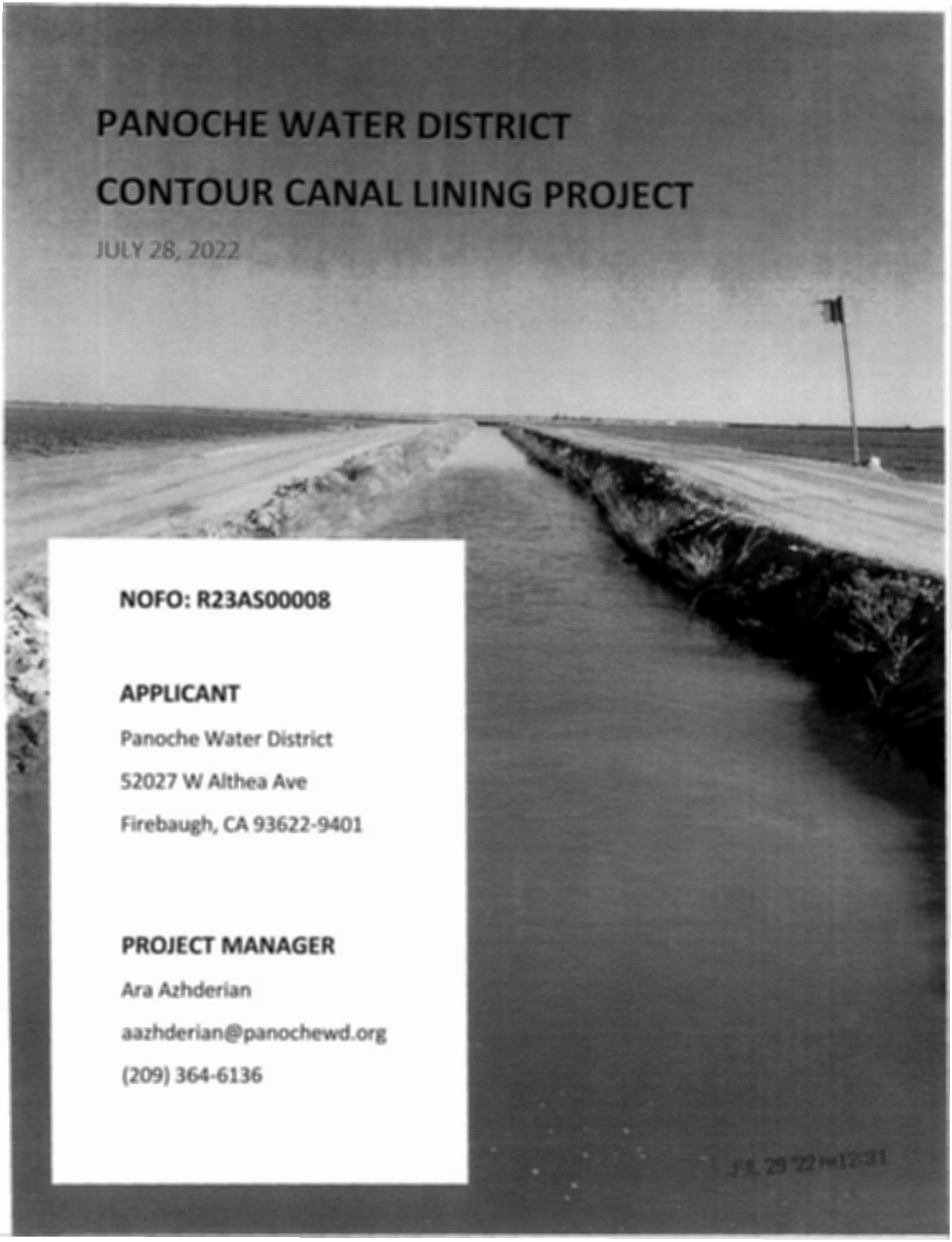
PANOCHE WATER DISTRICT

CONTOUR CANAL LINING PROJECT

JULY 28, 2022



NOFO: R23AS00008

APPLICANT

Panoche Water District

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Firebaugh, CA 93622-9401

PROJECT MANAGER

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1. TECHNCAL PROPOSAL

1.1 EXECUTIVE SUMMARY

The executive summary should include:

- The date, applicant name, city, county, and state
- Please indicate whether you are a Category A applicant or a Category B applicant. If you are a Category B applicant, please briefly explain how you are acting in partnership with a Category A partner. Note: If you are a Category B applicant, you must include a letter from the Category A partner confirming that they are partnering with you and agree to the submittal and content of the proposal. See Section C.1. Eligible Applicants.
- A one-paragraph project summary that provides the location of the project, a brief description of the work that will be carried out, any partners involved, expected benefits, and how those benefits relate to the water management issues you plan to address. Please note: this information will be used to create a summary of your project for our website if the project is selected for funding.
- State the length of time and estimated completion date for the proposed project. Note: proposed projects should not have an estimated construction start date that is prior to May 2023.
- Whether or not the proposed project is located on a Federal facility.

Date	**July 28, 2021**
Applicant Name	Panoche Water District
City	Firebaugh
County	Fresno
State	California
Applicant Category	Category A (*Water District*)

Panoche Water District's (District) proposed Contour Lining Project (Project) will concrete line 2.9 miles of the Contour Canal, replace four (4) check structures, three road crossings, and 15 turnouts. However, the District is flexible in the length of the canal lining and while it is pursuing total grant funding of $3,852,700 million dollars, the Project is scalable to match funding amount. The existing turnout structures will be replaced with pre-cast concrete structures that can accommodate the trash screens necessary for high-efficiency irrigation system upgrades. The Project is generally located in the San Joaquin Valley in central California. Specifically, this project is in Panoche Water District in Fresno County. The Project is expected to begin in December 2022 and conclude by December 2024. The District is the sole sponsoring agency of the proposed Project, and it is not located on a federal facility. The goal of the Project is to reduce seepage losses in the unlined portion of the Contour Canal estimated at roughly 1,588 acre-feet (af) per year. Due to current losses, District landowners are required to rely more on groundwater, which is an increased expense due to energy usage and wear on pump

motors. By concrete lining the Contour Canal, the District will be able to avoid the costs associated with additional groundwater pumping demonstrating an energy efficiency for the District's rate payers. Due to ongoing, extreme drought conditions, increased groundwater regulations (the Sustainable Groundwater Management Act) and decreasing reliability of surface supply deliveries, the District believes these types of projects are critical to protecting and enhancing its existing water supplies to support the District's people, businesses, and the environment.

About Panoche Water District

The Panoche Water District is a California water district established in 1953 with statutory authority pursuant to California Water District Law (Water Code sections 34000-38500) to provide water service to approximately 38,000 acres of irrigated agriculture located on the west side of the San Joaquin Valley, spanning portions of Merced and Fresno Counties.

