

# RECLAMATION

*Managing Water in the West*

**FINDING OF NO SIGNIFICANT IMPACT**

## **Widren Water District Pilot Project Extension**

**FONSI-19-004**



U.S. Department of the Interior  
Bureau of Reclamation  
South-Central California Area Office

**March 2019**

## **Mission Statements**

The mission of the Department of the Interior is to conserve and manage the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provide scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honor the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

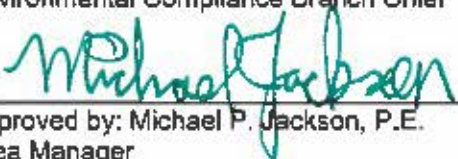
**BUREAU OF RECLAMATION**  
**South-Central California Area Office, Fresno, California**

**FONSI-19-004**

**Widren Water District Pilot Project  
Extension**

  
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03/01/2019  
Date

  
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3/4/2019  
Date



# Introduction

In accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Bureau of Reclamation (Reclamation) prepared this Finding of No Significant Impact (FONSI) which is supported by Reclamation's attached Environmental Assessment (EA)-19-004, *Widren Water District Pilot Project Extension*, hereby incorporated by reference.

## Background

Widren Water District (Widren or District) is located in northwestern Fresno County within the Grassland Drainage Area, an area known for subsurface drainage problems due to heavy clay soils that contain a variety of dissolved minerals including boron and selenium within a perched water table. Widren, its landowners, and other water agencies and farmers within the Grassland Drainage Area have implemented several activities aimed at reducing discharge of subsurface drainage waters to the San Joaquin River, including the Grassland Bypass Project which consolidates subsurface drainage flows (among other things), as part of the Westside Regional Drainage Plan (Exchange Contractors 2003).

Consistent with the Westside Regional Drainage Plan, Widren installed tile drains in approximately 460 acres of its boundary. Perched drainage water was lowered in this area; however, the remaining untiled area within the district continues to have perched groundwater with high concentrates of dissolved minerals. To address this, Widren constructed a Reverse Osmosis Treatment Plant to extract and treat their shallow groundwater for use within an in-district Reuse Area.

In 2017, Reclamation completed an EA (16-035) that analyzed a proposed pilot project which included issuance of a 1-year Warren Act contract/Exchange Agreement and a 25-year land use authorization for installation, operation, and maintenance of a pipeline connection to an existing discharge facility on the Delta-Mendota Canal (Reclamation 2017). The pilot project was intended to provide data in order for Reclamation to evaluate potential effects of a longer term project initially proposed by Widren.

As Widren's Warren Act contract expired in December 2018, Widren has requested a new Warren Act contract to continue gathering data. An extension of the previous 1-year pilot project is needed so that Reclamation and Widren can continue to collect data in order for Reclamation to evaluate the potential effects of the District's proposed long-term project.

## **Alternatives Considered**

### **No Action**

Under the No Action Alternative, Reclamation would not issue a new Warren Act contract to Widren. No Reverse Osmosis-treated groundwater would be introduced into the Delta-Mendota Canal; however, Widren would continue to treat their groundwater through their Reverse Osmosis Treatment Plant. The Reverse Osmosis concentrate would continue to be blended with untreated groundwater for irrigation of crops within their existing Reuse Area. Drainage water collected via their existing tile drains would also continue to be collected and used within their Reuse Area.

### **Proposed Action**

Under the Proposed Action, Reclamation would issue a 3-year Warren Act contract/Exchange Agreement to Widren for the introduction and conveyance of up to 1,000 acre-feet of Reverse Osmosis-treated groundwater (non-Project water) into the Delta-Mendota Canal as well as potential storage in San Luis Reservoir as described in Section 2.2 of EA-19-004. Data would be collected during the 3-year period as a continuation of the original pilot project. The Monitoring Plan for the 3-year pilot project is included in Appendix A of EA-19-004. The collected data would be used by Reclamation to evaluate Widren's proposed longer term project under separate environmental review.

### ***Environmental Commitments***

Widren shall implement the environmental protection measures listed in Table 2 as well as any additional requirements in Appendix A of EA-19-004 to avoid environmental consequences associated with the Proposed Action. Environmental consequences for resource areas assume the measures specified would be fully implemented.

## **Comments on the EA**

Reclamation provided the public with an opportunity to comment on EA-19-004 between February 13, 2019 and February 27, 2019. No comments were received.

## **Findings**

In accordance with NEPA, Reclamation has determined that the approval of the Proposed Action is not a major federal action that will significantly affect the quality of the human environment; consequently, an environmental impact statement is not required.

The following reasons are why the impacts from the proposed action are not significant:

- The proposed action will not significantly affect public health or safety (40 CFR 1508.27(b)(2)).
- The proposed action will not significantly affect natural resources and unique geographical characteristics such as proximity to historic or cultural resources; parks, recreation, and

refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order (EO) 11990); flood plains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas (40 CFR 1508.27(b)(3)).

- There is no potential for the effects to be considered highly controversial (40 CFR 1508.27(b)(4)).
- The proposed action will not have possible effects on the human environment that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).
- The proposed action will neither establish a precedent for future actions with significant effects nor represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).
- The proposed action will not have cumulatively significant impacts (40 CFR 1508.27(b)(7)).
- The proposed action will not significantly affect historic properties (40 CFR 1508.27(b)(8)).
- The proposed action will not significantly affect listed or proposed threatened or endangered species, or its habitat that has been determined to be critical under the Endangered Species Act of 1973 (40 CFR 1508.27(b)(9)).
- The proposed action will not threaten a violation of Federal, State, tribal or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)).
- The proposed action will not affect any Indian Trust Assets (512 DM 2, Policy Memorandum dated December 15, 1993).
- Implementing the proposed action will not disproportionately affect minorities or low-income populations and communities (EO 12898).
- The proposed action will not limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious practitioners or adversely affect the physical integrity of such sacred sites (EO 13007 and 512 DM 3).

# RECLAMATION

*Managing Water in the West*

**Final Environmental Assessment**

## **Widren Water District Pilot Project Extension**

**EA-19-004**



U.S. Department of the Interior  
Bureau of Reclamation  
South-Central California Area Office

**March 2019**



## **Mission Statements**

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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# Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Finding of No Significant Impact (FONSI) and Draft Environmental Assessment (EA) between February 13, 2019 and February 27, 2019. No comments were received. Changes between this Final EA and the Draft EA, which are not minor editorial changes, are indicated by vertical lines in the left margin of this document.

## 1.1 Background

Widren Water District (Widren or District) is located in northwestern Fresno County within the Grassland Drainage Area (Figure 1). The Grassland Drainage Area is known for subsurface drainage problems due to heavy clay soils that contain a variety of dissolved minerals including boron and selenium within a perched water table. The perched water table in the Grassland Drainage Area is often managed with subsurface (tile) drain systems and deep earthen channels which provide an outlet for the shallow groundwater (Exchange Contractors 2003). However, the subsurface drain water can be high in dissolved minerals including salt and selenium.

Widren, its landowners, and other water agencies and farmers within the Grassland Drainage Area have implemented several activities aimed at reducing discharge of subsurface drainage waters to the San Joaquin River, including the Grassland Bypass Project which consolidates subsurface drainage flows (among other things), as part of the Westside Regional Drainage Plan (Exchange Contractors 2003).

Consistent with the Westside Regional Drainage Plan, Widren installed tile drains in approximately 460 acres of its boundary. Perched drainage water was lowered in this area; however, the remaining untilled area within the district continues to have perched groundwater with high concentrates of dissolved minerals. To address this, Widren constructed a Reverse Osmosis Treatment Plant to extract and treat their shallow groundwater for use within an in-district Reuse Area (Figure 2).

### 1.1.1 Proposed Pilot Project

In 2017, Reclamation completed EA-16-035 that analyzed a proposed pilot project which included issuance of a 1-year Warren Act contract/Exchange Agreement and a 25-year land use authorization for installation, operation, and maintenance of a pipeline connection to an existing discharge facility on the Delta-Mendota Canal (Reclamation 2017). The pilot project was intended to provide data in order for Reclamation to evaluate potential effects of a longer term project initially proposed by Widren.

EA-16-035 analyzed the direct, indirect, and cumulative impacts of the pilot project to the following resources: air quality, biology, cultural resources, environmental justice, global climate change, Indian Sacred Sites, Indian Trust Assets, land use, and water resources. Based

on specific environmental commitments required for the pilot project, Reclamation determined that there would be no significant affect to the quality of the human environment and a FONSI was issued on November 14, 2017. FONSI/EA-16-035 is hereby incorporated by reference.

