Proposal to:

U.S. Department of Interior, Bureau of Reclamation

WaterSMART Grants:
Drought Response Program: Drought Resiliency Projects for Fiscal Year 2019

FOA No. BOR-DO-19-F003

UPPER VALLE DE LOS CABALLOS OPTIMIZATION PROJECT: PHASE IV

Temecula, CA

March 27, 2019

Applicant: Rancho California Water District

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Date
March 27, 2019

Applicant Information
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Project Summary
Completed in 2012, Rancho California Water District's (RCWD/District) *Upper Valle De Los Caballos* (Upper VDC) *Conjunctive Use Optimization Study*, describes a four-phase implementation plan for optimizing RCWD's groundwater recharge and recovery facilities. The four-phase project (Upper VDC Project) increases groundwater recharge and recovery through:

- Phase 1: Rehabilitating existing wells and improving disinfection processes,
- Phase 2: Pond grading improvements, installation of new recharge outlet structures, and recovery/extraction of additional recharge water through the construction of two new wells,
- Phase 3: Construction of a chlorine contact tank, a regional pump station, and centralized disinfection equipment, and
- Phase 4: Construction of new groundwater wells down-gradient from Phase 3 improvements

While the first two phases of the Upper VDC Project are fully complete, design and environmental compliance work for the third and fourth phases have recently begun. Phases 3 and 4 will be implemented concurrently, with the treatment facilities and pump station constructed as part of Phase 3 being completed approximately two months prior to Phase 4 construction of a new extraction well. Completion of Phase 3 will allow for an increase of recharge at the Upper VDC facilities from 13 cubic feet per second (CFS) up to 42 CFS, a 223% increase. RCWD is requesting a grant award of $750,000 for implementation of Phase 4, which involves the construction of a new recovery/extraction well (Proposed Project) down-gradient from Phase 3 improvements. The Proposed Project improves drought resiliency by providing RCWD with the ability to extract 3,000 acre feet per year of additional recharge water during all conditions, including dry years, and the operational flexibility to extract either local surface water conveyed to the recharge facilities from nearby Vail Lake or untreated import water, whichever is available. Infrasturucure improvements completed as part of the Proposed Project contribute to the goals and objectives of the regional Drought Plan by improving the overall sustainability and reliability of groundwater supplies, and improving regional water management. In addition, the Proposed Project contributes to the goals of the U.S. Bureau of Reclamation's WaterSMART Grants: Drought Response Program by building long-term resilience to drought and reducing the need for emergency response actions through creation of additional water supply and increasing water management flexibility.

Project Schedule *(length of time and estimated completion date)*
The Proposed Project can begin immediately upon award of funding and execution of the financial assistance agreement, and will be complete by 7/1/2022, within the three-year requirement for Funding Group II projects. The Project Schedule indicates key program milestones and deliverables, and is provided on page 20 of this proposal.

Proximity of Project to Federal Facility

The Proposed Project is not on Reclamation project lands and does not involve Reclamation facilities. However, the project does reside in the Colorado River Basin within Reclamation's Lower Colorado Region, and a large portion of the water used in the Proposed Project area is imported through the Colorado River Aqueduct (CRA) (Reclamation project water).

E. Background Data

Water Supply Sources

The District obtains water from the following primary water sources:

- Imported State Water Project (SWP) water from the California Bay-Delta
- Imported Colorado River water from the Colorado River Aqueduct (CRA).
- Local groundwater from the Temecula Valley Groundwater Basin
- Recycled water from both District and Eastern Municipal Water District

Water Rights

Temecula Valley Groundwater Basin

The Temecula Valley Groundwater Basin has been governed under court jurisdiction since 1928, as part of the Santa Margarita River Watershed system. Since then, a series of court judgments have been issued directing the use and allocation of groundwater in the region. These judgments involved years of court cases and power struggles by multiple parties, including the Federal government (U.S. Marine Corps Camp Pendleton) over water use in the watershed basins, citing that the judgments did not fully meet the needs of the parties for effective water management. Finally, after many years, a settlement agreement, *"Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District",* was reached and executed in March 2002. This agreement remains in place today to govern water flow in the Santa Margarita River and use of the Murrieta-Temecula Basin. In addition, as a result of the judgments the State Water Resources Control Board issued Permit 7032 to RCWD in 2009, providing water appropriations in Vail Lake. The long-history of litigation of groundwater resources illustrates the scarcity of water in the region.

To further manage water in the region, a Watermaster was assigned by the court to oversee all uses within the Santa Margarita River Watershed, which includes three groundwater basins: the Santa Margarita Groundwater Basin, the Anza Groundwater Basin, and the Murrieta-Temecula Groundwater Basin. The Watermaster prepares the "Santa Margarita Watershed Annual Watermaster Report", providing annual reporting of water conditions in the watershed, but does not manage the groundwater basins. The Annual Watermaster Report includes information on surface and subsurface water, imports and exports, water rights, water production and use, threats to water supply, water quality, review of agreements, and Watermaster five-year projection of activities. The Court has retained jurisdiction over all surface flows of the Santa Margarita River Watershed and all underground waters determined by the Court to be subsurface flow of streams or creeks or which is determined by the Court to add to, support or contribute to the Santa Margarita River stream system. Local vagrant groundwaters that do not support the Santa Margarita River stream system are outside the Court jurisdiction.

Other Groundwater Resources
In December 2006, a 'Groundwater Management Agreement between Rancho California Water District and the Pechanga Band of Luiseno Mission Indians' was executed to govern the management of groundwater pumping from the Wolf Valley Groundwater Basin in a manner not to exceed the safe yield that protects groundwater in the basin for present and future uses.

Imported Water
The District receives imported water from the Metropolitan Water District of Southern California through two wholesalers, Eastern Municipal Water District (EMWD) and Western Municipal Water District (WMWD). EMWD is a public water agency formed in 1950 to deliver imported water to supplement local groundwater and evolved over time to include groundwater production, desalination, water filtration, wastewater collection and treatment, and regional water recycling to the list of products and services it offers to its approximate 100,000 customers. EMWD is a member agency of Metropolitan and receives imported water from the CRA and the SWP. EMWD provides wholesale water to the District as a sub-agency. WMWD is a public water agency formed in 1954 to bring supplemental water to growing Riverside County. WMWD is a member agency of Metropolitan and serves water to approximately 23,000 domestic and 130 irrigation connections in its retail service area to a population of about 85,000 in unincorporated areas of Riverside County. WMWD provides wholesale water to RCWD, which consists of water from the CRA and SWP.

Recycled Water
Recycled water in the RCWD service area is produced from two facilities: the Santa Rosa Water Reclamation Facility operated by RCWD, and the Temecula Valley Regional Water Reclamation Facility (TVRWRF) operated by EMWD. Both plants treat wastewater to Title 22 standards. In 2010, RCWD served approximately 4,400 AFY of recycled water. At present, RCWD is maximizing recycled water from these two plants to meet landscape irrigation demands. Additional recycled water from TVRWRF could be used if advanced treatment beyond Title 22 standards was applied. As a result, not all of the recycled water from TVRWRF is beneficially used and must be pumped out of the basin for reuse in other basins or discharged to Temescal Creek.

Current Water Uses
RCWD provides water for both urban and agricultural end-uses for the following types of water consumers: Single-Family Residential, Multi-family Residential, Commercial, Industrial, Institutional and Governmental, Dedicated Landscape, Agricultural, and Agricultural/Residential

Number of Water Users Served
According to the District's 2015 Urban Water Management Plan, RCWD served a population of 148,105 through approximately 44,000 water service connections. Estimated current population (for 2019), is over 150,000.

Current and Projected Water Demand
During Fiscal Year 2014/15, total water demand was 65,279 acre-feet. This demand is described in the District's Urban Water Management Plan as follows:

Use Type	Fiscal Year 2014/15		
	Description	Level of Treatment	Volume
Single Family Residential		Drinking Water	25,308
Multi-Family Residential		Drinking Water	2,201
Commercial	Includes Industrial	Drinking Water	3,393
Institutional/Governmental		Drinking Water	463
Dedicated Landscape Irrigation		Drinking Water	5,601
Agricultural Irrigation		Drinking Water	21,940
Sales/Transfers/Exchanges to Other Agencies	Water Wheeled to Other Agencies	Drinking Water	304
Sales/Transfers/Exchanges to Other Agencies	Santa Margarita River Discharge Water	Raw Water	2,954
Losses		Drinking Water	3,040
Other	Construction Meters	Drinking Water	75
TOTAL			**65,279**

Water demand is expected to increase each year. Projected future water demands are shown in the following table for every five years beginning in 2020 and until the year 2040.

Use Type	Description	Projected Water Use				
		2020	2025	2030	2035	2040
Single Family Residential		28,870	30,062	31,253	32,443	33,774
Multi-Family Residential		2,511	2,615	2,718	2,822	2,937
Commercial	Includes Industrial	3,871	4,031	4,190	4,350	4,529
Institutional/Governmental		528	550	571	593	618
Dedicated Landscape Irrigation		6,389	6,653	6,916	7,180	7,474
Agricultural Irrigation		25,217	26,258	27,298	28,338	29,501
Sales/Transfers/Exchanges to Other Agencies	Water Wheeled to Other Agencies	2,781	5,278	5,278	5,278	5,278
Sales/Transfers/Exchanges to Other Agencies	Santa Margarita River Discharge Water Transfer	4,000	4,000	4,000	4,000	4,000
Losses		3,391	3,531	3,671	3,811	3,967
Other	Construction Meters	85	89	93	96	100
Wetlands or Wildlife Habitat		2	0	0	0	0
TOTAL		**77,645**	**83,067**	**85,988**	**88,911**	**92,178**

Potential Shortfalls in Water Supply

The reliability of the District's water supply is largely dependent on the reliability of its imported water supplies, which are delivered by the Metropolitan Water District of Southern California. On April 14, 2015, Metropolitan announced a 15% reduction in deliveries due to a fifth consecutive year of drought in California and in response to new State of California Regulations. This was the fourth time Metropolitan has restricted imported supplies in response to drought

conditions, the last being a 10% cutback from July 2009 to April 2011. While the 15% cutback of 2015 has been temporarily lifted because of recent precipitation in the northern California, the long-term reliability of RCWD's imported supplies is questionable due to the state's extreme variability in precipitation, and due to ongoing drought within the Colorado River Watershed.

The District also depends on local water supplies from the Temecula Valley Groundwater Basin. While imported supplies brought from northern California seem to have recovered (at least temporarily), local supplies have not recovered from the recent five-year drought. In fact, local drought conditions have continued beyond the five-year statewide drought, and water levels both within the local groundwater basin and within the District's Vail Lake have dropped to historic lows. At this point, the District compensates for reduced local supplies through expensive imported water purchases and through increased conservation efforts. The Proposed Project leverages both local surface water and inexpensive untreated import water supplies as they become available to create additional local groundwater supply, which can be used during droughts and emergency situations.

Major Crops and Total Acres Served

Typical agricultural uses include major crops of avocados, citrus, and winegrapes, totaling approximately 9,127 irrigated-acres, or approximately 10 percent of the District's service area.

Description of Water Supply Facilities/Distribution System

RCWD receives its imported water (treated and untreated) directly through six Metropolitan water turnouts, three in EMWD's service area and three in WMWD's service area. The District pumps groundwater from 48 district wells and recycles water at its Santa Rosa Water Reclamation Facility (SRWRF). Additional recycled water is available from EMWD.

RCWD's domestic distribution system includes about 900 miles of water pipelines to convey water to customers. It is composed of two divisions: the Santa Rosa Division in the westerly half, and the Rancho Division in the easterly half. Each division provides water through a number of pressure zones ranging from 1,305 feet (above sea level) to 2,850 feet. The 1,305 zone provides service to the I-15 corridor area and serves as the "forebay zone" for several pump stations which supply higher zones. Treated water from Metropolitan and the majority of groundwater enters the RCWD system in this zone. Some additional groundwater enters the system in the 1380, 1610, and the 1790 Zones of the Rancho Division, in the 1500 Zone of the Santa Rosa Division. RCWD owns and operates 37 storage reservoirs and one surface reservoir, Vail Lake. Current reservoir tank storage is 54.7 million gallons (MG) in the Santa Rosa Division and 83.4 MG in the Rancho Division. The storage capacity of Vail Lake is 49,000 AF. RCWD has implemented a comprehensive reclaimed storage pond system including the ability to convey water back to the treatment facility for supplemental treatment or pumping direct to the distribution system. Current storage capacity is in excess of 737 AF. Ultimate capacity requirements are approximately 2,700 AF.

Past Working Relationships with Reclamation

Advanced Water Consumption Data Pilot Program: In 2018, Reclamation awarded RCWD $44,046.80 for implementation of an Advanced Water Consumption Data Pilot Program. The Pilot Program deploys two technologies within strategically selected segments of the District's

customer population. First, ultrasonic water meters are being installed at forty sites to replace existing, less-accurate meters. Second, RCWD's existing MyWaterTracker tool is being upgraded to provide 700 of the District's customers with easier access to higher-resolution, real-time water consumption data.

District Metered Area Project: In late 2018, Reclamation awarded $70,500 to RCWD for creation of a District Metered Area (DMA). The DMA will function as a permanent water loss control system, which will be established by isolating a discrete section of RCWD's distribution system for monitoring the quantities of water entering and leaving the section. The Project includes: installing two new production meters for measuring water quantity entering the DMA, quantifying water loss by comparing that quantity of water to the total amount of water leaving the DMA through customer meters, using custom software to help identify and locate sources of water loss, mitigating sources of water loss through replacement of traditional customer meters with ultrasonic meters, and demonstrating benefits of the DMA to other water agencies.

Enhancing Conservation and Water Use Efficiency through Incentive Pricing Structures: In 2017, the District entered into a $47,400 funding agreement with Reclamation for the Lower Colorado Region Water Conservation Field Services Grant Program. The funding agreement was for implementing a project called Enhancing Conservation and Water Use Efficiency through Incentive Pricing Structures, which included: 1) refining RCWD's existing water allocations for agricultural customers to more accurately reflect specific crop water requirements and irrigated areas, and 2) updating RCWD's existing Water Budget Rate Model under various water supply scenarios to determine the rates required for collecting total required revenues.

Integrating Innovative Technologies for Enhanced Outdoor Water Use Efficiency: In 2016, the District entered into a $79,204.70 funding agreement with Reclamation for the Water Conservation Field Services Project – Lower Colorado Region– FY 2016. The funding agreement was for implementation of a project called Integrating Innovative Technologies for Enhanced Outdoor Water Use Efficiency, which models the integration of three separate water conservation devices at five strategically selected residential landscape irrigation sites within the District's service area. The integration of these devices, which include Wi-Fi enabled weather based irrigation controllers, pressure regulating sprinkler stems, and high-efficiency sprinkler nozzles are intended to increase both irrigation system and irrigation scheduling efficiency at the five sites, which would lead to better water management and measurable water savings.

Agricultural Crop Conversion Program: In 2016, the District entered into a $1,000,000 funding agreement with Reclamation for the Agricultural Water Conservation and Efficiency Grants Fostering District/Farmer Partnerships grant program. The funding agreement was for implementation of a Crop Conversion Program through which financial incentives are provided to farmers for the replacement of high water use crops with lower water use varieties. Implementation of the Program mitigates imported water demand from the Colorado River, helps sustain the region's agricultural economy— rising imported water costs are causing the production of higher water use crops to become less economical and sustainable, and assists in improving the economic viability of local agriculture through conversion to lower water use crops.

Advanced Metering Infrastructure to Enhance Water Use Efficiency and Energy Efficiency Project (AMI Project): In 2014, the District entered into a $298,677 funding agreement with Reclamation for the Bay-Delta Restoration Program: CALFED Water Use Efficiency Grant for Fiscal Year 2014. The AMI Project includes the upgrade of 20,165 Encoder Radio Transmitter (ERT) devices, which provide for "drive-by" collection of current consumption data, with the

AMI Itron 100W Choice Connect network System that automatically collects and stores hourly consumption data. The Project benefits all District customers..

