

**DRAFT CONSULTANT SERVICES AGREEMENT BETWEEN CITY OF
SUNNYVALE AND CAROLLO ENGINEERS FOR DESIGN AND CONSTRUCTION
SUPPORT SERVICES FOR THE SECONDARY TREATMENT AND DEWATERING
PROJECT**

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

WHEREAS, CITY desires to secure professional services necessary for development of a safe and efficient design, preparation of bid documents for Public Works competitive bidding and, construction support for the Secondary Treatment and Dewatering project 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" and Exhibit "E" entitled "Preliminary List of Anticipated Drawings." All exhibits referenced in this Agreement are attached hereto and are incorporated herein by reference. To accomplish that end, CONSULTANT agrees to assign Jim Hagstrom 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" and Exhibit "C" entitled "Compensation for Reimbursable Expenditures." All compensation will be based on monthly billings, based on hourly

rates, as provided in Exhibit "B" and Exhibit "C". 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 and actual hours completed associated with the various task descriptions 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 Fifteen Million Nine Hundred Ninety Five Thousand Three Hundred Thirty Two and No/100 Dollars (\$15,995,332.00) for the duration of the contract, as well as optional services in an amount not to exceed One Million Seven Hundred Fifty Thousand Seven Hundred Eighty Four and No/100 Dollars (\$1,750,784.00) for the duration of the contract. In no event shall the total amount of compensation payable under this agreement exceed the sum of Seventeen Million Seven Hundred Forty Six Thousand One Hundred Sixteen and No/100 Dollars (\$17,746,116.00) 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. 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 "D" attached and incorporated by reference, and shall provide all certificates and/or endorsements as specified in Exhibit "D."

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: Craig Mobeck, Assistant Director of Public Works/City Engineer
Department of Public Works
CITY OF SUNNYVALE
P. O. Box 3707
Sunnyvale, CA 94088-3707

To CONSULTANT: Carollo Engineers
Attn: Jim Hagstorm
2700 Ygnacio Valley Road, 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:

CITY OF SUNNYVALE ("CITY")

By _____
City Clerk

By _____
City Manager

CAROLLO ENGINEERS
("CONSULTANT")

APPROVED AS TO FORM:

By _____

Name/Title

City Attorney

By _____

Name/Title

EXHIBIT A

SCOPE OF WORK FOR Secondary Treatment and Dewatering

I. General

The scope consists of providing professional services for design and preparation of bid documents and construction support for the following:

- Secondary Treatment Improvements–Split Flow Conventional Activated Sludge (CAS) Stage 1;
- 12 kV Electrical Distribution System–Stage 2;
- Migration of Existing Processes to New 12 kV Backbone (at the City's option);
- ACS (SCADA System) Improvements–Stage 2;
- Maintenance Building;
- Completion of Perimeter Wall (at the City's option);
- Chemically Enhanced Primary Treatment facilities (at City's option);
- Digester Supernatant Pump Station (PS) and Drainage Piping;
- Thickening and Dewatering Facility–Stage 1.

The scope of work generally includes preparation of conceptual design, 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);
- Performing geotechnical investigation;
- Assessing existing structures for hazardous materials;
- Sampling and analyzing wastewater;
- Construction cost estimating;
- Schedule development.

At this time, it is expected that all the above projects will be designed as a single set of plans and specifications and bid as a single construction contract. The contract packaging will be evaluated during design development. At that time, the City may elect to implement the project in two phases. It is assumed that implementing the project in two phases would not extend the overall schedule beyond 2024.

II. Project Information

A. 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).

Project Description

Several projects of the Master Plan will be underway concurrently with this scope of work. Currently, the City is already proceeding with the replacement of the Headworks and Primary Treatment Facility, a condition assessment for the Existing WPCP Rehabilitation project, planning of the new Administration and Lab Building, and enhancements to trail access and parking at Caribbean Drive. Construction of the Primary Treatment facility is expected to be underway during the planning, design, and bid/award duration of this scope of work. The Existing WPCP Rehabilitation Project is in progress with a condition assessment and will be constructed concurrently with this scope of work, while the new Administration and Lab Building and the Caribbean Drive Parking and Trail Access Enhancements are also in the planning phases and construction is shown to be completed prior to beginning construction of this scope of work in summer 2019. Construction of the Maintenance Building Project is proposed to begin after the construction of the Administration and Lab Building and Caribbean Drive Parking and Trail Access Enhancements Projects because the current facilities and trail entrances are located in the site of the proposed maintenance building. In addition, the WPCP is finishing up other interim project work to maintain continuous operation while transitioning between existing conditions and the future plant.

The current secondary treatment process of oxidation ponds, Fixed Growth Reactors (FGRs), and Air Flotation Tanks (AFTs) cannot meet expected future, stringent nitrogen limits. The Secondary Treatment Improvements – Split Flow CAS Stage 1 element of this project will construct a Conventional Activated Sludge (CAS) system that can operate in parallel with the existing secondary treatment system to reduce effluent nitrogen concentrations while delaying the need for a total replacement of the existing system.

Detailed criteria are available in Part 3.0 of the Basis of Design Report in the Master Plan (see Item 2A of Available Documents, Section IV).

To handle the sludge produced by the expanded secondary treatment system with the introduction of new CAS facilities, two other elements need to be implemented. The Thickening and Dewatering Facility – Stage 1 element will implement a facility to thicken the additional secondary sludge (produced by the CAS facilities) and to dewater digested biosolids produced by the anaerobic digestion process. The Digester Supernatant PS and Drainage Piping Upgrades element is necessary due to the age of the overall facilities and to maintain reliable operation through the new proposed

secondary process upgrades at the WPCP. If implemented, the new solids facilities will improve the cost-effectiveness of solids handling.

The project elements included in this scope of work are further described below:

Secondary Treatment Improvements – Split Flow CAS Stage 1

This element is Project 2.2 in the Master Plan and involves implementing the first stage of Conventional Activated Sludge (CAS) secondary treatment facilities. The flow will be split between the existing secondary treatment process at the WPCP (oxidation ponds, FGRs, and AFTs) and the CAS system proposed in this project. The new facilities constructed for this project will include the following:

- Aeration basins;
- Blower building and aeration blowers;
- Secondary clarifiers;
- Return activated sludge/ waste activated sludge pump stations;
- Primary effluent distribution structures;
- Demolition of the existing/old primary sedimentation tanks.

Chemically Enhanced Primary Treatment (CEPT)

This optional element was originally designed as a bid alternate for another project in the Sunnyvale Clean Water Program, the Headworks and Primary Treatment – Package 2 Project. However, the CEPT bid alternate was not exercised in that project and may need to be included in this project. This element consists of new chemical storage and feed facilities to enhance performance of the primary treatment facilities.

Maintenance Building

This element is Project 8.4 in the Master Plan and entails implementing a new Maintenance Building that will include a maintenance shop, staff space, warehouse, and storage areas. The new Maintenance Building will replace the functionality of the existing Maintenance Shop, Maintenance Storage Yard, Instrumentation Shop, and Primary Control Building. As a result, these buildings will be demolished as part of this project. The major project elements include the following:

- Demolition of existing Administration Building and Primary Control Building;
- 8,200 SF one-story building;
- Landscaping;
- Yard space for storage and vehicle access.

Digester Supernatant Pump Station and Drainage Piping

This element is Project 4.1 in the Master Plan and involves rehabilitating selected components of the existing support utility systems. The major elements of this project include the following:

- Repair concrete within supernatant pump station;
- Replace digester supernatant pumps;
- Repair portions of drainage piping from digesters to supernatant pump station.

Thickening and Dewatering Facility – Stage 1

This element is Project 4.2 in the Master Plan and involves implementing a facility to thicken secondary sludge produced by the new secondary treatment improvements presented above and to dewater digested biosolids produced by the anaerobic digestion process. The facility will be implemented in two Stages. Stage 1 includes implementing thickening and dewatering facilities required to support the first phase of new secondary treatment improvements. The major project elements include the following:

- Building to house the equipment (with bridge crane);
- Thickening units;
- Thickened Waste Activated Sludge (TWAS) pumps;
- Thickening polymer storage and feed system;
- Digester Sludge Feed Piping Upgrades;
- Dewatering units;
- Cake pumps;
- Dewatering polymer storage and feed system;
- Cake storage hopper and truck loading facility;
- Odor control system comprised of biotrickling scrubber;
- Separate pump station and WAS Feed Systems.

12 kV Electrical Distribution System – Stage 2

This element is included as Project 6.0 in the Master Plan. Stage 1 of the electrical distribution system element, included with the Headworks and Primary Treatment Facility project, includes implementation of 12 kV primary power distribution to headworks and primary treatment. Stage 2, which is included in this scope of work, includes implementation of 12 kV primary power distribution to all remaining facilities at the WPCP. The major project elements include the following:

- 12 kV cable, conduit, and ductbanks with provisions for fiber optics cable;
- 12 kV – 480 V transformers;
- Demolition of 4160 V distribution system to the extent it conflicts with new construction;
- Standby generator including fuel storage tank, protective relays, disconnect switch, and other auxiliary equipment.

ACS (SCADA System) Improvements – Stage 2

This element is included as Project 7.0 in the Master Plan. The existing plant control system consists of a supervisory control and data acquisition (SCADA) System. The replacement system will be referred to as the Automated Control System (ACS). Stage 1 of ACS will be constructed as part of the Headworks and Primary Treatment Facility project and will establish the new ACS backbone and initial fiber optics distribution for the headworks, primary treatment, and cogeneration facilities. In Stage 2 of the ACS improvements, which is included in this scope of work, the Consultant shall determine the method to expand the WPCP fiber optic duct banks to all remaining facilities at the WPCP. The major items for the fiber optics expansion include the following:

- Communications Backbone
 - o 72 strand single-mode fiber optics cable, installed in a loop configuration;
 - o Communications cabinets.

Second Bid Package (Optional)

At this time, it is believed that delay claims and site conflicts could be minimized by combining construction of Secondary Treatment Improvements – Split Flow Conventional Activated Sludge (CAS) Stage 1, Air Flotation Tank (AFT) Pump Station and Pipeline, Maintenance Building, Digester Supernatant Pump Station (PS) and Drainage Piping, Thickening and Dewatering Facility–Stage 1, 12 kV Electrical Distribution System–Stage 2, and ACS (SCADA System) Improvements–Stage 2 in a single bid package.

Depending on the economic climate at the time, there may be a cost advantage from increased competition if Digester Supernatant Pump Station (PS) and Drainage Piping and Thickening and Dewatering Facility–Stage 1 were pulled from the main contract and bid as a second contract. As part of Task D–Conceptual Design, Consultant shall make a recommendation as to whether the projects shall be bid as one contract or two.

If two contracts is the selected option, there will be an additional effort to prepare separate bid packages and provide support during bidding, construction, and commissioning. The price for Tasks A3, B2b, F6, G3, H3, I3, and J5 represent the differences between the Consultant's fee for one bid package and the Consultant's fee for two bid packages. These tasks shall not be priced to cover the entire cost of engineering for the Digester Supernatant Pump Station (PS) and Drainage Piping and Thickening and Dewatering Facility–Stage 1.

B. Location

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

The site lies near the South San Francisco Bay, in the northern part of the City of Sunnyvale. The site includes approximately 16.5 acres of land, approximately 440 acres of wetland, and several associated property rights. The City's SMaRT (Sunnyvale Materials Recovery and Transfer) Station lies to the east and the Sunnyvale East Channel forms the eastern boundary of the site. The City's municipal solid waste landfill borders the south and west of the site. The Sunnyvale West Channel forms the western boundary of the site. Several high technology businesses surround the site beyond the City-owned land and Caribbean Drive within Moffett Park. San Francisco Bay is directly north of the site.

C. 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 an engineering design team of consultants to develop a comprehensive Master Plan, which included the Basis of Design development for the various process areas to be rebuilt and a programmatic environmental impact report (PEIR). The Master Plan was adopted by City Council in 2016.

The Sunnyvale WPCP operates in accordance with NPDES Permit No. CA0037621, as adopted by Order R2-2003-0079 of the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SF Bay), and other permits. Key permit limits and WPCP performance from 2015 is summarized in the table below. The full table is available in the NPDES report (see Table 1 of Item 4 in Available Documents, Section IV).

Parameter	Effluent Limits, mg/L		2015 Averages, mg/L
	Average	Max Month	
TSS	20	50	8.91
CBOD5	10	20	4.90
NH ₄ -N, June - September	2	5	0.45

The existing conditions of the facilities and areas proposed to be upgraded in this scope of work are delineated by project and described in further detail below:

Secondary Treatment Improvements – Split Flow CAS Stage 1

Two oxidation ponds covering about 440 acres at the south end of San Francisco Bay are located northwest of the main plant site. Along with the existing FGRs and AFTs, these ponds currently provide secondary treatment. This project proposes a parallel CAS system that would split the flow with the existing secondary treatment process (oxidation ponds, FGRs, and AFTs) to allow for better nitrogen removal.

Maintenance Building

Currently, there are separate facilities for the existing Maintenance Shop, Maintenance Storage Yard, and Instrumentation Shop that house all the individual components that will be located in a new, centralized Maintenance Building. The new building will be located in the space currently occupied by the existing Administration Building which will be demolished as part of this project.

Digester Supernatant Pump Station and Drainage Piping Upgrades

The digesters were initially constructed in the 1960s. During the Master Planning period, Digesters No. 1 and 2 were rehabilitated with structural, mixing, heating, gas, electrical, and instrumentation and control modifications, while minor improvements were made to Digester No. 3. Due to the age of the overall digester facilities, key elements of the digester supernatant pump station and drainage piping need to be rehabilitated or replaced to maintain reliable operation.

Thickening and Dewatering Facility – Stage 1

Currently, digested biosolids are processed by a vendor. This project will implement a more permanent solution to thicken sludge produced by the new secondary treatment facilities and to dewater digested biosolids produced by the anaerobic digestion process.

12 kV Electrical Distribution System – Stage 2

The existing 4160 V electrical distribution system was built in the 1960s. Due to the age of the distribution system, it needs to be replaced. When replaced, the electrical distribution system will be converted to a 12 kV system because it will be less expensive to construct and operate than a 4160 V electrical distribution system.

ACS (SCADA System) Improvements – Stage 2

Currently, the WPCP has a semi-automated control system comprised of obsolete equipment, disparate manufacturers and no unified interface for WPCP staff to monitor or control the various processes. Existing SCADA programmable logic controllers (PLCs) include Opto 22 and GE Fanuc. Existing SCADA software includes GE Proficy iFix and Wonderware Intouch. An ACS Plan TM has been developed which provides the foundation to replace the existing ACS with a unified plant-wide automation control system that leverages state-of-the-art technology (see Item 2C of Available Documents, Section IV). The new ACS platform will be based on Rockwell Automation PlantPax and ControlLogix PLCs. Stage 1 of the ACS improvements will be implemented as part of the Headworks and Primary Treatment Facility project and will establish the ACS servers, workstations, and initial fiber optics distribution for those facilities. The new ACS will gradually replace the existing SCADA system as major process improvements are implemented. ACS (SCADA System) Improvements – Stage 2, included in this scope of work, will also expand the fiber optics distribution to all remaining facilities at the WPCP.

III. Consultant Scope of Services

Consultant services shall include, but are not limited to: project management, permit applications, documenting existing conditions, conceptual design, preliminary design, design development, bid documents, bidding support, and construction and commissioning support services, as further detailed below.

A. Project Management

1. Base Scope Project Management

The Consultant will be the primary responsible party for managing the project's schedule and Consultant contract budget. In addition, the Consultant is expected to lead a monthly progress meeting and prepare action item logs for subsequent follow-up. The Consultant is expected to 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 Clean Water Program. This design project will be managed by City staff in collaboration with the PMC.

All on-site investigations including surveying, geotechnical work, 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 Geotechnical Study, Existing Utilities TM, and the Land Survey and Monumentation Documents (see Items 2D, 2E, and 2F of Available Documents, Section IV).

Design Consultant shall be responsible for the following items:

- a. Project Management Plan: 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 each TM and DIM. Calendar shall show no more than three deliverables under review at any time, not including the deliverables submitted under this Task A.
- b. Meeting Management: 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 e-mailed 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 e-mailed 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.
- c. Project Schedules: 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.
- d. Quality Assurance/Quality Control: The Consultant's own team shall have provisions for quality assurance/quality control over the work product prepared for the City. A statement of peer review will be required for overall constructability, coordination, and reasonable reduction in errors and omissions.
- e. 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 4 users will be provided to Consultant by the PMC.
- f. 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.

Deliverables:

- Draft Project Management Plan
- Final Project Management Plan
- Monthly progress meetings, agenda, minutes
- Monthly invoices and progress report

2. Support for Council Study Sessions (Optional)

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:

- Two (2) Draft PowerPoint presentations and attachments
- Two (2) Final PowerPoint presentations and attachments
- Attendance at two (2) Council Study Sessions

3. Second Bid Package Project Management (Optional)

If it is determined the project will be constructed as two bid packages, Consultant shall provide project management services, as listed in the Base Scope Project Management Task, Task A1 of this scope of work, through the duration of the second bid package construction phase. The first bid package shall consist of the following elements: Secondary Treatment Improvements – Split Flow CAS – Stage 1, Maintenance Building, 12 kV Electrical Distribution System – Stage 2, and ACS (SCADA System) Improvements – Stage 2. The second bid package will include the Digester Supernatant PS and Drainage Piping and Thickening and Dewatering Facility – Stage 1 elements of the project.

The price for this Task A3 shall represent the additional cost to provide project management services through the additional time required between completion of the first bid package construction and the completion of the second bid package construction. All deliverables required for this optional Task are listed in the Base Scope Project Management Task, Task A1 of this scope of work.

B. Permitting

1. CEQA

Consultant shall prepare a memorandum to file, which documents the activities, impacts, and mitigation measures in the Program's programmatic EIR (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 programmatic EIR and that no new environmental document or public notice will be required. Consultant is responsible for confirming this assumption. Should the project(s) require additional CEQA documents, these services shall be priced and included in Section B4—Preparation of a Tiered Negative Declaration (Optional).

Deliverables:

- Draft CEQA memorandum
- Response-to-comments table for Draft CEQA memorandum
- Final CEQA memorandum

2. Bay Area Air Quality Management District

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.

a. Base Scope BAAQMD Permitting

Because this project includes a standby generator, which is considered a source, and odor control, which can be considered an abatement device, an Authority to Construct (ATC) and a Title V Minor Modification are anticipated. Consultant is responsible for confirming this assumption. Consultant shall prepare all information and submittals necessary to obtain these permits. It is anticipated that an odor dispersion model will be developed for the thickening/dewatering building only to support the BAAQMD permitting efforts. The dispersion model will consider DT and H₂S at the fence line for the new odor control scrubber. It is assumed the permitting efforts will be limited to the new sources. Scope does not include evaluating the entire plant.

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
- Method to track and notify BAAQMD prior to startup

b. Second Bid Package BAAQMD Permitting (Optional)

At the request of the City, Consultant shall prepare separate ATC/Title V Minor Modification applications for the second construction contract.

3. 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. In the site layout provided in the Master Plan, the AFT Pump Station and one of the transformers and switchgear included in these projects is located 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

4. Preparation of a Tiered Negative Declaration (Optional)

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

5. Revisions to Hazardous Materials Business Plan (Optional)

The WPCP primary building and maintenance shop store petroleum and several materials classified as hazardous, for which the City currently holds a Fire Prevention & Hazardous Materials Consolidated Permit. A Hazardous Materials Business Plan (Business Plan) is required as a condition of this permit. The facility information, site map, and emergency response and contingency plan included in the current Business Plan will require updates after these facilities are relocated to the new Maintenance Building. If the City requests Consultant's assistance with updating the Business Plan, such assistance shall be included under this task, on a time and materials basis.

Deliverables:

- As-needed support for updates to Hazardous Materials Business Plan

C. Documentation of Existing Conditions

As part of the Master Plan, desktop and field investigation of the WPCP site was 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; 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; and inspection and bulk sampling for asbestos, lead, and polychlorinated biphenyl on the primary controls building, primary sedimentation and grit basins, and the maintenance building.

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. Consultant shall define the scope of necessary investigations and include such investigations in the price for this item. 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. Supplemental Topographic and Planimetric Survey

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. It is assumed that quality control surveys of the previously developed aerial and topographic data will be performed along with an additional 5 days of supplemental field surveys.

Deliverables:

- Survey data in AutoCAD format

2. Supplemental Subsurface Utility Mapping

Consultant shall perform potholing as needed to confirm vertical and horizontal location of critical utilities, e.g. connection points. PMC will update the WPCP existing utility plan with information obtained from potholes (see Item 2E of Available Documents, Section IV). It is assumed that approximately 7 days of subsurface investigations will be performed. At typical production rates, this would result in verifying utility/pipeline depths in up to 35 locations.

Deliverables:

- Subsurface utility data in AutoCAD format

3. Geotechnical Characterization

Consultant shall perform all geotechnical investigation and analysis necessary to make geotechnical recommendations for the design of this project, including but not limited to: the buildings, tanks, structures, process equipment, trenches, and other improvements included in the projects. The geotechnical recommendations shall include requirements for fill or excavation, corrosion protection, foundations, trenching, soil stabilization, and soil reuse potential. Proposals shall include the number of borings, soil samples, and an outline of the tests to be conducted. Consultant shall coordinate this effort with the efforts of the Geotechnical Study conducted as part of the Master Plan (see Item 2D of Available Documents, Section IV).

Deliverables:

- Draft Intrusive Fieldwork Plan (showing the location of all proposed subsurface investigation and the types of sampling and testing proposed)
- Response-to-comment table for Draft Intrusive Fieldwork Plan
- Final Intrusive Fieldwork Plan
- Draft Geotechnical Report
- Response-to-comment table for Draft Geotechnical Report
- Final Geotechnical Report

4. Hazardous Building Materials Assessment

Consultant shall perform inspections and bulk sampling for PCB-containing oils, asbestos-containing materials, and lead-containing coatings on all existing structures to be demolished or modified. These structures include the laboratory/control building, the compliance inspection trailer, and the administration building. Consultant shall submit a Hazardous Materials Work Plan in advance of conducting field investigation. Consultant shall document the results of the field investigation in a report sealed by a Certified Industrial Hygienist. Consultant shall coordinate this effort with the efforts of the Site Investigation Analysis conducted as part of the Master Plan (see Item 2G of Available Documents, Section IV).

Deliverables:

- Draft Hazardous Building Materials Assessment Work Plan
- Response-to-comment table for Draft Hazardous Building Materials Assessment Work Plan
- Final Hazardous Building Materials Assessment Work Plan
- Draft Hazardous Building Materials Assessment Report
- Response-to-comment table for Draft Hazardous Building Materials Assessment Report
- Final Hazardous Building Materials Assessment Report

D. Conceptual Design

1. Base Scope Conceptual Design

During Conceptual Design Consultant will validate design assumptions and criteria developed in the Master Plan. This will involve updating the flows and load parameters, confirming the project regulatory targets, updating the process model, and confirming the required capacity and process decisions made in the Master Plan. Some deviations from the Master Plan are anticipated, and key decisions that need to be made include:

- Final configuration of the MLE process;
- Type of sidestream treatment process to be implemented;
- Whether supplemental carbon is needed; and
- Whether the overall site plan should be modified.

The Conceptual Design will allow the City to make informed decisions on project elements, and set a basis for Preliminary Design. Specific equipment selection for the validated Conceptual Design process configuration will be carried out as part of Preliminary Design.

Key activities for this task are described below.

- Update the Influent Flow and Load Analysis – The analysis performed in the Master Plan included historical data from 2000 through 2012. This analysis will be updated to include 2013 through September 2017 data, and information from the sampling plan (see below) This includes assessing seasonal variations and diurnal patterns (see Item 2K of Available Documents, Section IV) as well as a more accurate accounting of raw influent and sidestream flows and loads.
- Confirm Regulatory Targets - Confirm anticipated NPDES and other permit requirements, including the level of treatment required for biosolids, as well as effluent limits which in turn include seasonal nutrient limits. It is anticipated that the basis for nutrient limits is to meet Level 2 reductions for nitrogen and phosphorus. The level of treatment anticipated for biosolids is achieving Class B quality.
- Present phosphorus removal strategy - Develop high-level strategy for meeting Level 2 phosphorus limits in the future. This will consist of a comparison of alternatives based on default assumptions, sizes, and costs.
- Update the Calibrated Wastewater Process Model – The existing whole-plant process model will be revised based on the updated flow and loads analysis (described above) and data obtained from additional wastewater characterization sampling that will be completed by the City.
- Sampling Plan Review - A targeted sampling plan will be developed by the PMC. Consultant shall provide input and comment to this sampling plan. It is assumed that City staff will perform all sampling and analysis. The sampling plan will define sampling over a 2-week period to provide influent wastewater characterization, including soluble and particulate COD and BOD fractions and nitrogen and phosphorus species.

- Process Configuration Validation Evaluation – It is assumed that the Modified Ludzack-Ettinger (MLE) process will be the basis of secondary treatment, and that the system will be designed so that other technologies, such as membrane aerated biofilm reactor (MABR), or granulation-enhanced activated sludge could be retrofitted/implemented at a future time. Whole plant process modeling (using CH2M's Pro2D dynamic simulation platform) that considers diurnal flow and load variations will be performed to evaluate critical decisions and confirm the unit process sizing required to meet the anticipated regulatory targets at the design flows and loads conditions. These include:
 - o Biological Reactors (aerated and unaerated zones);
 - o Mixed liquor recirculation pumping;
 - o Unaerated zone mixing;
 - o Blower and aeration system;
 - o Secondary clarifiers and RAS/WAS pumping. State point analysis will be used to size these facilities;
 - o Flow diversion and equalization requirements for ponds;
 - o Validation of the sidestream treatment system, based on the evaluation of the CARRB (Centrate and RAS Re-Aeration) process (the basis for the master plan) and a deammonification based system;
 - o Confirm need for carbon augmentation to meet anticipated initial and future discharge limits for nutrients. The analysis will consider the type of sidestream treatment being recommended. Consultant shall also evaluate if it would be beneficial to add a RAS fermentation basin to improve nutrient removal; and
 - o Thickening and dewatering processes assuming rotary drum thickeners and screw press technologies respectively. Confirm thickening criteria with and without the ability to perform recuperative thickening in the digesters. Confirm dewatering criteria with and without the flexibility to dewater dredged sludge from the City's ponds.
- Site Evaluation – This activity consists of evaluating the benefits, risks, and cost impacts of modifying the Master Plan Site Plan so that the new liquid stream facilities are entirely on the east side of the site.
- Develop Conceptual Level Capital and Life-cycle costs – This activity consists of developing a parametric cost model for the recommended facilities using CH2M's proprietary costing tool, CPES. CPES links to CH2M's proprietary process simulator, Pro2D, to pull in design criteria into a costing model for construction costs, operating costs, and life-cycle analysis. This suite of tools will be used to develop conceptual level costs for 2025 and 2035.
- Conversion of conceptual design model in Pro2D to BioWin - Once the simulations and cost models have been finalized, the conceptual design to be advanced to preliminary design (most likely the simulation sets for 2025 and 2035, respectively) will be imported into BioWin files that will be deliverables (see below).

Deliverables:

- Workshop No. 1 to present updated influent flows and loads, confirm regulatory targets, and validation of the updated process model.
- Workshop No. 2 to present results of the process configuration validation, site evaluation, and the construction and life cycle cost comparison.
- Draft and Final TM D1 – Conceptual Design Validation, incorporating City comments and addressing questions City personnel may have.
- All BioWin files reflecting the design conditions under which the conceptual design was finalized.

E. Preliminary Design

The purpose of the Preliminary Design task is to assess the technical issues associated with each element of the Project as defined in the Conceptual Design; 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 will be based upon. This will be accomplished through a series of 16 Base Scope and two optional Design Information Memorandums (DIMs). Consultant shall provide six hardcopies of each Draft and Final DIM 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.

Each DIM shall include a summary of the recommendations and assumptions in the Conceptual Design, a discussion of the issues and alternatives evaluated, and preliminary drawings and cost estimate for the selected alternatives. DIMs 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 and start-up/commissioning sequence. DIMs should generally reflect the scope, schedule, budget, and site layout developed in the Master Plan as well as any modifications developed in the Conceptual Design.

Draft DIM shall be submitted at least two weeks prior to the DIM Workshop. Each DIM Workshop shall include presentation of the Draft DIM content, discussion of review comments, and resolution of all decisions required prior to finalizing the DIM. Final DIM shall incorporate review comments and decisions made at the DIM 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.

E.1 - DIM #1: Biological Reactors**Overview**

To consistently meet current and expected future discharge limits, a new set of biological reactors will be constructed, as a key part of the Secondary Treatment Improvements Project. The dimensions and layout for the biological reactors need to be determined, in accordance with the secondary treatment process developed during conceptual design. This DIM deals with the design of the biological reactors, in particular how to accommodate these in the constrained site.

Requirements

The process configuration for secondary treatment, including number of zones and their designation will be determined during conceptual design. The DIM will provide details of the following items, at a minimum:

- Dimensions and hydraulics for the basins:
 - o Basin dimensions shall include zone layout and configurations (aerated, unaerated, or swing, as well as RAS fermentation, if included);
 - o Special attention to hydraulics and geometry to avoid reverse flow at the surface outlet of unaerated zones and to minimize reverse flow through the floor opening of aerated zones feeding unaerated zones due to density differences between aerated and unaerated mixed liquor.
- Provisions to divert a portion of the PE to equalization tanks when constructed, as required, without diverting any RAS, while also providing the ability to return PE from the equalization tanks once the peak flow condition has subsided, per the flow schedule as determined during Conceptual Design;
- Location for the mixed liquor return pumps ensuring these pumps provide the full range of flow determined during Conceptual Design;
- Provisions to prevent surface scum accumulation;
- Evaluation of different mixing and diffuser types;
- Evaluation of the need for mixing and/or degassing (the need for degassing would depend on the side water depth of the aeration basins) in all mixed liquor channels;
- Configuration considerations that would allow the incorporation of process intensification technologies such as membrane aerated biofilm reactors (MABR) and induced-granulation at a future date;
- Develop preliminary electrical load lists for this facility; and
- Code requirements, including seismic requirements.

