

**TO:** James L. App, City Manager  
**FROM:** Meg Williamson, Interim Public Works Director  
**SUBJECT:** Consider Repair Design Options of the City Hall/Library Parking Lot  
**DATE:** June 15, 2004

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**NEEDS:** For the City Council to consider alternatives for pipe installation and parking lot repair.

- FACTS:**
1. On April 6, 2004 the City Council awarded Boyle/Fugro a design contract to prepare plans and specifications for the repair of the parking lot. On April 20, 2004 the City Council approved award of a construction contract to Associated Pacific Contractors to place a vertical piping system to control the sulfur water in the Administrative Parking Lot. The City also hired Floyd Butterfield, a local consultant, to act as the Construction Manager.
  2. On May 11, 2004, a pre-construction meeting was held with all of the contractor team. An approach for pipe design and installation was discussed, with it being determined that Boyle/Fugro would analyze available reports and soil data to design an appropriate pipe perforation scheduled (a first step in the start of work).
  3. Boyle/Fugro have since determined that there is inadequate data available for them to assure an appropriate pipe perforation design for the fix.
  4. At this juncture, there are two alternatives to consider:

Option 1 – Detailed Soils Reporting

Boyle/Fugro recommends a subsurface characterization (soils report) of conditions underneath the City Hall/Library parking lot. In particular, the presence of bedrock at the 60-foot level was noted in the borings provided by City staff. This finding is a significant concern when evaluating options for dewatering the excavation. The lithology of the site must be evaluated before Boyle/Fugro can select a design approach for controlling flow from the spring and the presence/depth of bedrock must be confirmed. The characterization includes two deep borings 100 feet in depth. (See attached proposal dated may 28, 2004).

This approach requires an additional \$19,500 to the contract and at least 3 to 5 weeks delay in start of work.

Option 2 – Proceed with Pipe Installation

Floyd Butterfield, a local consultant who worked closely with the City's consulting Geohydrologists (GSI, Inc.) through the initial emergency response phase of the mineral spring eruption, also submitted a written recommendation (see letter dated May 25, 2004). He recommends moving forward with the amount of information available at this time. Mr. Butterfield's proposal is a more pragmatic approach and relies on field condition data as the installation occurs.

This approach involves the risk that the perforation schedule could fail and the cost for time & materials is lost. The benefit is that there is a time savings and a reasonable chance of success. Between the time of this writing and the City Council meeting, staff will explore further with the drilling contractor regarding timing & cost benefits, as well as with FEMA regarding any affect on reimbursement eligibility.

5. Floyd Butterfield reports that since the eruption of the mineral spring in December 2003, there has been a progressive decrease in flow. Based on the current rate of change, he estimates that there could be a cease of flow in the next 12-18 months.

**ANALYSIS  
AND**

**CONCLUSION:** The City Council may consider one of two options regarding pipe installation. Option 1 requires additional information collection, estimated to cost \$19,500 and adds three to five weeks to the construction repair schedule. Option 2 relies on empirical data and requires no immediate modification to the construction repair schedule.

**POLICY**

**REFERENCE:** Adopted Purchasing Policy.

**FISCAL**

**IMPACT:** Costs to prepare the additional soils report is \$19,500 and will be submitted for reimbursement to FEMA. Costs to pursue a more immediate pipe installation solution will be explored further and presented at the June 15, 2004 City Council Meeting.

- OPTIONS:**
- a. Adopt Resolution No. 04-xx amending the Boyle/Fugro design contract in the amount of \$19,500, bringing the total not-to-exceed contract amount to \$137,770.
  - b. Direct the installation of pipe to proceed at this time based on historic information provided by Floyd Butterfield.
  - c. Amend, modify or reject the above options.

Attachments (3)

- 1) Resolution
- 2) Boyle/Fugro Proposal
- 3) Butterfield (May 25, 2004) Geotechnical Consideration Letter

RESOLUTION NO. 04-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES  
AMENDING THE BOYLE/FUGRO DESIGN CONTRACT FOR REPAIR OF THE CITY  
HALL/LIBRARY PARKING LOT, ADDING \$19,500 FOR A SOILS REPORT

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WHEREAS, in April 2004, the City Council awarded Boyle/Fugro a design contract to prepare plans & specifications for repair of the parking lot, awarded the construction contract to control the sulfur water in the City Hall/Library parking lot to Associated Pacific Contractors to place a vertical piping system, and hired Floyd Butterfield to act as the Construction Manager; and

WHEREAS, Boyle/Fugro have determined that there is inadequate data available for them to assure an appropriate pipe perforation design and has recommended a subsurface characterization (soils) report of conditions underneath the City Hall/Library parking lot; and

WHEREAS, a soils report requires an additional \$19,500 to the Boyle/Fugro contract and at least 3 to 5 weeks delay in the start of work.

