San Joaquin River Water Quality Improvement Project - Phase II Implementation

Project Information

1. **Proposal Title:**

   San Joaquin River Water Quality Improvement Project - Phase II Implementation

2. **Proposal applicants:**

   Dennis Falaschi, Panoche Drainage District
   Joseph McGahan, Grassland Area Farmers

3. **Corresponding Contact Person:**

   Dennis Falaschi
   Panoche Drainage District
   52027 W. Althea Ave. Firebaugh, CA 93622
   209 364-6136
   dfalaschi@aol.com

4. **Project Keywords:**

   Ag/Urban Runoff
   Water Pollution, Non-point Source
   Water Quality Management

5. **Type of project:**

   Implementation_Full

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

   No

7. **Topic Area**:

   Ecosystem Water and Sediment Quality

8. **Type of applicant:**

   Local Agency

9. **Location - GIS coordinates:**

   Latitude: 36.8944

   Longitude: -120.5619

   Datum:

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

The project is located between the Delta Mendota Canal and Central California Irrigation District's Main Canal, and between Russell Avenue and Fairfax Avenue in Fresno County. The project size is approximately 1,500 acres

10. **Location - Ecozone:**

    12.2 Merced River to Mendota Pool

11. **Location - County:**

    Fresno

12. **Location - City:**

    Does your project fall within a city jurisdiction?

    No

13. **Location - Tribal Lands:**

    Does your project fall on or adjacent to tribal lands?

    No

14. **Location - Congressional District:**

    18

15. **Location:**

    California State Senate District Number: 16

    California Assembly District Number: 30

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:	2% (See comments below)
Total Requested Funds:	$1,761,100

b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

Panoche Drainage District $77,300 (see comments below)

c) Do you have potential cost share partners?

No

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

No

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

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

No

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

No

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

No

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

No

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

No

Please list suggested reviewers for your proposal. (optional)

Mike Delamore	**U.S. Bureau of Reclamation**	**559-487-5039**	**mdelamore@mp.usbr.gov**
Manucher Alemi	**California Department of Water Resources**	**916-651-9662**	**malemi@water.ca.gov**

21. **Comments:**

Panoche Drainage District does not have a fixed percentage to charge as overhead. It is estimated that the overhead costs for a project of this size and complexity will be approximately $29,000, or 2%. Panoche Drainage District intends to provide overhead and administrative cost at its own expense as a source of cost share.

Environmental Compliance Checklist

San Joaquin River Water Quality Improvement Project - Phase II Implementation

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: Panoche Drainage District
   NEPA Lead Agency (or co-lead:)
   NEPA Co-Lead Agency (if applicable):

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

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

   NEPA
   -Categorical Exclusion
   -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.

   It is assumed that CEQA documentation will satisfy all environmental requirements. However, if necessary, NEPA documents will be prepared prior to the commencement of work on the project in accordance with the law.

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.

It is anticipated that the CEQA documentation will be complete by May or June of 2002, provided the proposal is accepted.

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

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

LOCAL PERMITS AND APPROVALS

Conditional use permit

Variance

Subdivision Map Act

Grading Permit

General Plan Amendment

Specific Plan Approval

Rezone

Williamson Act Contract Cancellation

Other

STATE PERMITS AND APPROVALS

Scientific Collecting Permit

CESA Compliance: 2081

CESA Compliance: NCCP

1601/03

CWA 401 certification

Coastal Development Permit

Reclamation Board Approval

Notification of DPC or BCDC

Other

FEDERAL PERMITS AND APPROVALS

ESA Compliance Section 7 Consultation

ESA Compliance Section 10 Permit

Rivers and Harbors Act

CWA 404

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.**

Panoche Drainage District is the sole owner of the project site and all work associated with the project are consistant with zoning laws - no additional permits or agreement are necessary.

Land Use Checklist

San Joaquin River Water Quality Improvement Project - Phase II Implementation

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

   No

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

   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 project site is currently agriculturally zoned (AE-20); The proposed project will plant currently fallow fields with agricultural crops, consistent with zoning of the property.

4. **Comments.**

Conflict of Interest Checklist

San Joaquin River Water Quality Improvement Project - Phase II Implementation

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):

Dennis Falaschi, Panoche Drainage District
Joseph McGahan, Grassland Area Farmers

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

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

Ike McElvany	McElvany, Inc.
None	None
None	None
None	None
None	None

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Chris Linneman	**Summers Engineering, Inc.**

Joseph McGahan **Summers Engineering, Inc.**

Dennis Falaschi **Panoche Drainage District**

Chase Hurley **Panoche Drainage District**

Comments:

Budget Summary

San Joaquin River Water Quality Improvement Project - Phase II Implementation

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

Independent of Fund Source

Year 1												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Plant Selected Forage Crops	0	0	0	0	0	164500	0	0	164500.0	4000	168500.00
2	Install Drainage	0	0	0	0	0	490900	0	0	490900.0	6000	496900.00
3	Administrative Costs: Administrative Assistant	225	5625	2925	0	0	0	0	0	8550.0	0	8550.00
4	Administrative Services: Office Manager	224	4034	2016	0	0	0	0	0	6050.0	0	6050.00
5	Administrative Services: Office Clerk	260	3380	1820	0	0	0	0	0	5200.0	0	5200.00
6	Engineering						20000			20000.0		20000.00
7	CEQA/NEPA Compliance						25000			25000.0		25000.00
		709	13039.00	6761.00	0.00	0.00	700400.00	0.00	0.00	720200.00	10000.00	730200.00

