American Basin Fish Screen and Habitat Improvement Project

Project Information

1. **Proposal Title:**

   American Basin Fish Screen and Habitat Improvement Project

2. **Proposal applicants:**

   Peter J. Hughes, Natomas Mutual Water Company

3. **Corresponding Contact Person:**

   Peter J. Hughes, General Manager
   Natomas Mutual Water Company
   2601 West Elkhorn Blvd. Rio Linda, CA 95673
   (916) 419-5936
   NatomasH2O@aol.com

4. **Project Keywords:**

   At-risk species, fish
   Fish Passage/Fish Screens
   Fish, Anadromous

5. **Type of project:**

   Fish Screen

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

   Yes

   If yes, is there an existing <u>specific</u> restoration plan for this site?

   No

7. **Topic Area:**

   Fish Screens

8. **Type of applicant:**

   Private non-profit

9. **Location - GIS coordinates:**

Latitude: 38.714
Longitude: - 121.608
Datum:

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

The Natomas Mutual Water Company Service Area is bounded on the west by the Sacramento River, on the north by the Natomas Cross Canal, on the east by the Natomas East Main Drainage Canal, and on the south by the American River.

10. **Location - Ecozone:**

3.5 Verona to Sacramento, 9.1 American Basin

11. **Location - County:**

Sacramento, Sutter

12. **Location - City:**

Does your project fall within a city jurisdiction?

No

13. **Location - Tribal Lands:**

Does your project fall on or adjacent to tribal lands?

No

14. **Location - Congressional District:**

3

15. **Location:**

California State Senate District Number: 4,6

California Assembly District Number: 2,5,9

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

3

17. **Requested Funds:**

a) **Are your overhead rates different depending on whether funds are state or federal?**

No

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

Single Overhead Rate: 0

Total Requested Funds: $12,600,000

b) **Do you have cost share partners <u>already identified</u>?**

Yes

If yes, list partners and amount contributed by each:

CVPIA	$2,290,000	For FY2003 Grant No. 02-FG-00117, which is contingent upon commitment of matching State funds under the CALFED program.

c) **Do you have any <u>potential</u> cost share partners?**

Yes

If yes, list partners and amount contributed by each:

CVPIA	$10,310,000	To be appropriated on an annual basis as needed.

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

Yes

If yes, list total non-federal funds requested:

$12,600,000

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):

98-B29	American Basin Fish Screen and Habitat Improvement Project	ERP
01-N60	American Basin Fish Screen and Habitat Improvement Project	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?**

Yes

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

99-FC-20-0165	American Basin Fish Screen and Habitat Improvement Project	AFRP
01-FG-20-0046	American Basin Fish Screen and Habitat Improvement Project	AFRP

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

No

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

No

Please list suggested reviewers for your proposal. (optional)

21. **Comments:**

This proposal is for Phase IV - Construction of the American Basin Fish Screen and Habitat Improvement Project, which is the next phase of a previously funded project.

Environmental Compliance Checklist

American Basin Fish Screen and Habitat Improvement Project

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: Reclamation District 1000
   NEPA Lead Agency (or co-lead): US Bureau of Reclamation
   NEPA Co-Lead Agency (if applicable):

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

   CEQA
   -Categorical Exemption
   X Negative Declaration or Mitigated Negative Declaration
   -EIR
   -none

   NEPA
   -Categorical Exclusion
   X 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.

   Administrative Draft: 11/30/02 Final Document: 3/30/03

   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	Required, Obtained
CESA Compliance: 2081	Required
CESA Compliance: NCCP	Required
1601/03	Required
CWA 401 certification	Required
Coastal Development Permit	
Reclamation Board Approval	Required
Notification of DPC or BCDC	
Other	Required
FEDERAL PERMITS AND APPROVALS	
ESA Compliance Section 7 Consultation	Required
ESA Compliance Section 10 Permit	Required
Rivers and Harbors Act	Required
CWA 404	Required
Other	Required

PERMISSION TO ACCESS PROPERTY

Permission to access city, county or other local agency land.
Agency Name:

Permission to access state land.

Agency Name:	Reclamation District 1000	Required, Obtained
	State Lands Commission	Required

Permission to access federal land. Required, Obtained
Agency Name:

Permission to access private land. Required, Obtained
Landowner Name: See Comment Below

6. **Comments.**

Completion of the Permitting and CEQA/NEPA compliance is under previously funded, Phase III of the project and is currently in progress. CEQA process was delayed until full Board Approval could be obtained from Reclamation District 1000 for their role as State Lead Agency, which was obtained in August 2002. The Initial Study and Information Consultation to date indicate a Mitigated Negative Declaration will be required for this project, which consolidates the existing diversion. Several municipal/industrial (M&I) water users in the northern Sacramento area are studying the feasibility of a new M&I water intake from the Sacramento River near Natomas Mutual Water Company's (NMWC) Elkhorn Pumping Plant. That M&I project would require a significantly larger facility then is presently planned, a water treatment plant and a large pipeline to covey water to urban users. The NMWC has cooperated with M&I users during planning, but is proceeding with the Proposed Project to screen their existing diversions. The potential future M&I project will be separate facility. The CEQA/NEPA documents are being prepared for the Proposed Project which consolidates the NMWC's existing diversion.

Other local permits and approvals required include permits for temporary road closures and encroachment permits from Sacramento and Sutter County. Other state permits and approvals include approvals from the State Lands Commission for construction of facilities in the Sacramento River and removal of facilities abandoned due to diversion consolidation. Coordination with the State Lands Commission will be performed during Final Design and Permitting with final approvals contingent upon receipt of appropriate State and Federal permits.

Although not anticipated at this time, based upon Final Design a grading permit may be required for certain components of the project (i.e., borrow sources). Flood control within the Natomas Basin is regulated by Reclamation District 1000, which does not require grading permits and other agricultural grading is generally exempt from such County requirements. Final Design and Permitting are currently in progress and grading permits will be obtained as required.

The majority of the private landowners are shareholders of the NMWC. NMWC has agreements with these landowners for access to maintain the existing canals and drainage ditches. Additionally, NMWC is in the process of obtaining Right-of-Entry Agreements for all privately owned lands affected by this project. The process is nearly complete and agreements have been executed with all private landowners that are not shareholders in NMWC. A list of affected private landowners is included in Table No. 1 attached to the proposal.

Land Use Checklist

American Basin Fish Screen and Habitat Improvement Project

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

   Yes

   If you answered yes to #1, please answer the following questions:
   a) How many acres will be acquired?

Fee:	80
Easement:	0
Total:	80

   b) Will existing water rights be acquired?

   No

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

   Yes

   If yes, please describe proposed changes.

   The consolidation of Natomas Mutual Water Company's five (5) existing diversions will require a Change in the Point of Diversion(s). There will be no change in the schedule, rate or quantity of water diversions as a result of the project. Some rerouting of the internal irrigation delivery system will be required to return flows from the consolidated diversions to their existing point of use.

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?**

   Yes

   If you answered yes to #3, please answer the following questions:
   a) How many acres of land will occur on the land involved in the proposal.

   Approximately 80 acres

b) Describe what changes will occur on the land involved in the proposal.

Fish screen intake facility and lift pump facilities at two diversions sites will be constructed along the river in areas designated as Open Space. Removal of 6 existing pumping plants and diversion dam will restore other stream side areas to Open Space. Irrigation canals will be widened, realigned and added as required for conveyance within areas currently in agriculture. However, such use is consistent with the current agricultural uses.

c) List current and proposed land use, zoning and general plan designations on the area subject to a land use change under the proposal.

Category	Current	Proposed (if no change, specify "none")
Land Use	Agriculture, Open Space, Flood Control	None
Zoning Designation	AG-80, 40, 20 – Permanent Agriculture SPA (F) – Special Planning Area Flood Combining AG – General Agriculture, FP – Floodplain,	None
General Plan	General Agriculture, Agriculture Open Space	None

d) Is the land currently under a Williamson Act contract?

No

e) Is the land mapped as Prime Farmland of Statewide Importance, Unique Farmland or Farmland of Local Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program?

Yes

If yes, please list classification:

Prime Farmland and Farmland of Statewide Importance.

f) Describe what entity or organization will manage the property and provide operations and maintenance services.

The property will be managed, operated and maintained by Natomas Mutual Water Company.

4. **Comments.**

Land acquisition is required for construction of improvements, including the proposed diversion facility in Sutter County and the widening, realignment and construction of irrigation canals. Some facilities will be constructed on property being donated to the project by the Natomas Mutual Water Company (Applicant). Other facilities will be located within Reclamation District 1000 right-of-way, in accordance with existing joint use agreements. Acreage is estimated based upon Preliminary Design, exact area will be determined upon completion of Final Design.

Applicant has existing access agreements for public land where access is required. In-stream facility design and construction will be coordinated with Stand Lands Commission (see Environmental Compliance Checklist). Applicant is nearing completion of obtaining executed Right-of-Entry Agreements with all private landowners affected by the project. Land acquisition is covered by funding requested by this proposal of which a 50% cost share has been provided by CVPIA.

Land uses are designated as Open Space or Agricultural. Proposed irrigation facilities and canals are agricultural related facilities consistent with existing use. Diversion facilities within Open Space areas are agricultural related and utility facilities which are permitted uses in these areas. Removal of facilities abandoned due to consolidation will restore areas designated as Open Space. See Table No. 1 attached to the proposal for Land Use and Zoning breakdown.

Farmland will remain in agricultural related use and one of the project's specific objectives is to assure a reliable water supply for farmland within the Natomas Basin, much of which is designated as Prime Farmland or Farmland of Statewide Importance.

Conflict of Interest Checklist

American Basin Fish Screen and Habitat Improvement Project

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):

Peter J. Hughes, Natomas Mutual Water Company

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

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

Ferrel Ensign	Mead & Hunt, Inc. (formerly Ensign & Buckley)
Stephen Sullivan	Mead & Hunt, Inc. (formerly Ensign & Buckley)
Miriam Green	Miriam Green Associates
Paul Bratovich	Surface Water Resources, Inc.
Marc Van Camp	MBK Engineers
Kevin O'Brien	Downey, Brand, Seymour & Rohwer
Gary Nuss	CH2M HILL
Howard Wilson	CH2M HILL
Cydney Bender	Bender Rosenthal, Inc.

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Scott L. Brown	Mead & Hunt, Inc. (formerly Ensign & Buckley)
Daryl Hayes	CH2M HILL

Comments:

Since the original proposal submittal, several organizational changes have occurred on the Project Team and are reflected in this proposal, see Figure 1 attached to the proposal. Ensign & Buckley has been purchased by Mead & Hunt, Inc. All personnel involved with the project remain with the new company and will be dedicated to the project by Mead & Hunt, Inc. Based upon a competitive selection process, the Company has selected CH2M HILL to perform final design (Phase III) and construction supervision for the project. Mead & Hunt will perform the design and construction supervision for irrigation facility relocations under the supervision of CH2M HILL. Mead & Hunt, as Company Engineer, will also provide technical assistance, supervise subconsultants' work, and provide project administration.

