USBR – Water SMART-Water and Energy Efficiency Grant

#R24AS00052

Project:

Pacheco Water District's - Lateral 6 Modernization Project, Phase 1

Name of Applicant:

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Los Banos, California 93635

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Executive Summary

Date:	**February 22, 2024**
Applicant:	**Pacheco Water District** **643 J Street** **Los Banos, Merced County, California**
Eligible Applicant:	**Category A**
Funding Level:	**Funding Group III**
Funding Requested:	**$2,515,800**
Project length:	**3 years with completion by December 2027**
UEI #:	**EE96EULQJF87**
Federal Facility:	**No**

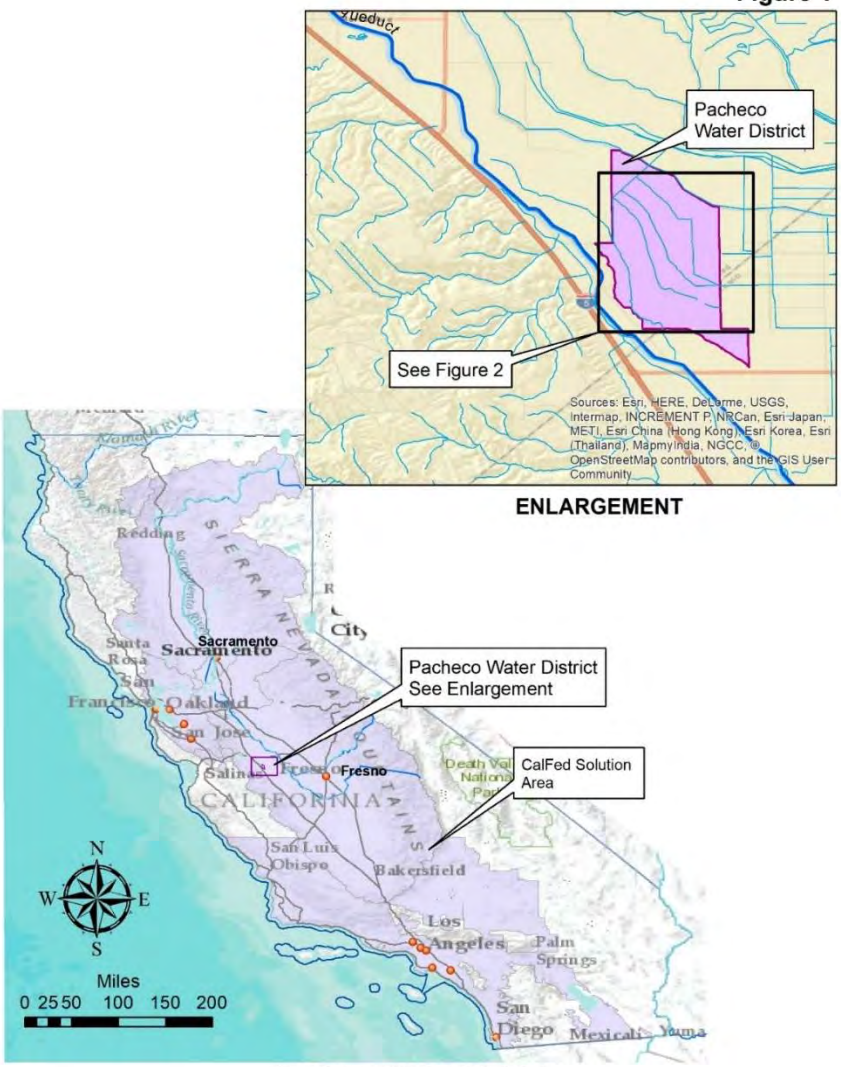
Project Summary

Pacheco Water District (District) consists of 4,251 irrigable farmland acres. The District is in both the Merced and Fresno Counties of California, southwest of the town of Los Banos and between Interstate 5 and the town of Firebaugh. The District is also in two designated disadvantaged census tracts by the Climate and Economic Justice Screening Tool. The District's Proposed Project (Project) is part of a 3-phase approach to replace 3.75 miles of unlined earthen canal with buried pipeline to conserve water, improve water management, and decrease seepage to the perched saline shallow groundwater table within the District boundary. This Project is Phase 1 of 3 and will replace 1.1 miles of open canal with a pipeline; effectively conserving 114-acre feet per year of water that would otherwise be lost to seepage. When the entire 3.75 miles of pipeline is completed there will be a water savings of 387-acre feet per year which will greatly enhance the District's annual water budget; supplementing the contractual supply that it receives from the United States Bureau of Reclamation Central Valley Project. The entire Lateral 6 serves 1,088 acres within the district. Phase 1 will serve approximately 360 acres and includes 2 existing landowner turnouts that are tied into high efficiency irrigation systems. The increased pressure from a pipeline system, along with decreased operational spill will decrease energy consumption needed to convey the water by 3,470 kwh/year and reduce CO2 emissions by 5,560 lbs/year. There will be an additional savings in CO2 emissions of 10 tons/year from decreased use of maintenance equipment (Backhoes and/or Excavators) used to clean debris and silt from the open canal channel. The Project will also benefit the habitat of the Mud Slough and the Lower San Joaquin River watersheds with improved water quality delivered to the Grassland Bypass Project via the District's drainage system. This is accomplished as the new pipeline will decrease seepage contribution to the subsurface perched water table and the subsequent production of saline subsurface drain water which contributes to the salt load discharge to the habitat.

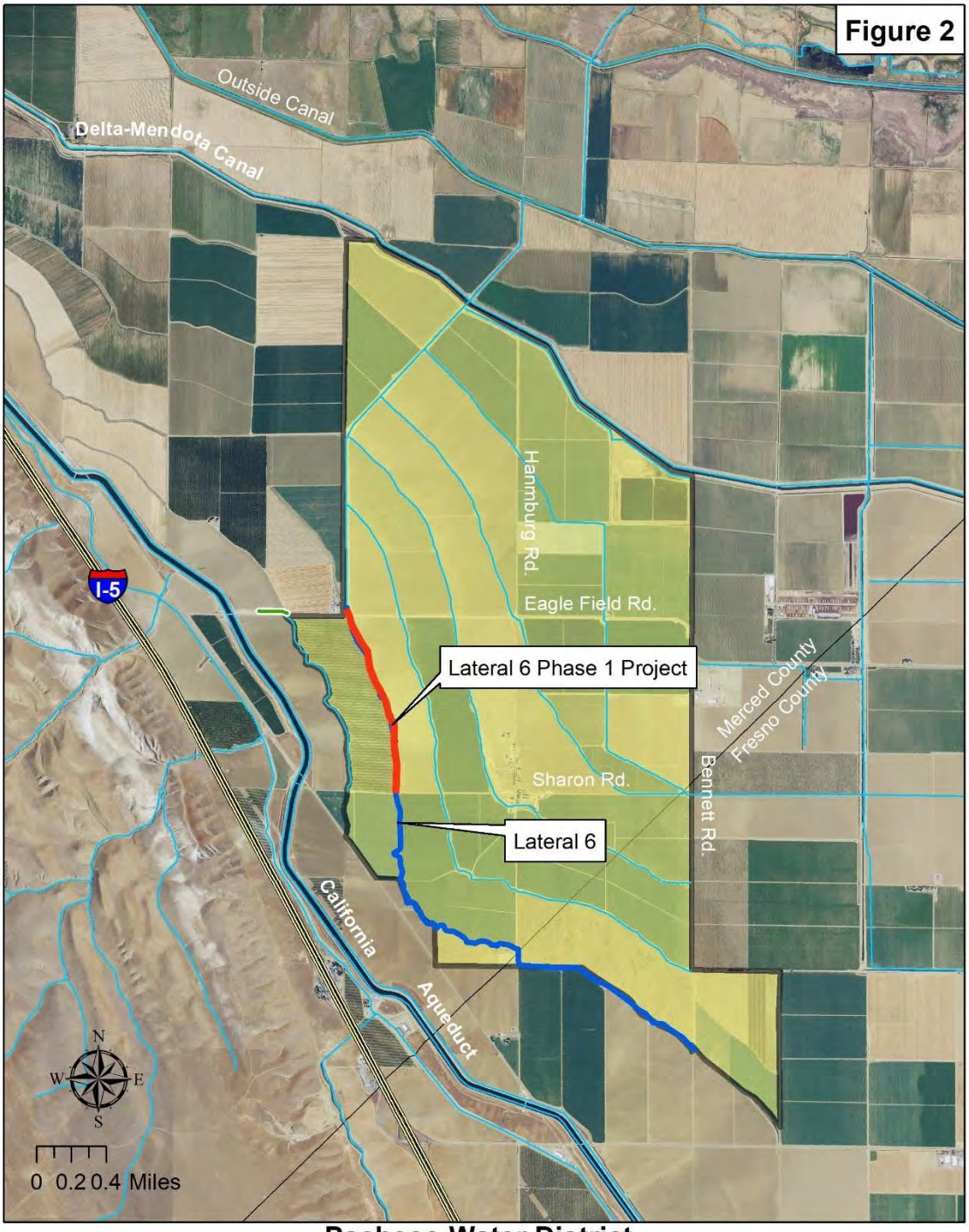
Project Location ***GPS: 36°53"38.65" N, -120°46'52.71" W***

