Patterson Irrigation District Fish Screen Design and Environmental Review

Project Information

1. **Proposal Title:**

   Patterson Irrigation District Fish Screen Design and Environmental Review

2. **Proposal applicants:**

   John Sweigard, Patterson Irrigation District

3. **Corresponding Contact Person:**

   John Sweigard
   Patterson Irrigation District
   P.O. Box 685 Patterson, CA 95363
   209 892-6233
   patwater@evansinet.com

4. **Project Keywords:**

   At-risk species, fish
   Environmental Impact Analysis
   Fish Passage/Fish Screens

5. **Type of project:**

   Fish Screen

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

   No

7. **Topic Area**:

   Fish Screens

8. **Type of applicant:**

   Local Agency

9. **Location - GIS coordinates:**

   Latitude: 37.497

   Longitude: -121.083

   Datum:

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

The Patterson Irrigation District Main Diversion off the San Joaquin River is located north of Las Palmas Avenue, about three and a half miles east of Patterson, CA

10. **Location - Ecozone:**

    12.1 Vernalis to Merced River

11. **Location - County:**

    Stanislaus

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:**

    18

15. **Location:**

    California State Senate District Number: 12

    California Assembly District Number: 26

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

    1

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: n/a

       Total Requested Funds: $611,000

    b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

Patterson Irrigation District 35,000

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):

2001-L207	**Patterson Irrigation District Positive Barrier Fish Screen on the San Joaquin River Diversion**	**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)

William Loudermilk	**Department of Fish and Game, Region 4**	**(209)222-3761**	**n/a**

21. **Comments:**

#12. The City of Patterson has nothing to do with the operation facilities of the diversion facility; however, there are some deliveries within the city. #17a. the applicant will not be performing the work. PID will be paying the money to subcontractors, and therefore will not have overhead costs.

Environmental Compliance Checklist

Patterson Irrigation District Fish Screen Design and Environmental Review

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: Patterson Irrigation District
   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
   XNegative Declaration or Mitigated Negative Declaration
   -EIR
   -none

   NEPA
   -Categorical Exclusion
   XEnvironmental Assessment/FONSI
   -EIS
   -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.

      The draft environmental documentation will be completed December 2002. The final environmental documentation will be completed January 2003.

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

STATE PERMITS AND APPROVALS

Scientific Collecting Permit	
CESA Compliance: 2081	
CESA Compliance: NCCP	Required
1601/03	Required
CWA 401 certification	Required
Coastal Development Permit	
Reclamation Board Approval	
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: Stanislaus Park and Recreation	Required
Permission to access state land. Agency Name:	
Permission to access federal land. Agency Name:	
Permission to access private land. Landowner Name:	

6. **Comments.**

#5, other local permits and approvals include any other required permits (Stanislaus county permits, etc.)

Land Use Checklist

Patterson Irrigation District Fish Screen Design and Environmental Review

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

   No

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 project involves construction of the fish screen facility at the diversion location as specified in the proposal. The current land use is for the pumping plant, so no land use change will occur.

4. **Comments.**

Conflict of Interest Checklist

Patterson Irrigation District Fish Screen Design and Environmental Review

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):

John Sweigard, Patterson Irrigation District

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

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

As needed	Montgomery Watson Harza
Steve Clifton	Steve Clifton Associates

None	None
None	None
None	None
None	None

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Amy Wade	**Montgomery Watson Harza**
Neil Schild	**Montgomery Watson Harza**

Michelle Treinen **Montgomery Watson Harza**

Chris Leininger **Ducks Unlimited**

Comments:

Montgomery Watson Harza will be performing the work as specified in the proposal. Many employees will be involved.

Budget Summary

Patterson Irrigation District Fish Screen Design and Environmental Review

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**
1	Project Management	0	0	0	0	0	64000	0	0	64000.0	0	64000.00
2	Environmental Documentation						150000			150000.0		150000.00
3	30% design						113000			113000.0		113000.00
4	Geotechnical Investigations						35000			35000.0		35000.00
5	Surveying						18000			18000.0		18000.00
6	90% design						150000			150000.0		150000.00
7	100% design						28000			28000.0		28000.00
8	Permitting						53000			53000.0		53000.00
		0	0.00	0.00	0.00	0.00	611000.00	0.00	0.00	611000.00	0.00	611000.00

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**
		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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**
		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grand Total=611000.00

Comments.

Budget Justification

Patterson Irrigation District Fish Screen Design and Environmental Review

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

N/A. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

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

N/A. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

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

N/A. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

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

N/A. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

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

N/A. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

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.

Subcontractors will perform all tasks specified in the budget. The estimated amount of hours is 5000 hours which will be split among the team members accordingly. The hourly rate ranges from $70 per hour for an Associate Engineer to $150 per hour for a Principal Engineer.

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.

N/a. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

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.

Project Management Subtasks and costs are as follows: Prepare Work Plan,$5000 Participate in Project Meetings, $26,000 Distribute Project Information and Progress Reports, $17,000 Institute and Maintain a QA/QC Program, $9000

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

N/A. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

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.

N/A. The Patterson Irrigation District will not be performing work as described in proposal. All work will be contracted out.

Executive Summary

Patterson Irrigation District Fish Screen Design and Environmental Review

Patterson Irrigation District Board of Directors is applying for $611,000 in CALFED grant funds to complete the engineering final design and to acquire various permits and environmental clearances required for implementation of a positive barrier fish screen on the districts San Joaquin River Pumping Plant. This proposal is a request for next-phase funding. The previous-phase funding was a 2001 CALFED grant to conduct a feasibility study to study various facilities to eliminate the impacts on the San Joaquin River Chinook salmon species and other species. Patterson Irrigation District has contracted with Montgomery Watson Harza to determine the most effective fish screen design. With current scientific knowledge presently available and best professional judgement regarding anadromous fish restoration, there is relatively little uncertainty associated with this project. All previous screens installed on similar facilities provide positive barrier fish screen protection. The expected outcome is that the San Joaquin River fishery and the pre-1914 righted water supply for Patterson Irrigation District will be protected and preserved. This study is applicable to the CALFED ERP Goals, Goal 1: At Risk Species and Goal 4: Habitats. The grant obtained will be used for the engineering final design, final environmental assessments, and permitting aspects of the project. The engineering final design will finalize the design criteria from the feasibility report, and complete engineering drawings, technical specification, contract documents, and bidding documents. The environmental and permitting aspects of this project will consist of preparing the necessary documentation to meet the requirements of the state, local, and federal agencies, and coordinating with appropriate agencies. Following the completing of the feasibility study, engineering final design, and environmental aspects of the project, the next phase of the project will be to use the plans and specifications to advertise for construction and a construction contract will be awarded. The construction will include as-built drawings for use in the future operation of the project. The construction will be concluded and the O&M manual preparation, hydraulic evaluation, facility start-up, and long-term monitoring will be conducted. Continued monitoring of the facilities will be completed by fishery agency, and will be documented as necessary. Patterson Irrigation District is committed to the O&M procedures.

