Bahia Acquisition and Tidal Wetland Restoration

Project Information

1. **Proposal Title:**

   Bahia Acquisition and Tidal Wetland Restoration

2. **Proposal applicants:**

   Barbara Salzman, Marin Audubon Society

3. **Corresponding Contact Person:**

   Barbara Salzman
   Marin Audubon Society
   Box 599 Mill Valley, California 94942-0599
   415 924-6057
   bsalzman@worldnet.att.net

4. **Project Keywords:**

   Endangered Species
   Habitat Restoration, Estuarine shallow water
   Wetlands, Tidal

5. **Type of project:**

   Implementation_Full

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

   Yes

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

   No

7. **Topic Area**:

   Shallow Water, Tidal and Marsh Habitat

8. **Type of applicant:**

   Private non-profit

9. **Location - GIS coordinates:**

Latitude:	38.129
Longitude:	-122.525
Datum:	NAD27

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

The project location is 654 acres of diked historic wetlands, approximately 0.5 miles west of the Petaluma River and to the south of Black John Slough.

10. **Location - Ecozone:**

    2.4 Petaluma River

11. **Location - County:**

    Marin

12. **Location - City:**

    Does your project fall within a city jurisdiction?

    Yes

    If yes, please list the city: Novato

13. **Location - Tribal Lands:**

    Does your project fall on or adjacent to tribal lands?

    No

14. **Location - Congressional District:**

    6

15. **Location:**

    California State Senate District Number: 3

    California Assembly District Number: 6

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: 3000

b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

California Coastal Conservancy $6,000,000

Marin Open Space District $1,000,000

c) Do you have potential cost share partners?

Yes

If yes, list partners and amount contributed by each:

Wildlife Conservation Board $4,500,000

Marin Community Foundation $2,000,000 to $4,000,000

Lucille and David Packard Foundation $1,000,000 to $2,000,000

Private Donations $1,300,000

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

No

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

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

No

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

Yes

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

1142091020 Petaluma Marsh Expansion Project N/A

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

    No

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

    No

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

    No

    Please list suggested reviewers for your proposal. (optional)

Peter Baye	**United States Fish and Wildlife Service**	**(916) 979-2743**	**Peter_Baye@fws.gov**
Carl Wilcox	**Department of Fish and Game**	**(707) 944-5525**	**cwilcox@dfg.ca.gov**
Nadine Hitchcock/Terri Nevins	**California Coastal Conservancy**	**(510) 286-1015**	**tnevins@scc.ca.gov**
Michael Monroe	**United States Environmental Protection Agency**	**(415) 744-1963**	**monroe.michael@epamail.epa.gov**

21. **Comments:**

Environmental Compliance Checklist

Bahia Acquisition and Tidal Wetland Restoration

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

      Yes
   b) Will this project require compliance with NEPA?

      No
   c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.

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

   CEQA Lead Agency: California Coastal Conservancy or County of Marin
   NEPA Lead Agency (or co-lead:) None
   NEPA Co-Lead Agency (if applicable): None

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

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

   NEPA
   -Categorical Exclusion
   -Environmental Assessment/FONSI
   -EIS
   Xnone

   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.

      Final document to be completed June, 2004

   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	Required
General Plan Amendment	
Specific Plan Approval	Required
Rezone	
Williamson Act Contract Cancellation	
Other	

STATE PERMITS AND APPROVALS

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

FEDERAL PERMITS AND APPROVALS

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

PERMISSION TO ACCESS PROPERTY

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

Permission to access state land.
Agency Name:

Permission to access federal land.
Agency Name:

Permission to access private land.
Landowner Name:

6. **Comments.**

Land Use Checklist

Bahia Acquisition and Tidal Wetland Restoration

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: 654
      Easement: 0
      Total: 654

   b) Will existing water rights be acquired?

      No

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

      No

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

   No

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

   No

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

   The proposal involves restoring to tidal action 333 acres of currently diked wetlands. This action will alter the hydrologic regime and vegetation of an area that is currently seasonal wetlands.

4. **Comments.**

Conflict of Interest Checklist

Bahia Acquisition and Tidal Wetland Restoration

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):

Barbara Salzman, Marin Audubon Society

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

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

Jeff Haltiner	Philip Williams & Associates
Nadav Nur	Point Reyes Bird Observatory
B. K. Cooper	Cooper Crane & Rigging
Steve Bollins	San Francisco State University

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Jeff Haltiner Philip Williams & Associates

Ken Swartz Philip Williams & Associates

Rose Patenaude Philip Williams & Associates

Nick Garrity **Philip Williams & Associates**

Nadav Nur **Poiny Reyes Bird Observatory**

Comments:

Budget Summary

Bahia Acquisition and Tidal Wetland Restoration

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.

State Funds

Year 1												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Proposed CALFED Contributions to Land Acquisition	0	0	0	0	0	0	0	2,000,000	2000000.0	0	2000000.00
2	Baseline Monitoring and Data Collection	0	0	0	0	0	181,500	0	0	181500.0	0	181500.00
3										0.0		0.00
		0	0.00	0.00	0.00	0.00	181500.00	0.00	2000000.00	2181500.00	0.00	2181500.00

Year 2												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
3	Preliminary Design	0	0	0	0	0	76,000	0	0	76000.0	0	76000.00
4	Design Refinement	0	0	0	0	0	30,000	0	0	30000.0	0	30000.00
5	Permitting	0	0	0	0	0	15,000	0	0	15000.0	0	15000.00
6	Final Design	0	0	0	0	0	20,000	0	0	20000.0	0	20000.00
		0	0.00	0.00	0.00	0.00	141000.00	0.00	0.00	141000.00	0.00	141000.00

Year 3												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
5	Permitting	0	0	0	0	0	15,000	0	0	15000.0	0	15000.00
6	Final Design	0	0	0	0	0	180,000	0	0	180000.0	0	180000.00
7	Construction	0	0	0	0	0	790,000	0	0	790000.0	0	790000.00
8	Project Monitoring Plan	0	0	0	0	0	37,500	0	0	37500.0	0	37500.00
		0	0.00	0.00	0.00	0.00	1022500.00	0.00	0.00	1022500.00	0.00	1022500.00

Grand Total=3345000.00

Comments.

Budget Justification

Bahia Acquisition and Tidal Wetland Restoration

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Philip Williams & Associates Principal $155/hr Director $140/hr Senior Associate $130/hr Associate $105/hr Field Services/Surveyor $90/hr Hydrologist $80/hr Graphics/CADD Production $75/hr Secretary/Report Production $65/hr Technicians $50/hr Expenses are invoiced at 115% of cost Point Reyes Bird Observatory: Principal Investigator $50/hr Supervisory Field Biologist $35/hr

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Barbara Salzman, Marin Audubon Society -- In kind.

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

Barbara Salzman, Marin Audubon Society -- In kind.

Executive Summary

Bahia Acquisition and Tidal Wetland Restoration

The project will acquire and permanently protect the 654-acre Bahia property on the lower Petaluma River, in the City of Novato, Marin County, restore 333 acres of diked wetland to tidal marsh, and permanently protect the remainder of the wetland, native Blue Oak woodland and grassland habitat. The Marin Audubon Society will acquire the site with funding from many partners, and manage the preparation and construction of the restoration plan. The plan will be developed in partnership with the respected hydrologic consulting firm, Philip Williams & Associates, Ltd. and the Point Reyes Bird Observatory. The property will be protected in the long-term ownership of the Marin County Open Space District and possibly the California Department of Fish and Game. The primary stressor that will be addressed is the removal of a levee, which will restore significant tidal marsh acreage, natural salinity regimes, channel complexity, upland-wetland ecotone, upland refugia, and currently fragmented floodplain. It will also maintain connectivity, enrich food chain support, improve water quality, and enhance the value of regional wetland habitats. Ecosystem Restoration Program benefits will also accrue for many CALFED target species, including: all runs of Chinook salmon, steelhead, splittail, Delta smelt, longfin smelt and green sturgeon, salt marsh harvest mouse, California clapper rail, San Pablo song sparrow, salt marsh yellow throat, neotropical migratory songbirds, waterfowl and shorebirds. The project has broad community and political support.

Proposal

Marin Audubon Society

Bahia Acquisition and Tidal Wetland Restoration

Barbara Salzman, Marin Audubon Society

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LIST OF FIGURES

A. PROJECT DESCRIPTION: PROJECT GOALS AND SCOPE OF WORK

A.1 Problem

This proposal addresses the significant loss of tidal wetlands and decline in endangered species populations in the San Francisco Bay-Delta system with a significant wetland restoration project in the North Bay region and the Petaluma River watershed.

The project goal is to acquire and permanently protect a significant area of historic tidal wetlands and adjacent uplands and to restore the former wetlands to tidal marsh (Figure 1). Acquiring the 654-acre Bahia site, developing a plan to restore 333 acres of currently diked wetlands to tidal action and implementing that plan will achieve this goal. To achieve these objectives, $3,345,000 is requested: $2 million to assist in the site purchase (along with contributions from many other sources), and $1,345,000 for design, to acquire permits and implement the restoration plan. The total purchase price of the land is $18.3 million.

