



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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MGMT 08-06F

MEMORANDUM

To: Governing Board, Audit Committee

From: Allen Vann, Inspector General

Subject: Follow-up Report on Everglades Construction Project Design and Construction Management Cost Issues, Report # 00-14

Date: August 15, 2000

This report presents our evaluation of the progress made in controlling Everglades Construction Project (ECP) engineering cost subsequent to issuing our previous report: *Audit of the Everglades Construction Project Procurement Process #97-15*, dated June 3, 1998.

The Everglades Construction Project Office has made significant progress in controlling engineering costs. In our previous audit we evaluated the reasonableness of ECP engineering costs using various benchmarks. Current projections for both detail design and construction management cost are much closer to benchmarks we used in our previous audit. The difference in dollars spent (or estimated to be spent) on design and construction management is only 5% over the benchmark set by the original Conceptual Design Document as compared to 25% over that benchmark in our previous audit. Achieving the current projections for the entire project relies largely on achieving the favorable projections for STA 3/4, which are currently below the benchmark. ECP should continue pursuing opportunities for controlling construction management costs in line with the recommendations we made in our prior report.

BACKGROUND

The previous audit was performed early in the construction process; thus, construction management costs were based primarily on budget estimates. Significant components of the ECP have been completed since then; therefore, more actual data exists from which trends can be evaluated.

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Design services have been procured using the Consultant's Competitive Negotiation Act (CCNA) process (F.S. 287.055). All construction contracts have been procured via the sealed competitive bidding process. Guidance for procurement of ECP services and construction is contained in the District's *Procurement and Contracting Policy 7.10000*. Procurement policies for the ECP are virtually the same as for procurement of all goods and services by the District, with the exception of higher approval threshold limits for ECP contracting activity.¹

Accomplishment of the ECP is the responsibility of the District's Director of Everglades Construction Project Office. In 1995 the majority of design work was procured. The bidding and awarding of construction contracts commenced in 1997. Since then virtually all land purchases are complete and a significant portion of construction work is completed. STA 3/4 is the last major system to be constructed. Approximately \$194 million worth of contracts have been awarded to date.

OBJECTIVES, SCOPE AND METHODOLOGY

Our audit objective was to evaluate the degree of progress made in controlling construction management cost since our last audit. The Everglades Construction Project Office prepared the analysis and we verified the data, calculations and assumption used in the analysis.

The scope includes the period from the ECP's inception through September 30, 1999. All contracts that are part of the ECP are included in the analysis. This follow-up audit entailed verifying the information and evaluating the analysis. Specific methodologies are as follows:

- Reviewed the analysis and verified the accuracy of information contained therein and compared it to supporting procurement and accounting documents.
- Analyzed the reasonableness of assumptions made in calculating estimates.

Our audit was conducted in accordance with generally accepted governmental auditing standards.

¹ The Governing Board approved higher authorization thresholds for the ECP in November 1996. These changes are incorporated into the latest policy revision as of November 14, 1996, noted above.

FINDINGS AND RECOMMENDATIONS

The prior audit identified two benchmarks for evaluating engineering costs as a percentage of construction cost. The primary benchmark we used was the one contained in the Conceptual Design Document (CDD) prepared before enactment of the Everglades Forever Act. The CDD assumed that costs for design and construction management services in proportion to total construction costs would be as follows:

<i>Service</i>	<i>Percentage</i>
<i>Design</i>	7.0%
<i>Construction Management</i>	6.5%
<i>Total</i>	<u>13.5%</u>

The following chart compares the CDD benchmark to current actual expenditures and contrasts them to our previous audit results.

