



# PUBLIC WORKS DEPARTMENT

Council Meeting Date: October 24, 2006  
Staff Report #: 06-195

Agenda Item #: F1

**REGULAR BUSINESS: Approval of an Agreement with Infrastructure Engineering Corporation in the Amount of \$499,986 for Engineering Consultant Services for the Supplemental Emergency Water Supply Project, and Authorization of a Budget of \$570,000 for Consultant Services, Contingency, and Staff Administration.**

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## RECOMMENDATION

Staff recommends that the City Council:

1. Approve an agreement with Infrastructure Engineering Corporation in the amount of \$499,986 for engineering consultant services for the Supplemental Emergency Water Supply Project, and
2. Authorize a budget in the amount of \$570,000 for consultant services, contingency, and staff administration.

## BACKGROUND

On August 19, 2003, the Council approved an agreement with Kennedy/Jenks Consultants to study various water storage alternatives and also look at the possibility of a joint-use reservoir with the City of East Palo Alto.

After identifying and screening several possible locations, Kennedy/Jenks focused on the following as potential sites for joint-use and sole-use reservoirs:

- Seminary Oaks Park (Menlo Park)
- Willow Oaks Park (Menlo Park)
- Sharon Heights Area (Menlo Park)
- Ravenswood Business Park (East Palo Alto)

All the sites were found to have constraints that ultimately rendered the joint-use reservoir concept not feasible, because of the size of the additional capacity (10.1 million gallons) required to handle the supply for East Palo Alto and the need to locate a site that would benefit both cities. Having determined that these sites were not suitable for joint-use purposes, the study focused on evaluating the suitability of the sites for individual use by the Menlo Park Municipal Water District (MPMWD).

Of the available sites in Menlo Park, Seminary Oaks Park presented the best location for a reservoir for use by the MPMWD. Current uses of this park could be retained with the installation of a reservoir underground and a recreational park on top. The study

determined that the site would have the least disruption to existing uses during construction and is not immediately adjacent to any homes.

On December 13, 2005, the City Council approved Seminary Oaks Park as the preferred site for further study of a new water storage reservoir and authorized staff to proceed with further analysis of the site, including geotechnical evaluations, preliminary design, public outreach, and exploration of the use of groundwater for both emergency and irrigation uses. At the same meeting, Council asked staff to continue exploring a potential partnership with Cal Water for the construction and operation of the reservoir. The staff report for that meeting is available on-line or from the City Engineer's office.

## **ANALYSIS**

The proposed next phase of work will verify the limitations of the preferred alternative, Seminary Oaks Park, for the water storage reservoir and groundwater pump station. The services of an engineering consultant are needed to further define the limitations on reservoir size imposed by the location of existing utilities and the depth to groundwater. This will require a site-specific geotechnical study that will include a hydrogeological evaluation of the availability and quality of groundwater at the site.

Schematic plans of the proposal will be presented to adjacent residents to obtain their feedback. Cost estimates will be refined to take into account construction details and other contingencies that may not have been included in the preliminary estimates. This phase of work will include computer modeling of the water distribution system and an assessment of the use of groundwater for emergency supply purposes and the feasibility of distributing groundwater to larger irrigation customers.

A range of sizes for underground reservoirs will be evaluated so the City can better understand the relationship between water system reliability and project cost. Reservoir sizing will take the groundwater production capacity into consideration. The smallest reservoir that will be considered will be based on the minimum size necessary to meet fire flow demands. The largest reservoir that will be considered will be based on the maximum size that could be accommodated on the site given groundwater depth and the location of existing utilities.

After these analyses and public input, staff will return to Council with alternatives and seek further direction. Staff will continue to meet with Cal Water to evaluate its willingness to participate with the City. The refinement of the parameters of reservoir size and groundwater availability will assist in determining the feasibility of a partnership.

## **Consultant Selection Process**

On February 27, 2006, staff sent out requests for qualifications to engineering consulting firms to evaluate the suitability of the Seminary Oaks Park site for a new underground emergency water storage tank and a well system for supplementing the Hetch Hetchy water supply. Staff received nine statements of qualifications and then

requested proposals from three firms. A panel consisting of City staff and the General Manager from Cal Water reviewed the three proposals and interviewed the firms.