Proposal

Patterson Irrigation District

Patterson Irrigation District Fish Screen Design and Environmental Review

John Sweigard, Patterson Irrigation District

PATTERSON IRRIGATION DISTRICT
FISH SCREEN DESIGN AND ENVIRONMENTAL REVIEW

CALFED PROPOSAL

Submitted by

Patterson Irrigation District
P.O. Box 685
Patterson, CA 95363

October 2001

A. PROJECT DESCRIPTION: PROJECT GOALS AND SCOPE OF WORK

1. Problem

The flows of the San Joaquin River have varied from very high flood flows to very low drought flows. As part of the San Joaquin River restoration, the water flow condition is to be improved. This restoration will vary from enhancing the low flow conditions to include some flushing flows to move the fish downstream for the out-migration to supplementing quantities of water for sustaining flows and attraction flows for the returning fish in the fall. The goal is to enhance the habitat and the fisheries of the San Joaquin River. The installation of fish screens on the diversion intakes is one step to that goal.

Historically, the San Joaquin River supported spawning and rearing habitat for the southernmost stocks of spring- and fall-run chinook salmon and for steelhead. In recent years however, fall-run chinook spawning escapements in the San Joaquin River Basin have declined to alarmingly low levels. This in part due to many small and medium-size irrigation diversions on the mainstem San Joaquin River entraining juvenile salmon. (ERRP 2000)

Patterson Irrigation District has a pumping plant on the San Joaquin River, diverting water for irrigation in the area surrounding Patterson, CA. The capacity of the pumping plant is 195 cubic feet per second (cfs) and the lift is about 35 feet. There are four additional pump lifts on the main canal to reach the higher elevation lands in the area. Each of the additional lifts is about 11 to 14 feet. The overall irrigation water supply from the river is supplemented by a Delta Mendota Canal supply. This supplemental water supply is under contract from the Central Valley Project (CVP). Part of the supplemental water is a water rights settlement from the CVP and the remainder is project water under long-term contract.

The irrigated lands served in the Patterson area have been continuously irrigated since the early 1900's. The area consists of permanent tree crops and row crops. The irrigated area totals 13,500 acres with 425 water accounts.

The Patterson Irrigation District Main Pumping Plant is located on the banks of the San Joaquin River, approximately 3.5 miles east of the city of Patterson, in Ecozone 12: San Joaquin River, 12.1: Versalis to Merced River. Surrounding the pumping plant is river bank habitat, limited amount of food supply, and the operation of the facility may remove some of the salmonoid out-migrants from the mainstream of the San Joaquin River. With the installation of fish screens, these areas of concern will be enhanced. The positive barrier fish screens will not allow any fish to enter the pump station area.

Relevant studies that have been conducted in the past include *White River Fish Screen Project Planning and Design* (1997) and *M&T/Parrott Pumping Station and Fish Screen* (1998), *Banta-Carbona Fish Screen Feasibility Study* (1996).

The goal of providing positive barrier fish screens on the diversion from the San Joaquin River is consistent with plans to restore the San Joaquin River. The listed species will be protected in their upstream and downstream migratory lifestyle. Screening of the diversion facilities on the San Joaquin River is a restoration feature that will provide environmental benefits for the future. It will also provide protection of the water rights so diversions may continue even with listed species present in the vicinity of the diversion. Current and future recovery plans for listed species will be easier to accomplish with this protection of all species.

2. Justification

The justification including conceptual model, hypotheses and selection of project type is not required for Fish Screen and Ladder Construction proposals. **Attachment 1** describes the justification for the Feasibility Study, which can also be applied to this phase of the project.

3. Approach

Patterson Irrigation District is in the process of completing a Feasibility Study to determine what type of facility will be best suited for the pumping plant location. Patterson Irrigation District Board of Directors and Manager are applying for CALFED grant funds to complete the next phase of the project. This will be to complete the engineering final design, final Environmental Assessment/Initial Study (EA/IS) with Negative Declaration and Finding of No Significant Impact (FONSI), and permitting and authorization. The future phase of the project, not included in this funding request, will include the construction of the fish screen facility, creation of an operation and maintenance plan, and the installation of the hydraulic evaluation/biological monitoring plan to ensure that the facility is successful in preventing entrainment of anadromous fish.

The engineering design will be completed by Montgomery Watson Harza. The engineering final design aspect of the project will be completed based upon the conceptual design from the Feasibility Study. This conceptual design will develop a preliminary set of design criteria. The engineering final design, as proposed in this report, will be consist of a preliminary design, geotechnical investigations, surveying, a 90 percent complete submittal, and a 100 percent complete submittal. The preliminary design will finalize the design criteria and develop 30 percent level design drawings. The preliminary design will address river and canal hydraulics, the fish screen, the pump station, corrosion analysis, and a cost estimate and construction schedule. The preliminary design will include presentations to the Anadromous Fish Screen Program Technical Review Team. Geotechnical investigations and surveying will be performed. (See Performance Measures #1 and #4)

The 90 percent complete submittal will be incorporate the comments from the PID landowners, staff, and the AFSP Technical Team, and will be comprised of engineering drawings, technical specifications, contract documents, and bidding documents for the following design disciplines: civil, mechanical, HVAC, electrical, instrumentation, structural, architectural, and corrosion. (See Performance Measures #1 and #5) The 100 percent complete final design will incorporate review comments received from the 90 percent submittal. There will be completed plans and specifications that can be advertised for construction bids upon completion of this phase. (See Performance Measures #1 and #6)

A subcontract will be issued for the environmental aspect of the project. The final environmental analyses will consist of preparation of the necessary documentation to meet the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Using the data collected in the draft Biological Assessment of the Feasibility Study, the applicant will prepare a final Environmental Assessment/Initial Study (EA/IS) with Negative Declaration and Finding of No Significant Impact (FONSI). (See Performance Measures #1 and #3)

The permitting and authorization aspects of the project will also be completed in this phase of the project. This will consist of preparing permit applications, and coordinating with appropriate agencies for the permits required. Table 1 lists the various agencies with applicable permit requirements. (See Performance Measures #1 and #3)

Future Phase: The future phase of this project is expected to include those tasks associated with the construction of the preferred alternative. The future phase of this project will incorporate knowledge gained from the activities of feasibility phase and the final engineering and environmental documentation phase. The future phase is not included in this funding request because the preliminary design of the preferred alternative has not taken place. The preliminary design is essential in determining a confident construction cost estimate for this project. Based on the information provided in the Feasibility Study and experience in designing fish screens the expected tasks and anticipated costs associated with the future phase are summarized in **Table 1**. The tasks and cost estimates will be evaluated after the preliminary design and may change due to a better understanding of the design than what was known at the time this proposal was prepared. An accurate explanation of the tasks and costs associated with the tasks will be included in a subsequent proposal.