Year 2												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Plant Selected Forage Crops	0	0	0	0	0	187700	0	0	187700.0	5000	192700.00
2	Install Drainage System	0	0	0	0	0	461900	0	0	461900.0	5000	466900.00
3	Install Cattle Fencing	0	0	0	0	0	99300	0	0	99300.0	5000	104300.00
4	Administrative Costs: Administrative Assistant	218	5450	2834	0	0		0	0	8284.0	0	8284.00
5	Administrative Services: Office Manager	219	3945	1971	0	0	0	0	0	5916.0	0	5916.00
6	Administrative Services: Office Clerk	240	3120	1680	0	0	0	0	0	4800.0	0	4800.00
7	Engineering						15000			15000.0		15000.00
		677	12515.00	6485.00	0.00	0.00	763900.00	0.00	0.00	782900.00	15000.00	797900.00

Year 3												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Plant Selected Forage Crops	0	0	0	0	0	176600	0	0	176600.0	2000	178600.00
2	Install Cattle Fence	0	0	0	0	0	120200	0	0	120200.0	2000	122200.00
3	Administrative Costs: Administrative Assistant	118	2950	1530	0	0	0	0	0	4480.0	0	4480.00
4	Administrative Services: Office Manager	100	1800	900	0	0	0	0	0	2700.0	0	2700.00
5	Administrative Services: Office Clerk	116	1508	812	0	0	0	0	0	2320.0	0	2320.00
		334	6258.00	3242.00	0.00	0.00	296800.00	0.00	0.00	306300.00	4000.00	310300.00

Grand Total=1838400.00

Comments.

Panoche Drainage District intends to provide funds for the overhead and administrative services of this project as cost share. The total requested funds from the CalFed grant program is: $1,761,100

Budget Justification

San Joaquin River Water Quality Improvement Project - Phase II Implementation

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

Below is an estimate of the manhours associated with those likely to perform administrative services on this project. Panoche Drainage District intends to cover the costs of these services as part of the cost sharing for this project: Administrative Assistant: 561 Office Manager:543 Office Clerk:616

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

Administrative Assistant: 25$/hr Office Manager:18$/hr Office Clerk:13$/hr

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

Administrative Assistant: 13$/hr Office Manager:9$/hr Office Clerk:7$/hr

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

All travel associated with this project will be local vehicular travel in district vehicles. The costs for this travel are included in the overhead (indirect costs)

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

There is not expected to be any significant cost associated with supplies and expendables for this project. All office items such as paper and ink cartridges are included in overhead and will be paid for by Panoche Drainage District as a portion of the cost share.

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.

Engineering services: Engineering services include field visits and surveys, and drainage system design. The estimated time and cost are: Field Visit/Surveys: 12 days at $1,500/day Drainage System Design: 27 days at $450/day Construction Services to install the subsurface drainage system are estimated on a cost per acre basis. The estimated cost is 850$/acre drained. Construction services to install the cattle fencing is based on a cost per linear foot basis. The estimated cost is 3$/linear foot of fence. The cost to prepare the ground and plant the alfalfa and pasture fields is based on a cost per acre planted. The estimated cost to plant alfalfa and pasture is 325$/acre planted. It is possible other forage crops may be selected for the project, but costs for those crops would be similar. The cost associated with completing the CEQA/NEPA documentation is based on the costs of this documentation for other projects similar in size and complexity. An estimate of the amount of manhours or hourly rate needed to complete this documentation is not practical.

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.

It is not expected that new equipment will be purchased for this project.

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.

The costs associated with managing this project are included in the administrative services costs listed above. All of the administrative services involved with this project are associated with the management of the project. Panoche Drainage District will pay for these costs as part of their cost share.

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

There are no other direct costs.

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.

The Indirect Costs of this project is the overhead associated in running office and equipment needed for project administration. This is approximately 2% of the total project cost, and will include use of office equipment, phone, electricty, paper, district vehicles and other items. Panoche Drainage District will pay these costs as part of their cost share.

Executive Summary

San Joaquin River Water Quality Improvement Project - Phase II Implementation

In March 1996, the Grassland Basin Drainers formed a regional drainage entity under the umbrella of the San Luis & Delta-Mendota Water Authority to implement the Grassland Bypass Project. This entity includes approximately 97,000 gross acres of irrigated farmland on the west side of the San Joaquin Valley (West San Joaquin Basin Ecological Management Zone), referred to as the Grassland Drainage Area. The Grassland Bypass Project is an innovative program that was designed to improve water quality in the San Joaquin River and in the channels which convey water to wetland areas. The Grassland Bypass Project consolidates subsurface drainage flows on a regional basis and utilizes a portion of the San Luis Drain to convey flows around the habitat areas. The Grassland Bypass Project includes monthly and annual limits on the selenium load that could be discharged to the San Joaquin River. A procedure was also included to assess incentive fees if monthly or annual load limits were exceeded. Through a variety of drainage reduction practices, the Grassland Drainers have been able to reduce their discharge to the San Joaquin River by 41%, resulting in a selenium load reduction of 54%, salt load reduction of 29%, and a boron load reduction of 14%. In September 2001, the Use Agreement for the first five years of the Grassland Bypass Project expired and a new Use Agreement has been signed. However, monthly and annual selenium load limits significantly reduce as part of the new Use Agreement. Additionally, it is anticipated that load limits for boron, salt, and dissolved oxygen will be imposed in the future. The Grassland Drainers need additional tools to meet these new limits. In December of 2000, Panoche Drainage District implemented the first phase of the San Joaquin River Water Quality Improvement Project (SJRIP) as a tool to help manage subsurface drainage water generated throughout the Grassland Drainage Area. Phase I included the purchase of approximately 4,000 acres of farmland, of which approximately 1,800 acres have been planted with salt tolerant crops, and another 520 acres is in the process of development. This has reduced the volume of agricultural subsurface drain water discharged to the San Joaquin River by using the drainage generated within the Grassland Drainage Area to irrigate the planted fields. In order to meet future load targets and maintain long term viability, the entire 4,000 acres needs to be provided with subsurface drainage and planted with salt tolerant crops. The San Joaquin River Water Quality Improvement Project Phase II Implementation Project is an implementation project to help reduce the impacts of irrigation drainage on the San Joaquin River (CALFED Priority SJ-5). It will also apply to Multi-Regional Priority MR-5, Ensure that restoration is not threatened by degraded environmental water quality. This project proposes to provide subsurface drainage, install cattle fencing, and to plant salt tolerant forage crops (such as pasture and alfalfa) on approximately 1,500 acres of farmland located within the SJRIP. When the crops have matured, the proposed project will divert approximately 4,500 acre feet of drain water from the San Joaquin River, preventing approximately 1,100 pounds of selenium, 80,000 pounds of boron, and 35,000 tons of salt from being discharged to the San Joaquin River and transported to the Delta and Bay. Additionally, by reducing the amount of drain water conveyed to the river, the project is likely to reduce nutrient loading to the San Joaquin River and benefit the dissolved oxygen issues downstream in the San Joaquin river.

