

**AMENDMENT No. 4 TO AGREEMENT  
FOR CONSULTATION AND OTHER SERVICES**

This Amendment is entered into this 7th day of October 2008, by and between the City of Milpitas, a municipal corporation of the State of California (hereafter referred to as "CITY") and Dodson Psomas (hereafter referred to as "CONSULTANT").

**RECITALS**

WHEREAS, the parties entered into an Agreement for professional Engineering services for Gibraltar, (Project No. 7101), on April 3, 2007; and

WHEREAS, the parties entered into an Agreement Amendment to allow CONSULTANT to provide additional professional engineering services for Well Upgrade Program, Project No. 7076 – Phase II (Curtis Well), October 1, 2007;

WHEREAS, the parties entered into an Agreement Amendment to allow CONSULTANT to provide additional professional engineering and design services for seismic and structural analysis of the existing pump station, February 5, 2008.

WHEREAS, the parties entered into an Agreement Amendment to allow CONSULTANT to provide additional professional engineering and design services for a new control room for the pump station, April 1, 2008.

WHEREAS, the parties desire to amend the Agreement to allow CONSULTANT to provide additional professional engineering and design services for the design of SCADA at the new control room, provide water quality monitoring and chemical feed, design for electrical provisions for solar panels on reservoirs, incorporate fiber optics into the site, reservoirs and pump station seismic evaluation, and bidding and construction support.

NOW THEREFORE, in consideration of the mutual covenants and conditions herein contained, the parties agree to amend the Agreement as follows:

1. The first sentence in Subsection 1.1, entitled "Term of Services" is amended to read:

The term of this Agreement shall begin on the date first noted above and shall end on **December 31, 2009**.

2. Section 1, entitled "Services" is amended by adding Exhibit "**A-4**", which is attached hereto and incorporated by reference herein.
3. Section 2, entitled "Compensation" is amended to add Exhibit "**B-4**", which is attached hereto and incorporated by reference herein. Section 2 is further amended by adding the following to the end of the Section:

The compensation for the services set forth in Exhibit "B-4" is a "not to exceed" amount. The total maximum amount of compensation to be paid for tasks outlined in Exhibit "B-4" shall be **\$462,158.00**. This results in a total contract amount of \$1,051,804.00

4. The Consultant agrees to maintain and pay for all insurance policies as stated in Section 4, entitled "Insurance Requirements" of the Agreement dated **April 3, 2007**, between **Dodson Psomas** and the City of Milpitas. The Consultant shall provide the City with renewal certificates of the current policies upon the expiration of the current policy.
5. All other provisions of the Agreement shall remain in full force and effect.

This Amendment is executed as of the date written on Page 1.

APPROVED BY:

CITY OF MILPITAS

CONSULTANT

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Greg Armendariz, City Engineer

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Thomas C. Williams, City Manager

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Bryan Otake, Asst City Attorney

ATTESTED BY:

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Mary Lavelle, City Clerk

EXHIBIT "A-4"

DODSON PSOMAS

SCOPE OF WORK AND FEE

FOR AMENDMENT NO. 4

CITY OF MILPITAS

GIBRALTAR RESERVOIR AND PUMP STATION  
IMPROVEMENTS

CITY PROJECT NO. 7101

The following work tasks are to be included as part of the Scope of Services as described in Exhibit A of the Consulting Services Agreement between the City of Milpitas and Dodson Psomas, dated April 3, 2007, as follows:

**Task 10-1 – Design Control Building to be SCADA Hub**

The new Control Building that is to be designed under Amendment 3 will be reconfigured to allow this room to serve as the hub for the SCADA system for the entire water system for the City. For monitoring and control of the Gibraltar Pump Station itself, certain SCADA provisions will need to be installed with this project, and long-term decisions will need to be made about SCADA architecture to cause these short-term installations to fit within long-term vision. Accordingly, this item includes the following key steps:

