SIERRA PARK WATER COMPANY

Project Facts: Water Main Replacement

1. Why does the water main line need to be replaced?

- *Condition and hydraulic limitations of the existing infrastructure:* The main line and service lines are approaching 50 years of age and were constructed using materials suited for lower pressures (40-60 pounds per square inch or psi) than what the system operates under (up to 100 psi). At 4-inches in diameter, the mainline is also limited in how much water can be delivered.

- *Reliability and Operability:* To support long-term reliability of the system and to provide adequate fire flows throughout the service area, the mainline and hydrants need to be replaced and upgraded throughout the service area.

2. What are fire flow requirements and who determines them?

State law (SB 522) requires that no later than January 1, 2032, the water system must have source system capacity, treatment system capacity if necessary, and distribution system capacity to meet fire flow requirements (Water Code §10609.62).

The local fire authority, in this case Tuolumne County, has jurisdiction over fire flow requirements for the system. While state regulations establish general expectations for water systems, the applicable fire flow requirements and whether upgrades are required are determined and enforced at the local level by the fire authority. Tuolumne County Fire Department, the local fire authority, is not requiring system-wide upgrades to meet current fire flow standards.

This is consistent with correspondence that informed the 2016 Water System Condition Assessment Report, which identified limitations relative to typical fire flow criteria. The reported noted:

> *"As discussed in Section 1, the water distribution system consists mainly of 4-inch diameter water pipelines with 2-1/2-inch diameter hydrants. Typically, a minimum of 6-inch diameter water mains and standard hydrants are required in order to supply the required fire flow of 1,000 gpm out of a single hydrant while maintaining a minimum pressure of 20 psi throughout the system, per the 2013 California Fire Code Section B105.1. In 2014, a fire flow test was conducted by County of Tuolumne Fire Prevention staff. The fire flow test was conducted at two hydrants, one at the highest elevation in the system on Rebekah Road and one at the lowest elevation in the system on Jordan Way West. Results of the fire flow test showed that the maximum flow rate available at Jordan Way West while maintaining 20 psi at the hydrant is 455 gpm. There was insufficient pressure at the Rebekah Road hydrant to determine the maximum flow rate available at 20 psi at the hydrant. Excessive head loss through the 4-inch diameter water pipelines will contribute to reduced flow and pressure at hydrants throughout the system. Insufficient fire flows put the community at risk during the event of a fire*

emergency. In order to achieve the required fire flow, a minimum of 6-inch diameter pipe and standard fire hydrants are needed. Per SPWC staff, there are approximately three isolation valves on the eastern side of the system that are inoperable. Additionally, there are three hydrants that need replacement due to limited accessibility."

Sierra Park Water Company will confer with the California State Water Resources Control Board Division of Drinking Water to gain a better understanding of how SB 552 applies to this water system. Follow-up will also be made with the Tuolumne County Fire Department to receive clarification and updated information about applicable requirements.

3. What other benefits will the project have?

While the existing water system includes some looped segments, portions of the system still function with limited interconnection, reducing overall operational flexibility. Adding pipeline looping to a water distribution system significantly improves reliability, redundancy, and performance. By interconnecting pipelines, water can reach customers from multiple directions instead of relying on a single path.

Expanding looping in the system allows operators to isolate breaks or perform maintenance without shutting off large portions of the system, maintaining service to most users. It also provides redundancy, so if one pipeline fails, water can still be delivered through alternate routes, an important benefit for aging infrastructure.

Looping improves pressure and flow distribution, reducing head loss and helps maintain more consistent service levels, particularly in areas currently served by long or undersized pipelines. It can also enhance fire flow availability by providing multiple supply paths.

Overall, additional looping increases system flexibility, reduces service disruptions, and strengthens long-term reliability and resilience, even when upgrades are not mandated. (See the Phase 2 diagram on the last page of this fact sheet.)

4. Will it be replaced all at once?

The project will be built when funds are available and will most likely be constructed in phases. The first phase would begin at Tank 210, located in the southeastern part of the service area. This is the primary storage tank that delivers water into the high pressure looped system into and around the service area. Beginning the work at this location is the most direct way to improve water delivery into the system and to the customers. The project would install a new 8-inch pipe at the outlet of Tank 210 and extend down the unpaved access road toward the residential street of Isaac and then in a

northerly direction along Abraham. This route was chosen to work toward the center and then to the west side of the service area to reach the greatest number of service connections and hydrants.

5. How will work affect the roads?

Construction will involve excavation of a trench to install a new main line. The existing line would be abandoned in place. Most of the excavation for the new main line would be within the existing paved roads. Specifications would backfill and patch over the trench. The Water Company will work with the Odd Fellows Sierra Recreation Area to coordinate road maintenance work in a manner that is the most effective and efficient approach.