Budget Summary

American Basin Fish Screen and Habitat Improvement Project

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 & Expend-ables	Services or Consultants	Equip-ment	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost
4.1	Construction											
4.1.1	Sankey Diversion	0	0	0	0	0	492,500	0	0	492,500	0	492,500
4.1.2	Elkhorn Diversion	0	0	0	0	0	420,000	0	0	420,000	0	420,000
4.1.3	Distribution Facilities	0	0	0	0	0	410,000	0	0	410,000	0	410,000
4.1.4	Demolition & Restoration	0	0	0	0	0	0	0	0	0	0	0
4.1.5	Private Diverter Consolidation	0	0	0	0	0	0	0	0	0	0	0
4.2	Construction Supervision	0	0	0	0	0	130,000	0	0	130,000	0	130,000
4.3	Private Diverter Consolidation Facility Design	0	0	0	0	0	0	0	0	0	0	0
4.4	Environmental Compliance & Mitigation	0	0	0	0	0	125,000	0	0	125,000	0	125,000
4.5	Right-of-Way Acquisition	0	0	0	0	0	750,000	0	0	750,000	0	750,000
4.6	Testing and Evaluation	0	0	0	0	0	0	0	0	0	0	0
4.7	Project Management	0	0	0	0	0	47,500	0	0	47,500	0	47,500
		0	0	0	0	0	2,375,000	0	0	2,375,000	0	2,375,000

Year 2												
Task No.	Task Description	Direct Labor Hours	Salary (per year)	Benefits (per year)	Travel	Supplies & Expend-ables	Services or Consultants	Equip-ment	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost
4.1	Construction											
4.1.1	Sankey Diversion	0	0	0	0	0	2,212,500	0	0	2,212,500	0	2,212,500
4.1.2	Elkhorn Diversion	0	0	0	0	0	1,662,500	0	0	1,662,500	0	1,662,500
4.1.3	Distribution Facilities	0	0	0	0	0	2,982,500	0	0	2,982,500	0	2,982,500
4.1.4	Demolition and Restoration	0	0	0	0	0	0	0	0	0	0	0
4.1.5	Private Diverter Consolidation	0	0	0	0	0	640,000	0	0	640,000	0	640,000
4.2	Construction Supervision	0	0	0	0	0	330,000	0	0	330,000	0	330,000
4.3	Private Diverter Consolidation Facility Design	0	0	0	0	0	90,000	0	0	90,000	0	90,000
4.4	Environmental Compliance & Mitigation	0	0	0	0	0	80,000	0	0	80,000	0	80,000
4.5	Right-of-Way Acquisition	0	0	0	0	0	0	0	0	0	0	0
4.6	Testing and Evaluation	0	0	0	0	0	0	0	0	0	0	0
4.7	Project Management	0	0	0	0	0	57,500	0	0	57,500	0	57,500
		0	0	0	0	0	8,055,000	0	0	8,055,000	0	8,055,000

Year 3												
Task No.	Task Description	Direct Labor Hours	Salary (per year)	Benefits (per year)	Travel	Supplies & Expend-ables	Services or Consultants	Equip-ment	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost
4.1	Construction											
4.1.1	Sankey Diversion	0	0	0	0	0	775,000	0	0	775,000	0	775,000
4.1.2	Elkhorn Diversion	0	0	0	0	0	497,500	0	0	497,500	0	497,500
4.1.3	Distribution Facilities	0	0	0	0	0	162,500	0	0	162,500	0	162,500
4.1.4	Demolition & Restoration	0	0	0	0	0	120,000	0	0	120,000	0	120,000
4.1.5	Private Diverter Consolidation	0	0	0	0	0	250,000	0	0	250,000	0	250,000
4.2	Construction Supervision	0	0	0	0	0	250,000	0	0	250,000	0	250,000
4.3	Private Diverter Consolidation Facility Design	0	0	0	0	0	0	0	0	0	0	0
4.4	Environmental Compliance & Mitigation	0	0	0	0	0	20,000	0	0	20,000	0	20,000
4.5	Right-of-Way Acquisition	0	0	0	0	0	0	0	0	0	0	0
4.6	Testing and Evaluation	0	0	0	0	0	50,000	0	0	50,000	0	50,000
4.7	Project Management	0	0	0	0	0	45,000	0	0	45,000	0	45,000
		0	0	0	0	0	2,170,000	0	0	2,170,000	0	2,170,000

Grand Total = $12,600,000.00

Comments.

The budget summary has been revised to provide further breakdown in response to comments and to update the project estimates. The budget summary is presented in Federal Fiscal Years (October 1st to September 30th). Direct construction cost estimates have been updated based upon preliminary design and current field conditions in the project area. Costs for design and construction of facilities to include private diverters have been added to the estimate. The original proposal envisioned these costs to be provided at a later stage. Other direct costs such as construction supervision, environmental compliance and mitigation, and project management have been increased to account for the significant coordination and compliance effort being required of the Project.

EXECUTIVE SUMMARY

Project Title: American Basin Fish Screen and Habitat Improvement Project
Applicant: Natomas Mutual Water Company (NMWC)

Project Description and Primary Biological/Ecological Objectives:
This proposal requests cost share funding for construction of the American Basin Fish Screen and Habitat Improvement Project. The project involves the removal of a diversion dam, the consolidation of diversions, and the addition of state-of-the-art fish screens to NMWC's diversions on the Sacramento River, between Verona and the American River, and on the Cross Canal. The specific objectives of the project are to remove migration barriers; prevent straying and entrainment of winter-run Chinook salmon, spring-run Chinook salmon, fall-run Chinook salmon, late fall-run Chinook salmon, steelhead trout, splittail, green sturgeon, and other high risk species; and to improve aquatic, riverine, and riparian habitat.

Approach/Tasks/Schedule:
NMWC's intended approach is to complete the design and environmental documentation in consultation with the responsible resource and regulatory agencies, obtain the necessary permits, procure the required right-of-way, obtain bids for construction, perform the relocation work, construct the fish screen facility, and monitor its effectiveness. The design, environmental documentation, and project management will be performed by NMWC with the assistance of consultants.

The project phase for which funding is requested is Phase IV- Construction. The primary tasks being performed under Phase IV are the procurement of right-of-way for construction, the construction of the facilities, and the startup, testing and initial monitoring of the facilities. Phase IV is currently scheduled for completion by mid 2005.

Justification for Project and Funding by CALFED:
The elimination of migration barriers and entrainment losses at unscreened diversions, which result in direct mortality to at-risk fishery resources, as well as the lack of critical rearing habitat, have been identified as principal stressors by CALFED and CVPIA, and will be addressed by this project. Biological monitoring has documented that winter-run, spring-run, fall-run, and late fall-run sized juvenile Chinook salmon, steelhead, splittail, and other at-risk resident and migratory fish species are currently entrained at similar unscreened diversions. The restoration project is, therefore, consistent with CALFED ERP strategic goals for the 2002 Implementation Plan and CVPIA priorities.

Budget Costs:
NMWC is seeking a $12,600,000 cost share for the construction phase of the project. The project represents a cooperative effort with significant financial matching support through the CVPIA Anadromous Fish Restoration Program, and NMWC. The balance of funding for this phase of the project will be paid for by the federal government and/or local cost share.

Response to Directed Action Proposal Review Comments
In an attempt to respond to questions generated by the proposal review process and to update the current status of the Project, changes have been made to all of the required forms and the proposal. All changes have been highlighted on the re-submitted forms and proposal. Significant changes are as follows. Project Information Sheet revised to reflect current cost share funding status. Comments have been added to Environmental Compliance Checklist to clarify status and responses. Land Use Checklist has been revised to include additional land use information. Conflict of Interest Checklist

has been updated to include new subcontractors and participants in proposal preparation. Budget Forms have been updated to include updated Project Budget Summary and Justification. Proposal has been revised to: Reflect current project status; Add value engineering/senior technical review to A.3, *Approach*; Address additional technical coordination issues in A.4, *Feasibility*, Update schedule and milestones in A.8, *Work Schedule*; Update status and accomplishments (including new Attachments A&B) in B.3 and B.4, *Requests for Next Phase Funding* and *Previous Recipients of CALFED or CVPIA Funding*; Expand information provided on land acquisitions in B.6, *Additional Information for Proposals Containing Land Acquisition*; Update current Project Team under C, *Qualifications*; Include additional Budget Justification and Budget Contingency Sections under D.1, *Budget*; and Update cost share information and add Local Cost Share Section to clarify NMWC's commitment under D.2, *Cost Sharing*.

Proposal

Natomas Mutual Water Company

American Basin Fish Screen and Habitat Improvement Project

Peter J. Hughes, Natomas Mutual Water Company

Proposal for the
American Basin Fish Screen and Habitat Improvement Project

A. PROJECT DESCRIPTION

1. Statement of the Problem.

This proposal requests cost share funding from CALFED for facility construction; facility startup, testing and evaluation; and environmental mitigation for Natomas Mutual Water Company's (NMWC) American Basin Fish Screen and Habitat Improvement Project. The specific goal of the project is to remove a fish negative barrier, improve habitat, and prevent entrainment of winter-run chinook salmon, spring-run chinook salmon, fall-run chinook salmon, late fall-run chinook salmon, splittail, steelhead trout, green sturgeon, and other high risk species.

NMWC is a non-profit mutual water company that controls surface water rights for over 250 landowners within the 55,000 acres known as the American Basin. As part of its irrigation system, NMWC operates five (5) unscreened diversions, with a total capacity of about 630 cfs. In addition, during some dry years, NMWC installs a dam at the mouth of the Natomas Cross Canal and installs diesel lift pumps (about 350 cfs capacity) to draw water from the Sacramento River into the Natomas Cross Canal. The Natomas Cross Canal is a tributary to the Sacramento River, which channelizes flow from a number of creeks to the east.

NMWC began the planning effort for this project in 1993. Initial studies by NMWC looked at operational changes, the use of alternative type barriers, and the relocation or consolidation of diversions. As a result of this initial planning, NMWC has proposed a project to remove the diversion dam and pumps from the Natomas Cross Canal, consolidate their five diversions to one or two facilities located on the Sacramento River, and provide positive barrier fish screens on the consolidated Sacramento River diversion(s). A feasibility study and the preliminary design for the project have been conducted in consultation with the Anadromous Fish Screen Program Technical Team (AFSP Tech Team). The feasibility study completed in 2000, reviewed eight conceptual project alternatives, and developed a Recommended Project. The Preliminary Design and Design Basis for the proposed project have been presented to the AFSP Tech Team and have received favorable reviews. Based upon the completed and preliminary design work, the proposed project represents the most cost efficient, technically feasible project configuration. The Final Design and Permitting for the Project is in process. The AFSP Tech Team will be directing the Project through construction and post-construction evaluation.

NMWC has been coordinating the proposed project with local interest groups, resource and regulatory agencies, and funding agencies for over five (5) years. The project has been complicated by proposals from resource and local agencies which could effect the scope of the project. Under the Sacramento Valley Water Management Agreement, a number of agencies are proposing a conjunctive use projects for the American Basin, which may require operational changes in NMWC's service area. The ACOE is in the planning stage for their Sacramento River East Side Levee Raising Project which directly affects NMWC Project. The Placer County Water Agency, City of Sacramento, and the American River Basin Cooperating Agencies are studying the relocation of some American River diversions to the Sacramento River, by use of a combined diversion with NMWC. NMWC will

coordinate the project with these entities, but intends to move forward with the design and construction of facilities to meet their present needs.

The proposed project is located in the Sacramento River Watershed in Sacramento and Sutter Counties in an area referred to as the American Basin. The consolidation of diversions along the left bank of the Sacramento River, from about River Mile 65 to River Mile 79 is proposed. Also proposed is the removal of NMWC's two (2) permanent diversions, and temporary cofferdam and lift pumps from the Natomas Cross Canal. The Natomas Cross Canal is the tributary to the Sacramento River – at approximately River Mile 79 – for the Coon Creek, Bunkham Slough, Markham Ravine, Auburn Ravine, King Slough, Pleasant Grove Creek, and Curry Creek Watersheds.

At the request of the AFSP Tech Team, NMWC has been working with the surrounding small private diverters (3 to 13 cfs) to develop agreements to consolidate their facilities into the new NMWC diversion. The participation of several of these private diverters is included in the scope of the project.

The proposed project will remove a migration barrier, remove diversion facilities from the Natomas Cross Canal, consolidate diversion locations, provide positive barrier fish screens, and assist in restoration of aquatic, riverine, and riparian habitat. Entrainment caused by unscreened diversions, blockage of suitable habitat, lack of quality stream channel and riparian habitats, and excessive predation has been identified as key stressors affecting anadromous fish species in this area. The project attempts to protect anadromous fish species by addressing NMWC's potential impact upon these stressors, and to assure a stable water supply to upland habitat considered critical to other at-risk species such as the Giant Garter Snake and the Swainson's hawk.

2. Justification

This section is not required because this proposal is for fish screen construction.

3. Approach

NMWC's intended approach is to perform the required studies, design, and environmental work using the team shown in the enclosed Organization Chart, Figure 1. The proposed schedule and specific tasks are summarized below in Section A.8. The major activities to complete the work, in chronological order, are to complete a feasibility study which evaluates various alternatives; develop a preliminary design and prepare the required environmental documentation; prepare a Final Design and obtain the required permits; perform the project construction; and test and evaluate the facilities. The design, environmental documentation, permitting, and construction supervision will be performed by NMWC, with the assistance of the existing team of consultants. The project construction will be performed by Construction Contractor(s) selected through a competitive bidding process. All work will be performed in consultation with the AFSP Tech Team. This proposal requests cost share funding for the work required to complete Phase IV *Construction*. This phase will be divided into six (6) tasks:

> **Task 4.1 - Construction.** This task includes all the construction activities associated with the project. The majority of this work will be perform by contractor(s) selected through a competitive bidding process in compliance with state and federal public contracting requirements. Deliverables will include monthly status reports during the primary construction period, and a final report on construction.

Task 4.2 - Construction Supervision. This task consists of the construction administration and management effort required by the consulting team to insure the construction effort meets the guidelines set forth by the construction documents, the environmental documents, state and federal public contracting codes, and other agency requirements. Deliverables will include approved monthly progress payment requests, and a final testing and inspection report summary.