The District is located in the southwestern portion of Merced County and the northwestern portion of Fresno County and east of Interstate 5. It is approximately 13 miles southwest of the town of Los Banos, California and 20 miles northwest of the town of Firebaugh, California. The District is part of the Central Delta-Mendota Multi-Agency Groundwater Sustainability Agency and the North and Central Delta-Mendota Region Groundwater Sustainability Plan of the Delta-Mendota Subbasin. **Figure 1** shows the geographic location of Pacheco Water District and **Figure 2** shows the location of the Proposed Project within the District. **Figure 3** shows the project elements.

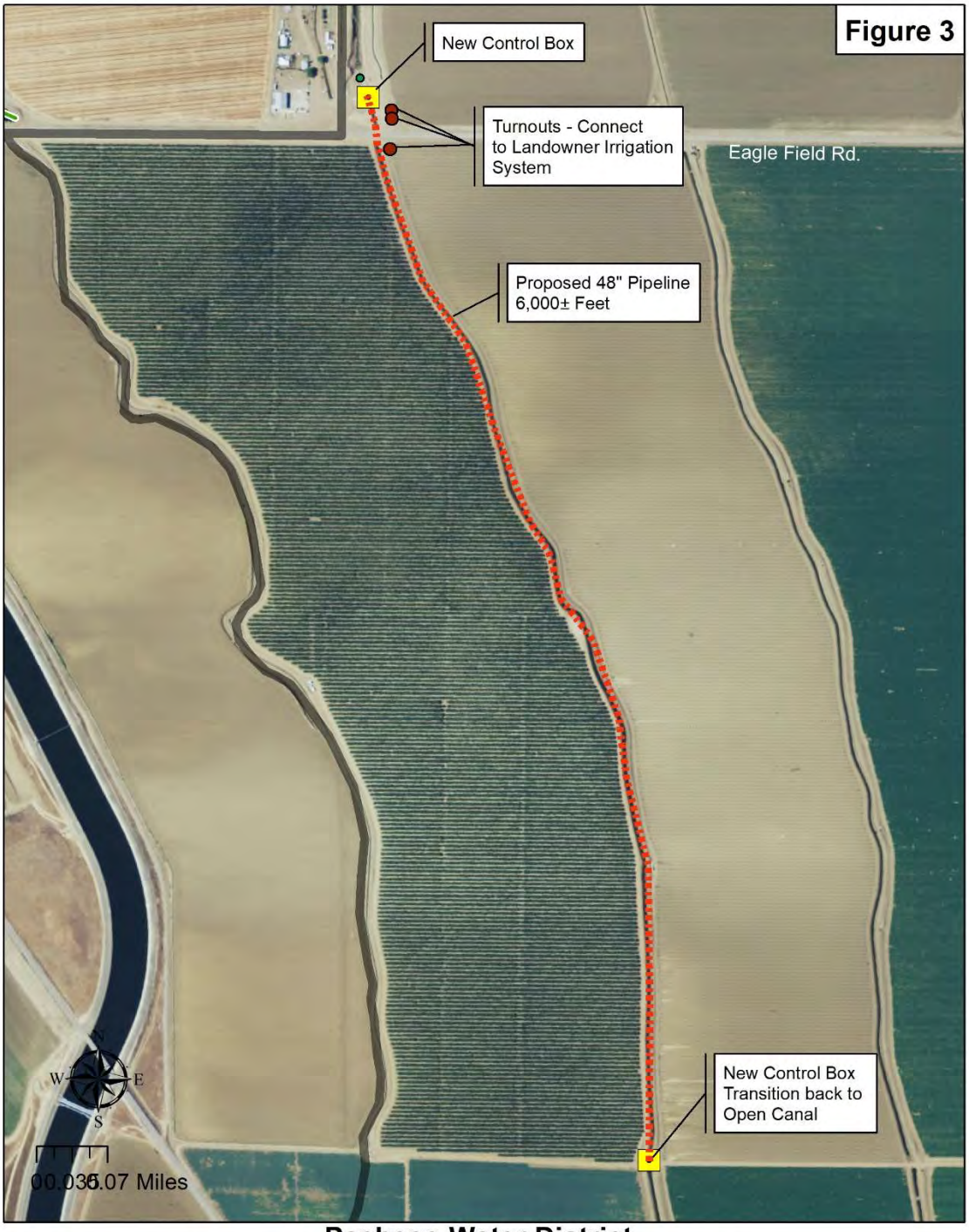
Figure 1



Pacheco Water District
Location Map - Lateral 6 Modernization Project - Phase 1



Pacheco Water District
Lateral 6 Modernization Project - Phase 1



Pacheco Water District
Lateral 6 Modernization Project - Phase 1
Project Features

Project Description

The Proposed Project will replace the first 1.1 miles of Lateral 6 with a pipeline. Existing turnout connections will be replaced with new connections off of the pipeline and water level control structures will be replaced with reinforced concrete pipeline control boxes.
The construction components of this Project are as follows:

1) Site clean out with debris removal of the unlined earthen canal for approximately 6,000 linear feet. This work will be completed by one to two backhoes (Caterpillar Model 415 or similar). Excavated debris will be hauled off site by a typical dump truck and excavated silt will be placed along the banks to dry.
2) Furnish and Install (F&I) 48" pipeline. The pipeline will be either polyvinyl chloride (PVC) conforming to AWWA C-905 or rubber gasket reinforced concrete pipe (RGRCP) conforming to ASTM C-361/ASTM C-76 for approximately 6,000 linear feet of canal. Pipeline installation will consist of excavating a trench to a depth of approximately seven feet, placement of the pipe with appropriate bedding, and backfill. This work will be completed by two to three excavators (Caterpillar Model 326 or similar).
3) F&I Pipeline control boxes. Two pipeline control boxes will be required. These boxes will be pre-cast reinforced concrete and are estimated to be 8 feet by 8 feet with a depth of approximately 10 feet. Precast concrete boxes will be installed at the beginning and end of the pipeline to control the flow and water level within the pipeline. Fabrication of the control boxes will be completed off-site, and the boxes will be installed and connected to the pipeline using an excavator (Caterpillar Model 326 or similar) and hand labor.
4) F&I Backwash Pipeline for approximately 6,000 linear feet. This pipeline is a separate, small diameter pipeline to separate backwash flows generated by landowner's filter systems from irrigation water. The pipeline is estimated to be an 8" high density polyethylene (HDPE) pipeline and will be installed adjacent to the 48" pipeline in the same trench. Water conveyed through this pipeline will be recycled in the District's recirculation system.
5) F&I Turnouts. The two landowner turnouts will connect to existing, high-efficiency irrigation systems. These will be by way of a tee connection from the pipeline to the landowners' existing irrigation system. These connections will be installed with hand labor.

E.1.1 Evaluation Criterion A—Quantifiable Water Savings

1) Describe the amount of estimated water savings. For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.

The Project will conserve 114-acre feet of water per year.

2) Describe current losses.

Lateral 6, is an unlined, earthen canal that loses an estimated 387-acre feet per year to seepage over its entire 3.75-mile length (2000 seepage study analysis, see **Attachment A**). This amounts to (387 AFY 3.75 miles) 103.2 acre feet of seepage loss per mile of lateral per year. This Proposed Project will replace approximately 1.1 miles of Lateral 6 with a pipeline, eliminating (1.1*103.2) 114-acre feet per year of seepage losses. Seepage from this lateral is lost to a saline perched water table and is not only unrecoverable, but contributes to subsurface drainage discharges which contain selenium, boron and other salts. This drain water is discharged into regional drains which are managed through the Grassland Bypass Project at considerable expense.

