NAPA SANITATION DISTRICT

HAZEN AND SAWYER - TASK ORDER No. 4
WEST NAPA PUMP STATION
PROJECT (CIP 17711)

Date: _____

Issued under Professional Services Agreement dated December 14, 2015.

To: HAZEN AND SAWYER

Project Description:

WEST NAPA PUMP STATION PROJECT - Professional Design Services

Description of Scope of Services to be performed by Consultant under this Task Order:

See Exhibit 'A' – Scope of Services

Description of Services to be Provided by District:	See Exhibit 'A' –Scope of Work
Deliverables:	See Exhibit 'A' –Scope of Work
Consultant Project Manager:	Marc Solomon, PE
Consultant Quality Control Manager:	Steve Connor, PE
Schedule to Perform Services:	See Exhibit 'A' – Fee Estimate
Time & Materials Not-to-Exceed Cost Limit:	$888,723
	See Exhibit 'A' –Project Schedule

APPROVALS:

HAZEN AND SAWYER

By: _____ _____
Authorized Representative Date

NAPA SANITATION DISTRICT

By: _____ _____
Purchasing Agent Date

NSD Account No.: CIP 17711

West Napa PS Project Final Design Detailed Scope

SCOPE OF WORK

This Detailed Project Scope is to provide engineering services for the Napa Sanitation District West Napa Pump Station Rehabilitation Project. This Task Order will include the detailed design of the improvements recommended under the Preliminary Evaluation Report. Services to be provided by Hazen for the final design services include the following tasks as delineated below and expanded in greater detail in the subsequent paragraphs:

- Task No. 1 – Preliminary Design Technical Memorandum
- Task No. 2 – Field Investigations
- Task No. 3 – 50% Design Documents
- Task No. 4 – 90% Design Documents
- Task No. 5 – Final Design Documents
- Task No. 6 – Bid Package Assistance
- Task No. 7 – Bid Support Services
- Task No. 8 – Conformed Documents
- Task No. 9 – Project Management

Task 1 – PRELIMINARY DESIGN TECHNICAL MEMORANDUM

This task will further develop information from the initial alternatives analysis to finalize the pump selection and number and size of pumps for the final design, as well as evaluate options for the electrical building, solar system and odor control system. This TM will also document the mechanical, electrical and structural design criteria requirements for the pump station project. This task will therefore include the following subtasks listed below.

Subtask 1.1 Hydraulics and Pump Selection

The current capacity of the pump station is approximately 15.4 mgd with all pumps in service and approximately 11 mgd when one of the large pumps is out of service (firm capacity).

Although the unattenuated PWWF entering the station is likely greater than 15.4 mgd, the District recommends increasing the station's firm capacity to 15.4 mgd (current total capacity of the pump station) due to the anticipated PWWF reduction from the District's I/I Program.

The evaluation of the pump station will therefore include a review of the system hydraulics to determine the appropriate number and size of pumps needed to meet the firm capacity of 15.4 mgd. Additionally, the analysis will also include consideration of different number and size of pumps to achieve the required capacity of 15.4 mgd firm pump station capacity, expandable for unattenuated flow.

The Hazen team will perform detailed hydraulic work based on using the existing off-site force main and constructing a new submersible below grade single trench style wet well pump station with four (4) to six (6) pumps, attached valve vault and provisions for a future upstream grinder.

The hydraulic analysis will include the following:

- The development of existing hydraulic conditions (system curves, suction and discharge loss curves, and existing pump curves, including reduced speed curves).

- Hydraulic analysis for selection of pumps for the new pump station (system curves, suction and discharge loss curves, and proposed pump curves, including reduced speed curves). Hydraulic analysis will be performed for the following three pumping options: four (4) equally sized pumps (3 duty + 1 standby); five (5) or six (6) equally sized pumps (4 or 5 duty + 1 standby); six (6) pumps (4 equally sized large pumps and two equally sized small pumps- 3 large duty + 1 standby and 1 small duty + 1 standby)

The analysis will include pump selection, discharge pipe sizing, NPSH, reduced speed analysis and operating levels and operating strategy including low flow constant speed operation (as required).