The climate and soils provide for some of the best agricultural production in the world. Crops grown in the PWD include Pistachios, Almonds, Tomatoes, Grapes, Melons, Cotton, Olives, Pomegranates and a wide variety of other annual and permanent crops.

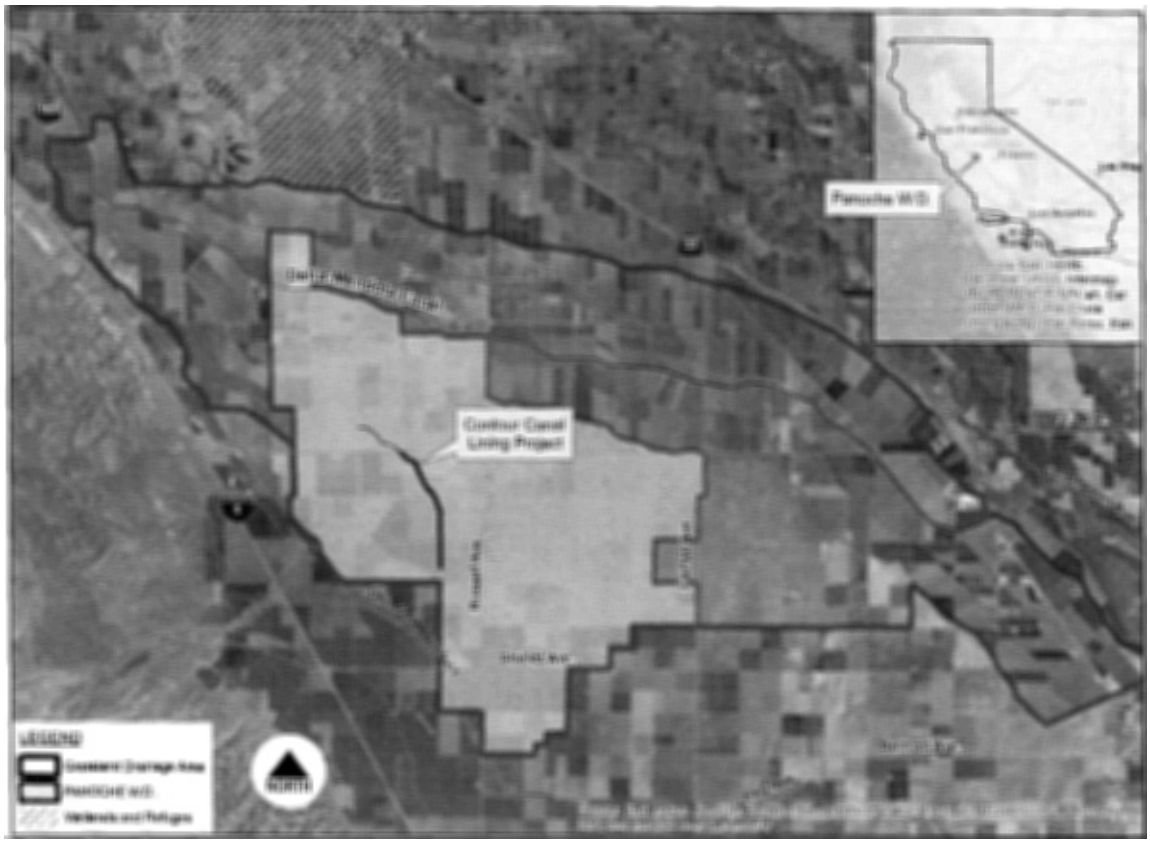
The District holds a contract with the United States Bureau of Reclamation (Contract No. 14-06-200-7864A-IR1-P) for water service from the Delta Division and San Luis Unit of the Central Valley Project. The District also has other agreements with Reclamation providing for the conveyance and storage of non-project water supplies (Warren Act) and the exchange of water to supplement refuge water supplies (Central Valley Project Improvement Act Section 3406(d)).

1.2 PROJECT LOCATION

- Provide detailed information on the proposed project location or project area including a map showing the specific geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g., northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}.

The Project is located in Fresno County, California, within PWD's boundaries, and roughly 13 miles west of the town of Firebaugh as shown in the below map. The project latitude is 36° 51' 0.489"N and longitude is 120° 41' 21.4506"W.

Figure 1: Project Location Map



Panoche Water District
Contour Canal Lining Project - Location Map

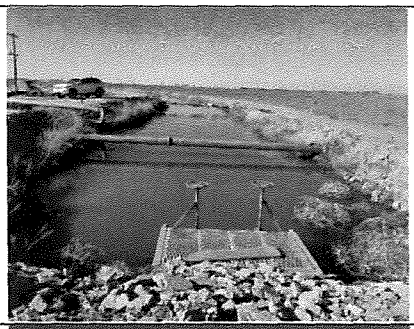
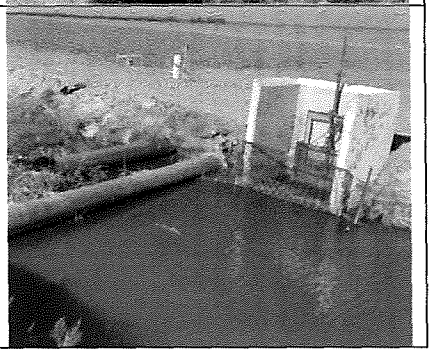
Document Path: G:\data\ARC\WEW\MAPS\Panoche\2022 WCP Grant App\PWD_Contour Canal Lining Project.mxd

1.3 TECHNICAL PROJECT DESCRIPTION

- Provide a more comprehensive description of the technical aspects of your project, including the work to be accomplished and the approach to complete the work. This description should provide detailed information about the project including materials and equipment and the work to be conducted to complete the project. This section provides an opportunity for the applicant to provide a clear description of the technical nature of the project and to address any aspect of the project that reviewers may need additional information to understand.
- Please do not include your project schedule and milestones here; that information is requested in response to the Readiness to Proceed criterion described in Section E.1.5.2. In addition, please avoid discussion of the benefits of the project, which are also requested in response to evaluation criteria described in Section E.1. This section is solely intended to provide an understanding of the technical aspects of the project.

- Please note, if the work you are requesting funding for is a phase of a larger project, please only describe the work that is reflected in the budget and exclude description of other activities or components of the overall project.

The Project includes the following four main components:

1 Line 2.9 miles of the Contour Canal with concrete	
2 Replace four (4) check structures	
3 Replace three (3) road crossings	
4 Replace 15 turnouts	

The work to complete these components is provided below:

Surveying and Design: The project alignment will be surveyed by a professional surveyor. Surveying work will include identifying the existing high-water marks, data to define the canal geometry, and critical topographic data necessary for design. This data will be used by the engineer to develop a hydraulic model and design drawings. Design drawings will include plan and profile drawings as well as cross-section and turnout details.

