

White Mallard Dam and Associated Diversions - Phase III Construction

Project Information

1. Proposal Title:

White Mallard Dam and Associated Diversions - Phase III Construction

2. Proposal applicants:

Ronald Stromstad, Ducks Unlimited, Inc.
Robert Capriola, California Waterfowl Association

3. Corresponding Contact Person:

Olen Zirkle
Ducks Unlimited, Inc.
3074 Gold Canal Drive, Rancho Cordova, CA 95670
916 852-2000
ozirkle@ducks.org

4. Project Keywords:

Fish Ladder construction
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?

No

7. Topic Area:

Fish Passage

8. Type of applicant:

Private non-profit

9. Location - GIS coordinates:

Latitude: 39.302

Longitude: -121.922

Datum:

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

The Project is located on the west side of Butte Creek Between the Gridley-Colusa Highway on the north, at the intersection of Drumheller Slough and Butte Creek on the south and the intersection of Drumheller Slough and Avis Channel on the West

10. Location - Ecozone:

7.6 Butte Creek

11. Location - County:

Colusa

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:

4

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: 18.96

Total Requested Funds: \$7,047,987

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):

99-B02 Butte Sink II ERP

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

Yes

If yes, identify project number(s), title(s) and CALFED program.

96-M22 Gorrill Dam Fish Screen Category III

95-M05 M&T/Parrott, Pumping Station and Fish Screen Category III

2001-L205 Sutter Bypass West Side Construction ERP

96-M21 Rancho Esquon/Adamas Dam Fish Screen Category III

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

Yes

If yes, identify project number(s), title(s) and CVPIA program (e.g. AFRP, AFSP, b(1) other).

1448-11332-9-J006 Lwr Butte Creek III Drumheller Slough AFRP

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

Yes

If yes, identify project number(s), title(s) and CVPIA program.

11332-0-J006 Lwr Butte Creek Facilitation/Coordination AFRP

1133299J122 East West Diversion & Weir #5 AFRP

113329J136 Weir #3 AFRP

113320J004 Sutter Bypass East Side AFRP

- 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)

John Icanberry Fish & Wildlife Service 209-946-6400 johnicanberry@fws.gov

Buford Holt Bureau of Reclamation 530-275-1554 bholt@mp.usbr.gov

- 21. Comments:**

Environmental Compliance Checklist

White Mallard Dam and Associated Diversions - Phase III Construction

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: California Department of Fish and Game

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

-EIR

-none

NEPA

-Categorical Exclusion

☒ Environmental 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 administrative draft documents have been submitted to the stakeholders for initial review. Documents should be ready for public review after October 2001.

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

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

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: Reclamation District 1004

Required, Obtained

Permission to access state land.

Agency Name:

Permission to access federal land.

Agency Name:

Permission to access private land.

Landowner Name: Multiple

Required, Obtained

6. Comments.

Permission to access project lands was obtained during planning and design phases of the Project.
Permission to access Project lands during construction will be obtained in a Site Specific Agreement signed with the landowner/operator prior to construction.

Land Use Checklist

White Mallard Dam and Associated Diversions - Phase III Construction

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).

Actions proposed include upgrading existing diversions with fish ladders and screens, and consolidating two diversions into one. Affected land will remain in agricultural and wildlife habitat uses, and no changes in land use are anticipated.

4. Comments.

None

Conflict of Interest Checklist

White Mallard Dam and Associated Diversions - Phase III Construction

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):

Ronald Stromstad, Ducks Unlimited, Inc.
Robert Capriola, California Waterfowl Association

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

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

Rob Capriola	California Waterfowl Association
Steve Sullivan	Ensign & Buckley

None	None
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None	None
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None	None
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None	None
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Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Rob Capriola	California Waterfowl Association
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Steve Sullivan Ensin & Buckley

Chris Leininger CL & Co.

Comments:

Budget Summary

White Mallard Dam and Associated Diversions - Phase III Construction

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
1.0	Project Management	200	8200	2200	0	0	0	0	8400	18800.0	3564	22364.00
2.0	Bidders Package	25	700	200	0	0	7500	0	1050	9450.0	1792	11242.00
3.0	Construction	-	-	-	-	-	-	-	-	0.0	-	0.00
3.1	White Mallard Upgrade	0	0	0	0	0	0	0	0	0.0	0	0.00
3.2	Five Points Screen/Diversions	350	10150	2900	0	0	1700850	0	14700	1728600.0	327743	2056343.00
3.3	Avis Channel Modification	350	10150	2900	0	0	1816750	0	14700	1844500.0	349717	2194217.00
3.4	White Mallard Pump Screen	0	0	0	0	0	0	0	0	0.0	0	0.00
3.5	Foraker Pumps Screens	0	0	0	0	0	0	0	0	0.0	0	0.00
		925	29200.00	8200.00	0.00	0.00	3525100.00	0.00	38850.00	3601350.00	682816.00	4284166.00

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
1.0	Project Management	200	8500	2281	0	0	0	0	9583	20364.0	3861	24225.00
2.0	Bidders Package	0	0	0	0	0	0	0	0	0.0	0	0.00
3.0	Construction	-	-	-	-	-	-	-	-	0.0	-	0.00
3.1	White Mallard Upgrade	250	7250	2071	0	0	512250	0	11558	533129.0	101081	634210.00
3.2	Five Points Screen/Diversions	0	0	0	0	0	42000	0	0	42000.0	7962	49962.00
3.3	Avis Channel Modification	0	0	0	0	0	28900	0	0	28900.0	5479	34379.00
3.4	White Mallard Pump Screen	250	7250	2071	0	0	322450	0	11558	343329.0	65095	408424.00
3.5	Foraker Pumps Screens	250	7250	207	0	0	1215350	0	11558	1234365.0	234036	1468401.00
		950	30250.00	6630.00	0.00	0.00	2120950.00	0.00	44257.00	2202087.00	417514.00	2619601.00

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
1.0	Project Management	200	8800	2361		0	0	0	10960	22121.0	4194	26315.00
2.0	Bidders Package	0	0	0	0	0	0	0	0	0.0	0	0.00
3.0	Construction	-	-	-	-	-	-	-	-	0.0	-	0.00
3.1	White Mallard Upgrade	125	3750	1071	0	0	17800	0	6850	29471.0	5588	35059.00
3.2	Five Points Screen/Diversions	0	0	0	0	0	0	0	0	0.0	0	0.00
3.3	Avis Channel Modification	0	0	0	0	0	0	0	0	0.0	0	0.00
3.4	White Mallard Pump Screen	125	3750	1071	0	0	10000	0	6850	21671.0	4109	25780.00
3.5	Foraker Pumps Screens	125	3750	1071	0	0	36300	0	6850	47971.0	9095	57066.00
		575	20050.00	5574.00	0.00	0.00	64100.00	0.00	31510.00	121234.00	22986.00	144220.00

Grand Total=7047987.00

Comments.

