



August  
2020

WaterSMART Drought Response Program  
Funding Opportunity No. BOR-DO-20-F002

# Semitropic Enhanced Recharge and Recovery Project

Funding Group II



Southern San Joaquin Valley, California

**Applicant: Semitropic Water Storage District • 1101 Central Ave.,  
PO Box 8043 • Wasco, CA 93280**

# Table of Contents

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SF 424 APPLICATION FOR FEDERAL ASSISTANCE .....	I
SF 424 BUDGET INFORMATION- CONSTRUCTION PROGRAMS .....	IV
SF 424 ASSURANCES- CONSTRUCTION PROGRAMS.....	V
TABLE OF CONTENTS.....	I
<b>1. TECHNICAL PROPOSAL.....</b>	<b>1</b>
1.1 EXECUTIVE SUMMARY .....	1
1.1.1 <i>Background Data</i> .....	2
1.2 PROJECT LOCATION.....	5
1.3 TECHNICAL PROJECT DESCRIPTION .....	5
1.3.1 <i>Tasks and Project Work</i> .....	7
1.4 PERFORMANCE MEASURE.....	9
1.5 EVALUATION CRITERIA .....	10
1.5.1 <i>Evaluation Criterion A: Project Benefits</i> .....	10
1.5.2 <i>Evaluation Criterion B: Drought Planning and Preparedness</i> .....	13
1.5.3 <i>Evaluation Criterion C: Severity of Actual or Potential Drought Impacts to be addressed by the Project</i> 14	
1.5.4 <i>Evaluation Criterion D: Project Implementation</i> .....	16
1.5.5 <i>Evaluation Criterion E: Nexus to Reclamation</i> .....	17
1.5.6 <i>Evaluation Criterion F: Department of Interior Priorities</i> .....	17
<b>2. PROJECT BUDGET.....</b>	<b>21</b>
2.1 FUNDING PLAN AND LETTERS OF COMMITMENT .....	21
2.2 BUDGET PROPOSAL.....	21
2.3 BUDGET NARRATIVE.....	23
<b>3. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE .....</b>	<b>39</b>
<b>4. REQUIRED PERMITS OR APPROVALS.....</b>	<b>41</b>
<b>5. EXISTING DROUGHT CONTINGENCY PLAN .....</b>	<b>42</b>
<b>6. OFFICIAL BOARD RESOLUTION.....</b>	<b>43</b>
<b>7. SYSTEM OF AWARD MANAGEMENT (SAM) AND ASAP REGISTRATION.....</b>	<b>46</b>
<b>APPENDIX A– PRELIMINARY DESIGN DOCUMENTATION.....</b>	<b>1</b>
<b>APPENDIX B – SUBSURFACE RECHARGE MEMO .....</b>	<b>2</b>
<b>APPENDIX C – CONSTRUCTION ESTIMATES.....</b>	<b>3</b>
<b>APPENDIX D – DROUGHT PLAN MEMO .....</b>	<b>4</b>
<b>APPENDIX E – LETTER OF SUPPORT .....</b>	<b>5</b>

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## 1. Technical Proposal

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### 1.1 Executive Summary

Semitropic Water Storage District (Semitropic, District, or SWSD) proposes a cost-shared project with the U.S. Bureau of Reclamation (Reclamation, USBR). The *Semitropic Enhanced Recharge and Recovery Project* (Project) proposes drought resiliency for in-District and external users by constructing two subsurface recharge sites. The first 100-acre site will be equipped with a filtration system, metered connection to record deliveries to the site, buried infiltration gallery of perforated pipe, dedicated monitoring system to record performance of the project and a shallow recovery well. The second 115-acre site will have the same components but will not need construction of a shallow recovery well as recovery will be through an existing well. While the first 100-acre site is in a preliminary design phase, the second 115-acre site is in the planning phase and still requires final site selection to complete other Project components such as land and final design.

In comparison to traditional recharge basins, subsurface will increase the District's recharge capacity without loss to prime farmland or evaporation. The Project allows the District to store or "bank" water in the District's facilities through recharge during wet years and subsequent return of supply during dry years or drought conditions. Project would be for banking of wet year supplies for the benefit primarily of District landowner's and/or Banking Partners. Banking Partners consist of water users outside of the Semitropic district boundary. For drought resiliency, this Project provides Semitropic the means to effectively recharge surface water supplies for in-district use as well as add additional capacity for recovery. Total Project costs equate to \$3,193,717. Of this total, \$1,500,000 is requested as Federal funding.

**Table 1-1. Project and Applicant Information**

Project Information	
Date	August 5, 2020
Project Name	Semitropic Enhanced Recharge and Recovery Project
Expected Completion	32 to 36 months (December 2023)
Near a Federal Facility?	Yes
Applicant Information	
Name	Jason Gianquinto
Title	General Manager, Semitropic Water Storage District
Telephone	(661) 758-5113
E-mail Address	mail@semitropic.com
City, County, State	Wasco, Kern, California

In a coordinated effort with the Poso Creek Integrated Regional Water Management (IRWM) Group to improve the Region and District's capabilities to absorb available surface water supply, Semitropic has and continues to participate in improvements to their conjunctive use facilities. Through IRWM planning, the District has also developed interregional and district level projects to support water supply reliability and resiliency in the Region. Additionally, in compliance with California's Sustainable Groundwater Management Act (SGMA) the District developed a Groundwater Sustainability Plan (GSP) to evaluate groundwater conditions and supply vulnerabilities to achieve groundwater sustainability by 2040. The proposed project is a listed

project/management action in the GSP; thus, implementation of this project will support SGMA efforts. Since IRWM and SGMA planning projects overlap, implementation of the proposed Project supports the goals and objectives of both the Poso Creek IRWM and SGMA planning efforts in the Kern County Subbasin. Currently, the District relies upon in-lieu recharge as the primary method of recharge operations within the district, which is dependent upon farming operation whereby irrigation of the surface via groundwater well is replaced with a surface water supply. However, with subsurface recharge, the Project would provide a means to conduct recharge operations in concert with farming operations. Added recharge capacity will help alleviate drought vulnerabilities in the region and assist in the preservation of groundwater levels. These subsurface recharge sites will recharge approximately 61,920 acre-feet (AF) of surface water over 10 years. The proposed Project and benefits are classified under Task A: *Increasing the Reliability of Water Supplies through Infrastructure Improvements* and Task B: *Project to Improve Water Management*. Improving the District's infrastructure by constructing a subsurface recharge site and recovery well will enhance the District's physical capability to recharge water year-round for later recovery during critically dry years when surface water is limited/unavailable. The Project is estimated to provide the following annual and 10-year estimated benefits.

**Table 1-1. Estimated Benefits**

	Estimate Annual Benefits (AFY)	10-Year Benefits (AF)
Est. Additional Water/ Water Better managed	6,192	61,920
<b>Total Additional Water Available</b>	<b>6,192</b>	<b>61,920</b>

### **1.1.1 Background Data**

Established in 1958, SWSD is a public agency that supplies surface water from the State Water Project (SWP) and groundwater to agricultural customers. The following subsections provide context for the proposed Project by briefly describing District water supplies and uses, as well as its water delivery system. In addition, past working relationships with Reclamation are summarized. All figures referenced in the Technical Proposal are included immediately following Section 1.5.6.

#### **1.1.1.1 Major Crops and Total Acres Served**

Regarding crop patterns, approximately 125,300 acres of the District (approx. 56 percent of the total 222,560-acre District area) are currently irrigated, including acreage outside of the service area but within the District boundary. Permanent crops, primarily nut trees such as almonds and pistachios, account for around 67 percent of the crops planted in the District. Following these, the most abundant crops are alfalfa and other grains/pasture, which are approximately 23,880 acres. Crop makeup of the District is largely the conversion of annual crops to high value permanent crops during the last several decades, at an average annual rate of approximately 600 acres.

#### **1.1.1.2 Primary Water Supplies and Sources**

Semitropic's principal source of surface water is the SWP, which is diverted from the California Aqueduct to various intake canals/infrastructure to landowners. The District supplements deliveries with the Kern River, Central Valley Project (CVP) via the Friant-Kern Canal (FKC) with water moved to the District via CVP contractors and water delivered to the District as part of their Groundwater Banking Program. The average annual water demand for the District is

approximately 320,000 to 405,000 acre-feet per year (AFY) (average of 362,500 AFY) for developed agricultural lands based on annual cropping patterns. As a result of highly variable water supply, Semitropic has developed a groundwater banking and recovery program to utilize available groundwater storage capacity and regulate significant wet-year water supplies.

**Water Delivery System:** The District's canal and pipeline distribution systems were completed in 1973. Additional features and enlargements (e.g., pumping stations, canal check structures, and spreading basins) were constructed and expanded, increasing the ability to deliver supplemental surface water supplies to agricultural water users. The current distribution system and service area consists of multiple turnouts from the California Aqueduct; intake canals such as the Pond-Poso Canal System and Buttonwillow Ridge Canal System; three spillway basins; pump stations and discharge pipelines; a large irrigation distribution system consisting of canals and lateral pipelines of various sizes and capacities; approximately 36 deep groundwater wells; and the Pond Poso Spreading Grounds (525-acre capacity recharge facility). Current distribution system can deliver approximately 350,000 AFY to landowners in the piped distribution system that also serves the in-lieu banking service areas. Lands within the District but outside the surface water (primary) service area depend exclusively on pumped groundwater for their irrigation supply. On occasion, typically in particularly wet years, the District can deliver surface water supplies to these areas. The District receives SWP water at the California Aqueduct, which water is diverted from direct turnouts for District purposes. Water provided to the District for groundwater banking purposes from SWP contractors is also delivered to the District using the same infrastructure. Water returned to the Aqueduct as part of the Banking Program is conveyed to the District through the nearby Beardsley and Lerdo canals, under an agreement with the Kern County Water Agency (KCWA) and neighboring districts. Occasionally, there are differences in hydrology between the SWP, Kern River, and CVP that create opportunities for exchanges based on the use of intertie infrastructure between districts. The District relies on the storage and recovery of groundwater from year-to-year regulation which is required to manage variations in the District's surface water supplies, as well as being the primary mechanism for supporting the Groundwater Banking Program. The primary recharge basin, the Pond-Poso Spreading Grounds, is directly connected to the Pond-Poso Canal System. The District does not have access to storage in a large external reservoir (such as nearby Lake Isabella) to regulate seasonal or year-to-year water supplies.

#### **1.1.1.3 Water Use**

The District was formed under Provisions 13 of the California Water Commission (CWC) for the purpose of providing supplemental or partial water supplies for agricultural water uses. The active supply of other water uses by the District is limited, including recreational; municipal and industrial; and environmental. Regarding in-district uses, when surface water supplies that are surplus to immediate irrigation requirements are available, the District will dedicate them for direct groundwater recharge at the Pond-Poso Spreading Ponds (Facilities). In this regard, the District makes use of over 500 acres of direct recharge ponds connected to their conveyance network. In addition, the District will recharge and store water outside of the immediate area through participation in external groundwater banking projects located on the Kern River fan. Annual volumes dedicated to recharge are relatively modest or non-existent in dry years, however, during particularly wet years recharge using the Facilities can be over 18,000 AF/year. Note that the groundwater recharge referenced does not include Banking Program supplies. As previously stated, demand to support agricultural productions is approximately 362,500 AFY. Water from on-farm (or private) groundwater wells is pumped either to meet necessary water requirements for irrigated



lands, for transfer to other landowner locations across the District, or for supplies in support of the Groundwater Banking Program. Based on water budgets developed under SGMA, average groundwater pumping for local agricultural demand is approximately 157,000 AFY. This equates to approximately 43 percent of the average annual total 362,500 AF of demand. Future allocations from the State Water Project are anticipated as 60 percent of SWP water supplies for Semitropic (KGA, 2019). Shortages in SWP supplies are occurring more frequently and are larger than originally envisioned, mainly due to regulatory restrictions on exports from the Bay-Delta. Based on climate change projections, there will be increased demands for irrigation water which, with reduced surface water deliveries, would be met by an increased reliance on groundwater.

