Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

Project Information

1. **Proposal Title:**

   Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

2. **Proposal applicants:**

   Arthur Bullock, Tehama-Colusa Canal Authority

3. **Corresponding Contact Person:**

   Arthur Bullock
   Tehama-Colusa Canal Authority
   P.O. Box 1025 Willows, CA 95988
   530 934-2125
   tcwaterman@aol.com

4. **Project Keywords:**

   Endangered Species
   Fish Passage/Fish Screens
   Fish, Anadromous

5. **Type of project:**

   Fish Screen

6. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   Yes

   If yes, is there an existing specific restoration plan for this site?

   No

7. **Topic Area**:

   Fish Passage

8. **Type of applicant:**

   Local Agency

9. **Location - GIS coordinates:**

Latitude: 40.152

Longitude: -122.203

Datum:

Describe project location using information such as water bodies, river miles, road intersections, landmarks, and size in acres.

Project is on main stem of Sacramento River at upper end of Butte and Colusa Basin watersheds, Tehama County. Exact site, to be selected at end of project Phase II from alternatives, will be in vicinity of Red Bluff Diversion Dam.

10. **Location - Ecozone:**

    3.1 Keswick Dam to Red Bluff Diversion Dam, 3.2 Red Bluff Diversion Dam to Chico Landing

11. **Location - County:**

    Tehama

12. **Location - City:**

    Does your project fall within a city jurisdiction?

    No

13. **Location - Tribal Lands:**

    Does your project fall on or adjacent to tribal lands?

    No

14. **Location - Congressional District:**

    3

15. **Location:**

    California State Senate District Number: 4

    California Assembly District Number: 2

16. **How many years of funding are you requesting?**

    3

17. **Requested Funds:**
    a) Are your overhead rates different depending on whether funds are state or federal?

       No

If no, list single overhead rate and total requested funds:

Single Overhead Rate: 0

Total Requested Funds: $5,943,000

b) Do you have cost share partners already identified?

No

c) Do you have potential cost share partners?

No

d) Are you specifically seeking non-federal cost share funds through this solicitation?

No

If the total non-federal cost share funds requested above does not match the total state funds requested in 17a, please explain the difference:

18. **Is this proposal for next-phase funding of an ongoing project funded by CALFED?**

Yes

If yes, identify project number(s), title(s) and CALFED program (e.g., ERP, Watershed, WUE, Drinking Water):

ERP-98-B22	**Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase I**	**ERP**
ERP-99-B07	**Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase II**	**ERP**
ERP-01-N58	**Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase II**	**ERP**

Have you previously received funding from CALFED for other projects not listed above?

No

19. **Is this proposal for next-phase funding of an ongoing project funded by CVPIA?**

No

Have you previously received funding from CVPIA for other projects not listed above?

No

20. **Is this proposal for next-phase funding of an ongoing project funded by an entity other than CALFED or CVPIA?**

    No

    Please list suggested reviewers for your proposal. (optional)

21. **Comments:**

    The total requested project cost, $5,943,000, represents consultant services for engineering design, permitting, and bidding assistance, plus land acquisition costs. Applicant's costs for administering the contract are a cost-share item to be contributed by the Applicant and are NOT included in this funding request.

Environmental Compliance Checklist

Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

1. **CEQA or NEPA Compliance**
   a) Will this project require compliance with CEQA?

      Yes
   b) Will this project require compliance with NEPA?

      Yes
   c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.

2. **If the project will require CEQA and/or NEPA compliance, identify the lead agency(ies).** *If not applicable, put "None".*

   CEQA Lead Agency: Tehama-Colusa Canal Authority
   NEPA Lead Agency (or co-lead:) U.S. Bureau of Reclamation
   NEPA Co-Lead Agency (if applicable):

3. **Please check which type of CEQA/NEPA documentation is anticipated.**

   CEQA
   -Categorical Exemption
   -Negative Declaration or Mitigated Negative Declaration
   XEIR
   -none

   NEPA
   -Categorical Exclusion
   -Environmental Assessment/FONSI
   XEIS
   -none

   If you anticipate relying on either the Categorical Exemption or Categorical Exclusion for this project, please specifically identify the exemption and/or exclusion that you believe covers this project.

4. **CEQA/NEPA Process**
   a) Is the CEQA/NEPA process complete?

      No

      If the CEQA/NEPA process is not complete, please describe the dates for completing draft and/or final CEQA/NEPA documents.

      Public Draft EIS/EIR, Spring 2002. Final EIS/EIR Summer 2002 (will be completed before work under this proposal commences).

b) If the CEQA/NEPA document has been completed, please list document name(s):

5. **Environmental Permitting and Approvals** (*If a permit is not required, leave both Required? and Obtained? check boxes blank.*)

LOCAL PERMITS AND APPROVALS

Conditional use permit	Required
Variance	Required
Subdivision Map Act	Required
Grading Permit	Required
General Plan Amendment	
Specific Plan Approval	
Rezone	
Williamson Act Contract Cancellation	
Other	

STATE PERMITS AND APPROVALS

Scientific Collecting Permit	
CESA Compliance: 2081	Required
CESA Compliance: NCCP	
1601/03	Required
CWA 401 certification	Required
Coastal Development Permit	
Reclamation Board Approval	Required
Notification of DPC or BCDC	
Other	

FEDERAL PERMITS AND APPROVALS

ESA Compliance Section 7 Consultation	Required
ESA Compliance Section 10 Permit	
Rivers and Harbors Act	
CWA 404	Required
Other	

PERMISSION TO ACCESS PROPERTY

Permission to access city, county or other local agency land. Agency Name:	
Permission to access state land. Agency Name:	
Permission to access federal land. Agency Name: U.S. Bureau of Reclamation, U.S. Forest Service	Required, Obtained
Permission to access private land. Landowner Name: Pactiv Corporation, Meyers Motels	Required, Obtained

6. **Comments.**

The selection of a final alternative will not be formally completed until after the Final EIS/EIR. Accordingly, all the alternatives under consideration are currently deemed equally likely to occur.

Land Use Checklist

Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

1. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   Yes

   If you answered yes to #1, please answer the following questions:

   a) **How many acres will be acquired?**

      Fee: 30
      Easement: 0
      Total: 30

   b) Will existing water rights be acquired?

      No

   c) Are any changes to water rights or delivery of water proposed?

      Yes If yes, please describe proposed changes.

      Several alternatives under consideration include a change from gravity diversion (using RBDD) to pumped diversion (using a screened pump station) and possibly an additional, improved diversion facility on Stony Creek.

2. **Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?**

   Yes

3. **Do the actions in the proposal involve physical changes in the land use?**

   No

   If you answered no to #3, explain what type of actions are involved in the proposal (i.e., research only, planning only).

   This proposal is for design of facilities and purchase of land for facilities only. No construction or physical alteration of the land will occur under this proposal. The land anticipated to be acquired is currently an abandoned lumber mill site and industrial landfill.

4. **Comments.**

   A preferred alternative will be formally selected following the issuance of the Final EIS/EIR prior to the start of work under this proposal.

Conflict of Interest Checklist

Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

Please list below the full names and organizations of all individuals in the following categories:

- Applicants listed in the proposal who wrote the proposal, will be performing the tasks listed in the proposal or who will benefit financially if the proposal is funded.
- Subcontractors listed in the proposal who will perform some tasks listed in the proposal and will benefit financially if the proposal is funded.
- Individuals not listed in the proposal who helped with proposal development, for example by reviewing drafts, or by providing critical suggestions or ideas contained within the proposal.

The information provided on this form will be used to select appropriate and unbiased reviewers for your proposal.

Applicant(s):

Arthur Bullock, Tehama-Colusa Canal Authority

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

If yes, please list the name(s) and organization(s):

Dale Cannon	CH2M HILL, Inc.
None	None
None	None
None	None
None	None

Helped with proposal development:

Are there persons who helped with proposal development?

No

Comments:

Budget Summary

Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

Please provide a detailed budget for each year of requested funds, indicating on the form whether the indirect costs are based on the Federal overhead rate, State overhead rate, or are independent of fund source.