The 654-acre Bahia property (Figure 2) is located in the lower Petaluma River less than a mile upstream from its mouth, within the city of Novato, Marin County. The Bahia site is strategically located to protect and restore habitat because it is virtually surrounded by publicly owned marshes. The site is bordered on the east by tidal marshes of the Petaluma River that are owned by the State Lands Commission, on the north by tidal marshes and Black John Slough, and on the west and southwest by Cemetery Marsh (a managed, muted tidal marsh) and oak woodlands owned by the Marin County Open Space District. An existing development, a community of 288 homes, a cemetery and property owned by the Novato Horsemen's Association is located along the southern boundary.

Historically, the North Bay region contained extensive tidal marshes (Figure 3). Diking for agriculture and filling for urbanization have reduced tidal marshes to less than 30 percent of their historic extent. All that remains of the once extensive tidal marshes of the lower Petaluma River are fringe marshes along diked baylands and Black John Slough. The Bahia site was diked for agricultural use, but has not been cultivated in more than 30 years. Since being diked, the site has subsided several feet and some seasonal wetlands have developed.

While the existing diked wetlands do provide some habitat for the salt marsh harvest mouse and seasonal habitat for waterfowl and shorebirds, they have minimal complexity, significantly reduced ecological richness, limited habitat for endangered species, and provide no fish habitat. Furthermore, other shallow, seasonal wetlands already exist in the area and are available to provide these functions. Productive shallow muted-tidal ponded wetlands exist at the nearby Rush Creek and Cemetery Marshes, and extensive seasonal wetlands exist in the Gnoss Field and lower Petaluma River area. The critical need in the lower Petaluma River area is for additional tidal wetlands.

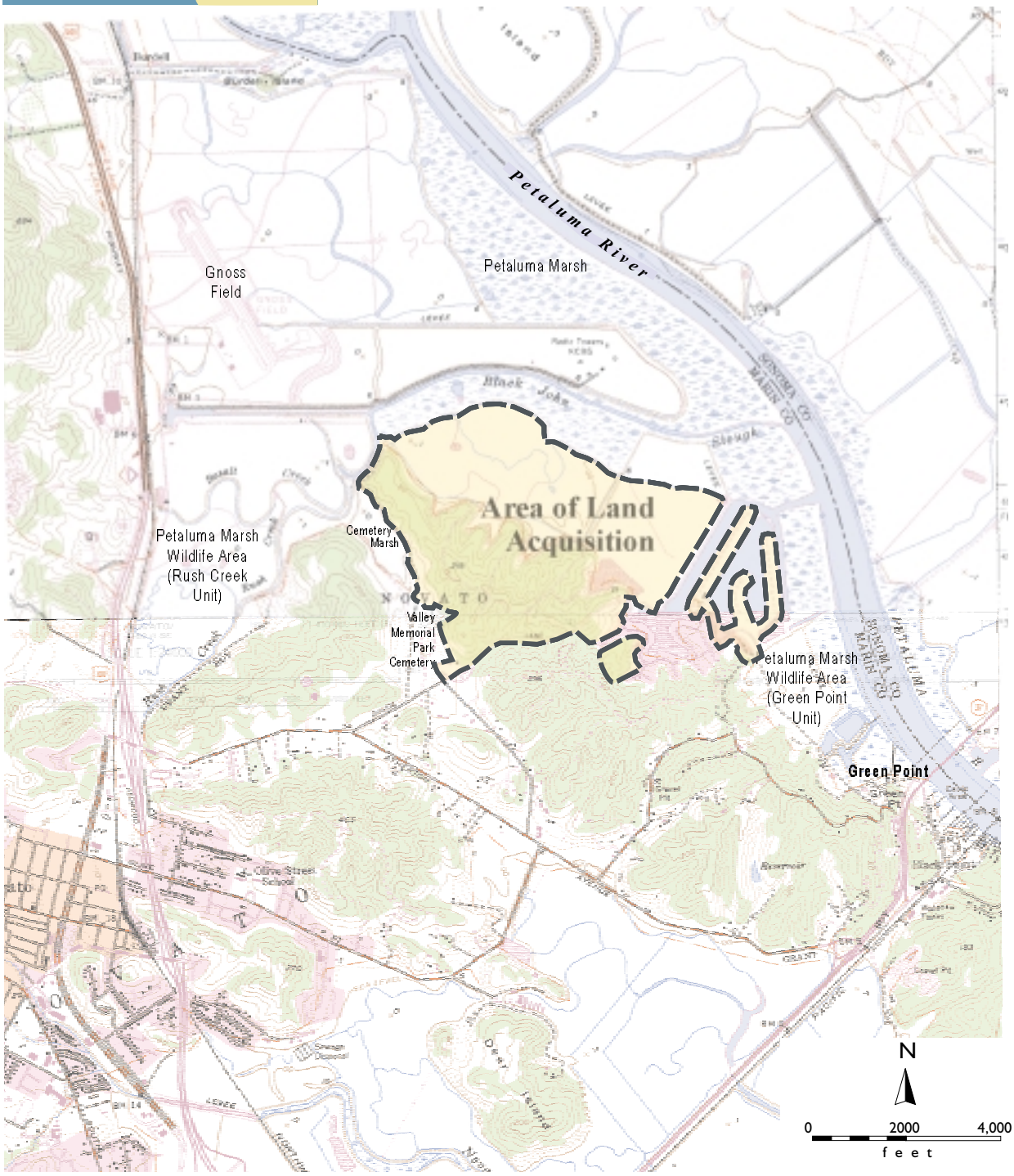
The Bahia site is under imminent threat of development. A 424-unit housing development was approved last December by the City of Novato. However, a successful citizen-led movement resulted in a city referendum, which supports site acquisition/restoration. The referendum has postponed any development plans for the site. The proposed project seeks CALFED participation in an exciting restoration project that has broad citizen and scientific support, in addition to support from other important funding and regulatory agencies. If the site is not acquired by March 2002, the owner/developer has stated that he will return with another project or sell the property (Figure 4).