Acquisition of Right-of-Way: The canal lining work will occur within the District's right-of-way and no additional right-of-way will be required. The District's existing right-of-way is sufficient for all construction work and no additional staging areas will be needed. The right-of-way lines will be located in the field by the surveyor.

Cleanout and Site Preparation: The existing canal will be dewatered and cleaned of silt and debris. Existing turnouts and check structures will be removed. Sufficient time will be provided to allow the existing channel to dry. Areas where the subgrade is soft or over-saturated will require soil stabilization to provide adequate strength for compaction.

Earthwork: The existing channel will be backfilled and compacted to the final design grade according to the drawings. Backfill will be performed by excavators in lifts and compacted with sheep's foot rollers to ensure proper soil density and moisture levels. Surveyed construction stakes will be placed along the project alignment and final grade will be checked against those stakes

Final Grading and Lining Placement: The channel prism will be excavated to the appropriate lines and grade according to the drawings. Concrete lining will be placed in accordance with the drawings and specifications.

Turnouts: Irrigation turnout connections will be installed according to the drawings using pre-cast concrete gate structures and typical irrigation canal gates. The pre-cast gate structures will include slots for trash screens.

Check & Road Crossing Replacement, New Headwall at Herndon Avenue: The new check structures will be constructed as a cast in place concrete structure with flow controls. New farm road crossings will be installed as a reinforced concrete culvert with cast in place concrete headwalls. A new reinforced concrete headwall will be constructed at the Herndon Avenue location.

1.4 EVALUATION CRITERIA

Criterion A: Quantifiable Water Savings

- The evaluation criteria portion of your application should thoroughly address each criterion and subcriterion in the order presented to assist in the complete and accurate

evaluation of your proposal. (See Section E.1. Technical Proposal: Evaluation Criteria for additional details, including a detailed description of each criterion and subcriterion and points associated with each.) It is suggested that applicants copy and paste the evaluation criteria and subcriteria in Section E.1. Technical Proposal: Evaluation Criteria into their applications to ensure that all necessary information is adequately addressed.

Estimated Water Savings

- The estimated annual water conserved is 1,588 acre-feet. This estimate is based on a seepage investigation study that was completed on the Contour Canal in 1996 (provided as **Appendix A**). The District considers results from that study to be representative of the current seepage rate.
- Based on the technical analysis from the seepage study, 3 acre-feet per day is the rate of losses in a 2-mile stretch of the un-lined Contour Canal.
- Below are the calculations to estimate current losses in the proposed Project's 2.9-mile unlined portion of the canal. Seepage investigation conclusions were based on a 200-day operational period for the Contour Canal; however, the Contour Canal is not dewatered and seepage occurs 365 days.

Table 1: Water Loss Calculation

Loss Rate Per Day Per 2-Mile Stretch of Canal	**600 af** *Losses per Appendix A*	**/**	**(2 miles x 200 days)** *Canal operation per study*	**=**	**1.5 af** *Loss rate per day/mile*			
Losses Per Length of Proposed Project	**1.5 af** *Loss rate per mile*	**X**	**365 days** *Actual canal operation*	**X**	**2.9 miles** *Un-lined portion of canal*	**=**	**1,588 af** ***Annual losses per 2.9 miles***	

Current Losses

- Current losses are seeping into the ground beneath the Contour Canal and migrating downgradient within the Grasslands Drainage Area.
- Seepage losses from the Contour Canal comingle with a saline shallow groundwater table and is irrecoverable. Additionally, these seepage losses contribute to local and regional subsurface drainage production, which must be managed to prevent water

quality exceedances in Mud Slough and the San Joaquin River in accordance with waste discharge requirements issued by the Central Valley Regional Water Quality Control Board.

- There are no benefits to the losses in the Contour Canal and seepage losses contribute to regional drainage and water quality issues.

Loss Calculation Methodology

To calculate canal losses, Stoddard & Associates performed ponding tests within the 2-mile un-lined portion of the Contour Canal. The pond sites were selected since they represent uniform cross sections in representative soil types. The Pond 1 site contained Panoche loam which has a slower permeability and pond 2 site contained Panoche fine sandy loam which has a rapid permeability. **Appendix A** provides additional detail on the technical analysis performed and **Table 1** on page 7 calculates the estimated losses at 1,588 af per year.

Anticipated Transit Loss Reductions

- The estimated annual water savings of 1,588 af are calculated in **Table 1** on page 7 which is supported by the 1996 Contour Canal Seepage Investigation analysis provided as **Appendix A**.
- The estimated losses were calculated by performing pond test as described under "Loss Calculation Methodology" described above and described in additional detail in **Appendix A**.

Post-Project Seepage Loss Verification

- Expected post-project seepage losses are none because the lining of the canal is made of concrete. This assumption is made through the District's experience from previous canal lining projects.
- The losses associated with this project are generally limited to seepage loses. There are no operational spills or other transit losses for this project.

Post-Project Seepage Loss Verification

Post-project seepage losses are not expected to be measurable because the lining of the canal is made of concrete. This assumption is made through the District's experience from previous canal lining projects. However, the District is open to a post-project seepage study if requested by the U.S. Bureau of Reclamation (USBR).

Materials

The proposed project will be lined using unreinforced concrete lining, approximately 2.5-inch thick, per-cast concrete gate structures, reinforcing steel bars, sluice gates, turnouts, box culvert bridge and concrete bridge supports.

Criterion B.2: Increasing Energy Efficiency in Water Management

- Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).
  - If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.
  - How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.
  - If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?
  - Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.
  - Does the calculation include any energy required to treat the water, if applicable?
  - Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.
  - Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).

Quantifiable Energy Savings

- Growers in the District would pump groundwater wells to make up for the surface water supply shortfall due to seepage losses. Seepage losses in the Contour Canal are estimated at 1,588 af per year.
- For the purpose of estimating energy savings, it was assumed that lining the Contour Canal would recover these losses, resulting a reduction in groundwater pumping of 1,558 af per year.
- The average depth to groundwater in a normal year is approximately 85 feet, however that depth can more than double during periods of drought. Typical well pump efficiencies range for 65% to 75%, depending on the age of the pump and the quality of the motor.
- The estimated power savings due to seepage reductions (and associated reduced groundwater pumping) is estimated to be between savings 184,300 kWh in normal year types to more than 425,000 kWh in drought years. See Table 2.