#### 1.1.1.4 Regional Climate

The District's surface water supply is currently dictated by changes in the volume, nature, and timing of precipitation in the Sierra Nevada Mountains following the climate conditions noted above and similar state-wide hydrological considerations for SWP water supplies. Regarding these supplies and an anticipated changing climate, several investigations have been conducted by the USGS California Water Science Center (CAWSC) regarding the hydrological effects of typical climate change scenarios. Each of these investigations predict that California's climate will become warmer (+2 to +4° C) and drier (10 to 15 percent) during the mid- to late-21st century, relative to historical conditions. If these predictions materialize, the level of runoff from the Sierra Nevada Mountains, and thus the Kern River Watershed, is expected to be much less reliable with quantities presumably declining over time limiting Kern River and CVP supplies. Similar projections are expected for SWP watershed sources and reliability predictions (Chung et al. 2009). Reduced surface water deliveries to the District, as well as for other regional districts and agencies, which can be dedicated for agricultural uses, combined with increased demands for irrigation water due to the increasingly warmer, drier climate, will result in increased use of groundwater resources, the impacts of which could include the following: reduced base flow in streams; reduced groundwater outflows; increased depths to groundwater, and increased land subsidence.

#### 1.1.1.5 Prior Working Relationships with USBR

Examples of the District's working relationships with the USBR are provided in the table below.

Year	USBR Grant Program	Project Name/Description
Various	Warren Act Contracts	Contracts with neighboring CVP surface Water Contractors in Kern and Tulare Counties
2007	USBR-sponsored groundwater storage and recovery in District	Semitropic Stored Water Recovery Unit Special Study Report
2008	WaterSMART	System Optimization Review – Environmental Assessment for Poso Creek IRWM Region
2009	“Water for America” Challenge Grant	Water Management and Measurement for Return of Stored Water
2009	ARRA-Funded Grant	Pond-Poso Spreading and Recovery Facility
2009	ARRA-Funded Grant	Antelope Valley Water Bank Initial Recharge and Recovery Facility Improvement Project

2010	WaterSMART	Groundwater Banking Improvements in Kern County
2011	WaterSMART AgWUE	Water Use Efficiency and Energy Improvements for SWSD and Growers
2013	WaterSMART	Madera Avenue Intertie Project
2015	WaterSMART DRP	Groundwater Well Extraction Improvements for Return of Stored Water
2015	WaterSMART AgWUE	Groundwater Well Operational Data Acquisition and Solar Power Project
2016	WaterSMART AgWUE	Groundwater Well Operational Data Acquisition and Lateral Canal Lining Project
2016	WaterSMART DRP	Groundwater Well Extraction Improvements for Return of Stored Water
2017	WaterSMART AgWUE	SWSD and SWID Groundwater Recharge Intertie Project
2017	WaterSMART DRP	Drought Contingency Plan for the Poso Creek IRWM Plan Region
2019	WaterSMART DRP	Cox Canal Pumping Plant and Intertie
2019	WaterSMART AgWUE	B369 System Extension Project

## 1.2 Project Location

The location of the District, and the approximate Project location, shown in Figure 1, is in the north-central portion of Kern County in the Southern San Joaquin Valley of California. The District actively supplies a service area of approximately 222,560 acres, with approximately 125,300 acres as irrigated lands (approximately 56 percent of the District). At its greatest extent, the District's service area is approximately 19 miles wide (east-west) and 27 miles long (north-south).

## 1.3 Technical Project Description

The proposed Project is to construct two separate subsurface recharge sites equipped with a filtration system, a metered connection to record deliveries to the site, a buried infiltration gallery of perforated pipe, and a dedicated monitoring system to record performance of the project. Additionally, the initial 100-acre site will include construction of a shallow recovery well, while the second 115-acre site will be chosen in close proximity to an existing recovery well. While the first 100-acre site is in a preliminary design phase, the second 115-acre site is in the planning phase and still requires final site selection to complete other Project components.

For the initial 100-acre site, two new District's turnouts will be constructed to convey District water to the subsurface recharge site. Water will be delivered to the earthen reservoir for initial settling and holding before being run through sand media filters prior to introduction to the infiltration gallery, which consists of a network of pipelines perforated and buried 10-12 feet coming off-of the filtration system. Infiltration gallery includes a main line with sub-laterals spanning the entire parcel, with water being recharged at a rate of 5,500 gallons per minute (gpm). Overall design concept for both sites can be seen in Figure 2, while a more site-specific preliminary design layout for the initial 100-acre site is provided in Appendix A. The initial 100-acre project

site is located on the northern edge of the District's boundary and is on the tail-end of their delivery system. As such, the District can recharge available water supplies, including any Kern River, CVP and its own contracted SWP water. While the location for the second 115-acre site has not yet been determined, the District would go through the same evaluation process as outlined in the Tech Memo (Appendix B) to determine the appropriate location. As such, the site would be considered Tier 1 land within District boundaries, close to existing District facilities that would have the ability to convey Kern River, CVP, and SWSD's own contracted SWP water. The Project would recharge water whenever it is available throughout the year. Water recovered would be conveyed back into the District system for beneficial use by growers, or for in-lieu return to SWSD's water banking partners. For that purpose, the shallow recovery well of the initial 100-acre site is to be sited within the project site and located near an existing District pipeline. For the second 115-acre site the District would choose a site that already has a recovery well available for use.

**Concept of Subsurface Recharge:** Through a network of perforated pipes water can be recharged on lands with acceptable geology while not impacting the surface which is oftentimes prime agricultural land. The infiltration galleries are buried 10-12 feet deep and span the entire parcel where the subsurface recharge is to be accomplished. Furthermore, subsurface recharge would provide recharge access when demand is not available for in-lieu recharge or direct recharge and would avoid the evaporative loss associated with spreading basins. Subsurface recharge creates an opportunity to co-locate subsurface recharge with prime agricultural land. The subsurface recharge is the recharge component, and the recovery component would be accomplished through a production well, that would be used to extract, or recover previously recharged water. In 2017, two district landowners successfully constructed and implemented subsurface recharge projects. These two pilot projects provide supporting documentation and serve as a basis for project development and benefits. See Section 1.5.1 and 1.5.4 for further information on pilot project results.

To ensure favorable results in the District's proposed Project, the District followed the Assessment guidance as outlined in the Tech Memo (Appendix B). An office evaluation was conducted to determine the proposed parcel's tier rating along with a field investigation that involved two boring samples. As seen in Figure 9 (page 16) of the Tech Memo, the proposed Project indeed falls within the outlined Tier 1 Area. As further explained in the Tech Memo, four tiers of land were identified within the District that are suitable for subsurface recharge, with Tier 1 being most suitable. The project has a projected groundwater recharge benefit of **6,192 AFY**.

From a drought resiliency standpoint, this Project is expected to improve the District's response to dry year and drought conditions by increasing District's absorptive capacity for recharge of wet year water, as well as increasing their recovery capacity for later use of the stored water. Onsite recovery wells would allow previously stored water to be returned to Banking Partners or for in-District uses. In other words, conditions are improved by having the added recharge and pumping capacity for storing and extracting stored water supplies during dry years which becomes needed to meet District and Banking Partners' demands when other surface water supplies are limited.

**Existing Water Management and Exchange Programs:** Semitropic has implemented water management and exchange programs throughout the district and the region to optimize water supplies, increase total volume of water brought into the District, and develop facilities to improve regional water management. As previously discussed, Semitropic has an established Groundwater Banking Program which allows for the recharging of district contracted SWP surface water as well CVP and Kern River water through various banking agreements and exchanges with neighboring



districts. Exchange programs include provisions whereby a percentage of the net water recharged is “left behind” for District use. Overall, this program and its exchanges support the sustainability of groundwater levels and water demand in the District.

**Expansion of Water Management and Exchange Programs:** As previously discussed, Semitropic has engaged in various planning efforts at the district, region, Subbasin level to better manage water for district and region use as well as optimize its exchange programs. Semitropic identified multiple projects under IRWM and SGMA planning that will support the expansion of its Groundwater Banking Program to offset drought vulnerabilities and pursue groundwater sustainability in the region. These projects range from groundwater banking and subsurface recharge to infrastructure improvements to the benefit of the District and its neighboring districts. Implementation of this project will further the goals and objectives of the District’s current banking program as well as support planning efforts under IRWM and SGMA.

### **1.3.1 Tasks and Project Work**

Several tasks are defined below to accomplish the Project. Project design will be based upon previously completed subsurface recharge projects within the District. If awarded, a grant agreement is expected to be signed by December 2020. Leveraging the District’s Purchasing Policy, they plan to solicit bids from preferred vendors in 2021, with total project completion anticipated prior to late 2023.

**Task 1: Grant Administration** – Coordination of all Project activities, including budget, schedule, communication, and grant and cost-share administration.

**Task 2: Project Reporting** – Report on project financial status on a semi-annual basis and prepare significant development reports and a Final Project Report. In addition, the Project will comply with any other reporting requirements specified in the potential grant agreement between Semitropic and Reclamation.

**Task 3: Feasibility Study** – Feasibility Study is 95% complete. A Feasibility Study/Tech Memo was prepared with guidance tools for assessment of land use for subsurface recharge within the District. The Tech Memo was prepared in April 2020 and identified four tiers of lands within the District that are suitable for subsurface recharge. Details of the evaluation of the proposed subsurface recharge site location are provided in Appendix B, which considers multiple parameters for optimal site selection including soils classification; depth to shallow groundwater; proximity to District infrastructure and availability of installation of a metered point of service; and water quality of shallow groundwater, with the goal of TDS less than 2,000 parts per million (ppm). The office evaluation and field investigation were completed, which included drilling of three soil borings to evaluate permeability and visual inspection was conducted on the initial 100-acre site to determine depth to shallow water. This site yielded favorable results, and it was further determined that it is classified as a Tier 1 land for subsurface recharge and the office and field investigation confirmed this. The work under this task has been completed by the District to assess the suitability of the proposed project site.

**Task 4: Design and Project Layout– Infiltration Gallery:** As the concept of subsurface recharge is new, the District has already partnered with LIDCO, who is the only known design/build contractor who has extensive experience implementing such projects, to prepare the design for the infiltration gallery. A preliminary layout of the infiltration gallery has already been developed and is included in Appendix A. The network of perforated pipes, or infiltration galleries,

will be buried 10-12 feet deep, with a main line and sub-laterals that span the entire parcel acreage where the subsurface recharge is to be accomplished.

*Filtration System:* A filtration system will be designed to filter water prior to introduction to the infiltration galleries. The filtration system will include an earthen reservoir for storage and initial settling of particulate, sand-media filters, a lift pump and all electrical equipment to operate the system. The District plans to solicit bids from several contractors for a filtration system design that would fit project needs, therefore final costs for this component are to be determined upon finalizing design. A preliminary design, to support the grant proposal has been prepared by a local contractor, Water Associates.

*Metered Connection:* To ensure project benefits, the District will measure water recharged and extracted. For measurement of recharge, a metered connection to record water introduced to the subsurface recharge will be installed, which will be independent of other operations. The metered connection would include two vertical propeller meters to measure water discharging to the reservoir, and electromagnetic meters at the head of the subsystems to measure flow being introduced to the infiltration subsystems. To measure extraction rates of previously recharged/banked water, a flowmeter on the recovery well will be installed. The District engineer will design the metered connection and recovery well for the District. A preliminary design, to support the grant proposal has been prepared by a local contractor, Water Associates.

*Monitoring System:* A dedicated monitoring system will be included as part of the project to observe the project's performance over time. The monitoring system consists of three (3) shallow piezometers, constructed to a depth of 50 feet, perforated from 10-50 feet, equipped with pressure transducers set to record water levels once per day. Data collected will allow the District to monitor infiltration rates over time, as well as assess if water recharged begins to mound.

*Recovery Well:* A shallow recovery well, will be designed by District staff who have had extensive experience designing and constructing wells in-house. The well will be designed to about 300-400 feet in depth.

