COLORADO RIVER RECOVERY PROGRAM  
FY 2012-2013 SCOPE OF WORK for: OMID Efficiency Improvements

Lead agency: Bureau of Reclamation
Submitted by: Brent R. Uilenberg
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builenberg@usbr.gov

Date Last Modified: 4/13/2011 3:49:00 PM [This field is set to update automatically.]

<table>
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<tr>
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<td>__ Ongoing-revised project</td>
<td>X Capital funds</td>
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<td>__ Other [explain]</td>
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<td>__ Unsolicited proposal</td>
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I. Title of Proposal: OMID Efficiency Improvements

II. Relationship to RIPRAP: Colorado River Action Plan: Mainstem, Provide and Protect Instream Flows (Habitat Management), I.A.5.k, OMID Efficiency Improvements

III. Study Background/Rationale and Hypotheses: One of elements of the Colorado River Recovery Program (Program) is to provide and protect instream flows necessary to recover the four listed fish species. The 15 Mile Reach of the Colorado River, extending from the Grand Valley Irrigation District diversion dam to the confluence of the Gunnison River, is heavily impacted by upstream diversions of water. These diversions include irrigation diversions to the Orchard Mesa Irrigation District (District). The Program relies on a variety of water sources to augment instream flows in the 15-Mile Reach including water stored in Ruedi Reservoir. After 2012 the amount of water available for instream flow augmentation will be reduced by 10, 825 acre-feet. Recognizing that this loss of storage water will reduce the Program’s ability to meet 15-Mile Reach flow targets, Reclamation formulated a project to increase the irrigation efficiency of the District and to redirect the conserved water to increase hydroelectric power generation at the Grand Valley Power Plant and indirectly enhance instream flows in the 15 Mile Reach. The project consists of constructing canal check structures, a 100 acre-foot regulating reservoir, two pumping plants, administrative spill water recovery pipeline, canal interconnect pipeline and SCADA system. The total estimated construction cost of these facilities is $16.8 million with an estimated annual O&M cost of $340,000. The project was subsequently approved by the Management Committee with the conditions that an O&M funding plan be developed that would be acceptable to all parties and limited the Program’s responsibility for annual O&M costs to $100,000. An O&M contract that satisfies these conditions is expected to be executed in FY 2011 thereby allowing for an FY 2012 construction start.
IV. Study Goals, Objectives, End Product(s): The goal of the project is to increase the irrigation efficiency of the District and to redirect the conserved water to increase hydroelectric power generation and indirectly enhance instream flows by approximately 17,000 acre-feet annually.

V. Study Area: NA

VI. Study Methods/Approach: NA

VII. Task Description and Schedule:

Prepare Environmental Assessment – FY 2011
Negotiate O&M Contract – FY 2011
Acquire project real estate from Colorado River Water Conservation District – FY 2011
Complete designs and specifications for project facilities – FY 2012
Construct project facilities – FY 2012 through 2013 (Note: Construction schedule is based on Program’s 5 Year Budget Plan. There is a high probability that construction will not be completed until the end of FY 2014)

VIII. Deliverables, Due Dates, and Budget by Fiscal Year:

FY 2012
Budget - $2,901,000 (Contract and Non-Contract Costs)

FY 2013
Budget - $12,619,000 (Contract and Non-Contract Costs)

IX. Budget Summary: NA

X. Reviewers: NA

XI. References: NA
CONTRACT FOR SERVICES
Upper Colorado Endangered Fish Recovery Program – State of Utah Capital Funds
Orchard Mesa Irrigation District Project

This Contract for Services ("Contract") is between the Cal Poly Corporation, ("Contractor"), a separate non-profit 501(c)(3) auxiliary Corporation serving the interest of the California Polytechnic State University ("University") with an address of 1 Grand Ave., San Luis Obispo, CA 93407, and the National Fish and Wildlife Foundation ("NFWF"), located at 1133 15th Street N.W., Suite 1100, Washington D.C. 20005, with a branch office at 90 New Montgomery Street, Suite 1010, San Francisco, CA 94105.