The construction should be completed at the end of the second year. Post construction monitoring will continue into the third year

Budget Justification

White Mallard Dam and Associated Diversions - Phase III Construction

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

Project Manager: Olen Zirkle Year 1 - 200 hrs; Year 2 - 200 hrs; Year 3 - 100 hrs Staff Engineer (To be named): Year 1 - 700 hrs.; Year 2 - 700 hrs.; Year 3 - 350 hrs.

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

Project Manager: Year 1 - \$41.00/hr.; year 2 - \$42.50/hr.; Year 3 - \$44.00/hr. Staff Engineer Year 1 - \$28.00/hr.; Year 2 - \$29.00/hr.; Year 3 - \$30.00/hr.

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

Project Manager - 26.83% Staff Engineer - 28.57%

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

Included in Other Direct Costs

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

Included in Other Direct Costs

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.

California Waterfowl Association - Robert Capriola Duties: Land Owner relations, Environmental Compliance; Oversee Monitoring; Assist Project Manager on reporting Ensign & Buckley Consulting Engineers - Construction Management Duties: Bid package; Construction Management; O&M Manual Preparation; Post construction monitoring. (Hours and rate/hour included in construction subtasks)

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 presentations, response to project specific questions and necessary costs directly associated with specific project oversight.

Project Management will include all management tasks required by granting entity including reporting, invoicing, and state/federal terms and conditions; Negotiating and servicing all subcontracts; Supervision of all subcontractors and consultants; Landowner/agency relations; Project access; Coordination with agencies and other Lower Butte Creek Projects.

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

Direct Cost Rate: Year 1: \$42.00/hr.; Year 2: \$46.23 (est.); Year 3: \$54.80 (est.) Direct expenses are those expenses directly attributable to project related hourly charges. The rates are comprised of costs for salaries, benefits, office space, general insurance, support staff, office supplies, and other various direct expenses incurred at the regional offices and conservation department at the home office.

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.

Indirect Overhead Charge \$18.96% The Indirect Overhead costs primarily consists of home office costs and general support functions. The costs includes but are not limited to the following categories: Home Office salaries wages and fringe benefits; Accounting and finance; Operations & maintenance; General office expenses and supplies; Software and equipment rental/lease; Membership dues and subscriptions; Postage; Printing; Communications; Insurance; Conferences fees and travel; Legal; and, Information services.

Executive Summary

White Mallard Dam and Associated Diversions - Phase III Construction

Executive Summary - White Mallard Dam and Associated Diversions - Phase III Construction Project
Type: Fish Screen/Ladder Construction (next phase of previously funded project) Project
Description/Approach: The White Mallard Dam and Associated Diversions Project (Project) is designed to improve fish passage for anadromous fish in Butte Creek, a tributary to the Sacramento River, while maintaining the viability of agriculture and managed wetlands in the Butte Creek floodplain. The proposed project sites are in the Sacramento Region - Ecozone 7 - Butte Basin - 7.7 - Butte Sink in Colusa County. The Project proposes to upgrade the White Mallard Dam with a fish ladder and new water control structures and screen diversions that depend on the White Mallard Dam for setting stage. The diversions proposed for screening include Five-Points Diversion, White Mallard Pump, and Foraker Pumps (3). Their functions for fish passage and water control are highly interrelated and they are operated in concert, depending on flow conditions, fish passage needs, and habitat or agricultural management needs. Ideally, their construction should be funded as a whole, but they may be funded individually and are prioritized and budgeted as separate tasks in this proposal. Final engineering design and permitting for these structures will be completed by December 31, 2001 (provided under CALFED grant # 99-B02 to Ducks Unlimited). Completion of these structures with CALFED or CVPIA funding is of the highest priority and construction could begin as early as July, 2002, pending funding availability. The project objectives are consistent with the following Ecosystem Restoration Program Plan (ERPP) fish passage objective: The proposed project is consistent with the ERPP high priority Stage 1 Action for Butte Creek: "STAGE 1 ACTION: Improve fish passage at diversion dams either by providing alternative diversion structures that will allow removal of existing dams or by upgrading fish ladders and diversion screens." Central Valley Project Improvement Act Goals: This project address the following Sections in TITLE 34, PUBLIC LAW 102-575: Section 3402(a) - protect, restore, and enhance fish and associated habitats in the Central Valley, Section 3405(b)(21) - avoid losses of juvenile anadromous fish at unscreened or inadequately screened diversions. Expected Outcome: Construction of the seven structures including the White Mallard Dam and Associated Diversions (MILESTONE). Monitoring and data collection will provide the data necessary to evaluate the effectiveness of the upgraded structure in reducing any fish passage problems at the site and improving water management capabilities. Spawning surveys and collection of juvenile fish during migration will be conducted as part of a long-term monitoring plan. The data collected at the site will also be used to establish operational criteria for the structure in order to maximize fish passage and water management efficiency. Spawning and juvenile surveys are being conducted annually to determine the population response to this and similar projects in the watershed.

Proposal

Ducks Unlimited, Inc.

White Mallard Dam and Associated Diversions - Phase III Construction

Ronald Stromstad, Ducks Unlimited, Inc.
Robert Capriola, California Waterfowl Association

White Mallard Dam and Associated Diversions - Phase III Construction

A. Project Description: Project Goals and Scope of Work

Project Location: The Project is located on the west side of Butte Creek between the Gridley-Colusa Highway to the north and the intersection of Drumheller Slough and Butte Creek to the south and the intersection of Drumheller Slough and Avis Channel to the West.

1. Statement of the problem

Butte Creek hosts the single largest remaining run of spring-run chinook salmon in the Central Valley. In addition, fall-, and late-fall-run chinook salmon and steelhead trout exist in Butte Creek. As late as the 1960's, Butte Creek regularly supported over 4,000 adult spring-run chinook salmon, a lesser number of fall- and late-fall-run, and a small number of steelhead trout (Campbell and Moyle 1990). From the mid-1960's until 1995, the spring-run chinook populations have ranged from fewer than 200 adults to over 1,000 (CDFG 1998). This decline in numbers has resulted in the listing of spring-run chinook salmon as *Threatened* (Federal) and *Threatened* (State). The fall-run chinook salmon population varies between a few fish to as many as 1,000 (CDFG 1993). The decline of Butte Creek's chinook salmon and steelhead is attributed to inadequate flows, unscreened diversions, inadequate passage over diversion dams, unblocked agricultural return drains that attract and strand adult fish, poor water quality, declining availability of adequate spawning gravel and poaching. The major diversion dams and fish passage problems on Butte Creek have been identified by numerous planning efforts (CDFG 1993, JSA 1998, USFWS, 1997) and fish ladders and screens have been installed on several major diversions between the Butte Sink and Chico (Ward, pers. comm.). Significant fish passage problems still exist on Butte Creek from the Butte Sink through the Sutter Bypass (JSA 1998), and this proposal addresses seven of these structures (Figure 1). They include the *White Mallard Dam*, *Five-Points Scream/ Diversions*, *Avis Channel Modifications*, *White Mallard Pump Screen and Foraker Pump Screens (3)*. These sites are in the Butte Basin Ecological Zone (area 7.7:Butte Sink) in Colusa County. The project area served by these structures encompasses the lands west of Butte Creek, south of the Gridley/Colusa Highway and depend on Butte Creek for water supply to agriculture and managed wetlands.

