

# Drought Resiliency Project for FY 2018

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Grant Proposal

FOA No: BOR-DO-18-F008

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## Pasajero Groundwater Replenishment and Drought Resiliency Project

February 13, 2018

Westlands Water District

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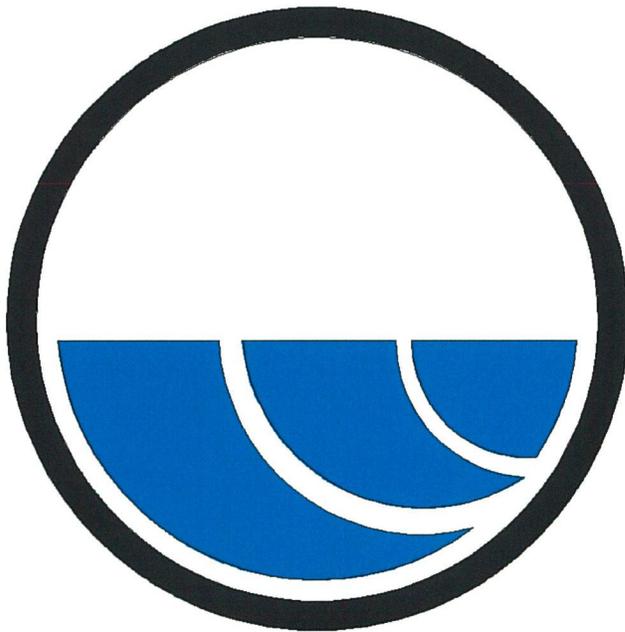


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# Technical Proposal

## *Executive Summary*

Westlands Water District (Westlands), is pleased to submit this grant proposal for the Pasajero Groundwater Replenishment and Drought Resiliency Project (Project) to the United States Bureau of Reclamation (Reclamation) for Drought Resiliency Project Grant for Fiscal Year 2018. Westlands' Project is in Fresno County, California, near the City of Coalinga. The purpose of this Project is to align a groundwater replenishment program with the District's Drought Contingency Plan to build resiliency by increasing water supply reliability and improving water management. This Project will provide a reliable water source to District water users during dry years.

This Project is part of the source substitution program identified in the District's Drought Contingency Plan to reduce groundwater overdraft. The Project is also part of the Westside Integrated Water Resources Plan adopted by the San Luis Delta Mendota Water Authority. Westlands will construct a groundwater recharge basin and pump station to increase flexibility to facilitate the transfer, or exchange of water supplies, by allowing the District to deliver 10,000 acre-feet (AF) or more of groundwater in place of surface water for irrigation. This project will help reduce groundwater overdraft, a severe drought related concern in the Central Valley, by recharging the aquifer with surface water during times of excess supplies, and recovering this water later. The project site is within a mile of a 2002 Conjunctive Use Investigation report completed by Geomatrix Consultants that was funded by a State AB303 Grant to study feasibility of recharge near the proposed site, including a deep site investigation conducted by the Department of Water Resources under its Integrated Storage Investigation (ISI) program.

The Westlands proposed project site lies within the Los Gatos Creek (Arroyo Pasajero) watershed. The proposed 60-acre recharge basin can infiltrate up to 10,800 AF over a 6-month period. Water supplies such as Kings River flood flows and CVP Section 215 water, each available approximately every 4-5 years have been identified as potential water supply sources. Westlands could also use rescheduled CVP water at risk of loss for recharge. Westlands anticipates that construction of the recharge pond portion of the project (Phase 1) will take approximately three months. Phase 1 of the Project could be completed as early as October 2018. Phase 2 work will include installing three extraction wells and appurtenant infrastructure to deliver the recovered water to a District lateral or the Coalinga Canal.

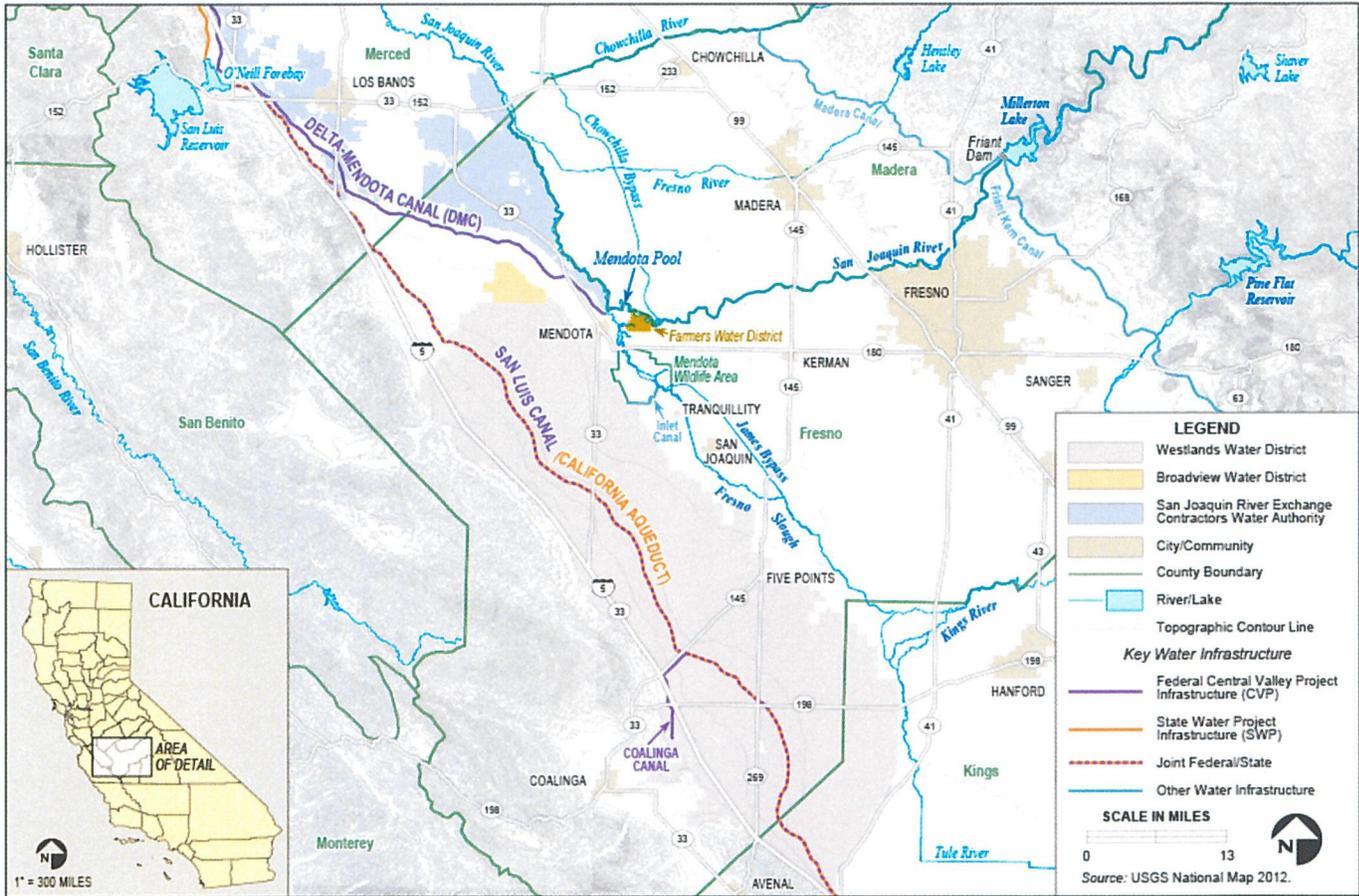
## *Background Data*

### *Westlands Water District*

Westlands encompasses more than 600,000 acres of farmland located in western Fresno and Kings Counties and serves approximately 700 family-owned farms that average 875 acres in size (**Figure 1**). Westlands is a Central Valley Project (CVP) contractor with water service contracts for 1,196,948 AF. Westlands receives water through the Delta Division/San Luis Unit of the CVP. Major conveyance CVP facilities used for delivering water to Westlands include the Delta Mendota Canal (DMC) and the San Luis Canal (SLC). Water is delivered directly to lands in the San Luis Unit or is stored temporarily in San Luis Reservoir (SLR) for later delivery. Once diverted from

the CVP facilities, water is delivered to farmers through 1,034 miles of underground pipe and over 3,300 metered delivery outlets. In addition to the CVP supply, landowners in Westlands rely on groundwater pumping, water transfers, and water acquisitions to supplement the CVP supply. If the water portfolio is insufficient to farm all land, land is fallowed.