1. **Engagement.** At the request of the Upper Colorado Recovery Program under the Upper Colorado Endangered Fish Recovery Program – State of Utah Capital Funds Cooperative Agreement executed by and between the State of Utah and NFWF as of August 8, 2001, NFWF hereby retains the services of the Contractor, and the Contractor accepts such retention, upon the terms and conditions set forth below.

2. **Scope of Services to be Performed.** Under the terms of this Contract, the Contractor will perform all tasks, render all services, and provide all materials and deliverables necessary and appropriate (the "Services") for professional services for Orchard Mesa Irrigation District. The specific Services to be performed by the Contractor are as described in the attached Exhibit A ("Project Proposal") and will be performed under the direction of Dr. Charles Burt of the Irrigation Training and Research Center (ITRC). Unless agreed in an amendment to this Contract duly executed by the parties hereto, the Contractor is required to perform the Services in accordance with the budget and schedule set forth in the Project Proposal and in all respects to the reasonable satisfaction of NFWF.

3. **Term.** The period of performance for this Contract is from October 17, 2011 to September 30, 2016, unless sooner terminated in accordance with the terms and conditions set forth in Section 11.

4. **Payment.** As consideration for the Services to be performed by the Contractor hereunder, NFWF shall pay compensation plus reimbursement for all expenses reasonably and actually incurred by Contractor in performing the Services under this Contract, all in accordance with the budget incorporated in the Project Proposal; provided, however, that the total amount of compensation plus reimbursable expenses payable under this Contract shall not exceed Two Hundred Thousand Dollars ($200,000) (the "Compensation"). If at any time during the term of this Contract the Contractor believes, based on work performed to date, that the budget provided in the Project Proposal may change in any one budget category by an amount that exceeds more than ten percent (10%) of the total Compensation or that the cost to fully complete the Services required under this Contract will exceed the total Compensation, the Contractor shall notify NFWF immediately, and, if requested, give a revised estimate of costs necessary to complete the Services.

Compensation shall be payable upon the submission by the Contractor to NFWF, c/o Liz Epstein, Senior Manager, Impact-Directed Environmental Accounts (IDEA), of an original signed invoice indicating the expenses incurred by the Contractor or any of its subcontractors in performing work specified in the Full Proposal. Invoices submitted by any subcontractor must be accompanied by the written approval of the Contractor. All invoices must also contain a written statement by the Contractor that the expenses for which payment is sought are (a) for work specified in the Project Proposal and (b) within the budget for such expenses as specified in the Project Proposal. Invoices shall not be submitted for less than One Thousand Dollars ($1,000) in expenses nor more frequently than once (1) per month. Payment of any invoice shall be made by NFWF within thirty (30) days of its receipt of the invoice and any necessary
accompanying documentation. NFWF reserves the right (a) to refuse to pay all or any part of the Compensation requested in a Payment Request if, at the time the Payment Request is submitted, the Contractor has failed to comply with any term or condition of this Contract or has otherwise failed to perform the Services to date to NFWF's reasonable satisfaction and (b) to retain up to ten percent (10%) of the total Compensation until submission and acceptance of the Final Reports, as defined below.

5. **Review and Reporting Requirements.** NFWF shall have an opportunity to review and comment on any and all written products prepared by the Contractor as part of the Services. The Contractor shall deliver drafts of all such products to NFWF for review and comment not less than thirty (30) days before they are due to become final.

The Contractor shall submit to NFWF annual written programmatic reports describing in reasonable detail the Services performed during the prior NFWF fiscal year (October 1 – September 30), no later than October 31st of each year during the term of this Contract.

In addition, the Contractor shall submit to NFWF annual financial reports detailing the receipts and expenditures of all Compensation plus reimbursements received by the Contractor for the Services performed during the prior NFWF fiscal year (October 1 – September 30), no later than October 31st of each year during the term of this Contract.