Deliverables:

- Draft DIM #1: Biological Reactors
- Workshop No. 3 to present findings to City
- Responses to City comments
- Final DIM #1: Biological Reactors, incorporating City comments and addressing questions City personnel may have

E.1b - DIM #1B: Sidestream Treatment

Overview

Inclusion of a sidestream treatment process will be evaluated during Conceptual Design. The scope of this DIM is based on implementing the recommended process in Conceptual Design.

Requirements

The process configuration for sidestream treatment, including the basin volume and proposed operating conditions will be determined during conceptual design. The DIM will provide details of the following items, at a minimum:

- Process design criteria (flow and mass balance);
- Code requirements, including seismic;
- If deammonification is recommended, consider up to two (2) different types and recommend one (1) to move forward with as part of Preliminary Design;
- Basin dimensions and system layout plan;
- Confirmation of oxygen transfer and chemical requirements determined during conceptual design; and
- Develop preliminary electrical load lists for this facility.

Deliverables:

- Draft DIM #1B: Sidestream Treatment
- Workshop No. 3 to present findings to City
- Responses to City comments
- Final DIM #1B: Sidestream Treatment, incorporating City comments and addressing questions City personnel may have

E.2 - DIM #2: Carbon Augmentation

Overview

The Consultant will confirm during Conceptual Design whether carbon augmentation is required for nutrient removal as was anticipated in the Master Plan. If found to be required, alternate external carbon sources (considering both external reagents and internal sources such as RAS fermentation as an internal source) will be evaluated and the system components for the selected option will be defined during Preliminary Design.

Requirements

Evaluate different carbon substrates for augmentation that may be required to meet the expected future nutrient discharge. The analysis will include the following items, at a minimum:

- Comparison of up to three (3) different carbon substrates;
- Determination of the dose required for the substrate, both as an instantaneous maximum and as an estimated annual average;
- Determination of odor control requirements if RAS fermentation is selected;
- Specific storage requirements for each substrate for the historic extreme climatic conditions observed at site;
- Capital, O&M and life cycle cost for each substrate;
- Process design criteria (flow and mass balance);
- Requirements of NFPA 30 Flammable Liquids;
- Storage requirements;
- Preliminary safety Plan;
- System layout plan; and
- Develop preliminary electrical load lists for this facility.

Deliverables:

- Draft DIM #2: Carbon Substrate

- Workshop No. 3 to present findings to City
- Responses to City comments
- Final DIM #2: Carbon Substrate, incorporating City comments and addressing questions City personnel may have

E.3 - DIM #3: Secondary Clarifiers

Overview

As part of the new secondary treatment facility, new circular secondary clarifiers will be constructed. The number of units for initial and eventual phase will be determined during Conceptual Design. The RAS pumping arrangement will be a part of the evaluation. Other design details, such as clarifier inlets, internal baffles, sludge withdrawal arrangements and effluent weir design will also be determined.

Requirements

This DIM will determine the design of the secondary clarifiers, including the following items, at a minimum:

- RAS pumping arrangement required and ensure that the full range of RAS flows as determined during Conceptual Design is covered;
- Qualitative-based evaluation of different geometries considering energy dissipating inlets, internal peripheral effluent baffles, and effluent launder;
- Capital cost estimate for the proposed design;
- Dimensions and system layout plan; and
- Develop preliminary electrical load lists for this facility.

Deliverables:

- Draft DIM #3: Secondary Clarifiers
- Workshop No. 5 to present findings to City
- Responses to City comments
- Final DIM #3: Secondary Clarifiers, incorporating City comments and addressing questions City personnel may have

E.4 - DIM #4: Plant Hydraulics

Overview

After sizing and determining the layout for the major secondary treatment process units, system-wide hydraulics will be determined. The hydraulics will be used to determine a variety of ratios for (1) primary effluent to the biological reactors, (2) mixed liquor to the secondary clarifiers and (3) RAS to the biological reactors, for both the current and the future project. The hydraulics would also assist the Consultant in sizing pumps (DIM #5 and #12).

Requirements

This DIM will determine facility-wide hydraulics, including the following items, at a minimum:

- Water surface elevations in all the major process units, making use of the hydraulics developed in DIM #1: Biological Reactors, under the following conditions:

- o Minimum start up;
 - o Average start up;
 - o Average design; and
 - o Peak design flows.
- Analysis including the minimum (at minimum start up) or maximum recycle flows (remaining analyses), including equalization pond return flows, RAS flows as well as sludge thickener and dewatering returns:
 - o Analyses will be conducted for the selected process configuration identified in DIM #1: Biological Reactors;
 - o Analyses will include determining the requirements to ensure an equal flow distribution between all major process units in service, for both the current and the future projects; and
 - o Requirements will include minimum head loss at flow splitting structures, as well as maximum flow velocities required to prevent an uneven flow division.
- Proper mixing of different flow streams and appropriate flow distribution between treatment trains; and
- Evaluation of the use of flow metering and control valves to ensure an even flow distribution if passive flow splitting will not work.

Deliverables:

- Draft DIM #4: Plant Hydraulics
- Workshop No. 5 to present findings to City
- Responses to City comments
- Final DIM #4: Plant Hydraulics, incorporating City comments and addressing questions City personnel may have

E.5 - DIM #5: RAS/WAS Pumping

Overview

During Conceptual Design the range of RAS flows and WAS mass flows will be determined. This DIM will confirm the range of RAS total suspended solids (TSS) concentrations that will be associated with the range of RAS flows, and use that to determine the range of WAS flows that must be accommodated.

Requirements

This DIM will determine the design of the RAS and WAS pumps, including the following items, at a minimum:

- Confirmation of the flow range for the RAS pumps, as determined during Conceptual Design;
- Determination of the range of RAS TSS concentrations that is possible given the flow range of the RAS pumps;
- Determination of the WAS pump flow requirements, for the WAS mass flows determined during Conceptual Design, DIM #1: Biological Reactors and DIM #3: Secondary Clarifiers using the range of RAS TSS concentrations;
- Determination of the type of pump to be used for both RAS and WAS and confirm that the full flow range for each application can be met;

- Recommendation of a layout for the RAS and WAS pumps; and
- Develop preliminary electrical load lists for this facility.

Deliverables:

- Draft DIM #5: RAS/WAS pumping
- Workshop No. 5 to present findings to City
- Responses to City comments
- Final DIM #5: RAS/WAS pumping, incorporating City comments and addressing questions City personnel may have

E.6 - DIM #6: Secondary Treatment Instrumentation and Control

Overview

The proposed secondary treatment system will be based on the Modified Ludzack-Ettinger (MLE) processes as configured during Conceptual Design. The basin layout these will be described in DIM #1: Biological Reactors. DIM #6 deals with defining the instrumentation and control needs for this process, and will consider requirements associated with the incorporation of process intensification technologies such as membrane aerated biofilm reactors (MABR) and induced-granulation at a future date.

Process variables to be considered will include solids retention time (SRT), dissolved oxygen (DO) concentration, ammonia based aeration control (ABAC), RAS and mixed-Liquor Recycle (MLR) pump flows, oxidation reduction potential (ORP), as well as dosing of a carbon source.

Requirements

This DIM will describe secondary treatment instrumentation and control, including:

- Process configurations that will be accommodated, with reference to DIM #1, as required;
- Conditions when process configurations will be changed, including seasonal changes from nitrifying to non-nitrifying operation (if applicable);
- Outlines for changing process configurations, including gates or valves that would need to be opened or closed and zones that need to be switched from aerated to unaerated operation, or vice versa:
 - o Dissolved oxygen and ammonia based process control strategies and corresponding instrumentation needs;
 - o Solids inventory control strategies and instrumentation needs for bioreactor and clarifiers operation, including RAS/WAS control;
- Evaluation of nitrate and ORP based control scenarios with corresponding instrumentation requirements for the MLE process;
- Basic descriptions of unit process control loops;
- Sampling locations;
- Control elements and their location, including all motorized valves and gates; and
- Preliminary implementation plan (schedule, sequence of work, contract packaging) for the selected alternative.

Deliverables:

- Draft DIM #6: Secondary Treatment Operations and Control
- Workshop No. 7 to present findings to City
- Responses to City comments
- Final DIM #6: Secondary Treatment Operations and Control, incorporating City comments and addressing questions City personnel may have

E.7 - DIM #7: Blower System and Building**Overview**

The new biological reactors will require a new set of blowers to supply it with air to satisfy the oxygen demand that will be exerted by the biomass as it treats the effluent. Blowers typically consume around 50% of the electrical power used by a water resource recovery facility, so it is important to make sure the blowers are neither too big nor too small. The blower building will also be laid out on the site.

Requirements

This DIM will determine the design of the blower system, including:

- Confirmation of the airflow range for the blowers, as determined during Conceptual Design and DIM #1: Biological Reactors;
- Determination of header pressures required for the selected diffuser alternatives, including allowance for inlet filter, piping, control valve and diffuser losses, as well as static pressure, while referring to DIM #1: Biological Reactors;
- Evaluate different blower technologies and develop up to three (3) alternatives covering the entire airflow and header pressure range developed above;
- Comparison of alternatives considering capital, O&M and life cycle costs;
- Comparison of pressure-based and flow-based blower control systems:
 - o Determination of how to integrate blower system controls with aeration system controls as described in DIM #6: Secondary Treatment Operations and Controls;
- Recommendation of and design of a blower system;
- Determination of the standby generator capacity required;
- Layout of the blower building to include all functions identified in the Master Plan Basis of Design Report, and other features that utilize space effectively in this area, within the cost identified in the Master Plan;
- Plans for each room showing how the equipment fits into this building and provides sufficient clearance for maintenance;
- Solar orientation to maximize daylight into work spaces without glare or unwanted heat gain effects, for building energy-efficiency, and to support opportunities for photovoltaic array installation on the roof;
- Develop preliminary electrical load lists for this facility; and
- Preliminary implementation plan (schedule, sequence of work, contract packaging) for the selected alternative.

Deliverables:

- Draft DIM #7: Blower System and Building

- Workshop No. 7 to present findings to City
- Responses to City comments
- Final DIM #7: Blower System and Building, incorporating City comments and addressing questions City personnel may have

E.8 - DIM #8: Thickening – Technology/Equipment

Overview

As identified in the Master Plan, the solids processing stream needs to be upgraded to include a new Thickening and Dewatering (T/D) building housing new WAS thickening and digested sludge dewatering equipment, polymer feed systems, and related building systems; new digested sludge storage tank; and sludge pumping systems.

This section addresses the sludge thickening project components, including: (See DIM #9, #10, and #11 of this scope of work regarding the other related components)

- Waste activated sludge (WAS) pumps;
- WAS thickening;
- Thickened waste activated sludge (TWAS) pumps; and
- Polymer storage system and feed system comprised.

The Master Plan has identified specific types of WAS thickening, sludge pumping, and polymer equipment to integrate into the new T/D Facility. Since the Master Plan, it has been confirmed that the City desires to move forward with the technologies listed below and alternate technologies will not be evaluated in this DIM.

- Rotary Drum Thickeners by Parkson, Vulcan, or equal;
- Robbins & Myers (Moyno), Netzsch, or equal for the thickened WAS progressing cavity pumps; and
- Emulsion polymer blending units by Velodyne, Fluid Dynamics, or equal.

Requirements

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

- Confirm acceptable operating schedule (i.e. continuous or 8 hrs per day, days per week);
- Basis of process design (flow and mass balance) for equipment;
- Code requirements;
- Confirm or verify suitable equipment suppliers to be considered during design; and
- Develop preliminary electrical load lists for this facility.

Deliverables:

- Draft DIM #8: Thickening – Technology/Equipment
- Workshop No. 4 to present findings to City
- Responses to City Comments
- Final DIM #8: Thickening – Technology/Equipment, incorporating City comments and addressing questions City personnel may have

E.9 - DIM #9: Dewatering – Equipment, Digested Sludge Storage, Cake Handling

Overview

This DIM addresses dewatering project components, including (See DIM #8, #10, and #11 of this scope of work regarding the other related components):

- Digested sludge storage;
- Digested sludge pumping;
- Digested sludge dewatering;
- Cake pumps;
- Cake storage and truck loadout;
- Dewatering filtrate management (may require storage or distributed pumping to secondary treatment, sidestream treatment, etc.); and
- Polymer storage system and feed system.

These facilities, except the new Digested Sludge Storage Tank, are planned to be housed in the new T/D Building. The new Digested Sludge Storage Tank will be located adjacent to the digester complex.

The Master Plan Building layout has been prepared to allow for either screw presses or centrifuges to be installed for dewatering. Since the Master Plan, it has been confirmed that screw press dewatering will be utilized, however, the building should still be able to accommodate centrifuges in the future, if this change is desired. Since screw presses are larger than centrifuges, there should be sufficient space. In addition, the planned electrical supply will be sized to provide sufficient power to meet the demand for centrifuges, and design flexibility will be incorporated in the building and foundation (considering weight and vibration) to accommodate centrifuges in the future.

There are sequencing issues associated with this facility. The WPCP will be utilizing contract dewatering (Synagro) until the permanent facilities included in this project are fully commissioned and accepted.

The Master Plan has identified the following types of sludge dewatering, cake pumping, cake storage and truck loading and polymer equipment to integrate into the new T/D Facility:

- Screw Presses with split basket screw design by Huber (larger FKC and Schwing Bioset screw presses required more floor space for equipment and screw removal and a larger T/D building and therefore will not be evaluated);
- Robbins & Myers (Moyno), Seepex, or equal for the progressing cavity cake pumps (screw conveyors, belt conveyors and piston cake pumps required more HP, maintenance and floor space and a larger T/D building and therefore will not be evaluated);
- Emulsion polymer blending units by Velodyne, Fluid Dynamics, or equal; and
- Cake hopper storage with live bottom and double-shafted truck loading screw conveyors with slide gates by Schwing Bioset or Custom Conveyor, or equal.

Requirements

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

- Confirm design criteria for digested sludge storage tank and feed pumps;
- Confirm acceptable operating schedule for dewatering equipment (i.e. continuous or 8 hrs per day, days per week);
- Basis of process design (flow and mass balance) for equipment;
- Code requirements;
- Confirm or verify suitable equipment suppliers to be considered during design;
- Identify key issues that should be accounted during building design so that centrifuges can be accommodated in the future; and
- Develop preliminary electrical load lists for this facility.

Deliverables:

- Draft DIM #9: Dewatering – Technology/Equipment, Digested Sludge Storage, Cake Handling
- Workshop No. 4 to present findings to City
- Responses to City comments
- Final DIM #9: Dewatering – Technology/Equipment, Digested Sludge Storage, Cake Handling, incorporating City comments and addressing questions City personnel may have

E.10 - DIM #10: T/D Building Design

Overview

This element is part of Project 4.2 in the Master Plan. The functions of this building include mechanical WAS thickening; thickened sludge pumping; digested sludge dewatering; dewatered biosolids conveyance storage and cake loadout; truck loading bay; polymer storage, mixing and feed; satellite operations and data/control center, personnel offices, uni-sex restroom, utility room, electrical room, telecommunications and data servers rooms, and other necessary spaces.

The T/D building design will be based on a two-story building as recommended in the Master Plan [building footprint of approximately 12,000 SF plus a cake-load out bay approximately 1,300 SF; preliminary layout as shown in the Master Plan Basis of Design (see Figures 5.1-5.3)]. (See DIM #8, and #9 of this scope of work regarding the other related components).

Requirements

Information in this DIM shall be updated per the information previously developed by the Consultant in DIM #8 and #9 and additional architectural and engineering evaluation as noted below. This DIM shall provide design criteria for the Thickening/Dewatering Building, including the following:

- All relevant codes;
- Architectural congruence;
- Proper access and clearance;
- Capital and O&M cost based on CPES;
- General functionality and maintenance considerations;
- Recommended building layout with identification of room purpose, size, and orientation;

- Plans for each room showing how the equipment fits into this building and provides sufficient clearance for maintenance;
- Recommended foundation design, building structural systems, roof design criteria, building exterior cladding, glazing/windows, and architectural appearance, while coordinating this effort with the Building Programming TM efforts of the Master Plan (see Item 2H of Available Documents, Section IV);
- Evaluate feasibility and develop design criteria for incorporating photovoltaic system;
- Design criteria for building utilities, including, but not limited to: lighting, heating, ventilation, air conditioning, elevator, potable water, recycled water, seal water, storm drainage, housekeeping stations (hose bib, utility sink), sanitary drain, chemical drain, compressed air, process air, instrument air, natural gas, communications, data, telephone;
- Design criteria for chemical delivery station;
- Major process piping layouts;
- Building security system design criteria will be developed and will address the following, and be consistent with the Site Security TM from the Master Plan:
 - o Locations for access points key pads, locations for Public Announcement receivers/buzzers;
 - o Addresses vehicular circulation relevant to this building;
 - o Locations where closed-circuit television monitoring is recommended;
 - o Includes fire and hazardous material safety considerations;
 - o Employee and visitor safety in/around this building as well as functionality for biosolids haul-off trucks and receipt of chemicals and other supplies to be housed in this building.
- Appropriate evacuation plan in the event of fire, earthquake, or other event;
- Conceptual landscape plan for the 10-feet surrounding the building:
 - o All recommendations will consider the landscaping theme and plan mentioned in the Site Layout Considerations TM of the Master Plan and the Landscaping Design Standards (see Items 2J and 2Q of Available Documents, Section IV);
- Preliminary implementation plan (schedule, sequence of work, contract packaging) for the selected alternative.

Deliverables:

- Draft DIM #10: T/D Building Design
- Workshop No. 6 to present findings to City
- Responses to City comments
- Final DIM #10: T/D Building Design, incorporating City comments and addressing questions City personnel may have

E.11 - DIM #11: Odor Control

Overview

The Thickening/Dewatering building will handle waste activated sludge and digested sludge. An odor control facility will be implemented to improve the working environment, minimize Hydrogen Sulfide (H₂S) emissions from the Thickening/Dewatering building,

and capture and treat odorous compounds created during the solids handling process. This facility shall include a bioscrubber with an accompanying odor control fan to convey and treat the odorous air from the thickening and dewatering processes. No other odor control technologies will be evaluated.

Requirements

This DIM will determine design criteria for odor control for the Thickening/Dewatering Building, addressing the following items, at a minimum:

- Provisions to convey odorous air from the new thickeners and dewatering systems to the odor control facility;
- Verification of the equipment supplier alternatives to be considered during preliminary design with the City prior to drafting DIM #10;
- Design criteria for the following:
 - o Number of required air changes per hour and how it was determined;
 - o Conveyance of foul air to the odor control facility; and
 - o Odor control equipment including a bioscrubber and an accompanying odor control fan.
- Control concepts for the odor control system;
- Preliminary system layout;
- Design criteria for ancillary facilities required for operation of the odor control facility equipment; and
- Develop preliminary electrical load lists for this facility.

Deliverables:

- Draft DIM #11: Odor Control
- Workshop No. 6 to present findings to City
- Responses to City comments
- Final DIM #11: Odor Control, incorporating City comments and addressing questions City personnel may have

E.12 - DIM #12: Maintenance Building

Overview

This element is Project 8.4 in the Master Plan and includes the design and construction documentation for a new Maintenance Building that will include a maintenance shop, staff and support spaces, warehouse, and storage areas. Currently, there are separate facilities for the existing Maintenance Shop, Maintenance Storage Yard, Instrument Shop, and Primary Control Building that house all the individual components that will be in the new, centralized Maintenance Building. The new building will be located partly in the space currently occupied by the existing Administration Building which will be demolished as part of this project.

The major elements include:

- Demolition of the existing Administration Building and Primary Control Building;
- New approximately 8,000 square foot one-story building;
- Landscaping around the building; and
- Yard space for storage and vehicle access and parking.

Requirements

This DIM will determine the design criteria for the Maintenance Building, including:

- Location of the Maintenance Building north of Carl Road, across from the proposed Administration Building, allowing for visual connection and staff movement between the two buildings;
- Location at the WPCP's southern perimeter and will be visible from Borregas Avenue and the WPCP entrance;
- Architectural design of prominent building elements, including the south façade and west entry area;
- Cohesiveness of building exterior with both the WPCP process buildings and the new Administration Building;
- Accessibility of all office workstations and shared support spaces and restrooms per current California Building Code (CBC), Americans with Disabilities Act (ADA), and local regulatory authority accessibility code:
 - o Accessible path of travel from the Administration Building to the Maintenance Building for staff entry;
- Review of the Master Plan Building Programming TM and building layout in the Basis of Design TM;
- Evaluation of the planning phase program assumptions for room sizes and adjacencies, vehicle and pedestrian access, relationship to the WPCP maintenance operations;
- Recommend foundation design, building structural systems, roof design, building exterior cladding, glazing/windows, and architectural appearance;
- Evaluate feasibility and develop design criteria for incorporating photovoltaic system;
- Consideration of sustainable strategies for energy-efficient lighting, low-water plumbing fixtures, occupant comfort and productivity;
- Coordination of all efforts with efforts of the Building Programming aspect of the Master Plan (see Item 2H of Available Documents, Section IV);
- Conceptual landscape plan for the 10-foot surrounding the building;
- Plans for each room showing how the equipment fits into this building and provides sufficient clearance for maintenance;
- Preliminary implementation plan (schedule, sequence of work, contract packaging) for the selected alternative;
- Space allocation plan and room data sheets;
- Color architectural renderings and preliminary building elevations;
- Safety and security system concept; and
- Capital cost estimate.

Deliverables:

- Draft DIM #12: Maintenance Building
- Workshop No. 10 to present findings to City
- Responses to City comments
- Final DIM #12: Maintenance Building

E.13 - DIM #13: Digester Supernatant Pump Station and Piping

Overview

This element is Project 4.1 of the Master Plan. The existing WPCP includes four digesters, which have been rehabilitated over the past 10 years. Digesters No. 1 and 2 have been rehabilitated with structural, mixing, heating, gas, electrical, and instrumentation and control modifications during the Master Planning period, while Digester No. 3 and 4 were rehabilitated prior to the Master Planning period. During a digester feed cycle, supernatant overflows by gravity to the supernatant pump station and is pumped to the primary effluent stream or returned to another digester. Each digester also has a bottom draw line that runs to the digester drainage pump station. The digester drainage pump station can transfer sludge to a different digester or release it for dewatering. This equipment was not included in the recent rehabilitation project.

Requirements

Consultant shall make recommendations as to the need for rehabilitation or replacement of key components of the digester supernatant pump station and drainage piping to maintain reliable operation and extend the expected life of the digester system another 20-30 years. Digester drainage pump station is not part of this rehabilitation/replacement review.

This DIM will determine Digester Supernatant Pump Station and Piping Rehab/Replacement including the following items, at a minimum:

- Flow and mass balance;
- Description of the construction work elements;
- Digester supernatant equalization volume;
- Repair of concrete within supernatant pump station;
- Replacement of digester supernatant pumps;
- Code-related and maintenance-related modifications to digester supernatant pump station;
- Repair of portions of drainage piping from digesters to supernatant pump station
- Replace piping underneath digesters;
- Changes to the automated control strategy for control of return flows;
- Other modifications as identified in the Condition Assessment Report (by Others);
- Electrical improvements necessary to support above components;
- Alternatives for pump and/or pipe type;
- Develop preliminary electrical load lists for this facility;
- Capital cost estimate; and
- Preliminary implementation plan (schedule, sequence of work, contract packaging) for the selected alternative.

Deliverables:

- Draft DIM #13: Digester Supernatant Pump Station and Piping
- Workshop No. 11 to present findings to City

- Responses to City comments
- Final DIM #13: Digester Supernatant Pump Station and Piping, incorporating City comments and addressing questions City personnel may have

E.14 - DIM #14: Sequencing and Site Layout

Overview

The layout of the facilities included in these projects is defined in the Master Plan Site Layout TM. This TM identifies the footprints and locations of the proposed process and support facilities, and uses this planning-level layout to develop the plant hydraulic profile and utility corridors. This TM also establishes parking, access, and circulation criteria and illustrates how the ultimate layout meets these criteria.

The improvements included in this set of projects will impact most of the WPCP site and occur concurrently with the Primary Effluent Pipeline Rehabilitation, the final stages of the Headworks and Primary Treatment construction, and the Existing WPCP Rehabilitation, which will also impact a large portion of the site over several years. The WPCP must remain operational and fully accessible during the construction period.

Requirements

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

- Identify major below-grade facilities included in these projects, and refine the alignment of utilities and yard piping identified in the Master Plan:
 - o Coordinate with the information collected under Task C.1–Supplemental Subsurface Utility Mapping and the recommendations made in DIM #15–Power, and include an inventory of existing utilities to be relocated or demolished;
- 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 a new location for contract sludge dewatering, which is currently performed by a long-term vendor at the north end of the existing primary sedimentation tanks as this space is anticipated to no longer be available during demolition of these facilities and construction of the proposed secondary clarifiers:
 - o Consider the logistics of relocating the long-term vendor and reconnecting utilities as the first element of construction;
- Prepare staged preliminary layout drawings that indicates a recommended sequence of construction and illustrates at each stage:
 - o Active construction, demolition, and completed work in this set of projects;
 - o Active construction and completed work in concurrent projects;
 - o Primary access points for contractors;
 - o Staging and parking areas for each contractor onsite;
 - o Chemical delivery, plant maintenance, and emergency vehicle circulation routes; and
 - o Approximate grade, limits of paving, and direction of drainage;

- Identify recommended early milestones and sequencing constraints for concurrent construction projects, and describe the impact to this set of projects if each sequencing constraint is not enforced; and
- Identify possible tour route through the buildings in this scope of work which is safe, ADA accessible, and allows for observation of the unit processes and/or workers to allow the WPCP to conduct public tours to showcase biosolids processing.

Consultant shall work with the Administration and Laboratory Building designer to coordinate the utilidor and other interfaces. A representative from the Consultant's team shall attend the Sequencing and Site Layout DIM Workshop for the Administration and Laboratory Building Project.

Deliverables:

- Draft DIM #14: Sequencing and Site Layout
- Workshop No. 12 to present findings to City
- Responses to City comments
- Final DIM #14: Sequencing and Site Layout, incorporating City comments and addressing any questions City personnel may have

E.15 - DIM #15: Power

Overview

The configuration of the power distribution system was determined by the Electrical Combined Heat and Power (ECHP) TM included in the Master Plan (see Item 2I of Available Documents, Section IV), and modified by the design of the 12 kV Electrical Distribution System–Stage 1 improvements included in Headworks and Primary Treatment–Package 2 project. The power improvements currently under construction include new 12 kV main switchgear and building to serve current and future facilities; 12 kV primary power distribution to the eastern half of the WPCP; a new standby generator; area substations; a feed to a 2500 kVA 12 kV to 4160 V transformer to feed the existing WPCP 4160 V switchgear; and 480 V secondary power.

With 12 kV Electrical Distribution System–Stage 2, the primary power distribution systems must be extended to serve the western half of the WPCP. A second standby generator is also included in the scope of these improvements.

Loads in the ECHP TM accommodate full build-out of the proposed secondary treatment and solids handling facilities in the SCWP, but are not sized to handle loads from potential future tertiary treatment facilities such as microfiltration, reverse osmosis, or ultraviolet disinfection. The ECHP TM is based on a gradual transition to 12 kV primary power, whereby existing treatment processes remain on the 480 V system, which would be incrementally phased out and demolished as these processes are replaced. A condition assessment (to be conducted by others in mid-2017) will document the condition of existing electrical assets at the WPCP.

Requirements

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

- Future expandability of the new power distribution system, considering that ultraviolet disinfection and other purification facilities may be constructed during the useful life of the system;
- Master Plan recommendation or migrate existing treatment processes to the new 12 kV primary distribution system given the results of the condition assessment, and the available space for dual 12 kV ductbanks in addition to the existing 480 V ductbanks and other site utilities;
- Conceptual design proposed under the Headworks and Primary Treatment–Package 2 project and prepare preliminary layout of area substation locations, duct banks, and feeders for the Stage 2 improvements;
- Sizing of the proposed standby generator;
- System components required to parallel (synchronize) this second standby generator with the first standby generator and switchgear currently under construction;
- Other key criteria for the design of the 12 kV Electrical Distribution System–Stage 2;
- Assessment of the need and recommendation to ensure a plan for Digester Main Control Center (MCC) and Co-Generation MCC migration to the new 12 kV Electrical Distribution system as the MCCs are 480 volts; and
- Recommended implementation plan (schedule, sequence of work, contract packaging) for the selected alternative.

Deliverables:

- Draft DIM #15: Power
- Workshop No. 8 to present findings to City
- Responses to City comments
- Final DIM #15: Power, incorporating City comments and addressing any questions City personnel may have

E.16 - DIM #16: Automation Control System

Overview

The existing WPCP control system consists of a supervisory control and data acquisition (SCADA) System. The replacement system will be referred to as the Automated Control System (ACS). This DIM includes Project 7.0 ACS Improvements – Stage 2 in the Master Plan, which includes expansion of the fiber optic distribution duct bank to all remaining areas of the WPCP. It will also include the addition of new ACS hardware, software, instrumentation, and network communication equipment to provide monitoring and control of the Secondary and Dewatering project facilities. Stage 1 of the ACS improvements will be implemented as part of the Primary Treatment Facilities – Package 2 project and will establish the ACS servers, workstations, and initial fiber optics distribution for those facilities. The new ACS will gradually replace the existing SCADA system as major process improvements are implemented.

