WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2022
Grant Application
NOFO No. R22AS00020

Rosedale-Rio Bravo Water Storage District
Groundwater Banking Recovery Project

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1.1 Executive Summary

The Rosedale-Rio Bravo Water Storage District ("Rosedale", "RRBWSD", "District"), located in the southern San Joaquin Valley in Kern County, California, immediately west of the City of Bakersfield, proposes to utilize existing resources in a cost-share agreement with the US Bureau of Reclamation ("Reclamation", "USBR") to improve overall District system efficiency by better managing water supplies and bolstering drought resiliency efforts via the "*Groundwater Banking Recovery Project*" ("Project"). The Project will consist of the construction of three new extraction wells, additional conveyance facilities, and an integrated pest management plan on existing District recharge basins: the McCaslin Recharge Basins and the Bowling Recharge Basin.

Table 1: Project and Applicant Information

Project Information	
Date	October 5, 2021
Project Name	Groundwater Banking Recovery Project
Expected Completion	32 to 36 months (September 2025)
Near a Federal Facility?	No
Applicant Information	
Name	Dan Bartel
Title	Engineer-Manager, Rosedale-Rio Bravo Water Storage District
Applicant Category	Category A applicant
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City, County, State	Bakersfield, Kern, California

After a second consecutive year of extremely dry conditions, the State of California and Kern County have entered a state of drought emergency. Due to recent warm temperatures, dry soils, and sparse rainfall, the expected runoff water from snowmelt in the Sierra Nevada's have resulted in an unanticipated reduction of water supplies, with deliveries from the State Water Project ("SWP") reduced to five percent allocations. Water supplies in major reservoirs throughout the state are at low levels and legal and environmental restrictions have impaired the SWP's ability to move water through the Sacramento/San Joaquin Delta ("Delta"), making surface supplies increasingly less reliable to those south of the Delta. Rosedale has identified a need to improve recovery and return capacity of their groundwater recharge facilities, as water supplies continue to be limited and the District remains obligated to return water to certain partners every year. To meet required water demands, prepare for drought recovery, and comply with landmark Sustainable Groundwater Management Act ("SGMA") and other applicable groundwater legislations (SB-1938), RRBWSD is determined to take immediate action to bolster drought resiliency projects, such as the proposed Groundwater Banking Recovery Project, and mitigate the effects of drought conditions in the area.

Improved recovery and return conveyance capabilities provided by the Project will allow RRBWSD a reliable alternative source of water supply during dry years, allowing the District to meet return obligations to various conjunctive-use partnerships, and reduce demand on existing water supplies, such as SWP and CVP. The Project will be accomplished via the following three components:

1. McCaslin Recovery Project - Construction of two extraction wells on the McCaslin property (approximately 192 acres) and 6,500 linear feet of pipeline from 15 to 30 inches in diameter that would be plumbed into existing District conveyance pipelines and canals.
2. Bowling Recovery Project – Construction of one extraction well on the Bowling property (approximately 80 acres and 1,200 linear feet of 15-inch diameter pipeline that would be plumbed into existing District conveyance pipelines and canals.
3. Integrated Pest Management Project - Installation of 10 owl boxes on recently constructed recharge ponds (McCaslin and Bowling). This will provide a non-pesticide option of rodent control to prevent pond berm failures that result in financial damages and loss of critical groundwater recharge activities.

These three Project components support the proactive approach set forth by the USBR to bolster drought resiliency efforts by increasing the flexibility of water conveyance and deliveries, facilitating access to water supplies in times of drought, and developing alternative water supplies to build resiliency to the impacts of drought. This Project meets the Objective of the Notice of Funding Opportunity No. R22AS00020 by leveraging District money and resources through cost sharing with Reclamation to develop projects that will increase the reliability of water supplies; improve water management; and provide benefits for fish, wildlife, and the environment to mitigate impacts caused by drought. This Project is expected to recover an average of **3,258 AFY** (or about 10,000 AF in each recovery year and would proceed immediately upon notification of grant funding, break ground in October 2022 and could be completed by the end of December 2023. The proposed Project is not located on any Federal facilities.

1.2 Project Location and Background Data

RRBWSD is located in the southern San Joaquin Valley in Kern County, California, immediately west of the City of Bakersfield, and has a gross area of approximately 44,000 acres (Figure 1). The District lands are located within the Kern River Alluvial Fan where historic runoff created an efficient aquifer system from which the District recharges groundwater so as to support groundwater pumping for agricultural, municipal, and industrial uses. The District is an independent special district, organized on August 27, 1958, under the provisions of the California Water Storage District Law (Division 14 of the Water Code of the State of California) (the "Act"). The District's boundaries encompass a portion of the City of Bakersfield. The property within the District is agricultural, municipal and industrial. Of the total 44,000 acres, approximately 28,000 acres are currently in crops, which include forage, nuts, dairy, almonds, pistachios, and vegetables. The balance is a mix of open ground, rural development (0.25-10 acre lots), and light industrial businesses that mainly support the agricultural and petroleum

industries. These uses are served potable water by both individual and mutual domestic water wells.

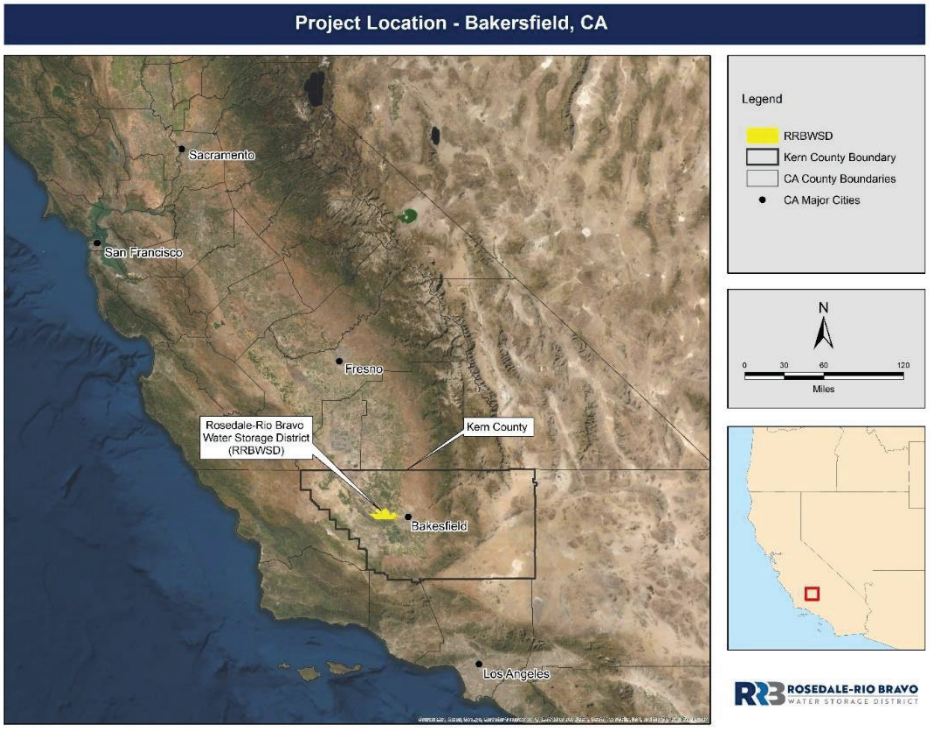


Figure 1: Groundwater Banking Recharge Project Location

In 1959, the voters within the District approved a general project consisting of the construction of recharge basins and water conveyance facilities capable of capturing water supplies and percolating those supplies into the underground aquifer for replenishment of water pumped by landowners within the District (the "Recharge Project"). The construction of the initial phases of the Recharge Project was completed in 1962. Additional improvements to the Recharge Project have been made and additional facilities and properties have been added since the original project was completed. Subsequent to the completion of construction of the Recharge Project, the District acquired a State Water Project ("SWP") water supply through the Kern County Water Agency (the "Agency"). RRBWSD has also been a historic user of surplus Friant-Kern Canal flows and a user of Kern River water via its contract with the Kern County Land Company (now City of Bakersfield) to serve irrigation demands and for groundwater recharge programs.

The District operates a water delivery system consisting of 25 miles earthen canals, 2 miles of pipelines, check structures, pipelines, 2000 acres of recharge basins, and 27 wells all designed for the primary function of groundwater banking and conjunctive use (recharge and recovery . There are approximately 20 connections to landowner irrigation systems that are used for in-lieu groundwater recharge purposes. The District acquires wet-year supplies via various contracts and banking programs, which require that a portion of the supplies are returned in dry years. Conveyance systems for banking return are a mix of pipelines and earthen canals, thus water evaporation and seepage reduce the project's return capabilities. The District and its landowners

are served by the Pacific Gas and Electric Company; the vast majority of energy used for groundwater recovery and conveyance is electrical based.

The District has developed and enjoys partnerships with many different state, federal, and local entities to help improve water management and meet future water demand needs. Currently and historically, RRBWSD has worked with the U.S. Department of the Interior, Bureau of Reclamation ("USBR") and Fish and Wildlife Service to provide water to the Kern National Wildlife Refuge ("KNWR") to the northwest of the District and to obtain water from the Central Valley Project ("CVP"). RRBWSD also partners with multiple Federal Friant-Kern water agencies for mutually beneficial recharge and recovery projects, namely: Arvin-Edison WSD, Kern-Tulare WD, and Delano-Earlimart ID. Below is a list of the various contracts involving RRBWSD and Federal agencies:

KNWR Purchase & Conveyance Agreements
Year 2007

CVP Short-Term/Temporary Water Service Contracts (non-CVP Contractor)

Year 1965, No. 14-06-200-769A	Year 1973, No. 14-06-200-4032
Year 1973, No. 14-06-200-229A	Year 1973, No. 14-06-200-7228A
Year 1973, No. 14-06-200-4162A	Year 1978, No. 14-06-200-229A
Year 1993, No. 3-07-20-W1058	Year 1995, No. 5-07-20-W12
Year 2001, No. 01-WC-20	Year 2003, No. 03-WC-20-2654
Year 2011, No. 11-WC-20-0090	Year 2011, No. 11-WC20-0104

Federal Exchange and Banking Agreements
Arvin-Edison WSD, 1997, 2003, 2009, 2011, 2012, 2013
Delano-Earlimart ID, 2009
Kern-Tulare WD, 2001, 2004, 2005, 2007
San Joaquin River Exchange Contractors Water Authority, 2017, 2019, 2020, 2021

The proposed Project is located within the District's boundaries and is composed of the McCaslin and Bowling groundwater banking areas (Figure 2), which will assist in providing recharge and return water to the above-mentioned partnerships during periods of drought.

McCaslin Recovery Project. The District has acquired approximately 192 acres of land, known as the McCaslin property, located in Kern County, California, about 5 miles west of the City of Bakersfield. The McCaslin Recovery Project latitude is {35°22'21.82"N} and longitude is {119°16'28.25"W}. The McCaslin property is also located adjacent to the Goose Lake Channel and the District's existing recharge facilities. The McCaslin property is in the process of being converted into a recharge basin for District groundwater storage. Under this proposal, the District intends to construct two new extraction wells and conveyance pipelines on the McCaslin recharge basin to provide additional recovery.

Bowling Recovery Project. The District has acquired approximately 40 acres of land, known as the Bowling property, located in Kern County, California, about 5 miles west of the City of Bakersfield. The Bowling Recovery Project latitude is {35°22'27.60"N} and longitude is {119°13'40.71"W}. The Bowling property is also located adjacent to the Goose Lake Channel and existing District groundwater recharge facilities. The Bowling property has been fallowed for at least 20 years and was converted into a pilot recharge pond in 2017. Under this proposal, the District intends to construct one new extraction well and conveyance pipelines on the Bowling recharge basin to provide additional recovery in dry years.