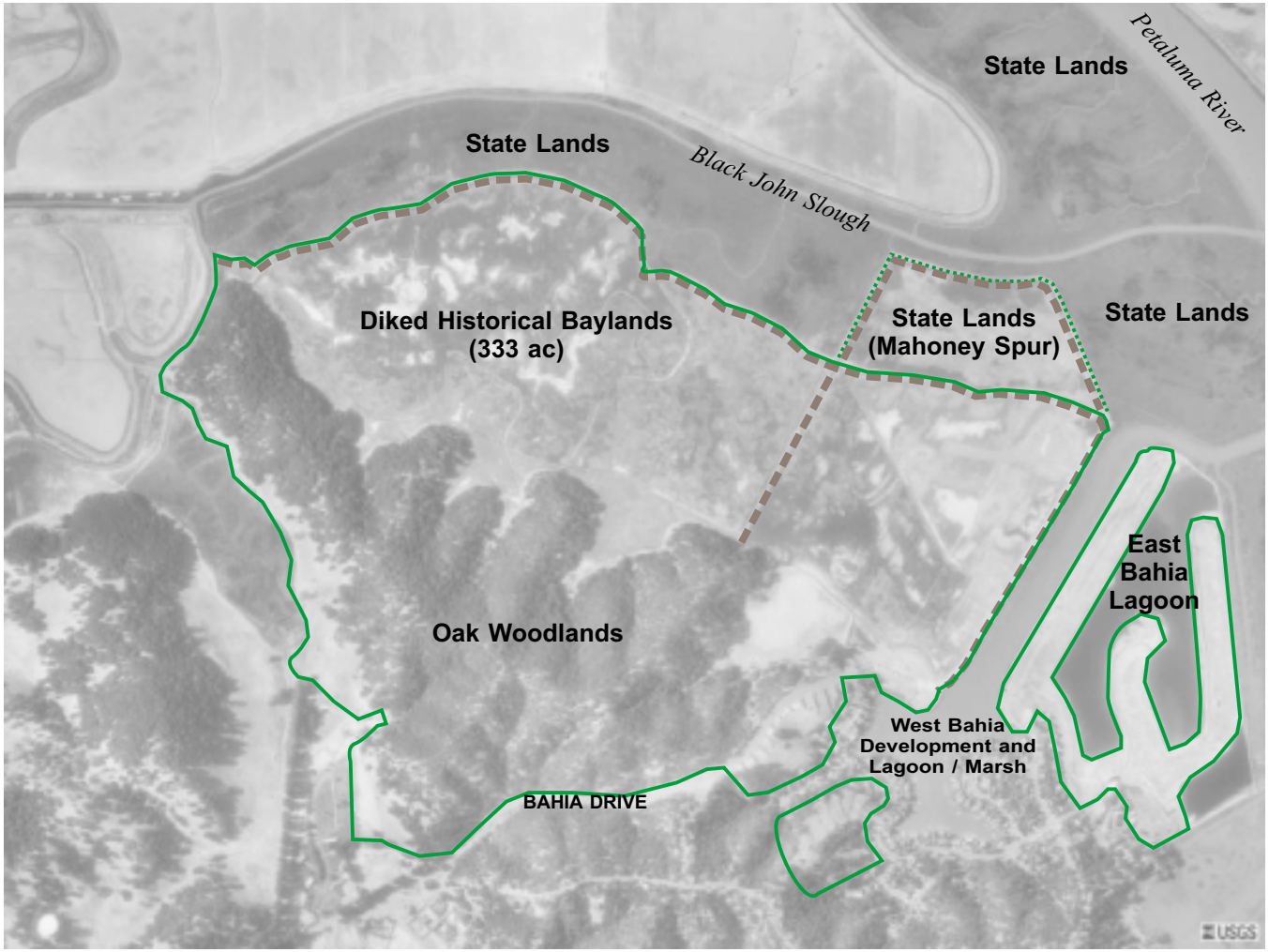
figure 1

Regional & Project Location

Bahia Wetlands

Prop. # 01-120 LocMap.cdr PWA





LEGEND

Restoration Site Boundary

Potential addition to restoration site

levee

N

0 1,000 2,000

feet

figure 2

Restoration Site

Bahia Wetlands

Prop. # 01-120 RestSite.cdr

PWA

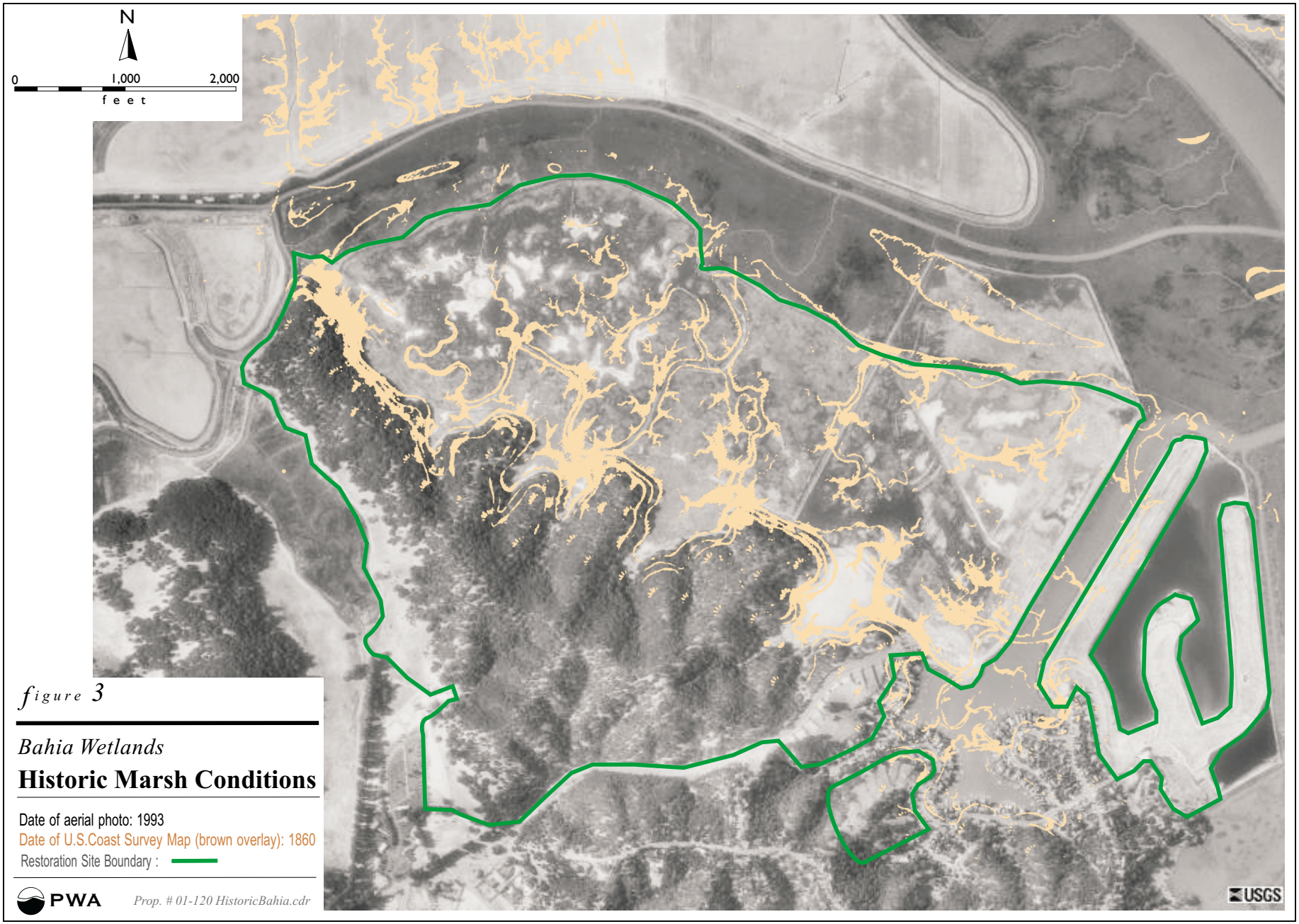


figure 3

Bahia Wetlands

Historic Marsh Conditions

Date of aerial photo: 1993

Date of U.S.Coast Survey Map (brown overlay): 1860

Restoration Site Boundary :

PWA

Prop. # 01-120 HistoricBahia.cdr

figure 4

Marin Independent Journal

Bahia property to be sold

Marin Audubon Society agrees to buy acreage from developer

By Mark Prado
IJ reporter

The 654-acre Bahia property in Novato, which has been the subject of emotionally charged debates and a ballot referendum, will be purchased by the Marin Audubon Society if the organization can come up with $18.3 million by March 1.

"We have an agreement and now we have to raise the money," said Marin Audubon president Barbara Salzman, who announced the deal yesterday.

Attorneys representing Marin Audubon and Sonoma County developer Art Condiotti, who owns the property, have been working on the deal for the last seven months.

"Art has signed a letter of intent on a sales agreement provided they come up with a $150,000 non-refundable payment now and the rest by March 1," said Herb Williams, Condiotti's spokesman. "They have six months to walk the walk. It's one thing to posture politically and another to really do something."

Condiotti, who built 100 of the 288 homes in the existing Bahia subdivision, has owned the property, originally zoned for 2,200 homes, for the past 23 years.

He was repeatedly unsuccessful in his Bahia expansion plans until he scaled down the number of homes to 424.

That plan won approval from the Novato City Council in January.

But the city-approved plan still was not palatable to some critics who created Citizens to Save Bahia, a group whose volunteers quickly collected more than 5,000 petition signatures — more than twice as many as needed — to force a May referendum.

In that election, voters overwhelmingly rejected the 424-home plan. Williams said the vote had nothing to do with Condiotti's decision to agree to sell the property.

Lynn Emrich, co-chairwoman of Citizens to Save Bahia, said she was happy to hear the news.

"Oh wonderful," she said. "That's what we were fighting for to happen, to have that land permanently preserved as open space. The voters of Novato made it clear that they didn't want the land developed. ... Anyone who has wanted that land to be saved, now is the time to come forward."

A major fund-raising campaign will get under way to complete the purchase, Salzman said. Audubon is seeking contributions from all sources, including state and federal agencies, private foundations and individual donors.

Salzman said she expects the purchase will be a cooperative effort with multiple partners, such as the California Coastal Conservancy and the Wildlife Conservation Board.

IJ photo/Frankie Frost

BUYING BAHIA: Barbara Salzman, president of the Marin Audubon Society, walks in Bahia with consulting hydrologist Jeffrey Haltiner, vice president of Philip Williams and Associates, hydrology consultants. The Society plans to buy the land in the background.

IJ map

"The public has given a clear message that they want to protect these important habitat sites."

— Barbara Salzman, president Marin Audubon Society

Bahia

From page B1

The fund-raising effort will be handled by the Marin Baylands Advocates, which works with Marin Audubon toward preservation of bay lands.

Environmental groups have sought for years to preserve Bahia, which includes 333 acres of diked salt marsh, 18 acres of seasonal wetlands, coves created by hills extending to the water and a 214-acre blue oak forest.

"The public has given a clear message, through the Bahia referendum and also the incredible support the Campaign for Marin Baylands has received, that they want to protect these important habitat sites," Salzman said.

Bahia's diverse habitats support a broad array of species. More than 120 species of birds have been observed on the site along with 10 special-status bird species, including the endangered Clapper Rail, Black Rail and San Pablo Song Sparrow.

If Marin Audubon's fund-raising effort falls short, Williams said Condiotti is ready to come back with a variety of plans.

"He could revise the project, scale it back or just sell the property to someone else," Williams said.

Salzman hopes the deal can be completed.

"We are pretty confident, but it is not a sure thing," she said.

Contact Mark Prado via e-mail at mprado@marinij.com

Permanent protection will be ensured by fee title ownership of the property by an agency or organization that will ensure long-term protection and maintenance of the restored site. Long-term ownership/management is currently being addressed. The Marin County Open Space District and the California Department of Fish and Game are both potential management agencies. The Bahia property is also within the Study Area boundary for the U.S. Fish and Wildlife Service Marin Baylands National Refuge, (another potential property owner). Alternatively, the property could be subdivided with multiple agency oversight and ownership. The Marin Audubon Society (MAS) Articles of Incorporation restrict property ownership to habitat purposes. As such, MAS, could hold the site, implement the restoration process, and then transfer title to one or more public agencies. A similar process will occur on other restoration sites that MAS has recently acquired. MAS could also potentially own a portion of the property in the long-term.

Restoration of the wetland to a natural tidal system will facilitate stewardship because minimal maintenance will be required.