**Figure 1. Westlands Water District**



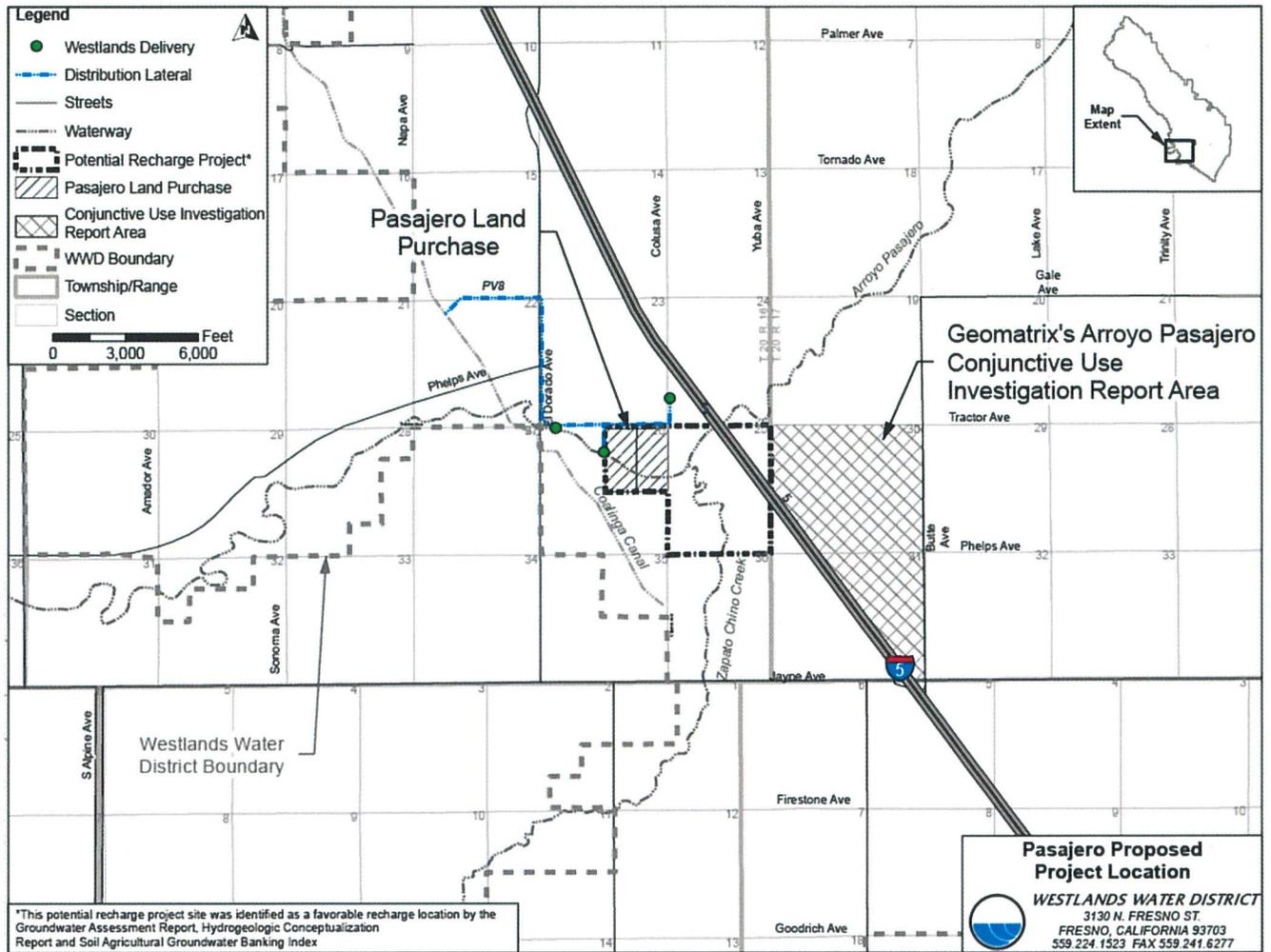
*Delivery System Description and Water Sources*

The Project site was identified as a favorable recharge location by the Groundwater Assessment Report and the U.C. Davis Soil Agricultural Groundwater Banking Index (SAGBI) (see pgs. 32-33). The SAGBI is based on five major factors that are critical to successful agricultural groundwater banking: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition.

The Project will be constructed on land purchased adjacent to a previous conjunctive use study and pilot project (Figure 2). In 2002, a Conjunctive Use Investigation Report of the Arroyo Pasajero area was completed for the District by Geomatrix Consultants, Inc., under the Local Groundwater Management Assistance Act of 2000, also known as AB303. The purpose of the investigation was to evaluate the suitability of the Arroyo Pasajero area for the location of a groundwater recharge facility. The study concluded that the Project area could achieve a long-term groundwater infiltration rate of 1 foot a day. The proposed Project site is within one mile

of this study area. The site has good potential for groundwater recovery. The deep subsurface consists of predominantly coarse-grained material with high transmissivity.

**Figure 2. Proposed Project Location**



Water would be delivered to the site via conveyance through the San Luis Canal (SLC) of the Central Valley Project (CVP), the Pleasant Valley Pumping Plant, the Coalinga Canal (CC), and District laterals. Water sources for banking would include Kings River flood flows, CVP Section 215, rescheduled CVP contract supply, and other transfer water acquisitions. In 2017 the District took delivery of 19,000 AF of Kings River Water and 17,000 AF of CVP 215 water of which a portion could have been used for groundwater recharge.

Kings River flood water is available every 4-5 years on average. Westlands has the capacity to divert up to 20,000 AF annually of this water from the Kings River Water Association (KRWA) whenever it becomes available. The Kings River flood water is historically transferred, during the months of January through July, with a contract agreement automatically renewed every five years between the District and KRWA. King River flood water diverted from Mendota Pool/Fresno Slough through District facilities would be conveyed to the SLC and the CC. The District has a 5-year Warren Act (WA) Contract (17-WC-20-5096) with the Bureau of Reclamation (Reclamation)

for conveyance of the Kings River water. The WA is scheduled for renewal in 2022. An Environmental Assessment (EA-17-023) was completed in July 2017.

For groundwater recovery, three extraction wells could be operated at the site to pump banked water back into the District's Pleasant Valley (PV) lateral system or into the CC. The District has a 5-year WA contract (EA-13-042) with Reclamation to convey up to 10,000 AF of groundwater each year into the CC, and the WA scheduled for renewal in 2019.

### *Project Goals*

The District and its farmers are concerned about managing and protecting water supply. Therefore, the objective of this Project is to preserve and enhance the long-term viability of the groundwater resources within the District, reduce groundwater overdraft, and improve flexibility in managing water supplies. To accomplish this objective the District intends to evaluate and/or implement programs which are consistent with the mission statement of the District and will meet the following goals:

- Preserve and enhance the reliability of groundwater resources of the District.
- Ensure the long-term availability of high quality groundwater.
- Maintain local control of groundwater resources within the District.
- Minimize the cost and impacts of groundwater use.
- Minimize impacts of groundwater pumping, including subsidence, overdraft, and soil productivity.
- Ensure coordination between District, local, and regional groundwater management activities.
- Optimize use of groundwater storage conjunctively with surface water.

### *Project Description*

#### *Recharge Basin Detail*

Westlands has long realized the need for a conjunctive use water management program and has taken active steps to initiate such a program. The District previously identified a project site within the Los Gatos Creek (Arroyo Pasajero) watershed and completed a Conjunctive Use Investigation Report to determine long term recharge and infiltration rates. The findings in this report suggests that the long-term recharge rate in this area is 1.0 foot per day. The District is currently purchasing land within the watershed and adjacent to this study area, to develop of a 60-acre recharge basin. The property consists of two parcels located near Interstate 5 and Tractor Avenue in Fresno County and described as the NE ¼ of Section 26, T20S, R16E. The project is located at longitude W120 11' 50.34" and latitude is N36 09' 57.19". The Los Gatos Creek (Arroyo Pasajero) crosses south of the Project (**Figure 3**). The basin will have the capacity of recharging approximately 60 acre-feet per day, up to 10,800 acre-feet over a 6-month period.