Proposal

Panoche Drainage District

San Joaquin River Water Quality Improvement Project - Phase II Implementation

Dennis Falaschi, Panoche Drainage District
Joseph McGahan, Grassland Area Farmers

CALFED Ecosystem Restoration Program – Project Proposal

San Joaquin River Water Quality Improvement Project Phase II Implementation

Panoche Drainage District

A. Project Description:

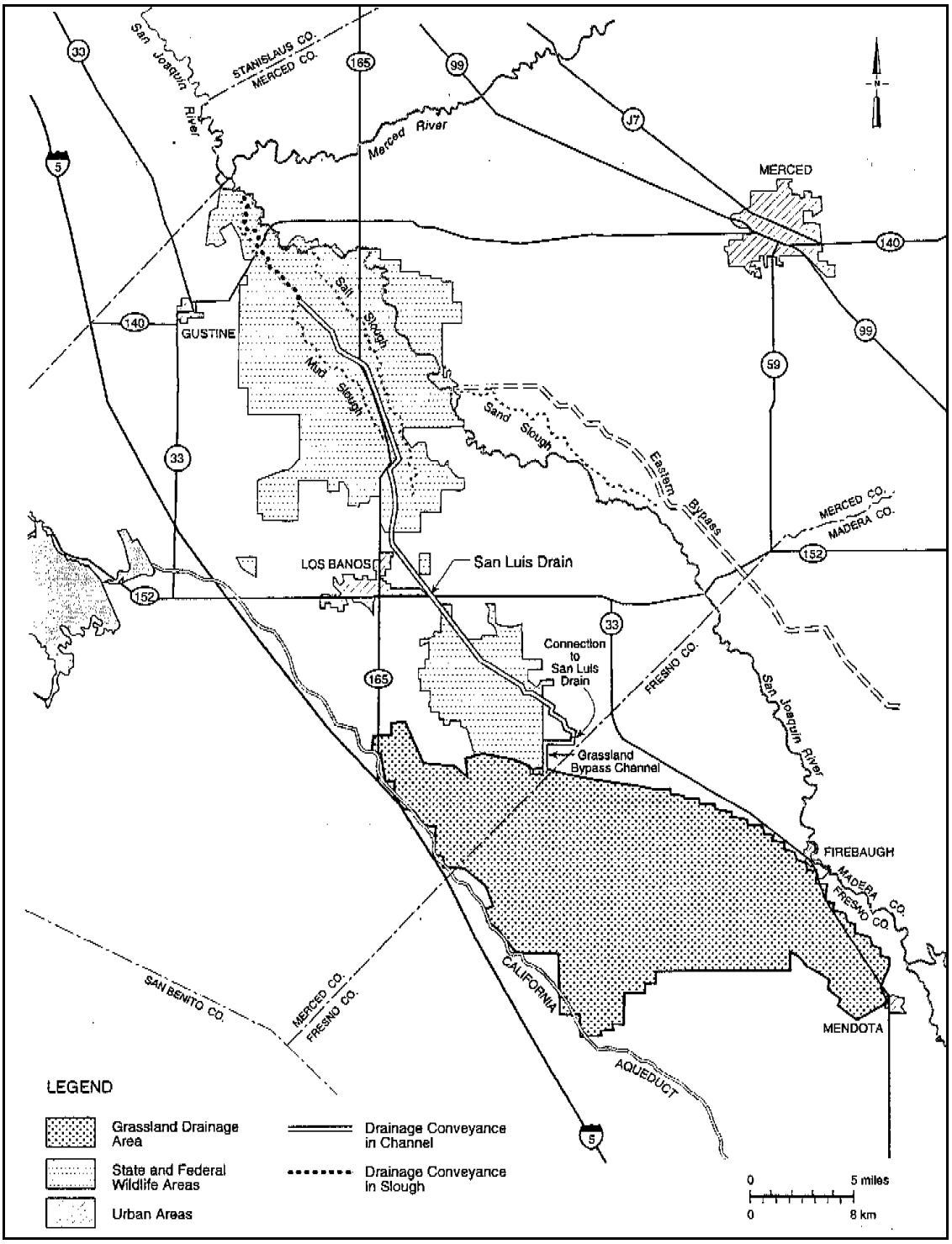
Project Summary: The goal of this project is to reduce the impacts of irrigation drainage on the San Joaquin River, and reduce the transport of contaminants (including selenium, boron, salt, and oxygen-consuming nutrients) carried by the San Joaquin River to the Delta by diverting drain water away from the river (CALFED ROD Priority 5 of the San Joaquin Region). This project will also address Multi-Regional Bay Delta Priority MR-5, "Ensure that restoration is not threatened by degraded environmental water quality", by removing poor quality subsurface drain water from the waterways of the Bay/Delta and San Joaquin River.

