

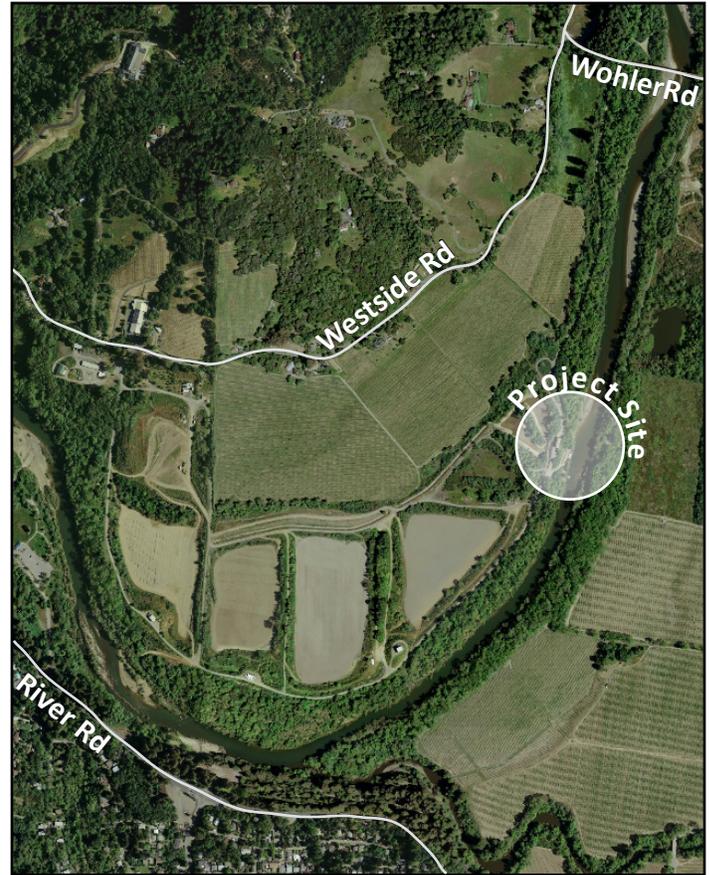
Mirabel Seismic and Fish Passage Improvement Project

Sonoma County Water Agency | December 2013

PROBLEMS:

The Sonoma County Water Agency's Russian River diversion at Mirabel is critical in providing high quality drinking water to over 600,000 people in Sonoma and northern Marin Counties. One component of the diversion is an inflatable dam, which serves to increase the production capacity of the Water Agency's collector wells during peak demand months. Fish screening facilities ensure the safety of the fish in the river and permanent fish ladders provide fish passage when the dam is raised. Recent studies revealed two problems at the diversion facility:

- A study of the Russian River Diversion Structure, RDS (a pump house and intake piping), found that it is vulnerable during earthquakes.
- The Russian River Biological Opinion found that the diversion's fish screen can harm small fish, including young endangered coho and threatened steelhead and Chinook. In order to comply with the Biological Opinion and continue operating its system, the Water Agency must install a new, compliant fish screen.



SOLUTION – SEISMIC IMPROVEMENTS:

The first phase of the project will begin in January 2014 and will take approximately two months. Seismic improvements will be made on approximately a half-acre of land that includes the river bank and embankment at the RDS. The purpose of the seismic work is to prevent a key component of our community water supply facility from becoming inoperable during and following an earthquake.

Phase One involves the construction of vibratory stone columns, which will be made by using a vibrating machine to create uniform grid pattern holes into the river bank. A crane will be used to suspend the vibrating machine which will be lowered into the soil under its own weight. The column holes will range from 30 feet to 90 feet deep and will be filled with rock. The columns will densify the soils, reducing the risks of liquefaction and lateral spread during an earthquake.



Indicated area shows approximate location of stone columns

SOLUTION – NEW FISH SCREEN/LADDER:

The second phase of the project will begin in late spring 2014 and will continue through the summer and fall. Construction will resume in Spring 2015 and will be completed in Fall 2015.

Phase Two will involve replacing the current fish screen with a new, compliant screen. The Water Agency will also replace a fish ladder that allows fish to migrate upstream around an inflatable dam. The new ladder will help the screen operate successfully while improving passage for migrating fish. The ladder will include a viewing gallery, which will allow the 3,500 school children who currently visit the site annually to see migrating fish.



Rendering of renovated fish screen, ladder and viewing area

IMPACTS OF THE PROJECT:

In order to install the fish screen and ladder, the river will have to be diverted away from the construction site. A temporary dam (known as a coffer dam) will be installed upstream of Wohler Bridge to backwater collector wells 1, 2, and 6 (this is necessary since the inflatable dam won't be in use). Portage will be on the west side of the river. (Note: Installing the coffer dam upstream of Wohler Bridge will allow Sonoma County Public Works to complete the seismic upgrade of the Wohler Bridge during Summer 2014.) In Fall 2013, vegetation was cleared along the river banks in the general area where the coffer dam will be located to provide access to survey crews.

The RDS is located on a river embankment, about 1/3 of a mile from Westside Road. The project will temporarily increase traffic on Westside Road. Traffic control will be implemented by the construction contractor if necessary to allow the passage of construction vehicles and the delivery of materials to the site. Heavy equipment, including a crane, will drive to the site from the southern end of Westside Road, avoiding Wohler Bridge. Project construction will result in temporary noise during the construction period; however it will not represent a significant new source of noise in the project area.

PROJECT TIMELINE:

Fall 2013	Phase One, Seismic Upgrade, goes out to bid
January 2014	Phase One construction begins
Spring 2014	Phase One construction complete
Late Spring 2014	Site preparation for Phase Two, fish ladder, fish screen and viewing gallery begin Coffer dam and temporary fish ladder installed upstream of Wohler Bridge
Summer 2014	Construction of Phase Two underway
Fall 2014	Site prepared for winter; coffer dam removed
Late Spring 2015	Phase Two work resumes
Fall 2015	Phase Two complete