The structures proposed for improvement operate systematically to provide water and drainage for over 20,000 acres of highly valuable managed wetlands and agricultural habitat. The objective of construction is to provide passage for adult salmonids by installing a fish ladder and overflow gates at the White Mallard Dam and juvenile fish screens at the diversions that depend on the White Mallard Dam for setting stage. No changes to diversion volumes or timing will result from upgrading these existing structures, and potential impact on the fishery is anticipated to be positive

2. Justification

The conceptual model being used assumes that the long-term decline in salmonid populations in the Sacramento-San Joaquin system is due primarily to human manipulation of the hydrologic conditions and geomorphic processes that effect salmon survival. This model assumes relatively stable conditions in the ocean rearing and growth portion of the salmon lifecycle and that improvements to migration and survival conditions for fish in the inland portion of their life-cycle will result in improved population numbers. Surveys conducted by the California Department of Fish and Game (CDFG) (CDFG 1998) show that spawning habitat in Butte Creek is under-utilized by the current average run of fish. The limiting factors in the population can now be reduced to adequate flows for migration and survival, predation of adult and juvenile fish, and to fish passage barriers that delay, injure, and prevent fish from reaching spawning habitat. Actions that minimize the effect of these factors should result in an increase in population for the

target species. Actions for Butte Creek have been identified and prioritized in recent plans (CDFG 1993, CDFG 1998, USFWS 1997, USFWS 2000) and implementation is underway. This proposal encompasses some of these recommended actions and will contribute to species survival by reducing delay of adult migration (laddering at White Mallard Dam) and by increasing survival of juveniles (fish screens at Five Points diversion and four lift pumps). On the Healey Ladder of the Adaptive Management Process, this project falls under “Implement Large-Scale Restoration” and includes monitoring of the immediate conditions and effects of the new structures and long-term monitoring of fish populations in the watershed.

3. Approach

This project is the next phase of a previously funded project. It is primarily a full-scale implementation project based on the studies and plans noted above. Planning and choosing structural alternatives for fish passage and water management on Butte Creek took place during 1997 through 1999 under a partnership between several landowner groups, agencies, and non-governmental organizations. Participants have included the Bureau of Reclamation (BOR), CALFED, U.S. Fish and Wildlife Service-Anadromous Fish Restoration Program (AFRP), Sacramento National Wildlife Refuge (SNWR), California Department of Fish and Game (CDFG), California Department of Water Resources (DWR), Ducks Unlimited Inc. (DU), California Waterfowl Association (CWA), Butte Sink Waterfowl Association (BSWA), Ensign and Buckley Consulting Engineers, Jones and Stokes Associates (JSA), Borcalli and Associates (BA), National Marine Fisheries Service (NMFS), Reclamation District 1004 (RD 1004) and numerous private landowners. Under a CALFED directed action grant, DU and CWA are providing site characterization and final engineering design, and cost estimates for the proposed improvements and for additional improvements in the Butte Sink, and for lands west of Butte Creek (White Mallard Dam and Associated Diversions).

Construction plans have been reviewed and approved by DWR, NMFS, CDFG and the stakeholders. Complete NEPA/CEQA documentation will be completed and permits and consultations acquired prior to December 31, 2001. See Feasibility section below for a complete list of permits and their status.

Ideally, the construction of all planned improvements should be funded as a whole, but they may be funded individually and are prioritized and budgeted as separate tasks in this proposal. The seven proposed structures were prioritized by CDFG and AFRP staff along with those structures associated with the Butte Sink in the following order from highest priority to lowest priority:

Highest Priority : White Mallard Dam Upgrade, Five Points Screen and District 1004 Distribution Modifications, Avis Channel, Morton Weir Complex, End Weir, Tarke Weir Outfall, Driver’s Cut Outfall. *Medium Priority*: North Weir. *Lowest Priority*: Foraker Pumps Screens, White Mallard Pump Screen.

Monitoring of the hydrologic and fish passage conditions will determine the optimal operational fish passage and water delivery settings for the various gates, ladders, and fish screens (see **Performance Measures** below).

4. Feasibility: The feasibility of completing the construction and monitoring of these projects during the proposed timeline is extremely high. Planning efforts instituted in earlier phases of the project have received approval from the immediately affected stakeholders and regulating agencies. Prior to the first phase of construction, all required environmental documents and permits for each site will be completed. These documents include: 1) Mitigated Negative Declaration/Finding of No Significant Impact (Joint CEQA Initial Study and NEPA Environmental Assessment (draft completed); 2) California Department of Fish and Game Streambed Alteration Agreement (completed by 12-31-01); 3) Clean Water Act

sections 404, 401 certification or waiver (completed by 12-31-01); 4) Section 7 consultation with USFWS/NMFS regarding listed species (BA completed by 12-31-01); and 5) National Historic Preservation Act Section 106 consultation (completed by 12-31-01). Access will be guaranteed under agreements between DU and the owners and operators of the various structures. Construction is planned for low-water periods (July 15 – November 15) and flooding or disruption of construction by high water is very unlikely. Construction will be completed in time to meet all erosion control measures and access road refinishing before the seasonal rains begin.

5. Performance Measures

Design Documents: Final design of all structures has been completed and reviewed by NMFS and CDFG engineers and will be submitted to the AFSP Team for review and approval. As-Built design documents will be produced and delivered to NMFS, CDFG, and CALFED upon completion of the structures.

Completed Structures: Performance of construction will be certified by DU's Engineer of Record. Completion will also be documented by photography for each proposed structural upgrade, and will be compiled into an album for distribution.

Post-Construction Evaluation: Monitoring and data collection will provide the information to evaluate the effectiveness of the upgraded structures in reducing fish passage problems in the Project area. Monitoring plans will generally need to include the following items: experimental design; target species and life stages; sampling season; sampling gear; parameters measured; sampling design and locations; data processing and analyses; and data storage and presentation. The Monitoring Plan will be developed and finalized prior to any collection of data. There are two primary objectives of the monitoring task:

- 1) Determine if adult chinook salmon and steelhead are blocked or hindered in their upstream migration past the upgraded structures.
- 2) Determine if design and operation of the structures meet proposed hydraulic standards for fish passage and water management.
- 3) Determine if design and operation of fish screens meet CDFG/NMFS criteria.

Related questions, hypotheses, assumptions, issues, and limitations include:

- Do adult salmon and steelhead build up in large numbers below the new fish ladder?
- Are approaches to the ladder constructed in a manner allowing confident approach and detection of the ladder entrance by the fish?
- What are the optimal settings for structure controls under various flows that optimize fish passage at the structures?
- Are the fish screens effectively screening juvenile fish with minimal physical trauma?