Blueprint for Water Use Efficiency (Blueprint): In 2013, the District entered into a $54,681 funding agreement with Reclamation for a Conservation Field Services Program – Southern California Area Office Grant for Fiscal Year 2013. The Blueprint provides a thorough analysis of urban water use efficiency, conservation measures and agricultural strategies, resulting in a clear direction of programs and activities to meet the District's water efficiency goals and objectives through a balance of proposed programs.

Residential Irrigation Efficiency Program (REIP): In 2012, the District entered into a $55,000 funding agreement with Reclamation for a Conservation Field Services Program – Southern California Area Office Grant for Fiscal Year 2012. The purpose of the RIEIP is to make more efficient use of existing local water supplies through implementation of cost-effective outdoor water use efficiency measures with the intent of enhancing local water supply availability and reducing per capita water consumption for residential customers within RCWD's service area.

Enhanced Agricultural Irrigation Efficiency Program (Enhanced AIEP): In 2012, the District entered into a $174,192 funding agreement with Reclamation for a Bay Delta Restoration Program: Agricultural Water Conservation and Efficiency Grant. The Enhanced AIEP promotes and improves on-farm water use efficiency, building upon and broadening the Existing AIEP, by adding a component that provides farmers the tools necessary for scheduling irrigation events more accurately and effectively.

Vail Lake Indirect Potable Reuse (IPR) Conceptual Design Study: In 2012, the District entered into a $150,000 funding agreement with Reclamation for a WaterSMART: Title XVI Water Reclamation and Reuse Program grant for Fiscal Year 2013. The District has an authorized Title XVI project, which has received Reclamation funding, including the Vail Lake Stabilization and Conjunctive Use Project under the American Recovery and Reinvestment Act and the Vail Lake IPR Conceptual Design Study under the WaterSMART funding. The IPR Study was completed in March 2013.

Vail Lake Stabilization and Conjunctive Use Project: In 2009, the District entered into a $6,100,000 American Recovery and Reinvestment Act (ARRA) agreement with Reclamation. The Project has been designed and constructed, and a Notice of Completion for the major construction was filed in November 2010. Subsequently, the Native Vegetation Restoration effort was completed by August 2011, and the Quagga Mussel Control Facility was completed in June 2013.

Residential One Stop Installation Program (ROSIP): In 2009, the District entered into a $260,440 agreement with Reclamation for a CALFED Water Efficiency Grant. ROSIP targeted 500 residential water users for on-site evaluations to identify sources of water waste. RCWD educated customers on water conservation and installed water-saving devices. ROSIP's final report was submitted on August 1, 2011.

Avocado Study: In 2008, the District entered into a $100,000 agreement with Reclamation for a Soil and Moisture Conservation Program Grant. Reclamation recognizes the RCWD as a large agricultural area in the southern California region and is supportive of the opportunity to help the efforts in conservation programs. The grant funded a study that demonstrated to avocado growers that smart irrigation controllers can provide water savings while maintaining crop integrity and fruit production.

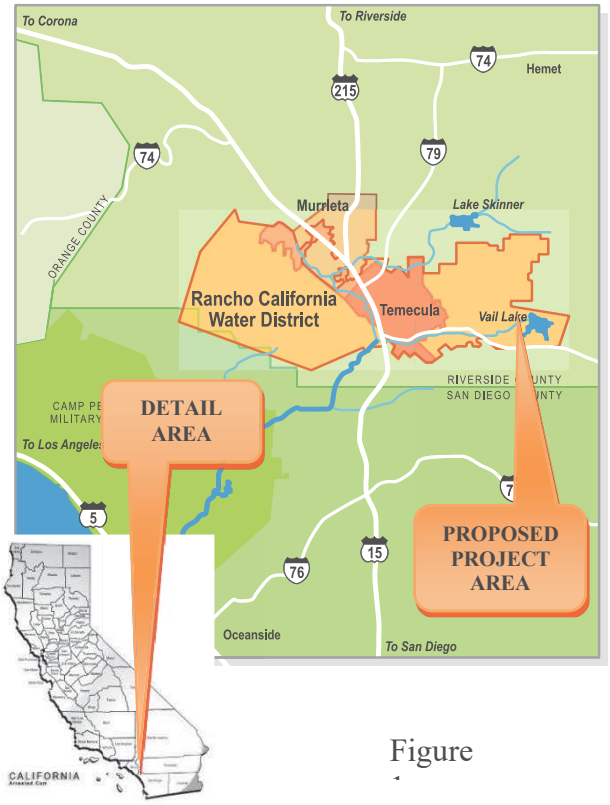
Weather-Based Irrigation Controller Direct Install Program (WBIC Program): In 2007, the District entered into an $87,500 agreement with Reclamation for a Water 2025: Preventing Crisis and Conflict in the West, Challenge Grant. The funding extended an ongoing smart irrigation controller direct install program for commercial and residential water users. The Program's final report showed the Program resulted in the installation of WBIC's on 667 acres with water savings of more than 5,700 acre-feet.

F. Project Location

Rancho California Water District (RCWD/District) provides water for urban and agricultural uses to the City of Temecula, portions of the City of Murrieta, and unincorporated southwestern Riverside County lands in the surrounding area. RCWD comprises nearly 100,000 acres in the southwestern portion of Riverside County, California. The District is about 85 miles southeast of the City of Los Angeles, 40 miles south of City of Riverside and 65 miles north of the City of San Diego.

The District's service area is bounded on the southwest by the Santa Ana Mountains and on the northeast by Gavilan Hills. Figure 1 shows the location and boundary of RCWD in the State of California, within the County of Riverside, adjacent to the counties of San Diego and Orange, and the cities of Temecula and Murrieta identified within the District service area.

The Proposed Project is located within the District's Rancho Division (east side of I-15) about one mile downstream of Vail Lake as shown in Figure 1.



Figure

G. Technical Project Description and Milestones

Project Summary

The Proposed Project is the fourth and final phase of the larger Upper VDC Optimization Project (see Appendix B), which increases groundwater recharge and recovery at RCWD's existing facilities. The first two phases of the Project are complete, and the third and fourth phases will be implemented concurrently, with Phase 3 being completed approximately two months prior to Phase 4. RCWD is requesting a grant award of $750,000 for implementation of Phase 4, which involves construction of a new recovery/extraction well, well #172, down-gradient from Phase 3 improvements to groundwater recharge and treatment facilities. The Proposed Project improves drought resiliency by providing RCWD with the ability to extract 3,000 acre feet per year of additional water during all water supply conditions, including dry years, and improves operational

flexibility by giving the District the ability to extract either local water conveyed to the recharge facilities from nearby Vail Lake or untreated import water, whichever is available. The non-Federal cost share for the Proposed Project is secured by 2016 bond financing, and specific milestones required for implementation of the Proposed Project include completion of Preliminary Design, Environmental Compliance, Permitting, Final Design, and Construction. Following are detailed descriptions of these milestones.

- ***Milestone 1: Preliminary Design***
  Preliminary Design activities include the awarding of a contract by RCWD for preliminary design services and for preparation of a Preliminary Design Report including groundwater modeling and design drawings. At this point, Preliminary Design is underway: the contract for preliminary design services has been awarded, and the Preliminary Design Report is scheduled for completion in June 2019.

- ***Milestone 2: Contractor Procurement for Final Design of Well Drilling and Equipping***
  RCWD is preparing to advertise two design bid opportunities for the final design of well drilling and one equipping. Once received, RCWD staff will review the bids submitted, award two separate contracts for the design work, and issue Notices to Proceed to each contractor. Work for accomplishing this milestone has begun and will be complete prior to the execution of the Grant Agreement, in May 2019.

- ***Milestone 3: Environmental Compliance***
  Environmental compliance includes gaining both California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA) approval for the Proposed Project. The process of gaining these approvals will begin prior to grant award in June 2019 upon completion of Milestone 1: Preliminary Design, and will be complete by January 2020, prior to the beginning of construction.

- ***Milestone 4: Final Design - Well Drilling***
  Final Design activities for well drilling will begin immediately upon completion of Milestone 1: Preliminary Design. Specific activities required for completion of this milestone include preparation of 90% Well Drilling Design Plans by a consultant, RCWD staff review of the Well Drilling Design Plans, and completion of 100% Well Drilling Design Plans by the consultant based on RCWD staff input. The well drilling component of Final Design will begin prior to grant award in June 2019 and will be complete by October 2019.

- ***Milestone 5: Contractor Procurement for Well Drilling Constuction***
  When Final Design – Well Drilling is complete, RCWD will advertise a construction bid opportunity for drilling well #172. RCWD staff will review the bids submitted, award a contract for the drilling work, and issue a Notice to Proceed. Contractor Procurement for Well Drilling begins in October 2019, and will be complete by February 2020.

- ***Milestone 6: Permitting***
  Upon issuance of the contract for the drilling of Well 172 the District and the Contractor will jointly apply for a well drilling permit through the Riverside County Department of Environmental Health. This permit is typically issued within one to two weeks from time of submittal and its primary purpose is for the County to gather information about the proposed well and ensure there are no public health concerns associated with the proposed placement of the well. In addition, the District maintains a water supply permit from the Regional Water Quality Control Board (RWQCB), which requires a permit amendment prior to a new

well going into service. A permit amendment requires that the District complete an application package that includes a well construction details, a Drinking Water Source Protection Plan, documentation of Environmental Compliance (California Environmental Quality Act), well and disinfection data sheets, and an operations plan. Once the application package is approved, RWQCB completes the permit amendment and issues to the District any conditions for operation of the facility including water quality monitoring requirements and water quality thresholds. Permitting will being concurrently with Milestone 4: Contractor Procurement for Well Drilling and will be completed in December 2019, prior to the start of well drilling construction activities described in Milestone 6.

- ***Milestone 7: Construction: Well Drilling***
  Drilling of the well will begin after a well drilling contractor is procured, and appropriate permits are secured. Well drilling will take approximately 9 months and is scheduled for completion by November 2020.
- ***Milestone 8: Final Design: Well Equipping***
  Final Design activities for well equipping will begin during well drilling construction after pump test data become available. Specific activities required for completion of this milestone include: preparation of 90% Well Equipping Design Plans by a consultant, review pump test results from well drilling construction, and completion of 100% Well Equipping Design Plans. The well equipping component of Final Design will begin in October 2019, and will be complete by November 2020.
- ***Milestone 9: Contractor Procurement for Well Equipping Construction***
  When Final Design for well equipping is completed, RCWD will advertise a construction bid opportunity for the equipping of the well. RCWD staff will review the bids submitted, award a contract for the equipping work, and issue a Notice to Proceed. This milestone will begin in November 2020, and is scheduled for completion by January 2021.
- ***Milestone 10: Construction: Well Equipping***
  Equipping of the well will begin after a contractor is procured as part of Milestone 8. This work will begin in February 2021, will take approximately 7 months, and is scheduled for completion by September 2021.

H. Performance Measures

Among the many benefits the Proposed Project provides to the District, the primary benefit is the creation of additional water supply. RCWD proposes the use of two performance measures for quantifying this benefit:

1. ***Groundwater Produced by the Newly Constructed Well***
   The well constructed as part of the Proposed Project will be outfitted with a flow meter connected to the District's existing automated metering infrastructure, which will allow for remote monitoring and supervision of water production provided by the well. Data from the flow meter will be collected by District staff and stored in a database, and will be considered additional water supply.

2. ***Total Groundwater Produced***
   To confirm that groundwater produced at the well constitutes additional water supply, total groundwater produced at the recharge facilities after construction of the new well will be compared to groundwater production at the facilities during prior years when the well was

not in operation. The difference in groundwater production at the recharge facilities before and after construction of the well will be compared the amount of groundwater produced by the new well to confirm actual additional water supply created by the Proposed Project. The District will report on these performance measures to Reclamation as data becomes available.

I. Evaluation Criteria

1. Project Benefits

The Proposed Project is a component of the larger Upper VDC Project (see Appendix B), which helps build long-term resilience to drought through enhancements to RCWD's water infrastructure, makes additional water supplies available to the District's customers, and improves operational flexibility and cost-effectiveness in managing water supplies. In addition, the Proposed Project provides benefits to the environment (water quality benefits). Following are detailed descriptions of Proposed Project's benefits.

Long-Term Drought Resilience

RCWD's dependence on expensive treated import water supplies threatens the District's resilience to drought. Depending on local groundwater conditions, up to 75% of the District's total annual water supply may consist of treated water imported through the Metropolitan Water District of Southern California. The Proposed Project is part of the larger Upper VDC Project, which is intended to reduce dependence on treated import and increase water supply reliability water by utilizing the underlying groundwater basin to create additional local water supply, which can be drawn upon under any water supply condition, including during dry years. These additional supplies are less costly that treated import water, and are created by increasing RCWD's ability to recharge locally available surface water from nearby Vail Lake and/or relatively inexpensive untreated import water, whichever is available, at the District's Valle de Los Caballos Upper Recharge/Recovery Facility (Upper VDC Recharge Facility). Recharge and recovery efforts implemented as part of the Proposed Project will continue to provide these benefits for an estimated 30 years, and the District expects that the Proposed Project's Well #172, with proper maintenance, will provide benefits for at least 50 years.

Additional Water Supplies

The estimated quantity of additional water supply made available by the Proposed Project is 3,000 acre feet per year (AFY). The 3,000 AFY production is based on an estimated instantaneous production rate from the well of 2,500 gallons per minute and a utilization factor of 75% or 18 hours per day run time. Based on prior experience with constructing wells in the vicinity of the Proposed Project are the District is confident that the well will produce the anticipated 3,000 AFY. To confirm anticipated yields, the District's Hydrogeologist will be constructing a focused groundwater model as part of Preliminary Design efforts already underway. The focused model will be based on the District's existing basin wide groundwater model, on 25 years of production history, and on relevant data collected in the area.

The 3,000 AFY of additional water supply created by the Proposed Project represents 5.5% of the District's total annual water supply and 9.4% of the annual local groundwater supply. These percentages are calculated based on average annual District water production over the past three calendar years; during calendar years 2016 through 2018 RCWD delivered an average of 54,786 acre feet per year to approximately 44,000 customers in the City of Temecula, portions of the City of Murrieta, and some areas of unincorporated Riverside County. Therefore, the additional

water supply provided by the new recovery/extraction well represents 5.5% of the District's total supply (3,000 / 54,786 = 5.5%). During that same three-year period, only a portion of the total supply delivered by RCWD represented groundwater supply. Of the 54,786 acre feet delivered, 31,907 acre feet came from groundwater supplies. Therefore, as a percentage of groundwater supplies, additional water made available by the Proposed project represents 9.4% (3,000 / 31,907 = 9.4%).

Additional supplies made available by the Proposed Project are significant in terms of further diversifying the District's water supply portfolio to increase water supply reliability and drought resilience for 150,000 water users, and reducing water supply costs by avoiding purchases of expensive treated import water

Improved Water Management

Optimization of the Upper VDC Recharge Facilities drastically improves water management by providing the District with the operational flexibility to extract either local water conveyed to the recharge facilities from nearby Vail Lake or untreated import water, whichever is available. The project allows RCWD to extract these additional supplies during both normal operations and during times of drought. The estimated quantity of water better managed through the implementation of the Proposed Project is 3,000 acre feet per year, which is equal to the amount of water recovered on an annual basis by Well #172, and represents 5.5% of the District's total water supply and 9.4% of the District's groundwater supply.

Furthermore, the Proposed Project improves water management through more cost-effective water management practices. By recharging and recovering inexpensive and locally available surface water supplies and/or relatively inexpensive untreated import water, the District realizes considerable cost savings over the alternative of importing treated supplies. For example, extracted recharge water sourced from Vail Lake costs $950 per acre foot less than treated import supplies; therefore, use of this local supply reduces District water supply costs and mitigates rate increases for its customers. Based on the number of acre feet produced by Well #172, these savings are equal to $2,850,000 annually. Moreover, untreated import water costs $319 per acre foot less than treated import supplies. Based on the number of acre feet produced by Well #172, use of this water supply leads to savings of $957,000 annually.

Environmental Benefits

The Proposed project does not benefit any endangered species; however, it does benefit the environment in terms of enhancing groundwater quality. The project involves the extraction of recharge water that is, oftentimes, higher in significantly quality than native groundwater.