A.2 Justification

This project directly supports the primary elements of the CALFED Ecosystem Restoration Program by restoring 333 acres of tidal marsh, permanently protecting 654 acres of baylands and associated uplands, and removing the potential threat of urbanization at the site. These activities will assist in the recovery of endangered and other special status fish and other wildlife along the Petaluma River, a high priority location for CALFED.

The primary stressor at Bahia is the presence of levees that alter and block tidal flows to the historic marshes. Diked baylands historically respond to levees by drying/subsidence, altered salinity patterns, adverse changes in soil chemistry, and the loss of native marsh vegetation, channel complexity and reduced species diversity. At Bahia, populations of fish and wildlife have been extirpated and other species have declined as a result of the placement of levees. These physical factors have contributed to the decline of species in the region and the Bay-Delta ecosystem. Many of these species are listed as endangered, rare or threatened, and are identified by CALFED as a high priority for recovery.

Breaching and lowering portions of remaining levees will restore significant tidal wetland acreage, natural salinity regimes, channel complexity and vegetative habitat. A restored Bahia marsh will support the recovery of endangered and special status birds and fish. A restored marsh will also provide habitat for anadromous and estuarine fish, migratory birds, and contribute to the recovery of the Bay-Delta estuary as a whole. Restoration activities will also improve the important upland-wetland ecotone and provide high-tide refugia habitat along the upland-wetland interface and remnant levees that will remain as islands.

An uncertainty that will be addressed as a design decision is whether to restore immediate full tidal circulation to the entire site, or introduce tidal action more gradually to allow some of the diked wetland habitat to initially remain to support the existing salt marsh harvest mouse population as it inhabits the diked portion of the site. This uncertainty will be resolved during the planning process.

This project complies with the categories of “Special Status Species” and “Restoration of Multiple Habitats” on Figure 2 of the Multi-Region ERP Restoration Investment.

The project will be a Full Scale Restoration project because sufficient information is available on tidal wetland restoration techniques in the region to support this categorization. Other North Bay restoration projects that provide important design experience and data to guide and inform the Bahia restoration project include the Sonoma Baylands project, restoration of Carl's Marsh, Gallinas Creek restoration, and the Muzzi Marsh restoration. In addition, valuable experience applicable to the restoration of subsided sites is available from the Project Team implementation experience on Warm Springs Marsh and the Cooley Landing site in the South Bay.

The project is further justified by regional comprehensive plans and programs sponsored by regulatory agencies. More specifically, the proposed restoration project at Bahia will implement the goals and policies of:

San Francisco Estuary Project Comprehensive Conservation and Management Plan
Action WT-4.1 *"expand the wetland resource base by restoring, enhancing and creating wetland resources."* Action WL-1.3 *"implement concerted efforts to acquire wetlands already degraded or destroyed and restore them so that the wetlands in the Estuary are increased by 50 acres."*

Baylands Ecosystem Habitat Goals Project
Key considerations for restoring the North Bay region include: large, connected patches of tidal marsh habitat centered on existing populations of species of concern (e.g. salt marsh harvest mouse, California clapper rail); the placement of tidal marshes along the edge of the Bay at mouths of tributary streams to maximize benefits for aquatic organisms; incorporating natural features such as large tidal channels; providing natural habitat transitions between bayland habitats and adjacent upland habitats; providing habitat required by many special status plant species; and maintaining upland buffers to protect all existing and restored wetland habitats from disturbance.

Specific goals for the North Bay and Petaluma River area include: restoring a tidal marsh on both sides of the Petaluma River; increasing the area of tidal marsh in the North Bay from 16,000 to over 38,000 acres; providing natural transitions at the marsh/ecotone and buffers in adjacent upland; protecting oak woodlands and mixed evergreen forest along the entire ridge and hillslopes from Black Point to Rush Creek, and protect the ecotone at the base of the slopes.

San Francisco Bay Joint Venture Implementation Strategy
This strategy recommends acquiring 42,000 acres and restoring 15,000 acres of tidal marsh habitat in the North Bay Sub Region.

San Francisco Bay Conservation and Development Commission's Bay Plan
The Bay Plan policy recommends that *"marshes should be maintained to the fullest possible extent to conserve fish and wildlife and to abate air and water pollution (and that)...former marshes should be restored when possible through removal of existing dikes…"*

California Regional Water Quality Control Board Basin Plan
The Basin Plan relies on the State of California wetlands policy which calls for *"...a long-term gain in the quantity, quality, and permanence of wetland acreage and values...."* and Senate Concurrent Resolution No. 28 states that *"it is the intent of the legislature to preserve, protect and enhance California's wetlands and the multiple resources which depend on them for the benefit of the people of the state."*

A.3 Project Approach

The Bahia Restoration Project Team will consist of a multi-disciplinary group of wetland scientists, planners, and professionals from the MAS; Philip Williams & Associates, Ltd. (PWA); and the Point Reyes Bird Observatory (PRBO). Qualifications for participating staff members are provided below. In addition, experts on vegetation and wildlife (including listed species) from the U.S. Fish and Wildlife Service and the California Department of Fish and Game will support the project on key biologic and habitat issues, selection of the preferred restoration plan, and assistance with permitting and regulatory issues.

The project approach is organized as a series of tasks to be conducted in sequence. Certain tasks are split into subtasks for greater description of the methods needed. The sequence of these tasks will be further clarified in the *Work Schedule, Section A.7*.

A.3.1 Task 1: Land Acquisition

The site will be acquired during the first year, as described in the *Problem* statement, *Section A.1*. A range of funding sources is necessary to acquire the restoration site. CALFED funding represents one of a number of key funding sources. Additional details regarding the final acquisition process will be clarified during Spring 2002.

A.3.2 Task 2: Baseline Monitoring and Data Collection

A.3.2.1 Assessment of Existing Physical, Geomorphic, Hydrologic, and Biologic Conditions

The project team will gather and review information to assess both existing and historic conditions at the wetland site. The data review process shall include a review of past studies, base maps, aerial photos, available topographic information, and establishing a project GIS database. Tidal conditions adjacent to the site, and potential hydrologic regime will be characterized and compared with the site's existing morphology. To characterize biological resources, critical habitat determinations will be made based upon CALFED target species including anadromous, estuarine, and marine fish, salt marsh harvest mouse, California clapper rail, California black rail, San Pablo song sparrow and included in the project GIS database.

A.3.2.2 Identification of Additional Data Needs

Based on the review of existing information, additional data needs will be identified and a work plan developed to acquire this data. It is expected that certain hydrologic and biologic data needs will be addressed in the *Baseline Monitoring Program.* Topographic and geotechnical information regarding site elevations, soil conditions, and levee conditions will be obtained as needed to inform the design process. Potential future sedimentation rates for the site will be determined based on a combination of empirical field evidence from nearby projects and computer modeling approaches. Sedimentation rates can be verified from results from the Carl's Marsh project on the opposite bank of the Petaluma River.

A.3.2.3 Baseline Monitoring Program

Monitoring of baseline physical conditions at the restoration site will begin with project initiation. Site topography, potential tidal range, inundation frequencies, and existing adjacent channel morphology will be documented. The project team will establish a benchmark network for elevation control throughout the baseline study, design phase,

implementation process, and for use in long-term monitoring. Sediment monitoring stations will be installed to assess future depositional rates, patterns, and marsh evolution once tidal circulation is restored. In addition, a program for "re-photography" and repeat aerial photography (ortho-rectified) will be used to assess marsh development.

Biological monitoring of the site will include CALFED target species of anadromous, estuarine and marine fish, birds (particularly California clapper rail, black rail, San Pablo song sparrow, and salt marsh common yellowthroat), other migratory waterfowl and shorebird species, and salt marsh harvest mouse. Existing vegetation distributions and delineations will be mapped for reference.

Seasonal point count surveys for birds will be conducted at the restoration site and selected reference sites to establish evidence of target species' presence, estimate baseline breeding population sizes and determine seasonal patterns of bird use by all bird species. Vegetation at these survey points will also be characterized to assess baseline bird habitat relationships.

A.3.3 Task 3: Preliminary Design

A.3.3.1 Opportunities and Constraints Analysis

The prior site information and data collected in the *Baseline Monitoring and Data Collection* phase will be organized into an "Opportunities and Constraints" analysis. This organization combines the site conditions with the local and regional habitat goals to identify what goals and objectives can be achieved on the site. In addition, it highlights how existing conditions may constrain the project design. For example, any need to protect existing valuable habitat resources or protect adjacent infrastructure will be examined. If levee modifications are anticipated, a geo-technical investigation will be performed to assess soil stability conditions for existing site features and potential grading and levee modifications. This analysis guides the development of subsequent alternative restoration concepts for the site.

A.3.3.2 Development of Project Alternatives

Project alternative design concepts will be developed based upon restoration goals and objectives and site-specific opportunities and constraints. Restoration alternatives will address the general layout of the restored tidal marsh and the location of principal marsh features such as channels. Locations of historic marsh features will guide thinking towards restoration possibilities. The alternatives will primarily be focused on providing a range of habitat types, with an emphasis on various wetland habitat types (i.e. upland refuge, high-marsh, low-marsh, mudflat). In addition, some options on levee breach locations; removal or modification of existing levees and the use of internal features to guide site evolution will be provided.

Alternatives for implementing the restoration process shall also be considered. For example, an important concern for the restoration process is the survival of the on-site population of the salt marsh harvest mouse. To address this concern, a phased marsh restoration process that introduces tidal action to sub-areas within the marsh sequentially over time will be developed.