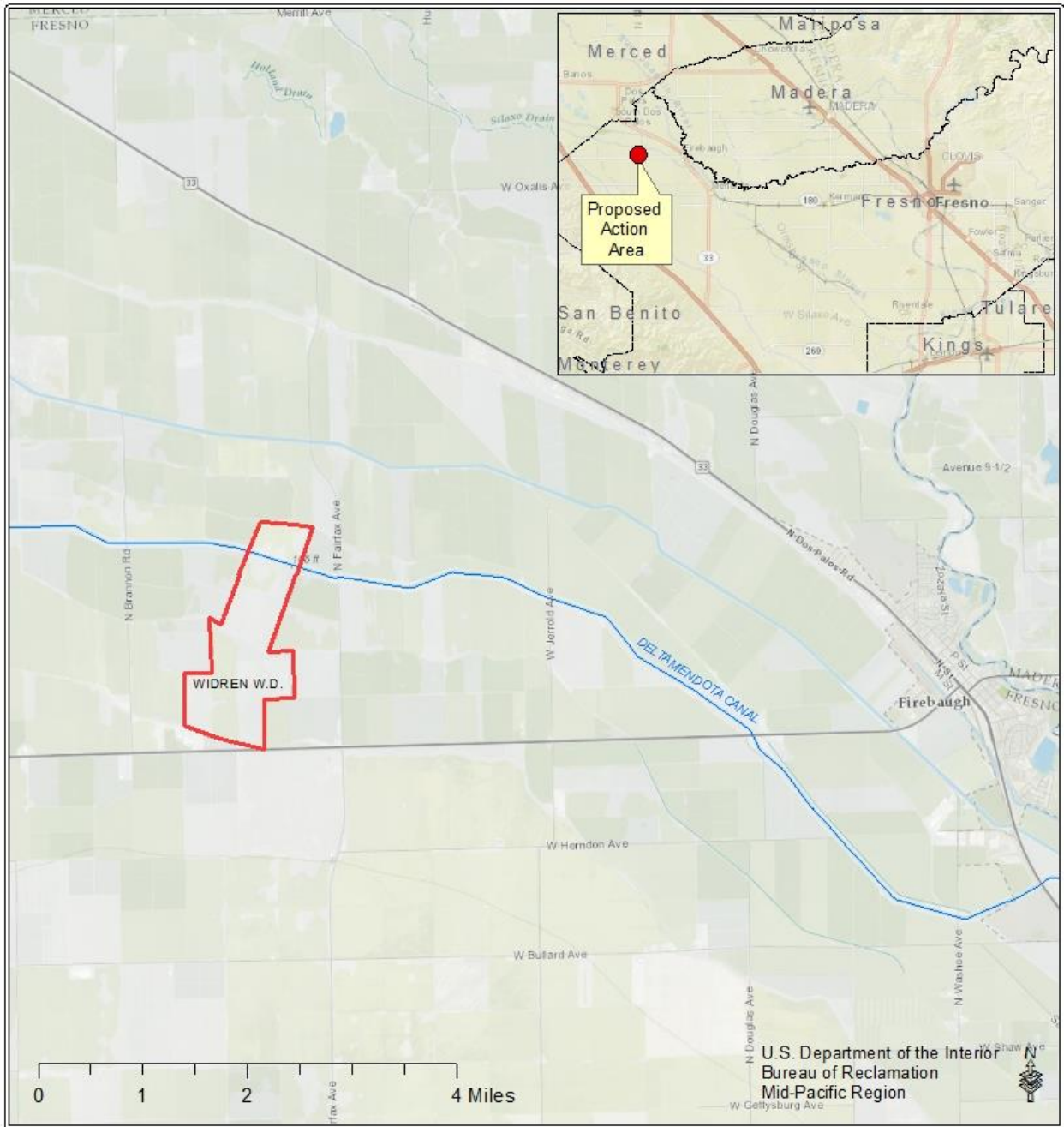


Figure 1 Project Location



Figure 2 Widren Water District's Reuse Area

## **1.2 Need for the Proposed Action**

As Widren's Warren Act contract expired in December 2018, Widren has requested a new Warren Act contract to continue gathering data. An extension of the previous 1-year pilot project is needed so that Reclamation and Widren can continue to collect data in order for Reclamation to evaluate the potential effects of the District's proposed long-term project.

## Section 2 Alternatives Including the Proposed Action

This EA considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

### 2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not issue a new Warren Act contract to Widren. No Reverse Osmosis-treated groundwater would be introduced into the Delta-Mendota Canal; however, Widren would continue to treat their groundwater through their Reverse Osmosis Treatment Plant. The Reverse Osmosis concentrate would continue to be blended with untreated groundwater for irrigation of crops within their existing Reuse Area. Drainage water collected via their existing tile drains would also continue to be collected and used within their Reuse Area.

### 2.2 Proposed Action

Under the Proposed Action, Reclamation would issue a 3-year Warren Act contract/Exchange Agreement to Widren for the introduction and conveyance of up to 1,000 acre-feet of Reverse Osmosis-treated groundwater (non-Project water) into the Delta-Mendota Canal as well as potential storage in San Luis Reservoir. Data would be collected during the 3-year period as a continuation of the original pilot project. The Monitoring Plan for the 3-year pilot project is included in Appendix A. The collected data would be used by Reclamation to evaluate Widren's proposed longer term project under separate environmental review.

The non-Project water introduced into the Delta-Mendota Canal may be provided to willing buyers. The following South-of-Delta CVP contractors could potentially be recipients under the Proposed Action as shown in Figure 3:

- Banta-Carbona Irrigation District
- Byron-Bethany Irrigation District
- Del Puerto Water District
- Mercy Springs Water District
- Pacheco Water District
- Panoche Water District
- San Luis Water District
- West Stanislaus Irrigation District
- Westlands Water District



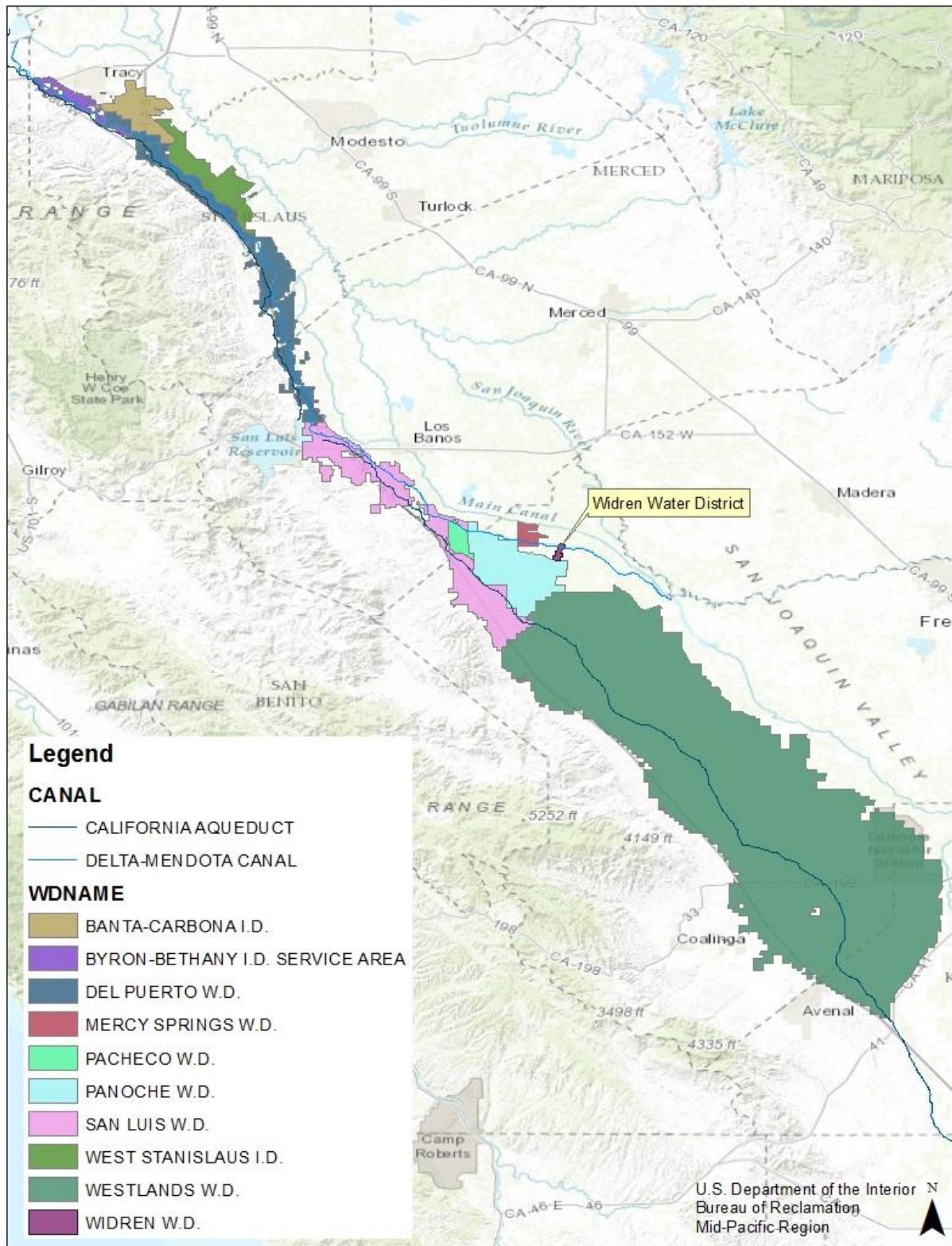


Figure 3 Potential Recipients of Reverse Osmosis Treated Water

An exchange of water (non-Project for CVP) would need to be done by Reclamation for any non-Project water that would be provided to those contractors located upstream of the introduction point (i.e. milepost 102.04R) or for storage in San Luis Reservoir. Under these conditions, Reclamation would use the introduced non-Project water to meet downstream CVP demands and a like amount of CVP water would then be conveyed to CVP contractors located upstream of milepost 102.04R and/or stored in San Luis Reservoir for later delivery to participants in the Proposed Action, including Widren. Introduction and storage of the non-Project water is subject to available capacity, water quality requirements, and spill.

The non-Project water would be conveyed in existing facilities to established agricultural lands within the recipient districts. No construction or modification of facilities would be needed in order to complete the Proposed Action. No additional exports of water from the Sacramento/San Joaquin Bay-Delta Estuary would occur.

### **2.2.1 Operation of the Reverse Osmosis Treatment Plant**

Annually, up to 1,200 acre-feet of groundwater would be pumped from the M-2 source well and conveyed to the Reverse Osmosis Treatment Plant. At the Treatment Plant, the raw groundwater would be pretreated under high pressure using high performance multi-media filtration (NextSand Media<sup>1</sup>) to remove suspended solids down to 3-5 microns. Then, the filtered water would pass through a multi-bag filtration system, removing suspended solids down to 1 micron. An antiscalant chemical would be injected into the water at low levels (3-5 milligram/liter) to prevent precipitation of natural soluble salts in the treated water. The water would then be sent to the Reverse Osmosis membranes which would remove any remaining dissolved constituents in the water. The Reverse Osmosis treated groundwater would be tested in accordance with the requirements described in Appendix A prior to being conveyed to milepost 102.04R on the Delta-Mendota Canal.