Operations and Maintenance Plans: Operations and Maintenance plans for each structure will be provided by the engineering subcontractor to each operator and to CALFED upon completion of each structure.

6. Data Handling and Storage

Project electronic data will be handled and stored on a secure network and compiled on CD ROM at the Ducks Unlimited, Inc. Western Regional Office on request. All pertinent information gathered, evaluated and applied to the project will be kept in a permanent file at the Western Regional Office of Ducks

Unlimited, Inc. and made available to CALFED upon request

7. Expected Products/Outcomes:

- Construction completed on fish passage modifications on White Mallard Dam and Associated Diversions – MILESTONE.
- Quarterly reports beginning 7/1/02 through 06/30/05 detailing task accomplishments and fiscal expenditures to funding agencies.
- Presentation of progress reports on semi-annual basis to local stakeholders including landowners, water user groups, and regulatory agencies.
- Presentation of progress reports at monthly Spring-run Workgroup meetings.

8. Work Schedule

Table 1: Task description, milestones, start and completion dates for Butte Sink Phase III Construction Projects.

Task Description	Descriptive Title	Deliverables and Milestones	Start Date	Completion Date
Task 1:	Project Management	Quarterly Reports, Final Report, Invoicing	April 1, 2002	March 31, 2005
Task 2:	Bidders Package	RFP for proposed Projects, Select construction contractor	July 1, 2002	December 31, 2002
Task 3:	Facility Construction			
Subtask 3.1	White Mallard Dam Upgrade Construction Management Construction O&M Manual Post Construction Monitoring	Completed Flow Control Weir and Fish Ladder MILESTONE	April 1, 2004	March 31, 2005
Subtask 3.2	Five Points Screen/Diversions: Construction Management Construction O&M Manual Post Construction Monitoring	Completed Flow Control Weir and Fish Screen MILESTONE	April 1, 2003	March 31, 2004
Subtask 3.3	Avis Channel Modification: Construction Management Construction O&M Manual Post Construction Monitoring	Removal and reconfiguration of existing diversion channel MILESTONE	April 1, 2003	March 31, 2004
Subtask 3.4	White Mallard Pump Screen: Construction Management Construction O&M Manual Post Construction Monitoring	Completed Fish Screen for Small Pumping Plant MILESTONE	April 1, 2004	March 31, 2005
Subtask 3.5	Foraker Pumps Screens: Construction Management	Completed Fish Screen for Small	April 1, 2004	March 31, 2005

	Construction O&M Manual Post Construction Monitoring	Pumping Plants MILESTONE		
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The White Mallard Dam and Associated Phase III Construction Project is comprised of five component or subprojects, which involve the structural modification to water control structures, fish screens for small pumping plants and the removal/reconfiguration of a dead-end diversion channel. All of these conveyance systems deliver water to lands located west of Butte Creek and will result in improved adult fish passage and reduced entrainment of juvenile fish in the irrigated farmland and managed wetland systems. As part of a total system upgrade, an adult fish barrier was completed this year at Drumheller Slough Outfall which is located at the bottom of the system. Phase II of the project, design, environmental compliance documentation and permitting, will be completed for each of the sites by the time that funding is available. The design engineer, Ensign & Buckley Consulting Engineers, will be responsible for construction management, O&M Manual and post construction monitoring. Post construction monitoring will begin once the structure is completed and will be completed on or before the end of the grant period.

Subtasks 3.1, 3.4 and 3.5 are all stand alone projects. Subtasks 3.2 and 3.3 have to be completed concurrently because they relate to the removal and relocation of the main diversion point for RD 1004. Agency fisheries biologists have met and ranked Subtasks 3.1-3.3 as a #1 priority and Subtask 3.4 and 3.5 as a #3 priority. Construction should be spread over two years, 2003 and 2004 due to the use of alternate channels for Butte Creek flows. The table above shows the Five Points Screen/Diversion and the Avis Channel Modification (Subtasks 3.2 & 3.3) being constructed the first year and the balance of the project constructed the second year. These two structures and the planned screens will greatly reduce potential entrainment of juvenile fish in agricultural lands.

From a fisheries perspective, this proposal is linked with a companion proposal, **Butte Sink Water Control Structure Modification – Phase III Construction Project**. If funding were limited, Subtasks 3.2 & 3.3 (End Weir & Morton Weir Complex) of Butte Sink proposal would rank as highest priority along with Subtasks 3.1 – 3.3 (White Mallard Dam Upgrade, Five Points Screen/ Diversion and Avis Channel modifications) of the White Mallard Proposal. (See Appendix, Attachment C for details)

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

1. ERP, Science Program and CVPIA Priorities

CALFED ERP Goals:

GOAL 1: At-Risk Species – It is anticipated that this project will promote recovery of at-risk species, in particular spring-run chinook salmon, steelhead trout, splittail and other species of concern, and contribute to the reversing of the downward population trends of non-listed native species, by reducing or eliminating delay and injury to Butte Creek adult fish by improving passage conditions and reducing entrainment in diversions for juvenile and larval fish.

GOAL 2: Ecosystem Processes and Biotic Communities - This project is expected to rehabilitate natural ecological processes that support natural aquatic and terrestrial biotic communities and life-cycle requirements by supporting important ecological processes such as riparian corridors and invertebrate production and fish spawning, nutrient and organic transport and sediment transport and decomposition

that replenish riverine aquatic habitats.

GOAL 4: Habitats – This project will result in upgraded water delivery systems for the Proposal area that will add fish-safe habitat for juvenile rearing. All diversions that deliver water for irrigation and wetlands will be screened creating a labyrinth of fish safe canals and waterways. The main diversion structure, White Mallard Dam, will be rebuilt with water control structures to insure proper flows and water depth at critical times during the rearing cycle. Adult fish passage will be enhanced with the installation of a state-of-the-art fish ladder.

ERP Strategic Plan: This project meets Butte Creek State 1 Actions – Action 1: Improve fish passage at diversion dams either by providing alternative diversion structures that will allow removal of dams or by upgrading fish ladders and screen diversions. (Ecosystem Restoration Program Plan, Strategic Plan for Ecosystem Restoration, pg. D-33).

ERP Multi-Species Conservation Strategy for the Sacramento River Basin: This project accomplishes specifically listed milestones for Stressor Reduction by providing unimpeded upstream and downstream passage for salmon and steelhead and by reducing or eliminating fish stranding under Water Diversions for the Sacramento Region – Sacramento River **E034701**

CALFED Science Program Goals:

- Developing performance measures that will track the success of the actions taken. Monitoring and data collection will provide the information to evaluate the effectiveness of the upgraded structures in reducing fish passage problems in the Butte Sink.
- Apply an Adaptive Management approach by monitoring existing projects and developing new practices for proposed pilot projects. Evaluations will be made based on monitoring activities concerning settings for structure controls under various flows that optimize fish passage at the structures.

CALFED Implementation Plan Regional Multi-Regional and Regional Priorities:

REGIONAL IMPLEMENTATION– Sacramento Valley Region

SR-2 Restore fish habitat and fish passage particularly for spring-run chinook salmon and steelhead trout and conduct passage studies.