Pump station layouts will be provided for the three pumping options outlined above. Preliminary design level mechanical top and bottom plans and section figures/drawings will be provided for each of the three pumping options.

The pump station hydraulics and selection will be summarized in the Preliminary Design TM.

Subtask 1.2 Odor Control

The Hazen team will re-evaluate the need for odor control for the recommended project and if required determine the size, location and design criteria for the new odor control facility. The team will evaluate alternatives and propose recommendations for the odor control and ventilation system. The odor control evaluation will be summarized in the Preliminary Design TM.

Subtask 1.3 Electrical Building

Under this task, Hazen will evaluate options for installing new electrical equipment (switchgear, motor control centers, variable frequency drives, controls, safety monitoring devices, etc.) in a new electrical building. Hazen will work closely with District staff to develop and implement operational and maintenance preferences as well as aesthetic requirements.

Hazen will also evaluate the existing standby power system including general assessment of the existing engine-generator unit, new loads that are to be connected to standby power source, and integration of the generator into the new power distribution system. Should it be determined that a larger capacity generator is required to support the firm capacity of the pump station, Hazen will calculate the engine-generator size and rating, fuel type, location of the unit, enclosure type and sound attenuation requirements.

Hazen will also evaluate site lighting and make recommendations to improve site lighting for the new site layout. The electrical building evaluation will be summarized in the Preliminary Design TM.

Subtask 1.4 Solar System Evaluation

The Hazen team will evaluate the solar alternatives for the recommended alternative and define the size and layout of the solar installation that can be provided at the West Napa Pump Station site. The Hazen team will also provide assistance to the District to coordinate with PG&E on the interconnection process of the new solar system. The solar system evaluation will be summarized in the Preliminary Design TM.

Subtask 1.5 Preliminary Design Reporting

The Hazen team will provide a Draft and a Final Preliminary Design TM. The draft TM will include a summary of the work described above including a revised estimate of probable cost for the recommended project. A preliminary outline for the report is shown below:

Preliminary Design TM Outline:

1. **Background and Project Description**
2. **Pump Hydraulics and Selection Analysis**
3. **Summary of Electrical Evaluation**
4. **Summary of Odor Control Evaluation**
5. **Recommendations**
6. **Design Criteria**
7. **Appendix: Preliminary Design Layout Drawings**

Task 1 Deliverables:

The following deliverables are associated with Task 1:

- Draft and Final Preliminary Design TM including:
  - Preliminary Layout Drawings
  - Table of contents of the specifications to be included in the design documents.
  - An Engineer's preliminary opinion of probable construction cost (10% cost estimate)

Task 2 – FIELD INVESTIGATIONS

The task outlines the field investigations to be undertaken as part of the final design of the West Napa Pump Station. The field investigations will include surveying and geotechnical investigation and will include the following subtasks.

Subtask 2.1 Surveying and Potholing

The Hazen team will perform field surveys will be conducted to verify the existing conditions at the pump station. The team will perform ground-based surveys utilizing conventional and/or GPS surveying techniques at the West Napa Pump Station site. The general items to be surveyed within the project limits include the following:

1) Hardscape Features
2) Structures
3) Site Appurtenances
4) Fences
5) Visible Surface Utilities
6) Invert Elevations of Visible and Accessible Below Grade Utilities
7) Spot Elevations in Flat Areas

The team will prepare topographic mapping using the survey information collected. The Hazen team will prepare a preliminary boundary / right of way base map showing the existing boundary lines, right of way lines, existing easements, and adjoining parcels with owners of record, and record document references. The records obtained during research will be combined with the base mapping to form a model of the subject parcel boundaries and existing right of way limits.

The Hazen team will also perform potholing to locate major underground pipes including the existing force main and utilities on the site. The potholing scope includes electronic detection and GPR as well as one day of potholing.