As part of the Master Plan and Primary Treatment Design, the City developed an ACS Plan TM, Instrumentation and Control (I&C) Design Standards and ACS Programming Standards documents which lay the foundation for a unified plant-wide ACS.

Subsequent to the issuance of the ACS Plan TM and I&C Design Standards, the City selected Rockwell Automation PlantPax and ControlLogix PLCs as the control system platform and will standardize on preconfigured PlantPax library objects and Add-On Instructions (AOI). The ACS Programming Standards document outlines the specific implementation of the Rockwell Automation PlantPax system. Instrumentation and design standards include symbols and abbreviations, Piping and Instrumentation Diagrams (P&IDs), wiring and loop drawings, control strategy narratives, fiber patching diagrams, network and communication diagrams, and control panel drawings. Consultant shall follow the City's Instrumentation and Design Standards.

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 and expand the fiber optics distribution to all other existing and future facilities in the plant. Design criteria shall be based on the ACS Plan TM, Instrumentation and Control Design Standards and ACS Programming Standards. Prior to development of this DIM, the consultant shall facilitate an ACS Plan TM review workshop to demonstrate their understanding of the City's ACS, validate any assumptions from the ACS Plan TM, Instrumentation and Control Standards and ACS programming standards and identify any variances that shall be addressed in the design criteria. The 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 provides a valuable operational reference. The Consultant shall include the control algorithms as an appendix to the Contract Documents. DIM #16 shall address coordination requirements with the control algorithms.

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

- ACS fiber optic communications backbone including conceptual site plan of fiber optic cable routing, location of new or future communication cabinets and controllers, coordination with other projects including the new Administration Building and Utilidor construction;
- Conceptual ACS Block Diagram;
- Validation of Equipment Tagging;
- 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;
- Review and evaluation of newer versions of Rockwell Automation PlantPax software and hardware including advantages, disadvantages, and life cycle cost

impacts. This task will be reviewed and updated prior to completion of the 90% submittal;

- Coordination with Control Algorithms developed by PMC;
- Recommended implementation plan (schedule, sequence of work, contract packaging); and
- Capital Cost Estimate for all ACS elements.

Deliverables:

- ACS Plan TM Review Workshop
- Draft DIM #16: Automation Control Systems
- Workshop No. 9 to present findings to City
- Responses to City comments
- Final DIM #16: Automation Control Systems, incorporating City comments and addressing any questions City personnel may have

E.17 - NOT USED

E.18 - DIM #18: Perimeter Wall (Optional)

Overview

To continually provide service for the next 75 years, the WPCP must secure a minimum level of flood protection against the 100-year flood. A flood wall will be constructed around the eastern portion of the WPCP as part of the Headworks and Primary Treatment–Package 2 project. A flood wall will be designed and constructed around the western portion of the WPCP as part of the Existing Plant Rehabilitation Project. It is undetermined at this time whether the western segment will connect to the eastern segment on both sides, or if instead there will be a third segment on the south side of the WPCP. If the wall is constructed in three segments, this DIM will include design criteria for the south segment.

The south segment of the perimeter wall would extend approximately 750 linear feet, from the driveway southwest of the new primary treatment facilities to the west gate driveway (adjacent to the existing diagonal parking on Carl Rd.). A retractable floodgate will be included on the Borregas driveway. The wall will cross several influent sewer pipelines. On the eastern end of the wall a fats, oils, and grease (FOG) and food waste handling facility is planned. The receiving station is intended to be located on the outer side of the wall, with the storage and feed facilities on the inner side of the wall. The wall must be designed to accommodate this configuration.

Requirements

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

- Assess wall section alternatives, with consideration given to wall height, existing soil properties, and United States Army Corps of Engineers (USACE) 100-year flood criteria;
- Address settlement potential, corrosion protection, and Building Department preferences;

- Identify schematic layout for FOG and food waste handling facility and preliminary design of wall to accommodate the functions of this facility;
- Describe recommended construction method for accommodating large-diameter pipe penetrations without damage to the influent sewer line, the condition of which will be assessed in mid-2017, therefore the extent to which rehabilitation or replacement will be required is unknown at this time;
- Include a complete analysis of geotechnical and structural design criteria, under all applicable load cases, for both the wall and the flood gate base slab; and
- Utilize, to the extent possible, architectural themes of the east and west walls.

Deliverables:

- Draft DIM #18: Perimeter Wall
- Workshop No. 11 to present findings to City
- Responses to City comments
- Final DIM #18: Perimeter Wall, incorporating all City comments and addressing any questions City personnel may have

E.19 - Project Report

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 shall be responsible for applying for and obtaining SRF financing for the projects in this contract. 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, to include the following items:

- Project area:
 - o Vicinity and service area map;
 - o Current land use and land use trends;
 - o Current system users and any new users; and
 - o Current population and population trends.
- Wastewater characteristics, existing facilities, and current water quality:
 - o Description of existing facilities;
 - o Description of all entities responsible or contributing to the existing facilities;
 - o Sources of wastewater to the facility;
 - o Sources of industrial or other problem constituents and current control measures;
 - o Information about any discharge violations;
 - o Wastewater influent characteristics and variations;
 - o Wastewater effluent characteristics and variations;
 - o Past efforts to address the problem through operational improvements;
 - o Current asset, operation, and maintenance management systems; and
 - o An evaluation of excessive infiltration/inflow to the system.

- Treatment objectives for discharge or reuse:
 - o Reason for the project and its objectives/expected benefits;
 - o Performance characteristics required for efficient treatment;
 - o Health related water characteristics required for discharge, operational, and on-site requirements;
 - o Wastewater discharge or reuse requirements and anticipated changes in requirements;
 - o Relevant operation and on-site requirements;
 - o Projected future flow rates or other changes to the influent wastewater characteristics; and
 - o Additional facilities or actions needed to comply with waste discharge requirements.
- Project Alternatives Analysis:
 - o Planning and design parameters and assumptions; and
 - o Detailed alternatives analysis.
- Selected project:
 - o A detailed description of the recommended project alternative and basis for selection;
 - o Design criteria and useful life of the project;
 - o Life cycle cost estimate based on time of construction;
 - o Detailed schedule;
 - o Permits required for project implementation; and
 - o Description of any key issues to be resolved.

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

Deliverables:

- Draft Project Report
- Workshop No. 13 to present findings to City
- Response-to-comment table for Draft Project Report
- Final Project Report
- Responses to ad hoc technical questions from SWRCB

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 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.

Consultant shall address appropriate odor control throughout the entire facility. Odor control shall be suitable to support and not limit the City's economic development goals, and future use of the surrounding area. The entire facility shall also be designed to allow reasonable and safe access to the public for tours guided by plant staff. The plant must also be a "good neighbor" in the local and regional community, addressing elimination to the extent practical or reduction to the extent reasonably possible of odor, loud noise, and poor aesthetics.

All access 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. The design shall incorporate elements of the concurrent plant-wide Master Plan and PEIR, including: overall systems planning

and layout, power system – generation and distribution, ACS and control center, and related systems in the Master Plan. 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 Consultant shall attend up to five review workshops to provide feedback and input on the design intent.

Design Steps

Design Development shall include, but are not necessarily limited to 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 and permit compliance is 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.

Format

The City's standard plan format shall be used (24" X 36" nominal). Consultant shall also submit 3D model at each stage of design. 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.

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 and 3D model; 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. A preliminary list of anticipated drawings is provided as Exhibit "E" to this scope of work.

1. Base Scope 30% Design

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&ID's, 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. The 30% design package will be split up into three packages, one for liquids facilities, one for solids facilities, and one for site support facilities. Deliverables for this phase shall include but are not limited to:

- Three (3) Design element review meetings (DERMs), one for each of the three (3) 30% packages. Workshops No. 14 through 16;
- One (1) Operations Summit (Workshop No. 17) to focus on features of the facility design intended to improve operations. Review with O&M staff all the intended use of all systems in the new facility;
- Draft and Final Technical Memorandum No. D3 – Bid Package Evaluation and Equipment Pre-purchase. Workshop No. 18 to present findings and review City comments;
- Preliminary plans and profiles, including cover sheet, and plan sheets with base mapping and all existing utilities;
 - o Plan cover sheet template to be provided by City;
- Contractor mobilization area(s) and construction traffic routing;
- Preliminary details;
- Preliminary reports and/or technical memoranda;
- General process schematics;
- Detailed description of special construction requirements and constraints required to minimize the impacts of construction on continuous and safe operation of existing facilities;
- 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;
- 30% cost estimate model;
- 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;

- Determine if the project construction activities are covered under the NPDES Construction General Permit. If covered under the NPDES Construction General Permit, determine the project type and risk level. Prepare a brief memo that summarizes the project classification; and
- Conduct an analysis to recommend a single or two bid packages for all the project elements described in this scope of work. Deliver a draft memorandum summarizing the analysis, results, and recommendations present analysis, results, and recommendations to the City in a workshop. Deliver Final memorandum summarizing the analysis, results, and recommendations after receiving City comments.

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

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

- o Standard structural details;
- o Structural foundation plans and sections;
- o Final structural design criteria;
- o Structural general notes and standard details;
- o General demolition plans; and
- o Specification index and boilerplate specification section drafts.
- Electric power:
 - o Review of site power system and City Standards for electric power systems;
 - o Preliminary site power plans; and
 - o Preliminary facility single line power diagrams.
- Instrumentation and Controls:
 - o Control system architecture and integration with existing system;
 - o All instruments on 90% complete P&IDs; and
 - o Preliminary control strategies and loop descriptions.

2. Base Scope 60% Design

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, and site and architectural elements that coordinate future anticipated improvements, public access and education opportunities, and other features that make the site a comprehensive asset to the City and the community. The 60% design package will be split up into three packages, one for liquids facilities, one for solids facilities, and one for site support facilities. There will be three (3) Design element review meetings (DERMs), one for each of the three (3) 60% packages (Workshops No. 19 through 21). In addition, there will be one (1) Operations Summit (Workshop No. 22) to focus on what will be needed to keep the facility in compliant operations during construction, including tie-ins, startup, testing, and commissioning sequences. 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 drainage, 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; and
- Incorporate any mitigation measures for compliance with CEQA or other legitimate concerns raised at public meetings.

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;
- Details and sections;
- Yard piping and duct bank plans and profiles;
- Paving & grading;
- Process / Mechanical:
 - o Complete Piping and Instrumentation Diagrams;
 - o Demolition drawings;
 - o Equipment arrangement plans, sections and details; and
 - o Specifications for vendor review.
- Structural/Demolition:
 - o Structural plans, sections and details;
 - o Demolition plans, sections and details;
 - o Preliminary rebar detailing; and
 - o Specifications.
- Electric Power:
 - o WPCP power single line drawings;
 - o Process area single line drawings;
 - o Electrical room plans and equipment sections;
 - o Schematic site power plans; and
 - o Specifications.
- Instrumentation and Controls:
 - o ACS system architecture and integration with existing system;
 - o ACS I/O on P&IDs;
 - o Control schematics;
 - o I/O and instrument index;
 - o Final control strategies and loop descriptions; and
 - o 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; and
- Construction schedule.

Other:

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

3. Base Scope 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. 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:
 - o Piping and Instrumentation Diagrams;
 - o Demolition drawings;
 - o Equipment and piping plans, sections and details; and
 - o Specifications.
- Structural/Demolition:
 - o Demolition drawings;
 - o Structural plans, sections, and details; and
 - o Specifications.
- Electric Power:
 - o WPCP power single lines;
 - o Process area single lines;
 - o Site power and lighting plans;
 - o Process area power, communication, and lighting plans;
 - o Electrical, building, and equipment elevations; and
 - o Specifications.
- Instrumentation and Controls:
 - o ACS architecture;
 - o Comprehensive P&IDs;
 - o Control and fiber diagrams;
 - o Control single line diagrams;
 - o Final Control strategies;
 - o Control panel details;
 - o Instrumentation installation details; and
 - o 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; and

- Construction schedule.

Other:

- Responses to City's review comments, along with return of mark-ups;
- Workshop No. 23 to review City comments on 90% Package; and
- Workshop No. 24 to perform Preliminary Review with City Building Department.

4. Base Scope 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 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;
- Civil Plans – grading, drainage, utilities plans & profiles, lighting, equipment and convenience power, pavement, walks, stairs, rails, details;
- Coordinate power, ACS, architectural, landscape, and irrigation plans and details;
- Amenities plans and details; and
- Other specialties.

Specifications

- Technical Specifications, 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; and
- Revised project time schedule.

Other:

- 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."
- Workshop No. 25 to present final bid documents to City Building Department for final review.

5. Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Design Development (Optional)

The ECHP Master Plan is based on installing a new 12 kV backbone concurrently with the new CAS facilities but leaving existing treatment processes on the existing 4160 V system and phasing this system out gradually as existing facilities are replaced with new facilities. Depending on the recommendations of DIM #15–Power, the City may decide to accelerate and migrate existing processes onto the new 12 kV system. In that case, Consultant would be asked to extend their electrical design to also include the additional area substations and 480 V secondary feeds necessary for an accelerated transition to the new 12 kV system.

Plans, specifications, construction cost estimates and schedule for the additional electrical improvements shall be performed concurrently and incorporated into the deliverables submitted under Tasks F1, F2, F3, and F4 of the Base Scope. At the request of the City, the Consultant shall prepare the following design deliverables for the Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Design. All deliverables required for this Optional Task are listed in the respective Base Scope Tasks of this scope of work.

The price for this Task F5 shall represent the additional cost to include design of the additional electrical improvements to be broken out to include the following deliverables:

a. 30% Design

All deliverables for this Task shall be included with deliverables in Task F1.

b. 60% Design

All deliverables for this Task shall be included with deliverables in Task F2.

c. 90% Design

All deliverables for this Task shall be included with deliverables in Task F3.

d. 100% Design

All deliverables for this Task shall be included with deliverables in Task F4.

6. Second Bid Package Design Development (Optional)

At the request of the City, if it is determined that a second bid package needs to be created, 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 each construction contract. The first bid package shall consist of the following elements: Secondary Treatment

Improvements – Split Flow CAS Stage 1, AFT Pump Station and Pipeline, Maintenance Building, 12 kV Electrical Distribution System – Stage 2, and ACS (SCADA System) Improvements – Stage 2. The second bid package will include the Digester Supernatant PS and Drainage Piping and Thickening and Dewatering Facility – Stage 1 elements of the project.

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 Optional Task are listed in the respective Base Scope Tasks of this scope of work.

The price for this Task F6 shall represent the additional 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 optional 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 optional 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 optional 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 optional Task are listed in the Base Scope 100% Design Task, Task F4 of this scope of work.

7. Perimeter Wall Design Development (Optional)

At the request of the City, if it is determined that the south segment of the perimeter wall is needed per DIM #18, the Consultant shall prepare the following design deliverables for the Perimeter Wall Design.

Plans, specifications, construction cost estimates and schedule for the additional perimeter wall design shall be performed concurrently and incorporated into the deliverables submitted under Tasks F1, F2, F3, and F4 of the Base Scope. All deliverables required for this Optional Task are listed in the respective Base Scope Tasks of this scope of work.

The price for this Task F7 shall represent the additional cost to include design of the perimeter wall to be broken out to include the following deliverables:

- a. 30% Design
All deliverables required for this optional 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 optional 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 optional 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 optional Task are listed in the Base Scope 100% Design Task, Task F4 of this scope of work.

8. CEPT Design Development (Optional)

If it is determined during Conceptual Design Task D3 that CEPT shall be included in this project, the Consultant shall validate the CEPT design prepared for the Headworks and Primary Treatment Facility – Package 2 Project, and incorporate that design into the plans and specifications for this project.

Plans, specifications, construction cost estimates, and schedule for the additional CEPT design shall be performed concurrently and incorporated into the deliverables submitted under Tasks F1, F2, F3, and F4 of the Base Scope. The price for this Task F8 shall represent the additional cost to include design of CEPT to be broken out to include the following deliverables:

a. 30% Design

All deliverables required for this optional 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 optional 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 optional 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 optional 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 optional bid package services. Base Scope bid package services are described in Task

G1, while optional bid package services, which are to be completed at the City's instruction, are described in Tasks G2, G3, G4, and G5.

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:
 - o Final Bid Schedule and/or schedule of values;
 - o Tabulation of quantities of all work;
 - o Final engineer's construction cost estimate in the form of the Bid Schedule, (along with supporting documents not part of the Bid Package);
 - o Final list of submittals, including identification of items governed by American Iron and Steel requirements;
 - o Recommendation for allowed construction time period; and
 - o 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 are 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:
 - o The headers and footers of the Technical Specifications shall be formatted per the example provided by the Project Administration Section 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; and
- Structural calculations, energy efficiency worksheets, and related work.

2. Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bid Package (Optional)

At the request of the City, final plans, specifications, construction cost estimate, and schedule for the additional electrical improvements 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 to include design of the additional electrical improvements in these deliverables.

3. Second Bid Package (Optional)

At the request of the City, a separate package for the final plans, specifications, construction cost estimate, and schedule for the second bid package shall be separated and submitted as an additional deliverable under Task G1 of the Base Scope. The price for this Task G3 shall represent the additional cost to include design of the second bid package in these deliverables.

4. Perimeter Wall Bid Package (Optional)

At the request of the City, 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 G4 shall represent the additional cost to include design of the perimeter wall in these deliverables.

5. CEPT Bid Package (Optional)

If it is determined that CEPT shall be included in this project, final plans, specifications, construction cost estimate, and schedule for CEPT shall be incorporated into the deliverables submitted under Task G1 of the Base Scope. The price for this Task G5 shall represent the additional cost to include design of CEPT in these deliverables.

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 optional bidding services, which are to be completed at the City's instruction, are described in Tasks H2, H3, H4, and H5.

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. Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bidding Services (Optional)
At the request of the City, responses to Requests for Information, minutes for pre-bid meeting(s), necessary addenda, and conformed documents for the design of electrical improvements to migrate existing processes to new 12 kV backbone shall be incorporated into the deliverables submitted under Task H1 of the Base Scope. The price for this Task H2 shall represent the additional cost to include design of electrical improvements to migrate existing processes to new 12 kV backbone in these deliverables.
 3. Second Bid Package Bidding Services (Optional)
At the request of the City, Consultant shall provide additional resources necessary for responses to Requests for Information, minutes for pre-bid meeting(s), necessary addenda, and conformed documents for a completely separate, second bid package and shall be separated and submitted as an additional deliverable under Task H3 of the Base Scope. The price for this Task H4 shall represent the additional cost to include a second bid package.
 4. Perimeter Wall Bidding Services (Optional)
At the request of the City, responses to 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 H4 shall represent the additional cost to respond to bidder's RFIs related to the perimeter wall.
 5. CEPT Bidding Services (Optional)
If it is determined that CEPT shall be included in this project, responses to Requests for Information, minutes for pre-bid meeting(s), necessary addenda, and conformed documents for CEPT shall be incorporated into the deliverables submitted under Task H1 of the Base Scope. The price for this Task H5 shall represent the additional cost to include design of CEPT in these deliverables.

1. Construction Support Services

Consultant shall provide construction support services for all aspects of this project. Task I includes Base Scope construction support services and optional construction support services. Base Scope construction support services are described in Task I1, while optional construction support services, which are to be completed at the City's instruction, are described in Tasks I2, I3, I4, and I5. For all of the base and optional tasks combined, it was assumed there would be

- 1,000 submittals (or resubmittals) at 8 hrs each;
- 500 RFI's at 6 hrs each;
- 50 construction change requests at 8 hrs each;

- 20 substitution requests at 16 hrs each;
- Attendance at up to 50 special meetings to discuss or review technical issues; and
- 40 days of field observation services.

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. It was assumed Consultant would attend 2 construction meetings in person and 2 by telecon every month;
- 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; and
- Participate in "Lessons Learned" meetings.

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

Deliverables:

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

2. Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Construction Support Services (Optional)

At the request of the City, the Consultant shall provide construction support services for the electrical improvements to migrate existing processes to new 12

kV backbone. All activities and submittals are described in the Base Scope Construction Support Services Task, Task I1 of this scope of work. The price for this Task I2 shall represent the additional cost for construction support services related to the additional electrical improvements.

3. Second Bid Package Construction Support Services (Optional)

At the request of the City, the Consultant shall provide additional resources necessary to provide construction support services (including attending necessary meetings) for a separate, second construction package. All activities and submittals are described in the Base Scope Construction Support Services Task, Task I1 of this scope of work. The price for this Task I3 shall represent the additional cost for construction support services related to the second bid package.

4. Perimeter Wall Construction Support Services (Optional)

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 I1 of this scope of work. The price for this Task I4 shall represent the additional cost for construction support services related to the perimeter wall.

5. CEPT Construction Support Services (Optional)

If it is determined that CEPT shall be included in this project, the Consultant shall provide construction support services for CEPT. All activities and submittals are described in the Base Scope Construction Support Services Task, Task I1 of this scope of work. The price for this Task I5 shall represent the additional cost for construction support services related to CEPT.

J. 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. The CMC 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. Base Scope commissioning support services are described in Task J1, J2, and J3, while optional commissioning support services, which are to be completed at the City's instruction, are described in Tasks J4, J5, J6, and J7. Level of effort for the base and optional tasks combined includes:

- Review 20 planning phase at 8 hours per submittal;
- 40 days of factory witness testing for commissioning phase for key equipment and systems;
- Review up to 36 commissioning phase submittals at 6 hours per submittal;
- 50 days of process observation and witness testing/support for process phase;

- Review up to 20 start-up phase submittals; and
- Review up to 24 observations reports and sampling plans.

1. Base Scope 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-phase submittals

2. Base Scope Commissioning Phase

Consultant shall witness factory testing for instrumentation and major mechanical and electrical equipment including but not limited to aeration blowers, diffusers, thickening and dewatering equipment, medium or high voltage switchgear, source testing for PLC code, and up to 3 other systems to be determined later. Consultant shall review commissioning phase submittals including but not limited to:

- o Manufacturer and vendor training;
- o Electrical conductor testing;
- o Instrument field calibration;
- o Network Installation Testing;
- o Loop Testing;
- o Pressure Testing;
- o Leak Testing;
- o Holiday Testing;
- o HVAC Testing;
- o Motor Electrical Testing;
- o Network Operational Testing;
- o Preliminary Run Testing Local/Manual Control;
- o PCIS Functional Demonstration Testing;
- o Subsystem Startup and Testing;
- o Equipment System Startup and Testing;
- o HVAC Startup and Testing;
- o Wide Area Network Communications Testing;
- o Manufacturer's Certificate of Installation and Functionality Compliance; and
- o Clean Water Facility Testing.

Deliverables:

- Review comments on all commissioning-phase submittals

3. Base Scope Process Start-Up Phase

Prior to start-up, Consultant shall review, critique, and provide comment on commissioning documentation and data and process start-up plans. Consultant shall review and provide comment on following start-up phase submittals:

- o Commissioning Documentation and Data Review;
- o Building and Fire Inspection Compliance Check;
- o HVAC Functionality Check;
- o Process Start-Up Plan;
- o Control Loop Tuning and Optimization;
- o Process Control Systems Testing;
- o Odor Control system Final Testing, Adjust, and Balancing;
- o Ancillary System Start-Up and Testing;
- o Complete Equipment and System Tests;
- o Operational Testing;
- o Final Testing Reports;
- o Water Quality Testing and Documentation; and
- o PCIS Performance Testing and Fine Tuning.

Deliverables:

- Review comments on all process start-up phase submittals

4. Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Commissioning Support Services (Optional)

At the request of the City, Consultant shall provide commissioning support services for the additional electrical improvements. The price for this Task J4 shall represent the additional cost to review and accept submittals and tasks performed by the contractor for the commissioning effort, due to the inclusion of the additional electrical improvements in the project.

a. Optional Electrical Improvements Planning Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the design of electrical improvements to migrate existing processes to new 12 kV backbone project element in the Base Scope Planning Phase Task, Task J1 of this scope of work.

b. Optional Electrical Improvements Commissioning Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the design of electrical improvements to migrate existing processes to new 12 kV backbone project element in the Base Scope Commissioning Phase Task, Task J2 of this scope of work.

c. Optional Electrical Improvements Process Start-Up Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the design of electrical improvements to migrate existing processes to new 12 kV backbone project element in the Base Scope Process Start-Up Phase Task, Task J3 of this scope of work.

5. Second Bid Package Commissioning Support Services (Optional)

At the request of the City, Consultant shall perform the primary review role for both commissioning and process start-up periods for two separate bid packages. Consultant shall coordinate, witness, and accept both clean water tests and both process operational tests. Consultant shall perform water quality testing and onsite support for both commissioning and start-up periods. The price for this Task J5 shall represent the additional cost to review and accept submittals and tasks performed by the contractor for the commissioning effort, due to the inclusion of a second bid package.

a. Optional Second Bid Package Planning Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the second bid package in the Base Scope Planning Phase Task, Task J1 of this scope of work.

b. Optional Second Bid Package Commissioning Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the second bid package in the Base Scope Commissioning Phase Task, Task J2 of this scope of work.

c. Optional Second Bid Package Process Start-Up Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the second bid package in the Base Scope Process Start-Up Phase Task, Task J3 of this scope of work.

6. Perimeter Wall Commissioning Support Services (Optional)

At the request of the City, Consultant shall provide commissioning support services for the perimeter wall. The price for this Task J6 shall represent the additional cost to review and accept submittals and tasks performed by the contractor for the commissioning effort, due to the inclusion of the perimeter wall in the project.

a. Optional Perimeter Wall Planning Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the flood wall in the Base Scope Planning Phase Task, Task J1 of this scope of work.

b. Optional Perimeter Wall Commissioning Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the flood wall in the Base Scope Commissioning Phase Task, Task J2 of this scope of work.

c. Optional Perimeter Wall Process Start-Up Phase

At the request of the City, Consultant shall conduct all activities and provide all deliverables required for the flood wall in the Base Scope Process Start-Up Phase Task, Task J3 of this scope of work.

8. CEPT Commissioning Support Services (Optional)

If it is determined that CEPT shall be included in this project, the Consultant shall provide commissioning support services for CEPT. The price for this Task J7 shall represent the additional cost to review and accept submittals and tasks performed by the contractor for the commissioning effort, due to the inclusion of CEPT in the project.

a. Optional CEPT Planning Phase

If it is determined that CEPT shall be included in this project, Consultant shall conduct all activities and provide all deliverables required for CEPT in the Base Scope Planning Phase Task, Task J1 of this scope of work.

b. Optional CEPT Commissioning Phase

If it is determined that CEPT shall be included in this project, Consultant shall conduct all activities and provide all deliverables required for CEPT in the Base Scope Commissioning Phase Task, Task J2 of this scope of work.

c. Optional CEPT Process Start-Up Phase

If it is determined that CEPT shall be included in this project, Consultant shall conduct all activities and provide all deliverables required for CEPT in the Base Scope Process Start-Up Phase Task, Task J3 of this scope of work.

K. 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 new unit processes, 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. One APE would cover the secondary treatment equipment including the aeration basins, secondary clarifiers, aeration blowers, RAS/WAS pump stations, and secondary flow split. The second APE would cover the solids handling processes, including the thickening equipment, the dewatering equipment, and the odor control scrubber and fans.

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); and
- 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
- Secondary Treatment APE
 - o Draft
 - o Final
 - o Two presentations to staff
- Solids Handling APE
 - o Draft
 - o Final
 - o Two presentations to staff

IV. Available Documents

Available Documents listed under items 4-10 are available on the Program website:
<http://www.sunnyvalecleanwater.com/-projects>

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](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. Site Investigation Analysis (Hazardous Materials Analysis) TM:
[http://www.sunnyvalecleanwater.com/documents/master-plan/Site-Investigation-Analysis\(Hazardous-Materials-Analysis\)_Final-for-City-Web.pdf](http://www.sunnyvalecleanwater.com/documents/master-plan/Site-Investigation-Analysis(Hazardous-Materials-Analysis)_Final-for-City-Web.pdf)
- H. Building Programming TM:
http://www.sunnyvalecleanwater.com/documents/master-plan/Building-Programming-TM_Final-for-City-Web.pdf
- I. ECHP Plan TM: http://www.sunnyvalecleanwater.com/documents/master-plan/Final-ECHP-Plan-TM_Final-for-City-Web.pdf
- J. Site Layout Considerations TM:
http://www.sunnyvalecleanwater.com/documents/master-plan/Site-Layout-Considerations-TM_Final-for-City-Web.pdf
- K. Flows and Loads TM:
http://www.sunnyvalecleanwater.com/documents/master-plan/Flow-and-Loads-Evaluation-TM_Final-for-City-Web.pdf
- L. Architectural Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Architectural-Design-Standards_Final-for-City-Web.pdf
- M. Civil Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Civil-Design-Standards_Final-for-City-Web.pdf
- N. Corrosion Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Corrosion-Design-Standards_Final-for-City-Web.pdf
- O. Electrical Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Electrical-Design-Standards_Final-for-City-Web.pdf
- P. Instrumentation and Control Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Instrumentation-and-Control-Design-Standards_Final-for-City-Web.pdf
- Q. Landscape Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Landscape-Design-Standards_Final-for-City-Web.pdf
- R. Mechanical Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Mechanical-Design-Standards_Final-for-City-Web.pdf
- S. Odor Control Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Odor-Control-Design-Standards_Final-for-City-Web.pdf
- T. Structural and Seismic Design Standards:
http://www.sunnyvalecleanwater.com/documents/master-plan/Structural-and-Seismic-Design-Standards_Final-for-City-Web.pdf

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
5. RFPs for concurrent professional services
 - A. Computerized Maintenance Management System (CMMS)
 - B. RFP F17-048: Professional Design Services Associated with the Sunnyvale Clean Water Program Facility Condition Assessment Project, Published November 2016
 - C. New administration building
6. Plans, specifications, and reports for current construction projects
 - A. Headworks and Primary Treatment Design Information Memoranda
 - B. Headworks and Primary Treatment Package 1 plans, specifications, and addenda
 - C. Headworks and Primary Treatment Package 2 plans and specifications
 - D. City of Sunnyvale Water Pollution Control Plant Air Flotation Tank Improvements, Dated 2010, Construction Drawings, Prepared by RMC Water & Environment
 - E. City of Sunnyvale Water Pollution Control Plant Rehabilitation of Anaerobic Digesters No. 1 and No. 2 and Improvements to No. 3 Dated 2013, Construction Drawings, Prepared by Kennedy/Jenks Consultants
 - F. City of Sunnyvale Water Pollution Control Plant Emergency Flow Management Improvements, Dated 2015, Construction Drawings, Prepared by CDM Smith
 - G. City of Sunnyvale Water Pollution Control Plant Hypochlorite Conversion and Continuous Recycled Water Production Facilities, Dated 2015, Construction Drawings, Prepared by HDR Engineering
7. 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-82-8: Administration Building, April 1982.
 - K. PR-84-5: Sunnyvale WPCP Contract C-5 Landscaping Improvements, August 1984.

