REPORT TO MAYOR AND COUNCIL

NO: 13-108

Council Meeting: May 7, 2013

SUBJECT: Award of Contract for the Water Pollution Control Plant Master Plan and Primary Treatment Facility Design (F13-27)

REPORT IN BRIEF

Approval is requested to award a six-year contract to Carollo Engineers of Walnut Creek for engineering design and related services associated with the reconstruction of the Water Pollution Control Plant (WPCP or Plant). The base contract, in the amount of $11,088,127, includes:

- Preparation of a Master Plan, site planning, and a Programmatic Environmental Impact Report (PEIR) for the entire reconstruction effort, including public outreach
- Engineering design and construction support services for the primary treatment facility.

The contract also includes pricing for potential as-needed services in the amount of $1,351,514, to be utilized depending on treatment process decisions made during the master planning process. A portion of the as-needed services includes an environmental impact determination specifically for the primary treatment facility, which is more fully explained below.

Approval is also recommended for a 10% contingency in the amount of $1,243,964. The total not-to-exceed amount of the contract including base services, as-needed services, and contingency equals $13,683,605. This amount is in line with staff cost estimates for this portion of the reconstruction project.

This contract represents the first significant step in reconstructing the aging WPCP, currently budgeted at $318 million over a 10-15 year period. Subsequent to the execution of this contract, a Request for Proposals (RFP) will be issued for professional services for overall Program Management (PM) of the project, later followed by major WPCP components such as power generation, automation system controls and secondary/tertiary treatment processes.

It is important to note that during the reconstruction program, the WPCP must remain fully operational at all times to meet regulatory compliance.

BACKGROUND

The WPCP was initially built in the 1950s, and with additions over the years it has grown to a tertiary treatment facility that receives an average dry weather flow of 14 million gallons per day. Due to the age of the facility, the City conducted an asset condition assessment in 2006, which identified several plant structures as at-risk and in need of rehabilitation. Following the condition assessment, the City initiated several projects such as the rehabilitation of the WPCP's four digesters, sediment removal from the oxidation ponds, and improvements to the four air flotation tanks (AFTs).

The City also completed a Strategic Infrastructure Plan (SIP) to evaluate renovating the existing plant processes vs. investing in new treatment processes, followed by a peer review to evaluate the SIP's conclusions. Council considered the outcomes of the SIP and peer review in May 2011 and again at the February 10, 2012 Strategic Planning Workshop. At the Workshop, the direction from Council was to forego the renovation option and proceed with developing a plan that included reconstructing the plant with new treatment processes.

The initial stages of the Plant reconstruction program consist of procuring consulting contracts for three major components which include Master Planning, Primary Treatment Facility Design and overall Program Management.

Master Planning

Utilizing the SIP as a starting point, the Master Plan further develops the program by making strategic decisions on future processes, operations and construction at the Plant. Services include evaluation and selection of secondary and tertiary treatment processes, documenting existing conditions to set the platform for future Plant projects, developing conceptual designs for projects within the reconstruction program, and preparing a site layout plan to identify locations of new plant facilities (several facilities will need to be relocated in order to keep the Plant fully operational).

Master Plan efforts also include a Programmatic Environmental Impact Report (PEIR) for the entire program, as well as development of Plant "standards" to be utilized for all future capital projects at the Plant. The Master Plan will result in a comprehensive conceptual plan detailing the estimated costs and time schedules for the multiple design/construction projects necessary to complete the Plant reconstruction.

Primary Treatment Facility Design

The first major project under the reconstruction program will be the design and construction of the primary treatment facility, which takes the raw sewage from the conveyance pipelines and removes solids and sediments before sending it to the secondary treatment process.

The primary treatment facility will be designed and constructed in three separate phases, or "bid packages." The site preparation package will clear the proposed site, resolve any utility conflicts, and grade the site for the construction package, which will include commissioning of the new facility to ensure it is running efficiently and in compliance with all regulatory requirements. The final package is for the demolition of the old primary treatment facility, which will clear the way for future reconstruction projects.

Construction of the primary treatment facility will require project-specific environmental impact documentation. At this time it is unknown whether a focused Environmental Impact Report (EIR) is necessary or whether CEQA compliance for this portion of the project can be achieved through a Mitigated Negative Declaration or a Categorical Exemption. These options will be reviewed in greater detail and finalized during the Master Planning phase.

Program Management

Subsequent to the award of this contract, staff will issue an RFP for overall Program Management services necessary to oversee a program of this magnitude. Services will include: quality assurance of design work products; oversight of construction; records management; financial and schedule oversight; regulatory and environmental operational compliance; public outreach program implementation; multiple programs coordination; facilities commissioning; and automation and controls systems integration.

An RFP for Program Management services was initially issued in April 2012, but the three proposals received were rejected by Council (RTC No. 12-209). This provided staff the opportunity to reevaluate the procurement scope, strategy, and sequencing such that the decision was made to combine both the master planning and primary treatment facility design into one RFP as the first step in the Plant reconstruction program.

It is critical that construction of the primary treatment facility begins at the earliest opportunity given the condition of the facility. A complicating factor is that a number of larger wastewater treatment agencies in the Bay Area and Sacramento region are in the process of upgrading their facilities as well, which impacts the available pool of qualified consultants. Examples include, but are not limited to, Sacramento Regional Sanitation District; San Francisco Water, Power, Sewer; and the City of San Jose.

DISCUSSION

RFP No. F13-27 for the Water Pollution Control Plant Master Plan and Primary Treatment Facility Design was issued on November 15, 2012. The RFP was distributed to 22 wastewater engineering firms, posted on the Onvia DemandStar public procurement network, and was published on the City's website. Forty-eight (48) firms requested RFP documents. Three proposals were received on December 19, 2012 as follows:

Consultant Teams*	Cost Proposal
Carollo Engineers, of Walnut Creek (teamed with HDR Engineering, Inc. of Folsom)	$10,959,868
Brown & Caldwell, Inc., of Walnut Creek (teamed with CH2M Hill, Inc., of Pleasanton)	$9,118,334
HydroScience Engineers, of Sacramento (teamed with West Yost Associates, of Davis)	$5,872,902
*With the combination of master planning and facility design in one RFP (with many aspects of work proceeding concurrently over a multi-year period), it was necessary for consultants to "team up" in partnering arrangements, with the proposing firm taking the lead as the prime consultant under contract.	

Given the size and complexity of the reconstruction program, the level of effort proposed by the consulting teams, and the fact that many treatment process decisions are not completely finalized, it is not surprising that a wide range of pricing was submitted. Accordingly, proposals contained qualified responses regarding additional costs to be determined at a later date, which means that the pricing initially proposed does not represent an "apples to apples" comparison.

A City evaluation team consisting of Public Works and Environmental Services Department staff evaluated the written proposals on their proposed teams, experience, and references; detailed project approaches; and project timelines. Additionally, interviews were conducted with all three proposers. Based on the results of both the written proposal evaluations and the interviews, staff unanimously identified the Carollo/HDR team as the highest-ranked proposer with the best understanding of the Plant reconstruction program. The Carollo/HDR team distinguished itself from the other proposing firms in a number of ways:

- Highly qualified staff with vast experience working on similar master planning and design projects
- Compelling responses to technical questions demonstrating familiarity with the challenges associated with Sunnyvale's reconstruction program
- Considerable depth of expertise associated with electrical, mechanical, automation, controls, and process design
- Detailed process design approach for optimizing capital costs
- Recommended 3 bid packages to minimize construction risk associated with unforeseen conditions
- Robust Quality Assurance/Quality Control approach to design including a technical peer review panel to critically evaluate work products

Considering that the master planning process will set the stage for the program over the next decade, it is crucial to select a skilled team with a proven track

record. Staff believes that of the three proposers, the Carollo/HDR pairing is the most qualified team for the work.

Once Carollo was identified as the top-rated proposer, the City engaged the firm in discussions to clarify the level of effort and proposed project scope vs. the City's intended requirements. As a result of these discussions, pricing (and project scope) increased from $10,959,868 to $11,999,000. This amount was subsequently negotiated downward to $11,088,127, mainly by critically evaluating redundancies among and between Carollo and its subconsultants, negotiating hourly rates, and reducing the level of consultant support for certain tasks (without compromising project scope). Additionally, Carollo and all of its subconsultants (a total of thirteen) agreed to hold hourly rates through June 30, 2015, at which point at least half of all contract costs will have been expended. Thereafter, hourly rate increases of 2.5% per year will apply for the final four years of the agreement.

As-needed Services

Carollo has recommended several design concepts and treatment process alternatives for the project which could add $1,133,676 in project costs, but until the master plan has been developed it is unclear how beneficial these options will be to the project. Since there is a potential that adding some of these items may increase wastewater treatment performance and/or meet future regulatory requirements, it is recommended that these options be included in the contract. These alternatives, titled Treatment Process Design Alternatives and CEQA Support Services, are detailed as Tasks 1.0 – 10.0 in Section IX of the contract's Scope of Work (Exhibit A of RTC Attachment B). Each item is listed separately and has a cost estimate associated with it, shown in Exhibit C of RTC Attachment B.

An additional task, 11.0, provides three options specific to CEQA for the primary treatment facility, of which the City will select one when it is determined what level of environmental review is required. The options include a Categorical Exemption ($18,770), a Mitigated Negative Declaration ($64,910), or a focused EIR ($217,838). The total not-to-exceed value of as-needed services equals $1,351,514, which consists of the $1,133,676 in Tasks 1.0 – 10.0 described above, plus the $217,838 maximum amount of EIR work associated with construction of the primary treatment facility.

The design consultant will only proceed with these items if directed in writing by the City. If through the master planning process it is determined that some of these items are not sufficiently beneficial, then the use of the funds will not be authorized.

FISCAL IMPACT

Contract costs are as follows:

Engineering Design and Support Services	$11,088,127
Design Alternatives/CEQA Support Options	1,351,514
Contract Contingency (10%)	1,234,964
Total Cost (not to exceed)	$13,683,605

The Wastewater Management Fund long-term financial plan currently includes a project for $318 million as a placeholder to provide funding for the reconstruction of the Plant. The intent was that as specific projects are identified, the financial impact would be netted out of the placeholder project and reflected as new projects. The most significant of these that will be included in the FY 2013/14 Recommended Budget is a five-year, $58.4 million project to design and build new primary treatment facilities. The recommended budget also includes a three-year, $7.1 million project to develop the WPCP Master Plan, and a 12-year $34.1 million project for Program Management services, also netted against the larger placeholder project.

Given the magnitude of the Plant reconstruction program and the many individual projects that will be undertaken, it is important to note that the preliminary cost estimates prepared as part of the SIP will be adjusted/refined as the master planning phase unfolds and overall work progresses. If actual expenses for any given project segment are lower than current estimates, these expenses may be programmed to other portions of the project that may be under-estimated.

The initial phase of the reconstruction program will be cash funded, up to $10 million through the use of available reserves, with $2 million available as part of the current budget and another $8 million in FY 2013/14 included in the recommended budget. The remainder of the overall program will be funded through the issuance of Wastewater Revenue Bonds. It is important to note that at the completion of the reconstruction program, staff is anticipating that the Wastewater Management Fund will include approximately $20 million in debt service expense annually (more than 40% of total Fund expenses), and that the monthly cost of wastewater service for an average residential customer will more than double over the next twelve (12) years to support these expenses.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's Web site.

RECOMMENDATION

It is recommended that Council:

1. Award a contract, in substantially the same form as the attached draft and in an amount not-to-exceed $11,088,127, to Carollo Engineers, for the subject project, and authorize the City Manager to execute the contract when all necessary conditions have been met;
2. Approve an amount not-to-exceed $1,351,514 for as-needed Treatment Process Design Alternatives and CEQA Support Services;
3. Approve a 10% contract contingency in the amount of $1,243,964; and
4. Delegate authority to the City Manager to extend the end date of the contract in order to complete the work, provided there is sufficient budgeted funding.

Reviewed by:

Grace Leung, Director of Finance
Prepared by: Pete Gonda, Purchasing Officer

Reviewed by:

John Stufflebean, Director, Environmental Services

Reviewed by:

Kent Steffens, Director, Public Works

Approved by:

Gary M. Luebbers
City Manager

Attachments

A. Cost Summary by Major Component/Fiscal Year
B. Draft Consultant Services Agreement with Exhibits A - D

RTC ATTACHMENT A

Sunnyvale WPCP Master Plan and Primary Treatment Facility
Summary of Fee Proposal

Base Services	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	Total
Master Plan	$ 1,825,756	$ 400,776						$ 2,226,532
Site Plan	$ 918,855	$ 201,700						$ 1,120,555
PEIR	$ 73,500	$ 220,499	$ 703,146					$ 997,144
Standards	$ 64,223	$ 192,669						$ 256,892
Design	$ 525,502	$ 1,576,507	$ 1,740,372		$ 250,275	$ 256,532		$ 4,349,187
ESDC			$ 137,151	$ 691,577	$ 708,866	$ 480,296	$ 119,927	$ 2,137,817
Total	$ 3,407,835	$ 2,592,150	$ 2,580,669	$ 691,577	$ 959,141	$ 736,828	$ 119,927	$ 11,088,127

	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	Total
As Needed Services	$ 669,892	$ 147,049	$ 534,573					$ 1,351,514

RTC ATTACHMENT B

DRAFT
CONSULTANT SERVICES AGREEMENT BETWEEN CITY OF SUNNYVALE AND CAROLLO ENGINEERS FOR DESIGN AND CONSTRUCTION SUPPORT SERVICES FOR WATER POLLUTION CONTROL PLANT MASTER PLAN AND PRIMARY TREATMENT FACILITY DESIGN

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

WHEREAS, CITY desires to secure professional services in accordance with and enumerated in Section 1 below necessary for investigation, analysis, environmental documentation, master planning services, engineering design, preparation of construction drawings and contract specifications, consultation, services during construction and other services for a project known as Water Pollution Control Plant Master Plan and Primary Treatment Facility Design (Public Works Project No. UY-15/01-19);

WHEREAS, CONSULTANT represents that it, and its sub-consultants 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. <u>Services by CONSULTANT</u>

CONSULTANT shall provide Base services in accordance with Sections I through VIII of Exhibit "A" and associated Attachment 1 entitled “Master Plan and Primary Treatment Facility Design Scope of Work.”

At CITY’S sole option, CONSULTANT may provide As-needed services in accordance with the provisions set forth in Section IX of Exhibit “A” entitled “Treatment Process Design Alternatives and CEQA Support Services.”

All exhibits, including associated attachments, are incorporated herein by reference.

CONSULTANT agrees to assign Jim Hagstrom, P.E. to this project, to act in the capacity of Project Manager and personally direct the professional services to be provided by CONSULTANT.

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

CONSULTANT shall not be responsible for the means, methods, techniques, sequences, or procedures of construction selected by construction contractors or the

safety precautions and programs incident to the work of construction contractors and will not be responsible for construction contractor's failure to carry out work in accordance with the Contract documents.

2. Notice to Proceed/Completion of Services

(a) CONSULTANT shall commence Base and/or As-needed services upon receipt of a written 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 and Agreement Term

CONSULTANT shall provide services hereunder in accordance with the Project Schedule set forth in the attached Exhibit "B." Agreement term shall be from the execution date through December 31, 2019. Extensions of time may be granted by the City Manager upon a showing of good cause, and by written amendment signed by both parties.

4. Payment of Fees and Expenses

CITY agrees to pay CONSULTANT for the services rendered pursuant to this Agreement, the amounts and rates in Exhibit "C – Compensation Schedule," subject to the payment provisions and not-to-exceed sums set forth in this section.

Payments shall be made to CONSULTANT on a monthly basis. Compensation will not be due until a detailed billing is submitted to CITY within a reasonable time before payment is expected to allow for normal CITY processing. An estimate of the percent of total completion associated with the various categories of the services shall be furnished by CONSULTANT with said billing. Copies of pertinent financial records will be included with the submission of billing(s) for all direct reimbursables.

In no event shall the total amount of compensation payable under this Agreement for Base services exceed the sum of Eleven Million Eighty-eight Thousand One-hundred Twenty-seven Dollar ($11,088,127), unless upon written modification of this Agreement executed by both parties.

In no event shall the total amount of compensation payable under this agreement for As-needed services exceed the sum of One Million Three-hundred Fifty-one Thousand Five-hundred Fourteen Dollars ($1,351,514), unless upon written modification of this Agreement executed by both parties.

All invoices for payment, including detailed backup, shall be sent to City of Sunnyvale, attention Accounts Payable, P.O. Box 3707, Sunnyvale, CA 94088-3707.

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 (Where Applicable)

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.

CONSULTANT's instruments of service hereunder are the printed hard copy drawings and specifications issued for the Project, whereas electronic media, including CADD files, are tools for their preparation. As a convenience to the CITY, CONSULTANT shall furnish to the CITY both the printed hard copies and electronic media. In the event of a conflict in their content, the printed hard copies shall take precedence over the electronic media. Because data stored in electronic media can be inadvertently altered, it is agreed that the CITY shall hold consultant harmless from liability arising out of changes or modifications to CONSULTANT'S data in electronic form in the CITY'S possession or released to others by the CITY.

14. Consultant Access to City Property

The CITY shall arrange for access to and make all provisions for CONSULTANT to enter upon CITY property as required for CONSULTANT to perform services hereunder.

15. 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.

16. 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."

17. 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.

18. 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 shall be personally delivered, sent by first class with postage prepaid, or sent by commercial courier, addressed as follows:

To CITY: Manuel Pineda
City Engineer
Department of Public Works
CITY OF SUNNYVALE
P. O. Box 3707
Sunnyvale, CA 94088-3707

To CONSULTANT: CAROLLO ENGINEERS
Attn: Jim Hagstrom
2700 Ygnacio Valley Road, Suite 300
Walnut Creek, CA 94598

Nothing in this provision shall be construed to prohibit communication by more expedient means, such as by telephone or facsimile transmission, to accomplish timely communication. However, to constitute effective notice, written confirmation of a telephone conversation or an original of a facsimile transmission must be sent by first class mail, by commercial carrier, or hand-delivered. 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 days after mailing, unless such date is a date on which there is no mail service. In that event communication is deemed to occur on the next mail service day.

19. 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.

20. Amendments

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

21. 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.

22. Conflict of Interest

CONSULTANT certifies that to the best of its knowledge, no CITY employee or officer of any public agency interested in this Agreement has any pecuniary interest in the business of CONSULTANT and that no person associated with CONSULTANT has any interest that would conflict in any manner or degree with the performance of this Agreement.

23. California Agreement

This Agreement has been entered into in the State of California and this Agreement shall be governed by California law.

24. 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.

25. Termination of Agreement

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. If CITY fails to pay CONSULTANT, CONSULTANT at its option may terminate this Agreement if the failure is not remedied

by CITY within thirty (30) days after written notification of failure to pay.

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.

26. 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.

27. 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.

28. 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.

29. Other Agreements

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

30. 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.

31. 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.

32. 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.

33. 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. This Agreement shall be governed and construed in accordance with the laws of the State of California.

IN WITNESS WHEREOF, the parties have executed this Agreement.

ATTEST:

By_____
City Clerk

APPROVED AS TO FORM:

By_____
City Attorney

CITY OF SUNNYVALE ("CITY")

By_____
City Manager

CAROLLO ENGINEERS
("CONSULTANT")

By_____

_____
Name/Title

By_____

_____
Name/Title

Exhibit A

MASTER PLAN AND PRIMARY TREATMENT FACILITY DESIGN
SCOPE OF WORK

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Exhibit A

CITY OF SUNNYVALE
WATER POLLUTION CONTROL PLANT

MASTER PLAN AND PRIMARY TREATMENT FACILITY DESIGN
SCOPE OF WORK

I. GENERAL

The City's overall goal is to renovate the existing Water Pollution Control Plant (WPCP) to a new facility suitable to treat and dispose of municipal sewage for the next 40 years. The renovated WPCP must meet all regulatory and permit requirements, as well as good practices, sustainability, and cost-effectiveness, with a bias toward reducing overall lifecycle costs, and being good stewards of the land and public trust. The renovated facilities at the WPCP must be reliable, flexible, and adaptable to meet expected and new challenges over the next generation.

This scope of work is broken up into two major components. The first part of the scope describes the efforts associated with master planning, site improvements, design standards development and the environmental clearance in accordance with the California Environmental Quality Act (CEQA). The second part of the scope describes the design and construction support services associated with a new primary treatment facility (headworks and primary sedimentation tanks).

The scope of work includes development of Basis of Design for the WPCP treatment processes, development of an Electrical and Combined Heat and Power (ECHP) plan, Automation and Control Systems (ACS) plan, providing all site planning, land surveying, architecture, civil engineering, environmental engineering, geotechnical engineering, electrical engineering, mechanical engineering, controls and SCADA, telecommunications, security systems, and other disciplines necessary to create a comprehensive master plan for the site as well as the design and preparation of construction contract documents to build a new primary treatment facility. This scope also includes development of technical standards and details for the WPCP that will help to guide the design and construction efforts for each subsequent project at the treatment site. The basis of design and master plan development portion of this scope of work shall provide sufficient documentation to guide further design and construction of the WPCP in the most cost-effective and efficient manner (as well as to comply with CEQA requirements).

A Programmatic Environmental Impact Report (PEIR) will be prepared in accordance with the requirements of CEQA and any other governing regulations or pertinent case law. The PEIR will address the short and long term environmental impact(s) of the various projects identified for the WPCP plant reconstruction as well as for the other scopes of work concurrent with this effort. The PEIR (or Master EIR) shall allow the City to consider broader policy and technology alternatives when greater knowledge is available as the smaller projects progress through the entire design and reconstruction process. The PEIR shall be comprehensive enough to provide assistance to subsequent focused EIRs or mitigation measures for projects as they are further developed in the overall design of the WPCP. It is anticipated that a project specific EIR will be completed prior to beginning construction of the primary facilities improvements.

II. CONSULTANT COORDINATION REQUIREMENTS

All on-site investigations, borings, survey or other work performed by the Consultant shall be scheduled and coordinated with the City's project manager and WPCP staff. Note that the continual operation of the WPCP and permit compliance is of greatest importance. Any work done on site, and all designs must be done in a manner to not disrupt the concurrent and ongoing operation of the plant.

The City anticipates awarding multiple consulting contracts in 2012/2013. The Consultant selected shall coordinate the work of this contract with the City and various other City consultants and contractors who will be working simultaneously on program management and other "manage the gap" projects at the WPCP. The City anticipates procuring program management services following this procurement. The program management consultant (PMC) will provide management services to the City's Public Works Department to provide oversight of master planning efforts to evaluate treatment and equipment options, oversee and coordinate multiple design and construction contracts, and coordinate the rehabilitation/reconstruction program with ongoing plant operations. Paramount will be the planning of projects and coordination with continued operations of the plant and the City's National Pollutant Discharge Elimination System (NPDES) permit, and other permits.

III. MASTER PLAN

The elements of the master plan and site plan shall be brought to the conceptual design phase at a minimum. Some of the elements, such as the treatment processes, electrical and power systems, automation systems shall be developed to a Basis of Design level of detail.

1.0 PRE-DESIGN AND BASIS OF DESIGN DEVELOPMENT

The SIP and peer review completed a preliminary analysis of treatment options and the Consultant shall validate that analysis as required for the development of the basis of design for the various treatment processes. The consultant shall further analyze and refine the project options presented in the SIP and the Peer Review. These analyses shall take into account upstream and downstream interventions, effect on overall SIP implementation, phasing and concurrent operations during the project implementation, and interim operational scenarios to accommodate future transition. The Consultant shall identify the appropriate degree of reliability and redundancy to be incorporated into facility planning.

The Consultant shall develop planning-level definition of all major process components and support facilities for all areas of the treatment plant as laid out in the SIP beginning with the preliminary treatment to disinfection outfall discharge and recycled water production, and provide basic site layout, facility element sizing, process configurations, and hydraulic and process modeling. The Consultant shall also provide an analysis of pumping strategies and identify initial hydraulic profiles. The Consultant shall ultimately prepare various basis of design documents which shall be incorporated into the scope development for design projects.

The Consultant team shall possess technical expertise related to electrical distribution, power generation, control systems engineering, etc. to provide a comprehensive

analysis of potential alternatives in the context of the entire treatment process and support systems.

The Consultant shall be responsible for setting up initial workshops with the City for each of the items included in this section of the scope. The intent of the workshop at a minimum is to discuss and reach a consensus on what technologies will be analyzed and how they will be evaluated. The Consultant shall also be responsible for setting up progress meetings for the various items and coordinating document reviews throughout the process (see Section VII Project Management).

1.1 Review of Existing SIP Background Documents and Related Studies

Prior to performing a detailed process analysis, the Consultant shall work with the City to review the previous work efforts completed as part of the previous SIP efforts to determine which of the previous findings need to be (1) utilized as presented in the SIP documentation; (2) modified to reflect updated conditions or (3) re-analyzed. This would be initially performed as part of a project kickoff workshop identified in Section VII Project Management of the scope of work.

Key issues to be discussed would include (but not be limited to) the following:

- Flow and load considerations
- Condition assessment of existing facilities
- Specific process recommendations
- Site layout constraints
- Ultimate use of the existing ponds
- Future water recycle planning considerations
- Level of electrical backbone reliability
- Plant aesthetic considerations (architecture/landscape)

1.2 Update to SIP Flow and Load Analysis

Consultant shall provide an update to the flow and load analysis prepared as part of the SIP and SIP peer review process. Based on the peer review effort, the primary focus of this update shall be to review peaking factors and critical loading criteria for the proposed process evaluation. It is assumed that the methodologies to project future wastewater flow increases was valid. Update shall include a review of the 2010 and 2011 plant data in comparison with accepted industry published values.