Independent of Fund Source

Year 1												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1a	Pump station design						300,000			300000.0		300000.00
1b	Adult fish passage facilities design									0.0		0.00
2	Bidders' assistance									0.0		0.00
3	Environmental compliance and coordination						95,000			95000.0		95000.00
4	Construction planning						55,000			55000.0		55000.00
5	Project management						60,000			60000.0		60000.00
		0	0.00	0.00	0.00	0.00	510000.00	0.00	0.00	510000.00	0.00	510000.00

Year 2												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1a	Pump station design						2,539,000			2539000.0		2539000.00
1b	Adult fish passage facilities design						625,000			625000.0		625000.00
2	Bidders' assistance									0.0		0.00
3	Environmental compliance and coordination						94,000			94000.0		94000.00
4	Construction planning						65,000			65000.0		65000.00
5	Project management						150,000			150000.0		150000.00
Land Acquisition	Land acquisition								960,000	960000.0		960000.00
		0	0.00	0.00	0.00	0.00	3473000.00	0.00	960000.00	4433000.00	0.00	4433000.00

Year 3												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1a	Pump station design						644,000			644000.0		644000.00
1b	Adult fish passage facilities design						155,000			155000.0		155000.00
2	Bidders' assistance						99,000			99000.0		99000.00
3	Environmental compliance and coordination						20,000			20000.0		20000.00
4	Construction planning						10,000			10000.0		10000.00
5	Project management						72,000			72000.0		72000.00
		0	0.00	0.00	0.00	0.00	1000000.00	0.00	0.00	1000000.00	0.00	1000000.00

Grand Total=5943000.00

Comments.

The budget figures are for CALFED-requested funds only. Local cost-share contributions by the applicant for administering the contract are not included as requested funds.

Budget Justification

Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

Direct Labor Hours. Provide estimated hours proposed for each individual.

None.

Salary. Provide estimated rate of compensation proposed for each individual.

None.

Benefits. Provide the overall benefit rate applicable to each category of employee proposed in the project.

None.

Travel. Provide purpose and estimate costs for all non-local travel.

None.

Supplies & Expendables. Indicate separately the amounts proposed for office, laboratory, computing, and field supplies.

None.

Services or Consultants. Identify the specific tasks for which these services would be used. Estimate amount of time required and the hourly or daily rate.

Consultant CH2M HILL will perform all tasks under this proposal. We assume 4,300 hours of labor in Year 1, 28,100 hours in Year 2, and 7,700 hours in Year 3, for a total of 40,100 hours. Year 1 (2002) billing rates for proposed consultant staff vary from about $50/hour to $180/hr, including overhead. We anticipate an average billing rate of $100/hr in Year 1 (2002), with a 5 percent increase per year for years 2 and 3. Expenses are at 15 percent.

Equipment. Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than $5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items.

None.

Project Management. Describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, report preparation, giving presentatons, reponse to project specific questions and necessary costs directly associated with specific project oversight.

None.

Other Direct Costs. Provide any other direct costs not already covered.

Land acquisition: 30 acres, $960,000 total cost.

Indirect Costs. Explain what is encompassed in the overhead rate (indirect costs). Overhead should include costs associated with general office requirements such as rent, phones, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific costs.

None.

Executive Summary

Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

Fish passage and agricultural water diversion at Red Bluff Diversion Dam (RBDD) conflict. When RBDD gates are lowered into Sacramento River (gates-in), gravity diversion can deliver water to 17 irrigation districts served by Tehama-Colusa Canal Authority (TCCA). However, gates-in hinders upstream and downstream fish migration and subjects juveniles to increased predation. The annual 4-month gates-in period may be reduced, further limiting TCCAs ability to divert water. Objectives of this fish screen construction project are improved fish passage and water supply reliability at RBDD. Approaches include a new screened intake independent of RBDD, new RBDD operating schedule, incorporating existing pumping facilities and constructing additional facilities, or a combination along with improved fish ladders. The expected outcomes are improved fish passage through construction of new fish passage facilities and/or reduced "gates-in" operation of the RBDD and improved water supply reliability through design and construction of fish screens, intake, pump station, and appurtenant facilities. CALFED-funded project Phase I included a feasibility study, and Phase II includes preliminary design and a completed environmental documentation process. This Phase III proposal includes detailed design, permitting, and construction contract bidding. Subsequent phases will result in construction of the selected alternative and monitoring of project performance. ERP Draft Stage 1 Implementation Plan Restoration Priorities include SR-2 (Restore fish habitat and fish passage particularly for spring-run chinook salmon and steelhead trout...) and SR-6 (Continue major fish screen projects...). CALFED February 1999 ERPP, Volume 2 objectives include Minimize survival problems for adult and juvenile anadromous fish at RBDD by permanently raising the gates during the non-irrigation season and improving passage facilities during the irrigation season and Upgrade fish passage facilities at the RBDD. The CVPIA requires Interior to minimize anadromous fish passage problems at RBDD. The project also relates to the Biological Opinion for Operation of RBDD; RBDD Research Pumping Plant testing and evaluation program; RBDD Long-term Fish Passage Program; Draft Winter-run Salmon Recovery Plan; Anadromous Fish Restoration Program; and California Salmon, Steelhead Trout and Anadromous Fisheries Program Act.

Proposal

Tehama-Colusa Canal Authority

Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase III

Arthur Bullock, Tehama-Colusa Canal Authority

A. Project Description: Project Goals and Scope of Work

1. Problem

The project is on the main stem of the Sacramento River at the upper end of the Butte and Colusa Basin Watersheds in Tehama County in the vicinity of Red Bluff Diversion Dam (RBDD) (Figure 1). Fish passage and agricultural water diversion needs at the RBDD currently conflict. When the RBDD gates are lowered into the Sacramento River, the elevation of the water surface behind the dam is raised, allowing gravity diversion into the Tehama-Colusa and Corning canals (Canals) for delivery to the 17 member irrigation districts served by the Tehama-Colusa Canal Authority (TCCA). Raising the gates ("gates-out" position) allows the river to flow virtually unimpeded but precludes gravity diversion into the canals. When the gates are lowered ("gates-in" position) to facilitate diversions, RBDD presents a barrier for both upstream- and downstream-migrating fish. Furthermore, during downstream migration, juvenile salmonids are subject to increased predation during the "gates-in" period, because the tailrace and lake created by the dam provide habitat for species that prey on juvenile salmon, reducing their overall survival rates (USFWS, 1998). Fish ladders included in the original dam design are inefficient at certain flows to pass anadromous fish to upstream spawning grounds. According to the CALFED (1999) Ecosystem Restoration Program Plan (ERPP) (Volume II, February 1999, page 163), "Fish passage facilities are inadequate" at the RBDD. Fish passage at the RBDD is crucial, because more than 75 percent of naturally spawning chinook salmon in the Sacramento River spawn in the reach from the RBDD upstream to Keswick Dam.

The U.S. Bureau of Reclamation (Reclamation), with input from the California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS), identified a range of alternatives to improve fish passage at the RBDD (Reclamation, 1992) during a period when the RBDD was operating with "gates-in" for 8 months each year. A Biological Opinion on RBDD (NMFS, 1993) for endangered winter-run chinook salmon requires that the gates be kept in the "gates-out" position for a greater portion of the year (September 15 to May 14) than had been required previously, which precludes the solutions identified by Reclamation in 1992. The increased "gates-out" operation has significantly improved fish passage at RBDD, but has made the facility significantly less effective as a water source for agriculture. As stated in the CALFED ERPP (Volume II, February 1999, page 163), "Fish passage at RBDD is a longstanding problem that has been partially solved through reoperation. This interim fix has constrained water diversion, and the longer term resolution needs to incorporate fish passage and survival and water delivery."

The current "gates-in" schedule may be subject to further reduction if it is found reasonable and prudent to do so to avoid jeopardy to species of concern, which would further reduce TCCA's ability to divert water for agriculture during critical periods (CH2M HILL, 2000). The TCCA seeks to identify and implement a feasible structural solution, assuming that the annual "gates-out" period would be for 8 months or longer, to substantially improve both fish passage at RBDD and the reliability of water deliveries to the irrigation districts served by the TCCA.