- *Facilities improvements and fish passage programs.* This project provides passage for adult salmonids by installing fish ladders and flow-control gates at the White Mallard Dam, Five Points Screen/Diversion, and Avis Channel. Completion of these structures will substantially enhance fish passage to spawning and rearing habitat in Butte Creek. The project will increase fish-safe rearing habitat and reduce entrainment into adjacent agricultural fields and managed wetlands by screening all diversions.

Central Valley Project Improvement Act Goals. This project address the following Sections in TITLE 34, PUBLIC LAW 102-575: Section 3402(a) – protect, restore, and enhance fish...and associated habitats in the Central Valley..., Section 3405(b)(21) – avoid losses of juvenile anadromous fish at unscreened or inadequately screened diversions. The project also address the following CVPIA goals:

Anadromous Fish Restoration Program – Section 3406(b)(1)

- *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 Butte Creek that greatly increases the spawning success and survival of anadromous fish.
- *Improve survival rates by reducing or eliminating entrainment of juveniles at diversions;* Completion of the fish screen will result in the eliminating entrainment for anadromous at the White Mallard Dam, Five Points Screen/Diversion, and Avis Channel.
- *Improve the opportunity for adult fish to reach their spawning habitats in a timely manner;* By eliminating barriers to upstream and downstream migration, salmonids will have the opportunity to utilize the migratory corridor when critical environmental conditions trigger their response to migration.
- *Collect fish population, health, and habitat data to facilitate evaluation of restoration actions;* Monitoring and data collection will provide the information to evaluate the effectiveness of the upgraded structures in reducing fish passage in the Butte Sink.
- *Involve partners in the implementation and evaluation of restoration actions.* The Lower Butte Creek project has been very successful in initiating and continuing a stakeholder-driven grassroots effort focused on developing mutually, beneficial and acceptable alternatives to improve fish passage while maintaining the viability of agriculture, seasonal wetlands and other habitat. Stakeholders consist of the leaders from the local irrigation and reclamation districts, appropriate state and federal resource agencies, water user constituency organization, conservation groups and waterfowl organizations and sporting interests.

Anadromous Fish Screen Program (AFSP) – Section 3406(b)(21): This project fulfills the goal of eliminating or minimizing the entrainment and impingement of juvenile chinook salmon (all runs), steelhead trout, green and white sturgeon, American Shad, and striped bass in Butte Creek.

2. Relationship to Other Ecosystem Restoration Projects

This project is an integral part of an overall ecosystem restoration program for the Butte Creek Watershed. Upper watershed restoration activities on public and private lands would be severely compromised if the lower reach actions described in the California Department of Fish and Game, U.S. Fish and Wildlife Service and CALFED fishery restoration plans (CDFG, 1993; USFWS, 1997; ERPP, 1999) are not completed. During the period from 1995 to the present, in the lower reaches of Butte Creek did not provide the connectivity to upstream spawning and rearing habitat so essential for survival of native anadromous salmonids resident to Butte Creek. Implementing the upgrades to seven structures including a fish ladder on Butte Creek, fish screens on a major water control structure for RD 1004 and fish screens for four lift pumps will contribute significantly to the overall ecosystem health and abundance. In earlier projects, five (5) dams have been removed, five (5) dams have been modified with state-of-art fish ladders, and four (4) dams modified with state-of-the-art fish screens. Two (2) other Lower Butte Creek Projects, Sutter Bypass West Side and Butte Creek Phase III Construction Project are ready for construction. The Sutter Bypass Project is funded under the CALFED 2001 PSP. Dedicated instream flows of 45 cubic feet per second have been acquired and 10 real-time internet accessible telemetry stations have been installed to protect and manage the instream flows from the headwaters to the Sacramento River at the lower end of the Sutter Bypass. In addition, 9 major technical and environmental evaluations of additional restoration plan(s) and implementation actions in the Butte Sink and Sutter Bypass reaches of Butte Creek and the watershed have been completed (JSA, 1998; JSA, 1999 a-h). A next-phase of technical and environmental evaluations are in progress in the Sutter Bypass (Jones & Stokes 2001 and DWR, 2001). The Butte Creek Watershed Conservancy, a local stakeholder organized watershed group has completed a draft Existing Conditions Report (BCWC, 2000) and is in the

process of completing a Watershed Management Strategy Report. In the aggregate in excess of \$30 million dollars have been expended on these efforts to date, with their ultimate success and effectiveness dependent upon the completion of projects in the lower watershed, among which are the structures included in this project proposal. Sources of funding for the previously completed projects include CALFED, Category III (Metropolitan Water District), BOR, CVPIA, AFRP and AFSP.

3. Requests for Next-Phase Funding

As noted above, this proposal is for Full-Scale Implementation of the Lower Butte Creek Project. A *Summary of Efforts to Date* is included in the Appendix to this proposal as Attachment A.

4. Previous Recipients of CALFED or CVPIA Funding

California Waterfowl Association was the recipient of a \$243,000 grant from AFRP to fund watershed investigations, stakeholder development and alternatives formulation under the Lower Butte Creek Project, Phase 1b (FWS agreement # 11328J204). The project was administered through John Icanberry and the Sacramento/San Joaquin Estuary Fishery Resource Office in Stockton, CA. The Grant/Cooperative Agreement was officially closed on March 9, 2000 after CWA submitted the Final Progress Report and Final Financial Status Report. Accomplishments of this project are detailed in the *Summary of Efforts to Date* in the Appendix. CWA and DU are currently under contract through CALFED/BOR/CVPIA to provide engineering, environmental documentation, permitting, and cooperative agreements for structures in the Butte Sink (\$812,500). CWA is also currently completing construction of the Butte Creek/Sanborn Slough Bifurcation Structure under a \$1,000,000 grant from CALFED (FY 2001, and for lands west of Butte Creek (White Mallard Dam and Associated Diversions)

5. System-Wide Ecosystem Benefits

The planned improvements will build on the successes of earlier fish passage projects in the Butte Creek Watershed and other efforts to restore spring-run chinook salmon populations. Improvements in the upper watershed have included removal of five (5) diversion dams and screening and laddering of five (5) additional diversions. Recent improvements in the Lower Butte Creek Project Area include installation of a ladder at the Sanborn Slough facility and installation of an adult salmon exclusion barrier at the mouth of Drumheller Slough. The new structures and gauging stations will facilitate adult and juvenile fish passage and promote more effective management and control of instream flows dedicated for fish and wildlife, specifically the 40 cfs acquired for instream use in Butte Creek from the M&T water exchange agreement.