- L. PR-84-6: Sunnyvale WPCP Lab Building Addition, June 1985.
- M. PR-85-8: HVAC Modifications, February 1985.
- N. PR-89-10: Lab/Tertiary Control Building Modifications and Administration Building Expansion, Phase 1, Locker Room Addition, April 1989.
- O. PR-90-7: Process Gas Piping System, June 1990.
- P. PR-90-9: Barscreen Replacement Project, August 1990.
- Q. PR-91-12: Office Modular Unit, December 1991.
- R. PR-92-1: Renovation Plan Lakewood Park, January 1991.
- S. PR-93-10: Sludge Dewatering Improvements, July 1993.
- T. PR-93-11: Surface Aerator Installation, September 1993.
- U. PR-94-15: Toxic Gas Storage and Handling Facilities, November 1994.
- V. PR-95-2: Power Generation Facility, January 1996.
- W. PR-95-2(G): Power Generation Facility Improvements Digester Gas Flare, January 2001.
- X. PR-95-2(1): Power Generation Facility Waste Heat Exchanger No. 1 & 2 3" Drain Reroute, January 2002.
- Y. PR-95-7: Sunnyvale Landfill Monofill Area, June 1996.
- Z. PR-95-12: Landfill Erosion Repair, March 1996.
- AA. PR-98/10-99: Upgrade of Electrical System, May 1999.
- BB. PR-98/16-99: Administration Building Improvements, 1999.
- CC. PR-98/17-00: City of Sunnyvale Pollution Control Plant Re-Roofing, 2000.
- DD. SS-17: Temporary Sewer Bypass for Disposal Plant, July 1955.
- EE. STP-1955: City of Sunnyvale Sewage Treatment Works, March 1953.
- FF. STP-1961: City of Sunnyvale Sewage Treatment Plant Enlargement, July 1961.
- GG. PR-65: Oxidation Pond Additions, August 1965.
- HH. UW-93-01: Water Recycling Program Interim Pump Station, April 1993.
- II. UW-95-02: Polymer Feed System Improvements, June 1996.
- JJ. UW-96-01: Tertiary Plant Improvements, July 1997.
- KK. UW-98-02: Recycled Water Pump Station Capacity Expansion, March 2000.
- LL. UY-88-02: Fire Line, Project 79646, October 1988.
- MM. UY-95-01: Guadalupe Slough Levee Repair, September 1995.
- NN. UY-96-01: Oxidation Pond Levee Improvements, September 1996.
- OO. UY-00-05-01: Energy Recovery Facilities, January 2007.
- PP. UY-00-06-01: Air Flotation Tank Gate Actuators, October 2002.
- QQ. UY-00-02-01 and UY-02-02-03: Chemical System Improvements, April 2004.
- RR. UY-02-07-03: Oxidation Pond Levee Improvements Phase 4, April 2006.
- SS. UY-03-01-05: Digester Lid and Drain Line Rehabilitation Digester No. 3, November 2005.
- TT. UY-04-01-05: Laboratory Building, August 2005.
- UU. UY-05-04-06: Tertiary Plant Tank Drainage System Modifications, April 2010.
- VV. UY-08-01-09: Rehabilitation of WPCP Digester No. 4: March 2009.
- WW. UY-08-02-09: Air Flotation Tank Improvements, November 2010.

- XX. UY-09/01-10: Sodium Bisulfite System, November 2009.
- YY. UY-11-03-11: DSMBI – Sunnyvale, June 2011.
- ZZ. Primary Control Building Remodeling, February 1993.
- 8. WPCP manuals and data
 - A. Sunnyvale WPCP O&M Manual
 - B. Influent hourly flow data
 - C. Process Control Reports
 - D. Sludge Workbooks
- 9. Other plans, studies, and reports
 - A. Digester Rehab TM
 - B. Asset Condition Assessment
 - C. Strategic Infrastructure Plan and Peer Review
 - D. Collection System Master Plan
- 10. Permits
 - A. NPDES
 - B. Title V
 - C. Fire Prevention and Environmental Programs Consolidated Permit

The following information will be provided to the Consultant during design:

- 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
- 5. Contract with Synagro for Sludge Dewatering
- 6. Levee Assessment

V. Glossary of Abbreviations

3D	three-dimensional
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
BIM	Building Information Modeling
BNR	biological nutrient removal
BOD	biological oxygen demand

CAS	conventional activated sludge
CBC	California Building Code
CBOD	chemical biological oxygen demand
CEQA	California Environmental Quality Act
CFD	computational fluid dynamics
CMC	construction management consultant
COD	chemical oxygen demand
CSI	Construction Specifications Institute
CUPA	Certified Unified Program Agency
DIM	design information memorandum
DO	dissolved oxygen
ECHP	Electrical Combined Heat and Power
EIR	environmental impact report
FGR	fixed growth reactor
FOG	fats, oils, and grease
HMI	human machine interface
HVAC	heating, ventilation, and air conditioning
I&C	Instrumentation and Control
I/O	input/output
kV	kilovolts
kVA	kilovolt amps
LEA	local enforcement agency
LEED	Leadership in Energy & Environmental Design
MABR	membrane aerated biofilm reactor
MB	megabytes
MCC	motor control center
MGD	million gallons per day
MLE	Modified Ludzack-Ettinger
MLR	mixed liquor recycle
MLSS	mixed liquor suspended solids
MS	Microsoft
NFPA	National Fire Protection Agency
NOD	notice of determination
NPDES	National Pollution Discharge Elimination System
NTP	notice to proceed
OTR	oxygen transfer rate
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
PS	pump station; primary sludge
PG&E	Pacific Gas and Electric Co.

P&IDs	Piping and Instrumentation Diagrams
RAS	return activated sludge
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
SWRCB	State Water Resources Control Board
TM	technical memorandum
TSS	total suspended solids
TWAS	thickened waste activated sludge
T/D	thickening and dewatering
USACE	United States Army Corps of Engineers
USGBC	U.S. Green Building Council
V	volts
WAS	waste activated sludge
WPCP	City of Sunnyvale Water Pollution Control Plant

EXHIBIT B

Tasks		Total Carollo Labor Costs	Subconsultants											ODCs	Total	Total Escalated
Task #	Task Description		Key Partner	Permitting and CEQA	Geotech	Technical Advisor	Technical Advisor	Survey	Pothole	Hazardous Waste	Cost	BCDC Permit	Other Direct Costs	Total Fee		
			CH2M	ESA	Fugro	Ekster and Assoc	David Jenkins and Assoc	Towill	Exaro	Al Clancy	Ewing Construction Services	H.T. Harvey				
			Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee				
A	Project Management	\$ 1,078,046	\$ 59,240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,455	\$ 1,146,741	\$ 1,216,930	
B	Permitting	\$ 61,920	\$ 17,994	\$ 122,498	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,050	\$ -	\$ 16,832	\$ 260	\$ 220,554	\$ 229,464	
C	Documentation of Existing Conditions	\$ 22,239	\$ -	\$ -	\$ 78,750	\$ -	\$ -	\$ 37,359	\$ 25,728	\$ 6,851	\$ -	\$ -	\$ 624	\$ 171,551	\$ 174,982	
D	Conceptual Design	\$ 132,832	\$ 411,061	\$ -	\$ -	\$ 24,360	\$ 6,930	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,054	\$ 577,237	\$ 577,237	
E	Preliminary Design	\$ 745,960	\$ 621,952	\$ 26,266	\$ -	\$ 63,840	\$ 6,930	\$ -	\$ -	\$ -	\$ 1,176	\$ -	\$ 27,733	\$ 1,493,857	\$ 1,523,734	
F	Design Development	\$ 4,678,321	\$ 3,314,058	\$ -	\$ 42,000	\$ 75,600	\$ 2,310	\$ -	\$ -	\$ -	\$ 29,988	\$ -	\$ 58,275	\$ 8,200,552	\$ 8,447,795	
F.1 - F.4	Base Scope	\$ 4,382,646	\$ 3,098,676	\$ -	\$ 42,000	\$ 75,600	\$ 2,310	\$ -	\$ -	\$ -	\$ 29,988	\$ -	\$ 35,410	\$ 7,666,630		
	AFT Pump Station and Pipeline Design Development (Optional)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
F.5	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Design Development (Optional)	\$ 138,834	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,918	\$ 142,753		
F.6	Second Bid Package Design Development (Optional)	\$ 114,999	\$ 93,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,693	\$ 227,192		
F.7	Perimeter Wall Design Development (Optional)	\$ 23,846	\$ 121,882	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 127	\$ 145,854		
F.8	CEPT Design Development (Optional)	\$ 17,997	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 127	\$ 18,124		
G	Final Design	\$ 351,113	\$ 242,607	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,880	\$ -	\$ 2,251	\$ 601,851	\$ 626,165	
G.1	Base Scope Bid Package Plans, Specifications, and Cost Estimates	\$ 327,727	\$ 173,540	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,880	\$ -	\$ 2,128	\$ 509,275		
	AFT Pump Station and Pipeline Bid Package (Optional)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
G.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bid Package (Optional)	\$ 11,004	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24	\$ 11,027		
G.3	Second Bid Package (Optional)	\$ 8,572	\$ 49,787	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 48	\$ 58,407		
G.4	Perimeter Wall Bid Package (Optional)	\$ 2,430	\$ 19,280	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22	\$ 21,732		
G.5	CEPT Bid Package (Optional)	\$ 1,380	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30	\$ 1,410		
H	Bidding Services	\$ 133,234	\$ 103,872	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 646	\$ 237,753	\$ 252,305	
H.1	Base Scope Bidding Services	\$ 110,141	\$ 77,080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 333	\$ 187,554		
	AFT Pump Station and Pipeline Bidding Services (Optional)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
H.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bidding Services (Optional)	\$ 2,765	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0	\$ 2,765		
H.3	Second Bid Package Bidding Services (Optional)	\$ 19,857	\$ 20,125	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 312	\$ 40,294		
H.4	Perimeter Wall Bidding Services (Optional)	\$ 272	\$ 6,667	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0	\$ 6,939		
H.5	CEPT Bidding Services (Optional)	\$ 200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0	\$ 201		
I	Construction Support Services	\$ 2,307,629	\$ 1,283,871	\$ -	\$ 63,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 109,831	\$ 3,764,331	\$ 4,115,177	
I.1	Base Scope Construction Support Services	\$ 1,894,837	\$ 1,040,650	\$ -	\$ 63,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 65,489	\$ 3,063,976		
	AFT Pump Station and Pipeline Construction Support Services (Optional)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
I.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Construction Support Services (Optional)	\$ 59,031	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24	\$ 59,055		
I.3	Second Bid Package Construction Support Services (Optional)	\$ 332,677	\$ 170,220	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 44,267	\$ 547,164		
I.4	Perimeter Wall Construction Support Services (Optional)	\$ 8,648	\$ 73,001	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22	\$ 81,671		
I.5	CEPT Construction Support Services (Optional)	\$ 12,436	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30	\$ 12,466		
J	Commissioning Support Services	\$ 165,575	\$ 143,967	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,905	\$ 316,447	\$ 356,370	
J.1	Base Scope Planning Phase	\$ 21,591	\$ 14,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,291		
J.2	Base Scope Commissioning Phase	\$ 63,471	\$ 54,945	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 118,416		
J.3	Base Scope Process Start-Up Phase	\$ 69,723	\$ 61,750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,494	\$ 137,967		
	AFT Pump Station and Pipeline Commissioning Support Services (Optional)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
J.4	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Commissioning Support Services (Optional)	\$ 4,879	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 207	\$ 5,085		
J.5	Second Bid Package Commissioning Support Services (Optional)	\$ 4,593	\$ 7,965	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 203	\$ 12,761		
J.6	Perimeter Wall Commissioning Support Services (Optional)	\$ 725	\$ 4,607	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,332		
J.7	CEPT Commissioning Support Services (Optional)	\$ 593	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 594		
K	Operation and Maintenance Manual Updates	\$ 125,484	\$ 73,299	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,872	\$ 204,655	\$ 225,955	
	Total Optional Services	\$ 926,824	\$ 594,102	\$ 56,884	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,050	\$ -	\$ -	\$ 69,005	\$ 1,647,865	\$ 1,750,784	
	Total Including Optional Services	\$ 9,802,353	\$ 6,271,921	\$ 148,764	\$ 183,750	\$ 163,800	\$ 16,170	\$ 37,359	\$ 25,728	\$ 7,901	\$ 37,044	\$ 16,832	\$ 223,904	\$ 16,935,527	\$ 17,746,116	

Total Escalated Base Scope \$ 15,995,332

EXHIBIT B

OVERALL FEE ESTIMATE																																	
Tasks		Carollo Labor															Subconsultants												ODCs	Total	Year (Midpoint)	Escalation	Total Escalated Cost
Task #	Task Description	Project Manager	Project Engineer	Liquids Lead	Solids Support	Quality Management	Master Plan Continuity	Permitting / CEQA Lead / Design Support	Liquids / Modeling	Other Key or Lead	Professional	Assistant Professional	Senior CAD Technician	CAD Technician	Document Processing	Total Hours	Total Labor Costs	Key Partner	Permitting and CEQA	Geotech	Technical Advisor	Technical Advisor	Survey	Pothole	Hazardous Waste	Cost	BCDC Permit	Other Direct Costs	Total Fee				
		Jim Hagstrom	Scott Parker	Andre Gharagozian	Rashi Gupta	Sieve Swanback	Jamel Demir	Katy Rogers	Anne Conklin	Various	Various	Various	TBD	TBD	TBD			CH2M	ESA	Fugro	Ekster and Assoc	David Jenkins and Assoc	Towill	Exaro	AI Clancy	Ewing Constructio n Services	H.T. Harvey						
		\$296	\$274	\$274	\$274	\$274	\$274	\$217	\$217	\$274	\$217	\$180	\$188	\$138	\$123			Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee			Fee			
A	Project Management	563	1,139	556	-	340	-	-	-	680	-	356	-	-	840	4,474	\$ 1,078,046	\$ 59,240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,455	\$ 1,146,741	2020	\$ 70,189.70	\$ 1,216,930
A.1	Base Scope Project Management	426	1,008	556	-	340	-	-	-	680	-	138	-	-	840	3,988	\$ 962,263	\$ 59,240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,985	\$ 1,030,488			
A.1.a	Project Management Plan	22	32	-	-	-	-	-	-	-	-	54	-	-	-	108	\$ 24,991	\$ 3,120	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 252	\$ 28,363			
A.1.b	Meeting Management	336	672	336	-	-	-	-	-	-	-	-	-	-	-	1,344	\$ 375,648	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,733	\$ 384,381			
A.1.c	Project Schedules	-	-	84	-	-	-	-	-	-	-	84	-	-	-	168	\$ 38,136	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,136			
A.1.d	Quality Assurance/Quality Control	68	136	136	-	340	-	-	-	680	-	-	-	-	-	1,360	\$ 374,136	\$ 56,120	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 430,256			
A.1.e	Document Management	-	-	-	-	-	-	-	-	-	-	-	-	-	336	336	\$ 41,328	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 41,328			
A.1.f	Pay Applications	-	168	-	-	-	-	-	-	-	-	-	-	-	504	672	\$ 108,024	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 108,024			
A.2	Support for Council Study Sessions (Optional)	50	-	-	-	-	-	-	-	-	-	-	-	-	-	50	\$ 14,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 208	\$ 15,008		\$ 919	
A.3	Second Bid Package Project Management (Optional)	87	131	-	-	-	-	-	-	-	-	218	-	-	-	436	\$ 100,983	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 262	\$ 101,245		\$ 6,197	
B	Permitting	28	4	8	-	-	-	132	-	-	100	-	-	-	-	272	\$ 61,920	\$ 17,994	\$ 122,498	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,050	\$ -	\$ 16,832	\$ 260	\$ 220,554	2019	\$ 8,910	\$ 229,464
B.1	CEQA	4	-	-	-	-	-	12	-	-	-	-	-	-	-	16	\$ 3,788	\$ -	\$ 26,765	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 156	\$ 30,708			
B.2	Bay Area Air Quality Management District	8	-	-	-	-	-	40	-	-	32	-	-	-	-	80	\$ 17,992	\$ 17,994	\$ 51,886	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 87,872			
B.2.a	Base Scope BAAQMD Permitting	4	-	-	-	-	-	20	-	-	16	-	-	-	-	40	\$ 8,996	\$ 17,994	\$ 38,850	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 65,840			
B.2.b	Second Bid Package BAAQMD Permitting (Optional)	4	-	-	-	-	-	20	-	-	16	-	-	-	-	40	\$ 8,996	\$ -	\$ 13,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22,032		\$ 890	
B.3	Preparation of BCDC Permit Amendment	4	-	-	-	-	-	20	-	-	16	-	-	-	-	40	\$ 8,996	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,832	\$ -	\$ 25,828			
B.4	Preparation of Tiered Negative Declaration (Optional)	12	-	-	-	-	-	60	-	-	48	-	-	-	-	120	\$ 26,988	\$ -	\$ 43,848	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 70,836		\$ 2,862	
B.5	Revisions to Hazardous Materials Business Plan (Optional)	-	4	8	-	-	-	-	-	-	4	-	-	-	-	16	\$ 4,156	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,050	\$ -	\$ -	\$ 104	\$ 5,310		\$ 215	
C	Documentation of Existing Conditions	-	20	10	-	-	-	-	-	-	27	22	15	10	-	104	\$ 22,239	\$ -	\$ -	\$ 78,750	\$ -	\$ -	\$ 37,359	\$ 25,728	\$ 6,851	\$ -	\$ -	\$ 624	\$ 171,551	2018	\$ 3,431	\$ 174,982	
C.1	Supplemental Topographic and Planimetric Survey	-	10	-	-	-	-	-	-	-	-	10	10	10	-	40	\$ 7,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 260	\$ 45,419			
C.2	Supplemental Subsurface Utility Mapping	-	5	-	-	-	-	-	-	-	10	-	5	-	-	20	\$ 4,480	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 25,728	\$ -	\$ -	\$ 260	\$ 30,468				
C.3	Geotechnical Characterization	-	5	10	-	-	-	-	-	-	5	-	-	-	-	20	\$ 5,195	\$ -	\$ -	\$ 78,750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 52	\$ 83,997			
C.4	Hazardous Building Materials Assessment	-	-	-	-	-	-	-	-	-	12	12	-	-	-	24	\$ 4,764	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,851	\$ -	\$ -	\$ 52	\$ 11,667			
D	Conceptual Design	28	56	84	28	-	84	-	224	-	-	-	-	-	-	56	\$ 560	\$ 132,832	\$ 411,061	\$ -	\$ -	\$ 24,360	\$ 6,930	\$ -	\$ -	\$ -	\$ -	\$ 2,054	\$ 577,237	2017	\$ -	\$ 577,237	
D.1	Base Scope Conceptual Design	28	56	84	28	-	84	-	224	-	-	-	-	-	-	56	\$ 560	\$ 132,832	\$ 411,061	\$ -	\$ -	\$ 24,360	\$ 6,930	\$ -	\$ -	\$ -	\$ -	\$ 2,054	\$ 577,237				
	Second Bid Package Evaluation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
	Alternative Process Development (Optional)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
	Bench-Scale and In-Field Testing (Optional)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
E	Preliminary Design	153.4	354.8	544.6	72	0	0	100	140	215	316.6	689.6	306.8	306.8	248.4	3448	\$ 745,960	\$ 621,952	\$ 26,266	\$ -	\$ 63,840	\$ 6,930	\$ -	\$ -	\$ -	\$ 1,176	\$ -	\$ 27,733	\$ 1,493,857	2018	\$ 29,877	\$ 1,523,734	
E.1	DIM #1: Biological Reactors	14	28	56	-	-	-	-	56	-	-	56	28	28	14	280	\$ 60,242	\$ 10,980	\$ -	\$ -	\$ 5,040	\$ 1,155	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,314	\$ 80,731			
E.1b	DIM #1b: Sidestream Treatment	2	4	8	-	-	-	-	8	-	-	8	4	4	2	40	\$ 8,806	\$ 65,455	\$ -	\$ -	\$ 5,040	\$ 578	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 378	\$ 80,056			
E.2	DIM #2: Carbon Substrate	10	20	40	-	-	-	-	40	-	-	40	20	20	10	200	\$ 43,030	\$ 3,300	\$ -	\$ -	\$ 5,040	\$ 578	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 378	\$ 52,326			
E.3	DIM #3: Secondary Clarifiers	9	18	36	-	-	-	-	36	-	-	36	18	18	9	180	\$ 38,727	\$ 6,780	\$ -	\$ -	\$ 5,040	\$ 1,155	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,314	\$ 55,016			
E.4	DIM #4: Plant Hydraulics	10	20	40	-	-	-	-	40	-	-	40	20	20	10	200	\$ 43,030	\$ 8,765	\$ -	\$ -	\$ 3,360	\$ 578	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 378	\$ 56,110			
E.5	DIM #5: RAS / WAS Pumping	5	10	20	-	-	-	-	20	-	-	20	10	10	5	100	\$ 21,515	\$ 6,780	\$ -	\$ -	\$ 3,360	\$ 578	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 378	\$ 32,611			
E.6	DIM #6: Secondary Treatment Operations and Control	16	32	64	-	-	-	-	64	-	64	32	32	16	320	\$ 72,496	\$ 15,665	\$ -	\$ -	\$ 8,400	\$ 1,155	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,314	\$ 101,030				
E.7	DIM #7: Blower System and Building	10	20	40	-	-	-	-	40	-																							

EXHIBIT B

OVERALL FEE ESTIMATE																														Year (Midpoint)	Escalation	Total Escalated Cost	
Tasks		Carollo Labor															Subconsultants										ODCs		Total				
Task #	Task Description	Project Manager	Project Engineer	Liquids Lead	Solids Support	Quality Management	Master Plan Continuity	Permitting / CEQA Lead / Design Support	Liquids / Modeling	Other Key or Lead	Professional	Assistant Professional	Senior CAD Technician	CAD Technician	Document Processing	Total Hours	Total Labor Costs	Key Partner	Permitting and CEQA	Geotech	Technical Advisor	Technical Advisor	Survey	Pothole	Hazardous Waste	Cost	BCDC Permit	Other Direct Costs	Total Fee				
		Jim Hagstrom	Scott Parker	Andre Gharagozian	Rashi Gupta	Steve Swanback	Jamel Demir	Katy Rogers	Anne Conklin	Various	Various	Various	TBD	TBD	TBD			CH2M	ESA	Fugro	Ekster and Assoc	David Jenkins and Assoc	Towill	Exaro	Al Clancy	Ewing Constructio n Services	H.T. Harvey						
		\$296	\$274	\$274	\$274	\$274	\$274	\$217	\$217	\$274	\$217	\$180	\$188	\$138	\$123			Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee	Fee						
F.6.c	90% Design (Optional)	-	-	-	-	-	-	-	-	-	67.4	-	67.4	121.3	13.5	269	\$ 45,671	\$ 27,650	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,569	\$ 77,890		\$ 2,348	
F.6.d	100% Design (Optional)	-	-	-	-	-	-	-	-	-	18.2	-	18.2	32.8	3.6	73	\$ 12,359	\$ 14,850	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,569	\$ 31,778		\$ 958	
F.7	Perimeter Wall Design Development (Optional)	2.4	12.2	6.1	-	-	-	-	12.2	-	24.3	18.2	12.2	31.6	2.4	122	\$ 23,846	\$ 121,882	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 127	\$ 145,854		\$ 4,397		
F.7.a	30% Design (Optional)	0.5	2.7	1.3	-	-	-	-	2.7	-	5.4	4.0	2.7	7.0	0.5	27	\$ 5,260	\$ 25,746	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 31,037		\$ 936		
F.7.b	60% Design (Optional)	0.6	3.2	1.6	-	-	-	-	3.2	-	6.5	4.8	3.2	8.4	0.6	32	\$ 6,339	\$ 33,350	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 32	\$ 39,721		\$ 1,198	
F.7.c	90% Design (Optional)	0.9	4.7	2.3	-	-	-	-	4.7	-	9.3	7.0	4.7	12.1	0.9	47	\$ 9,146	\$ 38,450	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 47,627		\$ 1,436		
F.7.d	100% Design (Optional)	0.3	1.6	0.8	-	-	-	-	1.6	-	3.2	2.4	1.6	4.1	0.3	16	\$ 3,101	\$ 24,336	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 27,469		\$ 828		
F.8	CEPT Design Development (Optional)	1.8	4.6	9.2	-	-	-	-	9.2	-	18.3	13.8	9.2	23.8	1.8	92	\$ 17,997	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 127	\$ 18,124		\$ 546		
F.8.a	30% Design (Optional)	0.5	1.1	2.3	-	-	-	-	2.3	-	4.6	3.4	2.3	5.9	0.5	23	\$ 4,475	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 4,506		\$ 136		
F.8.b	60% Design (Optional)	0.5	1.2	2.4	-	-	-	-	2.4	-	4.8	3.6	2.4	6.3	0.5	24	\$ 4,730	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 4,762		\$ 144		
F.8.c	90% Design (Optional)	0.7	1.8	3.5	-	-	-	-	3.5	-	7.0	5.3	3.5	9.1	0.7	35	\$ 6,869	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 6,901		\$ 208		
F.8.d	100% Design (Optional)	0.2	0.5	1.0	-	-	-	-	1.0	-	2.0	1.5	1.0	2.5	0.2	10	\$ 1,923	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32	\$ 1,955		\$ 50		
G	Final Design	35	88	176	-	-	-	-	88	-	365	352	189	481	38	1,813	\$ 351,113	\$ 242,607	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,880	\$ -	\$ 2,251	\$ 601,851	2019	\$ 24,315	\$ 626,165	
G.1	Base Scope Bid Package Plans, Specifications, and Cost Estimates	34	84	169	-	-	-	-	84	-	337	337	168.6	438	34	1,686	\$ 327,727	\$ 173,540	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,880	\$ -	\$ 2,128	\$ 509,275			
G.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bid Package (Optional)	1	3	6	-	-	-	-	3	-	11	11	5.7	15	1	57	\$ 11,004	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24	\$ 11,027		\$ 446		
G.3	Second Bid Package (Optional)	-	-	-	-	-	-	-	-	-	13	-	12.6	23	3	51	\$ 8,572	\$ 49,787	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 48	\$ 58,407		\$ 2,360		
G.4	Perimeter Wall Bid Package (Optional)	0	1	1	-	-	-	-	1	-	3	3	1.3	3	0	13	\$ 2,430	\$ 19,280	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22	\$ 21,732		\$ 878		
G.5	CEPT Bid Package (Optional)	0	0	1	0	0	0	0	0	0	1	1	0.7	2	0	7	\$ 1,380	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30	\$ 30	\$ 1,410		\$ 57		
H	Bidding Services	33	65.7	99	-	-	-	-	-	-	361.5	-	85.4	13	657	\$ 133,234	\$ 103,872	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 646	\$ 237,753	2020	\$ 14,552	\$ 252,305	
H.1	Base Scope Bidding Services	27	54.3	82	-	-	-	-	-	-	298.9	-	70.6	11	543	\$ 110,141	\$ 77,080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 333	\$ 187,554				
H.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bidding Services (Optional)	1	1.4	2	-	-	-	-	-	-	7.5	-	1.8	0	14	\$ 2,765	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0	\$ 2,765		\$ 169		
H.3	Second Bid Package Bidding Services (Optional)	5	9.8	15	-	-	-	-	-	-	53.9	-	12.7	2	98	\$ 19,857	\$ 20,125	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 312	\$ 40,294		\$ 2,466		
H.4	Perimeter Wall Bidding Services (Optional)	0	0	0	-	-	-	-	-	-	0.7	-	0	0	1	\$ 272	\$ 6,667	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0	\$ 6,939		\$ 425		
H.5	CEPT Bidding Services (Optional)	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	1	\$ 200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0	\$ 0	\$ 201		\$ 12		
I	Construction Support Services	119	594	1,188.8	-	-	-	-	-	-	2,378	5,231	-	2,259	119	11,888	\$ 2,307,629	\$ 1,283,871	\$ -	\$ 63,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 109,831	\$ 3,764,331	2022	\$ 350,847	\$ 4,115,177	
I.1	Base Scope Construction Support Services	98	488	976.2	-	-	-	-	-	-	1,952	4,295	-	1,855	98	9,762	\$ 1,894,837	\$ 1,040,650	\$ -	\$ 63,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 65,489	\$ 3,063,976				
I.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Construction Support Services (Optional)	3	15	30.4	-	-	-	-	-	-	61	134	-	58	3	304	\$ 59,031	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24	\$ 59,055		\$ 5,504		
I.3	Second Bid Package Construction Support Services (Optional)	17	86	171.4	-	-	-	-	-	-	343	754	-	326	17	1,714	\$ 332,677	\$ 170,220	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 44,267	\$ 547,164		\$ 50,997		
I.4	Perimeter Wall Construction Support Services (Optional)	0	2	4.5	-	-	-	-	-	-	9	20	-	8	0	44	\$ 8,648	\$ 73,001	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22	\$ 81,671		\$ 7,612		
I.5	CEPT Construction Support Services (Optional)	1	3	6.4	0	0	0	0	0	0	13	28	0	12	1	64	\$ 12,436	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30	\$ 12,466		\$ 1,162		
J	Commissioning Support Services	22.3	22.3	78.0	-	-	-	-	-	-	311.9	354.4	-	-	-	789	\$ 165,575	\$ 143,967	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,905	\$ 316,447	2023	\$ 39,923.67	\$ 356,370	
J.1	Base Scope Planning Phase	4.6	4.6	9.3	-	-	-	-	-	-	37.1	46.4	-	-	-	102.1	\$ 21,591	\$ 14,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,291				
J.2	Base Scope Commissioning Phase	-	-	31.1	-	-	-	-	-	-	124.3	155.4	-	-	-	310.8	\$ 63,471	\$ 54,945	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 118,416				
J.3	Base Scope Process Start-Up Phase	16.2	16.2	32.5	-	-	-	-	-	-	129.9	129.9	-	-	-	324.7	\$ 69,723	\$ 61,750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,494	\$ 137,967				
J.4	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Commissioning Support Services (Optional)	0.7	0.7	2.3	-	-	-	-	-	-	9.3	10.3	-	-	-	23.2	\$ 4,879	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 207	\$ 5,085		\$ 642		
J.4.a	Optional Planning Phase	0.1	0.1	0.3	-	-	-	-	-	-	1.2	1.2	-	-	-	3.0	\$ 635	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 635		\$ 80	
J.4.b	Optional Commissioning Phase	-	-	1.0	-	-	-	-	-	-	4.0	5.0	-	-	-	9.9	\$ 2,022	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,022		\$ 255	
J.4.c	Optional Process Start-Up Phase	0.5	0.5	1.0	-	-	-	-	-	-	4.1	4.1	-	-	-	10.3	\$ 2,222	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 207	\$ 2,428		\$ 306		
J.5	Second Bid Package Commissioning Support Services (Optional)	0.6	0.6	2.2	-	-	-	-	-	-	8.7	9.7	-	-	-	21.9	\$ 4,593	\$ 7,965	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 203	\$ 12,761		\$ 1,610		
J.5.a	Optional Planning Phase	0.1	0.1	0.3	-	-	-	-	-	-	1.1	1.1	-	-	-	2.8	\$ 598	\$ 585	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,183		\$ 149	
J.5.b	Optional Commissioning Phase	-	-	0.9	-	-	-	-	-	-	3.7	4.7	-	-	-	9.3	\$ 1,904	\$ 3,420	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,324		\$ 672	
J.5.c	Optional Process Start-Up Phase	0.5	0.5	1.0	-	-	-	-	-	-	3.9	3.9	-	-	-	9.7	\$ 2,092	\$ 3,960	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 203	\$ 6,254		\$ 789		
J.6	Perimeter Wall Commissioning Support Services (Optional)	0.1	0.1	0.3	-	-	-	-	-	-	1.4	1.5	-	-	-	3.4	\$ 725	\$ 4,607	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,332		\$ 673		
J.6.a	Optional Planning Phase	0.0	0.0	0.0	-	-	-	-	-	-	0.2	0.2	-	-	-	0.4	\$ 94	\$ 390	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 484		\$ 61		
J.6.b	Optional Commissioning Phase	-	-	0.1	-	-	-	-	-	-	0.6	0.7	-	-	-	1.5	\$ 301	\$ 1,816	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,117		\$ 267		
J.6.c	Optional Process Start-Up Phase	0.1	0.1	0.2	-	-	-	-	-	-	0.6	0.6	-	-	-	1.5	\$ 330	\$ 2,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,731		\$ 345		
J.7	CEPT Commissioning Support Services (Optional)	0.1	0.1	0.5	-	-	-	-	-	-	1.1	1.2	-	-	-	2.8	\$ 593	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 594		\$ 75		
J.7.a	Optional Planning Phase	0.0	0.0	0.0	-	-	-	-	-	-	0.1	0.1	-	-	-	0.4	\$ 77	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 77		\$ 10		
J.7.b	Optional Commissioning Phase	-	-	0.1	-	-	-	-	-	-	0.5	0.6	-	-	-	1.2	\$ 246	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 246		\$ 31		
J.7.c	Optional Process Start-Up Phase	0.1	0.1	0.1	-	-	-	-	-	-	0.5																						