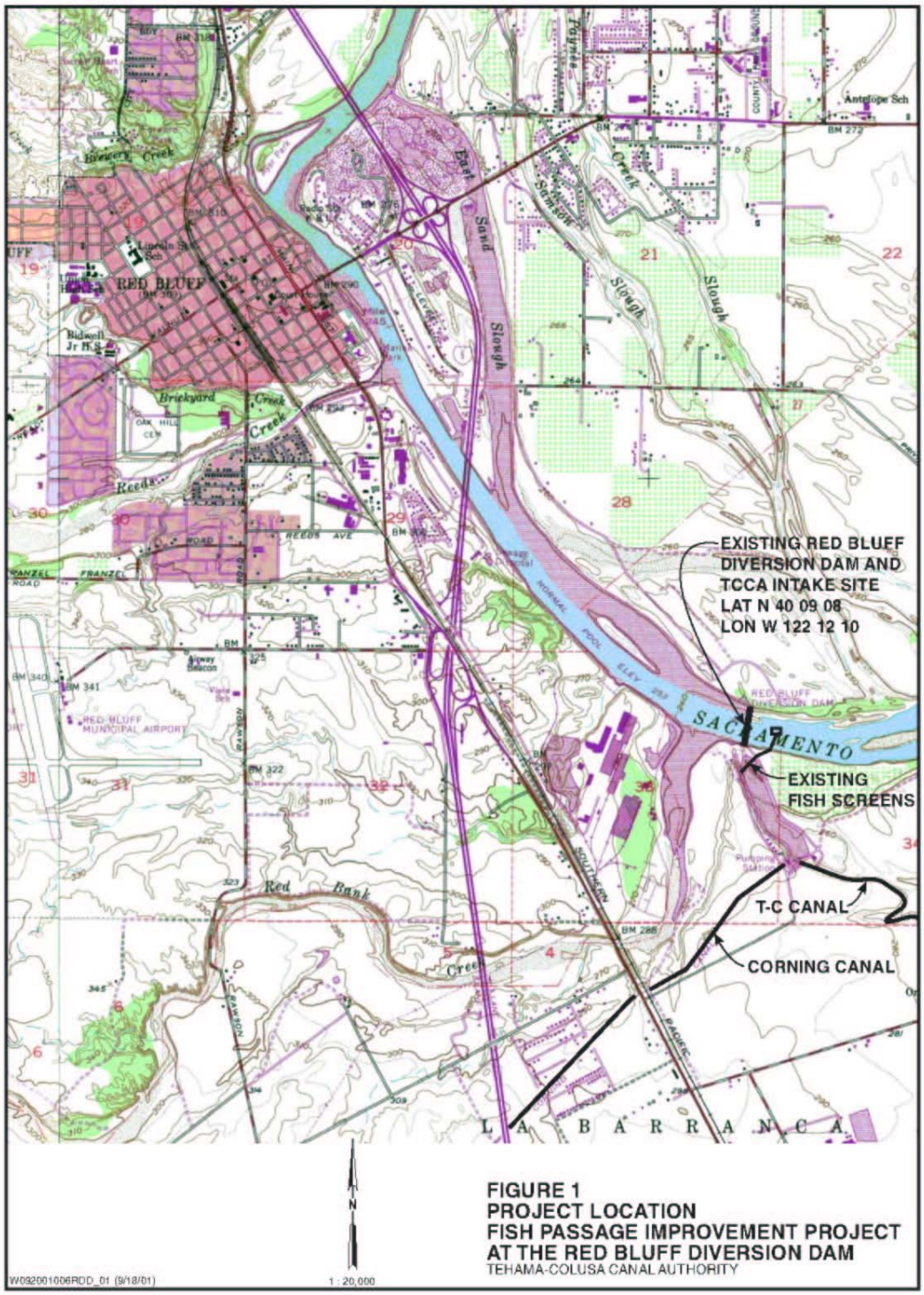


FIGURE 1
PROJECT LOCATION
FISH PASSAGE IMPROVEMENT PROJECT
AT THE RED BLUFF DIVERSION DAM
TEHAMA-COLUSA CANAL AUTHORITY

2. Justification

This is a Fish Screen Construction proposal. Response to Item 2 is not required per PSP.

3. Approach

The purposes of this project are to 1) improve fish passage at the Red Bluff Diversion Dam by reducing or eliminating TCCA's influence on RBDD operations and 2) enhance the reliability of TCCA's water supply during periods when normal gravity water diversions are precluded by the "gates out" operation. The range of approaches to achieving these purposes includes developing a completely new screened intake to the Canals and entirely eliminating the need for the RBDD for agricultural irrigation, devising a new operating schedule for the RBDD, incorporating existing pumping facilities and constructing minor additional facilities, or a combination of these elements in conjunction with improved, expanded, or new fish ladders.

The Prescoping Report (CH2M HILL, 2000), produced under a CALFED grant during Phase I of this project, summarizes the range of previously identified alternatives to meeting the project's objectives (Reclamation, 1992). At the time of the Reclamation study, the RBDD was operating with "gates-in" for 8 months from April 1 to November 30. However, the NMFS (1993) Biological Opinion for RBDD extended the "gates-out" period to the current 8-month period from September 15 to May 14. It is the opinion of the resource agencies that this operational change has resulted in the single biggest improvement in fish passage since the RBDD was constructed. Accordingly, only approaches that involve no reduction in the current "gates-out" time period may be acceptable to the fisheries agencies. Furthermore, it has also been determined from fisheries studies during the past few years that the existing fish ladders are inefficient for fish passage at certain river flows (CH2M HILL, 2000:5-11).

Addressing these current conditions and constraints, three viable alternative approaches for fish passage improvement and reliable water delivery were defined in the Prescoping Report by the "gates-in" time period. The three basic alternatives were refined and expanded during preliminary design, resulting in a total of six sub-alternatives that are now being evaluated. These are summarized in Table 1 below.

Table 1
Summary of Sub-alternatives

Sub-alternative	Months of "Gates-in" Operation at RBDD	Fish Facilities	Pumping Capacity (cfs)
1a	4	New ladders	1,700
1b	4	Bypass channel	1,700
1c	4	Existing ladders	1,100[a]
2a	2	New ladders	2,000
2b	2	Existing ladders	2,000
3	0	n/a	2,500

[a]Plus a 600-cfs rediversion at Stony Creek.

Each of the six sub-alternatives requires that existing facilities be upgraded and new facilities be constructed to meet the stated needs of the project. These facilities include fish screens,

intake, pump station, and other fish passage facilities shown in Table 1. A four-phase approach is being taken to develop, screen, and evaluate sub-alternatives and select and implement a preferred alternative. Phase I was a feasibility study, which included schematic design. Phase II, currently underway, consists of preliminary design and completion of an environmental impact document and will culminate in selection of the preferred alternative. Phase III, for which this proposal seeks funding, will entail final design and preparation of construction bid documents, finalization of the project implementation plan, permitting, and solicitation of bids from construction contractors.

Even though many potential alternatives exist to improve the existing facilities, it is the objective of project Phase II to develop the preferred configuration of the facilities to meet the needs of each alternative. For example, 11 potential offsite pump station locations were identified during project Phase I, but the objective is to recommend the best location and configuration to meet the project needs. Accordingly, during project Phase II, currently underway, alternatives are being further refined, screened, and evaluated in a preliminary design process, and the relative environmental merits and disadvantages of each remaining alternative are being assessed in a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

Because our approach has consistently incorporated public and agency outreach, it maximizes the information richness and value to decisionmakers. The affected local public agencies have been informed in writing of the proposed project, and TCCA staff have discussed the project with the Tehama County Board of Supervisors and Red Bluff City Council and City Manager. Project development is proceeding with the regular participation and input of the Red Bluff Fish Passage Technical Advisory Group, which includes representatives of Reclamation, USFWS, NMFS, CDFG, California Department of Water Resources (DWR), and TCCA. A Stakeholders Advisory Group also is participating, which includes representatives of the City of Red Bluff, County of Tehama, environmental groups, fishing interests, Red Bluff Chamber of Commerce, farm bureaus, educational groups, and other interested parties. The public at large has been engaged in the project through the public outreach, review, and comment provisions of the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). Public meetings and hearings have been held and continue to be held, and all project documentation has been submitted to the appropriate agencies and posted in public places with appropriate public notification.

Phase III, for which we are requesting funding in this proposal, would include the following tasks:

Task 1—Final Design. Final design will consist of the development of the selected alternative to a 100 percent level of detail. Currently, there is not a selected alternative. However, it is anticipated that a preferred alternative will be selected from the three main alternatives and their sub-alternatives (see Table 1) currently undergoing full environmental review. Efforts under the Final Design task may include the following subtasks:

(a) Pump Station Design: All six sub-alternatives include increased pumping capacity. Five of the sub-alternatives call for a pump station (ranging in size from 1,700 to 2,500 cfs) at a combination of RBDD and the adjacent Mill Site and associated facilities (fish screens, fish bypass system, conveyance to the settling basin, etc.). One sub-alternative calls for a smaller pumpstation (1,100 cfs) plus formal annual rediversion of water from Stony Creek. This

subtask would include all efforts necessary to develop the selected alternative to a level of detail adequate for soliciting competitive bids from qualified construction contractors.

