | $25,846 |
| A.3 | Project Schedules | | 2 | 4 | | | | | | | 60 | | | | | 66 | $ 13,960 | $2,350 | | | | | | | | | | $2,800 | $19,110 |
| A.4 | Quality Assurance/Quality Control | 4 | 12 | | | | 18 | | | | | | | | | 34 | $ 10,310 | $7,212 | | | | | | | | | | | $17,522 |
| A.5 | Document Management | | 4 | 8 | | | | | | | | | | | 14 | 26 | $ 4,850 | $2,851 | | | | | | | | | | | $7,701 |
| A.6 | Pay Applications | | | 12 | | | | | | | | | | | 30 | 42 | $ 6,630 | $5,848 | | | | | | | | | | | $12,478 |
| A.7 | DIR Requirements | | | 4 | | | | | | | | | | | 10 | 14 | $ 2,210 | $0 | | | | | | | | | | | $2,210 |
| B | Permitting - CEQA | 0 | 4 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | $ 6,400 | $5,988 | $43,800 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $56,188 |
| B.1 | CEQA | | 2 | | | | | 12 | | | | | | | | 14 | $ 3,200 | $2,994 | $23,900 | | | | | | | | | | $30,094 |
| B.2 | Preparation of BCDC Permit Amendment | | 2 | | | | | 12 | | | | | | | | 14 | $ 3,200 | $2,994 | $19,900 | | | | | | | | | | $26,094 |
| C | Documentation of Existing Conditions | 0 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 104 | $20,920 | $36,056 | $0 | $25,000 | $0 | $70,000 | $30,000 | $5,000 | $0 | $0 | $0 | $750 | $187,726 |
| C.1 | Supplemental Topographic and Planimetric Survey | - | - | 20 | - | | - | - | | | | | | 12 | - | 32 | $6,160 | $1,116 | | | | $35,000 | $30,000 | $5,000 | | | | $250 | $77,526 |
| C.2 | Supplemental Subsurface Utility Mapping | - | - | 40 | - | | - | - | | | | | | 12 | - | 52 | $10,460 | $2,137 | | | | $35,000 | | | | | | $250 | $47,847 |
| C.3 | Supplemental Geotechnical Investigation and AFT Settlement Analysis | - | - | 20 | - | | - | - | | | | | | | - | 20 | $4,300 | $32,802 | | $25,000 | | | | | | | | $250 | $62,352 |
| D | Conceptual Design Report | 56 | 194 | 122 | 74 | 200 | 133 | 0 | 0 | 301 | 304 | 0 | 148 | 388 | 110 | 2030 | $452,631 | $197,123 | $0 | $0 | $10,500 | $0 | $0 | $0 | $5,000 | $10,000 | $10,000 | $7,920 | $693,174 |
| D.1 | Influent and Primary Effluent Pipelines Refurbishment Plan | 4 | 20 | 50 | 0 | 0 | 16 | 0 | 0 | 50 | 40 | 0 | 24 | 45 | 8 | 257 | $56,825 | $500 | | | | | | | $5,000 | $10,000 | | $900 | $73,225 |
| D.2 | Pond-FGR-AFT System Refurbishment Plan | 4 | 20 | 0 | 50 | 0 | 16 | 0 | 0 | 50 | 40 | 0 | 24 | 45 | 8 | 257 | $60,825 | $6,960 | | | $8,000 | | | | | | $2,000 | $900 | $78,685 |
| D.3 | Tertiary Filtration System Refurbishment Plan | 4 | 10 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 8 | 54 | $12,660 | $43,983 | | | $2,500 | | | | | | $3,000 | | $62,143 |
| D.4 | Disinfection Systems Refurbishment Plan | 4 | 10 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 8 | 54 | $12,660 | $55,692 | | | | | | | | | | | $68,352 |
| D.5 | Power | 4 | 12 | 0 | 0 | 0 | 13 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 8 | 50 | $13,217 | $46,867 | | | | | | | | | | | $60,084 |
| D.6 | Process Control and Integration Plan | 4 | 8 | 12 | 12 | 0 | 8 | 0 | 0 | 64 | 40 | 0 | 40 | 40 | 8 | 236 | $52,096 | $7,101 | | | | | | | | | | $900 | $60,097 |
| D.7 | Sequencing, Scheduling and Site Layout | 4 | 24 | 40 | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 8 | 140 | $31,680 | $6,197 | | | | | | | | | $5,000 | $900 | $43,777 |
| D.8 | DIM: Western Perimeter Wall | 4 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 16 | 70 | $13,940 | $29,822 | | | | | | | | | | | $43,762 |
| D.9 | Lab/Admin Utility Relocation | 12 | 40 | 0 | 0 | 100 | 18 | 0 | 0 | 62 | 92 | 0 | 30 | 83 | 19 | 456 | $99,364 | $0 | | | | | | | | | | $2,160 | $101,524 |
| D.10 | Influent Pipelines Consolidation Package | 12 | 40 | 0 | 0 | 100 | 18 | 0 | 0 | 62 | 92 | 0 | 30 | 83 | 19 | 456 | $99,364 | $0 | | | | | | | | | | $2,160 | $101,524 |