3) Describe the support/documentation of estimated water savings.

Stoddard & Associates completed a seepage study on the District's Laterals 3, 4, 5, and 6 in March of 2000 (see **Attachment A**). This seepage analysis estimated seepage losses from ponding studies and estimated that the seepage losses for the full 3.75 miles of Lateral 6 were 387-acre feet per year for a typical 240-day irrigation season. This seepage rate is assumed to be uniform along the length of the earthen canal (lateral). The Project will replace approximately 1.1 miles of the lateral with a pipeline (likely PVC or RGRCP) that will effectively eliminate seepage for that portion of the lateral. The recovered seepage for the 1.1 miles of this project phase is (387*1.1/3.75) 114-acre feet per year.

4) Please address the following questions according to the type of infrastructure improvement you are proposing for funding.

The Project will replace 1.1 miles of Lateral 6 canal with a reinforced concrete or PVC pipeline, which will effectively eliminate seepage from that segment of the lateral. The Pipeline will undergo a pressure test as part of the construction to ensure there is no significant leakage.

(1) Canal Lining/Piping: Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address:

a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

The seepage rate of the existing, unlined earthen canal has been estimated at 103-acre feet per 240-day irrigation year. This phase of the Project will convert 1.1 miles of Lateral 6 canal to a pipeline, effectively eliminating all seepage in that segment. The estimated recovered seepage is (1.1 miles x 103 aft/mi) 114-acre feet per year.

b. How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.

A seepage ponding study was performed by Stoddard & Associates in 2000. The seepage study analyzed test ponds within Laterals 3, 4, 5 and 6 and estimated seepage losses in terms of acre feet per year. The seepage pond for Lateral 6 was 3,520 feet long, representing nearly 18% of the total length of Lateral 6 and is a fair representation of the canal seepage rate. The seepage study, including all raw data and calculations, are included in **Attachment A.**

c. What is the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

The Project will be replaced with either a PVC, conforming to AWWA C-905 or rubber gasket reinforced concrete pipe conforming to ASTM C-361/ASTM C-76. For both pipe materials, the seepage rate is effectively zero. A post-construction pressure test will confirm that the pipe is not leaking.

d. What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?

The anticipated, post-Project seepage rate for the new pipeline is effectively zero. Although Lateral 6, as a whole, does require operational spills (transit losses) for system operations, those spills are fully recovered through an existing recirculation system. Operational spills are not affected by this Project phase (but will be addressed in the Project final Phase).

e. How will actual canal loss seepage reductions be verified?

A pipeline pressure test will be required to confirm that the pipeline is not leaking. Also, the annual District conveyance losses will show decreases in the monthly water report.

f. Include a detailed description of the materials being used.

Both PVC pipe and RGRCP materials would be appropriate for the Project. Required pipeline material specifications are listed below:

1. Rubber gasket reinforced concrete pipe. Reinforced concrete pipe shall be manufactured in conformance with ASTM C-361, Class B-25, rated for 25’ of head. Pipe shall be manufactured by the centrifugally spun or wet

cast or dry cast methods. In addition, all pipes shall contain sufficient reinforcement to sustain external loads in the category of Class III under ASTM C-76. Cement shall be Portland Cement Type II. The pipe shall be provided in lengths of not less than eight feet (8') except for specials and makeup joints. Specials shall be of the same material as the pipeline of which they are a part of, provided the steel reinforcement is equal to or greater in area. Except where otherwise noted on the Drawings, the dimensions of specials and fittings shall be in conformance with AWWA C-208. The bell and spigot joint shall be self-centering and shall have "O" ring rubber gaskets. The gasket material shall conform to ASTM C-443.

2. Polyvinyl Chloride (PVC) pipe. PVC Pipe shall be manufactured in accordance with AWWA C-905. The PVCP shall be manufactured using twin seals with a pressure rating and dimension ratio (DR) as indicated on the Drawings. The pipe joint shall be bell and spigot with rubber gaskets. The standard laying length of all pipes shall be 20 feet with the exception of specials. The bell and spigot joint shall be self-centering and shall have an "O" ring rubber gasket. The gasket material shall conform to ASTM F477 and D3139.

- **<u>Attachment - A 2000 Seepage Study</u>** can be found on the following 5 pages

(2) Municipal Metering: N/A

(3) Irrigation Flow Measurement:

Water is measured through District owned, calibrated, and maintained meters.

E.1.2 Evaluation Criterion B—Renewable Energy

E.1.2.2 Sub 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).

There are two turnouts that pull water from this phase of the Project. Both turnouts use pumps to pull water from Lateral 6. The Project will replace this segment of the open canal with a pipeline that will recover approximately 3 feet of head pressure from the headworks. This translates to a power savings of approximately 4.1 kwh/acre foot. With average annual deliveries of 848-acre feet per year, this equates to (848*4.1) of 3470 kwh/year in power savings.

- **How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.**

  Based on the EPA Greenhouse Gas Equivalencies Calculator, each avoided kwh is equal to 1.6 lbs of CO_{2e}. For the Project, this equates to a CO_{2e} reduction of (1.6*3473) 5560 lbs per year.

- **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?**

  The Project will not reduce the pumping demand at the grower turnouts off the new pipeline. Any existing or new pumping demands from drip or micro-sprinkler irrigation will remain the same from the existing dirt ditch and the new pipeline project. Where the project will have significant energy reductions is in the reduced spill because of the new pipeline construction. This savings is estimated at approximately 3470 kwh per year and is further explained in section E.1.3 below.

- **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.**

  The energy savings will occur at the two landowner turnouts.

- **Does the calculation include any energy required to treat the water, if applicable?**

  Water treatment is not associated with this Project.

- **Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.**

  One of the key maintenance benefits of the Project will be to reduce excavation of debris and silt on an annual basis. Lateral 6 canal is surrounded by almond orchards, which drop their leaves in the fall. These leaves end up within the open channel, choking out turnouts and culverts, and require manual removal with labor crews and backhoes before the start of each irrigation season. The Project will convert a 1.1-mile segment of Lateral 6 canal to a buried pipeline and will prevent these leaves and other blown debris from entering the canal. A Caltrans emissions model was utilized to estimate the CO_{2e} savings as a result of the Project based on reduced operation of a backhoe for two weeks as a result of the Project. This amounted to approximately 10.5 tons of CO_{2e} savings according to the Caltrans model. This model was used to calculate the CO_{2e} emissions for 2 work weeks of backhoe operations.

- **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).**

  There are no small-scale renewable energy components included in the Project.

E.1.3 Evaluation Criterion C—Other Project Benefits

Resilience and Sustainability Benefits. Will the project address a specific water and/or energy sustainability concern? Please address the following:

- **Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:**
  - **Describe recent, existing, or potential drought or water scarcity conditions in the project area.**

  The US Drought Monitor (California | U.S. Drought Monitor (unl.edu)) shows the vast majority of California and the entirety of the Central San Joaquin Valley in a D3 – Extreme Drought condition for 2021, a condition that worsened to D4 – Exceptional Drought in 2022. Federal Central Valley Project (CVP) water districts received a zero-water allocation in 2021 and 2022, which put extreme strain on the District's irrigable crop base and the local economy. While wet conditions in 2023 alleviated the 2021/22 drought, dry conditions have been a recurring concern throughout the history of westside agricultural water supply and future droughts are expected. **Attachment C** includes drought severity maps from 2013 to 2023

showing frequent reoccurrence of severe drought conditions in California's Central Valley.

- **Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?**
  The entire Central San Joaquin Valley has been severely impacted by recent drought conditions. Federal Central Valley Project water districts, including Pacheco Water District, had their water allocations reduced to zero in both 2021 and 2022, after receiving only 20% of their water allocation in 2020. These impacts were based on limited snowpack and rainfall in the Shasta watershed that feeds into Shasta Reservoir, the Sacramento River and ultimately feeds the CVP Jones Pumping Plant in the Bay Delta.
  The same drought conditions persisted in the upper San Joaquin River watershed that feeds into the CVP Friant division at Millerton Lake. Not only can decreased snowpack and rainfall affect water supplies for Friant division contractors, but it also limits the amount of fresh water return flows into the Bay Delta system. This lack of return flow causes water quality issues in the Bay Delta that also affects the amount of Jones Pumping Plant pumping for contractors such as Pacheco Water District. These conditions resulted in substantial fallowing of annual (row) croplands and deficit irrigation of permanent crops, resulting in substantial economic losses on the farm level, cascading into reduced reinvestment and job losses. Increased groundwater reliance was limited by both subsidence and water quality concerns.
- **Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate informed analysis, if available).**
  There are no available resources that provide useful predictions for planning for future droughts for westside Central Valley agriculture. However, since 2000 (24 years) there have been 8 wet or above normal water year types and 7 critical drought year types, with 9-year types falling between below normal and dry. With this pattern, it is reasonable to assume that drought conditions will continue to occur with some regularity.