This project proposes to provide subsurface drainage, operational facilities, and plant salt tolerant forage crops, such as pasture and alfalfa, on approximately 1,500 acres of farmland, so that the crops can be irrigated with subsurface drain water produced within the Grassland Drainage Area (located in the West San Joaquin Basin Ecological Management Zone). The property is owned by Panoche Drainage District and is part of the San Joaquin River Water Quality Improvement Project (SJRIP). When the pasture and alfalfa have matured, the proposed project will divert approximately 4,500 acre feet of drain water, preventing approximately 1,100 pounds of selenium, 80,000 pounds of boron, and 35,000 tons of salt from being discharged to the San Joaquin River.

Background and Problem: The Grassland Basin Drainers formed a regional drainage entity in March 1996 under the umbrella of the San Luis & Delta-Mendota Water Authority (SLDMWA) to implement the Grassland Bypass Project (GBP). This entity includes approximately 97,000 gross acres of irrigated farmland on the west side of the San Joaquin Valley, referred to as the

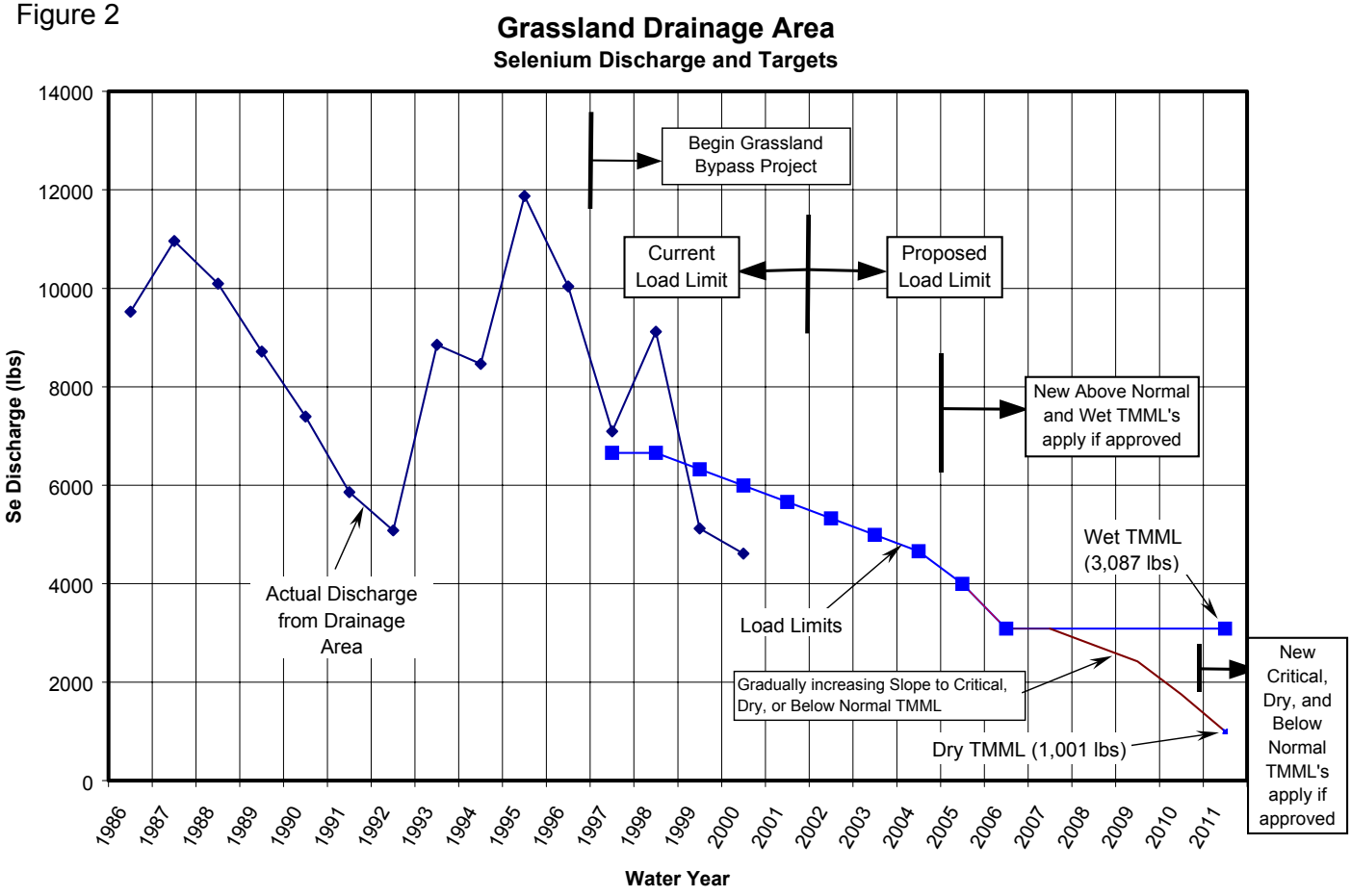
Grassland Drainage Area (See Figure 1). The GBP is an innovative program that was designed to improve water quality in the San Joaquin River and in the channels which convey water to wetland areas while maintaining viable farming in the Grassland Basin. The GBP consolidates subsurface drainage flows on a regional basis and utilizes a portion of the San Luis Drain to convey flows around

