Attachment 4. Project Description

Background

The City of Folsom (City) is currently entirely dependent on its American River surface water supply. This resource is subject to dry year water supply reductions under the Water Forum Agreement, which may result in future water shortages. In January 2004, the City submitted a grant application to the Department of Water Resources (DWR) for Groundwater Resources Study to investigate options to improve water supply reliability by using groundwater. The City received AB303 Local Groundwater Assistance Fund Grant No. 4600003650 for $250,000 on November 9, 2004. The findings of this investigation were documented in the City of Folsom *Groundwater Resources Study Final Report* (Study), dated July 2006 (2006 Study).

The main objective of the 2006 Study was to investigate the potential availability of a groundwater resource for dry year groundwater supply and/or groundwater banking within the City. Significant progress was made in investigating the City's groundwater resource potential, in contrast to previous efforts in 1991 in which two test wells yielded minor amounts of water.

The 2006 Study used surface geophysical methods to identify potential drilling locations, installed two test wells (East Natoma Well and Glenn Drive Well) and performed short-term (less than 24 hours) aquifer testing. Both wells installed are located in areas with low electrical resistivity in ancestral paleochannels of the South Fork of the American River and are located on opposite sides of the City. The two wells yielded between 250 and 400 gpm however, additional aquifer testing would be necessary to confirm the sustainability of the yields.

Several recommendations were made as a result of 2006 Study including:

- Immediate benefit could be derived by augmenting the groundwater supply of the Empire Ranch Golf Course by using additional groundwater wells during dry periods. It is recommended that the City and golf course evaluate the feasibility of using East Natoma well or drilling a new well to reduce peak summer and annual demands on the City's potable water supply.
- The electrical resistivity survey indicated other potential drill sites where the City can explore for additional groundwater supplies. The City can continue to expand its understanding of groundwater resources in the western portion of the City and explore other areas for groundwater resource potential by future electrical resistivity or other geophysical surveys.
- Continued water level monitoring is recommended to document seasonal, annual, and long-term water level fluctuations, so that the suitability of the aquifer as a drought supply and the potential for groundwater banking can be more fully assessed. Monitoring for incorporation into the Sacramento Groundwater Authority (SGA) data management system is recommended to improve the understanding of the basin and groundwater management.

The purpose of this proposed study is to implement the recommendations of the 2006 report and expand the understanding and available data for the groundwater resource located in northeastern Folsom, along Willow and Humbug Creeks.

Project Description

This proposed Supplemental Groundwater Resources Study (2013 Study) is intended to expand the City of Folsom understanding of the groundwater resource and document it's viability to provide economic amounts of groundwater to supplement treated surface water during the dry season. The

proposed study focuses on the groundwater resource located along Willow and Humbug Creeks. This study will consist of 3 primary components:

1. Conduct additional surface geophysical lines, specifically electrical resistivity (ER), to aid in defining potential additional test well locations. The location for the proposed ER line is identified on Figure A5-1 in Attachment 5. A new test well will be located using the findings of the geophysical survey.
2. Install new test well to further evaluate groundwater conditions south of the East Natoma Well. The location of the new test well is identified on Figure A5-1 in Attachment 5. The new test well will be installed on City property or within City rights-of-way.
3. Conduct aquifer testing on the new test well to determine aquifer properties and sustainable production rates.

The data collected from the 2013 Study will result in:

- Detailed ER data to determine the thickness and relative conductivity of the shallow alluvial system that will help determine well construction specifications. These data will be interpreted by a licensed geophysicist to provide the highest resolution possible;
- Aquifer parameters required to evaluate an economical and sustainable supplemental non-potable groundwater supply for the City;
- Detailed and improved understanding of the upper reaches of Willow and Humbug Creek hydrogeology;

The well will be constructed appropriately to provide adequate aquifer testing necessary to further evaluate the economic feasibility of a groundwater supply.

The methods used to install the test well, perform the aquifer tests, and collect data are consistent with those used for the 2006 data, and with methods used in other studies and groundwater activities conducted by the SGA and SCGA. These data will be compiled and interpreted by a licensed California Hydrogeologist to evaluate the state of groundwater flow and the ability of the aquifer to meet the demands of dry season pumping for the City of Folsom. The aquifer testing data will include monitoring of background water level data prior to the test, drawdown data during the test, and recovery data following the completion of the test. These data will be collected with a pressure transducer and datalogger capable of measuring water level to the nearest 1/100 of a foot or greaterThe data will be analyzed using the appropriate methodology for aquifer test analysis dependant upon the observed drawdown conditions.

The project will be made available to the public and associated stakeholder through the development of a project website to be hosted by the City of Folsom Utilities Department. The website will allow for public access to quarterly reports produced during implementation of the project as well as other project documentation such as California Environmental Quality Act (CEQA) documentation, work plans, permits, project data, previous study results and current study results.

A technical advisory committee (TAC) will be developed to guide and provide technical comment to the project. The committee will consist of representatives of DWR, representatives of the SGA, SCGA and other state and/or federal agencies. The technical committee will serve to assure the project remains on task and is performing in a manner consistent with this application and for the betterment of understanding of the aquifer and beneficial use of water of the state.

Relevance to GWPs

The results that this project will produce will support many goals and objectives of both the SGA and SCGA GMPs by greatly improving the understanding of Folsom's groundwater resource. Key GMP areas that will be supported include:

- Improving understanding of the Folsom area groundwater conditions to better assess if there is a viable groundwater resource that could provide for beneficial uses in the study area;
- Establishing specific minimum groundwater elevations within the study area consistent with the Water Forum solution;
- Helping evaluate groundwater as a viable alternative to surface water use in dry years that could reduce demand on surface water and help preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River, and to help protect against adverse impacts to surface water flows;
- Adding important data monitoring locations to the regional monitoring network that is critical to understanding and maintaining regional groundwater and improving sustainable use of the regional groundwater basin; and
- Providing opportunities for key stakeholders and public to review the new data and provide input into the project as part of larger efforts to educate and collaborate on regional groundwater issues.

Future Work

The results from this investigation will provide the necessary aquifer data required to evaluate the economic feasibility of augmenting the City's current use of using treated surface water with non-potable sources. If the City determines groundwater is an economically feasible water supply option, the City has budgeted funds in their Capital Improvement Plan using development fees, to design and construct a pipeline from the test well area to the recycled water pipeline (purple pipe). As part of the groundwater supply project, the remaining test wells will be monitored for water level elevations twice a year. It is anticipated the wells will be added to the SGA CASGEM program.

The City will continue to evaluate non-potable uses in the western portion of the City in order to utilize the Glenn Street well (installed in Phase I) as City funds become available.