EXHIBIT B

Tasks		CH2M Labor																			ODCs		Total		
Task #	Task Description	Sr. Professional 2	Sr. Professional 2	Sr. Professional 2	Principal Professional 2	Principal-in-Charge		Principal Professional 2		Principal Professional 1	Principal Professional 1	Principal Professional 1	Principal Professional 1	Principal Professional 1	Project Professional 2	Sr. Professional 1	Project Professional 2	Principal Professional 2	Engineerign Technician	Technician	Office/Clerical	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		PM	DM	Architect	QC	Conceptual Design Lead	Controls Lead	Preliminary Design Lead	Solids Technologist		Process/Modeling Lead	Odor Control	Corrosion	Project Engineer											
		Rosinski	Reistad	Kirsten	Various	Sandino	Hoyle	Green	Oerke	Various and Cost Estimating	Lancaster	Cowden	Rod Jackson	Ransom	Various	Various	Cost Manager Broughton	Various	Various	Various					
		\$195	\$195	\$195	\$270	\$300	\$300	\$270	\$270	\$225	\$225	\$225	\$225	\$150	\$170	\$150	\$270	\$160	\$112	\$109					
A	Project Management	136	-		-	-	-	-	-	-	-	-	-	-	160	-	-	-	-	-	80	376	\$ 59,240	\$ -	\$ 59,240
A.1	Base Scope Project Management	136	-		-	-	-	-	-	-	-	-	-	-	160	-	-	-	-	-	80	376	\$ 59,240	\$ -	\$ 59,240
A.1.a	Project Management Plan	16																			16	\$ 3,120		\$ 3,120	
A.1.b	Meeting Management																				-	\$ -		\$ -	
A.1.c	Project Schedules																				-	\$ -		\$ -	
A.1.d	Quality Assurance/Quality Control	120												160						80	360	\$ 56,120		\$ 56,120	
A.1.e	Document Management																				-	\$ -		\$ -	
A.1.f	Pay Applications																				-	\$ -		\$ -	
A.2	Support for Council Study Sessions (Optional)	-	-																		-	\$ -	\$ -	\$ -	
A.3	Second Bid Package Project Management (Optional)																								
B	Permitting	12	-		-	-	-	-	-	-	-	40	-	-	-	-	40	-	-	-	6	98	\$ 17,994	\$ -	\$ 17,994
B.1	CEQA																				-	\$ -	\$ -	\$ -	
B.2	Bay Area Air Quality Management District	12	-		-	-	-	-	-	-	-	40	-	-	-	-	40	-	-	-	6	98	\$ 17,994	\$ -	\$ 17,994
B.2.a	Base Scope BAAQMD Permitting	12										40					40				6	98	\$ 17,994		\$ 17,994
B.2.b	Second Bid Package BAAQMD Permitting (Optional)																				-	\$ -		\$ -	
B.3	Preparation of BCDC Permit Amendment																				-	\$ -	\$ -	\$ -	
B.4	Preparation of Tiered Negative Declaration (Optional)																				-	\$ -	\$ -	\$ -	
B.5	Revisions to Hazardous Materials Business Plan (Optional)																				-	\$ -	\$ -	\$ -	
C	Documentation of Existing Conditions	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	
C.1	Supplemental Topographic and Planimetric Survey																				-	\$ -	\$ -	\$ -	
C.2	Supplemental Subsurface Utility Mapping																				-	\$ -	\$ -	\$ -	
C.3	Geotechnical Characterization																				-	\$ -	\$ -	\$ -	
C.4	Hazardous Building Materials Assessment																				-	\$ -	\$ -	\$ -	
D	Conceptual Design	195	96	-	100	232	-	100	70	100	348	16	-	324	80	-	-	48	40	48	120	1,917	\$ 403,661	\$ 7,400	\$ 411,061
D.1	Base Scope Conceptual Design	195	96		100	232		100	70	100	348	16		324	80		-	48	40	48	120	1,917	\$ 403,661	\$ 7,400	\$ 411,061
	Second Bid Package Conceptual Design (Optional)																				-	\$ -		\$ -	
	Alternative Process Development (Optional)																				-	\$ -		\$ -	
	Bench-Scale and In-Field Testing (Optional)	-												-						-					
E	Preliminary Design	446	200	152	68	128	60	176	24	76	128	40	-	280	435	212	128	244	-	272	3,069	\$ 590,268	\$ 31,684	\$ 621,952	
E.1	DIM #1: Biological Reactors					24					12						4				40	\$ 10,980		\$ 10,980	
E.1b	DIM #1b: Sidestream Treatment	58	40		8	24					48			-	60		8	40		40	326	\$ 62,390	\$ 3,065	\$ 65,455	
E.2	DIM #2: Carbon Substrate					8					4										12	\$ 3,300		\$ 3,300	
E.3	DIM #3: Secondary Clarifiers					16					4						4				24	\$ 6,780		\$ 6,780	
E.4	DIM #4: Plant Hydraulics					16					4										20	\$ 5,700	\$ 3,065	\$ 8,765	
E.5	DIM #5: RAS / WAS Pumping					16					4						4				24	\$ 6,780		\$ 6,780	
E.6	DIM #6: Secondary Treatment Operations and Control					24					24										48	\$ 12,600	\$ 3,065	\$ 15,665	
E.7	DIM #7: Blower System and Building										4						4				8	\$ 1,980		\$ 1,980	
E.8	DIM #8: Thickening - Technology / Equipment	58	40		8			16	12		8			60		40	-	20		20	282	\$ 51,010		\$ 51,010	
E.9	DIM #9: Dewatering - Technology / Equipment, Digested Sludge Storage, Cake Handling	58	40		8			16	12		8			60	28	20	-	20		20	290	\$ 52,770	\$ 4,205	\$ 56,975	
E.10	DIM #10: T / D Building Design	58	40	40	12			40			8			60	147	60	8	40		40	553	\$ 98,660	\$ 4,205	\$ 102,865	
E.11	DIM #11: Odor Control	58	-		8			16				40		60	-	20	4	40		40	286	\$ 50,630		\$ 50,630	
E.12	DIM #12: Maintenance Building	58		100	12			24							120	30	4	40		40	428	\$ 77,270	\$ 4,205	\$ 81,475	
E.13	DIM #13: Digester Supernatant Pump Station and Piping	58	40		8			16		12				40	56	10	8	20		32	300	\$ 54,158	\$ 4,205	\$ 58,363	
E.14	DIM #14: Sequencing and Site Layout	16						24		24							80				144	\$ 36,600	\$ 2,835	\$ 39,435	
E.15	DIM #15: Power																				-	\$ -	\$ -	\$ -	
E.16	DIM #16: Automation Control System	8	-				60	8		40										8	124	\$ 31,592	\$ 2,835	\$ 34,427	
	DIM #17: AFT Pump Station and Pipeline (Optional)							-																	
E.18	DIM #18: Perimeter Wall (Optional)	16		12	4			16								24		24		32	160	\$ 27,068		\$ 27,068	
E.19	Project Report		-		-									-		-	-	-	-	-	-	\$ -		\$ -	
F	Design Development	1,449	1,525	232	536	140	20	372	200	2,223	-	200	200	112	4,052	1,778	290	930	3,495	722	18,476	\$ 3,232,083	\$ 81,975	\$ 3,314,058	
F.1	Base Scope 30% Design	302	294	40	98	40	20	92	80	457		40	40	32	817	327	80	163	686	131	3,739	\$ 667,276	\$ 20,247	\$ 687,523	
F.2	Base Scope 60% Design	374	374	60	125	40	-	80	60	582		60	60		1,040	416	40	208	873	166	4,558	\$ 798,210	\$ 13,570	\$ 811,780	
F.3	Base Scope 90% Design	613	613	40	204	40	-	160	40	954		80	80		1,704	681	40	341	1,431	273	7,294	\$ 1,265,819	\$ 9,110	\$ 1,274,929	
F.4	Base Scope 100% Design	148	148	20	4																				

EXHIBIT B

Tasks		CH2M Labor																			ODCs		Total	
Task #	Task Description	Sr.Professional 2	Sr. Professional 2	Sr. Professional 2	Principal Professional 2	Principal-in-Charge		Principal Professional 2		Principal Professional 1	Principal Professional 1	Principal Professional 1	Principal Professional 1	Project Professional 2	Sr. Professional 1	Project Professional 2	Principal Professional 2	Engineerign Technician	Technician	Office/Clerical	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		PM	DM	Architect	QC	Conceptual Design Lead	Controls Lead	Preliminary Design Lead	Solids Technologist		Process/Modeling Lead	Odor Control	Corrosion	Project Engineer										
		Rosinski	Reistad	Kirsten	Various	Sandino	Hoyle	Green	Oerke	Various and Cost Estimating	Lancaster	Cowden	Rod Jackson	Ransom	Various	Various	Cost Manager Broughton	Various	Various	Various				
		\$195	\$195	\$195	\$270	\$300	\$300	\$270	\$270	\$225	\$225	\$225	\$225	\$150	\$170	\$150	\$270	\$160	\$112	\$109				
F.7	Perimeter Wall Design Development (Optional)	12	-	72	28	-		-	\$270	\$225	\$225		\$225	80	80	100	70	40	160	46	688	\$ 112,774	\$ 9,108	\$ 121,882
F.7.a	30% Design (Optional)	3		20	8									16	16	20	20	4	16	8	131	\$ 23,469	\$ 2,277	\$ 25,746
F.7.b	60% Design (Optional)	3		16	6									24	24	30	20	12	48	8	191	\$ 31,073	\$ 2,277	\$ 33,350
F.7.c	90% Design (Optional)	3		16	6									32	32	40	10	16	64	20	239	\$ 36,173	\$ 2,277	\$ 38,450
F.7.d	100% Design (Optional)	3		20	8									8	8	10	20	8	32	10	127	\$ 22,059	\$ 2,277	\$ 24,336
F.8	CEPT Design Development (Optional)	-	-		-	-		-		-				-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.8.a	30% Design (Optional)	-	-		-	-		-		-				-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.8.b	60% Design (Optional)	-	-		-	-		-		-				-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.8.c	90% Design (Optional)	-	-		-	-		-		-				-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.8.d	100% Design (Optional)	-	-		-	-		-		-				-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
G	Final Design	164	104	-	29	-	-	-	100	-	-	-	-	-	326	89	220	45	186	35	1,298	\$ 242,607	\$ -	\$ 242,607
G.1	Base Scope Bid Package Plans, Specifications, and Cost Estimates	64	64		21	-		-	100					-	178	71	200	36	149	28	911	\$ 173,540	\$ -	\$ 173,540
	AFT Pump Station and Pipeline Bid Package (Optional)																				-	\$ -	\$ -	\$ -
G.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bid Package (Optional)																				-	\$ -	\$ -	\$ -
G.3	Second Bid Package (Optional)	60	16		8	-									108	18	20	9	37	7	283	\$ 49,787	\$ -	\$ 49,787
G.4	Perimeter Wall Bid Package (Optional)	40	24												40						104	\$ 19,280	\$ -	\$ 19,280
G.5	CEPT Bid Package (Optional)																							
H	Bidding Services	32	53	20	14	-	-	-	79	-	-	-	-	-	158	105	-	26	79	26	592	\$ 100,482	\$ 3,390	\$ 103,872
H.1	Base Scope Bidding Services	24	40	20	10				60						120	80		20	60	20	454	\$ 77,080	\$ -	\$ 77,080
	AFT Pump Station and Pipeline Bidding Services (Optional)																				-	\$ -	\$ -	\$ -
H.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bidding Services (Optional)																				-	\$ -	\$ -	\$ -
H.3	Second Bid Package Bidding Services (Optional)	6	10		3	-			15						30	20	-	5	15	5	109	\$ 18,430	\$ 1,695	\$ 20,125
H.4	Perimeter Wall Bidding Services (Optional)	2	3		1	-			4						8	5	-	1	4	1	29	\$ 4,972	\$ 1,695	\$ 6,667
H.5	CEPT Bidding Services (Optional)																							
I	Construction Support Services	-	580	-	-	80	-	80	2,855					-	1,340	-	100	-	1,026	356	6,417	\$ 1,209,591	\$ 74,280	\$ 1,283,871
I.1	Base Scope Construction Support Services	-	500			40	-		2,200						1,220		100		970	310	5,340	\$ 981,330	\$ 59,320	\$ 1,040,650
	AFT Pump Station and Pipeline Construction Support Services (Optional)																				-	\$ -	\$ -	\$ -
I.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Construction Support Services (Optional)																				-	\$ -	\$ -	\$ -
I.3	Second Bid Package Construction Support Services (Optional)		80			-		80	440						120				30	20	770	\$ 162,140	\$ 8,080	\$ 170,220
I.4	Perimeter Wall Construction Support Services (Optional)					40			215										26	26	307	\$ 66,121	\$ 6,880	\$ 73,001
I.5	CEPT Construction Support Services (Optional)																							
J	Commissioning Support Services	-	249	-	-	109	-	-	145					-	40	-	-	-	-	-	543	\$ 120,680	\$ 21,667	\$ 143,967
J.1	Base Scope Planning Phase		30			7			30												67	\$ 14,700	\$ -	\$ 14,700
J.2	Base Scope Commissioning Phase		75			52	-		75												202	\$ 47,100	\$ 7,845	\$ 54,945
J.3	Base Scope Process Start-Up Phase		106			50	-		40						40						236	\$ 51,470	\$ 10,280	\$ 61,750
	AFT Pump Station and Pipeline Commissioning Support Services (Optional)	-	-		-	-		-	-					-	-	-	-	-	-	-	-	\$ -		\$ -
	Planning Phase (Optional)																				-	\$ -		\$ -
	Commissioning Phase (Optional)																				-	\$ -		\$ -
	Process Start-Up Phase (Optional)																				-	\$ -		\$ -
J.4	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Commissioning Support Services (Optional)	-	-		-	-		-	-					-	-	-	-	-	-	-	-	\$ -		\$ -
J.4.a	Planning Phase (Optional)																				-	\$ -		\$ -
J.4.b	Commissioning Phase (Optional)																				-	\$ -		\$ -
J.4.c	Process Start-Up Phase (Optional)																				-	\$ -		\$ -
J.5	Second Bid Package Commissioning Support Services (Optional)	-	19		-	-	-	-		-				-	-	-	-	-	-	-	19	\$ 3,705	\$ 2,640	\$ 7,965
J.5.a	Planning Phase (Optional)		3																		3	\$ 585		\$ 585
J.5.b	Commissioning Phase (Optional)		8						2												10	\$ 2,100	\$ 1,320	\$ 3,420
J.5.c	Process Start-Up Phase (Optional)		8						4												12	\$ 2,640	\$ 1,320	\$ 3,960
J.6	Perimeter Wall Commissioning Support Services (Optional)	-	19		-	-		-		-				-	-	-	-	-	-	-	19	\$ 3,705	\$ 902	\$ 4,607
J.6.a	Planning Phase (Optional)		2							-											2	\$ 390		\$ 390
J.6.b	Commissioning Phase (Optional)		7																		7	\$ 1,365	\$ 451	\$ 1,816
J.6.c	Process Start-Up Phase (Optional)		10																		10	\$ 1,950	\$ 451	\$ 2,401
J.7	CEPT Commissioning Support Services (Optional)	-	-		-	-		-		-				-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.7.a	Planning Phase (Optional)									-											-	\$ -		\$ -
J.7.b	Commissioning Phase (Optional)		-																		-	\$ -		\$ -
J.7.c	Process Start-Up Phase (Optional)		-																		-	\$ -		\$ -
K	Operation and Maintenance Manual Updates								300												300	\$ 67,500	\$ 5,799	\$ 73,299
	Total Optional Services	136	267	84	76	40	-	96	674	-	-	-	-	80	410	265	110	175	272	177	2,862	\$ 533,962	\$ 58,520	\$ 594,102
	Total Including Optional Services	2,434	2,807	404	747	689	80	728	294	5,878	476	296	200	876	6,431	2,224	786	1,285	4,834	1,617	33,086	\$ 6,044,106	\$ 226,195	\$ 6,271,921

EXHIBIT B

Tasks		ESA Labor																			ODCs	Total
Task #	Task Description	Senior Director II	Director III	Project Director	Bio	Director II	BCDC	Traffic	Cultural	Analyst	GIS	Air Quality	CEQA PM	Assoc III	Assoc II	Word Processing	Bio	CEQA Analyst	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		AQ Permit Reviewer	Tim Rimpo	Jill Hamilton	C Rogers	Air Quality	J Sunahara	J Hutchison	H Koenig	J Iyer	W McCullough	D Sloat	Karen Lancelle	Name	Name	L Bautista	L Hill	A Maudru				
		\$265	\$230	\$230	\$215	\$215	\$195	\$195	\$165	\$165	\$150	\$150	\$140	\$130	\$120	\$115	\$100	\$100				
B	Permitting ¹	3	31	40	5	64	10	6	32	186	16	60	236	27	6	24	48	119	913	\$ 139,180	\$ 2,500	\$ 141,680
B.1	CEQA Memorandum/Addendum	-	-	12	2	-	4	2	4	32		-	68	-	-	8	8	32	172	\$ 24,740	\$ 750	\$ 25,490
B.2	Bay Area Air Quality Management District	3	31	2	-	64	-	-	-	94	-	60	8	3	6	2	-	3	276	\$ 49,415	\$ -	\$ 49,415
B.2.a	Base Scope BAAQMD Permitting	2	24	2		48				72		40	8	2	4	2		2	206	\$ 37,000		\$ 37,000
B.2.b	Second Bid Package BAAQMD Permitting (Optional)	1	7			16				22		20		1	2			1	70	\$ 12,415		\$ 12,415
B.3	Preparation of BCDC Permit Amendment	-	-		-	-						-		-	-				-	\$ -		\$ -
B.4	Preparation of Tiered Negative Declaration (Optional)	-	-	24	2	-	4	4	8	30	8	-	120	-	-	12	16	60	288	\$ 40,760	\$ 1,000	\$ 41,760
E.19	Project Report		-	2	1	-	2		20	30	8	-	40	24	-	2	24	24	177	\$ 24,265	\$ 750	\$ 25,015
	Total Optional Services	1	7	24	2	16	4	4	8	52	8	20	120	1	2	12	16	61	358	\$ 53,175	\$ 1,750	\$ 54,925
	Total Including Optional Services	3	31	40	5	64	10	6	32	186	16	60	236	27	6	24	48	119	913	139,180	\$ 2,500	\$ 141,680
	Assumptions used in developing Cost Estimate																					
1	Permitting costs shown here do not include application fees.																					
2	Assumes no new fieldwork or database search to support cultural resources memo for CSRF application.																					
3	City will decide whether flood wall is included in the project before permitting/CEQA tasks start.																					
4	Does not include budget for monthly meetings.																					

EXHIBIT B

Tasks		Towill Labor							ODCs	Total
Task #	Task Description	Project Mgr	Assoc Surveyor	Survey Technician	Survey Party Chief	Rod Person	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		John May	TBD	TBD	TBD	TBD				
		\$195	\$146	\$120	\$132	\$115				
A	Project Management	-	-	-	-	-	-	\$ -	\$ -	\$ -
B	Permitting	-	-	-	-	-	-	\$ -	\$ -	\$ -
C	Documentation of Existing Conditions	20	20	75	80	80	275	\$ 35,580	\$ -	\$ 35,580
C.1	Supplemental Topographic and Planimetric Survey	20	20	75	80	80	275	\$ 35,580	\$ -	\$ 35,580
C.2	Supplemental Subsurface Utility Mapping	-	-	-	-	-	-	\$ -	\$ -	\$ -
C.3	Geotechnical Characterization	-	-	-	-	-	-	\$ -	\$ -	\$ -
C.4	Hazardous Building Materials Assessment	-	-	-	-	-	-	\$ -	\$ -	\$ -
D	Conceptual Design	-	-	-	-	-	-	\$ -	\$ -	\$ -
E	Preliminary Design	-	-	-	-	-	-	\$ -	\$ -	\$ -
F	Design Development	-	-	-	-	-	-	\$ -	\$ -	\$ -
G	Final Design	-	-	-	-	-	-	\$ -	\$ -	\$ -
H	Bidding Services	-	-	-	-	-	-	\$ -	\$ -	\$ -
I	Construction Support Services	-	-	-	-	-	-	\$ -	\$ -	\$ -
J	Commissioning Support Services	-	-	-	-	-	-	\$ -	\$ -	\$ -
K	Operation and Maintenance Manual Updates	-	-	-	-	-	-	\$ -	\$ -	\$ -
	Total Optional Services	-	-	-	-	-	-	\$ -	\$ -	\$ -
	Total Including Optional Services	20	20	75	80	80	275	\$ 35,580	\$ -	\$ 35,580

EXHIBIT B

Tasks		Clancy Labor			ODCs	Total
Task #	Task Description	Lead Professional	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		Clancy				
		\$125				
A	Project Management	-	-	\$ -	\$ -	\$ -
B	Permitting	8	8	\$ 1,000	\$ -	\$ 1,000
B.1	CEQA	-	-	\$ -	\$ -	\$ -
B.2	Bay Area Air Quality Management District	-	-	\$ -	\$ -	\$ -
B.2.a	Base Scope BAAQMD Permitting	-	-	\$ -	\$ -	\$ -
B.2.b	Second Bid Package BAAQMD Permitting (Optional)	-	-	\$ -	\$ -	\$ -
B.3	Preparation of BCDC Permit Amendment	-	-	\$ -	\$ -	\$ -
B.4	Preparation of Tiered Negative Declaration (Optional)	-	-	\$ -	\$ -	\$ -
B.5	Revisions to Hazardous Materials Business Plan (Optional)	8	8	\$ 1,000	\$ -	\$ 1,000
C	Documentation of Existing Conditions	20	20	\$ 2,500	\$ 4,025	\$ 6,525
C.1	Supplemental Topographic and Planimetric Survey	-	-	\$ -	\$ -	\$ -
C.2	Supplemental Subsurface Utility Mapping	-	-	\$ -	\$ -	\$ -
C.3	Geotechnical Characterization	-	-	\$ -	\$ -	\$ -
C.4	Hazardous Building Materials Assessment	20	20	\$ 2,500	\$ 4,025	\$ 6,525
D	Conceptual Design	-	-	\$ -	\$ -	\$ -
E	Preliminary Design	-	-	\$ -	\$ -	\$ -
F	Design Development	-	-	\$ -	\$ -	\$ -
G	Final Design	-	-	\$ -	\$ -	\$ -
H	Bidding Services	-	-	\$ -	\$ -	\$ -
I	Construction Support Services	-	-	\$ -	\$ -	\$ -
J	Commissioning Support Services	-	-	\$ -	\$ -	\$ -
K	Operation and Maintenance Manual Updates	-	-	\$ -	\$ -	\$ -
	Total Optional Services	8	8	\$ 1,000	\$ -	\$ 1,000
	Total Including Optional Services	28	28	\$ 3,500	\$ 4,025	\$ 7,525