Task 4.3 - Private Diverter Consolidation Facility Design. This task includes design costs associated with the facility construction work required to allow for removal of up to 8 private diversions along the Sacramento River between River Mile 66.9 and 78.8. Deliverables include final plans and specifications for construction of facilities.

Task 4.4 - Environmental Compliance and Mitigation. This task encompasses the monitoring and mitigation work as outlined in the environmental documents and as required by permits, both during and after construction. Deliverables will include report(s) on construction monitoring and reports on mitigation monitoring, as required by permits.

Task 4.5 - Right-of-Way Acquisition. Upon completion of the Final Design, all required right-of-way will be identified. This task involves the process of finalizing the agreements, including the cost of land and associated acquisition costs. Deliverables will include right-of-way agreements.

Task 4.6 - Testing and Evaluation. This task involves the testing and trial operations to bring the newly constructed facilities on line. This task also includes the post-construction evaluation of the fish screen. Upon start-up and commissioning of the facility, an evaluation and monitoring program will be carried out in consultation with the Department of Fish and Game (DFG) and the National Marine Fisheries Service (NMFS). Deliverables will include a report on post construction evaluation of the fish screen facility operation.

Task 4.7 - Project Management. The task allows for the effort allotted to managing the completion of tasks, consultant and agency coordination, compliance with reporting requirements, processing of funding requirements, conducting tours and giving presentations, compliance with standard terms and conditions, and the associated direct costs. Deliverables will include copies of all agreements for consulting and construction services, reimbursement requests, quarterly funding reports and all other requested status and compliance reporting.

3.a Value Engineering / Senior Technical Review

The NMWC has undertaken several value engineering type review measures to assure that the Project represents the most cost effective, technically feasible solution. The NMWC has coordinated the design development with the AFSP Tech Team, and will continue consulting with the AFSP Tech Team throughout the project implementation. The Feasibility Study was the first formal technical review and evaluation of the project. The study, conducted in consultation with the AFSP Tech Team, analyzed eight (8) different project alternatives. The recommended alternative was the most cost effective solution, as well as the alternative that minimized required right-of-way and environmental impacts, and the potential costs associated. The proposed solution dealt primarily with the project configuration (i.e. number of diversions). To assure that the proposed diversion facility was the most appropriate configuration, a Senior Technical Review was performed by the Project's

Design Team during a two-day workshop near the end of the Preliminary Design. The results of this workshop modified the configuration of the proposed diversion facilities to provide the most efficient, technically feasible facility for the selected diversion sites. The proposed facility Preliminary Design and the project Design Basis has been presented to the Tech Team and was favorably received. The NMWC has also established a Technical Review Committee consisting of senior design consultants, as shown on the attached Organizational Chart, Figure 1, to provide design oversight. Additionally, NMWC is proposing that a value engineering type review be performed by the Tech Team and the Design Team's Technical Committee at a workshop to be held early in the Final Design process, as shown on the attached Project Schedule, Figure 2. Any cost changes would be renegotiated through the grant agreement process.

4. Feasibility

The described approach has been proven successful on a number of large screening projects in the Sacramento Valley and the Pacific Northwest. The project represents a cooperative effort of resource and regulatory agencies and local interests. The initial planning performed by NMWC established the option for removal of facilities from the Natomas Cross Canal, reviewed the potential for operational changes and compared the use of behavioral and physical barriers. The recommendation for consolidation of diversions into one or two diversions with positive barrier screens resulted from this initial planning. The project development has been performed in consultation with the AFSP Tech Team.

The feasibility study, completed in June 2000, has compared a number of project alternatives to developing the most feasible project. Biological resource studies performed during the feasibility phase were used to gage any impacts of the project alternatives for use in decision making. The selection of the project alternative included consideration of project costs, the ability to fund the project, the potential environmental impacts of each alternative, the ability to address service needs, the ability to operate and maintain project facilities, and the need to maximize restoration efforts. The Feasibility Report is available upon request.

The preliminary design and environmental documentation phase for the project immediately followed the feasibility study. This phase of the project has been fully funded, and will be completed by the end of 2002. The Preliminary Design and Basis of Design have been approved by the AFSP Tech Team. The preliminary design established the project facility requirements in consultation with responsible agencies. The preliminary environmental documentation work will assess the impacts of the specific project and determine all permitting needs.

At this time, the scope of the project has been adequately defined and has enabled planning of funding needs for project construction, which are being requested under this proposal. However, there are several factors that may influence the project costs. The AFSP Tech Team has recommended that the NMWC review the use of alternative, non-fouling screen materials. The use of such material would increase the fish screen panel costs, but this component is only a small percentage of the overall project costs (about 1%). Also, based upon informal consultations with the U.S. Fish & Wildlife Service (FWS) the intakes were sized to meet an approach velocity for salmonids (0.33fps). The FWS has recently expressed a desire to revisit this issue, and may require that the design be modified to meet a 0.2 fps approach velocity for Delta Smelt. However, as of the submittal date the FWS has been unable to schedule meeting with the NMWC to review this issue. Should a 0.2 fps criteria be applied, the increased intake facility cost will likely cause the project costs to exceed the

budgeted contingency. The NMWC would request that these changes be addressed through grant agreement negotiations or with through the ecosystem roundtable.

The inclusion of several small pumping plants along the Sacramento River between River Mile 66.9 and 78.8 in this consolidation effort. These are small pumping plants with diversion rates between about 6 and 12 cfs owned by private landowners and Department of Airports. Inclusion of these diversions had not advanced sufficiently to be included in the original submittal. Facilities for all diverters who have expressed an interest are included, however, some parties may choose not to participate if annual costs are too high. Project costs will be reduced accordingly.

The Final Design Phase has been planned based upon past projects of similar scope. The effort required for completion of Environmental Documentation and Permitting for the project is similarly based upon past projects. The schedule for implementation of this phase of the project has been developed in consultation with responsible agencies and other interested parties and is considered feasible.

The environmental checklist outlines permitting required for implementation of the entire project. Delays in processing of permit applications could result in a delay in completing the permitting deliverable and as a result, a delay in the start of project construction.

The proposed project is consistent with current zoning regulations and planning ordinances. Project design will comply with applicable standards. Field activities required for the final design phase of the project will occur on NMWC or Reclamation District 1000 (RD1000) property. Additionally, NMWC is obtaining right-of entry agreements from adjacent landowners, should additional access be required. NMWC has existing access agreements with RD1000 for the joint use facilities which may be effected by this project.

The construction phase will be staged over three years to provide safe access to the river facility sites. The internal irrigation system improvements will be staged to construct facilities during the non-growing season, approximately September to April, as weather permits. The construction effort required is similar to other successfully constructed fish screen facilities on the Sacramento River.

5. Performance Measures

Extensive fisheries monitoring have been performed in the Sacramento River to document the species composition, seasonal occurrence, and size distribution of juvenile and adult fish which may be entrained by unscreened diversions. Data from these monitoring programs provides a basis for predicting biological benefits associated with a positive barrier fish screen.

For this restoration project, monitoring and assessment plans will be geared toward assuring compliance with DFG and NMFS screening criteria, and the mitigation plans included in the project's environmental documents. This work will be performed in consultation with the AFSP Tech Team, and responsible resource and regulatory agencies as the project proceeds. The Final Design and environmental documentation will be similarly reviewed and approved prior to proceeding with the project construction.

During the Final Design Phase, a specific monitoring and assessment plan for the completed facility will be developed in consultation with the AFSP Tech Team and other interested parties. This plan will address the requirements for inspections and approvals during construction and the post construction evaluation and monitoring of the facility performance. Construction monitoring will include, but not be limited to, verification of compliance with screen specifications, inspection of channel conditions, and testing of cleaning systems. Post construction evaluation will include extensive measurement of velocities and adjustments to the facility as required to meet DFG and NMFS screening criteria. Underwater inspections will be included to monitor facility operation and inspect channel conditions.

Additionally, a long term operation and maintenance plan will be developed to assure continued system integrity and operational compliance with screening criteria. The plan will include, but not be limited to, record keeping requirements, periodic underwater inspections to verify screen integrity, and monitoring of cleaning and sediment control systems operation.

Mitigation and restoration requirements will be developed during preparation of the environmental documentation. Requirements for monitoring the success of mitigation and restoration efforts will be developed in consultation with responsible agencies. Restoration efforts will also be coordinated with the Natomas Basin Habitat Conservation Plan.

6. Data Handling and Storage

All data developed during the project will be kept on file in the project manager's office. Copies of data prepared digitally will be routinely backed up and, when complete, archived on CDROM. As information is finalized, reports will be prepared and distributed to all interested parties. Other data will be made available upon written request to NMWC. At the completion of the project all files will be maintained for a minimum of three (3) years.

7. Expected Products/Outcomes

Expected products of Construction will include:

- As-Built Drawings of All Facilities
- Two (2) New Diversions with State-of-the-Art Fish Screens
- Restored Riverine and Riparian Habitat at the River Banks of the Existing Diversions
- Long-Term Operation & Maintenance Plan

NMWC will provide agreements, plans, presentations and reporting as outlined in the PSP, Section 4.2. Additionally, site tours will be provide to all participating agencies and interested parties during facility construction and once the facilities have been commissioned.

8. Work Schedule

A summary project schedule is provided below. Cost share funding is being requested for Phase IV – Construction.

Task	Description	Start Date	Finish Date
1	Feasibility Study	Oct 1999	Oct 2000
2	Preliminary Design & Environmental Documentation	Nov 2000	Dec 2002
3	Final Design & Permitting	Aug 2002	June 2003
4	Construction & Environmental Mitigation	May 2003	June 2005[1]
4.1	Construction	June 2003	June 2005
4.2	Construction Supervision	Aug 2003	June 2005
4.3	Private Diverter Consolidation Facility Design	Dec 2003	Apr 2004
4.4	Environmental Mitigation	Aug 2003	Dec 2007 [1]
4.5	Right-of-Way Acquisition	March 2003	June 2003
4.6	Testing and Evaluation	May 2005	June 2005
4.7	Project Management	March 2003	June 2005

1 - Funds required for on-going environmental mitigation beyond 2004 will be requested under a separate proposal once the needs are more clearly defined.

The major milestones for Phase IV Construction are:

- Receipt of Initial Phase I Funding by May 1, 2003
- Select First Phase Contractor by June 1, 2003
- Select Second Phase Contractor by August 15, 2003
- Complete Right-of-Way Acquisition by June 2, 2003
- Receipt of Construction Funding by August 15, 2003
- Complete Construction by June 22, 2005
- Complete Post-Construction Evaluation by June 1, 2003

Payments for service contracts will be made on a monthly basis. Service contract invoices for construction will detail the percent completion, and level of effort will be gaged against the total completion amounts. The other service contract invoices will detail man-hours spent on each task, and level of effort will be gaged against the project schedule.

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

1. ERP Goals and CVPIA Priorities.

This restoration project targets ERP Goals SR-1, SR-2, SR-3, and SR-6 as outlined in the PSP and the CVPIA Stressors of Quality of Accessible Stream Channel Habitat, Blockage of or Reduced Access to Suitable Habitat, Unscreened or Inadequately Screen Diversions and Excessive Predation. The project attempts to specifically address the mortality of adult and juvenile winter-run chinook salmon, spring-run chinook salmon, steelhead trout, green sturgeon, splittail, white sturgeon, stripped bass, fall-run chinook salmon, and American shad. Improvements proposed will eliminate entrainment mortality, remove blockages to suitable habitats, improve quality of accessible stream channel and riparian habitat, reduce predation losses, and improve water quality.

The proposed project will address the immediate needs of at-risk species by consolidating and screening the facilities of one of the largest remaining unscreened diverters on the Sacramento River and possibly several other small diverters in the same stretch of the river. The continuing planning effort has characterized the site conditions, reviewed test results and data on alternative technologies, and is currently geared toward siting. An evaluation and monitoring program to be developed during the Final Design Phase will provide for continuous monitoring and testing of the project.

Removal of diversions from the Natomas Cross Canal and consolidation of diversions will allow for restoration efforts which will improve aquatic, riverine and riparian habitats. Removal of the diversion dam and unscreened pumps from the Natomas Cross Canal will restore a natural flow regime, and enhance access of sensitive fish species to historical spawning habitats and critical rearing habitat. This restoration effort will also assist in preventing straying of migratory fish into the Natomas Cross Canal, and associated predation, by restoring natural outflow from the Natomas Cross Canal. This change will also improve water quality, since all diversions will be from the Sacramento River, where the rate of diversion will be a much smaller percentage of the stream flow. The area on the Sacramento River where the consolidated diversions will be located is heavily channelized due to its proximity to urban areas. Hardpoints have already been established, with levee systems immediately adjacent to the river channel. Consolidation of diversions will assist in restoration of riverine and riparian habitat in the area of abandoned diversions.