(b) Adult Passage Facilities Design: Three of the six sub-alternatives include improvements to existing adult passage facilities. Two sub-alternatives include improvements to the existing ladders, while one sub-alternative would develop a fish bypass channel around the left bank of the dam through an existing campground. In the event that the preferred alternative selected does not include adult fish passage facilities, this subtask would not be funded. This subtask would include all efforts necessary to develop the selected alternative to a level of detail adequate for soliciting competitive bids from qualified construction contractors.

Task 2—Bidders' Assistance. Following completion of the Final Design package, TCCA's consultant would provide the following services: responding to bidders' questions, preparing addenda, attending the prebid meeting and bid opening, evaluating bids, assisting TCCA in making the award and issuing the construction contract.

Task 3—Environmental Compliance and Coordination. This subtask will include all efforts necessary to implement the environmental commitments of the project. These commitments include acquiring final permits, finalization of mitigation requirements, development of monitoring plan for the project, coordination with responsible agencies, and public outreach. No special mitigation designs are currently anticipated. If required, an amendment to the Phase III grant will be requested.

Task 4—Construction Planning. This subtask will include efforts necessary to the efficient and successful delivery of the selected facilities. These efforts will include assistance in land acquisition, construction packaging and assistance (i.e. timing of construction efforts), financial planning and assistance, development of a draft operations and maintenance plan, and development of construction cost opinions for the final design package.

Task 5—Project Management. The project management task includes developing project instructions, work plan, schedule, staff resource plan, and budgets; monitoring the schedule, expenditures, and work progress; invoicing for work completed; preparing project status reports; and ongoing communications with participating agencies.

4. Feasibility

Project feasibility was assessed during project Phase I in the January 2000 Prescoping Report, which presented and screened alternatives and provided a preliminary implementation plan for alternatives found to be viable. The implementation plan included conceptual designs of the alternatives; requirements for environmental documentation, public involvement, permitting, and rights-of-way; capital and O&M cost estimates; and a monitoring approach. Feasibility has been demonstrated in relation to all of these factors, and since completion of the Phase I Feasibility Study, the alternatives that survived initial screening have been further refined and evaluated for implementability, and the implementation plan is being updated and refined. In-river construction will be carefully staged and coordinated with the appropriate agencies to minimize impacts to fish and wildlife and avoid interruptions to agricultural water deliveries.

Permits and approvals necessary to implement the project are identified in the Environmental Compliance Checklist and are further addressed in the project implementation plan and the

project EIS/EIR, which is currently in the administrative draft stage of preparation. However, no permits, approvals, or agreements are necessary to proceed with the five Tasks proposed herein for project Phase III.

There is a potential need to acquire land for construction of the intake and pump station facilities and associated fish screening and fish passage provisions. Letters of permission to access and evaluate two of the sites on which construction of these facilities presently appears most likely were obtained by TCCA from the respective landowners and were attached to our May 2000 proposal for project Phase II funding. Letters indicating that these landowners would be willing sellers are attached to this proposal (Attachment_1). The feasibility study and the EIS/EIR addressed such feasibility issues as potential environmental impacts, zoning and general plan designations of the potential construction sites, and compatibility of the project with existing uses on these and surrounding lands. When the preferred alternative and, consequently, the preferred project site are identified, TCCA will work with the landowner on acquisition.

5. Performance Measures

To determine optimal operation of the RBDD following the completion of the proposed project, a multi-year, adaptive management approach to monitoring success of RBDD operations should be conducted. As there is an extensive historical record of monitoring both upstream and downstream migration of anadromous fish at RBDD, at a minimum, continuation of the existing monitoring programs should be included (Table 2). The RBDD adult passage program (escapement estimates) and aerial redd surveys conducted annually by CDFG, and adult video monitoring through the existing ladders at RBDD conducted annually by USFWS, should be continued to document pre- and post-project success in immigration.

USFWS conducts annual monitoring activities, such as survival, abundance, and condition, and seasonal spatial and diel distribution patterns of juvenile salmonids passing RBDD. Additional programs are conducted by the USFWS and CDFG and funded by Reclamation, such as the USFWS' RBDD Research Pumping Plant evaluation program and RBDD Passage Facilities Program for both adult and juvenile salmonid passage and rearing. It is anticipated that these programs will be continued and will help document project success.

6. Data Handling and Storage

This proposal focuses on design of facilities. All project documents will be submitted to CALFED and shared with all other agencies that are participating in the project. The documents will be accessible from these agencies and TCCA.

7. Expected Products/Outcomes

The expected outcome of work under this proposal is completion of design of the selected alternative to improve fish passage and water supply reliability.

8. Work Schedule

Please see Figure 2.

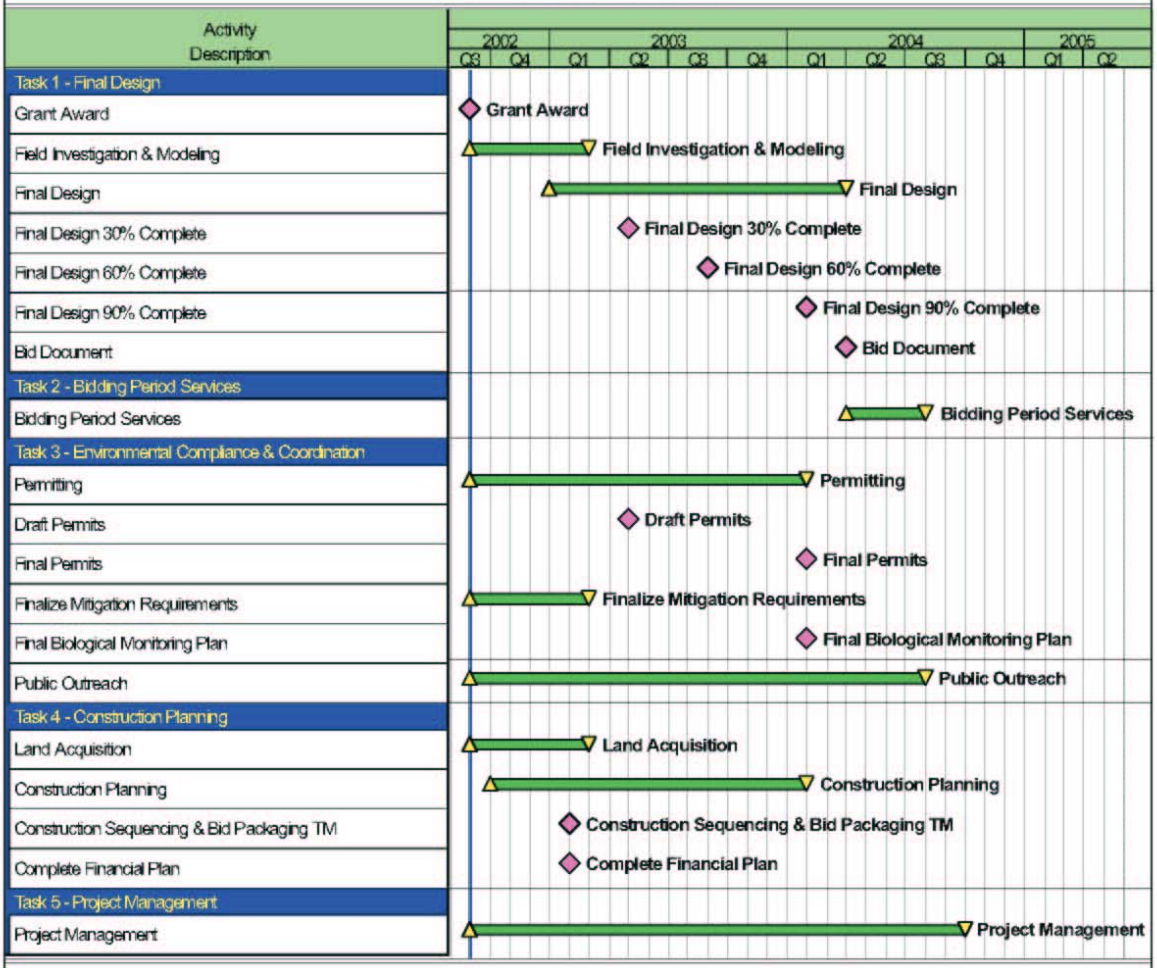
Table 2

Monitoring and Data Collection Information

Hypothesis/Question to be Evaluated	Monitoring Parameter(s) and Data Collection Approach	Data Evaluation Approach	Comment/Data Priority
I) Biological/Ecological Objectives: Improve Upstream Fish Passage			
Adult passage through the RBDD will improve with modified operations and/or facilities following the proposed project	Adult aerial spawning surveys; adult counts, video monitoring, and radio telemetry surveys to determine spawning distribution, timing, and delay of passage through RBDD	Statistically analyze and compare adult passage success, time to pass estimates, and spawning distribution before and after proposed project	Review existing and previous monitoring programs and project objectives to develop strategy for monitoring program
II) Biological/Ecological Objectives: Improve Downstream Fish Passage			
Juvenile and smolt passage through the RBDD will improve with modified operations and/or facilities following the proposed project	Juvenile beach seining, rotary screw trapping, fyke and trap netting upstream and downstream of RBDD to determine success of passage through RBDD	Statistically analyze and compare juvenile, distribution, passage success, time to pass, and survival estimates before and after proposed project	Evaluate and continue appropriate historical and existing monitoring programs. Evaluate and incorporate project objectives into future monitoring activities