Figure 1


STANISLAUS CO.
MERCED CO.
San Joaquin River
Merced River
MERCED
GUSTINE
Salt Slough
Mud Slough
Sand Slough
Eastern Bypass
MERCED CO.
MADERA CO.
LOS BANOS
San Luis Drain
Connection to San Luis Drain
FRESNO CO.
San Joaquin River
Grassland Bypass Channel
FIREBAUGH
MADERA CO.
FRESNO CO.
SAN BENITO CO.
MERCED CO.
FRESNO CO.
CALIFORNIA AQUEDUCT
MENDOTA
LEGEND
Grassland Drainage Area
State and Federal Wildlife Areas
Urban Areas
Drainage Conveyance in Channel
Drainage Conveyance in Slough
0 5 miles
0 8 km

the habitat areas. The GBP includes monthly and annual limits on the selenium load that could be discharged to the San Joaquin River. A procedure was also included to assess incentive fees if monthly or annual load limits were exceeded. Through a variety of drainage reduction practices, the Grassland Drainers have been able to reduce their discharge to the San Joaquin River by 41%, resulting in a selenium load reduction of 54%, salt load reduction of 29%, and a boron load reduction of 14%. Figure 2, below shows the historical selenium discharges from the Grassland Drainage Area, the impacts of the GBP, and existing and future selenium load targets.

Figure 2



In September 2001, a new Use Agreement for the GBP was signed. Monthly and annual selenium load limits are significantly reduced over time as part of the

new Use Agreement. Additionally, it is anticipated that load limits for boron, salt, and dissolved oxygen will be imposed in the future. The Grassland Drainers need additional tools to meet these new limits.

Project Justification: The proposed project is an expansion of an existing drainage management project that has demonstrated significant success in past years. In June 1998, as part of their efforts to meet selenium load targets, Panoche Drainage District began applying drainage water to pasture and alfalfa fields. By December, 2000, this management method had disposed of 5,843 acre feet of drain water, 845 pounds of selenium, and 22,537 tons of salt that would have otherwise been discharged into the San Joaquin River. In January 2001, with funding from the State of California Proposition 13, the San Joaquin River Water Quality Improvement Project, Phase I was implemented. Phase I of the SJRIP included the purchase of approximately 4,000 acres of farmland within the Grassland Drainage Area (see Figure 3), some 1,800 acres of which was already planted with alfalfa, pasture, and asparagus. Throughout the irrigation season of 2001, drain water from the Grassland Drainage Area has been used to irrigate these crops, displacing approximately 2,200 acre feet. This drainage management tool has proven to be significant in reducing the amount of drainage discharged to the San Joaquin River. However, in order to meet future water quality objectives, the remainder of the 4,000 acres needs to be planted and prepared to receive drain water. Additionally, subsurface drainage needs to be provided to prevent salinization of the soil, and maintain long term soil fertility.

