The Flood Control and Water Conservation District respectfully proposes the following amendments to the Scott Valley Ditch Infiltration Project (Project) – Q2296039 Grant Agreement:

**Page 3, Section 6.02 Objectives:**

**Objectives:** Specific objectives of this Project are to:

1. Continue the implementation of the SVID Recharge Project in Scott Valley to study recharge potential due to:

a. Water diverted into ditches. This will be quantified through physical measurements and estimated using the Scott Valley Integrated Hydrologic Model (SVIHM).

b. Spreading on dormant agricultural fields and potential to support late summer and fall flows in the Scott River

**Page 4, Section 6.03.2 Project Site Access:**

Grantee shall cause the Landowner(s) to give Grantor, and the Subcontractor’s employees and agents written permission to access the Project Site at least once every 12 months from the date of Grantor’s Notice to Proceed until ~~25 years after~~ the end of the Agreement Term, March 15, 2026, for purposes of inspections and monitoring of only locations where equipment or tasks funded under this Grant Agreement are sited (Project Site Access). Such access shall be reasonably acceptable to the Landowner(s) and the requester following written or verbal request to Grantee.

**Page 4, Section 6.03.4 Project Implementation**

**Task 1 – Project Management and Administration**

Grantee will provide technical and administrative services associated with implementation of the Project, including managing this Agreement, assuring all permits are finalized, securing Project Site Access, administering subcontracts, invoicing and payments, drafting and finalizing progress and final reports, and data management.

**Task 2 – SVID Recharge Project:**

This task involves continuation of the SVID Recharge Project, with added focus on ~~ditch water behavior and~~ potential benefits to groundwater recharge and instream flows. Work under this task involves completing necessary regulatory requirements and reporting efforts to ensure the continuation of this recharge project under the 5-year temporary water rights permit and progress towards a permanent permit application. Reporting includes development of annual Diversion Reports, as required by the under the temporary water rights permits. ~~Additional regulatory~~ Regulatory requirements for ~~identified as required starting in~~ 2025, include an agreement under the California Department of Fish and Wildlife’s Lake and Streambed Alteration Program and securing a conditional waiver for low threat discharge from the North Coast Regional Water Quality Control Board ~~has also been identified as a requirement to ensure recharge implementation has no adverse effects to water quality. Completion of this waiver application is considered under this task~~. ~~While most~~ The majority of instrumented ~~of the~~ monitoring sites have telemetry, ensuring data is available in-real time. However, data collection may involve calibrations, field verifications, quality assurance and quality control of the data, as well as fulfilment of the biological monitoring plan, as required under the current 180-day temporary permit. Geochemical monitoring includes collection of isotope samples, radon samples, and major ion samples, as necessary to provide additional information. The geochemical sampling effort has increased sample frequency to provide more detailed information groundwater recharge dynamics. This increased sample frequency during the recharge period is intended to provide information on not only changes in water composition, but also timing. For example, samples that are collected from the surface ditch water and groundwater wells on or near recharge fields can indicate when recharged surface water reaches the groundwater through changes in isotopic composition of the groundwater. More frequent samples allow better tracking of this change over the recharge period, and continued sampling throughout the summer and early fall months result in a timeseries over the period of interest. This can be used to understand more about the timing and movement of recharged water and can be used in comparison to model estimates. Radon samples evaluate groundwater discharge to surface water. Like the isotope samples, this information can be used to provide information on where, both spatially and temporally, groundwater is discharging to Scott River. Major ion samples may be added where additional information is desired, or where isotope data is inconclusive. Understanding these dynamics will, in combination with physical groundwater level measurements in wells and near-stream shallow transects will support the hypothesized benefit of this groundwater recharge to instream flows, a major objective of this project. Conducting this monitoring will allow an on-the-ground line of evidence to support model scenarios run and will be instrumental in continuing and expanding groundwater recharge implementation in Scott Valley. ~~Grab samples will also be collected for isotope analsye…~~ Additionally, geochemical monitoring will be conducted to evaluate dynamics of the “place of use” on Scott River. This will increase understanding of groundwater contribution to baseflow and variations spatially and temporally. Understanding these dynamics will, in combination with physical groundwater level measurements in wells and near-stream shallow transects will support the hypothesized benefit of this groundwater recharge to instream flows, a major objective of this project. Conducting this monitoring will allow an on-the-ground line of evidence to support model scenarios run and will be instrumental in continuing and expanding groundwater recharge implementation in Scott Valley. The SVIHM will be used to run long term scenarios and quantity benefits from ditch infiltration and groundwater recharge under different water year types and conditions. Work under this task will be primarily completed by the subcontractor and a water rights Consultant.

Deliverables: Diversion Reports, annually with estimated completion by June 1st, Summary reports of water levels, geochemical, and isotope data annually by August 1st, Final report, estimated completion by March 15, 2026.