Table 2: Estimated Power Savings

Volume (V - acre feet)	Lift (H - feet)	Assumed Efficiency (E)	Power (Kwh)
			kWh = 1.024*V*H/E
1588	85	75%	184,300
1588	170	65%	425,300

- At current energy rates of $0.16 per KWh in the District, the energy savings will range from $29,500 per year to more than $68,000 per year. See below calculations:

Water Year Type	*Energy Savings from Seepage Reduction (kWh)*		*Current Energy Rate (kWh)*		*Annual Energy Savings ($)*
Average	184,300	*	0.16	=	**$29,500**
Drought	425,300	*	0.16	=	**$68,000**

Climate Change Impacts

When water is lost to seepage, wells in the District need to be operated to make up the shortfall in surface deliveries. The operation of wells in the District results in an increased demand on the electrical grid, increased air emissions related to energy creation, and consequently an increase in greenhouse gases.

A secondary benefit of the project is that a lined canal requires less treatment to manage aquatic weeds. This results in few applications of herbicides for weed control, and few vehicle trips along the canal to initiate treatments. Although this benefit to climate impacts is real, it is difficult to quantify due the large number of variables.

Origination of Energy Savings

Energy savings from the reduced need to pump groundwater originate from individual wellheads pumped to account for seepage losses.

Criterion C: Sustainability Benefits

- In addition to the separate WaterSMART Environmental Water Resources Projects NOFO, this NOFO places a priority on projects that enhance drought resiliency, through this section and other sections above, consistent with the SECURE Water Act. Please provide information regarding how the project will enhance drought resilience by benefitting the water supply and ecosystem, including the following:
    - Does the project seek to improve ecological resiliency to climate change?

- Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels).
- Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).
- Please describe any other ecosystem benefits as a direct result of the project.
- Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

Enhancing Drought Resiliency

- Reliable surface supplies result in decreased pressure on groundwater pumping. The Sustainable Groundwater Management Act (SGMA) was enacted in California in 2014 and requires overdraft groundwater basins to become sustainable by 2040. To comply with SGMA and be protective of groundwater storage and levels, the District places a high priority on improving the reliability and efficiency of surface supplies and any other source that can offset groundwater pumping.
- The proposed Project will not alter the operational period of the Contour Canal. By reducing irrecoverable losses to seepage, the resulting benefit is landowners will not have to pump groundwater to make up for the 1,588 af of losses resulting in a benefit to groundwater levels in the District.

Impacts to Special Status Species

- Prior to Project implementation, the project site will be reviewed by a qualified biologist to determine if any special status species are present and what actions need to be taken to prevent impacts. On a regional level, the proposed Project will have an unquantifiable regional beneficial impact to wildlife. Seepage from the Contour Canal mingles with a shallow water table that is highly mineralized and contains elevated levels of selenium, boron and other salts. This perched water table seeps in the agricultural drainage systems and regional deep drains, exposing wildlife to elevated levels of selenium, which can bio-accumulate to hazardous levels. By eliminating seepage from the Contour Canal, shallow drainage production could be reduced by up to 1,588 af per year, reducing the exposure to wildlife.
- In addition to benefits related to reducing demand on groundwater levels, the Project will eliminate seepage that comingles with shallow groundwater and migrates into the Grasslands Drainage Area which requires continual management and monitoring by the District.

- California's prolonged, extreme drought and SGMA's new groundwater management directives have put increased pressure on water users in State. The Project will improve the reliability and efficiency of water supplies for the District and allow greater flexibility to meet in-district demand for water users.

Specific Water/Energy Sustainability Concern

- California is experiencing prolonged, extreme drought conditions. The State's snowpack has been below average for several years which feed river systems and ultimately water storage reservoirs which have dropped precipitously throughout the State. The reduction in available surface supplies puts a strain on groundwater supplies as irrigators are more reliant on those supplies and the current, prolonged drought may be exacerbated by the effects of climate change.
- Reliable surface supplies result in decreased pressure on groundwater pumping. The Sustainable Groundwater Management Act (SGMA) was enacted in California in 2014 and requires overdraft groundwater basins to become sustainable by 2040. To comply with SGMA and be protective of groundwater storage and levels, the District places a high priority on improving the reliability and efficiency of surface supplies and any other source that can offset groundwater pumping.
- The proposed Project will offset pumping by 1,588 af of water through deliveries from the Contour Canal where that water is currently lost to seepage in the un-lined portion of the canal.
- Reducing pumping by 1,588 af per year translates in an annual energy conservation of 184,000 kWh. Reducing kilowatt hours reduces demand on the electrical grid and air emissions associated with energy creation.
- Therefore, by reducing seepage losses, water does not need to be recovered through pumping which is associated with increased greenhouse emissions.
- The Project will eliminate seepage losses and that water will delivered to landowners in the District for agricultural purposes.
- Conserved water will be retained in the Contour Canal and will be used to meet agricultural water user demands.
- The total annual quantity of water saved from seepage losses is 1,588 af.

Climate Crisis Impacts

- The Project will address impacts of climate change by reducing energy demand (kilowatt hours associated with pumping groundwater) and the resulting reduced air emissions from energy creation.
- The proposed Project strengthens water supply sustainability and increases resilience to climate change by reducing groundwater pumping. Reduction in pumping will reduce air emissions by reducing demand on the electrical grid and increased surface deliveries will enhance the District's goal of achieving State-mandated groundwater sustainability directors (Sustainable Groundwater Management Act).

- The Project will not utilize a renewable energy source but will reduce overall demand on the electrical grid and resulting air emissions associated with energy creation.
- By reducing demand on the electrical grid from pumping groundwater, the Project will avoid air emissions from energy creation that contribute to greenhouse gas emissions.

Benefits to Disadvantaged Communities

The District is bounded by the following five severely disadvantaged communities (SDAC): (1) Los Banos, (2) Dos Palos, (3) South Dos Palos, (4) Firebaugh, and (5) Mendota. While this Project will not directly impact a SDAC, agricultural labor and indirect supplies are partially supported by these five SDACs.

Panoche Water District's southern boundary is bounded by the Westlands Water District (WWD) who commissioned an economic report entitled "The Economic Impact of the Westlands Water District on the Local and Regional Economy: 2022 Update[1]." (Economic Study). The Economic Study notes that Fresno and Kings Counties exhibit poverty rates significantly higher than the California State average (17 percent versus the State average of 8 percent for 2019). Furthermore, the Economic Study correlates higher poverty rates with periods where fewer surface supplies have been delivered in the water district due to drought conditions. Any potential unrecovered water from seepage in the Contour Canal will be a factor in the decision to fallow land. Per the Economic Study, the indirect effect of fallowed acreage on employment is a 19 percent reduction in jobs and a 20 percent reduction in economic impact. As the poverty rates are significantly higher in Fresno and Kings Counties, lining the Contour Canal will preserve jobs and economic benefit to the surrounding SDACs whose economies support agricultural production for the region.