THEREFORE, BE IT RESOLVED AS FOLLOWS:

SECTION 1. The City Council of the City of El Paso de Robles does hereby approve amendment of the Boyle/Fugro contract budget to allow a soils report, resulting in a revised not-to-exceed contract amount of \$137,770.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 15<sup>th</sup> day of June 2004 by the following vote:

AYES:  
NOES:  
ABSTAIN:  
ABSENT:

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Frank R. Mecham, Mayor

ATTEST:

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Sharilyn M. Ryan, Deputy City Clerk



**BOYLE ENGINEERING CORPORATION**

3 Higuera Street, Suite C  
San Luis Obispo, CA 93401

ATTACHMENT <sup>2</sup>

TEL (805) 542-9840  
FAX (805) 542-9990

**FAX TRANSMITTAL**

<b>To:</b> Fred Cardenas CITY OF PASO ROBLES 1000 Spring Street Paso Robles CA 93446		<b>From:</b> Michael Nunley, PE Branch Manager	
<b>Copies To:</b>		<b>Subject:</b> Parking Lot Restoration	
<b>Fax Number:</b> (805) 237-3904		<b>Date:</b> 6/2/04	<b>Time:</b> 8:15 AM
		<b>Total Pages:</b> 6	

Please deliver these pages to the person(s) listed above. If you have difficulty receiving this transmission or if any pages are missing or illegible, please call (805) 542-9840 and ask to speak to Cathy Joubert.

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Comments:

# BOYLE

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Fred Cardenas  
Utilities Manager  
CITY OF PASO ROBLES  
1000 Spring Street  
Paso Robles CA 93446

June 1, 2004  
BK-P53-300-04

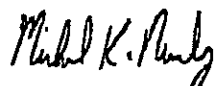
## Parking Lot Restoration Request for Budget Revision for Deep Borings

As we have discussed, Boyle and Fugro recommend performing a subsurface characterization of conditions underneath the City Hall parking area. In particular, the presence of bedrock at 60 feet was noted in borings for the City Hall and Safety Center soils reports and this finding is a significant concern when evaluating options for dewatering the excavation. The lithology of the site must be evaluated before we select a design approach for controlling flow from the spring and the presence/depth of bedrock must be confirmed.

Fugro's proposal to perform two deep borings (approximately 100 feet below ground surface) is attached. We recommend authorizing Boyle and Fugro to perform this additional work for an estimated budget of \$19,500, including Fugro's scope of work and Boyle's time for additional project management and site observation. This fee would be paid on a time and materials basis, in accordance with the fee schedule for the original agreement, with an additional budget not to exceed this amount.

We hope this approach meets your approval. Please feel free to call if you have any questions or need additional information.

### **Boyle Engineering Corporation**



Michael K. Nunley, PE  
Branch Manager

DOCUMENT



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**FUGRO WEST, INC.**

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660 Clarion Court, Suite A  
San Luis Obispo, California 93401  
Tel: (805) 542-0797  
Fax: (805) 542-9311

May 28, 2004  
Project No. 3044.028

Boyle Engineering Corporation  
973 Higuera Street, Suite C  
San Luis Obispo, California 93401

Attention: Mr. Mike Nunley

Subject: Proposal for Field Exploration and Subsurface Characterization, Hot Spring in City Hall Parking Lot, Paso Robles, California

Dear Mr. Nunley:

Fugro is pleased to submit this proposal to provide geotechnical exploration services for the hot spring in the City Hall parking lot in Paso Robles, California. Fugro is currently providing geotechnical services to evaluate alternatives to control the flow of water from the hot spring according to our proposal submitted to Boyle on March 9, 2004. This letter was prepared in response to your request of May 25, 2004 for a proposal to provide a geotechnical exploration of the site.

The main purpose of a field exploration program will be to characterize subsurface conditions in the immediate vicinity of the hot spring to better understand the lithology underlying the site. Particularly with regard to a 60-foot depth to bedrock that was reported in previous explorations performed for the City Hall Library and Safety Center. Characterization of subsurface conditions will aid in our evaluation of alternatives to control the water flow from the hot spring. Our scope of work, estimated fee, and schedule to provide geotechnical field exploration services are presented in this proposal.

### **SCOPE OF WORK**

#### **TASK 1 - PROJECT INITIATION**

We will visit the site to coordinate access for field exploration. We will mark the locations of our planned explorations and contact Underground Services Alert (USA) to review the locations relative to underground utilities. Fugro will not be responsible for damages resulting from damage to buried structures or underground utilities that are not brought to our attention and properly marked at the site. We will obtain well-permits from the County of San Luis Obispo required for the drilling.