A.3.3.3 Selection of Preferred Project Alternative

Based on the project alternatives, the Project Team in coordination with participating representatives from U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) will select a preferred project alternative which best satisfies project objectives to create wetland habitat for endangered species.

A.3.3.4 Development of a Conceptual Restoration Plan

The Project Team will develop the preferred alternative into a preliminary wetland restoration design based upon restoration objectives, CALFED habitat and species priorities, site-specific information acquired in *Baseline Monitoring and Data Collection*. The restoration plan will address primary elements of the wetland design including: a vision of restored habitats, a target tidal regime, functional geomorphic features, general channel locations and forms, target vegetation types, and interactions with surrounding upland and estuarine systems.

The restoration plan will describe the post-construction site conditions, which will evolve under the influence of natural processes into a self-sustaining tidal marsh ecosystem. As proposed, physical and biological succession processes will result in gradual marsh regeneration, rather than relying on a more aggressive program involving extensive grading, placement of dredged material, planting, and/or seeding. Limited plantings may be used in areas to assist the establishment of native vegetation species.

A.3.4 Task 4: Design Refinement

Results from *Baseline Monitoring and Data Collection* will be analyzed and compared to appropriate reference wetlands in the North Bay region. This analysis will be used to refine the restoration concept and project alternatives developed in the *Preliminary Design*. Unresolved design issues from the preliminary design phase will be resolved based on the monitoring and reference wetland information and consultation with USFWS representatives on specific habitat needs of endangered species.

Issues addressed during the design refinement phase will include: selecting specific breach locations and geometries to favor tidal channel development; determining temporary tidal action boundaries to enable the phased restoration process to protect salt marsh harvest mouse populations; determining elevations for grading existing levees; designing drainage density, pattern, and geometry for the initial slough channel system; and refining the planting plan. The design refinement task will incorporate enough design information (with appropriate documentation) to enable the permitting process to proceed.

A.3.5 Task 5: Permitting

The required permits for state and federal regulatory agencies and local jurisdictions will be acquired in conjunction with the final design process. Permitting is discussed in Section A.4 in more detail.

A.3.6 Task 6: Final Design

The conceptual restoration plan will be developed into a final design package (plans and specifications) with construction-ready documents developed iteratively with the permitting review process. As needed to guide the final design, any additional site investigations, testing and analyses will be performed. To support the final design

process, limited ground surveying will be performed as needed to supplement the aerial survey. If applicable, surface soil samples will be collected and analyzed to evaluate planting suitability.

Final designs will be shown on drawings, specifications, and include an engineer's cost estimate. Construction documents will be suitable for public bidding of the construction contract. The Project Team will prepare technical specifications and provide other standard documents available for public bid construction contracts. As a non-profit organization, MAS has the option to choose the best-qualified contractor, without going to bid.

A.3.7 Task 7: Construction

Prior to the construction phase, the Project Team anticipates including a specialized wetland construction firm, Cooper Crane and Rigging, to ensure the project design can be implemented in the most efficient and cost effective manner. The construction process will include contractor selection, implementation by the contractor, and observation and construction support by the Project Team. Construction will likely be phased so that interior site grading and construction are performed prior to levee lowering and breaching. Restoration implementation may also include phasing to accommodate adjustments in target species habitats.

The Project Team has extensive prior experience in wetland construction implementation, and will provide construction oversight, including regular observation and documentation. Technical specialists within the Project Team will provide regular site observation at key milestones during construction, and provide construction support services including responding to questions, and clarifying design issues. The selected contractor will be responsible for surveying before and after construction to verify design compliance and estimate construction quantities for cost estimates.

A.3.8 Task 8: Project Monitoring Plan

A monitoring plan will be developed as part of the restoration project to evaluate the physical and biological evolution of the restored site against established performance measures (Section A.5). The monitoring plan will be consistent with procedures that are currently under development as part of the proposed San Francisco Estuary Institute Regional Wetlands Monitoring Plan. For reference and to establish scientific control, indicators of site evolution and performance, in parallel with natural/undisturbed marsh wetlands and possibly disturbed/leveed marsh systems in the North Bay region will be monitored. PWA has initiated similar monitoring studies, such as *Monitoring the Evolution of Restored Tidal Marshes in San Francisco Bay* (PWA, 2000), a documented study containing physical and vegetation monitoring data for Warm Springs, Muzzi, and China Camp Marshes. These studies will be useful for establishing a monitoring framework at Bahia. China Camp Marsh has been identified as a natural wetland system that will be a useful reference site for comparison to the evolution of the Bahia restoration site. In addition, the adjacent undisturbed wetlands fringing the Petaluma River provide important local reference data.

PRBO will establish references of natural and restoration sites for bird surveys at China Camp and in the lower Petaluma River area, including centennial tidal marsh along Black John Slough. These sites sill be surveyed pre-breaching to study baseline bird use and post-breaching to monitor restoration progress. Point count surveys will be

conducted during the breeding season, fall migration and winter season. Vegetation surveys will be conducted to track changes in bird use of habitat post-breaching.

The Project Team will use an "adaptive" monitoring program, in which the initial monitoring criteria and schedule are identified, but which can be adapted or modified based on the subsequent monitoring results. The monitoring plan will establish procedures to provide ongoing performance data, ensure prompt identification of any potential problems and the need for response, and allow determination of when the project has met performance criteria and restoration goals.

Elements of the monitoring plan will be developed to evaluate: (1) biological evolution through vegetation zoning and abundance, habitat mapping, and target species sampling, (2) marsh morphology including sedimentation, marsh plain evolution, and tidal channel formation, and (3) site hydrology, tidal circulation, and salinity. The methodology for monitoring marsh morphology will include aerial photogrammetry mapping and analysis techniques, vegetation and ground topography surveys, small mammal trapping, bird surveys, ground-view photography, and field sampling and continuous measurements of sedimentation, tide levels, and salinity.

Post-project monitoring will focus on species identified by CALFED for recovery, "progress toward recovery," and "maintenance." MAS will contract with PRBO for avian monitoring and with Dr. Steve Bollins, from San Francisco State University for fish monitoring, to ensure coordination of data with the BREACH II study.

Bird surveys will be conducted both pre-restoration and post-restoration. Surveys will be conducted four times per year during early restoration, for at least four years or until the site has started to function as a tidal marsh. Monitoring will continue on at least a bi-annual basis thereafter. Criteria for determining that a restoration site is functioning as a tidal marsh in terms of breeding or seasonal bird use, thus warranting a reduced frequency of monitoring, will be developed as part of this and other CALFED restoration monitoring projects in which PRBO is currently involved.

A.4 Feasibility

This project is imminently feasible and timely, given the public mandate for preservation and recent land use decisions made for the site. Initial funding to acquire the site is key to allow subsequent development and implementation of the restoration project. The property owner will either make application for another project or will sell the site to another developer if MAS do not acquire the site for restoration. CALFED funding is one of several sources being developed for acquisition.

Other less crucial issues influencing project development include: timing (seasonality), permitting, sediment supply, and flooding:

Timing: Weather conditions could adversely impact the project. The project will be constructed in the dry season when equipment can access the levees.

Construction will occur during non-breeding season for the California clapper rail and the salt marsh harvest mouse, September to December. The project will address potential impacts to the existing salt marsh harvest

mouse population in the diked baylands. Endangered species consultation with the USFWS has already been initiated. The Project Team anticipates working closely with the USFWS on designing the project to ensure that: adverse impacts on the salt marsh harvest mouse population are avoided or minimized and that benefits to the existing population are maximized; by enhancing adjacent upland, salt marsh-upland ecotone, to provide high tide refugia during evolution of the marsh and in the long-term.

Permitting: Permits will be obtained from the U.S. Army Corps of Engineers, the California Regional Water Quality Control Board, and a grading permit from the local government, the City of Novato. Problems are not anticipated with obtaining permits in a timely fashion. Permits have not been applied for because there is no funding to ensure a restoration could be accomplished. Ten months have been planned to obtain permits.

Sediment: Sediment supply to the site can be a limiting factor when depending on natural sedimentation to restore subsided diked wetlands such as Bahia. Sedimentation rates are very high at the mouth of the Petaluma River, which will facilitate marsh evolution. Monitoring at Carl's Marsh restoration project (on the opposite bank of the Petaluma River) has shown as much as 2.5 feet of deposition per year. High sedimentation rates, as observed in the Petaluma River mouth setting, will greatly contribute to the rapid restoration and evolution of a tidal marsh system.

Flooding: The potential flooding of adjacent developments has hampered restoration efforts of diked baylands in the past. Hazards associated with flooding are not a concern at this site because there is no development adjacent to the diked baylands. Therefore, flood protection levees required at other nearby sites (such as MAS's Petaluma Marsh site) are not needed here. Where needed, the existing trail would be relocated to restore the upland-wetland ecotone.

A.5 Performance Measures

Project performance will be evaluated by the appropriate parameters associated with the following site characteristics: vegetation species composition and overall coverage; seasonal bird species richness and diversity, breeding season density of target tidal marsh bird populations, species composition of fish, use of site by listed species, rate of marshplain evolution including site elevations and sediment deposition, and tidal channel density.