    - **Attachment – C** Drought Monitor Maps (10yr Period) can be found on the following 10 pages

- **Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.**
  The Project is located in a remote, rural area with limited access to sustainable energy systems such as solar or wind. As a result, energy is typically provided through PG&E electrical services, or when those are not available, diesel pumps and generators. For the most part, sustainable energy sources are simply not available.

  Please describe how the project will directly address the concern(s) stated above.
  The Project will provide reduction in electrical demand by decreasing the amount of spilled water through the existing gravity dirt ditch. All spill water is picked up in an existing tailwater return system that requires five separate lift stations to return the spill water to the top of the conveyance system for reuse. This Phase 1 pipeline Project will decrease the amount of tailwater, thus greatly reducing the tailwater return flows, resulting in decreased power usage at the five lift stations. Ultimately at full buildout, and once the entire Lateral 6 is pipelined, the Project will result in significant reduction of energy consumption as well as emissions.
- **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?**
  Long term implementation of the Lateral 6 Modernization Project, beginning with the Phase 1 project proposed here, will result in a pressurized, on-demand system with no operation spills. This will eliminate seepage losses and inefficiencies associated with operational spills ultimately reducing electrical power demands for the system.

- **Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.**

  - **Indicate the quantity of conserved water that will be used for the intended purpose(s).**

  In a typical year, Pacheco Water District's USBR CVP appropriated water allocation is insufficient to meet irrigation demands, and growers within the District are forced to rely on groundwater or purchased surface water supplies to supplement their allocation. All the water recovered by the Project (114-acre feet per year) will be used within Pacheco Water District to help meet irrigation demands and immediately reduce groundwater pumping.

- **Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.**

No new mechanism will be required to put the recovered water into use. As the conserved water is recovered by preventing seepage losses, it remains within the District's Water Portfolio for future delivery.

- **Will the project assist States and water users in complying with interstate compacts?**

  The Project is local in nature and recovered water will remain within Pacheco Water District. This project is unlikely to impact interstate compacts.

- **Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?**

  Water-related crises are a constant for westside San Joaquin Valley agricultures. Although water and irrigation districts work hard to cooperate and relieve tensions associated with strained water supplies, these tensions are unavoidable and often make their way to litigation. The Project recovers water lost to seepage and reduces the production of saline subsurface drain water and will help alleviate some of the water-supply related tensions.
  The seepage water savings provided by this Project will result in a one-to-one reduction of deep aquifer groundwater pumping within the Pacheco service area. The groundwater pumping in the area is used to offset dry CVP hydrology as well as conveyance system losses from the dirt lined canals. This is extremely significant since the majority of the groundwater wells in the area are pumping from below the Corcoran Clay layer and play a significant role in subsidence along the adjacent Delta Mendota Canal (DMC). The rate of subsidence along the DMC, and the management actions that will be put in place to mitigate for the issue, plays a major role in the approval of the Delta Mendota Subbasin's Groundwater Sustainability Plan currently being reviewed by the State Water Resources Control Board (SWRCB) as part of implementing California's Sustainable Groundwater Management Act legislation.
  If the subsidence is not abated, there could be severe mandates from the SWRCB as well as potential legal action from downstream DMC diverters or those entities who are responsible for paying Operation and Maintenance costs and Capital rate components of the DMC. This Project will play a role in addressing the amount of groundwater pumping along with DMC by conserving surface water supplies for on-farm delivery rather that losing that water to seepage through the dirt lined canal.

Ecological Benefits. Please provide information regarding how the project will provide ecosystem benefits, including the following:

- **Will the project benefit species? 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).

The Project will have a general benefit to the Mud Slough and San Joaquin River habitats by reducing the volume of saline subsurface drain water produced as a result of the seepage inflows to the shallow groundwater table. Seepage from the unlined Lateral 6 canal co-mingles with the saline perched groundwater and makes its way out as agricultural subsurface drainage, which is very saline with elevated concentrations of selenium. Pacheco Water District is within the Grassland Drainage Area and participates in the Grassland Bypass Project, which was developed to comply with water quality objectives, primarily for selenium, in Mud Slough. The Grassland Drainage Area is under an order to meet Waste Discharge Requirements (WDR) issued by the California Central Valley Regional Water Quality Control Board (Regional Board), which identifies monitoring requirements and water quality objectives for the discharge of subsurface drain water that must be met. The Grassland Bypass Project was developed to meet these WDRs, which, since its inception in 1996, has reduced the discharge of saline subsurface drain water to Mud Slough by 92% and reduced the discharge of salt to the Lower San Joaquin River by more than 200,000 tons per year. Projects like the one proposed here have been key to the reduction in volume and salt load discharged through the Grassland Bypass Project. These benefits positively affect the quality of habitat within the Mud Slough and Lower San Joaquin River watersheds.

- **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, recreational benefits, etc.).**

  This is not applicable to the Project.

- **Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?**

  The Project will benefit the habitat of the Mud Slough and Lower San Joaquin River watersheds through the Grassland Bypass Project. See explanation above.

- **Please describe any other ecosystem benefits as a direct result of the project.**

  The Project will reduce the seepage, and subsequent reduction in subsurface drainage production, by approximately 114-acre feet per year. Based on historical water quality data for salinity (~2500 mg/L TDS) and selenium (~40µg/L), this equates to a salt load reduction of 52 tons of salt and 12 pounds of selenium per year.

  Monitoring: Water quality benefits associated with this, and other drainage reduction projects, are monitored through the Grassland Bypass Project, which

includes extensive flow and water quality monitoring reported annually to the Central Valley Regional Water Quality Control Board.

Climate Change: E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health and conserve our lands, waters, oceans, and biodiversity.

- **Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?**

  The Project will improve water use efficiency by eliminating seepage losses amounting to 114-acre feet per year in a segment of Lateral 6. This conserved water will help meet irrigation demands within Pacheco Water District and will help reduce the water supply strain of erratic hydrology within the CVP.

- **Does the project seek to improve ecological resiliency to climate change?**

  The Project will contribute to the success of the Grassland Bypass Project (described above) by reducing the production of subsurface drainage within the District boundary.

- **Does the proposed project seek to reduce or mitigate climate pollution such as air or water pollution?**

  The Project will reduce the seepage, and subsequent reduction in subsurface drainage production, by approximately 114-acre feet per year. Based on historical water quality data for salinity (~2500 mg/L TDS) and selenium (~40µg/L), this equates to a salt load reduction of 52 tons of salt and 12 pounds of selenium per year.

  By converting the existing open canal to an enclosed pipeline, the Project will reduce air emissions associated with annual maintenance by an estimated 10.5 tons of $CO_{2e.}$

- **Does the proposed project include green or sustainable infrastructure to improve community climate resilience.**