**Task 3 – Ditch Infiltration Studies**

A second mechanism of groundwater recharge, infiltration through unlined irrigation ditches, specifically the Scott Valley Irrigation District (SVID) ditch, will be investigated. This task will focus on the recharge due solely to infiltration through the unlined irrigation ditch, as opposed to water applied to fields. ~~Three locations on the westside of Scott Valley have been identified: Barker ditch, Etna Mill ditch, and Patterson Creek.~~ Monitoring will include a combination of physical and geochemical analyses including measurements of radon, isotopic composition, and major ions in ditch water, creek water, and groundwater. A Lab Services budget line item was added to account for laboratory analyses~~, include continuous groundwater levels and temperature, ditch infiltration and streamflow with existing infrastructure used as much as possible~~. Infiltration volumes and rates along sections of the SVID will be conducted to better understand the quantity of groundwater recharger able to be achieved through ditch infiltration**.** ~~This task involves monitoring design, diverting under appropriate conditions, completing data collection, and reporting. Monitoring efforts include a network of monitoring wells for each site to measure changes in groundwater levels in areas anticipated to be impacted by ditch infiltration and control well as a point of comparison. Flow targets, when flows exceed instream flow needs for fish, will be developed as a framework for diversion and biological monitoring will be conducted to ensure no adverse effects on fish.~~ These new observations will be used to refine the numerical model, and then the current conditions and future ~~The~~ model will be used to evaluate benefits and examine long term scenarios based on the timing and duration of winter ditch use under different conditions and water year types. These results will also be used to evaluate if using unlined irrigation ditches for groundwater recharge is a feasible groundwater recharge mechanism that provides measurable benefits to groundwater levels and instream flows. Results from geochemical samples will be used to understand and/ or validate groundwater recharge dynamics from ditch infiltration. This will enable more precise reporting in permit summary reports on the water recharged through the ditch versus the water applied to fields. This will provide greater understanding of the path and timing of the recharged water to the river, which will influence estimates of timing and benefits by SVIHM. Work under this task also includes any ditch infrastructure improvements or added monitoring to better delineate the rate and location of ditch infiltration throughout the recharge period to improve ditch infiltration estimates. This is primarily to improve monitoring to better account for water diverted onto fields used for recharge. This may include pipe flow sensors or weir boxes and concrete boxes and debris screens, as necessary. These would be located within or adjacent to the ditch and are not anticipated to require permits. Improvements to diversion measurements at Young’s Dam may include improving the flashboards for a more stable rating curve. This is all to contribute to gathering reliable continuous data to track water more precisely. Work under this task will be primarily completed by the subcontractor.

Deliverables: Final monitoring design plan, estimated completion by September 31, 2024 ~~November 30, 2023~~. Data collection annually by June 1st, Diversion records and reporting annually by June 1st. Summary reports of water levels, geochemical, and isotope data annually by August 1st, Final report, estimated completion by March 15, 2026.

**Page 9, SECTION 9 – BUDGET AND PAYMENT: 9.01 Budget Details and Funding Summary:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Total Budget** |  **Total Budget Amendment**  |  **change (+/-)**  |  **% of change**  |  **Note**  |
| **A. Personnel Services** |  |  |  |  |   |
| 1 Siskiyou Co NR Specialist/GSA SGMA Plan Manager |  $ 68,000.00  |  $ 68,000.00  |  $ -  | 0% |   |
|  Staff Benefits  |  $ -  |  $ -  |  $ -  |   |   |
|  **Total Personnel Services**  |  **$ 68,000.00**  |  **$ 68,000.00**  |  **$ -**  | 0% |   |
| **B. Operating Expenses: General** |  |  |   |   |   |
| 1 General Expenses (postage, office supplies)  |  $ 2,000.00  |  $ ~~2~~5,000.00  |  $ 3,000.00  | 150% |   |
| 2 Field Supplies |  $ 5,000.00  |  $ ~~5~~7,000.00  |  $ 2,000.00  | 40% |   |
| 3 Fees for Diverted Water |  $ 3,240.00  |  $ -  |  $ (3,240.00) | -100% |   |
| 4 Travel - Accommodation |  $ 7,920.00  |  $ ~~7,920~~2,000.00  |  $ (5,920.00) | -75% |   |
| 5 Travel - Mileage |  $ 6,288.00  |  **$** ~~6,288~~12,334.00 |  $ 6,046.00  | 96% |   |
| **Total Operating Expenses: General** |  **$ 24,448.00**  |  **$ ~~24,448~~26,334.00**  |  $ 1,886.00  | 8% |   |
| **C. Operating Expenses: Subcontractors** |   |  |   |   |   |
| 1 Sub-Consultant  |  $ 670,000.00  |  **$ ~~670,000~~**613,218.00  |  $ (56,782.00) | -8% |   |
| 2 Water Rights Consultant |  $ 15,000.00  |  $ 19~~5~~,000.00  |  $ 4,000.00  | 27% |   |
| 3 Biological Monitoring |  $ 15,000.00  |  $ 15,000.00  |  $ -  | 0% |   |
| 4 Lab Services |  $ -  |  **$** 61,372.00 |  $ 61,372.00  |   |  New Line Item  |
| **Total Operating Expenses: Subcontractors** |  **$ 700,000.00**  |  **$ ~~700,000~~708,590.00**  |  $ 8,590.00  | 1% |   |
| **D. Operating Expenses: Equipment** |  |  |   |   |   |
| 1 Pressure Transducers |  $ 80,000.00  |  $ ~~80~~75,000.00  |  $ (5,000.00) | -6% |   |
| 2 Diversion Improvements |  $ 60,000.00  |  $ 60,000.00  |  $ -  | 0% |   |
| 3 Diversion Point Enhancement |  $ 67,552.00  |  $ ~~67,552~~62,076.00  |  $ (5,476.00) | -8% |   |
| **Operating Expenses: Equipment** |  **$ 207,552.00**  |  **$ ~~207,552~~197,076.00**  |  $ (10,476.00) | -5% |   |
| **TOTAL** |  **$ 1,000,000.00**  |  **$ 1,000,000.00**  |  $ -  | 0% |   |