Figure 3. Arroyo Pasajero Land Purchase

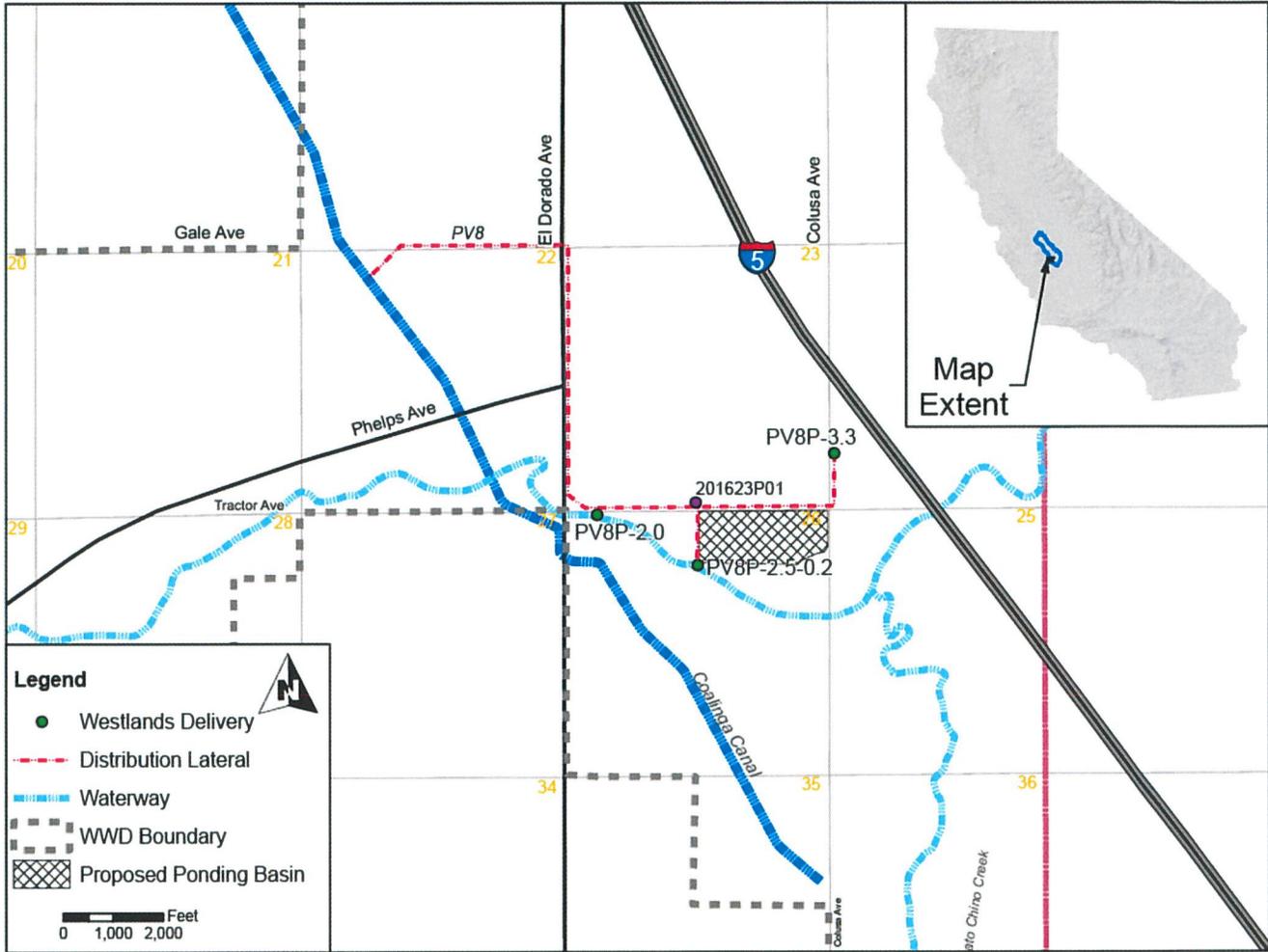


#### *Conveyance Facilities*

The first phase of the Project involves land acquisition and excavating the 60-acre basin. The land purchase is scheduled to be completed by February 2018. Design and excavation could be completed by October of 2018. The recharge basin would fill via Westlands Lateral PV8P at delivery point PV8P-2.5-0.2, which can provide a maximum flow of 30 AF/day. A temporary diversion would be added from the CC providing another 10 CFS or more of capacity for both filling the basin and conveying recovered water back to the CC. The two can provide a maximum of up to 25 cfs/day. An average filling rate of 25 cfs/day (1,500 AF/month) for a 7-month filling period can be achieved for up to 10,000 AF/year with this conveyance configuration. Future Project enhancements could include additional turnout structures to increase conveyance

capacity for shorter periods. The recharge facility drawing (Figure 4) shows the footprint of the basin and embankment perimeter for the project. Water would be delivered to the site via conveyance through the SLC of the Central Valley Project (CVP), the Pleasant Valley Pumping Plant, the Coalinga Canal, and District Lateral PV8P.

Figure 4. Recharge Basin



Westlands has determined that the Pleasant Valley Pumping Plant and Coalinga Canal have adequate capacity to meet Project needs. However, the initial project fill rate under Phase 1 would be limited to a maximum 15 cfs/day at existing discharge turnout from PV8P. Phase 2 infrastructure improvements would include a temporary diversion for conveying additional water to and from the recharge basin and the CC. This would primarily consist of a 2,500 foot 18” diameter pipeline. Extraction wells would connect to the same pipeline to recover the recharged water and pump the water to the CC during extraction periods.

*Coalinga Canal*

Construction of the CC and Pleasant Valley Pumping Plant was authorized by Congress as part of the San Luis Unit of the CVP. The concrete-lined system includes a 1.6-mile intake channel from

the SLC to the Pleasant Valley Pumping Plant and 11.5 miles of concrete-lined canal. The initial capacity of the canal is 1,100 cfs, decreasing to 425 cfs at the terminus. The canal and pumping plant are operated and maintained by Westlands. This is also the main water conveyance facility for the City of Coalinga and 62,000 acres of productive farmland. About 38 miles of pipeline convey water from the canal to the City of Coalinga. The City of Coalinga could benefit from the project and can also be a banking partner to store surface water for recovery and delivery during drought conditions or when water would not be available from the SLC.

### *Water Supply Sources*

Westlands has historically imported supplies such as Kings River flood flows and CVP Section 215 water that could be used for groundwater recharge. In addition, Rescheduled Water could be used to replenish the groundwater. Each year the District acquires supplemental sources of water and a portion of these supplies are often subject to loss because of lack of storage south of the Delta. The proposed conjunctive management facilities would allow recharge of these supplies, help avoid loss of acquired water, and preserve and enhance the long-term viability of the groundwater resources within the District.

Kings River non-project water conveyed through the James Bypass and entering the Mendota Pool/Fresno Slough can be pumped from Lateral 7 Pumping Plant into the SLC at milepost 115.43. CVP Section 215 water from the San Joaquin River can also be conveyed in this manner. These different sources of supply would be pumped from the SLC via the Pleasant Valley Pumping Plant at milepost 143.16 into the CC. This water would then be delivered through Lateral PV8P to the Project site. Also in some years CVP Section 215 water is available when water users are not irrigating. This CVP Section 215 water would be requested and banked by the project.

District CVP contract supply and supplemental water supplies would also be a source for recharge water. District Ag water residing in San Luis Reservoir (SLR) at the end of the year may exceed the cap limit imposed by Reclamation for stored water that may be carried over into the next year and is at risk for loss. This year up to 300,000 AF of District CVP water supply exceeds the cap limit. A portion of this water would be delivered and stored in the basin. Nearly every year there is some water subject to this risk. The District acquires supplemental water every year and in some instances the water is stored in SLR under Warren Act Contract (WAC) and the timing for acquiring the water and conveying it may not coincide with the Ag demands. Both CVP and WAC water at risk for carry over loss would therefore be used to recharge the basin. An option for individual water users to have some of their carry over water stored in the basin may also be provided on a subscription basis and developed with some of the Project's capacity.

### *Phase 2 and Water Extraction*

The District will need to construct three extraction wells and additional pipeline/canal facility to pump groundwater water from the project site to the Coalinga Canal. With these wells and another well already located at the project, up to 7,000 AF a year could be extracted and pumped directly into the canal for Ag use.

A new diversion with an 18" diameter pipeline would be constructed to directly discharge recovered groundwater into the CC. A pumping plant would pressurize the line for filling the basin and would be designed to allow for reverse flow back into the CC. The recovered groundwater would be conveyed as WA contract water authorized with the District's Coalinga Canal Integration Program (CCIP). Reclamation issued the District a 25-year license to use, operate and maintain various pipelines over Reclamations' right of way along the CC. The license agreement would be amended to include the additional discharge point at the CC. The new diversion delivering up to 10 CFS flow rate to the recharge basin would be designed to operate for filling and recovery. The pipeline would be less than ½ mile in length and will cross Arroyo Pasajero creek at a narrow point directly south of the basin following the western boundary of the property line. A Fish and Wildlife permit will be required for crossing the creek. The new diversion combined with the existing PV8P lateral can maintain an average filling rate of 25 CFS.

The District recovery wells would be no greater than 1,000 feet in depth and screened at depths to extract the recharged water at shallower levels. The current depth to ground water level relative to surface elevation is 450 feet. It is expected that the groundwater extracted from the Project will meet Reclamations water quality standards required for accepting groundwater in the Coalinga Canal Water Quality Monitoring Plan. The plan was adopted at the time the WAC for introducing groundwater into the CC was approved. The extraction capacity of 10 CFS/day would provide up to 7,000 AF/year.

The 60-acre basin will have a recharge design capacity for up to 10,800 AF/year. After a five-year-period the amount of surface water recharged could range from 10,000 AF to as much as 50,000 AF. During drought periods, or when the lack of CVP allocation creates increased burden on groundwater supplies, the stored water would be recovered, less approximately 10% for basin losses. The basin may also expand in size with additional proposed land purchases of another 180 acres located just southwest of the parcels already in escrow.

### *Performance Measures*

The Project will be measured by gains in deliverable water quantity, improvements in groundwater levels, and the ability to deliver water from the Project during drought conditions. Water gains will be monitored as stored Kings River water, Surplus 215 CVP water, supplemental and rescheduled CVP water stored in the recharge basin. Groundwater levels will be measured from wells at and around the Project. Water extracted from the basin during future drought years will be the greatest indicator of a successful project.

All groundwater wells within Westlands are monitored. Depth of groundwater changes are annually monitored. Over a third of these wells operate in Westlands groundwater management program. Water quality of wells tested at the site and from nearby wells will show changes and improvements to the local aquifer. Raising the local groundwater elevation will be also be a measure of positive results expected from the basin. The Project wells will enable the water to be blended with the well already on site and to comply with the water quality requirements of the CC when conveyed for Westlands use.

All surface water types used for recharge of the basin will be recorded. Kings River flood water and CVP Section 215 water now conveyed in greater quantities and stored will be accrued in a drought water bank. Quantities of CVP water that may ordinarily be lost from storage capacity limits in SLR will now be banked. The total amount of water gained, less storage losses estimated at 10%, will become a valuable water source conveyed for AG use through the CC. CVP water normally pumped by the PVPP into the CC from the SLC will reduce pumping costs as extracted groundwater meets demands at the lower end of the CC. The resulting CVP water remaining in the SLC will be able to be conveyed District wide. The Project will become a flexible management tool being able to acquire and save Kings River flood water and CVP Section 215 water.