| II | Detailed Design | 203 | 1,003 | 1,175 | 634 | 724 | 549 | 0 | 99 | 1,050 | 1,890 | 0 | 428 | 1,800 | 661 | 10,216 | $ 2,270,575 | $ 1,426,105 | $ - | $ 71,000 | $ - | $ - | $ - | $ - | $ - | $ - | $ 26,000 | $ 27,820 | $ 3,821,500 |
| E | Project Management | 50 | 225 | 215 | 50 | 0 | 90 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 135 | 865 | $ 212,300 | $84,951 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $6,000 | $303,251 |
| E.1 | Meeting Management | 30 | 150 | 125 | 50 | | | | | | | | | | | 355 | $ 97,725 | $25,983 | | | | | | | | | | $3,000 | $126,708 |
| E.2 | Project Schedules | | 2 | 6 | | | | | | | 100 | | | | | 108 | $ 22,710 | $10,279 | | | | | | | | | | $3,000 | $35,989 |
| E.3 | Quality Assurance/Quality Control | 20 | 55 | | | | 90 | | | | | | | | | 165 | $ 50,000 | $19,965 | | | | | | | | | | | $69,965 |
| E.4 | Document Management | | 18 | 30 | | | | | | | | | | | 50 | 98 | $ 18,780 | $9,698 | | | | | | | | | | | $28,478 |
| E.5 | Pay Applications | | | 50 | | | | | | | | | | | 75 | 125 | $ 20,875 | $19,025 | | | | | | | | | | | $39,900 |
| E.6 | DIR Requirements | | | 4 | | | | | | | | | | | 10 | 14 | $ 2,210 | $0 | | | | | | | | | | | $2,210 |
| F | Design Development | 145 | 734 | 855 | 545 | 724 | 444 | 0 | 99 | 970 | 1728 | 0 | 408 | 1725 | 473 | 8850 | $1,947,574 | $1,237,846 | $0 | $71,000 | $0 | $0 | $0 | $0 | $0 | $0 | $26,000 | $21,320 | $3,303,740 |
| F.1 | Base Scope 30% Design | 40 | 180 | 200 | 100 | 200 | 44 | | 30 | 260 | 450 | | 125 | 480 | 120 | 2229 | $479,520 | $264,026 | | $71,000 | | | | | | | $4,000 | $8,320 | $826,866 |
| F.2 | Base Scope 60% Design | 40 | 180 | 200 | 180 | 200 | 100 | | 30 | 260 | 450 | | 125 | 480 | 120 | 2365 | $519,640 | $275,216 | | | | | | | | | $4,000 | $4,000 | $802,856 |
| F.3 | Base Scope 90% Design | 40 | 180 | 200 | 200 | 200 | 100 | | 30 | 260 | 450 | | 125 | 480 | 120 | 2385 | $525,540 | $271,777 | | | | | | | | | $4,000 | $4,000 | $805,317 |
| F.4 | Base Scope 100% Design | 25 | 84 | 55 | 65 | 124 | 200 | | 9 | 190 | 378 | | 33 | 105 | 58 | 1326 | $310,449 | $144,250 | | | | | | | | | $2,000 | $4,000 | $460,699 |
| F.5 | Second Bid Package Design Development | 0 | 110 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 180 | 55 | 545 | $112,425 | $282,575 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $12,000 | $1,000 | $408,000 |
| F.5.a | 30% Design | - | 20 | 40 | - | | - | - | | | | | | 50 | 15 | 125 | $24,575 | $137,880 | | | | | | | | | $2,000 | $250 | $164,705 |
| F.5.b | 60% Design | - | 35 | 60 | - | | - | - | | | | | | 50 | 15 | 160 | $33,525 | $61,983 | | | | | | | | | $2,000 | $250 | $97,758 |
| F.5.c | 90% Design | - | 35 | 60 | - | | - | - | | | | | | 50 | 15 | 160 | $33,525 | $53,793 | | | | | | | | | $4,000 | $250 | $91,568 |
| F.5.d | 100% Design | - | 20 | 40 | - | | - | - | | | | | | 30 | 10 | 100 | $20,800 | $28,920 | | | | | | | | | $4,000 | $250 | $53,970 |
| G | Bid Package | 8 | 24 | 65 | 15 | 0 | 15 | 0 | 0 | 40 | 40 | 0 | 20 | 75 | 35 | 337 | $71,655 | $39,657 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $500 | $111,812 |
| G.1 | Base Scope Bid Package Plans, Specifications, and Cost Estimates | 8 | 16 | 45 | 15 | | 15 | | | 20 | 40 | | 20 | 40 | 25 | 244 | $53,020 | $18,762 | | | | | | | | | | $500 | $72,282 |
| G.2 | Second Bid Package - Perimeter Wall | | 8 | 20 | | | | | | 20 | | | | 35 | 10 | 93 | $18,635 | $20,895 | | | | | | | | | | | $39,530 |
| H | Bidding Services | 0 | 20 | 40 | 24 | 0 | 0 | 0 | 0 | 40 | 22 | 0 | 0 | 0 | 18 | 164 | $39,046 | $63,652 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $102,698 |
| H.1 | Base Scope Bidding Services | | 16 | 30 | 20 | | | | | 20 | 14 | | | | 14 | 114 | $27,192 | $37,979 | | | | | | | | | | | $65,171 |
| H.2 | Perimeter Wall Bidding Services | | 4 | 10 | 4 | | | | | 20 | 8 | | | | 4 | 50 | $11,854 | $25,672 | | | | | | | | | | | $37,526 |

