

Exhibit A - Scope of Work or Services

I. PROJECT NAME OR DESCRIPTION

Salt and Nitrate Sources Work Plan and Pilot Implementation Study

II. SCOPE OF WORK/SERVICES and DELIVERABLES

The scope of work for all project efforts are described in the Detailed Technical Approach (attached as Exhibit B) and Scope of work contained in the Request for Proposals dated April 20, 2009

Deliverables

Consultant shall deliver to CVSC not later than the date or dates indicated, the following:

1. Draft Pilot Study Report – December 31, 2009
2. Final Pilot Study Report – March 15, 2010

All deliverables shall be provided in acceptable formats for distribution and in original program format.

III. TASKS TO BE PERFORMED

Consultant shall provide all labor, materials and equipment for the Project to perform the specific tasks as described in Exhibit B. Additionally, Consultant will provide the Technical or other CV-SALTS committees with information and understanding of the WARMF model, clearly stating its assumptions, data and inputs related to salinity and nitrate to assist the group with review and acceptance of the work plan and reports.

IV. PERFORMANCE TIME FRAME

Consultant shall begin work within five days of the date this Agreement is signed by CVSC and shall complete performance of such services by or before March 15, 2010.

V. CVSC LIASION

Daniel Cozad will serve as liaison between CVSC and Consultant for this scope of work unless otherwise provided in the Drainage Authority Contract.

VI. COMPENSATION

For all services rendered by Consultant pursuant to this Exhibit, Consultant shall receive a total not-to-exceed sum of \$ 261,942.00 in accordance with the Schedule of Hourly Rates, attached to this agreement as Exhibit B, and shall be reimbursed for reasonable and necessary expenses incurred in the connection with the performance of services hereunder. Subcontract costs shall have no more than 5% markup on actual invoice from authorized subcontractors to be paid. Payment of the fees and expenses incurred shall be made monthly upon receipt of timely and proper invoices from Consultant, as required by the above-mentioned Agreement. Each such invoice shall be provided to CVSC by Consultant within 15 days after the end of the month in which the services were performed.

VII. CONTRACT DOCUMENTS PRECEDENCE

In the event of a conflict in terms between and among the contract documents herein, the document item highest in precedence shall control. The precedence shall be:

- a. The Agreement for Services by Independent Consultant/Contractor;
- b. The Exhibit or Task Order or Orders issued pursuant to the Agreement, in numerical order;
- c. Exhibits attached to each Task Order, which may describe, among other things, the Scope of Work and compensation therefore;
- d. Request for Proposal incorporated by reference.

Exhibit B – Consultant’s Detailed Technical Approach and Budget Detail

Task 2 – Pilot Salt and Nutrient Studies and Report

The following subtasks will be performed to complete the Pilot Salt and Nutrient Studies and Report.

Task 2A – Collect and Review Data for Pilot Areas

For each of the pilot study areas selected in Task 1, additional needed data (particularly groundwater quality) not already in the WARMF database and identified in Task 1B.2, will be collected from the sources identified in Task 1B.4. These data be validated using the protocols defined in Task 1B.3 and then entered into the WARMF database using the WARMF data formatting protocols. LWA staff will lead the data validation subtask. As stated under Task 1A, if the three study areas suggested in this proposal are selected by the Committees as the project study areas, this data collection effort and associated costs can be minimized and the effort under this subtask can be focused on the collection of data that will augment the WARMF database and improve the mass balance calculation process conducted in Task 2B. As stated under Task 1B.2, additional data will be needed to extend the WARMF model to cover the full extent of the area proposed for Yolo County. Systech staff will lead the effort to extend the model. The process of creating or expanding a watershed application automatically collects basic data like topography and land use. Other data that need to be collected include meteorology, air/rain chemistry, reservoir releases, diversion flows, point sources, measured flow, and measured surface and groundwater quality. There is no programming needed to expand the model. The advantages to the project of performing the extension of the model are explained under Task 1B.2.

Task 2B – Analyze Data for Pilot Areas

1. Determine constituent mass balances

After the requisite data have been entered into the WARMF database, the model will be run to produce salt and nutrient balances for each of the pilot study areas. The model output will quantify and spatially identify significant sources and sinks of salts and nutrients, including generation, concentration, importation, mobilization, and discharge. An important advantage of the WARMF model is that it can be run to simulate different hydrologic conditions (e.g. wet year, dry year, normal year) without having to collect new data under those specific conditions. Another key advantage of the WARMF output is that it provides mass balances of the individual ions that comprise salt, thus providing substantially more information than would be produced by limiting the mass balance analysis to aggregate salinity parameters such as TDS or EC.

2. Determine trends in constituent balances

The WARMF model can be run for different historical time periods to identify trends in constituent balances over time. For groundwater the output can be correlated with historical groundwater data and with available groundwater model output to establish linkage between source and sink trends and groundwater quality.

3. Prepare tables and graphics to explain salt and nutrient balances

The mass balance output from the WARMF model and trend information will be converted, as necessary, into tables and graphics that explain the mass balance information in an easy to understand format that can be incorporated directly into the final report.

Task 2C – Prepare Pilot Study Report

1. Prepare Draft Pilot Study Report

The project team will prepare a Draft Pilot Study Report containing detail and summary findings and results of the analyses in Task 2B. The Draft Pilot Study Report will be submitted to the Committees for review and comment

2. Review Draft Pilot Study Report with Committees

The project team will meet with the Committees to discuss comments on the Draft Pilot Study Report and finalize content of the Pilot Study Report.

3. Prepare Final Study Report

The project team will prepare a Final Pilot Study Report that incorporates responses and changes based on input from the Committees.

Budget for Salt and Nitrate Sources Work Plan and Pilot Implementation Study Task 2A-2B

Task No.	Task Description	LWA	LSCE	Systech	NewFields	Outside Services	Total Budget
		Total	Total	Total	Total		
2	Pilot Salt and Nutrient Studies Report						
A	Collect and review data for each area Modesto Urban Area/Tuolumne River Watershed:	\$6,960	\$3,154	\$5,400	\$3,870		\$19,384
	Yolo County/Cache Creek and Putah Creek Watersheds:	\$0	\$9,920	\$50,670	\$4,644		\$65,234
	Tule River Basin:	\$7,975	\$1,651	\$64,830	\$13,996	\$10,200	\$98,652
	A Subtotal	\$14,935	\$14,725	\$120,900	\$22,510	\$10,200	\$183,270
B	Analyze available data						
	Determine constituent balances using methodology identified in Task 1 (WARMF Model and GW Models)	\$15,130	\$8,620	\$11,190	\$5,640	\$0	\$40,580
	Determine constituent trends	\$4,640	\$10,156	\$4,500	\$424	\$0	\$19,720
	Prepare tables, figures and appendices explaining the salt and nutrient balance.	\$3,160	\$2,976	\$7,740	\$4,496	\$0	\$18,372
	B Subtotal	\$22,930	\$21,752	\$23,430	\$10,560	\$0	\$78,672
	Task 2 A and B Total	\$71,715	\$57,665	\$157,555	\$44,076	\$10,200	\$261,942