### *Evaluation Criteria*

#### E.1.1. Evaluation Criterion A- Project Benefits

- **How will the project build long-term resilience to drought? How many years will the project continue to provide benefits?**

The Project will enable water storage as a long-term resiliency plan by recharging the basin with surplus CVP Section 215 water when available to minimize potential risks caused by overdraft during dry periods. Westlands does not anticipate an end date to the long-term storage project, but rather an expansion for building more storage basins is planned in other regions of Westlands to increase capacity in the future.

- **Will the project make additional water supplies available?**

Yes, Westlands has no dedicated water storage facilities of its own. In many instances surplus CVP Section 215 water is made available on the SLC during periods Ag use is low, and the District cannot take full advantage of it. With this Project, Section 215 water can be requested and stored in the recharge basin, as an increased demand. Westlands purchases supplemental water supplies each year, and in many instances the conveyance window of the water from the Delta may not coincide with the Ag delivery period. This water is stored under WAC in SLR and at risk for loss when Westland's share for rescheduled water capacity is limited by Reclamation due to SLR total storage level capacity. Consequently, some water is lost approximately every other year. The average amount lost from 2002-12 was 16,483 AF. This year more than 300,000 AF will go undelivered and left unscheduled. Kings River water is taken by Westlands when made available, but this use may reduce delivery of other supplemental or CVP Contract water that must be stored in SLR and again be susceptible to risk of loss by the end of the Contract year.

- **If so, what is the estimated quantity of additional supply the project will provide and how was this estimate calculated?**

The amount of additional supply would be the capacity of the recharge basin and the ability to convey water to it. This is estimated at 10,000 AF/year, but could exceed that amount if the timing of water delivery could extend the full year. With a 3-month window of CVP 215 water available up to 5,000 AF could be stored. By November of each year Westlands obtains forecast of SLR storage level and how much stored Westlands water supply is at risk for spilling and loss. This allows a

4-month window to convey water from SLR storage into the recharge basin for up to 6,000 AF.

- **What percentage of the total water supply does the additional water supply represent? How was this estimate calculated?**

The proposed project will increase Westlands total water supply by less than 1% when you compare the 10,000 AF of banked groundwater to Westlands CVP SOD full entitlement of 1,196,948 AF. Because of environmental and regulatory actions in the delta, the forecast long-term CVP Ag allocation average is less than 35%. Loss of surface water is replaced with groundwater pumping. In 2015 with a 0% CVP allocation, Westland's total water supply was 828,163 AF. This was comprised of 660,000 AF of groundwater pumping, 82,429 of rescheduled CVP surface supply, and 85,734 AF of supplemental water acquisitions. This still represents 1% of the total supply, but based upon the reliance of groundwater pumping. As a percentage of surface water in 2015 it represents 6% (10,000 / 168,000). When compared to Westlands groundwater basin safe yield of 200,000 AF the project represents a 5% increase in the safe yield.

- **Provide a brief qualitative description of the degree/significance of the benefits associated with the additional water supplies.**

Water stored in the basin increases reliability of water supply during severe water shortages by 10,000 AF. More importantly, the Project storage capacities will increase flexibility to manage a portion of Westlands water resources to meet demand during drought periods.

- **Will the project improve the management of water supplies? For example, will the project increase efficiency, increase operational flexibility, or facilitate water marketing (e.g., improve the ability to deliver water during drought or access other sources of supply)?**

Yes, reductions in water from major watersheds like the Sacramento-San Joaquin Delta (Delta) watershed, due to dry hydrologic and environmental restrictions at the Delta pumps have made Westlands CVP Contract Supply less reliable. The groundwater storage basin will allow Westlands to develop, plan and manage local resources and CVP Contract supply, when abundant, for storage and groundwater recharge. The water will then be pumped out and used to meet demand during drought years when CVP Contract supply is curtailed.

- **If so, how will the project increase efficiency or operational flexibility?**

The project will improve both efficiency and operational flexibility by acquiring, storing, and delivering a portion of Westlands supplies district wide. A stored water supply of 10,000 AF would increase reliability to benefit its water users directly. Stored surplus water in the basin will also provide flexibility in planning its future use to increase efficiency. Westlands believes having flexibility will support conveyance timing of surplus water transfers and purchases during periods of low Ag demand or during periods of limited Delta conveyance when available water supplies alone cannot meet full demand.

- **What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated?**

Westlands purchases surplus CVP 215, Kings River flood flows, and other supplies when they are available. In addition, an average of 150,000 AF of transfer water is acquired by District water users during low CVP allocation years. A potential to bank 10,000 AF/year represents 6 percent water that can be better managed for beneficial use during drought years.

- **What percentage of the total water supply does the water better managed represent? How was this estimate calculated?**

A potential to bank 10,000 AF/year represents 1 percent water that can be better managed for beneficial use during drought years. The estimate was calculated based on comparison between the 10,000 AF of banked groundwater to Westlands CVP SOD full entitlement of 1,196,948 AF.

- **Provide a brief qualitative description of the degree/significance of anticipated water management benefits.**

Qualitatively, the project increases Westlands operational flexibility. The Project provides Westlands another source of reliable water to farmers during drought periods.

- **Will the project make new information available to water managers? If so, what is that information and how will it improve water management?**

Yes, Westlands maintains a historical record of groundwater use by monitoring groundwater levels within its boundary and providing data in Westlands Groundwater Management report made available on Westlands website. In addition, Westlands will increase communication through an outreach component describing how stakeholders and growers will be involved in the planning process to contribute and gain access to water resources. Westlands will provide information pertaining to basin's aquifer storage, quality and recovery levels.

- **Will the project have benefits to fish, wildlife, or the environment? If so, please describe those benefits.**

Yes, the proposed water storage basin in Westlands would provide a 60-acre pond that will play a vital role in the restoration efforts and preservation of essential migration of wildlife by providing seasonal habitat that supports wild water fowl during their spring and fall migrations.

- **If the proposed project includes any of the following components, please provide the applicable additional information.**

**Wells:** An existing well (20S/16E-23P01) drilled to a depth of 1,800 feet is at the basin location with a 3.3 CSF capacity and will be integrated with the project. It will be utilized in support of extracting recharge water from the basin along with three new wells, which will only be used for basin operation during extraction periods. These will provide a project total of 10 CSF/day. The depth to groundwater level at the site is presently at 400 feet and has varied over two decades from 312 to 545 feet. The three new wells will be drilled to a depth of 1,000 feet and will be screened from 500' to 1,000'. The geologic log from the well on site has coarse sand and gravel down to 450-foot depth and sand down

to 1,850 feet. All wells are monitored in Westlands and the basin project will be managed within Westlands Groundwater Management Program.

#### E.1.2. Evaluation Criterion B- Drought Planning and Preparedness

- **Explain how the applicable plan addresses drought. Proposals that reference plans clearly intended to prepare for and address drought will receive more points under this criterion.**

With a focus on building long-term drought resilience, Westlands is dedicated to helping Ag communities better prepare for future droughts by reducing the impact of droughts on livelihoods and the economy. Westlands has partnered with state and local governmental agencies under the Fresno County Hazard Mitigation Plan to develop long term hazard strategy for development of the following objectives:

- **Preparedness, Mitigation, and Risk Management:** supporting regional state, local, and tribal preparedness and planning,
- **Actionable, Science-Based Information and Tools:** converting data into knowledge for timely and informed decision-making,
- **Sustainable Water Infrastructure:** managing resources for a more secure water future
- **Managing Lands & Waters:** resilient farms, ranches, and forests that support healthy watersheds and ecosystems; and
- **Programs, Incentives, Outreach, and Education:** 21st century approaches to drought preparedness and water security

The main objective of this plan is to address drought resiliency to minimize the adverse impacts on the agriculture economy, rural population and the environment during extended periods of Drought. Westlands primary objective is to preserve the groundwater resource in the aquifer and conjunctively use surface water and groundwater during drought years, thus, increasing water availability in a reliable quantity to plan and meet the water needs for future growers.

- **Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process?**  
The drought plan is still under development through cooperation between stakeholders and all sectors of water users will be represented. The initial list of stakeholders for drought planning will include local, state and private organizations. On November 16, 2017, the County of Fresno hosted a Fresno County Mitigation Strategy Meeting to bring together high level experts on various topics which include water and drought issues affecting all levels of local government, academia, the agricultural sector, law enforcement, and forest fire responders. Participants took part in strategy session on building long-term solutions including drought resilience through watershed community drought

planning and leveraging public and private innovation and investment. All organizations will contribute in-kind support through participation and/or activities relating to plan development. This symposium is part of ongoing engagement with governors, mayors, county leaders, Tribes, NGOs, business leaders and academic institutions to identify effective approaches to building long-term drought resilience and other local planning. The County is now working to incorporate the symposium ideas and recommendations in FEMA's (Federal Emergency Management Agency) federal drought planning and response guidelines.

- **Does the drought plan include consideration of climate change impacts to water resources or drought?**

The drought contingency plan recognizes climate change effects on the State Water Project (SWP) and CVP surface water reliability as does Westland's 2012 Water Management Plan (WMP) (Westlands Water District , 2013). Westlands Groundwater Management Plan explains the need for storage of water supplies in all year types to improve long-term resilience to drought. Recent reductions caused by drought and climate change contribute to reduced snowpack in the Sierras. Water that comes in the form of precipitation would be managed through additional storage which can increase supply reliability to Westlands growers for agriculture demand.