City of Sunnyvale
Proposal for: SCWP Existing Plant Rehabilitation
**Carollo Engineers, Inc.**

| Tasks | | Labor | | | | | | | | | | | | | | | Subconsultants | | | | | | | | | | ODCs | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task # | Task Description | PIC | Project Manager | Project Engineer | Liquids Lead | Utilities | Quality Management | Permitting/ CEQA | Modeling | Lead Professional | Assistant Professional | Construction Professional | Senior CAD Tech | CAD Tech | Doc Processing | Total Hours | Total Labor Costs | Key Partner | Permitting and CEQA | Geotech | Technical Advisor | Survey | Laser Scan | Haz Waste | Condition Assessment | Condition Assessment | Cost Estimating | Other Direct Costs | Total Fee |
| | | Jim Hagstrom | Sanjay Reddy | Becky Gherini | Alan Straub | Ryan Hook | Steve Swanbeck | Becky Gherini | Anne Conklin | Various | Various | John Newbrough | Various | Various | Various | | | Brown and Caldwell | ESA | Fugro | David Jenkins | Towill | Vara3D | Al Clancy | V&A | JDH | Ewing Construction | | |
| | | $320 | $310 | $215 | $295 | $215 | $295 | $215 | $240 | $254 | $208 | $240 | $200 | $155 | $135 | | | Fee | Fee | Fee | Fee | Fee | Fee | Fee | Fee | Fee | Fee/Hr or LS | | |
| III | ESDC | 111 | 602 | 210 | 397 | 420 | 253 | 0 | 0 | 784 | 1745 | 710 | 264 | 710 | 545 | 6751 | $ 1,518,261 | $ 719,485 | $ - | $ 10,000 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ 67,942 | $ 2,315,688 |
| I | Project Management | 23 | 178 | 210 | 32 | 0 | 49 | 0 | 0 | 0 | 80 | 0 | 0 | 0 | 138 | 710 | $ 166,855 | $85,128 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $17,360 | $269,343 |
| I.1 | Meeting Management | 13 | 130 | 140 | 32 | | | | | | | | | | | 315 | $ 84,000 | $28,165 | | | | | | | | | | $13,360 | $125,525 |
| I.2 | Project Schedules | | 2 | 6 | | | | | | | 80 | | | | | 88 | $ 18,550 | $14,248 | | | | | | | | | | $4,000 | $36,798 |
| I.3 | Quality Assurance/Quality Control | 10 | 36 | | | | 49 | | | | | | | | | 95 | $ 28,815 | $15,236 | | | | | | | | | | | $44,051 |
| I.4 | Document Management | | 10 | 20 | | | | | | | | | | | 48 | 78 | $ 13,880 | $11,462 | | | | | | | | | | | $25,342 |
| I.5 | Pay Applications | | | 40 | | | | | | | | | | | 80 | 120 | $ 19,400 | $16,016 | | | | | | | | | | | $35,416 |
| I.6 | DIR Requirements | | | 4 | | | | | | | | | | | 10 | 14 | $ 2,210 | $0 | | | | | | | | | | | $2,210 |
| J | Construction Support Services | 72 | 348 | 0 | 175 | 420 | 180 | 0 | 0 | 530 | 1315 | 530 | 224 | 640 | 257 | 4691 | $1,039,980 | $418,803 | $0 | $10,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $27,582 | $1,496,365 |
| J.1 | Base Scope Construction Support Services | 72 | 340 | | 175 | 420 | 180 | | | 530 | 1315 | 520 | 224 | 600 | 245 | 4621 | $1,027,280 | $407,228 | | $10,000 | | | | | | | | $18,962 | $1,463,470 |