Table 1. Future Phase Tasks and Cost Estimates
(Not Included in this Funding Request)

Task	Description	Estimated Cost
1	Project Management	$60,000
2	Bidding Assistance	$20,000
3	Construction Management	$325,000
4	Engineering Assistance during Construction	$60,000
5	Construction	$4,500,000
6	Prepare O&M Manual	$25,000
7	As Built Drawings	$30,000
8	Hydraulic Evaluation	$100,000
9	Biological Monitoring	$250,000
	TOTAL	$5,370,000

4. Feasibility

The feasibility of this work has been shown in similar projects (*M&T/Parrott Pumping Station and Fish Screen*, 1998; *White River Fish Screen Project Planning and Design*, 1997). Montgomery Watson Harza has completed similar projects in a time frame similar to this project. Therefore, the applicant feels that the time allotted in the work schedule is appropriate.

In viewing the area, the fishery in the San Joaquin River can be protected and the water supply for the Patterson Irrigation District can continue to be diverted from the river. The Feasibility Study will provide necessary information to show the impacts of the project and how the facilities can be constructed. The engineering final design and environmental analyses will be dependent on the successful completion of the Feasibility Study. This Feasibility Study will be completed prior to the grant funds becoming available.

Construction of the fish screen facility and pump station for the Patterson Irrigation District will not require land use change. The only possible alteration to the land is grading of less than an acre along the bank of the San Joaquin River. The land to be graded is presently owned by Patterson Irrigation District, and therefore will not require landowner approval to proceed with the project.

To proceed with the construction of the fish screens, several permits are necessary. **Table 2** lists the various agencies with applicable permit requirements. The permitting process will be completed during the proposed phase of the project.

Table 2. Required Permits and Authorizations

Agency/Permit	Applicability	Requirements for Application
U.S. Army Corps of Engineers Section 404 Nationwide and Section 7 Individual Permits	Required when working in natural streams and rivers	• Site Plan, Section Drawings, Location Map • CVRWQCB Sect. 401 Water Quality Certification (may be done concurrently) • COE Application 4345 • Environmental Documentation
Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification	Required when working in natural streams and rivers if the construction area is less than 5 acres	• CEQA Certification • Application Form and Fee • Section 1600 Stream Alteration Agreement or note contact with CDFG • Copy of COE Application 4345
California Department of Fish and Game Section 1600 Stream Alteration Permit	Required when natural streambed is to be altered by construction	• Environmental Documentation • Application Form and Fee • Project Location Map • Site Plan
State Historic Preservation Officer (SHPO) and National Historic Preservation Section 106 Coordination	Required for construction	• Archeological Inventory Survey and Report
California Endangered Species Act (CESA) Consultation	Required for construction	• State lead agency designated • Threatened and endangered biological review
Endangered Species Act (ESA) Compliance	Required for construction	• Federal lead agency designated • Site Visit • Threatened and endangered biological review
National Environmental Policy Act (NEPA) Compliance	Required for construction	• Federal lead agency designated • Prepare draft environmental assessment • Prepare EIS or FONSI
California Environmental Quality Act (CEQA)	Required for construction	• State lead agency designated • Prepare initial study • Prepare Negative Declaration or EIR

5. Performance Measures

Overall Performance Goal: Project evaluation will be performed throughout all phases of the project, from the feasibility stage to post-construction. Once the fish screen facility is constructed an ERP-MSCS milestone (E22) for the San Joaquin River Basin will be achieved: "Install state-of-the art fish screens at El Solyo, Patterson, and West Stanislaus Irrigation Diversions. All fish species classified as "R" (Recovery) will benefit from this milestone."

A list of project-specific performance measures for each of the general indicator categories defined in Attachment G of the 2002 PSP are listed in **Table 3**. These performance measures will be used to assess the project's success in relation to its goals and objectives.

Table 3. Performance Measures

Performance Measure	Metric	Target	Baseline
1) Participation by landowners and key resource managers at project planning/ coordination meetings	Number of representatives from interested agencies.	Full Participation for duration of the project.	Not Applicable
2) Establishment and implementation of QA/QC program	Steps to establish QA/QC program.	Successful implementation of QA/QC program by all involved in the project for the duration of the project.	Not Applicable
3) Completion and distribution of Environmental Documentation and necessary permits.	Steps to complete CEQA and NEPA documentation and number of final documents to be issued to respectable agencies.	Final document approved by all interested parties before construction of the project and during Sept '03 to Sept '03.	Draft Biological Assessment
4) Development and approval of preliminary design for the preferred alternative established in the feasibility report	Number of preliminary design drawings to be issued to MFWC.	MFWC staff and other interested parties to review drawings and submit comments during Sept '02 to Jan '03.	Preferred Alternative in the Feasibility Report.
5) Approval of comments from the 30% preliminary design and completion of the 90% contract documents.	Number of 90% documents submitted to MFWC staff and number of 30% comments to be incorporated.	Consultant to respond to all comments, incorporating relevant comments into the 90% design. MFWC staff and other interested parties to review 90% drawings and submit comments during Jan '03 to Aug '03.	Preliminary Design/
6) Finalize 100% contract documents incorporating all review comments from the 90% submittal	Number of 100% documents submitted to MFWC for bidding and number of 90% comments to be incorporated.	Consultant to respond to all comments, incorporating relevant comments into the 100% design. MFWC to accept contract documents during Aug '03 to Sept '03.	90% Submittal

Future Performance Measures: Monitoring and assessment plans will be done as a part of the feasibility and finalized in the design and construction phase. The plans will be documented to show the protection of and the improvements in the San Joaquin River fishery. Also, upon completing of the construction phase of the project, inspection and testing of the fish screen facility will be completed to ensure quality. Hydraulic testing of the facility will ensure that the flows and velocities meet the project design criteria as specified in the Feasibility Study. Sweeping velocities and approach velocities will also be measured.