When the Contractor believes that it has fully and completely performed all the Services, the Contractor shall prepare a written report of its activities hereunder and their corresponding results (the "Final Programmatic Report") and a written accounting of Contractor's expenditure of funds disbursed to it hereunder (the "Final Financial Report"). (The Final Programmatic Report and Final Financial Report are hereinafter referred to collectively as the "Final Reports.") The Final Reports shall be provided by the Contractor to NFWF and the State of Utah as soon as practicable after the Contractor reaches a determination that it has fully and completely performed all the Services, and in any event no later than thirty (30) days prior to the end of the term of this Contract as set forth in Section 3. Both NFWF and the State of Utah shall notify the Contractor in writing when they have concurred that the Services have been fully and completely performed and that the Final Reports are satisfactory in form and substance.

After receiving notification from both NFWF and the State of Utah that the Services have been fully and completely performed and that the Final Reports are satisfactory, the Contractor may deliver to NFWF a request for payment of any amount of the Compensation that had previously been withheld (which in accordance with this Section 5 may be up to ten percent (10%) of the total Compensation). Within thirty (30) days after receipt of such request, NFWF shall make the final payment of Compensation to the Contractor and the Contractor shall thereafter be discharged from the obligations of this Contract, except those which expressly survive the term of this Contract.

6. **Communications.** All notices, invoices and reports required or allowed to be given by this Contract shall be by first-class mail (postage prepaid), facsimile (with telephone call required to confirm that fax has been received), PDF email, or overnight mail delivery by a nationally known courier, addressed to:

NFWF:  
Liz Epstein  
National Fish and Wildlife Foundation  
Senior Manager, Impact-Directed Environmental Accounts (IDEA)  
90 New Montgomery Street, Suite 1010  
San Francisco, CA 94105  
Telephone: 415.243.3102  
Fax: 415.778.0998
Contractor:

Technical/Programmatic: Charles Burt, Ph.D.
Irrigation Training and Research Center
California Polytechnic State University
1 Grand Avenue
San Luis Obispo, CA 93407-0730
Ph: (805) 756-2379
Fax: (805) 756-2433
Email: cburt@calpoly.edu

Administrative/Contractual: Melissa Mullen, Sponsored Programs Manager
Cal Poly Corporation
1 Grand Avenue
Building 38, Room 102
San Luis Obispo, CA 93407-0830
Ph: (805) 756-1123
Fax: (805) 756-5588
Email: sponprog@calpoly.edu

All notices, reports and invoices may be sent by e-mail, but the Final Reports must be provided in hard copy as well. Each party agrees to notify the other promptly after any change in named representative, address, telephone, or other contact information.

7. **Incorporation of the Project Proposal.** The attached Exhibit A “Project Proposal” is hereby expressly incorporated into this Contract by this reference.

8. **Assignment: Subcontracting.** The Contractor may not assign this Contract, in whole or in part, to any other individual or other legal entity without the prior written consent of the State of Utah and NFWF. The Contractor may not have subcontracts without the prior written approval of the State of Utah and NFWF. Subawards and subcontracts with known parties disclosed in the Project Proposal are deemed to be approved.

9. **Unexpended Funds.** Any funds provided by NFWF and held by the Contractor and not expended by the Contract’s termination date will be returned to NFWF within Ninety (90) days after such termination date.

10. **Amendments.** This Contract can only be amended by a written amendment, signed by all parties. Amendments may be made via counterpart originals, facsimile copies, and/or portable document format (pdf) documents, but not via email. Notwithstanding any provision of this Contract to the contrary, any duly executed amendment of this Contract to extend its term shall be deemed to automatically add or modify, as appropriate, reporting due dates pursuant to Section 5 hereof such that the dates are commensurate with the extended term of this Contract.
11. **Default; Termination.** Failure by the Contractor to comply (as determined by NFWF) with any material term of the Contract, including but not limited to any failure by the Contractor to perform the Services in accordance with the budget and schedule set forth in the Project Proposal or to the reasonable satisfaction of NFWF, shall be deemed to be a default of this Contract and shall constitute cause for NFWF to terminate this Contract. Any such termination shall be made by NFWF by written notice to the Contractor and shall entitle NFWF to pursue any legal remedy to which NFWF may be entitled. The Contractor may terminate this Contract by providing thirty (30) days’ prior written notice to NFWF. In the event of termination of this Contract prior to completion of the Services, the Contractor shall immediately (unless otherwise directed by NFWF in its notice if NFWF initiated the termination) undertake all reasonable steps to wind down the project comprised by the Services cooperatively with NFWF, including but not limited to the following:

a. Stop work on any portion of the Services that is incomplete, and refrain from undertaking any further work constituting Services.

b. Place no further work orders or enter into any further subcontracts for materials, services, facilities, or other aspects of the Services.

c. Terminate all pending work orders and subcontracts for Services that have not yet commenced.

d. With the prior written consent of NFWF, promptly take all other reasonable and feasible steps to minimize and/or mitigate any damages that may be caused by the failure to complete the Services, including but not limited to reasonable settlements of any outstanding claims arising out of termination of work orders and subcontracts related to the Services.

e. Deliver or make available to NFWF all data, drawings, specifications, reports, estimates, summaries, and such other information and material as may have been accumulated by the Contractor under this Contract, whether completed or in progress.

f. Return to NFWF any unobligated or unspent portion of the Compensation.

g. Prepare a final invoice for Services performed prior to the date of termination (including any obligations for Services that, notwithstanding Contractor’s best efforts, are unable to be canceled in accordance with subsections (c) and (d) immediately above), which invoice will be submitted by Contractor and paid by NFWF in accordance with Section 4 of this Agreement.

12. **Additional Support.** By entering into this Contract, NFWF assumes no obligation to provide further funding or support to the Contractor beyond the terms stated in this Contract.

13. **Arbitration and Choice of Law.**

13.1 All claims, disputes, and other matters in question arising out of, or relating to this Contract, its interpretation or breach shall be decided through arbitration by a person or persons mutually acceptable to both NFWF and the Contractor. Notice of the demand for arbitration shall be made within a reasonable time after the claim, dispute, or other matter
in question has arisen. The award rendered by the arbitrator or arbitrators shall be final.

13.2 This Contract shall be subject to and interpreted by the laws of the state of California, without regard to choice of law principles. By entering into this Contract, the Contractor agrees to submit to the jurisdiction of the courts of the state of California.

13.3 The terms of this Section will survive termination of this Contract.

14. **Compliance with Laws; Insurance; Indemnification.**

14.1 In conducting its activities relating to the Services, the Contractor agrees to conduct all such activities in compliance with all applicable Federal, State, and local laws, regulations, and ordinances; and to secure all appropriate necessary public or private permits and consents.

14.2 The Contractor agrees to obtain and maintain all appropriate insurance against liability for injury to persons or property from any and all activities undertaken by the Contractor and associated with this Contract in any way and will have NFWF named as an additional insured on all such policies and provide NFWF with appropriate Certificates of Insurance reflecting such additions within sixty (60) days after this Contract is fully executed.

14.3 The Contractor shall defend, indemnify and hold NFWF, any other entities providing funding for performance of the Services, and their respective officers, employees and agents harmless from and against any and all liability, loss expense (including reasonable attorneys' fees), or claims for injury or damages arising out of Contractor's performance of this Contract but only in proportion to and to the extent such liability, loss, expense, attorneys' fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of Contractor, its officers, agents, or employees.

14.4 The terms of this Section will survive termination of this Contract.

15. **Publicity.** The Contractor agrees to give appropriate credit to the National Fish and Wildlife Foundation and those Federal, State or local agencies and/or private organizations identified as contributors to this Contract, if any, for their financial or other support in any and all press releases, publications, annual reports, video credits, dedications, and other public communications regarding this Contract or any of the deliverables associated with the Services and/or this Contract. The Contractor gives NFWF the right and authority to publicize NFWF's financial support for this Contract and the Services in press releases, publications and other public communications.