Infrastructure Engineering Corporation (IEC) was selected on the basis of its expertise, strength of its team, experience on similar projects, understanding of the required process, and thoroughness of its proposal.

### **Scope of Work**

The scope of work for the consultant services under this contract is comprised of the following tasks:

#### ***(0) Reservoir Site Layout Fatal Flaw Analysis***

Prior to initiating the Preliminary Design Tasks, a reservoir-site layout analysis will be performed for the Seminary Oaks Park site. The California Department of Health Services will be contacted to review Waterworks Standards pertaining to the design of buried reservoirs. Current groundwater elevation data and constraints from the Waterworks Standards will be used to determine the maximum practical storage limits that may be constructed. The results from this task will be used by the City to determine if the full preliminary design work should proceed for the Seminary Oaks Park site. Work for subsequent tasks will not proceed until authorized by the City.

#### ***(1) Project Management and Administration***

Prepare and maintain a project schedule with all task durations, milestones, progress review meetings with City staff, and key project deliverables. Meetings will be conducted as necessary with City staff and appropriate subconsultants for project coordination and submittal reviews. Prepare and facilitate interactive workshops and community presentations with the City and key project stakeholders. Coordinate with regulatory agencies and other City departments having jurisdiction over the project. Attend and present at City Council meetings as necessary.

#### ***(2) Data Collection***

Data collection will include cataloguing and verifying existing information relevant to the project. IEC will also obtain record drawings for existing facilities, including utilities in the project area. IEC will collaborate with City staff to understand Menlo Park's water operations as may be relevant to this project.

#### ***(3) Surveying and Mapping of Reservoir Site (Sandis)***

Provide surveying and mapping to support the preliminary design and all other project requirements. Map all boundaries, property lines, rights-of-way, easements, etc., to verify that all permanent facilities and construction activities can be located within the City's property, City-owned easements, and/or within City rights-of-way.

#### **(4) Subsurface Investigations**

Services include performing a subsurface exploration at the site of the proposed structure and to provide design-level geotechnical recommendations for design and construction of the planned improvements. Services will include site reconnaissance, subsurface exploration, laboratory testing, engineering analysis, and report preparation.

#### **(5) Preliminary Design Concept**

##### 5.1 Reservoir Site Analysis

The main objective is to maximize the space available by identifying the constraints and laying out alternatives for storage at the preferred site while meeting all City, County, and State requirements for water storage. Consider advantages and disadvantages of various reservoir configurations:

1. Rectangular conventionally reinforced concrete
2. Non-rectangular conventionally reinforced concrete
3. Circular prestressed concrete

##### 5.2 Groundwater Study (Kleinfelder)

Assess the hydrogeological conditions in the vicinity of Seminary Oaks Park, evaluate the potential success of a large-volume production well, and update previous hydrogeological investigations.

##### 5.3 Preliminary Park Improvements Plan (Beals Alliance)

Refine alternatives based on input from the workshops and meetings and program the priorities into conceptual alternatives. Following each community workshop, refine the park program and layout, identify the materials and design elements within the park improvement alternatives. Develop a preliminary list of improvements with quantities and prepare a preliminary cost estimate.

##### 5.4 Environmental Documentation and Constraints Analysis (Jones and Stokes)

Identify site-specific design constraints and any potentially significant impacts related to the construction and operation of the reservoirs and pump station at the Seminary Oaks Park site. The emphasis will be on constraints related to the physical characteristics and setting of the site.

##### 5.5 System Planning and Hydraulic Modeling and Analysis

Develop a set of design criteria against which the water system will be analyzed. Design criteria will include fire-flow requirements and water-distribution system criteria (i.e., maximum velocity, minimum pressure, etc.). Analyze the City's existing storage volume and develop recommended storage criteria that evaluate optimum operational, emergency, and fire-flow storage. Storage requirements will be evaluated on the basis of meeting the objectives of balancing differences between demands and supplies within the distribution system during normal operations, providing storage to meet fire-flow demands, and providing water during emergencies. The results of the hydraulic analysis will identify necessary distribution system improvements to incorporate the new

reservoir and pump station while maintaining the established water system design criteria. The modeling will assess the use of groundwater for emergency supply purposes and the feasibility of distributing groundwater to larger irrigation customers.