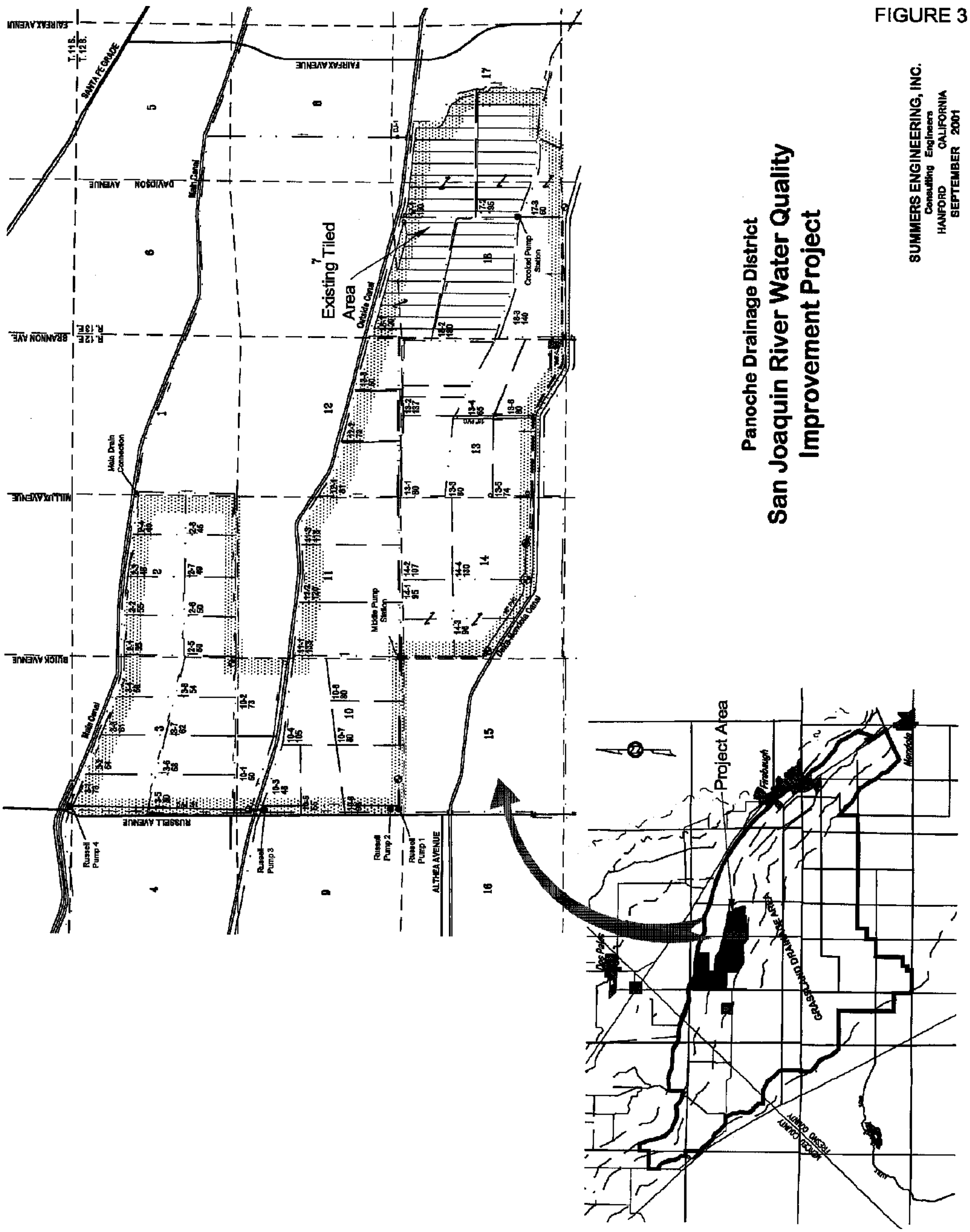


FIGURE 3
Panoche Drainage District
San Joaquin River Water Quality
Improvement Project
SUMMERS ENGINEERING, INC.
Consulting Engineers
HANFORD CALIFORNIA
SEPTEMBER 2001
Existing Tiled Area
Project Area
FAIRFAX AVENUE
DAVIDSON AVENUE
BRANNON AVE.
MILLER AVENUE
BUICK AVENUE
RUSSELL AVENUE
ALTHEA AVENUE
SANTA FE GRADE
Main Canal
Outside Canal
Main Drain Connection
Middle Pump Station
Crooked Pump Station
Russell Pump 1
Russell Pump 2
Russell Pump 3
Russell Pump 4

Project Approach: The goal of the proposed project is to reduce the impacts of agricultural drain water on the San Joaquin River by reducing the amount of drainage that is discharged to the river. The approach to accomplishing this goal is to divert drain water that would otherwise be discharged to the San Joaquin River onto specially managed farmland prepared to use agricultural drain water for irrigation. Proper subsurface drainage will need to be provided for the project to maintain long term agricultural viability. This project proposes to install drainage systems on approximately 1,020 acres and plant salt tolerant forage crops on approximately 1,500 acres over a period of three years. The forage crops may include alfalfa, pasture, and safflower. Pasture fields will need to be fenced for summer grazing for cattle or sheep. The project will be operated as a self contained drainage disposal facility. Drainage water collected by the project subsurface drainage system will be blended with incoming irrigation water and reused within the SJRIP. Subsurface drain water produced from the six entities in the Grassland Drainage Area (Broadview Water District, Camp 13 Drainage District, Charleston Drainage District, Firebaugh Canal Water District, Pacheco Water District, and Panoche Drainage District) is currently transported to the project site through a series of regional drains. Five existing pump stations will lift drain water from the drains and discharge it to the project irrigation distribution system. Since the project site has already been developed as farmland, virtually all of the irrigation infrastructure already exists, and only minor modifications are required to operate the project.

The subsurface drainage system will be designed and installed according to site and soil conditions to provide adequate soil leaching. Crop seed varieties and mixes will be determined by Panoche Drainage District according to market availability and suitability for use with drainage water. Climate conditions and cultural practices of the western San Joaquin Valley require forage crops to be planted in the early fall. Additionally, the planted fields will require fresh water irrigations for most of the first year to promote a healthy stand. Application of

drain water to these plants as seedlings will result in poor germination and a weak crop. Once mature, however, these crops can consume drain water with a total dissolved solids concentration of more than 3,000 ppm (EC ≈ 4,000 µmhos/cm).

Layout and installation of the cattle fencing will be determined and directed in the field by Panoche Drainage District to maximize maintenance efficiency and herd maneuverability.

All field work and planting will be performed by experienced contractors selected by Panoche Drainage District.

Feasibility: Since 1998, Panoche Drainage District has demonstrated the success of this type of drainage management. Through the first year of operation of the SJRIP, and its other drainage management programs that have been ongoing since 1998, the district has diverted more than 8,000 acre feet of drain water that would have otherwise been discharged to the San Joaquin River. It is clear that, with adequate drainage provided, this form of drainage management can successfully dispose of a large amount of drain water for a sustainable period of time. In regards to the Grassland Drainage Area, this management method can help provide significant improvement to the water quality of the San Joaquin River by reducing the amount of agricultural drainage discharged to the river.

The project site is owned by Panoche Drainage District, and all proposed activities are consistent with zoning laws and routinely performed, so no additional permits or agreements are required. In September, 2000, Panoche Drainage District adopted a Negative Declaration[1] for Phase I of the SJRIP. This document discussed the environmental effects of the purchase of the property by

[1] San Joaquin River Water Quality Improvement Project – Phase 1: California Environmental Quality Act Compliance, September 2000.

Panoche and the planting of salt tolerant crops for drainage disposal. However, the document does not discuss the installation or operation of subsurface drainage systems. Additional CEQA documentation may be required to address this issue. Panoche Drainage District will comply will all federal and state environmental laws, and additional documentation will be completed as required prior to performing any work.

