



# CITY OF SANTA BARBARA

## COUNCIL AGENDA REPORT

**AGENDA DATE:** July 13, 2010

**TO:** Mayor and Councilmembers

**FROM:** Water Resources Division, Public Works Department

**SUBJECT:** Increase In Change Order Authority For The El Estero Wastewater Treatment Plant Fats, Oil, And Grease Project

### **RECOMMENDATION:**

That Council authorize an increase in the Public Works Director's Change Order Authority to approve expenditures for extra design work for the El Estero Wastewater Treatment Plant (El Estero) Fats, Oil, and Grease (FOG) Project (Project), in the amount of \$22,000 for a total project expenditure authority of \$86,800.

### **DISCUSSION:**

#### **BACKGROUND**

The FOG Project will take place at the El Estero Wastewater Treatment Plant. The original scope of work consists of designing an injection system to divert FOG materials into El Estero's digesters, thereby reducing the truck trips currently required to haul the material long distances for disposal. Additionally, staff anticipates that the FOG Project will generate an increased amount of methane that can be used for co-generation of heat and electricity. This will result in a reduction of up to 17 metric tons of carbon dioxide-equivalent emissions annually.

On February 2, 2010, Council awarded the design contract to AECOM in the amount of \$59,400, plus a Change Order authority of \$5,400, for a total contract amount of \$64,800.

#### **CURRENT STATUS**

Staff review has shown the need for a more robust Project in order to maintain current operational standards. El Estero staff is pursuing redundancy in all systems to prevent down time of any processes. This redundancy was not originally addressed in the scope of work, and is being included in this Change Order. The enhanced scope will extend useful life by several years through the incorporation of these component features.

The extra work proposed includes additional piping and pumping facilities to allow the FOG to be delivered to either of the two digesters, redundancy in all critical pumps and valves, spill containment infrastructure around the FOG receiving tank, and drainage facilities for use in cleaning and in case of spillage related to delivery.

To design the Project to this updated scope, the Project Change Order Authority would need to be increased by \$22,000.

**BUDGET/FINANCIAL INFORMATION:**

Staff recommends that the Change Order Authority be increased by \$22,000, from \$5,400 to \$27,400, to cover additional work identified in this report. If approved, the total Project expenditure authority will be increased to \$86,800.

There are sufficient appropriated funds in the Wastewater Capital Fund to cover the City's portion of the recommended extra work items.

**ATTACHMENT:** El Estero Budget Revision

**PREPARED BY:** Christopher Toth, Wastewater System Manager/AP/cc

**SUBMITTED BY:** Christine F. Andersen, Public Works Director

**APPROVED BY:** City Administrator's Office



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5/27/10

### **Budget Revision Request 2 – El Estero WWTF FOG Pilot Project**

On February 17, 2010, City Council authorized AECOM to proceed with the design of a pilot Fats Oil and Grease (FOG) receiving, handling, and injection station at the El Estero Wastewater Treatment Plant (WWTP). Our approved scope includes plans and technical specifications for the site piping, pumping, storage vessel, and local controls of the receiving and delivery system. We are also contracted to provide limited construction phase support.

City staff has requested AECOM to include additional project features and engineering tasks to our approved scope of work. The additional scope items requested are:

1. Design of a containment area surrounding the FOG processing area
2. Site drain to Cul-de-sac drain

Through our discussions with City staff, we have developed the following understanding of the requested modifications to our Scope of Work.

#### ***Additional Task Item 1 – FOG Containment Facilities***

AECOM will provide construction plans and specifications for a containment wall surrounding the FOG processing area. Preliminary estimates indicate a concrete wall (25' x 25' x 3' high) will be required to contain 150% of the volume of the FOG storage tank. The design will include stairs with a handrail to access the containment area, and the containment area will feature concrete flatwork within the entire contained area. Flatwork will be sloped to a sump. The sump will be connected to a manually operated valve to allow periodic draining of collected water to the cul-de-sac drain (see item 2 below). As discussed, pumps will be located within the contained area. Truck offload equipment (rock trap, hose connection, etc.) will be located outside the containment area. Per Staff request, our design will not feature a roof structure.

We have reviewed record drawing information provided by City staff and have not identified any conflict with existing utilities in the area of the proposed containment area. We assume that no such conflicts exist. The construction contractor will be responsible to identify and mitigate any conflicts identified during construction.

#### ***Additional Task Item 2 - Drainage Facilities***

AECOM will provide construction plans and specifications for a gravity drain connection (assumed 6 inch) between the proposed containment area and the existing cul-de-sac drain. We will also connect the proposed FOG rock trap to the new drain to facilitate maintenance of the screen. Seal water from the positive displacement pumps will also be directed to the drain.



We have assumed that adequate fall exists between the proposed containment area and the existing drain, and that no conflicts exist along the alignment. Through discussions with plant staff and our preliminary review of existing record drawings, we assume that the nearby utilities (such as the plant outfall line) are adequately deep as to not impact the design of the proposed drain line.

We have budgeted 6 hours of time to further review existing as-built drawings to evaluate conflicts and determine grade lines such as inverts at the existing cul-de-sac drain. If adequate cover does not exist over the proposed drain line, a slurry trench may be recommended.