**Task 5: Environmental Documentation and Regulatory Compliance** – The project will require compliance with both the California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA). Regarding the CEQA environmental compliance work, Semitropic completed an Environmental Impact Report (EIR) in 1994, to cover the Semitropic Groundwater Banking Project, which covers conjunctive use management programs, including groundwater recharge. Following the 1994 EIR, a subsequent Supplemental EIR (SEIR) was prepared in 2000, with six addendums added to the SEIR. Semitropic would propose an amendment to the existing CEQA EIR, SEIR, to include subsurface recharge as a recharge component of the Banking Project. For the NEPA environmental compliance work, Semitropic proposes to work with the NEPA Reclamation team to determine what level of NEPA is required, including a Categorical Exclusion Checklist or an Environmental Assessment Document. For both efforts, Semitropic would retain a consultant to help prepare the appropriate document, including conducting cultural and biological surveys to support the CEQA amendment and NEPA document. Prior to commencing earth-disturbing activities, Semitropic would complete pre-activity biological surveys by a qualified biologist and participate in an Awareness Program that described habitats within the project area.

**Task 6: Permits & Approval** – The initial 100-Acre site is located exclusively within property owned and maintained by the District. While the second 115-Acre site has not yet been determined,



the District is looking to construct the project on a similar Tier 1 land and will enter into a partnership with District's landowners if the prime site is not owned by the District, for acquisition of an easement. In this regard, permitting and approvals are expected to be minimal for the initial 100-acre site, with the second site needing possible land easements prior to construction. Work under this task is expected to include filings for a NPDES construction permit, PM-10 Dust Control permit, and consultation with District's Legal Counsel regarding any other permitting requirements.

**Task 7: Construction – Infiltration Gallery:** As stated in Task 4: Project Design, the District has already partnered with LIDCO, who is the only known design/build contractor who has extensive experience implementing such projects. LIDCO has already provided a preliminary design of the system and will be retained for construction implementation of the infiltration gallery. Construction of the infiltration gallery includes clearing and grubbing of site, installation of necessary tie-ins and connections, installation of mainline and sub-laterals, and final grading.

*Filtration System/Metered Connection/Monitoring Network:* Construction of the filtration system, metered connection, and monitoring network will be solicited out for bids from preferred vendors using the District's Purchasing Policy. Construction of the filtration system includes construction of a reservoir, installation and tie-in of appropriately sized sand media filters prior to discharge to mainline, electromagnetic flowmeters, and three (3) shallow monitoring piezometers.

*Recovery Well:* Construction of the recovery well includes drilling of a borehole, installation of pump and motor equipment, installation of well discharge and tie-in to the District's system and installation of electrical equipment (overhead powerline, soft start, and meter can). Construction of the recovery well will be done using District staff and drill rig equipment.

**Task 8: Construction Administration and Management** – The District will be performing all construction administration and management for all components of the projects, including the infiltration gallery, filtration system, monitoring system, and recovery well.

Construction Administration involves everything from the solicitation of bids from pre-selected, qualified contractors to filing a Notice of Completion for the Project works and preparation of "As-Builts" drawings. Construction management activities can generally be categorized as field observation and contract administration, where the latter includes items such as the Notice to Proceed, pre-construction conference, correspondence with the Contractor, submittal review, progress payments, periodic meetings with the Contractor, Contract Change Orders, etc.

The proposed Project will be implemented under the direction of SWSD. District staff will conduct necessary construction management, administration, reporting, and coordination with local firms needed to comply with all grant requirements. Isela Medina, Semitropic's Engineer (a California-licensed Civil Engineer), will provide project management and the technical Project Management on behalf of Semitropic and will work closely with the designated construction manager.

#### **1.4 Performance Measure**

Project performance will be measured by comparing the pre- and post-project conditions. With regards to the pre-project, surface recharge is limited and only available during shoulder months when losses to evapotranspiration are minimal. This creates a very narrow opportunity to capture and absorb opportunistic water supplies. Under the post-project conditions, recharge can be achieved throughout the year including the very warm months of the year since losses are negligible and not subject to evapotranspiration losses. This is important because opportunistic



water supplies can be available during times of the year when surface recharge through the conventional methods is not feasible or when a demand is not available to achieve in-lieu recharge. Performance will be measured based upon amount of water recharged, which will be measured through metered connection of the turnout outlets, which will be a direct measure of performance, because absent the project this water would not have been captured and absorbed. Project's performance will also be measured by rate at which water can be recharged, through a dedicated monitoring system, consisting of shallow piezometers, constructed to a depth of 50 feet and perforated from 10-50 feet, and equipped with pressure transducers set to record water levels once per day, which will record the system's infiltration rates over time. Data collected will show the Project's infiltration rates change over time. Water pumped from the recovery well will be measured at the discharge point using flowmeters. These meters are equipped with totalizers with readings that will give the amount of water recovered and available for beneficial use.

## **1.5 Evaluation Criteria**

### **1.5.1 Evaluation Criterion A: Project Benefits**

**How will the project build long-term resilience to drought?** The Project will build long-term resilience by enhancing reliability effectiveness of surface water supplies delivered to the Region. SWSD is a water banking partner with neighboring water districts and has been a part of the Poso Creek IRWM Group since 2007. As such, the Group works to expand their recharge and recovery capacity such that should surplus water be made available, every member contributes to bring the water within their regional boundary. SWSD is uniquely located to receive CVP, SWP, and Kern River water through various interconnections throughout the Region. Since the project site is located downstream of these systems, recharge of all three types of water is possible. Therefore, through various water banking agreements, water stored by the District can help alleviate not only immediate District need but the Region's as well; thus, enhancing regional conjunctive water use goals and quality of water supply. The project will be constructed as a permanent addition to existing District infrastructure, however, for the purposes of this application the project is estimated to have a lifespan of 30 years.

**Will the project make additional water supplies available?** Proposed subsurface recharge area is anticipated to recharge available surplus water supplies into the District at a rate of 0.4 feet per day on 215 acres, at a frequency of 4 out of 10 years. The percolation rate of 0.4 ft per day was based off the average infiltration rate of the Portwood pilot project, which is at a similar tier 1 location (Tech Memo, Appendix B). Unlike normal recharge basins which would have an assumed 10% loss of area due to borders, levees, and dikes, subsurface recharge assumes utilization of the full 215 acres. This results in an estimated recharge rate of 2,580 AF/month (215 Acres x 0.4 ft/day x 30 days/month). This estimated monthly rate translates into an estimated average annual capacity of 15,480 AFY (2,580 AF/month x 6 months/year), which assumes that the facility receives water for a duration of six months in an average wet year. Given that wet years occur at a frequency of 4 out of 10 years, this project would yield an average of **6,192-AFY** (15,480 AFY x 4/10 years). Over a 10-year period, implementation of this project would yield 61,920-AF of water. While the project will make an additional 6,192 AFY of water available to the District, it has the capacity to recharge 30,960 AFY (0.4 ft/day x 215 Acres x 30 days/month x 12 months). This is based on the idea that the District now has an increased window of absorptive capacity that allows them to recharge water into their facility from January to December.

**Will the project improve the management of water supplies?** Water better managed is equivalent to water savings calculated in the previous section. Water captured and recharged during wet year periods will be later returned to better manage during dry years, which will reduce over pumping of landowner wells which in turn will reduce pumping costs and mitigate drought impacts. During dry years, the District will recover water from the Project site for use throughout the District and/or for exchanges with neighboring banking partners. Project implementation will help promote the idea of subsurface recharge throughout the Poso Creek Region, with favorable results encouraging others to build their own. The Project will serve as a model that can be duplicated by other landowners, which would result in an increased amount of water better managed throughout the region, bringing in additional water supplies that would help to replenish the shared basin. Landowners who choose to build their own systems create landowner water banking accounts which will help to offset their own groundwater usage and comply with SGMA regulations. The amount of area, within SWSD alone, designated as Tier 1 is estimated around 44,228 Acres. This correlates to a 1,273,766 AFY ( $44,228 \text{ AC} \times .4 \text{ ft/day} \times 30 \text{ days/month} \times 6 \text{ months/year} \times 4/10 \text{ years}$ ) of potential water savings that would benefit the District and the surrounding Poso Creek Region who would benefit from increased water levels in the underlying basin.

**Will the project make new information available to water managers?** The Project adds return capacity for the District and/or its banking partners by allowing for greater return of water in times of drought or shortage. Increased return capacity will allow for greater flexibility in meeting in-district landowners needs and the ability of the District to meet the needs of its water banking partners. The new, increased banking and return capacity will also benefit neighboring water managers within the Poso Creek IRWM Group due to increased return capacity. In addition, Project implementation of a subsurface recharge site is a new and innovative approach to groundwater recharge. The success of the previous pilot projects and implementation of this Project is encouraging landowners within SWSD and neighboring water districts to implement their own projects. Data from this Project will provide a more comprehensive model and tested method for the development of future subsurface recharge sites and will be made available to other water managers within the Poso Creek Region. As part of the project monitoring, the proposed meters will provide new information to water managers in the region who are interested in constructing in-district subsurface recharge sites. Data for amount of water better managed will contribute to the District's data of total water supplies available which will support the District's implementation of setting tiered water pricing.

**Will the project have benefits to fish, wildlife, or the environment?** As stated in the previous question, water managers affiliated with the District's Banking Program and the Poso Creek IRWM Plan Group will benefit from greater return water supply in times of drought or shortage. The regional group associated with banking in the Poso Creek IRWM region will benefit from increased return capacity and flexibility provided by the proposed equipping of the four wells. More return capacity could encourage others within the regional group to bank water with the District's Banking Program including, the North West Kern Resource Conservation District and the Kern National Wildlife Refuge (Refuge). Both groups are advocates of wildlife habitat enhancement, wetland conservation and recreational land restoration. The Refuge specifically provides habitat for permanent and migratory species.

**Well Benefits:** The estimated capacity of the new well is approximately 4 cfs. The accumulated outflow is equivalent to 8 acre-feet per day (AFD) once converting from cubic feet per second to

AFD. Note that this assumed the pumps maintain the outflow rate for an entire 24-hour period, which in practice is correct during groundwater Recovery periods (SWSD GWMP, 2012). For an average month the recovery capacity would be around 240 AF/month (8 AFD x 30 days), or 1,920 acre-feet per recovery period (typically for an 8-month period). The proposed recovery well will be used to recover previously banked/recharged water.

**Please provide information documenting that proposed well(s) will not adversely impact the aquifer they are pumping from (overdraft or land subsidence).** The proposed recovery well will not adversely impact the overlying aquifer inasmuch as water that has been previously banked (recharged) through the project will be recovered by the well. The project would be serving as a subsurface regulating reservoir whereby water is recharged in wet years to be recovered in dry years. The following table provides physical descriptions of the well proposed under this Project. This application is for the installation of one new recovery well with the specifications shown above. The budget for this application shows a column depth of 300-400 feet. An environmental analysis will be conducted to ensure the proposed well will not adversely impact the aquifer they are pumping from. The proposed new well will be recovering supplies directly from the aquifer the proposed Project is recharging so no adverse and monitoring will occur to ensure overdraft is not occurring.

Well Depth (ft)	Borehole Dia. (in)	Casing Dia. (in)	Casing Material
300-400	32	18-20	Steel/PVC

The proposed Project is designed to bring in additional water supply to Semitropic's underlying groundwater basin during wet years. The Project will not adversely impact the aquifer, instead it is a water management program designed to replenish the groundwater supplies by augmenting the basin groundwater and recovering only when necessary during dry years to mitigate the effects of drought and preventing overdraft nearby aquifers by supplementing supplies with water stored. The District anticipates that the environmental analysis is expected to be minimal as the District will confer with Reclamation for the required level of environmental analysis under NEPA. The environmental analyses and documentation will contain information regarding well impacts on the aquifer, and their potential frequent use. Table 1-3 below provides the size, capacity, and other pertinent details of a well that is near the location of the proposed well.