Tribal Benefits

The proposed Project does not have any impacts on tribal benefits or tribal lands.

Other Benefits

Addressing Sustainability Initiatives

- An additional Project benefit is in helping to achieve SGMA sustainability requirements. SGMA requires overdraft basins in California to become sustainable by 2040. Mitigating groundwater level and storage declines is a core directive of SGMA. The Project will reduce pumping demand as the lost water to seepage will be delivered at the surface and eliminate the need to pump that water.
- With the implementation of SGMA starting in 2021, groundwater is now being more heavily regulated, and the Project will assist in preserving groundwater storage and levels as mandated by SGMA. Additionally, Central Valley Project south of delta delivery reliability has been strained by ongoing drought conditions.

Criterion D: Complementing On-Farm Irrigation Improvements

completed WaterSMART Basin Study? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate.

- Provide the following information regarding project planning:

  (1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

  (2) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

  (3) If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes)

- The District commissioned an Irrigation System Modernization study in June 2013 that supports improvements to in-district conveyance facilities including the Contour Canal and this document is available upon request.
- The proposed Project is consistent with the goals of the San Luis Unit Feature Re-Evaluation (2007), A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (1990), and the Westside Regional Drainage Plan (2003) as a source control component. Portions of the Westside Regional Drainage Plan are included in **Appendix B**. The Westside Regional Drainage Plan was developed to meet selenium, salt and boron water quality standards in the San Joaquin River.
- The goals of the Westside Plan are to 1) identify scientifically sound projects proven to be effective in reducing drainage; 2) develop an aggressive implementation plan initially utilizing existing projects documented to be environmentally sound; and 3) curtail agricultural drainage discharges to the San Joaquin River in accordance with impending regulatory constraints while maintaining the ability to farm.
- The plan focuses on regional drainage projects that can be implemented on a short timeline. Drainage must be addressed on a regional basis but must allow for each sub-area's specific needs and resources. The Plan's key management components for the Grassland Drainage Area are: 1) Source Control (such as seepage reduction and improved irrigation uniformity), 2) Groundwater Management, 3) Drainage Reuse Projects, and 4) Drain Water Treatment and/or Salt Disposal. As drainage projects are implemented, they are evaluated for long-term sustainability of the complete solution.

- The proposed Project meets these goals by controlling the source of the water through seepage reduction. The amount of water conserved from seepage reduction is 1,588 af per year.

Subcriterion E.2: Readiness to Proceed

- Applications that include a detailed project implementation plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.
  - Identify and provide a summary description of the major tasks necessary to complete the project. Note: please do not repeat the more detailed technical project description provided in Section D.2.2.2. Application Content. This section should focus on a summary of the major tasks to be accomplished as part of the project.
  - Describe any permits that will be required, along with the process for obtaining such permits.
  - Identify and describe any engineering or design work performed specifically in support of the proposed project.
  - Describe any new policies or administrative actions required to implement the project.
  - Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation Regional or Area Office?

The proposed project is ready to proceed, and the District has experience in canal lining projects.

Engineering Status: A preliminary hydraulic review of the canal has been completed to determine demand flowrate and needed features (turnouts, check structures and other components). A detailed survey for final design will be completed in June 2023.

Implementation Schedule: A preliminary schedule is below. Note that all construction activities have to occur during the non-irrigation season (October through February) and the preliminary schedule is based on the assumption that NEPA compliance is completed by December 2024. If NEPA compliance is substantially delayed, it is possible that project construction could be delayed until the following non-irrigation season.

Table 3: Project Schedule

December 2022	**Assumed notice of grant award. Initiate topographic survey work, biological review and cultural resources review.**
March 2023	Complete survey work and begin design.
December 2023	Complete design and publish contract documents
March 2023	Begin NEPA Process.
January 2024	Complete NEPA
August 2024	Bid project; select winning bid and award contract.
October 2024	Begin site cleanout and earthwork construction.
November 2024	Complete earthwork and begin canal lining. Begin pipeline replacement
January 2025	Complete canal lining and install turnouts.
February 2025	Complete construction activities.
June 2025	Finalize and submit project final report.

No permits or approvals are required because all work related to the proposed Project will occur within the District's right-of-way and on facilities owned by the District. The Project will need to comply with the applicable provision of NEPA and CEQA.

Criterion F: Collaboration

- Please describe how the project promotes and encourages collaboration. Consider the following:
  - Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?
  - What is the significance of the collaboration/support?
  - Will this project increase the possibility/likelihood of future water conservation improvements by other water users?
  - Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

- The Project is supported as a "Source Control Project" by the Westside Regional Drainage Plan (Westside Plan). The Westside Plan was a collaborative plan developed by seven districts on the westside of the San Joaquin Valley to identify practical and scientifically proven projects and activities to reduce and manage subsurface drainage water within the Grassland Drainage Area, of which the District is a part. The Westside Plan identified Source Control Projects a canal lining and pipeline projects that reduce or eliminate the seepage component of subsurface drainage production. The Proposed Project would eliminate an estimated 1588 acre feet of seepage, which reduce seepage-related drainage production by a like amount.
- The Project is located entirely in the District's service area and therefore, there are no partners for this proposed Project.

- The proposed Project has support from growers within the District and a Board resolution of support will be provided when available. Additionally, letters of support are being compiled for this Project and will be included was available.
- By preventing losses, water supplies can be managed more effectively and when there is a surplus, supplies may potentially be marketed to landowners or neighboring districts in need.
- While the proposed Project will not directly prevent water-related crises, improvements in regional water use efficiency will help with long-term water supply sustainability.

Criterion G: Additional Non-Federal Funding

- State the percentage of Non-Federal funding provided using the following calculation:

$$\frac{\text{Non-Federal Funding}}{\text{Total Project Cost}}$$

The District plans to commit 51% of the funding toward the proposed Project and is requesting federal funding for the remaining 49% as outlined below. The District commitment percentage was determined by the following calculation:

$$\frac{\text{Non-Federal Funding}}{\text{Total Project Cost}} = \frac{\$1,964,877}{\$3,852,700} = 51\%$$

Criterion H: Nexus to Reclamation

- Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider:
  - Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?
  - If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?
  - Will the proposed work benefit a Reclamation project area or activity?
  - Is the applicant a Tribe?

- The Panoche Water District (District) is a California water district established in 1953 with statutory authority pursuant to California Water District Law (Water Code sections 34000-38500) to provide water service to approximately 38,000 acres of irrigated agriculture located on the west side of the San Joaquin Valley, spanning portions of Merced and Fresno Counties. The District holds a contract with the United States Bureau of Reclamation (Contract No. 14-06-200-7864A-IR1-P) for water service from the Delta Division and San Luis Unit of the Central Valley Project. The District also has other agreements with Reclamation providing for the conveyance and storage of non-project

water supplies (Warren Act) and the exchange of water to supplement refuge water supplies (Central Valley Project Improvement Act Section 3406(d)).