| J.2 | Second Bid Package Perimeter Wall Construction Support Services | | 8 | | | | | | | | | 10 | | 40 | 12 | 70 | $12,700 | $11,575 | | | | | | | | | | $8,620 | $32,895 |
| K | Commissioning Support Services | 12 | 54 | 0 | 150 | 0 | 0 | 0 | 0 | 222 | 290 | 90 | 0 | 0 | 70 | 888 | $212,588 | $144,340 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $21,500 | $378,428 |
| K.1 | Planning Phase | 4 | 14 | | 50 | | - | - | | 50 | 95 | 20 | | | 22 | 255 | $60,600 | $53,588 | | | | | | | | | | $1,000 | $115,188 |
| K.2 | Commissioning Phase | 4 | 14 | | 50 | | - | - | | 50 | 95 | 20 | | | 24 | 257 | $60,870 | $41,652 | | | | | | | | | | $5,000 | $107,522 |
| K.3 | Process Start-Up Phase | 4 | 14 | | 50 | | - | - | | 50 | 100 | 20 | | | 24 | 262 | $61,910 | $26,472 | | | | | | | | | | $15,000 | $103,382 |
| K.4 | Second Bid Package - Perimeter Wall Commissioning Support Services | 0 | 12 | | 0 | 0 | 0 | 0 | 0 | 72 | 0 | 30 | 0 | 0 | 0 | 114 | $29,208 | $22,628 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $500 | $52,336 |
| K.4.a | Perimeter Wall Planning Phase | - | 4 | | - | | - | - | | 24 | | 10 | | | - | 38 | $9,736 | $9,137 | | | | | | | | | | $150 | $19,023 |
| K.4.b | Perimeter Wall Commissioning Phase | - | 4 | | - | | - | - | | 24 | | 10 | | | - | 38 | $9,736 | $8,202 | | | | | | | | | | $150 | $18,088 |
| K.4.c | Perimeter Wall Proces Start-up Phase | - | 4 | | - | | - | - | | 24 | | 10 | | | - | 38 | $9,736 | $5,289 | | | | | | | | | | $200 | $15,225 |
| L | Operation and Maintenance Manual Updates | 4 | 22 | 0 | 40 | | 24 | | | 32 | 60 | 90 | 40 | 70 | 80 | 462 | $98,838 | $71,215 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $1,500 | $171,553 |
| | **Rehab Project Total** | 378 | 1873 | 1635 | 1115 | 1344 | 953 | 24 | 99 | 2135 | 3999 | 710 | 840 | 2922 | 1378 | 19405 | $4,332,477 | $2,419,311 | $43,800 | $106,000 | $10,500 | $70,000 | $30,000 | $5,000 | $5,000 | $10,000 | $36,000 | $110,532 | $7,178,620 |
| | **Optional Services Listed Above Subtotal** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *A.2* | *Support for Council Study Sessions (Optional)* | 8 | 20 | 8 | | | | | | | | | | | | 36 | $ 10,480 | $0 | | | | | | | | | | $10,480 |
| *B.3* | *Preparation of Tiered Negative Declaration (Optional)* | - | 8 | | - | | - | 20 | | | | | | | - | 28 | $ 6,780 | $7,612 | $52,000 | | | | | | | | | | $66,392 |
| *B.4* | *Bay Area Air Quality Management District (BAAQMD) Permitting (Optional)* | - | 4 | | - | | - | 20 | | | | | | | - | 24 | $ 5,540 | $2,994 | $26,500 | | | | | | | | | | $35,034 |
| *D.11* | *SRF Assistance - Project Technical Report and Environmental Package (Optional)* | | 4 | | | | | 24 | | 22 | 22 | | | | 10 | 82 | $ 17,914 | $1,675 | $5,000 | | | | | | | | | $500 | $25,089 |
| | **Total Including Optional Services** | 8 | 36 | 8 | 0 | 0 | 0 | 64 | 0 | 22 | 22 | 0 | 0 | 0 | 10 | 170 | $ 40,714 | $ 12,281 | $ 83,500 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ 500 | $ 7,315,615 |