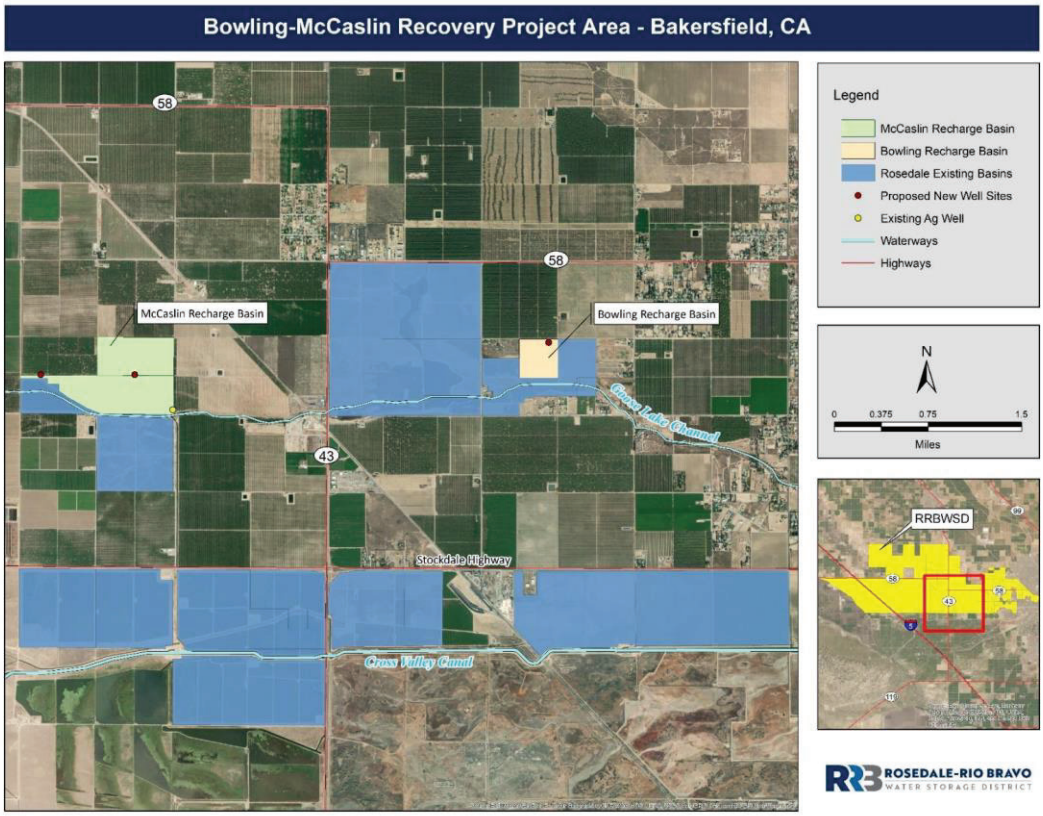


Figure 2: Groundwater Banking Recovery Project Area – Bowling and McCaslin

1.3 Technical Project Description

The Groundwater Banking Recovery Project is designed to improve overall District drought resiliency by increasing the District's ability to recover groundwater from storage within the Kern Fan area of the groundwater basin. This will be accomplished through the drilling and equipping of three production wells, two (2) on the McCaslin Recharge Property, and one (1) on the Bowling Recharge Facility, and the necessary conveyance facilities to connect to state and federal contractors. These properties currently operate as locations for recharge basins but have no facilities for recovering water to satisfy the contractual obligations of our federal and local agencies. The recovered groundwater as a direct result of the Project will provide additional water to:

- Support District obligations and exchanges (agricultural, municipal, and industrial).
- Provide enhanced protection against prolonged drought and climatic changes.
- Support third-party banking and transfer partners.

This Project meets the Objective of Section A.2 of the Funding Opportunity Announcement No. R22AS00020 by leveraging RRBWSD money and resources by cost sharing with Reclamation for developing project components that expand Drought Resiliency Projects that will increase the reliability of water supplies; and improve water management to mitigate impacts caused by drought. For Project implementation, RRBWSD is taking a five-step approach to handle the major tasks associated with the Project:

1. **Feasibility Study** – RRBWSD technical staff and consultants, have evaluated the feasibility of the projects as shown on the Project Summary Matrix and Water Management Program Score in Appendix A. The evaluation includes considering issues such as water system delivery effectiveness, construction reasonableness, environmental impacts, and cost.

2. **Environmental and Regulatory** – RRBWSD will take the necessary measures to satisfy federal and state environmental requirements and regulations. Using the environmental information obtained from various studies, required steps will be taken to meet CEQA and NEPA compliance and all necessary permit applications will be submitted. Refer to subsequent sections for further information on environmental and regulatory compliance.

3. **Design -** This task includes the preliminary and final designs of the facilities.

4. **Procurement & Installation -** This task includes procurement of materials, contractor bidding and selection, as well as construction, and installation.

5. **Inspection and Testing** – Upon completion of construction, a detailed inspection will occur, equipment training, testing and calibration, as well as a performance evaluation will be followed by a final report to provide an account of project progression and expenditures. In addition, any state and federal required project completion reports will be provided to the respective agencies. Ongoing monitoring of project performance and evaluation will be conducted to determine actual water conservation and energy benefits.

As with most major projects, many aspects or details from each of the listed steps require parallel progression and overlap is necessary to produce an efficient project schedule. It is estimated that the Project, including the environmental review, will be completed in approximately 28 months. Please see Appendix B for a preliminary Project Schedule. This project consists of the following specific components:

1. **Well Drilling –** RRBWSD seeks to drill three (3) conjunctive use recovery wells. At an estimated 5 cfs (cubic feet per second) per well, these wells can recover a total of 15 cfs, which correlates to a maximum of 10,860 acre-feet per year (AFY). The District has hired a hydrogeologist to perform a groundwater impact analysis to study any negative effects to current District facilities as well as Landowner Wells in the District. The District will use

previous logs from nearby wells, historical water levels in the area, water quality sampling data, and local knowledge to assist with well design and water quality implications. The District predicts that the well will be an approximate depth of 650-850 feet, with perforations from approximately 400-700 feet. Design is subject to change based on soils samples collected during the pilot hole drilling and the well development process. See Appendix E for an example of a similar well design in the area.

2. **Well Equipping –** RBWSD uses a standardized design when equipping its wells. Apart from the pump, which is designed specific to each well, each facility will have a Yaskawa U1000 Industrial Matrix Drives (VFD's), deep well air release, vacuum relief valve, sleeve coupling with joint harness, high pressure switch, pressure transmitter, sample port, wafer check valve, pressure gauge, flowmeter, butterfly valve, pipe supports, and a combination air vent. Well discharge piping will be 12-inch fusion bonded epoxy lined and coated steel piping. To protect the motor head from the elements as well as theft see Appendix F for typical well equipping design.

3. **Conveyance Connections -** RRBWSD currently has 3 main ways to convey recovered water. All of which run north-south and connect current recovery facilities to the Cross-Valley Canal. The water then can go west to the California Aqueduct to satisfy State Water demands or east to the Friant Kern Canal to satisfy Federal Water demands. A critical part of this project is connecting the new wells with current delivery facilities so that the water can be accessible for State and Federal Water Contractors in dry years. The first well located in the northwest of the McCaslin property will stub into 15" PVC line for approximately 1800 linear feet. To satisfy the capacity from the other well, and to accommodate future projects in the area, the pipe will then upsize to 27" PVC line for 4,000 linear feet. From there the pipe will upsize one more time to 30" PVC for 700 linear feet, where it will cross the Goose Lake Channel, and discharge into the Rosedale No. 2. Rosedale No.2 is an open channel canal the District uses for moving water north/south to and from the Cross Valley Canal. On the Bowling well a stub was tied in (2016) and will only require 1200 Linear Feet of 15" PVC to tie into the Central Intake Pipeline, which serves as another route to convey water to the Cross Valley Canal.
4. **Integrated Pest Management Project** - RRBWSD will acquire manufactured owl boxes and install them on 1.5-inch steel poles (as recommended by the manufacturer) along the perimeter of recently constructed recharge ponds (McCaslin and Bowling). This will provide a non-pesticide option of rodent control to prevent pond berm failures that result in financial damages and loss of critical groundwater recharge activities.

1.4 Performance Measures

Performance measurements will be a key instrument to quantifying water better managed and saved through this Project. After Project completion pertinent data will be included in our annual operations report with a monthly summary of recovery flowrates, and a summary of return obligations to state and federal contractors. The data will be compared with projected annual water recovered as calculated in this grant.

1.5 Evaluation Criteria

1.5.1 *Evaluation Criterion A-E.1.1. Project Benefits*

How will the project build long-term resilience to drought? How many years will the project continue to provide benefits? The water savings benefit of the Project comes from Rosedale's ability to return stored water from in-District water banking facilities. Rosedale can access wet year water supplies for aquifer storage that is sufficient to weather prolonged drought periods. Because of Rosedale's conveyance connections, such as the Cross Valley Canal ("CVC") and Kern River, the District is able to bank and recharge contracted surface waters for neighboring entities, typically in exchange for a portion of the amount recharged. Due to extreme dry conditions, Rosedale has determined that the full utilization of local water resources and current banking programs and facilities are insufficient to meet water demands from partnerships with neighboring entities. The proposed Project provides improved return and recovery capabilities of banked wet period water, ensuring that neighboring entities receive a reliable source of return water during periods of drought. The Project seeks to construct 3 new extraction wells and conveyance pipelines that will be plumbed into existing District conveyance facilities. The typical lifespan of the wells, pumps, and electricals is 30 years, while the conveyance facilities are estimated to be about 50 years.

Will the project make additional water supplies available? One of the major benefits of this project is the ability for Rosedale to return banked water during periods of drought. The addition of more wells to Rosedale's existing recovery facilities will allow more water to be recharged and recovered on behalf of certain participants. The flow of the additional wells is estimated at 5 CFS per well, or 15 CFS between the three wells. In periods of extreme drought when surface water supplies are at a premium, a maximum of 10,860 AFY can be recovered. Rosedale has historically shown that 3 out of every 10 years are recovery years, the assumption within those years is that District Wells will be on for 12 months out of the year. To annualize that over a 10 year span you can multiply the max recovery (10,860 AFY) by 3 years and divide by 10 years for an average additional water supply of **3,258 AFY**.

RRBWSD'S average annual water supply (1993-2013) for agricultural use is about 108,000 AFY from various sources (i.e. Kern River, State Water Project, Central Valley Project, banked groundwater, exchanges, Safe Yield, and precipitation). By simply dividing the new supply of 3,258 AFY by the current District's supply of 108,000 AFY you can calculate the percentage of the total water supply from this project. See calculation below.

Estimated Amount of Additional Water Supply = 3,258 AFY **= 3% of total water supply**
Average Annual Water Supply = 108,000 AFY

When the Sustainable Groundwater Management Act was implemented in California in 2020, people finally started to realize how dire the water situation was. California is a state that is subject to prolonged droughts, but also extremely wet years. Unfortunately, the water storage isn't available in the state to satisfy demands in dry years, which is why this project is so important. District's that bank and utilize the underground aquifer for storage, need to be

prioritized, to help the state through prolonged droughts. This project not only builds drought resiliency for the District, but also up and down the state for Districts and Agencies that are reliant on surface water supplies.

Will the project improve the management of water supplies? Drilling and equipping three new wells and conveyance facilities is anticipated to increase the operational flexibility of the District to meet return partnership obligations. An increase in operational flexibility will improve Rosedale's overall management of groundwater resources, benefiting both Rosedale's landowners and neighboring districts. The estimated quantity of 3,258 AFY of water will be better managed with the implementation of the Project. Recovery and return improvements are crucial to the District because both the McCaslin and Bowling recharge basins currently do not have the sufficient capacity to make necessary return obligations. Creating a surface water supply in drought years will also improve the County and the State's operational flexibility as well as better water management during prolonged droughts. Please see the previous page for the explanation of the calculation.

Estimated Amount of Water Better Managed = 3,258 AFY **= 3% of water better managed**
Average Annual Water Supply = 108,000 AFY

The Groundwater Banking Recovery project will increase operational flexibility, by providing the District with more opportunities to bank in wet years, due to more capacity to recover surface water supplies during extended drought periods. With climatic changes and SGMA requirements, there is about an 11,000 AFY in shortage. The completion of this project would develop an additional 3,258 AFY (3% of annual District supply and assuming typical 2:1 banking program operations) which could reduce the shortage by about one-third.

Additional Water Supplies = 3,258 AFY **= 29% deficit reduction**
Water Deficit in the District = 11,000 AFY

The Project will provide return capacity for various state, federal, and local entity partnerships. Water managers associated with these entities will benefit from a reliable water supply during times of drought and fulfill their water recharge, transfer, and/or exchange agreements. Data collected during water recharge and recovery from the Project will be made available to any water managers involved. Aquifer parameters from pump testing data will be provided to the District's hydrogeologist for incorporation into the local groundwater model for impact analysis and future planning.

What is the estimated capacity of the new well(s), and how was the estimate calculated? The estimated flow capacities for the proposed three new wells are based on existing District wells located near the Project site, see detailed in Table 2 and Figure 3 below. While many of the flows in said table are above 5 CFS, varying groundwater conditions, and prolonged use of the wells decreases flow capacity. Therefore, to be conservative the District has selected an estimated flow of 5 CFS from each of the new well sites. That would coincide with a maximum of 10,860 AFY

(all 3 wells are on, 24 hrs a day, 365 days a year). Flowmeters are expected to be installed to accurately calculate Project flow capacity. Since the District doesn't direct deliver to landowners, the new wells will be used to provide a supplemental supply of water for Rosedale and various partnerships with state, federal, and local entities by returning a portion of previously wet period banked water during years of drought. The Kern County Subbasin has been labeled by the Department of Water Resource as a high priority basin, meaning one of the most reliant groundwater pumping basins. Drilling three more wells fits into the subbasin's Groundwater Sustainability Plan by creating operation flexibility and the availability of surface water supplies in dry years. Along with the opportunity to bank more water, this also coincides with our "Conjunctive Use Activity" in section 1.4.2.1 of Rosedale's Groundwater Sustainability Plan, which gives the District opportunity to participate in agreements and exchanges in the State Water Project and the Central Valley Project.

