

ZONE 7 BOARD OF DIRECTORS WATER RESOURCES COMMITTEE

DATE: Monday, September 20, 2021
TIME: 10:00 a.m.
PARTICIPATION: Zoom: <https://us02web.zoom.us/j/83803938815> or
Phone: (669) 900-6833 • Meeting ID: 838 0393 8815

Director Figuers
Director Gambs
Director Palmer

AGENDA

1. Public Comment on Items Not on Agenda
2. Los Vaqueros Reservoir Expansion: Multi-Party Agreement Amendment No. 3
3. Hopyard Well No. 7 Facilities and Hopyard Wellfield Pipeline Project
4. Verbal Reports
5. Adjournment



100 North Canyons Parkway
Livermore, CA 94551
(925) 454-5000

ORIGINATING SECTION: Integrated Planning
CONTACT: Amparo Flores/Carol Mahoney

AGENDA DATE: September 20, 2021

SUBJECT: Los Vaqueros Reservoir Expansion: Multi-Party Agreement Amendment No. 3

SUMMARY:

- To support its Mission to deliver safe, reliable, efficient, and sustainable water, Zone 7 Water Agency (Zone 7) has been considering participation in the Los Vaqueros Reservoir Expansion Project (Project). This supports Strategic Plan Initiative No. 1 (Establish a diversified water supply plan).
- The Project could provide alternative conveyance and additional water storage to Zone 7, currently assumed at a participation amount of 10,000 acre-feet.
- Significant progress in the environmental review/permitting, design, operations planning, financial planning, and development of agreements and governance structure has been made since April 2019 by Contra Costa Water District (CCWD), the owner of the reservoir, and Local Agency Partners (LAPs), which includes Zone 7.
- To further advance the Project, a new Joint Powers Authority (JPA) is being created to govern the design, construction, operation, and maintenance of the Project. The JPA membership is expected to consist of CCWD and seven LAPs, as well as the Department of Water Resources as a non-voting member. The Zone 7 Board approved participation in the JPA in August 2021.
- The current Multi-Party Agreement (MPA) covers Project expenses through December 31, 2021. The next phase covering the period through December 31, 2022 will require approximately \$900,000 of additional funding from Zone 7 through execution of Amendment Number 3 of the MPA.
- Amendment No. 3 covers three major tasks: project management (e.g., funding agreement administration and JPA administration), environmental planning (e.g., modeling, public outreach, environmental document and technical studies, regulatory and water rights permitting), and engineering feasibility (e.g., financial evaluation, federal feasibility report, design) with aggregate costs for the amendment as shown below.

	Amendment No. 3
Project Management	\$1,460,200
Environmental Planning	\$4,816,429
Engineering Feasibility	\$13,467,940
Contingency	\$987,229
Total	\$20,731,798

- The total Project costs, including LAP in-kind services (staff time) and Reclamation expenses, are as follows.

	Total Projected Costs
Consultant & CCWD labor	\$20,731,798
Reclamation Cost (labor and services)	\$1,000,000
LAP in-kind services	\$1,100,000
Total	\$22,831,798

- Sources for funding are broken down as follows:

	Amount
Total Projected Costs	\$22,831,798
less Reclamation in-kind	-\$1,000,000
less Reclamation Funding thru Assistance Agreement	-\$5,707,958
less CCWD in-kind services (portion)	-\$294,000
less LAP in-kind services	-\$1,100,000
less projected carryover of unspent funds from Amendment No.2	-\$1,500,000
less projected CA Water Commission Invoice payments	-\$6,950,000
Total to be covered by Seven LAPs	\$6,279,840
Estimated Cost per LAP (e.g., Zone 7)	\$900,000

- Staff will give a presentation proving an overview of the Project, Zone’s participation to-date, the terms of the MPA Amendment No. 3, and the Project’s costs and benefits to the Tri-Valley.

FUNDING:

No additional funding required at this time. Funding for the Multi-Party Agreement effective through December 31, 2021 was previously approved by the Board under Fund 310 (Water Supply and Reliability Fund).

RECOMMENDED ACTION:

Provide direction to staff.