Subtask 2.2 Geotechnical Investigation

The Hazen team, will provide the geotechnical services for the final design of the new pump station facility. These services will include two field borings and a geotechnical report with recommendations for use in design of the pump station structure and any other associated buildings or structures.

Engineering evaluation and analysis to develop geotechnical recommendations for this project

The report will present all the geotechnical findings, and will provide the results of engineering analysis in the form of applicable preliminary geotechnical recommendations from among the following:

- General - Ground behavior, Cal-OSHA soil classification, fault rupture, ground shaking, liquefaction susceptibility, CBC seismic design class, abandonment of existing elements
- Pipeline & Excavations - Ground excavatability, Cal-OSHA sloping and shoring requirements, protection of existing utilities, shoring and surcharge pressure diagrams, construction dewatering criteria (field tests and design parameters are out of scope), ground improvement, pipe bedding, excavation, and structure backfill materials and compaction, E'c for flexible pipe design, flexible and rigid pipeline external loading, trench dams, excavation backfill settlement, differential pipeline settlement, vibration impacts.
- Permanent Structures - Site grading and foundation subgrade preparation, appropriate foundation type, allowable soil bearing capacity, modulus of subgrade reaction, Young's Modulus, Poisson's Ratio, coefficient of base friction, foundation uplift capacity, total and differential foundation settlement, structure backfill, lateral earth pressures, design groundwater elevation, buoyancy

A draft Geotechnical report will be distributed in electronic format for review and comment prior to publication of the final report. Following receipt of all draft report review comments, a Final Geotechnical Report will be prepared and submitted.

Task 2 Deliverables

The following deliverables are associated with Task 2:

- Draft and Final Geotechnical Report to document the soil conditions of the pump station facility.

Task 3 – 50% DESIGN DOCUMENTS

This 50% Design task will include the following subtasks as listed below.

Subtask 3.1 50% Drawings and Specs

Based on approval of the recommended alternative and preliminary design drawings, Hazen will provide 50% Design Documents that will include the following:

- Complete discipline plan layouts and sections for the recommended improvements for the West Napa Pump Station Project.
- Prepare draft technical specifications for key equipment.
- Preliminary Construction Schedule

The main components of the design will include the following:

- A new submersible wet well east of the existing pump station building with provision for a future screen or channel grinder (it is anticipated that excavation for the new pump station wet well will be required as well as trenching for the new connection to the Brown's Valley trunk tie-in on the existing pump station site);
- Piping modifications to connect the new wet well to the existing pump station discharge piping including pipe supports, seismic bracing, isolation valves and force main drains;

- Provide flexible couplings in the existing force main;
- Installation of pipe supports, seismic bracing, isolation valves and force main drains;
- Abandoning the existing North and South Wet Wells;
- Demolition of the existing building;
- A new CMU electrical building with exterior lighting (finish floor raised approximately 2 ft above the 100-year flood plain elevation);
- A new enclosure for the existing standby generator (finish floor raised approximately 2 ft above the 100-year flood plain elevation);
- A new odor control system or provisions for a future system;
- New pole mounted solar panels on the site (10-12 ft high);
- A new chain link fence around the pump station site (8 ft high);
- Replacement of switchboards and MCC; and
- Electrical upgrades to the existing wiring and devices.

Subtask 3.2 50% Opinion of Probable Cost

Under this task the Hazen team will update the opinion of probable cost to a 50% level for the pump station project. This estimate will be based on quantity take offs of materials and equipment quotes for major mechanical and structural equipment. This estimate will be based on quantity take offs of materials and equipment quotes for all disciplines.

Task 3 Deliverables

The following deliverables are associated with Task 3:

- An electronic copy and 2 hard copy sets of 50% Design Documents that include:
  - 50% Design Drawings (Half size)
  - 50% Submittal Review Meeting minutes
  - Key equipment specifications
  - Specification Table of Contents
  - Construction schedule
  - 50% Opinion of Probable Construction Cost

Task 4 – 90% DESIGN DOCUMENTS

This 90% Design task will include the following subtasks as listed below.