Table 2: Groundwater Banking Recovery Project Nearby Wells

Nearby Wells Information				
Well	Casing Size (inches)	Total Depth (ft)	Perforated Interval(s) (ft)	Average Flow (cfs)
ENNS-1	20 OD	475	185-455	6.3
ENNS-2	20 OD	750	460-740	5
ENNS-3	20 OD	440	180-420	5.6
SUP-2	20 ID	680	370-430, 460-630	6.5
SUP-4	20 ID	725	365-545, 570-610, 630-725	6.7
SUP-5	20 ID	690	370-560, 600-670	6.6
SUP-6	20 ID	940	410-610, 700-920	6.8

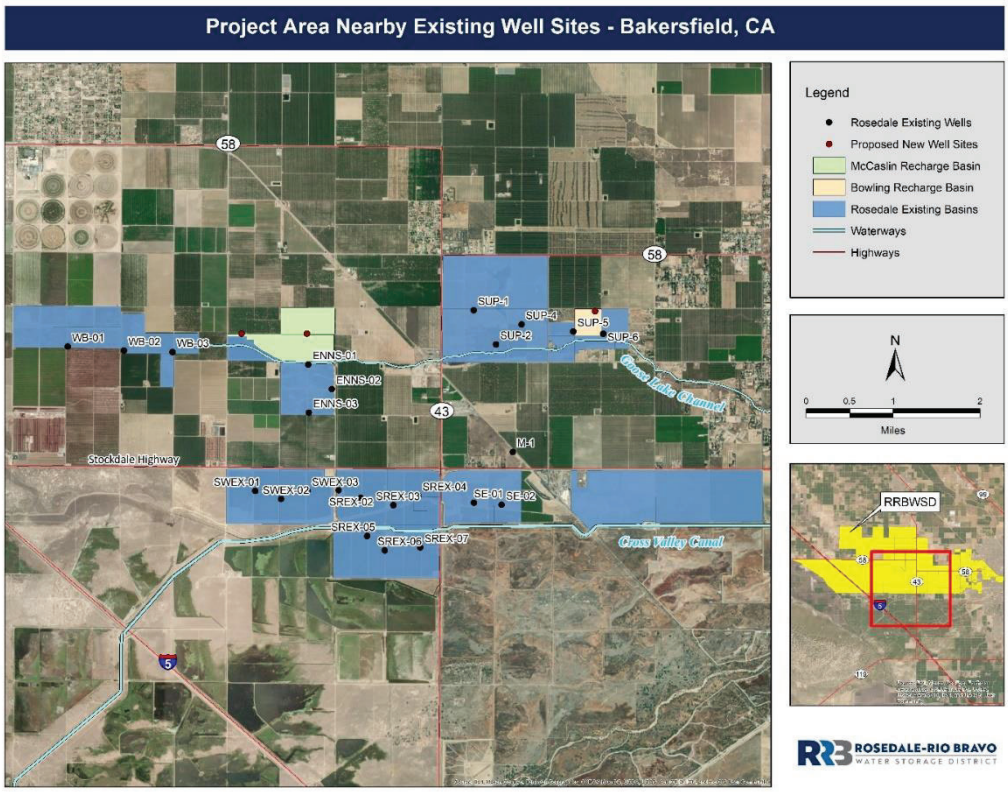


Figure 3: Groundwater Banking Recovery Project Nearby Wells Map

Please provide information documenting that proposed well(s) will not adversely impact the aquifer it/they are pumping from (overdraft or land subsidence). As previously stated, the Project seeks to provide recovery capacity from recharged water that was banked during wet years, where Rosedale retains a portion of water that was banked due to various exchange agreements with partners. The Project will not adversely impact the aquifer, overdraft, or cause land subsidence, as Rosedale intends to replenish groundwater supplies via multiple existing and future aquifer recharge facilities and projects (see Figure 3 for District well locations and nearby surface water supplies). The McCaslin and Bowling properties are in the process of being converted to groundwater recharge facilities and will be utilized in conjunction with Rosedale's existing 2,000 acres of recharge facilities. As part of its conjunctive-use project, Rosedale has developed a numerical groundwater flow model and robust groundwater level monitoring network that has been essential in evaluating, precluding, identifying, and mitigating groundwater level impacts from banking project recovery. A combination of agricultural, domestic, and monitoring wells are monitored monthly to ensure that water levels do not exceed established water level minimum thresholds and do not trigger undesirable results. Prior to construction of wells, impacts are evaluated on nearby wells. Operationally each year estimated impacts are analyzed as well.
The Project area is not currently experiencing aquifer overdraft or land subsidence, see Figures 4 and 5 for the most recent data regarding groundwater levels near the Project site and within Rosedale's Groundwater Sustainability Plan Management Area ("RRBMA").

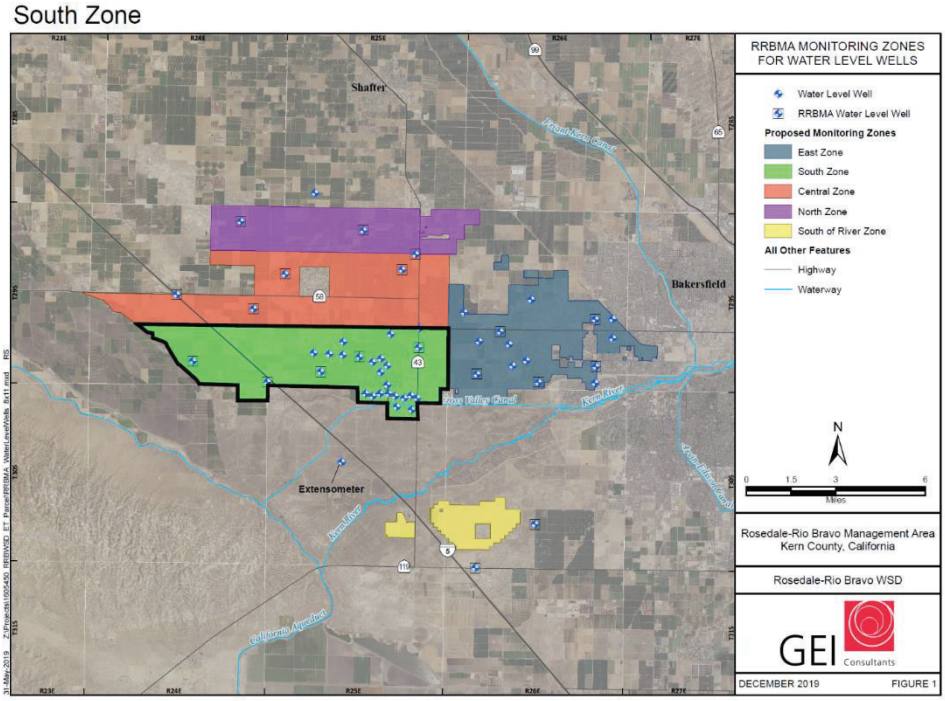


Figure 4: RRBMA South Zone Water Level Monitoring Map

Please describe the groundwater monitoring plan that will be undertaken and the associated monitoring triggers for mitigation actions. Mentioned above, Rosedale has implemented a

robust groundwater level monitoring plan to measure groundwater sustainability in the area. Groundwater levels are monitored monthly within different predetermined monitoring zones in the RRBMA (East Zone, South Zone, Central Zone, North Zone, and South of the River Zone) and offer reliable long-term data. Long-term groundwater hydrograph plots of potentiometric surfaces are updated each month with recent groundwater level data (see Figure 5 as an example) and are analyzed to ensure that water levels do not reach below the established minimum threshold causing undesirable results. Monitoring Committees, composed of representatives from adjoining entities and one RRBWSD representative, determine if impacts are likely to occur because of project operations. If undesirable results occur due to groundwater pumping, then the mitigation actions to prevent significant adverse impacts may include, but are not limited to the following:

1. Spreading out recovery areas.
2. Providing buffer areas between recovery wells and neighboring overlying users.
3. Limiting the monthly, seasonal, and/or annual recovery rate.
4. Providing sufficient recovery wells to allow rotation of recovery wells or the use of alternative wells.
5. Providing adequate well spacing.
6. Adjusting pumping rates or terminate pumping to reduce impacts
7. Imposing time restrictions between storage and extraction to allow for downward percolation of water to the aquifer

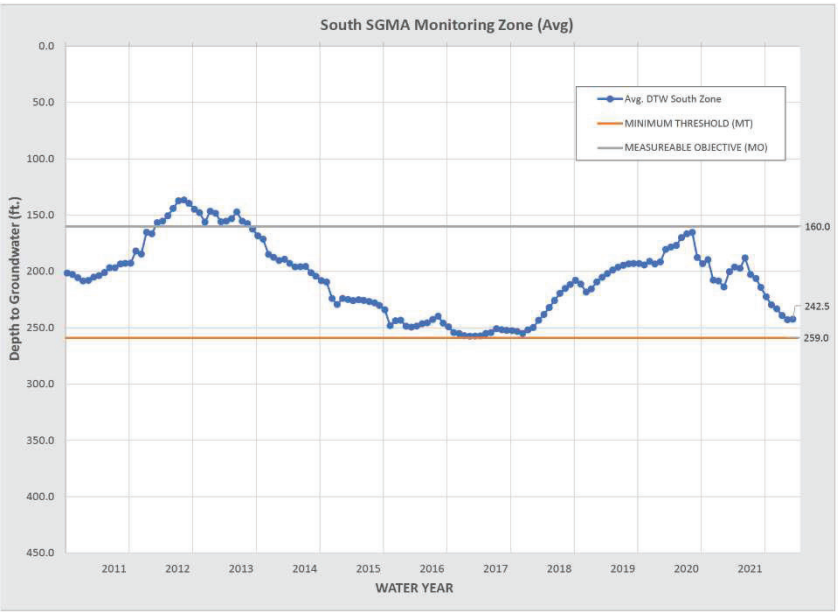


Figure 5: RRBMA South Zone Water Levels (2010-2021)

In addition to above mentioned mitigation measures, a Joint Operations Plan designates mitigation measures. A technical committee regularly monitors potential groundwater level impacts of banking project recovery operations on neighboring agricultural and domestic wells based on groundwater modeling. Specific triggers are set for potential mitigation actions, with significant impacts being avoided, eliminated, or mitigated by implementing one or more

corrective actions, including investigation of any claims and pump lowering, well replacement, and/or reduction or adjustment of banking project recovery operations, as appropriate.

1.5.2 *Evaluation Criteria B - E.1.2. Sustainability and Supplemental Benefits*

In addition to drought resiliency measures, does the proposed project include other natural hazard risk reductions for hazards such as wildfires or floods? While the proposed Project does not provide any immediate natural hazard reduction impacts, increasing water supplies throughout the state during drought years can provide beneficial use for fighting fires or offsetting subsidence in critical areas. Implementation of the Integrated Pest Management Project will reduce the incident of flooding from berm failure from rodent infestation, as well as to help keep recharge projects operating during flooding periods.

Does the proposed project include green or sustainable infrastructure to improve community climate resilience? The proposed Project will utilize high efficiency electric motors and VFD drives to best match supply and demand and not waste energy via manually back pressuring the system.

Will the proposed project establish and use a renewable energy source? The source of energy will be electricity provided by the Pacific Gas and Electric Company. Under California energy legislation a growing percentage of supplied energy must be supplied by local utilities. This Project will use renewable sources.

Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution? The project will only employ electric motors, no fossil fuel engines so as not to contribute to air pollution and greenhouse gases.

Will the proposed project reduce greenhouse gas emissions by sequestering carbon in soils, grasses, trees, and other vegetation? The project will provide water supplies primarily for agricultural purposes which will provide sequestration by means of evapotranspiration that otherwise would not occur.

Does the proposed project have a conservation or management component that will promote healthy lands and soils or serve to protect water supplies and its associated uses? The Integrated Pest Management component of the Project will replace the typical use of pesticides to manage rodents with prey birds. Since operations create open water bodies by the employment of this tactic, few chemicals will impact local soils and water supplies.

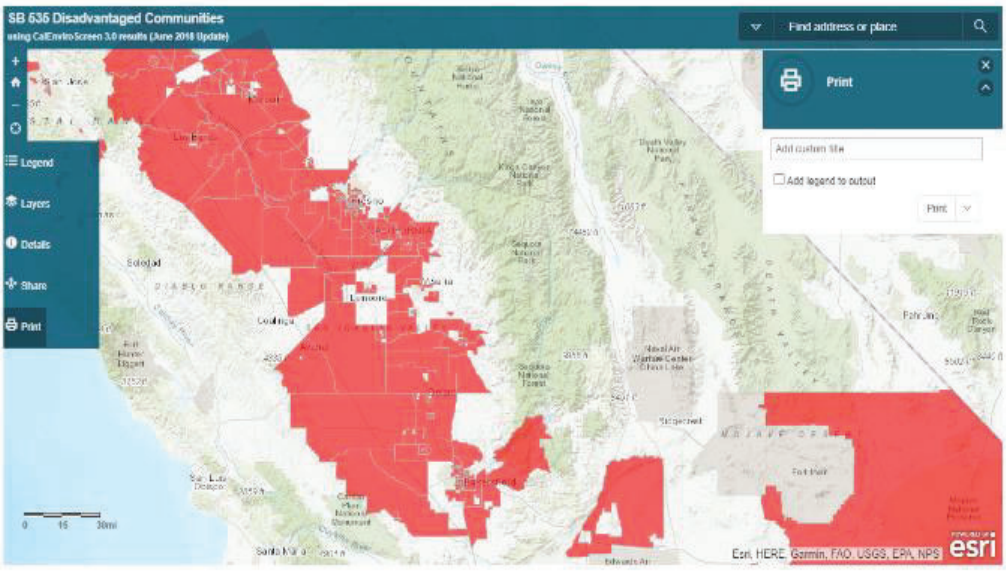
Does the proposed project contribute to climate change resiliency in other ways not described above? Unknown.

