



STAFF REPORT

Meeting Type: Board of Directors
Title: Professional Services Agreement for Petaluma River Brackish Desalination Investigation with Kennedy/Jenks Consultants, Inc.
From: Paul Sellier, Director of Water Resources
Through: Ben Horenstein, General Manager
Meeting Date: October 10, 2023

TYPE OF ACTION: X Action Information Review and Refer

RECOMMENDATION: Authorize the General Manager to finalize a Professional Services Agreement with Kennedy/Jenks Consultants, Inc. not to exceed \$124,643 to investigate subsurface conditions and feasibility of desalination of the Petaluma River near San Pablo Bay

SUMMARY: On February 28, 2023, the Board selected the Integrated Roadmap for improved water supply resiliency (Roadmap). Since that time, staff have been moving forward with all of the projects identified in the Roadmap. In collaboration with the District, the City of Petaluma’s consultant, Kennedy Jenks, has completed an initial review of groundwater availability for a potential brackish desalination plant as proposed by Jacobs in the Strategic Water Supply Assessment. To further investigate feasibility of brackish desalination in the region, staff have obtained a proposed scope of work from Kennedy Jenks to investigate subsurface conditions near San Pablo Bay. As reviewed at the September 15th, 2023 Operations Committee meeting, the proposed scope of work is for \$124,643 to further investigate the geology nearer San Pablo Bay where it may be possible to locate an ancient (paleo) riverbed channel that could then be used to support a subsurface intake structure for a desalination plant.

DISCUSSION: The District has partnered with the City of Petaluma (City) to develop a better understanding of the potential for the Petaluma River Brackish Desalination project (Project) as described in the Strategic Water Supply Assessment (SWSA) to yield a viable water supply. The City accelerated the work schedule by making budget available, as part of their ongoing water supply resiliency planning effort, to explore groundwater availability and water quality in the basin. The City tasked Kennedy Jenks to review existing data from city owned wells, available data from the United States Geological Survey and more recent information from the Groundwater Sustainability Plan for the Petaluma Valley as well as City owned well pumping data.

The review of existing data supports the conclusion that the groundwater in the area around the City of Petaluma is not saline water with a few exceptions. This places the water into the Groundwater Sustainability Agency purview and from a review of groundwater withdrawals and recharge of the

groundwater basin, the basin would not have the capacity to support the level of withdrawals of potable water.

There is an opportunity to further investigate the geology nearer to San Pablo Bay where it may be possible to locate an ancient (paleo) riverbed channel that could then be used to support a subsurface intake structure for a desalination plant. The paleo channel would likely be more directly hydraulically connected to the bay itself, and therefore much less likely to impact the existing potable groundwater basin. This might provide environmental and potential cost benefits over an open bay intake for desalination. Staff has obtained a proposed scope of work from Kennedy Jenks Consultants for \$124,643 to conduct this research and analysis.

As proposed, the scope of work (attached) includes a desktop analysis to locate a possible paleo channel in an area near where the Petaluma River meets San Pablo Bay. The proposed scope of work includes further exploration of groundwater nearer the bay and will utilize an existing Airborne Electro Magnetic (AEM) survey conducted by the State Department of Water Resources (DWR) of this area. AEM surveys measure the electrical magnetic response (resistivity/conductivity) of different subsurface layers to determine the types and depths of different soil layers. The data collected is used to create continuous images that are interpreted for underground geology. The AEM survey combined with existing lithological data from previously drilled wells or borings in the area may provide an opportunity to interpret the AEM data to help point to a likely location for the paleo channel. Pending the outcome of the desktop analysis, field work to physically locate the paleo channel would take place. Fieldwork would require permits for, and drilling of, three to four test wells to perform capacity testing and determine water quality.



Maintaining the location of proposed investigation in proximity to the Petaluma River is likely to increase the likelihood of a continuing collaboration with other nearby water retailers including the City of Petaluma and North Marin Water District. Regional coordination and collaboration between water agencies is essential for overall project viability.

ENVIRONMENTAL REVIEW: Not applicable.

FISCAL IMPACT: Funds for the Professional Services Agreement with Kennedy Jenks are included in the Adopted FY 2023-25 Budget

ATTACHMENT(S):

- 1. Proposed Scope of Work
- 2. Fee Estimate and Schedule

DEPARTMENT OR DIVISION	DIVISION MANAGER	APPROVED
Water Resources	 Paul Sellier Water Resources Director	 Ben Horenstein General Manager