- **Develop SCADA Project Criteria:** Review the shelved 1999 SCADA project contract documents. Extract, update, and refine overall concepts with an orientation towards using the Gibraltar Upgrade as a cornerstone project. Considerable latitude is available in a planning effort such as this, and this effort will be somewhat narrowly oriented towards long-term architectures and system decisions which affect Gibraltar. Work will include a City workshop, and documenting conclusions in a technical memorandum for use in the Gibraltar project as well as future projects.
- **Develop SCADA Architecture:** Prepare basis of design memorandum which includes the following:
  - Workshop minutes
  - Gibraltar SCADA block diagram
  - Addresses choice of PLC, PLC programming environment, graphical programming package, and procurement options:
    - Sole source
    - Competitively bid
    - Pre-negotiated
    - City-furnished

- A conceptual layout of the control room. The current size would constitute a compact control room, and the lab facilities would need to be located elsewhere.
- Develop SCADA
- SCADA Design: Implement SCADA servers, data historian, workstations, and computerized alarm dialing at Gibraltar. Develop overall operational and data structures which will accommodate the entire system, with Gibraltar commissioned. The structure will respect the decisions of the preceding project criteria effort.
- The following items will be deferred since they are not needed for Gibraltar per se, but will be needed later:
  - Servers will be single servers, with space and other allowances included in this project for later conversion to dual-redundant servers.
  - If the recommended architecture results in a data concentrator PLC for remote communications, it will be deferred.
  - Remote access including roving notebook computers will be deferred.

## Task 10-2 — Water Quality Monitoring

The design will include instruments for monitoring total chlorine, monochloramine, free ammonia, and turbidity at the turnouts and reservoir outlets for the SCVWD and SFPUC systems. The instruments will likely be installed in the existing pump station. Include sample piping and pumping, and power and controls for sample pumps. Waste streams from the instruments will be sent to the City's existing sanitary sewer collection system. The data from these instruments will be transmitted to the SCADA system.

This task includes developing instrument specifications and layout drawings for competitive bid. Specifications will be based on recent engineering experience and readily available market information (a comparison of technologies, installation and operating costs, and other factors are not included).

## Task 10-3 — Chemical Feed

The design will include provisions for chlorine and ammonia feed systems to inject these chemicals into the reservoir inlets at the existing pressure reducing valve (PRV) vaults. Systems would be designed to feed at reservoir inflow rates of 2000-5000 gallons per minute. Chemical injection would be flow paced based on flow signals from new flow meters on the inlet piping. Separate chemical feed piping for both chemicals from the feed pumps to the PRV vault for the SCVWD system would be installed, as it is likely that most of the existing piping will be demolished during construction of the new bypass pipeline. These pipes will be double contained for leak protection by installing the piping within buried carrier pipes.

The City has proposed that the chlorine feed system be a tablet-style feeder. The proposed ammonia feed system would use aqua-ammonia stored in totes. Spill containment for the chemicals would need to be reviewed with the City. Also, the proposed amount of storage of chemicals would need to be reviewed to determine whether this structure would have an H occupancy rating which carries with it additional safety provisions such as ventilation and fire protection.

The work will include the following:

- ◆ Mechanical design for new chemical feed systems

- ◆ Systems to be installed in a new structure that would resemble the new control room (CMU block walls, cast-in-place concrete floor slab, and metal roof). No architectural design services would be provided for this new structure. No additional geotechnical exploration at the site will be performed.
- ◆ Electrical design will include power for the process equipment, building lighting, and convenience outlets.
- ◆ Instrumentation and controls for the process equipment, including development of a list of all devices and instruments, and an input/output list to allowing adequate provisions for interconnection and PLC interfaces.
- ◆ HVAC for the new building. Additional safety provisions may be required if building has an H occupancy classification. Plumbing for an emergency eye wash and shower station at the chemical feed would be provided. Provide eye wash/shower flow monitoring. HVAC and plumbing will be shown on the same mechanical plans and sections as the chemical feed systems.