Will the proposed project serve or benefit a disadvantaged or historically underserved community? The District has groundwater banking projects with agencies that serve areas that include disadvantaged communities such as Rosedale, Lamont, Arvin, Delano, Firebaugh, Dos

Palos, Los Banos, Gustine, and Newman. These facilities would provide drought water supplies to these areas.

If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the applicable state criteria or meets the definition in Section 1015 of the Cooperative Watershed Act. All of the previously mentioned communities lie within the red area of the map, See Figure 6, which represent SB 535 Disadvantaged Communities designation. These areas are below 80% of the statewide median income.

Figure 6: SB 535 Disadvantaged Communities Designation Map



If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985. The area served by the project, southern San Joaquin Valley, is greater than 50% Latino which is an underserved community according to E.O. 13985.

Does the proposed project support tribal resilience to climate change and drought impacts or provide other tribal benefits? No tribes are in the District, so while the District strives to benefit tribes and native people wherever possible, this Project will be of no benefit to them.

Does the proposed project support Reclamation's tribal trust responsibilities or a Reclamation activity with a Tribe? Unknown.

Does the project seek to improve ecological climate change resiliency of a wetland, river, or stream to benefit to wildlife, fisheries, or habitats? The project will allow for captured water to be delivered at a later time. Thus, benefitting local water management, but also reducing demand from the SWP and CVP. By reducing demand from the Delta, the project will be supporting both the California Bay-Delta Conservation Plan and the San Joaquin River Restoration Program. The project in turn will benefit the Chinook Salmon, the federally endangered Delta Smelt, and the Longfin Smelt.

What are the types and quantities of environmental benefits provided, such as the types of species and the numbers benefited, acreage of habitat improved, restored, or protected, or the amount of additional stream flow added? How were these benefits calculated? The proposed Project seeks to implement approximately 10 Barn Owl boxes around the Project site in order to provide a safe and suitable habitat for owl nesting, while also providing rodent control for the Project and surrounding agricultural fields. A family of Barn Owls can consume thousands of rodents during a season, offering a natural alternative to rodenticides that are damaging to wildlife and the surrounding environment. Barn Owls are often found in and near agricultural fields and often nest in cavities such as holes in trees, burrows, and often human-made structures. The addition of Barn Owl boxes dispersed around approximately 270 acres of the Project site will greatly benefit the surrounding owl population, as Barn Owl habitats are often threatened by changes in agricultural fields. If each Barn Owl box can house up to 6 owl nestlings, then the proposed Project can provide additional habitat for up to 60 Barn Owls.

Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status? Because the proposed Project site is mostly developed agriculture and recharge basin land cover, the site lacks native plant communities and special-status plant species. Therefore, no impacts to special-status plants or natural communities are expected to occur from implementing the proposed Project. Special status wildlife species that may have the potential to be impacted by the proposed Project include burrowing owl, Swainson's hawk, tricolored blackbird, and San Joaquin kit fox; however, the proposed Project is not expected to result in a substantial loss of habitat that would affect the ability of species to disperse throughout the proposed project site and surrounding habitats.

Will the project assist States and water users in complying with interstate compacts? The project will not provide any direct assistance to States and water users in complying with interstate compacts. Rosedale does participate in exchanges with water agencies who have rights to the Colorado River (Coachella Valley Water District, Metropolitan Water District).

Will the project benefit multiple sectors and/or users? Besides groundwater recharge, actual land use surrounding the Project area is mainly characterized by intensive agricultural activity. The proposed Project seeks to provide a reliable supply of water during periods of drought by recharging imported water during wet periods for later extraction. As water supplies become more limited, agricultural activity within and neighboring the District will be in need of a reliable water supply for irrigation. The proposed Project will have the ability to offset the high energy intensity of SWP deliveries in the summer and fall, and augment water supplies for Rosedale, as well as state, federal, and local entity partnerships when needed.

Will the project benefit a larger initiative to address sustainability of water supplies? The District has a plan set in place to reach SGMA requirements for drought preparedness, see SGMA Fact Sheet in Appendix G. With benchmarks set for projects and management actions the District plans to achieve sustainability as early as 2040. Rosedale's main path to sustainability has to do with the construction and implementation of projects. This project is extremely important because it can secure new partners, and with that, new opportunities to bring in water supplies. DWR has set guidelines for climate change in the next 50 years and how it will affect

the availability of water supplies. The demands and the projections have both been adjusted in the drought plan, and this project addresses those future water projections with climate change over a 50-year span.

1.5.3 *Evaluation Criteria C - E.1.3. Drought Planning and Preparedness*

Attach a copy of the applicable drought plan, or sections of the plan, as an appendix to your application. Rosedale-Rio Bravo Water Storage District has a comprehensive Groundwater Sustainability (SGMA) Plan that was submitted to DWR in 2020. This plan outlines a path to a sustainable water supply (drought, wet, and normal conditions) by 2040. The District has taken many considerations when writing this plan, including mitigation for severe drought periods, groundwater management plans, groundwater pumping restrictions, and climate change considerations over the next 50 years. See Appendix G for a copy of Rosedale's SGMA fact sheet. The full report can be found at https://www.rrbwsd.com/rosedale-groundwater-sustainability-planning.

Explain how the applicable plan addresses drought. As briefly mentioned in Section 1.5.1, the Rosedale-Rio Bravo Water Storage District has established the Rosedale-Rio Bravo Management Area ("RRBMA"), as part of multiple management areas that fall under the purview of the Kern Groundwater Authority Groundwater Sustainability Agency ("KGA", "GSA") for the purpose of complying with landmark SGMA requirements and addressing drought conditions in the Kern County Subbasin. Within the RRBMA there are approximately 40,000 acres of District land and 6,000 acres of non-District land ("White Lands"). Two advisory groups have been developed to offer collaboration in the management of groundwater sustainability: the White Lands Advisory Committee, made up of stakeholders not in the District, and the RRBMA Advisory Committee, made up of stakeholders within the District. These two advisory groups are made up of representatives from four key stakeholder groups: Agricultural, Urban, White Lands, Environmental justice, and Groundwater Banking. Meetings with these groups are held every other month and are geared towards the implementation of groundwater sustainability planning initiatives, drought preparedness, and discussions regarding the needs of the region.

As a result of historical and recent drought conditions, the RRBMA has projected a potential long-term water supply deficiency of about 20,116 AFY. Briefly mentioned in Section 1.5.2, DWR has set forth guidelines for climate change in the next 50 years and how it will impact the availability of water supplies. Climate change assessments included in RRBMA drought plan are adjusted according to these DWR guidelines and best available science that evaluates water supply vulnerabilities during drought. The RRBMA seeks to eliminate water supply deficiency over the next 20 years in a regressive fashion (more implementation over the first 10 years). Rosedale, with the participation of both advisory committees, are working together to develop and implement existing and future management actions and projects, such as the proposed Groundwater Banking Recovery Project, to bolster drought resiliency efforts in response to climate change stressors.

In conjunction with Rosedale's existing banking projects and groundwater sustainability management actions, the proposed Project will assist state, federal, and other local entity

partnerships while supporting the long-term drought planning effort set forth in the RRBMA GSP. The Project will be achieved by providing recovery and return capacity for the delivery of banked supply in a dry year. This will improve drought resiliency efforts by meeting return obligations and reducing demand on stressed SWP, CVP, and Kern River supplies, as well as improve operational efficiency, flexibility, and enhance supply reliability.

Describe how your proposed drought resiliency project is supported by an existing drought plan. The proposed Project is supported within Rosedale's existing GSP. Various projects, management actions, and adaptive management are detailed in the plan in order to meet measurable objectives, achieve sustainability, and bolster drought resiliency. All the considered projects and management actions help the RRBMA achieve its measurable objective goals for chronic lowering of groundwater levels, reduction in groundwater storage, degraded water quality, and land subsidence. For each project, conservative assumptions as to average annual yield are provided, recognizing that there will be more competition for supplies moving forward than in the past.

DWR has determined the Kern County Subbasin a critically over drafted subbasin of high and medium priority. SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. In combination with existing and future recharge projects and management actions, the proposed Project will assist in addressing basin prioritization set forth by DWR and SGMA requirements.

1.5.4 *Evaluation Criteria D - E.1.4. Severity of Actual or Potential Drought Impacts to be addressed by the Project*

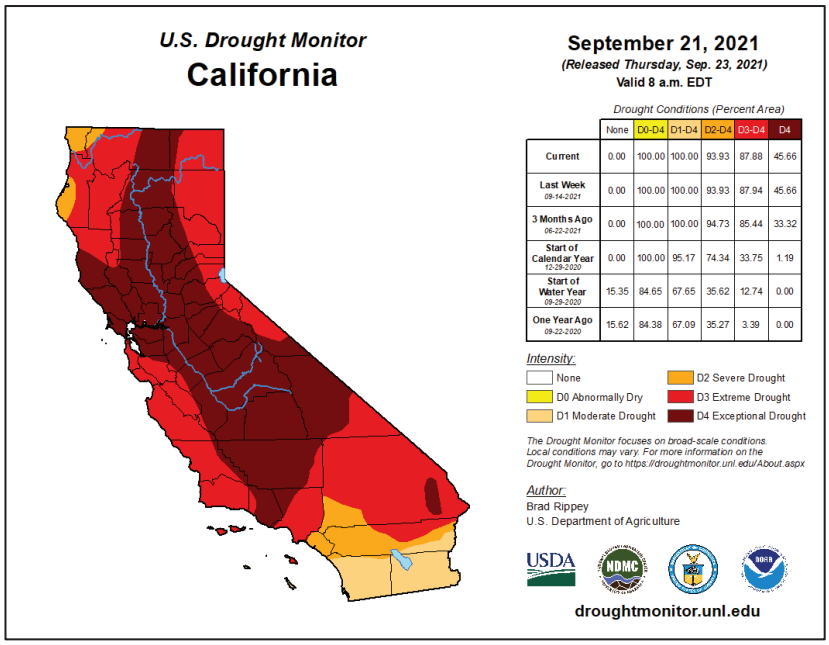
What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken, and how severe are those impacts? The project is surrounded mainly around the agricultural industry and the impacts from the Sustainable Groundwater Management Act (SGMA). To the extent that water levels fall another 50 feet below previous drought conditions, additional monetary impacts of $640M will be reconciled by district, agricultural, industrial, and municipal water users. These impacts are water availability and quality driven. Ongoing environmental impacts are addressed by SGMA and have significant impacts on the agriculture industry. Rosedale also participates in a Joint Operating Committee (JOC) which is a collective group of local water districts and agencies that aim to mitigate the loss of domestic well water use due to dropping groundwater levels. Along with the large monetary obligation, landowners will be provided less water, and be required to fallow more land to reduce demand on the groundwater basin. In the years 2012 through 2016 the entire Kern County Basin suffered a historical drought. Due to the water demand and lack of supply the groundwater aquifer endured significant losses, some water levels fell 200 feet in just four years. Fortunately, good hydrology and proactive efforts similar to this proposed project have helped water levels recover to an extent.

Describe existing or potential drought conditions in the project area. The State of California and Kern County have entered a state of drought emergency for a second year (2020-2021). Due to recent warm temperatures, dry soils, and sparse rainfall, the expected runoff water from

snowmelt in the Sierra Nevada's have resulted in an unanticipated reduction of water supplies, with deliveries from the SWP reduced to five percent allocations. Water supplies in major reservoirs throughout the state are at low levels and legal and environmental restrictions have impaired the SWP's ability to move water through the Delta.

The June 1, 2021 forecast issued by DWR for the Kern River runoff during the April through July snowmelt period was 17 percent of average, or approximately 80,000 acre-feet (af) into Isabella Reservoir. As of early July, the Northern Sierra Precipitation Eight-Station Index had received 23.2 inches of precipitation, or approximately 46 percent of average; the precipitation measured during January-February ranks as one of the lowest totals during that two-month span in the entire record of the Eight-Station Index; as of mid-June, all Sierra snow had essentially melted.