**Table 1-3. Details of Nearby Wells**

Well #	Casing Size (Inches)	Depth (ft.)	Blank Casing (ft.)	Perforation (ft.)	Average Flow (cfs)
25S/24E-23R	36	1,120	1,106	1,070	4.5

**Describe the groundwater monitoring plan that will be undertaken and the associated monitoring triggers for mitigation actions.** Implementation of the Semitropic Groundwater Banking Project involved the establishment of a Groundwater Monitoring Committee (in 1994) to develop and oversee a groundwater monitoring program. In addition to Semitropic, the Committee includes representatives from five neighboring water agencies. As part of the monitoring program established under the Banking Project, Semitropic has groundwater monitoring wells throughout the District with water level sensors to monitor groundwater levels and storage. Analysis provides for groundwater monitoring at the site where banking and recovery efforts are actively performed. The infiltration of recharged water supplies in the underlying aquifer is monitored as well as the



potential hydrologic conductivity between aquifer regions across the District (i.e., the movement of water laterally across the District). Additionally, in 2012, the District implemented a Groundwater Management Plan (GMP) detailing their management strategies and actions, with mitigation of overdraft conditions noted as a key strategy. This GMP includes operational criteria to assure District landowners and landowners in neighboring districts are not adversely impacted as a result of groundwater banking activities. Thus, the proposed project will abide by the three-year, 15-foot rule outline in the GMP, which prohibits withdrawal of stored water if such withdrawals would cause the average groundwater levels over a three-year period to be 15 feet lower than the average groundwater levels which would have occurred without project implementation. This allows the District to shift pumping within the District to mitigate any possible impacts. Banking Project monitoring plan will be used on a more regional scale. Regionally installed monitoring wells all the District to monitoring wells allow the District to monitor groundwater levels and respond to recharge in the upper aquifer systems. For a more localized monitoring plan, monitoring will be conducted in accordance with the recommendations in the Subsurface Recharge Site Assessment (Technical Memo) recommendation. The proposed monitoring network, consisting of the dedicated piezometers will allow the District to monitor any upwelling of water to minimize any impacts to the surface and to neighboring landowners. The District will use recommended monitoring parameters provided on page 7 of the Memo in Appendix B.

#### **1.5.2 Evaluation Criterion B: Drought Planning and Preparedness**

Semitropic and other members of the Poso Creek IRWM Group (Group) are in the process of developing a Drought Contingency Plan (DCP) under the direction of USBR to prepare for and better manage during drought or dry periods. In support of this effort, Semitropic has developed a Drought Plan Memo (Memo) to outline drought vulnerabilities as well as mitigation and response actions specific to SWSD for long-term drought planning, which will be included in the final DCP. This Memo was a template developed for all members of the Group to complete; as a result, the Memo includes standard drought planning language applicable to the entire Region with specific response and mitigation actions proposed by Semitropic. To address drought vulnerabilities such as potential reduction in imported surface water supplies or potential reduction in groundwater levels, the District has developed short-term response actions to immediately address concerns and mitigation actions for long-term drought planning. Semitropic's Memo has been provided for reference as Appendix B.

Now that an agreement has been signed with Reclamation, the Group will proceed with the development of the final DCP which will incorporate details outlined in each District's memo as well as input from the various stakeholders in the region. The established Drought Plan Task Force, which is made up of the Group and various stakeholders of the region, will guide the work conducted under the development of the final DCP.

Additionally, the Group will utilize previous drought planning efforts conducted under the 2019 Poso Creek IRWM Plan (IRWM Plan) update as well as the District's GSP, developed in compliance with California's SGMA. IRWM Plan includes a climate change assessment which has been utilized in the development of projects and programs for all Group members. This assessment will also be incorporated in the DCP to further evaluate climate change impacts to water resources or drought given updated data since the IRWM Plan update. The District's GSP includes analysis of past and projected drought conditions to set minimum thresholds and measurable objectives developed to manage groundwater at a sustainable level with increasing

drought and decreased reliability of imported surface water. Additionally, a District water budget was developed to assess the current conditions of the regions. Accordingly, projects and management actions were developed to offset District water deficit and achieve groundwater sustainability by the required 2040 timeframe under SGMA. Project implementation will support Semitropic's goals of the Poso Creek DCP, SGMA, and IRWM. This is achieved by storing or banking available surface water supplies through subsurface recharge during wet years for the benefit primarily of District landowner's and/or Banking Partners.

### **1.5.3 Evaluation Criterion C: Severity of Actual or Potential Drought Impacts to be addressed by the Project**

**What are the ongoing or potential drought impacts to specific sectors if no action is taken and how severe are those impacts?** If the proposed Project is not implemented, there would be no increase in Semitropic's ability to recover banked water supplies from their underlying aquifers and there will be no increase in SWSD's absorptive capacity to absorb wet year surplus water that would have otherwise been lost. Increase in absorptive capacity brought by implementation of Project is not only based on the increase capacity in the District facilities, but also through increased window of opportunity in which the District is able to absorb supplies. If in-district and/or banking partner demands potentially go unsatisfied, relying strictly on current recovery capability, this may lead to a scenario where wet year water supplies are not available to recharge if the recovery and return component of the banking agreement is not met. Additionally, without implementation, water that would have been captured for recharge and recovery would be lost downstream.

Additionally, some rural and disadvantaged communities (DACs) in and around Semitropic, and businesses, rely on groundwater as their principal supply. Many of these entities lack current demand for or infrastructure necessary to convey surface water supplies. Should climate change result in a reduction in water available from surface supplies, increased frequency and quantity of groundwater pumping by agricultural, municipal, and other users will lead to decrease of groundwater storage without the necessary means of replenishing. Implementation of this project will support the Districts effort to maintain and replenish groundwater through subsurface recharge for the benefit of all users within the District.

**Whether there are public health or social concerns associated with current or potential drought.** Regarding use of groundwater supplies by DACs, efforts proposed by the District as part of the Poso Creek IRWM Group have focused on projects and programs that benefit the underlying groundwater basin, which supports all beneficial users of the District. In many cases, DACs rely exclusively on groundwater as supplies. Accordingly, any decline in water levels due to extensive use under drought conditions will be felt by all users. Results can be detrimental to the DACs, since availability from other water sources in this scenario are very limited, costly, and may lead to interruption in services. To that extent, implementation of this project works to mitigate declines in water levels and will provide benefits to groundwater users, including DACs.

**Whether there are ongoing or potential environmental impacts.** There are no impacts related to endangered or threatened species in the District's service area or facilities. Project sites are located on previously disturbed agricultural land which is regularly maintained, disked, cleared, and grubbed. However, as previously mentioned, the District receives surface water deliveries and stores them in its water bank on behalf of several SWP Contractors. Any water conveyed south of the Bay-Delta involves pumping constraints that are in place to support endangered and threatened species. Proposed Project helps with flexibility of water supplies south of the Delta. There are three



primary endangered species known to live within the District's boundaries, per the federally recognized candidate listing, are the San Joaquin Kit Fox, Tipton Kangaroo Rat, and the San Joaquin Woolly-Threads. The proposed Project is not expected to lessen or improve the status of these species.

**Whether there are local or economic losses associated with current drought conditions.** Most of the District's water use is for agricultural purposes, and some industrial, commercial, and domestic users and communities in the Region that use water and typically rely on groundwater as the sole source of supply. Economic fiber of the Region depends on the effective, efficient, and conjunctive use of surface water supplies and groundwater from the common groundwater basin. As such, being able to replenish the basin with wet year and excess surface water supplies means less competition between users in the region. Consequences of failing to increase water supply reliability include increased costs of agricultural production; decreased cropped and irrigated acreage; decreased workforce; and significant economic losses, both locally and statewide. As the drought continues to threaten the reliability of imported surface water on an annual basis, the reliance on other sources of supplies becomes more pronounced.

**Whether there are other drought-related impacts not identified above, including tensions over water that could result in a water-related crisis or conflict.** Since SGMA adoption in 2014, the Kern Subbasin, which the District resides, has been identified as a priority 1, critically overdrafted basin. The impact of SGMA law is directly tied to drought related impacts, including possible tensions over water that could result in a water-related crisis or conflict. As such, the District, along with other districts in the Subbasin have formed GSAs and entered into a Joint Powers Agreement to develop and implement GSPs to mitigate groundwater overdraft and achieve sustainability by 2040. The District is currently implementing their GSP in compliance with SGMA and implementation of Project and Management Actions as outlined in the GSP are underway with the goal to improve the management of groundwater supplies in the region to benefit all users. The proposed project is a listed project under the GSPs Project and Management Actions, which will support overall SGMA compliance.

**Describe existing or potential drought conditions in the project area.** According to the U.S. Drought Monitor, sponsored by the U.S. Department of Agriculture and the National Drought Mitigation Center: Semitropic, as well as much of the Southern San Joaquin Valley in California, is experiencing 'Abnormally Dry (D0)'. Prior to the heavy precipitation of 2017, this region experienced 'Exceptional Drought (D4)'. The result of prolonged drought conditions was little or no surface water deliveries to users in the region, and many fallowed fields due to inadequate water supply. The latest release of this information was June 9, 2020. As with much of the Southern San Joaquin Valley in California, current drought conditions have improved, and surface water deliveries have increased when compared to the drought years (2011-2017).

**Describe any projected increases to the severity or duration of drought in the project area resulting from climate change.** The District's 2015 AWMP analyzed effects of climate change on water supply/demand. Future District water supply will be driven by changes in hydrology/volume, variability, and timing of precipitation of the Delta, as the receiving watershed area is the source of supply for the SWP (primary District supply). The reliability of the SWP and CVP water supply systems is expected to be reduced from less frequent and intense precipitation events. Decreases in surface water deliveries to areas south of the Delta, directly affecting the water volume supplied to Semitropic, including potential 'excess' volumes which could be stored and recharged. Two models predicted the District's service area will become warmer and drier relative



to historic conditions in response increasing greenhouse-gas emissions (USGS 2009, CEC 2015). Based on projections, climate change could result in potentially longer and more frequent drought conditions, increased irrigation demands with reduced surface water deliveries that would be met by increasing groundwater pumping. This would likely lead to increased depths to groundwater and increased land subsidence. Combined effects have potential for District to rely more on groundwater to supplement years where surface supplies are inadequate to meet demand.

#### 1.5.4 Evaluation Criterion D: Project Implementation

Based on the tasks listed in Section 1.3.1, the schedule for this Project is shown in Figure 3. Construction of the project is expected to occur through 2022, with an anticipated completion date of late 2023. The District is in the process of selecting land for the second project site and anticipates going out to construction after environmental is complete. For the purposes of this proposal, the start date of the grant contract was assumed as December 1, 2020, which is the assumed date of the signed grant agreement. All Project work is expected to be completed with a final report completed before December 2023. The Project is not expected to deviate from Reclamation's proposed schedule of a construction start date of January 1, 2022 and completion within the 36-month project duration.

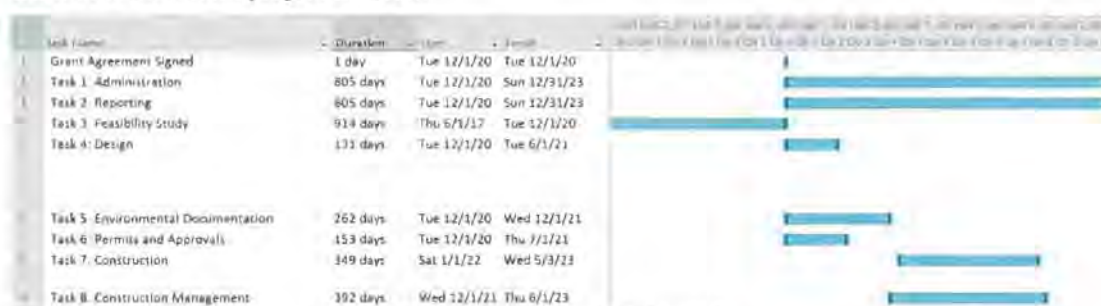


Figure 3. Project Schedule

SWSD will own, operate, and maintain the Project for the benefit of its landowners. During development of project, the District will work closely with consultants, contractors and vendors to implement each component. As previously mentioned, the District has a good understanding for successful implementation of the Proposed Project based off the two pilot projects, which yielded favorable results. For further details, reference Appendix B for a detailed overview of the two pilot projects.