EXHIBIT B

Tasks		Ekster Labor										ODCs	Total
Task #	Task Description	Ekster	Title	Title	Title	Title	Title	Title	Title	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		Alex Ekster	Name	Name	Name	Name	Name	Name	Name				
		\$200	\$100	\$100	\$100	\$100	\$100	\$100	\$100				
A	Project Management	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
B	Permitting	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
C	Documentation of Existing Conditions	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
D	Conceptual Design	116	-	-	-	-	-	-	-	116	\$ 23,200	\$ -	\$ 23,200
D.1	Base Scope Conceptual Design	116	-	-	-	-	-	-	-	116	\$ 23,200	\$ -	\$ 23,200
	Second Bid Package Conceptual Design (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
	Alternative Process Development (Optional)		-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
	Bench-Scale and In-Field Testing (Optional)		-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
E	Preliminary Design	304	-	-	-	-	-	-	-	304	\$ 60,800	\$ -	\$ 60,800
E.1	DIM #1: Biological Reactors	24	-	-	-	-	-	-	-	24	\$ 4,800	\$ -	\$ 4,800
E.1b	DIM #1b: Sidestream Treatment	24	-	-	-	-	-	-	-	24	\$ 4,800	\$ -	\$ 4,800
E.2	DIM #2: Carbon Substrate	24	-	-	-	-	-	-	-	24	\$ 4,800	\$ -	\$ 4,800
E.3	DIM #3: Secondary Clarifiers	24	-	-	-	-	-	-	-	24	\$ 4,800	\$ -	\$ 4,800
E.4	DIM #4: Plant Hydraulics	16	-	-	-	-	-	-	-	16	\$ 3,200	\$ -	\$ 3,200
E.5	DIM #5: RAS / WAS Pumping	16	-	-	-	-	-	-	-	16	\$ 3,200	\$ -	\$ 3,200
E.6	DIM #6: Secondary Treatment Operations and Control	40	-	-	-	-	-	-	-	40	\$ 8,000	\$ -	\$ 8,000
E.7	DIM #7: Blower System and Building	16	-	-	-	-	-	-	-	16	\$ 3,200	\$ -	\$ 3,200
E.8	DIM #8: Thickening - Technology / Equipment	24	-	-	-	-	-	-	-	24	\$ 4,800	\$ -	\$ 4,800
E.9	DIM #9: Dewatering - Technology / Equipment, Digested Sludge Storage, Cake Handling	24	-	-	-	-	-	-	-	24	\$ 4,800	\$ -	\$ 4,800
E.10	DIM #10: T / D Building Design	4	-	-	-	-	-	-	-	4	\$ 800	\$ -	\$ 800
E.11	DIM #11: Odor Control	4	-	-	-	-	-	-	-	4	\$ 800	\$ -	\$ 800
E.12	DIM #12: Maintenance Building	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
E.13	DIM #13: Digester Supernatant Pump Station and Piping	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
E.14	DIM #14: Sequencing and Site Layout	24	-	-	-	-	-	-	-	24	\$ 4,800	\$ -	\$ 4,800
E.15	DIM #15: Power	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
E.16	DIM #16: Automation Control System	40	-	-	-	-	-	-	-	40	\$ 8,000	\$ -	\$ 8,000
	DIM #17: AFT Pump Station and Pipeline (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
E.18	DIM #18: Perimeter Wall (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
E.19	Project Report	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F	Design Development	360	-	-	-	-	-	-	-	360	\$ 72,000	\$ -	\$ 72,000
F.1	Base Scope 30% Design	360	-	-	-	-	-	-	-	360	\$ 72,000	\$ -	\$ 72,000
F.2	Base Scope 60% Design	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.3	Base Scope 90% Design	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.4	Base Scope 100% Design	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
	AFT Pump Station and Pipeline Design Development (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.5	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Design Development (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.6	Second Bid Package Design Development (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.7	Perimeter Wall Design Development (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
F.8	CEPT Design Development (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
G	Final Design	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
H	Bidding Services	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
I	Construction Support Services	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J	Commissioning Support Services	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.1	Base Scope Planning Phase	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.2	Base Scope Commissioning Phase	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.3	Base Scope Process Start-Up Phase	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
	AFT Pump Station and Pipeline Commissioning Support Services (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.4	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Commissioning Support Services (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.5	Second Bid Package Commissioning Support Services (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.6	Perimeter Wall Commissioning Support Services (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
J.7	CEPT Commissioning Support Services (Optional)	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
K	Operation and Maintenance Manual Updates	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
	Total Optional Services	-	-	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
	Total Including Optional Services	780	-	-	-	-	-	-	-	780	\$ 156,000	\$ -	\$ 156,000

EXHIBIT B

Tasks		Jenkins Labor			ODCs	Total
Task #	Task Description	Jenkins	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		David Jenkins				
		\$275				
A	Project Management	-	-	\$ -	\$ -	\$ -
B	Permitting	-	-	\$ -	\$ -	\$ -
C	Documentation of Existing Conditions	-	-	\$ -	\$ -	\$ -
D	Conceptual Design	24	24	\$ 6,600	\$ -	\$ 6,600
D.1	Base Scope Conceptual Design	24	24	\$ 6,600	\$ -	\$ 6,600
	Second Bid Package Conceptual Design (Optional)	-	-	\$ -	\$ -	\$ -
	Alternative Process Development (Optional)					
	Bench-Scale and In-Field Testing (Optional)		-	\$ -	\$ -	\$ -
E	Preliminary Design	24	24	\$ 6,600	\$ -	\$ 6,600
E.1	DIM #1: Biological Reactors	4	4	\$ 1,100	\$ -	\$ 1,100
E.1b	DIM #1b: Sidestream Treatment	2	2	\$ 550	\$ -	\$ 550
E.2	DIM #2: Carbon Substrate	2	2	\$ 550	\$ -	\$ 550
E.3	DIM #3: Secondary Clarifiers	4	4	\$ 1,100	\$ -	\$ 1,100
E.4	DIM #4: Plant Hydraulics	2	2	\$ 550	\$ -	\$ 550
E.5	DIM #5: RAS / WAS Pumping	2	2	\$ 550	\$ -	\$ 550
E.6	DIM #6: Secondary Treatment Operations and Control	4	4	\$ 1,100	\$ -	\$ 1,100
E.7	DIM #7: Blower System and Building	4	4	\$ 1,100	\$ -	\$ 1,100
E.8	DIM #8: Thickening - Technology / Equipment	-	-	\$ -	\$ -	\$ -
E.9	DIM #9: Dewatering - Technology / Equipment, Digested Sludge Storage, Cake Handling	-	-	\$ -	\$ -	\$ -
E.10	DIM #10: T / D Building Design	-	-	\$ -	\$ -	\$ -
E.11	DIM #11: Odor Control	-	-	\$ -	\$ -	\$ -
E.12	DIM #12: Maintenance Building	-	-	\$ -	\$ -	\$ -
E.13	DIM #13: Digester Supernatant Pump Station and Piping	-	-	\$ -	\$ -	\$ -
E.14	DIM #14: Sequencing and Site Layout	-	-	\$ -	\$ -	\$ -
E.15	DIM #15: Power	-	-	\$ -	\$ -	\$ -
E.16	DIM #16: Automation Control System	-	-	\$ -	\$ -	\$ -
	DIM #17: AFT Pump Station and Pipeline (Optional)	-	-	\$ -	\$ -	\$ -
E.18	DIM #18: Perimeter Wall (Optional)	-	-	\$ -	\$ -	\$ -
E.19	Project Report	-	-	\$ -	\$ -	\$ -
F	Design Development	8	8	\$ 2,200	\$ -	\$ 2,200
F.1	Base Scope 30% Design	8	8	\$ 2,200	\$ -	\$ 2,200
F.2	Base Scope 60% Design	-	-	\$ -	\$ -	\$ -
F.3	Base Scope 90% Design	-	-	\$ -	\$ -	\$ -
F.4	Base Scope 100% Design	-	-	\$ -	\$ -	\$ -
	AFT Pump Station and Pipeline Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.5	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.6	Second Bid Package Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.7	Perimeter Wall Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.8	CEPT Design Development (Optional)	-	-	\$ -	\$ -	\$ -
G	Final Design	-	-	\$ -	\$ -	\$ -
H	Bidding Services	-	-	\$ -	\$ -	\$ -
I	Construction Support Services	-	-	\$ -	\$ -	\$ -
J	Commissioning Support Services	-	-	\$ -	\$ -	\$ -
K	Operation and Maintenance Manual Updates	-	-	\$ -	\$ -	\$ -
	Total Optional Services	-	-	\$ -	\$ -	\$ -
	Total Including Optional Services	56	56	\$ 15,400	\$ -	\$ 15,400

EXHIBIT B

Tasks		Ewing Labor		ODCs	Total	
Task #	Task Description	Ewing	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		Dave Ewing				
		\$140				
A	Project Management	-	-	\$ -	\$ -	\$ -
B	Permitting	-	-	\$ -	\$ -	\$ -
C	Documentation of Existing Conditions	-	-	\$ -	\$ -	\$ -
D	Conceptual Design	40	40	\$ 5,600	\$ -	\$ 5,600
D.1	Base Scope Conceptual Design	-	-	\$ -	\$ -	\$ -
	Second Bid Package Conceptual Design (Optional)	40	40	\$ 5,600	\$ -	\$ 5,600
	Alternative Process Development (Optional)	-				
	Bench-Scale and In-Field Testing (Optional)	-	-	\$ -	\$ -	\$ -
E	Preliminary Design	8	8	\$ 1,120	\$ -	\$ 1,120
E.1	DIM #1: Biological Reactors	-	-	\$ -	\$ -	\$ -
E.1b	DIM #1b: Sidestream Treatment	-	-	\$ -	\$ -	\$ -
E.2	DIM #2: Carbon Substrate	-	-	\$ -	\$ -	\$ -
E.3	DIM #3: Secondary Clarifiers	-	-	\$ -	\$ -	\$ -
E.4	DIM #4: Plant Hydraulics	-	-	\$ -	\$ -	\$ -
E.5	DIM #5: RAS / WAS Pumping	-	-	\$ -	\$ -	\$ -
E.6	DIM #6: Secondary Treatment Operations and Control	-	-	\$ -	\$ -	\$ -
E.7	DIM #7: Blower System and Building	-	-	\$ -	\$ -	\$ -
E.8	DIM #8: Thickening - Technology / Equipment	-	-	\$ -	\$ -	\$ -
E.9	DIM #9: Dewatering - Technology / Equipment, Digested Sludge Storage, Cake Handling	-	-	\$ -	\$ -	\$ -
E.10	DIM #10: T / D Building Design	-	-	\$ -	\$ -	\$ -
E.11	DIM #11: Odor Control	-	-	\$ -	\$ -	\$ -
E.12	DIM #12: Maintenance Building	-	-	\$ -	\$ -	\$ -
E.13	DIM #13: Digester Supernatant Pump Station and Piping	-	-	\$ -	\$ -	\$ -
E.14	DIM #14: Sequencing and Site Layout	8	8	\$ 1,120	\$ -	\$ 1,120
E.15	DIM #15: Power	-	-	\$ -	\$ -	\$ -
E.16	DIM #16: Automation Control System	-	-	\$ -	\$ -	\$ -
	DIM #17: AFT Pump Station and Pipeline (Optional)	-	-	\$ -	\$ -	\$ -
E.18	DIM #18: Perimeter Wall (Optional)	-	-	\$ -	\$ -	\$ -
E.19	Project Report	-	-	\$ -	\$ -	\$ -
F	Design Development	204	204	\$ 28,560	-	\$ 28,560
F.1	Base Scope 30% Design	24	24	\$ 3,360	\$ -	\$ 3,360
F.2	Base Scope 60% Design	40	40	\$ 5,600	\$ -	\$ 5,600
F.3	Base Scope 90% Design	60	60	\$ 8,400	\$ -	\$ 8,400
F.4	Base Scope 100% Design	80	80	\$ 11,200	\$ -	\$ 11,200
	AFT Pump Station and Pipeline Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.5	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.6	Second Bid Package Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.7	Perimeter Wall Design Development (Optional)	-	-	\$ -	\$ -	\$ -
F.8	CEPT Design Development (Optional)	-	-	\$ -	\$ -	\$ -
G	Final Design	40	40	\$ 5,600	-	\$ 5,600
G.1	Base Scope Bid Package Plans, Specifications, and Cost Estimates	40	40	\$ 5,600	\$ -	\$ 5,600
G.2	AFT Pump Station and Pipeline Bid Package (Optional)	-	-	\$ -	\$ -	\$ -
G.2	Electrical Improvements to Migrate Existing Processes to New 12 kV Backbone Bid Package (Optional)	-	-	\$ -	\$ -	\$ -
G.3	Second Bid Package (Optional)	-	-	\$ -	\$ -	\$ -
G.4	Perimeter Wall Bid Package (Optional)	-	-	\$ -	\$ -	\$ -
G.5	CEPT Bid Package (Optional)	-	-	\$ -	\$ -	\$ -
H	Bidding Services	-	-	\$ -	-	\$ -
I	Construction Support Services	-	-	\$ -	-	\$ -
J	Commissioning Support Services	-	-	\$ -	-	\$ -
K	Operation and Maintenance Manual Updates	-	-	\$ -	\$ -	\$ -
	Total Optional Services	40	40	\$ 5,600	\$ -	\$ 5,600
	Total Including Optional Services	292	292	\$ 40,880	\$ -	\$ 40,880

EXHIBIT B

Tasks		H.T. Harvey Labor				ODCs	Total
Task #	Task Description	Project Director/Manager	BCDC	Total Hours	Total Labor Costs	Other Direct Costs	Total Fee
		H.T. Harvey	H.T. Harvey				
		\$230	\$195				
B	Permitting ¹	4	76	82	\$ 15,970	\$ 60	\$ 16,030
B.1	CEQA Memorandum/Addendum		-	-	\$ -	\$ -	\$ -
B.2	Bay Area Air Quality Management District		-	-	\$ -	\$ -	\$ -
B.2.a	Base Scope BAAQMD Permitting			-	\$ -		\$ -
B.2.b	Second Bid Package BAAQMD Permitting (Optional)			-	\$ -		\$ -
B.3	Preparation of BCDC Permit Amendment	4	76	82	\$ 15,970	\$ 60	\$ 16,030
B.4	Preparation of Tiered Negative Declaration (Optional)				\$ -	\$ -	\$ -
E.19	Project Report			-	\$ -	\$ -	\$ -
	Total Optional Services	-	-	-	\$ -	\$ -	\$ -
	Total Including Optional Services	4	76	82	\$ 15,970	\$ 60	\$ 16,030
Assumptions used in developing Cost Estimate							
1	Permitting costs shown here do not include application fees.						
2	Does not include budget for monthly meetings.						



2017 NORTHERN PACIFIC REGION FEE SCHEDULE

Analysis, Consultation and Report Preparation. Fees for Fugro professional services, including project administration, are based on the time of professional, technical, and other support personnel directly applied to the project. Rates for overtime (other than as described below), weekend work, and emergency response will be quoted upon request. Personnel participating in judicial proceedings, whether it be expert of witness testimony, delivery of depositions, consultation to legal counsel, or preparation for such, will be billed at \$400 per hour. Rates for overtime (other than as described below), weekend work, and emergency response will be quoted on request.

PROFESSIONAL STAFF	HOURLY RATE
Staff Professional	\$130
Senior Staff Professional	\$145
Project Professional	\$165
Senior Project Professional	\$175
Senior Professional	\$190
Associate Professional	\$205
Principal Professional	\$230
Senior Principal Professional	\$280

TECHNICAL AND OFFICE STAFF	HOURLY RATE
Office Assistant	\$70
Technical Assistant / Records Coordinator	\$90
Word Processor / Clerical	\$100
Laboratory Technician	\$105
CADD Operator	\$110
Graphics Illustrator	\$120
HSE Manager	\$175
Engineering Field Technician I – Non-Prevailing Wage, Straight Time	\$100
Engineering Field Technician II – Non-Prevailing Wage, Straight Time	\$110
Engineering Field Technician III – Non-Prevailing Wage, Straight Time	\$130
Engineering Field Technician I – Prevailing Wage, Straight Time	\$130
Engineering Field Technician II – Prevailing Wage, Straight Time	\$135
Engineering Field Technician III – Prevailing Wage, Straight Time	\$140

Overtime Rates for Technical and Office Staff

- a. Saturdays or over 8 hours/day during weekdays 1.3 x straight time
- b. Saturdays over 8 hours or Sunday/holidays 1.5 x straight time
- c. Swing or graveyard shift premium..... 1.3 x straight time

**FUGRO USA LAND, INC.****OTHER DIRECT CHARGES**

Outside Services	Cost Plus 15%
Automobiles	IRS Standard Mileage Rate
Trucks	\$75/day
IMASW Equipment	\$400/day
Topcon IS Imaging Station / DGPS	\$200/day
Rope Safety Equipment	\$165/day
Toughbook Computers	\$250/day
Workstation Applications	\$50/day
Generator	\$25/day
Trench Supplies	\$5/foot
Plotter Generated Maps	\$5/sheet
Copies (photocopy)	\$0.15/sheet

HARDWARE/SOFTWARE INTERPRETIVE PROGRAMS

SMT/Fledermaus	\$25/hr
GIS/ACAD	\$25/hr
Finite Element/Finite Different Packages	\$25/hr
Seismic Data Processing	\$25/hr

*Outside services include subcontracted services, outside consultants, outside laboratory testing, equipment rentals, outside reproduction and photographic work, travel and subsistence, field supplies, and any other out of pocket expenses directly related to the project.

Effective 1/1/2017

**2017 NORTHERN CALIFORNIA FEE SCHEDULE
LABORATORY AND MATERIALS TESTING**

CLASSIFICATION TESTS

Moisture Content (ASTM D2216)	\$ 21
Moisture and Density (ASTM D2937)	\$ 32
Add for shelby tube with above tests.....	\$ 21
Reaction with HCl (ASTM D2488)	\$ 11
Irregular Shape Density (USACE)	\$ 58
Plastic and Liquid Limits, wet prep, 3 point LL (ASTM D4318)	\$ 160
Specific Gravity (ASTM D854)	\$ 84
Organic Content (ASTM D2974)	\$ 79
Sand Equivalent (ASTM D2419)	\$ 100
Sieve Analysis, up to 8 sieves (ASTM D422)	\$ 111
Add for each additional sieve in stack	\$ 11
Add for coarse fraction (>#4 sieve)	\$ 63
Percent Passing #200 Sieve (ASTM D1140)	\$ 74
Hydrometer and Sieve (ASTM D422)	\$ 170

Processing Clay Shales (USACE)	\$ 79
Tests listed above include classification (ASTM D2488 or D2487)	

VOLUME CHANGE TESTS

Incremental Consolidation (ASTM D2435)	
Up to 8 load increments.....	\$ 289
Additional load increment	\$ 32
Constant Rate of Strain Consolidation	
To 16 ksf max (ASTM D4186).....	\$ 447
With intermediate rebound and reload.....	\$ 525
Expansion Index (ASTM D4829/UBC 29-1)	\$ 247
Swell and Collapse Tests	
Wet after load, 4 point (ASTM D4546-A)	\$ 630
Wet after load, 1 point (ASTM D4546-B)	\$ 168
Load after wet, 1 point (ASTM D4546-C).....	\$ 210

**FUGRO USA LAND, INC.****STATIC STRENGTH TESTS**

Hand Penetrometer	\$ 16
Torvane	\$ 27
Miniature Vane (ASTM D4648)	\$ 53
Miniature Vane with Residual	\$ 58
Unconfined Compression	
Soil (ASTM D2166)	\$ 105
Rock, excludes strain (ASTM D7012-C)	\$ 137
Rock, with axial strain (ASTM D7012-D)	\$ 210
Add for radial strain	\$ 132
Triaxial Compression	
Unconsolidated Undrained (ASTM D2850)	\$ 147
Add for back pressure saturation	\$ 90
*Consolidated Undrained with pore pressure measurements, per point (ASTM D4767)	\$ 462
*Consolidated Drained, per point (USACE)	\$ 683
Direct Shear, 3 points, (ASTM D3080)	\$ 457
Add for residual strength, per point	\$ 53
Point Load Index (ASTM D5731)	\$ 63
*Multiply single point rate by 2 for up to 3 stages of consolidated, drained or undrained staged triaxial tests	

HYDRAULIC CONDUCTIVITY TESTS

Constant Head, 2-3" Dia. (ASTM D2434)	\$ 305
Constant Head, 6" Dia. Includes remolding (ASTM D2434)	\$ 394
Flexible Wall (ASTM D5084)	\$ 305
Add for additional effective stress	\$ 105

CLAY PROPERTIES & CHEMISTRY TESTS

Double Hydrometer (ASTM D4221)	\$ 305
Pinhole Dispersion (ASTM D4647)	\$ 284
Crumb Test (ASTM 6572)	\$ 48
X-Ray Diffraction	\$ 315
Soil Chemistry for Corrosion	
(pH, chloride, sulfate, resistivity)	\$ 263
pH (soil or water)	\$ 32

EARTHWORK TESTS

Standard Proctor, 4 points (ASTM D698)	
4-inch mold	\$ 210
6-inch mold	\$ 252
Modified Proctor, 4 points (ASTM D1557)	
4-inch mold	\$ 250
6-inch mold	\$ 290
California Impact Compaction (Cal 216)	\$ 275
Moisture - Density Check Point	
4-inch mold	\$ 80
6-inch mold	\$ 105
add for rock correction for above	\$ 95
Cement/ Lime Treatment	
Moisture/Density Relation (ASTM D558)	\$ 289
Wet & Dry Cycles, 2 spec., (ASTM D559)	\$ 525
Strength, w/ molding, (ASTM D1633)	\$ 95
Est. pH for Stabilization, (ASTM D6276)	\$ 158
Index Density and Unit Weight (ASTM D4253)	
Maximum	\$ 331
Minimum	\$ 142

R-Value (ASTM D2844/Cal 301)	\$ 326
Treated Soil	\$ 342
Aggregate Base	\$ 355
Base with Admixture	\$ 368
CBR, per point (ASTM D1883)	\$ 357
Proctor Compaction with above CBR	\$ 221
Surcharge for Admixture	\$ 53
Sample Preparation for Soil with PI>20	\$ 58

AGGREGATE TESTS

Sieve Analysis (ASTM C136/Cal202)	
Coarse Aggregate	\$ 63
Add for samples > 5000g	\$ 32
Fine Aggregate	\$ 116
Sand Equivalent (ASTM D2419/Cal 217)	\$ 100
Cleanness Value (ASTM C142/Cal 227)	\$ 147
Durability Index (ASTM C3744/Cal 229)	
Coarse Fraction	\$ 147
Fine Fraction	\$ 147
Specific Gravity & Absorption	
Coarse Aggregate (ASTM C127/Cal206)	\$ 120
Fine Aggregate (ASTM C128/Cal 207)	\$ 132
Percent of Crushed Particles, per fraction	
(ASTM D5821/Cal 205)	\$ 105
Flat & Elongated Particles (ASTM D4791)	\$ 189
Uncompacted Void Content of Fine Aggregate (AASHTO T304)	\$ 210
Moisture Content (ASTM C566)	\$ 63
Sulfate Soundness, per fraction	
(ASTM C88/Cal 214)	\$ 132
L.A. Abrasion 500 rev. (ASTM C131/Cal 211)	\$ 226
Percent Passing #200 Sieve (ASTM C117)	\$ 90
Unit Weight and Voids (ASTM C29/Cal 212)	\$ 100
Organic Impurities (ASTM C40)	\$ 53

ASPHALT CONCRETE TESTS

Stabilometer Value (ASTM D1560/Cal 366)	\$ 168
Lab Compacted Unit Weight	
Each briquette (Cal 304/Cal 308)	\$ 116
Surcharge for rubberized AC	\$ 21
Unit Weight of AC Cores (Cal 308)	\$ 69
Theoretical Max. S.G. (Cal 309)	\$ 158
Extraction and Sieve (ASTM D2172/D5444)	\$ 331
Asphalt Content by Ignition (Cal 382)	\$ 158
Calibration Curve for Ignition Test	\$ 315
Slurry Wet Track Abrasion (ASTM D3910)	\$ 74

CONCRETE, MASONRY, AND STEEL TESTS

Concrete Compression	
Each 6x12 or 4x8 Cylinder (ASTM C39)	\$ 32
Add for Elastic Modulus (ASTM C469)	\$ 195
Hold or Additional Test	\$ 32
Light Weight Concrete (CTM 548)	\$ 42
Cylinder Molds with Lids	\$ 9
Compression of Core (ASTM C42)	\$ 95
Shrinkage of Mortar and Concrete 3 Bars (ASTM C157)	\$ 462

**FUGRO USA LAND, INC.**

Unit Weight of Concrete Cylinders	
Air-Dried	\$ 32
Oven-Dried	\$ 42
Shotcrete Panel, Lab Coring & Compression	
3 cores (ASTM C42)	\$ 394
Grout and Mortar Compression (ASTM C39)	
Grout	\$ 48
Mortar	\$ 37
Composite Prism Compression (ASTM E447)	
8x8	Quote
8x12	Quote
8x16	Quote
CMU Block Compression (ASTM C140)	Quote
CMU Absorption & Moisture (ASTM C140)	\$ 100
Concrete Moisture Emission Test Kit, each	\$ 63
Rebar - Tensile and Bend (ASTM A-370)	Quote

MISCELLANEOUS LABORATORY TESTS AND CHARGES

Sample Remold Surcharge	\$ 53
Special Processing	Hourly Rates
Extrude Tube Sample and Visually Classify	\$ 74
Sample Tube Cutting, each cut	\$ 27
Sample Preparation - Non-Routine	\$ 105
Steel Drum - 55 Gallon with Lid	\$ 84
Gas Powered Generator	\$ 84
Shelby Tube with Caps	\$ 48
Addition of Soil Admixtures and Curing	\$ 100
Capping of Strength Test	\$ 42
Weight of Roofing Materials (ASTM D2829)	\$ 53
Density of Sprayed Fireproofing Materials	\$ 63
Static Friction Test	
Per Surface Location (ASTM C1028)	\$ 394
Coring Equip/Bit Charge, per half day	\$ 90
Bit Charge - Difficult Materials, per half day	\$ 105
Specimen End Prep	
Less than 4" Diameter, per cut	\$ 13
4" to 8" Diameter, per cut	\$ 19
Special Capping of Specimen	\$ 42
Patch or Grout Core Hole	\$ 37
Photograph of Sample	\$ 42
Additional Copies of Photographs	Cost + 15%
Local Site Pick up of Bulk or AC Sample	
within 30-mile radius, per sample	\$ 63

NOTES:

- i. Fugro USA Land, Inc.'s laboratories are accredited or validated by AASHTO (R-18), Caltrans, USACE, DSA/(LEA).
- ii. The following are included at NO CHARGE:
 - a. Visual classification, natural water content and density with all triaxial, direct shear, volume change, and hydraulic conductivity tests.
 - b. Sample photographs for triaxial, hydraulic conductivity, and PLI tests.
- iii. Rates for other tests and test variations, including mix designs, can be furnished on request.
- iv. Rush assignments are subject to a 25% surcharge. Weekend or Holiday test assignments are subject to a 50% surcharge.
- v. Testing for contaminated samples (EPA Level C & D) will be

invoiced at 1.5 times listed rates.

- vi. Shipping or other outside costs at cost +15%.
- vii. Reusable thin-walled tube shipping boxes (ASTM D4220) can be provided at no cost (except for shipping charges) for samples shipped to Fugro's laboratory for testing.
- viii. Please contact the laboratory prior to shipping international soils to make proper arrangements and obtain our foreign soil permit.
- ix. A surcharge of \$3 per linear foot of test boring depth will be added to cover the cost of standard engineering field supplies including sample tubes and caps, stakes, etc.

FIELD INSTRUMENTATION/EQUIPMENT

Mini RAE (PID/LEL/CO _s) Detector	\$ 160/day
Dynamic or Stainless Steel Penetrometer	\$ 55/day
Brass or Stainless Steel Sample Sleeves	\$ 10/each
Use of 10 Modified Cal. Sleeves	\$ 35/box
Keyed-Alike Locks	\$ 30/each
55-gallon Drum	\$ 85/each
Field Filter	\$ 30/unit
Stainless Steel Hand-Augur Sampler	\$ 55/day
Teflon Tape - 4" roll	\$ 80/roll
Liquinox	\$ 25/bottle
Tyvek	\$ 20/each
Nitrile Gloves	\$ 25/box
Respirator Cartridges	\$ 15/set
Inclinometer Probe and Readout Device	\$ 195/day
Rotary Hammer	\$ 45/day
CPN Corp. Hydroprobe	\$ 80/day
Double-Ring Infiltrometer	\$ 80/day
Downhole Soil Samplers	\$ 80/day
(2½-inch California liner, SPT)	
Kernlevel	\$ 25/day
24-Channel Seismograph	\$ 1600/wk
Instantel Mini Mate Pro4 Vibration Monitor	\$ 160/day
Instantel Mini Mate Pro 6 Vibration Monitor	\$ 210/day
Larsen/Davis LXT Sound Monitor	\$ 125/day
Nuclear Gauge	\$ 55/day
Manometer	\$ 60/day
Asphalt/Concrete Patch	Cost +15%
Baroid Drilling Fluid Test Kit	\$ 35/day
Conductivity Probe (in situ)	\$ 60/day
Fisher TW-6 Metal Detector	\$ 55/day
Gas Powered 120v Generator	\$ 85/day
Peristaltic Pump	\$ 55/day
Positive Displacement Pump	\$ 30/day
Temperature-pH-Conductivity Meter	\$ 30/day
Pressure Transducer	\$ 80/day
Water Level Indicator	\$ 25/day
Water Sampling Pump	\$ 210/day
(Bladder Pump or Electric Submersible)	
Well Bailer - Standard	\$ 30/day
Well Bailer - Disposable	\$ 20/each
2-inch Diameter Water Meter	\$ 25/day
4-inch Diameter Water Meter	\$ 45/day
Well Cap 2"	\$ 24/each
Digital Camera	\$ 30/day
Field Computer	\$ 35/day
Subcontracted Specialty Equipment	Cost + 15%

Exhibit C
Compensation for Reimbursable Expenditures/Subconsultant Markups

SCWP Secondary Treatment and Dewatering

Printing

Printing costs for all project documentation (i.e., meeting notes, technical memos, drawings, etc.) shall be expensed at accepted industry commercial rates.

Postage/Overnight Delivery

Postage/overnight delivery costs for all project documentation shall be expensed at accepted industry commercial rates.

Travel

Expenses for staff assigned to this project required to travel by air (i.e., air travel, lodging, car rental and meals) shall be subject to the following per diem rates and limits:

- Airfare and associated fees shall be reimbursed at the cost of Coach Class only. Business Class or First Class travel costs exceeding the Coach Class fare shall be at no additional cost to the CITY.
- Lodging shall be reimbursed at the per diem rate of one-hundred forty-five dollars (\$145) per night, inclusive of taxes.
- Rental car expenses, including applicable taxes, fees and fuel, shall be reimbursed at the per diem rate of eighty-five dollars (\$85) per day (assumes rental of mid-size car).
- Meals and incidental expenses, including applicable taxes and gratuities, shall be reimbursed at the per diem rate of (\$40) per day. Reimbursement for alcoholic beverages or entertainment shall not be permitted.