100 North Canyons Parkway
Livermore, CA 94551
(925) 454-5000

ORIGINATING SECTION: Engineering
CONTACT: Rhett Alzona/Angela O'Brien

AGENDA DATE: September 20, 2021

SUBJECT: Hopyard Well No. 7 Facilities and Hopyard Wellfield Pipeline Project

SUMMARY:

- In order to provide a safe and reliable supply of water for the Tri-Valley area, staff is assessing the possibility of completing the Hopyard Well No. 7 (Hop 7) and the Hopyard Wellfield Pipeline as a drought emergency project and a candidate for potential drought funding. This project would be in support of Strategic Plan Initiative #3 – Continue to effectively implement infrastructure projects in the water system Capital Improvement Program (CIP).
- Zone 7 Water Agency has the Hopyard Wellfield, which is comprised of two production well facilities, Hopyard Well No. 6 (Hop 6) and Hopyard Well No. 9 (Hop 9), and the incomplete Hop 7 well. Hop 6 site has the chloramination facilities sufficient for all three wells.
- Since there are only two major production wells (Hop 6 and 9) in this part of the basin, the groundwater levels during droughts stay relatively higher as compared to central parts of the basin around Chain-of-Lakes wells.
- The project scope will include construction of Hop 7 Well Facilities and approximately 1,500 feet of 20-inch pipeline (see Discussion below). The project, estimated to cost \$6 to 8 million, could result in an approximately 700 to 1,100 gallons per minute (GPM) or about 1 to 1.5 million gallons per day (MGD) well that could increase existing groundwater production capacity of approximately 40 MGD and provide redundancy in the system. The Hopyard Wellfield Pipeline portion of the project, included in Zone 7's 10-year CIP in future years, will also increase operational flexibility for operation of Hop 9.
- The well casing for Hop 7 and a portion of the connecting pipeline between Hop 7 and Hop 9 were previously installed in 1997, but the overall project was not completed due to water quality concerns (elevated levels of arsenic and manganese). If this project were to be completed, Hop 7 would be treated by blending with Hop 6 and 9 to levels below the regulatory limits and below Zone 7's delivered water quality targets for arsenic and manganese. Zone 7's delivered water quality targets are set forth by its Water Quality Policy which calls for delivered potable water to its M&I Contractors' turnouts to be of a quality that contains no greater than 80% of the applicable State or federal primary Maximum Contaminant Levels (MCLs) and is aesthetically acceptable by meeting all State

and federal secondary MCLs. See Discussion below for graphs showing projected blended water quality for parameters of concern.

- Blending is an acceptable treatment technique by California State Water Resources Control Board – Division of Drinking Water (DDW). Zone 7 had previously received approval from DDW to use blending at the Chain-of-Lakes Wellfield for meeting the hexavalent chromium MCL before the MCL was invalidated in 2017.
- Currently, Hop 9 is operated in conjunction with Hop 6 in order to maintain sufficient disinfectant (chloramines) residuals in the Mocho Pipeline because the chemical feed systems located at Hop 6 site can only be used when Hop 6 is online. The installation of Hopyard Wellfield Pipeline will also provide additional operational flexibility by allowing independent use of Hop 9 without Hop 6.

Potential Next Steps

- Should the Water Resources Committee recommend moving forward with the project, the next steps would be:
 1. Bring the item for the Board to consider the project and authorize the design-build contract for the project at the October Board meeting.
 2. Staff to determine the required level of environmental impact evaluation per California Environmental Quality Act (CEQA), and if a Mitigated Negative Declaration (MND) is required, bring it for Board's consideration for approval at the December Board meeting.

FUNDING:

Funding for this project is available in Fund 120 – Water Enterprise Renewal/ Replacement and System-wide Improvements and Fund 130 – Expansion Fund. The Fund 120 share can come from a portion of the \$5,000,000 included in the FY 2021-22 Budget set aside for drought projects and to provide matching funds if there is State or Federal grant funding for drought projects. Currently, there is no approved State and Federal funding for Zone 7's drought projects. Should Zone 7 proceed with the project, additional funding would be needed. This funding will be requested when staff presents this project for Board approval.