Figure 7: NDMC California Drought Monitor 2021



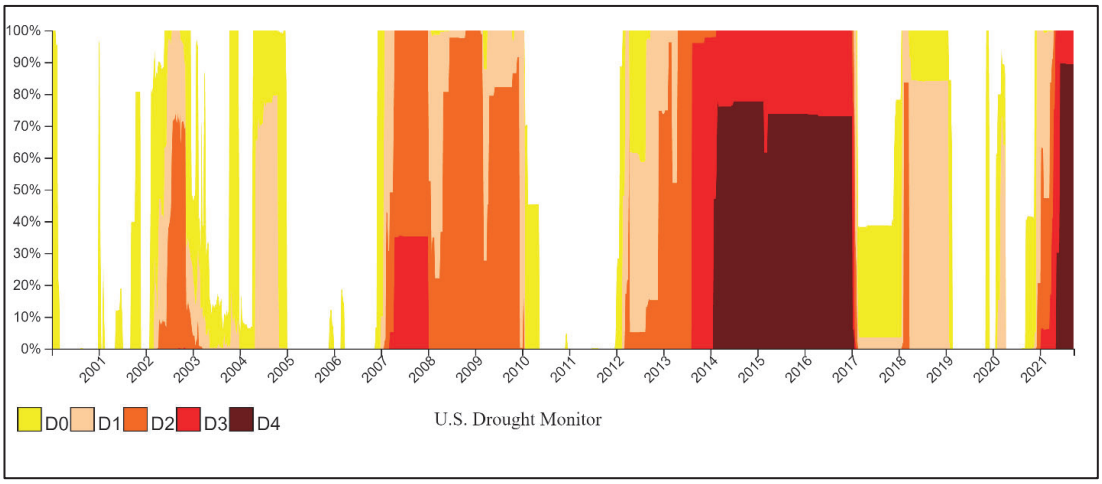


Figure 8: NDMC Kern County Drought Conditions (2000-2021)

According to the National Drought Mitigation Center ("NDMC"), the proposed Project area is currently undergoing exceptional drought (category D4) and has previously suffered exceptional drought from the years 2014-2017 (see Figures 7 and 8). During periods of drought, irrigation, municipal, and water storage districts often meet shortfalls in surface water supplies by pumping groundwater. Sustained groundwater pumping has contributed to land subsidence and decreases in groundwater elevation within areas of the Kern County subbasin. Although the Project area is not currently experiencing significant land subsidence and current groundwater levels are remaining just above minimum thresholds, as previously described in Section 1.5.1, Rosedale seeks to prepare and bolster drought resiliency measures in order to mitigate the effects of drought conditions within the Kern County subbasin.

Due to the above-described hydrology, limited water supplies were expected for this summer and fall. Rosedale has determined that full utilization of local water resources and current banking programs are insufficient to meet future water demands without implementing drought emergency measures. Rosedale has also determined that it is necessary to advance implementation of GSP management actions to help mitigate the existence of declined water levels in the groundwater basin. Benefits of the proposed Project will be experienced throughout the region. The ability to return banked wet year supplies during periods of drought will be able to meet return requirements and irrigation demands, increasing both supply reliability and economic viability.

1.5.5 *Evaluation Criteria E - E.1.5. Project Implementation*

Describe the implementation plan of the proposed project. With funding assistance from the Bureau of Reclamation in connection with a 2022 WaterSMART Grant, the District will proceed with implementing the proposed Project according to the estimated schedule. Please see Appendix B for a proposed Project Schedule.

It is the intention of the District to satisfy all CEQA and NEPA compliance requirements in January 2022 to February 2023, prior to any project groundbreaking activities of project components proposed under the project. An Environmental Impact Report EIR) for similar components included in this grant application was circulated and certified in 2015 at a programmatic level. Supplemental CEQA review may be required.

Continued Project planning designs and procurement will be performed concurrently with project level CEQA and NEPA process. The District will contract with applicable engineering design firms to complete designs and specifications by January 2023. The bidding and contract administration will be handled by the District, while an appropriate design firm will be contracted by the District for the appropriate sections. Wherever possible, and as the schedule will allow, project component tasks are staggered to make the best use of time but as with all large projects efficient planning is required and therefore parallel efforts and overlap are unavoidable.

Once the project is CEQA and NEPA compliant, the construction activities for components to include ground disturbing activities will begin. Additionally, project activity will have to be

coordinated with normal District operations. The District plans to begin construction of the projects as early as February 2023 and finish construction by December 2023. Please refer to Appendix B for the full schedule.

Besides CEQA and NEPA requirements there are no other administrative actions required apart from the actions required by the SGMA legislation. Based on prior projects with Reclamation and other similar departments, no additional compliance costs have or need to be discussed.

Describe any permits that will be required, along with the process for obtaining such permits. There are two main required permits for this project. The first is required of all projects in California with ground disturbing activities, routine submissions of the Stormwater Pollution Prevention Plan (SWPPP). The other permit will be the well drilling permits requested by the County of Kern Environmental Health Department required for any drilling or constructing of new wells in the county. This is always handled by the well drilling contractor and never by the District. Due to the nature and location of selected project sites, we expect that no third-party approval or permits will be required from the state to break ground for the Project.

Identify and describe any engineering or design work performed specifically in support of the proposed project. The District will utilize a hydrogeologist as well as local groundwater knowledge and a civil engineering design consultant to create the wells, pumps, and conveyance design. Due to the fact that Rosedale has drilled similar wells in the area, the District anticipates minimal costs for the well design. Pump testing will assist in the pump and motor size design. The design work for the conveyance will be completed by a local engineering firm with local expertise, and who is familiar with District facilities.

Describe any new policies or administrative actions required to implement the project. The District does not anticipate any new policies or administrative actions required to implement the project.

1.5.6 *Evaluation Criteria F - E.1.6. Nexus to Reclamation*

Does the applicant have a water service, repayment, or O&M contract with Reclamation? The District receives Reclamation project water through the Central Valley Project via the Friant-Kern Canal and California Aqueduct. While the District does receive Reclamation water, the project only resides on District property, and doesn't involve any Reclamation facilities.

Will the proposed work benefit a Reclamation project area or activity? The District shares the Kern County Sub-basin with many Federal contract districts. Increases in Rosedale's operational efficiencies due to the proposed Project will indirectly and directly benefit multiple Federal contract districts. Water supplies banked in wet years can be returned to Federal contract districts via banking and exchange agreements, while reducing groundwater recovery costs that they pay as part of those project agreements. The proposed Project is also located within the CVP Place of Use and will help fulfill obligations to both state and federal water contractors.

Is the applicant a Tribe? No, the applicant is not a Tribe.

2. Project Budget

2.1 Funding Plan

1. ***How you will make your contribution to the cost share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).*** The District's cost-match will be covered by the District's capital facility improvement portion of the regular budget. The District maintains a capital improvement account and receives revenue through water sales and banking operations as well as land assessments.

2. ***Describe any in-kind costs incurred before the anticipated project start date that you seek to include as project costs.*** The District will not assess any in-kind contributions to project costs.

3. ***What project expenses have been incurred?*** The District has incurred feasibility and conceptual design consultant costs from Zeiders Consulting and Harder Company for about $50,000.

4. ***Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment***. No funding partners are involved in the Project; thus, no letters of commitment were necessary.

5. ***Describe any funding requested or received from other Federal partners. Note: other sources of Federal funding may not be counted towards your 50 percent cost share unless otherwise allowed by statute.*** There are currently no other Federal partners for this proposed Project.

6. ***Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.*** There are no pending funding requests for this Project.

Table 1. Summary of non-Federal and Federal funding sources

Funding Source	Funding Amount
Non-Federal Entities	
Rosedale-Rio Bravo Water Storage District	$2,342,862
Rosedale-Rio Bravo Water Storage District (in-kind)	$ 0
Non-Federal Subtotal	**$2,342,862**
Requested Reclamation Funding	**$ 2,000,000**
Total Project Funding	***$4,342,862***

Table 2. Funding Group II funding request

Funding Group II Request			
	Year 1 (FY 2022)	**Year 2 (FY 2023)**	**Year 3 (FY 2024)**
Funding Requested	$500,000	$750,000	$750,000

Currently, there is no other funding request submitted or funding applications pending approval. The Project is a substantial construction project where Reclamation funding would increase the likelihood of successful project completion and continue a RRBWSD and USBR partnership. The Project directly makes available a quantifiable amount of additional water that can be used to meet increasing water demand. Although federal assistance is requested, if USBR declined to participate in the Project, RRBWSD would continue to seek other funding opportunities to move forward and attempt to complete the Project.

2.2 Budget Proposal

The estimated cost of the project including feasibility study, environmental assessments, all associated construction cost, CEQA documents and permits is $4,342,862. Please refer to Table 4. below for detailed estimated cost. RRBWSD is requesting approximately **$2,000,000** (or about 46% of total project costs) in federal funding from USBR for this Project. The Project will directly provide drought resiliency beyond twenty years and RRBWSD is estimated to provide 54% of project funding if the requested award amount is granted. At this time, RRBWSD is solely responsible for the funding of the Project.

Table 3. Funding Sources

Funding Sources	Percent of Total Project Cost	Total Cost by Source
Recipient Funding	54%	$ 2,342,862
Reclamation Funding	46%	$ 2,000,000
Other Federal Funding	0%	$ 0
Total	**100%**	**$ 4,342,862**

Table 4. Budget Proposal

Item		Budget Item Description	RRBWSD Project Costs $/Unit	Unit	QTY	Budget RRBWSD Funding	Reclamation Funding	Total	Explanation of Estimate
1		*Contractual / Construction*						3,926,870	
	a	Well Drilling	528,125	LS	3	884,375	700,000	1,584,375	engineers est.
	b	Well Equipping	373,059	LS	3	369,177	750,000	1,119,177	engineers est.
	c	Conveyance / Tie-in	1,123,319	LS	1	587,319	536,000	1,123,319	engineers est.
	d	Environmental Projects	10,000	LS	10	100,000		100,000	engineers est.
2		*Environmental and Regulatory Compliance*						90,000	
	a	Reclamation NEPA Review	14,000	LS	1	0	14,000	14,000	USBR estimate
	b	Environmental studies, surveys, groundwater impact analysis, and biological education	76,000	LS	1	76,000		76,000	prior project
		E&R percent of total cost						2%	
3		*Engineering and Administration*						325,992	
	a	Engineering Design	192,179	LS	1	192,179		192,179	past project
	b	Staking and Testing	31,634	LS	1	31,634		31,634	past project
	c	Inspection	102,179	LS	1	102,179		102,179	past project
4		*Total*						4,342,862	0
	a	RRBWSD Contribution				2,342,862			
	b	Reclamation Contribution					2,000,000		
	c	Percent Funded by RRBWSD						54%	

2.3 Budget Narrative

The following is a description of the line items in the above table.

Contractual / Construction – Work in this section will be done by contractors and consultants. All required materials as shown in detailed project budgets from the feasibility study are shown in Appendices C and D.

Environmental and Regulatory Compliance - According to previous FOA guidelines, "…a minimum amount budgeted for environmental compliance should be equal to 1-2 percent of the total project costs." The District intends to work with Reclamation to determine the potential environmental effects the proposed Project may have in relation to NEPA, NHPA, ESA, and the Clean Water Act to ensure compliance with all applicable environmental laws. Based on inspection of the FOA, it is understood that Reclamation will determine who will perform the work under this category (i.e. Reclamation, the Applicant, or a consultant). For purposes of this grant proposal, based on previous projects performed by the District, it was assumed that the work would be performed at an estimated cost equal to 2% of the total project costs. The District will provide all funding related to environmental and regulatory compliance for the Project in regards to CEQA requirements.

a) This is the estimated cost to conduct project biological and cultural surveys by qualified consultants as required for CEQA and NEPA compliance.
b) This is the estimated cost to prepare all necessary studies, reports and other documents for the project. This includes the cost for environmental consultants.

Engineering and Administration - This is the estimated cost for engineering design and specifications for facility design, surveying and construction management (including inspection) as well as contractor construction activities for each component. Design is estimated at about 4% of total project costs, surveying and testing 1%, and inspection 2% for a combined 7.5% of project costs. This is consistent with prior District projects.

Total – These are the totals for RRBWSD contribution, Reclamation contribution, and the total estimated cost of the project.

2.4 Budget Form

Included in Appendix H is Form SF-424C, Budget Information-Construction Programs as specified by the FOA.

3. Environmental and Cultural Resources Compliance

The Groundwater Banking and Recovery Project consists of two project components, the McCaslin and Bowling groundwater banking areas, all of which are located within Rosedale's District boundaries and adjacent to the Goose Lake Channel. In general, all potential project sites and associated project activity will be located or conducted on existing facilities, right-of-ways, and lands that are routinely used, operated, and maintained. RRBWSD maintains and operates similar facilities on a regular basis. Maintenance and operation activities include, but are not limited to, grading canal roads and canal banks, repairing or replacing head gates, silt and vegetation maintenance, pump removal and repairs, ditch tending, vehicle and personnel traffic.

RRBWSD has certified an Environmental Impact Report ("EIR") according to the regulations and guidelines of the California Environmental Quality Act ("CEQA") on a programmatic basis and will proceed as required for project level CEQA compliance. Additionally, National Environmental Policy Act ("NEPA" compliance will be required if Federal funds are applied to the project. RRBWSD will assist and support the Bureau of Reclamation in the NEPA compliance process as necessary.