In order to ensure smooth operation of the facility, start-up assistance will be implemented to familiarize the Patterson Irrigation District personnel with the operation

of the new facilities. There will also be a long-term monitoring and hydraulic evaluation to be completed by fishery agencies. Biological monitoring will be performed periodically for the first several years of operation of the facility to ensure that the fish screens are successfully preventing entrainment of the anadromous fish.

The Patterson Irrigation District diversion is one of the largest on the San Joaquin River. Future data should show a marked improvement in the number of anadromous fish as a result of the installation of this fish screen.

6. Data Handling and Storage

The data will be maintained by Montgomery Watson Harza during the construction and start-up phase and will be transferred to Patterson Irrigation District upon completion of constructed facilities. The data will be available for the review of state and federal agencies at any time upon request.

7. Expected Products/Outcomes

The engineering design documents, and environmental and permitting documents are expected products from this phase of the project. The Patterson Irrigation District has presented other significant actions and will likely make similar presentations on this fish screen project. The consultant will present all findings and features of the project for the benefit of individuals as requested. Staffs of the district and consultant are members of American Fisheries Society, American Society of Civil Engineers, and American Society of Agricultural Engineers and will likely make presentations to this type of professional societies.

8. Work Schedule

The engineering final design and acquisition of various permits and environmental clearances will begin shortly after the grant funds have been made available through a contract. In this proposal, it is considered that July 2002 would be a likely starting date. The final design and environmental assessments would be completed within nine months from when a grant contract is acquired.

The individual tasks and deliverables for the Patterson Irrigation District Fish Screen final design and environmental assessments are identified below. A summary of the tasks, start and finish dates, and other comments are included in **Table 4**.

Table 4. Work Schedule

Task / Subtask No.	Description Title	Start Date (mo / yr)	Due Date (mo / yr)
Task 1	**Project Management**	**Jul '02**	**Mar '03**
Subtask 1.1	Prepare work plan	Jul '02	Aug '02
Deliverable 1	*Work Plan*	*Jul '02*	*Aug '02*
Deliverable 2	*Draft service contracts*	*Jul '02*	*Aug '02*
Deliverable 3	*Final service contracts*	*Jul '02*	*Aug '02*
Subtask 1.2	Participate in Project Meetings/Public Outreach	TBD	TBD
Deliverables	*Meeting Agenda and Minutes*	*TBD*	*TBD*
Subtask 1.3	Distribute Project Information and Progress Reports	Jul '02	Mar '03
Deliverables	*Monthly Reports, and Quarterly Programmatic and Fiscal Reports in the CALFED approved format*	*Jul '02*	*Mar '03*
Subtask 1.4	Institute and Maintain a QA/QC Program	TBD	TBD
Deliverable 1	*Memorandum to file*	*TBD*	*TBD*
Task 2	**Environmental Documentation**	**Jul '02**	**Jan '03**
Deliverable 1	*Draft Environmental Document*	*Jul '02*	*Dec '02*
Deliverable 2	*Final Environmental Document*	*Dec '02*	*Jan '03*
Task 3	**Preliminary Design (30 percent)**	**Jul '02**	**Sept '02**
Subtask 3.1	River and Canal Hydraulics	Jul '02	Sept '02
Subtask 3.2	Fish Screen	Jul '02	Sept '02
Subtask 3.3	Pump Station	Jul '02	Sept '02
Subtask 3.4	Corrosion Analysis	Aug '02	Sept '02
Subtask 3.5	Cost Estimate and Construction Schedule	Aug '02	Sept '02
Task 4	**Geotechnical Investigations**	**Sept '02**	**Oct '02**
Task 5	**Surveying and Mapping**	**Jul '02**	**Sept '02**
Task 6	**90 Percent Complete Final Design**	**Oct '02**	**Jan '03**
Deliverable 1	*90 Percent Complete Documents*	*Oct '02*	*Jan '03*
Task 7	**100 Percent Complete Final Design**	**Feb '03**	**Mar '03**
Deliverable 1	*Final Documents*	*Feb '03*	*Mar '03*
Task 8	**Permits**	**TBD**	**Feb '03**
Deliverables	*Permits*	*TBD*	*Feb '03*

TASK 1: PROJECT MANAGEMENT

The Task 1 Project Management work will span all elements of Tasks 2 through 8. This task will include preparing a work plan, participating in project meetings, public

outreach, distributing project information and progress reports, and instituting and maintaining a QA/QC Program. (See Performance Measure #1)

TASK 2: ENVIRONMENTAL DOCUMENTATION

This task consists of the preparation of the documentation necessary to meet the requirements of the California Environmental Quality Act (CEQA), and the National Environmental Policy Act (NEPA). The initial focus of the environmental work effort will be to contact the various agencies, solicit input, and identify the documents that need to be prepared. It is assumed that a FONSI and Negative Declaration will be the result of the environmental analyses. Draft documents will be prepared and submitted to the CALFED/AFSP Technical Team. Final documents will be prepared by responding to the comments received on the draft document. The lead agencies for CEQA and NEPA will be Patterson Irrigation District and USBR, respectively. (See Performance Measures #1 and #3)

TASK 3: PRELIMINARY DESIGN (30% DESIGN)

The intent of Task 3 is to finalize the design criteria necessary to complete final design. Task deliverables will consist of a set of final technical memorandums accompanied by 30 percent complete drawings of the major facility components. Presentations to the Anadromous Fish Screen Program (AFSP) technical review team will be included in this task.

Technical memorandums will be prepared for each of the following categories: river and canal hydraulics, fish screen, pump station, corrosion analysis, and cost estimate and construction schedule. The hydraulic analysis will finalize the rating and exceedance curves developed in the feasibility phase of the project, confirm operational elevations, and evaluate temporary impacts associated with construction in the River. The fish screen subtask will provide layouts for the intake facilities. The pump station technical memorandum will include pump and valving selection, electrical equipment selection and layout, discussion of facility operational and control features, building layout and configuration, and civil/site layout. The corrosion analysis will include conducting soil and water resistivity tests, analysis of data obtained, and recommendations for protection of buried and submerged metallic structures. A 30 percent level cost estimate and construction schedule will be provided in a technical memorandum. (See Performance Measures #1 and #4)

TASK 4: GEOTECHNICAL INVESTIGATIONS

This task will include a geotechnical field program supplemented with laboratory testing. A geotechnical report will present a summary of the investigations conducted and provide recommendations for foundation design and earthwork considerations.