#### 5.6 Structural Evaluation of Reservoir Configurations (Simon Wong Engineering)

Review geotechnical recommendations and state advantages and disadvantages of each type of reservoir configuration from a structural perspective. Perform a preliminary seismic analysis to determine the location of shear walls, design requirements of the roof diaphragm, and freeboard requirements due to sloshing. Evaluate foundation types and requirements based on the geotechnical recommendations. Evaluate the constructability of each reservoir configuration with regards to the site conditions, shoring methods, dewatering methodology (if required).

#### 5.7 Electrical and System Integration Evaluation (JSP Automation)

Determine the initial power system requirements for service at the designated pump station location. It is essential to include the utility in the early stages to determine what infrastructure modifications will be required and an anticipated implementation schedule from the utility to avoid any hidden costs or delays in obtaining power utility service. Evaluate the needs for various instrumentation components that will affect the pump station's infrastructure. The pump station's communications needs will be evaluated to determine the adequate method of communications for alarm notification, monitoring, and control of the pumping systems.

#### 5.8 Cost Estimating (Saylor Consulting Group)

Prepare preliminary construction cost estimates for each proven alternative and park improvement layout. Include major cost items that are critical in determining the magnitude of each configuration to provide an accurate cost comparison.

#### 5.9 Preliminary Architectural Plan (Salas O'Brien Engineers)

Coordinate with IEC and the design team for concepts and issues on the pump station and any issues that might constrain the reservoir location and size. Develop architectural renderings of pump station building based on two to three options to present to the community.

### ***(6) Preliminary Design Report***

The scope for the Preliminary Design Report (PDR) includes preliminary engineering drawings, thorough evaluation of alternatives studied during Task 5, and a final budgetary construction cost estimate. Ultimately, the PDR will propose a "best method" for providing emergency water to City customers.

The PDR will summarize all analysis and recommendations for the project with respect to water facilities alternative analysis, park improvements, groundwater feasibility, water quality maintenance, key design issues, construction cost estimates, schedule, bidding strategies, and permit/approval requirements.

The detailed scope of work is available from the City Engineer's office.

## **Schedule**

The Preliminary Design Report is scheduled to be completed in July 2007. Staff anticipates returning to Council with the findings of the report in the summer of 2007. The preliminary schedule is included as Attachment A.

## **Cost**

A fee proposal was submitted by each consulting firm prior to completion of the consultant selection process. The fee was evaluated as a factor in the overall strength of each proposal. The final budget for the project was further negotiated with IEC after their selection.

## **IMPACT ON AGENCY RESOURCES**

The budget for the preliminary design development of the Supplemental Emergency Water Supply Project consists of the following:

Contract amount	\$499,986
Staff administration	\$ 45,014
Contingency (design and miscellaneous)	<u>\$ 25,000</u>
<b>Total Budget</b>	<b>\$570,000</b>

There are sufficient funds carried over from the Fiscal Year 2005-06 Capital Improvement Program budget for the Emergency Water Storage Project to cover these expenditures. The current project budget for the design is approximately \$1,450,000. The source of the funds is the Water Capital Fund.

## **POLICY ISSUES**

The recommendation does not represent any change to existing City policy.

## **ENVIRONMENTAL REVIEW**

As development of the preliminary design progresses, the project will be evaluated under the current California Environmental Quality Act Guidelines (CEQA). The consultant will provide the City with a recommendation on the appropriate CEQA compliance path for the project.

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**PUBLIC NOTICE:** Public Notification was achieved by posting the agenda, with this agenda item being listed, at least 72 hours prior to the meeting.

**ATTACHMENTS:** A. [Preliminary Schedule](#)