Proposal for Field Exploration and Subsurface Characterization  
Boyle Engineering (May 27, 2004)



## **TASK 2 - FIELD EXPLORATION**

We will conduct a field exploration program consisting of drilling two hollow-stem-auger borings to evaluate the subsurface conditions. Borings will be drilled on opposite sides of the pit surrounding the hot spring. We will drill hollow-stem auger borings to 100 feet below the existing ground surface, or 20 feet into bedrock; whichever is shallower.

We will sample the hollow-stem-auger borings at approximately 5-foot intervals using standard penetration test (SPT) and modified California split spoon samplers. The samples will be used to classify the soils encountered and will be retained for subsequent laboratory testing. If possible, the borings will be backfilled with monitoring wells that can be used to gather information on groundwater levels. In the event that artesian groundwater is encountered during drilling operations, drill holes will be backfilled with sand-cement slurry.

**Hazardous Materials.** This scope of work specifically excludes the search for, and evaluation of hazardous materials in soil, water or air. In the event that hazardous materials are encountered during field exploration, Fugro will be required to report the contamination and to follow protocols required by various agencies. The cost for work performed in association with the discovery of hazardous materials will be provided on a time and materials basis and is not included in this proposal.

## **TASK 3 - LABORATORY TESTING**

We will perform laboratory tests on selected samples obtained from the field exploration program to assist in our characterization of the geotechnical engineering properties of the materials encountered. The types and numbers of tests that we expect to perform are indicated on Plate 1. The actual tests will be selected based on the results of our field exploration.

## **TASK 4 - SUBSURFACE CHARACTERIZATION AND GEOTECHNICAL DATA REPORT**

Geotechnical data collected during the study will be used to assist in evaluating alternatives to control the flow of water from the spring. We propose to develop a subsurface profile that includes pertinent survey and topographical data (provided to us), and geotechnical data.

The geotechnical data report will discuss the earth material properties and groundwater conditions at the exploration locations, with supporting laboratory test data. Field and laboratory data obtained from our evaluation will be included in the report, along with a site map showing the boring locations. We may recommend that additional exploration or evaluation be performed based on the results of the work performed. Four copies of the report will be submitted.



Proposal for Field Exploration and Subsurface Characterization  
Boyle Engineering (May 27, 2004)



### FEE ESTIMATE

Our estimated fee for the proposed scope of work is presented on Plate 1. This fee was prepared based on our understanding of the project, estimated costs, and our experience with similar projects. We will not exceed the estimate without prior approval of the client. This proposal can be considered valid for a period of 30 days, after which time Fugro reserves the right to revise the proposal prior to receiving authorization for our services.

### SCHEDULE

Field activities can be scheduled once we are given authorization to proceed. These activities will be scheduled based on the availability of access to the site, the availability of the drill rig, and the prevailing weather conditions. We expect that the report can be submitted within 3 weeks of the completion of the field work. We will provide information orally, as it becomes available.

Please contact the undersigned if you have questions or we can be of service.

Sincerely,  
FUGRO WEST, INC.

A handwritten signature in black ink, appearing to read "Neph J. Derbidge".

Neph J. Derbidge  
Staff Engineer

A handwritten signature in black ink, appearing to read "Jonathan D. Blanchard".

Jonathan D. Blanchard, P.E.  
Principal Geotechnical Engineer

Enclosures: Plate 1 – Fee Estimate for Field Exploration and Subsurface Characterization

Copies: 1 – Addressee (via e-mail)





Boyle Engineering Corporation  
 Proposal for Geotechnical Services



Task	Rate/Hour	Principal	Associate	Project	Staff	Technician	GIS/CAD Operator	Illustrator	Word Processor	Total Hours	Total Cost
		\$100	\$120	\$90	\$80	\$75	\$70	\$60	\$50		
Project Initiation		4			8					12	\$ 1,240
Field Exploration		4			24					28	\$ 2,520
Laboratory Tests					Unit rates as listed below						\$ 1,450
Data Report Preparation		4			10			8	2	24	\$ 1,940
<b>Subtotal:</b>		<b>12</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>2</b>	<b>64</b>	<b>\$ 7,160</b>