**Describe the implementation plan of the proposed project.** Overall project and task schedule are presented in Figure 3. Since the project will be implemented regardless of grant funding, most of the project tasks will start prior to formal award or entering into an agreement. In this regard, some of the tasks are underway. Construction will be delayed pending a grant award, to coincide after the environmental compliance work has been completed. Accordingly, the schedule has been prepared to reflect this. Anticipated completion date would be during late 2023. For the purposes of this proposal, the start date of the grant contract was assumed as December 1, 2020. All Project work is expected to be completed by December 2023.

**Describe any permits that will be required, along with the process for obtaining such permits.** For the initial 100-acre site it is anticipated that no regulatory permits will be required, inasmuch as

all construction components are on District owned, previously disturbed land. An evaluation will be made by District Counsel regarding whether construction of the Project will require any additional permits. For the second 115-acre site, District staff will consult with legal counsel should land or construction easements be necessary. It is noted that the District is not subject to the County's jurisdiction for building and grading permits. Accordingly, no County-issued permits will be required. District will comply with CEQA and NEPA before commencing any ground disturbing activities, as discussed further in Section 4.0. Additionally, a pre-activity survey will be conducted by a qualified biologist prior to the start of construction.

**Describe any engineering or design work performed specifically in support of the proposed project.** Project design is based upon previously completed landowner pilot projects within the District, which yielded favorable results (Appendix B). Please reference Section 1.3.1 for engineering/design work that has already been completed. District anticipates minimal design work as part of the Project since a preliminary design was completed for the cost estimate.

**Describe any new policies or administrative actions required to implement the project.** No new policies or administrative actions will be necessary to implement the District's project. However, if District landowners choose to implement similar projects for purposes of establishing landowner banking accounts in response to SGMA, it will require new policies. As previously stated, successful project implementation will encourage landowners within the region to construct their own subsurface recharge facilities, which will allow landowners to establish water banking accounts that will help them, and the District, comply with SGMA regulation. In preparation of this, the District is drafting landowner banking agreements along with draft water banking policies.

**Describe how the environmental compliance was developed.** Environmental compliance estimate was based upon previous experience from recent implementation of Reclamation-funded projects, including the Pond Road Solar Project, the Well telemetry Project, and the Cox Canal Intertie project. Proposed Project is comparable in complexity in scope and provides for a good estimate for the level of effort needed to complete compliance. Effort for these past projects was approximately 3% of total project costs and included coordination with Reclamation, preparation of biological assessment, preparation of cultural and biological resources inventory. In this regard, applying this same level of effort to the proposed project, the current estimated compliance cost is \$95,000, or 3% of the total project cost. Estimate has yet to be discussed with Reclamation.

#### **1.5.5 Evaluation Criterion E: Nexus to Reclamation**

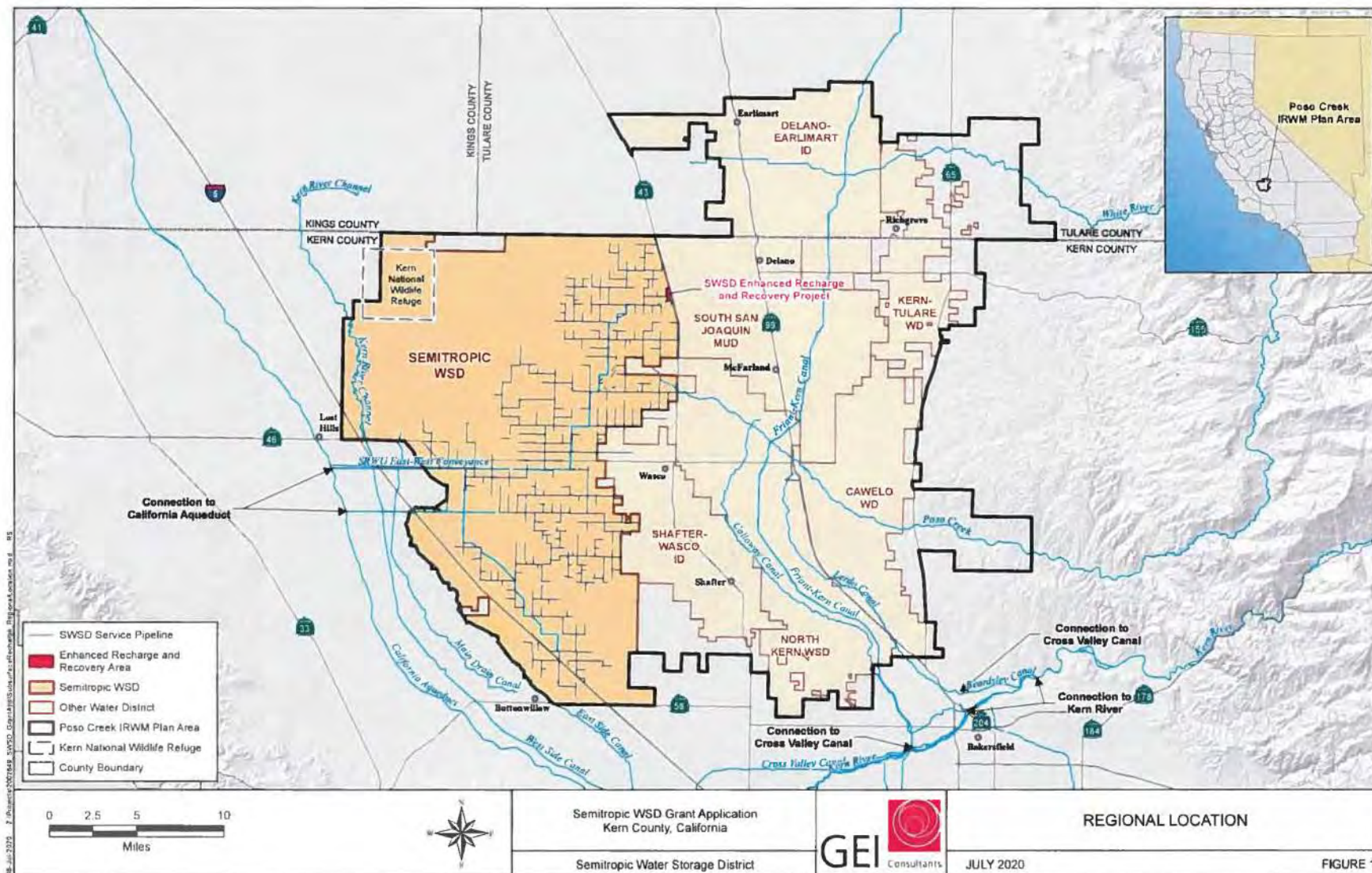
**Describe the nexus between the proposed project and a Reclamation project or activity.** Proposed Project location is in the Tulare Lake Basin, which also includes Reclamation's FKC. While not a federally owned facility, the proposed Project is in place of use of federal water. Through an EA, described in Section 1.1.1.5, SWSD engages in long-term banking/exchanges among districts within the Poso Creek IRWM Region, some of which are federal CVP contractors. The proposed Project will become a part of Semitropic's existing conjunctive use program in which subsurface recharge and recovery will be an available option for neighboring CVP as well as SWP contractors. The proposed project will not benefit any tribe.

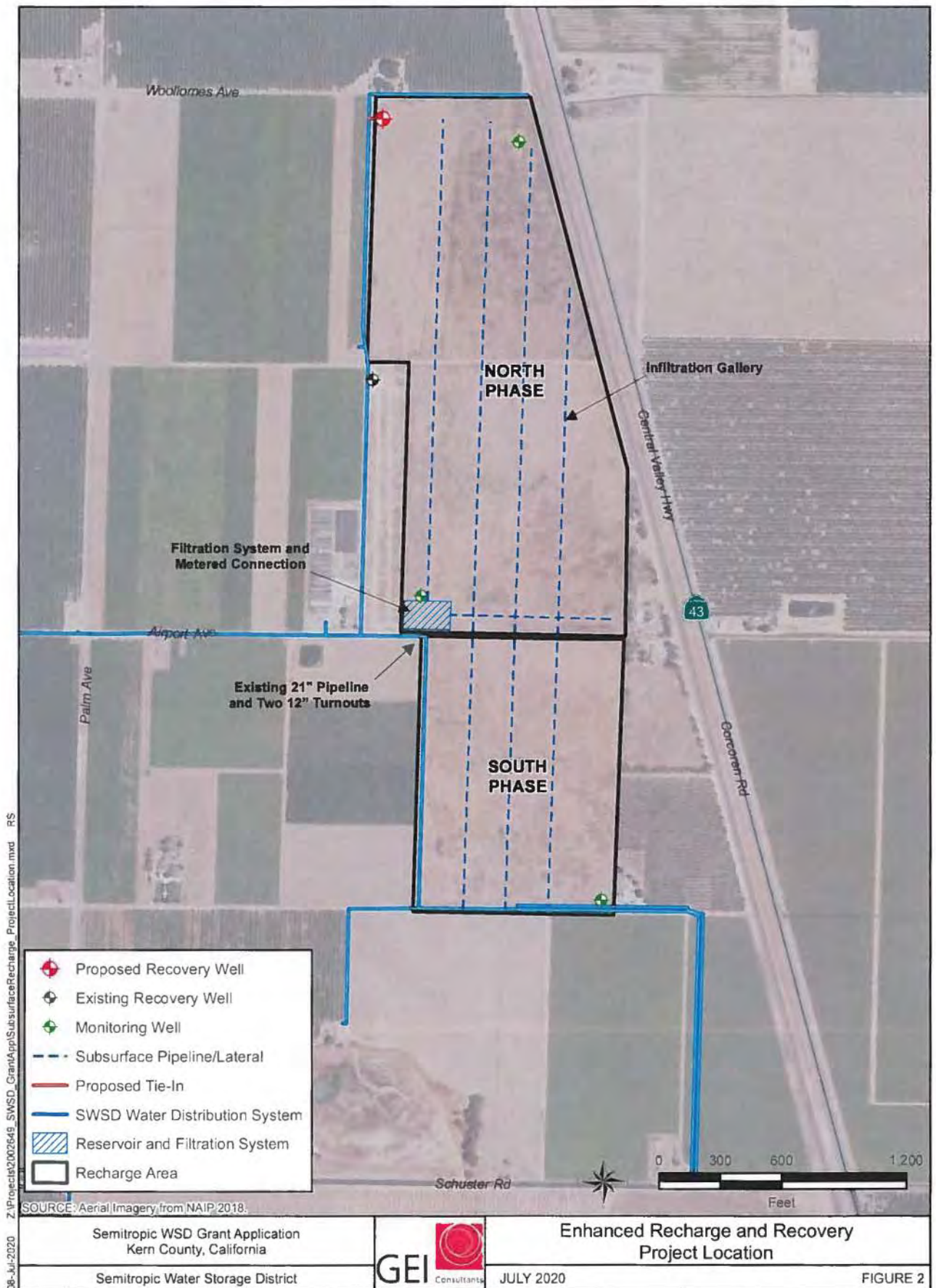
#### **1.5.6 Evaluation Criterion F: Department of Interior Priorities**

**Creating a conservation stewardship legacy second only to Teddy Roosevelt.** Subsurface recharge is a new and innovative approach to groundwater recharge for the region. Contrary to conventional recharge whereby land is set aside for construction of impoundments to capture water

for deep recharge/percolation, farming and recharge can occur simultaneously using this method. Thus, recharge may occur without reliance or hindrance upon surface farming operations. This is especially crucial with the recent SGMA implementation and the intent of legislation to achieve sustainable management. Project benefits will encourage landowners within the District and Region to install subsurface recharge sites, which will increase overall regional absorptive capacity to help with SGMA compliance. As such, Semitropic is actively implementing projects to better manage land and water resources to bring more water to the region without hindering the economic viability of farming. Subsurface method is a tested solution that provides added recharge capacity for the region while maintaining current farming; in essence, landowners can maintain production while groundwater is recharging directly below the land. Regionally, this provides a model for subsurface recharge that other districts within the Poso Creek will not only benefit from but can utilize for to develop additional subsurface recharge sites within their respective districts to expand their conjunctive use programs. Since subsurface recharge is a relatively new and innovative concept, this will provide further data to support development of future projects throughout the region.