Subtask 4.1 90% Drawings and Specs

Based on District comments on the 50% Design Documents, Hazen will progress to design to 90% completion and provide 90% Design Documents that will include the following:

- Complete discipline plan layouts and sections for the recommended improvements for the West Napa Pump Station Project.
- Prepare a completed draft of all the technical specifications.
- Revised Construction Schedule

Subtask 4.2 90% Opinion of Probable Estimate

Under this task the Hazen team will update the opinion of probable cost to a 90% level for the pump station project. This estimate will be based on quantity take offs of materials and equipment quotes for all disciplines.

Task 4 Deliverables

The following deliverables are associated with Task 4:

- An electronic copy and 2 hard copy sets of 90% Design Documents that include:
  - 90% Design Drawings
  - 90% Submittal Review Meeting minutes
  - Complete specifications
  - Revised construction schedule
  - 90% opinion of probable cost

TASK 5 FINAL DESIGN DOCUMENTS

This Final Design task will include the following subtasks as listed below.

Subtask 5.1 Final Drawings and Specs

Based on District comments on the 90% Design Documents, Hazen will progress finalize the design to 100% completion and provide Final Design Documents that will include the following:

- Complete drawing set for the recommended improvements for the West Napa Pump Station Project.
- Complete final version of all the technical specifications.
- Revised Construction Schedule

Subtask 5.2 Final Opinion of Probable Cost

Under this task the Hazen team will update the estimate of probable cost to a 100% level. This estimate will be based on detailed quantity take offs of materials and equipment quotes for all disciplines.

Task 5 Deliverables

The following deliverables are associated with Task 5:

- An electronic copy and 2 hard copy sets of Final Design Documents that include:
  - Final drawings and technical specifications for bid and construction, stamped by a California P.E.
  - Final Opinion of Probable Cost

TASK 6 BID PACKAGE ASSISTANCE

The Bid Package Assistance task will include the following subtasks:

Subtask 6.1 Bid Package Assistance

Under this task, the Hazen team will assist the District with compiling the construction documents into a complete bid package including the front-end specifications completed by the District. Hazen assumes a total of twenty-two (22) hours for this task.

Task 6 Deliverables:

The following deliverables are associated with Task 6:

- Electronic copies of the Final Bid Package (full size and half size).

TASK 7 BID SUPPORT SERVICES

The Bid Support Services task will include the following subtasks:

Subtask 7.1 Pre-Bid Meeting

The Hazen team will up to two (2) staff attend the pre-bid meeting for the bid phase of the project. Hazen will assist the District in preparing for this meeting and providing any materials from the design for the pre-bid meeting.

Subtask 7.2 Bid Period Engineering Assistance

The Hazen team will provide the following services during the bidding of the project:

- Hazen will assist the District in responding to inquiries during the bidding period. Hazen will not respond to direct inquiries from bidders unless requested by the District. The District will be notified of all such correspondence. Hazen will assist in the preparation of addenda, including modifications, and clarifications to the bid documents during the bidding period.
- Hazen will assist the District with a review and analysis of the bids, as needed.

Task 7 Deliverables:

The following deliverables are associated with Task 7:

- Pre-bid meeting materials.
- Responses to design questions during the bid period

TASK 8 CONFORMED DOCUMENTS

The Conformed Drawings task will include the following as described below.

Subtask 8.1 Prepare Conformed Drawings

The Hazen team will prepare a conformed set of the bid drawings and specifications based on addenda during the bid period.

Task 8 Deliverables

The following deliverables are associated with Task 8:

- Conformed Drawings and Specifications.

TASK 9 PROJECT MANAGEMENT

The Project Management task will include the following subtasks:

Subtask 9.1 Team Management

Hazen and Sawyer (the Consultant) shall provide general project management to include oversight and coordination of the efforts, and staffing/personnel administration of sub-consultants during the project.