FISH PASSAGE IMPROVEMENT PROJECT
AT THE RED BLUFF DIVERSION DAM
PHASE III - PSP 9/01

FIGURE 2 - WORK SCHEDULE



B. Applicability to CALFED and ERP Science Program Goals and Implementation Plan and CVPIA Priorities

1. ERP, Science Program, and CVPIA Priorities

This project responds to the Ecosystem Restoration Program, Draft Stage 1 Implementation Plan (CALFED, August 6, 2001) Restoration Priorities for the Sacramento Region, SR-2 ("Restore fish habitat and fish passage particularly for spring-run chinook salmon and steelhead trout and conduct passage studies") and SR-6 ("Continue major fish screen projects and conduct studies to improve knowledge of the implications of fish screens for fish populations"). Specifically, this project addresses the objective under SR-2 regarding "facilities improvements and fish passage programs." Priority SR-6 seeks to "continue and complete ongoing fish screen construction projects and maintain existing investments currently supported by CALFED and/or CVPIA." SR-6 does not explicitly mention the TCCA Fish Passage Improvement Project, but this project has been supported by CALFED through its first two phases, and it involves the most problematic remaining fish migration barrier in the upper Sacramento River Valley, the RBDD.

The project also is linked directly to CALFED ecological restoration targets and programmatic actions identified in CALFED's February 1999 ERPP, Volume 2, page 190. Specifically, this project will address Target 1: "Minimize survival problems for adult and juvenile anadromous fish at RBDD by permanently raising the gates during the non-irrigation season and improving passage facilities during the irrigation season" and Programmatic Action 1A: "Upgrade fish passage facilities at the RBDD."

In the Winter-run Salmon Recovery Plan, Objective 2 of Goal II calls for developing and implementing a permanent remedy at RBDD that improves passage for juvenile (and adult) winter-run chinook through the Red Bluff area, while minimizing losses of juveniles at diversion and fish bypass facilities. The project is identifying and developing alternatives that have the ability to meet this Goal and Objective. Furthermore, Section 3406(b)(10) of the Central Valley Project Improvement Act requires the Secretary of the Interior to develop and implement measures to minimize fish passage problems for adult and juvenile anadromous fish at the RBDD (NMFS, 1997). The objective of the proposed project is to develop and evaluate measures that would reduce or eliminate the dependence of agricultural irrigation on the operations of RBDD. Stressors that the project addresses are focused on barriers or delays to migration and associated predation at the RBDD. Project facilities, including any screened intakes, will meet all current fisheries agencies' requirements and result in reduced dependence on current RBDD operations to draw water into the TCCA canal system. Species that will benefit within the Keswick to RBDD Ecological Management Unit are listed in the ERPP (Volume 2, February 1999, pages 167-168) and include the endangered winter-run chinook salmon and species of concern, including steelhead; spring-run, fall-run, and late-fall-run chinook; and green sturgeon.

Additionally, the project supports the CALFED non-ecological objective of providing a more reliable water supply for agriculture and other beneficial uses, such as wildlife refuges. The project also will assist Reclamation in meeting its contractual obligations to supply water to the 17 water districts receiving service from the T-C and Corning canals, as well as to the Sacramento Valley national wildlife refuges.

2. Relationship to Other Ecosystem Restoration Projects

The resource agencies have been seeking solutions to fish passage problems at the RBDD for more than 20 years. Other ongoing projects and programs that these efforts, including the currently proposed project, are linked to include CALFED Bay-Delta Program, Biological Opinion for Operation of the RBDD, RBDD Research Pumping Plant testing and evaluation program, RBDD Long-term Fish Passage Program, Draft Winter-run Salmon Recovery Plan, Central Valley Project Improvement Act (CVPIA) through the Anadromous Fish Restoration Program (AFRP), and the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act of 1988. The Fish Passage Improvement Project at the Red Bluff Diversion Dam has explored the feasibility of incorporating facilities of the RBDD Research Pumping Plant. The Red Bluff Fish Passage Study Management Group, which includes representatives of Reclamation, USFWS, NMFS, CDFG, DWR, and TCCA, has been providing project input as part of their funded, ongoing efforts.

3. Requests for Next-phase Funding

Please see Attachment 2, "Next-phase Funding—Existing Project Status Summary," which is included to meet requirements for a next-phase funding request.

4. Previous Recipients of CALFED Program or CVPIA Funding

Phase I of the Fish Passage Improvement Project at the Red Bluff Diversion Dam was completed under CALFED Grant ERP-98-B22. Phase I, a feasibility study, resulted in the Prescoping Report (CH2M HILL, 2000) cited elsewhere in this proposal. Phase II is proceeding on schedule and on budget under CALFED Grants ERP-99-B07 and ERP-01-N58. Phase II will result in preliminary design, completion of the EIS/EIR process, and identification of the preferred alternative. The EIS/EIR has been completed to the administrative draft stage and is being developed in the framework of an effective public outreach program. This proposal is for Phase III of the Fish Passage Improvement Project at the Red Bluff Diversion Dam, which will result in detailed design, contract bidding documents, and construction permits and approvals.

5. System-wide Ecosystem Benefits

The primary biological/ecological benefits of the project are to reduce or minimize the impacts of the RBDD on upstream and downstream juvenile and adult anadromous fish migration. Reducing or eliminating the current dependence on the RBDD for agricultural irrigation supply will allow modified RBDD operations to improve fish passage for spring-run, fall-run, late-fall-run, and winter-run chinook salmon, splittail, sturgeon, and steelhead trout. This could also provide secondary benefits, such as reducing predation that occurs as a result of delays in migration at the RBDD, and better access by migrating salmonids to spawning gravel above the RBDD.

The project is needed to address various agency and legislative mandates and public concerns regarding fish passage issues at the RBDD and to improve the reliability of water deliveries to TCCA's agricultural customers and the Sacramento Valley national wildlife refuges. The project would potentially provide third-party benefits, such as better enabling state and federal agencies to pursue the Stony Creek Enhancement Project and other water management options.

Volume 2 of the ERPP (February 1999, Page 165) states that more than 75 percent of naturally spawning chinook salmon use the Sacramento River reach between the RBDD and Keswick Dam. Correcting fish passage problems at the RBDD would allow maximum use of available spawning habitat in the upper watershed. The project is of vital importance to projects already undertaken, such as the recent fish passage improvements at the Anderson-Cottonwood Irrigation District diversion dam in Redding, and as a forerunner of all other efforts to open up this spawning and rearing habitat between the RBDD and Keswick Dam.

From Shasta Dam to the Delta, tremendous efforts have been made in the past 10 years by the state and federal resource agencies, Reclamation, water diverters, and others to improve habitat, water temperature, and fish passage, with mixed results. Improving upstream and downstream fish passage at the new or modified TCCA diversion facilities will maximize use of fish habitat in the Sacramento River system and indirectly maximize the benefits of both the previously completed and ongoing fish protection projects along the Sacramento River.

The project will provide more reliable backup supplies to the Glenn-Colusa Irrigation District (GCID) canal system and to the three national wildlife refuges (Sacramento, Delevan, and Colusa) served by GCID. The project could also provide fish flows through the Constant-head Orifice (CHO) on the T-C Canal into Stony Creek.