  Not applicable

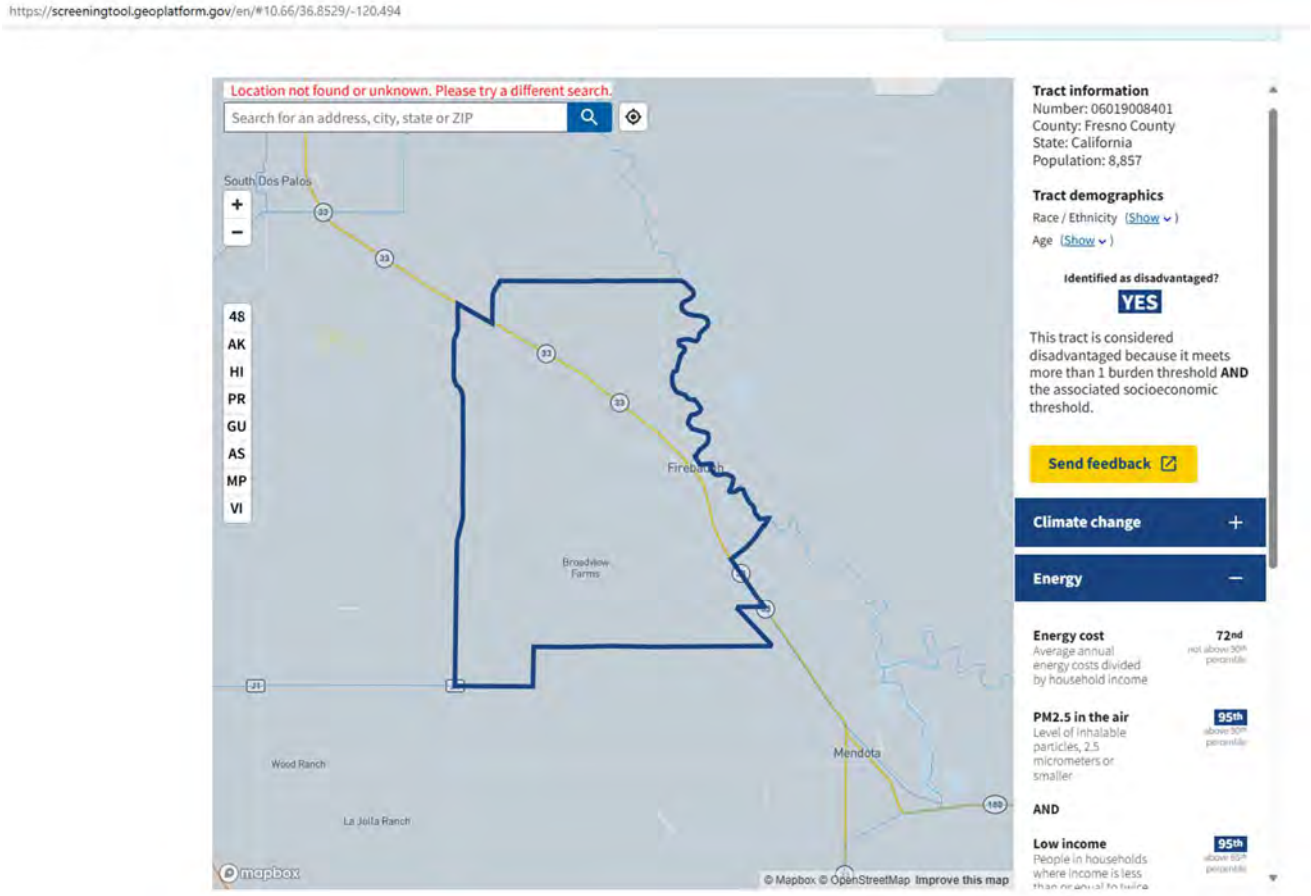
- **Does the proposed project contribute to climate change resiliency in other ways not described above?**

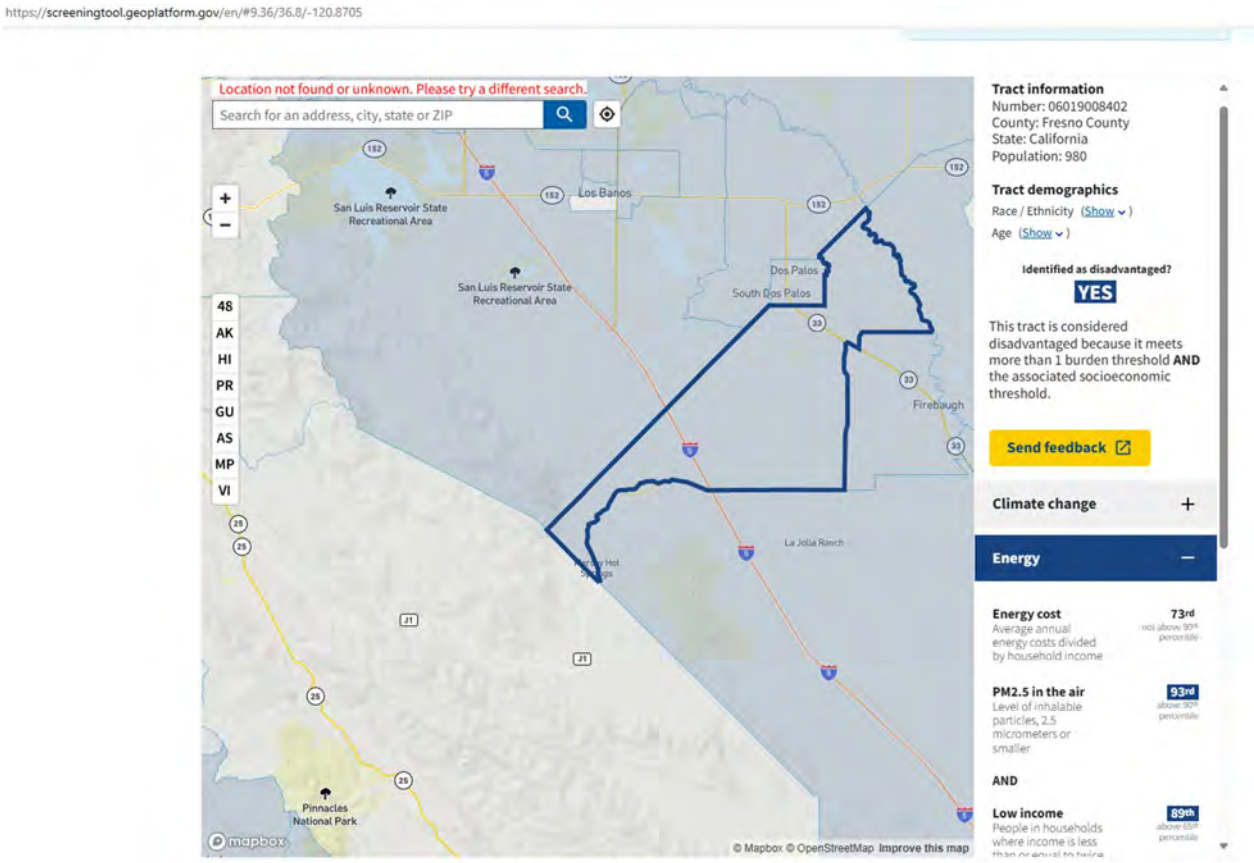
  Not applicable

E.1.4 Evaluation Criterion D—Disadvantaged Communities, Insular Areas, and Tribal Benefits

E.1.4.1 Sub criterion D.1. Disadvantaged Communities

The Project lies within designated disadvantaged communities census tracts as defined with the Climate & Economic Justice Screening tool. The PM2.5 particulates in the air are in the 90th percentile. The census tract #s are 06019008401 and 06019008402 as seen in the screening tool maps database.





- If applicable, describe how the proposed project will serve or benefit a disadvantaged community identified using the tool.

  - The Project will address climate resiliency and therefore benefitting the disadvantaged community by reducing greenhouse gas emissions and contributing to a reduction in air particulates and a reduction in consumptive energy usage. The project is located within two census tracts that are in the 90th percentile for the level of PM2.5 particulates in the air.
  - Even though this benefit was not the driving force of this project, the District considers the decreased air particulates a value add to the project as air quality in the Central Valley is a major concern. This Project will help facilitate the current agricultural productivity with Merced and Fresno counties since agriculture is the predominant means of employment for the people of this low-income region. This Project will conserve water and thus maintain, and in certain years, increase the number of farmable acres. Additional farmed acres will lead to beneficial aspects of stabilizing the employment of farm laborers who live in the region. Efforts to improve water management and meet climate related issues will work to prevent the loss of agricultural production and irrigable acreage for this community in the future and help sustain agriculture-related jobs.