This project will also enhance wetland habitat values on approximately 20,000 acres of private lands within the Butte Basin by improving water management capabilities at these important sites. The project area is in close proximity to many protected wildlife areas (Gray Lodge, Upper Butte Basin Wildlife Areas, Wattis Sanctuary, Sacramento National Wildlife Refuge Complex), and waterfowl frequently trade locations depending on weather conditions, flooding and food availability. The control structures will improve operations and maintenance and reduce long-term costs for Reclamation District 1004 and private wetland managers responsible for providing habitat for resident and migratory waterfowl and wetland-dependent wildlife

6. Additional Information for Proposals Containing Land Acquisition (Not Applicable)

C. Qualifications

Olen C. Zirkle, Jr. Ducks Unlimited Inc, Agricultural Programs Coordinator. Mr. Zirkle brings a

diverse background to Ducks Unlimited. Educated at U.C. Davis, earning a Bachelor of Science degree in Ag-Production/Agronomy, he has spent a lengthy career working with agriculture on operational and management issues. Mr. Zirkle is currently employed by DU as an Agricultural Programs Coordinator where he manages both the Lower Butte Creek Project, The Sutter Basin Agricultural Easement Project and the Agricultural Water Quality Outreach Program. Mr. Zirkle may be reached at the Western Regional Office at 3074 Gold Canal Drive, Rancho Cordova CA 95670-6116; Phone: (916) 852-2000; Fax: (916) 852-2200; e-mail: ozirkle@ducks.org.

Relevant Experience

Mr. Zirkle has spent his entire career working in agriculture in managerial and technical positions. Since 1995, Mr. Zirkle has worked extensively on fish passage issues. Mr. Zirkle has managed the Lower Butte Creek Project since its inception and been responsible for overall project management as well as onsite project management in the Sutter Bypass area. His experience with agricultural producers and knowledge of the area and its varied stakeholders has resulted in bringing all parties together in a successful cooperative effort.

Project Responsibility

Mr. Zirkle's title is Agricultural Programs Coordinator. His role in this project is to manage the overall project process. Mr. Zirkle will supervise DU engineering staff and coordinate with California Waterfowl staff on all project activities. Mr. Zirkle will be the main contact for all funding related issues.

Rob Capriola. California Waterfowl Association (CWA) Senior Biologist and Sacramento Valley Regional Supervisor of Wetland Programs. Mr. Capriola came to work for CWA as a waterfowl habitat biologist in the spring of 1997. His duties include coordinating the restoration and enhancement of wetlands on federal and state wildlife areas and duck clubs throughout the north Central Valley including lands within the Butte Sink and Sutter Bypass. Mr. Capriola came to CWA with six years of experience in fisheries and wetland project management and a Masters Degree in Natural Resource Management from Humboldt State University. Prior to his work with CWA, Mr. Capriola worked as a wetland biologist for Humboldt Bay National Wildlife Refuge and was President and Co-founder of Pacific Coast Restoration, a private non-profit organization that implements fisheries and wetland restoration and enhancement projects on the north coast of California. He has been involved in the Lower Butte Creek Project since its inception in 1997, and is currently the CWA Program Manager for the project.

Relevant Experience

Mr. Capriola has been involved with the Lower Butte Creek Project since its inception. He has chaired the Butte Sink Action Committee and been intimately involved with overall project management and has managed construction of the Sanborn Slough Fish Ladder and Drumheller Slough Outfall structures. Mr. Capriola's has experience and interest in environmental mitigation and permit conditions and will be responsible for these activities during the construction process.

Project Responsibility

As cosponsor of the Project, Mr. Capriola will be responsible for ensuring environmental mitigations and permit conditions are followed during construction and monitoring phases of this project. Additional duties may include assisting Ducks Unlimited in the bid process for construction and monitoring, landowner relations, and preparation of monthly, and quarterly reports.

Steve Carroll. Ducks Unlimited, Inc. Regional Engineer is a Registered Professional Engineer, State of Hawaii, 1999 (#9707C), and State of California, 1998 (#C58848). He holds a Bachelor of Science degree from Humboldt State University, Environmental Engineering, 1994 and a Certificate in Biological

Relevant Experience

Mr. Carroll has design and construction management responsibility for restoration projects in California. Mr. Carroll has been directly responsible for the engineering design and construction of over 10,000 acres of seasonal and tidal wetland restoration and enhancement projects totaling \$9 million in agreements. He has worked on tidal restoration projects in San Diego Bay, Monterey Bay, San Francisco Bay and San Pablo Bay. While with Ducks Unlimited, Inc. Mr. Carroll was responsible for the design of a tidally-fed screened intake in the San Pablo Bay area. The design was required to meet Delta Smelt criteria and consisted of two brush cleaned cone screens. He is currently responsible for the preliminary design on a project that will screen over twenty (20) pumps in the Sacramento Valley's Sutter Bypass. Prior to joining DU, Mr. Carroll assisted a West Coast firm in the preparation of feasibility reports for constructing fish screens on the Sacramento and San Joaquin Rivers. Mr. Carroll has attended the U.S. Fish & Wildlife Service's NCTC training course titled Fish Passageways and Bypass Facilities - West.

Mr. Carroll has participated in the biological analysis of fish barriers on the Sacramento River system. Projects included an evaluation of an acoustic barrier at Georgiana Slough, and the Glen-Colusa Irrigation District fish screen and bypass at Hamilton City. While at California Department of Water Resources, Mr. Carroll participated in a study to determine the population, migration times and spawning habitat for the Sacramento Splittail. Mr. Carroll has participated in benthic surveys throughout the Sacramento-San Joaquin Delta to determine the extent of non-native species intrusion into the area.

Project Responsibility

Mr. Carroll will be the Senior Project Engineer responsible for oversight of quality control, contract compliance, invoicing and reporting. Mr. Carroll along with Rob Capriola will coordinate on day-to-day activities of the project and supervise the construction managers and their subconsultant's activities

Ensign & Buckley Consulting Engineers (EB) EB is an engineering business specializing in a wide variety of water resources and related engineering projects in California. Within this specialized area of practice, EB provides consulting services in planning, design, and project management. They also have established teaming agreements with other complimentary firms that allow them to provide complete engineering packages for a wide variety of project requirements. The Principals of EB, Ferrel H. Ensign and John J. Buckley are registered Civil Engineers in California and maintain a staff of highly qualified professionals with a broad range of expertise and experience. EB staff is experienced in the practical design of irrigation distribution fish barriers, water control facilities and hydraulic structures. Their current clients include Reclamation District 1000, El Dorado Irrigation District, Natomas Mutual Water Company, Reclamation District 1004, the City and County of Sacramento, Sacramento Area Flood Control Agency and other districts and water companies. EB has provided design and construction management services to the above clients on numerous projects ranging in value from less than \$100,000 to more than \$10,000,000.

D. Cost

1. Budget \$7,047,987

(See Web Forms for detail)

2. Cost-Sharing

Table 2 below summarizes previous and current efforts at planning fish passage improvements within the

Lower Butte Creek Project area.

