



SUMMARY REPORT

Agenda Date: 4/15/2025

To: Board of Directors, Sonoma County Water Agency
Department or Agency Name(s): Sonoma County Water Agency
Staff Name and Phone Number: Nathan Baskett 707-547-1983
Vote Requirement: Majority
Supervisory District(s): Fourth

Title:

Lake Sonoma Watershed Soil Moisture Monitoring Agreement with United States Geological Survey

Recommended Action:

Authorize Sonoma County Water Agency's General Manager to execute an agreement with United States Geological Survey, in substantially the form as the draft presented to this Board, for soil moisture monitoring within the Lake Sonoma Watershed through September 30, 2026, in the not-to-exceed amount of \$196,964 (Sonoma County Water Agency's share is \$164,662) and, consistent with other agreements, authorize Sonoma County Water Agency's General Manager to amend or terminate this agreement with approval of County Counsel. (Fourth District)

Executive Summary:

Soil moisture is a fundamental hydrologic parameter in estimating runoff, streamflow, and water availability. Changes in soil moisture are impacting watersheds and the quantity and quality of water for downstream communities. An essential part of monitoring soil moisture is the installation of soil moisture monitoring stations. The United States Geological Survey (USGS) in cooperation with Sonoma County Water Agency (Sonoma Water) has initiated an effort to install soil moisture monitoring stations within the Lake Sonoma Watershed to support establishing Forecast Informed Reservoir Operations (FIRO).

Discussion:

HISTORY OF ITEM/BACKGROUND

FIRO is a flexible water management approach that uses data from watershed monitoring and improved weather forecasting to help water managers selectively retain or release water from reservoirs for increased resilience to droughts and floods. Sonoma Water has established FIRO at Lake Mendocino to maximize water supply and mitigate flooding hazards and plans to implement FIRO at Lake Sonoma.

One of the monitoring methods used to support FIRO is soil moisture monitoring. Soil moisture plays an important role in drought and flood forecasting, water supply management, and other natural resource activities. Soil moisture observations can forewarn of impending drought or flood conditions before other more standard indicators are triggered. Changes in soil moisture, characterized by infiltration and evapotranspiration, are impacting watersheds and the quantity and quality of water for downstream communities.

An essential part of monitoring soil moisture is the installation of soil moisture monitoring stations. Each

monitoring station has five sensors that detect the amount of water in the soil profile to a depth of about three feet. The remote stations are solar powered and transmit the data via GOES satellite, allowing the data to be monitored in real time. Incorporating soil moisture into statistical and hydrologic simulation models can improve streamflow and seasonal forecasts over using precipitation and snowpack measurements alone.

The Lake Sonoma Watershed currently only has two soil moisture monitoring stations, one of which was installed in the fall of 2024. USGS in cooperation with Sonoma Water has initiated an effort to improve hydrologic monitoring, including streamflow and meteorological monitoring. This includes installing additional soil moisture monitoring stations within the Lake Sonoma Watershed.

The initial work for this project was completed by USGS under 2025-02 Lake Sonoma Soil Moisture Monitoring Proposal and included site selection, permitting, and equipment purchases to install two real-time moisture monitoring stations. USGS has developed a map of soil moisture response units for the Lake Sonoma Watershed using a principal component analysis to categorize and group the significant contributing factors to differing soil moisture response. USGS has identified five potential monitoring sites and is working with Sonoma Water on landowner permission, access, and finalizing site selection for two sites.

The agreement covers services from November 1, 2024, through September 30, 2026.

SERVICES TO BE PERFORMED

Under the agreement, USGS will install two soil moisture monitoring stations within the Lake Sonoma Watershed and provide long-term operations and maintenance assistance.

The cost of services will not exceed \$196,964; the term end date is September 30, 2026.

REQUEST FOR SONOMA WATER GENERAL MANAGER AMENDMENT AND TERMINATION AUTHORITY

Consistent with other agreements, staff recommend that the Board authorize Sonoma Water's General Manager to amend or terminate the agreement with approval of County Counsel.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Sonoma Water's General Manager has determined that the agreement and installation of two soil moisture monitoring stations are exempt under the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15306, Information Collection, because the activities would not result in serious or major disturbance to an environmental, historical, or archaeological resource. Sonoma Water staff has prepared a Notice of Exemption for the project in accordance with the CEQA, the State CEQA Guidelines, and Sonoma Water's Procedures for the Implementation of CEQA.

Strategic Plan:

County of Sonoma Strategic Plan Alignment:

NA.

Sonoma Water Strategic Plan Alignment

Goal: Environmental Stewardship.

Strategy: Protect, enhance, and monitor natural resources, watershed conditions, and ecosystem health that are vital to the Russian River, Petaluma River, and Sonoma Creek watersheds.

Agenda Date: 4/15/2025

Action: Support collaborative efforts to improve habitat and pursue restoration opportunities that provide integrated regional benefit.

FIRO has the potential to improve water supply reliability of Lake Sonoma, helping avoid economic and environmental impacts due to water supply shortages.

Racial Equity:

Was this item identified as an opportunity to apply the Racial Equity Toolkit?

No

Prior Board Actions:

None.

FISCAL SUMMARY

Expenditures	FY24-25 Adopted	FY25-26 Projected	FY26-27 Projected
Budgeted Expenses	\$92,302	\$80,000	\$24,662
Additional Appropriation Requested			
Total Expenditures	\$92,302	\$80,000	\$24,662
Funding Sources			
General Fund/WA GF			
State/Federal	\$32,302		
Fees/Other	\$60,000	\$80,000	\$24,662
Use of Fund Balance			
General Fund Contingencies			
Total Sources	\$92,302	\$80,000	\$24,662

Narrative Explanation of Fiscal Impacts:

Budgeted amount of \$60,000 is available from FY 2024/2025 appropriations for the Russian River Projects fund. Federal funding in the amount of \$32,302 will come from USGS. FY 2025/2026 and FY 2026/2027 appropriations will be budgeted in those fiscal years.

Staffing Impacts:			
Position Title (Payroll Classification)	Monthly Salary Range (A-I Step)	Additions (Number)	Deletions (Number)

Narrative Explanation of Staffing Impacts (If Required):

N/A

Agenda Date: 4/15/2025

Attachments:

Agreement with USGS

Related Items “On File” with the Clerk of the Board:

None.