6. Additional Information for Proposals Containing Land Acquisition

Phase II of the project, currently in progress, includes preliminary design and completion of an EIS/EIR with its attendant public outreach program. The Administrative Draft EIS/EIR has been completed, and the Draft EIS/EIR will soon be circulated for public and agency review and comment. An outcome of Phase II will be a Record of Decision on the EIS/EIR and selection of the preferred alternative. This proposal seeks funding for Phase III, which would result in design, contract bidding documents, and construction permits and approvals. The project construction site will not be identified until Phase II is completed and the preferred alternative is selected.

The alternatives and alternative sites currently being evaluated indicate that there is a potential need to acquire land for construction of the intake and pump station facilities and associated fish screening and fish passage facilities. Two parcels are under consideration, and the owners have been very cooperative during the evaluation of the sites for feasibility and preliminary design. Both owners have indicated to TCCA that they would be willing to sell their parcels to TCCA (Attachment_1). One of the sites is presently for sale. The feasibility study and the EIS/EIR address such feasibility issues as potential environmental impacts, including biological and habitat impacts, zoning and general plan designations of the potential construction sites, and compatibility of the project with existing uses on these and surrounding lands. These two sites are zoned and designated for industrial uses and had been intensively utilized for industrial purposes for many years. Consequently, there is very little remaining natural habitat, and biological resources are limited. The sites do not contain Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. When the preferred alternative is selected and the preferred project site is identified, a purchase option needs to be in place early during project Phase III to avoid schedule impacts. Accordingly, a budget item has been identified for land acquisition.

C. Qualifications

The TCCA is a joint powers authority of 17 water districts. TCCA has a 25-year Reclamation contract to operate and maintain the T-C and Corning canals. The Authority's annual budget is more than $2 million, and it delivers more than 250,000 acre-feet per year of water to 150,000 acres of farmland. TCCA partners with Reclamation to operate the RBDD and related facilities and to address fisheries issues associated with the RBDD. The TCCA also participates in public forums and technical groups on RBDD fisheries research, and has significantly contributed to efforts to resolve RBDD fisheries issues. The TCCA administers research and planning efforts and implements capital improvements for water supply, water delivery, and fisheries.

CH2M HILL, one of the largest U.S. firms providing comprehensive engineering, scientific, economic, and planning expertise for large-scale, complex fishery and water resources projects, has been involved in this project since its inception. TCCA selected CH2M HILL as a subcontractor for its experience in water resources engineering and planning in California and TCCA's positive experience with the firm. CH2M HILL has served Reclamation, DWR, and numerous northern California water and irrigation districts for more than 50 years and has designed many Sacramento River intakes, pump stations, fish screens, fish ladders, and other water resources and fisheries management facilities.

Staff Organization and Key Project Personnel

As shown on Figure 3, Organization Chart, TCCA General Manager, **Art Bullock**, will administer the project with the assistance of TCCA staff. The CH2M HILL consultant team will provide engineering, planning, scientific, and economic expertise from **Dale Cannon**, **Howard Wilson**, **Mike Urkov**, **Bob Gatton**, **John Crowe**, and **Ken Iceman**. There are no potential conflicts of interest or availability limitations among the project team.

Art Bullock, TCCA General Manager and Project Administrator
Registered Civil Engineer: California, Nevada, Oregon
Art Bullock has 31 years of experience in the California public water supply industry, holding positions in four separate Southern California water districts. He served as General Manager and Chief Engineer of two of these districts prior to becoming TCCA General Manager in January 1996. Mr. Bullock has extensive experience in report preparation and administering large research and construction projects.

Dale Cannon, Consultant Team Project Manager
B.S., Civil Engineering; Registered Civil Engineer: Oregon
Dale Cannon has more than 34 years of engineering experience in large-scale water resources projects. He has expertise in project design and management, quality control, construction contract administration, staff direction, client and regulatory agency liaison, capital improvements financing, and grants administration. He was the consultant's project manager for the Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase I and is the project manager for currently ongoing Phase II. He recently managed the flood damage assessment and repairs of the Upper Butte Creek levee system for the U.S. Army Corps of Engineers. He developed conceptual designs for U.S. EPA facilities to prevent contaminated wastes from the Iron Mountain Mine Superfund site near Redding from reaching the Sacramento River.

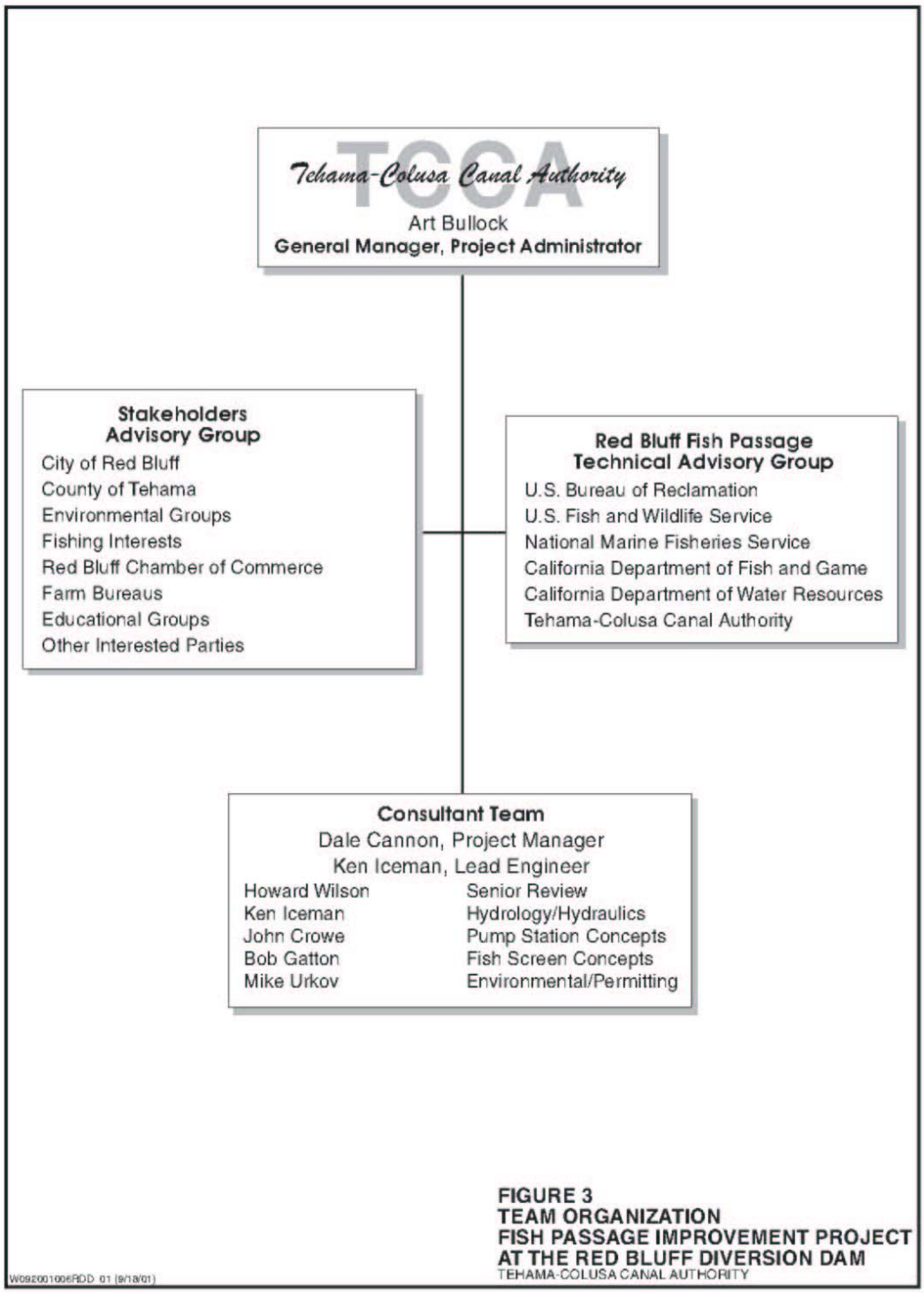


FIGURE 3
TEAM ORGANIZATION
FISH PASSAGE IMPROVEMENT PROJECT
AT THE RED BLUFF DIVERSION DAM
TEHAMA-COLUSA CANAL AUTHORITY

Howard Wilson, Senior Reviewer
B.S., Civil Engineering; Registered Civil Engineer: California, Nevada, Washington
Howard Wilson, has more than 35 years of experience in agricultural irrigation systems, pumping, and fish protection facilities. He managed the design of a $20 million rehabilitation and upgrade project for Glenn-Colusa Irrigation District (GCID), including a new Sacramento River intake and 3,000-cfs main pump station. He managed feasibility studies, design, and construction of the interim fish screens and design of the permanent screen facilities at the GCID main pump station. He was senior consultant for the Reclamation District 108 800-cfs Wilkins Slough Positive Barrier Fish Screen project.