## **2. Project Budget**

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### **2.1 Funding Plan and Letters of Commitment**

**Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments). Any costs that will be contributed by the applicant.**

Semitropic Water Storage District (Semitropic or District) has identified the need to designate monetary funds from their construction capital account to be available for the Project, which is a District revenue account. The District identified the Reserve Fund for 2020 and into 2023 to be utilized to meet the cost obligations for the implementation of the project. The District adopts an annual budget during the fall of each year and revisits the budget at mid-year to evaluate the need for any mid-year adjustments.

**Any third-party in-kind costs (i.e., goods and services provided by a third party).**

No third-party in-kind costs.

**Identity and amount of funding to be provided by funding partners.**

No other funding partners need to be identified.

**Any cash requested or received from other non-federal entities.**

No other non-Federal funding has been requested or received for the proposed work.

**Any pending funding requests (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.**

The District does not have any pending funding requests that have not yet been approved for the Project components.

**In addition, please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award.**

No, the budget proposal does not include any project costs that have been or may be incurred prior to award.

### **2.2 Budget Proposal**

The total Project budget for the *Semitropic Enhanced Recharge and Recovery* (Project) is estimated at \$3,193,717, with \$3,001,717 estimated for construction implementation. The District is requesting \$1,500,000 in grant funds (Federal Cost Share) to help cover costs for Task 7: Construction only. \$1,693,717 is estimated as being Non-Federal Cost Share funds. The approach has been reflected in the budget estimates. The total requested grant funds amount to about 47 percent of total project costs, with the remainder (53 percent) funded by the Applicant. Refer to Table 2-1a, which provides a summary of the estimated budget, by task, including Reclamation and Applicant contributions.



**Table 2-0. Summary of Non-Federal and Federal Funding Sources**

<b>Funding Sources</b>	<b>Funding Amount</b>
<b>Non-Federal Entities</b>	
Semitropic WSD	\$ 1,693,717
State Funding	\$ -
<i>Non-Federal Subtotal:</i>	<i>\$ 1,693,717</i>
<b>Other Federal entities</b>	
None	
<i>Other Federal Subtotal:</i>	<i>\$ -</i>
Requested Reclamation Funding:	\$ 1,500,000
<b>Total Project Funding:</b>	<b>\$ 3,193,717</b>

The Project budget was prepared based on the level of effort required to implement the project as discussed in Section 1.3.1 – Tasks and Project Work. The Work Plan identifies and describes eight tasks used to define the overall Project Scope, Schedule, and Budgets:

- Task 1: Grant Administration
- Task 2: Project Reporting
- Task 3: Feasibility Study
- Task 4: Design and Project Layout
- Task 5: Environmental Documentation and Regulatory Compliance
- Task 6: Permits and Approvals
- Task 7: Construction
- Task 8: Construction Administration

**Budget Table Format:**

Several tables have been prepared in support of these budget estimates, which immediately follow this section in the order shown below.

- a. Table 2-1a provides a one-page, task-by-task summary of the estimated budget, including Reclamation and Applicant contributions shown in Table 2-1b.
- b. Tables 2-2 through 2-9 provide a summary of project costs by task and follow the “sample budget proposal format” from the FOA with a breakdown of construction cost on Table 2-8a and 2-8b.
- c. Appendix C are detailed estimate of construction components, which support the estimate presented in Task 6-Construction.
- d. Tables 2-10a and 2-10b provide hourly rates of District staff and Consultant respectively.

## 2.3 Budget Narrative

In addition to the following discussion, it is noted that the above-listed tables include cost-estimating notes.

**Salaries and Wages** – Isela Medina, District Engineer for Semitropic WSD, is the representative for the Applicant and will provide overall Project Management. The project will be staffed by the District's personnel, including office and field personnel. In this regard, the District's staff will perform the required project administration, reporting, equipment procurement, some design and construction for the recovery well construction, and construction management. Additionally, the District will have accounting staff responsible for tracking costs and maintaining financial records to administer Project finances, including making all payments for contracted services. The District's field staff will perform all field work.

Tables 2-2 through 2-9, under "Salaries and Wages", provide an estimated cost for District staff to complete the work under each task. The tables provide a summary of the estimated hours (by job classification) necessary to complete the work in each task and their applicable hourly rates which include fringe benefits.

The number of hours for District office personnel to complete the work in each task was estimated based on recent experience by the District in implementing projects that have been funded by federal grants. Administration was estimated as 1% of the total budget and includes work for on Kick-off meeting for the award and grant administration as needed. The overall reporting budget was estimated as 1% of the total budget. The total number of hours necessary to complete the reporting (based on the implementation of the project over a three-year time frame) was based on an estimated 20 hours needed per report for the District Engineer and 10 hour per report needed for the staff accountant, with six semi-annual reports needed for the duration of the project. For the final report, an estimated 40 hours was needed for the District engineer as well as for the staff accountant. This provided the basis for the number of hours estimated for implementing tasks related to the grant administration and reporting, as experienced on other federally funded projects.

The feasibility study included work to put together the Technical Memorandum and is 98% complete. The remaining 10 hours estimated for District staff includes final review and approval of the report.

The budget for design is low for the size and scope of this project as most of the design work is included as part of the construction cost quotes provided by the contractor. The district engineer is estimated to need 8 hours to review and approve the final infiltration gallery design provided by the contractor, and 40 hours each were estimated for both the District engineer and the engineering tech to review and approve the design for the filtration system, metered connection and monitoring network. An additional 10 hours was estimated for the District engineer to design the recovery well. The District has recently drilled and equipped over 60 wells throughout their District and has very recent experience in completing the design and construction of the recovery well.

An estimated 300 hours was needed for the District engineer to perform construction management, which includes construction oversight and inspection throughout the estimated year of construction, as well as hours allotted for submittal and final deliverables review (i.e. as-builts and OMM). An



estimated 100 hours was needed for the engineering tech to assist the District engineer in submittal and final deliverable review.

The hourly labor rates for District personnel were provided by the District and final budgets multiplied the estimated hours needed to accomplish the task with the labor rates given.

**Fringe Benefits** – Fringe benefits for District personnel vary from between 24 percent to 44 percent of the base hourly rate, depending on level of staff. Fringe benefits include medical insurance, Employee's Pension Plan, Social Security, District portion of Medicare, Dental Insurance, Vision Insurance, Life Insurance, and Disability Insurance. Refer to Table 2-10a for a summary of the fringe benefits by job classification for District personnel. It is noted that the applicant has not worked through a Federally approved benefit agreement.

**Travel** - The District will not be charging any travel expenses to the Project, nor will they be asking for reimbursement of any incidental travel costs.

**Equipment** - The District will contract with a local contractor who will provide costs to “furnish and install” the necessary project components for the infiltration gallery, filtration system, and monitoring system. Therefore, equipment expenses have not been included in the budget since the successful contractor will provide all equipment. Procurement of equipment and materials as part of the project work will be obtained as part of the Contractual/Construction category, which will be part of the Federal cost-share. For construction of the recovery well, District already own all necessary equipment needed to do the necessary work.

**Materials and Supplies** - Acquisition of materials and supplies for office use is not anticipated; rather, the District will provide any incidental supplies. Accordingly, no “Materials and Supplies” expenses have been included.

**General Contractual/Construction** – As stated previously, the District has a lot of experience in implementation of similar projects of this type, having been participants in assisting landowners in implementing their pilot subsurface projects. In this regard, the District has a good understanding of the scope of work for the project, which facilitated development of cost estimates for each project component. Costs for the design and construction implementation of the Project were based upon cost estimates provided by local contractors who provided the preliminary design work for each component of the Project. The preliminary cost estimates were provided for the first 100-acre parcel. Given that the District desires to implement the project on a second 115-acre parcel, but is still in the preliminary stages of planning, the costs for the second parcel were estimated by first taking the total cost of the 100-acre parcel divided by the acreage to get an estimate on the implementation costs per acre. This unit cost per acre was then multiplied by the size of the second parcel to estimate construction costs of the second site. The calculated construction implementation costs used to estimate the unit cost per acre includes the following construction items: project wide costs (i.e.: clearing and grubbing/disking), infiltration gallery, filtration system, metered connection, and monitoring system. The cost of the shallow recovery well was not included in the unit cost estimation as the District is looking to build their second site where there will be an existing recovery well.



The District has partnered with LIDCO, who has already provided a preliminary design of the system, and they will be retained for construction implementation of the infiltration gallery. The cost for design work was included in their overall quote for construction.

For construction of the filtration system, metered connection and monitoring system, District will be soliciting bids from a select group of preferred vendors using their District's purchasing policy. Water Associates, a local contractor specializing in water purification systems, has provided a preliminary design and price quote for the filtration system and metered connection for grant proposal development. A quote from a separate local contractor was the basis for the costs of materials and construction implementation of the monitoring system.

Construction costs for the well were based on a recent shallow well drilled with SWSD drill rig equipment and staff. District plans to design and build the shallow recovery well using District staff and equipment and will not be soliciting bids for the work.

Construction costs amount to the largest share of the contractual costs that will be part of this Project. Construction costs for Project components, as previously discussed, have been estimated by a local contractor and District experience. All contractual and construction costs for the system components are proposed to be eligible under the Federal share. Therefore, the District anticipates requesting reimbursement for costs related to construction of the Subsurface Recharge site, up to the allowable amount included in any grant agreement. The District does not anticipate requesting reimbursement for costs related to any other task.

The District has estimated an hour for Legal counsel to review permit applications and advise whether any other legal permits will be needed prior to construction.

**Third-Party In-Kind Contributions** – No work will be accomplished by third-party in-kind contributors.

**Environmental and Regulatory Compliance 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.

As discussed previously, it is expected that the work required for the initial 100-acre site will not have significant environmental impacts as construction will take place on previously disturbed land which is regularly maintained, disked, cleared, and grubbed. While the second 115-acre site has not yet been determined, the District will be looking into land with similar properties that would have been previously disturbed. There are no expected impacts related to endangered or threatened species in the District's service area or facilities. Accordingly, it is anticipated that it will not be difficult to obtain permits or approvals necessary for the work for the Subsurface Recharge components. Since it is anticipated that the environmental documentation will be completed with a reasonable level of effort, a value of approximately \$95,000 was estimated for a contractor to provide this effort. At approximately 3% of the total project cost, this estimate is based on recently estimated costs for the environmental effort for the Pond Road Solar Project which would have had similar environmental assessment needs.

**Other Expenses** – Other expenses the District expects to incur for both sites are permit fees necessary for construction implementation such as PM-10 Dust Control and SWPPP. These costs were based on the fee schedules posted at the regulatory agency’s website. These permits are specifically for construction implementation and would need to be applied for separately per site. As such, two separate filing fees have been estimated for the two sites.