The maximum allowable rate for mileage expenses for Northern California staff shall be at the current IRS standard mileage rate.

Other travel costs including bridge fares, parking fees and cab fare shall be reimbursed at cost.

No other expenses are reimbursable, unless the CITY has pre-approved such expense in writing.

Subconsultant Markups

No markups shall be allowed on reimbursable expenses and the maximum markup on subconsultants shall be 5%.

CITY can reject invoices and/or request additional backup as necessary for these expenses.

Exhibit "D"

INSURANCE REQUIREMENTS FOR CONSULTANTS

Consultant 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:** \$1,000,000 per occurrence and \$2,000,000 aggregate for bodily injury, personal injury and property damage. ISO Occurrence Form CG 0001 is required.
2. **Automobile Liability:** \$1,000,000 per accident for bodily injury and property damage. ISO Form CA 0001 is required.
3. **Workers' Compensation** and **Employer's Liability:** \$1,000,000 per accident for bodily injury or disease.
4. **Errors and Omissions** Liability Insurance appropriate to the Consultants Profession: \$1,000,000 per occurrence and \$2,000,000 aggregate.

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 are to 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.

Claims Made Coverage

If the General Liability and/or Errors & Omissions coverages are written on a claims-made form:

1. The retroactive date must be shown, and must be before the date of the contract or the beginning of contract work.
2. Insurance must be maintained and evidence of insurance must be provided for at least five years after completion of the contract work.
3. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective date, the Consultant must purchase an extended period coverage for a minimum of five years after completion of contract work.
4. A copy of the claims reporting requirements must be submitted to the City of Sunnyvale for review.

Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best's rating of no 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.

Exhibit "E"

PRELIMINARY LIST OF ANTICIPATED DRAWINGS

GENERAL

#	TYPE	TITLE
1	G	COVER SHEET
2	G	SHEET INDEX 1
3	G	SHEET INDEX 2
4	G	DESIGN CRITERIA AND EQUIPMENT SUMMARY
5	G	GENERAL ABBREVIATIONS
6	G	AREA INDEX, PIPE SERVICE ABBREVIATIONS, MECHANICAL AND HVAC NOTES
7	G	LEGEND AND LINEWORK
8	G	GENERAL SYMBOLS
9	G	OVERALL SITE PLAN
10	G	FIRE DEPARTMENT VEHICLE ACCESS FIGURE SUNNYVALE WPCP
11	G	TRUCK AND SITE ACCESS ROUTE MAPS
12	G	HYDRAULIC PROFILE
13	G	LIQUID FLOW SCHEMATIC
14	G	AERATION SCHEMATIC
15	G	SOLIDS SCHEMATIC
16	G	GENERAL STRUCTURAL NOTES 1
17	G	GENERAL STRUCTURAL NOTES 2
18	G	SUBGRADE DETAILS
19	G	CODE COMPLIANCE INFORMATION AND DEFERRED SUBMITTALS
20	G	OCCUPANCY PLANS AND EXITING DIAGRAMMS - BLOWER BUILDING
21	G	OCCUPANCY PLANS AND EXITING DIAGRAMMS - THICKENING AND DEWATERING BUILDING - 1
22	G	OCCUPANCY PLANS AND EXITING DIAGRAMMS - THICKENING AND DEWATERING BUILDING - 2
23	G	OCCUPANCY PLANS AND EXITING DIAGRAMMS - MAINTENANCE BUILDING
24	G	SPECIAL INSPECTION TABLES
25	G	SHORING PLAN

CIVIL

26	C	GENERAL CIVIL NOTES
27	C	EXISTING SITE PLAN
28	C	CIVIL DRAWINGS KEY PLAN
29	C	PAVING AND GRADING PLAN - AREA 1
30	C	PAVING AND GRADING PLAN - AREA 2
31	C	PAVING AND GRADING PLAN - AREA 3
32	C	PAVING AND GRADING PLAN - AREA 4
33	C	PAVING AND GRADING PLAN - AREA 5
34	C	PAVING AND GRADING PLAN - AREA 6
35	C	PAVING AND GRADING PLAN - AREA 7
36	C	PAVING AND GRADING PLAN - AREA 8
37	C	GRADING AND PAVING - ENLARGED PLANS 1
38	C	GRADING AND PAVING - ENLARGED PLANS 2
39	C	YARD PIPING PLAN - AREA 1
40	C	YARD PIPING PLAN - AREA 2
41	C	YARD PIPING PLAN - AREA 3
42	C	YARD PIPING PLAN - AREA 4
43	C	YARD PIPING PLAN - AREA 5
44	C	YARD PIPING PLAN - AREA 6
45	C	YARD PIPING - ENLARGED PLANS 1
46	C	YARD PIPING - ENLARGED PLANS 2
47	C	YARD PIPING - FIRE PROTECTION 1
48	C	YARD PIPING - FIRE PROTECTION 2
49	C	CULVERT PLAN AND PROFILE 1 STA 0+00 TO STA 4+60
50	C	CULVERT PLAN AND PROFILE 2 STA 4+60 TO 9+55.5
51	C	PLAN AND PROFILE - PRIMARY EFFLUENT PIPELINE 1
52	C	PLAN AND PROFILE - PRIMARY EFFLUENT PIPELINE 2
53	C	PLAN AND PROFILE - MIXED LIQUOR PIPELINE 1
54	C	PLAN AND PROFILE - MIXED LIQUOR PIPELINE 2
55	C	PLAN AND PROFILE - MIXED LIQUOR PIPELINE 3

#	TYPE	TITLE
56	C	PLAN AND PROFILE - MIXED LIQUOR PIPELINE 4
57	C	PLAN AND PROFILE - MIXED LIQUOR PIPELINE 5
58	C	PLAN AND PROFILE - MIXED LIQUOR PIPELINE 6
59	C	PLAN AND PROFILE - SECONDARY EFFLUENT PIPELINE 1
60	C	PLAN AND PROFILE - SECONDARY EFFLUENT PIPELINE 2
61	C	PLAN AND PROFILE - SECONDARY EFFLUENT PIPELINE 3
62	C	PLAN AND PROFILE - SECONDARY EFFLUENT PIPELINE 4
63	C	PLAN AND PROFILE - SECONDARY EFFLUENT PIPELINE 5
64	C	PLAN AND PROFILE - SECONDARY EFFLUENT PIPELINE 6
65	C	STORM DRAIN SYSTEM PLAN AND PROFILE 1
66	C	STORM DRAIN SYSTEM PLAN AND PROFILE 2
67	C	STORM DRAIN SYSTEM PLAN AND PROFILE 3
68	C	STORM DRAIN SYSTEM PLAN AND PROFILE 4
69	C	STORM DRAIN SYSTEM PLAN AND PROFILE 5
70	C	STORM DRAIN SYSTEM PLAN AND PROFILE 6
71	C	STORM DRAIN SYSTEM PLAN AND PROFILE 7
72	C	PRIMARY EFFLUENT JUNCTION BOX AREA PLAN AND SECTIONS
73	C	PRIMARY EFFLUENT JUNCTION BOX PLANS
74	C	PRIMARY EFFLUENT JUNCTION BOX SECTIONS AND DETAILS
75	C	PRIMARY EFFLUENT JUNCTION BOX SECTIONS AND DETAILS
76	C	PRIMARY EFFLUENT JUNCTION BOX SECTIONS AND DETAILS
77	C	ML DISTRIBUTION BOX PLAN AND SECTIONS
78	C	ML DISTRIBUTION BOX PLANS
79	C	ML DISTRIBUTION BOX SECTIONS AND DETAILS
80	C	ML DISTRIBUTION BOX SECTIONS AND DETAILS
81	C	ML DISTRIBUTION BOX SECTIONS AND DETAILS
82	C	RETAINING WALL LAYOUT PLANS 1
83	C	RETAINING WALL LAYOUT PLANS 2
84	C	MISCELLANEOUS SECTIONS AND DETAILS 1
85	C	MISCELLANEOUS SECTIONS AND DETAILS 2
86	C	MISCELLANEOUS SECTIONS AND DETAILS 3
87	C	MISCELLANEOUS SECTIONS AND DETAILS 4
LANDSCAPING		
88	L	GENERAL LANDSCAPING NOTES
89	L	OVERALL LANDSCAPING PLAN
90	L	LANDSCAPING PLAN - 1
91	L	LANDSCAPING PLAN - 2
92	L	LANDSCAPING DETAILS - 1
93	L	LANDSCAPING DETAILS - 2
ARCHITECTURAL		
94	A	FINISH, WINDOW AND DOOR SCHEDULES - 1
95	A	FINISH, WINDOW AND DOOR SCHEDULES - 2
96	A	FINISH, WINDOW AND DOOR SCHEDULES - 3
97	A	ROOF DETAILS - 1
98	A	ROOF DETAILS - 2
99	A	EXTERIOR DETAILS - 1
100	A	EXTERIOR DETAILS - 2
101	A	RETAINING WALL FINISHES
102	A	AERATION BASIN ELEVATIONS - 1
103	A	AERATION BASIN ELEVATIONS - 2
104	A	BLOWER BUILDING FLOOR PLAN
105	A	BLOWER BUILDING ROOF PLAN
106	A	BLOWER BUILDING ELEVATIONS - 1
107	A	BLOWER BUILDING ELEVATIONS - 2
108	A	BLOWER BUILDING SECTIONS AND DETAILS
109	A	SECONDARY CLARIFIER ELEVATIONS

#	TYPE	TITLE
110	A	RAS PUMP STATION ELEVATIONS
111	A	RAS PUMP STATION SECTIONS AND DETAILS
112	A	THICKENING/DEWATERING BUILDING FLOOR PLAN - A
113	A	THICKENING/DEWATERING BUILDING FLOOR PLAN - B
114	A	THICKENING/DEWATERING BUILDING FLOOR PLAN - C
115	A	THICKENING/DEWATERING BUILDING FLOOR PLAN - D
116	A	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN - A
117	A	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN - B
118	A	THICKENING/DEWATERING BUILDING INTERMEDIATE - C
119	A	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN - D
120	A	THICKENING/DEWATERING BUILDING ROOF PLAN
121	A	THICKENING/DEWATERING BUILDING ELEVATIONS - 1
122	A	THICKENING/DEWATERING BUILDING ELEVATIONS - 2
123	A	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS
124	A	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS
125	A	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS
126	A	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS
127	A	CAKE STORAGE AND LOADING AREA EXTERIOR ELEVATIONS -1
128	A	CAKE STORAGE AND LOADING AREA SECTIONS AND DETAILS
129	A	THICKENING/DEWATERING BUILDING DETAILS
130	A	THICKENING/DEWATERING BUILDING DETAILS
131	A	THICKENING/DEWATERING BUILDING DETAILS
132	A	MAINTENANCE BUILDING FLOOR PLAN
133	A	MAINTENANCE BUILDING ROOF PLAN
134	A	MAINTENANCE BUILDING INTERIOR PLANS - 1
135	A	MAINTENANCE BUILDING EXTERIOR ELEVATIONS - 1
136	A	MAINTENANCE BUILDING EXTERIOR ELEVATIONS - 2
137	A	MAINTENANCE BUILDING INTERIOR ELEVATIONS - 1
138	A	REFLECTED CEILING PLANS
140	A	MAINTENANCE BUILDING SECTIONS AND DETAILS - 1
141	A	MAINTENANCE BUILDING SECTIONS AND DETAILS - 2

STRUCTURAL

142	S	RETAINING WALL AND HEADWALL LAYOUT KEY PLAN
143	S	RETAINING WALL PARTIAL PLANS
144	S	RETAINING / HEADWALL PARTIAL PLANS
145	S	TYPICAL RETAINING WALL SECTIONS AND DETAILS
146	S	HEADWALL PLAN
147	S	HEADWALL ELEVATION AND SECTION
148	S	RETAINING WALL SECTIONS AND DETAILS
149	S	FLOOD GATE PLAN, SECTIONS AND ELEVATION
150	S	RETAINING WALL SECTIONS AND DETAILS
151	S	CEPT FACILITY PLAN
152	S	CEPT FACILITY SECTIONS
153	S	CEPT FACILITY PLAN AND SECTIONS
154	S	AERATION BASIN 1&2 BOTTOM PLAN A
155	S	AERATION BASIN 1&2 BOTTOM PLAN B
156	S	AERATION BASIN 1&2 MIDDLE PLAN A
157	S	AERATION BASIN 1&2 MIDDLE PLAN B
158	S	AERATION BASIN 1&2 TOP PLAN A
159	S	AERATION BASIN 1&2 TOP PLAN B
160	S	AERATION BASIN 1&2 SECTIONS AND ELEVATIONS - 1
161	S	AERATION BASIN 1&2 SECTIONS AND ELEVATIONS - 2
162	S	AERATION BASIN 1&2 SECTIONS AND ELEVATIONS - 3
163	S	AERATION BASIN 1&2 SECTIONS AND ELEVATIONS - 4
164	S	AERATION BASIN 1&2 SECTIONS AND ELEVATIONS - 5
165	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 1
166	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 2

#	TYPE	TITLE
167	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 3
168	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 4
169	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 5
170	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 6
171	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 7
172	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 8
173	S	AERATION BASIN 1&2 - SECTIONS AND DETAILS - 9
174	S	BLOWER BUILDING FLOOR PLAN
175	S	BLOWER BUILDING ROOF PLAN
176	S	BLOWER BUILDING SECTIONS - 1
177	S	BLOWER BUILDING SECTIONS - 2
178	S	BLOWER BUILDING SECTIONS AND DETAILS - 1
179	S	BLOWER BUILDING SECTIONS AND DETAILS - 2
180	S	SECONDARY CLARIFIER KEY PLAN
181	S	SECONDARY CLARIFIER BOTTOM PLAN
182	S	SECONDARY CLARIFIER TOP PLAN AND SECTIONS
183	S	SECONDARY CLARIFIER SECTIONS AND DETAILS - 1
184	S	SECONDARY CLARIFIER SECTIONS AND DETAILS - 2
185	S	SECONDARY CLARIFIER SECTIONS AND DETAILS - 3
186	S	SECONDARY CLARIFIER SECTIONS AND DETAILS - 4
187	S	RAS/WAS PUMP STATION NO. 1 TOP PLAN
188	S	RAS/WAS PUMP STATION NO. 1 BOTTOM PLAN
189	S	RAS/WAS PUMP STATION NO. 1 SECTIONS AND DETAILS - 1
190	S	RAS/WAS PUMP STATION NO. 1 SECTIONS AND DETAILS - 2
191	S	RAS/WAS PUMP STATION NO. 1 SECTIONS AND DETAILS - 3
192	S	RAS/WAS PUMP STATION NO. 2 TOP PLAN
193	S	RAS/WAS PUMP STATION NO. 2 BOTTOM PLAN
194	S	RAS/WAS PUMP STATION NO. 2 SECTIONS AND DETAILS - 1
195	S	RAS/WAS PUMP STATION NO. 2 SECTIONS AND DETAILS - 2
196	S	RAS/WAS PUMP STATION NO. 2 SECTIONS AND DETAILS - 3
197	S	THICKENING/DEWATERING BUILDING OVERALL FLOOR PLAN
198	S	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN A
199	S	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN B
200	S	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN C
201	S	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN D
202	S	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN A
203	S	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN B
204	S	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN C
205	S	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN D
206	S	THICKENING/DEWATERING BUILDING ROOF PLAN
207	S	THICKENING/DEWATERING BUILDING CEILING PLAN & PARTIAL ROOF PLAN
208	S	THICKENING/DEWATERING BUILDING SECTIONS - 1
209	S	THICKENING/DEWATERING BUILDING SECTIONS - 2
210	S	THICKENING/DEWATERING BUILDING SECTIONS - 3
211	S	THICKENING/DEWATERING BUILDING SECTIONS - 4
212	S	THICKENING/DEWATERING BUILDING PARTIAL MEZZANINE FRAMING PLAN - 1
213	S	THICKENING/DEWATERING BUILDING PARTIAL MEZZANINE FRAMING PLAN - 2
214	S	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS - 1
215	S	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS - 2
216	S	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS - 3
217	S	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS - 4
218	S	THICKENING/DEWATERING BUILDING SECTIONS AND DETAILS - 5
219	S	THICKENING/DEWATERING BUILDING DETAILS - 1
220	S	THICKENING/DEWATERING BUILDING DETAILS - 2
221	S	THICKENING/DEWATERING BUILDING DETAILS - 3
222	S	CAKE STORAGE AND LOADING AREA PLAN
223	S	CAKE STORAGE AND LOADING AREA SECTIONS - 1
224	S	CAKE STORAGE AND LOADING AREA SECTIONS - 2

#	TYPE	TITLE
225	S	CAKE STORAGE AND LOADING AREA SECTIONS AND DETAILS - 1
226	S	CAKE STORAGE AND LOADING AREA SECTIONS AND DETAILS - 2
227	S	ODOR CONTROL FOUNDATION PLAN
228	S	ODOR CONTROL SECTIONS AND DETAILS - 1
229	S	ODOR CONTROL SECTIONS AND DETAILS - 2
230	S	SIDESTREAM TREATMENT BOTTOM PLAN
231	S	SIDESTREAM TREATMENT MIDDLE PLAN
232	S	SIDESTREAM TREATMENT TOP PLAN
233	S	SIDESTREAM TREATMENT SECTIONS AND ELEVATIONS - 1
234	S	SIDESTREAM TREATMENT SECTIONS AND ELEVATIONS - 2
235	S	SIDESTREAM TREATMENT SECTIONS AND ELEVATIONS - 3
236	S	SIDESTREAM TREATMENT SECTIONS AND ELEVATIONS - 4
237	S	SIDESTREAM TREATMENT - SECTIONS AND DETAILS - 1
238	S	SIDESTREAM TREATMENT - SECTIONS AND DETAILS - 2
239	S	SIDESTREAM TREATMENT - SECTIONS AND DETAILS - 3
240	S	SIDESTREAM TREATMENT - SECTIONS AND DETAILS - 4
241	S	SIDESTREAM TREATMENT - SECTIONS AND DETAILS - 5
242	S	SIDESTREAM TREATMENT - SECTIONS AND DETAILS - 6
243	S	SIDESTREAM TREATMENT - SECTIONS AND DETAILS - 7
244	S	DIGESTER SUPERNATANT AREA PLAN - 1
245	S	DIGESTER SUPERNATANT AREA PLAN - 2
246	S	DIGESTER SUPERNATANT SECTIONS AND DETAILS
247	S	DIGESTER SUPERNATANT SECTIONS AND DETAILS
248	S	STANDBY GENERATOR FOUNDATION PLAN
249	S	STANDBY GENERATOR SECTIONS AND DETAILS - 1
250	S	STANDBY GENERATOR FUEL TANK PLAN
251	S	STANDBY GENERATOR FUEL TANK SECTIONS AND DETAILS - 1
252	S	MAINTENANCE BUILDING FOUNDATION PLAN
253	S	MAINTENANCE BUILDING ROOF PLAN
254	S	MAINTENANCE BUILDING SECTIONS AND DETAILS - 1
255	S	MAINTENANCE BUILDING SECTIONS AND DETAILS - 2
256	S	MAINTENANCE BUILDING SECTIONS AND DETAILS - 3
257	S	MAINTENANCE BUILDING SECTIONS AND DETAILS - 4
258	S	MAINTENANCE BUILDING FRAMING DETAILS - 1
259	S	MAINTENANCE BUILDING FRAMING DETAILS - 2
260	S	MAINTENANCE BUILDING FOUNDATION DETAILS - 1
261	S	MAINTENANCE BUILDING FOUNDATION DETAILS - 2
262	S	SECONDARY TRANSFORMER PLAN
263	S	SECONDARY TRANSFORMER SECTIONS AND DETAILS - 1
264	S	SECONDARY TRANSFORMER DETAILS
265	S	THICKENING/DEWATERING TRANSFORMER PLAN
266	S	THICKENING/DEWATERING TRANSFORMER SECTIONS AND DETAILS - 1
267	S	THICKENING/DEWATERING TRANSFORMER DETAILS
268	S	TUNNEL/UTILIDOR TYPICAL BOTTOM PLAN
269	S	TUNNEL/UTILIDOR TYPICAL TOP PLAN
270	S	TUNNEL/UTILIDOR SECTIONS AND DETAILS - 1
271	S	TUNNEL/UTILIDOR SECTIONS AND DETAILS - 2
272	S	TUNNEL/UTILIDOR SECTIONS AND DETAILS - 3
273	S	MISCELLANEOUS DETAILS - 1
274	S	MISCELLANEOUS DETAILS - 2
275	S	MISCELLANEOUS DETAILS - 3
276	S	MISCELLANEOUS DETAILS - 4
MECHANICAL		
277	M	VENTILATION TO ODOR CONTROL SCHEMATIC
278	M	VENTILATION TO ATMOSPHERE SCHEMATIC
279	M	CEPT FACILITY PLAN
280	M	CEPT FACILITY SECTIONS

#	TYPE	TITLE
281	M	CEPT FACILITY SECTIONS 2
282	M	CEPT FACILITY SECTIONS 3
283	M	AERATION BASIN NO. 1&2 BOTTOM PLAN A
284	M	AERATION BASIN NO. 1&2 BOTTOM PLAN B
285	M	AERATION BASIN NO. 1&2 TOP PLAN A
286	M	AERATION BASIN NO. 1&2 TOP PLAN B
287	M	AERATION BASIN NO. 1&2 PARTIAL PLANS A
288	M	AERATION BASIN NO. 1&2 PARTIAL PLANS B
289	M	AERATION BASIN NO. 1&2 SECTIONS AND DETAILS - 1
290	M	AERATION BASIN NO. 1&2 SECTIONS AND DETAILS - 2
291	M	AERATION BASIN NO. 1&2 SECTIONS AND DETAILS - 3
292	M	AERATION BASIN NO. 1&2 SECTIONS AND DETAILS - 4
293	M	AERATION BASIN NO. 1&2 SECTIONS AND DETAILS - 5
294	M	AERATION BASIN NO. 1&2 SPRAY WATER ISOMETRIC AND DETAILS
295	M	AERATION BASIN NO. 1&2 DETAILS - 1
296	M	AERATION BASIN NO. 1&2 DETAILS - 2
298	M	AERATION BASIN DIFFUSER DETAILS
299	M	BLOWER BUILDING FLOOR PLAN
300	M	BLOWER BUILDING TOP PLAN
301	M	BLOWER BUILDING SECTIONS - 1
302	M	BLOWER BUILDING SECTIONS - 2
303	M	BLOWER BUILDING SECTIONS AND DETAILS - 1
304	M	BLOWER BUILDING SECTIONS AND DETAILS - 2
305	M	SECONDARY CLARIFIER KEY PLAN
306	M	SECONDARY CLARIFIER PLAN
307	M	SECONDARY CLARIFIER PARTIAL PLAN AND DETAILS
308	M	SECONDARY CLARIFIER SECTIONS
309	M	SECONDARY CLARIFIER SECTIONS AND DETAILS
310	M	RAS/WAS PUMP STATION NO. 1 PLAN
311	M	RAS/WAS PUMP STATION NO. 1 SECTIONS - 1
312	M	RAS/WAS PUMP STATION NO. 1 SECTIONS - 2
313	M	RAS/WAS PUMP STATION NO. 1 SECTIONS AND DETAILS - 1
314	M	RAS/WAS PUMP STATION NO. 1 SECTIONS AND DETAILS - 2
315	M	RAS/WAS PUMP STATION NO. 2 PLAN
316	M	RAS/WAS PUMP STATION NO. 2 SECTIONS - 1
317	M	RAS/WAS PUMP STATION NO. 2 SECTIONS - 2
318	M	RAS/WAS PUMP STATION NO. 2 SECTIONS AND DETAILS - 1
319	M	RAS/WAS PUMP STATION NO. 2 SECTIONS AND DETAILS - 2
320	M	THICKENING/DEWATERING BUILDING OVERALL KEY PLAN
321	M	THICKENING/DEWATERING BUILDING OVERALL ROOF DRAINAGE PLAN
322	M	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA A
323	M	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA B
324	M	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA C
325	M	THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA D
326	M	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN - AREA A
327	M	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN - AREA B
328	M	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN - AREA C
329	M	THICKENING/DEWATERING BUILDING INTERMEDIATE PLAN - AREA D
330	M	THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
331	M	THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
332	M	THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
333	M	THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
334	M	THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
335	M	THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
336	M	THICKENING/DEWATERING BUILDING - DETAILS
337	M	THICKENING/DEWATERING BUILDING - DETAILS
338	M	THICKENING/DEWATERING BUILDING - DETAILS
339	M	THICKENING/DEWATERING BUILDING - DETAILS

#	TYPE	TITLE
340	M	THICKENING/DEWATERING BUILDING HVAC SCHEMATIC
341	M	HVAC THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA A
342	M	HVAC THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA B
343	M	HVAC THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA C
344	M	HVAC THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA D
345	M	HVAC THICKENING/DEWATERING BUILDING INTERMEDIATE LEVEL PLAN - AREA A
346	M	HVAC THICKENING/DEWATERING BUILDING INTERMEDIATE LEVEL PLAN - AREA B
347	M	HVAC THICKENING/DEWATERING BUILDING INTERMEDIATE LEVEL PLAN - AREA C
348	M	HVAC THICKENING/DEWATERING BUILDING INTERMEDIATE LEVEL PLAN - AREA D
349	M	HVAC THICKENING/DEWATERING BUILDING - AIR FLOW SCHEMATIC
350	M	HVAC THICKENING/DEWATERING BUILDING AREA A - SECTIONS AND DETAILS
351	M	HVAC THICKENING/DEWATERING BUILDING AREA A - SECTIONS AND DETAILS
352	M	PL THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA A
353	M	PL THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA B
354	M	PL THICKENING/DEWATERING BUILDING GROUND LEVEL PLAN - AREA D
355	M	PL THICKENING/DEWATERING INTERMEDIATE LEVEL PLAN - AREA A
356	M	PL THICKENING/DEWATERING BUILDING INTERMEDIATE LEVEL PLAN - AREA B
357	M	PL THICKENING/DEWATERING BUILDING INTERMEDIATE LEVEL PLAN - AREA C
358	M	PL THICKENING/DEWATERING BUILDING INTERMEDIATE LEVEL PLAN - AREA D
359	M	PL THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
360	M	PL THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
361	M	PL THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
362	M	PL THICKENING/DEWATERING BUILDING - SECTIONS AND DETAILS
363	M	FP - THICKENING/DEWATERING BUILDING PLAN
364	M	THICKENING/DEWATERING BUILDING - ISOMETRIC I
365	M	THICKENING/DEWATERING BUILDING - ISOMETRIC II AND AGING TANK DETAILS
366	M	CAKE STORAGE AND LOADING AREA TOP PLAN
367	M	CAKE STORAGE AND LOADING AREA BOTTOM PLAN
368	M	CAKE STORAGE AND LOADING AREA SECTIONS - 1
369	M	CAKE STORAGE AND LOADING AREA DETAILS - 1
370	M	SIDESTREAM TREATMENT BOTTOM PLAN
371	M	SIDESTREAM TREATMENT TOP PLAN
372	M	SIDESTREAM TREATMENT PARTIAL PLANS
373	M	SIDESTREAM TREATMENT SECTIONS AND DETAILS - 1
374	M	SIDESTREAM TREATMENT SECTIONS AND DETAILS - 2
375	M	SIDESTREAM TREATMENT SECTIONS AND DETAILS - 3
376	M	SIDESTREAM TREATMENT DETAILS - 1
377	M	SIDESTREAM TREATMENT DETAILS - 2
378	M	ODOR CONTROL FACILITY PLAN
379	M	ODOR CONTROL FACILITY SECTIONS AND DETAILS
380	M	ODOR CONTROL FACILITY SECTION
381	M	ODOR CONTROL FACILITY TYPICAL SCHEMATIC
382	M	ODOR CONTROL FACILITY PARTIAL PLAN AND SECTION FOR STROBIC FANS
383	M	DIGESTER SUPERNATANT AREA PIPING PLAN
384	M	DIGESTER SUPERNATANT SECTIONS AND DETAILS - 1
385	M	DIGESTER SUPERNATANT SECTIONS AND DETAILS - 2
386	M	DIGESTER SUPERNATANT DETAILS
387	M	SECONDARY TRANSFORMER PLAN, SECTIONS AND DETAILS
388	M	THICKENING/DEWATERING TRANSFORMER PLAN, SECTIONS AND DETAILS
389	M	STANDBY GENERATOR PLAN
390	M	STANDBY GENERATOR SECTIONS AND DETAILS
391	M	STANDBY GENERATOR FUEL TANK - PLAN
392	M	STANDBY GENERATOR FUEL TANK - SECTION
393	M	STANDBY GENERATOR FUEL TANK - SCHEMATIC
394	M	FUEL OIL SYSTEM - DAY TANK PLAN, ELEVATIONS, AND DETAIL
395	M	MAINTENANCE BUILDING BOTTOM PLAN
396	M	MAINTENANCE BUILDING VENTILATION PLAN
397	M	MAINTENANCE BUILDING SECTIONS - 1