Mike Urkov, Environmental and Permitting Issues
M.A., Water Resources Administration; B.S., Political Economy of Natural Resources
Mike Urkov is a water resources specialist with expertise in NEPA/CEQA and 9 years of experience in coordinating with federal and state agencies to acquire permits and approvals. He managed environmental and permitting tasks for the Anderson-Cottonwood Irrigation District's Sacramento River Fish Passage Improvement Project involving a new fish screen and ladders. He provided environmental and permitting support for Glenn-Colusa Irrigation District's 3,000-cfs Sacramento River fish screen project and USBR's Refuge Water Supply Conveyance Project involving weirs, diversions dams, canals, and pipelines.

John Crowe, Pump Station Concepts
B.S., Mechanical Engineering; Registered Mechanical Engineer: California, Alaska
John Crowe has 30 years experience designing structures and mechanical systems in rivers. For the Chalk Bluff Water Treatment Plant in Reno, Nevada, he managed design of the 80-mgd Truckee River pump station, screened intake, 2,700 feet of 48-inch pipeline, and 3,300-hp treated water pump station at the plant. He also managed preliminary design of the M&T Ranch Sacramento River pump station. He is currently design manager for the City of Sacramento's Sacramento River Replacement Intake with a 163-mgd pump station and fish screens.

Ken Iceman, Lead Project Engineer/Hydrology/Hydraulics
B.S., Mathematics; M.S., Civil Engineering; Registered Civil Engineer: California
Ken Iceman has more than 28 years of hydrology and hydraulics experience. He managed the hydraulic monitoring program for GCID interim fish screen performance, designed the training wall and bypass channel system, and managed the GCID permanent fish screen and Sacramento River gradient restoration feasibility study. He provided hydraulic modeling, optimized screen hydraulics, and maximized anadromous fish protection for RD-108's Sacramento River positive barrier fish screen.

Bob Gatton, Fish Screen Design Concepts
M.S., B.S., Civil Engineering; M.S., Systems Management; Registered Civil Engineer: Washington
Bob Gatton has 27 years of experience specializing in designing fish screening, passage, and hatchery facilities. He is a design consultant for the GCID and RD-108 fish screening facilities on the Sacramento River. For the Rocky Reach Dam and Hydroelectric Facility on the Columbia River, he managed conceptual design, layout, equipment selection, and agency coordination for the construction of a 6,000-cfs intake and pump station, fish bypass conduit, 2,000 cfs and 5,000 cfs ganged screens, and other pumping and fish protection facilities to

pass more than 1 million fish around the dam, meeting a 10-week construction schedule to avoid disrupting fish outmigration and power service. He is senior reviewer for the City of Sacramento's 163-mgd Sacramento River Replacement Intake with associated pump station and fish screens.

D. Cost

1. Budget

Our detailed budget is presented in Form VI.

2. Cost-sharing

TCCA, as project applicant, has already contributed substantial in-kind cost sharing to administer the project Phase I and Phase II contracts. TCCA will contribute in-kind services to administer this portion of the project (Phase III). These costs are estimated to exceed $200,000. These cost-share funds are not part of the funding being requested under this proposal.

When the project is completed, TCCA will provide operation and maintenance (O&M) services for any new facilities constructed in conjunction with the project. These services will constitute an additional, significant cost-sharing element for TCCA.

The member resource agencies that comprise the Red Bluff Fish Passage Technical Advisory Group have shared in the cost of project-related activities to date and indicated the willingness to continue their participation through subsequent phases of the project. Their participation represents a significant continuing financial contribution to achieving the goals of the project.

It is anticipated that the USFWS and CDFG will continue existing monitoring programs, including hydraulic monitoring, radio-telemetry, video and observational ladder counting, aerial redd counts, carcass surveys, juvenile beach seining and push netting, fyke netting, and screw trapping. These programs will provide critical comparative "before and after" data on the fish passage benefits of the project.

E. Local Involvement

Local Government Coordination

The County of Tehama Board of Supervisors and Planning Department and the City of Red Bluff City Council and Planning Department were informed of the project in writing and provided with copies of the project May 2000 Phase II proposal. TCCA staff have had conversations regarding the project with the City of Red Bluff City Manager and the Tehama County water resources director.

Local Interest Group/Affected Parties Awareness

This project was initially authorized by the unanimous vote of the TCCA Board of Directors on May 12, 1998. Proceeding with Phase II was confirmed by a second unanimous vote on March 3, 1999. The TCCA represents 17 water districts serving property owners of 150,000 acres in four counties. Active participation of other local interests has been solicited through the public outreach plan described below.

Several resource agency workshops have been held by the Red Bluff Fish Passage Technical Advisory Group during the course of this project to review the goals and objectives of the project. Participating in these workshops were TCCA, Reclamation, USFWS, CDFG, DWR, and NMFS. All Technical Advisory Group agencies that participated have expressed support for project goals and objectives and a willingness to work with TCCA to develop an implementable solution. Additionally, TCCA has made presentations of the project before the Tehama County Farm Bureau and the City of Red Bluff Chamber of Commerce. TCCA formed a Stakeholders Advisory Group consisting of the City of Red Bluff, County of Tehama, environmental groups, fishing interests, Red Bluff Chamber of Commerce, farm bureaus, educational groups, and other interested parties. There has been press coverage of the project in Red Bluff newspapers. The Sacramento River Discovery Center, a private, non-profit organization dedicated to public information and education regarding the Sacramento River watershed, has written a letter of support for the TCCA Fish Passage Improvement Project at the Red Bluff Diversion Dam, which was attached to the May 2000 Phase II proposal to CALFED. No opposition to the project has been expressed by any party to the project objectives or the technical work performed to date.

As the project has developed and specific sites were identified for accommodating pumping facilities and other project elements, field studies were undertaken to identify site constraints and potential environmental impacts. In 2000, for project Phase II, TCCA obtained letters of permission from property owners for access to two candidate sites. This proposal includes letters from these landowners indicating willingness to sell the parcels (Attachment_1).

Public Outreach Plan

A public awareness effort was initiated at the outset of the project (Phase 1) through presentations and press coverage. Public agencies, including the Tehama County Board of Supervisors and Planning Department and City of Red Bluff City Council and Planning Department, were notified in writing, and presentations regarding the project were made before these agencies. The public outreach effort was expanded as project Phase II proceeded, which included the EIS/EIR. Affected and interested parties have been and continue to be notified directly by the TCCA and its project consultant, through the local media, and through the public notification and involvement requirements of NEPA and CEQA. New and innovative public information media, including a public-access project website, have been developed and implemented. Identification of potential alternatives involved stakeholder meetings, and selection of a preferred alternative will involve stakeholder meetings intended to achieve consensus on the preferred alternative. The project team charter has focused on building consensus among key interested parties, recognizing that there are a number of perspectives on how fish passage should be improved. Also pursuant to NEPA and CEQA requirements, the public received ample opportunity to provide scoping input and will have the opportunity to review and comment on the EIS/EIR, which will be published for public and agency review and comment shortly. The public will be able to comment orally during public meetings on the EIS/EIR or in writing.

Potential Third Party Impacts/Benefits

Third party impacts might occur due to project implementation. Unavoidable adverse environmental and socioeconomic impacts would be mitigated under NEPA and CEQA requirements to the extent feasible. Third parties also might realize significant project benefits. Because the project will provide a more reliable water supply for agriculture and other beneficial uses, including wildlife refuge water supplies, the project will benefit agricultural water users in Tehama, Glenn, Colusa, and Yolo counties who receive their water from the TCCA and TCCA member districts. The project will benefit the northern Sacramento Valley area economy, which is highly dependent on agriculture. By reducing dependence on the RBDD, the project will allow agencies to modify RBDD operations to make them more "fish-friendly." A new fish screen that meets all current agency criteria would be constructed for any new intake pumping station that might be included in the project. All third parties interested in restoring anadromous fish species in the Sacramento River and Bay-Delta systems will benefit. Additionally, the project could enable state and federal agencies to pursue stream enhancement projects and other water management options in the northern Sacramento Valley.