Subtask 9.2 Monthly Reporting and Invoicing

Under this task, Hazen shall review and issue monthly invoices as well we provide monthly report that shall update the District's project manager on the project status including the project schedule and budget updates. Hazen shall also provide weekly updates on the work completed during the previous week and a two week look ahead on tasks to be completed.

Subtask 9.3 Kick-off Meeting

For the Kickoff meeting, Hazen will have up to four (4) team members attend an initial project kick-off meeting with the District. At the kickoff meeting with District Staff, Hazen will discuss the work plan, obtain relevant additional historical pump station data and review of the existing as-built record drawings,

Subtask 9.4 Workshops

Hazen will conduct a one-day workshop as part of the preliminary design scope. The workshop will be divided into two (2) sessions as follows:

- Pump Hydraulics and Selection – will focus on the review pump hydraulics, sizing and layouts for the pumps with District engineering, operations and maintenance staff.
- Electrical Building and Odor Control Evaluation – will focus on the review the recommendations of the evaluations of the Electrical Building and Odor Control alternatives with District engineering, operations and maintenance staff.

Subtask 9.5 Review Meetings

The following Project Management meetings with the District are anticipated:

- Monthly coordination meetings – Hazen anticipates monthly coordination meetings to review the project schedule and budget.
- 50% review meeting – Hazen will meet with the District after submission of the 50% Design Documents to review with the District and obtain initial comments on the 50% Design.
- 90% review meeting – Hazen will meet with the District after submission of the 90% Design Documents to review with the District and obtain initial comments on the 90% Design.

Task 9 Deliverables

The following deliverables are associated with Task 9:

- Work Plan
- Meeting/Workshop agenda and minutes
- Monthly Invoices and Monthly Reports
- Weekly e-mail updates

Attached to this scope of work are the following:

- Attachment A – Preliminary Drawing List
- Attachment B – Level of Effort and Fee Estimate
- Attachment C – Preliminary Project Schedule

Attachment A- Preliminary Drawing List

West Napa Pump Station Final Design Preliminary Drawing List

Sheet #	Dwg #	General
1	G-01	Cover sheet
2	G-02	Sheet List
3	G-03	General Symbols and Abbreviations
4	G-04	Process Flow Schematic and Hydraulic Profile
5	G-05	Standard Details I
6	G-06	Standard Details I
7	G-07	Standard Details -Pipe Supports
8	G-08	Construction Sequencing I
9	G-09	Construction Sequencing II
		Demolition
10	D-01	Site Demolition Plan
11	D-02	Existing Pump Station Demiltion Plan I
12	D-03	Existing Pump Station Demiltion Plan II
13	D-04	Exsiting Pump Station Demolition Section I
14	D-05	Exsiting Pump Station Demolition Section II
15	D-06	Existing Pump Station Demoition Elevation
		Civil
16	C-01	Key Site Plan
17	C-02	Staging Area, Fencing Plan and General Notes
18	C-03	Site Grading and Drainage Plan
19	C-04	Site Yard Piping Plan I
20	C-05	Site Yard Piping Plan II
21	C-06	Piping Connection Details
22	C-07	Temporary Bypass Plan
23	C-08	New 36" Plan and Profile
24	C-09	New 24" Plan and Profile
		Mechanical
25	M-001	Mechanical Legend
26	M-002	Submersible Pump Station, Wet Well and Valve Vault Plan - Lower Level
27	M-003	Submersible Pump Station, Wet Well and Valve Vault Plan - Upper Level
28	M-004	Submersible Pump Station, Wet Well and Valve Vault Plan - Sections
29	M-005	Submersible Pump Station, Wet Well and Valve Vault Plan - Sections and Details
30	M-006	Details I
31	M-007	Electrical Building Mechanical Plan and Schematic
32	M-008	Electrical Building HVAC Sections
33	M-009	Electrical Building HVAC Details
		Structural
34	S-01	General Structural Notes 1
35	S-02	General Structural Notes 2
36	S-03	Special Inspection Notes
37	S-04	Structural Standard Details 1
38	S-05	Structural Standard Details 2