### Task 10-4— Provisions for Solar Panels on Roof of Storage Reservoirs

The design will include electrical provisions to allow the City to install solar photovoltaic (PV) panels on the roof of both reservoirs in the future. Work includes conceptual designs including required interconnection. Coordinate with PG&E for today's requirements, and employ reasonable provisions with this project to anticipate future connect. This work does not include any structural analysis, design, or modifications to the reservoirs that are associated with the PV panels.

### Task 10-5 – Fiber Optic Line

The City wishes to bring fiber optics to serve the Pump station with the current pump station upgrades. This Scope includes the following:

1. Receiving existing drawings.
2. Conducting a meeting with project stakeholders to address:
  - a. Routing.
  - b. Termination provisions.
  - c. Cutover/downtime requirements.
  - d. Any specific requirements for materials, products.
3. Designing the fiber connections and routing.

### Task 10-6 – Curtis Well Connection

The design will include yard piping within the site to bring water from Curtis well into the two reservoirs in the future. This would allow the City to blend the Curtis well supply with either the SCVWD or SFPUC supply. A piped connection would be provided after the PRV for each system. These connections will be constructed within buried vaults with room for a future flow meter.

Install new pipeline from the connection at the PRV/reservoir to the property line. Install spare electrical and instrumentation conduits between the connection points and the new Control Building for future flow meters. Conduits will be routed along with piping and will be depicted on civil plans to minimize design considerations. The following conduits will be included:

- Data/signal: (2) 2-1/2-inch conduits with dedicated pullboxes.
- Power: (2) 2-1/2-inch conduits with dedicated pullboxes.

## Task 10-7 – Reservoir Seismic Evaluation

The work will include the following:

- Review of existing drawings and other available original design documents (specifications, soils reports)
- Conduct one site visit by one engineer to visually inspect the exterior and accessible reservoir areas for both reservoirs
- Perform a seismic evaluation of one structural model which is representative of both reservoirs using the existing structural design drawings, which are assumed to represent as-built conditions.
- Perform seismic evaluation results and recommendations for any conceptual modifications, as necessary, in a calculation package which would have a brief executive summary highlighting the key findings and recommendations.

The work does not include preparation of final design documents or details associated with the findings of the seismic evaluation.

## Task 10-8 – Other Improvements

Other improvements that have been identified by the City to be provided as part of this project included the following:

- ◆ PRV Monitoring/Control: Under this scope, raceways and allowances for input/output will be included. The installation of instrumentation, PRV modifications, and control provisions will be made in the future.
- ◆ Rehabilitate reservoir flow monitoring: Existing orifice plates and calibration result in poor flow monitoring under normal conditions. This undesirable characteristic will become a bigger problem under improved controls and SCADA. Investigate and specify new orifice plates and calibration (or new differential pressure meters).
- ◆ Add redundant reservoir level instrumentation: Presently, the reservoirs each a single level transmitter. Out of calibration or a failure condition could result in an undetected low or overflow. Add redundant level instrumentation.

## Design for Tasks 10-1 to 10-8

Detailed drawings and specifications for this work will be prepared and submitted with the remaining design submittals for the overall project. Significant additional specifications are expected. Final signed bid documents for construction of these facilities will be included as part of project bid documents for the Gibraltar Reservoir and Pump Station Improvements Project.

The following additional drawings will be prepared as part of this amendment:

- C-5 Vault sections and details
- C-6 Fiber optic line plan and details
- S-12 Chemical Building Foundation and Floor Plans
- S-13 Chemical Building Roof Framing Plan and Details

- S-14 Chemical Building Structural Elevations
- S-15 Chemical Building Sections and Details
- M-9 Chemical Building Plan
- M-10 Chemical Building Sections and Details
- E-13 Chemical Building Lighting and Power Plans
- E-14 Chemical Building Control Diagram
- I-11 Process and Instrumentation Diagram – 7 Chlorine System
- I-12 Process and Instrumentation Diagram – 8 Ammonia System
- I-13 SCADA Block Diagram

Quantity take-offs will be prepared for the facilities included in these design drawings and will be included with the construction cost opinion work that is part of the original scope of work.