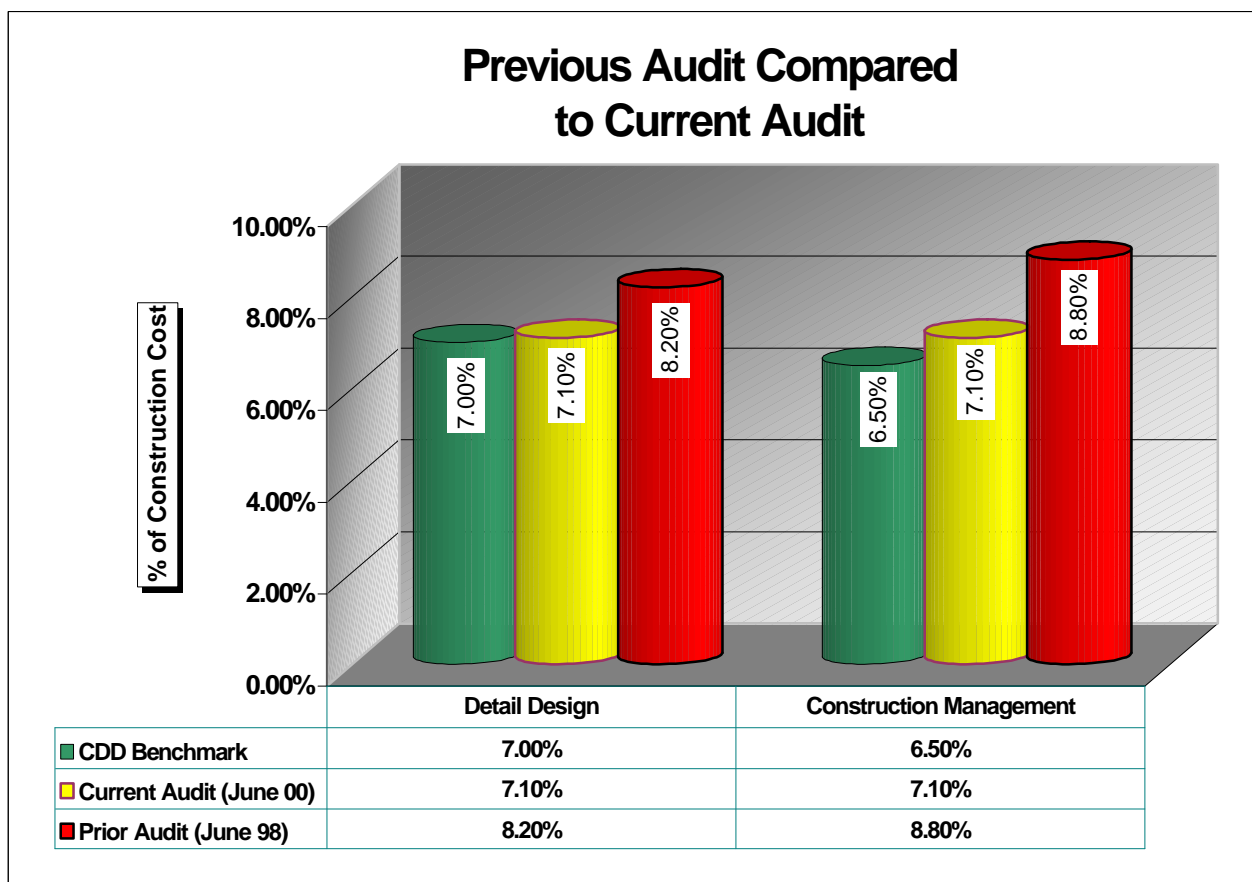


Table 1 - Current Audit Compared to CDD Benchmark:

Engineering Phase	Per Conceptual Design Document		Current Audit		Difference Over (Under)
Design Phase	\$19,914,000	7.0%	\$20,293,000	7.1%	\$379,000
Construction Mgt.	<u>18,491,000</u>	<u>6.5%</u>	<u>20,081,000</u>	<u>7.1%</u>	<u>1,590,000</u>
Total	<u>\$38,405,000</u>	<u>13.5%</u>	<u>\$40,374,000</u>	<u>14.2%</u>	<u>\$1,969,000</u>

Based on total construction cost of \$284,482,000.

Table 2 - Previous Audit Compared to CDD Benchmark:

Engineering Phase	Per Conceptual Design Document		Previous Audit		Difference Over (Under)
Design Phase	\$4,854,000	7.0%	\$5,686,000	8.2%	\$832,000
Construction Mgt.	<u>4,506,000</u>	<u>6.5%</u>	<u>6,077,000</u>	<u>8.8%</u>	<u>1,571,000</u>
Total	<u>\$9,360,000</u>	<u>13.5%</u>	<u>\$11,763,000</u>	<u>17.0%</u>	<u>\$2,403,000</u>

Based on total construction cost of \$69,337,000.

Our follow-up numbers reflect a significant improvement in cost containment has occurred since our last audit. Currently, the difference in dollars spent on design and construction management is only 5% over the benchmark set by the CDD (per Table 1: \$2 million difference ÷ \$38 million benchmark). We previously reported a 25% difference (per Table 2: \$2.4 million difference ÷ \$9.4 million benchmark). As in our previous report, current numbers are based on current estimates and reflect the combination of actual cost incurred plus estimated cost to complete. The cost also includes both external contract costs and internal staff cost.

Further analysis indicates that for completed construction work the actual amount spent for design and construction management was 15.4%. For jobs in progress, the percentage is 13% based more upon estimates than actual costs.

Our previous audit also compared engineering cost to industry averages based on the *Design Services Fee Survey*, 12th Edition, Published by PSMJ Resources, Inc.² (the "Fee Survey"). The Fee Survey was derived from a survey of 261 engineering firms and is used by the construction and engineering community. Engineering cost ranges contained in the Fee Survey compared to the current audited costs are shown in the following table:

² PSMJ Resources, Inc. is an international provider of strategic planning, management, marketing information, and services for the design and construction industries.

<i>Service</i>	<i>Fee Survey</i>	<i>Current Audit</i>
<i>Design</i>	8% ³	7.1%
<i>Construction Management</i>	4% ⁴	7.1%
<i>Total</i>	<u>12%</u>	<u>14.2%</u>

Although notable progress has been made in controlling engineering cost, the second benchmark suggests that the Everglades Construction Project Office should continue pursuing opportunities for controlling construction management costs in line with the recommendations we made in our prior report.⁵

Tim Beirnes, Lead Consulting Auditor, prepared this follow-up report. Should you have any questions or require additional information concerning matters discussed in this report, please feel free to call me at 561-682-6220.

Attachment

c: Joint Legislative Committee on Everglades Oversight
Frank Finch, Executive Director
Joseph Schweigart, Director ECP

³ Based on the information in the Fee Survey, 8% appears to be a reasonable overall benchmark for design services.

⁴ The Fee Survey provided benchmarks for construction management services ranging from 3% to 5% with a mean of 3%. However, it also included benchmarks for Wastewater Treatment Plants (considered the most comparable type of work to the STA's) ranges from 3% to 6% with a mean of 4%. Therefore, we selected 4% as a reasonable benchmark.

⁵ Of the thirty-one recommendations made in several audit reports directed toward the ECP Office, 30 have been implemented. The one recommendation relating to monitoring the planned level of expenditures remains open and is being addressed by the Director.