6. How much will the project cost and how will it be funded?

Grant funding from the State Department of Water Resources paid for the design of the first phase of the project to replace about one mile of main line and produced a set of plans that were advertised for construction. Seven bids were received; however, insufficient funding was available to award a construction contract of approximately $1.25 million.

The Water Company will seek additional sources of funding to complete this project, which will require additional planning/design and construction funding for the main line that extends approximately five miles in total throughout the service area.

7. What comes next?

Sierra Park Water Company will work with the DWR and Tuolumne County Fire to clarify the regulatory requirements specific to this system and will explore opportunities to pursue additional funding through grants or low-interest loans to complete the main line replacement.

8. Where can I find a copy of the 2016 Condition Assessment Report?

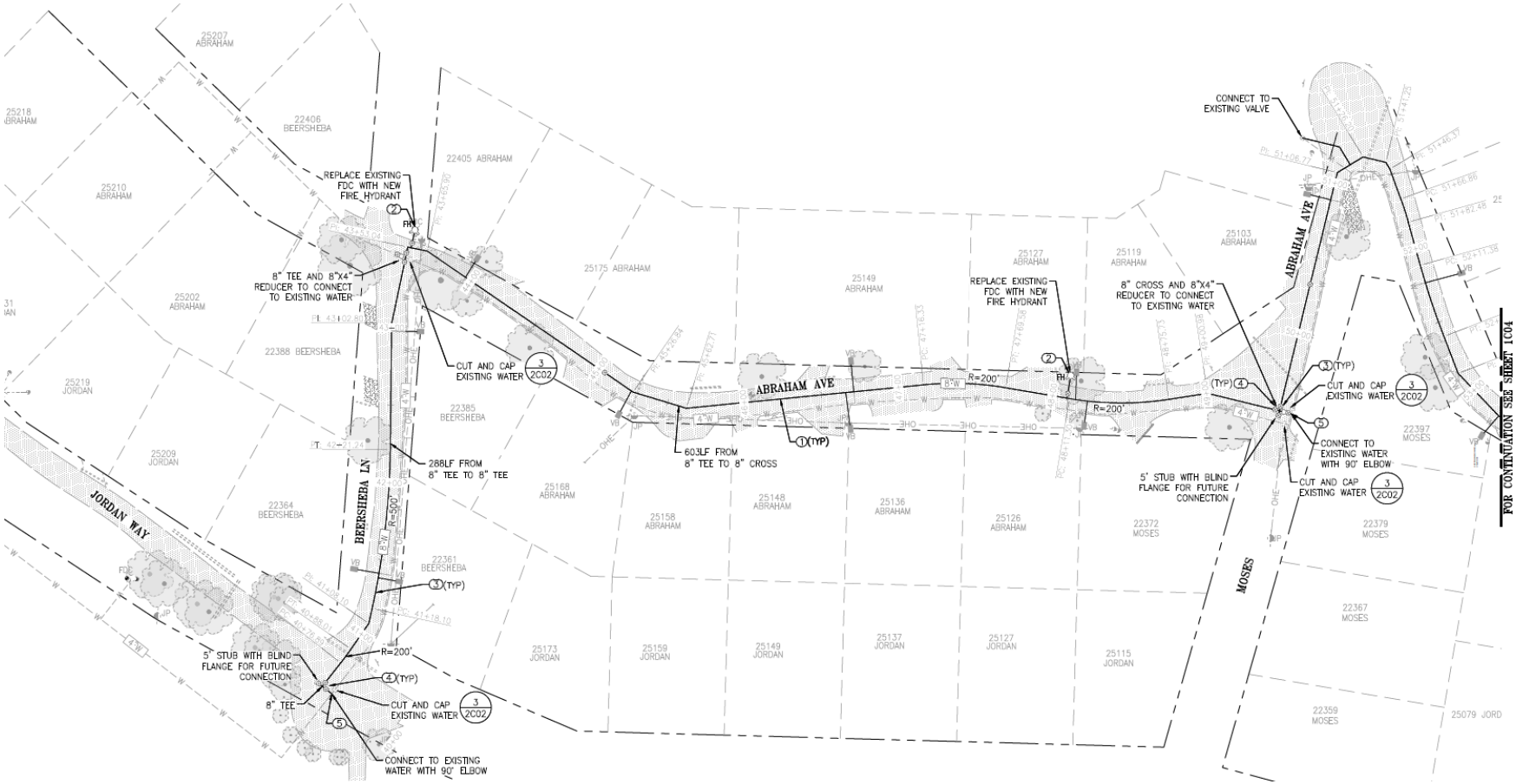
The report prepared for Sierra Park Water Company by Black Water Consulting Engineers is available on the website by following this link: Condition-Assessment-Report-Final