RECOMMENDATIONS:

Discuss and provide direction

DISCUSSION:

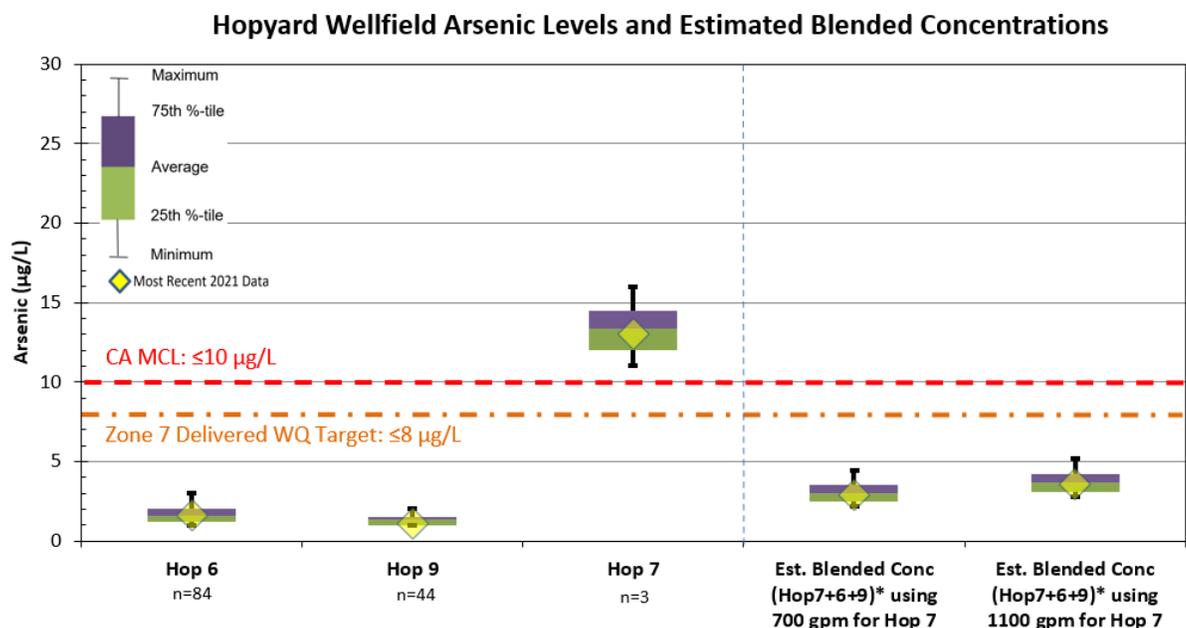
Water Quality

- Recent sampling of Hop 7 in July 2021 confirmed no detection of Per- and polyfluoroalkyl substances (PFAS). There has been no detection of PFAS in the Hop 6 and 9 since Zone 7 began PFAS monitoring in late 2018. Low level PFAS were detected in a shallower monitoring well near Hop 7.

- Recent July 2021 sampling results indicated similar water quality as previous samples collected in 2006 and 1997. In addition to arsenic and manganese, boron has been identified that would require treatment via blending for meeting Zone 7's potable water target for boron:

- Arsenic** in drinking water is regulated by a State and federal primary MCL at 10 micrograms per liter ($\mu\text{g/L}$) due to various health effects. Arsenic in Hop 7 recently sampled at 13 $\mu\text{g/L}$, above its MCL. This is slightly higher than the 2006 sample at 11 $\mu\text{g/L}$ and lower than the 1997 sample at 16 $\mu\text{g/L}$. Historical arsenic levels in Hop 6 and 9 are consistently below 3 $\mu\text{g/L}$ and can be used to blend Hop 7's arsenic to below the MCL and Zone 7's delivered water quality target at less than 80% of MCL (see Figure below).

With sustained pumping from Hop 7, there is a potential for arsenic levels to increase or decrease. Should the arsenic levels in Hop 7 increase due to sustained pumping, sensitivity analysis showed that this blending strategy would be effective for arsenic levels as high as about 30 $\mu\text{g/L}$ in Hop 7 to meet Zone 7 delivered water quality target and as high as about 40 $\mu\text{g/L}$ to meet MCL.