Table 2. Cost-share components on the Butte Sink Water Control Structures Upgrade Project and the Lower Butte Creek Project

Project Component	Date	Funding Source	Amount
Phase I Existing conditions investigations & alternatives analysis	April 1997 to Sept. 1999	AFRP Tracy Mitigation	\$364,000
Phase II Engineering Design and Permitting/Cooperative Agreements	Oct. 1999 to June 2001	AFRP, BOR Tracy Mitigation, CALFED	\$1,796,400
Phase III Construction & Monitoring			
Bifurcation Structure, Phase 1	Oct. 1998 to Jan. 2000	AFRP, SNWR	\$1,067,000
Drumheller Slough Exclusion Barrier	Oct. 1998 to Jan 2000	AFRP	\$200,000
Bifurcation Structure Phase 2,	June. 2001 to Dec. 2003	CALFED	\$1,000,000
		Total Cost	\$4,427,400

Acronyms

AFRP- Anadromous Fish Restoration Program (Central Valley Project Improvement Act)

BOR – Bureau of Reclamation

SNWR – Sacramento National Wildlife Refuge-1997 Emergency Flood Supplemental

CALFED - California-Federal Bay/Delta Program

Tracy Mitigation – California Water Project Mitigation Fund

E. Local Involvement

California Waterfowl Association, the Nature Conservancy, Ducks Unlimited, Inc., the Butte Sink Waterfowl Association, Foraker Properties, Reclamation District 1004, and private landowners have worked closely together over the past three years in planning the upgrade of structures with local, state and federal resource agencies. (Jones & Stokes 1998 & 1999, Borcalli & Associates 2001, Ensign & Buckley 2001) All activities in project initiation, design and environmental evaluation have been coordinated through the Lower Butte Creek Project Steering Committee and the Butte Sink Action Committee. Local support for the completion of these structures is high because of the perceived benefits to fish and increases in water management capabilities afforded the operators.

F. Compliance with Standard Terms and Conditions

The Applicant has reviewed and understands the standard terms contained in Attachments D (State) and E (Federal) that were included in the ERP 2002 Proposal Solicitation Package, and agrees to comply with these state and federal standard terms.

G. Literature Cited

CALFED Ecosystem Restoration Program, Draft Stage 1 Implementation Plan. August 2001. Pages 9-16.
Restoration Program Strategic Goals.

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- CDFG (California Department of Fish and Game). 1993. Restoring Central Valley Streams: a plan for action. Inland Fisheries Division Sacramento.
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- JSA (Jones and Stokes Associates, Inc). 1998. Lower Butte Creek Project final project report. June 30, 1998 (JSA 97-248). Sacramento, Calif. Prepared for the Nature Conservancy, Sacramento, Calif.
- JSA (Jones and Stokes Associates, Inc). 1999. Evaluation of Fish Passage Conditions in the Butte Sink. August 27, 1999. Sacramento CA. Prepared for Ducks Unlimited Inc and California Waterfowl Association
- JSA (Jones and Stokes) 2001 Butte Sink Cooperative Management Plan. July. Sacramento, CA. Prepared in association with MBK Engineers and Lennihan Law. Prepared for California Waterfowl Association, Sacramento, CA.
- USFWS (U.S. Fish and Wildlife Service). 1997. Revised draft restoration plan for the anadromous fish restoration program. May 30, 1997. Prepared for the Secretary of the Interior by the U.S. Fish and Wildlife Service with assistance from the Anadromous Fish Restoration Program Core Group. Stockton, Calif.
- USFWS (U.S. Fish and Wildlife Service). 2000. Draft Programmatic Environmental Assessment for Anadromous Fish Restoration Actions in the Butte Creek Watershed. Prepared for the Sacramento-San Joaquin Estuary Fishery Resource Office, U.S. Fish and Wildlife Service. Stockton, Calif. by the Sacramento Fish and Wildlife Office. U.S. Fish and Wildlife Service. Sacramento, Calif.
- Ward, Paul, 1999 Personal communication with Robert Capriola CWA Senior Biologist.

APPENDIX

Attachment A: SUMMARY OF EFFORTS TO DATE: LOWER BUTTE CREEK PROJECT

BACKGROUND:

Project Location: Butte Creek from the Gridley-Colusa Highway on the north to Verona, near the confluence of the Feather and Sacramento Rivers on the South.

The Lower Butte Creek Project is a stakeholder-driven, grassroots effort that has focused on developing mutually beneficial and acceptable alternatives to improve fish passage while maintaining the viability of agriculture, seasonal wetlands and other habitats. This creek has one of the largest runs of spring-run chinook in the Central Valley, as well as fall-run chinook and steelhead. Butte creek also supplies water to thousands of acres of agricultural lands and managed wetlands that greatly benefit resident and migratory wildlife including vast numbers of waterfowl, shorebirds, and neotropical songbirds. Significant wetland habitats within the project area include over 20,000 acres of privately managed riparian wetlands in the Butte Sink Wildlife Management Area. The U.S. Fish and Wildlife Service also manages the Butte Sink National Wildlife Refuge and Sutter National Wildlife Refuge using Butte Creek water. Improvements to fish passage in the upper watershed have already been accomplished at sites between Chico, California and the Butte Sink. A number of studies and planning processes (Central Valley Project Improvement Act-Anadromous Fish Restoration Program, Lower Butte Creek Project, California Department of Fish & Game Report on Spring-Run Chinook) have identified significant barriers to fish passage in the lower reaches of the creek, including the North and End Weirs and 12 other major diversion structures. The proposed project will replace these structures with modern structures that include fish ladders for adult passage and screens to prevent juvenile salmonids from being entrained in pumps and agricultural fields. These structures are essential for maintaining managed wetlands and flooded agricultural habitats required by the large numbers of wintering waterfowl and shorebirds that inhabit the Butte Sink and associated areas.

SUMMARY OF EFFORTS:

PHASE I Existing Conditions Report September 1997 through June 1998:

- Initiated by: The Nature Conservancy and California Waterfowl Association
- Funded by: California Department of Fish and Game and US Fish and Wildlife Service Anadromous Fish Restoration Program.
- Consultant: Jones and Stokes Associates.

Accomplishments:

- Developed stakeholder groups to guide the process
- Gathered information on existing conditions
- Developed draft alternatives for improving fish passage and water delivery
- Developed evaluation considerations for choosing alternatives
- Published Final Project Report June 30, 1998

PHASE 1b Alternatives Analysis September 1997 through October 1999.

- Funded by: Anadromous Fish Restoration Program.
- Administered by: California Waterfowl Association.
- Consultants: Ducks Unlimited and Jones and Stokes Associates.

Accomplishments-Refined project alternatives for the following areas:

- Butte Creek and Sanborn Slough channel cross-section and capacity analysis
- Evaluation of fish passage conditions in the Butte Sink
- Evaluation of alternative Butte Creek water diversion sites and conveyance routes for Butte Sink west of Butte Creek.
- Butte Slough Outfall gates analysis
- Analysis of water control structures at the East-West Diversion Weir and Weir 5
- Analysis of Sutter Bypass/West Borrow Canal below Weir 5
- Assessment of water use, seasonal demands, timing, and management in the east-side Sutter Bypass

Phase 2 Engineering and Permitting September 1999 through December 31, 2001

- Engineering design and permitting on preferred structural alternatives.
- Funded by: CALFED, US Bureau of Reclamation, Anadromous Fish Restoration Program
- Administered by: Ducks Unlimited
- Consultants: California Waterfowl Association, Jones and Stokes Associates, Montgomery Watson, Ensign and Buckley, Borcalli and Associates, additional consulting engineering firms.