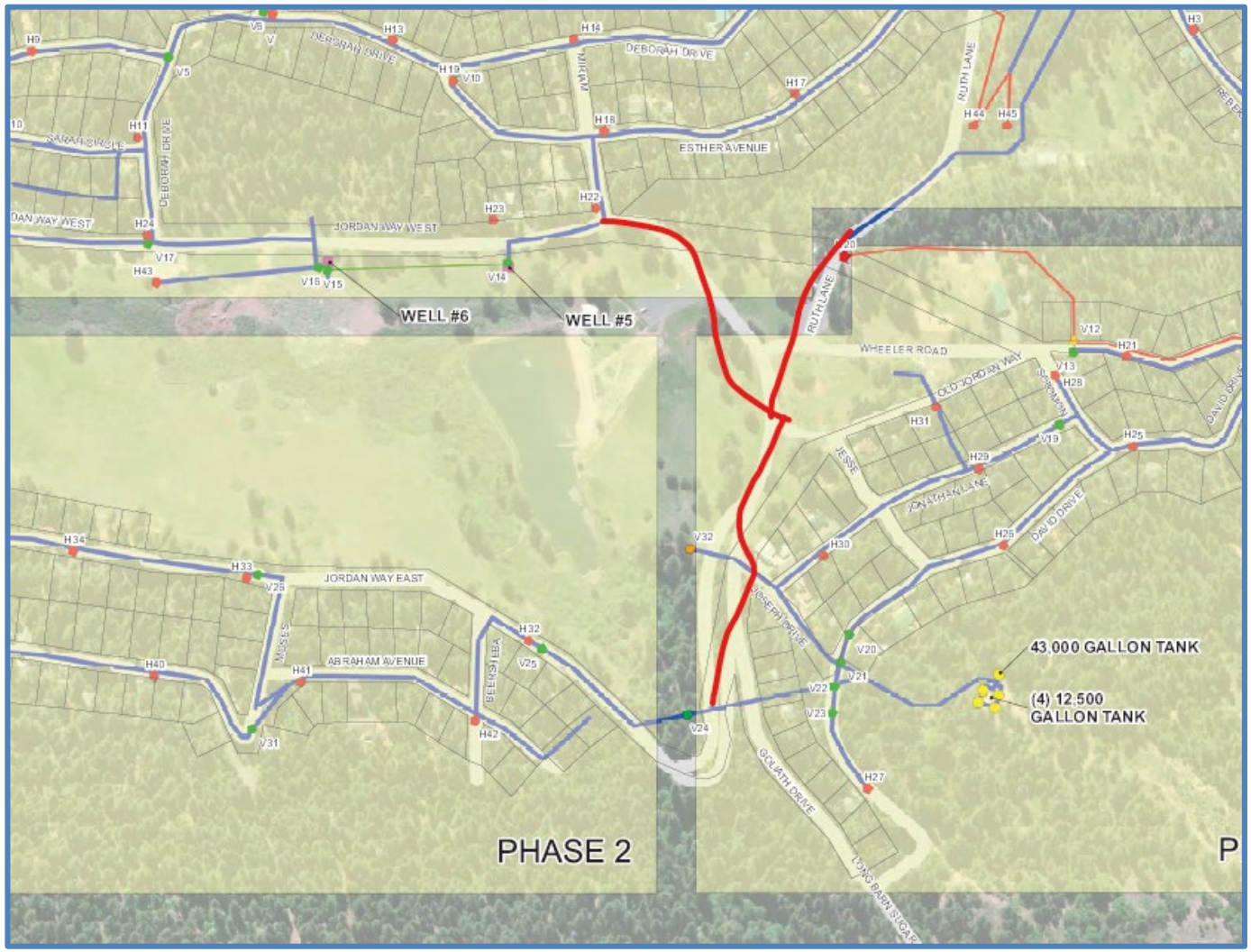
Please direct any other questions to Sierra Park Water Company by email to Hello@Sierraparkwater.com or call (209) 533-7998.

CALIFORNIA DEPARTMENT OF WATER RESOURCES

SIERRA PARK WATER COMPANY

Phase 1 of the mainline replacement would begin at the site of Tank 210 at the end of Isaac Street and extend to Old Jordan Way via Abraham and Beersheba and excludes the creek crossing. The image below shows a portion of the project from the construction plans.



SIERRA PARK
WATER COMPANY

A second phase of the project proposes additional looping, depicted by the redlines below, for greater resilience of the water system.