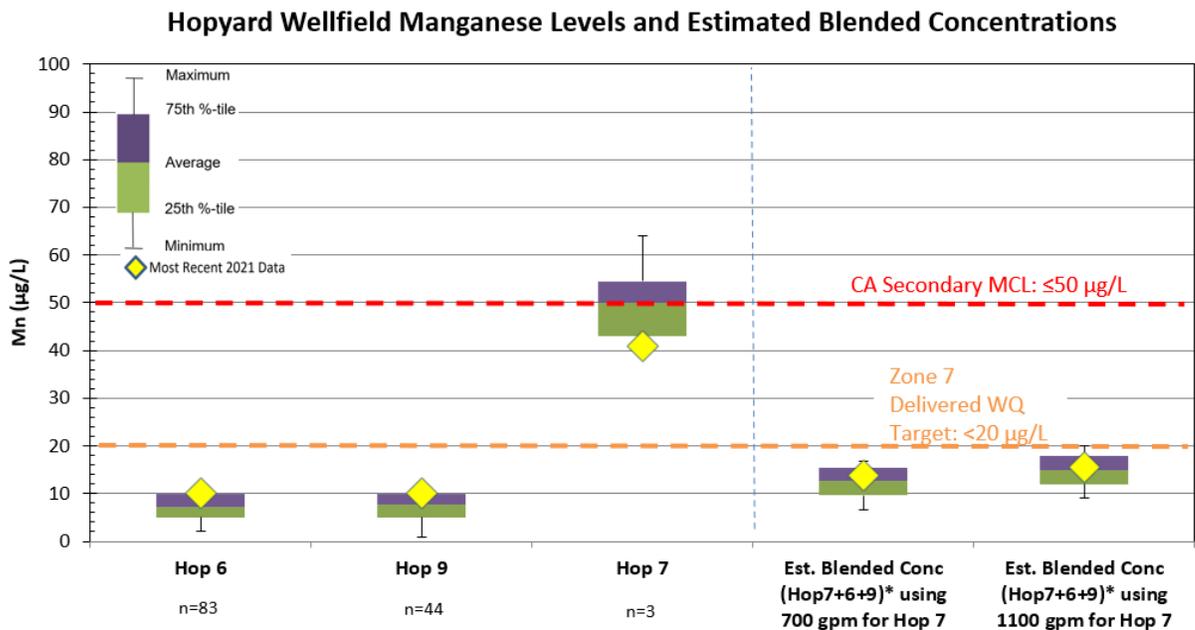
Note: To be conservative, values below method detection limit are plotted or calculated as the method detection limit.
 *Hop 9 must be operated with Hop 6 for chloramination. Order of Operation: Hop 6, Hop 9, and then Hop 7 last.

- Manganese** in drinking water is regulated by a State and federal secondary MCL at 50 $\mu\text{g/L}$, a standard established to address issues of aesthetics (discoloration), not health concerns. In California, there is also a drinking water notification level for manganese at 50 $\mu\text{g/L}$. When manganese is present in water served to customers at concentrations greater than the notification level, certain requirements and recommendations apply. Zone 7 has a delivered water quality

target of less than 20 µg/L of manganese to minimize colored water complaints based on past experiences.

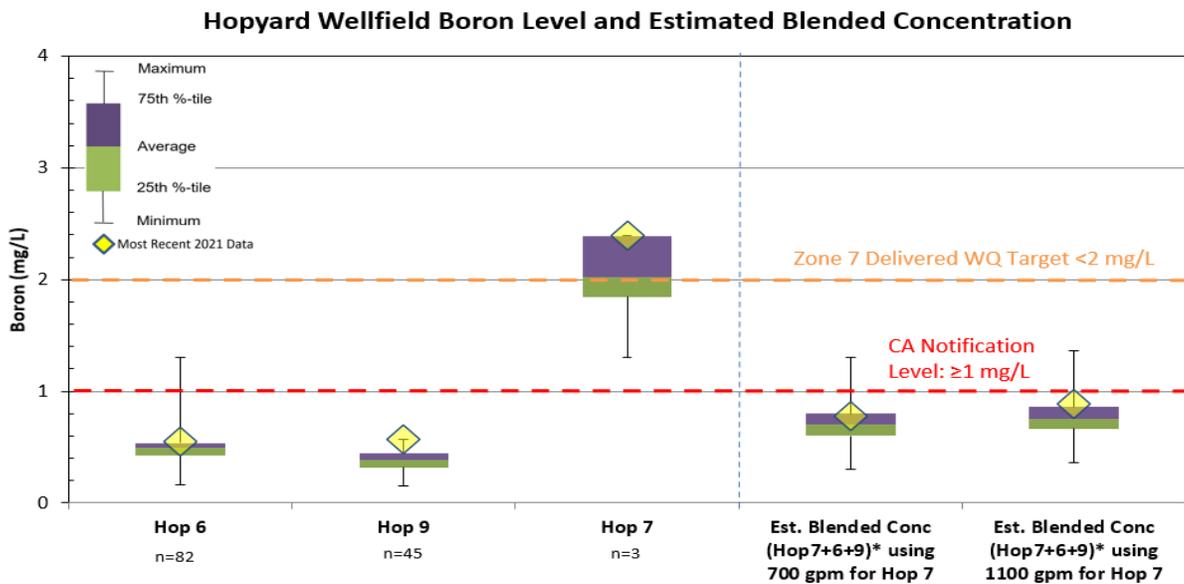
Recent Hop 7 manganese sample was found at 41 µg/L, which is similar to the 2006 sample at 45 µg/L and lower than the 1997 sample at 64 µg/L. Manganese can also be treated to below Zone 7’s delivered water quality targets by blending with Hop 6 and 9 (see Figures below).