Applicable Additional Information - Wells

The District in now in the process of designing and constructing new treatment equipment and pump station facilities for the Upper VDC Project, which will increase the District's recharge capabilities from 13 cubic feet per second by more than two times to 42 cubic feet per second. The Proposed Project involves the construction of Well #172, an approximately 1,000 foot deep vertical or slant type groundwater well. The well will be constructed of type 316L stainless steel casing and screen to reduce corrosion and extend the useful life of the facility. The estimated capacity of Well #172 is 3,000 acre feet per year. The 3,000 AFY production is based on an estimated instantaneous production rate from the well of 2,500 gallons

per minute and a utilization factor of 75% or 18 hours per day run time. The District plans to use the well as a primary source of supply to extract 3,000 acre feet per year of water recharged at the Upper VDC Recharge Facility. When local surface water supplies are not available for recharge and recovery, untreated import water will be recharged and then recovered by the well.

The District operates the Upper VDC Recharge Facility within the Temecula Valley Groundwater Basin and within the boundaries of two major aquifers, the Temecula and the Pauba, to provide a sustainable groundwater supply. The facility is located along the upper reach of the Temecula Creek, approximately 2.5 miles downstream of Vail Lake. Its recharge ponds consist of five basins with a recharge area of approximately 115 acres. The ponds are surrounded by earthen berms approximately 3 feet to 15 feet in height. Six active production wells (W152, W153, W154, W157, W158, and W161) are located on the berms surrounding the ponds and are near-continuously pumped to recover recharged water.

Neither of the two aquifers nor the Temecula Valley Groundwater Basin is overdrafted, and the installation of Well #172 will not lead to land subsidence or overdraft conditions since the District will continue to operate the groundwater basin with safe yield limits. To prevent groundwater overdraft and all of its associated impacts, the District conducts an annual review of available groundwater supplies in collaboration with the District's Hydrogeologist Geoscience Support Services, Inc. (See Appendix D). The purpose of the review is to recommend a ground water production program for each fiscal year. Groundwater production recommendations are based primarily on a review of individual well production and historical hydrographs. During the review, groundwater level elevations from all production and monitoring wells are considered Hydrologic subareas and "index wells" representing water level changes in subareas are used to help formulate recommendations for groundwater production. The review also includes analysis of reviews from previous years, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors. Where water level trends in subarea index wells indicate a decline over several years, lower production values are recommended. Where water level declines have not occurred, and as other factors permitted, recommended production values are sometimes increased. The recommended amount of annual production for the wells are made with consideration given to historical water levels, precipitation, production, and expected natural and artificial recharge. Consideration is also given to the projected production from Western Municipal Water District's production wells in the northern Murrieta Valley area. For illustrative purposes, the 2016-2017 recommended Upper VDC purchased untreated water recharge was 12,700 acre feet.

By increasing RCWD's available groundwater supplies, the Proposed Project increases the overall sustainability of RCWD's local supplies, decreases the District's dependence on drought-stricken and expensive imported supplies, and reduces the threat of water shortage impacts. The following map shows the approximate location of Well #172 within the Upper VDC Recharge area.

2. Drought Planning and Preparedness

Completion of the Proposed Project represents an important contribution to the accomplishment of the goals and objectives described in the Upper Santa Margarita Watershed's (USMW) Integrated Regional Water Management Plan (IRWM Plan). RCWD leads the Regional Water Management Group, which developed the IRWM Plan in order to identify strategies for enhancing regional drought resiliency through more efficient use of water, protecting and improving water quality, and promoting environmental stewardship (See Appendix A). Development of the IRWM Plan was a collaborative process with significant input provided by multiple stakeholders including Federal agencies, state agencies, state conservancies and commissions, local agencies, Indian tribes, and non-profit organizations. Taking into consideration climate change impacts to water resources, the IRWM Plan outlines specific goals and objectives for achieving drought resiliency.

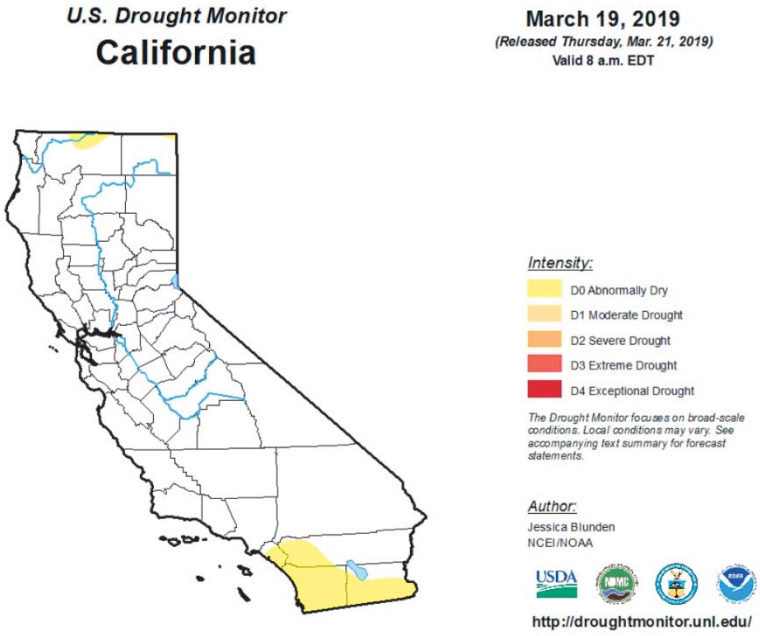
The two goals described in Chapter 3 of the IRWM Plan that are supported by the Proposed Project are: 1) increasing the diversification of the water supply portfolio, and 2) maximizing groundwater potential. Elaborating on these goals, the IRWM defines objectives necessary for achieving them, including: 1) increasing local supply development through implementation of projects that construct additional local water supply infrastructure for water conveyance, treatment, storage and distribution of these sources, and 2) improving the quality and ability to access and increase groundwater supply by improving water quality, optimizing existing supplies, and expanding infrastructure and maximizing storage through recharge and recovery. The Proposed Project contributes to the accomplishment of these

goals and objectives by constructing facilities that increase the recovery of groundwater recharge.

RCWD is adding the Proposed Project to the IRWM Plan's Project List. The process of adding projects to the list and prioritizing projects is described in Chapter 5 of the IRWM Plan. Because the Proposed Project aligns well with the goals of the IRWM Plan, RCWD anticipates the addition of the Proposed Project and its prioritization by May 2019, prior to grant award.

3. Severity of Actual or Potential Drought Impacts to be Addressed by the Project

All of California, including the District's service area, is at high risk of experiencing drought conditions in any given year. The state recently endured its worst drought in recorded history, and given the results of climate change modeling efforts, it is expected that severe drought events will reoccur into the future. During the most recent drought, which occurred from 2014 through 2018, the U.S. Drought Monitor classified the majority of California, including RCWD's service area, as being in an "Exceptional Drought" or "Extreme Drought." While these drought conditions have subsided temporarily due to recent precipitation in the northern portion of the state, there are still some areas that are classified as "Abnormally Dry." The District's service located in one of the areas of southern California considered "Abnormally Dry," and these conditions have had severe negative impacts on the availability of locally sourced groundwater.



The region's IRWM Plan (Appendix A) summarizes the impacts and effects of climate change for the Upper Santa Margarita Watershed (including the District's service area) through the year 2050. Generally, climate change is anticipated to cause increased temperatures and reduced rainfall; projections vary with some showing two to four inches less rainfall. And it's generally accepted that storms will be less frequent, but more intense, which will negatively impact recharge of groundwater supplies. With higher temperatures and changes in rainfall volume and frequency both in locally and across the state, additional impacts will be felt in the District's service area. In addition to negatively impacting local groundwater supplies, imported water supply from the State Water Project (Bay-Delta) is projected to decrease by up to 25 percent. Colorado River supplies to the lower basin states (Arizona, California, and Nevada) may decrease by up to 24 percent, or 1.8 thousand AFY out of the 7.8 million AFY allocated to the lower basin states. In addition, the District projects a 6% and 12% decrease in available local groundwater supplies in the third and fourth years of a multiple dry year scenario, respectively. In addition to negatively impacting water supplies available to the

District, increases in temperature and a drier climate are expected to increase water demand, particularly for irrigation (unless plant palettes are changed [e.g., removal of turf], or agricultural crops change), due to increases in evapotranspiration rates. Based on the types of crops grown on the 9,127 farmed acres within the District's service area, a 10% increase in evapotranspiration rates would lead to an estimated agricultural water demand increase equal to approximately 3,500 acre feet per year (between 5% and 7% of the District's total water supply). This increased water demand increases production costs for farmers, threatens the viability of agribusiness in the District service area, and negatively impacts the monetary value of farmland. In addition to rising evapotranspiration rates, rising population within the District's service area is increasing urban water demands. Population within the District's service area has increased by approximately 15% since 2013, and under severe drought conditions, the availability of water for human health and safety is threatened. Temperature increases are also expected to increase the frequency of wildfires, with studies suggesting a slightly increased risk of wildfire in the local region. Increases in wildfires have the potential to increase sedimentation and turbidity of surface waters and increase flash flooding.

The District's local groundwater supplies are limited, and it relies on imported supplies from California's State Water Project and the Colorado River Aqueduct to satisfy a large portion of the service area's ever-growing demands. Under conditions of severe drought, where both sources both local and imported water supplies are compromised, the District will not have another water source available to satisfy demands. In response to current drought conditions, the District has responded with implementation of a Water Shortage Contingency Plan, a call for extreme water use efficiency and conservation, a decrease in water budgets for classifications of users, and fines for those in violation of water shortage stage requirements. The Proposed Project adds an additional source of water supply to further diversify RCWD's water supply portfolio and adds flexibility in sourcing water supplies, giving the District options for satisfying ever-increasing demands under diminishing water supply conditions.

4. Project Implementation

Implementation of the Proposed Project does not require any new policies for administrative actions. RCWD is capable of proceeding with its implementation immediately upon entering into a Financial Assistance Agreement with Reclamation. The following information describes required engineering work, permitting, and environmental and regulatory compliance. In addition, a table is provided, which contains a Project Schedule, showing the stages and duration of the required work, including major tasks, milestones, and dates,

Design and Engineering

Preliminary Design of the well has begun, and is being completed by Geoscience Support Services, Inc. (GSSI) through a contract executed with RCWD. To complete the preliminary design work, GSSI is developing a focused groundwater model of the Upper VDC and preparing a Preliminary Design Report. The groundwater modeling work will allow for the evaluation of different well types, and includes:

- Vertically discretizing layers of young alluvium to better understand water flow between aquifer and allow for a performance evaluation of different types of wells,
- Construction of a focused groundwater model by decreasing the model cell size from 400 foot x 400 foot to 10 foot by 10 foot to better represent conditions in the Upper VDC recharge area, and

- Calibrating the focused model

The Preliminary Design Report will be created based on results of the modeling efforts, and will include: conceptual designs for typical vertical and/or slant wells, well siting considerations, flow scenario alternatives, pipeline sizing details, preliminary engineering cost estimates, results of the modeling scenarios, and a recommendation for one of the scenarios for further development. Upon the completion of Preliminary Design, Final Design for well drilling and well equipping can begin. The scope of work for final design includes:

Final Design - Well Drilling

- Preparation of Technical Plans, Drawings and Specifications;
- Permitting and Bidding Assistance;
- Construction Management & Inspection;
- Comprehensive Well Destruction / Completion Report; and
- Preparation of Drinking Water Source Assessment Documents

Final Design - Well Equipping

- Preliminary well site layout alternatives;
- Utility verification (potholing), and traffic control details
- Well site and well site access road grading plans and storm drainage improvements;
- Engineering design of well discharge piping and connection to the existing system;
- Engineering design of the well pump-to-waste piping and discharge location
- Engineering design of the proposed well equipment and electrical service;
- Traffic control details for construction;
- Preparation of contract documents (bid documents, drawings, and specifications);
- Acquisition of all required construction encroachment permits;
- Preparation of engineer's estimates and construction schedules; and
- Bidding period support

Contracts for Final Design are being procured, and work begins in June 2019, prior to award.

Permitting

When Preliminary Design and Final Design are complete, a contractor will be procured for well drilling. Upon issuance of the contract for the drilling of the well, the District and the contractor will jointly apply for a well drilling permit through the Riverside County Department of Environmental Health. This permit is typically issued within one to two weeks from time of submittal and its primary purpose is for the County to gather information about the proposed well for their database and ensure there are no public health concerns associated with the proposed placement of the well. In addition, the District maintains a water supply permit from the Regional Water Quality Control Board (RWQCB), which requires the District request a permit amendment prior to a new well going into service. A permit amendment requires that the District complete an application package that includes well construction details, a Drinking Water Source Protection Plan, documentation of Environmental Compliance (California Environmental Quality Act), well and disinfection data sheets, and an operations plan. Once the application package is approved, RWQCB completes the permit amendment and issues to the District any conditions for operation of the facility including water quality monitoring requirements and water quality thresholds.

Environmental and Regulatory Compliance

The Proposed Project implementation plan also takes into account environmental and regulatory compliance with the California Environmental Quality Act, and applicable Federal environmental laws. RCWD staff has contacted the local Reclamation office and discussed both the cost and timing for completing this requirement. Therefore, also included in the budget is an estimated line item cost of $10,000 for the potential Federal environmental compliance effort. This amount is based on recent input provided by compliance staff at RCWD's local Reclamation office.

Project Schedule

Project Tasks	Est. Project Schedule		Milestones and Deliverables
	Start	End	
Task 1: Grant Agreement Negotiation and Execution Includes negotiation and execution of a grant agreement between RCWD and Reclamation.	7/1/2019	10/1/2019	Milestones: • Award of Grant by Reclamation Deliverables: • Executed Grant Agreement
Task 2: Preliminary Design Includes awarding a contract for preliminary design and preparation of a Preliminary Design Report. At this point, the contract has been awarded, and Preliminary Design is underway. The Preliminary Design Report is scheduled for completion in June 2019.	1/2/2019; Began prior to award	6/15/19; Ends prior to award	Milestones: • RCWD approves Award of Contract to lowest qualified bidder Deliverables: • Bid Documents • Proof of Advertisement • Contractor Notice of Award • Contractor Notice to Proceed • Preliminary Design Report
Task 3: Contractor Procurement-Final Design Includes advertisement of two separate design bid opportunities for equipping of the well, review of bids submitted by RCWD staff, award of two contracts for the final design, and issuance of Notices to Proceed.	3/1/2019; Began prior to award	5/15/2019; Ends prior to award	Milestones: • RCWD approves Award of Contract to lowest qualified bidder Deliverables: • Bid Documents • Proof of Advertisement • Contractor Notice of Award • Contractor Notice to Proceed
Task 4: Environmental Compliance Includes gaining California Environmental Quality Act (CEQA) and applicable Federal approval.	6/16/19; Will begin prior to award	1/15/20	Milestones: • Satisfy compliance requirements Deliverables: • Documentation illustrating compliance approval
Task 5: Final Design – Well Drilling Includes preparation of 90% Well Drilling Design Plans, RCWD staff	6/16/19; Will begin prior to award	10/15/19	Milestones: • Complete Final Design Deliverables: • 90% plans • 100% plans

Project Tasks	Est. Project Schedule		Milestones and Deliverables
	Start	End	
review, and completion of 100% Well Drilling Design Plans.			
Task 6: Contractor Procurement – Well Drilling Includes advertisement of construction bid opportunity for drilling the well, review of bids by RCWD staff, award of contract for drilling work, and issuance of Notice to Proceed.	10/16/19	2/15/20	Milestones: • RCWD approves Award of Contract to lowest qualified bidder Deliverables: • Bid Documents • Proof of Advertisement • Contractor Notice of Award • Contractor Notice to Proceed
Task 7: Permitting Includes obtaining permits through the Riverside County and Regional Water Quality Control Board.	10/16/2019	12/30/2019	Milestones: • Obtain permits Deliverables: • Permit documentation
Task 8: Construction – Well Drilling Includes drilling of the well by drilling contractor and inspection activities conducted by RCWD staff.	2/16/2020	11/16/2020	Milestones: • Drill Well Deliverables: • RCWD Inspection Reports
Task 9: Final Design – Well Equipping Includes preparation of 90% Well Equipping Design Plans, review of pump test results from well drilling construction, and completion of 100% Well Equipping Design Plans.	6/1/2020	11/16/2020	Milestones: • Complete Final Design Deliverables: • 90% plans • Pump test results • 100% plans
Task 10: Contractor Procurement – Well Equipping Includes advertisement of construction bid opportunity for equipping of the well, review of bids submitted by RCWD staff, award of contract for the equipping work, and issuance of Notice to Proceed.	11/17/2020	1/15/2021	Milestones: • RCWD approves Award of Contract to lowest qualified bidder Deliverables: • Bid Documents • Proof of Advertisement • Contractor Notice of Award • Contractor Notice to Proceed
Task 11: Construction – Well Equipping Includes equipping of the well and inspection activities by RCWD staff.	2/1/2021	9/15/2021	Milestones: • Equip Well Deliverables: • RCWD Inspection Reports

Project Tasks	Est. Project Schedule		Milestones and Deliverables
	Start	End	
Task 12: Project Administration Includes monitoring of performance measures, reporting, and invoicing by RCWD staff.	1/31/2020	7/1/2022	Milestones/Deliverables: • Submit Federal Financial Reports • Submit Performance Monitoring Reports • Submit Progress Reports • Submit Final Report • Submit invoices and periodic financial reimbursement requests

5. Nexus to Reclamation

The Proposed Project will be implemented in Reclamation's Lower Colorado Region and will contribute to the drought resiliency within the Colorado River Basin through development of local groundwater supplies. Furthermore, imported water is delivered to the District by the Metropolitan Water District of Southern California through the State Water Project and is blended with Colorado River water (Reclamation project water). Historically, imported water has satisfied the majority of RCWD's demand (between 60 and 70 percent).