The effluent or backflush water produced by the Reverse Osmosis Treatment Plant (estimated at 200 acre-feet) would be blended with up to 400 acre-feet of groundwater from the same existing well within existing underground piping, and then utilized within Widren for irrigation of salt tolerant crops in the reuse area (see Figure 2).

Water quality determined from the previous 1-year pilot project for the M-2 source well, Reverse Osmosis-treated water, and blended water are included in Table 1 along with required standards for introduction of treated water into the Delta-Mendota Canal. Water quality over the course of the 3-year pilot project is anticipated to be similar to that in Table 1.

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<sup>1</sup> <http://www.nextsand.com/>

Table 1 Water Quality for Reverse Osmosis Treatment Plant

Analyte	Units <sup>1</sup>	M-2 Well Water <sup>2</sup>	Blended Effluent Water <sup>3</sup>	Treated Water <sup>4</sup>	Delta-Mendota Canal Standards <sup>5</sup>
Barium	mg/L	0.026	0.08 – 0.10	Non-Detect	no standard
Bicarbonate	mg/L	170	560 - 600	Non-Detect	61
Boron	mg/L	2	5.3 – 5.8	0.6	0.7
Calcium	mg/L	360	1,050 – 1,600	Non-Detect	80
Chloride	mg/L	735	2,000 – 2,400	1.0	40
Chlorpyrifos	µg/L	Non-Detect	Non-Detect	Non-Detect	0.025
Chromium	µg/L	Non-Detect	Non-Detect	Non-Detect	50
Diazinon	µg/L	Non-Detect	Non-Detect	Non-Detect	0.16
Fluoride	mg/L	0.2	0.50 - 0.10	Non-Detect	no standard
Magnesium	mg/L	160	500 - 600	Non-Detect	16
Mercury	µg/L	Non-Detect	Non-Detect	0.01	2
Molybdenum	µg/L	Non-Detect	Non-Detect	Non-Detect	10
Nickel	µg/L	Non-Detect	Non-Detect	Non-Detect	100
Nitrate (as NO <sub>3</sub> )	mg/L	Non-Detect	Non-Detect	Non-Detect	45
Nitrite	mg/L	Not tested	Not tested	Non-Detect	1
pH		7.6	7.9-8.0	7.46	5.0-7.0
Potassium	mg/l	6.8		Non-Detect	4.5
Sodium adsorption ratio		Not tested	Not tested	Not Applicable	1
Selenium	µg/L	18	56	Non-Detect	2
Sodium	mg/L	401.2	1,200 – 1,400	2.0	69
Specific Conductivity	µS/cm	4,654	12,000 – 14,000	12.0	1230
Sulfate	mg/L	1,200	3,500 – 3,800	1.6	250
Total dissolved solids	mg/L	3,037	7,000 – 9,000	Non-Detect	800

1 Units: mg/L = milligrams per liter, µg/L = micrograms per liter, µS/cm = micro Siemens per centimeter

2 Water Quality Data from Widren Water District's pre-treatment well water on April 22, 2015

3 Estimated water quality of blended effluent from the Reverse Osmosis Treatment Plant for use on reuse lands

4 Water Quality Data from Widren Water District's Treated Water on March 27, 2018

5 Data from the Appendix A Monitoring Plan but may change during the life of the project.

### 2.2.2 Permitting

Widren operates under the State Water Resources Control Board's Waste Discharge Requirements General Order (Order R5-2015-0095) for growers in the Grassland Drainage Area. This Order is part of the Irrigated Lands Regulatory Program and regulates discharge to groundwater.

### 2.2.3 Environmental Commitments

Widren shall implement the environmental protection measures included in Table 2 as well as any additional requirements included in the Monitoring Plan (Appendix A).

Table 2 Environmental Protection Measures and Commitments.

<b>Resource</b>	<b>Protection Measure</b>
Biological Resources	The water would not be used to place untilled or native lands into production, or to convert lands that have been fallowed or untilled for three or more years.
Biological Resources	The Proposed Action cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats.
General	The treated water shall be used for beneficial purposes and in accordance with Federal Reclamation law and guidelines, as applicable.
General	Use of the water shall comply with all federal, state, local, and tribal law, and requirements imposed for protection of the environment and Indian Trust Assets.
General	No land conversions may occur as a result of the Proposed Action.
Water Resources	Widren shall adhere to their Regional Board's Waste Discharge Requirements General Order for discharges of groundwater.

Environmental consequences for resource areas assume the measures specified would be fully implemented.

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## Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

### 3.1 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 3.

Table 3 Resources Eliminated from Further Analysis

Resource	Reason Eliminated
Air Quality	No new construction or new facilities would be needed under the Proposed Action to convey water. Some pumping would be required to move water under the Proposed Action, but power usage would be within the typical range for the facilities involved and are a part of the baseline condition. In addition, delivery of water to the participating districts would be from existing facilities with or without the Proposed Action and is therefore part of the existing conditions. As there would be no change from existing conditions, a conformity analysis is not required and there would be no impact to air quality as a result of the Proposed Action.
Cultural Resources	There would be no impacts to cultural resources as a result of implementing the Proposed Action as the Proposed Action would facilitate the flow of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action. Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1). See Appendix B for Reclamation's determination.
Environmental Justice	The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations.
Global Climate Change	The Proposed Action does not include construction of new facilities or modification to existing facilities. While pumping would be necessary to deliver water, no additional electrical production beyond baseline conditions would occur. In addition, the generating power plant that produces electricity for the electric pumps operates under permits that are regulated for greenhouse gas emissions. As such, there would be no additional impacts to global climate change.
Indian Sacred Sites	The Proposed Action would not limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or affect the physical integrity of such sacred sites. There would be no impacts to Indian sacred sites as a result of the Proposed Action.
Indian Trust Assets	The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area.
Land Use	Under the Proposed Action, up to 337 acres of dry farmland within Widren would continue to receive blended effluent for irrigation of salt tolerant crops. This land would receive blended effluent from Widren's Reverse Osmosis Treatment Plant regardless of whether the project was implemented or not, as part of their ongoing drainage improvement activities.

## 3.2 Biological Resources

### 3.2.1 Affected Environment

The Action area includes Widren, service areas for all of the participating districts listed in Section 2.2, as well as federal conveyance facilities.

A list of federally listed threatened and endangered species and critical habitat that occur within the Proposed Action area was obtained on January 31, 2019, by accessing the U.S. Fish and Wildlife Service database (U.S. Fish and Wildlife Service 2019): <https://ecos.fws.gov/ipac/>. A list of species administered by the National Marine Fisheries Service was also obtained from [https://www.westcoast.fisheries.noaa.gov/maps\\_data/california\\_species\\_list\\_tools.html](https://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html) on February 1, 2019. The lists are summarized in Table 4 below. Reclamation further queried the California Department of Fish and Wildlife, California Natural Diversity Database for records of protected species within 10 miles of the project location (California Natural Diversity Database 2019). The San Joaquin kit fox (*Vulpes macrotis mutica*) can use actively farmed lands for foraging (but not for denning) if they are near more suitable land (Warrick et al. 2007). The Western Burrowing Owl, and the Swainson's Hawk, not Federally listed, but protected by the Migratory Bird Treaty Act, can also use some agricultural lands. There is critical habitat for the vernal pool fairy shrimp (*Branchinecta lynchi*) within Bryon-Bethany Irrigation District, but agricultural lands would not contain primary constituent elements of critical habitat (there are no vernal pools or similar areas that pond water, and the watersheds surrounding them in these lands). Only lands that are not subject to regular disturbance of farming would have the primary constituent elements.

Table 4 Federally Listed and Endangered Species

Species	Status <sup>1</sup>	Effects <sup>2</sup>	Potential to occur and summary basis for ESA determination <sup>3</sup>
<b>Amphibians</b>			
California red-legged frog ( <i>Rana draytonii</i> )	T, X	NE	<b>Absent:</b> No longer occurs in this part of its historical range.
California tiger salamander ( <i>Ambystoma californiense</i> )	T, X	NE	<b>Possible:</b> Vernal pool habitat and surrounding grassland in Bryon-Bethany Irrigation District will not be affected because untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
<b>Birds</b>			
California Condor ( <i>Gymnogyps californianus</i> )	E, X	NE	<b>Absent:</b> Cliffs and foraging habitat lacking in the Proposed Action area.
Least Bell's Vireo ( <i>Vireo bellii pusillus</i> )	E, X	NE	<b>Absent:</b> Historically was present in the Proposed Action Area and has been documented at the San Joaquin River National Wildlife Refuge. No riparian habitat would be affected by the Proposed Action. Untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
Western Snowy Plover ( <i>Charadrius nivosus nivosus</i> )	E, X	NE	<b>Absent:</b> Uses coastal habitat and but may occur occasionally at evaporation ponds inland. Does not occur in the Proposed Action Area.
Yellow-billed Cuckoo ( <i>Coccyzus americanus</i> )	T, X	NE	<b>Absent:</b> Requires extensive cottonwood-willow riparian habitat, which does not occur in the Proposed Action Area.