- **Describe how your proposed drought resiliency project is supported by an existing drought plan.**

Westlands participation in the Fresno County Multi-Hazard Mitigation Plan events and subsequent meetings support all water sectors to engage in planning for drought resiliency by enhancing existing agency drought plans. Westlands is planning on having an annex in the County plan that will directly address hazard mitigation within its boundaries in Fresno/Kings County. By having an approved annex in the Fresno County Multi-Hazard Mitigation Plan, Westlands will follow its Water Shortage Contingency Plan along with local government as recommended by FEMA to mitigate for multiple disasters county wide. Because of the history of disasters, including chronic drought conditions, throughout California, FEMA encourages communities to adopt Local Hazard Mitigation Plans (LHMPs) as a priority. The Federal Disaster Mitigation Act of 2000 (DMA 2000) requires that states review LHMPs as part of their state hazard mitigation planning process. The intent is three-fold:

1. To gather hazard, vulnerability, and mitigation information from the local level for use in state-level planning
2. To ensure that state and local hazard mitigation planning is coordinated to the greatest extent practical

3. To ensure that local jurisdictions are made aware of the hazards and vulnerabilities within their jurisdiction and to develop strategies to reduce those vulnerabilities
- **Does the drought plan identify the proposed project as a potential mitigation or response action?**  
The drought plan identifies the project as mitigation action vital to securing water supplies during wet years that would otherwise flow out to the ocean and making them available during dry years in response to mitigate low CVP deliveries. Westlands objective is to store supplemental water, preserve groundwater resources in the aquifer and conjunctively use surface water and groundwater during drought years. The project identified in Westlands drought resiliency plan.
  - **Does the proposed project implement a goal or need identified in the drought plan?**  
The Project allows implementing goals identified to develop and meet the following objectives: more reliable water supplies, and sustainably manages water resources systems (water supply, water quality, flood protection) that can better withstand inevitable drought emergencies.
  - **Describe how the proposed project is prioritized in the referenced drought plan?**  
Westlands identified the project in the top ten capital improvement projects to occur by 2020. DWR's recent mandate, the Sustainable Groundwater Management Act (SGMA), established a new structure for managing California's groundwater resources at a local level by local agencies to prevent overdraft as recorded in California's driest year 2016. The mandate has set prioritization on groundwater sustainability projects to mitigate future droughts.

#### E.1.3. Evaluation Criterion C—Severity of Actual or Potential Drought Impacts

- **What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken (e.g., impacts to agriculture, environment, hydropower, recreation and tourism, forestry), and how severe are those impacts? Impacts should be quantified and documented to the extent possible. For example, impacts could include, but are not limited to:**
  - **Whether there are public health concerns or social concerns associated with current or potential drought conditions (e.g., water quality concerns including past or potential violations of drinking water standards, increased risk of wildfire, or past or potential shortages of drinking water supplies? Does the community have another water source available to them if their water service is interrupted?)**  
Westlands is primarily an agricultural water purveyor with minimal deliveries to community water systems. However, the recent drought has made less water available in the system which typically results in poorer quality and higher treatment costs to both agricultural and municipal operations. The municipal and industrial (M&I) water rate, averaged about \$630 per AF during the drought. USBR's M&I shortage policy historically provided 15 percent less water supply on

average compared to Westlands M&I demand. Westland's Board made the decision to acquire supplemental water for its M&I customers which resulted in an elevated water rate. The proposed project will benefit Westlands' water rate structure, since the transfer will increase water deliveries in Westlands which reduces Westlands' operations and maintenance (O&M) rate per AF and results in lower water rate for M&I users.

- **Whether there are ongoing or potential environmental impacts (e.g., impacts to endangered, threatened or candidate species or habitat)**

Section 7 of the Endangered Species Act requires federal agencies, in consultation with the Secretary of the Interior and/or Commerce, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. The project will undergo the appropriate environmental reviews, which includes both CEQA and NEPA.

- **Whether there are ongoing, past or potential, local, or economic losses associated with current drought conditions (e.g., business, agriculture, reduced real estate values)**

Westlands developed an Economic Impact Report to quantify direct and indirect economic impacts resulting from the recent drought experienced in California (Michael A. Shires, 2016). Economic impacts since the 2012 water year to present are quantified as 5,215 jobs lost (18 percent) and nearly \$650 million in overall economic impacts annually. The loss of agricultural productivity ultimately leads to loss of employment caused by increased land fallowing throughout the central valley. With uncertain water supply, neighboring disadvantaged communities are also greatly impacted in terms of jobs and economic stability. These communities include the cities of Mendota, Huron, Kerman, Coalinga, and Lemoore. Unincorporated communities such as Cantua Creek, Three Rocks, and El Porvenir are also impacted.

- **Whether there are other drought-related impacts not identified above (e.g., tensions over water that could result in a water-related crisis or conflict).**

The drought experienced in California during 2015-16 resulted in an extremely competitive water market driving water costs up to \$1350. With demands exceeding the supply, water costs increased up to 91 percent in Westlands, compared to the typical CVP allocation cost of approximately \$115 per AF (Westlands 2012 CVP Rate).

- **Describe existing or potential drought conditions in the project area.**

Westlands has experienced drought conditions as recent as from 2013 through 2016. Westlands average CVP allocation during the current drought amounted to 7.9 percent of its CVP Contract entitlement. The drastic reduction in a reliable surface water allocation resulted in devastating impacts to Westlands' typical agricultural patterns in the Project area...e.g. fallowing of 220,000 acres of land. Compared to 2012, agricultural practices and reduced surface water allocations have also increased the cost for groundwater pumping to the project areas by 25

percent. In conclusion, the proposed project will help alleviate the severe drought impacts experienced by Westlands growers and M&I customers.

- **Is the project in an area that is currently suffering from drought or which has recently suffered from drought? Please describe existing or recent drought conditions, including when and the period of time that the area has experienced drought conditions (please provide supporting documentation, [e.g., Drought Monitor, [droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)]).**

Yes, according to [drought.gov](http://drought.gov) monitor website Westlands has suffered Moderate drought (D1) conditions since March 2012. In March 2013, parts of Westlands were degraded from Moderate to Severe drought (D2) conditions. In March 2014, Westlands was degraded again to Exceptional drought (D4) conditions. In April 2016, parts of Westlands remained in Exceptional drought (D4) conditions while the northern part of Westlands improved to Extreme drought (D3) conditions. Although Westlands' drought conditions improved slightly due to the large amount of precipitation in 2017, there is still the potential of continued drought conditions in the future resulting from the hydrology and CVP SOD allocations. Furthermore, Westlands may not receive an average allocation due to Endangered Species Act restrictions at the Delta pumping plants.

- **Describe any projected increases to the severity or duration of drought in the project area resulting from climate change. Provide support for your response (e.g., reference a recent climate change analysis, if available).**

Droughts are projected to become more frequent, longer and more severe with climate change. The average annual temperature in the Sacramento–San Joaquin Basin is projected to increase by 5 to 6°F during this century, with substantial variability in warming in the Central Valley. The duration of extreme warm temperatures is expected to increase from 2 months (July through August) to four months (June through September).

<http://baydeltaconservationplan.com/Home.aspx>

#### E.1.4. Evaluation Criterion D—Project Implementation

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

The California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA) require state and local agencies to determine, then mitigate or avoid, environmental impacts caused by a project. Based on the magnitude of land area disturbance for this proposed project, special studies likely needed to support the CEQA/NEPA process would include:

- Biological Evaluation (with pedestrian survey)
- Mitigated Negative Declaration
- California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement
- An encroachment permit and Land Use application from Fresno County
- Stormwater Pollution Prevention Plan and Dust Control Plan



Yes, Reclamation is Westlands' water provider. Westlands' full contract entitlement from Reclamation is 1.197 million acre-feet, but it is subject to reductions depending upon hydrology and environmental restrictions.

- **Is the project on Reclamation project lands or involving Reclamation facilities?**

Yes, the project's pipeline will discharge into the CC which is operated by Westlands, but owned by the United States. Westlands has current Warren Act Contract's for conveyance of Kings River water through Federal facilities and to discharge groundwater into the CC.

- **Is the project in the same basin as a Reclamation project or activity?**

The Project is located within Reclamation's San Luis Division.

- **Will the proposed work contribute water to a basin where a Reclamation project is located?**

Yes. The Westside sub basin which will be recharged by the Project is located within the San Luis Unit. The project will recharge on average, 10,000 AF/yr. in the basin. The Westside sub basin is in a state of overdraft, and the project will make a significant contribution to reducing overdraft, and help Westlands meet its goal of reducing overdraft to net zero.