E.1.4.2 Sub criterion D.2. Tribal Benefits

- NA

E.1.5 Evaluation Criterion E—Complementing On-Farm Irrigation Improvements

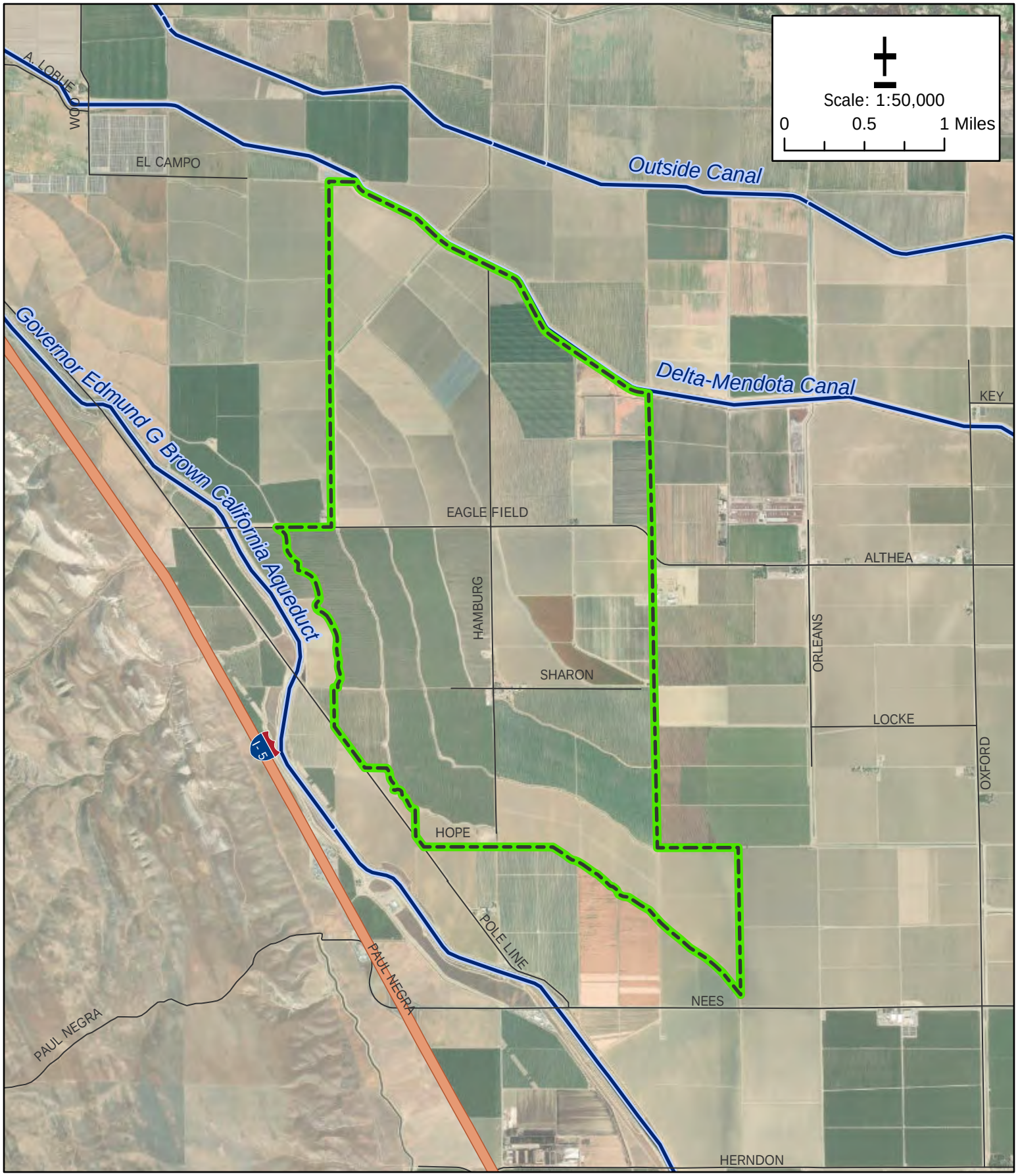
- Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.
  - Will the proposed WaterSMART project directly facilitate the on-farm improvement?
    If so, how? For example, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.

    This Project will enhance the ability of Pacheco Water District growers to facilitate additional on-farm irrigation projects such as sub-surface drip irrigation for row crops or micro-sprinklers for permanent orchard crops. A pressurized system will allow for a more efficient delivery of water to the grower from a timing and flow perspective through drip and micro sprinkler irrigation systems. These on-farm improvements are eligible to receive funding from a variety of state and federal agencies such as the Natural Resources Conservation Service. This Project will also enhance, through reduced seepage water to the alkaline perched water table, the ability of growers to apply for federal assistance for on farm drainage related activities such as decreasing pump size on existing drainage systems and on smaller on-farm recirculation projects.

- Please provide a map of your water service area boundaries.

  - **Attachment -D Pacheco Water District Service Boundary Map** can be found on the following page

Attachment D



WATER & LAND SOLUTIONS

District Boundary

Pacheco Water District

Spatial Reference: NAD 1983 CA State Plane Zone III

Created by: Water & Land Solutions
Date exported: 2/15/2024

E.1.6 Evaluation Criterion F—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.

The Primary Project tasks include:

- Environmental Compliance: The Project is exempt from CEQA as an existing facility but will likely require an Environmental Assessment or Categorical Exclusion to comply with NEPA. Cultural and biological consultants will assist with this task.
- Surveying and Design: Survey data will be collected and utilized to develop design drawings and specifications.
- Construction: Construction tasks will include cleanout and site preparation; placement of pipe; installation of turnouts and structures. Construction work will be completed by a contractor and must be completed during the non-irrigation season (approximately October to March).

- **Describe any permits that will be required, along with the process for obtaining such permits.**

The Project may require an encroachment permit from Merced County for the portion that crosses Eagle Field Rd, in addition to the environmental compliance.

- **Identify and describe any engineering or design work performed specifically in support of the proposed project.**

Engineering work will be required to design the new pipeline (size, material, grade, and alignment), develop design drawings and specifications, and produce bid packets for the qualified contractors submitted proposals. Construction management will also likely be performed by the Project engineer. None of this work has been completed to date.

- **Describe any new policies or administrative actions required to implement the project.**

No new policies or administrative actions will be required for this project.

- **Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.**

  Preliminary analysis for initial design has been completed, including setting the pipe diameter and identifying material alternatives as described in the technical proposal.

  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?

  A preliminary schedule is outlined in the table below. This schedule was based on necessary construction constraints and experience with past Reclamation funding agreement timelines, particularly in regard to the NEPA compliance timeline.

Task/Milestone	Est. Start Date	Est. Completion Date
Notice of Award		June 2024
Survey & Design	August 2024	May 2025
Environmental Compliance	September 2024	July 2025
Project Bid	September 2025	October 2025
Construction: Cleanout	November 2025	December 2025
Construction: Place Pipeline	December 2025	January 2026
Construction: Structures	January 2026	March 2026
Draft/Final Project Report	May 2026	September 2026

E.1.7 Evaluation Criterion G—Collaboration

This Project incorporates goals and objectives that parallel program strategies of other local agencies and landowners in the region. Because this Project both promotes water conservation and drainage reduction, the multi benefits are realized by entities such as the following:

a) Grassland Basin Authority (GBA): The GBA is the agency responsible for management subsurface drain water from approximately 100,000 acres in the area surrounding the Districts boundary. The District, along with Panoche Drainage District, Firebaugh Canal Water District, Charleston Drainage

District, and Camp 13 Drainers are all members of the GBA. The focus of the GBA is to management subsurface drain water flows through their salt tolerant farming operation so that the saline flows do not reach the San Joaquin River. These five GBA member entities work very closely to promote and incentivize projects that will decrease the amount of water lost to the shallow saline aquifer through seepage. This Project fits into the same modernization aspects of improved water conveyance systems that Panoche Drainage District and Firebaugh Canal Water District are implementing within their boundaries. A letter of support from Firebaugh Canal Water District is attached.

b) San Luis and Delta Mendota Water Authority (SLDMWA): Pacheco is a member of this 32-member agency that promotes a multitude of programs and projects to enhance, procure, and solidify water supplies for its M&I and Agricultural members with contracts through the CVP of the Bureau of Reclamation. The SLDMWA works on policy related issues at the state and federal levels to promote water conservation, habitat management, conveyance facility upgrades, sound science, and a variety of other issues. The estimated annual water savings from this Project fits into the policy directives of the SLDWWA and helps them in their water acquisition portfolio of purchasing supplemental surface water supplies on behalf of their members.

c) Local Waterfowl and Refuge Areas: The Pacific Flyway for migrating ducks and geese happen to be north of the District's service area and were a conduit for conveyance of the Districts sub-surface saline drain water to the San Joaquin River. Through implementation of the Districts modernized infrastructure, including this Pipeline Project, these saline flows have decreased and thus benefitted the local refuge neighbors by improving their water quality. The Grasslands Water District is one of these refuges who have a CVP water supply and have signed a letter of support for this Project. The support letter is attached.