Deliverables:

- Technical memorandum which updates the flow and load analysis prepared as part of the SIP review effort (Appendix E).

1.3 Treatment Process Alternative Analysis

Process alternatives to be evaluated for primary, secondary, and tertiary treatment include but are not necessarily limited to the items listed below. Consideration of odor

control and corrosion control systems will be included as part of this analysis. This list is not meant to be exhaustive; if there are other technologies which are beneficial to the City then they should be recommended by the Consultant and reviewed as part of technical screening process.

- Preliminary Treatment – (Conventional bar screens vs. Micro-screens, ability to utilize APS, redundancy considerations for storm flows, alternatives for rag removal and processing, etc.)
- Primary treatment (CEPT, potential for co-thickening and implications on solids thickening processes, grit removal options, etc.)
- Secondary treatment (variations of activated sludge process – BNR, AS+TF, utilization of FGR as proposed in the Peer Review of SIP, evaluation of wetlands for polishing, potential use of existing AFTs as reconfigured into clarifiers or thickening process for solids, co-thickening of activated sludge with primary sludge and implications on digester operations, configuration of aeration tanks for BNR/AS process, potential for use of MBR to meet recycle water goals, aeration system needs for various alternatives, control systems concepts for various alternatives, sludge withdrawal systems and influent flow options for flexibility in various modes of operations to enable step feed, internal recycle etc.; *Norcardia*/foam control options)
- Filtration (Dual media, membrane, micro filtration, potential for RO for recycled water production)
- Disinfection (modifications to future hypo-chlorite and bi-sulfite systems, potential for UV addition, ability to meet future CEC regulation and disinfection bi-products elimination)
- Solids Thickening (gravity thickeners, dissolved air flotation, rotating drum thickeners, etc.)
- Solids dewatering (centrifuges, belt filter presses)
- Gas Management Systems (integration of the digester and landfill gas, treatment systems required, provision for gas storage and reliability mechanisms, location/integration of existing gas flares, gas blending systems)
- Odor control systems (centralized system, individual systems for each process/unit etc.)

Basis of design shall be prepared for each major process area and assumes the following:

- Preparation of design criteria
- Potential vendors (as well as any related procurement issues)
- Recommendations for levels of automation/control
- Major operations and maintenance considerations (access, redundancy needs)
- Basis layout considerations (generic plan and section views)
- Detailed subsystem piping layouts will not be provided

Deliverables:

- Alternative analysis for each process configuration
- Capital costs analysis for each process configuration
- Life cycle cost analysis for each process configuration
- Technical memos summarizing the technical screening process
- Basis of design documents (10% design) for each selected process configuration
- Implementation, phasing and integration plan for the selected process configuration (see Section 2.1 Project Implementation Plan)
- Overall Plant hydraulic and process models for the selected process configuration

1.4 CFD Process Modeling

Consultant shall utilize computational fluid dynamic (CFD) modeling for the headworks and primary sedimentation tanks to optimize the process design elements for these facilities.

1.4.1 Headworks/Grit Removal

The scope of work for this analysis includes three subtasks: (1) modeling of influent channel; (2) modeling of the pump station wetwell and (3) modeling of grit removal technologies. Consultant will use a commercial package known as Flow-3D to perform the CFD modeling.

Task 1 – Modeling of Influent Channel. Consultant shall use Flow-3D to build a model of the influent channel. The model shall include the influent channel as well as the channels approaching the bar screens. The model will be used to investigate the flow imbalance between the approaching channels and bar screens. Alternative solutions will be identified and tested using the model. Scope consists of the following subtasks;

- Data preparation. Consultant shall review the headworks preliminary CAD drawings. The 3-D drawings will be exported to STL format to be process by Flow 3-D.
- Model setup. Consultant shall build a model of the influent channel and the approaching channels using Flow-3D. Data prepared in the earlier subtask will be entered into the model and simulations will be performed to ensure model convergence. The flow imbalance between screens will be estimated at low, average and high flow conditions. Dead zones and recirculation zones will be identified.
- Optimization of Performance. Consultant shall recommend and test potential fixes to improve flow distribution between the screens. A maximum of three potential solutions will be analyzed.
- Technical memorandum. Consultant shall prepare a summary technical memorandum summarizing the findings and conclusions from the modeling analysis.

Task 2 – Modeling of Influent Pump Station Wetwell. Consultant shall use Flow-3D to build a model of the influent pump station wetwell. The model will include the channels approaching the wetwell, the wetwell and the intake pipes. The flow regime inside the wetwell will be investigated to minimize dead zones and vortices. Also the flow pattern inside the intake will be evaluated. Two main flow features will be checked: the deviation from the average velocity and the flow swirl angle. The guidelines established by *"Hydraulic Institute – Pump Intake Design 1998"* will be used. Scope consists of the following subtasks:

- Data Preparation. Consultant shall review the pump station preliminary CAD drawings. The 3-D drawings will be exported in STL format to be processed by Flow-3D.
- Model Setup. Consultant shall build a model of the channels approaching the wetwell, the wetwell and the intake pipes. Data prepared in the earlier subtask will be entered into the model and simulations will be performed to ensure model convergence. The flow imbalance between the pumps and the presence of vortices, dead zones and swirls will be estimated at low, average and high flow conditions.
- Optimization of Performance. Consultant shall recommend and test different potential fixes to improve the flow regime within the wetwell and eliminate swirls inside the intake. Potential fixes could include the installation of vanes and baffles.
- Technical memorandum. Consultant shall prepare a summary technical memorandum summarizing the findings and conclusions from the modeling analysis.

Task 3 – Modeling of Grit Removal Technologies. Consultant shall use the Flow-3D to build a model of the two potential grit removal technologies: forced vortex and aerated chambers. The aerated grit chamber model will be based on the layout presented in the SIP, while the forced vortex will be based on a assumption that each bar screen will be linked to a grit removal unit. If Sunnyvale specific grit particle distribution is not available (see IX. Treatment Process Design Alternatives and CEQA Support Services), data from literature and other similar plants will be used. Scope consists of the following subtasks;

- Data Preparation. Consultant shall review the preliminary CAD drawings of the two potential grit removal systems. The 3-D drawings will be exported in STL format to be processed by Flow-3D.
- Model Setup. Consultant shall build two models – one for each technology. Data prepared in the earlier subtask will be entered into the model and simulations will be performed to ensure model convergence. The flow regime in each system will be investigated to ensure proper sizing of the units. In the case of the aerated grit chambers, flow imbalance between the units will be estimated. If Sunnyvale specific grit distribution data is not available, a removal particle "e" will be identified for each technology and an approximate capture rate will be estimated.
- Optimization of Performance. Consultant shall recommend and test different potential fixes to increase capacity of the forced vortex units while minimizing footprint and/or flow distribution between the aerated grit chambers. A maximum of two potential solutions for each technology will be analyzed.

- Technical memorandum. Consultant shall prepare a summary technical memorandum summarizing the findings and conclusions from the modeling analysis.

1.4.2 Primary Sedimentation Tank

Consultant proposes an integrated and efficient approach to perform computational fluid dynamic modeling of the primary sedimentation tanks. The approach integrates field testing with mathematical modeling using Consultant's HACM software.

The approach consists of two phases:

- Phase I – Field Stress Testing – In this phase, field testing to determine the settling velocity distribution of the primary sedimentation tanks solids will be performed. A 4.2 Kemmerer sampler will be used to perform testing. Chemically enhanced primary treatment testing is not included as part of the testing. Consultant staff would perform CEPT if needed.
- Phase II – CFD Modeling – In this phase, Consultant shall use the data collected in Phase I as an input to HACM. Portion of the data will be used to calibrate the model and the other portion will be used for verification of model. HACM© will then be used to determine the most cost effective modifications.

The following tasks are anticipated to be part of completing the modeling effort:

Task 1 – Data Analysis. In this task, the data collected in Phase I will be analyzed to determine the settling velocity distribution of the incoming solids. Also, the level of non-settleable solids will be estimated.

Task 2 – Model Development. In this task, a maximum of two primary sedimentation tanks models will be built. One of the models will represent the PST proposed in the SIP. If necessary, another model will be built reflecting the optimal size and dimensions.

Task 3 – Optimization of Internal Arrangements. In this task, the model will be used to investigate the effect on installing a number of performance enhancement features. These features include inlet flocculation baffles, one and two layers of mid tank perforated baffles, transversal effluent arrangements, and sludge protection system.

Task 4 – Development of Performance Curve. In this task, the model will be used to determine the removal efficiency of the optimal PST under a range of flow rates. The performance curve could be used to estimate loading to the biological system.

Task 5 – Technical memorandum. The Consultant shall prepare a technical memorandum which summarizes the analysis performed in Tasks 1 – 4.

Deliverables:

- Technical memorandum summarizing the modeling efforts

1.5 Electrical and Combined Heat and Power Plan (ECHP Plan)

Based on the treatment process alternatives selected as part of the previous task, the City is seeking to develop a comprehensive plan for electrical and power systems that

are needed to support those treatment processes. In addition, the City anticipates that the existing four anaerobic digesters and the future FOG receiving station will be integrated into the future plant as active process facilities. Further, the City continues to receive landfill gas from the adjacent landfill which it intends to use for generation of electricity.

The following tasks are anticipated to be part of developing the ECHP Plan:

1. Evaluation of the energy needs for the treatment process. Process and building needs shall be developed for the chosen alternative.
2. Evaluation of available energy from the digester and potential changes based on the secondary treatment process selected (Refer to Digester 1 and 2 Technical Memorandum). City will provide landfill gas data and FOG receiving values. Conventional mesophyllic digestion will be assumed. Two WAS pretreatment processes will be investigated to determine impact on biogas production. The team will not recommend a pretreatment process. Consultant shall recommend processes that could be considered for piloting. Piloting is not included in the master plan effort.
3. Industry assessment of reliability standards w.r.t. power failures and establish plant reliability and level of redundancy criteria. The team will investigate two methods to achieve power reliability: two sources of PG&E power and standby generation. Cogeneration is not considered a reliable source of standby power. Standby power and redundancy/reliability will be provided (at a minimum) for the most critical hydraulic and treatment needs. Diversion to ponds will be considered to be part of short/medium-term (up to three days) reliability plan.
4. Technology evaluation of power generation alternatives and recommendations for implementation at the plant. Two alternatives will be investigated. Consultant shall screen the list from three alternatives to two in a workshop setting. The original three alternatives will be reciprocating engines, microturbines, and fuel cells.
5. Evaluation of the electrical distribution system and layout to provide power to the new facilities (switchgear, motor control centers, transformers, electrical duct banks.) The evaluation shall consider whether a radial or loop electrical distribution system is the most appropriate for the plant site. The option of dual feeds to areas shall also be a part of the evaluation.
6. Consultant shall prepare a preliminary load study identifying the preliminary standby power requirements. The systems and area shall be identified and incorporated into the electrical distribution system evaluation. The method of distribution of standby power shall be identified.
7. Provisions for black start and island mode operational capabilities. The provisions shall be described in coordination with the proposed electrical distribution system and standby generation system.
8. Heat recovery of the power generation systems and analysis of heating and cooling needs for the process (buildings, digesters). The waste heat availability will be determined from the biogas production from landfill gas and digester stabilization of biosolids and FOG. Waste heat prioritization will be given to heating digesters followed by building heating and biosolids drying. TPAD heat requirements will be considered in the analysis.

9. Configuration of the heat loop system for the plant and operational scenarios. A conceptual plant heat loop will be developed based on the waste heat analysis, as outlined earlier.
10. Provision of alternate heat sources, in case of power generation systems failure. A biogas/natural gas boiler system will be investigated.
11. Evaluation of applicable air permitting and GHG requirements associated with any new electrical and CHP systems.
12. Capital and life cycle cost analysis of the alternatives.

Deliverables:

- Alternative analysis electrical systems and CHP options
- Capital costs analysis for each alternative
- Life cycle cost analysis for each alternative
- Implementation and phasing plan (in relation to the overall WPCP construction and operation during construction)
- ECHP Plan and Layout of ECHP facilities
- Basis of Design (10%) for ECHP Facilities and Standards (refer to Section VII - Design Standards)
- Road map for air permitting and compliance associated with the recommended systems

1.6 Automation and Control Systems Plan (ACS Plan)

The existing control system at the Plant consists of three main systems and several smaller PLC based local control systems that are discreet and not integrated, creating islands of data monitoring and control. As part of this Master Plan effort, Consultant shall create an Automation and Control Systems (ACS) plan for the site and all of its processes. The information shall be a secure system controlled by a central control room with options to allow sharing of information and control through multiple personal computer stations and to wireless devices. The Consultant shall establish a control systems plan that can be implemented through various designs, help the City select the appropriate technology for the control systems (PLC based, or Distributed Control System) by laying out the pros and cons of the alternatives, cost implications, level of automation and control, ability to over-ride auto operations, emergency manual operation scenarios, un-manned operations for non-critical and night-time operations.

The City intends to hire a single service provider as an “integrator” for all design and construction projects with regard to control systems and automation. The ACS Plan will form the basis for design and implementation by the future design consultants and the integration consultant. As various aspects of the Plant are re-built, it is anticipated that the control systems associated with those processes will be upgraded to the standards developed as part of this effort. The ACS plan shall develop an implementation, phasing and integration plan to ensure current operational controls remain in place through construction and are migrated to the new control system as systems get built and configured.

Exhibit A

The plan shall incorporate all necessary and appropriate information including consideration of the following:

- Central and remote operations center, located in main administrative building
- Monitoring and control for all systems (flows, process parameters, hazardous gases, key functional parameters for the equipment such as pressure, temperature, run-times and any other required parameters for plant process monitoring and control)
- Alarm protocol for process malfunctions, including noise alarm filtration techniques
- Interface with the existing preventative maintenance management/work order system (Maximo) to allow for predictive maintenance and effective trouble-shooting and repair
- A plan for establishment of the equipment/asset hierarchy and numbering system that shall become standard for all design packages, and shall form a basis for the upgrade/update of the existing Maximo system
- Human Machine Interface (HMI) protocol development
- Video monitoring systems for key process areas/site access for the purposes of security
- Safety, hazard, and fire alarm systems
- Reliability and redundancy consideration in providing back-up power supply, and communication ports
- Provision for intelligent programming to allow failure detection, fail safe control, and “soft sensor” use for reliable process monitoring and control
- Advance control protocols to allow reliable and cost-effective un-manned/partially manned operations
- Support for multiple protocols and equipment type
- Data collection, storage and retrieval systems
- Communications hardware and software (multiple communication ports, hard wired/ Fiber optic, wireless, Modbus, Ethernet, Digital, Profibus, communication cards etc)
- Provision for servers with OPC (Open Platform Communications) standards
- Control systems protocols
- Naming and tagging conventions to be established for the control systems and associated instrumentation
- Control systems and telecom distribution, both wiring and standards
- Instrumentation/Controller guidelines w.r.t compatibility with the chosen control system
- Estimation of total I/O points, hardware and software requirements, programming effort and total cost of the system

- Implication to level of staffing for each process area, maintenance requirements, ongoing costs for upgrades, end of life consideration for basic components (controllers, sensors, computers etc).
- Program cost for the entire automation system for the final treatment process configuration selected, including the auxiliary systems (power generation, gas management, etc).

The following tasks are anticipated to be part of developing the ACS Plan:

1. Separate kickoff meeting focused on the ACS plan (one four-hour meeting).
2. Evaluation of existing conditions, which shall include an onsite investigation (assumed to be no more than three days) and shall also include an evaluation of documentation needs. A TM will be produced to summarize the results of the field investigation and to develop a gap analysis.
3. A user requirement survey shall be prepared. This shall include a City staff survey (to be completed over a continuous two day period). A TM will be produced to summarize the findings of the user survey.
4. A needs assessment shall be prepared consisting of the following (a summary TM will be produced):
    - Level of automation
    - Security
    - Staffing requirements
    - PLC vs. DCS (assuming that the discussions for level of automation, security, PLC vs. DCS etc. will occur over two separate sets of meetings to be held over two days).
    - Hardware and software platforms (assuming that recommendations will be based on Consultant's experience and that there will be no product surveys. Anticipates identifying three PLC platforms and three SCADA software packages from which the staff will select acceptable products)
    - Planning level cost estimate for selected approach
5. A system topology shall be identified consisting of the following (a summary TM will be produced):
    - Definition of networks
    - Controller locations
    - Workstation locations
    - Wireless iPad/Plant Wireless Topology (assumes that this system topology discussion will take place over four, 2-hour meetings)
    - Planning level cost estimate for selected approach
6. A set of control system standards shall be developed for the following (to be coordinated with Section VI. Design Standards):
    - Tagging standards
    - Validation plan (establish performance standards)

- Start-up plan (establish performance standards)
- Commissioning plan (establish performance standards)
- Training requirements (establish performance standards)
- Warranty requirements (warranty specification)
- Loop drawing format
- P&ID format (establish drawing format, requirements for drawing preparation, performance specification for smart P&IDs/smart databases)
- Schematic format
- Panel layout (establish standard layouts for definition drawings/bill of material for acceptable component parts)
- Control strategy format (establish specification format)

These system standards shall be each be presented over one, 4-hour meeting.

7. Based on the proposed ACS plan, a near-term and long-term implementation plan for upgrading the WPCP shall be developed.

Deliverables:

- Alternative analysis for the control systems options
- Capital costs analysis for each alternative
- Life cycle cost analysis for each alternative
- Automation and Control systems master plan and an overall network/system layout identifying key components
- Basis of design documents (10% design) for selected system and design standards (refer to Section VI - Design Standards)
- Implementation and phasing plan including aspects of migration/integration of existing systems that are to remain operational during construction and as part of the proposed WPCP improvements.

2.0 IMPLEMENTATION AND OPERATIONS PLANNING

2.1 Program Implementation Plan

It is anticipated that the entire renovation will take place in several phases, beginning with the Primary Treatment Facility, and appropriate portions of the Administrative Buildings, Power Systems, and SCADA/Telecommunications Systems. The site phases shall be developed to support on-going, continuous operations of the plant and all of its functions, in a reasonable cost-effective manner.

The SIP called for Phase 1 work to meet current projected flows through 2035, while leaving room for Phase 2 to satisfy permitted average annual dry weather flow of 29.5 million gallons per day (mgd). A key feature of the master plan will be to identify plant facilities needed to replace existing processes and equipment that has reached the end of its useful life and meet near-term flow rates (Phase 1), and to plan for future

expansion needs to reach the plant's permitted capacity of 29.5 mgd (Phase 2). Phase 1 projects should be planned in a way that anticipate future expansion, but minimize capital expenditures for future plant facilities unless it is cost effective to build now. An overall phasing plan should be developed that evaluates and defines the scope of work for Phase 1 and 2 projects. The phasing plan shall also evaluate the expansion options.

An overall Program Implementation Plan (PIP) should be prepared for all Phase 1 projects. Given plant needs and the overarching need to operate the plant during construction of all improvements, the PIP shall define a series of construction bid packages that organize the planned improvements into logical projects.

The Consultant shall coordinate this work with the City and other City consultants/contractors who will be working simultaneously on other WPCP projects including Program Management. The Consultant shall be responsible for identifying all necessary compliance items, applications, and permits as well as verifying that these items are included in applicable scopes of work. These include but are not necessarily limited to Bay Area Air Quality Management District (BAAQMD), NPDES, SCVWD, PG&E, and Public Utilities Commission or others. Regulatory permits required for the various phases of work shall be identified by agency and be included in the overall schedule.

The PIP shall provide a time schedule in (Microsoft Project) format that lists each phase of work currently known. The schedule shall show precedent relationships as well as what work could reasonably be done concurrently. At a minimum, the schedule shall show each phase and bid package and time for: scoping, design consultant selection, design contract award, permitting, project level environmental review, design, design review for each stage, bid period, award of contract, construction, testing, commissioning and training, and warranty period.\

Deliverables:

- Regulatory Permit Summary
- Project Implementation Plan Technical Memorandum

2.2 Temporary Facilities

The Consultant shall provide a master plan for temporary facilities that will be needed during the renovation project. Temporary facilities shall include a site for several office trailers which include at a minimum, contractors' construction offices, City's Project Management office, and construction management offices. Facilities shall include necessary restrooms and conference rooms. Consultant shall include layouts for contractor entrances, delivery points, storage areas, laydown areas, contractor parking areas, and other temporary facilities. As necessary, plan temporary facilities for site operation during transitions, and/or to allow demolition and construction. Provide guidelines for staging construction within phases. Develop guidelines for temporary signage, including project signs, informational signs, and traffic and safety signage for the overall program.

Deliverables:

- Interim facilities plan technical memorandum

- Construction staging and phasing/integration guidelines

2.3 Operational and Staffing Plans

The Consultant shall be responsible for evaluating WPCP staffing requirements and impacts associated with new systems and processes that are implemented. The Consultant shall gain a complete understanding of the WPCP's existing maintenance and operations staffing models and explain the fundamentals differences and changes that will be required to support the new systems and processes. The Consultant shall also identify opportunities for staffing efficiencies and reduced workloads on operations and maintenance staff. Staffing plans shall be developed for each major phase of improvements and scheduled in such way that they are ready to be implemented at the completion of each major phase.

Deliverables:

- Operations plan/guidelines during construction (for the duration of the new WPCP construction)
- Staffing requirements during construction
- Final staffing requirements after construction and transition to the new WPCP
- Technical memorandum summarizing the staffing plan recommendations

2.4 Program Costs Estimate

An overall Program Cost Estimate shall be developed. Consider and evaluate existing information from the SIP, as well as the latest information from other current projects. Costs should be prepared for each defined bid package in the Project Implementation Plan. Costs should be formatted to include total projects costs including: design, bidding, construction, permitting, construction support services, construction management, inspection, testing, integration, system commissioning, data processing equipment, furniture, fixtures, equipment, contingencies and escalation. The schedule and cost estimate shall be combined to provide a preliminary cash flow curve predicting the cost per month for the first 18 months and the cost per quarter for the remaining project to allow for Sunnyvale 20-year financial planning. Include costs for O&M of the facilities for the next 30-years based on the basis of design development and construction phasing. The cost estimate shall be provided in MS Excel format.

Deliverables:

- Program cash flows
- O&M Cash flows
- Technical memorandum summarizing the program costs

IV. SITE PLANNING

1.0 DOCUMENTATION OF EXISTING CONDITIONS

1.1 Land Survey and Monumentation

The Consultant shall provide for a land survey of the entire City property at and adjacent to the WPCP including ponds, landfill, and SMaRT Station®. The survey shall include installation of permanent monuments that create a horizontal grid and vertical control for the entire WPCP plant and project site, suitable to support on-going design and construction for the next 20 years. The monuments shall be made prominent to be clearly visible in aerial photography/photogrammetry. The survey shall be coordinated with the City's GIS system, using similar layers, and symbols, and shall be based upon compatible vertical and horizontal control, and shall. coordinate horizontal vertical control with the Wastewater Master Plan survey.

Digital mapping shall be provided in AutoCAD and shall include: property lines, easements, monuments, City boundaries, jurisdictional boundaries, surface topography (including 1-foot contours and spot elevations), all improvements with labels, vegetation, water surfaces, rim and invert elevations at all pipes, manholes, vessels, pumps and processes, and other information which can be used for current and future design, demolition, and construction. One layer of the digital data shall include Ortho-rectified photographs of the area. Subsurface features and improvements shall be shown to the extent known or practical to determine. These maps should be suitable as background layers of existing conditions for design and public bidding on subsequent projects.

Deliverables:

- Two (2) mounted color Aerial photographs at 1 inch = 20 feet scale of the WPCP main plant site and two (2) color Aerial photographs at 1 inch = 40 feet scale of the entire WPCP site (including the ponds).
- Four (4) mounted color topographical displays with screened-back ortho-photo images
- Field and office time (40 hours) for design topographic surveys to supplement the aerial topographic mapping
- Digital land survey and topographical information, organized on Compact Disk (4 copies)
- Record of Survey for project control and boundary survey (recorded with the County of Santa Clara)
- Land survey with horizontal and vertical control for both design and construction (35 permanent monuments will be set and surveyed from which all future work will be based)
- Location and elevations for potholes and geotech borings
- Boundary survey (WPCP, ponds, landfill, SMaRT station parcels) with documentation of what City rights are to adjacent properties
- A complete binder of source documents including property deeds, easements, property restrictions, or other recorded documents affecting the property

1.2 Geotechnical Engineering Report

Two levels of geotechnical investigations and reporting shall be provided. One level of investigation shall provide sufficient detail for the design of the headworks and primary sedimentation basins described in VIII Primary Treatment Facility. The second level of investigation shall be based on the master planning and basis of design efforts for the recommended facilities that would be designed in subsequent projects, including buildings, tanks, structures, process equipment, trenches, and other major site improvements. The second level of geotechnical recommendations shall provide sufficient detail to identify specific impacts to future WPCP project improvements with regard to structural or civil design requirements and construction constraints to account for cost or schedule impacts..