Monitoring Program: The monitoring program will be oriented toward determining how effective the project is at disposing of agricultural drainage and associated contaminants. The success of the proposed project will be measured according to the amount of subsurface drain water that is diverted to the project. This will be measured through the monitoring programs of the SJRIP and the Grassland Bypass Project. The volume and quality of water diverted onto the project will be measured regularly. The constituent loads (selenium, salt, etc.) will be calculated from the measured volume and quality. In addition, the overall effects of the SJRIP, along with the whole Grassland Bypass Project, will be monitored and reported through the Grassland Bypass Project Monitoring Program. Water delivered to the SJRIP is measured on a daily basis, and water quality samples are taken weekly and tested for selenium, boron, and electrical conductivity. Each week an estimate of drain water and selenium diverted to the SJRIP is made and faxed to all of the drainage entities in the Grassland Drainage Area. All monitoring activities will be performed in accordance to the Grassland Bypass Project Quality Assurance Project Plan.

Monitoring of the project construction and progress reports will be performed according to requirements specified in the CALFED ERP contract.

Data Handling and Storage: The effectiveness of the SJRIP is measured through the amount of drain water diverted to it, and the concentrations of the constituents in that drain water. The volume of water is measured daily at each of the five pump stations in the SJRIP, and water quality samples are taken

weekly and analyzed at a certified lab. The results are used to calculate the load of selenium, boron, and salt displaced by the project. This information is reported weekly to the Grassland Area Farmers. All monitoring will be performed in accordance with the Grassland Bypass Project Quality Assurance Project Plan.

Expected Products/Outcomes: The primary outcome of this proposed project will be a reduction in the amount of agricultural subsurface drainage discharged to the San Joaquin River. When the pasture and alfalfa have matured, the proposed project will divert approximately 4,500 acre feet of drain water, preventing approximately 1,100 pounds of selenium, 80,000 pounds of boron, and 35,000 tons of salt from being discharged to the San Joaquin River. This outcome will be tracked by the drainage entities in the Grassland Drainage Area and by the Grassland Bypass Project. It is probable that papers and reports will be developed for publications of professional associations, but the schedule for such papers in unknown as this time. The site will be made available for visits by organizations studying drainage management.

Work Schedule: Below is a draft work schedule for the proposed project. The nature of the project requires seasonal construction; forage crops must be planted during the early fall (before November 15th), and field work such as fencing installation will be performed during the spring and summer. The project spans a three year period. The actual month of task initiation and completion will depend upon the date of contract execution.

- Year 1:

Spring/Summer – Complete CEQA documentation; Design drainage system for fields to be planted in Year 2; Install subsurface drainage systems on 525 acres.

Fall - Plant 460 acres of forage crops on exiting tiled ground.

- Year 2:

Spring/Summer - Install 5.7 miles of cattle fence around pasture fields planted in Year 1.

Spring/Summer - Install subsurface drainage systems on 494 acres, design drainage system for fields to be planted in Year 3.

Fall - Plant 525 acres of forage crops on ground with subsurface drainage systems installed in Year 1.

- Year 3:

Spring/Summer - Install 6.9 miles of cattle fence around pasture fields planted in Year 2.

Fall - Plant 500± acres of forage crops on ground with subsurface drainage systems installed in Year 2.

The proposed schedule is based on full funding of the project with the contract executed in the winter or spring of Year 1. If less than full funding were to be provided, the project size (amount of land developed) would be reduced proportionally. A later contract execution date may require a shift in the work schedule to accommodate the seasonal nature of the project.

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

1. ERP, Science Program and CVPIA Priorities: The project is located in the Grassland Drainage Area, in the West San Joaquin River Ecological Management Zone. It addresses Multi-Regional Bay-Delta Priority MR-5, "Ensure that restoration is not threatened by degraded environmental water quality" and San Joaquin Region Priority SJ-5, "Develop understanding and technologies to reduce the impacts of irrigation drainage on the San Joaquin River and reduce transport of contaminant (selenium) loads carried by the San Joaquin to the Delta and the Bay." Agricultural subsurface drain water

discharged from the Grassland Drainage Area accounts for approximately 90% of the selenium discharged to the Delta from the San Joaquin River. The drainage area is also a significant source of boron and salt transported to the Delta. This project reduces irrigation drainage discharged to the San Joaquin River by re-applying the drain water to salt tolerant crops before it reaches the river. By diverting this drain water, significant quantities of boron, salt, selenium, and nutrients that consume dissolved oxygen will be kept from the San Joaquin River and Bay/Delta ecosystems. It is estimated that this project will divert 4,500 acre feet of drain water, preventing approximately 1,100 pounds of selenium, 80,000 pounds of boron, and 35,000 tons of salt from being discharged to the San Joaquin River.

2. Relationship to Other Ecosystem Restoration Projects: This project is proposed as a management tool to ensure the success of the Grassland Bypass Project and is Phase II of the San Joaquin River Water Quality Improvement Project. Phase I of the San Joaquin River Water Quality Improvement Project was funded by the State of California Proposition 13. This is one of three ERP proposals being submitted under this solicitation to reduce drainage discharges from the Grassland Drainage Area to the San Joaquin River. These projects are needed to meet future selenium load reduction requirements in the San Joaquin River, with consideration of the salt/boron and dissolved oxygen TMDL's looming in the future. All three projects complement each other and proceed toward the common goal of reducing discharge from subsurface agricultural drainage to the San Joaquin River. The three projects are 1) San Joaquin River Water Quality Improvement Project - Phase II Implementation (this proposal), 2) Full-Scale Demonstration of Agricultural Drainage-Water Recycling process Using Membrane Technology and 3) Algal-Bacterial Selenium Removal Full Scale Demonstration. These projects are components of an ongoing planning study funded with State of California Proposition 204 funds. This planning effort includes representatives from the Grassland Area Farmers through the San Luis & Delta-Mendota Water Authority, the Department of Water Resources, the U. S.