The implemented project will provide for a reliable water supply for agriculture and to sustain critical habitat. NMWC provides the vast majority of surface water supply to the Natomas Basin. The rice farming and winter re-flooding of fields practiced in the basin provide critical habitat for waterfowl and at-risk species such as the giant garter snake and Swainson's hawk.

2. Relationship to Other Ecosystem Restoration Projects.

NMWC is one of the largest remaining unscreened diversions on the Sacramento River. A significant effort has been expended to date in screening large diversions from the Sacramento River to prevent entrainment mortality. This project represents a significant step toward screening all large diversions from the Sacramento River.

Removal of the diversion dam from the Natomas Cross Canal is consistent with the restoration efforts to remove migration barriers. Removal of diversion facilities from this tributary is consistent with restoration efforts to prevent straying of migrating fish.

NMWC is the sole source of surface water supply to areas proposed for restoration by the Natomas Basin Conservancy. This conservancy's restoration effort is dependant on a reliable water supply.

The project is also being coordinated with the American River Basin Cooperating Agencies and Sacramento Area *Water Forum*. NMWC represents the most significant source of supply from the Sacramento River being considered by the *Water Forum*. The City of Sacramento and Placer County Water Agency are currently attempting to dovetail a project that will replace some American River supply with Sacramento River supply from NMWC's new consolidated diversion from the Sacramento River. NMWC will coordinate the project with these entities, but intends to move forward with the design and construction of facilities required to address their existing diversions.

3. Request for Next-Phase Funding.

This proposal is for the next phase funding needs of the *American Basin Fish Screen and Habitat Improvement Project*. Previous funding assistance has been provided by CALFED program and CVPIA to bring the project through Design and Permitting, as described in the next section, B.4. Funding is know being requested for Project Construction which is scheduled to begin in August 2003, pending receipt of required funding. Land acquisition is also included under this funding request and will need to be completed prior to start of project construction. Current status of the project, and the progress and accomplishments to date are summarized in the next section and further described in the *Summary of Efforts to Date* included as Attachments A & B to this proposal.

4. Previous Recipients of CALFED or CVPIA Funding.

NMWC has received funding assistance from the CALFED Program and CVPIA for this project. Phases I and II were funded under agreements CALFED No. 98-B29 and CVPIA No. 99-FC-20-0165. A feasibility study technical report was issued in October 2000 and a Biological Resource Survey report was issued in December 2000 to complete Phase I. The Preliminary Design and Design Basis have been completed and reviewed by the AFSP Tech Team and other project stakeholders. The internal draft of the Environmental Assessment/Initial Study is being reviewed by the project team and will complete Phase II of the project. The commitment of a public agency to perform the role of CEQA Lead Agency was only obtained in August 2002, leading to a delay in the completion of this Phase. Phase III – Final Design and Permitting is currently being performed under agreements CALFED No. 01-N60 and CVPIA No. 01-FG-20-0046.

5. System Wide Ecosystem Benefits.

System wide ecosystem benefits are described in Section B.2 above.

6. Additional Information for Proposals Containing Land Acquisition

Land will be acquired for the construction of canals, a fish screen intake, and other mitigation purposes. New canals will be added in an areas that will provide ecological connectivity between significant movement corridors for the Giant Garter Snake. The land will also be needed to allow for the restoration of the Natomas Cross Canal, as an important wildlife corridor. Negotiations are currently underway to obtain the additional easements required for the improvements. Project funding to date has covered only the land acquisition engineering and negotiation costs. The funding of the project provided for final negotiations and purchase of the right-of-way only after design has advanced sufficiently to determine exact limits. This proposal seeks funding for procurement of required lands and easements.

NMWC has briefed all of the affected landowners about the Project's required land acquisitions. The need for purchase of required land acquisitions at Fair Market Value, without condemnation was specifically addressed. It should be noted that NMWC does not have the ability to condemn land due to its organizational structure as a private company. If conditions change, and acquisitions cannot be completed in compliance with the provisions of the funding source, the NMWC will not proceed with acquisition until the concerns are resolved, or will acquire land using other funds.

Only two parties have expressed any reservations. These reservations are primarily related to project details, and NMWC believes that these reservations can be overcome by further education efforts and with offers that are more specific. Outstanding landowner issues are as follows:

- A future restoration site for the Natomas Basin Conservancy will be impacted by canal construction. This conflict is being handled by designing habitat into the canal section which is compatible with the Conservancy's restoration efforts. This cooperative effort should resolve the issue and the landowner would become a willing seller.

- Another landowner has recently questioned the extent of right-of-way take and desires further detail. Education efforts are ongoing and NMWC believes that this should resolve the issue.

All Project land uses, as described in the Land Use checklist, are consistent with the General Plans of both Sutter and Sacramento County. Much of the land proposed for acquisition is mapped as either Prime Farmland, or Farmland of Statewide Importance. However, land will remain in agricultural related use, and the Project is specifically intended to assure a reliable water supply for farms within the Natomas Basin that are primarily in this category.

Land acquisition can be considered as time-sensitive, since with the competing land use interests within the Natomas Basin, further delay will make implementation more difficult.

C. QUALIFICATIONS

Overview of Team. NMWC's team for this project will be organized as shown on the Organization Chart, Figure 1. NMWC's consultants were selected based upon qualifications and their familiarity with NMWC's operation and facilities. The Company's Engineer for the project, Mead & Hunt, Inc. (MH), formerly Ensign & Buckley, has been providing engineering services to NMWC for over 15 years and has worked on a number of fish screen projects in the State of California. The Project Design Manager, CH2M Hill (CH), has extensive experience designing and implementing complex

Sacramento River fish protection projects similar to this project. The Environmental Consultant for the project, Miriam Green Associates (MGA) has performed extensive work in the American Basin and has a great deal of experience with rare, threatened, and endangered species. The Fisheries Biologist for the project is Surface Water Resources, Inc. (SWRI). SWRI's expertise in fisheries and aquatic sciences includes fisheries biology, aquatic toxicology, aquatic ecology, water quality, experimental design and statistical analyses, and ecological risk assessment.

Relevant Experience of Key Personnel. Following is a summary of the relevant experience of the supervisory and key staff:

a. **Ferrel H. Ensign** is a Registered Civil and Agricultural Engineer in the State of California. Mr. Ensign has 37 years of experience in the planning, design, and construction of water resource projects. He has been responsible for the design of over 10 fish screens that have been constructed and in the preliminary design of other facilities that were subsequently constructed.

b. **Gary Nuss** is a Registered Civil Engineer in the State of California and a senior project manager with CH2M HILL with 21 years of experience. His primary responsibility is providing program management, project management, and engineering for master planning studies, preliminary and final design, construction management, and startup for water resources and water reuse systems.

c. **Miriam Green** has 15 years of experience in the environmental consulting field. Much of this time has been spent conducting biological studies, with particular emphasis on threatened and endangered species surveys throughout California and the Pacific Northwest. Miriam Green Associates is composed of an experienced group of independent consultants from Sacramento, Yolo, and San Joaquin counties.

d. **Paul Bratovich** has worked as a fisheries consultant in California for the past 18 years. He serves as the head of SWRI's fisheries team and oversees all fisheries-related aspects of project work, in addition to conducting project-level fisheries impact assessments. Mr. Bratovich has conducted numerous analyses on various aquatic resources, including listed aquatic species as part of incidental take permit processes, habitat conservation plans, watershed management plans, and CEQA and NEPA documentation. Mr. Bratovich has served as the Principal Fisheries biologist for numerous fish screening projects.

e. **Peter Hughes** is the General Manager for NMWC, with 9 years of experience in the agricultural water industry. He has extensive knowledge of water rights and related water issues. Mr. Hughes helped found NCWA; was a former executive committee member of the Sacramento River Contractors Association, and has been on various committees for the Sacramento Region Water Forums.

f. **Thomas Barandas** is the Special Projects Manager for NMWC, and is a life-long resident of the American Basin. He has worked in the agricultural industry all of his life. His responsibilities include overseeing the irrigation, recycle and drainage system, and pumping plant operations; including supervision of field staff, and developing, implementing, and reporting for maintenance budgets.

g. **Stephen R. Sullivan** is a Registered Civil Engineer in the State of California, with a background in design and construction of fish screening facilities, pumping plants, levee construction, and irrigation facilities. He is experienced in the application of the NMFS and the DFG fish screen criteria, and is familiar with the latest technologies in the field and the latest designs used on the Sacramento River. He has been involved with the project since its inception and has been performing facilities engineering for NMWC since 1992. He also has extensive experience in coordination with the pertinent agencies.

h. **Howard Wilson** is a Registered Civil Engineer in the State of California, with more than 34 years of engineering experience, including project management and lead design experience on large fish screens and agricultural water conveyance systems. His direct project experience has resulted in 8 state-of-the-art fish passage facilities and more than 200 miles of new or rehabilitated canals.

i. **Bob Gatton** is a Registered Civil Engineer in the State of California, with 29 years of engineering experience, specializing in fish screening, passage, and hatchery facilities. He has managed or provided senior consultant services for some of the largest fish passage projects in the Sacramento Valley and Pacific Northwest.

j. **Phil Ryan** is a Registered Civil Engineer in the State of California and a senior project manager with CH2M HILL whose primary emphasis has been designing and planning pump stations and related facilities for raw and potable water, irrigation, drainage, reclaimed water, and sanitary sewer systems. He serves as a senior consultant/reviewer on many CH2M HILL pump station and conveyance design and planning projects.

D. COST

1. Budget.

NMWC is requesting cost share funding for Construction, Phase IV of the project. Funding will be used to:

- Construct the new consolidated diversions
- Construct associated modifications to NMWC's internal irrigation system
- Environmental mitigation
- Startup, testing, and post construction evaluation of the new fish screen facilities

The proposed budget for Phase IV is $25,200,000. NMWC is requesting a fifty percent (50%) cost share, or a total of $12,600,000, from CALFED as identified in Form VI. Based upon the size of the overall project, the proposed budget is commensurate with the effort required to complete the work required. A Project Cost Estimate Summary, attached as Table No. 2, details the breakdown of

estimated costs. A Schedule of Project Quarterly Expenditures is included as Table No. 3. Further detail is available as needed by reviewers.

All of the work will be performed under service contracts with the exception of administration work which will be performed by NMWC. Consultant's overhead costs are encompassed in charge rates. Direct construction costs will be determined by a competitive bidding process. NMWC is not intending to apply additional overhead charges for work performed.

The Project Management task budgets for the effort allotted to managing the completion of tasks, consultant and agency coordination, compliance with reporting requirements, processing of funding requirements, compliance with standard terms and conditions, and the associated direct costs.

1.a Budget Justification

The "American Basin Fish Screen and Habitat Improvement Project" title was selected to highlight the beneficial features of the project. Many Sacramento River fish screen projects are screening individual, existing intakes. In addition providing fish screens for all of NMWC's existing diversions, a number of diversions will be consolidated, a known fish barrier will be removed, additional unscreened pumping capacity will be eliminated, and other habitat improvements will be implemented. The project costs should be evaluated accordingly.

Specifically, project features and benefits are as follows:

- Consolidate NMWC's five agricultural water diversions into two with a combined capacity of 630 cfs to minimize fish exposure;
- Install state-of-the art fish screens at each new diversion site to protect against impingement and entrainment of sensitive fish species;
- Eliminate the Verona Diversion Dam, a fish passage barrier, to improve natural migration;
- Eliminating the Verona Diesel Lift pumps (about 350 cfs capacity) and any associated fish entrainment, straying and stranding impacts. Air quality impacts will also be improved by the elimination of diesel pumps;
- Removal of abandoned facilities to restore aquatic and riparian habitat;
- Construction of new, redesigned canals to improve ecological connectivity within the Natomas Basin for Giant Garter Snake (GGS) movement and hibernacula components;
- Providing for an efficient water delivery system through improved hydraulic connections and water reuse systems which will reduce river water demand and reduce agricultural discharges;
- Finally, the project envisions eliminating other smaller, privately owned diversions along the same reach of river through consolidation into the Project.

While all of these benefits are attributable to the project, the basic design of the project is still the most cost effective solution for screening the NMWC's diversions.

A substantial portion of the project cost is attributed to changing the irrigation delivery system to relocate diversions from of the Natomas Cross Canal onto the Sacramento River (approximately $6MM). Those changes are needed to return water from the new proposed Sankey Diversion on the Sacramento River to the existing points of service at the pumping plants on the Natomas Cross Canal. It was determined with the AFSP Tech Team that it screening the facilities at their existing sites on

the Natomas Cross Canal was not technically feasible or desirable. It is also not possible to obtain water from the new diversion without changing the delivery system. As described above, moving these facilities out of the Natomas Cross Canal (a potentially significant wildlife corridor) does provide substantial benefits.