Attachment A- Preliminary Drawing List

		West Napa Pump Station Final Design Preliminary Drawing List
39	S-06	Structural Standard Details 3
40	S-07	Structural Standard Details 4
41	S-08	Existing Pump Station Demolition Plan
42	S-09	Existing Pump Station Demolition Sections
43	S-10	Pump Station Bottom Plan
44	S-11	Pump Station Intermediate Plan
45	S-12	Pump Station Top Plan
46	S-13	Pump Station Sections and Details1
47	S-14	Pump Station Sections and Details 2
48	S-15	Electrical Building Foundation Plan
49	S-16	Electrical Building Bottom Plan
50	S-17	Electrical Building Roof Plan
51	S-18	Electrical Building Sections and Details
52	S-19	Generator Enclsure Foundation Plan and Sections
53	S-20	Solar Panel Foundation, Section & Details
		Architectural
54	A-01	Architectural Legend
55	A-02	Electrical Building Plan
56	A-03	Electrical Building Section
57	A-04	Electrical Building Elevations
58	A-05	Electrical Buidling Hardware Schedule
		Electrical
59	E-01	Electrical Legends and Symbols
60	E-02	General Notes and Abbreviations
61	E-03	Electrical Demo Plan
62	E-04	Electrical Site Plan
63	E-05	Electrical Building Power and Lighting Plan
64	E-06	Pump Station Power Plan
65	E-07	Odor Control Facility Plan
66	E-08	Single Line Diagram and Elevation
67	E-09	Block Diagram and Panel Schedules
68	E-10	Elementary Control Schematics
69	E-11	Conduit and Ductbank Schedules
70	E-12	Details I
71	E-13	Details I
		Instrumentation
72	I-01	Instrumentaiton Legend
73	I-02	Control Network Diagram
74	I-03	P&ID Pump Station
75	I-04	P&ID Odor Control
76	I-05	Instrumentation Detail I