3.1 Impacts to Surrounding Environment

The proposed Project components are both near and within developed agriculture and recharge basin land cover. The area of construction activities for the Project is relatively small, as the only earth-disturbing activities for the Project include the construction of three new wells and pipelines on previously developed recharge basins and farm roadways, and the installation of 8-10 Barn Owl boxes. RRBWSD, as well as local contractors, have extensive experience with excavating activities and utilize best management practices concerning dust and erosion control. RRBWSD and/or contractors would access a water truck or portable pumps for necessary dust suppression. Dust impacts to the environment will be minimal, but will be evaluated according to CEQA and NEPA requirements.

All earth disturbing activities will be done absent of local irrigation or drain water in the affected canals or basins. Disturbed earth will have no contact with flowing water and therefore will have no impact on irrigation supply water or drain water. Project activities would not occur on natural streams or river channels. Additionally, Rosedale is in the process of conducting a groundwater impact analysis for the proposed additional recovery facilities at the McCaslin and Bowling recharge areas in order to evaluate potential changes in groundwater levels associated with the Project. Introduction of pumped groundwater from the Project into conveyance facilities, such as the California Aqueduct and CVC, would comply with any existing CVC and DWR's water quality policy provisions and current water quality criteria. Thus, there are no anticipated impacts to water quality and quantity from the implementation of the proposed Project, but potential impacts may be further evaluated according to CEQA and NEPA requirements.

As previously stated, all project activities will occur on routinely disturbed ground and therefore will have minimal or no impact to animal habitat. The presence of working facilities along with routine RRBWSD and farmer activities make it unlikely for animals to use project sites as habitat. However, the addition of Barn Owl boxes to the proposed Project site will provide a safe and suitable habitat for owl nesting, while also providing a natural alternative to rodent control for the Project and surrounding agricultural fields. Potential impacts to animal habitats will be evaluated according to CEQA and NEPA requirements. Prior to and throughout the duration of construction of the Project, any necessary biological or cultural surveys will be conducted by qualified personnel as required for CEQA and NEPA compliance.

3.2 Endangered or Threatened Species

Although all Project activities are going to be conducted on land that is routinely disturbed by farming operations and existing recharge basin land cover, Kern County is known to have habitat that can support endangered and threatened species. Based on previous biological surveys of the area, listed below are several special-status species that have been documented as having the potential to occur in or near the Project vicinity, see attached Appendix I for the McCaslin property biota report. However, by the limited nature of construction of the Project and frequent disturbance of land due to agricultural practices, the District does not expect to have any impact on these species or corresponding suitable habitat within the project sites.

1. Burrowing owl
2. Swainson's hawk
3. White-tailed kite
4. Western pond turtle
5. American badger
6. San Joaquin kit fox

Potential impacts to Endangered or Threatened Species will be evaluated according to CEQA and NEPA requirements. As part of the environmental work, the District will retain a certified biologist to conduct a biological reconnaissance survey and prepare a report to evaluate potential impacts to biological resources within the project sites. If potential impacts are identified, the District will follow recommendations by the biologist to reduce those impacts to a less than significant level.

3.3 Wetlands

According to the U.S. Fish and Wildlife Service National Wetlands Inventory, there are no wetlands within Project boundaries. There are, however, wetlands indicated in the nearby vicinity of the Project site, but they are not expected to be negatively impacted by the Project due to the limited nature of the ground disturbance.

3.4 Water Delivery System

RRBWSD operates a surface water delivery system with more than 25 miles of earthen canals. The water delivery system was developed in the 1970's. Many of the canal alignments have been realigned or modified over that time. Additionally, almost all of the check and gate structures have been replaced or updated over the same period in order to maintain a working water delivery system. Due to increases in water demand over time, additional water delivery features and enlargements have been constructed for better water management and increased operational flexibility.

3.5 Modification to System Features

There will be no modifications to an existing irrigation distribution system.

3.6 National Register of Historic Places

There are no registered historical landmarks within the project boundaries. RRBWSD does not have any knowledge of any other items that are listed or may be eligible for listing under the National Register of Historic Places. If Reclamation deems necessary, the District will retain a private cultural resources management consultant or arrange for Reclamation staff to carry out a consultation to evaluate if any buildings or structures are eligible under the National Register of Historic Places. The expectation is that no historical landmarks will be identified, as the Project will be constructed near actively disturbed agricultural lands and within active recharge basin land cover.

3.7 Archeological Sites

RRBWSD does not have any knowledge of known archeological sites within or in the vicinity of the proposed Project sites. A Class III Inventory/Phase I Survey was conducted by a cultural resources consultant for the McCaslin property in October of 2020, see attached Appendix J for the McCaslin property cultural report. The survey results determined a No Effect on Historic Properties/No Adverse Impact on Historical Resources. There has been over a century of ongoing farming operations and it is very unlikely that archaeological sites would be currently located or discovered within district boundaries. If Reclamation deems necessary, the District will work with Reclamation cultural resources staff to obtain clearance for archaeological sites within the project area. The District will retain a private cultural resources management consultant or arrange for Reclamation staff to carry out a consultation to conduct a Phase I intensive pedestrian cultural resource survey, and a cultural resources records search and Native American consultation to evaluate any impacts to cultural sites. Impacts to cultural resources are not expected. Nevertheless, the District is prepared to implement any necessary mitigation measures should cultural resources be identified for any component of the Project.

3.8 Other Environmental Concerns

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations? The proposed Project will not have a disproportionately high and adverse effect on low income or minority populations. Construction of the Project will support the agricultural-based economy in the Southern San Joaquin Valley and should only have positive impacts on low income or minority persons living in the region.

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 will not limit access to ceremonial use of Indian sacred site or result in other impacts on tribal lands.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area? The proposed Project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native species in the region.

4. Required Permits or Approvals

Due to the nature and location of selected project sites, we expect that no third-party approval or permits will be required from the state in order to break ground for the Project. Contractors will be required to prepare and submit routine stormwater pollution prevention plans (SWPPP for EPA) and well drilling permits (County of Kern Environmental Health Department).

5. Official Resolution

The Rosedale-Rio Bravo Water Storage District Board of Directors approved Resolution No. 521 on September 14th, 2021.

RESOLUTION NO. 521

RESOLUTION OF THE BOARD OF DIRECTORS OF THE ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT WATER SMART GRANT APPLICATION

WHEREAS, Rosedale-Rio Bravo Water Storage District has prepared an application to apply for federal funding from the United States Department of the Interior, Bureau of Reclamation (Reclamation) to assist in the funding of certain Drought Resiliency Projects; and

WHEREAS, the funding opportunity provided by Reclamation through their Grant Program entitled "WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2022" Funding Opportunity Announcement No. is R22AS00020; and

WHEREAS, it is in the interests of Rosedale-Rio Bravo Water Storage District to apply for funding to assist with the costs of the construction of a District project ("the Groundwater Banking Recovery Project") which involves the drilling and equipping of 3 groundwater wells to improve overall drought resiliency by increasing groundwater recovery and flexibility in drought years.

THEREFORE, BE IT RESOLVED, the Rosedale-Rio Bravo Water Storage District Board of Directors have reviewed the application and support its submittal for Reclamation assisted funding. The Board of Directors approve Dan Bartel, General Manager-Engineer, as the official with legal authority to enter into a cooperative agreement with Reclamation and confirm that Rosedale-Rio Bravo Water Storage District is capable of providing the amount of funding specified in the application. Rosedale-Rio Bravo Water Storage District will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

PASSED APPROVED AND ADOPTED on this 14th day of September, 2021 by the following roll-call vote:

AYES: Directors Pierucci, Selvidge, Unruh, Millwee and Watts
NOES:
ABSENT:
ABSTAINED:

ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT

President/Board of Directors

ATTEST:

Secretary/Board of Directors

Appendix A – Project Summary Matrix

ROSEDALE -RIO BRAVO WATER STORAGE DISTRICT
PROJECT EVALUATION MATRIX

Component	Status		Financial						Implementation Complexity (Out of 10)
	Stage	Time to Full Implementation (Yrs)	Capital Cost	Annual Capital Cost	Annual O&M Cost	Total Annual Cost	Annual Water Benefit (AF)	Water Cost ($/AF)	
Kern River Intake	Complete		$ 720,000	$ 44,202	$ 14,400	$ 58,602	5,544	$ 8	3
Houghton Weir	Construction	<1	$ 1,050,000	$ 64,461	$ 21,000	$ 85,461	5,544	$ 12	5
Kern River - CVC Intake	Feasibility	2-5	$ 656,250	$ 40,288	$ 13,125	$ 53,413	2,772	$ 15	5
Nord Road Crossing Improvement	Complete		$ 500,000	$ 30,696	$ 10,000	$ 40,696	1,109	$ 28	3
West Basin Improvements	Complete		$ 300,000	$ 22,080	$ 9,000	$ 31,080	980	$ 32	2
Grimmway Ponds	Complete	<1	$ 450,000	$ 33,120	$ 40,500	$ 73,620	1,084	$ 68	2
Superior East 40 Acre Recharge Pond	Complete		$ 1,320,000	$ 97,152	$ 19,800	$ 116,952	880	$ 133	2
Stockdale East	Complete		$ 10,200,000	$ 750,720	$ 306,000	$ 1,056,720	4,158	$ 254	4
Fish Friendly Screens	Feasibility / Pilot project	7-10	$ 5,000,000	$ 306,958	$ 50,000	$ 356,958	1,000	$ 357	7
McCaslin/Bowling Recharge and Recovery	Design	1-2	$ 12,780,000	$ 940,608	$ 191,700	$ 1,132,308	2,898	$ 391	2
Onyx Ranch	Coordination	<1	$ 33,000,000	$ 1,864,000	$ 450,000	$ 2,314,000	6,000	$ 386	7
Palo Verde	Feasibility	7-10	$ 5,000,000	$ 306,958	$ 150,000	$ 456,958	1,000	$ 457	4
Western Service Area	Design	2-3	$ 5,080,000	$ 373,888	$ 152,400	$ 526,288	1,126	$ 467	3
Clifton Court Property	Feasibility	3-5	$ 8,000,000	$ 491,132	$ 240,000	$ 731,132	1,540	$ 475	5
BDCP	Environmental / Design	10-15				$ 3,000,000	5,980	$ 502	7
James R&R Project	Environmental	2-5	$ 15,750,000	$ 1,159,200	$ 472,500	$ 1,631,700	2,970	$ 549	6
Kern Fan Project	Design	2-4	$ 75,000,000	$ 5,520,000	$ 2,250,000	$ 7,770,000	9,960	$ 780	5
Sites	Environmental / Design	9-10	$ 9,706,000	$ 595,866	$ 98,000	$ 693,866	500	$ 1,388	7
Delta Wetlands	Feasibility	5-7	$ 19,175,000	$ 1,411,280	$ 575,250	$ 1,986,530	1,250	$ 1,589	7
			$ 203,687,250	**$ 14,052,609**	**$ 5,063,675**	**$ 22,116,284**	**56,294**	**$ 415**	

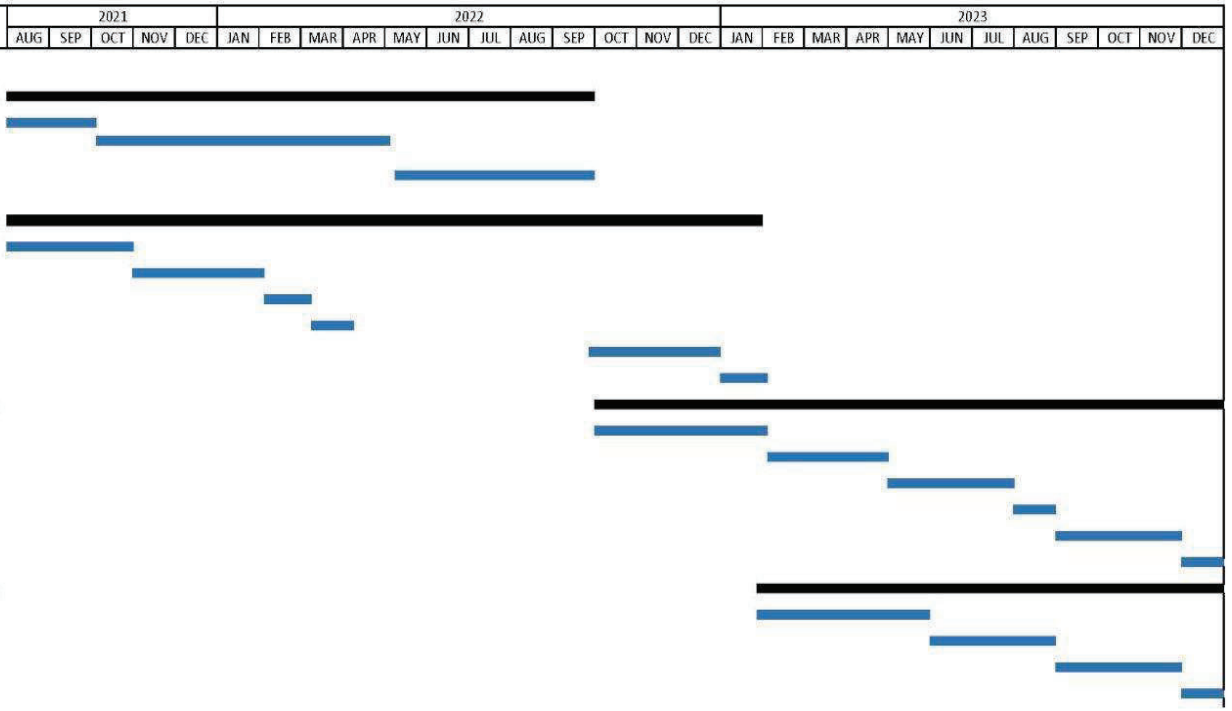
1. Scores represent level of effort required on a scale from 1 to 10, with 1 being easy and 10 being nearly impossible. Therefore, the lowest scores are the most likely to succeed and should receive the highest priority. Each category score is out of a possible 100.
2. Scores shown for CEQA represent level of effort for project implemented alone, not in combination with other projects. Final CEQA effort will be aggregate. Each level is multiplied times a difficulty factor
Sorted by $/AF