**Laboratory Costs**

**Other Direct Costs**

	Rate	No.		Units	Rate	Diving Factor	ODC Costs
Molauve Condit Unit Weight	\$ 20	20	Rig Mobilization (per hour)	4	\$ 185	1.15	\$ 758
Atterberg Limits	\$ 85	2	Drilling (per hour, prevailing wage)	20	\$ 185	1.15	\$ 4,255
Sieve Analysis	\$ 75	10	Well Installation (over time per hour)	8	\$ 245	1.15	\$ 1,681
Sand Equivalent	\$ 75	0	Chase Truck (per day)	2	\$ 48	1.15	\$ 104
Compaction Curve	\$ 145	0	Well Materials (per well)	2	\$ 500	1.15	\$ 1,150
Direct Shear	\$ 200	0	Drill crew per diam (2 person)	1	\$ 155	1.15	\$ 178
CU Triaxial (per point)	\$ 330	0	Pickup Truck (per day)	0	\$ -	1.00	\$ -
UU Triaxial	\$ 105	0	Backhoe (per hour)	0	\$ -	1.15	\$ -
Unconfined Compression	\$ 100	0	Traffic control, 2 person crew (per day)	0	\$ -	1.15	\$ -
Falling Head Permeability	\$ 200	0	PID and Gas Meter (per week)	0	\$ -	1.15	\$ -
Consolidation	\$ 200	0	Aerial photography	0	\$ -	1.15	\$ -
Concrete Compression	\$ 20	0	Bob Tail Dump Truck (per hour)	0	\$ -	1.15	\$ -
TPHd with BTEC (EPA 801.5m/8020)	\$ 85	0	Coring (each)	0	\$ -	1.15	\$ -
TPHd with Spill CleanUp (EPA 801.5m)	\$ 05	0	Coring (per hour)	0	\$ -	1.15	\$ -
Flow	\$ 280	0	Sand-cement slurry	1	\$ 500	1.15	\$ 575
Control	\$ 140	1	Shipping, Overnight, Copies, etc.	1	\$ 80	1.15	\$ 58
<b>Subtotal ODC:</b>							<b>\$ 3,769</b>

Estimated Total for Geotechnical Services: \$ 16,000

**FEE ESTIMATE FOR FIELD EXPLORATION AND SUBSURFACE CHARACTERIZATION SERVICES**

City Parking Lot Hot Spring  
 Paso Robles, California

**FSB Energy**

May 25, 2004

Fred Cardenas  
Utilities Director  
City of Paso Robles  
Paso Robles, CA 93446

Dear Fred,

The following is my point of view regarding the decision as to the slot schedule in the casing to be installed in the spring.

Understandably, Boyle and Fugro want as much information as possible in recommending what the slot schedule should be. They have reviewed the cuttings samples from the monitoring wells and the grab sample from the bottom of the pit. I believe their analysis of these samples indicates that a very small slot size should be used, perhaps 0.03 inches or less, so that not too much formation material passes through. Too much fine-grained material passing through the slots could eventually lead to excessive pump wear (if a pump is necessary long-term), silting-in of the casing, and/or the creation of an underground void.

On the other hand, too small of a slot size could lead to rapid plugging of the slots from the formation materials or scale deposits and render the casing unusable for production.

I discussed these ideas with Nephi (from Fugro) on May 19<sup>th</sup> and proposed that a bigger slot size be recommended, in the range of 0.0625 – 0.125 inches. These bigger slots run a lower risk from plugging and, if much formation material is passing, and does not clean up as the well develops naturally, then a removable liner with smaller slots could be installed in the casing (even a well screen).

On May 24<sup>th</sup>, I called Nephi to see if a decision had been made as to the perforation schedule. He said that the project was now in the hands of Jon Blanchard from Fugro and Mike Nunley of Boyle. Mike Nunley called me to explain that he and Fugro were preparing a report for you and believed they needed more information to make a decision as to the slot schedule. I agree that more information would be nice, but it simply isn't available. Even if it was, I don't think it would have any practical effect. The only way to make it available is to get samples from the producing zone, and we won't know where that is until we install the casing. Samples from wells drilled off to the side won't be of much use since the producing zone is a fault or fracture and therefore has been altered from the materials outside of it. And we won't know the producing depth in the fault or fracture zone until we install the casing in it. In addition, even if samples are obtained by drilling new borings or some other method, and they indicate that a small

slot size is recommended, I would not put them in the casing, but rather in a liner. If the slots in the casing plug, then we have nothing.

There is other evidence too that a very small slot size is not necessary. At one time, there were at least several wells producing geothermal water in the vicinity of the hot springs. These wells were old, probably installed between 1900 and 1935. Most ran unregulated or at high flow rates and ran for many years. Given their dates of installation, it is unlikely that any had small slot sizes. I have never read or heard anything about any of them silting in or there being subsidence associated with them.

I appreciate Boyle's and Fugro's caution, but I believe any amount of testing will still leave us approximately where we are. We should consider all the information and choices before us and make a decision and move forward. Practically speaking, I think we have enough information to move ahead with the perforating and casing installation and recommend we do so.

I will support whatever decision is made but want you to have my viewpoint.

Thanks,

Floyd