A.6 Data Handling and Storage

Comprehensive project reports detailing data collection and analysis in tabular and graphical form will be provided in hard copy and electronic formats to document project status and the completion of project milestone tasks. Specific monitoring data will be electronically archived on CD and provided as project deliverables. Pertinent portions of the data and reports will be made available to the public through a project web site to be constructed by the project team. For the final design, a hard copy of final construction drawings (24" x 36" mylars) will be kept on file. In addition, an electronic copy of construction drawings (in AutoCAD release 2000) and technical specifications (in Microsoft Word) will be stored on CD.

A.7 Expected Products/Outcomes

The expected outcome is a successfully restored tidal wetland site with established baseline conditions for use in monitoring future project performance. Specific deliverables include:

Task 1: Land Acquisition
Task 2: Baseline Monitoring Report
Task 3: Preliminary Design Report
Task 4: Design Refinement Memoranda
Task 5: Permitting Memoranda
Task 6: Final Design Plans and Specifications
Design Drawings
Specifications
Task 7: Construction Bid
Pre- and Post-construction Survey
Task 8: Monitoring Plan Report (including next-phase monitoring)
All Tasks: *Quarterly Contracting Communications*

A.8 Work Schedule

Task	Timeline
1. Land Acquisition	June 1, 2002
2. Baseline Monitoring and Data Collection	June 1, 2002 – May 15, 2003
3. Preliminary Design	September 1, 2003 – December 15, 2003
4. Design Refinement	February 1, 2004 – May 15, 2004
5. Permitting	April 1, 2004 – December 1, 2004
6. Final Design	May 15, 2004 – November 1, 2004
7. Construction	July 2004 – January 2005
8. Project Monitoring Plan	October 15, 2004 – November 15, 2005

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

B.1 ERP, Science Program and CVPIA Priorities

The following provisions of CALFED ERP and Implementation Plan apply to this project:

Ecosystem Restoration Strategic Goals

Goal 1: At Risk Species

"... support ...recovery of at-risk native species in San Francisco Bay ; by reversing downward population trends of native species that are listed." The Bahia acquisition and restoration project will support the recovery of at-risk native species by providing additional tidal wetland and upland refugia habitat.

Current data collected by PRBO indicate that tidal marsh habitat in the adjacent California State property on Black Johns Slough supports high breeding densities of California black rail, San Pablo song sparrow and salt marsh

common yellowthroat. In addition, the Bahia channel was part of the territories of at least 2 pairs of California clapper rails in 2000 and 2001 (PRBO, unpublished data).

Goal 2: Ecosystem Processes and Biotic communities

"Rehabilitate natural processes in the Bay-Delta system to support, with minimal human intervention, natural aquatic and associated terrestrial biotic communities and habitat, in ways that favor native members of those communities." The Bahia restoration project will facilitate the permanent protection and restore self-sustaining biotic communities that will persist without high levels of human manipulation of ecosystem processes and species abundance, and to have communities dominated by native species.

Goal 3: Habitats

"Restore functional habitats in the Bay-Delta estuary and its watershed for ecological and public values such as supporting species and biotic communities, ecological processes, recreation, scientific research and aesthetics." The Bahia restoration project will achieve all components of Goal 4. The restored marsh will contribute to the ecosystem benefits of clean air and water, nutrient delivery to the broader ecosystem, trail will be retained, perhaps moved so the public can enjoy the expanded marsh with minimal impacts to the ecosystem.

Goal 4: Sediment and Water Quality

"Improve or maintain water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay and Delta..." The Bahia restoration project will fulfill this goal in two ways. It will preclude the introduction of pollutants from new urban development by permanently protecting the wetlands and adjacent upland in a natural state, and will restore the currently diked marsh to tidal action thereby increasing the ability of the ecosystem to remove and treat pollutants prior to conveyance to San Francisco Bay.

CALFED's Ecosystem Restoration Program - Multi-species Restoration Strategy Milestones

"Restore...tidal action in the...Petaluma River.... Restore high marsh and high marsh-upland restoration transition habitat in conjunction with restoration of saline emergent wetland. Develop cooperative programs to, acquire in fee title...the land needed for tidal restoration and complete the needed steps to restore the wetlands to tidal action." This project is a cooperative program to acquire land needed for tidal restoration. The project will restore high marsh and adjacent uplands, including transition habitat.

CALFED Restoration Priorities for the Bay Region

BR-1 *"Restore Wetlands in Critical Areas Throughout The Bay...via New Projects..."* The project will restore 333 acres of diked historic baylands to tidal marsh.

BR-2 *"Restore Uplands in key areas of...San Pablo Bay."* The project will restore and protect uplands near the mouth of San Pablo Bay and San Pablo Bay.

BR-4 *"Understand performance of wetlands restoration efforts on a local and regional scale."*

Monitoring for this project will contribute to comprehensive efforts to understand the processes of tidal marsh restoration. Project participants PWA and PRBO are involved in other CALFED funded studies including BREACH II and Lower Tubbs Island, which seek to understand restoration processes in the greater San Pablo and Suisun Bay region. Monitoring data from the proposed restoration project will be linked to these other efforts.

CALFED Goals for the North Bay Ecological Management Zone

"...protecting and enlarging remaining areas of native habitat and establishing connectivity among...expanding restoration efforts in the Petaluma Marsh and restoring connectivity...." The Bahia project would make a significant contribution to these goals. It protects and enlarges native habitat. It also provides connectivity between the estuary and adjacent uplands.

PSP Priorities and How the Project Will Result in Progress Toward Them

Native anadromous fish species: Recovery for native anadromous fish species will be advanced for all runs of chinook salmon, and steelhead. Juvenile life stages will be the primary beneficiaries because the project will expand rearing habitat that will sustain and protect out-migrating juveniles. This will enhance the potential for their survival. Native estuarine fish, Sacramento splittail, Delta smelt, longfin smelt, green sturgeon will benefit by expanded tidal marsh habitat.

Endangered Species: Recovery for endangered species and other special status avian species will be advanced; specifically for California clapper rail, California black rail, common yellow throat and San Pablo song sparrow. Recovery Plan for salt marsh harvest mouse and California clapper rail focuses on protecting existing marshes, creating new marsh habitat with unrestricted tidal sloughs, pickleweed habitat for mice, and suitable nesting habitat for rails. The project will implement these components of the PSP. All life stages of these species will benefit by having tidal marsh habitat expanded by 333 acres, which will enable populations of all of these species to increase. The project will create a larger, contiguous area of marsh, since the project area is adjacent to existing tidal marsh.

Other species benefits: Populations of shorebirds, wading birds and waterfowl migratory birds will also benefit through restoration of wetland habitats. Neotropical migratory songbirds will also benefit by the protection of existing natural drainages, grassland and woodland habitats, and by the restoration of wetlands and upland.

PSP habitats will also benefit: Tidal sloughs, saline emergent wetlands and perennial grassland habitats will be increased and permanently protected by the project.

Stressor: Levees, which will be breached or otherwise, removed to restore the flow of tidal waters. The threat of urbanization, which should be considered a stressor because it results in habitat loss and degradation of water quality and other functions, would be permanently removed by the project.

B.2 Relationship to Other Restoration Projects

This project will compliment and expand benefits provided by other restoration projects in the area. The Bahia project will enhance the habitat value and diversity of the region and contribute to the cumulative habitat and species benefits because it will expand existing tidal marshes, tidal sloughs, and adjacent upland areas.

The Bahia project will compliment other previously CALFED-funded projects including MAS's Petaluma Marsh Expansion Project, which is being implemented by MAS and PWA. Although not yet constructed, this project will also restore significant tidal marsh acreage for endangered species. It will restore 100 acres of diked baylands to tidal action and protect an additional 80 acres of tidal marsh for a total of 180 acres of protected and expanded habitat.

The Bahia project will nearly complete tidal marsh restoration opportunities immediately adjacent to the Petaluma River on its western side. One other large diked site owned by CDFDG is an unlikely candidate for tidal marsh restoration because it is immediately adjacent to the Marin County airport runway at Gnoss Field. Other large sites are further inland from the River.

When considered in conjunction with restoration projects upstream and on the east side of the Petaluma River, the beneficial cumulative impacts are exceptionally high. Other projects nearby include the Carl's Marsh tidal restoration (immediately across the Petaluma River from Bahia), and the Tolay Creek project to the southeast. The Bahia project, in conjunction with these other restorations, will restore substantial wetland habitat acreage along the lower Petaluma River. These projects also provide important data about restoring wetlands that will inform future restoration projects.

B.3 Requests for Next-Phase Funding (N/A)

B.4 Previous Recipients of CALFED Funding

MAS has received past CALFED funding in the amount of $352,135, recently augmented by $150,000, for the Petaluma Marsh Expansion Project (Project number FWS Agreement No. 1142091020, DCN #11420-9-Jo36) located upstream of the Bahia site on the Petaluma River. The project design is being finalized after significant redesign necessitated by unexpected soil conditions on site. Specifically, the surface soils are organic to a depth of eight feet or more before mineral soil are reached. The site's soil conditions are unlike any other known site in the Bay. Peat is highly compressible, weak, erodible and subject to considerable settlement. Addressing this site-specific condition has required significantly increased soils analysis and redesign of the levee to ensure stability and performance while at the same time maximize habitat values and keep the cost affordable. Permitting and project implementation are anticipated for the summer of 2002.