The scope of services for the effort to support the design and construction of the Primary Treatment Facility would include the following:

- A site reconnaissance would be performed of the proposed locations of the process/tankage and buildings.
- Field investigations including six borings (one to 100 feet and the other five to 50 feet) and six CPTs (three to 100 feet and three to 50 feet).
- Perform laboratory testing
- Perform a detailed review of previous subsurface investigations and laboratory testing
- Conduct an analysis of liquefaction potential and perform estimates of settlement caused by the proposed facilities to be constructed.
- Prepare a detailed geotechnical and geologic hazards memorandum
- Provide on-going consultations to the design team in the preparation of the contract documents
- Provide a review of the contract documents at the 90% submittal

The scope of services for the effort to support the planning and basis of design work efforts would include the following:

- A site reconnaissance would be performed of the proposed locations of the process/tankage and buildings (to be performed at the same time as noted above).
- Field investigations including five borings (three to 100 feet and the other two to 50 feet).
- Perform laboratory testing
- Perform a detailed review of previous subsurface investigations and laboratory testing
- Perform a geologic hazard evaluation of the WPCP and pond levees.
- Develop preliminary geotechnical parameters at a sufficient level of detail to provide input on costs and schedule impacts for future WPCP improvements.

Deliverables:

- Compilation of existing borings and CPTs
- Drilling and excavation plan (showing the location of all proposed subsurface investigations, including types of sampling and testing, prior to starting on-site work)
- Geotechnical memorandum for the headworks and primary sedimentation basins
- Geotechnical memorandum for master planning

1.3 Soil Contamination Survey, Evaluation, and Report

A hazardous material investigation shall be conducted to support future construction activities. This investigation shall provide a reasonable sampling of the site at planned locations of excavations and/or demolitions, to determine what materials may be encountered and whether or not any extra precautions must be taken for worker safety, and/or handling and disposal of material. If the initial analysis finds constituents of concern in concentrations exceeding applicable limits, a more complete study would need to follow (additional scope of work), as necessary to prepare a remediation or removal plan.

Deliverables:

- Site Sampling Plan and Testing Plan prior to on-site work (Sampling and Analysis Work Plan).
- Hazardous Materials Report (Site Investigation Report).
- Site specific health and safety plan (HASP) which identifies the location of soil borings. Approval is required from the City that the boring locations are clear of buried utilities prior to drilling activities.

Assumptions:

- Consultant shall hire a private utility locator to mark buried utility locations in the vicinity of the soil borings (utility locator and drilling will be performed as part of Task 1.2 Geotechnical Engineering Report).
- The borings locations will be accessible via a heavy duty truck mounted drilling rig.
- No more than 13 soil borings will be advanced.
- The borings will be advanced to no greater than 7 feet bgs for the purpose of sampling.
- No more than 13 soil samples will be analyzed for chlorinated. pesticides (including DDT)/polychlorinated byphenols (PCBs) by Environmental Protection Agency (EPA) Method 8081/8082.
- No more than 26 soil samples will be analyzed for metals which include, arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury (RCRA 8) by EPA Method 6020/200.8.
- No more than 6 soil samples will be analyzed for semi volatile organic compounds (SVOCs) by EPA Method 8270.

- Three borings will be advanced to no greater than 20 feet bgs for the purpose of groundwater sampling.
- Three groundwater samples will be analyzed for total nitrogen by EPA Method 300.0/351, RCRA 8 metals by EPA Method 6020/200.8, and total dissolved solids by EPA Method 160.1.
- Decontamination water can be disposed of onsite at no cost.
- Soil generated as part of this site investigation will be profiled and disposed as nonhazardous waste.

1.4 Existing Utilities Plan

Consultant shall develop an approach to document existing utilities that depicts exterior overhead and underground utilities in the proposed site areas to be disturbed by new construction or impacted by tie-ins to the new processes. It is anticipated that a portion of the existing WPCP will either be abandoned or demolished as part of the Primary Facilities Improvements Project. The utilities in these areas will not be included in the existing utility plans. The proposed existing utility plan drawings shall include horizontal and vertical control information.

A consolidated set of existing utility plan drawings shall be developed and include overhead and underground major distribution site utilities running between major facilities on the WPCP site. The utility plan drawings shall be prepared so that each different utility type is shown in a different color (similar to the USA scheme) and each utility type is on a different layer so it can be shown by itself or as a composite with all the other utility types. It is anticipated that the City will provide these existing utility plans to design engineers and construction contractors of future projects.

The Consultant shall review the existing WPCP record drawings provided by the City at commencement of this subtask and utilize this information to develop preliminary existing utility plan drawings. The Consultant shall coordinate the data provided and convert the horizontal and vertical control as required for consistency between various data sources when developing the existing utility plan drawings., After the preliminary existing utility plan drawings are assembled using the record drawing information, the Consultant shall perform a field investigation to verify the existing records and to document other information that is not included the record drawings.

Information obtained during the field investigation shall be used to update the existing utility plan drawings. The Consultant shall then review the utility information, develop a potholing plan (with City input) and perform a potholing investigation to obtain additional information on the horizontal and vertical location of select existing utilities. The pothole information will be incorporated into the final existing utility plan drawings to be submitted to the City.

Assumptions:

- Based on the quality of the as-built drawings provided by the City, it may not be possible to fully identify all existing utilities (i.e., size, service) for inclusion in the consolidated set. Priority will be given to utilities 4-inches and larger in size.

- Consultant shall provide a progress check-in with the City staff at the 30% and 60% expenditure level to provide an opportunity to re-visit the priorities for additional investigations.
- Horizontal and vertical control information will be obtained from survey work to be performed under Subtask 1.1 – Land Survey and Monumentation.
- Above-ground utility information will be obtained from aerial survey to be performed under Subtask 1.1 – Land Survey and Monumentation and field verified.
- Information for all manholes and catch basins to be included in the existing utility plans will be obtained from aerial and ground survey to be performed under Subtask 1.1 – Land Survey and Monumentation and field verified. The information shall include manhole cover/catch basin grate elevation at grade; manhole cover/catch basin grate center. location/coordinates; direction, size and invert elevation for each pipe entering/existing the manhole/catch basin; and the interior dimensions of the manhole/catch basin referenced to the center location of the manhole cover/catch basin grate.
- The utility plan drawings shall cover the Plant site. The area will be covered using six utility plan drawings with a maximum of 10 layers to depict the utility types. Drawings will be at a 1” = 20 feet scale.
- Two days of field investigation have been assumed for field verification of the existing as-built information.
- A potholing allowance of $25,000 has been included for potholing. This includes approximately five (5) days of potholing and will yield approximately 30 potholes.
- The utilities in the following areas of the plant will NOT be included in the utility plan drawings or potholed. These areas are anticipated to be demolished as part of the Primary Facilities Improvements Project and the associated utilities in the areas will be out of service prior to demolition work.
  - Existing Primary Clarifiers (area of 100 feet by 150 feet.)
  - Future Disinfection Area/Current Fixed Growth Reactor Area (75 ft x 125 ft.)
  - Sludge Lagoon and Drying Bed Area (450 ft by 450 ft.)

Deliverables:

- Field investigations, notes and mark-ups
- Potholing Plan
- Potholing field information and notes
- Six existing utility drawings (incorporating field investigation findings and potholing)
- Technical memorandum summarizing the evaluation

1.5 Opportunities and Constraints Analysis

Consultant shall conduct an assessment of biological constraints to, and opportunities associated with, various options for future uses of the two existing oxidation ponds. First, Consultant shall perform a review of existing information regarding biological resources associated with these ponds. Potential data sources include data possessed by the City

of Sunnyvale, prior studies conducted by the Consultant and others in the project vicinity, Santa Clara County bird data, and data collected in association with the South Bay Salt Ponds Restoration Project (SBSPRP), among others.

Consultant shall then conduct a brief visit to the site to examine the existing conditions of these ponds. This site visit is intended only to confirm existing conditions and allow for in-the-field discussion of potential constraints and opportunities, rather than to collect data, as we will use existing biological resources data for this assessment.

Following the site visit, Consultant shall compile a biological resources constraints and opportunities assessment report that contains the following:

- A summary of sensitive biological resources present in and adjacent to these ponds, including special-status species and regulated habitats
- A summary of other important biological resources, such as particularly high concentrations of non-special-status species (such as wintering and migratory waterbirds) that may be of regional significance
- Discussion of the potential constraints these resources could pose to future uses of these ponds, such as potential regulatory permitting or compensatory mitigation needs (e.g., this report will identify all permitting needs related to regulated and sensitive biological resources)
- Discussion of the potential opportunities available for enhancement of biological resources conditions with certain future uses of these ponds
- Discussion of the potential biological resources-related constraints and opportunities related to other projects in the vicinity (such as the SBSPRP)

This analysis will be developed in collaboration with the rest of the treatment process team both to incorporate a suitable array of likely alternative uses of the oxidation ponds and to develop critical information on opportunities and constraints in a step-wise fashion to enable decisions efficiently and in a cost-effective timeframe. This analysis will focus on the relevant issues rather than providing extensive background information; for example, it will not include an exhaustive description of biological resources existing conditions, though it will facilitate the preparation of the biological resources section of the PEIR.

Deliverables:

- Technical memorandum summarizing the findings

2.0 SUPPORT FACILITIES AND SITE PLANNING

For the purposes of the development of this Master Plan the boundary of evaluation for site planning shall include the treatment plant, oxidation ponds and the levees associated with it, the household hazardous waste disposal facility across the street from Carl Road There is a potential for siting of non-treatment support facilities on the current landfill sites, if cost effective and feasible from regulatory and environmental perspectives. However, the intent of this plan is not to re-imagine or re-configure alternative land uses for the landfill site. Carl Road is one of the main access points to the Bay Trail system and consideration for public access routes will be part of the overall site planning effort of the Master Plan.

2.1 Building Programming

The Consultant shall conduct a space needs assessment and provide building programming for all functional areas utilized by the plant staff, including but not necessarily limited to: operations and data center, personnel offices, restrooms, locker-rooms, lunchroom, conference rooms, public reception and public restrooms, laboratory, maintenance shop, storage, hazardous materials storage, utility rooms, electric rooms, telecommunications and data servers rooms, and other necessary spaces. The building(s) should be designed to accommodate multiple and flexible building uses. It is anticipated that the Plant will continue to conduct tours and potentially serve as an access point for public education on environmental messaging for the City. Provision for such uses shall be considered as part of the building programming.

The Consultant shall assess the existing space and occupancy needs of the facilities and prepare a preliminary, site specific, architectural Program. The space needs assessment shall include a survey of existing space use and interviews with user groups and selected staff (workshop or sequential meetings) to identify current facility needs and projected facility requirements.

The Building Program shall be developed from the space needs assessment and shall define the Design Parameters (areas, adjacencies, spatial qualities, major equipment requirements) of all functional areas, current and projected, identified by the City. The Consultant will meet with the City to review the Draft Program and incorporate comments into the Final Building Program.

Consultant shall also review existing documents related to the site landscape features, visit the site and prepare a landscape site analysis diagram for reference with future planning efforts.

Assumptions:

- The space needs assessment requires two four-hour workshops or sequential interviews with City staff and one follow-up meeting
- One meeting with the City to review the draft Building Program memorandum

Deliverables:

- Survey of existing conditions and use
- Space needs assessment workshop summary
- Landscape site analysis diagram
- Building Program Technical Memorandum

2.2 Site Layout Considerations

The Consultant shall utilize results of the process alternatives analysis and basis of design effort to lay out the treatment process configuration and the associated power, electrical and control systems foot print needs. One of the key considerations of the site layout as presented in the SIP documents allows for early execution of the primary treatment facility, which is part of this current scope of work. This site is currently utilized for solids drying operations and current pond dredging operation. Considerations shall

be provided to identify alternatives for the dewatering and drying operations along with cost implications of such alternatives as part of the site layout evaluation. Similarly, the City is considering an upgrade to the APS facility to function as the primary headworks until the new headworks construction is complete. Consultant shall consider means to allow the functionality of this pump station as a potential back-up and wet weather facility so as not to create a “stranded or wasted asset”, should the cost benefit analysis of such option prove to be beneficial for the City.

Based on the building programming results and the treatment process selections, recommended site layout alternatives will be developed. Building locations and orientation should give consideration to hydraulic and/or process considerations, value of land and maximizing flexibility and sustainability opportunities. The existing household waste disposal facility shall be evaluated as one of the potential building locations. Public access, visitor and staff parking as well as equipment storage should be incorporated in the building site layout considerations (see Task 2.8 Permanent Site Access). Routine operational and maintenance access needs for the proposed process configurations, as well as traffic considerations for deliveries will be considered as part of the overall process layout considerations.

Concept level design plans based on the preferred Site Layout will be developed for all buildings and reviewed with the City. The Consultant shall refine the concepts and develop schematic level plans and elevations for the buildings. A color, perspective rendering of the Administration building shall be provided after review of the schematic plans and elevations by the City.

The site layout shall be developed to clearly indicate for the entire site (and relevant surrounding area) the future layout for:

- Underground utilities (consistent with Section 2.4 Conceptual Utilities Plan):
  - Sanitary lines for each stage of the treatment process, (laterals as necessary), manholes, or cleanouts
  - Storm drainage lines, (laterals as necessary), manholes, catch basins, or inlets (design standards to be included under VI. Design Standards)
  - Water lines, laterals, valve boxes, hydrants, relief valves, irrigation lines, heads, valves, wiring, other components
  - Electrical lines, including all communication lines for SCADA, telephone, security, data processing, other underground, utilities lines, boxes, vaults
  - Natural and process gas collection and distribution lines
- Surface features:
  - Existing structures (to be demolished, abandoned or integrated into the new plant)
  - Concrete pavement, driveways, parking, yard storage and emergency access routes
  - Survey monuments, boxes and bench marks
  - Sufficient elevation contours and/or spot elevations to determine earthwork quantities, drainage, and access
  - Buildings, appurtenances, utility poles, other features
  - Major landscape features (i.e., trees, planted areas, stormwater retention basins, etc.)

- Overhead features in affected area:
  - Signage, benches, amenities
  - Trees canopies, vegetation
  - Overhead wires or obstructions
  - Other overhead features or obstructions

Deliverables:

- Schematic level design for occupied (non-process) buildings, including plans
- and elevations (including floor plans)
- Color perspective rendering of the Administration Building
- Site layout consideration Technical Memorandum

2.3 Hydrology Report

Hydrologic information shall be developed that would be suitable for determining finished floor elevations for proposed structures and other critical structures to remain above inundation by fluvial or tidal flooding. This analysis should discuss and provide a plan for dealing with the effects of sea level rise expected in the next 50 years.

2.3.1 Data Collection and Coordination

- Coordination with Agencies: Consultant will coordinate with agencies, such as City of Sunnyvale, Santa Clara Valley Water District (SCVWD), United States Army Corps of Engineers (USACE), and the Federal Emergency Management Agency (FEMA) to collect data relevant to past hydrologic and hydraulic analysis and on-going flood control projects along Sunnyvale West and East Channel. The data collected will help determine the existing conditions of the project area, the most current regulatory floodplain status, and the historic flow regime at the site.
- Known Reports and On-going Studies: SCVWD is in the design stages to provide 100-year flood protection through levee raising and construction of floodwalls along the Sunnyvale East Channel and West Channel. These channels have been identified as having limited freeboard and have an on-going history of flooding. The USACE Shoreline study has also performed modeling and assessment in the South Bay area.
- Tidal Conditions: Consultant will obtain available tidal condition information to determine impacts to project area. Consultant will determine status of South Bay and Shoreline Study reports. FEMA is currently performing an analysis on San Francisco's South Bay, developing sea level rise estimates in addition to other tidal elevations.

The recommendations for finished floor elevations shall be completed based on the following:

- Hydrologic Calculations. Consultant shall perform a hydrologic analysis for the project area by evaluating drainage area, impervious area, soil conditions, precipitation, land use, and headworks. Stormwater runoff as well as identified potential spill flows will be accounted for when developing peak discharges.

Consultant shall work with the City to identify locations where computed flows are needed.

- Hydraulic Calculations. To determine on-site flood elevations, the peak discharges will be used to compute normal depth at identified locations around the project area.
- Sea Level Rise Model Impacts. Sea level rise is an important issue in assuring continued protection and certification. Consultant understands that preliminary estimates for sea level rise over fifty years vary from 2 – 24 inches per year. Consultant will determine an appropriate assumption for sea level rise at the project area and recommend a plan a strategy for maintaining protection. . Major plant structures shall be evaluated for impacts.
- Consultant shall prepare hydrologic data in GIS.
- It is assumed that the protection level for the levees will be determined from a background review of the SCVWD flood protection project.
- Finished floor elevations will be provided based on the 100-year flood event as well as for an assumed sea level rise.

Deliverables:

- Peak discharges for the, 100-Year flood events shall be developed at key locations (including sea level rise).
- Hydraulic base map showing proposed finished floor elevations.
- Hydrology technical memorandum outlining data collection and coordination, hydrologic evaluations.. The memorandum will include maps, figures and tables. Consultant shall attend one in-person meeting to review comments on the Draft Hydrology Report.

2.4 Conceptual Utilities Plan

Based on the proposed site layout considerations developed under Section 2.0, a conceptual utility layout plan shall be developed showing major above grade and below grade utility routing corridors. Routing corridors shall be developed taking into account the estimated number and size of major utilities as well as cost, operations and maintenance considerations. Utility corridors will be shown for plant sewer, potable water, plant utility water (3W) electrical wire and conduits, process pipelines, plant air, and chemical feed lines.

Assumptions:

- Major utility corridors will be provided for plant sewer, potable water, 3W, electrical wire and conduits, process pipelines, plant air, and chemical feed lines showing major utilities only (generally utilities 4-inch and larger). Corridors will not be shown for utility routing to each individual items of equipment, tanks or for routing into each building/structure.

Deliverables:

- Technical memorandum summarizing the evaluation (which will include up to ten Conceptual Utility Plan Drawings).

2.5 Lighting

Based on the results of the process alternative and building programming analysis, the Consultant shall provide overall layout and lighting standards throughout the site, using energy-efficient fixtures and methods, as well as to provide standard details and protocols for lighting types at: buildings, processes, access ways, and Bay Trail Access. This effort shall be coordinated with Task 2.6 Safety and Security. The Consultant shall also provide standard details for lighting, switching, conduits and conductors, along with color-coding and labeling.

Assumptions:

- Standards will be coordinated with the efforts under Section VII Design Standards

Deliverables:

- Technical memorandum summarizing the recommendations

2.6 Safety and Security

The intent of this task is to establish an approach for safety and security protection for the WPCP site, which will include identifying, the technology application concepts necessary to implement the recommended program. The basic security concept developed will be applicable to the plant in its entirety, which shall include interfacing with the City's existing key-card system as well as to provide allow/deny access based on level of security. The system shall allow for temporary visitor access, with the emphasis placed on employee and visitor safety.

The security system shall include perimeter fencing and appropriate vehicular and pedestrian access gates at locations to support plant maintenance and operations as well as emergency access. The security system shall also provide closed-circuit television monitoring at key locations and integrated into the automation and control system to allow monitoring and operation of key perimeter access gates.

Fire and hazardous material safety considerations shall be included in the development of the safety and security plan. The plan shall include an appropriate evacuation plan in the event of fire, earthquake, or other event.

Consultant's security professionals will conduct a site visit to the plant. A Design Basis Threat (DBT) meeting will be held with representatives of plant personnel to establish security design guidelines. Information gathered during this site visit and meeting will be converted to narrative form as the basis of design for inclusion into the Master Plan.

Elements covered in the Basis of Design Document shall at minimum include the following:

- Facility Perimeter
- Intrusion Detection
- Vehicle Access
- Building Access

- Internal Sensitive Areas and High-Value Assets
- Security System Integration
- Site Lighting
- Chemical Storage
- Overall Site Plan/Security Zone Notations
- Product Cut Sheets/Related Budget

Assumptions:

The following are not included in this task:

- Physical/Electronic Security Design.

Deliverables:

A Basis of Design document that will provide direction for incorporating security features into future design projects.

2.7 Landscaping

Based on the results of the building programming and process configuration analysis, The Consultant shall prepare a conceptual landscape plan for the site in accordance with local policies. Consultant shall prepare two preliminary landscape concepts plans which shall demonstrate various options for plant massing and materials for review by City staff. A final concept plan shall be prepared with input from the City staff, including plant palette and massing as well as an approach to irrigation.

Deliverables:

- Technical memorandum summarizing the landscape evaluations/ recommendations

2.8 Permanent Site Access

The Consultant shall provide a layout for each type of access needed at the site, including but not necessarily limited to:

- Site Personnel: motor vehicle, pedestrian, maintenance, delivery and storage, parking for personnel and visitors, OSHA access to all work areas, and related employee access.
- Deliveries and Maintenance Vehicles: provide layouts for vehicle access for FOG and food waste deliveries, chemicals, generator fuel, biosolids removal, and equipment maintenance.
- Public: Public reception/information, self-guided tour, ADA public tour route(s) within the plant, Bay Trail bicycle and maintenance vehicle access, visitor parking including bus access, parking for school tours, and related public access.

Deliverables:

- Permanent Site Access Plan Technical Memorandum
  - Site Personnel
  - Deliveries and Maintenance
  - Public

V. CEQA COMPLIANCE – MASTER PLAN

1.0 CEQA COMPLIANCE, MITIGATION MONITORING

The Programmatic Environmental Report to satisfy the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), if necessary, shall be prepared concurrently. The Master Plan shall be used to provide useful and relevant information about the site and architecture for the CEQA process. The Consultant shall also consider information and mitigation measures identified in the CEQA process and incorporate them into the Master Plan.

The City's intent for the CEQA document is to evaluate all elements of the planned facilities contemplated under the Strategic Infrastructure Plan (SIP) at a program level of detail. Project level CEQA analysis should be included for near-term projects, especially for the Primary Treatment Facility (services described in detail in Section VI), such that these projects are cleared to move forward with construction.

1.1 CEQA/NEPA Strategy Review

Work with the City to evaluate the following issues: (1) whether a separate CEQA document can be prepared for the Primary Facilities project; (2) whether any Master Plan improvements should be evaluated at a project level; (3) whether NEPA compliance is required and (4) whether a Master EIR or Program EIR should be prepared. Prepare a technical memo outlining findings, process considerations, and recommendations.

1.2 Notice of Preparation (NOP) and Initial Study (IS)

Consultant shall prepare the NOP and IS and facilitate at least one public scoping meeting. Consultant shall work with the City to develop the mailing list for the NOP distribution (City shall provided the initial lists based on the City's knowledge of interested parties). Consultant shall also prepare a legal notice for the City to submit for publication as well as a one page notice that would be posted in the Santa Clara County Clerk's office. The Consultant shall review and assess NOP comments and provide recommendations on how to respond to the comments in the preparation of the PEIR.

1.3 Alternatives Analysis Report

Developing the Master Plan is expected to be a dynamic and iterative process. Siting and process alternatives will be evaluated and in some cases be eliminated from further consideration along the way. Analysis in the master planning process should be sufficient to inform what CEQA alternatives should be evaluated and included on the CEQA process. Consultant shall work with the City to develop an initial list of feasible

alternatives to the proposed project and will prepare an Alternatives Analysis Report. The report will include an initial list of alternatives and, for those alternatives determined in consultation with City to be feasible (even if more costly) and to meet most of the basic objectives of the project, first-cut identification of attendant environmental issues, constraints, and opportunities. The list of alternatives will be developed following the initial site visit and review of background reports. This task represents the first screening of such alternatives and will help confirm whether equal coverage of Master Plan alternatives and equal coverage of select project components is appropriate. Alternatives meeting CEQA criteria (feasibility, ability to meet most project objectives, ability to reduce significant impacts associated with the proposed project, ability to meaningfully contribute to range of alternatives, ability to foster informed decision making and public participation) will be retained for consideration in the EIR. Potential alternatives will be confirmed as evaluation of the project's impacts progresses.

One aspect of the site planning and the Master Plan will be the effort to define the future uses of the ponds, on whether they continue to be part of the active treatment process or can be converted to emergency use facilities. For the purposes of this scope it is anticipated that the ponds will remain as part of the treatment process (primary or emergency) and will not be converted into environmental or aesthetic uses. Any such new uses shall remain compatible with the surrounding land uses and shall be evaluated in the context of the South Bay Salt Pond Restoration Project, and other applicable environmental efforts in the region.

1.4 Public Participation Program

Consultant shall work with the Program Manager to prepare and facilitate a public participation plan for the development of the PEIR. Public outreach will use a CEQA-based approach, with public scoping meetings occurring early in the process: (1) after the publication of the Notice of Preparation and (2) following publication of the Draft EIR.

Two public scoping meetings shall be conducted to solicit input on the scope and content of the EIR. Consultant shall prepare a Powerpoint presentation, along with handouts, sign-in sheets, presentation boards and other necessary materials for the scoping meetings. Following the close of the 30-day scoping period, an Excel database shall be prepared which summarize the NOP comments. Following publication of the Draft EIR, up to two meetings shall be held to present the findings of the EIR.

1.5 Draft Environmental Impact Report

The Consultant shall first coordinate an internal review of the draft document for Program Manager and City staff review and comment. These comments shall be addressed and included in the draft EIR. The draft EIR shall include all sections defined in Article 9, Sections 15120 to 15132 of the CEQA Guidelines, and/or as otherwise necessary or required.