Species	Status <sup>1</sup>	Effects <sup>2</sup>	Potential to occur and summary basis for ESA determination <sup>3</sup>
<b>Fish</b>			
Central Valley spring-run Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )	T, X	NE	<b>Absent:</b> The Proposed Action would not change pumping and conveyance in the Sacramento-San Joaquin Delta or affect any natural streams.
Central Valley steelhead ( <i>Oncorhynchus mykiss</i> )	T, X	NE	<b>Absent:</b> The Proposed Action would not change pumping and conveyance in the Sacramento-San Joaquin Delta or affect any natural streams.
delta smelt ( <i>Hypomesus transpacificus</i> )	T, X	NE	<b>Absent:</b> Impacts due to pumping in the Sacramento-San Joaquin Delta, which is where this species occurs and where critical habitat is designated have already been addressed by the long-term coordinated operations of the CVP and SWP.
eulachon ( <i>Thaleichthys pacificus</i> )	T, X	NE	<b>Absent:</b> Occurs in the Mad River and further north. Does not occur in the Proposed Action Area.
North American green sturgeon, southern DPS ( <i>Acipenser medirostris</i> )	T, X	NE	<b>Absent:</b> The Proposed Action would not change pumping and conveyance in the Sacramento-San Joaquin Delta or affect any natural streams.
Sacramento River winter-run Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )	E, X	NE	<b>Absent:</b> The Proposed Action would not change pumping and conveyance in the Sacramento-San Joaquin Delta or affect any natural streams.
<b>Invertebrates</b>			
Conservancy fairy shrimp ( <i>Branchinecta conservatio</i> )	E, X	NE	<b>Possible:</b> Vernal pool habitat and surrounding grassland in Bryon-Bethany Irrigation District would not be affected because untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
longhorn fairy shrimp ( <i>Branchinecta longiantenna</i> )	E, X	NE	<b>Possible:</b> Vernal pool habitat and surrounding grassland in Bryon-Bethany Irrigation District (and critical habitat) would not be affected because untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
San Bruno elfin butterfly ( <i>Callophrys mossii bayensis</i> )	E, PX	NE	<b>Absent:</b> Occurs outside of the Proposed Action Area. Does not occur in agricultural lands.
valley elderberry longhorn beetle ( <i>Desmocerus californicus dimorphus</i> )	T, X	NE	<b>Possible:</b> May occur along canals in the Proposed Action Area, but no ground disturbance would occur as a result of the Proposed Action Area.
vernal pool fairy shrimp ( <i>Branchinecta lynchi</i> )	T, X	NE	<b>Present:</b> Vernal pool habitat and surrounding grassland in Bryon-Bethany Irrigation District would not be affected because untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
vernal pool tadpole shrimp ( <i>Lepidurus packardii</i> )	E, X	NE	<b>Possible:</b> Vernal pool habitat and surrounding grassland in Bryon-Bethany Irrigation District would not be affected because untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
<b>Mammals</b>			
Buena Vista Lake shrew ( <i>Sorex ornatus relictus</i> )	E, X	NE	<b>Absent:</b> May occur near, but outside of the southern end of Westlands Water District.
Fresno kangaroo rat ( <i>Dipodomys nitratooides exilis</i> )	E, X	NE	<b>Absent:</b> No longer occurs in this part of its historical range/
giant kangaroo rat ( <i>Dipodomys ingens</i> )	E	NE	<b>Absent:</b> No longer occurs in this part of its historical range.
riparian brush rabbit ( <i>Sylvilagus bachmani riparius</i> )	E	NE	<b>Absent:</b> No longer occurs in this part of its historical range.
riparian woodrat ( <i>Neotoma fuscipes riparia</i> )	E	NE	<b>Absent:</b> No longer occurs in this part of its historical range.



Species	Status <sup>1</sup>	Effects <sup>2</sup>	Potential to occur and summary basis for ESA determination <sup>3</sup>
San Joaquin kit fox ( <i>Vulpes macrotis mutica</i> )	E	NE	<b>Present:</b> May use Proposed Action Area for foraging and possibly denning (Avenal and Coalinga). Known to occur in Coalinga.
Tipton kangaroo rat ( <i>Dipodomys nitratooides nitratooides</i> )	E	NE	<b>Absent:</b> No longer occurs in this part of its historical range.
<b>Plant</b>			
California jewelflower ( <i>Caulanthus californicus</i> )	E	NE	<b>Possible:</b> May occur along the western edges of the southern part of the Proposed Action Area, but untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
Colusa grass ( <i>Neostapfia colusana</i> )	T, X	NE	<b>Possible:</b> Vernal pool habitat and surrounding grassland in Bryon-Bethany Irrigation District would not be affected because untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
Hoover's spurge ( <i>Chamaesyce hooveri</i> )	T, X	NE	<b>Possible:</b> Vernal pool habitat and surrounding grassland in Bryon-Bethany Irrigation District would not be affected because untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
large-flowered fiddleneck ( <i>Amsinckia grandiflora</i> )	E, X	NE	<b>Possible:</b> Could be found in grassland habitat in Byron-Bethany Irrigation District, but untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
palmate-bracted bird's-beak ( <i>Cordylanthus palmatus</i> )	E	NE	<b>Absent:</b> Historically occurred within parts of Westlands Water District.
San Joaquin woolly-threads ( <i>Monolopia congdonii</i> )	E	NE	<b>Possible:</b> May occur along the western edges of Avenal and Coalinga.
<b>Reptiles</b>			
Alameda whipsnake ( <i>Masticophis lateralis</i> )	T, X	NE	<b>Absent:</b> Requires chaparral habitat and surrounding areas, which do not occur in the Proposed Action Area.
blunt-nosed leopard lizard ( <i>Gambelia silus</i> )	E	NE	<b>Possible:</b> May occur along the western edges of the southern part of the Proposed Action Area, but untilled lands and lands fallowed and untilled for three or more years cannot be brought into production as part of the Proposed Action.
giant garter snake ( <i>Thamnophis gigas</i> )	T	NE	<b>Absent:</b> No longer occurs in this part of its historical range.

1 Status = Status of federally protected species protected under the ESA.

E: Listed as Endangered

T: Listed as Threatened

X: Critical Habitat designated for this species

PX: Critical Habitat is proposed

2 Effects = ESA Effect determination

NE: No Effect anticipated from the Proposed Action to federally listed species or designated critical habitat

3 Definition of Occurrence Indicators

Present: Species recorded in area and suitable habitat present.

Possible: Species recorded in area but habitat suboptimal, or suitable habitat is present and the species is documented nearby.

Absent: Species not recorded in study area and suitable habitat absent.

### 3.2.2 Environmental Consequences

#### ***No Action***

Under the No Action Alternative, Widren would continue to treat their groundwater through their Reverse Osmosis Treatment Plant. The Reverse Osmosis concentrate would continue to be blended with untreated groundwater for irrigation of crops within their existing Reuse Area. Drainage water collected via their existing tile drains would also continue to be collected and used within their Reuse Area. This would have no effect on Federally listed species (of which only the San Joaquin kit fox can use agricultural lands), or migratory birds such as the Western Burrowing Owl and Swainson's Hawk, as no land use change would occur, treated water applied to crops would not contain greater than 2 ppb selenium and would have lower salinity, and the blended water reused on lands in Widren would be applied over such a small area that because of the low likelihood of a kit fox foraging in this area, there would be no measurable effect with regard to selenium exposure.

#### ***Proposed Action***

The Proposed Action would not result in land use change or involve any construction or change in natural stream habitat. As shown in Table 5, treated water introduced into the Delta-Mendota Canal are well below constituents of concern, including selenium concentrations and salinity, and would not present an issue for species living in habitat that also receive water conveyed through the Delta-Mendota Canal, such as giant garter snake, San Joaquin kit fox, or migratory birds such as the Western Burrowing Owl and Swainson's Hawk. Potential impacts within Widren's Reuse Area would be the same as the No Action alternative.

#### ***Cumulative Impacts***

As the Proposed Action would not have any direct effect or indirect effect on Federally listed or proposed species or critical habitat or migratory birds, it would not contribute cumulatively to impacts to these resources.

## 3.3 Water Resources

### 3.3.1 Affected Environment

The affected water resources for Widren's pilot project are the same as described in Section 3.5 of EA-16-035, which has been incorporated by reference into this EA. Rather than repeating the affected environment and environmental consequences here, this section will instead focus on any updates or changes to water resources not covered in EA-16-035, including data derived from the previous pilot project.

#### ***Water Quality Results of the Previous Pilot Project***

Under the previous pilot project, Widren pumped 1,264 acre-feet of groundwater from the M-2 source well. This water was treated in the RO Treatment Plant and 999 acre-feet of the treated water was introduced into the Delta-Mendota Canal. As shown in Table 5, the treated water was well below thresholds for constituents of concern. The treated water was conveyed to Westlands Water District where it was used on existing agricultural lands for irrigation purposes. Approximately, 150 acre-feet of the RO concentrate was blended with 114 acre-feet of the total

groundwater pumped and used within the existing Reuse Area to irrigate eucalyptus (20 acres) and Jose Tall wheatgrass (110 acres).

Table 5 Water Quality Results for Constituents of Concern for Reverse Osmosis-Treated Groundwater introduced into the Delta-Mendota Canal

Analyte	Arsenic	Boron	Sodium	Specific Conductance	Nitrate-N	TDS	Sulfate	Selenium
Date	µg/L	mg/l	mg/l	µmhos/cm	mg/l	mg/l	mg/l	µg/L
5/4/2018	ND	0.3	2	17	ND	ND	1.3	ND
5/14/2018	ND	0.3	6	59	ND	30	9.2	ND
5/18/2018	ND	0.3	2	22	0.2	ND	2.3	ND
5/25/2018	ND	0.3	4	ND	ND	40	6.7	ND
6/20/2018	ND	0.6	5	45	ND	30	5.3	ND
7/25/2018	ND	0.6	7	58	ND	ND	7	ND
8/22/2018	ND	0.6	9	88	ND	30	12	ND
9/14/2018	ND	0.59	12	109	0.2	40	14.4	ND
<b>Criteria for Delta-Mendota Canal</b>	<b>10</b>	<b>0.7</b>	<b>69</b>	<b>1,230</b>	<b>10</b>	<b>800</b>	<b>250</b>	<b>2</b>

Units: mg/L = milligrams per liter, µg/L = micrograms per liter, µS/cm = micro Siemens per centimeter, ND = non-detect

Water quality for the blended water was close to what was anticipated (see Table 1 for blended values). For example, specific conductivity blended values were estimated to be between 12,000 and 14,000 µmhos/cm, the average concentrate stream was 12,500 µmhos/cm. The average specific conductivity in the blended water used in the Reuse Area was 8,105 µmhos/cm (Dan Nelson, personal communication 2019). Water quality was tracked in the monitoring well located adjacent to the M-2 source well (see Figure 2) to confirm that none of the groundwater extraction was pulling water from the Delta-Mendota Canal. As shown in Table 6, specific conductance and total dissolved solids did not vary greatly throughout the extraction period. As both were much lower in the Delta-Mendota Canal during the same period, this indicates that water from the Delta-Mendota Canal was not being pulled towards these wells during extractions, i.e. the constituents would have been lower from dilution.