The Proposed Project also benefits Indian tribes. In December 2006, a 'Groundwater Management Agreement between Rancho California Water District and the Pechanga Band of Luiseno Mission Indians' was executed to govern the management of groundwater pumping from the Wolf Valley Groundwater Basin in a manner not to exceed the safe yield that protects groundwater resources in the Wolf Valley Groundwater Basin for present and future uses. The Proposed Project develops groundwater supplies within the adjacent Temecula Valley Groundwater Basin, and therefore, protects supplies within the Wolf Valley Basin, assisting in maintaining safe yield requirements for the benefit of the Pechanga Band of Luiseno Mission Indians.

6. Department of the Interior Priorities

The Proposed Project shares the following Department of the Interior priorities:

- *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
  The Proposed Project uses best practices to manage water resources and adapt to changes in the environment.
- *Restoring Trust with Local Communities*
  The Proposed Project supports the local community's Integrated Regional Water Management Plan, which was developed in cooperation with community organizations regarding shared priorities related to water conservation and efficiency.
- *Striking a Regulatory Balance*
  By increasing water supply reliability, the Proposed Project helps to reduce the potential for implementation of drought declarations and related regulatory requirements imposed upon industry and private citizens.
- *Modernizing our infrastructure*
  The Proposed Project improves water infrastructure within Reclamation's Lower Colorado Region.

PROJECT BUDGET

A. Funding Plan and Letter of Commitment

Non-Reclamation Share of Project Costs

The Proposed Project's estimated non-Federal contribution is $5,650,932.04, which will be funded through the RCWD's annual budget for Capital Improvement Projects (CIP). Of the $5,650,932.04, non-Federal contribution, approximately $188,632 of these costs will be incurred prior to award. These pre-award costs include those necessary for completion of Preliminary Design work (a $164,418 contract), and $24,214 in RCWD staff time for work related to Contractor Procurement for Final Design, Environmental Compliance, and review of 90% Final Design plans for well drilling. These expenditures are absolutely necessary for completion of the Proposed Project—without completion of this work, construction of the Proposed Project could not proceed. The incurrence of these costs began in February 2019, and continue until June 2019.

Letters of Commitment

The District is committed to providing at least $5,650,932.04 in cash for implementation of the Proposed Project, which represents the entire non-Federal contribution to the Project. Because there are no third-party contributors to the Proposed Project cost, there are no Letters of Commitment included with this proposal. This non-Federal contribution has been secured (funded through 2016 bond financing) and has been approved by the District's Board of Directors. An Official Resolution from the District's Board of Directors will be provided to ensure commitment of these matching funds.

B. Budget Proposal

The total estimated cost for the Proposed Project is $6,400,932.04. RCWD is requesting a $750,000 grant to cover approximately 12% of the project cost. Grant funding will be used to pay for construction of the Proposed Project's Well #172. Following is the Total Project Cost Table, which breaks down the total project cost according to cost sharing entities.

Table 1. Total Project Cost Table	
SOURCE	**AMOUNT**
Costs to be reimbursed with the requested Federal funding	$750,000
Costs to be paid by the applicant	$5,650,932.04
Value of third-party contributions	$0
Total Project Cost	**$6,400,932.04**

Furthermore, the following table provides detail regarding sources of Non-Federal and Federal funding.

Table 2. Summary of Non-Federal and Federal Funding Sources	
Funding Sources	**Funding Amount**
Non-Federal Entities	
1. Rancho California Water District	$5,650,932.04
Non-Federal Subtotal	**$5,650,932.04**
Other Federal Entities	
1. None	$ 0.00
Other Federal Subtotal	$ 0.00
Requested Reclamation Funding	**$750,000.00**
Total Program Funding	**$6,400,932.04**

The following Budget Proposal includes detailed information on Proposed Project cost categories and per-unit costs, and identifies the source of funding for each category (Federal or non-Federal).

TABLE: 3: BUDGET PROPOSAL						
Budget Item Description	**Computation**		**Quantity Type**	**Reclamation Funding**	**Recipient Funding**	**Total Cost**
	$/Unit	**Quantity**				
Salaries and Wages						
Engineering Manager*	$ 76.35	200	$/HR	$ -	$ 15,270.00	$ 15,270.00
Principal Engineers*	$ 62.16	400	$/HR	$ -	$ 24,864.00	$ 24,864.00
Contracts Manager*	$ 77.00	100	$/HR	$ -	$ 7,700.00	$ 7,700.00
Contracts Coordinator*	$ 35.08	200	$/HR	$ -	$ 7,016.00	$ 7,016.00
Construction Inspections Supervisor	$ 44.45	250	$/HR	$ -	$ 11,112.50	$ 11,112.50
Inspections	$ 40.70	1100	$/HR	$ -	$ 44,770.00	$ 44,770.00
Water System Supervisor	$ 50.92	60	$/HR	$ -	$ 3,055.20	$ 3,055.20
Water Operations	$ 38.24	120	$/HR	$ -	$ 4,588.80	$ 4,588.80
Water Quality Supervisor	$ 48.14	40	$/HR	$ -	$ 1,925.60	$ 1,925.60
Water Quality Tech I/II	$ 38.12	80	$/HR	$ -	$ 3,049.60	$ 3,049.60
Electrical Services Supervisor	$ 55.07	80	$/HR	$ -	$ 4,405.60	$ 4,405.60
Salaries and Wages Subtotal		*2630*		*$ -*	*$ 127,757.30*	*$ 127,757.30*
Fringe Benefits	*Basis*	*% of Basis*				
As per Federally approved Indirect Cost Rate Agreement	$ 127,757.30	83.39%		$ -	$ 106,536.81	$ 106,536.81
Fringe Benefits Subtotal	*$ 127,757.30*			*$ -*	*$ 106,536.81*	*$ 106,536.81*
Travel - Not Applicable (N/A)						
Travel Subtotal	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Equipment - Not Applicable (N/A)						
Equipment Subtotal	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Supplies/Materials Subtotal						
Bid Document Reproduction	$ 2,500.00	1	lump sum	$ -	$ 2,500.00	$ 2,500.00
Supplies/Materials Subtotal	*$ 2,500.00*			*$ -*	*$ 2,500.00*	*$ 2,500.00*
Contractual						
Preliminary Design**	$ 164,418.00	1	3 contracts	$ -	$ 164,418.00	$ 164,418.00
Final Design	$ 835,582.00	1		$ -	$ 835,582.00	$ 835,582.00
Well Drilling Construction	$ 2,546,000.00	1	per contract	$ 370,000.00	$ 2,176,000.00	$ 2,546,000.00
Well Equipping Construction	$ 2,061,000.00	1	per contract	$ 370,000.00	$ 1,691,000.00	$ 2,061,000.00
Contractual Subtotal	*$ 5,607,000.00*			*$ 740,000.00*	*$ 4,867,000.00*	*$ 5,607,000.00*
Environmental and Regulatory Compliance						
State Compliance	$ 150,000.00	1	lump sum	$ -	$ 150,000.00	$ 150,000.00
Federal Compliance***	$ 10,000.00	1	lump sum	$ 10,000.00	$ -	$ 10,000.00
Permitting	$ 100,000.00	1	lump sum	$ -	$ 100,000.00	$ 100,000.00
Environmental and Regulatory Compliance Subtotal	*$ 150,000.00*			*$ 10,000.00*	*$ 250,000.00*	*$ 260,000.00*
Total Direct Costs				$ 750,000.00	$ 5,353,794.11	$ 6,103,794.11
Approved Indirect Costs	*Basis*	*% of Basis*				
As per Federally approved Indirect Cost Rate Agreement	*$ 127,757.30*	*232.58%*		$ -	$ 297,137.93	*$ 297,137.93*
Total Project Costs				$ 750,000.00	$ 5,650,932.04	$ 6,400,932.04

*$24,214 worth of the work performed by these RCWD staff members on tasks related to Contractor Procurement, Final Design, and Environmental Compliance will be a pre-award cost.
**$164,418 is required for Preliminary Design Work, which will be a pre-award cost.
***Federal Environmental Compliance Costs were estimated based on input provided by local Reclamation office compliance staff.

C. Budget Narrative

Salaries and Wages

The District's Engineering Manager, Jacob Wiley, will function as the Project Manager. Other personnel involved in implementation of the Proposed Project include the Principal Engineer, Contracts Manager, Contracts Coordinator, Construction Inspections Supervisor, Inspectors, Water Systems Supervisor, Water Operators, Water Quality Supervisor, Water Quality Technician, and Electrical Services Supervisor. For each of these personnel positions, Table 4 indicates the rate of compensation, estimated hours, and total salaries and wages for the Proposed Project on a task by task basis. Hours are based on estimated level of staff involvement and duration of the Task based on the Schedule shown in the Technical Project Description. Rates reflect current rates and do not include fringe benefits or indirect costs. While rates generally increase each Fiscal Year, the amount is not known until the budget is approved each year. Salaries of administrative staff are not included and covered in the Indirect Cost section of the Budget Proposal.

TABLE 4: SALARIES & WAGES					
Employee	Task	Activity	Hours	Rate	Total Wages
Engineering Manager - Jake Wiley	2	Preliminary Design	60	$ 76.35	$ 4,581.00
	3	Contractor Procurement-Final Design	10		$ 763.50
	4	Environmental Compliance	10		$ 763.50
	5	Final Design-Well Drilling	40		$ 3,054.00
	6	Contractor Procurement-Well Drilling	10		$ 763.50
	7	Permitting	10		$ 763.50
	9	Final Design-Well Equipping	40		$ 3,054.00
	10	Contractor Procurement-Well Equipping	10		$ 763.50
	12	Project Administration & Reporting	10		$ 763.50
		Subtotal	200		$ 15,270.00
Principal Engineer	2	Preliminary Design	120	$ 62.16	$ 7,459.20
	3	Contractor Procurement-Final Design	20		$ 1,243.20
	4	Environmental Compliance	30		$ 1,864.80
	5	Final Design-Well Drilling	80		$ 4,972.80
	6	Contractor Procurement-Well Drilling	20		$ 1,243.20
	7	Permitting	30		$ 1,864.80
	9	Final Design-Well Equipping	80		$ 4,972.80
	10	Contractor Procurement-Well Equipping	20		$ 1,243.20
		Subtotal	400		$ 24,864.00
Contracts Manager	3	Contractor Procurement-Final Design	20	$ 77.00	$ 1,540.00
	6	Contractor Procurement-Well Drilling	40		$ 3,080.00
	10	Contractor Procurement-Well Equipping	40		$ 3,080.00
		Subtotal	100		$ 7,700.00
Contracts Coordinator	3	Contractor Procurement-Final Design	40	$ 35.08	$ 1,403.20
	6	Contractor Procurement-Well Drilling	80		$ 2,806.40
	10	Contractor Procurement-Well Equipping	80		$ 2,806.40
		Subtotal	200		$ 7,016.00
Construction Inspections Supervisor	7	Construction - Well Drilling	125	$ 44.45	$ 5,556.25
	10	Construction - Well Equipping	125		$ 5,556.25
		Subtotal	250		$ 11,112.50
Inspection	7	Construction - Well Drilling	550	$ 40.70	$ 22,385.00
	10	Construction - Well Equipping	550		$ 22,385.00
		Subtotal	1100		$ 44,770.00
Water System Supervisor	10	Construction - Well Equipping	60	$ 50.92	$ 3,055.20
		Subtotal	60		$ 3,055.20
Water Operations	10	Construction - Well Equipping	120	$ 38.24	$ 4,588.80
		Subtotal	120		$ 4,588.80
Water Quality Supervisor	10	Construction - Well Equipping	40	$ 48.14	$ 1,925.60
		Subtotal	40		$ 1,925.60
Water Quality Tech I/II	10	Construction - Well Equipping	80	$ 38.12	$ 3,049.60
		Subtotal	80		$ 3,049.60
Electrical Services Supervisor	10	Construction - Well Equipping	80	$ 55.07	$ 4,405.60
		Subtotal	80		$ 4,405.60
		TOTAL HOURS	2630	TOTAL COST	$ 127,757.30

Fringe Benefits
A Fringe Benefits rate is applied to Total Salaries and Wages for employees of RCWD. A base hourly rate plus additional rates for fringe benefits is included in the budget. As per a provisional 18/19 Indirect Cost Negotiation Agreement (Appendix E), Fringe Benefits are charged at 83.39%. This rate is Federally-approved and is a provisional rate for billing purposes. Total Fringe Benefits is $106,536.81. Indirect Costs allowed in the Indirect Cost Negotiation Agreement are computed separately as discussed below.

Travel
There are no travel costs included for the Proposed Project.

Equipment
There are no equipment costs included for the Proposed Project.

Materials and Supplies
Materials and supplies required for implementation of the Proposed Project include the cost associated with bid document reproduction for distribution and cost of advertisement for bidding. These cost are estimated based on previous similar projects at $2,500.

Contractual/Construction
RCWD contracts exceeding $10,000 in value are all procured using a competitive method consistent with CFR 200.320 *Methods of procurement to be followed.* A total of five contracts exceeding tis amount will be executed for implementation of the Proposed Project, all of which pertain to project design or construction. One contract for Preliminary Design has already been executed, and two more design contracts, one for Final Design-Well Drilling, one for Final Design-Well Equipping will be executed in the near future, prior to the award date. The executed Preliminary Design Contract is for $164,418, and is included in this proposal as Appendix C. The two contracts for Final Design will be prepared for procurement soon. Based RCWD staff's prior experience with Final Design contracts, the combined cost for the Final Design-Well Drilling and Final Design-Well Equipping contracts is anticipated to be $835,582, or approximately 18% of construction costs. The remaining two construction contracts, for Well Drilling Construction and Well Equipping Construction, will be executed after the award date. Work performed under these contracts will include:

<u>Final Well Drilling Design</u>

- Preparation of Technical Plans, Drawings and Specifications;
- Permitting and Bidding Assistance;
- Bidding Assistance;
- Construction Management & Inspection;
- Comprehensive Well Destruction / Completion Report; and
- Preparation of Drinking Water Source Assessment Documents

<u>Final Well Equipping Design</u>

- Preliminary well site layout alternatives;
- Utility verification (potholing), traffic control details, and encroachment permit
- Well site and well site access road grading plan and storm drainage improvements;
- Engineering design of the well discharge piping and connection to the existing

system;

- Engineering design of the well pump-to-waste piping and discharge location
- Engineering design of conduit(s) for an electrical service from SCE's point of connection to the well site;
- Engineering design of the proposed well equipment;
- Traffic control details for construction
- Preparation of contract documents (bid documents, drawings, and specifications);
- Acquisition of all required construction encroachment permits;
- Preparation of engineer's estimates and construction schedules; and
- Bidding period support

The following tables show a breakdown of estimated costs for work that will be completed for fulfillment of the two remaining construction contracts.