The EIR shall present a program level analysis for the different project components described in the Project Description. Impacts shall be determined based on significance criteria defined in the CEQA Guidelines, as well as other thresholds defined in relevant federal, state and local regulations. The EIR will identify feasible mitigation measures to minimize any significant impacts to less-than-significant levels. It is anticipated that the analysis in the following issues areas will be required at a minimum:

- Aesthetic – lighting and glare, etc.
- Air Quality – Power generation, odor, potential gas releases, and related impacts
- Biological Resources report
- Cultural Resources report
- Coordinate Geology, Soils, and Seismicity reports (from above)
- Greenhouse Gas Emissions
- Coordinate Hazards and Hazardous Materials reports (from above)
- Coordinate Hydrology and Water Quality reports (from above)
- Energy
- Fluvial and Tidal Flooding
- Land Use and Land Use Planning – Note: the plans do not call for any increase in permitted capacity
- Mineral Resources
- Noise
- Population and Housing – Note: the plans do not call for any increase in the permitted capacity
- Public Services
- Recreation
- Transportation and Traffic
- Response to comments on draft documents
- Utilities and Service Systems
- Mandatory Findings of Significance
- Cumulative Analysis

Consultant shall coordinate efforts with the following reports shown elsewhere in this scope of work:

- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Hydrology and Water Quality

Following the City's review of the administrative draft EIR (two rounds of review are anticipated), Consultant shall incorporate any minor changes and will prepare the Public Draft PEIR for public release for a 45-day review period. As part of this effort, Consultant shall submit the Notice of Completion, along with 15 copies of the Draft EIR (hard copies of the executive summary and CDs) to the State Clearinghouse; the Clearinghouse's receipt of the notice and documents initiates a 45-day public comment period. Consultant shall update the distribution list initiated under Task 1.4, and distribute the Draft EIR to commenters that participated in the scoping process, and mail the Notice of Availability to affected/interested agencies and individuals, and local libraries. Consultant

shall be responsible for postage, handling, delivery costs, and physical mailing of the NOC, NOA, and Draft EIR. The Notice of Availability will identify the public hearing date. Consultant shall assist in newspaper legal advertisement development and placement, as necessary and shall provide the City with a PDF electronic version and for posting to its website.

1.6 Attend Public Meetings and Hearings

The Consultant shall conduct up to two public meetings and/or hearings required by the environmental documentation process to present the proposed project and the potential environmental impacts associated with implementation. Consultant shall prepare meeting materials (including a Powerpoint presentation), sign-in sheet and comment form.

1.7 Prepare Responses to Comments

The Consultant shall review, document and organize verbal and written comments received during the 45-day public comment period and/or at public meetings, and prepare a table summarizing all commenters and comments for City review. Consultant shall coordinate response strategies with City staff and then prepare draft responses to comments as well as staff-initiated text changes to the Final EIR to clarify conclusions or correct any typos and grammatical errors.

Consultant shall be responsible for production and distribution of the Response to Comments document and will augment the CEQA administrative record to include any new reference information use to prepare responses.

1.8 Prepare Mitigation and Monitoring Reporting Program (MMRP)

The Consultant shall prepare a MMRP to provide specific direction on how to carry out the mitigation measures prescribed in the EIR. The MMRP will be prepared using a standard format with a description of mitigation measures to be adopted as part of project implementation, and list of responsible parties for mitigation implementation, monitoring, and approval.

1.9 Prepare the Final PEIR

The Consultant shall prepare the final PEIR and a summary of changes made to the draft PEIR that were incorporated in the final draft PEIR.

1.10 Prepare Findings and Statement of Overriding Considerations

The Consultant shall prepare a draft of the required CEQA Findings of Fact, including a Statement of Overriding Considerations if needed, and accompanying resolution for City legal counsel review. As appropriate, Consultant shall prepare a PowerPoint presentation and shall attend the certification and project approval meetings, but assumes City staff will provide the presentation. Consultant shall be available to respond to comments from City Council members. Following project approval, Consultant shall prepare the Notice of Determination (NOD) for filing at the Santa Clara County Clerk's Office.

Assumptions:

- Up to four (4) “build” alternatives, analyzed at a level of detail consistent with Section 15126 of the CEQA Guidelines, are assumed.
- CEQA documents following the PEIR (e.g., Findings, Mitigation Monitoring and Reporting Program, Notice of Determination) shall address only one alternative.
- This scope of work assumes no more than two rounds of review for any deliverable (report, maps, memorandum, etc.).
- The City will consolidate all City comments into one document (presumed to be annotated versions of Word files) and will resolve conflicting comments prior to submittal to Consultant. All comments will be received at approximately the same time.
- This scope of work is based on the schedule provided in the Consultant’s proposal. If the schedule is prolonged, additional services may be required that are not included in this scope of work.
- The combined number of team/client meetings will not exceed twelve (12). The Consultant shall also attend up to two hearings.
- Preparation and circulation of public notices will be posted and/or mailed by the City. The necessary facilities for public hearings/meetings will be provided by the City.
- Preparation of graphic materials specifically for use at public presentations or hearings will be limited to a PowerPoint presentation relying on graphics included in the EIR and one presentation board.
- Costs for a court reporter at public meetings has not been included.
- Up to eight buildings will be included in the cultural resources survey.
- Areas of archaeological sensitivity may require subsurface Extended Phase 1 investigation to determine the presence or absence of cultural resources. An Extended Phase 1 Work Plan and investigation are not included in this scope.
- Permitting assistance is not included in the scope.
- This scope includes database investigation of hazardous materials issues, suitable to support CEQA evaluation. It does not include the completion of a Phase I Environmental Site Assessment (Phase I).

Deliverables:

- NOP
- Administrative draft of the PEIR
- Response to comments
- Administrative Draft EIR (5 hard copies)
- Draft EIR (15 hard copies/50 CD copies)
- Final draft EIR (15 hard copies/40 CD copies)

VI. DESIGN STANDARDS

1.0 DESIGN STANDARDS

The Consultant shall develop design standards which the City anticipates would be provided as design standards to design engineers and construction contractors for consistency in future projects. The standards will include items that are typical for most wastewater treatment plant projects and general in nature. Project specific items will be developed by the design engineers on individual projects.

The Consultant shall develop typical standard details for civil, architectural, landscaping, structural, mechanical/odor control, corrosion control, electrical, instrumentation and control systems disciplines.

The Consultant shall provide standard technical specifications for the following divisions (based on CSI protocols):

- Division 02 - SITE WORK / earthwork
- Division 03 - CONCRETE
- Division 04 - MASONRY
- Division 05 - METALS
- Division 06 - WOOD AND PLASTICS
- Division 07 - THERMAL AND MOISTURE PROTECTION
- Division 08 - DOORS AND WINDOWS
- Division 09 - FINISHES
- Division 10 - SPECIALTIES
- Division 15 - MECHANICAL (piping and valving only)
- Division 16 - ELECTRICAL (including lighting)
- Division 17 - INSTRUMENTATION
- Division 32 – EXTERIOR IMPROVEMENTS (planting, irrigation, and site furnishings only)
- Architecture

An overall architectural approach shall be developed for the site that is sustainable, cost-effective to maintain, and suitable to the local area that is home to several major high-technology headquarters, and Bay wildlife. Design standards for materials, finishes and systems shall be outlined for each building type (i.e. administration building, maintenance shop, etc.) based on the Building Programming and schematic level building design developed as part of the Site Layout Considerations. The buildings shall meet local building code requirements. In addition, the administration building will be designed to achieve LEED Silver, potentially Gold, certification. A preliminary building code analysis and LEED Credit Evaluation shall be developed as part of the Design Standards.

Seismic design standards will also be developed. Applicable codes and standards should be summarized in a format that can easily be incorporated into future design scopes of work. The standards should be based on:

- The plant being considered a critical facility that would survive the prescribed level of earthquake shaking, to be determined.
- The facility should be able to begin operations necessary for public health and safety after a brief period of clean-up and repair following an event.

In addition, standards for construction signage will be provided.

Landscape standards will provide sufficient guidance for development and implementation of future phases. The guidelines and specifications will incorporate LEED criteria, as well a Bay-Friendly Landscape approach – focusing on minimizing waste, reducing water and energy use, protecting water quality and providing wildlife habitat.

Assumptions:

The standards will include items that are typical for most wastewater treatment plant projects and general in nature. Project specific items will be developed by the design engineers on individual projects.

The following project specific technical specifications will NOT be provided:

- Division 11 - EQUIPMENT
- Division 12 - FURNISHINGS
- Division 13 - SPECIAL CONSTRUCTION
- Division 14 - CONVEYING SYSTEMS

Deliverables:

- Technical Standard Specifications
  - Division 02 - SITE WORK / earthwork
  - Division 03 - CONCRETE
  - Division 04 - MASONRY
  - Division 05 - METALS
  - Division 06 - WOOD AND PLASTICS
  - Division 07 - THERMAL AND MOISTURE PROTECTION
  - Division 08 - DOORS AND WINDOWS
  - Division 09 - FINISHES
  - Division 10 - SPECIALTIES
  - Division 15 - MECHANICAL (piping and valving only)
  - Division 16 - ELECTRICAL (including lighting)
  - Division 17 - INSTRUMENTATION

  - Division 32 – EXTERIOR IMPROVEMENTS (planting, irrigation and site furnishings only)
  - Architecture

- Drawing Standard Details
  - Civil
  - Architectural
  - Landscaping - standard tree/shrub/groundcover planting/site furnishings. (Note: irrigation details will need to comply with the SCVWD requirements and will not be included).
  - Structural
  - Mechanical/odor control
  - Corrosion control
  - Electrical
  - Instrumentation and control systems
- Standards for construction signage
- Seismic design standards
- Architectural design standards
  - Materials, finishes and systems summary
  - Preliminary building code analysis
  - LEED Certification Credit matrix
- Landscaping standards/guidelines (as noted above)

VII. PROJECT MANAGEMENT

1.0 PROJECT MANAGEMENT

Project management of the effort contained in this scope of work will be a key component of the project's success. Effective communication with City staff, subconsultants, other City consultants, elected officials, and other stake holders will be extremely important to timely decision making throughout the process. Consultant shall be responsible for conducting routine progress meetings with City as well as for the following items:

1.1 Master Planning/Site Plan/PEIR/Design Standards

1.1.1 Technical Workshops

A series of technical workshops shall be developed to facilitate communication between the Consultant, subconsultants, other consultants working at the WPCP, and seek the input of City staff. Technical workshops are intended to identify key issues, constraints, information needs, and decisions to be made. Workshops should be organized around major topic as follows:

- Kickoff/CEQA strategy
- Process alternative analysis
- ECHP alternative analysis
- Site layout/access
- Building programming
- Headworks/Primary Sedimentation Tank Package Identification
- Automation
- Operations/staffing analysis
- Implementation/CIP recommendations

Workshop agendas will be prepared and emailed at least five days prior to each workshop. Agendas will clearly identify decisions to be made. Workshop minutes shall be provided within one week of each workshop and emailed to all participants.

1.1.2 Meeting Management

Up to twenty (20) various miscellaneous meetings (i.e., progress or focused technical meetings) shall be scheduled throughout the planning/basis of design process. Meeting agendas shall be prepared prior to all meetings with City staff and e-mailed at least three days prior to each meeting. Agendas should identify the purpose of each meeting and who is required (or optional) to attend from City staff. Meeting minutes shall be provided 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.

1.2 Design/Construction Support

- Major Submittal Workshops. Workshops shall be conducted for all major deliverables (15%, 30%, 60%, 90%, 100%) to facilitate communication between the Consultant to seek input from the City staff. Once the City has collected all their review feedback after each submittal, a comment review meeting shall be held.
- Meeting Management. As-needed miscellaneous technical meetings (i.e., progress or focused technical meetings) shall be scheduled throughout the design process (limited to a total of fifteen meetings). Meeting agendas shall be prepared prior to all meetings with City staff and e-mailed at least three days prior to each meeting. Agendas should identify the purpose of each meeting and who is required (or optional) to attend from City staff. Meeting minutes shall be provided 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.

1.3 Overall Project Management

- Communications Plan. As part of the project management plan, all public meetings and opportunities for public input shall be identified. A quarterly e-newsletter shall be prepared that can be posted to the City's website and shared with all

stakeholders and members of the public. Consultant shall prepare for and conduct at least three executive level progress briefings for City management staff.

- Project schedule. Prepare a master schedule that shows major milestones, key decision points, and deliverables. Update the schedule every month throughout the duration of the master planning, design and construction effort.

Deliverables:

- Project management plan
- Project master schedule
- Workshop/meeting agendas & meeting minutes
- Preliminary design report
  - SIP updates
  - Technical memorandums
  - Site background reports
  - Design standards
  - Basis of design summaries

Hard copy submittals shall consist of eight (8) sets of full sized plans, four (4) sets of half sized plans, and eight (8) copies for technical memorandums, reports, specifications and other material. All technical memorandums and reports shall be submitted in draft form and once review comments are received, a final draft shall be prepared.

Digital Submittals shall be provided on a CD in: AutoCAD and Adobe PDF for plans; MS Word and Adobe PDF for specifications or reports; MS Excel and Adobe PDF for Cost Estimates or spread-sheets, and MS Project and Adobe PDF for time schedules. Large files shall be broken up into smaller files, submitted on CD or DVD, or made available for download through the City's FTP site.

VIII. PRIMARY TREATMENT FACILITY

1.0 PROJECT AND SERVICES INFORMATION

1.1 Project Description

The new Primary Treatment Facility shall include all elements of water treatment beginning at the two 48-inch diameter sanitary sewer trunk mains, all of the way through to the primary effluent pipeline. The scope shall include, but is not necessarily limited to the following elements:

- Headworks
- Raw sewage pumping and metering
- Raw sewage screening and screenings processing and disposal
- Grit removal and grit processing and disposal

- Storage and transport of organic screenings to the digester
  - Storage and transport of inorganic screenings for disposal
- Primary sedimentation and primary sludge pumping and metering
  - Chemically Enhanced Primary Treatment (CEPT)
- Advanced screening or micro-screening, as an option
- Primary effluent pipeline and metering
- Bio-solids pumping, monitoring, and metering
- All other transport and permanent or temporary storage systems needed to remove material or add material to the process, including control mechanisms, and coordination with the rest of the plant

1.2 Consultant Services

The Consultant shall coordinate with the master planning efforts and design all preliminary work, demolition and site grading, needed to support the design and construction of the new Primary Treatment Facility. The Consultant shall be the Engineer of Record and shall design the entire Primary Treatment Facility which includes responsibility for design and preparation of complete plans, reports, studies, schedules, estimates, and technical specifications. The Consultant shall include the necessary plans, phasing documents, staging documents, and transition/transfer plans necessary to complete the project. The Consultant shall provide all necessary geotechnical and potholing work required to successfully design and construct the project including the assessment of any existing utility or structure to be modified to confirm it is suitable for construction. Consultant shall evaluate sites for hazardous materials and contaminants that may be encountered and provide language in the documents to address mitigation, removal and handling, and contractor reimbursement.

The Consultant shall obtain approval for all permits and authorizations as needed for construction and shall either obtain or prepare required permits ready for the contractor's use during construction. Consultant shall clearly provide all details necessary for contractor to construct the project complete for use as intended by the design. Other components of the design include the following:

Coordination with other design consultants working within the Plant fence line such as the: FOG (Fats Oils and Grease) receiving stations; digester renovation project; Air Flotation Tanks rehabilitation; liquid chlorine conversion; Testing, integration, commissioning, start-up, training, and transfer to the new Primary Treatment system, and decommissioning of the existing primary system:

- Design that includes construction strategy, phasing, and staging to maintain existing plant operations until the new facility is commissioned
- Selective demolition of portions of the existing primary facilities needed for construction of the new Primary Treatment Facility
- Temporary measures to close the existing Primary Treatment area until demolition in the appropriate phase

- Full demolition of the existing primary sedimentation basins would occur as a separate bid package
- Comprehensive Operations and Maintenance manuals in hard copy and electronic format

The existing pumping system that is utilized in the headworks/primary system will no longer be in compliance with BAAQMD requirements as of January 1, 2016. The City is currently pursuing alternate avenues for pumping the wastewater including the utilization of the Alternate Pumping Station (APS), and working on implementing improvements to APS to facilitate functioning as the primary headworks until the new headworks construction is complete.

Consultant will work with City staff and any other consultants working on the APS and compliance issues to enable City staff to meet this compliance date.

Besides the Civil and Environmental aspects of this project, other specific components of the design shall include at a minimum:

1.3 Mechanical and Process Design

This task includes all work necessary for completion of mechanical and process design drawings and specifications, up to and including final documents, suitable for inclusion in the contract documents for public bidding of the project. Mechanical drawings shall include Process and Instrumentation Diagrams (P&IDs), plan views, sections, and details of areas where mechanical equipment, piping, and plumbing are installed. The P&IDs shall also be suitable for inclusion in O&M manuals.

1.4 Structural Design

This task includes all work necessary for completion of structural design drawings and specifications, up to and including final drawings, suitable for inclusion in the contract documents for public bidding of the project. Structural drawings shall be based on structural calculations as well as existing and new geotechnical information collected as part of this scope of work. The controlling code will be the 2010 California Building Code or the latest additions required by law. Structural drawings shall be prepared for walls, footings, beams slabs, structural steel, concrete reinforcement, standard details and specifications for typical anchor bolt installations, bracing, miscellaneous metals, and other structural aspects for any new facilities associated with the project.

1.5 Demolition

This task includes all work necessary for completion of demolition drawings and specifications, up to and including final drawings, suitable for inclusion in the contract documents for public bidding of the project. Demolition drawings shall be developed and may include utilizing and/or scanning available record drawings as needed. The demolition shall include at a minimum all related buildings, structures, foundations, tanks, utilities, and all other material, equipment, and appurtenances related to the project. All sites shall be cleaned and restored to useable condition.

1.6 Electrical Design

This task includes all work necessary for completion of electrical design drawings and specifications up to and including final documents, suitable for inclusion in the contract documents for public bidding for the project. This includes preparation of electrical diagrams, schematics, plans, sections, and details of areas where new equipment instruments, wiring, control panels, and appurtenances are to be installed. Electrical design drawings shall include electrical plans, single-line diagrams, lighting, receptacles, and electrical construction details.

1.7 Instrumentation and Controls Design

This task includes all work necessary for completion of instrumentation and control design drawings and specifications up to and including final drawings and specifications suitable for inclusion in the contract documents for public bidding. The design shall include instrumentation system control overview diagrams showing electric power and control system arrangements for this project; typical MCC control diagrams; typical instrument loop drawings; control loop descriptions; integration with existing fire and security alarms and monitoring systems; I/O cabinet general layouts, instrument schedule and I/O schedule. This approach assumes that the general contractor will furnish and install all instrumentation and control equipment and wiring and the design engineer shall be ultimately responsible for the control logic and functioning of the PLC and SCADA systems. The design engineer will work with the contractor/systems integrator on the programming of the systems during the construction phase of the project.

1.8 Meetings

Consultant shall be responsible to meet with the City and other agencies as required by the work to properly coordinate and complete the design. The meetings at a minimum include design kickoff, design presentations, coordination, issue resolution, reviews, and regular progress meetings. The Consultant shall also meet with the City, at the WPCP site as necessary, to review the existing conditions and to perform the necessary facility assessments. When at the WPCP, the Consultant staff shall comply with all appurtenant Standard Operating Procedures of the WPCP required of outside visiting personnel. Meetings can be coordinated as necessary but must be scheduled in advance with the WPCP through the City's project manager.

Design reviews by the City shall typically involve workshop style meetings where the design drawings and specifications are presented to City staff. The Consultant shall facilitate a design review process with City project administration, engineering, operations and maintenance staff. Where applicable the consultant shall prepare design review tools and aids (such as large scale overlays, isometric views, 3-D simulation) to help aid a thorough review of the design drawings by City staff.

The Consultant shall be responsible for setting agendas, presiding over the meetings, preparing project meeting minutes, and preparing action item summaries for all meetings and plan reviews with City staff to complete the proposed project scope of work.

Consultant shall review, evaluate, and revise plans and specifications and provide responses to City's review comments and make recommendations for any other items of work necessary to provide good value to the City.

1.9 Phased Construction Bid Packages

Consultant shall coordinate and design several phases of work and multiple bid packages, as necessary to provide the best means of delivering the final improvements. The first bid package may include preliminary site preparation work necessary to support construction of the new Primary Treatment Facility. The preliminary work would include initial investigation into the presence and quantity of hazardous material within the work area; demolition of existing site improvements, and reasonably eliminating unknown conditions, that may hamper further construction. This bid package may include temporary facilities to support work in the next bid package. The preliminary work should make the site attractive for bidding for many contractors for the installation of the new Primary Treatment Facility.

2.0 GENERAL DESIGN CONSIDERATIONS

2.1 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 good 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 should be avoided unless the Consultant has demonstrated there is no other better option.

Plans and details shall generally be to scale unless not-to-scale drawings provide better information. Match lines shall be provided as necessary and stationing shall be logical and coordinated through the plan set, without repeating stationing numbers at different locations. All plan sheets shall be organized and coordinated for clarity during construction. The horizontal and vertical control established in the initial land survey work shall be used. Other components of the design include but are not necessarily limited to:

- Environmental impacts and mitigations **-** Consultant shall be responsible for development of all environmental documentation as warranted by the project.

During the initial stages of this project the Consultant shall address project environmental clearance and mitigations under the California Environmental Quality Act (CEQA) and the PEIR, or National Environmental Protection Act (NEPA) if federal grants are anticipated. Coordinate project information with the effort being carried out under the Master Plan and CEQA components of this scope of work.

- Receive information from CEQA effort to provide coordination all relevant mitigation measures into the design, plans, and specifications.
- Sustainable design- The overall design should consider minimizing energy consumption, water consumption, and scarce non-renewable resources. The capital cost should be balanced with the future maintenance and operating costs with a bias toward reducing ongoing operation and maintenance costs. Weigh both the fiscal and environmental costs of ongoing operation and maintenance in considering the best options.
- Comply with all applicable law, regulations, and good practices.
- Design to 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 Primary Treatment Facility 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, code, permits, and foreseeable future revisions to these conditions, including: safety, hazardous materials, air quality, and water quality.
- Address appropriate odor control throughout the primary treatment systems. Odor control shall be suitable to support and not limit the City's economic development goals, and future use of the surrounding area.
- The Primary Treatment 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.
- Design all access 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 CEQA, including: overall systems planning and layout, power system – generation and distribution, SCADA and control center, and related systems in the Master Plan.

2.2 Design Steps

The Consultant Services for each bid package shall include, but are not necessarily limited to the following steps:

- Environmental Clearance
- 15% Conceptual Design

- 30% Preliminary Design
- 60% Design Development
- 90% Design
- 100% Design
- Final Bid Package
- Construction Phase Services

It is anticipated that there could be three separate construction packages provided to provide efficiency and optimum value to the City. Sufficient conceptual design work should be done to develop site preparation plans, so that major grading and utilities could be completed during an initial phase of construction that supports the final design. Consultant shall determine if it is appropriate to use on-site isolation and encapsulation of non-motile hazardous material, which shall be incorporated into the final design.

Note that the continual operation of the WPCP and permit compliance is of greatest importance. Any work done on site, and all designs must be done in a manner to not disrupt the operation of the WPCP.

2.3 Format

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

2.4 Conceptual Design (15%)

Consultant shall work with City Staff and present several options for the conceptual design of the Primary Treatment Facility. Based upon conceptual design reports, advanced screening or micro-screening may be addressed in one of several ways: for inclusion with the primary system, or rough-in for future adaptation, or as a possible separate bid package.

The Consultant shall develop a success-oriented project budget, schedule and financial analysis associated with each option. The project budget shall include 30-year maintenance and operations cost estimate.

The following public meetings are anticipated:

- Two Council Meetings. One to present the conceptual design at a Council Study session and one at a regular Council Meeting. .

Illustrations of the conceptual designs shall be rendered on 3-foot by 4-foot presentation boards and include both (3-dimensional) axonometric or perspective views, plan and profile views of the site, and accompanying labels and text with an explanation of design concepts and features. A PowerPoint presentation of all conceptual design illustrations, concepts, budget, time schedule, and other relevant information shall be prepared for City use.

The design concepts shall be based on information as developed in the Plant Strategic Infrastructure Plan (SIP), the SIP Peer Review, the concurrent Master Plan and CEQA work, and the Consultant's evaluation and recommendations for the most efficient design to meet plant treatment goals, projected goals and NPDES permit requirements, any other regulatory requirements, efficiency, and sustainability considerations.

Submittals:

- Conceptual design alternatives plans and necessary reports
- Financial analysis of each concept
- Presentation boards of concepts and features
- Power-point presentation of conceptual design
- Revised project cost estimate and budget
- Revised project time schedule
- Other conceptual design work products as necessary

2.5 Preliminary Design (30%)

The Consultant shall commence Preliminary Design phase services for preparation of construction contract documents for the implementation of the Primary Treatment Facility after a final selection has been made by the City under the Conceptual Design analysis. The Preliminary Design phase shall include a field or topographic survey, base mapping, provision of options, preliminary cost estimate, and other tasks as necessary and recommended by the proposer. The Consultant shall contact and coordinate with all utility companies including but not limited to: PG&E, Comcast Cable, AT&T, and other telecommunications, fiber-optic, or other utility companies directly for their records.

Consultant shall coordinate this design effort with the concurrent work being performed under the Master Plan portion of this scope and conduct additional potholing, Geotechnical and Hazardous Materials investigations as needed for design purposes. The Consultant shall determine the appropriate number of potholes, borings and tests and record the existing conditions. Consultant shall also conduct hazardous material sampling and analysis needed for design purposes and submit design reports. Coordinate scheduling of any work on the site with the City project manager who will coordinate with the WPCP. Consultant shall perform field investigations to confirm existing conditions and shall also be responsible for contacting utility companies directly for their records, regulatory agencies, and other stakeholders. Consultant shall review recommendations with City staff prior to design and coordinate all applicable City, local, state, and federal standards into plans and specifications.