16. **Disclaimers.** Payments made to the Contractor under this Contract do not by direct reference or implication convey NFWF's endorsement nor the endorsement by any other entity that provides funds to the Contractor through this Contract, including the U.S. Government, of any deliverables provided pursuant to the Contract. All information submitted for publication or other public releases of information regarding this Contract shall carry the following disclaimer:

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of any entity that provides funds to the Contractor through this Contract, including the U.S."
Government or the National Fish and Wildlife Foundation. Mention of trade names or commercial products does not constitute their endorsement by any such entity, the U.S. Government or the National Fish and Wildlife Foundation."

17. **Website Links.** The Contractor agrees to permit NFWF to post a link on any or all of NFWF's websites to any websites created by the Contractor in connection with this Contract.

18. **Evaluation.** The Contractor agrees to cooperate with NFWF by providing timely responses to all reasonable requests for information to assist in evaluating the accomplishments of this Contract for a period of five (5) years after the date on which the Final Reports are provided.

19. **Access to Records.** NFWF, any and all Federal, State, or local agencies providing funds for this Contract and the Comptroller General of the U.S., or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the Contractor that are directly pertinent to this Contract for purposes of making audits, examinations, excerpts or transcription for up to three years from the date of delivery of the Final Reports regarding this Contract.

20. **Severability.** Each provision of this contract is distinct and severable from the others. If one or more provisions is or becomes invalid, unlawful, or unenforceable in whole or in part, the validity, lawfulness and enforceability of the remaining provisions (and of the same provision to the extent enforceable) will not be impaired, and the parties agree to substitute a provision as similar to the offending provision as possible without its being invalid, unlawful or unenforceable.

21. **Binding Obligation.** This Contract has been duly executed by a representative of the Contractor with full authority to execute this Contract and bind the Contractor to the terms hereof. After execution by the representative of the Contractor named on the signature page hereto, this Contract will represent the legal, valid, and binding obligation of the Contractor, enforceable against the Contractor in accordance with its terms.
IN WITNESS WHEREOF, both parties have signed this Contract, intending to be bound legally.

**Contractor**

[Signature]

Date: 11-23-11

Name: Melissa Mullen
Title: Sponsored Programs Manager
Tax Identification Number: 95-1648180

**National Fish and Wildlife Foundation**

[Signature]

Date: 11-25-11

For: Timothy J. DiCintio
Vice President, Impact-Directed Environmental Accounts
Exhibit A: Project Proposal for ITRC Professional Services for Orchard Mesa Irrigation District

Description of services provided to Orchard Mesa Irrigation District (OMID):

1. Determination of the proper locations and lengths for approximately 15 long crested weirs in Canals #1 and #2. GIS data will be put into ITRC's unsteady flow hydraulic model (CanalCAD) to determine the best locations and number of long crested weirs. The objective will be to maintain good deliveries to field turnouts at both high and low flows. USBR will be responsible for the profile surveying (elevations: top of lining, invert, high water mark, ground surface on delivery side, high water mark on delivery) and identification of turnout locations.

2. Provide conceptual drawings of dimensions and configurations of the long crested weirs.

3. Meet with OMID and USBR staff to clearly define the responsibilities of each party regarding construction and installation of various aspects of the project. This information will be contained in the SCADA specifications that will be written by ITRC.

4. Examine and critique civil design drawings, from a hydraulics aspect, with USBR.

5. Develop the PLC control logic and automation code for the Regulating Reservoir. A result of this will be the development of a detailed tag list for the integrator, for the reservoir site. This must be included in the SCADA specifications so that the integrator has a clear understanding of what will be required at the site, and what needs to be communicated and displayed in the office.