Attachment B- Level of Effort and Fee Estimate

Hazen

		Napa Sanitation District	PIC	Project Manager	QAQC	Project Engineer	Electrical	Civil	Mechanical/HVAC	I&C	Structural	Odor	Estimating	Staff Engineer	CAD	Admin	H&S Loaded Labor Cost	Hydraulics and Pump System Design	Surveying	Geotechnical Investigation	Solar	Potholing	Architectural			Total Fee
		West Napa Pump Station Rehabilitation	Kevin Alexander	Marc Solomon	Steve Connor	Allan Briggs	Ian Waters	Jerry Gatney	Swaid Alhajri	Dan Edwards	Wyatt Dressler	Dick Pope	Chris Portner					VW Housen & Associates	KSN Inc	McMillen Jacobs	Recolte Energy	Exaro	HKIT	Other Direct Costs (ODCs)	Subconsultant Markup (5%)	
		Billing Rate	$280	$250	$200	$200	$225	$210	$190	$180	$150	$225	$150	$120	$120	$80										
1		**Preliminary Design Technical Memorandum**	2	28	16	48	36	16	24	8	16	24	20	176	40	4	$ 74,860	$ 60,196	$ -	$ -	$ 20,000	$ -	$ 7,650	$ 900	$ 4,392	$ 167,998
	1.1	Hydraulics and Pump Selection		8	4	8								16				$ 52,324								
	1.2	Odor Control Evaluation		8	4	8			16			16		40										$ 300		
	1.3	Electrical Building Evaluation		6	4	8	20							40									$ 7,650	$ 300		
	1.4	Solar Evaluation				8	8							24							$ 20,000					
	1.5	Preliminary Design Reporting	2	6	4	16	8	16	8	8	16	8	20	56	40	4		$ 7,872						$ 300		
2		**Field Investigations**	0	4	0	16	0	4	0	0	0	0	0	32	0	0	$ 8,880	$ -	$ 29,500	$ 37,500	$ -	$ 7,850	$ -	$ -	$ 3,743	$ 87,473
	2.1	Surveying		2		8		4						16					$ 29,500			$ 7,850				
	2.2	Geotechnical Investigation		2		8								16						$ 37,500						
3		**50% Design Documents**	0	40	24	74	41	29	52	57	202	16	40	316	627	12	$ 219,075	$ 29,976	$ -	$ -	$ -	$ -	$ 16,200	$ 300	$ 2,309	$ 267,860
	3.1	50% Drawings and Specifications		36	20	66	37	25	48	53	194	12		316	627	12		$ 28,992					$ 16,200	$ 300		
	3.2	50% Cost Estimate		4	4	8	4	4	4	4	8	4	40					$ 984								
4		**90% Design Documents**	0	34	22	32	34	24	23	46	159	10	24	224	502	12	$ 162,460	$ 24,880	$ -	$ -	$ -	$ -	$ 18,000	$ 300	$ 2,144	$ 207,784
	4.1	90% Drawings and Specifications		30	20	26	30	20	19	42	155	10		224	502	12		$ 23,896					$ 18,000	$ 300		
	4.2	90% Cost Estimate		4	2	6	4	4	4	4	4		24					$ 984								
5		**Final Design Documents**	4	18	22	11	32	7	13	20	41	2	12	63	125	8	$ 58,412	$ 6,414	$ -	$ -	$ -	$ -	$ 4,500	$ 300	$ 546	$ 70,172
	5.1	Final Drawings and Specifications	4	16	20	7	30	5	11	18	39	2		63	125	8		$ 5,922					$ 4,500	$ 300		
	5.2	Final Cost Estimate		2	2	4	2	2	2	2	2		12					$ 492								
6		**Bid Package Assistance**	0	0	0	6	0	0	0	0	0	0	0	12	0	4	$ 2,960	$ -	$ -	$ -	$ -	$ -	$ -	$ 200	$ -	$ 3,160
	6.1	Bid Package Assistance				6								12		4								$ 200		
7		**Bid Support Services**	0	8	0	12	2	2	2	4	8	0	0	24	16	0	$ 12,370	$ 3,432	$ -	$ -	$ -	$ -	$ 2,070	$ 450	$ 275	$ 18,597
	7.1	Pre-Bid Meeting		4		4								4				$ 1,330					$ 720	$ 200		
	7.2	Bid Period Engineering Assistance		4		8	2	2	2	4	8			20	16			$ 2,102					$ 1,350	$ 250		
8		**Conformed Drawings**	0	0	0	2	2	2	2	2	2	0	0	10	24	4	$ 6,710	$ -	$ -	$ -	$ -	$ -	$ -	$ 300	$ -	$ 7,010
	8.1	Prepare Conformed Drawings				2	2	2	2	2	2			10	24	4								$ 300		
9		**Project Management**	4	44	0	102	10	6	10	6	6	0	6	32	0	12	$ 45,610	$ 7,870	$ -	$ -	$ -	$ -	$ 3,330	$ 1,300	$ 560	$ 58,670
	9.1	Team Management	4	8		36										12										
	9.2	Monthly Invoicing and Reporting		12		36																				
	9.3	Kick-Off Meeting		4		4								8				$ 1,576					$ 900	$ 250		
	9.4	Workshops		8		8	4		4									$ 2,068					$ 1,215	$ 250		
	9.5	Review Meetings		12		18	6	6	6	6	6		6	24				$ 4,226					$ 1,215	$ 800		
		Total Cost - All Tasks															$ 591,337	$ 132,768	$ 29,500	$ 37,500	$ 20,000	$ 7,850	$ 51,750	$ 4,050	$ 13,968	$ 888,723