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

- Preliminary plans and profiles, including cover sheet, and plan sheets with base mapping and all existing utilities
- 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 estimates
- Provide a list of any facilities belonging to PG&E, AT&T, Comcast Cable, and others. Identify utility facilities that will need to be adjusted and/or relocated as a result of the proposed construction
- Determine how the project will be classified under CEQA and prepare a brief summary memo as well as the necessary documents which are required to be submitted
- 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
- Determine if there are any BAAQMD requirements for the project and prepare the necessary documents which are required to be submitted

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

- Underground utilities:
  - Sanitary lines, (laterals as necessary), manholes, or cleanouts
  - Storm drainage lines, (laterals as necessary), manholes, catch basins, or inlets
  - Water lines, laterals, valve boxes, hydrants, relief valves, irrigation lines, heads, valves, wiring, other components
  - Electrical, communications, gas and other power lines, other underground, utilities lines, boxes, vaults
- Surface features:
  - Existing structures

  - Concrete pavement, driveways, and emergency access routes
  - Survey monuments and boxes, Bench Marks
  - Sufficient elevation contours and/or spot elevations to determine earthwork quantities, drainage, and access
  - Buildings, appurtenances, utility poles, other features
  - Trees, shrubs, and other surface features
- Overhead features in affected area:
  - Signage, benches, amenities
  - Trees canopies, vegetation
  - Overhead wires or obstructions
  - Other overhead features or obstructions
- Contaminants either in buildings, improvements, pavement markings, or underground
- Site access for construction
- Process / Mechanical:
  - Standard mechanical details
  - Preliminary Process and Instrumentation Diagrams
  - Preliminary equipment list
  - General equipment arrangement plans and major sections
  - Major facility dimensions
  - Preliminary drafts of major specifications
  - Preliminary control strategy narratives
  - NFPA 820 Guidelines review for project specifics
- Structural/Demolition:
  - Standard structural details
  - Structural foundation plans and sections
  - Final structural design criteria
  - Structural general notes and standard details
  - General demolition plans
  - Specification index and boilerplate specification section drafts
- Electric Power:
  - Review of site power system and CITY standards for electric power systems
  - Preliminary site power plans
  - Preliminary facility single line power diagrams
- Controls:
  - Control system architecture and integration with existing system
  - Primary instruments on process and instrumentation diagrams

2.6 Design Development (60%)

Consultant shall develop the approved 30% Preliminary Plan submittals into 60% design plans, specifications, and cost estimates. Design development shall include incorporation of power systems elements, SCADA 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 of Sunnyvale and the community. The 60% submittal shall be submitted to the Building Official for review. 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
- 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:

2.6.1 <u>Plans</u>

- 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:
  - Complete Process and Instrumentation Diagrams
  - Demolition drawings
  - Equipment arrangement plans, sections and details
  - Specifications for vendor review
- Structural/Demolition:
  - Structural plans, sections and details
  - Demolition plans, sections and details
  - Preliminary rebar detailing

  - Specifications
- Electric Power:
  - Plant power single line drawings
  - Process area single line drawings
  - Electrical room plans and equipment sections.
  - Schematic site power plans
  - Specifications
- Controls:
  - SCADA system architecture and integration with existing system
  - SCADA I/O on process and instrumentation diagrams
  - Control schematics
  - I/O index
  - Control strategies and loop descriptions
  - Specifications

2.6.2 Specifications

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

2.6.3 Other

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

2.7 Design (90%)

Consultant shall develop the approved 60% Design Development 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:

2.7.1 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:
  - Process and Instrumentation Diagrams
  - Demolition drawings
  - Equipment and piping plans, sections and details
  - Specifications
- Structural/Demolition:
  - Demolition drawings
  - Structural plans, sections, and details
  - Specifications
- Electric Power:
  - Plant power single lines
  - Process area single lines
  - Site power and lighting plans
  - Process area power, communication, and lighting plans
  - Electrical, building, and equipment elevations
  - Specifications
- Controls:
  - SCADA architecture
  - Control diagrams
  - Control single line diagrams
  - Control Strategies
  - Specifications

2.7.2 <u>Specifications</u>

- Technical Specifications
- Description of each item on bid schedule with requirements
- Recommended revisions to Special Provisions
- Bid schedule
- Engineer's construction cost estimate
- Responses to City's review comments, along with return of mark-ups

2.8 Design (100%)

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 Primary Treatment Facility projects. The 100% plans shall be submitted for Building Official review for permit preparation ready for the winning bidder. Include all necessary attachments and schedules, including but not necessarily limited to: structural calculations, energy efficiency worksheets, and related work.

Design new facilities and processes for meeting the goals of the primary plant treatment, 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:

2.8.1 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, SCADA, architectural, landscape and irrigation plans and details
- Amenities plans and details
- Other specialties

2.8.2 Specifications

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

2.8.3 Other

- Responses to City's review comments, along with return of mark-ups
- List of all Information available to Bidders of record drawings with disclaimer

- 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.
- One hard copy 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."

2.9 Bid Package (Final)

Consultant shall develop the approved 100% Design submittal into Final 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:

- Complete revised Special Conditions and reviewed Standard Conditions, and bid instructions:
  - Final Bid Schedule and/or schedule of values
  - Tabulation of quantities of all work
  - Final engineer's construction cost estimate in the form of the Bid Schedule, (along with supporting documents not part of the Bid Package)
  - Final list of submittals
  - Recommendation for allowed construction time period
  - Final list of information available to bidders with disclaimer
- Coordinate plans and technical specifications with the City's (front end) bid instructions, standard provisions, and revised special provisions ready for Public Works bidding
- Complete set 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:
  - 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

3.0 BIDDING SERVICES

3.1 Overview

Respond to all Requests for Information, attend pre-bid meeting, 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).

3.1.1 <u>Submittals</u>

- Prompt response to all Requests for Information
- Minutes of pre-bid meeting
- Addenda as necessary

4.0 CONFORMED DRAWINGS

Consultant shall prepare a complete set of conformed contract documents based on the input received during the bidding process (i.e., addenda, etc.). Contractor will be asked to sign-off on conformed documents as part of the process.

Assumption:

- City will provide reproduction services for the conformed drawings.

5.0 CEQA STRATEGY DETERMINATION

With regard to CEQA for the Headworks/Primary Treatment project, Consultant shall assist the City with making a determination as to whether the required environmental documentation could be satisfied by one of the following options: (1) including project-level evaluation of the Headworks/Primary Treatment project in the programmatic EIR for the WPCP Master Plan; (2) determining whether the Headworks/Primary Treatment project has independent utility from the master plan and, if so, determining whether the project (a) could be categorically exempt from CEQA; (b) has significant impacts that

could be avoided or mitigated to allow for the preparation of a mitigated negative declaration or (c) warrants preparation of a focused EIR.

CEQA strategy determination shall require the following tasks at minimum:

- Conceptual development of the project elements to a level that will assess potential O&M and construction impacts from the proposed improvements
- Determination of any linkages to the long-range improvements to be developed as part of the WPCP master planning effort
- Provide background information salient to the City's decision regarding CEQA strategy, including systematic consideration of linkages to long-range improvements in light of CEQA requirements, and identification of environmental issues associated with construction and operation of the Headworks/Primary Treatment project (based on conceptual development of project elements).
- An assessment of process considerations including schedule impacts for the various CEQA approaches

Assumptions:

- Project elements for the Headworks/Primary Treatment project will be as described in the SIP and master planning documents
- Two working meetings with City staff

Deliverables:

- Technical memorandum summarizing the strategy evaluation

6.0 CONSTRUCTION SUPPORT SERVICES

6.1 Overview

The Program Manager 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 City and not the contractor. The Consultant shall provide the following services at a minimum:

- Respond to Request for Information (RFIs), clarifying the plans and specifications where appropriate, or providing revisions or additional detail where necessary
- Review and respond to all submittals
- Attend pre-construction meeting, and periodic construction meetings and field inspection for final completion as determined by the City. All other required on-site meetings shall be considered necessary and based on the competency and adequacy of the contract documents and therefore the responsibility of the consultant
- Prepare As-Built Drawings based upon red-lines provided by contractor and field review
- 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)
- Obtain necessary information from the contractor and prepare comprehensive Operation and Maintenance (O&M) manuals in printed and digital formats (including a large scale permanent laminated presentation board of the process)
- 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

Submittals:

- Prompt responses to all requests for information (RFIs)
- Prompt responses to all submittals as noted in the contract specifications
- Minutes of construction meeting(s) attended.
- As-Built Drawings submitted as AutoCAD and PDF files
- O&M Manual Updates (Headworks, Primary Sedimentation Tanks, Standby Generation)

IX. TREATMENT PROCESS DESIGN ALTERNATIVES AND CEQA SUPPORT SERVICES

During the Master Planning process, several treatment process alternatives and options will be analyzed and evaluated, the outcome of which may impact project design for the Headworks and Primaries. These items are described in detail in tasks 1.0 – 9.0 below, and an estimated cost associated with each item of work has been prepared and included in the overall project cost.

If the City determines that the results of the analysis for an individual item is favorable, and there is sufficient budgeted funding to support construction, then the City may issue a separate Notice to Proceed authorizing the individual task. The Consultant shall not perform work under this section until authorized in writing by the City in advance. The Consultant shall not receive payment for any work performed under this section without prior written approval of the City.

Additionally, Task 10.0 within this section identifies optional Consultant support services relative to the Programmatic EIR, to be provided upon the City's request as necessary.

Finally, Task 11.0 enumerates three project specific CEQA documentation alternatives relative to the Headworks and Primaries, of which the City shall select one for implementation.

1.0 ODOR SAMPLING

In order to properly evaluate, select and size odor control technologies it is necessary to know which odorous compounds are in the air and in what concentrations. Consultant

shall perform some preliminary testing of the existing treatment facility to identify and quantify the odor causing compounds. The proposed optional testing would include:

- H_2S Testing – Odalog H_2S monitors will be installed at up to four locations for at least a two week period to monitor and log the diurnal H_2S concentrations at key locations throughout the existing plant.
- Reduced Sulfur Compound Testing – Four air samples will be collected from key locations within the existing plant and tested for reduced sulfur compounds (RSC).
- Liquid Testing – Liquid samples will be collected from several locations within the plant and tested for pH, ORP, total sulfides and temperature.

Deliverables:

- Technical memorandum summarizing the results of the field sampling work

2.0 COLLECTION OF GRIT DISTRIBUTION DATA

As part of the modeling for grit removal technologies, grit particle and settling velocity distribution data will be needed to utilize CFD analysis to approximate the capture rate of the two proposed systems (forced vortex and aerated chamber). This data over two separate periods: one during dry weather and one during wet weather.

The scope of work shall include the following tasks:

- Equipment Setup. Consultant shall install the equipment, identify sampling positions and determine the appropriate sampling methods. Equipment will be fabricated on-site according to flow conditions and final channel measurements.
- Sampling. Consultant shall collect samples during the daily peak flow conditions for six to eight hours per day, with settled solids accumulated in the Grit Settler. Evenings will be used to wet-sieve the collected samples and conduct SES measurements on aliquots of each influent grit size fraction. Collected sieve size fractions will be stored and transported for measurement of dry and ash weights of each size fraction. Approximately three weeks will be required for each sampling period.
- Technical memorandum. A summary memorandum shall be prepared which includes the following:
  - Side-by-side plots of weight distributions of influent grit SES and physical size for each of the sample days
  - Tabulated influent grit concentrations and projected daily grits loads.
  - All raw data and spreadsheets.

Deliverables:

- Technical memorandum summarizing the results of the grit analysis work

3.0 SITE SPECIFIC SITE RESPONSE STUDY

Consultant shall provide site specific response spectra for dynamic analysis of the proposed structures associated with the headworks and primary sedimentation tank project. This analysis provided site specific (as opposed to general values from published sources) peak ground acceleration and spectral acceleration values which are used in establishing seismic (structural) design parameters. This would be required because of significant liquefiable soils found in the site boring work.

Deliverables:

- Site specific response study (to be provided as part of the geotechnical investigation)

4.0 ODOR CONTROL IMPROVEMENTS – HEADWORKS/PRIMARY SEDIMENTATION TANKS

The odor control improvements include containment, ventilation and treatment of the air space in critical areas of the process facilities. A project element list for these proposed facilities can be found in Attachment A to the scope of services.

5.0 ROTATING DRUM THICKENER

Depending on the operational approach used for sludge thickening in the Primary Sedimentation Tanks (PST), a rotating drum thickener (RDT) would be installed to thicken the settled sludge from the PSTs. It is assumed that this RDT facility would be designed and constructed as an interim facility until the secondary treatment process is operational (at which time the RDT would be re-located to a permanent structure). A project element list for this proposed facility can be found in Attachment A to the scope of services.

6.0 SITE WASTE PUMP STATION

The proposed headworks facility currently has no provision to segregate the recycle flows from the main influent flows into the WPCP. The Site Waste Pump Station (SWPS) will provide a means to separately handle all the recycle waste streams from the plant and provide a means of metering and sampling of this waste stream. A project element list for this proposed facility can be found in Attachment A to the scope of services.

7.0 MICROSCREEN FACILITY

As part of the alternative process evaluation, future consideration of a membrane bioreactor (MBR) will be considered as a secondary treatment option. The MBR process requires protection from large particles which could result in pre-mature damage to the membrane. This requires the use of a finer screen device than is normally practical to use at the Headworks facility (typically two millimeters screen size). This microscreen facility would be designed and constructed to operate downstream of the PSTs. A project element list for this proposed facility can be found in Attachment A to the scope of services.

8.0 NEW ACCESS ROAD TO BAY TRAILS

The current entrance into the WPCP provides public access to the Bay Trails, which limits staff use of that area adjacent to the plant. A new road off of Caribbean Drive would re-direct the public access and allow for additional uses of that plant area while improving site security issues. A project element list for this proposed improvement can be found in Attachment A to the scope of services.

9.0 CEPT PILOT TESTING SUPPORT

Chemically Enhanced Primary Treatment (CEPT) is a process modification that improves primary clarifier performance by enhancing BOD and TSS removal, and decreasing the loading to the secondary system. The optimum coagulant/polymer dose and flocculation time will be determined at the bench scale through a series of jar tests. The test setup, wastewater sampling, jar tests, and associated laboratory analysis shall be performed by City staff.

Consultant shall provide pilot testing support as described in the following tasks:

- Develop a testing plan. The testing plan shall describe the testing protocol for the CEPT jar tests.
- Review and process test data. Consultant shall review the test data provided by the City, process the data, and provide a summary of the results, along with conclusions and recommendations.
- Technical memorandum. Consultant shall prepare a summary memorandum to document the data, conclusions, and recommendations of the jar test effort.

Deliverables:

- Testing plan describing the jar test protocol.
- Technical memorandum summarizing the results of the CEPT jar test effort.

10.0 PROGRAMMATIC EIR SUPPORT SERVICES

At the City's request, Consultant may provide as-needed administrative and technical support during the preparation of the programmatic environmental impact report which supports the estimated $300 million improvements to the WPCP identified in the SIP. These support services shall include the following:

- Preparation of updates to project descriptions:
  - Description of current/existing use of location
  - Relationship to other CIP projects
  - Design and construction details
  - O&M considerations
  - Quantification of energy demand, horsepower rating and noise specs
- Review of updated project descriptions
- Provided review of final draft EIR

- Provide updates to CIP as requested by the City to reflect changes based on findings
- Attend selected EIR coordination meetings

11.0 PROJECT SPECIFIC CEQA DOCUMENTATION

In conjunction with the analysis and deliverable described in Section VIII, Primary Treatment Facility, Task 5.0 CEQA Strategy Determination, the City will select one of the following alternatives:

A. Preparation of a Categorical Exemption. If the City concludes that Headworks/Primary Treatment project qualifies for a Categorical Exemption, it is assumed that City staff would take the lead in completing the Categorical Exemption form. At the request of City staff, Consultant could provide assistance (for example, in documenting environmental conditions relative to the topics identified in CEQA Guidelines Section 15300.2).

B. Preparation of a Mitigated Negative Declaration. If it is anticipated that the project would not result in a significant environmental impact or result in an impact that can be mitigated to less-than-significant levels, and a determination could be made that an IS/MND be prepared. Tasks associated with the preparation of a IS/MND include the following:

- Administrative Draft IS/MND: Consultant shall prepare a draft Project Description based on the project details available and develop the environmental analysis. Consultant shall conduct site reconnaissance and compare the existing conditions in the project area (e.g., susceptibility to earthquake, presence of historical resources, and erosion issues) with any changes that may occur from the proposed project and identify any potential impacts. Consultant shall complete the Initial Study checklist and advise the City regarding mitigation measures that must be incorporated into the project to preclude significant impacts.
- Public Draft IS/MND: Consultant shall incorporate any comments on the Administrative Draft IS/MND and prepare the Public Draft IS/MND. Consultant shall use the distribution list provided by ACWD for circulating the Draft IS/MND.
- Response to Comments, Mitigation Monitoring and Reporting Program (MMRP), and Project Approval: Consultant shall prepare responses to up to 5 comment letters received on the Public Draft IS/MND. Consultant shall prepare a Memorandum providing Responses to Comments and MMRP for inclusion in the staff report to the City Counsel.

If, during the course of investigating environmental impacts Consultant identifies one or more significant impacts that it determines cannot be avoided through implementation of mitigation measures within the City's control, Consultant shall immediately notify the City. If implementation of the project generates an impact that is significant and cannot be avoided or reduced to a less-than-significant level through design modifications or mitigation measures, then an Environmental Impact Report (EIR) must be prepared, which is part of Optional Task C below.

C Focused EIR. Tasks associated with the preparation of a Focused EIR include the following:

- Preparation of a Notice of Preparation/Initial Study (PEIR Task 4.2). The distribution list developed for the focused EIR effort will serve as the starting point for the PEIR. The assumptions and specific tasks will be as described for the PEIR. Consultant will use the NOP/IS to scope out any environmental topics that need not be addressed to allow for a more focused effort in completing the EIR.
- Alternative Analysis (PEIR Task 4.3). Consistent with CEQA requirements, the focused EIR will evaluate alternatives to the proposed project that can reduce the impacts attributable to the proposed project, are feasible and meet most of the project's basic objectives. A preliminary impact evaluation would be prepared to help identify potential alternatives that meet CEQA criteria.
- Public Participation/Attend Public Meetings (PEIR Tasks 4.4 & 4.6). This shall include a scoping meeting, a meeting during the 45-day draft EIR public review period and attendance a the certification hearing. Consultant shall prepare meeting materials (i.e., Powerpoint slides, handouts).
- Draft EIR (PEIR Task 4.4). Consultant shall prepare an administrative draft EIR, screen-check draft EIR, and public draft EIR. For each environmental resource area, Consultant shall describe the environmental setting (baseline conditions) and applicable regulatory requirements and prepare an analysis of the environmental impacts. Consultant shall develop the setting sections for the focused EIR and the PEIR at the same time, with the setting section for the focused EIR being adjusted by that project's specific characteristics.
- Prepare Responses to Comments/Final EIR, Findings, Statement of Overriding Consideration (PEIR Tasks 4.7, 4.9 & 4.10). Following close of the public comment period, Consultant shall review, organize and respond to comments regarding the content and adequacy of the focused EIR. Consultant shall prepare an administrative draft and final Responses to Comments document for publication prior to certification.
- Mitigation Monitoring and Reporting Program (PEIR Task 4.8). Consultant shall prepare a mitigation monitoring and reporting program to be adopted as part of the project approval. This shall be presented in a table format (adopted mitigation measures, parties responsible for implementation and monitoring/approval actions).

END OF SCOPE OF WORK

Attachment 1
to Exhibit A

MAJOR PROJECT ELEMENT LIST and PRELIMINARY LIST OF DRAWINGS

The scope of services for the Sunnyvale Primary Facility Improvements Project includes the major project elements listed in this attachment. Project elements are separated into three separate lists (assuming the project is broken into three construction packages.

The Package No. 2 project areas are as follows:

Drawings Group	Sunnyvale Area Number	Name
N/A	TBD	General, Yard Facilities and Piping
A	TBD	Bar Screen Facility/Screenings Handling Structure
B	TBD	Influent Pump Station
C	TBD	Grit Basins/Grit Handling Structure
D	TBD	Headworks Area Electrical Building
E	TBD	Sludge and Grit Pump Gallery
F	TBD	Primary Clarifiers
G	TBD	Chemical Storage and Metering Facility
H	TBD	12 kV Switchgear Area
J	TBD	Standby Generator Building
K	TBD	Utility Building

The following Package No. 2 project areas may be added as project enhancements:

Drawings Group	Sunnyvale Area Number	Name
N/A	TBD	Access Road to Bay Trails
N/A	TBD	Site Waste Pump Station
L	TBD	Primary Effluent Screening Facility
M	TBD	Primary Sludge Thickening Facility
N	TBD	Odor Control Facility

Attachment 1
to Exhibit A

Package No. 1 – Site Preparation and Demolition

1. Site Demolition:
   - Demolition of sludge drying beds
   - Demolition of yard piping
   - Demolition of landfill gas booster station
   - Demolition of landfill flare

2. Site/Civil Improvements:
   - Excavation/rough grading for selected new structures
   - Misc. yard piping to reroute digested sludge to lagoons/temporary dewatering

3. Relocated Landfill Gas Facility:
   - Realigned landfill gas pipeline
   - Install pad for relocated facilities
   - Gas booster (relocate existing unit)
   - Gas flare (relocate existing unit)

Package No. 2 – Headworks/Primary Sedimentation Facilities

1. Influent Junction Structure:
   - Tie-in into two existing influent sewers
   - Isolation gates for new influent pipe

2. AREA A - Influent Screening Facility:
   - Screen inlet and outlet isolation gates
   - Provisions for three bar screens and bypass channel (four channels total)
   - Two 5-6-foot wide bar screens with 1/4 inch bar spacing
   - Covers (stainless or FRP) for all channels
   - T-lock lining of concrete channels
   - Air supply and exhaust fans with FRP ducting
   - Provisions for chemical addition (chlorine, ferric or hypochlorite)
   - Influent sampling
   - Recycle flow metering (gravity return)

3. AREA A - Screenings Handling Facilities:
   - Discharge chute at each bar screen
   - Three washer-compactors
   - Alternate discharge to bypass washer compactors for emergency operations
   - Discharge chute into screw cross-conveyors
   - Two screenings storage bins (w/covers for bins)

4. AREA B - Influent Pump Station:
   - Self-cleaning wetwell (T-locked)
   - Immersible Dry Pit Pumps
   - Magmeters

5. AREA C - Grit Removal:
   - Influent feed channel (T-lock lined)

- Four vortex grit removal basins (w/isolation gates) – T-locked lined
- Four grit removal pumps
- Structure for housing Grit dewatering equipment
- Grit cyclones
- Grit classifiers
- Grit storage bins.

6. AREA D - Headworks Area Electrical Building:
   - Concrete masonry block building
   - Configured for double ended feed – two transformers on outdoor pads
   - MCCs for Headworks and Primary Sedimentation Tanks equipment
   - VFDs for influent pumps
   - Provisions for HVAC

7. AREA E – Grit Slurry and Primary Sludge Pumping Gallery:
   - Dedicated duty and shared redundant recessed impeller grit slurry pumps for each grit removal basin (8 total)
   - Dedicated duty and shared redundant progressing cavity primary sludge pumps (10 total)
   - Flow and density meters for primary sludge discharge to solids handling

8. AREA F - Primary Sedimentation Basins:
   - Flow splitter box for primary sedimentation basins
   - Five 20 foot wide by 105 foot long primary sedimentation basins (based on B&C criteria of SOR = 2000 gpd/sf at ADWF, 4000 gpd/sf at Peak Day)
   - Ten influent isolation gates

9. AREA G – Chemical Storage and Metering Facility Bulk chemical storage tanks for ferric, polymer, or other settling aids:
   - Metering pumps
   - Dose metering equipment
   - Concrete containment w/canopy

10. AREA H - Power Distribution:
    - Concrete masonry block building
    - Double-ended 12-kV switchgear
    - Utility Revenue Metering
    - Provisions for future processes
    - Provisions for HVAC
    - 12-kV distribution limited to headworks/primary sedimentation tanks

11. AREA J - Standby Power:
    - Concrete masonry block building
    - Two 2000 KW diesel standby generator set
    - Two diesel fuel storage tanks (cross connected) capable of supplying 72 hours of generator operation at average plant load
    - Provisions for HVAC

Attachment 1
to Exhibit A

12. AREA K - Plant Utilities:
    - Concrete masonry block building (2,500± square feet)
    - Plant utilities supply systems (hot water, plant air, etc.)