Table 6 Water Quality Results for Monitoring Well

Analyte	Arsenic	Boron	Sodium	Specific Conductance	Nitrate-N	TDS	Sulfate	Selenium
Date	µg/L	mg/l	mg/l	µmhos/cm	mg/l	mg/l	mg/l	µg/L
2/22/2018	54	15	2,930	11,500	18.5	9,240	4,530	180
5/18/2018	15	10.4	2,710	12,100	19.5	9,740	3,830	200
6/20/2018	32	12.7	2,540	12,200	2	9,170	3,770	29
7/25/2018	5	0.27*	3,520	12,000	0.3	9,710	3,680	8.7
8/22/2018	9.8	15.2	2,370	12,100	0.4	9,900	3,870	5.5
9/14/2018	40	16.7	2,380	11,700	0.8	9,490	4,430	14

\*outlier, lab Quality Assurance failed;

Units: mg/L = milligrams per liter, µg/L = micrograms per liter, µS/cm = micro Siemens per centimeter

**Groundwater Resources**

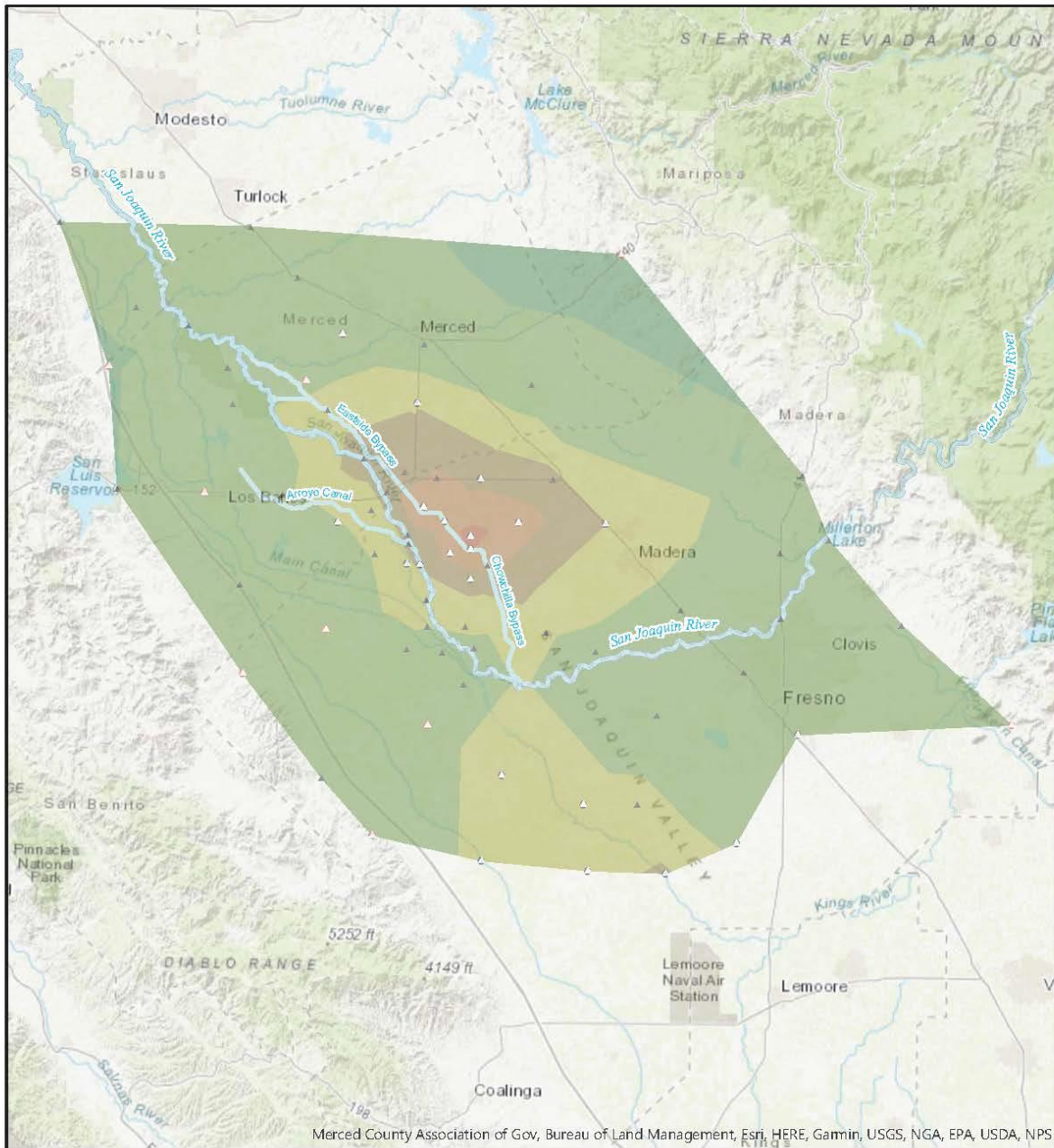
Widren is located within the Delta-Mendota Subbasin. The California Department of Water Resources has designated the Delta-Mendota Subbasin as critically overdrafted requiring a groundwater sustainability plan pursuant to the Sustainable Groundwater Management Act (SGMA) by January 31, 2020 (California Department of Water Resources 2016, 2018a). Widren has formed its own Groundwater Sustainability Agency (GSA) and is coordinating with other GSA's in the Delta-Mendota Subbasin in the development of groundwater sustainability plan(s) for the Delta-Mendota Subbasin in compliance with the timing and requirements of SGMA (California Department of Water Resources 2019). Groundwater provides approximately 37% (~509,687 acre-feet) of overall water supplies from 7,132 wells in the Delta-Mendota Subbasin (California Department of Water Resources 2018b).

**Subsidence**

Land subsidence is caused by subsurface movement of earth materials. Principal causes of subsidence within the San Joaquin Valley include: aquifer compaction due to groundwater pumping, hydrocompaction caused by application of water to dry soils, and oil mining.

Reclamation surveys a network of over 70 control points across the San Joaquin Valley in July and December of each year to monitor ongoing subsidence. Various other entities, including the U.S. Geological Survey, California Department of Water Resources, the San Luis & Delta-Mendota Water Authority, and the San Joaquin River Exchange Contractors also monitor subsidence trends within the Central Valley. Total subsidence in the Central Valley, including the Proposed Action area, from December 2011 to December 2018 is shown in Figure 4.

In 2017, a National Aeronautical and Space Administration (NASA) report prepared for the California Department of Water Resources documented that the two main subsidence bowls in the San Joaquin Valley (centered on Corcoran and El Nido) previously identified in 2015 had grown wider and deeper between March 2015 and September 2016 and that a third area, near Tranquillity in Fresno County had also intensified (Farr et al. 2017). The maximum total subsidence in these areas during that time was: 22 inches near Corcoran, 16 inches southeast of El Nido, and 20 inches in the new area near Tranquillity. In addition, the report also found localized high subsidence along the Delta-Mendota Canal.



**Subsidence Rates (feet/year)**

- 0 - 0.15
- 0.15 - 0
- 0.3 - -0.15
- 0.45 - -0.3
- 0.6 - -0.45
- 0.75 - -0.6

**Subsidence Monitoring Points**

- December 2011
- Added July 2012
- Added December 2013



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**Central Valley Subsidence  
Elevation Change From  
December 2011 to December 2018**

Subsidence rates calculated by comparing survey values at monitoring points for the dates specified in the legend.

Path: s:\3766-San Joaquin River Restoration Program\San Joaquin River\Subsidence Mapping\GIS\SJRRP Subsidence e\SJRRP Subsidence.e.aprx

Figure 4 Central Valley Total Subsidence December 2011 to December 2018

Based on the recent drought and increased trends in subsidence near the Delta-Mendota Canal (Farr et al. 2017, Sneed et al. 2013), Reclamation required groundwater level and subsidence monitoring for the pilot project.

As shown in Table 7, groundwater levels for the M-2 source well dropped during the period of extraction but nearly recovered towards the end of the extraction period likely due to the fall/winter rainy season. Water levels in the monitoring well actually increased over the same period, i.e. shallow water levels below ground surface moved closer to the ground surface (from 4 foot 10 inches to 4 foot 7 inches below ground surface) rather than being reduced as anticipated.

Table 7 Measured Static Water Levels in Feet below Ground Surface

Month (date collected)	Total Amount Pumped (acre- feet)	Source Well (Feet)*	Monitoring Well (Feet)**
January	0	Not measured/not pumped	Not measured
February	0	Not measured/not pumped	Not measured
March	0	Not measured/not pumped	Not measured
April (4/2/18)	43	54	4'10"
May (5/17/18)	217	67.62	4'9"
June (6/13/18)	218	75.5	4'8"
July (7/16/18)	233	85.89	4'9"
August (8/16/18)	239	87.3	4'5"
September (9/20/18)	238	72.02	4'5"
October (10/15/18)	76	65.05	4'5"
November (11/12/18)	0	56.14	4'7"
December	0	Not measured/not pumped	Not measured
<b>Total Pumped</b>	<b>1,264</b>		

\*Measurements are in feet from the level of static water below the ground surface to the base of the well pump head.

\*\* Measurements are in feet from the level of static water below the ground surface to the top of the (PVC) pipe installed. Monitoring well is 10 feet deep from ground surface.