### Review Submittals and Meetings

One additional intermediate submittal will be prepared for the City to review. This submittal will be considered 75 percent complete and will include plan drawings of all new facilities.

Because of the lengthened schedule to complete the design phase of the project, eight additional bi-weekly review meetings with the City have been included as part of this amendment.

### Services During Bid and Construction

Provide the following services during bid and construction phase for the additional work covered under this amendment and Amendment No. 3. The levels of effort proposed assume the following:

1. The CM, actively involved during design, will take the lead on and resolve many issues with little or no engineering involvement.
2. Two workshops will cover programming highlights only. Some details will be left to the Contractor’s discretion, subject to general specified requirements.

Submittals which are incomplete or appear deficient will be rejected without review.

<b>Service</b>	<b>Dodson Psomas Added Scope</b>	<b>ArcSine Added Scope</b>
Provide input in preparation of addenda prior to bid.	Additional time anticipated	
Attend prebid conference and site visit.	As per original scope.	
Aid in bid evaluation.	As per original scope	
Attend preconstruction conference.	As per original scope	
Programming and Control Workshops	Attend 2 scheduled workshops	2 workshops
Provide technical clarifications of drawings and specifications.	30 person-hours	16 person-hours

Review submittals.	Allow 50 hours for Dodson Psomas, plus \$5000 allowance each for Burks Toma and Beyaz & Patel for submittal reviews, RFI's, etc...	Allow for 25 additional submittals plus 6 resubmittals, approximately 80 hours – including logging and commenting
Respond to RFI's.	Allow 40 hours	Allow for 35 additional RFIs @ 3 hours each, including logging in, responding
Evaluate proposed changes and estimate costs.	Allow 20 hours	Allow 30 hours
Perform construction observation.	80 hours primarily for structural and chemical feed system	Allow 4 days
Factory test witnessing.	None included as part of original nor modified scope	Allow 3 days
Startup assistance	8 hours (1 additional day)	Allow 2 days
Field test witnessing.	Allow 2 days	Allow 4 days
Provide punchlist.	Additional time anticipated	
Final inspection.	Additional time anticipated	
Assistance with programming documentation	None included as part of original nor modified scope	
Coordination of programming schedule and related	Additional time anticipated	
Job closeout.	Additional time anticipated	

## Term of Service

The term of the original Agreement shall end on December 31, 2010.

## Task 11 – Solar Alternatives Analysis Project Description and Work Scope

Perform a study to evaluate various renewable energy alternatives and their suitability for construction at the Gibraltar Reservoir and Pump Station site. In general, the purpose of this feasibility study is to determine if it is financially and physically feasible to utilize solar energy to provide additional electrical power to meet and/or supplement the needs of the Gibraltar Reservoir and Pump Station Improvements. Meet with City Staff and plant personnel to determine the City's goals. The study shall include the following:

1. Establish Criteria
  - a. Timing

- b. Project Cost
  - c. Implementation
  - d. Maintenance
2. Site Analysis
- a. Documents Required to Support Scope of Work
    - i. One year's worth of electric bills for the Gibraltar site
  - b. Electricity Usage of Gibraltar Site
    - i. Provider, rate schedule, etc.
  - c. Site
    - i. Roof, ground, etc.
  - d. Electrical
    - i. Location of electrical connection (i.e., meters, breaker boxes, etc.)
3. Evaluate Options
- a. Solar System Options
  - b. Contracting Options
  - c. Cost Estimate
  - d. Cost Benefit Analysis

## Schedule

DODSON PSOMAS has submitted a schedule to the City for completing the project. The results of the work shall be submitted in the form of a report which fully documents the study. A draft report shall be submitted for review and a final report incorporating the City's comments. The final Feasibility should be completed within 40 working (business) days. This requires that the City provide the necessary documentation to be used in the analysis in the timely manner.