13. Site/Civil Improvements:
    - Direct buried interconnecting process yard piping
    - 2500± linear feet of 60-inch concrete primary effluent pipe
    - Site grading, paving and landscaping in the area around the new headworks and primary tanks (provisions for storm water runoff)

14. Instrumentation and Controls:
    - Assumes basic instrumentation, monitoring and controls for limited automated operation (i.e., influent flow monitoring, sludge blanket level detection, thickened solids density meter)

Package No. 3 – Final Demolition and Site Restoration

1. Site Demolition:
    - Demolition of existing primary sedimentation/grit basins
    - Demolition of switchgear building
    - Demolition of the primary control building
    - Demolition of misc. yard structures/piping

2. Site/Civil Improvements:
    - Site paving and grading for the demolished areas
    - Basic landscaping/irrigation improvements to the plant boundary areas

Optional Project Elements

1. Rotating Drum Thickener (RDT):
    - 2 duty + 1 standby RDTs
    - Polymer storage and metering facilities
    - Progressing cavity thickened sludge pumping (1 each RDT)
    - Thickened sludge density and flow metering
    - Interim Facility, shade cover or pre-engineered building
    - Foul air capture from RDTs

2. Odor Control Facilities:
    - Cover all exposed wastewater process facilities .
    - Provide either distributed centrifugal exhaust fan system for capturing fugitive emissions.
    - Provide centralized odor treatment

3. Site Waste Pump Station (for recycle flows):
    - Submersible wet pit pump station
    - 3 duty +1 standby pump layout
    - Flow metering
    - Flow sampling
    - Variable frequency drives for pumps

Attachment 1
to Exhibit A

4. Microscreen Facility:
   - Concrete flow-through structure, using band, drum or disk screening technology
   - 3 duty +1 standby fine screens
   - Effective screen size: 2 mm
   - Bypass Channel

5. New Access Road to Bay Trails:
   - 24 foot wide, two lane road width from edge of existing public ROW to parking area for Bay Trails trailhead.
   - Designed for an appropriate TI per geotechnical engineer's recommendations
   - Security fencing to prevent access to WWTP
   - Pavement striping to City standards

Preliminary List of Drawings

City of Sunnyvale

Primary Treatment Facilities Design

Package 1 -Site Preparation

No.	Sheet No.	Drawing Description
General		
1	G1	Drawing Index
2	G2	Standard Abbreviations
3	G3	Site Plan
4	G4	Environmental Conditions Plan 1
5	G5	Environmental conditions - Plan 2
6	G6	Environmental Conditions - Plan 3
7	G7	Construction Staging and Access Plan
8	G8	Construction Staging Plan 2
Demolition		
9	D1	Demolition Sludge Lagoon Area 1 - Plan
10	D2	Demolition Sludge Lagoon Area 1 - Section and Details
11	D3	Demolition Sludge Lagoon Area 1 - Section and Details
12	D4	Demolition Sludge Lagoon Area 1 - Section and Details
13	D5	Demolition Sludge Lagoon Area 2 - Plan
14	D6	Demolition Sludge Lagoon Area 2 - Section and Details
15	D7	Demolition Sludge Lagoon Area 2 - Section and Details
16	D8	Demolition Sludge Lagoon Area 2 - Section and Details
17	D9	Demolition Sludge Lagoon Area 3 - Plan
18	D10	Demolition Sludge Lagoon Area 3 - Section and Details
19	D11	Demolition Sludge Lagoon Area 3 - Section and Details
20	D12	Demolition Sludge Lagoon Area 3 - Section and Details
21	D13	Demolition Overall Yard Piping Plan
22	D14	Demolition Overall Yard Piping Details
23	D15	Demolition Overall Yard Piping Details
24	D16	Demolition Landfill Booster Station Plan
25	D17	Demolition Landfill Booster Station Section and Details I
26	D18	Demolition Landfill Flare Plan
27	D19	Demolition Landfill Flare Section and Details I
Civil		
28	C1	General Civil Notes
29	C2	Standard Details 1
30	C3	Standard Details 2
31	C4	Standard Details 3
32	C5	Standard Details 4
33	C6	Grading Plan -1
34	C7	Grading Plan - 2
35	C8	Grading Plan - 3
36	C9	Grading Plan 4/Site Access
37	C10	Landfill Gas Pipeline Plan and Profile I
38	C11	Landfill Gas Pipeline Plan and Profile II
39	C12	Landfill Gas Booster/Flare Plan
40	C13	Landfill Gas Booster/Flare Sections and Details I
41	C14	Landfill Gas Booster/Flare Sections and Details II

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG	NO.	DESCRIPTION
1	G -	1	GENERAL - COVER SHEET/LOCATION MAP
2	G -	2	GENERAL - DWG. INDEX VOL 1 OF 2
3	G -	3	GENERAL - DWG. INDEX VOL 2 OF 2
4	G -	4	GENERAL - DESIGN CRITERIA
5	G -	4	GENERAL - ABBREVIATIONS
6	G -	5	GENERAL - SITE PLAN
7	G -	6	GENERAL - HYDRAULIC PROFILE
8	G -	7	GENERAL - LIQUID FLOW SCHEMATIC
9	G -	8	GENERAL - SOLIDS FLOW SCHEMATIC
10	G -	9	GENERAL - CONSTRUCTION SEQUENCING I
11	G -	10	GENERAL - CONSTRUCTION SEQUENCING II
12	G -	11	GENERAL - CONSTRUCTION SEQUENCING III
13	G -	12	GENERAL - CONSTRUCTION SEQUENCING IV
14	G -	13	TYPICAL DETAILS - GENERAL
15	G -	14	TYPICAL DETAILS - GENERAL
16	C -	1	TYPICAL DETAILS - CIVIL
17	C -	2	TYPICAL DETAILS - CIVIL
18	C -	3	TYPICAL DETAILS - CIVIL
19	C -	4	TYPICAL DETAILS - CIVIL
20	C -	5	TYPICAL DETAILS - CIVIL
21	C -	6	TYPICAL DETAILS - CATHODIC PROTECTION
22	C -	7	TYPICAL DETAILS - CATHODIC PROTECTION
23	C -	8	YARD PIPING PLAN - AREA 1
24	C -	9	YARD PIPING PLAN - AREA 2
25	C -	10	YARD PIPING PLAN - AREA 3
26	C -	11	YARD PIPING PLAN - AREA 4
27	C -	12	YARD PIPING PROFILES
28	C -	13	YARD PIPING PROFILES
29	C -	14	YARD PIPING SECTIONS AND DETAILS
30	C -	15	YARD PIPING DETAILS
31	C -	16	PLAN AND PROFILE - PRIMARY EFFLUENT PIPELINE TO PONDS
32	C -	17	PLAN AND PROFILE - PRIMARY EFFLUENT PIPELINE TO PONDS
33	C -	18	PLAN AND PROFILE - PRIMARY EFFLUENT PIPELINE TO PONDS
34	C -	19	PLAN AND PROFILE - PRIMARY EFFLUENT PIPELINE TO PONDS
35	C -	20	PLAN AND PROFILE - PRIMARY EFFLUENT PIPELINE TO PONDS
36	C -	21	PAVING AND GRADING PLAN - AREA 1
37	C -	22	PAVING AND GRADING PLAN - AREA 2
38	C -	23	PAVING AND GRADING PLAN - AREA 3
39	C -	24	PAVING AND GRADING PLAN - AREA 4
40	C -	25	PAVEMENT SECTIONS
41	C -	26	PAVEMENT SECTIONS
42	C -	27	PAVEMENT DETAILS
43	C -	28	JUNCTION BOX BOTTOM AND TOP PLANS
44	C -	29	JUNCTION BOX SECTIONS
45	C -	30	JUNCTION BOX SECTIONS AND DETAILS
46	C -	31	MISC CIVIL STRUCTURES PLANS, SECTIONS AND DETAILS
47	C -	32	MISC CIVIL STRUCTURES PLANS, SECTIONS AND DETAILS
48	C -	33	MISC CIVIL STRUCTURES PLANS, SECTIONS AND DETAILS
49	C -	34	MISC CIVIL STRUCTURES PLANS, SECTIONS AND DETAILS
50	C -	35	MISC CIVIL STRUCTURES PLANS, SECTIONS AND DETAILS
51	A -	1	TYPICAL DETAILS - ARCHITECTURAL
52	A -	2	TYPICAL DETAILS - ARCHITECTURAL

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG	NO.	DESCRIPTION
53	A -	3	TYPICAL DETAILS - ARCHITECTURAL
54	A -	4	HEADWORKS AREA OVERALL ELEVATION
55	A -	A - 1	SCREENING HANDLING STRUCTURE ELEVATIONS
56	A -	B - 1	INFLUENT PUMP STATION ELEVATIONS
57	A -	C - 1	GRIT CHAMBER ELEVATIONS
58	A -	C - 2	GRIT HANDLING STRUCTURE ELEVATIONS
59	A -	D - 1	HEADWORKS AND PRIMARY CLARIFIER AREA ELECTRICAL BUILDING ELEVATIONS
60	A -	E - 1	SLUDGE AND GRIT PUMP GALLERY ELEVATIONS
61	A -	F - 1	PRIMARY CLARIFIER ELEVATIONS
62	A -	H - 1	SWITCHGEAR BUILDING ELEVATIONS
63	A -	J - 1	STANDBY GENERATOR BUILDING ELEVATIONS
64	A -	K - 1	UTILITY BUILDING ELEVATIONS
65	S -	1	TYPICAL DETAILS - FOUNDATION
66	S -	2	TYPICAL DETAILS - STRUCTURAL
67	S -	3	TYPICAL DETAILS - STRUCTURAL
68	S -	4	TYPICAL DETAILS - STRUCTURAL
69	S -	5	TYPICAL DETAILS - STRUCTURAL
70	S -	6	TYPICAL DETAILS - STRUCTURAL
71	S -	7	TYPICAL DETAILS - STRUCTURAL
72	S -	8	HEADWORKS AREA OVERALL PLAN
73	S -	9	PRIMARY CLARIFIER AREA OVERALL PLAN
74	S -	A - 1	SCREENS - BOTTOM PLAN
75	S -	A - 2	SCREENS - TOP PLAN AND DETAILS
76	S -	A - 3	SCREENS - SECTIONS
77	S -	A - 4	SCREENS - SECTIONS
78	S -	A - 5	SCREENS - SECTIONS AND DETAILS
79	S -	A - 6	SCREENS - DETAILS
80	S -	A - 7	SCREENING HANDLING STRUCTURE - PLAN
81	S -	A - 8	SCREENING HANDLING STRUCTURE - SECTIONS
82	S -	A - 9	SCREENING HANDLING STRUCTURE - DETAILS
83	S -	B - 1	INFLUENT PUMP STATION - BOTTOM PLAN
84	S -	B - 2	INFLUENT PUMP STATION - INTERMEDIATE PLAN
85	S -	B - 3	INFLUENT PUMP STATION - TOP PLAN
86	S -	B - 4	INFLUENT PUMP STATION - SECTIONS
87	S -	B - 5	INFLUENT PUMP STATION - SECTIONS AND DETAILS
88	S -	B - 6	INFLUENT PUMP STATION - DETAILS
89	S -	B - 7	INFLUENT PUMP STATION - DETAILS
90	S -	C - 1	GRIT CHAMBERS - BOTTOM PLANS
91	S -	C - 2	GRIT CHAMBERS - TOP PLANS
92	S -	C - 3	GRIT CHAMBERS - SECTIONS AND DETAILS
93	S -	C - 4	GRIT CHAMBERS - DETAILS
94	S -	C - 5	GRIT CHAMBERS - DETAILS
95	S -	C - 6	GRIT HANDLING STRUCTURE - PLAN
96	S -	C - 7	GRIT HANDLING STRUCTURE - SECTIONS AND DETAILS
97	S -	C - 8	GRIT HANDLING STRUCTURE - SECTIONS AND DETAILS
98	S -	D - 1	HEADWORKS AREA ELECTRICAL BUILDING - FLOOR PLAN
99	S -	D - 2	HEADWORKS AREA ELECTRICAL BUILDING - ROOF PLAN
100	S -	D - 3	HEADWORKS AREA ELECTRICAL BUILDING - SECTIONS
101	S -	D - 4	HEADWORKS AREA ELECTRICAL BUILDING - DETAILS
102	S -	E - 1	SLUDGE AND GRIT PUMP GALLERY - BOTTOM PLAN
103	S -	E - 2	SLUDGE AND GRIT PUMP GALLERY - TOP PLAN
104	S -	E - 3	SLUDGE AND GRIT PUMP GALLERY - SECTIONS

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG NO.	DESCRIPTION
105	S - E - 4	SLUDGE AND GRIT PUMP GALLERY - SECTIONS AND DETAILS
106	S - E - 5	SLUDGE AND GRIT PUMP GALLERY - DETAILS
107	S - F - 1	PRIMARY CLARIFIERS - BOTTOM PLAN 1
108	S - F - 2	PRIMARY CLARIFIERS - BOTTOM PLAN 2
109	S - F - 3	PRIMARY CLARIFIERS - TOP PLAN 1
110	S - F - 4	PRIMARY CLARIFIERS - TOP PLAN 2
111	S - F - 5	PRIMARY CLARIFIERS - SECTIONS
112	S - F - 6	PRIMARY CLARIFIERS - SECTIONS
113	S - F - 7	PRIMARY CLARIFIERS - SECTIONS
114	S - F - 8	PRIMARY CLARIFIERS - SECTIONS AND DETAILS
115	S - F - 9	PRIMARY CLARIFIERS - SECTIONS AND DETAILS
116	S - F - 10	PRIMARY CLARIFIERS - DETAILS
117	S - F - 11	PRIMARY CLARIFIERS - DETAILS
118	S - F - 12	PRIMARY CLARIFIERS - DETAILS
119	S - G - 1	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY PLAN
120	S - G - 2	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY SECTIONS
121	S - G - 3	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY SECTIONS & DETAILS
122	S - G - 4	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY DETAILS
123	S - H - 1	SWITCHGEAR BUILDING FLOOR PLAN
124	S - H - 2	SWITCHGEAR BUILDING ROOF PLAN
125	S - H - 3	SWITCHGEAR BUILDING SECTIONS
126	S - H - 4	SWITCHGEAR BUILDING DETAILS
127	S - J - 1	STANDBY GENERATOR BUILDING FLOOR PLAN
128	S - J - 2	STANDBY GENERATOR BUILDING ROOF PLAN
129	S - J - 3	STANDBY GENERATOR BUILDING SECTIONS
130	S - J - 4	STANDBY GENERATOR BUILDING DETAILS
131	S - K - 1	UTILITY BUILDING FLOOR PLAN
132	S - K - 2	UTILITY BUILDING ROOF PLAN
133	S - K - 3	UTILITY BUILDING SECTIONS
134	S - K - 4	UTILITY BUILDING DETAILS
135	M - 1	TYPICAL DETAILS - MECHANICAL
136	M - 2	TYPICAL DETAILS - MECHANICAL
137	M - 3	TYPICAL DETAILS - MECHANICAL
138	M - 4	TYPICAL DETAILS - MECHANICAL
139	M - 5	TYPICAL DETAILS - HVAC
140	M - 6	TYPICAL DETAILS - HVAC
141	M - 7	TYPICAL DETAILS - HVAC
142	M - 8	TYPICAL DETAILS - PIPING
143	M - 9	TYPICAL DETAILS - PIPING
144	M - 10	TYPICAL DETAILS - PIPING
145	M - 11	TYPICAL DETAILS - PIPING
146	M - 12	TYPICAL DETAILS - PIPING
147	M - 12	TYPICAL DETAILS - PIPING
148	M - 13	TYPICAL DETAILS - PIPING
149	M - 14	TYPICAL DETAILS - PIPING SCHEDULE
150	M - 15	TYPICAL DETAILS - EQUIPMENT SCHEDULES
151	M - 16	TYPICAL DETAILS - EQUIPMENT SCHEDULES
152	M - A - 1	SCREENS - BOTTOM PLAN
153	M - A - 2	SCREENS - TOP PLAN AND DETAILS
154	M - A - 3	SCREENS - SECTIONS
155	M - A - 4	SCREENS - DETAILS
156	M - A - 5	SCREENING HANDLING STRUCTURE - PLAN

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG	NO.	DESCRIPTION
157	M -	A - 6	SCREENING HANDLING STRUCTURE - SECTIONS AND DETAILS
158	M -	B - 1	INFLUENT PUMP STATION - BOTTOM PLAN
159	M -	B - 2	INFLUENT PUMP STATION - INTERMEDIATE PLAN
160	M -	B - 3	INFLUENT PUMP STATION - TOP PLAN
161	M -	B - 4	INFLUENT PUMP STATION - SECTIONS
162	M -	B - 5	INFLUENT PUMP STATION - DETAILS
163	M -	C - 1	GRIT CHAMBERS - BOTTOM PLANS
164	M -	C - 2	GRIT CHAMBERS - TOP PLANS
165	M -	C - 3	GRIT CHAMBERS - SECTIONS AND DETAILS
166	M -	C - 4	GRIT CHAMBERS - DETAILS
167	M -	C - 5	GRIT HANDLING STRUCTURE - PLAN
168	M -	C - 6	GRIT HANDLING STRUCTURE - SECTIONS AND DETAILS
169	M -	D - 1	HEADWORKS AREA ELECTRICAL BUILDING - HVAC PLAN
170	M -	D - 2	HEADWORKS AREA ELECTRICAL BUILDING - HVAC DETAILS
171	M -	E - 1	SLUDGE AND GRIT PUMP GALLERY - BOTTOM PLAN
172	M -	E - 2	SLUDGE AND GRIT PUMP GALLERY - TOP PLAN
173	M -	E - 3	SLUDGE AND GRIT PUMP GALLERY - SECTIONS
174	M -	E - 4	SLUDGE AND GRIT PUMP GALLERY - DETAILS
175	M -	F - 1	PRIMARY CLARIFIERS - BOTTOM PLAN
176	M -	F - 2	PRIMARY CLARIFIERS - TOP PLAN
177	M -	F - 3	PRIMARY CLARIFIERS - SECTIONS
178	M -	F - 4	PRIMARY CLARIFIERS - SECTIONS AND DETAILS
179	M -	F - 5	PRIMARY CLARIFIERS - DETAILS
180	M -	G - 1	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY PLAN
181	M -	G - 2	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY SECTIONS
182	M -	G - 3	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY DETAILS
183	M -	H - 1	SWITCHGEAR ELECTRICAL BUILDING - HVAC PLAN
184	M -	H - 2	SWITCHGEAR ELECTRICAL BUILDING - HVAC DETAILS
185	M -	J - 1	STANDBY GENERATOR BUILDING - MECHANICAL PLAN
186	M -	J - 2	STANDBY GENERATOR BUILDING - MECHANICAL SECTIONS
187	M -	J - 3	STANDBY GENERATOR BUILDING - MECHANICAL DETAILS
188	M -	J - 4	STANDBY GENERATOR BUILDING - MECHANICAL FUEL SCHEMATICS
189	M -	K - 1	MECHANICAL - UTILITY BUILDING FLOOR PLAN
190	M -	K - 2	MECHANICAL - UTILITY BUILDING HOT WATER LOOP PUMP SECTIONS
191	M -	K - 3	MECHANICAL - UTILITY BUILDING HOT WATER LOOP PUMP SECTIONS/DETAILS
192	M -	K - 4	MECHANICAL - UTILITY BUILDING BOILER AREA SECTIONS
193	M -	K - 5	MECHANICAL - UTILITY BUILDING BOILER AREA DETAILS
194	M -	K - 6	MECHANICAL - UTILITY BUILDING PLANT AIR SECTIONS
195	M -	K - 7	MECHANICAL - UTILITY BUILDING PLANT AIR DETAILS
196	E-	1	ELECTRICAL - LEGEND AND NOTES
197	E-	2	ELECTRICAL - SITE PLAN AND SITE LIGHTING - AREA 1
198	E-	3	ELECTRICAL - SITE PLAN AND SITE LIGHTING - AREA 2
199	E-	4	ELECTRICAL - SITE PLAN AND SITE LIGHTING - AREA 3
200	E-	5	ELECTRICAL - SITE PLAN AND SITE LIGHTING - AREA 4
201	E-	6	ELECTRICAL - MAIN SINGLE LINE DIAGRAM - DEMOLITION
202	E-	7	ELECTRICAL - MAIN SINGLE LINE DIAGRAM - MODIFICATIONS
203	E-	8	ELECTRICAL - SINGLE LINE DIAGRAM - HEADWORKS AREA SUBSTATION
204	E-	9	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-A
205	E-	10	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-B
206	E-	11	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-C
207	E-	12	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-E
208	E-	13	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-F

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG	NO.	DESCRIPTION
209	E-	14	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-G
210	E-	15	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-I
211	E-	16	ELECTRICAL - SINGLE LINE DIAGRAM - MCC-J
212	E-	17	ELECTRICAL - SINGLE LINE DIAGRAM - MCC - A - MODIFICATIONS
213	E-	18	ELECTRICAL - SWITCHGEAR ELEVATIONS
214	E-	19	ELECTRICAL - MOTOR CONTROL CENTER ELEVATIONS
215	E-	20	ELECTRICAL - MOTOR CONTROL CENTER ELEVATIONS
216	E-	21	ELECTRICAL - MOTOR CONTROL CENTER ELEVATIONS
217	E-	22	ELECTRICAL - MOTOR CONTROL CENTER ELEVATIONS
218	E-	23	ELECTRICAL - PANELBOARD AND LIGHTING FIXTURE SCHEDULES
219	E-	24	ELECTRICAL - DUCTBANK SCHEDULE
220	E-	25	ELECTRICAL - DUCTBANK SCHEDULE
221	E-	26	ELECTRICAL - RACEWAY SCHEDULE
222	E-	27	ELECTRICAL - RACEWAY SCHEDULE
223	E-	28	TYPICAL DETAILS - ELECTRICAL
224	E-	29	TYPICAL DETAILS - ELECTRICAL
225	E-	30	TYPICAL DETAILS - ELECTRICAL
226	E-	31	TYPICAL DETAILS - ELECTRICAL
227	E-	32	TYPICAL DETAILS - ELECTRICAL
228	E-	33	TYPICAL DETAILS - ELECTRICAL
229	E-	34	TYPICAL DETAILS - ELECTRICAL
230	E-	35	TYPICAL DETAILS - ELECTRICAL
231	E-	36	TYPICAL DETAILS - ELECTRICAL
232	E-	37	ELECTRICAL SCHEMATICS
233	E-	38	ELECTRICAL SCHEMATICS
234	E-	39	ELECTRICAL SCHEMATICS
235	E-	40	ELECTRICAL SCHEMATICS
236	E-	41	ELECTRICAL SCHEMATICS
237	E-	42	ELECTRICAL SCHEMATICS
238	E-	43	ELECTRICAL SCHEMATICS
239	E-	44	ELECTRICAL SCHEMATICS
240	E-	A - 1	SCREENS - POWER PLAN
241	E-	A - 2	SCREENS - LIGHTING PLAN
242	E-	A - 3	SCREENS - ELECTRICAL DETAILS
243	E-	A - 4	SCREENS - DETAILS
244	E-	A - 5	SCREENING HANDLING STRUCTURE - POWER PLAN
245	E-	A - 6	SCREENING HANDLING STRUCTURE - LIGHTING AND GROUNDING PLAN
246	E-	B - 1	INFLUENT PUMP STATION - LOWER POWER PLAN
247	E-	B - 2	INFLUENT PUMP STATION - LOWER LIGHTING PLAN
248	E-	B - 3	INFLUENT PUMP STATION - UPPER POWER PLAN
249	E-	B - 4	INFLUENT PUMP STATION - UPPER LIGHTING PLAN
250	E-	B - 5	INFLUENT PUMP STATION - ELECTRICAL DETAILS
251	E-	C - 1	GRIT CHAMBERS - POWER PLAN
252	E-	C - 2	GRIT CHAMBERS - LIGHTING AND GROUNDING PLANS
253	E-	C - 3	GRIT CHAMBERS - ELECTRICAL DETAILS
254	E-	C - 4	GRIT CHAMBERS - DETAILS
255	E-	C - 5	GRIT HANDLING STRUCTURE - PLAN
256	E-	C - 6	GRIT HANDLING STRUCTURE - SECTIONS AND DETAILS
257	E-	D - 1	HEADWORKS AREA ELECTRICAL BUILDING - POWER PLAN
258	E-	D - 2	HEADWORKS AREA ELECTRICAL BUILDING -LIGHTING AND GROUNDING PLAN
259	E-	E - 1	SLUDGE AND GRIT PUMP GALLERY - POWER PLAN
260	E-	E - 2	SLUDGE AND GRIT PUMP GALLERY - LIGHTING AND POWER PLAN