Subsidence monitoring was conducted within the immediate project area surrounding the M-2 source well as well as several other benchmark areas within the vicinity of the project. Results of the subsidence survey are included in Table 8 and Table 8. The data was compared to results from a 2-year subsidence survey completed by Reclamation within the same area (Table 10). As extraction for the pilot project only occurred over seven months, Table 7 and Table 8 include an approximation of what the 7-month rate would be over a 2-year period for ease of comparison.

Table 8 Subsidence Survey Results for Project Area – 7 Month Difference

Location ID	Structure	Δ Elevation (feet)	24-month approx.*
10	Well M-2 Pad	-0.079	-0.271
11	R/O Pad	-0.031	-0.106
12	Tile Pump	-0.078	-0.268
13	USDI BM	-0.061	-0.209
14	Drain Weir 2	-0.071	-0.244
15	Drain Weir 1	-0.024	-0.082
16	Well M-1 Pad	-0.058	-0.199

\*assumes constant subsidence rate. 24-month approximation= 7-month difference x 3.43 to get annual subsidence.

Table 9 Subsidence Survey Results for Surrounding Benchmarks – 7 Month Difference

ID	Structure	Δ Elevation (feet)	24-month approx.*
1	Reference Station USDI BM	-0.069	-0.237
2	USDI BM on Inlet Corner	-0.050	-0.172
3	USDI BM on Delta-Mendota Canal Bridge	-0.073	-0.250
4	Reverse OsmosisMO	-0.090	-0.309
5	MICHAEL	-0.030	-0.103
6	DWIGHT	-0.061	-0.209

\*assumes constant subsidence rate. 24-month approximation= 7-month difference x 3.43 to get annual subsidence.

Table 10 Reclamation 2018 Subsidence Survey – 2 year difference

milepost	Structure	Δ Elevation 2016-2018
97.68	USBR BC U/S RETAIN WALL RUSSELL AVE BRIDGE	-0.138
99.82	USBR BC D/S FARM BRIDGE ABUTMENT	-0.137
100.85	USBR BC D/S FARM BRIDGE ABUTMENT	-0.197
101.84	USBR BC ON HW DRAIN INLET	-0.25
102.03	USBR BC D/S FARM BRIDGE ABUTMENT	-0.268
102.93	USBR BC D/S CURB FAIRFAX BRIDGE	-0.289
103.56	USBR BC UNDER DRAIN HEADWALL	-0.319
104.22	USBR BC D/S FARM BRIDGE ABUTMENT	-0.339
105.07	USC&GS BC "Q 513" DECK CHK #19	-0.353

As shown in Table 8 through 10, change in elevation was very similar, indicating that subsidence rates were constant and that the extraction from the M-2 source well under the pilot project was similar to baseline conditions, i.e. did not appear to increase rates of subsidence in the area. It should be noted that this was a small timeframe and rates are not necessarily constant as assumed.

### 3.3.2 Environmental Consequences

#### **No Action**

Under the No Action Alternative, there would be no impacts to water resources since there would be no change in operations. Conditions related to water resources would remain the same as existing conditions.

#### **Proposed Action**

Under the Proposed Action, Widren would annually pump up to 1,200 acre-feet of groundwater to be treated by their proposed Reverse Osmosis Treatment Plant over a 3-year pilot project. Reclamation would allow up to 1,000 acre-feet of the non-Project water to be introduced, conveyed, and/or stored in CVP facilities, when excess capacity is available. This would allow the treated water to be delivered to participating South-of-Delta CVP Contractors for existing agricultural purposes. All introductions and conveyance would be coordinated with Reclamation and the San Luis & Delta-Mendota Water Authority; therefore, the Proposed Action would not interfere with the normal operations of the Delta-Mendota Canal nor would it impede CVP obligations to deliver water to its contractors. As shown in Table 4, Reverse Osmosis-treated

water introduced into the Delta-Mendota Canal under the previous 1-year pilot project was way below all criteria thresholds. This would be the same under the Proposed Action. There would be no impact to water quality or operations of CVP facilities.

Widren would pump from above the Corcoran Clay, which has the potential to lower a perched saline water table (San Joaquin Valley Drainage Program 1990), thus improving local water quality and the otherwise drainage impaired lands within the district boundaries. Although, the 1-year pilot project did not show this trend, it is anticipated that the monitoring program, included in Appendix A, and the additional monitoring wells will provide additional data in order to assess whether or not the project is able to lower the perched saline water table. As Widren implements its own district-specific drainage program, changes are localized and there would be no change in regional drainage issues or management.

Widren estimates that up to 200 acre-feet of effluent would be generated from treatment or backflush at the Reverse Osmosis Treatment Plant. This effluent would be blended with up to 400 acre-feet of groundwater and then used to irrigate salt tolerant crops on Widren's existing reuse area and potentially the expanded reuse area, if needed (Figure 2). Widren implements its drainage program consistent with the Regional Board's Waste Discharge Requirements General Order for discharge to groundwater. No effluent or Reverse Osmosis treatment backflush water would leave Widren. Therefore, there would be no impact to out-of-district water supplies.

It is anticipated that subsidence rates would continue to be similar to baseline conditions and groundwater levels would recover as occurred under the previous pilot project. Monitoring would continue for subsidence and groundwater level recovery to confirm this expectation.

### ***Cumulative Impacts***

In addition to the Proposed Action, other actions in the area which could affect water resources include the Grassland Bypass Project (Reclamation 2009), San Joaquin River Water Quality Improvement Program reuse area (Reclamation 2012), and the Delta-Mendota Canal Groundwater Pump-in Program (Reclamation 2018). All of these projects, in addition to the Proposed Action, are consistent with the Westside Regional Drainage Plan (Exchange Contractors et al. 2003). This plan was designed to reduce subsurface drainage in the Grassland Drainage Area. However, the project is localized and short-term (3 years) and is, therefore, not expected to cumulatively impact regional drainage.

Under the Proposed Action, there would be no construction or modification to Reclamation facilities or interference with CVP operations. As shown in Table 4, RO-treated groundwater would be far below water quality thresholds for introduction into the Delta-Mendota Canal. The 3-year pilot project would not have cumulative adverse impacts to water quality in the Delta-Mendota Canal.



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## Section 4 Consultation and Coordination

### 4.1 Public Review Period

In 2017, Reclamation provided the public an opportunity to comment on the previous pilot project. No comments were received. Reclamation provided the public with an opportunity to comment on the proposed 3-year extension during a 15-day public review period. No comments were received.

### 4.2 List of Agencies and Persons Consulted

Reclamation is consulting/coordinating with the following regarding the Proposed Action:

- San Luis Delta & Mendota Water Authority
- Banta-Carbona Irrigation District
- Byron Bethany Irrigation District
- Del Puerto Water District
- Mercy Springs Water District
- Pacheco Water District
- Panoche Water District
- San Luis Water District
- West Stanislaus Irrigation District
- Westlands Water District

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# **Appendix A: Widren Water District's Water Quality, Supply, and Drainage Enhancement Pilot Project Monitoring Plan**

# RECLAMATION

*Managing Water in the West*

## Widren Water District's Water Quality, Supply, and Drainage Enhancement Pilot Project Monitoring Plan

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U.S. Department of the Interior  
Bureau of Reclamation  
Mid-Pacific Region  
South-Central California Area Office

January 2019

## **Mission Statements**

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



# Widren Water District's Water Quality, Supply, and Drainage Enhancement Pilot Project Monitoring Plan

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## **Background**

The Grassland Drainage Area (GDA) encompasses approximately 97,000 acres of irrigated agricultural land on the west side of the San Joaquin Valley in Fresno and Merced Counties. The region is overlain by coastal range sediments that are generally heavy clays and contain a variety of dissolved minerals including boron and selenium. These soil conditions have contributed to a productive agricultural environment, but due to their heavy clay nature has also created a perched water table that threatens this productivity. The perched water table in the GDA is often managed with subsurface (tile) drain systems and deep earthen channels which provide an outlet for the shallow groundwater (Exchange Contractors 2003). It has been shown in the region that the removal of shallow groundwater can assist in reducing drainage impacts by lowering poor-quality drain water below the crop root zone (Reclamation 2008). The subsurface drain water can be high in dissolved minerals including salt and selenium.

Water agencies and farmers within the GDA, which includes Widren Water District (District) and its landowners, have implemented several activities aimed at reducing discharge of subsurface drainage waters to the San Joaquin River (SJR), including the Grassland Bypass Project (GBP) which consolidates subsurface drainage flows (among other things), as part of the Westside Regional Drainage Plan (WRDP, Exchange Contractors 2003). The District, located in northwestern Fresno County west of the City of Firebaugh (Figure 1), historically was provided Central Valley Project (CVP) water via the Delta-Mendota Canal (DMC) from the Bureau of Reclamation (Reclamation) for agricultural use within the district. However, the District fully assigned its CVP water to Westlands Water District in 2003 (Contract # 14-06-200-8018-1R8), and now the lands in Widren Water District are currently dry farmed or irrigated with groundwater or imported surface water.

The District has recently constructed a reverse osmosis (RO) Treatment Plant to extract and treat their in-district shallow groundwater, consistent with the WRDP. The District will make this treated water available to others for irrigation purposes outside of federal facilities.

The District initially requested authorization from Reclamation to use the DMC for their proposed long-term (10-year) project to deliver their treated groundwater to South-of-Delta contractors (see Figure 2). Treatment of shallow groundwater would occur through the District's existing Treatment Plant. The District anticipates their RO treated groundwater will meet DMC water quality standards required for introduction of non-Project water into federal facilities.