A sensitivity analysis showed that blending with Hop 6 and 9 is effective for manganese as high as about 60 µg/L in Hop 7 to meet Zone 7 delivered water quality target and as high as about 230 µg/L to meet secondary MCL.



- Boron** is an unregulated chemical without an established MCL. Boron is mainly a concern for Zone 7’s irrigation users due to its potential effects of leaf damage and reduced growth. In California, there is a notification level at 1 milligram per liter (mg/L) and a recommended response level at 10 mg/L. The USEPA also has several short-term and long-term drinking water health advisories ranging from 2 to 5 mg/L. Zone 7’s delivered potable water target is less than 2 mg/L based on the USEPA’s Long- Term Health Advisory for children.

Recent Hop 7 boron sample was found at 2.4 mg/L, which is at the same concentration as the 2006 sample and higher than the 1997 sample at 1.3 mg/L. Boron can also be treated to below Zone 7’s delivered water quality targets by blending with Hop 6 and 9 (see Figures below). A sensitivity analysis showed that blending with Hop 6 and 9 can reduce boron below Zone 7’s delivered water target for boron concentrations as high as about 6 mg/L in Hop 7.



Potential Project Scope

- The Project scope elements would include:
 1. **Construct Hop 7 facility** – Construction of groundwater pumping facility including a new PG&E service and electrical facilities with portable generator hook-up, well pump and motor, control systems, small masonry block building, and/or equipment pads, yard piping, valves, and meters as well as other site work such as concrete, asphalt pavement, landscape screening and fencing.
 2. **Modifications to Hop 9 discharge pipeline** – Modifications may include some pipeline sizing upgrades to convey the water and connect to the Hop 9 discharge-to-waste line as well as installation of valves and vaults.
 3. **Construct a new Hopyard Wellfield Pipeline** – Construction of a pipeline to connect Hop 9 discharge pipeline to Hop 6 discharge pipeline prior to discharge into Zone 7’s transmission system. The portion of the project will also include modifications to Hop 6 discharge pipeline and relocation of chemical injection points. The Hopyard Wellfield Pipeline project is included in Zone 7’s 10-year CIP in future years.

Project Schedule

- A portion of the project (Project Elements 1&2 described above) can be implemented before the summer of 2022, while the whole project can be completed by the end of 2022. Completion of Elements 1 and 2 would allow the use of Hop 7 by re-valving the Mocho Pipeline to provide required blending for Hop 7 for the short-term while the Project Element 3 is completed for long-term blending operation.

Environment Impact Evaluation per CEQA

- The preliminary evaluation indicates the project may be categorically exempt from the California Environmental Quality Act (CEQA) or it may require preparation of a mitigated negative declaration (MND); some additional assessment is underway to make the determination. If an MND is required, it may add a couple of months to the schedule