E.1.8 Evaluation 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?**

  Pacheco Water District holds two Federal CVP contracts with Reclamation (Contract Nos. 6-07-20 W069-BA-P and 6-07-20 W0504) which allocate surface water supplies from the Central Valley Project to the District through the San Luis Canal.

- **If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?**
  N/A

- **Will the proposed work benefit a Reclamation project area or activity?**

  The Proposed Project will help sustain water supplies and improve water delivery flexibility within a Reclamation District.

- **Is the applicant a Tribe?** The District is not a Tribe.

D.2.2.2.7 Performance Measures

- Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project.

  By the nature of the pipeline materials utilized through the Project, it is reasonable to assume that all seepage will be eliminated by the Project. A pressure test will be performed as part of the Final Project inspection to ensure that the pipeline is not leaking due to misaligned joints or leaking connections. It is reasonable to assume that most pipe materials will effectively eliminate seepage and evaporation losses. Additional Post-Project performance monitoring can be performed if requested by Reclamation.

D.2.2.3 Budget Narrative Attachment B - Budget detail narrative in excel format

Total Project costs are shown in the Table below.

ITEM	BUDGET ITEM DESCRIPTION	COMPUTATION Quantity	Unit	Unit Cost	TOTAL COST
1	Salaries and Wages	0			$0
2	Fringe Benefits	0			$0
3	Travel	0			$0
4	Equipment	0			$0
5	Supplies/Materials	0			$0
6	Contractual/Construction				
6.1	Surveying (Design and Construction Staking)	150	hours	$200	$30,000
6.2	Engineering (Design)	240	hours	$200	$48,000
6.3	Construction				
6.3.1	Cleanup and Remove Debris	6,000	Linear feet	$15.00	$90,000
6.3.2	Furnish & Install 48" Reinforced Concrete Pipe	6,000	Linear feet	$275.00	$1,650,000
6.3.3	Pipeline Control Box	2	Each	$25,000	$50,000
6.3.4	Backwash Pipeline	6,000	Each	$85	$510,000
6.3.5	Turnout Installation	2	Each	$30,000	$60,000
7	Environmental and Regulatory Compliance				
7.1	Engineering Consultant	50	hours	$200	$10,000
7.2	Biological Consultant	6.5	days	$1,200	$7,800
7.3	Cultural Resources Consultant	25	days	$2,000	$50,000
8	Other Costs				
8.1	Reporting	50	hours	$200	$10,000
	TOTAL DIRECT COSTS:				$2,515,800
9	Indirect Costs (Not charged to the project)				$0
	TOTAL PROJECT COSTS:				$2,515,800
	Percent of Total Cost:				
	FUNDING BREAKDOWN				
	Federal Funding	49%			$1,232,742
	Local (District) Funding	51%			$1,283,058

1. Salaries and Wages. Although District staff will likely spend time administering and supervising the Project, the District does not intend to separate that time from other daily duties of the staff. No District staff time will be charged to the Project.
2. Fringe Benefits. The District will not charge fringe benefits associated with District staff to this Project.
3. Travel. No travel is associated with this Project.
4. Equipment. No equipment will be purchased as part of this Project.
5. Materials and Supplies. No materials or supplies will be charged to this Project other than what is outlined in the above budget and subsequent construction bid documents
6. Contractual. The Project will make use of a number of consultants and contractors for its completion.
    6.1.1 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. A surveying company familiar with the Project area provided a budget estimate for the survey work of $30,000.
    6.1.2 Engineers. A licensed civil engineer will be used for the hydraulic evaluation, pipeline design, development of design drawings and specifications, Project administration, and field review of construction progress. An engineer familiar with the Project area and requirements provided a budget estimate of $48,000 for engineering services.
    6.1.3 Construction. Construction of the Project will require contracted construction for the pipeline construction. Pipeline construction would include the following tasks:
    6.1.4 Site Cleanup. This would include the removal of debris and existing facilities and preparing the site for the installation of the pipeline. Based on similar projects located on the westside of the San Joaquin Valley, this cost was estimated to be $15 per linear foot or $90,000 over the full length of the Project (6000 feet).
    6.1.5 Pipeline Installation. This work will consist of trenching for the pipe, installation of the pipe joints, and backfill/compaction of the pipe trench. Assuming a 48" reinforced concrete pipe will be installed, this cost is estimated to be $275 per linear foot, or $1,650,000.
    6.1.6 Pipeline Control Box. Two pipeline control boxes will be required for the system. These will consist of large (approximately 8 feet by 8 foot) precast concrete boxes installed at the beginning and end of the pipeline to control flow and water level within the pipeline. Based on previous costs for precast concrete structures in similar projects, the estimated costs for these were $25,000 each, or $50,000 for the Project.
    6.1.7 Backwash Pipeline. The Project will include a separate, small diameter backwash pipeline to separate backwash flows generated by the landowner's filter systems from the irrigation water. This is estimated to cost approximately $85 per foot for a total of $510,000 for the 6000 feet of the Project.
    6.1.8 Turnout Installation. This phase of the Project includes two turnout connections to existing, high-efficiency irrigation systems. Based on a similar pipeline project on the westside of the San Joaquin Valley, these turnout connections are estimated to cost $30,000 each, for a total of $60,000 for the Project.

7. Environmental and Regulatory Compliance. The Project is Categorically Exempt under the California Environmental Quality Act (CEQA) but would require compliance with

federal (NEPA) environmental laws. It is expected that an Environmental Assessment or Categorical Exclusion would be developed for NEPA Compliance requiring biological and cultural evaluation as well as the development of construction details for Reclamation's evaluation.

7.1 Engineering Consultant. An engineering consultant would prepare an evaluation of the construction elements of the Project, including construction staging, areas of probable impact, and construction quantities. Given the relatively simple scope of work and associated impacts, this is expected to take approximately ten days of engineering time to complete, at a cost of $10,000.

7.2 Biological review. In support of the NEPA documentation, the Project alignment and the National Database will be reviewed by a biologist to determine the potential impact to special status species. Based on the biological review for previous projects, this service was assumed to take approximately 6.5 days for a total cost of $7,800.

7.3 Cultural Resource Consultant. In support of the NEPA documentation, a cultural review will be required. A cultural resource consultant estimated the costs for that work would be approximately $50,000.

8. 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.

8.1 Reporting in compliance with the grant agreement is included in Other Costs. The District does not have sufficient staff for the additional duties associated with grant reporting and would likely use the District's consulting engineer or management consultant for reporting. Reporting costs were assumed to take 50 hours of engineering time at $200 per hour ($10,000). This would include invoicing reports, semi-annual reports, and a final project report. No other costs were included in this category.

9. Indirect Costs. Indirect costs incurred by the District will not be charged to the Project.

The environmental compliance costs are approximately 3% of the estimated Project cost. The District has sufficient reserves available to cover additional environmental costs should they be required.

- Total Cost. The total estimated Project cost is $2,515,800, including $1,232,742 (49%) in Reclamation funds and $1,283,058 (51%) in District funds. The District has sufficient reserves available in its budget to fund any cost overruns or unforeseen costs should they be required.

Note: The Budget Narrative Attachment Form in Grants.gov is to be used to upload the budget proposal. ***See Attachment B.***

D.2.2.4 Environmental and Cultural Resources Compliance

Please answer the questions from *Section H.1 Environmental and Cultural Resource Considerations*.

- **Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please**

also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Earth-disturbing work will be included in the construction elements of the Project. Clean-out of the Project alignment, trenching and backfill of the pipe, and installation of Project components will generate emissions associated with construction vehicles and fugitive dust. These impacts will be limited to construction, which will be short term and are expected to be below any thresholds of concern. Standard management practices, such as utilizing water trucks to minimize dust, will be implemented to minimize these impacts. The surrounding environment is made up of almond orchards, which will not be negatively impacted by construction.

- **Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?**

  There are a number of special status species that could potentially be in the Project area, including the California tiger salamander, the California red-legged frog, Fresno kangaroo rat, and others. Because the Project alignment is actively traveled and maintained and the surrounding area actively farmed, there is limited habitat, and it is unlikely that any special status will be in the Project area during construction. A qualified biologist will survey the Project area prior to construction to determine if there are any special status species in the Project area and will make recommendations for additional actions as required.

- **Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States"? If so, please describe and estimate any impacts the proposed project may have.**

  There are no wetlands or surface waters that would be considered "Waters of the United States" within the Project.