***Additional Task Item 3 – Requested Revisions to Existing Work***

To date AECOM has performed work beyond what was approved in our original scope and budget (e.g. providing a reinforced concrete slab and seismic design, and participating in additional meetings and coordination efforts). We have also evaluated various revisions to the scope (additional digester piping, SCADA integration, and drainage improvements), analyzed potential impacts to project cost, and provided an opinion of cost for each potential revision.

Additionally, upon review of the Preliminary Design Memo (submitted April 28, 2010), significant modifications to the original scope of the project were requested by City staff. To incorporate these requests, AECOM must abandon some work already completed, revise other existing work, and perform new work not anticipated. These tasks include:

- Revising system layout
- Recalculating pump system curves
- Performing additional electrical calculations and layout
- Performing additional CAD design work
- Design of additional equipment pedestals
- Providing technical specs for a different tank and appurtenances,
- Revising cost opinions
- Providing additional direction for controlling and programming two duplex pump systems.

To accommodate the direction requested by City staff without eroding the approved budget for the remaining work, AECOM is requesting additional budget of \$4,277 to incorporate these revisions. As always, work would be performed on a time-and-materials basis and will be billed based on actual work performed.

***Additional Task Item 4 – Additional Construction Phase Support***

Our approved Scope of Work includes limited construction phase support. We are currently authorized to respond to four (4) RFIs, assist the City with examining bids, attend a pre-construction meeting, and manage submittals. With the additional project components noted above, we are requesting an increase in budget for additional submittal review and RFI response.

We are also authorized to be onsite for four (4) hours during the first day of field work, four (4) hours during one progress visit during construction, and for four (4) hours for one final visit to evaluate the near completed facilities. Our site visits are intended to monitor the overall



construction progress of the project and to address any major deficiencies encountered. Our approved scope does not include construction management or construction observation where daily activities are monitored and recorded. We are therefore not requesting additional budget to manage the additional construction activities. If unforeseen site conditions or quality concerns arise as construction proceeds, AECOM can perform additional support and site visits on an as-needed time and materials basis to assist with resolving issues and developing solutions in the field. Any additional services would be requested in writing for approval prior to the work being performed.

An hourly breakdown of these scope revisions can be seen on the attached worksheet (attached).

**Budget Summary**

Existing Approved Budget	Budget Revision Request 2	Revised Budget
\$64,506	\$21,859	\$86,365

Please sign and return the enclosed copy of this letter, thereby enabling us to perform these additional services on a time and materials basis.

Thank you,

Jon Hanlon, PE

**City of Santa Barbara**

Signed:

Date:

Title:

**Project Budget**

**El Estero FOG Pilot Program  
Budget Revision 2**

**City of Santa Barbara**

Task Description	Personnel Hours					Budget		
	Principal	Managing Engineer	Associate Engineer	Drafter	Total Hours	Labor	Non-Labor Fees	Total
<b>Additional Task Item 1 - FOG spill Containment</b>								
Plans (1 sheet)		1	4	12	17	\$ 1,935	\$ 155	\$ 2,090
specs		1	8		9	\$ 1,175	\$ 94	\$ 1,269
structural engineering	6				6	\$ 1,200	\$ 96	\$ 1,296
Misc. details		2	8	8	18	\$ 2,190	\$ 175	\$ 2,365
<b>Subtotal</b>	<b>6</b>	<b>4</b>	<b>20</b>	<b>20</b>	<b>50</b>	<b>\$ 6,500</b>	<b>\$ 520</b>	<b>\$ 7,020</b>
<b>Additional Task Item 2 - Drainage Facilities</b>								
record drawing review			6		6	\$ 750	\$ 60	\$ 810
Plans (1 sheet)		2	6	12	20	\$ 2,360	\$ 189	\$ 2,549
Specs		2	8		10	\$ 1,350	\$ 108	\$ 1,458
<b>Subtotal</b>	<b>-</b>	<b>4</b>	<b>20</b>	<b>12</b>	<b>36</b>	<b>\$ 4,460</b>	<b>\$ 357</b>	<b>\$ 4,817</b>
<b>Task Group 3 -</b>								
Revisions to Work Already Completed		4	16	12	32	\$ 3,960	\$ 317	\$ 4,277
<b>Subtotal</b>	<b>-</b>	<b>4</b>	<b>16</b>	<b>12</b>	<b>32</b>	<b>\$ 3,960</b>	<b>\$ 317</b>	<b>\$ 4,277</b>
<b>Task Group 4 - Additional Construction Phase Services</b>								
RFIs and Bid Addenda		2	4		6	\$ 850	\$ 68	\$ 918
Submittal Review and Management		4	16		20	\$ 2,700	\$ 216	\$ 2,916
Change Order Review and Management		2	8		10	\$ 1,350	\$ 108	\$ 1,458
additional record drawings				4	4	\$ 420	\$ 34	\$ 454
<b>Subtotal</b>	<b>-</b>	<b>8</b>	<b>28</b>	<b>4</b>	<b>40</b>	<b>\$ 5,320</b>	<b>\$ 426</b>	<b>\$ 5,746</b>
<b>Total</b>	<b>6</b>	<b>20</b>	<b>84</b>	<b>48</b>	<b>158</b>	<b>\$ 20,240</b>	<b>\$ 1,619</b>	<b>\$ 21,859</b>

Amounts shown are fee.

Personnel Category	\$/HR
Principal	\$200.00
Managing Engineer	\$175.00
Associate Engineer	\$125.00
Drafter	\$105.00