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG	NO.	DESCRIPTION
261	E-	E - 3	SLUDGE AND GRIT PUMP GALLERY - ELECTRICAL DETAILS
262	E-	E - 4	SLUDGE AND GRIT PUMP GALLERY - DETAILS
263	E-	F - 1	PRIMARY CLARIFIERS - POWER PLAN
264	E-	F - 2	PRIMARY CLARIFIERS - LIGHTING PLAN
265	E-	F - 3	PRIMARY CLARIFIERS - ELECTRICAL DETAILS
266	E-	F - 4	PRIMARY CLARIFIERS - SECTIONS AND DETAILS
267	E-	G - 1	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING POWER PLAN
268	E-	G - 2	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY LIGHTING AND GROU
269	E-	G - 3	PRIMARY CLARIFIER CHEMICAL STORAGE AND METERING FACILITY DETAILS
270	E-	H - 1	SWITCHGEAR BUILDING - POWER PLAN
271	E-	H - 2	SWITCHGEAR BUILDING - LIGHTING AND GROUNDING PLAN
272	E-	J - 1	STANDBY GENERATOR BUILDING - POWER PLAN
273	E-	J - 2	STANDBY GENERATOR BUILDING - LIGHTING AND GROUNDING PLAN
274	E-	J - 3	STANDBY GENERATOR BUILDING - BLOCK DIAGRAM
275	E-	K - 1	UTILITY BUILDING - POWER PLAN
276	E-	K - 2	UTILITY BUILDING - LIGHTING AND GROUNDING PLAN
277	E-	K - 3	UTILITY BUILDING - BLOCK DIAGRAM
278	I -	1	INSTRUMENTATION - LEGEND AND NOTES
279	I -	2	INSTRUMENTATION - INSTRUMENT SYMBOLS
280	I -	3	INSTRUMENTATION - TYPICAL DETAILS
281	I -	4	INSTRUMENTATION - TYPICAL DETAILS
282	I -	5	INSTRUMENTATION - TYPICAL DETAILS
283	I -	6	INSTRUMENTATION - TYPICAL DETAILS
284	I -	7	INSTRUMENTATION - TYPICAL DETAILS
285	I -	8	INSTRUMENTATION - TYPICAL DETAILS
286	I -	9	INSTRUMENTATION - TYPICAL DETAILS
287	I -	10	INSTRUMENTATION - SCADA BLOCK DIAGRAM
288	I -	11	INSTRUMENTATION - PLC CABINET ELEVATION
289	I -	12	INSTRUMENTATION - EXISTING PLC CABINET MODIFICATION
290	I -	13	INSTRUMENTATION - INSTRUMENT INSTALLATION DETAILS
291	I -	14	INSTRUMENTATION - INSTRUMENT INSTALLATION DETAILS
292	I -	15	INSTRUMENTATION - TYPICAL LOOP DIAGRAMS & DETAILS
293	I -	A - 1	INSTRUMENTATION - P&ID - FLOW SPLITTING/MEASUREMENT 1
294	I -	A - 2	INSTRUMENTATION - P&ID - FLOW SPLITTING/MEASUREMENT 2
295	I -	A - 3	INSTRUMENTATION - P&ID - INFLUENT SCREENING 1
296	I -	A - 4	INSTRUMENTATION - P&ID - INFLUENT SCREENING 2
297	I -	A - 5	INSTRUMENTATION - P&ID - SCREENING CONVEYANCE 1
298	I -	A - 6	INSTRUMENTATION - P&ID - SCREENING CONVEYANCE 2
299	I -	A - 7	INSTRUMENTATION - P&ID - WASHER COMPACTORS
300	I -	B - 1	INSTRUMENTATION - P&ID - INFLUENT PUMP STATION 1
301	I -	B - 2	INSTRUMENTATION - P&ID - INFLUENT PUMP STATION 2
302	I -	B - 3	INSTRUMENTATION - P&ID - INFLUENT PUMP STATION 3
303	I -	B - 4	INSTRUMENTATION - P&ID - INFLUENT PUMP STATION 4
304	I -	B - 5	INSTRUMENTATION - P&ID - INFLUENT PUMP STATION 5
305	I -	C - 1	INSTRUMENTATION - P&ID - GRIT SEPARATION 1
306	I -	C - 2	INSTRUMENTATION - P&ID - GRIT SEPARATION 2
307	I -	C - 3	INSTRUMENTATION - P&ID - GRIT SEPARATION 3
308	I -	C - 4	INSTRUMENTATION - P&ID - GRIT CLASSIFYING 1
309	I -	C - 5	INSTRUMENTATION - P&ID - GRIT CLASSIFYING 1
310	I -	D - 1	INSTRUMENTATION - P&ID - ELECTRICAL ROOM SYSTEMS
311	I -	E - 1	INSTRUMENTATION - P&ID - GRIT PUMPING 1
312	I -	E - 2	INSTRUMENTATION - P&ID - GRIT PUMPING 2

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG	NO.	DESCRIPTION
313	I -	E - 3	INSTRUMENTATION - P&ID - GRIT PUMPING 3
314	I -	E - 4	INSTRUMENTATION - P&ID - GRIT PUMPING 4
315	I -	E - 5	INSTRUMENTATION - P&ID - PRIMARY SLUDGE PUMPING 1
316	I -	E - 6	INSTRUMENTATION - P&ID - PRIMARY SLUDGE PUMPING 2
317	I -	E - 7	INSTRUMENTATION - P&ID - PRIMARY SLUDGE PUMPING 3
318	I -	E - 8	INSTRUMENTATION - P&ID - PRIMARY SCUM PUMPING 1
319	I -	F - 1	INSTRUMENTATION - P&ID - PRIMARY CLARIFICATION 1
320	I -	F - 2	INSTRUMENTATION - P&ID - PRIMARY CLARIFICATION 2
321	I -	F - 3	INSTRUMENTATION - P&ID - PRIMARY CLARIFICATION 3
322	I -	F - 4	INSTRUMENTATION - P&ID - PRIMARY CLARIFICATION 4
323	I -	F - 5	INSTRUMENTATION - P&ID - PRIMARY CLARIFICATION 5
324	I -	F - 6	INSTRUMENTATION - P&ID - PRIMARY CLARIFICATION 6
325	I -	G - 1	INSTRUMENTATION - P&ID - PRIMARY CHEMICAL STORAGE 1
326	I -	G - 2	INSTRUMENTATION - P&ID - PRIMARY CHEMICAL STORAGE 2
327	I -	G - 3	INSTRUMENTATION - P&ID - PRIMARY CHEMICAL METERING 1
328	I -	G - 4	INSTRUMENTATION - P&ID - PRIMARY CHEMICAL METERING 2
329	I -	G - 5	INSTRUMENTATION - P&ID - PRIMARY CHEMICAL METERING 3
330	I -	G - 6	INSTRUMENTATION - P&ID - PRIMARY CHEMICAL METERING 4
331	I -	G - 7	INSTRUMENTATION - P&ID - PRIMARY CHEMICAL METERING 5
332	I -	H - 1	INSTRUMENTATION - P&ID - SWITCHGEAR ROOM SYSTEMS
333	I -	J - 1	INSTRUMENTATION - P&ID - STANDBY GENERATOR 1
334	I -	J - 2	INSTRUMENTATION - P&ID - STANDBY GENERATOR 2
335	I -	J - 3	INSTRUMENTATION - P&ID - GENERATOR FUELING SYSTEM
336	I -	K - 1	INSTRUMENTATION - P&ID - HOT WATER LOOP PUMP 1
337	I -	K - 2	INSTRUMENTATION - P&ID - HOT WATER LOOP PUMP 2
338	I -	K - 3	INSTRUMENTATION - P&ID - HOT WATER BOILER
339	I -	K - 4	INSTRUMENTATION - P&ID - PLANT AIR 1
340	I -	K - 5	INSTRUMENTATION - P&ID - PLANT AIR 2

Preliminary List of Drawings

City of Sunnyvale

Primary Treatment Facilities Design

Package 3 - Demolition and Site Restoration

No.	Sheet No.	Drawing Description
General		
1	G1	Drawing Index
2	G2	Standard Abbreviations
3	G3	Site Plan
4	G4	Environmental Conditions Site Plan
5	G5	Environmental Conditions Site Plan - 2
6	G6	Environmental Conditions Site Plan - 3
7	G7	Construction Staging and Access Plan
Demolition		
8	D1	Demolition Overall Plan
9	D2	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Plan
10	D3	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Section I
11	D4	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Section II
12	D5	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Section III
13	D6	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Section IV
14	D7	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Details I
15	D8	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Details II
16	D9	Demolition Primary Sed/Aerated Grit Basins 1 - 3 Details III
17	D10	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Plan
18	D11	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Section I
19	D12	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Section II
20	D13	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Section III
21	D14	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Section IV
22	D15	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Details I
23	D16	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Details II
24	D17	Demolition Primary Sed/Aerated Grit Basins 4 - 6 Details III
25	D18	Demolition Primary Sed/Aerated Grit Basins 7 -10 Plan
26	D19	Demolition Primary Sed/Aerated Grit Basins 7 -10 Section I
27	D20	Demolition Primary Sed/Aerated Grit Basins 7 -10 Section II
28	D21	Demolition Primary Sed/Aerated Grit Basins 7 -10 Section III
29	D22	Demolition Primary Sed/Aerated Grit Basins 7 -10 Section IV
30	D23	Demolition Primary Sed/Aerated Grit Basins 7 -10 Details I
31	D24	Demolition Primary Sed/Aerated Grit Basins 7 -10 Details II
32	D25	Demolition Primary Sed/Aerated Grit Basins 7 -10 Details III

33	D26	Demolition Auxilary Pump Station Plan
34	D27	Demolition Auxilary Pump Station Sections and Details I
35	D28	Demolition Auxilary Pump Station Section and Details II
36	D29	Demolition Switchgear Building Plan
37	D30	Demolition Switchgear Building Section and Details I
38	D31	Demolition Switchgear BuildingSection and Details II
39	D32	Demolition Primary Control Building Lower Plan
40	D33	Demolition Primary Control Building Upper Plan
41	D34	Demolition Primary Control Building Section I
42	D35	Demolition Primary Control Building Section II
43	D36	Demolition Primary Control Building Details I
44	D37	Demolition Primary Control Building Details II
45	D38	Demolition Overall Yard Piping Plan
46	D39	Demolition Yard Piping Plan Details I
47	D40	Demolition Yard Piping Details II
Civil/Landscaping		
48	C1	Standard Details
49	C2	Standard Details
50	C3	Standard Details
51	C4	Overall Piping Plan
52	C5	Yard Piping Plan I
53	C6	Yard Piping Plan II
54	C7	Grading and Paving Plan I
55	C8	Grading and Paving Plan II
56	C9	Grading and Paving Plan III
57	C10	Overall Landscaping Plan
58	C11	Landscaping Plan I
59	C12	Landscaping Plan II
60	C13	Landscaping Sections and Details I
61	C14	Landscaping Sections and Details II
62	C15	Overall Irrigation Plan I
63	C16	Overall Irrigation Plan II
64	C17	Overall Irrigation Plan III
65	C18	Irrigation Details I
66	C19	Irrigation Details II

CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG NO.	DESCRIPTION
OPTIONAL TASK - ODOR CONTROL		
1	S - I - 1	ODOR CONTROL AREA - FOUNDATION PLAN
2	S - I - 2	ODOR CONTROL AREA - SECTIONS
3	S - I - 3	ODOR CONTROL AREA - SECTIONS
4	S - I - 4	ODOR CONTROL AREA - SECTIONS AND DETAILS
5	S - I - 5	ODOR CONTROL AREA - DETAILS
6	M - I - 1	ODOR CONTROL AREA - PLAN
7	M - I - 2	ODOR CONTROL AREA - SCHEMATIC
8	M - I - 3	ODOR CONTROL AREA - SECTIONS
9	M - I - 4	ODOR CONTROL AREA - SECTIONS
10	M - I - 5	ODOR CONTROL AREA - SECTIONS AND DETAILS
11	M - I - 6	ODOR CONTROL AREA - DETAILS
12	E- I - 1	ODOR CONTROL AREA - POWER PLAN
13	E- I - 2	ODOR CONTROL AREA - LIGHTING AND GROUNDING PLAN
14	E- I - 3	ODOR CONTROL AREA - SECTIONS
15	I - I - 1	INSTRUMENTATION - P&ID - ODOR CONTROL 1
16	I - I - 2	INSTRUMENTATION - P&ID - ODOR CONTROL 2
17	I - I - 3	INSTRUMENTATION - P&ID - ODOR CONTROL 3
OPTIONAL TASK - SITE WASTE PUMP STATION		
18	S - B - 1	SITE WASTE PUMP STATION - BOTTOM AND TOP PLANS
19	S - B - 2	SITE WASTE PUMP STATION - SECTIONS
20	S - B - 3	SITE WASTE PUMP STATION - SECTIONS AND DETAILS
21	S - B - 4	SITE WASTE PUMP STATION - DETAILS
22	M - B - 1	SITE WASTE PUMP STATION - PLAN AND SECTIONS
23	M - B - 2	SITE WASTE PUMP STATION - SECTIONS AND DETAILS
24	M - B - 3	SITE WASTE PUMP STATION - DETAILS
25	M - B - 4	SITE WASTE PUMP STATION - DETAILS
26	E- B - 1	SITE WASTE PUMP STATION - SINGLE LINE/SCHEMATICS
27	E- B - 2	SITE WASTE PUMP STATION - POWER AND CONTROL PLAN
28	E- B - 3	SITE WASTE PUMP STATION - LIGHTING AND GROUNDING PLAN
29	I - B - 1	INSTRUMENTATION - P&ID - SITE WASTE PUMP STATION 1
30	I - B - 2	INSTRUMENTATION - P&ID - SITE WASTE PUMP STATION 2
OPTIONAL TASK - PRIMARY EFFLUENT FINE SCREENING FACILITY		
31	S - L - 1	PRIMARY EFF FINE SCREENING FACILITY - BOTTOM PLAN
32	S - L - 2	PRIMARY EFF FINE SCREENING FACILITY - TOP PLAN
33	S - L - 3	PRIMARY EFF FINE SCREENING FACILITY - SECTIONS
34	S - L - 4	PRIMARY EFF FINE SCREENING FACILITY - SECTIONS AND DETAILS
35	S - L - 5	PRIMARY EFF FINE SCREENING FACILITY - DETAILS
36	S - L - 6	PRIMARY EFF FINE SCREENING FACILITY - DETAILS
35	M - L - 1	PRIMARY EFF FINE SCREENING FACILITY - PLAN
36	M - L - 2	PRIMARY EFF FINE SCREENING FACILITY - SECTIONS
37	M - L - 3	PRIMARY EFF FINE SCREENING FACILITY - SECTIONS AND DETAILS

CITY OF SUNNYVALE
Head works and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG	NO.	DESCRIPTION
38	M -	L - 4	PRIMARY EFF FINE SCREENING FACILITY - SECTIONS AND DETAILS
39	M -	L - 5	PRIMARY EFF FINE SCREENING FACILITY - DETAILS
40	M -	L - 6	PRIMARY EFF FINE SCREENING FACILITY - DETAILS
41	E-	L - 1	PRIMARY EFF FINE SCREENING FACILITY - SINGLE LINE
42	E-	L - 2	PRIMARY EFF FINE SCREENING FACILITY - SCHEMATICS
43	E-	L - 3	PRIMARY EFF FINE SCREENING FACILITY - POWER & CONTROL PLAN
44	E-	L - 4	PRIMARY EFF FINE SCREENING FACILITY - LIGHTING AND GROUNDING PLAN
45	I -	L - 1	INSTRUMENTATION - P&ID - PRIMARY EFF FINE SCRN FACILITY 1
46	I -	L - 2	INSTRUMENTATION - P&ID - PRIMARY EFF FINE SCRN FACILITY 2
47	I -	L - 3	INSTRUMENTATION - P&ID - PRIMARY EFF FINE SCRN FACILITY 3
OPTIONAL TASK - PRIMARY SLUDGE THICKENING FACILITY			
48	S -	M - 1	PRIMARY SLUDGE THICKENING FACILITY - FLOOR PLAN
49	S -	M - 2	PRIMARY SLUDGE THICKENING FACILITY - ROOF PLAN AND SECTIONS
50	S -	M - 3	PRIMARY SLUDGE THICKENING FACILITY - SECTIONS
51	S -	M - 4	PRIMARY SLUDGE THICKENING FACILITY - SECTIONS AND DETAILS
52	S -	M - 5	PRIMARY SLUDGE THICKENING FACILITY - DETAILS
53	M -	M - 1	PRIMARY SLUDGE THICKENING FACILITY - PLAN
54	M -	M - 2	PRIMARY SLUDGE THICKENING FACILITY - SECTIONS
55	M -	M - 3	PRIMARY SLUDGE THICKENING FACILITY - SECTIONS AND DETAILS
56	M -	M - 4	PRIMARY SLUDGE THICKENING FACILITY - DETAILS
57	E-	M - 1	PRIMARY SLUDGE THICKENING FACILITY - SINGLE LINE/SCHEMATICS
58	E-	M - 2	PRIMARY SLUDGE THICKENING FACILITY - POWER AND CONTROL PLAN
59	E-	M - 3	PRIMARY SLUDGE THICKENING FACILITY - LIGHTING AND GROUNDING PLAN
60	I -	M - 1	INSTRUMENTATION - P&ID - PRIMARY SLUDGE THICKENING 1
61	I -	M - 2	INSTRUMENTATION - P&ID - PRIMARY SLUDGE THICKENING 2
62	I -	M - 3	INSTRUMENTATION - P&ID - PRIMARY SLUDGE THICKENING 3
63	I -	M - 4	INSTRUMENTATION - P&ID - PRIMARY SLUDGE THICKENING 4
OPTIONAL TASK - ACCESS ROAD TO BAY TRAILS			
64	C -	1	Title Sheet and Location Map
65	C -	2	Survey Control Diagram
66	C -	3	General Notes and Legend
67	C -	4	Typical Cross Sections
68	C -	5	Typical Cross Sections
69	C -	6	Roadway Layout Sheets
70	C -	7	Profile Sheets
71	C -	8	Construction Details
72	C -	9	Construction Details
73	C -	10	Construction Details
74	C -	11	Contour Grading Plans
75	C -	12	Drainage and Utility Plans, Profiles and Details
76	C -	13	Drainage and Utility Plans, Profiles and Details
77	C -	14	Drainage and Utility Plans, Profiles and Details
78	C -	15	Drainage and Utility Plans, Profiles and Details
79	C -	16	Traffic Handling Plans

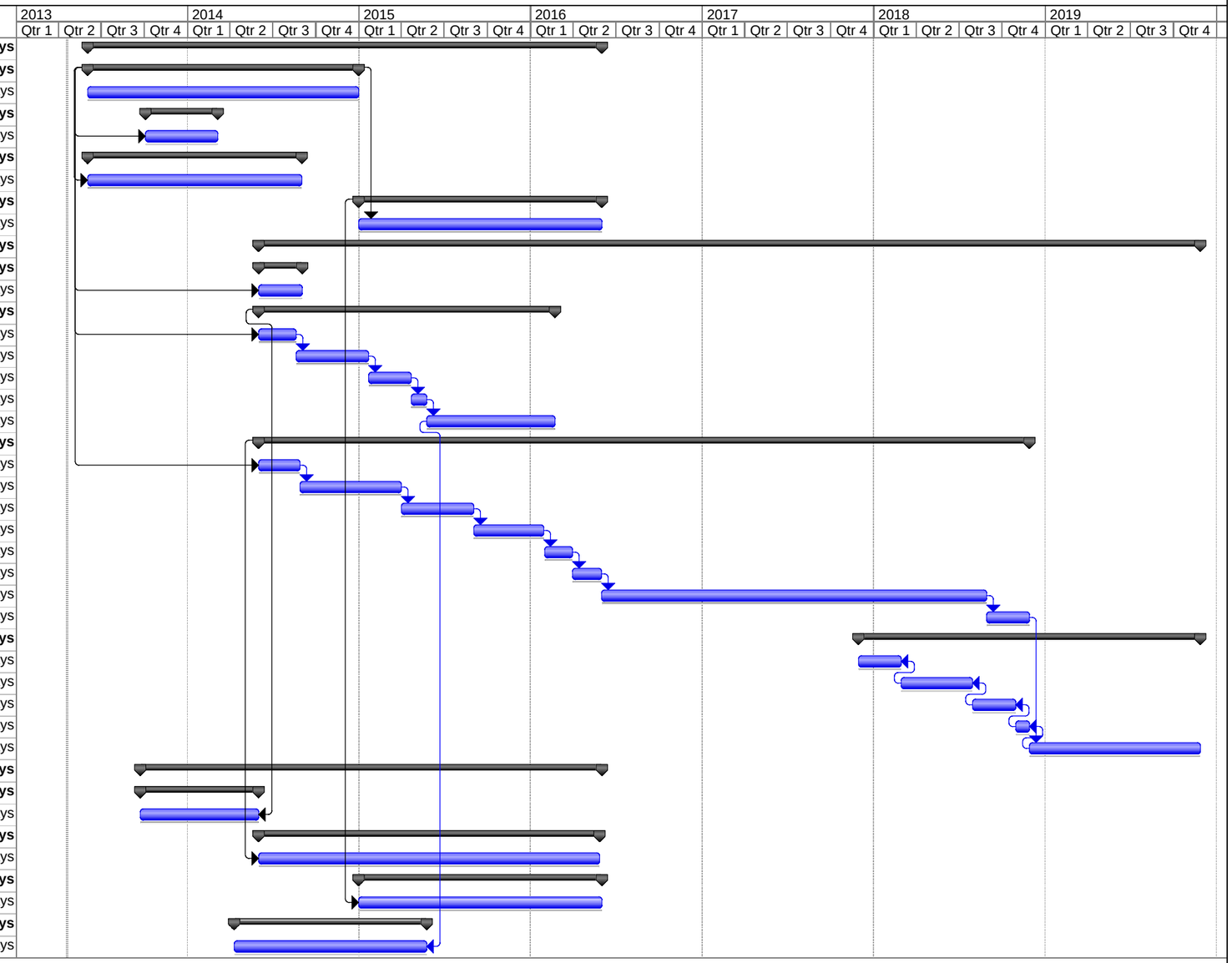
CITY OF SUNNYVALE
Headworks and Primary Treatment Design
DRAWING LIST

SHEET NO.	DWG NO.	DESCRIPTION
80	C - 17	Traffic Handling Plans
81	C - 18	Water Pollution Control Plans
82	C - 19	Water Pollution Control Plans
83	C - 20	Pavement Delineation Plans and Signs

Exhibit B

City of Sunnyvale
Master Plan and Primary Treatment Facility Design

ID	Task Name	Start	Finish	Duration
1	**Master Plan**	**Mon 6/3/13**	**Wed 6/1/16**	**783 days**
2	**Master Plan**	**Mon 6/3/13**	**Wed 12/31/14**	**413 days**
3	Treatment Process Alternatives Analysis, etc.	Mon 6/3/13	Wed 12/31/14	413 days
4	**Site Plan**	**Fri 10/4/13**	**Thu 3/6/14**	**110 days**
5	Geotech, Soil Contamination Survey, etc.	Fri 10/4/13	Thu 3/6/14	110 days
6	**Standards**	**Mon 6/3/13**	**Mon 9/1/14**	**326 days**
7	Design Standards, etc.	Mon 6/3/13	Mon 9/1/14	326 days
8	**CEQA - Programmatic EIR**	**Thu 1/1/15**	**Wed 6/1/16**	**370 days**
9	NOP, IS, MMRP, Final PEIR	Thu 1/1/15	Wed 6/1/16	370 days
10	**Design & Construction**	**Mon 6/2/14**	**Wed 11/27/19**	**1433 days**
11	**CEQA Strategy Determination**	**Mon 6/2/14**	**Tue 9/2/14**	**67 days**
12	Prepare and File Notice of Exemption	Mon 6/2/14	Tue 9/2/14	67 days
13	**Bid Package No. 1**	**Mon 6/2/14**	**Mon 2/22/16**	**451 days**
14	30% Preliminary Design	Mon 6/2/14	Wed 8/20/14	58 days
15	60% Design Development	Thu 8/21/14	Wed 1/21/15	110 days
16	100% Design	Thu 1/22/15	Wed 4/22/15	65 days
17	Final Bid Package	Thu 4/23/15	Mon 5/25/15	23 days
18	Construction/ESDC	Tue 5/26/15	Mon 2/22/16	195 days
19	**Bid Package No. 2**	**Mon 6/2/14**	**Wed 11/28/18**	**1173 days**
20	15% Conceptual Design	Mon 6/2/14	Thu 8/28/14	64 days
21	30% Preliminary Design	Fri 8/29/14	Wed 4/1/15	154 days
22	60% Design Development	Thu 4/2/15	Wed 9/2/15	110 days
23	90% Design	Thu 9/3/15	Fri 1/29/16	107 days
24	100% Design	Mon 2/1/16	Wed 3/30/16	43 days
25	Final Bid Package	Thu 3/31/16	Tue 5/31/16	44 days
26	Construction/ESDC	Wed 6/1/16	Wed 8/29/18	586 days
27	Startup/Commissioning/ESDC	Thu 8/30/18	Wed 11/28/18	65 days
28	**Bid Package No. 3**	**Thu 11/30/17**	**Wed 11/27/19**	**520 days**
29	30% Preliminary Design	Thu 11/30/17	Thu 3/1/18	65 days
30	60% Design Development	Thu 3/1/18	Tue 7/31/18	108 days
31	90% Design	Tue 7/31/18	Wed 10/31/18	66 days
32	Final Bid Package	Wed 10/31/18	Thu 11/29/18	21 days
33	Construction/ESDC	Thu 11/29/18	Wed 11/27/19	260 days
34	**Additional Support Services**	**Mon 9/23/13**	**Wed 6/1/16**	**703 days**
35	**Planning**	**Mon 9/23/13**	**Mon 6/2/14**	**180 days**
36	Odor Sampling, Grit, Site Response, CEPT Support	Mon 9/23/13	Mon 6/2/14	180 days
37	**Design**	**Mon 6/2/14**	**Fri 5/27/16**	**520 days**
38	Odor, RDT, Site Waste PS, Microscreen, Access Road	Mon 6/2/14	Fri 5/27/16	520 days
39	**Programmatic EIR Support**	**Thu 1/1/15**	**Wed 6/1/16**	**370 days**
40	Programmatic EIR Support	Thu 1/1/15	Wed 6/1/16	370 days
41	**Focused EIR**	**Fri 4/11/14**	**Tue 5/26/15**	**292 days**
42	Draft EIR, Public Meetings, Responses to Comments, etc.	Fri 4/11/14	Tue 5/26/15	292 days