TASK 5: SURVEYING AND MAPPING

This task consists of performing detailed surveying and mapping to supplement the surveying obtained from the feasibility phase of the project. Mapping will be produced at 1-foot contour intervals.

TASK 6: 90% COMPLETE FINAL DESIGN

The goal/deliverable of Task 6 is to prepare 90 percent complete documents for construction. The 90 percent complete final design will incorporate review comments received from the AFSP Technical Team, PID landowners and staff during the preliminary design phase. The design will be comprised of the following design disciplines: civil, mechanical, HVAC, electrical, instrumentation, structural, architectural, and corrosion. The engineering drawings, technical specifications, contract documents, and bidding documents will be prepared to a 90 percent complete level and issued for review and comment. A 90 percent estimate of construction cost will be prepared. (See Performance Measures #1 and #5)

TASK 7: 100% COMPLETE FINAL DESIGN

The goal of Task 7 is to provide bid-ready documents for construction. The 100 percent complete engineering drawings, technical specifications, contract documents, and bidding documents will be prepared incorporating review comments received from the 90 percent submittal. An estimate of the construction cost will be prepared. (See Performance Measures #1 and #6)

TASK 8: PERMITS AND AUTHORIZATION

This task consists of preparing permit applications, and coordination with appropriate agencies for the permits and authorization required for the project. (See Performance Measures #1 and #3) The following permits and authorization have been identified.

- USACOE 404 Permit
- CVRWQCB 401 Water Quality Certification
- CDFG Section 1600 Streambed Alteration Permit
- SHPO and National Historic Preservation Section 106
- CESA Consultation
- ESA Compliance
- Stanislaus County Permits as required

B. APPLICABILITY TO CALFED ERP GOALS AND IMPLEMENTATION PLAN AND CVPIA PRIORITIES

1. ERP and CVPIA Priorities

Ecosystem Restoration Program Strategic Goals:

GOAL 1: **At-Risk Species**- This project will promote the recovery of at-risk species, in particular spring-run, fall-run, late fall-run and winter-run Chinook salmon, splittail, and steelhead trout. The project will contribute to the reversing of downward population trends of non-listed native species in the San Joaquin River, by reducing or eliminating delay and injury to migrating adult fish by improving passage conditions and reducing entrainment in diversion for juvenile and larval fish.

GOAL 4: **Habitats**-Installation of a positive barrier fish screen will protect the habitat of the target species in the San Joaquin River by decreasing the likelihood of entrainment in diversion facilities.

Regional Implementation—San Joaquin Valley Region

SJ-3) Improve rearing and spawning habitat and downstream fish passage on tributary streams and the main stem San Joaquin River, particularly for chinook salmon steelhead trout and splittal.

- *Fish screens.* This project improves fish passage by constructing a fish protection facility on an existing diversion, and continues a project currently supported by CALFED.

Central Valley Project Improvement Act Goals

Under Title 34 of Public Law 102-575, this restoration action will assist in meeting most of the Central Valley San Joaquin River fishery restoration goals of Section 3406.

Applicability to the Anadromous Fish Restoration Program Section 3406(b)(1) objectives:

- *Improve habitat for all life stages of anadromous fish by providing flows of suitable quality, quantity, and timing, and improved physical habitat.* This project improves fish passage and flow management in the San Joaquin River that greatly increases the spawning success and survival of fall, late-fall, and spring-run chinook salmon and steelhead.
- *Improve survival rates by reducing or eliminating entrainment of juveniles at diversions.* The fish screens to be constructed at the Patterson Irrigation District diversion will result in the elimination of a source of mortality to spring and winter-run chinook salmon.

- *Improve the opportunity for adult fish to reach their spawning habitat in a timely manner*. The installation of fish screens at the PID diversion greatly increases the opportunity for adult anadromous fish to reach their natural spawning and rearing habitat. The number of out-migrants will increase with the screening of this diversion. The surviving out-migrants will in turn produce additional adults to return to the river and spawn.

2. Relationship to Other Ecosystem Restoration Projects

The restoration of this portion of the San Joaquin River has been related to the waterfowl and wildlife in the Merced River and refuge and areas in the Mendota Pool and Grasslands areas. The flows in the Merced River may have been supplemented from diversions in the upper reaches of that watershed to assist in meeting the restoration goals. In addition, the San Joaquin River below Friant Dam has flowed some additional water to restore habitat in and along the river. This and other related actions have been initiated in the last five years. These actions relate to the Vernalis Adaptive Management Plan that was implemented by the State Water Resources Control Board as a portion of the Bay Delta Water Rights hearings. There is a 31-day pulse flow from mid-April through mid-May. These flows improve the survivability of the juvenile salmon out-migrating through the San Joaquin River. Two fairly large parcels of land in the upper reaches of the Merced River have been purchased to provide a source of spawning gravel for the river as needed and to restore the river flow through an area that will provide prime spawning habitat. With these improvements in river flow and spawning conditions, the screening project at Patterson Irrigation District reaches a higher priority.

3. Requests for Next-Phase Funding

The Patterson Irrigation District received a CALFED grant for $175,000 in 2000 in order to complete a Feasibility Study for this project. This Feasibility Study will be completed by February 1, 2002. It will provide the framework for the environmental and final design phases by providing a draft Biological Assessment, information regarding impacts on fish migration and habitat, and pre-design drawings of the project. **Attachment 1** in the appendix of this proposal describes the intent of the Feasibility Study and its relationship to this phase of the project.

If the grant for the environmental and final design aspect of the project is awarded and a contract is issued in July or August 2002, the applicant can continue the process to implement the fish screen construction. Following the environmental and final design aspects of the project, the construction phase will be next with the start-up and testing the final stage. The Patterson Irrigation District will have to agree to long-term operation and maintenance of all facilities. This will include the screens, cleaning, monitoring, operations and maintenance. The construction will produce as-built drawings and the O&M manual.

4. Previous Recipients of CALFED or CVPIA Funding

Patterson Irrigation District received $175,000 under CALFED grant number 2001-L207 for the previous-phase funding of this project. No other CALFED or CVPIA Funding has been received.