- The Project will benefit the District, a reclamation contractor, by improving groundwater levels from a reduction in pumping of 1,588 af annually.
- The District is not a tribe, and the Project will not affect any tribes.

1.5 PERFORMANCE MEASURES

- Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure, see Appendix A: Benefit Quantification and Performance Measure Guidance.
- All Water and Energy Efficiency Grants applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grants recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.
- Note: program funding may be used to install necessary equipment to monitor progress. However, program funding may not be used to measure performance after project construction is complete (these costs are considered normal operation and maintenance costs and are the responsibility of the applicant).

- The primary benefit of the proposed project is the reduction in water lost through seepage of 1,588 af per year and the associated reduction in drainage water production from that seepage. This benefit was quantified in the Contour Canal Seepage Investigation study (provided as **Appendix A**) and listed in **Table 1** on page 8. The District does not intend to repeat the seepage test but is able to if required by USBR.
- The canal lining will effectively eliminate seepage losses.

2. PROJECT BUDGET

2.1 FUNDING PLAN

The project budget includes:

(1) Budget proposal

(2) Budget narrative

(3) Funding plan and letters of commitment

- If the proposed project is selected, the awarding Reclamation Grants Officer will review the proposed pre-award costs to determine if they are consistent with program objectives and are allowable in accordance with the authorizing legislation. Proposed pre-award costs must also be compliant with all applicable administrative and cost principles criteria established in 2 CFR Part §200 and all other requirements of this NOFO. In no case will costs incurred prior to April 1, 2022, be considered for inclusion in the proposed project budget.
- Please note that the costs for preparing and submitting an application in response to this NOFO, including the development of data necessary to support the proposal, are not eligible project costs under this NOFO and must not be included in the project budget.

Funding Plan and Letters of Commitment

The District is seeking funding under Funding Class 2 for an award of up to $3,852,700 million dollars. The District understands at least a 50% cost share is required and will commit 51%, or $1,964,877 million dollars from District revenues. Since the District will be contributing the matching funds from District revenues, funding letters of commitment are not required.

2.2 BUDGET PROPOSAL

- The total project cost is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project. Please include the following chart (Table 1) to summarize all funding sources. Denote in-kind contributions with an asterisk (*).
- The budget proposal should include detailed information on the categories listed below and must clearly identify all items of cost, including those that will be contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested preaward costs (Table 2).

The total Project cost is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing.

Table 4: Summary of Funding Sources

SOURCE	AMOUNT
Costs to be reimbursed with the requested federal funding	$1,887,823
Costs to be paid by PWD (51% cost share)	$1,964,877
TOTAL PROJECT COST	**$3,852,700**

Table 5: Total Project Costs

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST	MATCH (DISTRICT) COST	GRANT (FEDERAL) COST
	$/Unit	Quantity				
Design						
Surveying	$28,000.00	1	Each	$28,000.00	$28,000.00	$0.00
Engineering Design	$60,000.00	1	Each	$60,000.00	$60,000.00	$0.00
Construction						
Cleanup and Site Prep	$37,500.00	1	Each	$37,500.00	$37,500.00	$0.00
Lined Canal	$110.00	15,300	Linear Feet	$1,683,000.00	$0.00	$1,683,000.00
Compacted Embankment	$12.50	82,000	Cubic Yard	$1,025,000.00	$1,025,000.00	$0.00
Road Crossing	$50,000.00	3	Each	$150,000.00	$150,000.00	$0.00
Check Structure	$95,000.00	4	Each	$380,000.00	$380,000.00	$0.00
Turnouts	$17,000.00	15	Each	$255,000.00	$50,177.00	$204,823.00
Headwalls	$25,000.00	6	Each	$150,000.00	$150,000.00	$0.00
NEPA Compliance						
Reclamation Costs				$15,000.00	$15,000.00	$0.00
Engineering Review	$10,000.00	1	Each	$10,000.00	$10,000.00	$0.00
Biological	$2,000.00	1	Each	$2,000.00	$2,000.00	$0.00
Cultural	$50,000.00	1	Each	$50,000.00	$50,000.00	$0.00
Administration						
Invoicing and Reports	$1,200	6	days	$7,200.00	$7,200.00	$0.00

TOTAL DIRECT COSTS						
Indirect Costs						
**None*	$0	0		$0	N/A	$0
TOTAL ESTIMATED PROJECT COSTS				**$3,852,700**	**$1,964,877**	**$1,887,823**

**Indirect costs incurred by the District will not be charged to the project.*

2.3 BUDGET NARRATIVE

- Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in Section B of the SF-424A. The types of information to describe in the narrative include, but are not limited to, those identified in the Budget Narrative Guidance attached to this NOFO. Applicants may elect to use the Budget Detail and Narrative spreadsheet for their budget narrative (see attached). Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part §200.

Salaries and Wages. District staff will be engaged in the management of the proposed project but does not intend to separate that time from other regular duties of staff and therefore no staff time will be charged to the project.

Fringe Benefits. The District will not charge fringe benefits associated with District staff to this project.

Travel. No travel is associated with this project.

Equipment. No equipment will be purchased as part of this project.

Materials and Supplies. No materials or supplies will be charged to this project.

Contractual. The proposed project will utilize several consultants and contractors for its completion:

- Surveyor. A licensed professional surveyor will be used to survey the project alignment, develop topographic data for design, identify right of way limits, and set construction stakes. A surveyor in training (LSIT) and other staff technicians will convert the field data to CAD files for design. The hourly rate depends on the type of work (field work or office work) and the individual performing that work (licensed surveyor, LSIT, or technician). Based on comparisons with similar previous billings on lining projects, the cost of surveying is estimated to be $28,000 for this portion.
- Engineers. A licensed civil engineer will be used for the pre- and post-project seepage study, hydraulic evaluation, canal and check structure design, development of design

drawings and specifications, project administration, and field review of construction progress. Based on comparisons with similar previous billings on lining projects, a cost of $60,000 was estimated for the engineering design and reporting tasks associated with this project.