The consolidation of the Elkhorn and Prichard Diversions, although requiring some internal irrigation system modifications (approximately $1.7MM), was shown during the Feasibility Study to be more cost effective than separately screening these facilities. The Riverside Diversion will be removed by some relatively minor internal irrigation system modifications, while providing a substantial consolidation benefit. While there are costs associated with modifying delivery system facilities to move water from the consolidated diversion sites, these costs are significantly offset by the savings in constructing fewer in-stream screened intake facilities.

The Project is also complicated by its location and certain site conditions that are adverse to screening and irrigation facility design. The Project is located within the Natomas Basin where competing land use needs have driven up property costs. The irrigation system changes are being closely coordinated with competing habitat needs within the Basin. The Basin is relatively flat, complicating the movement of water from the consolidated diversion points to its place of use. This affected reach of the Sacramento River is also relatively wide and shallow, resulting in a higher than average intake length and limiting lower cost facility options. To mitigate for the river conditions, the NMWC is proposing the use of an inclined screen as opposed to the more costly vertical screen alternatives being used on many large facilities on the Sacramento River.

1.b Budget Contingency Plan

The NMWC is dependant upon securing funding from state and federal sources to complete the Project. Construction of the consolidated diversions will be delayed indefinitely unless adequate funding is obtained. Without full funding support for the project, and subject to the approval of the Board of Directors, NMWC may be able to perform some limited amount of work to construct required improvements to their internal irrigation system, but at a much-reduced level of effort. As described in the following section, D.2.a Local Cost Share, the NMWC is providing a significant local cost share commitment to the Project, and due to its organizational structure does not have the capacity to raise sufficient revenues to provide further local cost share.

A number of project staging options may be possible depending upon funding availability and timing issues. Several options for partial project funding are outlined below. Specific contingency plans may be developed as necessary. While these partial funding approaches would move the Project ahead, delays in funding would add to the overall project cost and a partial project would also fail to capture the implementation efficiencies of a single combined project.

1.b.1 Cost Match for Federal Appropriations

The NMWC has received CVPIA funding in the amount of $2.29MM (Assistance Agreement No. 02-FG-20-0117) for the start of Phase IV work including Right-of-Way Acquisition, Site Preparation and Relocations, Initiation of Environmental Mitigation, and the Start of Facility Construction. The release of these Federal dollars is contingent upon commitment from the State of California to provide matching funds under the CALFED program. Should the CALFED program be unable to commit to the full requested Construction Phase funding amount at this time, the NMWC requests at a minimum a commitment of the State matching cost share for the project. This will at least allow

the project to continue moving ahead for a period of time. If funding for right-of-way acquisition is further delayed, the competing land use interests in the Natomas Basin will make completion of the project more difficult and expensive.

Further Federal Funds will be allocated on an annual basis as needed. The next allocation for FY2003 has been approved by the House Energy and Water Development committee. This federal appropriation in the amount of $5,382,000 is for three projects (the proposed American Basin Project, Reclamation District 108's project and Sutter Mutual's project). The dollar amount will be split among the projects based upon need, but the NMWC has requested a minimum $900,000 to complete FY2003 construction activities. The NMWC would also request that, pending allocation of State Cost Share funds for FY2004 and 2005, an added commitment of FY2003 State Cost Share in at least equaling this matching amount.

1.b.2 Partial Project

If fiscal constraints prevented the State from fully funding the proposed three-year program, the NMWC requests consideration for funding of a partial project. As the two diversion facilities serve different geographical areas with only partial overlap, the Project implementation could be staged. To allow for elimination of several unscreened facilities, one of the two proposed diversions could be constructed along with the associated re-plumbing of the distribution system. The NMWC would propose construction of the Sankey Diversion, Sankey Canal and Drain, and other associated internal improvements in the First Phase of any staged project. This portion of the project appears to be the most implementable at this stage, provides for consolidation and screening of a large percentage of the NMWC's diversion capacity and provides the most habitat improvements. This component also provides the added benefits of eliminating the additional unscreened pumping capacity (350 cfs) at the Verona Diesel Lift Pumps, eliminating the Verona Diversion dam and associated fish passage issues, eliminating the potential straying, stranding and fish passage issues by removal of all facilities from the Natomas Cross Canal, restoring aquatic and riparian habitat on the Natomas Cross Canal, and implementing some additional Giant Garter Snake habitat components. The net unscreened pumping capacity eliminated would be 780cfs. The delay in the other diversion facility, the Elkhorn, would be unfortunate. However, this alternative is offered with full appreciation of present budget difficulties. The NMWC is confident that all of the matching Federal funds can be obtained for this modified One Diversion project.

With a staged project, the NMWC would need approximately $5.3MM in State cost share, in addition to the $2.29MM requested above. A commitment of these two cost share amounts would allow for the completion of all planning, land acquisition, and relocation work for the entire project in addition to the construction of one diversion facility. These amounts could be reduced slightly if the project is re-planned to divert some of the earlier committed amounts to a One Diversion project.

An added stage of consolidating the Riverside Pumping Plant could be implemented with the addition of approximately $500,000 (total share approximately $8.1MM). This stage of the project would be easily implementable once the Sankey Diversion is constructed.

Consolidation of private diverters could also be delayed pending receipt of future funds. Irrigation supply facilities construction could be delayed saving approximately $1.1MM, but private pumps would remain in operation until supply from new diversion is established. Costs associated with intake must be utilized when diversion are constructed and therefore, cannot be postponed.

2. Cost-Sharing.

NMWC began studies of the project in 1993, and funded all work on the project through 1999. A total of $450,000 in funding was provided by CALFED and CVPIA for Phase I and II of the project. NMWC is currently working on Phase III of the Project, Final Design and Permitting, which will be completed in 2003, with the assistance of a $950,000 funding agreement from CALFED (Project No. 01-N60) and a matching $950,000 Federal CVPIA grant (Agreement No. 01-FG-20-04). NMWC has also received CVPIA funding in the amount of $2,290,000 for the start of Phase IV work including Right-of-Way Acquisition, Site Preparation and Relocations, Initiation of Environmental Mitigation and Start of Facility Construction (Agreement No. 02-FG-20-0117). The release of these federal dollars is contingent upon a commitment from the State of California to provide matching fund under the CALFED program. NMWC is now requesting $12,600,000 for a fifty percent (50%) cost share of Phase IV work in 2003, 2004, and 2005.

2.a Local Cost Share

The NMWC has limited ability to contribute a substantial local cost share to the Project due to its organizational structure as a non-profit enterprise and a limited, exclusively agricultural rate base for financial support, as described in more detail in the next paragraph. The NMWC has only a small operation's staff with limited construction experience and is, therefore, limited in its ability to provide in-kind services related to the project construction. Despite these limitations, the NMWC will contribute approximately $1.6 million in developing, implementing, and maintaining the project (described below). This cost share represents almost 10% of the estimated project construction costs. Of this, the NMWC's most significant financial project commitment is in accepting full responsibility for the operation and maintenance of the completed facilities to ensure long term fish protection. These obligations are those from the NMWC alone. To date, the NMWC has been unsuccessful in developing outside funding sources or partners but will continue to pursue these opportunities. Other local support is being provided by Reclamation District 1000 as CEQA lead agency, and the Sacramento Area Flood Control Agency has provided base mapping information and assistance with design coordination. Other local entities such as the Sacramento Department of Airports and the Natomas Basin Conservancy although not providing direct financial support, are, through existing cooperative relationships with the NMWC, facilitating implementation of the Project.

Under Federal and State law, the NMWC is described as a non-profit enterprise with limitations against declaring profit as a corporation or against providing benefits, such as dividends, to shareholders. The NMWC is only allowed to generate enough revenue to cover its annual operating costs. The NMWC's revenue (approximately $2.4MM annually) is generated exclusively from a limited number of shareholders (250) through charges for water as well as charges for maintenance of facilities that deliver the water. The NMWC is limited in its ability to substantially raise rates on agricultural consumers and have them successfully remain in agriculture. The NMWC is unable to issues bonds, raise rates over a large number of ratepayers, or accept extensive debt in order to afford major construction.

The NMWC's financial contributions to the project are as follows:

- Approximately $80,000 to date to cover consultant's fees during the planning stages for the project. This work developed the project concept for the complicated process of re-plumbing the irrigation delivery system for consolidated, screened diversions.
- $150,000 for the re-construction of Reclamation District 1000's Pumping Plant No. 3 in 2001. This modification is a necessary project operational component of the proposed Riverside Pumping Plant consolidation.
- $100,000 (approximate) in staff time to see the project through completion. The fish screen project and the associated conveyance reconfiguration is a major project requiring significant coordination with its shareholders and other Natomas Basin interests.
- $50,000 to $100,000 in contributions of land currently owned by the Company for construction of the Elkhorn Diversion.
- $1,200,000 (present worth) for Operations and Maintenance of the fish screens. This work is estimated at $100,000 per year as shown on the attached Table 4.

E. LOCAL INVOLVEMENT

This project is the single-purpose, or first phase, of a larger, multi-purpose project benefitting several communities. Therefore, public outreach efforts, already well underway, must address the interests of company shareholders, as well as a number of specific communities, namely, the City of Sacramento, the County of Sacramento, Landowners within the Natomas Basin, the County of Sutter, RD1000, and the County of Placer, the member agencies of the Sacramento North Area Groundwater Management Authority (SNAGMA), member agencies of The American River Basin Cooperating Agencies (ARBCA), member agencies of The Sacramento Metropolitan Water Authority (SMWA), the signatures of The Sacramento City/County Office of Metropolitan Water Planning's *"Water Forums,"* and the member firms and interests of the Environmental Council of Sacramento (ECOS).

This project has been discussed regionally since 1994, and reviewed publicly and recommended for completion in the "Water Forums Agreement," (April, 2000) which was signed by over fifty (50) local and regional groups, including Federal and State agencies. Virtually ninety-nine percent (99%) of the agencies, organizations, and interest groups listed above are signatures of that agreement.

NMWC has met and briefed all of those entities above, and is expecting consensus support for the project. In order to formalize and assure local involvement and support, NMWC will continue its role in the "Water Forums" Successor Effort, SNAGMA as a governing board member, and maintain regular monthly meetings to which all interest groups are invited. A significant environmental interest group not specifically listed above is the City of Sacramento's Habitat Plan Operator, The Natomas Basin Conservancy (NBC), charged with the protection of endangered, threatened and of-concern species within NMWC service area. NMWC been elected by board vote to a position on the NBC Board of Directors to assure continuity and integration of species protection management practices with the operations and maintenance practices of both RD1000's flood control and NMWC's water supply requirements. NMWC has submitted a Habitat Plan to USFWS for approval and expects to report annually to the NBC on its activities.

F. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

NMWC has reviewed the Standard Terms and Conditions contained in Attachments D and E to the PSP, and will comply with the state and federal standard terms. Through previous funding agreements, NMWC is familiar with both the application of state and federal standard clauses and has the ability to implement them. The proposal submittal requirements, as requested in the PSP, are attached to this proposal.

I. LITERATURE CITED

CALFED Bay-Delta Program. 2001. Ecosystem Restoration Program, Draft Stage 1 Implementation Plan.

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

U.S. Fish and Wildlife Service June 1999. Six-Year Plan and Budget for Implementing the Central Valley Project Improvement Act, Fiscal Years 1999 - 2004.

U.S. Fish and Wildlife Service. May 1997. Revised Draft Restoration Plan for the AFRP.