## **Introduction**

Reclamation would issue an Exchange Agreement and/or Warren Act contract to the District for the introduction and conveyance of up to 1,000 acre-feet/year (AFY) of treated groundwater

(non-Project water) into the DMC as well as potential storage in San Luis Reservoir. As the District is located within the same area as the DMC Pump-in Program participants (Reclamation 2013), Reclamation would include any groundwater introduced into the DMC by the District under the 50,000 acre-foot per year cumulative total. Water introduced into the DMC will need to meet then current DMC Water Quality Standards. Reclamation would also issue a land use authorization to for the proposed connection of a new water pipeline to an existing turnout at milepost (MP) 102.04R on the DMC. Data will be collected during Pilot Project as described in this Monitoring Plan. The collected data would be used by Reclamation to evaluate Widren Water District's proposed longer term project under separate environmental review.

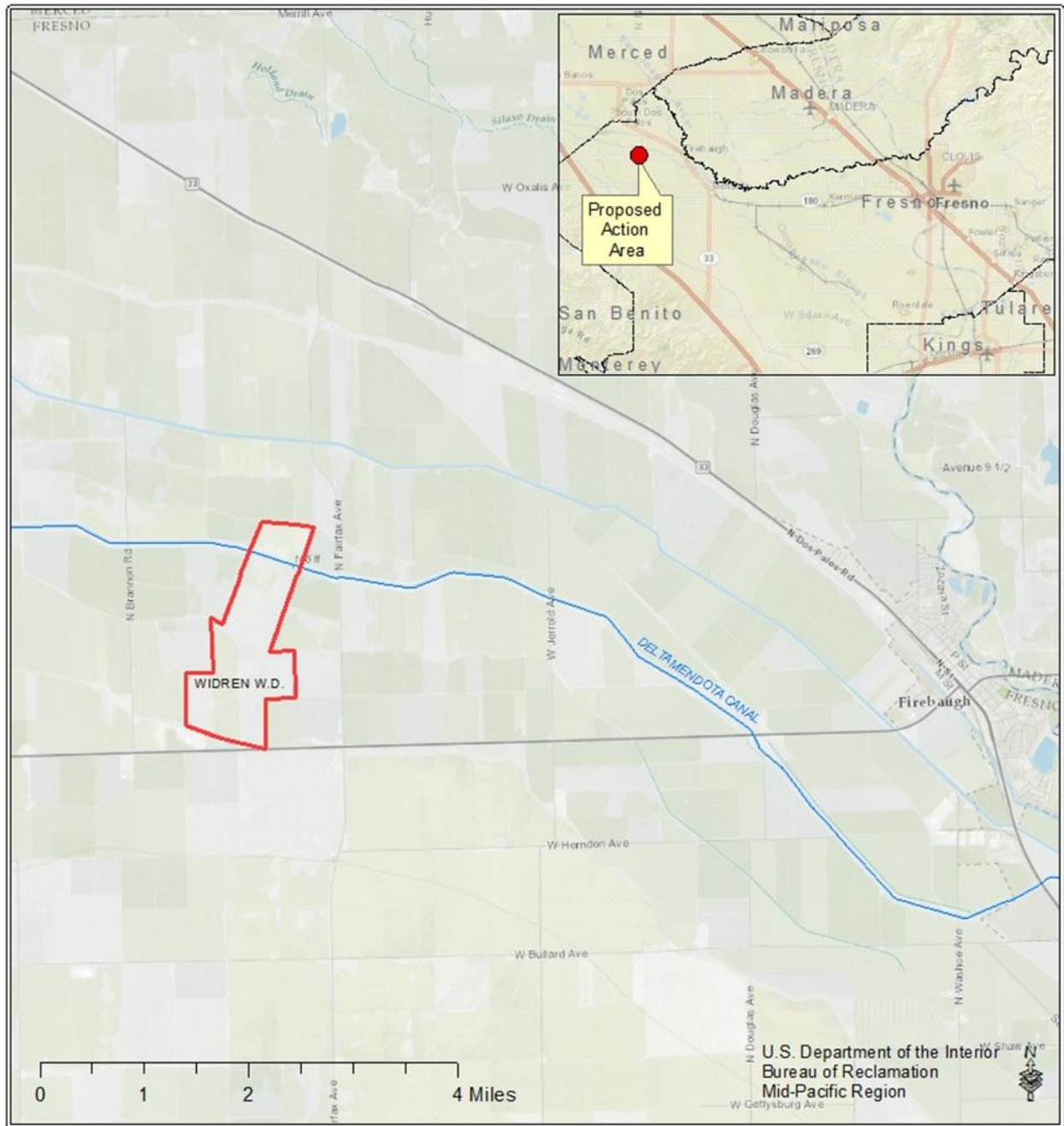
Once treated the non-Project water would be provided to willing buyers along the DMC. The following South-of-Delta CVP contractors could potentially be recipients under the Proposed Action as shown in Figure 1:

- Banta-Carbona Irrigation District
- Byron Bethany Irrigation District
- Del Puerto Water District
- Mercy Springs Water District
- Pacheco Water District
- Panoche Water District
- San Luis Water District
- West Stanislaus Irrigation District
- Westlands Water District

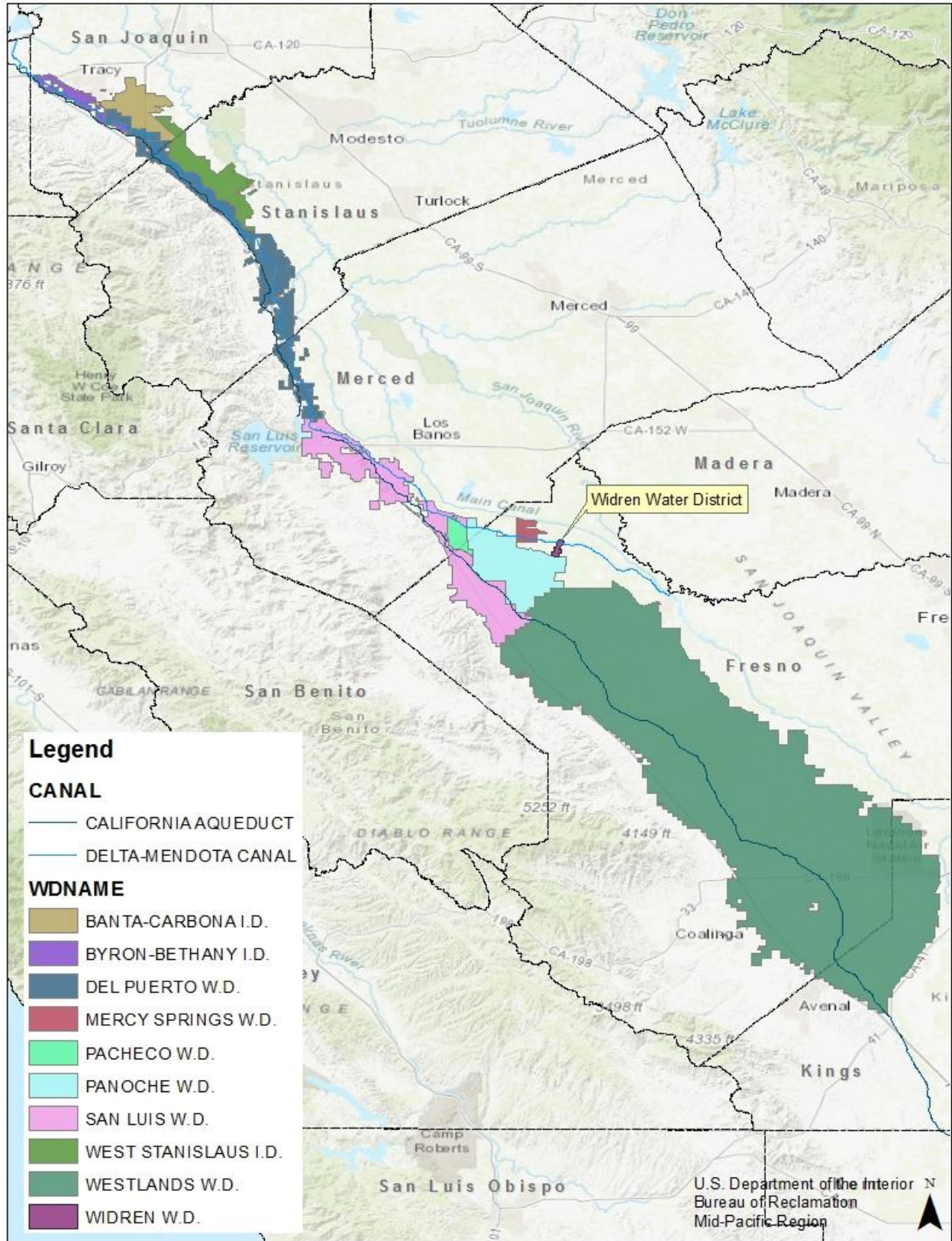
An exchange of treated water (non-Project) for CVP water would need to be done by Reclamation for any non-Project water delivered to contractors located upstream of the introduction point (i.e., MP 102.04R) or for storage in San Luis Reservoir. Under these conditions, Reclamation would use the introduced non-Project water to meet downstream CVP demands and a like amount of CVP water would then be conveyed to CVP contractors located upstream of MP 102.04R and/or stored in San Luis Reservoir for later delivery to participants in the Proposed Action, including Widren Water District.

Introduction and storage of non-Project water is subject to available capacity, water quality requirements, and spill.

Over the course of a project year, up to 1,700 AF of groundwater can be pumped from one existing well (project well). The well is 340-ft and is perforated in two sections between 220'-240' and 280'-340'. According to project proponents, in September 2017 the standing water level in the well was 72' and the well has not been active for approximately 10 years.



**Figure 1: Project vicinity map.**



**Figure 2: Participating South-of-Delta CVP Contractors**



**Figure 3: Widren Water District's Reuse Area**

At the Treatment Plant, the raw groundwater would be pretreated under high pressure (~80 pounds per square inch [psi]) using high performance multi-media filtration (NextSand Media<sup>1</sup>)

<sup>1</sup> <http://www.nextsand.com/>

to remove suspended solids down to 3-5 microns. Then, the (3-5 microns) filtered water would pass through a multi-bag filtration system (150 psi), removing suspended solids down to 1 micron. An antiscalant chemical would be injected into the water at low levels (3-5 milligram/liter) to prevent precipitation of natural soluble salts in the treated water. The water would then be sent to the RO membranes which would remove any remaining dissolved constituents in the water. The RO treated groundwater would be conveyed in the Treated Water Pipeline that would be connected to the existing turnout at milepost 102.04R on the Delta-Mendota Canal.