5. System-Wide Ecosystem Benefits

The screening of the irrigation supply intake will complement other restoration projects that are underway or completed on the watersheds above this diversion. This is just one additional place on the river that will provide habitat and safe passage of the out-migrants.

6. Additional Information for Proposals Containing Land Acquisitions N/A

C. QUALIFICATIONS

Montgomery Watson Harza, MWH, is a full service civil and environmental engineering firm specializing in a variety of services including water and wastewater engineering, energy and infrastructure engineering, flood control, waste remediation, fisheries design, and environmental assessment and mitigation. The firm also works in a number of other industry sectors such as construction, finance, information technology, applied research, project management, laboratory services and government relations.

MWH - the result of a recent merger between Montgomery Watson and Harza Engineering Company – brings to the industry expertise in fish screen and water structure design and construction. With more than $721 million in revenue, MWH has 5,500 specialists in more than thirty nations and more than 231 years of combined experience. MWH is successful in delivering progressive environmental solutions that reflect the latest scientific and technological developments while recognizing the importance of protecting the environment and the quality of life in local communities. MWH is a recognized leader in water resources and environmental planning. MWH has been present in Northern California for many years and continues to provide engineering service to many local private and public clients. The company has expertise and the capability to perform all phases of a project from the planning phase to the construction and operation of the completed project.

Montgomery Watson Harza Engineers:

Neil W. Schild is a Principal Engineer with 41 years of experience in operation and maintenance of dams and water supply reservoirs and power generation projects. He earned a B.S. in Agricultural Engineering from Kansas State University and is a Professional Agricultural Engineer in California. During 20 years with the U.S. Bureau of Reclamation, he has proven his ability to provide reasonable and practicable solutions to even the most complex situations. His background includes design and construction of fish protection facilities, application of environmental regulations, management of water

and land resources, transfer of water rights, water resource planning, project management, and administration of personnel. Mr. Schild was Project Manager for M&T Chico Ranch Fish Screen Facility, Gorrill Land Company Fish Screen and Ladders Project, and Banta-Carbona Irrigation District Fish Screen Feasibility Study. He is currently the Project Manager for the Pleasant-Grove Verona Fish Screen Feasibility Study and the Patterson Irrigation District Fish Screen Feasibility Study.

Wayne C. Dahl is a Principal Engineer with 23 years of experience in large civil engineering projects including planning, design, and construction management of water resources projects, including flood control and water supply. He received a B.S. in Civil Engineering from North Dakota State University, and completed graduate course study in Hydrology from Arizona State University. He is a Professional Civil Engineer in California and Arizona, and a Land Surveyor in California. Mr. Dahl has expertise in the design and construction of water distribution systems; hydrology and drainage projects; canals, channels, pipelines, and pumping stations; reservoir design; and bridges and roadways. Mr. Dahl is experienced in all phases of project and program implementation, including planning, analysis, design, plans and specifications, costing, bidding, and construction management. He is the Project Manager for the American River Pump Station Project, and for Arcade Water District's Capital Improvement Program.

Janet L. Atkinson is a Supervising Engineer with 21 years of experience in the planning and design of water resource and general civil engineering projects with special emphasis on the design of pipelines and pumping plants. She received a B.S. in Civil Engineering from University of Oklahoma and is a Professional Civil Engineer in California and Oklahoma. She has served as project manager and project engineer for several planning and design projects for pump stations. She was responsible for leading the preliminary design effort for a 25 MGD pump station for the Contra Costa Water District. Ms. Atkinson also participated in the design of an irrigation distribution system for the Semitropic Water Storage District in Kern County, the preliminary design of the Central Utah Project Irrigation and Drainage System, and a conceptual engineering report for the San Francisco Water Department Alameda Creek Fishery Water Recapture Facility.

Dennis E. Dorratcague is a Principal Engineer and the water resources director in Montgomery Watson Harza's Northwest Region. He earned a B.S. from University of Notre Dame and his M.S. in Civil Engineering at Colorado State University. He is a Professional Civil Engineer in Washington, Oregon, Alaska, and California. He has been working in the field of hydrology and hydraulics since 1972, primarily concentrating on hydraulic structures and fisheries engineering. He has served as Technical Manager for the Banta-Carbona Irrigation District Fish Screen Feasibility Study and for the preliminary and final design for a fish screen, ladder, and tailrace barrier in Western Oregon. Mr. Dorratcague was also Project Manager for the development of the Feature Design Memorandum for the Surface Bypass Spillway Project; the hydraulic modeling, preliminary and final designs, and construction services of a fish screen on the White River in Western Washington; the preliminary and final design of a fish screen facility for Pacific Power and Light Company; and the Salmon Falls Fish Passage Project.

Amy L. Wade is an Associate Engineer with experience in civil, environmental, and water resource engineering. She received a B.S. in Civil and Environmental Engineering from Brigham Young University. Her background includes the planning, analysis, and design of flood management and water intake facilities. Ms. Wade has served as Project Engineer on several major water resources projects including the Pleasant Grove-Verona Fish Screen Feasibility Study, and participated in the preliminary design phase for the Sacramento River Watershed Project.

Private Environmental Consultant:

Steve Clifton has a wildlife consulting background with an emphasis on the ecology and conservation of special-status plant and wildlife species endemic to California. He received a Bachelor of Arts Degree in Wildlife Biology/Zoological Concentration in 1985 from California State University. Mr. Clifton has worked as a sub-consultant conducting field surveys in Plumas National Forest of California in accordance to present survey protocol. He has served as project biologist for the Endangered Species Recovery Program collecting genetic samples, monitoring movement patterns, and providing technical expertise concerning the San Joaquin kit fox, giant kangaroo rat, riparian brush rabbit, riparian woodrat, and other species. He served as Field Investigator for the Habitat Assessment and Finding of No Significant Impact for the proposed Tracy O&M Facility Relocation Site. Mr. Clifton is the Principle Field Investigator conducting pipeline alignment clearance surveys for the Delta-Mendota Canal and California Aqueduct right-of-way in San Joaquin, Stanislaus, Merced, Fresno, Kings, and Tulare counties, CA.

D. COST

1. Budget

A detailed budget for this project is included in the application portion of the proposal.

2. Cost-Sharing

There will be cost sharing by other agencies and the stakeholders in Patterson Irrigation District and surrounding areas. The district staff will provide information and assistance when requested. There will be other contributions by the district. The district is willing to furnish in-kind services for the fish screen project.