#	TYPE	TITLE
398	M	MAINTENANCE BUILDING SECTIONS - 2
399	M	MAINTENANCE BUILDING SECTIONS AND DETAILS
400	M	FP - MAINTENANCE BUILDING PLAN
401	M	UTILIDOR MECHANICAL KEY PLAN
402	M	TUNNEL/UTILIDOR PLAN AND PROFILES - 1
403	M	TUNNEL/UTILIDOR PLAN AND PROFILES - 2
404	M	TUNNEL/UTILIDOR PLAN AND PROFILES - 3
405	M	TUNNEL/UTILIDOR PLAN AND PROFILES - 4
406	M	TUNNEL/UTILIDOR PLAN AND PROFILES - 5
407	M	TUNNEL/UTILIDOR VENTILATION PLANS
408	M	TUNNEL/UTILIDOR HVAC DETAILS
409	M	TUNNEL/UTILIDOR DRAIN AND DEWATERING PLAN
410	M	TUNNEL/UTILIDOR DRAIN AND DEWATERING SECTIONS AND DETAILS
<u>ELECTRICAL</u>		
411	E	ELECTRICAL LEGEND
412	E	ELECTRICAL ABBREVIATIONS
413	E	ELECTRICAL GENERAL NOTES
414	E	ELECTRICAL SITE INDEX
415	E	ELECTRICAL LUMINAIRE SCHEDULE
416	E	ELECTRICAL MANHOLE/HANDHOLE SCHEDULE
417	E	ELECTRICAL DISCONNECT SCHEDULE
418	E	AREA 1 ELECTRICAL PLAN
419	E	AREA 2 ELECTRICAL PLAN
420	E	AREA 3 ELECTRICAL PLAN
421	E	AREA 4 ELECTRICAL PLAN
422	E	AREA 5 ELECTRICAL PLAN
423	E	AREA 6 ELECTRICAL PLAN
424	E	DUCT BANK SECTIONS - I
425	E	DUCT BANK SECTIONS - II
426	E	DUCT BANK SECTIONS - III
427	E	DUCT BANK SECTIONS - IV
428	E	DUCT BANK SECTIONS - V
429	E	DUCT BANK SECTIONS - VI
430	E	DUCT BANK SECTIONS - VII
431	E	DUCT BANK SECTIONS - VIII
432	E	DUCT BANK SECTIONS - IX
433	E	DUCT BANK SECTIONS - X
434	E	DUCT BANK SECTIONS - XI
435	E	DUCT BANK SECTIONS - XII
436	E	DUCT BANK SECTIONS - XIII
437	E	OVERALL ONE-LINE DIAGRAM
438	E	SWGR-363 - 12KV ELEVATION
439	E	SWGR-363 - 12KV ONE-LINE DIAGRAM - I
440	E	SWGR-363 - 12KV ONE-LINE DIAGRAM - II
441	E	AERATION SWITCHGEAR ELEVATION
442	E	AERATION SWITCHGEAR ONE-LINE DIAGRAM I
443	E	AERATION SWITCHGEAR ONE-LINE DIAGRAM I
444	E	SSG - 2500KVA XMFR EXISTING WPCP ELEVATION
445	E	SSG - 2500KVA XMFR EXISTING WPCP ONE-LINE DIAGRAM I
446	E	SSG - 2500KVA XMFR EXISTING WPCP ONE-LINE DIAGRAM II
447	E	SSG - 2500KVA XMFR EXISTING WPCP ONE-LINE DIAGRAM III
448	E	SSG - 2500KVA XMFR EXISTING WPCP ONE-LINE DIAGRAM IV
449	E	SSG - 2500KVA XMFR EXISTING WPCP ONE-LINE DIAGRAM V
450	E	SSG - 2500KVA XMFR EXISTING WPCP ONE-LINE DIAGRAM VI
451	E	SSG - 2500KVA XMFR EXISTING WPCP ONE-LINE DIAGRAM VII
452	E	THICKENING/DEWATERING SWITCHGEAR ELEVATION
453	E	THICKENING/DEWATERING SWITCHGEAR ONE-LINE DIAGRAM I

#	TYPE	TITLE
454	E	THICKENING/DEWATERING SWITCHGEAR ONE-LINE DIAGRAM I
455	E	MAINTENANCE/ADMIN SWITCHGEAR ELEVATION
456	E	MAINTENANCE/ADMIN SWITCHGEAR ONE-LINE DIAGRAM - I
457	E	MAINTENANCE/ADMIN SWITCHGEAR ONE-LINE DIAGRAM - II
458	E	SECONDARY SWITCHGEAR ELEVATION
459	E	SECONDARY SWITCHGEAR ONE-LINE DIAGRAM - I
460	E	SECONDARY SWITCHGEAR ONE-LINE DIAGRAM - II
461	E	MCC-1 ELEVATION
462	E	MCC-1 ONE-LINE DIAGRAM - I
463	E	MCC-1 ONE-LINE DIAGRAM - II
464	E	MCC-1 ONE-LINE DIAGRAM - III
465	E	MCC-1 ONE-LINE DIAGRAM - IV
466	E	MCC-1 PANEL SCHEDULES
467	E	MCC-2 ELEVATION
468	E	MCC-2 ONE-LINE DIAGRAM - I
469	E	MCC-2 ONE-LINE DIAGRAM - II
470	E	MCC-2 ONE-LINE DIAGRAM - III
471	E	MCC-2 ONE-LINE DIAGRAM - IV
472	E	MCC-2 PANEL SCHEDULES
473	E	MCC-3 ELEVATION
474	E	MCC-3 ONE-LINE DIAGRAM - I
475	E	MCC-3 ONE-LINE DIAGRAM - II
476	E	MCC-3 ONE-LINE DIAGRAM - III
477	E	MCC-3 ONE-LINE DIAGRAM - IV
478	E	MCC-3 PANEL SCHEDULES
479	E	MCC- 4 ELEVATION
480	E	MCC-4 ONE-LINE DIAGRAM - I
481	E	MCC-4 ONE-LINE DIAGRAM - II
482	E	MCC-4 ONE-LINE DIAGRAM - III
483	E	MCC-4 ONE-LINE DIAGRAM - IV
484	E	MCC-4 PANEL SCHEDULES
485	E	MCC-5 ELEVATION
486	E	MCC-5 ONE-LINE DIAGRAM - I
487	E	MCC-5 ONE-LINE DIAGRAM - II
488	E	MCC-5 ONE-LINE DIAGRAM - III
489	E	MCC-5 ONE-LINE DIAGRAM - IV
490	E	MCC-5 PANEL SCHEDULES
491	E	MCC-6 ELEVATION
492	E	MCC-6 ONE-LINE DIAGRAM - I
493	E	MCC-6 ONE-LINE DIAGRAM - II
494	E	MCC-6 ONE-LINE DIAGRAM - III
495	E	MCC-6 ONE-LINE DIAGRAM - IV
496	E	MCC-6 PANEL SCHEDULES
497	E	CEPT FACILITY POWER PLAN
498	E	CEPT FACILITY LIGHTING AND GROUNDING PLAN
499	E	AERATION BASIN NO. 1 POWER PLAN
500	E	AERATION BASIN NO. 1 LIGHTING AND GROUNDING PLAN
501	E	AERATION BASIN NO. 2 POWER PLAN
502	E	AERATION BASIN NO. 2 LIGHTING AND GROUNDING PLAN
503	E	BLOWER BUILDING UNDERGROUND POWER PLAN
504	E	BLOWER BUILDING POWER PLAN 1
505	E	BLOWER BUILDING POWER PLAN 2
506	E	BLOWER BUILDING LIGHTING AND GROUNDING PLAN
507	E	BLOWER BUILDING CONDUIT SCHEDULE I
508	E	BLOWER BUILDING CONDUIT SCHEDULE II
509	E	BLOWER BUILDING CONDUIT SCHEDULE III
510	E	BLOWER BUILDING CONDUIT SCHEDULE IV
511	E	BLOWER BUILDING CONDUIT SCHEDULE V

#	TYPE	TITLE
512	E	BLOWER BUILDING CONDUIT SCHEDULE VI
513	E	BLOWER BUILDING CONDUIT SCHEDULE VII
514	E	BLOWER BUILDING CONDUIT SCHEDULE VIII
515	E	SECONDARY CLARIFIER NO. 1 POWER PLAN
516	E	SECONDARY CLARIFIERS NO. 1 LIGHTING AND GROUNDING PLAN
517	E	SECONDARY CLARIFIER NO. 2 POWER PLAN
518	E	SECONDARY CLARIFIERS NO. 2 LIGHTING AND GROUNDING PLAN
519	E	SECONDARY CLARIFIER NO. 3 POWER PLAN
520	E	SECONDARY CLARIFIERS NO. 3 LIGHTING AND GROUNDING PLAN
521	E	RAS/WAS PUMP STATION NO. 1 POWER PLAN
522	E	RAS/WAS PUMP STATION NO. 1 LIGHTING AND GROUNDING PLAN
523	E	RAS/WAS PUMP STATION NO. 2 POWER PLAN
524	E	RAS/WAS PUMP STATION NO. 2 LIGHTING AND GROUNDING PLAN
525	E	SCUM PUMP STATION NO. 1 AND 2 POWER PLAN
526	E	SCUM PUMP STATION NO. 1 AND 2 LIGHTING AND GROUNDING PLAN
527	E	SECONDARY CONDUIT SCHEDULE I
528	E	SECONDARY CONDUIT SCHEDULE II
529	E	SECONDARY CONDUIT SCHEDULE III
530	E	SECONDARY CONDUIT SCHEDULE IV
531	E	SECONDARY CONDUIT SCHEDULE V
532	E	SECONDARY CONDUIT SCHEDULE VI
533	E	SECONDARY CONDUIT SCHEDULE VII
534	E	SECONDARY CONDUIT SCHEDULE VIII
535	E	THICKENING/DEWATERING BUILDING POWER PLAN 1
536	E	THICKENING/DEWATERING BUILDING POWER PLAN 2
537	E	THICKENING/DEWATERING BUILDING POWER PLAN 3
538	E	THICKENING/DEWATERING LIGHTING AND GROUNDING PLAN 1
539	E	THICKENING/DEWATERING LIGHTING AND GROUNDING PLAN 2
540	E	THICKENING/DEWATERING LIGHTING AND GROUNDING PLAN 3
541	E	SIDESTREAM TREATMENT POWER PLAN
542	E	SIDESTREAM TREATMENT LIGHTING AND GROUNDING PLAN
543	E	ODOR CONTROL POWER PLAN
544	E	ODOR CONTROL LIGHTING AND GROUNDING PLAN
545	E	SUPERNATANT PUMP STATION POWER PLAN 1
546	E	SUPERNATANT PUMP STATION POWER PLAN 2
547	E	SUPERNATANT PUMP STATION LIGHTING AND GROUNDING PLAN 1
548	E	SUPERNATANT PUMP STATION LIGHTING AND GROUNDING PLAN 2
549	E	SWITCHGEAR BUILDING POWER PLAN
550	E	THICKENING/DEWATERING CONDUIT SCHEDULE I
551	E	THICKENING/DEWATERING CONDUIT SCHEDULE II
552	E	THICKENING/DEWATERING CONDUIT SCHEDULE III
553	E	THICKENING/DEWATERING CONDUIT SCHEDULE IV
554	E	THICKENING/DEWATERING CONDUIT SCHEDULE V
555	E	THICKENING/DEWATERING CONDUIT SCHEDULE VI
556	E	GENERATOR AREA POWER PLAN
557	E	MAINTENANCE BUILDING POWER PLAN
558	E	MAINTENANCE BUILDING LIGHTING AND GROUNDING PLAN
559	E	PRIMARY EFFLUENT JUNCTION BOX POWER PLAN
560	E	PRIMARY EFFLUENT JUNCTION BOX LIGHTING AND GROUNDING PLAN
561	E	WAS FEED POWER AND CONTROL PLAN
562	E	WAS FEED LIGHTING AND GROUNDING PLAN
563	E	WAS FEED UNDERGROUND PLAN
564	E	WAS FEED ROOF PLAN
565	E	TUNNEL/UTILIDOR POWER PLAN
566	E	TUNNEL/UTILIDOR LIGHTING AND GROUNDING PLAN
567	E	MISC CONDUIT SCHEDULE - I
568	E	MISC CONDUIT SCHEDULE - II
569	E	MISC CONDUIT SCHEDULE - III

#	TYPE	TITLE
570	E	MISC CONDUIT SCHEDULE - IV
571	E	MISC CONDUIT SCHEDULE - V
<u>INSTRUMENTATION</u>		
572	N	SYMBOLS AND ABBREVIATIONS - I
573	N	SYMBOLS AND ABBREVIATIONS - II
574	N	SYMBOLS AND ABBREVIATIONS - III
575	N	SYMBOLS AND ABBREVIATIONS - IV
576	N	SYMBOLS AND ABBREVIATIONS -V
577	N	SCHEMATIC SYMBOLS
578	N	ACS PROCESS AREA NUMBERING SYSTEM
579	N	SAMPLE LOOP DIAGRAM
580	N	ACS SITE PLAN
581	N	ACS BLOCK DIAGRAM
582	N	ACS INTEGRATION - 1
583	N	ACS INTEGRATION - 2
584	N	CONTROL SCHEMATICS - I
585	N	CONTROL SCHEMATICS - II
586	N	CONTROL SCHEMATICS - III
587	N	CONTROL SCHEMATICS - IV
588	N	CONTROL SCHEMATICS - V
589	N	CONTROL SCHEMATICS - VI
590	N	CONTROL SCHEMATICS - VII
591	N	CONTROL SCHEMATICS - VIII
592	N	CONTROL SCHEMATICS - IX
593	N	CONTROL SCHEMATICS - X
594	N	CONTROL SCHEMATICS - XI
595	N	CONTROL SCHEMATICS - XII
596	N	CONTROL SCHEMATICS - XIII
597	N	CONTROL SCHEMATICS - XIV
598	N	CONTROL SCHEMATICS - XV
599	N	CONTROL PANELS - COMMUNICATIONS CABINET ENCLOSURE DETAIL CLOSED CABINET
600	N	CONTROL PANELS - FIBER OPTIC PATCH PANEL DETAIL 1
601	N	CONTROL PANELS - FIBER OPTIC PATCH PANEL DETAIL 2
602	N	CONTROL PANELS - TYPICAL PCM TYPE-1 PANEL ELEVATION
603	N	CONTROL PANELS - TYPICAL PCM TYPE-2 PANEL ELEVATION
604	N	LOCAL CONTROL PANEL ELEVATIONS - I
605	N	LOCAL CONTROL PANEL ELEVATIONS - II
606	N	LOCAL CONTROL PANEL ELEVATIONS - III
607	N	LOCAL CONTROL PANEL ELEVATIONS - IV
608	N	CONTROL PANELS - WIRELESS ACCESS POINTS COVERAGE TUNING - I
609	N	CONTROL PANELS - WIRELESS ACCESS POINTS COVERAGE TUNING - II
610	N	CONTROL PANELS - WIRELESS ACCESS POINTS COVERAGE TUNING - III
611	N	CONTROL PANELS - ACS I/O TABLES - I
612	N	CONTROL PANELS - ACS I/O TABLES - II
613	N	CONTROL PANELS - ACS I/O TABLES - III
614	N	CONTROL PANELS - TYPICAL PCM AND COMMUNICATIONS CABINETS
615	N	CONTROL PANELS - MISC
616	N	CONTROL PANELS - MISC
617	N	CONTROL PANELS - MISC
618	N	SCADA BLOCK DIAGRAM
619	N	PLC-1 FIELD NETWORK - 1
620	N	PLC-1 FIELD NETWORK - 2
621	N	PLC-1 FIELD NETWORK - 3
622	N	PLC-1 FIELD NETWORK - 4
623	N	PLC-1 FIELD NETWORK - 5
624	N	PLC-1 FIELD NETWORK - 6
625	N	PLC-1 FIELD NETWORK - 7

#	TYPE	TITLE
626	N	PLC-1 FIELD NETWORK - 8
627	N	PLC-1 FIELD NETWORK - 9
628	N	CEPT FACILITY - POLYMER 1 P&ID
629	N	CEPT FACILITY - POLYMER 2 P&ID
630	N	CEPT FACILITY - POLYMER 3 P&ID
631	N	CEPT FACILITY - FERRIC CHLORIDE 1 P&ID
632	N	CEPT FACILITY - FERRIC CHLORIDE 2 P&ID
633	N	CEPT FACILITY EYEWASH STATIONS P&ID
634	N	AERATION BASIN NO. 1 - P&ID
635	N	AERATION BASIN NO. 1 - P&ID
636	N	AERATION BASIN NO. 1 - P&ID
637	N	AERATION BASIN NO. 2 - P&ID
638	N	AERATION BASIN NO. 2 - P&ID
639	N	AERATION BASIN NO. 2 - P&ID
640	N	BLOWER NO. 1 - P&ID
641	N	BLOWER NO. 2 - P&ID
642	N	BLOWER NO. 3 - P&ID
643	N	BLOWER BUILDING HVAC - P&ID
644	N	BLOWER BUILDING HVAC - P&ID
645	N	SECONDARY CLARIFIER NO. 1 - P&ID
646	N	SECONDARY CLARIFIER NO. 2 - P&ID
647	N	SECONDARY CLARIFIER NO. 3 - P&ID
648	N	RAS PUMP STATION NO. 1 - P&ID
649	N	RAS PUMP STATION NO. 1 - P&ID
650	N	RAS PUMP STATION NO. 1 - P&ID
651	N	WAS PUMP NO. 1 - P&ID
652	N	WAS PUMP NO. 2 - P&ID
653	N	RAS PUMP STATION NO. 2 - P&ID
654	N	RAS PUMP STATION NO. 2 - P&ID
655	N	RAS PUMP STATION NO. 2 - P&ID
656	N	WAS PUMP NO. 3 - P&ID
657	N	WAS PUMP NO. 4 - P&ID
658	N	SCUM PUMP STATION NO. 1 - P&ID
659	N	SCUM PUMP STATION NO. 2 - P&ID
660	N	SAMPLE STATION - P&ID
661	N	THICKENING 1 - P&ID
662	N	THICKENING 2 - P&ID
663	N	THICKENING 3 - P&ID
664	N	TWAS PUMPING 1 - P&ID
665	N	TWAS PUMPING 2 - P&ID
666	N	TWAS PUMPING 3 - P&ID
667	N	FILTRATE PUMPING 1 - P&ID
668	N	FILTRATE PUMPING 2 - P&ID
669	N	DIGESTER SUPERNATANT
670	N	DIGESTER SUPERNATANT
671	N	DIGESTED SLUDGE STORAGE TANK
672	N	DIGESTED SLUDGE GAS SYSTEM
673	N	DEWATERING FEED PUMP 1 - P&ID
674	N	DEWATERING FEED PUMP 2 - P&ID
675	N	DEWATERING 1 - P&ID
676	N	DEWATERING 2 - P&ID
677	N	DEWATERING 3 - P&ID
678	N	CAKE PUMP 1 - P&ID
679	N	CAKE PUMP 2 - P&ID
680	N	THICKENING POLYMER 1 - P&ID
681	N	THICKENING POLYMER 2 - P&ID
682	N	DEWATERING POLYMER 1 - P&ID
683	N	DEWATERING POLYMER 2 - P&ID

#	TYPE	TITLE
684	N	THICKENING/DEWATERING BUILDING HVAC - P&ID
685	N	THICKENING DEWATERING BUILDING HVAC - P&ID
686	N	CAKE LOADING 1 - P&ID
687	N	CAKE LOADING 2 - P&ID
688	N	SIDESTREAM TREATMENT 1 - P&ID
689	N	SIDESTREAM TREATMENT 2 - P&ID
690	N	SIDESTREAM TREATMENT 3 - P&ID
691	N	SIDESTREAM TREATMENT 4 - P&ID
692	N	SIDESTREAM TREATMENT 5 - P&ID
693	N	SIDESTREAM TREATMENT 6 - P&ID
694	N	SIDESTREAM TREATMENT 7 - P&ID
695	N	ODOR CONTROL 1 - P&ID
696	N	ODOR CONTROL 2 - P&ID
697	N	PRIMARY EFFLUENT DISTRIBUTION STRUCTURE - P&ID
698	N	DIGESTER PUMP STATION - P&ID
699	N	DIGESTER PUMP STATION - P&ID
700	N	SWITCHGEAR P&ID - I
701	N	SWITCHGEAR P&ID - II
702	N	SWITCHGEAR P&ID - III
703	N	GENERATOR NO. 1 - I P&ID
704	N	GENERATOR NO. 1 - II P&ID
705	N	MAINTENANCE BUILDING HVAC - P&ID
706	N	TUNNEL/UTILIDOR HVAC - P&ID

DEMOLITION

707	D	OVERALL SITE PLAN
708	D	EXISTING SITE YARD PIPING PLAN
709	D	AUXILIARY PUMP STATION AREA PLAN
710	D	AUXILIARY PUMP STATION PLAN, SECTIONS, AND DETAILS
711	D	AUXILIARY PUMP STATION SECTIONS AND DETAILS
712	D	AUXILIARY PUMP STATION PHOTOS
713	D	AUXILIARY PUMP STATION TEMPORARY POWER PLAN
714	D	AUXILIARY PUMP STATION APS MCC
715	D	AUXILIARY PUMP STATION STRUCTURAL PLANS AND SECTION
716	D	PRIMARY SEDIMENTATION TANKS NO. 1 - 3 MECHANICAL PLAN
717	D	PRIMARY SEDIMENTATION TANKS NO. 1 - 3 MECHANICAL SECTIONS
718	D	PRIMARY SEDIMENTATION TANKS NO. 1 - 3 MECHANICAL PLAN, SECTIONS AND DETAIL
719	D	PRIMARY SEDIMENTATION TANKS NO. 1 - 3 MECHANICAL PLANS
720	D	PRIMARY SEDIMENTATION TANKS NO. 1 - 3 MECHANICAL SECTIONS AND DETAIL
721	D	PRIMARY SEDIMENTATION TANKS NO. 4 - 6 MECHANICAL PLAN
722	D	PRIMARY SEDIMENTATION TANKS NO. 4 - 6 MECHANICAL SECTIONS AND DETAILS
723	D	PRIMARY SEDIMENTATION TANKS NO. 4 - 6 MECHANICAL PLAN AND SECTIONS
724	D	PRIMARY SEDIMENTATION TANKS NO. 4 - 6 MECHANICAL PLANS
725	D	PRIMARY SEDIMENTATION TANKS NO. 7 - 9 MECHANICAL PLAN AND PHOTO
726	D	PRIMARY SEDIMENTATION TANKS NO. 7 - 9 MECHANICAL PLAN
727	D	PRIMARY SEDIMENTATION TANKS NO. 7 - 9 MECHANICAL SECTIONS AND PHOTOS
728	D	PRIMARY SEDIMENTATION TANKS NO. 7 - 9 MECHANICAL PLAN AND SECTIONS
729	D	PRIMARY SEDIMENTATION TANKS NO. 7 - 10 MECHANICAL PLAN
730	D	PRIMARY SEDIMENTATION TANKS NO. 7 - 10 MECHANICAL PLANS
731	D	PRIMARY SEDIMENTATION TANKS NO. 7 - 10 MECHANICAL SECTIONS
732	D	PRIMARY SEDIMENTATION TANK NO. 10 MECHANICALS PLAN, SECTIONS, AND DETAILS
733	D	PRIMARY SEDIMENTATION TASK NO. 10 MECHANICAL SECTIONS AND DETAILS
734	D	GRIT SCREENING DEWATERING FACILITY MECHANICAL PLANS AND SECTIONS
735	D	PRIMARY SEDIMENTATION TANKS PHOTOS
736	D	PRIMARY SEDIMENTATION TANKS PHOTOS
737	D	PRIMARY SEDIMENTATION TANKS MOTOR CONTROL CENTER AND AUXILIARY PANELS
738	D	PRIMARY SEDIMENTATION TANKS ELECTRICAL PLAN
739	D	PRIMARY CONTROL BUILDING PUMP LEVEL PLAN AND SECTIONS

#	TYPE	TITLE
740	D	PRIMARY CONTROL BUILDING ENGINE LEVEL PLAN AND SECTION
741	D	PRIMARY CONTROL BUILDING SECTIONS
742	D	PRIMARY CONTROL BUILDING SECTION
743	D	PRIMARY CONTROL BUILDING SECTION AND DETAIL
744	D	PRIMARY CONTROL BUILDING SECTION
745	D	PRIMARY CONTROL BUILDING SECTION
746	D	PRIMARY CONTROL BUILDING PHOTOS AND DETAIL
747	D	PRIMARY CONTROL BUILDING PHOTOS
748	D	PRIMARY CONTROL BUILDING PLANS AND SECTION
749	D	PRIMARY CONTROL BUILDING ATRIUM PLAN, SECTION AND PHOTOS
750	D	DECHLORINATION BUILDING STRUCTURAL PLANS AND SECTIONS
751	D	DECHLORINATION BUILDING PHOTOS
752	D	DRAINAGE PUMP STATION PLANS AND SECTION
753	D	DRAINAGE PUMP STATION PHOTOS

TYPICAL DETAILS

754	T	TYPICAL DETAILS ARCHITECTURAL - I
755	T	TYPICAL DETAILS ARCHITECTURAL - II
756	T	TYPICAL DETAILS ARCHITECTURAL - III
757	T	TYPICAL DETAILS ARCHITECTURAL - IV
758	T	TYPICAL DETAILS ARCHITECTURAL - V
759	T	TYPICAL DETAILS ARCHITECTURAL - VI
760	T	TYPICAL DETAILS ARCHITECTURAL - VII
761	T	TYPICAL DETAILS ARCHITECTURAL - VIII
762	T	TYPICAL DETAILS CIVIL - I
763	T	TYPICAL DETAILS CIVIL - II
764	T	TYPICAL DETAILS CIVIL - III
765	T	TYPICAL DETAILS CIVIL - IV
766	T	TYPICAL DETAILS ELECTRICAL - I
767	T	TYPICAL DETAILS ELECTRICAL - II
768	T	TYPICAL DETAILS ELECTRICAL
769	T	TYPICAL DETAILS ELECTRICAL - IV
770	T	TYPICAL DETAILS ELECTRICAL - V
771	T	TYPICAL DETAILS ELECTRICAL - VI
772	T	TYPICAL DETAILS ELECTRICAL - VII
773	T	TYPICAL DETAILS ELECTRICAL - VIII
774	T	TYPICAL DETAILS ELECTRICAL - IX
775	T	TYPICAL DETAILS ELECTRICAL - X
776	T	TYPICAL DETAILS ELECTRICAL - XI
777	T	TYPICAL DETAILS ELECTRICAL - XII
778	T	TYPICAL DETAILS ELECTRICAL - XIII
779	T	TYPICAL DETAILS ELECTRICAL - XIV
780	T	TYPICAL DETAILS ELECTRICAL - XV
781	T	TYPICAL DETAILS ELECTRICAL - XVI
782	T	TYPICAL DETAILS ELECTRICAL - XVII
783	T	TYPICAL DETAILS ELECTRICAL - XVIII
784	T	TYPICAL DETAILS ELECTRICAL - XIX
785	T	TYPICAL DETAILS ELECTRICAL - XX
786	T	TYPICAL DETAILS ELECTRICAL - XXI
787	T	TYPICAL DETAILS ELECTRICAL - XXII
788	T	TYPICAL DETAILS HVAC - I
789	T	TYPICAL DETAILS HVAC - II
790	T	TYPICAL DETAILS HVAC - III
791	T	TYPICAL DETAILS HVAC - IV
792	T	TYPICAL DETAILS HVAC - V
793	T	TYPICAL DETAILS MECHANICAL - I
794	T	TYPICAL DETAILS MECHANICAL - II
795	T	TYPICAL DETAILS MECHANICAL - III

#	TYPE	TITLE
796	T	TYPICAL DETAILS INSTRUMENTATION - I
797	T	TYPICAL DETAILS INSTRUMENTATION - II
798	T	TYPICAL DETAILS INSTRUMENTATION - III
799	T	TYPICAL DETAILS INSTRUMENTATION - IV
800	T	TYPICAL DETAILS INSTRUMENTATION - V
801	T	TYPICAL DETAILS INSTRUMENTATION - VI
802	T	TYPICAL DETAILS INSTRUMENTATION - VII
803	T	TYPICAL DETAILS INSTRUMENTATION - VIII
804	T	TYPICAL DETAILS PIPING - I
805	T	TYPICAL DETAILS PIPING - II
806	T	TYPICAL DETAILS PIPING - III
807	T	TYPICAL DETAILS PIPING - IV
808	T	TYPICAL DETAILS PIPING - V
809	T	TYPICAL DETAILS PIPING - VI
810	T	TYPICAL DETAILS PIPING - VII
811	T	TYPICAL DETAILS PIPING - VIII
812	T	TYPICAL DETAILS PIPING - IX
813	T	TYPICAL DETAILS PIPING - X
814	T	TYPICAL DETAILS PIPING - XI
815	T	TYPICAL DETAILS PIPING - XII
816	T	TYPICAL DETAILS PIPING - XIII
817	T	TYPICAL DETAILS PIPING - XIV
818	T	TYPICAL DETAILS PIPING - XV
819	T	TYPICAL DETAILS PIPING - XVI
820	T	TYPICAL DETAILS STRUCTURAL - I
821	T	TYPICAL DETAILS STRUCTURAL - II
822	T	TYPICAL DETAILS STRUCTURAL - III
823	T	TYPICAL DETAILS STRUCTURAL - IV
824	T	TYPICAL DETAILS STRUCTURAL - V
825	T	TYPICAL DETAILS STRUCTURAL - VI
826	T	TYPICAL DETAILS STRUCTURAL - VII
827	T	TYPICAL DETAILS STRUCTURAL - VIII