WELL DRILLING CONTRACT				
Item Description	**Quantity**	**Unit**	**Unit Price**	**Total Price**
General				***$111,000***
Mobilization/Demobilization	1	lump sum	$111,000	$111,000
Site Work				***$780,000***
Excavation and Clearing	1	lump sum	$50,000	$50,000
Access Road Grading/Prep	1	lump sum	$50,000	$50,000
SWPPP Compliance	1	lump sum	$10,000	$10,000
Engineering Support & Inspection	1	lump sum	$300,000	$300,000
Elevated Well Pad Construction	17500	cubic yard	$20	$350,000
Site Restoration Upon Completion	1	lump sum	$20,000	$20,000
Well Drilling and Construction				***$1,655,000***
Drill Pilot Hole and Isolation Zone Testing	1000	linear foot	$225	$225,000
Ream Pilot Hole and Drill Full Diameter Well	1000	linear foot	$150	$150,000
Install 316L SS Well Casing	1000	linear foot	$1,000	$1,000,000
Pump Testing and Development	1	lump sum	$200,000	$200,000
Well Disinfection and Clean Up	1	lump sum	$80,000	$80,000
TOTAL				**$2,546,000**

WELL EQUIPPING CONTRACT				
Item Description	**Quantity**	**Unit**	**Unit Price**	**Total Price**
General				***$110,000***
Mobilization/Demobilization	1	lump sum	$110,000	$110,000
Site Work				***$590,000***
Site Paving	60000	square foot	$7.50	$450,000
Site Drainage	1	lump sum	$70,000	$70,000
Switchgear, Transformer, and MCC Concrete Pads	1	lump sum	$30,000	$30,000
Concrete Well Block	1	lump sum	$30,000	$30,000
Discharge Piping Concrete Pad	1	lump sum	$10,000	$10,000
Mechanical				***$980,000***
250 HP Vertical Lineshaft Pump and Motor Equipment	1	each	$400,000	$400,000
250 ft of 12-Inch steel well pump column piping	500	linear foot	$250	$125,000
12-Inch Steel Discharge Head and Wellhead Piping	500	linear foot	$250	$125,000
12-Inch Steel Pump to Waste Piping and Discharge Structure	500	lump sum	$200	$100,000
Valves, Flow Meters, and Well Mechanical	1	lump sum	$200,000	$200,000
Miscellaneous Couplings, Taps etc	1	lump sum	$30,000	$30,000
Electrical				***$381,000***
Electric Utility Connection fee	1	lump sum	$6,000	$6,000
250HP 18-pulse VFD	1	each	$20,000	$20,000
MCC w/ 30 kVA TX, panelboard, and Manual transfer switch	1	each	$100,000	$100,000
480V Metered Switchboard	1	each	$80,000	$80,000
Conduit and Wire	1	lump sum	$80,000	$80,000
Lighting and Ground	1	lump sum	$15,000	$15,000
Instrumentation	1	lump sum	$20,000	$20,000
Control Panel, including PLC, UPS, etc.	1	each	$50,000	$50,000
PLC Programming	1	lump sum	$10,000	$10,000
TOTAL				**$2,061,000**

Third Part In-kind Contributions

No work will be performed by third-party contributors for implementation of the Proposed Project.

Environmental and Regulatory Compliance

The Proposed project budget contains line items for environmental and regulatory compliance with the California Environmental Quality Act, and local permitting requirements. In addition, the District understands that the introduction of federal funding may prompt a review under applicable Federal environmental laws. Therefore, also included in the budget is an estimated line item cost of $10,000 for the potential Federal environmental compliance effort. This amount is based on recent input provided by compliance staff at RCWD's local Reclamation office.

Other Expenses

There are no costs categorized as "other" for the Proposed Project.

Indirect Costs

The Indirect Cost rate shown of 232.58% includes General and Administration Overhead and Engineering Overhead as a percentage of total RCWD labor cost. Fringe Benefits are included separately under "Fringe Benefits" using the rate of 83.39%. These rates are Federally-approved through an Indirect Cost Negotiation Agreement (Appendix E) and are provisional rates for billing purposes. Total estimated indirect costs for the Proposed Project are $297,137.93.

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

- **Will the Proposed Project impact the surrounding environment (e.g. soil (dust), air, water [quality and quantity], animal habitat)?** *(Describe all earth-disturbing work and any work that will affect air, water, or animal habitat in the project area. Explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts)* No, the Proposed Project will be performed on property that is considered already disturbed, and shouldn't pose significant environmental impacts. The Final Design phase of the project will include environmental studies, which examine potential impacts and make recommendations for any necessary mitigation measures.
- **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?** No species listed or proposed to be listed as a Federal endangered or threatened species, or designated critical habitats are known to reside within the Proposed Project area.
- **Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States"?** No, the Proposed Project will not affect riparian habitat, including federally protected wetlands, as there are none in the project area. No associated impacts will occur and no mitigation is required.
- **When was the water delivery system constructed?** The majority of the water delivery system was constructed by the late 1980s; however, some infrastructure continues to be constructed today as the service area is being built out.
- **Will the project result in any modification of or effects to individual features of an irrigation system (e.g., head gates, canals, or flumes)?** No, the Proposed Project will not result in any modification of or effect to individual features, such as head gates, canals, or flumes, 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?** There are no buildings, structures, or features listed or eligible for listing on the National Register of Historic Places within the Proposed Project sites. There are, however, at least 10 buildings in the Old Town Historic District of the City of Temecula, which is within the RCWD service area. These buildings are in the well-developed Old Town area and the Proposed Project would not affect them.
- **Are there any known archeological sites in the Proposed Project area?** No, there are no known archeological sites in the Proposed Project area.
- **Will the project have a disproportionately high and adverse effect on low income or minority populations?** No, the Proposed Project will not have any adverse effects on low income or minority populations.
- **Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?** No, the Proposed Project will not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands.
- **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, the Proposed Project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

REQUIRED PERMITS / APPROVALS

When Preliminary Design and Final Design are complete, a contractor will be procured for well drilling. Upon issuance of the contract for the drilling of the well, the District and the contractor will jointly apply for a well drilling permit through the Riverside County Department of Environmental Health. This permit is typically issued within one to two weeks from time of submittal and its primary purpose is for the County to gather information about the proposed well for their database and ensure there are no public health concerns associated with the proposed placement of the well. In addition, the District maintains a water supply permit from the Regional Water Quality Control Board (RWQCB), which requires the District request a permit amendment prior to a new well going into service. A permit amendment requires that the District complete an application package that includes a well construction details, a Drinking Water Source Protection Plan, documentation of Environmental Compliance (California Environmental Quality Act), well and disinfection data sheets, and an operations plan. Once the application package is approved, RWQCB completes the permit amendment and issues to the District any conditions for operation of the facility including water quality monitoring requirements and water quality thresholds.

EXISTING DROUGHT CONTINGENCY PLAN

The Rancho California Water District is the lead agency in the development and implementation of the Upper Santa Margarita Watershed (USMW) Region's Integrated Regional Water Management (IRWM) Plan. The IRWM is consistent with the California Water Plan and RCWD's Urban and Agricultural Water Management Plans. The IRWM Plan includes a comprehensive Stakeholder Advisory Committee and Regional Water Management Group process to identify impacts and needs in the Region, and to seek and select key projects to be included on the IRWM Plan Project List. The Proposed Project is consistent with the IRWM Plan's goals and objectives, and is being added to the IRWM Plan Project List. The IRWM Plan is attached to this proposal as Appendix A.

LETTERS OF PROJECT SUPPORT

The following Letter of Support was provided by the Eastern Municipal Water Districts, the water wholesaler through which RCWD purchases most of its expensive treated import water from Metropolitan Water District of Southern California.

March 22, 2019

Rancho California Water District
Jeff Armstrong, General Manager
42135 Winchester Road
Temecula, CA 92589

Subject: Eastern Municipal Water District Express Strong Support for Implementation of Rancho California Water District's Upper VDC Optimization Project: Phase IV

Dear Mr. Armstrong:

On behalf of Eastern Municipal Water District (EMWD), I would like to express my strong support for Rancho California Water District's (RCWD) Upper VDC Optimization Project: Phase IV (Proposed Project), and the application for WaterSMART grant funding.

EMWD understands that the Proposed Project involves the installation of treatment equipment at an existing groundwater recharge facility and the construction of a well down-gradient, which allows for improved capability to recharge and recover more cost-effective untreated import water supplies, thereby reducing the RCWD's dependence on expensive treated import water provided through Metropolitan Water District.

EMWD also understands that the Proposed Project improves the overall sustainability of RCWD's native groundwater supply, reduces the threat of drought impacts, keeps water rates low for all of the RCWD's customers, and provides benefits to the environment including groundwater quality improvements within the Temecula Valley Groundwater Basin. Following installation of the well, an additional 3,000 acre feet per year of affordable, potable water will be delivered to RCWD's customers.

Overall, the Proposed Project provides regional water supply benefits by improving water supply reliability, optimizing groundwater supplies, building long-term resilience to drought, and reducing the need for emergency response actions

Sincerely,

Elizabeth Lovsted, P.E.
Director of Water Supply Planning

EDL:ier

c: Justin Haessly, Rancho California Water District

OFFICIAL RESOLUTION

RCWD's Board of Directors has reviewed and expressed support of this grant application, the capability of the District to provide the financial contributions specified in the Funding Plan, and that the District will work cooperatively with Reclamation to meet established deadlines for entering into a cooperative agreement. The official resolution will verify the District's legal authority to enter into an agreement.

An official resolution, meeting the requirements noted below, will be adopted by the RCWD Board of Directors on April 11, 2019, and provided to Reclamation before the April 26, 2019 deadline.

APPENDIX C

PRELIMINARY DESIGN SERVICES CONTRACT

Rancho Water

February 15, 2019

Chris Coppinger
Geoscience Support Services, Inc.
Post Office Box 220
Claremont, CA 91711

SUBJECT: REGIONAL VDC PUMP STATION AND CCT BASIN [PROJECT NO. D1903]

Dear Mr. Coppinger:

Rancho California Water District (RCWD/District) is pleased to accept *Geoscience Support Services, Inc.'s* proposal dated January 17, 2019 to provide professional engineering services for the subject project.

Enclosed are two original RCWD Agreement for Services documents for your signature. Within two weeks of the date of this letter and prior to the start of work, please return both signed originals to RCWD for counter-signature, **along with the required insurance certificates (see Item 12 of the Agreement)**; thereafter, one fully executed original of the agreement will be returned to you, together with a letter advising your formal notice to proceed on a time and material fee basis, not to exceed $164,418 without prior written approval.

The services shall be completed within ninety (90) calendar days of your receipt of the above-mentioned notice to proceed. Invoices and project correspondence shall include the project title and number, as shown in the subject line above.

Please schedule and coordinate this work with Principal Engineer Randy Neff at the District office at (951) 296-6900.

Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Leslie Mayer
Senior Administrative Assistant-Engineering

Enclosures

cc: Randy Neff, Principal Engineer
Jake Wiley, Engineering Manager-CIP & Development
Tom Marcoux, Safety/Risk Officer
Mark Smith, Procurement and Contracts Administrator
Sylvia Ornelas, Office Assistant II

19\LM:JA:RN:001\F345\D1903

Purchase Order No. _____

AGREEMENT FOR PROFESSIONAL SERVICES BETWEEN RANCHO CALIFORNIA WATER DISTRICT AND GEOSCIENCE SUPPORT SERVICES, INC.

This Agreement is made and entered into as of _____, 2019 by and between **RANCHO CALIFORNIA WATER DISTRICT** (hereinafter referred to as the "District"), a California Water District organized and operating under the California Water District Law, Water Code section 34000 et seq. and **GEOSCIENCE SUPPORT SERVICES, INC.**, a California corporation (hereinafter referred to as "Consultant").

RECITALS

A. District is a public agency of the State of California and is in need of professional services for the following project: **REGIONAL VDC PUMP STATION AND CCT BASIN [PROJECT NO. D1903]** (hereinafter referred to as "the Project").

B. Consultant is duly licensed and has the necessary qualifications to provide such services.

C. The parties desire by this Agreement to establish the terms for District to retain Consultant to provide the services described herein.

AGREEMENT

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

1. Services. Consultant shall provide District with hydrogeological and engineering services related to the preparation of a conceptual design of the proposed Upper Valle De Los Caballos recovery well field, as described in the Scope of Work attached hereto as Exhibit "A."

2. Compensation.

   a. Subject to paragraph 2(b) below, the District shall pay for such services on a time and material basis in accordance with the Schedule of Charges set forth in Exhibit "B."

   b. In no event shall the total amount paid for services rendered by Consultant exceed the sum of $164,418, per table attached in Consultant proposal. Consultant shall submit, by the 25th of the month, invoices for services rendered and for reimbursable expenses incurred to apinvoices@ranchowater.com. District shall pay properly submitted invoices within twenty-five (25) days of receipt.

c. Consultant shall prepare all invoices in compliance with the following format:

REGIONAL VDC PUMP STATION AND CCT BASIN
[PROJECT NO. D1903]

1.	Authorized Contract Amount	$ _____
2.	Authorized Changes	$ _____
3.	Revised Contract Amount	$ _____
4.	Amount Previously Billed	$ _____
5.	Amount of This Invoice	$ _____
6.	Project Balance Remaining	$ _____

Invoice Item 5 (above) shall include a breakdown of current charges by major work task as identified in Exhibit "A." Payments shall be subject to review for compliance by District with the requirements of this Agreement, and shall be subject to an audit upon completion of all services. No other compensation will be paid except for services done under an amended agreement approved pursuant to Article 3, "Additional Work."

3. Additional Work. If changes in the work seem merited by Consultant or the District, and informal consultations with the other party indicate that a change is warranted, it shall be processed by in the following manner: a letter outlining the changes shall be forwarded to the District by Consultant with a statement of estimated changes in fee or time schedule. An amendment to the Agreement shall be prepared by the District and executed by both parties before performance of such services or the District will not be required to pay for the changes in the scope of work. Such amendment shall not render ineffective or invalidate unaffected portions of this Agreement.

4. Maintenance of Records. Books, documents, papers, accounting records, and other evidence pertaining to costs incurred shall be maintained by Consultant and made available at all reasonable times during the Agreement period and for four (4) years from the date of final payment under the Agreement for inspection by the District.

5. Time of Performance. Consultant shall perform its work hereunder in a prompt and timely manner and shall commence performance upon receipt of a written Notice to Proceed from the District. Consultant shall complete the services required hereunder within ninety (90) calendar days. The Notice to Proceed shall set forth the date of commencement of the work.

6. Delays in Performance.

   a. Neither the District nor Consultant shall be considered in default of this Agreement for delays in performance caused by circumstances beyond the reasonable control of the non-performing party. For purposes of this Agreement, such circumstances include, but are not limited to, abnormal weather conditions; floods, earthquakes, fire, epidemics, war, riots, and other civil disturbances; strikes, lockouts, work slowdowns, and other labor disturbances; sabotage or judicial restraint.

   b. Should such circumstances occur, the non-performing party shall, within a reasonable time of being prevented from performing, give written notice to the

Rancho California Water District
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other party describing the circumstances preventing continued performance and the efforts being made to resume performance of this Agreement.

7. Compliance with Law.

   a. Consultant shall comply with all applicable laws, ordinances, codes, and regulations of the federal, state, and local government, including Cal/OSHA requirements.

   b. Consultant shall assist the District, as requested, in obtaining and maintaining all permits required of Consultant by federal, state, and local regulatory agencies.

   c. Consultant is responsible for all costs of clean up and/or removal of hazardous and toxic substances spilled as a result of his or her services or operations performed under this Agreement.

8. Standard of Care. Consultant's services will be performed in accordance with generally accepted professional practices and principles and in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. Where approval by District, the General Manager, or other representative of District is indicated, it is understood to be conceptual approval only and does not relieve Consultant of responsibility for complying with all laws, codes, industry standards, and liability for damages caused by negligent acts, noncompliance with industry standards, or the willful misconduct of Consultant or its subconsultants.