Natomas Mutual Water Company **Table No 1**

American Basin Fish Screen and Habitat Improvement Project

Affected Landowners and Land Use Table

Tab No	Parcel Numbe	Owner	Existing Land Use	Zoning Designation	General Plan Land Use Designation
Riverside Canal (RD1000 Pumping Plant No. 3 to Riverside Pumping Plant Outfall)					
1	225-0090-014	William Cummings	Agriculture	AG-40	AG
2	225-0110-050	William Cummings	Agriculture	AG-40	AG
3	225-0110-051	William Cummings	Agriculture	AG-40	AG
4	225-0110-018	William Cummings	Agriculture	AG-40	AG
5	225-0110-019	Jimmie Johnson	Agriculture	AG-40	AG
6	225-0110-020	Jimmie Johnson	Agriculture	AG-40	AG
7	225-0110-036	Jimmie Johnson	Agriculture	AG-40	AG
Elkhorn Canal (RD1000 Pumping Plant No. 2 to Elkhorn Reservoir					
8	201-0140-064	Sacramento County	Agriculture	AG-80	AG
9	201-0140-065	Sacramento County	Agriculture	AG-80	AG
10	201-0140-059	Sacramento County	Agriculture	AG-80	AG
11	201-0150-055	Sacramento County	Agriculture	AG-80	AG
12	201-0150-041	Christine DeYoung	Agriculture	AG-20	AG
13	201-0150-042	Christine DeYoung	Agriculture	AG-20	AG
14	201-0150-033	Sacramento County	Agriculture	AG-20	AG
15	201-0150-020	Evelyn Horangic	Agriculture	AG-20	AG
16	201-0250-039	Evelyn Horangic	Agriculture	SPA-(F)	AG
17	201-0250-041	Natomas Mutual Water C	Agriculture	AG-20	AG
18	201-0250-042	Natomas Mutual Water C	Open Space	AG-20	AG
Sankey Canal (Sankey Diversion to Northern Pumping Plant Outfall)					
19	035-020-015	Burton Lauppe	Agriculture	AG	AG-20/AG-80
20	035-020-011	Verona Farming Partners	Agriculture	AG	AG-20/AG-80
21	035-020-013	Robert Leal	Agriculture	AG	AG-20/AG-80
22	035-010-004	Robert Leal	Agriculture	AG	AG-20
23	035-010-012	Robert Leal	Agriculture	AG	AG-20
24	035-010-002	Robert Leal	Agriculture	AG	AG-20
25	035-010-009	Robert Leal	Agriculture	AG	AG-20
26	035-010-005	Robert Leal	Agriculture	AG	AG-20
27	035-010-006	Robert Leal	Agriculture	AG	AG-20
28	035-010-008	Vestal Farms	Agriculture	AG	AG-80
29	035-010-001	Vestal Farms	Agriculture	AG	AG-80
30	035-130-003	Vestal Farms	Agriculture	AG	AG-80
31	035-130-018	RD 1000	Flood Control	AG	AG-80
32	035-130-017	Natomas Basin Conservar	Agriculture	AG	AG-80
Possible Sankey Diversion Sites (Water Side of Garden Highway Levee)					
33	035-020-014	Burton Lauppe	Open Space	AG FP	AG-20/Open Space
34	035-020-010	Verona Farming Partners	Open Space	AG FP	AG-20/Open Space
35	035-020-012	Robert Leal	Open Space	AG FP	AG-20/Open Space
36	035-020-008	Robert Leal	Open Space	AG FP	AG-20/Open Space

Natomas Mutual Water Company **Table No. 2**

American Basin Fish Screen and Habitat Improvement Project

Project Cost Estimate Summary

	Description		Estimated Cost	Project Budget
Phase I - Feasibility				170,000
Phase II - Preliminary Design and Environmental Assessment				280,000
Phase III - Final Deign and Permitting				1,900,000
Phase IV - Construction and Environmental Mitigation				
4.1	Construction			
4.1.1	Sankey Diversion		12,060,000 [1]	
	Screened Intake and Pumping Plant (420 cfs Capacity)	5,800,000		
	Sankey Canal and Drain	3,600,000		
	Bennett Check Re-Lift Pump Station	380,000		
	Reclamation District 1000 Drain Improvements	270,000		
	Subtotal Direct Construction Costs:	10,050,000		
	Contingency @ 20%:	2,010,000		
	Sankey - Rounded Total Direct Construction Costs:	12,060,000		
4.1.2	Riverside Diversion Replacement		840,000	
	Plant 3 Pump and Riverside Canal Improvements	700,000		
	Subtotal Direct Construction Costs:	700,000		
	Contingency @ 20%:	140,000		
	Riverside - Rounded Total Construction Costs:	840,000		
4.1.3	Elkhorn Diversion		6,330,000 [1]	
	Screened Intake and Pumping Plant (210 cfs Capacity)	4,300,000		
	Elkhorn/Prichard Main Canal Improvements	750,000		
	Subtotal Direct Construction Costs:	5,050,000		
	Contingency @ 20%:	1,010,000		
	Rounded Direct Construction Costs:	6,060,000		
	Utility Relocations:	270,000		
	Elkhorn Diversion - Total Construction Costs	6,330,000		
4.1.4	Demolition and Restoration		240,000	
	Pumping Plant Demolition and Restoration Work	200,000		
	Direct Construction Cost Subtotal:	200,000		
	Contingency @ 20%	40,000		
	Demolition and Restoration - Total Construction Costs	240,000		
4.1.5	Private Diverter Consolidation		1,780,000	
	Other Direct Costs		3,950,000	
4.2	Construction Supervision @ 8%	1,420,000		
4.3	Private Diverter Consolidation Facility Design @ 10%	180,000		
4.4	Environmental Compliance and Mitigation	450,000		
4.5	Right-of-Way	1,500,000		
4.6	Testing and Evaluation	100,000		
4.7	Project Management	300,000		
	Total Other Direct Costs:	3,950,000		
	Total Estimated Phase IV Costs:		*25,200,000*	25,200,000
Phase V - Testing, Mitigation, and Monitoring				
	Total Estimated Phase V Costs:		*250,000* [2]	250,000
	Total Estimated Project Costs:			27,800,000

Notes

1. Intake facility costs based upon meeting the screening criteria for salmonids. Changes to the facility and associated funding increases may be necessary pending Delta Smelt criteria.

2. Funding for additional required environmental mitigation and mitigation site monitoring will be requested when mitigation requirements are finalized.

Prepared by: Mead & Hunt, Inc.
Prepared on: October 2, 2002

NATOMAS MUTUAL WATER COMPANY

Table No. 3

AMERICAN BASIN FISH SCREEN AND HABITAT IMPROVEMENT PROJECT

SCHEDULE OF PROJECTED QUARTERLY EXPENDITURES

Task Item	Task Name	Start	Finish	Project Budget	FY2003				FY2004				FY2005			
					1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
1	**Phase 1 - Feasibility Study**	**4/1/99**	**11/17/99**	**$170,000**												
2	**Phase II - Prelim. Design & Environ. Doc.**	**11/18/99**	**09/30/02**	**$280,000**												
3	**Phase III - Final Design and Permitting**	**4/1/02**	**5/31/03**													
3.1	Geotechnical & Surveying	6/10/02	12/31/02	$410,000												
3.2	Final Design	11/8/02	4/22/03	$1,235,000	$860,000	$185,000	$90,000									
3.3	Permits and Licenses	6/20/02	5/22/03	$160,000	$40,000	$30,000	30,000									
3.4	Project Management	4/1/02	5/22/03	$95,000	$25,000	$25,000	35,000									
	Total Phase III Budget			**$1,900,000**	**$925,000**	**$240,000**	**155,000**									
4	**Phase IV - Bidding & Construction**	**3/25/03**	**08/15/05**													
4.1	Construction	6/3/03	6/30/03	$21,250,000												
4.1.1	Sankey Diversion	6/3/03	03/31/05													
	Irrigation Relocations	6/3/03	06/30/03	$150,000			$150,000									
	Site Preparation	7/1/03	09/30/03	$150,000				$150,000								
	Facility Construction	8/15/03	03/31/05	$6,660,000				$685,000	$825,000	$100,000	$1,750,000	$1,750,000	$1,000,000	$550,000		
4.1.2	Elkhorn Diversion	6/3/03	03/31/05													
	Irrigation Relocations	6/3/03	06/30/03	$180,000			$180,000									
	Site Preparation	7/1/03	09/30/03	$150,000				$150,000								
	Facility Construction	8/15/03	03/31/05	$4,830,000				$510,000	$825,000	$100,000	$1,200,000	$1,200,000	$750,000	$245,000		
4.1.3	Distribution Facilities	6/3/03	09/30/04													
	Utility Relocations	6/3/03	06/30/03	$270,000			$270,000									
	Sankey Canal and Drain	8/15/03	06/30/04	$4,320,000				$550,000	$1,620,000	$1,620,000	$530,000					
	Bennett Check Re-Lift Pump Station	6/1/04	09/30/04	$456,000							$126,000	$330,000				
	Elkhorn Canal Improvements	8/15/03	03/31/04	$900,000					$350,000		$225,000		$325,000			
	Plant 3 and Riverside Canal Improvements	8/15/03	03/31/04	$840,000					$440,000	$100,000	$300,000					
	Drainage Canal Conveyance Modifications	6/1/04	09/30/04	$324,000							$124,000	$200,000				
4.1.4	Pumping Plant Demolition and Site Restoration	4/4/05	06/22/05	$240,000											$240,000	
4.1.5	Private Diverter Consolidation	10/1/04	06/22/05	$1,780,000							$1,000,000	$280,000	$500,000			
4.2	Construction Supervision	6/1/03	08/15/05	$1,420,000			$50,000	$210,000	$150,000	$170,000	$130,000	$210,000	$170,000	$120,000	$150,000	$60,000
4.3	Private Diverter Consolidation Facility Design	4/1/04	09/30/04	$180,000					$80,000	$100,000						
4.4	Environmental Compliance and Mitigation	7/1/03	09/30/04	$450,000				$250,000	$100,000	$20,000	$20,000	$20,000	$20,000	$10,000	$10,000	
4.5	Right-of-Way Acquisition	3/25/03	06/02/03	$1,500,000		$500,000	$1,000,000									
4.6	Testing and Evaluation	4/1/05	07/30/05	$100,000										$75,000	$25,000	
4.7	Project Management	3/25/03	07/30/05	$300,000		$35,000	$30,000	$30,000	$25,000	$20,000	$35,000	$35,000	$30,000	$35,000	$25,000	
	Total Phase IV			**$25,200,000**		**$535,000**	**$1,680,000**	**$2,535,000**	**$4,415,000**	**$2,230,000**	**$5,440,000**	**$4,025,000**	**$2,795,000**	**$1,035,000**	**$450,000**	**$60,000**
5	**Phase V - Testing and Monitoring**	**8/20/04**	**09/30/09**	**$250,000**											**$150,000**	**$100,000**
	Total Estimated Quarterly Expenditures			***$27,800,000***	***$925,000***	***$775,000***	***$1,835,000***	***$2,535,000***	***$4,415,000***	***$2,230,000***	***$5,440,000***	***$4,025,000***	***$2,795,000***	***$1,035,000***	***$600,000***	***$160,000***

Notes:

1 Funding for on-going testing and evaluation of the fish screen facilities, additional environmental mitigation and mitigation site monitoring will be requested when mitigation requirements are finalized.

PREPARED BY: MEAD & HUNT, INC.
PREPARED ON: OCTOBER 3, 2002

Natomas Mutual Water Company **Table No. 4**
American Basin Fish Screen and Habitat Improvement Project

Estimated Annual O&M Costs for Diversion Facilities

Item No	Description	Sankey Diversion	Elkhorn Diversion	Item Totals	Fish Screen Related Costs
1	Power Costs				
1.1	Lift Pumps	155,510	62,300	217,810	0
1.2	Fish Screen Cleaning System	4,100	2,200	6,300	6,300
1.3	Sediment Control Systems	1,940	1,360	3,300	3,300
1.4	Misc Equipment	3,855	4,540	8,395	1,067
2	Facility Equipment Maintenance Allowance				
2.1	Lift Pumps, Piping, Gates, Valves, and Meters	29,999	16,123	46,122	0
2.2	Intake Facility and Screens	14,835	7,404	22,238	22,238
2.3	Control Building and Electrical	12,214	9,824	22,038	11,019
3	Facility Equipment Replacement Allowance				
3.1	Lift Pumps, Piping, Gates, Valves, and Meters	13,317	8,173	21,489	0
3.2	Intake Facility and Screens	10,753	5,141	15,894	15,894
3.3	Control Building and Electrical	2,267	1,814	4,081	2,040
4	Screen Facility Inspections & Maintenance Divers, Crane, Dredging, Brush Replacement, etc.	28,000	15,000	43,000	43,000
	Total O&M Costs:	276,789	133,877	410,667	104,858

Notes:

1) Power costs determined based on Company's average annual diversion. The total diversion was then distributed to the two new diversions based on the respective capacities. The power use was determined using average water level in the Sacramento River during the irrigation season.

2) Facility Equipment Maintenance Allowances were determined using the Sacramento Disctrict COE's EDM 198, "Basis of Cost Estimates for Civil Works."

3) Facility Equipment Replacement Allowances were determined using the useful life from the COE's EDM 198, an interest rate of 8% and an inflation rate of 2%.

4) Screen Facility Inspections and Maintenance are costs associated with annual startup and shutdown of facilities and periodic inspection of the fish screens.

5) Fish Screen Related Costs are those costs associated with the facilities that would not be incurred if fish screens were not installed at the diversions.

6) The present worth of the Fish Screen Related Costs over the 40 year life of the facilities, using 6% Interest Rate and 2% Inflation Rate, is approximately $1,235,000.