PWA has received funding from CALFED for numerous projects. A table detailing these projects can be found in Appendix A

B.5 System Wide Ecosystem Benefits

The permanent protection and restoration of tidal marsh at Bahia will contribute multiple benefits for system wide ecosystem resources.

Expand habitat for Bay-Delta fish: The North Bay marshes are important nurseries for anadromous, estuarine and marine fish. All Central Valley anadromous fish migrate through the North Bay and utilize North Bay marshes during critical parts of their life cycle. Juvenile salmon species may spend weeks and months feeding in North Bay marshes, which increases their chances for survival as they migrate to the ocean. Many sturgeon and striped bass spend most of their lives in the North Bay. Native fish including, longfin smelt, Delta smelt, and splittail spend much of their lives in the North Bay and its marshes and sloughs. Marine fish that also depend on the North Bay (including Pacific herring, northern anchovy, and Dungeness crab) utilize wetlands and sloughs. The restored tidal marsh habitat at Bahia will expand habitat for all of these fish species and allow their populations to expand.

Expand habitat for other endangered CALFED PSP species: Habitat will be expanded for other endangered species, including California clapper rail, California black rail, San Pablo song sparrow, salt marsh yellowthroat. Salt marsh harvest mouse habitat will also be expanded. Restoring tidal marsh will benefit all of these species.

Ensure habitat for migratory birds: Many species of Pacific Flyway waterfowl and shorebirds overwinter or pass through the North Bay and marshes. A few remain to breed. Increased tidal marshes will benefit migratory birds by creating additional foraging and resting habitat for them and enriching food chain support.

Enrich food chain support: Aquatic food-web productivity has declined in the North Bay due to a loss of tidal exchange, water quality degradation and reductions in flows. Restoration of tidal inundation to 333 acres will expand the opportunity for increased primary productivity in North Bay marshes, which will sustain fish and wildlife populations. Additional marsh will contribute important plant detritus and nutrient recycling to the aquatic food web of the Bay-Delta estuary and will support enhanced invertebrate populations.

The reintroduction of tidal flow to the site enables nutrients from the restored marshes to contribute to productivity within the broader system the adjacent waters of Black John Slough, the Petaluma River and San Pablo Bay. The existing levees have prevented nutrient exchange between the diked marshes and adjacent tidal marshes and waters of Petaluma River and San Pablo Bay.

Improve water quality: Acquisition and restoration will ensure water pollution does not increase as a result of urban/suburban development that would produce degraded runoff from streets and landscape maintenance. Marsh vegetation will assist in improving water quality in the ecosystem by trapping sediments, and filtering or absorbing pollutants from the Petaluma River, Suisun Bay, and the Delta.

Restore adjacent upland habitat: The native grassland, oak woodland habitat, and oak savannah habitats are important transition habitats for many wildlife species, particularly endangered species. Implementation will restore this natural ecotone, which is now rare in the ecosystem. Remnant reaches of the levee may be retained to provide upland high-tide refugia habitat for endangered salt marsh harvest mouse.

Floodplain restoration: A portion of the lower Petaluma River floodplain, which was eliminated by levee construction, will be restored. Floodplain is particularly significant in the lower valley near the river mouth in the transition between fluvial and estuarine systems.

Maintain and improve habitat connectivity: The project will complement other projects by ensuring wildlife access, providing connectivity among and between habitats, enriching and increasing habitat acreage. It will expand and restore connectivity with the Petaluma Marsh, the largest remaining natural tidal marsh in San Francisco Bay.

Enhance the value of the regional wetland habitats: The presence of additional protected tidal marsh owned by public agencies enhances the regional value by providing a single, large connected system that will be protected, restored, and maintained in perpetuity.

In summary, this project makes a significant contribution to the restoration of the North Bay estuarine system.

B.6 Information for Proposals Containing Land Acquisition

- The property will be acquired from a willing seller. MAS has a signed agreement with the property owner, Art Condiotti, based on a purchase price of $18.3 million. A purchase agreement is currently being prepared. The property owner desires a closing date in March 2002.
- The City of Novato General Plan contains strong policies for the protection of wetlands.
- The site is not prime, of Statewide Importance, or Unique Farmland.
- Ecological Criteria:

Ecological richness: The property is undeveloped and currently consists of an unusual mix of habitats: 333-acre diked historic bayland, 18 acres of seasonal wetland; a 5.64-acre deepwater lagoon, 6 acres of ephemeral streams, and a 214-acre Blue Oak woodland with an understory consisting of native and non-native grassland. Bahia's oak woodland is dominated by Blue Oaks, a species common to the warmer climates of interior California. This is the only known occurrence of Blue Oak dominated woodland connecting with salt marsh in the State of California. The acquisition will preserve for future generations this unique component of California's heritage and restore the grassland ecotone.

Connectivity: The acquisition will maintain and restore connectivity between adjacent wetlands and upland habitats. The property is surrounded by publicly owned marsh and upland habitats, which increase the habitat value. Restoration of the diked Bahia marsh will expand the currently narrow band of tidal marsh along Black John Slough, a marsh with high populations of special status species. In 2000 and 2001, there were at least 2 California clapper rail pairs using tidal marsh habitat in the Bahia Channel and near Black John Slough. Populations of California black rail, San Pablo song sparrow and salt marsh yellowthroat in these tidal marshes are among the highest in the region. The project will ultimately increase the acreage of this valuable habitat. Other marshes in the vicinity include muted tidal marshes of Rush Creek and Cemetery Marsh, which contribute to the biological diversity of the region. Restoration of the Bahia wetlands will contribute to the restoration of the Petaluma Marsh, the largest undiked tidal marsh in the San Francisco Bay. Connectivity of the restored marsh with nearby Cemetery Marsh and Rush Creek Marshes will be protected thereby providing a wildlife movement corridor between the habitats.

Opportunity: The project is a unique opportunity to meet CALFED goals. MAS and other local and regional environmental organizations have been working to protect the Bahia site for more than 25 years.

- Time sensitivity: The potential to lose Bahia to development remains imminent. In December 2000, a 424-unit residential development was approved for the Bahia site by the City of Novato. The development would fill wetlands, destroy more than the integrity of the woodland by removing more than 3,000 trees and constructing a road along the upland-wetland ecotone, and compromise the viability of any habitats that would remain. Wildlife habitats would be reduced and any remaining habitat would be fragmented, connectivity between the habitats would be eliminated and movement corridors and connection to the Petaluma River and its wetlands would be blocked. Endangered species habitat and the wetland-woodland/grassland habitat would be destroyed, and the water quality of any remaining wetlands and on adjacent sites would be degraded. A significant California landscape would be lost forever.

Following the December 2000 City of Novato approval of the owner/developer's plan for the housing project, a group of residents from the existing community succeeded in qualifying a successful referendum against the project development. In May 2001, the referendum passed by a 70% vote of the people. The referendum has provided a one-year window in which to purchase the site. An agreement has currently been signed with the owner/developer. If action is not taken to buy the property now, the developer will return with another project or will sell the land to another developer.

C. QUALIFICATIONS

MAS will manage the project and provide coordination, invoice payment, permit and other activities associated with project management. MAS has considerable experience and an excellent performance record implementing marsh restoration/enhancement projects having completed nine such projects in the last 15 years. These projects have been funded through many partnerships with the Regional Water Quality Control Board, Administrative Civil Liability funds, the State Coastal Conservancy, the North American Wetlands Conservation Act, USEPA, USFWS, Marin Community Foundation, Wildlife Conservation Board, and Marin County Open Space District. Project examples: (1) The Corte Madera Ecological Reserve Restoration Project: implemented in 1990, removed fill to restore tidal marsh and create an upland refugia island for the California clapper rail at this California Department of Fish and Game owned marsh. (2) The Rush Creek/Cemetery Marsh Enhancement Project: installed several tide gates and excavated channels to improve water quality and habitat for waterfowl and shorebirds at this 300-acre habitat. These habitats are owned by the Marin County Open Space District and the California Department of Fish and Game, respectively.

MAS is also experienced with bayland acquisition. The Bahia acquisition is part of the Marin Baylands Campaign, initiated in 1995 in cooperation with other Marin environmental organizations, the purpose of which is to permanently protect threatened baylands in Marin County. Three years ago, MAS began acquiring bayland parcels under that campaign, and now owns four properties. Restoration or enhancement plans are being prepared for three of the sites. After restoration, the sites will be donated to a public agency, to the Marin County Open Space District and the California Department of Fish and Game as is anticipated for Bahia.

Barbara Salzman, the president of MAS, will be managing the Bahia project. Ms Salzman has managed previous restoration/enhancement projects for MAS, and is currently managing several others. Ms Salzman has received a number of awards for her activities, including Save San Francisco Bay's Founders Award, and most recently the National Wetlands Conservation Award (National Runner-up), presented by the U.S. Fish and Wildlife Service for the outstanding record of accomplishment in conserving and restoring wetlands. MAS's restoration projects have been recognized in the Coastal Conservancy's *CALIFORNIA COAST AND OCEAN* magazine and in the National Audubon Society's magazine, *AUDUBON*.