## Design for Task 11

No design services are included as part of this Scope of Work.

## Services During Bid and Construction for Task 11

No services during bid and construction phase of the project are included as part of this Scope of Work.

## DODSON PSOMAS

FEE PROPOSAL FOR  
DESIGN AND CONSTRUCTION SUPPORT SERVICES for the  
GIBRALTAR RESERVOIR AND PUMP STATION

AMENDMENT 4 - ADDITIONAL DESIGN FEATURES

Task Description	HOURS							Total Dodson Psomas Labor - Fee	Architect - Burks Toma	Structural - Beyaz & Patel	Electrical - Arc Sine	Other Direct Costs	Total
	Principal in Charge(\$206/hr)	Project Manager (\$185/hr)	Structural Engineer (\$113/hr)	Staff Engineer	CAD Drafter (\$105/hr)	Word Processor (\$70/hr)	Total Dodson Psomas Labor - Hours						
<b>Task 10 - Amendment 4 Items</b>													
10-1. Design Control Building for Future SCADA		16					16	\$2,960	\$2,000		\$53,300	\$2,965	\$61,225
10-2. Add Water Quality Monitoring		4		20		4	28	\$3,280			\$14,000	\$700	\$17,980
10-3. Add Design of Chemical Feed Systems	8	60	80	180	80	24	432	\$52,208			\$24,000	\$2,900	\$79,108
10-4. Design for Future Solar PV System		8					8	\$1,480			\$7,000	\$350	\$8,830
10-5. Add Design of fiber optic extension to Site		8		32	20		60	\$7,196			\$15,000	\$1,250	\$23,446
10-6. Add Provisions for Future Curtis Well connections	4	16		40	24	4	88	\$11,104			\$4,000	\$760	\$15,864
10-7. Structural evaluation of Gibraltar Reservoirs		8					8	\$1,480		\$30,000		\$1,500	\$32,980
10-7A. Detailed seismic evaluation and design								\$0		\$19,000		\$950	\$19,950
10-8. Other Facilities Improvements		8		24	16	4	52	\$6,152			\$15,000	\$990	\$22,142
Review Meetings, Project Management	8	60				8	76	\$13,308				\$500	\$13,808
Additional Cost Estimating		16		40				\$7,480			\$7,000	\$350	\$14,830
Additional Construction Phase Review Services		80	40	80	30	20	250	\$32,910	\$5,000	\$5,000	\$88,700	\$5,385	\$136,995
<b>Task 10 Subtotal</b>	<b>20</b>	<b>284</b>	<b>120</b>	<b>416</b>	<b>170</b>	<b>64</b>	<b>1018</b>	<b>\$139,558</b>	<b>\$7,000</b>	<b>\$54,000</b>	<b>\$228,000</b>	<b>\$18,600</b>	<b>\$447,158</b>
<b>Task 11 - Solar Alternatives Analysis</b>													
Task 11 - Solar Alternatives Analysis		60		100		16	176	\$12,220				\$2,780	\$15,000
	0	60	0	100	0	16	176	\$12,220	\$0	\$0	\$0	\$2,780	\$15,000
<b>TOTAL HOURS/COST</b>	<b>20</b>	<b>344</b>	<b>120</b>	<b>516</b>	<b>170</b>	<b>80</b>	<b>1194</b>	<b>\$151,778</b>	<b>\$7,000</b>	<b>\$54,000</b>	<b>\$228,000</b>	<b>\$21,380</b>	<b>\$462,158</b>

**Costing Assumptions**

1) Labor rates shown are for 2007. Rates have increased for 2008. Actual billing rates will be used.

2) Other Direct Cost includes \$15/hour for CAD equipment, 5% markup on subconsultants, miscellaneous expenses, reproduction, and mileage costs.

3) Mileage at \$0.505/mile (2008 IRS rate)