- Construction. A general contractor qualified and experienced in earthwork, canal lining projects, and reinforced concrete structures will be used for construction of the canal lining and check structure construction. Estimated quantities and costs for the construction work are based on the unit costs for recent lining projects within nearby Districts which are similar in size, capacity, and conditions to the proposed project.
    a. Site Cleanout and Preparation. This line item covers the cost to clean up the site, remove built up silt and lay it out on the bank to dry. During this, existing turnout structures will be removed. Estimated cost will be a lump sum of $37,500.
    b. Compacted Embankment. The existing cross-section will backfilled and compacted to prepare the alignment for canal prism excavation. Excavators will be used to scrape out the silt, remove the existing structures and backfill the existing channel. A compactor and graders will be used to compact the replaced soil. The unit cost (per cubic yard) for this work was compiled from recent projects in nearby districts. Based on preliminary engineering analysis, 82,000 cubic yards of subgrade will need to be excavated and compacted. The estimated cost for this portion is $1,025,000.
    c. Lining Placement. Lining placement would include excavation of the canal prism and placement of unreinforced concrete lining. Since the proposed project capacity and topography are similar to projects in nearby districts, the cost for lining placement is assumed to be similar at $110/foot of canal. The estimated cost for this portion is $1,683,000.
    d. Road Crossing. Three road crossings will need to be replaced at a cost of $50,000 each. The total cost for road crossing replacements is $150,000.
    e. Check Structure Installation. Four check structures will need to be installed. The unit cost for each check structure is $95,000 for a total component cost of $380,000.
    f. Turnout Installation. Turnout installation includes placement of new pre-cast concrete gate structures, installation of canal gates and PVC turnout pipe, and transition lining placement. Based on similar projects in nearby districts cost for turnout installation is estimated at $17,000. The estimated cost for this portion is $255,000.
    g. Headwalls. Headwall installation will require placement of concrete structures at road crossings at a cost of $25,000 each. Total component costs are $150,000.
- Other Costs. Project Review and Reporting. Project review includes activities such as construction inspection, schedule monitoring and coordination, and other miscellaneous activities associated with construction management. Reporting in

compliance with the grant agreement is included in Other Costs. The District will utilize staff for grant reporting. Over the life of the Project a total of $7,200 or roughly 1.5% of total project costs are included for invoicing reports, semi-annual reports, and a final project report.

- Indirect Costs. Indirect costs incurred by the District will not be charged to the project.
- Total Cost. The total estimated project cost is $3,852,700, including $1,887,823 (49%) in Reclamation funds and $1,964,877 (51%) in District funds. The District if flexible regarding the potential project award and can scale the Project to match any funds awarded.
- Environmental and Regulatory Compliance
    a. Reclamation Costs. Because the proposed project consists of upgrading of existing facilities, no significant environmental impacts are expected. CEQA compliance will likely be in the form of a Categorical Exemption. NEPA will require an Environmental Assessment (EA) that will likely result in a Finding of No Significant Impact (FONSI). The proposed project budget includes consultant costs to develop and Initial Study and Notice of Exemption to comply with CEQA. All documents and backup information developed through that process would be provided to Reclamation for the EA. Costs incurred by Reclamation to develop the EA are not known and were assumed to be $15,000 for administration and reporting.
    b. Biological review. In support of the NEPA documentation, the project alignment will be reviewed by a biologist to determine the potential impact to special status species. Based on the biological review for projects in nearby districts, this service was assumed to take several days for a total cost of $10,000.
    c. Cultural Resource Consultant. In support of the NEPA documentation, the project alignment will be reviewed by a cultural resource consultant to determine the potential impact to cultural resources. Based on the cultural review for projects in nearby districts, this service was assumed to cost approximately $50,000.
    d. Environmental Compliance. The environmental compliance costs are less than 1% of the estimated project cost. The District has sufficient reserves available to cover additional environmental costs should they be required.

3. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

- All projects being considered for award funding will require compliance with the NEPA before any ground-disturbing activity may begin. Compliance with all applicable state, Federal and local environmental, cultural, and paleontological resource protection laws and regulations is also required. These may include, but are not limited to, Clean Water

Act (CWA), ESA, National Historic Preservation Act (NHPA), consultation with potentially affected Tribes, and consultation with the State Historic Preservation Office.

- Depending on the potential impacts of the project, Reclamation may be able to complete its compliance activities without additional cost to the successful applicant. Where environmental or cultural resources compliance requires significant participation by Reclamation, Reclamation will add costs anticipated to be incurred by Reclamation as a line item to the budget during development of the financial assistance agreement and cost shared accordingly. Any costs to the successful applicant associated with compliance will be identified during the process of developing a final project budget for inclusion in the financial assistance agreement.

The proposed Project will upgrade an existing water distribution facility without any increase in capacity or use. Under the California Environmental Quality Act (CEQA), this Project is categorically exempt. The District hired H.T. Harvey & Associates (Ecological Consultants) to complete a Contour Canal Biological Reconnaissance Survey Report which is included as **Appendix H.**

The Survey identified seven special-status plant species and seven special-status wildlife species in the project vicinity, but none of these species currently occur within the project site. PWD understands additional post-construction surveys may be required. Additionally, the District intends to complete an environmental review and cultural resource review of the Project prior to construction but expects to file a Notice of Exemption to comply with CEQA. Gathered environmental data will be provided to USBR to assist with the necessary NEPA documentation.

4. REQUIRED PERMITS OR APPROVALS

- You must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.
- Note that improvements to Federal facilities that are implemented through any project awarded funding through this NOFO must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see P.L. 111-11 §9504(a)(3)(B). Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent with the requirements of 43 CFR §429 and that the development will not impact or impair project operations or efficiency.

All work related to the proposed project will occur within PWD right-of-way and on facilities owned by PWD. No permits or approvals are required. The project will need to comply with the applicable provision of NEPA and CEQA.

5. OVERLAP OR DUPLICATION OF EFFORT STATEMENT

- Applicants must provide a statement that addresses if there is any overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. If any overlap exists, applicants must provide a description of the overlap in their application for review.
- Applicants must also state if the proposal submitted for consideration under this program does or does not in any way duplicate any proposal or project that has been or will be submitted for funding consideration to any other potential funding source—whether it be Federal or non-Federal. If such a circumstance exists, applicants must detail when the other duplicative proposal(s) were submitted, to whom (Agency name and Financial Assistance program), and when funding decisions are expected to be announced. If at any time a proposal is awarded funds that would be duplicative of the funding requested from Reclamation, applicants must notify the NOFO point of contact or the Program Coordinator immediately.

The District is submitting an application for the Contour Canal Modernization project under Funding Group III. If both applications are awarded, the Funding Group II awarded grant will be declined and superseded by a successfully awarded Funding Group III application. There are no other applications for federal or non-federal funding for this project.