Bureau of Reclamation and the Regional Water Quality Control Board (Central Valley Region). The results from these projects will be used by this planning group to determine the best available technology to meet the drainage reduction benefits in the San Joaquin River. Individual members of the planning group include Manucher Alemi, Coordinator for the San Joaquin Valley Drainage Implementation Program and Michael Delamore, Chief, San Joaquin Drainage Division for the U. S. Bureau of Reclamation.

3. Requests for Next Phase Funding: Not Applicable

4. Previous Recipients of CALFED Program or CVPIA funding: Not Applicable

5. System-Wide Ecosystem Benefits: This project will help manage agricultural drainage water discharged from the entire 97,000 acres of the Grassland Drainage Area. All six districts of the drainage area (Broadview Water District, Camp 13 Drainage District, Charleston Drainage District, Firebaugh Canal Water District, Pacheco Water District, and Panoche Drainage District) intend to take advantage of this project by diverting portions of their drainage to the project. In addition, this project will complement other drainage reduction projects already implemented by the districts in the Grassland Drainage Area, including drainage recirculation and displacement. There has been some research in drain water treatment to remove selenium and other constituents, but so far these have been performed on a pilot scale. Other projects are being proposed to research full scale implementation of these technologies.

The drainage from the Grassland Drainage Area is discharged through the San Luis Drain (as part of the Grassland Bypass Project) to Mud Slough then to the San Joaquin River. The reduction in agricultural drainage discharged from the Grassland Drainage Area will directly benefit the Mud Slough ecosystem, the wetlands served by Mud Slough, and the San Joaquin River, by reducing the

amount of selenium and other contaminants that would otherwise be deposited and bioaccumulated within these systems.

6. Additional Information for Land Acquisition: Not Applicable

C. Qualifications

This project is being proposed and will be implemented by Panoche Drainage District. Since 1985, Panoche Drainage District has been active in managing and reducing drainage flows. The district has implemented tiered water pricing and facilitated loans for landowners for irrigation improvements to both conserve water and reduce the amount of drain water produced. In 1998, Panoche Drainage District installed a district wide recirculation system to blend up to 15 cubic feet per second of drain water into their irrigation system. Additionally, Panoche Drainage District developed the concept of Active Land Management, whereby agricultural drain water is used to irrigate salt tolerant crops. This management method is the basis of the San Joaquin River Water Quality Improvement Project and this proposal.

The project design and data collection will be performed under the direction of Joseph McGahan, President of Summers Engineering, Inc. Joseph McGahan has been involved in the field of irrigation and drainage for 30 years. He is currently Drainage Coordinator for the Grassland Bypass Project and has been involved with the project since its conception. Joe McGahan is a registered Civil Engineer (CE 26307), and received his B.S. from California State Polytechnic College in 1970 and a M.S. from the California Institute of Technology in 1971.

D. Cost

1. Budget: See separate form

2. Cost-Sharing: Panoche Drainage District intends to provide cost sharing funds in the form of overhead and administrative in-kind services. These funds will be included in Panoche's annual budget and are estimated to be $77,300.

E. Local Involvement

This project is being proposed as part of the San Joaquin River Water Quality Improvement Project, which is operated with the complete knowledge and cooperation of all six drainage entities within the Grassland Drainage Area and their landowners. To the extent possible, drainage discharges will be diverted to the project from all six districts based on the irrigation demand of the crops in the project and the amount of drainage developed by each entity. No local opposition to this project is known or expected.

F. Compliance with Standard Terms and Conditions

Panoche Drainage District is familiar with and will comply with the standard terms and conditions as presented in Attachment D.

G. Additional Technical References

Please contact Summers Engineering, Inc. for copies of any of these documents at (559)582-9237.

Compliance Monitoring Program for Use and Operation of the Grassland Bypass Project, Phase II, October 1, 2001 – December 31, 2009, (Draft) August 23, 2001.

Grassland Bypass Project Environmental Impact Statement and Environmental Impact Report, Volume I and II, May 25, 2001.

Grassland Bypass Project, Project Description and Update, February 2001.

Grassland Bypass Project, Quality Assurance Project Plan, June 1997.

San Joaquin River Water Quality Improvement Project – Project Description, October 25, 2000.

San Joaquin River Water Quality Improvement Project – Phase I, California Environmental Quality Act Compliance, September 2000.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
FWS/EC-02-001

October 4, 2001

Mr. Joseph C. McGahan
Drainage Coordinator
Grassland Drainage Area
P. O. Box 1122
Hanford, California 93232

Dear Mr. McGahan:

Subject: Proposals for Agricultural Drainwater Treatment Systems

The U.S. Fish and Wildlife Service (Service) appreciates that Grassland Area farmers have taken a lead role in developing and testing innovative methods of treating subsurface agricultural drainwater to concentrate and remove selenium and/or other contaminants. We understand that as key steps in this development program, the Grassland Area farmers are submitting to CalFed proposals for three projects involving (1) application of drainwater to irrigate salt-tolerant crops, (2) membrane filtration of drainwater, and (3) use of bacteria and algae to remove selenium from drainwater. The Service supports in principle these efforts to reduce discharges to the San Joaquin River. We look forward to working with you and the Grassland Area farmers to ensure that these projects are implemented is such a way that adverse effects on fish and wildlife will be avoided. If you have any questions please contact Dr. Steve Schwarzbach, Mr. Tom Maurer, or Dr. Bill Beckon of my Contaminants Division staff.

Sincerely,

Dale A. Pierce

Dale A. Pierce
Acting Field Supervisor