**Indirect Costs** – No indirect costs are expected to be incurred.

**Table 2-1a**  
**Budget Summary by Task**

<b>Task Number - Name</b>	<b>Total Cost</b>
Task 1 - Grant Administration	\$ 24,700
Task 2 - Reporting	\$ 18,700
Task 3 - Feasibility Study	\$ 950
Task 4 - Design and Project Layout	\$ 7,910
Task 5 - Environmental Documentation	\$ 95,000
Task 6 - Permits and Approvals	\$ 10,874
Task 7 - Construction	\$ 3,001,083
Task 8 - Construction Administration	\$ 34,500
<b>TOTALS</b>	<b>\$ 3,193,717</b>

**Table 2-1b**  
**Program Funding Sources<sup>(1)</sup>**

<b>Funding Sources</b>	<b>Percent of Total Project Costs</b>	<b>Total Cost by Source</b>
Costs to be paid by the applicant	53%	\$ 1,693,717
Cost to be reimbursed with the requested Federal funding	47%	\$ 1,500,000
Value of third party contributions	0%	\$ -
<b>TOTAL PROJECT COSTS</b>	<b>100%</b>	<b>\$3,193,717</b>

**Notes:**

- (1) This table is supported by detailed tables which are included immediately following the Budget
- (2) Salaries and Wages for District office, field staff, and consultants are shown in Tables 2-10a and 2-
- (3) Reference the Work Plan in Section 1.3.1 for task descriptions.
- (4) Refer to Table 2-1a for a Budget Summary of all Projects costs.
- (5) Only Task 7- Construction Costs will be included as part of the Reclamation reimbursement amount, the remaining amount as well as costs from the other tasks will be Cost Match



**Table 2-2**  
**Task 1 - Administration<sup>1</sup>**

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)				
District Engineer	95.00	260	Hours	\$ 24,700
Staff Accountant	35.00	0	Hours	\$ -
Engineering Tech	60.00	0	Hours	\$ -
CONTRACTUAL				
Engineering Consultant				
TRAVEL				
				\$ -
SUPPLIES/MATERIALS				
				\$ -
ENVIRONMENTAL/REG. COMPLIANCE				
				\$ -
OTHER				
				\$ -
TOTAL DIRECT COSTS				\$ 24,700
INDIRECT COSTS - __%				\$ -
TOTAL PROJECT COSTS				\$ 24,700

**Notes:**

(1) This amount is in accordance with District and consulting engineer experience reporting on Federal Grants, and recent agreements for Semitropic Water Storage District. It is assumed that the total amount is 1% of total project costs.

**Table 2-3**  
**Task 2 - Grant Reporting<sup>1</sup>**

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)				
District Engineer	95.00	160	Hours	\$ 15,200
Staff Accountant	35.00	100	Hours	\$ 3,500
Engineering Tech	60.00	0	Hours	\$ -
CONTRACTUAL				
Engineering Consultant				
TRAVEL				
				\$ -
MATERIALS AND SUPPLIES				
				\$ -
ENVIRONMENTAL/REG. COMPLIANCE				
				\$ -
OTHER				
				\$ -
TOTAL DIRECT COSTS				\$18,700
INDIRECT COSTS - %				
TOTAL PROJECT COSTS				\$18,700

**Notes:**

(1) Hours based on an estimated 20hrs/semi-annual report for the District Engineer and 10hrs/semi-annual report for the Staff Accountant, as well as 40hrs for both the District Engineer and Staff Accountant to do the Final Report.

(2) Assuming six semi-annual reports, each with a reimbursement request and QA/QC, over a three year period, and one final report.

Table 2-4  
Task 3 - Feasibility Study<sup>1</sup>

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)				
District Engineer	95.00	10	Hours	\$ 950
Staff Accountant	35.00	0	Hours	\$ -
Engineering Tech	60.00	0	Hours	\$ -
CONTRACTUAL				
TRAVEL				
				\$ -
EQUIPMENT				
				\$ -
MATERIALS AND SUPPLIES				
				\$ -
ENVIRONMENTAL/REG. COMPLIANCE				
				\$ -
OTHER				
				\$ -
TOTAL DIRECT COSTS				\$950
INDIRECT COSTS - __%				
TOTAL PROJECT COSTS				\$950

**Notes:**

(1) Total amount based on estimated remaining hours needed to complete the feasibility analysis.



Table 2-5  
Task 4 - Design and Project Layout

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)				
<i>Infiltration Gallery Design</i>				
District Engineer <sup>1,2</sup>	95.00	8	Hours	\$ 760
<i>Filtration System, Metered Connection and Monitoring Network Design</i>				
District Engineer <sup>1,2</sup>	95.00	40	Hours	\$ 3,800
Engineering Tech <sup>1,2</sup>	60.00	40	Hours	\$ 2,400
<i>Well Design</i>				
District Engineer <sup>1</sup>	95.00	10	Hours	\$ 950
CONTRACTUAL				
TRAVEL				
				\$ -
EQUIPMENT				
				\$ -
MATERIALS AND SUPPLIES				
				\$ -
ENVIRONMENTAL/REG. COMPLIANCE				
				\$ -
OTHER				
TOTAL DIRECT COSTS				\$7,910
INDIRECT COSTS - %				
TOTAL PROJECT COSTS				\$7,910

**Notes:**

(1) Hours based on the level of effort required to complete the Design layout of the Filtration and Metered Connection and the Shallow Well

(2) Design layout costs for the Infiltration Gallery and part of the Filtration System and Metered Connection are incorporated in the construction cost estimate provided by LIDCO

**Table 2-6**  
**Task 5 - Environmental Documentation<sup>(1)</sup>**

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)				
District Engineer	95.00	0	Hours	\$ -
Staff Accountant	35.00	0	Hours	\$ -
Engineering Tech	60.00	0	Hours	\$ -
CONTRACTUAL				
Engineering Consultant				
TRAVEL				
				\$ -
EQUIPMENT				
				\$ -
MATERIALS AND SUPPLIES				
				\$ -
ENVIRONMENTAL/REG. COMPLIANCE <sup>2</sup>				
USBR EA Review	\$ 90,000.00	1	LS	\$ 90,000
OTHER				
Environmental awareness and Survey	\$ 5,000.00	1	LS	\$ 5,000
TOTAL DIRECT COSTS				\$95,000
INDIRECT COSTS - __%				
TOTAL PROJECT COSTS				\$95,000

**Notes:**

(1) Assume the Total amount of the Environmental Task is about 3% of the Overall Project Costs

(2) Costs based on environmental costs for recent Cox Canal Project

Table 2-7  
Task 6 - Permits & Approvals<sup>1</sup>

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)				
District Engineer	95.00	0	Hours	\$ -
Staff Accountant	35.00	0	Hours	\$ -
Engineering Tech	60.00	0	Hours	\$ -
CONTRACTUAL				
Engineering Consultant				
Legal Counsel Consultant				
Legal Counsel	\$ 200.00	1	Hours	\$ 200
TRAVEL				
				\$ -
EQUIPMENT				
				\$ -
MATERIALS AND SUPPLIES				
				\$ -
ENVIRONMENTAL/REG. COMPLIANCE				
				\$ -
OTHER				
NPDES Application Filing Fee (100 Ac)	\$ 4,600.00	1	Filing	\$ 4,600
NPDES Application Filing Fee (115 Ac)	\$ 5,230.00	1	Filing	\$ 5,230
PM-10 Dust Control Application Filing Fee	\$ 422.00	2	Filing	\$ 844
TOTAL DIRECT COSTS				
				\$10,874
INDIRECT COSTS - %				
TOTAL PROJECT COSTS				
				\$10,874

**Notes:**

- (1) Cost for legal counsel based on hours needed to review permit documentation
- (2) NPDES application filing fee and PM-10 application filing fee based on published 2020 fees.



**Table 2-8**  
**Task 7 - Construction<sup>1</sup>**

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
<b>SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)</b>				
District Engineer	95.00	0	Hours	\$ -
Staff Accountant	35.00	0	Hours	\$ -
Engineering Tech	60.00	0	Hours	\$ -
<b>CONTRACTUAL AND CONSTRUCTION</b>				
Engineering Consultant				
<b>Surbsurface Recharge Construction</b>				
Initial 100-Acre Site	See Table 2-8a			\$1,559,328
Secondary Project Site	See Table 2-8a			\$1,441,755
<b>TRAVEL</b>				
				\$ -
<b>EQUIPMENT</b>				
				\$ -
<b>MATERIALS AND SUPPLIES</b>				
				\$ -
<b>ENVIRONMENTAL/REG. COMPLIANCE</b>				
				\$ -
<b>OTHER</b>				
<b>TOTAL DIRECT COSTS</b>				\$3,001,083
INDIRECT COSTS - __%				
<b>TOTAL PROJECT COSTS</b>				\$3,001,083

**Notes:**

(1) All Construction related cost estimates were prepared in support of the grant application and are not considered final bid prices. Final estimates will be determined as the design is finalized

**Table 2-8a**  
**Construction Components<sup>1</sup>**

Cost Estimate for SWSD Subsurface Recharge					
Initial 100-Acre Site					
Item No.	Description	Quantity	Unit	Unit Price	Cost
<u>Project-Wide</u>					
1	Clearing and Grubbing of Site	100	Ac	\$ 12.00	\$ 1,200.00
<u>Subsurface Recharge</u>					
2	Mainline	1	LS	\$ 242,577.00	\$ 242,577.00
3	Perforated Laterals	1	LS	\$ 240,881.00	\$ 240,881.00
<u>Filtration System and Metered Connection</u>					
4	Water Associates Cost Estimate	1	LS	\$ 758,677.00	\$ 758,677.00
<u>Monitoring</u>					
5	Piezometer	3	ea	\$ 1,250.00	\$ 3,750.00
6	Datalogger	3	ea	\$ 1,850.00	\$ 5,550.00
7	Cables	3	ea	\$ 347.67	\$ 1,043.00
<u>Well Construction</u>					
8	SWSD Cost Estimate of New Well and Tie-in Work	1	LS	\$ 305,650.00	\$ 305,650.00
Sub-Total (100-Acres):					\$ 1,559,328.00
Secondary Site					
Item No.	Description	Quantity	Unit	Unit Price	Cost
9	Construction Implementation for future site (no recovery well)	115	Ac	\$ 12,537.00	\$ 1,441,755.00
Sub-Total (Secondary Site):					\$ 1,441,755.00
Estimated Project Total:					\$ 3,001,083.00

**Notes:**

- (1) All construction related cost estimates were prepared to support the grant application and are not considered final bid prices. Final estimates will be determined as the design is finalized
- (2) Unit price for construction implementation of the second site was based off the cost estimates prepared for the initial 100-Acre site, not including construction of the shallow recovery well.
- (3) Estimated Project total was the summation of the Subtotal of the 100-acre and subtotal secondary site.

**Table 2-8b  
Construction Components**

Cost Estimate for SWSO Subsurface Recharge					
Initial 100-Acre Site					
Item No.	Description	Quantity	Unit	Unit Price	Cost
<i>Project Wide Items</i>					
1	Clearing and Grubbing of Site	100	Ac	12.00	\$ 1,200.00
<i>Infiltration Gallery</i>					
2	Mainline	1	LS	242,577.00	\$ 242,577
<i>System Components</i>					
	60" x 15" Prinsco fabricated standpipe	1	LS	3,750.00	\$ 3,750.00
	18" non-perf dual wall drainage pipe	635	LF	16.00	\$ 10,160.00
	15" non-perf dual wall drainage pipe	1,380	LF	13.00	\$ 17,940.00
	12" non-perf dual wall drainage pipe	1,930	LF	9.00	\$ 17,370.00
	8" non-perf dual wall drainage pipe	4,275	LF	4.00	\$ 17,100.00
<i>Other Costs</i>					
	Labor & Equipment	1	LS	110,225.00	\$ 110,225.00
	Surveying/ Mapping	1	LS	1,750.00	\$ 1,750.00
	Overhead/Profit/ Taxes	1	LS	64,282.00	\$ 64,282.00
3	Perforated Laterals	1	LS	240,881.00	\$ 240,881.00
<i>System Components</i>					
	4" perf drainage tubing	39,488	LF	0.50	\$ 19,744.00
	Gravel envelop	1,360	ton	33.00	\$ 44,880.00
<i>Other Costs</i>					
	Labor & Equipment	1	LS	110,225.00	\$ 110,225.00
	Surveying/ Mapping	1	LS	1,750.00	\$ 1,750.00
	Overhead/Profit/ Taxes	1	LS	64,282.00	\$ 64,282.00
<i>Filtration System and Metered Connection</i>					
4	Water Associates Cost Estimate	1	LS	758,677.00	\$ 758,677.00
<i>Monitoring</i>					
5	Piezometer	3	ea	1,250.00	\$ 3,750.00
6	Datalogger	3	ea	1,850.00	\$ 5,550.00
	Level Troll 500, Level Sensor Range- 69m, 231 ft (30 psi)	3	ea	1,195.00	\$ 3,585.00
	Twist-Lock External Battery Pack for Level Troll's and Aqua TROLL's	3	ea	415.00	\$ 1,245.00
	Large Desiccant (Titanium Connector)	3	ea	115.00	\$ 345.00
	Sales Tax (rounded to nearest dollar)	7.25%		5,175.00	\$ 375.00
7	Cables	3	ea	347.67	\$ 1,043.00
	Rugged Twist-Lock Cable, Vented, TPU, No Reel, Twist-Lock, None (50 ft)	3	ea	324.00	\$ 972.00
	Sales Tax (rounded to nearest dollar)	7.25%		972.00	\$ 71.00
<i>Well Construction</i>					
8	SWSO Cost Estimate of New Well and Tie-in Work	1	LS	305,650.00	\$ 305,650.00
	Phase 1: Borehole	1	LS	205,000.00	\$ 205,000.00
	Phase 2: Pump and Motor Unit	1	LS	53,400.00	\$ 53,400.00
	Phase 3: Well Tie-in Work	1	LS	26,250.00	\$ 26,250.00
	Phase 4: Electrical Work	1	LS	21,000.00	\$ 21,000.00
	<b>Sub-Total (100-Acre):</b>				\$ 1,559,328.00
Secondary Project Site:					