6. CONFLICT OF INTEREST DISCLOSURE STATEMENT

- Conflict of Interest Disclosure Per the Financial Assistance Interior Regulation (FAIR), 2 CFR §1402.112, you must state in your application if any actual or potential conflict of interest exists at the time of submission.
- **Applicability**
  - This section intends to ensure that non-Federal entities and their employees take appropriate steps to avoid conflicts of interest in their responsibilities under or with respect to Federal financial assistance agreements.
  - In the procurement of supplies, equipment, construction, and services by recipients and by sub recipients, the conflict of interest provisions in 2 CFR §200.318 apply.
- **Notification**

- Non-Federal entities, including applicants for financial assistance awards, must disclose in writing any conflict of interest to the DOI awarding agency or pass-through entity in accordance with 2 CFR §200.112.
- Recipients must establish internal controls that include, at a minimum, procedures to identify, disclose, and mitigate or eliminate identified conflicts of interest. The successful applicant is responsible for notifying the Financial Assistance Officer in writing of any conflicts of interest that may arise during the life of the award, including those that have been reported by sub recipients.

- **Restrictions on Lobbying**
  - Non-Federal entities are strictly prohibited from using funds under a grant or cooperative agreement for lobbying activities and must provide the required certifications and disclosures pursuant to 43 CFR §18 and 31 USC §1352.
- **Review Procedures**
  - The Financial Assistance Officer will examine each conflict of interest disclosure on the basis of its particular facts and the nature of the proposed grant or cooperative agreement, and will determine whether a significant potential conflict exists and, if it does, develop an appropriate means for resolving it. Enforcement. Failure to resolve conflicts of interest in a manner that satisfies the government may be cause for termination of the award. Failure to make required disclosures may result in any of the remedies described in 2 CFR §200.339, Remedies for noncompliance, including suspension or debarment (see also 2 CFR §180).

The District does not retain a State or federal lobbyist, and a complete SF-LLL form is provided as **Appendix G**.

7. LETTERS OF SUPPORT

- Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/partnership letters as an appendix. Letters of support received after the application deadline for this NOFO will not be considered in evaluating your proposed project. These letters do not count within the 100 page maximum.
- Category B applicants must submit a letter from the Category A partner(s), stating that they are acting in partnership with the applicant and agree to the submittal and content of the proposal (see Section C.1. Eligible Applicants). Letters of Partnership must be received by the application deadline for this NOFO, otherwise the applicant will be considered ineligible, and the proposed project will not be evaluated.

Letters of support from interested stakeholders and congressional representatives are in the process of being compiled and will be provided once available.

8. OFFICAL RESOLUTIONS

- Include an official resolution adopted by your organization's board of directors or governing body, or, for state government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this NOFO, verifying:
    - The identity of the official with legal authority to enter into an agreement
    - The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted
    - That your organization will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement
- **An official resolution meeting the requirements set forth above is mandatory.** If you are unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted to sha-dro-fafoa@usbr.gov up to 30 days after the application deadline. This resolution does not count within the 100 page maximum for the application.

An official Board resolution is being approved and will be provided within 30 days.

9. UNIQUE ENTITY IDENTIFIER AND SYSTEM FOR AWARD MANAGEMENT

The District maintains a unique entity identifier (DUNS number) and registration with the System of Award Management (SAM) system as well as registration with the Automated System Application for Payment (ASAP) system.

STODDARD & ASSOCIATES
CONSULTING CIVIL ENGINEERS
& LAND SURVEYORS

January 3, 1996

PANOCHE WATER DISTRICT
52027 West Althea Avenue
Firebaugh, California 93622

Attention: Marcos Hedrick

Re: Contour Canal Seepage Investigation

Gentlemen:

We have completed the analysis of the data collected in the ponding tests to estimate seepage in the Contour Canal. This letter report briefly describes the investigation and presents the results of the two ponding tests, which were then used to estimate the annual seepage losses in acre feet per day in the two miles of the Contour Canal between the Main Lift System and Herndon Avenue.

The study began with the selection of two ponding sites having relatively uniform cross sections in representative native soil types. One site was near the head of the Canal, the other near Herndon Avenue. The attached Figure 1 is a copy of the portion of the soils map for the Mendota area showing the approximate location of the Contour Canal and the location of the two ponding tests. The Contour Canal lies in the upper portion of the Little Panoche Creek Fan. Soil in the Pond 1 vicinity is classified as Panoche loam (type Pk), having slow permeability, soil in the Pond 2 location is classified as Panoche fine sandy loam (type Pg), said to be of rapid permeability.

Typically, the ponding tests were conducted by installing earthen plugs on each end of the pond and covering the earthen plugs with plastic to seal and prohibit seepage through the plug. The pond was filled and allowed to sit for at least 24 hours, so that the banks would become saturated. The tests were begun by filling the pond with a metered pump and then monitoring the drop in water level by staff gauge measurements. When the pond level dropped approximately 1½ feet, the pond was filled again and the amount of water needed to fill the pond was measured by the flow meter.

Pond geometry was determined by cross-sectioning each pond at approximately 500 foot intervals. These data were inserted into a surface modeling computer program for calculating the changes in volume in the wetted perimeter with change in water depths. These calculations were made for various gauge readings to establish a relationship between seepage loss and operating depth.

The losses due to evaporation were calculated based on measurements of pan evaporation measured at Los Banos Creek Detention Dam by the Department of Water Resources. As expected, the evaporation during November was low, averaging 0.15-inches per day during the test on Pond 1, and 0.10-inches per day during the test on Pond 2. During the test period there

was no precipitation. Over the test period, the evaporation loss per mile determined from Pond 1 data was 0.025 acre feet per day per mile. For Pond 2, the resultant evaporation loss per mile was calculated at 0.016 acre feet per day per mile. The loss due to evaporation represents less than 2% of the total loss and therefore was assumed to be negligible.

Figure 2 presents the study results. The figure graphically presents the losses in each of the two ponds in units of acre feet per day per mile of channel. Over the normal operating range, seepage losses in Pond 1 will average about 2 acre feet per mile per day. Seepage loss in Pond 2 is about 1 acre foot per mile per day. The reason for the difference in seepage rate is not known. Judging by soil types, the seepage loss from Pond 2 should be greater rather than less than Pond 1. Since loss rates are relatively low, only a small amount of leakage from Pond 1 could account for the differences in loss rates.

For the purposes of determining the feasibility of lining the Contour Canal between the head and Herndon Avenue, the loss should be based on 3 acre feet per day for each day the Contour Canal is in operation. For instance, if the Contour Canal is in operation for 200 days, the estimated seepage loss is 600 acre feet.

The District is in the best position to estimate the number of days of operation and the value of the water that would be saved if the Contour Canal were to be lined. We can provide an estimate of the cost to line the canal and make the economic comparison between continuing with the present system and plastic or concrete lining.

Please call if you have any questions or need additional information.

Very truly yours,

STODDARD & ASSOCIATES

Robert M. Stoddard

Robert M. Stoddard

RMS:smm

Enclosures