9. Assignment and Subconsultant. Consultant shall not assign, sublet, or transfer this Agreement or any rights under or interest in this Agreement without the written consent of the District, which may be withheld for any reason. Nothing contained herein shall prevent Consultant from employing independent associates and subconsultants as Consultant may deem appropriate to assist in the performance of services hereunder.

10. Independent Consultant. Consultant is retained as an independent Consultant and is not an employee of the District. No employee or agent of Consultant shall become an employee of the District.

11. Integration. This Agreement represents the entire understanding of the District and Consultant as to those matters contained herein, and supersedes and cancels any prior oral or written understanding, promises, or representations with respect to those matters covered hereunder. This Agreement may not be modified or altered except in writing signed by both parties hereto. This is an integrated Agreement.

12. Insurance.

   a. Commercial General Liability.

      (i) The Consultant shall take out and maintain, during the performance of all work under this Agreement, in amounts not less than specified herein,

Commercial General Liability Insurance, in a form and with insurance companies acceptable to the District.

(ii) Coverage for Commercial General Liability insurance shall be at least as broad as the following:

(1) Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 0001)

(iii) Commercial General Liability Insurance must include coverage for the following:

(1) Bodily Injury and Property Damage
(2) Personal Injury/Advertising Injury
(3) Premises/Operations Liability

(iv) All such policies shall give Rancho California Water District, its Board of Directors, Board members, officers, employees, agents, and authorized volunteers insured status using ISO endorsement CG2010, CG2033, or equivalent.

(v) The general liability program may utilize either deductibles or provide coverage excess of a self-insured retention, subject to written approval by the District.

b. Automobile Liability.

(i) At all times during the performance of the work under this Agreement the Consultant shall maintain Automobile Liability Insurance for bodily injury and property damage including coverage for owned, non-owned, and hired vehicles, in a form and with insurance companies acceptable to the District.

(ii) Coverage for automobile liability insurance shall be at least as broad as Insurance Services Office Form Number CA 0001 covering automobile liability (Coverage Symbol 1, any auto).

(iii) The automobile liability program may utilize deductibles, but not a self-insured retention, subject to written approval by the District.

(iv) All such policies shall name the Rancho California Water District, its Board of Directors, Board members, officers, employees, agents, and authorized volunteers as Additional Insureds under the policies.

c. Workers' Compensation/Employer's Liability.

(i) Consultant certifies that he/she is aware of the provisions of Section 3700 of the California Labor Code, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and he/she will

comply with such provisions before commencing work under this Agreement.

(ii) At all times during the performance of the work under this Agreement, the Consultant shall maintain full compensation insurance for all persons employed directly by him/her to carry out the work contemplated under this Agreement, all in accordance with the "Workers' Compensation and Insurance Act," Division IV of the Labor Code of the State of California and any acts amendatory thereof, and Employers' Liability Coverage in amounts indicated herein. Consultant shall require all subconsultants to obtain and maintain, for the period covered by the work under this Agreement, workers' compensation of the same type and limits as specified in this Section.

(iii) Such insurance shall include an insurer's Waiver of Subrogation in favor of the District and will be in a form and with insurance companies acceptable to the District.

(iv) If insurance is maintained, the workers' compensation and employers' liability program may utilize either deductibles or provide coverage excess of a self-insured retention, subject to written approval by the District.

d. Professional Liability (Errors and Omissions).

(i) At all times during the performance of the work under this Agreement the Consultant shall maintain professional liability insurance, in a form and with insurance companies acceptance to the District and in an amount indicated herein.

e. Minimum Policy Limits Required.

(i) The following insurance limits are required for the Agreement:

	Combined Single Limit
Commercial General Liability	$1,000,000 per occurrence/$2,000,000 aggregate for bodily injury, personal injury, and property damage
Automobile Liability	$1,000,000 per occurrence for bodily injury and property damage
Employers' Liability	$1,000,000 per occurrence
Professional Liability (errors and omissions)	$1,000,000 per claim and aggregate

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www.ranchowater.com

f. Evidence Required.

(i) Prior to execution of the Agreement, the Consultant shall file with the District evidence of insurance from an insurer or insurers certifying to the coverage of all insurance required herein. Such evidence shall include original copies of the ISO CG 2010 (or insurer's equivalent) signed by the insurer's representative and Certificate of Insurance (Acord Form 25-S or equivalent). All evidence of insurance shall be signed by a properly authorized officer, agent, or qualified representative of the insurer and shall certify the names of the insured, any additional primary insureds, where appropriate, the type and amount of the insurance, the location and operations to which the insurance applies, and the expiration date of such insurance. Certificates of insurance shall be filed with District within fifteen (15) days of award of the contract.

g. Policy Provisions Required.

(i) Certificates of insurance and policy endorsements shall require 30 days (10 days for non-payment of premium) notice of cancellation to Rancho California Water District. Statements that the carrier "will endeavor" and "that failure to mail such notice shall impose no obligation and liability upon the company, its agents, or representatives," will not be acceptable on certificates. If any of the required coverages expire during the term of this Agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement to the District at least ten (10) days prior to the expiration date.

(ii) All policies shall contain a provision stating that Consultant's policies are primary insurance and that any insurance, self-insurance, or other coverage maintained by the District or any named insureds shall not be called upon to contribute to any loss.

(iii) The retroactive date (if any) of each policy is to be no later than the effective date of this Agreement. Consultant shall maintain such coverage continuously for a period of at least three years after the completion of the contract work. Consultant shall purchase a one-year extended reporting period i) if the retroactive date is advanced past the effective date of this Agreement; ii) if the policy is canceled or not renewed; or iii) if the policy is replaced by another claims-made policy with a retroactive date subsequent to the effective date of this Agreement.

h. Qualifying Insurers.

(i) All policies required shall be issued by acceptable insurance companies, as determined by the District, which satisfy the following minimum requirements:

Insurance carriers shall be authorized by the Department of Insurance, State of California, to do business in California and maintain an agent for process within the state. Such insurance carrier shall have not less than an "A-" policyholder's rating and a financial rating of not less than "Class VII" according to the latest Best Key Rating Guide, unless otherwise approved by the District.

i. Additional Insurance Provisions.

(i) The foregoing requirements as to the types and limits of insurance coverage to be maintained by Consultant, and any approval of said insurance by the District, is not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Consultant pursuant to this Agreement including, but not limited to, the provisions concerning indemnification.

(ii) If at any time during the life of the Agreement, the Consultant fails to maintain in full force any insurance required by the Agreement documents the District may terminate the Agreement.

(iii) The Consultant shall include all subconsultants as insureds under its policies or shall furnish separate certificates and endorsements for each subconsultant. All coverages for subconsultants shall be subject to all of the requirements stated herein.

(iv) The District may require the Consultant to provide complete copies of all insurance policies in effect for the duration of the Project.

(v) Neither the District, nor the Board, nor any member of the Board, nor any of the directors, officers, employees, agents, or volunteers shall be personally responsible for any liability arising under or by virtue of the Agreement.

(vi) Insurance certificates shall be attached hereto as Exhibit "C."

13. Indemnification. To the fullest extent permitted by law, Consultant shall defend (with counsel of the District's choosing), indemnify and hold the District, its directors, officers, employees, agents, and volunteers free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage, or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any alleged acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subcontractors, consultants, or agents in connection with the performance of the Consultant's services, the Project or this Agreement, including without limitation the payment of all damages, expert witness fees and attorneys' fees and other related costs and expenses. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the Consultant or the District, its directors, officers, employees, agents, or volunteers.

If Consultant's obligation to defend, indemnify, and/or hold harmless arises out of Consultant's performance as a "design professional" (as that term is defined under Civil Code section 2782.8), then, and only to the extent required by Civil Code section 2782.8, which is fully incorporated herein, Consultant's indemnification obligation shall be limited to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, and, upon Consultant obtaining a final adjudication by a court of competent jurisdiction, Consultant's liability for such claim, including the cost to defend, shall not exceed the Consultant's proportionate percentage of fault.

14. California Labor Code Requirements. Consultant is aware of the requirements of California Labor Code Sections 1720 et seq and 1770 et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. If the Services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is $1,000 or more, Consultant agrees to fully comply with such Prevailing Wage Laws, if applicable. Consultant shall defend, indemnify, and hold the District, its elected officials, officers, employees, and agents free and harmless from any claims, liabilities, costs, penalties, or interest arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. It shall be mandatory upon the Consultant and all subconsultants to comply with all California Labor Code provisions, which include, but are not limited to, prevailing wages, employment of apprentices, hours of labor, and debarment of contractors and subcontractors.

15. District Material Requirements. Consultant is hereby made aware of the District's requirements regarding materials, as set forth in the Standard Specifications for Facility Design Requirements, latest version, which are deemed to be a part of this Agreement.

16. Laws, Venue, and Attorneys' Fees. This Agreement shall be interpreted in accordance with the laws of the State of California. If any action is brought to interpret or enforce any term of this Agreement, the action shall be brought in a state or federal court situated in the County of Riverside, State of California.

17. Termination or Abandonment.

    a. The District has the right to terminate or abandon any portion or all of the work under this Agreement by giving ten (10) calendar days written notice to Consultant. In such event, the District shall be immediately given title and possession to all original field notes, drawings and specifications, written reports, and other documents produced or developed for that portion of the work completed and/or being abandoned. The District shall pay Consultant the reasonable value of services rendered for any portion of the work completed prior to termination. If said termination occurs prior to completion of any task for the Project for which a payment request has not been received, the charge for services performed during such task shall be the reasonable value of such services, based on an amount mutually agreed to by the District and Consultant of the portion of such task completed but not paid prior to said termination. The

District shall not be liable for any costs other than the charges or portions thereof which are specified herein. Consultant shall not be entitled to payment for unperformed services, and shall not be entitled to damages or compensation for termination of work.

b. Consultant may terminate its obligation to provide further services under this Agreement upon thirty (30) calendar days' written notice to the District only in the event of substantial failure by the District to perform in accordance with the terms of this Agreement through no fault of Consultant.

18. Documents. Except as otherwise provided in Section 17, above, all original field notes, written reports, Drawings and Specifications, and other documents, produced or developed for the Project shall, upon payment in full for the services described in this Agreement, be furnished to and become the property of the District.

19. Project Construction. If the services covered by this Agreement involve a construction phase of the Project, a provision shall be incorporated into all construction phase contracts entered into by the District which will protect the District and the Consultant to the same extent and all Project contractors shall indemnify and hold the District, Consultant, and their consultants harmless from any and all claims, demands, causes of action, damages, costs, and expenses, including attorneys' fees, property damage, bodily injury, personal injury, losses, or liability arising out of or alleged to arise from the contractor's performance of the work described in the construction phase contracts, but not including liability that may be due to the sole negligence of the District, Consultant, or their consultants. All construction phase Project contractors shall be required to include the District and Consultant as additional insureds on their General Liability insurance policies.

a. Job Site Responsibility.

District agrees that in accordance with generally accepted construction practices, the construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the Project, including safety of all persons and property, and that this requirement shall be made to apply continuously and not be limited to normal working hours. Consultant shall not have control over or charge of, and shall not be responsible for, construction means, methods, techniques, sequences, or procedures, as these are solely the responsibility of the construction contractor.

b. Data.

Consultant shall be entitled to rely upon the accuracy of data and information provided during the construction phase of the Project by District or other without independent review or evaluation, unless such review or evaluation is specified in the Scope of Work.

20. Organization. Consultant shall assign Chris Coppinger as Project Manager. The Project Manager shall not be removed from the Project or reassigned without the prior written consent of the District.

21. Notice. Any notice or instrument required to be given or delivered by this Agreement may be given or delivered by depositing the same in any United States Post Office, certified mail, return receipt requested, postage prepaid, addressed to:

District:	**Consultant:**
Rancho California Water District	Geoscience Support Services, Inc.
Post Office Box 9017	Post Office Box 220
Temecula, CA 92589-9017	Claremont, CA 91711
Attn.: Jake Wiley	**Attn.: Dennis Williams**
Engineering Manager	**President**

and shall be effective upon receipt thereof.

22. Third Party Rights. Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the District and the Consultant.

23. Severability. The unenforceability, invalidity, or illegality of any provision(s) of this Agreement shall not render the other provisions unenforceable, invalid, or illegal.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

RANCHO CALIFORNIA WATER DISTRICT

By: _____
Jeffrey D. Armstrong, General Manager

GEOSCIENCE SUPPORT SERVICES, INC.

By: _____
Mark Williams, Secretary

_____
Consultant Federal Tax Number

19\JA:RN:lm003\AgmtForServices\D1903

EXHIBIT "A"

PROPOSED SCOPE OF WORK

GEOSCIENCE

40 Years

January 17, 2019

Mr. Jake Wiley, PE
Rancho California Water District
42135 Winchester Road
Temecula, CA 92590

Re: Scope and Cost Estimate to Provide Professional Geohydrologic and Engineering Services for the Conceptual Design of Upper Valle de los Caballos Recovery Wells.

Dear Jake:

Rancho California Water District (RCWD) intends to increase the groundwater recharge capabilities of the Upper Valle de los Caballos (UVDC) and centralize critical facilities to provide more reliable and cost-effective water to ratepayers. Multiple planning studies have been conducted in support of this effort, including prior studies by GEOSCIENCE (GSSI), Kennedy Jenks (K/J), Todd Groundwater (Todd), and Thomas Harder & Co. (TH&Co).

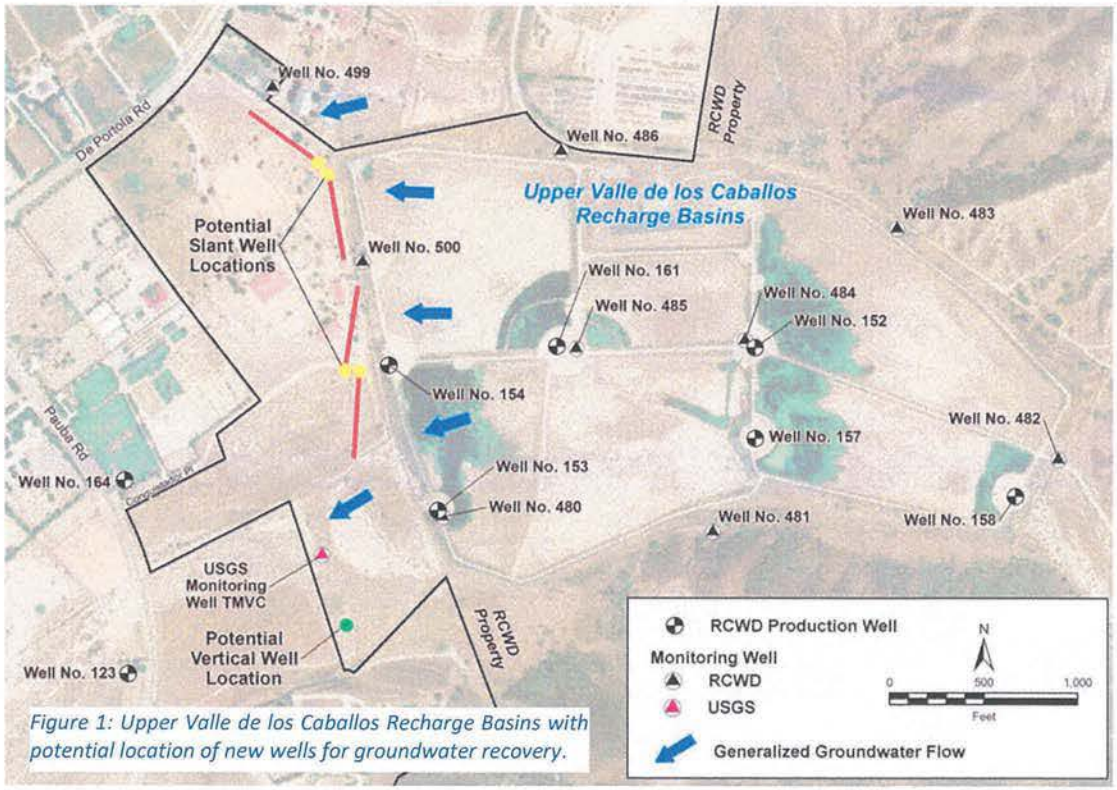

Figure 1: Upper Valle de los Caballos Recharge Basins with potential location of new wells for groundwater recovery.