### *Environmental and Cultural Resources Compliance*

- **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.**

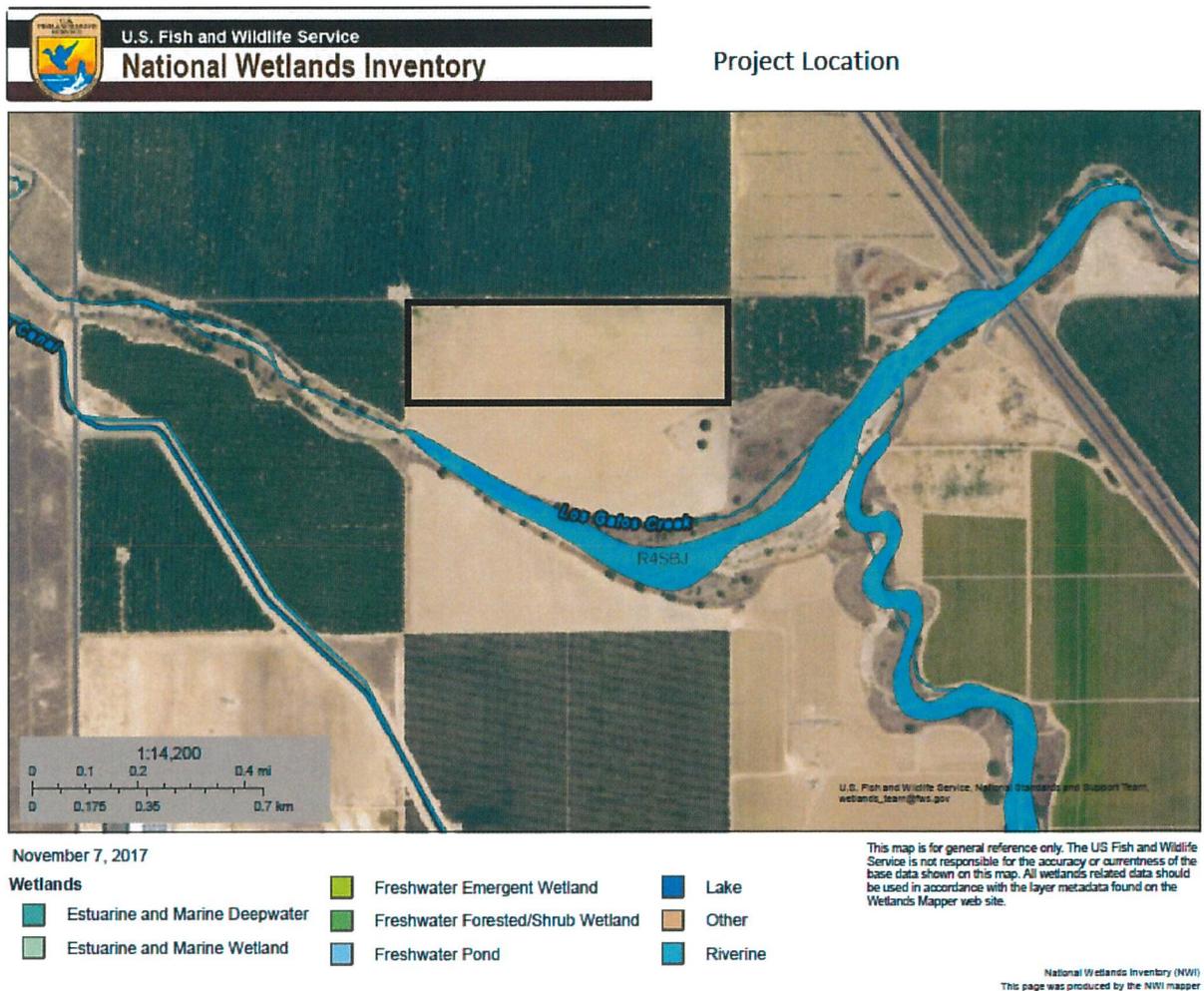
Construction activities at the Project site include preparation of the surface by excavation to construct the basin's subsurface. All land clearing, grubbing, scraping, excavation, land leveling, grading, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water. Excavated material would be used onsite to secure the levee perimeter. Westlands would develop a Dust Control Plan as prescribed and approved by San Joaquin Valley Air Pollution Control District (SJVAPCD) to minimize and control fugitive dust during construction. All area in and surrounding the project area is in agricultural production. There should be minimal disruption to the surrounding area.

- **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?**

The California least tern, San Joaquin kit fox, Tipton kangaroo rat, blunt-nosed leopard lizard, woolly-threads and giant garter snake are known species in Westlands service area identified by USBR but not specific to the project area. Species biology, habitat needs, status under the Endangered Species Act (ESA), and measures being incorporated for the protection of these species and their habitats would be addressed (U.S. Bureau of Reclamation 2013). A Reconnaissance Study will be done prior to construction.

- Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have. According to the U.S. Fish & Wildlife Service (USFWS) National Inventory available via the USFWS internet website, a designated Riverine wetland appears to be associated with Los Gatos Creek (Figure 5.) and its associated floodplain located in the central portion of the subject site. The on-site Riverine wetland is further sub-classified as an intermittent, streambed, intermittently flooded type of Riverine Wetland. Jurisdictional wetlands including Riverine are regulated under Section 404 of the Clean Water Act.

Figure 5. Los Gatos Creek



- **When was the water delivery system constructed?**  
Water is delivered to Westlands farmers through the SLC and the CC through 1,034 miles of underground pipe. The PV8 Delivery system was constructed in 1974 as part of this delivery system, providing service to approximately 3,400 acres of farm land.
- **Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, 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.**

No, existing features of the CC will not be modified or altered, however, the CC will require installation of a temporary diversion pump to divert water to and from the basin from the embankment of CC. An inlet pipe would be installed for suction under the canal water under the canal surface. The pipes will not rest on the canal lining but rather rest on top of the embankment supported by wood blocks, which will connect to the temporary pump station. The pump station will serve to convey water in both directions, to and from the basin within a manageable time schedule.

- **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 include historic properties listed on the National Register of Historic Places.

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

No known archaeological sites are located in the project area. Westlands will conduct a data base search prior to construction as part of the CEQA/NEPA review.

- **Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?**

There are no disadvantaged or minority populations identified within census tracts located in areas that could be negatively affected by the project. Therefore, there would be no disproportionate effects to these populations. The Project will increase water supply reliability which may benefit westside communities, all of which have low income and minority populations. The City of Huron is approximately 6 miles east of the project.

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

The Proposed Project is not on sacred land. However, Westlands will be consulting with tribal representatives as part of the CEQA process.

- **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?**

No, Westlands will dedicate resources for site maintenance to control and avoid the existence of noxious weeds.

San Luis Delta Mendota Water Authority Letter of Support



January 19, 2018

Mr. Jose Gutierrez  
Assistant Chief Operating Officer  
Westlands Water District  
3130 North Fresno Street  
Fresno, California 93703-6056

RE: Support for Award of U.S. Bureau of Reclamation Drought Response Program Grant

Dear Mr. Gutierrez,

The intent of this letter is to express the San Luis & Delta Mendota Water Authority's (Authority) support for Westlands Water District's (WWD) application for the U.S. Bureau of Reclamation Drought Response Program aimed to fund construction projects that promote drought resiliency. Due to increasing uncertainty of future water supply, which was exacerbated by the last four years of drought, the Authority supports WWD's effort to implement projects that promote groundwater banking and increase water supply reliability during drought.

The proposed Pasajero Groundwater Replenishment and Drought Resiliency Project (Project) is part of the Westside Integrated Water Resources Plan adopted by the Authority in 2006. The proposed Project's infrastructure includes a recharge basin, extraction wells, and diversion pipeline from the Coalinga Canal. The Project will improve the flexibility to manage water resources and the Authority looks forward to WWD completing this project.

We encourage Reclamation to award the grant and improve water supply for one of the most productive agricultural regions in the United States.

Sincerely,

  
Frances Mizuno  
Assistant Executive Director

San Luis & Delta Mendota Water Authority

Fresno County Letter of Support

15

BY



**County of Fresno**  
**DEPARTMENT OF PUBLIC HEALTH**

David Pomaville, Director  
Dr. Ken Bird, Health Officer

January 25, 2018

Mr. Jose Gutierrez  
Assistant Chief Operating Officer  
Westlands Water District  
3130 North Fresno Street  
Fresno, California 93703-6056

**RE: Support for Award of U.S. Bureau of Reclamation Drought Response Program Grant**

Dear Mr. Gutierrez,

The intent of this letter is to express the Fresno County Office of Emergency Services' (OES) support for Westlands Water District's (WWD) application for the U.S. Bureau of Reclamation Drought Response Program aimed to fund construction projects that promote drought resiliency. We encourage WWD's efforts to engage local, municipal, and key decision makers on issues regarding solutions to drought resiliency. Fresno County OES supports WWD's effort to implement projects that promote groundwater banking and increase water supply reliability during drought.

The proposed Pasajero Groundwater Replenishment and Drought Resiliency Project (Project) aligns with the Fresno County Hazard Mitigation Planning strategy for addressing the impacts caused by reoccurring drought emergencies. The Project could improve water supply reliability for the westside of Fresno County, including the cities of Coalinga and Huron.

We support WWD in applying for this grant and hope the U.S. Bureau of Reclamation gives it thoughtful consideration for approval.

Sincerely,

Ken Austin  
Emergency Manager  
Fresno County Office of Emergency Services

KA/bbj

cc: Jean M. Rousseau, County Administrative Officer, Fresno County  
Steven E. White, Director, Fresno County Department of Public Works and Planning  
David Pomaville, Director, Fresno County Department of Public Health

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### *Required Permits or Approvals*

Prior to construction, Westlands will obtain the appropriate permits. The permits Westlands anticipates obtaining are: Biological Evaluation, Land Use application, Army Corps 404 to receive approval to cross the Arroyo Pasajero Streambed, Storm water Pollution Prevention Plan, Dust Control Plan, Encroachment permit, Building Permit, California Environmental Quality Act, Mitigated Negative Declaration and National Environmental Protect Act.