ATTACHMENT C - PRELIMINARY PROJECT SCHEDULE

NAPA SANITATION DISTRICT
WEST NAPA PUMP STATION PROJECT

ID	Task Name	Start	Finish	Duration
1	**1 - PRELIMINARY DESIGN TECHNICAL MEMORANDUM**	**Apr 10 '18**	**Dec 17 '18**	**180 days**
2	1.1 - Hydraulics and Pump Station	Apr 10 '18	Jun 18 '18	50 days
3	1.2 - Odor Control Evaluation	May 15 '18	Jun 18 '18	25 days
4	1.3 - Electrical Building Evaluation	May 15 '18	Jun 18 '18	25 days
5	1.4 Solar Evaluation and PG&E Interconnection	May 15 '18	Dec 17 '18	155 days
8	1.5 - Preliminary Design Report	May 15 '18	Jul 2 '18	35 days
9	**2 - FIELD INVESTIGATIONS**	**Apr 24 '18**	**Jun 11 '18**	**35 days**
10	2.1 - Surveying and Potholing	Apr 24 '18	Jun 11 '18	35 days
11	2.2 - Geotechnical Investigation	Apr 24 '18	Jun 11 '18	35 days
12	**3 - 50% DESIGN DOCUMENTS**	**Jul 3 '18**	**Oct 1 '18**	**65 days**
13	3.1 - 50% Drawings and Specifications	Jul 3 '18	Sep 17 '18	55 days
14	3.2 - 50% Cost Estimate	Aug 21 '18	Sep 17 '18	20 days
15	3.3 - District Review	Sep 18 '18	Oct 1 '18	10 days
16	**4 - 90% DESIGN DOCUMENTS**	**Oct 2 '18**	**Dec 17 '18**	**55 days**
17	4.4 - 90% Drawings and Specifications	Oct 2 '18	Dec 3 '18	45 days
18	4.5 - 90% Cost Estimate	Nov 6 '18	Dec 3 '18	20 days
19	4.6 - District Review	Dec 4 '18	Dec 17 '18	10 days
20	**5 - FINAL DESIGN DOCUMENTS**	**Dec 18 '18**	**Jan 21 '19**	**25 days**
21	5.1 - Final Drawings and Specifications	Dec 18 '18	Jan 21 '19	25 days
22	5.2 - Final Cost Estimate	Jan 1 '19	Jan 21 '19	15 days
23	**6 - BID PACKAGE ASSISTANCE**	**Jan 22 '19**	**Jan 28 '19**	**5 days**
24	6.1 - Bid Package Assistance	Jan 22 '19	Jan 28 '19	5 days
25	**7 - BID SUPPORT SERVICES**	**Feb 5 '19**	**Apr 4 '19**	**43 days**
26	7.1 - Pre-Bid Meeting	Feb 12 '19	Feb 12 '19	1 day
27	7.2 - Bid Period Engineering Assistance	Feb 5 '19	Mar 4 '19	20 days
28	Anticipated Construction NTP	Apr 4 '19	Apr 4 '19	1 day
29	**8 - CONFORMED DOCUMENTS**	**Mar 5 '19**	**Mar 18 '19**	**10 days**
30	8.1 - Prepare Conformed Documents	Mar 5 '19	Mar 18 '19	10 days
31	**9 - PROJECT MANAGEMENT**	**Apr 9 '18**	**Apr 12 '19**	**265 days**
32	9.1 - Team Management	Apr 9 '18	Apr 12 '19	265 days
33	9.2 - Monthly Invoicing and Reporting	Apr 9 '18	Apr 12 '19	265 days
34	9.3 - Kick-Off Meeting	Apr 9 '18	Apr 9 '18	1 day
35	9.4 - Workshop	Jun 20 '18	Jun 20 '18	1 day
37	9.5 - Review Meetings	May 3 '18	Apr 4 '19	241 days
50	50% Review Meeting	Sep 25 '18	Sep 25 '18	1 day
51	90% Review Meeting	Dec 11 '18	Dec 11 '18	1 day