Patterson Irrigation District will provide services through existing staff to provide data requested. The district counsel will review contracts and legal documents concerning the project. The district will provide facilities for the stakeholders meeting to obtain input from the community and local governmental interests. Staff time and supplies are available for assistance.

E. LOCAL INVOLVEMENT

Public Outreach Plan: A cooperative program will be developed to conduct public outreach to key stakeholders which include Patterson Irrigation District, California Dept. of Fish and Game, California Dept. of Water Resources, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Stanislaus County government, other nearby landowners, and other interested parties. The outreach program will be structured to maximize the participation of the stakeholders in order to inform and educate the community about the project and its intent to protect anadromous fish. Planned and scheduled meetings will be organized and conducted by Montgomery Watson Harza. These stakeholder meetings will provide an opportunity for all participants to have input regarding the design and construction of fish passage and water delivery structures on the San Joaquin River.

Commitment by PID and MWH to keep the public informed about the project will minimize conflict and misinformation between landowners, land users, governmental agencies, and conservation groups. In addition, these outreach efforts will inform and educate local communities about the CALFED Ecosystem Restoration Program.

Local, state, and federal resource agencies have shown strong support for this fish screen project because it meets specific natural resource program goals and objectives. Additional local participation will occur during the CEQA/NEPA compliance process. A public notice will be made once the draft EA/IS is available for public and agency review. Any comments received during this period will be addressed in the final EA/IS. The installation of the fish screen facility is not expected to have any negative impacts to businesses and residents along the river or from recreational users of the river.

Patterson Irrigation District has sent letters to the Stanislaus County Board of Supervisors and Planning Departments, Stanislaus County Parks and Recreation Interim Director, City Manager of the City of Patterson, and an adjacent landowner to inform them of the CALFED proposal for the fish screen Feasibility Study. A letter from the city manager of the City of Patterson was sent back to Patterson Irrigation District showing city support for the installation of fish screens at the District's main diversion point on the San Joaquin River. The City of Patterson will not be involved in the operational facilities of the pumping station, however, they are somewhat involved in the project because some of the irrigation district's deliveries are within the city.

Third Party Impacts: None

F. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The district is willing to accept the standard terms and conditions for the state and federal contracting. The applicant has reviewed the terms and conditions and is agreeable to the language as presented. All of the bid bonds and required documents will be utilized when the construction contracts are awarded.

G. LITERATURE CITED

CALFED Bay-Delta Program, Ecosystem Restoration Program 2002 Proposal Solicitation Package, 2001.

CALFED Bay-Delta Program. Guide for Regulatory Compliance for Implementing CALFED Actions, Volume 2: Environmental Regulatory Processes, June 2001.

Central Valley Anadromous Fish Annual Run-Size, Harvest and Population Estimates, 1967 through 1991, CDFG, August 1994 Revision.

Central Valley Project Improvement Act, Title 34 of PL 102-575, Sections 3402, 3406 and 3407. Approach and Focus for Implementing the CVPIA 1999-2004.

Department of California Fish and Game, Projects Upstream on Merced and San Joaquin Rivers, Personal knowledge of Fish and Game staff.

Department of California Fish and Game, National Community Conservation Planning Act, Sections 2800-2840, 1991.

Final Endangered Species Act Section 7 Consultation Handbook, March 1998.

McMillen, M.D., and W. Porter, White River Fish Screen Project Planning and Design. Proceedings of Waterworks '97, 1997.

Schild, Neil W., M&T/Parrott Pumping Station and Fish Screen. Presented at Fish Passageway Workshop, Sacramento, California, March 26, 1998.

Montgomery Watson, Banta-Carbona Irrigation District Fish Screen Feasibility Report, 1996.

APPENDIX

ATTACHMENT 1

Summary of Existing Project Status:
Patterson Irrigation District Positive Barrier Fish Screen Project (2001-L207)

Overview of Project. Patterson Irrigation District is in the process of completing a Feasibility Study for the implementation of a positive barrier fish screen at the site, as described in the current proposal. The applicant received funding from CALFED in 2001 for the completion of this Feasibility Study. This Feasibility Study will evaluate various methods of screening fish at or near the current diversion point along with alternative water supplies (other than from the San Joaquin River). However, the availability of alternative water is unlikely given the situation with the current deliveries from the Central Valley Project facilities and other water quality problems that exist throughout the valley. The goals and scientific merit of completing this phase of the project are the same as described in this proposal for next-phase funding.

Due to the fact that this proposal for next-phase funding is being submitted in September 2001, the Feasibility Study is only in the beginning stages of development. The tasks, schedule, and cost by subtasks of this project are shown in **Table A-1**. Tasks 1 through 5 should be completed by February 1, 2002 which allows the project final design and environmental documentation work to continue if the next grant is approved and available about April or May 2002.

Table A-1: Task Schedule and Budget of the Patterson Irrigation District Positive Barrier Fish Screen Project.

Task / Subtask No.	Descriptive Title	Start Date (mo/yr)	Due Date (mo /yr)	Total Costs
Task No. 1	Project Management, Kickoff meeting, and Site Visit	September '01	April '02	
Subtask 1.1	Project Management	September '01	April '02	$15,000
Subtask 1.2	Kickoff Meeting and Site Visit	September '01	November '01	$10,000
Task No. 2	Develop Project Alternatives	September '01	December '01	$25,000
Task No. 3	Data Collection and Development of Design Criteria	October '01	February '01	
Subtask 3.1	Geology and Soils	November '01	January '02	$10,000
Subtask 3.2	Hydrology and Water Quality	October '01	December '01	$5,000
Subtask 3.3	Project Operational Requirements	September '01	December '01	$5,000
Subtask 3.4	Topographical/Bathymetry Survey of San Joaquin River	October '01	December '01	$15,000
Subtask 3.5	Vegetation and Wildlife-Environmental Documentation	November '01	January '02	$15,000
Subtask 3.6	Fisheries	November '01	January '02	$8,000
Subtask 3.7	Cultural Resources	October '01	December '01	$6,000
Task No. 4	Conceptual Design	December '01	February '02	$25,000
Task No. 5	Feasibility Report	February '02	April '02	$35,000
				$175,000

Scientific Merit. With current scientific knowledge presently available and best professional judgement regarding anadromous fish restoration, there is relatively little uncertainty associated with this project. It is a proven fact that fish are removed from habitat with ongoing diversions in most situations of this type. The "take" for this diversion has never been collected, but the California Fish and Game agency has noted that this diversion should be screened. The data will likely reflect increases in the number of fish in the stream and returning to the spawning areas upstream of this diversion.