The effluent or backflush water produced by the RO Treatment Plant (estimated at 300 AF) would be blended with up to 400 AF of groundwater from the same existing well or from imported surface water and then utilized within Widren Water District for irrigation of salt tolerant crops in the reuse area. The imported surface water used for blending would come from excess surface water made available by neighboring agencies, and would be conveyed through existing non-federal facilities that connect to Widren Water District.

Water quality for the existing well, as well as estimates of the treated water and blended water, and Reclamation's water quality standards are included in Table 1.

### **Monitoring Mission and Goals**

The purpose of this monitoring plan is to produce physical measurements that will determine the effectiveness of this project. Project goals are:

- Reducing the perched water table below drainage impaired lands
- Meeting DMC water quality requirements
- Preventing local land subsidence

The general goals for this monitoring effort will include:

- Evaluating water quality of the project well, perched water table, and treated groundwater entering the DMC
- Monitoring shallow groundwater, RO concentrate, and blended water entering the reuse area to analyze long term project effects
- Monitoring groundwater levels in the project well and perched water table
- Surveying project land for subsidence

## Monitoring Requirements

Although a standalone document, this project relates to the DMC Non-Project Water Pump-in Program and is subject to the water quality standards of that program. Monitoring standards and requirements relating to this project and the DMC Non-Project Water Pump-in Program are subject to change.

In addition to the monitoring requirements listed below, routine flow measurements from the discharge pipe into the DMC will be collect by the San Luis Delta-Mendota Water Authority and sent to Reclamation each month.

## Reverse Osmosis Treated and Concentrate Water

In order to discharge treated well water into the DMC, the water must meet the then current DMC water quality standards. Tables 2 and 3 list the water quality constituents to be measured by the well owner. Table 3 standards have been developed by Reclamation to measure constituents of concern that would affect downstream water users. In particular, the concentration of selenium in any pump-in water shall not exceed 2 µg/L, the limit for the Grasslands wetlands water supply channels specified in the 1998 Basin Plan. Table 2 constituents are mainly agricultural chemicals listed in the California Drinking Water Standards (Title 22)<sup>2</sup>.

Data will be collected from the concentrate stream of the RO unit to analyze the environmental impacts of a long term agreement.

The frequency of sampling the RO treated and concentrate water is as follows:

Constituents	Frequency
Table 2 (Long List) Title 22 Standards	Once a year, prior to discharge into the DMC
Table 3 (Short List) Constituents of Concern	Weekly for the first month, than monthly if data is consistent

## Perched Water Table

To determine how the project is affecting the perched water table, existing monitoring wells (figure 3) installed in the perched water table will be used to record groundwater levels and collect water quality samples.

Prior to pumping, the monitoring well will be sampled for the constituents listed in Table 3. In addition to water quality testing, groundwater level measurements shall also be

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<sup>2</sup> California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended.  
[http://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/lawbook/dwregulations-2016-09-23.pdf](http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2016-09-23.pdf)

collected from the monitoring well. Groundwater level measurements should be made prior to water quality sampling.

This data will be used to determine if pumping from the project well is lowering the perched water table and to monitor the potential of pumping induced seepage from the DMC.

The frequency of sampling the perched water table is as follows:

Constituents	Frequency
Table 3 (Short List) Constituents of Concern	Prior to pumping, monthly while pumping and when water is available in well.
Groundwater Level Measurement	Prior to pumping, monthly while pumping (measurement should be made prior to water quality sampling)

### Project Well

Groundwater level shall be measured in the project well. Water quality testing is required to analyze seasonal changes in the quality of the well water. Seasonal changes in water quality would impact the amount of blending water needed to dilute RO concentrate.

The frequency of sampling the project well is as follows:

Constituents	Frequency
Groundwater Level Measurement	Prior to pumping, monthly while pumping (measurement should be made prior to water quality sampling)
Table 3 (Short List) Constituents of Concern	Monthly during pumping

### Blended Water

Water quality data for the blended water being used on the reuse area is needed to analyze potential environmental effects of a long term agreement to continue this project.

The frequency of sampling the blended water is as follows:

Constituents	Frequency
Table 2 (Long List) Title 22 Standards	Once a year, prior to discharge into the DMC
Table 3 (Short List) Constituents of Concern	Weekly for the first month, than monthly if data is consistent



**Surveying**

The project proponents will submit a surveying plan and baseline data set to Reclamation for approval prior to pumping. The plan should focus on surveying for potential localized subsidence, particularly around the project well. The plan should include collection of a baseline dataset, a mid-project data-set, and a post-pumping dataset. The surveying plan should include a proposed reporting section.

**Pump Volume Reading**

The following pumping volumes shall be submitted to Reclamation within one week of the meters being read:

<b>Pump Volume Meter Data</b>
Shallow groundwater well
RO permeate (clean water)
RO concentrate
Volume of water used to blend RO concentrate

**Water Quality Laboratories and Quality Control**

Reclamation strongly recommends using a laboratory from the list of Reclamation Approved Laboratories, Tables 4 and 5. These laboratories have been inspected and approved by Reclamation Quality Assurance Specialists. Selected laboratories must include quality control samples.

**Reporting**

Water quality laboratory results shall be submitted by email to Reclamation South-Central California Area Office (SCCAO) staff. They should be submitted as they are received. SCCAO staff will process and review the data. Reclamation requests any additional data collected by the RO manufacturer or the District as it relates to the performance of the RO unit.

Groundwater level measurements shall be submitted to SCCAO staff by email. Measurements should be placed in a spreadsheet and sent to SCCAO staff as they are recorded.

Pumping volumes shall be submitted to SCCAO staff by email.

The surveying plan should include a proposed reporting section.

**Project Constraints**

The following project constraints focus on protecting water quality in the DMC and preventing subsidence due to project activities.

**Water Quality**

At any time the treated water quality does not meet the DMC water quality standards, the water will not be allowed into the DMC. Prior to reintroduction into the DMC, water quality standards must be met. At any time during operation, if the water quality

standards are not met, weekly water quality sampling for constituents listed in Table 3 will be reinitiated. Any water discharged to the DMC that does not meet water quality standards, or discharge prior to Reclamation receiving initial water quality report will not be credited.

**Groundwater Level**

Groundwater levels in the project well must remain 10% above the historic low groundwater level. The drilling log provided by the District lists a static water level at 108' below ground surface. At any point the groundwater level in the well is measured lower than 97' below ground surface, the well must be shut off and allowed to recover. If this occurs, additional groundwater level measurements may be required.

Reclamation reserves the right to modify this monitoring program at any time.

## References Cited

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/sacsjr.pdf](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf)

Exchange Contractors (San Joaquin River Exchange Contractors Water Authority, Broadview Water District, Panoche Water District, Westlands Water District). 2003. Westside Regional Drainage Plan. May. Available at:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/salinity/library\\_reports\\_programs/westsd\\_regnl\\_drng\\_plan\\_may2003.pdf](http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/library_reports_programs/westsd_regnl_drng_plan_may2003.pdf).

Reclamation (Bureau of Reclamation). 2008. Finding of No Significant Impact and Environmental Assessment/Initial Study 07-140 for the San Joaquin Exchange Contractors-Groundwater Pumping/Water Transfer Project for 25 Consecutive Years. Signed January 2008. South-Central California Area Office. Fresno, California.R

Reclamation (Bureau of Reclamation). 2013. Finding of No Significant Impact and Environmental Assessment 12-061 for the Exchange Agreements and/or Warren Act Contracts for Conveyance of Groundwater in the Delta-Mendota Canal – Contract Years 2013 through 2023 (March 1, 2013 – February 29, 2024). Signed January 2013. South-Central California Area Office. Fresno, California.

## **Appendix B: Reclamation's Cultural Resource Determination**

**CULTURAL RESOURCE COMPLIANCE**  
**Mid-Pacific Region**  
**Division of Environmental Affairs**  
**Cultural Resources Branch**

MP-153 Tracking Number: 19-SCAO-078

Project Name: Widren Water District Pilot Project Extension

NEPA Document: EA-19-004

MP 153 Cultural Resources Reviewer: Amy J. Barnes

Date: February 7, 2019

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This proposed undertaking by Reclamation is to issue a 3-year Warren Act contract/Exchange Agreement to the Widren Water District for the conveyance of up to 1,000 acre-feet of reverse osmosis-treated groundwater (non-Project water) into the Delta-Mendota Canal (DMC) as well as potential storage in San Luis Reservoir. The project is located in northwestern Fresno County, California.

In 2017, Reclamation completed an Environmental Assessment (EA-16-035) that analyzed a proposed pilot project, which included issuance of a 1-year Warren Act contract/Exchange Agreement and a 25-year land use authorization for installation, operation, and maintenance of a pipeline connection to an existing discharge facility on the Delta-Mendota Canal. WID proposes to continue conveying water through existing facilities to established agricultural lands. The associated 3-year monitoring plan is a continuation of the pilot project that includes collecting data that would be used by Reclamation to evaluate Widren's proposed longer term project under separate environmental review. No changes in land use or construction or modification of facilities is necessary to facilitate this undertaking.

This is the type of action that does not have the potential to cause effects on historic properties, should such properties be present, pursuant to 36 CFR § 800.3(a)(1). As such, Reclamation has no further obligations under 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA).

After reviewing EA-19-004, dated February 2019 and entitled *Widren Water District Pilot Project Extension*, I concur that this action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places.

This memorandum is intended to convey the completion of the NHPA Section 106 process for this undertaking. This action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places.

Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.