Structures to be included:

- North and End Weirs on the Wild Goose Club
- White Mallard Dam and associated diversions
- Morton/Mile Canal/Field and Tule Weir Complex
- Driver's Cut Outfall
- Colusa Shooting/Tarke Weir Outfall
- East/West Diversion Weir
- Weirs 5, 3, and 1 in the Sutter Bypass
- Lift Pumps/Diversions on Butte Creek/Butte Slough/Sutter Bypass

Cooperative Management Plan-Butte Sink January 2000 through May 2001

- Phase 1b analysis of fish passage in Butte Sink identifies Butte Sink as valuable rearing habitat for juvenile salmonids.
- CALFED funded plan for cooperative management to benefit fish passage completed August, 2001
- This plan will ensure that the system is operated to maximize the benefits to fish and wetland dependent wildlife.

Phase 3 Construction

- Drumheller Slough Exclusion Structure funded by AFRP through CWA. Completed in 2000 by Ensign and Buckley, Consulting Engineers.

Butte Creek/Sanborn Slough Bifurcation Upgrade Project October 1998 to December 2001

- First fish passage improvement project to be funded and implemented in the Lower Butte Creek Project area.
- Initial funding of \$1 million through the Sacramento National Wildlife Refuge
- Administered by California Waterfowl Association
- Fish ladder and control structures completed December 1, 1999.
- High-flow spillway, power controls, and remote sensing constructed in year 2001 with CALFED Grant to CWA (\$1,000,000)

Attachment B: Report on Previous Recipients of CALFED Program or CVPIA Funding

Project Name:	CALFED Number:	Financial Status	Current Status
Lower Butte Creek Project: Phase II Preliminary Engineering and Environmental Analysis for Butte Sink Structural Modificat. and Flow-through System	99-B02	Expenditure: \$520,574.60 Income: \$531,850.58 Ducks Unlimited Inc: \$ 11,275.98	Ongoing Final design and Draft NEPA/CEQA complete
Gorrill Dam Fish Screen	96-M22	Expenditure: \$1,548,907.86 Income: \$1,523,047.43 Ducks Unlimited: \$ 25,860.43	Complete
M & T/Parrott, Pumping Station and Fish Screen	95-M05	Expenditure: \$4,749,845.92 Income: \$4,530,556.71 Ducks Unlimited: \$ 219,289.21	Complete
Rancho Esquon/Adams Dam Fish Screen	96-M21	Expenditure: \$1,151,326.33 Income: \$1,034,780.62 Ducks Unlimited: \$ 116,545.71	Construction complete Monitoring fish passage

Project Name:	CVPIA Number:	Financial Status	Current Status
Lower Butte Creek Project, Phase III – Butte Creek, Drumheller Exclusion Barrier Final Engineering, Permitting and Construction	1448-11332-9J006	Expenditure: \$ 228,951.73 Income: \$ 227,856.74 Ducks Unlimited: \$ 1,094.99	Construction complete Five Points design in progress
Lower Butte Creek Project, Phase II – Butte Creek, Butte Sink/Sutter Bypass Stakeholder Coordination/Facilitation	113329-9-J135	Expenditure: \$ 67,151.50 Income: \$ 62,263.44 Ducks Unlimited: \$ 4,888.06	Ongoing
Lower Butte Creek Project, Phase II – Butte Creek, Sutter Bypass East-West Diversion Dam Preliminary Engineering and Environmental Review	113329-9-J122	Expenditure: \$ 298,286.93 Income: \$ 250,000.00 Ducks Unlimited: \$ 48,286.93	Ongoing Final design and Draft NEPA/CEQA complete
Lower Butte Creek Project, Phase II – Butte Creek, Sutter Bypass Weir #5 Preliminary Engineering and Environmental Review	11332-9-J122	Expenditure: \$ 298,286.93 Income: \$ 250,000.00 Ducks Unlimited: \$ 48,286.93	Ongoing Final design and Draft NEPA/CEQA complete
Lower Butte Creek Project, Phase II – Butte Creek, Sutter Bypass Weir #3 Preliminary Engineering and Environmental Review	113329-9-J136	Expenditure: \$ 298,286.93 Income: \$ 250,000.00 Ducks Unlimited: \$ 48,286.93	Ongoing Final design and Draft NEPA/CEQA complete
Sutter Bypass, East Side	11332-0-J004	Expenditure: \$ 56,633.43 Income: \$ 55,370.43 Ducks Unlimited: \$ 1,263.00	Ongoing, Survey work complete Outreach initiated
Lower Butte Creek, Butte Slough Phase II – Preliminary File	11332-0-J003	Expenditure: \$ 1,618.50 Income: \$ 0.00 Ducks Unlimited: \$ 1618.50	Ongoing Water rights analysis complete
(B)(22) Administration	1448-11300-97-J172	Expenditure: \$1,330,118.00 Income: \$1,330,118.00 Ducks Unlimited: \$ 0	Ongoing Signup for 2002 initiated
(B)(22) Administration	113007J043	Expenditure: \$ 51,476.20 Income: \$ 51,476.20 Ducks Unlimited: \$ 0	Ongoing Signup for 2002 initiated

Attachment C: Lower Butte Creek Project Priority Rating by BOR, CDFG and AFRP

1. Sutter Bypass West Side Fisheries Upgrade Project (80% Funded)
 - a. 1- East-West Diversion Weir
 - b. 1- Sutter Bypass Weir #5
 - c. 1- Sutter Bypass Weir #3
 - d. 2- Sutter Bypass Guisti Weir
 - e. 1- Sutter Bypass Weir #1
2. Butte Sink Structural Modification and fisheries Upgrade Project (Not Funded)
 - a. 2- North Weir
 - b. 1- End Weir
 - c. 1- Morton Weir Complex
 - d. 1- Driver's Cut Outfall
 - e. 1- Tarke/Colusa Weir Outfall
3. White Mallard Dam and Associated Diversions (Not Funded)
 - a. 1- White Mallard Dam Upgrade
 - b. 1- Five Points Screen and RD 1004 Distribution Modifications
 - c. 3- White Mallard Pump Screen
 - d. 3- Foraker Pumps Screen
 - e. 1- Avis Channel Modification
4. Sutter Bypass East Side Fisheries Management Plan (Not Funded)
 - a. 1- DWR Pumping Plant Modification
 - b. 1- Develop a plan for managing fisheries impacts on the East Side of the Sutter Bypass including small pumping plants, Weir #2, Willow Slough and the Sutter Refuge
5. Butte Slough Small Pumping Plant Screening Plan (Not Funded)
 - a. 3- Develop a plan for managing impacts to fisheries for small pumps located in and along Butte Slough