PO Box 220 Claremont, CA 91711
t. 909.451.6650
f. 909.451.6638
www.gssiwater.com

The current capital improvement plan includes construction of two groundwater recovery wells in the parcel immediately west of the UVDC. These wells were originally sited in a 2011 Todd report based on an older version of the Murrieta-Temecula Groundwater Basin Model. The siting could not consider the wells that have been constructed since 2011. Additionally, the siting assumed a vertical well design.

GSSI recommends the previous siting of the wells be revaluated to consider changes in ground water production, updates to the groundwater model, and advances in well drilling methods. Old wells in the area have been replaced with higher producing wells, new wells (not existing well replacements) have been drilled, and the basin model has been updated. As part of the new siting, we recommend the feasibility of using slant wells be considered. UVDC recharges groundwater into the Young Alluvium Aquifer. This aquifer is typically shallower than 150 ft and has a static water level of approximately 60 ft bgs. The thin, shallow aquifer significantly restricts drawdown available to vertical wells and therefore limits production. Slant wells can produce up to twice as much flow as vertical wells with the same available drawdown.

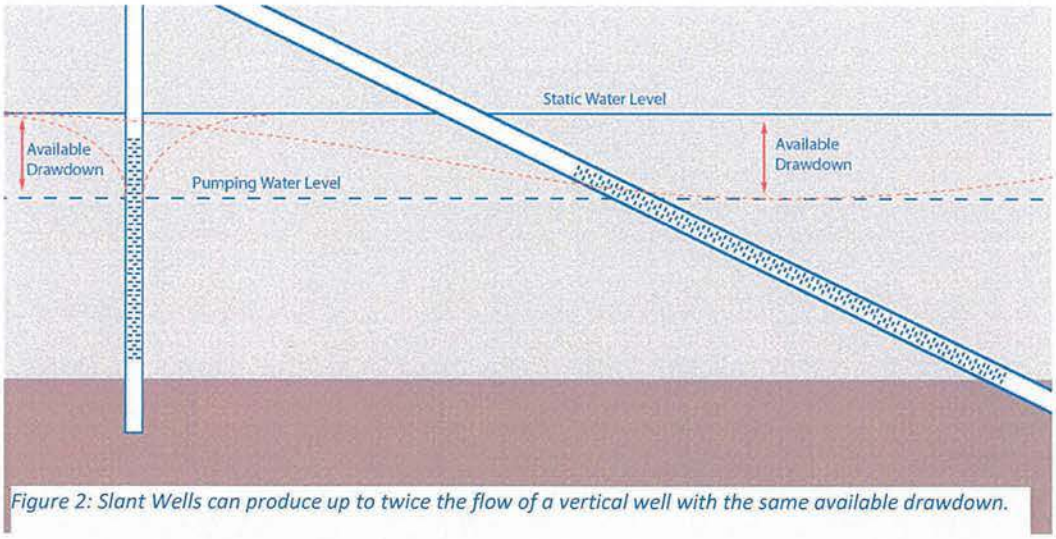

Figure 2: Slant Wells can produce up to twice the flow of a vertical well with the same available drawdown.

Higher per well production reduces the number of wells required to reach production goals. Reducing the number of wells has the potential to significantly reduce the overall UVDC project cost by reducing equipping design and construction costs, reducing the required pipeline and electrical construction, and reducing operations and maintenance efforts.

We propose to develop a focused groundwater model of the UVDC area from the current Murrieta-Temecula Groundwater Basin Model. We will use this model to assess siting options for vertical and angled wells. We have teamed with Kennedy Jenks for this effort. K/J will provide engineering support to evaluate infrastructure and equipping requirements and costs. The following tasks are proposed:

Scope

Task 1.0 Background

Prior to siting recovery wells, GSSI will conduct a review of existing studies of the UVDC basins and the information on slant wells previously provided to RCWD. K/J will verify survey data provided by RCWD and construct a scaled drawing basemap for use in later project deliverables.

Task 1.1 Background Research, Data Collection, Literature Review

UVDC recharge operations and improvements studies have been conducted by GSSI and several other engineering and geohydrology consulting firms since the facility was constructed in 1992. Since 2013, GSSI has provided RCWD staff with information on drilling a slant well at UVDC. Slant wells place more screen in contact with aquifer material, allowing more production with the same available drawdown. GEOSCIENCE will provide a literature review summarizing the prior UVDC studies and compile current information on slant wells. This literature review will be incorporated into the conceptual design report.

Deliverable/Work Product: Letter summarizing prior work.

Task 1.2 Prepare Scaled Drawing Basemap

The project team will develop a scaled drawing base map of the 50-acre parcel to serve as the basis for well siting and site layout drawings. K/J will lead the effort to produce the base map. Aerial imagery and survey data provided by RCWD will be incorporated with utility locations and as built drawings. These data will be verified with a site visit to confirm that structures and access routes are accurately represented. The project team will meet with RCWD following completion of the literature review and basemap.

Deliverable/Work Product: 24 in. X 36 in. scaled drawing base map, CAD files associated with basemap, and meeting to review map and task 1.1 letter (meeting under task 3.3).

Task 1.3 Develop UVDC Focused Model

The surface and groundwater model of the Murrieta-Temecula Ground Water Basin was first developed between 1995 and 1999 as a cooperative technical effort involving representatives of Camp Pendleton and RCWD, their respective consultants (Stetson and GEOSCIENCE), their respective legal advisors, the Santa Margarita River Watermaster, and the U.S. Geological Survey. The model was updated to include GSFLOW software in 2013-2014. This updated incorporated a Precipitation-Runoff surface water model, refined model cell size, and included a lithologic model and recalibration of the revised model.

Previous well siting efforts used older versions of the Murrieta-Temecula Model. GSSI will create focused model to use as a tool to site UVDC recovery wells using the most up-to-date version of the Murrieta-Temecula Model.

To develop the focused model, we will perform the following tasks:

- Update the well package to reflect construction of new wells and destruction of old wells,
- Vertically discretize the Young Alluvium and Pauba aquifers into additional layers,
- Decrease the MODFLOW cell size from 400 ft x 400 ft to 10 ft x 10 ft, and
- Recalibrate the updated model.

The focused model will allow evaluation of arrangements of slant and vertical wells. This focused model will also be available for future use in planning recharge basin operations and quantifying the volume of recharged water leaving the UVDC area.

Update Well Package

Well No. 161 and Well No. 164 were constructed and put into service after the 2011 Todd well siting effort. Well No. 161 is located within the UVDC. RCWD operations staff report that water levels in Well No. 164 (located approximately 1,500 ft. from UVDC) quickly respond to recharge in UVDC. Three additional wells have been constructed within approximately two miles of UVDC since the earlier siting effort. Two of these five wells are wells in new locations. The other three wells produce from different depth intervals and are capable of higher flow rates than the wells they replaced. The model well package will be updated to account for these new wells.

Vertically Discretize Young Alluvium

Adding additional layers to the Young Alluvium will allow a better understanding of the flow between the Young Alluvium and the Pauba aquifers, and will allow for the evaluation of performance slant wells and vertical wells. Lithologic and geophysical logs from production and monitoring well drilling, and geotechnical logs from the construction of the basin will be used to define the model layer elevations.

Decrease Horizontal Cell Size

Each model cell represents a 400 ft x 400 ft area. The focused model will decrease the cell size to 10 ft x 10 ft better represent conditions inside the UVDC. Aquifer parameters (such as hydraulic conductivity and storativity) will initially be assigned based on the CWRMA model. The parameters will be updated with results from aquifer testing during construction of Wells No. 161 and 164, and further refined by calibrating the focused model.

Calibrate Focused Model

Model calibration is performed to compare model-simulated values to field-measured values. The method of calibration used by the regional groundwater model was the industry standard "history matching" technique. Trial-and-error adjustment of parameters for "history matching" will be used to aid in the calibration of the transient flow groundwater model. As discussed above, these aquifer parameters include horizontal hydraulic conductivity, vertical hydraulic conductivity, and storativity. In addition, the

streambed conductance will also be adjusted during the model calibration in order to match the observed streamflow.

Deliverable/Work Product: Calibrated focused groundwater model of UVDC area. To reduce cost, a technical memorandum documenting the model will be prepared only at the request of RCWD.

Task 2.0 Conceptual Design

GSSI will prepare 24 in. x 36 in. drawing showing typical well profiles and construction site layouts. Working with RCWD and K/J, GSSI will prioritize siting criteria and develop three alternative well siting scenarios including all vertical wells, all slant wells, and a combination of both vertical and slant wells. K/J will prepare scale drawings of the UVDC area showing the siting alternatives. Once the alternatives locations are sited, GSSI will use the focused model developed in Task 1.3 to evaluate the three scenarios on a hydrogeologic basis. K/J will provide review of engineering criteria for each of the alternatives, including the electrical service application, equipping costs, and slant well pump configuration.

Task 2.1 Conceptual Design Drawings

GSSI will prepare four 24 in. x 36 in. conceptual design drawings for vertical and slant wells. These drawings will include:

1. Typical vertical well profile
2. Typical vertical well construction site layout
3. Typical slant well profile
4. Typical slant well construction site layout

The well profiles will indicate generalized depths of aquifers, approximate depths and diameters of well casing, and material types.

Construction site layouts will show typical equipment arrangements, stormwater and erosion control best management practices, noise control measures, and access requirements.

Deliverable/Work Product: Four 24 in. X 26 in. drawings.

Task 2.2 Preliminary Siting of Wells

The project team will provide three alternative scenarios for recovery wells producing between 13 and 17 CFS. These scenarios will include an all vertical well scenario, an all slant well scenario, and a scenario utilizing a combination of vertical and slant wells.

GSSI will: establish evaluation criteria for the recovery wells. These criteria will include, but are not limited to:

- Ability of aquifer to yield sufficient quantities of ground water to meet RCWD's objectives,
- Maximize capture of water put in UVDC basins,
- Compliance with regulatory requirements for distance from surface water,
- Proximity to existing RCWD infrastructure for conveyance of water,
- Access to site for construction and maintenance,
- Minimize impact to UVDC and Vail Lake Dam Construction operations, and
- Minimize potential adverse interference with nearby existing wells.

The criteria will be given weighting factors from 1 to 5, with 5 being the most important. A GIS software site suitability model will be developed and the criteria will be brought into the model. Using the MODFLOW cells as grid boundaries, areas will be scored 1-3 (with 3 being best) based on the criteria. Null values will be assigned to criteria that would cause an area to be ineligible for consideration; these areas will be removed from the model. As an example, the area defined as Temecula Creek will be assigned a null value for the regulatory requirement criteria and removed from consideration. Areas adjacent to existing vertical wells will be assigned a lower score than areas farther from the wells. The product of the criteria scores and their respective weighting factors will be totaled to obtain a final weighted ranking score. These scores will be contoured to identify areas most favorable for well siting.

Kennedy Jenks will: review the preliminary well pump and well head configurations for slant well and/or vertical wells; preliminary well design provided by Geoscience with support from Kennedy Jenks. Review will be performed for constructability, discharge pipe configuration and sizing based on anticipated well production.

Deliverable/Work Product: Siting for three recovery well alternative scenarios.

Task 2.3 Prepare Drawings to Show Three Alternative Arrangements

Kennedy Jenks will prepare three (3) full size drawings to show three alternative well arrangements (all slant wells, all vertical wells, combination of slant and vertical wells) including:

- Base drawing information (above)
- Proposed well pad(s)
- Preliminary pump to waste pipeline alignment(s) to the existing UVDC ponds
- Preliminary distribution pipeline alignment(s) to proposed Regional Pump Station
- New electrical service(s) preliminary alignment
- Preliminary well pad grading to keep site above flood plain (above existing levee)
- Conceptual access roads to well pad(s)

Deliverable/Work Product: Three scaled drawings.

Task 2.4 Electrical Service Application Review

K/J will review the new electrical service application to Southern California Edison (prepared by others). The application will be reviewed for completeness, code compliance and calculations will be checked.

Deliverable/Work Product: Review of electrical service.

Task 2.5 Preliminary Costs

The project team will provide engineer's estimates for well construction and equipping for each of the three scenarios. These costs will assume typical well design (prepared in task 2.1 above) and site layouts (prepared in Task 2.3 above). These costs should be considered preliminary and should be revised when designs are updated closer to the time of construction.

Deliverable/Work Product: Engineer's estimate for well construction and equipping for three alternative scenarios.

Task 2.6 Exercise Focused Model

GSSI will meet with RCWD staff via conference call to establish parameters for the model scenarios. Once hydrology and well locations have been established, GSSI will exercise the focused model developed in Task 1.3 to evaluate the three scenarios.

Deliverable/Work Product: Hydrographs, groundwater contours, and particle tracks from three modeled scenarios. Conference call to establish modeling parameters (under Task 3.3).

Task 2.7 Conceptual Design Report

GSSI and K/J will prepare a conceptual design report that will present

- Conceptual designs for typical vertical and slant wells
- Siting considerations for vertical and slant wells
- Three alternative scenarios for recovery wells producing between 13 and 17 cubic feet per second
- Pipeline sizing for estimated flow
- Preliminary engineering estimates
- Results of modeling the three scenarios; and
- Recommendation of one of the scenarios for further development.

Final recommendations will consider maintenance, site access, equipping, operations and maintenance cost and procedures. Development of the focused model will be briefly summarized in an appendix to the conceptual design report.

Deliverable/Work Product: Conceptual design report including: hydrographs, groundwater contours, and particle tracks from three modeled scenarios, description of drawing developed in Task 1.2, 2.1 and 2.3, recommendation of vertical and slant well locations.

Task 3.0 Project Management

Task 3.1 Project Management

GSSI recognizes the schedule constraints of the conceptual design of recovery wells. Capital expenditures for the first of the recovery wells are planned for Fiscal Year 2019. Any delays in conceptual design could cause delays in the overall construction. GSSI will provide project management and coordinate with K/J to complete the project within the time and budget allotted.

Task 3.2 Quality Assurance and Quality Control

GSSI and K/J will provide senior/principal level personnel to review deliverables prior to submission to RCWD.

Task 3.3 Project Meetings

Meetings between the project team and RCWD will allow for coordination of effort, clarification of RCWD requests, and discussion of work product and project goals.

Four (4) meetings are planned for the project. Two are planned as conference calls, two are planned as in person meetings:

1. Kick Off Meeting (Conference Call)
2. Discussion of basemap, literature review, and model development data request
3. Model scenario development (Conference Call)
4. Presentation of findings

GSSI will prepare meeting agendas and minutes for all meetings. Additional meetings or conference calls may occur and can be integrated into the scope and fee on a time and materials basis.

Task 4.0 Optional Model Development Report

At RCWD's request, GSSI will prepare a report to document the focused model developed in Task 1.3. If this option is not utilized, development and calibration of the model will be briefly summarized as an appendix to the conceptual design report.

This report will provide details on the focused model including, but not limited to the following;

- Computer code descriptions
- Explanation of the refinement process
- Hydrologic parameters
- Water Balance
- Calibration results

The report would include figures such as hydrographs, model layer contours, and multiple maps of model layer hydrologic parameters. The report will also provide analysis of iterative calibration and water level and stream flow residuals. GSSI anticipates submitting a draft report and responding to comments from RCWD and other reviewers. A final report would then be issued.

This report would be required if RCWD intends to submit results of the model to Department of Drinking Water (DDW) for groundwater under the influence of surface water determinations or amended drinking water supply permit application. The report would likely be required if RCWD intended to submit results of the model to the Cooperative Water Resource Management Agreement (CWRMA) group for evaluation of groundwater flow in the Young Alluvium Aquifer.

Deliverable/Work Product: Report on focused model of UVDC area developed in Task 1.3.

Cost Estimate

The proposed total cost for Tasks 1 through 3 is $142,904. Including the optional Model Development Technical memorandum, the total cost is ~~$164,750.~~ $164,418 PER TABLE ATTACHED

Clarifications

- Record drawing or GIS figures for existing District utilities will be provided.
- CAD files (Civil 3D) will be provided.
- Utility research (utility request and potholing) will not be performed.
- Survey will not be performed.
- Modeling scope is limited to GSSI's MODFLOW focused model.
- A Geotechnical Investigation will not be performed.
- The scope includes preliminary design drawings (one drawing set inclusive of both well sites). The Drawings will be scaled but are for reference only; drawings are not for construction.
- Specifications are not included in the scope.