In our case, the goal is to increase the number of fish in the San Joaquin River and tributaries. The facility will allow meeting the goals of continuing the present water diversions and reducing the potential impact on the fish in the San Joaquin River. The direction isn't to eliminate the diversion, as this would have devastating local and statewide economic and social impacts. The direction is to positively impact the fishery and maintain the economic and social viability of the area through irrigated agriculture.

Relationship to Next-Phase Funding. Subtask 3.5 of the Feasibility Study will provide a field reconnaissance for vegetation and wildlife existing within the project area. This information will include a species list of vegetation and wildlife observed during any site visits. In addition, a search for special status species will be completed and a list will be developed. Information from this survey will be incorporated into the EA/IS. USFWS and CDFG staff will be contacted to review the concerns of the agencies to protect rare, threatened and endangered (RTE) plant and wildlife species and habitats. The deliverable of this portion of the task is a draft Biological Assessment.

Subtask 3.6 of the Feasibility Study will provide information on the temporal and spatial timing of the species migrating and size of the fish migrating or using this portion of the San Joaquin River. The fisheries chapter will focus on the beneficial aspects of the project on salmonids that rear and migrate along this portion of the San Joaquin River, as well as the potential effects of the project on winter-run salmon. Salmon life history and other relevant information for the San Joaquin River will be included in the Environmental Assessment/Initial Study. Subtasks 3.5 and 3.6 will be used as the framework for the EA/IS in the next-phase of the project as described in this proposal.

Task 4 of the Feasibility Study will incorporate the data gathered in Tasks 2 and 3, and will provide pre-design drawings of the selected alternative including conceptual designs of pumping plant and fish screen facilities. This conceptual design will serve as a basis for the final design portion of the proposed next-phase project.

ATTACHMENT 2

FIGURES

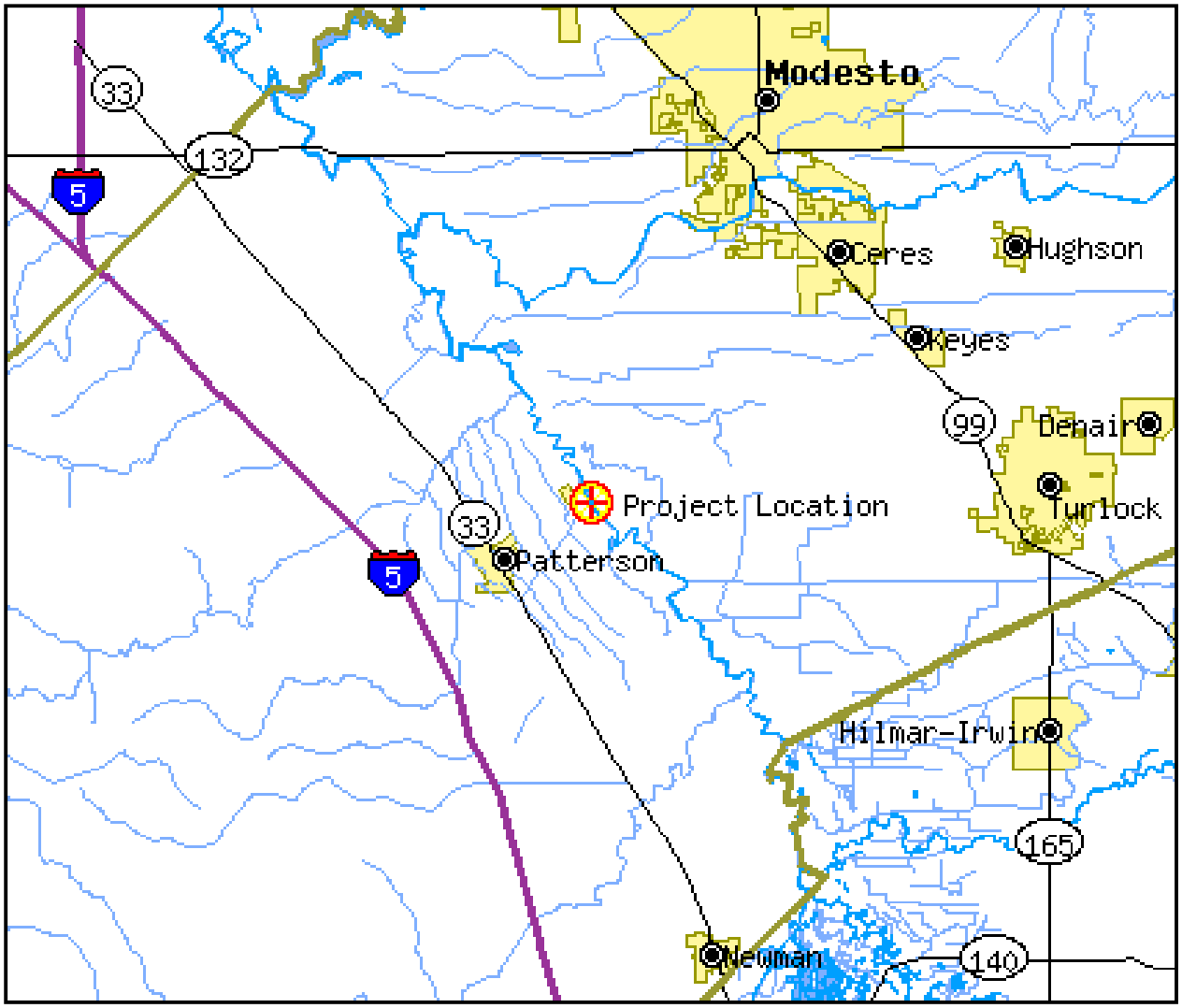

Figure 2.1 : Location Map

Upstream view of the San Joaquin River from the Main Pumping Plant

Downstream view of the San Joaquin River from the Main Pumping Plant

Figure 3A: Photographs of the Patterson Irrigation District Fish Screen Project Site

View of pumping units at the Main Pumping Plant looking across the San Joaquin River

View of pumping units from the San Joaquin River

Figure 3B: Photographs of the Patterson Irrigation District Fish Screen Project Site

View of steel structure in front of Main Pumping Plant

View of pump discharge with Main Pumping Plant in the background

Figure 3C: Photographs of the Patterson Irrigation District Fish Screen Project Site