PWA is responsible for engineering design, drawings, construction specifications, pre-and post-breach surveys and construction supervision. PWA is a recognized leader in integrating advanced hydrologic analysis with environmental resource management and restoration. The firm has completed over 400 wetland restoration plans and analyses of coastal, seasonal, inland, and riparian wetlands. Their experience has shown that successful wetlands management requires a comprehensive understanding and integration of hydrologic and geomorphic analysis with biological, legal and land-use planning considerations. PWA's broad base of expertise enables them to assess the effects of flood flows, sediment delivery, tidal circulation, and groundwater movement to solve a wide

variety of problems in natural and managed fresh and salt water wetlands. In addition to working with many private developers, nonprofit groups, and local government agencies, PWA has been retained as consultants by several federal and California state agencies concerned with estuarine, marsh and coastal hydrology management.

PRBO, founded in 1965, is dedicated to conserving birds, other wildlife and their ecosystems through innovative scientific research and outreach. The first bird observatory established in the United States, PRBO has grown to become an internationally recognized conservation science center, working with over 150 public and private partners to conserve and enhance biodiversity in the West. Its 50 staff scientists conduct research on common and endangered birds as well as marine mammals, study related habitats and ecosystem processes, and provide science-based policy recommendations to government agencies, nonprofit organizations and landowners. PRBO is an active leader in several national and international partnerships working to protect birds and ecosystems including Partners in Flight, the U.S. Waterbird Conservation Plan, the U.S. Shorebird Conservation Plan, the Riparian Habitat Joint Venture, the Pacific Seabird Group, the Central Valley Habitat Joint Venture, and the San Francisco Bay Joint Venture. For over 20 years, PRBO scientists have been studying the birds using the baylands of the San Francisco Estuary and identifying their habitat requirements. PRBO scientific efforts in the San Francisco Bay region have been led by Gary Page and Nadav Nur, both of who serve on the Steering Committee of the Wetlands Regional Monitoring Program; Gary Page and Nadav Nur also serve on committees and/or the Board of the San Francisco Bay Joint Venture.

Cooper Crane and Rigging (CCR) is the preferred construction contractor. CCR has extensive experience with marsh restoration in San Francisco Bay and is frequently hired by CDFG and USFWS for marsh work. It is MAS's experience from observing marsh restoration/ enhancement projects over many years, that CCR can provide the most experienced, cost effective, and environmentally sensitive services. CCR contributes consultation on restoration design and implement ability at no cost.

D. COST

Estimated costs for acquisition and tidal marsh restoration are detailed in the table below.

Bahia Acquisition and Tidal Marsh Restoration: Estimated Costs				
	Sub-Consultants			
Task	**PWA**	**PRBO**	**Other**	**Total**
1. CALFED Contributions to Land Acquisition				$2,000,000
2. Baseline Monitoring and Data Collection	$140,000	$41,500		$181,500
3. Preliminary Design	$70,000	$6,000		$76,000
4. Design Refinement	$30,000			$30,000
5. Permitting	$30,000			$30,000
6. Final Design	$200,000			$200,000
7. Construction	$40,000		$750,000	$790,000
8. Project Monitoring Plan	$30,000	$7,500		$37,500
Total	**$540,000**	**$55,000**	**$750,000**	**$3,345,000**

** includes estimated costs of aerial photos and topographic survey*

The cost to acquire the project property is $18.3 million. The proposed CALFED contribution is $2 million. The estimated costs for the restoration process including planning, monitoring, permitting, design and construction equate to $1,345,000.

D.1 Anticipated CALFED Budget Phasing

Yr. 1 $2 million for acquisition
$240,000 – Baseline Monitoring and Preliminary Design
Yr. 2 $230,000 – Permitting and Final Design
Yr. 3 $820,000 – Implementation, Construction, Monitoring Plan

D.2 Cost Sharing

This project represents an exciting opportunity for CALFED to partner with MAS and many other entities to implement the ERP. Significant cost sharing is anticipated, and fund raising to acquire the property is well underway. Major funding has been or is near approval: a grant of $1 million will be approved by the Marin County Supervisors in early November 2001; the California Coastal Conservancy Board will approve a grant of $6 million to their Board within the next several months; the Regional office of Fish and Game will support a request of $4.5 million to the Wildlife Conservation Board; $2 to $4 million has been requested from the Marin Community Foundation and will go to their Board for approval in November 2001; application for $2 million has been submitted to the David and Lucille Packard Foundation; and a fund raising drive with a goal for $1.3 million from individual donors is being conducted by Marin Baylands Advocates and MAS. Solicitation of major donors and media publicity are important components of the campaign. Applications are also being prepared to several other foundations.

The exact amount we will need to complete the purchase of the site will become clearer as fund raising progresses over the next five months. It is possible that the entire $2 million requested from CALFED may not be required when final funding is identified.

While the property owner wants to complete the acquisition process in early March 2002, there is provision for a three-month extension to the agreement. Because the anticipated closing date for acquisition is only five months away, a loan is being sought from the State Revolving Fund through the California Water Resources Control Board to ensure funds are available in a timely manner. A secure source of funds is needed to obtain a Revolving Fund loan. CALFED is a potential payback. In addition, a request is being made for the Marin Community Foundation to commit funds.

MAS will contribute in-kind services by managing the project, including coordination, assisting with permitting, supervision of work, payment of contractors, etc. at no cost. This ensures a cost effective restoration program.

E. LOCAL INVOLVEMENT

- **City government:** Permanent protection and restoration of tidal marsh is consistent with City of Novato General Plan and the Marin Countywide Plan.

- **Acquisition and restoration of the site is supported by numerous organizations:** Save San Francisco Bay Association, California Oak Foundation, Marin Conservation League, Sierra Club, Citizen's to Save Bahia, Sonoma Land Trust, Audubon Bay Restoration Program and the Novato Horsemen's Association.

- **Community Support:** The community is aware of MAS's interest in acquiring and permanently protecting Bahia. The majority of stakeholders in the City of Novato and Marin County are supportive and some are actively involved with MAS's efforts to acquire the sites. The acquisition of Bahia has been well publicized in Marin County daily and weekly newspapers, aired on local TV, published in organization newsletters, and discussed at several community meetings.

MAS will conduct one or more public meetings for the local community to ensure members of the local Bahia, City of Novato and Marin County community to inform the public about the restoration project and seek input on design components. The meetings will be scheduled following baseline monitoring, but prior to the design phase of the marsh restoration. MAS will also provide information to the local newspapers and television.

F. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The Project Team will comply with State and Federal standard terms and conditions.

APPENDIX A
CALFED Funded Projects

PWA PROJECTS FUNDED BY CALFED

CALFED Project Name	CALFED Project Number	Primary CALFED Applicant	Award Amount	PWA Contract Amount	CALFED Status per June 13, 2001 ERP Project Tracking Table	Status
Research to Predict Evolution of Restored Diked Wetlands	ERP-96-M10	University of Washington	$575,172	$97,000	Steering Committee approved additional $100,172 for additional fisheries and bird fieldwork. Project is 93% complete.	Complete
Twitchell Island Subsidence Study	ERP-98-C01	DWR	$3,583,000	$34,415	Fully executed 5/20/99. All subcontracts signed	Active
Hamilton Wetlands Restoration Planning	ERP-98-C03	California Coastal Conservancy/ City of Novato	$1,025,015	$58,314	Completed the feasibility study. EIR/EIS, Hamiltion Conceptual Restoration Plan. Bel Marin Keys feasibility study ongoing. Amendent for $25,000 approved 09/99	Complete
Hill Slough West Habitat Restoration Demonstration Project – PHASE 1	ERP-98-F08 C1004	Dept. Fish & Game	$200,000	$124,296	Interagency Advisory Team still being formed. RFP for survey consultant has been written /reviewed. Rest plan in progress. This project has been delayed and is slow in getting off the ground	Active
Petaluma Marsh Expansion Project - Marin County	ERP-98-F13 C1016	Marin Audubon Society	$352,125	$99,324	Restoration agreement signed. Finalizing restoration design	Active
Understanding Tidal Marsh Restoration Processes and Patterns	ERP-99-B13	University of Washington	$1,042,246	$192,607	Contract Executed 08/25/00	Active
Yuba Tools: Collaborative Watershed Management for Flood Control	ERP- 99-B131	Yuba Watershed Council/ South Yuba River Citizens League	$220,000	$45,000	In progress of funding approval- Not listed on June 13, 2001 ERP Projects Tracking Table	Complete partial
Non-Structural Alternative at the San Joaquin River National Wildlife Refuge: Refinement for Habitat Enhancement	Proposal 2001-D202	Ducks Unlimited, Inc.	$ 231,942	$187,300	In progress of funding approval- Not listed on June 13, 2001 ERP Projects Tracking Table	Active

CYNTHIA MURRAY
SUPERVISOR
5th DISTRICT
MARIN COUNTY

October 1, 2001

Cal Fed
Sacramento, CA

By facsimile transmission

Re: Grant Application from Marin Audubon Society re Bahia

To Whom It May Concern:

I am writing to support the grant request from the Marin Audubon Society for the acquisition and wetland restoration of the Bahia property in northeast Novato. As County Supervisor of the 5th District, I represent this area of Novato and can attest to the local interest in preserving the Bahia forest and wetlands.

I encourage you to approve the Audubon Society's grant request which will insure that this valuable regional resource will be restored and protected.

Sincerely,

Cynthia Murray

Cynthia Murray

sc

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