Prepared by: Mead & Hunt, Inc.
Prepared on: September 25, 2002

Figure 1

Organizational Chart
Natomas Mutual Water Company's
American Basin Fish Screen and Habitat Improvement Project

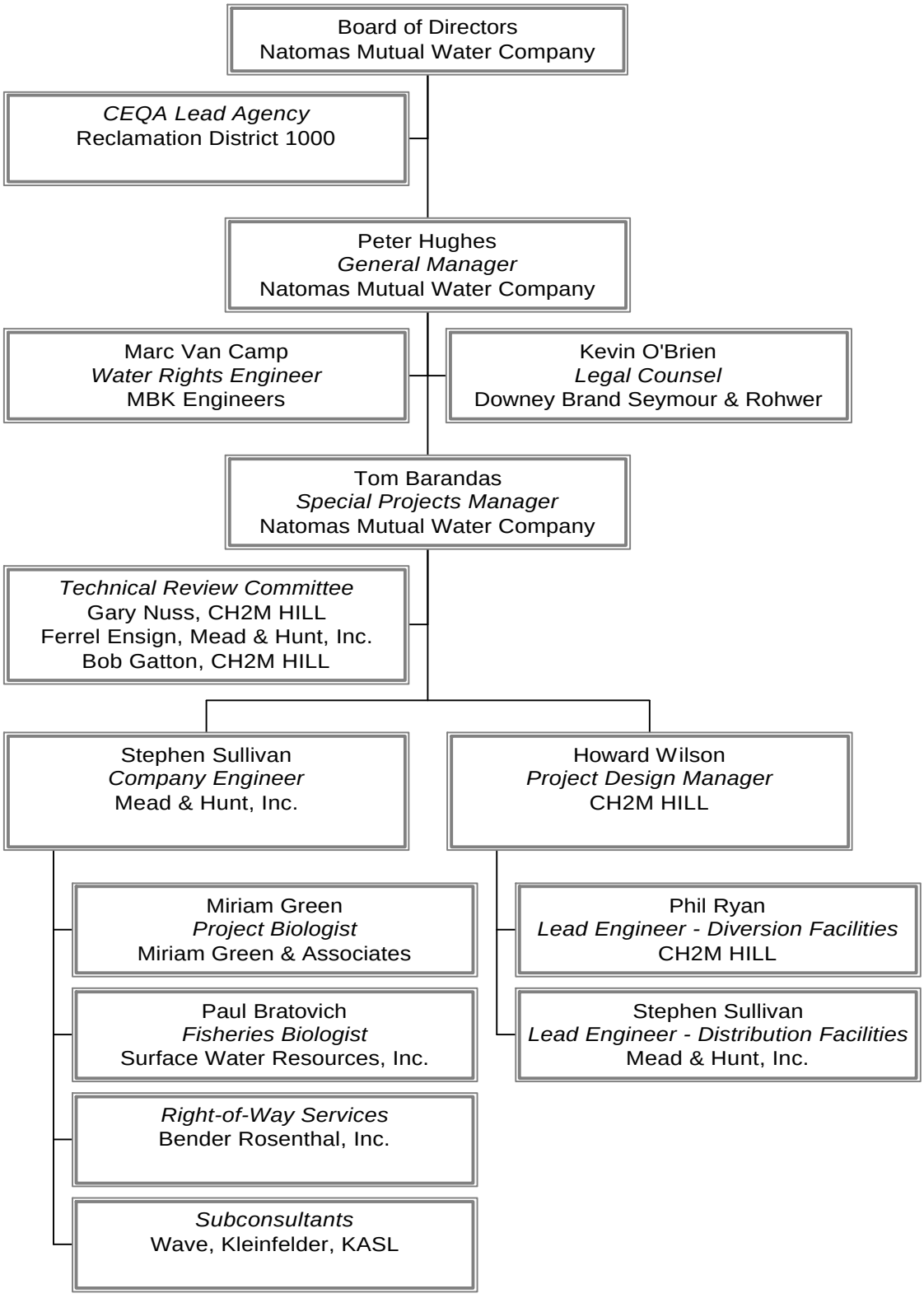
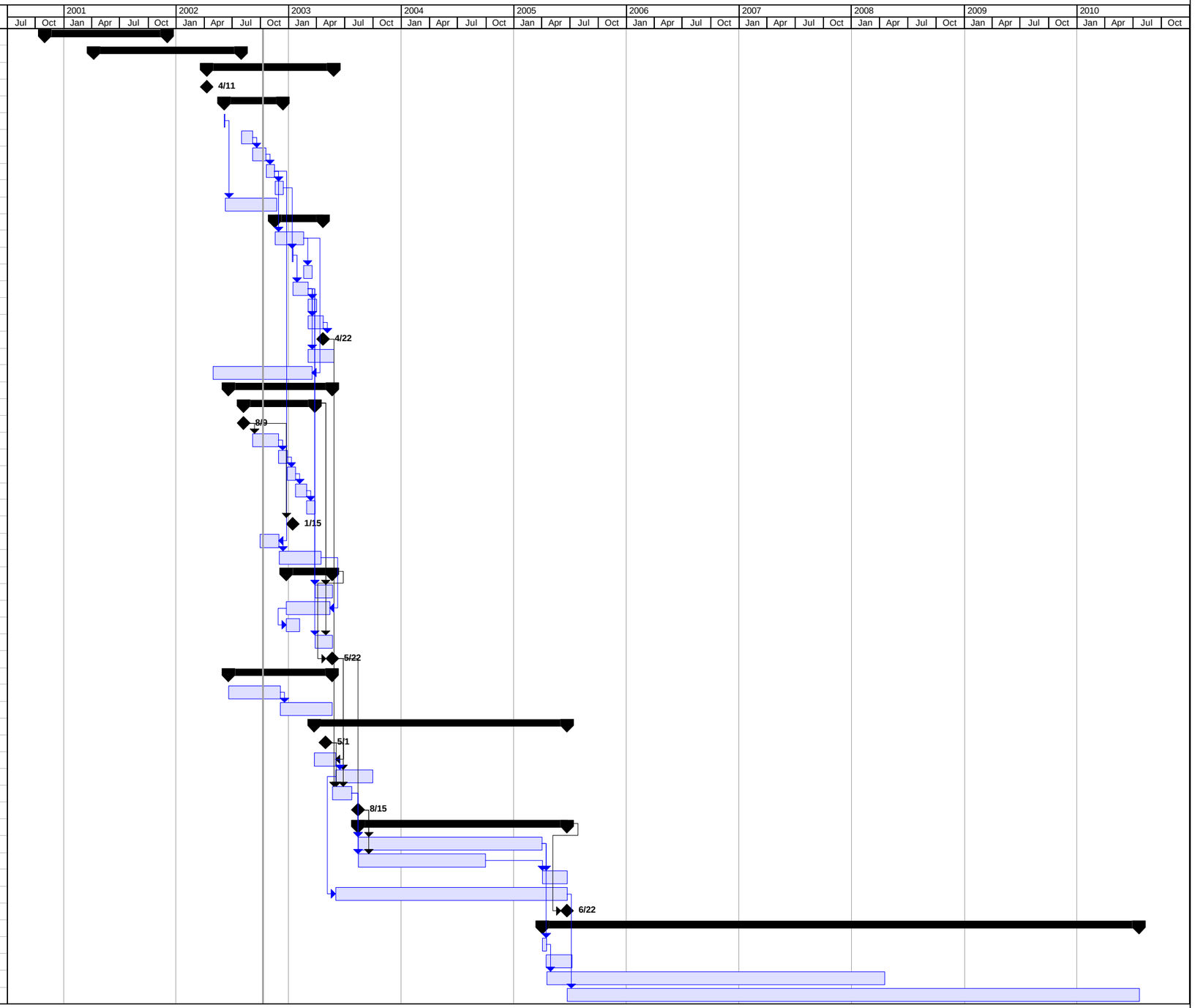


Figure 2

Natomas Mutual Water Company
American Basin Fish Screen & Habitat Improvement Project
Project Schedule Revised: September 30, 2002

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Phase I - Feasibility Study**	**284 days**	**11/1/00**	**12/3/01**	
3	**Phase II - Prelim Design and Environ Doc**	**343 days**	**4/9/01**	**7/31/02**	
8	**Phase III - Final Design and Permitting**	**294 days**	**4/11/02**	**5/27/03**	
9	Selection of Firm for Phase III, IV, & V	0 days	4/11/02	4/11/02	
10	**Design Development**	**137 days**	**6/6/02**	**12/13/02**	
11	Intake Design Workshop	2 days	6/6/02	6/7/02	
12	Agency Review and Approval of Design Basis	26 days	8/1/02	9/5/02	4
13	Delta Smelt Design Criteria	31 days	9/6/02	10/18/02	12
14	20% Submittal	20 days	10/21/02	11/15/02	13
15	Agency Review & Approval	20 days	11/18/02	12/13/02	14
16	**Geotechnical & Surveying**	**120 days**	**6/10/02**	**11/22/02**	**11**
17	**Final Design**	**112 days**	**11/18/02**	**4/22/03**	
18	50% Submittal	66 days	11/18/02	2/17/03	14
19	Senior Design/Budget Review Workshop	2 days	1/13/03	1/14/03	15FS+20 days
20	Agency Review & Approval	20 days	2/18/03	3/17/03	18
21	90% Submittal	35 days	1/15/03	3/4/03	19
22	Agency Review & Approval	20 days	3/5/03	4/1/03	21
23	Final Bid Set	35 days	3/5/03	4/22/03	21
24	Completion of Final Design	0 days	4/22/03	4/22/03	23
25	Screen Evaluation & Long Term O&M Plans	60 days	3/5/03	5/27/03	21
26	Right-of-Way Procurement	230 days	4/30/02	3/17/03	18FF+20 days
27	**Permits and Licenses**	**241 days**	**6/20/02**	**5/22/03**	
28	**Admin Draft & Public Review Environ Doc.'s**	**165 days**	**8/9/02**	**3/27/03**	
29	CEQA Lead Agency Approval	0 days	8/9/02	8/9/02	
30	Administrative Draft of EA/IS	60 days	9/6/02	11/28/02	29FS+20 days
31	Document Review	20 days	11/29/02	12/26/02	30
32	Public Draft of EA/IS, Mitigated Neg Dec, FONSI	20 days	12/27/02	1/23/03	31
33	Public Review	25 days	1/24/03	2/27/03	32
34	Final Environmental Documents	20 days	2/28/03	3/27/03	33
35	*Completion of Environmental Documents*	0 days	1/15/03	1/15/03	29
36	Biological Assessment	45 days	9/30/02	11/29/02	14FF+10 days
37	ESA Consultation	97 days	12/2/02	4/15/03	36
38	**Apply for Permits and Licenses**	**107 days**	**12/25/02**	**5/22/03**	
39	Reclamation Board Encroachment	40 days	3/28/03	5/22/03	21,28
40	COE Section 10 Permit	100 days	12/25/02	5/13/03	37FF+20 days
41	RWQCB Section 401 Certification	30 days	12/25/02	2/4/03	40SS
42	DF&G 1601 Permit	40 days	3/28/03	5/22/03	21,28
43	*Obtain Construction Permits and Licenses*	0 days	5/22/03	5/22/03	38
44	**Change in Point of Diversion**	**240 days**	**6/20/02**	**5/21/03**	
45	Private Diverter Participation	120 days	6/20/02	12/4/02	
46	Application Processing	120 days	12/5/02	5/21/03	45
47	**Phase IV - Bidding and Construction**	**587 days**	**3/25/03**	**6/22/05**	
48	*Initial Phase IV Funding Receipt - ROW and Site Prep*	0 days	5/1/03	5/1/03	
49	Execute Right-of-Way Agreements	50 days	3/25/03	6/2/03	48FF+23 days
50	Site Preparation & Relocations	86 days	6/3/03	9/30/03	49,43
51	Bidding Process	45 days	5/23/03	7/24/03	48,43,24
52	*Receipt of Remaining Phase IV Funding*	0 days	8/15/03	8/15/03	
53	**Construction**	**484 days**	**8/15/03**	**6/22/05**	
54	Intake Facility	426 days	8/15/03	4/1/05	43,51,52
55	Distribution Facility Construction	295 days	8/15/03	9/30/04	51,52
56	Interconnection and Demolition	58 days	4/4/05	6/22/05	54,55
57	Environmental Compliance and Mitigation	537 days	6/3/03	6/22/05	50SS
58	*Complete Construction*	0 days	6/22/05	6/22/05	53
59	**Phase V - Screen Evaluation & Monitoring**	**1384 days**	**4/4/05**	**7/22/10**	
60	Post Construction Screen Evaluation	10 days	4/4/05	4/15/05	54
61	Screen System Assessment	60 days	4/15/05	7/7/05	
62	Implement Long Term O&M Plan	784 days	4/18/05	4/17/08	60
63	Mitigation Site Monitoring	1326 days	6/23/05	7/22/10	57



Owner: Natomas Mutual Water Company
Prepared by: Mead & Hunt, Inc. & CH2MHILL
Printed on: 10/8/02

Attachment A
SUMMARY OF EFFORTS TO DATE
AMERICAN BASIN FISH SCREEN AND HABITAT IMPROVEMENT PROJECT

PROJECT DESCRIPTION:

The American Basin Fish Screen and Habitat Improvement Project is located in the Sacramento River Watershed in Sacramento and Sutter Counties. The Project involves the removal of a diversion dam and diesel lift pumps at the mouth of the Natomas Cross Canal, the consolidation of diversions, and the addition of state-of-the-art fish screens to NMWC's diversions on the Sacramento River, between Verona and the American River, and on the Natomas Cross Canal. See Figure A1 for details. The specific objectives of the project are to remove migration barriers; prevent straying and entrainment of winter-run Chinook salmon, spring-run Chinook salmon, fall-run Chinook salmon, late fall-run Chinook salmon, steelhead trout, splittail, green sturgeon, and other high risk species; and to improve aquatic, riverine, and riparian habitat.