Schedule

The scope of work is anticipated to take approximately 12 weeks to complete.

If you have any questions, please contact me at (909) 451-6650

Sincerely,

Chris Coppinger, PG
Senior Geohydrologist

EXHIBIT "B"

SCHEDULE OF CHARGES

Table 1

Cost Proposal for Professional Hydrogeological and Engineering Services Related to the Conceptual Design of New Upper Valle De Los Caballos Recovery Wells

Task Description			GEOSCIENCE SUPPORT SERVICES, INC.										
			Principal Geo/Modeler	Senior Geohydrologist	Project Geohydrologist	Modeler II	Staff Geohydrologist	Technical Illustrator	Clerical	Labor	Reimbursable Expenses[1]	Subconsultant Expenses	Total Cost
		Hourly Rate:	$328	$210	$200	$183	$154	$122	$103				
1.0	**Background**												
	1.1	Background research, data collection and prepare letter summarizing prior work	4	8	16		24	8	1	$ 10,967	$ 200	$ -	$ 11,167
	1.2	Prepare scaled, full size (24"x36") base drawing for "50-acre Parcel", including processing of RCWD imagery and field check by K/J		2				2		$ 664	$ -	$ 5,640	$ 6,304
	1.3	Develop UVDC focused model from 2017 CWRMA update model	16	12	12	80	24	16		$ 30,456	$ -	$ -	$ 30,456
		Subtotal	*20*	*22*	*28*	*80*	*48*	*26*	*1*	*$ 42,087*	*$ 200*	*$ 5,640*	*$ 47,927*
2.0	**Conceptual Design**												
	2.1	Conceptual Design Drawings - Four 24 x 36 sheets	2	4			8	40		$ 7,608	$ 100	$ -	$ 7,708
	2.2	Preliminary siting of wells producing between approximately 13 and 17 cfs	2	4	8	4	24	12		$ 8,988	$ -	$ -	$ 8,988
	2.3	Exercise focused model to evaluate production potential	6	3	12	30		6		$ 11,220	$ -	$ -	$ 11,220
	2.4	Prepare three (3) full size drawings to show three alternative well arrangements		3				6		$ 1,362	$ -	$ 5,340	$ 6,702
	2.5	Provide preliminary engineer's estimates for three (3) scenarios	2	2	12			1		$ 3,598	$ -		$ 3,598
	2.6	**Deliverable:** Conceptual design report and well site configuration review	4	16	32		32	32	2	$ 20,110	$ 200	$ 7,560	$ 27,870
		Subtotal	*16*	*32*	*64*	*34*	*64*	*97*	*2*	*$ 52,886*	*$ 300*	*$ 12,900*	*$ 66,086*
3.0	**Project Management**												
	3.1	Project Management	8	16					16	$ 7,632	$ -	$ 1,990	$ 9,622
	3.2	Quality Assurance/Quality Control	12	4						$ 4,776	$ -	$ 1,620	$ 6,396
	3.3	Project Meetings (two calls and two meetings)	4	16			24			$ 8,368	$ -	$ 1,780	$ 10,148
		Subtotal	*24*	*36*	*0*	*0*	*24*	*0*	*16*	*$ 20,776*	*$ -*	*$ 5,390*	*$ 26,166*
											Subconsultant Markup:	*$ 2,393*	
		TOTAL HOURS AND COST TASKS 1 -3:	**60**	**90**	**92**	**114**	**136**	**123**	**19**	**$ 115,749**	**$ 500**	**$ 26,323**	**$ 142,572**
4.0	**Optional Task**												
	4.0	**Optional Deliverable:** Prepare report documenting focused model.	4	8	36	24	16	36	2	$ 21,646	$ 200	$ -	$ 21,846
		TOTAL HOURS AND COST TASKS 1 -4:	**64**	**98**	**128**	**138**	**152**	**159**	**21**	**$ 137,395**	**$ 700**	**$ 26,323**	**$ 164,418**

Notes:

[1] Reimbursable Expenses include Mileage, Field Per Diem at $145/day, report reproduction costs.

EXHIBIT "C"

INSURANCE CERTIFICATES

APPENDIX E

INDIRECT COST NEGOTIATION AGREEMENT

State and Local Governments
Indirect Cost Negotiation Agreement

EIN: 95-2415751

Organization:

Rancho California Water District
P.O. Box 9017
Temecula, CA 92589-9017

Date: April 18, 2018

Report No(s).: 18-A-0601(17F)
18-A-0602(19P)

Filing Ref.:
Last Negotiation Agreement
dated May 17, 2017

The indirect cost rate contained herein is for use on grants, contracts, and other agreements with the Federal Government to which 2 CFR Part 200 applies for fiscal years beginning on or after December 26, 2014 subject to the limitations in Section II.A. of this agreement. Applicable OMB Circulars and the regulations at 2 CFR 225 will continue to apply to federal funds awarded prior to December 26, 2014. The rate was negotiated by the U.S. Department of the Interior, Interior Business Center, and the subject organization in accordance with the authority contained in applicable regulations.

Section I: Rate

Type	Effective Period From	To	Rate*		Locations	Applicable To
Final	07/01/16	06/30/17	83.39%	1/	All	Fringe Benefits
Final	07/01/16	06/30/17	8.01%	2/	All	V&E Overhead
Final	07/01/16	06/30/17	139.04%	2/	All	G&A Overhead
Final	07/01/16	06/30/17	93.54%	3/	All	Engineering Overhead
Final	07/01/16	06/30/17	21.89%	4/	All	O&M Overhead
Provisional	07/01/18	06/30/19	83.39%	1/	All	Fringe Benefits
Provisional	07/01/18	06/30/19	8.01%	2/	All	V&E Overhead
Provisional	07/01/18	06/30/19	139.04%	2/	All	G&A Overhead
Provisional	07/01/18	06/30/19	93.54%	3/	All	Engineering Overhead
Provisional	07/01/18	06/30/19	21.89%	4/	All	O&M Overhead

1/ Base: Total salaries and wages, excluding fringe benefits and standby labor.

2/ Base: Total direct salaries and wages, excluding fringe benefits and labor associated with (a) vehicle and equipment (V&E), (b) direct allocation, (c) operations, (d) standby, and (e) support services.

3/ Base: Total direct salaries and wages of (a) capital and (b) engineering fee-for-service functions, excluding fringe benefits.

4/ Base: Total direct salaries and wages of the operations and maintenance function, excluding fringe benefits and labor associated with (a) standby, (b) support, (c) mechanics, (d) capital, and other labor (civic).

Treatment of fringe benefits: Fringe benefits applicable to direct salaries and wages are treated as direct costs; fringe benefits applicable to indirect salaries and wages are treated as indirect costs.

Treatment of paid absences: The costs of vacation, holiday, sick leave pay and other paid absences are included in the organization's fringe benefit rate and are not included in the direct cost of salaries and wages. Claims for direct salaries and wages must exclude those amounts paid or accrued to employees for periods when they are on vacation, holiday, sick leave or are otherwise absent from work.

A. **Limitations:** Use of the rate(s) contained in this agreement is subject to any applicable statutory limitations. Acceptance of the rate(s) agreed to herein is predicated upon these conditions: (1) no costs other than those incurred by the subject organization were included in its indirect cost rate proposal, (2) all such costs are the legal obligations of the grantee/contractor, (3) similar types of costs have been accorded consistent treatment, and (4) the same costs that have been treated as indirect costs have not been claimed as direct costs (for example, supplies can be charged directly to a program or activity as long as these costs are not part of the supply costs included in the indirect cost pool for central administration).

B. **Audit:** All costs (direct and indirect, federal and non-federal) are subject to audit. Adjustments to amounts resulting from audit of the cost allocation plan or indirect cost rate proposal upon which the negotiation of this agreement was based will be compensated for in a subsequent negotiation.

C. **Changes:** The rate(s) contained in this agreement are based on the organizational structure and the accounting system in effect at the time the proposal was submitted. Changes in organizational structure, or changes in the method of accounting for costs which affect the amount of reimbursement resulting from use of the rate(s) in this agreement, require the prior approval of the responsible negotiation agency. Failure to obtain such approval may result in subsequent audit disallowance.

D. **Rate Type:**

1. Fixed Carryforward Rate: A fixed carryforward rate is based on an estimate of the costs that will be incurred during the period for which the rate applies. When the actual costs for such periods have been determined, an adjustment will be made to the rate for future periods, if necessary, to compensate for the difference between the costs used to establish the fixed rate and the actual costs.

2. Provisional/Final Rates: Within six (6) months after year end, a final indirect cost rate proposal must be submitted based on actual costs. Billings and charges to contracts and grants must be adjusted if the final rate varies from the provisional rate. If the final rate is greater than the provisional rate and there are no funds available to cover the additional indirect costs, the organization may not recover all indirect costs. Conversely, if the final rate is less than the provisional rate, the organization will be required to pay back the difference to the funding agency.

3. Predetermined Rate: A predetermined rate is an indirect cost rate applicable to a specified current or future period, usually the organization's fiscal year. The rate is based on an estimate of the costs to be incurred during the period. A predetermined rate is not subject to adjustment. (Because of legal

constraints, predetermined rates are not permitted for Federal contracts; they may, however, be used for grants or cooperative agreements.)

E. **Rate Extension**: Only final and predetermined rates may be eligible for consideration of rate extensions. Requests for rate extensions of a current rate will be reviewed on a case-by-case basis. If an extension is granted, the non-Federal entity may not request a rate review until the extension period ends. In the last year of a rate extension period, the non-Federal entity must submit a new rate proposal for the next fiscal period.

F. **Agency Notification**: Copies of this document may be provided to other federal offices as a means of notifying them of the agreement contained herein.

G. **Record Keeping**: Organizations must maintain accounting records that demonstrate that each type of cost has been treated consistently either as a direct cost or an indirect cost. Records pertaining to the costs of program administration, such as salaries, travel, and related costs, should be kept on an annual basis.

H. **Reimbursement Ceilings**: Grantee/contractor program agreements providing for ceilings on indirect cost rates or reimbursement amounts are subject to the ceilings stipulated in the contract or grant agreements. If the ceiling rate is higher than the negotiated rates in Section I of this agreement, the negotiated rates will be used to determine the maximum allowable indirect cost.

I. **Use of Other Rates**: If any federal programs are reimbursing indirect costs to this grantee/contractor by a measure other than the approved rate(s) in this agreement, the grantee/contractor should credit such costs to the affected programs, and the approved rate(s) should be used to identify the maximum amount of indirect cost allocable to these programs.

J. **Central Service Costs**: If the proposed central service cost allocation plan for the same period has not been approved by that time, the indirect cost proposal may be prepared including an amount for central services that is based on the latest federally-approved central service cost allocation plan. The difference between these central service amounts and the amounts ultimately approved will be compensated for by an adjustment in a subsequent period.

K. **Other**:

1. The purpose of an indirect cost rate is to facilitate the allocation and billing of indirect costs. Approval of the indirect cost rate does not mean that an organization can recover more than the actual costs of a particular program or activity.

2. Programs received or initiated by the organization subsequent to the negotiation of this agreement are subject to the approved indirect cost rate(s) if the programs receive administrative support from the indirect cost pool. It should be noted that this could result in an adjustment to a future rate.

3. Indirect cost proposals must be developed (and, when required, submitted) within six (6) months after the close of the governmental unit's fiscal year, unless an exception is approved by the cognizant agency for indirect costs.

Section III: Acceptance

Listed below are the signatures of acceptance for this agreement:

By the State & Local Government:

Rancho California Water District
State/Local Government

/s/
Signature

Richard R. Aragon
Name (Type or Print)

Assistant General Manager-CFO/Treasurer
Title

4-17-18
Date

By the Cognizant Federal Government Agency:

U.S. Department of the Interior
Agency

CRAIG WILLS Digitally signed by CRAIG WILLS Date: 2018.04.18 12:04:01 -07'00'
/s/
Signature

Craig A. Wills
Name

Office Chief
Office of Indirect Cost Services
Title

U.S. Department of the Interior
Interior Business Center
Agency

Negotiated by Elena Chan
Telephone (916) 930-3824

RESOLUTION NO. 2019-4-3

RESOLUTION OF THE BOARD OF DIRECTORS OF THE RANCHO CALIFORNIA WATER DISTRICT, RIVERSIDE COUNTY, CALIFORNIA, IN SUPPORT OF THE UPPER VDC OPTIMIZATION PROJECT PHASE 4, AUTHORIZING THE DISTRICT'S APPLICATION, AND APPROVING NEGOTIATION AND EXECUTION OF A COOPERATIVE AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION FOR WATERSMART DROUGHT RESPONSE PROGRAM (FUNDING OPPORTUNITY NO. BOR-DO-19-F003)

WHEREAS, the Rancho California Water District (RCWD/District) is organized and operates under authority of the California Water District Law, Division 13, commencing with Section 34000 of the California Water Code; and

WHEREAS, the United States Department of the Interior Bureau of Reclamation provides monetary grants to states, tribes, or local governments, and other entities such as water districts; and

WHEREAS, the United States Department of the Interior Bureau of Reclamation is making funding available through the WaterSMART Drought Response Program (FOA No. BOR-DO-19-F003) to fund projects that will build long-term resilience to drought and will reduce the need for emergency response actions; and

WHEREAS, the Board of Directors of the District approves of the application for the Department of the Interior Policy and Administration, Bureau of Reclamation WaterSMART Drought Response Program Grants BOR-DO-19-F003; and

WHEREAS, the District agrees to the administration and cost sharing requirements of the WaterSMART Drought Response Program Grant criteria.

NOW, THEREFORE, be it resolved, determined and ordered by the Board of Directors of the Rancho California Water District, as follows:

Section 1. Authorizes RCWD to apply for a grant through the United States Bureau of Reclamation WaterSMART Drought Response Program Grant Program.

Section 2. That, if recommended for funding by the United States Bureau of Reclamation, RCWD's Board of Directors authorizes the District to accept a grant of up to $750,000.

Section 3. That, if recommended for funding by the United States Bureau of Reclamation, RCWD's Board of Directors authorizes and ensures the capability of RCWD to provide matching funds in the form of cash and in-kind contributions in the amount specific in the application Funding Plan.

Section 4. That, if recommended for funding by the United States Bureau of Reclamation, RCWD will work with the United States Bureau of Reclamation to meet established deadlines for entering into a grant agreement.

Section 5. This resolution officially becomes a component part of the District's grant application.

BE IT FURTHER RESOLVED, that the General Manager and/or his designee is hereby authorized and empowered to execute in the name of Rancho California Water District all necessary documents to implement and carry out the purpose of this resolution, and to undertake and complete the proposed project.

ADOPTED, SIGNED, AND APPROVED this 11th day of April 2019.

William J. Wilson, President of the
Board of Directors of the
Rancho California Water District

ATTEST:

Kelli E. Garcia, Secretary of the
Board of Directors of the
Rancho California Water District

STATE OF CALIFORNIA)
)ss.
COUNTY OF RIVERSIDE)

I, KELLI E. GARCIA, Secretary of the Board of Directors of the Rancho California Water District, do hereby certify that the foregoing Resolution No. 2019-4-3 was duly adopted by the Board of Directors of said District a regular meeting thereof held on the 11th day of April, and that it was so adopted by the following vote:

AYES:	DIRECTORS:	Brady, Garcia, Herman, Martin, Plummer, Rossi, and Wilson
NOES:	DIRECTORS:	None
ABSENT:	DIRECTORS:	None
ABSTAIN:	DIRECTORS:	None

Kelli E. Garcia, Secretary of the
Board of Directors of the
Rancho California Water District

(SEAL)

STATE OF CALIFORNIA)
)ss.
COUNTY OF RIVERSIDE)

I, KELLI E. GARCIA, Secretary of the Board of Directors of the Rancho California Water District, do hereby certify that the above and foregoing is a full, true, and correct copy of Resolution No. 2019-4-3 of said Board, and that the same has not been amended or repealed.

DATED: April 11, 2019

Kelli E. Garcia, Secretary of the
Board of Directors of the
Rancho California Water District

(SEAL)