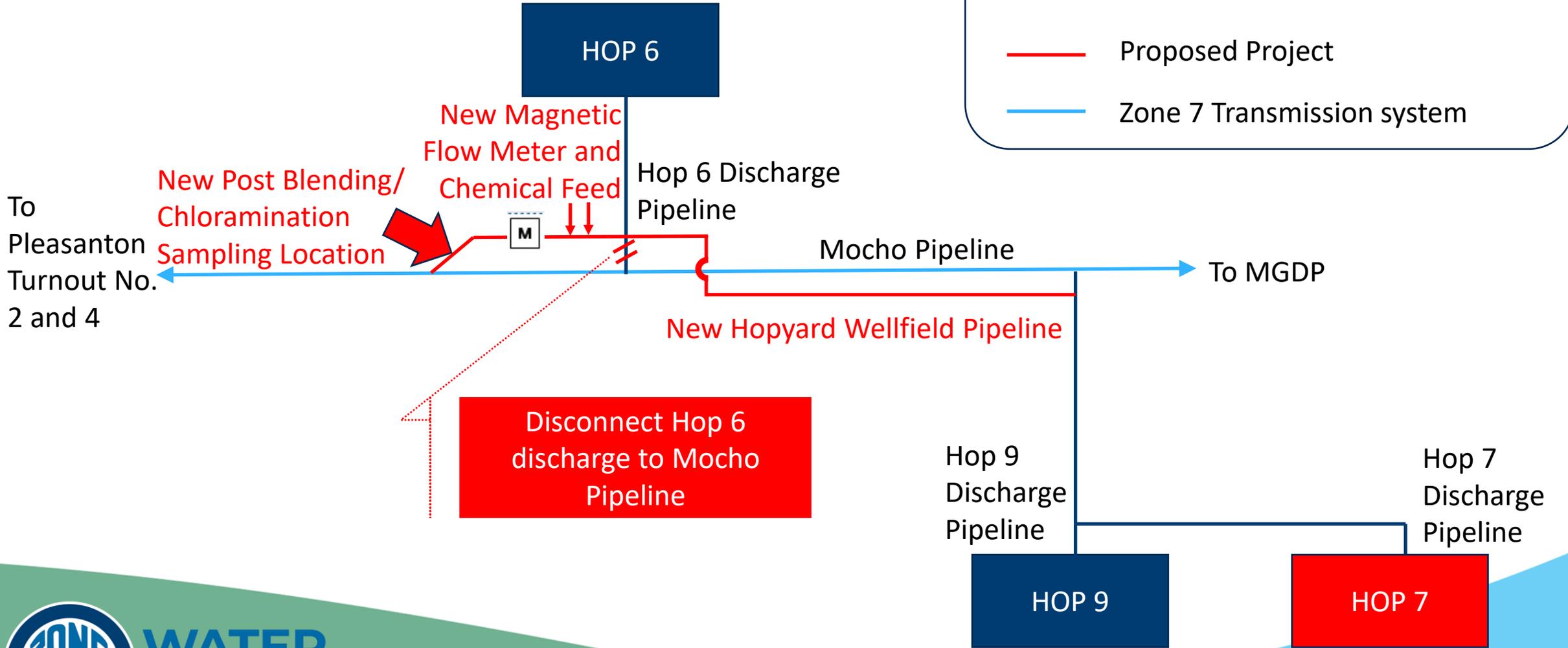
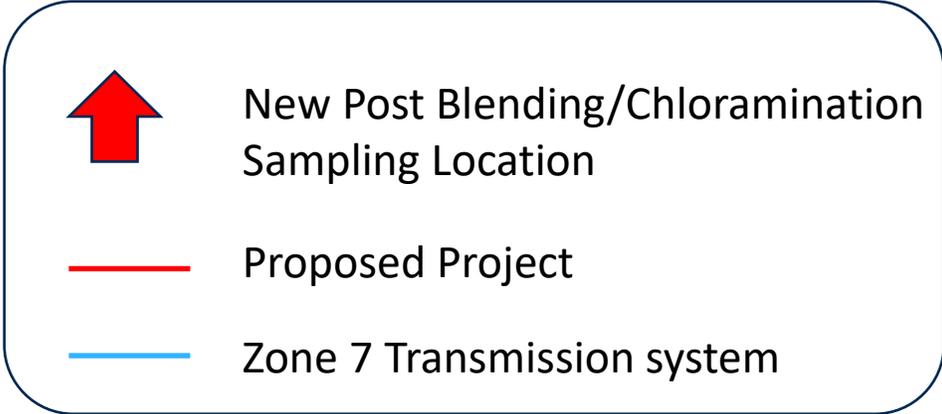
because construction will not proceed prior to completion of the MND, which is typically a 3–4-month process including required public review.

Water Supply for 2022

- Completion of this project would provide additional 1 to 1.5 MGD groundwater production capacity to supplement our existing groundwater capacity of approximately 40 MGD. Should the drought continue, which would increase the potential for low or no SWP allocation or surface water delivery disruption through Delta, this additional groundwater production capacity would help meet demand starting in the summer of 2022. Increasing the reliability of Zone 7's groundwater system is critical particularly during drought conditions, when minimal surface water is available. Furthermore, increasing Zone 7's ability to access portions of the groundwater basin with higher groundwater storage levels will prevent Zone 7 from hitting historic lows or accessing emergency storage.

ATTACHMENTS:

1. Hopyard Wellfield Schematic
2. Hopyard Wellfield Location Map



Hopyard Well No. 7 Facilities and Hopyard Wellfield Pipeline Project Location Map