SUMMARY OF EFFORTS:

Initial Planning: 1993 through 1999

- Initiated by: Natomas Mutual Water Company
- Funded by: Natomas Mutual Water Company
- Consultant: Ensign & Buckley, Consulting Engineers

Results of Planning: A detailed discussion of the following results are included in the Feasibility Study Technical Report, October 2000.

- Use of Positive Barrier Type Fish Screens
- Removal of facilities from the Natomas Cross Canal
- Consolidation of the Riverside Diversion to a new site
- Diversion Capacity Design Criteria
- Identification of Potential Funding Partners
- Secured Funding for Phases I & II

Phase I - Feasibility and Biological Assessment: September 1999 through January 2001

- Initiated by: Natomas Mutual Water Company
- Funded by: CALFED, US Bureau of Reclamation Anadromous Fish Restoration Program, Agreement No. 99-FC-20-0165 & CALFED Project No. 90-B29
- Consultant: Ensign & Buckley, Consulting Engineers

Results and Accomplishments: All results and accomplishments are discussed in the Feasibility Study Technical Report, October 2000, and a report on the Results of Special-Status Species Investigations in the Project area, November 2000.

Feasibility Study

- Established Baseline for Feasibility Study
- Identified, Evaluated and Compared Eight (8) Project Alternatives
- Coordinated Alternative Development with ASFP Tech Team
- Coordinated Alternative Development with COE's Garden Highway Levee Raising Project
- Prepared Feasibility Study Technical Report, October 2000
- Prepared Conceptual Design of Facilities for Pleasant Grove Mutual Water Company - Elected not to be Included in the Project
- Reviewed Technical Report with AFSP Tech Team
- Provided Site Visits for Agencies and Funding Partners
- Recommended Proposed Project to NMWC
- NMWC Board Approval of Recommend Proposed Project
- Initiated Contact with Private Diverters for Considerations to Join the Project

Biological Assessment

- Researched potential Occurrences of Special-Status Species within Project Vicinity including a computer search of the Natural Diversity Data Base.
- Conducted Field Surveys for Special Status Species throughout the Project Area including Swainson's Hawk Nesting Sites
- Coordinated with Agency Biologists
- Mapped Special-Status Species throughout the Project Area
- Prepare Report on Special-Status Species Investigations, November 2000

Phase II - Preliminary Design and Environmental Assessment: October 2000 to Date

- Initiated by: Natomas Mutual Water Company
- Funded by: CALFED, US Bureau of Reclamation Anadromous Fish Restoration Program, Agreement No. 99-FC-20-0165 & CALFED Project No. 90-B29
- Consultant: Ensign & Buckley, Consulting Engineers

Results and Accomplishments: Preliminary design drawings, design basis and internal draft of the environmental assessment available for review.

Preliminary Design:

- Prepared Preliminary Design of Proposed Project Facilities
- Prepared Project Basis of Design
- Modified Preliminary Design from Discussions during Project Team Workshop
- Coordinated with Affected Land Owners for Education of Proposed Project, Required Rights-of-Way, and Obtained Right-of-Entry Agreements for Field Investigations Associated with the Final Design
- Performed Velocity and Depth Surveys at Potential Diversion Sites
- Performed Bathymetric Survey at the Elkhorn Diversion Site
- Compiled Available Right-of-Way and Topographic Information
- Performed Field Verifications of Affected Facilities
- Prepared and Coordinated Design of Facilities for Private Diverter Participation
- Researched and Summarized Water Rights Information for Private Diverter Participation
- Summarized Water Rights Information for NMWC's Existing Diversions
- Presentations and Coordination with AFSP Tech Team
- Continued Coordination of the Preliminary Design with COE's Garden Highway Levee Raising Project
- Coordinated Preliminary Design with Other Interests in the Natomas Basin
- Secure Federal and State Funding for Phase III - Final Design and Permits & Licenses as Identified Below

Environmental Documents

- Continued Monitoring of Active Swainson's Hawk Nest Sites
- Performed Informal Consultation with Agency Biologists
- Performed Informal Coordination with Permitting Agencies
- Evaluated Canals and Ditches Affected by Project Activities
- Prepared Internal Draft of EA/IS
- Provided Site Tours for Agencies and Funding Partners
- Coordinated Identification of Appropriate CEQA Lead Agency
- Coordinated with Agencies regarding Delta Smelt

Phase III - Final Design and Permits & Licenses: January 2002 to Date

- Initiated by: Natomas Mutual Water Company
- Funded by: CALFED, US Bureau of Reclamation Anadromous Fish Restoration Program, Agreement No. 01-FG-20-0046 & CALFED Project No. 01-N60
- Consultant: Mead & Hunt, Inc. (formerly Ensign & Buckley Consulting Engineers)
  CH2M HILL

Results and Accomplishments:

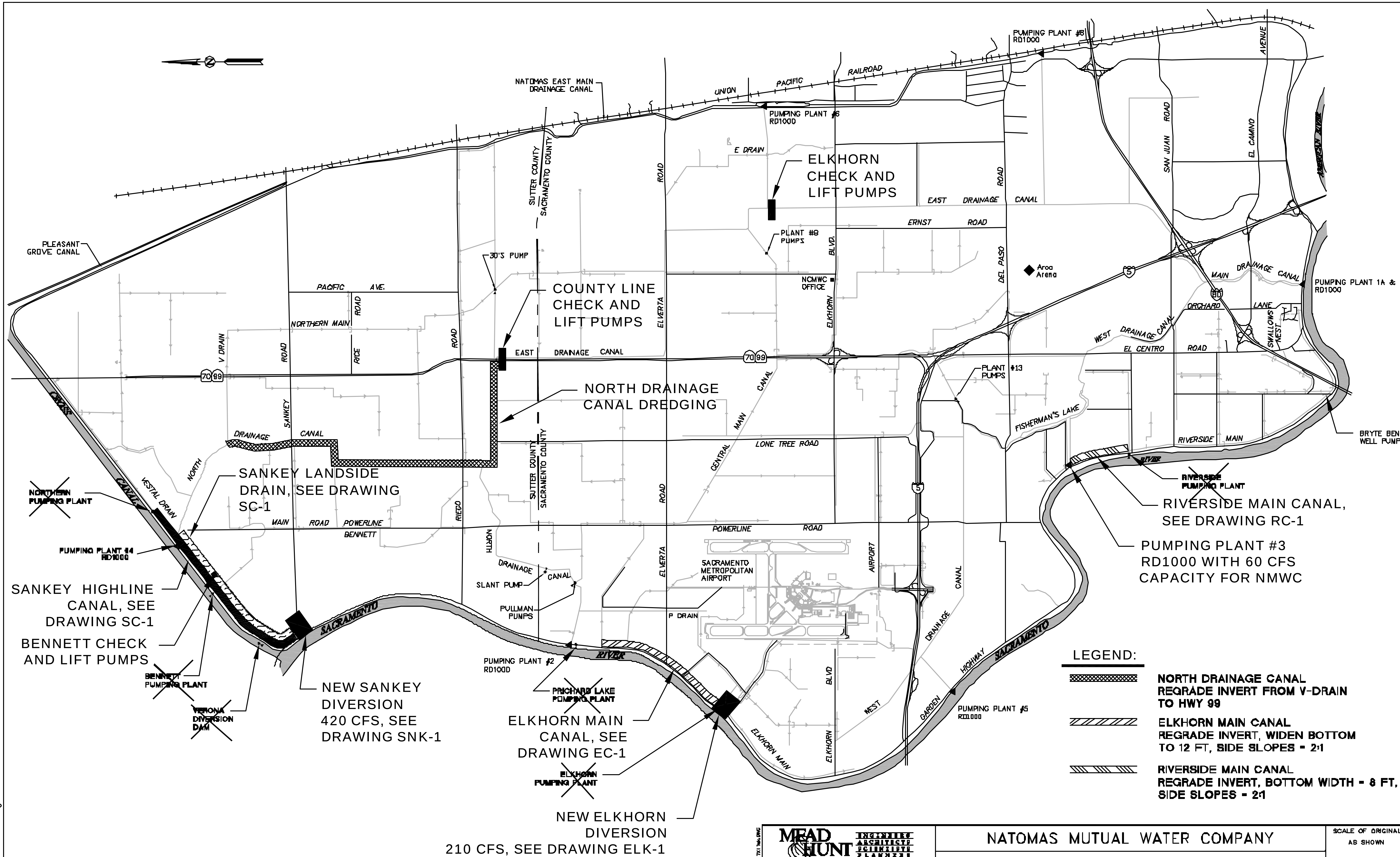
Final Design

- Selected CH2M HILL as Project Design Engineer
- Retain Mead & Hunt, Inc. as Company Engineer
- Negotiated All Subconsultant's Agreements

- Continued Coordination and Discussions with Affected Land Owners
- Ordered Preliminary Title Reports for Land Acquisition
- Established Project-Wide Control and Performed Aerial Mapping Work
- Continued Negotiations with Private Diverters on Participation
- Continued Design Development with AFSP Tech Team
- Continued Design Coordination with COE's Garden Highway Levee Raising Project and Other Stakeholders
- Secured Federal Funding for Initial Phase IV - Construction and Environmental Mitigation Agreement No 02-FG-20-0117

Permits and Licenses

- Approval of Reclamation District 1000 Board for Their Role as CEQA Lead Agency, August 2002



LEGEND:

NORTH DRAINAGE CANAL REGRADE INVERT FROM V-DRAIN TO HWY 99

ELKHORN MAIN CANAL REGRADE INVERT, WIDEN BOTTOM TO 12 FT, SIDE SLOPES = 2:1

RIVERSIDE MAIN CANAL REGRADE INVERT, BOTTOM WIDTH = 8 FT, SIDE SLOPES = 2:1

MEAD & HUNT ENGINEERS ARCHITECTS SCIENTISTS PLANNERS

8/19/2002

SUBMITTED | APPROVED

NATOMAS MUTUAL WATER COMPANY

AMERICAN BASIN FISH SCREEN PROJECT
RECOMMENDED PROJECT
PROJECT COMPONENTS (FIGURE A1)

SCALE OF ORIGINAL: AS SHOWN

DWG. NO A1 | SHEET

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

Project Phase	CALFED Project No.	Financial Status	Current Status
Phase I - Feasibility Study and Biological Assessment	90-B29	Budget: $90,000 Expenditures: $85,130.01 Income: $85,130.01	Complete Feasibility Technical Report Complete Special-Status Species Report Complete
Phase II - Preliminary Design and Environment Documents	90-B29	Budget: $110,000 Expenditures: $104,395.66 Income: $104,395.66	On-going Preliminary Design Complete Internal Draft of EA/IS Complete
Phase III - Final Design and Permits and Licenses	01-N60	Budget: $950,000 Expenditures: $27,707.91 Income: $24,937.13	On-going

Project Phase	CVPIA Project No.	Financial Status	Current Status
Phase I - Feasibility Study and Biological Assessment	99-FC-20-0165	Budget: $80,000 Expenditures: $84,663.61 Income: $84,663.61	Complete Feasibility Technical Report Complete Special-Status Species Report Complete
Phase II - Preliminary Design and Environment Documents	99-FC-20-0165	Budget: $170,000 Expenditures: $158,060.50 Income: $158,060.50	On-going Preliminary Design Complete Internal Draft of EA/IS Complete
Phase III - Final Design and Permits and Licenses	01-FG-20-0046	Budget: $950,000 Expenditures: $27,707.91 Income: $27,707.91	On-going