F. Compliance with Standard Terms and Conditions

TCCA agrees to comply with all standard terms and conditions of the funding agency.

G. Literature Cited

CALFED. 2001. *Ecosystem Restoration Program Draft Stage 1 Implementation Plan.* August.

CALFED. 1999. Revised Draft *Ecosystem Restoration Program Plan, Volume II: Ecological Management Zone Visions.* February.

CH2M HILL. 2000. *Prescoping Report: Tehama-Colusa Canal Authority Fish Passage Improvement Project at the Red Bluff Diversion Dam.* January.

National Marine Fisheries Service. 1993. *Biological Opinion on the Effects of the Bureau of Reclamation's Proposed Long-Term Operation of the Central Valley Project on Sacramento River Winter-run Chinook Salmon.* February.

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U.S. Bureau of Reclamation. 1992. *Appraisal Report, Red Bluff Diversion Dam, Fish Passage Program.* U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region, Sacramento, California. February.

U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office; U.S. Bureau of Reclamation, Mid-Pacific Region. 1998. *Red Bluff Diversion Dam and the Tehama-Colusa Canal, Supplemental Fish and Wildlife Coordination Act Report.* February.

Attachment 1
Letters Indicating Willing Sellers

PACTIV
Advanced Packaging Solutions
An ISO 9002 Facility

Pactiv Corporation
One Diamond Avenue
P.O. Box 1500
Red Bluff, California 96080

Tel 530.529.3340
Fax 530.529.2296

September 19, 2001

Mr. Arthur Bullock, General Manager
Tehama-Colusa Canal Authority
P.O. Box 1025
Willows, California 95988

Subject: Tehama County Assessor's Parcel No. 035-470-09

Dear Mr. Bullock:

PACTIV Corporation is aware of the Tehama-Colusa Canal Authority's Fish Passage Improvement Project at the Red Bluff Diversion Dam from our previous discussions. We understand that the Tehama-Colusa Canal Authority has an interest in a parcel of land held by our firm, Tehama County Assessor's Parcel No. 035-470-09, as a potential site for a pump station.

In March 2000, we granted permission to access the parcel to the Tehama-Colusa Canal Authority, its contractors , and employees to perform reconnaissance-level surveys that would assess the suitability of the parcel for you project. Should the subject be deemed the most advantageous site for your project, PACTIV Corporation is willing to consider the sale of the parcel to Tehama-Colusa Canal Authority.

Sincerely,

Ken Orze
Plant Manager
PACTIV Corporation

KO/gc

Meyer Crest
Limited

September 19, 2001

CH2MHill
Att: Heather Lusso
2525 Airpark Drive
Redding, Ca. 96001-2443

Re: Red Bluff Diversion Fish Project

Dear Heather,

Thank you for providing the continuous updates to the ongoing Fish Passage Improvement Project at the Red Bluff Diversion Dam. Although there doesn't seem to be a final consensus as to the outcome of the project, it does seem possible that our land may be effected.

Meyer Crest, Ltd., formally know as Meyer Motels, Ltd., purchased the old Diamond Mill site and its 230+ acres from Diamonds Lands Corporation in 1995. We have developed and sold some minor parcels since our acquisition, the last parcel was sold to NEO Corporation for their cogeneration facility in the year 2001. Because of the specific needs for their project, NEO purchased five acres for $160,000.

Because of the importance of the Fish Passage Improvement Project, Meyer Crest, Ltd., will set aside approximately 30 acres in the proposed project area as undeveloped. If a company or entity approaches Meyer Crest, Ltd., with an offer to purchase land in the 30 acre area, we will contact your office and give you an opportunity to respond. You mentioned that the project was hoping to attain funding within the next year, we are looking forward to a swift approval for this worthy project.

Sincerely,

Herbert F. R. Meyer Jr.
President
Meyer Crest, Ltd.

2051 Hilltop Drive, Suite A-26 Redding, CA 96002 (Ph) 530-221-8250 (Fax) 530-221-8256

Attachment 2
Next-phase Funding—Existing Project Status Summary

Attachment 2: Next-phase Funding—Existing Project Status

Project Description

The project is located in the vicinity of the RBDD on the main stem of the Sacramento River. Project objectives are to reduce the impacts of the RBDD on upstream and downstream migration of anadromous fish, while improving the reliability of agricultural water supply. Feasible alternatives involve various RBDD "gates-in" and "gates-out" scenarios, with associated improvements to existing facilities and construction of new facilities, including an intake, pump station, and positive barrier fish screens.

Scientific Merit of Project

The project addresses CALFED's Target 1: "Minimize survival problems for adult and juvenile anadromous fish at RBDD by permanently raising the gates during the non-irrigation season and improving passage facilities during the irrigation season" and Programmatic Action 1A: "Upgrade fish passage facilities at the RBDD" (CALFED ERPP, Volume II, 1999, page 190). CALFED states (1999, page 163), "Fish passage at RBDD is a longstanding problem that has been partially solved through reoperation. This interim fix has constrained water diversion, and the longer term resolution needs to incorporate fish passage and survival and water delivery." TCCA seeks to identify and implement a feasible structural solution to substantially improve fish passage and water supply reliability at RBDD.

Hypotheses and Conceptual Model

Hypotheses and conceptual models are not required for fish screen construction projects.

Adaptive Management Framework

The Fish Passage Improvement Project at the RBDD builds upon many years of study and previous adaptive management actions. Since the startup of RBDD and the canal system in 1966, many changes in dam operations, modifications to existing facilities, and additions of onsite facilities have been made to mitigate fish passage impacts. This project recognizes the history of large-scale adaptive management at RBDD and attempts to balance the competing interests of fish passage and water supply reliability. In an effort to improve fish passage, the period of "gates-in" has been gradually decreased over the last 12 years to the current 4 months, from May 15 to September 14. This operational change has improved fish passage conditions, but it has also forced the TCCA to supplement its water supply with diversions from Stony Creek during the times that gravity diversion at RBDD is not available. These supplies are intermittent, and not reliable over the long term. Pumping capacity at RBDD has also gradually been increased over the years but still can meet less than 50 percent of peak irrigation demand. Because of this, it has occasionally been necessary to ration or allocate water deliveries from the Canal because the delivery capability into the Canal could not keep up with demand. Phase II of the project is building on past actions to identify structural and operational solutions that will improve fish passage while maintaining a reliable supply of water to TCCA districts. This approach is consistent with the CALFED Strategic Plan for Ecosystem Restoration (CALFED, 1999b, page 11). The current actions are also compatible with CALFED solution principles (Affordable, Equitable, Implementable, Durable, Reduced Conflicts, No Redirected Impacts), highlighting the difference between this project and

previous actions. However, due to the complex nature of the problem, it is acknowledged that adaptive management of the RBDD facility is likely to continue into the future.

Current Project Status

Accomplishments to Date and Information Generated. Phase I of the project was a feasibility study that resulted in the Prescoping Report cited in this proposal. The Prescoping Report summarizes previous efforts to resolve fish passage problems at RBDD and presents schematic designs for a range of viable alternatives for improving fish passage and the reliability of water deliveries to TCCA member districts. Phase II, how underway, has further refined, screened, and evaluated the most promising alternatives and includes preliminary design. An EIS/EIR is being prepared and an associated public outreach program is in progress. Phase II will culminate in selection of the preferred alternative.

Fiscal Status. Phase I was completed under CALFED Grant ERP-98-B22. Phase II is proceeding under CALFED Grants ERP-99-B07 and ERP-01-N58. The work proposed for Phase II is on schedule and on budget.

Outstanding Regulatory or Implementation Issues. Phase II, currently underway will complete the EIS/EIR and an implementation plan that identifies permitting and right-of-way requirements, the project monitoring and data evaluation plan, and other implementation requirements. Environmental approvals and construction permits will be obtained during Phase III.

Data Collection and Monitoring Program

An extensive historical record exists of both upstream and downstream fish migration at RBDD. The project includes continuation of existing CDFG and USWFS annual monitoring programs to document pre- and post-project success in adult immigration. USFWS monitors annual survival, abundance, condition, and seasonal spatial and diel distribution patterns of juvenile salmonids at RBDD. Continued USFWS and CDFG monitoring of adult and juvenile salmonid passage and rearing will document project success in relation to downstream emigration.