2021-09-29 fac. RRB Project Evaluation

Appendix B – Preliminary Project Schedule

Project: 2022 WaterSMART Schedule
Date: 10/2021

Task Name	Duration	Start	Finish
GROUNDWATER BANKING RECOVERY PROJECT			
USBR Grant Process	**304**	**08/01/21**	**09/30/22**
Grant Preparation	65	08/01/21	10/05/21
Award	180	10/05/21	04/03/22
Contracting	180	04/03/22	09/30/22
Environmental and Regulatory	**390**	**08/01/21**	**01/29/23**
Environmental Studies	90	08/01/21	10/30/21
Reports	90	10/30/21	01/28/22
CEQA Initial Study and Determination	30	01/28/22	02/27/22
CEQA Adoption	30	02/27/22	03/29/22
NEPA Environmental Assessment and Determination	90	10/01/22	12/30/22
NEPA Adoption	30	12/30/22	01/29/23
Well Drilling and Equipping	**450**	**10/01/22**	**12/25/23**
Design and Specifications	120	10/01/22	01/29/23
Procurement	90	01/29/23	04/29/23
Drilling	90	04/29/23	07/28/23
Pump Testing	30	07/28/23	08/27/23
Equipping	90	08/27/23	11/25/23
Inspection and Testing	30	11/25/23	12/25/23
Conveyance Facilities and Integrated Pest Management Project	**330**	**02/01/23**	**12/28/23**
Design and Specifications	90	02/01/23	05/02/23
Procurement	120	05/02/23	08/30/23
Installation	90	08/30/23	11/28/23
Inspection and Testing	30	11/28/23	12/28/23



Appendix C – Budget Backup

ROSEDALE RIO-BRAVO WATER STORAGE DISTRICT
McCaslin / Bowling Recovery Project Cost Estimate

PRELIMINARY COST ESTIMATE - CONVEYANCE

ITEM NO.	DESCRIPTION	UNIT PRICE	ESTIMATED QUANTITY	UNIT	TOTAL PRICE	COMMENTS
1	Mobilization/Demoblization	$25,000.00	1	L.S.	$25,000	Estimate
2	Develop Water Supply	$10,000.00	1	L.S.	$10,000	Estimate
3	SWPPP and PM-10 Compliance	$5,000.00	1	L.S.	$5,000	Estimate
4	Clearing and Grubbing	$1,200.00	27	ACRE	$32,400	Estimate
5	F&I 15" PVC Recovery Pipeline	$72.00	3,000.0	LF	$216,000	Estimate
6	F&I 27" PVC Recovery Pipeline	$115.00	4,015	LF	$461,725	Estimate
7	F&I 30" PVC Recovery Pipeline	$133.00	700	LF	$93,100	Estimate
8	Appurtances (45°, 90°, T's, Thrust Blocks, etc.)	$40,000.00	1	L.S.	$40,000	Estimate
9	Fresno Air Valves	$5,000.00	10	EA	$50,000	Estimate
10	Tie in to Rosedale Turnout No. 1	$20,000.00	1	L.S.	$20,000	Estimate
Goose Lake Channel Surface Water Tie-in						
11	F&I 27" BFV (8500 Grayline Valve w/SST)	$25,000.00	1	L.S.	$25,000	Estimate (30"
12	F&I 27" Appurtances (90° and Tee)	$10,000.00	1	L.S.	$10,000	Estimate
			SUBTOTAL		**$988,225**	
					$36,600.93	/acre
	Bond Costs		3	%	$29,647	
			SUBTOTAL		**$1,054,473**	
	Construction Staking and Testing		3	%	$31,634	
			SUBTOTAL		**$1,086,107**	
	Contingency		10	%	$105,447	
			SUBTOTAL		**$1,191,554**	
	Engineering, etc. (8%)		8	%	$84,358	
	TOTAL AMOUNT				**$1,275,912**	

PROJECT: ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT Date: 9/21/2021
Feature: Well Drilling
DRAFT-Preliminary

Item No.	Item Description	Quantity	Unit	Unit Price	Extension	
1.	Well Move-In, Move-Out, and Clean-up	1	EA	$ 15,000.00	$ 15,000.00	
2.	Drill Hole to 42-inch min. Diameter for Conductor Pipe	50	LF	$ 200.00	$ 10,000.00	
3.	Furnish, Install and Grout 36-inch Diameter Conductor Pipe	50	LF	$ 300.00	$ 15,000.00	
4.	Drill Pilot Hole to 18-inch max. Diameter	800	LF	$ 40.00	$ 32,000.00	
5.	Perfom E-log of Well	1	EA	$ 6,121.43	$ 6,121.43	
6.	Perform Caliper Log of Well	1	EA	$ 1,850.00	$ 1,850.00	
7.	Ream Pilot Hole to 32-inch min. Diameter (for 20" casing)	730	LF	$ 40.00	$ 29,200.00	
8.	Furnish and Install 20-inch Diameter HSLA - Corten Unperforated Well Casing	350	LF	$ 244.53	$ 85,585.50	
9.	Furnish and Install 20-inch Diameter HSLA - Corten Perforated Well Casing, Roscoe Moss Fulflo, 0.090"	450	LF	$ 336.41	$ 151,384.50	
10.	Furnish and Install Gravel Envelope	640	LF	$ 30.00	$ 19,200.00	
11.	Placement of Cement Grout Annular Seal	300	LF	$ 50.00	$ 15,000.00	
12.	Furnish and Install 3" Gravel Tube	315	LF	$ 10.79	$ 3,398.85	
13.	Furnish and Install 3" Air Vent Pipe	1	EA	$ 500.00	$ 500.00	
14.	Furnish and Install 3" Sounding Tube/Camera Port	490	LF	$ 33.16	$ 16,248.40	
15.	Swab and Airlift Well	48	HR	$ 350.00	$ 16,800.00	
16.	Develop Well - Pumping and Surging	60	HR	$ 300.00	$ 18,000.00	
17.	Test Pump of Well - Step-Drawdown and Continuous	36	HR	$ 300.00	$ 10,800.00	
18.	Video Log of Well	1	EA	$ 1,679.00	$ 1,679.00	
19.	Alignment/Deviation Survey	1	EA	$ 2,000.00	$ 2,000.00	
20.	Gyroscopic Survey	1	EA	$ 2,000.00	$ 2,000.00	
21.	Dynamic Flow Meter Survey	1	EA	$ 4,221.43	$ 4,221.43	
22.	Chemical Development	450	LF	$ 5.00	$ 2,250.00	
23.	Well Disinfection and Capping	1	EA	$ 1,000.00	$ 1,000.00	
					SUBTOTAL:	**$ 459,239.11**
24.	Contingency	15	%		$ 68,885.87	
					Total Construction Items:	**$ 528,124.98**
					3 wells	**$ 1,584,374.93**
25.	Design Engineering:	1	LS	$ 100,000.00	$ 100,000.00	
26.	Construction Testing:	1.5	%	$ 7,921.87	$ 8,000.00	
27.	Construction Assistance:	1	LS	$ 22,800.00	$ 23,000.00	
					Subtotal Engineering Items:	**$ 131,000.00**
					Total Drilling Costs (3 wells)	**$ 1,715,374.93**

PROJECT: ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT Date: 9/21/2021
Feature: Well Equipping
DRAFT-Preliminary

Item No.	Item Description	Quantity	Unit	Unit Price	Extension	
1.	Well pad excavation and compaction	400	CY	$ 10.00	$ 4,000.00	
2.	12' x 12' Pedestal-styule Concrete Pump Foundation	1	EA	$ 7,500.00	$ 7,500.00	
3.	Furnish and install 350 HP Well Pumping Unit with Electric Motor	1	EA	$ 37,041.00	$ 37,041.00	
4.	Furnish and Install 12-Inch Steel Column Tube and Shaft	500	LF	$ 100.00	$ 50,000.00	
5.	Furnish and Install Vertical Turbine Pumping Unit	1	EA	$ 43,073.00	$ 43,073.00	
6.	Furnish and Install Suction Extension	1	EA	$ 1,250.00	$ 1,250.00	
7.	Furnish and Install 12-inch steel discharge piping assembly, complete with valves, flowmeters, airvents coup	1	EA	$ 27,405.00	$ 27,405.00	
8.	Furnish and install panel shade structure	1	EA	$ 8,500.00	$ 8,500.00	
9.	furnish and install panel security structure	1	EA	$ 1,500.00	$ 1,500.00	
10.	Furnish and Install Well Enclosure	1	EA	$ 19,130.00	$ 19,130.00	
11.	Furnish and install electrical service (via pad mount transformer), metering panel, VFD control panel, instrun	1	EA	$ 125,000.00	$ 125,000.00	
					$ -	
					SUBTOTAL:	**$ 324,399.00**
		15	%		$ 48,659.85	
12.	Contingency:				Total Construction Items:	**$ 373,058.85**
					3 wells	**$ 1,119,176.55**
13.	Design Engineering:	1	LS	$ 50,000.00	$ 50,000.00	
14.	Construction Testing:	1.5	%	$ 5,595.88	$ 6,000.00	
15.	Construction Assistance:	1	LS	$ 22,800.00	$ 23,000.00	
					Subtotal Engineering Items:	**$ 79,000.00**
					Total Equipping Costs (3 wells)	**$ 1,198,176.55**

Appendix D – Integrated Pest Management Project

TO: File
FROM: Rachelle Echeveria
DATE: October 1, 2021
RE: Tech Memo – Integrated Pest Management Project

The Integrated Pest Management Project ("Project") seeks to install 10 Barn Owl boxes around the McCaslin and Bowling recharge banking areas. The purpose of the Project is to provide a safe and suitable habitat for owl nesting, while also providing rodent control for the surrounding agricultural fields and to prevent recharge pond berm failure that result in financial damages and loss of critical groundwater recharge activities.

A family of Barn Owls can consume thousands of rodents during a season, offering a natural alternative to rodenticides that are damaging to wildlife and the surrounding environment. Barn Owls are often found in and near agricultural fields and often nest in cavities such as holes in trees, burrows, and often human-made structures. The addition of Barn Owl boxes dispersed across the McCaslin and Bowling recharge banking areas approximately 270 acres in total) will greatly benefit the surrounding owl population, as Barn Owl habitats are often threatened by changes in agricultural fields.