Project: Schedule for Escalation Estim
Date: Fri 4/19/13

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

Exhibit C - Compensation Schedule

Sunnyvale WPCP Master Plan and Primary Treatment Facility **Date: 4/23/2013**

Summary of Fee Proposal - By Subtask

MASTER PLAN		Carollo Hours	HDR Hours	Other Subconsultant Hours		Total Fee (Incl. Esca.)
Task 1.0 - Pre-Design and Basis of Design Development						
Task 1.1	Review of Existing SIP Background Documents	30	0	0	$	5,820
Task 1.2	Update to SIP Flow and Load Analysis	145	0	0	$	24,355
Task 1.3	Treatment Process Alternative Analysis	1666	846	488	$	598,492
Task 1.4	CFD Process Modeling	22	512	0	$	137,620
Task 1.5	Electrical and Combined Heat and Power Plan (ECHP Plan)	168	1589	184	$	402,958
Task 1.6	Automation and Control Systems Plan (ACS Plan)	1643	96	240	$	407,028
	Task 1 - Sub Total	**3674**	**3043**	**912**	**$**	**1,576,274**
Task 2 - Implementation and Operations Planning						
Task 2.1	Program Implementation Plan	324	55	120	$	111,695
Task 2.2	Temporary Facilities	328	19	80	$	82,452
Task 2.3	Operational and Staffing Plans	236	24	40	$	67,729
Task 2.4	Program Costs Estimate	664	120	61	$	156,763
	Task 2 - Sub Total	**1552**	**218**	**301**	**$**	**418,638**
Task 3 - Project Management						
Task 3.1	Workshops (includes prep and meeting minutes - 9 total)	350	116	330	$	144,994
Task 3.2	Progress/Update Meetings (20 total)	70	50	48	$	34,852
Task 3.3	Communication plan (includes three briefings & quarterly newsletter)	114	8	0	$	23,349
Task 3.4	Master Schedule / Upates	44	20	0	$	14,357
	Task 3 - Sub Total	**578**	**194**	**378**	**$**	**217,552**
Task 4 - Deliverables for the Master Plan						
Task 4.1	Documentation Format	19	0	84	$	6,550
Task 4.2	Preliminary Design Report	39	13	0	$	7,518
	Task 4 - Sub Total	**57**	**13**	**84**	**$**	**14,068**
				TOTAL:	**$**	**2,226,532**

SITE PLAN		Carollo Hours	HDR Hours	Other Subconsultant Hours		Total Fee (Incl. Esca.)
Task 1.0 - Documentation of Existing Conditions						
Task 1.1	Land Survey and Monumentation	34	16	738	$	152,059
Task 1.2	Geotechnical Engineering Report	27	28	280	$	96,935
Task 1.3	Soil Contamination Survey, Evaluation, and Report	18	202	0	$	35,969
Task 1.4	Existing Utilities Plan	51	564	0	$	132,098
Task 1.5	Opportunities and Constraints Analysis	14	0	200	$	49,503
	Task 1 - Sub Total	**144**	**810**	**1218**	**$**	**466,565**
Task 2.0 - Support Facilities and Site Planning						
Task 2.1	Building Programming	144	62	208	$	80,496
Task 2.2	Site Layout	860	40	755	$	275,562
Task 2.3	Hydrology Report	30	219	0	$	42,033
Task 2.4	Conceptual Utilities Plan	42	344	0	$	67,774
Task 2.5	Lighting	126	48	0	$	35,750
Task 2.6	Safety and Security	28	135	0	$	29,118
Task 2.7	Landscaping (included in Task 2.1)	0	0	58	$	-
Task 2.8	Permanent Site Access (included in Task 2.2)	0	0	0	$	-
	Task 2 - Sub Total	**1230**	**848**	**1021**	**$**	**530,734**
Task 3 - Deliverables for the Site Plan						
Task 3.1	Documentation Format	19	0	0	$	6,550
Task 3.2	Preliminary Design Report	39	13	0	$	7,518
	Task 3 - Sub Total	**57**	**13**	**0**	**$**	**14,068**
Task 4 - Project Management						
Task 4.1	Workshops (includes prep and meeting minutes)	175	59	0	$	72,869
Task 4.2	Progress/Update Meetings	35	25	0	$	17,467
Task 4.3	Communication plan	57	4	0	$	11,675
Task 4.4	Master Schedule / Upates	22	10	0	$	7,179
	Task 4 - Sub Total	**289**	**98**	**0**	**$**	**109,189**
				TOTAL:	**$**	**1,120,555**

PEIR		Carollo Hours	HDR Hours	Other Subconsultant Hours		Total Fee (Incl. Esca.)
Task 1 - CEQA Compliance, Mitigation Monitoring						
Task 1.1	CEQA/NEPA Compliance Review	0	0	0	$	-
Task 1.2	Notice of Preparation (NOP) and Initial Study (IS)	8	0	184	$	33,955
Task 1.3	Alternatives Analysis Report (Effort included in Task 1.1)	4	0	80	$	12,872
Task 1.4	Public Participation Program	60	24	71	$	28,949
Task 1.5	Draft Environmental Impact Report	192	32	2653	$	558,835
Task 1.6	Attend Public Meetings and Hearings (two estimated)	50	24	96	$	54,711
Task 1.7	Prepare Reponses to Comments	104	24	769	$	178,225
Task 1.8	Prepare Mitigation and Monitoring Reporting Program (MMRP)	0	0	106	$	14,089
Task 1.9	Prepare Final PEIR	32	14	0	$	11,478
Task 1.10	Prepare Findings and Statement of Overriding Considerations	0	0	23	$	3,453
	Task 1 - Sub Total	**450**	**118**	**3982**	**$**	**896,567**
Task 2 - Deliverables for the PEIR						
Task 2.1	Documentation Format	17	0	0	$	6,383
Task 2.2	Preliminary Design Report	39	13	0	$	7,650
	Task 2 - Sub Total	**55**	**13**	**0**	**$**	**14,034**
Task 3 - Project Management						
Task 3.1	Workshops (includes prep and meeting minutes)	137	43	0	$	56,276
Task 3.2	Progress/Update Meetings	31	19	0	$	14,711
Task 3.3	Communication plan	46	3	0	$	9,617
Task 3.4	Master Schedule / Upates	18	8	0	$	5,939
	Task 3 - Sub Total	**232**	**73**	**0**	**$**	**86,543**
				TOTAL:	**$**	**997,144**

Notes:

1. Fee estimate based on current (2013) rates for Carollo, HDR, other subconsultants, and ODCs.
2. 2.5% annual escalation applied to fees from July 2015 onwards, based on an estimate of when the task will be completed.
3. This Compensation Schedule represents a fee proposal summary by subtask, and is more fully delineated in the Detailed Fee Proposal by Subtask which is incorporated by reference.

STANDARDS			Carollo Hours	HDR Hours	Other Subconsultant Hours		Total Fee (Incl. Esca.)
Task 1 - Design Standards							
Task 1	Design Standards		216	874	142	$	220,975
		Task 1 - Sub Total	**216**	**874**	**142**	$	**220,975**
Task 2 - Deliverables for the Standards							
Task 2.1	Documentation Format		19	0	0	$	6,550
Task 2.2	Preliminary Design Report		39	13	0	$	7,518
		Task 2 - Sub Total	**57**	**13**	**0**	$	**14,068**
Task 3 - Project Management							
Task 3.1	Workshops (includes prep and meeting minutes)		38	13	0	$	15,545
Task 3.2	Progress/Update Meetings		4	5	0	$	2,740
Task 3.3	Communication plan		11	1	0	$	2,223
Task 3.4	Master Schedule / Upates		4	2	0	$	1,342
		Task 3 - Sub Total	**57**	**21**	**0**	$	**21,849**
					TOTAL:	$	**256,892**

PRIMARY FACILITY - FINAL DESIGN			Carollo Hours	HDR Hours	Other Subconsultant Hours		Total Fee (Incl. Esca.)
Task 1.0 -		**Package #1 - Demolition and Site Preparation**					
Task 1.1.1	Prepare 30% Submittal		280	170	283	$	153,956
Task 1.1.2	Prepare 60% Submittal		369	269	44	$	108,479
Task 1.1.3	Prepare 100% Submittal		311	209	14	$	82,587
Task 1.2	Bidding Services		62	39	0	$	16,392
		Task 1 - Sub Total	**1022**	**687**	**341**	$	**361,415**
Task 2.0 -		**Package #2 - Headworks, Primary Tanks & Support Facilities**					
Task 2.1.1	Conceptual Design Report		559	368	216	$	217,020
Task 2.1.2	Prepare 30% Submittal		1950	948	274	$	539,152
Task 2.1.3	Prepare 60% Submittal		3350	2182	284	$	975,510
Task 2.1.4	Prepare 90% Submittal		3688	2384	282	$	1,044,384
Task 2.1.5	Prepare 100% Submittal		1752	1204	159	$	587,395
Task 2.2	Bidding Services		262	176	30	$	74,835
		Task 2- Sub Total	**11561**	**7262**	**1245**	$	**3,438,295**
Task 3.0 -		**Package #3 - Final Demolition and Site Restoration**					
Task 3.1.1	Prepare 30% Submittal		396	242	8	$	108,432
Task 3.1.2	Prepare 60% Submittal		516	376	36	$	153,633
Task 3.1.3	Prepare 100% Submittal		439	286	18	$	124,341
Task 3.2	Bidding Services		92	53	0	$	24,469
		Task 3 - Sub Total	**1443**	**957**	**62**	$	**410,875**
Task 4.0 -		**Conformed Drawings**					
Task 4.1	Prepare Conformed Drawings		404	134	0	$	95,932
		Task 4 - Sub Total	**404**	**134**	**0**	$	**95,932**
Task 5.0 -		**CEQA Strategy Determination**					
Task 5.1	CEQA Strategy Determination		128	0	94	$	42,671
		Task 5 - Sub Total	**128**	**0**	**94**	$	**42,671**
					TOTAL:	$	**4,349,187**

PRIMARY FACILITY - ESDC			Carollo Hours	HDR Hours	Other Subconsultant Hours		Total Fee (Incl. Esca.)
Task 4.1 - ESDC Package #1 - Demolition and Site Preparation							
Task 4.1.1	Respond to RFIs		41	52	90	$	35,530
Task 4.1.2	Review and respond to submittals		102	132	0	$	45,337
Task 4.1.3	Pre-Construction and Construction Meetings, and Field Inspection		111	34	0	$	27,352
Task 4.1.4	Prepare As-Built Drawings		42	40	0	$	14,159
Task 4.1.5	Review Proposed Substitutions (included in Task 4.2)		4	0	0	$	567
Task 4.1.6	Request for Quotation/ Contract Change Order		38	33	0	$	13,544
Task 4.1.7	Prepare O&M Manuals		0	0	0	$	-
Task 4.1.8	Participate in Equipment Testing, Integration, Commissioning, Startup		0	0	0	$	-
Task 4.1.9	Participate in Final Inspection		3	0	0	$	662
		Task 4.1 - Sub Total	**341**	**291**	**90**	$	**137,151**
Task 4.2 - ESDC Package #2 - Headworks, Primary Tanks & Support Facilities							
Task 4.2.1	Respond to RFIs		826	588	20	$	295,615
Task 4.2.2	Review and respond to submittals		3152	1714	16	$	931,060
Task 4.2.3	Pre-Construction and Construction Meetings, and Field Inspection		381	212	32	$	139,330
Task 4.2.4	Prepare As-Built Drawings		505	302	64	$	135,173
Task 4.2.5	Review Proposed Substitutions (included in Task 4.2)		0	0	32	$	-
Task 4.2.6	Request for Quotation/ Contract Change Order		277	133	8	$	84,897
Task 4.2.7	Prepare O&M Manuals		122	89	0	$	77,199
Task 4.2.8	Participate in Equipment Testing, Integration, Commissioning, Startup		35	32	0	$	88,161
Task 4.2.9	Participate in Final Inspection		13	0	0	$	12,302
		Task 4.2 - Sub Total	**5311**	**3070**	**172**	$	**1,763,738**
Task 4.3 - ESDC Package #3 - Final Demolition and Site Restoration							
Task 4.3.1	Respond to RFIs		78	162	20	$	51,492
Task 4.3.2	Review and respond to submittals		288	274	0	$	112,281
Task 4.3.3	Pre-Construction and Construction Meetings, and Field Inspection		61	68	0	$	30,891
Task 4.3.4	Prepare As-Built Drawings		89	53	0	$	25,225
Task 4.3.5	Review Proposed Substitutions (included in Task 4.2)		0	0	0	$	-
Task 4.3.6	Request for Quotation/ Contract Change Order		44	32	0	$	15,316
Task 4.3.7	Prepare O&M Manuals		0	4	0	$	781
Task 4.3.8	Participate in Equipment Testing, Integration, Commissioning, Startup		0	0	0	$	-
Task 4.3.9	Participate in Final Inspection		4	0	0	$	943
		Task 4.3 - Sub Total	**564**	**593**	**20**	$	**236,929**
					TOTAL:	$	**2,137,818**

Notes:

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3. This Compensation Schedule represents a fee proposal summary by subtask, and is more fully delineated in the Detailed Fee Proposal by Subtask which is incorporated by reference.

AS-NEEDED SERVICES		Carollo Hours	HDR Hours	Other Subconsultant Hours		Total Fee (Incl. Esca.)
Task 1.0 -	**Odor Sampling**					
Task 1.1	Odor Sampling	6	0	56	$	19,583
	Task 1 - Sub Total	**6**	**0**	**56**	**$**	**19,583**
Task 2.0 -	**Collection of Grit Distribution Data**					
Task 2.1	Collection of Grit Distribution Data	4	18	0	$	28,548
	Task 2- Sub Total	**4**	**18**	**0**	**$**	**28,548**
Task 3.0 -	**Site Specific Site Response Study**					
Task 3.1	Site Specific Site Response Study	12	0	170	$	33,054
	Task 3 - Sub Total	**12**	**0**	**170**	**$**	**33,054**
Task 4.0 -	**Odor Control Improvements - Headworks/Primary Sedimentation Tanks**					
Task 4.1.1	Conceptual Design Report	66	37	0	$	19,556
Task 4.1.2	Prepare 30% Submittal	99	66	0	$	37,515
Task 4.1.3	Prepare 60% Submittal	164	108	0	$	80,086
Task 4.1.4	Prepare 90% Submittal	210	139	0	$	72,883
Task 4.1.5	Prepare 100% Submittal	99	66	0	$	36,422
Task 4.2	Bidding Services	19	13	0	$	6,220
	Task 4 - Sub Total	**657**	**427**	**0**	**$**	**252,682**
Task 5.0 -	**Rotating Drum Thickener**					
Task 5.1.1	Conceptual Design Report	103	0	0	$	19,087
Task 5.1.2	Prepare 30% Submittal	154	0	0	$	28,925
Task 5.1.3	Prepare 60% Submittal	256	0	0	$	47,910
Task 5.1.4	Prepare 90% Submittal	328	0	0	$	61,336
Task 5.1.5	Prepare 100% Submittal	154	0	0	$	28,844
Task 5.2	Bidding Services	33	0	0	$	6,043
	Task 5 - Sub Total	**1028**	**0**	**0**	**$**	**192,146**
Task 6.0 -	**Site Waste Pump Station**					
Task 6.1.1	Conceptual Design Report	0	84	0	$	16,574
Task 6.1.2	Prepare 30% Submittal	0	105	0	$	20,116
Task 6.1.3	Prepare 60% Submittal	0	210	0	$	41,578
Task 6.1.4	Prepare 90% Submittal	0	267	0	$	52,752
Task 6.1.5	Prepare 100% Submittal	0	126	0	$	25,004
Task 6.2	Bidding Services	0	25	0	$	4,830
	Task 6 - Sub Total	**0**	**815**	**0**	**$**	**160,855**
Task 7.0 -	**Microscreen Facility**					
Task 7.1.1	Conceptual Design Report	114	0	0	$	21,291
Task 7.1.2	Prepare 30% Submittal	171	0	0	$	32,239
Task 7.1.3	Prepare 60% Submittal	284	0	0	$	53,427
Task 7.1.4	Prepare 90% Submittal	364	0	0	$	68,396
Task 7.1.5	Prepare 100% Submittal	171	0	0	$	32,159
Task 7.2	Bidding Services	34	0	0	$	6,375
	Task 7 - Sub Total	**1137**	**0**	**0**	**$**	**213,887**
Task 8.0 -	**New Access Road to Bay Trails**					
Task 8.1.1	Conceptual Design Report	0	66	33	$	16,753
Task 8.1.2	Prepare 30% Submittal	0	130	5	$	25,859
Task 8.1.3	Prepare 60% Submittal	0	218	6	$	43,119
Task 8.1.4	Prepare 90% Submittal	0	275	6	$	53,893
Task 8.1.5	Prepare 100% Submittal	0	130	0	$	24,745
Task 8.2	Bidding Services	0	25	2	$	5,153
	Task 8 - Sub Total	**0**	**844**	**52**	**$**	**169,523**
Task 9.0 -	**CEPT Pilot Testing Support**					
Task 9.1	CEPT Pilot Testing Support	86	0	0	$	15,294
	Task 9 - Sub Total	**86**	**0**	**0**	**$**	**15,294**
Task 10.0 -	**Programmatic EIR Support**					
Task 10.1	Preparation of Updates to Project Descriptions	21	8	0	$	6,764
Task 10.2	Review of Updated Project Descriptions	21	8	0	$	6,764
Task 10.3	Provide review of final draft EIR	21	8	0	$	6,764
Task 10.4	Provide updates to CIP as requested by City	21	7	0	$	6,478
Task 10.5	Attend Selected EIR Coordination Meetings	90	8	0	$	21,333
	Task 10 - Sub Total	**174**	**39**	**0**	**$**	**48,104**
Task 11.0 -	**Project Specific CEQA Documentation**					
Task 11.1	Preparation of a Categorical Exemption	16	0	95	$	18,770
	A. Categorical Exemption Subtotal				$	18,770
Task 11.2	Preparation of Mitigated Negative Declaration	44	6	223	$	46,062
	B. Negative Exemption Subtotal				$	46,062
Task 11.3	Full Effort for Focused EIR					
Task 11.3.1	- CEQA NEPA Strategy	0	0	0	$	-
Task 11.3.2	- Notice of Prep/Initial Study	3	4	31	$	6,466
Task 11.3.3	- Alt. Analysis Report	0	0	0	$	-
Task 11.3.4	- Public Participation Program	0	0	0	$	-
Task 11.3.5	- Draft EIR	52	33	515	$	100,484
Task 11.3.6	- Attend Public Meetings	3	7	35	$	7,780
Task 11.3.7	- Prepare Responses to Comments	12	15	159	$	31,588
Task 11.3.8	- Prepare Mitigation/Monitoring Program	4	7	13	$	4,367
Task 11.3.9	- Prepare Final PEIR	0	0	0	$	-
Task 11.3.10	- Findings & Statement of Overriding Consid.	4	6	3	$	2,322
	C. Focused EIR Subtotal				$	153,007
	Task 11 - Sub Total (based on A, B, or C)	**78**	**72**	**756**	**$**	**217,838**

Notes:

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Exhibit C

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - Carollo

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Discipline Specialist 3	$271	Reardon, McDonald, Narayanan, Fraser, Salveson
Discipline Specialist 2	$252	Hagstrom, Demir, Morroni, Parker, Dorafsha, Gillette, Petit, Karam, Burdick, Warriner
Discipline Specialist 1	$220	Davel, Wing, Tomerlin
Engineer VIII	$212	Walker, Dadik, Kairouz
Engineer VII	$197	Wickstrom, Bourgeous, Richard
Engineer VI	$183	O'Leary
Engineer V	$168	Hook
Engineer IV	$153	TBD
Engineer III	$138	TBD
CAD Technician	$138	CAD Technician
Word Processing	$109	Word Processing
Clerical	$89	Clerical

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - HDR

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Technical Specialist 3	$275	Willey, Clark, Reardon, Neethling, Olson, Hunt
Technical Specialist 2	$255	Hammer, Gerges, Ettlich
Technical Specialist 1	$235	Holland, Roe, Tavangar
Sr. Project Engineer	$215	Smithey, Gott
Project Engineer 3	$200	O'Neil, Bower, Kontonikas
Project Engineer 2	$185	Mesbah
Project Engineer 1	$170	TBD
Staff Engineer	$155	TBD
Engineer in Training	$140	TBD
CADD Technician	$140	TBD
Project Admin/Controller	$110	TBD

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - Fugro

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Professional Staff		
Senior Principal	$260	Ron Bajuniemi, Andy Herlache
Principal	$215	Ed Woo
Associate	$190	Thaleia Travasarou, Pri Singh, Wei-Yu Chen
Senior Professional	$175	Rus Thompson, Jose Ugalde, Andrew Bro
Senior Project Professional	$160	Alfredo Fernandez, Lanka Ilankatharan, Sumee Khanna
Project Professional	$155	Vic Crosariol, Matthew Bajuniemi
Senior Staff Professional	$135	Taki Vlasakakis, Onur Kutlu, Dmitry Feldman, Uma Raju, Arash Khosravifar
Staff Professional	$120	TBD
Technical and Office Staff		
Engineering Field Technician I (Non-Prevailing Wage)	$93	TBD
Engineering Field Technician II (Non-Prevailing Wage)	$98	TBD
Engineering Field Technician III (Non-Prevailing Wage)	$103	TBD
Engineering Field Technician I, II and III (Prevailing Wage)	$108	David Eckhardt, Matt Lagerstom, Juan Ceja, Emilio Chavez
Engineering Assistant	$110	TBD
Office Assistant	$65	TBD
Word Processor/Clerical	$85	Larisa Swartz
Technical Assistant/Illustrator	$95	Bobbie Vahl
Illustrator II	$100	TBD
Laboratory Technician	$98	Ector Ceja, Andrew Bajuniemi
CADD Operator	$105	TBD
GIS Technician	$105	Cornelia Dean, Eva Von Thury
HSE Manager	$165	TBD

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - Mark Thomas & Company

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Professional and Office		
Principal/Project Manager	$150	TBD
Land Surveyor	$135	TBD
Project Surveyor	$105	TBD
Engineering/Survey/CADD Technician		TBD
Field		
Single Chief with Equipment	$160	TBD
2 Person Field Party and Vehicle	$250	TBD
Special Services		
Expert Witness	$368	TBD

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - ESA

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Senior Director - Level III	$255	TBD
Senior Director - Level II	$240	Leslie Moulton
Senior Director - Level I	$225	TBD
Director - Level III	$215	TBD
Director - Level II	$205	TBD
Director - Level I	$190	Jill Hamilton
Managing Associate - Level III	$185	TBD
Managing Associate - Level II	$170	TBD
Managing Associate - Level I	$155	TBD
Senior Associate - Level III	$150	TBD
Senior Associate - Level III	$140	TBD
Senior Associate - Level I	$130	TBD
Associate - Level III	$120	TBD
Associate - Level III	$110	TBD
Associate - Level I	$95	TBD
Project Technician - Level III	$110	TBD
Project Technician - Level III	$90	TBD
Project Technician - Level I	$75	TBD

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - Carollo Systems

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Engineers and Programmers		
Principal	$239	Jeff Martin
Senior Professional	$198	TBD
Senior Programmer III	$167	Amir Najafi
Senior Programmer II	$152	Jeff Janowiak, Bill Roberts
Senior Programmer I	$136	Mark Weston
Programmer	$120	TBD
Assistant Programmer	$103	Elise Moore (PM)
Junior Programmer	$90	Elise Moore
Drafting/Technicians		
Senior Technician	$112	TBD
Technician	$92	TBD
Support Staff		
Word Processing/Clerical	$82	Elise Moore

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - Burks Toma

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Principal	$170	Karen Burks
Project Manager	$140	Matt Gilroy
Project Architect	$120	TBD
Administrative	$65	TBD

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - DC&E

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Principal	$180	Sarah Sutton
Senior Associate	$140	TBD
Associate	$140	TBD
Planner	$85	TBD

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - Webster & Associates

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Principal	$200	Neil A. Webster
Project Manager/Senior Engineer	$176	James W. Rush, Bruce Koetter
Project Engineer	$113	James Ross
CAD Technician	$65	Chris Ellison
Word Processing	$60	Michele Willard

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

City of Sunnyvale - Master Plan and Primary Treatment Facility Design

2013 Hourly Billing Rates - Misc. Subconsultants

Category	Hourly Billing Rate	Individuals Covered By Proposed Rate
Ekster & Associates	$200	Alex Ekster
New Fields	$160	Paul Frank
BLP Associates	$205	Boris Pastushenko
David Jenkins & Associates	$250	Dr. David Jenkins
Ewing Construction Services	$140	Dave Ewing
Mizutani Environmental	$150	Courtney Mizutani

These hourly billing rates will be escalated by 2.5% effective 7/1/15 and will be escalated thereafter by 2.5% every July 1st until contract completion.

Exhibit C
Compensation for Reimbursable Expenditures/Subconsultant Markups

WPCP MP/Primary Contract

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 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.
- The maximum allowable lodging rate shall be one-hundred forty-five dollars ($145) per night, inclusive of taxes.
- The maximum allowable rate for rental car expenses, including applicable taxes, fees and fuel, shall not exceed eighty-five dollars ($85) per day (assumes rental of mid-size car).
- The maximum allowable rate for meals and incidental expenses, including applicable taxes and gratuities, shall not exceed forty dollars ($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.

Miscellaneous travel costs (i.e., bridge fares, baggage fees, parking fees and cab fare) shall be reimbursed at cost.

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

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: $2,000,000 per occurrence and $5,000,000 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 main, 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.