### *Official Resolution Available March 1, 2018*

A copy of the draft Board Resolution to be adopted by the District Board meeting at its regular meeting on February 20, 2018.

#### **RESOLUTION NO. xxx-18**

#### **WESTLANDS WATER DISTRICT**

#### **A RESOLUTION OF THE BOARD OF DIRECTORS SUPPORTING THE APPLICATION FOR GRANT FUNDING FROM THE UNITED STATES BUREAU OF RECLAMATION FOR PROJECTS RELATED TO DROUGHT RESILIENCY**

WHEREAS, Westlands Water District (District) receives essential water supplies from the Central Valley Project (CVP) through its water service contract with the United States Bureau of Reclamation (Reclamation); and

WHEREAS, Reclamation solicited a grant proposal for funding opportunities through the WaterSMART Drought Response Grant Program for projects that are drought resilient, increase water supply reliability, and increase water supply flexibility; and

WHEREAS, the District's Board of Directors identified itself as an eligible applicant pursuant to Reclamation's WaterSMART Drought Response Projects Grant Program; and

WHEREAS, the District is pursuing this grant funding assistance under the WaterSMART program in the amount of \$750,000 to help fund the construction of a 60-acre groundwater recharge basin and

WHEREAS, the District determined that the Pasajero Groundwater and Drought Resiliency Project will be beneficial for both the District and Reclamation by providing the District the ability to deliver and optimize water supply.

NOW, THEREFORE, BE IT AND IT IS HEREBY RESOLVED AS FOLLOWS:

1. The Board of Directors reviewed and supports the application for this grant funding opportunity, and the District is committed to the financial and legal obligations associated with the receipt of Reclamation's grant funding.
2. The District is capable of providing the amount of funding and in-kind services specified in the funding plan for the Pasajero Groundwater and Drought Resiliency Project grant application.
3. The District will work with Reclamation to meet established deadlines if the District is selected to receive funding from Reclamation.
4. The General Manager or his designee is authorized and directed to execute an agreement and associated documents with Reclamation related to the grant funding for the District's Pasajero Groundwater and Drought Resiliency Project.

Adopted at an adjourned regular meeting of the Board of Directors at Fresno, California, this 20<sup>th</sup> day of February 2018

*Project Budget*

Westlands non-federal share amount is \$937,516 for Phase I of the project cost and will be obtained from Westlands' Reserve Funds and/or Operation and Maintenance (O&M). Phase I consists of purchasing 160 acres for the basin site of which \$600,000 was approved under the District's budget water year in 2017/18. \$337,516 for the basin's construction will be budgeted from the District's water rate for 2018/19. There will be no funding from third-party sources. All expenditures for the project prior to construction include the environmental compliance requirements.

Westlands is requesting \$750,000 for Phase I to fund the Arroyo Pasajero Banking Project. Westlands Phase I Non-Federal amount of \$937,516 constitutes the purchase of 160 acres of land for the basin site and construction costs. Westlands will apply for funding in 2019 for continuation of Phase II through the Drought Resiliency Grant if funding is available. Phase II will consist of installation of a pump station, three wells and pipeline intertie. Continuation into 2020, Phase III will consist of additional land purchase for expansion into other areas suitable for construction of more storage basins within Westlands.

Funding Plan

Table 1: Phase I Summary of Non- Federal and Federal Funding Sources

FUNDING SOURCES		AMOUNT
<b>Non-Federal Entities</b>		
Westlands Water District		\$337,516
Westlands Water District (in-kind) *		\$600,000
<b>Non-Federal Subtotal</b>		<b>\$937,516</b>
<b>Other Federal Entities</b>		
Other Federal Entities	\$	-
<b>Requested Reclamation Funding</b>		<b>\$750,000</b>
<b>Total Estimated Project Cost</b>		<b>\$1,687,516</b>

Table 2: Phase I Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
<b>WWD Salaries and Wages</b>				
Resources Engineer	\$38.61	67	hr.	\$2,574
Resources Analyst	\$38.61	53	hr.	\$2,059
<b>Subtotal WWD Salaries and Wages</b>				<b>\$4,633</b>
<b>WWD Fringe Benefits</b>				
Resources Engineer	\$23.69	67	hr.	\$1,579
Resources Analyst	\$23.69	53	hr.	\$1,263
<b>Subtotal WWD Fringe Benefits</b>				<b>\$2,843</b>
<b>WWD Travel</b>				
Round Trip to Site 110 miles	\$0.54	1,850	mi.	\$990
<b>Subtotal WWD Travel</b>				<b>\$990</b>
<b>Land Purchase</b>				
Pasajero Land Purchase	\$3,750	160	acres	\$600,000
<b>Subtotal Land Purchase</b>				<b>\$600,000</b>
<b>Construction</b>				
Basin Construction	\$4.00	140,000	cubic yd.	\$560,000
Fencing 6' High 1.3 mi	\$10.00	6864	lf	\$68,640
Seeding 1.5 lb/acre	\$1,500	10	acres	\$15,000
Reservoir Outlet Structure	\$75,000	2	ea	\$150,000
<b>Construction Subtotal</b>				<b>\$793,640</b>

Contractual Engineering/Permitting				
Engineering Contractor	\$ 112,000	1	If	\$112,000
Environmental	\$20,000	1	ea	\$20,000
Subtotal Engineering/Permitting				\$132,000
PROJECT COST SUBTOTAL				\$1,534,106
Contingency Rate	percentage		10%	\$153,410.58
TOTAL ESTIMATED PROJECT COSTS				\$1,687,516

## Budget Narrative

### *Salaries and Wages*

A Resources Engineer will devote 67 hours overseeing the project during Phase I, at a rate of \$38.81 per hour and \$23.69 per hour for Fringe Benefits. The Fringe Benefits include overhead costs including medical, retirement, training and general office operational expenses. The Resources Engineer will oversee permitting, planning, and construction of the project in accordance to the U.S. Bureau of Reclamation's terms of the agreement. A Resources Analyst will contribute an estimated 53 hours to assist the Resources Engineer at the project site and contractual oversight at a rate of \$38.81 per hour and \$23.69 per hour in Fringe Benefits.

### *Travel*

According to MapQuest, the trip mileage total, starting at the Westlands Water District Fresno office to the proposed project site and back is approximately 110 miles round trip. Westlands staff estimates a total of 17 trips are to be required to the basin site and back (1,850 miles) during Phase I of the project period for construction oversight. Westlands total travel budget is approximately \$3,000 to cover travel expenses for fuel costs.

### *Contractual / Construction*

Contractual costs include engineering and environmental costs estimated at \$132,000. Construction cost include the basin, fencing, seeding, and reservoir outlet.

### *Environmental and Regulatory Compliance Costs*

The Environmental and Permitting costs associated with the proposed project are included in the Contractual/Construction costs. Westlands budgeted \$132,000 for environmental and regulatory compliance performed by a consultant for Phase I. The environmental permitting is expected to start in June 2018. Westlands anticipates permitting requirement for Land Use Application Storm-water Pollution Prevention Plan, Dust Control Plan, California Environmental Quality Act Mitigated Negative Declaration and National Environmental Protect Act. Westlands will hire a consultant to obtain all permits identified in this application.

### *Indirect Costs*

Indirect costs are minimal and not quantified in this application

## References

Michael A. Shires, 2016      Michael A. Shires, P., 2016. *The Economic Impact of Westlands Water District on the Local and Regional Economy*. [Online]  
Available at: <http://wwd.ca.gov/wp-content/uploads/2016/10/economic-impact-report.pdf>  
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[Accessed 1 February 2017].

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San Joaquin Valley Air Pollution Control District (SJVAPCD). 2017. Available at <http://www.valleyair.org/aqinfo/attainment.htm>.

UC Davis Soil Agricultural Groundwater Banking Index (SAGBI) study:  
<https://casoilresource.lawr.ucdavis.edu/sagbi/>

Sustainable Conservation's Groundwater Recharge Assessment Tool:  
<http://earthgenomevm.cloudapp.net/GRATViewer/>

Conjunctive use Investigation Report – Arroyo Pasajero October 2002, Geomatrix Consultants, Inc.