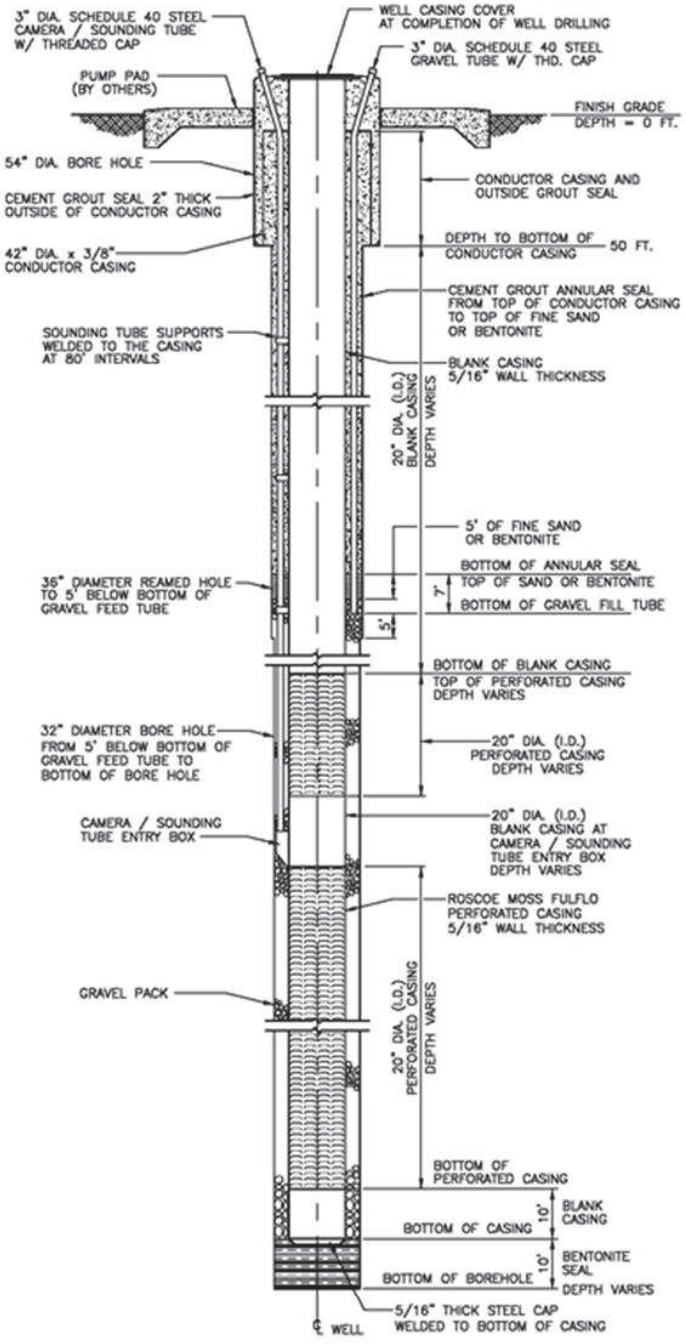
Implementing the Integrated Pest Management Project will achieve the following goals:

1. Help Barn Owls thrive by increasing the number of safe barn owl boxes deployed in the landscape and maintain them for future use
2. Lead to a reduction in harmful pesticide use
3. Build mutually beneficial relationships with the agricultural industry
4. Advance sustainability living in partnership with wildlife

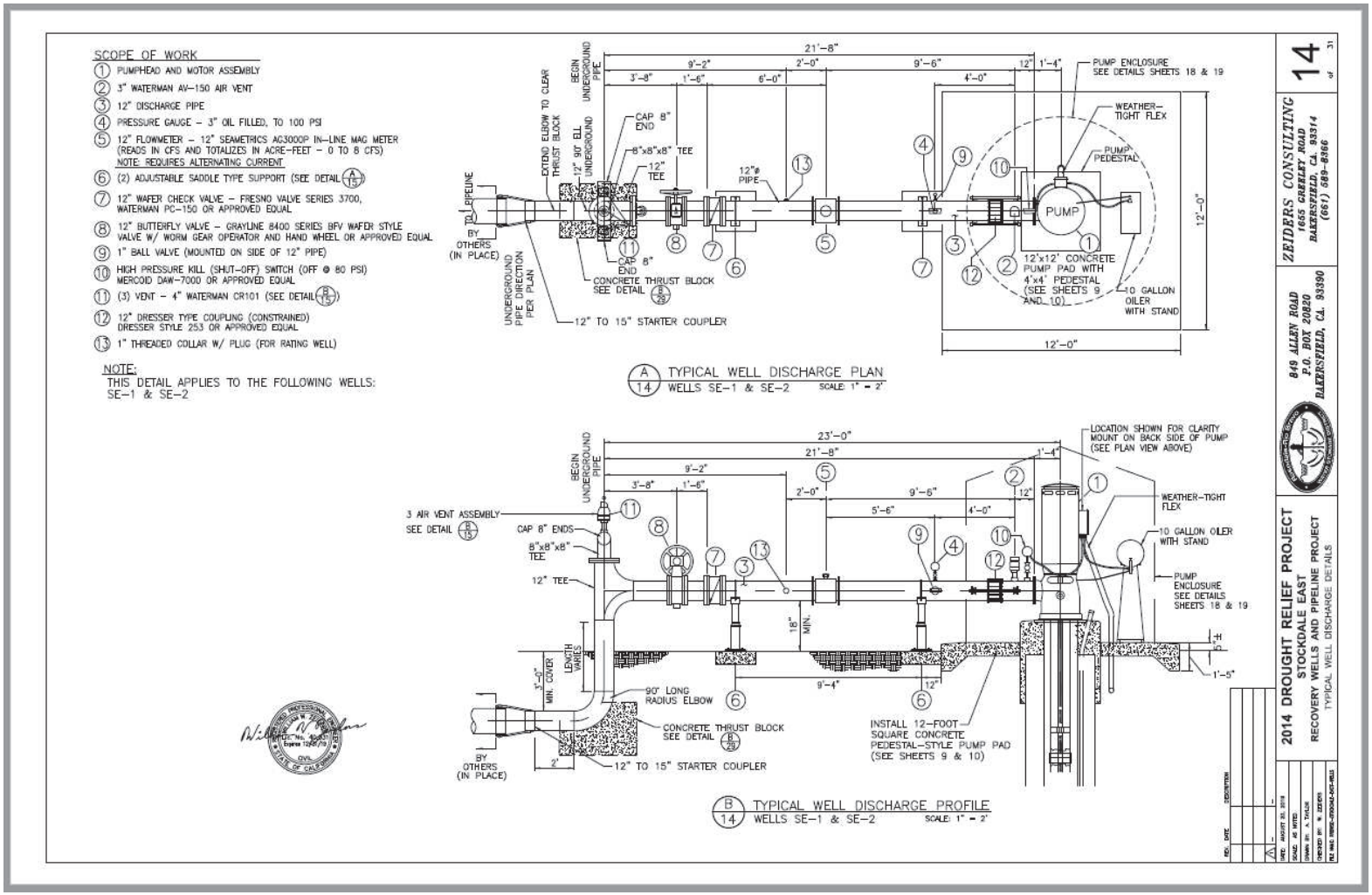
ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT

Item		Budget Item Description	$/Unit	Unit	QTY	Costs Prior
1		*Equipment*				
	a	Barn Owl Box/Pole	500	EA	10	5,000.00
	b	Barn Owl Box/Pole Installation	500	EA	10	5,000.00
	c			EA	1	0.00
	d			EA	1	0.00
	e			EA	1	0.00
	f			EA	1	0.00
2		*Contractual / Construction*				
	a			LS	1	0.00
	b			EA	1	0.00
					$	10,000.00

Appendix E – Typical Well Design Example



Appendix F – Well Equipping Layout



Appendix G – Rosedale SGMA Plan Fact Sheet

1. **SUSTAINABILITY GOAL**

The shortfall identified below is based upon projected water supplies over the implementation period(s). Rosedale has developed projects which generate over 27,000 AF of new water which will provide a balanced water supply for the Rosedale District by 2020. The Whiteland area will be balanced by 2040.

Sustainable Yield		
District		
Native Yield	= 0.15 AF/Acre	6,268 AF
Precipitation	0.48 AF/Acre	= 19,854 AF
Project Water		70,315 AF
Demand (ITRC)		102,782 AF
Balance		**- 6,345 AF**
White Land		
Native Yield	= 0.15 AF/Acre	1,022 AF
Precipitation	0.48 AF/Acre	= 2,784 AF
Project Water		2,165 AF
Demand (ITRC)		10,307 AF
Balance		**- 4,335 AF**

2. **PROJECTS, MANAGEMENT ACTIONS & GLIDE PATH**

2020 Projects.

It is estimated that approximately **5,000 AFY** of additional supply could be developed by 2020 by the **West Basin Improvements** (60 acres) and **Stockdale East** (200 acres recharge expansion projects. Total capital costs are approximately $13.2M and annual O&M costs are approximately $386,000. Total annualized cost is $1,341,000 or $268/AF (plus water cost .

2025 Projects.

It is estimated that approximately **11,500 AFY** could be on-line by 2025 through the implementation of **Recharge Pilot Projects**, **James Groundwater Storage Project**, and the **Onyx Project**. Total capital costs are approximately $38.8M and annual O&M costs are approximately $753,000. Total annualized cost is $3,223,000 or $280/AF (plus water cost for direct recharge projects).

2030 Projects.

It is estimated that another potential **10,000 AFY** is in development and could be on-line by 2030 through the implementation of the **Kern Fan Project**. Total capital costs are approximately $45M and annual O&M costs are approximately $1,350,000. Total annualized cost is $4,700,000 or $468/AF (plus water cost).

2035 Projects.

It is estimated that another potential **1,000 AFY** is in project development and could be on-line by 2035 (**Western Rosedale In-Lieu Service Area**). Total capital cost was approximately $5,100,000 and annual O&M costs are approximately $152,000. Total annualized cost is $526,000 or $467/AF (plus water cost)

2020 Management Actions.

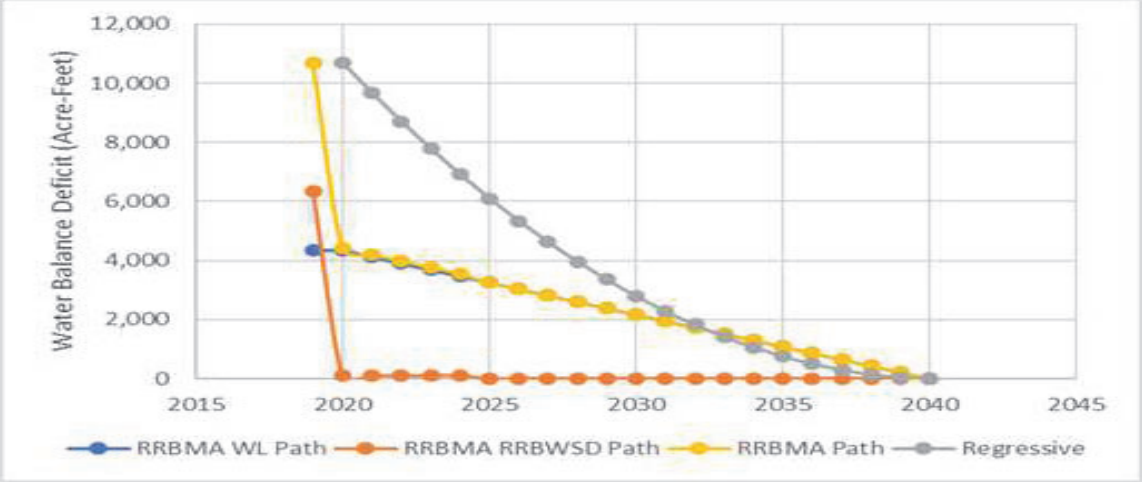
It is estimated that the **RRBWL demand reductions** will result in approximately 217 AFY of demand reduction starting in 2020. This approach would result in an imbalance reduction of **2,167 AFY** by 2030. **3rd party recharge and storage program** will result in approximately **1,250 AFY** of new supplies for the RRBMA starting in 2020.

2025 Management Actions.

It is estimated that the District demand reduction **Water Charge** could result in approximately **4,000 AFY** starting by 2025.

Glide Path

"The RRBMA has a projected a potential long-term water supply deficiency of about 10,680 AFY. The RRBMA seeks to eliminate that shortage over the next 20 years in a regressive fashion (aggressive in first 10 years) by a combination of projects and water management actions.



3. MINIMUM THRESHOLDS & MEASURABLE OBJECTIVES

Levels

Measurable Objective Depth = 148-248 ft. Minimum Threshold Depth = 256-329 ft.

Basis is the deepest levels experienced in 2012-2016 Drought.

"To the extent that further water level declines are experienced, additional reinvestment in groundwater facilities would be required and additional energy costs would be incurred, which would be deemed an undesirable result. Financial impact of a threshold scenarios of 0, 25, 50, 75, and 100 ft deeper than 2016 levels ($0M, $372M, $640M, $661M, $675M)

Quality

"The measurable objective will be any applicable beneficial use COC value that is less than the MCL and a value increase less than 10% of the 2015-2020 value. An Undesirable Result will exist if any applicable beneficial use COC value that is greater than the current MCL and value increase of greater than 10% from the 2015-2020 value."

Appendix H – SF-424C Budget Information

View Burden Statement

OMB Number: 4040-0008
Expiration Date: 02/28/2022

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	$	$	$
2. Land, structures, rights-of-way, appraisals, etc.	$	$	$
3. Relocation expenses and payments	$	$	$
4. Architectural and engineering fees	$ 325,992.00	$	$ 325,992.00
5. Other architectural and engineering fees	$	$	$
6. Project inspection fees	$	$	$
7. Site work	$	$	$
8. Demolition and removal	$	$	$
9. Construction	$ 3,926,870.00	$	$ 3,926,870.00
10. Equipment	$	$	$
11. Miscellaneous	$ 90,000.00	$	$ 90,000.00
12. SUBTOTAL *(sum of lines 1-11)*	$ 4,342,862.00	$	$ 4,342,862.00
13. Contingencies	$	$	$
14. SUBTOTAL	$ 4,342,862.00	$	$ 4,342,862.00
15. Project (program) income	$	$	$
16. TOTAL PROJECT COSTS *(subtract #15 from #14)*	$ 4,342,862.00	$	$ 4,342,862.00

FEDERAL FUNDING		
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible costs from line 16c Multiply X 46 %	$ 1,997,716.52

Appendix I – Biota Report

Appendix J – Cultural Report