Notes:

1 No mark up on Brown and Caldwell costs
2 All other subconsultants marked up 5%
3 Carollo rates include 2% cost of living adjustment for 2020
4 Fee based on $53M capital improvements which include Existing Plant Rehabilitation projects, perimeter wall construction, lab/admin utility relocation, and influent pipelines consolidation package.

# Exhibit C
# INSURANCE REQUIREMENTS FOR CONSULTANTS/CONTRACTORS

Consultant/Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work by the Consultant, his agents, representatives, or employees.

Minimum Scope and Limits of Insurance. Consultant shall maintain limits no less than:

1. **Commercial General Liability**: $2,000,000 per occurrence and $4,000,000 aggregate for bodily injury, personal injury and property damage. ISO Occurrence Form CG 0001 or equivalent is required.

2. **Automobile Liability**: $1,000,000 per accident for bodily injury and property damage. ISO Form CA 0001 or equivalent is required.

3. **Workers' Compensation** Statutory Limits and **Employer's Liability**: $1,000,000 per accident for bodily injury or disease.

Industry Specific Coverages. If checked below, the following insurance is also required:

x☐ Professional Liability Insurance / Errors and Omissions Liability in the minimum amount of $2,000,000 per occurrence.

☐ If working directly with children, the Certificate of Insurance must include coverage for molestation and sexual abuse in the minimum amount of $1,000,000 per occurrence and $2,000,000 aggregate. In the event that Abuse & Molestation Liability coverage is provided via a Claims Made Policy, the coverage shall include a minimum of a five year extended reporting clause.

☐ Pollution Liability Insurance in the minimum amount of $1,000,000 per occurrence

☐ MCS-90 Endorsement to Business Automobile insurance for transportation of hazardous materials and pollutants

☐ Builder's Risk / Course of Construction Insurance in the minimum amount of $_____.

Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared and approved by the City of Sunnyvale. The consultant shall guarantee payment of any losses and related investigations, claim administration and defense expenses within the deductible or self-insured retention.

Other Insurance Provisions

The **general liability** and automobile liability policies (and if applicable, pollution liability, sexual abuse and molestation, and builder's risk policies) shall contain, or be endorsed to contain, the following provisions:

1. The City of Sunnyvale, its officials, employees, agents and volunteers are to be covered as additional insureds with respects to liability arising out of activities performed by or on behalf of the Consultant; products and completed operations of the Consultant; premises owned, occupied or used by the Consultant; or automobiles owned, leased, hired or borrowed by the Consultant. The coverage shall contain no special limitations on the scope of protection afforded to the City of Sunnyvale, its officers, employees, agents or volunteers.

2. For any claims related to this project, the Consultant's insurance shall be primary. Any insurance or self-insurance maintained by the City of Sunnyvale, its officers, officials, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not contribute with it.

3. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the City of Sunnyvale, its officers, officials, employees, agents or volunteers.

4. The Consultant's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City of Sunnyvale.

6. The policy limits of coverage shall be made available to the full limits of the policy. The minimum limits stated above shall not serve to reduce the CONSULTANT'S policy limits of coverage. Therefore, the requirements for coverage and limits shall be (1) the minimum coverage and limits specified in this agreement, or (2) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the named insured, whichever is greater.

Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best's rating of not less than A:VII, unless otherwise acceptable to the City of Sunnyvale.

Verification of Coverage

Consultant shall furnish the City of Sunnyvale with original a Certificate of Insurance effecting the coverage required. The certificates are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates are to be received and approved by the City of Sunnyvale prior to

commencement of work.

Subcontractors

CONSULTANT shall require all subcontractors to procure and maintain insurance policies subject to these requirements. Failure of CONSULTANT to verify existence of sub-contractor's insurance shall not relieve CONSULTANT from any claim arising from sub-contractors work on behalf of CONSULTANT.