Table 2-9  
Task 8 Construction Administration and Management<sup>1</sup>

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES AND WAGES (INCLUDING FRINGE BENEFITS)				
District Engineer	95.00	300	Hours	\$ 28,500
Staff Accountant	35.00	0	Hours	\$ -
Engineering Tech	60.00	100	Hours	\$ 6,000
CONTRACTUAL AND CONSTRUCTION				
Engineering Consultant				
TRAVEL				
				\$ -
EQUIPMENT				
				\$ -
MATERIALS AND SUPPLIES				
				\$ -
ENVIRONMENTAL/REG. COMPLIANCE				
				\$ -
OTHER				
TOTAL DIRECT COSTS				
				\$34,500
INDIRECT COSTS - %				
TOTAL PROJECT COSTS				
				\$34,500

**Notes:**

(1) All work will be done exclusively by the District Staff. Construction Management includes material submittal review, as-built and OMM review, overseeing field coordination, and inspections.

**Table 2-10a - Burdened Hourly Rates**  
**Calculation of Burdened Labor Hourly Rate for District Staff**

Job Classification	Hourly Rate <sup>1</sup>	Fringe Benefits <sup>2</sup>	Total Burdened Hourly Rate
General Manager			\$0.00
District Engineer	\$95.00		\$95.00
Staff Accountant	\$35.00		\$35.00
Engineering Tech	\$60.00		\$60.00

**Notes:**

(1) Fixed annual salary divided by 2080 hours.

(2) Typical fringe benefits are about 24 to 44 percent of Hourly Rate for health care, retirement, Social Security, paid vacation, sick leave, and holidays.

**Table 2-10b**  
**Calculation of Burdened Labor Hourly Rate for GEI Staff**

Personnel Category	Hourly Billing Rate
Senior Consultant-Grade 8	\$297.00
Senior Professional-Grade 7	\$265.00
Senior Professional-Grade 6	\$223.00
Senior Professional-Grade 5	\$196.00
Project Professional-Grade 4	\$166.00
Project Professional-Grade 3	\$148.00
Staff Professional-Grade 2	\$135.00
Staff Professional-Grade 1	\$123.00
Field Observer	\$111.00
Senior CAD Drafter/Designer/GIS	\$148.00
Administrative Staff	\$110.00

### **3. Environmental and Cultural Resources Compliance**

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The following section summarizes SWSD's approach to avoid, minimize, and mitigate any potential environmental impacts related to construction of a subsurface recharge site and recovery well. The following paragraphs address the specific questions posted in the Environmental and Cultural Resources Compliance section of the FOA.

**Will the project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)?**

The extent of construction activities (footprint) is relatively small for this Project and located within property owned by SWSD or property through SWSD would have access through via land purchase or easements. At this time, the District is not aware of any part of this Project that will have a significant impact on soil, air, water, or animal habitat, since all work will be on actively disturbed and farmed property. However, all applicable environmental compliance measures will be followed, to ensure no improper disturbances are made to the environment and animal life. Such environmental measures include executing the PM-10 Dust Control Plan, Storm Water Pollution Prevention Plan, and the necessary biological site surveys.

**Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area?**

SWSD is aware that threatened and endangered species exist in the Southern San Joaquin Valley. The FWS Endangered Species Database list several threatened and endangered species within Kern County. However, based on experience, the Kern Council of Governments Habitat Conservation Map, and federally listed species mapping, no endangered habitats have been identified within the initial Project site and SWSD will follow all environmental guidelines and survey protocols to ensure that no endangered species will be impacted at the second site.

**Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?"**

No.

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

The District's irrigation delivery system was completed in the mid-1970s. The District's irrigation delivery system is composed of two canal reaches referred to as the Pond-Poso and Buttonwillow Ridge Canal. In addition, the District operates a series of turnouts, spillway basins, recharge basins, pump stations and discharge pipelines as part of its conveyance system. The District began importing State Water Project water in 1973.

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

The proposed Project will not alter any existing features of an irrigation system.



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

No.

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

No, there are no known archeological sites in the initial 100-acre project area. The second 115-acre project area has not yet been determined, but the District plans to choose a project similar to the initial 100-acre site which would have been previously disturbed land that has been regularly maintained. A cultural resources survey may need to be completed as part of the environmental evaluation of the proposed Project. Since the proposed Project is already on disturbed area, it is anticipated there will be no significant impacts to cultural resources from the Proposed Action.

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.

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

No, construction of the Project will support the important agricultural-based economy in the Southern San Joaquin Valley and have only positive impacts on low income or minority populations in the area.

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

No.

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

No.

#### **4. Required Permits or Approvals**

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The District will be implementing the project and will be responsible for securing any permits that are necessary through the construction contract. The District will own the land or have easement agreements with landowners on whose facilities the components are to be installed.

It is anticipated that only two permits related to construction will be required and application will be made for these permits prior to construction commencing. Below are the two permits that will be secured prior to construction commencing:

1. **National Pollutant Discharge Elimination System (NPDES) Permit** – Application will be made to the State Water Resource Control Board for an NPDES permit related to storm water discharges from construction activities (such as clearing, grading, excavating, and stockpiling). A Notice of Intent (NOI) will be submitted certifying that all permit eligibility conditions have been met. As part of the preparation of an NOI, a State Water Pollution Prevention Plan (SWPPP) will be developed and implemented during construction of the Project. The SWPPP will spell out Best Management Practices to prevent waste and pollutants from flowing to surface water and groundwater. This permit will be obtained immediately prior to construction.
2. **PM-10 Dust Control Permit** – Application will be made to the San Joaquin Valley Air Pollution Control Board for a PM-10 Dust Management Plan permit. This permit will require that a dust control management plan be prepared and implemented during construction to prevent air pollution.

An evaluation will be made by District Counsel regarding whether construction of the Project components will require any additional permits. It is noted that the District is not subject to the County's jurisdiction regarding building and grading permits. Accordingly, no County-issued permits will be required. The District will comply with CEQA and NEPA before commencing any ground disturbing activities. Additionally, a pre-activity survey will be conducted by a qualified biologist prior to the start of construction. There are no expected impacts related to endangered or threatened species in the District's service area or facilities. Project site is located on previously disturbed agricultural land which is regularly maintained, disked, cleared, and grubbed.

## **5. Existing Drought Contingency Plan**

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As previously described in Section 1.5.2, SWSD is currently in the process of developing a Drought Contingency Plan (DCP) with the Poso Creek IRWM Group. A Drought Plan Memo has been developed to support the planning process and the development of the final Poso Creek DCP. This memo has been included in Appendix D for reference.



RESOLUTION OF THE BOARD OF DIRECTORS  
OF THE SEMITROPIC IMPROVEMENT DISTRICT  
OF THE SEMITROPIC WATER STORAGE DISTRICT

IN THE MATTER OF:

RESOLUTION NO. SID 20-02

IN SUPPORT OF FILING AN APPLICATION WITH THE BUREAU OF RECLAMATION FOR A  
GRANT UNDER WATERSMART DROUGHT RESILIENCY PROJECTS (*FY 2021*)

WHEREAS, the Semitropic Water Storage District (District or Applicant) partnered with several neighboring water districts and formulated the Poso Creek Integrated Regional Water Management Plan (Plan), adopted in 2007, and updated in 2014 and 2019 by each of the districts for their collective area; and

WHEREAS, the Plan identified improving water reliability as a regional priority and identified the District's water banking program, expanding supplemental surface water delivery systems, the in-lieu and direct recharge facilities, well extraction and recovery capacity, and projects that regulate water supplies available to the District and its Banking Partners; and

WHEREAS, State and Federal regulatory measures in the Delta have rendered the District's SWP water less reliable, creating an additional need to regulate supplies when they are available from other sources; and

WHEREAS, the District's regulating capabilities can be improved through expansion of groundwater recharge and recovery capacity.

WHEREAS, the United States Bureau of Reclamation is currently soliciting proposals for grant funding assistance under their *WATERSMART DROUGHT RESPONSE PROGRAM* (Funding Opportunity No. BOR-DO-20-F002); and

WHEREAS, District Staff has formulated a grant proposal for construction of a subsurface recharge site equipped with a filtration system and recovery well, referred to as *SEMITROPIC SUBSURFACE RECHARGE AND RECOVERY PROJECT (\$750,000 grant application)*.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the APPLICANT as follows:

- a. The District's Board of Directors or has reviewed and supports the submission of a grant application to Reclamation entitled "Semitropic Subsurface Recharge and Recovery Project" (*\$750,000 grant application*);
- b. The District's General Manager, Jason Gianquinto, or his designee, is directed to submit the grant application and is authorized to enter into an agreement with Reclamation on behalf of Semitropic for grant funding under Reclamation's *WATERSMART DROUGHT RESILIENCY PROJECTS (FY 2021)*;
- c. The Applicant is capable of providing the amount of funding and in-kind contributions specified in the application; and
- d. The Applicant will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

ALL THE FOREGOING, being on motion of Director Wegis, and seconded by Director Portwood, was authorized by the following vote:

AYES: Directors Portwood, Thomson, Toretta, Waterhouse and Wegis

NOES: None

ABSENT: Director Tracy

ABSTAIN: Director Fabbri

I HEREBY CERTIFY that the foregoing resolution is the resolution of said Board of Directors, acting for and on behalf of said Improvement District, as duly passed and adopted on the 8<sup>th</sup> day of July, 2020.

WITNESS My hand and seal of said Board of Directors this 8<sup>th</sup> day of July, 2020.

  
Asst. Secretary of the Board of Directors

[District Seal]



July 8, 2020

Mr. Jason Gianquinto  
General Manager  
Semitropic Water Storage District  
1101 Central Avenue  
Wasco, CA 93280

Re: Proposed Project – *Semitropic Enhanced Recharge and Recovery Project (\$1,500,000 Application)*

Dear Mr. Gianquinto,

On behalf of the Poso Creek Integrated Regional Water Management (IRWM) Group, I express support of Semitropic Water Storage District's (SWSD) *Semitropic Enhanced Recharge and Recovery Project* and their efforts to facilitate the conservation of groundwater resources within the district by building the means to recharge during wet years for subsequent return of supply during dry years or drought conditions. This will be possible through the construction of a subsurface recharge site and recovery well.

The Poso Creek IRWM Group is interested in and supportive of the *Semitropic Enhanced Recharge and Recovery Project*, as it will support drought resiliency and groundwater sustainability by providing a means to recharge available surface water during wet years without loss to prime farmland. This effort will help maintain groundwater levels, support groundwater sustainability, and increase water supply reliability in years of drought.

This Project is an important improvement in the Poso Creek Region and further supports drought resiliency and groundwater sustainability by providing additional capacity for groundwater banking. I hope that our expression of support is helpful in your efforts to secure grant funding assistance to implement this project. If the funding agency would like to discuss our interest and support of your project, I would be happy to do so.

Sincerely,

Dana Munn  
Chairman, Poso Creek IRWM Group  
[dmunn@swid.org](mailto:dmunn@swid.org)  
(661) 758-5153