6. Do the same as (5 above), for the Booster Pump Station and the Duck Pond Pump Station.

7. Write the SCADA specifications for each of the automated sites, which are:
   a. Duck Pond Pump
   b. Booster Pump(s)
   c. Reservoir inlet/outlet

   The SCADA specifications will provide a site-by-site explanation of what automation work will be done, the tag lists for communication/HMI, the OIT requirements, the SCADA equipment needed, radio tests needed, and performance requirements. The specifications will also provide guidance for the HMI screen development. The dividing line between ITRC's PLC programming and the integrator's work will be defined.

8. Meet with prospective integrators and contractors in the field for initial orientation in preparation for bids.

9. Examine and critique integration bids with USBR and OMID.

10. Work with USBR to develop the specifications for all automated pumps and gates, as well as the structures (from a hydraulics aspect) to support these mechanical devices.

11. Examine and critique pump and gate bid submittals with USBR.
12. Customize the control programming based on the actual pumps and control gates that are purchased and installed.

13. Complete the ISaGRAF code and documentation

14. Program the PLCs for control, and commission each automated site together with the integrator.

15. Provide consultation as needed regarding the MML pipeline.

16. Provide support of ITRC’s PLC programming for 1 year after initialization. *This will require remote access to OMID’s HMI (office software).*

**Estimated cost**

The estimated cost for this work is $200,000.

**Qualifications**

1. The SCADA work at OMID is envisioned to incorporate the ISaGRAF programming language, DNP3 communications protocol, and ClearSCADA software. ITRC will place its ISaGRAF control code in an OMID-funded escrow account as insurance against any future inability of ITRC to modify the code. ITRC has defined a clear "bridge" point in programming, between the integrator and ITRC. ITRC will write all of the control logic, and the integrator will be responsible for the programming of all the local and SCADA housekeeping details such as communication, calibration of sensors, and the availability of power and pumps. The integrator will pass.

2. The weak links in these projects tend to be:
   a. The Integrator. While supposedly any integrator that responds to an RFQ and RFP would perform in a reliable and timely manner, we have had numerous problems with integrators. Many of these problems have been eliminated since we have taken over the all of the PLC control logic programming. There still remains significant programming of the PLC by the integrator.
   b. Lack of timely and complete action by the irrigation district on the portions of the project that the district agreed to do…such as installing conduit.

3. There are always unforeseen challenges in these projects. But as long as everyone works as a team, these problems are generally easily solved.

4. ITRC will not provide engineer-stamped construction drawings for the long crested weir checks or other infrastructure. Structural modifications, the strength and suitability of existing structures, etc. would be decisions made by OMID, USBR or its consulting engineers.

5. ITRC does all of its PLC programming in “ISaGRAF” – a programming language that allows a combination of ladder, structured text, flow chart, C, etc. It is a standard programming language that can be used in almost any high quality commercial PLC. We use it so that we do not need to completely re-program every application (with all of the associated inevitable errors), and so that we are not tied to just one type of PLC. It also provides an excellent ability to troubleshoot in the field and from the office, and to modify code – as opposed to Telepace ladder, for example. For this project, the ClearSCADA system at the OMID office must be connected to the web, so that ITRC will be able to access the full system remotely, to troubleshoot and answer questions if they arise.

**Project Timeline**

Work will commence by October 17, 2011 and will be completed by September 30, 2014.
LOADED RATES Budget for
National Fish and Wildlife Foundation
Irrigation Training & Research Center
"Professional Services for Orchard Mesa Irrigation District"
10/17/11 - 9/30/14
GDO 12-112

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<td>Monica Holman</td>
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Subtotal, Salaries and Wages $184,665

Other Project Charges: Operating Expenses (Billable)

| Other project charges ("OPC") (major copying, express mail, field supplies, etc.) | $ 785 |
| Domestic Travel                                                              | $12,550 |

SUBTOTAL OTHER PROJECT CHARGES $13,335

TOTAL DIRECT COSTS: $198,000

OPC Overhead
Indirect costs @15% of OTHER PROJECT COSTS $2,000

TOTAL PROJECT COSTS: $200,000