- **When was the water delivery system constructed?**

  Lateral 6 was constructed sometime in the 1960's.

- **Will the proposed project result in any modification of or effects to individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.**

  The Project will completely replace approximately 6,000 feet of Lateral 6 with a new pipeline. This will remove two existing turnouts (installed sometime in the 1990's) and two existing check structures, also installed sometime in the 1990's. In both cases, the existing structures are precast concrete structures of relatively small size (approximately 4 feet wide and 7 feet tall) and are generally unremarkable.

- **Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.**

  The Project area does not contain any buildings, structures, or features that are eligible for listing as Historic Places.

- **Are there any known archeological sites in the proposed project area?**

  There are no known archeological sites within the Project site.

- **Will the proposed project have a disproportionate and adverse effect on any communities with environmental justice concerns?**

  The Project will not have any effect on any communities regarding environmental justice.

- **Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on Tribal lands?**

  The Project will not have any impacts on Indian sacred sites or Tribal lands.

- **Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?**

  The Project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

D.2.2.5 Required Permits or Approvals

You should state in the application whether any permits or approvals are necessary and explain the plan for obtaining such permits or approvals.

The Project may need an encroachment permit from Merced County for the portion of the Project that crosses Eagle Field Road. The need for this permit will be evaluated during the design phase. No federal facilities are impacted by the Project and no other permits are required other than in the environmental compliance.

Note: Improvements to Federal facilities that are implemented through any project awarded funding through this NOFO must comply with additional requirements. 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 Section 429 and that the development will not impact or impair project operations or efficiency.

D.2.2.6 Overlap or Duplication of Effort Statement

Applicants should 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.

The District has not sought funding from any other sources to date for this project. The goal is to have this funding on a parallel path with the District cost share to fully implement the Project.

D.2.2.7 Conflict of Interest Disclosure Statement

Per 2 CFR §1402.112, "Financial Assistance Interior Regulation" applicants should state in the application if any actual or potential conflict of interest exists at the time of submission. Submission of a conflict-of-interest disclosure or certification statement is mandatory prior to issue of an award.

No conflict-of-interest exists at the time of grant application.

D.2.2.8 Uniform Audit Reporting Statement

Applies to non-profit applicants

D.2.2.9 Certification Regarding Lobbying

Not applicable

D.2.2.10 SF-LLL: Disclosure of Lobbying Activities (if applicable)

Not applicable

D.2.2.11 Letters of Support

The letters of support for this project are from neighboring water districts and a water reclamation equipment company that provides/monitors domestic wells in the area.

- **Attachment – E Letters of Support** can be found on the following 4 pages

P.O. Box 97 • 2412 Dos Palos Rd. (Hwy 33)
Mendota, California 93640
(559) 655-4761 • (559) 659-1245
Fax (559) 655-3658
Email: firebaughcanal@sbcglobal.net

February 2, 2024

Mr. Chase Hurley
Pacheco Water District
PO Box 2657
Los Banos, CA 93635

SUBJECT: Pacheco Water District Lateral 6 Modernization Project.

Dear Chase,

On behalf of Firebaugh Canal Water District, I want to express our support for the Pacheco Water District proposed Lateral 6 Modernization project. Our understanding is, that by piping a mile of this lateral, the project will recover more than 100 acre feet per year and reduce the seepage contribution to subsurface drain water discharged through the Grassland Bypass Project.

As you are aware, Firebaugh Canal Water District frequently partners with Pacheco Water District to shore up water supplies. Projects such as this proposed project help stabilize local water supplies, encourage sustainable practices and help reduce regional drainage production through seepage prevention.

Please let me know if there is anything we can do to further support this project.

Very truly yours,

Jeff Bryant
General Manager
Firebaugh Canal Water District

200 W. Willmott Avenue
Los Banos, CA 93635

(209) 826-5188
Fax (209) 826-4984
Email: contact_us@gwdwater.org

February 8, 2024

Dear USBR-Water SMART Water and Energy Efficiency Grant Administrators,

I am writing to express my support for the application of Pacheco Water District's Lateral 6 Modernization Project within this grant opportunity.

Grassland Water District understands the upmost importance of water conservation and improved water management for this region, as it not only protects our natural resource, but it also contributes to climate change resiliency of future drought cycles and thereby contributing to the sustainability of our natural habitats and crop land. We are encouraged by the sustainable practices of the Pacheco Water District's Lateral 6 pipeline project.

Pacheco Water District's Modernization Project will be beneficial to the environment of our surrounding wetlands by reducing the saline subsurface drain water discharged through the Grassland Bypass Project.

This is a region strongly dependent on agriculture for their economy and by taking steps to modernize its infrastructure, Pacheco Water District is contributing to the local economy, as well as our environment.

Pacheco Water District has been very forward thinking in their solutions to water resiliency as seen in the effectiveness of their subsurface drainage return system in participation with the Grassland Bypass Project.

Their modernization project continues to improve upon solving local water quality issues through this Phase I seepage prevention effort.

Sincerely,

Ric Ortega
General Manager

PANOCHE WATER DISTRICT

52027 West Althea Ave,Firebaugh, CA 93622 – (209) 364-6136 – panochedrainage.specialdistrict.org

February 9, 2024

Panoche Water District
Mr. Patrick McGowan; General Manager
52027 W. Althea Avenue
Firebaugh, CA 93622

Dear USBR-Water SMART Water and Energy Efficiency Grant Administrators,

I am writing to express my support for the application of Pacheco Water District's Lateral 6 Modernization Project within this grant opportunity.

Panoche Water District understands the upmost importance of water conservation and improved water management for this region and projects like this contribute to climate change resiliency of future drought cycles and contributing to the sustainability of our local farmers.

Pacheco Water District's Phase 1 project will conserve more than 100-acre feet per year of irrigation water and reduce the seepage contribution to subsurface drain water discharged through the Grassland Bypass Project. Along with those benefits, it will also reduce its annual energy usage and air particulate due to decreased electric pumping.

This is a region strongly dependent on agriculture for its economy and by taking steps to modernize, the Pacheco Water District is contributing to the longevity of the economy for the people in this rural area as well as our environment.

Pacheco Water District has been very forward thinking in their solutions to water resiliency as seen in the effectiveness of their subsurface drainage return system in participation with the Grassland Bypass Project.

This modernization project continues to enhance solving the water quality issues through this Phase I seepage prevention effort.

Sincerely,

WATER RECLAMATION EQUIPMENT, INC.

February 8, 2024

Water Reclamation Equipment
Mr. Ricardo Ram; Owner
10500 N. Russell Avenue
Firebaugh, CA 93622

Dear USBR-Water SMART Water and Energy Efficiency Grant Administrators,

I am writing to express my support for the application of Pacheco Water District's (District) Lateral 6 Modernization Project (Project) within this grant opportunity.

Water Reclamation Equipment is in Western Fresno County and our headquarters is approximately four (4) miles from the District boundary. I fully understand the importance of water conservation, but more importantly the value of projects that benefit the local groundwater basin.

The Project will enhance and protect our natural resources while at the same time contributing to climate change resiliency of future drought cycles and thereby enhancing the sustainability of our local farmers.

We are encouraged by the sustainable practices of the District's Lateral 6 pipeline project. The District's Modernization Project will be beneficial to the environment of our surrounding wetlands by reducing the saline subsurface drain water discharged through the Grassland Bypass Project.

This is a region strongly dependent on agriculture for its economy and by taking steps to modernize, the District is contributing to the economy of the surrounding rural areas for local business and homeowners such as myself.

The District has been very forward thinking in their solutions to water resiliency as seen in the effectiveness of their subsurface drainage return system in participation with the Grassland Bypass Project. The District's modernization project will continue to improve local water quality issues through this Phase I seepage mitigation project.

Sincerely,

Ricardo Ram

10500 North Russell Avenue • Firebaugh, CA 93622
Office: 209-364-6145 • Fax: 209-364-6395

D.2.2.12 Letter of Partnership - NA

D.2.2.13 Official Resolution

If awarded will be provided.

D.2.2.14 Letters of Funding Commitment

If awarded will be provided.

List of Attachments:

Attachment A – 2000 Seepage Study (5 pages)
Attachment B – Map of water service boundary (1 page)
Attachment C – Drought Monitor maps (10 pages)
Attachment D – Budget Narrative (Excel)
Attachment E – Letters of Support (4 pages)