EA-13-042 Approval of Warren Act Contract and Renewal of right of Way License for Westlands Water District

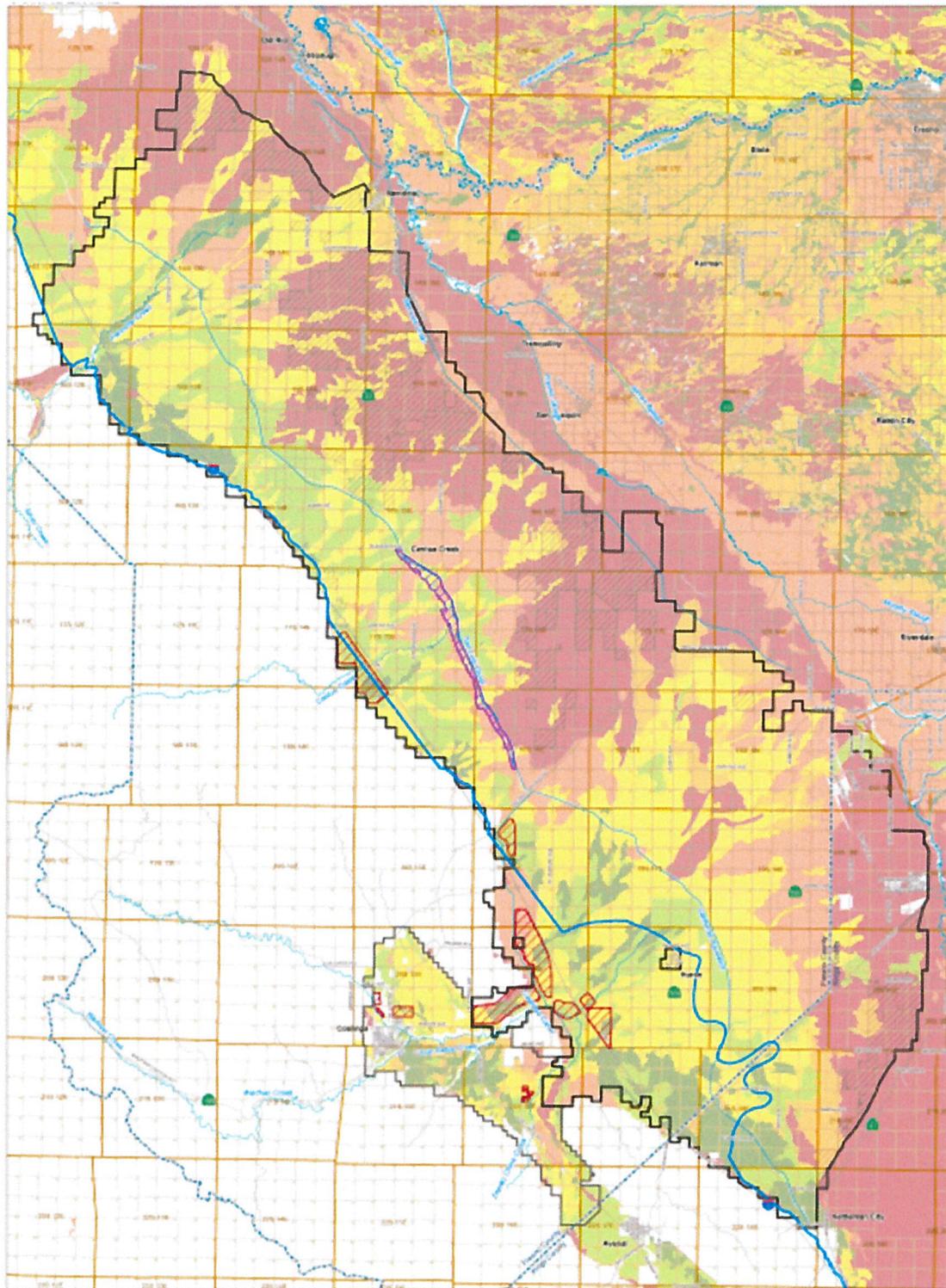
2014 Guidelines for Accepting Groundwater in the Coalinga Canal Water Quality Monitoring Plan – U.S. Bureau of Reclamation

Warren Act Contract No. 14-WC-20-4518 Conveyance of Non-Project Water into the Coalinga Canal – Year 2014-2018

Warren Act Contract No. 17-WC-20-5096 Conveyance of Kings River Non-Project Water - Year 2017-22

Well Completion Report 20S/16E-23P01

Kings River Water Association Agreement with Westlands Water District and Amendment



**Legend**

- Streets
- Waterway
- Corcoran City Western Extent
- ▨ Existing Areas of Research
- ▨ Cantua Creek Group Improvement Project
- ▨ Township/Range Sections
- ▨ WWD Owned Land
- ▭ WWD Boundary
- ▭ PwWD Boundary
- ▭ County Line

**Soil Agricultural Groundwater Banking Index (SAGBI)**

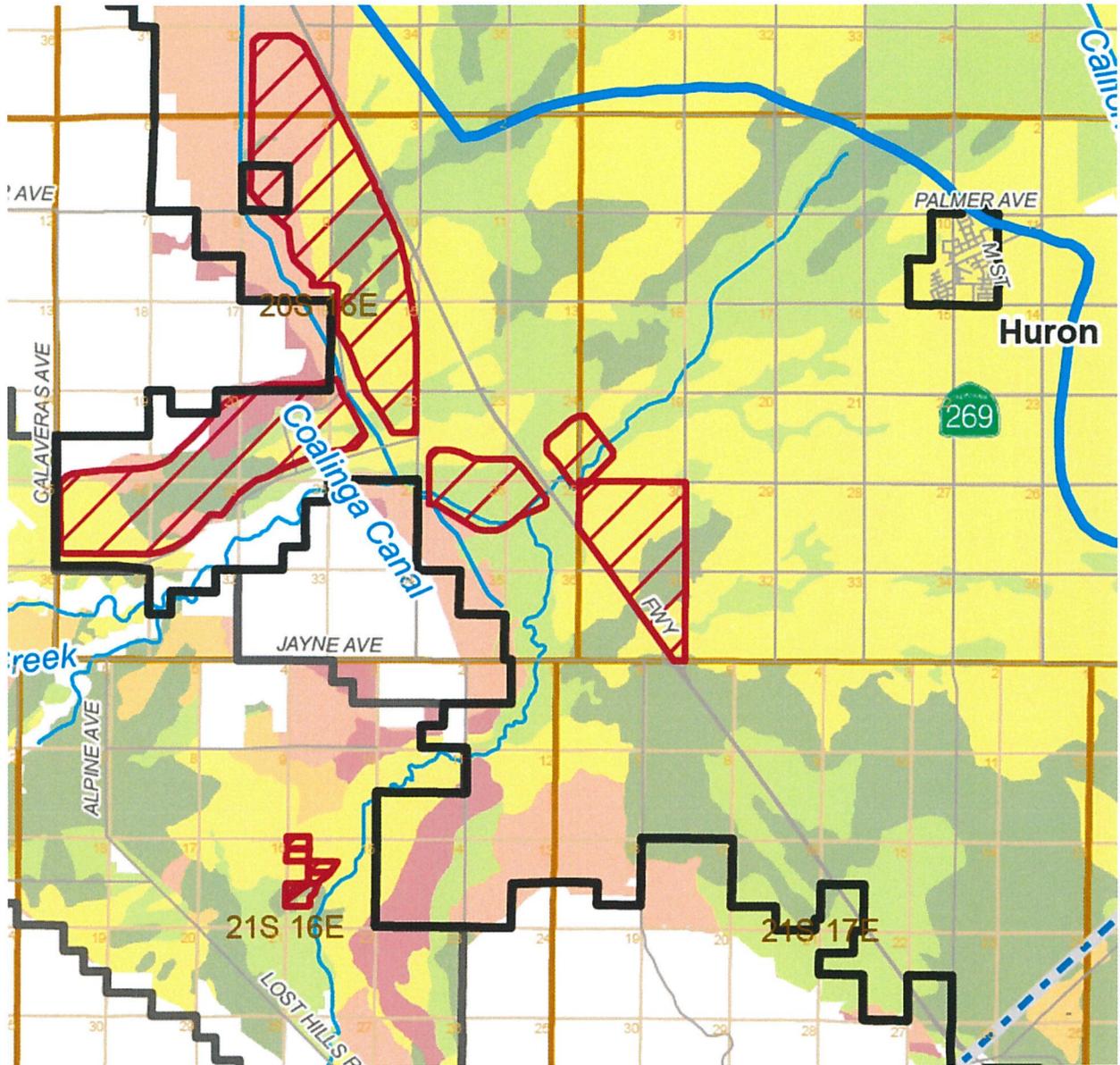
- Excellent (85 - 100)
- Good (69 - 85)
- Moderately Good (49 - 69)
- Moderately Poor (29 - 49)
- Poor (15 - 29)
- Very Poor (0 - 15)

**Soil Agricultural Groundwater Banking Index (SAGBI)**




**WESTLANDS WATER DISTRICT**  
 3130 N. FRESNO ST.  
 FRESNO, CALIFORNIA 93703  
 559.224.1523 FAX 559.241.6277

SAGBI Index of Project Area





**County of Fresno**  
**DEPARTMENT OF PUBLIC HEALTH**  
David Pomaville, Director  
Dr. Ken Bird, Health Officer

January 25, 2018

Mr. Jose Gutierrez  
Assistant Chief Operating Officer  
Westlands Water District  
3130 North Fresno Street  
Fresno, California 93703-6056

**RE: Support for Award of U.S. Bureau of Reclamation Drought Response Program Grant**

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Sincerely,

Ken Austin  
Emergency Manager  
Fresno County Office of Emergency Services

KA/bbj

cc: Jean M. Rousseau, County Administrative Officer, Fresno County  
Steven E. White, Director, Fresno County Department of Public Works and Planning  
David Pomaville, Director, Fresno County Department of Public Health

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January 19, 2018

Mr. Jose Gutierrez  
Assistant Chief Operating Officer  
Westlands Water District  
3130 North Fresno Street  
Fresno, California 93703-6056

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We encourage Reclamation to award the grant and improve water supply for one of the most productive agricultural regions in the United States.

Sincerely,

  
Frances Mizuno  
Assistant Executive Director

San Luis & Delta Mendota Water Authority

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BYRON, CA

94514

209 832-6200

209 833-1034 FAX